

HOW TO USE THIS MANUAL

A Few Words About Safety

Service Information

The service and repair information contained in this manual is intended for use by qualified, professional technicians. Attempting service or repairs without the proper training, tools, and equipment could cause injury to you or others. It could also damage the vehicle or create an unsafe condition.

This manual describes the proper methods and procedures for performing service, maintenance and repairs. Some procedures require the use of specially designed tools and dedicated equipment. Any person who intends to use a replacement part, service procedure or a tool that is not recommended by Honda, must determine the risks to their personal safety and the safe operation of the vehicle.

If you need to replace a part, use genuine Honda parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

For Your Customer's Safety

Proper service and maintenance are essential to the customer's safety and the reliability of the vehicle. Any error or oversight while servicing a vehicle can result in faulty operation, damage to the vehicle, or injury to others.

⚠ WARNING

Improper service or repairs can create an unsafe condition that can cause your customer or others to be seriously hurt or killed.

Follow the procedures and precautions in this manual and other service materials carefully.

For Your Safety

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts—wear gloves). If you have not received shop safety training or do not feel confident about your knowledge of safe servicing practice, we recommend that you do not attempt to perform the procedures described in this manual.

Some of the most important general service safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing service and repair procedures. Only you can decide whether or not you should perform a given task.

⚠ WARNING

Failure to properly follow instructions and precautions can cause you to be seriously hurt or killed.

Follow the procedures and precautions in this manual carefully.

Important Safety Precautions

Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing and using safety equipment. When performing any service task, be especially careful of the following:

- Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.
- Protect your eyes by using proper safety glasses, goggles or face shields any time you hammer, drill, grind, pry or work around pressurized air or liquids, and springs or other stored-energy components. If there is any doubt, put on eye protection.
- Use other protective wear when necessary, for example gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts. Before you grab something that looks like it can hurt you, stop and put on gloves.
- Protect yourself and others whenever you have the vehicle up in the air. Any time you lift the vehicle, either with a hoist or a jack, make sure that it is always securely supported. Use jack stands.

Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:

- Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine
- Burns from hot parts or coolant. Let the engine and exhaust system cool before working in those areas.
- Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers and clothing are out of the way.

Gasoline vapors and hydrogen gases from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.

- Use only a nonflammable solvent, not gasoline, to clean parts.
- Never drain or store gasoline in an open container.
- Keep all cigarettes, sparks and flames away from the battery and all fuel-related parts.

How To Use This Manual

This manual describes the service procedures for the NC700X/XA/XD/S/SA/SD-C.

Sections 1, 2 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections.

Section 4 through 23 describe parts of the motorcycle, grouped according to location.

If you are not familiar with this motorcycle, read Technical Feature in Section 1.

Follow the Maintenance Schedule recommendations to ensure that the motorcycle is in peak operating condition.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Find the section you want on this page, then turn to the table of contents on the first page of the section.


Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedure.

Refer to the troubleshooting in each section according to the malfunction or symptom. In case of an engine trouble, refer to PGM-FI section troubleshooting first.

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle.

You must use your own good judgement.

You will find important safety information in a variety of forms including:

- Safety Labels – on the vehicle
- Safety Messages – preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

 DANGER You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

 WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

 CAUTION You CAN be HURT if you don't follow instructions.

- Instructions – how to service this vehicle correctly and safely.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

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SYMBOLS

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use the recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1).
	Use multi-purpose grease (lithium based multi-purpose grease NLGI #2 or equivalent).
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: <ul style="list-style-type: none">• Molykote® BR-2 plus manufactured by Dow Corning U.S.A.• Multi-purpose M-2 manufactured by Mitsubishi Oil, Japan
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent). Example: <ul style="list-style-type: none">• Molykote® G-n Paste manufactured by Dow Corning U.S.A.• Honda Moly 60 (U.S.A. only)• Rocol ASP manufactured by Rocol Limited, U.K.• Rocol Paste manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply locking agent. Use a medium strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use fork or suspension fluid.

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MEMO

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GENERAL INFORMATION

SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that don't meet Honda's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the motorcycle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque diagonally in incremental steps unless a particular sequence is specified.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as show in the Cable and Harness Routing (page 1-25).
9. Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

ABBREVIATION

Throughout this manual, the following abbreviations are used to identify the respective parts or systems.

Abbrev. term	Full term
ABS (NC700XA/XD/SA/SD)	Anti-lock Brake System
CKP sensor	Crankshaft Position sensor
DCT (NC700XD/SD)	Dual Clutch Transmission
DLC	Data Link Connector
DTC	Diagnostic Trouble Code
ECM (NC700X/XA/S/SA)	Engine Control Module
ECT sensor	Engine Coolant Temperature sensor
EEPROM	Electrically Erasable Programmable Read Only Memory
EOP sensor (NC700XD/SD)	Engine Oil Pressure sensor
EOP switch	Engine Oil Pressure switch
EOT sensor (NC700XD/SD)	Engine Oil Temperature sensor
HDS	Honda Diagnostic System
HISS	Honda Ignition Security System
IACV	Idle Air Control Valve
IAT sensor	Intake Air Temperature sensor
MAP sensor	Manifold Absolute Pressure sensor
MIL	Malfunction Indicator Lamp
O ₂ sensor	Oxygen sensor
PCM (NC700XD/SD)	Power Control Module
PCV	Proportional Control Valve
PGM-FI	Programmed Fuel Injection
SCS connector	Service Check Short connector
TP sensor	Throttle Position sensor
TR sensor (NC700XD/SD)	Transmission Range Sensor
VS sensor	Vehicle Speed sensor

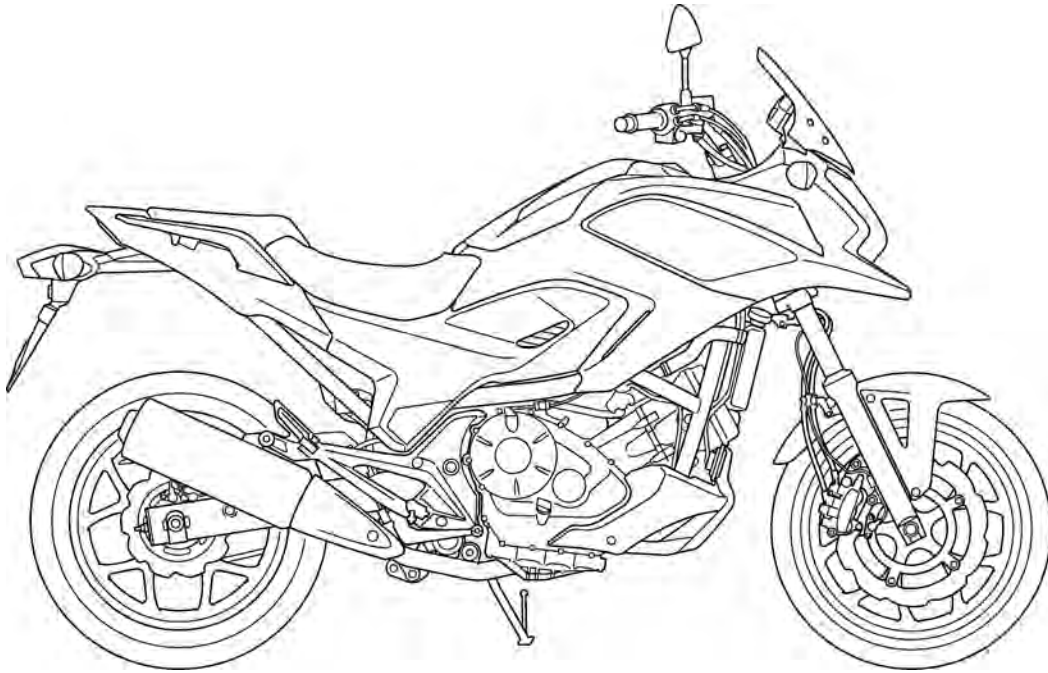
DESTINATION CODE

Throughout this manual, the following codes are used to identify individual types for each region.

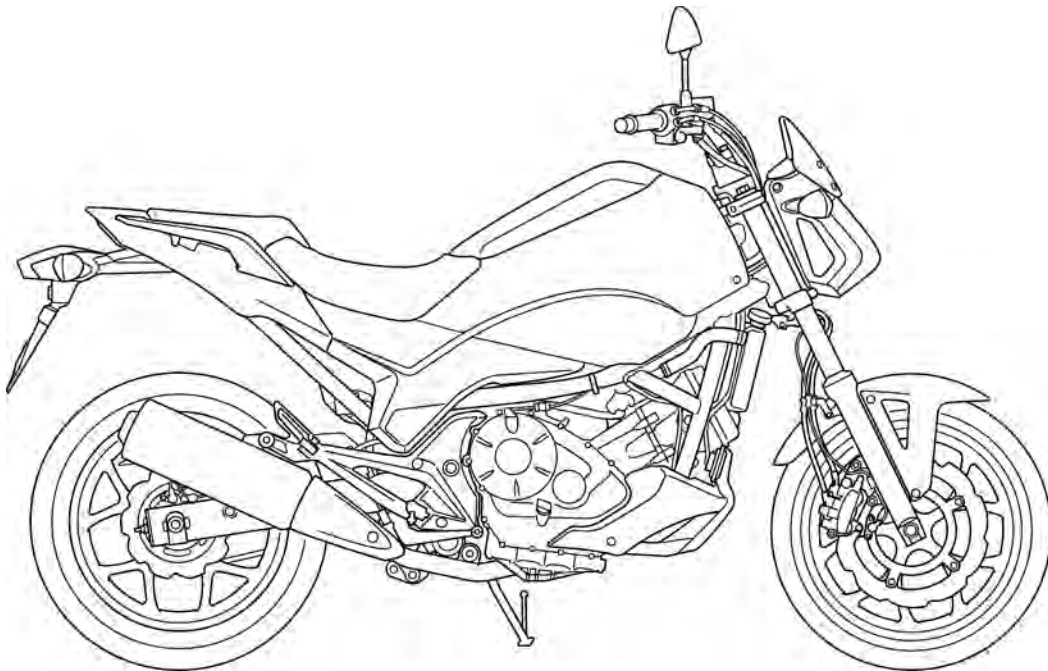
DESTINATION CODE	REGION
E	U.K.
III E	U.K. type III
ED	EUROPEAN DIRECT SALES
II ED	EUROPEAN DIRECT SALES type II
F	France
II F	France type II
KO	Korea
RU	Russia
U	Australia, New Zealand

MODEL IDENTIFICATION

NC700XA shown:



NC700SA shown:



This manual covers following types of NC700 models:

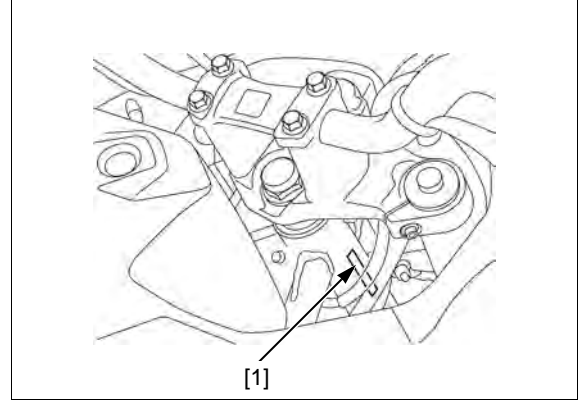
TYPE	NC700X			NC700S		
	NC700X	NC700XA	NC700XD	NC700S	NC700SA	NC700SD
Standard brake	○	—	—	○	—	—
ABS	—	○	○	—	○	○
DCT	—	—	○	—	—	○

Be sure to refer to the procedure for the appropriate version of the NC700.

GENERAL INFORMATION

SERIAL NUMBERS

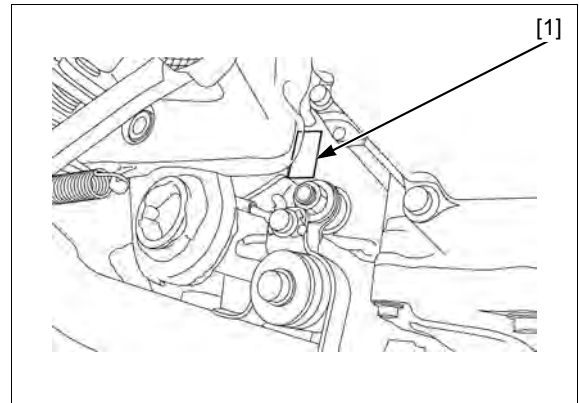
The Vehicle Identification Number (V.I.N) [1] is stamped on the right side of the steering head.



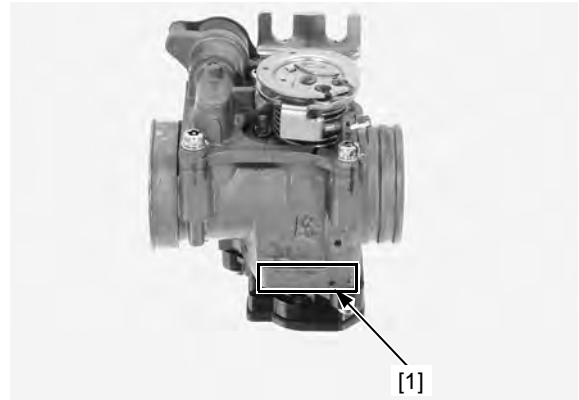
The registered number plate (E, F, ED, RU types) [1] and compliance plate (U type only) is attached on the left side of the steering head.



The engine serial number [1] is stamped on the lower right side of the crankcase.

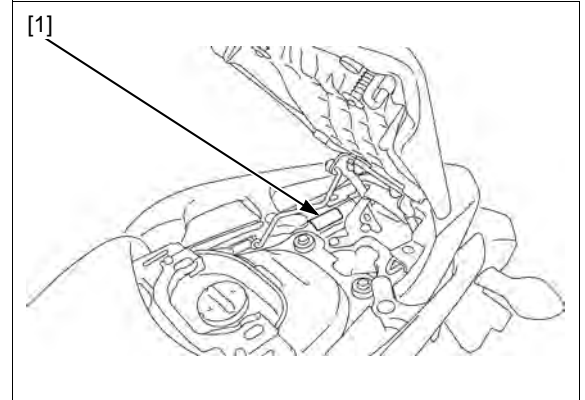


The throttle body identification number [1] is stamped on the lower left side of the throttle body as shown.

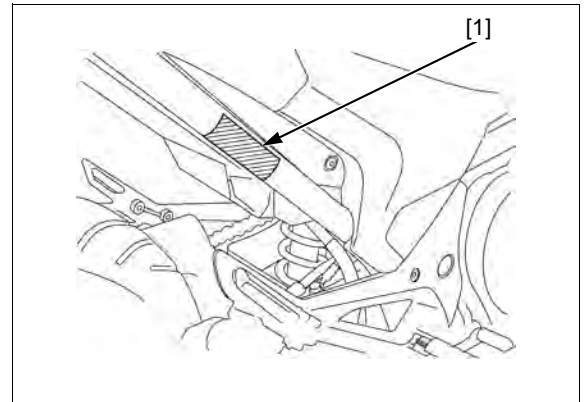


LABELS

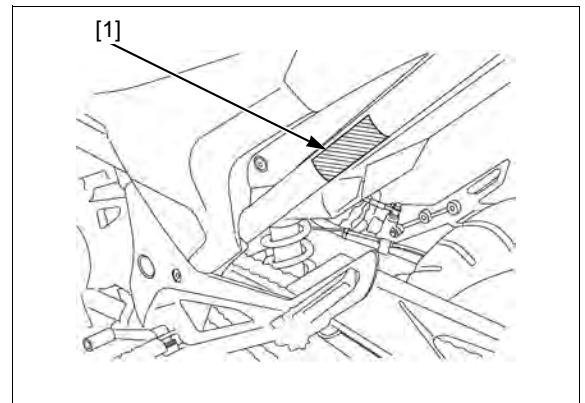
The color label [1] is attached on the right side of the rear frame. When ordering color-coded parts, always specify the designated color code.



The Safety Certification Label (KO type) [1] is located on the left side of the rear frame.



The Emission Control Information Label (KO type) [2] is located on the left side of the rear frame.



GENERAL INFORMATION

SPECIFICATIONS

GENERAL SPECIFICATIONS

		ITEM	SPECIFICATIONS	
DIMENSIONS	Overall length	NC700X/XA/XD NC700S/SA/SD	2,210 mm (87.0 in) 2,195 mm (86.4 in)	
	Overall width	E, ED, F, RU, U type KO type	NC700X/XA/XD 830 mm (32.7 in) NC700S/SA/SD 760 mm (29.9 in) NC700XA 825 mm (32.5 in)	
	Overall height	NC700X/XA/XD NC700S/SA/SD	1,285 mm (50.6 in) 1,130 mm (44.5 in)	
	Wheelbase	NC700X/XA/XD NC700S/SA/SD	1,540 mm (60.6 in) 1,525 mm (60.0 in)	
	Seat height	NC700X/XA/XD NC700S/SA/SD	830 mm (32.7 in) 790 mm (31.1 in)	
	Footpeg height	NC700X/XA/XD NC700S/SA/SD	341 mm (13.4 in) 310 mm (12.2 in)	
	Ground clearance	NC700X/XA/XD NC700S/SA/SD	165 mm (6.5 in) 140 mm (5.5 in)	
	Curb weight	E, ED, F, RU, U type KO type	NC700X 214 kg (472 lbs) NC700XA 218 kg (481 lbs) NC700XD 228 kg (503 lbs) NC700S 211 kg (465 lbs) NC700SA 215 kg (474 lbs) NC700SD 225 kg (496 lbs) NC700XA 220 kg (485 lbs)	
	Maximum weight capacity	E, ED, F, RU, U type KO type	209 kg (461 lbs) 189 kg (417 lbs)	
	FRAME	Frame type		Diamond
		Front suspension		Telescopic fork
		Front axle travel	NC700X/XA/XD NC700S/SA/SD	137 mm (5.4 in) 107 mm (4.2 in)
		Rear suspension		Swingarm
Rear axle travel		NC700X/XA/XD NC700S/SA/SD	150 mm (5.9 in) 120 mm (4.7 in)	
Front tire size			120/70ZR17M/C (58W)	
Rear tire size			160/60ZR17M/C (69W)	
Front tire brand		BRIDGESTONE METZELER	BT023F G ROADTEC Z8 INTERACT E	
Rear tire brand		BRIDGESTONE METZELER	BT023R G ROADTEC Z8 INTERACT	
Front brake			Hydraulic single disc	
Rear brake			Hydraulic single disc	
Caster angle			27°	
Trail length			110 mm (4.3 in)	
Fuel tank capacity		14.1 liters (3.73 US gal, 3.1 Imp gal)		

GENERAL INFORMATION

ITEM		SPECIFICATIONS	
ENGINE	Cylinder arrangement	2 cylinders in-line, slant angle 55°	
	Bore and stroke	73.0 x 80.0 mm (2.87 x 3.15 in)	
	Displacement	670 cm ³ (40.9 cu-in)	
	Compression ratio	10.7:1	
	Valve train	Chain driven, OHC with rocker arm	
	Intake valve	opens at 1 mm (0.04 in) lift No.1: - 20° BTDC No.2: - 25° BTDC	
		closes at 1 mm (0.04 in) lift	
	Exhaust valve	opens at 1 mm (0.04 in) lift 27° ABDC 30° BBDC	
		closes at 1 mm (0.04 in) lift No.1: - 15° ATDC No.2: - 20° ATDC	
	Lubrication system	Forced pressure and wet sump	
Oil pump type	Trochoid		
Cooling system	Liquid cooled		
Air filtration	Paper element		
Engine dry weight	NC700X/XA/S/SA 60.5 kg (133.4 lbs) NC700XD/SD 67.3 kg (148.4 lbs)		
Firing order	1 - 2		
FUEL DELIVERY SYSTEM	Type	PGM-FI (Programmed Fuel Injection)	
	Throttle bore	36 mm (1.4 in)	
DRIVE TRAIN	Clutch system	NC700X/XA/S/SA NC700XD/SD Multi-plate, wet 2 Multi-plate wet clutches	
	Clutch operation system	NC700X/XA/S/SA NC700XD/SD Cable operating Automatic	
	Transmission	Constant mesh, 6-speeds	
	Primary reduction	NC700X/XA/S/SA 1.731 (71/41) NC700XD/SD 1.921 (73/38)	
	Final reduction	NC700X/XA/S/SA 2.687 (43/16) NC700XD/SD 2.437 (39/16)	
	Gear ratio	NC700X/XA/S/SA 1st 2.812 (45/16) 2nd 1.894 (36/19) 3rd 1.454 (32/22) 4th 1.200 (30/25) 5th 1.033 (31/30) 6th 0.837 (31/37)	
		NC700XD/SD 1st 2.666 (40/15) 2nd 1.904 (40/21) 3rd 1.454 (32/22) 4th 1.200 (30/25) 5th 1.033 (31/30) 6th 0.837 (31/37)	
	Gearshift pattern	NC700X/XA/S/SA Left foot operated return system, 1 - N - 2 - 3 - 4 - 5 - 6	
		NC700XD/SD Automatic and electric shift (left hand operated) return system, N - 1 - 2 - 3 - 4 - 5 - 6	
	ELECTRICAL	Ignition system	Computer-controlled digital transistorized with electric advance
		Starting system	Electric starter motor
		Charging system	Triple phase output alternator
		Regulator/rectifier	FET shorted/triple phase full wave rectification
		Lighting system	Battery

GENERAL INFORMATION

PGM-FI SPECIFICATIONS

ITEM	SPECIFICATIONS
IAT sensor resistance (at 20°C/68°F)	2.2 – 2.7 kΩ
ECT sensor resistance (at 40°C/104°F)	1.0 – 1.3 kΩ
Injector resistance (at 20°C/68°F)	11 – 13 Ω

IGNITION SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Spark plug (Iridium)	IFR6G-11K (NGK)
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)
Ignition coil peak voltage	100 V minimum
CKP sensor peak voltage (at 20°C/68°F)	0.7 V minimum
Ignition timing ("F" mark)	12° BTDC at idle

ELECTRIC STARTER SPECIFICATION

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 – 13.0 (0.47 – 0.51)	6.5 (0.26)

Unit: mm (in)

FUEL SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Throttle body identification number	GQ3UA
Idle speed	1,200 ± 100 min ⁻¹ (rpm)
Throttle grip freeplay	2 – 6 mm (1/16 – 1/4 in)
Fuel pressure at idle	343 kPa (3.5 kgf/cm ² , 50 psi)
Fuel pump flow (at 12 V)	230 cm ³ (7.8 US oz, 8.1 Imp oz) minimum/10 seconds

COOLING SYSTEM SPECIFICATIONS

ITEM	SPECIFICATIONS	
Coolant capacity	Radiator and engine	1.69 liters (1.79 US qt, 1.49 Imp qt)
	At draining	1.41 liters (1.49 US qt, 1.24 Imp qt)
	Reserve tank	0.13 liter (0.14 US qt, 0.11 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm ² , 16 – 20 psi)
Thermostat	Begin to open	80 – 84°C (176 – 183°F)
	Fully open	95°C (203°F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
Standard coolant concentration		1:1 (mixture with distilled water)

LUBRICATION SYSTEM SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Engine oil capacity	NC700X/XA/S/SA	After draining	3.1 liters (3.3 US qt, 2.7 Imp qt)	–
		After draining/ filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)	–
		After disassembly	3.7 liters (3.9 US qt, 3.3 Imp qt)	–
	NC700XD/SD	After draining	3.2 liters (3.4 US qt, 2.8 Imp qt)	–
		After draining/ filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)	–
		After disassembly	4.1 liters (4.3 US qt, 3.6 Imp qt)	–
Recommended engine oil		Honda "4-stroke motorcycle oil" or an equivalent API service classification: SG or higher (except oils labeled as energy conserving on the circular API service label) Viscosity: SAE 10W-30 JASO T 903 standard: MA	–	
Oil pressure at engine oil filter		470 kPa (4.8 kgf/cm ² , 68 psi) at 5,000 min ⁻¹ (rpm)/(80°C/176°F)	–	
Oil pump rotor (NC700X/XA/S/SA)	Tip clearance	0.15 (0.006)	0.20 (0.008)	
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.35 (0.014)	
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.12 (0.005)	
Engine oil pump rotor (NC700XD/SD)	Tip clearance	0.15 (0.006)	0.20 (0.008)	
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.35 (0.014)	
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.12 (0.005)	
Clutch oil pump rotor (NC700XD/SD)	Tip clearance	0.15 (0.006)	–	
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	–	
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	–	

CYLINDER HEAD/VALVES SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Cylinder compression at 470 min ⁻¹ (rpm)		1,775 kPa (18.1 kgf/cm ² , 257 psi)	–	
Valve clearance	IN	0.17 ± 0.02 (0.007 ± 0.001)	–	
	EX	0.28 ± 0.02 (0.011 ± 0.001)	–	
Rocker arm, rocker arm shaft	Rocker arm I.D.	20.012 – 20.030 (0.7879 – 0.7886)	20.041 (0.7890)	
	Rocker arm shaft O.D.	19.972 – 19.993 (0.7863 – 0.7871)	19.961 (0.7859)	
	Rocker arm-to-shaft clearance	0.019 – 0.058 (0.0007 – 0.0023)	0.08 (0.003)	
Cam chain tensioner wedge B length		–	6.0 (0.24)	
Camshaft	Cam lobe height	IN	34.7897 – 35.0297 (1.36967 – 1.37912)	34.7697 (1.36888)
		EX	34.9227 – 35.1627 (1.37491 – 1.38436)	34.9027 (1.37412)
	Runout	–	0.04 (0.002)	
	Camshaft journal O.D.	41.935 – 41.950 (1.6510 – 1.6516)	41.927 (1.6507)	
Valve, valve guide	Valve stem O.D.	IN	4.975 – 4.990 (0.1959 – 0.1965)	4.965 (0.1955)
		EX	4.965 – 4.980 (0.1955 – 0.1961)	4.955 (0.1951)
	Valve guide I.D.	IN/EX	5.000 – 5.012 (0.1969 – 0.1973)	5.04 (0.198)
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	0.075 (0.0030)
		EX	0.020 – 0.047 (0.0008 – 0.0019)	0.085 (0.0033)
	Valve guide projection above cylinder head	IN	17.7 – 18.0 (0.70 – 0.71)	–
		EX	19.6 – 19.9 (0.77 – 0.78)	–
	Valve seat width	IN	0.90 – 1.10 (0.035 – 0.043)	1.5 (0.06)
EX		1.30 – 1.50 (0.051 – 0.059)	1.9 (0.07)	
Valve spring free length		49.07 (1.932)	48.1 (1.89)	
Cylinder head warpage		–	0.10 (0.004)	
Cylinder head camshaft journal I.D.		41.995 – 42.019 (1.6533 – 1.6543)	42.027 (1.6546)	
Cylinder head-to-camshaft clearance		0.045 – 0.084 (0.0018 – 0.0033)	0.10 (0.004)	

GENERAL INFORMATION

CLUTCH/GEARSHIFT LINKAGE SPECIFICATIONS (NC700X/XA/S/SA)

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever freeplay		10 – 20 (3/8 – 13/16)	–
Clutch	Spring free length	43.2 (1.70)	41.7 (1.64)
	Disc thickness	2.62 – 2.78 (0.103 – 0.109)	2.3 (0.09)
	Plate warpage	–	0.30 (0.012)
Clutch outer guide	I.D.	21.991 – 22.016 (0.8658 – 0.8668)	22.03 (0.867)
	O.D.	31.959 – 31.975 (1.2582 – 1.2589)	31.92 (1.257)
Mainshaft O.D. at clutch outer guide		21.967 – 21.980 (0.8648 – 0.8654)	21.95 (0.864)
Clutch outer guide-to-mainshaft clearance		0.011 – 0.049 (0.0004 – 0.0019)	0.08 (0.003)
Primary driven gear I.D.		32.000 – 32.025 (1.2598 – 1.2608)	32.09 (1.263)
Primary driven gear-to-clutch outer guide clearance		0.025 – 0.066 (0.0010 – 0.0026)	0.10 (0.004)

DUAL CLUTCH TRANSMISSION SPECIFICATIONS (NC700XD/SD)

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch clearance		0.9 – 1.1 (0.035 – 0.043)	2.0 (0.08)
EOT sensor resistance (20°C/68°F)		2.5 – 2.8 kΩ	–

ALTERNATOR/STARTER CLUTCH SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Starter driven gear boss O.D.		57.749 – 57.768 (2.2736 – 2.2743)	57.73 (2.273)
Starter clutch outer I.D.		74.412 – 74.442 (2.9296 – 2.9308)	74.46 (2.931)

CRANKCASE/TRANSMISSION/BALANCER SPECIFICATIONS

NC700X/XA/S/SA

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Transmission	Gear I.D.	M5, M6, C1	28.000 – 28.021 (1.1024 – 1.1032)
		C2, C3, C4	31.000 – 31.025 (1.2205 – 1.2215)
	Gear bushing O.D.	M5, M6	27.959 – 27.980 (1.1007 – 1.1016)
		C2	30.955 – 30.980 (1.2187 – 1.2197)
		C3, C4	30.950 – 30.975 (1.2185 – 1.2195)
	Gear-to-bushing clearance	M5, M6	0.020 – 0.062 (0.0008 – 0.0024)
		C2	0.020 – 0.070 (0.0008 – 0.0028)
		C3, C4	0.025 – 0.075 (0.0010 – 0.0030)
	Gear bushing I.D.	M5	25.000 – 25.021 (0.9843 – 0.9851)
		C2	27.985 – 28.006 (1.1018 – 1.1026)
	Mainshaft O.D.	At M5 bushing	24.972 – 24.993 (0.9831 – 0.9840)
	Countershaft O.D.	At C2 bushing	27.967 – 27.980 (1.1011 – 1.1016)
	Bushing-to-shaft clearance	M5	0.007 – 0.049 (0.0003 – 0.0020)
		C2	0.005 – 0.039 (0.0002 – 0.0015)
Shift fork, fork shaft	Fork I.D.	12.000 – 12.018 (0.4724 – 0.4731)	
	Claw thickness	5.93 – 6.00 (0.233 – 0.236)	
	Shift fork shaft O.D.	11.957 – 11.968 (0.4707 – 0.4712)	

NC700XD/SD

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Transmission	Gear I.D.	M5	33.000 – 33.025 (1.2992 – 1.3002)	33.04 (1.301)
		M6	43.000 – 43.025 (1.6929 – 1.6939)	43.04 (1.694)
		C1	31.010 – 31.035 (1.2209 – 1.2218)	31.06 (1.223)
		C2	25.000 – 25.021 (0.9843 – 0.9851)	25.03 (0.985)
		C3, C4	31.000 – 31.025 (1.2205 – 1.2215)	31.04 (1.222)
	Gear bushing O.D.	M5	32.955 – 32.980 (1.2974 – 1.2984)	32.93 (1.296)
		M6	42.950 – 42.975 (1.6909 – 1.6919)	42.93 (1.690)
		C1	30.970 – 30.995 (1.2193 – 1.2203)	30.94 (1.218)
		C2	24.959 – 24.980 (0.9826 – 0.9835)	24.94 (0.982)
		C3, C4	30.950 – 30.975 (1.2185 – 1.2195)	30.93 (1.218)
	Gear-to-bushing clearance	M5	0.020 – 0.070 (0.0008 – 0.0028)	0.10 (0.004)
		M6	0.025 – 0.075 (0.0010 – 0.0030)	0.11 (0.004)
		C1	0.015 – 0.065 (0.0006 – 0.0026)	0.10 (0.004)
		C2	0.020 – 0.062 (0.0008 – 0.0024)	0.09 (0.004)
		C3, C4	0.025 – 0.075 (0.0010 – 0.0030)	0.11 (0.004)
	Gear bushing I.D.	M5	29.985 – 30.006 (1.1805 – 1.1813)	30.03 (1.182)
		M6	40.007 – 40.028 (1.5751 – 1.5759)	40.038 (1.5763)
		C1	28.000 – 28.021 (1.1024 – 1.1032)	28.04 (1.104)
		C2	21.985 – 22.006 (0.8655 – 0.8664)	22.02 (0.867)
	Inner mainshaft O.D.	At M5 bushing	29.957 – 29.970 (1.1794 – 1.1799)	29.93 (1.178)
Outer mainshaft O.D.	At M6 bushing	39.975 – 39.991 (1.5738 – 1.5744)	39.965 (1.5734)	
Countershaft O.D.	At C1 bushing	27.967 – 27.980 (1.1011 – 1.1016)	27.95 (1.100)	
	At C2 bushing	21.952 – 21.965 (0.8643 – 0.8648)	21.94 (0.864)	
Bushing-to-shaft clearance	M5	0.015 – 0.049 (0.0006 – 0.0019)	0.09 (0.004)	
	M6	0.016 – 0.053 (0.0006 – 0.0021)	0.10 (0.004)	
	C1	0.020 – 0.054 (0.0008 – 0.0021)	0.08 (0.003)	
	C2	0.020 – 0.054 (0.0008 – 0.0021)	0.08 (0.003)	
Shift fork, fork shaft	Fork I.D.	12.000 – 12.018 (0.4724 – 0.4731)	12.03 (0.474)	
	Claw thickness	5.93 – 6.00 (0.233 – 0.236)	5.9 (0.23)	
	Shift fork shaft O.D.	11.957 – 11.968 (0.4707 – 0.4712)	11.95 (0.470)	

CRANKSHAFT/PISTON/CYLINDER SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Crankshaft	Connecting rod side clearance	0.15 – 0.35 (0.006 – 0.014)	0.45 (0.018)	
	Runout	Right side	–	0.03 (0.001)
		Left side	–	0.03 (0.001)
	Main journal bearing oil clearance	0.019 – 0.037 (0.0007 – 0.0015)	0.05 (0.002)	
Cylinder	I.D.	73.000 – 73.015 (2.8740 – 2.8746)	73.07 (2.877)	
	Out-of-round	–	0.10 (0.004)	
	Taper	–	0.10 (0.004)	
	Warpage	–	0.10 (0.004)	
Piston, piston rings	Piston O.D. at 13 mm (0.5 in) from bottom	72.976 – 72.990 (2.8731 – 2.8736)	72.970 (2.8728)	
	Piston pin bore I.D.	18.010 – 18.013 (0.7091 – 0.7092)	18.023 (0.7096)	
	Piston pin O.D.	17.996 – 18.000 (0.7085 – 0.7087)	17.988 (0.7082)	
	Piston-to-piston pin clearance	0.010 – 0.017 (0.0004 – 0.0007)	0.035 (0.0014)	
	Piston ring end gap	Top	0.15 – 0.30 (0.006 – 0.012)	0.6 (0.02)
		Second	0.30 – 0.42 (0.012 – 0.017)	0.6 (0.02)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.8 (0.03)
	Piston ring-to-ring groove clearance	Top	0.035 – 0.080 (0.0014 – 0.0032)	0.15 (0.006)
Second		0.030 – 0.055 (0.0012 – 0.0022)	0.13 (0.005)	
Cylinder-to-piston clearance		0.010 – 0.039 (0.0004 – 0.0015)	0.05 (0.002)	
Connecting rod small end I.D.		17.964 – 17.977 (0.7072 – 0.7078)	17.985 (0.7081)	
Crankpin bearing oil clearance		0.026 – 0.044 (0.0010 – 0.0017)	0.05 (0.002)	

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Minimum tire tread depth			–	1.5 (0.06)
Cold tire pressure	Driver only		250 kPa (2.50 kgf/cm ² , 36 psi)	–
	Driver and passenger		250 kPa (2.50 kgf/cm ² , 36 psi)	–
Axle runout			–	0.2 (0.01)
Wheel rim runout	Radial		–	2.0 (0.08)
	Axial		–	2.0 (0.08)
Wheel balance weight			–	60 g (2.1 oz) max.
Fork	Spring free length	NC700X/XA/XD	394.9 (15.55)	387.0 (15.24)
		NC700S/SA/SD	357.0 (14.06)	349.9 (13.78)
	Tube runout		–	0.20 (0.008)
	Recommended fork fluid		Honda ULTRA CUSHION OIL SS-47 (10W) or equivalent	–
	Fluid level	NC700X/XA/XD	104 (4.1)	–
		NC700S/SA/SD	103 (4.1)	–
	Fluid capacity	NC700X/XA/XD	514 ± 2.5 cm ³ (17.4 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)	–
		NC700S/SA/SD	518 ± 2.5 cm ³ (17.5 ± 0.08 US oz, 18.2 ± 0.09 Imp oz)	–

REAR WHEEL/SUSPENSION SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Minimum tire tread depth				–	2.0 (0.08)
Cold tire pressure	Driver only		290 kPa (2.90 kgf/cm ² , 42 psi)	–	
	Driver and passenger		290 kPa (2.90 kgf/cm ² , 42 psi)	–	
Axle runout				–	0.2 (0.01)
Wheel rim runout	Radial		–	2.0 (0.08)	
	Axial		–	2.0 (0.08)	
Wheel balance weight				–	60 g (2.1 oz) max.
Drive chain	Size/link	NC700X/XA/S/SA	DID	DID520V0-114LE	–
			RK	RK520MKO-114LE	–
		NC700XD/SD	DID	DID520V0-112LE	–
			RK	RK520MKO-112LE	–
	Slack	NC700X/XA/XD		30 – 40 (1.2 – 1.6)	–
		NC700S/SA/SD		25 – 35 (1.0 – 1.4)	–

HYDRAULIC BRAKE SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Front	Specified brake fluid	DOT 4	–	
	Brake disc thickness	4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)	
	Brake disc warpage	–	0.30 (0.012)	
	Master cylinder I.D.	11.000 – 11.043 (0.4331 – 0.4348)	11.055 (0.4352)	
	Master piston O.D.	10.957 – 10.984 (0.4314 – 0.4324)	10.945 (0.4309)	
	Caliper cylinder I.D. (NC700X/S)	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)	
	Caliper piston O.D. (NC700X/S)	26.918 – 26.968 (1.0598 – 1.0617)	26.91 (1.059)	
	Caliper cylinder I.D. (NC700XA/XD/SA/SD)	Cylinder A	22.650 – 22.700 (0.8917 – 0.8937)	22.712 (0.8941)
		Cylinder B	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)
	Caliper piston O.D. (NC700XA/XD/SA/SD)	Piston A	22.585 – 22.618 (0.8892 – 0.8905)	22.56 (0.888)
Piston B		26.918 – 26.968 (1.0598 – 1.0617)	26.91 (1.059)	
Rear	Specified brake fluid	DOT 4	–	
	Brake disc thickness	4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)	
	Brake disc warpage	–	0.30 (0.012)	
	Master cylinder I.D.	14.000 – 14.043 (0.5512 – 0.5529)	14.055 (0.5533)	
	Master piston O.D.	13.957 – 13.984 (0.5495 – 0.5506)	13.945 (0.5490)	
	Caliper cylinder I.D.	38.18 – 38.23 (1.503 – 1.505)	38.24 (1.506)	
	Caliper piston O.D.	38.098 – 38.148 (1.4999 – 1.5019)	38.09 (1.500)	
	Brake pedal height	85.0 – 87.0 (3.35 – 3.43)	–	

BATTERY/CHARGING SYSTEM SPECIFICATIONS

ITEM		SPECIFICATIONS	
Battery	Type	YTZ12S	
	Capacity	12 V – 11 Ah	
	Current leakage	1.2 mA maximum	
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.4 V
	Charging current	Normal	1.1 A/5 – 10 h
Quick		5.5 A/1 h	
Alternator	Capacity	0.42 kW/5,000 min ⁻¹ (rpm)	
	Charging coil resistance (20°C/68°F)	0.1 – 0.5 Ω	

GENERAL INFORMATION

LIGHTS/METERS/SWITCHES SPECIFICATIONS

ITEM		SPECIFICATIONS
Bulbs	Headlight	12 V – 60/55 W
	Position light	12 V – 5 W
	Brake/tail/license light	12 V – 21/5 W
	Turn signal light	12 V – 21 W x 4
	Instrument light	LED
	Turn signal indicator	LED
	High beam indicator	LED
	Neutral indicator	LED
	Engine oil pressure indicator	LED
	High coolant temperature indicator	LED
	MIL	LED
	HISS indicator	LED
	ABS indicator (NC700XA/XD/SA/SD)	LED
	Parking brake indicator (NC700XD/SD)	LED
Fuse	Main fuse	30 A
	PGM-FI fuse	15 A
	Sub fuse	15 A x 2, 7.5 A x 4
	ABS fuse (NC700XA/XD/SA/SD)	30 A x 2, 7.5 A
	DCT fuse (NC700XD/SD)	30 A, 7.5 A
ECT sensor resistance	40°C (104°F)	1.0 – 1.3 kΩ
	100°C (212°F)	0.1 – 0.2 kΩ
Fuel level sensor resistance	Full	4 – 6 Ω
	Empty	80 – 83 Ω

TORQUE VALUES**STANDARD TORQUE VALUES**

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm bolt and nut	5.2 (0.5, 3.8)	5 mm screw	4.2 (0.4, 3.1)
6 mm bolt (Include SH flange bolt) and nut	10 (1.0, 7)	6 mm screw	9.0 (0.9, 6.6)
8 mm bolt and nut	22 (2.2, 16)	6 mm flange bolt (Include NSHF) and nut	12 (1.2, 9)
10 mm bolt and nut	34 (3.5, 25)	8 mm flange bolt and nut	27 (2.8, 20)
12 mm bolt and nut	54 (5.5, 40)	10 mm flange bolt and nut	39 (4.0, 29)

ENGINE & FRAME TORQUE VALUES**FRAME BODY PANELS/EXHAUST SYSTEM**

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Seat cowl assembly screw	2	4	0.9 (0.1, 0.7)	
Brake/tail/license light mounting socket bolt	1	6	10 (1.0, 7)	
Reflector mounting nut	1	5	1.7 (0.2, 1.3)	
Turn signal light mounting screw	4	6	2.5 (0.3, 1.8)	
Luggage box lid assembly screw	9	4	0.9 (0.1, 0.7)	
Luggage box lid lock plate mounting screw	2	6	4.0 (0.4, 3.0)	
Luggage box lid mounting socket bolt	3	6	12 (1.2, 9)	
Luggage box lid hinge nut	1	6	12 (1.2, 9)	U-nut
Gearshift arm pinch bolt (NC700X/XA/S/SA)	1	6	12 (1.2, 9)	ALOC bolt; replace with a new one.
Muffler cover socket bolt	1	6	10 (1.0, 7)	
Muffler band bolt	1	8	17.5 (1.8, 13)	
Exhaust pipe joint nut	3	8	28 (2.9, 21)	See page 2-34
Exhaust pipe stud bolt	3	8	–	See page 2-35

GENERAL INFORMATION

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Air cleaner housing cover screw	6	5	1.1 (0.1, 0.8)	
Spark plug	2	14	22 (2.2, 16)	
Valve adjusting screw lock nut	8	7	14 (1.4, 10)	Apply engine oil to the threads and seating surface.
Camshaft maintenance cap	1	36	4.0 (0.4, 3.0)	See page 3-12
Timing hole cap	1	14	10 (1.0, 7)	Apply grease to the threads.
Crankshaft hole cap	1	30	15 (1.5, 11)	Apply grease to the threads.
Engine oil drain bolt	1	12	30 (3.1, 22)	
Engine oil filter cartridge	1	20	26 (2.7, 19)	Apply engine oil to the threads.
Oil filter boss	1	20	–	See page 3-14 Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) from tip
Rear axle nut	1	18	98 (10.0, 72)	U-nut
Drive chain adjuster lock nut	2	8	21 (2.1, 15)	
Drive sprocket bolt	1	10	54 (5.5, 40)	
Driven sprocket nut	5	12	108 (11.0, 80)	U-nut
Master cylinder reservoir cover screw	4	4	1.5 (0.2, 1.1)	
Rear brake reservoir mounting bolt	1	6	10 (1.0, 7)	
Rear master cylinder push rod lock nut	1	8	17 (1.7, 13)	
Parking brake adjuster bolt lock nut (NC700XD/SD)	1	8	17 (1.7, 13)	
Sidestand pivot bolt	1	10	–	See page 3-27 Apply grease to the sliding surface.
Sidestand pivot nut	1	10	39 (4.0, 29)	U-nut
Sidestand switch bolt	1	6	10 (1.0, 7)	ALOC bolt; replace with a new one.

PGM-FI SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
ECT sensor	1	10	12 (1.2, 9)	
Bank angle sensor mounting bolt	2	6	10 (1.0, 7)	
O ₂ sensor	1	12	24.5 (2.5, 18)	

IGNITION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Timing hole cap	1	14	10 (1.0, 7)	Apply grease to the threads.
Right crankcase cover wire clamp bolt (NC700XD/SD)	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip

ELECTRIC STARTER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Starter motor terminal nut	1	6	10 (1.0, 7)	

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Fuel pump mounting nut	6	6	12 (1.2, 9)	For tightening sequence (page 7-14)
Air cleaner connecting hose band screw	1	4	1.5 (0.2, 1.1)	
Insulator band screw	2	5	–	See page 7-18

COOLING SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Water hose band screw	6	–	–	See page 8-9 See page 8-10 See page 8-14
Fan motor shroud mounting bolt	3	6	8.4 (0.9, 6.2)	
Fan motor mounting screw	3	4	2.7 (0.3, 2.0)	
Cooling fan mounting nut	1	3	1.0 (0.1, 0.7)	Apply locking agent to the threads.

LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Engine oil filter cartridge	1	20	26 (2.7, 19)	Apply engine oil to the threads.

CYLINDER HEAD/VALVES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Cylinder head cover socket bolt	3	6	10 (1.0, 7)	
Breather plate mounting bolt	8	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Rocker arm shaft bolt	3	8	29 (3.0, 21)	Apply engine oil to the threads and seating surface.
Camshaft maintenance cap	1	36	4.0 (0.4, 3.0)	See page 10-11 See page 10-28
Cam chain tensioner bolt	2	6	12 (1.2, 9)	
Cam sprocket bolt	1	10	56 (5.7, 41)	Apply engine oil to the threads and seating surface.
Water hose band screw	6	–	–	See page 10-16
Insulator band screw	1	5	–	See page 10-25
Cylinder head special bolt	6	9	44 (4.5, 32)	Apply molybdenum oil solution to the threads and seating surface.

CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Clutch center lock nut	1	18	128 (13.1, 94)	Apply engine oil to the threads and seating surface. Lock nut; replace with a new one and stake.
Clutch lifter plate bolt	4	6	12 (1.2, 9)	
Primary drive gear mounting bolt	1	10	93 (9.5, 69)	Apply engine oil to the threads and seating surface.
Shift drum stopper arm pivot bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Shift drum center socket bolt	1	8	23 (2.3, 17)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Gearshift pedal adjuster lock nut	2	6	10 (1.0, 7)	
Gearshift pedal pivot bolt	1	8	27 (2.8, 20)	

GENERAL INFORMATION

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Solenoid valve stopper plate bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Right crankcase cover wire clamp bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Linear solenoid valve body mounting bolt	6	6	–	For tightening sequence (page 12-101)
Shift spindle angle sensor bolt	1	6	12 (1.2, 9)	
Primary drive gear mounting bolt	1	10	93 (9.5, 69)	Apply engine oil to the threads and seating surface.
Reduction gear cover bolt	3	6	14 (1.4, 10)	
TR sensor bolt	1	6	12 (1.2, 9)	
Shift control motor bolt	3	6	14 (1.4, 10)	
Shift drum center bolt	1	8	23 (2.3, 17)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Drum shifter guide plate bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Clutch line EOP sensor	3	10	19.6 (2.0, 14)	
EOT sensor	1	10	14 (1.4, 10)	Apply engine oil to the threads and seating surface.

ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Flywheel mounting bolt	1	12	157 (16.0, 116)	Left hand thread Apply engine oil to the threads and seating surface.
Starter clutch socket bolt	6	8	30 (3.1, 22)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Alternator stator mounting bolt	4	6	10 (1.0, 7)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Alternator wire clamp bolt	1	6	10 (1.0, 7)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip

CRANKCASE/TRANSMISSION/BALANCER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Mainshaft bearing set plate bolt	3	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Shift drum bearing set plate bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Balancer shaft bearing set plate bolt	3	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Crankcase main journal bolt (new)	6	9	20 (2.0, 15) + 150°	See page 14-30 Replace with a new one.
Crankcase 10 mm bolt	1	10	39 (4.0, 29)	
Crankcase 8 mm bolt	3	8	24 (2.4, 18)	
Crankcase 8 x 45 mm bolt	1	8	24 (2.4, 18)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) from tip
Crankcase 6 mm bolt	8	6	12 (1.2, 9)	

CRANKSHAFT/PISTON/CYLINDER

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Crankpin bearing cap bolt	4	6	10 (1.0, 7) + 90°	See page 15-7 See page 15-12 Replace with a new one. Apply engine oil to the threads and seating surface.
Crankcase main journal bolt (retightening)	6	9	20 (2.0, 15) + 120°	See page 15-9 Apply engine oil to the threads and seating surface.

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Rear lower engine hunger nut	1	12	59 (6.0, 44)	
Front lower engine hunger bolt	2	12	54 (5.5, 40)	
Upper engine hunger bolt	2	12	54 (5.5, 40)	
Rear upper engine hunger nut	1	12	54 (5.5, 40)	
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Drive sprocket bolt	1	10	54 (5.5, 40)	
Starter motor terminal nut	1	6	10 (1.0, 7)	
Water hose band screw	2	—	—	See page 16-18 See page 16-19 See page 16-24 See page 16-25

GENERAL INFORMATION

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Handlebar holder bolt	4	8	22 (2.2, 16)	
Handlebar switch housing screw	4	5	2.5 (0.3, 1.8)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Handlebar weight mounting screw	2	6	10 (1.0, 7)	ALOC screw; replace with a new one.
Front brake disc mounting bolt	5	8	42 (4.3, 31)	ALOC bolt; replace with a new one.
Front axle	1	18	74 (7.5, 55)	Apply grease to the sliding surface.
Front axle pinch bolt	1	8	22 (2.2, 16)	
Fork socket bolt	2	8	20 (2.0, 15)	Apply locking agent to the threads.
Bottom bridge pinch bolt	2	10	39 (4.0, 29)	
Fork cap	2	37	22 (2.2, 16)	
Top bridge pinch bolt	2	8	22 (2.2, 16)	
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	ALOC bolt; replace with a new one.
Steering stem adjusting nut	1	26	23 (2.3, 17)	See page 17-38 Apply engine oil to the threads.
Steering stem adjusting lock nut	1	26	–	See page 17-38
Steering stem nut	1	24	103 (10.5, 76)	See page 17-38
Clutch lever pivot bolt (NC700X/XA/S/SA)	1	6	1.0 (0.1, 0.7)	Apply grease to the sliding surface.
Clutch lever pivot nut (NC700X/XA/S/SA)	1	6	6.0 (0.6, 4.4)	

REAR WHEEL/SUSPENSION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Driven sprocket nut	5	12	108 (11.0, 80)	U-nut
Rear brake disc mounting bolt	5	8	42 (4.3, 31)	ALOC bolt; replace with a new one.
Rear axle nut	1	18	98 (10.0, 72)	U-nut
Shock absorber mounting nut	2	10	44 (4.5, 32)	U-nut
Shock arm nut	1	10	44 (4.5, 32)	U-nut
Shock link nut	2	10	44 (4.5, 32)	U-nut
Drive chain slider mounting screw	2	5	5.9 (0.6, 4.4)	
Swingarm pivot nut	1	18	98 (10.0, 72)	U-nut
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Gearshift arm pinch bolt (NC700X/XA/S/SA)	1	6	12 (1.2, 9)	ALOC bolt; replace with a new one.

HYDRAULIC BRAKE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Brake caliper bleed valve (NC700X/S)	2	8	5.4 (0.6, 4.0)	
Brake caliper bleed valve (NC700XA/XD/SA/SD)	3	8	5.4 (0.6, 4.0)	
Master cylinder reservoir cover screw	4	4	1.5 (0.2, 1.1)	
Rear brake reservoir mounting bolt	1	6	10 (1.0, 7)	
Brake pad pin	2	10	17 (1.7, 13)	
Rear brake caliper mounting bolt	1	8	22 (2.2, 16)	ALOC bolt; replace with a new one.
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Brake hose oil bolt (NC700X/S)	4	10	34 (3.5, 25)	
Brake hose oil bolt (NC700XA/XD/SA/SD)	5	10	34 (3.5, 25)	
Front brake light switch screw	1	4	1.2 (0.1, 0.9)	
Front brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	Apply 0.10 g (0.004 oz) silicone grease to the sliding surface.
Front brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Rear master cylinder mounting bolt	2	6	12 (1.2, 9)	
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Rear master cylinder hose joint screw	1	4	1.5 (0.2, 1.1)	Apply locking agent to the threads.
Rear master cylinder push rod lock nut	1	8	17 (1.7, 13)	
Front brake caliper pin	1	8	22 (2.2, 16)	Apply locking agent to the threads. Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Front brake caliper bracket pin	1	8	12 (1.2, 9)	Apply locking agent to the threads. Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	ALOC bolt; replace with a new one.
Rear brake caliper pin	1	12	27 (2.8, 20)	Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Parking brake caliper mounting bolt (NC700XD/SD)	2	8	31 (3.2, 23)	ALOC bolt; replace with a new one.
Parking brake caliper pin bolt (NC700XD/SD)	1	8	22 (2.2, 16)	Apply locking agent to the threads.
Parking brake pad pin (NC700XD/SD)	2	8	17 (1.7, 13)	ALOC bolt; replace with a new one.
Parking brake adjuster bolt lock nut (NC700XD/SD)	1	8	17 (1.7, 13)	
Parking brake cable mounting nut (NC700XD/SD)	1	10	10 (1.0, 7)	

ANTI-LOCK BRAKE SYSTEM (ABS) (NC700XA/XD/SA/SD)

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Brake pipe joint nut	14	10	14 (1.4, 10)	Apply brake fluid to the threads and sliding surface.
PCV mounting bolt	2	6	12 (1.2, 9)	
Delay valve mounting bolt	2	6	12 (1.2, 9)	

GENERAL INFORMATION

LIGHTS/METERS/SWITCHES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Turn signal light mounting screw	4	6	2.5 (0.3, 1.8)	
Combination meter mounting screw	3	5	1.0 (0.1, 0.7)	
Combination meter back cover mounting screw (NC700S/SA/SD)	4	3	0.3 (0.03, 0.2)	
EOP switch	1	PT 1/8	18 (1.8, 13)	Apply sealant to the threads.
Ignition switch mounting bolt	2	8	25 (2.5, 18)	One way bolt; replace with a new one.
Neutral switch	1	10	12 (1.2, 9)	
Parking brake switch screw (NC700XD/SD)	1	4	1.2 (0.1, 0.9)	

OTHERS

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Cam chain tensioner set plate bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Camshaft cap	1	20	30 (3.1, 22)	
Gearshift spindle return spring pin	1	8	23 (2.3, 17)	
Main step rubber mounting bolt	2	5	5.1 (0.5, 3.8)	ALOC bolt; replace with a new one.
Main step cap bolt	2	6	12 (1.2, 9)	

LUBRICATION & SEAL POINTS

ENGINE

MATERIAL	LOCATION	REMARKS
Liquid sealant (Three Bond 1207B or equivalent)	Oil pan mating surface	See page 9-12
	Right crankcase cover mating surface	See page 11-6
	CKP sensor wire grommet	
	Linear solenoid valve wire grommet (NC700XD/SD)	
	Alternator wire grommet	
	Alternator cover mating surface	See page 13-7
Molybdenum oil solution (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	Crankcase mating surface	See page 14-28
	Rocker arm sliding surface	
	Rocker arm shaft outer surface	
	Camshaft lobes, journals and thrust surface	
	Valve stem (valve guide sliding surface) and stem end	
	Clutch outer guide sliding surface (NC700X/XA/S/SA)	
	Starter reduction and idle gear shaft outer surface	
	M3/4, C5, C6 gear (shift fork grooves) (NC700X/XA/S/SA)	
	M3, M4, C5, C6 gear (shift fork grooves) (NC700XD/SD)	
	Each transmission spline collar outer surface	
	Each transmission collar inner and outer surface	
	Shift fork guide area and guide pin	
	Shift fork shaft outer surface	
	Main journal bearing sliding surface	
	Crankpin bearing sliding surface	
	Crankshaft thrust surface	
Engine oil	Oil filter cartridge O-ring	
	Oil filler cap O-ring	
	Timing hole cap O-ring	
	Crankshaft hole cap O-ring	
	Clutch oil filter cover O-ring (NC700XD/SD)	
	Oil joint pipe O-ring (NC700XD/SD)	
	Clutch oil guide collar O-rings (NC700XD/SD)	
	Oil strainer seal ring	
	Starter motor O-ring	
	Injector seal ring	
	Water pump large O-ring	
	Valve stem seal	
	Clutch disc entire surface (NC700X/XA/S/SA)	
	Clutch lifter rod A sliding surface (NC700X/XA/S/SA)	
	Clutch lifter rod B sliding surface (NC700X/XA/S/SA)	
	Mainshaft seal rings (NC700XD/SD)	
	Starter one-way clutch	
	Piston sliding surface	
	Piston ring sliding surface	
	Piston pin outer surface	
	Each bearing	
	Each gear teeth and rotating surface	
	Each O-ring (except water sealing)	
Other rotating area and sliding surface		
Multi-purpose grease	Each oil seal lips	
Locking agent	CKP sensor mounting bolt threads	Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Templex N3 grease (ESSO)	Electric shift reduction gear teeth and journal (NC700XD/SD)	2 – 4 g (0.07 – 0.14 oz)

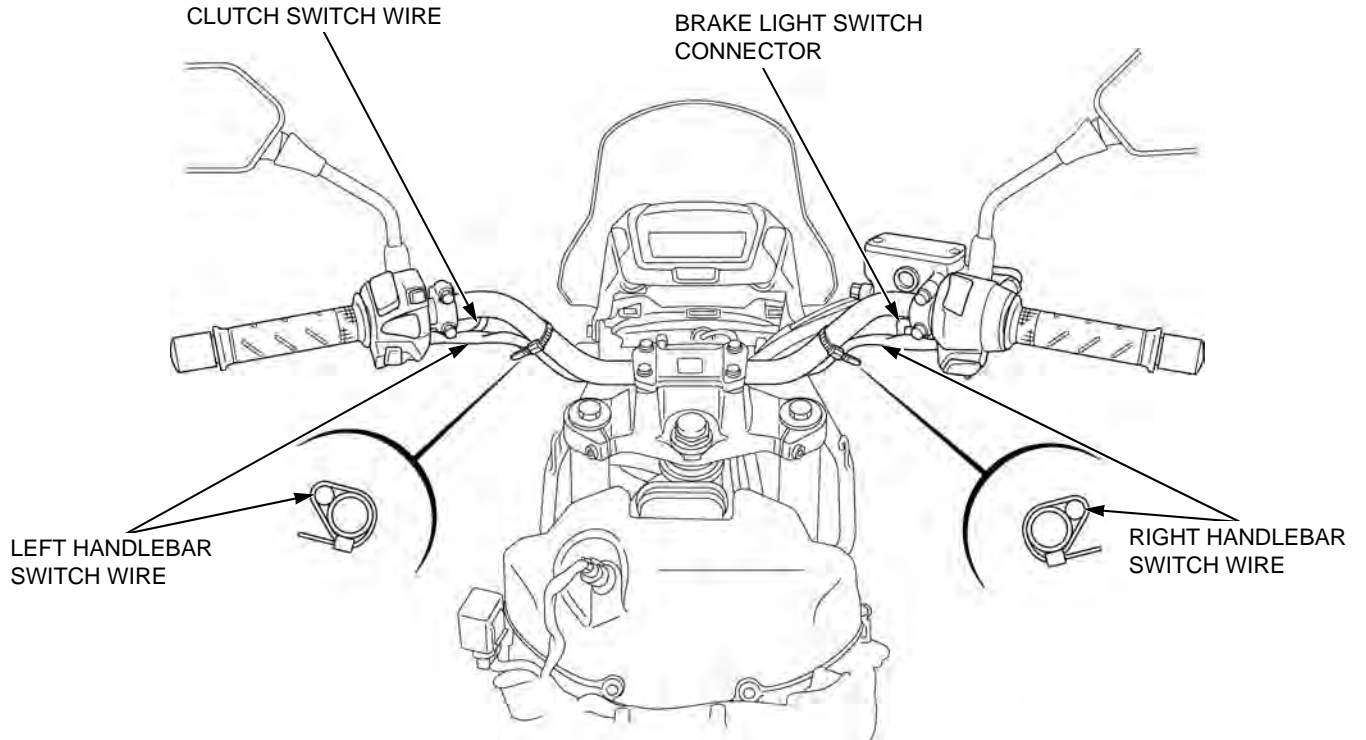
GENERAL INFORMATION

FRAME

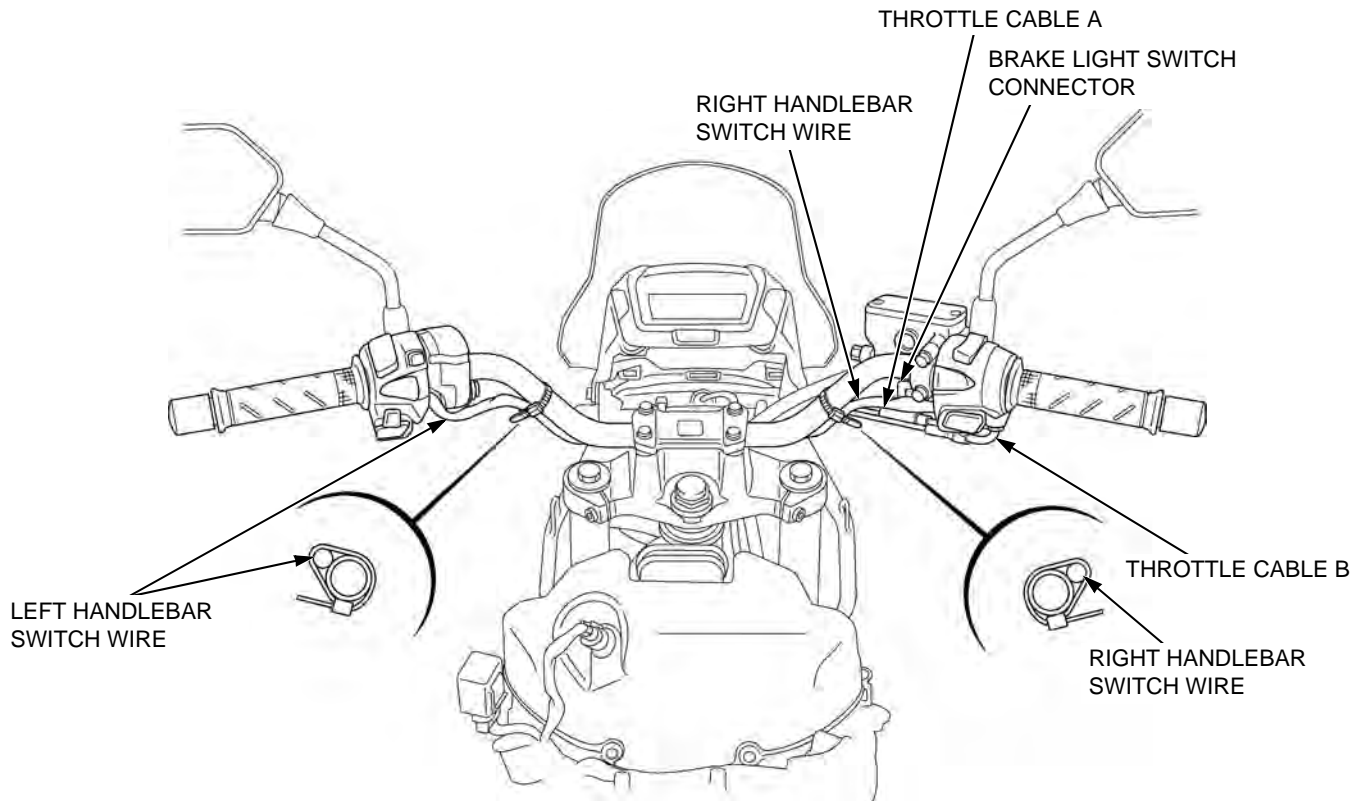
MATERIAL	LOCATION	REMARKS
Urea based multi-purpose grease with extreme pressure (example: Kyodo Yushi EXCELITE EP2, Shell Stamina EP2 or equivalent)	Steering head bearing sliding surface	3 – 5 g (0.1 – 0.2 oz)
	Steering head dust seal lips	
Molybdenum disulfide grease	Shock arm needle bearings	
	Rear shock absorber needle bearing	
	Rear shock absorber dust seal lips	
	Swingarm pivot needle bearings	
	Swingarm pivot ball bearing	
	Swingarm pivot dust seal lips	
Multi-purpose grease	Seat catch hook sliding area	
	Luggage box lid catch sliding area	
	Gearshift pedal pivot and dust seal lips (NC700X/XA/S/SA)	
	Gearshift pedal tie-rod ball joint area (NC700X/XA/S/SA)	
	Throttle cable end and throttle grip pipe flange groove	
	Front wheel dust seal lips	
	Rear wheel hub O-ring	
	Rear wheel dust seal lips	
	Rear axle sliding surface	
	Swingarm pivot sliding surface	
	Rear brake pedal pivot sliding area	
	Parking brake ratchet A, B teeth and sliding surface (NC700XD/SD)	
	Parking brake lever, washer sliding surface (NC700XD/SD)	
	Parking brake switch spring sliding surface (NC700XD/SD)	
	Main step sliding area	
	Pillion step sliding area	
	Cable lubricant	Seat lock cable inside
Luggage box lid lock cable inside		
Throttle cable A, B inside		
Clutch cable inside (NC700X/XA/S/SA)		
Parking brake cable inside (NC700XD/SD)		
Honda bond A, Cemedine #540 or equivalent	Handlebar grip rubber inside	
	Brake pad retainer mating surface	
Silicone grease	Front brake lever sliding surface and lever-to-master piston contacting area	0.10 g (0.004 oz)
	Rear brake master cylinder push rod sliding surface and boot fitting area	
	Brake caliper dust seals	
	Rear brake caliper boot inside	0.4 g (0.01 oz)
	Brake pad pin stopper ring	
	Parking brake shaft outer surface (NC700XD/SD)	0.4 g (0.01 oz) minimum
	Parking brake adjuster bolt threads and caliper piston sliding surface (NC700XD/SD)	0.4 g (0.01 oz) minimum
	Parking brake shaft boot lips (NC700XD/SD)	0.4 g (0.01 oz) minimum
	Parking brake caliper bracket pin sliding surface (NC700XD/SD)	0.4 g (0.01 oz) minimum
Parking brake caliper sleeve sliding surface (NC700XD/SD)	0.4 g (0.01 oz) minimum	
DOT 4 brake fluid	Brake caliper piston and piston seals	
	Brake master piston and cups	
	Brake master cylinder inside	
	Rear master cylinder reservoir hose joint O-ring	
Fork fluid	Fork cap O-ring	
	Fork dust seal and oil seal lips	
Drive chain lubricant designed specifically for use with O-ring chains, #80 – 90 gear oil or equivalent	Drive chain whole surface	

CABLE & HARNESS ROUTING

NC700X/XA:

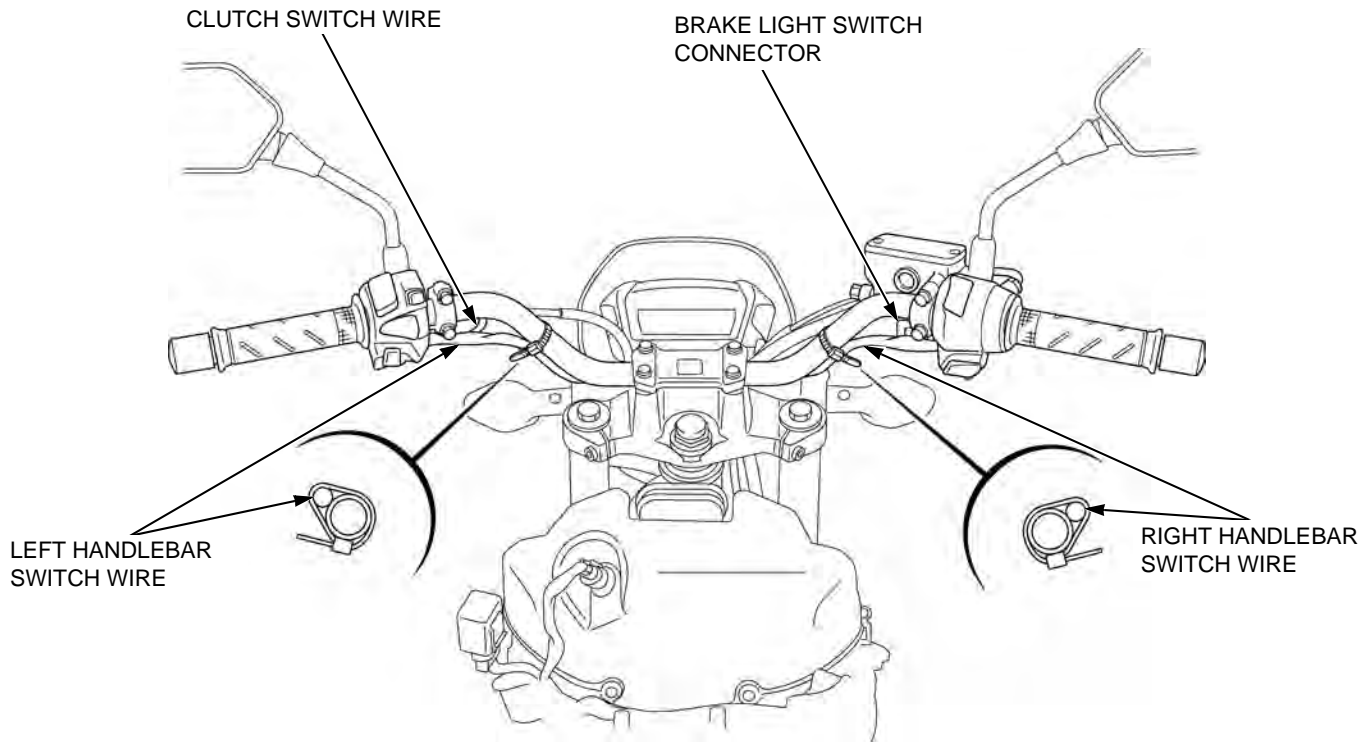


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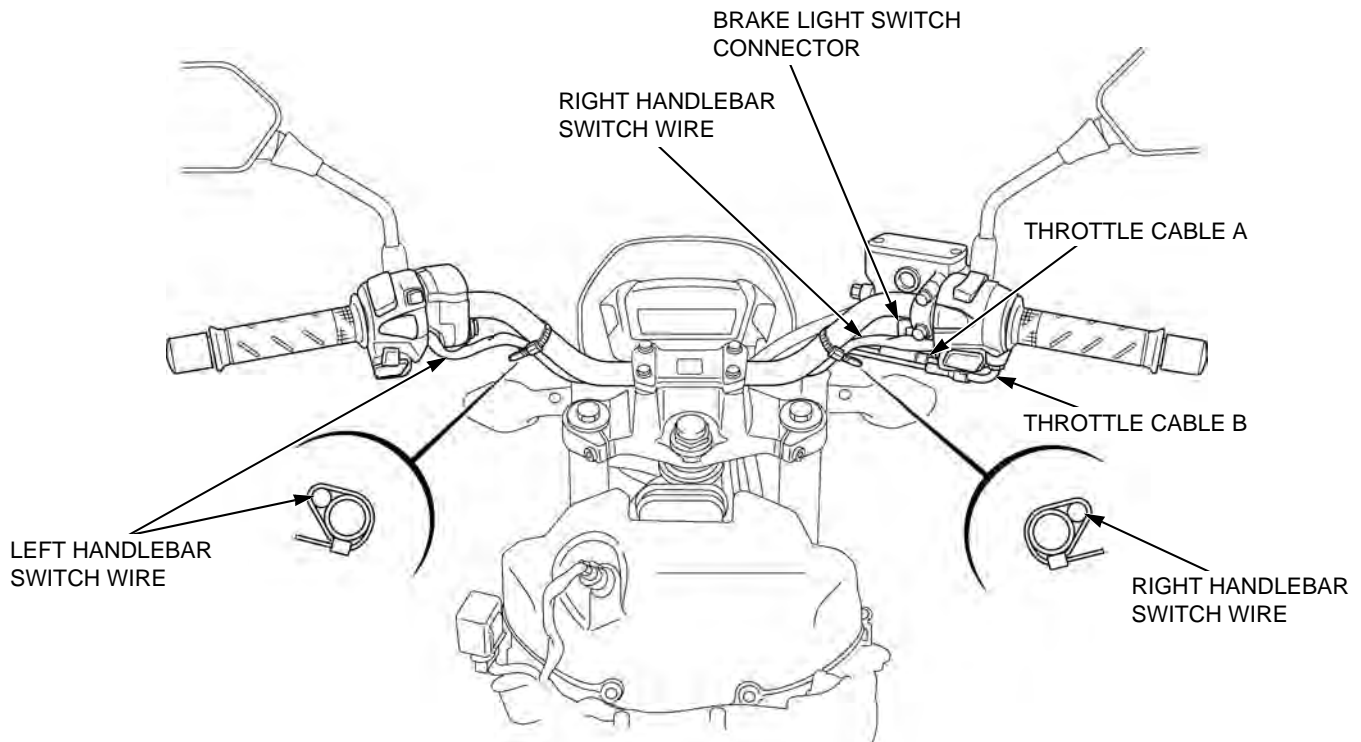


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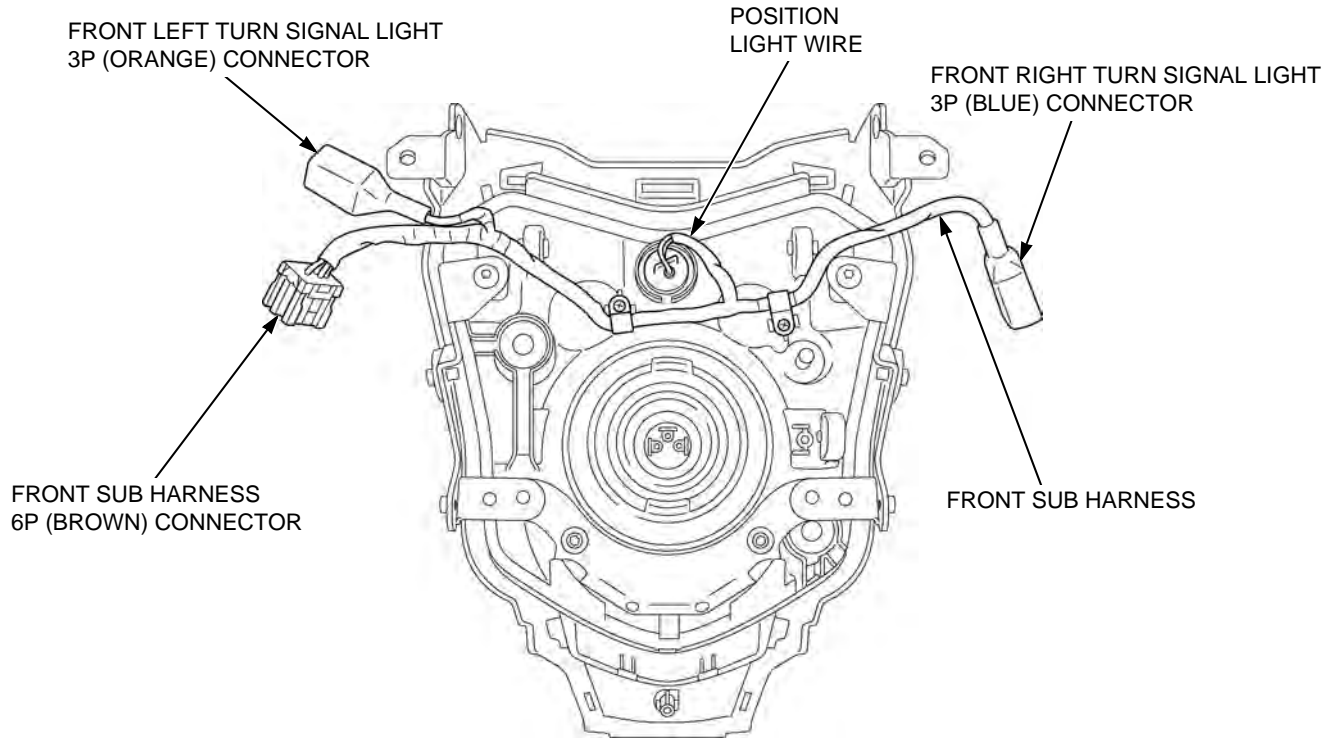
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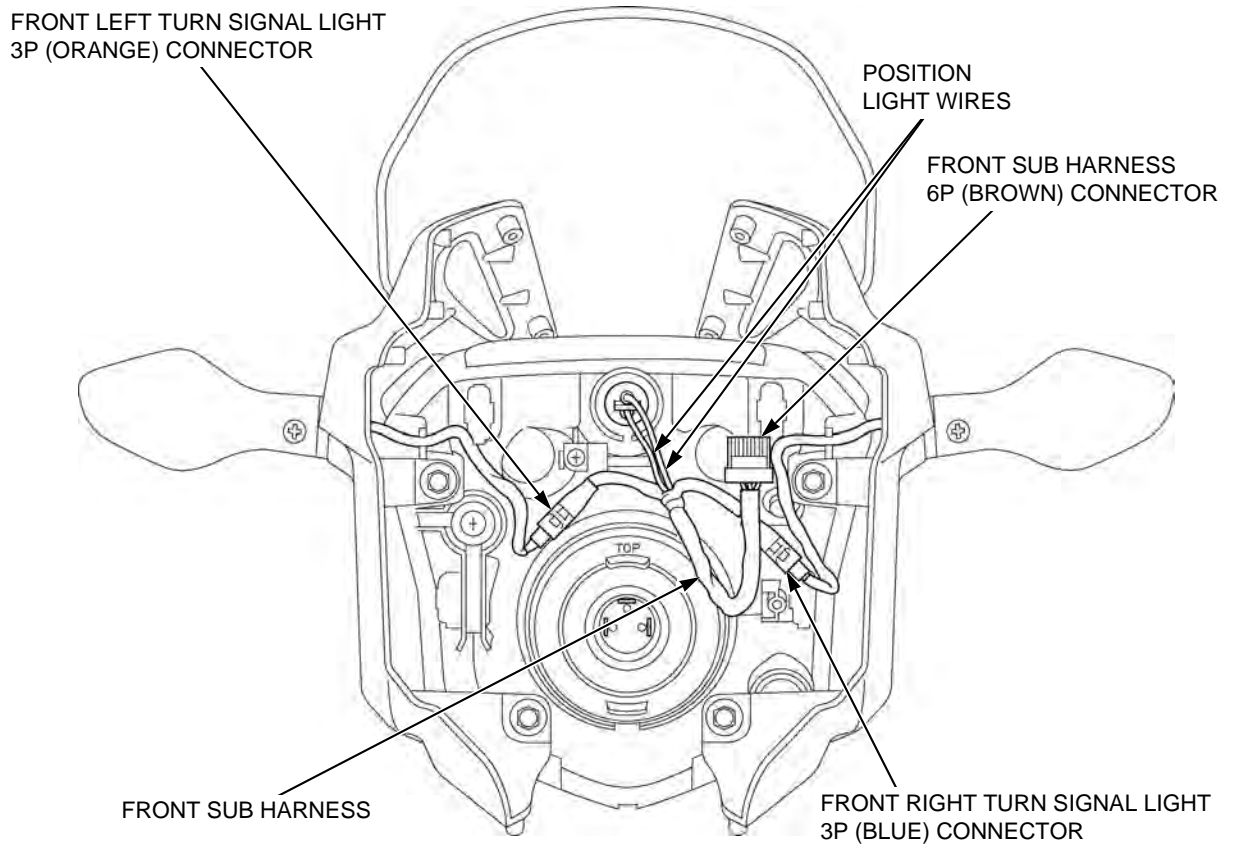
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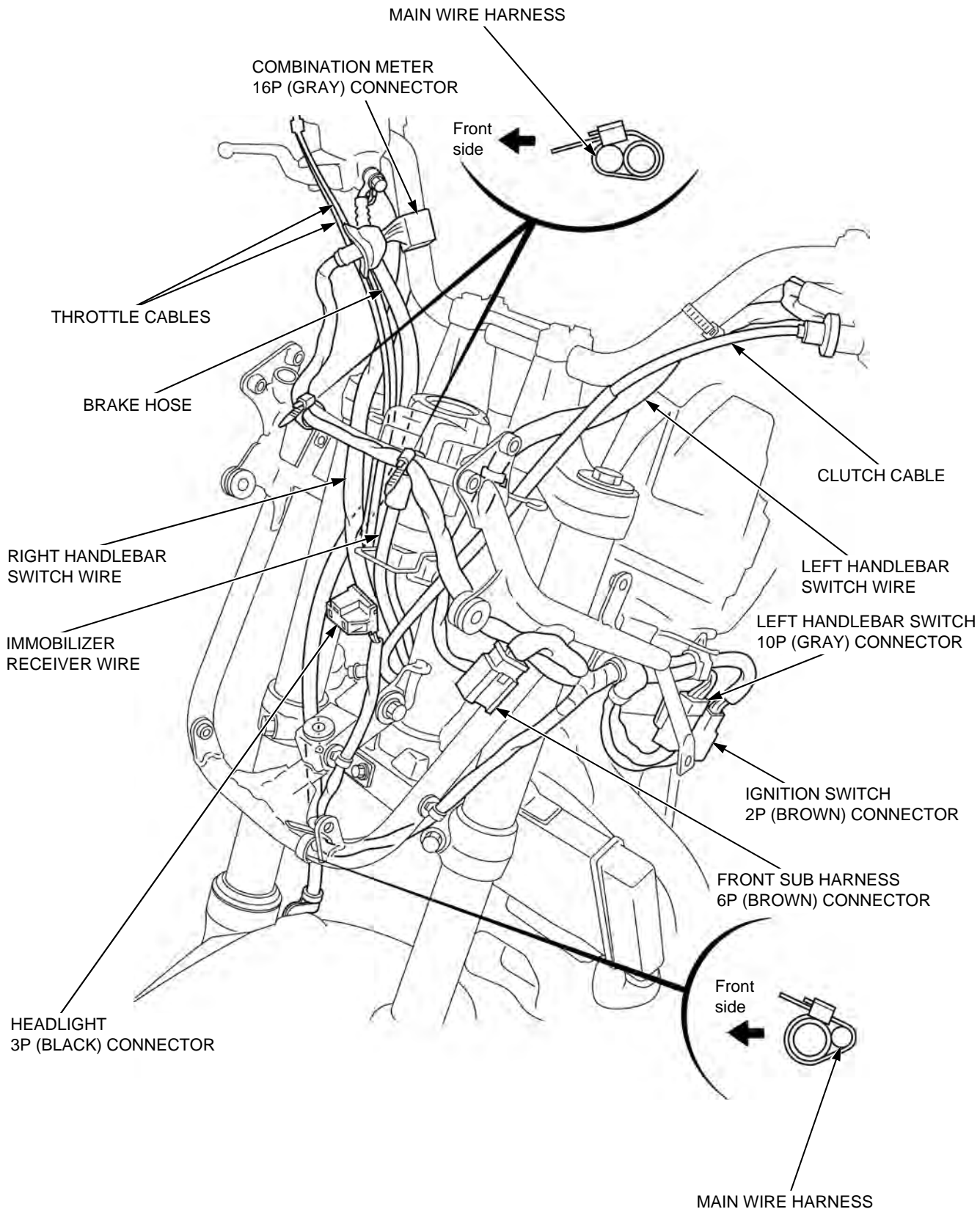


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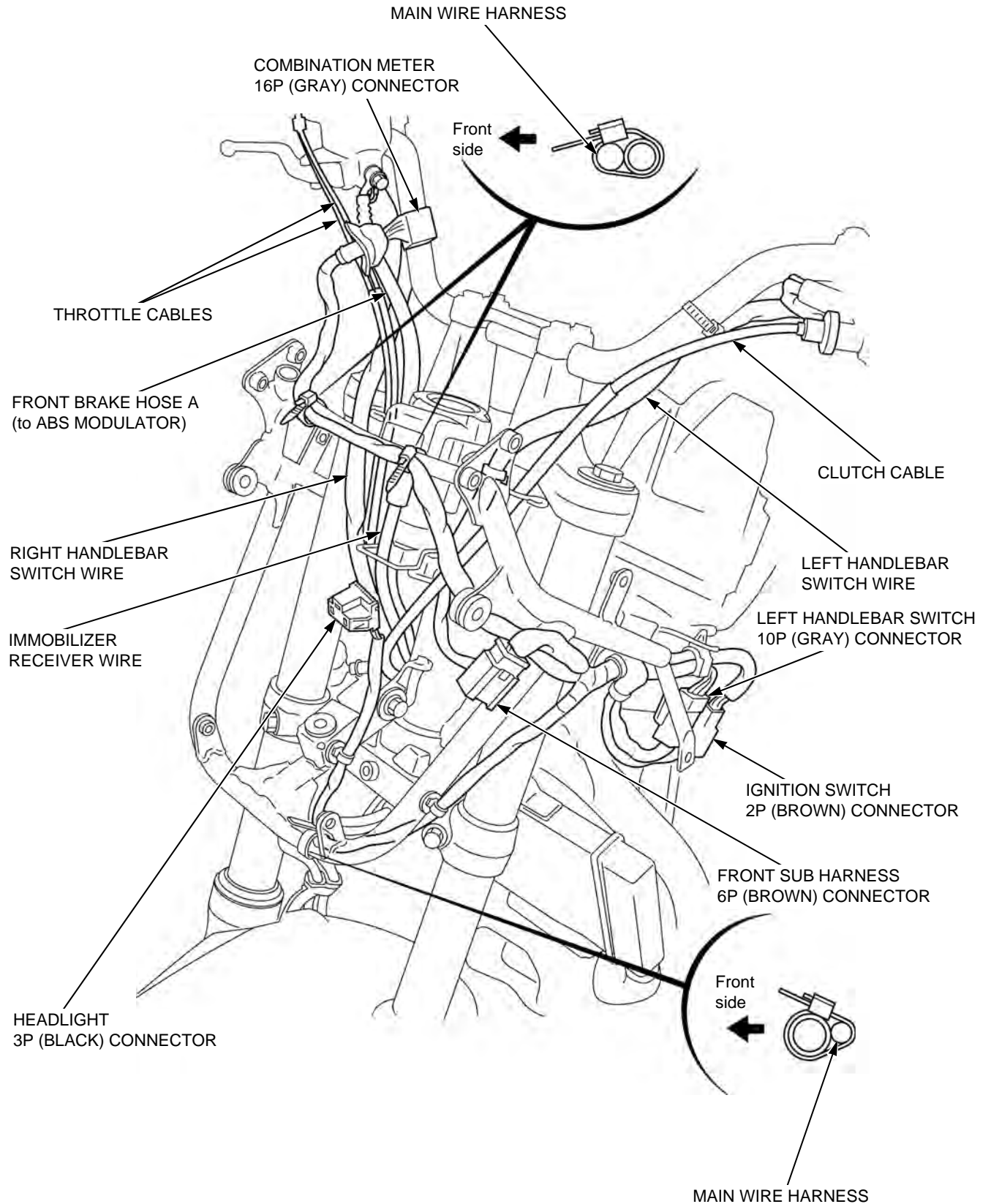


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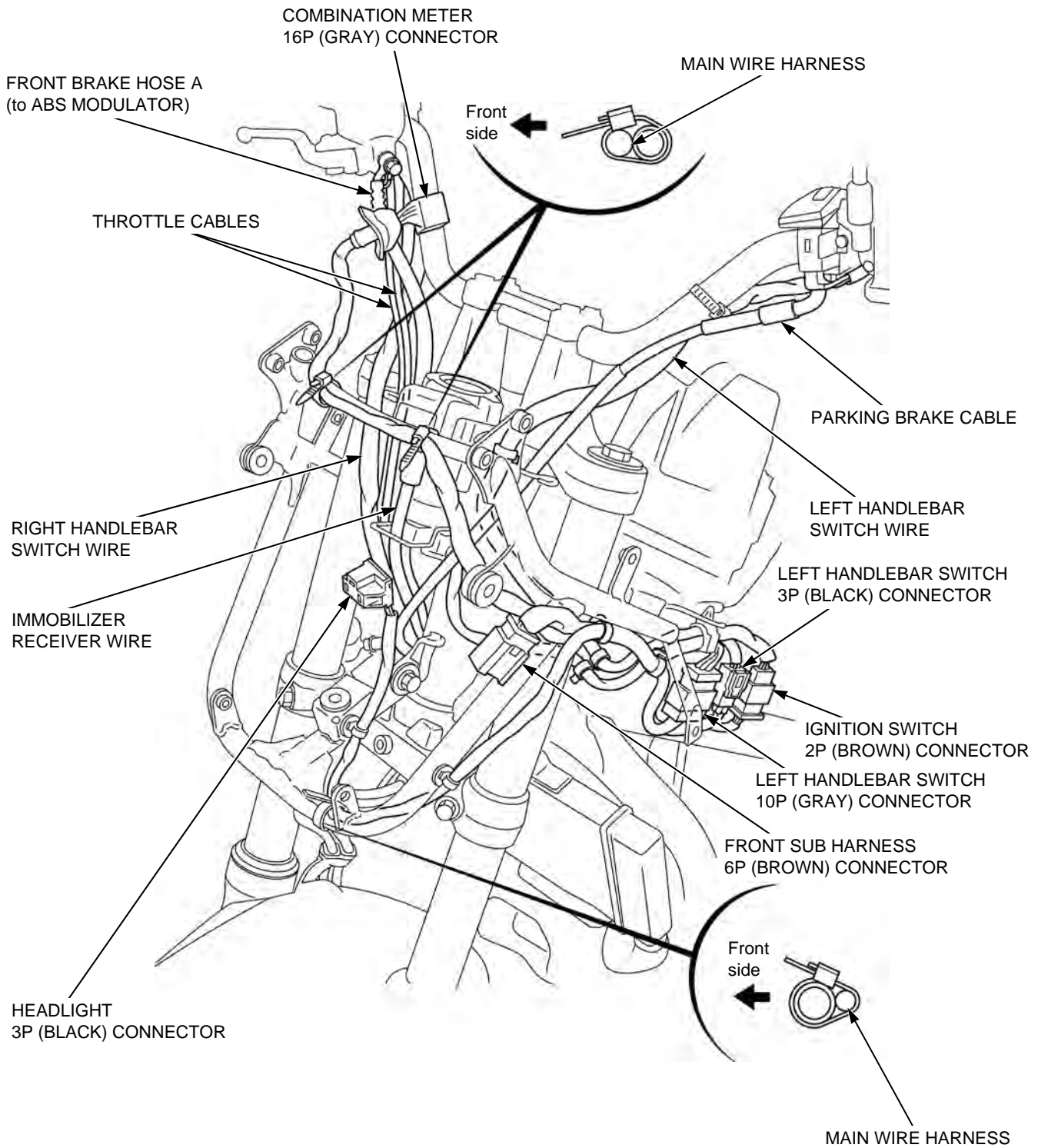


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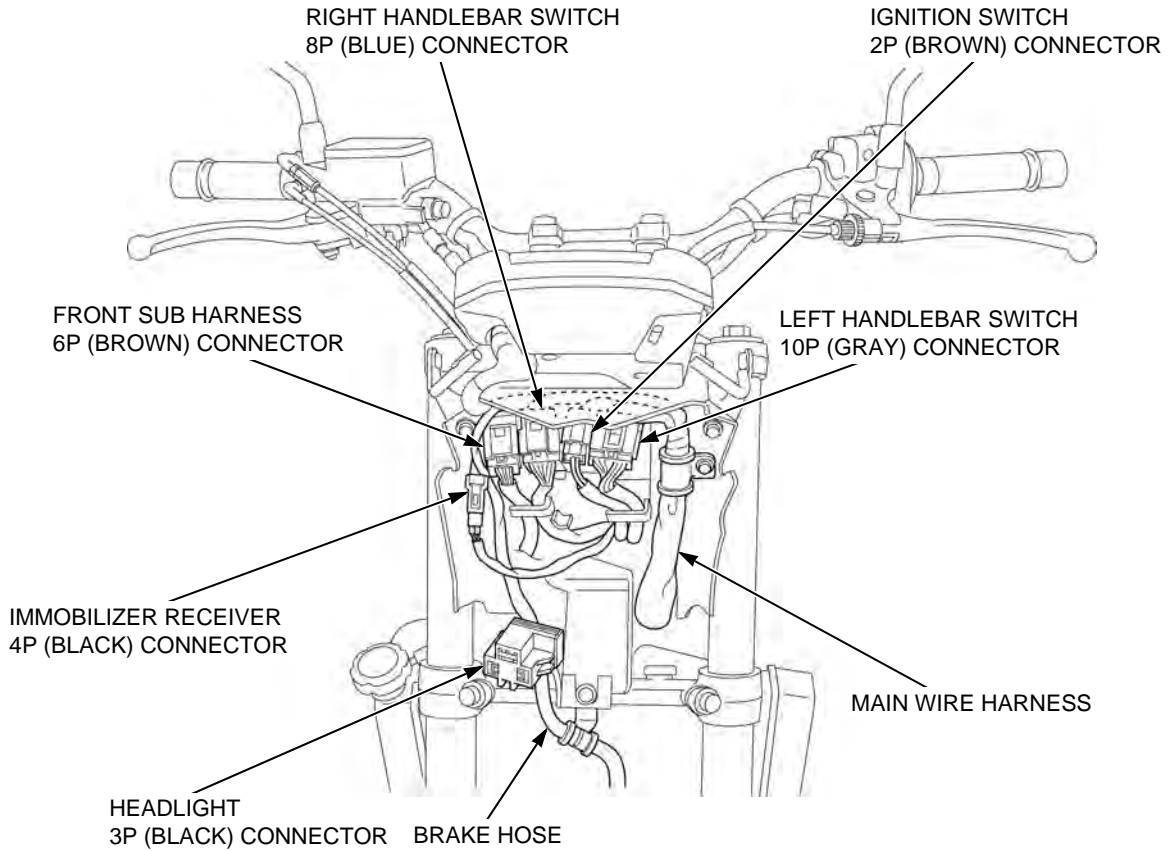


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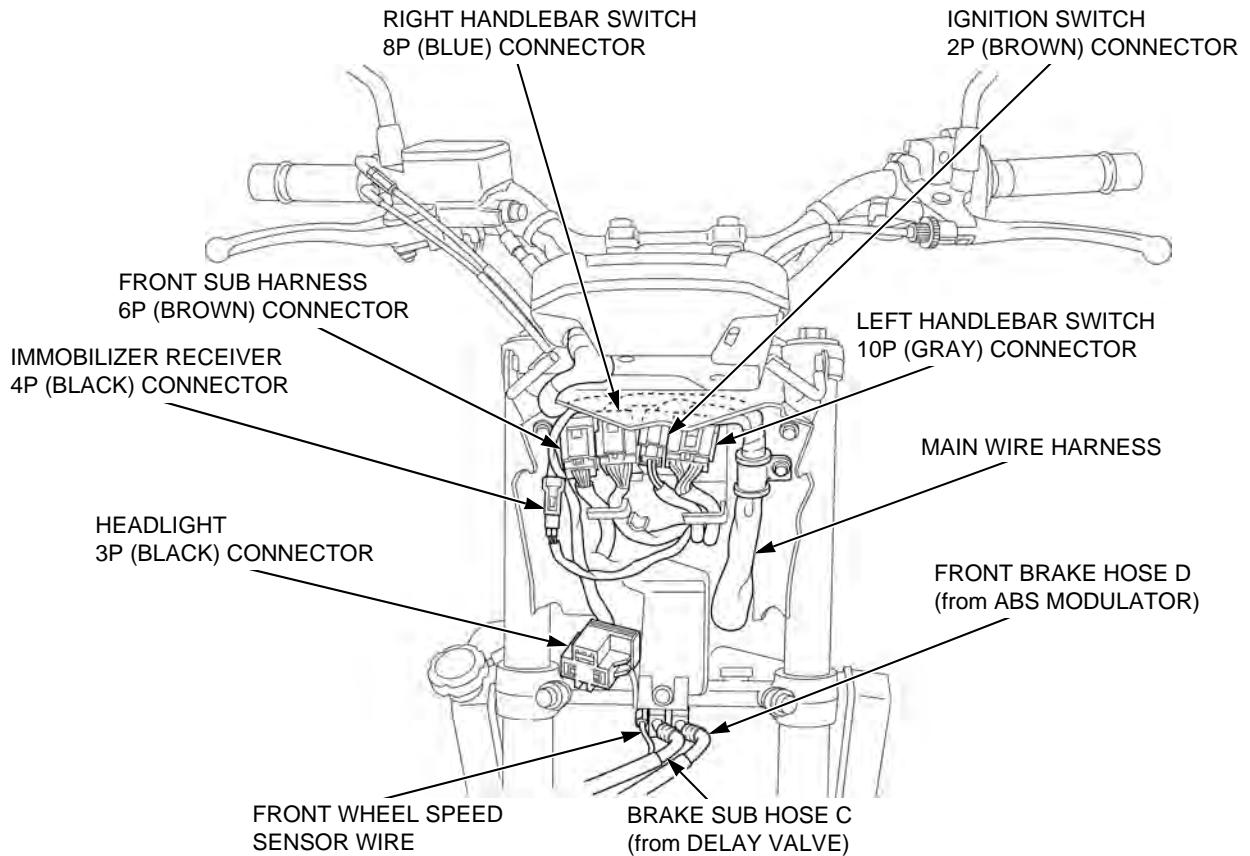
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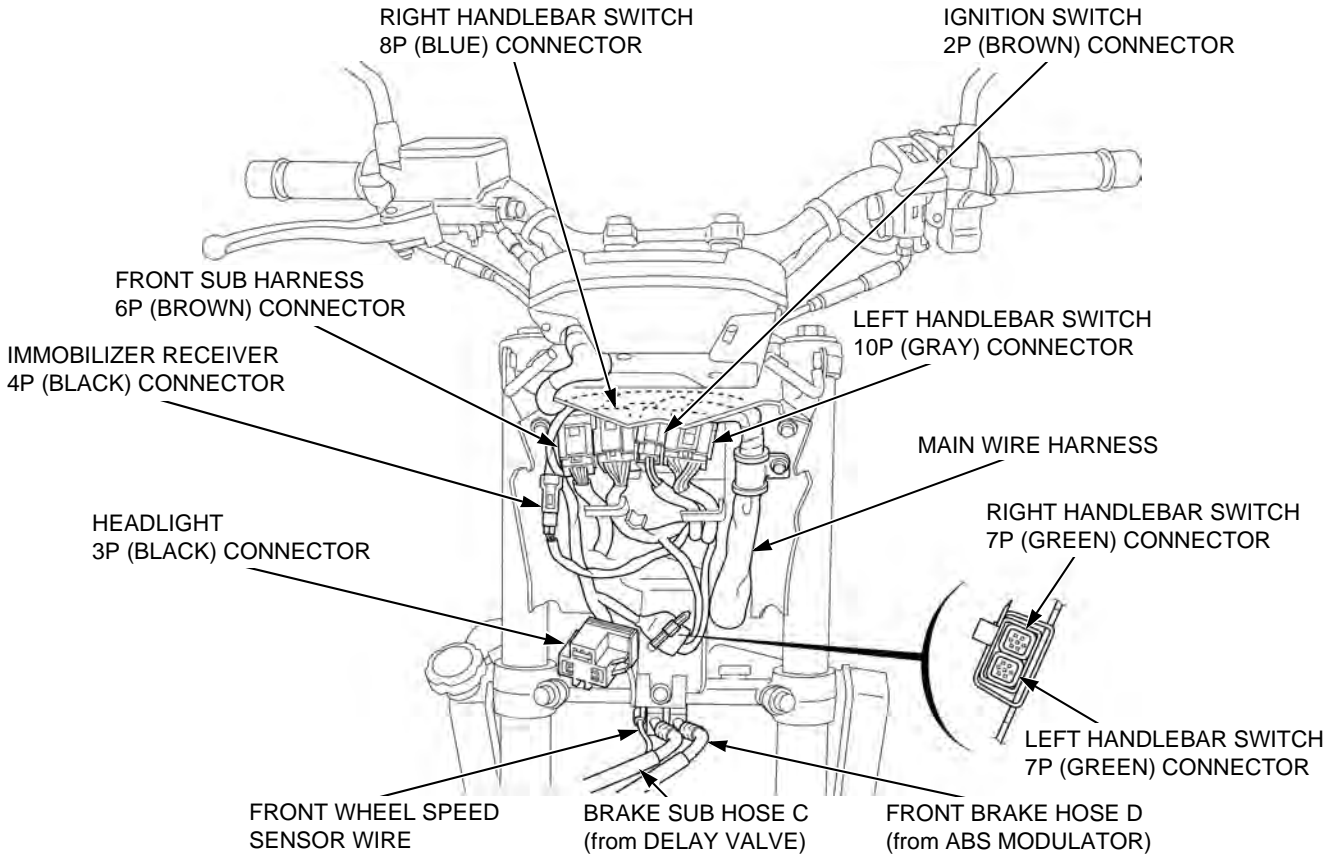


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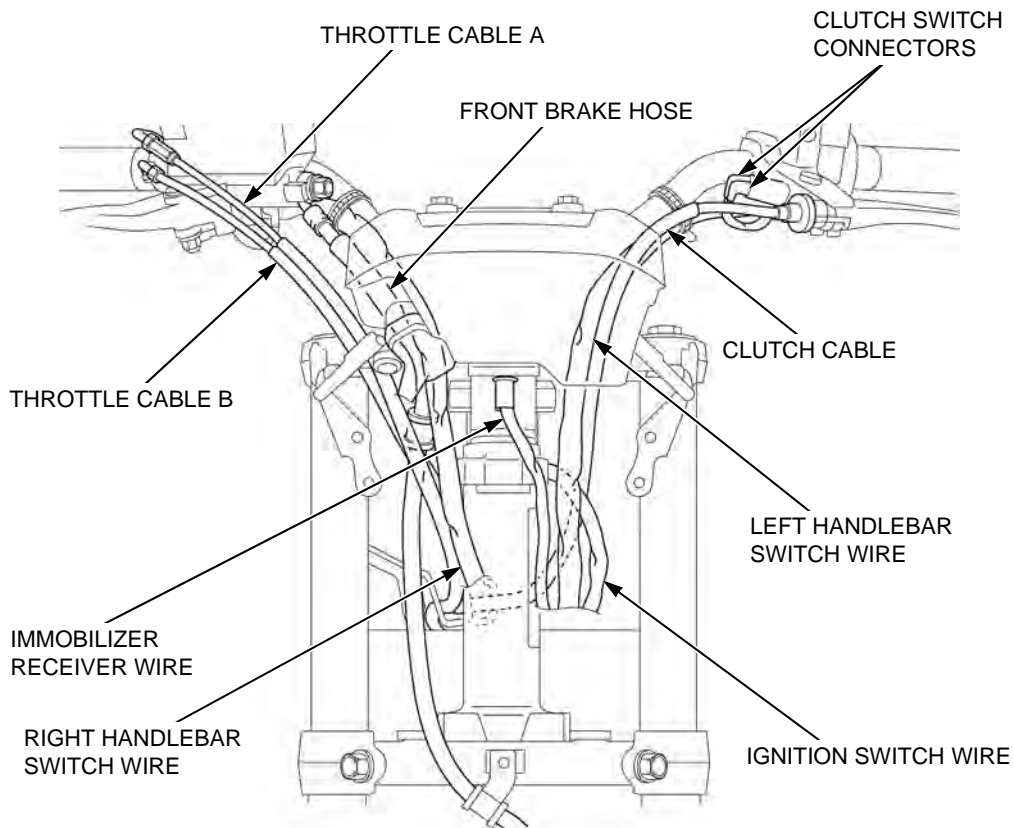


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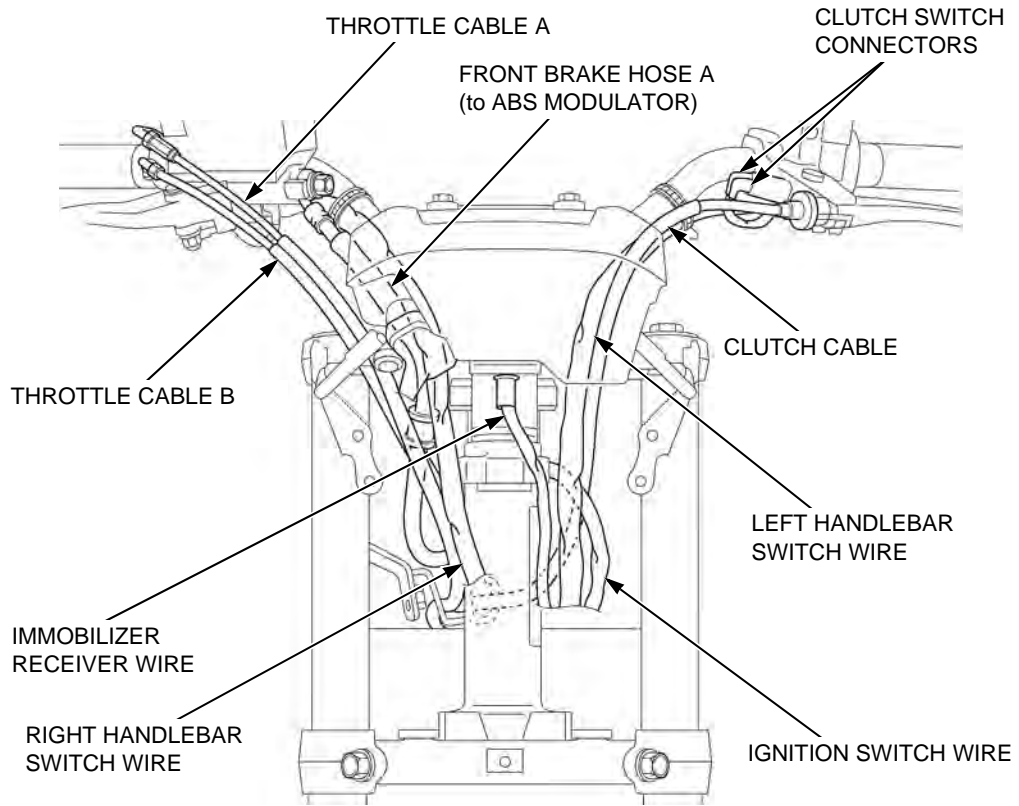
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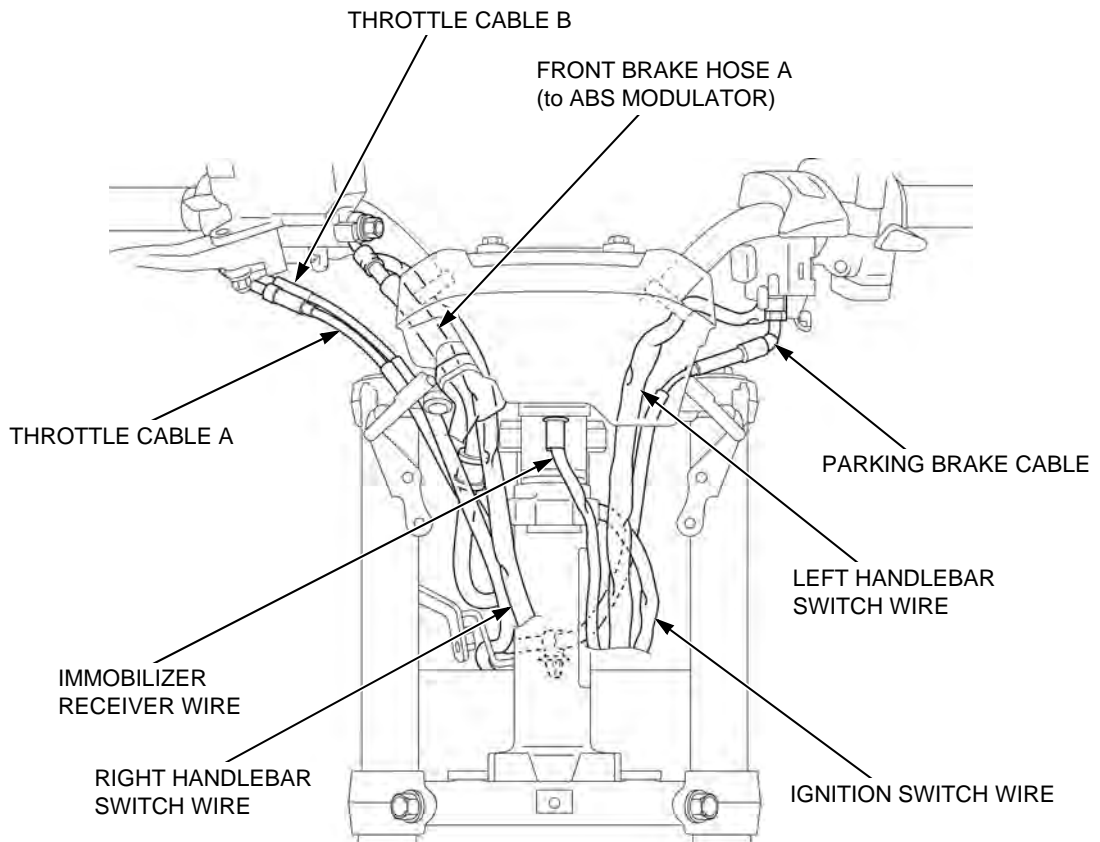
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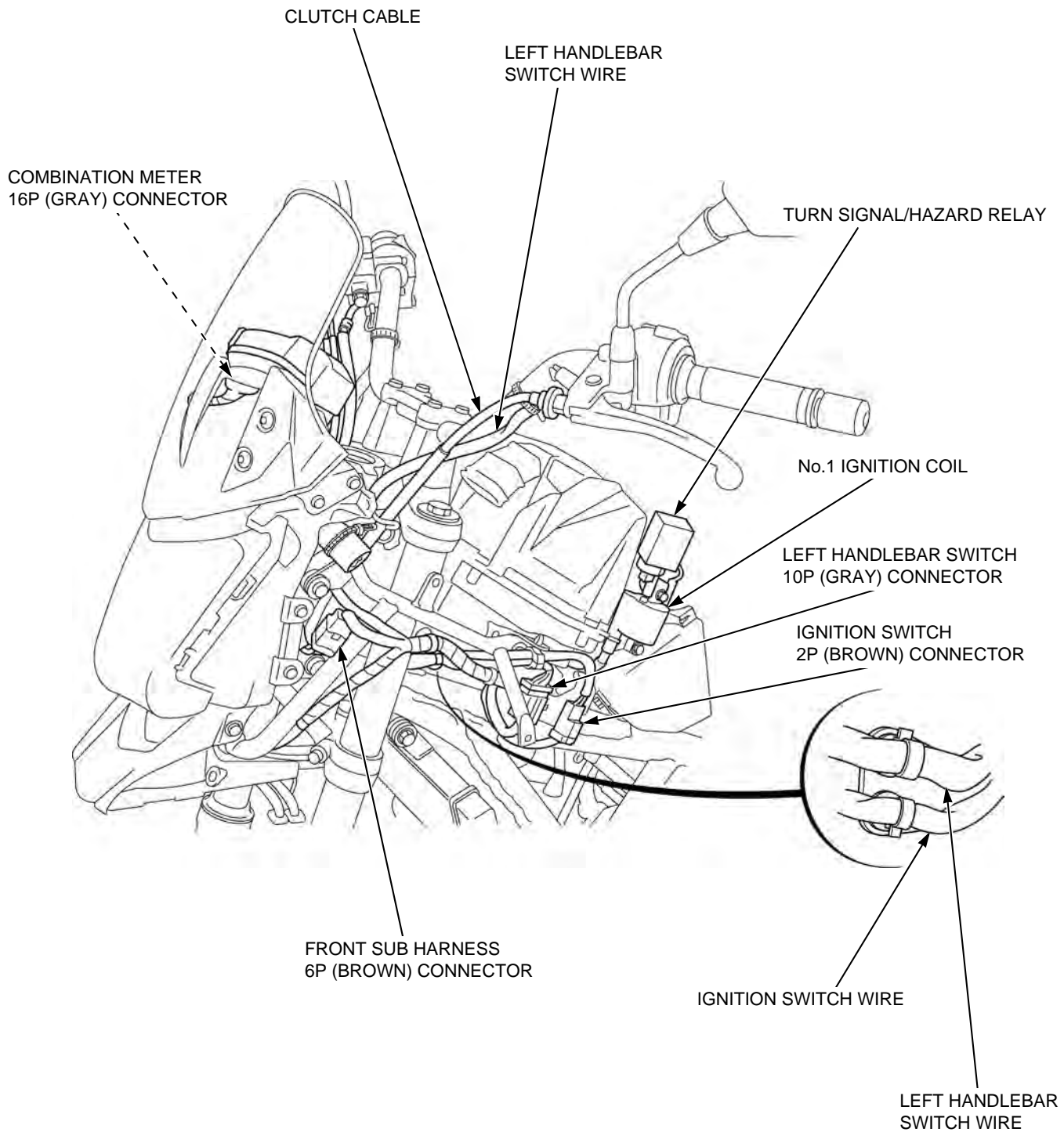


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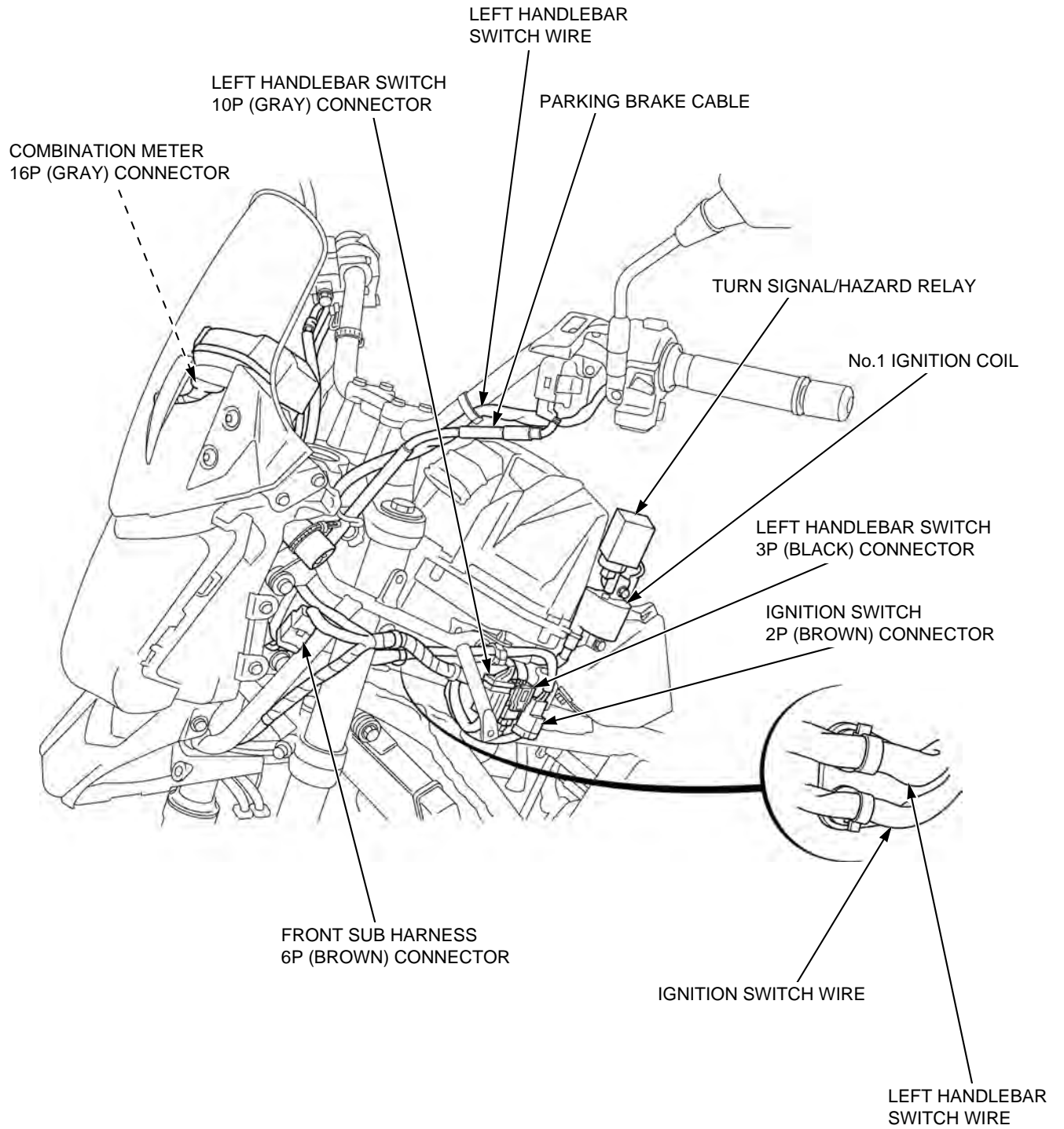


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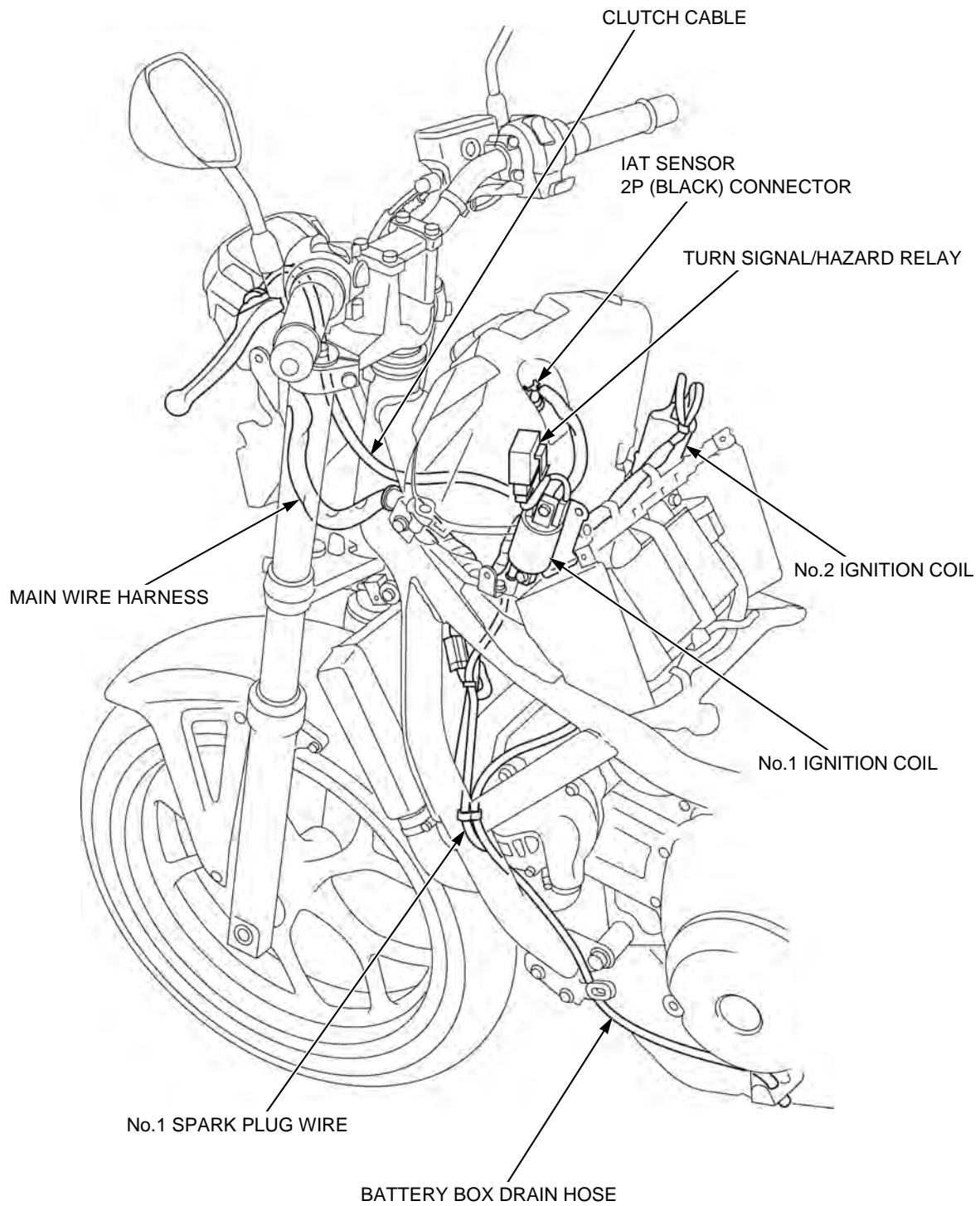


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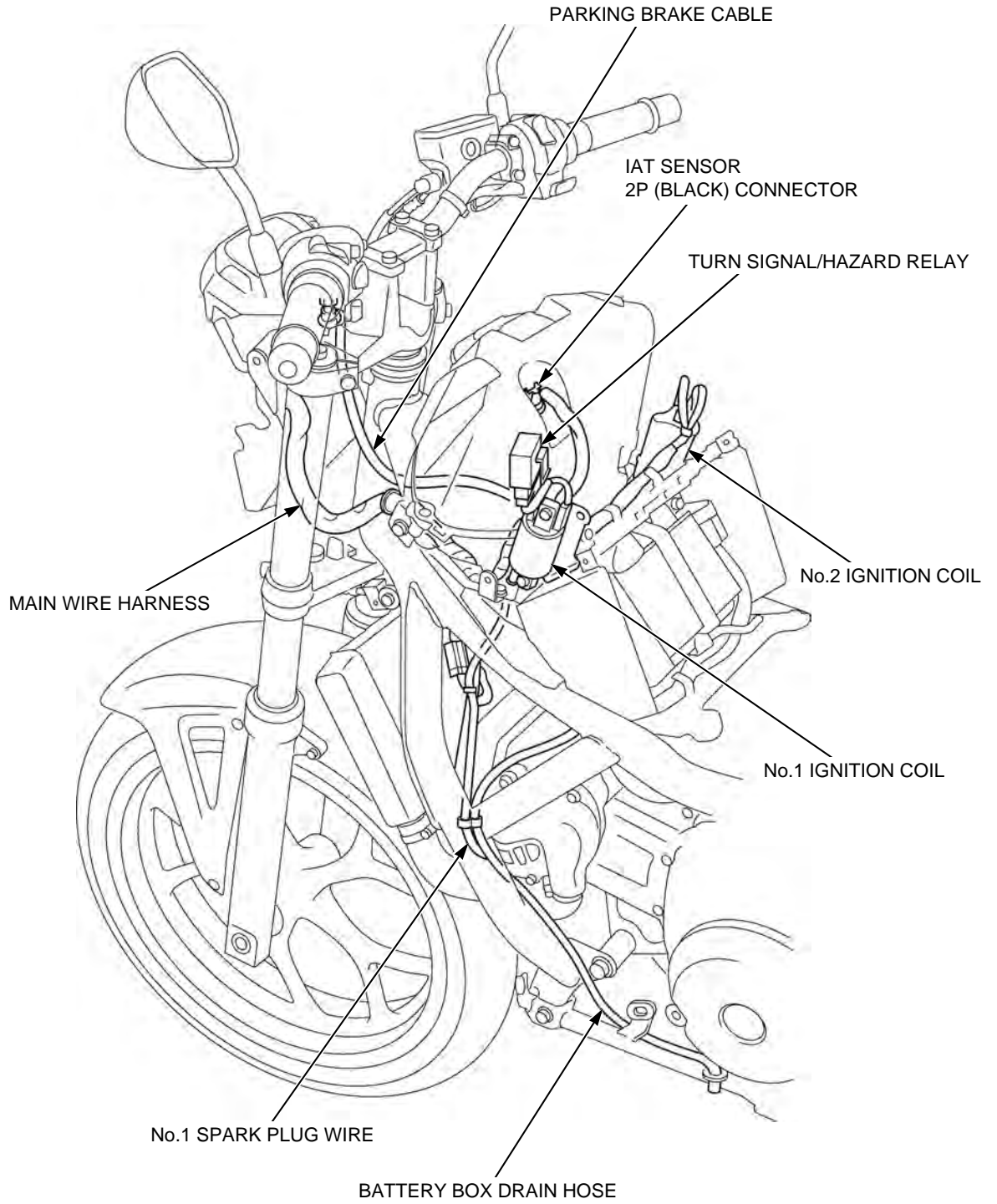


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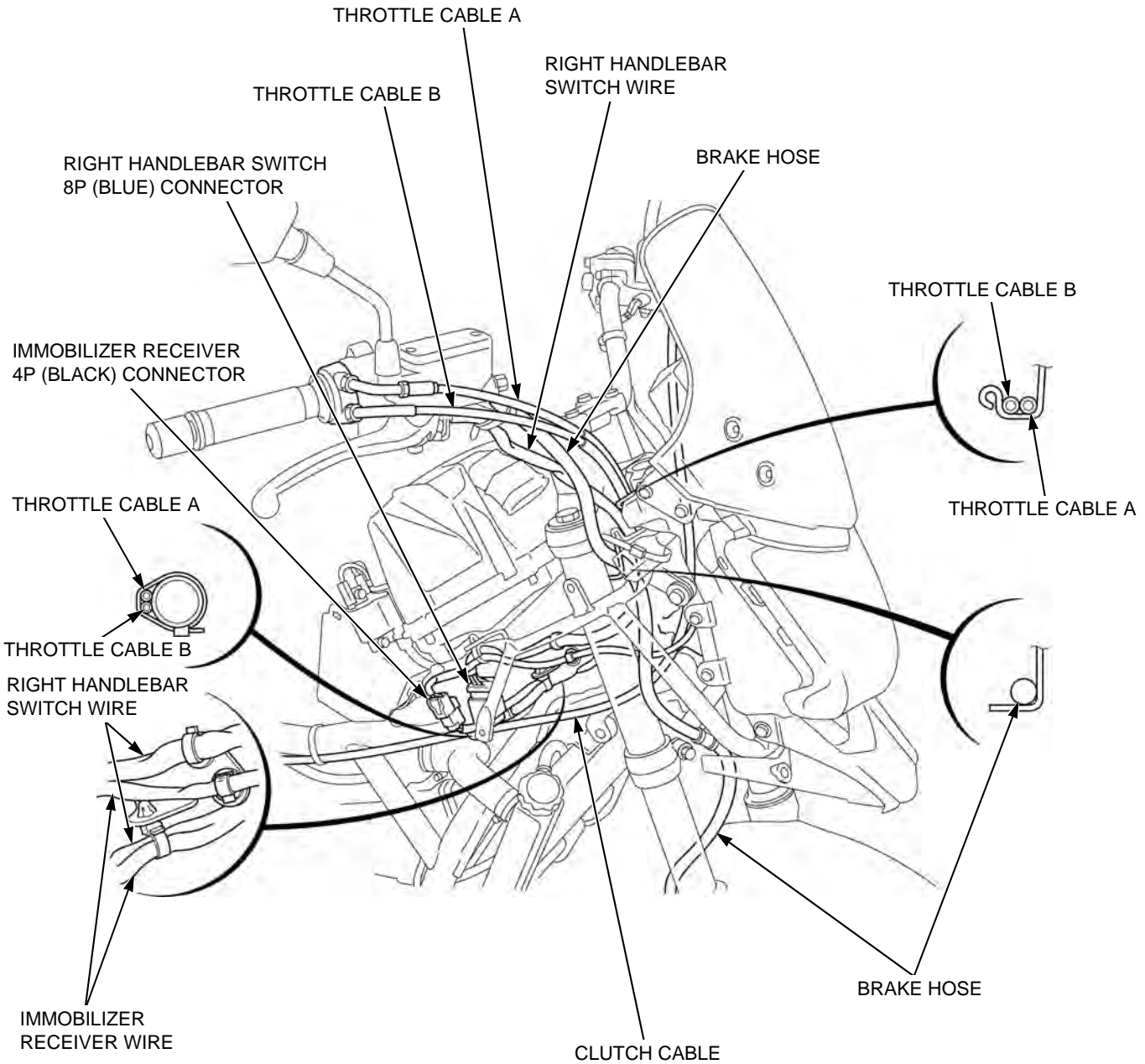


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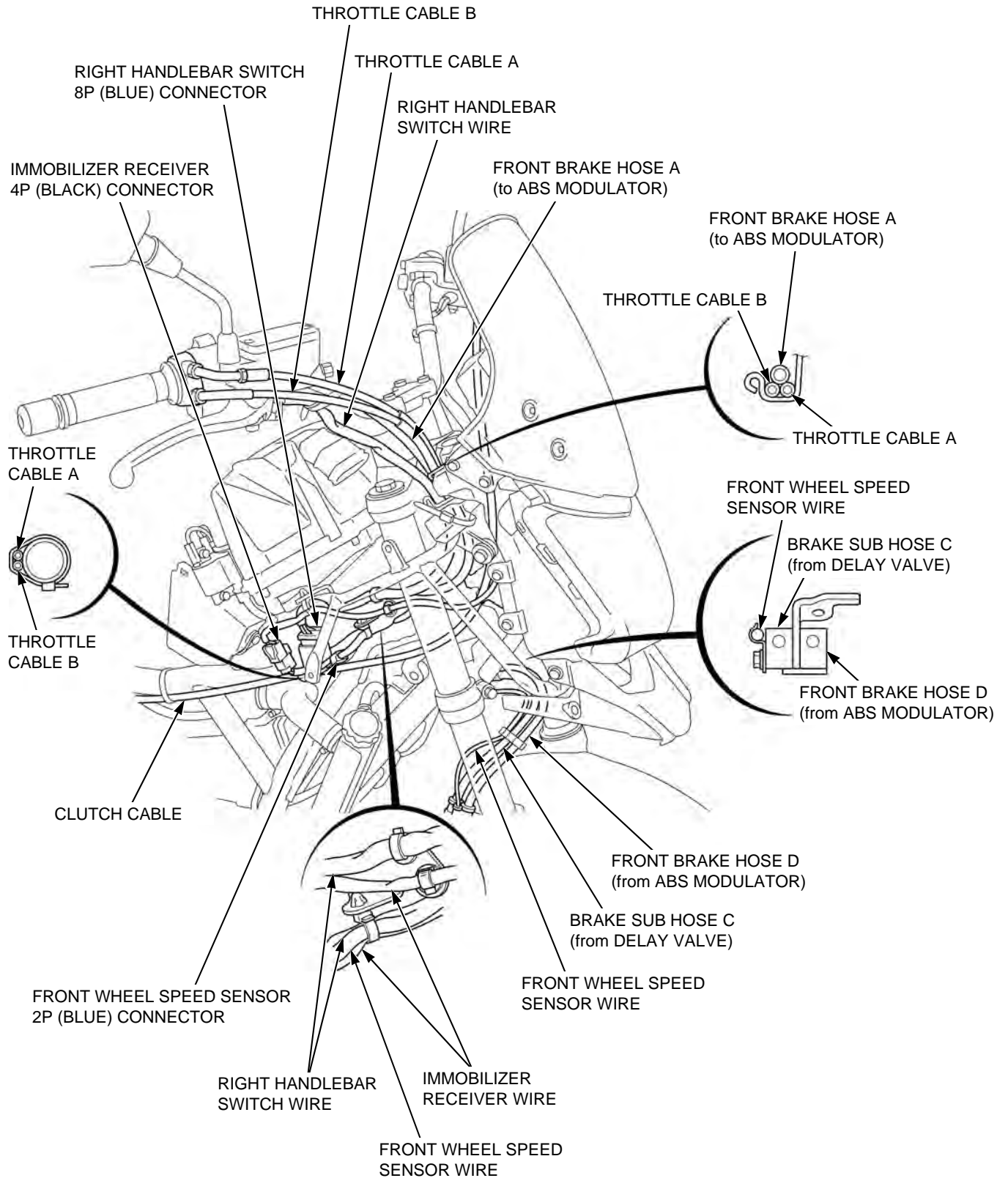


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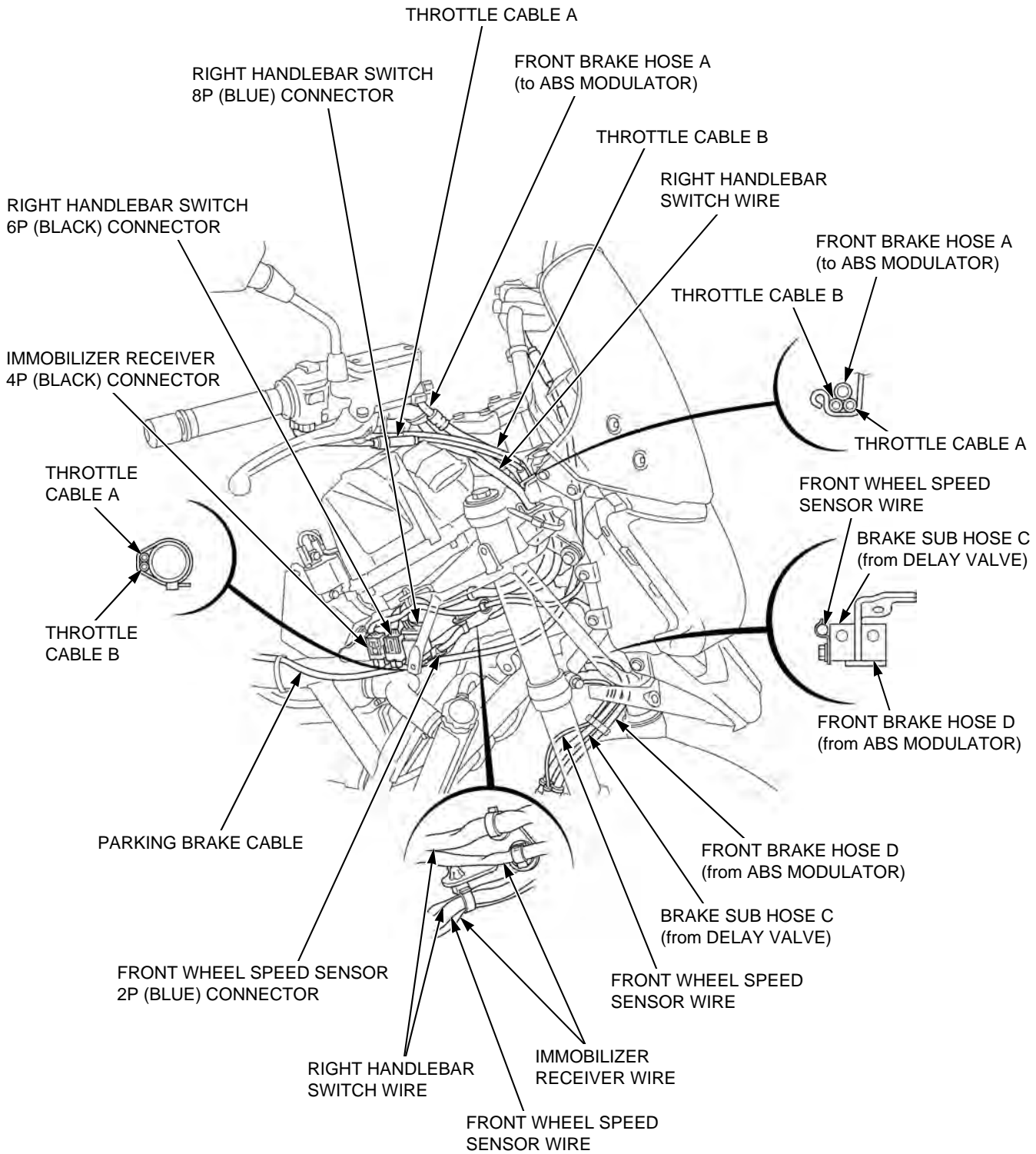


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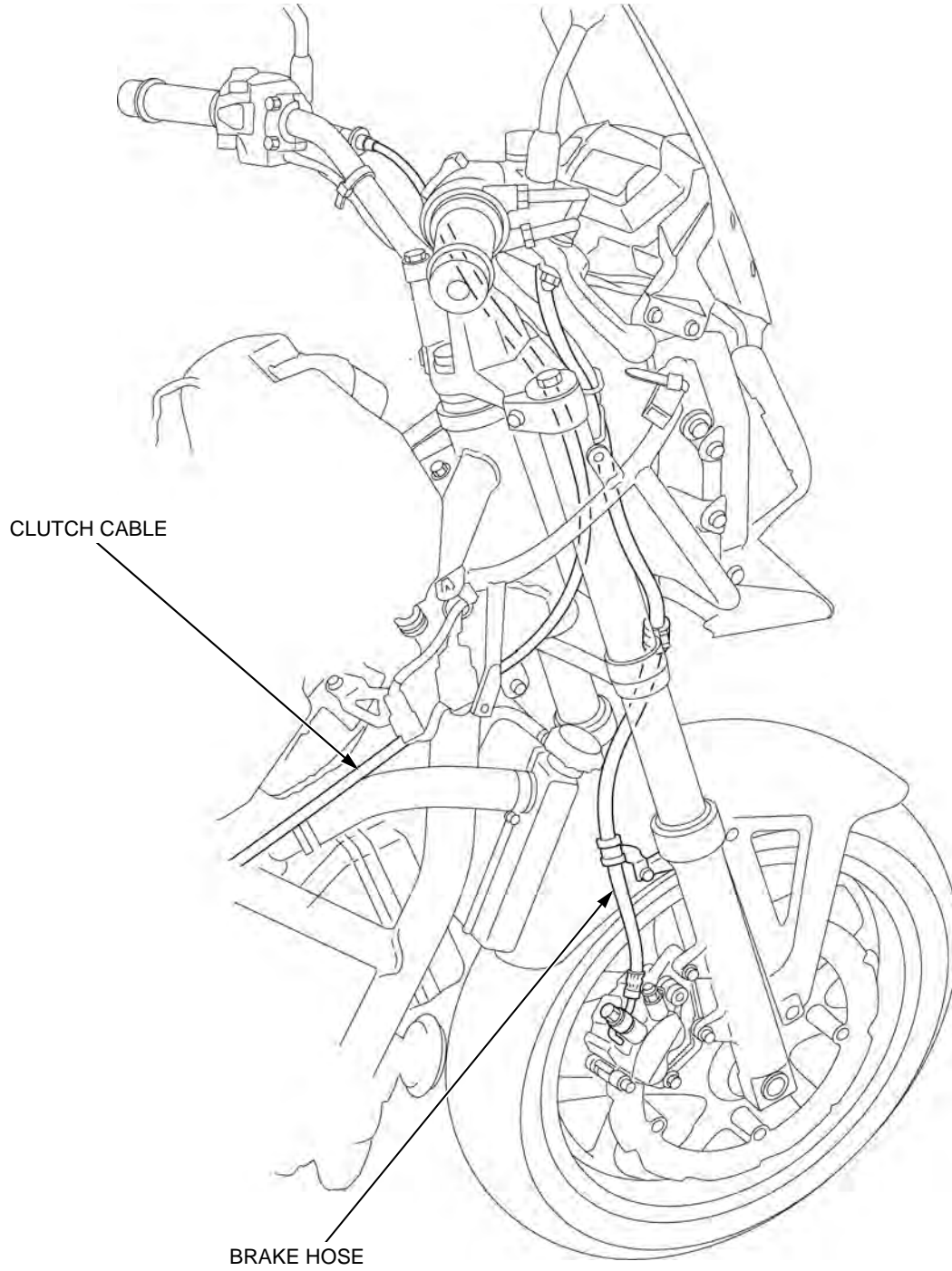


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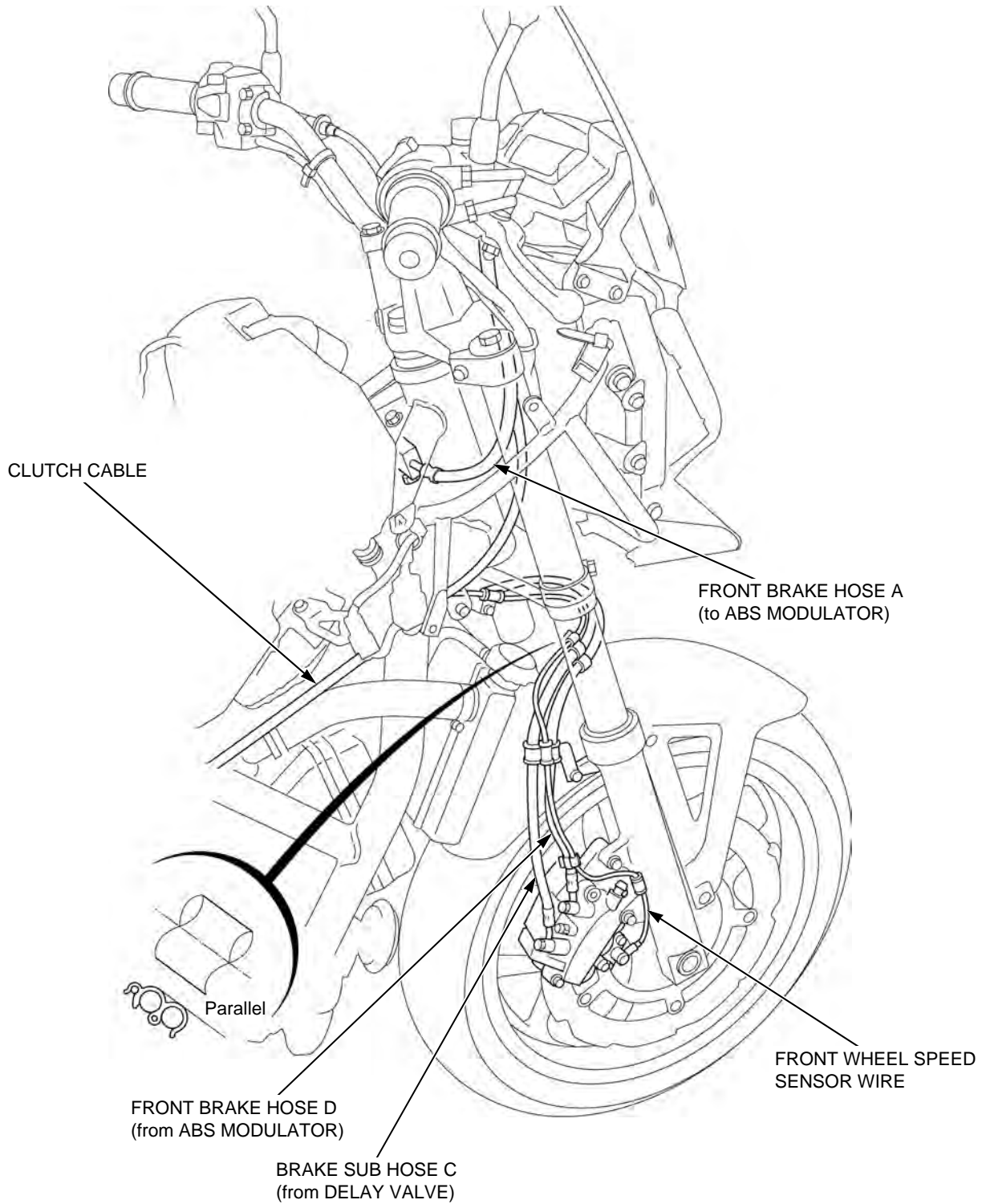


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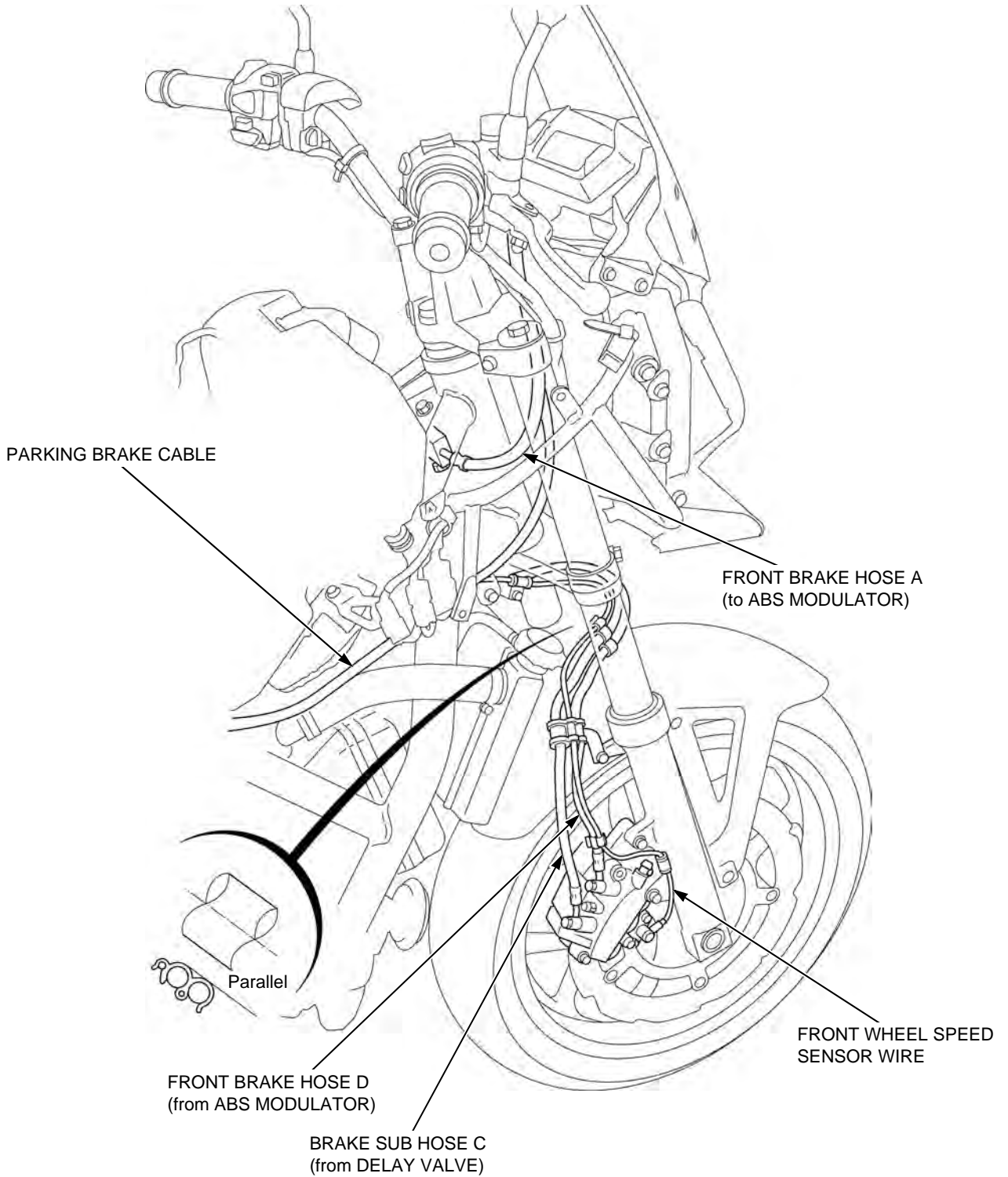


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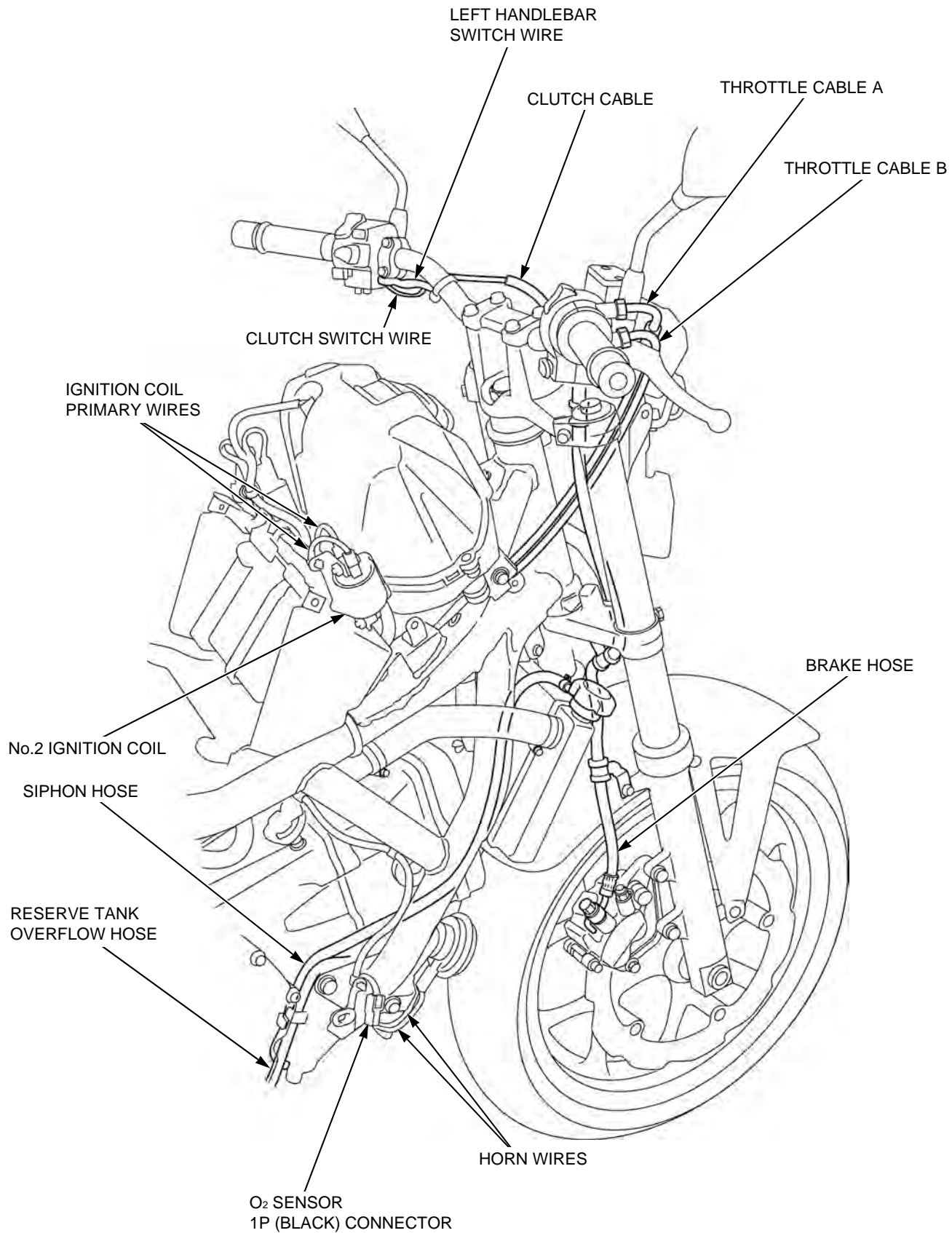


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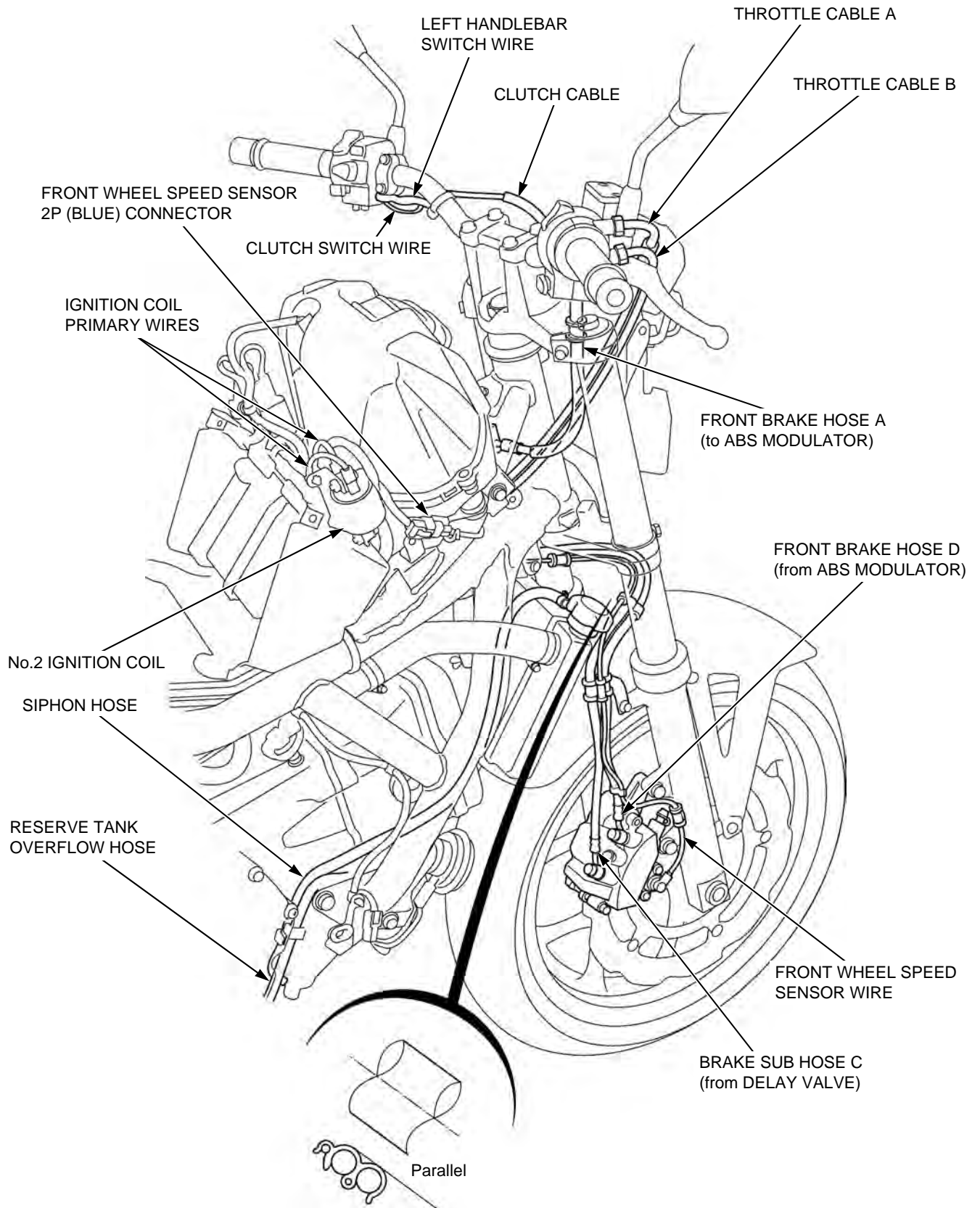


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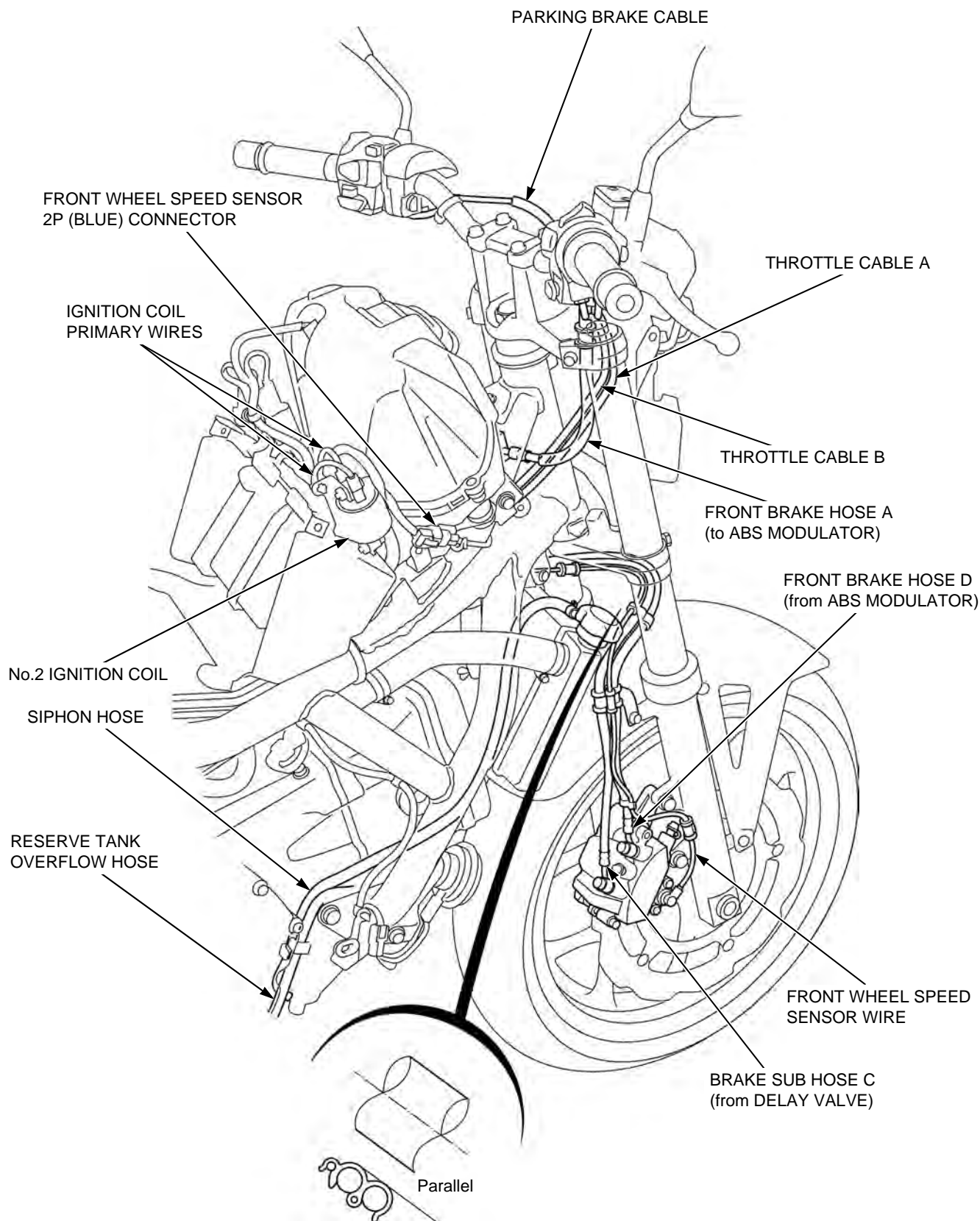


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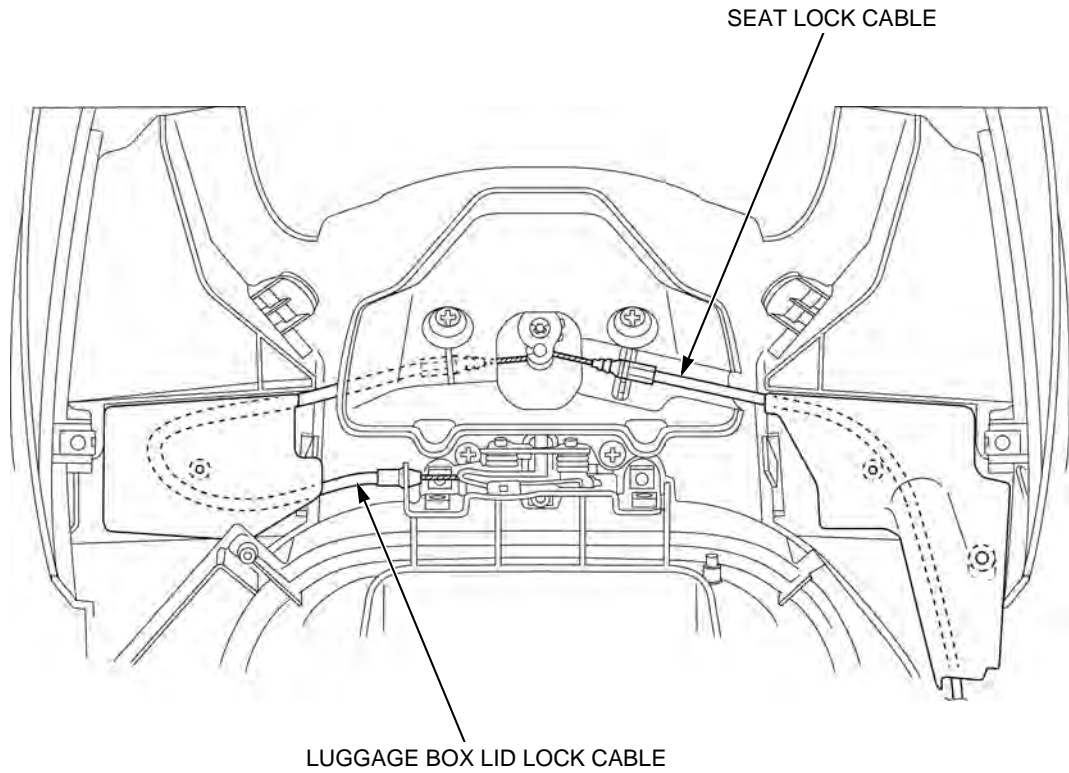


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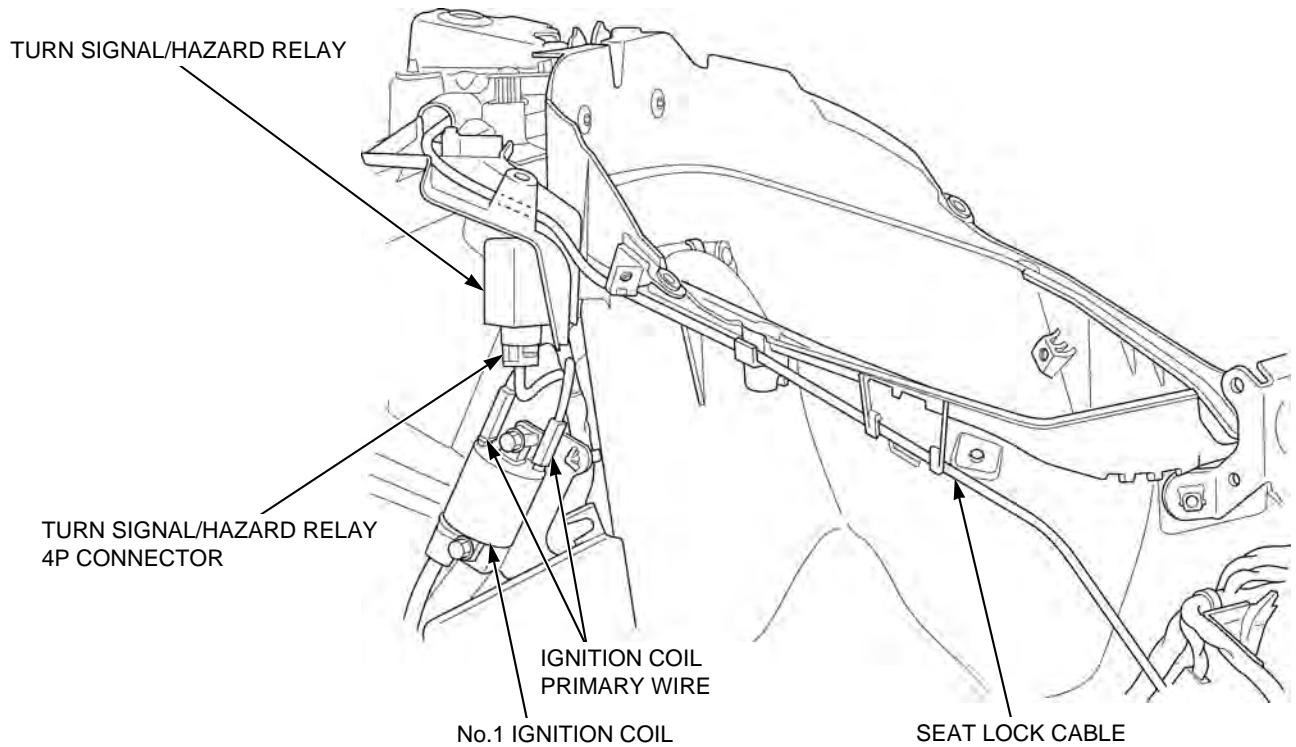
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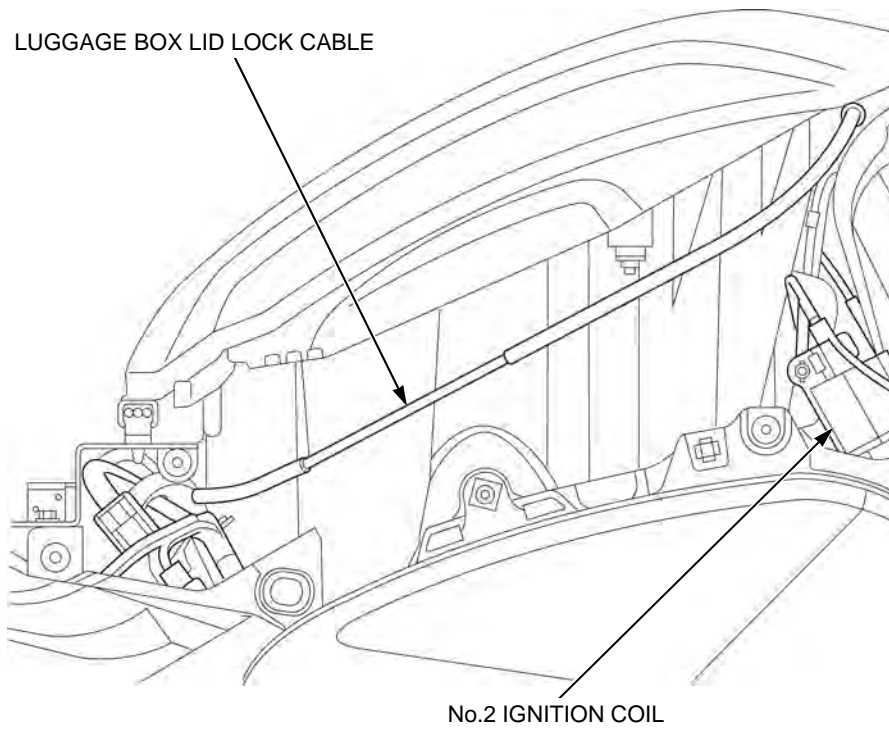


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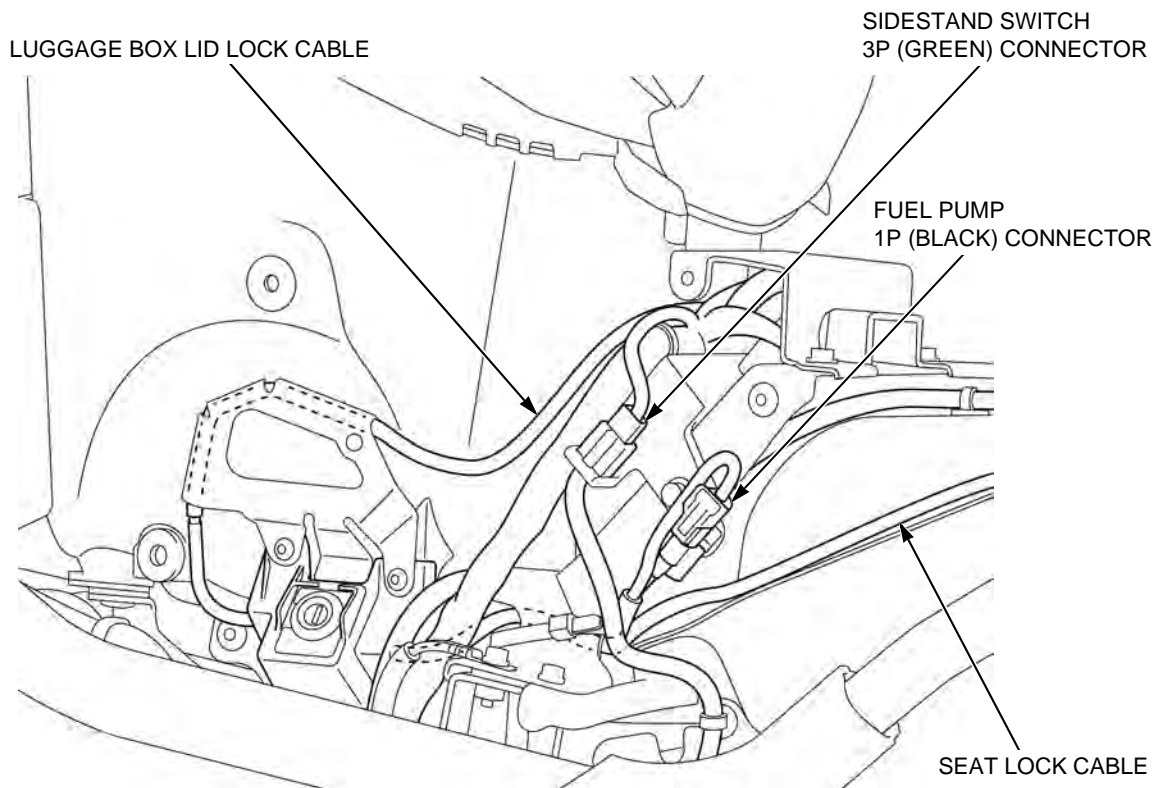


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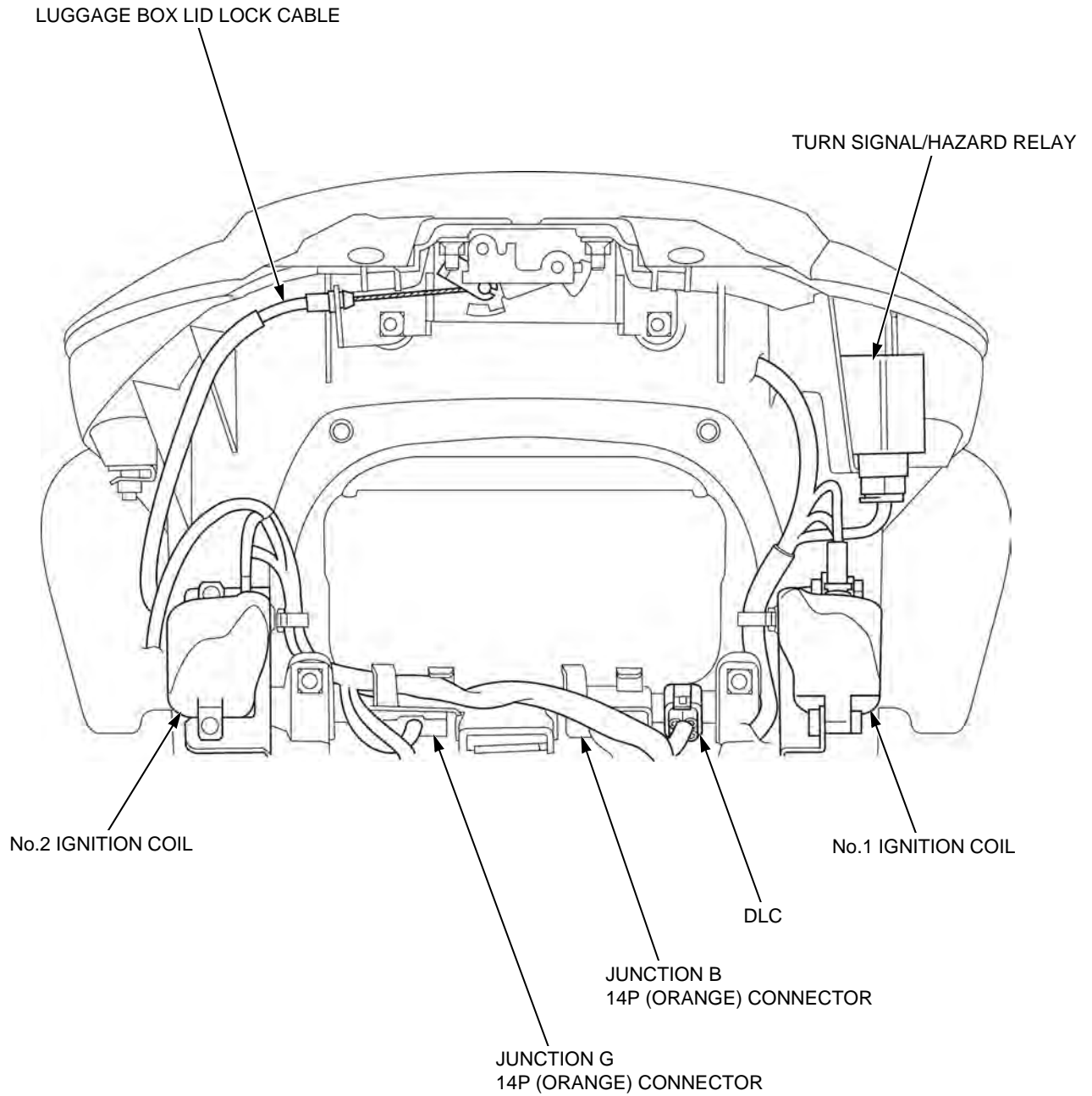
NC700S/SA/SD:



NC700S/SA/SD:

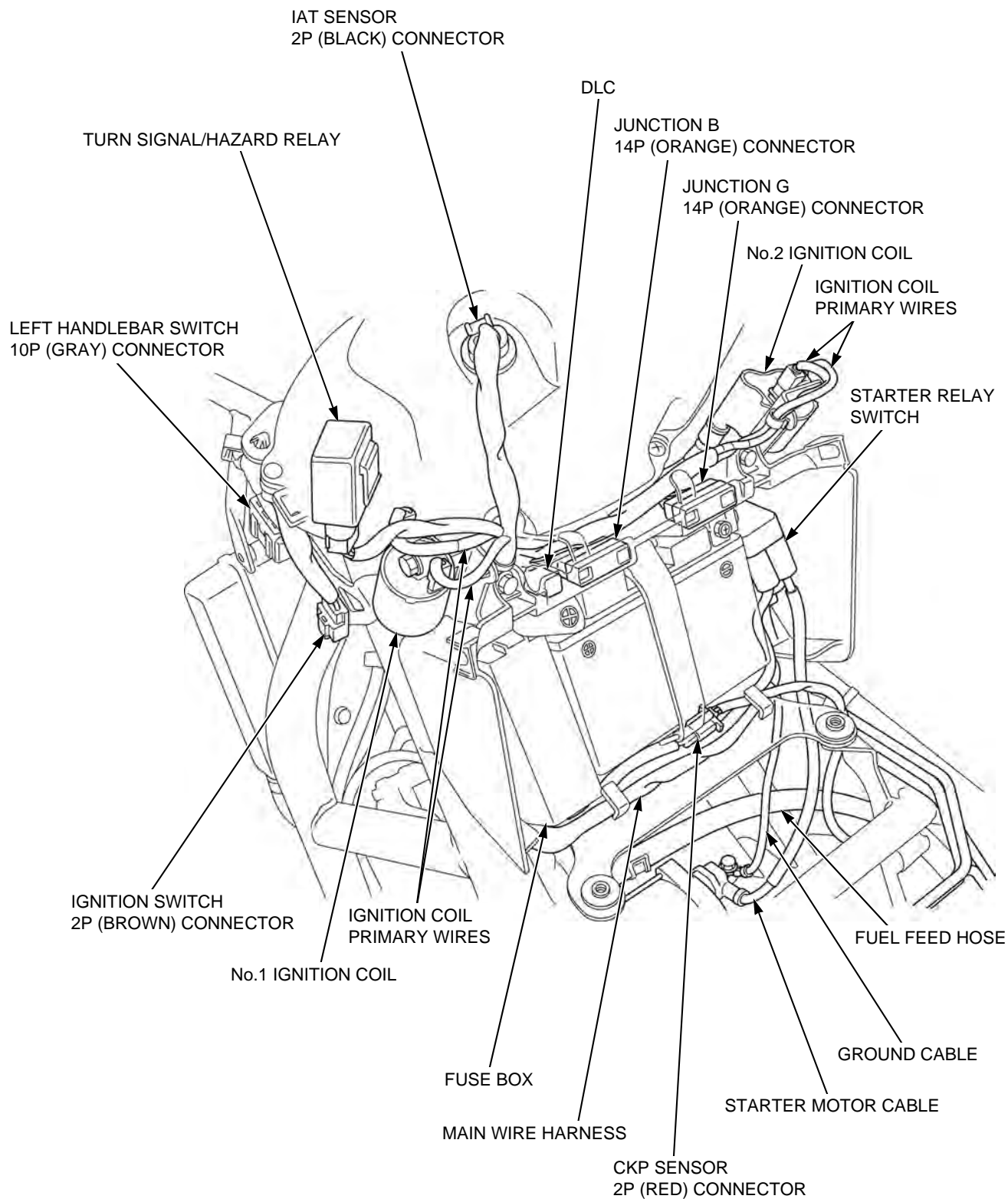


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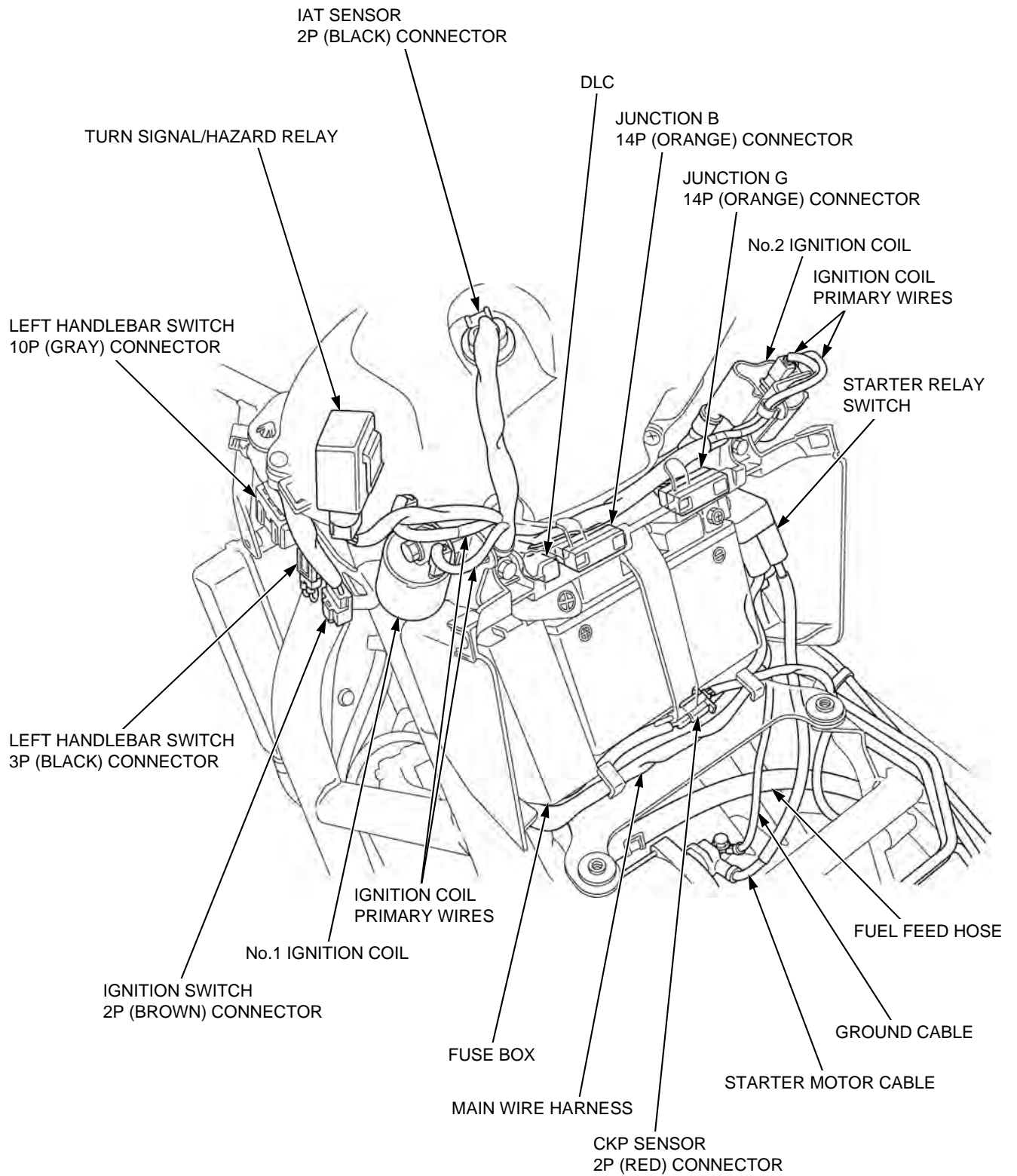


GENERAL INFORMATION

NC700X/XA:

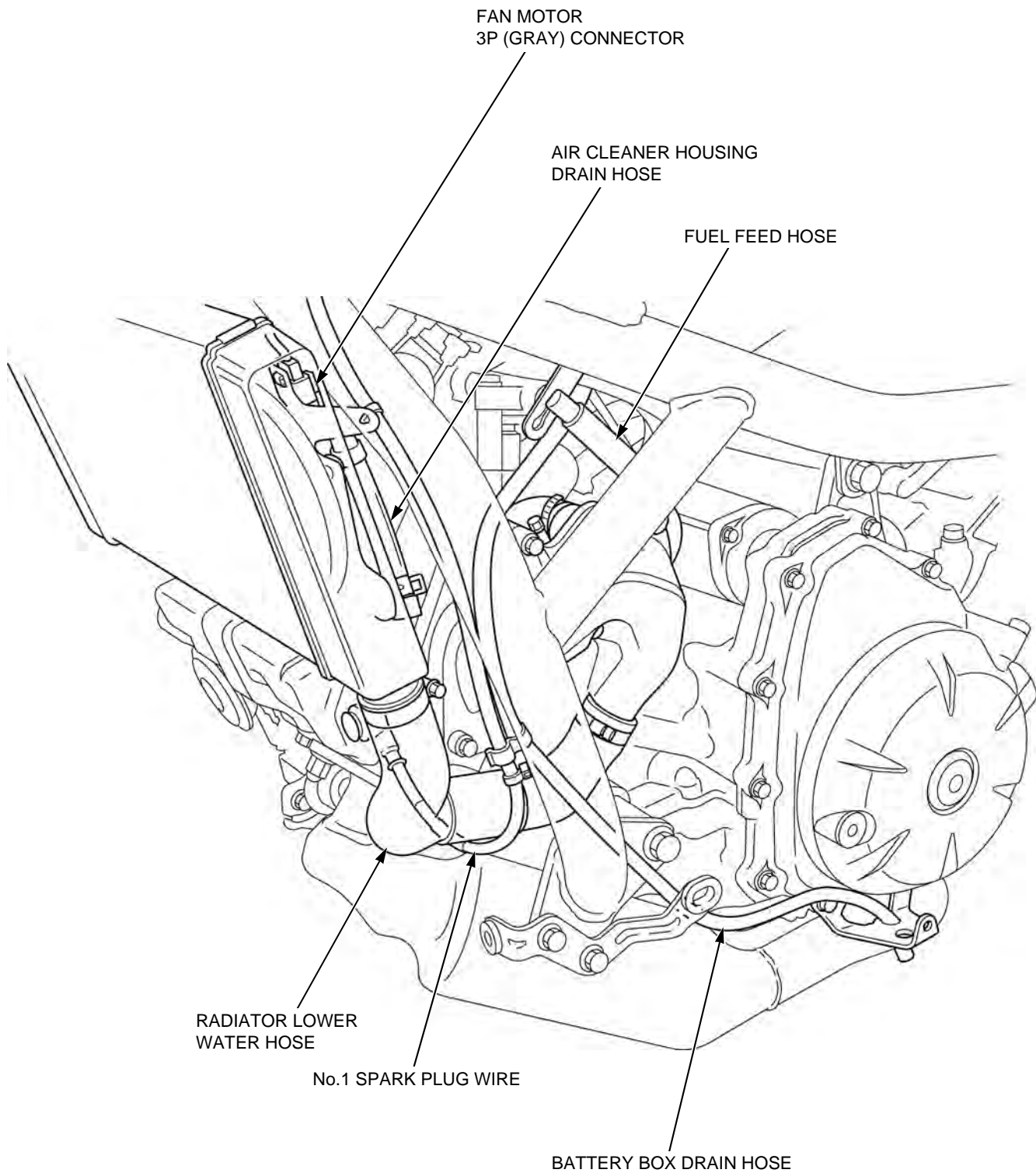


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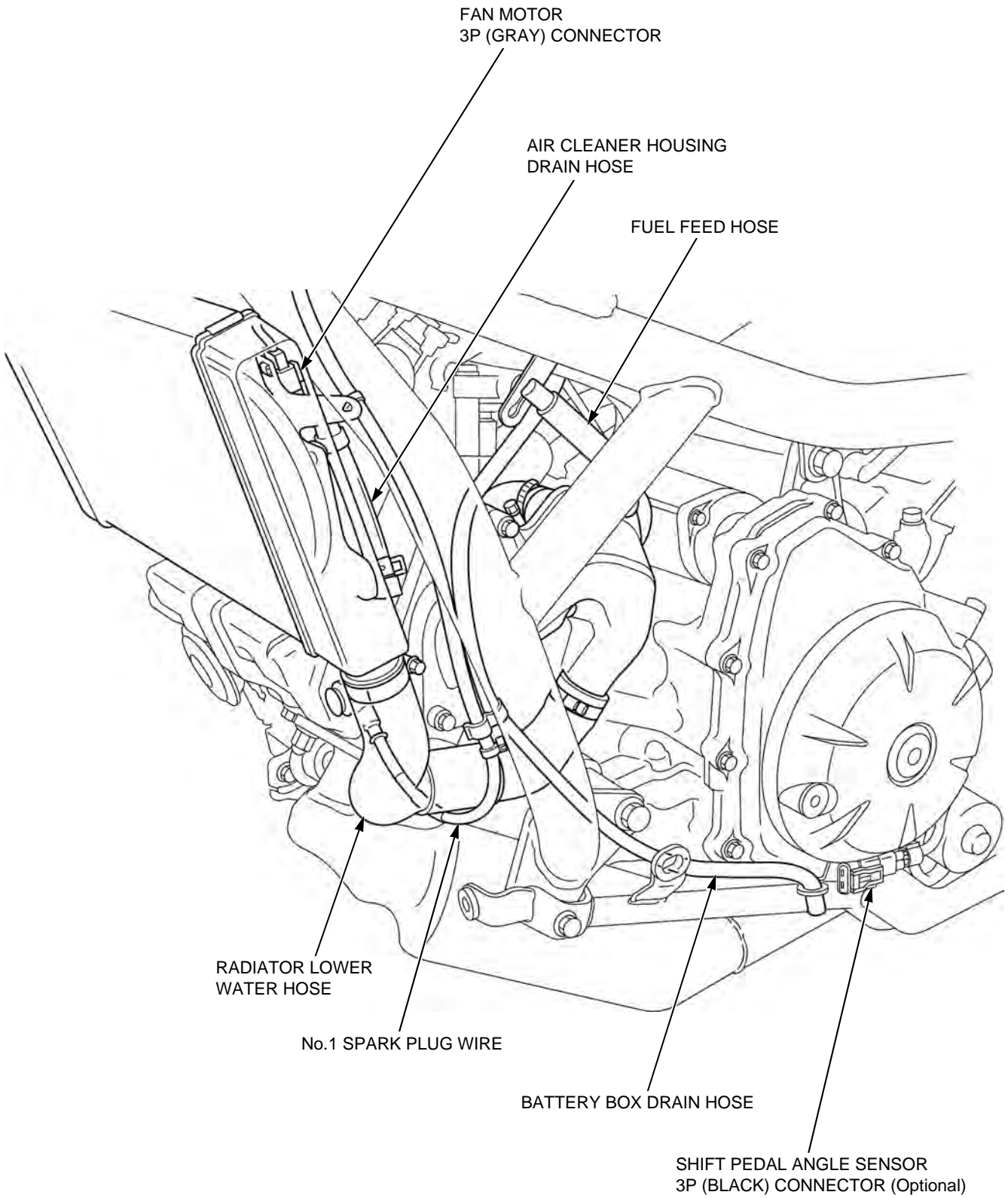


GENERAL INFORMATION

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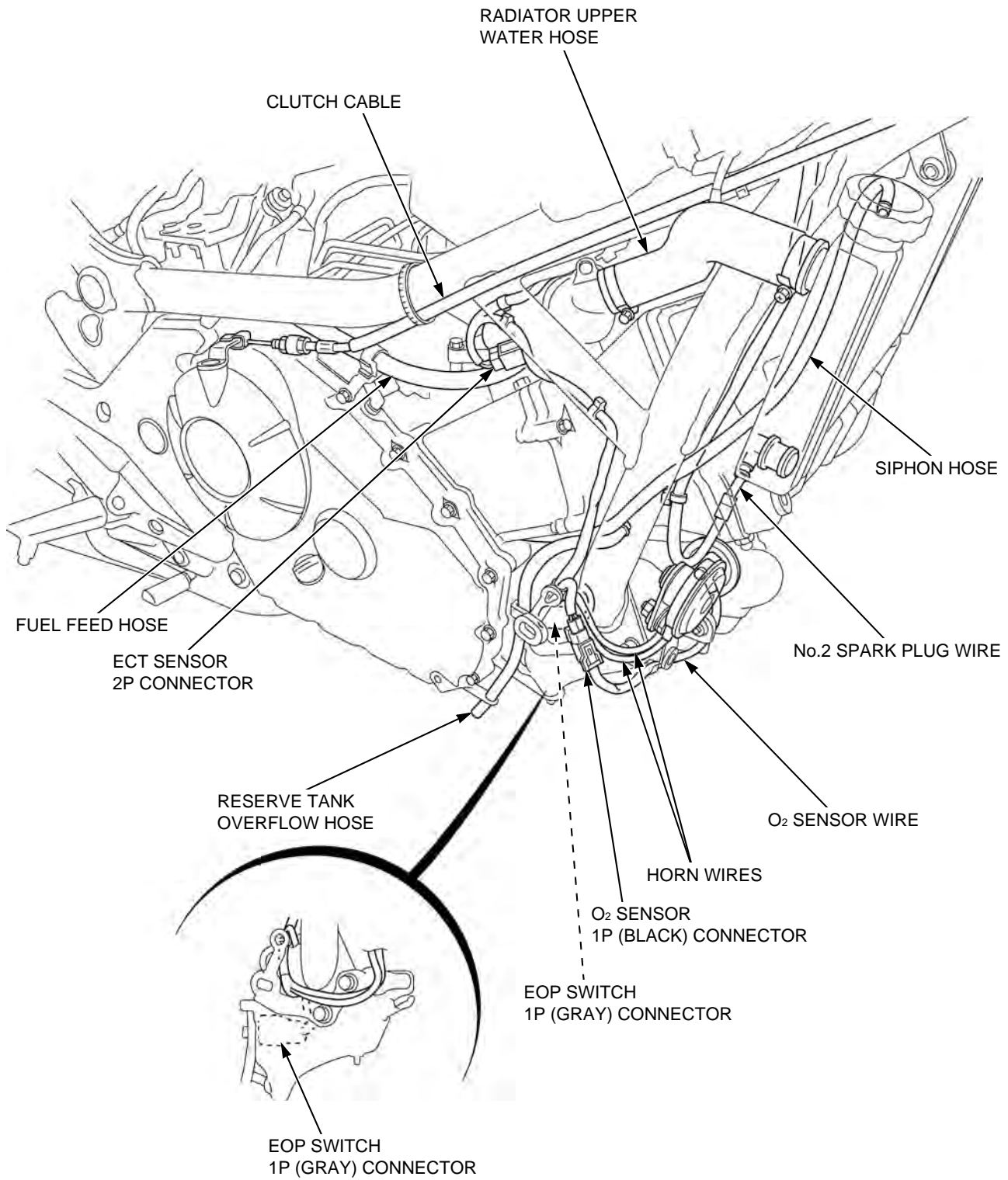


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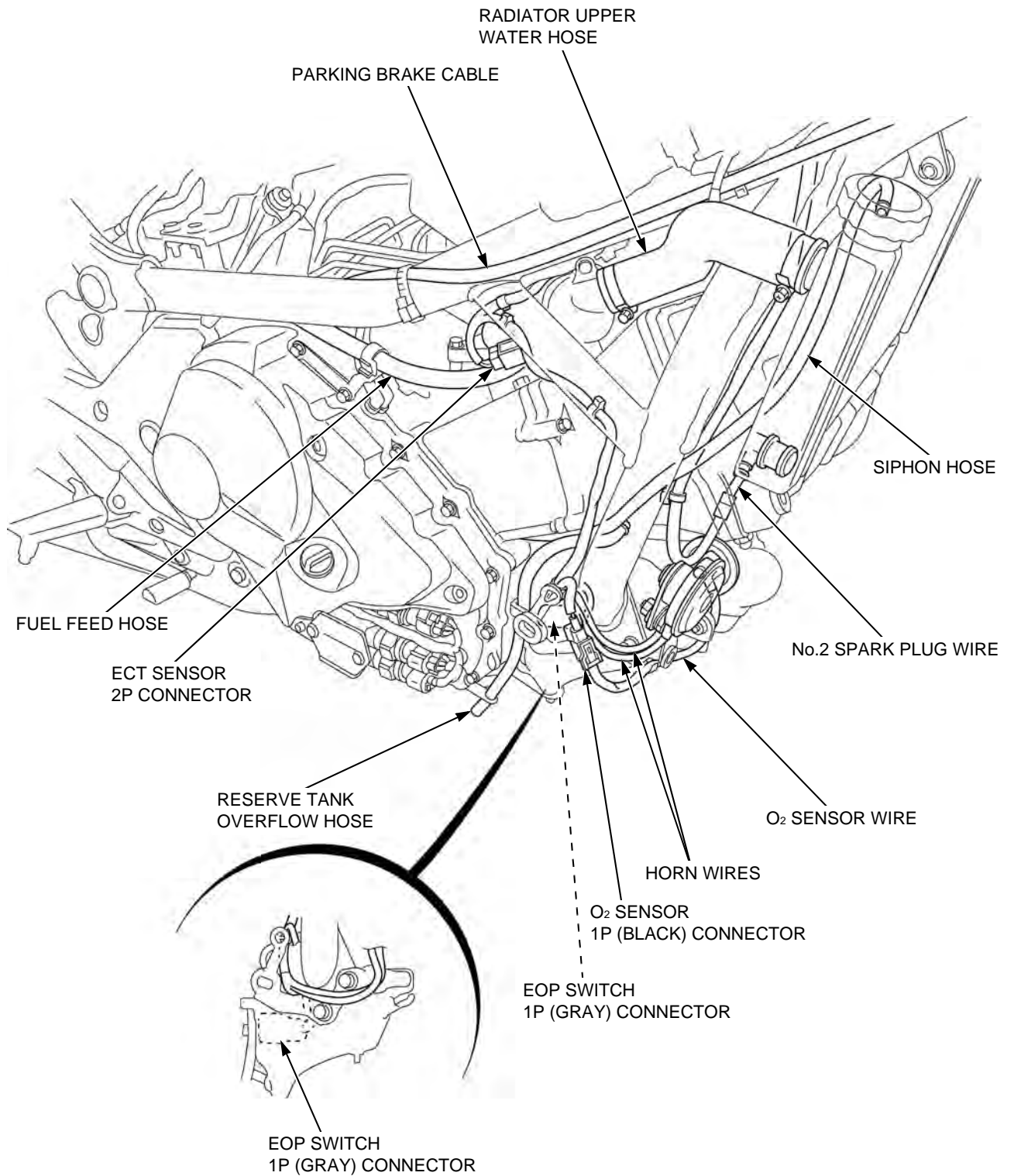


GENERAL INFORMATION

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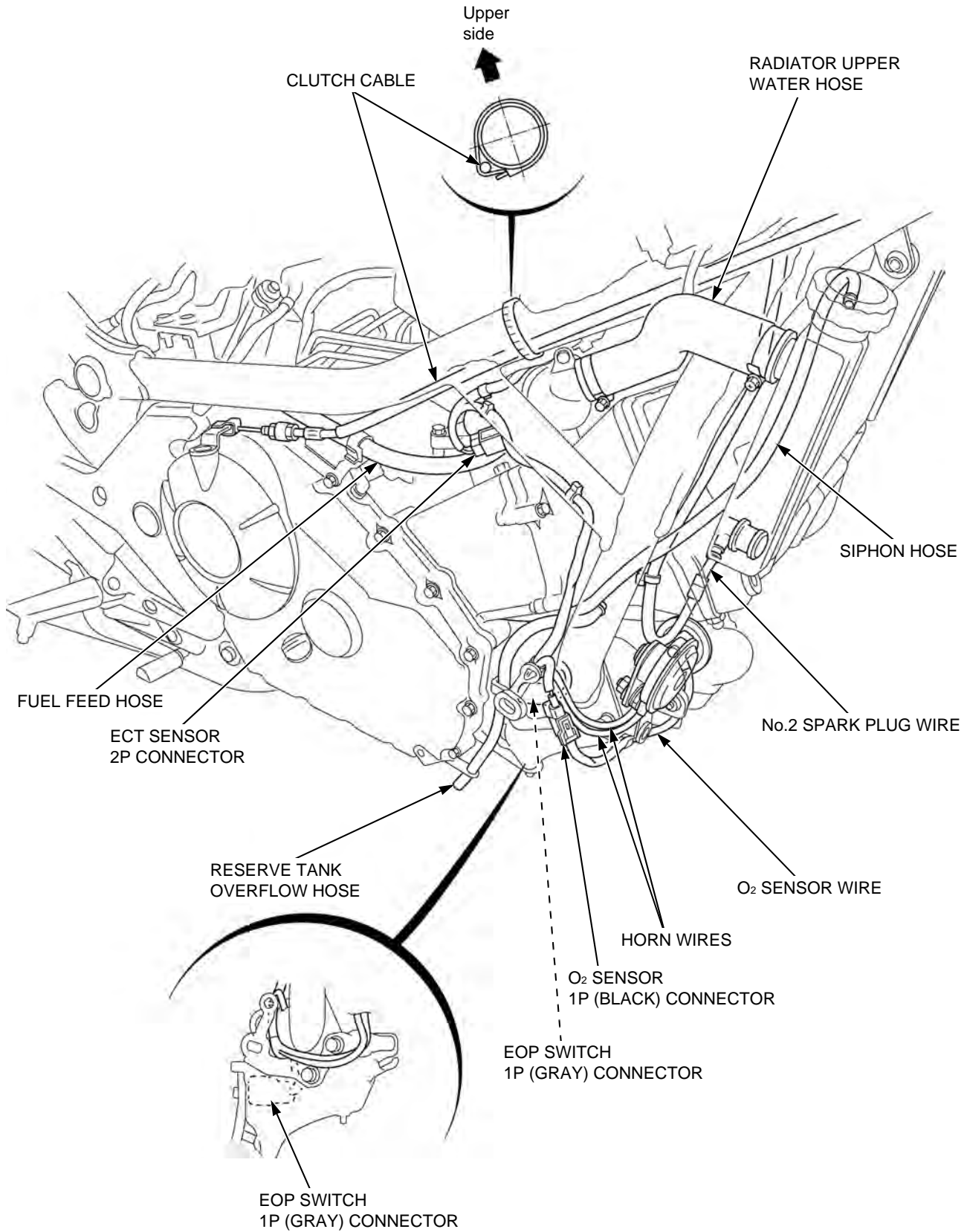


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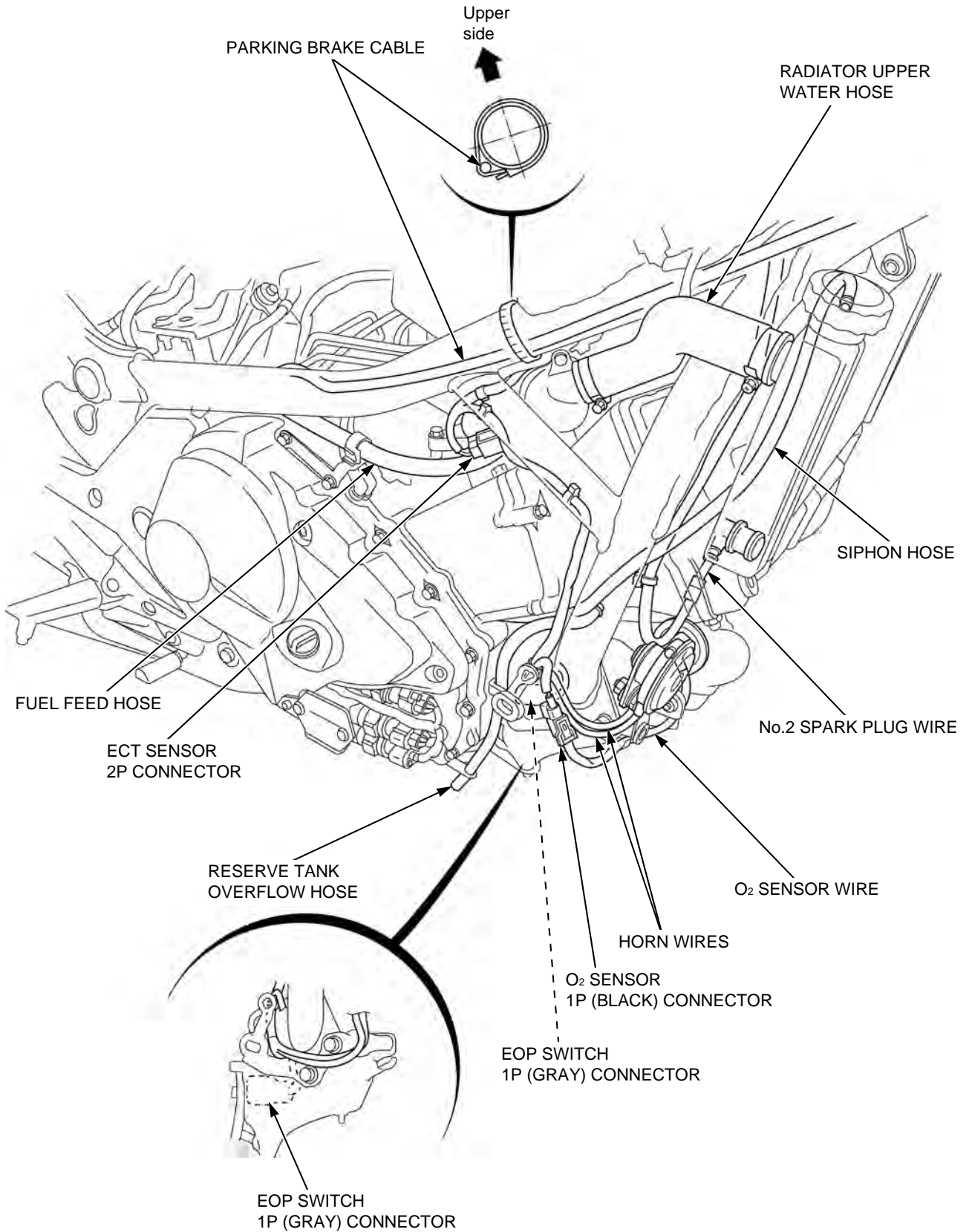


GENERAL INFORMATION

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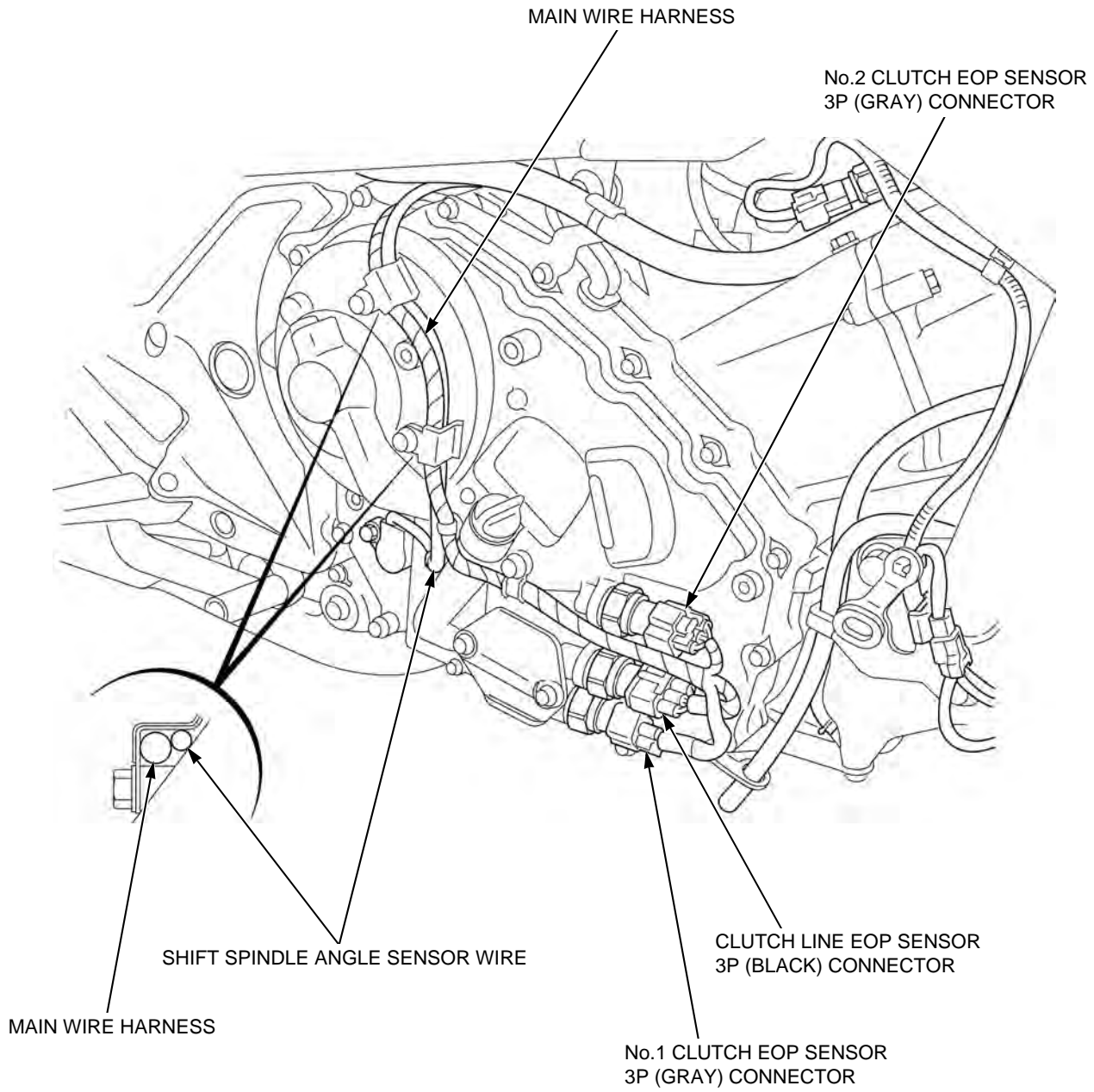


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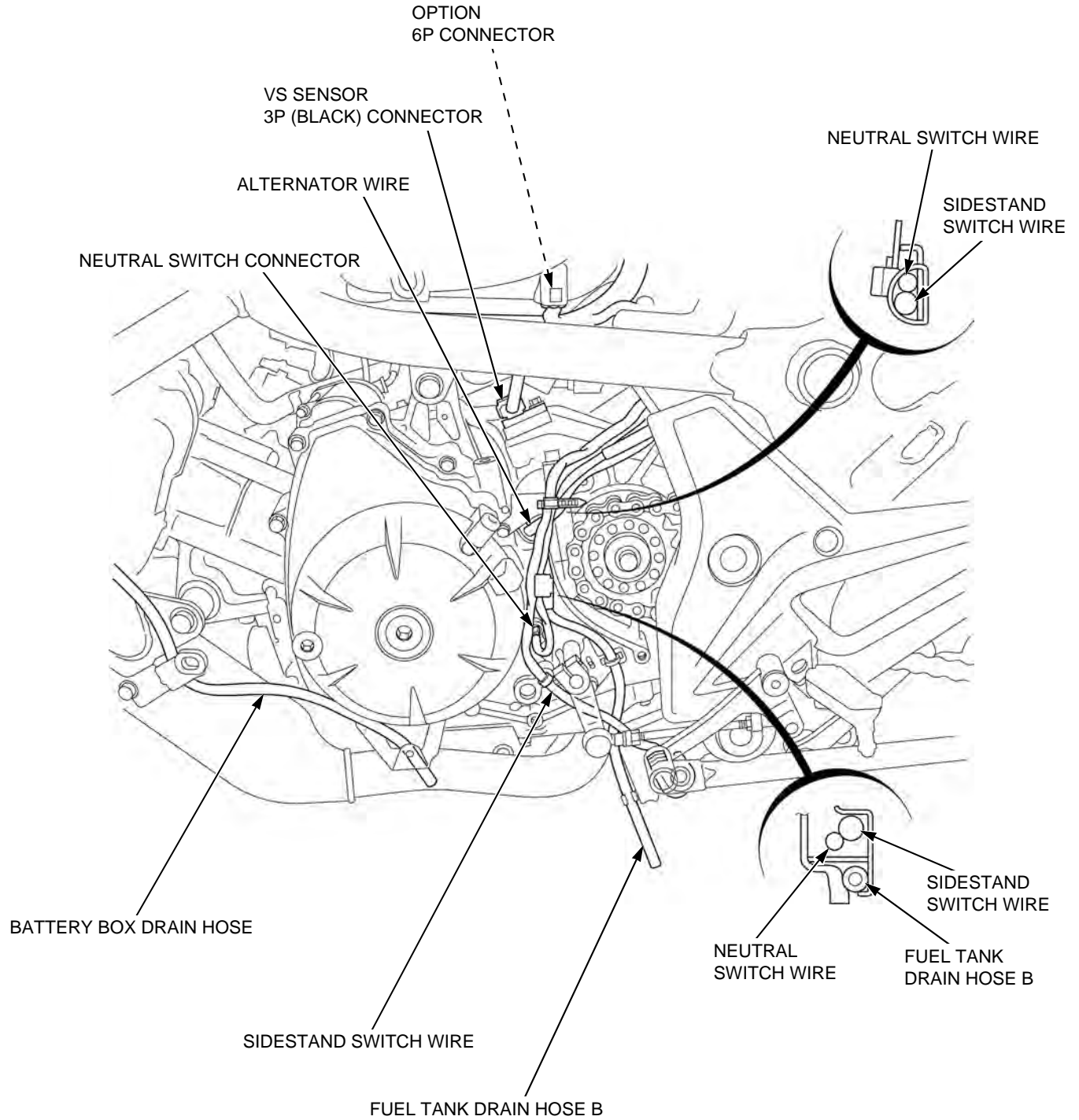


GENERAL INFORMATION

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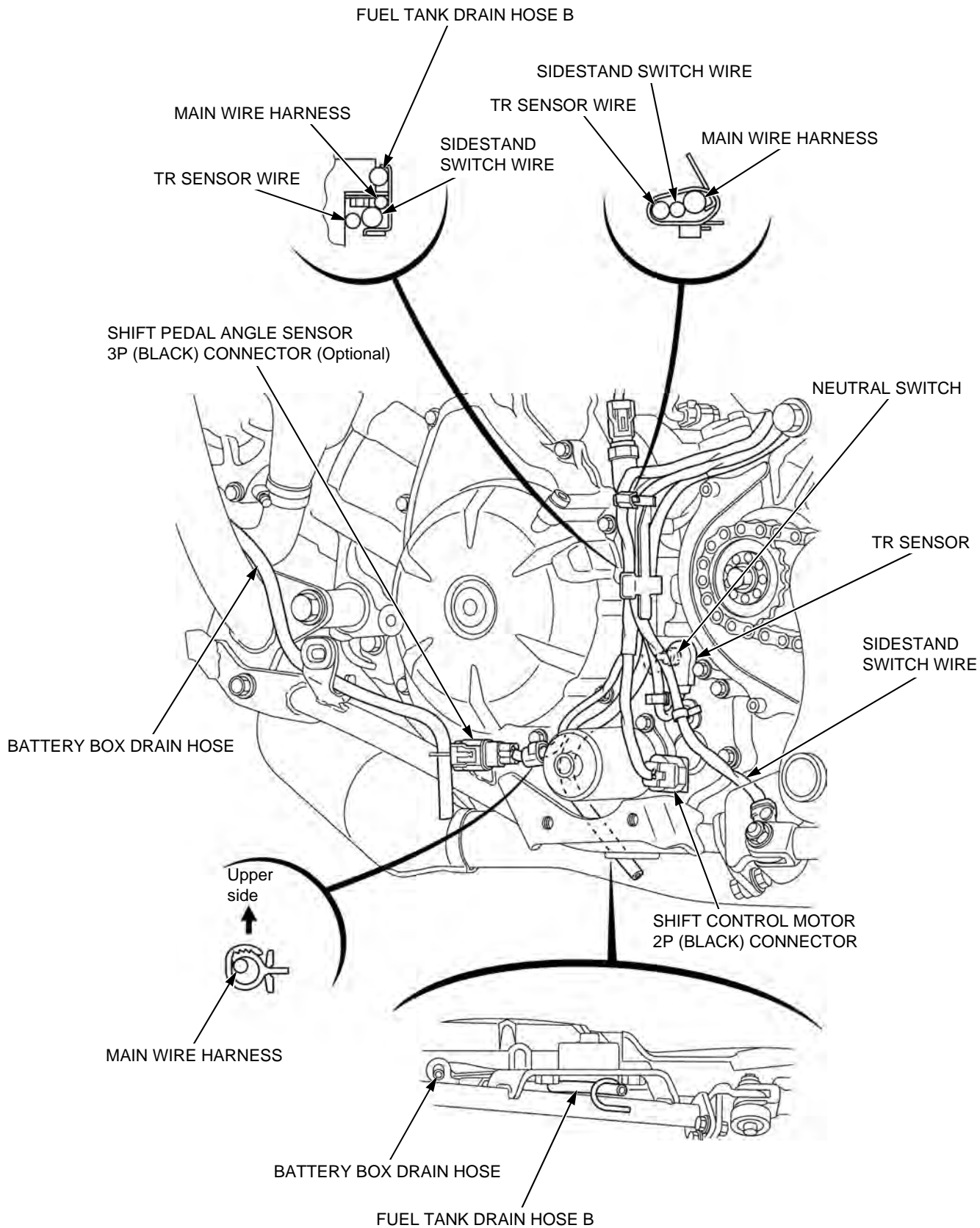


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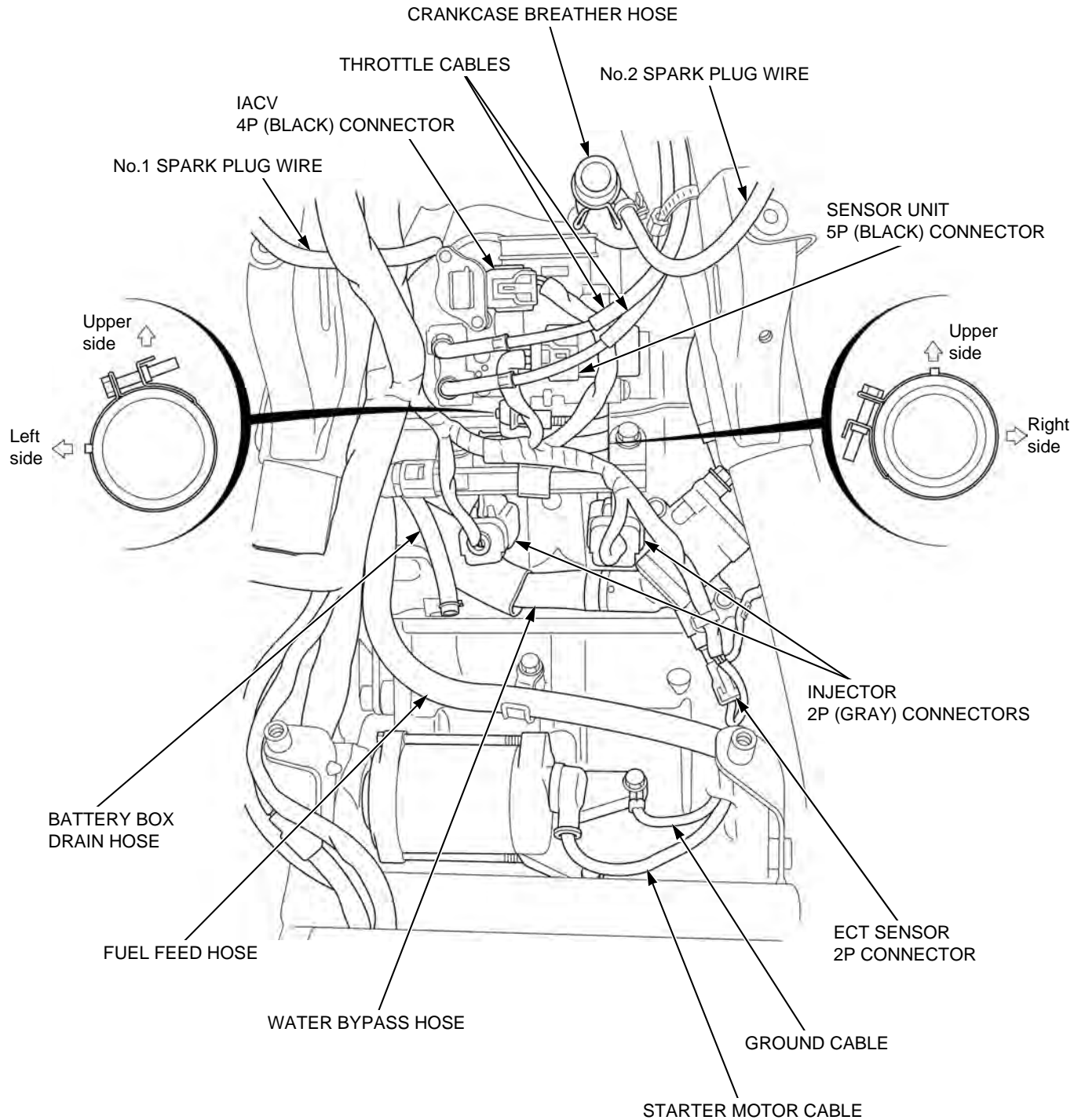


GENERAL INFORMATION

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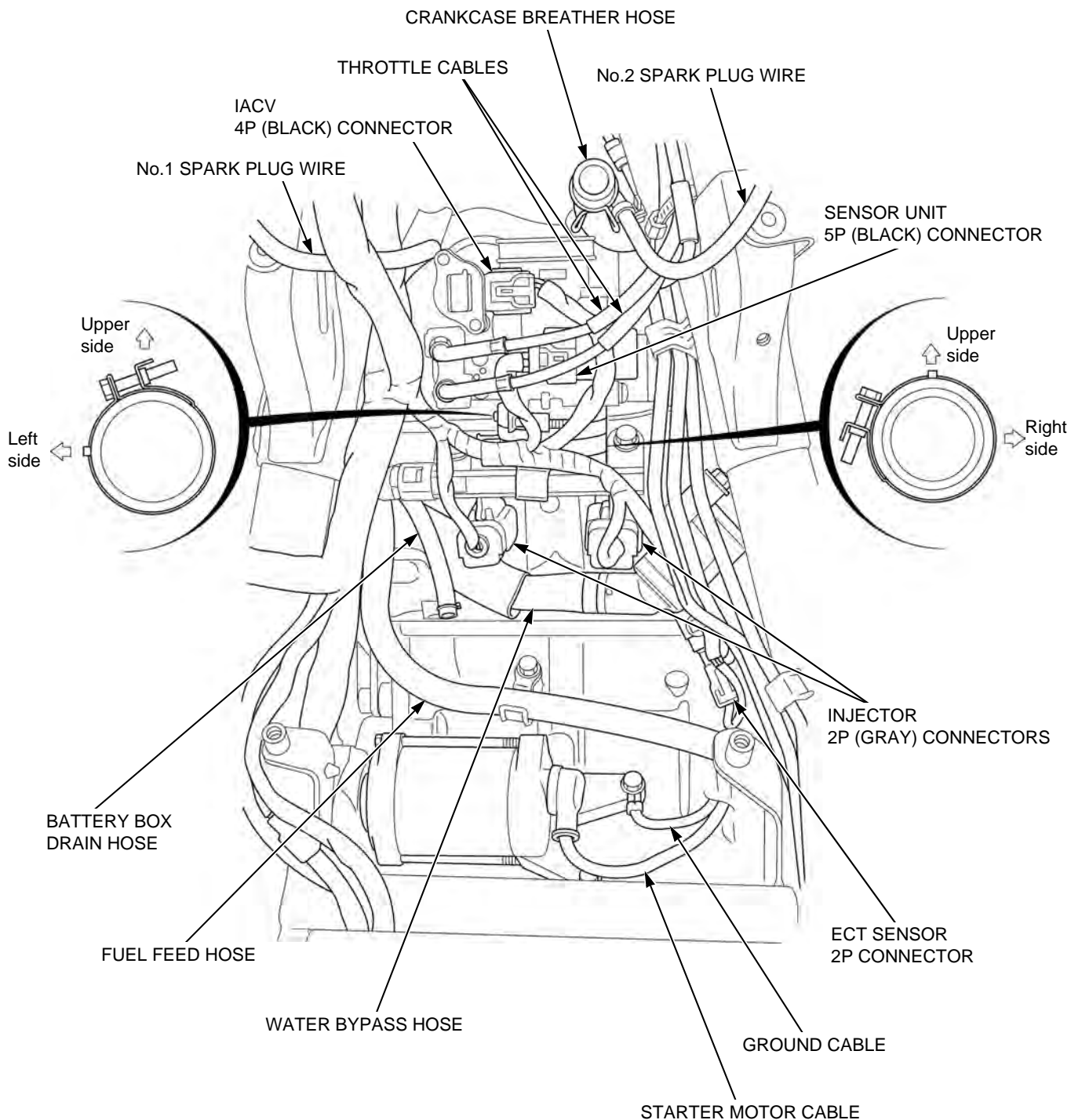


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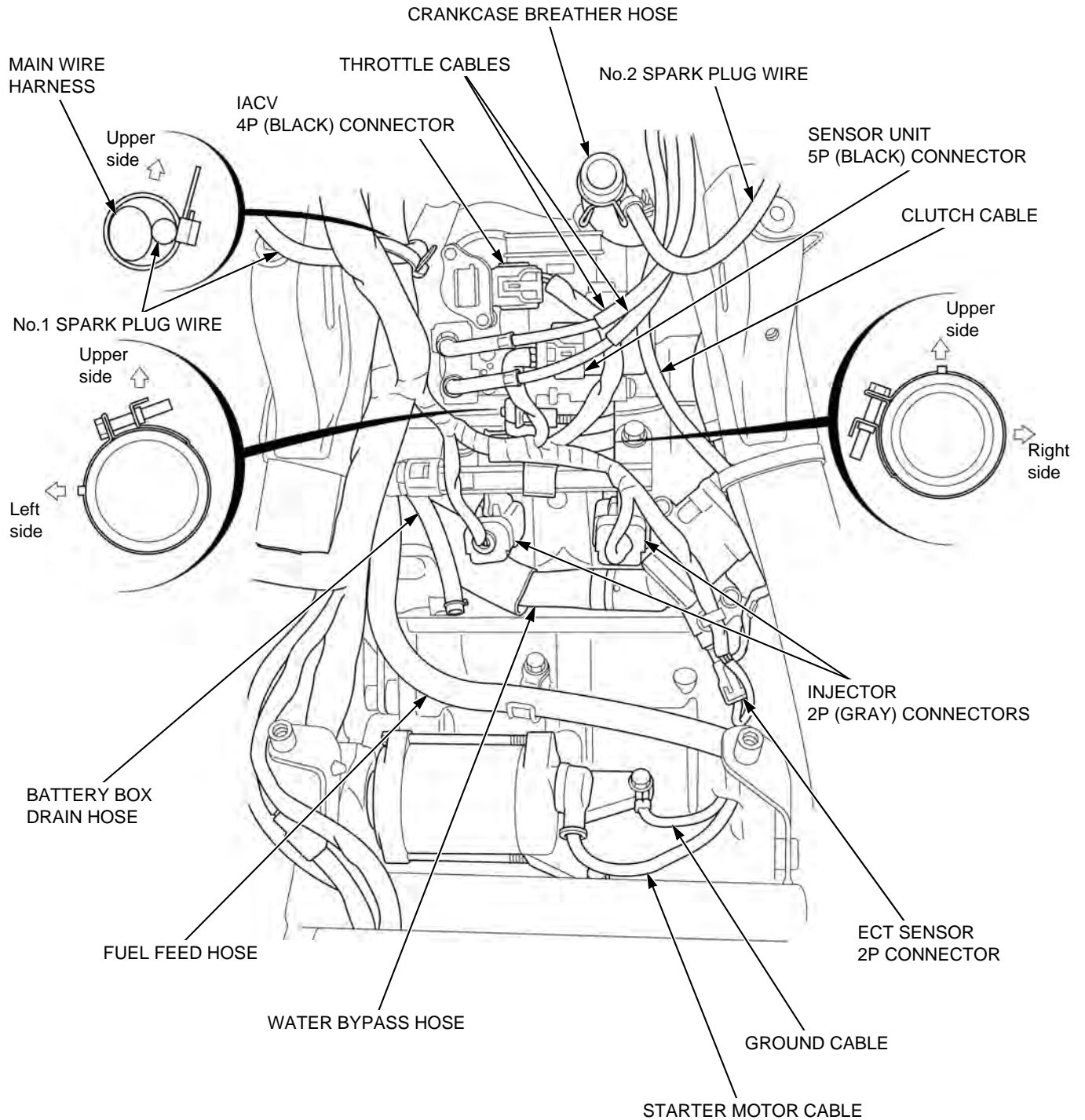


GENERAL INFORMATION

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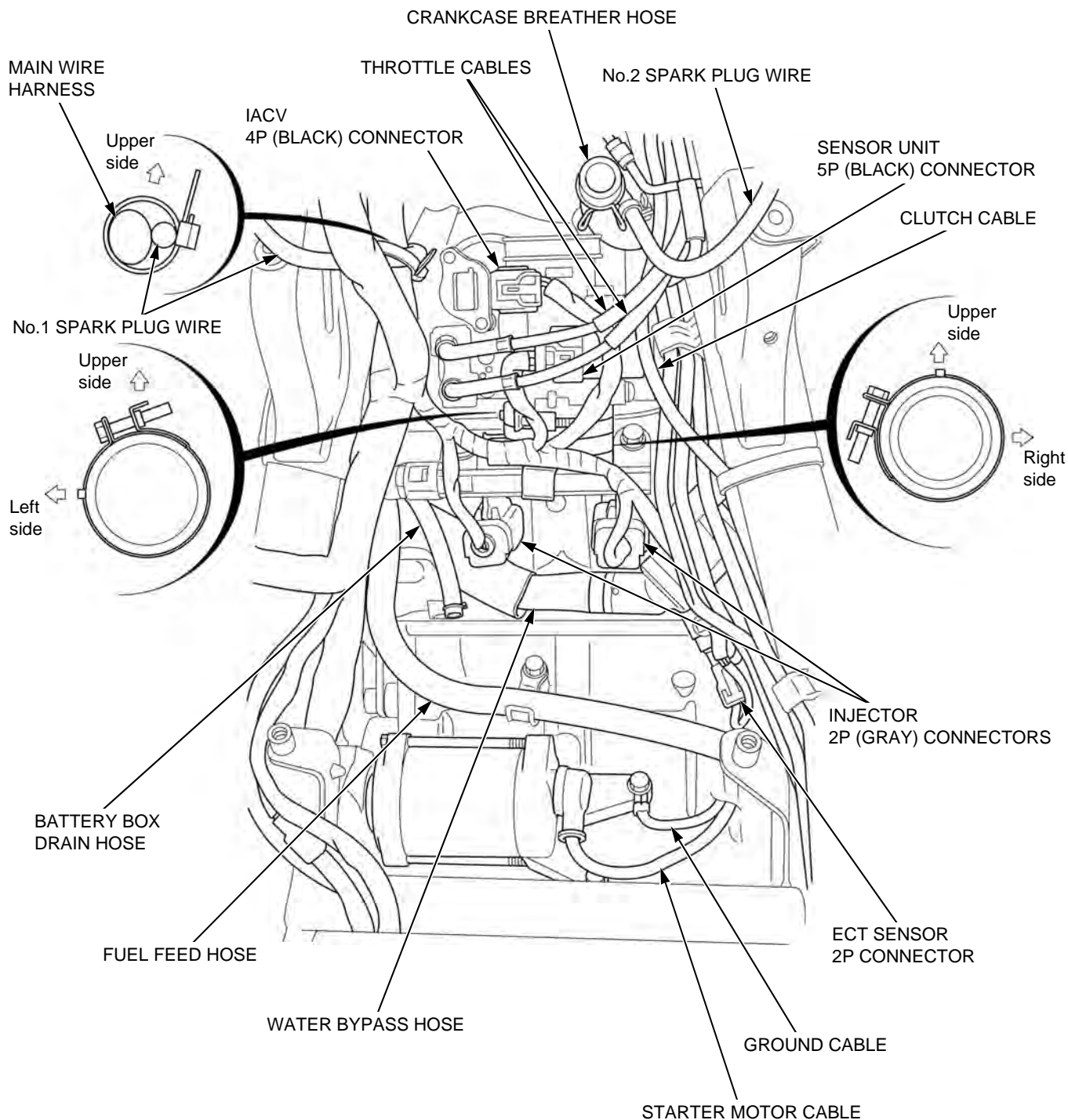


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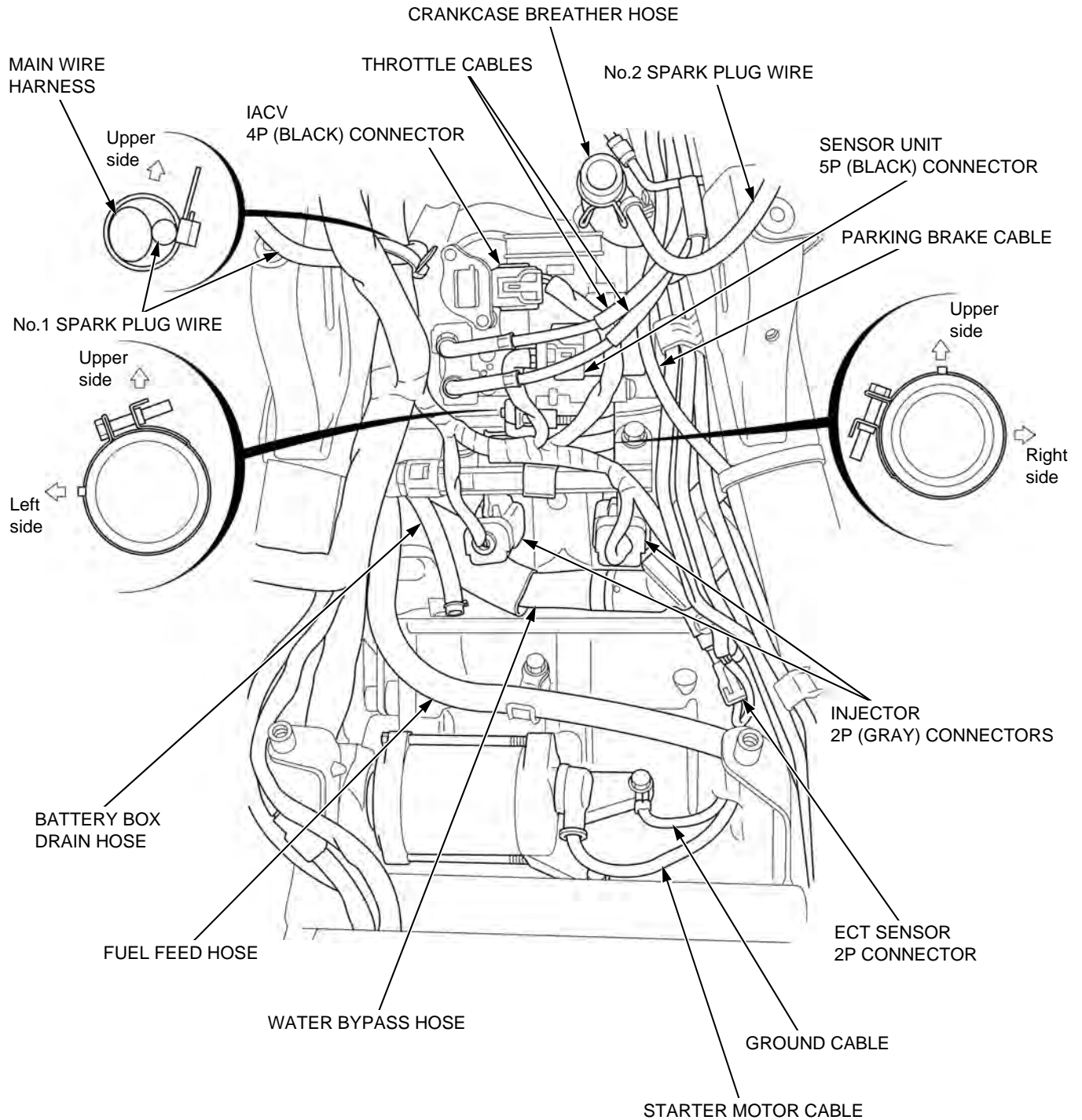


GENERAL INFORMATION

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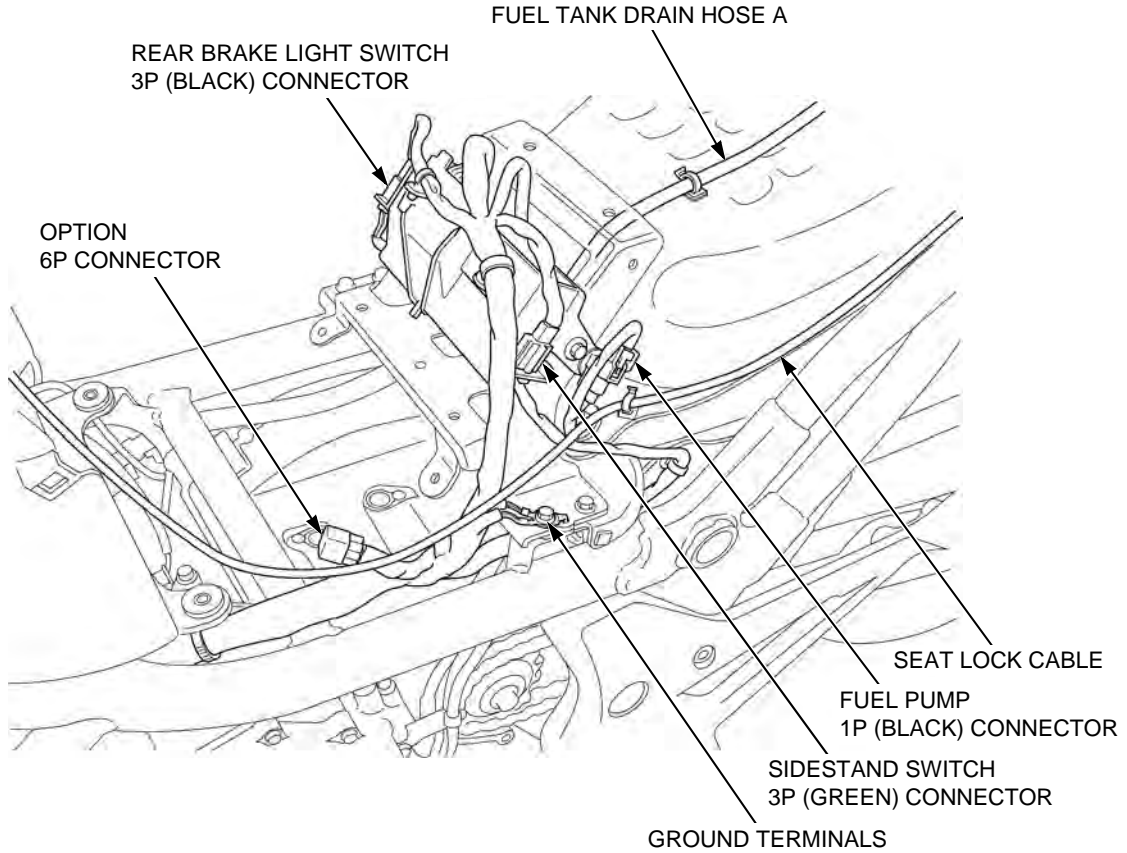


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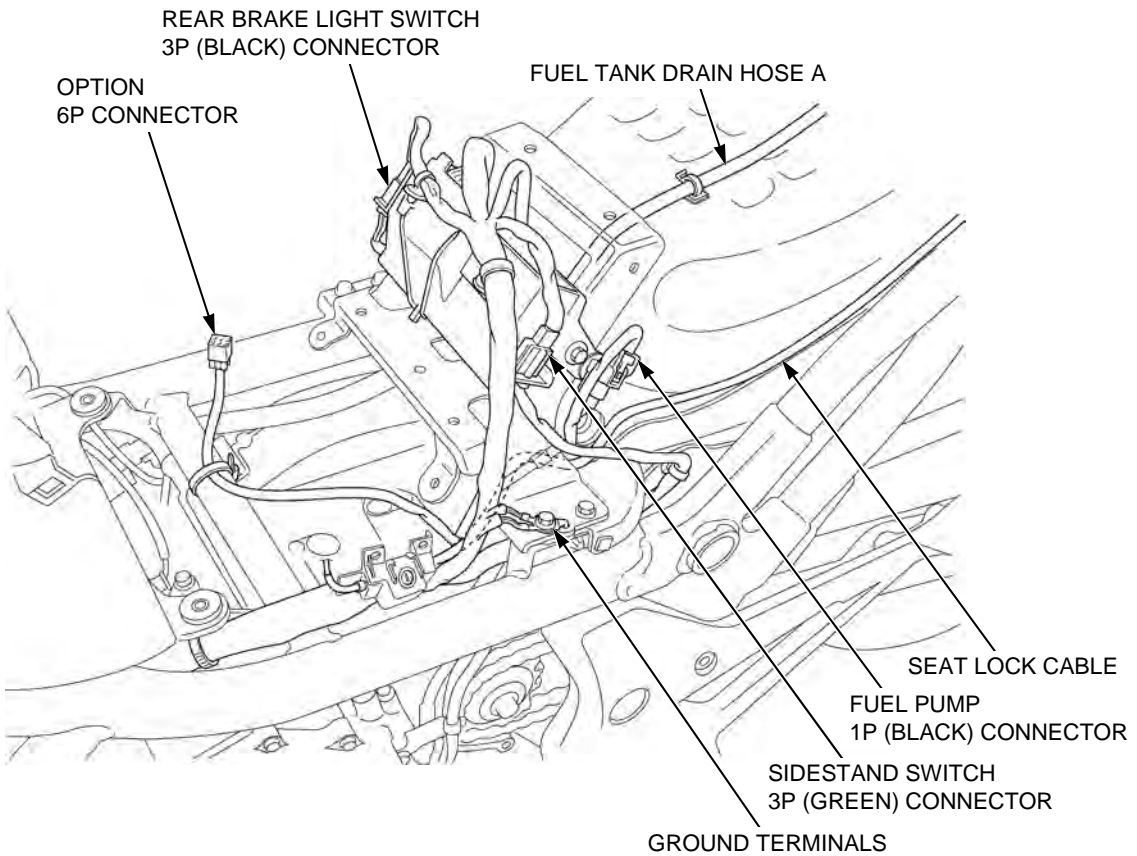


GENERAL INFORMATION

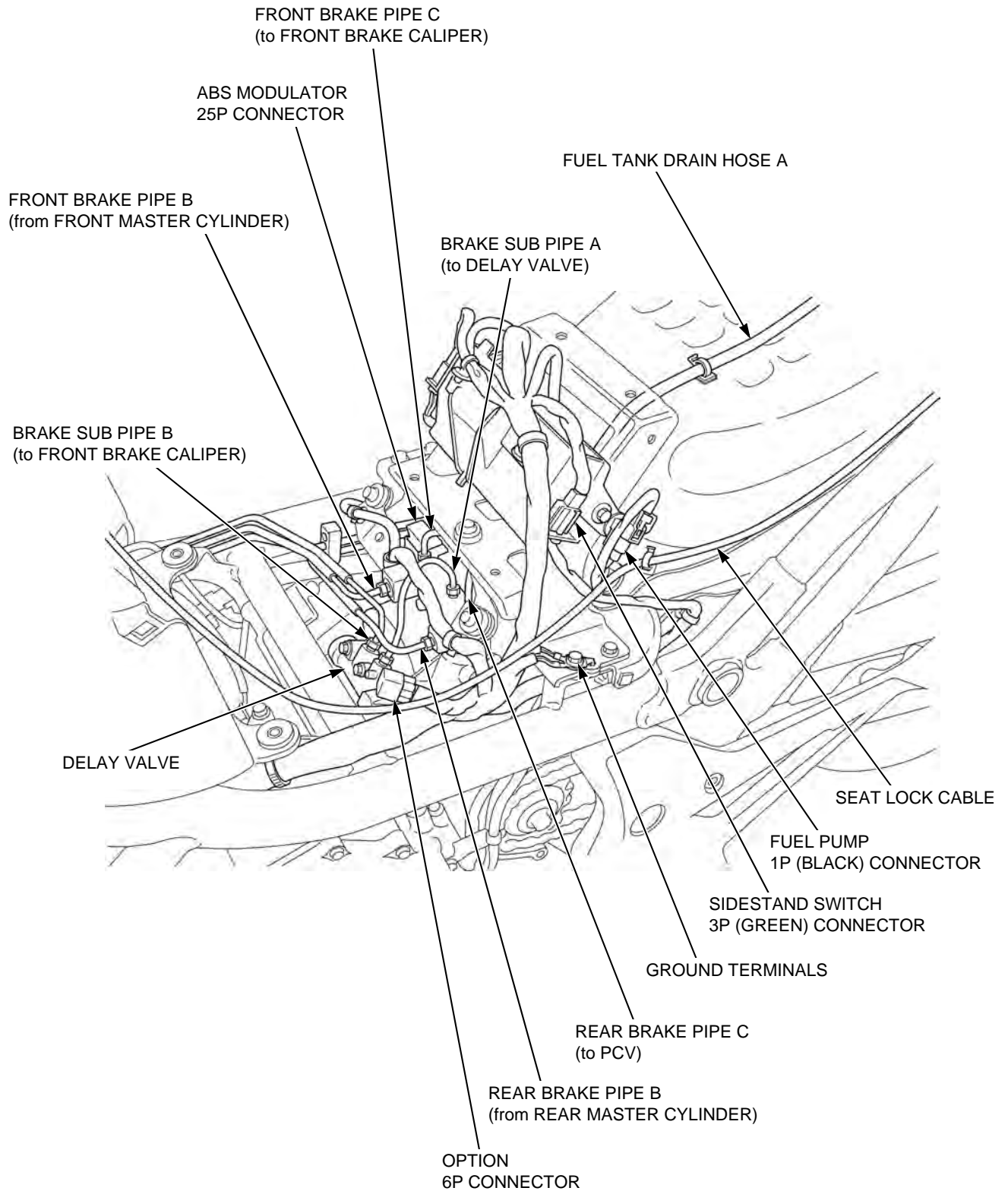
NC700X:



NC700S:

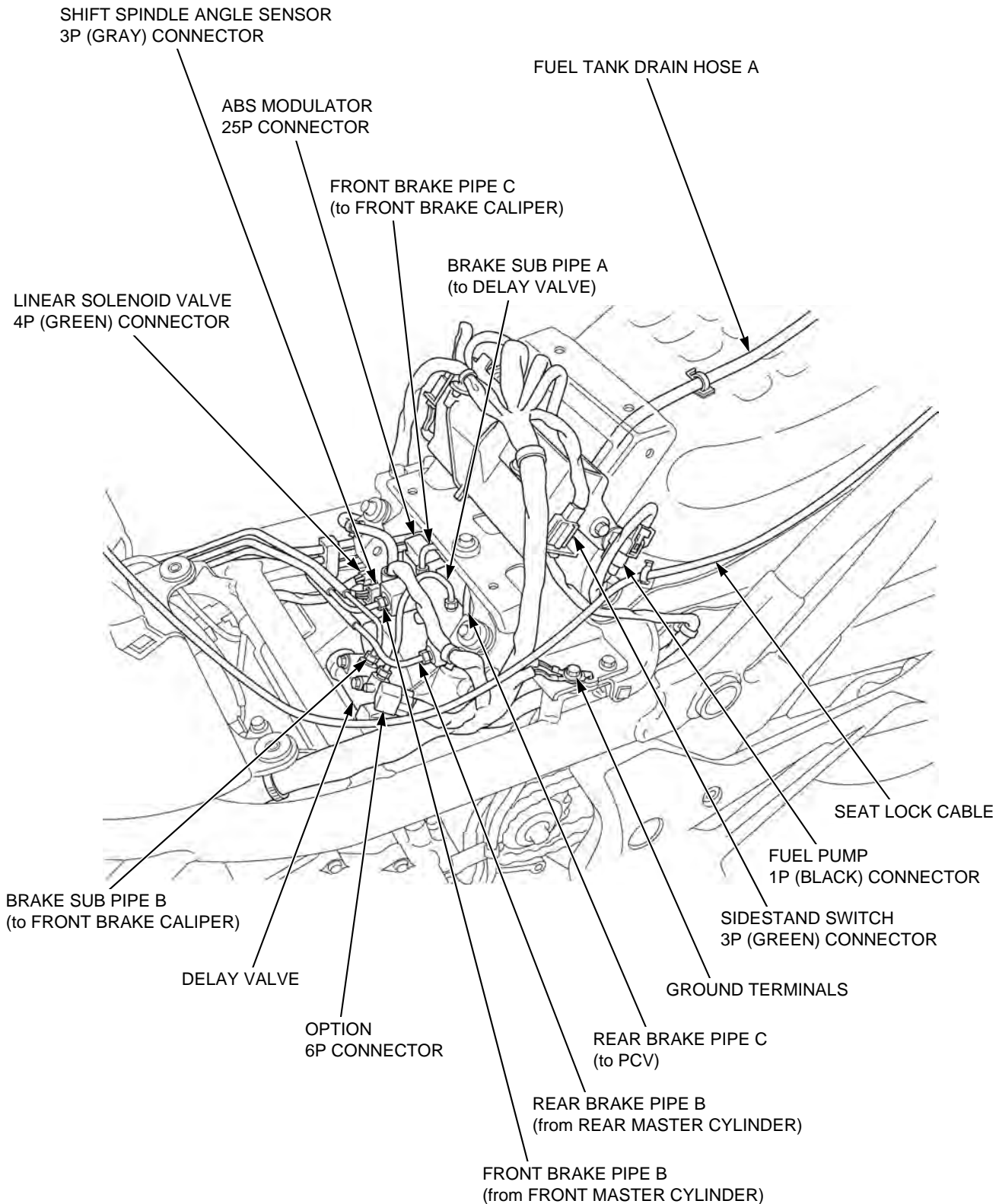


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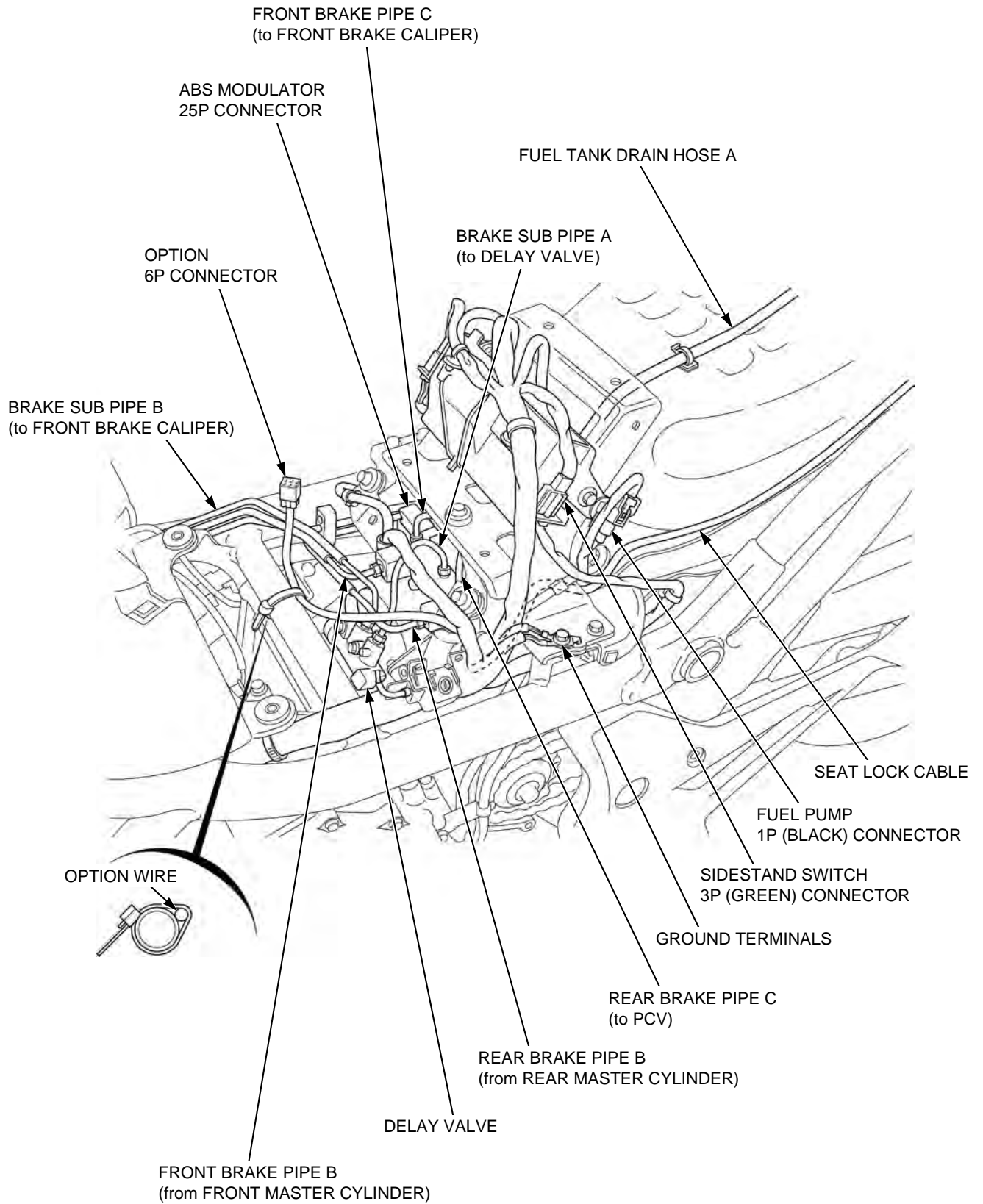


GENERAL INFORMATION

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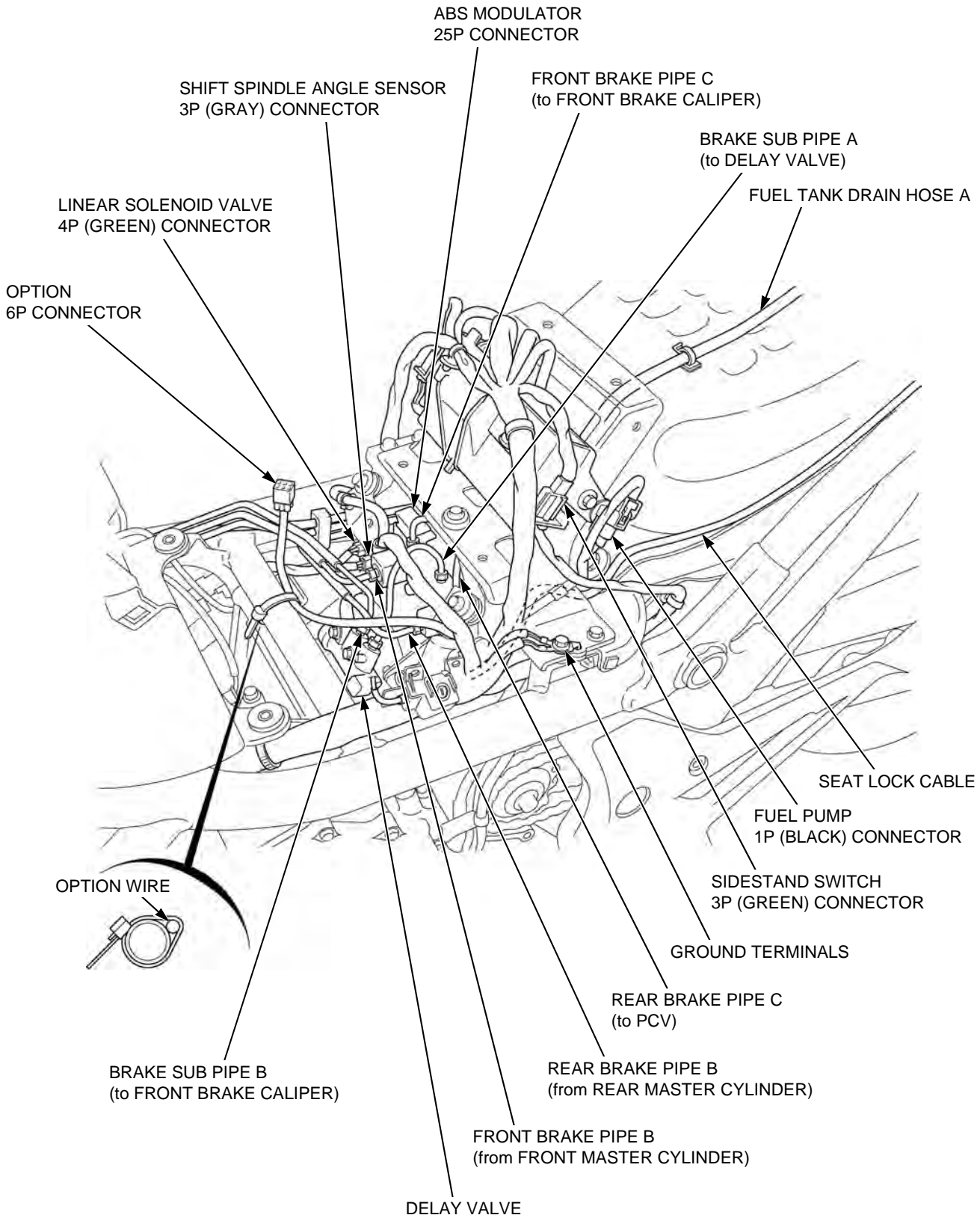


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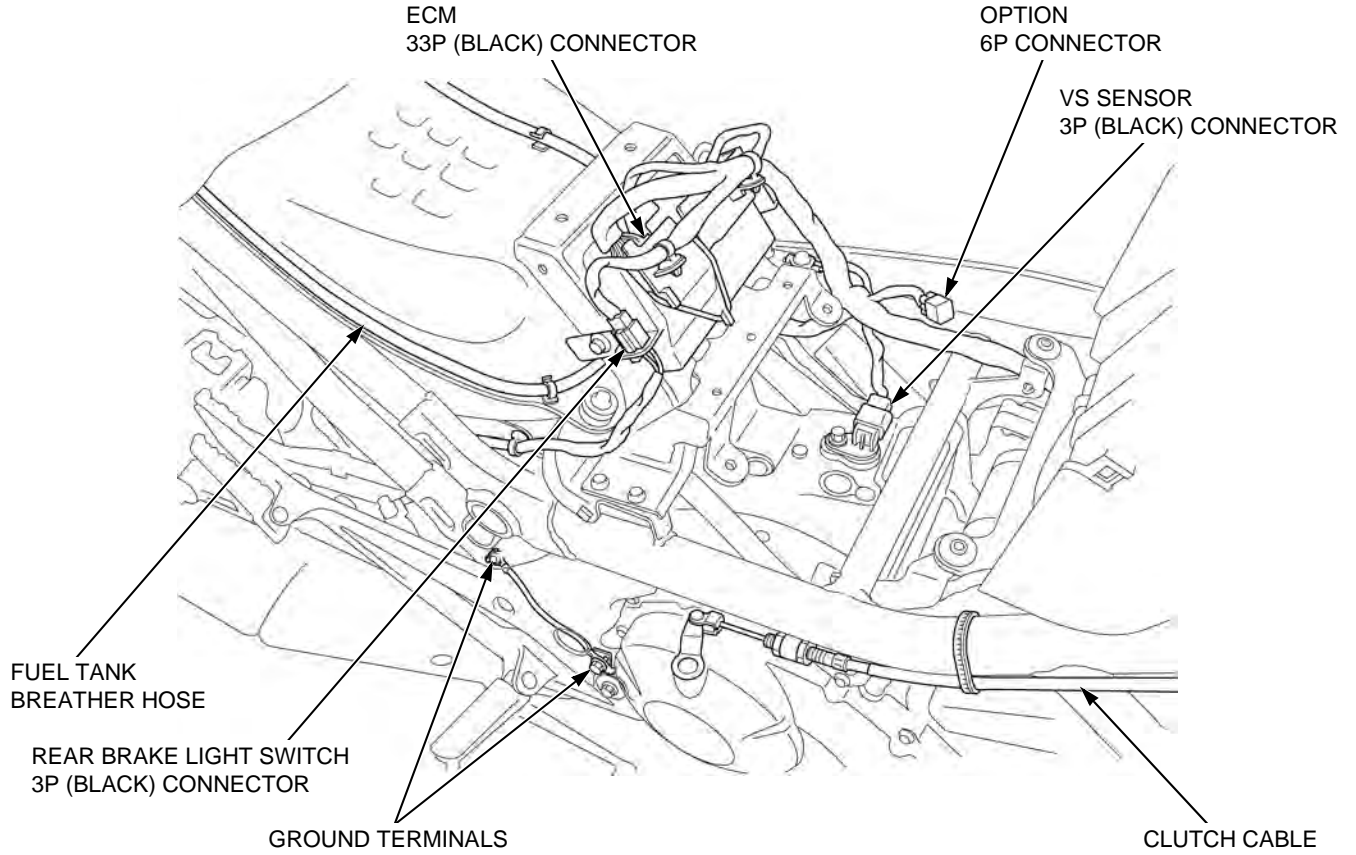


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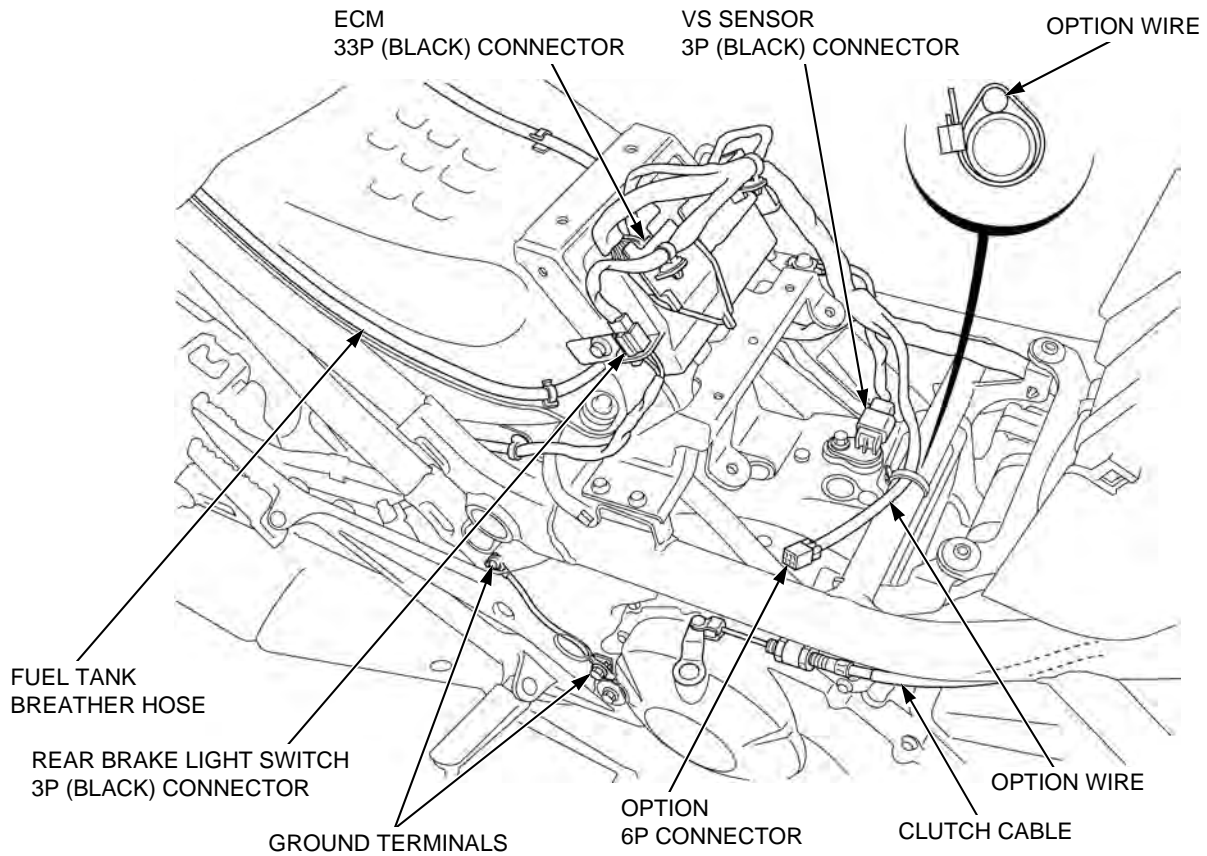
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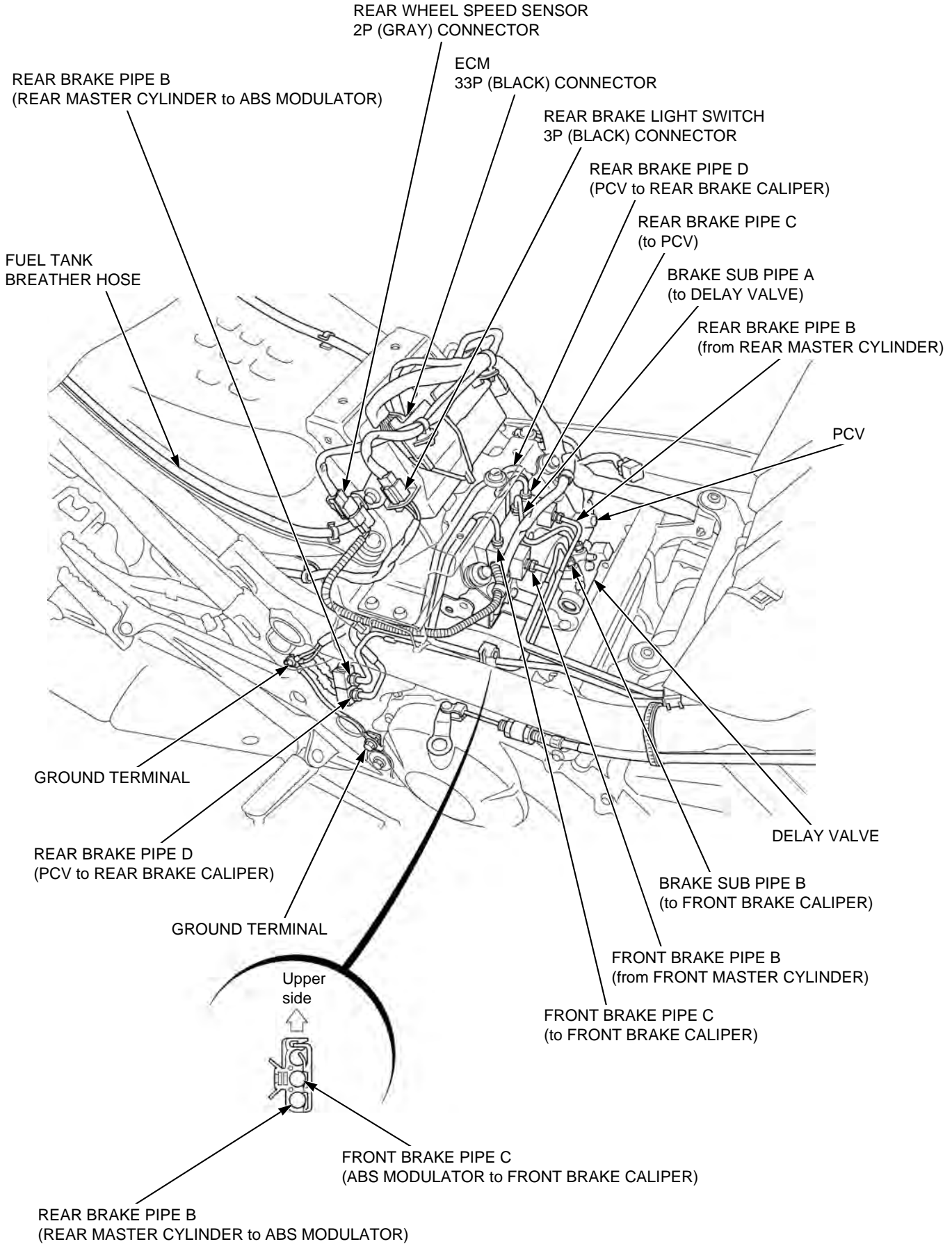


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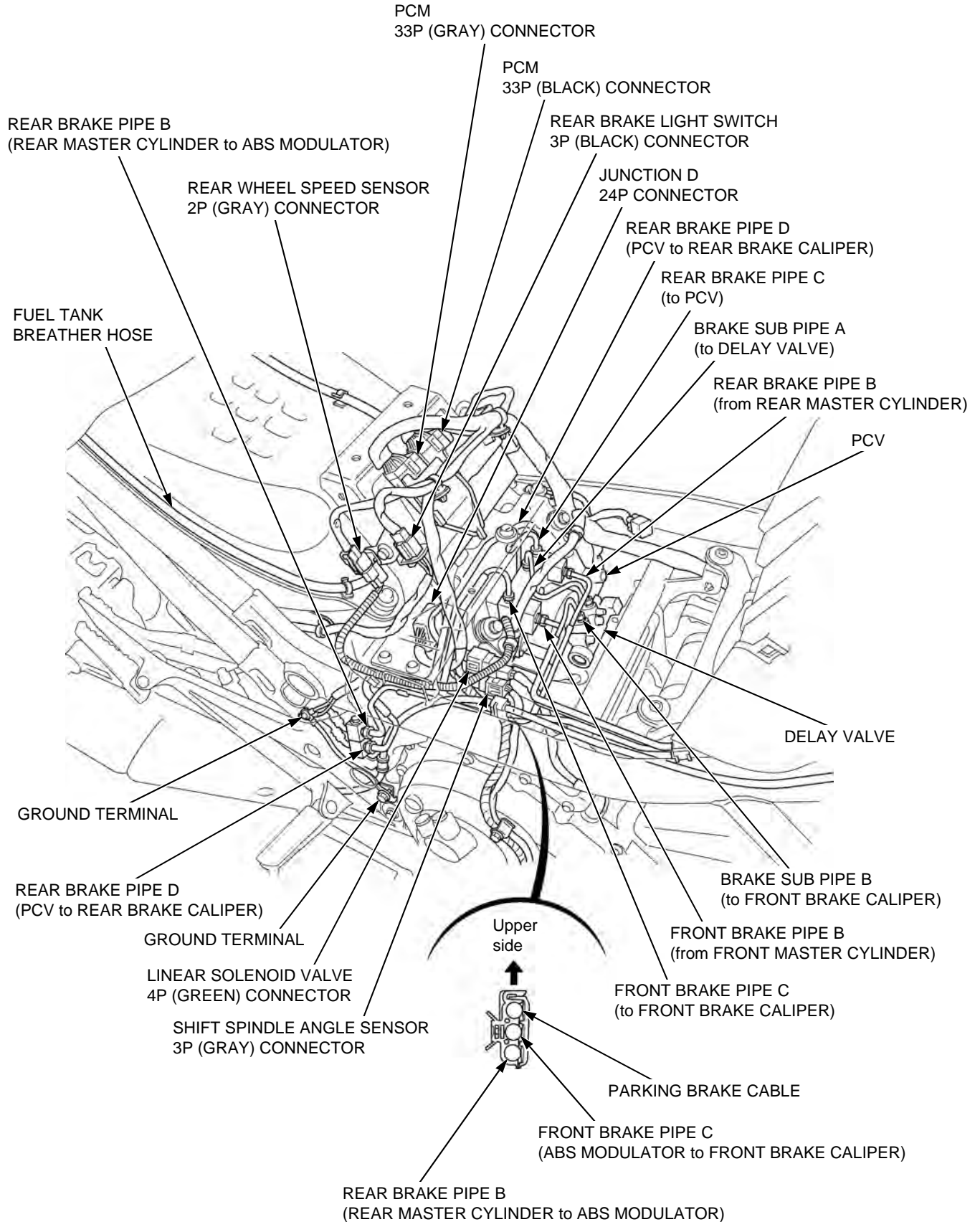


GENERAL INFORMATION

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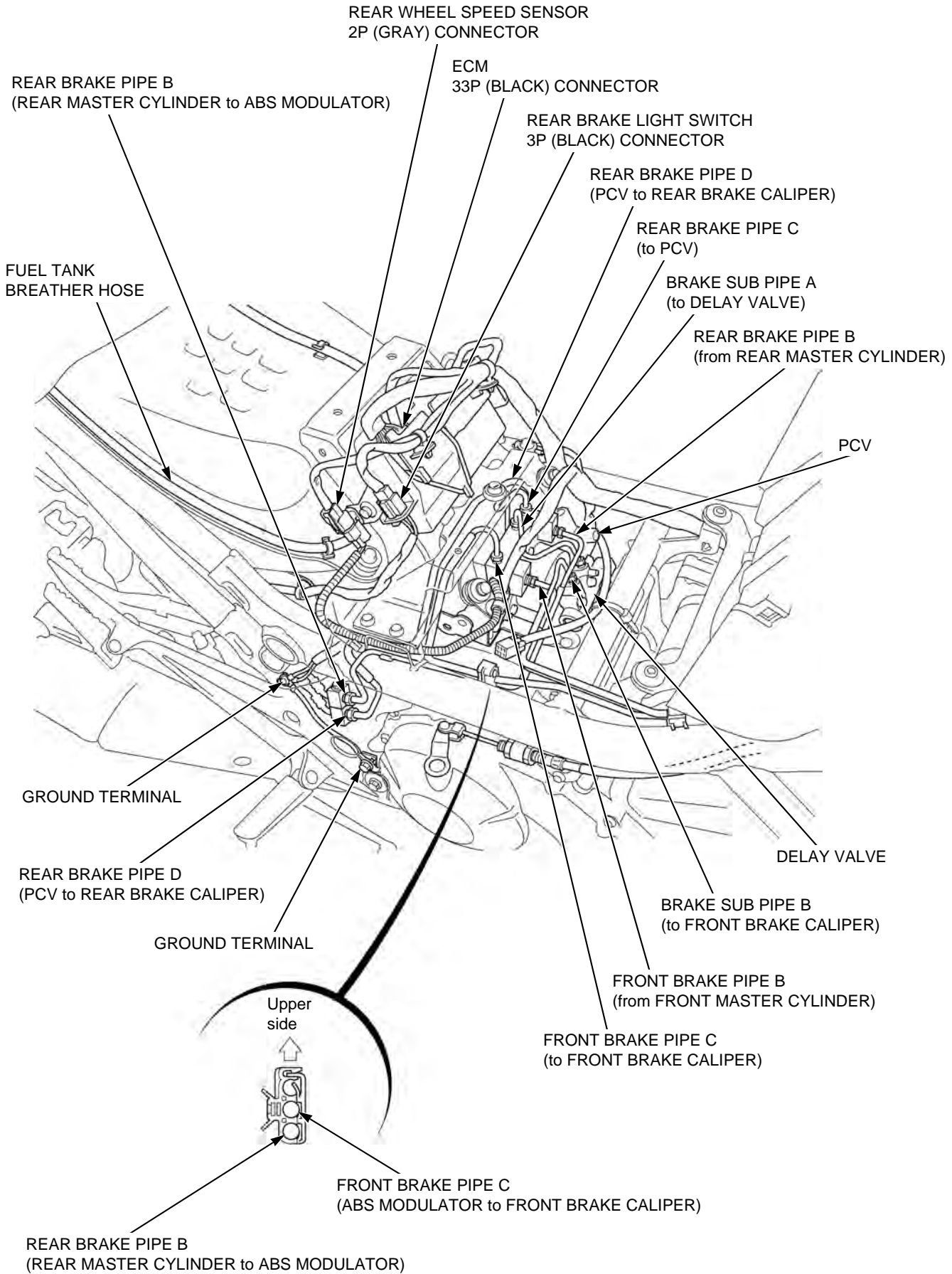


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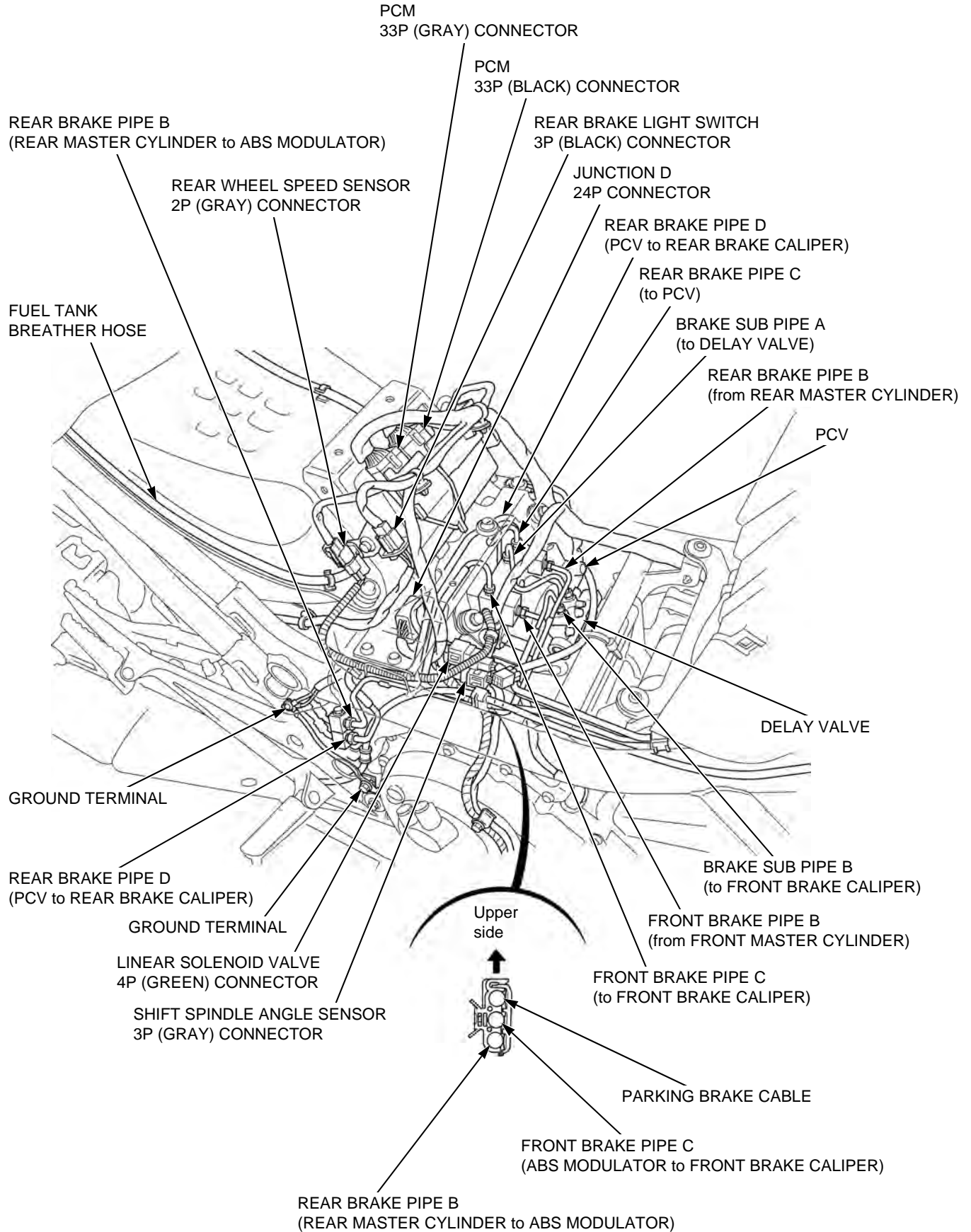


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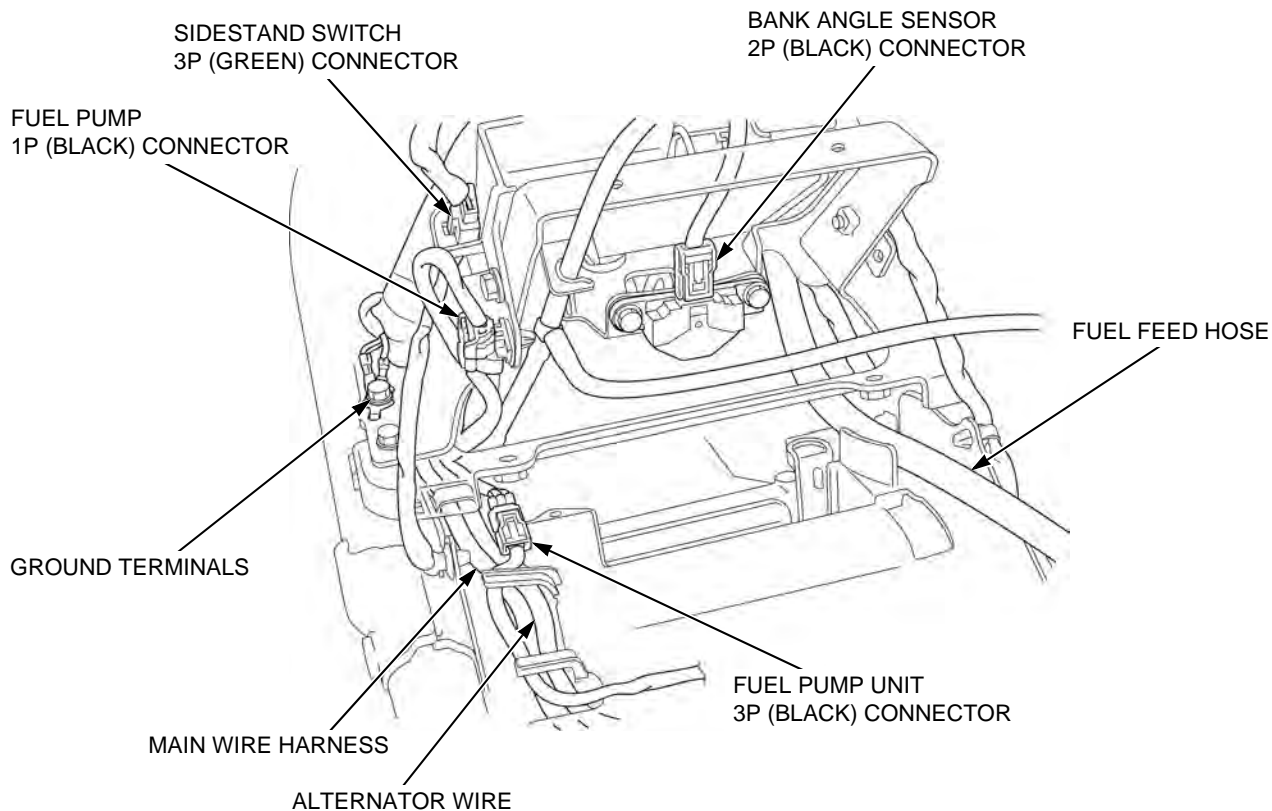


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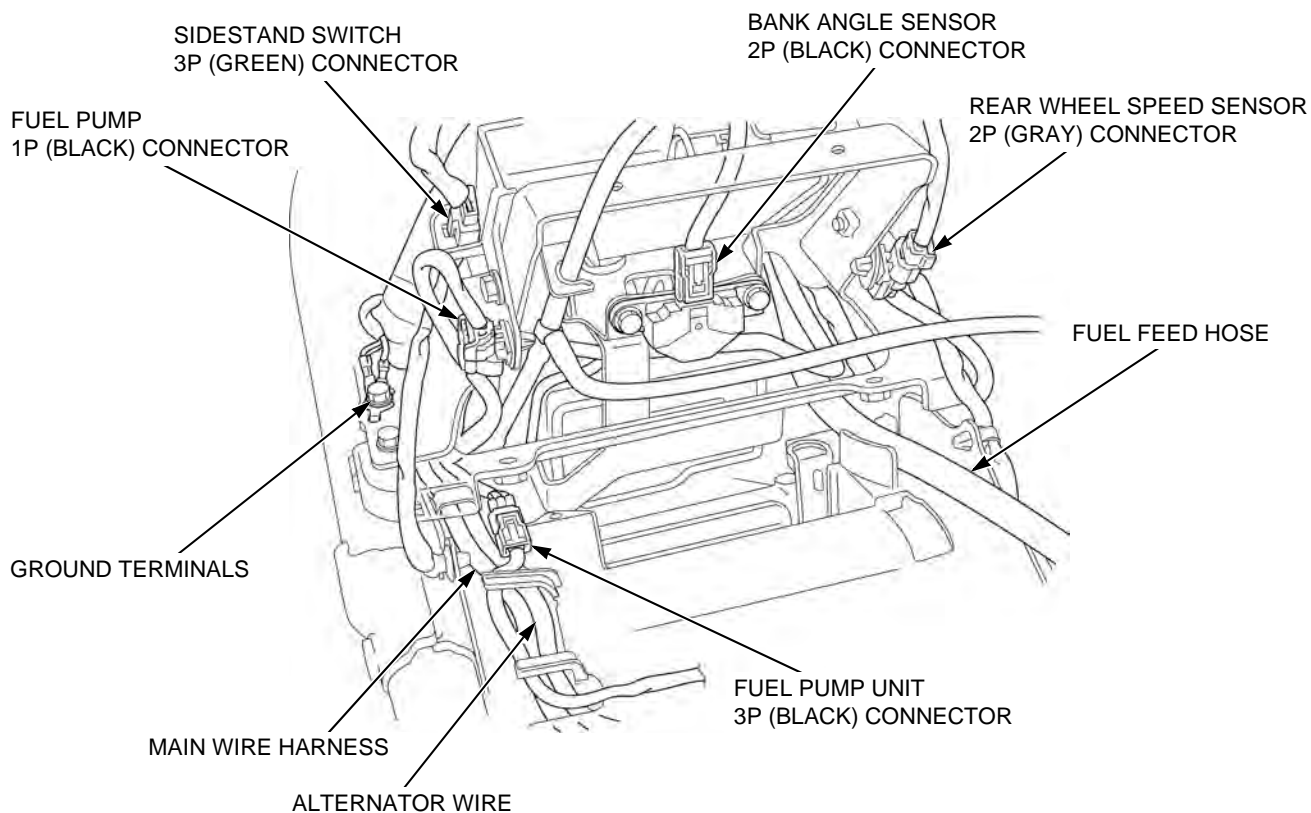


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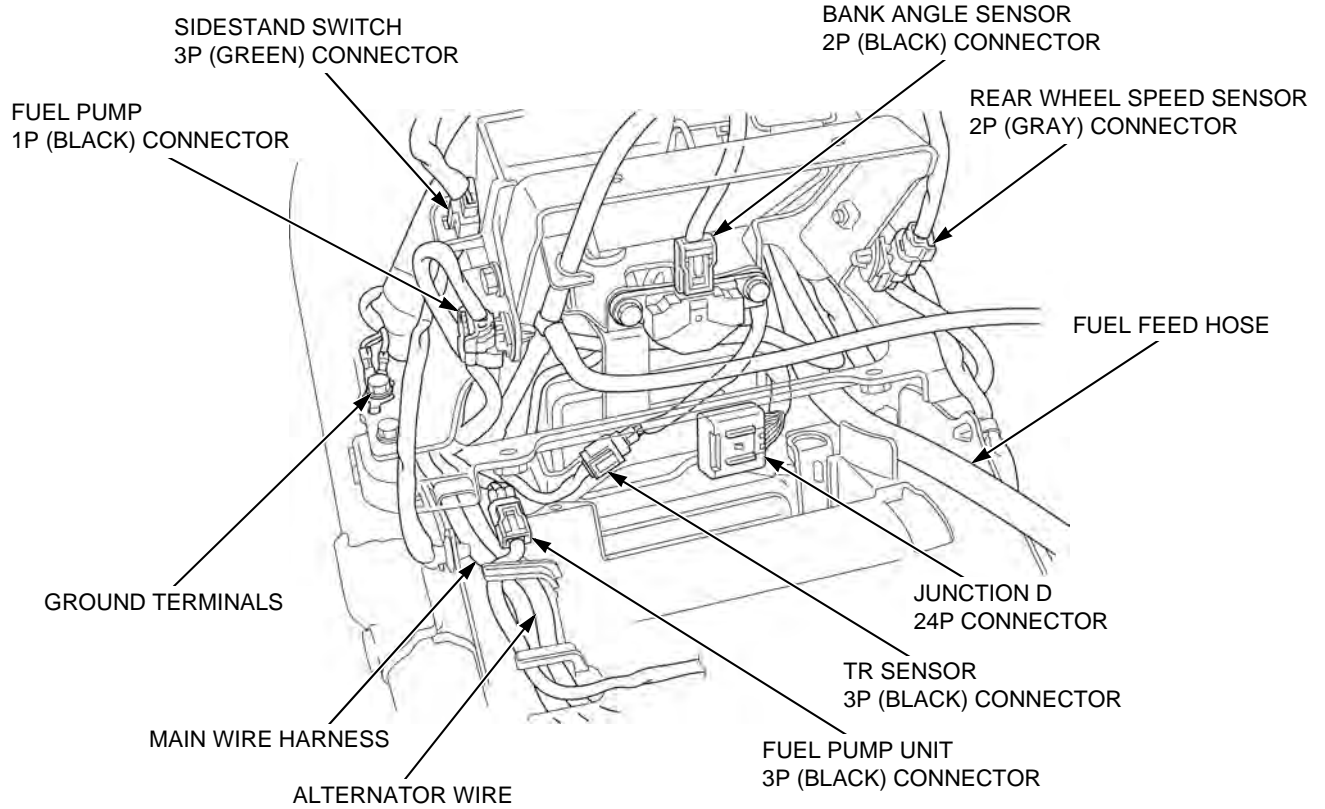
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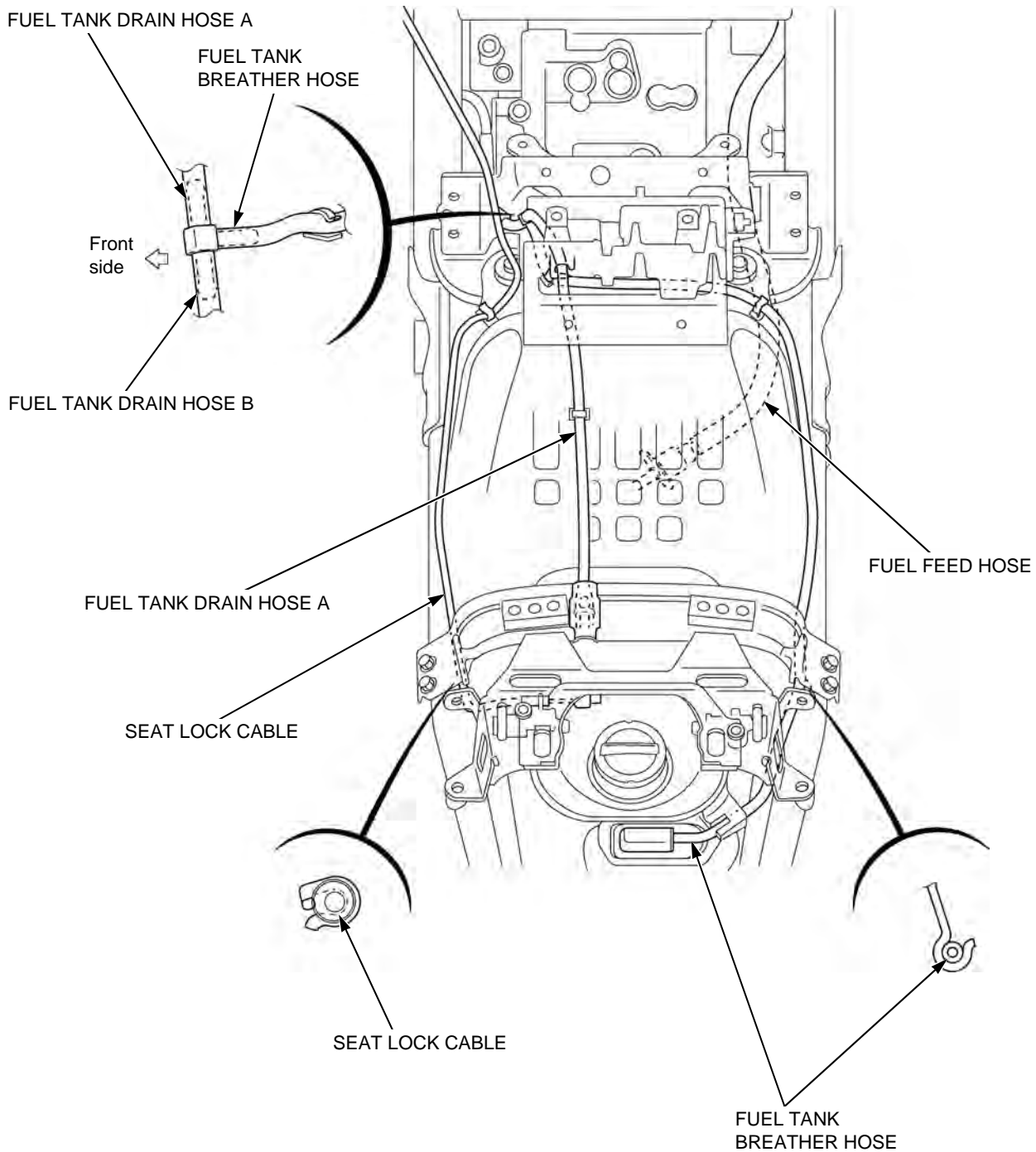


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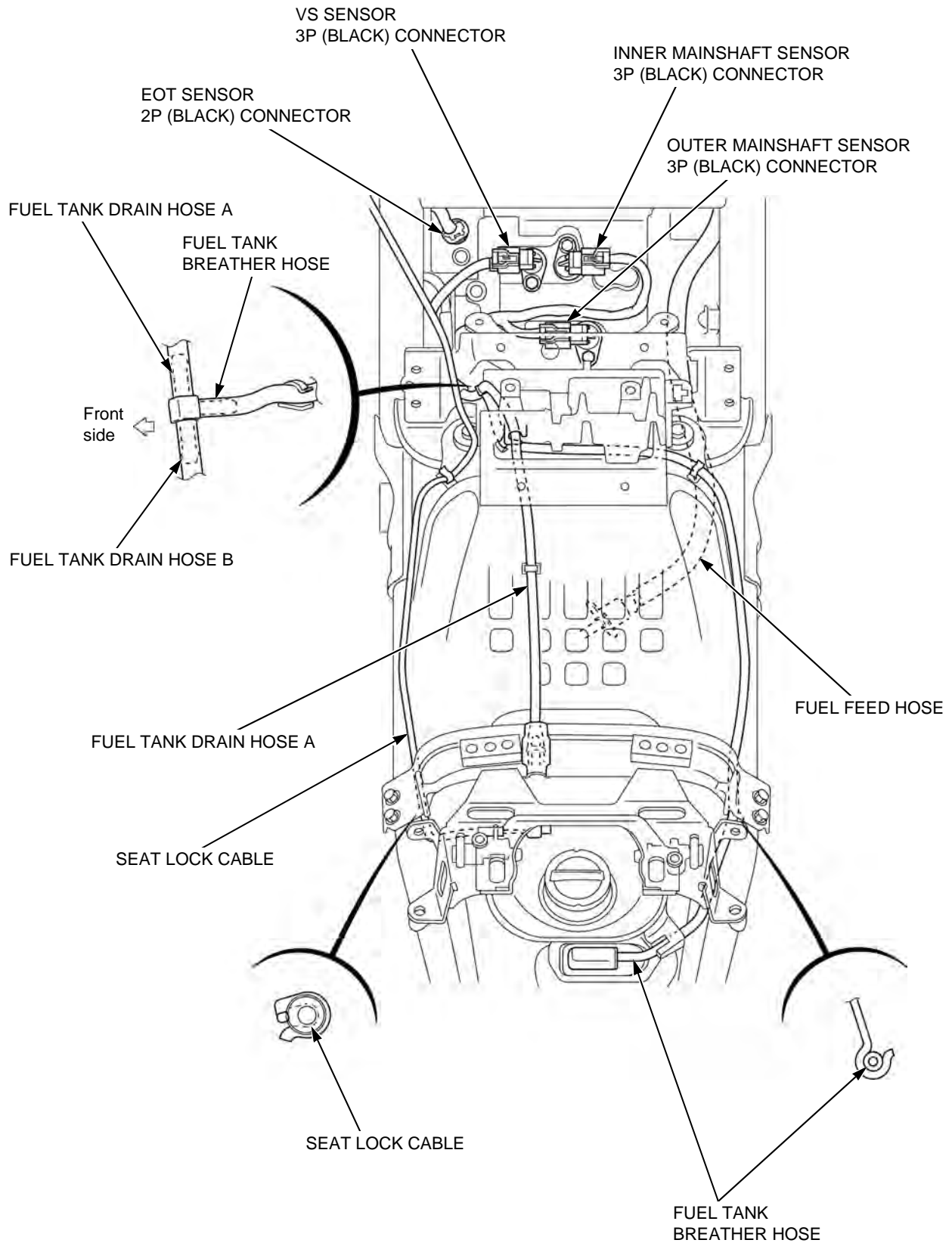


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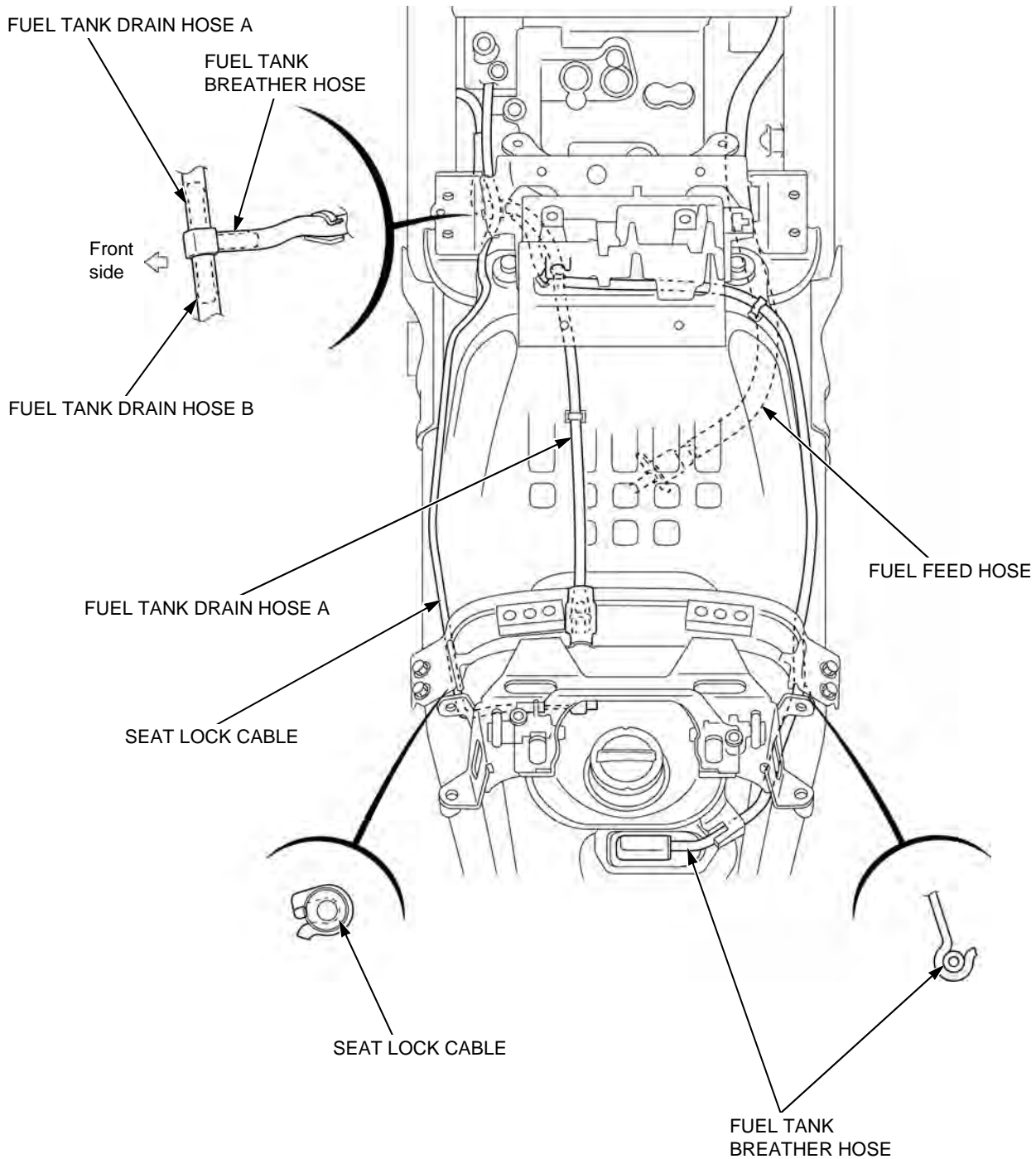


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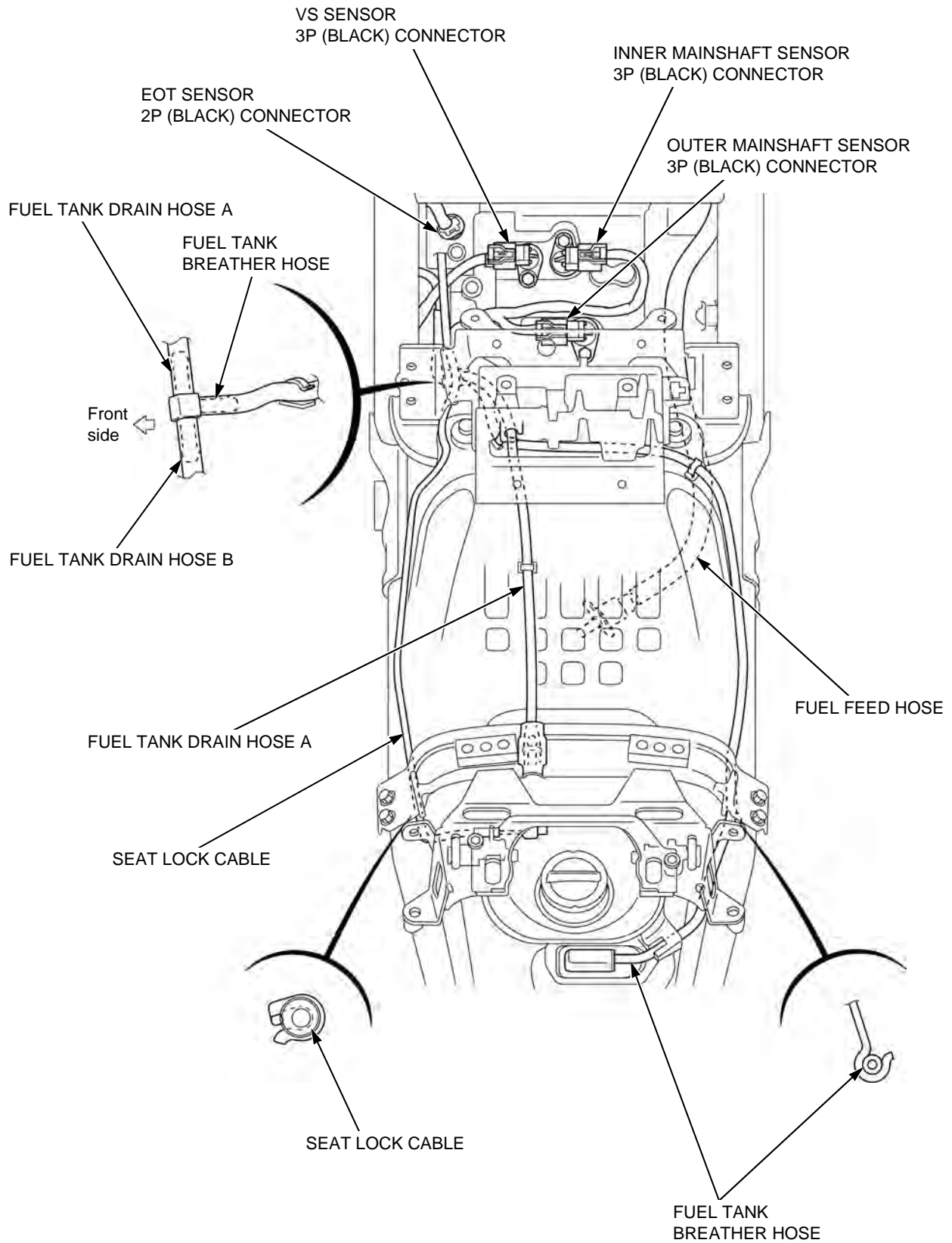


GENERAL INFORMATION

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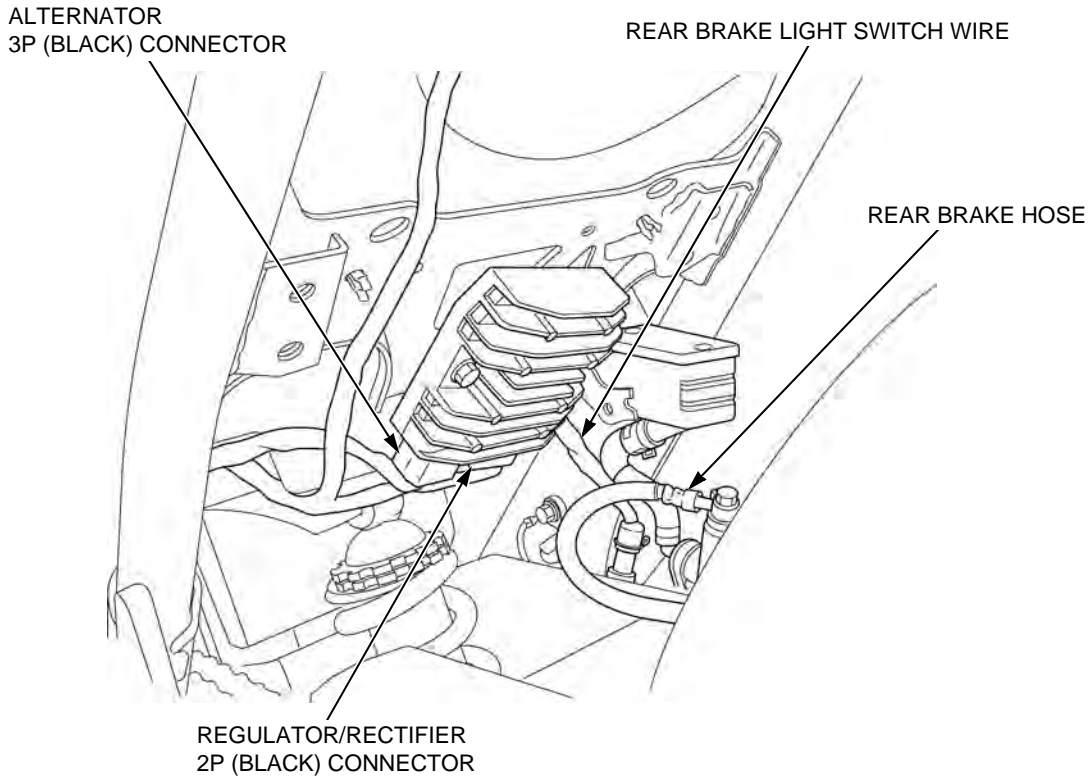


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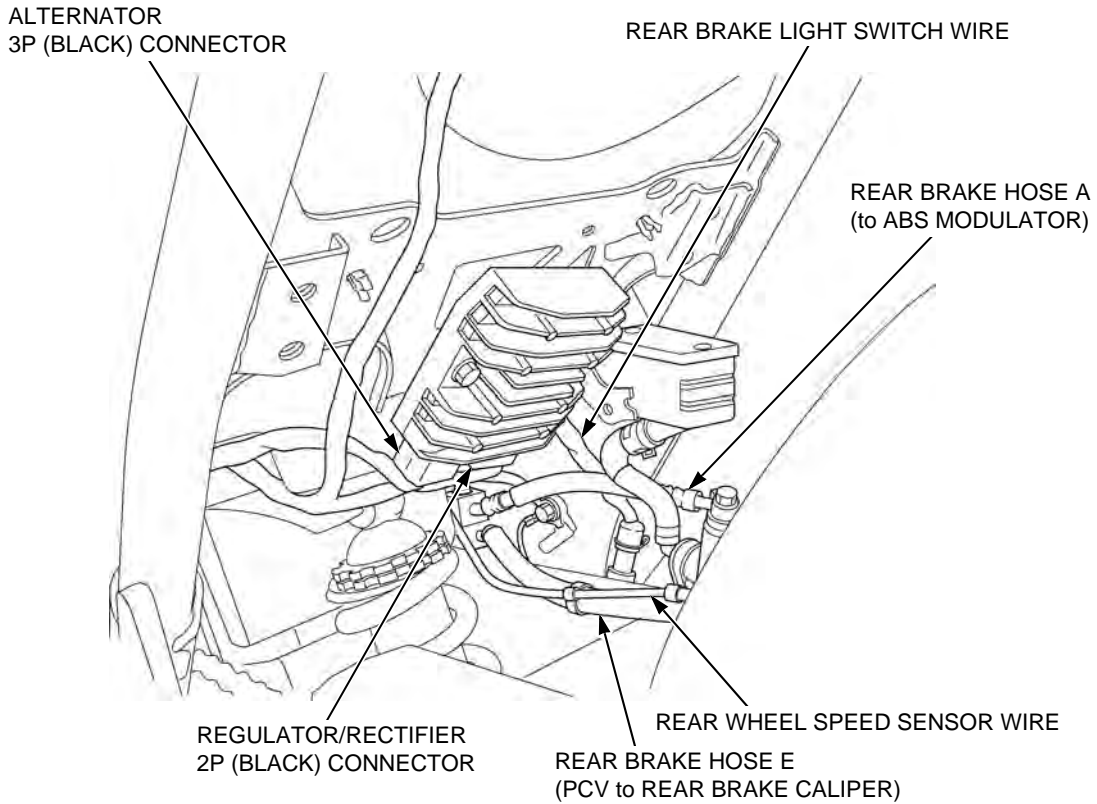


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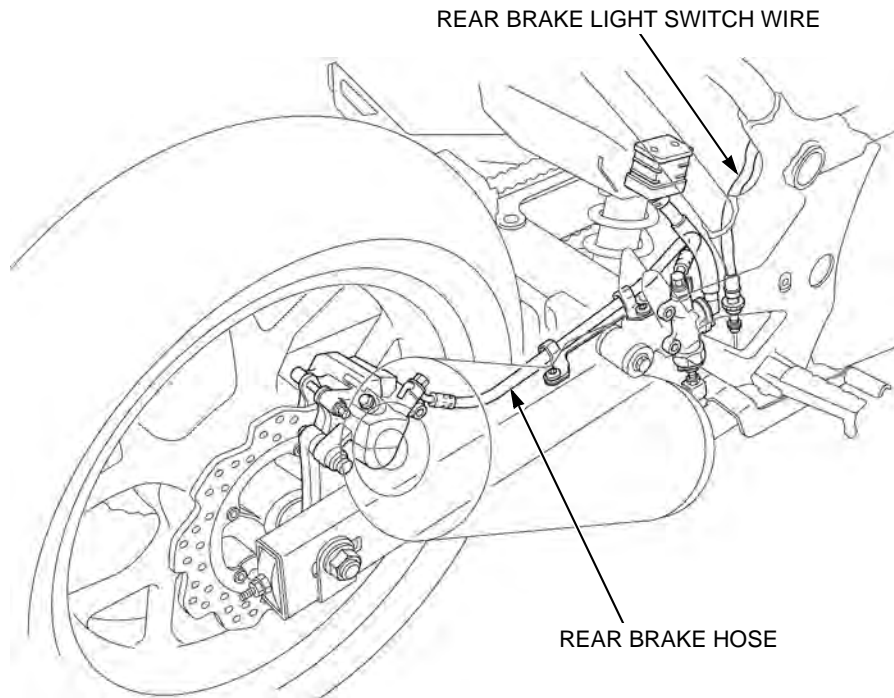
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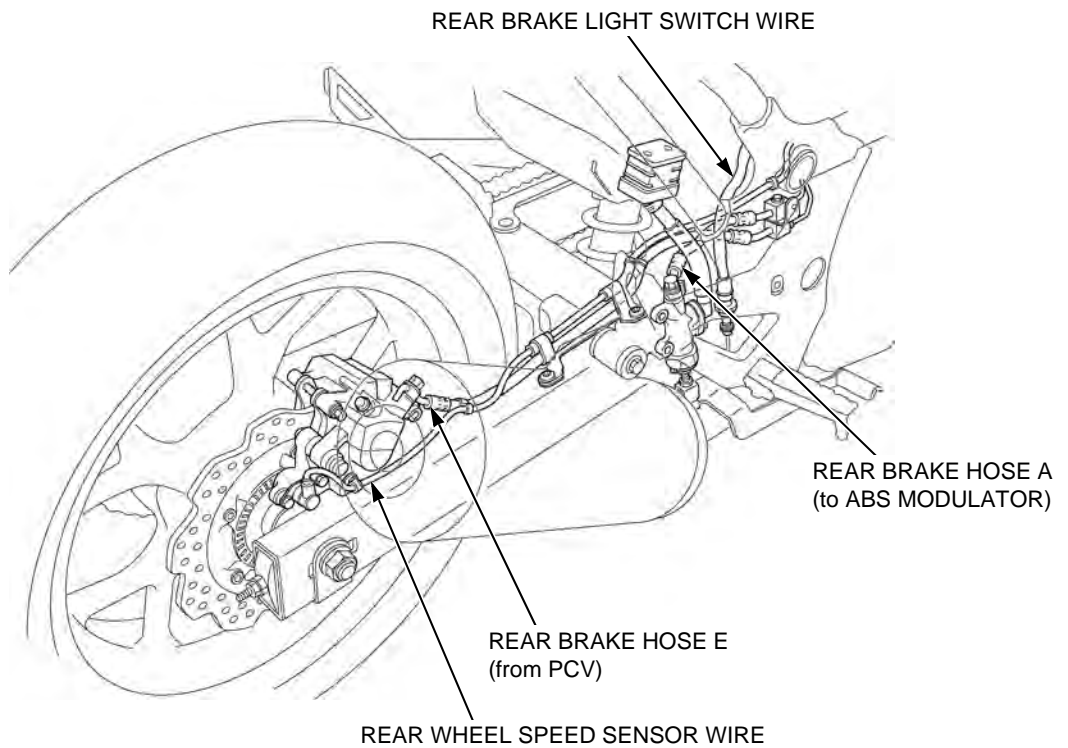
NC700XA/XD/SA/SD:



NC700X/S:

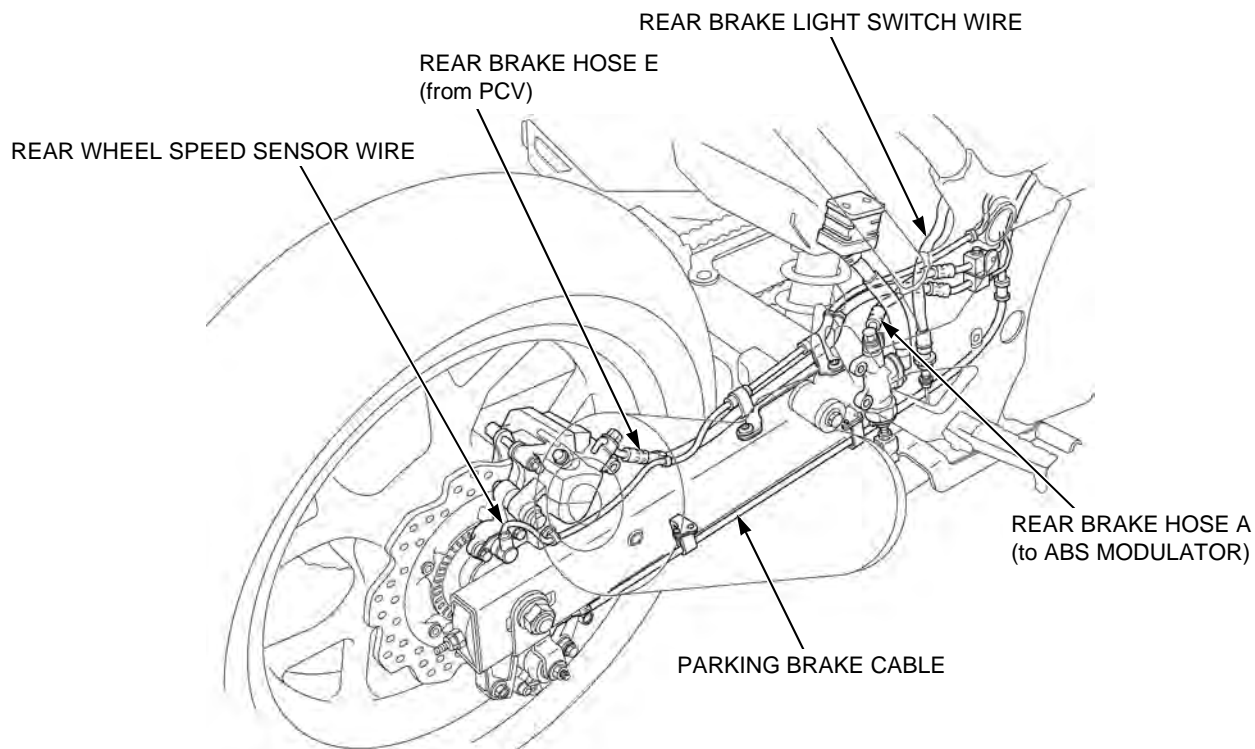


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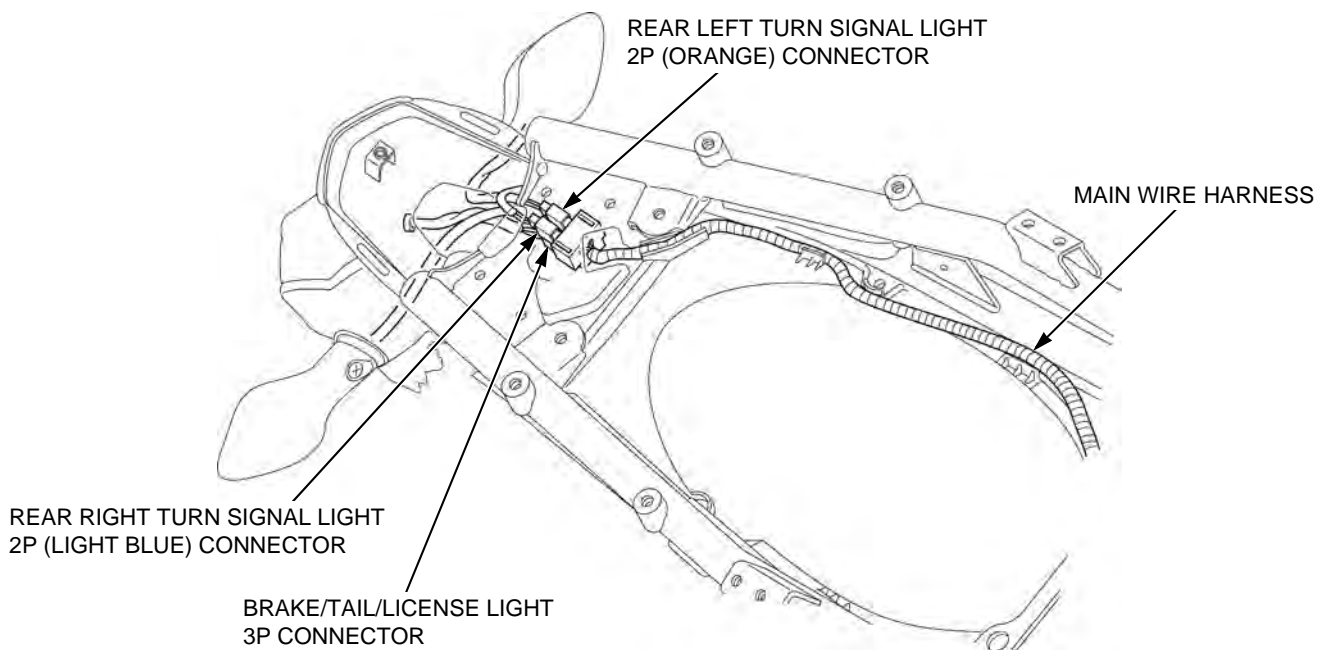


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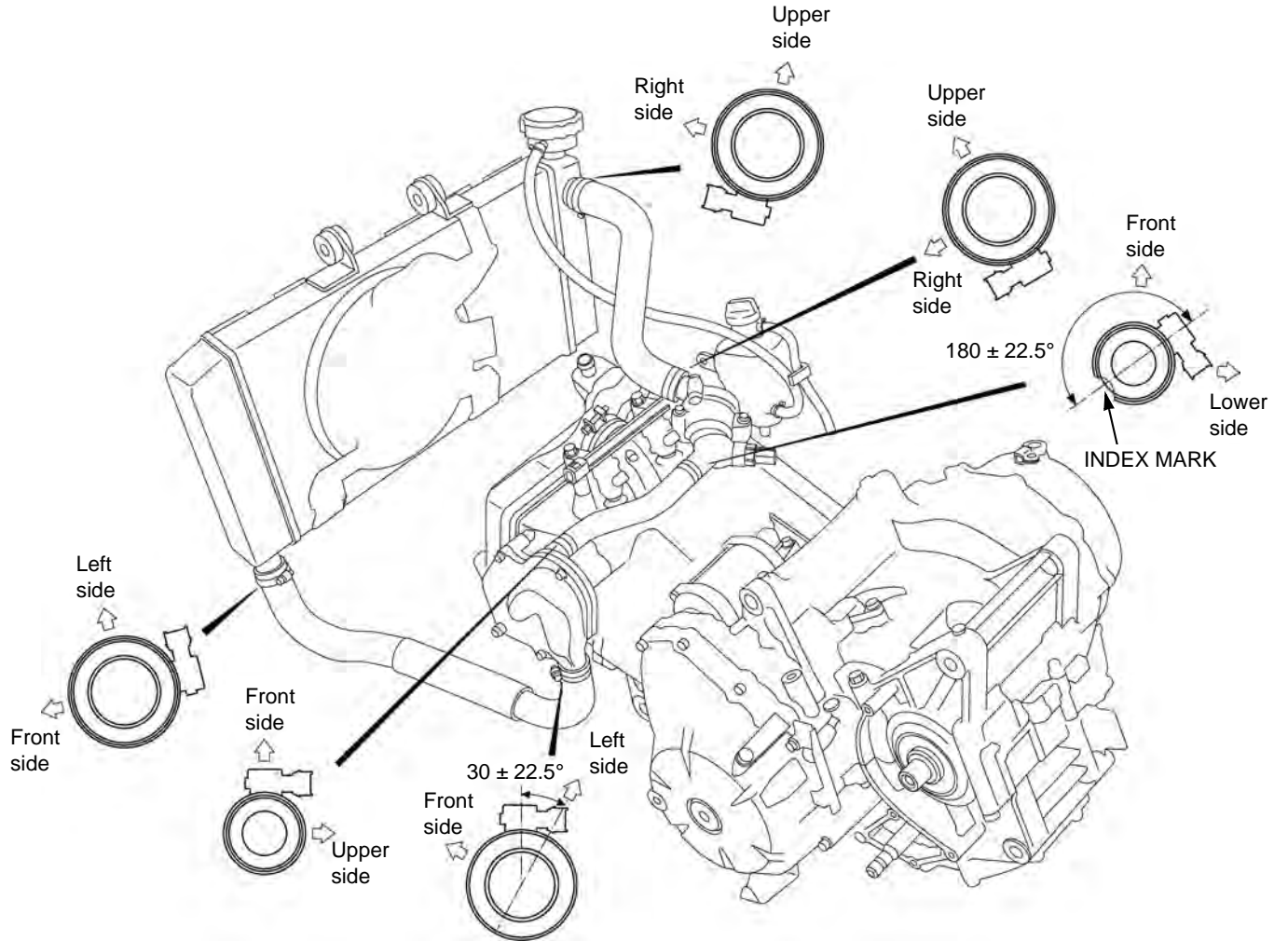
NC700XD/SD:



NC700X/XA/XD/S/SA/SD:



NC700X/XA/XD/S/SA/SD:



GENERAL INFORMATION

EMISSION CONTROL SYSTEMS

SOURCE OF EMISSIONS

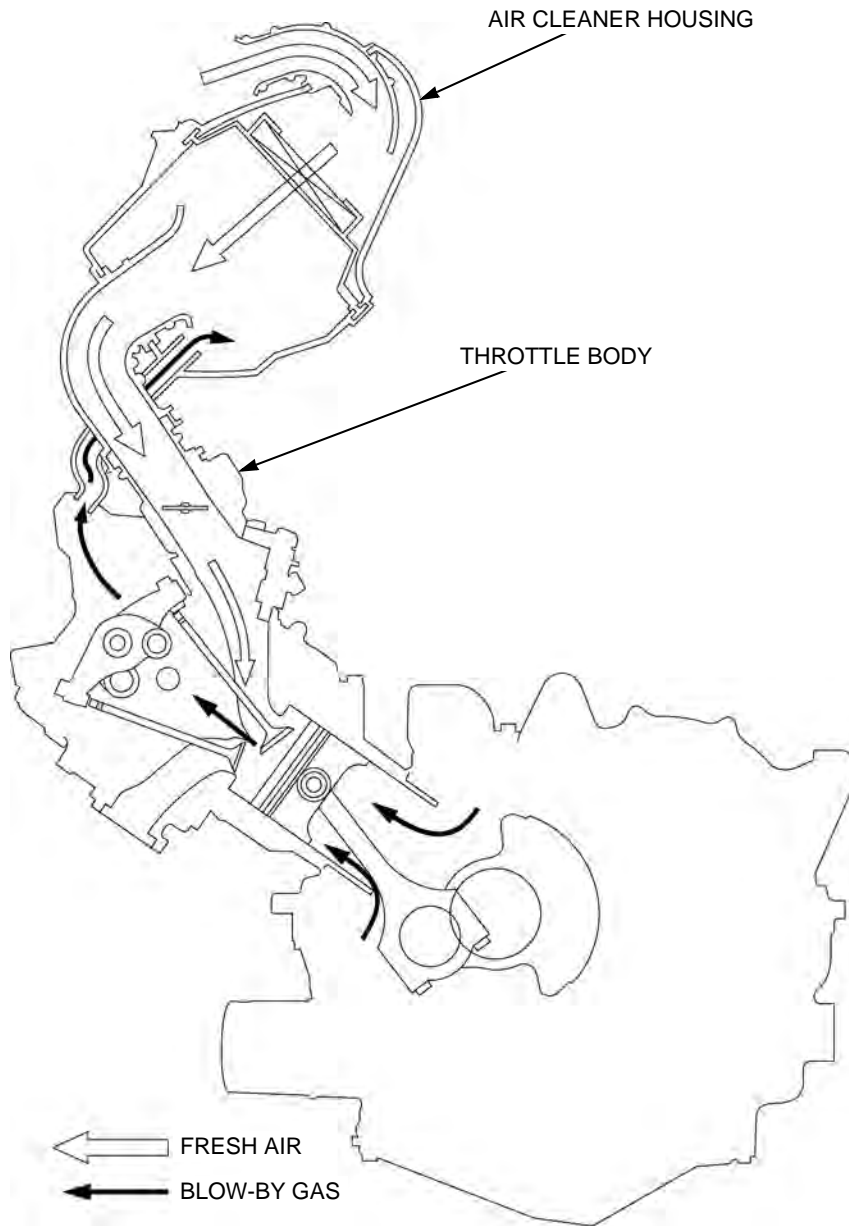
The combustion process produces carbon monoxide (CO), oxides of nitrogen (NO_x) and hydrocarbons (HC). Control of carbon monoxide, oxides of nitrogen and hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subject to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda Motor Co., Ltd. utilizes various systems (page 1-87) to reduce carbon monoxide, oxides of nitrogen and hydrocarbons.

CRANKCASE EMISSION CONTROL SYSTEM

The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere.

Blow-by gas is returned to the combustion chamber through the air cleaner and throttle body.



EXHAUST EMISSION CONTROL SYSTEM

The exhaust emission control system is composed of a three-way catalytic converter and PGM-FI system.

The exhaust emission control system is separate from the crankcase emission control system.

THREE-WAY CATALYTIC CONVERTER

This motorcycle also equipped with a three-way catalytic converter.

The three-way catalytic converter is in the exhaust system. Through chemical reactions, it converts HC, CO, and NO_x in the engine's exhaust to carbon dioxide (CO₂), nitrogen (N₂), and water vapor.

No adjustment to these systems should be made although periodic inspection of the components is recommended.

NOISE EMISSION CONTROL SYSTEM

TAMPERING WITH THE NOISE EMISSION CONTROL SYSTEM IS PROHIBITED: Local law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for the purposes of maintenance, repair or replacement, of any device or element of design incorporated into any vehicle for the purpose of noise control prior to its sale or delivery to the ultimate customer or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

1. Removal of or puncturing of the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

TECHNICAL FEATURES

CRACKING CONNECTING ROD

This motorcycle provides cracking connecting rods to utilize productivity improvement and to trim weight.

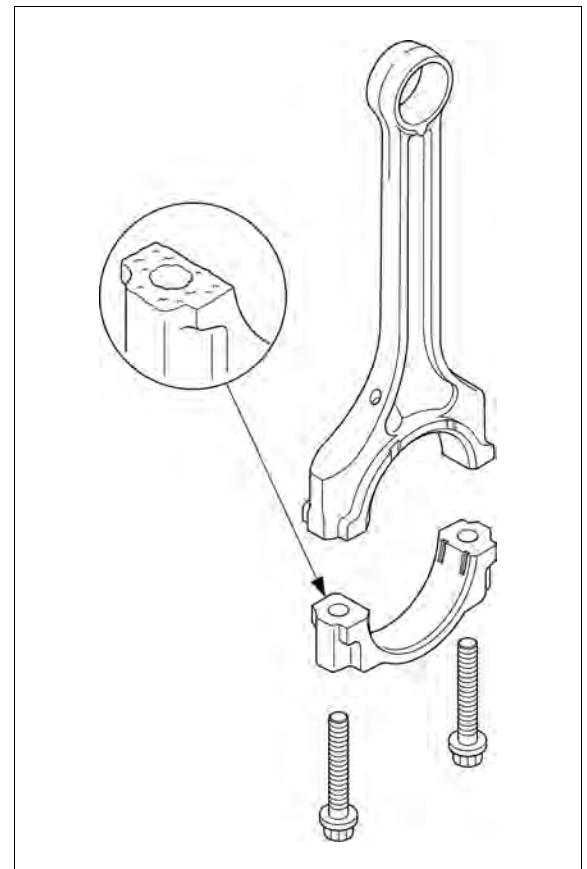
The cracking connecting rod is split from the single-piece connecting rod assembly into connecting rod and bearing cap.

Since the connecting rod and bearing cap have complex mating surfaces to hold them each other, the dowel pin is not required when assembling connecting rod.

NOTICE

In the following case, the mating surfaces of connecting rod and bearing cap are damaged. Replace them if false installed.

- *Bearing cap is installed oppositely.*
- *Interchange the connecting rods or bearing caps.*



GENERAL INFORMATION

ECM-to-COMBINATION METER TWO-WAY SERIAL COMMUNICATION (NC700X/XA/S/SA)

This motorcycle is equipped with the ECM-to-combination meter two-way serial communication system.

ECM sends the following information to combination meter:

- Engine speed signal
- HISS indicator signal, MIL signal, Engine oil pressure indicator signal, High coolant temperature indicator signal

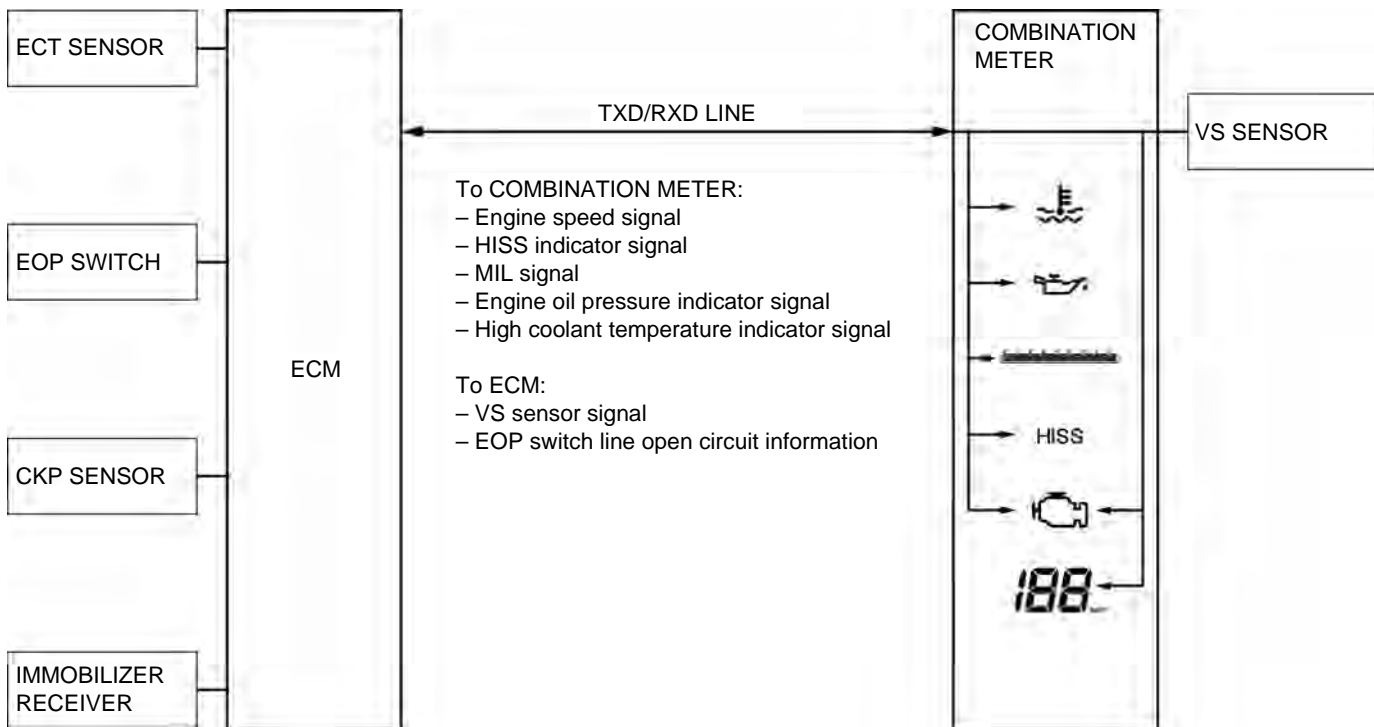
Combination meter sends the following information to the ECM.

- VS sensor signal
- EOP switch line open circuit information

NOTE:

- The combination meter detects a problem in the VS sensor and EOP switch line.
- The combination meter diagnosis the VS sensor failure, then send the DTC 11-1 to the ECM and ECM send the MIL signal to the combination meter.
- The combination meter send the EOP switch line open circuit information to the ECM, then ECM diagnosis the EOP switch line failure and send the DTC 87-1 signal to the combination meter.

These signals are forwarded to the combination meter or ECM by asynchronous communication via one wire. This wire is called the TXD/RXD line (serial communication line).



WHEN THERE IS A PROBLEM IN THE TXD/RXD LINE

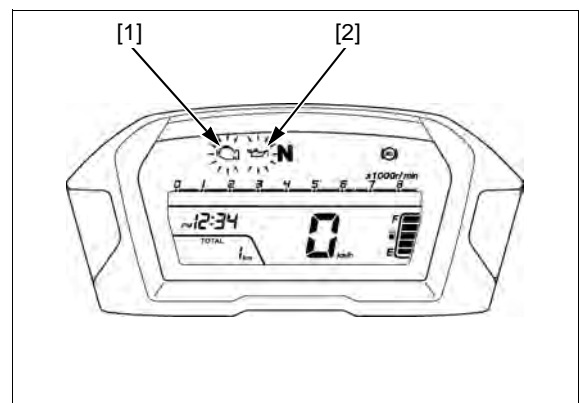
When an open or short circuit occurs in the TXD/RXD line, the combination meter indicate the following:

- MIL [1] come on.
- Engine oil pressure indicator [2] come on.
- Tachometer go off.
- High coolant temperature indicator go off.
- HISS indicator go off.

When the ECM did not receive the meter information, the ECM store the DTC 86-1. Check the DTC 86-1 with the HDS pocket tester (page 4-12).

Check the ECM by ECM communication diagnostic mode (page 22-11).

Check the combination meter by combination meter communication diagnostic mode (page 22-11).



PCM-to-COMBINATION METER TWO-WAY SERIAL COMMUNICATION (NC700XD/SD)

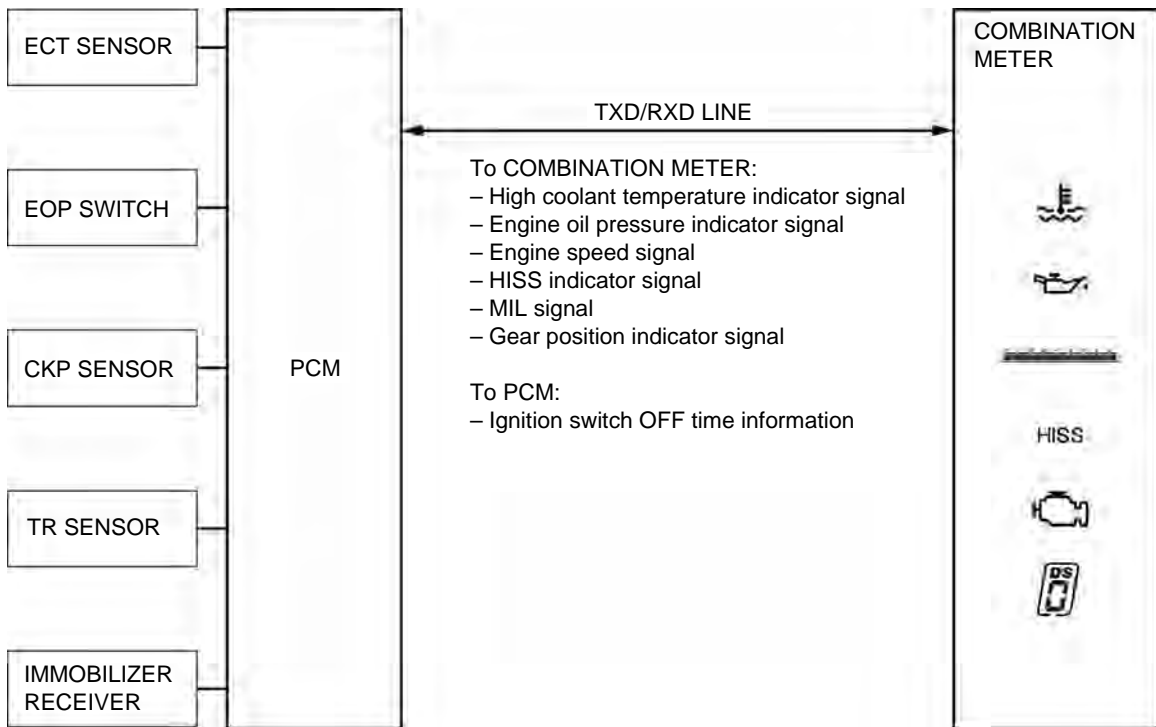
This motorcycle is equipped with the PCM-to-combination meter two-way serial communication system.

The PCM sends the following information to combination meter:

- High coolant temperature indicator signal
- Engine oil pressure indicator signal
- Engine speed signal
- MIL signal
- HISS indicator signal
- Gear position indicator signal

Combination meter sends the ignition switch OFF time information (elapsed time after the ignition switch is turned OFF) to the PCM. The PCM uses this information for the EOP switch line open circuit detection with the VS sensor signal.

These signals are communicated between the combination meter and PCM via one wire. This wire is called the TXD/RXD line (serial communication line).



WHEN THE SERIAL COMMUNICATION IS ABNORMAL

If there is any problem in the TXD/RXD line, the combination meter shows following:

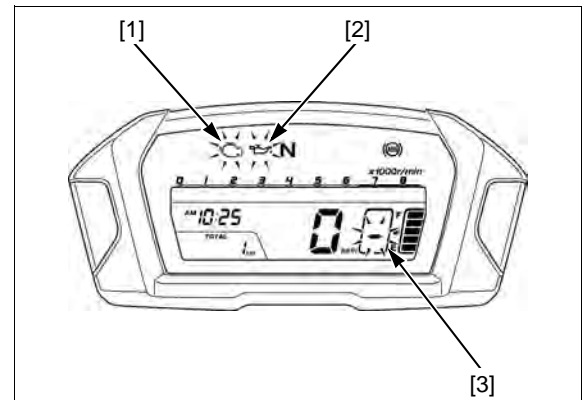
- MIL [1] and engine oil pressure indicator [2] stay on.
- Shift indicator "-" [3] is blinking.
- Tachometer, high coolant temperature indicator and HISS indicator do not come on.

TXD/RXD line troubleshooting (page 22-11)

If there is any problem in the serial communication, the PCM stores the DTC 86-1. Read the DTC (page 4-12).

DTC troubleshooting (page 4-40)

MIL troubleshooting (page 4-60)



GENERAL INFORMATION

DUAL CLUTCH TRANSMISSION

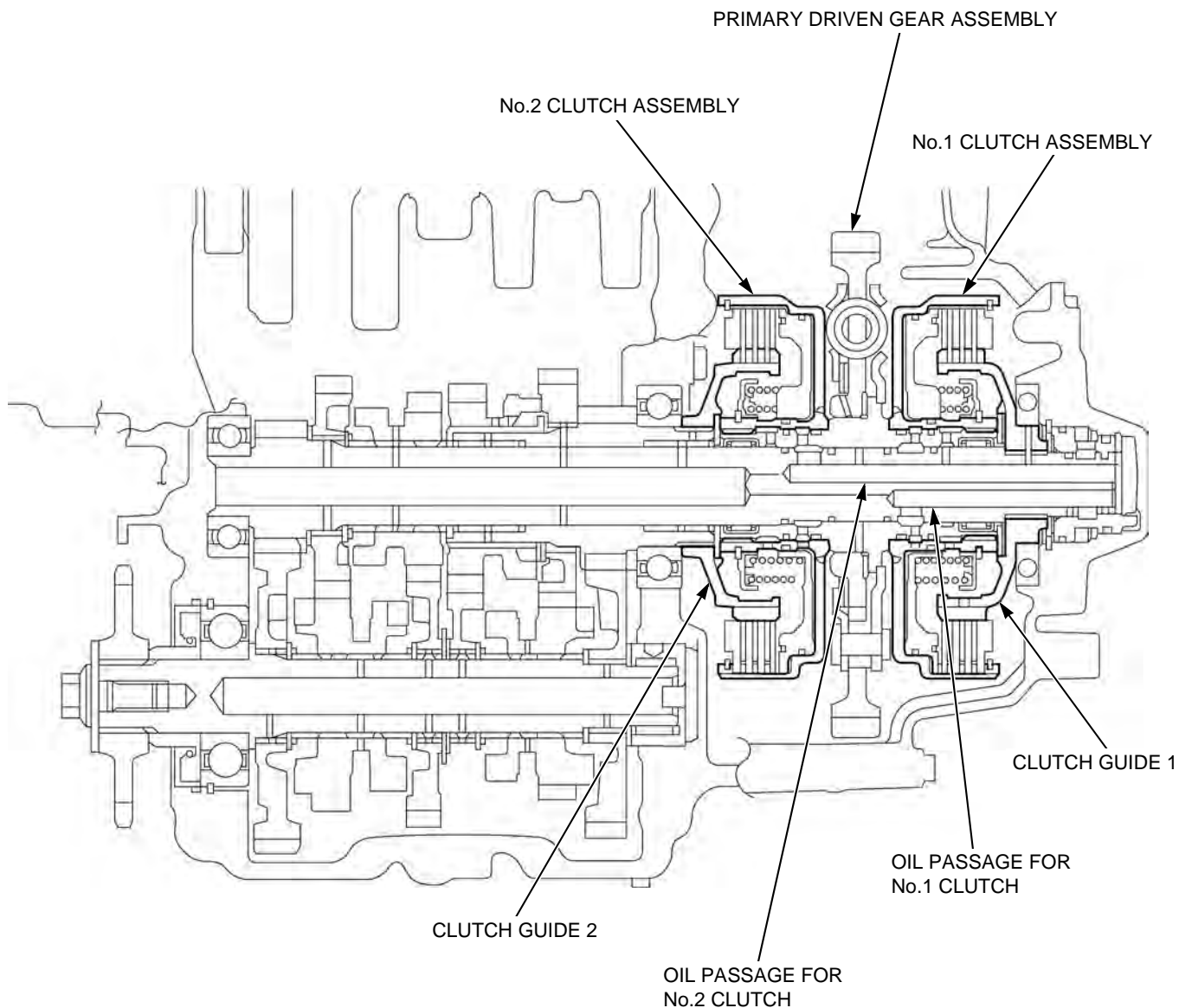
The dual clutch transmission on this motorcycle uses new dual clutch assembly and its hydraulic system is improved.

The dual clutch assembly consists of the primary driven gear assembly, two clutch guides and hydraulic clutch assemblies.

The linear solenoid valves are located inside the right crankcase cover and inner mainshaft has to oil passages instead of the oil feed pipes.

- For linear solenoid valve location (page 12-100)
- For clutch operating oil flow (page 9-3)

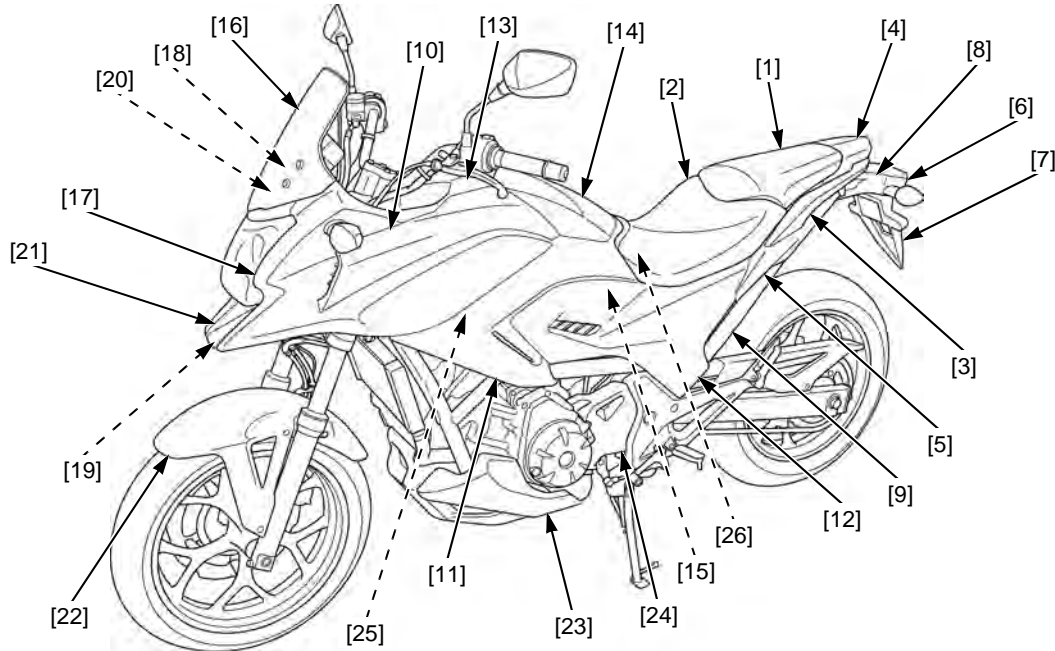
The transmission shift mechanism and electric shift control system are same as the conventional dual clutch transmission.



2. FRAME/BODY PANELS/EXHAUST SYSTEM

BODY PANEL LOCATIONS (NC700X/XA).....	2-2	CENTER COVER (NC700X/XA/XD)	2-16
BODY PANEL LOCATIONS (NC700XD).....	2-3	LUGGAGE BOX LID	2-17
BODY PANEL LOCATIONS (NC700S/SA)	2-4	LUGGAGE BOX LID/ HINGE ASSEMBLY	2-19
BODY PANEL LOCATIONS (NC700SD).....	2-5	LUGGAGE BOX.....	2-19
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REAR FENDER MUD GUARD (U type)	2-10	HEADLIGHT COVER (NC700S/SA/SD).....	2-27
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REAR FENDER A.....	2-12	LEFT REAR COVER	2-29
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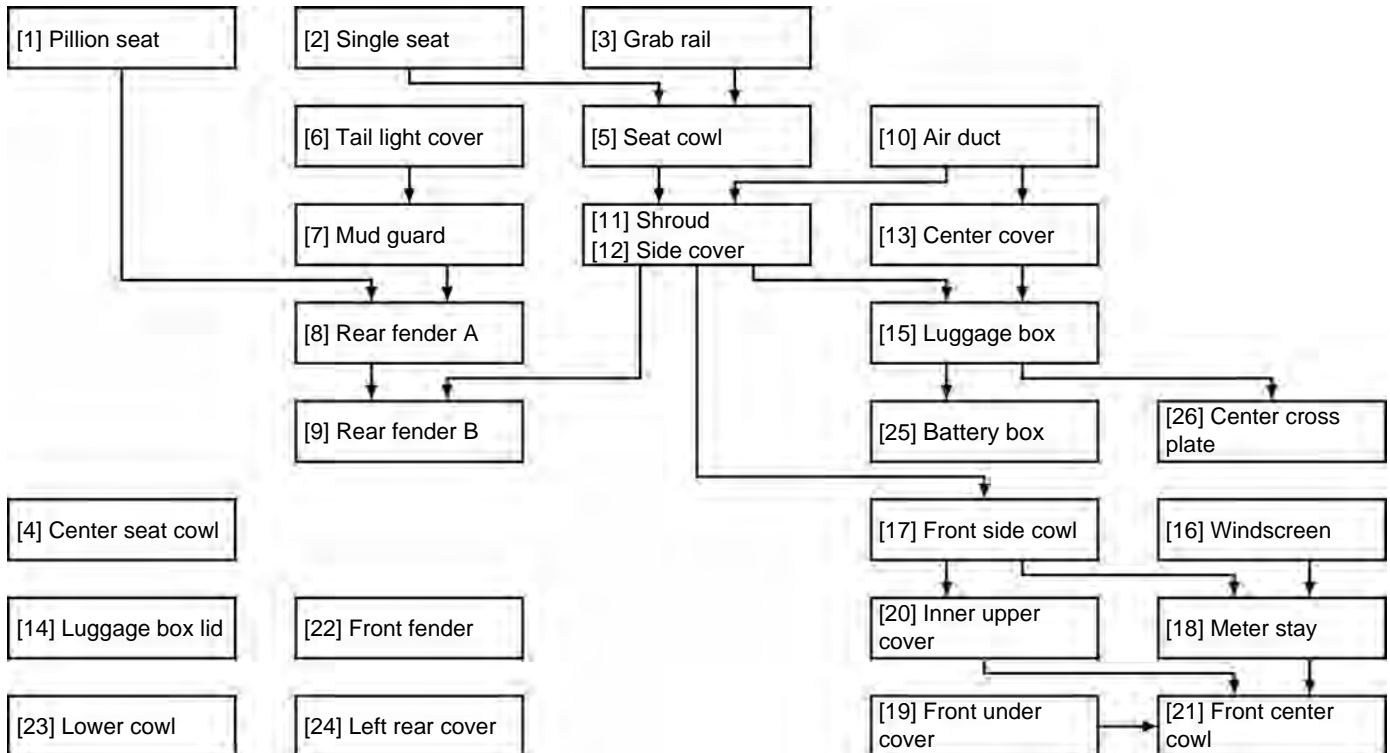
BODY PANEL LOCATIONS (NC700X/XA)



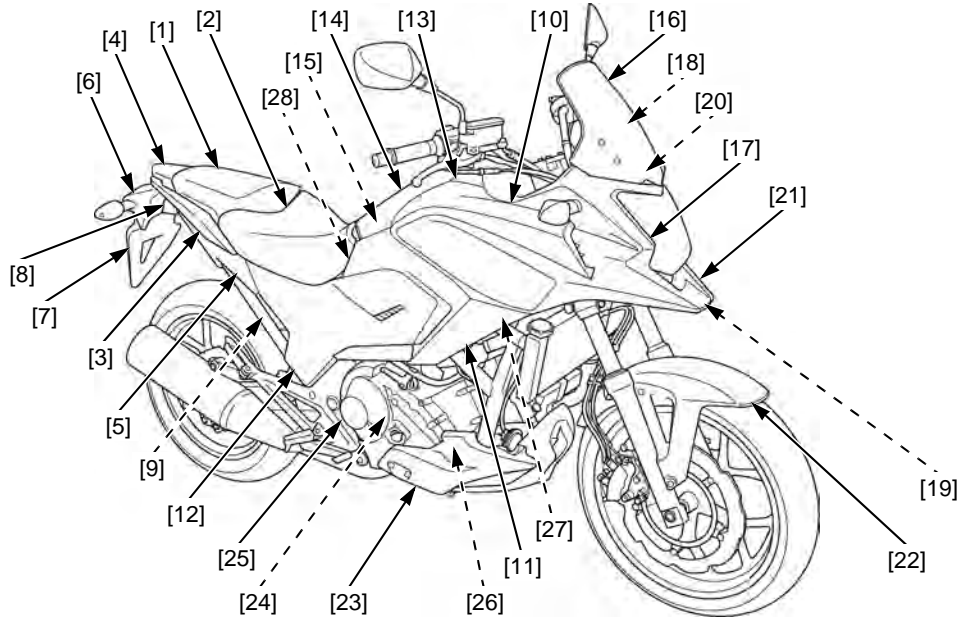
[1] Pillion seat	page 2-7	[10] Air duct	page 2-13	[19] Front under cover	page 2-25
[2] Single seat	page 2-7	[11] Shroud	page 2-14	[20] Inner upper cover	page 2-25
[3] Grab rail	page 2-8	[12] Side cover	page 2-14	[21] Front center cowl	page 2-26
[4] Center seat cowl	page 2-8	[13] Center cover	page 2-16	[22] Front fender	page 2-28
[5] Seat cowl	page 2-9	[14] Luggage box lid	page 2-17	[23] Lower cowl	page 2-28
[6] Tail light cover	page 2-10	[15] Luggage box	page 2-19	[24] Left rear cover	page 2-29
[7] Mud guard	page 2-11	[16] Windscreen	page 2-23	[25] Battery box	page 2-31
[8] Rear fender A	page 2-12	[17] Front side cowl	page 2-24	[26] Center cross plate	page 2-32
[9] Rear fender B	page 2-12	[18] Meter stay	page 2-24		

BODY PANEL REMOVAL CHART

This chart shows removal order of frame covers by means of arrow.



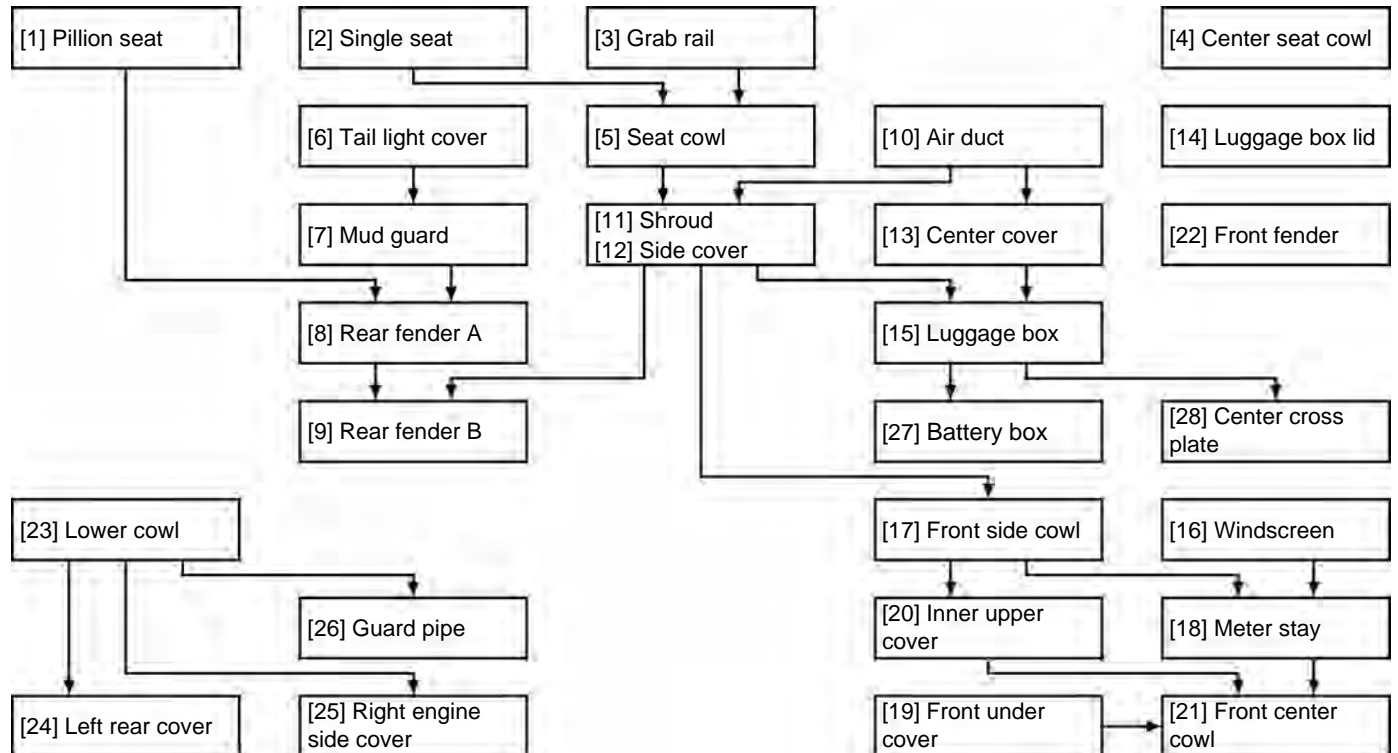
BODY PANEL LOCATIONS (NC700XD)



[1] Pillion seat	page 2-7	[11] Shroud	page 2-14	[21] Front center cowl	page 2-26
[2] Single seat	page 2-7	[12] Side cover	page 2-14	[22] Front fender	page 2-28
[3] Grab rail	page 2-8	[13] Center cover	page 2-16	[23] Lower cowl	page 2-29
[4] Center seat cowl	page 2-8	[14] Luggage box lid	page 2-17	[24] Left rear cover	page 2-30
[5] Seat cowl	page 2-9	[15] Luggage box	page 2-19	[25] Right engine side cover	page 2-30
[6] Tail light cover	page 2-10	[16] Windscreen	page 2-23	[26] Guard pipe	page 2-30
[7] Mud guard	page 2-11	[17] Front side cowl	page 2-24	[27] Battery box	page 2-31
[8] Rear fender A	page 2-12	[18] Meter stay	page 2-24	[28] Center cross plate	page 2-32
[9] Rear fender B	page 2-12	[19] Front under cover	page 2-25		
[10] Air duct	page 2-13	[20] Inner upper cover	page 2-25		

BODY PANEL REMOVAL CHART

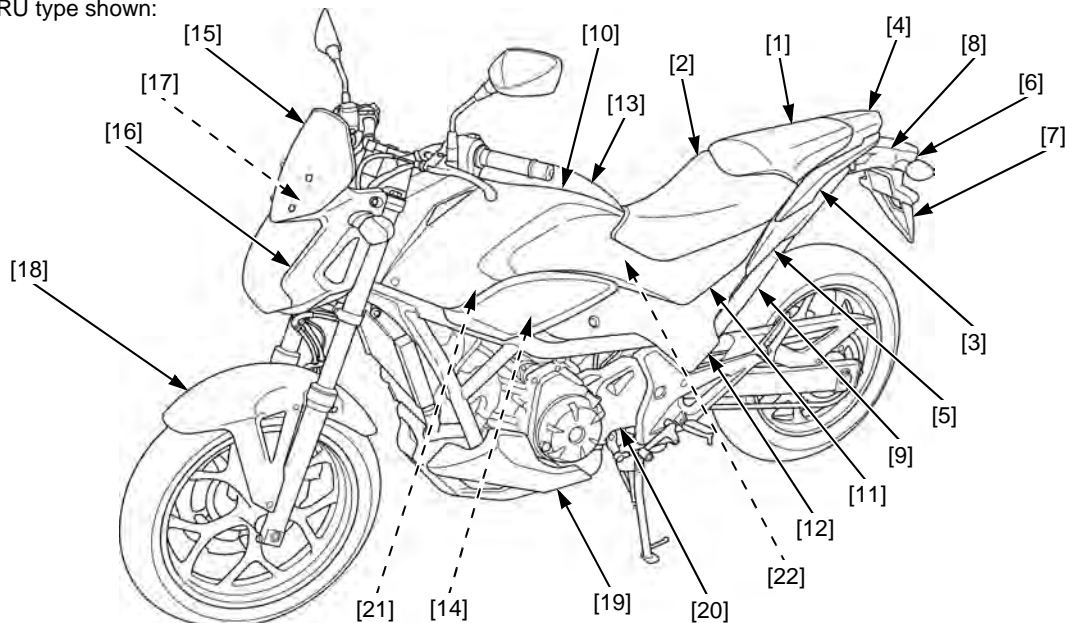
This chart shows removal order of frame covers by means of arrow.



FRAME/BODY PANELS/EXHAUST SYSTEM

BODY PANEL LOCATIONS (NC700S/SA)

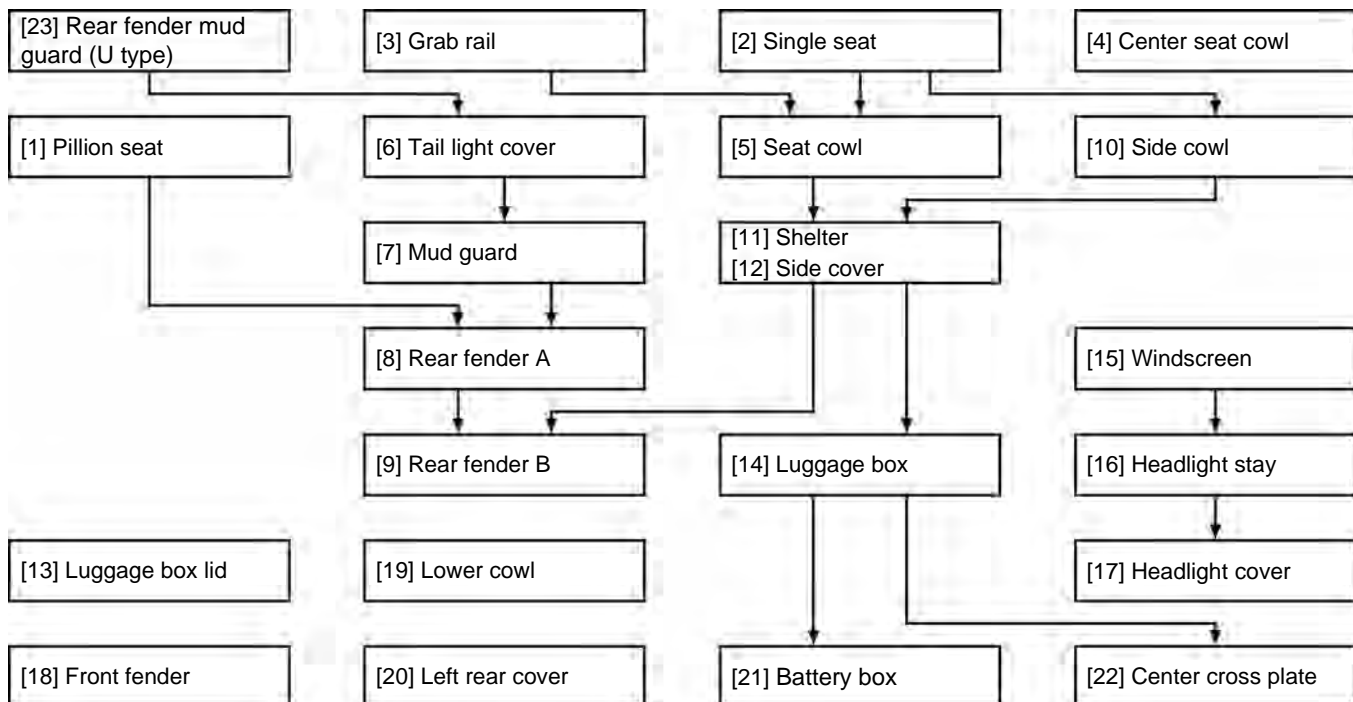
E, ED, F, KO, RU type shown:



[1] Pillion seat	page 2-7	[9] Rear fender B	page 2-12	[17] Headlight cover	page 2-27
[2] Single seat	page 2-7	[10] Side cowl	page 2-13	[18] Front fender	page 2-28
[3] Grab rail	page 2-8	[11] Shelter	page 2-15	[19] Lower cowl	page 2-28
[4] Center seat cowl	page 2-8	[12] Side cover	page 2-15	[20] Left rear cover	page 2-29
[5] Seat cowl	page 2-9	[13] Luggage box lid	page 2-18	[21] Battery box	page 2-31
[6] Tail light cover	page 2-10	[14] Luggage box	page 2-20	[22] Center cross plate	page 2-32
[7] Mud guard	page 2-11	[15] Windscreen	page 2-23	[23] Rear fender mud guard (U type)	page 2-10
[8] Rear fender A	page 2-12	[16] Headlight stay	page 2-27		

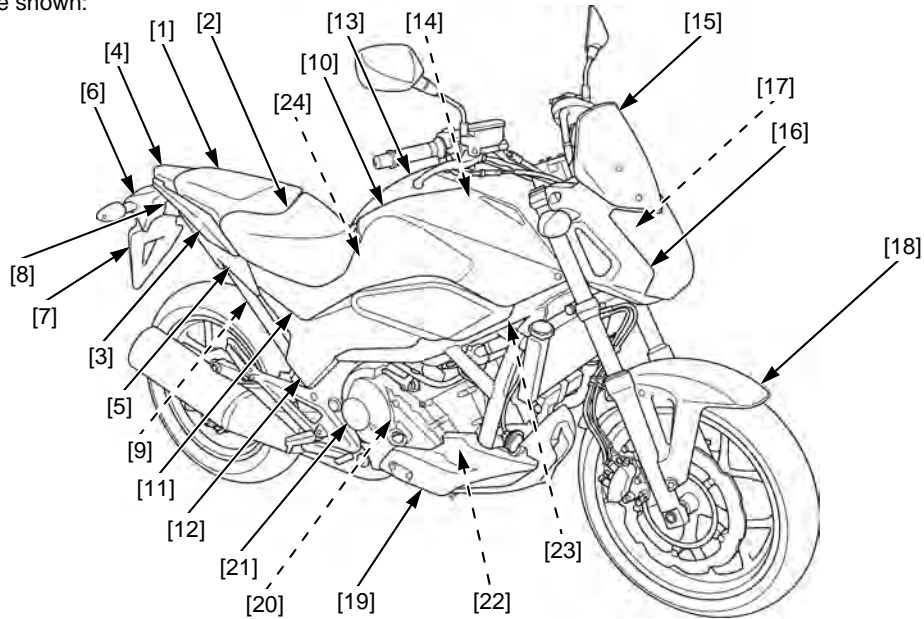
BODY PANEL REMOVAL CHART

This chart shows removal order of frame covers by means of arrow.



BODY PANEL LOCATIONS (NC700SD)

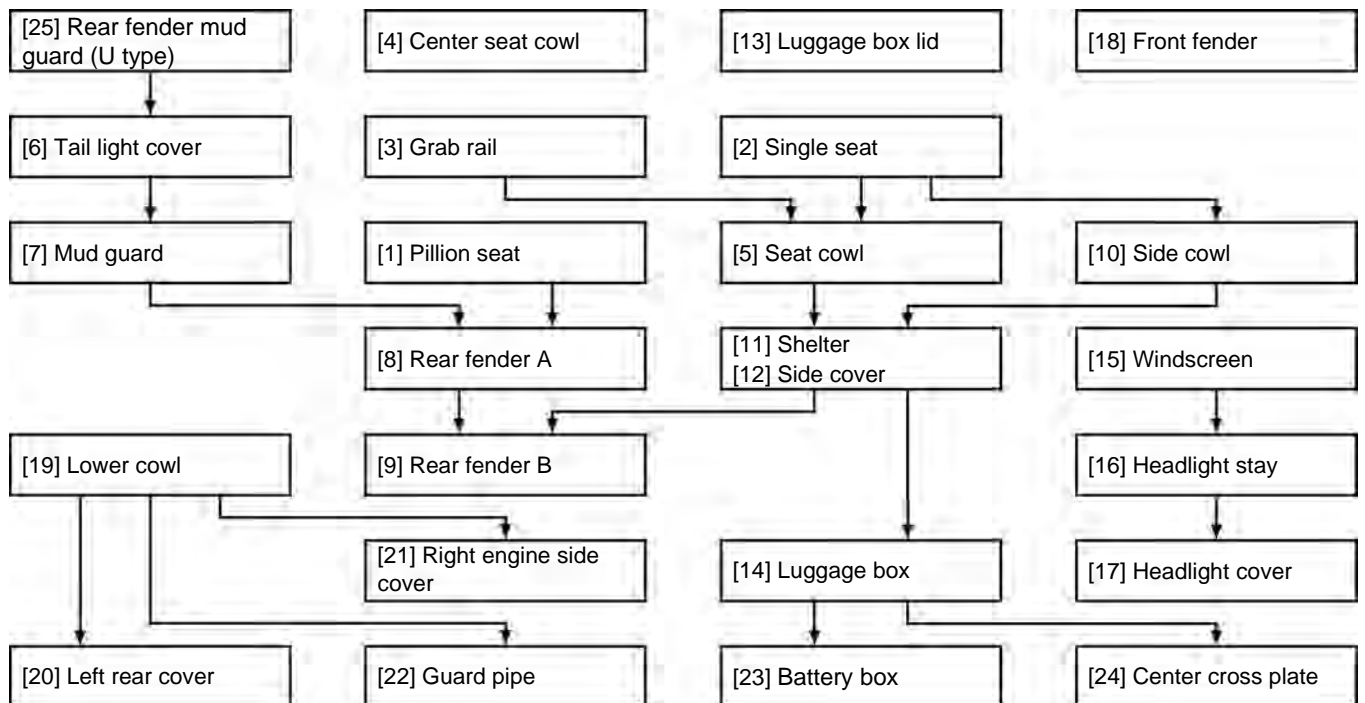
E, ED, F, KO, RU type shown:



[1] Pillion seat	page 2-7	[10] Side cowl	page 2-13	[19] Lower cowl	page 2-29
[2] Single seat	page 2-7	[11] Shelter	page 2-15	[20] Left rear cover	page 2-30
[3] Grab rail	page 2-8	[12] Side cover	page 2-15	[21] Right engine side cover	page 2-30
[4] Center seat cowl	page 2-8	[13] Luggage box lid	page 2-18	[22] Guard pipe	page 2-30
[5] Seat cowl	page 2-9	[14] Luggage box	page 2-20	[23] Battery box	page 2-31
[6] Tail light cover	page 2-10	[15] Windscreen	page 2-23	[24] Center cross plate	page 2-32
[7] Mud guard	page 2-11	[16] Headlight stay	page 2-27	[25] Rear fender mud guard (U type)	page 2-10
[8] Rear fender A	page 2-12	[17] Headlight cover	page 2-27		
[9] Rear fender B	page 2-12	[18] Front fender	page 2-28		

BODY PANEL REMOVAL CHART

This chart shows removal order of frame covers by means of arrow.



FRAME/BODY PANELS/EXHAUST SYSTEM

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the body panels and exhaust system.
- Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.
- Always replace the exhaust pipe gasket with new ones after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust pipe fasteners. Always tighten the exhaust pipe joint nuts first, then tighten the mounting bolts.
- Always inspect the exhaust system for leaks after installation.

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Seat cowl assembly screw	2	4	0.9 (0.1, 0.7)	
Brake/tail/license light mounting socket bolt	1	6	10 (1.0, 7)	
Reflector mounting nut	1	5	1.7 (0.2, 1.3)	
Turn signal light mounting screw	4	6	2.5 (0.3, 1.8)	
Luggage box lid assembly screw	9	4	0.9 (0.1, 0.7)	
Luggage box lid lock plate mounting screw	2	6	4.0 (0.4, 3.0)	
Luggage box lid mounting socket bolt	3	6	12 (1.2, 9)	
Luggage box lid hinge nut	1	6	12 (1.2, 9)	U-nut
Gearshift arm pinch bolt (NC700X/XA/S/SA)	1	6	12 (1.2, 9)	ALOC bolt; replace with a new one.
Muffler cover socket bolt	1	6	10 (1.0, 7)	
Muffler band bolt	1	8	17.5 (1.8, 13)	
Exhaust pipe joint nut	3	8	28 (2.9, 21)	See page 2-34
Exhaust pipe stud bolt	3	8	—	See page 2-35

TROUBLESHOOTING

Excessive exhaust noise

- Broken exhaust system
- Exhaust gas leak

Poor performance

- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

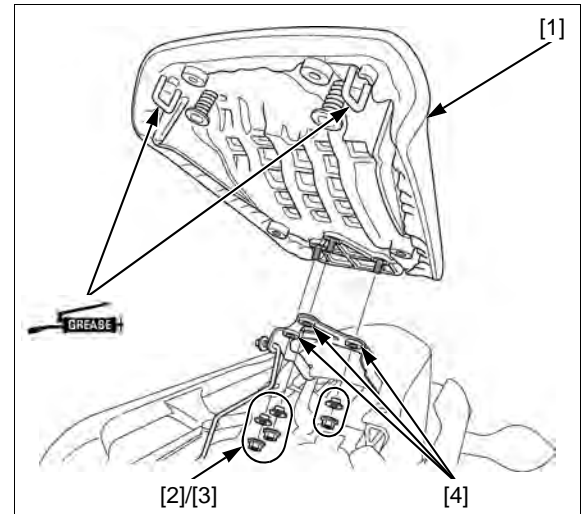
PILLION SEAT

REMOVAL/INSTALLATION

Open the pillion seat [1] using the ignition key.
 Remove the nuts [2], collars [3] and pillion seat.
 Remove the grommets [4] from the pillion seat stay.
 Installation is in the reverse order of removal.

NOTE:

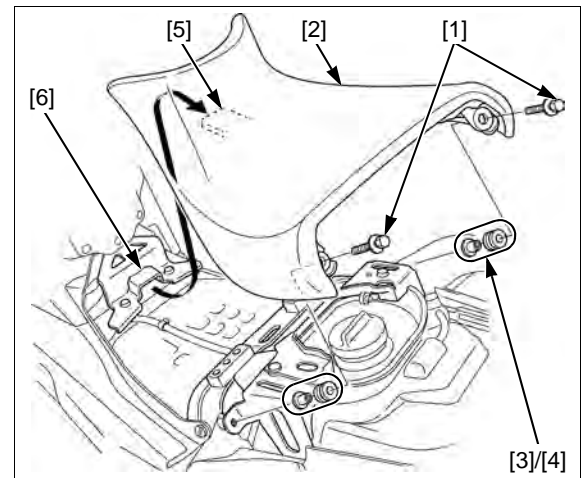
Apply grease to the pillion seat catch hook sliding area if necessary.



SINGLE SEAT

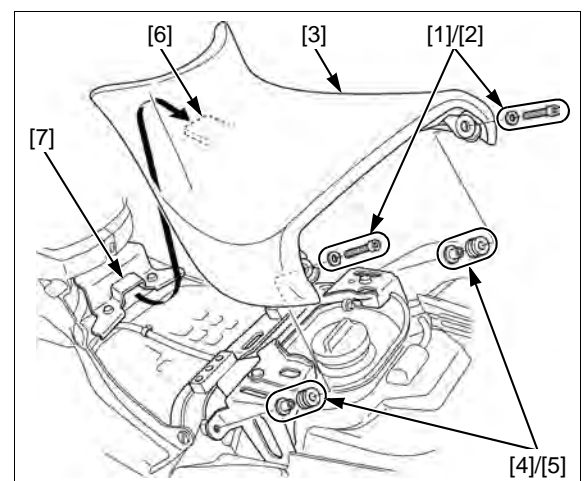
REMOVAL/INSTALLATION (NC700X/ XA/XD)

Open the pillion seat using the ignition key.
 Remove the mounting bolts [1].
 Remove the single seat [2] by pulling it rearward.
 Remove the collars [3] and grommets [4] from the single seat.
 Install the grommets and collars to the single seat.
 Install the single seat by inserting its hook [5] into the seat bracket [6] under the luggage box hinge bracket.
 Install and tighten the mounting bolts securely.
 Close the pillion seat.



REMOVAL/INSTALLATION (NC700S/ SA/SD)

Open the pillion seat using the ignition key.
 Remove the mounting socket bolts [1] and washers [2].
 Remove the single seat [3] by pulling it rearward.
 Remove the collars [4] and grommets [5] from the single seat.
 Install the grommets and collars to the single seat.
 Install the single seat by inserting its hook [6] into the seat bracket [7] under the luggage box hinge bracket.
 Install and tighten the mounting socket bolts securely.
 Close the pillion seat.



GRAB RAIL

REMOVAL/INSTALLATION

Open the pillion seat using the ignition key.

Right grab rail: Remove the clip [1], washer [2], spring [3] and pillion seat hinge [4] from the pillion seat stay.

Remove the caps [5] from the mounting socket bolts [6].

Remove the mounting socket bolts, washers [7] and grab rails [8] while holding the collars [9].

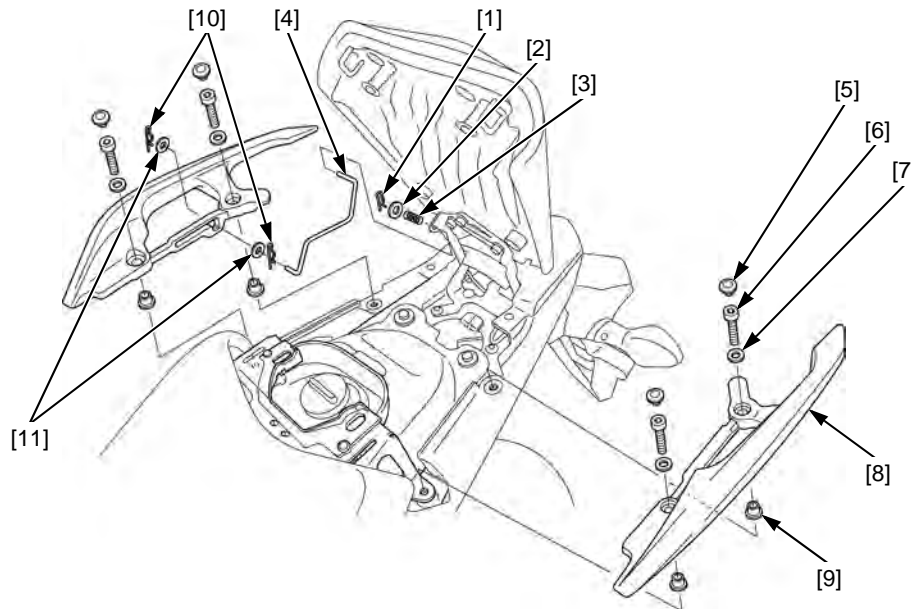
NOTE:

Be careful not to let the collars fall into the seat cowl.

Remove the collars from the grab rail.

If necessary, remove the clips [10], washers [11] and pillion seat hinge from the right grab rail.

Installation is in the reverse order of removal.



CENTER SEAT COWL

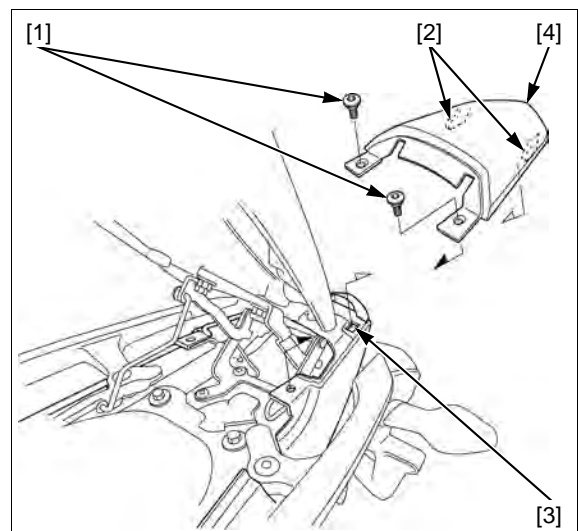
REMOVAL/INSTALLATION

Open the pillion seat using the ignition key.

Remove the socket bolts [1].

Pull up the center seat cowl rear end and release the center seat cowl tabs [2] from the seat cowl slits [3] by pulling the center seat cowl [4] rearward.

Installation is in the reverse order of removal.



SEAT COWL

REMOVAL/INSTALLATION

Remove the following:

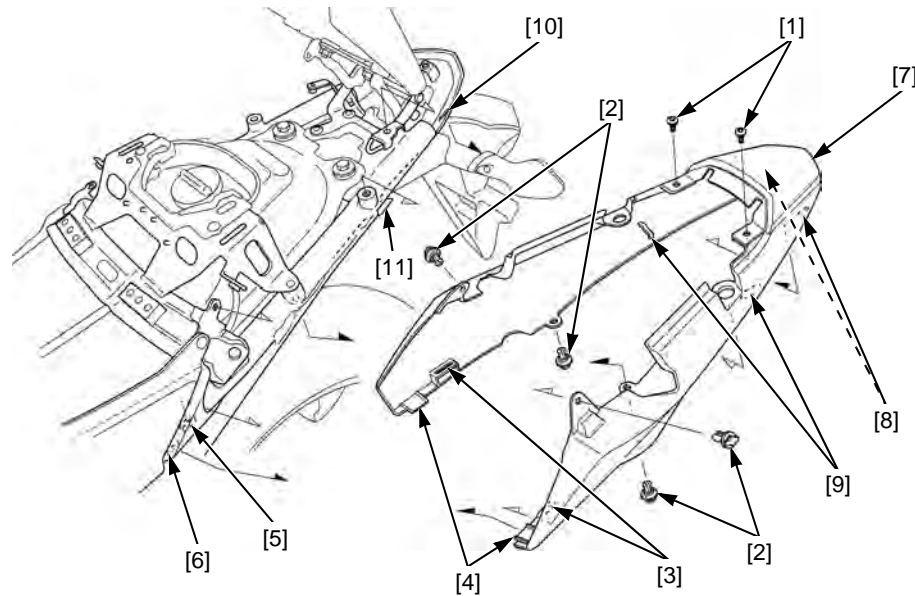
- Single seat (page 2-7)
- Grab rail (page 2-8)

Remove the socket bolts [1] and trim clips [2].

Release the seat cowl front side slits [3] and tabs [4] from the side cover tabs [5] and slits [6].

Remove the seat cowl assembly [7] by releasing the its rear side tabs [8] and slits [9] from the rear fender B slits [10] and tabs [11].

Installation is in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

Remove the center seat cowl (page 2-8).

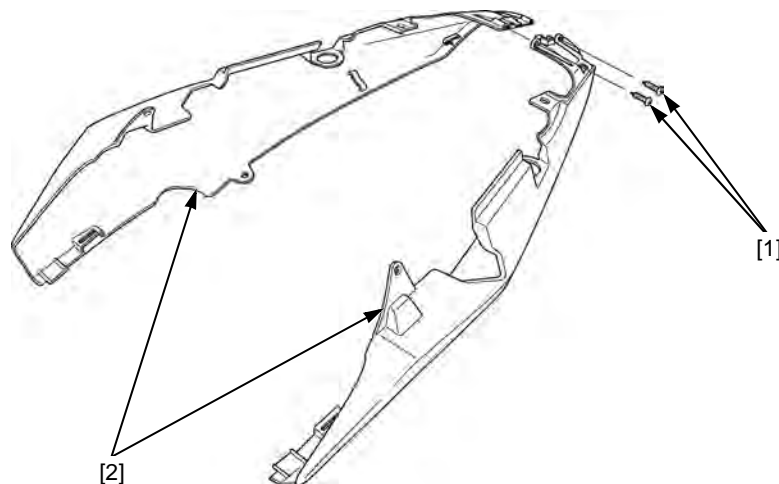
Remove the seat cowl assembly screws [1] and separate the right and left seat cowls [2].

Assembly is in the reverse order of disassembly.

TORQUE:

Seat cowl assembly screw:

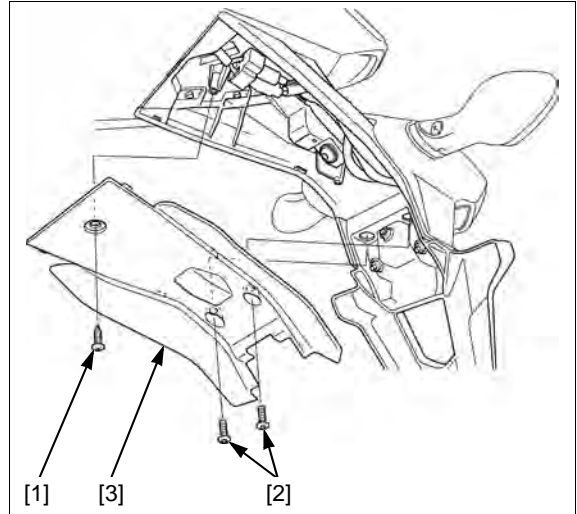
0.9 N·m (0.1 kgf-m, 0.7 lbf-ft)



REAR FENDER MUD GUARD (U type)

REMOVAL/INSTALLATION

Remove the screw [1], socket bolts [2] and rear fender mud guard [3].



BRAKE/TAIL/LICENSE LIGHT/TAIL LIGHT COVER

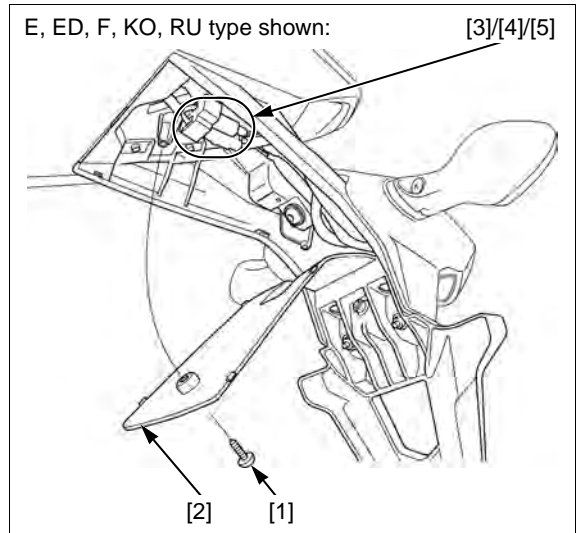
REMOVAL/INSTALLATION

Remove the rear fender mud guard (U type) (page 2-10).

Remove the screw [1] and open the cover [2].

Disconnect the following:

- Rear right turn signal light 2P (Light blue) connector [3]
- Rear left turn signal light 2P (Orange) connector [4]
- Brake/tail/license light 3P connector [5]



Remove the brake/tail/license light mounting socket bolt [1] and collar [2].

Remove the socket bolts (E, ED, F, KO, RU type) [3] and brake/tail/license light assembly [4] and release the wire harnesses from the rear fender A.

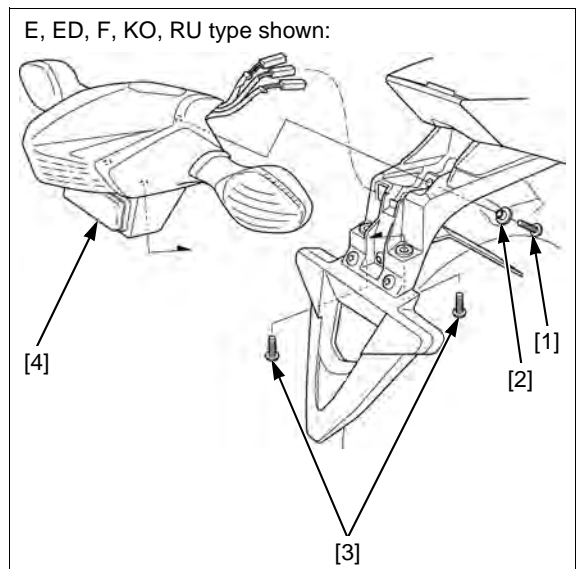
Installation is in the reverse order of removal.

NOTE:

Route the wire harness properly (page 1-25).

TORQUE:

Brake/tail/license light mounting socket bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)



DISASSEMBLY/ASSEMBLY

Remove the reflector mounting nut [1] and reflector [2].

Remove the screw [3], nuts [4], washers [5] and socket bolts [6] and separate the tail light covers [7] and brake/tail/license light [8].

Remove the turn signal light mounting screw [9], setting plate [10] and turn signal light [11].

Remove the mounting rubber [12].

Assembly is in the reverse order of disassembly.

NOTE:

- Align the tail light cover tabs with the brake/tail/license light slots.
- Align the reflector tab [13] with the left tail light cover hole [14].

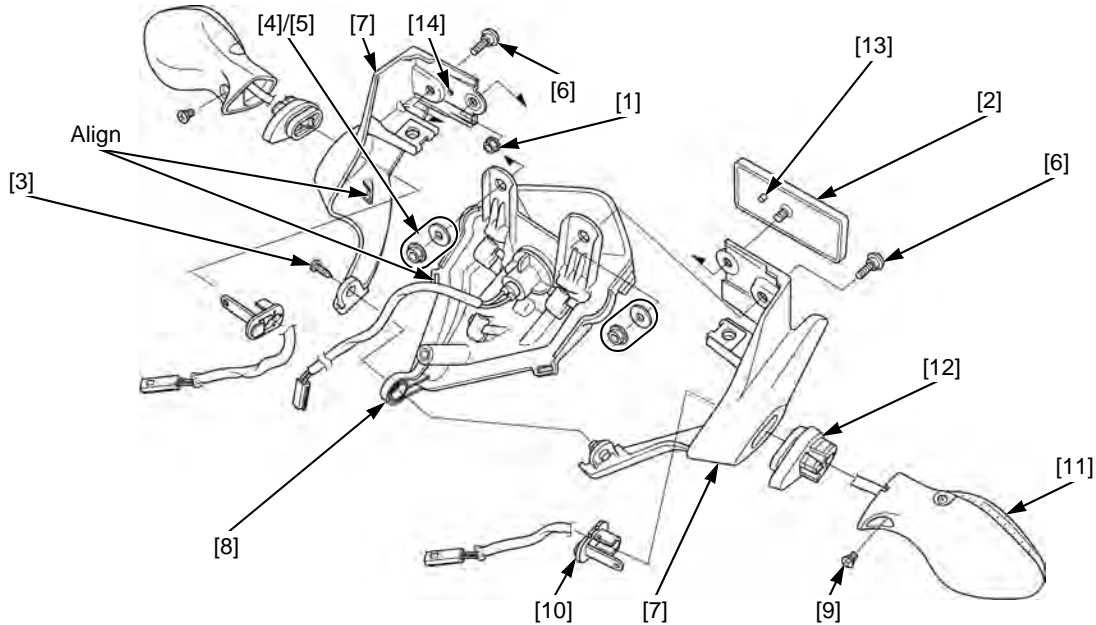
TORQUE:

Reflector mounting nut:

1.7 N·m (0.2 kgf·m, 1.3 lbf·ft)

Turn signal light mounting screw:

2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



MUD GUARD

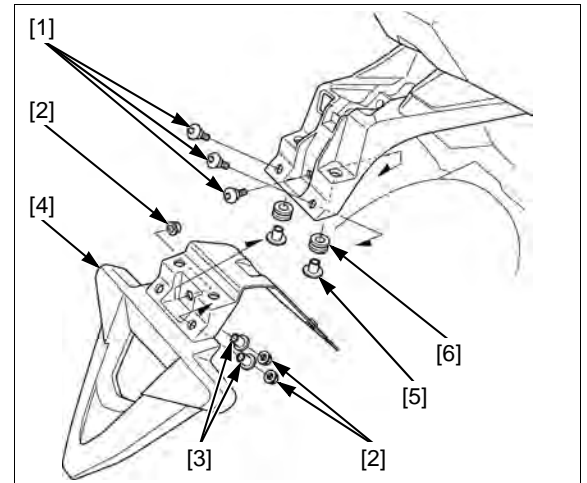
REMOVAL/INSTALLATION

Remove the brake/tail/license light assembly (page 2-10).

Remove the socket bolts [1], nuts [2], collars [3] and mud guard [4].

If necessary, remove the brake/tail/license light assembly mounting collars [5] and grommets [6].

Installation is in the reverse order of removal.



REAR FENDER A

REMOVAL/INSTALLATION

Remove the following:

- Pillion seat (page 2-7)
- Mud guard (page 2-11)

Remove the clip [1], washer [2], spring [3] and pillion seat hinge [4] from the pillion seat stay.

Remove the rubber holder [5] from the rear fender A tabs.

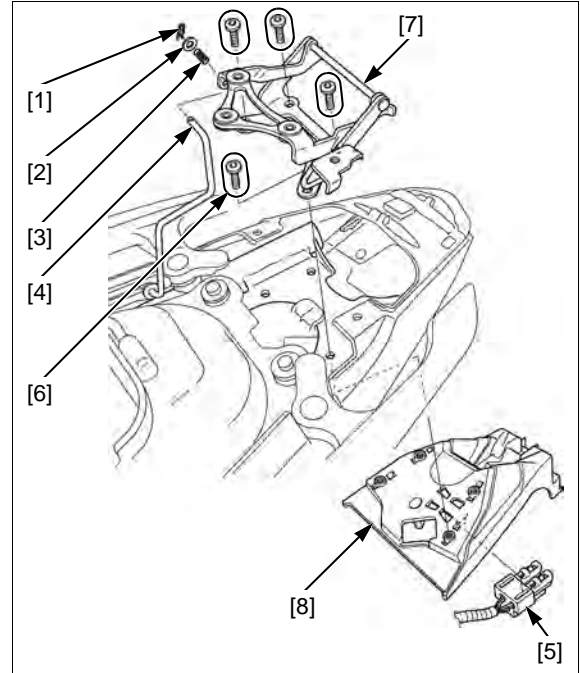
Remove the socket bolts [6], pillion seat stay [7] while holding the rear fender A [8].

Remove the rear fender A and release the wire harnesses.

Installation is in the reverse order of removal.

NOTE:

Route the wire harness properly (page 1-25).



REAR FENDER B

REMOVAL/INSTALLATION

Remove the following:

- Rear fender A (page 2-12)
- Shroud/side cover (NC700X/XA/XD) (page 2-14)
- Shelter/side cover (NC700S/SA/SD) (page 2-15)

Remove the bolt [1] and rear brake reservoir stay/reservoir [2].

Remove the socket bolts [3].

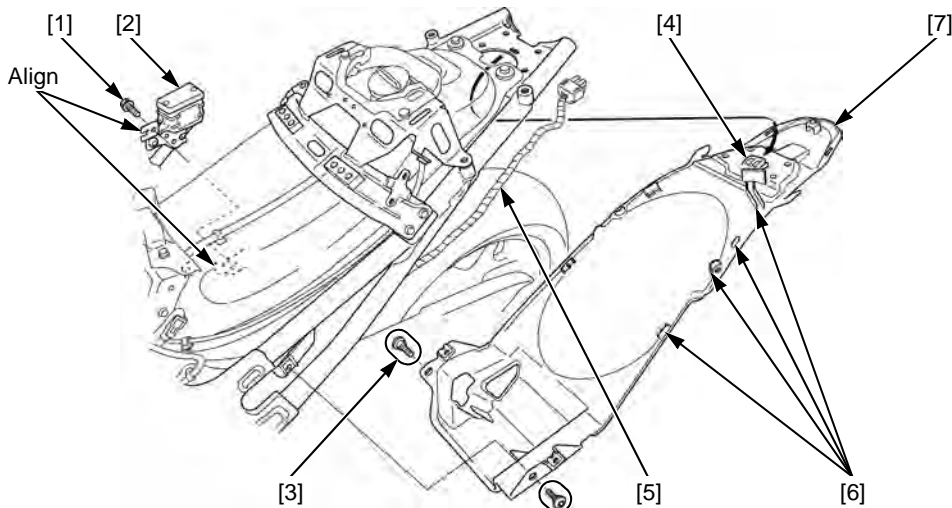
Release the tab [4] from the frame.

Release the main wire harness [5] from guides [6] and remove the rear fender B [7].

Installation is in the reverse order of removal.

NOTE:

- Align the rear brake reservoir stay with the frame tab.
- Route the wire harness properly (page 1-25).



AIR DUCT (NC700X/XA/XD)

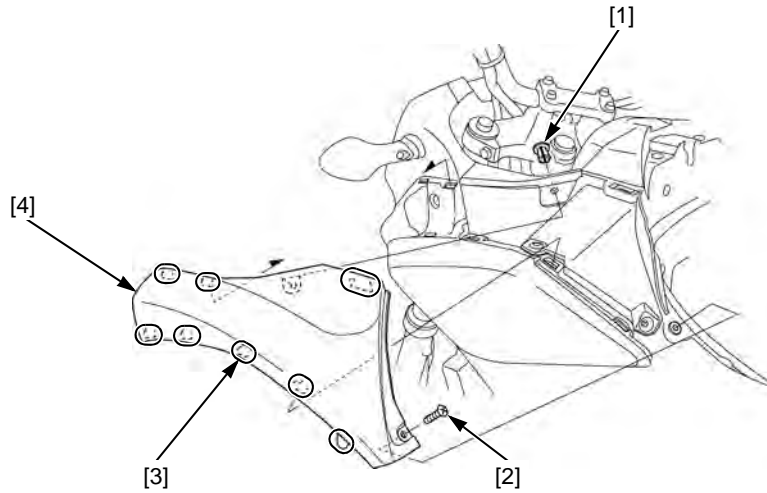
REMOVAL/INSTALLATION

Open the luggage box lid using the ignition key.

Remove the trim clip [1] and screw [2].

Release the air duct tabs [3] from the slits by pulling it rearward and remove the air duct [4].

Installation is in the reverse order of removal.



SIDE COWL (NC700S/SA/SD)

LEFT SIDE COWL REMOVAL/INSTALLATION

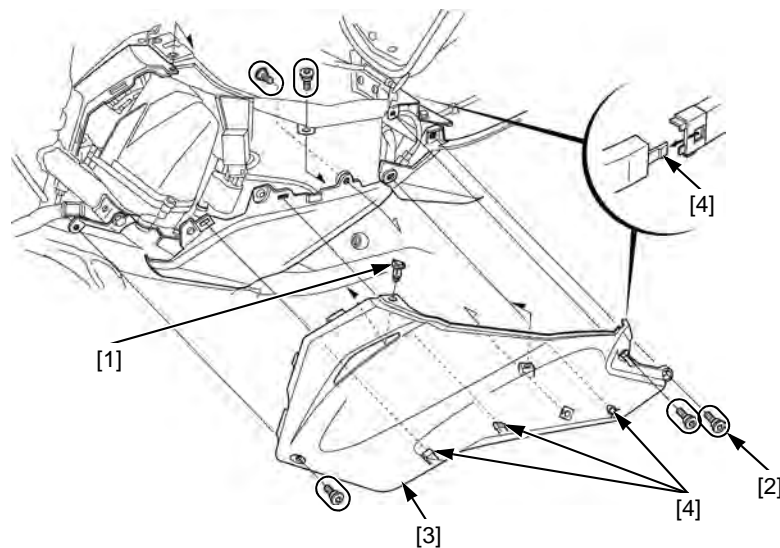
Remove the single seat (page 2-7).

Open the luggage box lid using the ignition key.

Remove the trim clip [1] and socket bolts [2].

Remove the left side cowl [3] by releasing the side cowl tabs [4] from the right side cowl and side cover.

Installation is in the reverse order of removal.



FRAME/BODY PANELS/EXHAUST SYSTEM

RIGHT SIDE COWL REMOVAL/INSTALLATION

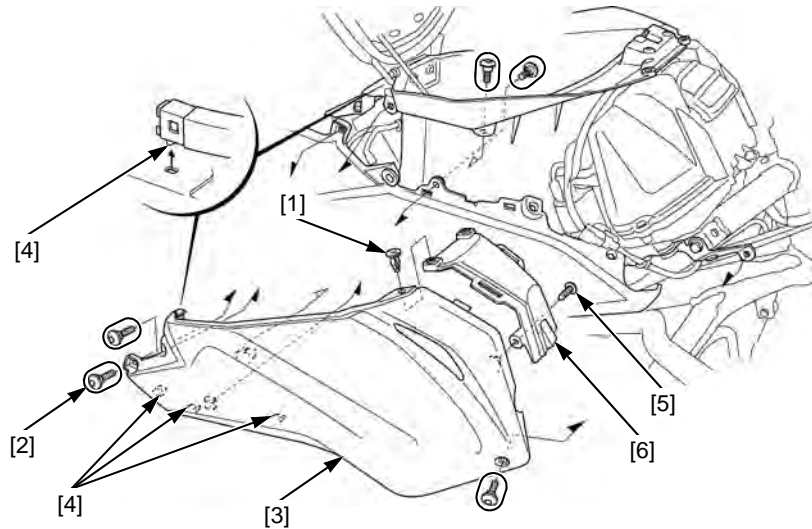
Remove the left side cowl (page 2-13).

Remove the trim clip [1] and socket bolts [2].

Remove the right side cowl [3] by releasing the side cowl tabs [4] from the luggage box hinge bracket and side cover.

Remove the screw [5] and center cover [6].

Installation is in the reverse order of removal.



SHROUD/SIDE COVER (NC700X/XA/XD)

REMOVAL/INSTALLATION

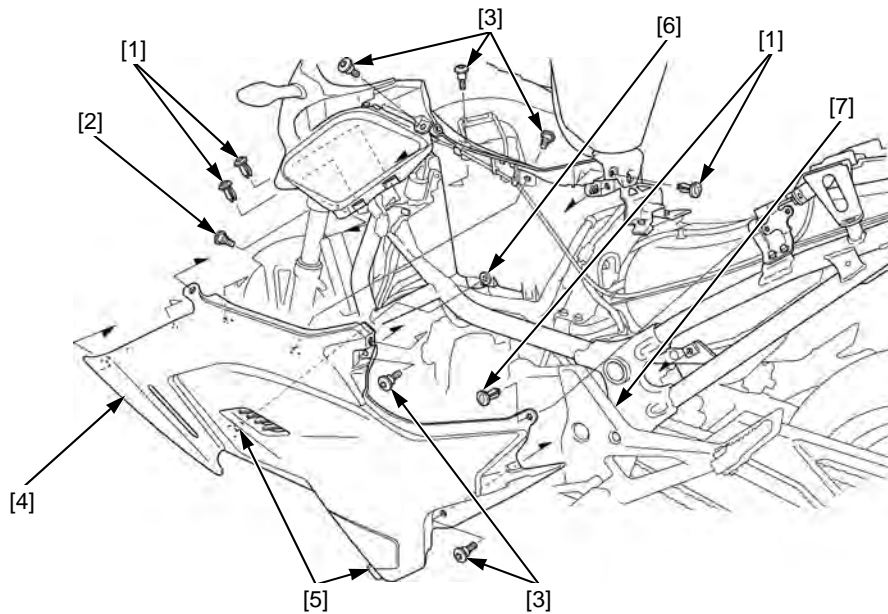
Remove the following:

- Seat cowl (page 2-9)
- Air duct (page 2-13)

Remove the trim clips [1], screw [2] and socket bolts [3].

Remove the shroud/side cover [4] by releasing the side cover tabs [5] from the grommet [6] and step holder [7].

Installation is in the reverse order of removal.

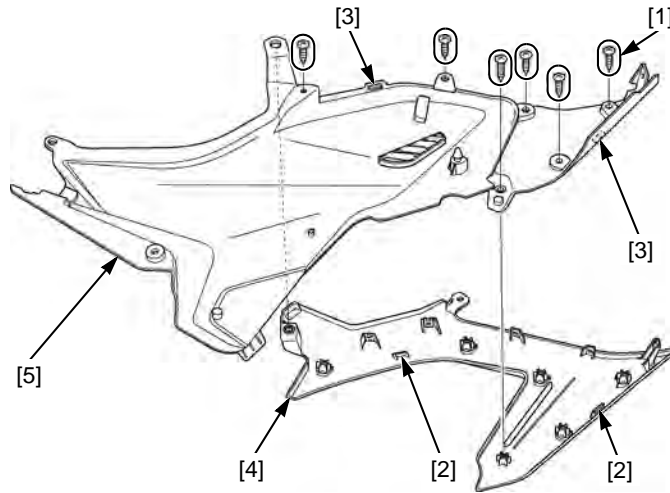


DISASSEMBLY/ASSEMBLY

Remove the screws [1].

Release the shroud tabs [2] from the side cover slits [3] and remove the shroud [4] from the side cover [5].

Assembly is in the reverse order of disassembly.



SHELTER/SIDE COVER (NC700S/SA/SD)

REMOVAL/INSTALLATION

Remove the following:

- Seat cowl (page 2-9)
- Side cowl (page 2-13)

Right side: Release the front wheel speed sensor 2P (Blue) connector (NC700SA/SD) [1] from the side cover.

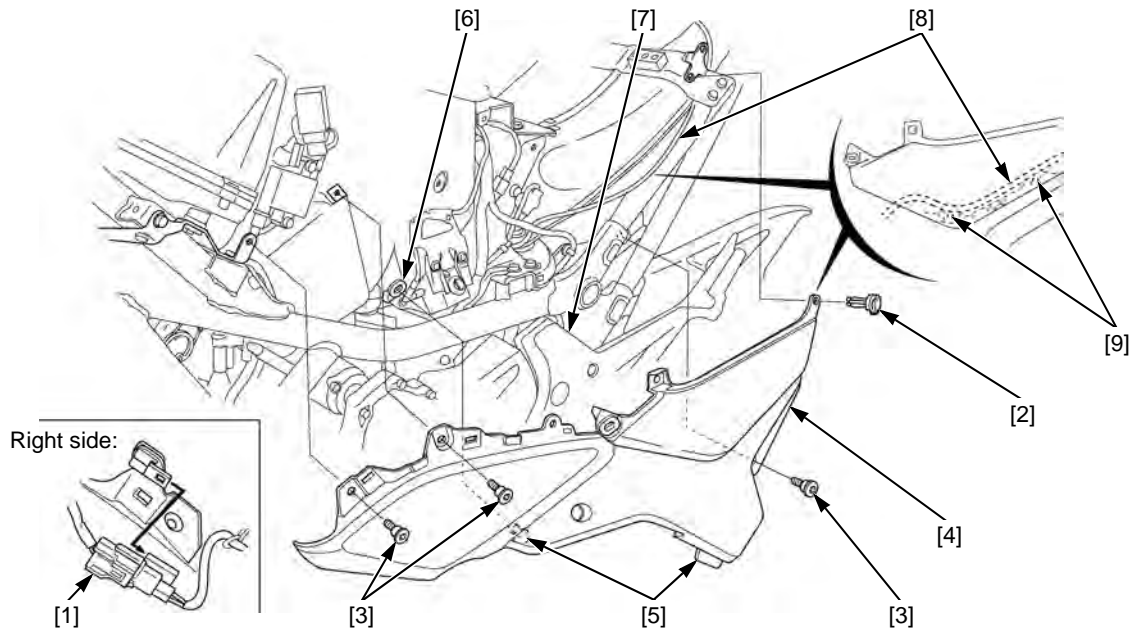
Remove the trim clip [2] and socket bolts [3].

Remove the shelter/side cover [4] by releasing the side cover tabs [5] from the grommet [6] and step holder [7].

Installation is in the reverse order of removal.

NOTE:

Route the seat lock cable [8] to the shelter mounting screws [9] upper side.



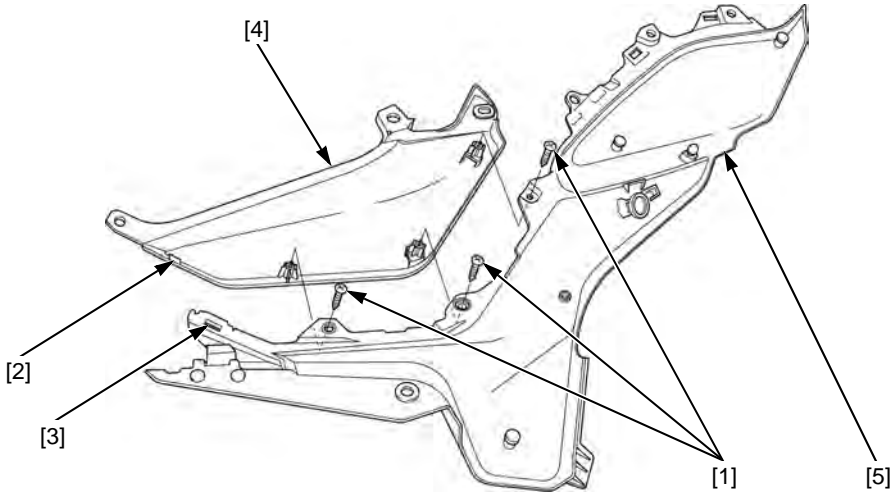
FRAME/BODY PANELS/EXHAUST SYSTEM

DISASSEMBLY/ASSEMBLY

Remove the screws [1].

Release the shelter tab [2] from the side cover slit [3] and remove the shelter [4] from the side cover [5].

Assembly is in the reverse order of disassembly.



CENTER COVER (NC700X/XA/XD)

REMOVAL/INSTALLATION

Remove the air duct (page 2-13).

Remove the trim clips [1] and socket bolts [2].

Lift the center cover [3] and remove the trim clip, screws [4], right cable under cover [5] and left cable under cover [6].

NOTE:

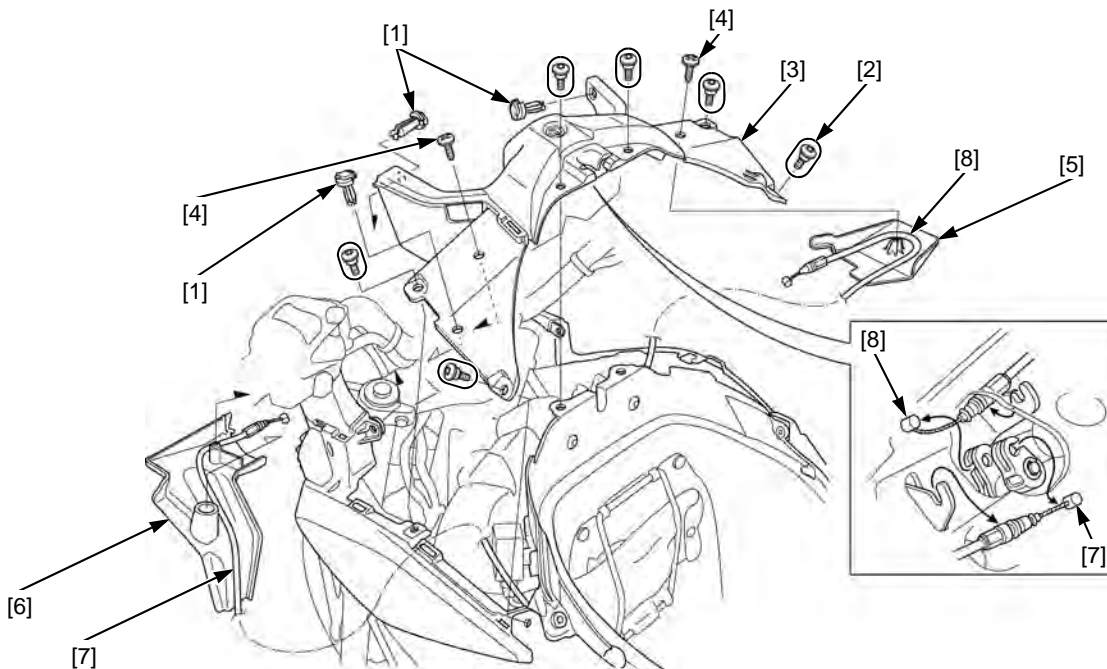
Be careful not to damage the center cover, cable under cover and cable by lifting the center cover too far.

Disconnect the seat lock cable [7] and luggage box lid lock cable [8] from the center cover and remove it.

Installation is in the reverse order of removal.

NOTE:

Route the cable properly (page 1-25).



DISASSEMBLY/ASSEMBLY

Remove the screws [1] and seat lock assembly from the center cover [2].

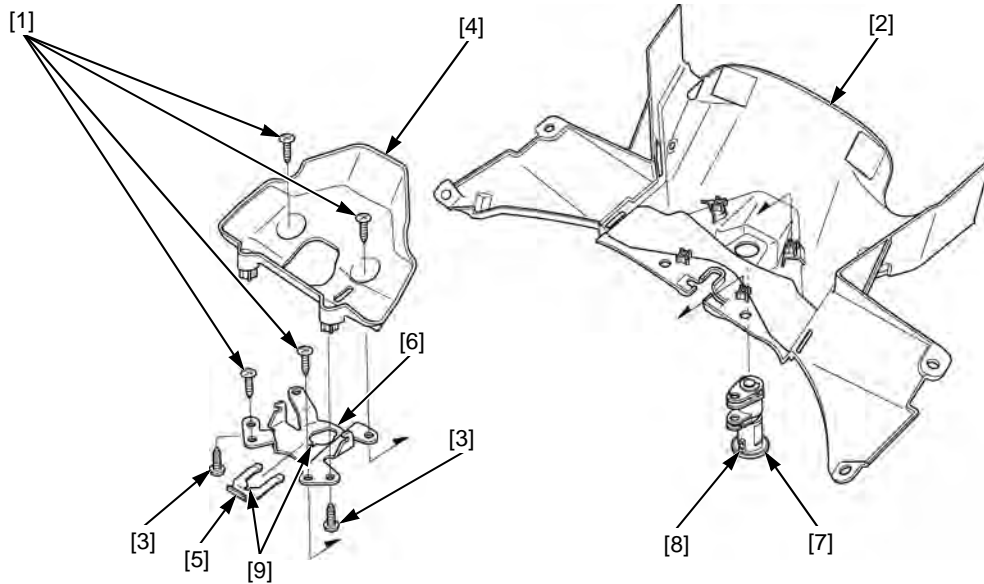
Remove the screws [3] and center inner cover [4].

Remove the clip [5], cable guide [6] and seat lock [7].

Assembly is in the reverse order of disassembly.

NOTE:

Align the seat lock tab [8] with the clip and cable guide cutouts [9].



LUGGAGE BOX LID

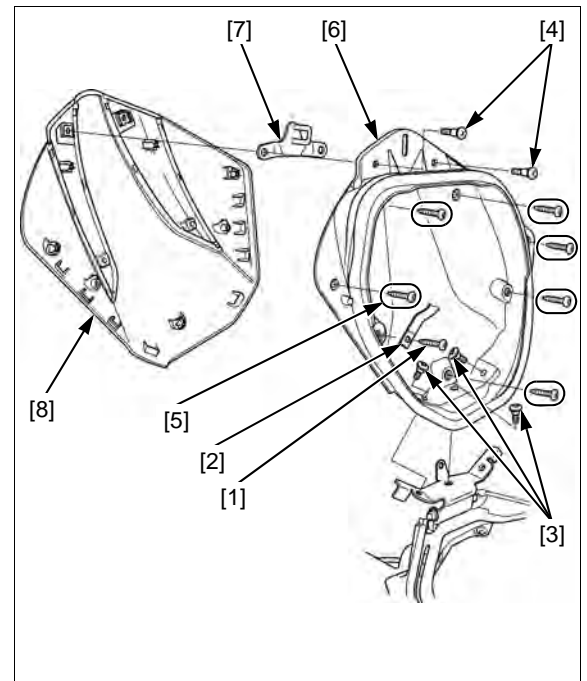
REMOVAL/INSTALLATION (NC700X/XA/XD)

Open the luggage box lid using the ignition key.

Remove the luggage box assembly screw (long) [1] and disconnect the band [2].

Remove the following:

- Luggage box lid mounting socket bolts [3]
- Luggage box lid lock plate mounting screw [4]
- Luggage box lid assembly screws [5]
- Inner luggage box lid [6]
- Luggage box lid lock plate [7]
- Luggage box lid A/B [8]



FRAME/BODY PANELS/EXHAUST SYSTEM

Remove the luggage box assembly screws [1].

Release the tabs [2] and remove the luggage box lids B [3] from the luggage box lid A [4].

Installation is in the reverse order of removal.

TORQUE:

Luggage box lid assembly screw:

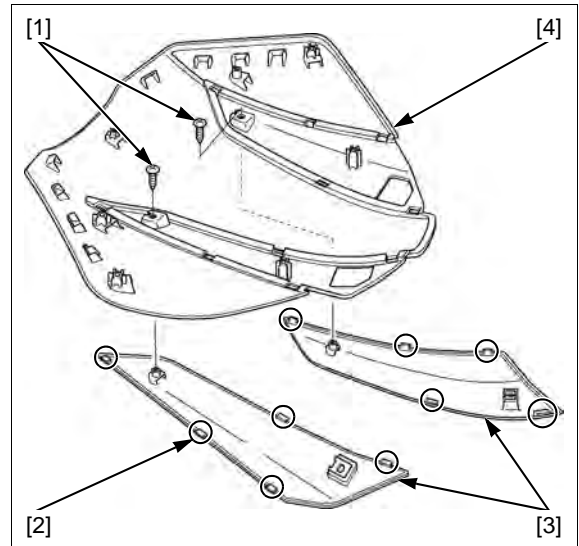
0.9 N·m (0.1 kgf·m, 0.7 lbf·ft)

Luggage box lid lock plate mounting screw:

4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)

Luggage box lid mounting socket bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)



REMOVAL/INSTALLATION (NC700S/SA/SD)

Open the luggage box lid using the ignition key.

Remove the luggage box assembly screw (long) [1] and disconnect the band [2].

Remove the following:

- Luggage box lid mounting socket bolts [3]
- Luggage box lid lock plate mounting screw [4]
- Luggage box lid assembly screws [5]
- Inner luggage box lid [6]
- Luggage box lid lock plate [7]
- Center luggage box lid [8]
- Left luggage box lid [9]
- Right luggage box lid [10]

Installation is in the reverse order of removal.

TORQUE:

Luggage box lid assembly screw:

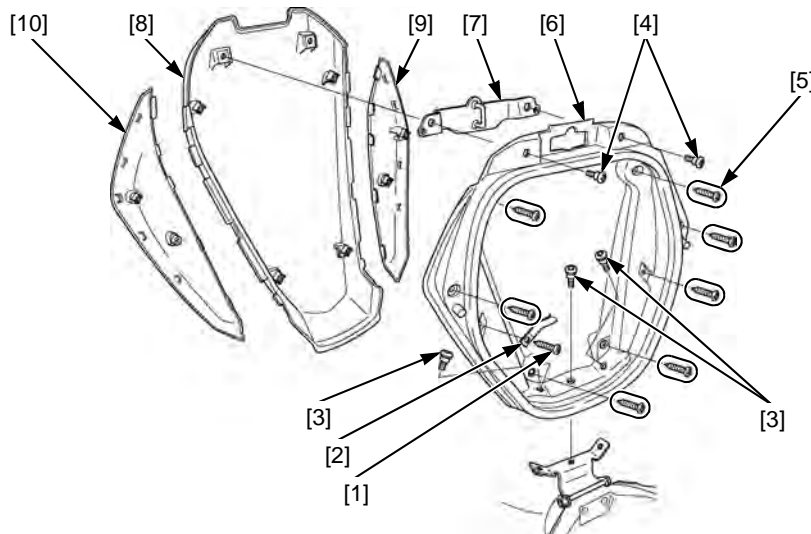
0.9 N·m (0.1 kgf·m, 0.7 lbf·ft)

Luggage box lid lock plate mounting screw:

4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)

Luggage box lid mounting socket bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)



LUGGAGE BOX LID/HINGE ASSEMBLY

REMOVAL/INSTALLATION

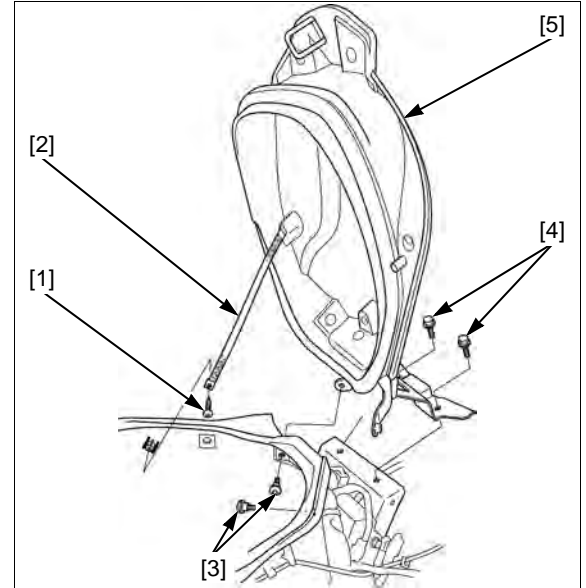
Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the shelter/side cover (NC700S/SA/SD) (page 2-15).

Remove the screw [1] and disconnect the band [2].

Remove the socket bolts [3] and bolts [4] and luggage box lid/hinge assembly [5].

Installation is in the reverse order of removal.



LUGGAGE BOX

REMOVAL/INSTALLATION (NC700X/XA/XD)

Remove the following:

- Shroud/side cover (page 2-14)
- Center cover (page 2-16)

Release the following:

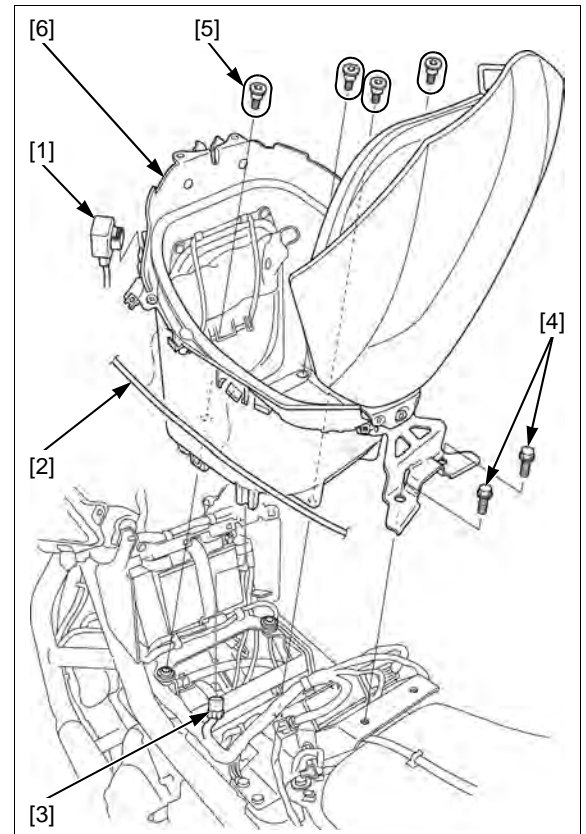
- Turn signal/hazard relay [1] from the luggage box tab
- Seat lock cable [2] from the luggage box cable guides
- Option 6P connector [3] from the luggage box

Remove the bolts [4], socket bolts [5] and luggage box [6].

Installation is in the reverse order of removal.

NOTE:

- For luggage box lid removal/installation (page 2-17).
- Route the cable properly (page 1-25).



FRAME/BODY PANELS/EXHAUST SYSTEM

REMOVAL/INSTALLATION (NC700S/SA/SD)

Remove the shelter/side cover (page 2-15).

Remove the socket bolts [1], cable guide [2] and seat lock assembly [3].

Release the luggage box lid lock cable [4].

Release the following:

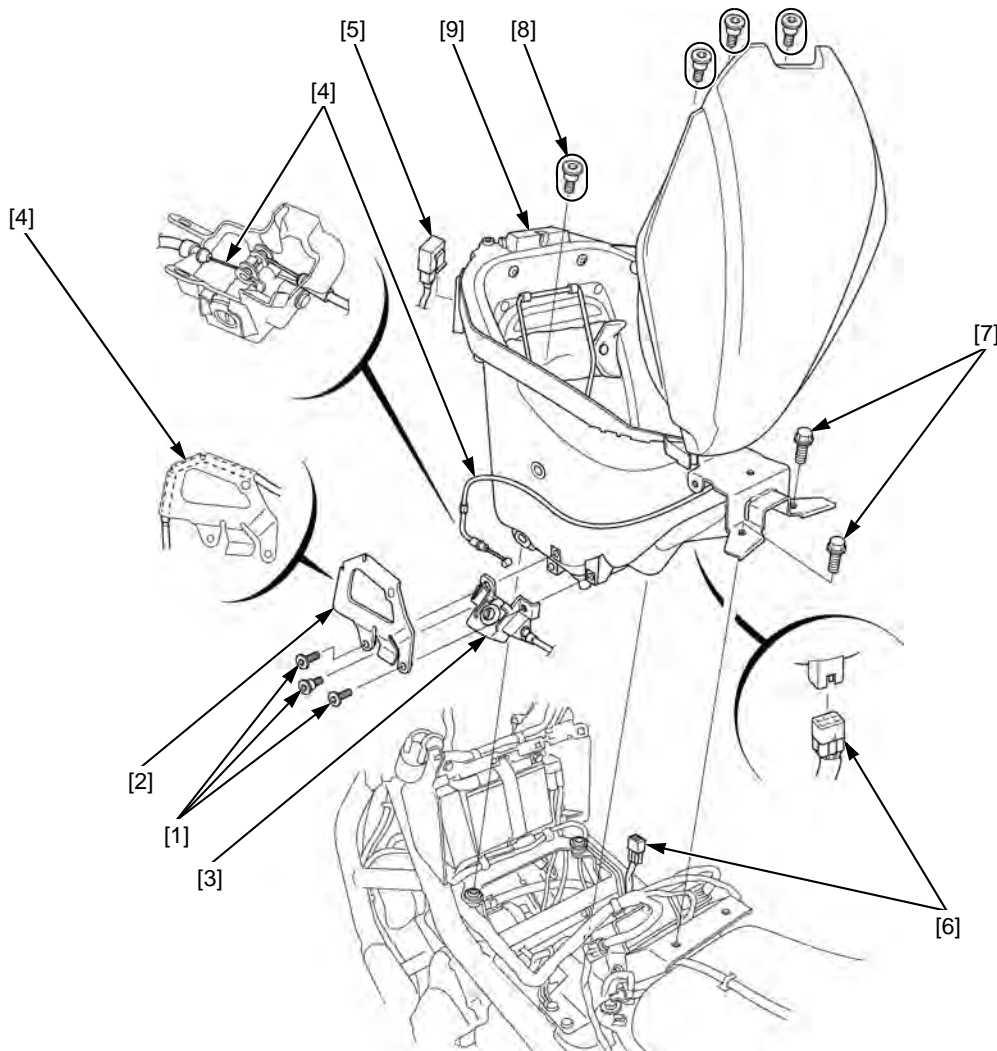
- Turn signal/hazard relay [5] from the luggage box tab
- Option 6P connector [6] from the luggage box

Remove the bolts [7], socket bolts [8] and luggage box [9].

Installation is in the reverse order of removal.

NOTE:

- For luggage box lid removal/installation (page 2-18).
- Route the cable properly (page 1-25).



DISASSEMBLY/ASSEMBLY (NC700X/XA/XD)

Remove the following:

- Luggage box lid (page 2-17)
- Maintenance lid (page 21-6)

Remove the screw [1] and band [2].

Remove the trim clips [3], owners manual lid [4] and luggage box lid hinge cover [5].

Remove the socket bolts [6] and luggage box lid catch [7].

Remove the socket bolts and luggage box lid hinge assembly.

Remove the luggage box lid hinge nut [8], washers [9], hinge bolt [10] and hinge [11] from the hinge bracket [12].

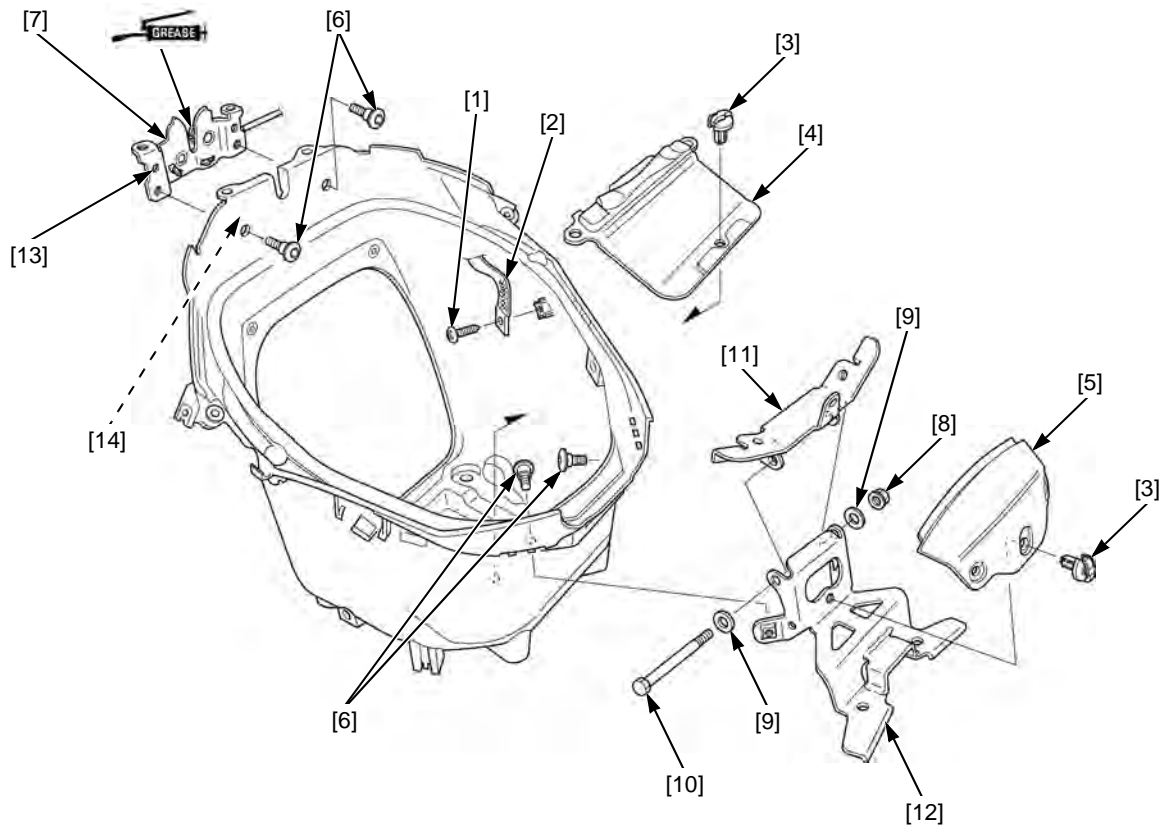
Assembly is in the reverse order of disassembly.

NOTE:

- Align the luggage box lid catch holes [13] with the luggage box tabs [14].
- Apply grease to the luggage box lid catch sliding area.

TORQUE:

Luggage box lid hinge nut:
12 N·m (1.2 kgf·m, 9 lbf·ft)



FRAME/BODY PANELS/EXHAUST SYSTEM

DISASSEMBLY/ASSEMBLY (NC700S/SA/SD)

Remove the following:

- Luggage box lid (page 2-18)
- Maintenance lid (page 21-6)

Remove the screw [1] and band [2].

Remove the trim clips [3] and owners manual lid [4].

Remove the socket bolts [5] and luggage box lid catch [6].

Remove the socket bolts and luggage box lid hinge assembly.

Remove the luggage box lid hinge nut [7], washers [8], hinge bolt [9] and hinge [10] from the hinge bracket [11].

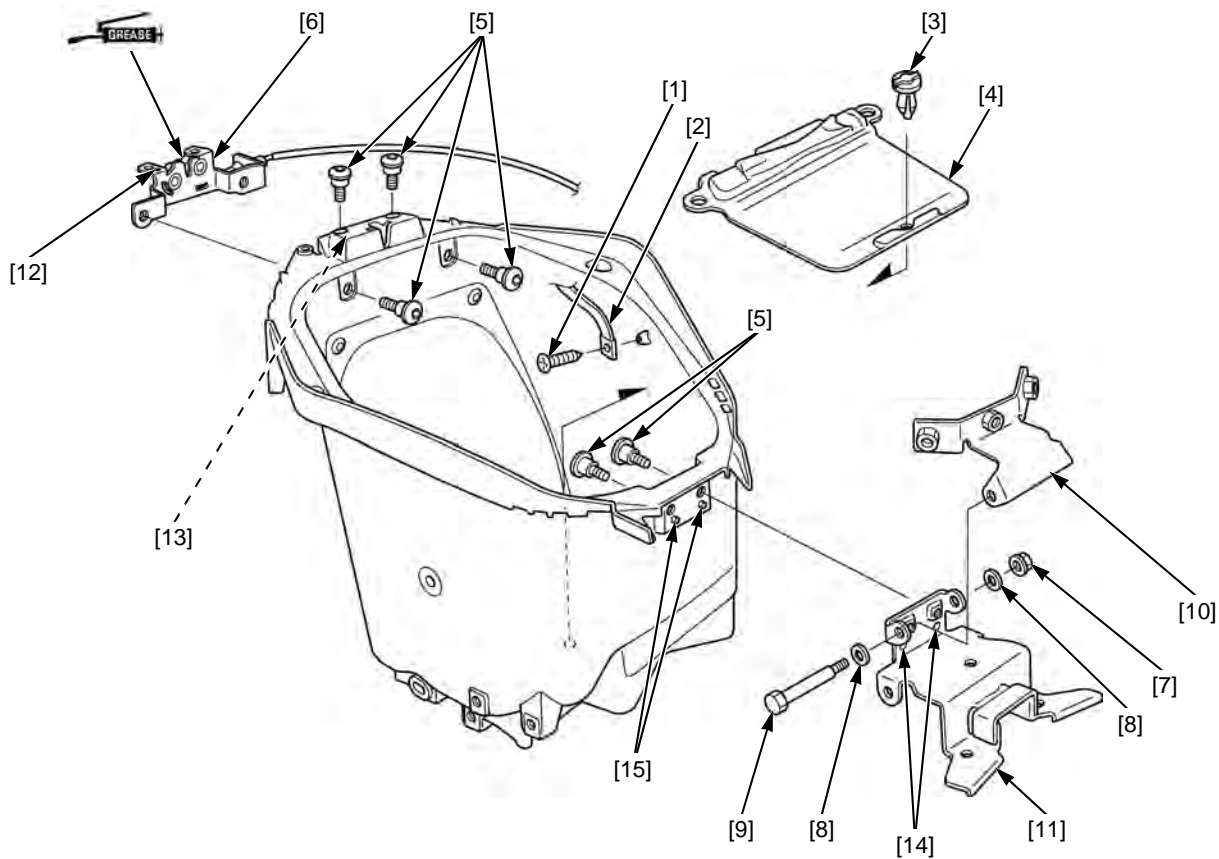
Assembly is in the reverse order of disassembly.

NOTE:

- Align the luggage box lid catch hole [12] with the luggage box tab [13].
- Align the hinge bracket holes [14] with the luggage box tabs [15].
- Apply grease to the luggage box lid catch sliding area.

TORQUE:

Luggage box lid hinge nut:
12 N·m (1.2 kgf·m, 9 lbf·ft)



WINDSCREEN

REMOVAL/INSTALLATION (NC700X/XA/XD)

Remove the socket bolts [1], washers [2] and windscreen [3].

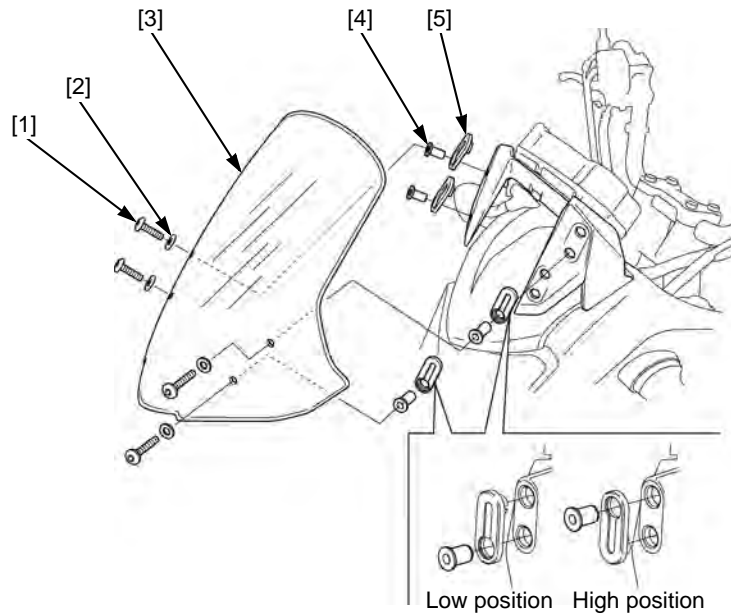
Remove the special nuts [4] and cushion rubbers [5] if necessary.

Installation is in the reverse order of removal.

NOTE:

If you wish the windscreen position upward, you can choose high position.

- High position: Install the special nuts to the upper holes.
- Low position: Install the special nuts to the lower holes.

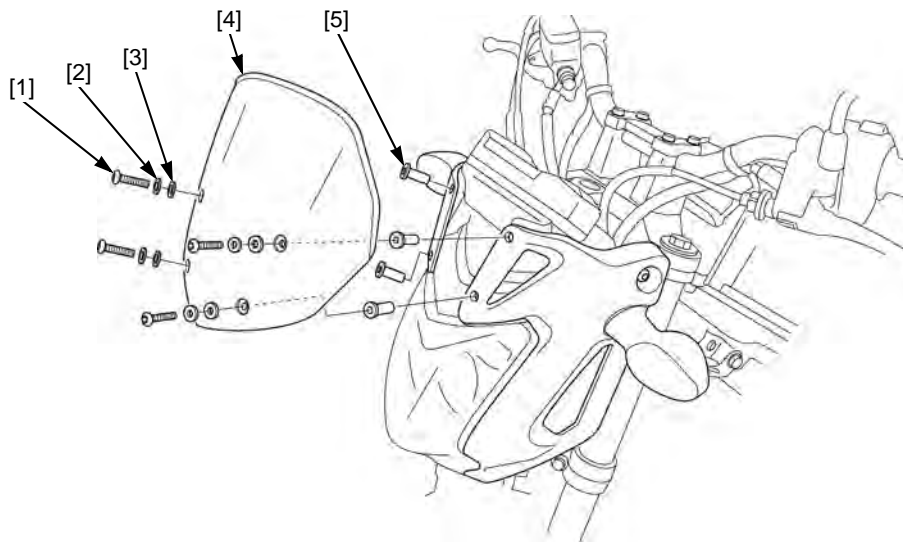


REMOVAL/INSTALLATION (NC700S/SA/SD)

Remove the socket bolts [1], plastic washers [2], rubbers [3] and windscreen [4].

Remove the special nuts [5] if necessary.

Installation is in the reverse order of removal.



FRONT SIDE COWL (NC700X/XA/XD)

REMOVAL/INSTALLATION

Remove the shroud/side cover (page 2-14).

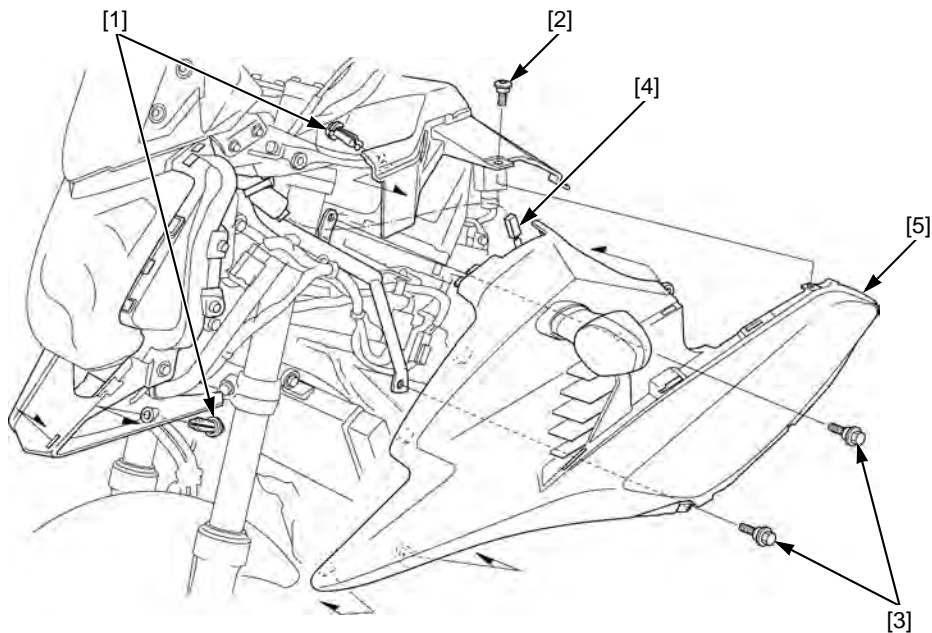
Remove the trim clips [1], socket bolt [2] and bolts [3].

Disconnect the front turn signal light 3P connector [4] and remove the front side cowl [5].

Installation is in the reverse order of removal.

NOTE:

Route the wire harness properly (page 1-25).



METER STAY (NC700X/XA/XD)

REMOVAL/INSTALLATION

Remove the following:

- Windscreen (page 2-23)
- Front side cowl (page 2-24)

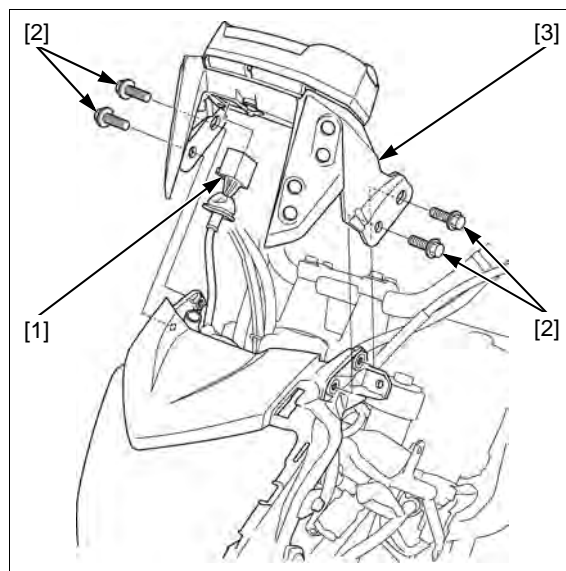
Disconnect the combination meter 16P (Gray) connector [1].

Remove the bolts [2] and meter stay [3].

Installation is in the reverse order of removal.

NOTE:

- For combination meter removal/installation (page 22-9).
- For digital clock setting procedure (page 22-14).



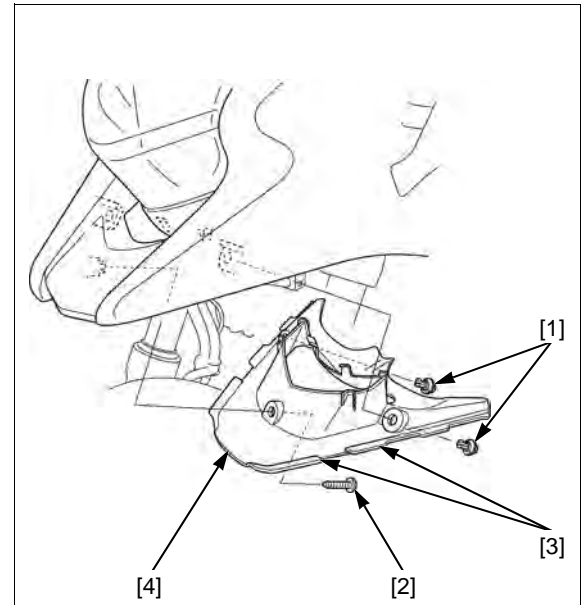
FRONT UNDER COVER (NC700X/XA/XD)

REMOVAL/INSTALLATION

Remove the trim clips [1] and screw [2].

Release the tabs [3] and remove the front under cover [4].

Installation is in the reverse order of removal.



INNER UPPER COVER (NC700X/XA/XD)

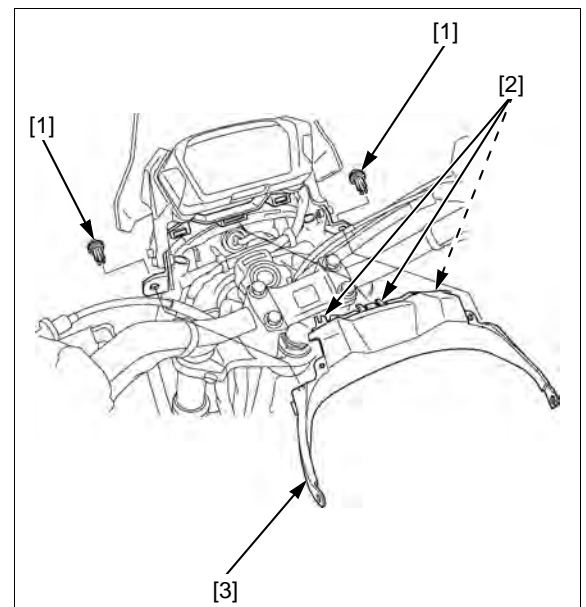
REMOVAL/INSTALLATION

Remove the front side cowl (page 2-24).

Remove the trim clips [1].

Release the tabs [2] and remove the inner upper cover [3].

Installation is in the reverse order of removal.



HEADLIGHT/FRONT CENTER COWL (NC700X/XA/XD)

REMOVAL/INSTALLATION

Remove the following:

- Meter stay (page 2-24)
- Front under cover (page 2-25)
- Inner upper cover (page 2-25)

Release the front turn signal light 3P connectors [1] from the wire bands [2].

Disconnect the headlight 3P (Black) connector [3] and front sub harness 6P (Brown) connector [4].

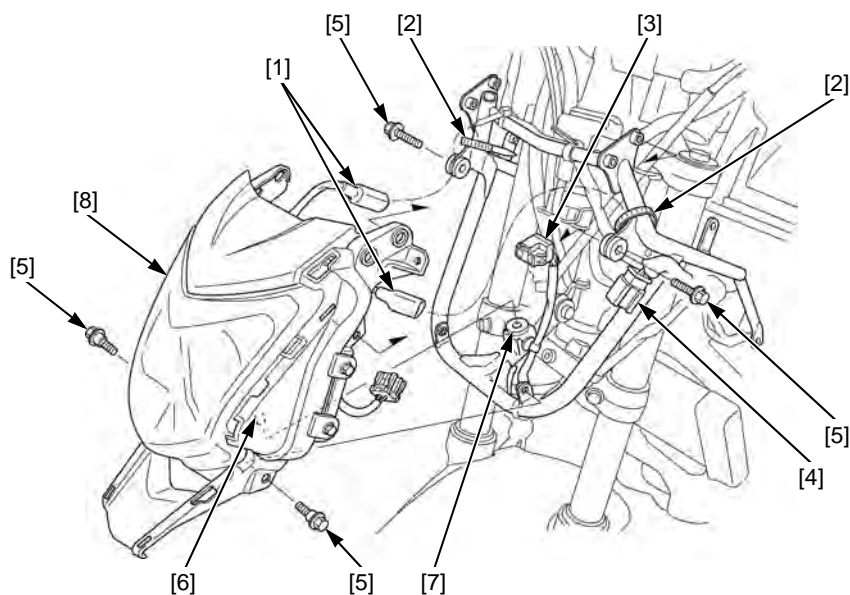
Remove the bolts [5].

Release the headlight boss [6] from the frame grommet [7] and remove the front center cowl/headlight [8].

Installation is in the reverse order of removal.

NOTE:

Route the wire harness properly (page 1-25).

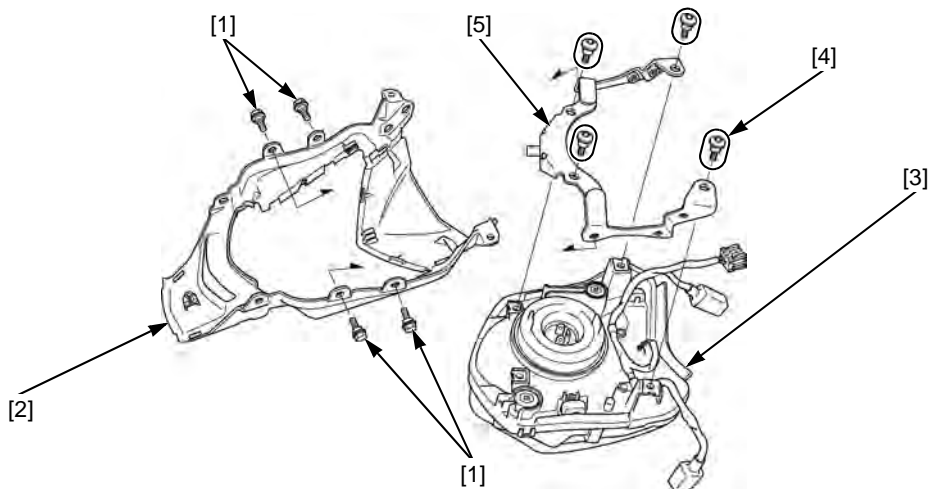


DISASSEMBLY/ASSEMBLY

Remove the bolts [1] and front center cowl [2] from the headlight unit [3].

Remove the socket bolts [4] and headlight stay [5] from the headlight unit.

Assembly is in the reverse order of disassembly.



HEADLIGHT/HEADLIGHT STAY (NC700S/SA/SD)

REMOVAL/INSTALLATION

Remove the socket bolts [1] and collars [2].

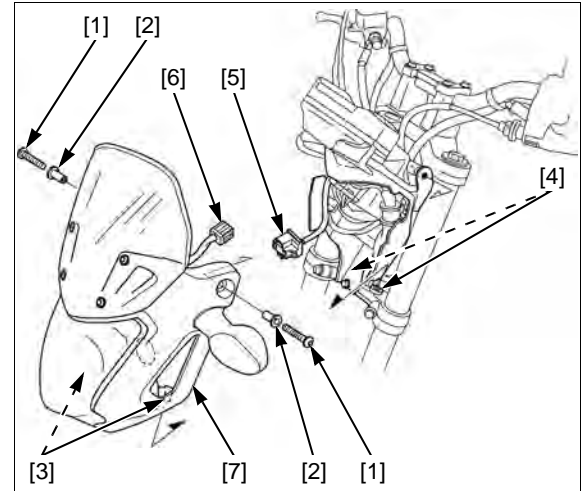
Release the headlight stay tabs [3] from the grommet [4].

Disconnect the headlight 3P (Black) connector [5], front sub harness 6P (Brown) connector [6] and remove the headlight/headlight stay [7].

Installation is in the reverse order of removal.

NOTE:

Route the wire harness and hoses properly (page 1-25).



DISASSEMBLY/ASSEMBLY

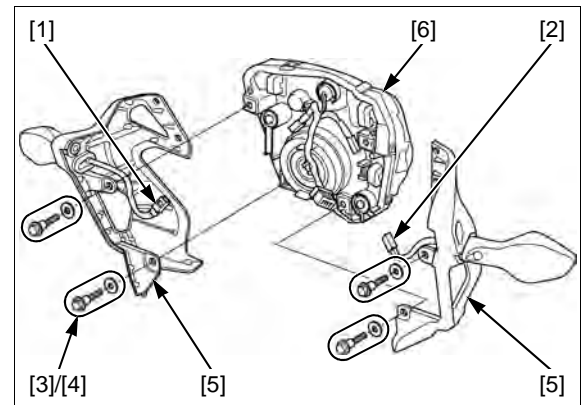
Remove the windscreen (page 2-23).

Disconnect the following:

- Front left turn signal light 3P (Orange) connector [1]
- Front right turn signal light 3P (Blue) connector [2]

Remove the bolts [3], washers [4] and headlight stays [5] from the headlight unit [6].

Assembly is in the reverse order of disassembly.



HEADLIGHT COVER (NC700S/SA/SD)

REMOVAL/INSTALLATION

Remove the headlight/headlight stay (page 2-27).

Remove the following:

- Bolt [1]
- Main wire harness clamp [2]
- Bolts [3]
- Brake hose clamp (NC700S) [4]
- Washer (NC700SA/SD) [5]
- Wire band (NC700SD) [6]

Release the following:

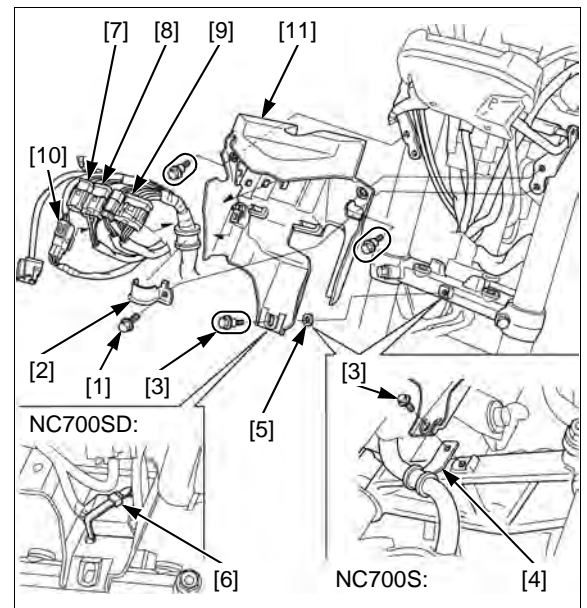
- Front sub harness 6P (Brown) connector [7]
- Right handlebar switch 8P (Blue) connector [8]
- Ignition switch 2P (Brown) connector/Left handlebar switch 10P (Gray) connector [9]
- Immobilizer receiver 4P (Black) connector [10]

Remove the headlight cover [11].

Installation is in the reverse order of removal.

NOTE:

Route the wire harness and hoses properly (page 1-25).



FRONT FENDER

REMOVAL/INSTALLATION

Remove the bolts [1], hose guide [2], socket bolts [3], washers [4] and front fender [5] from the fork legs.

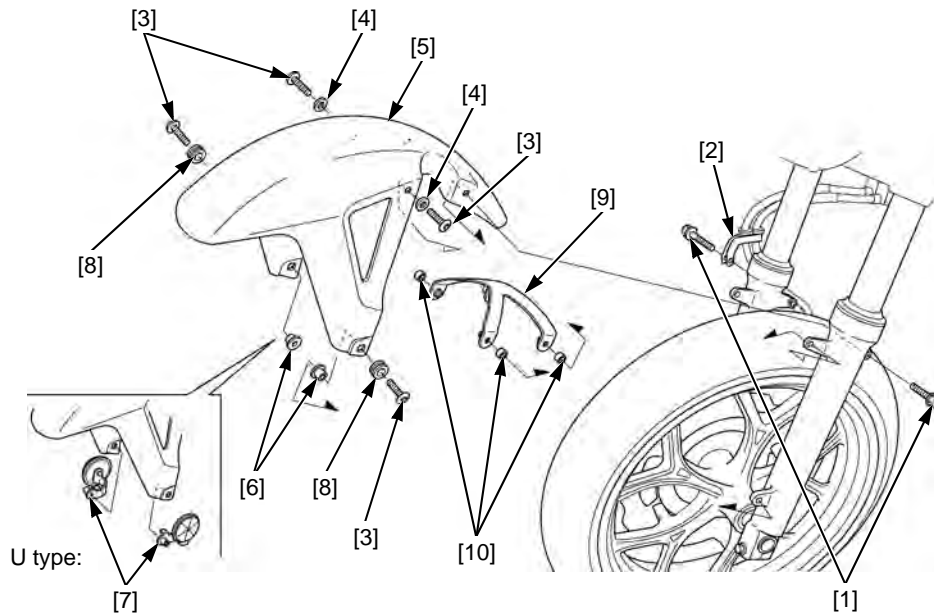
Remove the flange collars (E, ED, F, KO, RU type) [6], reflector (U type) [7], grommets [8], front fender brace [9] and collars [10] from the front fender.

Installation is in the reverse order of removal.

NOTE:

Route the wire harness and hoses properly (page 1-25).

E, ED, F, KO, RU type:



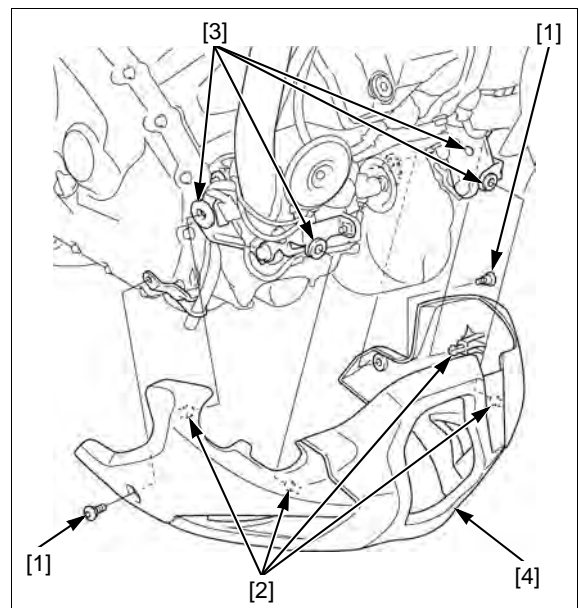
LOWER COWL

REMOVAL/INSTALLATION (NC700X/ XA/S/SA)

Remove the socket bolts [1].

Release the bosses [2] from the grommets [3] and remove the lower cowl [4].

Installation is in the reverse order of removal.

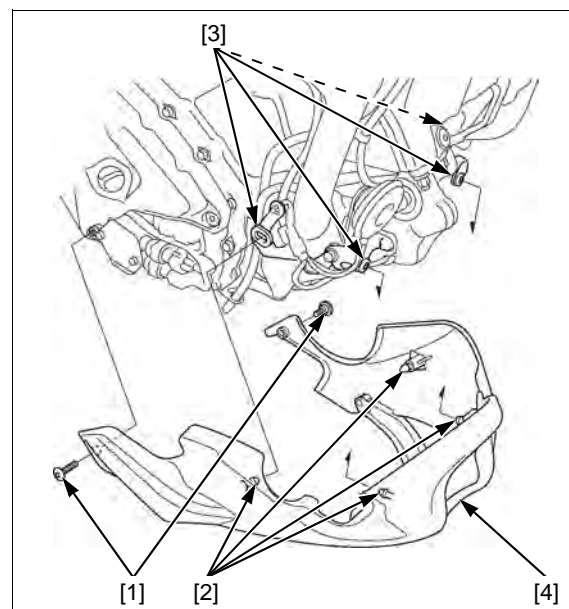


REMOVAL/INSTALLATION (NC700XD/SD)

Remove the socket bolts [1].

Release the bosses [2] from the grommets [3] and remove the lower cowl [4].

Installation is in the reverse order of removal.



DISASSEMBLY/ASSEMBLY

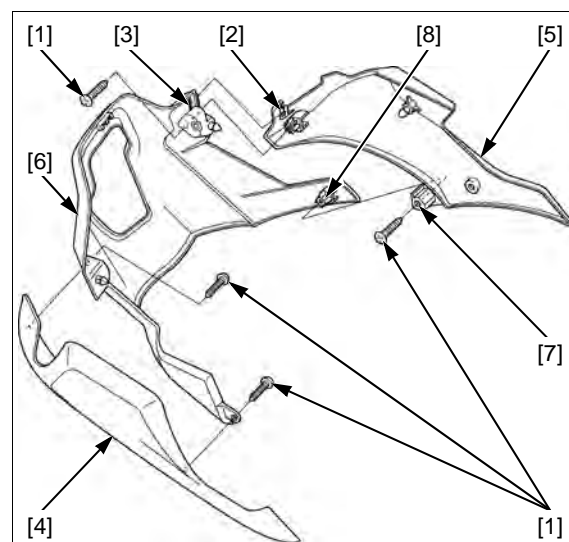
Remove the screws [1].

Release the tabs [2] from the slits [3] and separate the left lower cowl [4], right lower cowl [5] and center lower cowl [6].

Assembly is in the reverse order of disassembly.

NOTE:

Align the left and right lower cowl holes [7] with center lower cowl bosses [8].



LEFT REAR COVER

REMOVAL/INSTALLATION (NC700X/XA/S/SA)

Remove the gearshift arm pinch bolt [1] and gearshift arm [2].

Remove the bolts [3] and left rear cover [4].

Remove the drive chain guide plate [5] and collar [6] from the left rear cover.

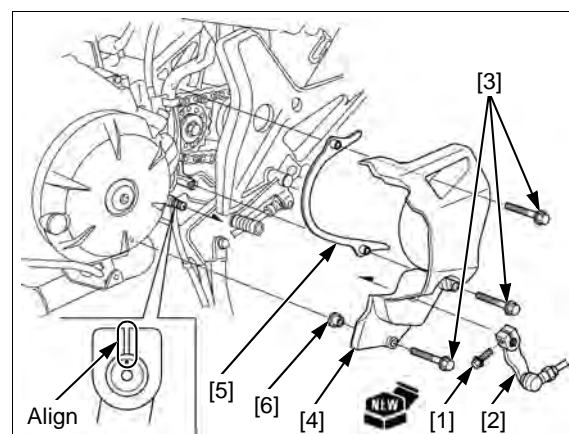
Installation is in the reverse order of removal.

NOTE:

- Align the gearshift arm slit with the punch mark.
- Replace the gearshift arm pinch bolt with a new one.

TORQUE:

Gearshift arm pinch bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)



FRAME/BODY PANELS/EXHAUST SYSTEM

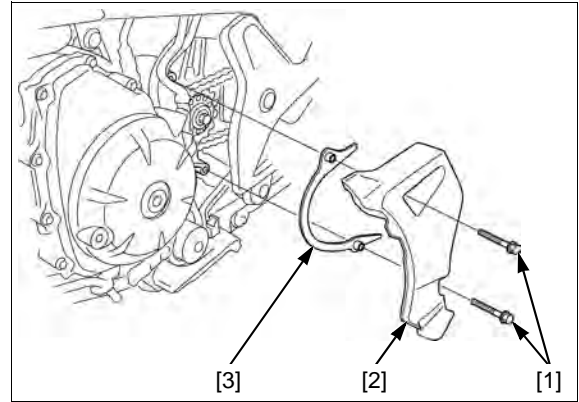
REMOVAL/INSTALLATION (NC700XD/SD)

Remove the lower cowl (page 2-29).

Remove the bolts [1] and left rear cover [2].

Remove the drive chain guide plate [3] from the left rear cover.

Installation is in the reverse order of removal.



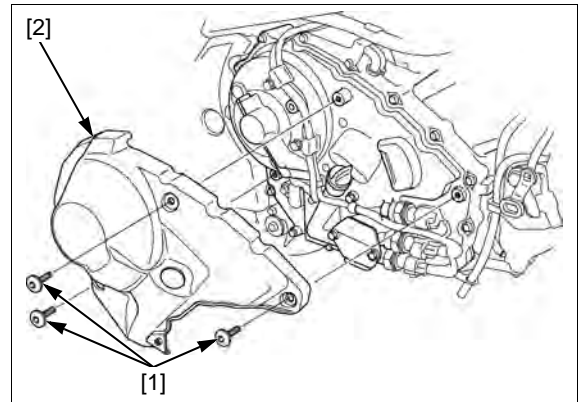
RIGHT ENGINE SIDE COVER (NC700XD/SD)

REMOVAL/INSTALLATION

Remove the lower cowl (page 2-29).

Remove the socket bolts [1] and right engine side cover [2].

Installation is in the reverse order of removal.



GUARD PIPE (NC700XD/SD)

REMOVAL/INSTALLATION

Remove the lower cowl (page 2-29).

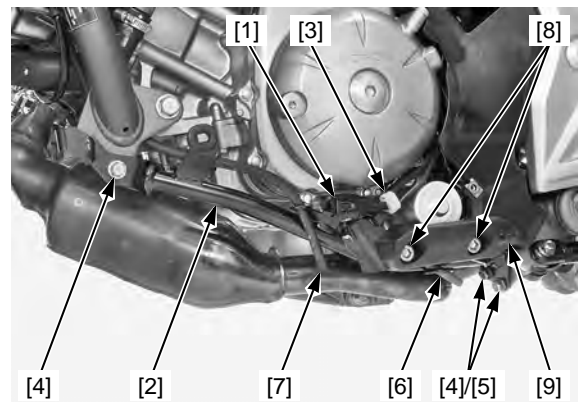
Release the shift pedal angle sensor 3P (Black) connector (Optional) [1] from the guard pipe [2] and clamp [3].

Remove the bolts [4], nuts [5] and guard pipe.

Release the fuel tank drain hose B [6] and battery box drain hose [7].

If necessary, remove the socket bolts [8] and motor guard [9].

Installation is in the reverse order of removal.



BATTERY BOX

REMOVAL/INSTALLATION

Remove the following:

- Battery (page 21-6)
- Luggage box (page 2-19)

Remove the bolts [1] and ignition coil stay [2] from the battery box [3].

Release the following:

- Fuse box [4]
- Starter relay switch [5]
- CKP sensor harness [6]
- Battery negative (-) cable [7]
- Main wire harness [8]
- Junction B 14P (Orange) connector [9]
- Junction G 14P (Orange) connector [10]
- DLC [11]
- Battery positive (+) cable [12]

Remove the socket bolts [13] and battery box while releasing the grommets [14] from the frame bosses [15].

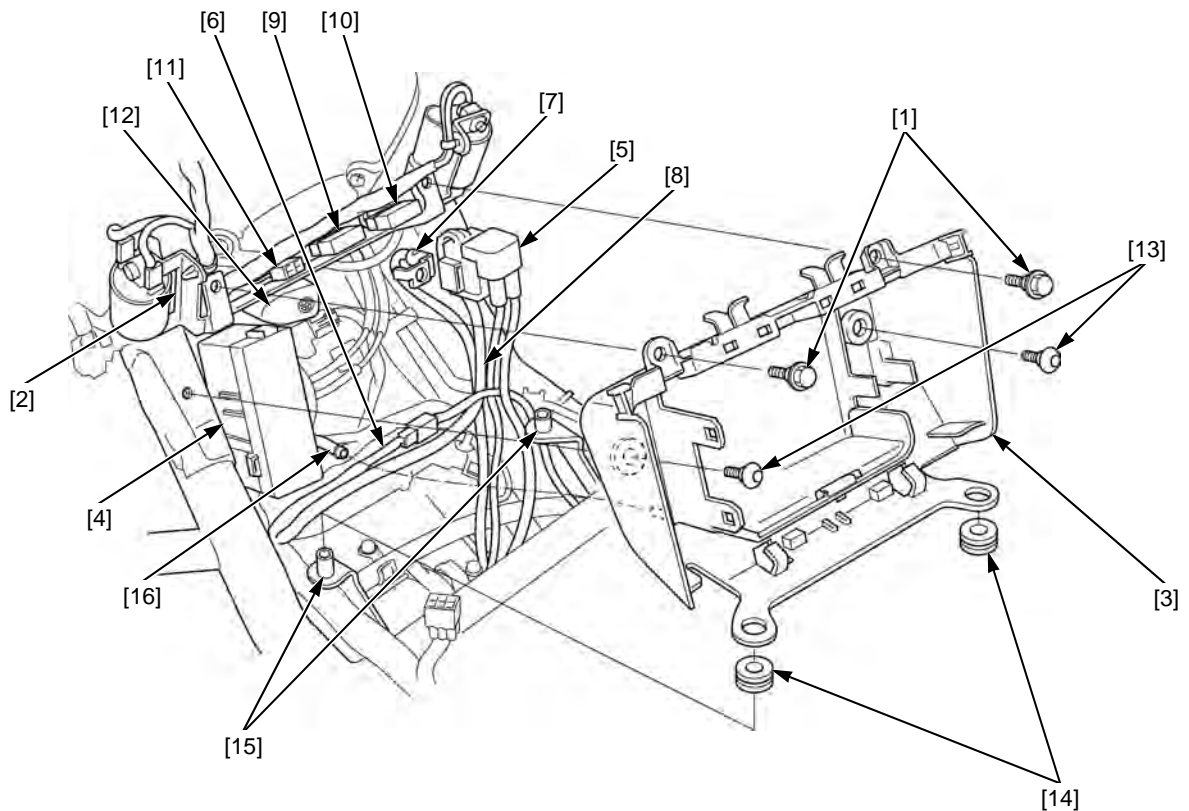
Disconnect the battery box drain hose [16].

Remove the grommet from the battery box.

Installation is in the reverse order of removal.

NOTE:

Route the cable, wire harness and hoses properly (page 1-25).



CENTER CROSS PLATE

REMOVAL/INSTALLATION

Remove the luggage box (page 2-19).

Disconnect the sidestand switch 3P (Green) connector [1] and remove it from the ECM box [2].

Release the fuel pump 1P (Black) connector [3] from the ECM box.

Remove the bolts [4] and ECM box from the center cross plate [5].

Disconnect the bank angle sensor 2P (Black) connector [6].

Release the fuel tank drain hose A [7] from the ECM box.

Remove the wire band (NC700S/SA/SD) [8] and seat lock cable (NC700S/SA/SD) [9] from the center cross plate.

Remove the ABS modulator stay mounting bolts [10] and collars [11].

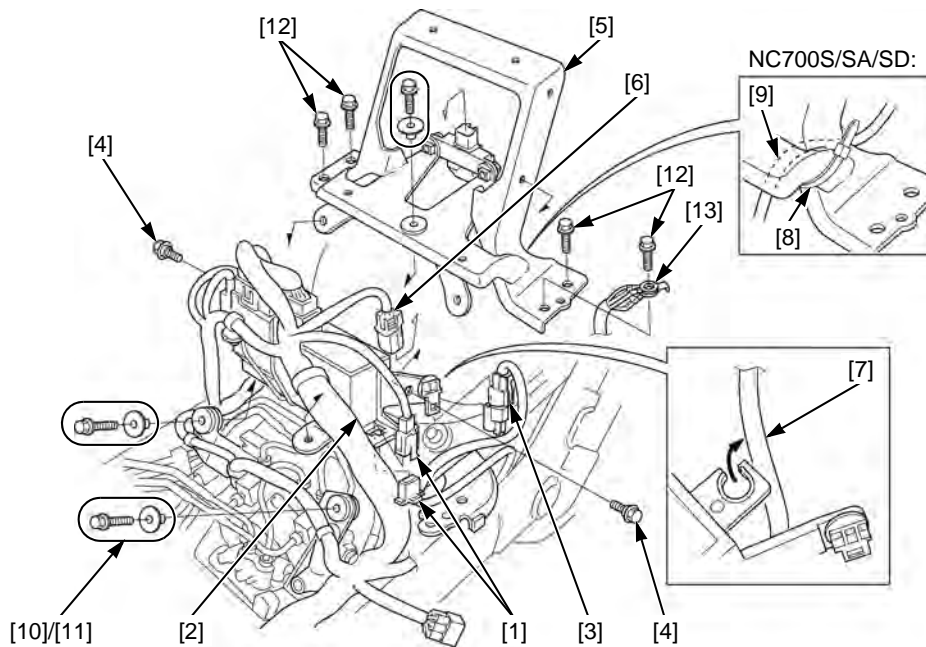
Remove the bolts [12] and ground terminals [13].

Remove the center cross plate to the left.

Installation is in the reverse order of removal.

NOTE:

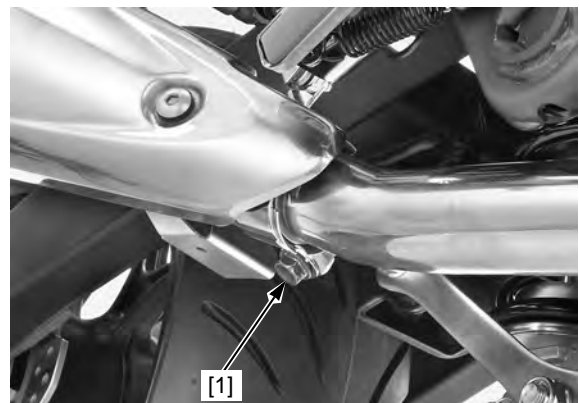
Route the wire harness and hoses properly (page 1-25).



EXHAUST PIPE/MUFFLER

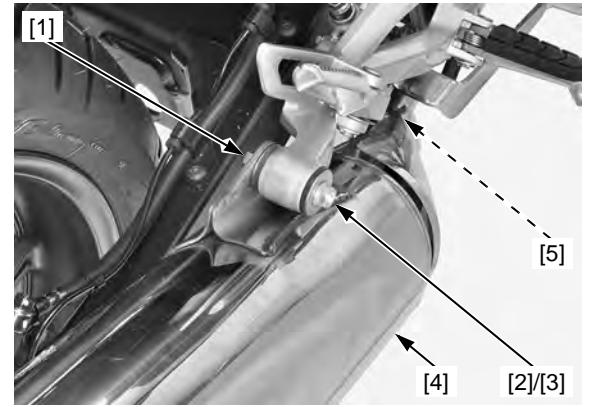
MUFFLER REMOVAL/INSTALLATION

Loosen the muffler band bolt [1].



Remove the muffler mounting nut [1], bolt [2] and washer [3].

Remove the muffler [4] and gasket [5].



Remove the muffler cover socket bolt.

Remove the muffler cover by releasing its slits from the muffler bosses.

Installation is in the reverse order of removal.

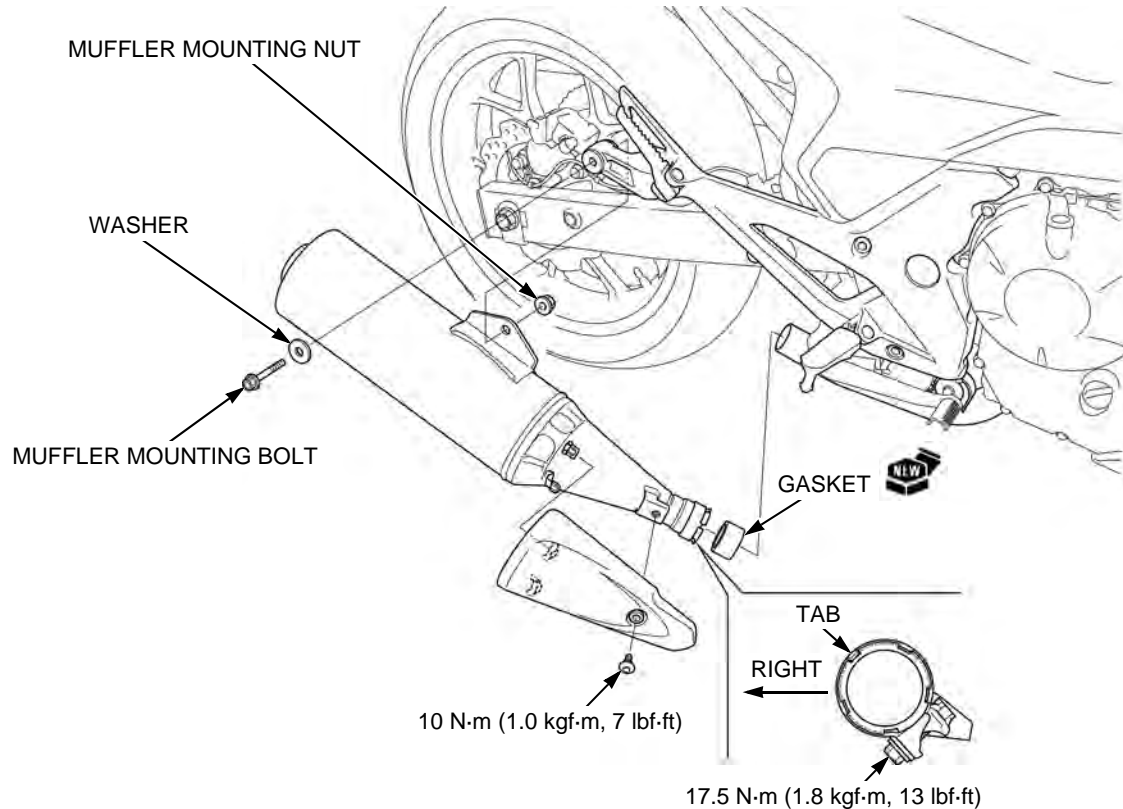
NOTE:

- Replace the gasket with a new one.
- Align the muffler band tab with the muffler upper right slit.

TORQUE:

Muffler cover socket bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

Muffler band bolt:
17.5 N·m (1.8 kgf·m, 13 lbf·ft)



FRAME/BODY PANELS/EXHAUST SYSTEM

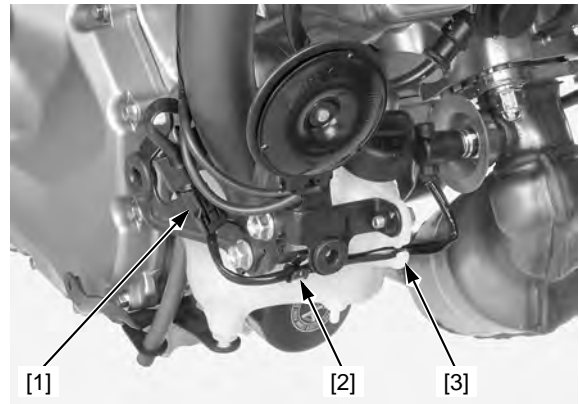
EXHAUST PIPE

REMOVAL

Remove the lower cowl (page 2-28).

Disconnect the O₂ sensor 1P (Black) connector [1].

Release the O₂ sensor wire from the clamp [2] and radiator reserve tank guide [3].



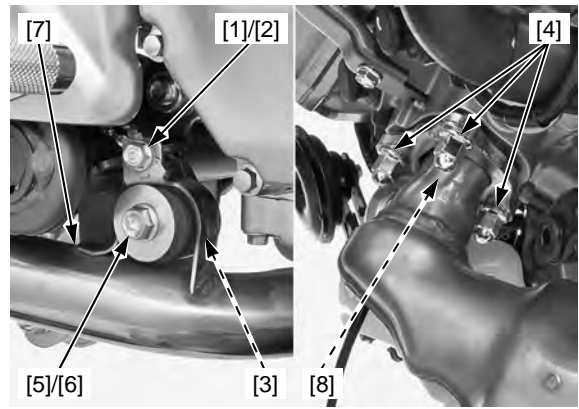
Remove the bolt [1] and disconnect the ground wire [2].

Loosen the exhaust pipe mounting nut [3].

Remove the exhaust pipe joint nuts [4].

Remove the exhaust pipe mounting nut, bolt [5], washers [6] and exhaust pipe [7].

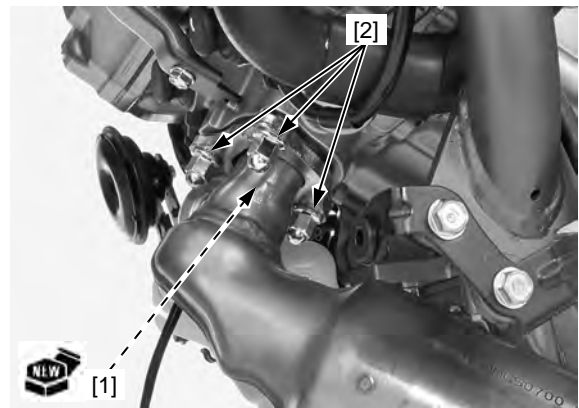
Remove the exhaust pipe gasket [8].



INSTALLATION

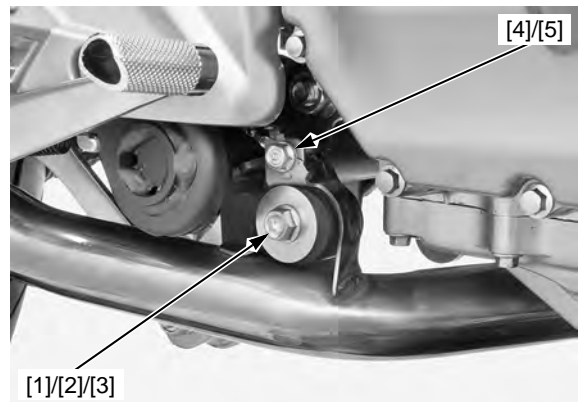
Install a new exhaust pipe gasket [1] to the exhaust port of the cylinder head.

Install the exhaust pipe and exhaust pipe joint nuts [2] but do not tighten yet.



Install the exhaust pipe mounting bolt [1], washers [2] and nut [3] but do not tighten yet.

Install the ground wire [4] and bolt [5] but do not tighten yet.



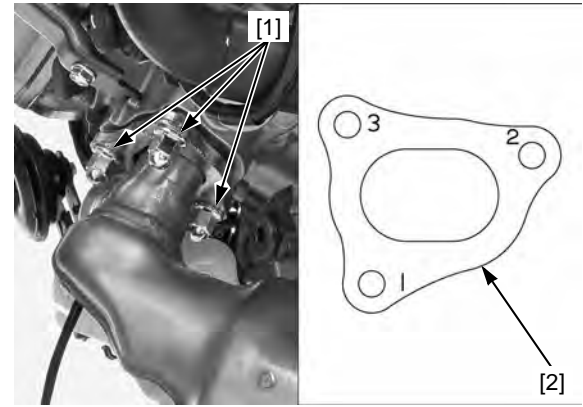
NOTE:

Route the ground wire properly (page 1-25).

Install the muffler, then loosely install the muffler mounting bolt, washer, nut and band bolt (page 2-32).

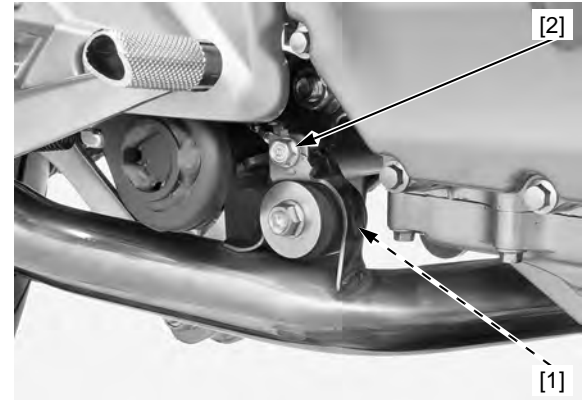
Tighten the exhaust pipe joint nuts [1] to the specified torque in numerical order by stamped number on the exhaust pipe joint [2] in 2 or 3 steps.

TORQUE: 28 N·m (2.9 kgf·m, 21 lbf·ft)



Tighten the exhaust pipe mounting nut [1] securely.

Tighten the ground wire mounting bolt [2] securely.



Install the O₂ sensor wire to the clamp [1] and radiator reserve tank guide [2].

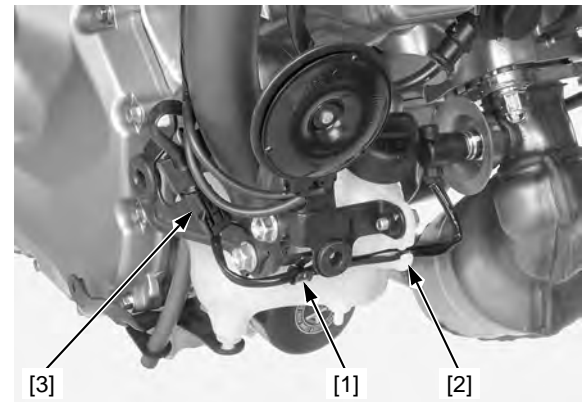
NOTE:

Route the O₂ sensor wire properly (page 1-25).

Connect the O₂ sensor 1P (Black) connector [3].

Tighten the muffler mounting nut and band bolt securely (page 2-32).

Install the lower cowl (page 2-28).



STUD BOLT REPLACEMENT

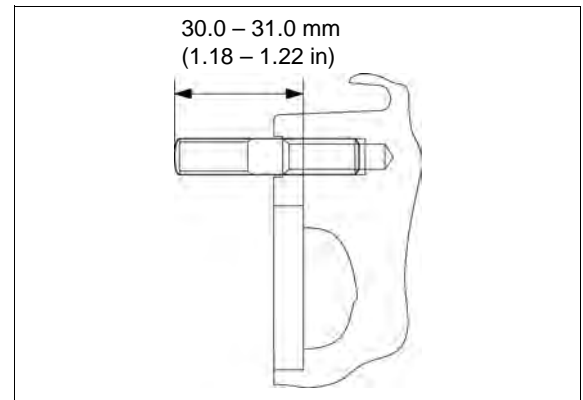
Remove the exhaust pipe/muffler (page 2-32).

Thread two nuts onto the stud and tighten them together, and use a wrench on them to turn the stud bolt out.

Install new stud bolts into the cylinder head as shown.

After installing the stud bolts, check that the length from the bolt head to the cylinder head surface is within specification.

Install the exhaust pipe/muffler (page 2-32).



MEMO

SERVICE INFORMATION.....	3-2	DRIVE CHAIN	3-16
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SPARK PLUG.....	3-8	BRAKE LOCK OPERATION (NC700XD/SD)	3-24
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MAINTENANCE

SERVICE INFORMATION

GENERAL

- Place the motorcycle on level surface before starting any work.
- Gasoline is extremely flammable and is explosive under certain conditions.
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Air cleaner housing cover screw	6	5	1.1 (0.1, 0.8)	
Spark plug	2	14	22 (2.2, 16)	
Valve adjusting screw lock nut	8	7	14 (1.4, 10)	Apply engine oil to the threads and seating surface.
Camshaft maintenance cap	1	36	4.0 (0.4, 3.0)	See page 3-12
Timing hole cap	1	14	10 (1.0, 7)	Apply grease to the threads.
Crankshaft hole cap	1	30	15 (1.5, 11)	Apply grease to the threads.
Engine oil drain bolt	1	12	30 (3.1, 22)	
Engine oil filter cartridge	1	20	26 (2.7, 19)	Apply engine oil to the threads.
Oil filter boss	1	20	–	See page 3-14 Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) from tip
Rear axle nut	1	18	98 (10.0, 72)	U-nut
Drive chain adjuster lock nut	2	8	21 (2.1, 15)	
Drive sprocket bolt	1	10	54 (5.5, 40)	
Driven sprocket nut	5	12	108 (11.0, 80)	U-nut
Master cylinder reservoir cover screw	4	4	1.5 (0.2, 1.1)	
Rear brake reservoir mounting bolt	1	6	10 (1.0, 7)	
Rear master cylinder push rod lock nut	1	8	17 (1.7, 13)	
Parking brake adjuster bolt lock nut (NC700XD/SD)	1	8	17 (1.7, 13)	
Sidestand pivot bolt	1	10	–	See page 3-27 Apply grease to the sliding surface.
Sidestand pivot nut	1	10	39 (4.0, 29)	U-nut
Sidestand switch bolt	1	6	10 (1.0, 7)	ALOC bolt; replace with a new one.

MAINTENANCE SCHEDULE

NC700X/XA/S/SA

Perform the Pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult a dealer.

ITEMS	FREQUENCY NOTE	ODOMETER READING (NOTE 1)						ANNUAL CHECK	REGULAR REPLACE	REFER TO PAGE
		x 1,000 km	1	12	24	36	48			
		x 1,000 mi	0.6	8	16	24	32			
* FUEL LINE				I	I	I	I	I		3-5
* THROTTLE OPERATION				I	I	I	I	I		3-5
* AIR CLEANER	NOTE 2				R		R			3-7
CRANKCASE BREATHER	NOTE 3			C	C	C	C	C		3-8
* SPARK PLUG						I		R		3-8
* VALVE CLEARANCE				I	I	I	I			3-10
ENGINE OIL				R	R	R	R	R		3-12
ENGINE OIL FILTER				R	R	R	R	R		3-13
* ENGINE IDLE SPEED				I	I	I	I	I		3-15
RADIATOR COOLANT	NOTE 4				I	I	I	I	3 YEARS	3-15
* COOLING SYSTEM					I	I	I	I		3-16
DRIVE CHAIN				EVERY 1,000 km (600 mi) I, L						3-16
DRIVE CHAIN SLIDER				I	I	I	I			3-20
BRAKE FLUID	NOTE 4				I	I	I	I	2 YEARS	3-21
BRAKE PADS WEAR					I	I	I	I		3-22
BRAKE SYSTEM				I	I	I	I	I		3-23
BRAKE LIGHT SWITCH					I	I	I	I		3-24
HEADLIGHT AIM					I	I	I	I		3-25
CLUTCH SYSTEM				I	I	I	I	I		3-26
SIDESTAND					I	I	I	I		3-27
* SUSPENSION					I	I	I	I		3-28
* NUTS, BOLTS, FASTENERS				I	I	I	I	I		3-29
** WHEELS/TIRES					I	I	I	I		3-29
** STEERING HEAD BEARINGS				I	I	I	I	I		3-30

* Should be serviced by a dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by a dealer.

Honda recommends that a dealer should road test your motorcycle after each periodic maintenance is carried out.

NOTES:

1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Service more frequently when riding in rain or at full throttle.
4. Replacement requires mechanical skill.

MAINTENANCE

NC700XD/SD

Perform the Pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult a dealer.

ITEMS	FREQUENCY NOTE	ODOMETER READING (NOTE 1)					ANNUAL CHECK	REGULAR REPLACE	REFER TO PAGE
		x 1,000 km x 1,000 mi	1 0.6	12 8	24 16	36 24			
* FUEL LINE				I	I	I	I		3-5
* THROTTLE OPERATION				I	I	I	I		3-5
* AIR CLEANER	NOTE 2				R		R		3-7
CRANKCASE BREATHER	NOTE 3			C	C	C	C		3-8
* SPARK PLUG					I		R		3-8
* VALVE CLEARANCE				I	I	I	I		3-10
ENGINE OIL			R	R	R	R	R		3-12
ENGINE OIL FILTER			R	R	R	R	R		3-13
CLUTCH OIL FILTER			R		R		R		3-14
* ENGINE IDLE SPEED			I	I	I	I	I		3-15
RADIATOR COOLANT	NOTE 4			I	I	I	I	3 YEARS	3-15
* COOLING SYSTEM				I	I	I	I		3-16
DRIVE CHAIN			EVERY 1,000 km (600 mi) I, L						3-16
DRIVE CHAIN SLIDER				I	I	I	I		3-20
BRAKE FLUID	NOTE 4			I	I	I	I	2 YEARS	3-21
BRAKE PADS WEAR				I	I	I	I		3-22
BRAKE SYSTEM			I	I	I	I	I		3-23
BRAKE LIGHT SWITCH				I	I	I	I		3-24
* BRAKE LOCK OPERATION			I	I	I	I	I		3-24
HEADLIGHT AIM				I	I	I	I		3-25
SIDESTAND				I	I	I	I		3-27
* SUSPENSION				I	I	I	I		3-28
* NUTS, BOLTS, FASTENERS			I	I	I	I	I		3-29
** WHEELS/TIRES				I	I	I	I		3-29
** STEERING HEAD BEARINGS			I	I	I	I	I		3-30

* Should be serviced by a dealer, unless the owner has proper tools and service data and is mechanically qualified.

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Honda recommends that a dealer should road test your motorcycle after each periodic maintenance is carried out.

NOTES:

1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Service more frequently when riding in rain or at full throttle.
4. Replacement requires mechanical skill.

FUEL LINE

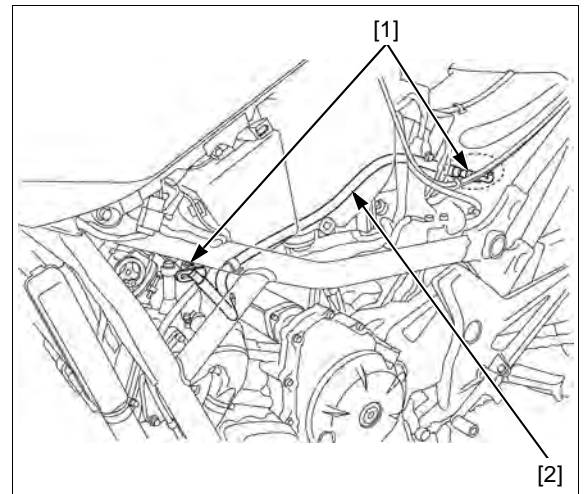
INSPECTION

Check the quick connect fitting [1] for looseness.

Check the fuel feed hose [2] for deterioration, damage or leakage.

Check the quick connect fittings for dirt, and clean if necessary.

Replace the fuel pump packing if necessary (page 7-13).



THROTTLE OPERATION

Check for any deterioration or damage to the throttle cable.

Check the throttle grip for smooth operation.

Check that the throttle opens and automatically closes in all steering positions.

If the throttle grip does not return properly, lubricate the throttle cable, and overhaul and lubricate the throttle grip housing.

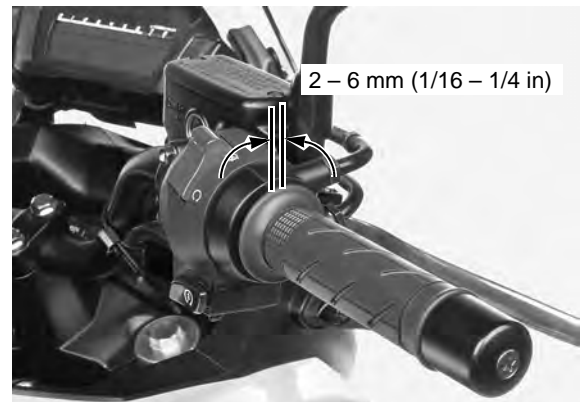
If the throttle grip still do not return properly, replace the throttle cable.

With the engine idling, turn the handlebar all the way to the right and left to ensure that the idle speed does not change.

If idle speed increases, check the throttle grip freeplay and throttle cable connection.

Measure the throttle grip freeplay at the throttle grip flange.

FREEPLAY: 2 – 6 mm (1/16 – 1/4 in)



MAINTENANCE

Throttle grip freeplay can be adjusted at either end of the throttle cable.

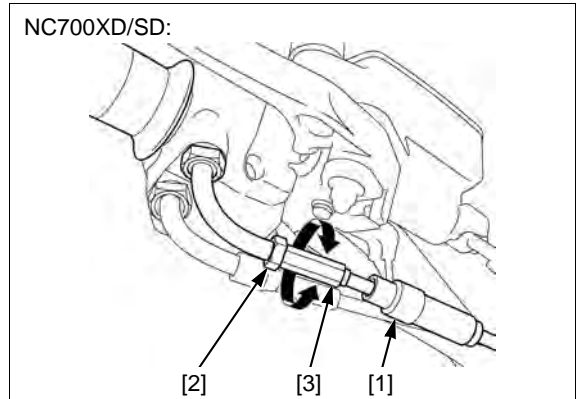
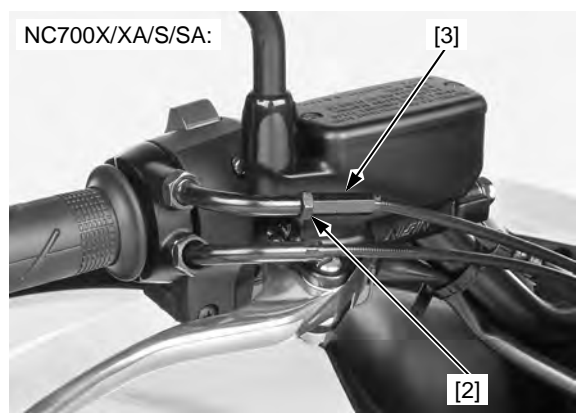
Minor adjustment is made with the upper adjuster at throttle housing adjuster.

Release the dust cover (NC700XD/SD) [1].

Loosen the lock nut [2] and turning the adjuster [3].

Tighten the lock nut while holding the adjuster and reposition the dust cover properly on the adjuster.

Recheck the throttle operation.

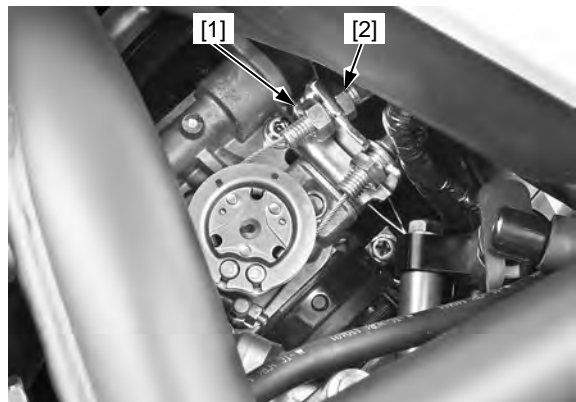


Major adjustment is made with the lower adjuster nut at the throttle body.

Loosen the lock nut [1] and turn the adjuster nut [2].

Tighten the lock nut while holding the adjuster nut.

Recheck the throttle operation.



AIR CLEANER

REMOVAL/INSTALLATION (NC700X/ XA/XD)

Remove the center cover but do not disconnect the seat lock cable and luggage box lid lock cable (page 2-16).

Remove the maintenance lid (page 21-6).

Disconnect the IAT sensor 2P (Black) connector [1].

Remove the air cleaner housing cover screws [2] and air cleaner housing cover [3].

Release the air cleaner housing cover tabs [4] and remove the air cleaner element [5] from the air cleaner housing cover.

Inspect the air cleaner element in accordance with the maintenance schedule (page 3-3) or any time it is excessively dirt or damaged.

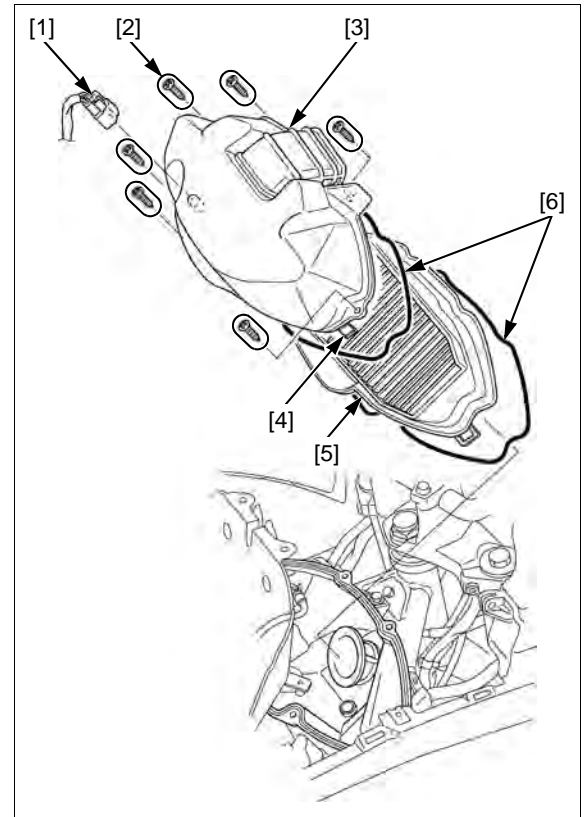
Install the air cleaner element in the reverse order of removal.

NOTE:

Check that the condition of the packings [6], replace them if necessary.

TORQUE:

Air cleaner housing cover screw:
1.1 N·m (0.1 kgf·m, 0.8 lbf·ft)



REMOVAL/INSTALLATION (NC700S/ SA/SD)

Remove the following:

- Side cowl (page 2-13)
- Maintenance lid (page 21-6)

Remove the air cleaner housing cover screws [1].

Remove the air cleaner housing cover [2] to the left side and disconnect the IAT sensor 2P (Black) connector [3].

Release the air cleaner housing cover tabs [4] and remove the air cleaner element [5] from the air cleaner housing cover.

Inspect the air cleaner element in accordance with the maintenance schedule (page 3-3) or any time it is excessively dirt or damaged.

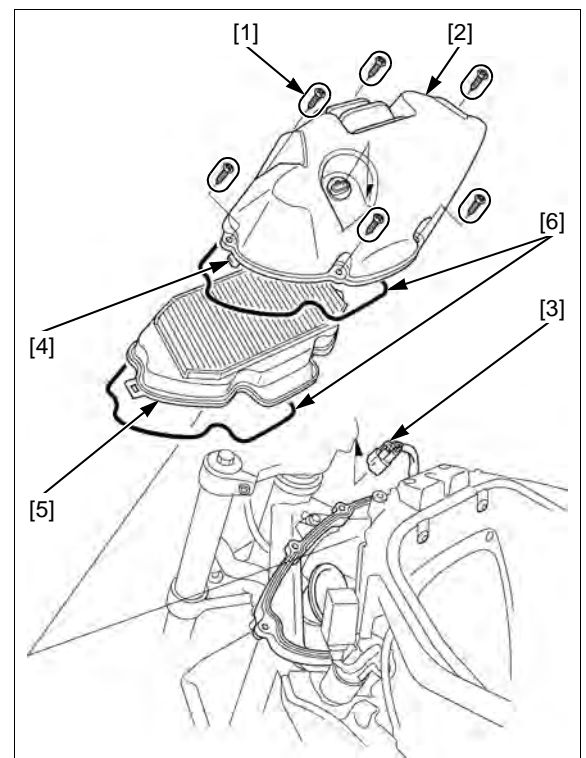
Install the air cleaner element in the reverse order of removal.

NOTE:

Check that the condition of the packings [6], replace them if necessary.

TORQUE:

Air cleaner housing cover screw:
1.1 N·m (0.1 kgf·m, 0.8 lbf·ft)



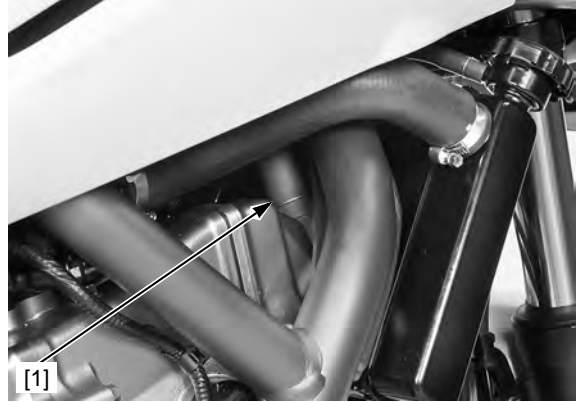
MAINTENANCE

CRANKCASE BREATHER

Service more frequently when ridden in rain, at full throttle, or after the motorcycle is washed or overturned.

Check the crankcase breather hose [1] for deterioration, damage or loose connection. Make sure that the hoses are not kinked, pinched or cracked.

Replace the crankcase breather hose if necessary.



Service if the deposits level can be seen in the transparent section of the air cleaner housing drain hose.

Check the air cleaner housing drain hose [1].

If necessary, remove the drain plug [2] from the air cleaner housing drain hose and drain the deposits into a suitable container.

Reinstall the drain plug securely.

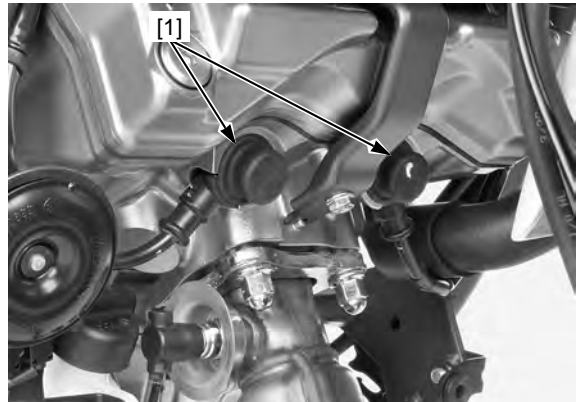


SPARK PLUG

REMOVAL/INSTALLATION

Remove the lower cowl (page 2-28).

Disconnect the spark plug caps [1].



Clean around the spark plug base with compressed air before removing the spark plug, and be sure that no debris is allowed to enter the combustion chamber.

Remove the spark plug [1] using the equipped spark plug wrench [2].

Inspect or replace the spark plug as described in the maintenance schedule (page 3-3).

Install and hand tighten the spark plug to the cylinder head, then tighten the spark plug to the specified torque using the equipped spark plug wrench.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Connect the spark plug caps securely.

Install the lower cowl (page 2-28).



INSPECTION

Check the following and replace if necessary (recommended spark plug: page 3-9)

NOTE:

- Insulator [1] for damage
- Center electrode [2] and side electrode [3] for wear
- Burning condition, coloration

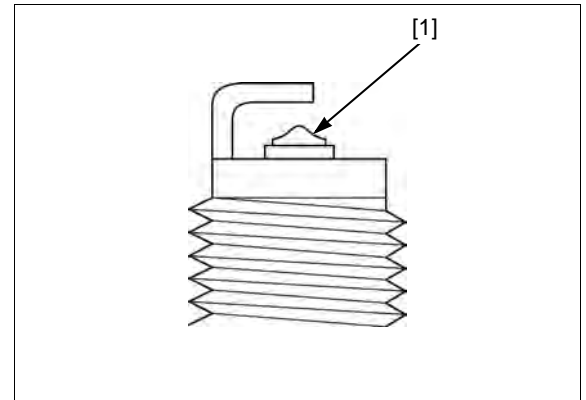
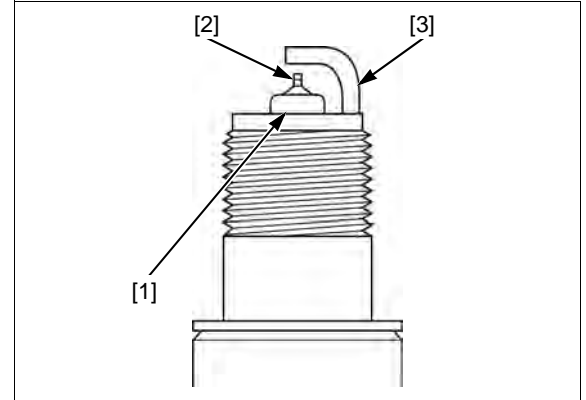
This motorcycle's spark plug is equipped with an iridium center electrode. Replace the spark plug if the electrodes are contaminated.

If the electrodes are contaminated with accumulated objects or dirt, replace the spark plug.

Always use specified spark plugs on this motorcycle.

Replace the plug if the center electrode [1] is rounded as shown in the illustration.

**SPECIFIED SPARK PLUG:
NGK: IFR6G-11K**



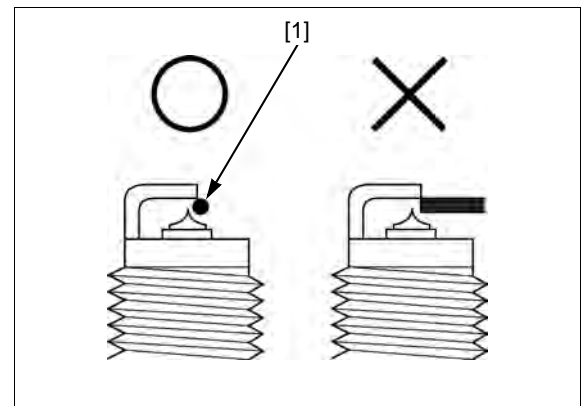
To prevent damaging the iridium center electrode, use a wire type feeler gauge to check the spark plug gap.

Check the spark plug gap between the center and side electrodes with a wire type feeler gauge [1].

Make sure that the Φ 1.0 mm (0.04 in) plug gauge does not insert between the gap.

Do not adjust the spark plug gap. If the gap is out of specification, replace with a new one.

If the gauge can be inserted into the gap, replace the plug with a new one.



VALVE CLEARANCE

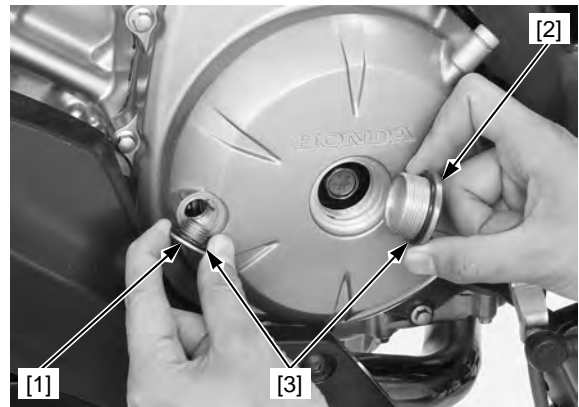
INSPECTION

NOTE:

- Inspect and adjust the valve clearance while the engine is cold (below 35°C/95°F).
- After the valve clearance inspection, check the engine idle speed (page 3-15).
- Inspection and adjustment of the valve clearance can be serviced with the engine installed in the frame.

Remove the cylinder head cover (page 10-5).

Remove the timing hole cap [1], crankshaft hole cap [2] and O-rings [3].

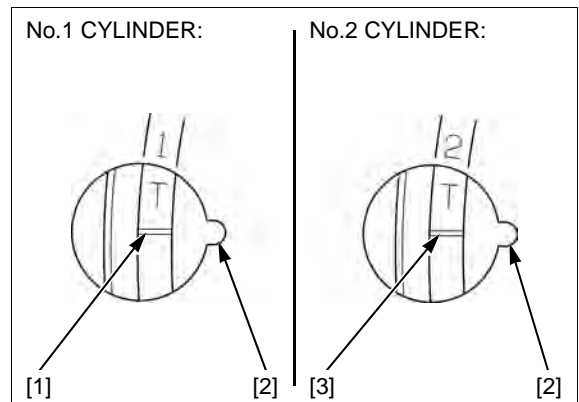


Remove the camshaft maintenance cap [1] and O-ring [2].



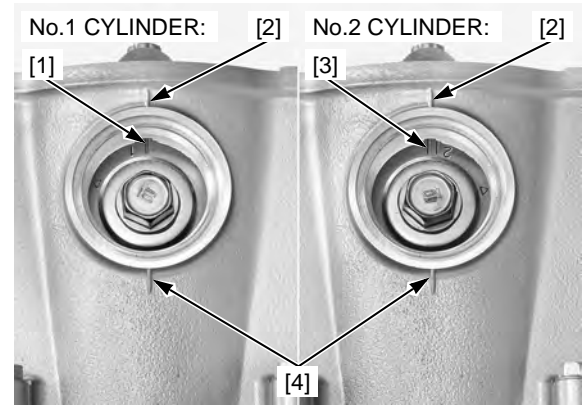
No.1 Cylinder: Rotate the crankshaft counterclockwise and align the "1T" mark [1] on the flywheel with the index notch [2] on the alternator cover.

No.2 Cylinder: Rotate the crankshaft counterclockwise and align the "2T" mark [3] on the flywheel with the index notch on the alternator cover.



- No.1 Cylinder:* Make sure that the "1" mark [1] on the cam sprocket is aligned with the upper cylinder head index line [2].
- No.2 Cylinder:* Make sure that the "2" mark [3] on the cam sprocket is aligned with the upper cylinder head index line [4].

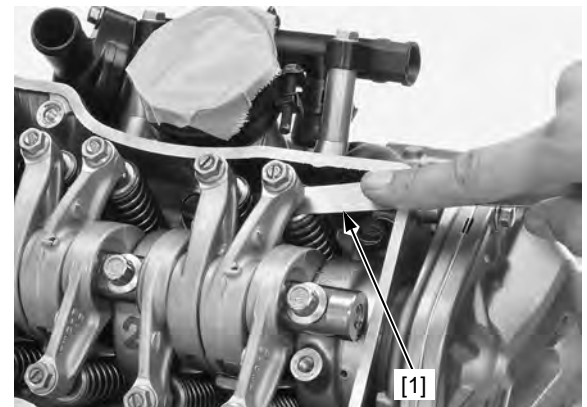
If the "1" mark or "2" mark is facing lower cylinder head index line [4], turn the crankshaft counterclockwise one full turn (360°) and realign the "1T" mark or "2T" mark with the index notch.



Check the valve clearance by inserting a feeler gauge [1] between the valve adjusting screw and valve stem.

VALVE CLEARANCE:

- IN: 0.17 ± 0.02 mm (0.007 ± 0.001 in)**
- EX: 0.28 ± 0.02 mm (0.011 ± 0.001 in)**



ADJUSTMENT

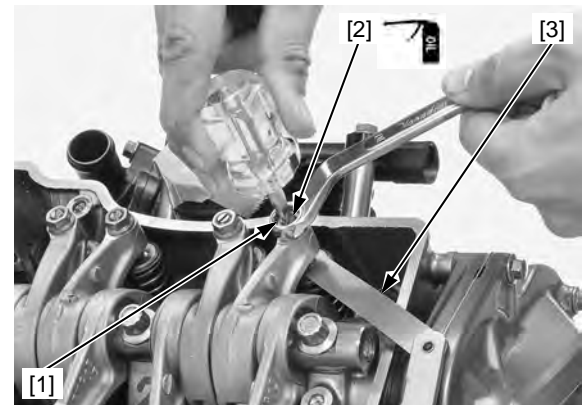
Loosen the lock nut [1] and apply engine oil to the adjusting screw threads and seating surface.

Adjust by turning the adjusting screw [2] until there is a slight drag on the feeler gauge [3].

Hold the adjusting screw and tighten the lock nut to the specified torque.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)

After tightening the lock nut, recheck the valve clearance.

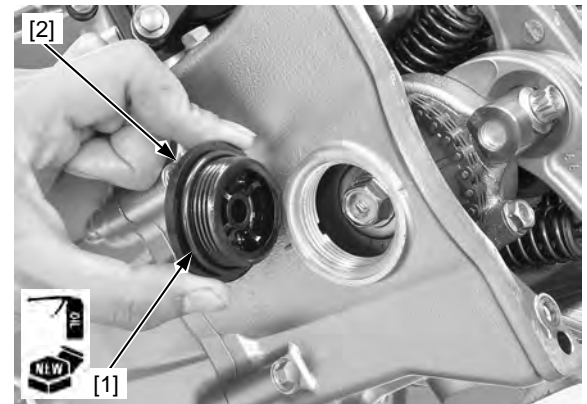


Apply engine oil to a new O-ring [1] and install it to the camshaft maintenance cap [2].

Temporarily Install the camshaft maintenance cap to the cylinder head.

If the engine is removed from the frame, tighten the camshaft maintenance cap to the specified torque.

TORQUE: 4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)



MAINTENANCE

If the engine is installed on the frame, insert a feeler gauge (0.1 mm) [1] between the camshaft maintenance cap and cylinder head.

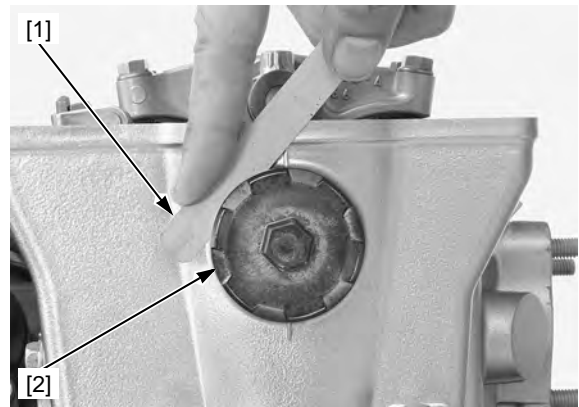
Tighten the camshaft maintenance cap securely.

Remove the feeler gauge.

Further tighten the camshaft maintenance cap at 30°.

NOTE:

One concave area [2] size is equivalent with 30°.



Install the cylinder head cover (page 10-5).

Apply engine oil to new O-rings [1] and install them to each hole cap.

Apply grease to the timing hole cap [2] and crankshaft hole cap [3] threads.

Install and tighten the timing hole cap and crankshaft hole cap to the specified torque.

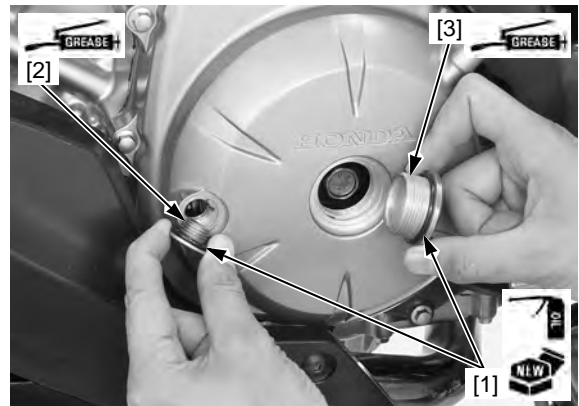
TORQUE:

Timing hole cap:

10 N·m (1.0 kgf·m, 7 lbf·ft)

Crankshaft hole cap:

15 N·m (1.5 kgf·m, 11 lbf·ft)



ENGINE OIL

OIL LEVEL INSPECTION

Hold the motorcycle in an upright position.

Start the engine and let it idle for 3 – 5 minutes.
Stop the engine and wait 2 – 3 minutes.

Remove the oil filler cap/dipstick [1] and wipe it clean.

Reinstall the oil filler cap/dipstick, but do not screw it.

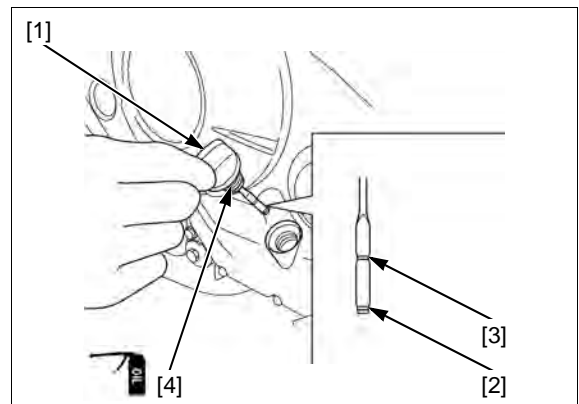
Remove the oil filler cap/dipstick and check the oil level.

If the level is below or near the lower level [2] on the dipstick, fill the recommended engine oil to the upper level [3].

Check that the O-ring [4] is in good condition, replace it if necessary.

Apply engine oil to the O-ring.

Install the oil filler cap/dipstick.



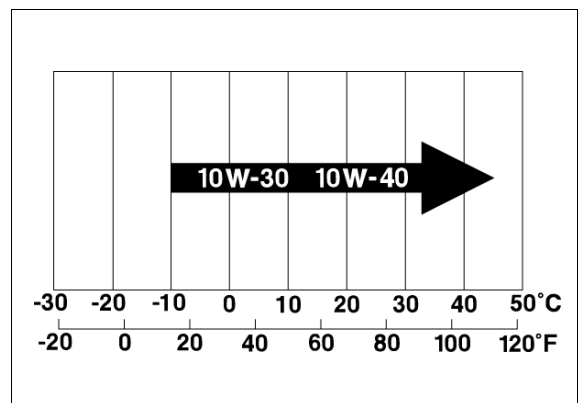
Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.

RECOMMENDED ENGINE OIL:

Honda "4-stroke motorcycle oil" or an equivalent API classification: SG or higher (except oils labeled as energy conserving on the circular API service label)

Viscosity: SAE 10W-30

JASO T 903 standard: MA



ENGINE OIL CHANGE

Warm up the engine.

Stop the engine and remove the oil filler cap/dipstick [1].



Place an oil pan under the engine to catch the engine oil, then remove the engine oil drain bolt [1]/sealing washer [2].

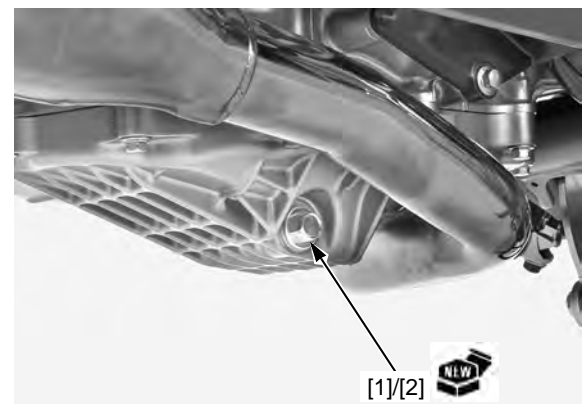
Drain the engine oil completely.

Install a new sealing washer onto the drain bolt.

Apply engine oil to the drain bolt threads and seating surface.

Install and tighten the drain bolt/sealing washer to the specified torque.

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)



Fill the engine with the recommended engine oil (page 3-12).

ENGINE OIL CAPACITY:

NC700X/XA/S/SA:

3.1 liters (3.3 US qt, 2.7 Imp qt) at draining

3.4 liters (3.6 US qt, 3.0 Imp qt) at oil filter change

3.7 liters (3.9 US qt, 3.3 Imp qt) at disassembly

NC700XD/SD:

3.2 liters (3.4 US qt, 2.8 Imp qt) at draining

3.4 liters (3.6 US qt, 3.0 Imp qt) at oil filter change

4.1 liters (4.3 US qt, 3.6 Imp qt) at disassembly

Install the oil filler cap/dipstick [1].

Check the engine oil level (page 3-12).

Make sure there are no oil leaks.



ENGINE OIL FILTER

Drain the engine oil (page 3-13).

Remove the oil filter cartridge [1] using the special tool.

TOOL:

Oil Filter Wrench [2]

07HAA-PJ70101



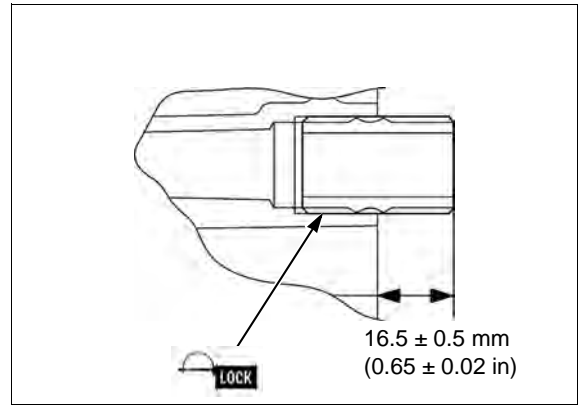
MAINTENANCE

Check that the oil filter boss protrusion from the crankcase is specified length as shown.

SPECIFIED LENGTH: 16.5 ± 0.5 mm (0.65 ± 0.02 in)

NOTE:

If the oil filter boss is removed, apply locking agent to the oil filter boss threads (page 3-2).

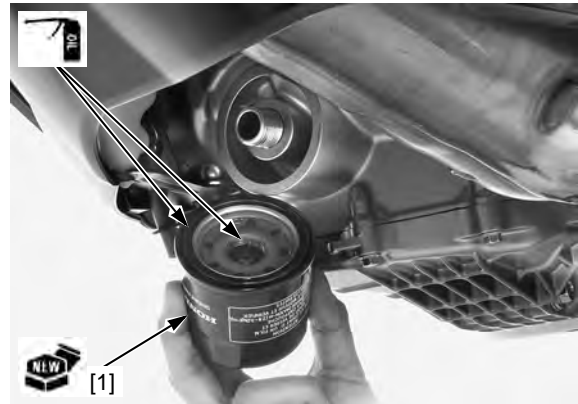


Apply engine oil to a new oil filter cartridge threads and O-ring.

Install and tighten the oil filter cartridge [1] to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).



CLUTCH OIL FILTER (NC700XD/SD)

NOTE:

Replace the engine oil filter when the clutch oil filter is replaced.

Drain the engine oil (page 3-13).

Remove the lower cowl (page 2-29).

Remove the following:

- Bolts [1]
- Clutch oil filter cover [2]
- Spring [3]
- Clutch oil filter [4]
- O-ring [5]

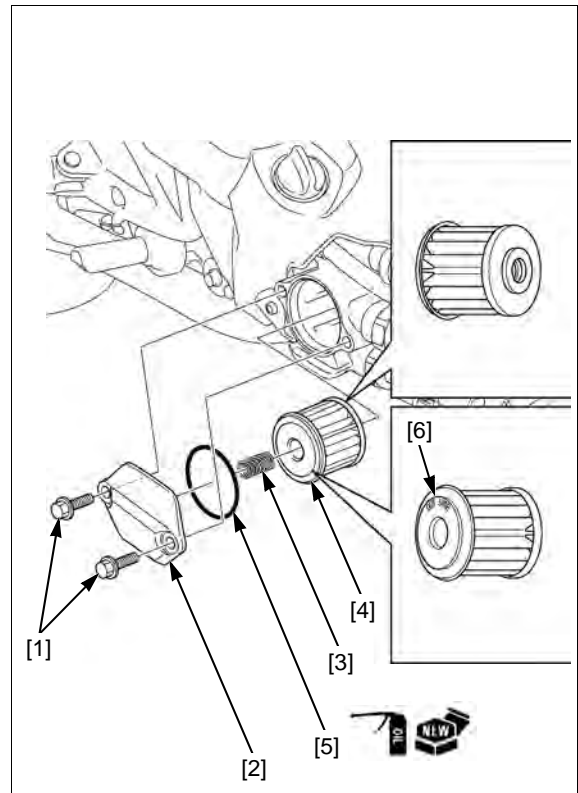
Install a new clutch oil filter with the "OUTSIDE" mark [6] facing out.

Installation is in the reverse order of removal.

NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to a new O-ring.

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).



ENGINE IDLE SPEED

NOTE:

- Inspect the idle speed after all other engine maintenance items have been performed and are within specifications.
- Before checking the idle speed, inspect the following items.
 - No DTC and MIL blinking
 - Spark plug condition (page 3-8)
 - Air cleaner element condition (page 3-7)
- The engine must be warm for accurate idle speed inspection.
- This system eliminates the need for manual idle speed adjustment compared to previous designs.

Turn the ignition switch ON and engine stop switch "O".

Start the engine and let it idle.

Check the idle speed.

IDLE SPEED: 1,200 ± 100 min⁻¹ (rpm)

If the idle speed is out of the specification, check the following:

- Intake air leak or engine top-end problem (page 10-4)
- Throttle operation and freeplay (page 3-5)
- IACV operation (page 7-22)

RADIATOR COOLANT

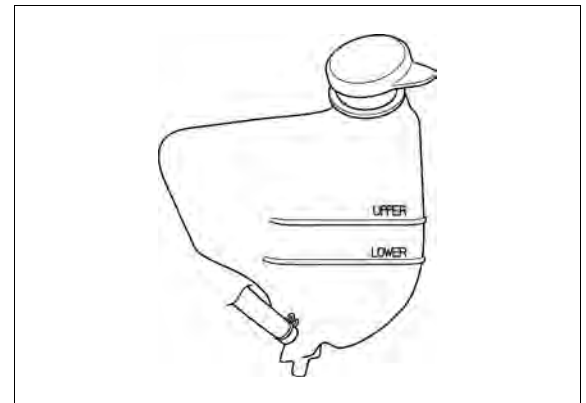
Check the coolant level of the reserve tank with the engine running at normal operating temperature.

The level should be between the "UPPER" and "LOWER" level lines with the motorcycle in an upright position.

If necessary, add recommended coolant.

RECOMMENDED ANTIFREEZE:

High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors



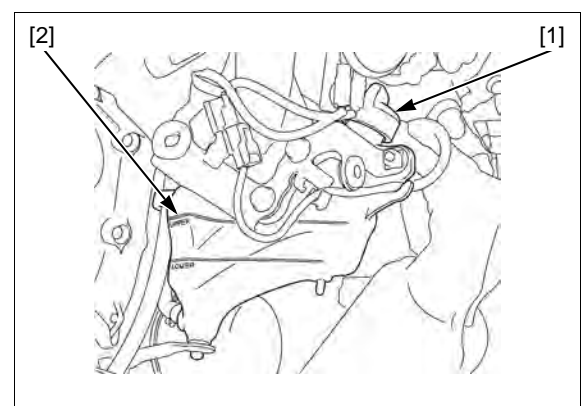
Remove the lower cowl (page 2-28).

Remove the reserve tank cap [1] and add the coolant to the "UPPER" level line [2] with a 1:1 mixture of distilled water and antifreeze (coolant preparation: page 8-6).

Reinstall the reserve tank cap.

Check to see if there are any coolant leaks when the coolant level decreases very rapidly.

If the reserve tank becomes completely empty, there is a possibility of air getting into the cooling system. Be sure to remove any air from the cooling system (page 8-6).



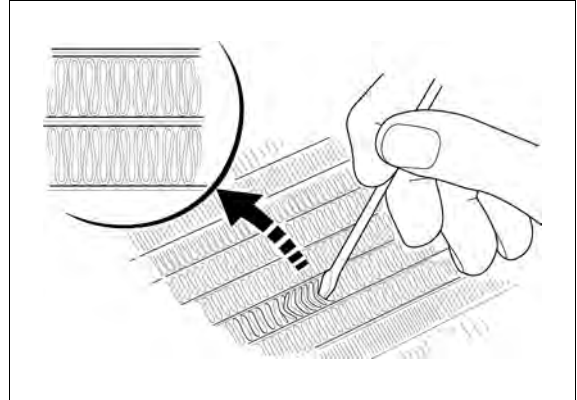
MAINTENANCE

COOLING SYSTEM

Check the radiator air passages for clogging or damage.

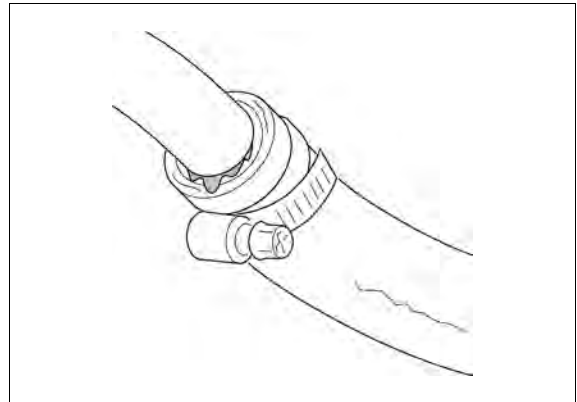
Straighten bent fins, and remove insects, mud or other obstructions with compressed air or low water pressure.

Replace the radiator if the air flow is restricted over more than 20 % of the radiating surface.



Inspect the water hoses for cracks or deterioration, and replace them if necessary.

Check the tightness of all water hose band screws (page 8-10).



DRIVE CHAIN

DRIVE CHAIN SLACK INSPECTION

Never inspect and adjust the drive chain while the engine is running.

Turn the ignition switch OFF, support the motorcycle on its sidestand and shift the transmission into neutral.

Check the slack in the drive chain lower run midway between the sprockets.

DRIVE CHAIN SLACK:

NC700X/XA/XD:
30 – 40 mm (1.2 – 1.6 in)

NC700S/SA/SD:
25 – 35 mm (1.0 – 1.4 in)

NOTICE

- *NC700X/XA/XD: Excessive chain slack, 60 mm (2.4 in) or more, may damage the frame.*
- *NC700S/SA/SD: Excessive chain slack, 50 mm (2.0 in) or more, may damage the frame.*



NC700X/XA/XD: 30 – 40 mm (1.2 – 1.6 in)
NC700S/SA/SD: 25 – 35 mm (1.0 – 1.4 in)

ADJUSTMENT

Loosen the rear axle nut [1].

Loosen the lock nuts [2] and turn the adjusting nuts [3] until the correct drive chain slack is obtained.

Make sure the index lines [4] on both adjusting plates are aligned with the rear end of the axle slots [5] in the swingarm.

Tighten the axle nut to the specified torque.

TORQUE: 98 N-m (10.0 kgf-m, 72 lbf-ft)

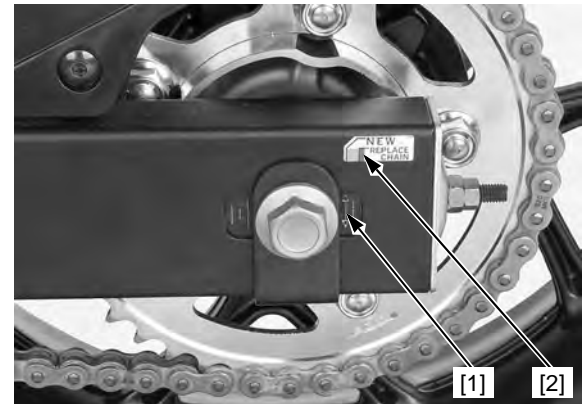
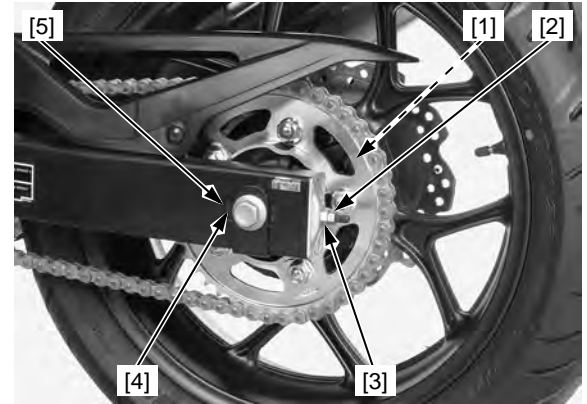
Hold the adjusting nuts and tighten the lock nuts to the specified torque.

TORQUE: 21 N-m (2.1 kgf-m, 15 lbf-ft)

Recheck the drive chain slack and free wheel rotation.

Check the drive chain wear indicator label attached on the left swingarm.

If the drive chain adjuster arrow mark [1] reaches red zone [2] of the indicator label, replace the drive chain with a new one (page 3-19).



CLEANING AND LUBRICATION

Clean the drive chain [1] with a chain cleaner designed specifically for O-ring chains or a neutral detergent. Use a soft brush if the drive chain is dirty.

NOTICE

Do not use a steam cleaner, high pressure cleaner, wire brush, volatile solvent such as gasoline and benzene, abrasive cleaner or a chain cleaner NOT designed specifically for O-ring chains to clean the drive chain.

Inspect the drive chain for possible damage or wear.

Replace any drive chain that has damaged rollers, loose fitting links, or otherwise appears unserviceable.

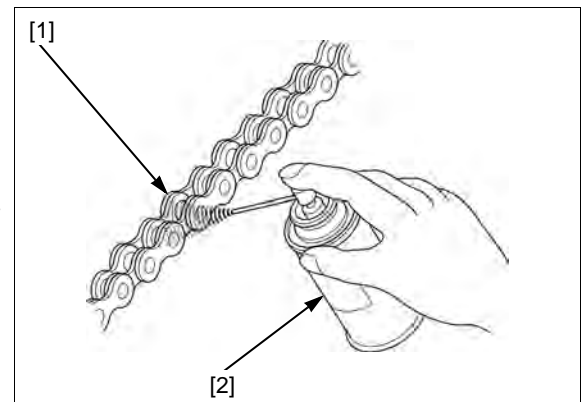
Be sure the drive chain has dried completely before lubricating.

Lubricate the drive chain with drive chain lubricant [2] designed specifically for use with O-ring chains, #80 – 90 gear oil or equivalent.

NOTICE

Do not use a chain lubricant NOT designed specifically for use with O-ring chains to lubricate the drive chain.

Wipe off the excess oil or drive chain lubricant.



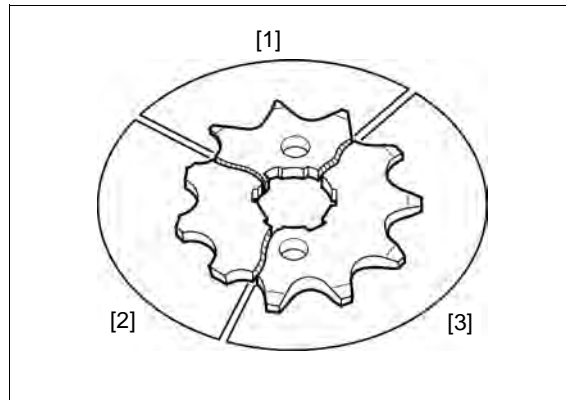
MAINTENANCE

SPROCKET INSPECTION

Remove the left rear cover (page 2-29).

Inspect the drive and driven sprocket teeth for wear [1] or damage [2], replace if necessary.

Never use a new drive chain on worn sprockets. Both chain and sprockets must be in good condition [3], or new replacement chain will wear rapidly.



Check the attaching bolts and nuts on the drive and driven sprockets.

If any are loose, torque them.

TORQUE:

Drive sprocket bolt [1]:
54 N·m (5.5 kgf·m, 40 lbf·ft)

Driven sprocket nut [2]:
108 N·m (11.0 kgf·m, 80 lbf·ft)

Install the left rear cover (page 2-29).



REPLACEMENT

This motorcycle uses a drive chain with a staked master link.

Fully slacken the drive chain (page 3-17).

Remove the drive chain using the special tool.

NOTE:

When using the special tool, follow the manufacturer's instruction.

TOOL:

Drive chain tool set 07HMH-MR10103

Remove the excess drive chain links from a new drive chain with the drive chain tool set.

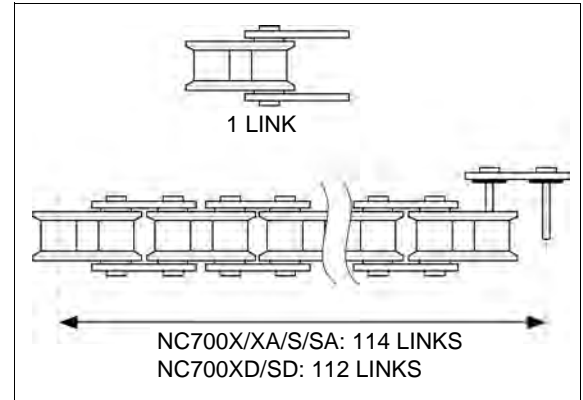
STANDARD LINKS:

NC700X/XA/S/SA:

114 LINKS

NC700XD/SD:

112 LINKS



REPLACEMENT CHAIN

DID: DID520V0

RK: RK520MKO

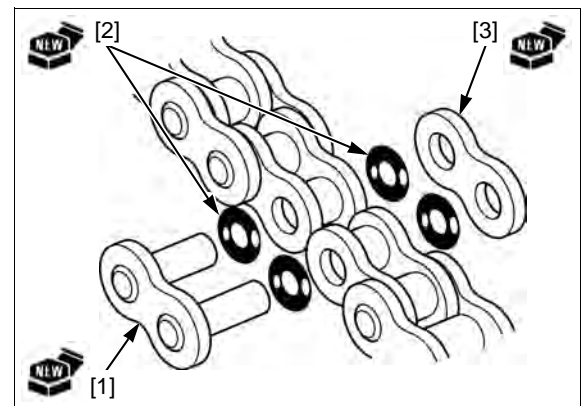
Never reuse the old drive chain, master link, master link plate and O-rings.

Insert a new master link [1] with new O-rings [2] from the inside of the drive chain, and install a new plate [3] and O-rings with the identification mark facing the outside.

Assemble the master link, O-rings and plate.

TOOL:

Drive chain tool set 07HMH-MR10103



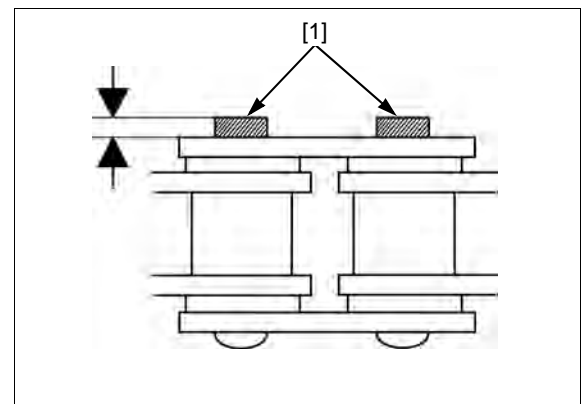
Make sure that the master link pins [1] are installed properly.

Measure the master link pin length projected from the plate.

STANDARD LENGTH:

Approx. 1.3 mm (0.05 in)

Stake the master link pins.



MAINTENANCE

Make sure that the pins are staked properly by measuring the diameter of the staked area using a slide caliper [1].

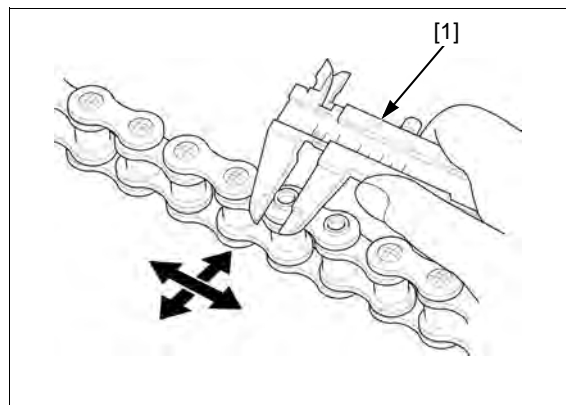
DIAMETER OF THE STAKED AREA:

DID: 5.40 – 5.60 mm (0.213 – 0.220 in)

RK: 5.25 – 5.65 mm (0.207 – 0.222 in)

After staking, check the staked area of the master link for cracks.

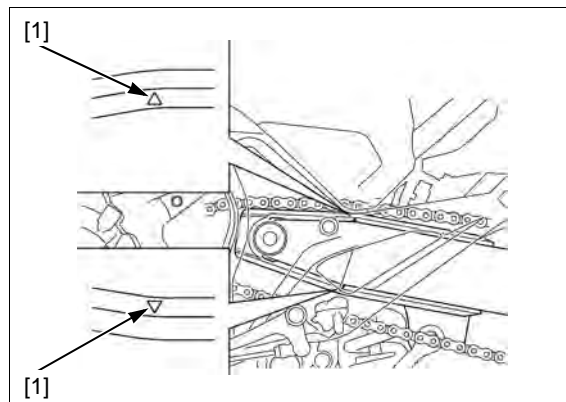
If there is any cracking, replace the master link, O-rings and plate.



DRIVE CHAIN SLIDER

Check the drive chain slider for wear or damage.

The drive chain slider must be replaced if it is worn to the wear indicator [1] (page 18-16).



BRAKE FLUID

NOTICE

Spilled fluid can damage painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

NOTE:

- Do not mix different types of fluid, as they are not compatible with each other.
- Do not allow foreign material to enter the system when filling the reservoir.
- When the fluid level is low, check the brake pads for wear (page 3-22).
- A low fluid level may be due to wear of the brake pads. If the brake pads are worn and caliper pistons are pushed out, this accounts for a low fluid level. If the brake pads are not worn and fluid level is low, check the entire system for leaks (page 3-23).

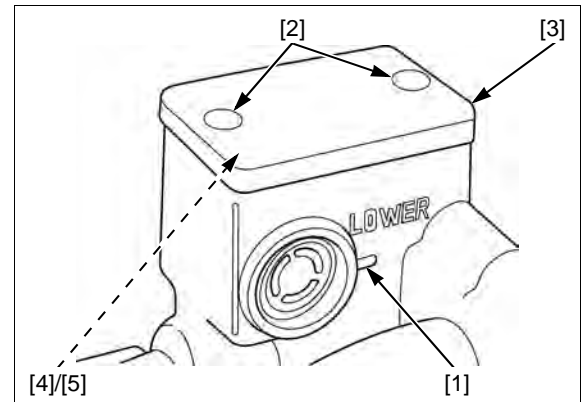
FRONT BRAKE

Turn the handlebar to the left so that the reservoir is level and check the front brake fluid level through the sight glass.

If the level is near the "LOWER" level line [1], fill the recommended brake fluid.

Remove the following:

- Screws [2]
- Reservoir cover [3]
- Set plate [4]
- Diaphragm [5]



Fill the reservoir with DOT 4 brake fluid from a sealed container to the casting ledge [1].

Install the diaphragm, set plate and reservoir cover. Install and tighten the cover screws to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

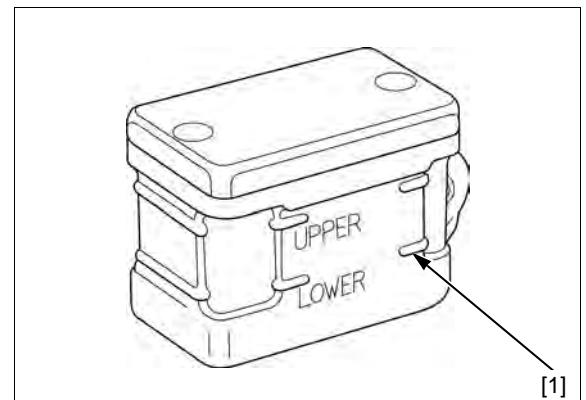


REAR BRAKE

Support the motorcycle on a level surface, and check the rear brake fluid level.

Check the brake fluid level.

If the level is near the "LOWER" level line [1], fill the recommended brake fluid.



MAINTENANCE

Remove the rear brake reservoir mounting bolt [1] and reservoir [2].

Remove the cover screws [3], reservoir cover [4], set plate [5] and diaphragm [6].

Temporarily install the reservoir and mounting bolt to the reservoir stay lower hole [7] using a 6 mm nut [8].

NOTE:

Align the reservoir tab [9] with the reservoir stay cut out [10].

Fill the reservoir with DOT 4 brake fluid from a sealed container to the "UPPER" level line [11].

Remove the 6 mm nut, mounting bolt and reservoir.

Install the diaphragm, set plate and reservoir cover.
Install and tighten the cover screws to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

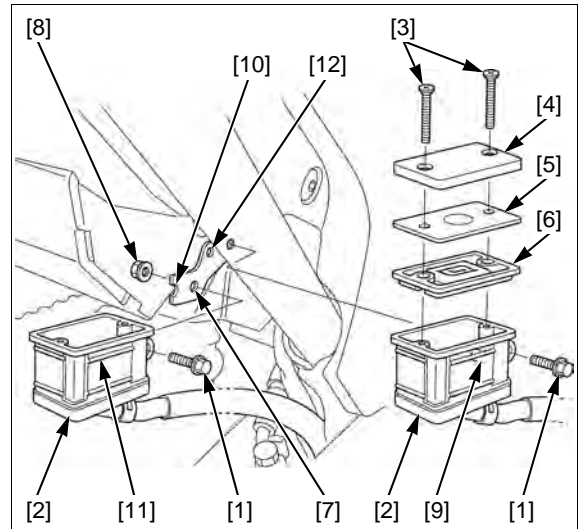
Install the reservoir and rear brake reservoir mounting bolt.

NOTE:

Align the reservoir tab with the reservoir stay upper hole [12].

Tighten the rear brake reservoir mounting bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



BRAKE PADS WEAR

FRONT BRAKE PADS

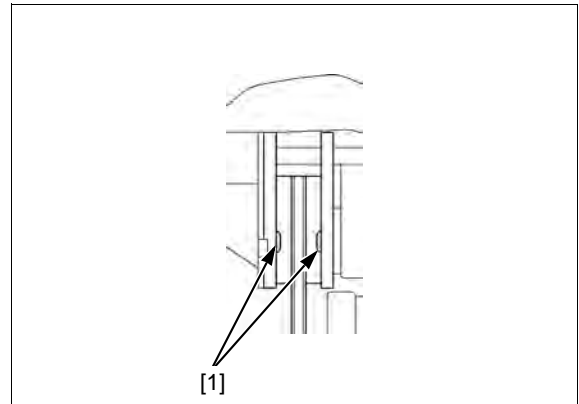
Check the brake pads for wear.

Always replace the brake pads as a set to assure even disc pressure.

Replace the brake pads if either pad is worn to the bottom of wear limit grooves [1].

For brake pad replacement.

- NC700X/S (page 19-16)
- NC700XA/XD/SA/SD (page 19-17)



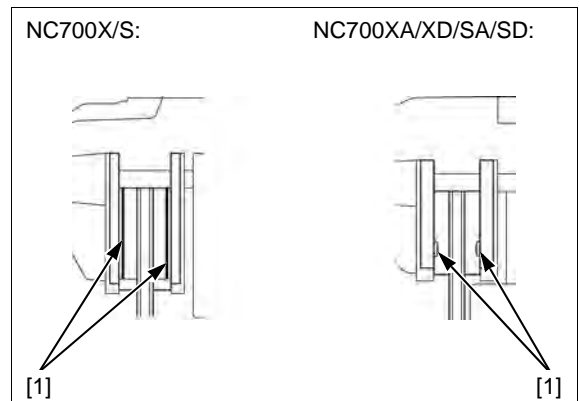
REAR BRAKE PADS

Check the brake pads for wear.

Always replace the brake pads as a set to assure even disc pressure.

Replace the brake pads if either pad is worn to the bottom of wear limit grooves [1].

For brake pad replacement (page 19-18).



BRAKE SYSTEM

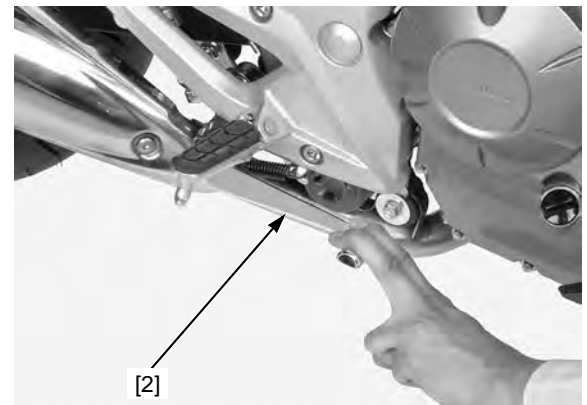
INSPECTION

NC700XA/XD/SA/SD: This model is equipped with a Combi Brake System.
Check the front and rear brake operation as follows:

Support the motorcycle securely and raise the front wheel [1] off the ground.

Apply the brake pedal [2].

Make sure the front wheel does not turn while the brake pedal is applied.



Firmly apply the brake lever or pedal, and check that no air has entered the system. If the lever or pedal feels soft or spongy when operated, bleed the air from the system.

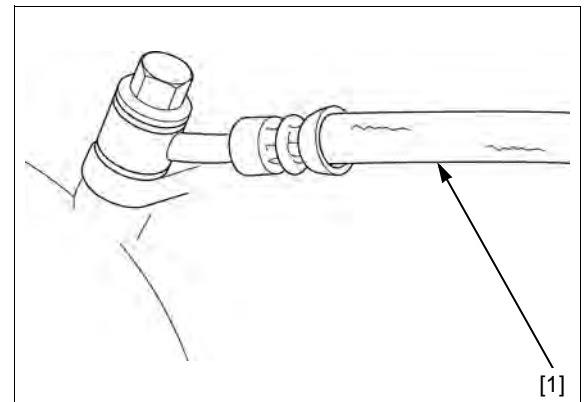
For brake air bleeding:

- NC700X/S (page 19-9)
- NC700XA/XD/SA/SD (page 19-12)

Inspect the brake hose [1] and fittings for deterioration, cracks and signs of leakage.

Tighten any loose fittings.

Replace hoses and fittings as required.



BRAKE PEDAL HEIGHT ADJUSTMENT

Loosen the lock nut [1] and turn the push rod [2] until the correct pedal height is obtained.



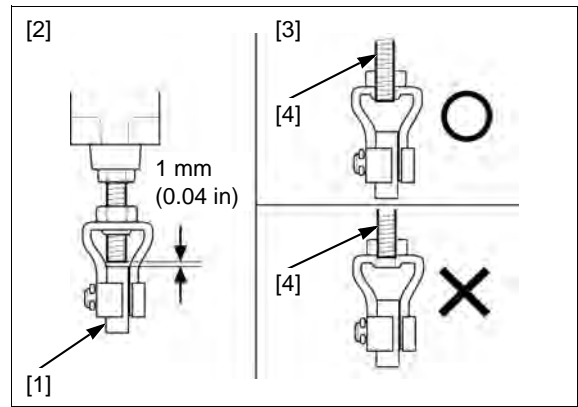
MAINTENANCE

If the brake pedal [1] is adjusted to the lower position [2], make sure that the clearance between the lower end of the push rod and the brake pedal does not fall below 1 mm (0.04 in).

If the brake pedal is adjusted to the higher position [3], make sure that the lower end of the push rod thread [4] is visible inside the joint.

After adjustment, tighten the rear master cylinder push rod lock nut to the specified torque.

TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)



BRAKE LIGHT SWITCH

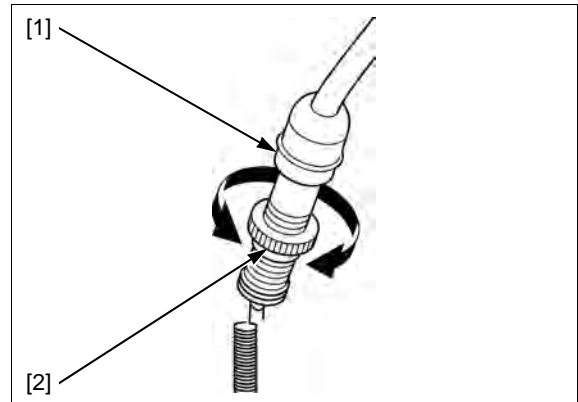
The front brake light switch does not require adjustment.

Adjust the brake light switch [1] so that the brake light comes on just prior to the brake actually being engaged.

If the light fails to come on, adjust the switch so that the light comes on at the proper time.

NOTE:

Hold the switch body and turn the adjuster [2]. Do not turn the switch body.



BRAKE LOCK OPERATION (NC700XD/SD)

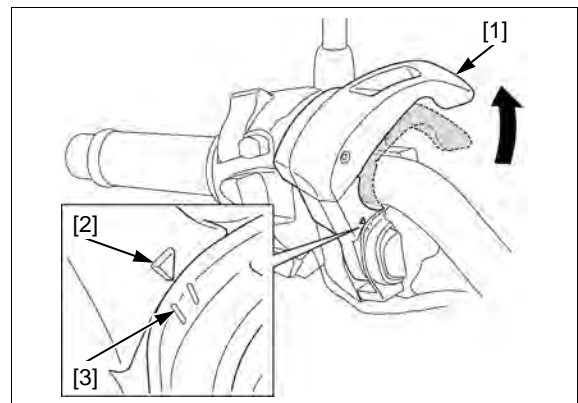
INSPECTION

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

Turn the rear wheel with your hands and pull the parking brake lever [1] slowly.

Check the parking brake lever "△" mark [2] within the index lines [3] at the rear wheel stopped.

If the parking brake lever "△" mark not within the index lines, adjust the parking brake as follows (page 3-25).



ADJUSTMENT

Parking brake lever position can be adjusted at the upper end of the parking brake cable and at the parking brake caliper adjuster bolt.

Minor adjustment is made with the upper adjuster.

Release the dust cover [1].

Adjust the lever position by loosening the lock nut [2], and turning the adjuster [3].

After adjustment, tighten the lock nut securely.

If the correct freeplay cannot be gained from the upper adjuster, turn the adjuster all the way in.

Make major adjustments with the parking brake caliper adjuster bolt.

Major adjustment is made with the parking brake caliper adjuster bolt [1].

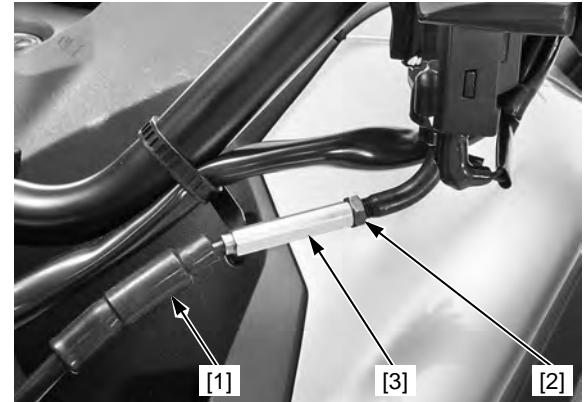
Loosen the lock nut [2].

Turn the adjuster bolt clockwise until bolt resistance is felt (brake pads contact with the brake disc).

Then turn the adjuster bolt 1/4 turn counterclockwise and tighten the lock nut to the specified torque while holding the adjuster bolt.

TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)

Recheck the parking brake operation.



HEADLIGHT AIM

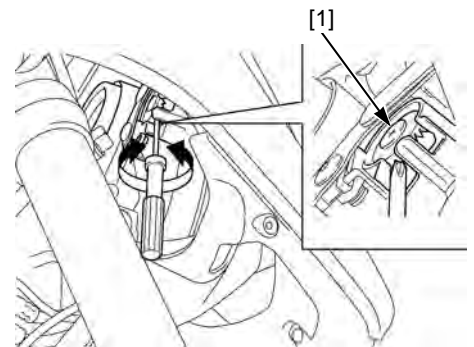
Support the motorcycle in an upright position.

Adjust the headlight aim as specified by local laws and regulations.

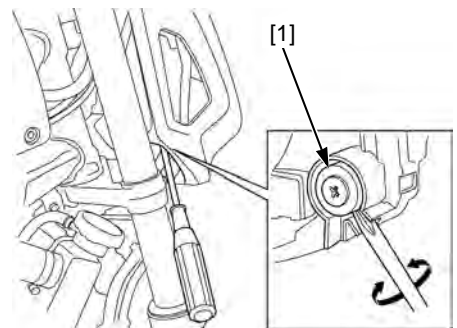
Adjust the headlight aim vertically by turning the vertical beam adjusting screw [1].

A clockwise rotation moves the beam up and counterclockwise rotation moves the beam down.

NC700X/XA/XD:



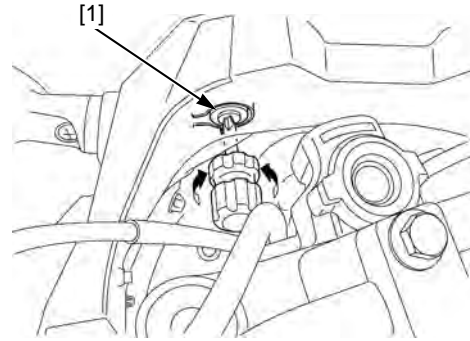
NC700S/SA/SD:



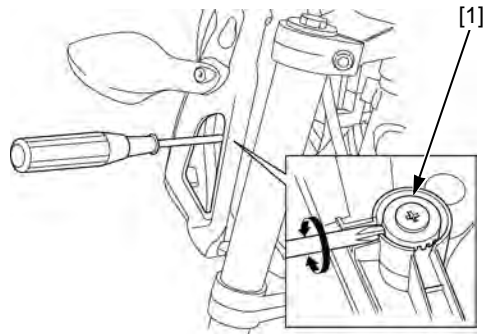
MAINTENANCE

Adjust the headlight aim horizontally by turning the horizontal beam adjusting screw [1].
A clockwise rotation moves the beam toward the right and counterclockwise rotation moves the beam toward the left.

NC700X/XA/XD:



NC700S/SA/SD:

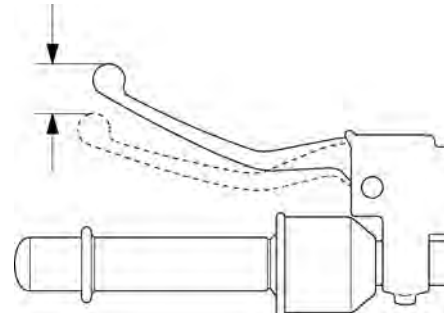


CLUTCH SYSTEM (NC700X/XA/S/SA)

Measure the clutch lever freeplay at the end of the clutch lever.

FREEPLAY: 10 – 20 mm (3/8 – 13/16 in)

10 – 20 mm (3/8 – 13/16 in)



The adjuster may be damaged if it is positioned too far out, leaving minimal thread engagement.

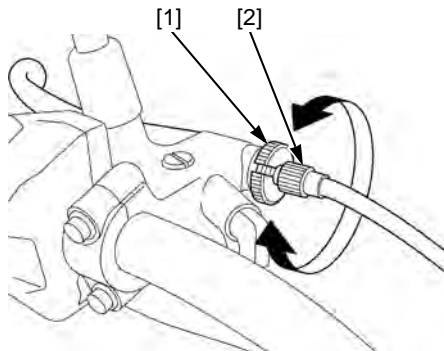
Minor adjustment is made with the upper adjuster at the clutch lever.

Loosen the lock nut [1] and turn the adjuster [2].

If the adjuster is threaded out near its limit and the correct freeplay cannot be obtained, turn the adjuster all the way in and back out one turn.

Tighten the lock nut while holding the adjuster.

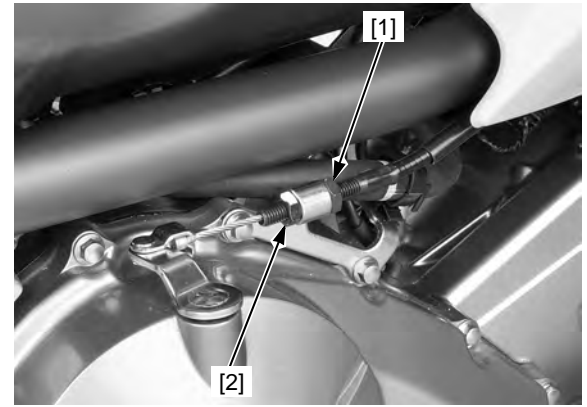
Recheck the clutch lever freeplay.



Major adjustment is made with the lower adjusting nut [1] at the clutch lifter arm.

Loosen the lock nut [2] and turn the adjusting nut to adjust the freeplay.
Tighten the lock nut while holding the adjusting nut.

If proper freeplay cannot be obtained, or the clutch slips during test ride, disassemble and inspect the clutch (page 11-7).



SIDESTAND

INSPECTION

Support the motorcycle using a safety stand or hoist.

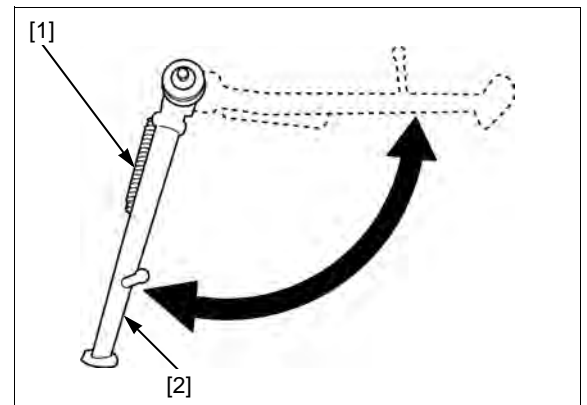
Check the sidestand spring [1] for damage or loss of tension.

Check the sidestand [2] assembly for freedom of movement and lubricate the sidestand pivot if necessary.

Check the sidestand ignition cut-off system:

- Sit astride the motorcycle and raise the sidestand.
- Start the engine with the transmission in neutral, then, with the clutch lever fully squeezed, shift the transmission into gear.
- Move the sidestand full down.
- The engine should stop as the sidestand is lowered.

If there is a problem with the system, check the sidestand switch (page 22-28).



REMOVAL/INSTALLATION

Support the motorcycle upright on a level surface.

Remove the sidestand switch bolt [1] and sidestand switch [2].



MAINTENANCE

Remove the sidestand springs [1].

Remove the sidestand pivot nut [2], bolt [3] and sidestand [4].

Apply grease to the sidestand pivot bolt sliding surface.

Install the sidestand and sidestand pivot bolt.

Tighten the sidestand pivot bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Loosen the sidestand pivot bolt 45 – 90°.

Install and tighten the sidestand pivot nut to the specified torque while holding the pivot bolt.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Install the sidestand springs.

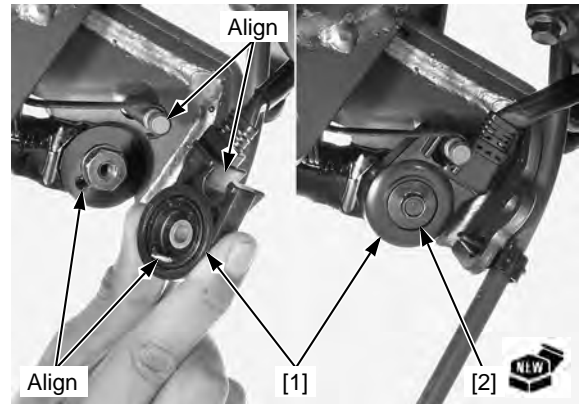
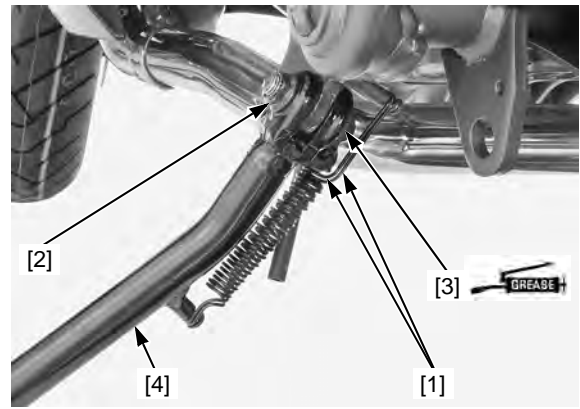
Install the sidestand switch [1].

NOTE:

- Align the sidestand switch groove with the frame pin.
- Align the sidestand switch tab with the sidestand hole.

Install and tighten a new sidestand switch bolt [2] to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



SUSPENSION

FRONT SUSPENSION INSPECTION

Check the action of the forks by operating the front brake and compressing the front suspension several times.

Check the entire assembly for signs of leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

NOTE:

Loose, worn or damaged suspension parts impair motorcycle stability and control.

Tighten all nuts and bolts.

For fork service (page 17-25).

REAR SUSPENSION INSPECTION

Check the action of the rear shock absorber by compressing the rear end several times.
Check the entire shock absorber assembly for leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

NOTE:

Loose, worn or damaged suspension parts impair motorcycle stability and control.

Tighten all nuts and bolts.

For shock absorber service (page 18-14).

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

Check for worn swingarm bearings by grabbing the rear wheel and attempting to move the wheel side to side.

Replace the bearings if any looseness is noted.

For swingarm service (page 18-16).

NUTS, BOLTS, FASTENERS

Check that all chassis nuts, screws and bolts are tightened to their correct torque values (page 1-15).

Check that all cotter pins, safety clips, hose clamps and cable stays are in place and properly secured.

WHEELS/TIRES

Support the motorcycle using a safety stand or hoist, raise the front wheel off the ground.

Hold the front fork leg and move the front wheel sideways with force to see if the wheel bearings are worn.

For front wheel service (page 17-20).

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

Hold the swingarm and move the rear wheel sideways with force to see if the wheel and driven flange bearings are worn.

For rear wheel service (page 18-6).

MAINTENANCE

Check the tire pressure with a tire pressure gauge when the tires are cold.

RECOMMENDED TIRE PRESSURE:

DRIVER ONLY:

FRONT: 250 kPa (2.50 kgf/cm², 36 psi)

REAR: 290 kPa (2.90 kgf/cm², 42 psi)

DRIVER AND PASSENGER:

FRONT: 250 kPa (2.50 kgf/cm², 36 psi)

REAR: 290 kPa (2.90 kgf/cm², 42 psi)

RECOMMENDED TIRE SIZE:

FRONT: 120/70ZR17M/C (58W)

REAR: 160/60ZR17M/C (69W)

RECOMMENDED TIRE BRAND:

BRIDGESTONE

FRONT: BT023F G

REAR: BT023R G

METZELER

FRONT: ROADTEC Z8 INTERACT E

REAR: ROADTEC Z8 INTERACT

Check the tires for cuts, embedded nails, or other damage.

Check the front and rear wheels for trueness.

Measure the tread depth at the center of the tires.

Replace the tires when the tread depth reaches the following limits.

MINIMUM TIRE TREAD DEPTH

FRONT: 1.5 mm (0.06 in)

REAR: 2.0 mm (0.08 in)

STEERING HEAD BEARINGS

Support the motorcycle using a safety stand or hoist, raise the front wheel off the ground.

Check that the handlebar moves freely from side to side. Make sure the control cables do not interfere with the handlebar rotation.

Check for steering stem bearings by grabbing the fork legs and attempting to move the front fork forward to backward.

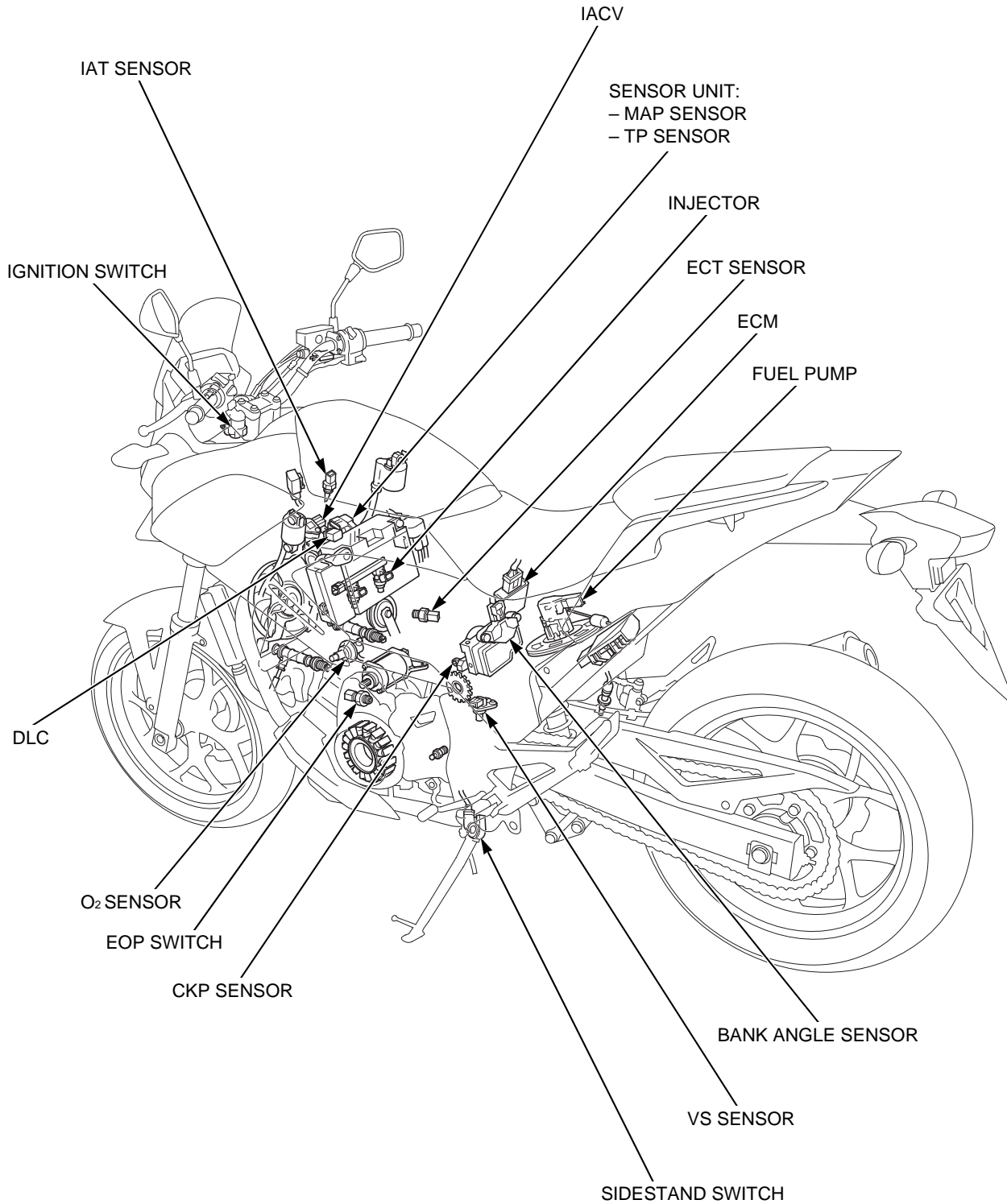
If the handlebar moves unevenly, binds, or has vertical movement, inspect the steering head bearings (page 17-33).

PGM-FI SYSTEM LOCATION.....	4-2	DTC TROUBLESHOOTING.....	4-21
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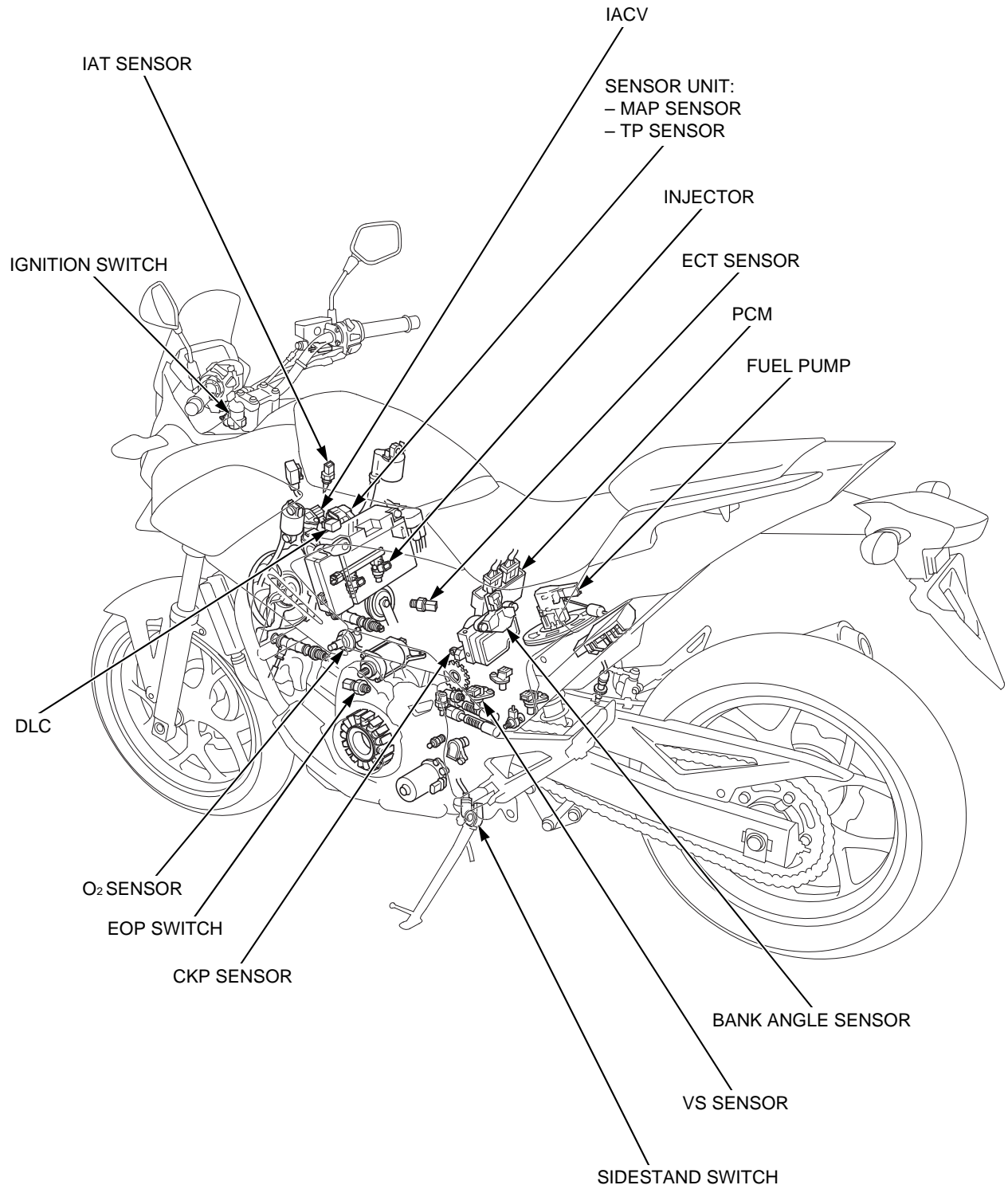
PGM-FI SYSTEM

PGM-FI SYSTEM LOCATION

NC700X/XA/S/SA:



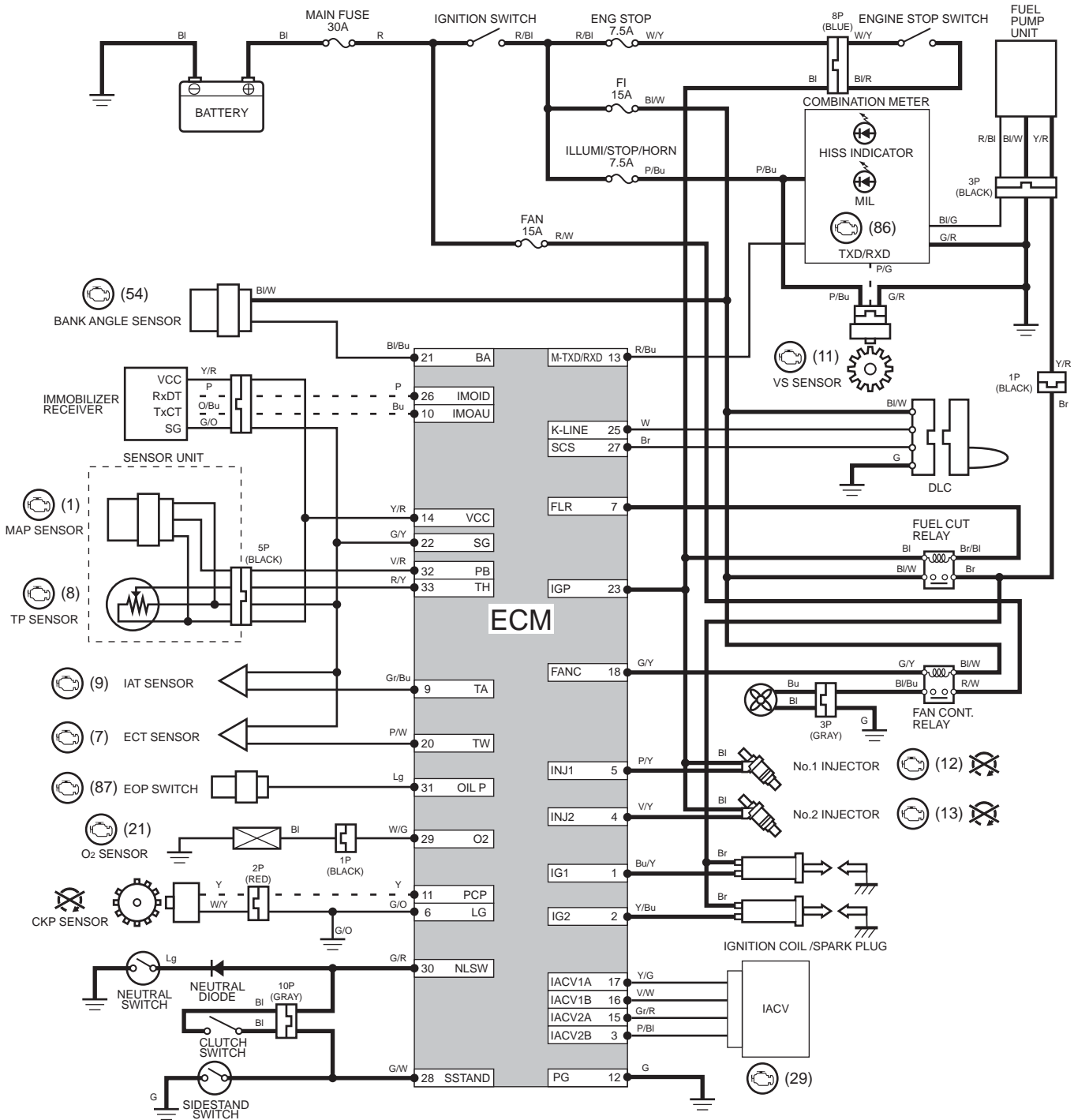
NC700XD/SD:



PGM-FI SYSTEM

PGM-FI SYSTEM DIAGRAM

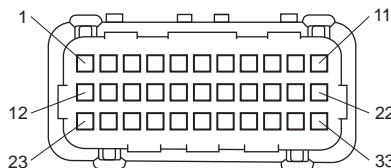
NC700X/XA/S/SA:



() = DTC/MIL number

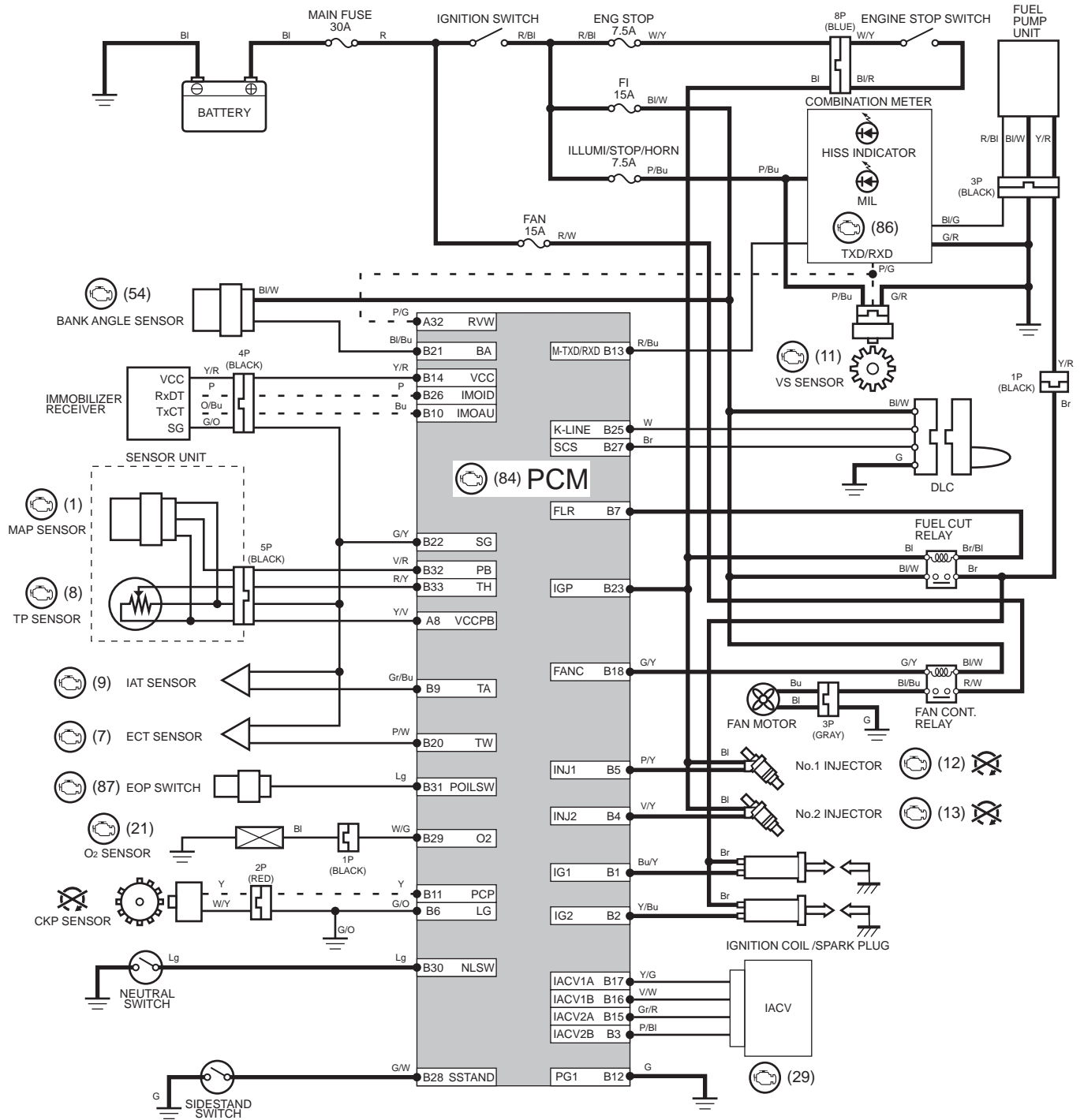
⊗ = Engine does not start when detecting DTC/MIL

⏏ = Short terminals for reading DTC/MIL



Bl : Black
Br : Brown
Bu : Blue
G : Green
Gr : Gray
Lg : Light green
O : Orange
P : PINK
R : Red
V : Violet
W : White
Y : Yellow

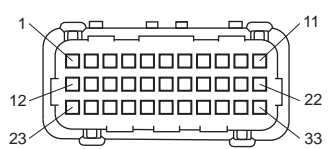
NC700XD/SD:



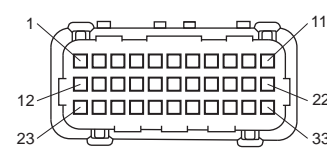
() = DTC/MIL number

= Engine does not start when detecting DTC/MIL

= Short terminals for reading DTC/MIL



PCM 33P (BLACK) CONNECTOR
PCM side of male terminals



PCM 33P (GRAY) CONNECTOR
PCM side of male terminals

BI : Black	P : PINK
Br : Brown	R : Red
Bu : Blue	V : Violet
G : Green	W : White
Gr : Gray	Y : Yellow
Lg : Light green	
O : Orange	

PGM-FI SYSTEM

SERVICE INFORMATION

GENERAL

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- A faulty PGM-FI system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- When disassembling the PGM-FI system parts, note the location of the O-rings. Replace them with new ones upon reassembly.
- Use a digital tester for PGM-FI system inspection.
- The following color codes are used throughout this section.

Bl = Black
Br = Brown

Bu = Blue
G = Green

Gr = Gray
Lg = Light green

O = Orange
P = Pink

R = Red
V = Violet

W = White
Y = Yellow

SPECIFICATIONS

ITEM	SPECIFICATIONS
IAT sensor resistance (at 20°C/68°F)	2.2 – 2.7 kΩ
ECT sensor resistance (at 40°C/104°F)	1.0 – 1.3 kΩ
Injector resistance (at 20°C/68°F)	11 – 13 Ω

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
ECT sensor	1	10	12 (1.2, 9)	
Bank angle sensor mounting bolt	2	6	10 (1.0, 7)	
O ₂ sensor	1	12	24.5 (2.5, 18)	

PGM-FI SYMPTOM TROUBLESHOOTING

When the motorcycle has one of these symptoms, check the DTC or MIL blinking, refer to the DTC index (page 4-15) and begin the appropriate troubleshooting procedure. If there are no DTC/MIL blinking stored in the ECM/PCM memory, do the diagnostic procedure for the symptom, in sequence listed below, until you find cause.

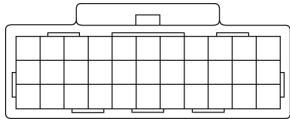
Symptom	Diagnosis procedure	Also check for
Engine cranks but won't start (No DTC and MIL blinking)	<ol style="list-style-type: none"> 1. Inspect the spark plug condition (page 3-8). 2. Inspect the ignition system (page 5-6). 3. Inspect the cylinder compression (page 10-5). 4. Inspect the IACV (page 7-22). 5. Inspect the fuel supply system (page 7-10). 	<ul style="list-style-type: none"> • No fuel to injector <ul style="list-style-type: none"> – Clogged fuel filter – Pinched or clogged fuel feed hose – Faulty fuel pump – Faulty fuel pump circuits • Intake air leak • Contaminated/deteriorated fuel • Faulty fuel injector
Engine cranks but won't start (No fuel pump operation sound when the turning the ignition ON)	<ol style="list-style-type: none"> 1. ECM/PCM power/ground circuits malfunction (page 4-68). 2. Inspect the fuel supply system (page 7-10). 	<ul style="list-style-type: none"> • Open circuit in the power input and/or ground wire of the ECM/PCM • Blown main fuse (30 A) • Blown sub fuse 15 A (FI) • Blown sub fuse 7.5 A (ENG STOP)
Engine stalls, hard to start, rough idling	<ol style="list-style-type: none"> 1. Inspect the engine idle speed (page 3-15). 2. Inspect the IACV (page 7-22). 3. Inspect the fuel supply system (page 7-4). 4. Inspect the battery charging system (page 21-7). 5. Inspect the ignition system (page 5-6). 	<ul style="list-style-type: none"> • Restricted fuel feed hose • Contaminated/deteriorated fuel • Intake air leak • Faulty MAP sensor • Restricted fuel tank breather hose
Afterburn when engine braking is used	Inspect the ignition system (page 5-6).	
Backfiring or misfiring during acceleration	Inspect the ignition system (page 5-6).	
Poor performance (driveability) and poor fuel economy	<ol style="list-style-type: none"> 1. Inspect the fuel supply system (page 7-4). 2. Inspect the air cleaner element (page 3-7). 3. Inspect the ignition system (page 5-6). 	<ul style="list-style-type: none"> • Faulty pressure regulator (fuel pump) • Faulty injector • Faulty MAP sensor
Idle speed is below specifications or fast idle too low (No DTC and MIL blinking)	<ol style="list-style-type: none"> 1. Inspect the engine idle speed (page 3-15). 2. Inspect the IACV (page 7-22). 3. Inspect the ignition system (page 5-6). 	
Idle speed is above specifications or fast idle too high (No DTC and MIL blinking)	<ol style="list-style-type: none"> 1. Inspect the engine idle speed (page 3-15). 2. Inspect the throttle operation and freeplay (page 3-5). 3. Inspect the IACV (page 7-22). 4. Inspect the ignition system (page 5-6). 	<ul style="list-style-type: none"> • Intake air leak • Engine top-end problem • Air cleaner element condition
MIL stays ON but no DTCs set, or MIL never comes ON at all	Inspect the MIL circuit (page 4-63).	

PGM-FI SYSTEM

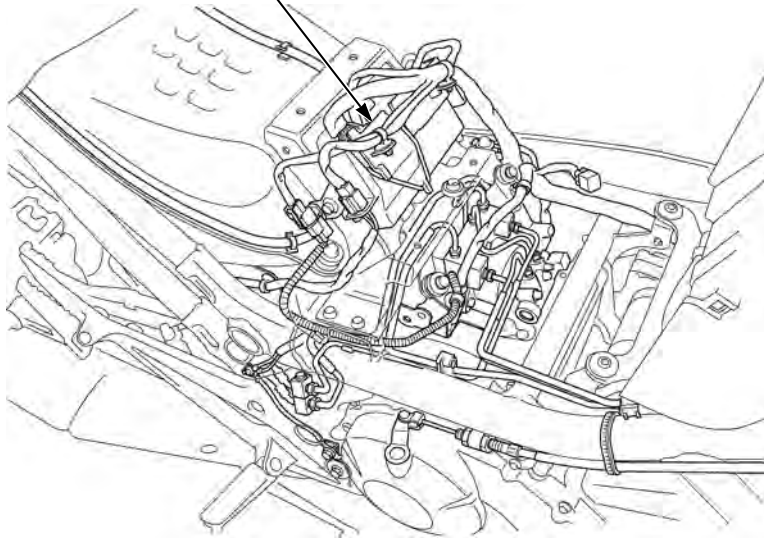
PGM-FI CONNECTOR LOCATIONS

NOTE 1: Remove the shroud/side cover (NC700X/XA) (page 2-14).

NOTE 1: Remove the side cowl (NC700S/SA) (page 2-13).



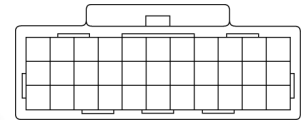
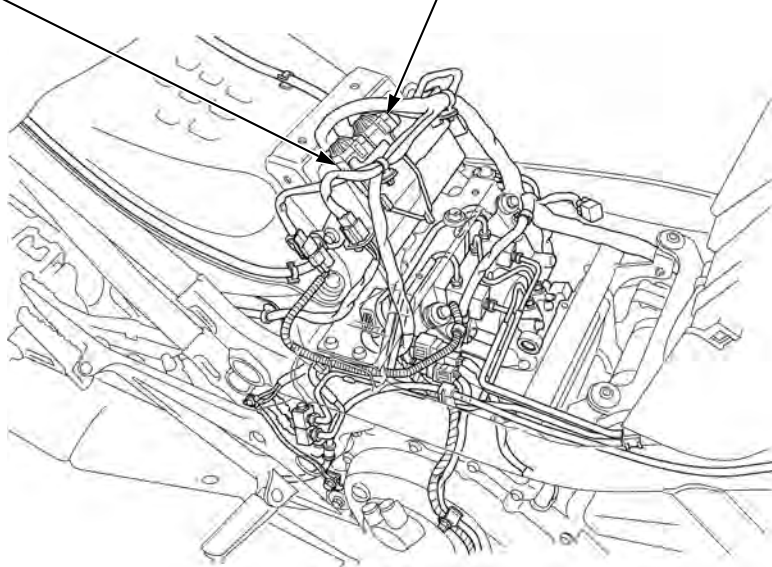
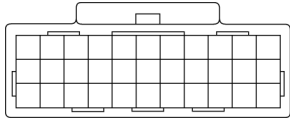
ECM 33P (BLACK) CONNECTOR (NOTE 1)



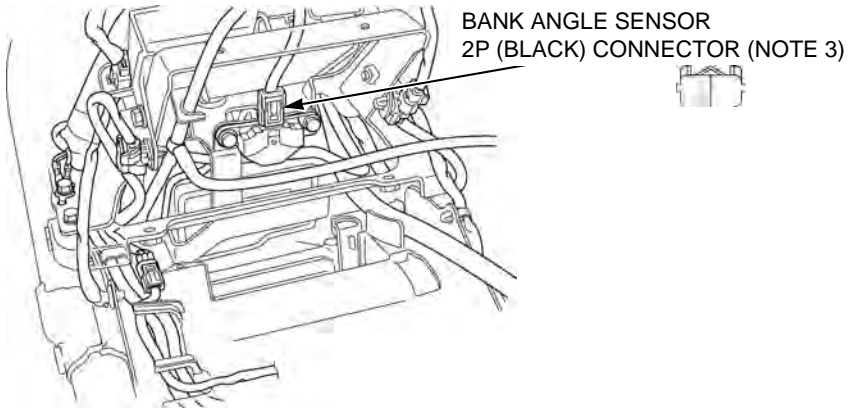
NOTE 2: Remove the luggage box lid/hinge assembly (NC700XD/SD) (page 2-19).

PCM 33P (GRAY) CONNECTOR (NOTE 2)

PCM 33P (BLACK) CONNECTOR (NOTE 2)



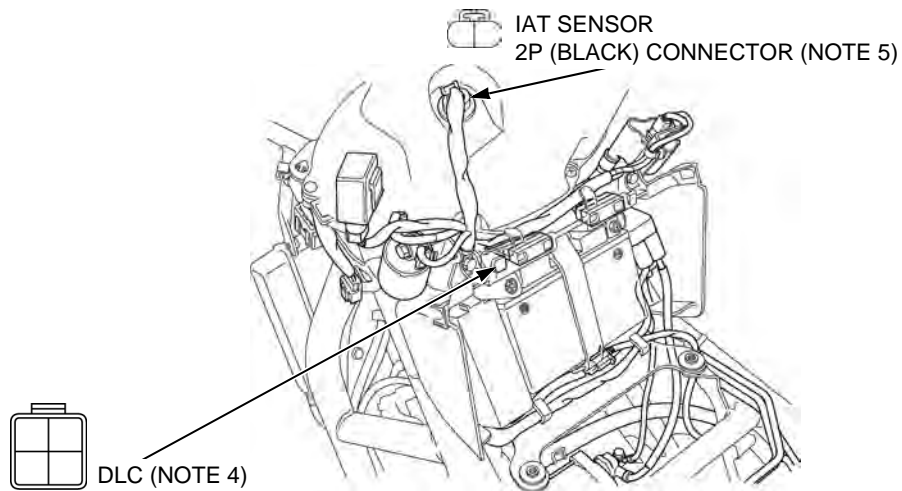
NOTE 3: Remove the ECM box (page 4-65).



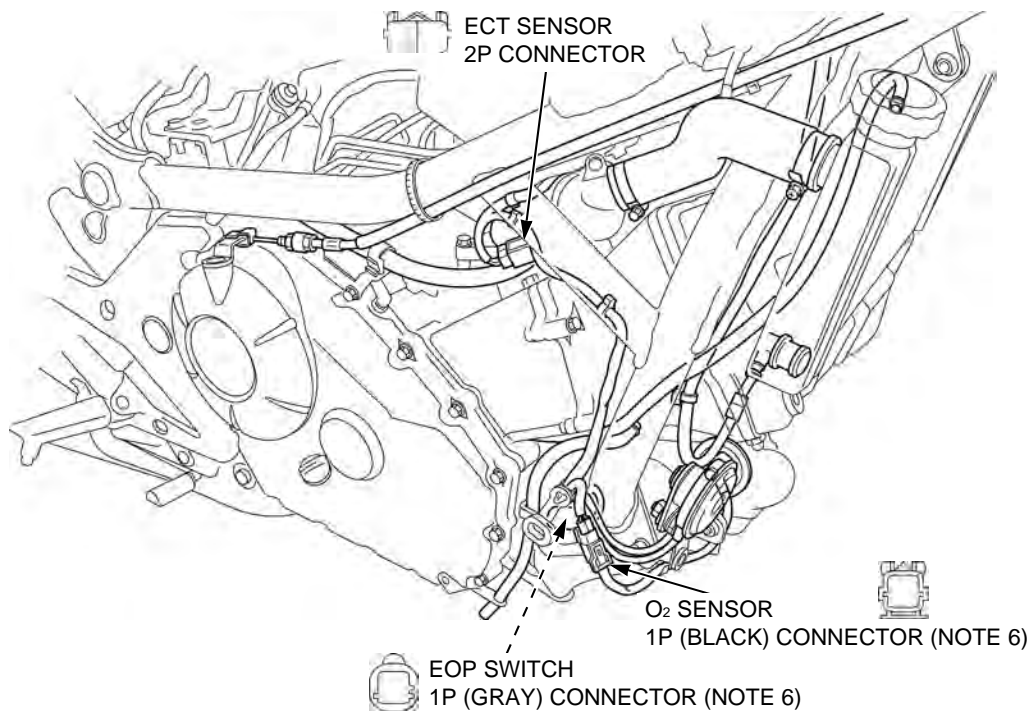
NOTE 4: Remove the maintenance lid (page 21-6).

NOTE 5: Remove the center cover (NC700X/XA/XD) (page 2-16).

NOTE 5: Remove the luggage box (NC700S/SA/SD) (page 2-20).



NOTE 6: Remove the lower cowl (page 2-28).

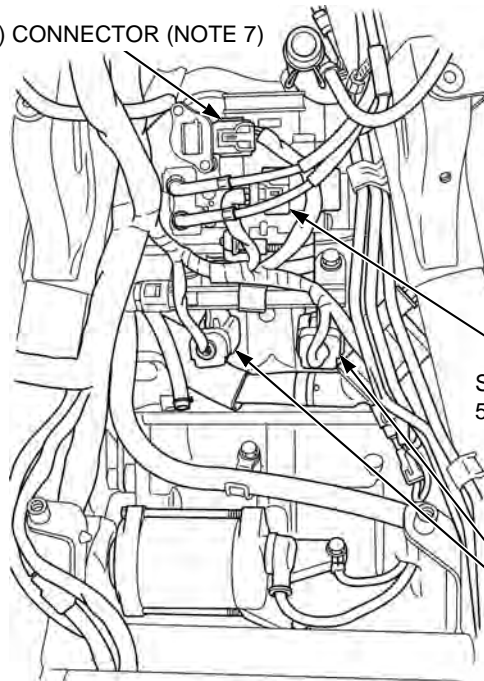


PGM-FI SYSTEM

NOTE 7: Remove the air cleaner housing (page 7-14).



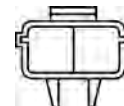
IACV
4P (BLACK) CONNECTOR (NOTE 7)



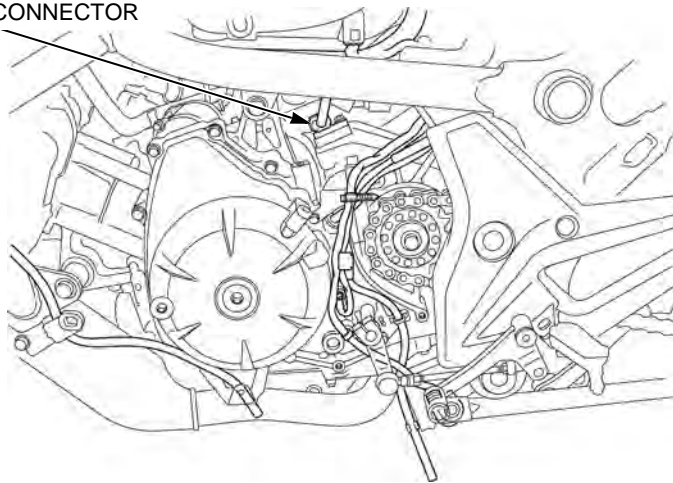
SENSOR UNIT
5P (BLACK) CONNECTOR (NOTE 7)



INJECTOR
2P (GRAY) CONNECTOR

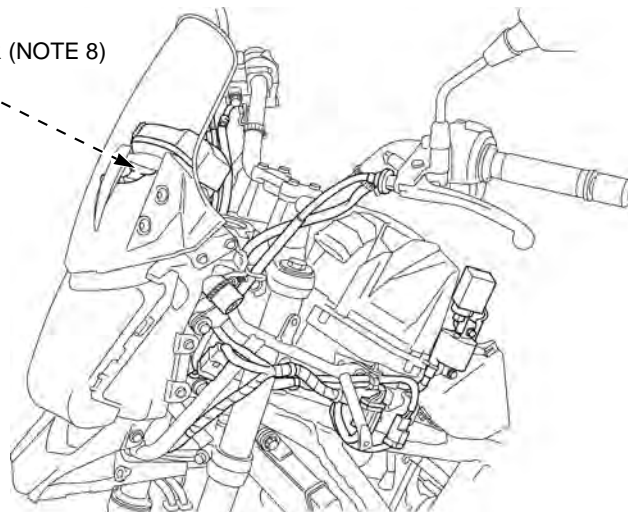
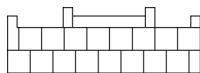


VS SENSOR
3P (BLACK) CONNECTOR



NOTE 8: Remove the windscreen (page 2-23).

COMBINATION METER
16P (GRAY) CONNECTOR (NOTE 8)



PGM-FI TROUBLESHOOTING INFORMATION

GENERAL TROUBLESHOOTING

Intermittent Failure

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the MIL does not come on, check for poor contact or loose pins at all connectors related to the circuit that of the troubleshooting. If the MIL was on, but then went out, the original problem may be intermittent.

Opens and Shorts

"Opens" and "Shorts" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something will not work at all. With ECM/PCMs this can something mean something work, but not the way it's supposed to.

If the MIL has come on

Refer to DTC READOUT (page 4-12).

If the MIL did not stay on

If the MIL did not stay on, but there is a driveability problem, do the SYMPTOM TROUBLESHOOTING (page 4-7).

SYSTEM DESCRIPTION

SELF-DIAGNOSIS SYSTEM

The PGM-FI system is equipped with the self-diagnostic system. When any abnormality occurs in the system, the ECM/PCM turns on the MIL and stores a DTC in its erasable memory.

FAIL-SAFE FUNCTION

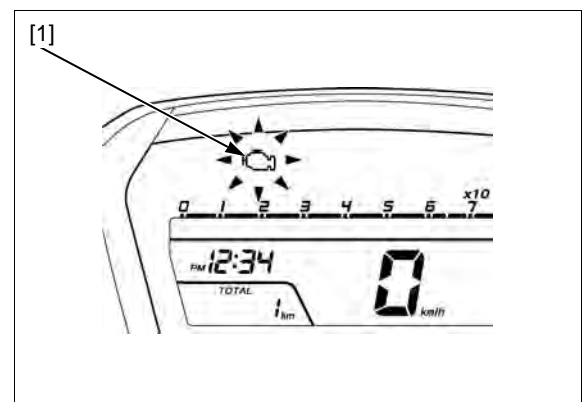
The PGM-FI system is provided with a fail-safe function to secure a minimum running capability even when there is trouble in the system. When any abnormality is detected by the self-diagnosis function, running capability is maintained by pre-programed value in the simulated program map. When any abnormality is detected in the injector, the fail-safe function stops the engine to protect it from damage.

DTC

- The DTC is composed of a main code and a sub code and it is displayed as a hyphenated number when retrieved from the ECM/PCM with the HDS pocket tester.
 - The digits in front of the hyphen are the main code, they indicate the component of function failure.
 - The digits behind the hyphen are the sub code, they detail the specific symptom of the component or function failure.
 For example, in the case of the TP sensor:
 - DTC 08 – 1 = (TP sensor voltage) – (lower than the specified value)
 - DTC 08 – 2 = (TP sensor voltage) – (higher than the specified value)
- The MAP, ECT, TP and IAT sensor diagnosis will be made according to the voltage output of the affected sensor. If a failure occurs, the ECM/PCM determines the Function Failure, compares the sensor voltage output to the standard value, and then outputs the corresponding DTC to the HDS pocket tester.
 - For example:
 - If the input voltage line (A) on the MAP sensor is opened, the ECM/PCM detects the output voltage is about 5 V, then the DTC 1-2 (MAP sensor circuit high voltage) will be displayed.
 - If the input voltage line (B) on the TP sensor is opened, the ECM/PCM detects the output voltage is 0 V, then the DTC 8-1 (TP sensor circuit low voltage) will be displayed.

MIL Blink Pattern

- If the HDS pocket tester is not available, DTC can be read from the ECM/PCM memory by the MIL [1] blink pattern.
- The number of MIL blinks is the equivalent of the DTC (the sub code cannot be displayed by the MIL).
- The MIL will blink the current DTC, in case the ECM/PCM detects the problem at present, when the ignition switch ON and engine stop switch "O" or idling with the sidestand down. The MIL will stay ON when the engine speed is over 1,850 min⁻¹ (rpm) or with the sidestand up.
- The MIL has two types of blinks, a long blink and short blink. The long blinking lasts for 1.3 seconds, the short blinking lasts for 0.3 seconds. One long blink is the equivalent of ten short blinks. For example, when two long blinks are followed by five short blinks, the MIL is 25 (two long blinks = 20 blinks, plus five short blinks).
- When the ECM/PCM stores more than one DTC, the MIL will indicate them by blinking in the order from the lowest number to highest number.



MIL Check

When the ignition switch is turned ON and engine stop switch "O" the MIL will stay on for a few seconds, then go off. If the MIL does not come on, troubleshoot the MIL circuit (page 4-63).

PGM-FI SYSTEM

CURRENT DTC/FREEZE DTC

The DTC is indicated in two ways according to the failure status.

- In case the ECM/PCM detects the problem at present, the MIL will come on and the MIL will start to blink as its DTC when the sidestand is lowered. It is possible to readout the MIL blink pattern as the current DTC.
- In case the ECM/PCM does not detect any problem at present but has a problem stored in its memory, the MIL will not light and blink. If it is necessary to retrieve the past problem, readout the freeze DTC by following the DTC readout procedure (page 4-12).

HDS POCKET TESTER INFORMATION

- The HDS pocket tester can readout the DTC, freeze data, current data and other ECM/PCM condition.

How to connect the HDS pocket tester

Turn the ignition switch OFF.

Remove the maintenance lid (page 21-6).

Remove the DLC [1] from the battery box.

Connect the HDS pocket tester to the DLC.

Turn the ignition switch ON and engine stop switch "O" check the DTC and freeze data.

NOTE:

Freeze data indicates the engine conditions when the first malfunction was detected.



ECM/PCM reset

The HDS pocket tester can reset the ECM/PCM data including the DTC, freeze data and some learning memory.

After the ECM/PCM reset, perform the TP sensor reset procedure (page 7-19).

DTC READOUT

Start the engine and check the MIL [1].

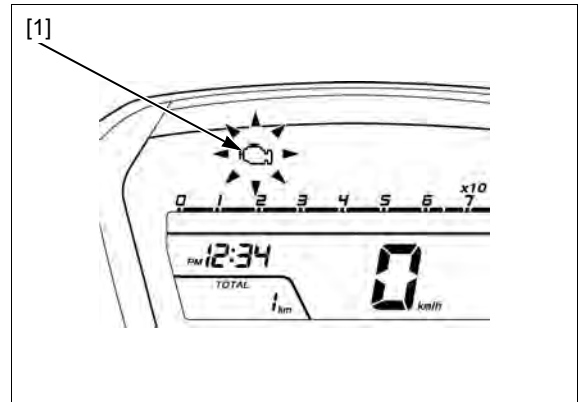
NOTE:

When the ignition switch is turned ON and engine stop switch "O", the MIL will stay on for a few seconds, then go off.

If the MIL stays on or blinks, connect the HDS pocket tester to the DLC (page 4-12).

Read the DTC, freeze data and follow the troubleshooting index (page 4-15).

To read the DTC with the MIL blinking, refer to the following procedure.



Reading DTC with the MIL

Turn the ignition switch OFF.

Remove the maintenance lid (page 21-6).

Remove the DLC [1] from the battery box.

Short the DLC terminals using a special tool.

CONNECTION: Brown – Green

TOOL:

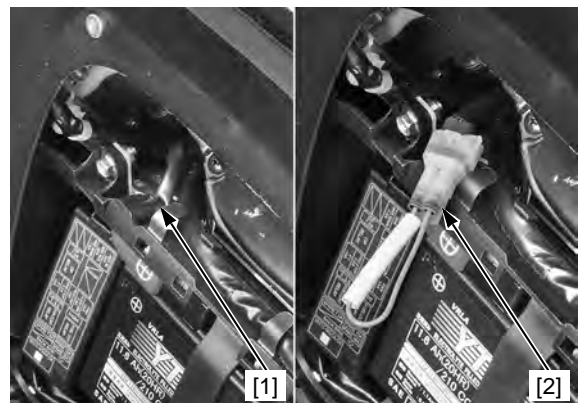
SCS connector [2]

070PZ-ZY30100

Turn the ignition switch ON and engine stop switch "O", read, note the MIL blinks and refer to the DTC index (page 4-15).

NOTE:

If the ECM/PCM has any DTC in its memory, the MIL will start blinking.



ERASING DTC

Connect the HDS pocket tester to the DLC (page 4-12).

Erase the DTC with the HDS pocket tester while the engine is stopped.

To erase the DTC without HDS pocket tester, refer to the following procedure.

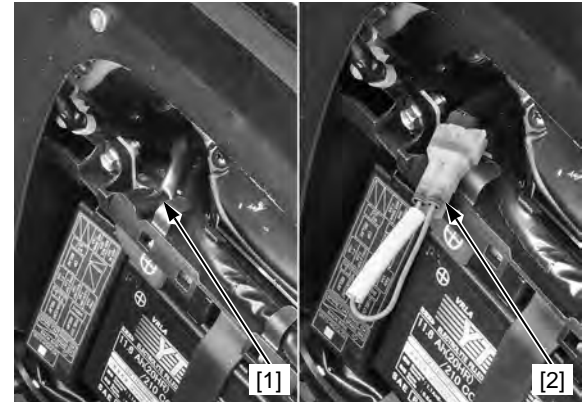
How to erase the DTC with SCS connector

1. Turn the ignition switch OFF.
2. Remove the DLC [1] from the battery box.
Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:
SCS connector [2] 070PZ-ZY30100

3. Turn the ignition switch ON and engine stop switch "O".
4. Remove the special tool from the DLC.
5. The MIL will light for approximately 5 seconds. While the MIL lights, short the DLC terminals again with a special tool. The self-diagnostic memory is erased if the MIL goes off and starts blinking.



NOTE:

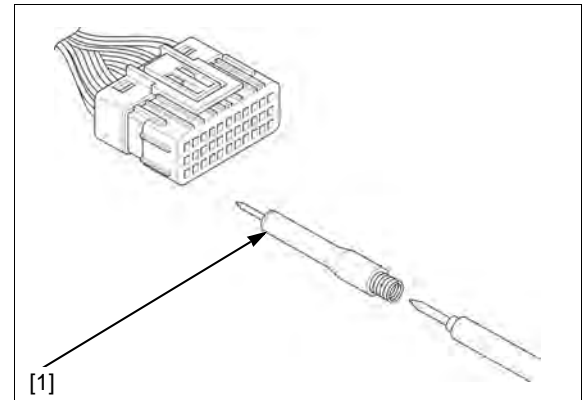
- The DLC must be jumped while the MIL lights. If not, the MIL will not start blinking.
- Note that the self-diagnostic memory cannot be erased if the ignition switch is turned OFF before the MIL starts blinking.

CIRCUIT INSPECTION

INSPECTION AT ECM/PCM CONNECTOR

- Always clean around and keep any foreign material away from the ECM/PCM 33P connector(s) before disconnecting it.
- A faulty PGM-FI system is often related to poorly connected or corroded terminals. Check those connections before proceeding.
- In testing at ECM/PCM 33P connector(s) (wire harness side) terminal, always use the test probe [1]. Insert the test probe into the connector terminal, then attach the digital multimeter probe to the test probe.

TOOL:
Test probe 07ZAJ-RDJA110



TEST HARNESS CONNECTION (NC700X/XA/S/SA)

Remove the shroud/side cover (NC700X/XA) (page 2-14).

Remove the side cowl (NC700S/SA) (page 2-13).

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector [1].



PGM-FI SYSTEM

Connect the ECM test harness [1] between the main wire harness [2] and ECM [3].

TOOL:
ECM test harness 33P 070MZ-MCA0100

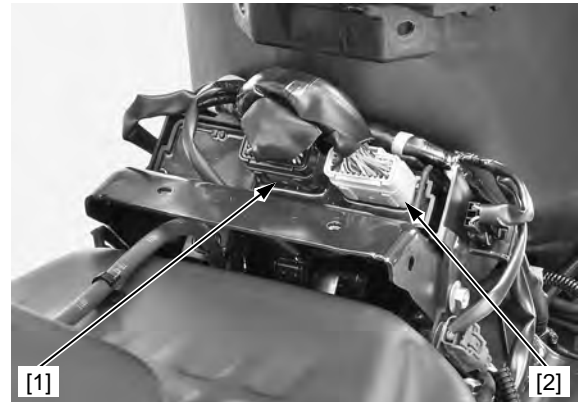


TEST HARNESS CONNECTION (NC700XD/SD)

Remove the luggage box lid/hinge assembly (page 2-19).

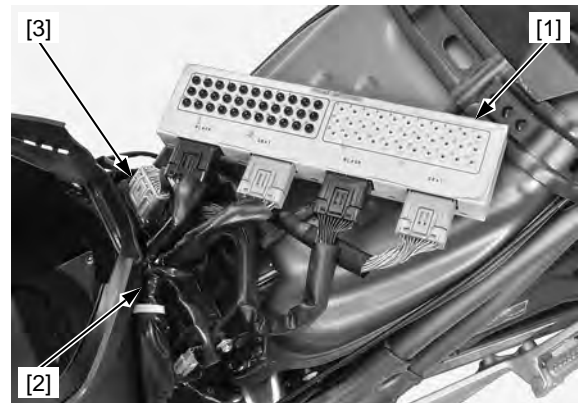
Turn the ignition switch OFF.

Disconnect the PCM 33P (Black) connector [1] and PCM 33P (Gray) connector [2].



Connect the ECM test harness [1] between the main wire harness [2] and PCM [3].

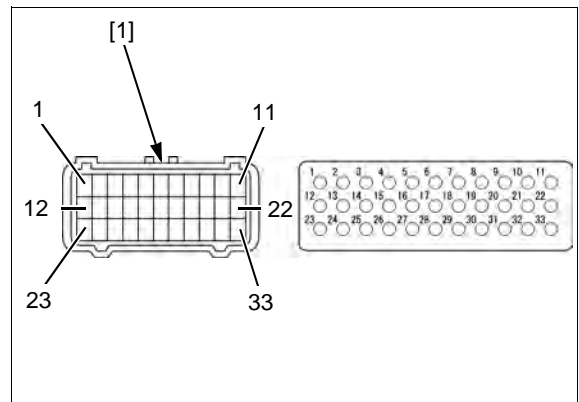
TOOL:
ECM test harness 33P 070MZ-MCA0100



TEST HARNESS TERMINAL LAYOUT

The ECM/PCM 33P connector [1] terminals are numbered as shown in this illustration.

The ECM test harness terminals are same layout as for the ECM/PCM 33P connector terminals as shown.



DTC INDEX

DTC (MIL blinks)	Function Failure	Symptom/Fail-safe function	Refer to (DTC)	Refer to (MIL)
1-1 (1)	MAP sensor circuit low voltage (less than 0.029 V) • MAP sensor or its circuit malfunction	• Engine operates normally • Pre-program value: 225 mmHg/30 kPa	4-21	4-43
1-2 (1)	MAP sensor circuit high voltage (more than 3.809 V) • Loose or poor contact of the sensor unit connector • MAP sensor or its circuit malfunction	• Engine operates normally • Pre-program value: 225 mmHg/30 kPa	4-22	
7-1 (7)	ECT sensor circuit low voltage (less than 0.049 V) • ECT sensor or its circuit malfunction	• Hard start at a low temperature • Pre-program value: 110°C/230°F • Cooling fan turns on	4-23	4-45
7-2 (7)	ECT sensor circuit high voltage (more than 4.946 V) • Loose or poor contact of the ECT sensor connector • ECT sensor or its circuit malfunction	• Hard start at a low temperature • Pre-program value: 110°C/230°F • Cooling fan turns on	4-24	
8-1 (8)	TP sensor circuit low voltage (less than 0.122 V) • Loose or poor contact of the sensor unit connector • TP sensor or its circuit malfunction	• Poor engine acceleration • Pre-program value: 0°	4-26	4-47
8-2 (8)	TP sensor circuit high voltage (more than 4.966 V) • TP sensor or its circuit malfunction	• Poor engine acceleration • Pre-program value: 0°	4-27	
9-1 (9)	IAT sensor circuit low voltage (less than 0.049 V) • IAT sensor or its circuit malfunction	• Engine operates normally • Pre-program value: 35°C/95°F	4-28	4-48
9-2 (9)	IAT sensor circuit high voltage (more than 4.946 V) • Loose or poor contact of the IAT sensor connector • IAT sensor or its circuit malfunction	• Engine operates normally • Pre-program value: 35°C/95°F	4-29	
11-1 (11)	VS sensor no signal • Loose or poor contact of the VS sensor connector • Open or short circuit in the VS sensor wire • Faulty VS sensor	• Engine operates normally	4-30	NC700X/XA/S/SA: 4-50 NC700XD/SD: 4-51
12-1 (12)	No.1 Injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	4-32	4-53
13-1 (13)	No.2 Injector circuit malfunction • Loose or poor contact of the injector connector • Injector or its circuit malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	4-33	4-54
21-1 (21)	O ₂ sensor malfunction • Loose or poor contact of the O ₂ sensor connector • O ₂ sensor or its circuit malfunction	• Engine operates normally	4-34	4-54
29-1 (29)	IACV circuit malfunction • Loose or poor contact of the IACV connector • IACV or its circuit malfunction	• Engine stalls, hard to start, rough idling	4-35	4-56
33-2 (-)	ECM/PCM EEPROM malfunction	• Engine operates normally	4-37	-

PGM-FI SYSTEM

DTC (MIL blinks)	Function Failure	Symptom/Fail-safe function	Refer to (DTC)	Refer to (MIL)
54-1 (54)	Bank angle sensor circuit low voltage (less than 0.020 V) <ul style="list-style-type: none">Bank angle sensor or its circuit malfunction	<ul style="list-style-type: none">Engine operates normallyEngine stop function does not operate	4-37	4-58
54-2 (54)	Bank angle sensor circuit high voltage (more than 4.986 V) <ul style="list-style-type: none">Loose or poor contact of the bank angle sensor connectorBank angle sensor or its circuit malfunction	<ul style="list-style-type: none">Engine operates normallyEngine stop function does not operate	4-38	
84-1 (84)	CPC in the PCM malfunction <ul style="list-style-type: none">Faulty PCM	<ul style="list-style-type: none">Gearshift system stops	4-40	4-59
86-1 (86)	Meter communication malfunction <ul style="list-style-type: none">Open or short circuit in the TXD/RXD wireFaulty combination meter	<ul style="list-style-type: none">Engine operates normally	4-40	4-60
87-1 (87)	EOP switch high voltage (more than 1.001 V) <ul style="list-style-type: none">Loose or poor contact of the EOP switch connectorOpen circuit in the EOP switch wireEOP switch or its circuit malfunction	<ul style="list-style-type: none">Engine operates normallyOil pressure indicator stays on	4-42	4-62

SENSOR UNIT POWER LINE INSPECTION

BEFORE DTC TROUBLESHOOTING

NOTE:

- When the DTC displays 1-1, 1-2, 8-1 and 8-2, check the following before DTC troubleshooting.
- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and ECM 33P (Black) connector.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and PCM 33P connectors.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Sensor Unit Power Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the wire harness side.

Connection:

NC700X/XA/S/SA:

Yellow/red (+) – Green/yellow (-)

NC700XD/SD:

Yellow/violet (+) – Green/yellow (-)

Standard: 4.75 – 5.25 V

If the voltage within 4.75 – 5.25 V?

YES – Turn the ignition switch OFF. Connect the sensor unit 5P (Black) connector and start the DTC troubleshooting (page 4-21).

NO – GO TO STEP 2.

2. Sensor Unit Input Voltage Line Short Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the sensor unit 5P (Black) connector [1] of the wire harness side and ground.

Connection:

NC700X/XA/S/SA:

Yellow/red – Ground

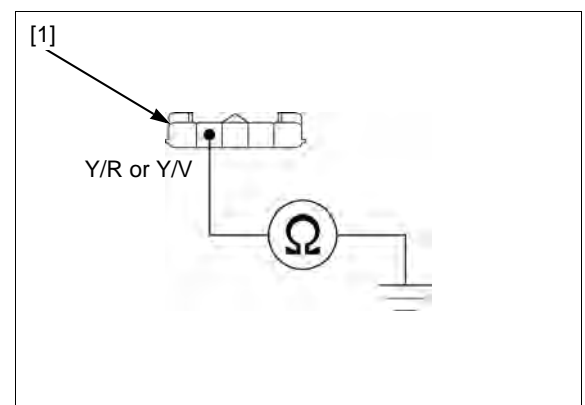
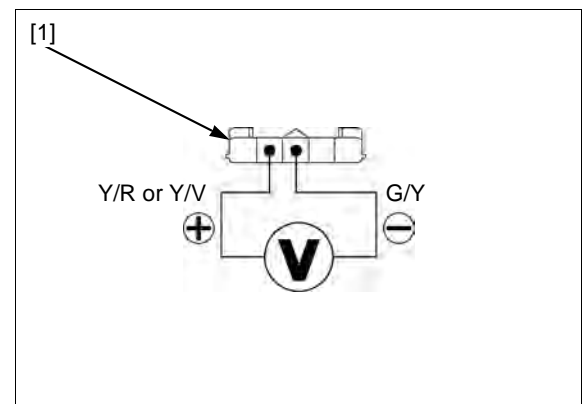
NC700XD/SD:

Yellow/violet – Ground

Is there continuity?

YES – • Short circuit in the Yellow/red wire
• Short circuit in the Yellow/violet wire

NO – GO TO STEP 3.



3. Sensor Unit Power Line Open Circuit Inspection

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Black) connector (NC700XD/SD) [2]
- PCM 33P (Gray) connector (NC700XD/SD) [3]

Check for continuities between the sensor unit 5P (Black) connector [4] and ECM/PCM 33P connector.

Connection:

NC700X/XA/S/SA:

Yellow/red – Yellow/red

Green/yellow – Green/yellow

NC700XD/SD:

Yellow/violet – Yellow/violet

Green/yellow – Green/yellow

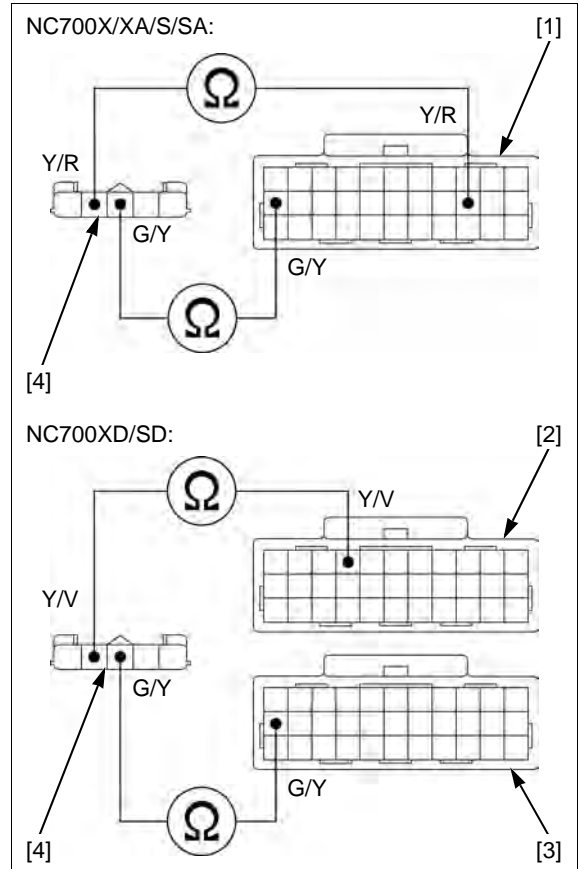
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

- NO**
- • Open circuit in the Yellow/red wire
 - • Open circuit in the Yellow/violet wire
 - • Open circuit in the Green/yellow wire



BEFORE MIL TROUBLESHOOTING

NOTE:

- When the MIL blinks 1 and 8 times, check the following before MIL troubleshooting.
- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and ECM 33P (Black) connector.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and PCM 33P connectors.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Sensor Unit Power Input Voltage Inspection 1

Turn the ignition switch OFF.

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the ECM test harness terminals.

Connection:

NC700X/XA/S/SA:

14 (+) – 22 (-)

NC700XD/SD:

A8 (+) – B22 (-)

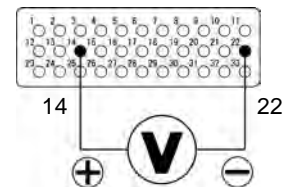
Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

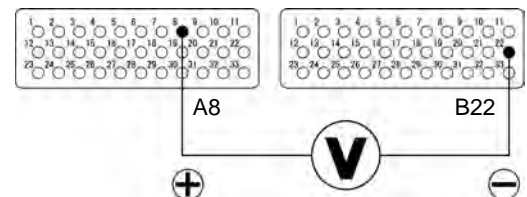
YES – GO TO STEP 2.

NO – GO TO STEP 3.

NC700X/XA/S/SA:



NC700XD/SD:



2. Sensor Unit Power Input Voltage Inspection 2

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the wire harness side.

Connection:

NC700X/XA/S/SA:

Yellow/red (+) – Green/yellow (-)

NC700XD/SD:

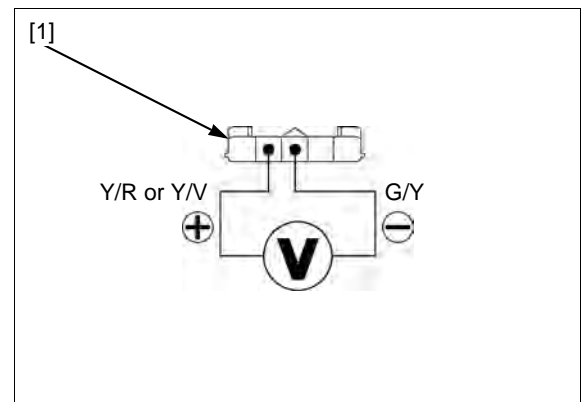
Yellow/violet (+) – Green/yellow (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – Turn the ignition switch OFF. Connect the sensor unit 5P (Black) connector and start the MIL troubleshooting (page 4-43).

NO – GO TO STEP 4.



3. Sensor Unit Input Voltage Line Short Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the sensor unit 5P (Black) connector [1] of the wire harness side and ground.

Connection:

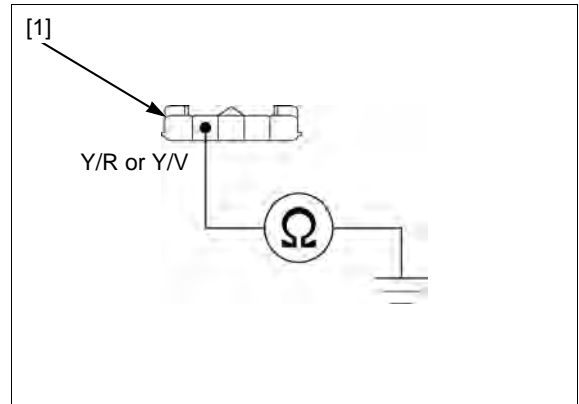
NC700X/XA/S/SA:
Yellow/red – Ground

NC700XD/SD:
Yellow/violet – Ground

Is there continuity?

- YES** –
- Short circuit in the Yellow/red wire
 - Short circuit in the Yellow/violet wire

NO – Replace the ECM/PCM with a known good one, and recheck.



4. Sensor Unit Input Voltage Line Open Circuit Inspection

Check for continuities between the ECM test harness [1] and sensor unit 5P (Black) connector [2] of the wire harness side.

Connection:

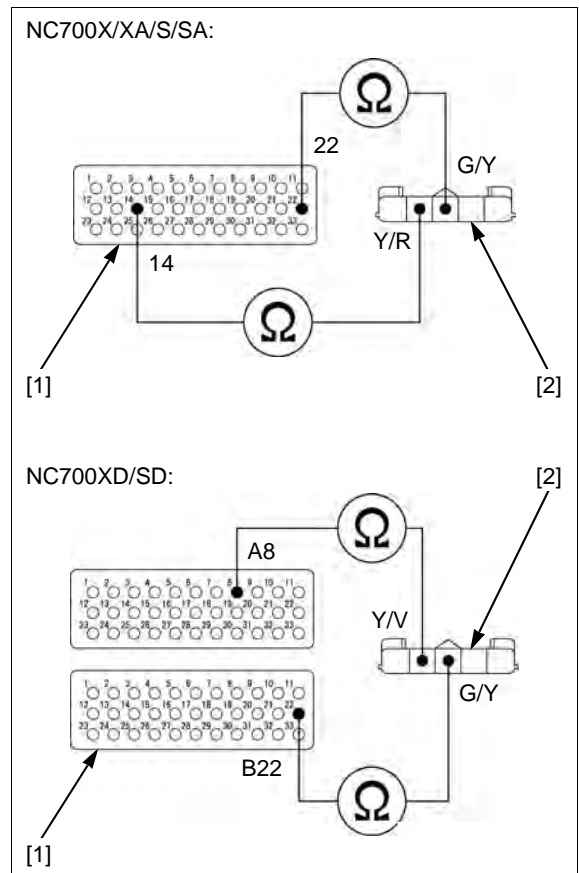
NC700X/XA/S/SA:
14 – Yellow/red
22 – Green/yellow

NC700XD/SD:
A8 – Yellow/violet
B22 – Green/yellow

Is there continuity?

YES – Intermittent failure

- NO** –
- Open circuit in the Yellow/red wire
 - Open circuit in the Yellow/violet wire
 - Open circuit in the Green/yellow wire



DTC TROUBLESHOOTING

DTC 1-1 (MAP SENSOR LOW VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. MAP Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the MAP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Sensor Unit Power Line Inspection

Check the sensor unit power line inspection (page 4-17).

Is the sensor unit power line normal?

YES – GO TO STEP 3.

NO – Replace or repair the abnormal circuit.

3. MAP Sensor Output Voltage Inspection

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the sensor unit 5P (Black) connector of the wire harness side.

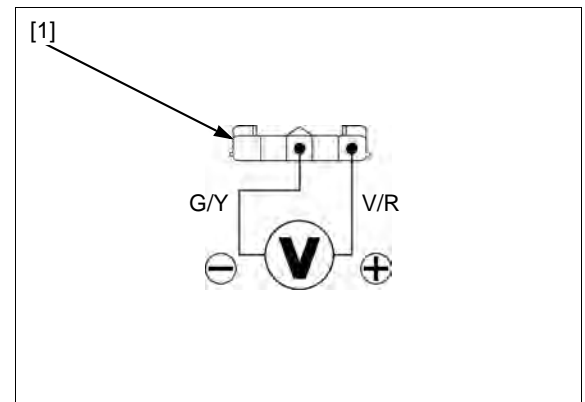
Connection: Violet/red (+) – Green/yellow (–)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 5.

NO – GO TO STEP 4.



4. MAP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

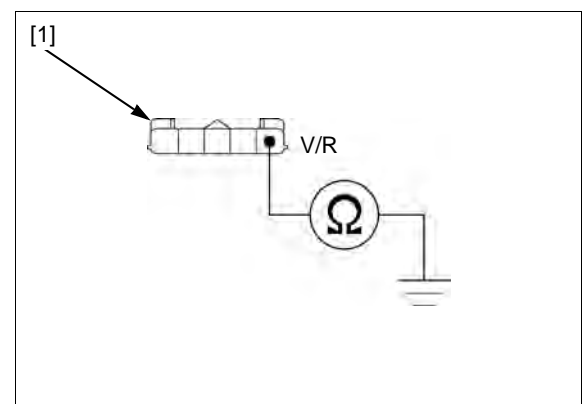
Check for continuity between the sensor unit 5P (Black) connector [1] of the wire harness side and ground.

Connection: Violet/red – ground

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – GO TO STEP 5.



5. MAP Sensor Inspection

Replace the sensor unit with a known good one (page 7-15).

Turn the ignition switch OFF.

Connect the sensor unit 5P (Black) connector.

Erase the DTCs (page 4-13).

Turn the ignition switch ON.

Check the MAP sensor with the HDS pocket tester.

Is DTC 1-1 indicated?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original sensor unit (MAP sensor)

DTC 1-2 (MAP SENSOR HIGH VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. MAP Sensor System Inspection 1

Turn the ignition switch ON and engine stop switch "O".

Check the MAP sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – • Intermittent failure
• Loose or poor contact on the sensor unit 5P (Black) connector

2. Sensor Unit Power Line Inspection

Check the sensor unit power line inspection (page 4-17).

Is the sensor unit power line normal?

YES – GO TO STEP 3.

NO – Replace or repair the abnormal circuit.

3. MAP Sensor System Inspection 2

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

Connect the sensor unit 5P (Black) connector terminals at the wire harness side with a jumper wire [2].

Connection: Violet/red – Green/yellow

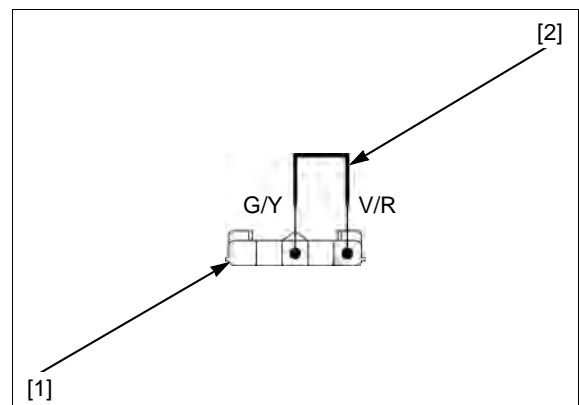
Turn the ignition switch ON.

Check the MAP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Faulty sensor unit (MAP sensor)

NO – GO TO STEP 4.



4. MAP Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Remove the jumper wire.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector and sensor unit 5P (Black) connector [2] of the wire harness side.

Connection: Violet/red – Violet/red

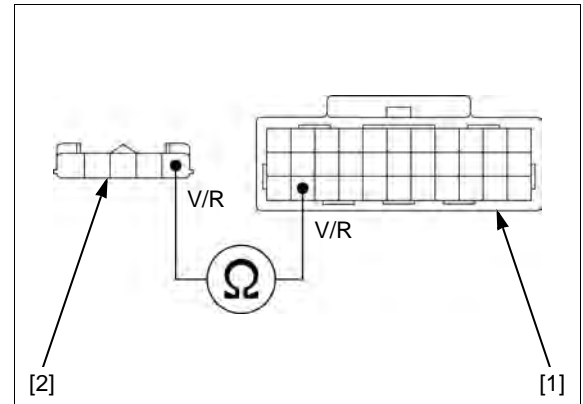
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Open circuit in the Violet/red wire



DTC 7-1 (ECT SENSOR LOW VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. ECT Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the ECT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ECT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the ECT sensor 2P connector.

Turn the ignition switch ON.

Check the ECT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 4.

NO – GO TO STEP 3.

3. ECT Sensor Resistance Inspection

Turn the ignition switch OFF.

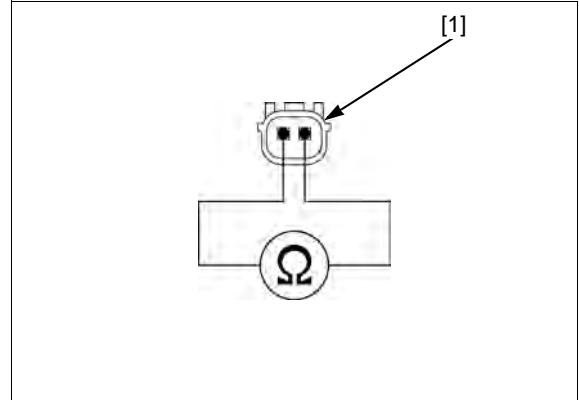
Measure the resistance at the ECT sensor [1] terminals.

Standard: 1.0 – 1.3 k Ω (40°C/104°F)

Is the resistance within 1.0 – 1.3 k Ω (40°C/104°F)?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty ECT sensor



4. ECT Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

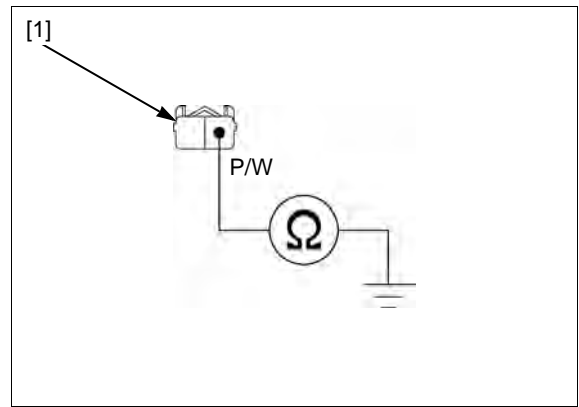
Check for continuity between the ECT sensor 2P connector [1] of the wire harness side and ground.

Connection: Pink/white – Ground

Is there continuity?

YES – Short circuit in the Pink/white wire

NO – Replace the ECM/PCM with a known good one, and recheck.



DTC 7-2 (ECT SENSOR HIGH VOLTAGE)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the ECT sensor 2P connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the ECT sensor 2P connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. ECT Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the ECT sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ECT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the ECT sensor 2P connector [1].

Connect the ECT sensor 2P connector terminals at the wire harness side with a jumper wire [2].

Connection: Pink/white – Green/yellow

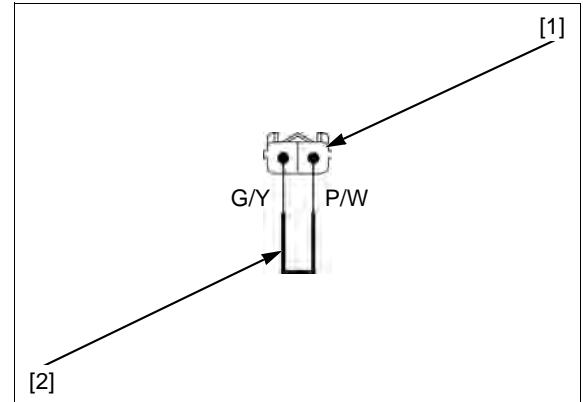
Turn the ignition switch ON.

Check the ECT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Inspect the ECT sensor (page 22-19).

NO – GO TO STEP 3.



3. ECT Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Remove the jumper wire.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuities between the ECM/PCM 33P connector and ECT sensor 2P connector [2] of the wire harness side.

Connection: Pink/white – Pink/white
Green/yellow – Green/yellow

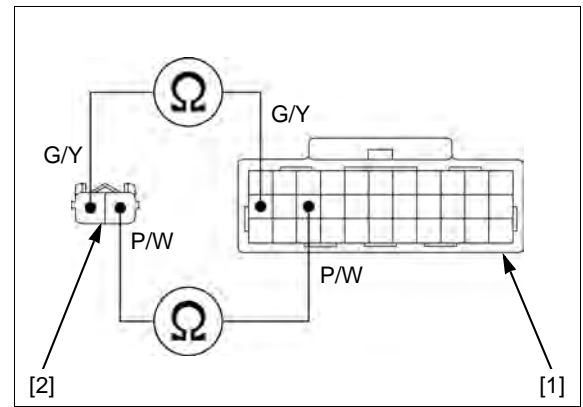
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

- NO** –
- Open circuit in the Pink/white wire
 - Open circuit in the Green/yellow wire



DTC 8-1 (TP SENSOR LOW VOLTAGE)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the sensor unit 5P (Black) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. TP Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the TP sensor with the HDS pocket tester with the throttle fully closed.

Is about 0 V indicated?

YES – Intermittent failure

NO – GO TO STEP 2.

2. Sensor Unit Power Line Inspection

Check the sensor unit power line inspection (page 4-17).

Is the sensor unit power line normal?

YES – GO TO STEP 3.

NO – Replace or repair the abnormal circuit.

3. TP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

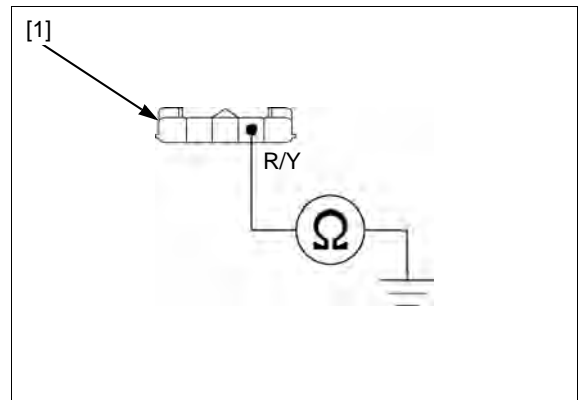
Check for continuity between the sensor unit 5P (Black) connector of the wire harness side and ground.

Connection: Red/yellow – Ground

Is there continuity?

YES – Short circuit in the Red/yellow wire

NO – GO TO STEP 4.



4. TP Sensor Output Line Open Circuit Inspection

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector and sensor unit 5P (Black) connector [2] of the wire harness side.

Connection: Red/yellow – Red/yellow

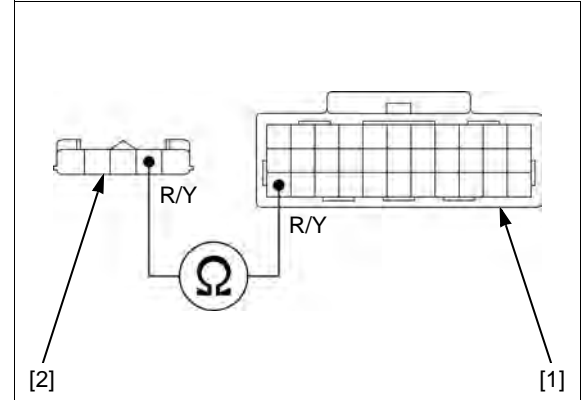
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Red/yellow wire



5. TP Sensor Inspection

Replace the sensor unit with a known good one (page 7-15).

Connect the following:

- Sensor unit 5P connector
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Erase the DTCs (page 4-13).

Turn the ignition switch ON.

Check the TP sensor with the HDS pocket tester.

Is DTC 8-1 indicated?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original sensor unit (TP sensor)

DTC 8-2 (TP SENSOR HIGH VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. TP Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the TP sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 3.

NO – GO TO STEP 2.

2. TP Sensor Inspection

Check that the TP sensor voltage increases continuously when moving the throttle from fully closed to fully opened using the data list menu of the HDS pocket tester.

Is the voltage increase continuously?

YES – Intermittent failure

NO – Replace the TP sensor (sensor unit) with a known good one, and recheck.

3. TP Sensor Resistance Inspection

Turn the ignition switch OFF.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

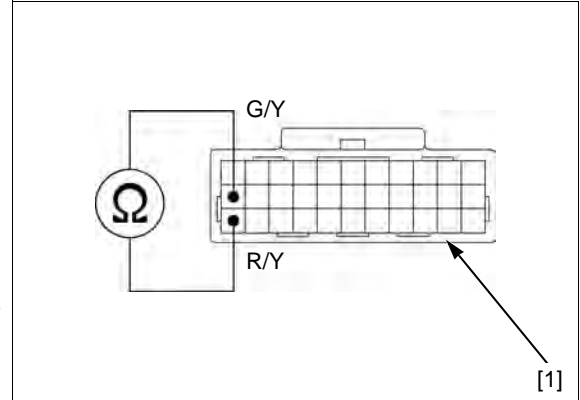
Measure the resistance at the ECM/PCM 33P connector of the wire harness side.

Connection: Red/yellow – Green/yellow
Standard: 0.29 – 0.71 Ω (20°C/68°F)

Is the resistance within 0.29 – 0.71 Ω (20°C/68°F)?

YES – GO TO STEP 4.

NO – Faulty sensor unit (TP sensor)



4. TP Sensor Power Input Voltage Inspection

Connect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Disconnect the sensor unit 5P (Black) connector [1].

Turn the ignition switch ON.

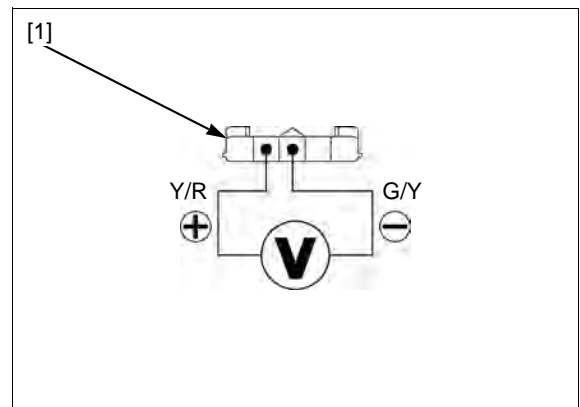
Measure the voltage at the sensor unit 5P (Black) connector of the wire harness side.

Connection: Yellow/red (+) – Green/yellow (-)
Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – Replace the ECM/PCM with a known good one, and recheck.

- NO** –
- Open circuit in the Green/yellow wire
 - Open circuit in the Yellow/red wire



DTC 9-1 (IAT SENSOR LOW VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. IAT Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the IAT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. IAT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the IAT sensor 2P (Black) connector.

Turn the ignition switch ON.

Check the IAT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Faulty IAT sensor

3. IAT Sensor Voltage Output Line Short Circuit Inspection

Turn the ignition switch OFF.

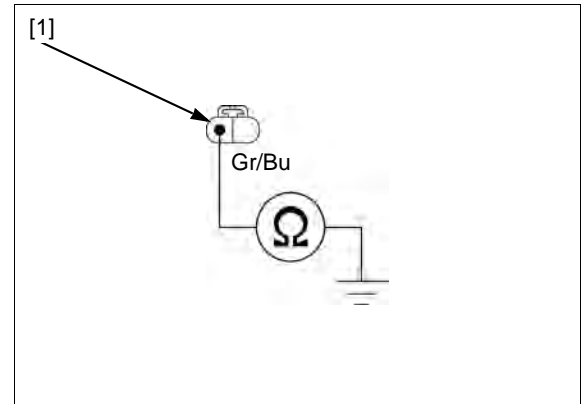
Check for continuity between the IAT sensor 2P (Black) connector [1] of the wire harness side and ground.

Connection: Gray/blue – Ground

Is there continuity?

YES – Short circuit in the Gray/blue wire

NO – Replace the ECM/PCM with a known good one, and recheck.



DTC 9-2 (IAT SENSOR HIGH VOLTAGE)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the IAT sensor 2P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the IAT sensor 2P (Black) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. IAT Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Check the IAT sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. IAT Sensor Inspection

Turn the ignition switch OFF.

Disconnect the IAT sensor 2P (Black) connector [1].

Connect the IAT sensor 2P (Black) connector terminals at the wire harness side with a jumper wire [2].

Connection: Gray/blue – Green/yellow

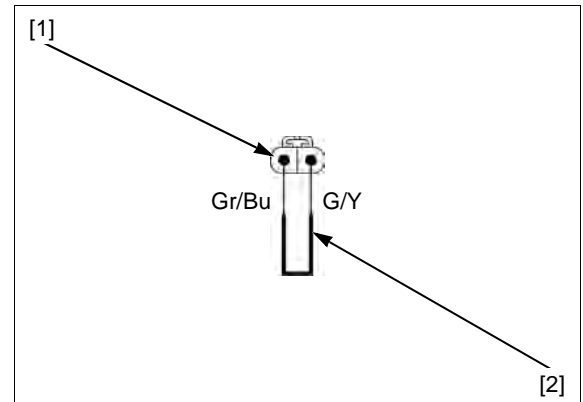
Turn the ignition switch ON.

Check the IAT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Faulty IAT sensor

NO – GO TO STEP 3.



3. IAT Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector and IAT sensor 2P (Black) connector [2] of the wire harness side.

Connection: Gray/blue – Gray/blue
Green/yellow – Green/yellow

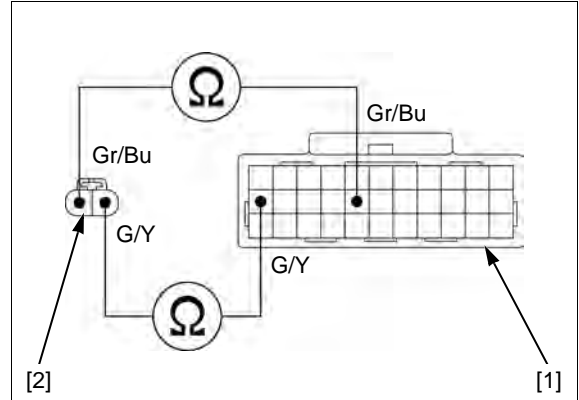
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

- NO** –
- Open circuit in the Gray/blue wire
 - Open circuit in the Green/yellow wire



DTC 11-1 (VS SENSOR)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) and combination meter 16P (Gray) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) and PCM 33P (Black) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. VS Sensor System Inspection

Erase the DTCs (page 4-13).

Test-ride the motorcycle above 2,000 min⁻¹ (rpm).

Stop the engine.

Turn the ignition switch ON and engine stop switch "O".

Check the VS sensor with the HDS pocket tester.

Is the DTC 11-1 indicated?

- YES** –
- NC700X/XA/S/SA: GO TO STEP 2.
 - NC700XD/SD: GO TO STEP 3.

NO – Intermittent failure

2. Speedometer Inspection

Check for operation of speedometer.

Does the speedometer operate normally?

YES – GO TO STEP 3.

NO – Inspect the speedometer (page 22-8).

3. VS Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the VS sensor 3P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the VS sensor 3P (Black) connector of the wire harness side.

Connection: Pink/blue (+) – Green/red (-)

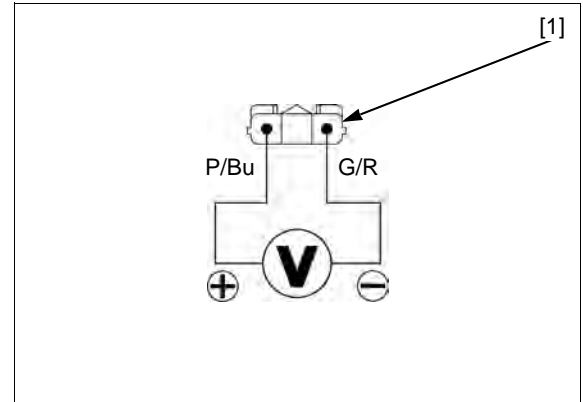
Standard: Battery voltage

Is there battery voltage?

YES – GO TO STEP 4.

NO –

- Open circuit in the Pink/blue wire
- Open circuit in the Green/red wire



4. VS Sensor Signal Line Short Circuit Inspection

Turn the ignition switch OFF.

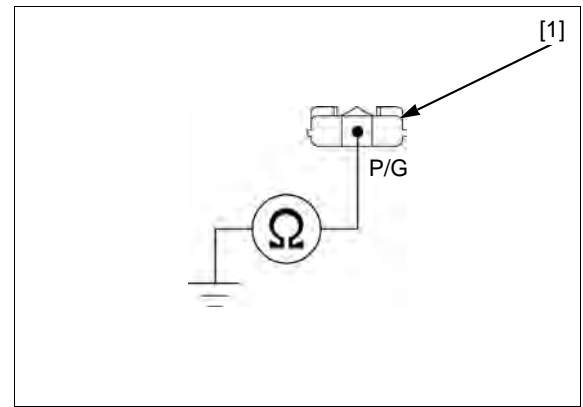
Check for continuity between the VS sensor 3P (Black) connector [1] of the wire harness side and ground.

Connection: Pink/green – Ground

Is there continuity?

YES – Short circuit in the Pink/green wire

NO – GO TO STEP 5.



5. VS Sensor Signal Line Open Circuit Inspection

NC700X/XA/S/SA:

Disconnect the combination meter 16P (Gray) connector [1].

Check for continuity between the VS sensor 3P (Black) connector [2] and combination meter 16P (Gray) connector of the wire harness side.

Connection: Pink/green – Pink/green

NC700XD/SD:

Disconnect the PCM 33P (Gray) connector [3].

Check for continuity between the VS sensor 3P (Black) connector [4] and PCM 33P (Gray) connector of the wire harness side.

Connection: Pink/green – Pink/green

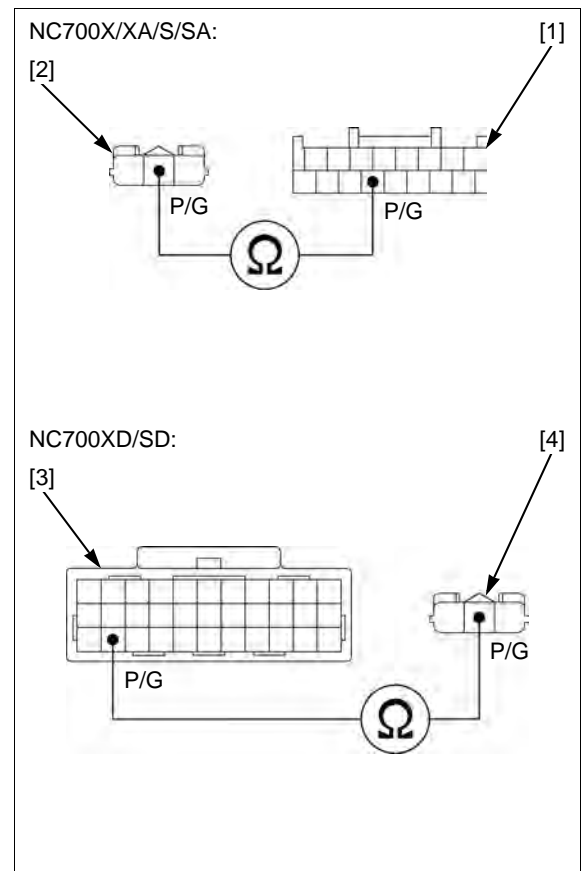
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Pink/green wire



6. VS Sensor Inspection

Replace the VS Sensor with a known good one (page 22-18).

Connect the following:

- Combination meter 16P (Gray) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Erase the DTCs (page 4-13).

Test-ride the motorcycle above 2,000 min⁻¹ (rpm).

Stop the engine.

Turn the ignition switch ON and engine stop switch "O".

Check the VS sensor with the HDS pocket tester.

Is the DTC 11-1 indicated?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original VS sensor

DTC 12-1 (No.1 INJECTOR)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the injector 2P (Gray) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the injector 2P (Gray) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Injector System Inspection

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the injector with the HDS pocket tester.

Is the DTC 12-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Injector Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the injector 2P (Gray) connector [1].

Turn the ignition switch ON.

Measure the voltage between the injector 2P (Gray) connector of the wire harness side and ground.

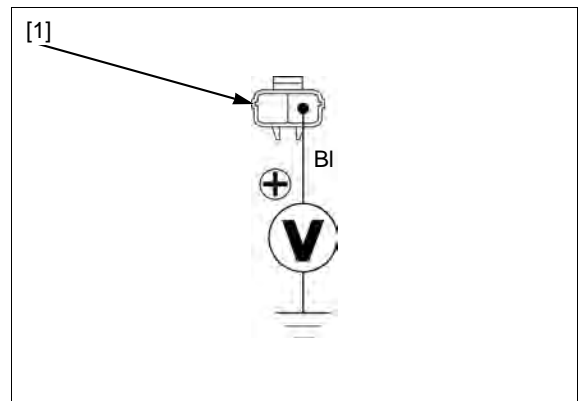
Connection: Black (+) – Ground (–)

Standard: Battery voltage

Does the standard voltage exist?

YES – GO TO STEP 3.

NO – Open or short circuit in the Black wire



3. Injector Signal Line Short Circuit Inspection

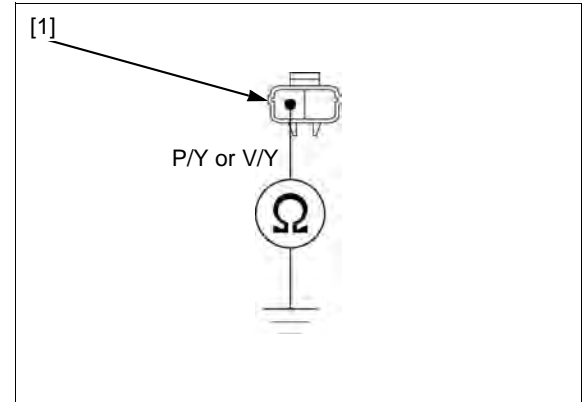
Turn the ignition switch OFF.

Check for continuity between the injector 2P (Gray) connector [1] of wire harness side and ground.

Connection: No.1: Pink/yellow – Ground
No.2: Violet/yellow – Ground

Is there continuity?

- YES** – • Short circuit in the Pink/yellow wire
 • Short circuit in the Violet/yellow wire
- NO** – GO TO STEP 4.



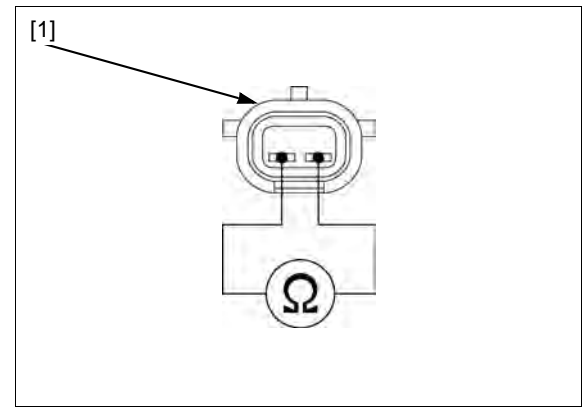
4. Injector Resistance Inspection

Measure the resistance between the injector 2P (Gray) connector [1] terminals.

Standard: 11 – 13 Ω (20°C/68°F)

Is the resistance within 11 – 13 Ω (20°C/68°F)?

- YES** – GO TO STEP 5.
- NO** – Faulty injector



5. Injector Signal Line Open Circuit Inspection

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector and injector 2P (Gray) connector [2] of the wire harness side.

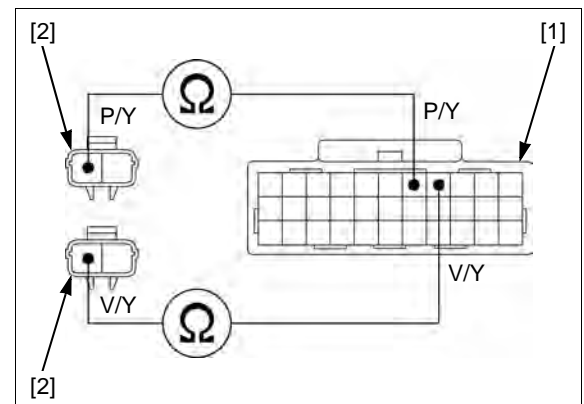
Connection: No.1: Pink/yellow – Pink/yellow
No.2: Violet/yellow – Violet/yellow

TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** – Replace the ECM/PCM with a known good one, and recheck.
- NO** – • Open circuit in the Pink/yellow wire
 • Open circuit in the Violet/yellow wire



DTC 13-1 (No.2 INJECTOR)

See page 4-32

DTC 21-1 (O₂ SENSOR)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the O₂ sensor 1P (Black) connector or O₂ sensor cap and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the O₂ sensor 1P (Black) connector or O₂ sensor cap and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. O₂ Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Start the engine and warm up the engine up to coolant temperature is 80°C (176°F).

Test-ride the motorcycle and check the O₂ sensor with the HDS pocket tester.

Is the DTC 21-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. O₂ Sensor Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the O₂ sensor 1P (Black) connector [1].

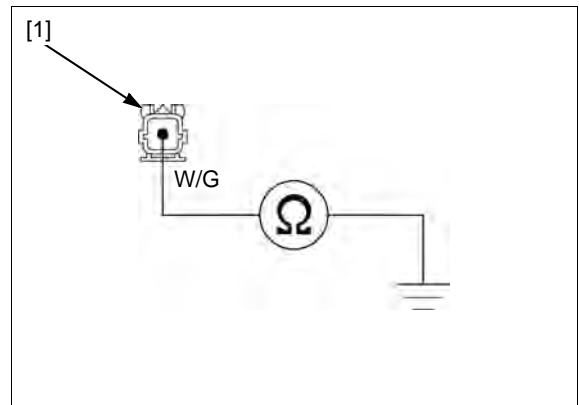
Check for continuity between the O₂ sensor 1P (Black) connector of the wire harness side and ground.

Connection: White/green – Ground

Is there continuity?

YES – Short circuit in the White/green wire

NO – GO TO STEP 3.



3. O₂ Sensor Line Open Circuit Inspection 1

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector and O₂ sensor 1P (Black) connector [2] of the wire harness side.

Connection: White/green – White/green

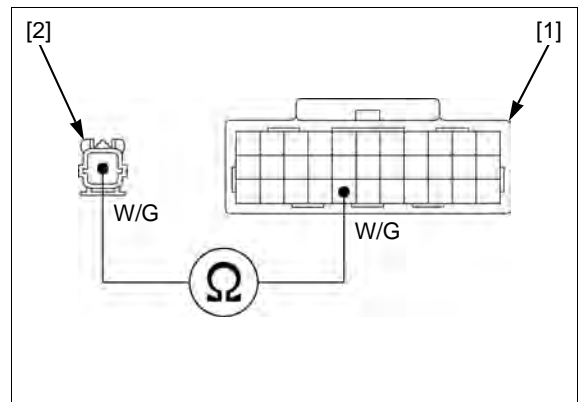
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the White/green wire



4. O₂ Sensor Line Open Circuit Inspection 2

Disconnect the O₂ sensor cap [1].

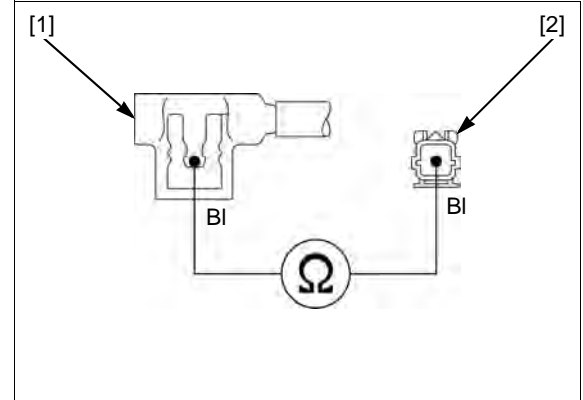
Check for continuity between the O₂ sensor cap and O₂ sensor 1P (Black) connector [2] of the sensor side.

Connection: Black – Black

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Black wire



5. O₂ Sensor Inspection

Replace the O₂ sensor with a known good one (page 4-69).

Connect the following:

- O₂ sensor 1P (Black) connector
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Erase the DTCs (page 4-13).

Start the engine and warm up the engine up to coolant temperature is 80°C (176°C).

Test-ride the motorcycle and recheck the O₂ sensor with the HDS pocket tester.

Is the DTC 21-1 indicated?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original O₂ sensor and/or O₂ sensor cord

DTC 29-1 (IACV)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the IACV 4P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the IACV 4P (Black) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Recheck DTC

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the IACV with the HDS pocket tester.

Is the DTC 29-1 indicated?

YES – GO TO STEP 2.

- NO** –
- Intermittent failure
 - Loose or poor contact on the IACV 4P (Black) connector

2. IACV Short Circuit Inspection

Turn the ignition switch OFF.

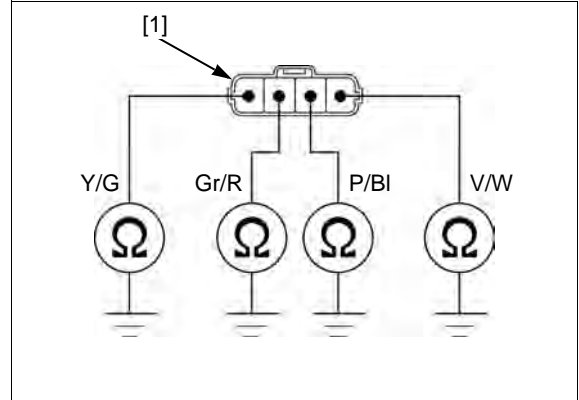
Disconnect the IACV 4P (Black) connector [1].

Check for continuities between the IACV 4P (Black) connector of the wire harness side and ground.

- Connection:** Yellow/green – Ground
 Gray/red – Ground
 Violet/white – Ground
 Pink/black – Ground

Is there continuity?

- YES** – • Short circuit in the Yellow/green or Gray/red wire
 • Short circuit in the Violet/white or Pink/black wire
- NO** – GO TO STEP 3.



3. IACV Open Circuit Inspection

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuities between the ECM/PCM 33P connector and IACV 4P (Black) connector [2] of the wire harness side.

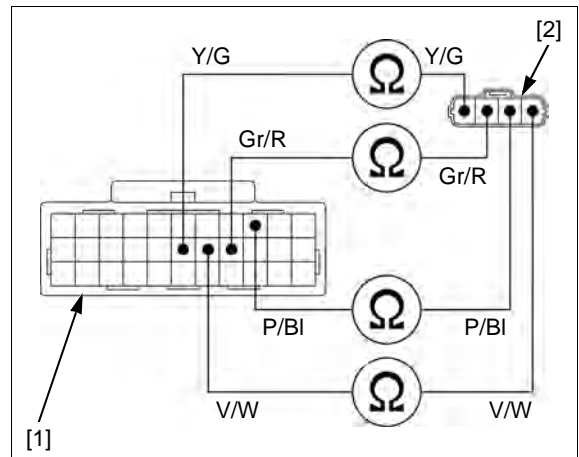
- Connection:** Yellow/green – Yellow/green
 Gray/red – Gray/red
 Violet/white – Violet/white
 Pink/black – Pink/black

TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** – GO TO STEP 4.
- NO** – • Open circuit in the Yellow/green or Gray/red wire
 • Open circuit in the Violet/white or Pink/black wire



4. IACV Resistance Inspection

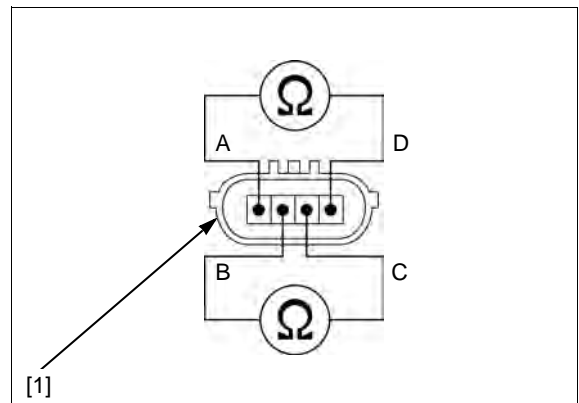
Measure the resistance at the IACV 4P (Black) connector [1] at the motor side.

- Connection:** A – D
 B – C

Standard: 110 – 150 Ω (25°C/77°F)

Is the resistance within 110 – 150 Ω (25°C/77°F)?

- YES** – Replace the ECM/PCM with a known good one, and recheck.
- NO** – Faulty IACV



DTC 33-2 (EEPROM)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Recheck DTC

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Recheck the ECM EEPROM.

Is the DTC 33-2 indicated?

- YES** – Replace the ECM/PCM with a known good one, and recheck.
- NO** – Intermittent failure

DTC 54-1 (BANK ANGLE SENSOR LOW VOLTAGE)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Recheck DTC

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the bank angle sensor with the HDS pocket tester.

Is about 0 V indicated?

- YES** – GO TO STEP 2.
- NO** – Intermittent failure

2. Bank Angle Sensor Power Input Line Short Circuit Inspection

Turn the ignition switch OFF.

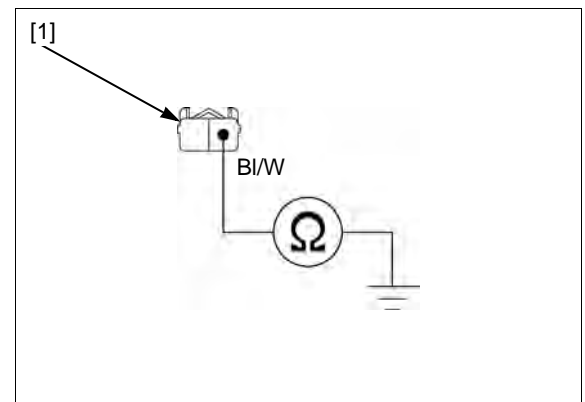
Disconnect the bank angle sensor 2P (Black) connector [1].

Check for continuity between the bank angle sensor 2P (Black) connector of the wire harness side and ground.

Connection: Black/white – Ground

Is there continuity?

- YES** – GO TO STEP 3.
- NO** – Short circuit in the Black/white wire



3. Bank Angle Sensor Output Line Short Circuit Inspection

Disconnect the following:

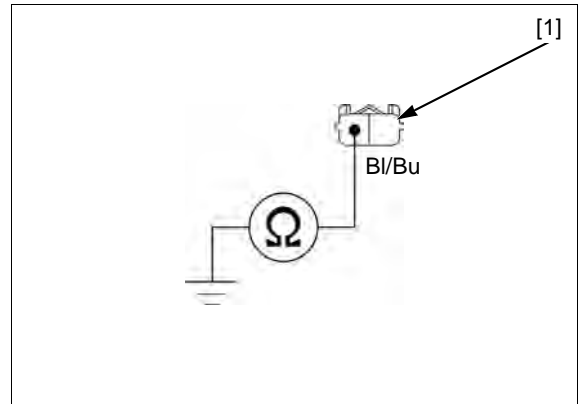
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Check for continuity between the bank angle sensor 2P (Black) connector [1] of the wire harness side and ground.

Connection: Black/blue – Ground

Is there continuity?

- YES** – Short circuit in the Black/blue wire
NO – GO TO STEP 4.



4. Bank Angle Sensor Inspection

Replace the bank angle sensor with a known good one (page 4-65).

Connect the following:

- Bank angle sensor 2P (Black) connector
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Erase the DTCs (page 4-13).

Turn the ignition switch ON.

Check the bank angle sensor with the HDS pocket tester.

Is DTC 54-1 indicated?

- YES** – Replace the ECM/PCM with a known good one, and recheck.
NO – Faulty original bank angle sensor

DTC 54-2 (BANK ANGLE SENSOR HIGH VOLTAGE)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the bank angle sensor 2P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the bank angle sensor 2P (Black) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Recheck DTC

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the bank angle sensor with the HDS pocket tester.

Is about 5 V indicated?

- YES** – GO TO STEP 2.
NO – Intermittent failure

2. Bank Angle Sensor Power Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the bank angle sensor 2P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the bank angle sensor connector of the wire harness side and ground.

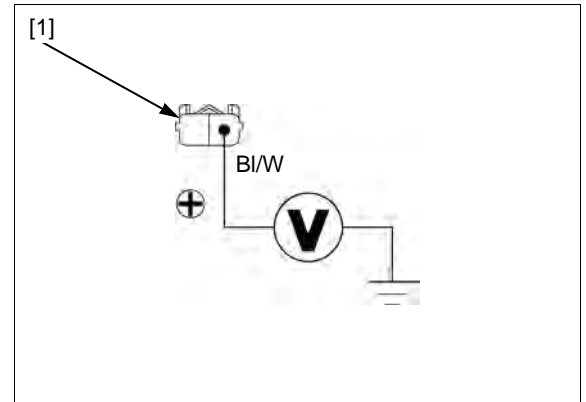
Connection: Black/white (+) – Ground (-)

Standard: Battery voltage

Does the standard voltage exist?

YES – GO TO STEP 3.

NO – Open circuit in the Black/white wire



3. Bank Angle Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

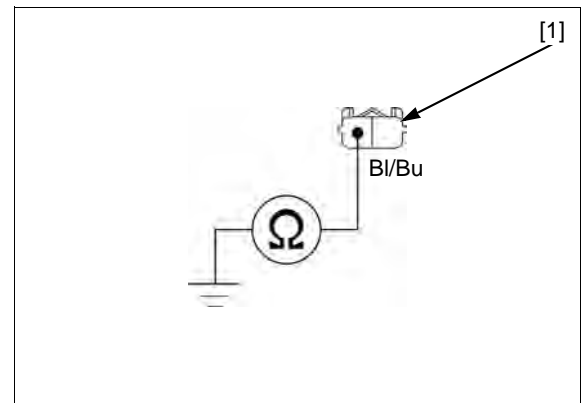
Check for continuity between the bank angle sensor 2P (Black) connector [1] of the wire harness side and ground.

Connection: Black/blue – Ground

Is there continuity?

YES – Short circuit in the Black/blue wire

NO – GO TO STEP 4.



4. Bank Angle Sensor Output Line Open Circuit Inspection

Check for continuity between the ECM/PCM 33P connector [1] and bank angle sensor 2P (Black) connector [2] of the wire harness side.

Connection: Black/blue – Black/blue

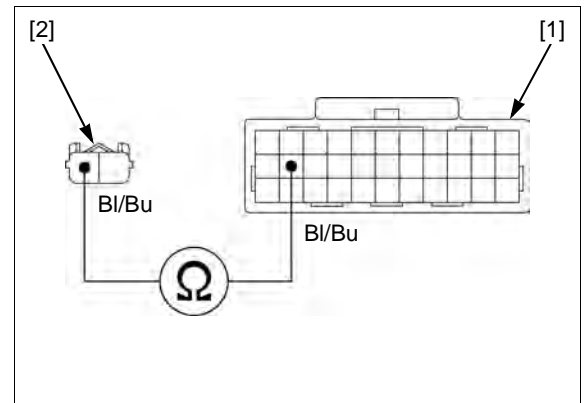
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** –
- Inspect the bank angle sensor (page 4-66).
 - Replace the ECM/PCM with a known good one, and recheck.

NO – Open circuit in the Black/blue wire



DTC 84-1 (CPU IN THE PCM MALFUNCTION) (NC700XD/SD)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 4-13).

Check the DTC with the HDS pocket tester.

Is DTC 84-1 indicated?

- YES** – Replace the PCM with a known good one, and recheck.
- NO** – Intermittent failure

DTC 86-1 (METER COMMUNICATION MALFUNCTION)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Recheck DTC

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the meter communication with the HDS pocket tester.

Is the DTC 86-1 indicated?

- YES** – GO TO STEP 2.
- NO** – Intermittent failure

2. Combination Meter Serial Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the following:

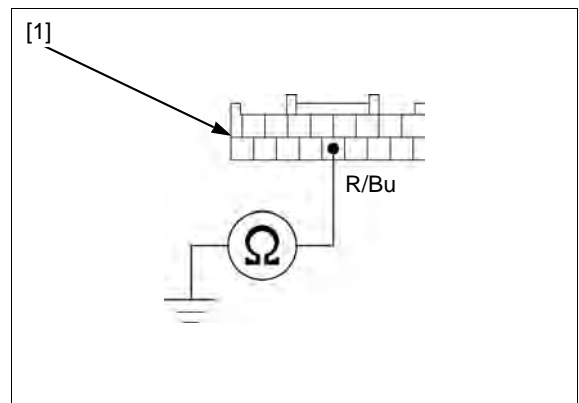
- Combination meter 16P (Gray) connector [1]
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Check for continuity between the combination meter 16P (Gray) connector of the wire harness side and ground.

Connection: Red/blue – Ground

Is there continuity?

- YES** – Short circuit in the Red/blue wire
- NO** – GO TO STEP 3.



3. Combination Meter Serial Line Open Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the combination meter 16P (Gray) connector [1] and ECM/PCM 33P connector [2] of the wire harness side.

Connection: Red/blue – Red/blue

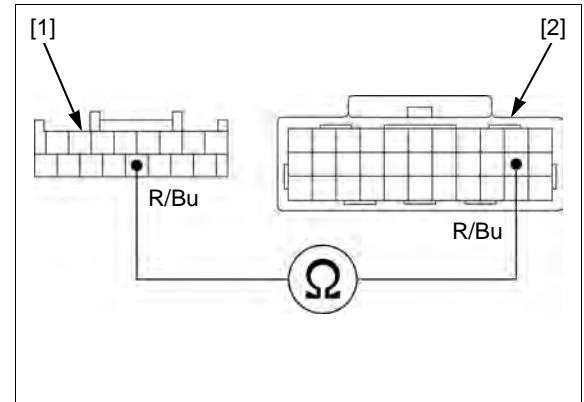
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Red/blue wire



4. Combination Meter Serial Line Output Voltage Inspection

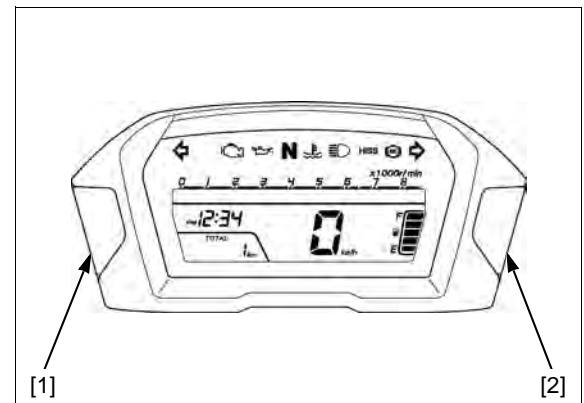
Turn the ignition switch OFF.

Connect the combination meter 16P (Gray) connector.

Turn the ignition switch ON while pushing and holding combination meter A button [1] and B button [2] over 10 seconds.

NOTE:

The combination meter enters the communication diagnostic mode.



Measure the voltage at the ECM/PCM 33P connector [1] of the wire harness side and ground.

Connection: Red/blue (+) – Ground (-)

Standard: 8 V or more (Every 5 seconds)

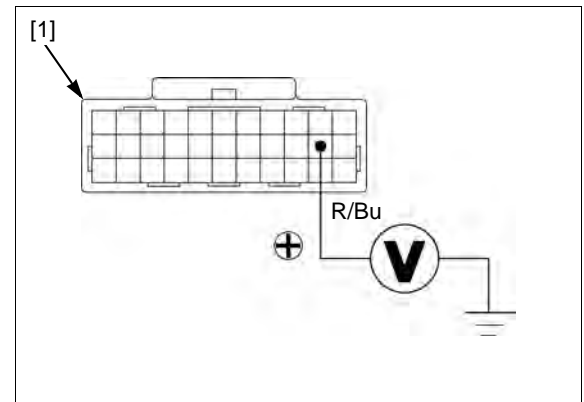
TOOL:

Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

YES – GO TO STEP 5.

NO – Inspect the combination meter (page 22-8).



5. ECM Serial Line Output Voltage Inspection

Turn the ignition switch OFF.

Disconnect the combination meter 16P (Gray) connector.

Connect the following:

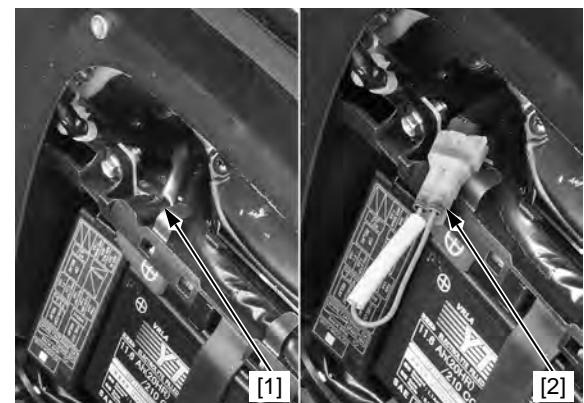
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Remove the DLC [1] from the battery box. Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

SCS connector [2] 070PZ-ZY30100

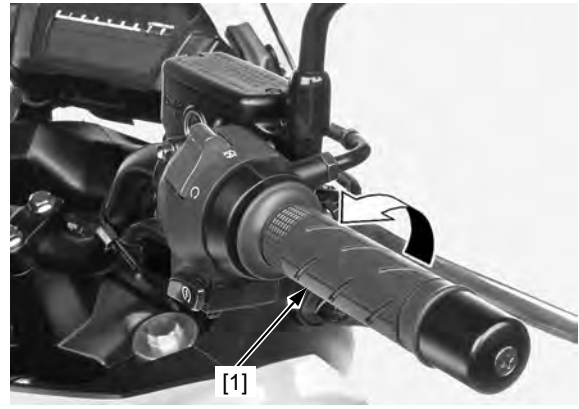


PGM-FI SYSTEM

Rotate and hold the throttle grip [1] to the fully open position.
Turn the ignition switch ON while holding the throttle grip at the fully open position over 10 seconds.

NOTE:

The ECM enters the communication diagnostic mode.



Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

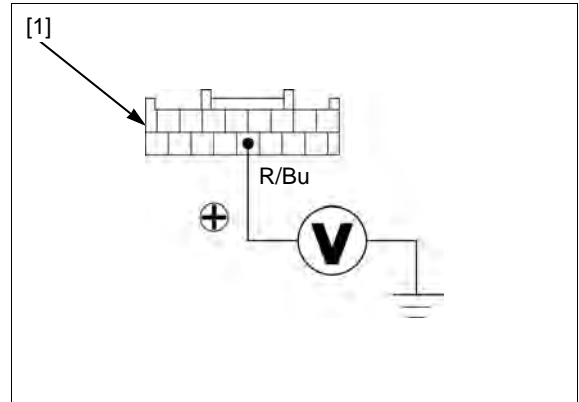
Connection: Red/blue (+) – Ground (–)

Standard: 8 V or more (Every 5 seconds)

Does the standard voltage exist?

YES – Inspect the combination meter (page 22-8).

NO – Replace the ECM/PCM with a known good one, and recheck.



DTC 87-1 (EOP SWITCH MALFUNCTION)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector, EOP switch 1P (Gray) connector and ECM 33P (Black) connector, then recheck the DTC.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector, EOP switch 1P (Gray) connector and PCM 33P (Gray) connector, then recheck the DTC.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. EOP Switch System Inspection

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the EOP switch with the HDS.

Is the DTC 87-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. EOP Switch Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the following:

- EOP switch 1P (Gray) connector [1]
- ECM 33P (Black) connector (NC700X/XA/S/SA) [2]
- PCM 33P (Gray) connector (NC700XD/SD) [2]

Check for continuity between the EOP switch 1P (Gray) connector and ECM/PCM 33P connector of the wire harness side.

Connection: Light green – Light green

TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Light green wire

3. EOP Switch Inspection

Replace the EOP switch with a known good one.

Connect the following:

- EOP switch 1P (Gray) connector
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Erase the DTCs (page 4-13).

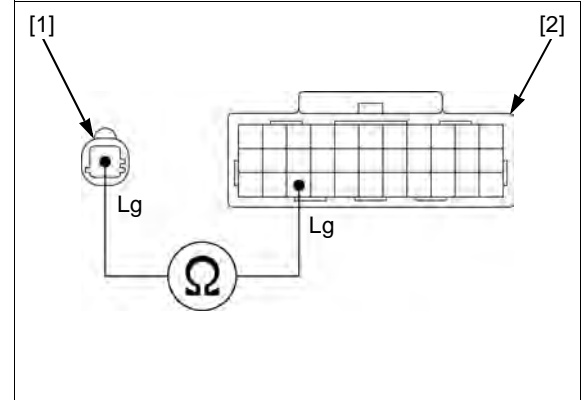
Turn the ignition switch ON.

Check the EOP switch with the HDS.

Is the DTC 87-1 indicated?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original EOP switch



MIL TROUBLESHOOTING

MIL 1 BLINK (MAP SENSOR)

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Sensor Unit Power Line Inspection

Check the sensor unit power line inspection (page 4-19).

Is the sensor unit power line normal?

YES – GO TO STEP 2.

NO – Replace or repair the abnormal circuit.

2. MAP Sensor Output Voltage Inspection 1

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the test harness terminals.

Connection:

NC700X/XA/S/SA:

32 (+) – 22 (-)

NC700XD/SD:

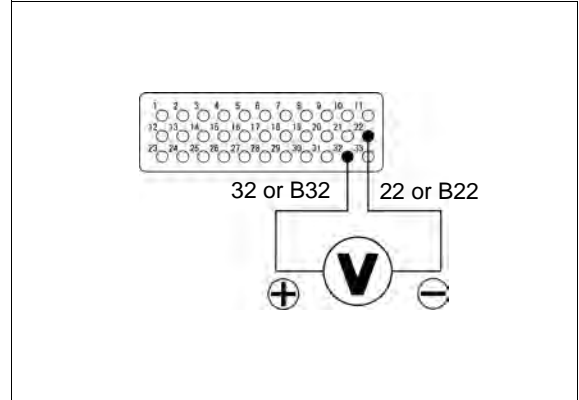
B32 (+) – B22 (-)

Standard: 0.50 – 3.41 V (20°C/68°F)

Is the voltage within 0.50 – 3.41 V (20°C/68°F)?

YES – Intermittent failure

NO – GO TO STEP 3.



3. MAP Sensor Output Voltage Inspection 2

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the sensor unit 5P (Black) connector of the wire harness side.

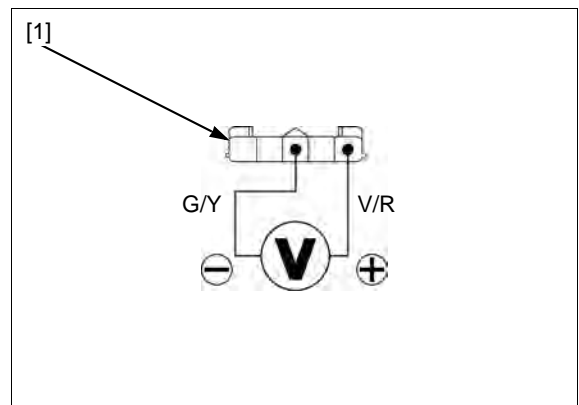
Connection: Violet/red (+) – Green/yellow (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – Faulty sensor unit (MAP sensor)

NO – GO TO STEP 4.



4. MAP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

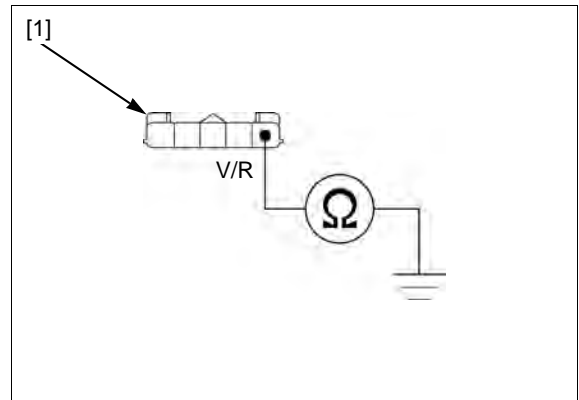
Check for continuity between the sensor unit 5P (Black) connector [1] of the wire harness side and ground.

Connection: Violet/red – Ground

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – GO TO STEP 5.



5. MAP Sensor Output Line Open Circuit Inspection

Check for continuity between the ECM test harness and sensor unit 5P (Black) connector [1] of the wire harness side.

Connection:

NC700X/XA/S/SA:

32 – Violet/red

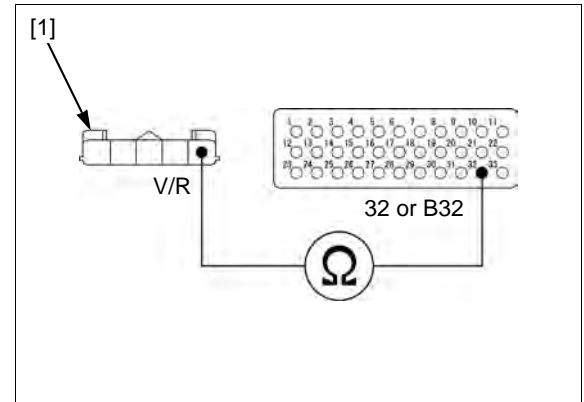
NC700XD/SD:

B32 – Violet/red

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Open circuit in the Violet/red wire



MIL 7 BLINKS (ECT SENSOR)

NOTE:

- **NC700X/XA/S/SA:**
Before starting the inspection, check for loose or poor contact on the ECT sensor 2P connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- **NC700XD/SD:**
Before starting the inspection, check for loose or poor contact on the ECT sensor 2P connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. ECT Sensor Output Voltage Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the ECM test harness terminals.

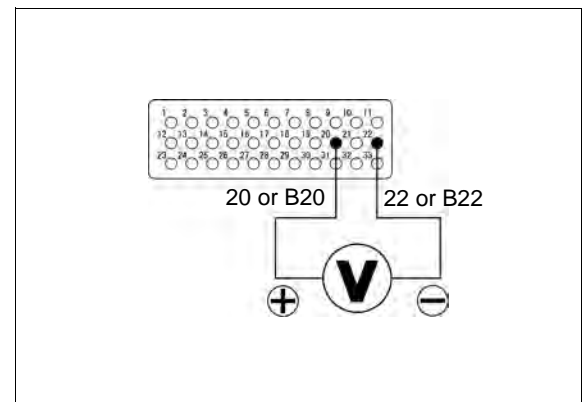
Connection:

NC700X/XA/S/SA:

20 (+) – 22 (-)

NC700XD/SD:

B20 (+) – B22 (-)



Standard: 2.7 – 3.1 V (20°C/68°F)

Is the voltage within 2.7 – 3.1 V (20°C/68°F)?

YES – Intermittent failure

NO – GO TO STEP 2.

2. ECT Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the ECT sensor 2P connector [1].

Turn the ignition switch ON.

Measure the voltage at the ECT sensor 2P connector of the wire harness side.

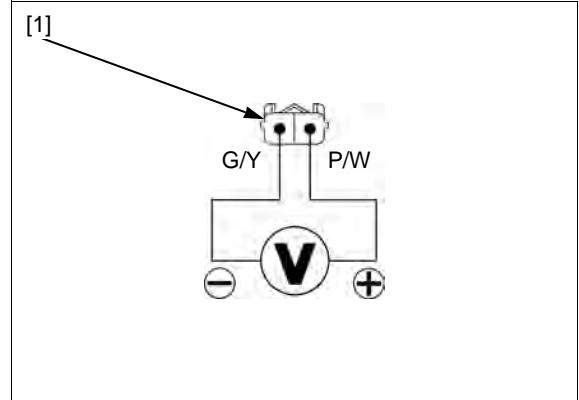
Connection: Pink/white (+) – Green/yellow (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – GO TO STEP 4.



3. ECT Sensor Resistance Inspection

Turn the ignition switch OFF.

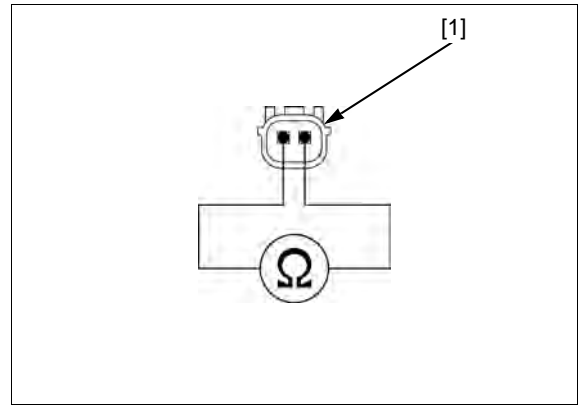
Measure the resistance at the ECT sensor [1] terminals.

Standard: 1.0 – 1.3 kΩ (40°C/104°F)

Is the resistance within 1.0 – 1.3 kΩ (40°C/104°F)?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty ECT sensor



4. ECT Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Check for continuities between the ECM test harness and ECT sensor 2P connector [1] of the wire harness side.

Connection:

NC700X/XA/S/SA:

20 – Pink/white

22 – Green/yellow

NC700XD/SD:

B20 – Pink/white

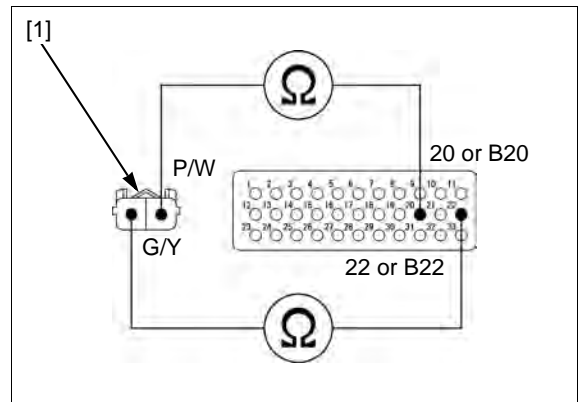
B22 – Green/yellow

Are there continuities?

YES – GO TO STEP 5.

NO –

- Open circuit in the Pink/white wire
- Open circuit in the Green/yellow wire



5. ECT Sensor Output Line Short Circuit Inspection

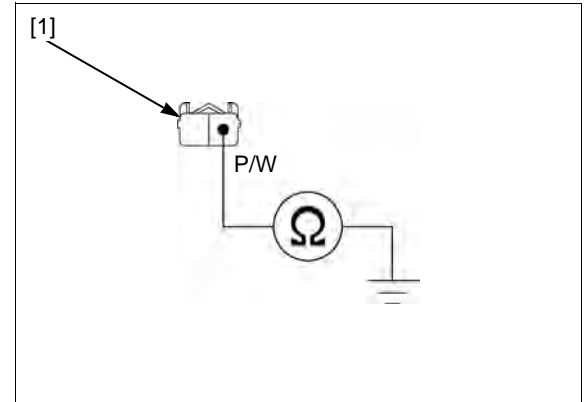
Check for continuity between the ECT sensor 2P connector [1] of the wire harness side and ground.

Connection: Pink/white – Ground

Is there continuity?

YES – Short circuit in the Pink/white wire

NO – Replace the ECM/PCM with a known good one, and recheck.



MIL 8 BLINKS (TP SENSOR)

1. Sensor Unit Power Line Inspection

Check the sensor unit power line inspection (page 4-19).

Is the sensor unit power line normal?

YES – GO TO STEP 2.

NO – Replace or repair the abnormal circuit.

2. TP Sensor Output Voltage Inspection

Turn the ignition switch ON and engine stop switch "O".

Measure the TP sensor output voltage at the ECM test harness terminals.

Connection:

NC700X/XA/S/SA:

33 (+) – 22 (-)

NC700XD/SD:

B33 (+) – B22 (-)

Standard: 0.29 – 0.71 V (throttle fully closed)

4.13 – 4.76 V (throttle fully opened)

Is there standard voltage?

YES – Intermittent failure

NO – GO TO STEP 3.

3. TP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the sensor unit 5P (Black) connector [1].

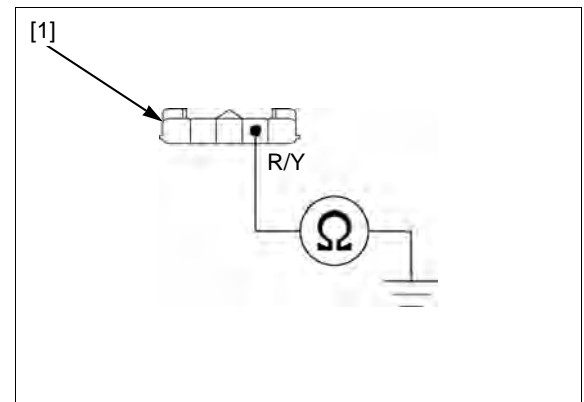
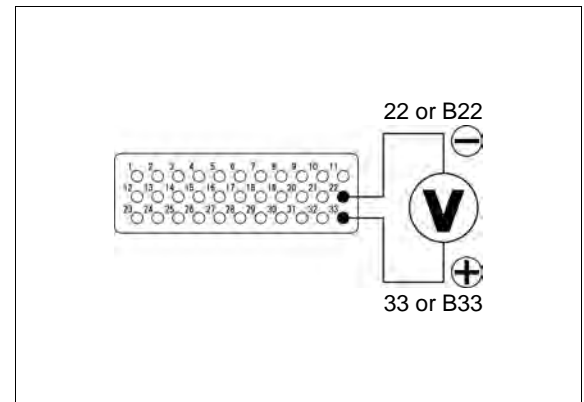
Check for continuity between the sensor unit 5P (Black) connector of the wire harness side and ground.

Connection: Red/yellow – Ground

Is there continuity?

YES – Short circuit in the Red/yellow wire

NO – GO TO STEP 4.



4. TP Sensor Output Line Open Circuit Inspection

Check for continuity between the sensor unit 5P (Black) connector [1] of the wire harness side and ECM test harness.

Connection:

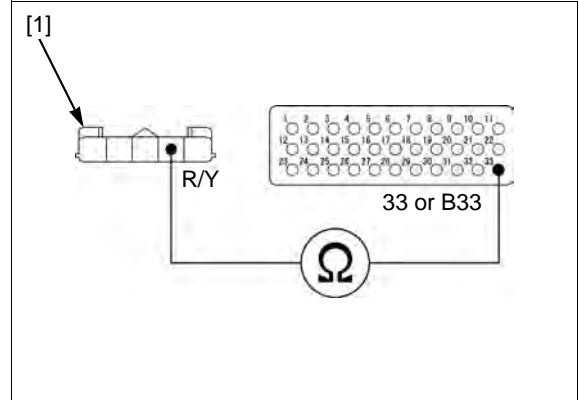
NC700X/XA/S/SA:
33 – Red/yellow

NC700XD/SD:
B33 – Red/yellow

Is there continuity?

YES – Faulty sensor unit (TP sensor)

NO – Open circuit in the Red/yellow wire



MIL 9 BLINKS (IAT SENSOR)

NOTE:

- **NC700X/XA/S/SA:**
 Before starting the inspection, check for loose or poor contact on the IAT sensor 2P (Black) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- **NC700XD/SD:**
 Before starting the inspection, check for loose or poor contact on the IAT sensor 2P (Black) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. IAT Sensor Output Voltage Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

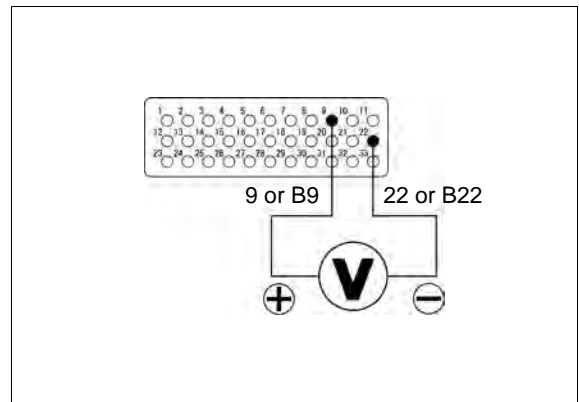
Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the ECM test harness terminals.

Connection:

NC700X/XA/S/SA:
9 (+) – 22 (-)

NC700XD/SD:
B9 (+) – B22 (-)



Standard: 2.7 – 3.1 V (20°C/68°F)

Is the voltage within 2.7 – 3.1 V (20°C/68°F)?

YES – Intermittent failure

NO – GO TO STEP 2.

2. IAT Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the IAT sensor 2P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the IAT sensor 2P (Black) connector of the wire harness side.

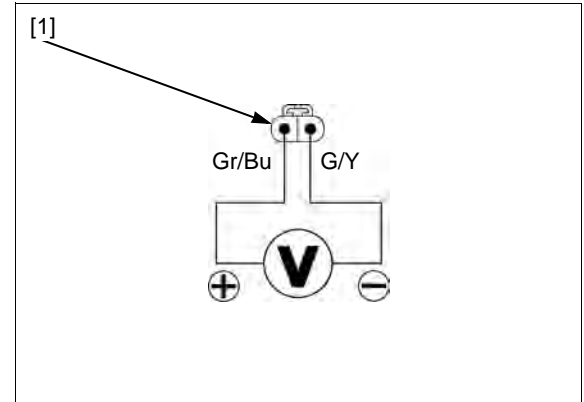
Connection: Gray/blue (+) – Green/yellow (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – GO TO STEP 4.



3. IAT Sensor Resistance Inspection

Turn the ignition switch OFF.

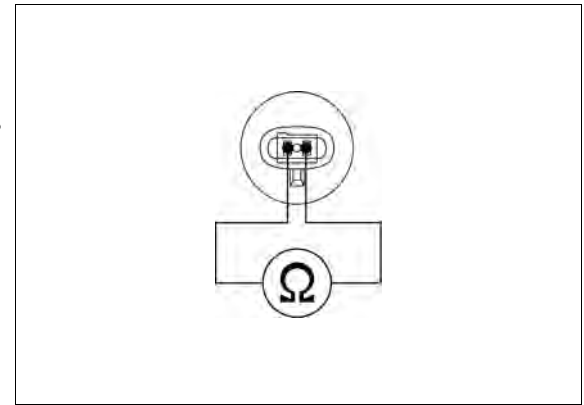
Measure the resistance at the IAT sensor terminals.

Standard: 2.2 – 2.7 kΩ (20°C/68°F)

Is the resistance within 2.2 – 2.7 kΩ (20°C/68°F)?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty IAT sensor



4. IAT Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the IAT sensor 2P (Black) connector [1] of the wire harness side and ECM test harness.

Connection:

NC700X/XA/S/SA:

9 – Gray/blue

22 – Green/yellow

NC700XD/SD:

B9 – Gray/blue

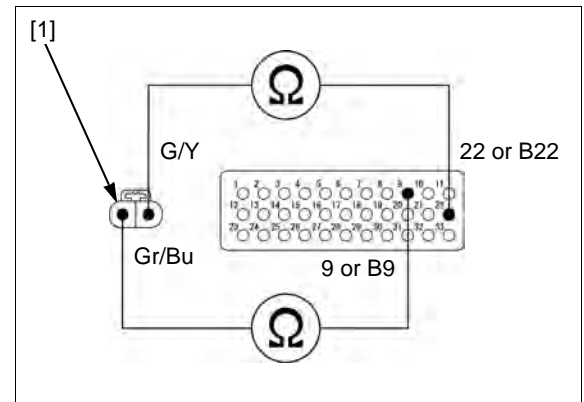
B22 – Green/yellow

Is there continuity?

YES – GO TO STEP 5.

NO –

- Open circuit in the Gray/blue wire
- Open circuit in the Green/yellow wire



5. IAT Sensor Output Line Short Circuit Inspection

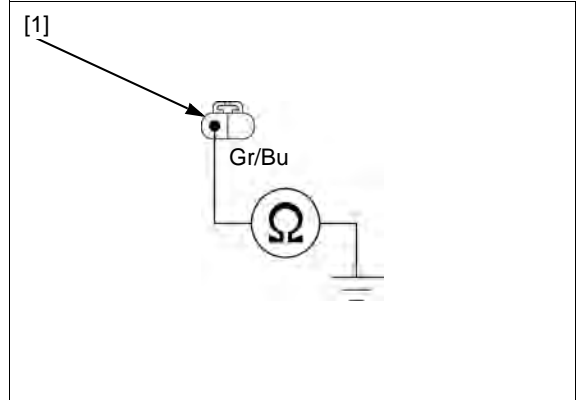
Check for continuity between the IAT sensor 2P (Black) connector [1] of the wire harness side and ground.

Connection: Gray/blue – Ground

Is there continuity?

YES – Short circuit in the Gray/blue wire

NO – Replace the ECM/PCM with a known good one, and recheck.



MIL 11 BLINKS (VS SENSOR) (NC700X/ XA/S/SA)

NOTE:

Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) connector and combination meter 16P (Gray) connector, then recheck the MIL blinking.

1. Speedometer Inspection

Check for operation of speedometer.

Does the speedometer operate normally?

YES – GO TO STEP 2.

NO – Inspect the combination meter (page 22-8).

2. VS Sensor Pulse Inspection

Support the motorcycle securely and raise the rear wheel off the ground.

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the combination meter 16P (Gray) connector [1] and ground while slowly turning the rear wheel by hand.

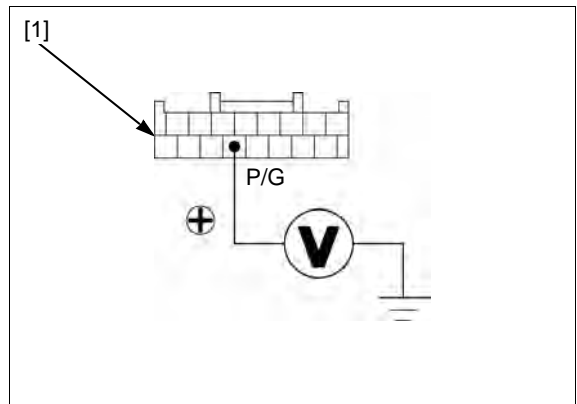
Connection: Pink/green (+) – Ground (-)

Standard: Repeat 0 to 5 V

Is the indicated voltage at the standard value?

YES – Inspect the combination meter (page 22-8).

NO – GO TO STEP 3.



3. VS Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the VS sensor 3P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the VS sensor 3P (Black) connector of the wire harness side.

Connection: Pink/blue (+) – Green/red (-)

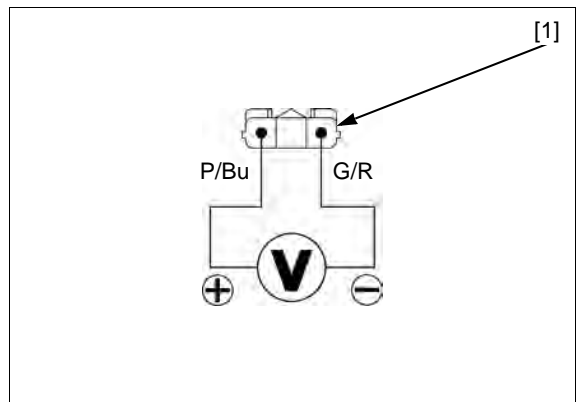
Standard: Battery voltage

Is there battery voltage?

YES – GO TO STEP 4.

NO –

- Open circuit in the Pink/blue wire
- Open circuit in the Green/red wire



4. VS Sensor Signal Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the combination meter 16P (Gray) connector [1].

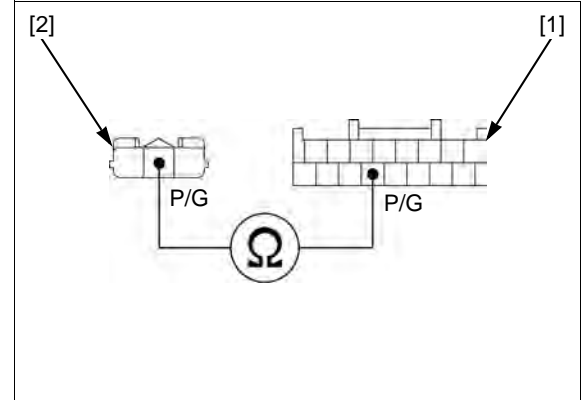
Check for continuity between the VS sensor 3P (Black) connector [2] and combination meter 16P (Gray) connector of the wire harness side.

Connection: Pink/green – Pink/green

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Pink/green wire



5. VS Sensor Signal Line Short Circuit Inspection

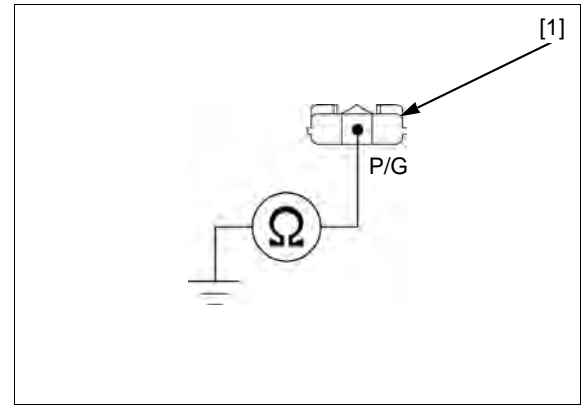
Check for continuity between the VS sensor 3P (Black) connector [1] of the wire harness side and ground.

Connection: Pink/green – Ground

Is there continuity?

YES – Short circuit in the Pink/green wire

NO – Faulty VS sensor



**MIL 11 BLINKS (VS SENSOR)
(NC700XD/SD)**

NOTE:

- Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) connector and PCM 33P (Black) connector, then recheck the MIL blinking.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. VS Sensor Pulse Inspection

Support the motorcycle securely and raise the rear wheel off the ground.

Connect the ECM test harness to the PCM 33P connectors (page 4-14).

Turn the ignition switch ON with the engine stop switch "O".

Measure the voltage at the ECM test harness terminal and ground while slowly turning the rear wheel by hand.

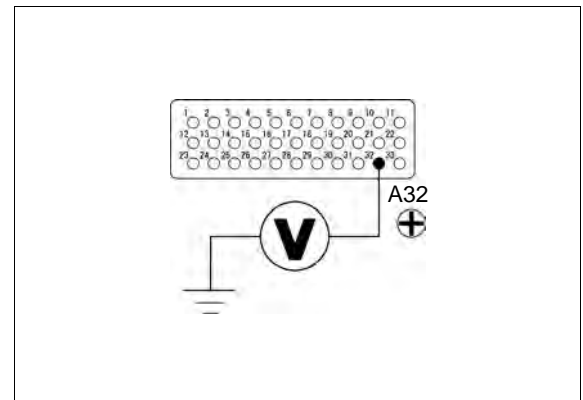
Connection: A32 (+) – Ground (–)

Standard: Repeat 0 to 5 V

Is the indicated voltage at the standard value?

YES – Intermittent failure

NO – GO TO STEP 2.



2. VS Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the VS sensor 3P (Black) connector [1].

Turn the ignition switch ON.

Measure the voltage at the VS sensor 3P (Black) connector of the wire harness side.

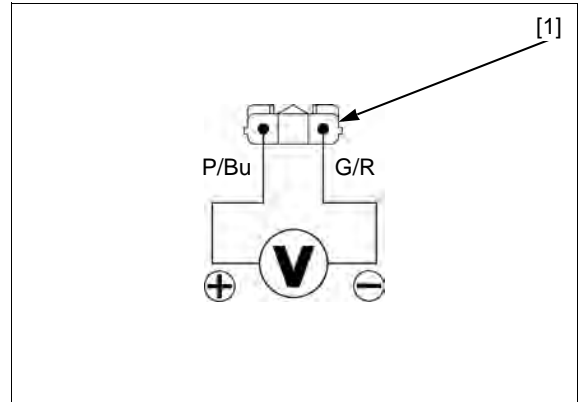
Connection: Pink/blue (+) – Green/red (-)

Standard: Battery voltage

Is there battery voltage?

YES – GO TO STEP 3.

NO – • Open circuit in the Pink/blue wire
• Open circuit in the Green/red wire



3. VS Sensor Signal Line Open Circuit Inspection

Turn the ignition switch OFF.

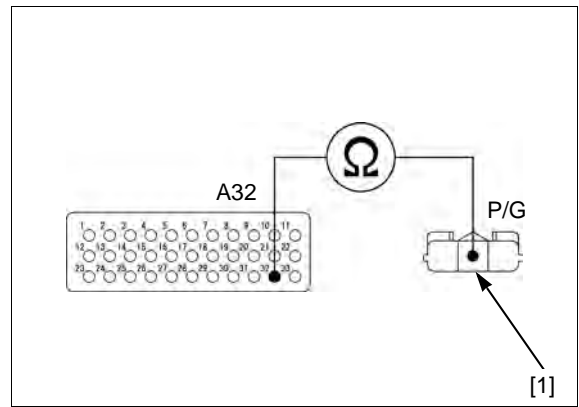
Check for continuity between the VS sensor 3P (Black) connector [1] of the wire harness side and ECM test harness.

Connection: A32 – Pink/green

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Pink/green wire



4. VS Sensor Signal Line Short Circuit Inspection

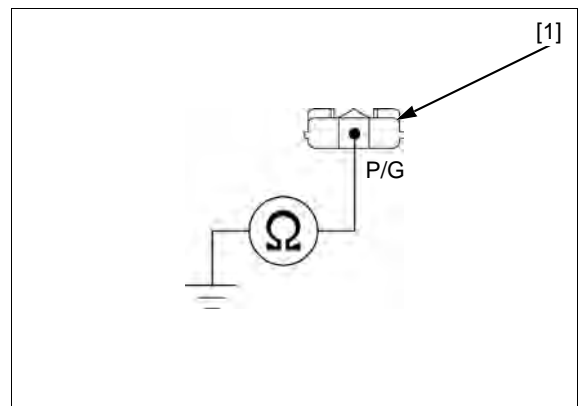
Check for continuity between the VS sensor 3P (Black) connector [1] of the wire harness side and ground.

Connection: Pink/green – Ground

Is there continuity?

YES – Short circuit in the Pink/green wire

NO – GO TO STEP 5.



5. VS Sensor Inspection

Replace the VS sensor with a known good one (page 22-18).

Erase the DTCs (page 4-13).

Test-ride the motorcycle above 2,000 min⁻¹ (rpm).

Stop the engine and recheck the MIL blinking.

Does the MIL blink 11 times?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original VS sensor

MIL 12 BLINKS (No.1 INJECTOR)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the injector 2P (Gray) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the injector 2P (Gray) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Injector Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the injector 2P (Gray) connector [1].

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the injector 2P (Gray) connector of the wire harness side and ground.

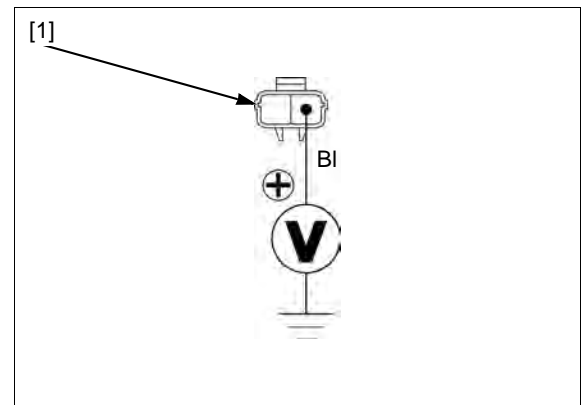
Connection: Black (+) – Ground (-)

Standard: Battery voltage

Does the standard voltage exist?

YES – GO TO STEP 2.

NO – Open circuit in the Black wire



2. Injector Signal Line Short Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the injector 2P (Gray) connector [1] of the wire harness side and ground.

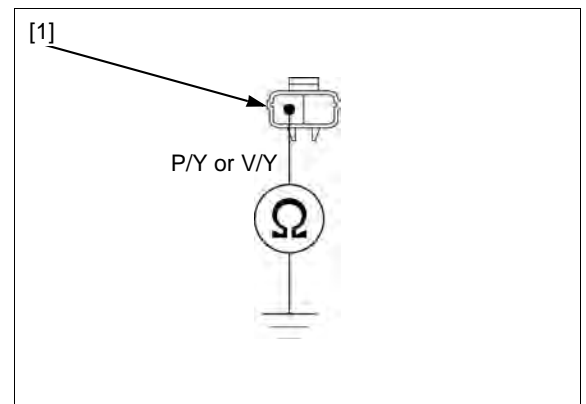
Connection: No.1: Pink/yellow – Ground

No.2: Violet/yellow – Ground

Is there continuity?

YES – • Short circuit in the Pink/yellow wire
• Short circuit in the Violet/yellow wire

NO – GO TO STEP 3.



3. Injector Resistance Inspection

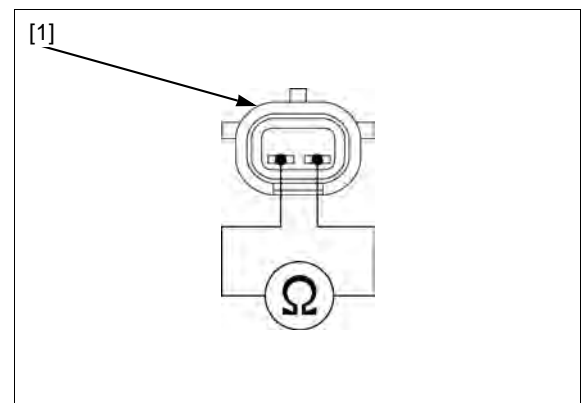
Measure the resistance at the injector [1] terminals.

Standard: 11 – 13 Ω (20°C/68°F)

Is the resistance within 11 – 13 Ω (20°C/68°F)?

YES – GO TO STEP 4.

NO – Faulty injector



4. Injector Signal Line Open Circuit Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Check for continuity between the ECM test harness and injector 2P (Gray) connector [1] of the wire harness side.

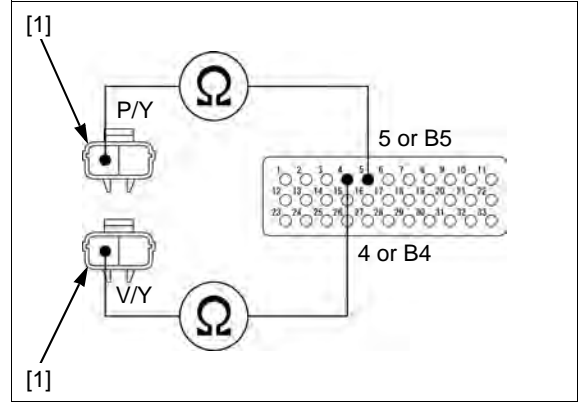
Connection:

NC700X/XA/S/SA:

- No.1: 5 – Pink/yellow**
- No.2: 4 – Violet/yellow**

NC700XD/SD:

- No.1: B5 – Pink/yellow**
- No.2: B4 – Violet/yellow**



Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

- NO** –
- Open circuit in the Pink/yellow wire
 - Open circuit in the Violet/yellow wire

MIL 13 BLINKS (No.2 INJECTOR)

See page 4-53

MIL 21 BLINKS (O₂ SENSOR)

NOTE:

- **NC700X/XA/S/SA:**
Before starting the inspection, check for loose or poor contact on the O₂ sensor 1P (Black) connector or O₂ sensor cap and ECM 33P (Black) connector, then recheck the MIL blinking.
- **NC700XD/SD:**
Before starting the inspection, check for loose or poor contact on the O₂ sensor 1P (Black) connector or O₂ sensor cap and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. O₂ Sensor System Inspection

Turn the ignition switch ON and engine stop switch "O".

Start the engine and warm up the engine up to coolant temperature is 80°C (176°F).

Test-ride the motorcycle and recheck the MIL blinking.

Does the MIL blink 21 times?

YES – GO TO STEP 2.

NO – Intermittent failure

2. O₂ Sensor Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the O₂ sensor 1P (Black) connector [1].

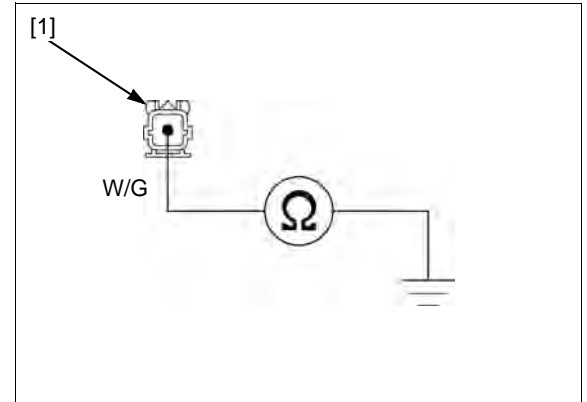
Check for continuity between the O₂ sensor 1P (Black) connector of the wire harness side and ground.

Connection: White/green – Ground

Is there continuity?

YES – Short circuit in the White/green wire

NO – GO TO STEP 3.



3. O₂ Sensor Line Open Circuit Inspection 1

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Check for continuity between the ECM test harness and O₂ sensor 1P (Black) connector [1] of the wire harness side.

Connection:

NC700X/XA/S/SA:

29 – White/green

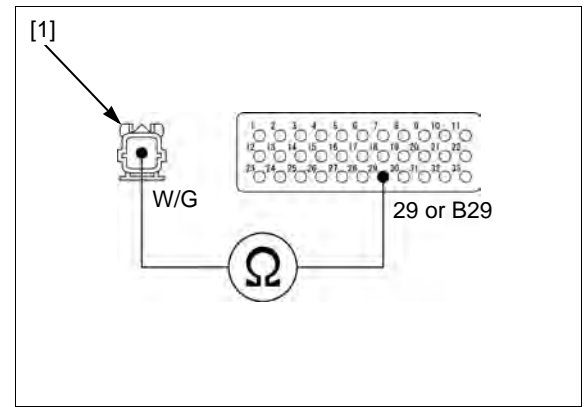
NC700XD/SD:

B29 – White/green

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the White/green wire



4. O₂ Sensor Line Open Circuit Inspection 2

Disconnect the O₂ sensor cap [1].

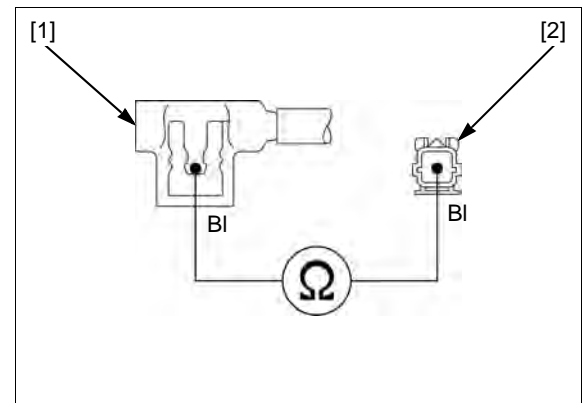
Check for continuity between the O₂ sensor cap and O₂ sensor 1P (Black) connector [2] of the sensor side.

Connection: Black – Black

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Black wire



5. O₂ Sensor Inspection

Replace the O₂ sensor with a known good one (page 4-69).

Disconnect the ECM test harness and connect the ECM/PCM connector(s).

Erase the DTCs (page 4-13).

Start the engine and warm up the engine up to coolant temperature is 80°C (176°F).

Test-ride the motorcycle and recheck the MIL blinking.

Does the MIL blink 21 times?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original O₂ sensor

MIL 29 BLINKS (IACV)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the IACV 4P (Black) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the IACV 4P (Black) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. IACV Resistance Inspection

Turn the ignition switch OFF.

Disconnect the IACV 4P (Black) connector [1].

Measure the resistance at the IACV 4P (Black) connector at the motor side.

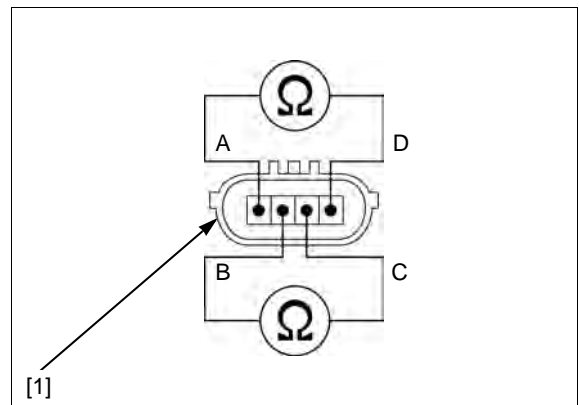
Connection: A – D
B – C

Standard: 110 – 150 Ω (25°C/77°F)

Is the resistance within 110 – 150 Ω (25°C/77°F)?

YES – GO TO STEP 2.

NO – Faulty IACV



2. IACV Short Circuit Inspection

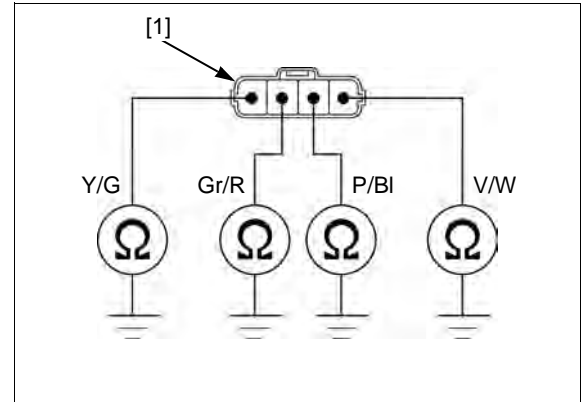
Check for continuities between the IACV 4P (Black) connector [1] of the wire harness side and ground.

- Connection:** **Gray/red – Ground**
Yellow/green – Ground
Violet/white – Ground
Pink/black – Ground

Is there continuity?

- YES** – • Short circuit in the Yellow/green or Gray/red wire
 • Short circuit in the Violet/white or Pink/black wire

NO – GO TO STEP 3.



3. IACV Open Circuit Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Check for continuities between the ECM test harness and IACV 4P (Black) connector [1] of the wire harness side.

Connection:

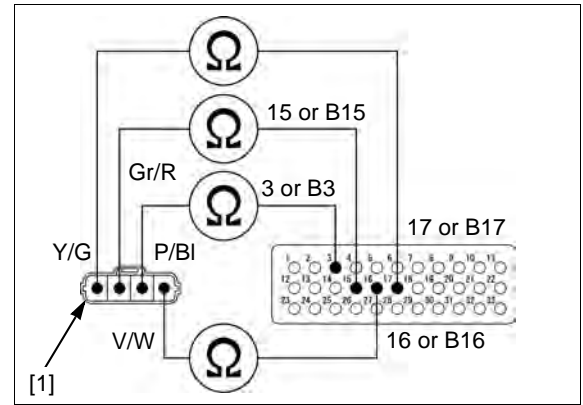
- NC700X/XA/S/SA:**
17 – Yellow/green
15 – Gray/red
16 – Violet/white
3 – Pink/black

- NC700XD/SD:**
B17 – Yellow/green
B15 – Gray/red
B16 – Violet/white
B3 – Pink/black

Is there continuity?

- YES** – Replace the ECM/PCM with a known good one, and recheck.

- NO** – • Open circuit in the Yellow/green or Gray/red wire
 • Open circuit in the Violet/white or Pink/black wire



MIL 54 BLINKS (BANK ANGLE SENSOR)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the bank angle sensor 2P (Black) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the bank angle sensor 2P (Black) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Bank Angle Sensor Power Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the bank angle sensor 2P (Black) connector [1].

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the bank angle sensor 2P (Black) connector of the wire harness side and ground.

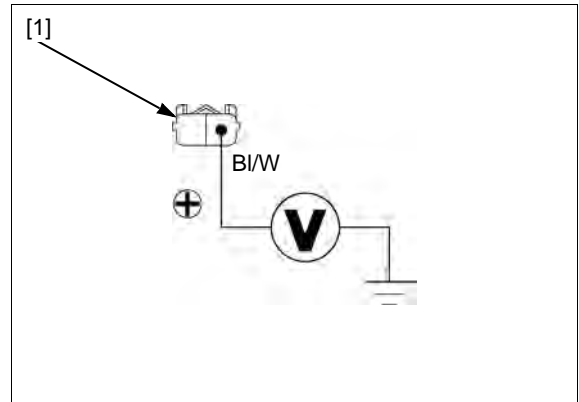
Connection: Black/white (+) – Ground (-)

Standard: Battery voltage

Does the standard voltage exist?

YES – GO TO STEP 2.

NO – Open circuit in the Black/white wire



2. Bank Angle Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

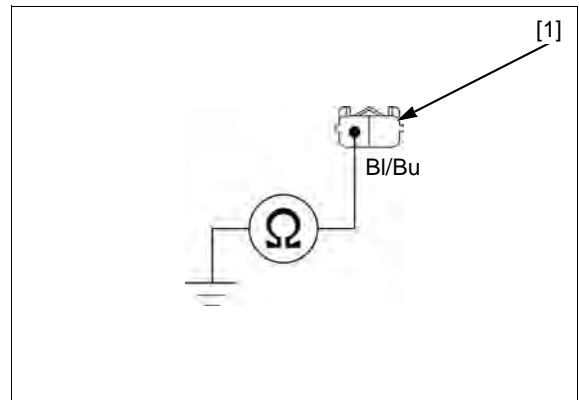
Check for continuity between the bank angle sensor 2P (Black) connector [1] of the wire harness side and ground.

Connection: Black/blue – Ground

Is there continuity?

YES – Short circuit in the Black/blue wire

NO – GO TO STEP 3.



3. Bank Angle Sensor Output Line Open Circuit Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Check for continuity between the ECM test harness and bank angle sensor 2P (Black) connector [1] of the wire harness side.

Connection:

NC700X/XA/S/SA:

21 – Black/blue

NC700XD/SD:

B21 – Black/blue

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Black/blue wire

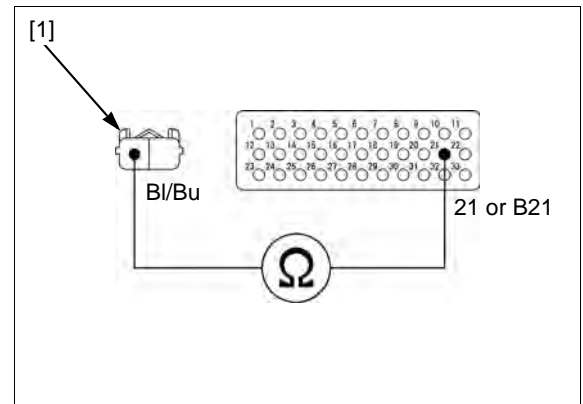
4. Bank Angle Sensor Inspection

Inspect the bank angle sensor (page 4-66).

Is the bank angle sensor operation normal?

YES – Replace the ECM/PCM with a known good one, and recheck.

No – Faulty bank angle sensor



MIL 84 BLINKS (CPU IN THE PCM MALFUNCTION) (NC700XD/SD)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 4-13).

Turn the ignition switch ON with the engine stop switch "O", and check the MIL blinking.

Does the MIL blink 84 times?

YES – Replace the PCM with a known good one, and recheck.

NO – Intermittent failure

MIL 86 BLINKS (METER COMMUNICATION MALFUNCTION)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Combination Meter Serial Line Output Voltage Inspection

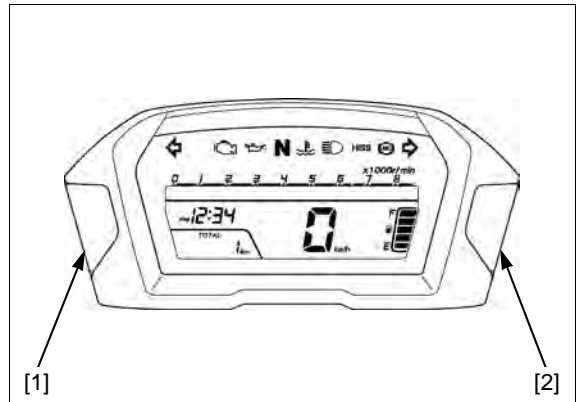
Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Turn the ignition switch ON and engine stop switch "O" while pushing and holding combination meter A button [1] and B button [2] over 10 seconds.



NOTE:

The combination meter enter the communication diagnostic mode.

Measure the voltage at the ECM test harness terminal and ground.

Connection:

NC700X/XA/S/SA:
13 (+) – Ground (-)

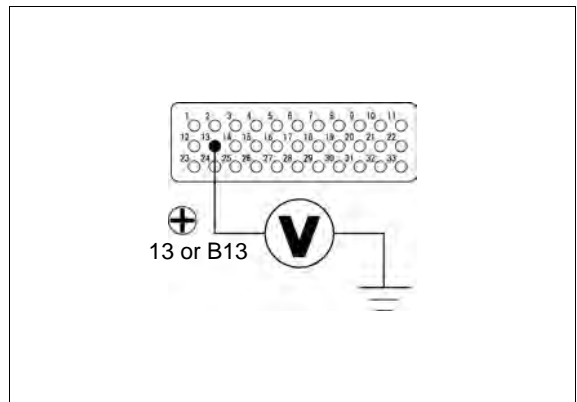
NC700XD/SD:
B13 (+) – Ground (-)

Standard: 8 V or more (Every 5 seconds)

Does the standard voltage exist?

YES – GO TO STEP 2.

NO – Inspect the combination meter (page 22-8).



2. ECM/PCM Serial Line Output Voltage Inspection

Turn the ignition switch OFF.

Disconnect the combination meter 16P (Gray) connector.

Connect the following:

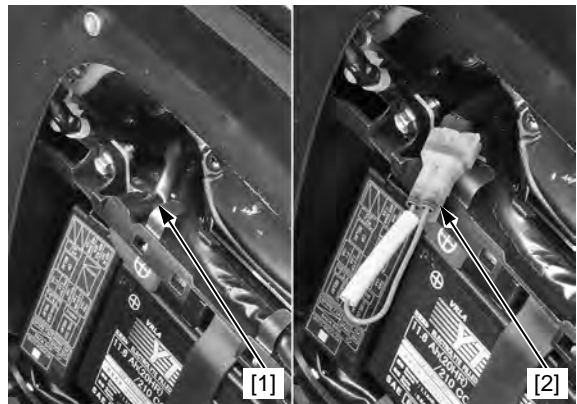
- ECM 33P (Black) connector (NC700X/XA/S/SA)
- PCM 33P (Gray) connector (NC700XD/SD)

Remove the DLC [1] from the battery box. Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

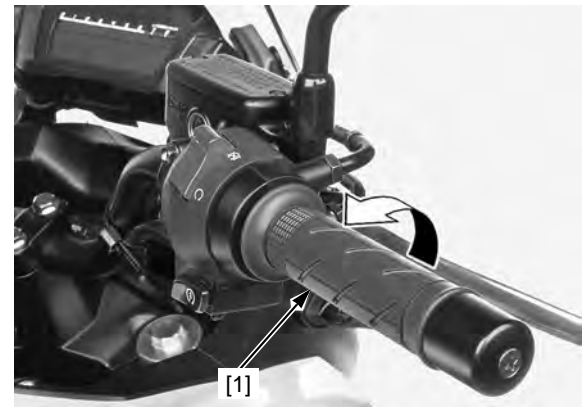
SCS connector [2] 070PZ-ZY30100



Rotate and hold the throttle grip [1] to the fully open position.
 Turn the ignition switch ON while holding the throttle grip at the fully open position over 10 seconds.

NOTE:

The ECM/PCM enters the communication diagnostic mode.



Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

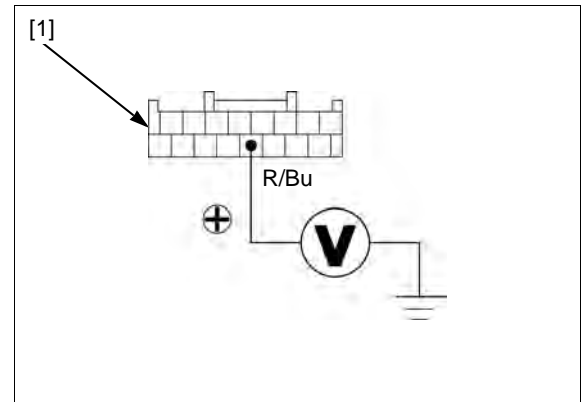
Connection: Red/blue (+) – Ground (-)

Standard: 8 V or more (Every 5 seconds)

Does the standard voltage exist?

YES – Inspect the combination meter (page 22-8).

NO – Replace the ECM/PCM with a known good one, and recheck.



MIL 87 BLINKS (EOP SWITCH MALFUNCTION)

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector, EOP switch 1P (Gray) connector and ECM 33P (Black) connector, then recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the combination meter 16P (Gray) connector, EOP switch 1P (Gray) connector and PCM 33P (Gray) connector, then recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. EOP Switch Output Line Open Circuit Inspection

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Disconnect the EOP switch 1P (Gray) connector [1].

Check for continuity between the ECM test harness and the EOP switch 1P (Gray) connector of the wire harness side.

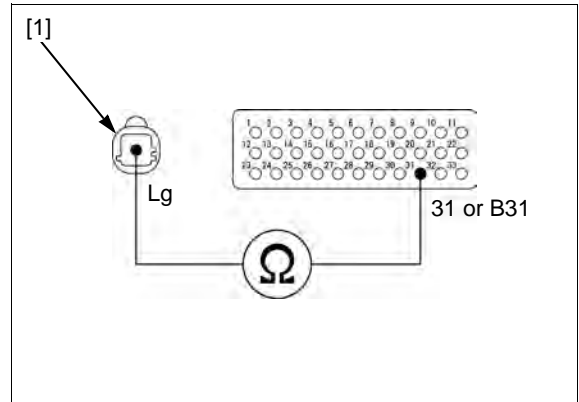
Connection:

NC700X/XA/S/SA:

31 – Light green

NC700XD/SD:

B31 – Light green



TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 2.

NO – Open circuit in the Light green wire

2. EOP Switch Inspection

Replace the EOP switch with a known good one (page 22-20).

Erase the DTCs (page 4-13).

Turn the ignition switch ON and engine stop switch "O".

Check the MIL blinking

Does the MIL blink 87 times?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – Faulty original EOP switch

MIL CIRCUIT TROUBLESHOOTING

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

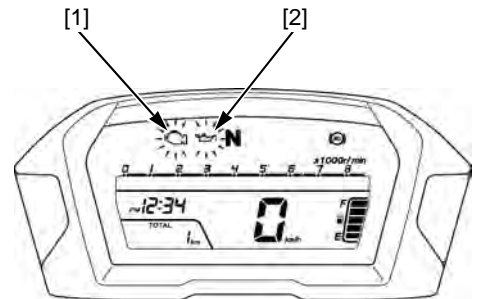
Check that the MIL comes on for 2 seconds and goes off when the ignition switch is turned ON and engine stop switch "O".

If the MIL does not come on at all, inspect the combination meter (page 22-10).

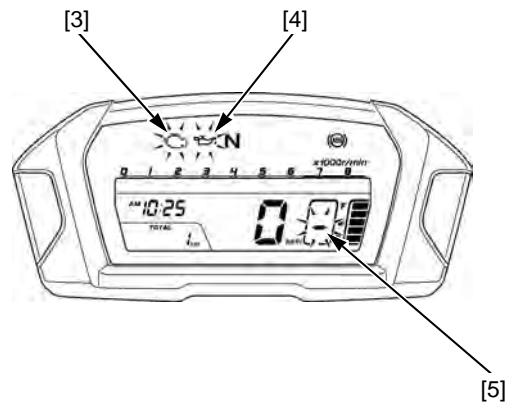
NC700X/XA/S/SA: If the MIL [1] and engine oil pressure indicator [2] are stay on, and the tachometer, high coolant temperature indicator and HISS indicator do not come on, inspect the TXD/RXD line (page 22-11).

NC700XD/SD: If the MIL [3] and engine oil pressure indicator [4] stay on, the shift indicator "-" [5] is blinking, and the tachometer, high coolant temperature indicator and HISS indicator do not come on, inspect the TXD/RXD line (page 22-11).

NC700X/XA/S/SA:



NC700XD/SD:



If the MIL stays on, check as follows:

Turn the ignition switch OFF.

Remove the following:

- Shroud/side cover (NC700X/XA) (page 2-14)
- Side cowl (NC700S/SA) (page 2-13)
- Luggage box lid/hinge assembly (NC700XD/SD) (page 2-19)

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]

Check for continuity between the ECM/PCM 33P connector of the wire harness side and ground.

CONNECTION: Brown – Ground

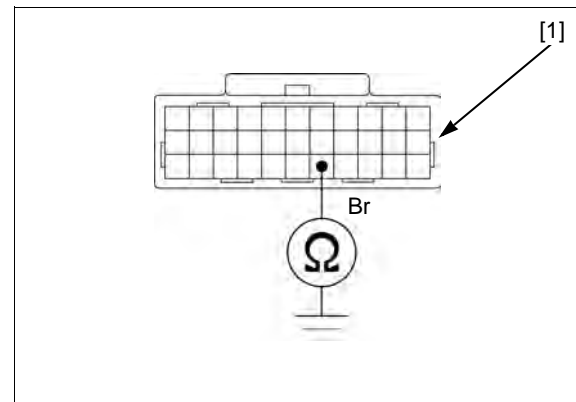
STANDARD: No continuity

TOOL:

Test probe 07ZAJ-RDJA110

If there is continuity, check for short circuit in the Brown wire between the DLC and ECM/PCM.

If there is no continuity, Replace the ECM/PCM with a known good one, and recheck.



FUEL CUT RELAY

INSPECTION

Remove the maintenance lid (page 21-6).

Open the fuse/relay box cover and remove the fuel cut relay [1].

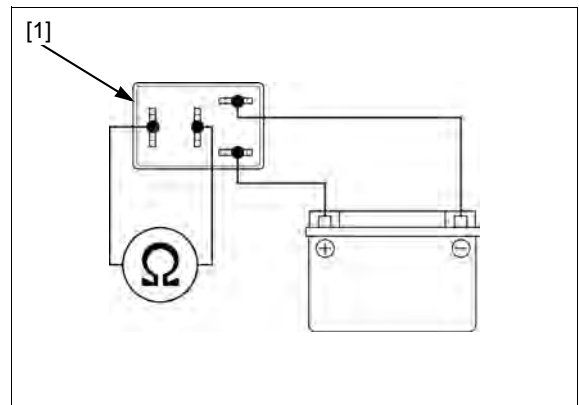


Connect a ohmmeter to the fuel cut relay [1] terminals.

Connect a 12 V battery to the fuel cut relay terminals as shown.

There should be continuity only when 12 V battery is connected.

If there is no continuity only when the 12 V battery is connected, replace the fuel cut relay.



ECT SENSOR

REMOVAL/INSTALLATION

Drain the coolant (page 8-6).

Remove the ECT sensor while the engine is cold.

Disconnect the ECT sensor 2P connector [1].

Remove the ECT sensor [2] and O-ring [3].

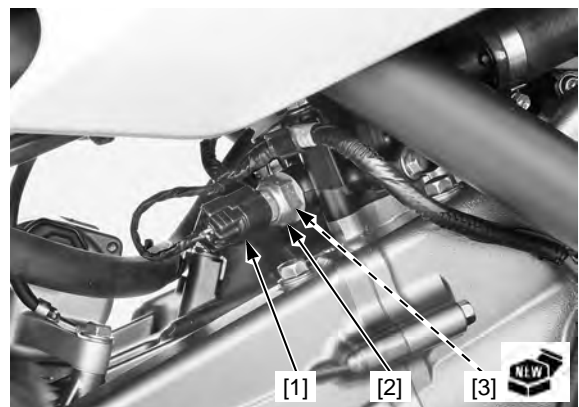
Install a new O-ring onto the ECT sensor and install them.

Tighten the ECT sensor to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the ECT sensor 2P connector.

Fill the cooling system with recommended coolant (page 8-6).



BANK ANGLE SENSOR

REMOVAL/INSTALLATION

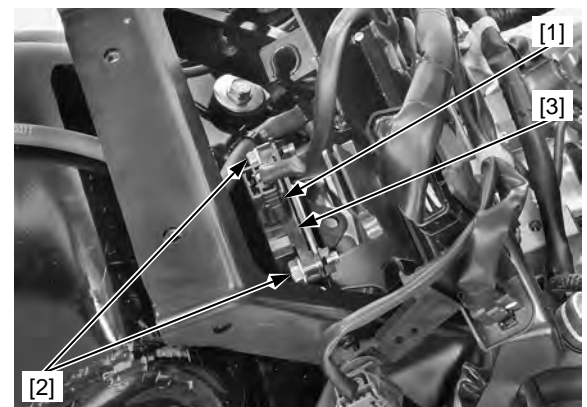
Remove the luggage box (page 2-19).

Remove the bolts [1] and ECM box [2] from the frame.



Disconnect the bank angle sensor 2P (Black) connector [1].

Remove the bank angle sensor mounting bolts [2] and bank angle sensor [3].



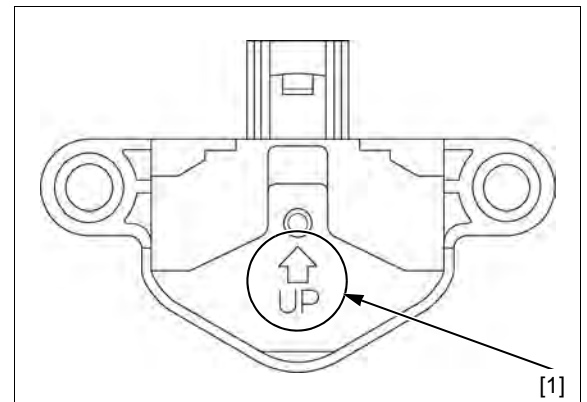
Installation is in the reverse order of removal.

NOTE:

Install the bank angle sensor with its "UP" mark [1] facing up.

TORQUE:

Bank angle sensor mounting bolt:
 10 N·m (1.0 kgf·m, 7 lbf·ft)



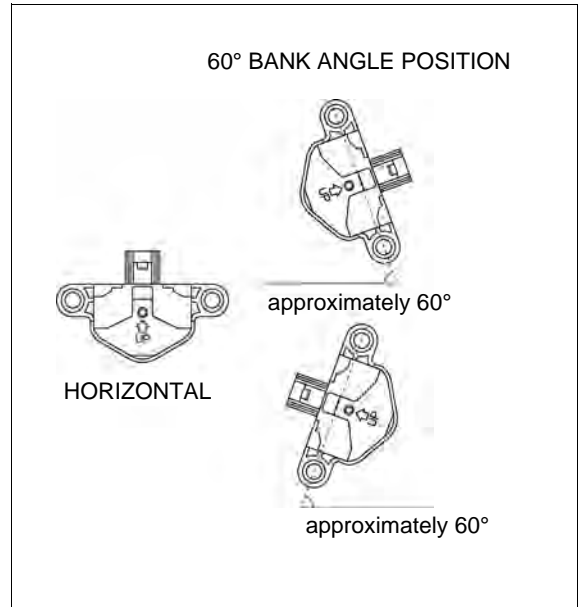
**SYSTEM INSPECTION WITH HDS
POCKET TESTER**

Connect the HDS pocket tester (page 4-12).
Remove the bank angle sensor (page 4-65).
Connect the bank angle sensor 2P (Black) connector.
Place the bank angle sensor is horizontal as shown.
Turn the ignition switch ON and engine stop switch "O".
Read the voltage with the HDS pocket tester.

STANDARD: 7.0 – 8.8 V

Incline the bank angle sensor approximately 60° to the left or right with keeping the ignition switch ON.
Read the voltage with HDS pocket tester.

STANDARD: 0.40 – 0.84 V



**SYSTEM INSPECTION WITH ECM
TEST HARNESS**

Connect the ECM test harness to the ECM/PCM 33P connector(s).

- NC700X/XA/S/SA (page 4-13)
- NC700XD/SD (page 4-14)

Remove the bank angle sensor (page 4-65).
Connect the bank angle sensor 2P (Black) connector.
Place the bank angle sensor horizontal as shown.
Turn the ignition switch ON and engine stop switch "O".
Measure the output voltage at the ECM test harness [1] terminals.

CONNECTION:
NC700X/XA/S/SA:
21 (+) – 6 (-)
NC700XD/SD:
B21 (+) – B6 (-)

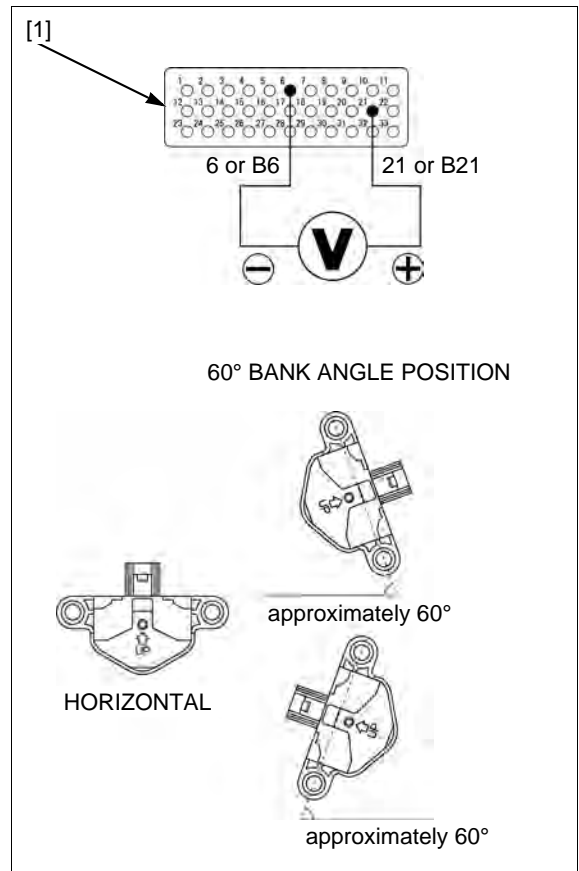
STANDARD: 7.0 – 8.8 V

Incline the bank angle sensor approximately 60° to the left or right with keeping the ignition switch ON and engine stop switch "O".

Measure the output voltage at the ECM test harness terminals.

CONNECTION:
NC700X/XA/S/SA:
21 (+) – 6 (-)
NC700XD/SD:
B21 (+) – B6 (-)

STANDARD: 0.40 – 0.84 V



ECM (NC700X/XA/S/SA)/PCM (NC700XD/SD)

REMOVAL/INSTALLATION (NC700X/ XA/S/SA)

Remove the shroud/side cover (NC700X/XA) (page 2-14).

Remove the side cowl (NC700S/SA) (page 2-13).

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector [1].

Release the band [2] from the ECM and remove the ECM from the ECM box.

Installation is in the reverse order of removal.

NOTE:

If the ECM is replaced, perform the Key Registration Procedures (page 23-6).



REMOVAL/INSTALLATION (NC700XD/ SD)

Remove the luggage box lid/hinge assembly (page 2-19).

Turn the ignition switch OFF.

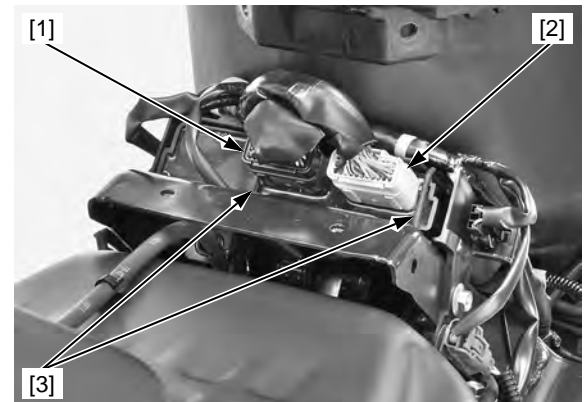
Disconnect the PCM 33P (Black) connector [1] and PCM 33P (Gray) connector [2].

Release the band [3] from the PCM and remove the PCM from the ECM box.

Installation is in the reverse order of removal.

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)



ECM/PCM POWER/GROUND LINE INSPECTION

NOTE:

- NC700X/XA/S/SA:
Before starting the inspection, check for loose or poor contact on the ECM 33P (Black) connector and recheck the MIL blinking.
- NC700XD/SD:
Before starting the inspection, check for loose or poor contact on the PCM 33P (Gray) connector and recheck the MIL blinking.
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

ENGINE DOES NOT START (MIL does not blink)

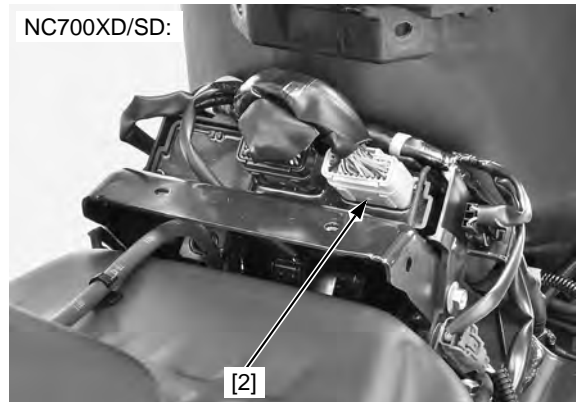
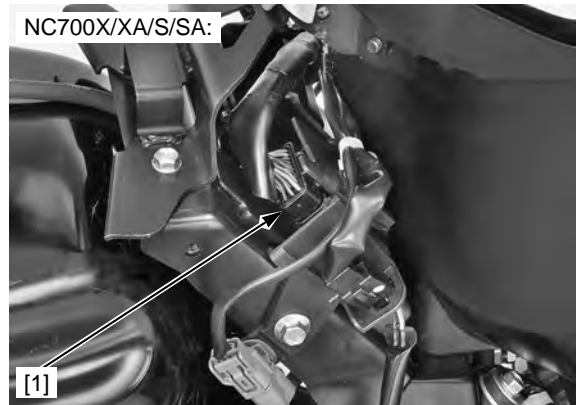
1. ECM/PCM Power Input Voltage Inspection

Remove the following:

- Shroud/side cover (NC700X/XA) (page 2-14)
- Side cowl (NC700S/SA) (page 2-13)
- Luggage box lid/hinge assembly (NC700XD/SD) (page 2-19)

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [2]



Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the ECM/PCM 33P connector [1] of the wire harness side and ground.

Connection: Black (+) – Ground (-)

Standard: Battery voltage

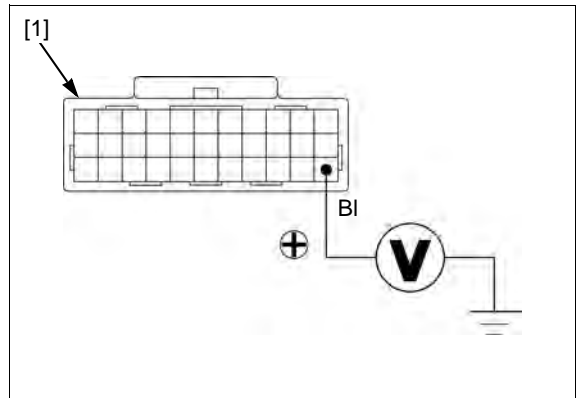
TOOL:

Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

YES – GO TO STEP 2.

- NO**
- • Open or short circuit in the Black wire
 - Faulty ignition switch
 - Blown main fuse 30 A
 - Blown sub fuse 7.5 A (ENG STOP)
 - Faulty engine stop switch



2. ECM/PCM Ground Line Inspection

Turn the ignition switch OFF.

Check for continuities between the ECM/PCM 33P connector [1] of the wire harness side and ground.

Connection: Green/orange – Ground
Green – Ground

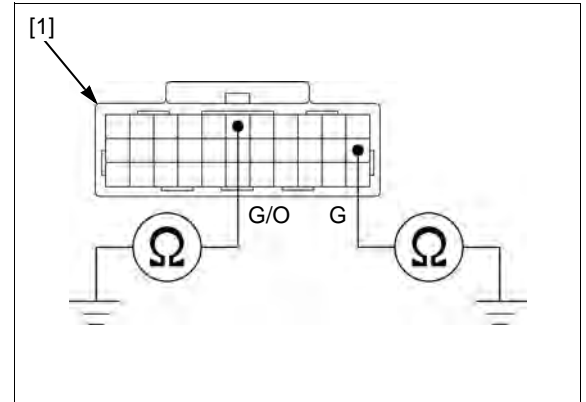
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM/PCM with a known good one, and recheck.

NO – • Open circuit in the Green/orange wire
 • Open circuit in the Green wire



O₂ SENSOR

NOTICE

- Do not get grease, oil or other materials in the O₂ sensor air hole.
- The O₂ sensor may be damaged if dropped. Replace it with a new one, if dropped.

NOTE:

- Handle the O₂ sensor with care.
- Do not service the O₂ sensor while it is hot.

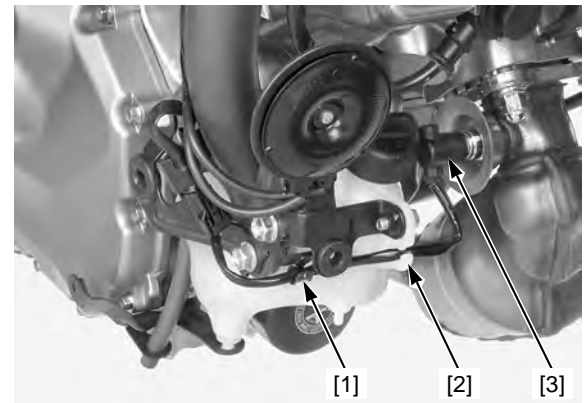
REMOVAL

Remove the lower cowl (page 2-28).

Release the O₂ sensor wire from the clamp [1] and radiator reserve tank guide [2].

Remove the radiator reserve tank (page 8-14).

Disconnect the O₂ sensor cap [3].



Remove the O₂ sensor [1].

NOTICE

Do not use an impact wrench while removing or installing the O₂ sensor, or it may be damaged.



INSTALLATION

Install and hand tighten the O₂ sensor [1].

Tighten the O₂ sensor to the specified torque.

TORQUE: 24.5 N·m (2.5 kgf·m, 18 lbf·ft)



Connect the O₂ sensor cap [1].

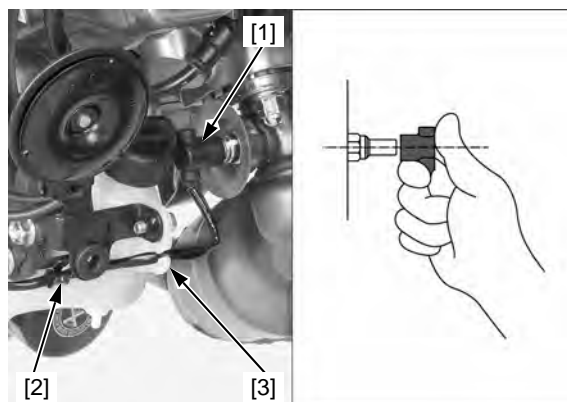
NOTICE

- *Take care not to tilt the O₂ sensor cap when connecting the cap to the O₂ sensor.*
- *Do not turn the O₂ sensor cap, after connecting it.*

Install the radiator reserve tank (page 8-14).

Install the O₂ sensor wire to the clamp [2] and radiator reserve tank guide [3].

Install the lower cowl (page 2-28).

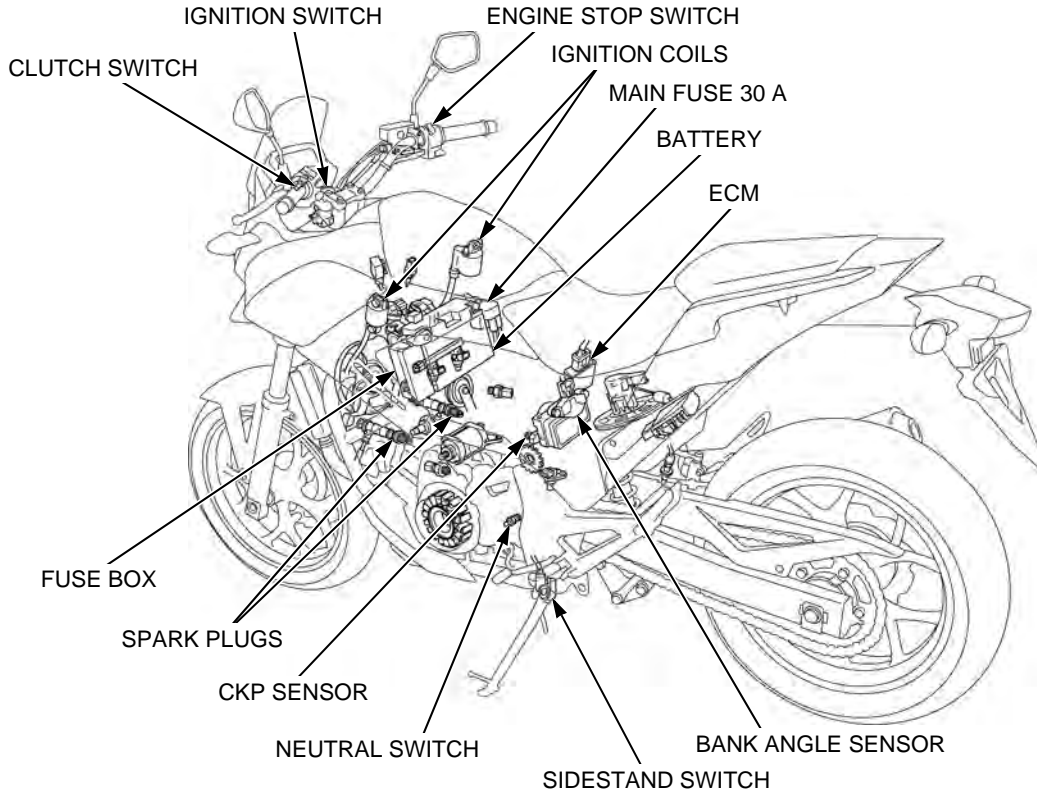


SYSTEM LOCATION.....	5-2	IGNITION SYSTEM INSPECTION	5-6
SYSTEM DIAGRAM	5-3	IGNITION TIMING	5-9
SERVICE INFORMATION	5-4	IGNITION COIL	5-10
TROUBLESHOOTING.....	5-5	CKP SENSOR	5-11

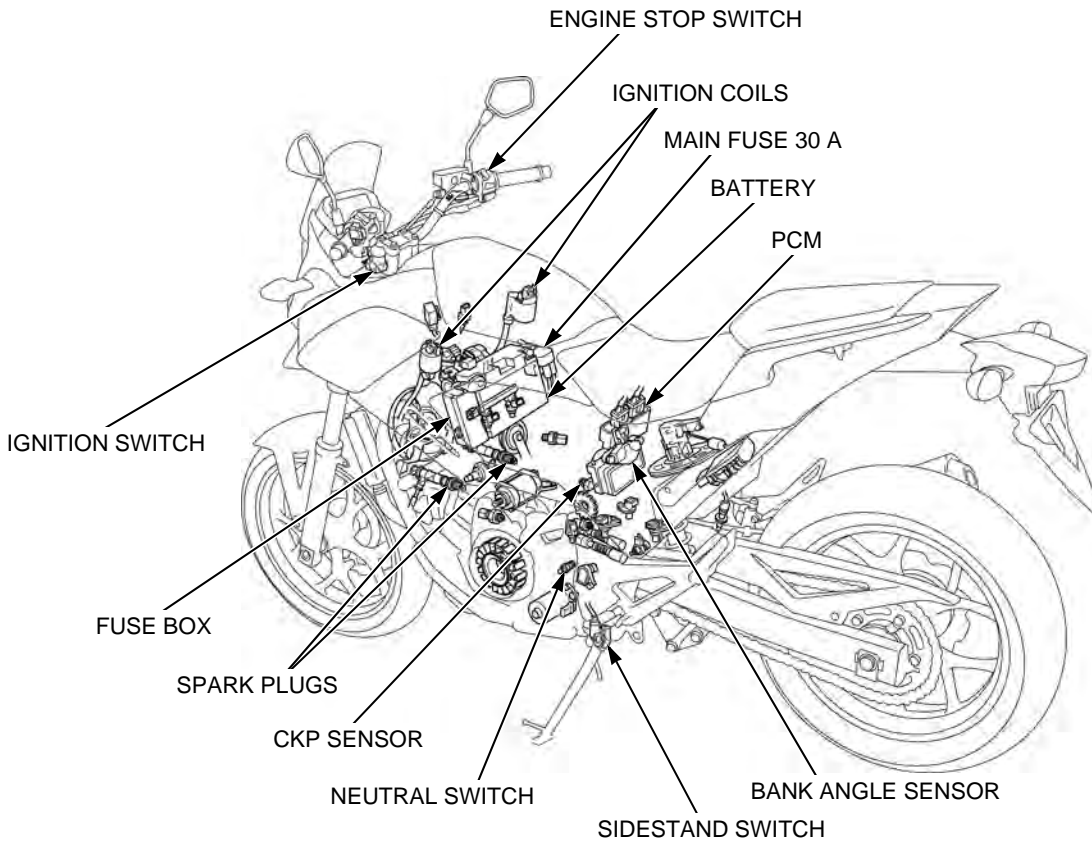
IGNITION SYSTEM

SYSTEM LOCATION

NC700X/XA/S/SA:

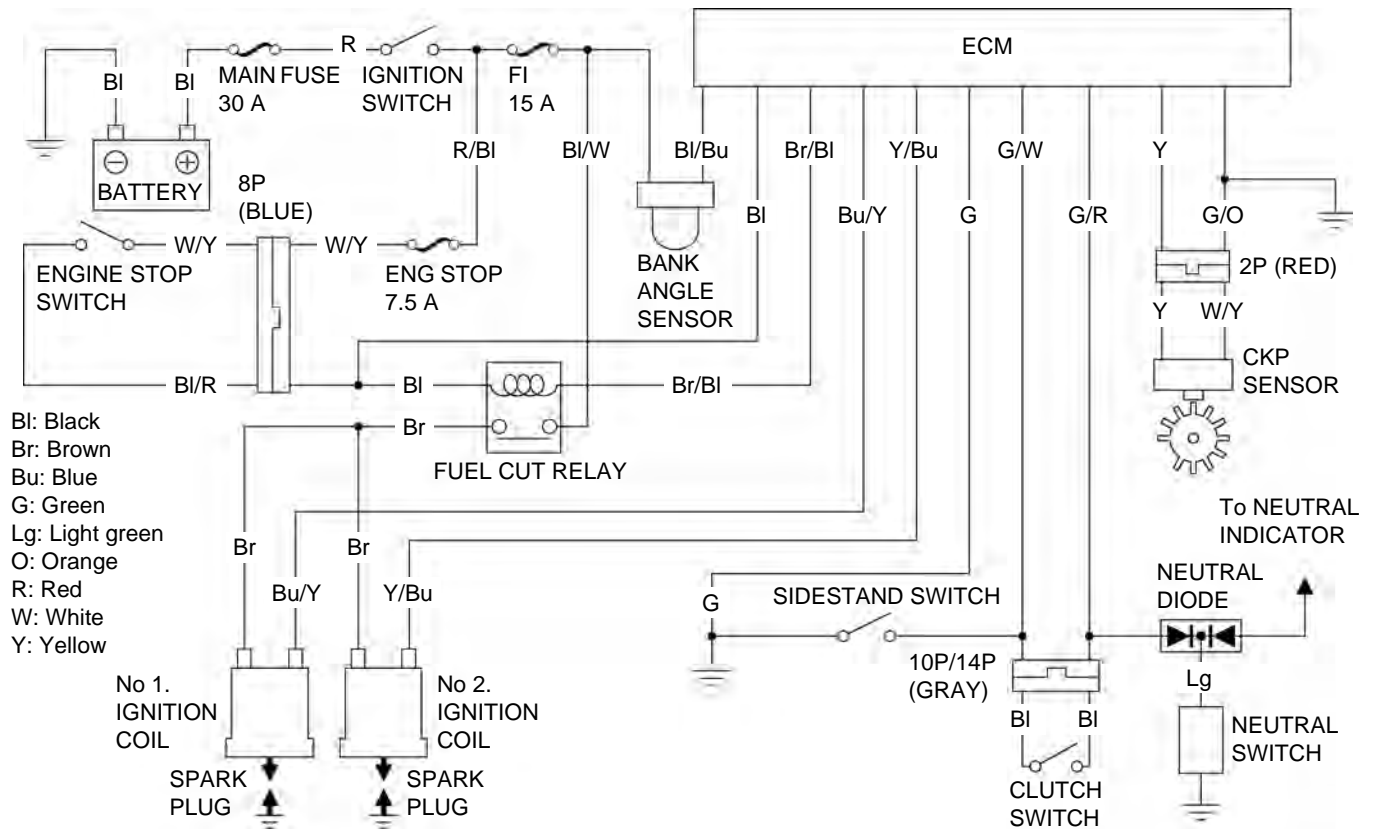


NC700XD/SD:

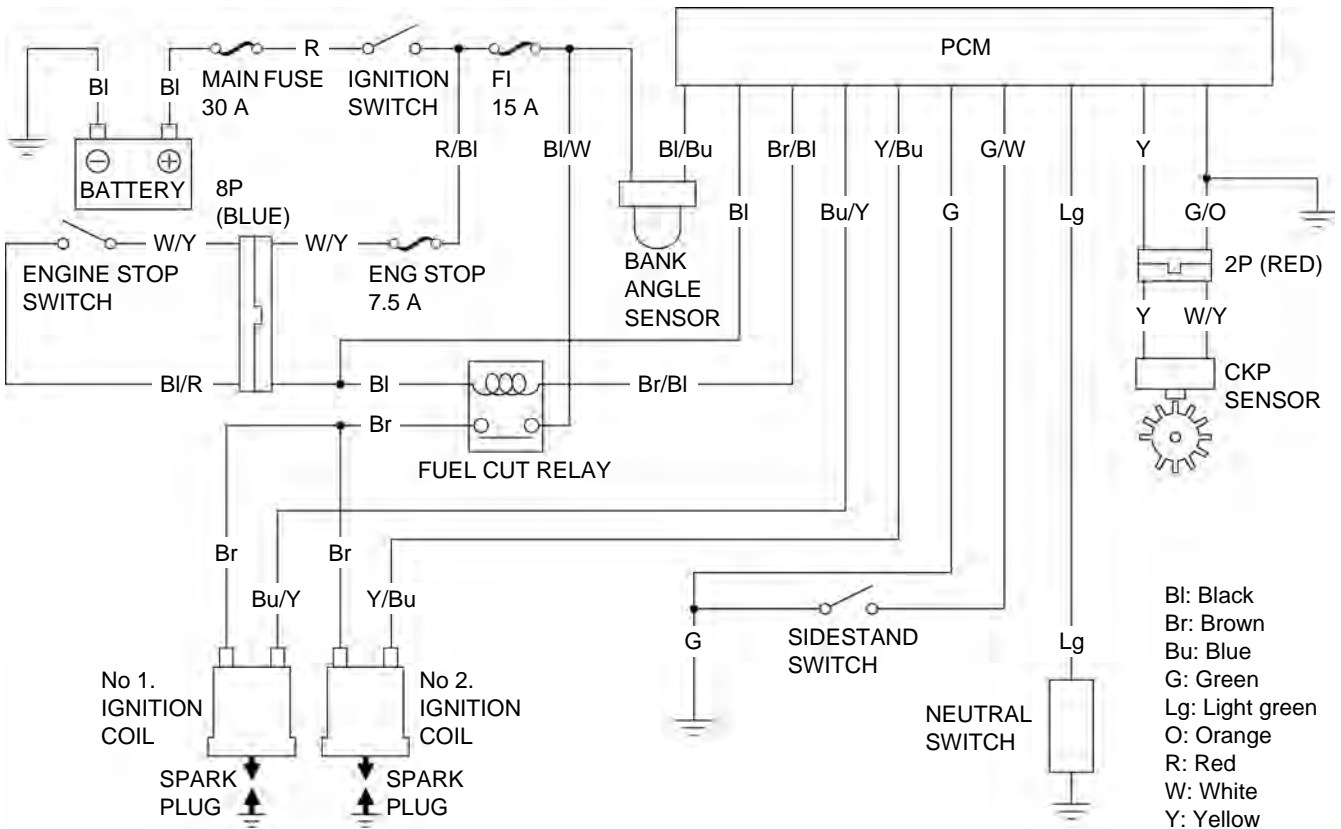


SYSTEM DIAGRAM

NC700X/XA/S/SA:



NC700XD/SD:



IGNITION SYSTEM

SERVICE INFORMATION

GENERAL

NOTICE

- The ECM/PCM may be damaged if dropped. Also if the connector is disconnected when current is flowing, the excessive voltage may damage the module. Always turn off the ignition switch before servicing.
- Use spark plug of the correct heat range. Using a spark plug with an incorrect heat range can damage the engine.
- When servicing the ignition system, always follow the steps in the troubleshooting table (page 5-5).
- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is turned to ON position and current is present.
- A faulty ignition system is often related to poorly connected or corroded connections. Check those connections before proceeding.
- Make sure the battery is adequately charged. Using the starter motor with a weak battery results in a slower engine cranking speed as well as no spark at the spark plug.
- For ECM/PCM service (page 4-67).
- Refer to following components informations:
 - Ignition switch (page 22-24)
 - Engine stop switch (page 22-25)
 - Bank angle sensor (page 4-65)
 - Sidestand switch (page 22-28)
 - Neutral switch (page 22-27)
- The following color codes are used throughout this section.

Bl = Black
Br = Brown

Bu = Blue
G = Green

Lg = Light green
O = Orange

R = Red
W = White

Y = Yellow

SPECIFICATIONS

ITEM	SPECIFICATIONS
Spark plug (Iridium)	IFR6G-11K (NGK)
Spark plug gap	1.0 – 1.1 mm (0.039 – 0.043 in)
Ignition coil peak voltage	100 V minimum
CKP sensor peak voltage (at 20°C/68°F)	0.7 V minimum
Ignition timing ("F" mark)	12° BTDC at idle

TORQUE VALUE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Timing hole cap	1	14	10 (1.0, 7)	Apply grease to the threads.
Right crankcase cover wire clamp bolt (NC700XD/SD)	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip

TROUBLESHOOTING

- Inspect the following before diagnosing the system.
 - Faulty spark plug
 - Loose spark plug cap or spark plug wire connection
 - Water got into the spark plug cap (Leaking the ignition coil secondary voltage)
- If there is no spark at cylinder, temporarily exchange the ignition coil with a known-good one and perform the spark test. If there is spark, the original ignition coil is faulty.
- "Initial voltage" of the ignition primary coil is the battery voltage with the ignition switch turned ON and engine stop switch "O" (The engine is not cranked by the starter motor).

No spark at spark plug

Unusual condition		Probable cause (Check in numerical order)
Ignition coil primary voltage	No initial voltage with the ignition switch turned ON and engine stop switch "O" (Other electrical components are normal).	<ol style="list-style-type: none"> 1. Faulty ignition switch 2. Faulty engine stop switch 3. Faulty fuel cut relay or its related circuits 4. An open circuit in Brown wire between the ignition coil and fuel cut relay 5. Loose or poor connection of the primary terminal, or an open circuit in the primary coil 6. Faulty ECM/PCM (in case when the initial voltage is normal with the ECM/PCM connector disconnected).
	Initial voltage is normal, but it drops by 2 – 4 V while cranking the engine.	<ol style="list-style-type: none"> 1. Incorrect peak voltage adaptor connections (System is normal if measured voltage is over the specifications with reverse connections). 2. Battery is undercharged (Voltage drops largely when the engine is started). 3. No voltage between the Black (+) wire and body ground (–) at the ECM/PCM connector or loosen ECM/PCM connection 4. An open circuit or loose connection in Green/orange wire at the ECM/PCM 5. An open circuit or loose connection in Blue/yellow or Yellow/blue wire between the ignition coil and ECM/PCM 6. Faulty sidestand switch, neutral diode (NC700X/XA/S/SA) or neutral switch 7. Loose or poor connection or an open circuit in No. 6 related wires <ul style="list-style-type: none"> – Sidestand switch line: Green/white and Green – Neutral switch line (NC700X/XA/S/SA): Green/red and Light green – Neutral switch line (NC700XD/SD): Light green 8. Faulty CKP sensor (Measure peak voltage) 9. Faulty ECM/PCM (in case when above No. 1 through 8 are normal).
	Initial voltage is normal but there is no peak voltage while cranking the engine.	<ol style="list-style-type: none"> 1. Incorrect peak voltage adaptor connections 2. Faulty peak voltage adaptor 3. Faulty CKP sensor 4. Faulty ECM/PCM (in case when above No. 1 through 3 are normal).
	Initial voltage is normal but peak voltage is lower than the standard value.	<ol style="list-style-type: none"> 1. The multimeter impedance is too low; below 10 MΩ/DCV. 2. Cranking speed is too slow (Battery is undercharged). 3. The sampling timing of the tester and measured pulse were not synchronized (System is normal if measured voltage is over the standard voltage at least once). 4. Faulty ECM/PCM (in case when above No. 1 through 3 are normal).
	Initial and peak voltages are normal but no spark jumps.	<ol style="list-style-type: none"> 1. Faulty spark plug or leaking ignition coil secondary current ampere 2. Faulty ignition coil
CKP sensor	Peak voltage is lower than standard value.	<ol style="list-style-type: none"> 1. The multimeter impedance is too low; below 10 MΩ/DCV. 2. Cranking speed is too low. (Battery is undercharged.) 3. The sampling timing of the tester and measured pulse were not synchronized (System is normal if measured voltage is over the standard voltage at least once). 4. Faulty CKP sensor (in case when above No.1 through 3 are normal).
	No peak voltage	<ol style="list-style-type: none"> 1. Faulty peak voltage adapter 2. Faulty CKP sensor

IGNITION SYSTEM INSPECTION

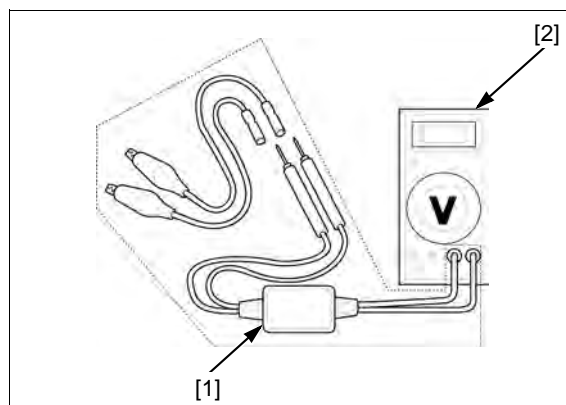
NOTE:

- If there is no spark at the plug, check all connections for loose or poor contact before measuring the peak voltage.
- Use a commercially available digital multimeter with an impedance of 10 M Ω /DCV minimum.
- The display value differs depending upon the internal impedance of the multimeter.
- If using the Imrie diagnostic tester (model 625), follow the manufacturer's instructions.

Connect the peak voltage adaptor [1] to the digital multimeter [2], or use the Imrie diagnostic tester.

TOOL:

**Imrie diagnostic tester (model 625) or
Peak voltage adaptor 07HGJ-0020100
with commercially available digital multimeter
(impedance 10 M Ω /DCV minimum)**



IGNITION COIL PRIMARY PEAK VOLTAGE

NOTE:

- Check all system connections before performing this inspection. Loose connectors can cause incorrect readings.
- If the system is disconnected, incorrect peak voltage might be measured.
- Check the cylinder compression and check that the spark plug is installed correctly in the cylinder head.

Disconnect the spark plug caps (page 3-8).

Connect a known good spark plug [1] to the spark plug cap and ground it to the cylinder head as done in a spark test.



Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).
 Remove the side cowl (NC700S/SA/SD) (page 2-13)

Do not disconnect the ignition coil primary wire. With the ignition coil primary wire connected, connect the peak voltage adaptor or Imrie tester to the ignition coil primary terminal [1] and ground.

TOOL:
Imrie diagnostic tester (model 625) or Peak voltage adaptor 07HGJ-0020100 with commercially available digital multimeter (impedance 10 MΩ/DCV minimum)

CONNECTION:
No.1: Blue/yellow (+) – Ground (-)
No.2: Yellow/blue (+) – Ground (-)



Turn the ignition switch ON and engine stop switch "O".

Check the initial voltage at this time. The battery voltage should be measured. If the initial voltage cannot be measured, follow the checks described in the troubleshooting table (page 5-5).

Shift the transmission into neutral.

Avoid touching the spark plug and tester probes to prevent electric shock. Crank the engine with the starter motor and measure the ignition coil primary peak voltage.
PEAK VOLTAGE: 100 V minimum

If the peak voltage is abnormal, follow the checks described in the troubleshooting table (page 5-5).

Install the shroud/side cover (NC700X/XA/XD) (page 2-14).
 Install the side cowl (NC700S/SA/SD) (page 2-13).

CKP SENSOR PEAK VOLTAGE (NC700X/XA/S/SA)

NOTE:
 Check the cylinder compression and check that the spark plugs are installed correctly in the cylinder head.

Disconnect the ECM 33P (Black) connector [1] (page 4-67).

Connect the peak voltage tester or adaptor probes to the ECM 33P (Black) connector terminals of the wire harness side.

TOOLS:
Imrie diagnostic tester (model 625) or Peak voltage adaptor [2] 07HGJ-0020100 with commercially available digital multimeter (impedance 10 MΩ/DCV minimum)
Test probe 07ZAJ-RDJA110

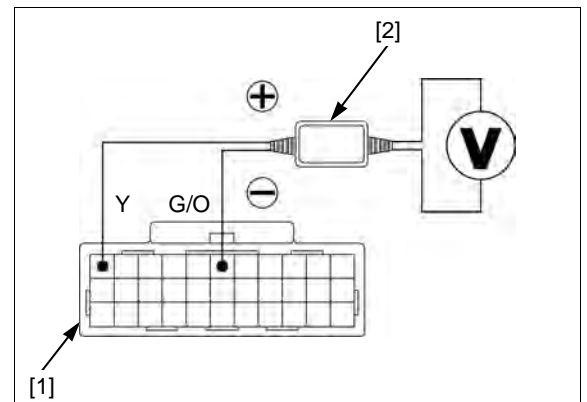
CONNECTION: Yellow (+) – Green/orange (-)

Shift the transmission into neutral.
 Turn the ignition switch ON and engine stop switch "O".

Crank the engine with the starter motor and measure the CKP sensor peak voltage.

PEAK VOLTAGE: 0.7 V minimum

If the peak voltage measured at the ECM 33P (Black) connector is abnormal, measure the peak voltage at the CKP sensor connector.



IGNITION SYSTEM

Turn the ignition switch OFF.

Disconnect the CKP sensor 2P (Red) connector [1] and connect the tester probes to the connector terminals of the CKP sensor side.

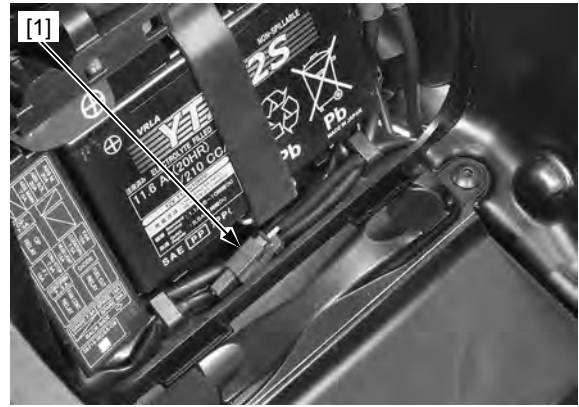
CONNECTION: Yellow (+) – White/yellow (-)

In the same manner as at the ECM 33P (Black) connector, measure the peak voltage and compare it to the voltage measured at the ECM 33P (Black) connector.

- If the peak voltage measured at the ECM is abnormal and the one measured at the CKP sensor is normal, the wire harness has an open or short circuit or loose connection.
- If the peak voltage of the CKP sensor side is lower than standard value, follow the checks described in the troubleshooting table (page 5-5).

For CKP sensor replacement (page 5-11).

Install the removed parts in the reverse order of removal.



CKP SENSOR PEAK VOLTAGE (NC700XD/SD)

NOTE:

Check the cylinder compression and check that the spark plugs are installed correctly in the cylinder head.

Disconnect the spark plug caps (page 3-8).

Connect the ECM test harness to the PCM 33P connectors (page 4-14).

Connect the peak voltage tester or adaptor probes to the ECM test harness [1] terminals.

TOOL:

Imrie diagnostic tester (model 625) or Peak voltage adaptor [2] 07HGJ-0020100 with commercially available digital multimeter (impedance 10 M Ω /DCV minimum)

CONNECTION: B11 (+) – B6 (-)

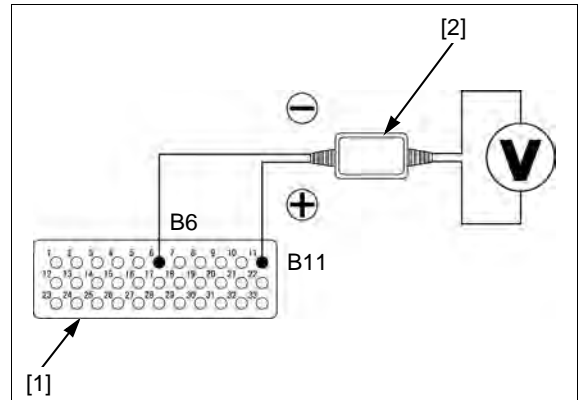
Shift the transmission into neutral.

Turn the ignition switch ON and engine stop switch "O".

Crank the engine with the starter motor and measure the CKP sensor peak voltage.

PEAK VOLTAGE: 0.7 V minimum

If the peak voltage measured at the ECM test harness is abnormal, measure the peak voltage at the CKP sensor connector.



Turn the ignition switch OFF.

Disconnect the CKP sensor 2P (Red) connector [1] and connect the tester probes to the connector terminals of the CKP sensor side.

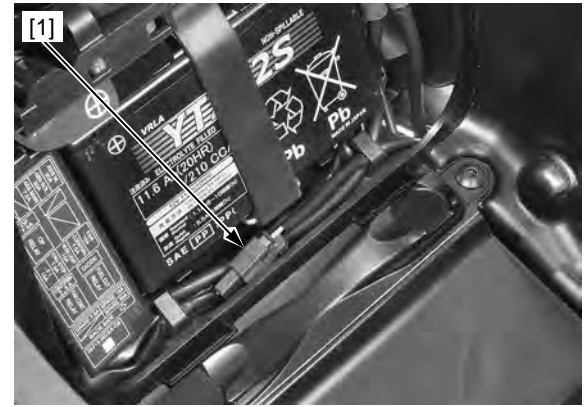
CONNECTION: Yellow (+) – White/yellow (-)

In the same manner as at the ECM test harness, measure the peak voltage and compare it to the voltage measured at the ECM test harness.

- If the peak voltage measured at the ECM test harness is abnormal and the one measured at the CKP sensor is normal, the wire harness has an open or short circuit or loose connection.
- If the peak voltage of the CKP sensor side is lower than standard value, follow the checks described in the troubleshooting table (page 5-5).

For CKP sensor replacement (page 5-11).

Install the removed parts in the reverse order of removal.



IGNITION TIMING

Warm up the engine.

Stop the engine and remove the timing hole cap.

Connect the timing light [1] to the spark plug wire.

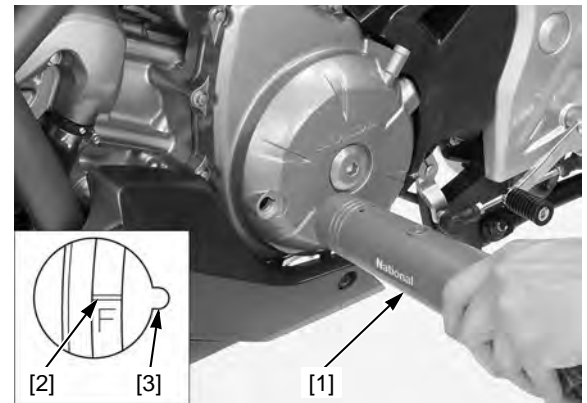
NOTE:

Read the instructions for timing light operation.

Start the engine and let it idle.

IDLE SPEED: 1,200 ± 100 min⁻¹ (rpm)

The ignition timing is correct if the "F" mark [2] on the flywheel aligns with the index notch [3] on the alternator cover.

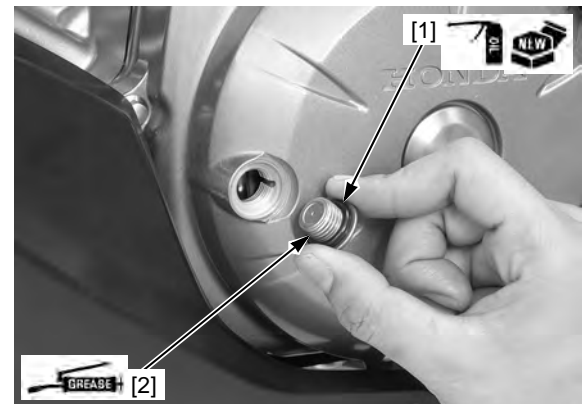


Apply engine oil to a new O-ring [1] and install it to the timing hole cap.

Apply grease to the timing hole cap [2] threads.

Install and tighten the timing hole cap to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



IGNITION COIL

REMOVAL/INSTALLATION

No.1 IGNITION COIL

Remove the following:

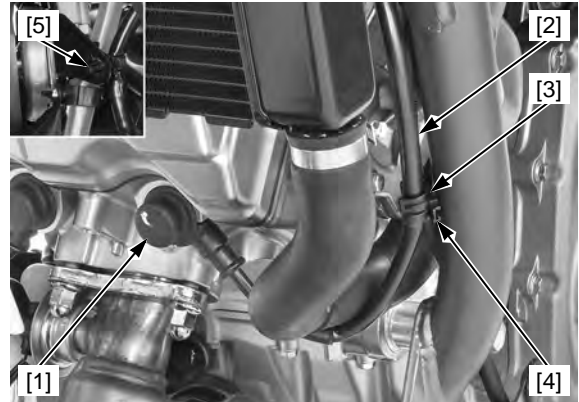
- Lower cowl (page 2-28)
- Air cleaner housing (page 7-14)

Disconnect the spark plug cap [1].

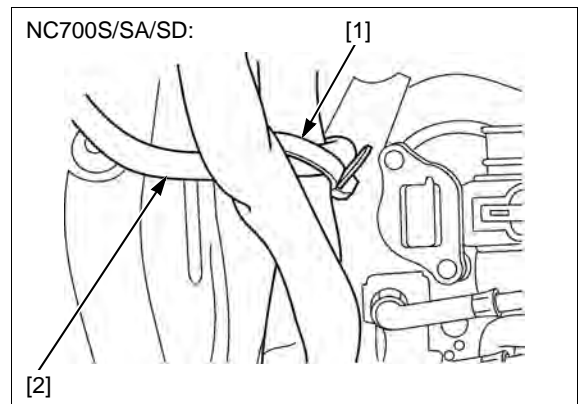
Release the spark plug wire [2] from the clamp [3].

Release the clamp [4] from the frame tab.

Release the clamp [5] from the fan motor stay.



NC700S/SA/SD: Remove the wire band [1] and spark plug wire [2] from the main wire harness.



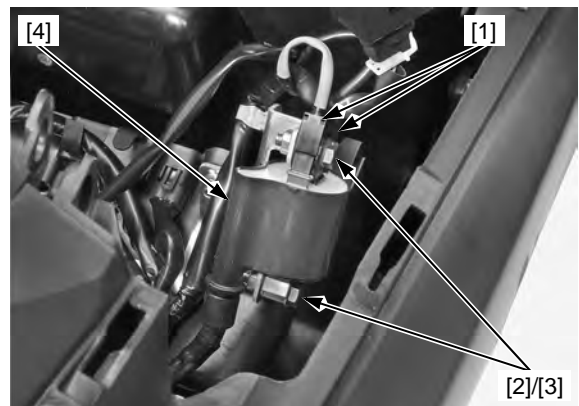
Disconnect the primary wire connectors [1] from the ignition coil.

Remove the bolts [2], spacers [3] and ignition coil [4] from the ignition coil stay.

Installation is in the reverse order of removal.

NOTE:

Route the wire properly (page 1-25).



No.2 IGNITION COIL

Remove the following:

- Lower cowl (page 2-28)
- Air cleaner housing (page 7-14)

Disconnect the spark plug cap [1].

Release the clamp [2] from the frame tab.



Disconnect the primary wire connectors [1] from the ignition coil.

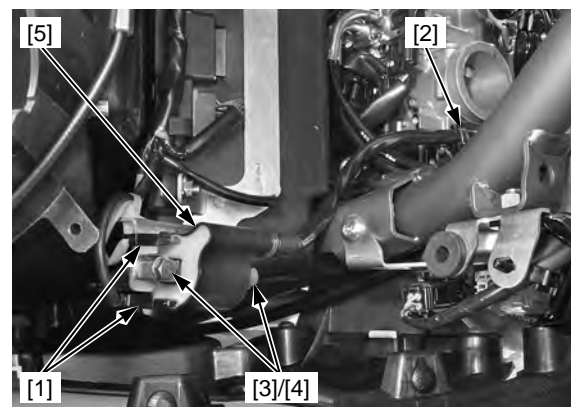
Release the clamp [2] from the frame tab.

Remove the bolts [3], spacers [4] and ignition coil [5] from the ignition coil stay.

Installation is in the reverse order of removal.

NOTE:

Route the wire properly (page 1-25).



CKP SENSOR

REMOVAL/INSTALLATION (NC700X/ XA/S/SA)

Remove the right crankcase cover (page 11-5).

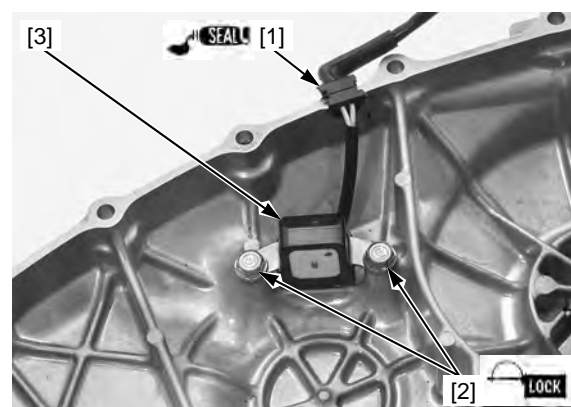
Remove the wire grommet [1] from the right crankcase cover.

Remove the CKP sensor mounting bolts [2] and CKP sensor [3].

Installation is in the reverse order of removal.

NOTE:

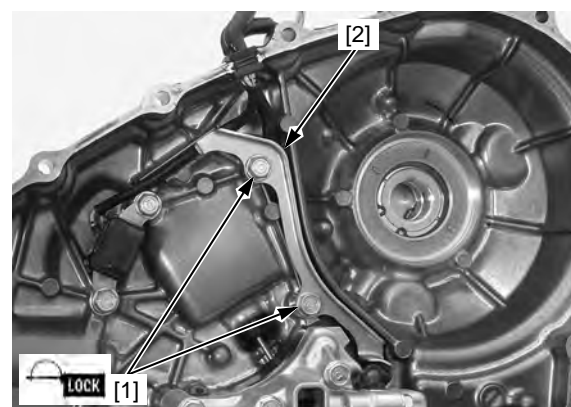
- Apply locking agent to the CKP sensor mounting bolts threads (page 1-23).
- Apply liquid sealant (Three bond 1207B or equivalent) to the CKP sensor wire grommet sealing surface.



REMOVAL/INSTALLATION (NC700XD/ SD)

Remove the right crankcase cover (page 12-97).

Remove the right crankcase cover wire clamp bolts [1] and wire clamp [2].



IGNITION SYSTEM

Remove the wire grommet [1] from the right crankcase cover.

Remove the CKP sensor mounting bolts [2] and CKP sensor [3].

Installation is in the reverse order of removal.

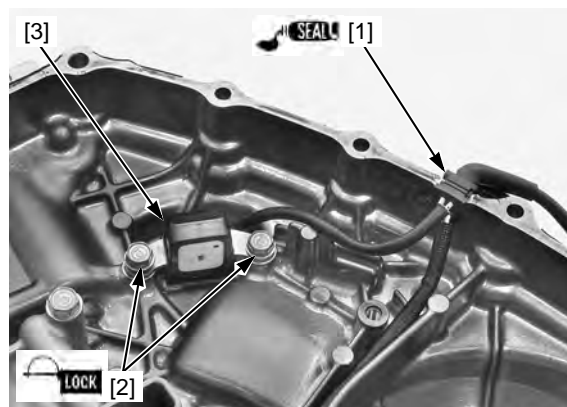
NOTE:

- Apply locking agent to the CKP sensor mounting bolt threads (page 1-23).
- Apply locking agent to the right crankcase cover wire clamp bolt threads (page 5-4).
- Apply sealant to the wire grommet seating surface and grommet mating surface.

TORQUE:

Right crankcase cover wire clamp bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)

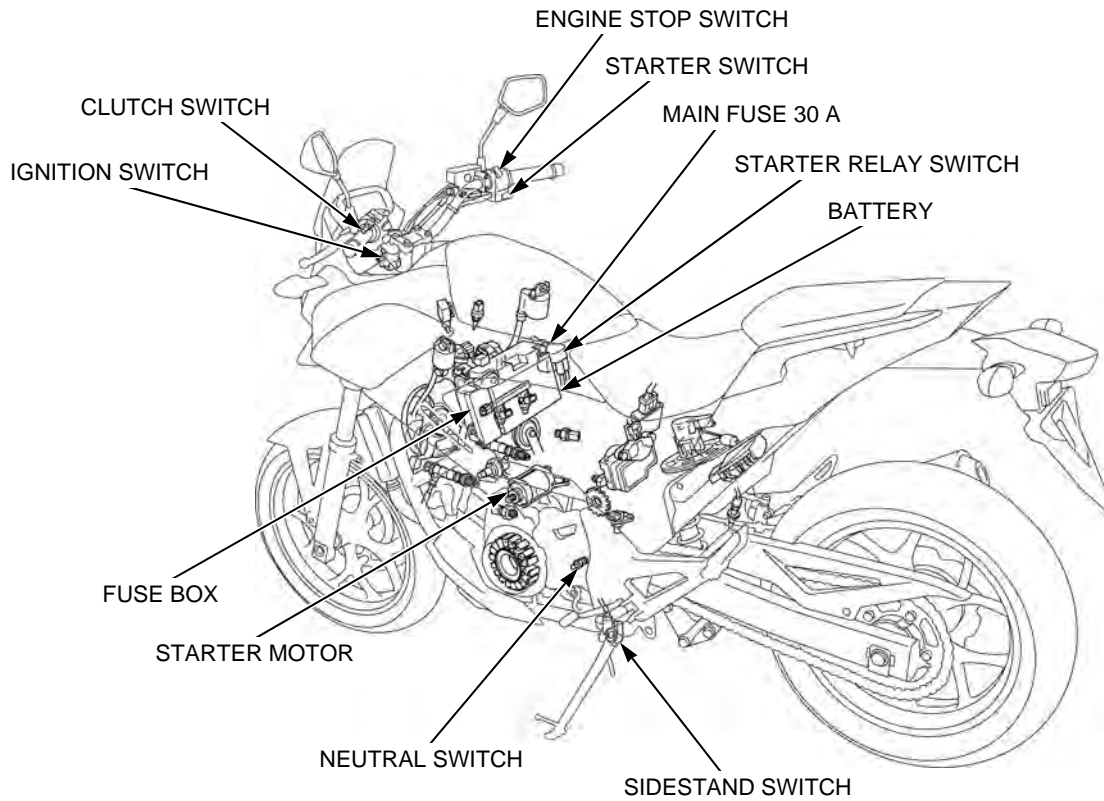


6. ELECTRIC STARTER

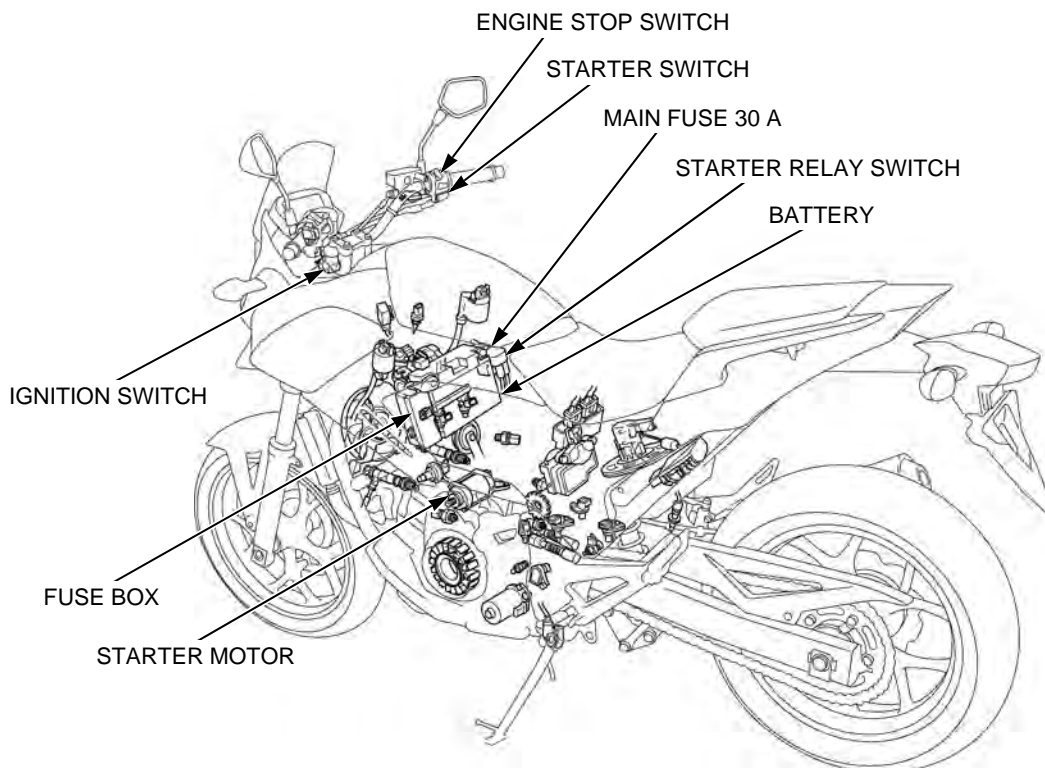
SYSTEM LOCATION.....	6-2	STARTER MOTOR	6-8
SYSTEM DIAGRAM	6-3	STARTER RELAY SWITCH	6-10
SERVICE INFORMATION	6-4	NEUTRAL DIODE (NC700X/XA/S/SA).....	6-12
TROUBLESHOOTING.....	6-5	STARTER RELAY (NC700XD/SD).....	6-12

ELECTRIC STARTER SYSTEM LOCATION

NC700X/XA/S/SA:

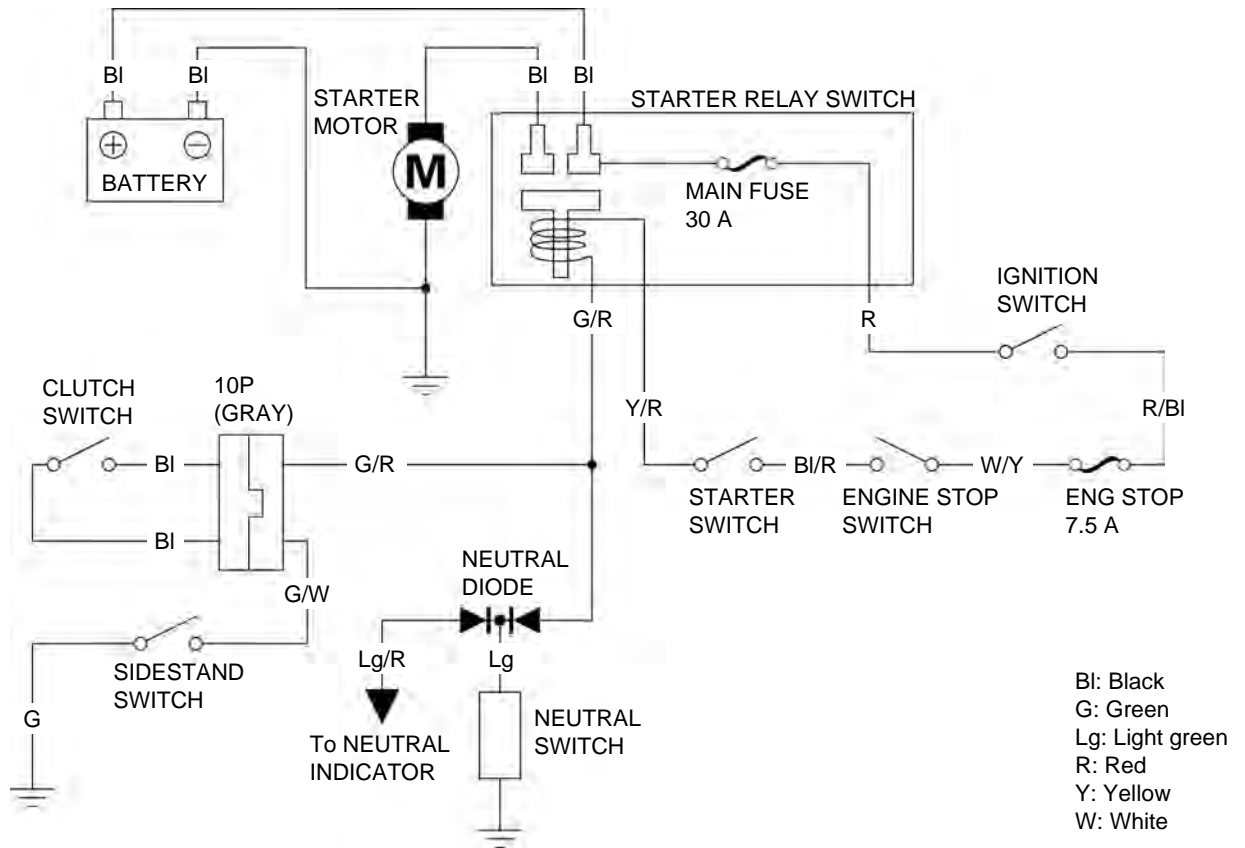


NC700XD/SD:

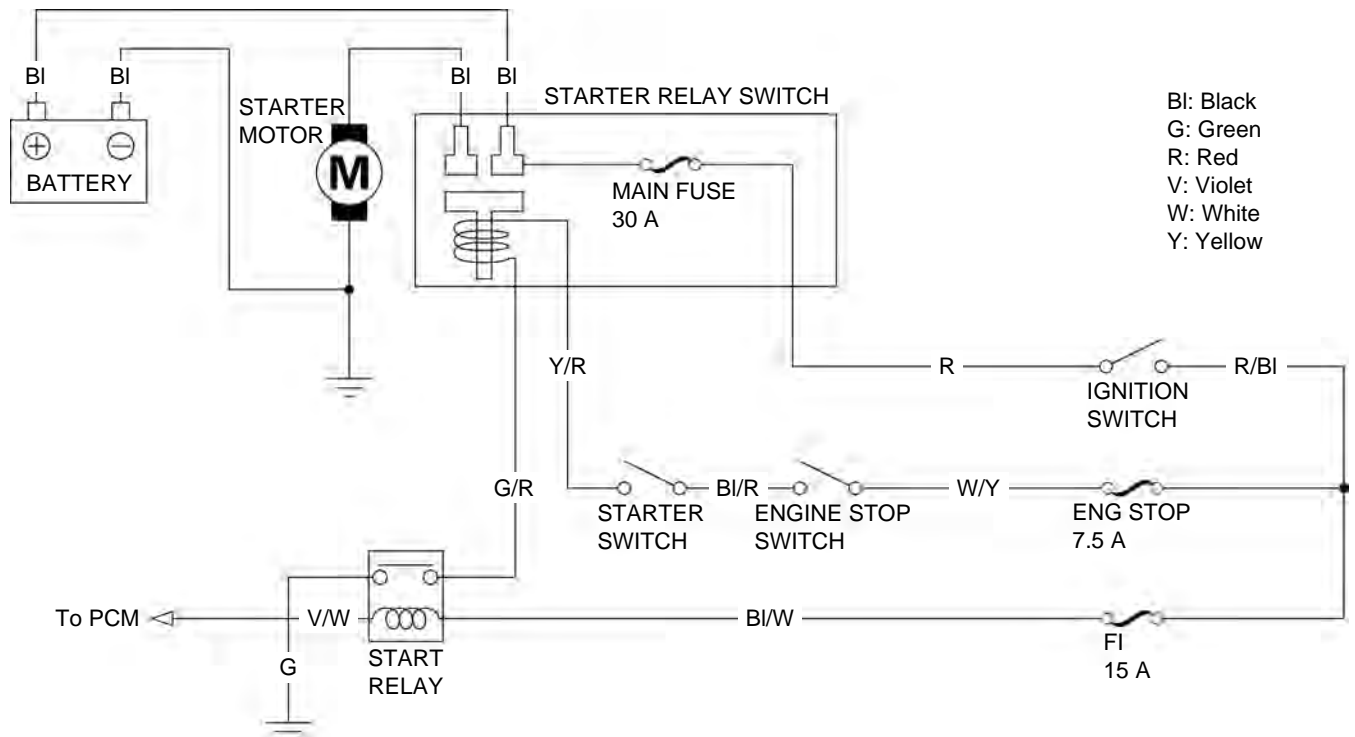


SYSTEM DIAGRAM

NC700X/XA/S/SA:



NC700XD/SD:



ELECTRIC STARTER

SERVICE INFORMATION

GENERAL

NOTICE

If the current is kept flowing through the starter motor turn it while the engine is not cranking over, the starter motor may be damaged.

- The starter motor can be serviced with the engine installed in the frame.
- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- When servicing the starter system, always follow the steps in the troubleshooting flow chart (page 6-5).
- Refer to the following components information:
 - Ignition switch (page 22-24)
 - Starter switch (page 22-25)
 - Engine stop switch (page 22-25)
 - Neutral switch (NC700X/XA/S/SA) (page 22-27)
 - Sidestand switch (NC700X/XA/S/SA) (page 22-28)
 - Clutch switch (NC700X/XA/S/SA) (page 22-26)

SPECIFICATION

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0 – 13.0 (0.47 – 0.51)	6.5 (0.26)

TORQUE VALUE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Starter motor terminal nut	1	6	10 (1.0, 7)	

TROUBLESHOOTING

Starter motor does not turn (NC700X/XA/S/SA)

1. Fuse Inspection

Check for blown main fuse 30 A or sub fuse 7.5 A (ENG STOP).

Is the fuse blown?

YES – Replace the fuse.

NO – GO TO STEP 2.

2. Battery Inspection

Make sure the battery is fully charged and in good condition (page 21-6).

Is the battery in good condition?

YES – GO TO STEP 3.

NO – Charge or replace the battery.

3. Starter Relay Switch Operation

Check the starter relay switch operation.

You should hear the relay "CLICK" when the starter switch button is depressed.

Is there a "CLICK"?

YES – GO TO STEP 4.

NO – GO TO STEP 5.

4. Starter Motor Inspection

Apply battery voltage directly to the starter motor and check the operation.

Does the starter motor turn?

YES – • Poorly contacted starter motor cable
• Faulty starter relay switch (page 6-10)

NO – Faulty starter motor (page 6-8)

5. Relay Coil Ground Lines Inspection

Disconnect the starter relay switch connector, and check the relay coil ground wire line as below for continuity:

1. Green/red terminal – neutral diode – neutral switch line (with the transmission in neutral and clutch lever released).
2. Green/red terminal – clutch switch – sidestand switch (in any gear except neutral, and with the clutch lever pulled in and sidestand up.)

Is there continuity?

YES – GO TO STEP 6.

NO – • Loose or poor contact connector
• Open circuit in wire harness
• Faulty neutral diode (page 6-12)
• Faulty neutral switch (page 22-27)
• Faulty sidestand switch (page 22-28)
• Faulty clutch switch (page 22-26)

6. Starter Relay Input Voltage Inspection

Connect the starter relay switch connector.

With the ignition switch turned ON and engine stop switch "O" and the starter switch is pushed, measure the voltage at the starter relay switch connector (between Yellow/red (+) and ground (-)).

Does the battery voltage exist?

YES – GO TO STEP 7.

NO – • Faulty ignition switch (page 22-24)
• Faulty starter switch (page 22-25)
• Faulty engine stop switch (page 22-25)
• Loose or poor contact connector
• Open circuit in wire harness

ELECTRIC STARTER

7. Starter Relay Switch Continuity Inspection

Remove and check the operation of the starter relay switch (page 6-11).

Is there continuity?

YES – Loose or poor contact starter relay switch connector

NO – Faulty starter relay switch

Starter motor does not turn (NC700XD/SD)

1. Fuse Inspection

Check for blown main fuse (30 A), ENG STOP fuse (7.5 A) and FI fuse (15 A).

Are the fuses in good condition?

YES – GO TO STEP 2.

NO – Replace the blown fuse.

2. Battery Inspection

Make sure the battery is fully charged and in good condition (page 21-6).

Is the battery in good condition?

YES – GO TO STEP 3.

NO – Charge or replace the battery.

3. Starter Relay Switch Operation Inspection

Check the starter relay switch operation (page 6-10).

Does the starter relay switch click?

YES – GO TO STEP 4.

NO – GO TO STEP 5.

4. Starter Motor Inspection

Turn the ignition switch OFF.

Apply battery voltage directly to the starter motor and check the operation.

Does the starter motor turn?

YES – • Poorly contacted battery positive cable or starter motor cable
• Faulty starter relay switch

NO – Faulty starter motor (page 6-8)

5. Relay Coil Input Line Inspection

Check the relay coil input line of the starter relay switch (page 6-10).

Is the input line normal?

YES – GO TO STEP 6.

NO – • Faulty ignition switch (page 22-24)
• Faulty starter switch (page 22-25)
• Faulty engine stop switch (page 22-25)
• Loose or poor connected connector
• Open circuit in the wire harness

6. Relay Coil Ground Line Inspection

Check the relay coil ground line of the starter relay switch (page 6-11).

Is the ground line normal?

YES – GO TO STEP 7.

NO – GO TO STEP 8.

7. Starter Relay Switch Continuity Inspection

Check the starter relay switch (page 6-11).

Is there continuity?

YES – Loose or poor contact starter relay switch connector

NO – Faulty starter relay switch

8. Starter Relay Inspection

Check the starter relay (page 6-12).

Is the starter relay normal?

- YES** – • Loose or poor connected connector
• Open circuit in the wire harness
• Faulty neutral switch or its circuit
• Faulty PCM

NO – Faulty starter relay

The starter motor turns when the transmission is in neutral, but does not turn with the transmission in any position except neutral, with the sidestand up and the clutch lever pulled in. (NC700X/XA/S/SA)

1. Clutch Switch Inspection

Check the clutch switch operation (page 22-26).

Is the clutch switch operation normal?

YES – GO TO STEP 2.

NO – Faulty clutch switch

2. Sidestand Switch Inspection

Check the sidestand switch operation (page 22-28).

Is the sidestand switch operation normal?

- YES** – • Loose or poor contact connector
• Open circuit in wire harness

NO – Faulty sidestand switch

Starter motor turns slowly

- Low battery voltage
- Poorly connected battery terminal cable
- Poorly connected starter motor cable
- Faulty starter motor
- Poorly connected battery ground cable

Starter motor turns, but engine does not turn

- Starter motor is running backwards
 - Case assembled improperly
 - Terminals connected improperly
- Faulty starter clutch
- Damaged or faulty starter reduction gear/shaft
- Damaged or faulty starter idle gear/shaft

Starter relay switch "Clicks", but engine does not turn over

- Crankshaft does not turn due to engine problems

STARTER MOTOR

REMOVAL/INSTALLATION

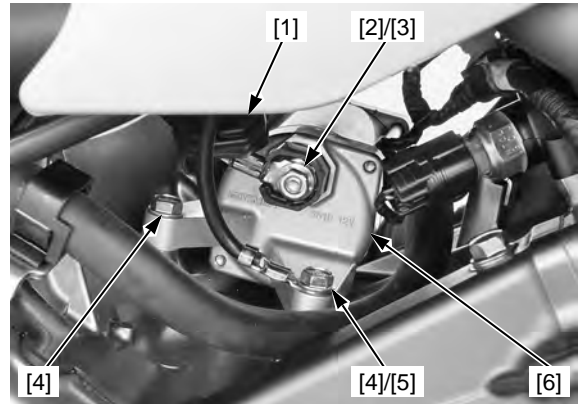
Disconnect the battery negative cable (page 21-6).

Release the rubber cap [1].

Remove the starter motor terminal nut [2] and starter motor cable [3].

Remove the starter motor mounting bolts [4] and ground cable [5].

Remove the starter motor [6].



Remove the O-ring [1].

Installation is in the reverse order of removal.

NOTE:

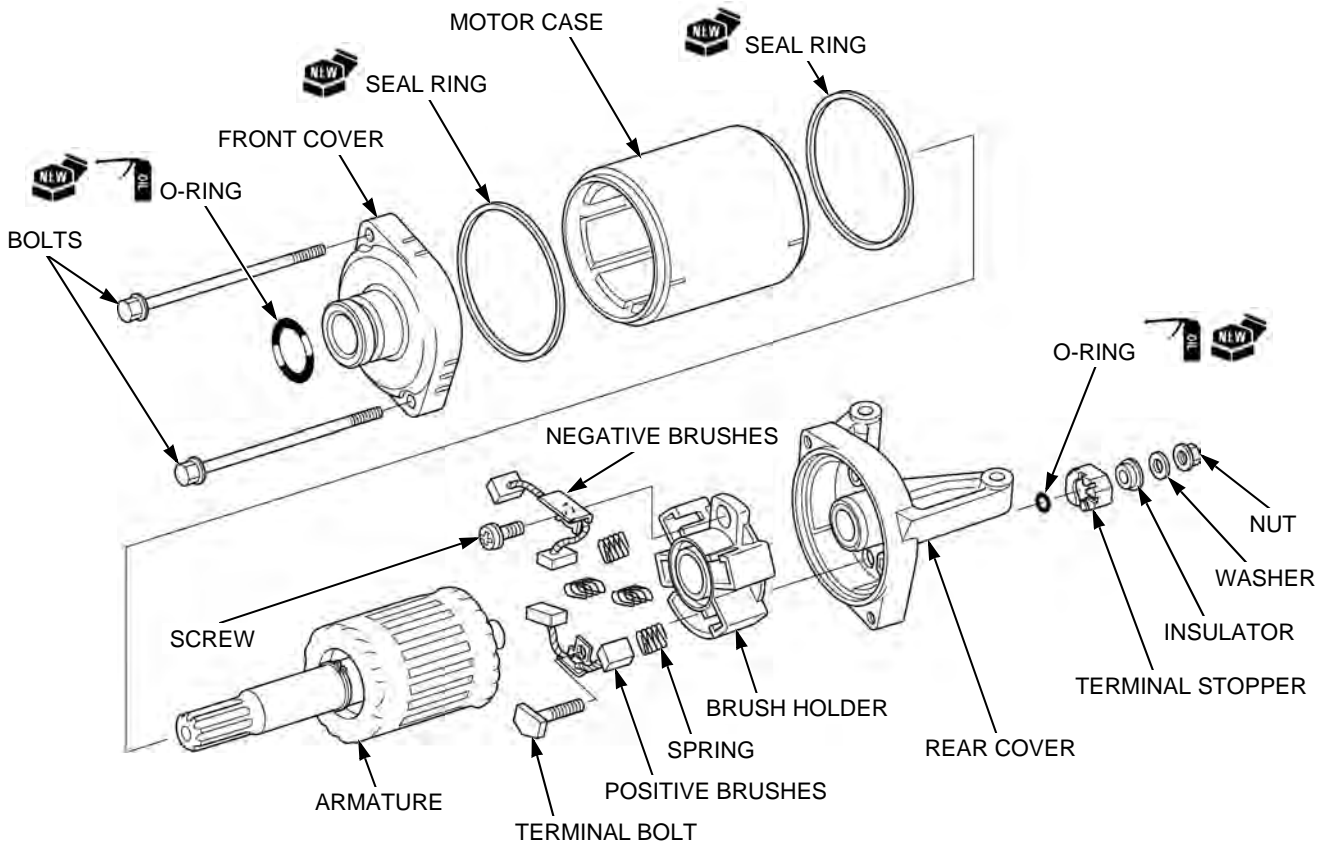
- Apply engine oil to a new O-ring.
- Route the cables properly (page 1-25).

TORQUE:

Starter motor terminal nut:
10 N·m (1.0 kgf·m, 7 lbf·ft)



DISASSEMBLY/ASSEMBLY



INSPECTION

FRONT COVER

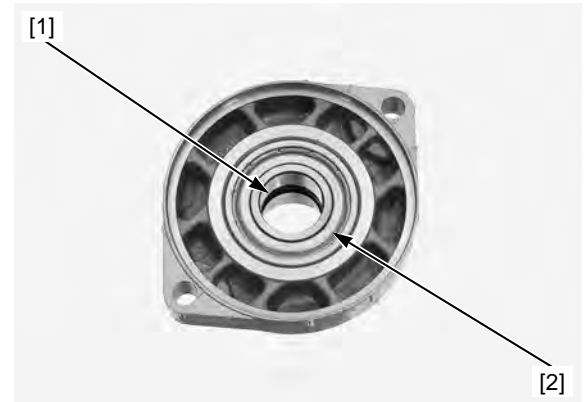
Check the oil seal [1] in the front cover for deterioration, wear or damage.

Turn the inner race of bearing [2] in the front cover with your finger.

The bearings should turn smoothly and quietly.

Also check that the outer race fits tightly in the front cover.

Replace the starter motor as an assembly if necessary.



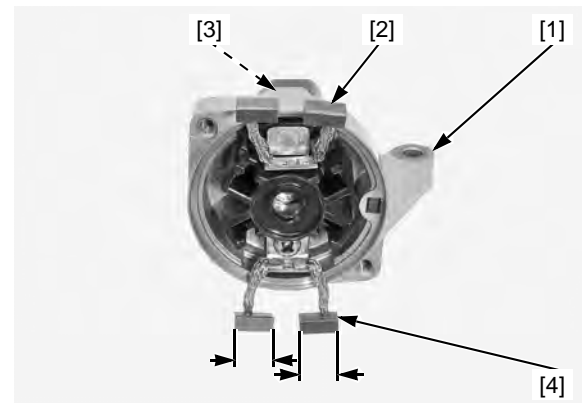
REAR COVER

Inspect the brushes for damage and measure the brush length.

SERVICE LIMIT: 6.5 mm (0.26 in)

Check for continuity or no continuity for each part of rear cover [1] as below:

- Between the positive brush [2] and cable terminal [3]: should be continuity.
- Between the cable terminal and the rear cover: should be No continuity.
- Between the positive brush and rear cover: should be No continuity.
- Between positive brush and negative brush [4]: should be No continuity.



ARMATURE

Clean the metallic debris off between commutator bars [1].

Check the commutator bars of the armature for discoloration.

Check for continuity or no continuity for each part of armature as below:

- Between pair of commutator bars: should be continuity.
- Between each commutator bar and the armature shaft [2]: should be No continuity.

Replace the starter motor as an assembly if necessary.



ELECTRIC STARTER

STARTER RELAY SWITCH

INSPECTION

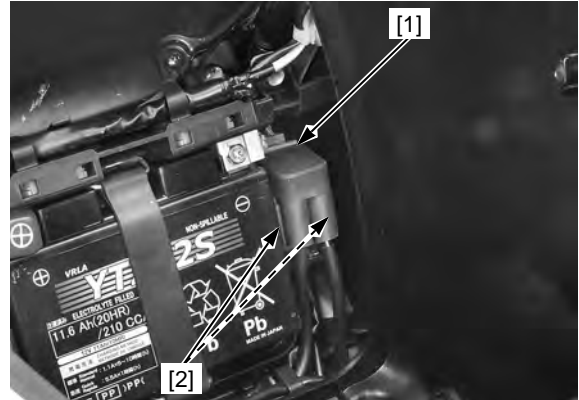
Remove the maintenance lid (page 21-6).

Shift the transmission into neutral.

Turn the ignition switch ON and engine stop switch "O".
Push the starter switch.

The coil is normal if the starter relay switch [1] clicks.

If you don't hear the starter relay switch "CLICK", release the starter relay switch/shock rubber from the battery box tabs [2] and inspect the starter relay switch using a procedure below.



STARTER RELAY INPUT VOLTAGE

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the Yellow/red (+) wire terminal at the starter relay switch 4P (Red) connector [1] and ground (-).

If the battery voltage appears only when the starter switch is pushed with the ignition switch turned ON and engine stop switch "O", the starter relay input voltage is normal.

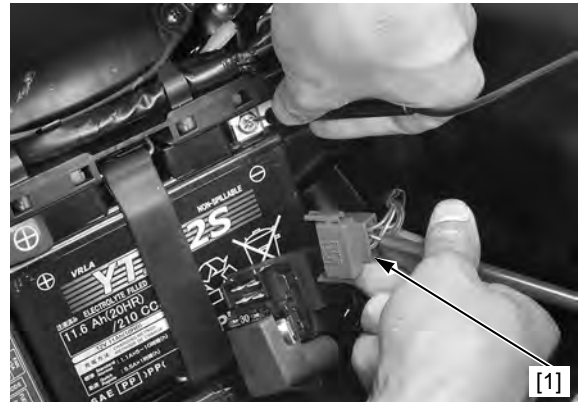


GROUND LINE (NC700X/XA/S/SA)

Disconnect the starter relay switch 4P (Red) connector [1].

Check for continuity between the Green/red wire of the wire harness side (ground line) and ground.

If there is continuity when the transmission is in neutral or when the clutch is disengaged and the sidestand is retracted, the ground circuit of the relay coil is normal. (In neutral, there is a slight resistance due to the diode.)

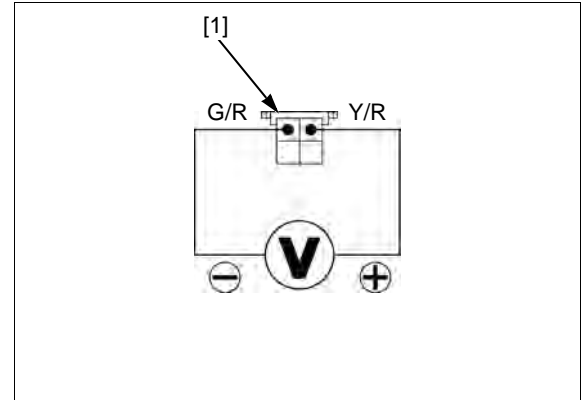


GROUND LINE (NC700XD/SD)

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the Yellow/red (+) and Green/red (-) wire terminals at the starter relay switch 4P (Red) connector [1].

If the battery voltage appears only when the starter switch is pushed with the ignition switch turned ON and engine stop switch "O", the starter relay ground line is normal.

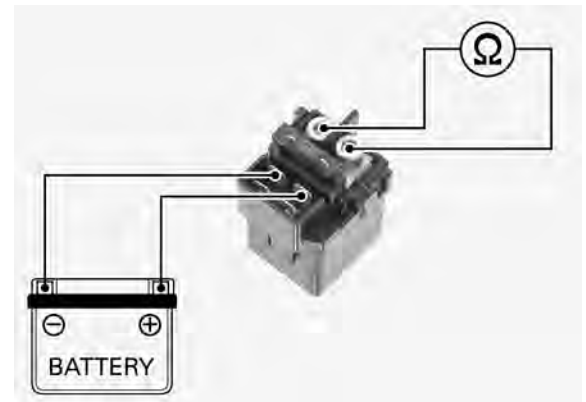


OPERATION CHECK

Remove the starter relay switch (page 6-11).

Connect a 12 V battery to the starter relay switch as shown.

There should be continuity between the cable terminals when the battery is connected, and not continuity when the battery is disconnected.



REMOVAL/INSTALLATION

Remove the maintenance lid (page 21-6).

Release the starter relay switch/shock rubber from the battery box tabs [1].

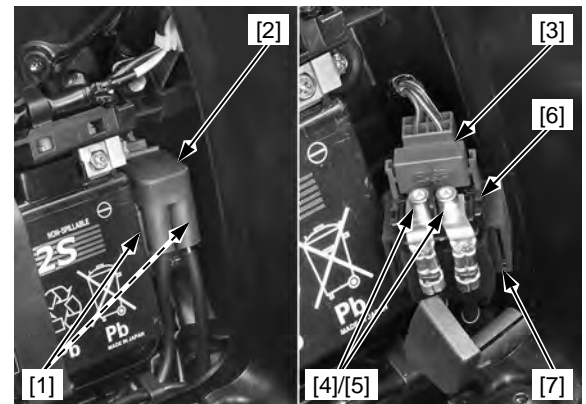
Release the rubber cover [2].

Disconnect the starter relay switch 4P (Red) connector [3].

Remove the bolts [4] and cables [5].

Remove the starter relay switch [6] from the shock rubber [7].

Installation is in the reverse order of removal.



ELECTRIC STARTER

NEUTRAL DIODE (NC700X/XA/S/SA)

INSPECTION

Remove the maintenance lid (page 21-6).

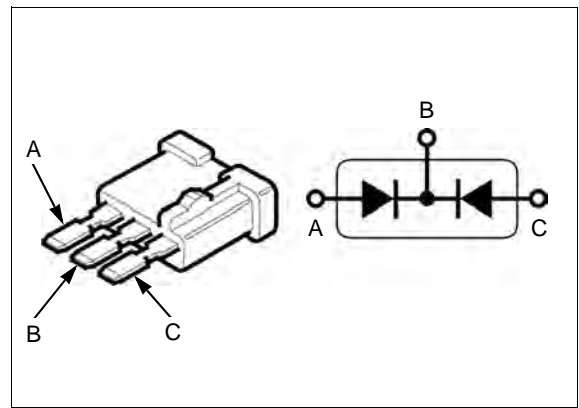
Open the fuse/relay box cover and remove the neutral diode [1].



Check for continuity between the neutral diode terminals.

When there is continuity, a small resistance value will register.

If there is continuity, in direction shown by the arrow, the neutral diode is normal.



STARTER RELAY (NC700XD/SD)

INSPECTION

Remove the maintenance lid (page 21-6).

Open the fuse/relay box cover and remove the START RELAY [1].

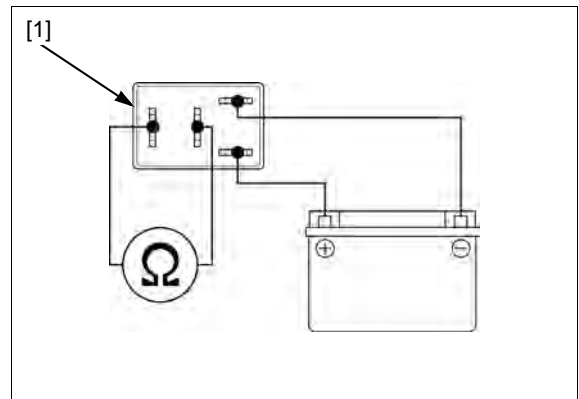


Connect an ohmmeter to the START RELAY [1] connector terminals.

Connect a 12 V battery to the START RELAY connector terminals as shown.

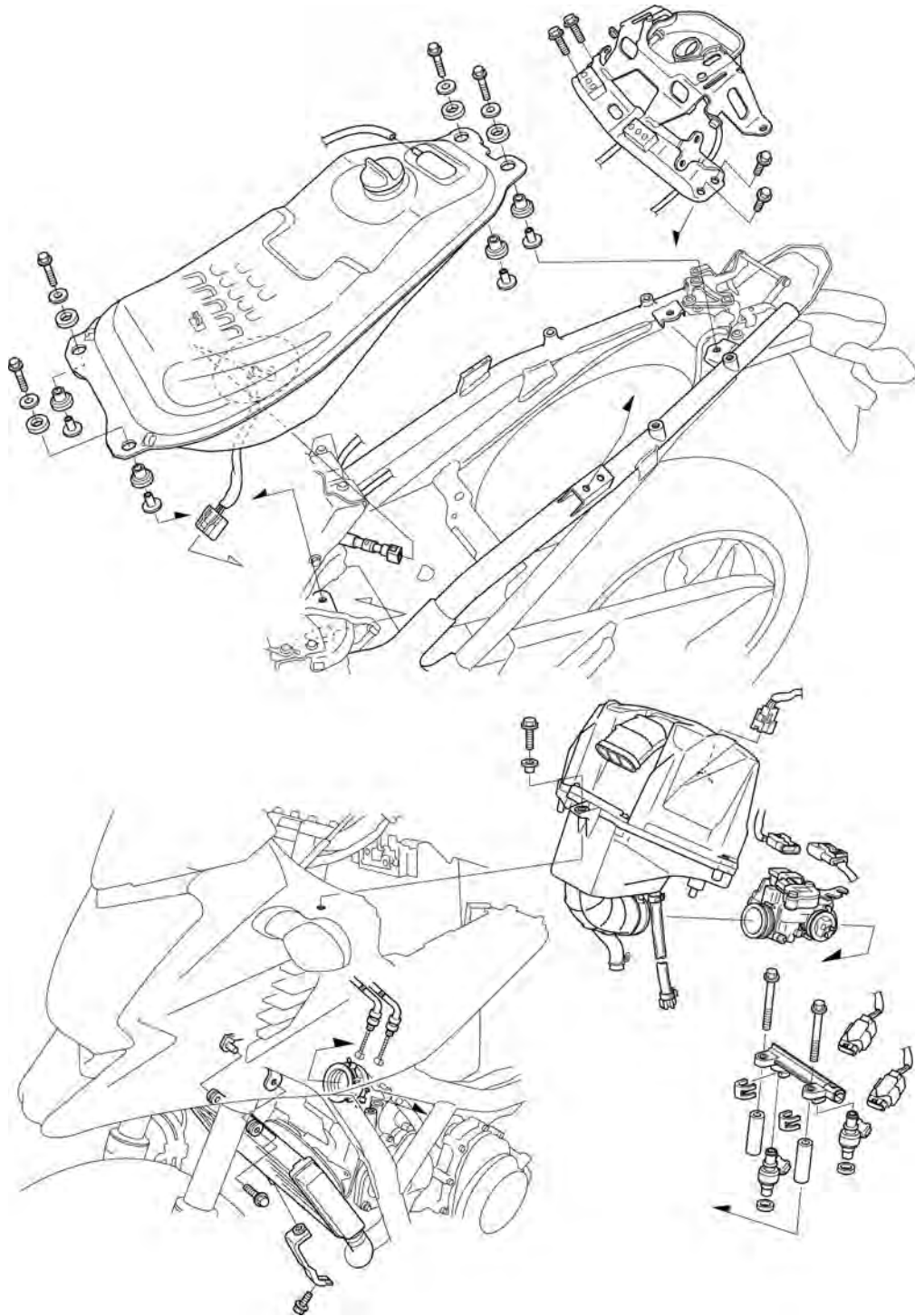
There should be continuity only when 12 V battery is connected.

If there is no continuity only when the 12 V battery is connected, replace the START RELAY.



COMPONENT LOCATION	7-2	AIR CLEANER HOUSING	7-14
SERVICE INFORMATION	7-3	THROTTLE BODY	7-15
FUEL LINE REPLACEMENT	7-4	INJECTOR.....	7-20
FUEL TANK.....	7-8	IACV	7-22
FUEL PUMP UNIT	7-10		

COMPONENT LOCATION



SERVICE INFORMATION

GENERAL

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- Before disconnecting the fuel feed hose, relieve fuel pressure from the system (page 7-4).
- Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.
- Do not snap the throttle valve from full open to full close after the throttle cable has been removed. It may cause incorrect idle operation.
- Seal the intake ports with tape or a clean cloth to keep dirt and debris from entering the engine after the throttle body or fuel rail has been removed.
- Do not damage the throttle body. It may cause incorrect throttle valve operation.
- Prevent dirt and debris from entering the throttle bore and air passages after the throttle body has been removed. Clean them using a compressed air if necessary.
- Do not loosen or tighten the white painted nut and screw of the throttle body. Loosening or tightening them can cause throttle valve and idle control failure.
- The parts of the throttle body not shown in this manual should not be disassembled.
- For fuel level sensor inspection (page 22-21).
- The following color codes are used throughout this section.

G = Green

P = Pink

R = Red

W = White

Y = Yellow

SPECIFICATIONS

ITEM	SPECIFICATIONS
Throttle body identification number	GQ3UA
Idle speed	1,200 ± 100 min ⁻¹ (rpm)
Throttle grip freeplay	2 – 6 mm (1/16 – 1/4 in)
Fuel pressure at idle	343 kPa (3.5 kgf/cm ² , 50 psi)
Fuel pump flow (at 12 V)	230 cm ³ (7.8 US oz, 8.1 Imp oz) minimum/10 seconds

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Fuel pump mounting nut	6	6	12 (1.2, 9)	For tightening sequence (page 7-14)
Air cleaner connecting hose band screw	1	4	1.5 (0.2, 1.1)	
Insulator band screw	2	5	–	See page 7-18

FUEL LINE REPLACEMENT

FUEL PRESSURE RELIEVING

NOTE:

Before disconnecting fuel feed hose, relieve pressure from the system as follows.

1. Turn the ignition switch OFF.
2. Remove the following:
 - Shroud/side cover (NC700X/XA/XD) (page 2-14)
 - Shelter/side cover (NC700S/SA/SD) (page 2-15)
3. Disconnect the fuel pump 1P (Black) connector [1].
Turn the ignition switch ON and engine stop switch "O".
4. Start the engine, and let it idle until the engine stalls.
5. Turn the ignition switch OFF.
6. Disconnect the battery negative (–) cable (page 21-6).



QUICK CONNECT FITTING REMOVAL

NOTE:

Do not bend or twist fuel feed hose.

FUEL PUMP SIDE

Refer to fuel tank removal (page 7-8).

INJECTOR SIDE

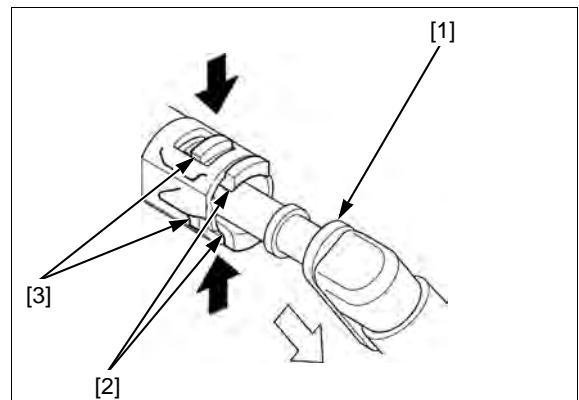
1. Relieve the fuel pressure (page 7-4).
Check the fuel quick connect fitting [1] for dirt, and clean if necessary.
Place a shop towel over the quick connect fitting.



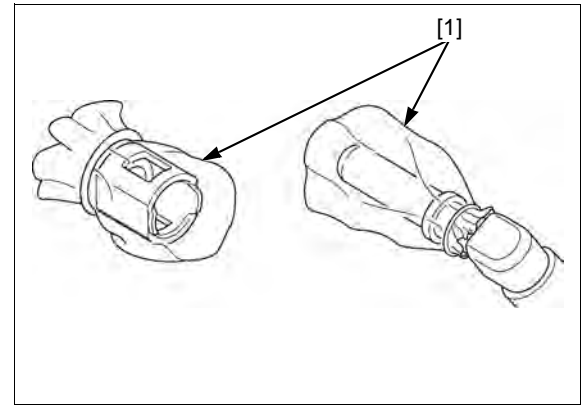
2. Pull and release the joint rubber [1] tabs from the retainer.
3. Squeeze the retainer tabs [2] with the hand to release them from the locking pawls [3].
Pull the fuel feed hose off and remove the retainer.

NOTE:

- Absorb the remaining fuel in the fuel feed hose from flowing out with a shop towel.
- Be careful not to damage the hose or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.



4. To prevent damage and keep foreign matter out, cover the disconnected connector and pipe end with the plastic bags [1].



QUICK CONNECT FITTING INSTALLATION

FUEL PUMP SIDE

Refer to fuel tank installation (page 7-8).

INJECTOR SIDE

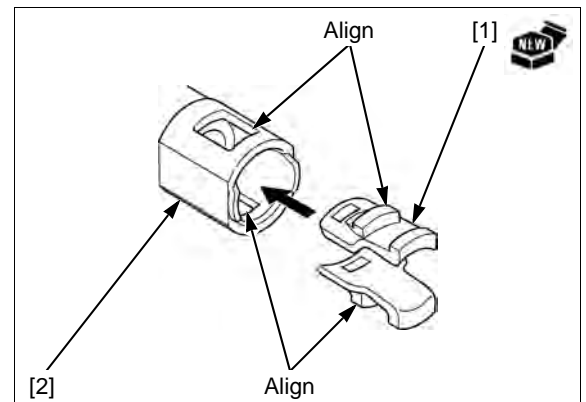
NOTE:

- Always replace the retainer and joint rubber of the quick connect fitting when the fuel feed hose is disconnected.
- Replace the retainer and joint rubber with the same manufacturer's item that was removed.
- Do not bent or twist fuel feed hose.

1. Insert a new retainer [1] into the connector [2].

NOTE:

- Align new retainer locking pawls with the connector grooves.

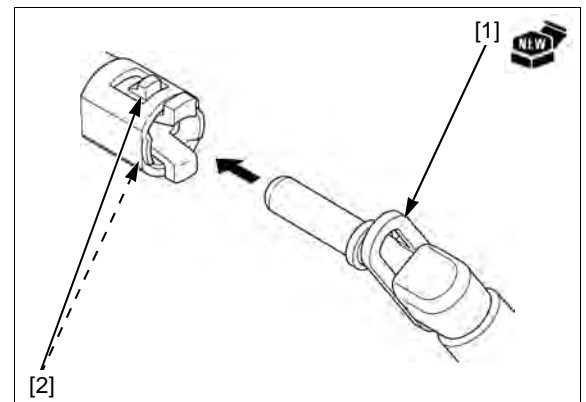


2. Set a new joint rubber [1] as shown.

Then press the fuel feed hose into the quick connect fitting until both retainer pawls [2] lock with a "CLICK".

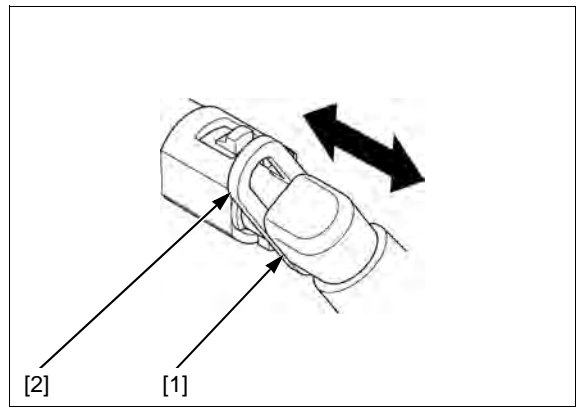
NOTE:

- Align retainer tabs with joint rubber grooves.
- If it is hard to connect, put a small amount of engine oil on the injector joint.



FUEL SYSTEM

3. Make sure the connection is secure and that the pawls are firmly locked into place; check visually and by pulling the fuel feed hose [1].
4. Make sure the joint rubber [2] is in place (between the retainer tabs).
5. Increase the fuel pressure and check that there is no leakage in fuel supply system (page 7-6).



FUEL PRESSURE NORMALIZATION

1. Connect the fuel pump 1P (Black) connector [1].
Connect the battery negative (-) cable (page 21-6).
2. Turn the ignition switch ON and engine stop switch "O".

NOTE:

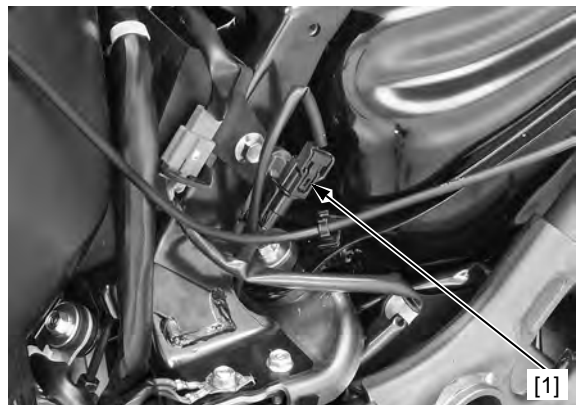
- Do not start the engine.

The fuel pump will run for about 2 seconds, and fuel pressure will rise.

3. Repeat 2 or 3 times, and check that there is no leakage in the fuel supply system.
4. Turn the ignition switch OFF.

Install the following:

- Shroud/side cover (NC700X/XA/XD) (page 2-14)
- Shelter/side cover (NC700S/SA/SD) (page 2-15)



FUEL PRESSURE TEST

Relieve the fuel pressure and disconnect the quick connect fitting from the injector (page 7-4).

Attach the fuel pressure gauge, attachments and manifold.

TOOLS:

Fuel pressure gauge, 0 – 100 psi

[1] 07406-0040004

Pressure gauge manifold [2] 07ZAJ-S5A0111

Hose attachment, 9 mm/9 mm [3] 07ZAJ-S5A0120

Hose attachment, 8 mm/9 mm [4] 07ZAJ-S7C0100

Attachment joint, 8 mm/9 mm [5] 07ZAJ-S7C0200

Temporarily connect the battery negative (–) cable and fuel pump 1P (Black) connector.

Turn the ignition switch ON and engine stop switch "O".

Start the engine and let it idle.

Read the fuel pressure.

STANDARD: 343 kPa (3.5 kgf/cm², 50 psi)

If the fuel pressure is higher than specified, replace the fuel pump assembly.

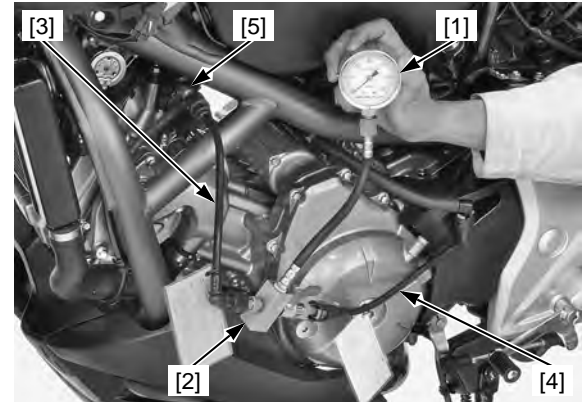
If the fuel pressure is lower than specified, inspect the following:

- Fuel line leaking
- Pinched or clogged fuel feed hose or fuel tank breather hose
- Fuel pump unit (page 7-10)
- Clogged fuel filter (page 7-11)

After inspection, relieve the fuel pressure (page 7-4).

Remove the fuel pressure gauge, attachment and manifold from the injector.

Connect the quick connect fitting (page 7-5).



FUEL FLOW INSPECTION

Relieve the fuel pressure and disconnect the quick connect fitting from the injector (page 7-4).

Wipe off spilled out gasoline.

Place the end of the hose [1] into an approved gasoline container.

Temporarily connect the battery negative (–) cable and fuel pump 1P (Black) connector.

Turn the ignition switch ON and engine stop switch "O".

Measure the amount of fuel flow.

NOTE:

- The fuel pump operates for 2 seconds. Repeat 5 times so that the total measuring time.
- Return fuel to the fuel tank when the first fuel is flowed.

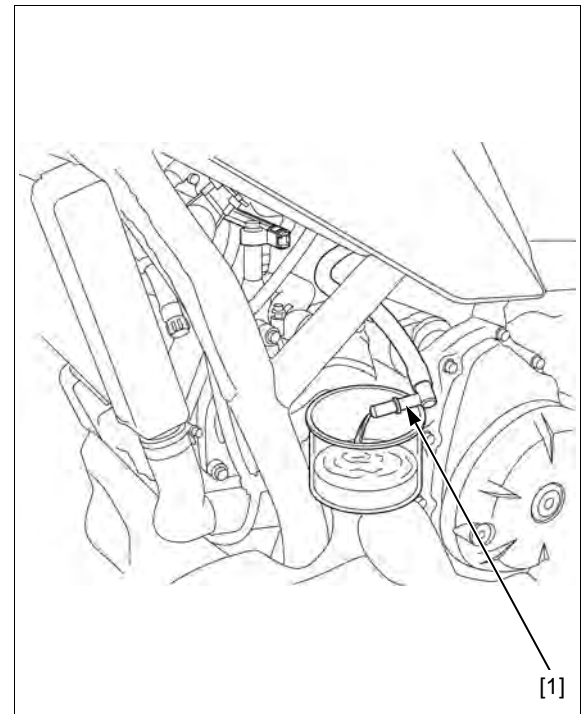
Amount of fuel flow:

**230 cm³ (7.8 US oz, 8.1 Imp oz) minimum/
10 seconds at 12 V**

If fuel flow is less than specified, inspect the following:

- Fuel pump unit (page 7-10)
- Clogged fuel filter (page 7-11)

Connect the quick connect fitting (page 7-5).



FUEL TANK

REMOVAL/INSTALLATION

Relieve the fuel pressure (page 7-4).

Remove the bolts [1], fuel cap [2] and fuel cap tray [3].

Release the following:

- Fuel tank drain hose A [4]
- Fuel tank breather hose [5]
- Seat lock cable [6]

Remove the fuel tank mounting bolts [7], washers [8], upper mounting rubbers [9], lower mounting rubbers [10] and collars [11].

Lift the rear end of the fuel tank and disconnect the following:

- Fuel pump unit 3P (Black) connector [12]
- Quick connect fitting (page 7-8)

NOTE:

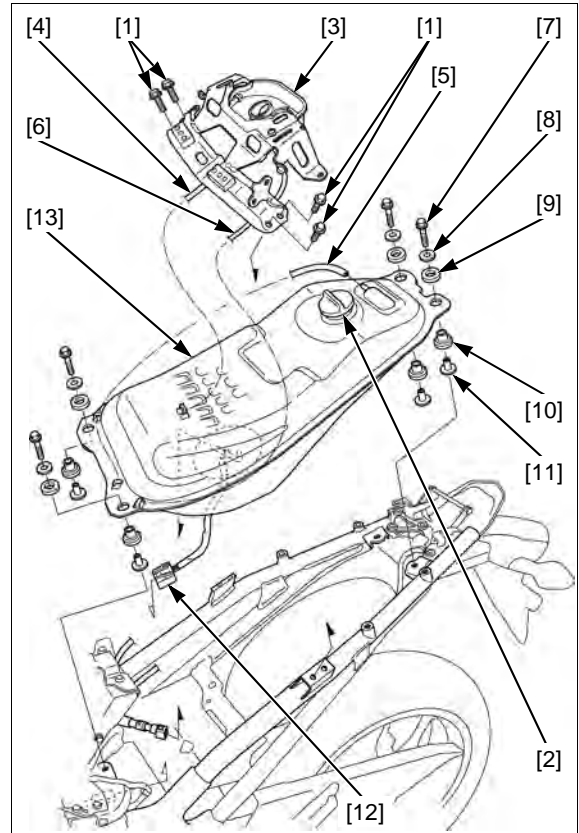
Do not bend or twist fuel feed hose.

Remove the fuel tank [13].

Installation is in the reverse order of removal.

NOTE:

- Connect the quick connect fitting (page 7-9).
- Route the hose and wire properly (page 1-25).



FUEL PUMP SIDE QUICK CONNECT FITTING REMOVAL

1. Relieve the fuel pressure (page 7-4).
2. Check the fuel quick connect fitting [1] for dirt, and clean if necessary.

Place a shop towel over the quick connect fitting.

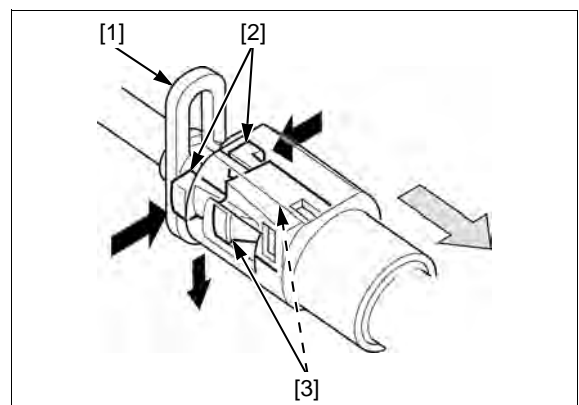


3. Pull and release the joint rubber [1] from the retainer.
4. Hold the connector with one hand and squeeze the retainer tabs [2] with the other hand to release them from the locking pawls [3].

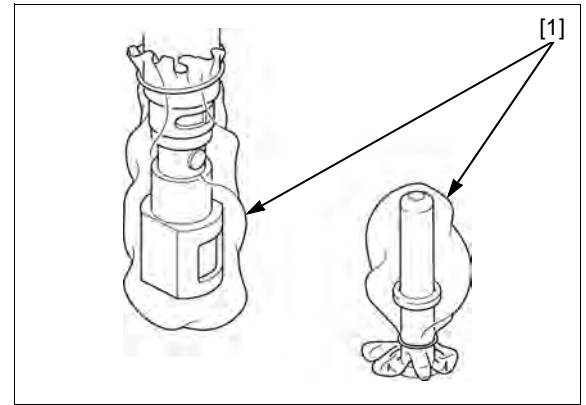
Pull the connector off and remove the retainer.

NOTE:

- Absorb the remaining fuel in the fuel feed hose from flowing out with a shop towel.
- Be careful not to damage the hose or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.



5. To prevent damage and keep foreign matter out, cover the disconnected connector and pipe end with the plastic bags [1].



FUEL PUMP SIDE QUICK CONNECT FITTING INSTALLATION

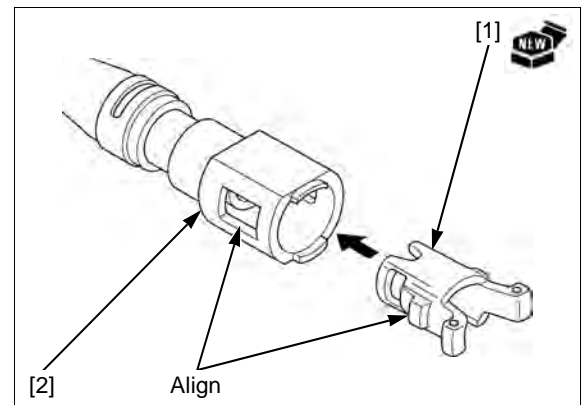
NOTE:

- Always replace the retainer and joint rubber of the quick connect fitting when the fuel feed hose is disconnected.
- Replace the retainer and joint rubber with the same manufacturer's item that was removed.
- Do not bent or twist fuel feed hose.

1. Insert a new retainer [1] into the connector [2].

NOTE:

- Align new retainer locking pawls with the connector grooves.

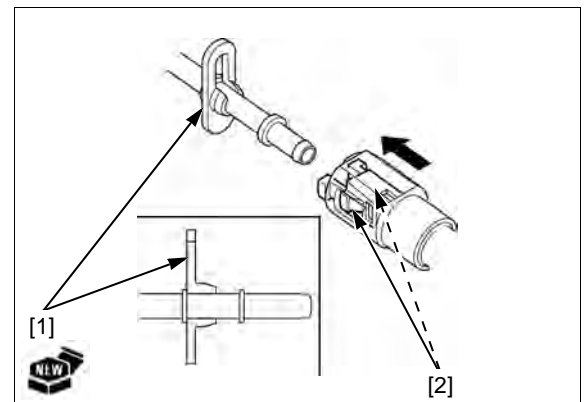


2. Set a new joint rubber [1] as shown.

Then press the quick connect fitting onto the pipe until both retainer pawls [2] lock with a "CLICK".

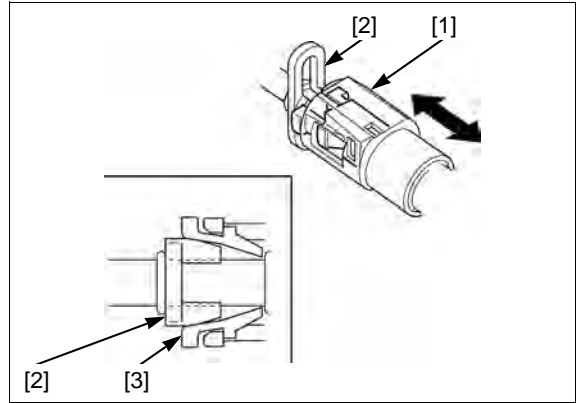
NOTE:

- Align the quick connect fitting with the pipe.
- If it is hard to connect, put a small amount of engine oil on the pipe end.



FUEL SYSTEM

3. Make sure the connection is secure and that the pawls are firmly locked into place; check visually and by pulling the connector [1].
4. Make sure the joint rubber [2] is in place (between the retainer tabs [3]).
5. Increase the fuel pressure and check that there is no leakage in fuel supply system (page 7-6).



FUEL PUMP UNIT

INSPECTION

Turn the ignition switch ON and engine stop switch "O" and confirm that the fuel pump operates for 2 seconds.

If the fuel pump does not operate, inspect as follows:

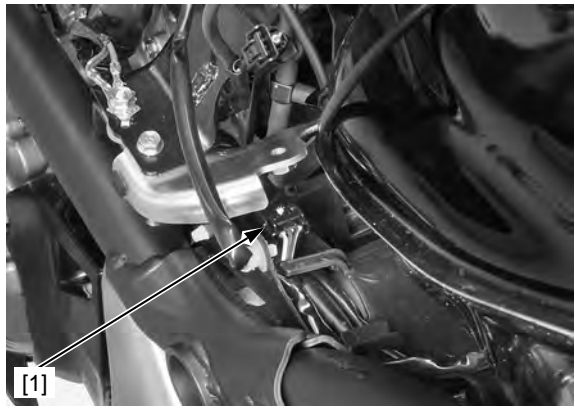
Turn the ignition switch OFF.

Lift and support the fuel tank (page 7-8).

NOTE:

Do not disconnect the quick connect fitting.

Disconnect the fuel pump unit 3P (Black) connector [1].



Turn the ignition switch ON and engine stop switch "O".

Measure the voltage at the fuel pump unit 3P (Black) connector [1] terminals of the wire side.

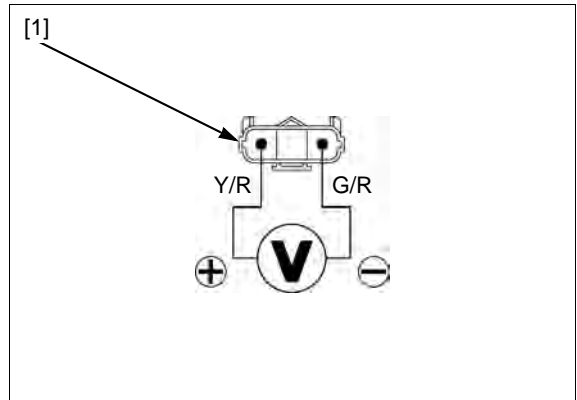
CONNECTION: Yellow/red (+) – Green/red (-)
STANDARD: Battery voltage

There should be standard voltage for a few seconds.

If there is standard voltage, replace the fuel pump unit.

If there is no standard voltage, inspect the following:

- Loose or poor contact on the fuel pump 1P (Black) connector
- Main fuse 30 A
- Sub fuse 15 A (FI)
- Sub fuse 7.5 A (ENG STOP)
- Ignition switch
- Engine stop switch
- Fuel cut relay (page 4-64)
- Open circuit in Yellow/red or Green/red wire
- ECM/PCM (page 4-68)



REMOVAL

Remove the fuel tank (page 7-8).

Clean around the fuel pump.

Loosen the fuel pump mounting nuts [1] in a crisscross pattern in 2 or 3 steps and remove the nuts.

Remove the fuel pump unit [2] and packing [3].

NOTE:

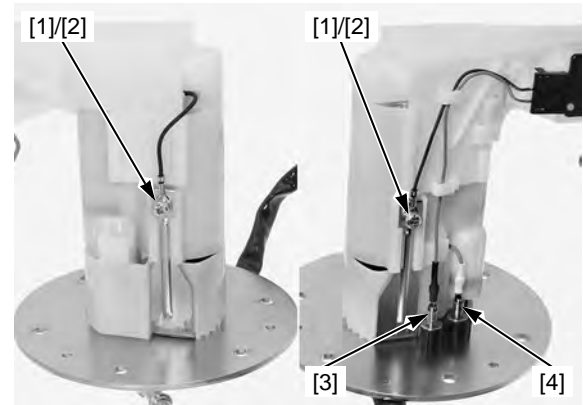
Be careful not to damage the fuel level sensor float arm.



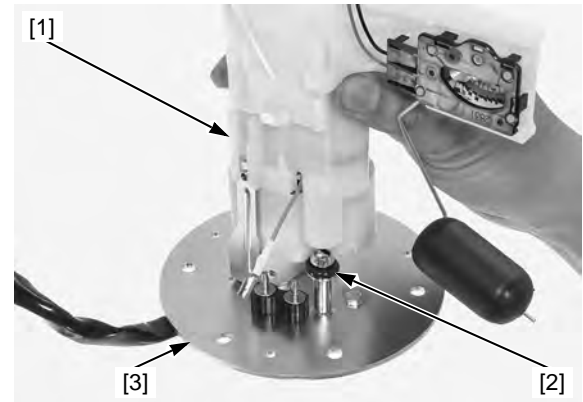
DISASSEMBLY/INSPECTION

Remove the screws [1] and Black wire terminals [2].

Disconnect the Pink wire connector [3] and Blue wire connector [4].

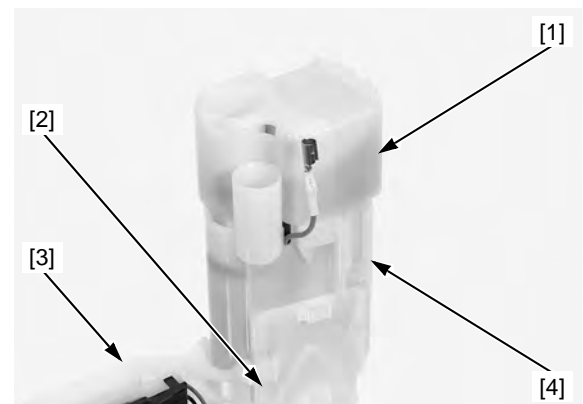


Remove the fuel pump unit assembly [1] and O-ring [2] from the fuel pump stay [3].



Remove the chamber [1].

Release the tab [2] and remove the fuel level sensor assembly [3] from the fuel filter [4].

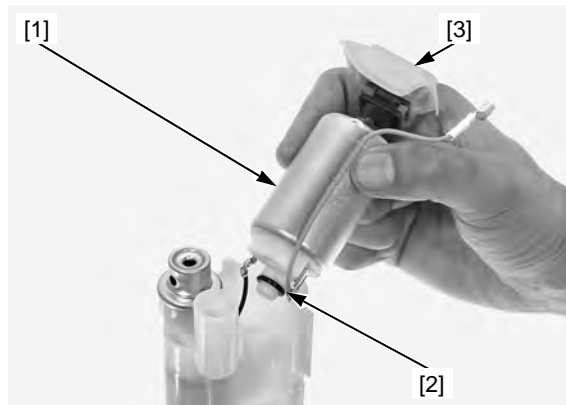


FUEL SYSTEM

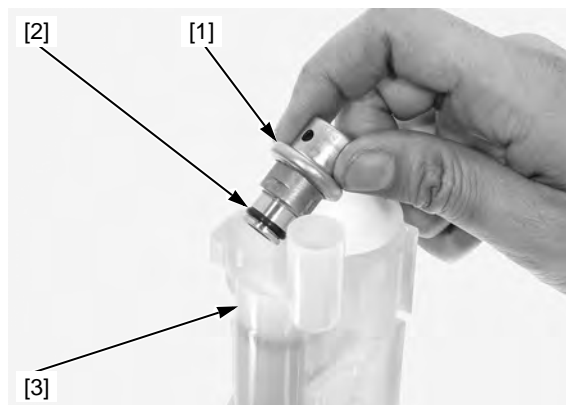
Remove the fuel pump [1] and O-ring [2].

Visually inspect the fuel pump filter [3] for dirt, debris or any clogging.

Replace fuel pump unit as an assembly if necessary.



Remove the pressure regulator [1] and O-ring [2] from the fuel filter [3].

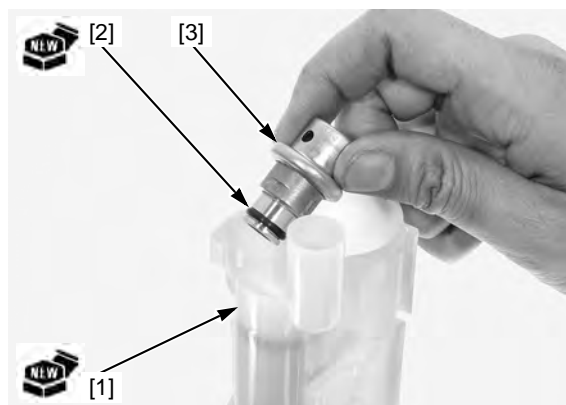


ASSEMBLY

Replace the fuel filter [1] with a new one.

Install a new O-ring [2] to the pressure regulator [3].

Install the pressure regulator.

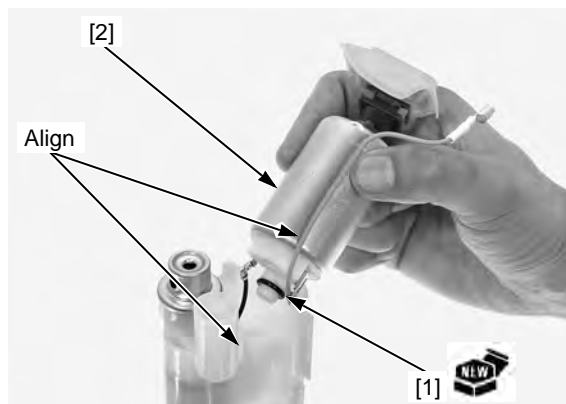


Install a new O-ring [1] to the fuel pump [2].

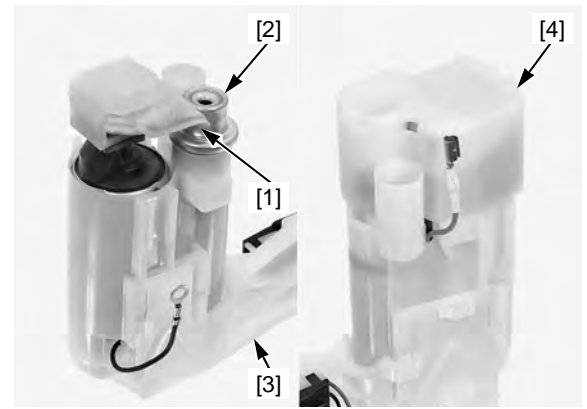
Install the fuel pump.

NOTE:

Align the Blue wire with the fuel filter groove.

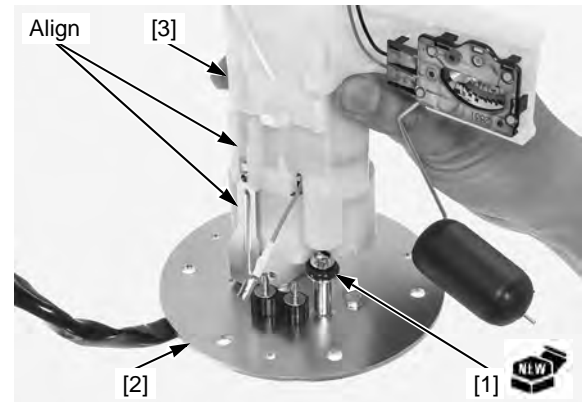


Insert the fuel pump filter edge [1] between the fuel pump and pressure regulator [2].
 Install the fuel level sensor assembly [3].
 Install the chamber [4].

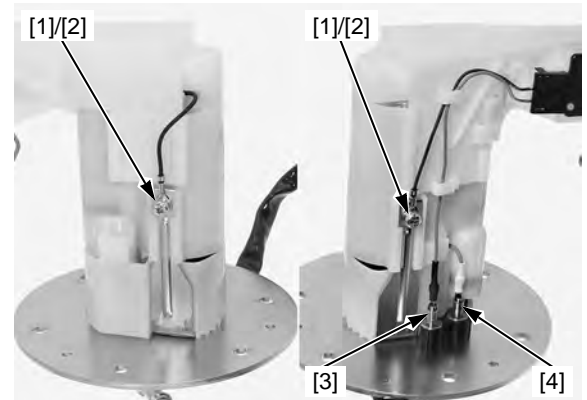


Install a new O-ring [1] to the fuel pump stay [2].
 Install the fuel pump unit assembly [3] to the fuel pump stay.

NOTE:
 Align the fuel pump stay with fuel pump assembly grooves.



Install the screws [1] and Black wire terminals [2].
 Tighten the screws securely.
 Connect the Pink wire connector [3] and Blue wire connector [4].

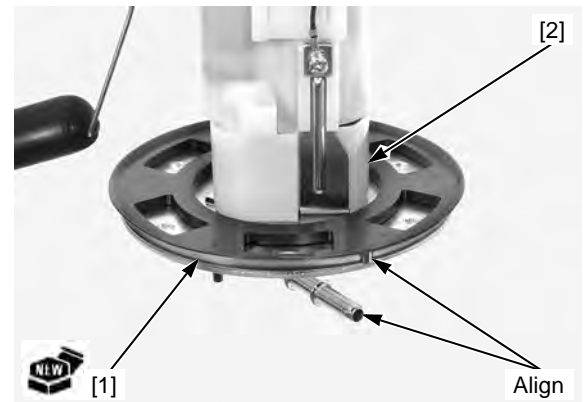


INSTALLATION

Install a new packing [1] onto the fuel pump unit [2].

NOTE:

- Always replace the packing with a new one.
- Be careful not to pinch the dirt and debris between the fuel pump unit and packing.
- Align the packing tab with the fuel pipe.

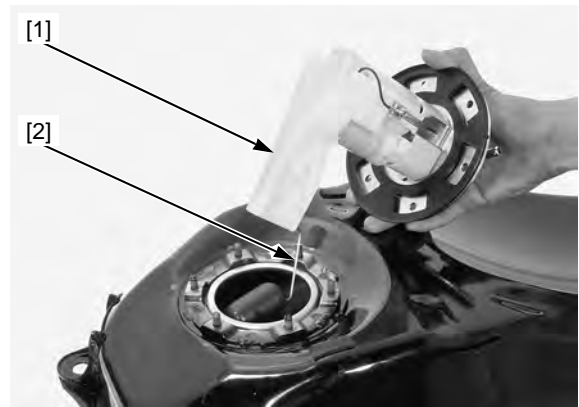


FUEL SYSTEM

Install the fuel pump unit [1] into the fuel tank.

NOTE:

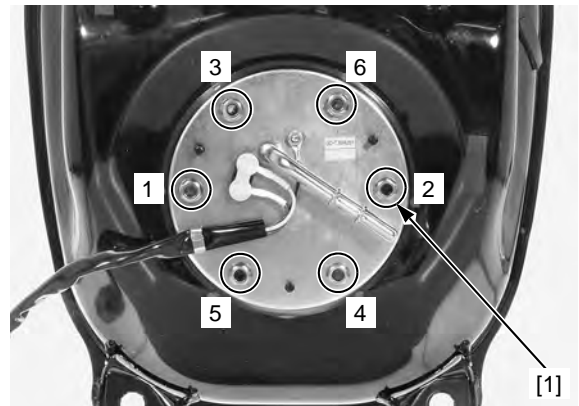
Be careful not to damage the fuel level sensor float arm [2].



Install and tighten the fuel pump mounting nuts [1] to the specified torque in the sequence as shown.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the fuel tank (page 7-8).



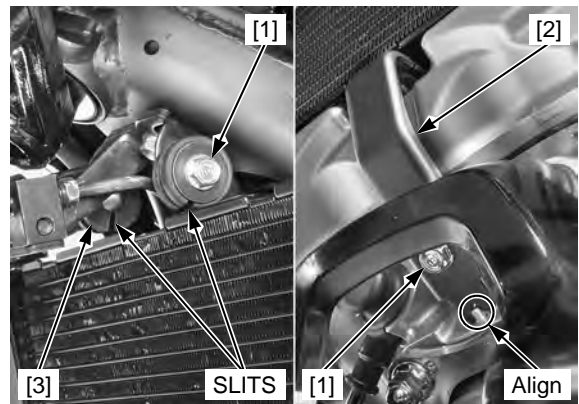
AIR CLEANER HOUSING

REMOVAL/INSTALLATION

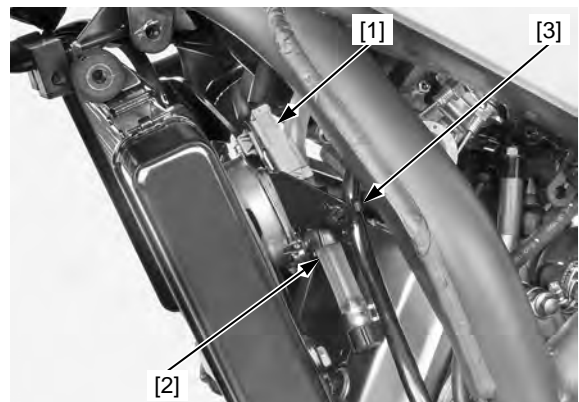
Remove the air cleaner (page 3-7).

Remove the bolts [1] and radiator lower stay [2].

Release the radiator boss from the radiator mounting rubber [3].



Release the fan motor 3P (Gray) connector [1], air cleaner housing drain hose [2] and spark plug wire [3] from the radiator.



Lower the radiator and disconnect the crankcase breather hose [1].

NOTE:

Be careful not to damage the radiator fins.



Loosen the air cleaner connecting hose band screw [1].

Remove the bolts [2] and collar [3].

Disconnect connecting hose and remove the air cleaner housing [4].

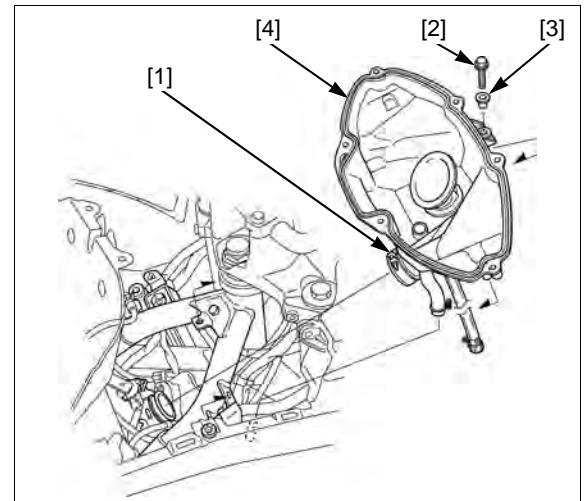
Installation is in the reverse order of removal.

NOTE:

- Route the wire harness and hoses properly (page 1-25).
- Make sure the radiator mounting rubber slits facing down.
- Align radiator lower stay slit with cylinder head tab.

TORQUE:

Air cleaner connecting hose band screw:
1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

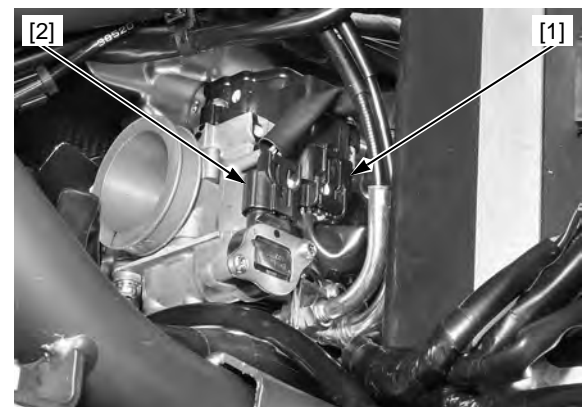


THROTTLE BODY

REMOVAL

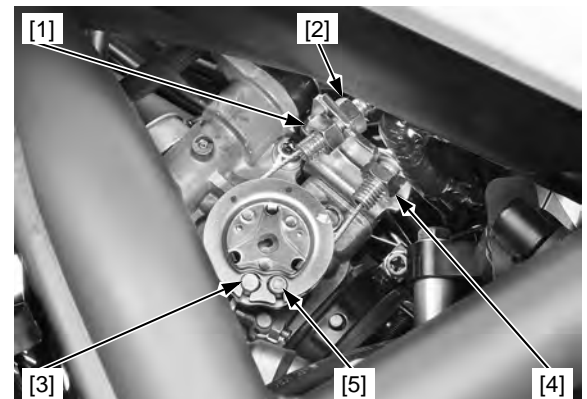
Remove the air cleaner housing (page 7-14).

Disconnect the sensor unit 5P (Black) connector [1] and IACV 4P (Black) connector [2].



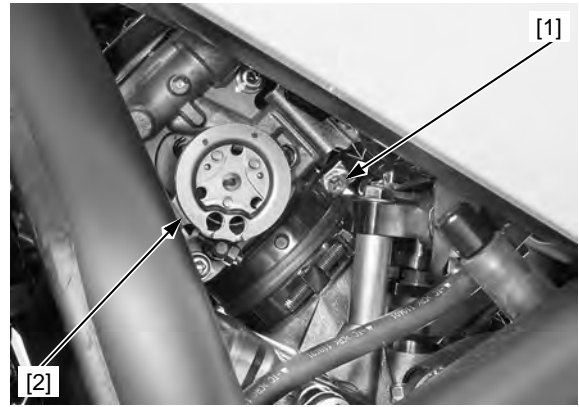
Loosen the throttle cable A adjuster lock nut [1] and adjusting nut [2] then disconnect the throttle cable A [3] from the throttle drum and cable stay.

Loosen the throttle cable B lock nut [4] then disconnect the throttle cable B [5] from the throttle drum and cable stay.



FUEL SYSTEM

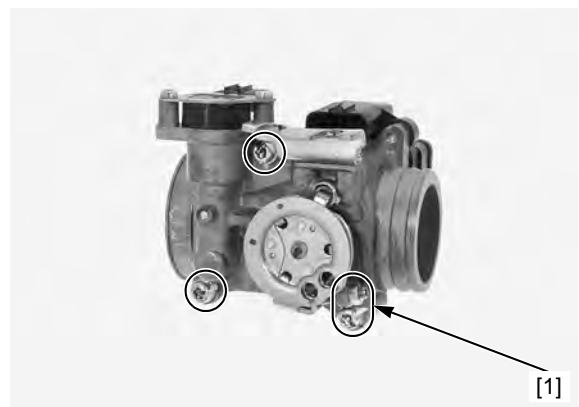
Loosen the insulator band screw [1] and remove the throttle body assembly [2].



DISASSEMBLY

NOTICE

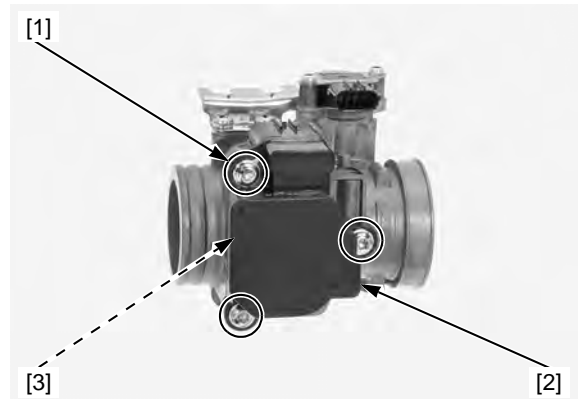
- Do not remove the sensor unit unless it is replaced.
- The throttle body/sensor unit is factory pre-set. Do not disassemble in a way other than shown in this manual.
- Do not snap the throttle valve from full open to full close after the throttle cable has been removed. It may cause incorrect idle operation.
- Do not damage the throttle body. It may cause incorrect throttle valve operation.
- Do not loosen or tighten the white painted nut and screw [1] of the throttle body. Loosening or tightening it can cause throttle valve and idle control failure.
- Always clean around the throttle body before each sensor removal to prevent dirt and debris from entering the air passage.



NOTE:

For IACV removal (page 7-22).

Remove the sensor unit torx screws [1], sensor unit [2] and O-ring [3].



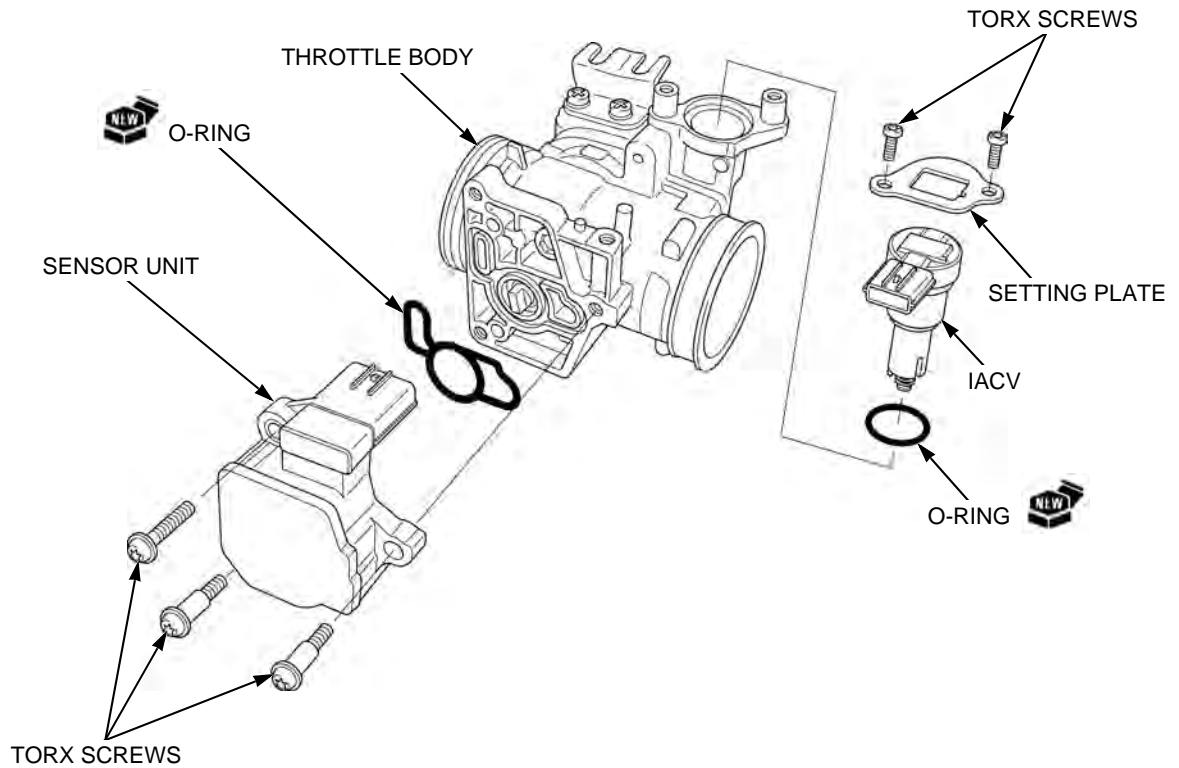
Cleaning the air passages and sensor hole with a piece of wire will damage the throttle body.

Clean the air passage of the throttle body using a compressed air. Check the air passage for clogs.



ASSEMBLY

NOTE:
For IACV installation (page 7-23).

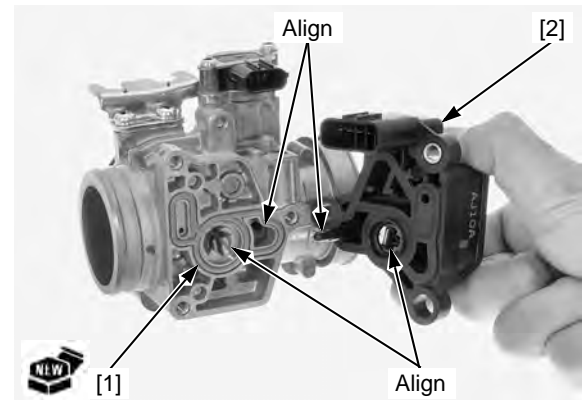


If the O-ring is not installed properly, the idle air will leak and engine idle speed will be unstable.

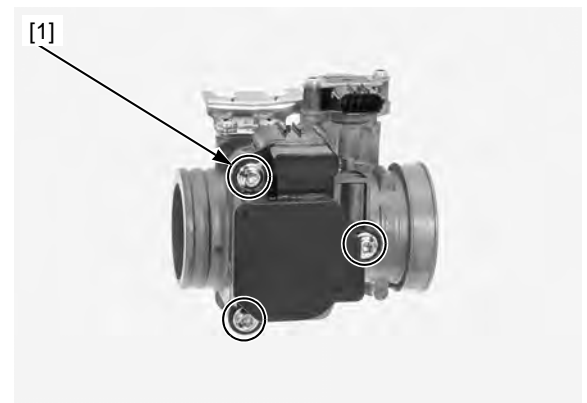
Install a new O-ring [1] to the throttle body properly.

When installing the sensor unit [2] to the throttle body, align the following:

- The TP sensor clip with the throttle valve boss
- The sensor unit tab with the throttle body hole



Install and tighten the sensor unit torx screws [1] securely.



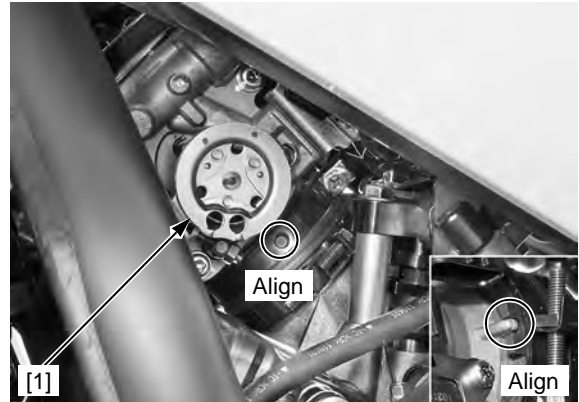
FUEL SYSTEM

INSTALLATION

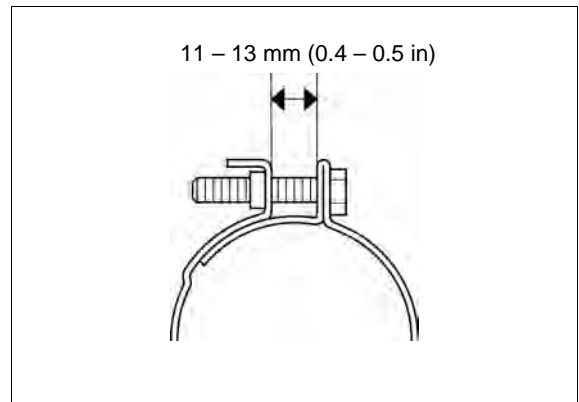
Install the throttle body assembly [1] to the cylinder head.

NOTE:

- Align the throttle body tab with the insulator groove.
- Align the insulator band hole with the insulator tab.



Tighten the insulator band screw to the specified range.



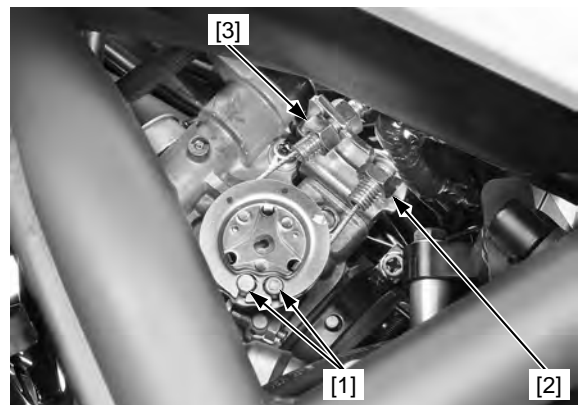
Connect the throttle cables [1] to the throttle drum and throttle cable stay.

NOTE:

Route the cables properly (page 1-25).

Tighten the throttle cable B lock nut [2] securely.

Tighten the throttle cable A adjuster lock nut [3] securely.



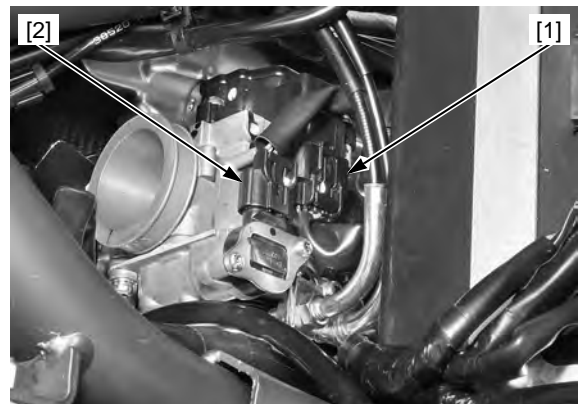
Connect the sensor unit 5P (Black) connector [1] and IACV 4P (Black) connector [2].

NOTE:

Route the wire harness properly (page 1-25).

Install the air cleaner housing (page 7-14).

Adjust the throttle grip freeplay (page 3-5).



THROTTLE VALVE FULLY CLOSED POSITION RESET PROCEDURE

NOTE:

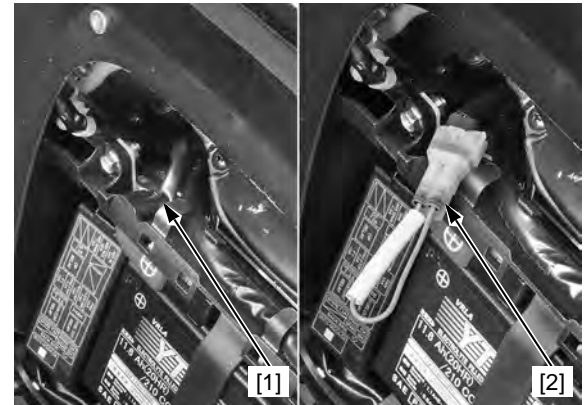
If the sensor unit is removed, reset the throttle valve fully closed position as following.

1. Erase the DTC's (page 4-13).
2. Turn the ignition switch OFF.
3. Short the DLC [1] terminals using a special tool.

Connection: Brown – Green

TOOL:

SCS connector [2] 070PZ-ZY30100

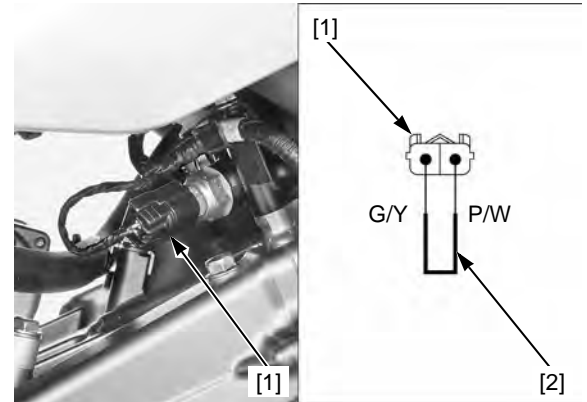


4. Disconnect the ECT sensor 2P connector [1].
Short the ECT sensor 2P connector terminals of the wire harness side with a jumper wire [2].

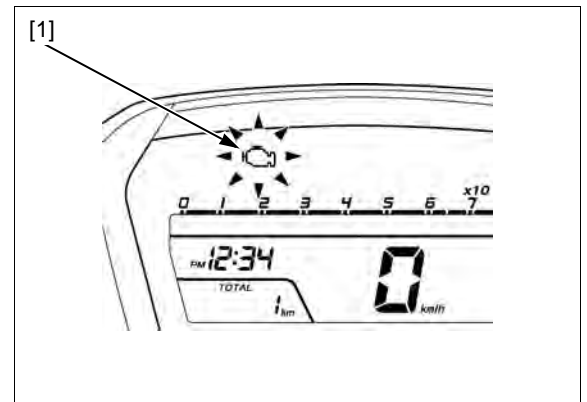
Connection: Pink/white – Green/yellow

5. Turn the ignition switch ON and engine stop switch "O", then MIL will start blinking.

Disconnect the jumper wire while the MIL blinking (within 10 seconds).



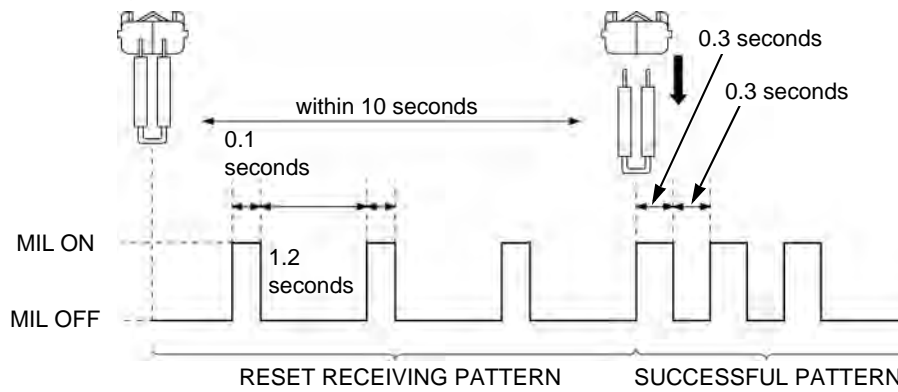
6. After disconnection of the jumper wire, the MIL [1] start to short blinking.



FUEL SYSTEM

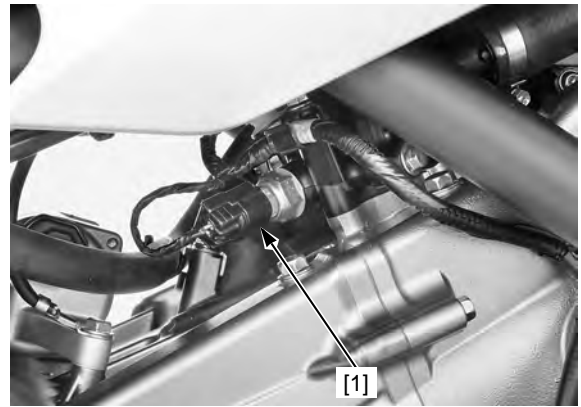
7. Check if the MIL blinks.

If the MIL begins short blink (0.3 seconds), the throttle valve fully closed position is reset.



If the MIL stays lit, the throttle valve fully closed position is not reset, repeat the reset procedure from step 1.

- 8. Turn the ignition switch OFF.
- 9. Connect the ECT sensor 2P connector [1].



INJECTOR

REMOVAL

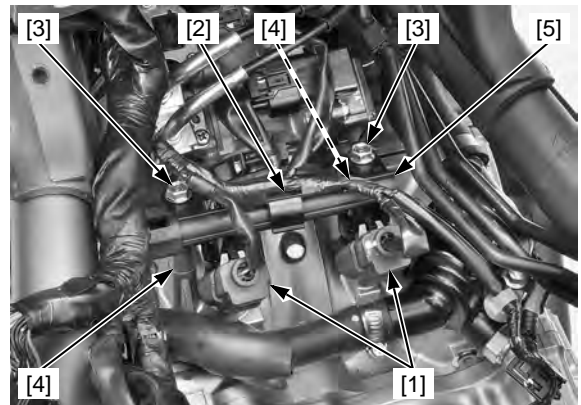
Relieve the fuel pressure and disconnect the quick connect fitting from the injector side (page 7-4).

Remove the battery box (page 2-31).

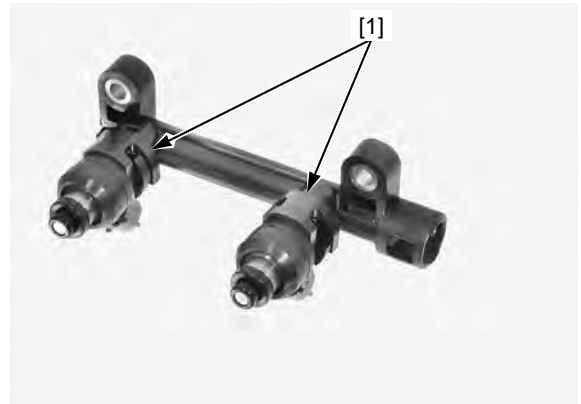
Disconnect the injector 2P (Gray) connectors [1].

Remove the clip [2] from the fuel rail.

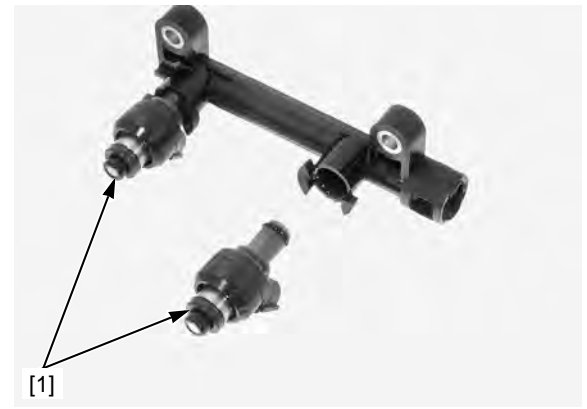
Remove the bolts [3], collars [4] and injector assembly [5].



Remove the retainers [1] from the injector/fuel rail.

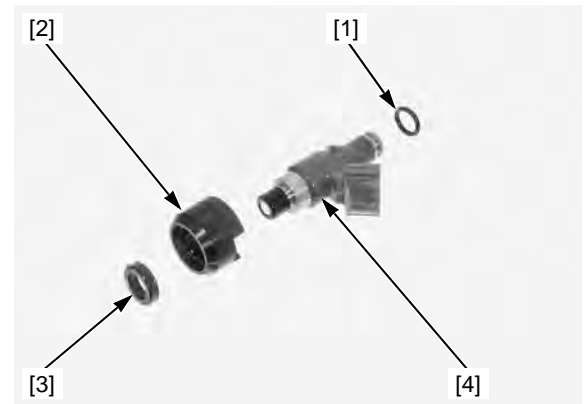


Remove the injectors [1] from the fuel rail.



Remove the O-ring [1], cushion rubber [2] and seal ring [3] from the injector [4].

Check the removed parts for wear or damage and replace them if necessary.



INSTALLATION

Apply engine oil to a new O-ring [1] and a new seal ring [2].

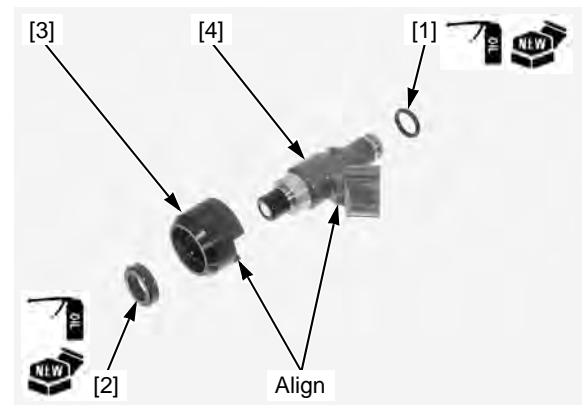
Install the cushion rubber [3] until it is fully seated.

NOTE:

Align the cushion rubber cut out with the injector connector.

Install the seal ring to the injector [4], being careful not to damage them.

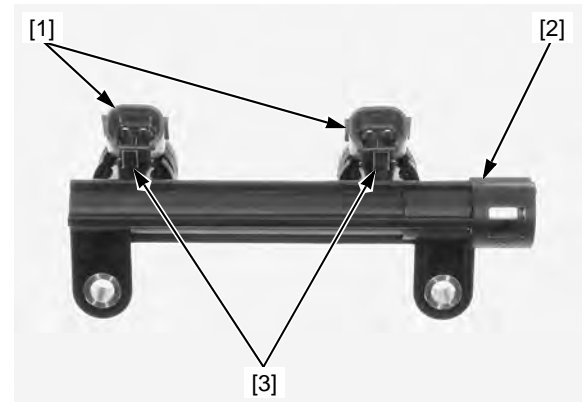
Install the O-ring to the injector.



Install the injectors [1] to the fuel rail [2], being careful not to damage the O-ring.

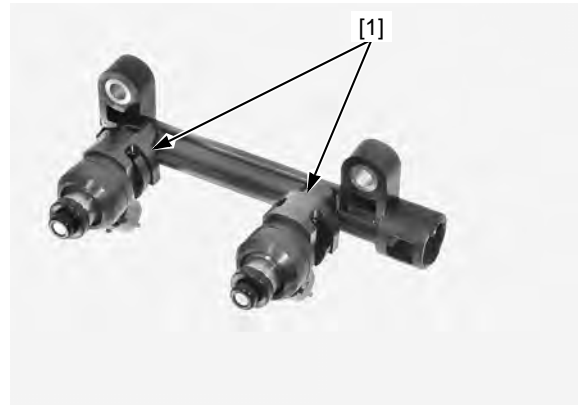
NOTE:

Align the injector body with the fuel rail tab [3] as shown.



FUEL SYSTEM

Install the retainers [1] to the injector/fuel rail.



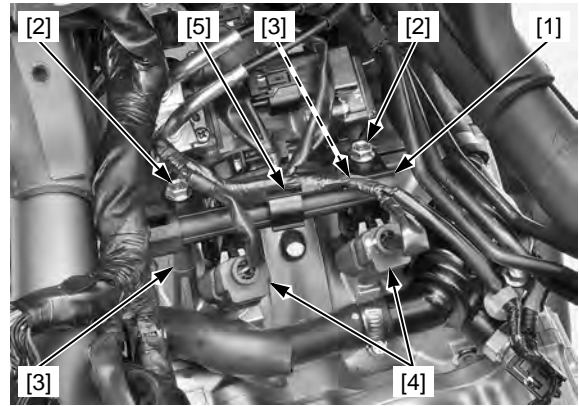
Install the injector assembly [1], bolts [2] and collars [3].
Tighten the fuel rail mounting bolts securely.

Connect the injector 2P (Gray) connectors [4] while aligning their grooves with the fuel rail tabs.

Install the clip [5] to the fuel rail.

Install the battery box (page 2-31).

Connect the quick connect fitting to the injector side (page 7-5).



IACV

REMOVAL/INSPECTION

Remove the air cleaner housing (page 7-14).

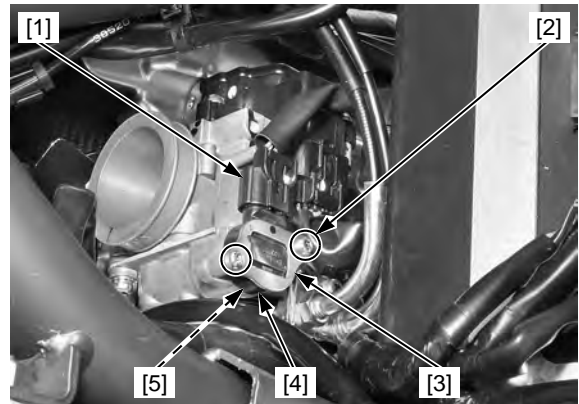
The IACV is installed on the throttle body and is operated by the step motor. When the ignition switch is turned ON and engine stop switch "O", the IACV operates for a few seconds.

Check the step motor operating (beep) sound with the ignition switch turned ON and engine stop switch "O".

Disconnect the IACV 4P (Black) connector [1].

Remove the IACV setting plate torx screws [2] and setting plate [3].

Remove the IACV [4] and O-ring [5].

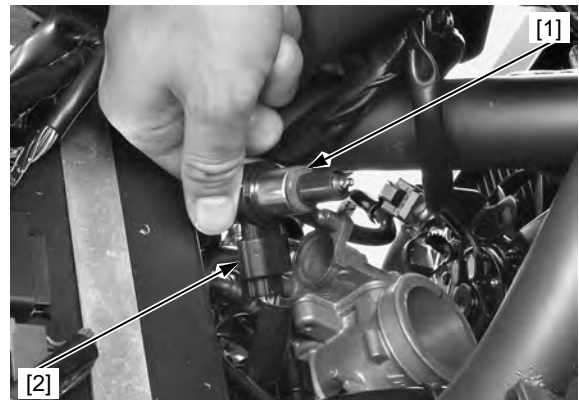


Check the IACV [1] for wear or damage.

The IACV operation can be checked visually as follows:

1. Connect the IACV 4P (Black) connector [2].
2. Turn ignition switch ON and engine stop switch "O", check the IACV operation.

Disconnect the IACV 4P (Black) connector.



INSTALLATION

Turn the slide valve [1] clockwise until lightly seated on IACV.



Install a new O-ring [1] to the IACV [2].

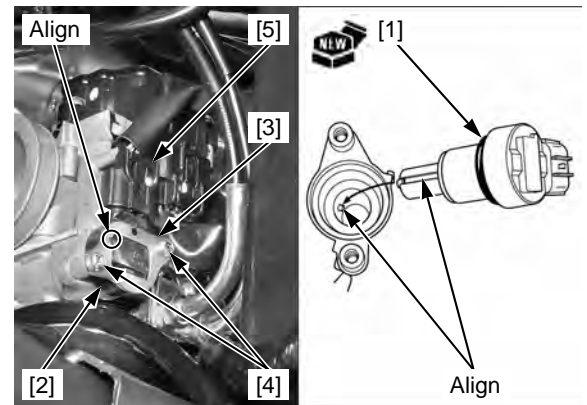
Install the IACV by aligning its groove with the slide valve housing pin.

Install the setting plate [3] while aligning its cut-out with the tab on the IACV.

Install and tighten the IACV setting plate torx screws [4] securely.

Connect the IACV 4P (Black) connector [5].

Install the air cleaner housing (page 7-14).

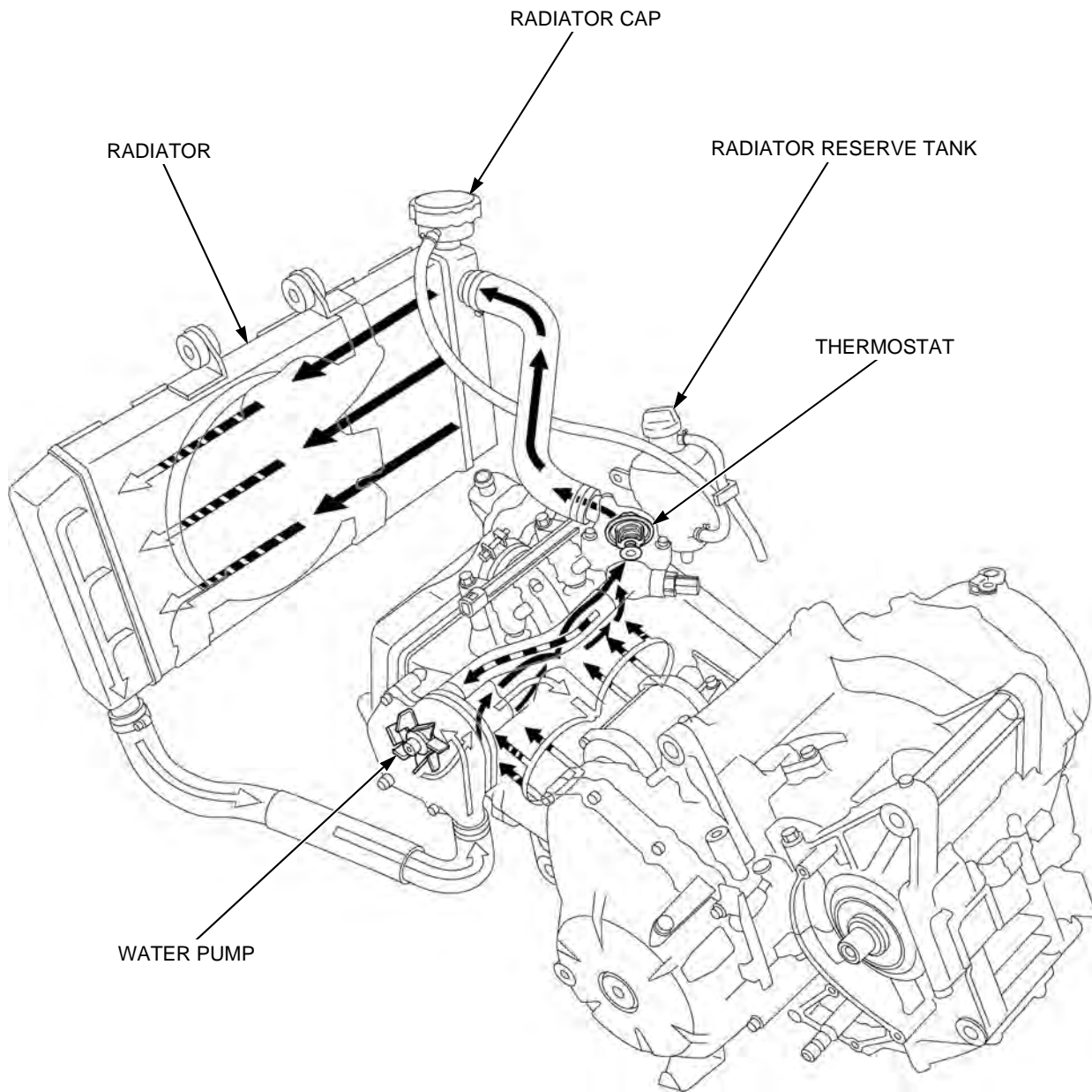


MEMO

SYSTEM FLOW PATTERN.....	8-2	THERMOSTAT/THERMOSTAT HOUSING	8-7
SERVICE INFORMATION	8-3	RADIATOR.....	8-9
TROUBLESHOOTING.....	8-4	WATER PUMP	8-12
SYSTEM TESTING.....	8-5	RADIATOR RESERVE TANK.....	8-14
COOLANT REPLACEMENT	8-6	FAN CONT. RELAY	8-15

COOLING SYSTEM

SYSTEM FLOW PATTERN



SERVICE INFORMATION

GENERAL

⚠ WARNING

Removing the radiator cap while the engine is hot can allow the coolant to spray out, seriously scalding you. Always let the engine and radiator cool down before removing the radiator cap.

NOTICE

Using coolant with silicate inhibitors may cause premature wear of water pump seals or blockage of radiator passages. Using tap water may cause engine damage.

- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- All cooling system services can be done with the engine installed in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- Refer to the ECT sensor inspection (page 22-18).

SPECIFICATIONS

ITEM		SPECIFICATIONS
Coolant capacity	Radiator and engine	1.69 liters (1.79 US qt, 1.49 Imp qt)
	At draining	1.41 liters (1.49 US qt, 1.24 Imp qt)
	Reserve tank	0.13 liter (0.14 US qt, 0.11 Imp qt)
Radiator cap relief pressure		108 – 137 kPa (1.1 – 1.4 kgf/cm ² , 16 – 20 psi)
Thermostat	Begin to open	80 – 84°C (176 – 183°F)
	Fully open	95°C (203°F)
	Valve lift	8 mm (0.3 in) minimum
Recommended antifreeze		High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors
Standard coolant concentration		1:1 (mixture with distilled water)

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Water hose band screw	6	–	–	See page 8-9 See page 8-10 See page 8-14
Fan motor shroud mounting bolt	3	6	8.4 (0.9, 6.2)	
Fan motor mounting screw	3	4	2.7 (0.3, 2.0)	
Cooling fan mounting nut	1	3	1.0 (0.1, 0.7)	Apply locking agent to the threads.

COOLING SYSTEM

TROUBLESHOOTING

Engine temperature too high

- Faulty high coolant temperature indicator or ECT sensor
- Thermostat stuck closed
- Faulty radiator cap
- Insufficient coolant
- Passage blocked in radiator, hoses or water jacket
- Air in system
- Faulty cooling fan motor
- Faulty FAN CONT. RELAY
- Faulty water pump

Engine temperature too low

- Faulty high coolant temperature indicator or ECT sensor
- Thermostat stuck open
- Faulty FAN CONT. RELAY

Coolant leak

- Faulty water pump mechanical seal
- Deteriorated O-rings
- Faulty radiator cap
- Damaged or deteriorated cylinder head gasket
- Loose hose connection or clamp
- Damaged or deteriorated hose
- Damaged radiator

SYSTEM TESTING

COOLANT (HYDROMETER TEST)

Remove the screw [1] and radiator cap [2].



Test the coolant gravity using a hydrometer (see below for "Coolant gravity chart").
 For maximum corrosion protection, a 1:1 solution of ethylene glycol and distilled water is recommended (page 8-6).
 Look for contamination and replace the coolant if necessary.



COOLANT GRAVITY CHART

		Coolant temperature °C (°F)										
		0 (32)	5 (41)	10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)	45 (113)	50 (122)
Coolant ratio%	5	1.009	1.009	1.008	1.008	1.007	1.006	1.005	1.003	1.001	0.999	0.997
	10	1.018	1.017	1.017	1.016	1.015	1.014	1.013	1.011	1.009	1.007	1.005
	15	1.028	1.027	1.026	1.025	1.024	1.022	1.020	1.018	1.016	1.014	1.012
	20	1.036	1.035	1.034	1.033	1.031	1.029	1.027	1.025	1.023	1.021	1.019
	25	1.045	1.044	1.043	1.042	1.040	1.038	1.036	1.034	1.031	1.028	1.025
	30	1.053	1.052	1.051	1.049	1.047	1.045	1.043	1.041	1.038	1.035	1.032
	35	1.063	1.062	1.060	1.058	1.056	1.054	1.052	1.049	1.046	1.043	1.040
	40	1.072	1.070	1.068	1.066	1.064	1.062	1.059	1.056	1.053	1.050	1.047
	45	1.080	1.078	1.076	1.074	1.072	1.069	1.066	1.063	1.060	1.057	1.054
	50	1.086	1.084	1.082	1.080	1.077	1.074	1.071	1.068	1.065	1.062	1.059
	55	1.095	1.093	1.091	1.088	1.085	1.082	1.079	1.076	1.073	1.070	1.067
60	1.100	1.098	1.095	1.092	1.089	1.086	1.083	1.080	1.077	1.074	1.071	

COOLING SYSTEM

RADIATOR CAP/SYSTEM PRESSURE INSPECTION

Remove the radiator cap (page 8-5).

Wet the sealing surfaces of the cap, then install the cap onto the tester [1].

Pressure test the radiator cap.

Replace the radiator cap if it does not hold pressure, or if relief pressure is too high or too low.

It must hold specified pressure for at least 6 seconds.

RADIATOR CAP RELIEF PRESSURE:

108 – 137 kPa (1.1 – 1.4 kgf/cm², 16 – 20 psi)

Install the tester to the radiator.

Pressure the radiator, engine and hoses, and check for leaks.



NOTICE

Excessive pressure can damage the cooling system components. Do not exceed 137 kPa (1.4 kgf/cm², 20 psi).

Repair or replace components if the system will not hold specified pressure for at least 6 seconds.

COOLANT REPLACEMENT

PREPARATION

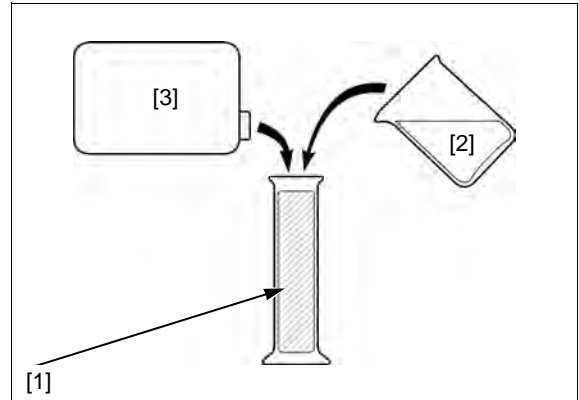
- The effectiveness of coolant [1] decreases with the accumulation of rust or if there is a change in the mixing proportion during usage. Therefore, for best performance change the coolant regularly as specified in the maintenance schedule.
- Mix only distilled, low mineral water [2] with the antifreeze [3].

RECOMMENDED ANTIFREEZE:

High quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors

RECOMMENDED MIXTURE:

1:1 (mixture with distilled water)



REPLACEMENT/AIR BLEEDING

NOTE:

When filling the system or reserve tank with coolant or checking the coolant level, place the motorcycle in an upright position on a flat, level surface.

Remove the lower cowl (page 2-28).

Remove the screw [1] and radiator cap [2].



Remove the drain bolt [1], sealing washer [2] and drain the coolant.

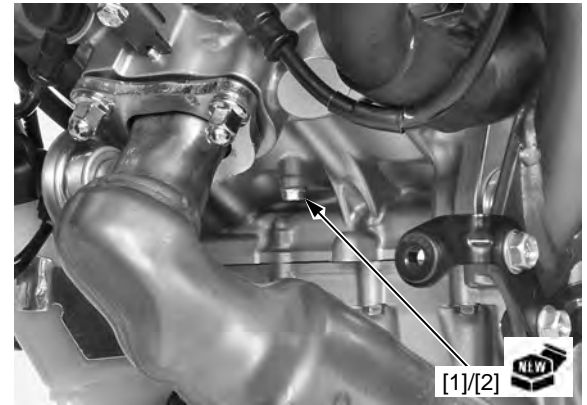
Reinstall the drain bolts with a new sealing washer.

Tighten the drain bolt securely.

Remove the radiator reserve tank (page 8-14).

Empty the coolant and rinse the inside of the reserve tank with water.

Install the reserve tank (page 8-14).



Fill the system with the recommended coolant through the filler opening up to filler neck [1].

Remove the radiator reserve tank cap [2] and fill the reserve tank to the upper level line.

Bleed air from the system as follows:

1. Shift the transmission into neutral.

Start the engine and let it idle for 2 – 3 minutes.

2. Snap the throttle 3 or 4 times to bleed air from the system.

3. Stop the engine and add coolant up to the filler neck if necessary.

Install the radiator cap.

4. Check the level of coolant in the reserve tank and fill to the upper level if it is low.

After installation, check that there are no coolant leaks.

Install the lower cowl (page 2-28).



THERMOSTAT/THERMOSTAT HOUSING

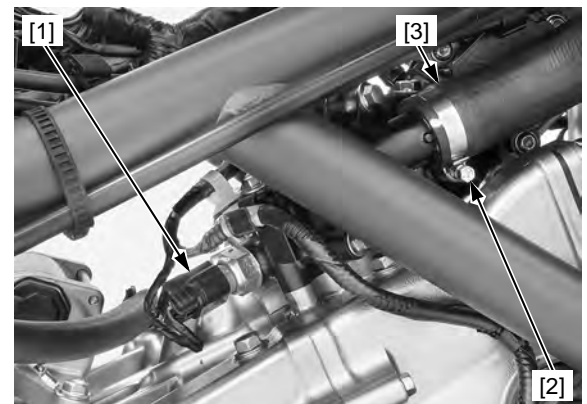
REMOVAL/INSTALLATION

Drain the coolant (page 8-6).

Remove the battery box (page 2-31).

Disconnect the ECT sensor 2P connector [1].

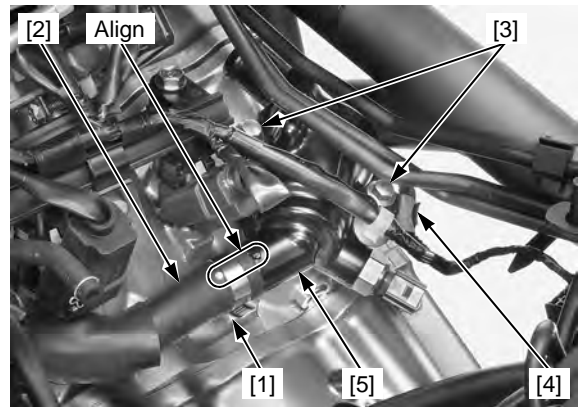
Loosen the water hose band screw [2] and disconnect the radiator upper water hose [3].



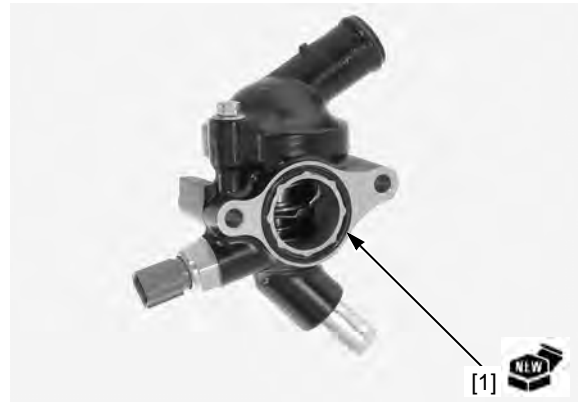
COOLING SYSTEM

Loosen the water hose band screw [1] and disconnect the water bypass hose [2].

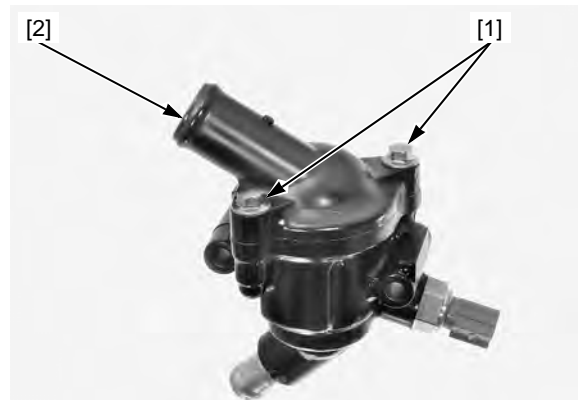
Remove the bolts [3], stay [4] and thermostat housing [5].



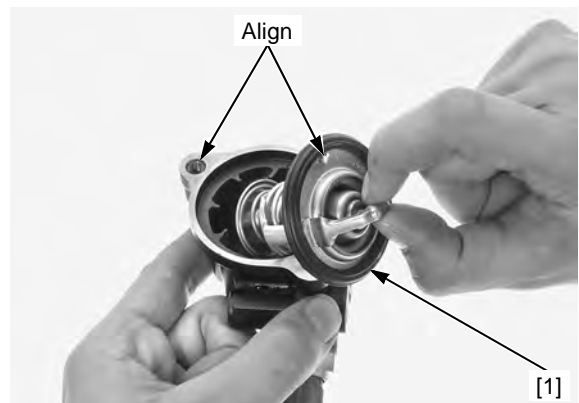
Remove the O-ring [1].



Remove the bolts [1] and thermostat housing cover [2].



Remove the thermostat [1] from the housing.

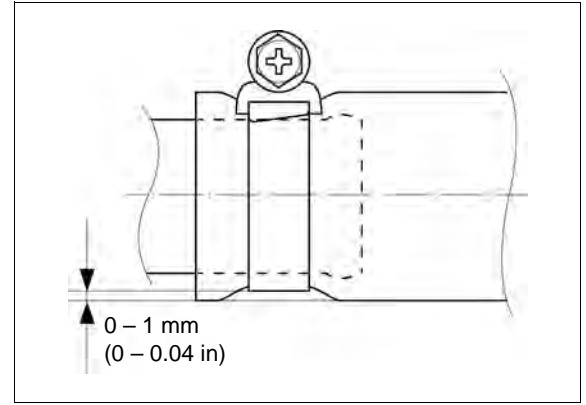


Installation is in the reverse order of removal.

NOTE:

- Align the thermostat air bleed hole with the rib side bolt hole.
- Replace the O-ring with a new one.
- Align the water bypass hose index mark with the thermostat housing tab.
- Tighten the water hose band screws to the specified range as shown.
- Route the wire harness and hoses properly (page 1-25).

Fill the recommended coolant mixture to the filler neck and bleed the air (page 8-6).

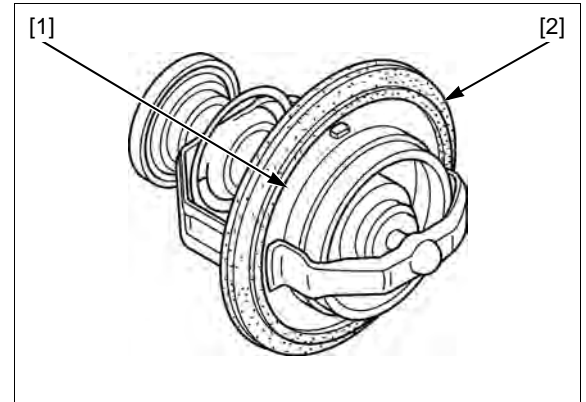


INSPECTION

Visually inspect the thermostat [1] for damage.

Check for damage of the seal ring [2].

Wear insulated gloves and adequate eye protection. Keep flammable materials away from the electric heating element.



Do not let the thermostat or thermometer [1] touch the pan, or you will get false reading.

Heat the water with an electric heating element to operating temperature for 5 minutes.

Suspend the thermostat [2] in heated water to check its operation.

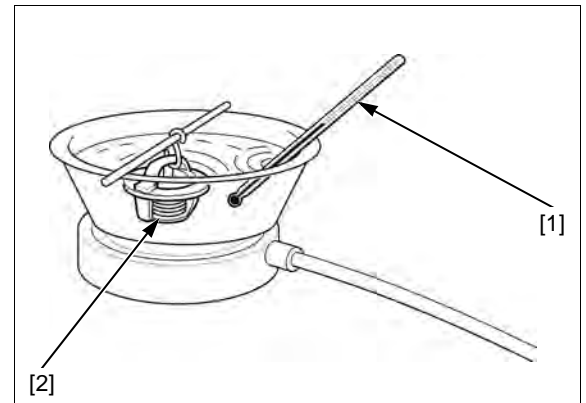
Replace the thermostat if the valve stays open at room temperature, or if it responds at temperatures other than those specified.

THERMOSTAT BEGIN TO OPEN:

80 – 84°C (176 – 183°F)

VALVE LIFT:

8 mm (0.3 in) minimum at 95°C (203°F)



RADIATOR

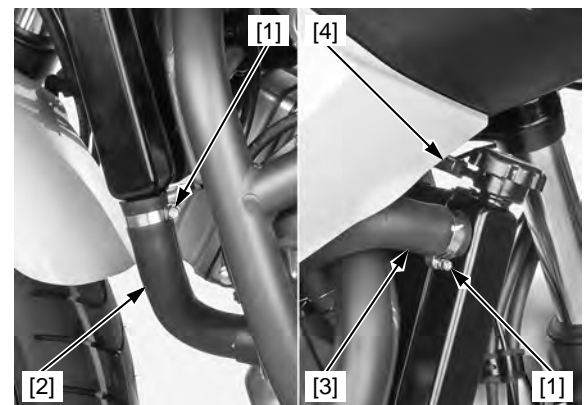
REMOVAL/INSTALLATION

Remove the lower cowl (page 2-28).

Drain the coolant (page 8-6).

Loosen the water hose band screw [1] and disconnect the radiator lower water hose [2] and radiator upper water hose [3].

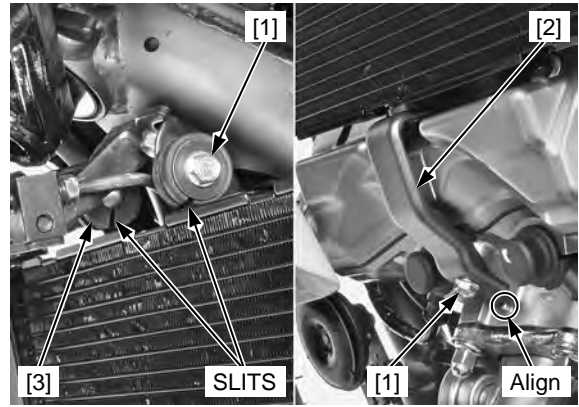
Disconnect the siphon hose [4].



COOLING SYSTEM

Remove the bolts [1] and radiator lower stay [2].

Release the radiator boss from the radiator mounting rubber [3].

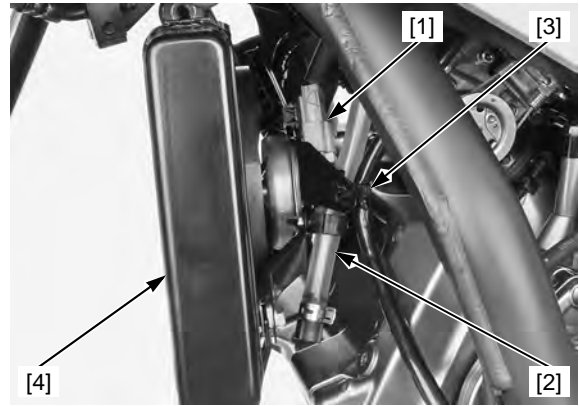


Release the fan motor 3P (Gray) connector [1], air cleaner housing drain hose [2] and spark plug wire [3] from the radiator [4].

Disconnect the fan motor 3P (Gray) connector and remove the radiator.

NOTE:

Be careful not to damage the radiator fins.

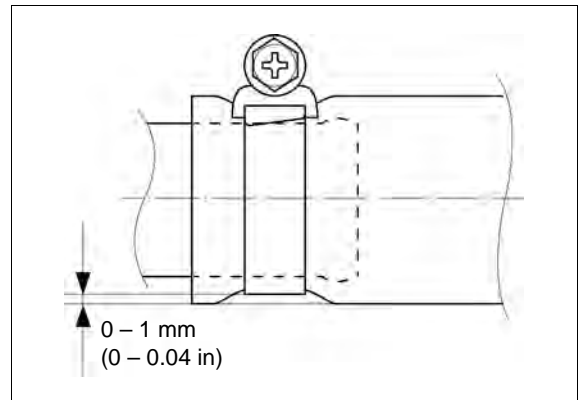


Installation is in the reverse order of removal.

NOTE:

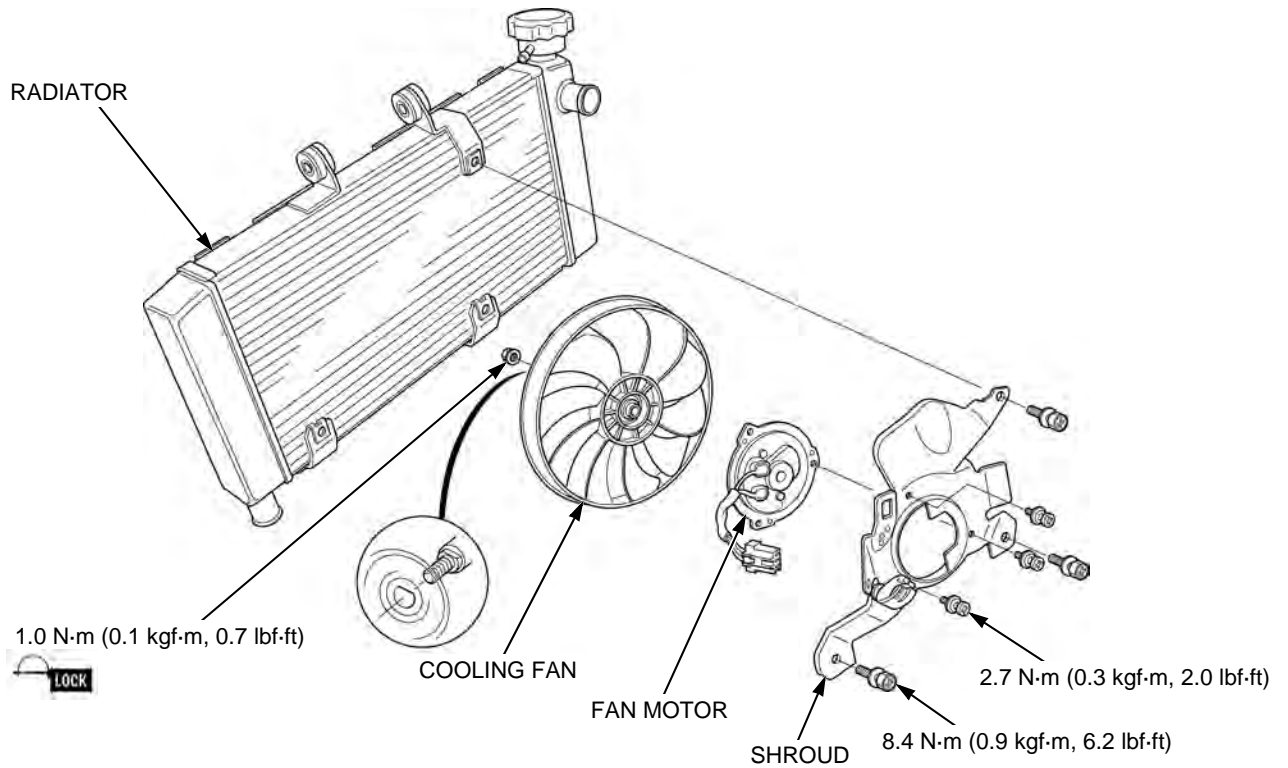
- Tighten the water hose band screws to the specified range as shown.
- Route the wire harness and hoses properly (page 1-25).
- Make sure the radiator mounting rubber slits facing down.
- Align radiator lower stay slit with cylinder head tab.

Fill the recommended coolant mixture to the filler neck and bleed the air (page 8-6).



DISASSEMBLY/ASSEMBLY

Disassemble and assemble the radiator as following the illustration.



NOTE:

- Align the cooling fan and fan motor shaft flat surfaces.
- Apply locking agent to the cooling fan mounting nut threads.

TORQUE:

Fan motor shroud mounting bolt:

8.4 N·m (0.9 kgf·m, 6.2 lbf·ft)

Fan motor mounting screw:

2.7 N·m (0.3 kgf·m, 2.0 lbf·ft)

Cooling fan mounting nut:

1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

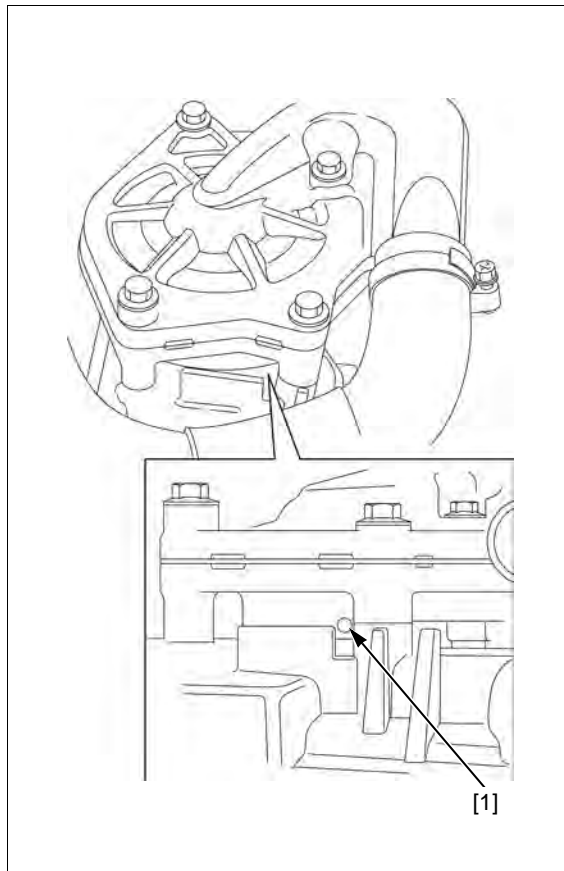
WATER PUMP

MECHANICAL SEAL INSPECTION

Check the bleed hole [1] of the water pump for signs of coolant leakage.

- A small amount of coolant weeping from the bleed hole is normal.
- Make sure that there are no continuous coolant leakage from the bleed hole while operating the engine.

Replace the water pump as an assembly if necessary.

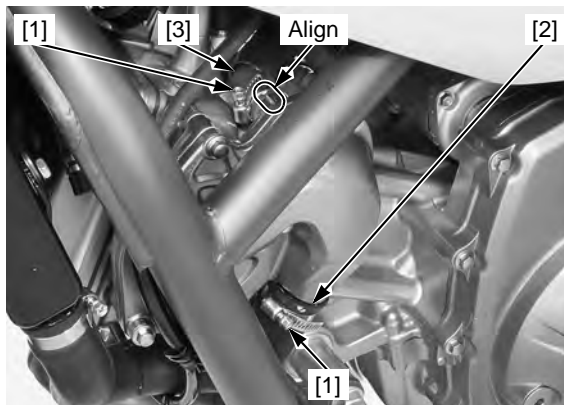


REMOVAL/INSTALLATION

Remove the lower cowl (page 2-28).

Drain the coolant (page 8-6).

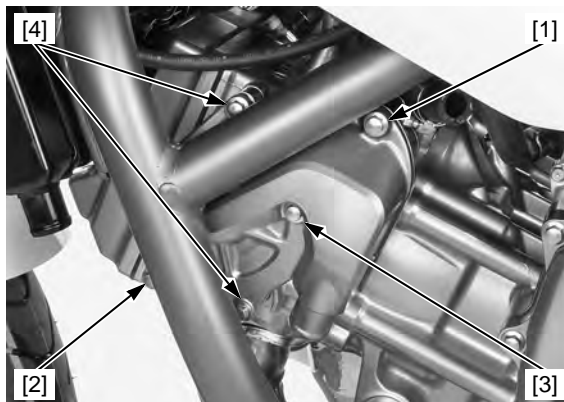
Loosen the water hose band screw [1] and disconnect the radiator lower water hose [2] and water bypass hose [3].



Remove the following:

- 6 x 50 mm bolt [1]
- 6 x 32 mm bolt [2]

Loosen the 6 x 32 mm bolt [3] and 6 x 35 mm bolts [4].

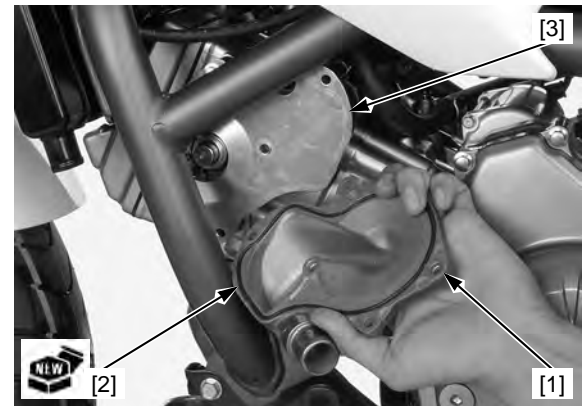


Remove and slide the water pump assembly.
 Remove the 6 x 35 mm bolts [1].
 Reinstall the water pump assembly.
 Remove the 6 x 32 mm bolt [2] and sealing washer [3].

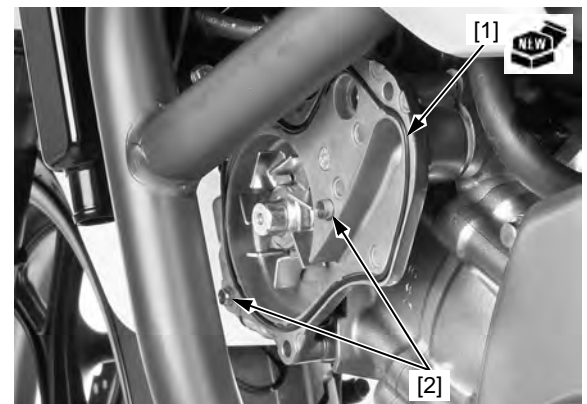


Remove the following:

- Water pump cover [1]
- Gasket [2]
- Plate [3]

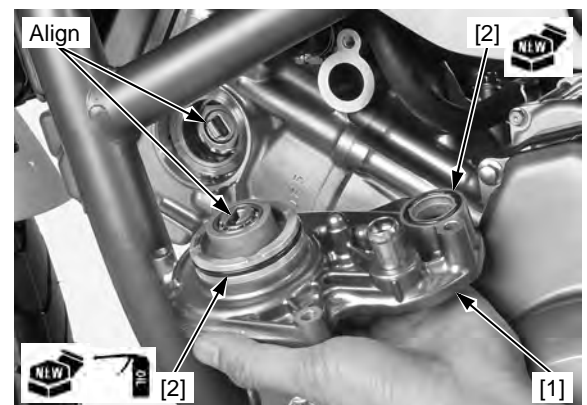


Remove the gasket [1] and dowel pins [2] from the water pump body.



Remove the water pump body [1] and O-rings [2] from the cylinder head.

NOTE:
 Do not disassemble the water pump body.



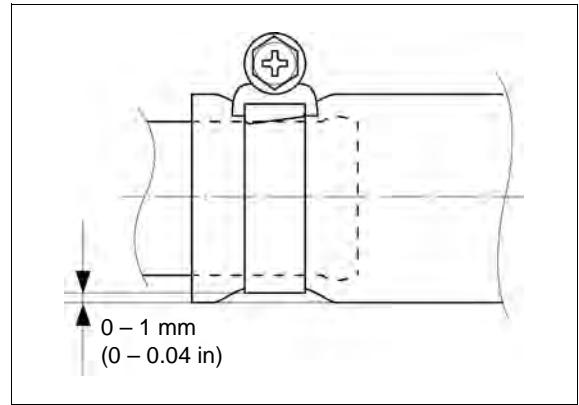
COOLING SYSTEM

Installation is in the reverse order of removal.

NOTE:

- Replace the O-rings, gaskets and sealing washer with new ones.
- Apply engine oil to the large O-ring.
- Align the water pump slit with camshaft tab.
- Align the water bypass hose index mark with the water pump tab.
- Tighten the water hose band screws to the specified range as shown.
- Route the hoses properly (page 1-25).

Fill the recommended coolant mixture to the filler neck and bleed the air (page 8-6).



DISASSEMBLY/ASSEMBLY

NOTE:

When engine removed, remove the water pump assembly.

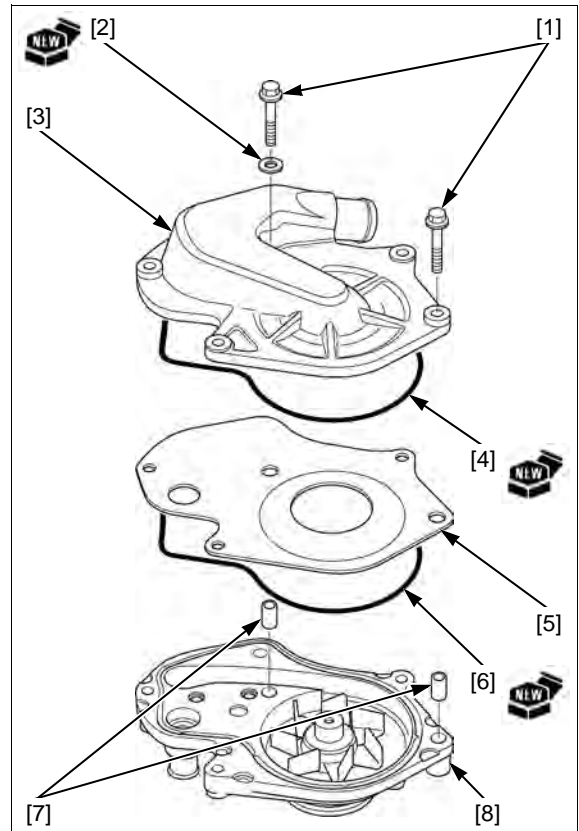
Remove the following:

- 6 x 32 mm bolts [1]
- Sealing washer [2]
- Water pump cover [3]
- Gasket [4]
- Plate [5]
- Gasket [6]
- Dowel pins [7]
- Water pump body [8]

Assembly is in the reverse order of disassembly.

NOTE:

- Do not disassemble the water pump body.
- Replace the gasket and sealing washer with new ones



RADIATOR RESERVE TANK

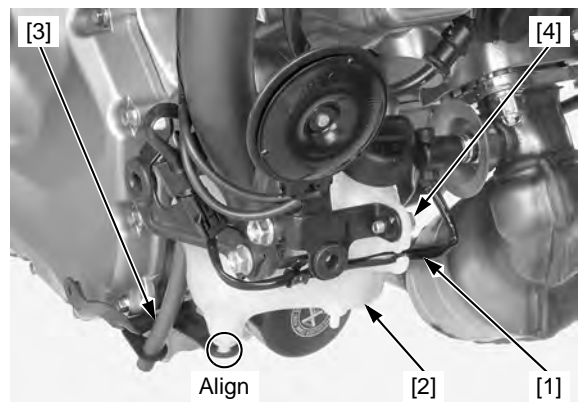
REMOVAL/INSTALLATION

Remove the lower cowl (page 2-28).

Release the O₂ sensor wire [1] from the radiator reserve tank [2].

Release the reserve tank overflow hose [3].

Remove the bolt [4] and radiator reserve tank.



Disconnect the siphon hose [1] and drain the coolant from the reserve tank.

Installation is in the reverse order of removal.

NOTE:

- Align the radiator reserve tank tab with stay hole.
- Route the hoses properly (page 1-25).

Fill the radiator reserve tank with the recommended coolant (page 3-15).



FAN CONT. RELAY

INSPECTION

Remove the maintenance lid (page 21-6).

Open the fuse/relay box cover and remove the FAN CONT. RELAY [1].

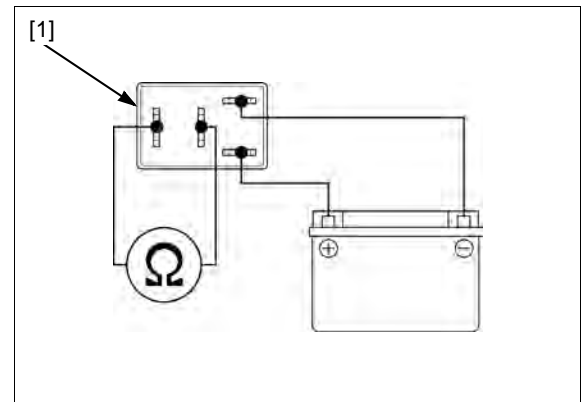


Connect an ohmmeter to the FAN CONT. RELAY [1] connector terminals.

Connect a 12 V battery to the FAN CONT. RELAY connector terminals as shown.

There should be continuity only when 12 V battery is connected.

If there is no continuity only when the 12 V battery is connected, replace the FAN CONT. RELAY.



MEMO

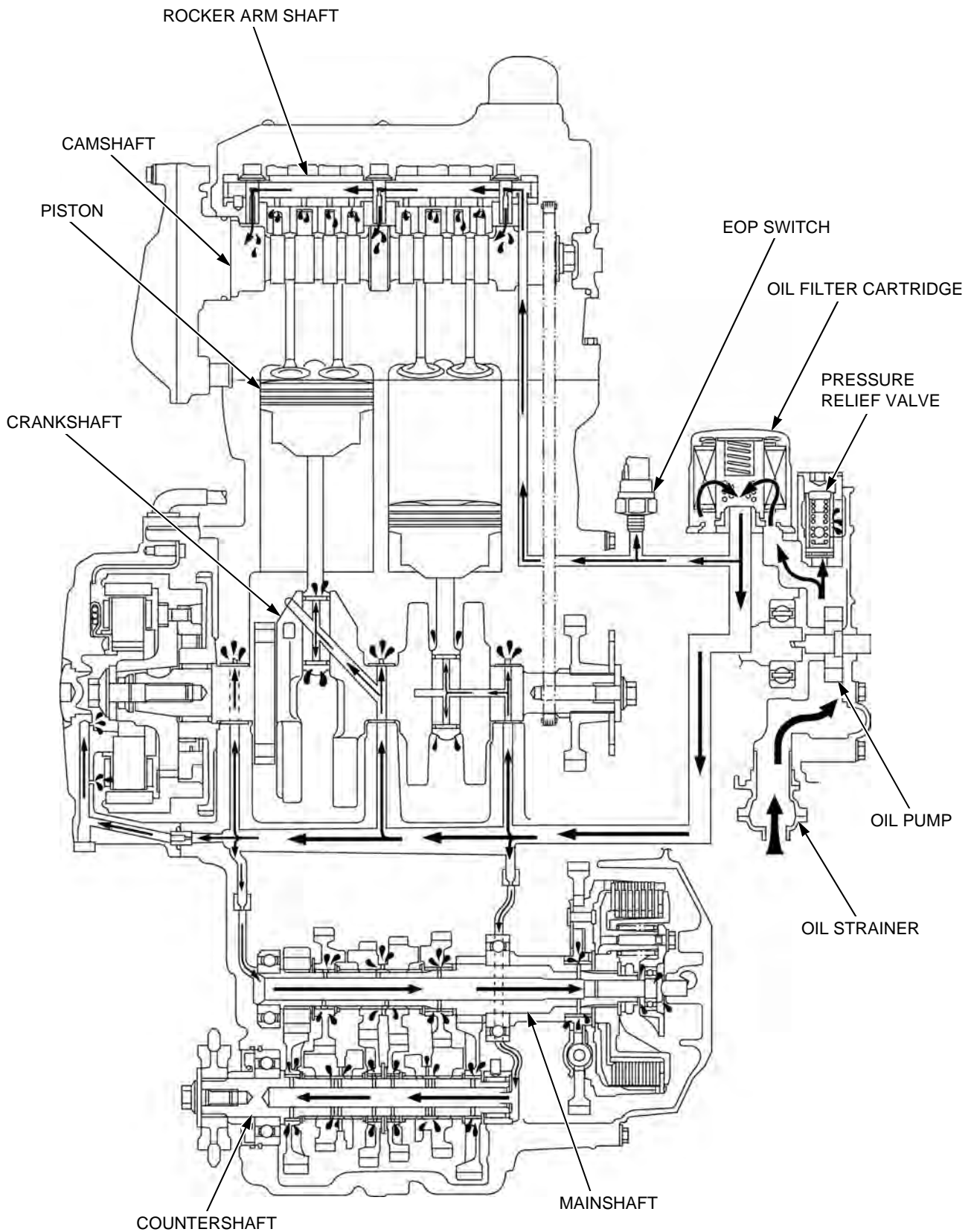
9. LUBRICATION SYSTEM

LUBRICATION SYSTEM DIAGRAM	9-2	OIL PUMP (NC700X/XA/S/SA)	9-6
SERVICE INFORMATION	9-4	OIL PUMP (NC700XD/SD)	9-8
TROUBLESHOOTING	9-5	OIL STRAINER	9-11
OIL PRESSURE INSPECTION	9-6		

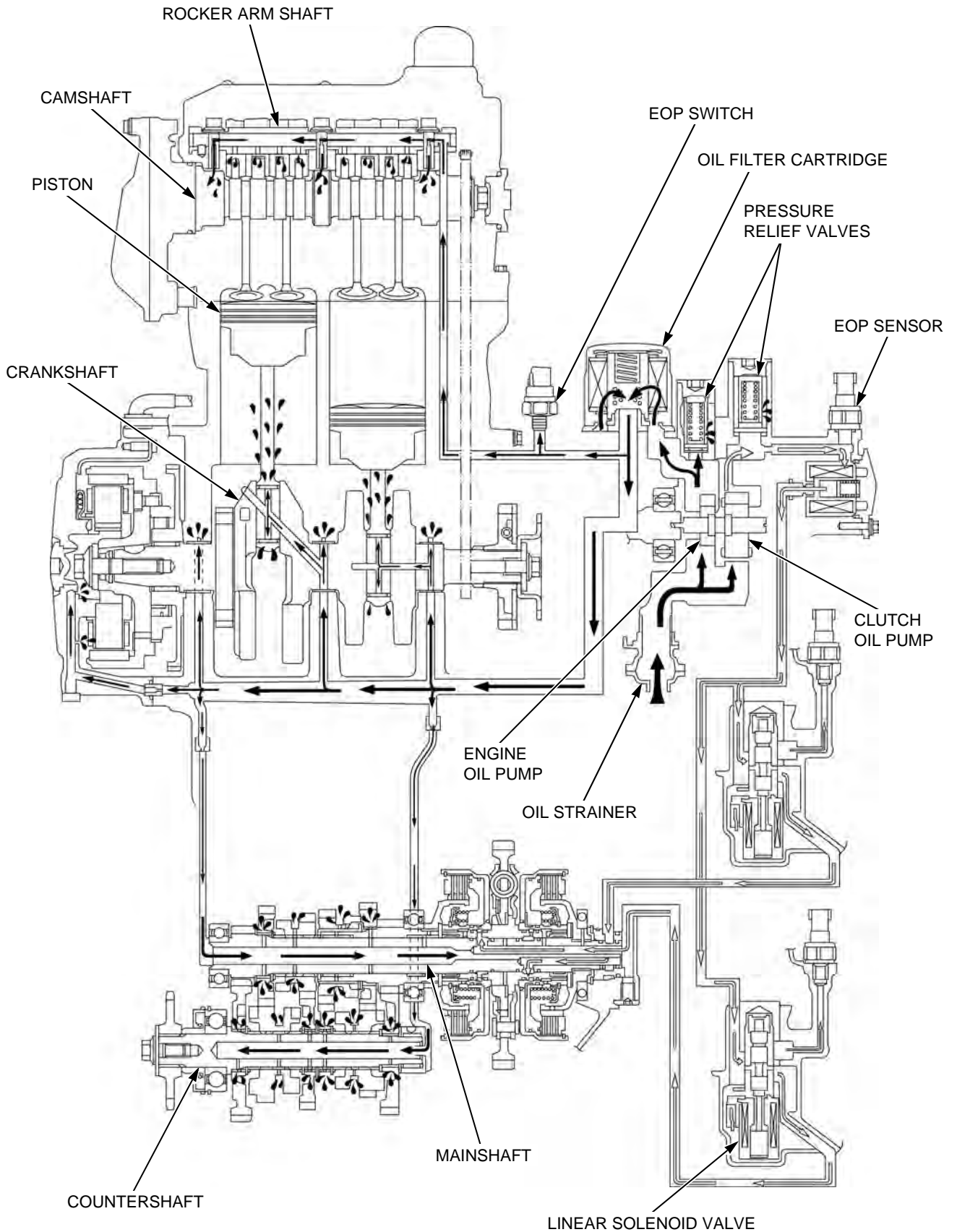
LUBRICATION SYSTEM

LUBRICATION SYSTEM DIAGRAM

NC700X/XA/S/SA:



NC700XD/SD:



LUBRICATION SYSTEM

SERVICE INFORMATION

GENERAL

⚠ CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

- This section covers service of the oil pump and oil strainer.
- The oil pump and oil strainer can be serviced with the engine installed in the frame.
- The service procedures in this section must be performed with the engine oil drained.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks and that oil pressure is correct.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	NC700X/XA/S/SA	After draining	3.1 liters (3.3 US qt, 2.7 Imp qt)
		After draining/ filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)
		After disassembly	3.7 liters (3.9 US qt, 3.3 Imp qt)
	NC700XD/SD	After draining	3.2 liters (3.4 US qt, 2.8 Imp qt)
		After draining/ filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)
		After disassembly	4.1 liters (4.3 US qt, 3.6 Imp qt)
Recommended engine oil		Honda "4-stroke motorcycle oil" or an equivalent API service classification: SG or higher (except oils labeled as energy conserving on the circular API service label) Viscosity: SAE 10W-30 JASO T 903 standard: MA	—
Oil pressure at engine oil filter		470 kPa (4.8 kgf/cm ² , 68 psi) at 5,000 min ⁻¹ (rpm)/(80°C/176°F)	—
Oil pump rotor (NC700X/XA/S/SA)	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.35 (0.014)
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.12 (0.005)
Engine oil pump rotor (NC700XD/SD)	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	0.35 (0.014)
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	0.12 (0.005)
Clutch oil pump rotor (NC700XD/SD)	Tip clearance	0.15 (0.006)	—
	Body clearance	0.15 – 0.21 (0.006 – 0.008)	—
	Side clearance	0.04 – 0.09 (0.002 – 0.004)	—

TORQUE VALUE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Engine oil filter cartridge	1	20	26 (2.7, 19)	Apply engine oil to the threads.

TROUBLESHOOTING

Oil level too low

- Oil consumption
- External oil leak
- Worn piston rings
- Improperly installed piston rings
- Worn cylinders
- Worn valve stem seals
- Worn valve guide

Low oil pressure

- Oil level low
- Clogged oil strainer
- Faulty oil pump
- Internal oil leak
- Incorrect oil being used

No oil pressure

- Oil level too low
- Oil pressure relief valve stuck open
- Damaged oil pump
- Internal oil leak

High oil pressure

- Oil pressure relief valve stuck closed
- Clogged oil filter, oil gallery or metering orifice
- Incorrect oil being used

Oil contamination

- Oil or filter not changed often enough
- Worn piston rings

Oil emulsification

- Blown cylinder head gasket
- Leaky coolant passage
- Entry of water

LUBRICATION SYSTEM

OIL PRESSURE INSPECTION

Remove the following:

- Lower cowl (page 2-28)
- Engine oil filter cartridge (page 3-13)

Apply engine oil to the O-ring and install the oil pressure attachment [1] onto the oil filter boss.

TOOL:

Oil pressure gauge attachment 070MJ-0010101

Apply engine oil to the O-ring and install the engine oil filter cartridge [2] onto the oil pressure attachment.

TOOL:

Oil filter wrench 07HAA-PJ70101

TORQUE: 26 N·m (2.7 kgf·m, 19 lbf·ft)

Connect the oil pressure gauge [3] and attachment [4] to the oil pressure gauge attachment.

TOOLS:

Oil pressure gauge set 07506-3000001 or equivalent commercially available

Oil pressure gauge attachment 07406-0030000 or equivalent commercially available

Fill the engine with the recommended engine oil (page 3-12).

Warm the engine to normal operating temperature (approximately 80°C/176°F) and increase the engine speed to 6,000 min⁻¹ (rpm) and read the oil pressure.

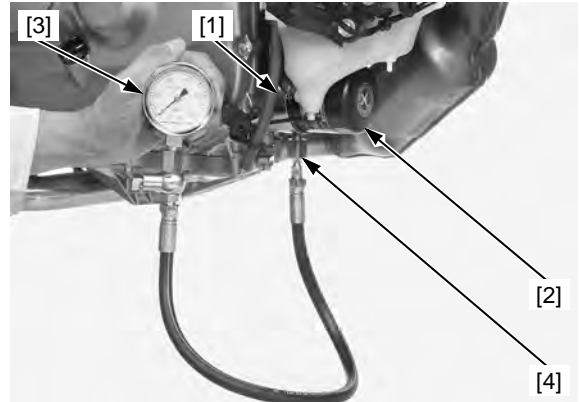
STANDARD:

470 kPa (4.8 kgf/cm², 68 psi) at 5,000 min⁻¹ (rpm) / (80°C/176°F)

Stop the engine and remove the tools.

Install the following:

- Engine oil filter cartridge (page 3-13)
- Lower cowl (page 2-28)

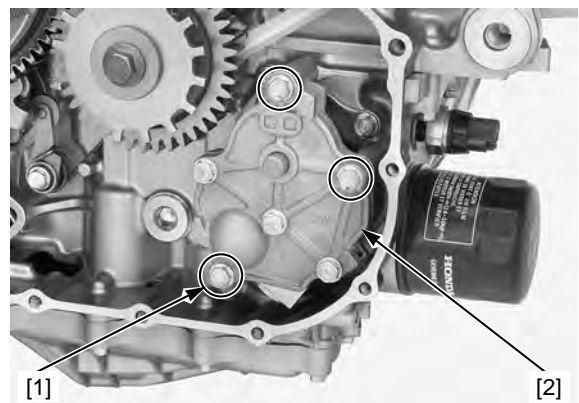


OIL PUMP (NC700X/XA/S/SA)

REMOVAL/INSTALLATION

Remove the right crankcase cover (page 11-5).

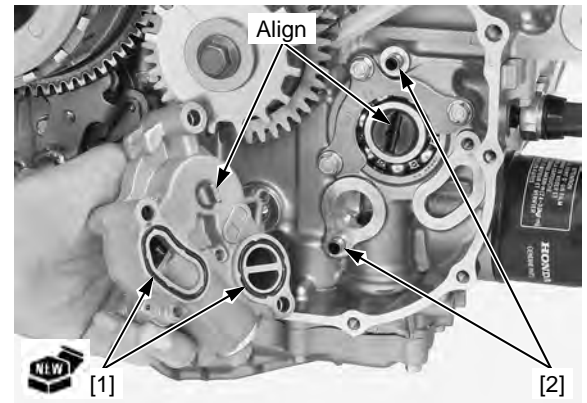
Remove the bolts [1] and oil pump [2].



Remove the O-rings [1] and dowel pins [2].
Installation is in the reverse order of removal.

NOTE:

- Replace the O-rings with a new one.
- Align the oil pump shaft tab with the balancer shaft slit.



DISASSEMBLY/ASSEMBLY

Remove the bolts [1], oil pump cover [2] and dowel pins [3].

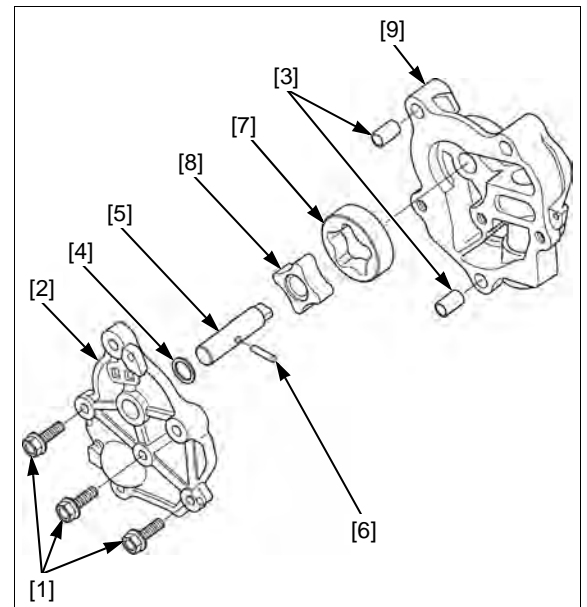
Remove the thrust washer [4], oil pump shaft [5], drive pin [6], outer rotor [7] and inner rotor [8] from the oil pump body [9].

Clean all disassembled parts thoroughly.

Assembly is in the reverse order of disassembly.

NOTE:

Dip all parts in clean engine oil.



INSPECTION

NOTE:

If any portion of the oil pump is worn beyond the service limit, replace the oil pump as an assembly.

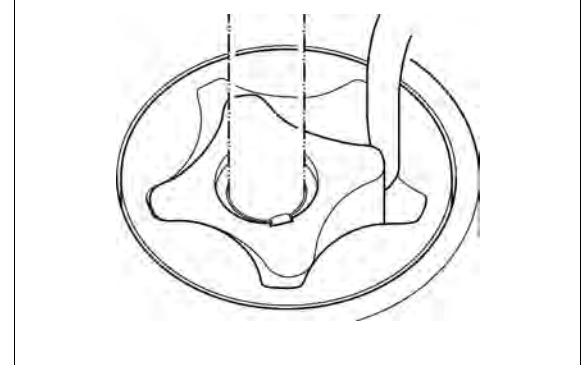
Temporarily install the outer and inner rotors into the oil pump body.

Temporarily install the drive pin and oil pump shaft.

Measure the rotor tip clearance.

SERVICE LIMIT: 0.20 mm (0.008 in)

TIP CLEARANCE:

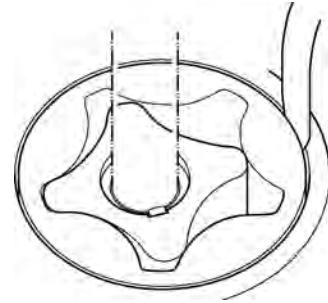


LUBRICATION SYSTEM

Measure the pump body clearance.

SERVICE LIMIT: 0.35 mm (0.014 in)

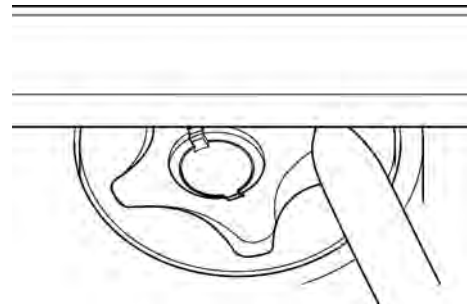
BODY CLEARANCE:



Measure the side clearance using a straight edge and feeler gauge.

SERVICE LIMIT: 0.12 mm (0.005 in)

SIDE CLEARANCE:

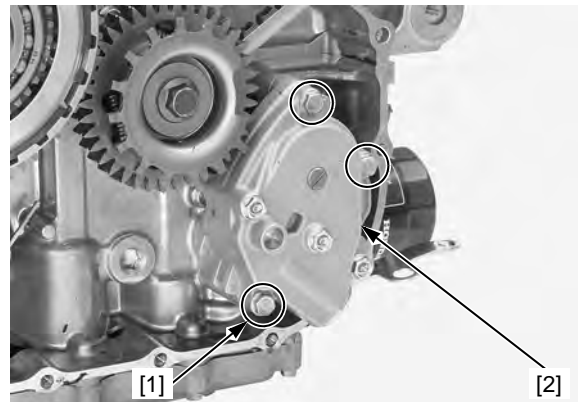


OIL PUMP (NC700XD/SD)

REMOVAL/INSTALLATION

Remove the right crankcase cover (page 12-97).

Remove the bolts [1] and oil pump [2].

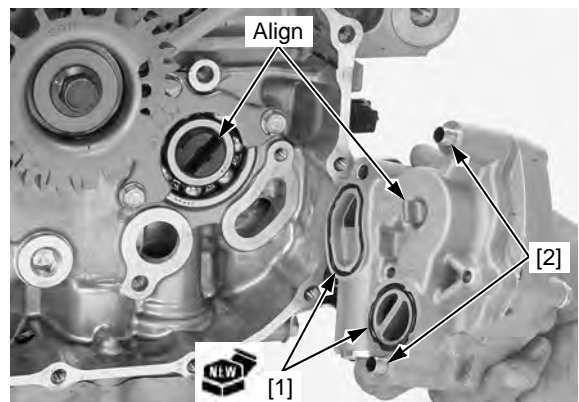


Remove the O-rings [1] and dowel pins [2].

Installation is in the reverse order of removal.

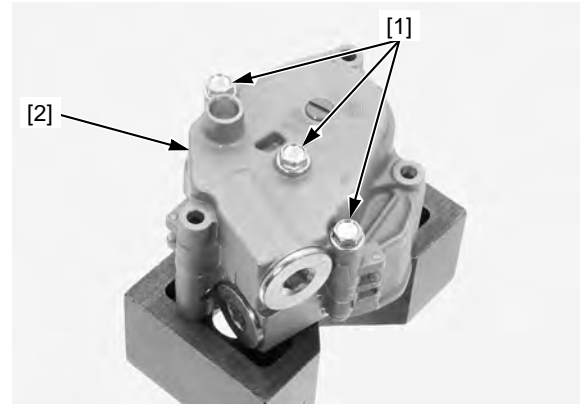
NOTE:

- Replace the O-rings with new ones.
- Align the oil pump shaft end with the balancer shaft groove.

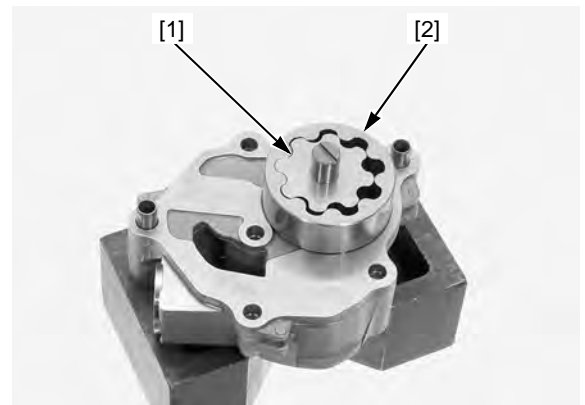


DISASSEMBLY

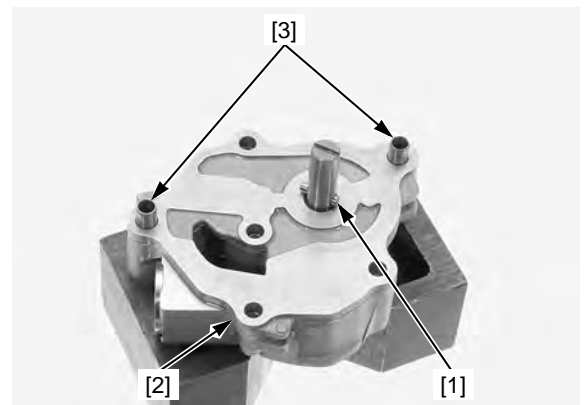
Remove the bolts [1] and oil pump cover [2].



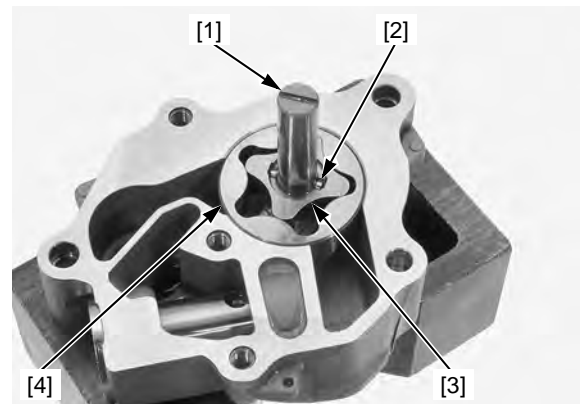
Remove the clutch oil pump inner rotor [1] and outer rotor [2].



Remove the drive pin [1], oil pump plate [2] and dowel pins [3].



Remove the oil pump shaft [1], drive pin [2], engine oil pump inner rotor [3] and outer rotor [4].



LUBRICATION SYSTEM

INSPECTION

Engine oil pump: Temporarily install the inner rotor, outer rotor, drive pin and oil pump shaft into the oil pump body.

Clutch oil pump: Temporarily install the inner rotor, outer rotor, drive pin and oil pump shaft into the oil pump cover.

Measure the rotor tip clearance.

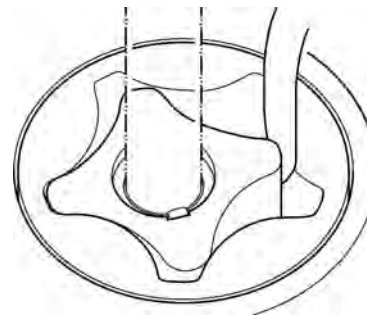
Engine oil pump

SERVICE LIMIT: 0.20 mm (0.008 in)

Clutch oil pump

STANDARD: 0.15 mm (0.006 in)

TIP CLEARANCE:



Measure the pump body clearance.

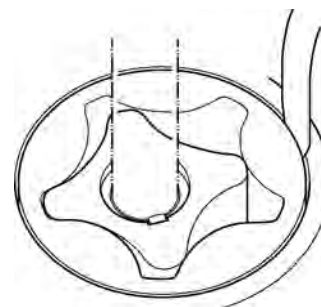
Engine oil pump

SERVICE LIMIT: 0.35 mm (0.014 in)

Clutch oil pump

STANDARD: 0.15 – 0.21 mm (0.006 – 0.008 in)

BODY CLEARANCE:



Measure the side clearance using a straight edge and feeler gauge.

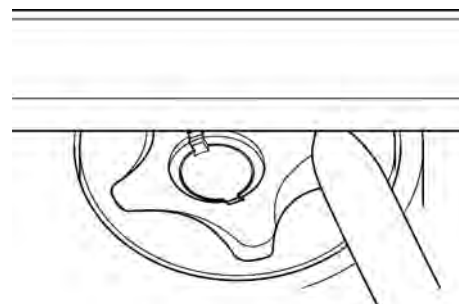
Engine oil pump

SERVICE LIMIT: 0.12 mm (0.005 in)

Clutch oil pump

STANDARD: 0.04 – 0.09 mm (0.002 – 0.004 in)

SIDE CLEARANCE:

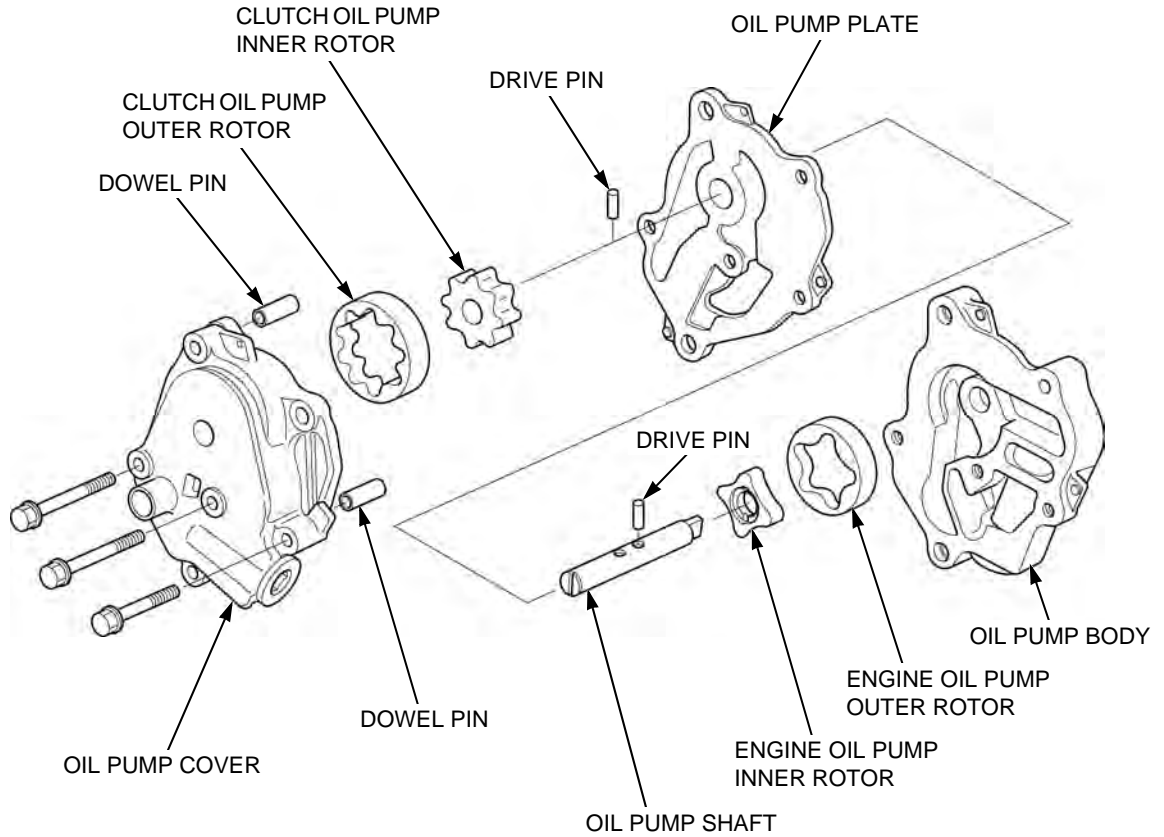


ASSEMBLY

Assembly is in the reverse order of disassembly.

NOTE:

Dip all parts in clean engine oil.



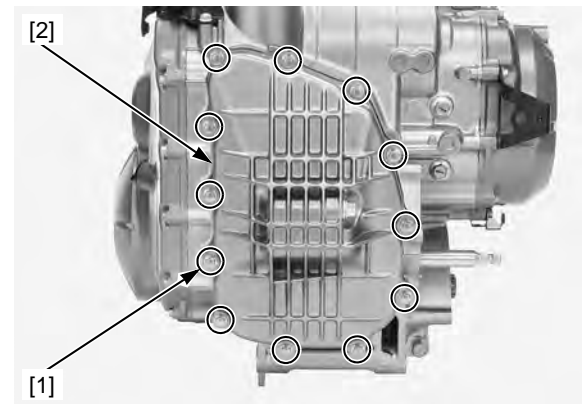
OIL STRAINER

REMOVAL

Drain the engine oil (page 3-13).

Remove the exhaust pipe/muffler (page 2-32).

Loosen the bolts [1] in a crisscross pattern in 2 or 3 steps, and remove the bolts and oil pan [2].



LUBRICATION SYSTEM

Remove the oil strainer [1] and seal ring [2].

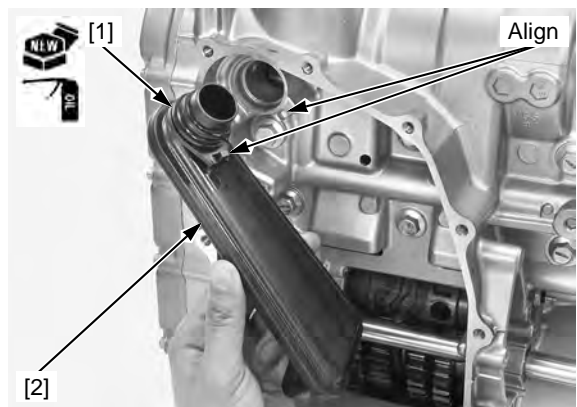
Clean the oil strainer screen and check for damage, replace it if necessary.



INSTALLATION

Apply engine oil to a new seal ring [1] and install it onto the oil strainer [2].

Install the oil strainer into the crankcase while aligning the oil strainer boss with the crankcase groove.

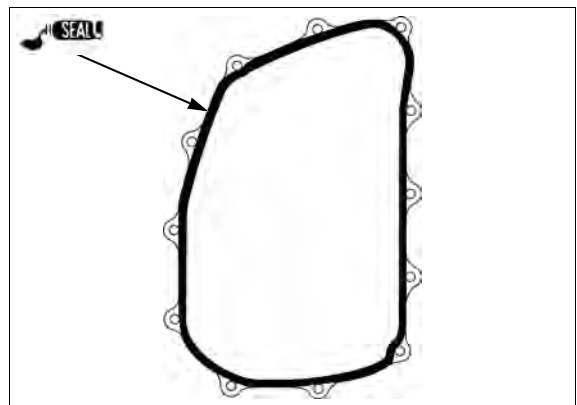


Clean the oil pan mating surface thoroughly.

Apply liquid sealant (Three Bond 1207B or equivalent) to the oil pan mating surface as shown.

NOTE:

Do not apply more liquid sealant than necessary.

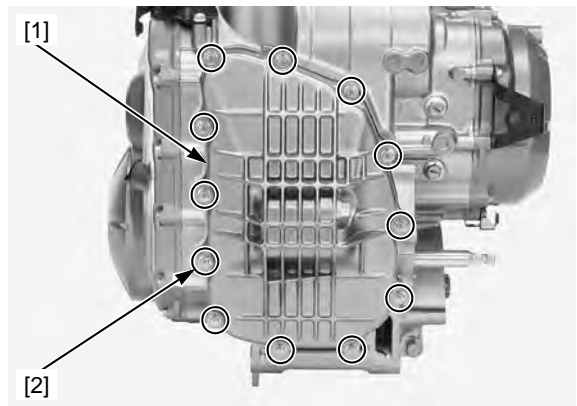


Install the oil pan [1] and bolts [2].

Tighten the bolts in a crisscross pattern in 2 or 3 steps.

Install the exhaust pipe/muffler (page 2-32).

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).

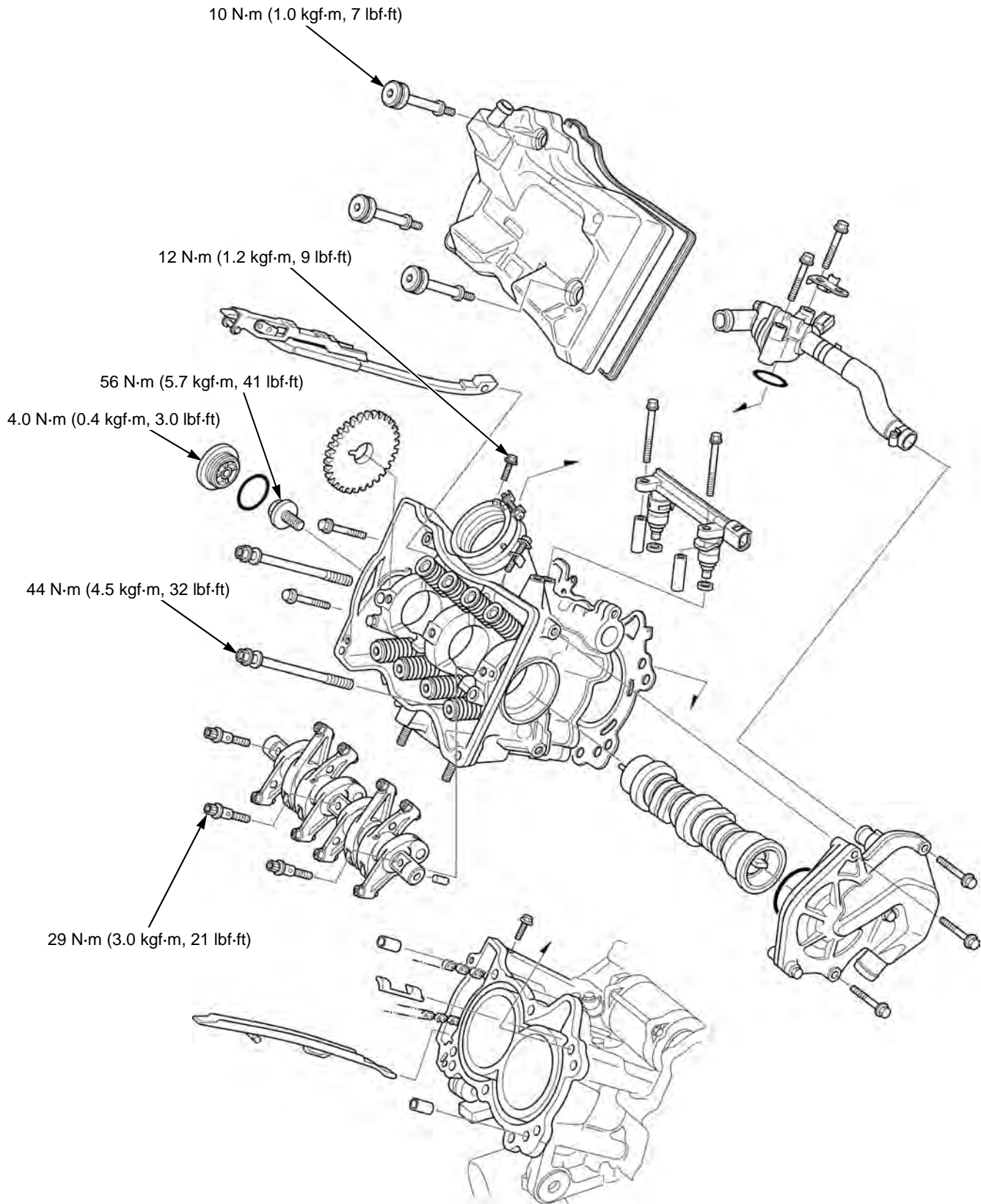


10. CYLINDER HEAD/VALVES

COMPONENT LOCATION	10-2	ROCKER ARM	10-8
SERVICE INFORMATION	10-3	CAM CHAIN TENSIONER	10-11
TROUBLESHOOTING.....	10-4	CAMSHAFT.....	10-13
CYLINDER COMPRESSION TEST.....	10-5	CYLINDER HEAD	10-16
CYLINDER HEAD COVER	10-5		

CYLINDER HEAD/VALVES

COMPONENT LOCATION



SERVICE INFORMATION

GENERAL

- This section covers service of the cylinder head, valves, camshaft and rocker arm.
- The rocker arm services can be done with the engine installed in the frame. The cylinder head, valves and camshaft service requires engine removal.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with cleaning solvent and dry them by blowing them off with compressed air before inspection.
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling cylinder head.
- Be careful not to damage the mating surfaces when removing the cylinder head cover and cylinder head.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Cylinder compression at 470 min ⁻¹ (rpm)		1,775 kPa (18.1 kgf/cm ² , 257 psi)	–	
Valve clearance	IN	0.17 ± 0.02 (0.007 ± 0.001)	–	
	EX	0.28 ± 0.02 (0.011 ± 0.001)	–	
Rocker arm, rocker arm shaft	Rocker arm I.D.	20.012 – 20.030 (0.7879 – 0.7886)	20.041 (0.7890)	
	Rocker arm shaft O.D.	19.972 – 19.993 (0.7863 – 0.7871)	19.961 (0.7859)	
	Rocker arm-to-shaft clearance	0.019 – 0.058 (0.0007 – 0.0023)	0.08 (0.003)	
Cam chain tensioner wedge B length		–	6.0 (0.24)	
Camshaft	Cam lobe height	IN	34.7897 – 35.0297 (1.36967 – 1.37912)	
		EX	34.9227 – 35.1627 (1.37491 – 1.38436)	
	Runout	–	0.04 (0.002)	
	Camshaft journal O.D.	41.935 – 41.950 (1.6510 – 1.6516)	41.927 (1.6507)	
Valve, valve guide	Valve stem O.D.	IN	4.975 – 4.990 (0.1959 – 0.1965)	
		EX	4.965 – 4.980 (0.1955 – 0.1961)	
	Valve guide I.D.	IN/EX	5.000 – 5.012 (0.1969 – 0.1973)	
	Stem-to-guide clearance	IN	0.010 – 0.037 (0.0004 – 0.0015)	
		EX	0.020 – 0.047 (0.0008 – 0.0019)	
	Valve guide projection above cylinder head	IN	17.7 – 18.0 (0.70 – 0.71)	–
		EX	19.6 – 19.9 (0.77 – 0.78)	–
	Valve seat width	IN	0.90 – 1.10 (0.035 – 0.043)	1.5 (0.06)
EX	1.30 – 1.50 (0.051 – 0.059)	1.9 (0.07)		
Valve spring free length		49.07 (1.932)	48.1 (1.89)	
Cylinder head warpage		–	0.10 (0.004)	
Cylinder head camshaft journal I.D.		41.995 – 42.019 (1.6533 – 1.6543)	42.027 (1.6546)	
Cylinder head-to-camshaft clearance		0.045 – 0.084 (0.0018 – 0.0033)	0.10 (0.004)	

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head cover socket bolt	3	6	10 (1.0, 7)	
Breather plate mounting bolt	8	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Rocker arm shaft bolt	3	8	29 (3.0, 21)	Apply engine oil to the threads and seating surface.
Camshaft maintenance cap	1	36	4.0 (0.4, 3.0)	See page 10-11 See page 10-28
Cam chain tensioner bolt	2	6	12 (1.2, 9)	
Cam sprocket bolt	1	10	56 (5.7, 41)	Apply engine oil to the threads and seating surface.
Water hose band screw	6	–	–	See page 10-16
Insulator band screw	1	5	–	See page 10-25
Cylinder head special bolt	6	9	44 (4.5, 32)	Apply molybdenum oil solution to the threads and seating surface.

CYLINDER HEAD/VALVES

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These problems can be diagnosed by a compression test or by tracing engine noises to the top-end with a sounding rod stethoscope.
- If the performance is poor at low speeds, check for white smoke in the crankcase breather hose. If the hose is smoky, check for a seized piston ring (page 15-16).

Compression too low, hard starting or poor performance at low speed

- Valves:
 - Incorrect valve clearance adjustment
 - Burned or bent valve
 - Incorrect valve timing
 - Broken valve spring
 - Uneven valve seating
- Cylinder head:
 - Leaking or damaged cylinder head gasket
 - Warped or cracked cylinder head
 - Loose spark plug
- Worn cylinder, piston or piston rings (page 15-16)

Compression too high, overheating or knocking

- Excessive carbon build-up on piston crown or on combustion chamber

Excessive smoke

- Cylinder head:
 - Worn valve stem or valve guide
 - Damaged stem seal
- Worn cylinder, piston or piston rings (page 15-16)

Excessive noise

- Cylinder head:
 - Incorrect valve clearance adjustment
 - Sticking valve or broken valve spring
 - Damaged or worn camshaft
 - Loose or worn cam chain
 - Worn or damaged cam chain
 - Worn or damaged cam chain tensioner
 - Worn cam sprocket teeth
 - Worn rocker arm and/or shaft
 - Worn rocker arm and valve stem end
- Worn cylinder, piston or piston rings (page 15-16)

Rough idle

- Low cylinder compression

CYLINDER COMPRESSION TEST

Remove the following:

- Shroud/side cover (NC700X/XA/XD) (page 2-14)
- Shelter/side cover (NC700S/SA/SD) (page 2-15)
- Lower cowl (page 2-28)

Warm the engine to normal operating temperature. Stop the engine and remove the all spark plug caps and spark plugs (page 3-8).

Disconnect the fuel pump 1P (Black) connector [1].



Install a compression gauge [1] into the spark plug hole.

Open the throttle all the way and crank the engine with the starter motor until the gauge reading stops rising.

The maximum reading is usually reached within 4 – 7 seconds.

STANDARD:

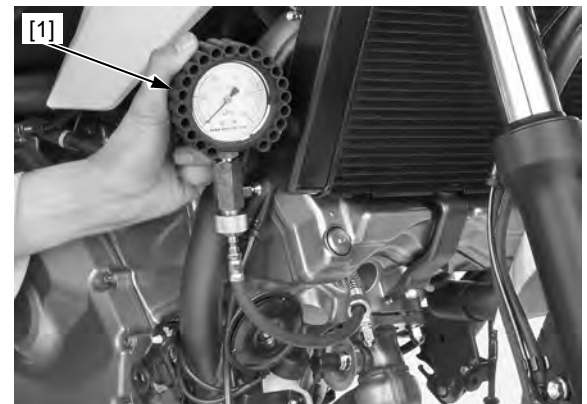
1,775 kPa (18.1 kgf/cm², 257 psi) at 470 min⁻¹ (rpm)

Low compression can be caused by:

- Blown cylinder head gasket
- Improper valve clearance adjustment
- Valve leakage
- Worn piston ring or cylinder

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston head

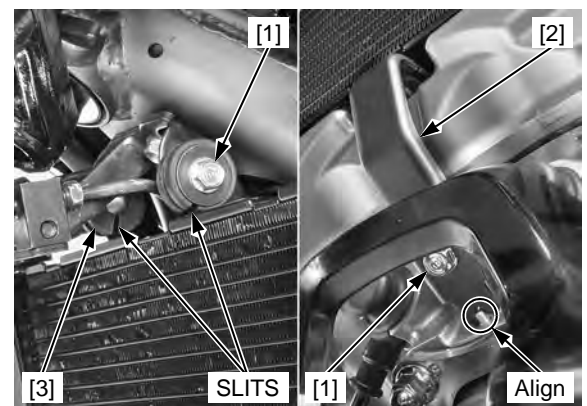


CYLINDER HEAD COVER

REMOVAL/INSTALLATION

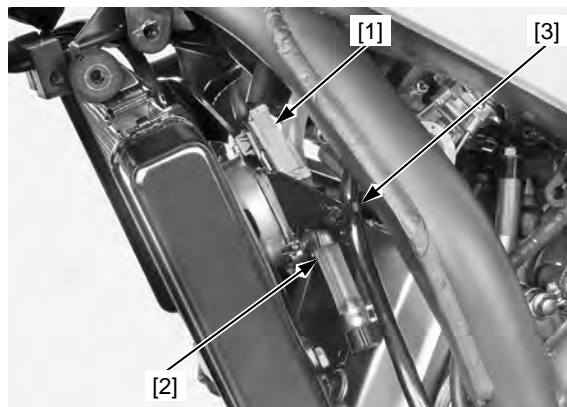
Remove the bolts [1] and radiator lower stay [2].

Release the radiator boss from the radiator mounting rubber [3].



CYLINDER HEAD/VALVES

Release the fan motor 3P (Gray) connector [1], air cleaner housing drain hose [2] and spark plug wire [3] from the radiator.



Lower the radiator and disconnect the crankcase breather hose [1].

NOTE:

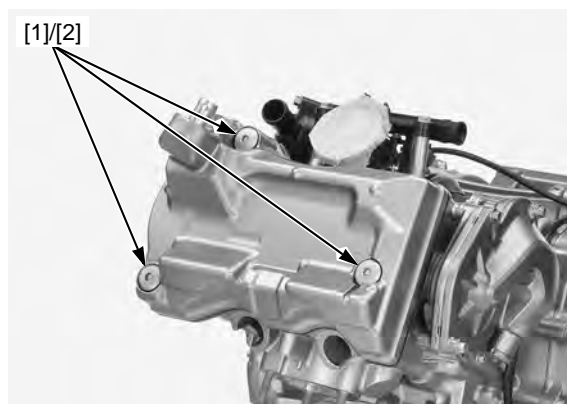
Be careful not to damage the radiator fins.



Remove the cylinder head cover socket bolts [1] and mounting rubbers [2].

NOTE:

Be careful not to damage the radiator fins.

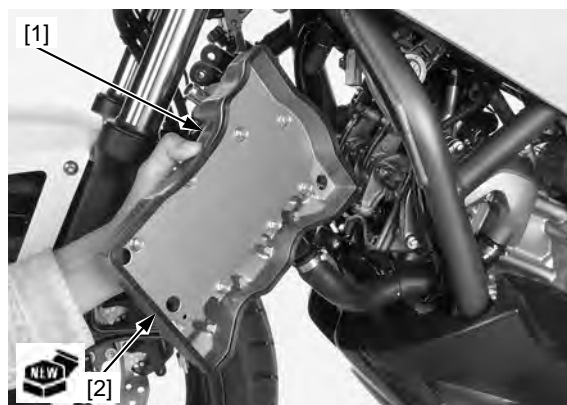


Remove the cylinder head cover [1] from the cylinder head.

NOTE:

Be careful not to damage the radiator fins.

Remove the cylinder head cover packing [2] from the cylinder head cover.



Installation is in the reverse order of removal.

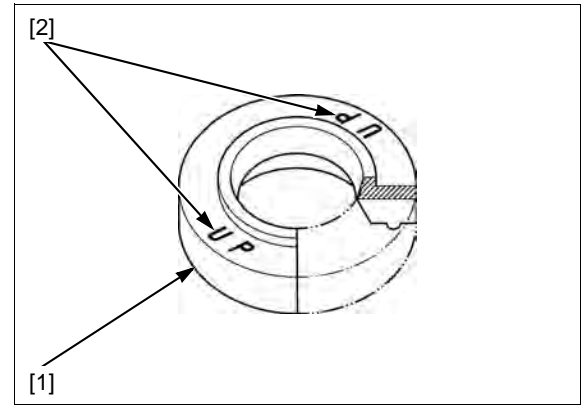
NOTE:

- Replace the cylinder head cover packing with a new one.
- Check the mounting rubbers [1] are in good condition, replace them if necessary.
- Install the mounting rubbers with their "UP" mark [2] facing up.
- Route the wire harness and hoses properly (page 1-25).
- Make sure the radiator mounting rubber slits facing down.
- Align radiator lower stay slit with cylinder head tab.

TORQUE:

Cylinder head cover socket bolts:

10 N·m (1.0 kgf·m, 7 lbf·ft)



DISASSEMBLY/ASSEMBLY

Remove the breather plate mounting bolts [1].



Remove the breather plate [1] and gasket [2].

Assembly is in the reverse order of disassembly.

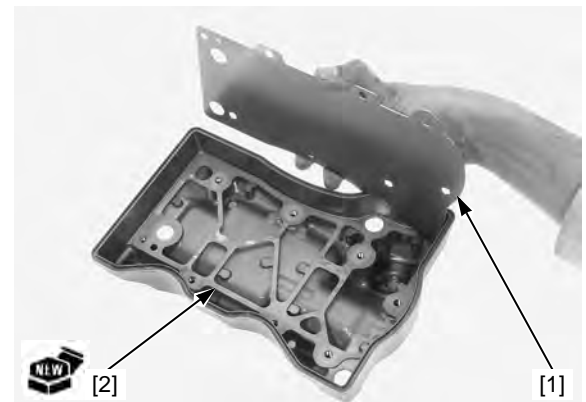
NOTE:

- Replace the breather plate gasket with a new one.
- Apply locking agent to the breather plate mounting bolt threads (page 10-3).

TORQUE:

Breather plate mounting bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)



ROCKER ARM

REMOVAL

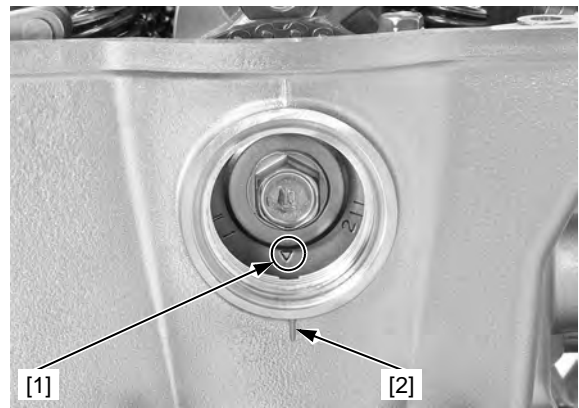
Remove the cylinder head cover (page 10-5).

Remove the camshaft maintenance cap [1] and O-ring [2].

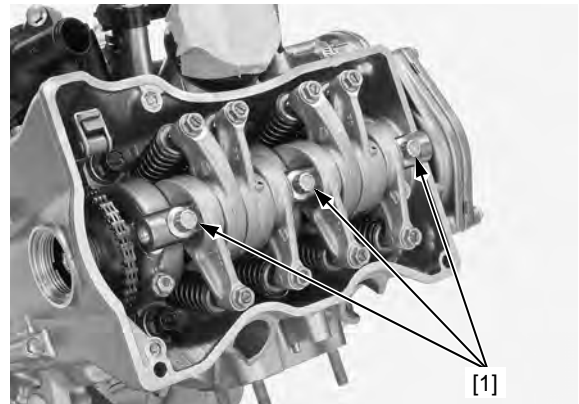


Remove the crankshaft hole cap (page 3-10).

Turn the crankshaft counterclockwise and align the "△" mark [1] on the cam sprocket with the lower cylinder head index line [2].



Remove the rocker arm shaft bolts [1].

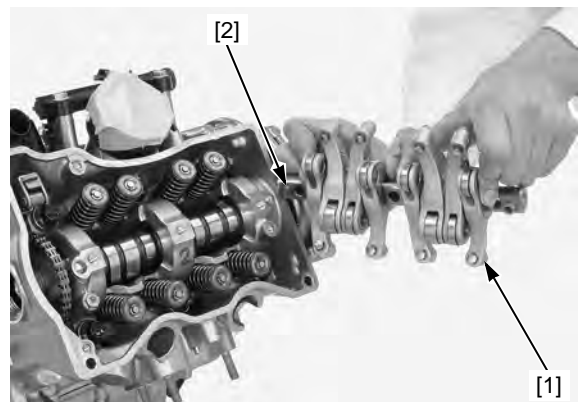


Remove the rocker arm assembly [1].

NOTE:

Be careful not to let the dowel pin [2] fall into the crankcase.

Remove the dowel pin from the rocker arm shaft.



DISASSEMBLY/ASSEMBLY

Remove the washers [1] and rocker arms from the rocker arm shaft [2].

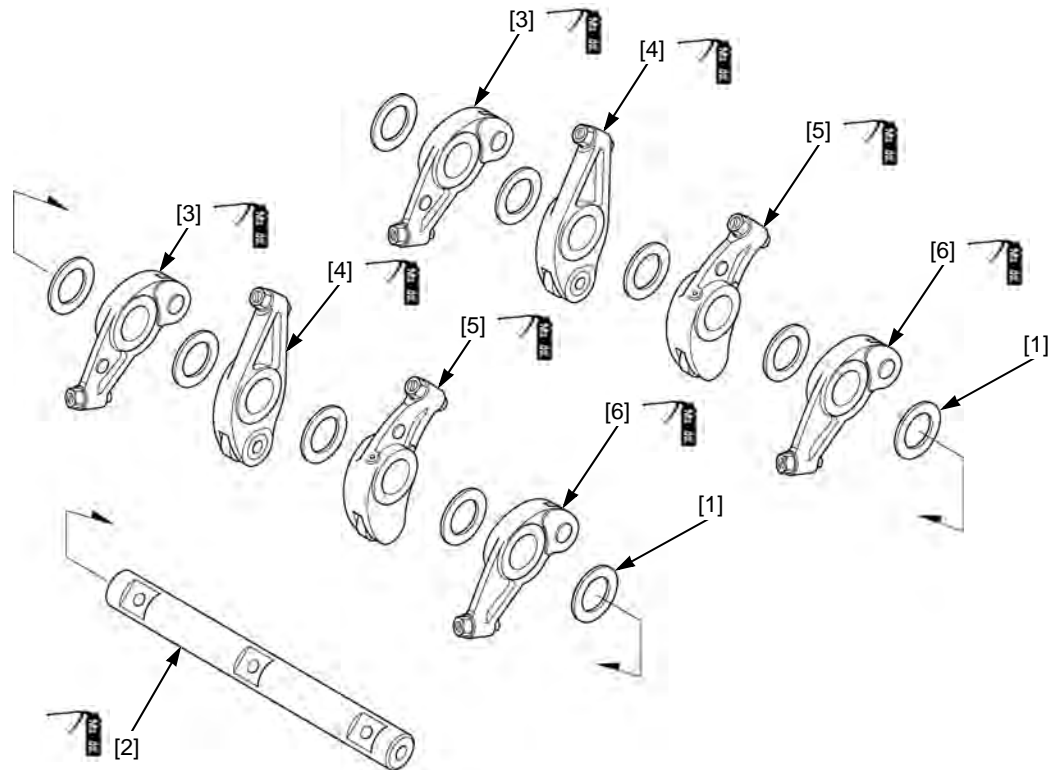
Apply molybdenum oil solution to the rocker arm sliding surface and rocker arm shaft outer surface.

Install the washers and rocker arms to the rocker arm shaft.

NOTE:

Rocker arm identification tips

- "PWC-A" mark: exhaust rocker arm A [3]
- White paint mark: Intake rocker arm S [4]
- No mark: Intake rocker arm P [5]
- "PWC-B" mark: exhaust rocker arm B [6]

**INSPECTION**

Check the sliding surface of each rocker arm for wear or damage.

Check the oil hole for clog of each rocker arm.

Measure the rocker arm I.D.

SERVICE LIMIT: 20.041 mm (0.7890 in)



CYLINDER HEAD/VALVES

Check the sliding surface of the rocker arm shaft for wear or damage.

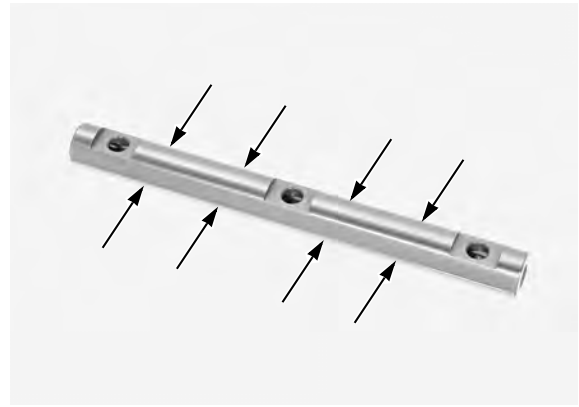
Check the oil hole for clog of the rocker arm shaft.

Measure the rocker arm shaft O.D. at the rocker arm sliding area.

SERVICE LIMIT: 19.961 mm (0.7859 in)

Calculate the rocker arm-to-shaft clearance.

SERVICE LIMIT: 0.08 mm (0.003 in)



INSTALLATION

Make sure the "△" mark [1] on the cam sprocket facing the lower cylinder head index line [2].

If it does not align, turn the crankshaft counterclockwise and align it.

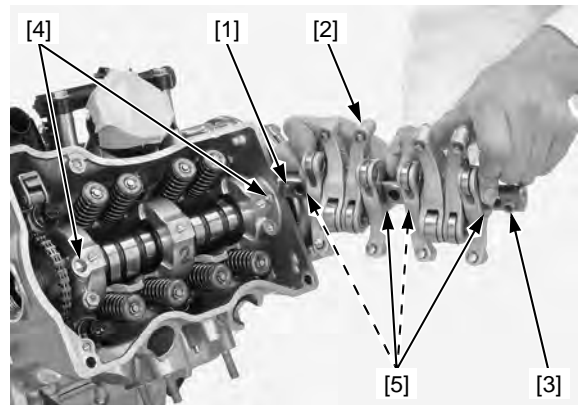


Install the dowel pin [1] to the rocker arm shaft.

Install the rocker arm assembly [2].

NOTE:

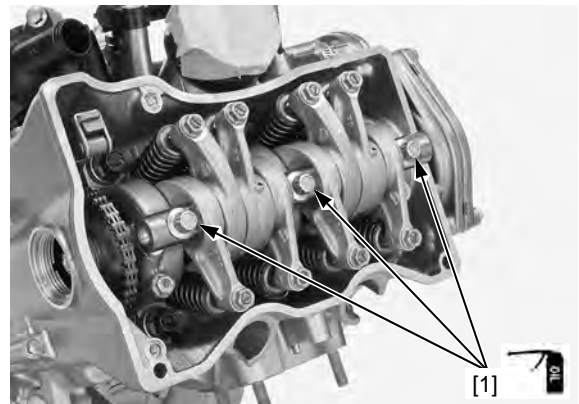
- Align boss [3] and dowel pin with the cylinder head holes [4].
- Make sure the washers [5] are installed in correct position.
- Be careful not to let the dowel pin fall into the crankcase.



Apply engine oil to the rocker arm shaft bolts threads and seating surface.

Install and tighten rocker arm shaft bolts [1] to the specified torque.

TORQUE: 29 N·m (3.0 kgf·m, 21 lbf·ft)

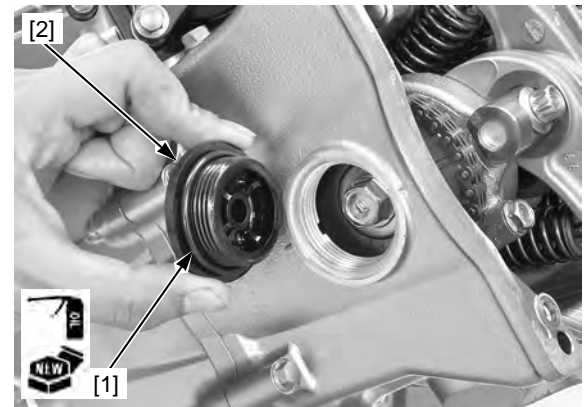


Apply engine oil to a new O-ring [1] and install it to the camshaft maintenance cap [2].

Temporarily Install the camshaft maintenance cap to the cylinder head.

If the engine is removed from the frame, tighten the camshaft maintenance cap to the specified torque.

TORQUE: 4.0 N-m (0.4 kgf-m, 3.0 lbf-ft)



If the engine is installed on the frame, insert a feeler gauge (0.1 mm) [1] between the camshaft maintenance cap and cylinder head.

Tighten the camshaft maintenance cap securely.

Remove the feeler gauge.

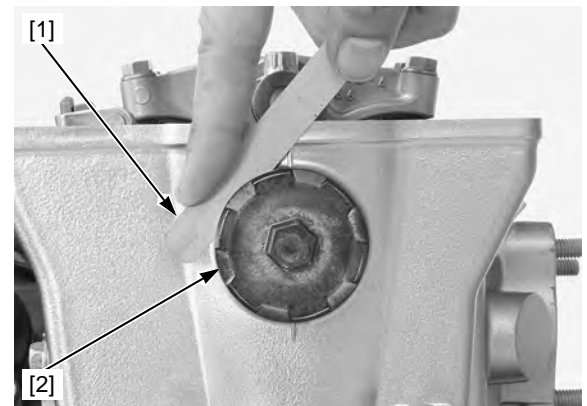
Further tighten the camshaft maintenance cap at 30°.

NOTE:

One concave area [2] size is equivalent with 30°.

Install the following:

- Cylinder head cover (page 10-5)
- Crankshaft hole cap (page 3-12)



CAM CHAIN TENSIONER

CAM CHAIN INSPECTION

Remove the cylinder head cover (page 10-5).

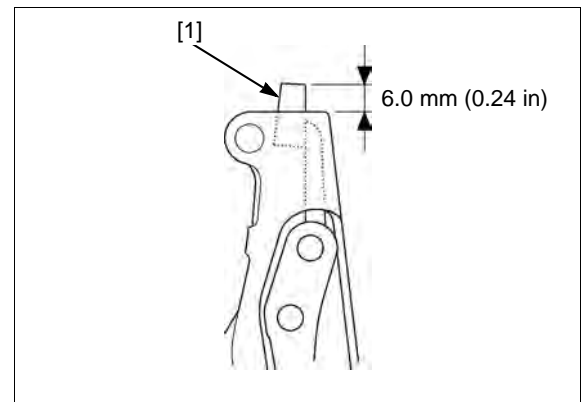
Measure the cam chain tensioner wedge B [1] length.

SERVICE LIMIT: 6.0 mm (0.24 in)

Replace the cam chain with a new one if the projection exceeds the service limit.

For the cam chain replacement, remove the following:

- Cam sprocket (page 10-13)
- Primary drive gear
 - NC700X/XA/S/SA (page 11-15)
 - NC700XD/SD (page 12-108)



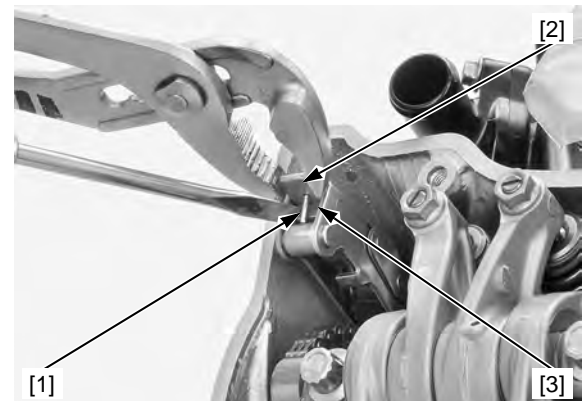
RELEASING CAM CHAIN TENSION

Remove the cylinder head cover (page 10-5).

Install an O.D. 2 mm pin [1] into the cam chain tensioner wedge A hole while pulling the wedge A [2] straight up and pushing down the wedge B [3].

NOTE:

Be careful not to let the 2 mm pin fall into the crankcase.



CYLINDER HEAD/VALVES

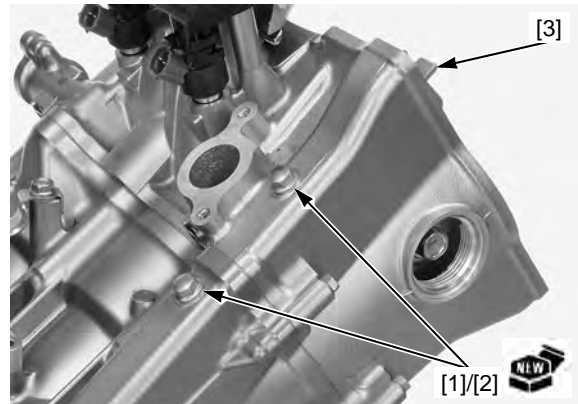
REMOVAL/INSTALLATION

Remove the thermostat housing (page 8-7).

Release the cam chain tension (page 10-11).

Remove the cam chain tensioner bolts [1] and sealing washers [2].

Remove the cam chain tensioner [3].



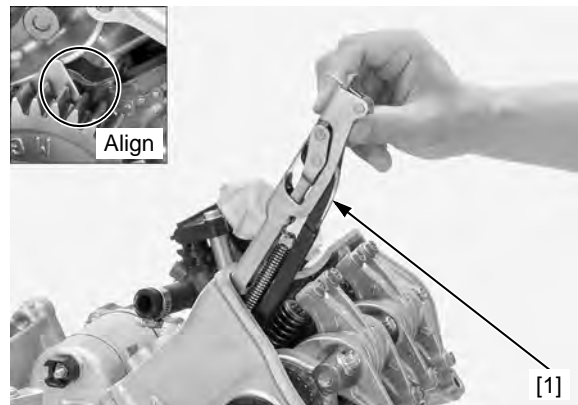
Install the cam chain tensioner [1] while aligning tensioner end with the groove in the crankcase.

Install new sealing washers, cam chain tensioner bolts and tighten the cam chain tensioner bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Apply the cam chain tension (page 10-12).

Install the thermostat housing (page 8-7).



INSPECTION

Remove the cam chain tensioner (page 10-12).

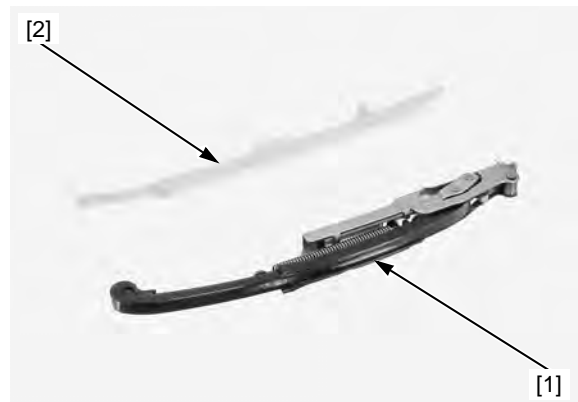
Check the cam chain tensioner [1] for wear or damage.

Replace the cam chain tensioner if necessary.

Remove the cam chain guide (page 10-16).

Check the cam chain guide [2] for wear or damage.

Replace the cam chain guide if necessary.



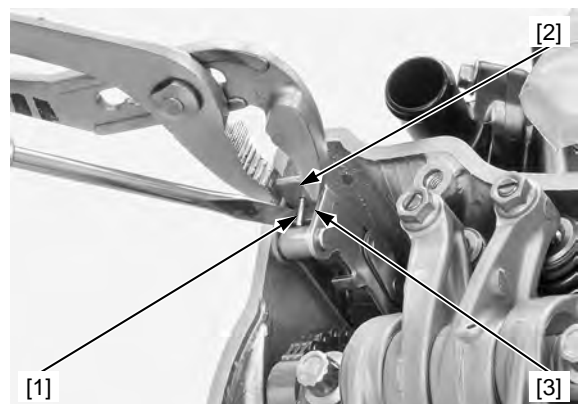
APPLYING CAM CHAIN TENSION

Remove the O.D. 2 mm pin [1] from the cam chain tensioner wedge A hole while pulling the wedge A [2] straight up and pushing down the wedge B [3].

NOTE:

Be careful not to let the 2 mm pin fall into the crankcase.

Install the cylinder head cover (page 10-5).



CAMSHAFT

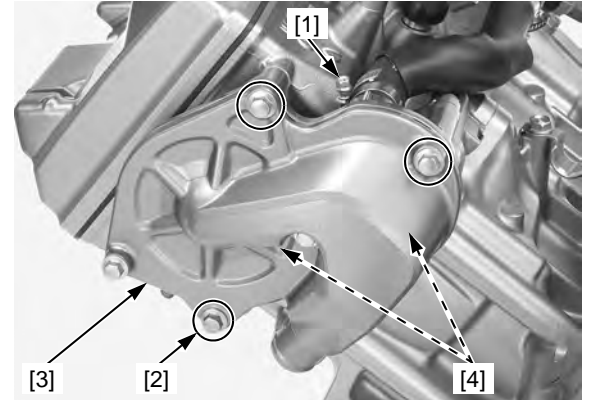
REMOVAL

Remove the engine.

- NC700X/XA/S/SA (page 16-5)
- NC700XD/SD (page 16-9)

Loosen the water hose band screw [1] and disconnect the water bypass hose.

Remove the bolts [2], water pump [3] and O-rings [4].



Remove the rocker arm (page 10-8).

Release the cam chain tension (page 10-11).

Loosen the cam sprocket bolt [1] by holding the flywheel mounting bolt and remove it.

Remove the cam sprocket bolt and cam sprocket [2] by removing the cam chain [3] from the cam sprocket.

NOTE:

Attach a piece of wire to the cam chain to prevent it from falling into the crankcase.



Remove the camshaft [1].



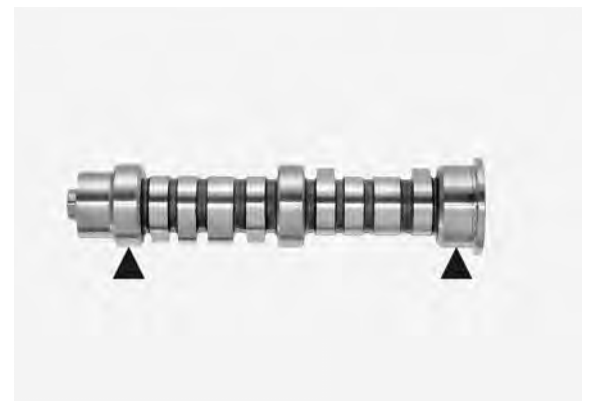
INSPECTION

CAMSHAFT

Check the cam and journal surfaces of the camshaft for scoring, scratches or evidence of insufficient lubrication.

Support both sides of the camshaft (at journals) with V-blocks and check the camshaft runout with a dial gauge.

SERVICE LIMIT: 0.04 mm (0.002 in)



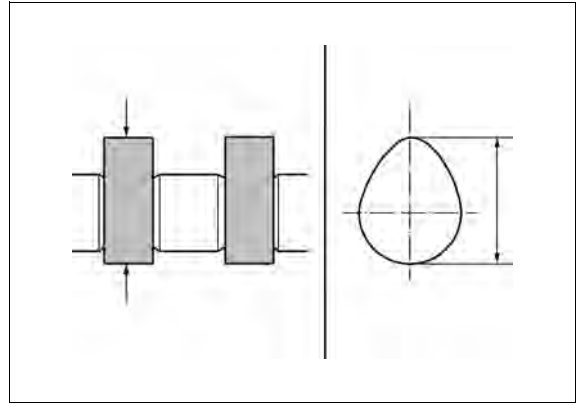
CYLINDER HEAD/VALVES

Using a micrometer, measure each cam lobe height.

SERVICE LIMITS:

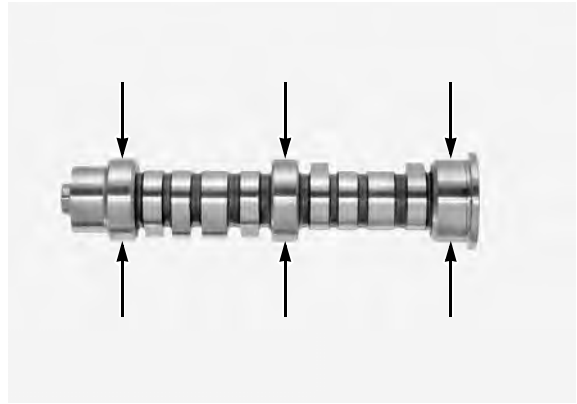
IN: 34.7697 mm (1.36888 in)

EX: 34.9027 mm (1.37412 in)



Measure the camshaft journals O.D.

SERVICE LIMIT: 41.927 mm (1.6507 in)



CYLINDER HEAD

Measure the cylinder head camshaft journal I.D.

SERVICE LIMIT: 42.027 mm (1.6546 in)

Calculate the cylinder head-to-camshaft clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



CAM SPROCKET

Check the cam sprocket teeth for wear or damage.



INSTALLATION

Apply molybdenum oil solution to the camshaft lobes, journals and thrust surfaces.

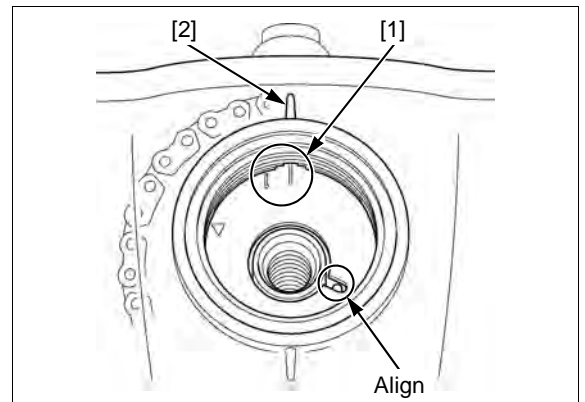
Install the camshaft [1].



Align the "1T" mark on the flywheel with the index notch on the alternator cover (page 3-10).

Align the "1" mark [1] on the cam sprocket with the upper index line [2] on the cylinder head and install the cam chain onto the cam sprocket.

Install the cam sprocket onto the camshaft by aligning the groove with the pin.



Apply engine oil to the cam sprocket bolt threads and seating surface.

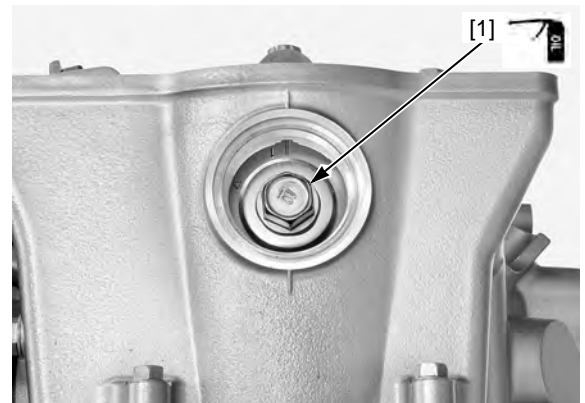
Install the cam sprocket bolt [1].

Hold the flywheel mounting bolt and tighten the cam sprocket bolt to the specified torque.

TORQUE: 56 N·m (5.7 kgf·m, 41 lbf·ft)

Apply the cam chain tension (page 10-12).

Install the rocker arm (page 10-10).



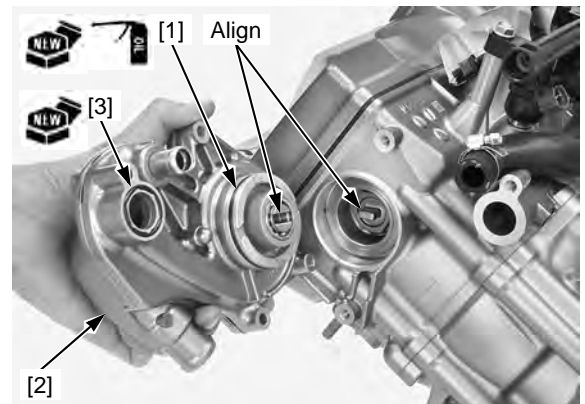
Apply engine oil to a new large O-ring [1] and install it to the water pump [2].

Install a new O-ring [3] to the water pump.

Install the water pump to the cylinder head.

NOTE:

Align the water pump shaft groove with camshaft tab.



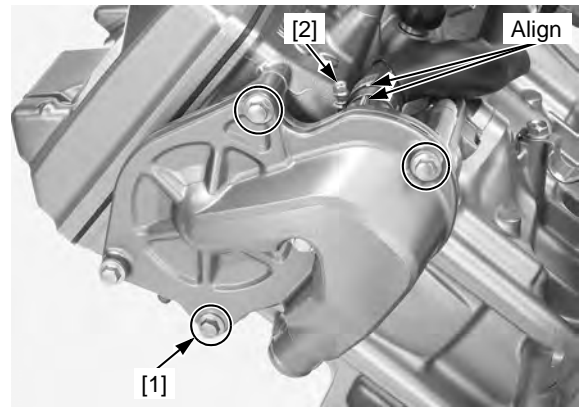
CYLINDER HEAD/VALVES

Install and tighten the bolts [1].

Connect the water bypass hose [2].

NOTE:

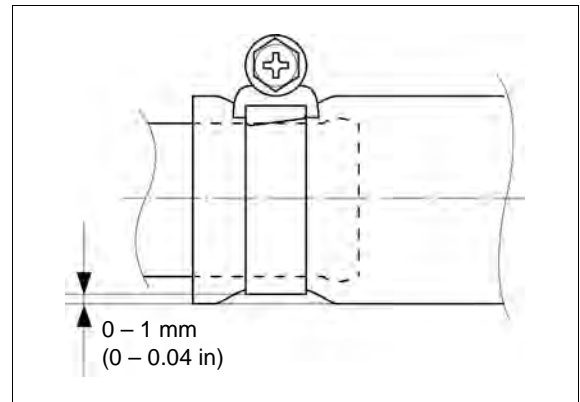
- Align the water bypass hose index mark with the water pump tab.
- Route the hoses properly (page 1-25).



Tighten the water hose band screws to the specified range as shown.

Install the engine.

- NC700X/XA/S/SA (page 16-15)
- NC700XD/SD (page 16-21)



CYLINDER HEAD

REMOVAL

Remove the following:

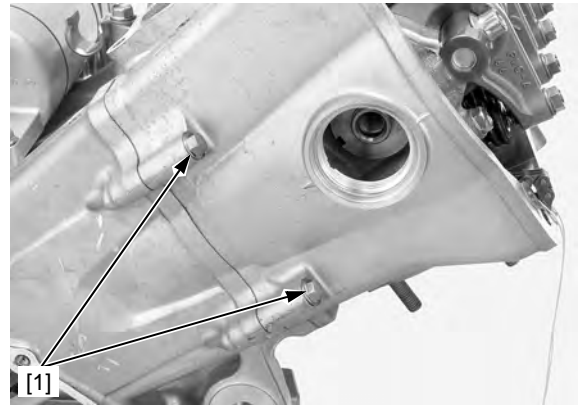
- Engine
 - NC700X/XA/S/SA (page 16-5)
 - NC700XD/SD (page 16-9)
- Cylinder head cover (page 10-5)
- Right crankcase cover
 - NC700X/XA/S/SA (page 11-5)
 - NC700XD/SD (page 12-97)

Remove the camshaft maintenance cap [1] and O-ring [2].



CYLINDER HEAD/VALVES

Remove the 6 mm bolts [1].



Remove the cylinder head special bolts [1].

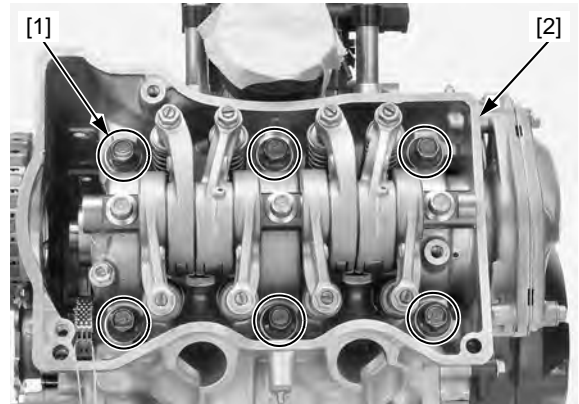
NOTE:

Loosen the cylinder head special bolts in a crisscross pattern in 2 or 3 steps.

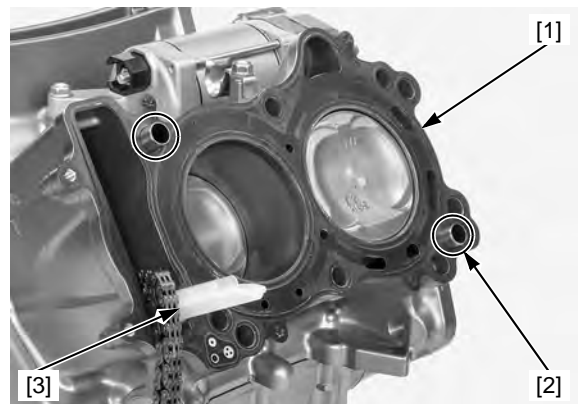
Remove the cylinder head [2].

NOTE:

- Attach a piece of wire to the cam chain to prevent it from falling into the crankcase.
- Do not strike the cylinder too hard and do not damage the mating surface with a screwdriver.

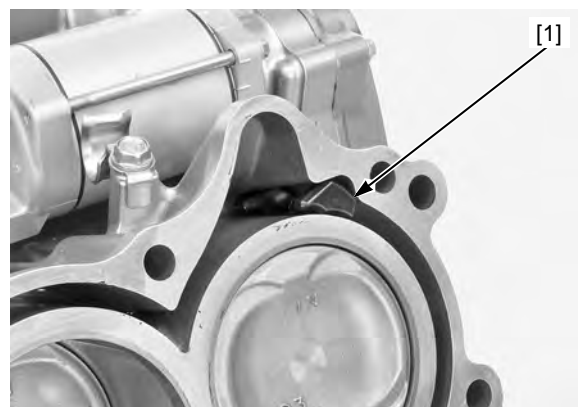


Remove the gasket [1], dowel pins [2] and cam chain guide [3].



Remove the partition plate [1].

Check the partition plate for deterioration or damage.

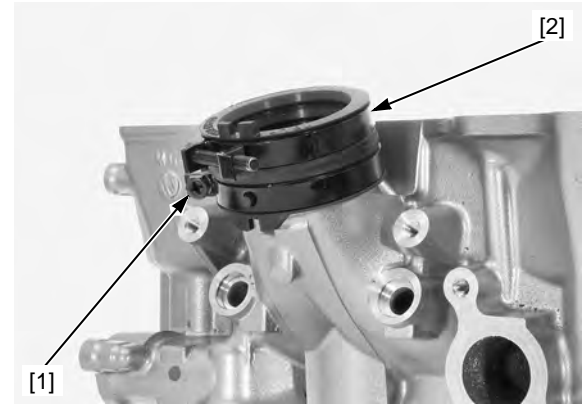


DISASSEMBLY

Remove the following:

- Cylinder head (page 10-16)
- Spark plug (page 3-8)
- Injector (page 7-20)
- Camshaft (page 10-13)

Loosen the insulator band screws [1] and remove the insulator [2].



Remove the valve spring cotters using the special tool as shown.

TOOL:
Valve spring compressor 07757-0010000

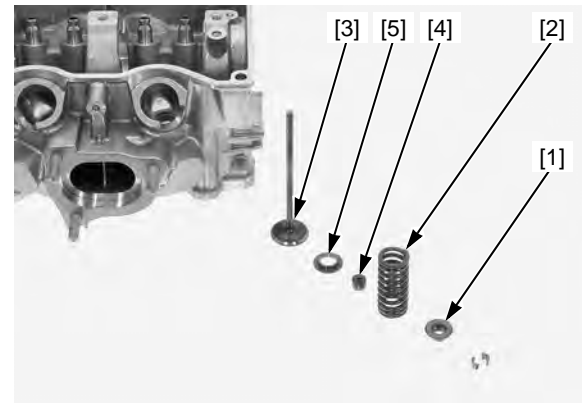
NOTE:
 To prevent loss of tension, do not compress the valve springs more than necessary to remove the cotters.



Remove the following:

- Spring retainer [1]
- Valve spring [2]
- Valve [3]
- Stem seal [4]
- Valve spring seat [5]

NOTE:
 Mark all parts during disassembly so they can be placed back in their original locations.

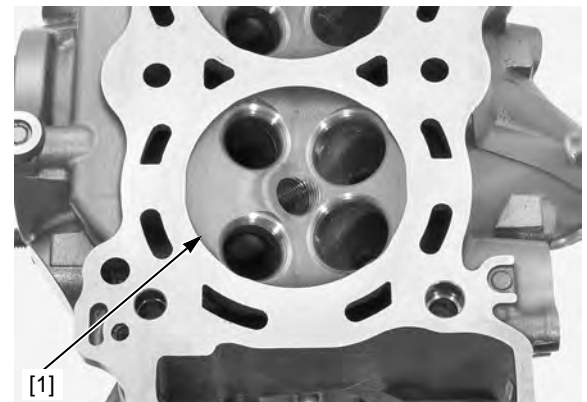


INSPECTION

CYLINDER HEAD

Remove carbon deposits from the combustion chambers [1].

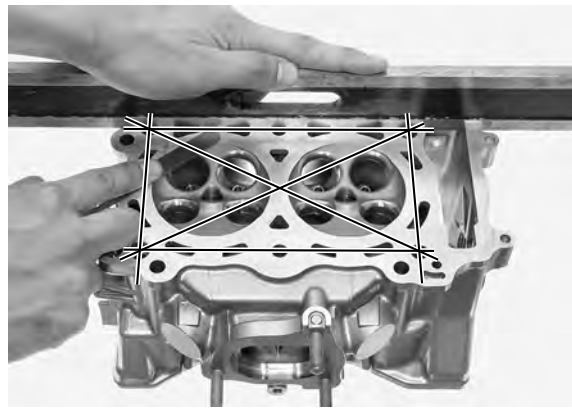
NOTE:
 Avoid damaging the gasket surface.
 Check the spark plug hole and valve areas for cracks.



CYLINDER HEAD/VALVES

Check the cylinder head for warpage with a straight edge and feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)

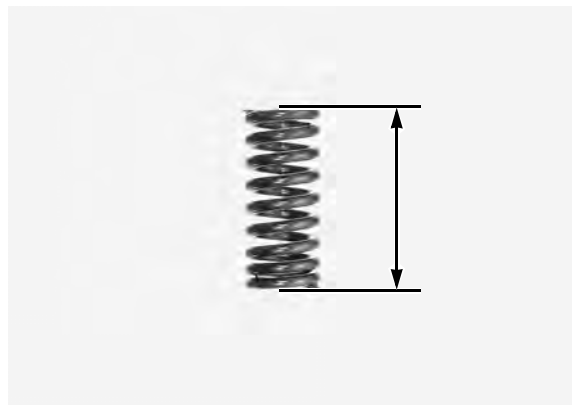


VALVE SPRING

Measure the free length of the valve spring.

SERVICE LIMIT: 48.1 mm (1.89 in)

Replace the springs if they are shorter than the service limits.



VALVE/VALVE GUIDE

Check that the valve moves smoothly in the guide.

Inspect each valve for bending, burning or abnormal stem wear.

Measure and record each valve stem O.D.

SERVICE LIMITS:

IN: 4.965 mm (0.1955 in)

EX: 4.955 mm (0.1951 in)

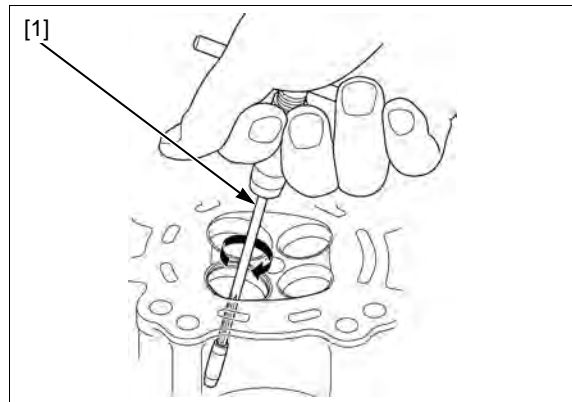


Ream the guides to remove any carbon deposits before checking clearances.

Insert the reamer [1] from the combustion chamber side of the cylinder head and always rotate the reamer clockwise.

TOOL:

Valve guide reamer, 5.010 mm 07984-MA60001



Measure and record each valve guide I.D.

SERVICE LIMIT: 5.04 mm (0.198 in)

Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem-to-guide clearance.

SERVICE LIMITS:

IN: 0.075 mm (0.0030 in)

EX: 0.085 mm (0.0033 in)

Reface the valve seats whenever the valve guides are replaced (page 10-22).

If the stem-to-guide clearance is out of standard, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guides as necessary and ream to fit. If the stem-to-guide clearance exceeds the service limit with the new guides, replace the valves and guides.



VALVE GUIDE REPLACEMENT

Chill the replacement valve guides in the freezer section of a refrigerator for about an hour.

Do not use a torch to heat the cylinder head; it may cause warping.

Heat the cylinder head to 100 – 150°C (212 – 302°F) with a hot plate or oven.

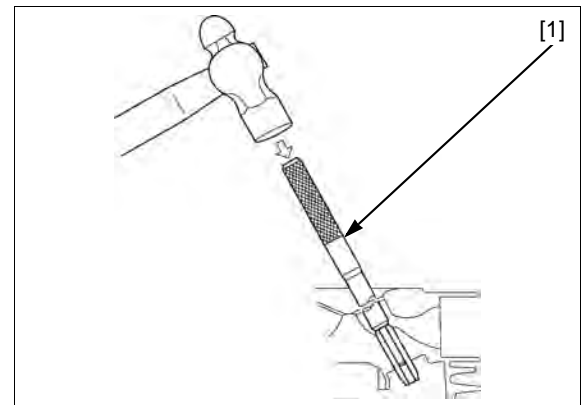
To avoid burns, wear heavy gloves when handling the heated cylinder head.

Support the cylinder head and drive out the valve guides from combustion chamber side of the cylinder head.

TOOL:

Valve guide driver [1]

07942-8920000



Drive in the valve guides to the specified depth from the top of the cylinder head.

SPECIFIED DEPTH:

IN: 17.7 – 18.0 mm (0.70 – 0.71 in)

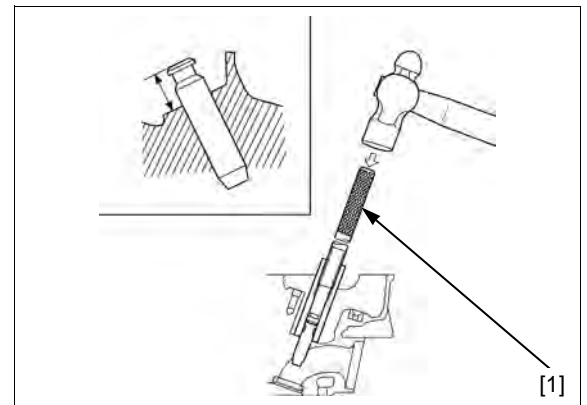
EX: 19.6 – 19.9 mm (0.77 – 0.78 in)

TOOL:

Valve guide driver [1]

07743-0020000

Let the cylinder head cool to room temperature.



Use cutting oil on the reamer during this operation.

Ream new valve guides after installation.

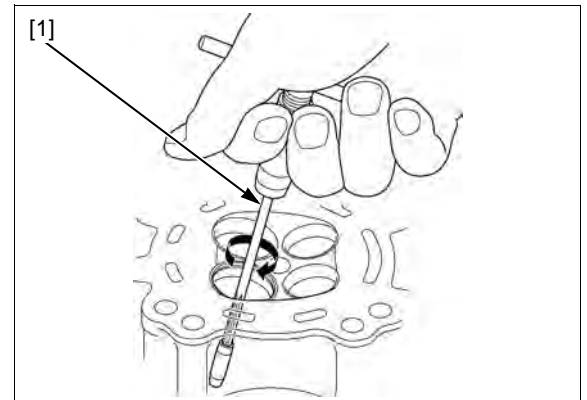
Insert the reamer [1] from the combustion chamber side of the cylinder head and always rotate the reamer clockwise.

TOOL:

Valve guide reamer, 5.010 mm 07984-MA60001

Clean the cylinder head thoroughly to remove any metal particles.

Reface the valve seat (page 10-22).



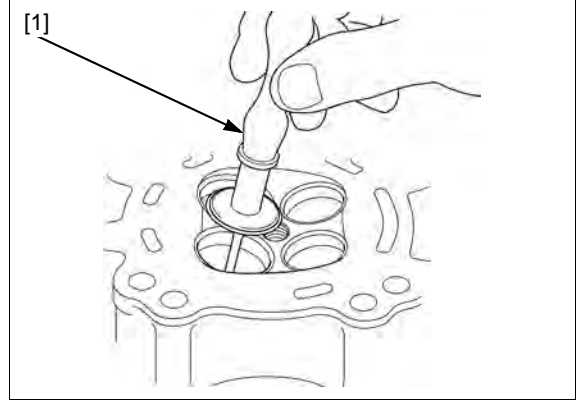
CYLINDER HEAD/VALVES

VALVE SEAT INSPECTION/REFACING

Clean the intake and exhaust valves thoroughly to remove carbon deposits.

Apply a light coating of Prussian Blue to the valve seats.

Tap the valves and seats using a rubber hose or other hand-lapping tool [1].



Remove the valve and inspect the valve seat face. The valve seat contact should be within the specified width and even all around the circumference.

STANDARD:

IN: 0.90 – 1.10 mm (0.035 – 0.043 in)

EX: 1.30 – 1.50 mm (0.051 – 0.059 in)

SERVICE LIMITS:

IN: 1.5 mm (0.06 in)

EX: 1.9 mm (0.07 in)

If the seat width is not within specification, reface the valve seat (page 10-23).

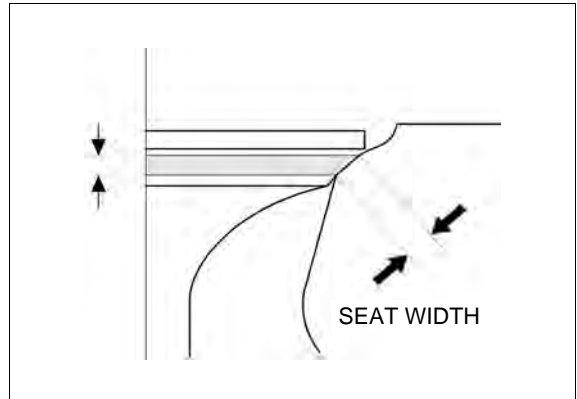
Inspect the valve seat face for:

- Uneven seat width:
 - Replace the valve and reface the valve seat.
- Damaged face:
 - Replace the valve and reface the valve seat.

The valves cannot be ground.

If a valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.

- Contact area (too high or too low)
 - Reface the valve seat.



VALVE SEAT REFACING

Follow the refacing manufacturer's operating instructions.

Valve seat cutters/grinders or equivalent valve seat refacing equipment are recommended to correct worn valve seats.

If the contact area is too high on the valve, the seat must be lowered using a 32° flat cutter.

If the contact area is too low on the valve, the seat must be raised using a 60° interior cutter.

Refinish the seat to specifications, using a 45° finish cutter.

Reface the seat with a 45° cutter whenever a valve guide is replaced.

Use a 45° cutter to remove any roughness or irregularities from the seat.

TOOLS:

- Seat cutter, 27.5 mm (45° IN) 07780-0010200**
- Seat cutter, 24 mm (45° EX) 07780-0010600**
- Cutter holder, 5.0 mm 07781-0010400**

Use a 32° cutter to remove the top 1/4 of the existing valve seat material.

TOOLS:

- Flat cutter, 28 mm (32° IN) 07780-0012100**
- Flat cutter, 25 mm (32° EX) 07780-0012000**
- Cutter holder, 5.0 mm 07781-0010400**

Use a 60° cutter to remove the bottom 1/4 of the old seat.

TOOLS:

- Interior cutter, 26 mm (60° IN) 07780-0014500**
- Interior cutter, 22 mm (60° EX) 07780-0014202**
- Cutter holder, 5.0 mm 07781-0010400**

Using a 45° seat cutter, cut the seat to the proper width. Make sure that all pitting and irregularities are removed. Refinish if necessary.

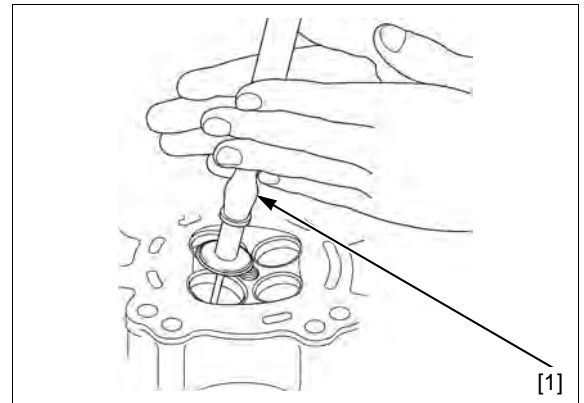
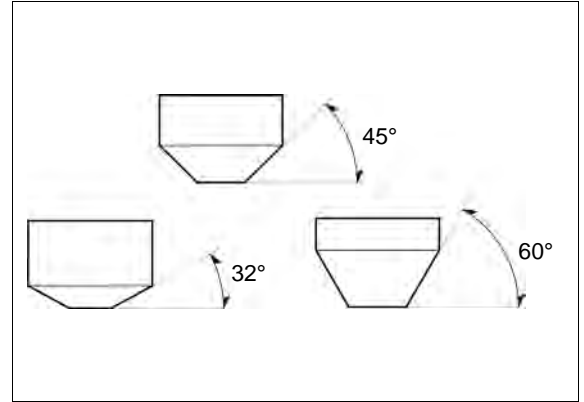
After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure.

NOTICE

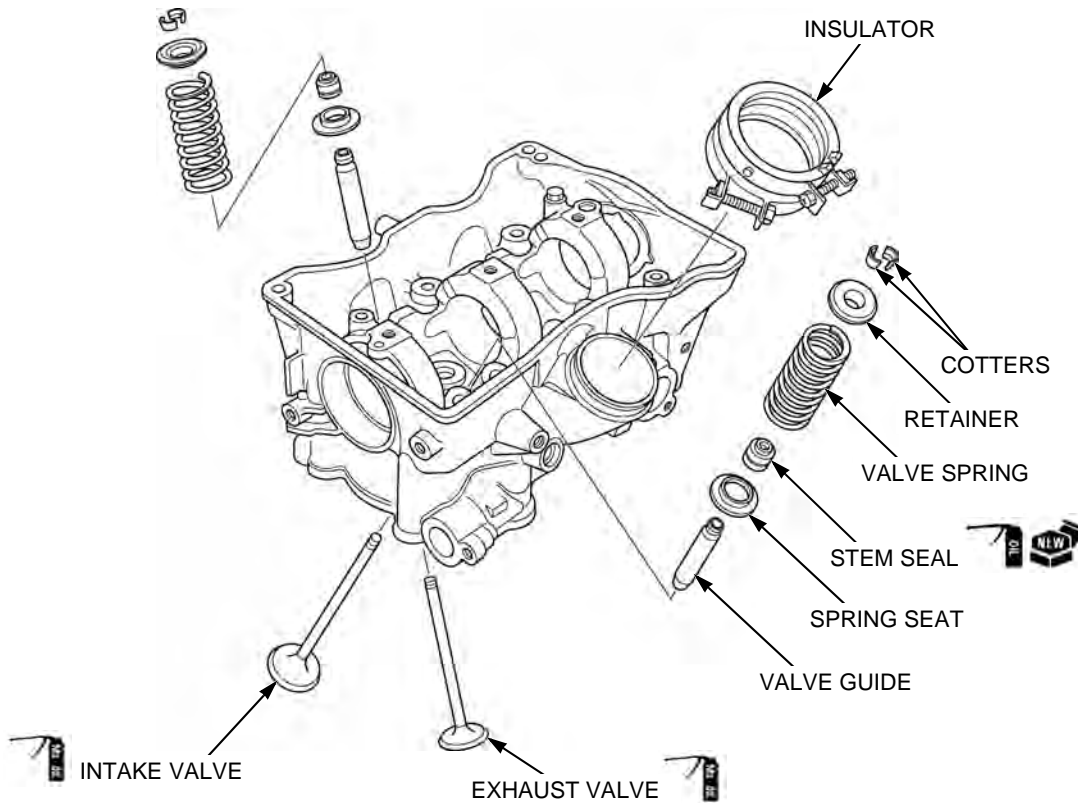
- Excessive lapping pressure may deform or damage the seat.
- Change the angle of lapping tool [1] frequently to prevent uneven seat wear.
- Do not allow lapping compound to enter the guides.

After lapping, wash all residual compound off the cylinder head and valve.

Recheck the seat contact after lapping.



CYLINDER HEAD/VALVES ASSEMBLY



Install the valve spring seats [1].

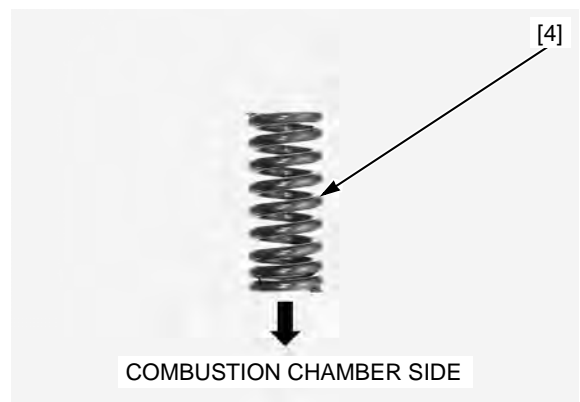
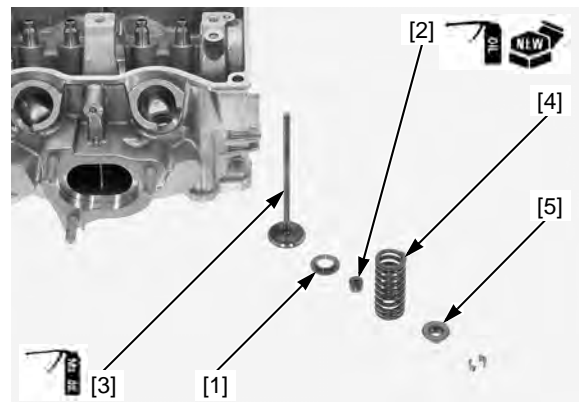
Apply engine oil to new stem seals [2] inside and install them.

Apply molybdenum oil solution to the valve stem sliding surface and stem end.

Insert the valve [3] into the valve guide while turning it slowly to avoid damage to the stem seal.

Install the valve springs [4] with the tightly wound coils facing the combustion chamber.

Install the valve spring retainer [5].



Install the valve cotters using the special tool as shown.

TOOL:
Valve spring compressor 07757-0010000

NOTE:

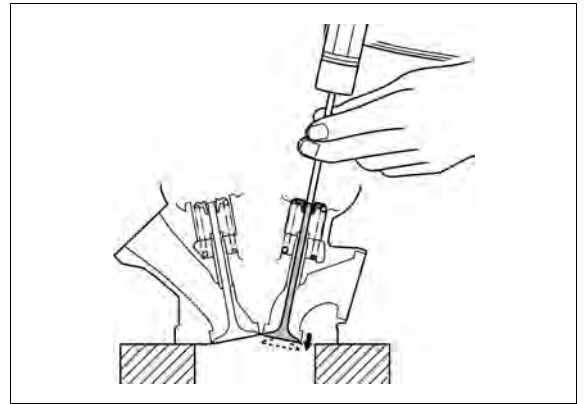
- To prevent loss of tension, do not compress the valve spring more than necessary.
- Grease the cotters to ease installation.



Tap the valve stems gently with plastic hammer and shaft as shown to seat the cotters firmly.

NOTE:

Support the cylinder head above the work bench surface to prevent possible valve damage.

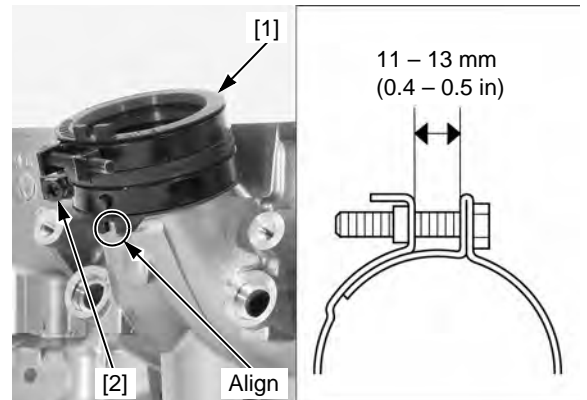


Install the insulator [1] while aligning its slit with cylinder head tab.

Tighten the band screw [2] to the specified range.

Install the following:

- Camshaft (page 10-15)
- Injector (page 7-21)
- Spark plug (page 3-8)
- Cylinder head (page 10-25)

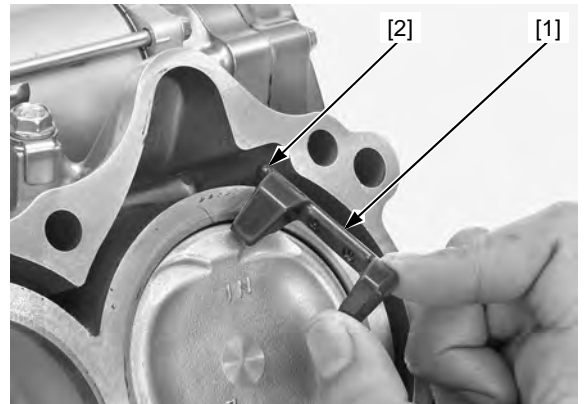


INSTALLATION

Install the partition plate [1] to the No.1 cylinder intake side.

NOTE:

Install the partition plate with its tab [2] side facing inside.

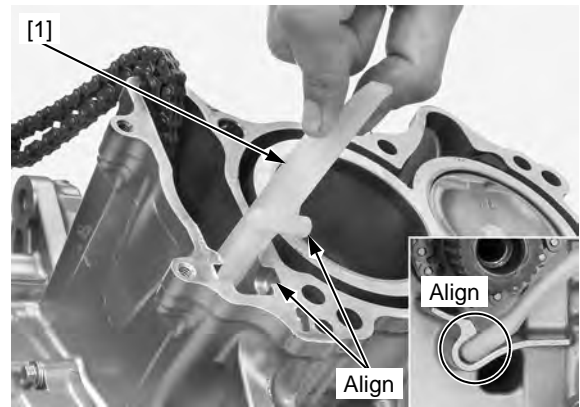


CYLINDER HEAD/VALVES

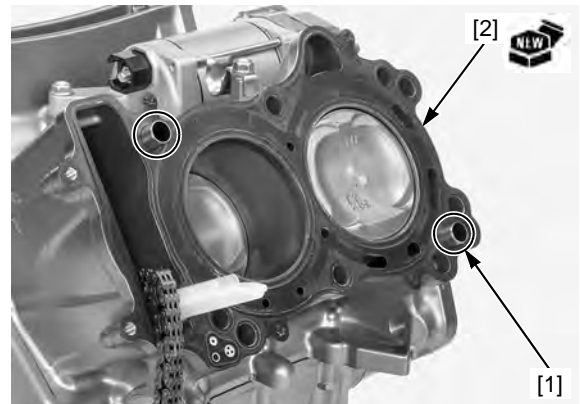
Install the cam chain guide [1].

NOTE:

- Align the cam chain guide end with the groove in the crankcase.
- Align the cam chain guide tabs with the grooves in the crankcase.



Install the dowel pins [1] and new gasket [2].

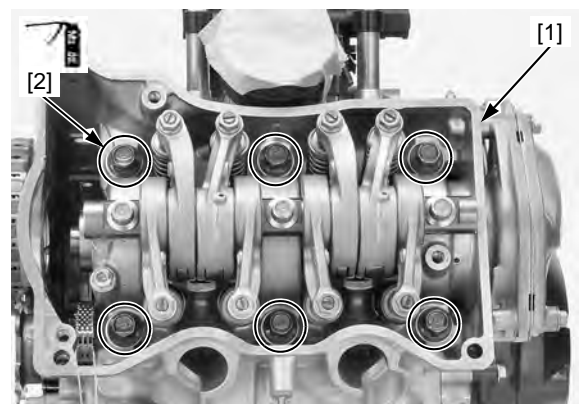


Route the cam chain through the cylinder head and install the cylinder head [1] onto the cylinder.

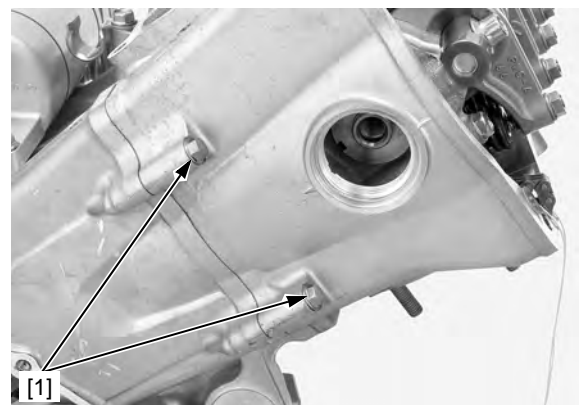
Apply molybdenum oil solution to the cylinder head special bolts [2] threads and seating surface.

Install and tighten the cylinder head special bolts in a crisscross pattern in 2 or 3 steps to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

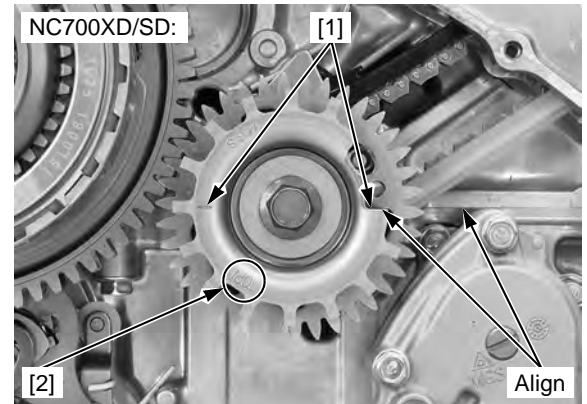
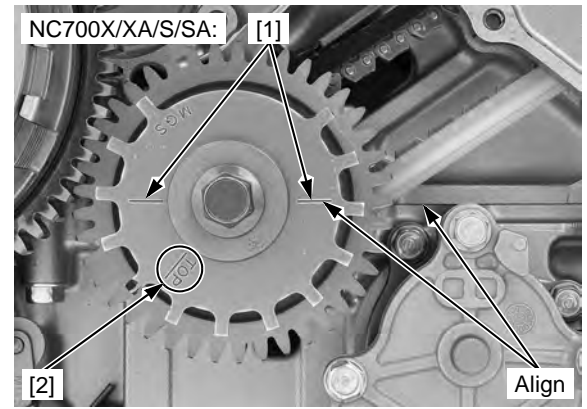


Install and tighten the 6 mm bolts [1].



CYLINDER HEAD/VALVES

Turn the crankshaft clockwise and align the index lines [1] with the crankcase mating surface, while the "TOP" mark [2] is facing down.



Install the cam sprocket to the camshaft while installing cam chain [1] onto the cam sprocket.

NOTE:

- Install the cam sprocket with its "MGS" mark [2] facing out.
- Align the cam sprocket slit with camshaft pin.
- Align the cam sprocket "△" mark with cylinder head lower index line.

Apply engine oil to the cam sprocket bolt threads and seating surface.

Install the cam sprocket bolt [3].

Insert the gear holder [4] between the primary drive gear and driven gear, then tighten the cam sprocket bolt to the specified torque.

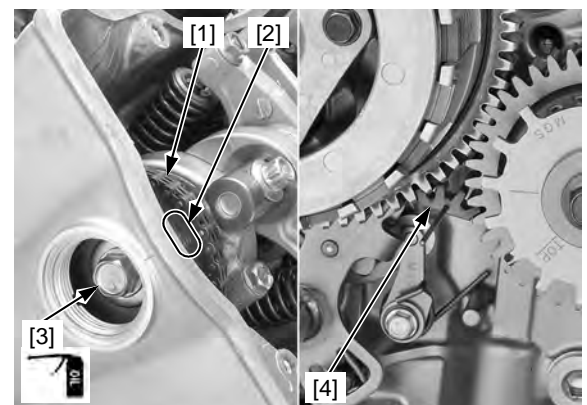
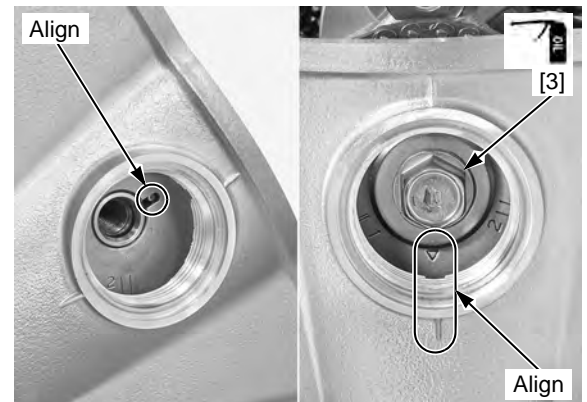
TOOL:

Gear holder, 2.5

07724-0010100

TORQUE: 56 N·m (5.7 kgf·m, 41 lbf·ft)

Install the cam chain tensioner (page 10-12).



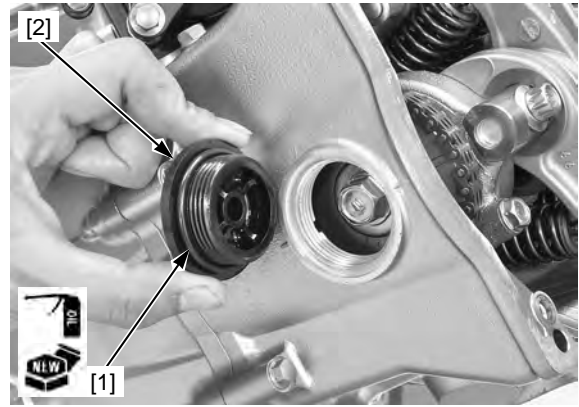
CYLINDER HEAD/VALVES

Apply engine oil to a new O-ring [1] and install it to the camshaft maintenance cap [2].

Temporarily Install the camshaft maintenance cap to the cylinder head.

If the engine is removed from the frame, tighten the camshaft maintenance cap to the specified torque.

TORQUE: 4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)



If the engine is installed on the frame, insert a feeler gauge (0.1 mm) [1] between the camshaft maintenance cap and cylinder head.

Tighten the camshaft maintenance cap securely.

Remove the feeler gauge.

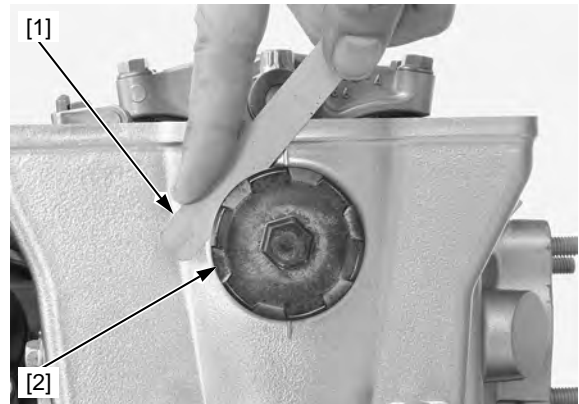
Further tighten the camshaft maintenance cap at 30°.

NOTE:

One concave area [2] size is equivalent with 30°.

Install the following:

- Cylinder head cover (page 10-5)
- Right crankcase cover
 - NC700X/XA/S/SA (page 11-5)
 - NC700XD/SD (page 12-103)
- Engine
 - NC700X/XA/S/SA (page 16-15)
 - NC700XD/SD (page 16-21)



11. CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

COMPONENT LOCATION	11-2	CLUTCH	11-7
SERVICE INFORMATION	11-3	PRIMARY DRIVE GEAR/CKP SENSOR ROTOR	11-15
TROUBLESHOOTING.....	11-4	GEARSHIFT LINKAGE	11-16
RIGHT CRANKCASE COVER	11-5	GEARSHIFT PEDAL	11-19

CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

COMPONENT LOCATION

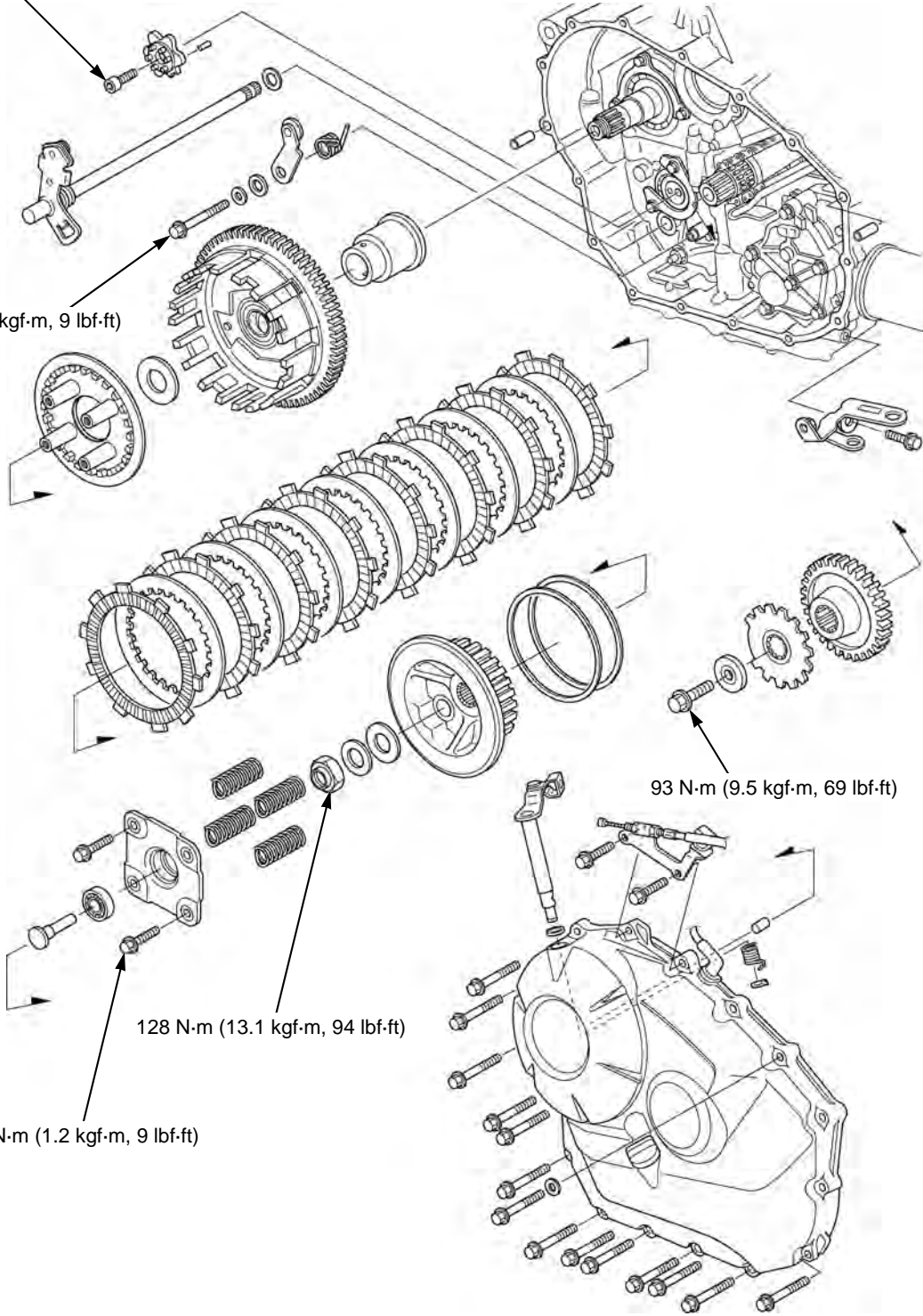
23 N·m (2.3 kgf·m, 17 lbf·ft)

12 N·m (1.2 kgf·m, 9 lbf·ft)

93 N·m (9.5 kgf·m, 69 lbf·ft)

128 N·m (13.1 kgf·m, 94 lbf·ft)

12 N·m (1.2 kgf·m, 9 lbf·ft)



SERVICE INFORMATION

GENERAL

- This section covers service of the clutch and gearshift linkage. All service can be done with the engine installed in the frame.
- Engine oil viscosity and level have an effect on clutch disengagement. Oil additives also effect clutch performance and are not recommended. When the clutch does not disengage or the motorcycle creeps with the clutch lever pulled in, inspect the engine oil level before servicing the clutch system.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever freeplay		10 – 20 (3/8 – 13/16)	–
Clutch	Spring free length	43.2 (1.70)	41.7 (1.64)
	Disc thickness	2.62 – 2.78 (0.103 – 0.109)	2.3 (0.09)
	Plate warpage	–	0.30 (0.012)
Clutch outer guide	I.D.	21.991 – 22.016 (0.8658 – 0.8668)	22.03 (0.867)
	O.D.	31.959 – 31.975 (1.2582 – 1.2589)	31.92 (1.257)
Mainshaft O.D. at clutch outer guide		21.967 – 21.980 (0.8648 – 0.8654)	21.95 (0.864)
Clutch outer guide-to-mainshaft clearance		0.011 – 0.049 (0.0004 – 0.0019)	0.08 (0.003)
Primary driven gear I.D.		32.000 – 32.025 (1.2598 – 1.2608)	32.09 (1.263)
Primary driven gear-to-clutch outer guide clearance		0.025 – 0.066 (0.0010 – 0.0026)	0.10 (0.004)

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Clutch center lock nut	1	18	128 (13.1, 94)	Apply engine oil to the threads and seating surface. Lock nut; replace with a new one and stake.
Clutch lifter plate bolt	4	6	12 (1.2, 9)	
Primary drive gear mounting bolt	1	10	93 (9.5, 69)	Apply engine oil to the threads and seating surface.
Shift drum stopper arm pivot bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Shift drum center socket bolt	1	8	23 (2.3, 17)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Gearshift pedal adjuster lock nut	2	6	10 (1.0, 7)	
Gearshift pedal pivot bolt	1	8	27 (2.8, 20)	

TROUBLESHOOTING

Clutch lever is too hard to pull in

- Damaged, kinked or dirty clutch cable
- Improperly routed clutch cable
- Damaged clutch lifter mechanism
- Faulty clutch lifter bearing
- Clutch lifter piece installed improperly

Clutch slips when accelerating

- Clutch lifter sticking
- Worn clutch disc
- Weak clutch springs
- No clutch lever freeplay
- Engine oil mixed with molybdenum or graphite additive

Clutch will not disengage or motorcycle creeps with clutch disengaged

- Excessive clutch lever freeplay
- Clutch plate warped
- Engine oil level too high, improper engine oil viscosity or additive used
- Loose clutch center lock nut
- Damaged clutch lifter mechanism
- Clutch lifter rod installed improperly
- Worn clutch outer slot and clutch center grooves
- Improper clutch operation

Hard to shift

- Misadjusted clutch cable
- Improper clutch operation
- Improper engine oil viscosity
- Damaged or bent shift fork
- Bent shift fork shaft
- Bent shift fork claw
- Loose shift drum stopper plate bolt
- Damaged shift drum stopper plate
- Damaged shift drum guide grooves
- Damaged or bent gearshift spindle

Transmission jumps out of gear

- Worn shift drum stopper arm
- Weak or broken shift drum stopper arm return spring
- Loose shift drum stopper plate bolt
- Damaged shift drum stopper plate
- Bent shift fork shaft
- Damaged or bent shift forks
- Worn gear engagement dogs or slots

Gearshift pedal will not return

- Weak or broken gearshift spindle return spring
- Damaged or bent gearshift spindle

RIGHT CRANKCASE COVER

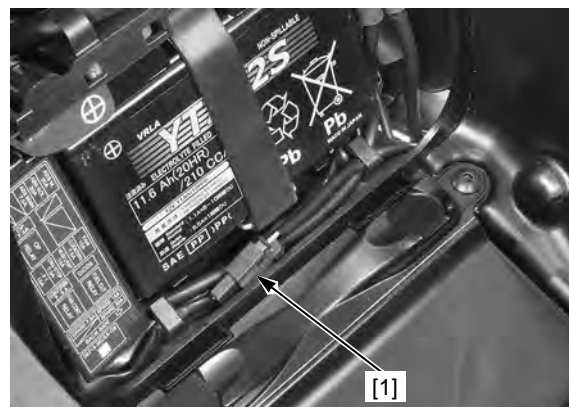
REMOVAL/INSTALLATION

Remove the following:

- Right shroud/side cover (NC700X/XA) (page 2-14)
- Maintenance lid (page 21-6)

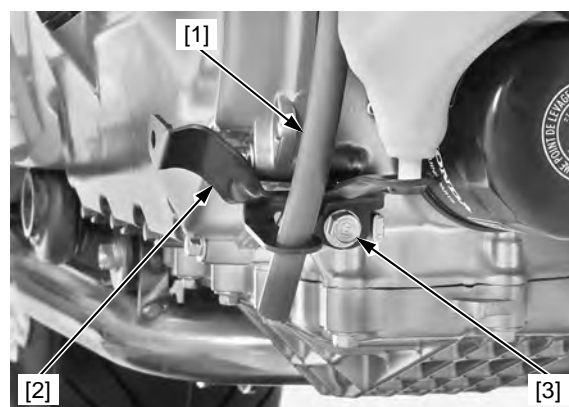
Drain the engine oil (page 3-13).

Disconnect the CKP sensor 2P (Red) connector [1] and release the CKP sensor harness.

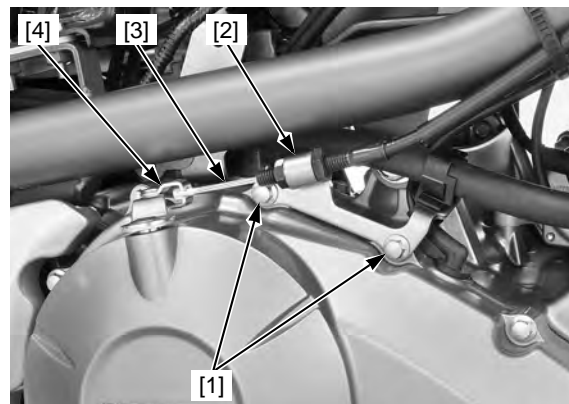


Release the reserve tank overflow hose [1] from the stay [2].

Remove the bolt [3] and stay.



Remove the bolts [1] and clutch cable guide [2], then disconnect the clutch cable [3] from the clutch lifter arm [4].



Loosen the right crankcase cover bolts [1] in a crisscross pattern in 2 or 3 steps, and remove the bolts and sealing washer [2].

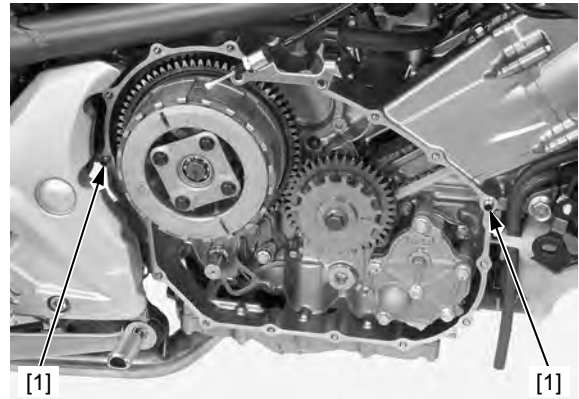
Remove the right crankcase cover [3].



CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Remove the dowel pins [1].

Clean off any sealant from the right crankcase cover mating surfaces.



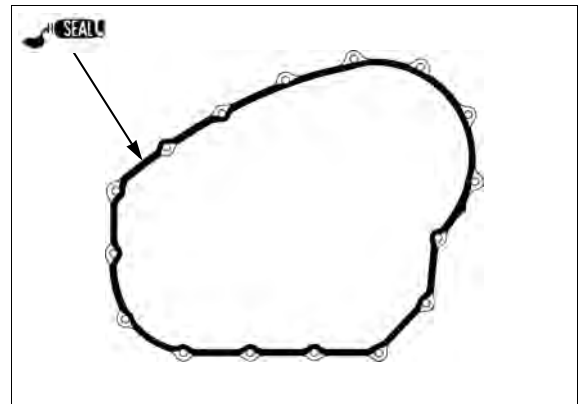
Installation is in the reverse order of removal.

NOTE:

- Apply liquid sealant (Three bond 1207B or equivalent) to the right crankcase cover mating surface as shown.
- Do not apply more liquid sealant than necessary.
- Apply liquid sealant (Three bond 1207B or equivalent) to the CKP sensor wire grommet sealing surface.
- Replace the sealing washer with a new one.
- Route the cables and wire harness properly (page 1-25).

Adjust the clutch lever freeplay (page 3-26).

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).

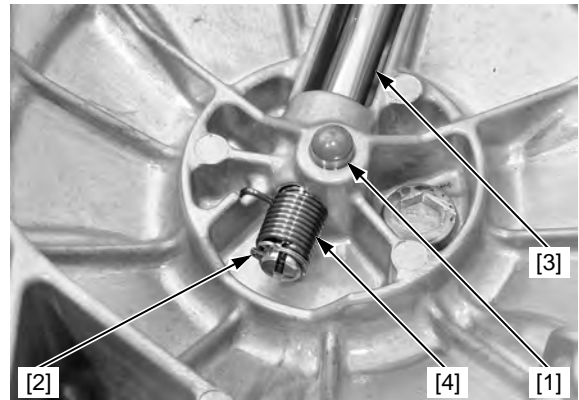


CLUTCH LIFTER ARM REMOVAL/INSTALLATION

Remove the clutch lifter rod A [1].

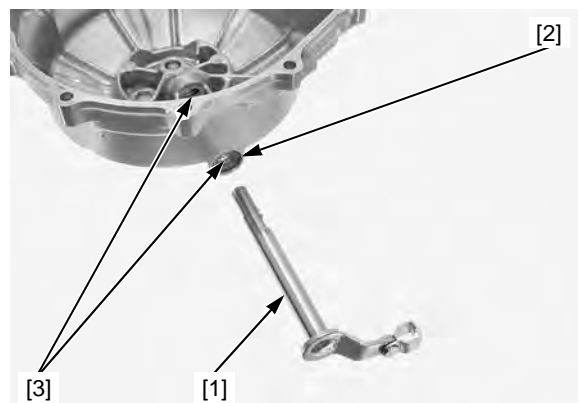
Remove the snap ring [2], clutch lifter arm [3] and return spring [4] from the right crankcase cover.

Check the return spring for fatigue or damage.



Check the lifter arm spindle [1] for wear or damage.

Check the lifter arm oil seal [2] and needle bearings [3] for wear or damage.

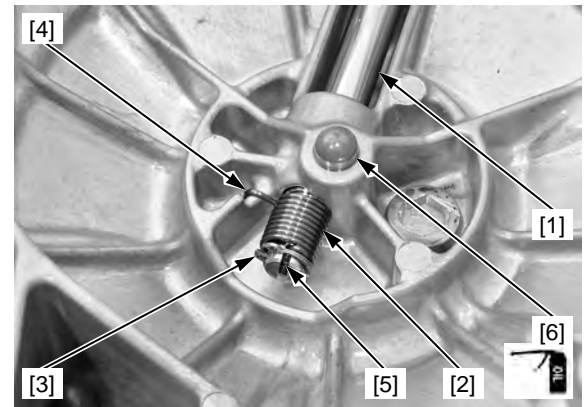


Install the clutch lifter arm [1], return spring [2] and snap ring [3].

NOTE:

- Align the return spring hook [4] with right crankcase cover.
- Align the return spring end [5] with clutch lifter arm groove.
- Make sure the snap ring is firmly seated in the groove.

Apply engine oil to the clutch lifter rod A sliding surface.
Install the clutch lifter rod A [6].



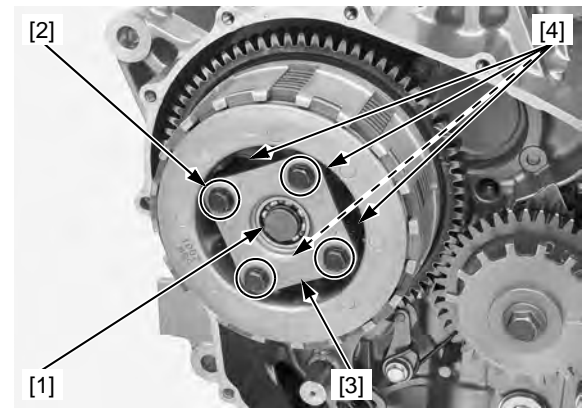
CLUTCH

REMOVAL

Remove the right crankcase cover (page 11-5).

Remove the clutch lifter rod B [1].

Loosen the clutch lifter plate bolts [2] in a crisscross pattern in 2 or 3 steps, and remove the bolts, lifter plate/bearing [3] and clutch springs [4].



Unstake the clutch center lock nut [1].

NOTE:

Be careful not to damage the mainshaft threads.

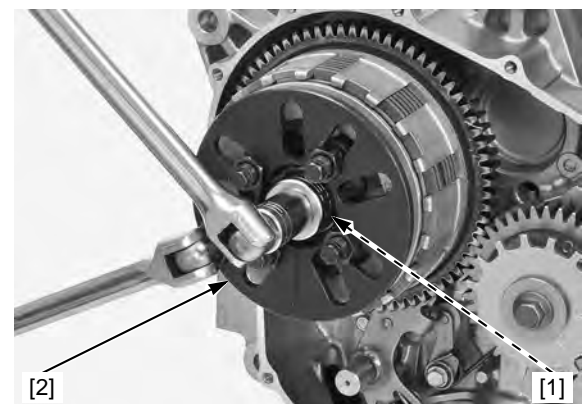


Hold the clutch pressure plate with the special tool and loosen the clutch center lock nut [1].

TOOL:

Clutch center holder [2] 07JMB-MN50302

Remove and discard the lock nut.



CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Remove the lock washer [1] and thrust washer [2].

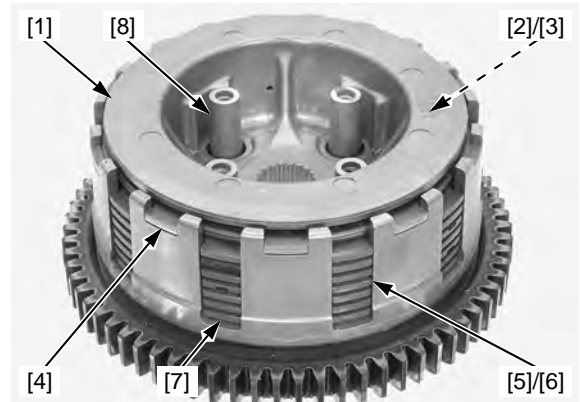


Remove the clutch assembly [1].



Remove the following:

- Clutch center [1]
- Spring seat [2]
- Judder spring [3]
- Clutch disc B [4]
- Seven clutch plates [5]
- Six clutch discs C [6]
- Clutch disc A [7]
- Pressure plate [8]



Remove the thrust washer [1].



Remove the clutch outer guide [1].



INSPECTION

CLUTCH LIFTER BEARING

Turn the inner race of the clutch lifter bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the outer race of the bearing fits tightly in the pressure plate.

Replace the clutch lifter bearing if the inner race does not turn smoothly, quietly, or if the outer race fits loosely in the lifter plate.

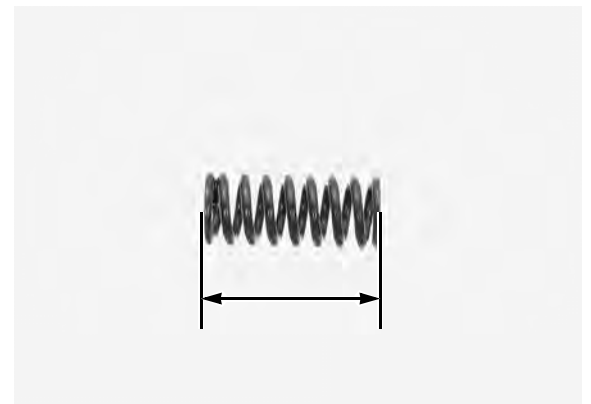


CLUTCH SPRING

Replace the clutch springs as a set.

Measure the clutch spring free length.

SERVICE LIMIT: 41.7 mm (1.64 in)



CLUTCH CENTER

Check the grooves [1] of the clutch center for damage or wear caused by the clutch plates.

Replace it if necessary.



CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

CLUTCH LIFTER ROD B

Check the clutch lifter rod B for damage or abnormal wear.



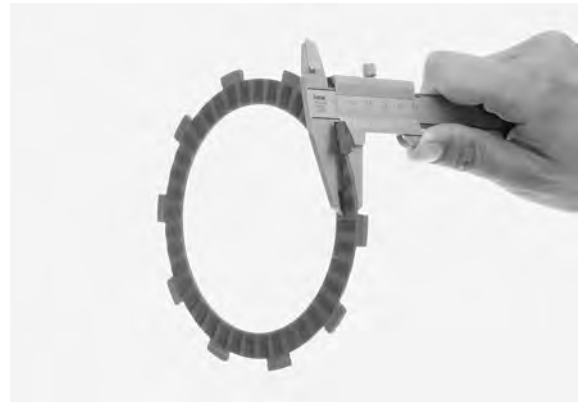
CLUTCH DISC

Replace the clutch discs and plates as a set.

Replace the clutch discs if they show signs of scoring or discoloration.

Measure the disc thickness of each disc.

SERVICE LIMIT: 2.3 mm (0.09 in)



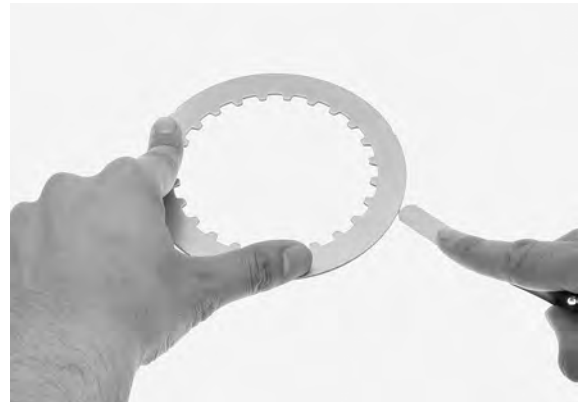
CLUTCH PLATE

Replace the clutch discs and plates as a set.

Check the plates for discoloration.

Check the plate warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)

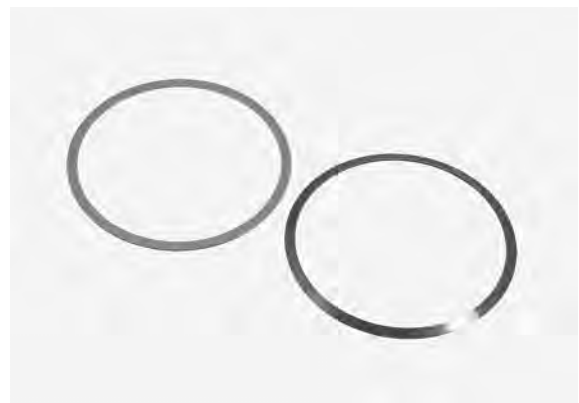


JUDDER SPRING/SRING SEAT

Check the judder spring and spring seat for deformation, warpage or damage.

NOTE:

- A damaged or warped spring seat will cause the judder spring to be pressed unevenly.
- A damaged judder spring also causes the weak contact between the discs and plates or uneven disc/plate contact.



CLUTCH OUTER/PRIMARY DRIVEN GEAR/CLUTCH OUTER GUIDE

Check the slots of the clutch outer for damage or wear caused by the clutch discs.

Check the primary driven gear for abnormal wear or damage.

Measure the I.D. of the primary driven gear.

SERVICE LIMIT: 32.09 mm (1.263 in)

Replace the clutch outer assembly if necessary.

Measure the O.D. and I.D. of the clutch outer guide.

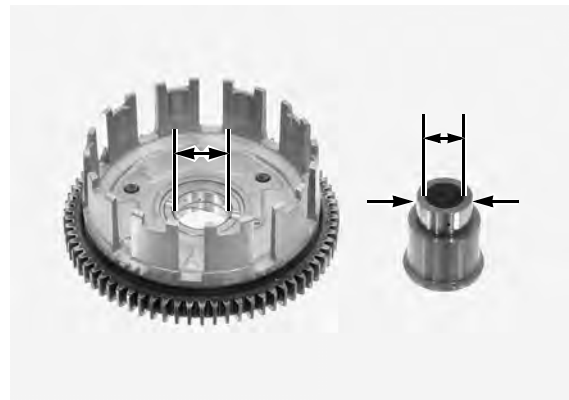
SERVICE LIMITS:

O.D.: 31.92 mm (1.257 in)

I.D.: 22.03 mm (0.867 in)

Calculate the primary driven gear-to-clutch outer guide clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



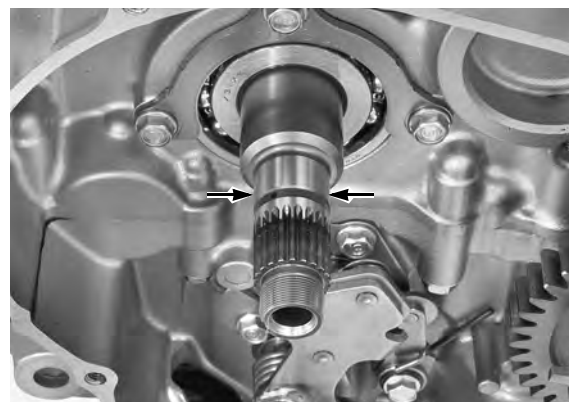
MAINSHAFT

Measure the mainshaft O.D. at clutch outer guide sliding surfaces.

SERVICE LIMIT: 21.95 mm (0.864 in)

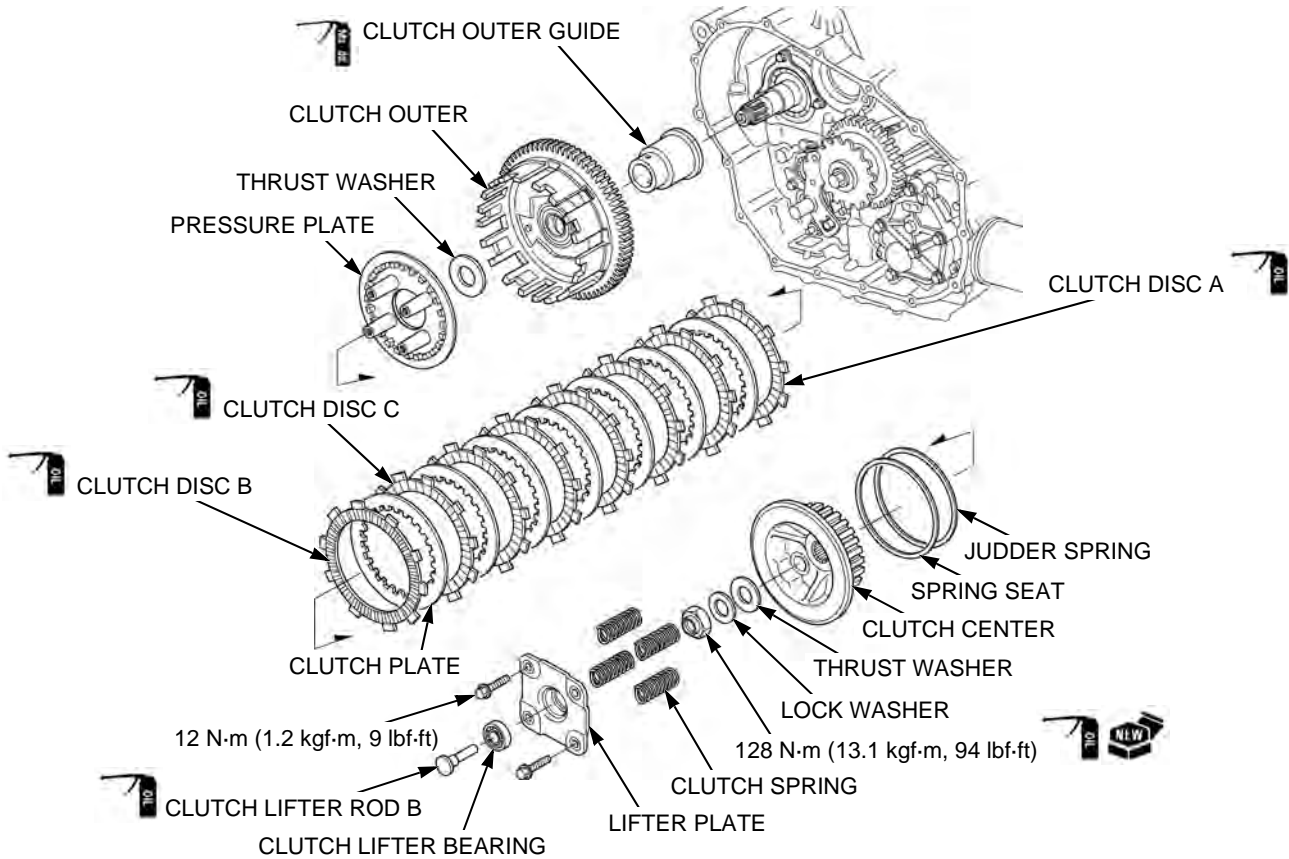
Calculate the clutch outer guide-to-mainshaft clearance.

SERVICE LIMIT: 0.08 mm (0.003 in)



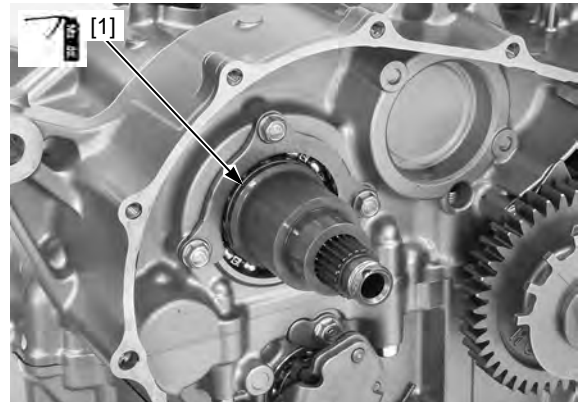
CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

INSTALLATION



Apply molybdenum oil solution to the clutch outer guide sliding surface.

Install the clutch outer guide [1] to the mainshaft.



Install the thrust washer [1] to the clutch outer.



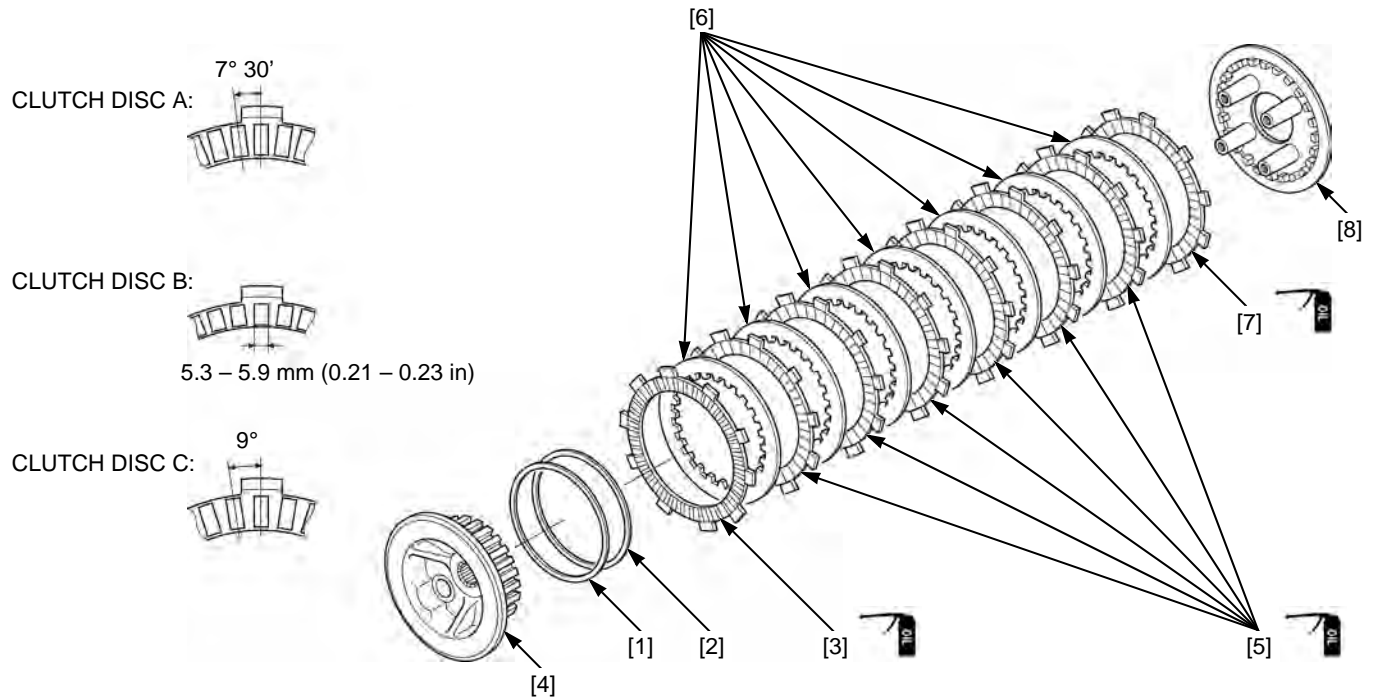
CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Apply engine oil to the clutch discs entire surface.

Install the spring seat [1], judder spring [2] and clutch disc B [3] to the clutch center [4].

Install the clutch discs C [5] and clutch plates [6] alternately, starting with the clutch plate.

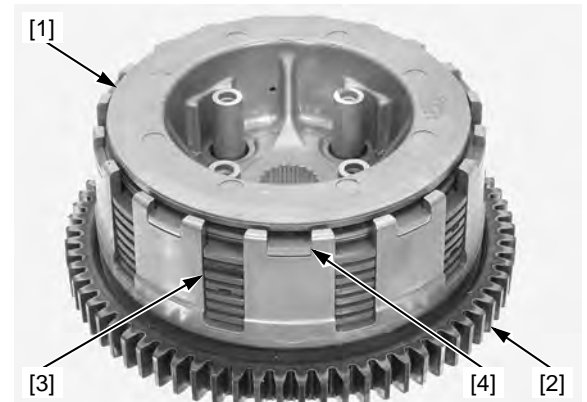
Install the clutch disc A [7] and pressure plate [8].



Install the clutch center assembly [1] to the clutch outer [2].

NOTE:

- Align the clutch disc A/C tabs with clutch outer slits [3].
- Align the clutch disc B tabs with clutch outer shallow slots [4].



Install the clutch assembly [1] to the clutch outer guide.



CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Install the thrust washer [1].

Install the lock washer [2] with its "OUTSIDE" mark [3] facing out.



Apply engine oil to a new clutch center lock nut threads and seating surface.

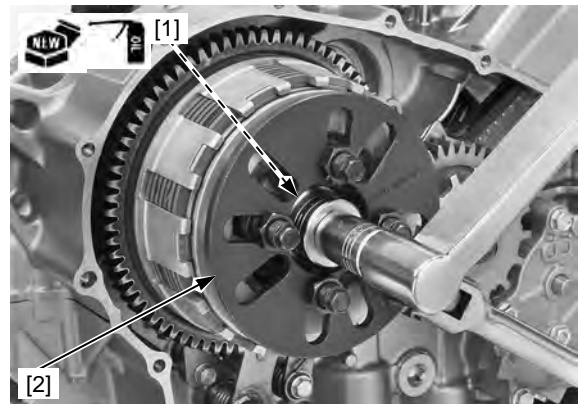
Install the clutch center lock nut [1] onto the mainshaft.

Hold the pressure plate with the special tool and tighten the lock nut to the specified torque.

TOOL:

Clutch center holder [2] 07JMB-MN50302

TORQUE: 128 N·m (13.1 kgf·m, 94 lbf·ft)



Stake the clutch center lock nut [1] into the mainshaft groove.

NOTE:

Be careful not to damage the mainshaft threads.



Install the clutch springs [1], lifter plate/bearing [2] and clutch lifter plate bolts [3].

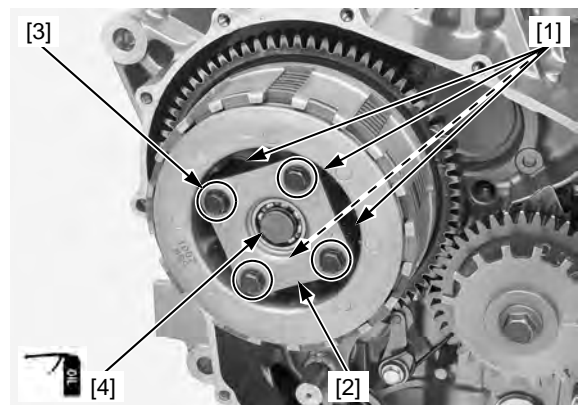
Tighten the clutch lifter plate bolts to the specified torque in a crisscross pattern in 2 or 3 steps.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Apply engine oil to the clutch lifter rod B sliding surface.

Install the clutch lifter rod B [4].

Install the right crankcase cover (page 11-5).



PRIMARY DRIVE GEAR/CKP SENSOR ROTOR

REMOVAL

Remove the right crankcase cover (page 11-5).

Hold the primary drive gear [1] using a special tool and remove the primary drive gear mounting bolt [2] and washer [3].

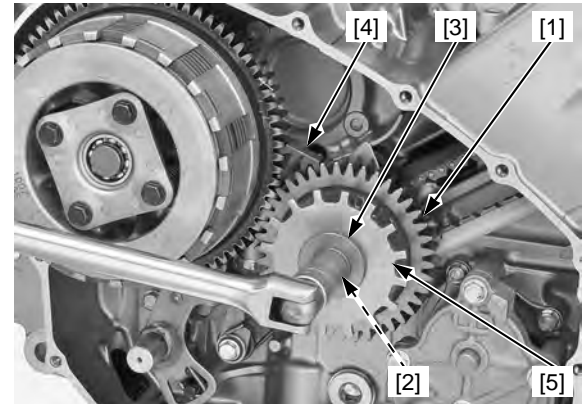
TOOL:

Gear holder, 2.5 [4]

07724-0010100

Remove the gear holder.

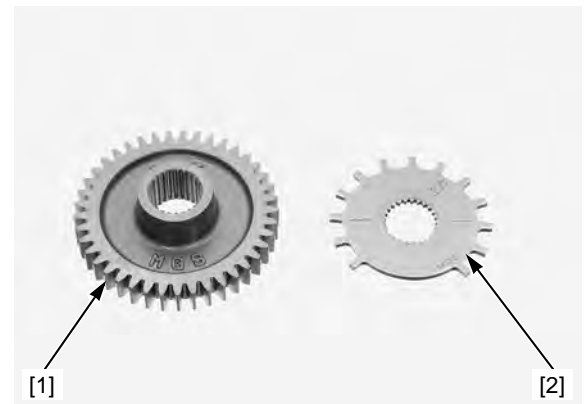
Remove the CKP sensor rotor [5] and primary drive gear.



INSPECTION

Check the primary drive gear [1] for wear or damage.

Check the CKP sensor rotor [2] for wear or damage.

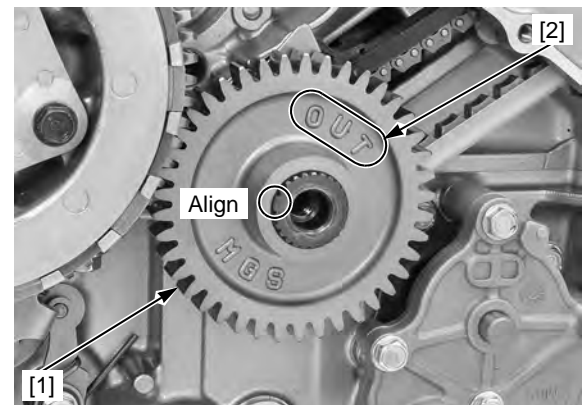


INSTALLATION

Install the primary drive gear [1] on the crankshaft.

NOTE:

- Align the primary drive gear wide groove with the crankshaft wide tooth.
- Install the primary drive gear with its "OUT" mark [2] facing out.

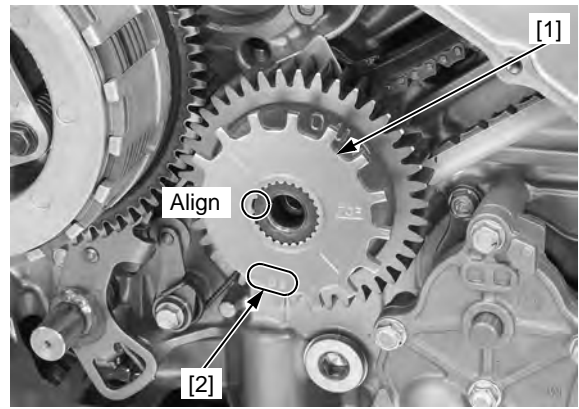


CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Install the CKP sensor rotor [1] on the crankshaft.

NOTE:

- Align the CKP sensor rotor wide groove with the crankshaft wide tooth.
- Install the CKP sensor rotor with its "MGS" mark [2] facing out.



Apply engine oil to the primary drive gear mounting bolt threads and seating surface.

Install the washer [1] and primary drive gear mounting bolt [2].

Hold the primary drive gear using a special tool and tighten the primary drive gear mounting bolt to the specified torque.

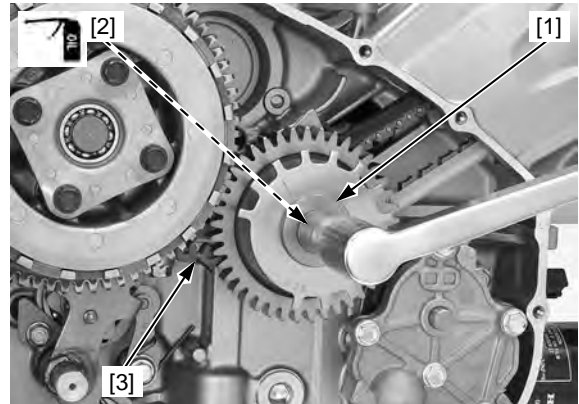
TOOL:

Gear holder, 2.5 [3] 07724-0010100

TORQUE: 93 N·m (9.5 kgf·m, 69 lbf·ft)

Remove the gear holder.

Install the right crankcase cover (page 11-5).



GEARSHIFT LINKAGE

REMOVAL

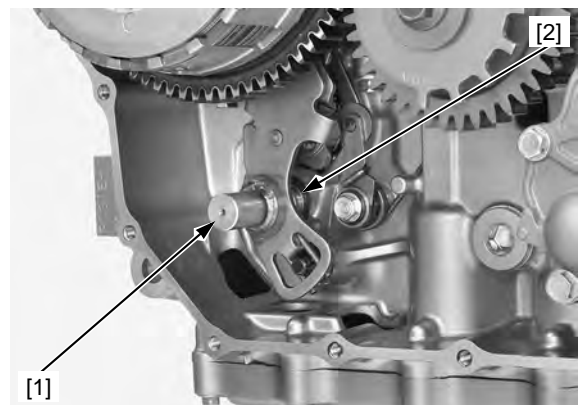
Remove the following:

- Left rear cover (page 2-29)
- Right crankcase cover (page 11-5)

Clean the gearshift spindle [1].



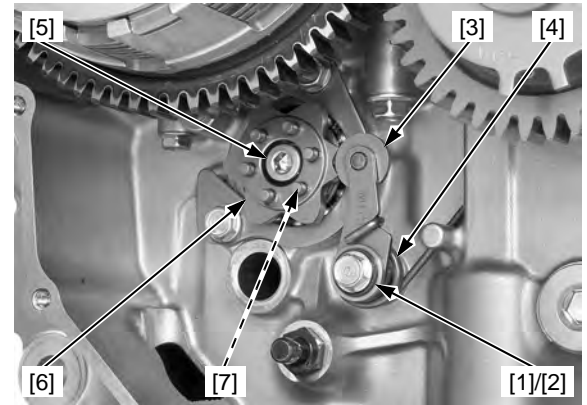
Remove the gearshift spindle [1] and washer [2].



Remove the following:

- Shift drum stopper arm pivot bolt [1]
- Washers [2]
- Stopper arm [3]
- Return spring [4]

Remove the shift drum center socket bolt [5], shift drum stopper plate [6] and dowel pin [7].



Remove the bolt [1] and setting plate [2].

Remove the gearshift spindle oil seal [3].



INSPECTION

Check the gearshift spindle for bend, wear or damage.

Check the return springs for fatigue or damage.

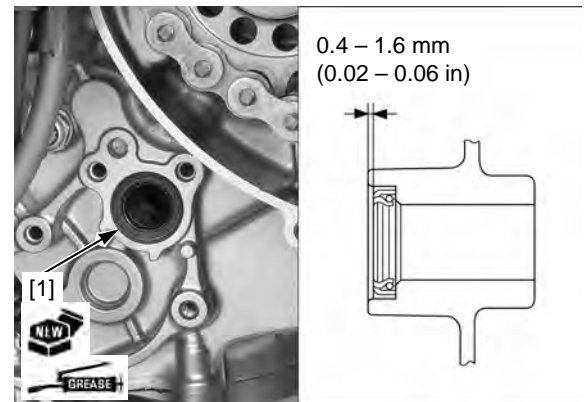


INSTALLATION

Install the gearshift spindle oil seal [1] as shown.

NOTE:

- Install the oil seal with its marked side facing out.
- Apply grease to the oil seal lips.

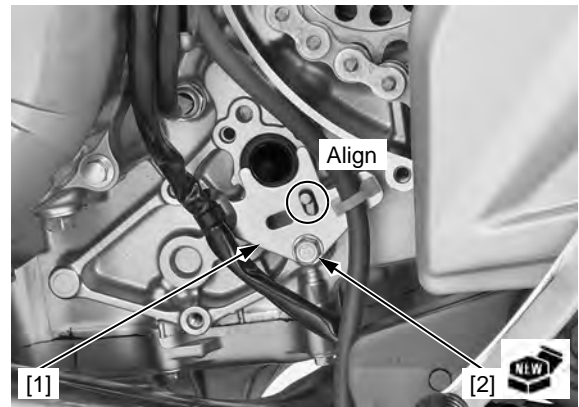


CLUTCH/GEARSHIFT LINKAGE (NC700X/XA/S/SA)

Install the setting plate [1] and a new bolt [2].

NOTE:

Align the setting plate hole with the crankcase boss.

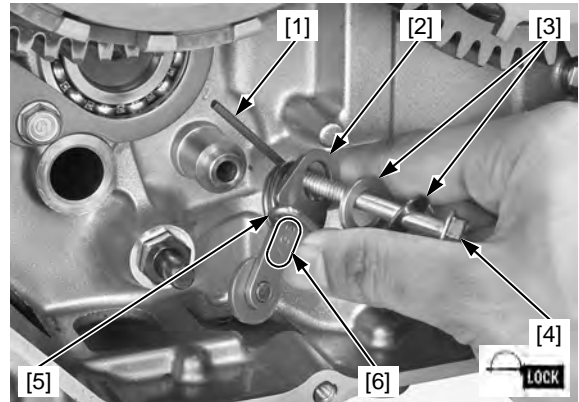


Install the following:

- Return spring [1]
- Stopper arm [2]
- Washers [3]
- Shift drum stopper arm pivot bolt [4]

NOTE:

- Apply locking agent to the shift drum stopper arm pivot bolt threads (page 11-3).
- Align the return spring hook [5] with stopper arm cut-out.
- Install the stopper arm with its "MGS" mark [6] facing out.



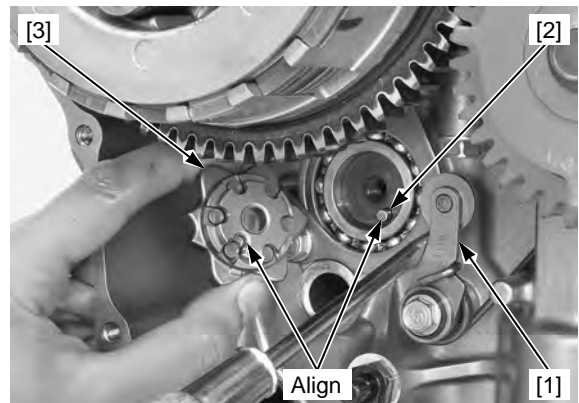
TORQUE:

**Shift drum stopper arm pivot bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)**

Hold the stopper arm [1] with a screwdriver.

Install the dowel pin [2] into the shift drum hole.

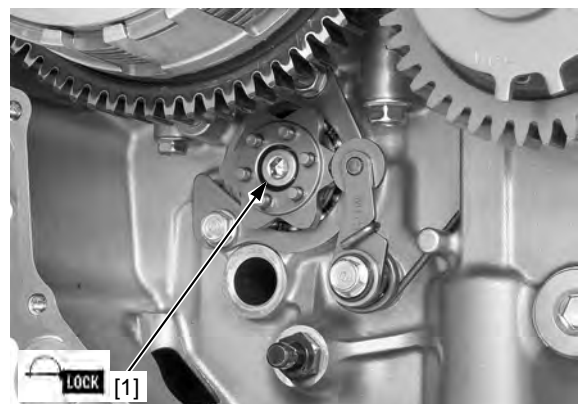
Install the shift drum stopper plate [3] while aligning its slit with the dowel pins.



Apply locking agent to the shift drum center socket bolt threads (page 11-3).

Install and tighten the shift drum center socket bolt [1] to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



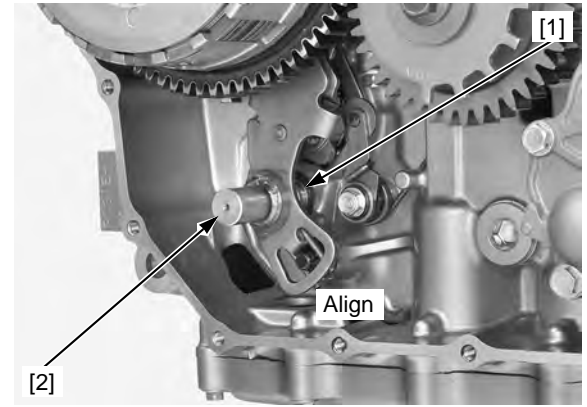
Install the washer [1] and gearshift spindle [2].

NOTE:

Align the return spring ends with the spring pin.

Install the following:

- Right crankcase cover (page 11-5)
- Left rear cover (page 2-29)

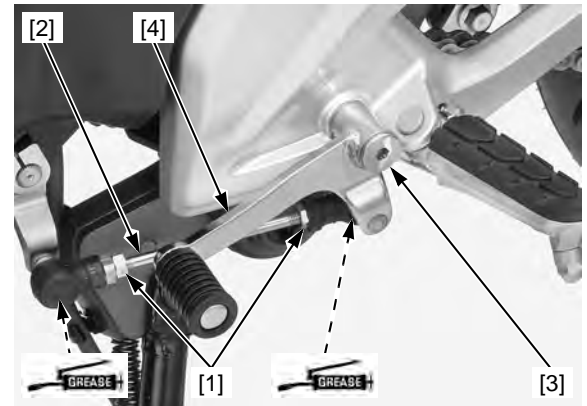


GEARSHIFT PEDAL

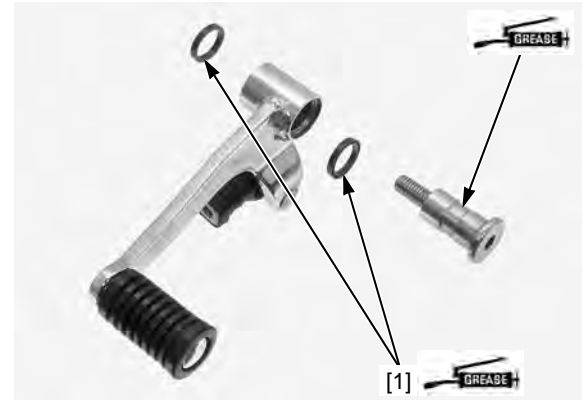
REMOVAL/INSTALLATION

Loosen the gearshift pedal adjuster lock nuts [1] and remove the tie-rod [2].

Remove the gearshift pedal pivot bolt [3] and gearshift pedal [4].



Remove the dust seals [1].



Installation is in the reverse order of removal.

NOTE:

- Apply grease to the gearshift pedal pivot and dust seal lips.
- Apply grease to the gearshift pedal tie-rod ball joint area.

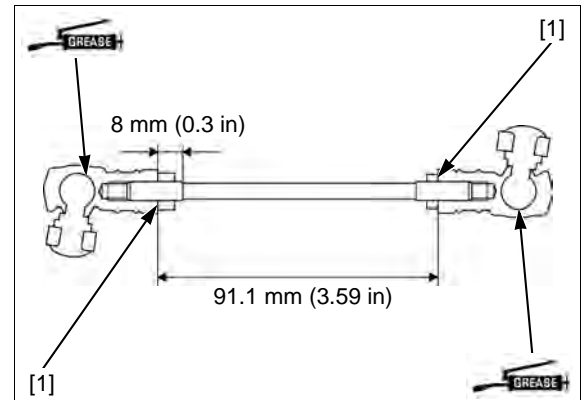
TORQUE:

Gearshift pedal pivot bolt:
27 N·m (2.8 kgf·m, 20 lbf·ft)

Adjust the tie-rod length so that the distance between the ball joint ends is standard length as shown.

After adjustment tighten the gearshift pedal adjuster lock nut [1] to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



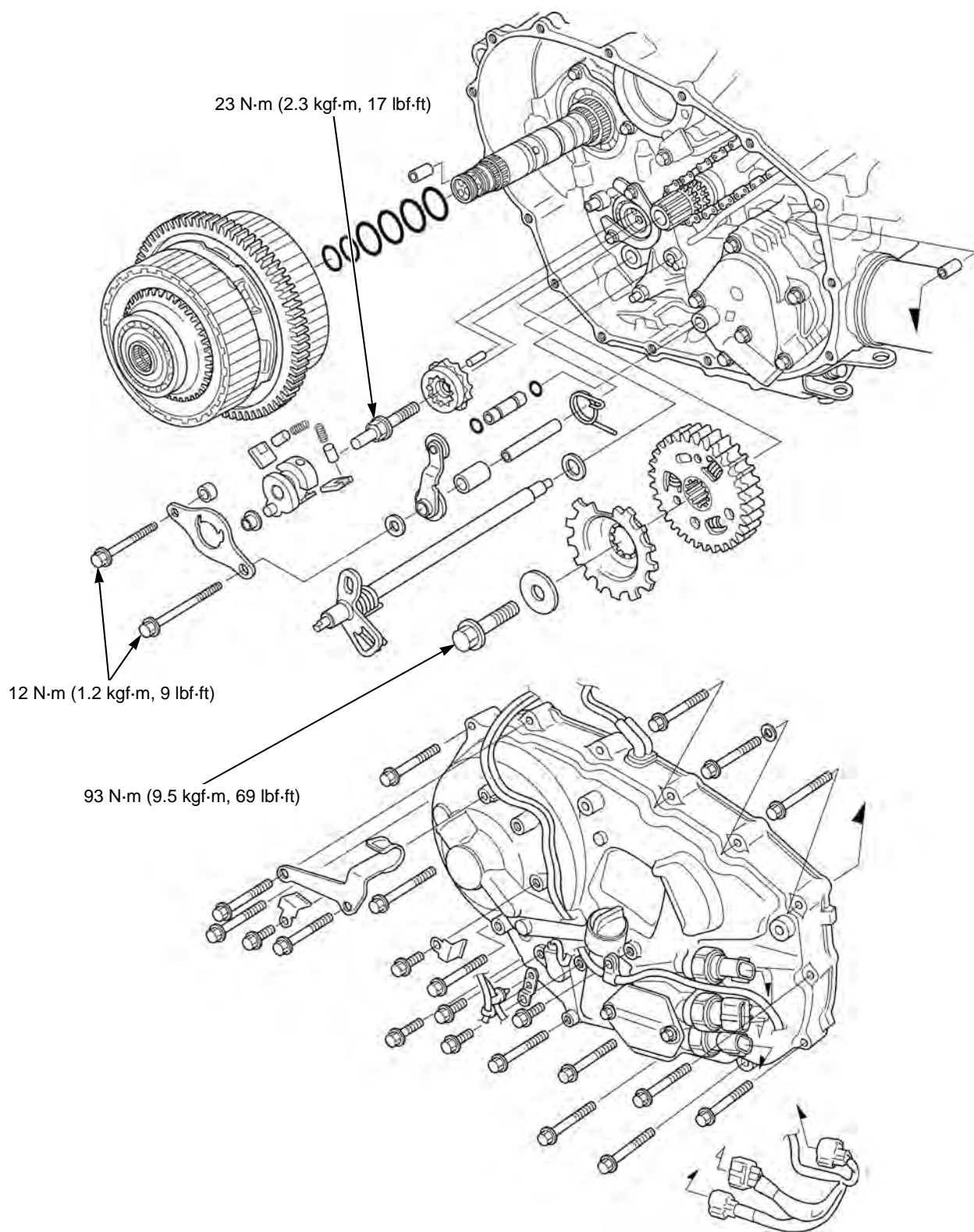
MEMO

12. DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

COMPONENT LOCATION	12-2	RIGHT CRANKCASE COVER	12-97
SERVICE INFORMATION	12-3	DUAL CLUTCH	12-105
DCT SYMPTOM TROUBLESHOOTING	12-5	PRIMARY DRIVE GEAR/CKP SENSOR ROTOR	12-108
DCT ELECTRICAL SYSTEM LOCATION	12-6	SHIFT CONTROL MOTOR/REDUCTION GEARS	12-109
DCT SYSTEM DIAGRAM	12-7	GEARSHIFT LINKAGE	12-112
DCT CONNECTOR LOCATIONS	12-8	MAINSHAFT SENSOR	12-115
DCT TROUBLESHOOTING INFORMATION	12-11	TR SENSOR	12-115
DTC INDEX	12-15	SHIFT SPINDLE ANGLE SENSOR	12-116
DTC TROUBLESHOOTING	12-20	CLUTCH EOP SENSOR	12-117
SHIFT INDICATOR TROUBLESHOOTING	12-61	EOT SENSOR	12-118
MODE/SHIFT INDICATOR CIRCUIT TROUBLESHOOTING	12-95	DCT SHIFT PEDAL (OPTIONAL)	12-118
AT/MT MODE SWITCH TROUBLESHOOTING	12-96	CLUTCH INITIALIZE LEARNING (PCM)	12-120

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

COMPONENT LOCATION



SERVICE INFORMATION

GENERAL

- This section covers service of the electrical and mechanical systems of the Dual Clutch Transmission (DCT).
- A faulty DCT system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Read the "DCT Troubleshooting Information" carefully, and inspect and troubleshoot the DCT system according to the DTC. Observe each step of the procedures one by one. Note the DTC and probable faulty part before starting diagnosis and troubleshooting.
- The PCM may be damaged if dropped. Also, if a connector is disconnected when current is flowing, the excessive voltage may damage the PCM. Always turn off the ignition switch before servicing.
- The drive mode AT or MT are changed electrically with the AT/MT mode switch.
- Be sure to use the recommended tires, and the specified drive and driven sprocket to operate the dual clutch transmission system normally.
- For oil pump service (page 9-8).
- For neutral switch service (page 22-27).
- For VS sensor service (page 22-18).
- Description of the system (page 1-90).
- The following color codes are used throughout this section.

Bl = Black	Bu = Blue	Gr = Gray	O = Orange	R = Red	W = White
Br = Brown	G = Green	Lg = Light green	P = Pink	V = Violet	Y = Yellow

For DCT System Troubleshooting

- The DCT system is controlled by the PCM. Therefore some detection items are shared in the PGM-FI and DCT systems, and they may affect the operation of both systems.
- Before starting any troubleshooting, check the following items and refer to the appropriate troubleshooting.
 - MIL blinks or DTC for the PGM-FI system (page 4-12).
 - Shift indicator blinks or DTC for the DCT system (page 12-11)
 - Symptom of the DCT system operation (page 12-5)
 - TXD/RXD line (page 22-11)
- Refer to the "PGM-FI Troubleshooting Information" for the "CIRCUIT INSPECTION" information (page 4-13).
- The gearshift mechanism included the following items. If the gearshift mechanism is faulty, refer to each component service.
 - Shift control motor/reduction gears (page 12-109)
 - Gearshift linkage (page 12-112)
 - Shift drum/shift fork (page 14-17)

Shift Control Motor Function Procedures

NOTE:

- If the PCM has a DTC, the function test does not work.
- The function test is not for the quality check of the shift control motor.

Conduct a test of the shift control motor when the following items have been serviced or replaced.

- Shift control motor
 - Reduction gears
 - TR sensor
 - Shift spindle angle sensor
1. Connect the HDS pocket tester.
 2. Select the "DRIVE TRAIN MODE MENU".
 3. Select the "FUNCTION TEST" and then select the "SHIFT CONTROL MOTOR".
 4. Place the motorcycle on its centerstand to raise the rear wheel off the ground.
 5. Select the "Shift Up" or "Shift Down" mode while turning the rear wheel above 5 km/h (3 mph) with your hands. Measure the shift spindle angle sensor voltage at this time. This also tests the mechanical function of the DCT to shift between gears.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Linear Solenoid Valve Function Procedures

NOTE:

- If the PCM has a DTC, the function test does not work.
- The function test is not for the quality check of the linear solenoid valve.
- Do not open the throttle while testing the linear solenoid valve function.

Conduct a test of the linear solenoid valves when the linear solenoid valves have been serviced or replaced.

1. Connect the HDS pocket tester.
2. Select the "DRIVE TRAIN MODE MENU".
3. Select the "FUNCTION TEST" and then select the "Linear Solenoid".
4. Select the "Linear Solenoid 1" or "Linear Solenoid 2".
5. Start the engine and let it idle.
6. Make sure that the transmission is in neutral position.
7. Select the "Drive Linear Solenoid To 0 kPa", "Drive Linear Solenoid To 400 kPa" or "Drive Linear Solenoid To 800 kPa" mode. Measure the linear solenoid current at each mode.

SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Clutch clearance	0.9 – 1.1 (0.035 – 0.043)	2.0 (0.08)
EOT sensor resistance (20°C/68°F)	2.5 – 2.8 kΩ	–

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Solenoid valve stopper plate bolt	1	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Right crankcase cover wire clamp bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Linear solenoid valve body mounting bolt	6	6	–	For tightening sequence (page 12-101)
Shift spindle angle sensor bolt	1	6	12 (1.2, 9)	
Primary drive gear mounting bolt	1	10	93 (9.5, 69)	Apply engine oil to the threads and seating surface.
Reduction gear cover bolt	3	6	14 (1.4, 10)	
TR sensor bolt	1	6	12 (1.2, 9)	
Shift control motor bolt	3	6	14 (1.4, 10)	
Shift drum center bolt	1	8	23 (2.3, 17)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Drum shifter guide plate bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width: 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Clutch line EOP sensor	3	10	19.6 (2.0, 14)	
EOT sensor	1	10	14 (1.4, 10)	Apply engine oil to the threads and seating surface.

DCT SYMPTOM TROUBLESHOOTING

Check the shift indicator "-" blinking of the combination meter (page 12-11).

If the shift indicator "-" is blinking, refer to the DTC index (page 12-15) and begin the appropriate troubleshooting procedure.

If there are no "-" blinking, inspect the engine oil condition and follow the symptom troubleshooting described below.

CLUTCH SLIPS AND MOTORCYCLE DOES NOT ACCELERATE

Check the clutch clearance (page 12-106).

EXCESSIVE NOISE OR VIBRATION AROUND THE DCT SYSTEM

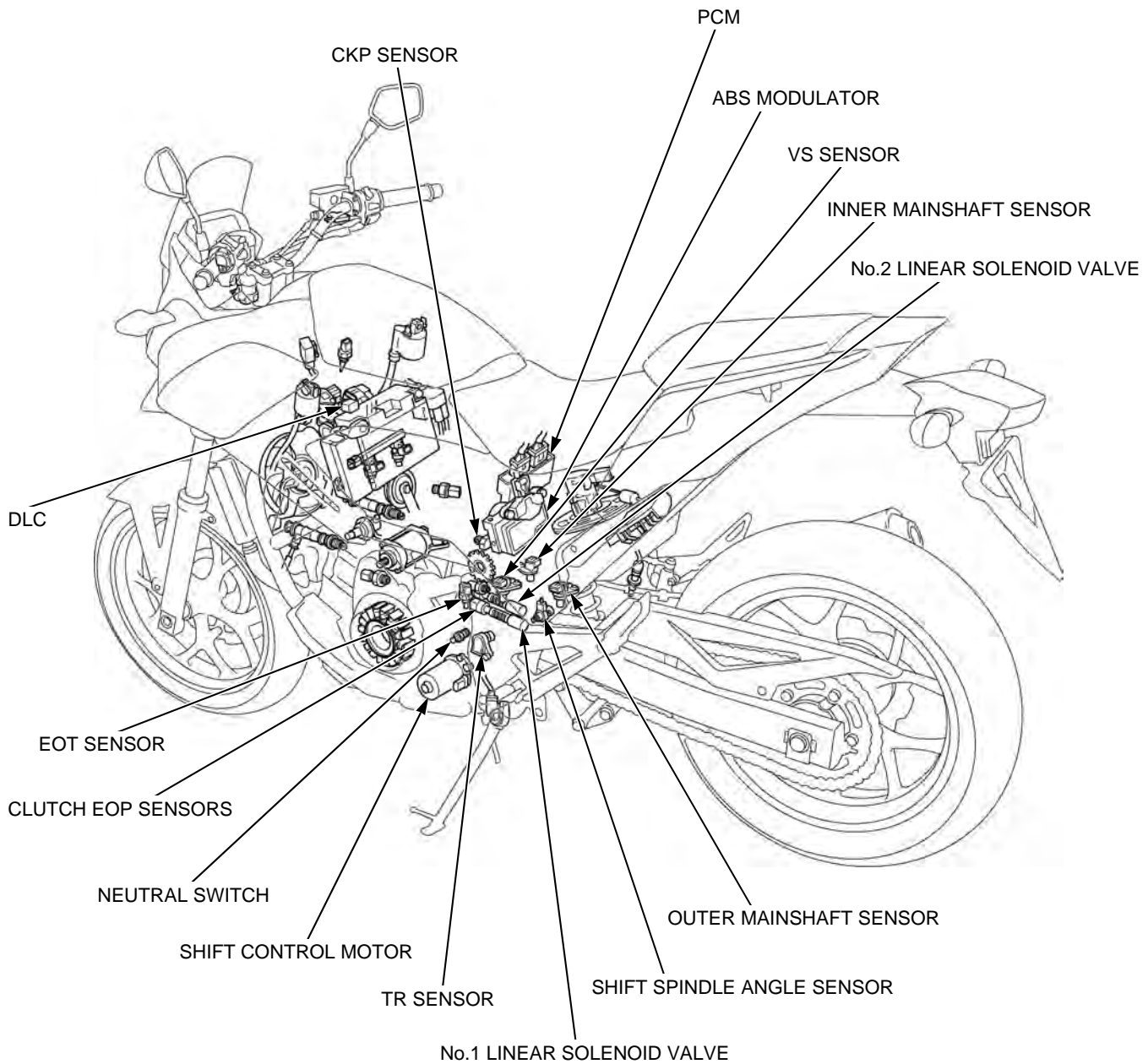
Inspect the following components:

- Clutch clearance
- Dual clutch needle bearings for wear or damage
- Primary drive/sub-gear for wear or damage
- Primary driven gear for wear or damage
- Each fasteners are tightened to their correct torque values

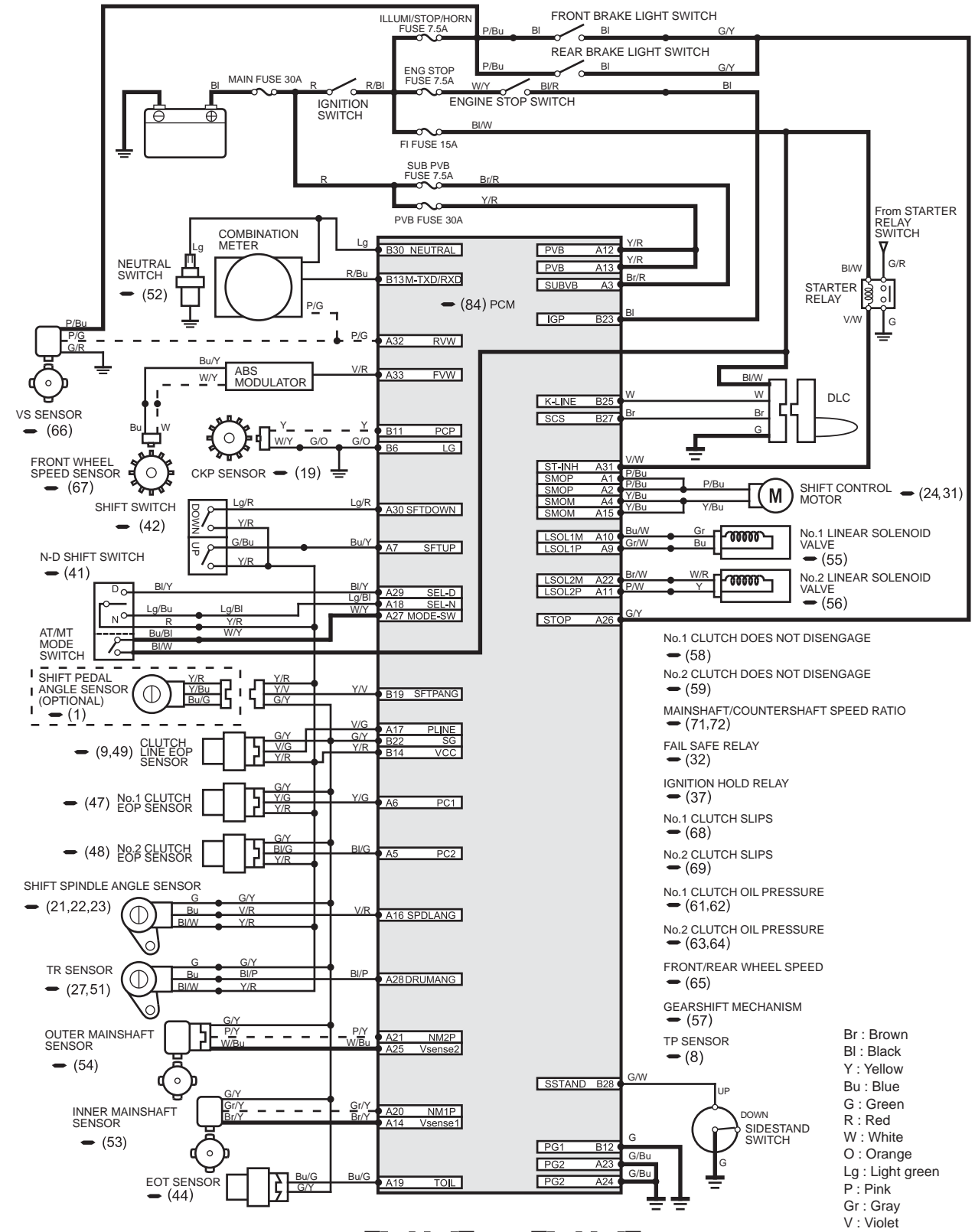
Replace the damaged components if necessary and tighten the loose fasteners to the specified torque.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

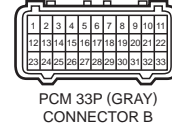
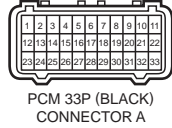
DCT ELECTRICAL SYSTEM LOCATION



DCT SYSTEM DIAGRAM



() :DTC/Number of shift indicator blinks
 :Short terminals for reading DTC / shift indicator



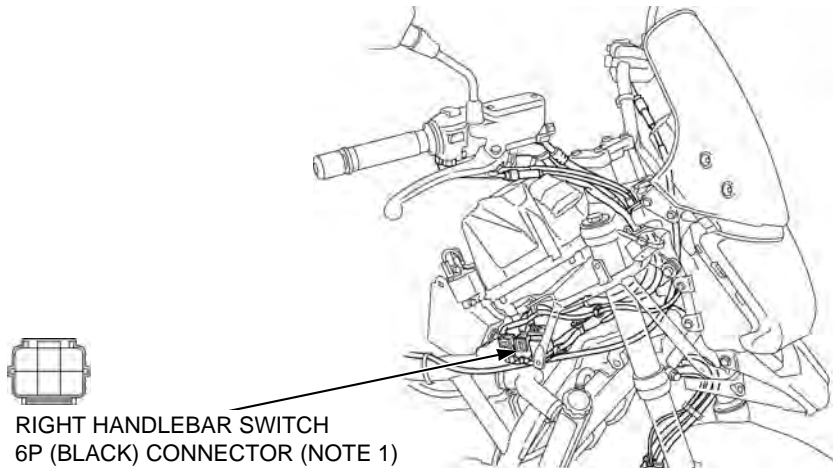
Br : Brown
 Bl : Black
 Y : Yellow
 Bu : Blue
 G : Green
 R : Red
 W : White
 O : Orange
 Lg : Light green
 P : Pink
 Gr : Gray
 V : Violet

- No.1 CLUTCH DOES NOT DISENGAGE (58)
- No.2 CLUTCH DOES NOT DISENGAGE (59)
- MAINSHAFT/COUNTERSHAFT SPEED RATIO (71,72)
- FAIL SAFE RELAY (32)
- IGNITION HOLD RELAY (37)
- No.1 CLUTCH SLIPS (68)
- No.2 CLUTCH SLIPS (69)
- No.1 CLUTCH OIL PRESSURE (61,62)
- No.2 CLUTCH OIL PRESSURE (63,64)
- FRONT/REAR WHEEL SPEED (65)
- GEARSHIFT MECHANISM (57)
- TP SENSOR (8)

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

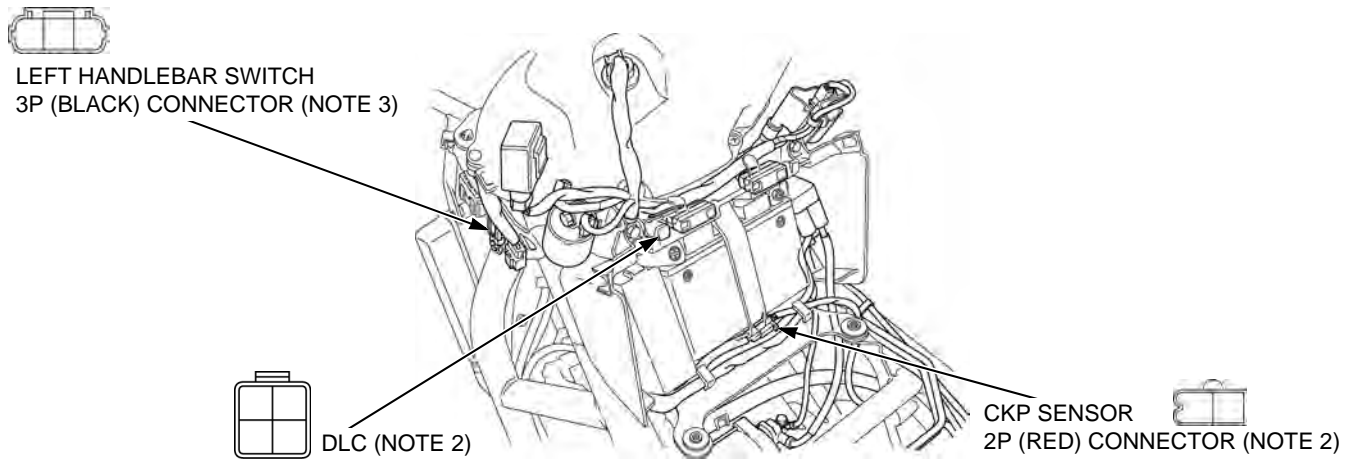
DCT CONNECTOR LOCATIONS

NOTE 1: Remove the shroud/side cover (NC700XD) (page 2-14).

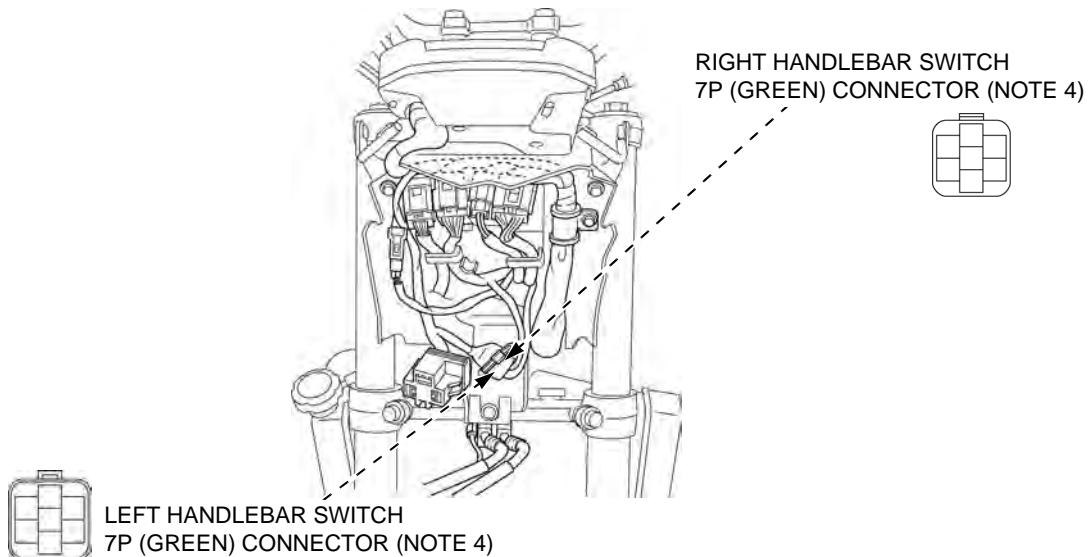


NOTE 2: Remove the maintenance lid (page 21-6).

NOTE 3: Remove the shroud/side cover (NC700XD) (page 2-14).

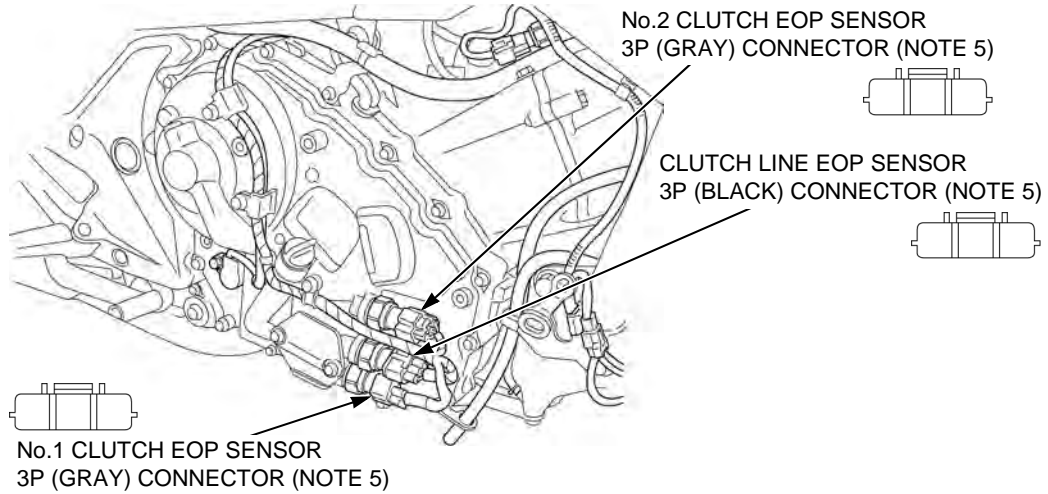


NOTE 4: Remove the headlight/headlight stay (NC700SD) (page 2-27).



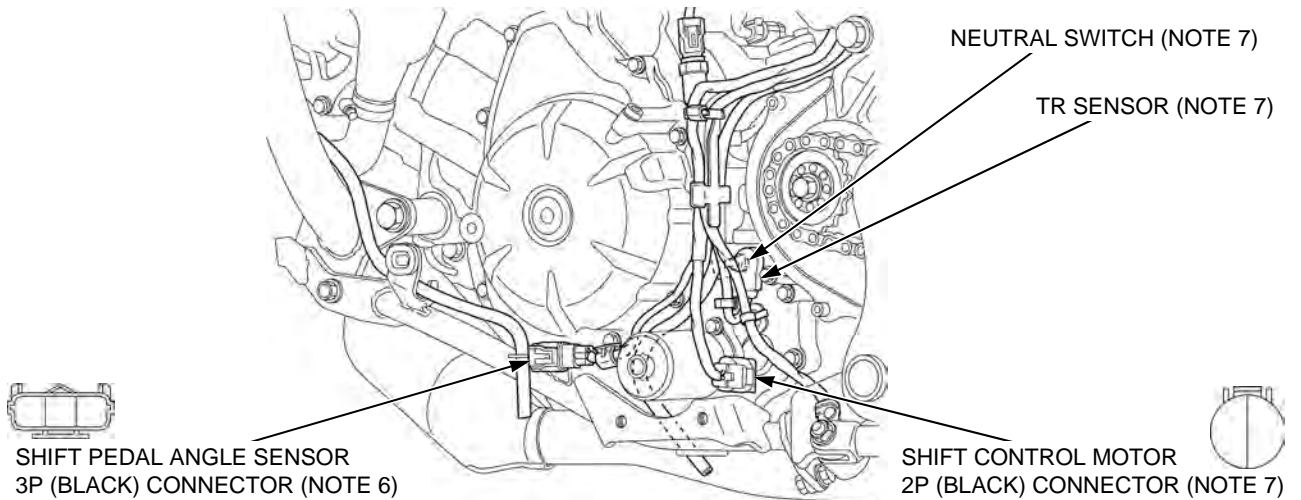
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

NOTE 5: Remove the lower cowl (page 2-29).

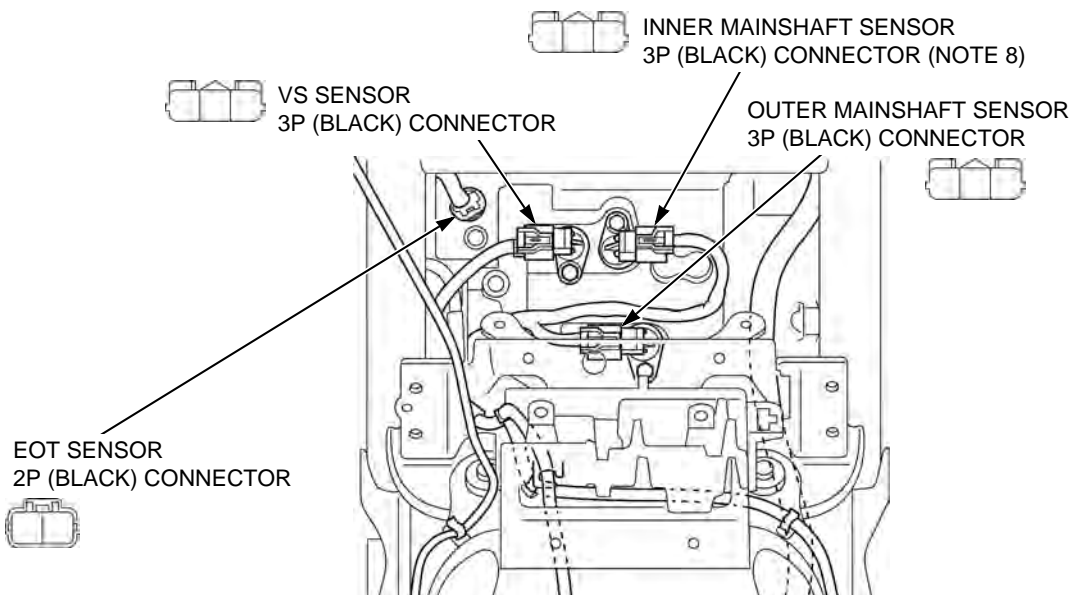


NOTE 6: Remove the lower cowl (page 2-29).

NOTE 7: Remove the left rear cover (page 2-30).



NOTE 8: Remove the luggage box (page 2-19).



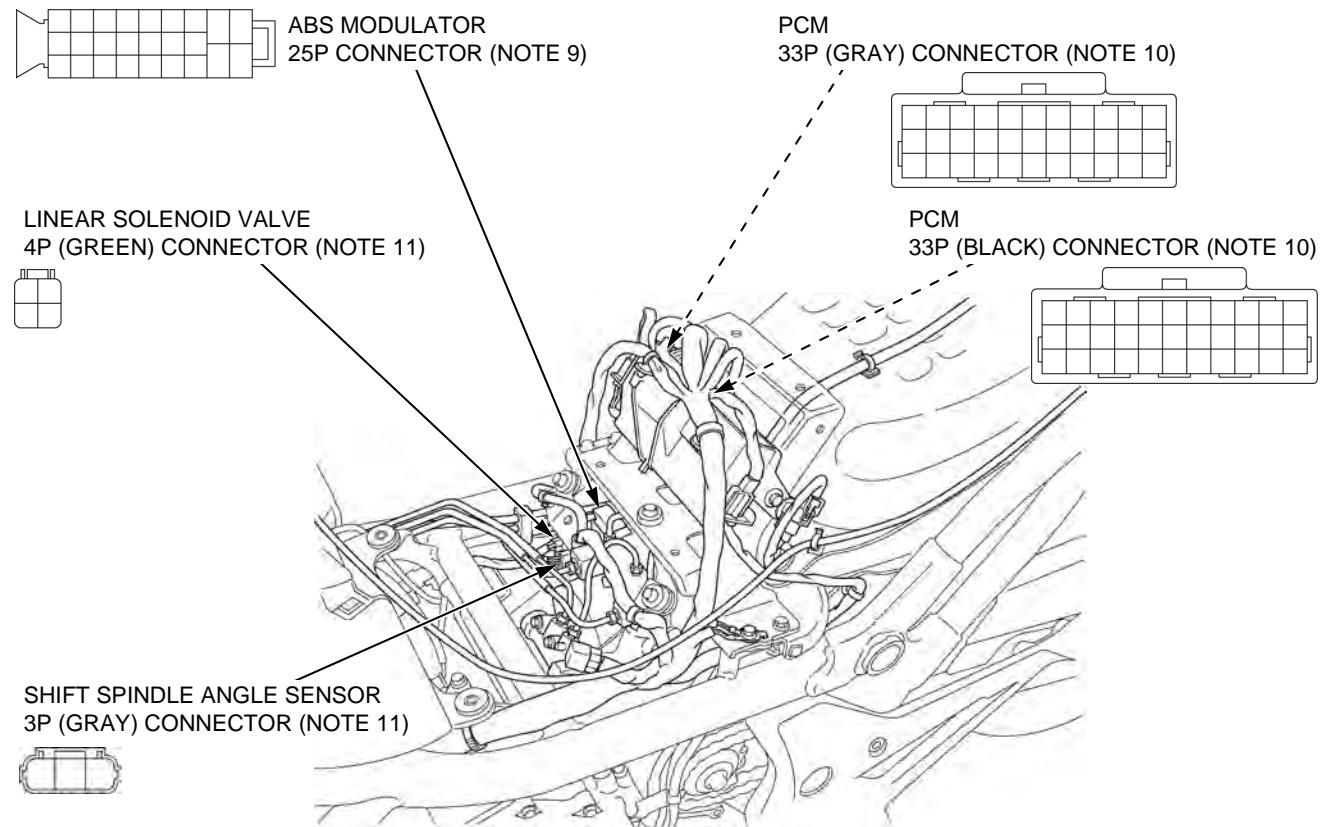
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

NOTE 9: Remove the luggage box (page 2-19).

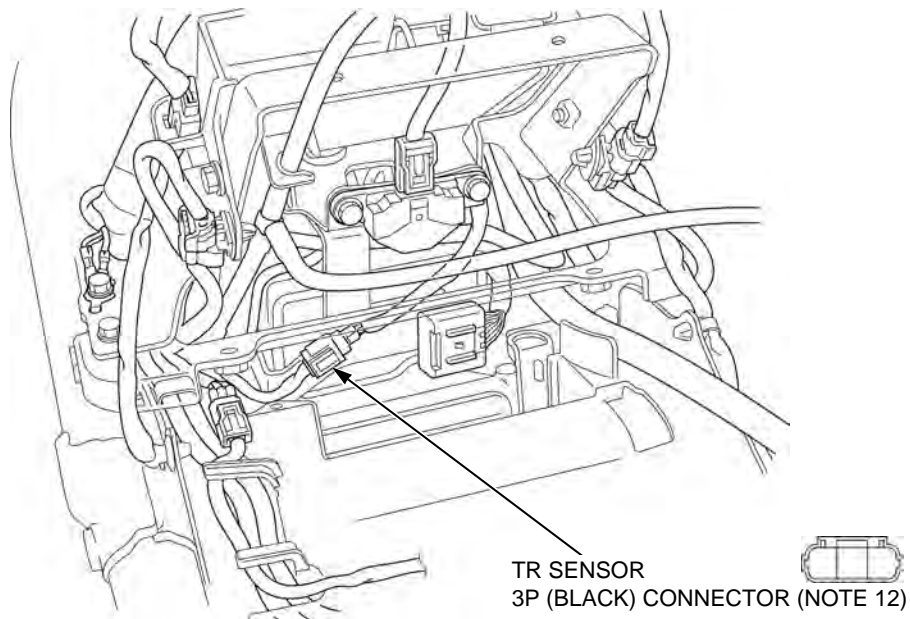
NOTE 10: Remove the center cross plate (page 2-32).

NOTE 11: Remove the shroud/side cover (NC700XD) (page 2-14).

NOTE 11: Remove the side cowl (NC700SD) (page 2-13).



NOTE 12: Remove the center cross plate (page 2-32).



DCT TROUBLESHOOTING INFORMATION

GENERAL TROUBLESHOOTING

Intermittent Failure

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the shift indicator "-" does not come on, check for poor contact or loose pins at all connectors related to the circuit that you are troubleshooting. If the shift indicator "-" was on, but then went out, the original problem may be intermittent.

Opens and Shorts

"Opens" and "Shorts" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something will not work at all. With PCMs this can sometimes mean something works, but not the way it's supposed to.

If the shift indicator "-" has come on

Refer to DTC READOUT (page 12-12).

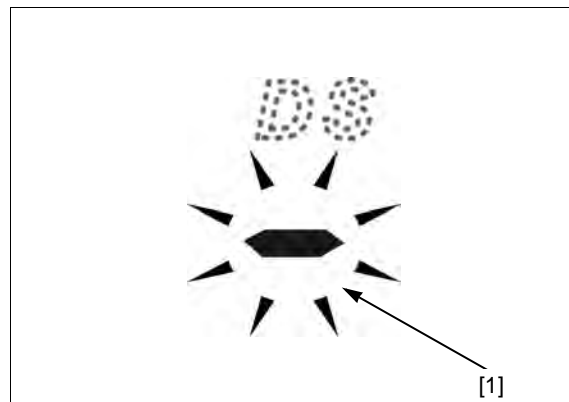
If the shift indicator "-" did not stay on

If the shift indicator "-" did not stay on, but there is a driveability problem, do the SYMPTOM TROUBLESHOOTING (page 12-5).

SYSTEM DESCRIPTION

SELF-DIAGNOSIS SYSTEM

The DCT system is equipped with the self-diagnostic system. When any abnormality occurs in the DCT system, the PCM have the shift indicator [1] blinking "-" and stores a DTC in its erasable memory for the relevant system failure.



FAIL-SAFE FUNCTION

The DCT system is provided with a fail-safe function to secure a minimum running capability even when there is trouble in the system.

When the PCM detects a problem in the DCT system, the PCM stops the gearshift function, and hold the gear position. Also, the shift indicator blinks "-" to indicate the DTC.

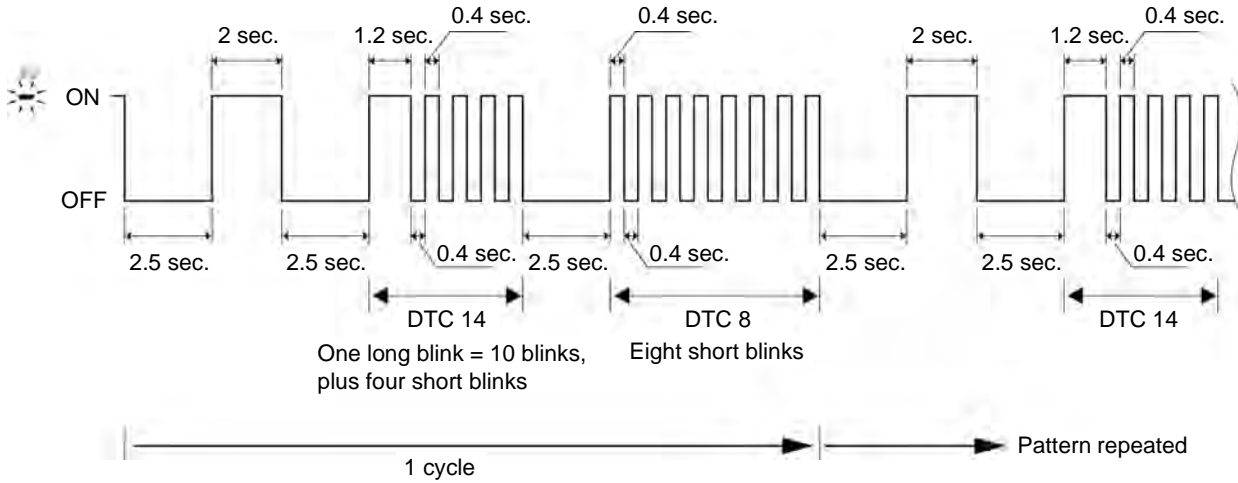
DTC (Diagnostic Trouble Code)

- The DTC is composed of a main code and a sub code and it is displayed as a hyphenated number when retrieved from the PCM with the HDS pocket tester.
The digits in front of the hyphen are the main code, they indicate the component of function failure.
The digits behind the hyphen are the sub code, they detail the specific symptom of the component or function failure.
For example, in the case of the shift spindle angle sensor:
 - DTC 21 - 1 = (Shift spindle angle sensor voltage) - (lower than the specified value)
 - DTC 21 - 2 = (Shift spindle angle sensor voltage) - (higher than the specified value)

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Shift indicator "-" Blink Pattern

- If the HDS pocket tester is not available, DTC can be read from the PCM memory by the shift indicator "-" blink pattern.
- The number of shift indicator "-" blinks is the equivalent of the main code of the DTC (the sub code cannot be displayed by the shift indicator "-").
- The shift indicator "-" has two types of blinks, a long blink and short blink. The long blinking lasts for 1.2 seconds, the short blinking lasts for 0.4 seconds. One long blink is the equivalent of ten short blinks. For example, DTC 14 and DTC 8 are indicated in the following blink pattern.
- When there isn't a DTC, the shift indicator "-" stay lights.



Shift indicator Check

When the ignition switch is turned ON with the engine stop switch to "O", the shift indicator will stay on for a few seconds, then go off.

CURRENT DTC/STORED DTC

The DTC is indicated in two ways according to the failure status.

- If the PCM detects a current problem, the shift indicator "-" will come on and begin to blink when the sidestand is lowered. The shift indicator "-" blink pattern will indicate the current DTC.
- If the PCM does not detect any current but has a problem stored in its memory, the shift indicator "-" will not light and blink. If it is necessary to retrieve the past problem, readout the stored DTC by following the DTC readout procedure (page 12-12).

HDS POCKET TESTER INFORMATION

Refer to the PGM-FI system (page 4-12).

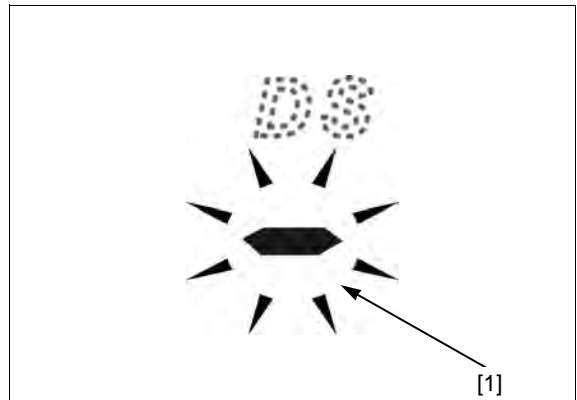
NOTE:
The front wheel speed sensor signal can be disabled with the HDS for testing. Never ride the motorcycle with the PCM in this mode.

DTC READOUT

- NOTE:
- If the shift indicator [1] blinks, check the PGM-FI DTC (page 4-12). If there is any problem in the PGM-FI system, troubleshoot it first. Then recheck the DCT system after erasing the PGM-FI DTC.
 - After performing diagnostic troubleshooting, erase the problem code(s) (page 12-13) and test-ride the motorcycle to be sure that the problem(s) have been removed.

Read the DTC and stored data with the HDS Pocket Tester, and follow the troubleshooting index (page 12-15).

To read the DTC without the HDS pocket tester, use the following procedure.



Reading DTC with the shift indicator "-"

1. Turn the ignition switch OFF.
Remove the maintenance lid (page 21-6).
2. Remove the DLC [1] from the battery box.
Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

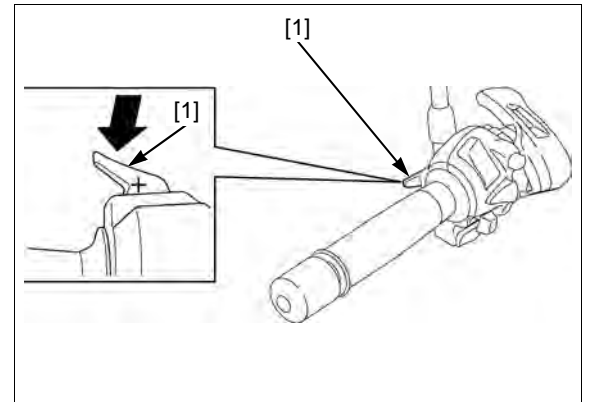
SCS connector [2] 070PZ-ZY30100



3. Make sure the engine stop switch is turned to "O".
While pushing the shift switch (+) [1], turn the ignition switch ON. Read, note the shift indicator "-" blinks and refer to the troubleshooting index (page 12-15).

NOTE:

- If the PCM has no DTC in its memory, the shift indicator "-" will start blinking (page 12-14).
4. Release the shift switch (+).



ERASING DTC

Connect the HDS pocket tester to the DLC (page 4-12).

Erase the DTC with the HDS while the engine is stopped.

To erase the DTC without HDS, refer to the following procedure.

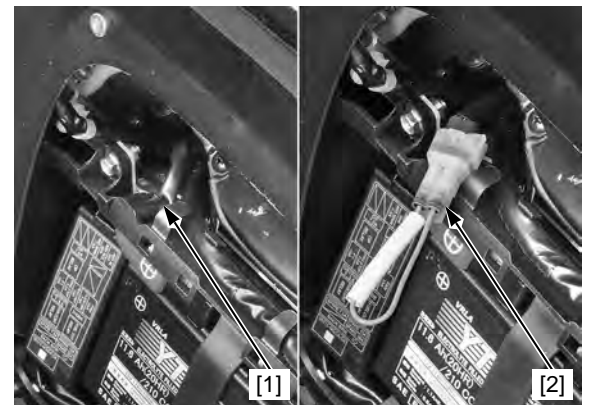
How to erase the DTC without HDS

1. Turn the ignition switch OFF.
Remove the maintenance lid (page 21-6).
2. Remove the DLC [1] from the battery box.
Short the DLC terminals using a special tool.

Connection: Brown – Green

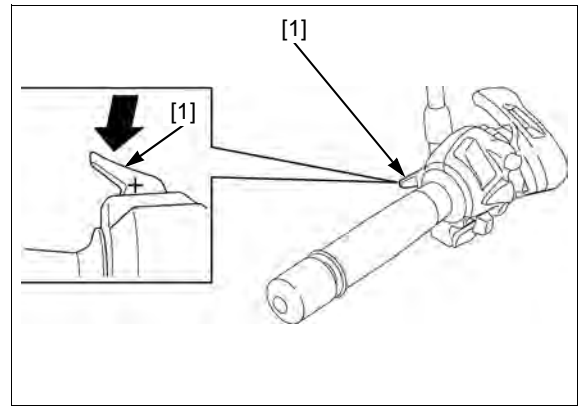
TOOL:

SCS connector [2] 070PZ-ZY30100

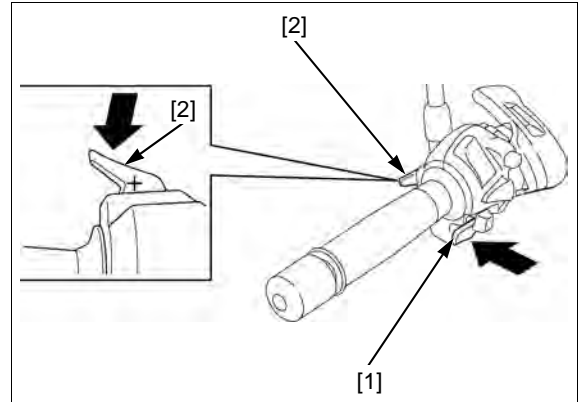


DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

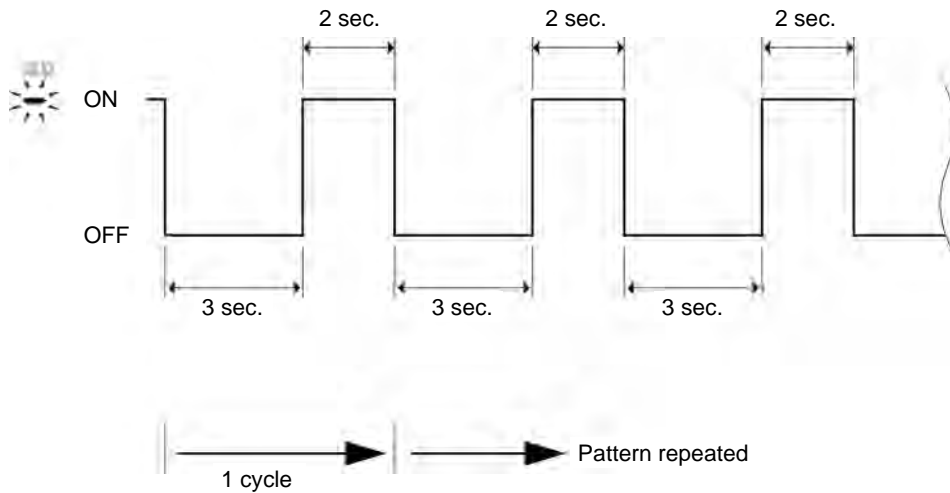
3. Make sure the engine stop switch is turned to "O".
While pushing the shift switch (+) [1], turn the ignition switch to ON.



4. Push the shift switch (-) [1].
5. Push the shift switch (+) [2].



6. The self-diagnostic memory is erased if the shift indicator "-" goes off and starts blinking as shown.



NOTE:
Note that the self-diagnostic memory cannot be erased if the ignition switch is turned to "OFF" before the shift indicator "-" starts blinking.

7. Turn the ignition switch OFF.
8. Remove the special tool from the DLC.

DTC INDEX

DTC ("—" blinks)	Function Failure	Symptom/Fail-safe function	Refer to DTC	Refer to "—"
8-1 (8)	TP sensor abnormal voltage <ul style="list-style-type: none"> Loose or poor contact of the TP sensor connector TP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function works normally 	12-20	4-47
9-1 (9)	Clutch line EOP sensor low voltage <ul style="list-style-type: none"> Clutch line EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function works normally 	12-20	12-61
9-2 (9)	Clutch line EOP sensor high voltage <ul style="list-style-type: none"> Loose or poor contact of the clutch line EOP sensor connector Clutch line EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function works normally 	12-21	
19-1 (19)	CKP sensor no signal <ul style="list-style-type: none"> Loose or poor contact of the CKP sensor connector Electromagnetic interference at CKP sensor CKP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-22	12-62
21-1 (21)	Shift spindle angle sensor low voltage <ul style="list-style-type: none"> Loose or poor contact of the shift spindle angle sensor connector Shift spindle angle sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Only shifted into 1st gear 	12-23	12-63
21-2 (21)	Shift spindle angle sensor high voltage <ul style="list-style-type: none"> Shift spindle angle sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Only shifted into 1st gear 	12-24	
22-1 (22)	Shift spindle operation malfunction (after operating gearshift mechanism) <ul style="list-style-type: none"> Gearshift mechanism malfunction Shift spindle angle sensor malfunction 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Only shifted into 1st gear 	12-25	12-64
23-1 (23)	Shift spindle operation malfunction (while operating gearshift mechanism) <ul style="list-style-type: none"> Gearshift mechanism malfunction Shift spindle angle sensor malfunction 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Only shifted into 1st gear 	12-26	
24-1 (24)	Shift control motor drive circuit <ul style="list-style-type: none"> Shift control motor or its circuit malfunction Shift control motor drive circuit in the PCM malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-27	12-65
27-1 (27)	Shift drum position malfunction <ul style="list-style-type: none"> TR sensor malfunction Gearshift mechanism malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-28	12-66
31-1 (31)	Shift control motor low voltage <ul style="list-style-type: none"> Shift control motor circuit malfunction Ignition hold relay circuit in the PCM malfunction Blown PVB fuse (30 A) Loose or poor contact of the PCM 33P (Black) connector Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-29	12-67
32-1 (32)	Fail safe relay circuit malfunction <ul style="list-style-type: none"> PCM (DCT drive circuit) power input line malfunction Blown PVB fuse (30 A) Fail safe relay in the PCM malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-30	12-68
37-1 (37)	Ignition hold relay malfunction <ul style="list-style-type: none"> PCM (DCT drive circuit) sub power input line malfunction Blown SUB PVB fuse (7.5 A) Ignition hold relay in the PCM malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-30	12-68

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC ("-" blinks)	Function Failure	Symptom/Fail-safe function	Refer to DTC	Refer to "-"
41-1 (41)	N-D shift switch malfunction <ul style="list-style-type: none"> Loose or poor contact of the N-D shift switch connector N-D shift switch or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> N-D shift switch does not operate 	12-31	12-69
42-1 (42)	Shift switch malfunction <ul style="list-style-type: none"> Loose or poor contact of the shift switch connector Shift switch or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Shift switch does not operate 	12-33	12-71
44-1 (44)	EOT sensor low voltage <ul style="list-style-type: none"> EOT sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function works normally 	12-34	12-73
44-2 (44)	EOT sensor high voltage <ul style="list-style-type: none"> Loose or poor contact of the EOT sensor connector EOT sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function works normally 	12-35	
47-1 (47)	No.1 clutch EOP sensor low voltage <ul style="list-style-type: none"> No.1 clutch EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-37	12-74
47-2 (47)	No.1 clutch EOP sensor high voltage <ul style="list-style-type: none"> Loose or poor contact of the No.1 clutch EOP sensor connector No.1 clutch EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-38	
48-1 (48)	No.2 clutch EOP sensor low voltage <ul style="list-style-type: none"> No.2 clutch EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-37	12-74
48-2 (48)	No.2 clutch EOP sensor high voltage <ul style="list-style-type: none"> Loose or poor contact of the No.2 clutch EOP sensor connector No.2 clutch EOP sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-38	
49-1 (49)	Clutch line low oil pressure (when clutch engage) <ul style="list-style-type: none"> Engine oil level low Faulty oil pump Faulty clutch oil circuit Clutch line EOP sensor malfunction Faulty PCM 	<ul style="list-style-type: none"> Engine does not operate 	12-39	12-76
49-2 (49)	Clutch line low oil pressure (when engine running) <ul style="list-style-type: none"> Engine oil level low Faulty oil pump Faulty clutch oil circuit Clutch line EOP sensor malfunction Faulty PCM 	<ul style="list-style-type: none"> Engine does not operate 		
51-1 (51)	TR sensor low voltage <ul style="list-style-type: none"> Loose or poor contact of the TR sensor connector TR sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-40	12-77
51-2 (51)	TR sensor high voltage <ul style="list-style-type: none"> TR sensor or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-41	
52-1 (52)	Neutral switch stuck OFF <ul style="list-style-type: none"> Loose or poor contact of the neutral switch connector Neutral switch or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Operates normally Shift indicator blinking 	12-42	12-78
52-2 (52)	Neutral switch stuck ON <ul style="list-style-type: none"> Neutral switch or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-43	

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC ("—" blinks)	Function Failure	Symptom/Fail-safe function	Refer to DTC	Refer to "—"
53-1 (53)	Inner mainshaft sensor speed low <ul style="list-style-type: none"> • Loose or poor contact of the inner mainshaft sensor connector • Inner mainshaft sensor or its circuit malfunction • Electromagnetic interference • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-43	12-79
54-1 (54)	Outer mainshaft sensor speed low <ul style="list-style-type: none"> • Loose or poor contact of the outer mainshaft sensor connector • Outer mainshaft sensor or its circuit malfunction • Electromagnetic interference • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-46	12-82
55-1 (55)	No.1 linear solenoid valve current failure <ul style="list-style-type: none"> • Loose or poor contact of the No.1 linear solenoid valve connector • No.1 linear solenoid valve or its circuit malfunction • No.1 linear solenoid valve drive circuit in the PCM malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-48	12-84
55-2 (55)	No.1 linear solenoid valve driver in the PCM failure <ul style="list-style-type: none"> • Loose or poor contact of the No.1 linear solenoid valve connector • Loose or poor contact of the PCM 33P connector • No.1 linear solenoid valve or its circuit malfunction • No.1 linear solenoid valve drive circuit in the PCM malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 		
56-1 (56)	No.2 linear solenoid valve current failure <ul style="list-style-type: none"> • Loose or poor contact of the No.2 linear solenoid valve connector • No.2 linear solenoid valve or its circuit malfunction • No.2 linear solenoid valve drive circuit in the PCM malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-49	12-85
56-2 (56)	No.2 linear solenoid valve driver in the PCM failure <ul style="list-style-type: none"> • Loose or poor contact of the No.2 linear solenoid valve connector • Loose or poor contact of the PCM 33P connector • No.2 linear solenoid valve or its circuit malfunction • No.2 linear solenoid valve drive circuit in the PCM malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 		
57-1 (57)	Gearshift mechanism malfunction <ul style="list-style-type: none"> • Gearshift mechanism malfunction • TR sensor or its circuit malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work (while driving) • Engine does not operate 	12-50	12-86
57-2 (57)	Gear position malfunction (jumps out of gear) <ul style="list-style-type: none"> • Gearshift mechanism malfunction • TR sensor or its circuit malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work (while driving) • Engine does not operate 	12-50	
58-1 (58)	No.1 clutch does not disengage (when shifting gear) <ul style="list-style-type: none"> • No.1 clutch sticking • Faulty clutch oil circuit 	<ul style="list-style-type: none"> • Engine does not operate 	12-51	12-86
59-1 (59)	No.2 clutch does not disengage (when shifting gear) <ul style="list-style-type: none"> • No.2 clutch sticking • Faulty clutch oil circuit 	<ul style="list-style-type: none"> • Engine does not operate 	12-51	12-86

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC ("—" blinks)	Function Failure	Symptom/Fail-safe function	Refer to DTC	Refer to "—"
61-1 (61)	No.1 clutch oil pressure malfunction (at clutch initial diagnosis) <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-51	12-86
61-2 (61)	No.1 clutch no oil pressure <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit No.1 linear solenoid valve or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 		
61-3 (61)	No.1 clutch oil pressure degradation <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit No.1 linear solenoid valve malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 		
61-4 (61)	No.1 clutch oil pressure canceling malfunction <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit Loose or poor contact of the linear solenoid valve and No.1 clutch EOP sensor connectors No.1 linear solenoid valve malfunction Faulty PCM 	<ul style="list-style-type: none"> Engine does not operate 		
62-1 (62)	No.1 clutch oil pressure high <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit No.1 linear solenoid valve malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 	12-51	12-86
62-2 (62)	No.1 clutch oil pressure high (Prevention of motorcycle creeps) <ul style="list-style-type: none"> No.1 clutch EOP sensor malfunction Faulty clutch oil circuit No.1 linear solenoid valve malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work (while driving) Engine does not operate 		
63-1 (63)	No.2 clutch oil pressure malfunction (at clutch initial diagnosis) <ul style="list-style-type: none"> No.2 clutch EOP sensor malfunction Faulty clutch oil circuit Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 	12-52	12-87
63-2 (63)	No.2 clutch no oil pressure <ul style="list-style-type: none"> No.2 clutch EOP sensor malfunction Faulty clutch oil circuit No.2 linear solenoid valve or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 		
63-3 (63)	No.2 clutch oil pressure degradation <ul style="list-style-type: none"> No.2 clutch EOP sensor malfunction Faulty clutch oil circuit No.2 linear solenoid valve malfunction Faulty PCM 	<ul style="list-style-type: none"> Gearshift function does not work 		
63-4 (63)	No.2 clutch oil pressure canceling malfunction <ul style="list-style-type: none"> No.2 clutch EOP sensor malfunction Faulty clutch oil circuit Loose or poor contact of the linear solenoid valve and No.2 clutch EOP sensor connectors No.2 linear solenoid valve or its circuit malfunction Faulty PCM 	<ul style="list-style-type: none"> Engine does not operate 		

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC ("—" blinks)	Function Failure	Symptom/Fail-safe function	Refer to DTC	Refer to "—"
64-1 (64)	No.2 clutch oil pressure high <ul style="list-style-type: none"> • No.2 clutch EOP sensor malfunction • Faulty clutch oil circuit • No.2 linear solenoid valve malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work (while driving) • Engine does not operate 	12-52	12-87
64-2 (64)	No.2 clutch oil pressure high (Prevention of motorcycle creeps) <ul style="list-style-type: none"> • No.2 clutch EOP sensor malfunction • Faulty clutch oil circuit • No.2 linear solenoid valve malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Engine does not operate 		
65-1 (65)	Front and rear wheel speed signal malfunction <ul style="list-style-type: none"> • Front wheel speed sensor or its circuit malfunction • VS sensor or its circuit malfunction • Faulty ABS modulator • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-53	12-88
66-1 (66)	VS sensor no signal <ul style="list-style-type: none"> • VS sensor or its circuit malfunction • Loose or poor contact of the VS sensor connector • Electromagnetic interference at VS sensor • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-54	12-89
67-1 (67)	Front wheel speed sensor no signal <ul style="list-style-type: none"> • Front wheel speed sensor or its circuit malfunction • Loose or poor contact of the front wheel speed sensor connector • Electromagnetic interference at front wheel speed sensor • Faulty ABS modulator • Faulty pulser ring • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-55	12-90
68-1 (68)	No.1 clutch operation malfunction (clutch slips) <ul style="list-style-type: none"> • VS sensor or its circuit malfunction • Faulty No.1 clutch • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-56	12-91
69-1 (69)	No.2 clutch operation malfunction (clutch slips) <ul style="list-style-type: none"> • VS sensor or its circuit malfunction • Faulty No.2 clutch • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-57	12-92
71-1 (71)	Inner mainshaft / countershaft speed ratio failure <ul style="list-style-type: none"> • VS sensor or its circuit malfunction • Inner mainshaft sensor or its circuit malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 	12-57	12-92
72-1 (72)	Outer mainshaft / countershaft speed ratio failure <ul style="list-style-type: none"> • VS sensor or its circuit malfunction • Outer mainshaft sensor or its circuit malfunction • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift function does not work 		
84-1 (84)	CPU in the PCM malfunction <ul style="list-style-type: none"> • Faulty PCM 	<ul style="list-style-type: none"> • Gearshift system stops 	12-58	12-93
1-1 (1)	Shift pedal angle sensor (Optional) malfunction <ul style="list-style-type: none"> • Shift pedal angle sensor or its circuit malfunction • DCT shift pedal (Optional) mechanism malfunction • Loose or poor contact of the shift pedal angle sensor connector • Faulty PCM 	<ul style="list-style-type: none"> • DCT shift pedal (Optional) function does not work 	12-58	12-93

DTC TROUBLESHOOTING

DTC 8-1 (TP SENSOR ABNORMAL VOLTAGE)

1. TP Sensor System Inspection

Check the TP sensor with the HDS pocket tester when the throttle is fully closed.

Is Low voltage (about 0 V) or High voltage (about 5 V) indicated?

YES – • About 0 V: See DTC 8-1 (page 4-26)
• About 5 V: See DTC 8-2 (page 4-27)

NO – Intermittent failure

DTC 9-1 (CLUTCH LINE EOP SENSOR LOW VOLTAGE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Line EOP Sensor System Inspection

Connect the HDS pocket tester and start the engine. Check the clutch line EOP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Clutch Line EOP Sensor Inspection

Stop the engine.
Disconnect the clutch line EOP sensor 3P (Black) connector.
Turn the ignition switch ON.
Check the clutch line EOP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Replace the clutch line EOP sensor with a known good one, and recheck.

3. Clutch Line EOP Sensor Input Line Open Circuit Inspection

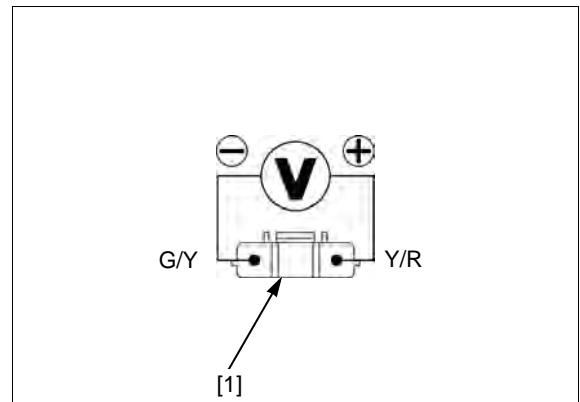
Measure the voltage between the wire harness side clutch line EOP sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – Open circuit in the Yellow/red wire



4. Clutch Line EOP Sensor Output Line Short Circuit Inspection

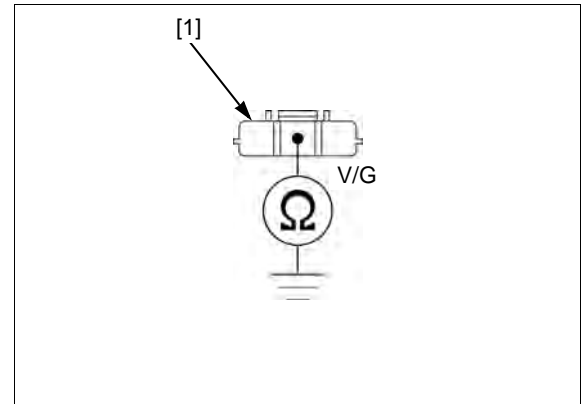
Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] terminal and ground.

Connection: Violet/green – Ground

Is there continuity?

YES – Short circuit in the Violet/green wire

NO – Replace the PCM with a known good one, and recheck.



DTC 9-2 (CLUTCH LINE EOP SENSOR HIGH VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the clutch line EOP sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Line EOP Sensor System Inspection

Check the clutch line EOP sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Clutch Line EOP Sensor Inspection

Turn the ignition switch OFF.

Disconnect the clutch line EOP sensor 3P (Black) connector.

Connect the wire harness side clutch line EOP sensor 3P (Black) connector [1] terminals with a jumper wire [2].

Connection: Violet/green – Green/yellow

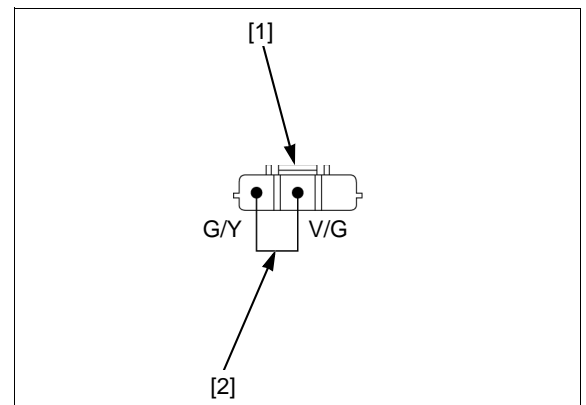
Turn the ignition switch ON.

Check the clutch line EOP sensor with the HDS pocket tester.

Is the 0 V indicated?

YES – Faulty clutch line EOP sensor

NO – GO TO STEP 3.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. Clutch Line EOP Sensor Ground Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Gray) connector.
Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Green/yellow – B22

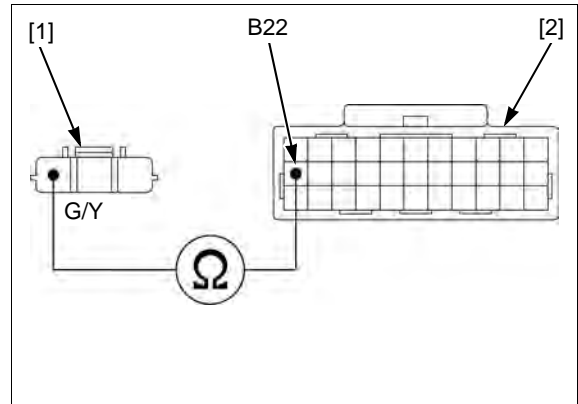
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Green/yellow wire



4. Clutch Line EOP Sensor Output Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Violet/green – A17

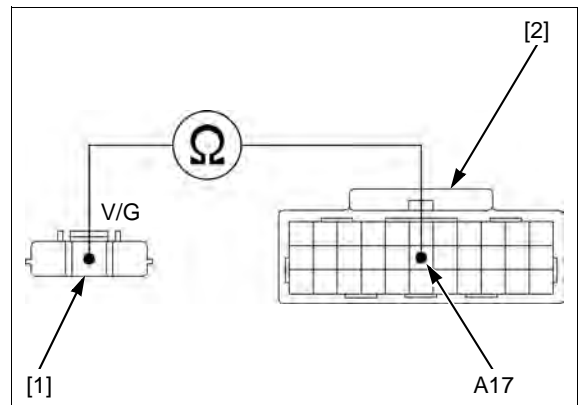
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Violet/green wire



DTC 19-1 (CKP SENSOR NO SIGNAL)

NOTE:

- Before starting the inspection, check for loose or poor contact on the CKP sensor 2P (Red) and PCM 33P (Gray) connectors, then recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. CKP sensor Peak Voltage Inspection

Disconnect the CKP sensor 2P (Red) connector.
Turn the ignition switch ON with the engine stop switch "O".
Crank the engine with the starter motor, and measure the CKP sensor peak voltage at the CKP sensor 2P (Red) connector [1] terminals of the CKP sensor side.

Connection: Yellow (+) – White/yellow (-)

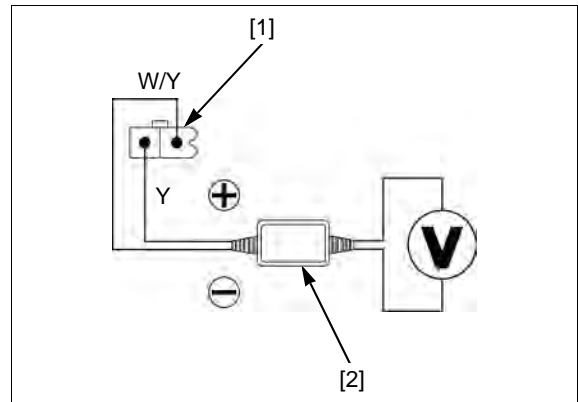
TOOL:

Imrie diagnostic tester (model 625) or Peak voltage adaptor [2] 07HGJ-0020100 with commercially available digital multimeter (impedance 10 MΩ/DCV minimum)

Is the voltage more than 0.7 V?

YES – GO TO STEP 2.

NO – Faulty CKP sensor



2. CKP sensor Circuit Inspection

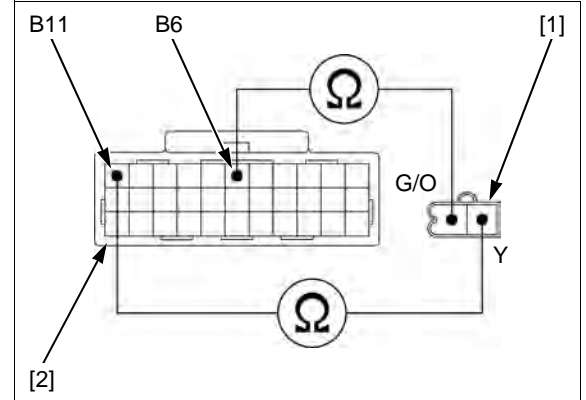
Turn the ignition switch OFF.
 Disconnect the PCM 33P (Gray) connector.
 Check for continuity between the CKP sensor 2P (Red) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Yellow – B11
Green/orange – B6

TOOL:
Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** – Short circuit in the Yellow wire
- NO** –
- Open circuit in the Yellow wire
 - Open circuit in the Green/orange wire



DTC 21-1 (SHIFT SPINDLE ANGLE SENSOR LOW VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the shift spindle angle sensor 3P (Gray) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Spindle Angle Sensor System Inspection

Check the shift spindle angle sensor with the HDS pocket tester.

Is about 0 V indicated?

- YES** – GO TO STEP 2.
- NO** – Intermittent failure

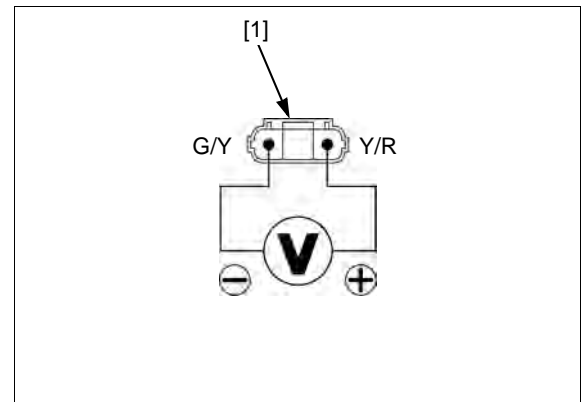
2. Shift Spindle Angle Sensor Input Line Open Circuit Inspection

Turn the ignition switch OFF.
 Disconnect the shift spindle angle sensor 3P (Gray) connector.
 Turn the ignition switch ON.
 Measure the voltage between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

- YES** – GO TO STEP 3.
- NO** – Open circuit in the Yellow/red wire



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3. Shift Spindle Angle Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] and PCM 33P (Black) connector [2] terminals.

TOOL:

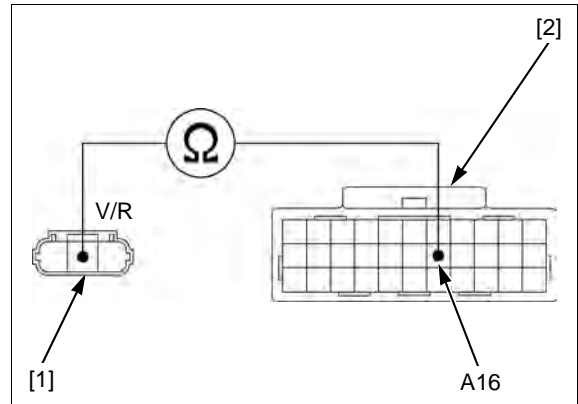
Test probe 07ZAJ-RDJA110

Connection: Violet/red – A16

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Violet/red wire



4. Shift Spindle Angle Sensor Output Line Short Circuit Inspection

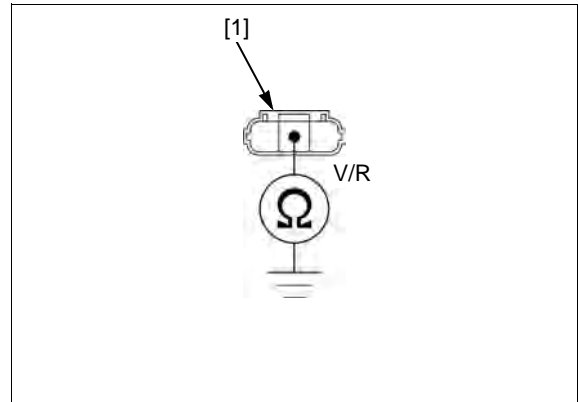
Check for continuity between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] terminal and ground.

Connection: Violet/red – ground

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – GO TO STEP 5.



5. Shift Spindle Angle Sensor Inspection

Replace the shift spindle angle sensor with a known good one (page 12-116).
Connect the shift spindle angle sensor 3P (Gray) connector and PCM 33P (Black) connector.
Turn the ignition switch ON.
Check the shift spindle angle sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original shift spindle angle sensor

DTC 21-2 (SHIFT SPINDLE ANGLE SENSOR HIGH VOLTAGE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Spindle Angle Sensor System Inspection

Check the shift spindle angle sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Spindle Angle Sensor Ground Line Open Circuit Inspection

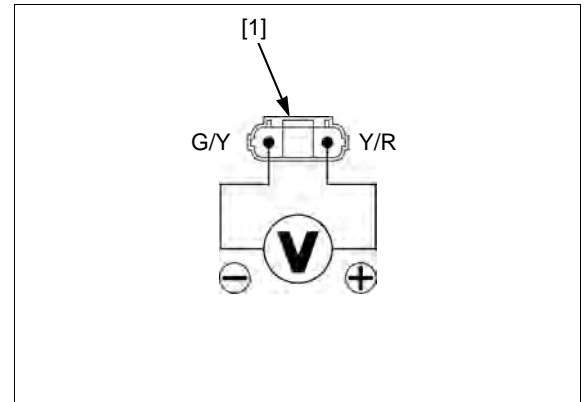
Turn the ignition switch OFF.
Disconnect the shift spindle angle sensor 3P (Gray) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – Open circuit in the Green/yellow wire



3. Shift Spindle Angle Sensor System Inspection

Replace the shift spindle angle sensor with a known good one (page 12-116).
Connect the shift spindle angle sensor 3P (Gray) connector.
Turn the ignition switch ON.
Check the shift spindle angle sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty shift spindle angle sensor

DTC 22-1 (SHIFT SPINDLE OPERATION MALFUNCTION: AFTER OPERATING GEARSHIFT MECHANISM)

1. Shift Spindle Angle Sensor System Inspection

Check the shift spindle angle sensor with the HDS pocket tester.

Is Low voltage (about 0 V) or High voltage (about 5 V) indicated?

YES – • About 0 V: See DTC 21-1 (page 12-23).
• About 5 V: See DTC 21-2 (page 12-24).

NO – GO TO STEP 2.

2. Shift Control Motor/Reduction Gear Condition

Check the shift control motor and reduction gears are installed properly and are not damaged.

Are the shift control motor and reduction gears in normal condition?

YES – GO TO STEP 3.

NO – Install the shift control motor and reduction gears properly or replace faulty parts.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

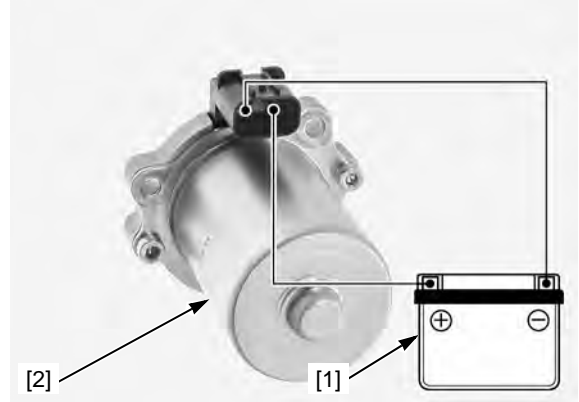
3. Shift Control Motor Condition Inspection

Remove the shift control motor (page 12-109).
Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation.
Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

YES – GO TO STEP 4.

NO – Faulty shift control motor



4. Shift Spindle Angle Sensor System Inspection

Remove the shift spindle angle sensor with the connector connected (page 12-116).
Turn the ignition switch ON.
While turning the shift spindle angle sensor shaft, check the shift spindle angle sensor voltage with the HDS pocket tester.

When turning the sensor shaft clockwise:

Voltage increase

When turning the sensor shaft counterclockwise:

Voltage decrease

Does the voltage vary properly?

YES – GO TO STEP 5.

NO – Faulty shift spindle angle sensor

5. Shift Spindle Angle Sensor Condition Inspection

Check that the shift spindle angle sensor is installed properly.

Is the shift spindle angle sensor in normal condition?

YES – GO TO STEP 6.

NO – Install the shift spindle angle sensor properly.

6. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 22-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Intermittent failure

DTC 23-1 (SHIFT SPINDLE OPERATION MALFUNCTION: WHILE OPERATING GEARSHIFT MECHANISM)

Refer to DTC 22-1 (page 12-25)

DTC 24-1 (SHIFT CONTROL MOTOR DRIVE CIRCUIT)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Control Motor Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector and shift control motor 2P (Black) connector. Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

- Connection:** Pink/blue – A1
 Pink/blue – A2
 Yellow/blue – A4
 Yellow/blue – A15

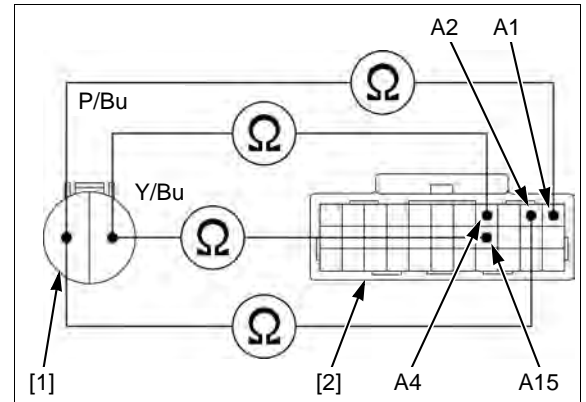
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 2.

- NO** – • Open circuit in the Pink/blue wire
 • Open circuit in the Yellow/blue wire



2. Shift Control Motor Line Short Circuit Inspection

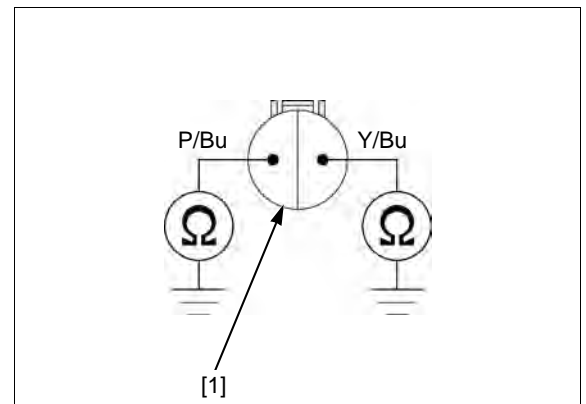
Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] terminals and ground.

- Connection:** Pink/blue – Ground
 Yellow/blue – Ground

Is there continuity?

- YES** – • Short circuit in the Pink/blue wire
 • Short circuit in the Yellow/blue wire

NO – GO TO STEP 3.



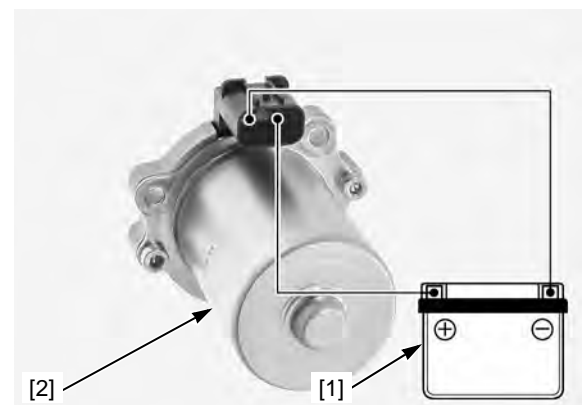
3. Shift Control Motor Inspection

Remove the shift control motor (page 12-109). Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation. Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

YES – Replace the PCM with a known good one.

NO – Faulty shift control motor



DTC 27-1 (SHIFT DRUM POSITION MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. TR Sensor System Inspection

Check the TR sensor with the HDS pocket tester.

Is Low voltage (about 0 V) or High voltage (about 5 V) indicated?

- YES** –
- About 0 V: See DTC 51-1 (page 12-40).
 - About 5 V: See DTC 51-2 (page 12-41).

NO – GO TO STEP 2.

2. Shift Control Motor/Reduction gear condition

Check the shift control motor and reduction gears are installed properly and are not damaged.

Are the shift control motor and reduction gears in normal condition?

YES – GO TO STEP 3.

NO – Install the shift control motor and reduction gears properly or replace faulty parts.

3. Shift Control Motor Condition Inspection

Remove the shift control motor (page 12-109).

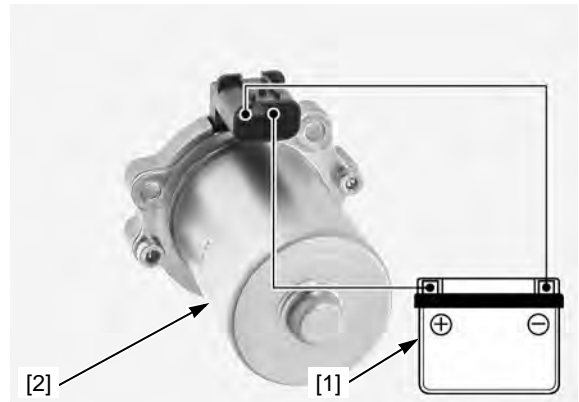
Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation.

Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

YES – GO TO STEP 4.

NO – Faulty shift control motor



4. TR Sensor System Inspection

Remove the TR sensor with the connector connected (page 12-115).

Turn the ignition switch ON.

While turning the TR sensor shaft, check the TR sensor voltage with the HDS pocket tester.

When turning the sensor shaft clockwise:

Voltage increase

When turning the sensor shaft counterclockwise:

Voltage decrease

Does the voltage vary properly?

YES – GO TO STEP 5.

NO – Faulty TR sensor

5. TR Sensor Condition Inspection

Check that the TR sensor is installed properly and is not damaged.

Is the TR sensor in normal condition?

YES – GO TO STEP 6.

NO – Install the TR sensor properly.

6. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 27-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Intermittent failure

DTC 31-1 (SHIFT CONTROL MOTOR LOW VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the shift control motor 2P (Black) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).

Check the DTC with the HDS pocket tester.

Is DTC 32-1 or 37-1 indicated?

YES – • DTC 32-1 indicated (page 12-30).
• DTC 37-1 indicated (page 12-30).

NO – GO TO STEP 2.

2. Shift Control Motor Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector and shift control motor 2P (Black) connector.

Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Pink/blue – A1
Pink/blue – A2
Yellow/blue – A4
Yellow/blue – A15

TOOL:

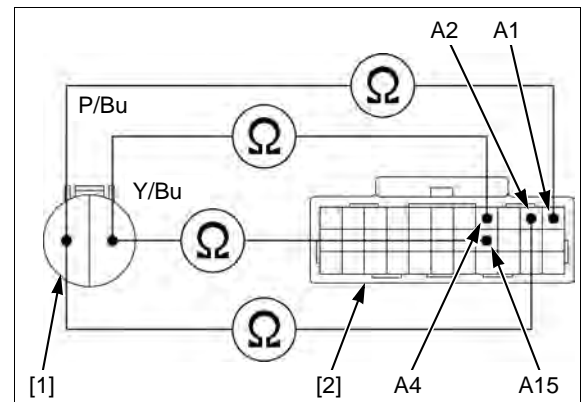
Test probe

07ZAJ-RDJA110

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – • Open circuit in the Pink/blue wire
• Open circuit in the Yellow/blue wire



DTC 32-1 (FAIL SAFE RELAY CIRCUIT MALFUNCTION)

NOTE:

- Before starting the inspection, check for loose or poor contact on the PCM 33P (Black) connector and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Control Motor Power Supply Voltage Inspection

Check the shift control motor power supply voltage with the HDS pocket tester.

Is there battery voltage?

YES – GO TO STEP 2.

- NO** –
- Open circuit in the Yellow/red wire between the PCM 33P (Black) connector and fuse/relay box
 - Open circuit in the Red wire between the fuse/relay box and starter relay switch 4P (Red) connector
 - Blown PVB fuse (30 A)

2. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 32-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Intermittent failure

DTC 37-1 (IGNITION HOLD RELAY MALFUNCTION)

NOTE:

- Before starting the inspection, check for loose or poor contact on the PCM 33P (Black) connector and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. PCM (DCT Drive Circuit) Sub Power Voltage Inspection

Check the PCM sub power voltage with the HDS pocket tester.

Is the battery voltage indicated?

YES – GO TO STEP 2.

- NO** –
- Open circuit in the Brown/red wire between the PCM 33P (Black) connector and fuse/relay box
 - Open circuit in the Red wire between the fuse/relay box and starter relay switch 4P (Red) connector
 - Blown SUB PVB fuse (7.5 A)

2. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 37-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Intermittent failure

DTC 41-1 (N-D SHIFT SWITCH MALFUNCTION)

NOTE:

- Before starting the inspection, check for loose or poor contact on the right handlebar switch and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. N-D Shift Switch Power Input Voltage Inspection

Disconnect the following:

- Right handlebar switch 6P (Black) connector (NC700XD) [1]
- Right handlebar switch 7P (Green) connector (NC700SD) [2]

Turn the ignition switch ON with the engine stop switch "O".

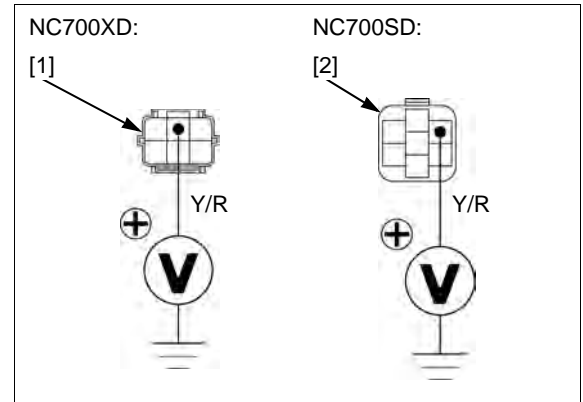
Measure the voltage between the wire harness side right handlebar switch connector terminal and ground.

Connection: Yellow/red (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – Open circuit in the Yellow/red wire



2. N-D Shift Switch Inspection

Turn the ignition switch OFF.

Check for continuity between the switch side right handlebar switch connector [1] terminals in each switch position.

Connection:

N switch:

Light green/blue – Red

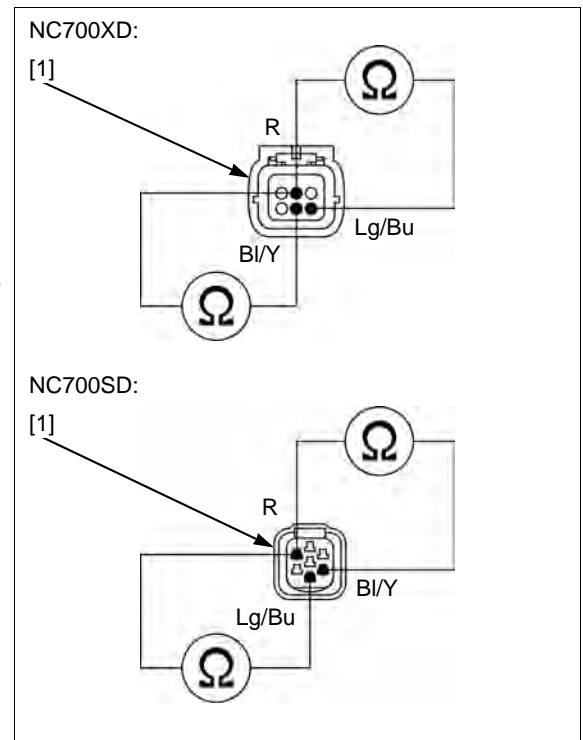
D switch:

Black/yellow – Red

Is there continuity with the switch pushed and no continuity with the switch released?

YES – GO TO STEP 3.

NO – Faulty N-D shift switch



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. N-D Shift Switch Input Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side right handlebar switch connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Light green/black – A18
Black/yellow – A29

TOOL:

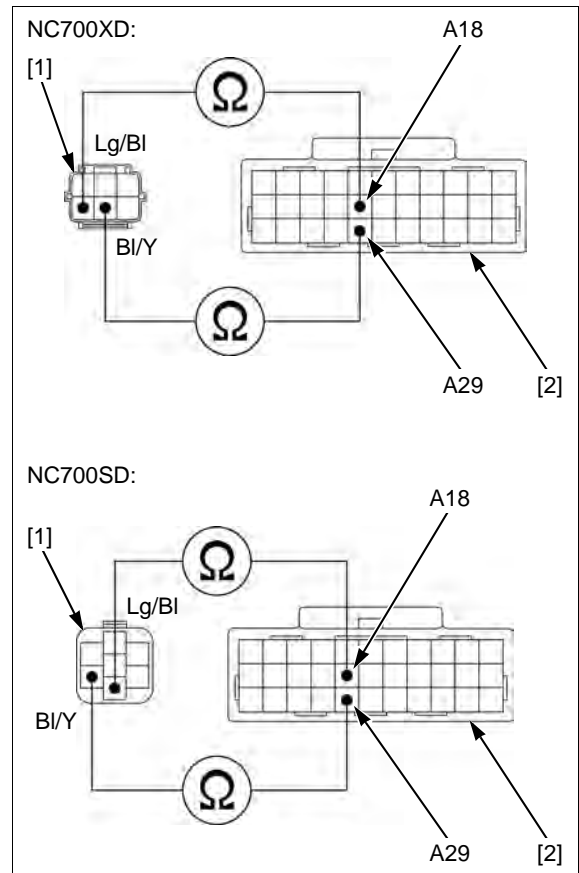
Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO –

- Open circuit in the Light green/black wire
- Open circuit in the Black/yellow wire



4. N-D Shift Switch Input Line Short Circuit Inspection

Check for continuity between the wire harness side PCM 33P (Black) connector [1] terminals and ground.

Connection: A18 – Ground
A29 – Ground

TOOL:

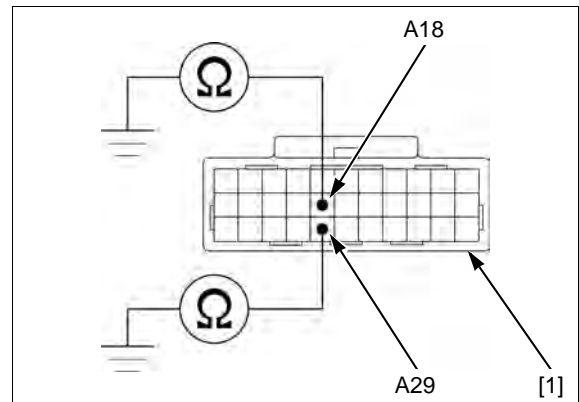
Test probe 07ZAJ-RDJA110

Is there continuity?

YES –

- Short circuit in the Light green/black wire
- Short circuit in the Black/yellow wire

NO – Replace the PCM with a known good one, and recheck.



DTC 42-1 (SHIFT SWITCH MALFUNCTION)

NOTE:

- Before starting the inspection, check for loose or poor contact on the left handlebar switch and PCM 33P connectors, then recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Switch Power Input Voltage Inspection

Disconnect the following:

- Left handlebar switch 3P (Black) connector (NC700XD) [1]
- Left handlebar switch 7P (Green) connector (NC700SD) [2]

Turn the ignition switch ON with the engine stop switch "O".

Measure the voltage between the wire harness side left handlebar switch connector terminal and ground.

Connection: Yellow/red (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – Open circuit in the Yellow/red wire

2. Shift Switch Inspection

Turn the ignition switch OFF.

Check for continuity between the switch side left handlebar switch connector [1] terminals in each switch position.

Connection:

"+" switch:

Green/blue – Yellow/red

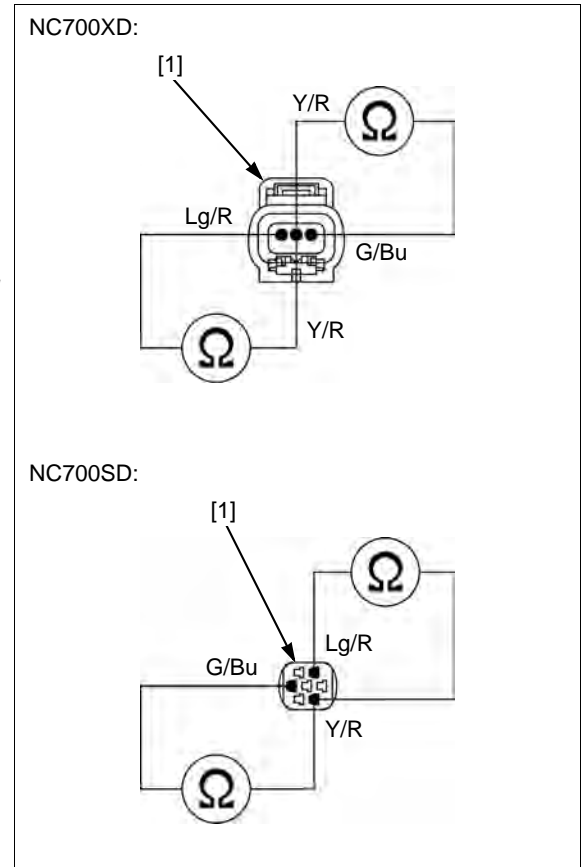
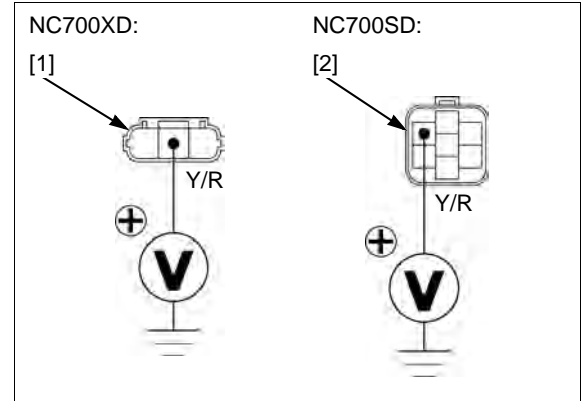
"-" switch:

Light green/red – Yellow/red

Is there continuity with the switch pushed and no continuity with the switch released?

YES – GO TO STEP 3.

NO – Faulty shift switch



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. Shift Switch Input Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side left handlebar switch connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Blue/yellow – A7
Light green/red – A30

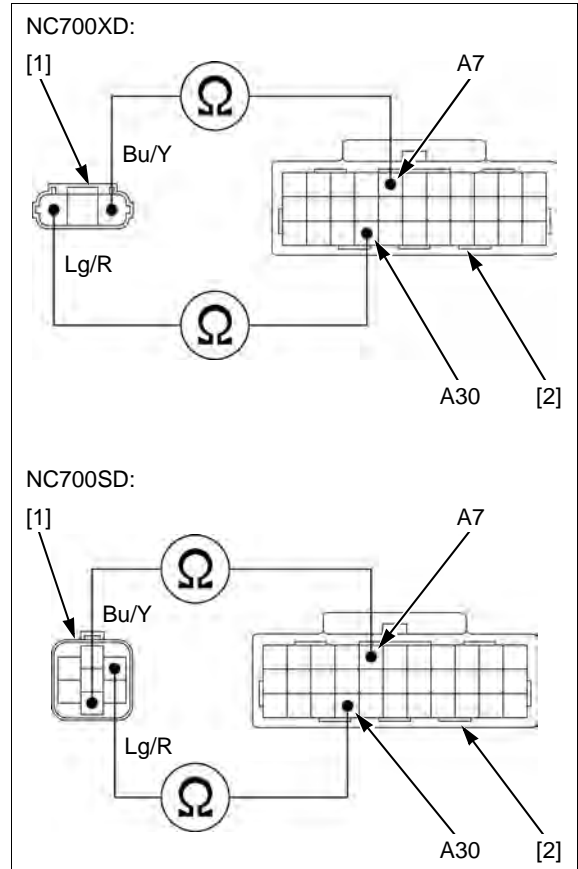
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – • Open circuit in the Blue/yellow wire
• Open circuit in the Light green/red wire



4. Shift Switch Input Line Short Circuit Inspection

Check for continuity between the wire harness side PCM 33P (Black) connector [1] terminals and ground.

Connection: A7 – Ground
A30 – Ground

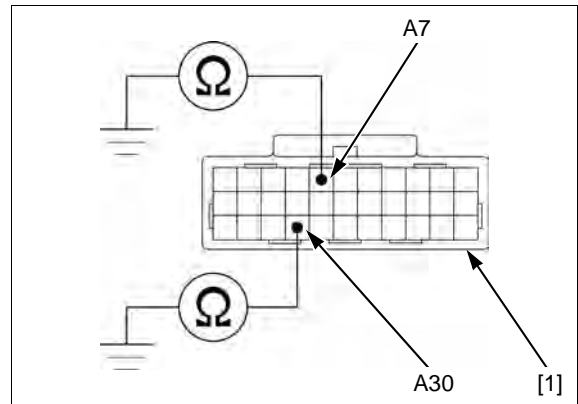
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – • Short circuit in the Blue/yellow wire
• Short circuit in the Light green/red wire

NO – Replace the PCM with a known good one, and recheck.



DTC 44-1 (EOT SENSOR LOW VOLTAGE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. EOT Sensor System Inspection

Check the EOT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. EOT Sensor Inspection

Turn the ignition switch OFF.
 Disconnect the EOT sensor 2P (Black) connector.
 Turn the ignition switch ON.
 Check the EOT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 4.

NO – GO TO STEP 3.

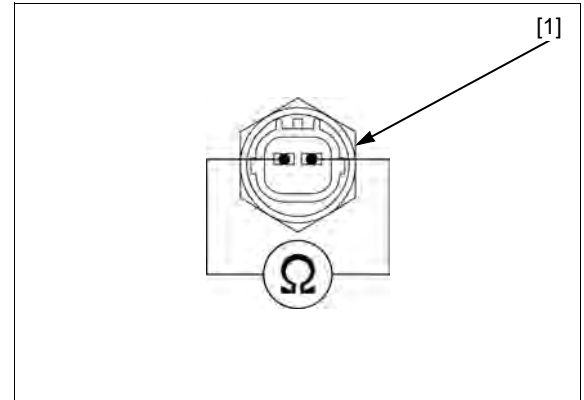
3. EOT Sensor Resistance Inspection

Turn the ignition switch OFF.
 Measure the resistance at the EOT sensor [1] terminals.

Is the resistance within 2.5 – 2.8 k Ω (20°C/68°F)?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty EOT sensor



4. EOT Sensor Input Line Short Circuit Inspection

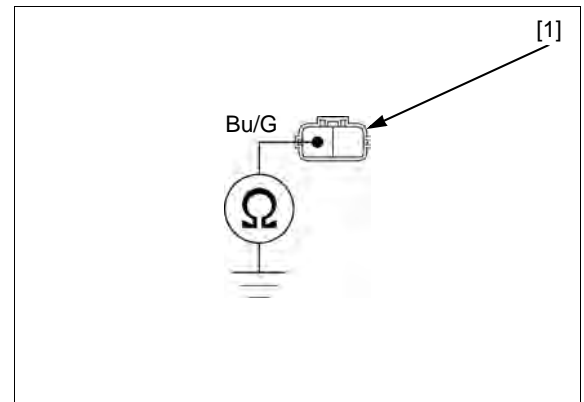
Check the continuity between the wire harness side 2P (Black) connector [1] terminal and ground.

Connection: Blue/green – Ground

Is there continuity?

YES – Short circuit in the Blue/green wire

NO – Replace the PCM with a known good one, and recheck.



DTC 44-2 (EOT SENSOR HIGH VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the EOT sensor 2P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. EOT Sensor System Inspection

Check the EOT sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. EOT Sensor Inspection

Turn the ignition switch OFF.
Disconnect the EOT sensor 2P (Black) connector.
Short the wire harness side EOT sensor 2P (Black) connector [1] terminals with a jumper wire [2].

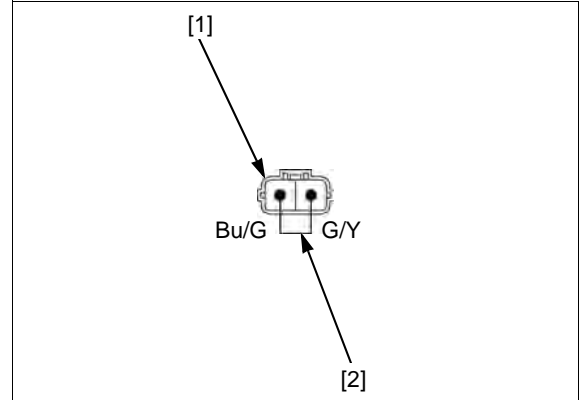
Connection: Blue/green – Green/yellow

Turn the ignition switch ON.
Check the EOT sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Faulty EOT sensor.

NO – GO TO STEP 3.



3. EOT Sensor Input Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side EOT sensor 2P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Blue/green – A19

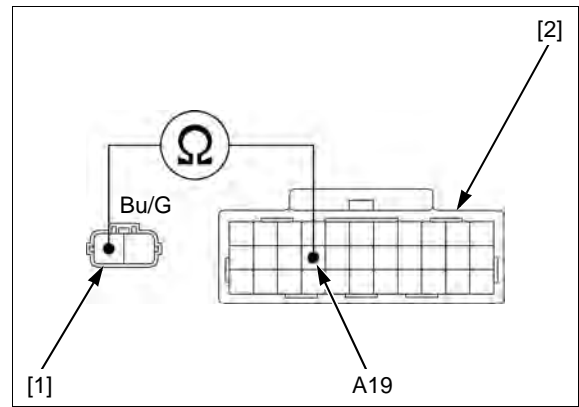
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Blue/green wire



4. EOT Sensor Ground Line Open Circuit Inspection

Disconnect the PCM 33P (Gray) connector.
Check for continuity between the wire harness side EOT sensor 2P (Black) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Green/yellow – B22

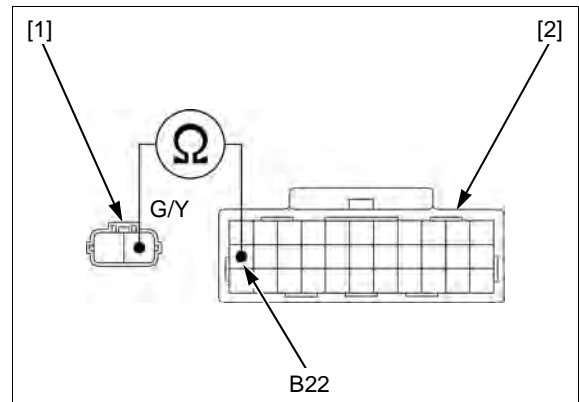
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Green/yellow wires



DTC 47-1 or 48-1 (No.1 or No.2 CLUTCH EOP SENSOR LOW VOLTAGE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch EOP Sensor System Inspection

Connect the HDS pocket tester and start the engine. Check the clutch EOP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Clutch EOP Sensor Inspection

Stop the engine.

Disconnect the clutch EOP sensor 3P (Gray) connector.

Turn the ignition switch ON.

Check the clutch EOP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Faulty clutch EOP sensor

3. Clutch EOP Sensor Input Line Open Circuit Inspection

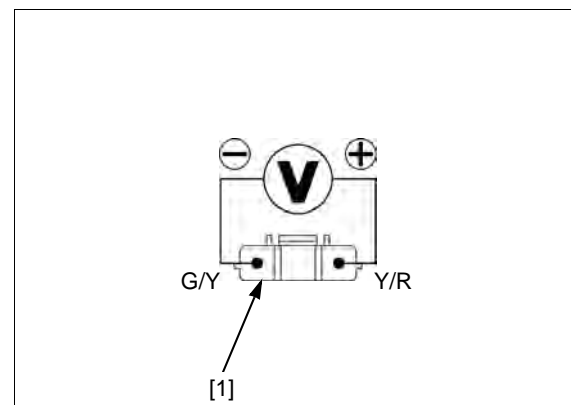
Measure the voltage between the wire harness side clutch EOP sensor 3P (Gray) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – Open circuit in the Yellow/red wire



4. Clutch EOP Sensor Output Line Short Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] terminal and ground.

Connection:

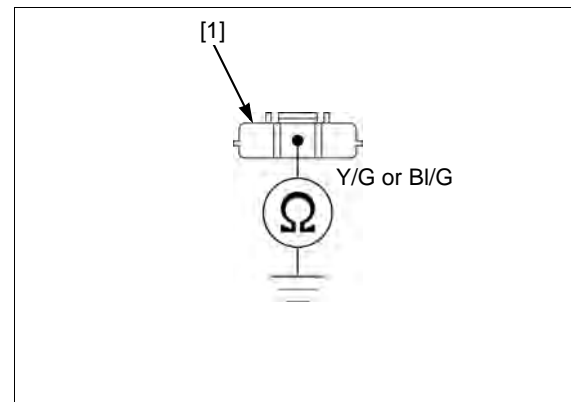
No.1 clutch EOP sensor:
Yellow/green – Ground

No.2 clutch EOP sensor:
Black/green – Ground

Is there continuity?

- YES** –
- Short circuit in the Yellow/green wire
 - Short circuit in the Black/green wire

NO – Replace the PCM with a known good one, and recheck.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC 47-2 or 48-2 (No.1 or No.2 CLUTCH EOP SENSOR HIGH VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the clutch EOP sensor 3P (Gray) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch EOP Sensor System Inspection

Check the clutch EOP sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Clutch EOP Sensor Inspection

Turn the ignition switch OFF.
Disconnect the clutch EOP sensor 3P (Gray) connector.

Short the wire harness side clutch EOP sensor 3P (Gray) connector [1] terminals with a jumper wire [2].

Connection:

No.1 clutch EOP sensor:
Yellow/green – Green/yellow

No.2 clutch EOP sensor:
Black/green – Green/yellow

Turn the ignition switch ON.
Check the clutch EOP sensor with the HDS pocket tester.

Is about 0 V indicated?

YES – Faulty clutch EOP sensor

NO – GO TO STEP 3.

3. Clutch EOP Sensor Ground Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Gray) connector.
Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Green/yellow – B22

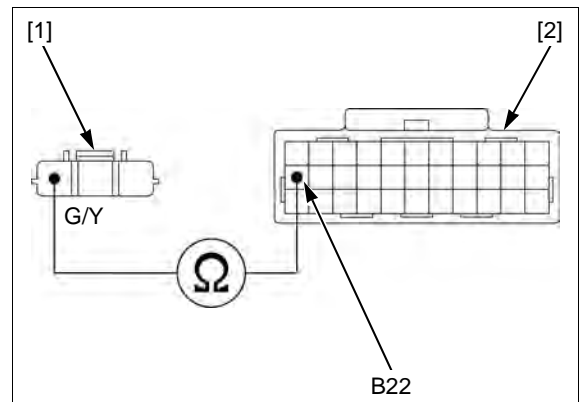
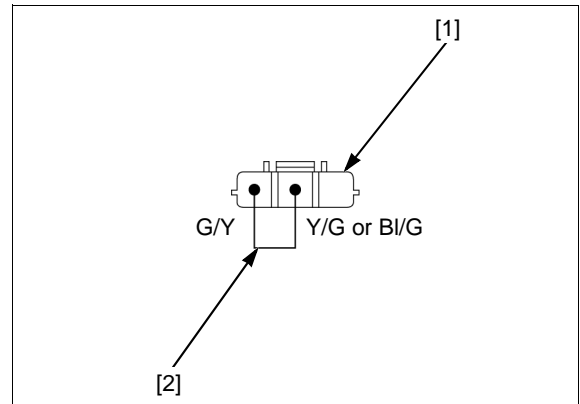
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Green/yellow wire



4. Clutch EOP Sensor Output Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector. Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection:

No.1 clutch EOP sensor:

Yellow/green – A6

No.2 clutch EOP sensor:

Black/green – A5

TOOL:

Test probe

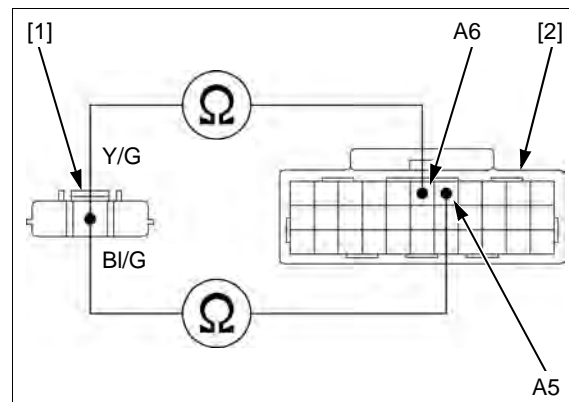
07ZAJ-RDJA110

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO –

- Open circuit in the Yellow/green wire
- Open circuit in the Black/green wire



DTC 49-1, 49-2 (CLUTCH LINE LOW OIL PRESSURE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Line EOP Sensor System Inspection

Check the clutch line EOP sensor with the HDS pocket tester.

Is Low voltage (about 0 V) or High voltage (about 5 V) indicated?

YES –

- About 0 V (while engine running): See DTC 9-1 (page 12-20).
- About 5 V: See DTC 9-2 (page 12-21).

NO – GO TO STEP 2.

2. Engine Oil Level Inspection

Check the engine oil level (page 3-12).

Is the engine oil level correct?

YES – GO TO STEP 3.

NO – Add the recommended oil to the upper level.

3. Clutch Line Oil Filter Condition Inspection

Check the clutch oil filter (page 3-14).

Is the oil filter in good condition?

YES – GO TO STEP 4.

NO – Replace the clutch oil filter.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

4. Clutch Line EOP Sensor Inspection

Replace the clutch line EOP sensor with a known good one (page 12-117).
Erase the DTCs (page 12-13).
Test-ride the motorcycle above 2,000 min⁻¹ (rpm) and stop the engine.
Check the clutch line EOP sensor with the HDS pocket tester.

Is DTC 49-1 or 49-2 indicated?

YES – GO TO STEP 5.

NO – Faulty original clutch line EOP sensor

5. PCM Inspection

Replace the PCM with a known good one (page 4-67).
Test-ride the motorcycle above 2,000 min⁻¹ (rpm) and stop the engine.
Check the clutch line EOP sensor with the HDS pocket tester.

Is DTC 49-1 or 49-2 indicated?

YES –

- Oil pressure relief valve stuck open
- Damaged oil pump
- Internal oil leak in the clutch oil line

NO – Faulty original PCM

DTC 51-1 (TR SENSOR LOW VOLTAGE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the TR sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. TR Sensor System Inspection

Check the TR sensor with the HDS pocket tester.

Is the voltage about 0 V?

YES – GO TO STEP 2.

NO – Intermittent failure

2. TR Sensor Input Line Open Circuit Inspection

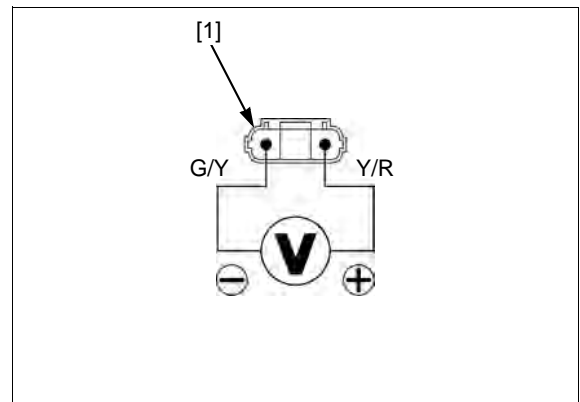
Turn the ignition switch OFF.
Disconnect the TR sensor 3P (Black) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side TR sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – Open circuit in the Yellow/red wire



3. TR Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side TR sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Black/pink – A28

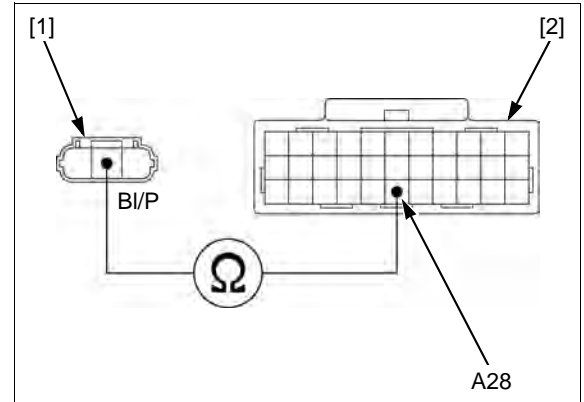
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Black/pink wire



4. TR Sensor Output Line Short Circuit Inspection

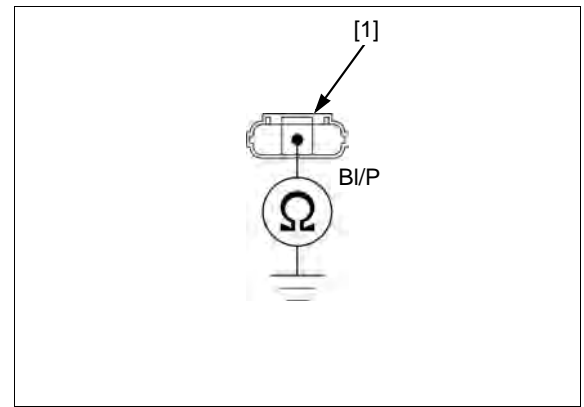
Check for continuity between the wire harness side TR sensor 3P (Black) connector [1] terminal and ground.

Connection: Black/pink – Ground

Is there continuity?

YES – Short circuit in the Black/pink wire

NO – GO TO STEP 5.



5. TR Sensor Inspection

Replace the TR sensor with a known good one (page 12-115).
Connect the TR sensor 3P (Black) connector and PCM 33P (Black) connector.
Turn the ignition switch ON.
Check the TR sensor with the HDS pocket tester.

Is the voltage about 0 V?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original TR sensor

DTC 51-2 (TR SENSOR HIGH VOLTAGE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. TR Sensor System Inspection

Check the TR sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. TR Sensor Ground Line Open Circuit Inspection

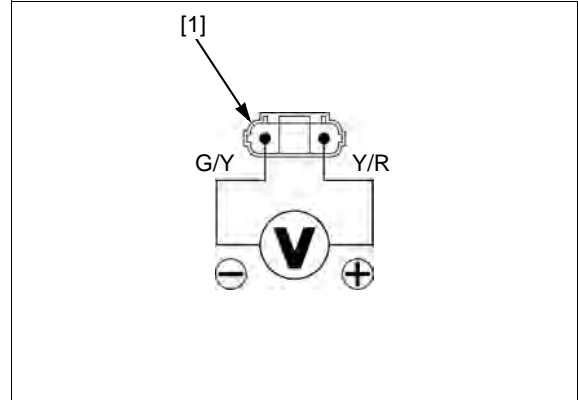
Turn the ignition switch OFF.
Disconnect the TR sensor 3P (Black) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side TR sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3.

NO – Open circuit in the Green/yellow wire



3. TR Sensor Inspection

Replace the TR sensor with a known good one (page 12-115).
Connect the TR sensor 3P (Black) connector.
Turn the ignition switch ON.
Check the TR sensor with the HDS pocket tester.

Is about 5 V indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original TR sensor

DTC 52-1 (NEUTRAL SWITCH STUCK OFF)

NOTE:

- Before starting the inspection, check for loose or poor contact on the neutral switch and PCM 33P (Gray) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 52-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Neutral Switch Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Gray) connector and neutral switch connector.
Check for continuity between the wire harness side PCM 33P (Gray) connector [1] and neutral switch connector [2] terminals.

Connection: B30 – Light green

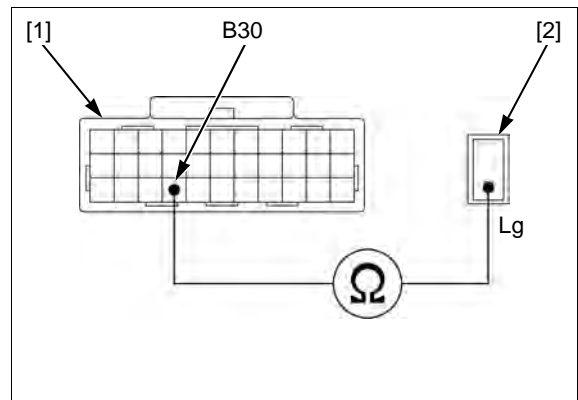
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Light green wire



3. Neutral Switch Inspection

Replace the neutral switch with a known good one (page 22-28).
Connect the PCM 33P (Gray) connector and neutral switch connector.
Turn the ignition switch ON.
Recheck the DTC with the HDS pocket tester.

Is DTC 52-1 indicated?

- YES** – Replace the PCM with a known good one, and recheck.
NO – Faulty original neutral switch

DTC 52-2 (NEUTRAL SWITCH STUCK ON)**NOTE:**

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Neutral Switch Line Short Circuit Inspection

Disconnect the neutral switch connector.
Check for continuity between the neutral switch connector terminal and ground.

Connection: Light green – Ground

Is there continuity?

- YES** – Short circuit in the Light green wire.
NO – GO TO STEP 2.

2. Neutral Switch Inspection

Replace the neutral switch with a known good one (page 22-28).
Connect the neutral switch connector.
Check the DTC with the HDS pocket tester.

Is DTC 52-2 indicated?

- YES** – Replace the PCM with a known good one, and recheck.
NO – Faulty original neutral switch

DTC 53-1 (INNER MAINSHAFT SENSOR SPEED LOW)**NOTE:**

- Before starting the inspection, check for loose or poor contact on the inner mainshaft sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle and stop the engine.
Check the DTC with the HDS pocket tester.

Is DTC 53-1 indicated?

- YES** – GO TO STEP 2.
NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. Inner Mainshaft Sensor Input Voltage Inspection

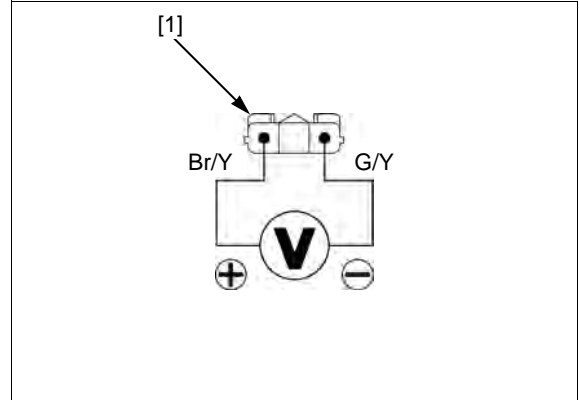
Turn the ignition switch OFF.
Disconnect the inner mainshaft sensor 3P (Black) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side inner mainshaft sensor 3P (Black) connector [1] terminals.

Connection: Brown/yellow (+) – Green/yellow (–)

Is there about battery voltage?

YES – GO TO STEP 3.

NO – GO TO STEP 4.



3. Inner Mainshaft Sensor Output Line Inspection

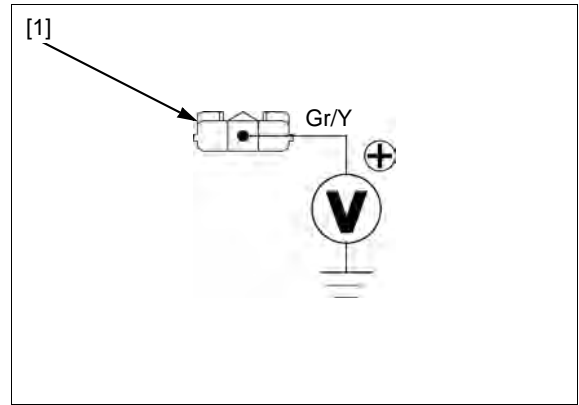
Measure the voltage between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Gray/yellow (+) – Ground (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 8.

NO – GO TO STEP 6.



4. Inner Mainshaft Sensor Input Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Brown/yellow – A14

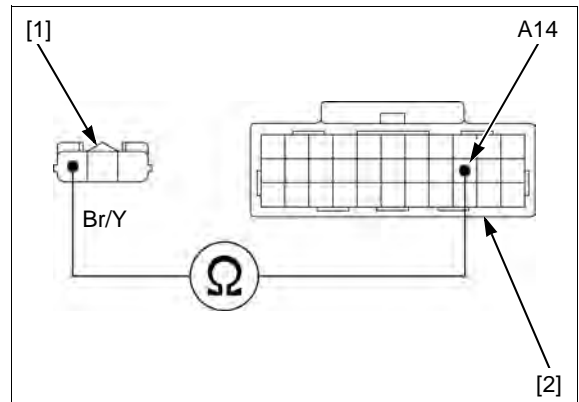
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Brown/yellow wire



5. Inner Mainshaft Sensor Ground Line Open Circuit Inspection

Disconnect the PCM 33P (Gray) connector.
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Green/yellow – B22

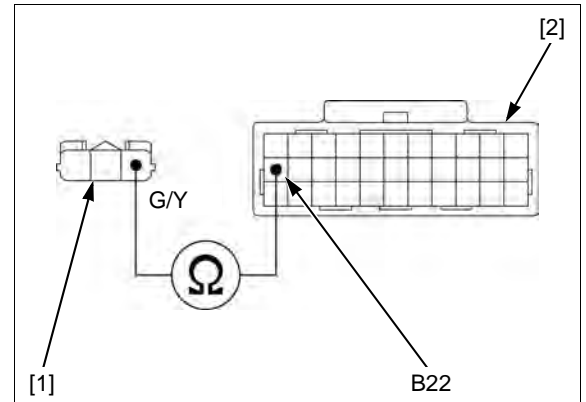
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Green/yellow wire



6. Inner Mainshaft Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Gray/yellow – A20

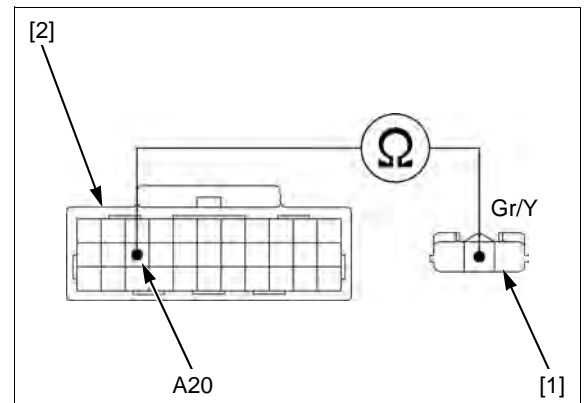
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 7.

NO – Open circuit in the Gray/yellow wire



7. Inner Mainshaft Sensor Output Line Short Circuit Inspection

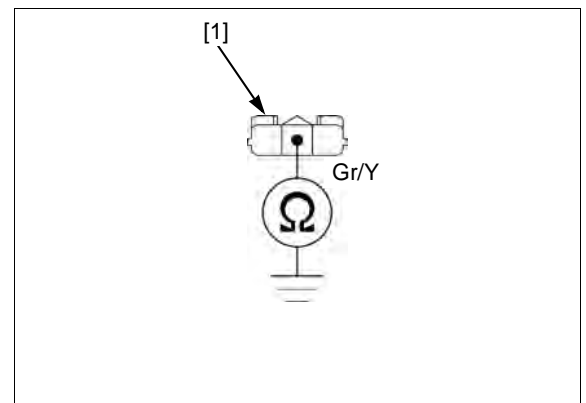
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] terminal and ground

Connection: Gray/yellow – Ground

Is there continuity?

YES – Short circuit in the Gray/yellow wire

NO – GO TO STEP 8.



8. Inner Mainshaft Sensor Inspection

Turn the ignition switch OFF.
Replace the inner mainshaft sensor with a known good one (page 12-115).
Erase the DTCs (page 12-13).
Test-ride the motorcycle and stop the engine.
Check the DTC with the HDS pocket tester.

Is DTC 53-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original inner mainshaft sensor

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC 54-1 (OUTER MAINSHAFT SENSOR SPEED LOW)

NOTE:

- Before starting the inspection, check for loose or poor contact on the outer mainshaft sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle and stop the engine.
Check the DTC with the HDS pocket tester.

Is DTC 54-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Outer Mainshaft Sensor Input Voltage Inspection

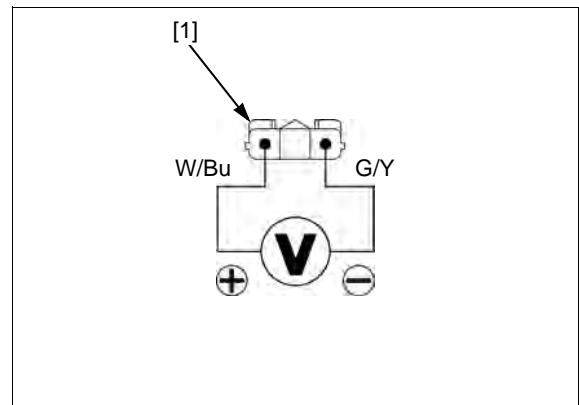
Turn the ignition switch OFF.
Disconnect the outer mainshaft sensor 3P (Black) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side outer mainshaft sensor 3P (Black) connector [1] terminals.

Connection: White/blue (+) – Green/yellow (-)

Is there about battery voltage?

YES – GO TO STEP 3.

NO – GO TO STEP 4.



3. Outer Mainshaft Sensor Output Line Inspection

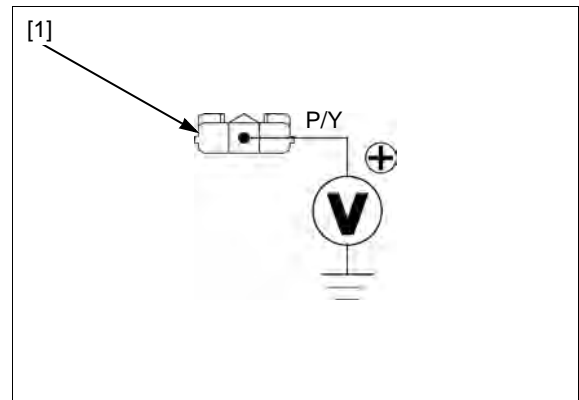
Measure the voltage between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Pink/yellow (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 8.

NO – GO TO STEP 6.



4. Outer Mainshaft Sensor Input Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: White/blue – A25

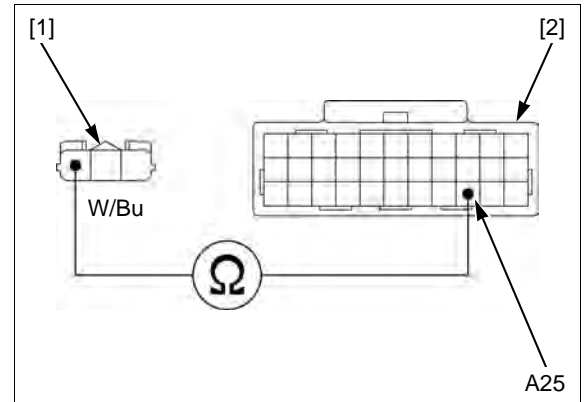
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the White/blue wire



5. Outer Mainshaft Sensor Ground Line Open Circuit Inspection

Disconnect the PCM 33P (Gray) connector.
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and PCM 33P (Gray) connector [2] terminals.

Connection: Green/yellow – B22

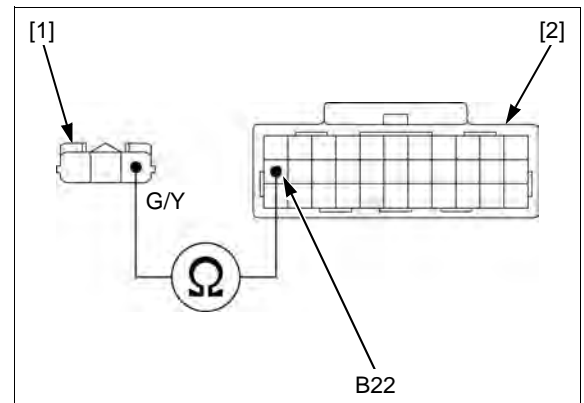
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Green/yellow wire



6. Outer Mainshaft Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Pink/yellow – A21

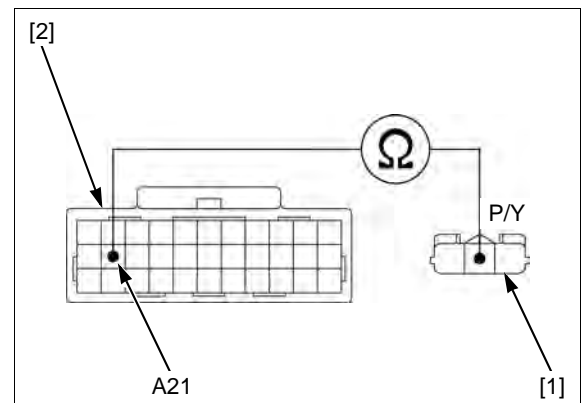
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 7.

NO – Open circuit in the Pink/yellow wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

7. Outer Mainshaft Sensor Output Line Short Circuit Inspection

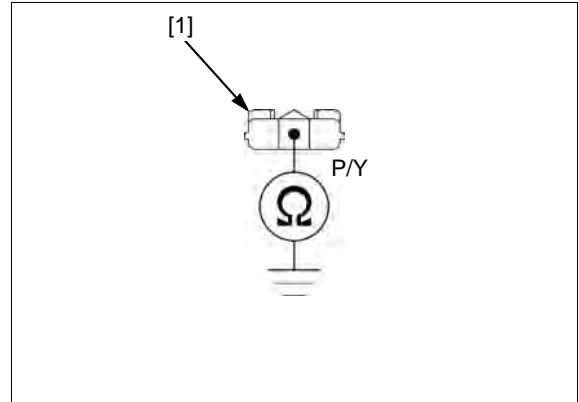
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] terminal and ground

Connection: Pink/yellow – Ground

Is there continuity?

YES – Short circuit in the Pink/yellow wire

NO – GO TO STEP 8.



8. Outer Mainshaft Sensor Condition Inspection

Turn the ignition switch OFF.

Replace the outer mainshaft sensor with a known good one (page 12-115).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Check the DTC with the HDS pocket tester.

Is DTC 54-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original outer mainshaft sensor

DTC 55-1, 55-2 (No.1 LINEAR SOLENOID VALVE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the linear solenoid valve 4P (Green) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 55-1 or 55-2 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. No.1 Linear Solenoid Valve Inspection

Turn the ignition switch OFF.

Disconnect the linear solenoid valve 4P (Green) connector.

Measure the resistance between the linear solenoid valve side 4P (Green) connector [1] terminals.

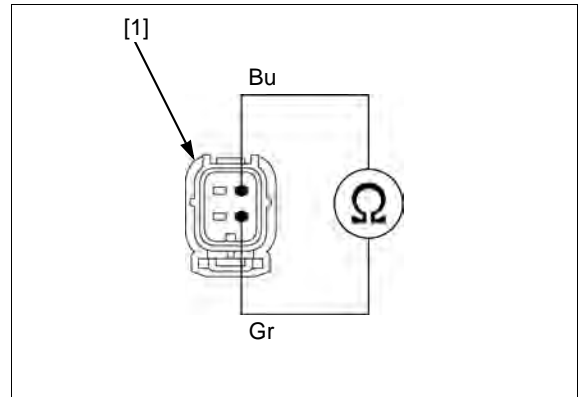
Connection: Blue – Gray

Standard: 5.0 – 5.6 Ω (20°C/68°F)

Is the resistance within standard range?

YES – GO TO STEP 3.

NO – Faulty linear solenoid valve



3. No.1 Linear Solenoid Valve Input/ground Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Gray/white – A9
Blue/white – A10

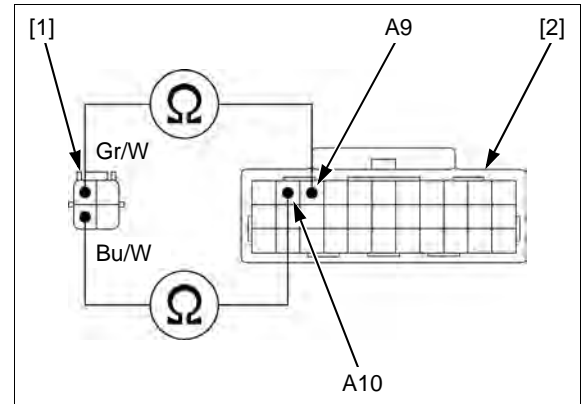
TOOL:

Test probe **07ZAJ-RDJA110**

Is the continuity normal?

YES – GO TO STEP 4.

NO – • Open circuit in the Gray/white wire
• Open circuit in the Blue/white wire



4. No.1 Linear Solenoid Valve Input/ground Line Short Circuit Inspection

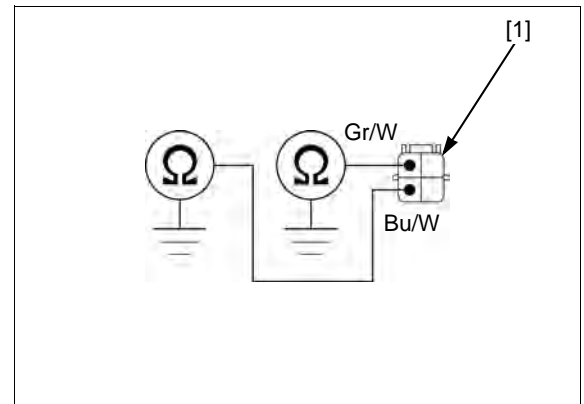
Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] terminals and ground.

Connection: Gray/white – Ground
Blue/white – Ground

Is there continuity?

YES – • Short circuit in the Gray/white wire
• Short circuit in the Blue/white wire

NO – Replace the PCM with a known good one, and recheck.



DTC 56-1, 56-2 (No.2 LINEAR SOLENOID VALVE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the linear solenoid valve 4P (Green) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 56-1 or 56-2 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. No.2 Linear Solenoid Valve Inspection

Turn the ignition switch OFF.
Disconnect the linear solenoid valve 4P (Green) connector.
Measure the resistance between the linear solenoid valve side 4P (Green) connector [1] terminals.

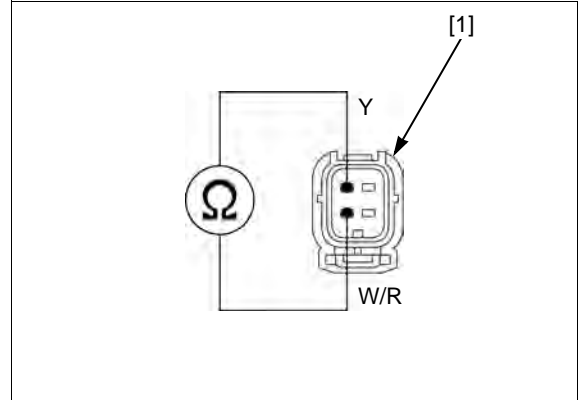
Connection: Yellow – White/red

Standard: 5.0 – 5.6 Ω (20°C/68°F)

Is the resistance within standard range?

YES – GO TO STEP 3.

NO – Faulty linear solenoid valve



3. No.2 Linear Solenoid Valve Input/ground Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Pink/white – A11
Brown/white – A22

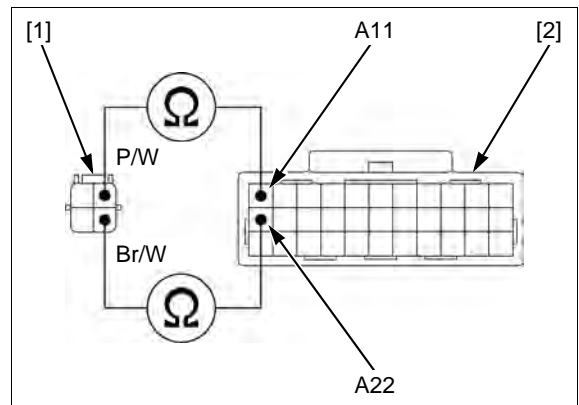
TOOL:

Test probe 07ZAJ-RDJA110

Is the continuity normal?

YES – GO TO STEP 4.

NO – • Open circuit in the Pink/white wire
• Open circuit in the Brown/white wire



4. No.2 Linear Solenoid Valve Input/ground Line Short Circuit Inspection

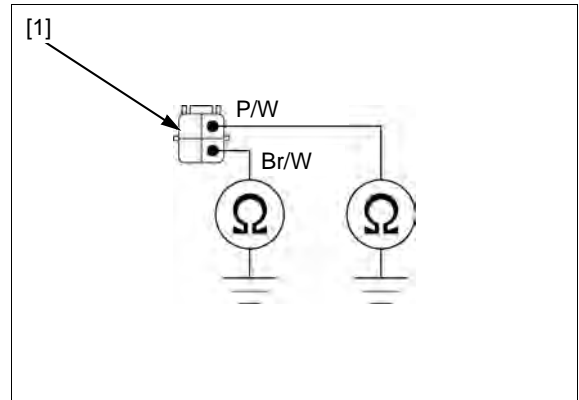
Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] terminals and ground.

Connection: Pink/white – Ground
Brown/white – Ground

Is there continuity?

YES – • Short circuit in the Pink/white wire
• Short circuit in the Brown/white wire

NO – Replace the PCM with a known good one, and recheck.



DTC 57-1 (GEARSHIFT MECHANISM MALFUNCTION)

See page 12-28

DTC 57-2 (GEAR POSITION MALFUNCTION; JUMPS OUT OF GEAR)

See page 12-28

**DTC 58-1 (No.1 CLUTCH DOES NOT
DISENGAGE; WHEN SHIFTING GEAR)**

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Condition Inspection

Remove the dual clutch assembly and inspect the clutch for sticking (page 12-105).

Is the No.1 clutch stuck?

YES – Faulty clutch

NO – GO TO STEP 2.

2. Clutch Oil Line Inspection

Check the clutch oil passages in the right crankcase cover and mainshaft for clogging.

Is the oil passage clogged?

YES – Clean the oil passage.

NO – Replace the PCM with a known good one, and recheck.

**DTC 59-1 (No.2 CLUTCH DOES NOT
DISENGAGE; WHEN SHIFTING GEAR)**

See page 12-51

**DTC 61-1, 61-2, 61-3, 61-4, 62-1, 62-2
(No.1 CLUTCH OIL PRESSURE
MALFUNCTION)**

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 47-1, 47-2, 55-1 or 55-2 indicated?

YES – • DTC 47-1 is indicated (page 12-37).
• DTC 47-2 is indicated (page 12-38).
• DTC 55-1 is indicated (page 12-48).
• DTC 55-2 is indicated (page 12-48).

NO – GO TO STEP 2.

2. No.1 Clutch EOP Sensor Inspection

Replace the No.1 clutch EOP sensor with a known good one (page 12-117).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Check the No.1 clutch EOP sensor with the HDS pocket tester.

Is DTC 61-1, 61-2, 61-3, 61-4, 62-1 or 62-2 indicated?

YES – GO TO STEP 3.

NO – Faulty original No.1 clutch EOP sensor

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. PCM Inspection

Replace the PCM with a known good one (page 4-67).

Test-ride the motorcycle and stop the engine.

Check the No.1 clutch EOP sensor with the HDS pocket tester.

Is DTC 61-1, 61-2, 61-3, 61-4, 62-1 or 62-2 indicated?

YES – • Faulty No.1 linear solenoid valve
• Clogged No.1 clutch oil line
• Internal oil leak in the No.1 clutch oil line

NO – Faulty original PCM

DTC 63-1, 63-2, 63-3, 63-4, 64-1, 64-2 (No.2 CLUTCH OIL PRESSURE MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Recheck the DTC with the HDS pocket tester.

Is DTC 48-1, 48-2, 56-1 or 56-2 indicated?

YES – • DTC 48-1 is indicated (page 12-37).
• DTC 48-2 is indicated (page 12-38).
• DTC 56-1 is indicated (page 12-49).
• DTC 56-2 is indicated (page 12-49).

NO – GO TO STEP 2.

2. No.2 Clutch EOP Sensor Inspection

Replace the No.2 clutch EOP sensor with a known good one (page 12-117).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Check the No.2 clutch EOP sensor with the HDS pocket tester.

Is DTC 63-1, 63-2, 63-3, 63-4, 64-1 or 64-2 indicated?

YES – GO TO STEP 3.

NO – Faulty original No.2 clutch EOP sensor

3. PCM Inspection

Replace the PCM with a known good one (page 4-67).

Test-ride the motorcycle and stop the engine.

Check the No.2 clutch EOP sensor with the HDS pocket tester.

Is DTC 63-1, 63-2, 63-3, 63-4, 64-1 or 64-2 indicated?

YES – • Faulty No.2 linear solenoid valve
• Clogged No.2 clutch oil line
• Internal oil leak in the No.2 clutch oil line

NO – Faulty original PCM

DTC 65-1 (FRONT AND REAR WHEEL SPEED SIGNAL MALFUNCTION)**NOTE:**

- Before starting the inspection, check that the tire sizes are correct, and the drive and driven sprockets are the specified ones.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).

Test-ride the motorcycle above 18 km/h (11 mph) for more than 30 seconds.

Stop the engine.

Check the DTC with the HDS pocket tester.

Is DTC 66-1 or 67-1 indicated?

- YES** – • DTC 66-1 is indicated (page 12-54).
• DTC 67-1 is indicated (page 12-55).

NO – GO TO STEP 2.

2. Front Wheel Speed Sensor Air Gap Inspection

Measure the front wheel speed sensor air gap (page 20-24).

Is the air gap correct?

YES – GO TO STEP 3.

NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

3. Front Wheel Speed Sensor Condition Inspection

Inspect the area around the front wheel speed sensor.

Check that there is no iron or other magnetic deposits between the pulser ring and wheel speed sensor, and check the pulser ring slots for obstructions.

Check installation condition of the pulser ring or wheel speed sensor for looseness.

Check the pulser ring and sensor tip for deformation or damage.

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 4.

NO – Remove any deposits. Install properly or replace faulty part.

4. VS Sensor Condition Inspection

Remove the VS sensor (page 22-18).

Check the VS sensor for damage or contaminated.

Is the VS sensor in good condition?

YES – Replace the PCM with a known good one, and recheck.

NO – Replace the VS sensor with a known good one, and recheck.

DTC 66-1 (VS SENSOR NO SIGNAL)

NOTE:

- Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph) for more than 30 seconds.
Stop the engine.
Check the DTC with the HDS pocket tester.

Is DTC 66-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. VS Sensor Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the VS sensor 3P (Black) connector.
Turn the ignition switch ON.
Measure the voltage between the wire harness side VS sensor 3P (Black) connector [1] terminals.

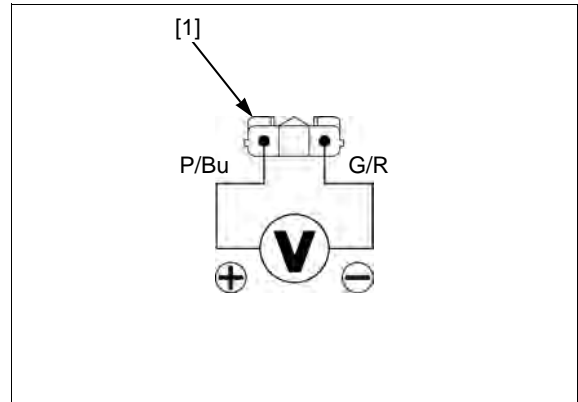
Connection: Pink/blue (+) – Green/red (-)

Is there battery voltage?

YES – GO TO STEP 3.

NO –

- Open circuit in the Pink/blue wire
- Open circuit in the Green/red wire



3. VS Sensor Output Line Inspection

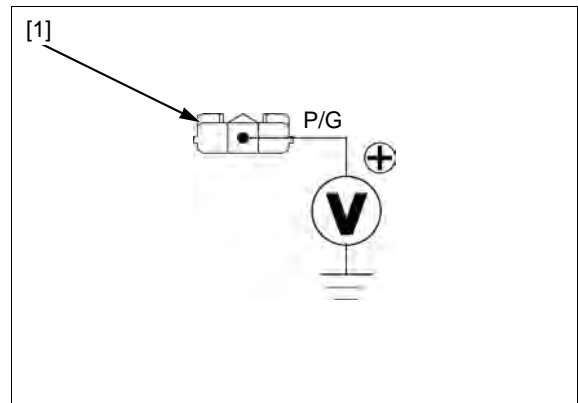
Measure the voltage between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Pink/green (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 6.

NO – GO TO STEP 4.



4. VS Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
 Disconnect the PCM 33P (Black) connector.
 Check for continuity between the wire harness side VS sensor 3P (Black) connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Pink/green – A32

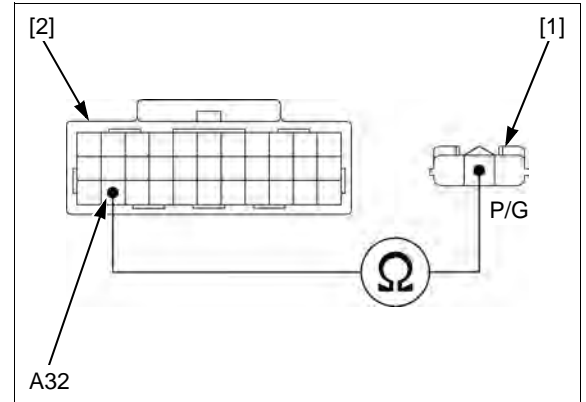
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Pink/green wire



5. VS Sensor Output Line Short Circuit Inspection

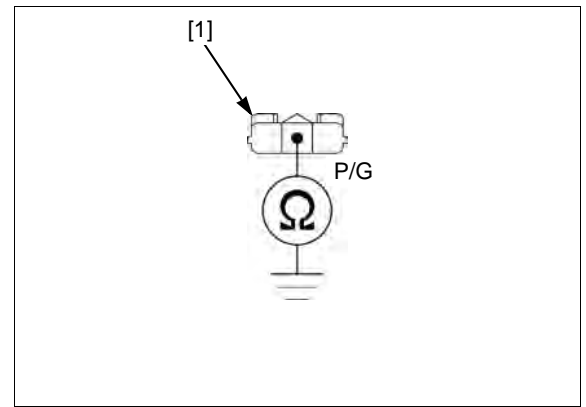
Check for continuity between the wire harness side VS sensor 3P (Black) connector [1] terminal and ground

Connection: Pink/green – Ground

Is there continuity?

YES – Short circuit in the Pink/green wire

NO – GO TO STEP 6.



6. VS Sensor Inspection

Turn the ignition switch OFF.
 Replace the VS sensor with a known good one (page 22-18).
 Erase the DTCs (page 12-13).
 Test-ride the motorcycle and stop the engine.
 Check the DTC with the HDS pocket tester.

Is DTC 66-1 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original VS sensor

DTC 67-1 (FRONT WHEEL SPEED SENSOR NO SIGNAL)

NOTE:

- Before starting the inspection, check for loose or poor contact on the front wheel speed sensor 2P (Blue), ABS modulator 25P and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
 Test-ride the motorcycle above 18 km/h (11 mph).
 Stop the engine.
 Check the DTC with the HDS pocket tester.

Is DTC 67-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. ABS Problem Code Inspection

Check the ABS problem code (page 20-8).

Does the ABS modulator have any problem code?

YES – Follow the problem code index (page 20-10).

NO – GO TO STEP 3.

3. Front Wheel Speed Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector and PCM 33P (Black) connector.

Check for continuity between the ABS modulator 25P connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: Violet/red – A33

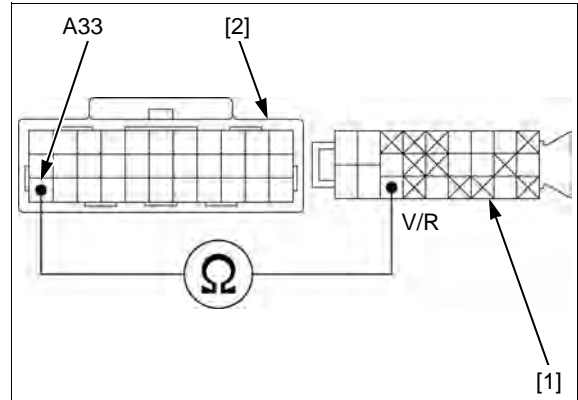
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Violet/red wire



4. Front Wheel Speed Sensor Line Short Circuit Inspection

Check for continuity between the wire harness side PCM 33P (Black) connector [1] and ground.

Connection: A33 – Ground

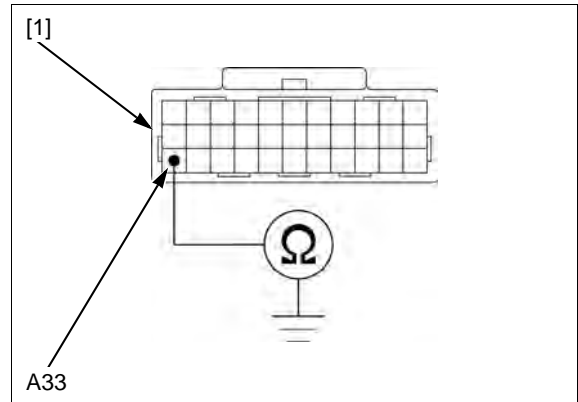
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – Replace the PCM with a known good one, and recheck.



DTC 68-1 (No.1 CLUTCH OPERATION MALFUNCTION; CLUTCH SLIPS)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).

Test-ride the motorcycle above 18 km/h (11 mph).

Stop the engine.

Check the DTC with the HDS pocket tester.

Is DTC 66-1 indicated?

YES – Refer to DTC 66-1 troubleshooting (page 12-54).

NO – GO TO STEP 2.

2. Clutch Clearance Inspection

Remove the No.1 clutch assembly and measure the clutch clearance (page 12-105).

Is the clearance within the standard range?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty No.1 clutch assembly

DTC 69-1 (No.2 CLUTCH OPERATION MALFUNCTION; CLUTCH SLIPS)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).

Test-ride the motorcycle above 18 km/h (11 mph).

Stop the engine.

Check the DTC with the HDS pocket tester.

Is DTC 66-1 indicated?

YES – Refer to DTC 66-1 troubleshooting (page 12-54).

NO – GO TO STEP 2.

2. Clutch Condition Inspection

Remove the No.2 clutch assembly and measure the clutch clearance (page 12-105).

Is the clearance within the standard range?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty No.2 clutch assembly.

DTC 71-1, 72-1 (INNER, OUTER MAINSHAFT/COUNTERSHAFT SPEED RATIO FAILURE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck 1

Check the DTC with the HDS pocket tester.

Is DTC 53-1, 54-1 or 66-1 indicated?

YES –

- DTC 53-1 is indicated (page 12-43).
- DTC 54-1 is indicated (page 12-46).
- DTC 66-1 is indicated (page 12-54).

NO – GO TO STEP 2.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. DTC Recheck 2

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph).
Stop the engine.
Check the DTC with the HDS pocket tester.

Is DTC 71-1 or 72-1 indicated?

YES – Replace the PCM with a known good one,
and recheck.

NO – Intermittent failure

DTC 84-1 (CPU IN THE PCM MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Check the DTC with the HDS pocket tester.

Is DTC 84-1 indicated?

YES – Replace the PCM with a known good one,
and recheck.

NO – Intermittent failure

DTC 1-1 (SHIFT PEDAL ANGLE SENSOR (OPTIONAL) MALFUNCTION)

NOTE:

- Before starting this inspection, check for loose or poor contact on the shift pedal angle sensor 3P (Black) connector and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)
 - DCT Shift Pedal (Optional) Registration (page 12-118)
- If the DCT shift pedal (optional) is removed from the vehicle, perform the DCT Shift Pedal Registration Cancellation (page 12-119).

1. Recheck the DTC

Erase the DTCs (page 12-13).
Turn the ignition switch ON and engine stop switch "O".
Operate the DCT shift pedal up and down several times with the engine stopped.
Recheck the DTC with the HDS pocket tester.

Is the DTC 1-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Shift Pedal Angle Sensor Input Voltage Inspection

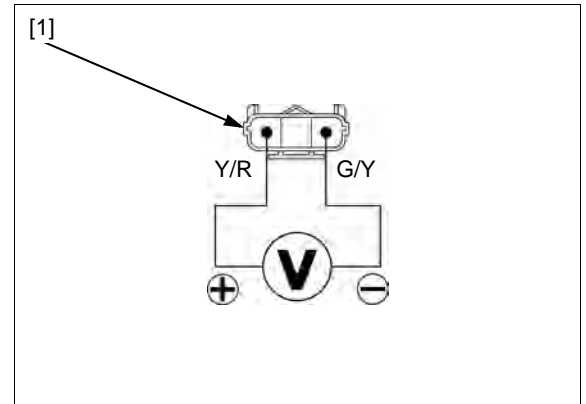
Turn the ignition switch OFF.
 Disconnect the shift pedal angle sensor 3P (Black) connector [1].
 Turn the ignition switch ON and engine stop switch "O".
 Measure the voltage between the wire harness side shift pedal angle sensor 3P (Black) connector terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – GO TO STEP 3.



3. Shift Pedal Angle Sensor Open Circuit Inspection

Turn the ignition switch OFF.
 Disconnect the PCM 33P (Gray) connector [1].
 Check for continuity between the wire harness side shift pedal angle sensor 3P (Black) connector [2] and PCM 33P (Gray) connector terminals.

Connection: Green/yellow – B22
Yellow/red – B14

TOOL:

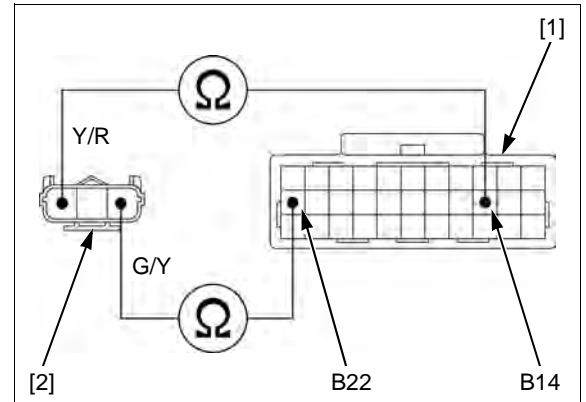
Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO –

- Open circuit in Green/yellow wire
- Open circuit in Yellow/red wire



4. Shift Pedal Angle Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.
 Disconnect the PCM 33P (Gray) connector [1].
 Check for continuity between the wire harness side shift pedal angle sensor 3P (Black) connector [2] and PCM 33P (Gray) connector terminals.

Connection: Yellow/violet – B19

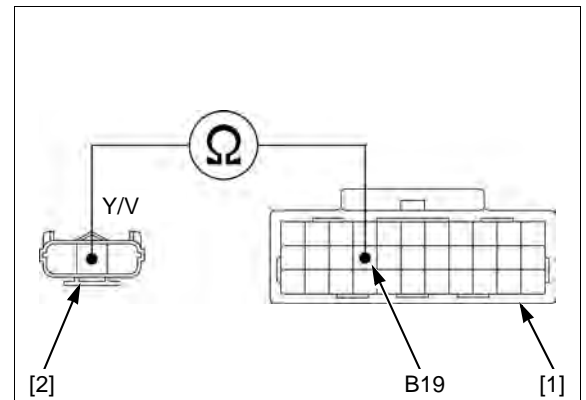
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Yellow/violet wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

5. Shift Pedal Angle Sensor Output Line Short Circuit Inspection

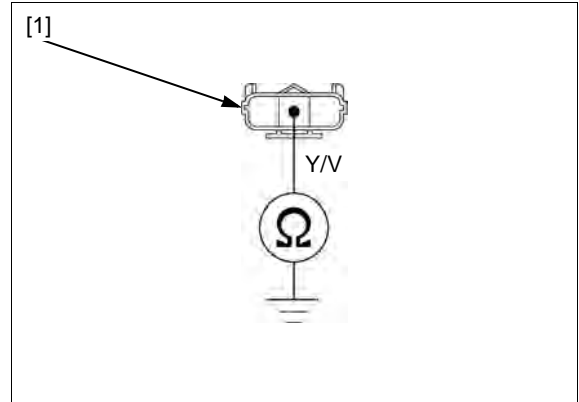
Check for continuity between the wire harness side shift pedal angle sensor 3P (Black) connector [1] and ground.

Connection: Yellow/violet – Ground

Is there continuity?

YES – Short circuit in Yellow/violet wire.

NO – GO TO STEP 6.



6. Shift Pedal Angle Sensor Resistance Inspection

Measure the resistance at the sensor side shift pedal angle sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red – Blue/green

Standard: 4 – 6 k Ω (20°C/68°F)

Operate the DCT shift pedal to check that the resistance changes in accordance with the pedal operation.

Connection: Yellow/blue – Blue/green

When moving the pedal up:

Resistance increases

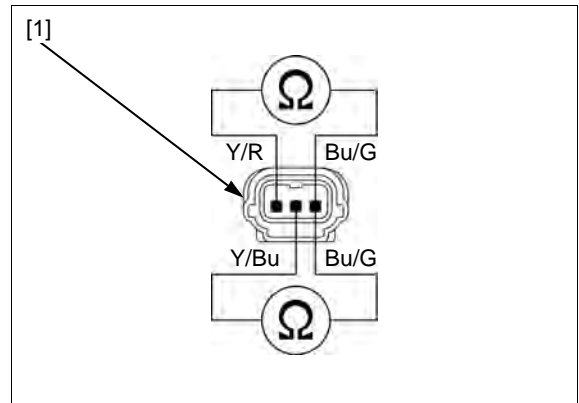
When moving the pedal down:

Resistance decreases

Are the resistance inspections normal?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty shift pedal angle sensor, replace the DCT shift pedal as an assembly.



SHIFT INDICATOR TROUBLESHOOTING

DTC 9 (CLUTCH LINE EOP SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the clutch line EOP sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Line EOP Sensor Input Voltage Inspection

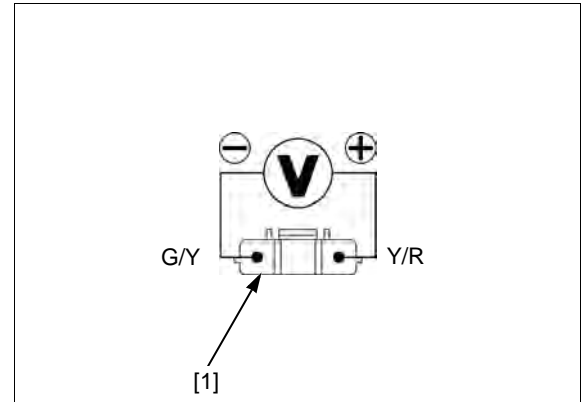
Turn the ignition switch OFF.
Disconnect the clutch line EOP sensor 3P (Black) connector.
Turn the ignition switch ON with the engine stop switch "Q".
Measure the voltage between the wire harness side clutch line EOP sensor 3P (Black) connector [1] terminal and ground.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – GO TO STEP 5.



2. Clutch Line EOP Sensor Output Line Open Circuit Inspection

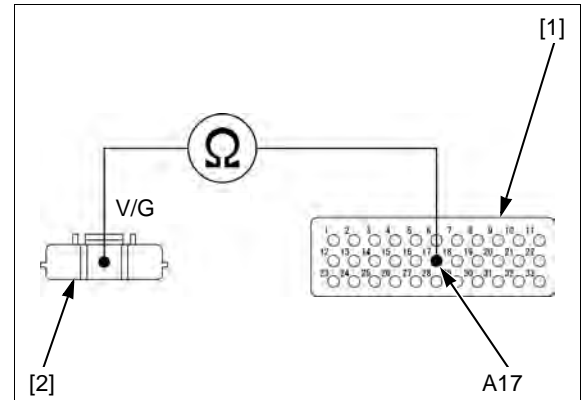
Turn the ignition switch OFF.
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Violet/green – A17

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Violet/green wire



3. Clutch Line EOP Sensor Output Line Short Circuit Inspection

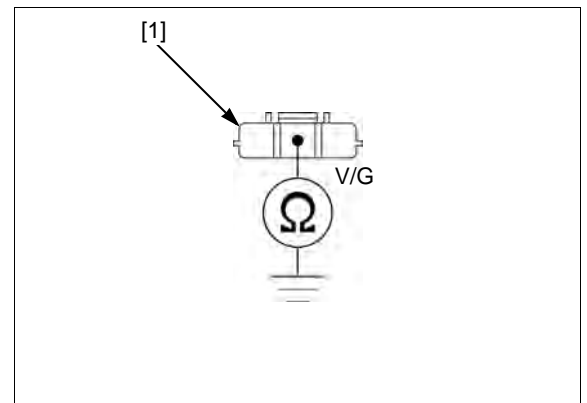
Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] terminal and ground.

Connection: Violet/green – Ground

Is there continuity?

YES – Short circuit in the Violet/green wire

NO – GO TO STEP 4.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

4. Clutch Line EOP Sensor Inspection

Replace the clutch line EOP sensor with a known good one (page 12-117).
 Connect the clutch line EOP sensor 3P (Black) connector.
 Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 9 indicated?

- YES** – Replace the PCM with a known good one and recheck.
NO – Faulty original clutch line EOP sensor.

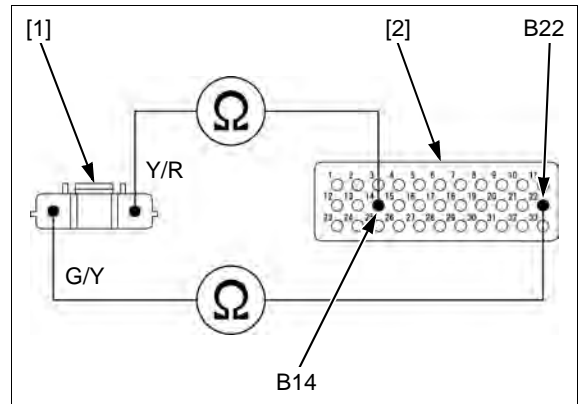
5. Clutch Line EOP Sensor Power/Ground Line Open Circuit Inspection

Turn the ignition switch OFF.
 Connect the ECM test harness to the PCM connectors (page 4-14).
 Check for continuity between the wire harness side clutch line EOP sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Yellow/red – B14
Green/yellow – B22

Is there continuity?

- YES** – Replace the PCM with a known good one and recheck.
NO – • Open circuit in the Yellow/red wire
 • Open circuit in the Green/yellow wire



DTC 19 (CKP SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the CKP sensor 2P (Red) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. CKP Sensor Peak Voltage Inspection at PCM

Connect the ECM test harness to the PCM connectors (page 4-14).
 Turn the ignition switch ON with the engine stop switch "O".
 Crank the engine and measure the CKP sensor peak voltage between the test harness [1] terminal and ground.

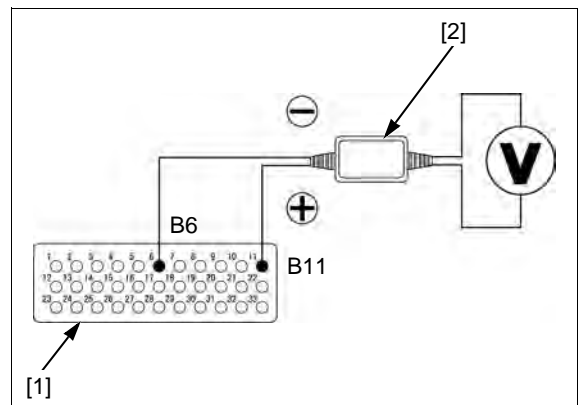
Connection: B11 (+) – B6 (–)

TOOL:

Imrie diagnostic tester (model 625) or Peak voltage adaptor [2] 07HGJ-0020100 with commercially available digital multimeter (impedance 10 MΩ/DCV minimum)

Is the voltage more than 0.7 V?

- YES** – Replace the PCM with a known good one and recheck.
NO – GO TO STEP 2.



2. CKP Sensor Peak Voltage Inspection

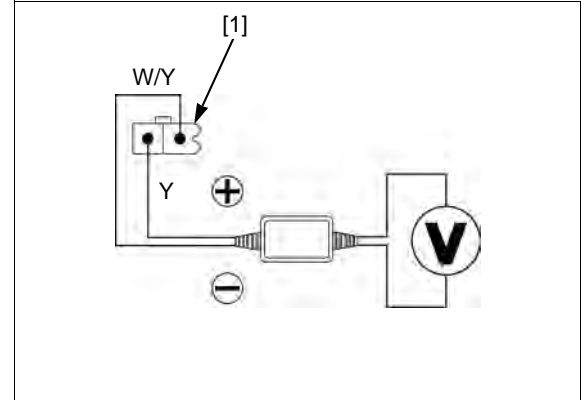
Turn the ignition switch OFF.
 Disconnect the CKP sensor 2P (Red) connector.
 Turn the ignition switch ON.
 Crank the engine and measure the CKP sensor peak voltage between the CKP sensor 2P (Red) connector [1] terminals.

Connection: Yellow (+) – White/yellow (-)

Is the voltage more than 0.7 V?

YES – • Open or short circuit in the Yellow wire
 • Open circuit in the White/yellow wire

NO – Faulty CKP sensor



DTC 21 (SHIFT SPINDLE ANGLE SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the shift spindle angle sensor 3P (Gray) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Spindle Angle Sensor Input Voltage Inspection

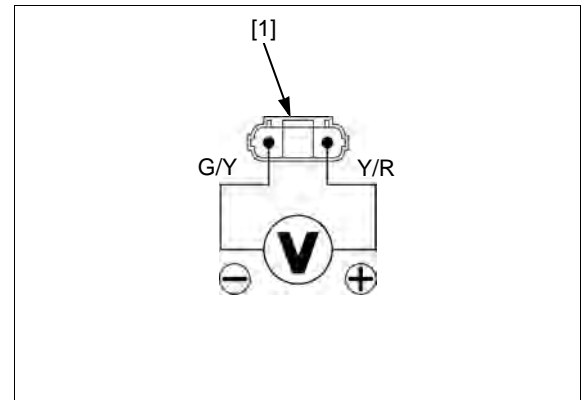
Turn the ignition switch OFF.
 Disconnect the shift spindle angle sensor 3P (Gray) connector.
 Turn the ignition switch ON with the engine stop switch "O".
 Measure the voltage between the wire harness side shift spindle angle sensor 3P (Blue) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – GO TO STEP 5.



2. Shift Spindle Angle Sensor Output Line Open Circuit Inspection

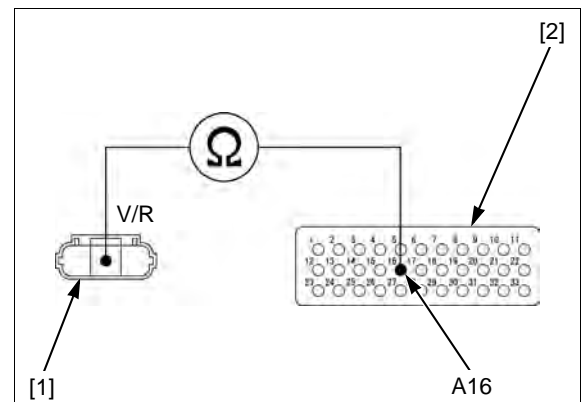
Turn the ignition switch OFF.
 Connect the ECM test harness to the PCM connectors (page 4-14).
 Check for continuity between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] and test harness [2] terminals.

Connection: Violet/red – A16

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Violet/red wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. Shift Spindle Angle Sensor Output Line Short Circuit Inspection

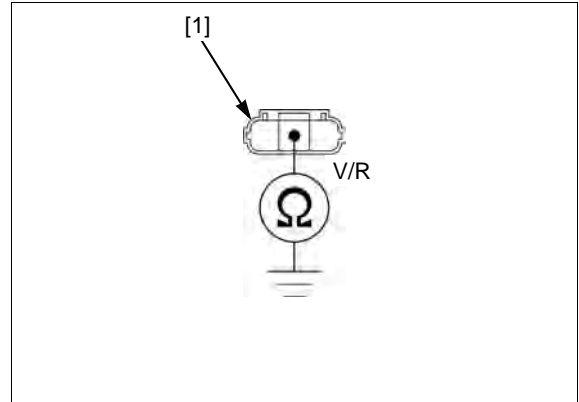
Check for continuity between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] terminal and ground.

Connection: Violet/red – Ground

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – GO TO STEP 4.



4. Shift Spindle Angle Sensor Inspection

Replace the shift spindle angle sensor with a known good one (page 12-116).

Connect the shift spindle angle sensor 3P (Gray) connector and PCM 33P (Black) connector.

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 21 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original shift spindle angle sensor

5. Shift Spindle Angle Sensor Power/Ground Line Open Circuit Inspection

Turn the ignition switch OFF.

Connect the ECM test harness to the PCM connectors (page 4-14).

Check for continuity between the wire harness side shift spindle angle sensor 3P (Gray) connector [1] and test harness [2] terminals.

Connection: Yellow/red – B14

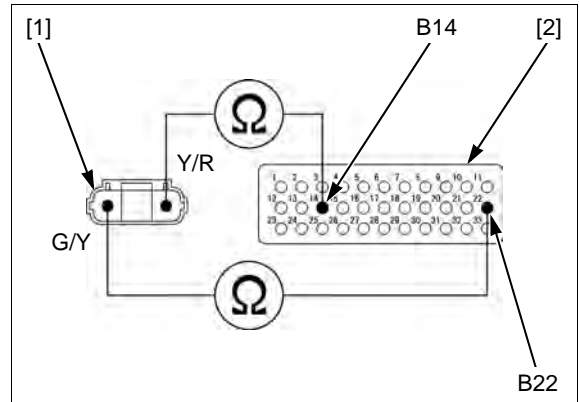
Green/yellow – B22

Is there continuity?

YES – Replace the PCM with a known good one and recheck.

NO –

- Open circuit in the Yellow/red wire
- Open circuit in the Green/yellow wire



DTC 22, 23 (SHIFT SPINDLE OPERATION MALFUNCTION)

1. Shift Control Motor/Reduction gear condition

Check the shift control motor and reduction gears are installed properly and are not damaged.

Are the shift control motor and reduction gears in normal condition?

YES – GO TO STEP 2.

NO – Install the shift control motor and reduction gears properly or replace faulty parts.

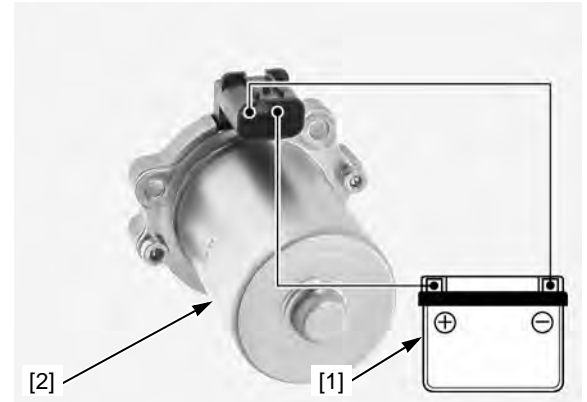
2. Shift Control Motor Condition Inspection

Remove the shift control motor (page 12-109).
 Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation.
 Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

YES – GO TO STEP 3.

NO – Faulty shift control motor



3. Shift Spindle Angle Sensor Condition Inspection

Check that the shift spindle angle sensor is installed properly.

Is the shift spindle angle sensor in normal condition?

YES – Faulty shift spindle angle sensor

NO – Install the shift spindle angle sensor properly.

DTC 24 (SHIFT CONTROL MOTOR DRIVE CIRCUIT)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Control Motor Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).
 Disconnect the shift control motor 2P (Black) connector.
 Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] and test harness [2] terminals.

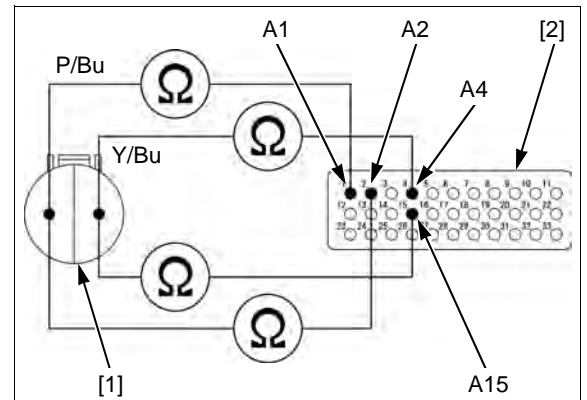
Connection: Pink/blue – A1
 Pink/blue – A2
 Yellow/blue – A4
 Yellow/blue – A15

Is there continuity?

YES – GO TO STEP 2.

NO –

- Open circuit in the Pink/blue wire
- Open circuit in the Yellow/blue wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

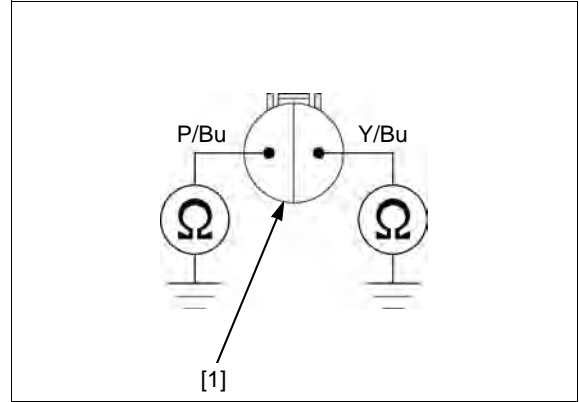
2. Shift Control Motor Line Short Circuit Inspection

Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] and ground.

Connection: Pink/blue – Ground
Yellow/blue – Ground

Is there continuity?

- YES** – • Short circuit in the Pink/blue wire
• Short circuit in the Yellow/blue wire
- NO** – GO TO STEP 3.

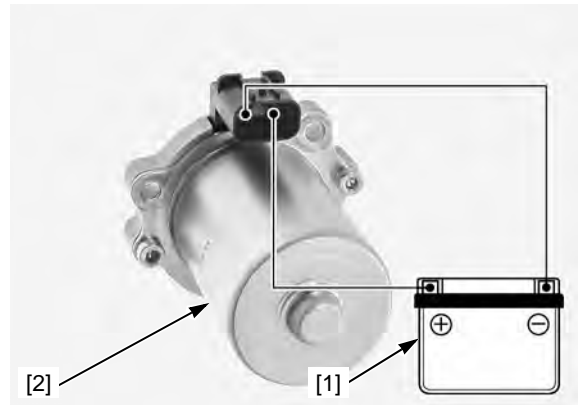


3. Shift Control Motor Inspection

Remove the shift control motor (page 12-109). Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation. Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

- YES** – Replace the PCM with a known good one.
- NO** – Faulty shift control motor



DTC 27 (SHIFT DRUM POSITION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Control Motor/Reduction gear condition

Check the shift control motor and reduction gears are installed properly and are not damaged.

Are the shift control motor and reduction gears normal condition?

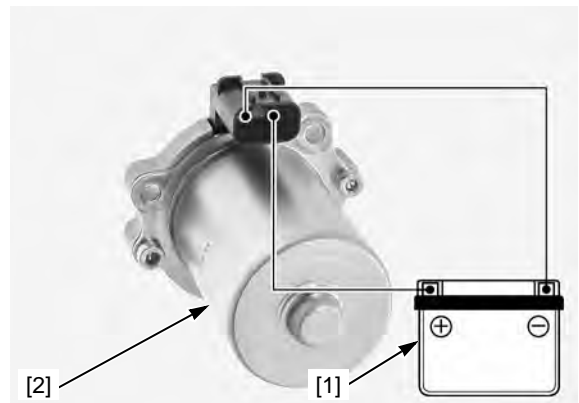
- YES** – GO TO STEP 2.
- NO** – Install the shift control motor and reduction gears properly or replace faulty parts.

2. Shift Control Motor Condition Inspection

Remove the shift control motor (page 12-109). Connect a fully charged 12 V battery [1] to the shift control motor [2] 2P connector terminals to check the motor operation. Change the battery connection to check the reverse operation.

Does the shift control motor turn in both directions?

- YES** – GO TO STEP 3.
- NO** – Faulty shift control motor



3. TR Sensor Condition Inspection

Check that the TR sensor is installed properly and is not damaged.

Is the TR sensor normal condition?

YES – GO TO STEP 4.

NO – Install the TR sensor properly.

4. DTC Recheck

Replace the TR sensor with a known good one (page 12-115).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 27 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original TR sensor

DTC 31 (SHIFT CONTROL MOTOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the shift control motor 2P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. PVB Fuse Inspection

Check the PVB fuse (30 A).

Is the PVB fuse in good condition?

YES – GO TO STEP 2.

NO – Faulty PVB fuse (30 A)

2. Shift Control Motor Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Disconnect the shift control motor 2P (Black) connector.

Check for continuity between the wire harness side shift control motor 2P (Black) connector [1] and test harness [2] terminals.

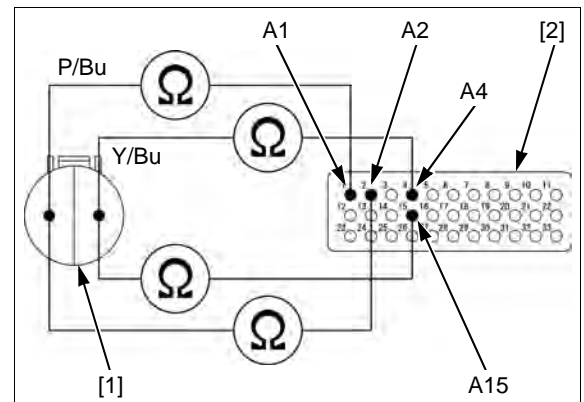
Connection: Pink/blue – A1
 Pink/blue – A2
 Yellow/blue – A4
 Yellow/blue – A15

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO –

- Open circuit in the Pink/blue wire
- Open circuit in the Yellow/blue wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC 32 (FAIL SAFE RELAY)

NOTE:

- Before starting the inspection, check for loose or poor contact on the PCM 33P (Black) connector and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. PVB Fuse Inspection

Check the PVB fuse (30 A).

Is the PVB fuse in good condition?

YES – GO TO STEP 2.

NO – Faulty PVB fuse (30 A)

2. Shift Control Motor Power Supply Voltage Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Measure the voltage between the test harness [1] terminals and ground.

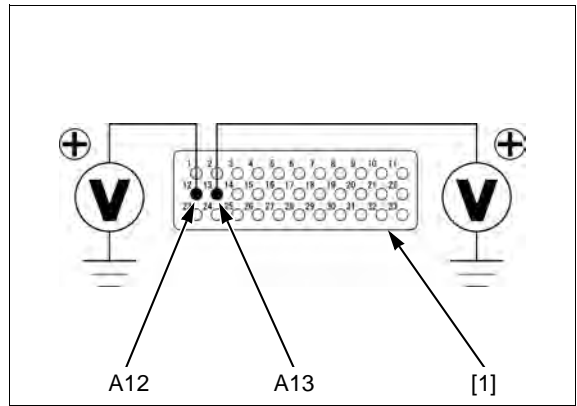
Connection: A12 (+) – Ground (-)

A13 (+) – Ground (-)

Is there battery voltage?

YES – Replace the PCM with a known good one and recheck.

- NO** –
- Open circuit in the Yellow/red wire between the PCM 33P (Black) connector and fuse/relay box
 - Open circuit in the Red wire between the fuse/relay box and starter relay switch 4P (Red) connector



DTC 37 (IGNITION HOLD RELAY)

NOTE:

- Before starting the inspection, check for loose or poor contact on the PCM 33P (Black) connector and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. SUB PVB Fuse Inspection

Check the SUB PVB fuse (7.5 A).

Is the SUB PVB fuse in good condition?

YES – GO TO STEP 2.

NO – Faulty SUB PVB fuse (7.5 A)

2. PCM (DCT Drive Circuit) Sub Power Voltage Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).
Measure the voltage between the test harness [1] terminals and ground.

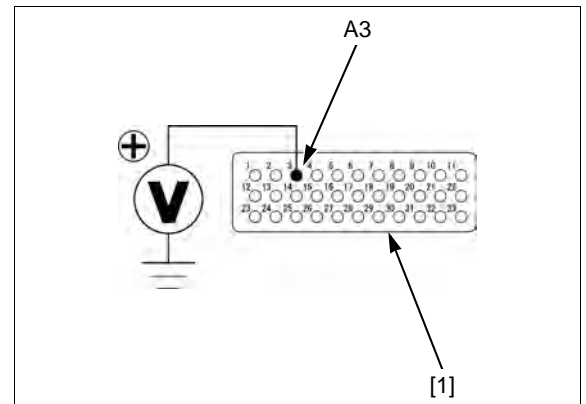
Connection: A3 (+) – Ground (-)

Is there battery voltage?

YES – Replace the PCM with a known good one and recheck.

NO –

- Open circuit in the Brown/red wire between the PCM 33P (Black) connector and fuse/relay box
- Open circuit in the Red wire between the fuse/relay box and starter relay switch 4P (Red) connector



DTC 41 (N-D SHIFT SWITCH)

NOTE:

- Before starting the inspection, check for loose or poor contact on the right handlebar switch and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. N-D Shift Switch Power Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the following:

- Right handlebar switch 6P (Black) connector (NC700XD) [1]
- Right handlebar switch 7P (Green) connector (NC700SD) [2]

Turn the ignition switch ON with the engine stop switch "O".

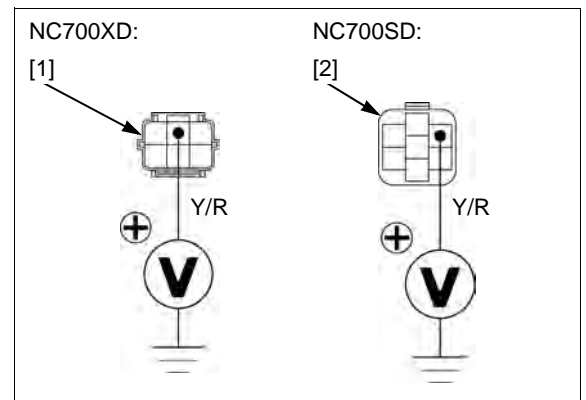
Measure the voltage between the wire harness side right handlebar switch connector terminal and ground.

Connection: Yellow/red (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – Open circuit in the Yellow/red wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. N-D Shift Switch Inspection

Turn the ignition switch OFF.

Check for continuity between the switch side right handlebar switch connector [1] terminals in each switch position.

Connection:

N switch:

Light green/blue – Red

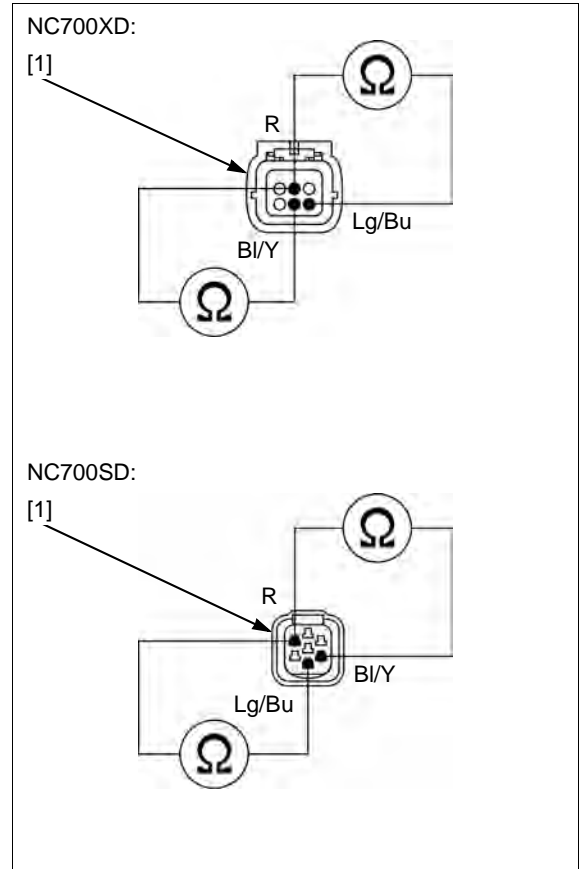
D switch:

Black/yellow – Red

Is there continuity with the switch pushed and no continuity with the switch released?

YES – GO TO STEP 3.

NO – Faulty N-D shift switch



3. N-D Shift Switch Input Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Check for continuity between the wire harness side right handlebar switch connector [1] and test harness [2] terminals.

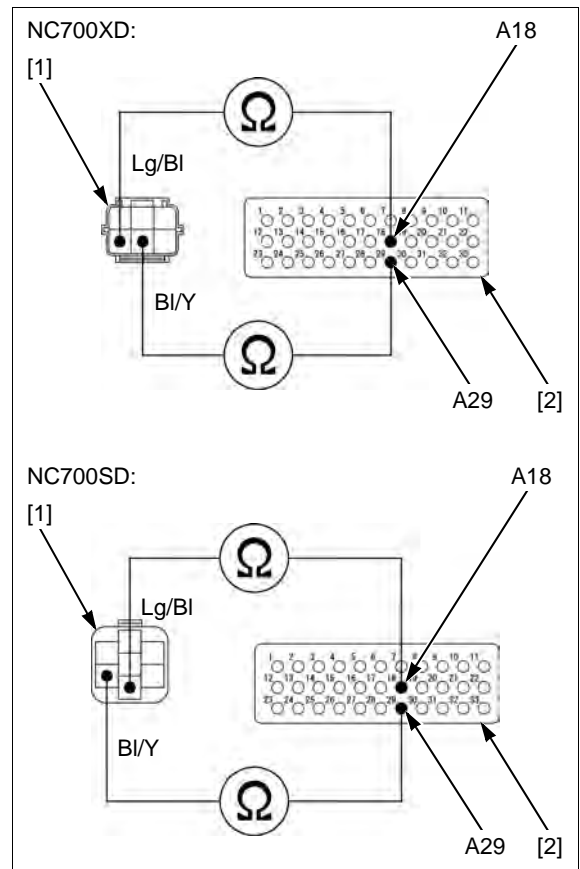
Connection: Light green/black – A18
Black/yellow – A29

Is there continuity?

YES – GO TO STEP 4.

NO –

- Open circuit in the Light green/black wire
- Open circuit in the Black/yellow wire



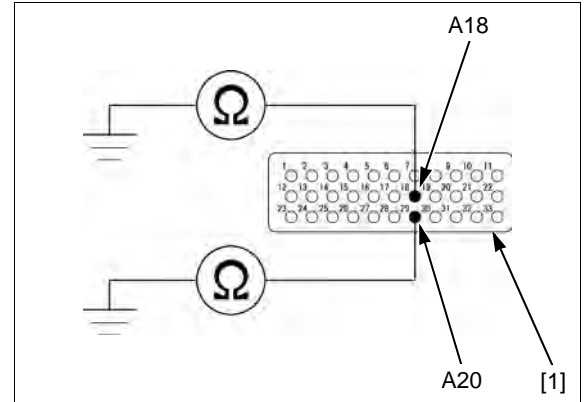
4. N-D Shift Switch Input Line Short Circuit Inspection

Check for continuity between the test harness [1] terminals and ground.

Connection: A18 – Ground
A29 – Ground

Is there continuity?

- YES** – • Short circuit in the Light green/black wire
• Short circuit in the Black/yellow wire
- NO** – Replace the PCM with a known good one, and recheck.



DTC 42 (SHIFT SWITCH)

NOTE:

- Before starting the inspection, check for loose or poor contact on the left handlebar switch and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Shift Switch Power Input Voltage Inspection

Turn the ignition switch OFF.
Disconnect the following:

- Left handlebar switch 3P (Black) connector (NC700XD) [1]
- Left handlebar switch 7P (Green) connector (NC700SD) [2]

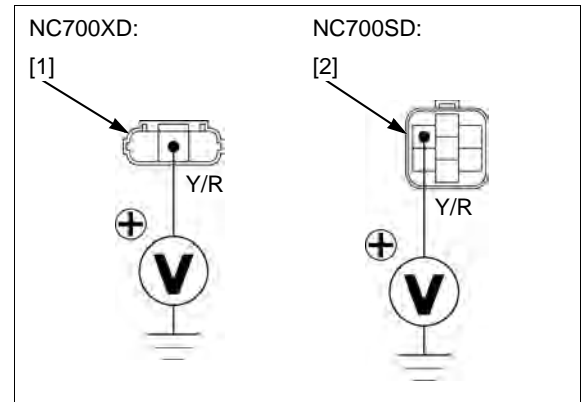
Turn the ignition switch ON with the engine stop switch "O".

Measure the voltage between the wire harness side left handlebar switch connector terminal and ground.

Connection: Yellow/red (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

- YES** – GO TO STEP 2.
- NO** – Open circuit in the Yellow/red wire



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. Shift Switch Inspection

Turn the ignition switch OFF.

Check for continuity between the switch side left handlebar switch connector [1] terminals in each switch position.

Connection:

"+" switch:

Green/blue – Yellow/red

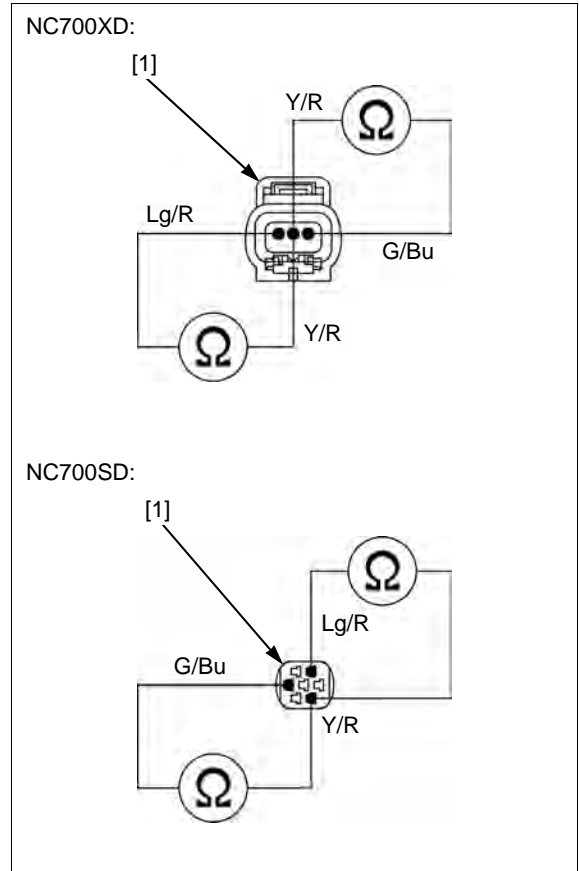
"-" switch:

Light green/red – Yellow/red

Is there continuity with the switch pushed and no continuity with the switch released?

YES – GO TO STEP 3.

NO – Faulty shift switch



3. Shift Switch Input Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Check for continuity between the wire harness side left handlebar switch connector [1] and test harness [2] terminals.

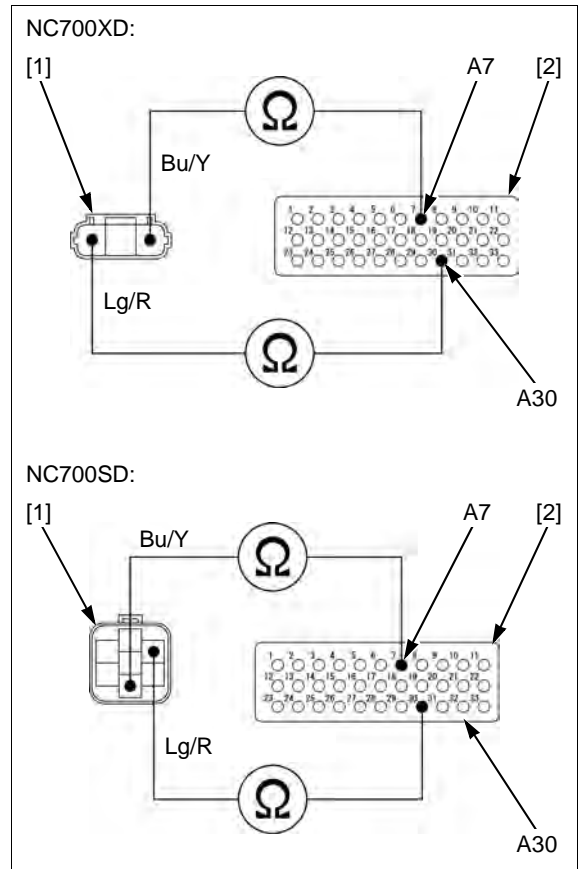
Connection: Blue/yellow – A7

Light green/red – A30

Is there continuity?

YES – GO TO STEP 4.

NO – • Open circuit in the Blue/yellow wire
 • Open circuit in the Light green/red wire



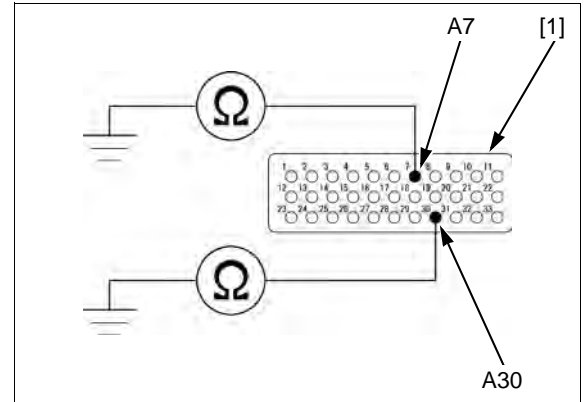
4. Shift Switch Input Line Short Circuit Inspection

Check for continuity between the test harness [1] terminals and ground.

Connection: A7 – Ground
A30 – Ground

Is there continuity?

- YES** – • Short circuit in the Blue/yellow wire
 • Short circuit in the Light green/red wire
- NO** – Replace the PCM with a known good one, and recheck.



DTC 44 (EOT SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the EOT sensor 2P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. EOT Sensor Input Line Open Circuit Inspection

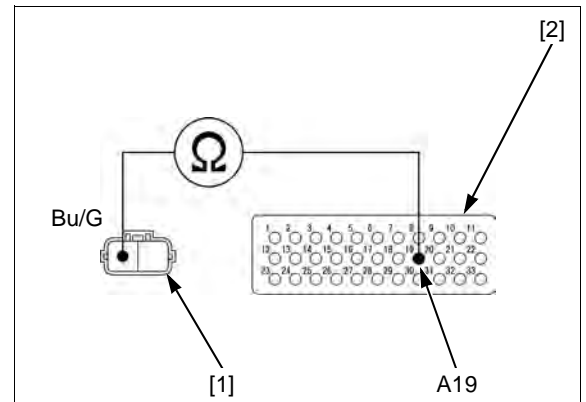
Connect the ECM test harness to the PCM connectors (page 4-14).

Disconnect the EOT sensor 2P (Black) connector. Check for continuity between the wire harness side EOT sensor 2P (Black) connector [1] and test harness [2] terminals.

Connection: Blue/green – A19

Is there continuity?

- YES** – GO TO STEP 2.
- NO** – Open circuit in the Blue/green wire



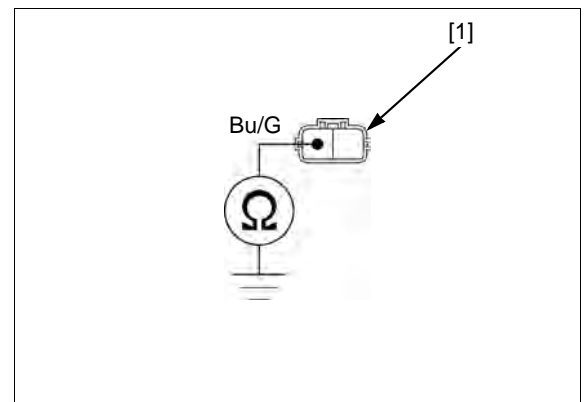
2. EOT Sensor Input Line Short Circuit Inspection

Check the continuity between the wire harness side EOT sensor 2P (Black) connector [1] terminal and ground.

Connection: Blue/green – Ground

Is there continuity?

- YES** – Short circuit in the Blue/green wire
- NO** – GO TO STEP 3.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. EOT Sensor Ground Line Open Circuit Inspection

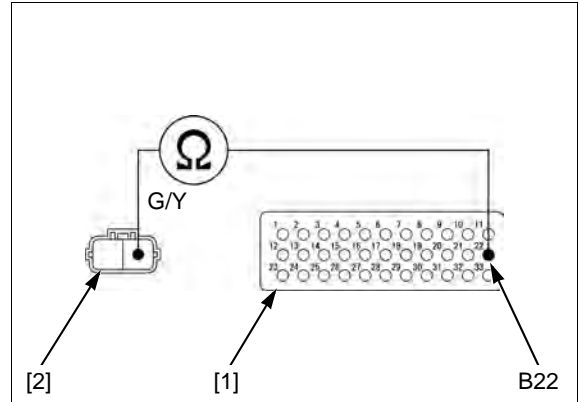
Check for continuity between the wire harness side EOT sensor 2P (Black) connector [1] and test harness [2] terminals.

Connection: Green/yellow – B22

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Green/yellow wire



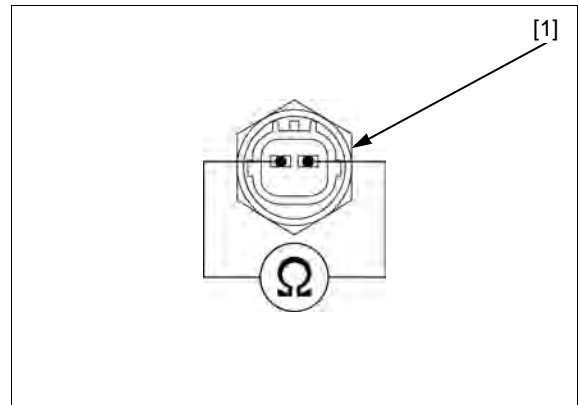
4. EOT Sensor Resistance Inspection

Measure the resistance between the EOT sensor [1] connector terminals.

Is the resistance within 2.5 – 2.8 kΩ (20°C/68°F)?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty EOT sensor



DTC 47 or 48 (No.1 or No.2 CLUTCH EOP SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the clutch EOP sensor 3P (Gray) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch EOP Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the clutch EOP sensor 3P (Gray) connector.

Turn the ignition switch ON with the engine stop switch "O".

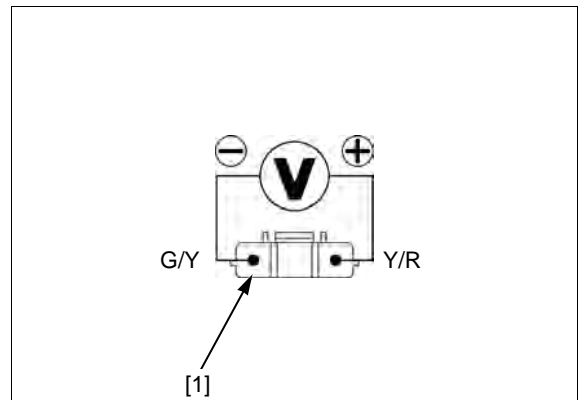
Measure the voltage between the wire harness side clutch EOP sensor 3P (Gray) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (–)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – GO TO STEP 5.



2. Clutch EOP Sensor Output Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] and test harness [2] terminals.

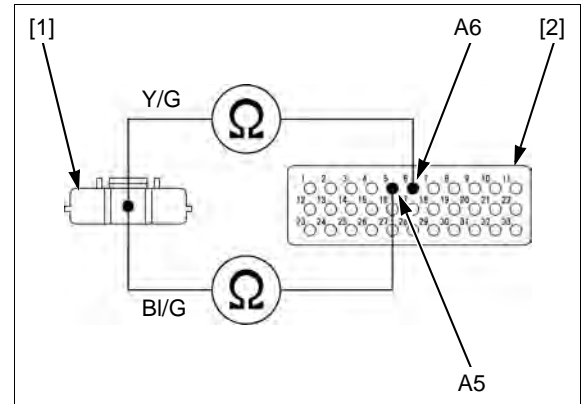
Connection:

- No.1 clutch EOP sensor:**
Yellow/green – A6
- No.2 clutch EOP sensor:**
Black/green – A5

Is there continuity?

YES – GO TO STEP 3.

- NO** –
- Open circuit in the Yellow/green wire
 - Open circuit in the Black/green wire



3. Clutch EOP Sensor Output Line Short Circuit Inspection

Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] terminal and ground.

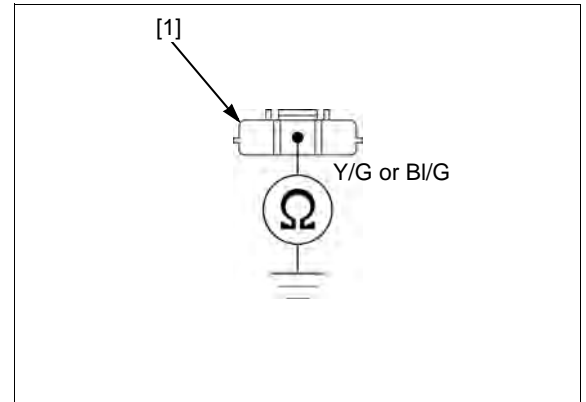
Connection:

- No.1 clutch EOP sensor:**
Yellow/green – Ground
- No.2 clutch EOP sensor:**
Black/green – Ground

Is there continuity?

- YES** –
- Short circuit in the Yellow/green wire
 - Short circuit in the Black/green wire

NO – GO TO STEP 4.



4. Clutch EOP Sensor Inspection

Replace the clutch EOP sensor with a known good one (page 12-117).
Connect the clutch EOP sensor 3P (Gray) connector.
Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 47 or 48 indicated?

YES – Replace the PCM with a known good one and recheck.

NO – Faulty original clutch EOP sensor

5. Clutch EOP Sensor Power/Ground Line Open Circuit Inspection

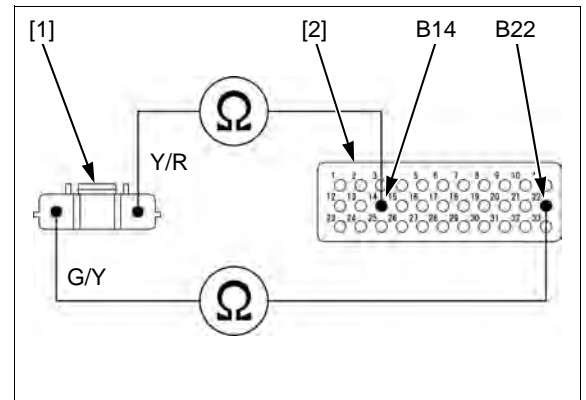
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side clutch EOP sensor 3P (Gray) connector [1] and test harness [2] terminals.

- Connection:** Yellow/red – B14
Green/yellow – B22

Is there continuity?

YES – Replace the PCM with a known good one and recheck.

- NO** –
- Open circuit in the Yellow/red wire
 - Open circuit in the Green/yellow wire



DTC 49 (CLUTCH LINE LOW OIL PRESSURE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Engine Oil Level Inspection

Check the engine oil level (page 3-12).

Is the engine oil level correct?

YES – GO TO STEP 2.

NO – Add the recommended oil to the upper level.

2. Clutch Line Oil Filter Condition Inspection

Check the clutch oil filter (page 3-14).

Is the oil filter in good condition?

YES – GO TO STEP 3.

NO – Replace the clutch oil filter

3. Clutch Line EOP Sensor Inspection

Replace the clutch line EOP sensor with a known good one (page 12-117).

Erase the DTCs (page 12-13).

Test-ride the motorcycle above 2,000 min⁻¹ (rpm) and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 49 indicated?

YES – GO TO STEP 4.

NO – Faulty original clutch line EOP sensor

4. PCM Inspection

Replace the PCM with a known good one (page 4-67).

Test-ride the motorcycle above 2,000 min⁻¹ (rpm) and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 49 indicated?

YES –

- Oil pressure relief valve stuck open
- Damaged oil pump
- Internal oil leak in the clutch oil line

NO – Faulty original PCM

DTC 51 (TR SENSOR)

NOTE:

- Before starting the inspection, check for loose or poor contact on the TR sensor 3P (Black) and PCM 33P connectors and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. TR Sensor Input Voltage Inspection

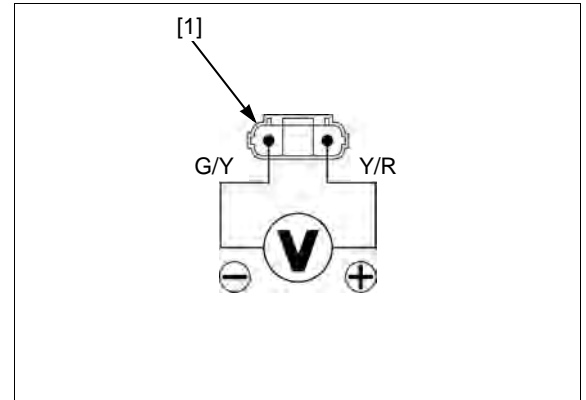
Turn the ignition switch OFF.
 Disconnect the TR sensor 3P (Black) connector.
 Turn the ignition switch ON with the engine stop switch "O".
 Measure the voltage between the wire harness side TR sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 2.

NO – GO TO STEP 5.



2. TR Sensor Output Line Open Circuit Inspection

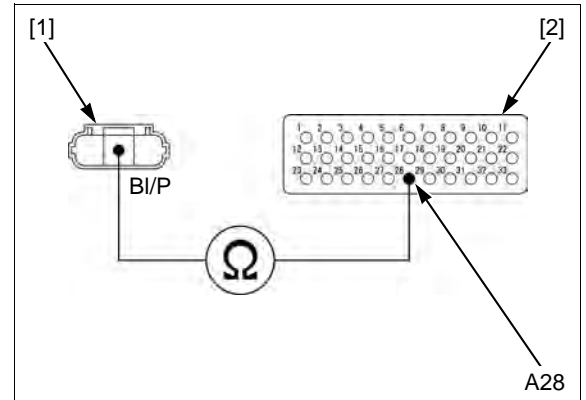
Connect the ECM test harness to the PCM connectors (page 4-14).
 Check for continuity between the wire harness side TR sensor 3P (Black) connector [1] and test harness [2] terminals

Connection: Black/pink – A28

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Black/pink wire



3. TR Sensor Output Line Short Circuit Inspection

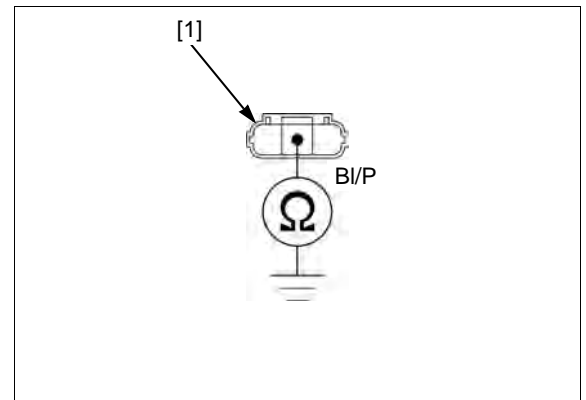
Check for continuity between the wire harness side TR sensor 3P (Black) connector [1] terminal and ground.

Connection: Black/pink – Ground

Is there continuity?

YES – Short circuit in the Black/pink wire

NO – GO TO STEP 4.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

4. TR Sensor Inspection

Replace the TR sensor with a known good one (page 12-115).
Connect the TR sensor 3P (Black) connector.
Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 51 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original TR sensor

5. TR Sensor Power/Ground Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side TR sensor 3P (Black) connector [1] and test harness [2] terminals.

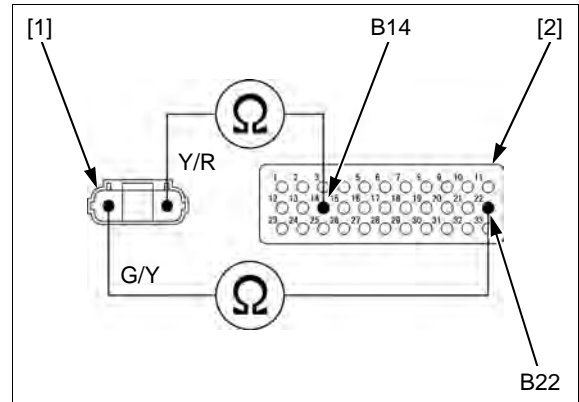
Connection: Yellow/red – B14
Green/yellow – B22

Is there continuity?

YES – Replace the PCM with a known good one and recheck.

NO –

- Open circuit in the Yellow/red wire
- Open circuit in the Green/yellow wire



DTC 52 (NEUTRAL SWITCH)

NOTE:

- Before starting the inspection, check for loose or poor contact on the neutral switch and PCM 33P (Gray) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 52 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. Neutral Switch Line Open Circuit Inspection

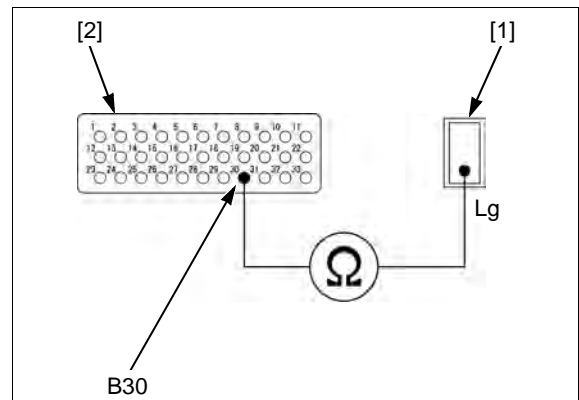
Connect the ECM test harness to the PCM connectors (page 4-14).
Disconnect the neutral switch connector.
Check for continuity between the neutral switch connector [1] and test harness [2] terminals.

Connection: Light green – B30

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Light green wire



3. Neutral Switch Line Short Circuit Inspection

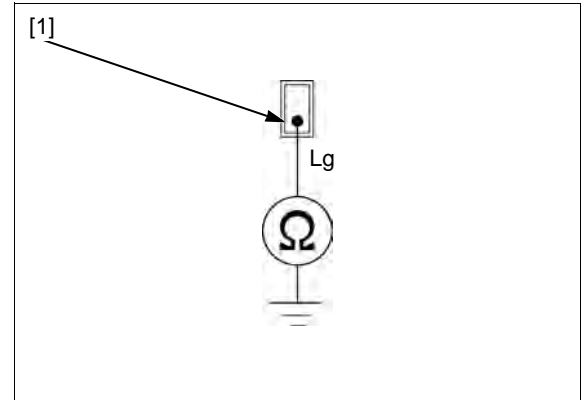
Disconnect the neutral switch connector [1].
Check for continuity between the neutral switch connector terminal and ground.

Connection: Light green – Ground

Is there continuity?

YES – Short circuit in the Light green wire

NO – GO TO STEP 4.



4. Neutral Switch Inspection

Replace the neutral switch with a know good one (page 22-28).

Connect the neutral switch connector.

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 52 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original neutral switch

DTC 53 (INNER MAINSHAFT SENSOR SPEED LOW)

NOTE:

- Before starting the inspection, check for loose or poor contact on the inner mainshaft sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Inner Mainshaft Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the inner mainshaft sensor 3P (Black) connector.

Turn the ignition switch ON with the engine stop switch "O".

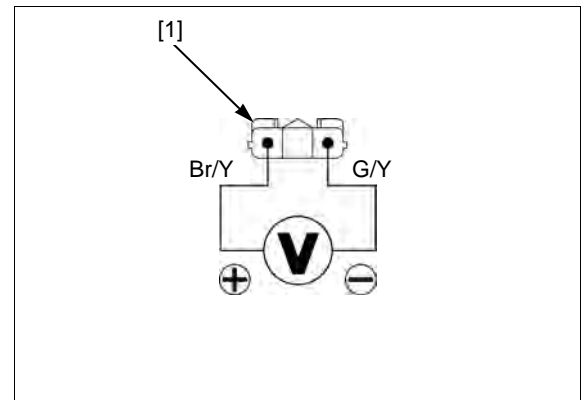
Measure the voltage between the wire harness side inner mainshaft sensor 3P (Black) connector [1] terminals.

Connection: Brown/yellow (+) – Green/yellow (-)

Is there about battery voltage?

YES – GO TO STEP 2.

NO – GO TO STEP 3.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. Inner Mainshaft Sensor Output Line Inspection

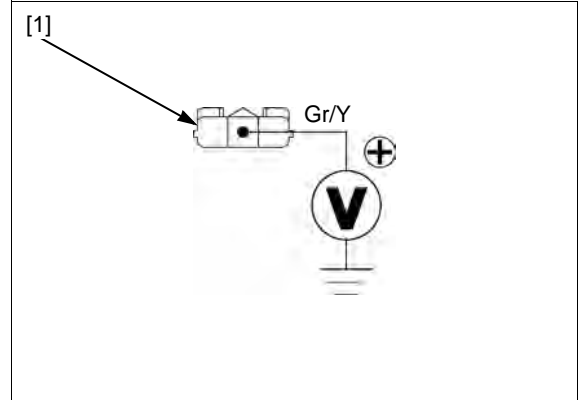
Measure the voltage between the wire harness side inner mainshaft sensor 3P (Black) connector [1] terminal and ground.

Connection: Gray/yellow (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 7.

NO – GO TO STEP 5.



3. Inner Mainshaft Sensor Input Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

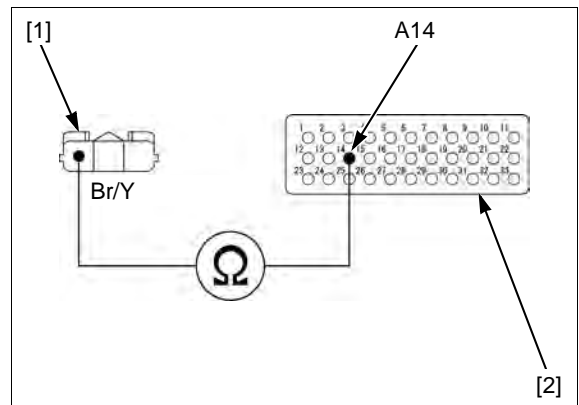
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Brown/yellow – A14

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Brown/yellow wire



4. Inner Mainshaft Sensor Ground Line Open Circuit Inspection

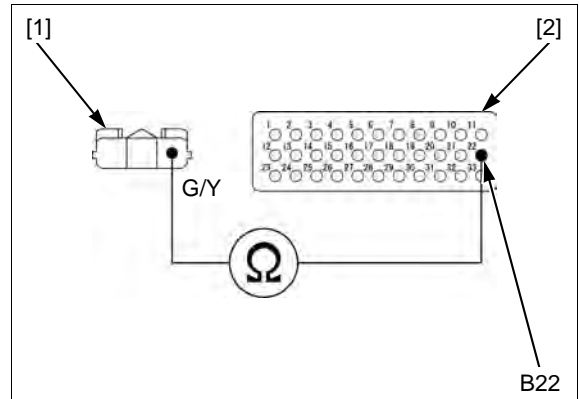
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Green/yellow – B22

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Green/yellow wire



5. Inner Mainshaft Output Line Open Circuit Inspection

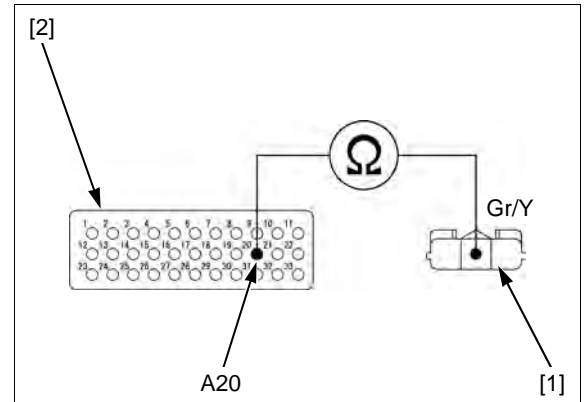
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Gray/yellow – A20

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Gray/yellow wire



6. Inner Mainshaft Sensor Output Line Short Circuit Inspection

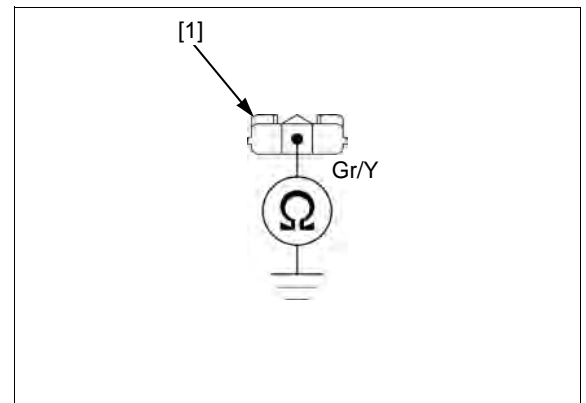
Check for continuity between the wire harness side inner mainshaft sensor 3P (Black) connector [1] terminal and ground.

Connection: Gray/yellow – Ground

Is there continuity?

YES – Short circuit in the Gray/yellow wire

NO – GO TO STEP 7.



7. Inner Mainshaft Sensor Inspection

Replace the inner mainshaft sensor with a known good one (page 12-115).
Erase the DTCs (page 12-13).
Test-ride the motorcycle and read the DTC with the shift indicator (page 12-13).

Is DTC 53 indicated?

YES – Replace the PCM with a new one, and recheck.

NO – Faulty original inner mainshaft sensor

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DTC 54 (OUTER MAINSHAFT SENSOR SPEED LOW)

NOTE:

- Before starting the inspection, check for loose or poor contact on the outer mainshaft sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Outer Mainshaft Sensor Input Voltage Inspection

Turn the ignition switch OFF.

Disconnect the outer mainshaft sensor 3P (Black) connector.

Turn the ignition switch ON with the engine stop switch "O".

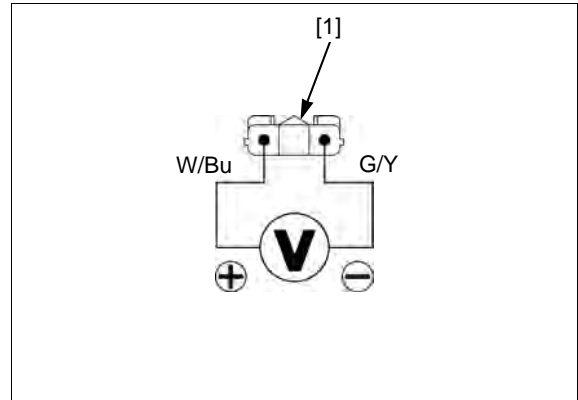
Measure the voltage between the wire harness side outer mainshaft sensor 3P (Black) connector [1] terminals.

Connection: White/blue (+) – Green/yellow (-)

Is there about battery voltage?

YES – GO TO STEP 2.

NO – GO TO STEP 3.



2. Outer Mainshaft Sensor Output Line Inspection

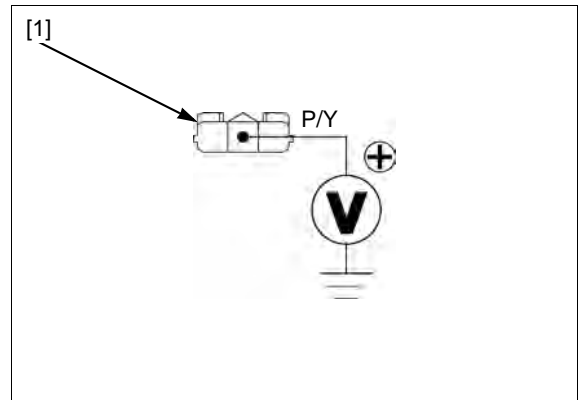
Measure the voltage between the wire harness side outer mainshaft sensor 3P (Black) connector [1] terminal and ground.

Connection: Pink/yellow (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 7.

NO – GO TO STEP 5.



3. Outer Mainshaft Sensor Input Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

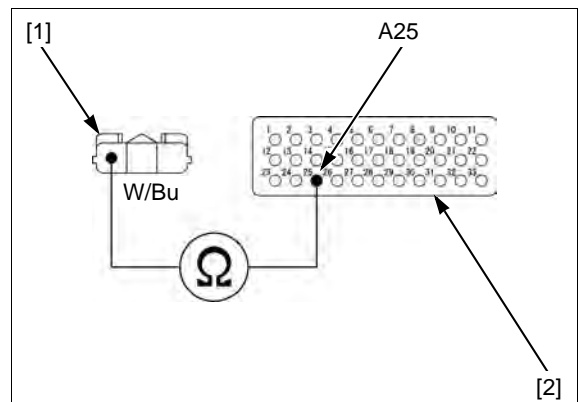
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: White/blue – A25

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the White/blue wire



4. Outer Mainshaft Sensor Ground Line Open Circuit Inspection

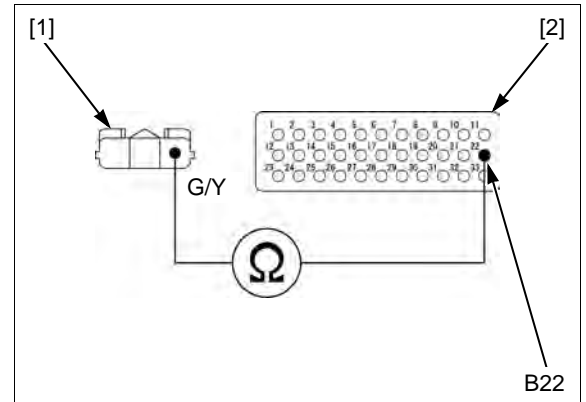
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Green/yellow – B22

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the Green/yellow wire



5. Outer Mainshaft Output Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

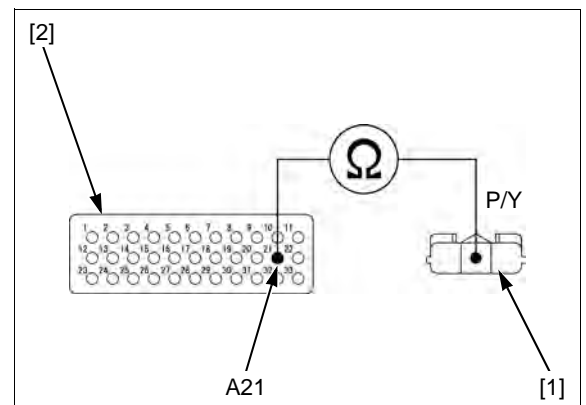
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Pink/yellow – A21

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in the Pink/yellow wire



6. Outer Mainshaft Sensor Output Line Short Circuit Inspection

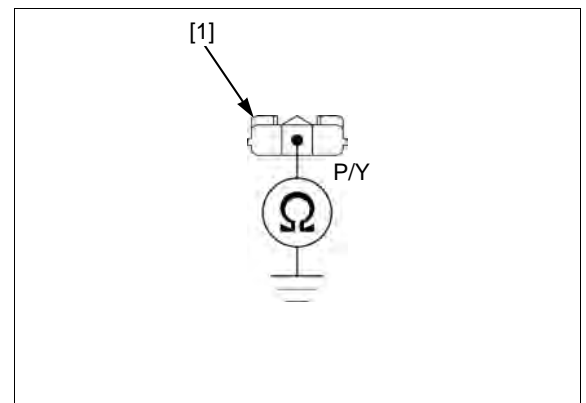
Check for continuity between the wire harness side outer mainshaft sensor 3P (Black) connector [1] terminal and ground.

Connection: Pink/yellow – Ground

Is there continuity?

YES – Short circuit in the Pink/yellow wire

NO – GO TO STEP 7.



7. Outer Mainshaft Sensor Inspection

Replace the outer mainshaft sensor with a known good one (page 12-115).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and read the DTC with the shift indicator (page 12-13).

Is DTC 54 indicated?

YES – Replace the PCM sensor with a new one, and recheck.

NO – Faulty original outer mainshaft sensor

DTC 55 (No.1 LINEAR SOLENOID VALVE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the linear solenoid valve 4P (Green) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. No.1 Linear Solenoid Valve Inspection

Turn the ignition switch OFF.

Disconnect the linear solenoid valve 4P (Green) connector.

Measure the resistance between the linear solenoid valve side 4P (Green) connector [1] terminals.

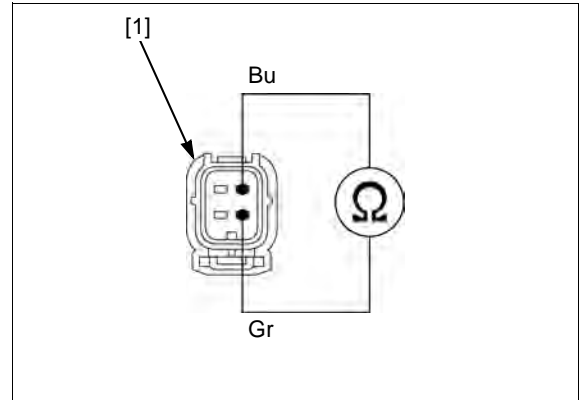
Connection: Blue – Gray

Standard: 5.0 – 5.6 Ω (20°C/68°F)

Is the resistance within standard range?

YES – GO TO STEP 2.

NO – Faulty linear solenoid valve



2. No.1 Linear Solenoid Valve Input/ground Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] and test harness [2] terminals.

Connection: Gray/white – A9

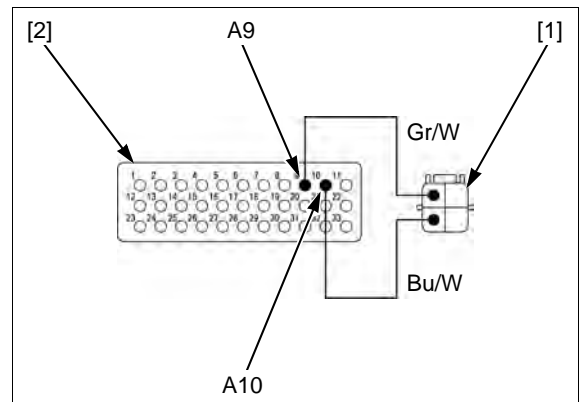
Blue/white – A10

Is there continuity?

YES – GO TO STEP 3.

NO –

- Open circuit in the Gray/white wire
- Open circuit in the Blue/white wire



3. No.1 Linear Solenoid Valve Input/ground Line Short Circuit Inspection

Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] terminals and ground.

Connection: Gray/white – Ground

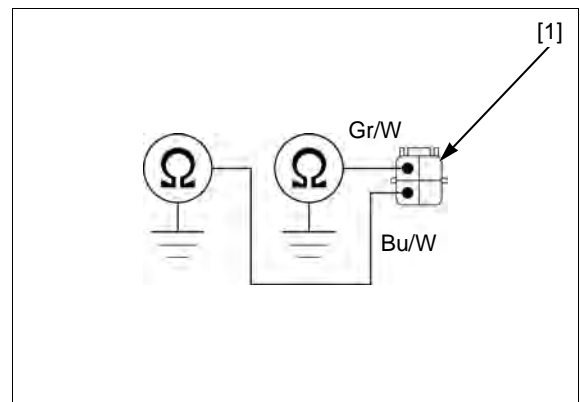
Blue/white – Ground

Is there continuity?

YES –

- Short circuit in the Gray/white wire
- Short circuit in the Blue/white wire

NO – Replace the PCM with a known good one, and recheck.



DTC 56 (No.2 LINEAR SOLENOID VALVE)

NOTE:

- Before starting the inspection, check for loose or poor contact on the linear solenoid valve 4P (Green) and PCM 33P (Black) connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. No.2 Linear Solenoid Valve Inspection

Turn the ignition switch OFF.
Disconnect the linear solenoid valve 4P (Green) connector.

Measure the resistance between the linear solenoid valve side 4P (Green) connector [1] terminals.

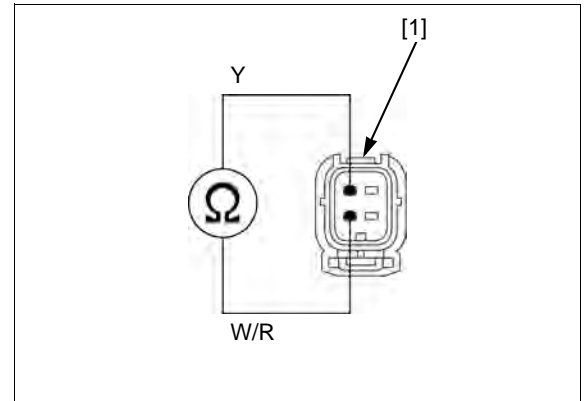
Connection: Yellow – White/red

Standard: 5.0 – 5.6 Ω (20°C/68°F)

Is the resistance within standard range?

YES – GO TO STEP 2.

NO – Faulty linear solenoid valve



2. No.2 Linear Solenoid Valve Input/ground Line Open Circuit Inspection

Connect the ECM test harness to the PCM connectors (page 4-14).

Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] and test harness [2] terminals.

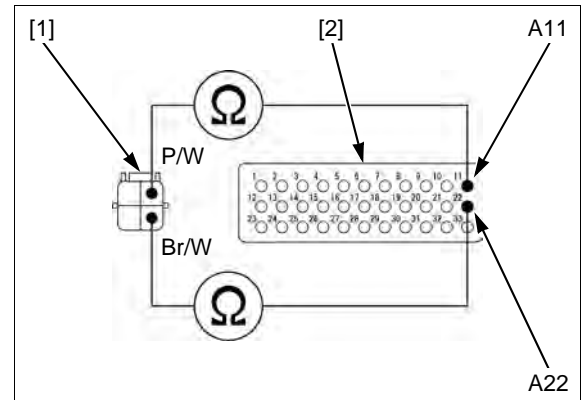
Connection: Pink/white – A11

Brown/white – A22

Is there continuity?

YES – GO TO STEP 3.

- NO** –
- Open circuit in the Pink/white wire
 - Open circuit in the Brown/white wire



3. No.2 Linear Solenoid Valve Input/ground Line Short Circuit Inspection

Check for continuity between the wire harness side linear solenoid valve 4P (Green) connector [1] terminals and ground.

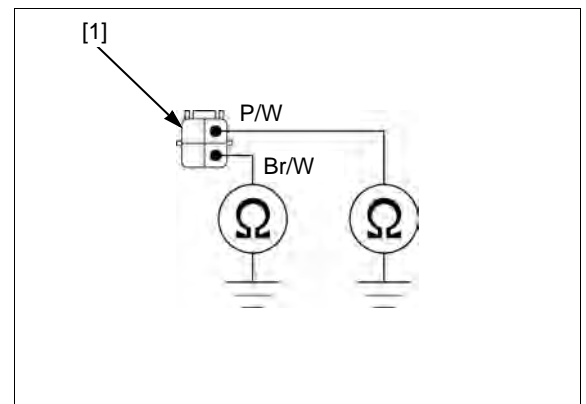
Connection: Pink/white – Ground

Brown/white – Ground

Is there continuity?

- YES** –
- Short circuit in the Pink/white wire
 - Short circuit in the Brown/white wire

NO – Replace the PCM with a known good one, and recheck.



DTC 57 (GEARSHIFT MECHANISM/ GEAR POSITION MALFUNCTION)

See page 12-66

DTC 58 (No.1 CLUTCH DOES NOT DISENGAGE; WHEN SHIFTING GEAR)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. Clutch Condition Inspection

Remove the dual clutch assembly and inspect the clutch for sticking (page 12-105).

Is the No.1 clutch stuck?

YES – Faulty clutch assembly

NO – GO TO STEP 2.

2. Clutch Oil Line Inspection

Check the clutch oil passages in the right crankcase cover and mainshaft for clogging.

Is the oil passage clogged?

YES – Clean the oil passage.

NO – Replace the PCM with a known good one, and recheck.

DTC 59 (No.2 CLUTCH DOES NOT DISENGAGE; WHEN SHIFTING GEAR)

See page 12-86

DTC 61, 62 (No.1 CLUTCH OIL PRESSURE MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 47 or 55 indicated?

YES – • DTC 47 indicated (page 12-74).

• DTC 55 indicated (page 12-84).

NO – GO TO STEP 2.

2. No.1 Clutch EOP Sensor Inspection

Replace the No.1 clutch EOP sensor with a known good one (page 12-117).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 61 or 62 indicated?

YES – GO TO STEP 3.

NO – Faulty original No.1 clutch EOP sensor

3. PCM Inspection

Replace the PCM with a known good one (page 4-67).

Test-ride the motorcycle and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 61 or 62 indicated?

YES – • Faulty No.1 linear solenoid valve
• Clogged No.1 clutch oil line
• Internal oil leak in the No.1 clutch oil line

NO – Faulty original PCM

DTC 63, 64 (No.2 CLUTCH OIL PRESSURE MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 48 or 56 indicated?

YES – • DTC 48 indicated (page 12-74).
• DTC 56 indicated (page 12-85).

NO – GO TO STEP 2.

2. No.2 Clutch EOP Sensor Inspection

Replace the No.2 clutch EOP sensor with a known good one (page 12-117).

Erase the DTCs (page 12-13).

Test-ride the motorcycle and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 63 or 64 indicated?

YES – GO TO STEP 3.

NO – Faulty original No.2 clutch EOP sensor

3. PCM Inspection

Replace the PCM with a known good one (page 4-67).

Test-ride the motorcycle and stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 63 or 64 indicated?

YES – • Faulty No.2 linear solenoid valve
• Clogged No.2 clutch oil line
• Internal oil leak in the No.2 clutch oil line

NO – Faulty original PCM

DTC 65 (FRONT AND REAR WHEEL SPEED SENSOR SIGNAL MALFUNCTION)

NOTE:

- Before starting the inspection, check that the tire sizes are correct, and the drive and driven sprockets are the specified ones.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph).
Stop the engine.
Read the DTC with the shift indicator (page 12-13).

Is DTC 66 or 67 indicated?

YES – • DTC 66 indicated (page 12-89).
• DTC 67 indicated (page 12-90).

NO – GO TO STEP 2.

2. Speed Sensor Air Gap Inspection

Measure the front wheel speed sensor air gap (page 20-24).

Is the air gap correct?

YES – GO TO STEP 3.

NO – Check each part for deformation and looseness and correct accordingly.
Recheck the air gap.

3. Speed Sensor Condition Inspection

Inspect the area around the front wheel speed sensor.

Check that there is no iron or other magnetic deposits between the pulser ring and wheel speed sensor, and check the pulser ring slots for obstructions.

Check installation condition of the pulser ring or wheel speed sensor for looseness.

Check the pulser ring and sensor tip for deformation or damage.

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 4.

NO – Remove any deposits. Install properly or replace faulty part.

4. VS Sensor Condition Inspection

Remove the VS sensor (page 22-18).
Check the VS sensor for damage or contaminated.

Is the VS sensor in good condition?

YES – Replace the PCM with a known good one, and recheck.

NO – Replace the VS sensor with a known good one, and recheck.

DTC 66 (VS SENSOR NO SIGNAL)

NOTE:

- Before starting the inspection, check for loose or poor contact on the VS sensor 3P (Black) and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
 Test-ride the motorcycle above 18 km/h (11 mph).
 Stop the engine.
 Read the DTC with the shift indicator (page 12-13).

Is DTC 66 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. VS Sensor Input Voltage Inspection

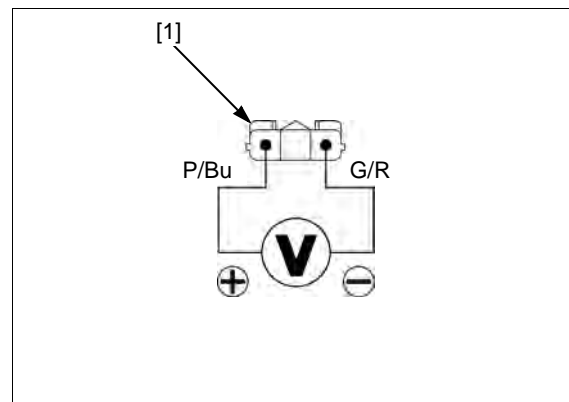
Turn the ignition switch OFF.
 Disconnect the VS sensor 3P (Black) connector.
 Turn the ignition switch ON.
 Measure the voltage between the wire harness side VS sensor 3P (Black) connector [1] terminals.

Connection: Pink/blue (+) – Green/red (-)

Is there battery voltage?

YES – GO TO STEP 3.

- NO** –
- Open circuit in the Pink/blue wire
 - Open circuit in the Green/red wire



3. VS Sensor Output Line Inspection

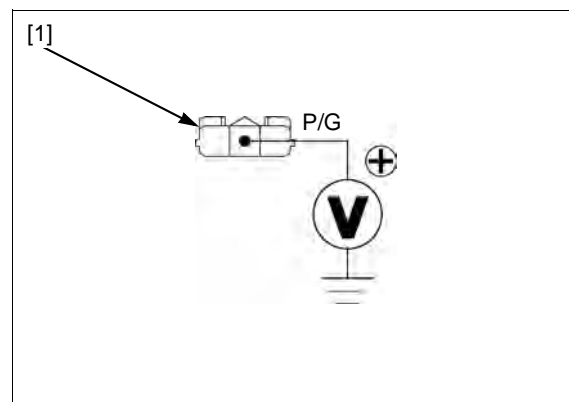
Measure the voltage between the wire harness side 3P (Black) connector [1] terminal and ground.

Connection: Pink/green (+) – Ground (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 6.

NO – GO TO STEP 4.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

4. VS Sensor Output Line Open Circuit Inspection

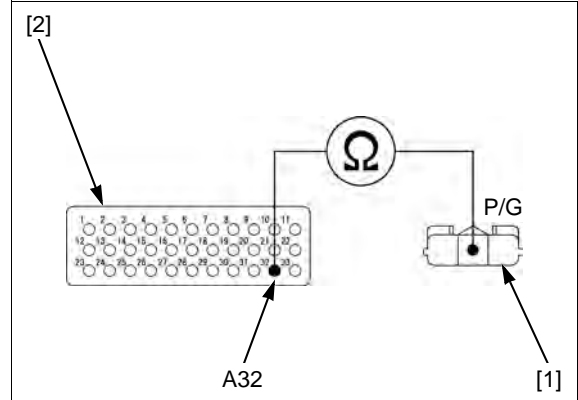
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the wire harness side VS sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Pink/green – A32

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in the Pink/green wire



5. VS Sensor Output Line Short Circuit Inspection

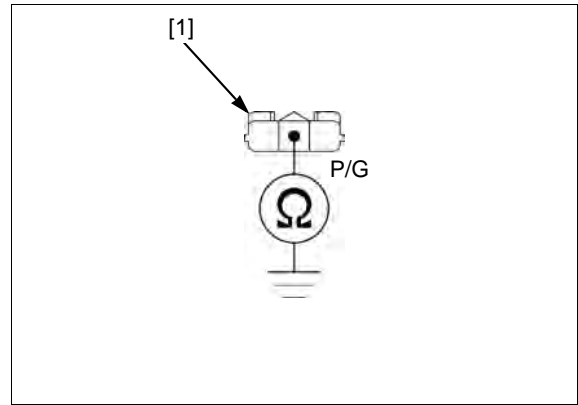
Check for continuity between the wire harness side VS sensor 3P (Black) connector [1] terminal and ground.

Connection: Pink/green – Ground

Is there continuity?

YES – Short circuit in the Pink/green wire

NO – GO TO STEP 6.



6. VS Sensor Inspection

Replace the VS sensor with a known good one (page 22-18).
Erase the DTCs (page 12-13).
Test-ride the motorcycle and stop the engine.
Read the DTC with the shift indicator (page 12-13).

Is DTC 66 indicated?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty original VS sensor

DTC 67 (FRONT WHEEL SPEED SENSOR NO SIGNAL)

NOTE:

- Before starting the inspection, check for loose or poor contact on the front wheel speed sensor 2P (Blue), ABS modulator 25P and PCM 33P connectors, and recheck the DTC.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph).
Stop the engine.
Read the DTC with the shift indicator (page 12-13).

Is DTC 67 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

2. ABS Problem Code Inspection

Check the ABS problem code (page 20-8).

Does the ABS modulator have any problem code?

YES – Follow the problem code index (page 20-10).

NO – GO TO STEP 3.

3. Front Wheel Speed Sensor Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector.

Connect the ECM test harness to the PCM connectors (page 4-14).

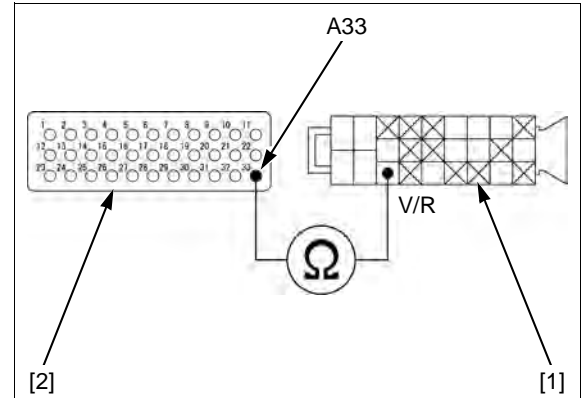
Check for continuity between the ABS modulator 25P connector [1] and test harness [2] terminals.

Connection: Violet/red – A33

Is there continuity?

YES – GO TO STEP 4.

NO – Open circuit in the Violet/red wire



4. Front Wheel Speed Sensor Line Short Circuit Inspection

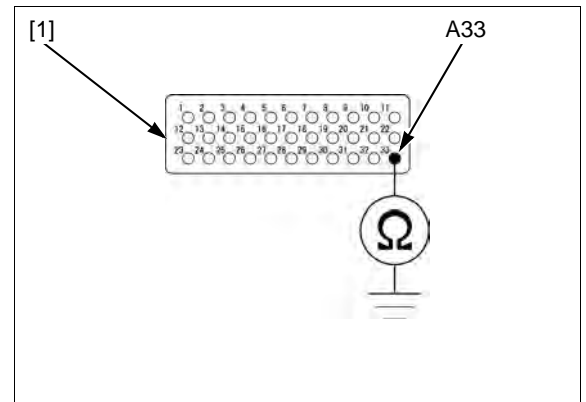
Check for continuity between the test harness [1] terminal and ground.

Connection: A33 – Ground

Is there continuity?

YES – Short circuit in the Violet/red wire

NO – Replace the PCM with a known good one, and recheck.



DTC 68 (No.1 CLUTCH OPERATION MALFUNCTION; CLUTCH SLIPS)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).

Test-ride the motorcycle above 18 km/h (11 mph).

Stop the engine.

Read the DTC with the shift indicator (page 12-13).

Is DTC 66 indicated?

YES – Refer to DTC 66 troubleshooting (page 12-89).

NO – GO TO STEP 2.

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. Clutch Condition Inspection

Remove the No.1 clutch assembly and measure the clutch clearance (page 12-105).

Is the clearance within the standard range?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty No.1 clutch assembly

DTC 69 (No.2 CLUTCH OPERATION MALFUNCTION; CLUTCH SLIPS)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph).
Stop the engine.
Read the DTC with the shift indicator (page 12-13).

Is DTC 66 indicated?

YES – Refer to DTC 66 troubleshooting (page 12-89).

NO – GO TO STEP 2.

2. Clutch Condition Inspection

Remove the No.2 clutch assembly and measure the clutch clearance (page 12-105).

Is the clearance within the standard range?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty No.2 clutch assembly

DTC 71, 72 (INNER, OUTER MAINSHAFT/COUNTERSHAFT SPEED RATIO FAILURE)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck 1

Turn the ignition switch ON with the engine stop switch "O", lower the sidestand and check the shift indicator.

Is DTC 53, 54 or 66 indicated?

YES – • Refer to DTC 53 troubleshooting (page 12-79).
• Refer to DTC 54 troubleshooting (page 12-82).
• Refer to DTC 66 troubleshooting (page 12-89).

NO – GO TO STEP 2.

2. DTC Recheck 2

Erase the DTCs (page 12-13).
Test-ride the motorcycle above 18 km/h (11 mph)
for more than 30 seconds.
Stop the engine.
Read the DTC with the shift indicator (page 12-13).

Is DTC 71 or 72 indicated?

YES – Replace the PCM with a known good one,
and recheck.

NO – Intermittent failure

DTC 84 (CPU IN THE PCM MALFUNCTION)

NOTE:

- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. DTC Recheck

Erase the DTCs (page 12-13).
Read the DTC with the shift indicator (page 12-13).

Is DTC 84 indicated?

YES – Replace the PCM with a known good one,
and recheck.

NO – Intermittent failure

DTC 1 (SHIFT PEDAL ANGLE SENSOR (OPTIONAL) MALFUNCTION)

NOTE:

- Before starting this inspection, check for loose or poor contact on the shift pedal angle sensor 3P (Black) connector and PCM 33P (Gray) connector and recheck the MIL.
- If the PCM is replaced, perform the following procedure.
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)
 - DCT Shift Pedal (Optional) Registration (page 12-118)
- If the DCT shift pedal (optional) is removed from the vehicle, perform the DCT Shift Pedal Registration Cancellation (page 12-119).

1. DTC Recheck

Erase the DTC's (page 12-13).
Turn the ignition switch ON and engine stop switch "O".
Operate the DCT shift pedal up and down several times with the engine stopped.
Recheck the DTC with the shift indicator (page 12-13).

Is the DTC 1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

2. Shift Pedal Angle Sensor Input Voltage Inspection

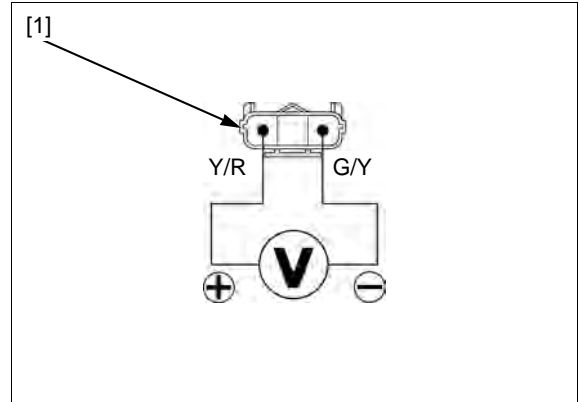
Turn the ignition switch OFF.
Disconnect the shift pedal angle sensor 3P (Black) connector [1].
Turn the ignition switch ON and engine stop switch "O".
Measure the voltage between the wire harness side shift pedal angle sensor 3P (Black) connector terminals.

Connection: Yellow/red (+) – Green/yellow (-)

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 4.

NO – GO TO STEP 3.



3. Shift Pedal Angle Sensor Open Circuit Inspection

Turn the ignition switch OFF.
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the shift pedal angle sensor 3P (Black) connector [1] and test harness [2] terminals.

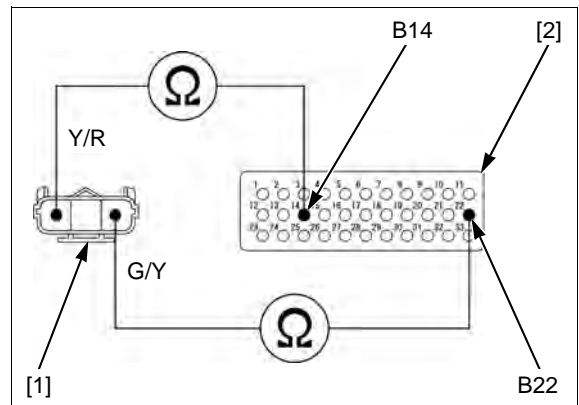
Connection: Green/yellow – B22
Yellow/red – B14

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO –

- Open circuit in Green/yellow wire
- Open circuit in Yellow/red wire



4. Shift Pedal Angle Sensor Output Line Open Circuit Inspection

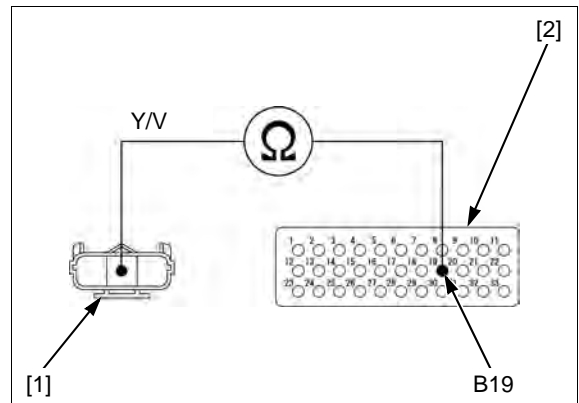
Turn the ignition switch OFF.
Connect the ECM test harness to the PCM connectors (page 4-14).
Check for continuity between the shift pedal angle sensor 3P (Black) connector [1] and test harness [2] terminals.

Connection: Yellow/violet – B19

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Yellow/violet wire



5. Shift Pedal Angle Sensor Output Line Short Circuit Inspection

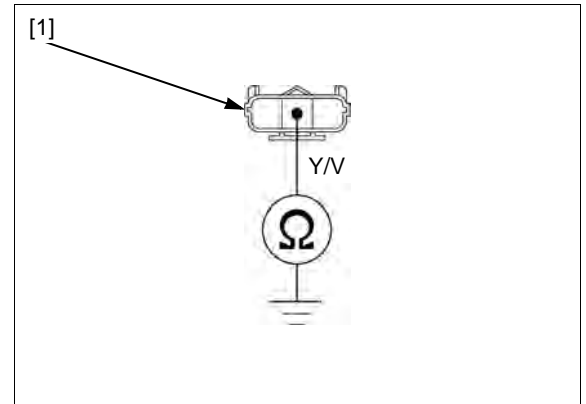
Check for continuity between the wire harness side shift pedal angle sensor 3P (Black) connector [1] and ground.

Connection: Yellow/violet – Ground

Is there continuity?

YES – Short circuit in Yellow/violet wire

NO – GO TO STEP 6.



6. Shift Pedal Angle Sensor Resistance Inspection

Measure the resistance at the sensor side shift pedal angle sensor 3P (Black) connector [1] terminals.

Connection: Yellow/red – Blue/green

Standard: 4 – 6 kΩ (20°C/68°F)

Operate the DCT shift pedal to check that the resistance changes in accordance with the pedal operation.

Connection: Yellow/blue – Blue/green

When moving the pedal up:

Resistance increases

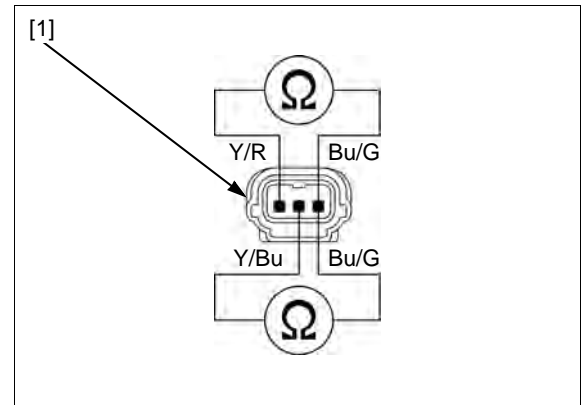
When moving the pedal down:

Resistance decreases

Are the resistance inspections normal?

YES – Replace the PCM with a known good one, and recheck.

NO – Faulty shift pedal angle sensor, replace the DCT shift pedal as an assembly.



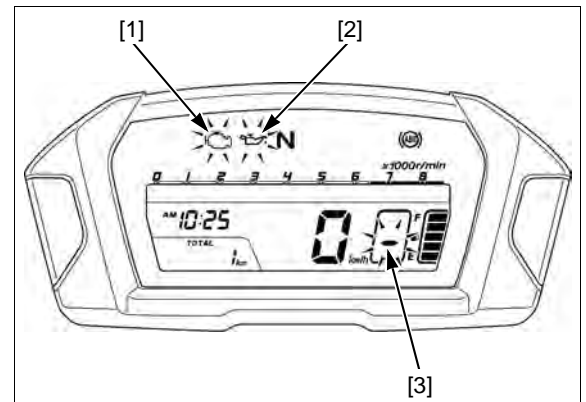
MODE/SHIFT INDICATOR CIRCUIT TROUBLESHOOTING

If the mode indicator does not operate, check that the combination meter shows following when the ignition switch is turned ON with the engine stop switch "O".

- MIL [1] and engine oil pressure indicator [2] stay on.
- Shift indicator "N" [3] is blinking.
- Tachometer, high coolant temperature indicator and HISS indicator do not come on.

If so, check the TXD/RXD line (page 22-11).

If not so, replace the combination meter.



AT/MT MODE SWITCH TROUBLESHOOTING

If the engine can be started but AT/MT mode cannot be changed, perform this troubleshooting.

NOTE:

- Before starting the inspection, check for loose or poor contact on the right handlebar switch and PCM 33P connectors, and recheck the AT/MT mode switch operation.
- If the PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (page 12-120)

1. AT/MT mode switch Power Input Voltage Inspection

Disconnect the following:

- Right handlebar switch 6P (Black) connector (NC700XD) [1]
- Right handlebar switch 7P (Green) connector (NC700SD) [2]

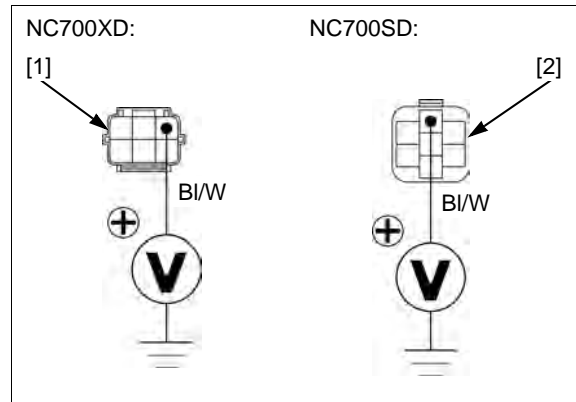
Turn the ignition switch ON with the engine stop switch "O". Measure the voltage between the wire harness side right handlebar switch connector terminal and ground.

Connection: Black/white (+) – Ground (-)

Is there battery voltage?

YES – GO TO STEP 2.

NO – Open circuit in the Black/white wire between the right handlebar switch connector and fuse/relay box (FI fuse)



2. AT/MT mode switch Inspection

Turn the ignition switch OFF.

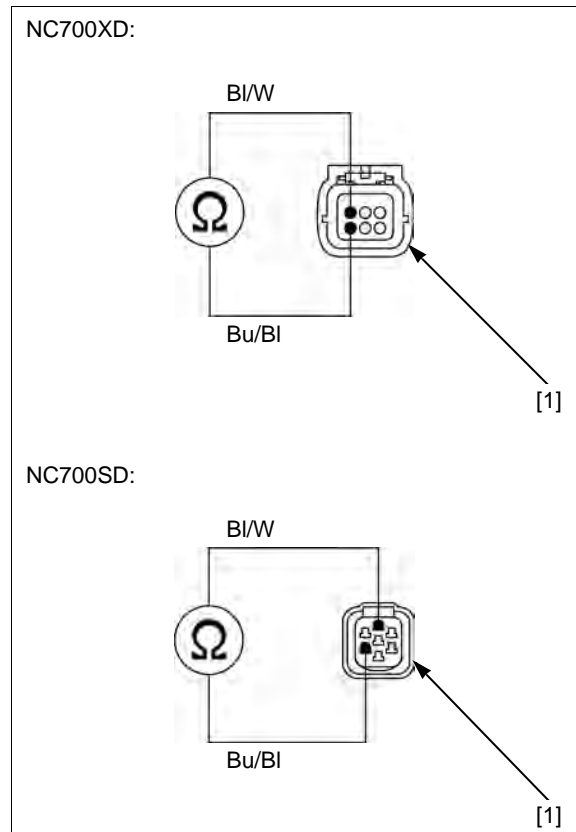
Check for continuity between the switch side right handlebar switch connector [1] terminals in each switch position.

Connection: Black/white – Blue/black

Is there continuity with the switch pushed and no continuity with the switch released?

YES – GO TO STEP 3.

NO – Faulty AT/MT mode switch



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

3. AT/MT mode switch Input Line Open Circuit Inspection

Disconnect the PCM 33P (Black) connector.
Check for continuity between the wire harness side right handlebar switch connector [1] and PCM 33P (Black) connector [2] terminals.

Connection: White/yellow – A27

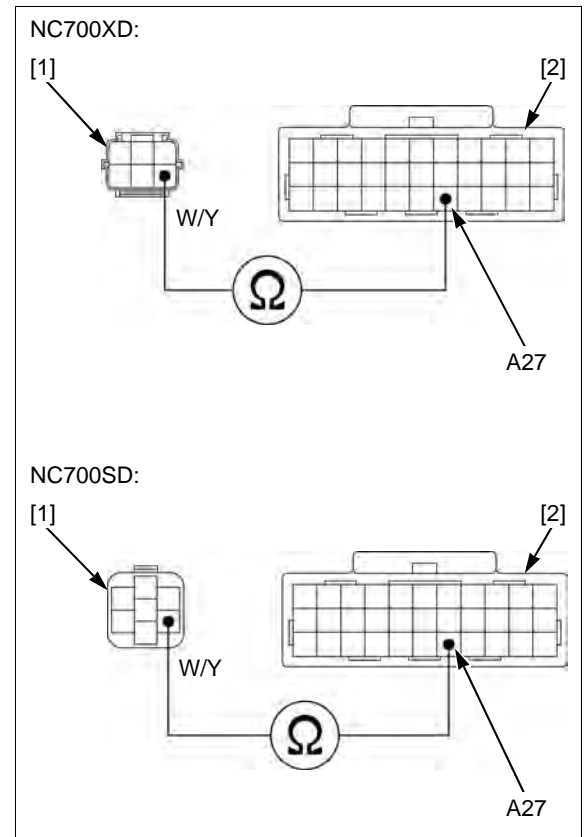
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Replace the PCM with a known good one, and recheck.

NO – Open circuit in the White/yellow wire



RIGHT CRANKCASE COVER

REMOVAL

Drain the engine oil (page 3-13).

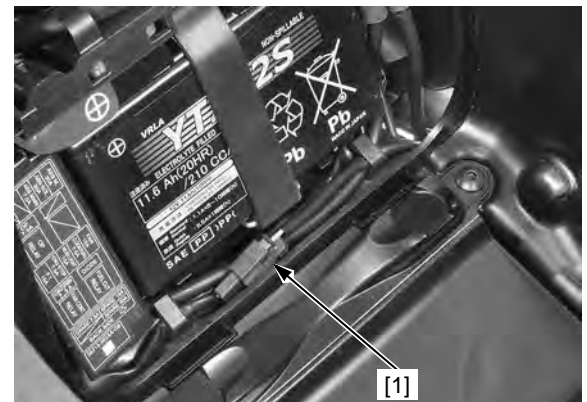
Remove the following:

- Maintenance lid (page 21-6)
- Shroud/side cover (NC700XD) (page 2-14)
- Shelter/side cover (NC700SD) (page 2-15)
- Right engine side cover (page 2-30)

Disconnect the linear solenoid valve 4P (Green) connector [1] and remove it from the ABS modulator stay.



Disconnect the CKP sensor 2P (Red) connector [1] and release the CKP sensor harness.



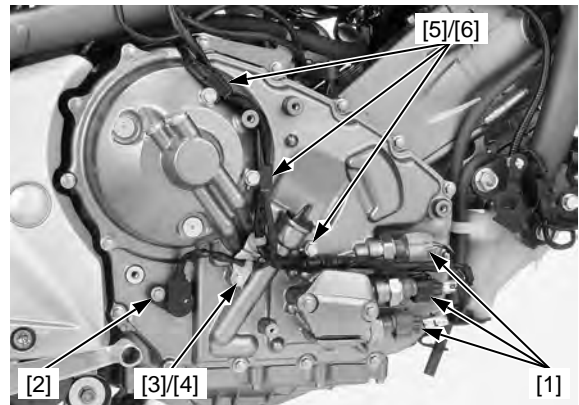
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Disconnect the clutch EOP sensor 3P connectors [1].

Remove the following:

- Bolt and shift spindle angle sensor [2]
- Bolt [3] and wire clip stay [4]
- Bolts [5] and wire clamps [6]

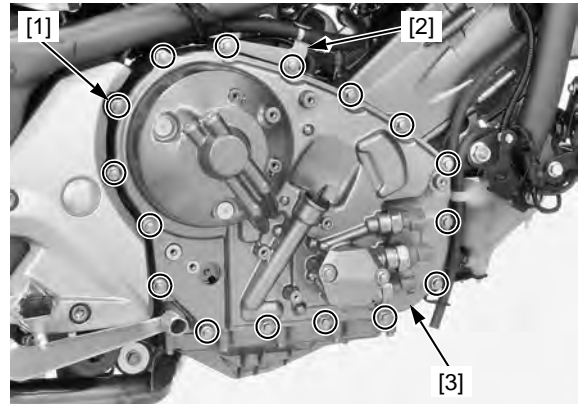
Remove the wire harness and shift spindle angle sensor wire from the right crankcase cover.



Do not allow dust or dirt to enter the oil passages.

Remove the bolts [1] and hose clamp [2].

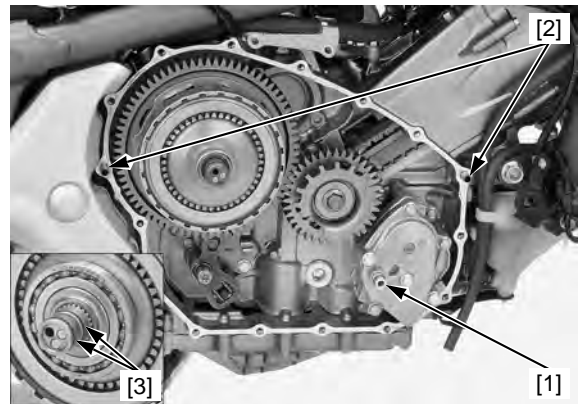
Remove the right crankcase cover [3].



Remove the oil joint pipe [1] and dowel pins [2].

Remove the O-rings from the joint pipe.

Remove the seal rings [3] from the mainshaft end.



LINEAR SOLENOID VALVE BODY DISASSEMBLY

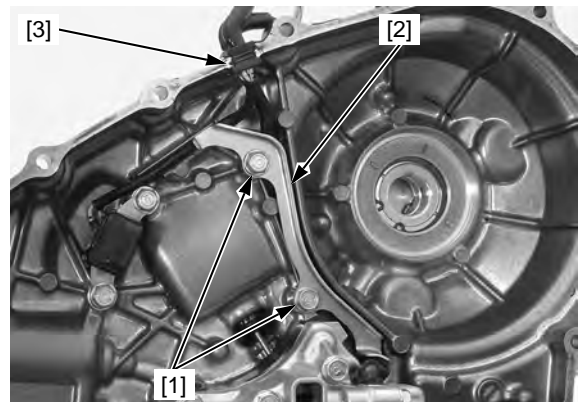
NOTE:

- Keep dust and dirt away from all the parts.
- Be careful not to damage the mating surfaces of the valve body components.

Remove the right crankcase cover (page 12-97).

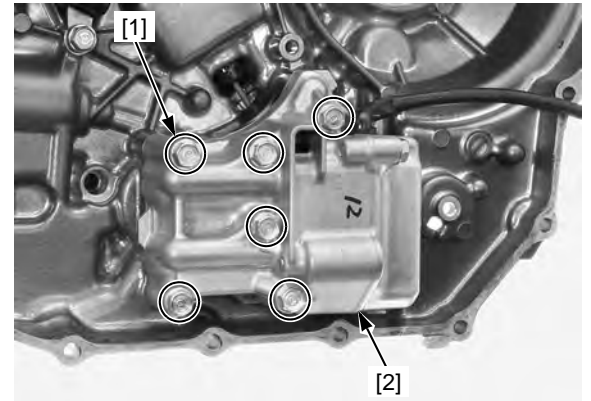
Remove the right crankcase cover wire clamp bolt [1] and wire clamp [2].

Remove the wire grommets [3] from the right crankcase cover.

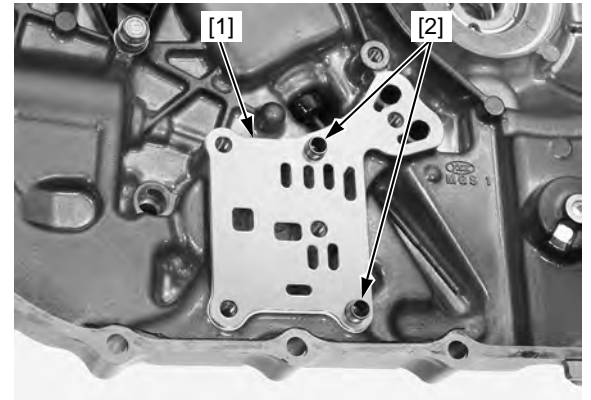


DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

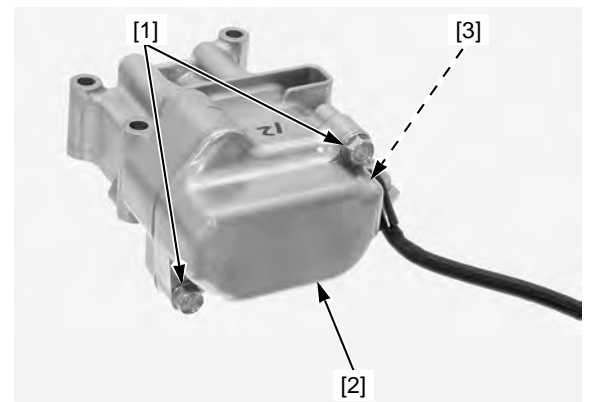
Remove the bolts [1] and linear solenoid valve body [2].



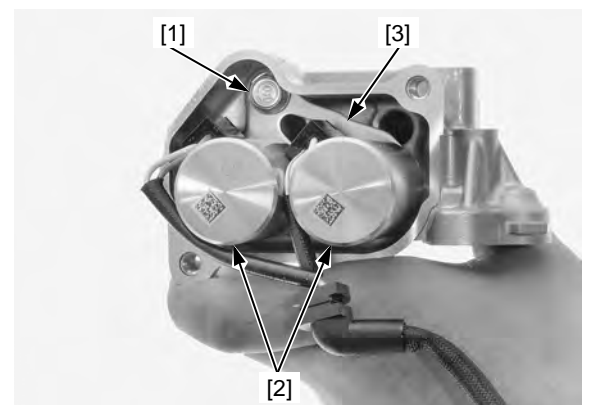
Remove the separate plate [1] and dowel pins [2].



Remove the bolts [1] and valve body cover [2].
Remove the wire grommet [3] from the valve body cover.



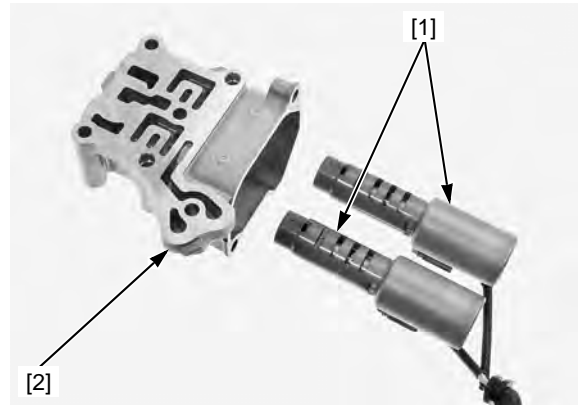
Remove the bolt [1], linear solenoid valves [2] and stopper plate [3] from the valve body.
Remove the stopper plate from the linear solenoid valves.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Wash all the parts with a high flash point or non-flammable solvent and blow through all oil passages with compressed air to clean completely.

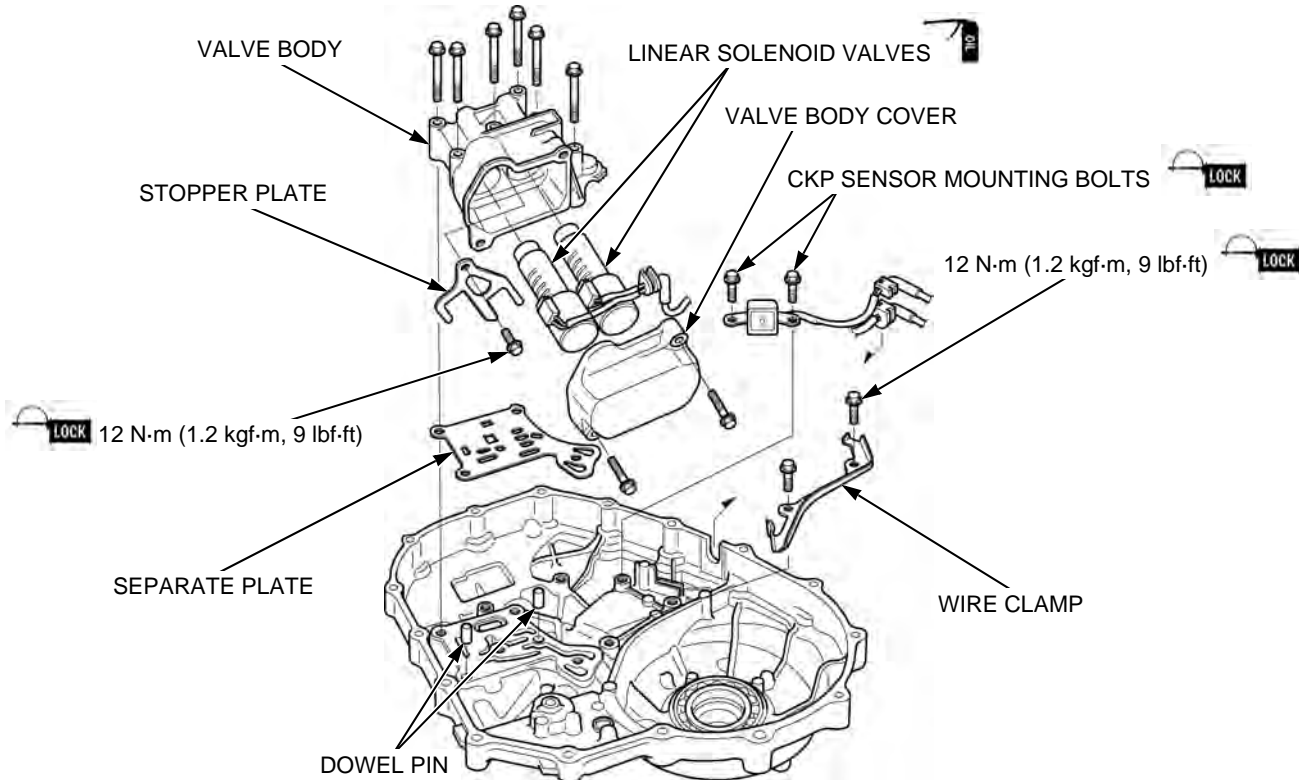
Check the linear solenoid valves [1] and valve body [2] for scratches, scoring or damage.



LINEAR SOLENOID VALVE BODY ASSEMBLY

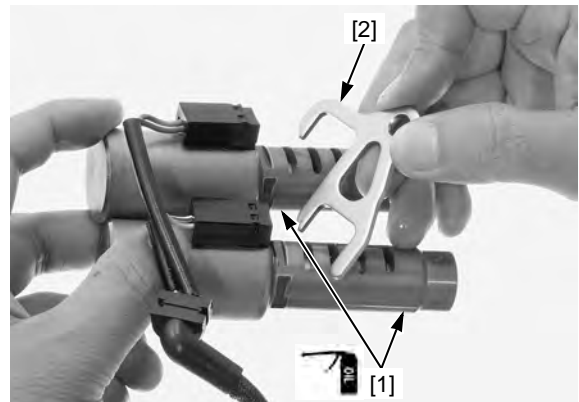
NOTE:

Clean all the parts with compressed air. Make sure that there is no dust or lint on any parts.



Coat linear solenoid valves [1] with engine oil.

Set the stopper plate [2] into the grooves in the solenoid valves.



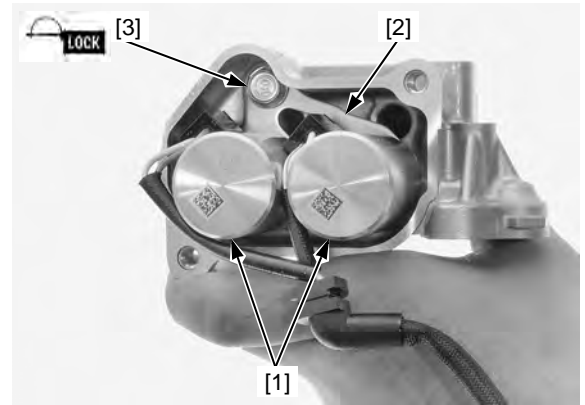
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Install the linear solenoid valves [1] and stopper plate [2] into the valve body.

Apply locking agent to the threads of the stopper plate bolt [3] (page 12-4).

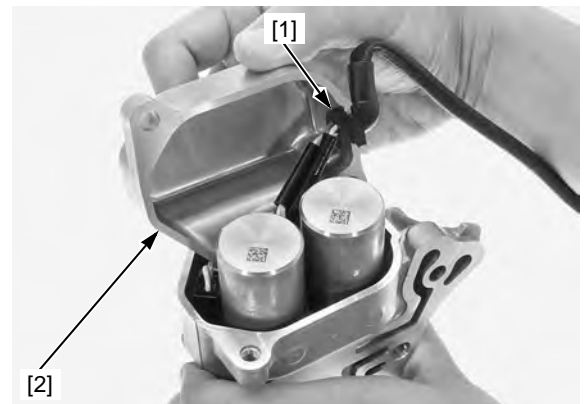
Install the stopper plate bolt and tighten it.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



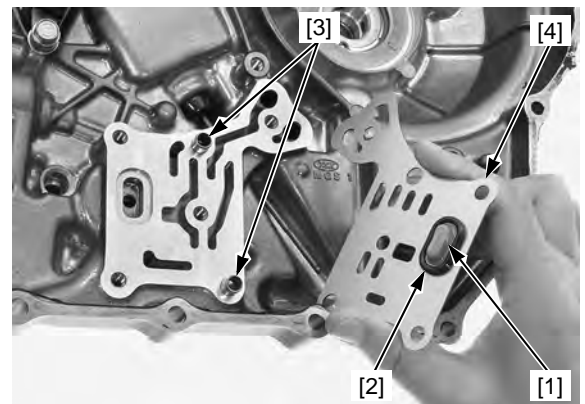
Set the wire grommet [1] into the groove in the body cover [2].

Install the valve body cover onto the valve body and tighten the bolts securely.

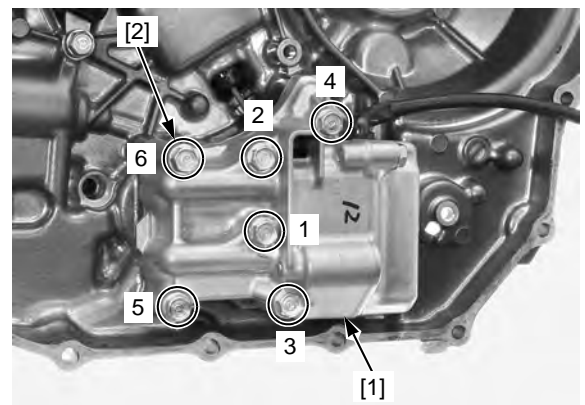


Check the oil filter screen [1] and packing [2] for damage and replace them if necessary.

Install the dowel pins [3] and separate plate [4] onto the right crankcase cover.



Install the valve body [1] and bolts [2], and tighten the bolts in the sequence as shown.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

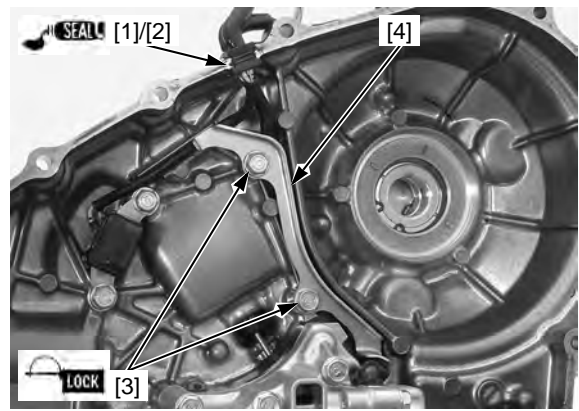
Apply liquid sealant (Three bond 1207B or equivalent) to the CKP sensor wire grommet and linear solenoid valve wire grommet sealing surface.

Set the linear solenoid valve wire grommet [1] and CKP sensor wire grommet [2] into the groove in the right crankcase cover.

Apply locking agent to the threads of the right crankcase cover wire clamp bolts [3] (page 12-4). Install the wire clamp [4] and tighten bolts.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

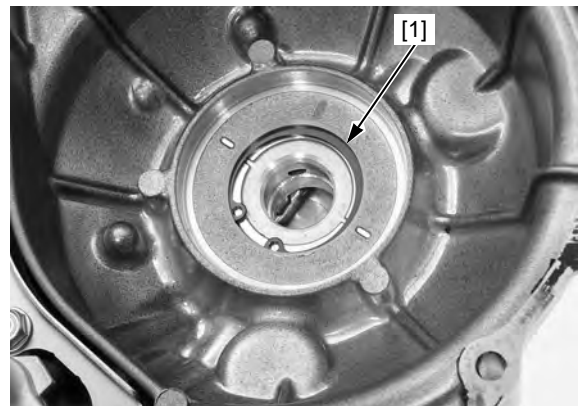
Install the right crankcase cover (page 12-103).



OIL GUIDE COLLAR REMOVAL/INSTALLATION

Remove the right crankcase cover (page 12-97).

Remove the snap ring [1] from the right crankcase cover.

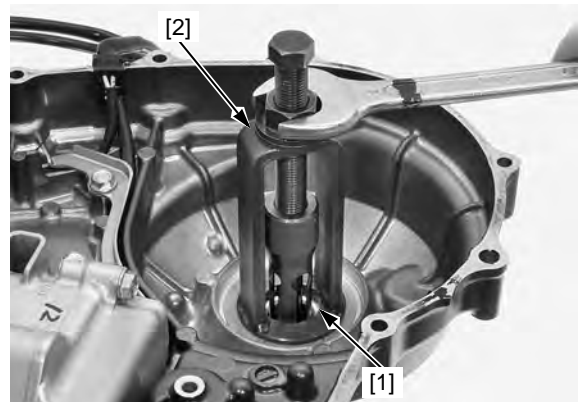


Remove the oil guide collar [1] from the right crankcase cover with the special tool.

TOOL:

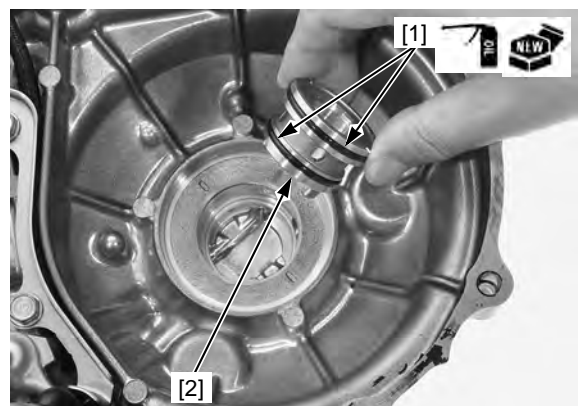
Bearing remover, 20 mm [2] 07931-MA70000

Remove the O-rings from the oil guide collar.



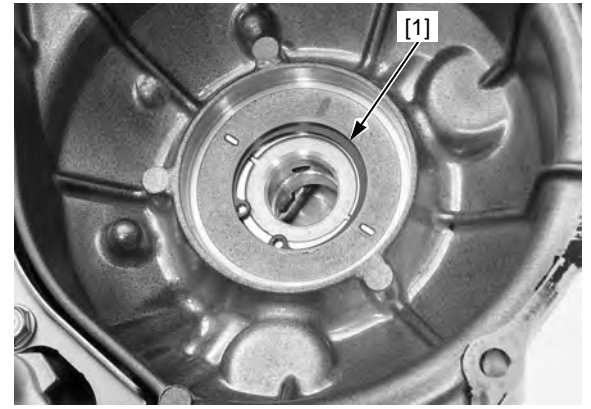
Coat new O-rings [1] with engine oil and install them into the grooves in the oil guide collar [2].

Install the oil guide collar into the right crankcase cover until it is seated.



Install the snap ring [1] into the right crankcase cover groove with the chamfered edge facing in.

Install the right crankcase cover (page 12-103).

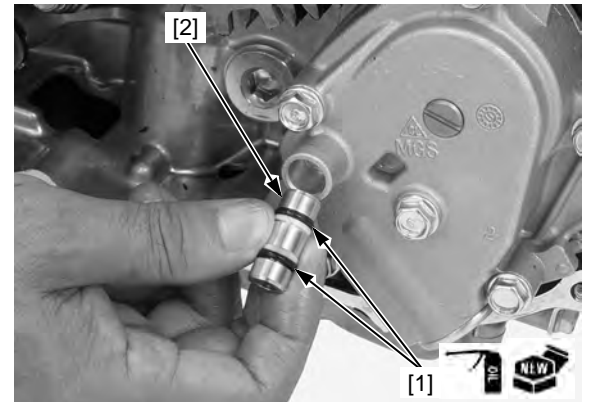


INSTALLATION

Do not allow dust or dirt to enter the oil passages.

Coat new O-rings [1] with engine oil and install them onto the oil joint pipe [2].

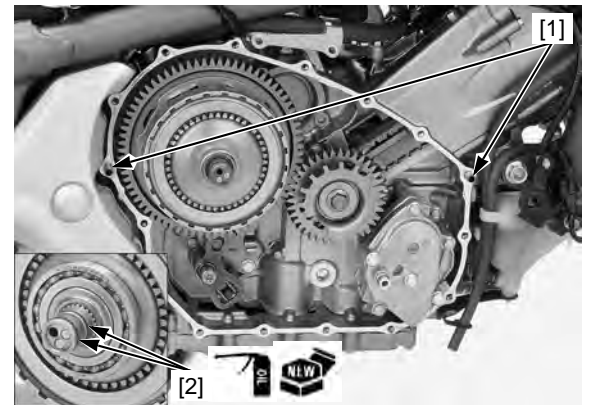
Install the oil joint pipe into the oil pump.



Install the dowel pins [1].

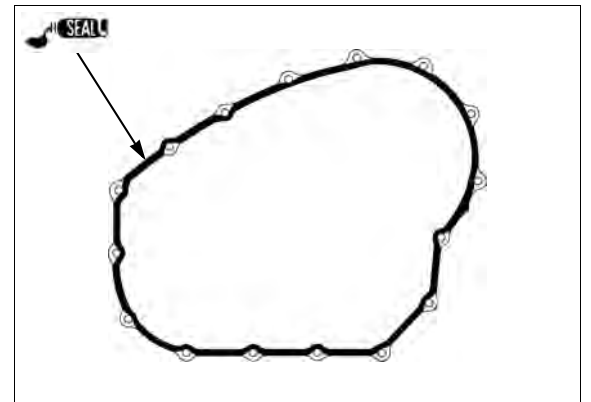
Apply engine oil to new seal rings [2] and install them into the mainshaft grooves.

Push in the seal rings to seat them into the grooves.



Clean the right crankcase cover mating surfaces thoroughly.

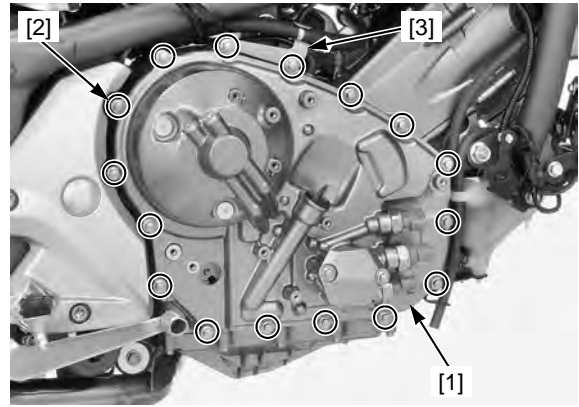
Apply liquid sealant (Three Bond 1207B or equivalent) to the right crankcase cover mating surface as shown.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Install the right crankcase cover [1].

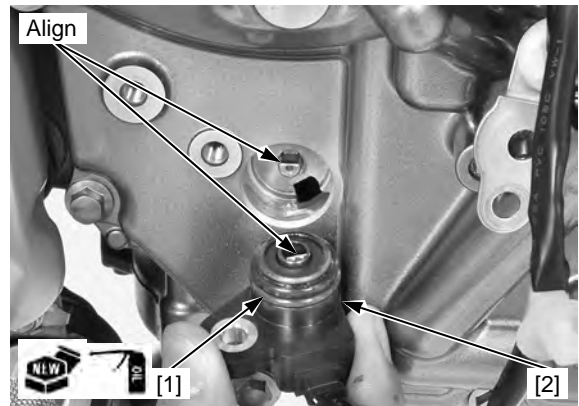
Install the bolts [2] with the hose clamp [3] and tighten them in a crisscross pattern in 2 or 3 steps.



Route the wire harness and shift spindle angle sensor wire on the right crankcase cover properly (page 1-25).

Coat a new O-ring [1] with engine oil and install it onto the shift spindle angle sensor [2].

Install the shift spindle angle sensor by aligning the flat surfaces of the sensor and spindle.



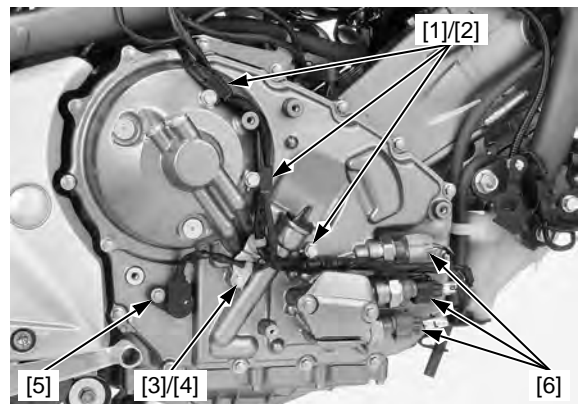
Install the following:

- Wire clamps [1] and bolts [2]
- Wire clip stay [3] and bolt [4]

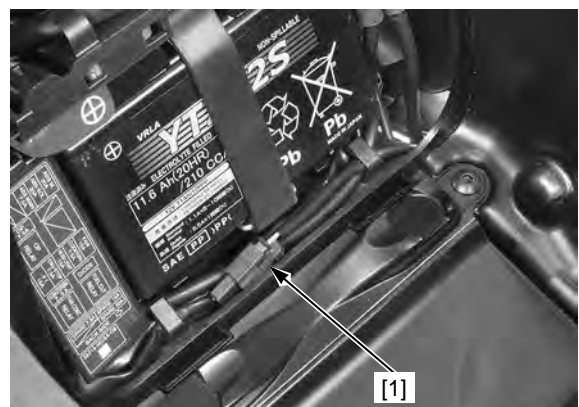
Install the shift spindle angle sensor bolt [5] and tighten it.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the clutch EOP sensor 3P connectors [6]. (Connector with no mark to the upper sensor, connector with "P" mark to the middle sensor and connector with "1" mark to the lower sensor.)



Connect the CKP sensor 2P (Red) connector [1].



Connect the linear solenoid valve 4P (Green) connector [1] and install it to the ABS modulator stay.

Install the following:

- Maintenance lid (page 21-6)
- Shroud/side cover (NC700XD) (page 2-14)
- Shelter/side cover (NC700SD) (page 2-15)
- Right engine side cover (page 2-30)

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).

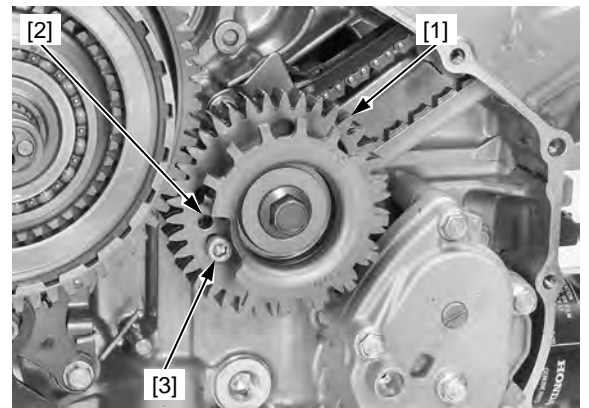


DUAL CLUTCH

REMOVAL

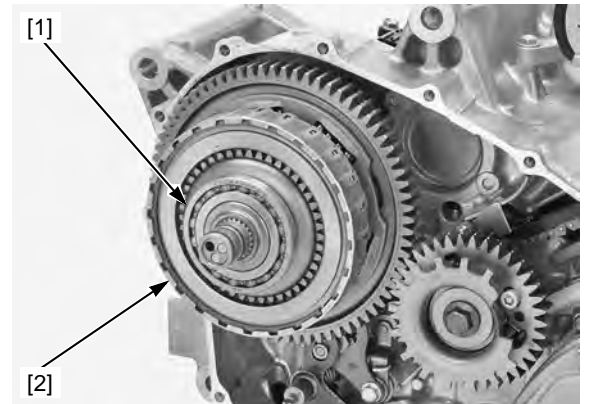
Remove the right crankcase cover (page 12-97).

Align the gear teeth of the primary drive gear and sub-gear [1] by prying the gears through the holes [2] and hold them with a 6 mm socket bolt [3].

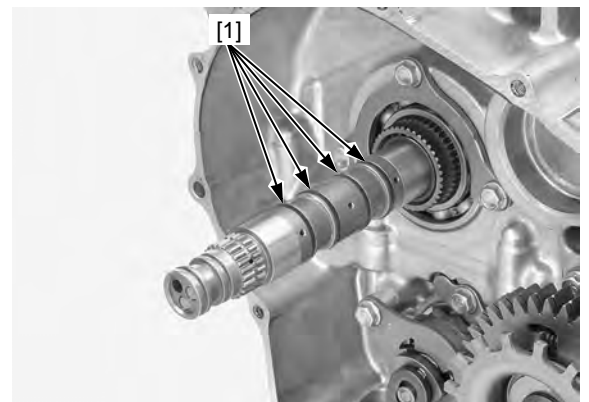


Remove the ball bearing [1].

Remove the dual clutch assembly [2] from the mainshaft.



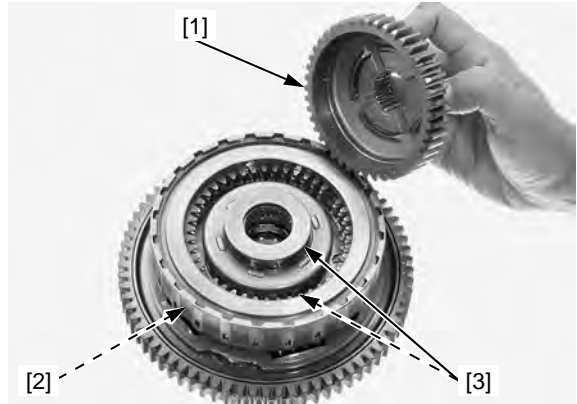
Remove the seal rings [1] from the mainshaft grooves.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

DISASSEMBLY

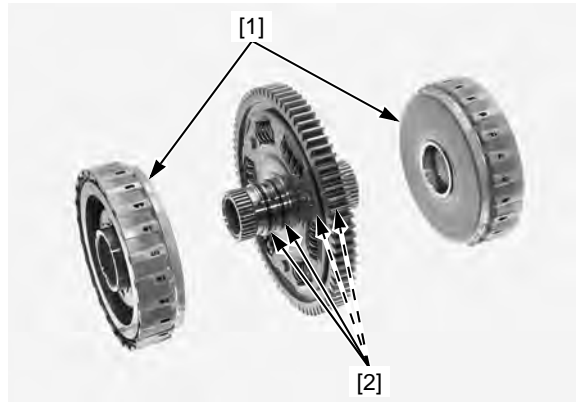
Remove clutch guide 1 [1], clutch guide 2 [2] and washers [3] from the clutches.



Remove the clutch assemblies [1] and O-rings [2] from the primary driven gear.

NOTE:

- Do not disassemble the clutch assembly.
- The No.1 clutch assembly (for inner mainshaft) and No.2 clutch assembly (for outer mainshaft) are the same parts.



CLUTCH CLEARANCE INSPECTION

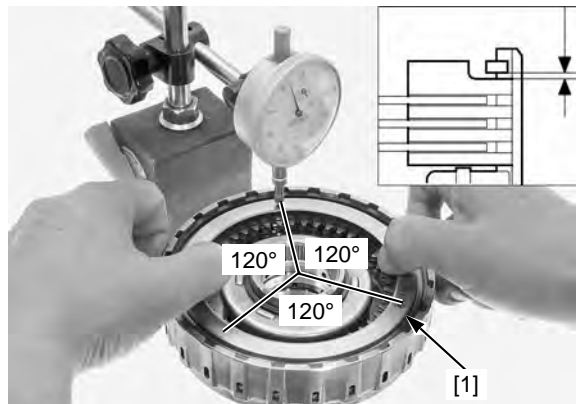
Set a dial indicator on the end plate [1] with the plate bottomed.

Measure the clearance by lifting the end plate against the snap ring and record it.

Perform this inspection at three points in 120° apart.

SERVICE LIMIT: 2.0 mm (0.08 in)

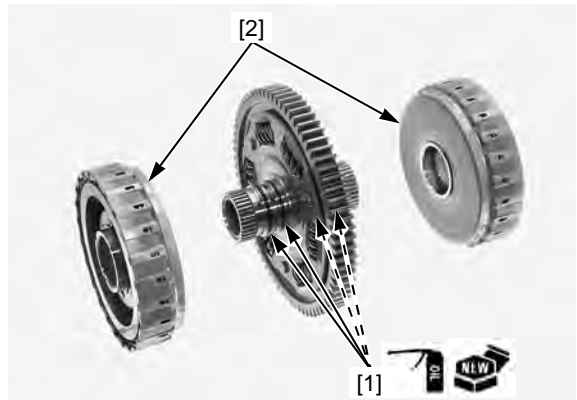
If the measured value exceeds the service limit, replace the clutch assembly.



ASSEMBLY

Coat new O-rings [1] with engine oil and install them into the grooves in the primary driven gear.

Install the clutch assemblies [2] onto the primary driven gear.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Apply engine oil to the needle bearings in the primary driven gear.

NOTE:

The primary driven gear has the index line [1] on its flange for the installation direction. The dual clutch assembly should be installed with the index line facing the outside.

Line up the clutch disc tabs with the two wide grooves [2] aligned as shown.

Install the washer [3] onto the clutch assembly.

Install clutch guide 1 [4] into the clutch on the index line side by aligning the gear teeth with the clutch disc tabs.

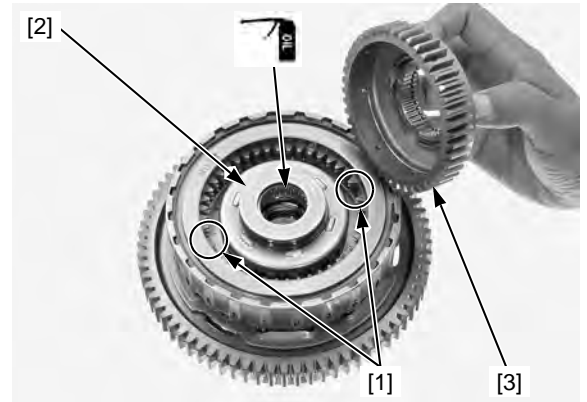
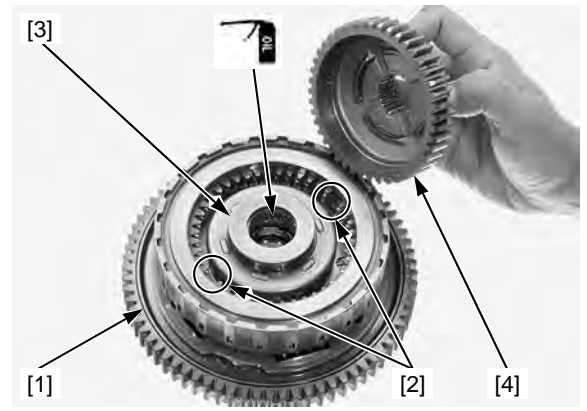
Turn over the dual clutch assembly while holding clutch guide 1.

Apply engine oil to the needle bearings in the primary driven gear.

Line up the clutch disc tabs with the two wide grooves [1] aligned as shown.

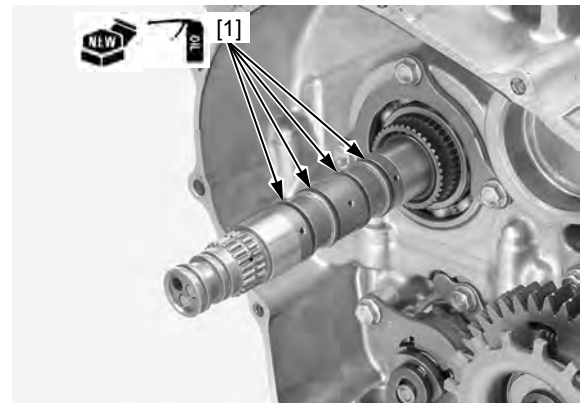
Install the washer [2] onto the clutch assembly.

Install clutch guide 2 [3] into the clutch by aligning the gear teeth with the clutch disc tabs.



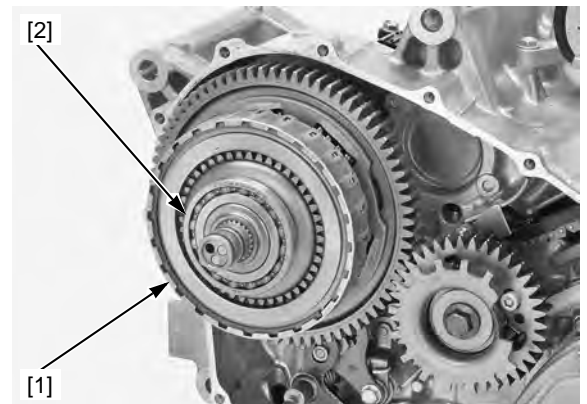
INSTALLATION

Apply engine oil to new seal rings [1] and install them into the mainshaft grooves.
Push in the seal rings to seat them into the grooves.



Install the dual clutch assembly [1] onto the mainshaft, being careful not to damage the seal rings.

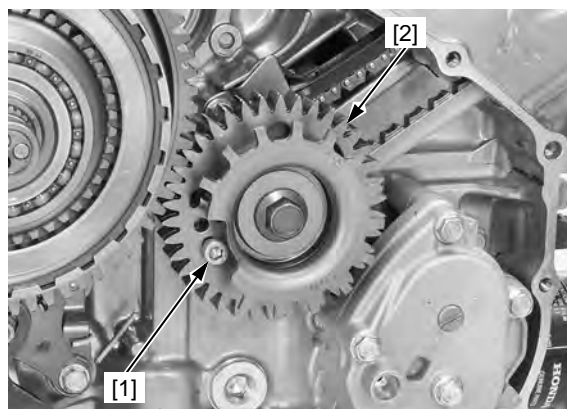
Install the ball bearing [2] onto clutch guide 1 with the marked side facing out.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Remove the 6 mm socket bolt [1] to free the primary drive gear and sub-gear [2].

Install the right crankcase cover (page 12-103).



PRIMARY DRIVE GEAR/CKP SENSOR ROTOR

REMOVAL

Remove the right crankcase cover (page 12-97).

Hold the primary drive gear and sub-gear with a 6 mm socket bolt (page 12-105).

Install the special tool between the primary drive and driven gears, and loosen the primary drive gear bolt [1].

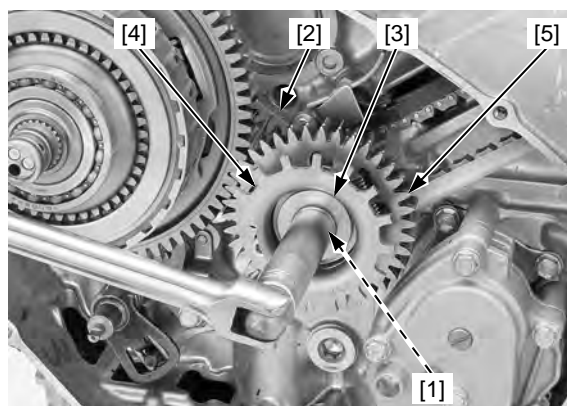
TOOL:

Gear holder, M2.5 [2]

07724-0010100

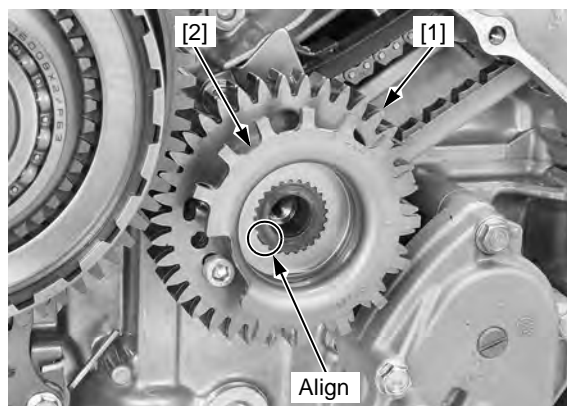
Do not separate the sub-gear from the primary drive gear unless necessary.

Remove the primary drive gear bolt, washer [3], CKP sensor rotor [4] and primary drive gear/sub-gear [5] from the crankshaft.



INSTALLATION

Install the primary drive gear/sub-gear [1] and CKP sensor rotor [2] onto the crankshaft by aligning their wide grooves with the wide tooth.



Apply engine oil to the primary drive gear bolt threads and seating surface.

Install the washer [1] and primary drive gear bolt [2].

Install the special tool between the primary drive and driven gears, and tighten the primary drive gear bolt.

TOOL:

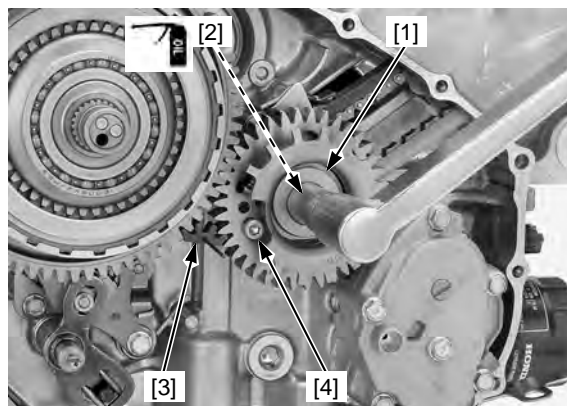
Gear holder, M2.5 [3]

07724-0010100

TORQUE: 93 N·m (9.5 kgf·m, 69 lbf·ft)

Remove the 6 mm socket bolt [4] to free the primary drive gear and sub-gear.

Install the right crankcase cover (page 12-103).



SHIFT CONTROL MOTOR/REDUCTION GEARS

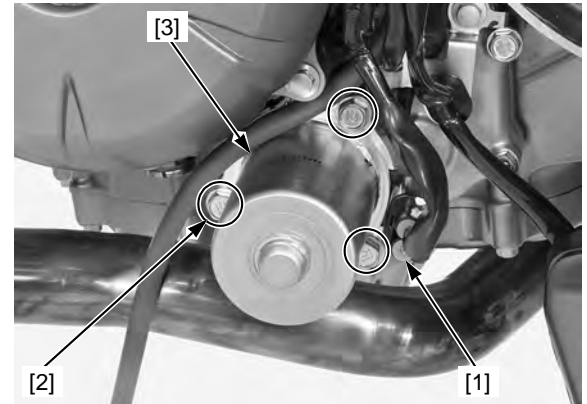
REMOVAL

Remove the following:

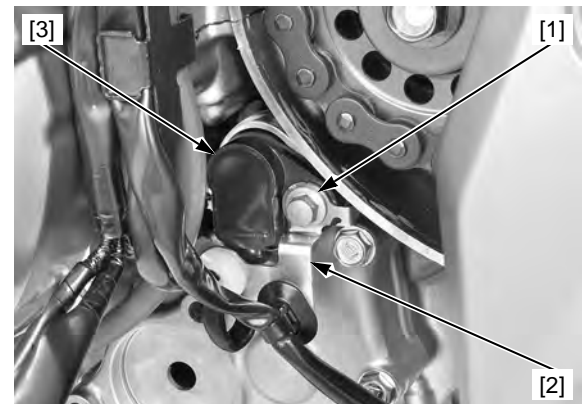
- Guard pipe (page 2-30)
- Left rear cover (page 2-30)

Disconnect the shift control motor 2P (Black) connector [1].

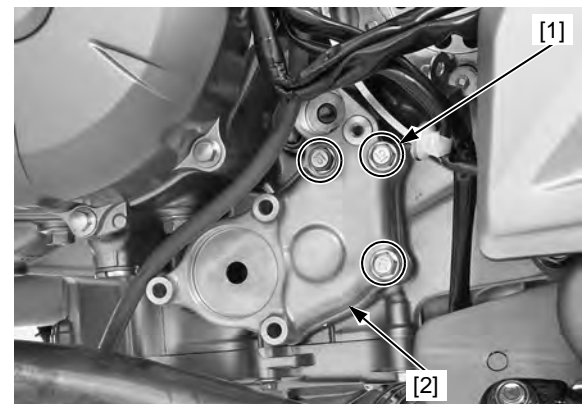
Remove the bolts [2] and shift control motor [3].



Remove the bolt [1], wire clip stay [2] and TR sensor [3].

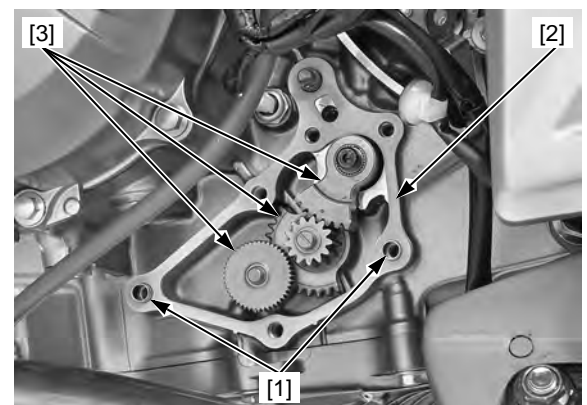


Remove the bolts [1] and reduction gear cover [2].



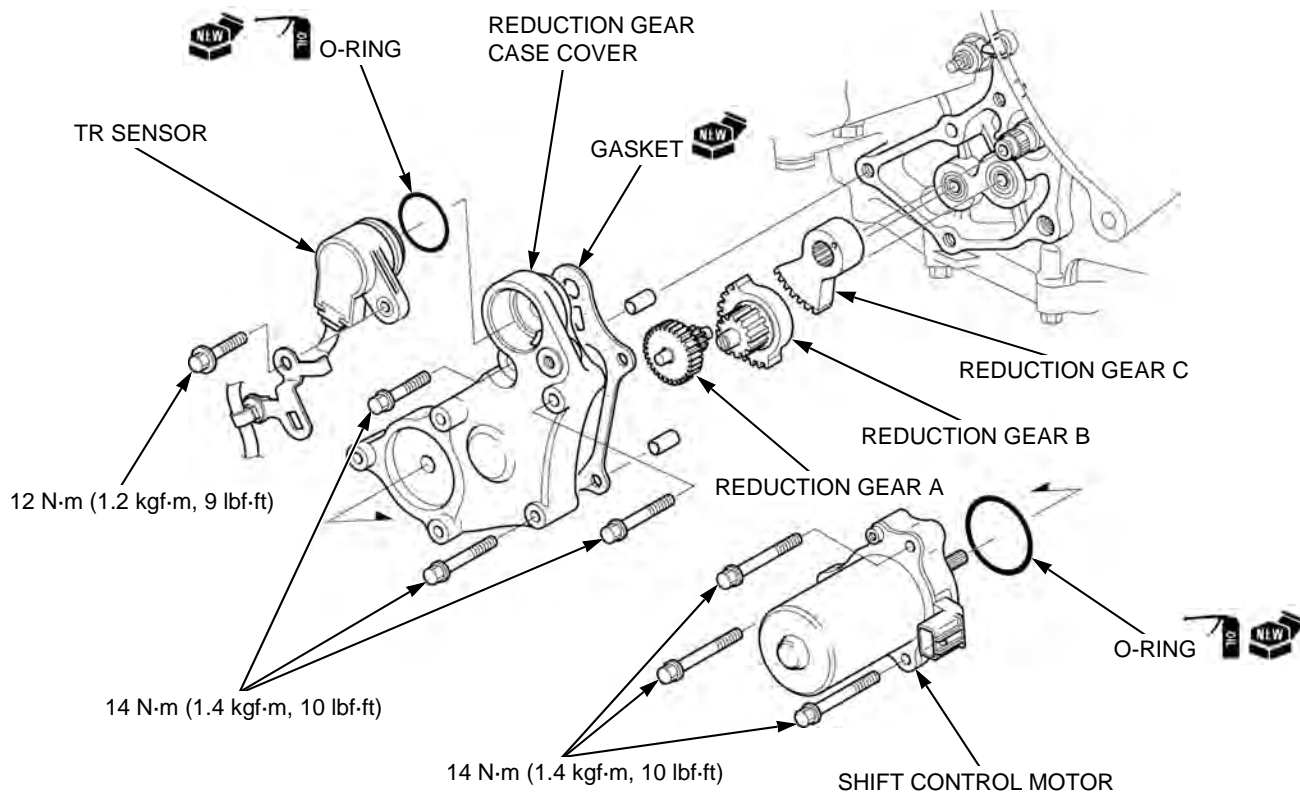
Remove the dowel pins [1] and gasket [2].

Remove the reduction gears [3].



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

INSTALLATION

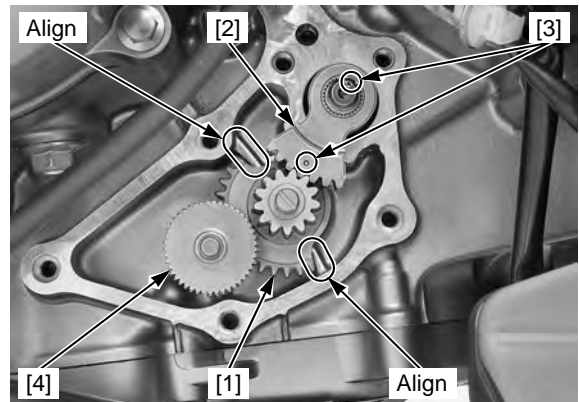


Apply 2 – 4 g (0.07 – 0.14 oz) of specified grease to the reduction gear journals and teeth.

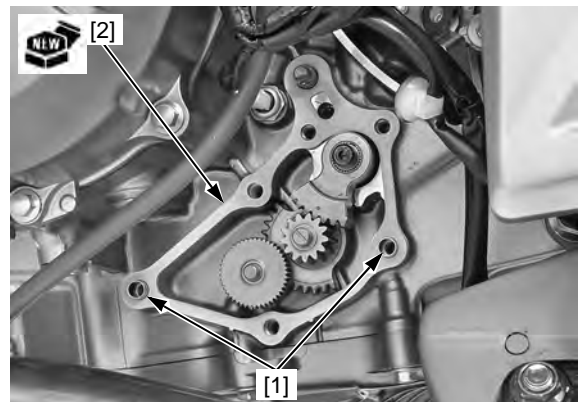
SPECIFIED GREASE: **Templex N3 grease (ESSO)**

Install reduction gear B [1] and align the gear ends with the ribs of the crankcase. Then install reduction gear C [2] so the punch marks [3] on the gear and shift spindle line up as shown.

Install reduction gear A [4].



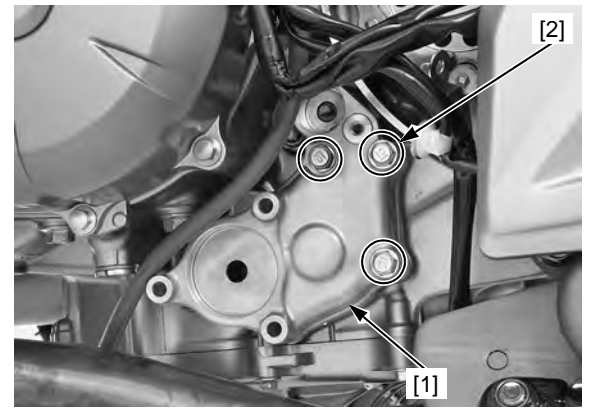
Install the dowel pins [1] and a new gasket [2].



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

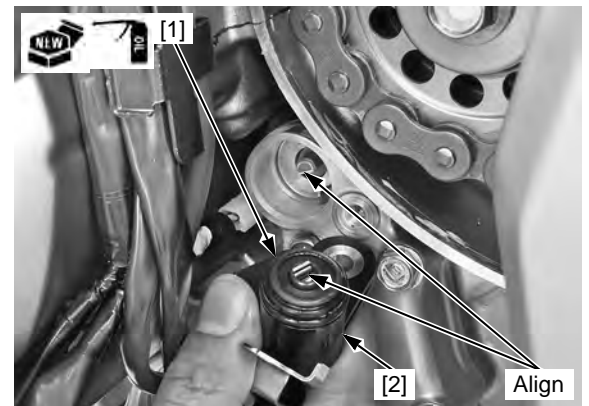
Install the reduction gear cover [1] and bolts [2], and tighten the bolts.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)



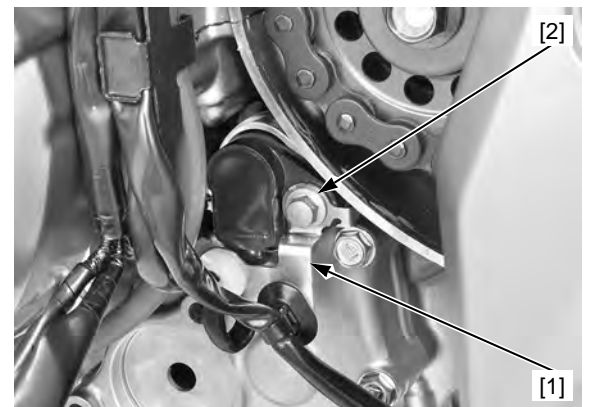
Coat a new O-ring [1] with engine oil and install it into the groove in the TR sensor [2].

Install the TR sensor into the crankcase by aligning the flat surfaces of the sensor and shift drum end.

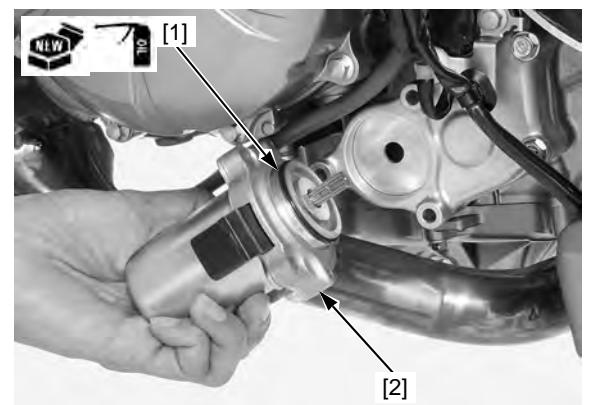


Install the wire clip stay [1] and TR sensor bolt [2], and tighten the bolt.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Coat a new O-ring [1] with engine oil and install it into the groove in the shift control motor [2].



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

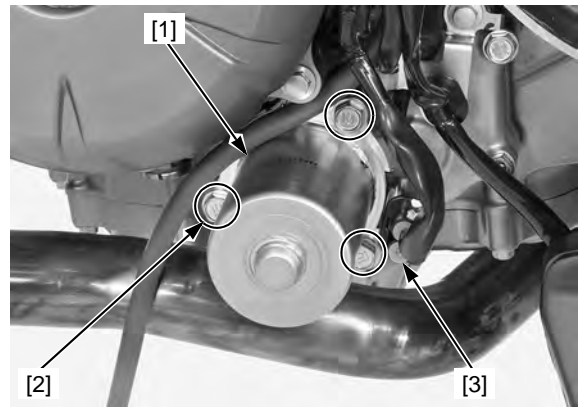
Install the shift control motor [1] and bolts [2], and tighten the bolts.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)

Connect the shift control motor 2P (Black) connector [3].

Install the following:

- Guard pipe (page 2-30)
- Left rear cover (page 2-30)

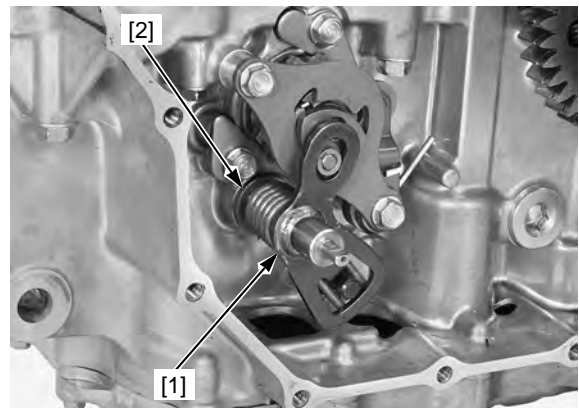


GEARSHIFT LINKAGE

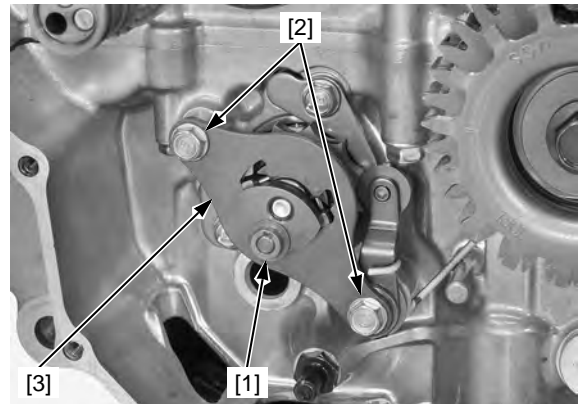
REMOVAL

Remove the following:

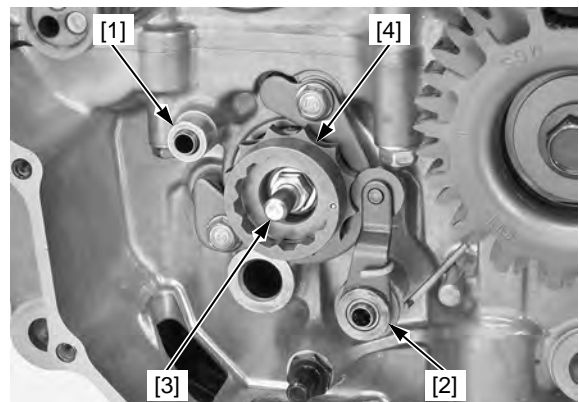
- Shift control motor/reduction gears (page 12-109)
- Dual clutch (page 12-105)
- Gearshift spindle [1]
- Washer [2]



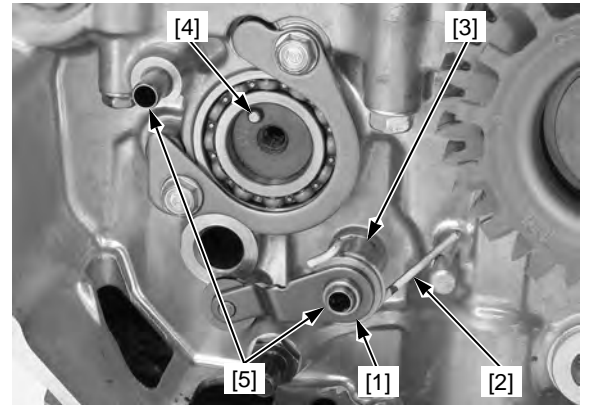
- Drum shifter collar [1]
- Bolts [2]
- Drum shifter guide plate/drum shifter assembly [3]



- Guide plate distance collar [1]
- Stopper arm side collar [2]
- Shift drum center bolt [3]
- Shift drum center [4]

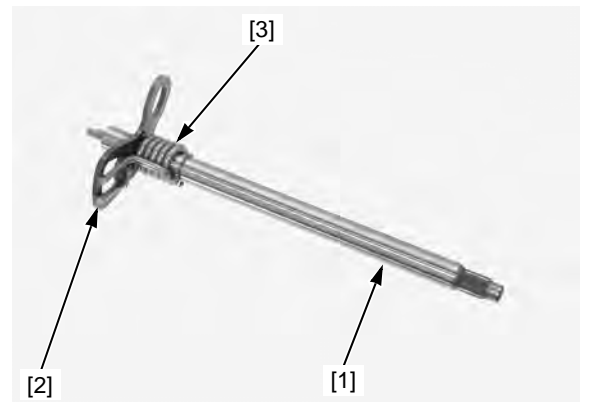


- Shift drum stopper arm [1]
- Stopper arm return spring [2]
- Stopper arm distance collar [3]
- Shift drum center dowel pins [4]
- 8 x 20 mm dowel pins [5] if necessary

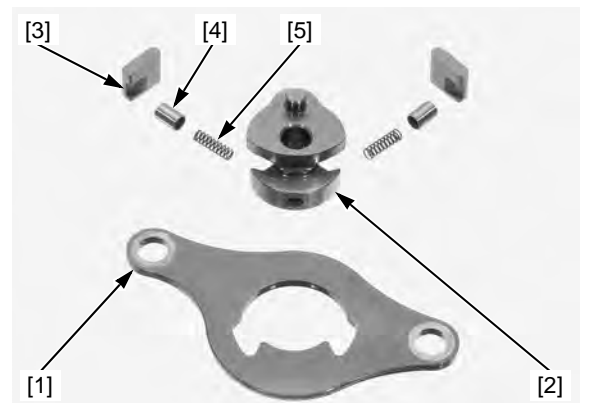


INSPECTION

Check the gearshift spindle [1] and gearshift arm [2] for wear or damage.
Check the return spring [3] for fatigue or damage.



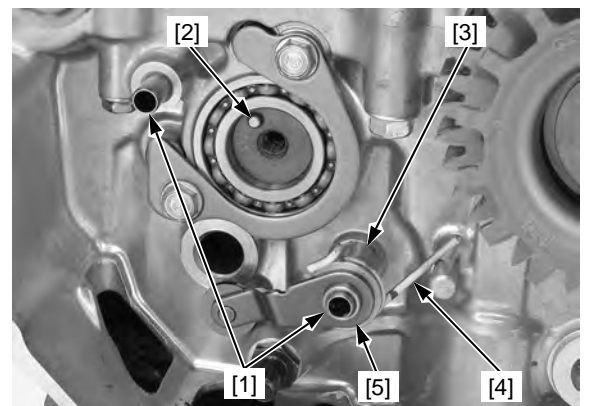
Check the drum shifter guide plate [1], drum shifter [2], ratchet pawls [3] and plungers [4] for wear or damage.
Check the plunger springs [5] for fatigue or damage.



INSTALLATION

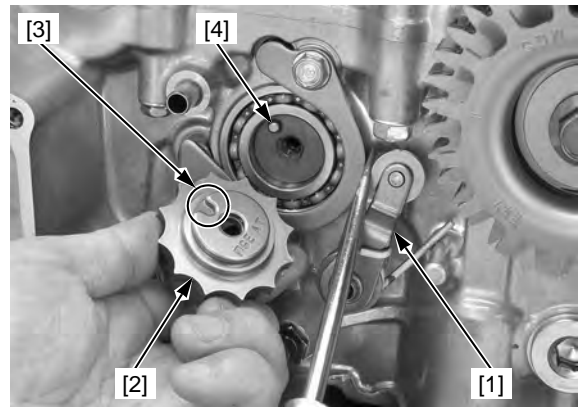
Install the following:

- 8 x 20 mm dowel pins [1]
- Shift drum center dowel pins [2]
- Stopper arm distance collar [3]
- Stopper arm return spring [4]
- Shift drum stopper arm [5]



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Hold the shift drum stopper arm [1] with a screwdriver and install the shift drum pin center [2] by aligning the groove [3] with the dowel pin [4].



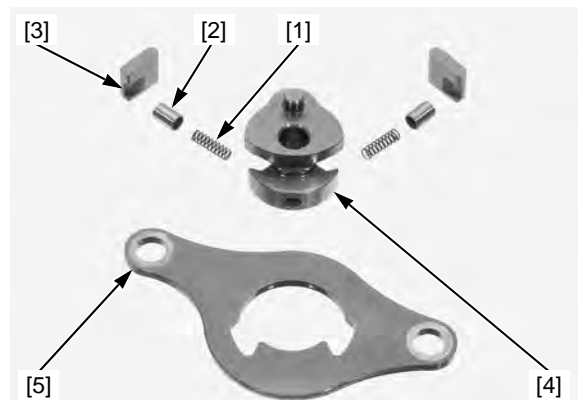
Apply locking agent to the threads of the shift drum center bolt [1] (page 12-4).
Install the shift drum center bolt and tighten it.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)

Install the stopper arm side collar [2] and guide plate distance collar [3].



Install the plunger springs [1], plungers [2] and ratchet pawls [3] into the drum shifter [4] and set them in the drum shifter guide plate [5].

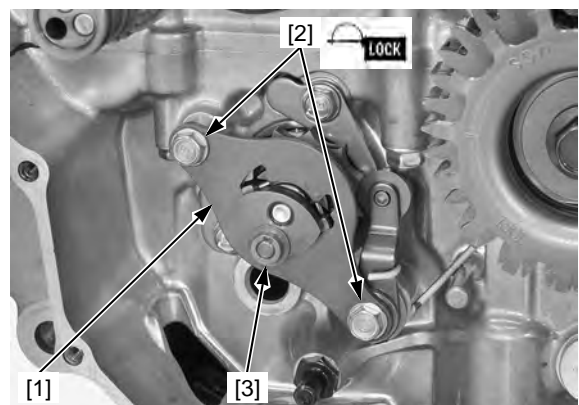


Install the drum shifter guide plate/drum shifter assembly [1].

Apply locking agent to the threads of the guide plate bolts [2] (page 12-4).
Install the guide plate bolts and tighten them.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

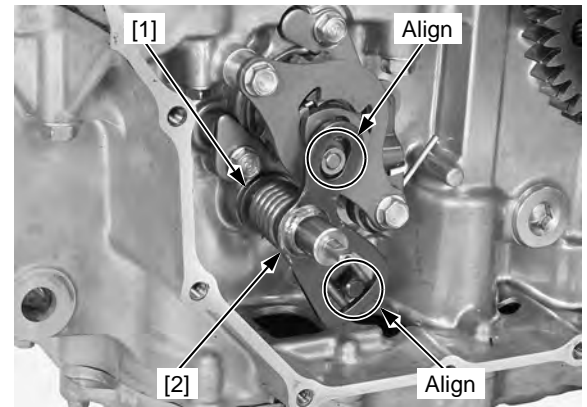
Install the drum shifter collar [3] onto the drum shifter.



Install the washer [1] onto the gearshift spindle [2] and insert the spindle into the crankcase while aligning the return spring ends with spring pin and the spindle arm hole with the drum shifter collar.

Install the following:

- Dual clutch (page 12-107)
- Reduction gears/shift control motor (page 12-110)



MAINSHAFT SENSOR

REMOVAL/INSTALLATION

NOTE:

The mainshaft sensors and VS sensor are the same parts.

Inner mainshaft sensor: Remove the luggage box (page 2-19).

Disconnect the outer mainshaft sensor 3P (Black) connector [1] from the outer mainshaft sensor [2].

Disconnect the inner mainshaft sensor 3P (Black) connector [3] from the inner mainshaft sensor [4].

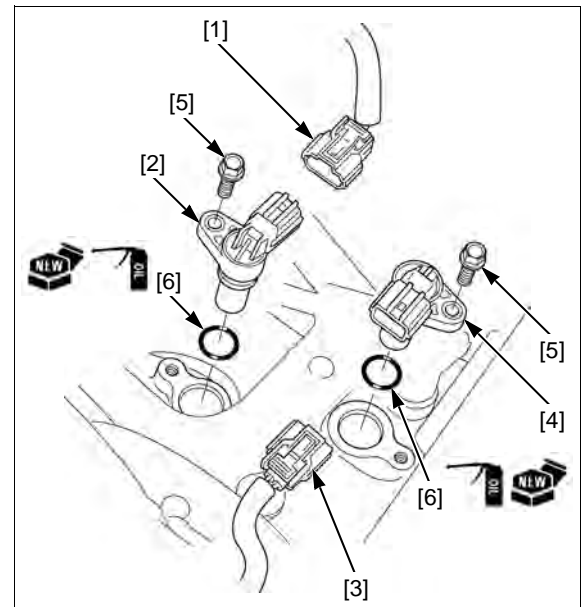
Remove the bolt [5] and mainshaft sensor.

Remove the O-ring [6] from the mainshaft sensor.

Installation is in the reverse order of removal.

NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to a new O-ring.



TR SENSOR

REMOVAL/INSTALLATION

Remove the following:

- Center cross plate (page 2-32)
- Left rear cover (page 2-30)

Disconnect the TR sensor 3P (Black) connector [1] and remove it from the ABS modulator stay.



DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

Remove the wire band [1] and release the wires and hose from the stay [2].



Remove the bolt [1], wire clip stay [2] and TR sensor [3].
Remove the O-ring [4] from the TR sensor.
Installation is in the reverse order of removal.

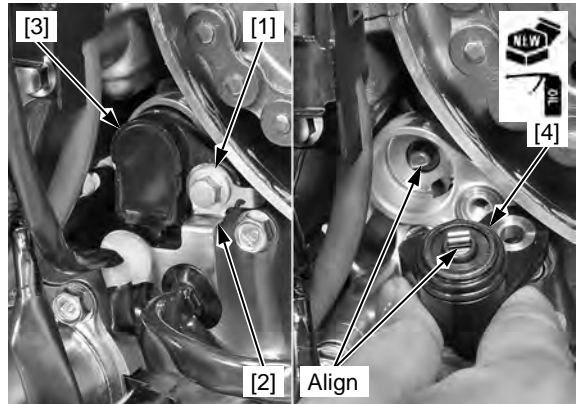
NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to a new O-ring.
- Align the flat surfaces of the TR sensor and shift drum end.

TORQUE:

TR sensor bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)



SHIFT SPINDLE ANGLE SENSOR

REMOVAL/INSTALLATION

Remove the following:

- Shroud/side cover (NC700XD) (page 2-14)
- Side cowl (NC700SD) (page 2-13)
- Right engine side cover (page 2-30)

Disconnect the shift spindle angle sensor 3P (Gray) connector [1] and remove it from the ABS modulator stay.

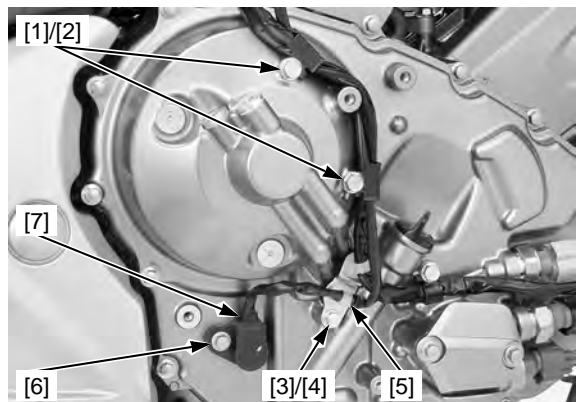


Remove the bolts [1] and clamps [2].

Remove the bolts [3] and wire clip stay [4].

Remove the shift spindle angle sensor wire clip [5] from the clip stay.

Remove the shift spindle angle sensor bolt [6] and shift spindle angle sensor [7].



Remove the O-ring [1] from the shift spindle angle sensor [2].

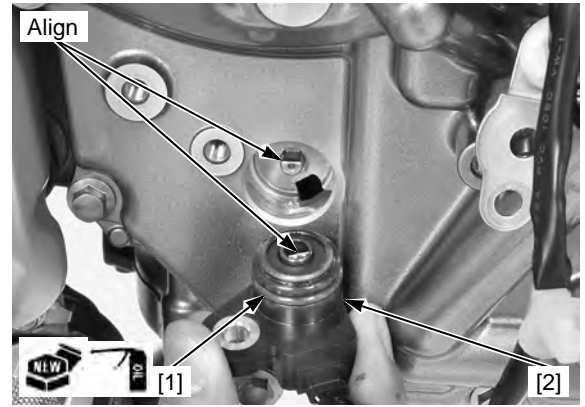
Installation is in the reverse order of removal.

NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to a new O-ring.
- Align the flat surfaces of the shift spindle angle sensor and gearshift spindle end.
- Route the wire harness properly (page 1-25).

TORQUE:

Shift spindle angle sensor bolt:
12 N·m (1.2 kgf·m, 9 lbf·ft)



CLUTCH EOP SENSOR

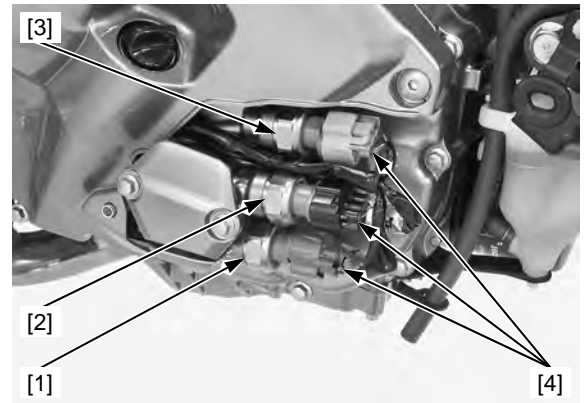
REMOVAL/INSTALLATION

Remove the lower cowl (page 2-29).

The No.1 clutch EOP sensor [1], clutch line EOP sensor [2] and No.2 clutch EOP sensor [3] are the same parts.

Disconnect the 3P connector [4] from the clutch EOP sensor.

Remove the clutch EOP sensor and O-rings from the right crankcase cover.



Coat a new O-ring [1] with engine oil and install it into the right crankcase cover.

Install the clutch EOP sensor [2] and tighten it.

TORQUE: 19.6 N·m (2.0 kgf·m, 14 lbf·ft)

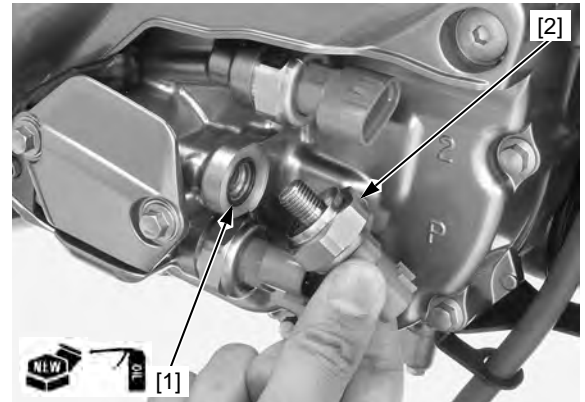
Connect the 3P connector to the proper sensor.

NOTE:

Each sensor wires has the following identification mark near the connector.

- 1: No.1 clutch (lower) EOP sensor
- P: Clutch line (middle) EOP sensor
- No mark: No.2 clutch (upper) EOP sensor

Install the lower cowl (page 2-29).



EOT SENSOR

REMOVAL/INSTALLATION

Disconnect the EOT sensor 2P (Black) connector [1].

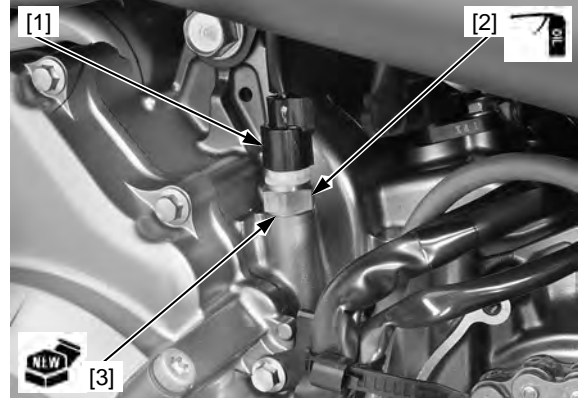
Remove the EOT sensor [2] and sealing washer [3] from the crankcase.

Apply engine oil to the EOT sensor threads and seating surface.

Install the EOT sensor with a new sealing washer and tighten it.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)

Connect the EOT sensor 2P (Black) connector.



DCT SHIFT PEDAL (OPTIONAL)

REGISTRATION (TO ENABLE THE PEDAL)

NOTE:

- The following registration procedure must be performed in order to enable the optional shift pedal.
- Make sure that the CLUTCH INITIALIZE LEARNING (PCM) (page 12-120) is complete before starting the registration.
- The registration will fail if any of the following condition presents during the procedure.
 - The vehicle is moved.
 - The engine is started.
 - The transmission is in gear.
 - The shift pedal is operated incorrectly.
 - The shift pedal angle sensor 3P (black) connector is disconnected.

1. Install the shift pedal to the vehicle and connect the shift pedal angle sensor 3P (black) connector.

2. Turn the ignition switch ON.

After 2 seconds, "S" [1] and "D" [2] indicators will start short blinking (0.5 seconds) simultaneously.

NOTE:

- The short blinking lasts 5 seconds.

Within 5 seconds after blinking starts, move the shift pedal [3] up and hold for 1 second.

Within 5 seconds after moving the shift pedal up, move it down and hold for 1 second.

Indicators start blinking simultaneously.



[2]

[1]

1: UP for 1 second.



[3]

2: DOWN for 1 second.

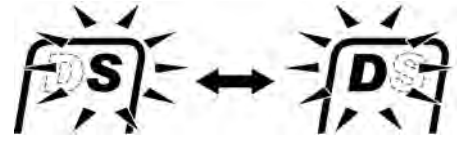
3. If the "S" and "D" indicators start short blinking (0.5 seconds) alternately, registration is successful.

Turn the ignition switch OFF.

NOTE:

- If the "S" and "D" indicators go OFF during the procedure, registration is unsuccessful. Turn the ignition switch OFF and perform the registration procedure from step 2 again.

Successful:



Indicators blink alternately.

Unsuccessful:



Both go OFF

REGISTRATION CANCELLATION (TO DISABLE THE PEDAL)

NOTE:

- The registration must be cancelled after removing the optional shift pedal from the vehicle. If the registration is not cancelled, DTC 1-1 (DTC 1 blink) "SHIFT PEDAL ANGLE SENSOR MALFUNCTION" will be indicated.
- The cancellation will fail if any of the following condition presents during the procedure.
 - The vehicle is moved.
 - The engine is started.
 - The transmission is in gear.
 - The shift switch (+)/(-) is operated incorrectly.
 - The shift pedal angle sensor 3P (black) connector is connected.

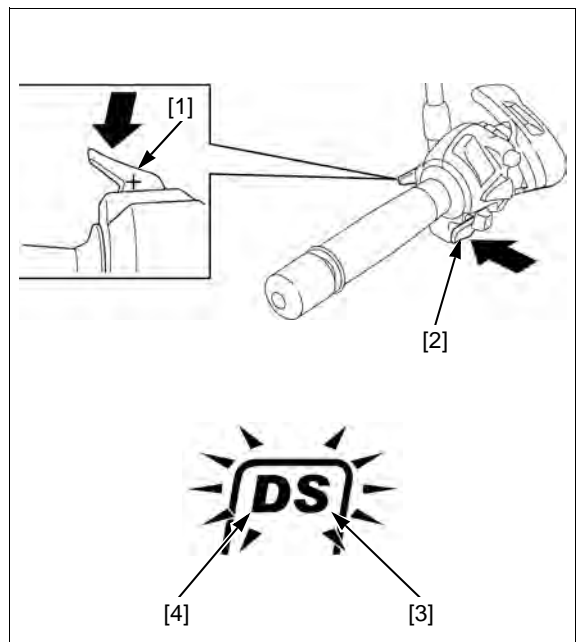
1. Remove the shift pedal from the vehicle and disconnect the shift pedal angle sensor 3P (black) connector.

2. While pressing down and holding the shift switch (+) [1] and shift switch (-) [2], turn the ignition switch ON.

The "S" [3] and "D" [4] indicators will start short blinking (0.5 seconds) simultaneously.

NOTE:

- Do not release the shift switch (+) and shift switch (-) until the successful pattern described in the next step is indicated.



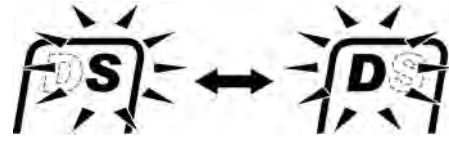
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

- After 5 seconds, the "S" and "D" indicators will start short blinking (0.5 seconds) alternately.
If so, cancellation is successful.
Turn the ignition switch OFF.

NOTE:

- If the "S" and "D" indicators go OFF during the procedure, cancellation is unsuccessful. Turn the ignition switch OFF and perform the cancellation procedure from step 1 again.

Successful:



Indicators blink alternately.

Unsuccessful:



Both go OFF

CLUTCH INITIALIZE LEARNING (PCM)

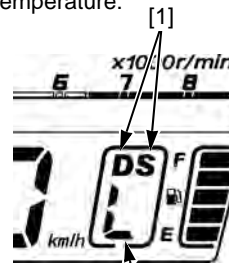
NOTE:

- If the PCM and/or clutch assembly are replaced, perform this procedure.
 - Before starting this procedure, check the following:
 - PGM-FI system and DCT system have no DTC.
 - Engine idle speed is normal.
 - Transmission is in neutral and cooling fan stops.
 - Do not operate the throttle during clutch initialize learning
- Warm up the engine to the normal operating temperature (engine oil temperature: 50 – 110°C/ 122 – 230°F) and stop it.

NOTE:

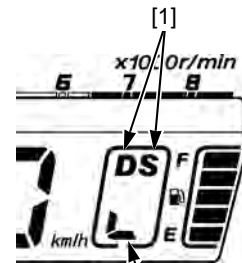
If the PCM is replaced with a new one, the "D" and "S" indicators [1] come on to indicate that the clutch initialize learning is necessary when the ignition switch is turned ON. Further the large "L" [2] (extremely low oil temperature) or small "L" [3] (low oil temperature) is displayed on the shift indicator to indicate that the engine warming up is necessary if it is not warmed.

Extremely low oil temperature:



[2]

Low oil temperature:



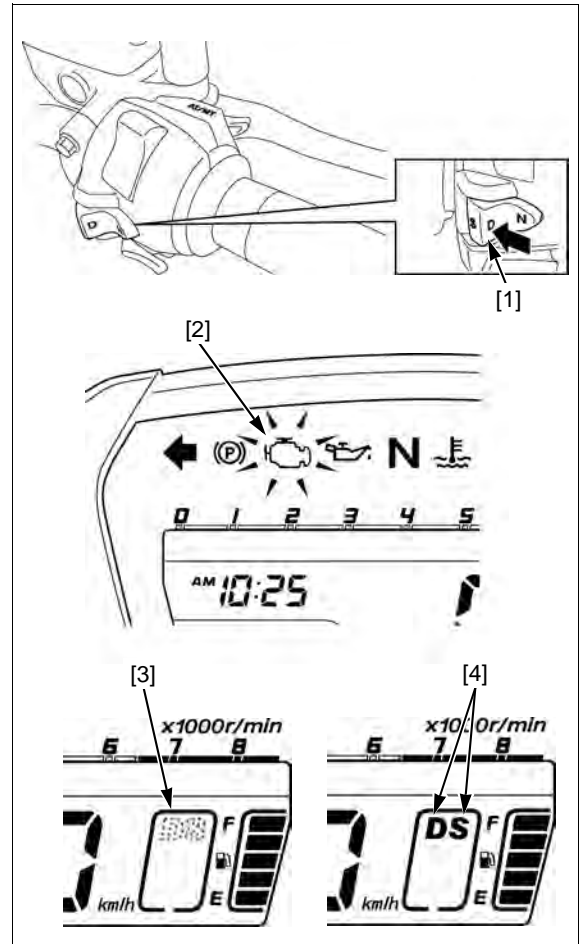
[3]

DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

- Turn the ignition switch ON with the engine stop switch "O" while pushing the D switch [1] of the N-D shift switch. The MIL [2] will come on.

Release the D switch after the MIL goes off.

- When only the dual clutch assembly is replaced: No indication appears on the shift indicator [3].
- When the PCM is replaced: The "D" and "S" indicators [4] come on.



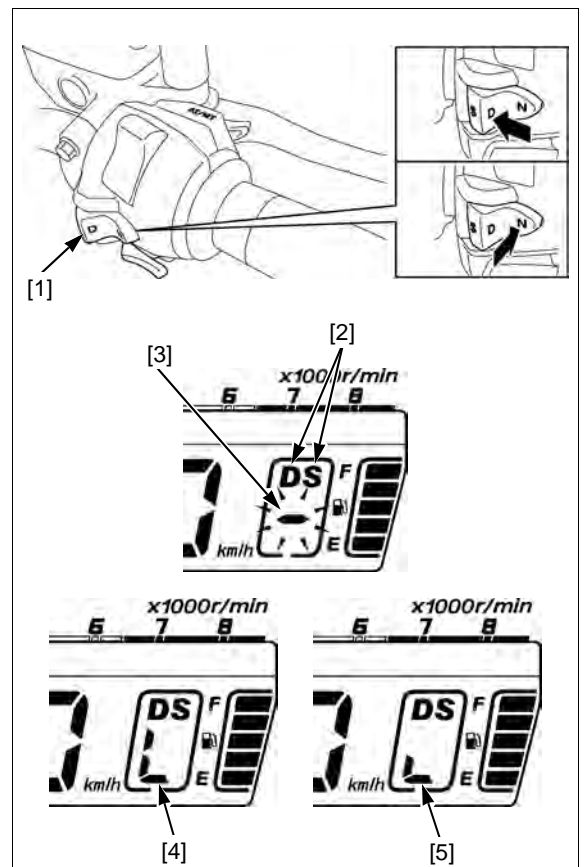
- Operate the N-D shift switch [1] in the sequence as follows:

- Push the D switch
- Push the D switch
- Push the N switch
- Push the D switch
- Push the N switch

- When only the dual clutch assembly is replaced: The PCM is ready to clutch initialize learning when the "D" and "S" indicators [2] lights, and the "-" [3] is displayed on the shift indicator and blinks at interval of 2 seconds.
- When the PCM is replaced: The PCM is ready to clutch initialize learning when the "-" is displayed on the shift indicator and blinks at interval of 2 seconds.

NOTE:

When the engine is not warmed up enough, the large "L" [4] (extremely low oil temperature) or small "L" [5] (low oil temperature) is displayed on the shift indicator. If so, warm up it until the "L" on the shift indicator goes off. Stop the engine and perform the steps 2 and 3 again.



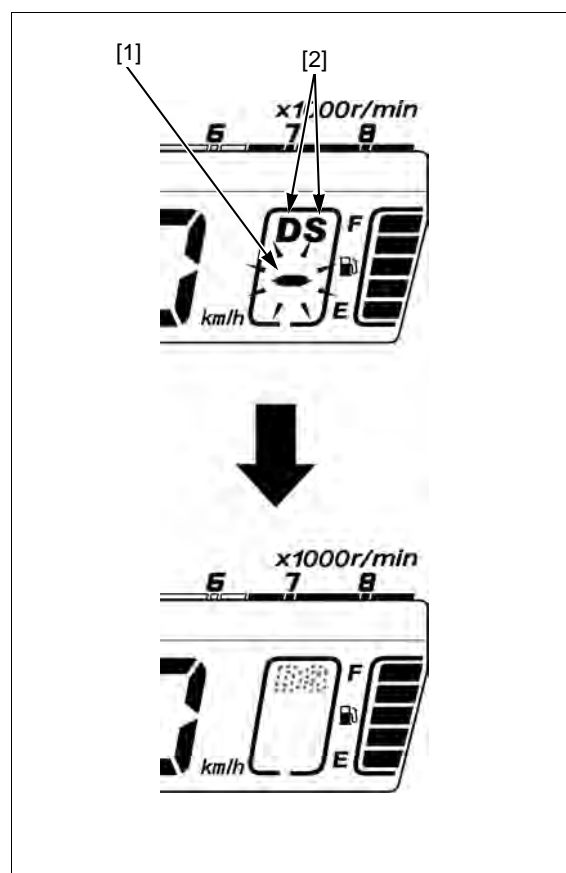
DUAL CLUTCH TRANSMISSION (DCT) (NC700XD/SD)

4. Start the engine and let it idle. The "-" [1] on the shift indicator starts blinking at interval of 2 seconds. The Clutch Initialize Learning is successful, when the "-", "D" and "S" indicators [2] go off. Stop the engine.

NOTE:

The clutch initialize learning is unsuccessful, if the "-" starts blinking at interval of 0.5 second or it goes off, and the "D" and "S" indicators stay on. Perform the initialize learning procedure from step 2 again.

5. Stop the engine.
6. Restart the engine, push the D switch of the N-D shift switch and check that the "D" indicator comes on.



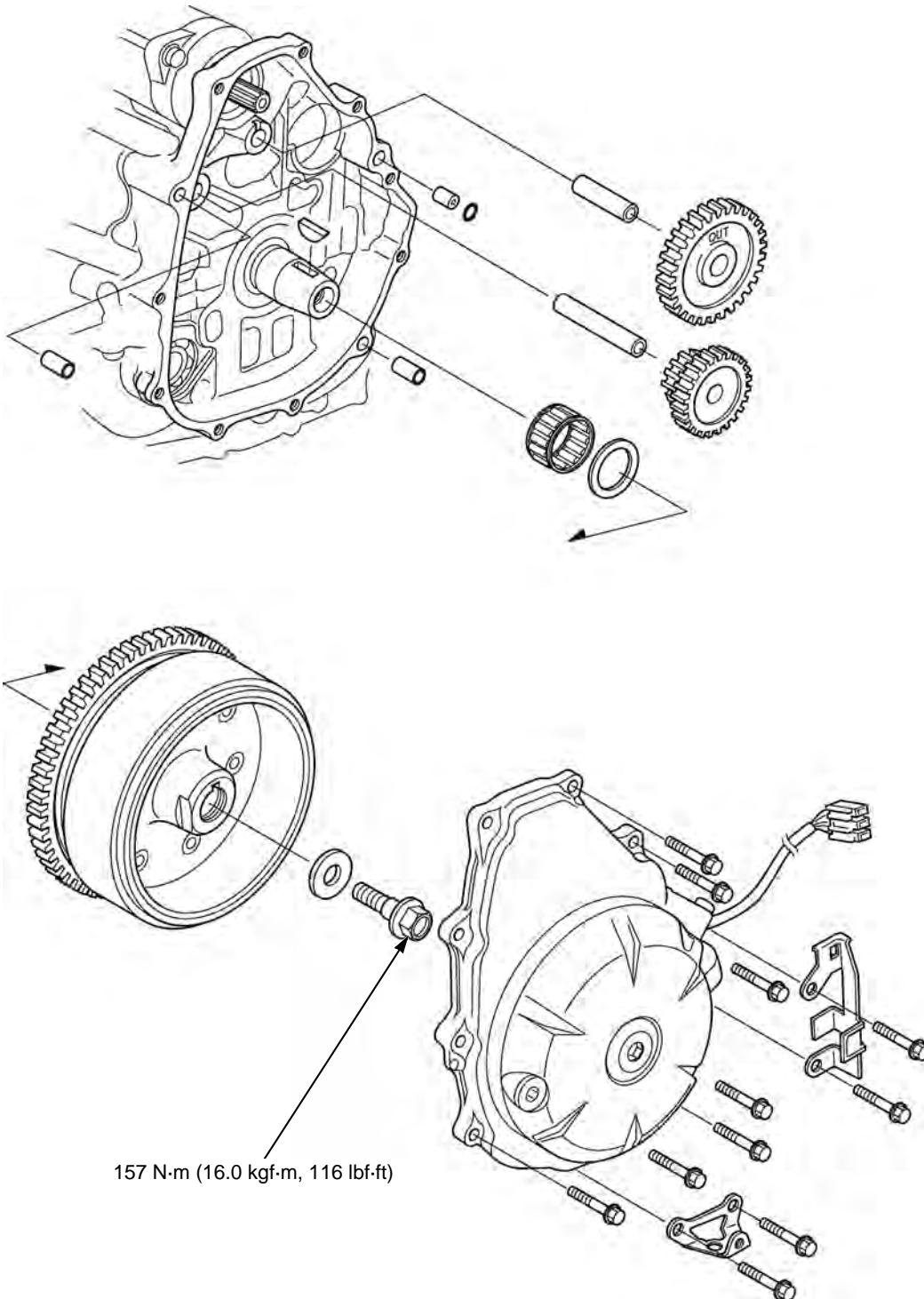
13. ALTERNATOR/STARTER CLUTCH

COMPONENT LOCATION	13-2	FLYWHEEL	13-7
SERVICE INFORMATION	13-4	STARTER CLUTCH	13-10
TROUBLESHOOTING.....	13-4	STATOR	13-13
ALTERNATOR COVER.....	13-5		

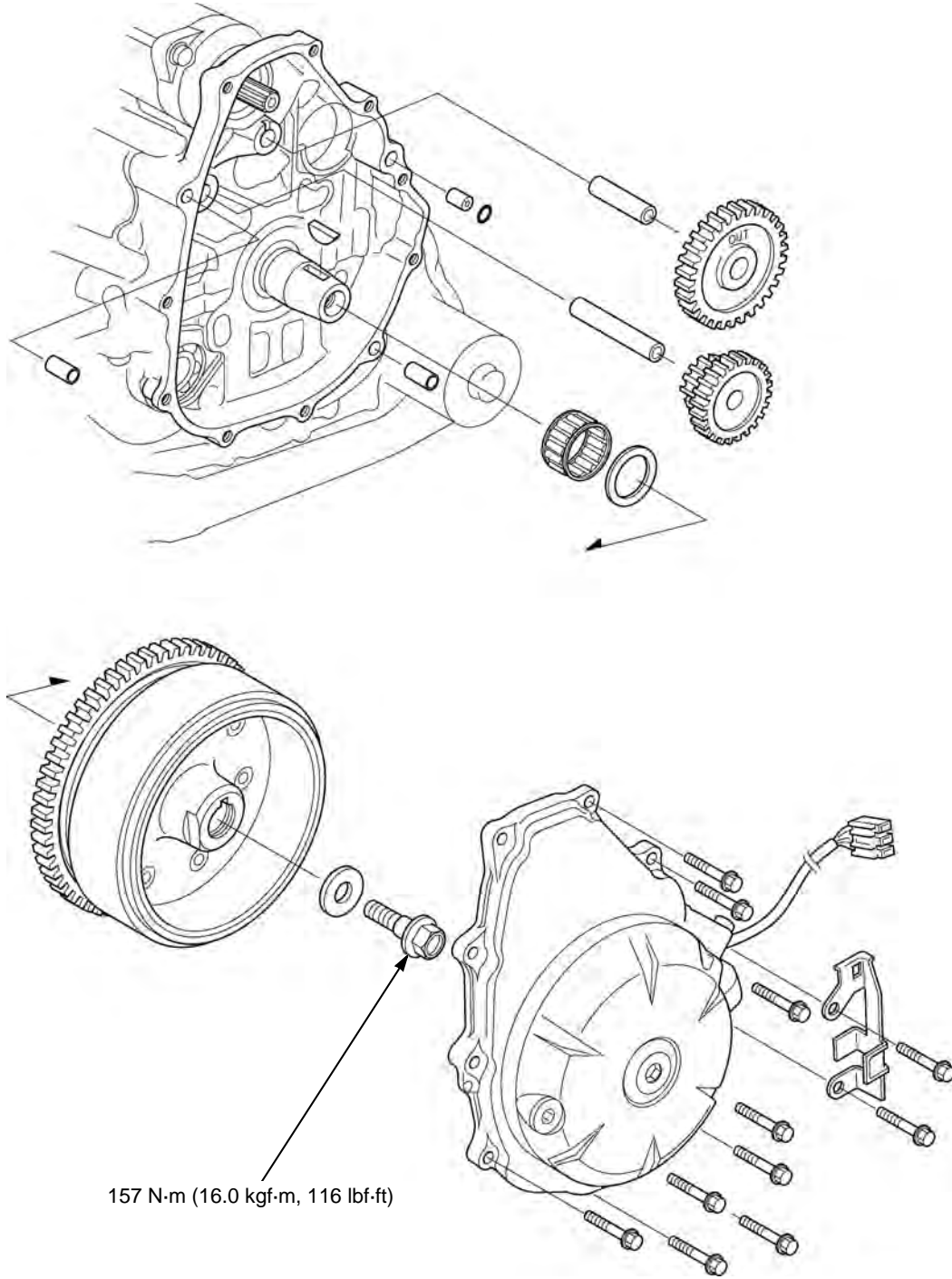
ALTERNATOR/STARTER CLUTCH

COMPONENT LOCATION

NC700X/XA/S/SA:



NC700XD/SD:



ALTERNATOR/STARTER CLUTCH

SERVICE INFORMATION

GENERAL

- This section covers service of the alternator and starter clutch. All service can be done with the engine installed in the frame.
- For alternator inspection (page 21-9).
- For CKP sensor inspection (page 5-6).
- For starter motor service (page 6-8).

SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter driven gear boss O.D.	57.749 – 57.768 (2.2736 – 2.2743)	57.73 (2.273)
Starter clutch outer I.D.	74.412 – 74.442 (2.9296 – 2.9308)	74.46 (2.931)

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Flywheel mounting bolt	1	12	157 (16.0, 116)	Left hand thread Apply engine oil to the threads and seating surface.
Starter clutch socket bolt	6	8	30 (3.1, 22)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Alternator stator mounting bolt	4	6	10 (1.0, 7)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Alternator wire clamp bolt	1	6	10 (1.0, 7)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip

TROUBLESHOOTING

Starter motor turns, but engine does not turn

- Faulty starter clutch
- Damaged starter reduction gear/shaft
- Damaged starter idle gear/shaft
- Damaged or faulty starter motor pinion gear
- Damaged starter driven gear

ALTERNATOR COVER

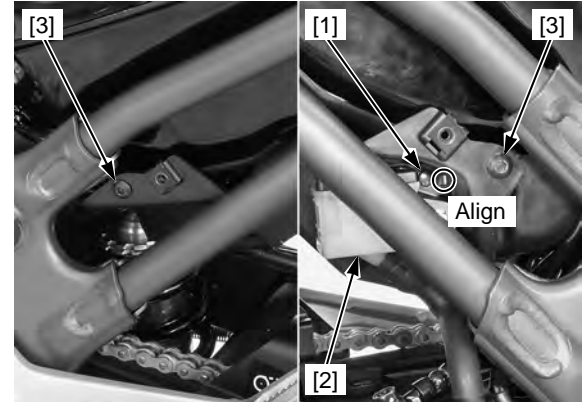
REMOVAL/INSTALLATION

Remove the following:

- Shroud/side cover (NC700X/XA/XD) (page 2-14)
- Shelter/side cover (NC700S/SA/SD) (page 2-15)
- Left rear cover (page 2-29)
- Guard pipe (NC700XD/SD) (page 2-30)

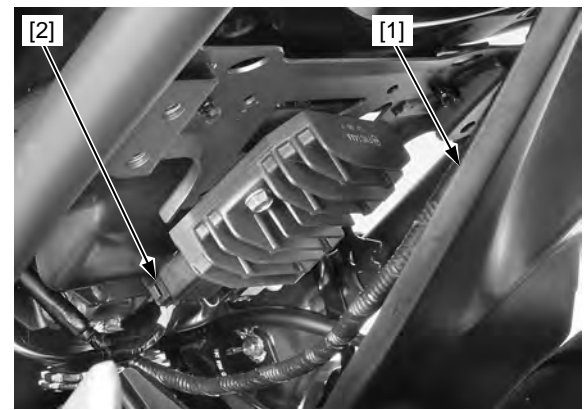
Remove the bolt [1] and rear brake reservoir stay/reservoir [2].

Remove the socket bolts [3].



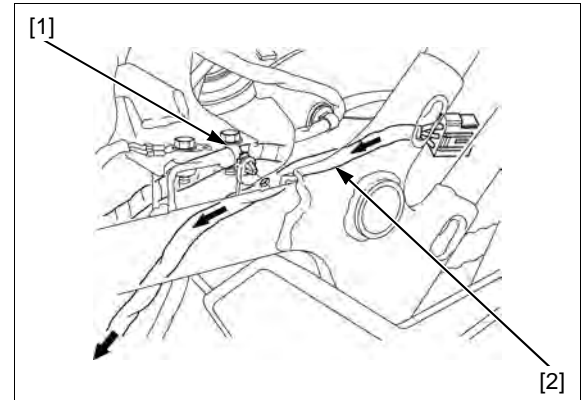
Lower the rear fender B [1].

Disconnect the alternator 3P (Black) connector [2].



Release the sidestand switch wire harness clamp [1].

Release the alternator wire harness [2].



ALTERNATOR/STARTER CLUTCH

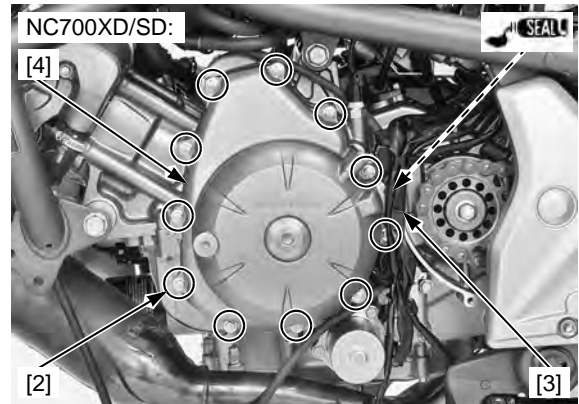
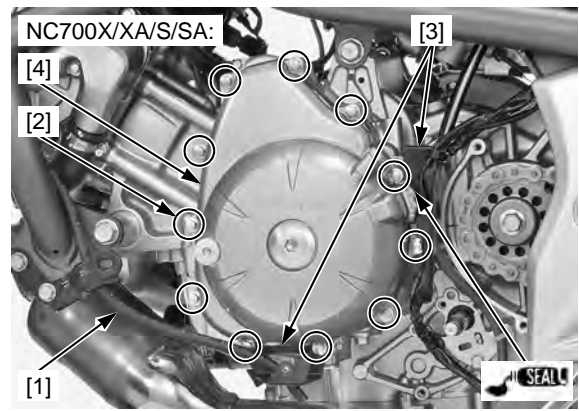
Release the battery box drain hose (NC700X/XA/S/SA) [1] from the stay.

Loosen the alternator cover bolts [2] in a crisscross pattern in 2 or 3 steps, and remove the bolts and stays [3].

Remove the alternator cover [4].

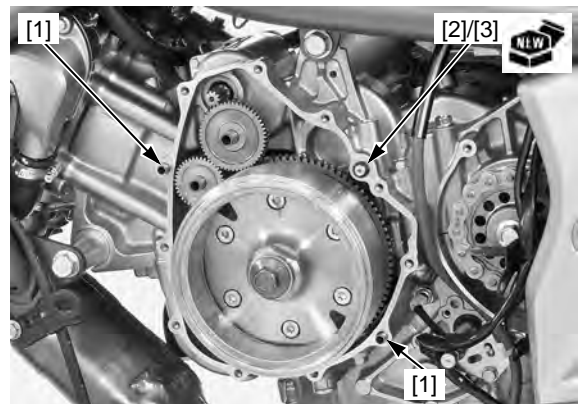
NOTE:

The alternator cover (stator) is magnetically attracted to the flywheel, be careful during removal.



Remove the dowel pins [1], oil orifice [2] and O-ring [3].

Clean off any sealant from the alternator cover mating surfaces.



NOTICE

Do not loosen the alternator cover sealing bolt [1].

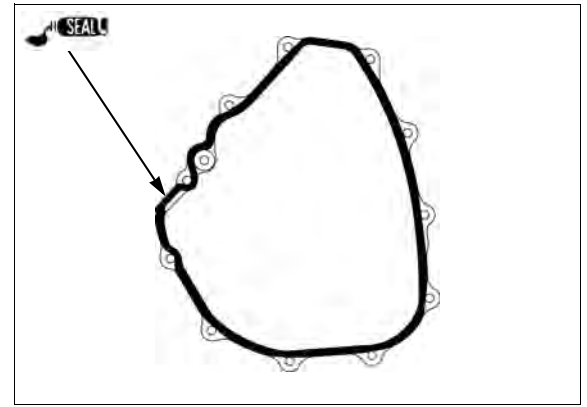


Installation is in the reverse order of removal.

NOTE:

- Apply liquid sealant (Three bond 1207B or equivalent) to the alternator cover mating surface as shown.
- Apply liquid sealant (Three bond 1207B or equivalent) to the alternator wire grommet sealing surface.
- Do not apply more liquid sealant than necessary.
- Replace the O-ring with a new one.
- Route the cables and wire harness properly (page 1-25).
- Align the rear brake reservoir stay with the frame tab.

Fill the engine with the recommended engine oil and check that there are no oil leaks (page 3-12).



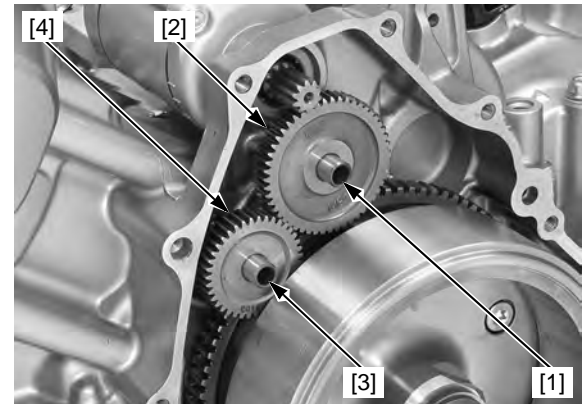
FLYWHEEL

REMOVAL

Remove the alternator cover (page 13-5).

Remove the starter idle gear shaft [1] and starter idle gear [2].

Remove the starter reduction gear shaft [3] and starter reduction gear [4].



Hold the flywheel [1] using the special tool and loosen the flywheel mounting bolt [2].

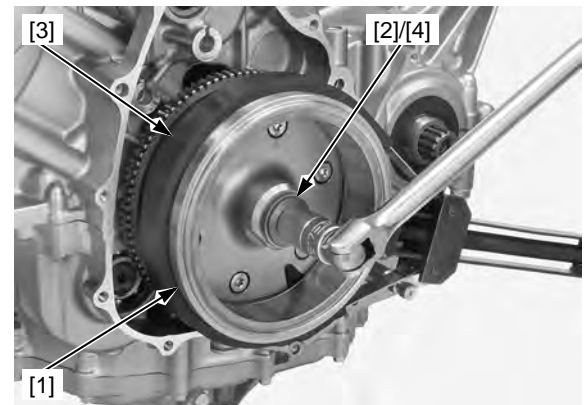
TOOL:

Flywheel holder [3] 07725-0040001

NOTE:

The flywheel mounting bolt has left hand threads.

Remove the flywheel mounting bolt and washer [4].



Remove the flywheel [1] using the special tool.

TOOL:

Rotor puller [2] 07933-3290001



ALTERNATOR/STARTER CLUTCH

Remove the washer [1] and needle bearing [2].

Remove the woodruff key [3].

NOTE:

Be careful not to damage the key groove and crankshaft.

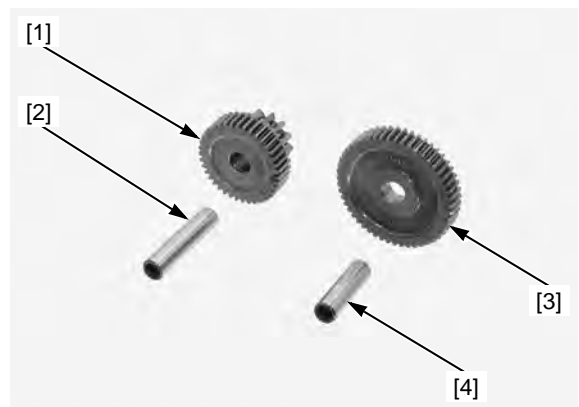


INSPECTION

STARTER REDUCTION GEAR/STARTER IDLE GEAR

Check the starter reduction gear [1] and shaft [2] for wear or damage and replace it if necessary.

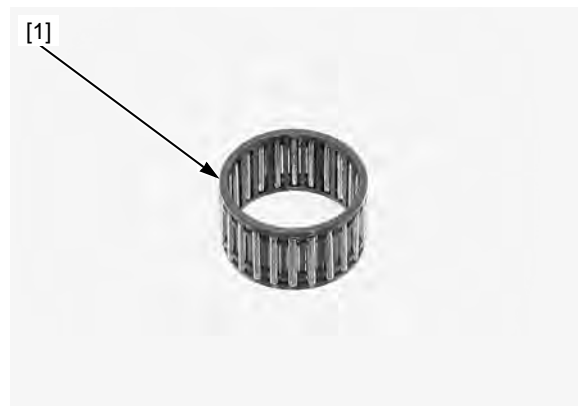
Check the starter idle gear [3] and shaft [4] for wear or damage and replace it if necessary.



NEEDLE BEARING

Check the needle bearing [1] for abnormal wear or damage.

Replace it if necessary.

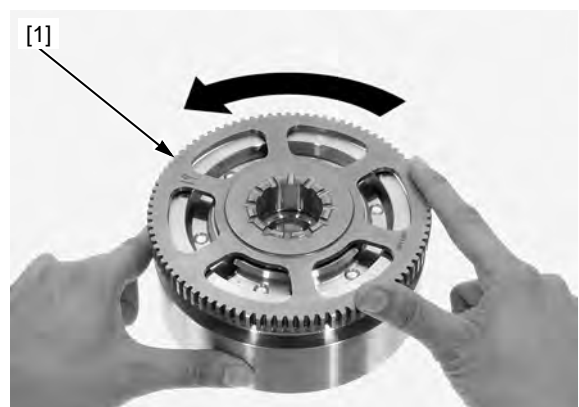


STARTER CLUTCH OPERATION

Check the operation of the one-way clutch by turning the starter driven gear [1].

You should be able to turn the starter driven gear counterclockwise smoothly, but the gear should not turn clockwise.

For starter clutch service (page 13-10).

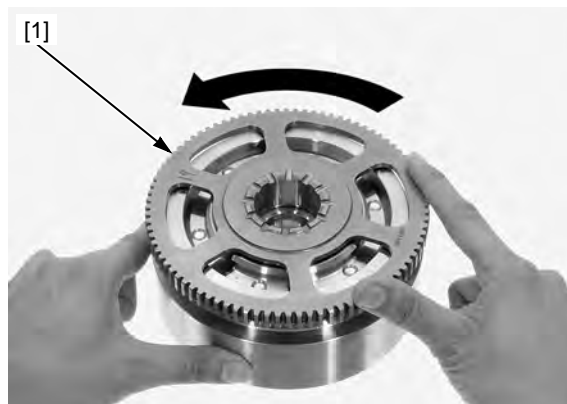


STARTER CLUTCH

REMOVAL

Remove the flywheel (page 13-7).

Remove the starter driven gear [1] while turning the starter driven gear counterclockwise.



Hold the flywheel [1] using the special tool and remove the starter clutch socket bolt [2].

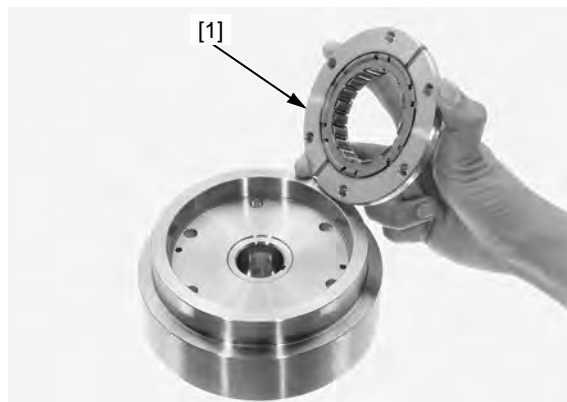
TOOL:

Flywheel holder [3]

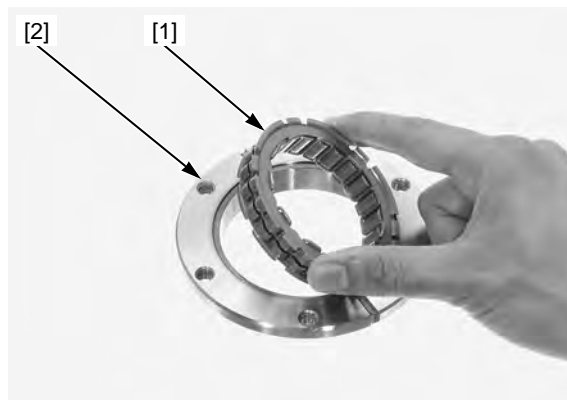
07725-0040001



Remove the starter clutch assembly [1].



Remove the starter one-way clutch [1] from the starter clutch outer [2].

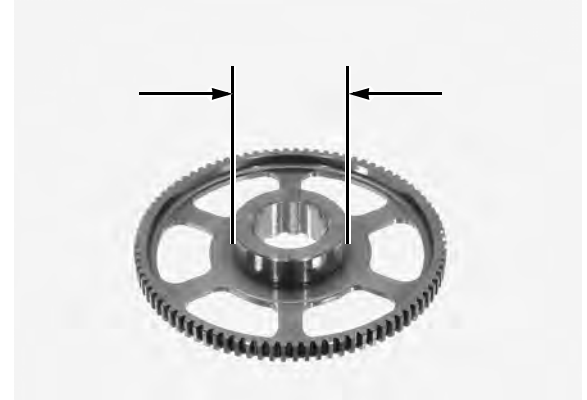


INSPECTION

Check the starter driven gear for abnormal wear or damage.

Measure the starter driven gear boss O.D.

SERVICE LIMIT: 57.73 mm (2.273 in)

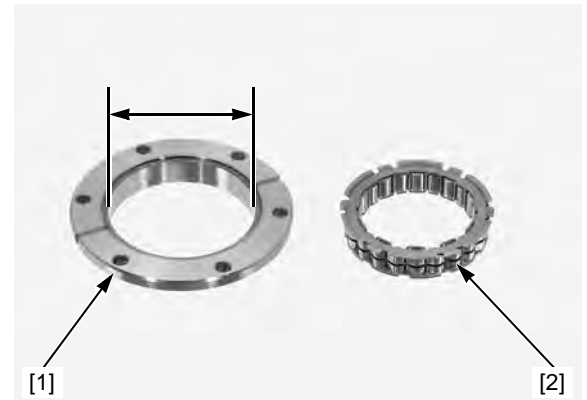


Check the starter clutch outer [1] inner surface for abnormal wear or damage and replace them if necessary.

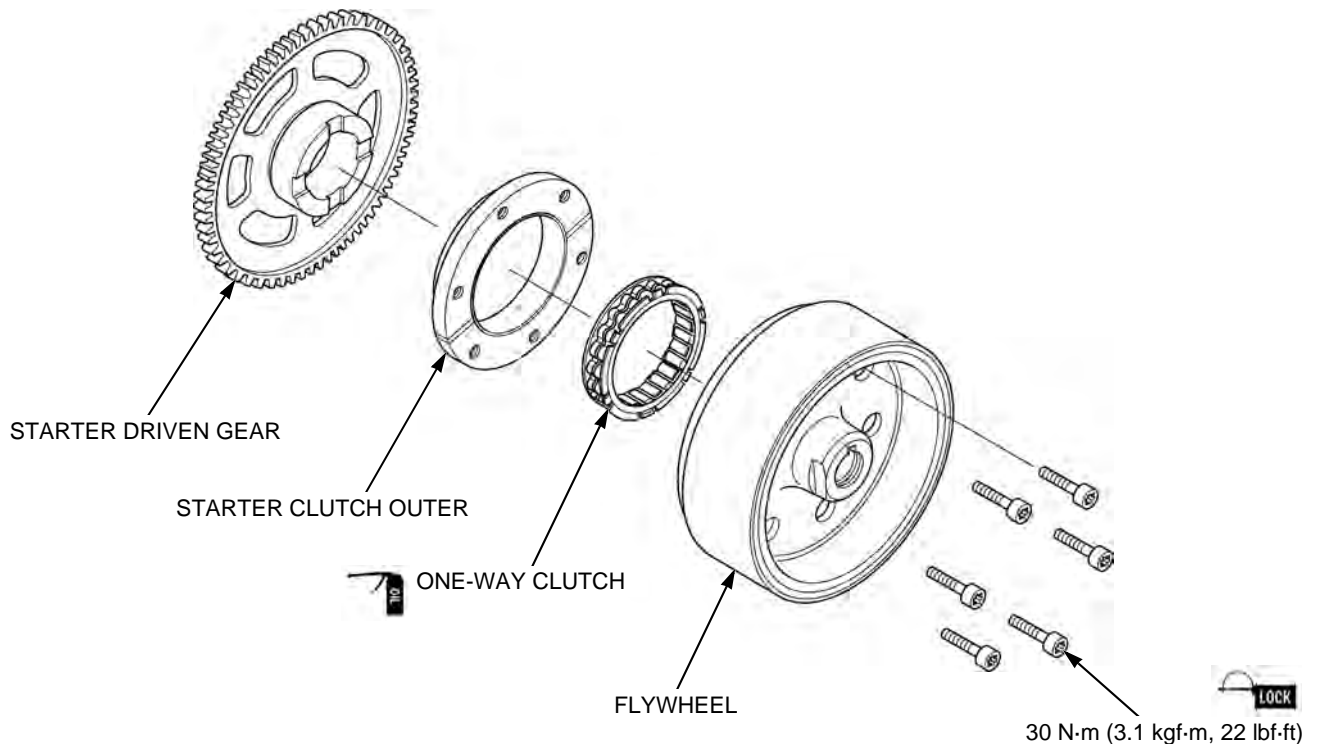
Measure the clutch outer I.D.

SERVICE LIMIT: 74.46 mm (2.931 in)

Check the starter one-way clutch [2] for abnormal wear or damage and replace them if necessary.



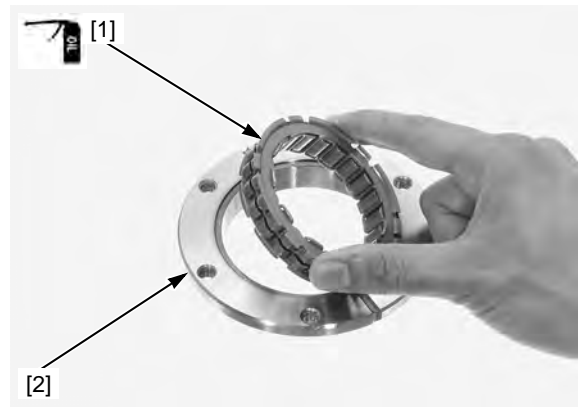
INSTALLATION



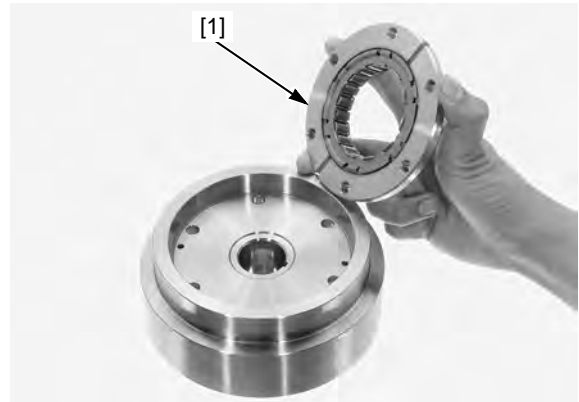
ALTERNATOR/STARTER CLUTCH

Apply engine oil to the starter one-way clutch [1] sliding surface.

Install the starter one-way clutch to the starter clutch outer [2].



Install the starter clutch assembly [1].



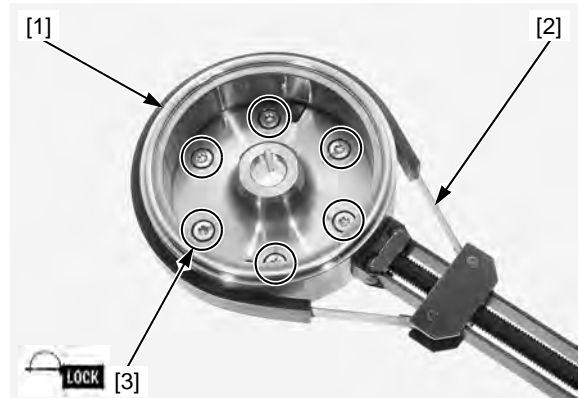
Hold the flywheel [1] using the special tool.

TOOL:
Flywheel holder [2] 07725-0040001

Apply locking agent to the starter clutch socket bolt threads (page 13-4).

Install and tighten the starter clutch socket bolt [3] to the specified torque.

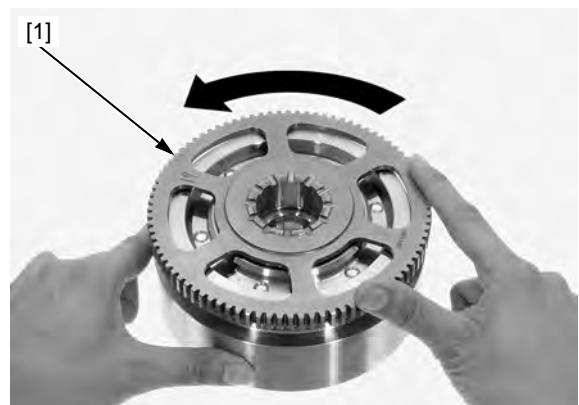
TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)



Install the starter driven gear [1] into the starter clutch outer while turning the starter driven gear counterclockwise.

Recheck the one-way clutch operation (page 13-8).

Install the flywheel (page 13-9).



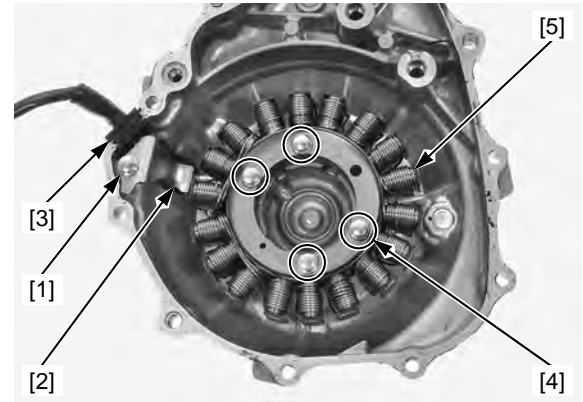
STATOR

REMOVAL

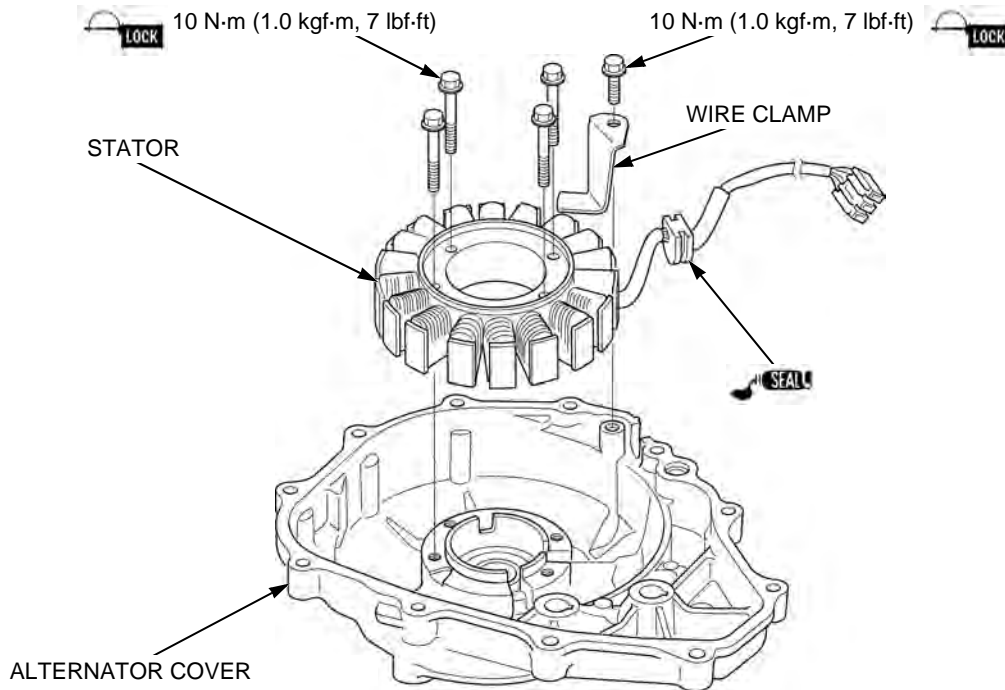
Remove the alternator cover (page 13-5).

Remove the alternator wire clamp bolt [1], wire clamp [2] and grommet [3] from the alternator cover.

Remove the alternator stator mounting bolts [4] and stator [5].



INSTALLATION



Install the stator [1] to the alternator cover.

Apply locking agent to the alternator stator mounting bolt threads (page 13-4).

Tighten the alternator stator mounting bolts [2] to the specified torque.

TORQUE: 10 N-m (1.0 kgf-m, 7 lbf-ft)

Apply liquid sealant (Three bond 1207B or equivalent) to the alternator wire grommet [3] sealing surface, then install it into the alternator cover groove securely.

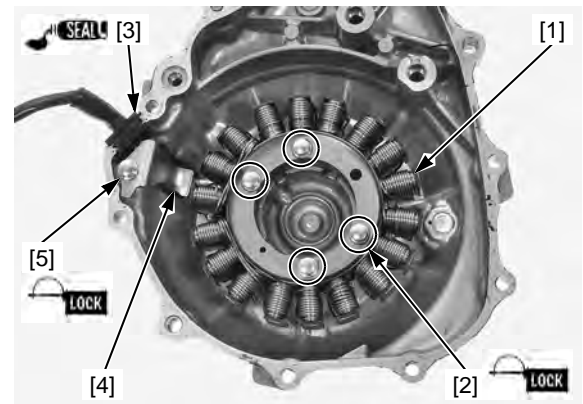
Apply locking agent to the alternator wire clamp bolt threads (page 13-4).

Install the wire clamp [4] and alternator wire clamp bolt [5].

Tighten the bolt to the specified torque.

TORQUE: 10 N-m (1.0 kgf-m, 7 lbf-ft)

Install the alternator cover (page 13-5).



MEMO

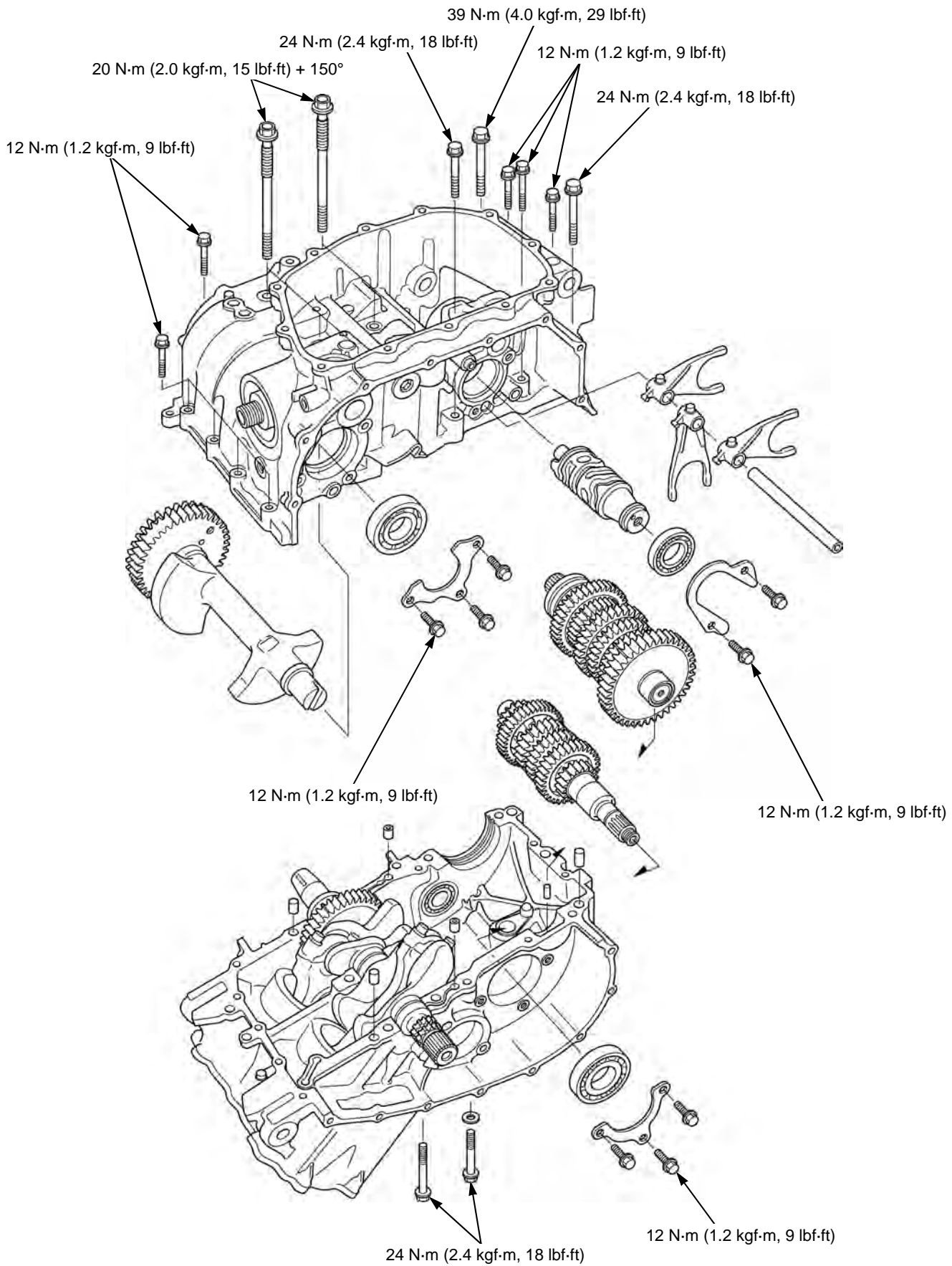
14. CRANKCASE/TRANSMISSION/BALANCER

COMPONENT LOCATION	14-2	TRANSMISSION (NC700X/XA/S/SA).....	14-8
SERVICE INFORMATION	14-4	TRANSMISSION (NC700XD/SD).....	14-17
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CRANKCASE/TRANSMISSION/BALANCER

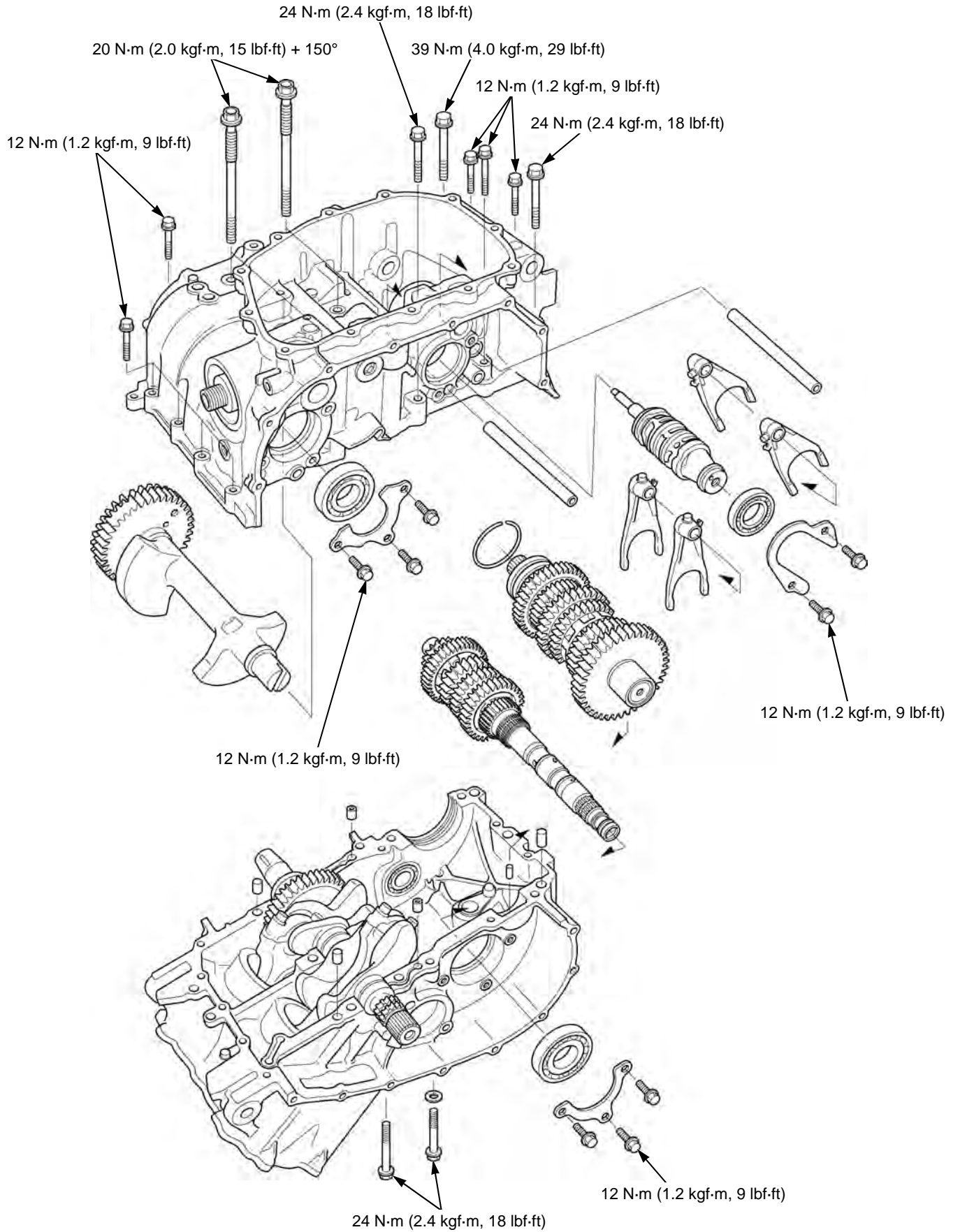
COMPONENT LOCATION

NC700X/XA/S/SA:



CRANKCASE/TRANSMISSION/BALANCER

NC700XD/SD:



SERVICE INFORMATION

GENERAL (NC700X/XA/S/SA)

- The crankcase must be separated to service the following:
 - Transmission
 - Balancer
 - Crankshaft (page 15-5)
 - Piston/cylinder (page 15-14)
- The following components must be removed before separating the crankcase:
 - Engine (page 16-5)
 - Clutch (page 11-7)
 - Primary drive gear/CKP sensor rotor (page 11-15)
 - Gearshift linkage (page 11-16)
 - Flywheel (page 13-7)
 - Cylinder head (page 10-16)
 - Oil strainer (page 9-11)
 - Oil pump (page 9-6)
 - Engine oil filter (page 3-13)
 - Starter motor (page 6-8)
 - EOP switch (page 22-20)
 - VS sensor (page 22-18)
 - Neutral switch (page 22-28)
- Be careful not to damage the crankcase mating surfaces when servicing.
- Prior to assembling the crankcase halves, apply sealant to their mating surfaces. Wipe off excess sealant thoroughly.

GENERAL (NC700XD/SD)

- The crankcase must be separated to service the following:
 - Transmission
 - Balancer
 - Crankshaft (page 15-5)
 - Piston/cylinder (page 15-14)
- The following components must be removed before separating the crankcase:
 - Engine (page 16-9)
 - Engine oil filter (page 3-13)
 - EOP switch (page 22-20)
 - Starter motor (page 6-8)
 - Cylinder head (page 10-16)
 - Flywheel (page 13-7)
 - Shift control motor/reduction gears (page 12-109)
 - Neutral switch (page 22-28)
 - Dual clutch (page 12-105)
 - Primary drive gear/CKP sensor rotor (page 12-108)
 - Gearshift linkage (page 12-112)
 - Oil pump (page 9-8)
 - Mainshaft sensors (page 12-115)
 - VS sensor (page 22-18)
 - EOT sensor (page 12-118)
 - Oil strainer (page 9-11)
- Be careful not to damage the crankcase mating surfaces when servicing.
- Prior to assembling the crankcase halves, apply sealant to their mating surfaces. Wipe off excess sealant thoroughly.

CRANKCASE/TRANSMISSION/BALANCER

SPECIFICATIONS (NC700X/XA/S/SA)

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Transmission	Gear I.D.	M5, M6, C1	28.000 – 28.021 (1.1024 – 1.1032)
		C2, C3, C4	31.000 – 31.025 (1.2205 – 1.2215)
	Gear bushing O.D.	M5, M6	27.959 – 27.980 (1.1007 – 1.1016)
		C2	30.955 – 30.980 (1.2187 – 1.2197)
		C3, C4	30.950 – 30.975 (1.2185 – 1.2195)
	Gear-to-bushing clearance	M5, M6	0.020 – 0.062 (0.0008 – 0.0024)
		C2	0.020 – 0.070 (0.0008 – 0.0028)
		C3, C4	0.025 – 0.075 (0.0010 – 0.0030)
	Gear bushing I.D.	M5	25.000 – 25.021 (0.9843 – 0.9851)
		C2	27.985 – 28.006 (1.1018 – 1.1026)
	Mainshaft O.D.	At M5 bushing	24.972 – 24.993 (0.9831 – 0.9840)
Countershaft O.D.	At C2 bushing	27.967 – 27.980 (1.1011 – 1.1016)	
Bushing-to-shaft clearance	M5	0.007 – 0.049 (0.0003 – 0.0020)	
	C2	0.005 – 0.039 (0.0002 – 0.0015)	
Shift fork, fork shaft	Fork I.D.	12.000 – 12.018 (0.4724 – 0.4731)	
	Claw thickness	5.93 – 6.00 (0.233 – 0.236)	
	Shift fork shaft O.D.	11.957 – 11.968 (0.4707 – 0.4712)	

SPECIFICATIONS (NC700XD/SD)

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Transmission	Gear I.D.	M5	33.000 – 33.025 (1.2992 – 1.3002)
		M6	43.000 – 43.025 (1.6929 – 1.6939)
		C1	31.010 – 31.035 (1.2209 – 1.2218)
		C2	25.000 – 25.021 (0.9843 – 0.9851)
		C3, C4	31.000 – 31.025 (1.2205 – 1.2215)
	Gear bushing O.D.	M5	32.955 – 32.980 (1.2974 – 1.2984)
		M6	42.950 – 42.975 (1.6909 – 1.6919)
		C1	30.970 – 30.995 (1.2193 – 1.2203)
		C2	24.959 – 24.980 (0.9826 – 0.9835)
		C3, C4	30.950 – 30.975 (1.2185 – 1.2195)
	Gear-to-bushing clearance	M5	0.020 – 0.070 (0.0008 – 0.0028)
		M6	0.025 – 0.075 (0.0010 – 0.0030)
		C1	0.015 – 0.065 (0.0006 – 0.0026)
		C2	0.020 – 0.062 (0.0008 – 0.0024)
		C3, C4	0.025 – 0.075 (0.0010 – 0.0030)
	Gear bushing I.D.	M5	29.985 – 30.006 (1.1805 – 1.1813)
		M6	40.007 – 40.028 (1.5751 – 1.5759)
		C1	28.000 – 28.021 (1.1024 – 1.1032)
		C2	21.985 – 22.006 (0.8655 – 0.8664)
	Inner mainshaft O.D.	At M5 bushing	29.957 – 29.970 (1.1794 – 1.1799)
	Outer mainshaft O.D.	At M6 bushing	39.975 – 39.991 (1.5738 – 1.5744)
	Countershaft O.D.	At C1 bushing	27.967 – 27.980 (1.1011 – 1.1016)
		At C2 bushing	21.952 – 21.965 (0.8643 – 0.8648)
	Bushing-to-shaft clearance	M5	0.015 – 0.049 (0.0006 – 0.0019)
M6		0.016 – 0.053 (0.0006 – 0.0021)	
C1		0.020 – 0.054 (0.0008 – 0.0021)	
C2		0.020 – 0.054 (0.0008 – 0.0021)	
Shift fork, fork shaft	Fork I.D.	12.000 – 12.018 (0.4724 – 0.4731)	
	Claw thickness	5.93 – 6.00 (0.233 – 0.236)	
	Shift fork shaft O.D.	11.957 – 11.968 (0.4707 – 0.4712)	

CRANKCASE/TRANSMISSION/BALANCER

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Mainshaft bearing set plate bolt	3	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Shift drum bearing set plate bolt	2	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Balancer shaft bearing set plate bolt	3	6	12 (1.2, 9)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) except 2.0 ± 1.0 mm (0.08 ± 0.04 in) from tip
Crankcase main journal bolt (new)	6	9	20 (2.0, 15) + 150°	See page 14-30 Replace with a new one.
Crankcase 10 mm bolt	1	10	39 (4.0, 29)	
Crankcase 8 mm bolt	3	8	24 (2.4, 18)	
Crankcase 8 x 45 mm bolt	1	8	24 (2.4, 18)	Apply locking agent to the threads. Coating width; 6.5 ± 1.0 mm (0.26 ± 0.04 in) from tip
Crankcase 6 mm bolt	8	6	12 (1.2, 9)	

TROUBLESHOOTING

Hard to shift

- Improper clutch operation
- Incorrect engine oil weight
- Bent shift fork
- Bent shift fork shaft
- Bent shift fork claw
- Damaged shift drum groove
- Bent gearshift spindle
 - NC700X/XA/S/SA (page 11-16)
 - NC700XD/SD (page 12-112)

Transmission jumps out of gear

- Worn gear dogs
- Worn gear shifter groove
- Bent shift fork shaft
- Worn or bent shift forks
- Broken shift drum stopper arm
 - NC700X/XA/S/SA (page 11-16)
 - NC700XD/SD (page 12-112)
- Broken shift drum stopper arm return spring
 - NC700X/XA/S/SA (page 11-16)
 - NC700XD/SD (page 12-112)
- Broken gearshift spindle return spring
 - NC700X/XA/S/SA (page 11-16)
 - NC700XD/SD (page 12-112)

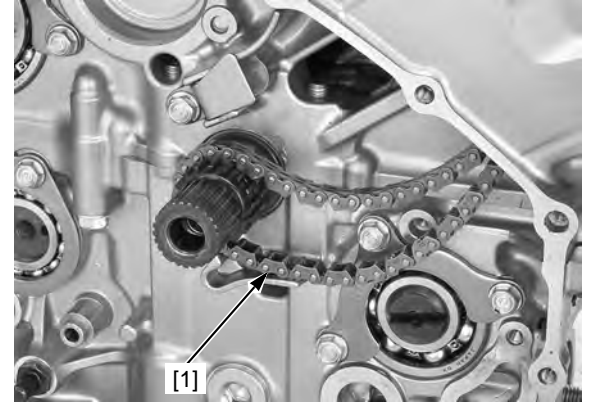
Excessive engine noise

- Worn or damaged transmission gear
- Worn or damaged transmission bearings

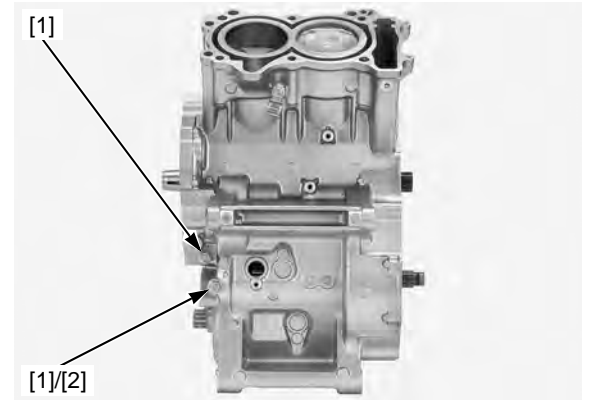
CRANKCASE SEPARATION

For Service Information for removal of necessary parts before separating the crankcase (page 14-4).

Remove the cam chain [1] from the crankshaft.

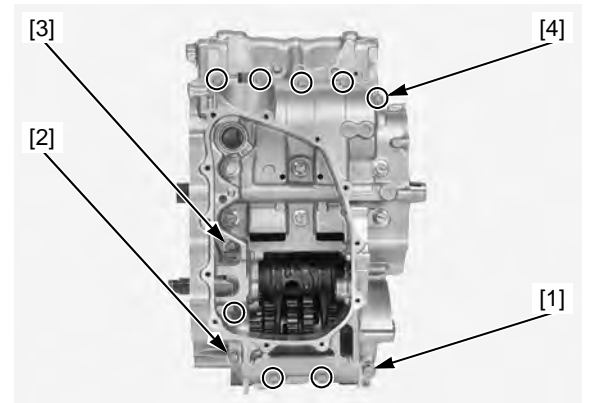


Remove the crankcase 8 mm bolts [1] and sealing washer [2].



Place the engine upside down.

Loosen the crankcase 10 mm bolt [1], 8 mm bolts [2], 8 x 45 mm bolts [3] and 6 mm bolts [4] in a crisscross pattern in 2 or 3 steps, and remove the bolts.

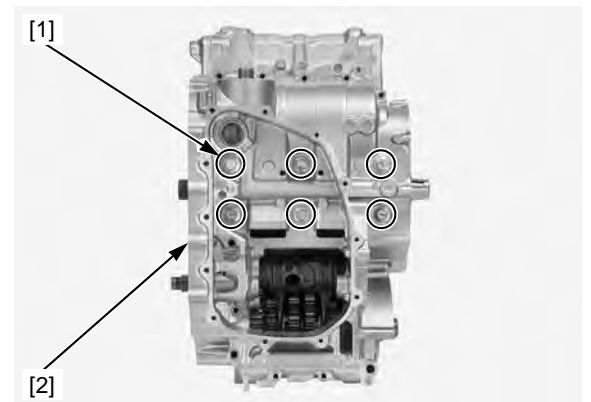


Loosen the crankcase main journal bolt [1] in a crisscross pattern in 2 or 3 steps, and remove them.

Separate the lower crankcase [2] from the upper crankcase.

NOTE:

Do not pry the crankcase halves with a screwdriver.



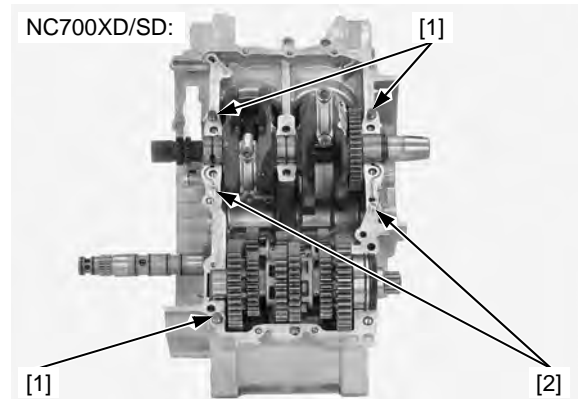
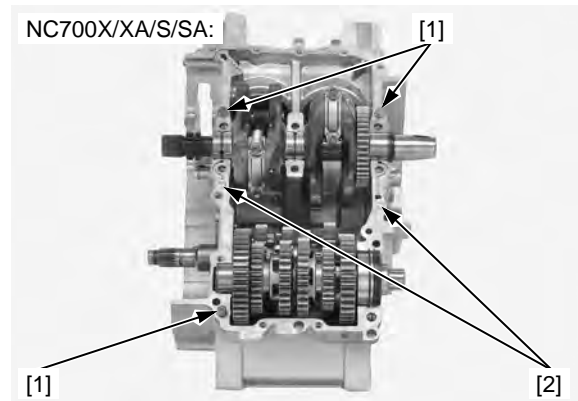
CRANKCASE/TRANSMISSION/BALANCER

Remove the dowel pins [1] and oil orifices [2].

Clean any sealant off from the crankcase mating surface.

Clean the oil orifices in solvent thoroughly.

Check the oil orifices for clogs, and replace them if necessary.



TRANSMISSION (NC700X/XA/S/SA)

REMOVAL/DISASSEMBLY

MAINSHAFT/COUNTERSHAFT

Separate the crankcase halves (page 14-7).

Remove the countershaft assembly [1].

Remove the dowel pin [2] and countershaft bearing set ring [3].

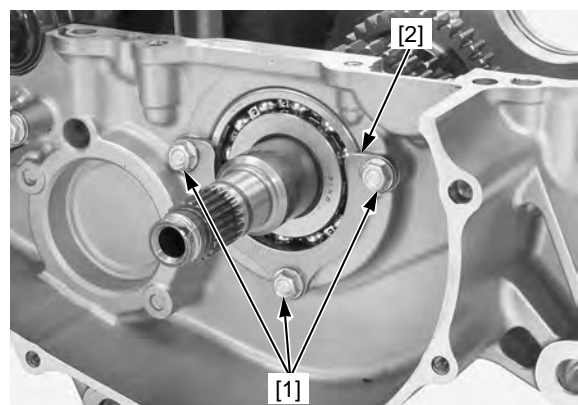
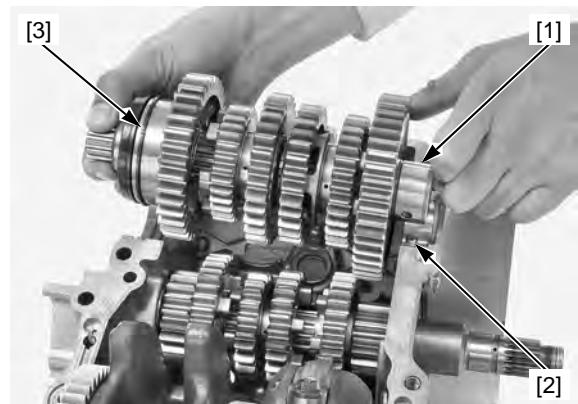
Disassemble the countershaft assembly.

Clean all disassembled parts in solvent thoroughly.

NOTE:

- Keep track of the disassembled parts (gears, bushings, washers, and snap rings) by sliding them onto a tool or a piece of wire.
- Do not expand the snap ring more than necessary for removal. To remove a snap ring, expand the snap ring and pull it off using the gear behind it.

Remove the mainshaft bearing set plate bolts [1] and set plate [2].



Remove the right mainshaft bearing [1] from the upper crankcase.



Remove the mainshaft assembly [1].
Disassemble the mainshaft assembly.
Clean all disassembled parts in solvent thoroughly.

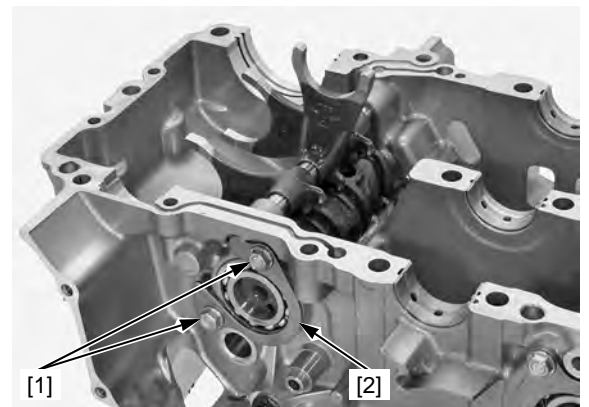
NOTE:

- Keep track of the disassembled parts (gears, bushings, washers, and snap rings) by sliding them onto a tool or a piece of wire.
- Do not expand the snap ring more than necessary for removal. To remove a snap ring, expand the snap ring and pull it off using the gear behind it.

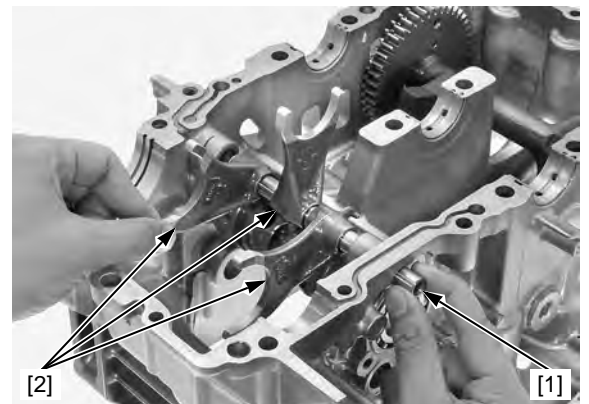


SHIFT DRUM/SHIFT FORK

Remove the shift drum bearing set plate bolts [1] and set plate [2].



Remove the fork shaft [1] and shift forks [2].



CRANKCASE/TRANSMISSION/BALANCER

Remove the shift drum [1] and shift drum bearing [2].



INSPECTION

SHIFT DRUM/SHIFT FORK

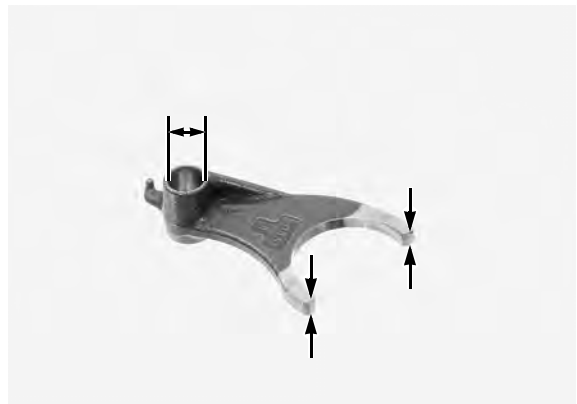
Check the shift fork guide pin for abnormal wear or damage.

Measure the shift fork I.D.

SERVICE LIMIT: 12.03 mm (0.474 in)

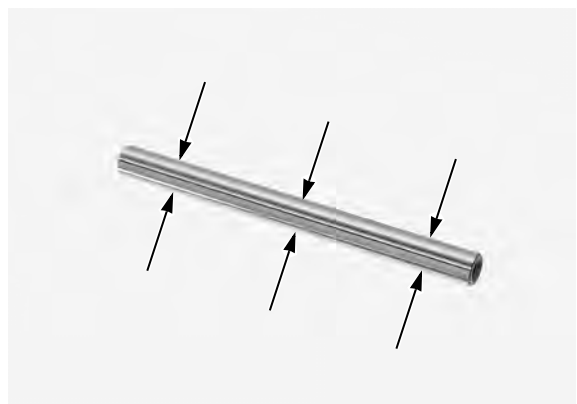
Measure the shift fork claw thickness.

SERVICE LIMIT: 5.9 mm (0.23 in)



Measure the shift fork shaft O.D.

SERVICE LIMIT: 11.95 mm (0.470 in)



Inspect the shift drum guide grooves for abnormal wear or damage.

Turn the outer race of the shift drum bearing with your finger.

The bearing should turn smoothly and quietly.

Also check that the inner race of the bearing fits tightly on the shift drum.

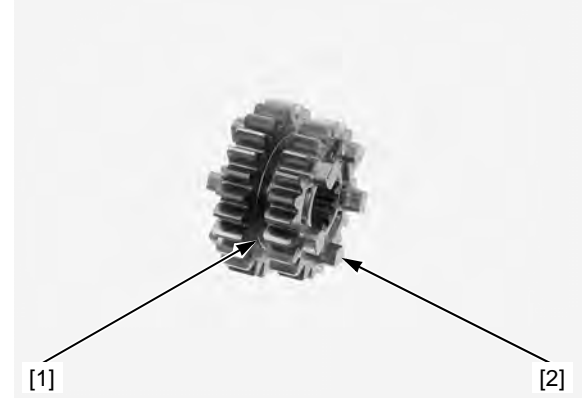
Replace the bearing if the inner race does not turn smoothly, quietly, or if the inner race fits loosely on the shift drum.



TRANSMISSION

Check the gear shifter groove [1] and gear dogs [2] for abnormal wear or damage.

Check the dog holes and teeth for abnormal wear or damage.



Measure the I.D. of each gear.

SERVICE LIMITS:

- M5, M6, C1: 28.04 mm (1.104 in)**
- C2, C3, C4: 31.04 mm (1.222 in)**

Measure the O.D. of each gear bushing.

SERVICE LIMITS:

- M5, M6: 27.94 mm (1.100 in)**
- C2, C3, C4: 30.93 mm (1.218 in)**

Measure the I.D. of each gear bushing.

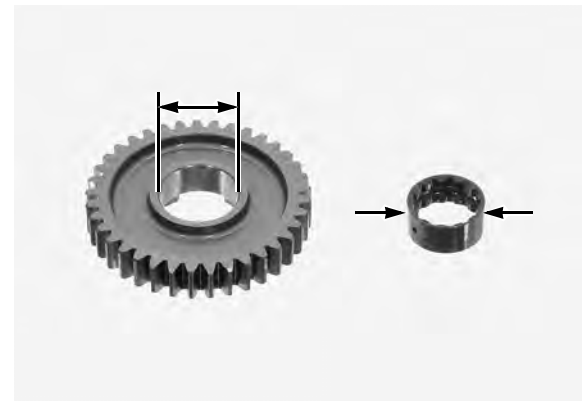
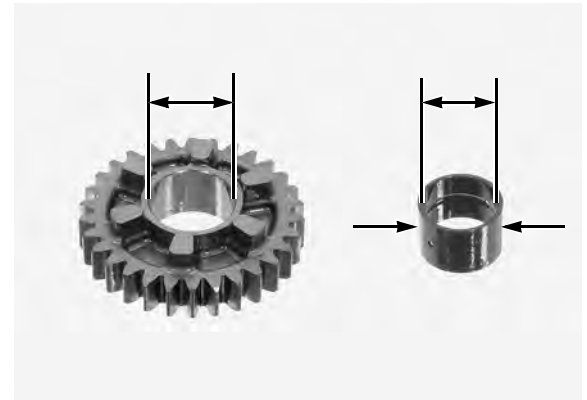
SERVICE LIMITS:

- M5: 25.04 mm (0.986 in)**
- C2: 28.02 mm (1.103 in)**

Calculate the gear-to-bushing clearance.

SERVICE LIMITS:

- M5, M6: 0.08 mm (0.003 in)**
- C2: 0.10 mm (0.004 in)**
- C3, C4: 0.11 mm (0.004 in)**



Check the mainshaft and countershaft for abnormal wear or damage.

Measure the mainshaft O.D. at the M5 bushing.

SERVICE LIMIT: 24.95 mm (0.982 in)

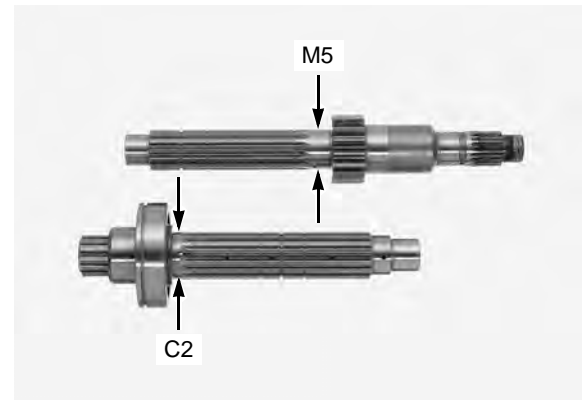
Measure the countershaft O.D. at the C2 bushing.

SERVICE LIMIT: 27.95 mm (1.100 in)

Calculate the gear bushing-to-shaft clearance.

SERVICE LIMITS:

- M5: 0.09 mm (0.004 in)**
- C2: 0.06 mm (0.002 in)**



MAINSHAFT BEARING

Temporarily install the right mainshaft bearing [1] onto the mainshaft.

Turn the outer race of the right mainshaft bearing with your finger.

The bearing should turn smoothly and quietly.

Also check that the inner race of the bearing fits tightly on the mainshaft.

Replace the bearing if the inner race does not turn smoothly, quietly, or if the inner race fits loosely on the mainshaft.



Turn the inner race of the left mainshaft bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the outer race of the bearing fits tightly in the upper crankcase.

Replace the bearing (page 14-12) if the inner race does not turn smoothly, quietly, or if the outer race fits loosely in the crankcase.



COUNTERSHAFT BEARING

Turn the outer race of countershaft bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the bearing inner race fits tightly on the countershaft.

Replace the countershaft, collar, and bearing as an assembly, if the race does not turn smoothly, quietly, or if the inner race fits loosely on the countershaft.

NOTE:

The countershaft bearing cannot be replaced. If the countershaft bearing is faulty, replace the countershaft as an assembly.



LEFT MAINSHAFT BEARING REPLACEMENT

Remove the following:

- Crankshaft (page 15-5)
- Piston (page 15-14)
- Countershaft/mainshaft (page 14-8)

To avoid burns, wear heavy gloves when handling the heated upper crankcase.

Do not use a torch to heat the upper crankcase; it may cause warping.

Heat the upper crankcase to 80°C (176°F) evenly using a heat gun.

Tap the upper crankcase lightly and remove the left mainshaft bearing [1].



Apply engine oil to a new left mainshaft bearing [1].

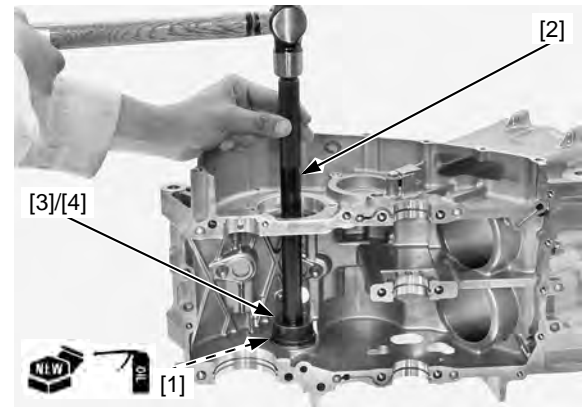
Drive in a new bearing squarely with the marking side facing toward the inside of the crankcase.

Drive the left mainshaft bearing into the upper crankcase until it is fully seated using the special tools.

TOOLS:

- Driver, 15 x 280L [2]** 07949-3710001
- Attachment, 42 x 47 mm [3]** 07746-0010300
- Pilot, 20 mm [4]** 07746-0040500

Install the removed parts in the reverse order of removal.



TRANSMISSION ASSEMBLY

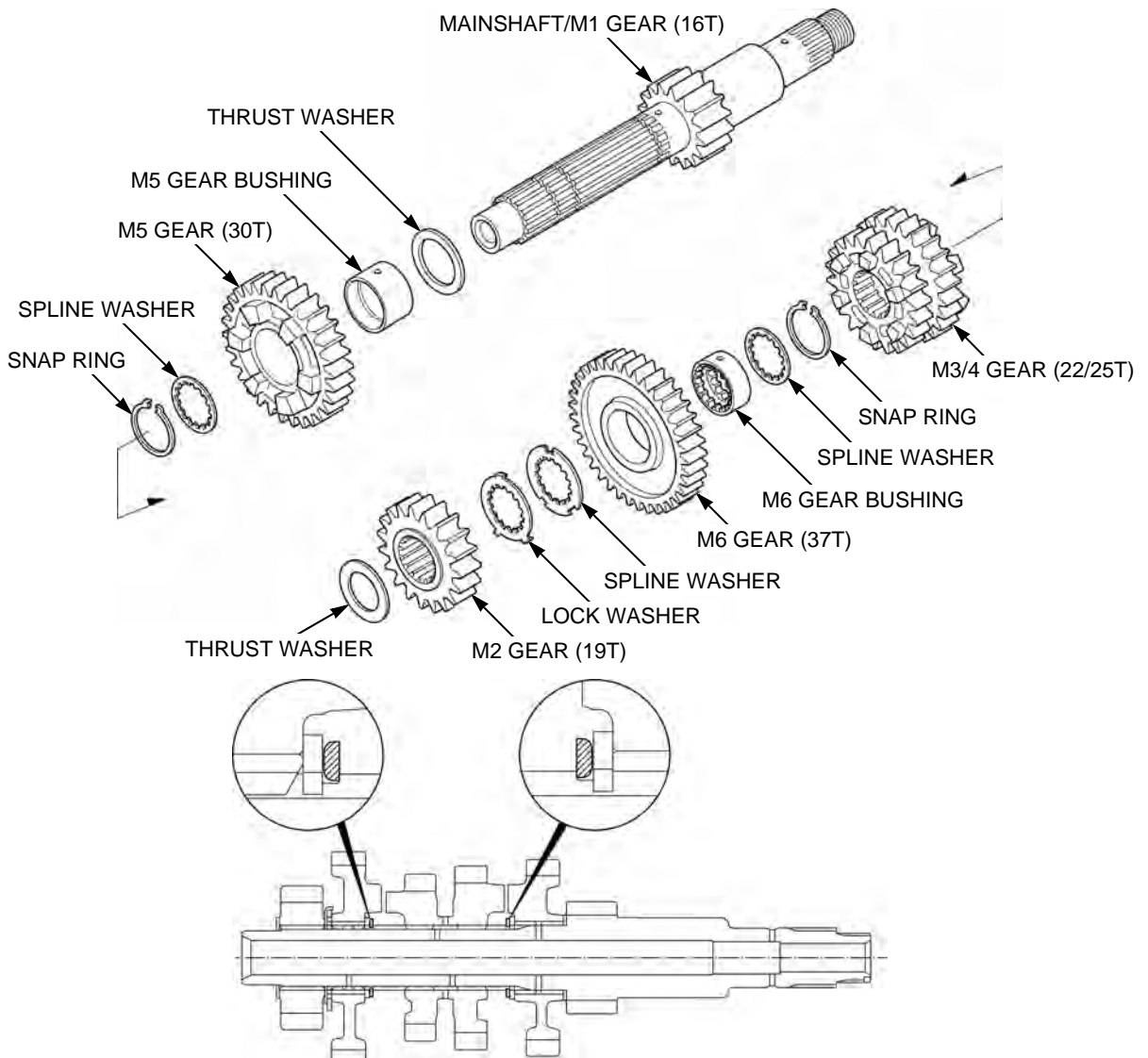
Clean all parts in solvent, and dry them thoroughly.

Apply engine oil to the gear teeth, rotating surface and bearing.

Apply molybdenum oil solution to the spline bushing outer surface, bushing inner and outer surface, shift fork grooves.

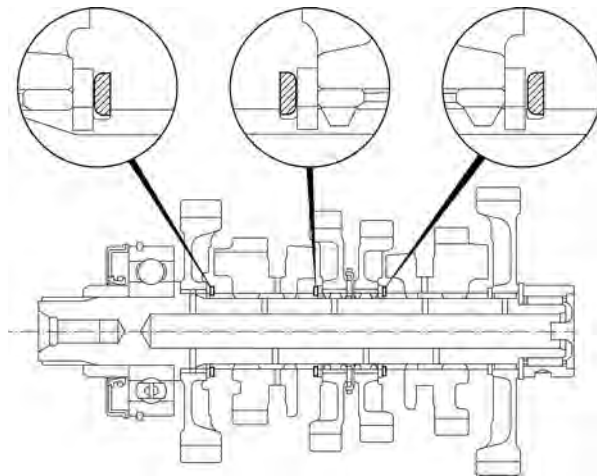
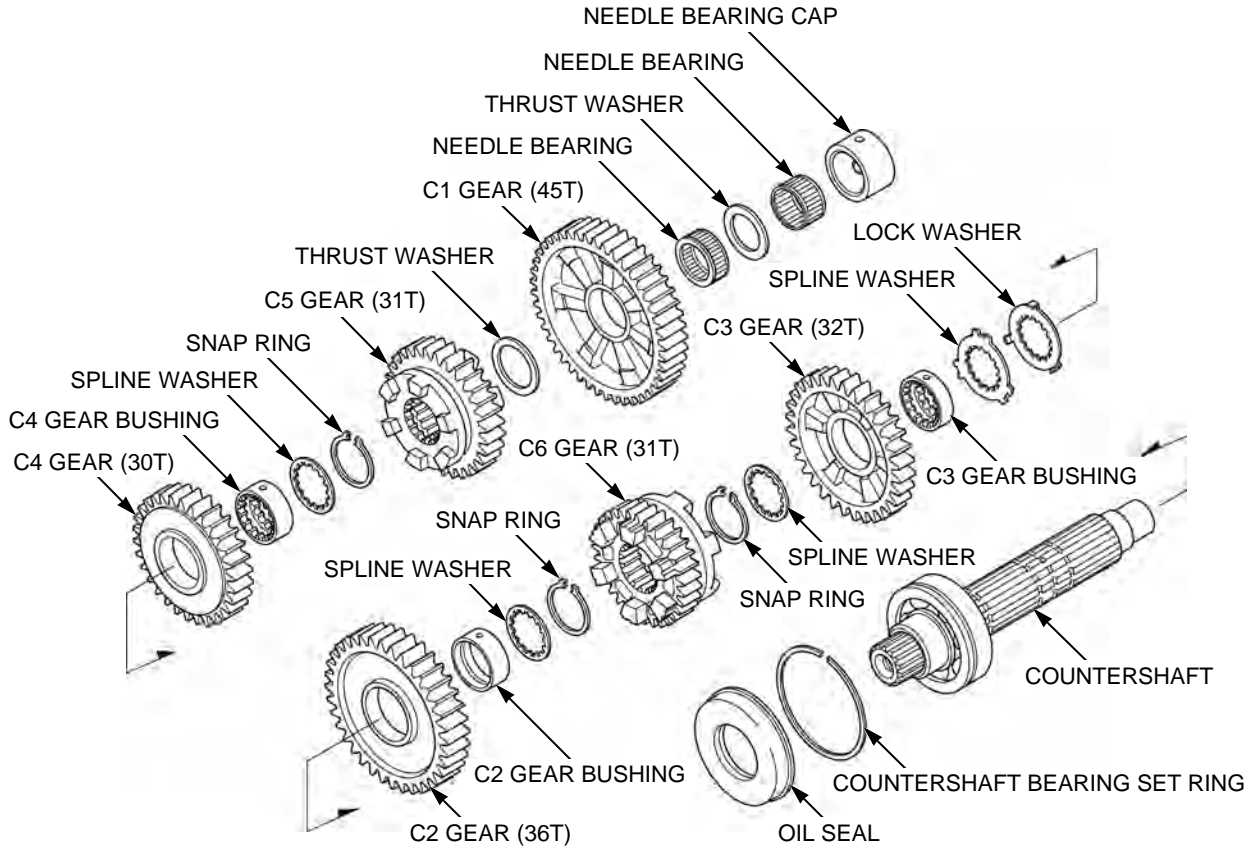
Assemble the mainshaft and countershaft.

MAINSHAFT



CRANKCASE/TRANSMISSION/BALANCER

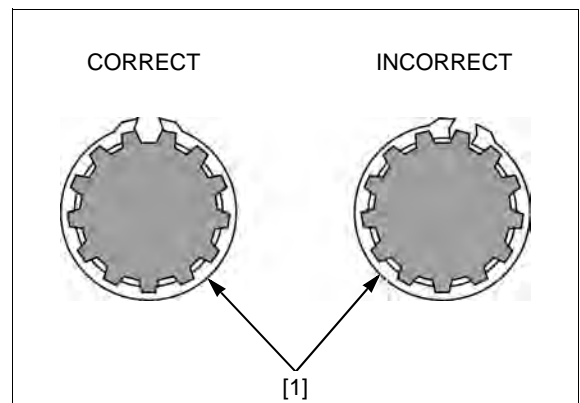
COUNTERSHAFT



Assemble the transmission gears and shafts.

NOTE:

- Coat each gear with clean engine oil and check for smooth movement.
- Align the lock washer tabs with the spline washer grooves.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
- Install the snap rings [1] so that the end gap aligns with the groove of the splines.
- Make sure that the snap rings are fully seated in the shaft groove after installing them.



INSTALLATION

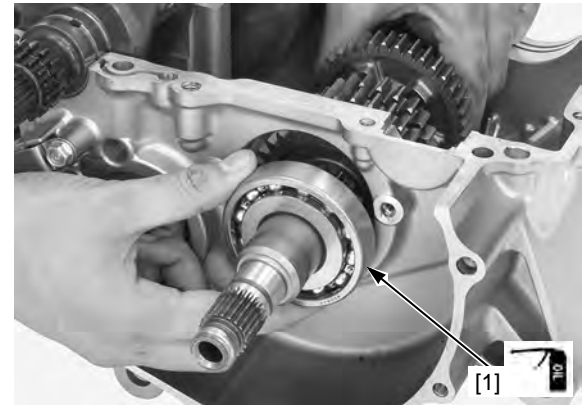
MAINSHAFT/COUNTERSHAFT

Install the mainshaft assembly [1] into the upper crankcase.



Apply engine oil to the right mainshaft bearing [1].
Install the right mainshaft bearing into the upper crankcase.

NOTE:
Install the bearing into the crankcase with the marked side facing out.

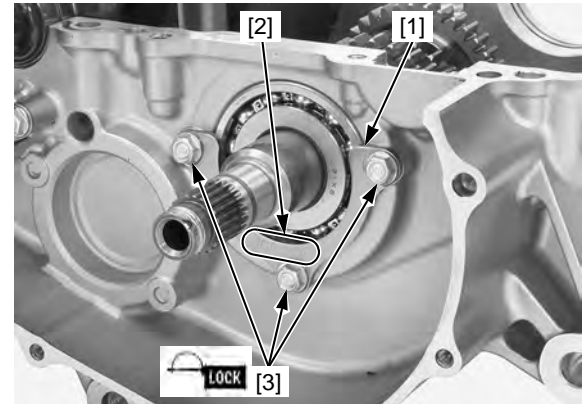


Apply locking agent to the mainshaft bearing set plate bolts threads (page 14-6).

Install the mainshaft bearing set plate [1] with its "OUT SIDE" mark [2] facing out.

Install and tighten the mainshaft bearing set plate bolts [3] to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the dowel pin [1] onto the upper crankcase hole.
Install the countershaft bearing set ring [2] to the countershaft bearing groove.
Install the countershaft assembly [3].

NOTE:

- Align the needle bearing cap hole with the dowel pin.
- Align the set ring with the upper crankcase groove.

Install the shift drum/shift fork (page 14-16).

Assemble the crankcase (page 14-28).



CRANKCASE/TRANSMISSION/BALANCER

SHIFT DRUM/SHIFT FORK

Apply engine oil to the shift drum bearing [1].

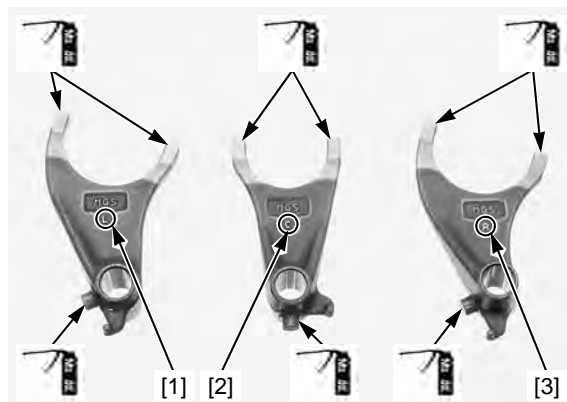
Install the shift drum [2] and shift drum bearing into the lower crankcase.



The shift forks have the following identification marks:

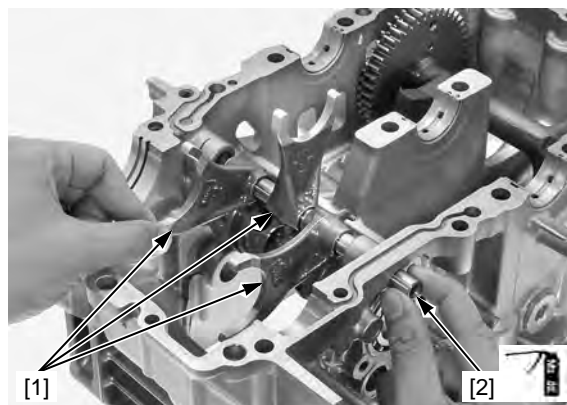
- "L" mark [1]: left shift fork
- "C" mark [2]: center shift fork
- "R" mark [3]: right shift fork

Apply molybdenum oil solution to the shift fork guide area and guide pin.



Apply molybdenum oil solution to the shift fork shaft outer surface.

Install the shift forks [1] into the shift drum guide grooves with the identification marks facing toward the right side of the engine and insert the fork shaft [2].



Apply locking agent to the shift drum bearing set plate bolt threads (page 14-6).

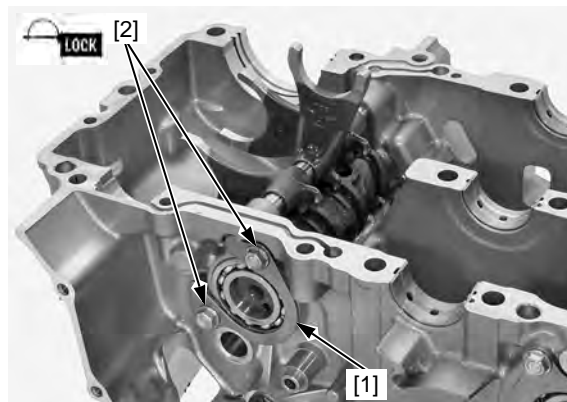
Install the set plate [1] and shift drum bearing set plate bolts [2].

Tighten the shift drum bearing set plate bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the mainshaft/countershaft (page 14-15).

Assemble the crankcase (page 14-28).



TRANSMISSION (NC700XD/SD)

REMOVAL/DISASSEMBLY

MAINSHAFT/COUNTERSHAFT

Separate the crankcase halves (page 14-7).

Remove the countershaft assembly [1].

Remove the dowel pin [2] and countershaft bearing set ring [3].

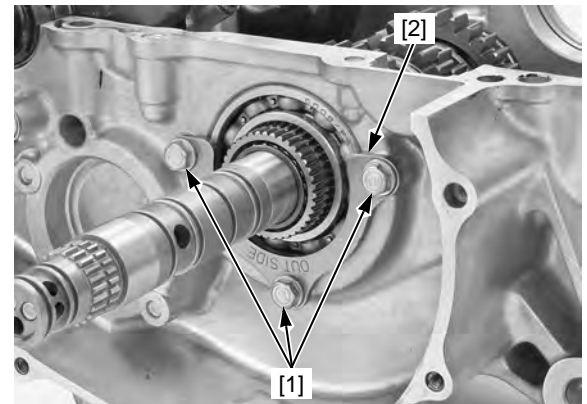
Disassemble the countershaft assembly.

Clean all disassembled parts in solvent thoroughly.

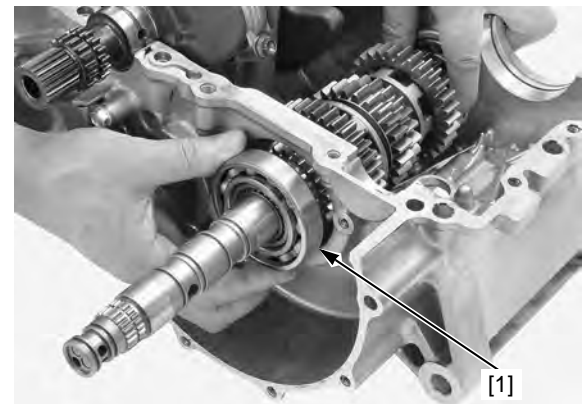
NOTE:

- Keep track of the disassembled parts (gears, bushings, washers, and snap rings) by sliding them onto a tool or a piece of wire.
- Do not expand the snap ring more than necessary for removal. To remove a snap ring, expand the snap ring and pull it off using the gear behind it.

Remove the mainshaft bearing set plate bolts [1] and set plate [2].



Remove the right mainshaft bearing [1] from the upper crankcase.



Remove the mainshaft assembly [1].

Disassemble the mainshaft assembly.

Clean all disassembled parts in solvent thoroughly.

NOTE:

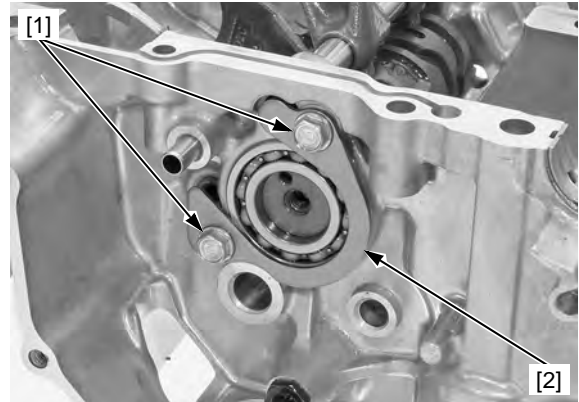
- Keep track of the disassembled parts (gears, bushings, washers, and snap rings) by sliding them onto a tool or a piece of wire.
- Do not expand the snap ring more than necessary for removal. To remove a snap ring, expand the snap ring and pull it off using the gear behind it.



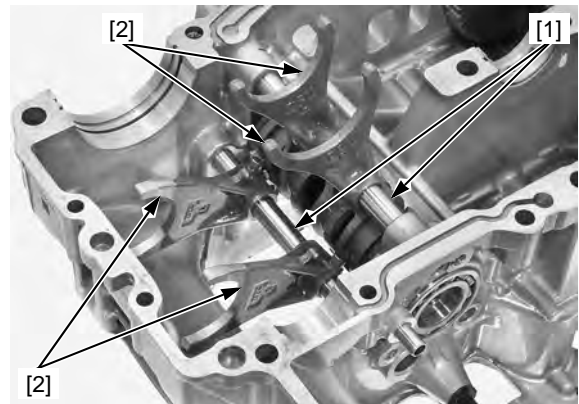
CRANKCASE/TRANSMISSION/BALANCER

SHIFT DRUM/SHIFT FORK

Remove the shift drum bearing set plate bolts [1] and set plate [2].



Remove the fork shafts [1] and shift forks [2].



Remove the shift drum [1] and shift drum bearing [2].



INSPECTION

SHIFT DRUM/SHIFT FORK

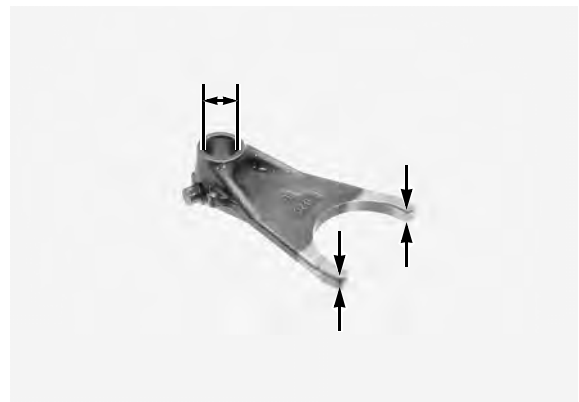
Check the shift fork guide pin for abnormal wear or damage.

Measure the shift fork I.D.

SERVICE LIMIT: 12.03 mm (0.474 in)

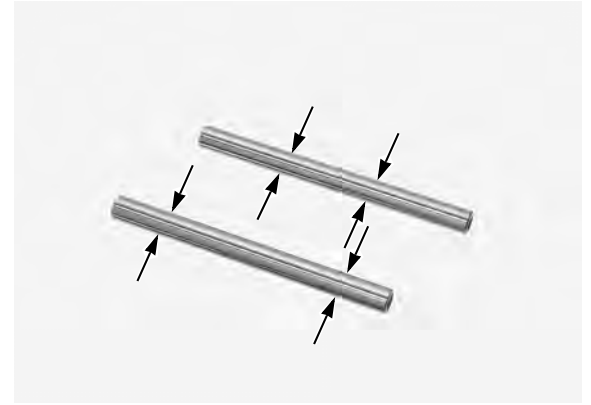
Measure the shift fork claw thickness.

SERVICE LIMIT: 5.9 mm (0.23 in)



Measure the shift fork shaft O.D.

SERVICE LIMIT: 11.95 mm (0.470 in)



Inspect the shift drum guide grooves for abnormal wear or damage.

Turn the outer race of the shift drum bearing with your finger.

The bearing should turn smoothly and quietly.

Replace the bearing if the outer race does not turn smoothly or quietly.



TRANSMISSION

Check the gear shifter groove and gear dogs for abnormal wear or damage.

Check the dog holes and gear teeth for abnormal wear or damage.



CRANKCASE/TRANSMISSION/BALANCER

Measure the I.D. of each gear.

SERVICE LIMITS:

M5:	33.04 mm (1.301 in)
M6:	43.04 mm (1.694 in)
C1:	31.06 mm (1.223 in)
C2:	25.03 mm (0.985 in)
C3, C4:	31.04 mm (1.222 in)

Measure the O.D. of each gear bushing.

SERVICE LIMITS:

M5:	32.93 mm (1.296 in)
M6:	42.93 mm (1.690 in)
C1:	30.94 mm (1.218 in)
C2:	24.94 mm (0.982 in)
C3, C4:	30.93 mm (1.218 in)

Calculate the gear-to-bushing clearance.

SERVICE LIMITS:

M5:	0.10 mm (0.004 in)
M6:	0.11 mm (0.004 in)
C1:	0.10 mm (0.004 in)
C2:	0.09 mm (0.004 in)
C3, C4:	0.11 mm (0.004 in)

Measure the I.D. of each gear bushing.

SERVICE LIMITS:

M5:	30.03 mm (1.182 in)
M6:	40.038 mm (1.5763 in)
C1:	28.04 mm (1.104 in)
C2:	22.02 mm (0.867 in)

Check the mainshafts and countershaft for abnormal wear or damage.

Measure the inner mainshaft O.D. at the M5 bushing.

SERVICE LIMIT: 29.93 mm (1.178 in)

Measure the outer mainshaft O.D. at the M6 bushing.

SERVICE LIMIT: 39.965 mm (1.5734 in)

Measure the countershaft O.D. at the C1 and C2 bushing.

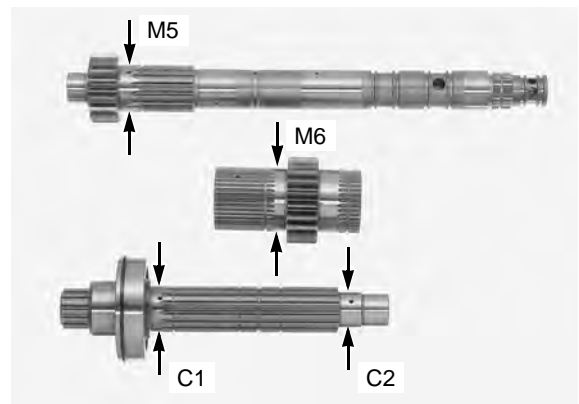
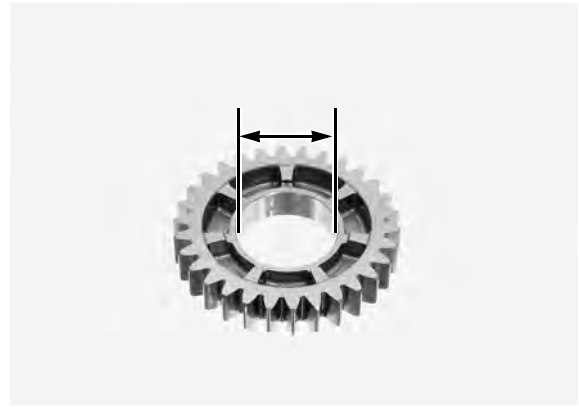
SERVICE LIMITS:

C1:	27.95 mm (1.100 in)
C2:	21.94 mm (0.864 in)

Calculate the gear bushing-to-shaft clearance.

SERVICE LIMITS:

M5:	0.09 mm (0.004 in)
M6:	0.10 mm (0.004 in)
C1:	0.08 mm (0.003 in)
C2:	0.08 mm (0.003 in)



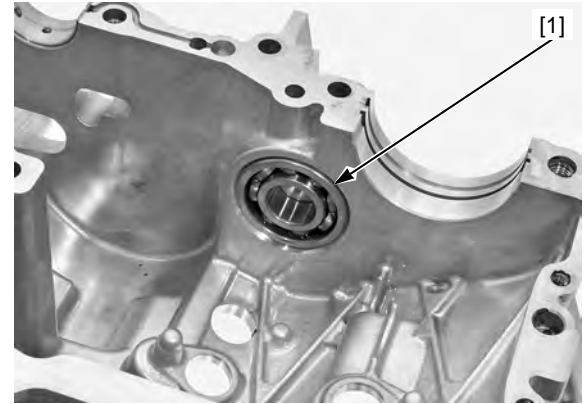
MAINSHAFT BEARING

Turn the inner race of the left mainshaft bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the outer race of the bearing fits tightly in the upper crankcase.

Replace the bearing (page 14-21) if the inner race does not turn smoothly, quietly, or if the outer race fits loosely in the crankcase.



COUNTERSHAFT BEARING

Turn the outer race of countershaft bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the bearing inner race fits tightly on the countershaft.

Replace the countershaft, collar, and bearing as an assembly, if the outer race does not turn smoothly, quietly, or if the inner race fits loosely on the countershaft.



LEFT MAINSHAFT BEARING REPLACEMENT

Remove the following:

- Crankshaft (page 15-5)
- Pistons/connecting rods (page 15-14)

To avoid burns, wear heavy gloves when handling the heated upper crankcase.

Do not use a torch to heat the upper crankcase; it may cause warping.

Heat the upper crankcase to 80°C (176°F) evenly using a heat gun.

Tap the upper crankcase lightly and remove the left mainshaft bearing [1].



Apply engine oil to a new left mainshaft bearing [1].

Drive in a new bearing squarely with the marking side facing toward the inside of the crankcase.

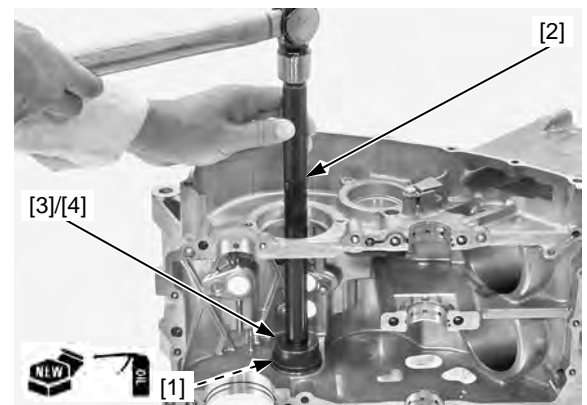
Drive the left mainshaft bearing into the upper crankcase until it is fully seated using the special tools.

TOOLS:

- | | |
|-----------------------------------|----------------------|
| Driver, 15 x 280L [2] | 07949-3710001 |
| Attachment, 42 x 47 mm [3] | 07746-0010300 |
| Pilot, 20 mm [4] | 07746-0040500 |

Install the following:

- Pistons/connecting rods (page 15-20)
- Crankshaft (page 15-6)



CRANKCASE/TRANSMISSION/BALANCER

TRANSMISSION ASSEMBLY

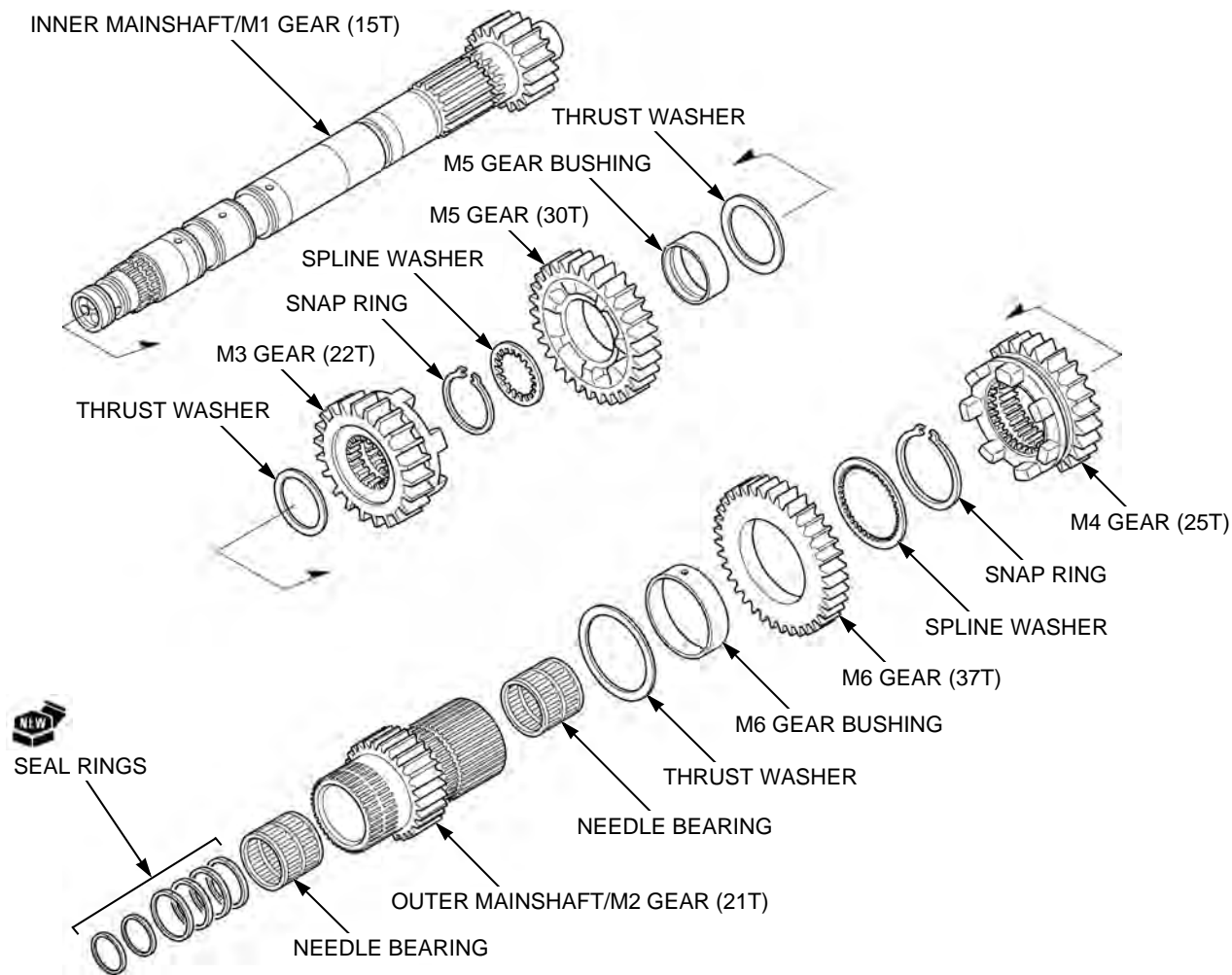
Clean all parts in solvent, and dry them thoroughly.

Apply engine oil to the gear teeth, rotating surface and bearing.

Apply molybdenum oil solution to the spline bushing outer surfaces, bushing inner and outer surfaces, and gear shifter grooves.

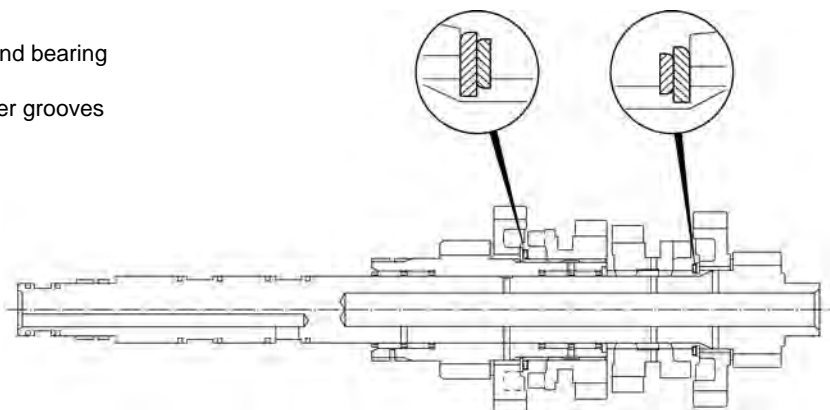
Assemble the mainshaft and countershaft.

MAINSHAFT

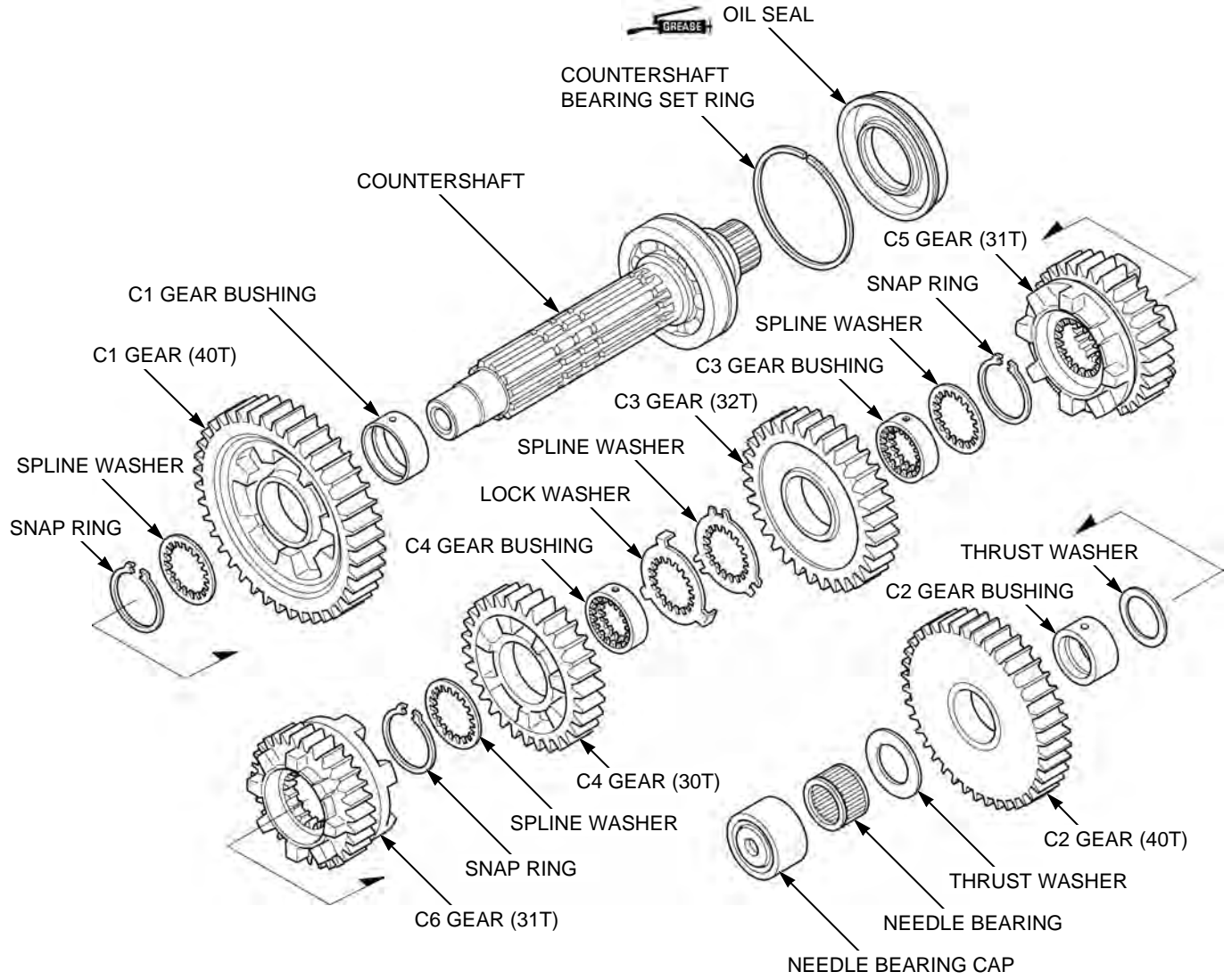




: Gear teethe, rotating surfaces and bearing

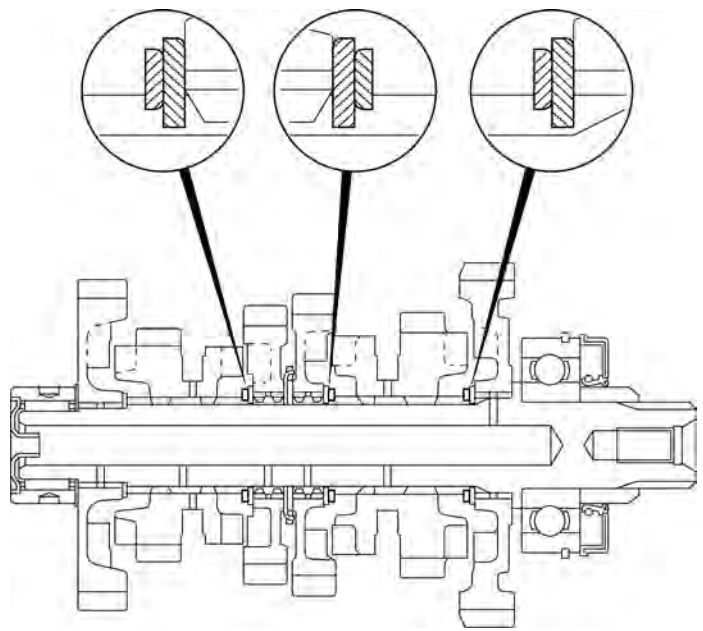
: Bushing surfaces and gear shifter grooves



COUNTERSHAFT



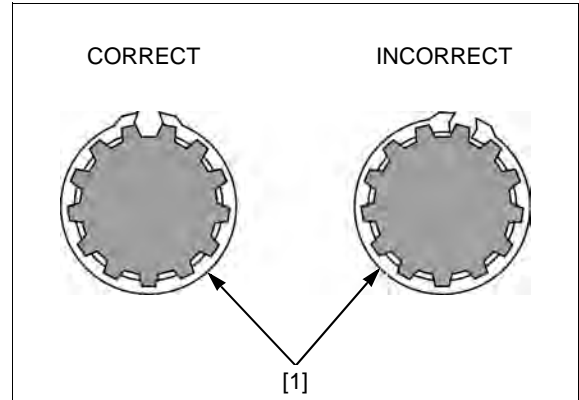
-  : Gear teethe, rotating surfaces and bearing
-  : Bushing surfaces and gear shifter grooves



CRANKCASE/TRANSMISSION/BALANCER

NOTE:

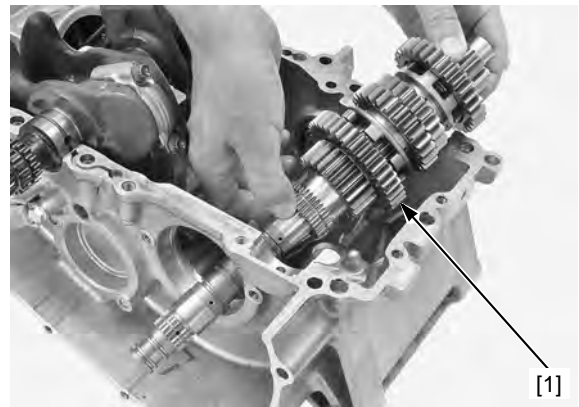
- Coat each gear with clean engine oil and check for smooth movement.
- Align the lock washer tabs with the spline washer grooves.
- Always install the thrust washers and snap rings with the chamfered (rolled) edge facing away from the thrust load.
- Install the snap rings [1] so that the end gap aligns with the groove of the splines.
- Make sure that the snap rings are fully seated in the shaft groove after installing them.



INSTALLATION

MAINSHAFT/COUNTERSHAFT

Install the mainshaft assembly [1] into the upper crankcase.

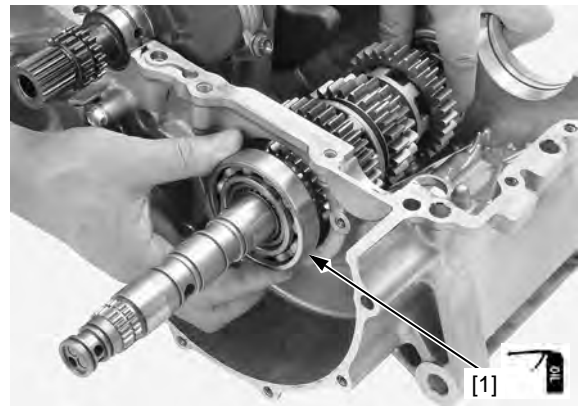


Apply engine oil to the right mainshaft bearing [1].

Install the right mainshaft bearing into the upper crankcase.

NOTE:

Install the bearing into the crankcase with the marked side facing out.

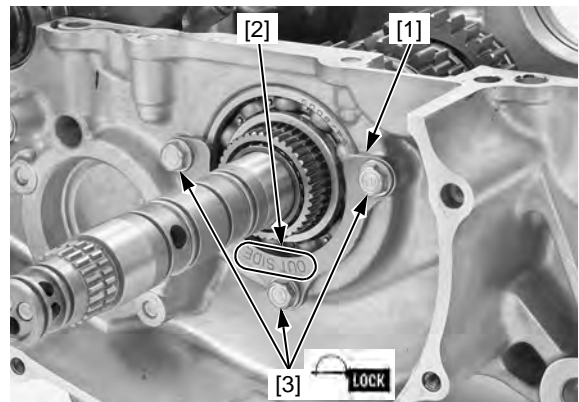


Apply locking agent to the mainshaft bearing set plate bolts threads (page 14-6).

Install the mainshaft bearing set plate [1] with its "OUT SIDE" mark [2] facing out.

Install and tighten the mainshaft bearing set plate bolts [3] to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

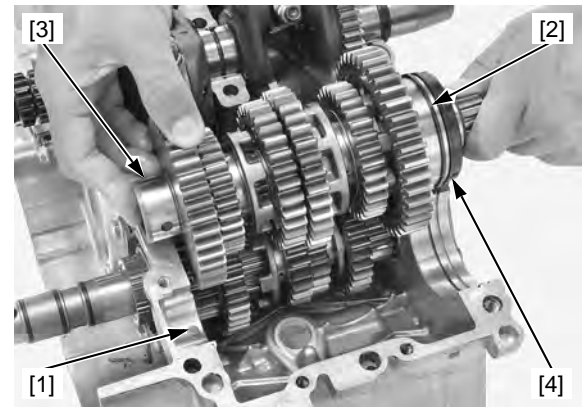


Install the dowel pin [1] onto the upper crankcase hole.
 Install the countershaft bearing set ring [2] into the countershaft bearing groove.
 Install the countershaft assembly [3].

NOTE:

- Align the needle bearing cap hole with the dowel pin.
- Align the set ring with the upper crankcase groove.
- Align the oil seal flange [4] with the upper crankcase groove.

Install the shift drum/shift fork (page 14-25).
 Assemble the crankcase (page 14-28).



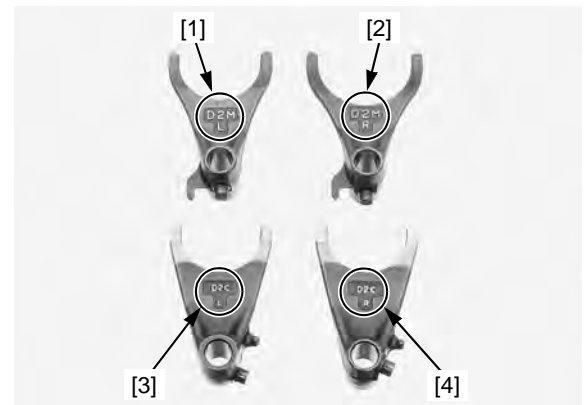
SHIFT DRUM/SHIFT FORK

Apply engine oil to the shift drum bearing [1].
 Install the shift drum [2] and shift drum bearing into the lower crankcase.



The shift forks have the following identification marks:

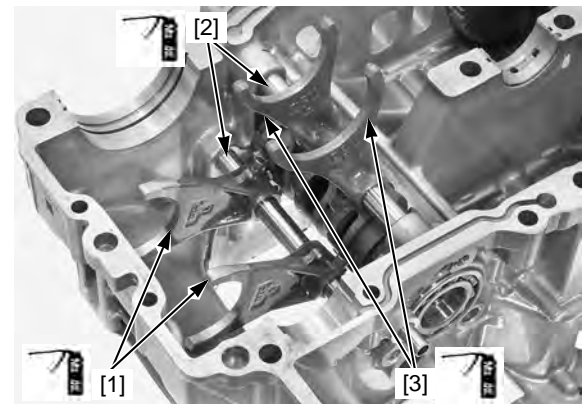
- "D2M L" mark [1]: Mainshaft left shift fork
- "D2M R" mark [2]: Mainshaft right shift fork
- "D2C L" mark [3]: Countershaft left shift fork
- "D2C R" mark [4]: Countershaft right shift fork



Apply molybdenum oil solution to the shift fork shaft outer surfaces, shift fork claws and guide pins.

Install the countershaft shift forks [1] into the shift drum outer guide grooves with the identification marks facing toward the right side of the engine and insert the shift fork shaft [2].

Install the mainshaft shift forks [3] into the shift drum inner guide grooves with the identification marks facing toward the right side of the engine and insert the shift fork shaft.



CRANKCASE/TRANSMISSION/BALANCER

Apply locking agent to the shift drum bearing set plate bolt threads (page 14-6).

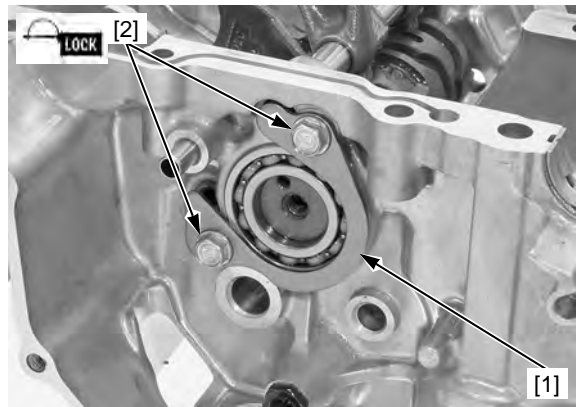
Install the shift drum bearing set plate [1] and bolts [2].

Tighten the bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the mainshaft/countershaft (page 14-24).

Assemble the crankcase (page 14-28).

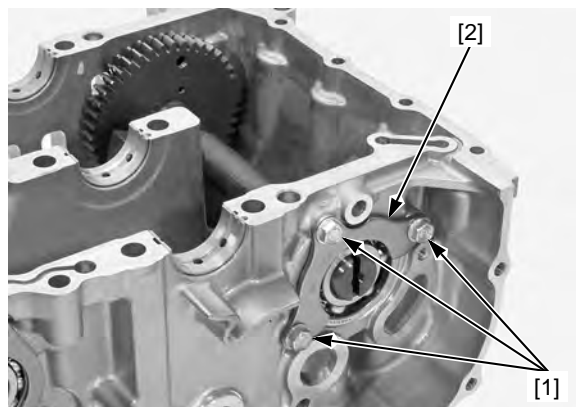


BALANCER

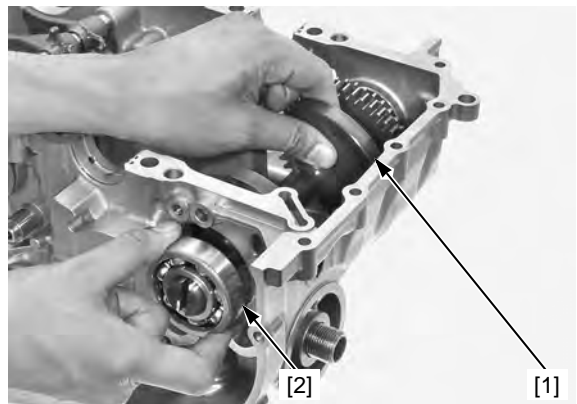
REMOVAL

Separate the crankcase halves (page 14-7).

Remove the balancer shaft bearing set plate bolts [1] and set plate [2].



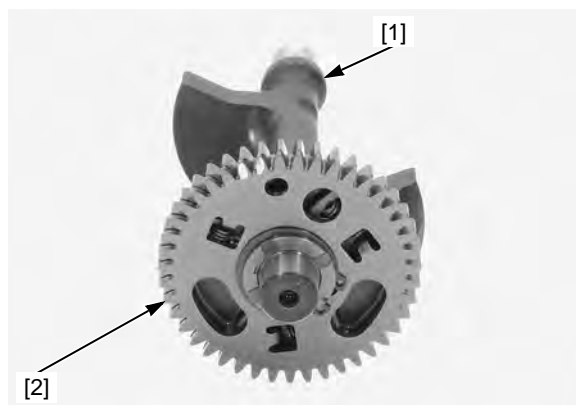
Remove the balancer shaft [1] and right balancer shaft bearing [2].



INSPECTION

Check the balancer shaft [1] and balancer driven gear [2] for excessive wear or damage.

Replace the balancer shaft if necessary.

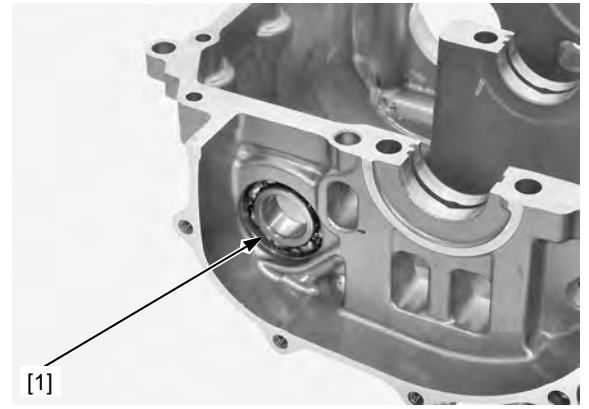


Turn the inner race of the left balancer shaft bearing [1] with your finger.

The bearing should turn smoothly and quietly.

Also check that the outer race of the bearing fits tightly in the lower crankcase.

Replace the bearing (page 14-27) if the inner race does not turn smoothly, quietly, or if the outer race fits loosely in the lower crankcase.



Temporarily install the right balancer shaft bearing onto the balancer shaft.

Turn the outer race of the right balancer shaft bearing with your finger.

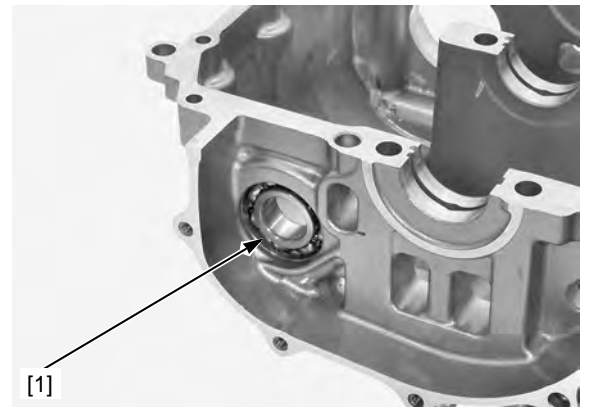
The bearing should turn smoothly and quietly.

Also check that the inner race of the bearing fits tightly on the balancer shaft.

Replace the bearing if the inner race does not turn smoothly, quietly, or if the inner race fits loosely on the balancer shaft.

LEFT BALANCER SHAFT BEARING REPLACEMENT

Drive out the left balancer shaft bearing [1] from the lower crankcase.



Drive in a new bearing squarely with the marking side facing toward the inside of the crankcase.

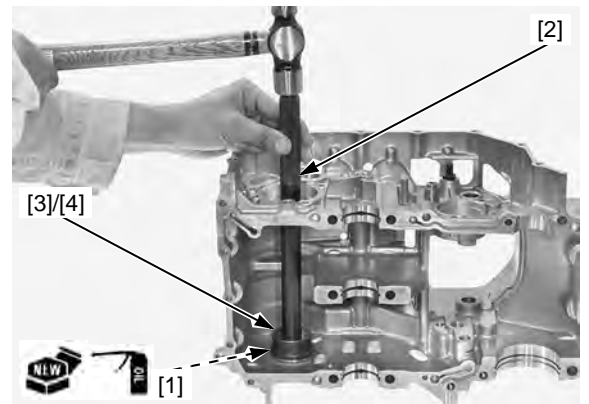
Apply engine oil to a new left balancer shaft bearing [1].

Drive the left balancer shaft bearing into the lower crankcase until it is fully seated using the special tools.

TOOLS:

- Driver, 15 x 280L [2]**
- Attachment, 42 x 47 mm [3]**
- Pilot, 20 mm [4]**

- 07949-3710001**
- 07746-0010300**
- 07746-0040500**



CRANKCASE/TRANSMISSION/BALANCER

INSTALLATION

Apply engine oil to the right balancer shaft bearing [1].

Install the balancer shaft [2] and right balancer shaft bearing into the lower crankcase.

NOTE:

Install the bearing into the crankcase with the marked side facing out.

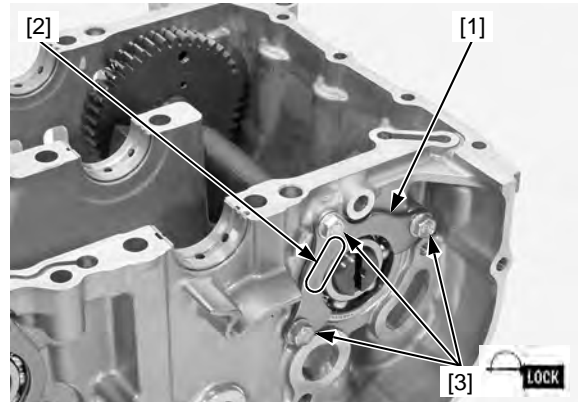


Apply locking agent to the balancer shaft bearing set plate bolts threads (page 14-6).

Install the balancer shaft bearing set plate [1] with its "OUT SIDE" mark [2] facing out.

Install and tighten the balancer shaft bearing set plate bolts [3] to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

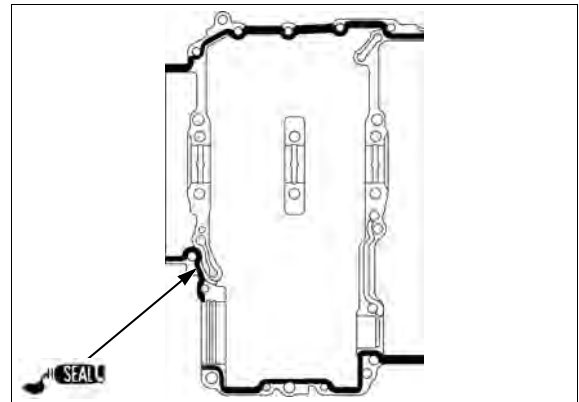


CRANKCASE ASSEMBLY

Apply liquid sealant (Three Bond 1207B or equivalent) to the crankcase mating surface as shown.

NOTE:

- Do not apply more liquid sealant than necessary.
- Do not apply liquid sealant to the crankcase main journal bolts area and the oil passage area as shown.

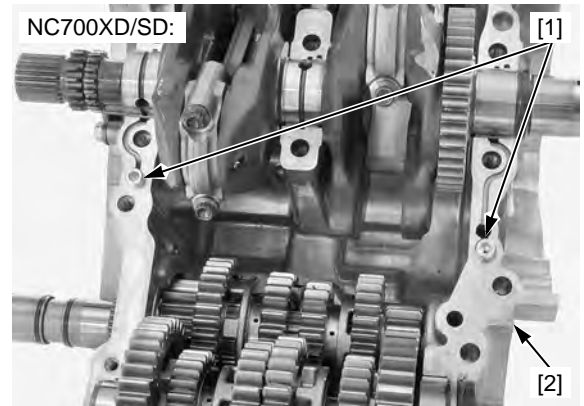
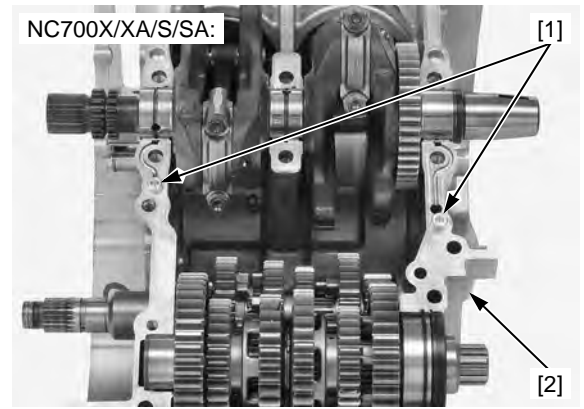


CRANKCASE/TRANSMISSION/BALANCER

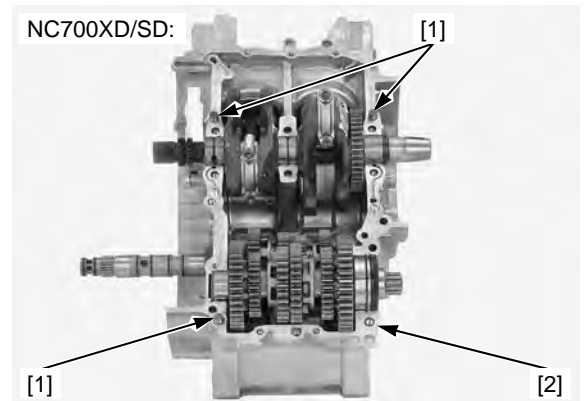
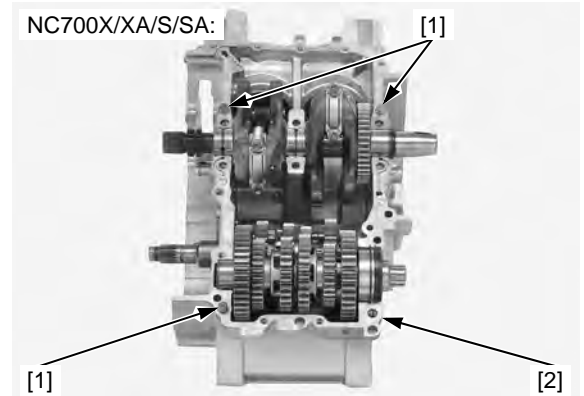
Install the oil orifices [1] onto the upper crankcase [2].

NOTE:

Install the oil orifices with its narrow hole side facing upper crankcase.



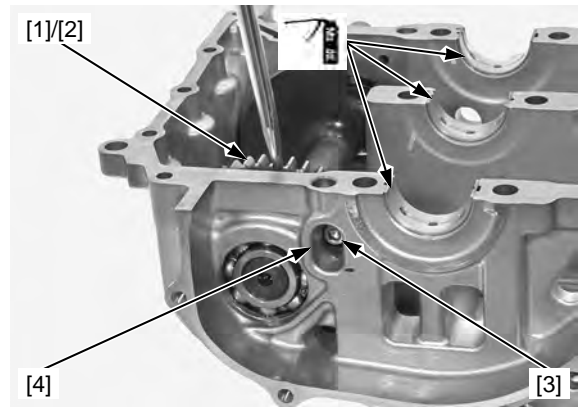
Install the dowel pins [1] onto the upper crankcase [2].



CRANKCASE/TRANSMISSION/BALANCER

Align the balancer driven gear [1] and balancer driven sub gear [2] teeth then install a 6 x 14 mm socket bolt [3] to the balancer driven gear and balancer driven sub gear holes at the lower crankcase inspection hole [4].

Apply molybdenum oil solution to the main journal bearing sliding surfaces on the lower crankcase.



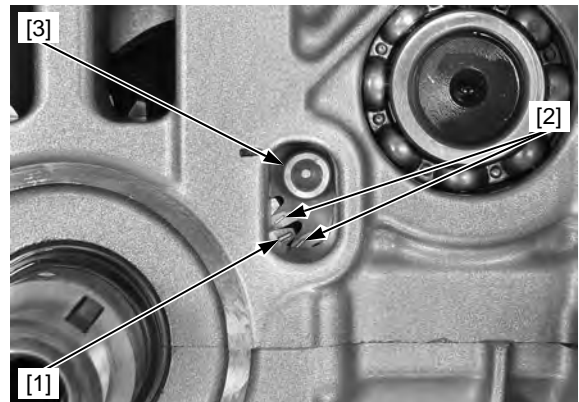
Align the index line [1] on balancer drive gear with upper crankcase top surface while the "△" mark [2] is facing up.



Install the lower crankcase onto the upper crankcase.

Make sure that the index line [1] on the balancer drive gear is positioned between the index lines [2] on the balancer driven gear as shown.

Remove the 6 x 14 mm socket bolt [3].



Install new crankcase main journal bolts [1].

NOTE:

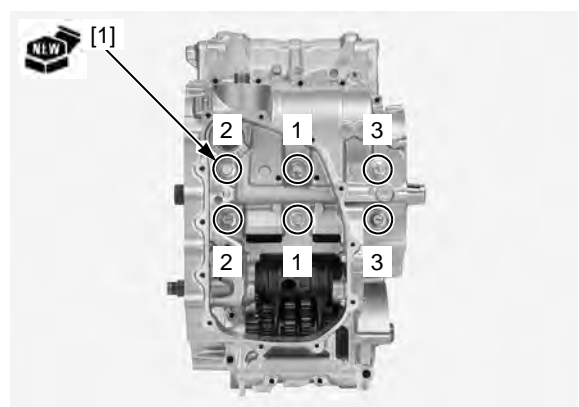
- Tighten the crankcase main journal bolts using the Plastic Region Tightening Method.
- Do not reuse the crankcase main journal bolts, because the correct axial tension will not be obtained.
- The crankcase main journal bolts are pre-coated with an oil additive for axial tension stability. Do not remove the oil additive from the new crankcase main journal bolt surfaces.

Make sure the upper and lower crankcase are seated securely.

Tighten the crankcase main journal bolts in numerical order as shown in a crisscross pattern in 2 or 3 steps to the specified torque.

Further tighten the crankcase main journal bolts 150°.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft) + 150°



Apply locking agent to the crankcase 8 x 45 mm bolt threads (page 14-6).

Install and tighten the crankcase bolts to the specified torque in a crisscross pattern in 2 or 3 steps.

TORQUE:

- Crankcase 10 mm bolt [1]:**
39 N·m (4.0 kgf·m, 29 lbf·ft)
- Crankcase 8 mm bolt [2]:**
24 N·m (2.4 kgf·m, 18 lbf·ft)
- Crankcase 8 x 45 mm bolt [3]:**
24 N·m (2.4 kgf·m, 18 lbf·ft)
- Crankcase 6 mm bolt [4]**
12 N·m (1.2 kgf·m, 9 lbf·ft)

Place the engine with the lower side down.

Install the crankcase 8 mm bolts [1] and a new sealing washer [2].

NOTE:

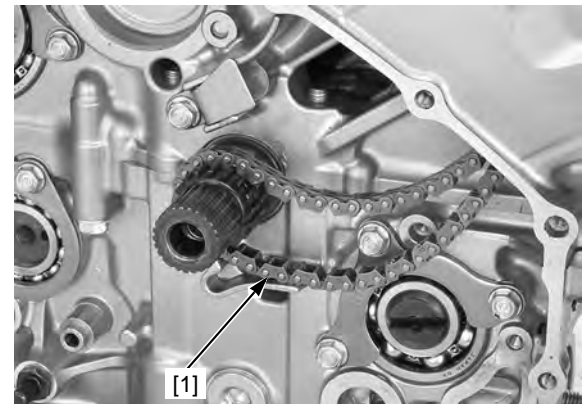
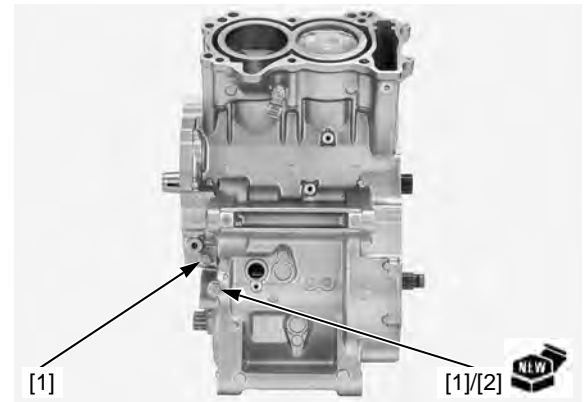
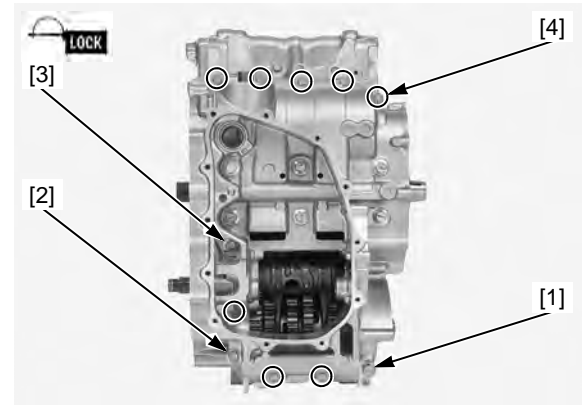
The sealing washer location is indicated on the upper crankcase by the "△" mark.

Tighten the crankcase 8 mm bolts to the specified torque.

TORQUE: 24 N·m (2.4 kgf·m, 18 lbf·ft)

Install the cam chain [1] to the crankshaft.

Install the removed parts in the reverse order of removal (page 14-4).



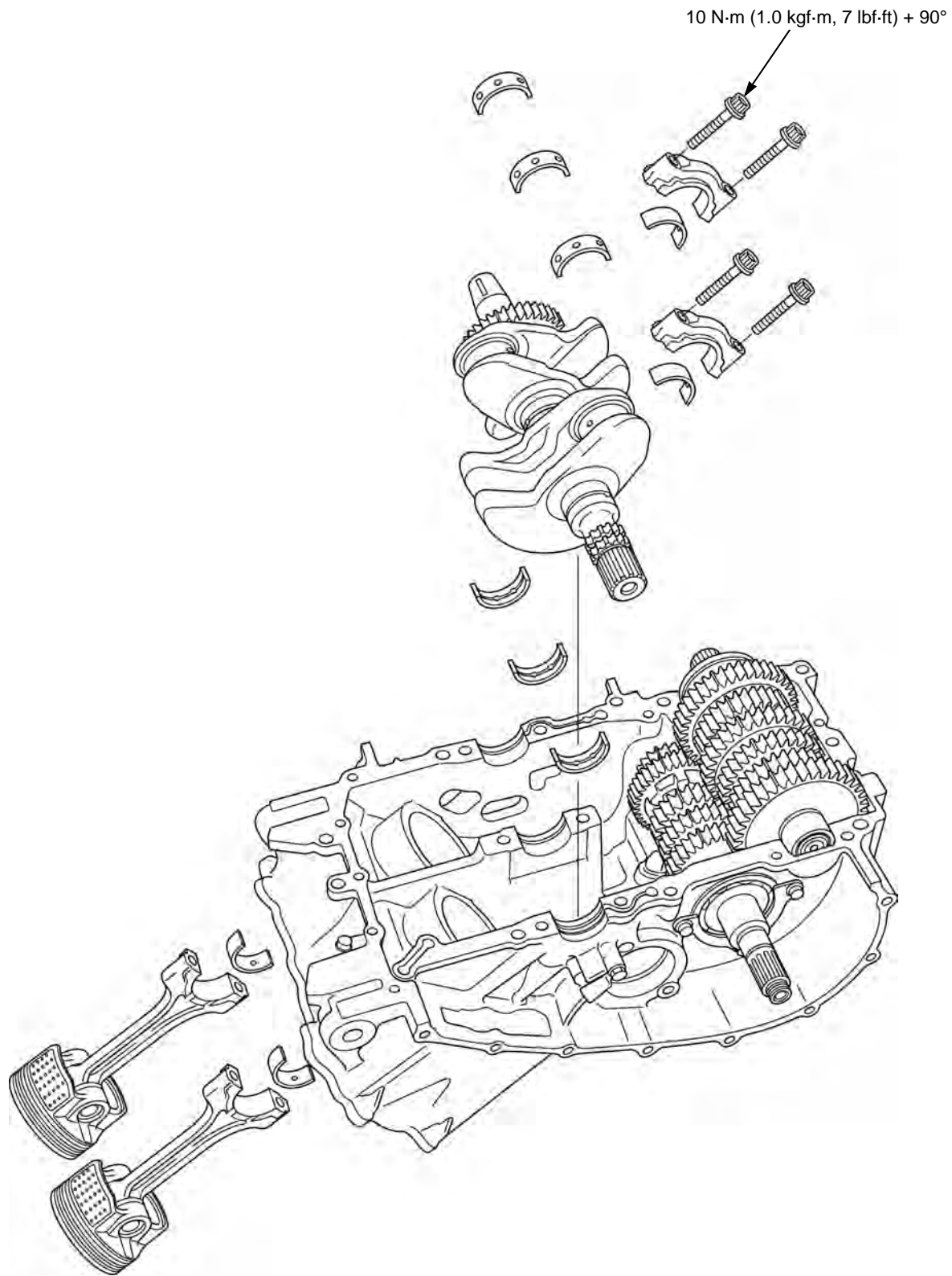
MEMO

15. CRANKSHAFT/PISTON/CYLINDER

COMPONENT LOCATION	15-2	MAIN JOURNAL BEARING.....	15-8
SERVICE INFORMATION	15-3	CRANKPIN BEARING	15-11
TROUBLESHOOTING.....	15-4	PISTON/CYLINDER	15-14
CRANKSHAFT	15-5		

CRANKSHAFT/PISTON/CYLINDER

COMPONENT LOCATION



SERVICE INFORMATION

GENERAL

NOTICE

This motorcycle provides cracking connecting rods. Be sure to install each part in its original position, as noted during removal. Do not reuse the improperly installed connecting rod and bearing cap, because their mating surfaces are damaged.

- The crankcase must be separated to service the following:
 - Crankshaft (page 15-5)
 - Piston/cylinder (page 15-14)
- Mark and store the connecting rods, bearing caps and bearing inserts to be sure of their correct locations for reassembly.
- The crankpin and main journal bearing inserts are select fit and are identified by color codes. Select replacement bearings from the code tables. After selecting new bearings, recheck the oil clearance with a plastigauge. Incorrect oil clearance can cause major engine damage.
- Clean the oil passages in the upper crankcase with compressed air before installing the pistons.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Crankshaft	Connecting rod side clearance	0.15 – 0.35 (0.006 – 0.014)	0.45 (0.018)	
	Runout	Right side	–	
		Left side	–	
	Main journal bearing oil clearance		0.019 – 0.037 (0.0007 – 0.0015)	0.05 (0.002)
Cylinder	I.D.	73.000 – 73.015 (2.8740 – 2.8746)	73.07 (2.877)	
	Out-of-round	–	0.10 (0.004)	
	Taper	–	0.10 (0.004)	
	Warpage	–	0.10 (0.004)	
Piston, piston rings	Piston O.D. at 13 mm (0.5 in) from bottom	72.976 – 72.990 (2.8731 – 2.8736)	72.970 (2.8728)	
	Piston pin bore I.D.	18.010 – 18.013 (0.7091 – 0.7092)	18.023 (0.7096)	
	Piston pin O.D.	17.996 – 18.000 (0.7085 – 0.7087)	17.988 (0.7082)	
	Piston-to-piston pin clearance		0.010 – 0.017 (0.0004 – 0.0007)	0.035 (0.0014)
	Piston ring end gap	Top	0.15 – 0.30 (0.006 – 0.012)	0.6 (0.02)
		Second	0.30 – 0.42 (0.012 – 0.017)	0.6 (0.02)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.8 (0.03)
	Piston ring-to-ring groove clearance	Top	0.035 – 0.080 (0.0014 – 0.0032)	0.15 (0.006)
Second		0.030 – 0.055 (0.0012 – 0.0022)	0.13 (0.005)	
Cylinder-to-piston clearance		0.010 – 0.039 (0.0004 – 0.0015)	0.05 (0.002)	
Connecting rod small end I.D.		17.964 – 17.977 (0.7072 – 0.7078)	17.985 (0.7081)	
Crankpin bearing oil clearance		0.026 – 0.044 (0.0010 – 0.0017)	0.05 (0.002)	

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Crankpin bearing cap bolt	4	6	10 (1.0, 7) + 90°	See page 15-7 Replace with a new one. Apply engine oil to the threads and seating surface.
Crankcase main journal bolt (retightening)	6	9	20 (2.0, 15) + 120°	See page 15-9 Apply engine oil to the threads and seating surface.

TROUBLESHOOTING

Cylinder compression is too low, hard to starting or poor performance at low speed

- Leaking cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damaged cylinder and piston

Cylinder compression too high, overheating or knocking

- Excessive carbon built-up on piston head or combustion chamber

Excessive smoke

- Worn cylinder, piston or piston ring
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall

Abnormal noise

- Worn piston pin or piston pin hole
- Worn connecting rod small end
- Worn cylinder, piston or piston rings
- Worn main journal bearings
- Worn crankpin bearings

Engine vibration

- Excessive crankshaft runout

CRANKSHAFT

Separate the crankcase halves (page 14-7).

SIDE CLEARANCE INSPECTION

Measure the connecting rod side clearance.

SERVICE LIMIT: 0.45 mm (0.018 in)

If the clearance exceeds the service limit, replace the connecting rod.
Recheck and if still out of limit, replace the crankshaft.



REMOVAL

NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

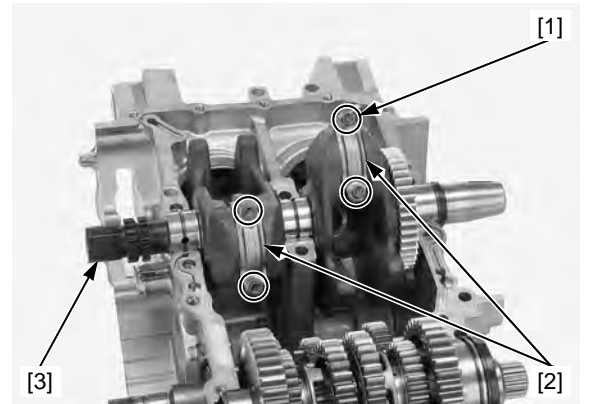
Mark the bearing caps and bearings as you remove them to indicate the correct cylinder for reassembly.

Remove the crankpin bearing cap bolts [1] and bearing caps [2].

Remove the crankshaft [3].

NOTICE

Before removal, position all the pistons at TDC (Top Dead Center) to prevent damaging the crankpin with the connecting rod.

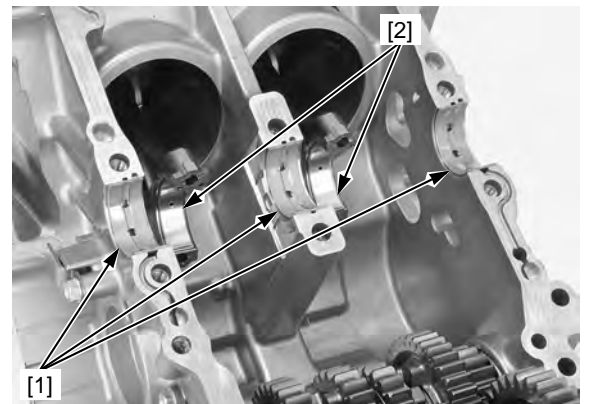


Remove the main journal bearings [1] from both crankcase halves.

Remove the crankpin bearings [2] from the connecting rods and bearing caps.

NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.



CRANKSHAFT/PISTON/CYLINDER

INSPECTION

Support the crankshaft on both end journals.

Set a dial gauge on the crankshaft.

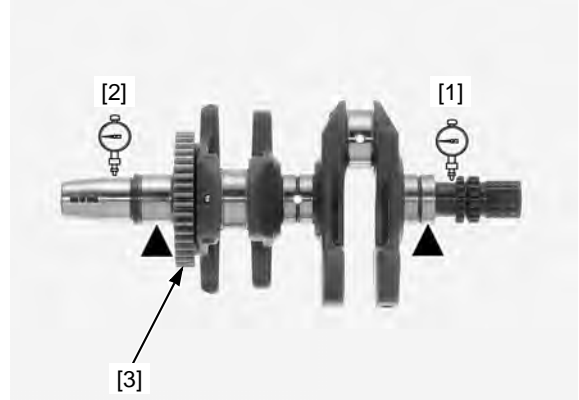
Rotate the crankshaft two revolutions (720°) and read the runout.

SERVICE LIMITS:

Right side [1]: 0.03 mm (0.001 in)

Left side [2]: 0.03 mm (0.001 in)

Check the balancer drive gear [3] teeth for abnormal wear or damage.



INSTALLATION

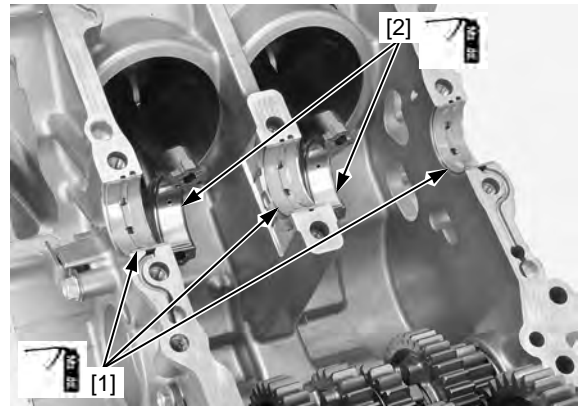
The bearing tabs should be aligned with the grooves in the crankcase.

Install the main journal bearings [1] and crankpin bearings [2] into the original locations.

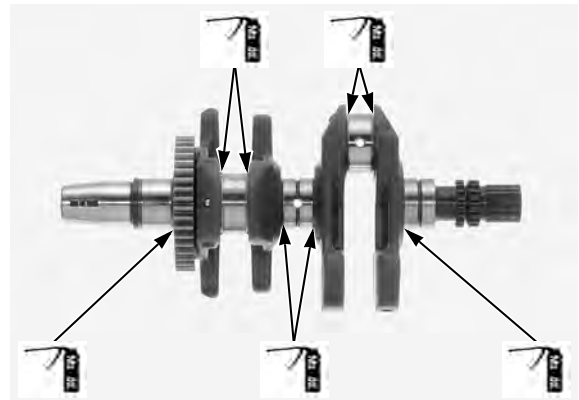
NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

Apply molybdenum oil solution to the main journal bearing sliding surfaces on the upper crankcase and crankpin bearing sliding surfaces on the connecting rods.

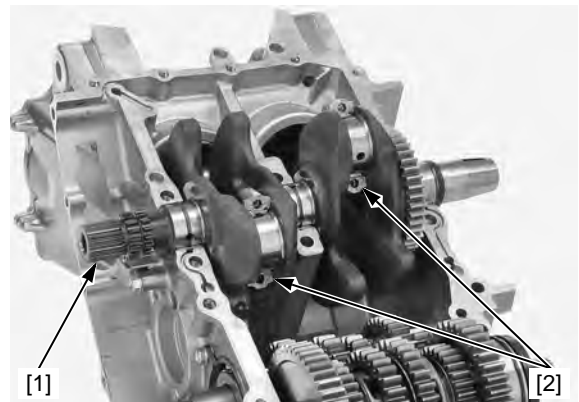


Apply molybdenum oil solution to the thrust surfaces of the crankshaft as shown.



Install the crankshaft [1] onto the upper crankcase.

Set the connecting rods [2] to the crankpins.



Clean the mating surface of the connecting rods and crankpin bearing caps with cleaning solvent and blow them with compressed air.



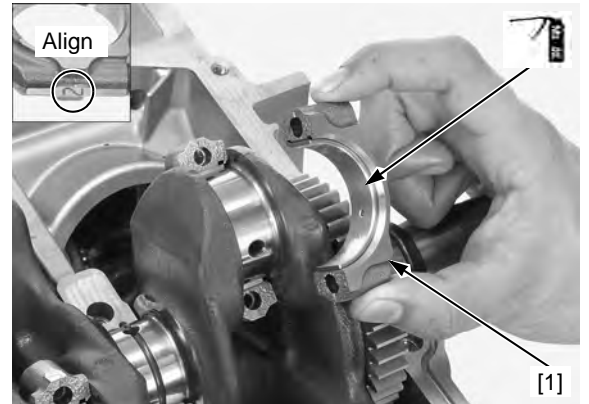
Apply molybdenum oil solution to the crankpin bearing sliding surfaces on the crankpin bearing caps [1].
Install the crankpin bearing caps.

NOTICE

Be sure to install each part in its original position, as noted during removal. Do not reuse the improperly installed connecting rod and bearing cap, because their mating surfaces are damaged.

NOTE:

Align the I.D. code number on the connecting rods.



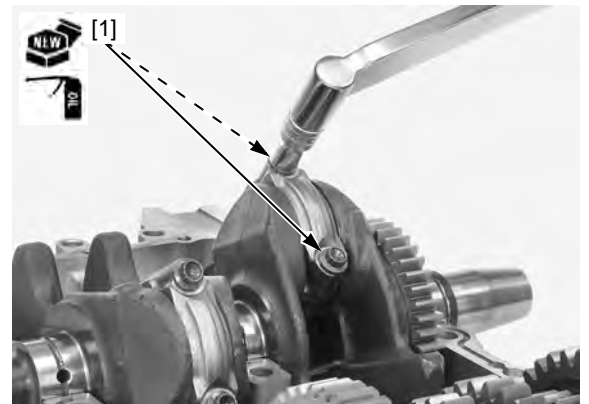
The crankpin bearing cap bolts cannot be reused. Once the bolts have been loosened replace them with new ones.

Apply engine oil to new crankpin bearing cap bolt threads and seating surfaces.

Install and tighten new crankpin bearing cap bolts [1] to the specified torque in 2 or 3 steps alternately. Further tighten the bolts 90°.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft) + 90°

Assemble the crankcase halves (page 14-28).



MAIN JOURNAL BEARING

NOTICE

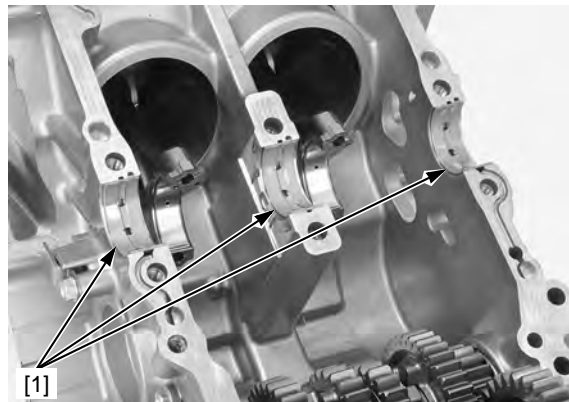
Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

Remove the crankshaft (page 15-5).

BEARING INSPECTION

Inspect the main journal bearing inserts [1] on the upper and lower crankcase halves for unusual wear or peeling.

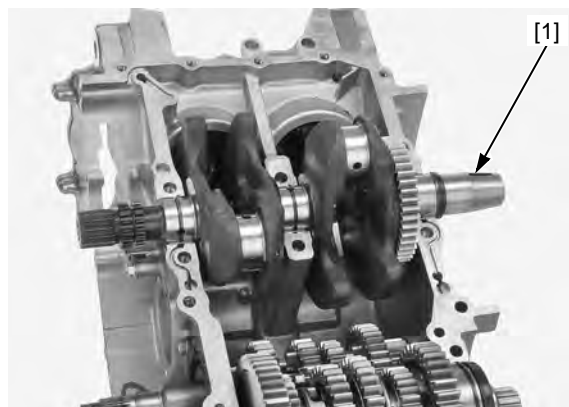
Check the bearing tabs for damage.



OIL CLEARANCE INSPECTION

Clean off any oil from the bearing inserts and main journals.

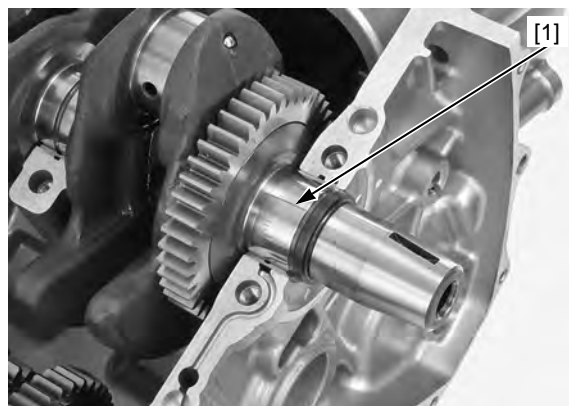
Install the crankshaft [1] onto the upper crankcase.



Put a strip of plastigauge [1] lengthwise on each main journal avoiding the oil hole.

NOTE:

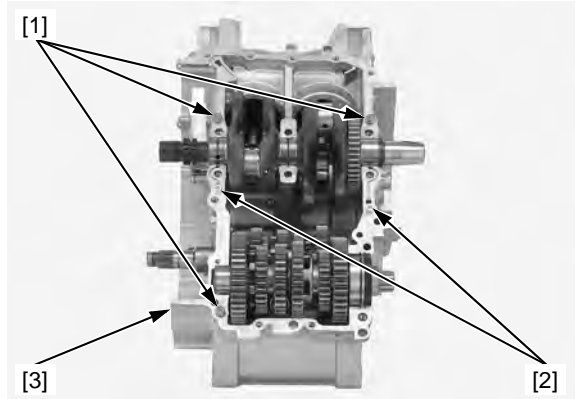
Do not rotate the crankshaft during inspection.



Install the dowel pins [1] and oil orifices [2] onto the upper crankcase [3].

NOTE:

Install the oil orifices with its narrow hole side facing upper crankcase.



Install the lower crankcase [1] onto the upper crankcase.

Apply engine oil to the crankcase main journal bolt (reuse) threads and seating surfaces.

Install the crankcase main journal bolts [2].

Make sure the upper and lower crankcase are seated securely.

Tighten the crankcase main journal bolts in numerical order as shown in a crisscross pattern in 2 or 3 steps to the specified torque.

Further tighten the crankcase main journal bolts 120°.

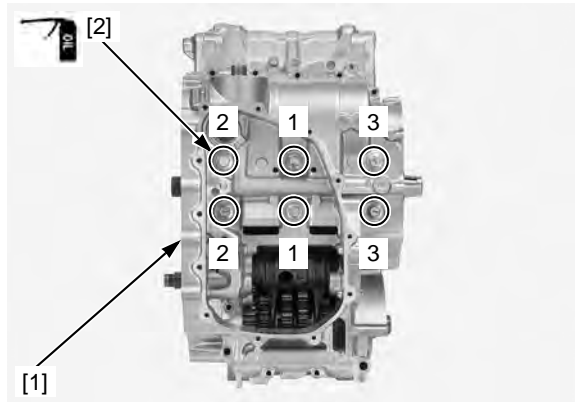
TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft) + 120°

Remove the crankcase main journal bolt and lower crankcase.

Measure the compressed plastigauge at its widest point on each main journal to determine the oil clearance.

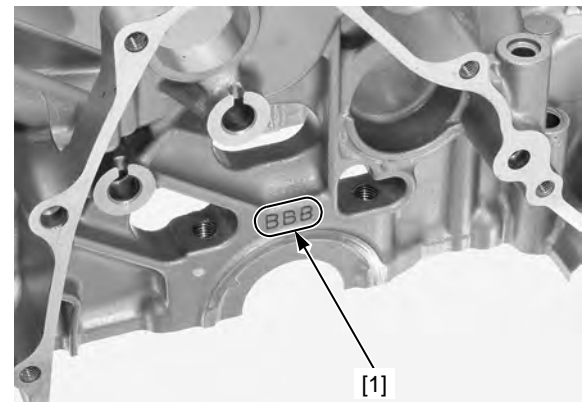
SERVICE LIMIT: 0.05 mm (0.002 in)

If the oil clearance exceeds the service limit, select a replacement bearing.



BEARING SELECTION

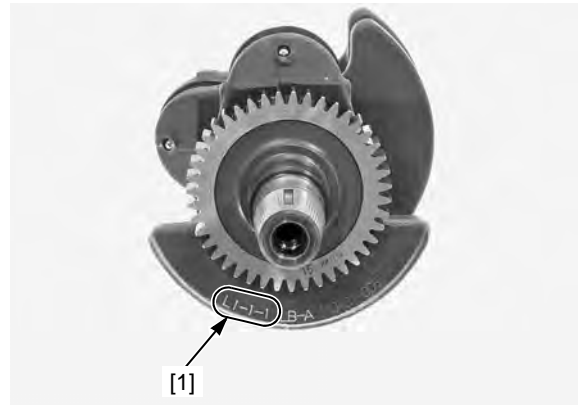
Letters (A, B or C) on the left side of upper crankcase are bearing support I.D. codes from left to right. Record the crankcase bearing support I.D. code letters [1] from left side of the upper crankcase as shown.



CRANKSHAFT/PISTON/CYLINDER

Numbers (1, 2 or 3) on the crank weight are main journal O.D. codes from left to right.

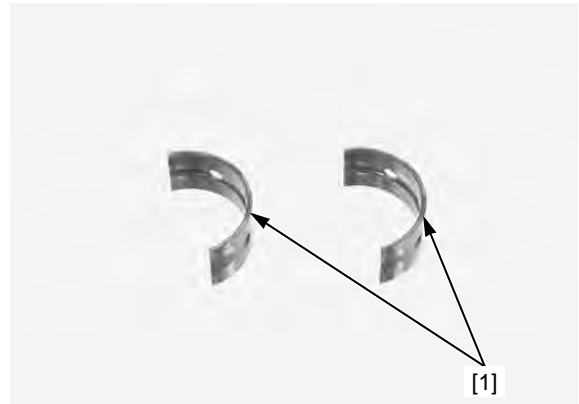
If you are replacing the crankshaft, record the corresponding main journal O.D. code numbers [1] from the crank weight.



If you are reusing the crankshaft, measure the crankpin O.D. with a micrometer.

MAIN JOURNAL BEARING THICKNESS:

- A: Blue: Thickest
- B: Black:
- C: Brown: ↓
- D: Green:
- E: Yellow: Thinnest



MAIN JOURNAL BEARING SELECTION TABLE:

			BEARING SUPPORT I.D. CODE		
			A	B	C
			37.000 – 37.006 mm (1.4567 – 1.4569 in)	37.006 – 37.012 mm (1.4569 – 1.4572 in)	37.012 – 37.018 mm (1.4572 – 1.4574 in)
MAIN JOURNAL O.D. CODE	1	34.010 – 34.016 mm (1.3390 – 1.3392 in)	E (Yellow)	D (Green)	C (Brown)
	2	34.004 – 34.010 mm (1.3387 – 1.3390 in)	D (Green)	C (Brown)	B (Black)
	3	33.998 – 34.004 mm (1.3385 – 1.3387 in)	C (Brown)	B (Black)	A (Blue)

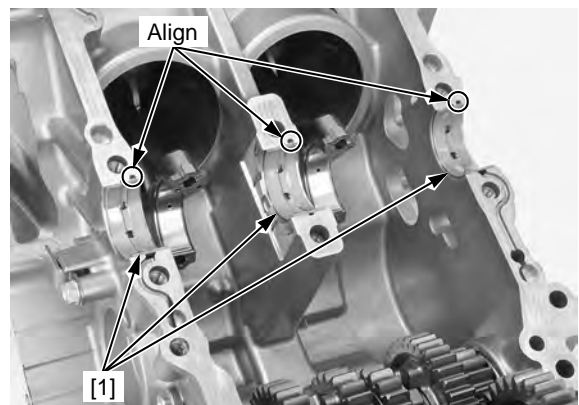
NOTICE

After selecting new bearings, recheck the clearance with a plastigauge. Incorrect clearance can cause severe engine damage.

BEARING INSTALLATION

Clean the bearing outer surfaces and crankcase bearing supports.

Install the main journal bearing inserts [1] onto the crankcase bearing supports, aligning each tab with each groove.



CRANKPIN BEARING

NOTICE

Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

Remove the crankshaft (page 15-5).

BEARING INSPECTION

Check the bearing inserts for unusual wear or peeling.

Check the bearing tabs for damage.



OIL CLEARANCE INSPECTION

Clean the mating surface of the connecting rod and crankpin bearing cap with cleaning solvent and blow them with compressed air.



Clean off any oil from the bearing inserts and crankpins.

Carefully install the crankshaft onto the upper crankcase.

Set the connecting rods onto the crankpins.

Put a strip of plastigauge [1] lengthwise on each crankpin avoiding the oil hole.

NOTE:

Do not rotate the crankshaft during inspection.



CRANKSHAFT/PISTON/CYLINDER

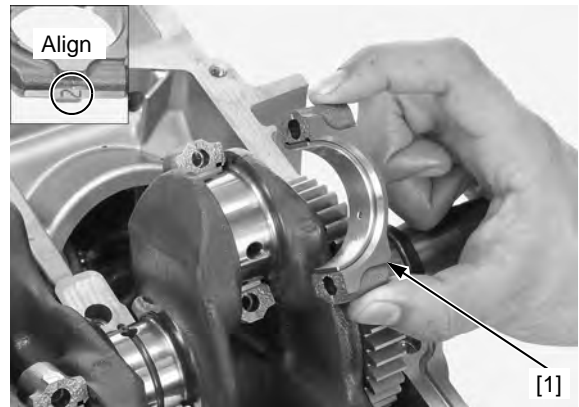
Install the crankpin bearing caps [1].

NOTICE

Be sure to install each part in its original position, as noted during removal. Do not reuse the improperly installed connecting rod and bearing cap, because their mating surfaces are damaged.

NOTE:

Align the I.D. code number on the connecting rods.

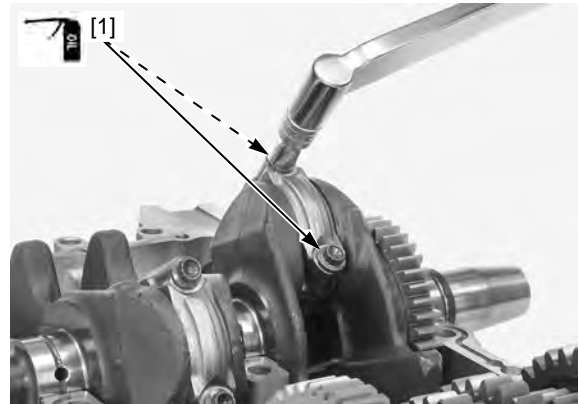


Use the removed crankpin bearing cap bolts when checking the oil clearance.

Apply engine oil to the crankpin bearing cap bolt (reuse) threads and seating surfaces.

Install and tighten the crankpin bearing cap bolts [1] to the specified torque in 2 or 3 steps alternately. Further tighten the bolts 90°.

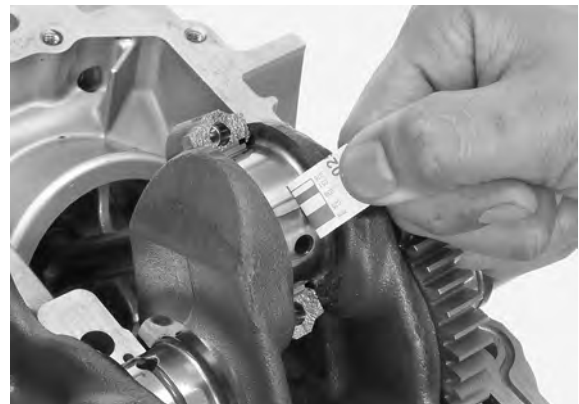
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft) + 90°



Remove the bearing caps and measure the compressed plastigauge at its widest point on the crankpin to determine the oil clearance.

SERVICE LIMIT: 0.05 mm (0.002 in)

If the oil clearance exceeds the service limit, select the correct replacement bearings.



BEARING SELECTION

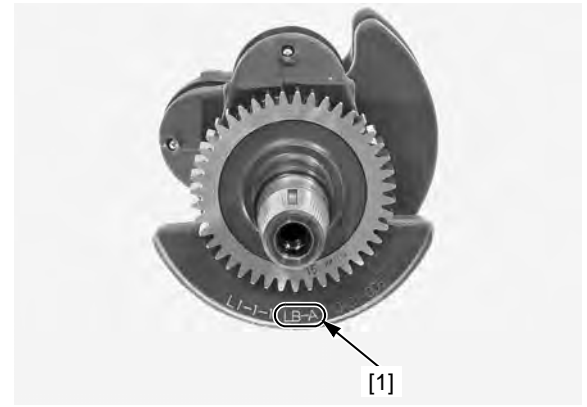
Numbers (1, 2, 3 or 4) on the connecting rods are the connecting rod I.D. codes.

Record the connecting rod I.D. code number [1] or measure the I.D. with the crankpin bearing cap installed without bearing inserts.



Letters (A, B, C or D) on the crank weight are the crankpin O.D. codes from left to right.

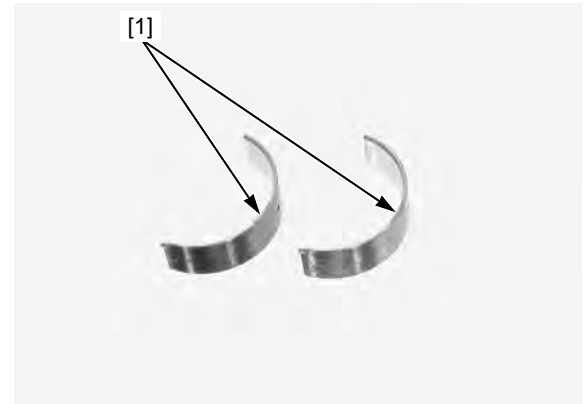
If you are replacing the crankshaft, record the corresponding crankpin O.D. code letter [1].
 If you are reusing the crankshaft, measure the crankpin O.D. with a micrometer.



Cross-reference the connecting rod and crankpin codes to determine the replacement bearing color code [1].

CRANKPIN BEARING THICKNESS:

- B: Black: Thickest**
- C: Brown:**
- D: Green:**
- E: Yellow: †**
- F: Pink:**
- G: Red:**
- H: White: Thinnest**



CRANKPIN BEARING SELECTION TABLE:

			CONNECTING ROD I.D. CODE			
			1	2	3	4
			43.000 – 43.006 mm (1.6929 – 1.6931 in)	43.006 – 43.012 mm (1.6931 – 1.6934 in)	43.012 – 43.018 mm (1.6934 – 1.6936 in)	43.018 – 43.024 mm (1.6936 – 1.6939 in)
CRANKPIN O.D. CODE	A	39.994 – 40.000 mm (1.5746 – 1.5748 in)	H (White)	G (Red)	F (Pink)	E (Yellow)
	B	39.988 – 39.994 mm (1.5743 – 1.5746 in)	G (Red)	F (Pink)	E (Yellow)	D (Green)
	C	39.982 – 39.988 mm (1.5741 – 1.5743 in)	F (Pink)	E (Yellow)	D (Green)	C (Brown)
	D	39.976 – 39.982 mm (1.5739 – 1.5741 in)	E (Yellow)	D (Green)	C (Brown)	B (Black)

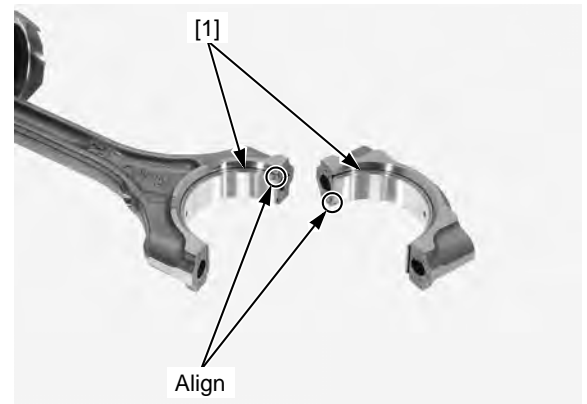
NOTICE

After selecting new bearings, recheck the clearance with a plastigauge. Incorrect clearance can cause severe engine damage.

BEARING INSTALLATION

Clean the bearing outer surfaces, crankpin bearing cap and connecting rod.

Install the crankpin bearings [1] onto the bearing cap and connecting rod, aligning each tab with each groove.



PISTON/CYLINDER

PISTON/CONNECTING ROD REMOVAL

NOTICE

- Before piston removal, place a clean shop towel around the connecting rod to prevent damaging the cylinder sleeve.
- Do not try to remove the piston/connecting rod assembly from bottom of the cylinder; the assembly will get stuck in the gap between the cylinder liner and the upper crankcase.
- Do not interchange the bearing inserts. They must be installed in their original locations or the correct bearing oil clearance may not be obtained, resulting in engine damage.

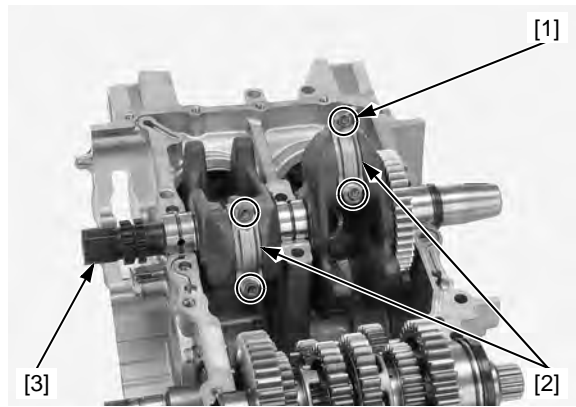
Mark the bearing caps and bearings as you remove them to indicate the correct cylinder for reassembly.

Remove the crankpin bearing cap bolts [1] and bearing caps [2].

Remove the crankshaft [3].

Remove the countershaft.

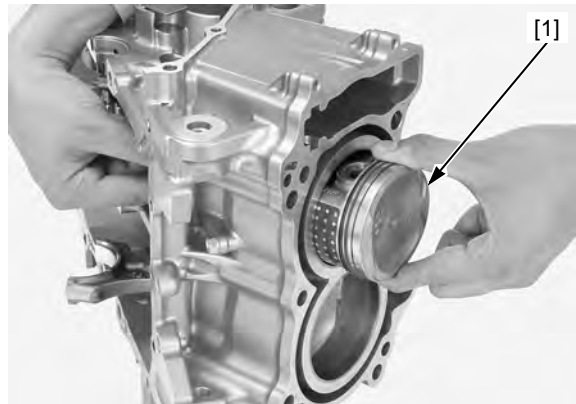
- NC700X/XA/S/SA (page 14-8)
- NC700XD/SD (page 14-17)



Remove the piston/connecting rod assembly [1] from the top of the cylinder.

NOTICE

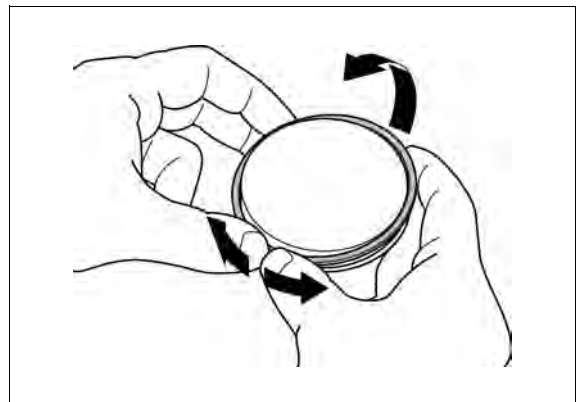
Do not try to remove the connecting rod/piston assembly from the bottom of the cylinder; the assembly will be locked when the oil ring expands in the gap between the cylinder liner and the upper crankcase.



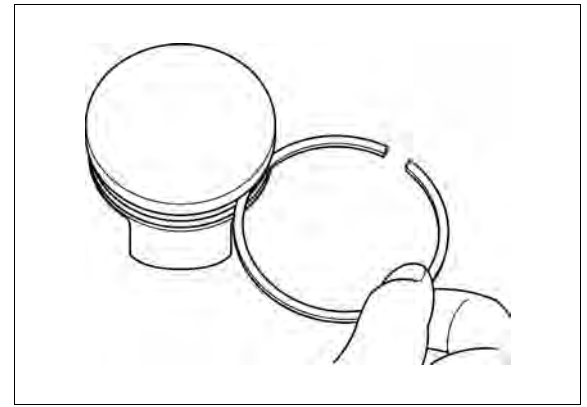
PISTON RING REMOVAL

Be careful not to damage the piston ring by spreading the ends too far.

Spread each piston ring ends and remove them by lifting up at a point opposite the gap.



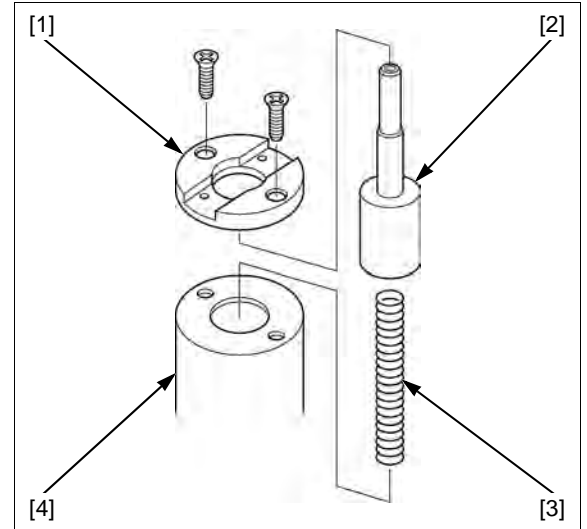
Never use a wire brush; it will scratch the groove. Clean carbon deposits from the piston ring grooves with a ring that will be discarded.



PISTON REMOVAL

Assemble the special tools as shown.

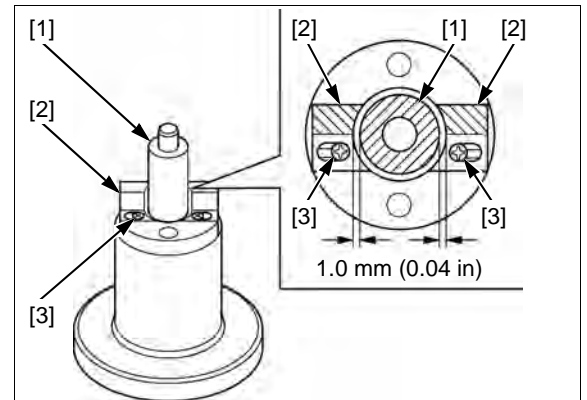
- TOOLS:**
Piston pin tool set 07PAF-0010000
 - Piston base head [1] 07PAF-0010400
 - Piston pin pilot [2] 07PAF-0010300
 - Piston base spring [3] 07973-6570600
 - Piston base [4] 07973-6570500



Temporarily install the pilot collar [1] to the piston pin pilot, and adjust the piston base head inserts [2] as shown, then tighten the screws [3].

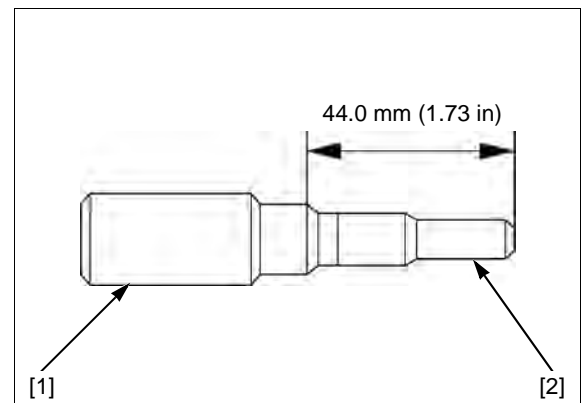
- TOOLS:**
Piston pin tool set 07PAF-0010000
 - Piston base head insert 07PAF-0010500
 - Pilot collar, 18 mm 07PAF-0010640

Remove the pilot collar.



Assemble and adjust the length of the insert pin [1] and insert adjuster [2] to 44.0 mm (1.73 in).

- TOOLS:**
Piston pin tool set 07PAF-0010000
 - Insert pin 07PAF-0010700
 - Insert adjuster 07PAF-0010800



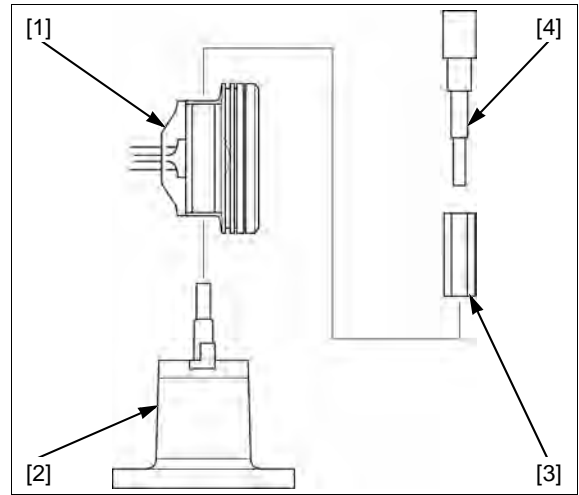
CRANKSHAFT/PISTON/CYLINDER

Place the piston assembly [1] on the special tools [2].

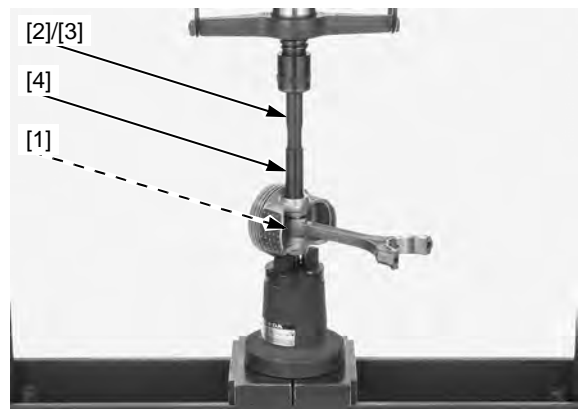
NOTE:

Be sure to position the piston flat area against the piston base head inserts as shown.

Place the pilot collar [3] and insert pin/insert adjuster [4] on the piston assembly.



Press the piston pin [1] out with the insert pin [2], insert adjuster [3], pilot collar [4] and a hydraulic press.



PISTON INSPECTION

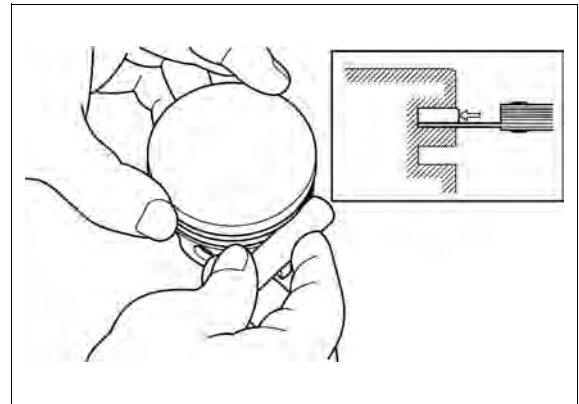
Inspect the piston rings for free movement by rotating them in their grooves. The rings should be able to move freely in their grooves without catching.

Push the ring until the outer surface of the piston ring is nearly flush with the piston and measure the ring-to-ring groove clearance.

SERVICE LIMITS:

Top: 0.15 mm (0.006 in)

Second: 0.13 mm (0.005 in)



Push the rings into the cylinder with the top of the piston to be sure they are squarely in the cylinder.

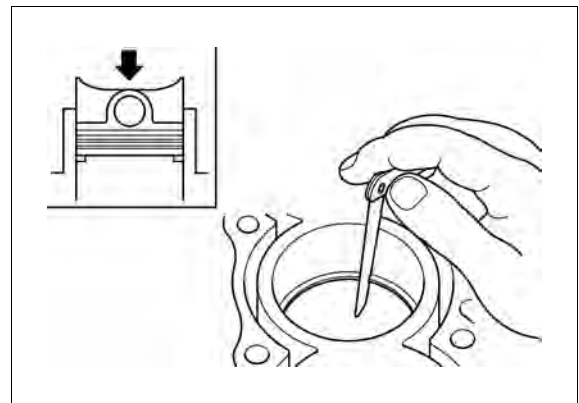
Insert the piston ring squarely into the top of the cylinder and measure the ring end gap.

SERVICE LIMITS:

Top: 0.6 mm (0.02 in)

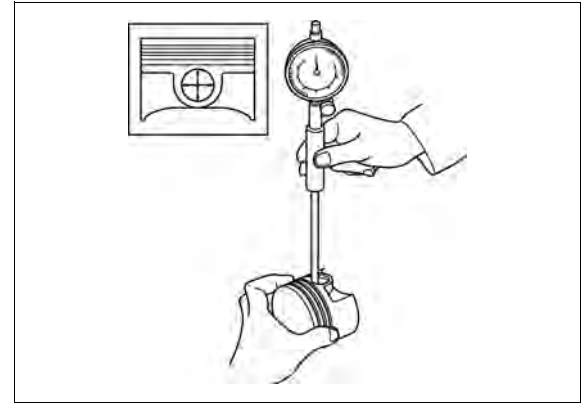
Second: 0.6 mm (0.02 in)

Oil (side rail): 0.8 mm (0.03 in)



Measure the piston pin bore I.D.

SERVICE LIMIT: 18.023 mm (0.7096 in)

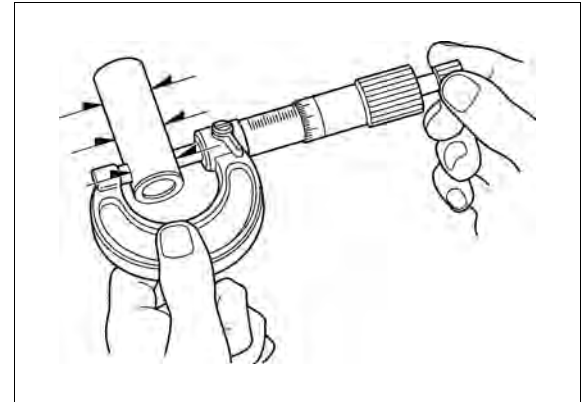


Measure the O.D. of the piston pin.

SERVICE LIMIT: 17.988 mm (0.7082 in)

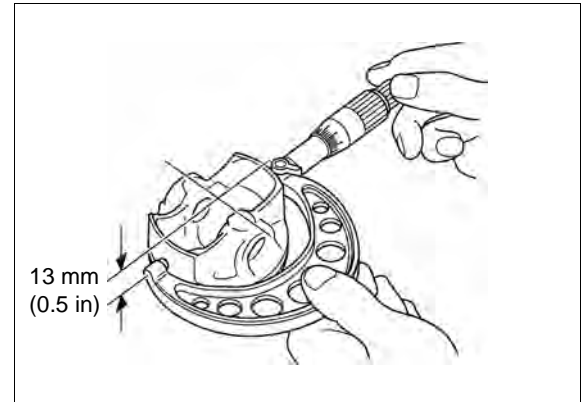
Calculate the piston-to-piston pin clearance.

SERVICE LIMIT: 0.035 mm (0.0014 in)



Measure the diameter of the piston at 13 mm (0.5 in) from the bottom and 90° to the piston pin hole.

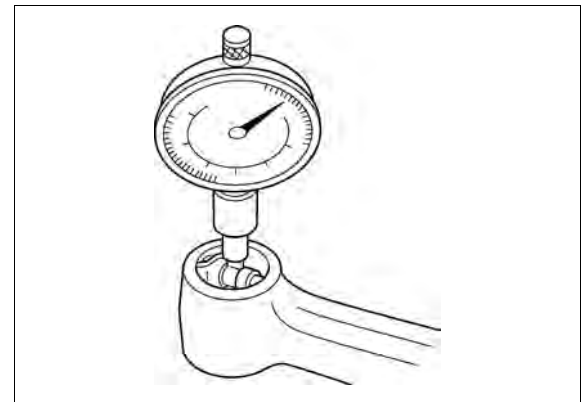
SERVICE LIMIT: 72.970 mm (2.8728 in)



CONNECTING ROD INSPECTION

Measure the connecting rod small end I.D.

SERVICE LIMIT: 17.985 mm (0.7081 in)



CRANKSHAFT/PISTON/CYLINDER

CYLINDER INSPECTION

Inspect the cylinder bore for wear or damage.
Measure the cylinder I.D. in X and Y axis at three levels.
Take the maximum reading to determine the cylinder wear.

SERVICE LIMIT: 73.07 mm (2.877 in)

Calculate the cylinder-to-piston clearance.
Take a maximum reading to determine the clearance.
For piston O.D. measurement (page 15-17).

SERVICE LIMIT: 0.05 mm (0.002 in)

Calculate the taper and out-of-round at three levels in X and Y axis. Take the maximum reading to determine them.

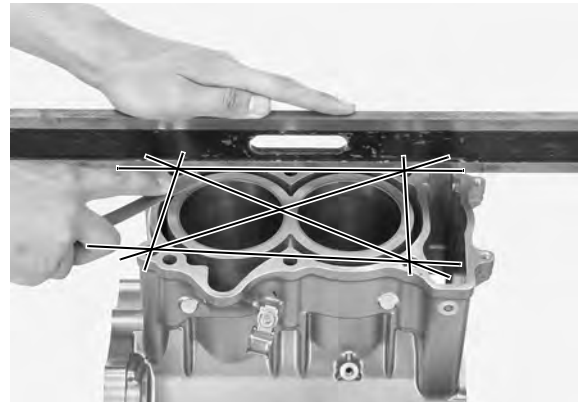
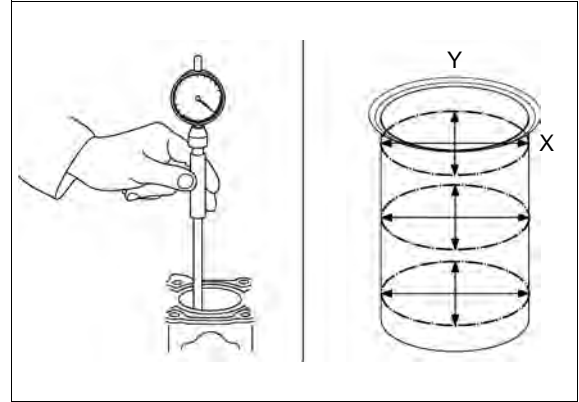
SERVICE LIMITS:

Taper: 0.10 mm (0.004 in)

Out-of-round: 0.10 mm (0.004 in)

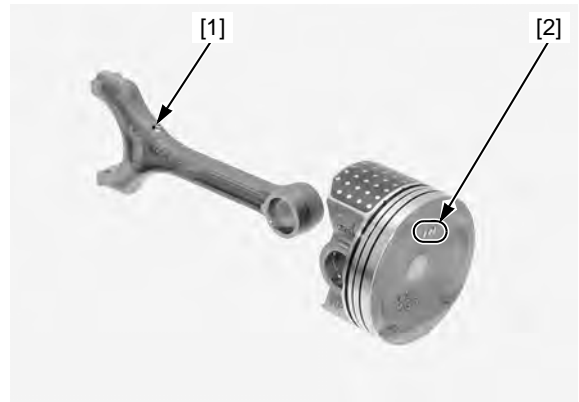
Inspect the top of the cylinder for warpage.

SERVICE LIMIT: 0.10 mm (0.004 in)



PISTON INSTALLATION

Face the connecting rod oil jet [1] to the piston "IN" mark [2] side.



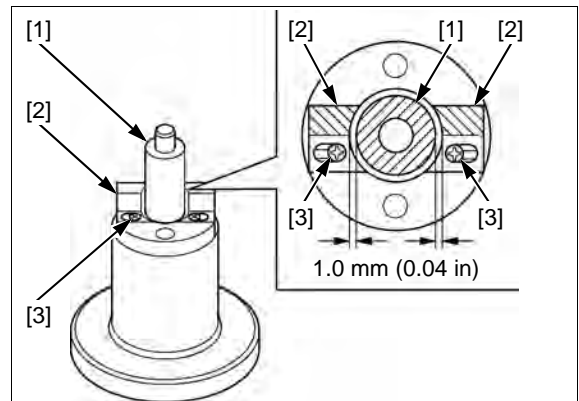
Temporarily install the pilot collar [1] to the piston pin pilot, and adjust the piston base head inserts [2] as shown, then tighten the screws [3].

TOOLS:

- Piston pin tool set**
- Piston base head insert
- Pilot collar, 18 mm

- 07PAF-0010000**
- 07PAF-0010500**
- 07PAF-0010640**

Remove the pilot collar.



Apply engine oil to the piston pin outer surface.

Adjust the length of the insert pin [1] and insert adjuster [2] to 44.0 mm (1.73 in).

TOOLS:

- | | |
|----------------------------|----------------------|
| Piston pin tool set | 07PAF-0010000 |
| - Insert pin | 07PAF-0010700 |
| - Insert adjuster | 07PAF-0010800 |

Insert the pilot collar [3] into the piston [4] and connecting rod [5].

TOOL:

- | | |
|----------------------------|----------------------|
| Piston pin tool set | 07PAF-0010000 |
| - Pilot collar, 18 mm | 07PAF-0010640 |

Place the piston, connecting rod and pilot collar on the special tools.

TOOLS:

- | | |
|--------------------------------|----------------------|
| Piston pin tool set [6] | 07PAF-0010000 |
| - Piston base head insert | 07PAF-0010500 |
| - Piston base head | 07PAF-0010400 |
| - Piston pin pilot | 07PAF-0010300 |
| - Piston base spring | 07973-6570600 |
| - Piston base | 07973-6570500 |

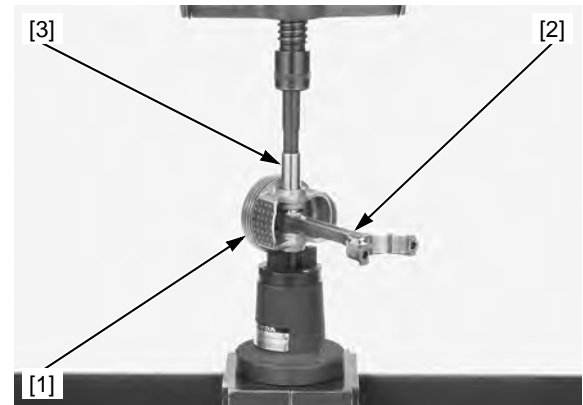
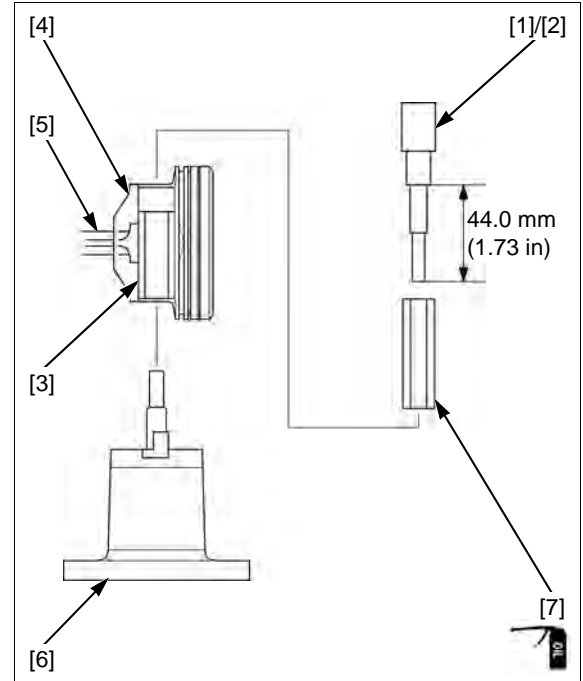
NOTE:

Be sure to position the piston flat area against the piston base head inserts as shown.

Place the piston pin [7], insert pin/insert adjuster on the pilot collar.

Place the piston [1], connecting rod [2], piston pin [3] and special tools on the hydraulic press.

Press the piston pin until special tools fully seated.



PISTON RING INSTALLATION

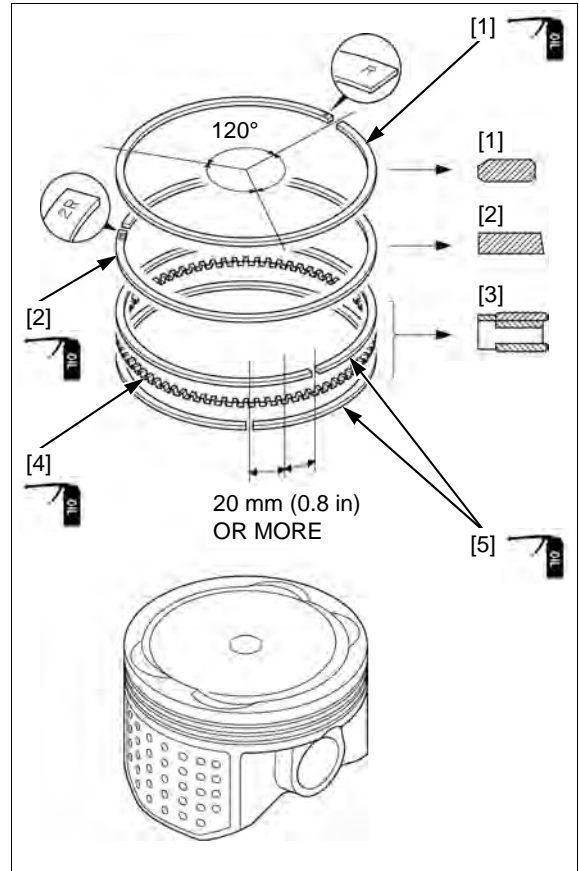
Clean the piston ring grooves thoroughly and install the piston rings.

- Apply engine oil to the piston ring sliding surface.
- Avoid piston and piston ring damage during installation.
- Install the piston rings with the marked side facing up.
 - "R" mark: top ring [1]
 - "2R" mark: second ring [2]
- To install the oil ring [3], install the spacer [4] first, then install the side rails [5].

Stagger the piston ring end gaps 120° apart from each other.

Stagger the side rail end gaps as shown.

After installation, the rings should rotate freely in the ring groove.



PISTON/CONNECTING ROD INSTALLATION

Apply engine oil to the piston and cylinder sliding surface.

Install the piston/ connecting rod assembly with the "IN" mark [3] facing the intake side.

Install the piston/connecting rod assemblies [1] into the cylinders using a commercially available piston ring compressor tool [2]. When reusing the connecting rods, they must be installed in their original locations.

NOTICE

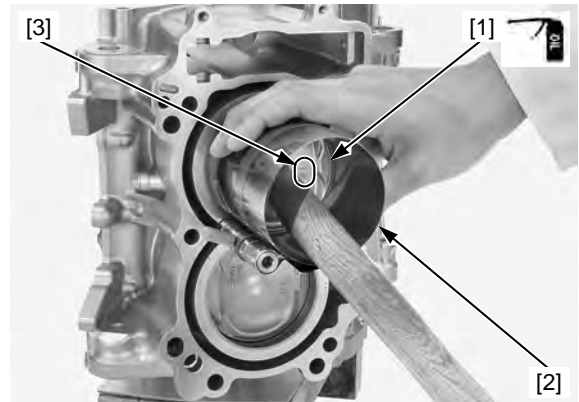
- While installing the piston, be careful not to damage the top surface of the cylinder, especially around the cylinder bore.
- Be careful not to damage the cylinder sleeve with the connecting rod.

Make sure the piston ring compressor tool sits flush on the top surface of the cylinder.

Use the handle of a plastic hammer or equivalent tool to tap the piston into the cylinder.

Install the following:

- Countershaft
 - NC700X/XA/S/SA (page 14-15)
 - NC700XD/SD (page 14-24)
- Crankshaft (page 15-6)



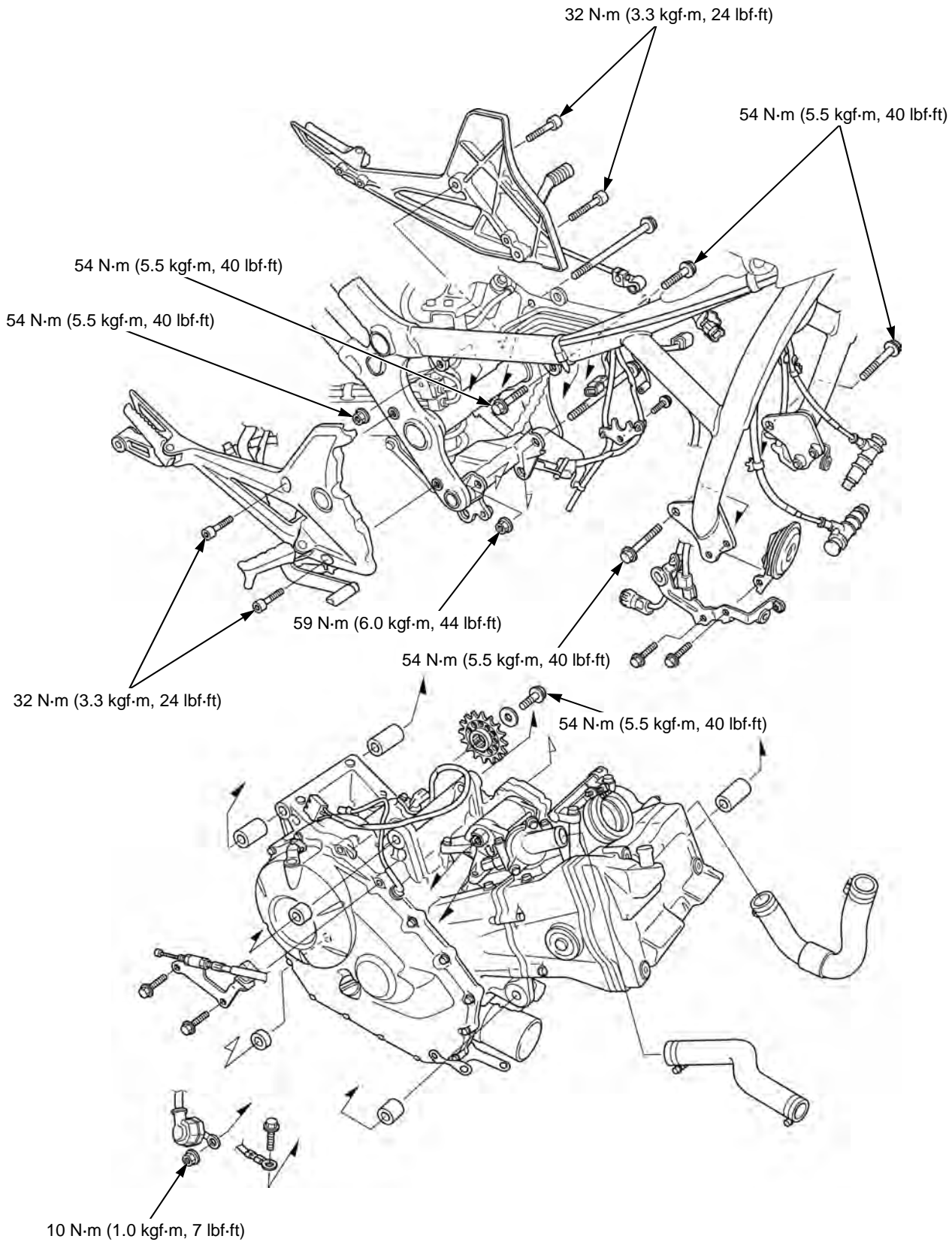
16. ENGINE REMOVAL/INSTALLATION

COMPONENT LOCATION	16-2	ENGINE REMOVAL (NC700XD/SD)	16-9
SERVICE INFORMATION	16-4	ENGINE INSTALLATION (NC700X/XA/S/SA)	16-15
ENGINE REMOVAL (NC700X/XA/S/SA)	16-5	ENGINE INSTALLATION (NC700XD/SD)	16-21

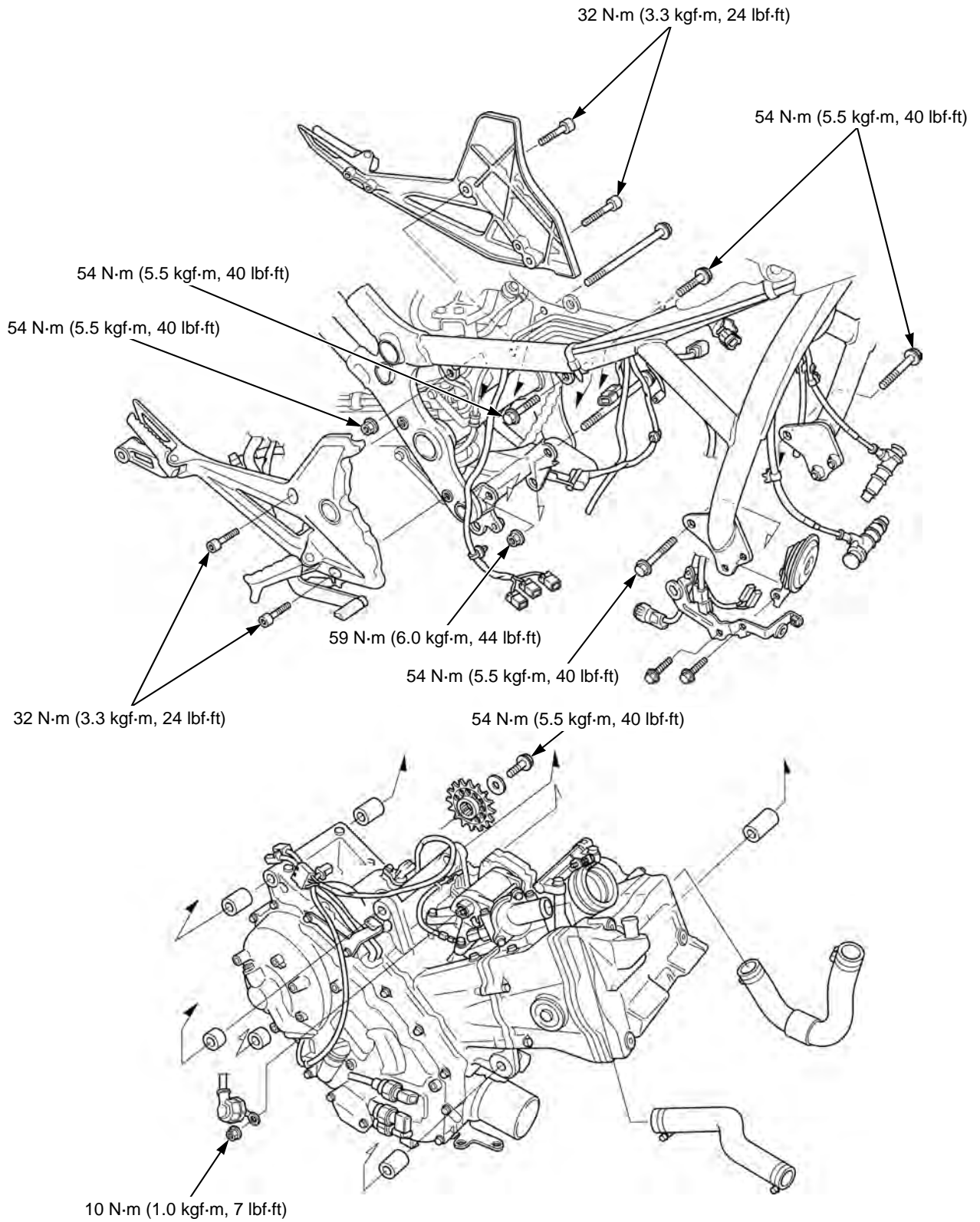
ENGINE REMOVAL/INSTALLATION

COMPONENT LOCATION

NC700X/XA/S/SA:



NC700XD/SD:



ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION

GENERAL

- A hoist or equivalent is required to support the motorcycle when removing and installing the engine.
- When removing/installing the engine, tape the frame around the engine beforehand for frame protection.
- When installing the engine, be sure to tighten the engine mounting fasteners to the specified torque in the specified sequence. If you mistake the torque or sequence, loosen all mounting fasteners, then tighten them again to the specified torque in the correct sequence.
- The following components can be serviced with the engine installed in the frame.
 - Starter motor (page 6-8)
 - Throttle body (page 7-15)
 - Water pump (page 8-12)
 - Oil pump (NC700X/XA/S/SA) (page 9-6)
 - Oil pump (NC700XD/SD) (page 9-8)
 - Rocker arm (page 10-8)
 - Clutch (NC700X/XA/S/SA) (page 11-7)
 - Gearshift linkage (NC700X/XA/S/SA) (page 11-16)
 - Primary drive gear/CKP sensor rotor (NC700X/XA/S/SA) (page 11-15)
 - Dual clutch (NC700XD/SD) (page 12-105)
 - Gearshift linkage (NC700XD/SD) (page 12-112)
 - Primary drive gear/CKP sensor rotor (NC700XD/SD) (page 12-108)
 - CKP sensor (page 5-11)
 - Flywheel (page 13-7)
 - Stator (page 13-13)
- The following components require engine removal for service.
 - Camshaft (page 10-13)
 - Cylinder head/valves (page 10-16)
 - Transmission (NC700X/XA/S/SA) (page 14-8)
 - Transmission (NC700XD/SD) (page 14-17)
 - Balancer (page 14-26)
 - Crankshaft (page 15-5)
 - Piston/cylinder (page 15-14)

SPECIFICATIONS

ITEM		SPECIFICATIONS	
Engine dry weight	NC700X/XA/S/SA	60.5 kg (133.4 lbs)	
	NC700XD/SD	67.3 kg (148.4 lbs)	
Engine oil capacity	NC700X/XA/S/SA	After draining	3.1 liters (3.3 US qt, 2.7 Imp qt)
		After draining/filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)
		After disassembly	3.7 liters (3.9 US qt, 3.3 Imp qt)
	NC700XD/SD	After draining	3.2 liters (3.4 US qt, 2.8 Imp qt)
		After draining/filter change	3.4 liters (3.6 US qt, 3.0 Imp qt)
		After disassembly	4.1 liters (4.3 US qt, 3.6 Imp qt)
Coolant capacity	Radiator and engine		1.69 liters (1.79 US qt, 1.49 Imp qt)
	At draining		1.41 liters (1.49 US qt, 1.24 Imp qt)
	Reserve tank		0.13 liter (0.14 US qt, 0.11 Imp qt)

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Rear lower engine hunger nut	1	12	59 (6.0, 44)	
Front lower engine hunger bolt	2	12	54 (5.5, 40)	
Upper engine hunger bolt	2	12	54 (5.5, 40)	
Rear upper engine hunger nut	1	12	54 (5.5, 40)	
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Drive sprocket bolt	1	10	54 (5.5, 40)	
Starter motor terminal nut	1	6	10 (1.0, 7)	
Water hose band screw	2	–	–	See page 16-18 See page 16-19 See page 16-24 See page 16-25

ENGINE REMOVAL (NC700X/XA/S/SA)

Drain the engine oil (page 3-13).

Drain the coolant (page 8-6).

Fully slacken the drive chain (page 3-17).

Relieve the fuel pressure and disconnect the quick connect fitting from the fuel injector side (page 7-4).

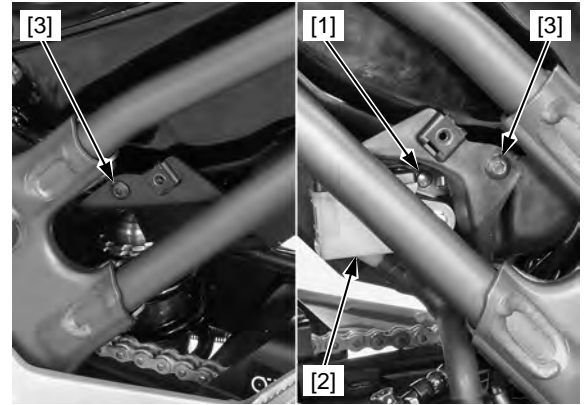
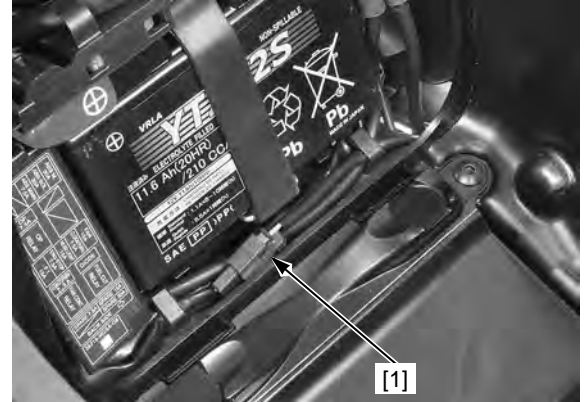
Remove the following:

- Left rear cover (page 2-29)
- Exhaust pipe/muffler (page 2-32)
- Radiator (page 8-9)
- Radiator reserve tank (page 8-14)
- Throttle body (page 7-15)

Disconnect the CKP sensor 2P (Red) connector [1] and release the CKP sensor harness.

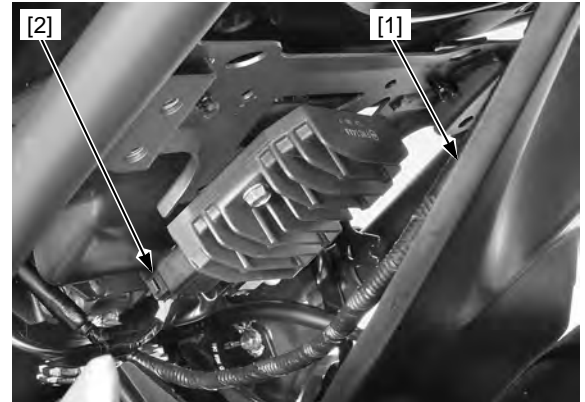
Remove the bolt [1] and rear brake reservoir stay reservoir [2].

Remove the socket bolts [3].



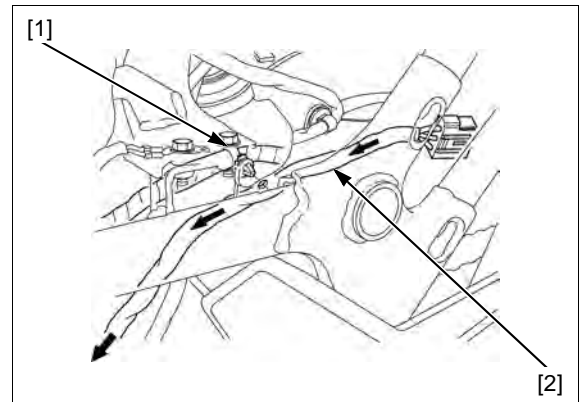
Lower the rear fender B [1].

Disconnect the alternator 3P (Black) connector [2].



Release the sidestand switch wire harness clamp [1].

Release the alternator wire harness [2].



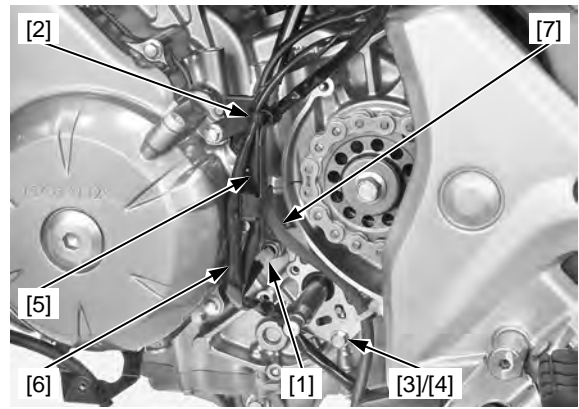
ENGINE REMOVAL/INSTALLATION

Disconnect the neutral switch connector [1].

Remove the wire band [2], bolt [3] and setting plate [4].

Release the following:

- Neutral switch wire [5]
- Sidestand switch wire [6]
- Fuel tank drain hose B [7]

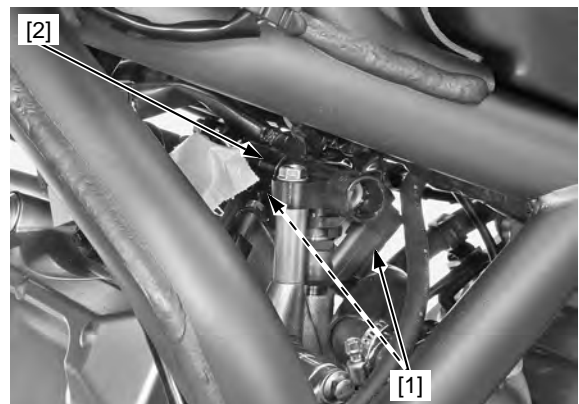


Disconnect the VS sensor 3P (Black) connector [1].



Disconnect the injector 2P (Gray) connectors [1].

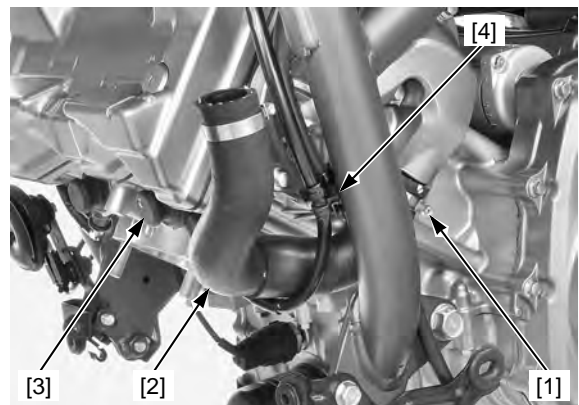
Release the clip [2] from the fuel rail.



Loosen the band screw [1] and disconnect the water hose [2] from the water pump.

Disconnect the spark plug cap [3].

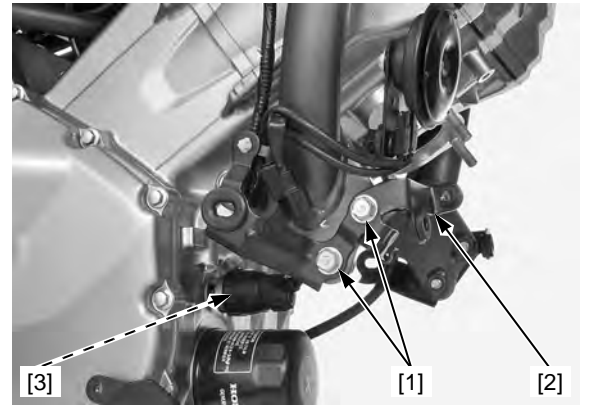
Release the spark plug wire clamp [4] from the frame.



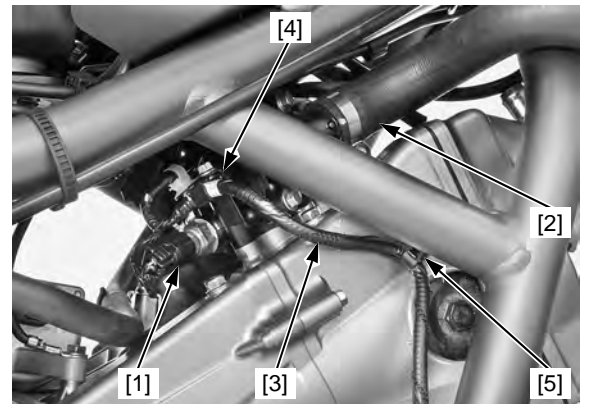
Disconnect the spark plug cap [1].
Release the spark plug wire clamp [2] from the frame.



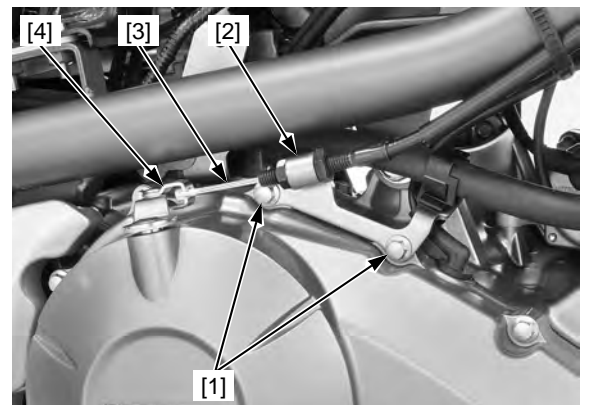
Remove the bolts [1] and stay [2] from the frame.
Disconnect the EOP switch 1P (Gray) connector [3].



Disconnect the ECT sensor 2P connector [1].
Loosen the band screw and disconnect the water hose [2] from the thermostat cover.
Release the main wire harness [3] from the stay [4] and frame [5].



Remove the bolts [1] and clutch cable guide [2], then disconnect the clutch cable [3] from the clutch lifter arm [4].



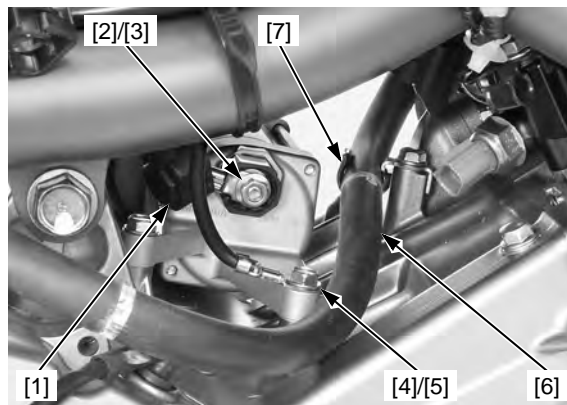
ENGINE REMOVAL/INSTALLATION

Release the rubber cap [1].

Remove the starter motor terminal nut [2] and disconnect the starter motor cable [3].

Remove the starter motor mounting bolt [4] and disconnect the ground cable [5].

Release the fuel feed hose [6] from the clamp [7].



Remove the drive sprocket bolt [1], washer [2] and drive sprocket [3].



Remove the step holder mounting socket bolts [1] and left step holder [2].



Remove the step holder mounting socket bolts [1] and right step holder [2].

NOTE:

Do not twist the brake hose.

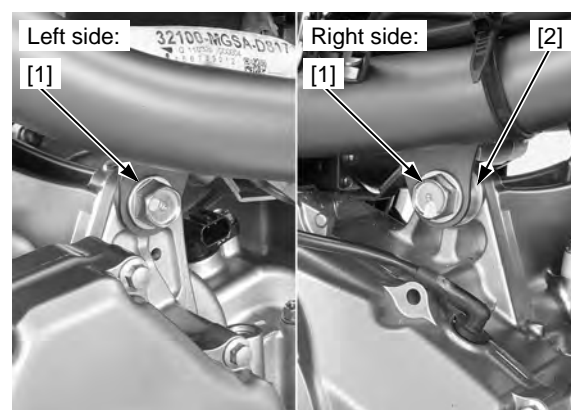


ENGINE REMOVAL/INSTALLATION

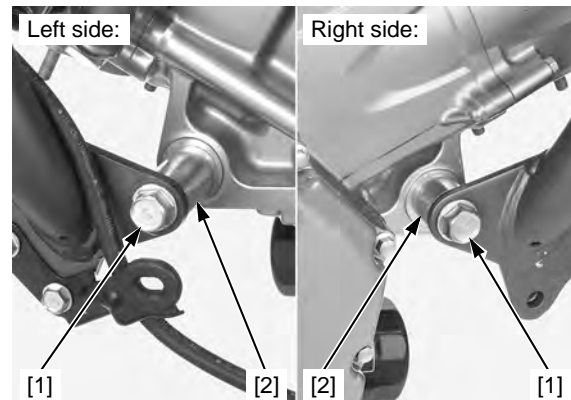
The jack height must be continually adjusted to relieve stress for ease of bolt removal.

Support the engine using a jack or other adjustable support to ease of engine hanger bolts removal.

Remove the upper engine hanger bolts [1] and collar [2].



Remove the front lower hanger bolts [1] and collars [2].

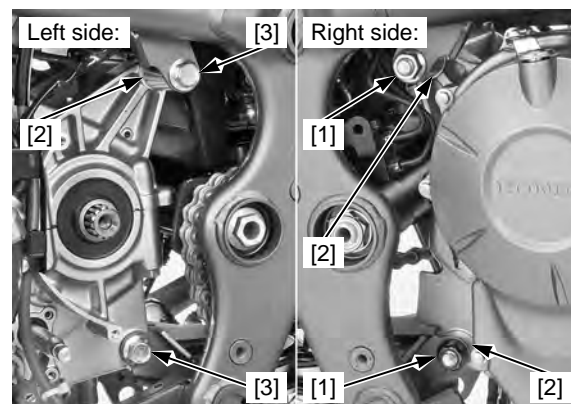


Remove the rear engine hanger nuts [1], collars [2] and bolts [3].

Carefully maneuver the engine and remove it out of the frame to the right.

NOTE:

During engine removal, hold the engine securely and be careful not to damage the frame and engine.



ENGINE REMOVAL (NC700XD/SD)

Drain the engine oil (page 3-13).

Drain the coolant (page 8-6).

Fully slacken the drive chain (page 3-17).

Relieve the fuel pressure and disconnect the quick connect fitting from the fuel injector side (page 7-4).

Remove the following:

- Left rear cover (page 2-30)
- Guard pipe (page 2-30)
- Center cross plate (page 2-32)
- Exhaust pipe/muffler (page 2-32)
- Radiator (page 8-9)
- Radiator reserve tank (page 8-14)
- Throttle body (page 7-15)

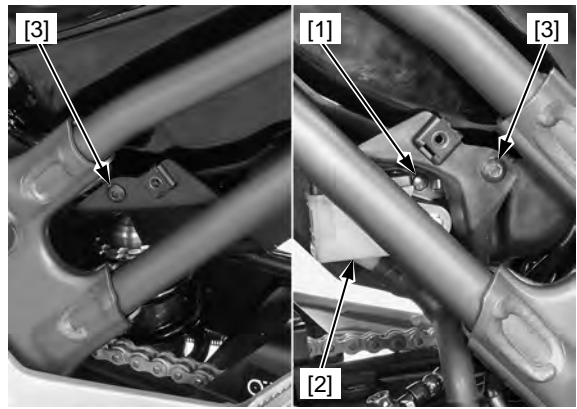
Disconnect the CKP sensor 2P (Red) connector [1] and release the CKP sensor harness.



ENGINE REMOVAL/INSTALLATION

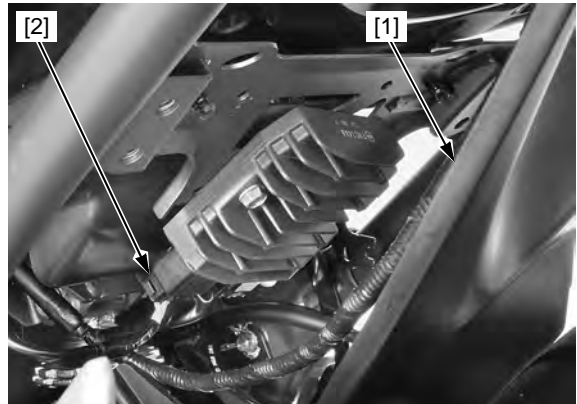
Remove the bolt [1] and rear brake reservoir stay/reservoir [2].

Remove the socket bolts [3].



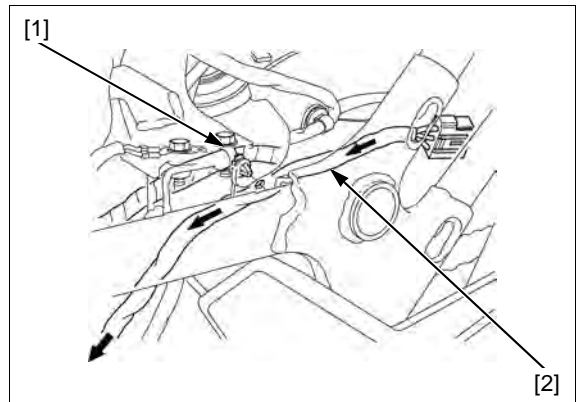
Lower the rear fender B [1].

Disconnect the alternator 3P (Black) connector [2].



Release the sidestand switch wire harness clamp [1].

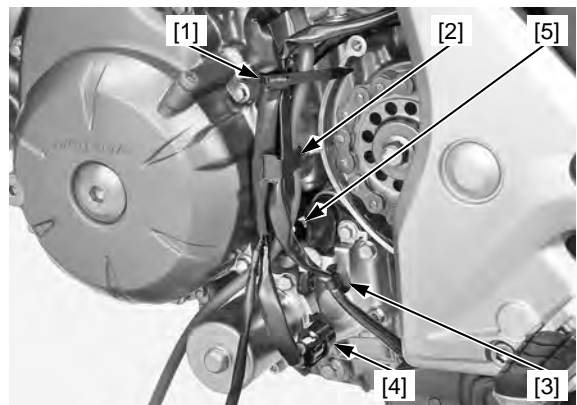
Release the alternator wire harness [2].



Remove the wire band [1] and release the wires and hose from the stay [2].

Remove the sidestand switch wire clamp [3] from the stay.

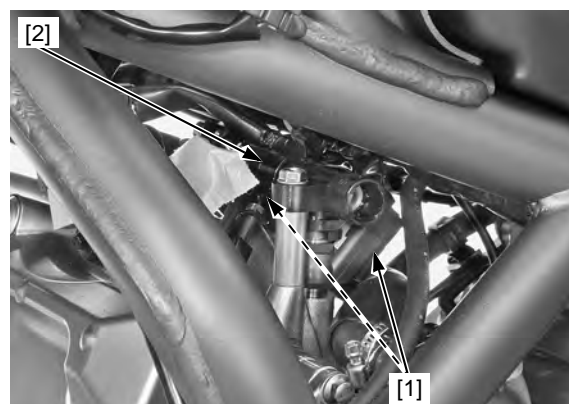
Disconnect the shift control motor 2P (Black) connector [4] and neutral switch connector [5].



Disconnect the VS sensor 3P (Black) connector [1] and EOT sensor 2P (Black) connector [2].



Disconnect the injector 2P (Gray) connectors [1].
Release the clip [2] from the fuel rail.



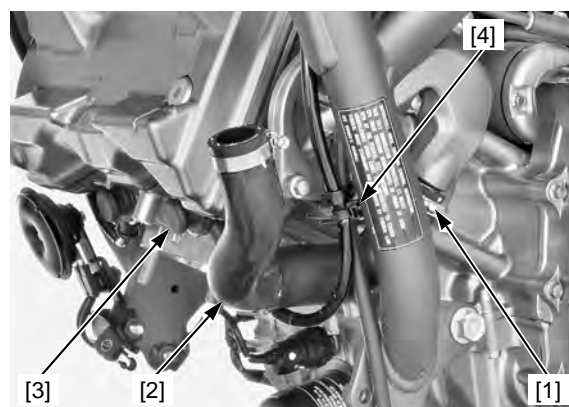
Disconnect the TR sensor 3P (Black) connector [1] and remove it from the ABS modulator stay.



Loosen the band screw [1] and disconnect the water hose [2] from the water pump.

Disconnect the spark plug cap [3].

Release the spark plug wire clamp [4] from the frame.

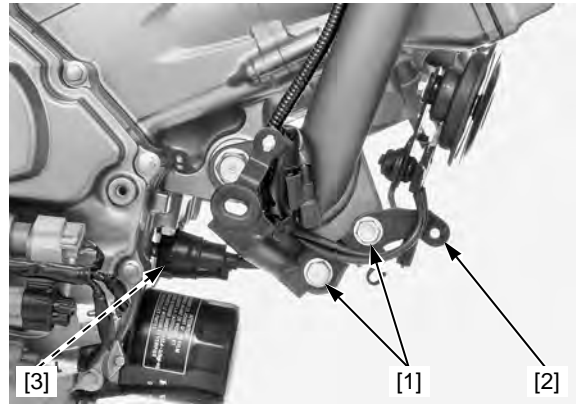


ENGINE REMOVAL/INSTALLATION

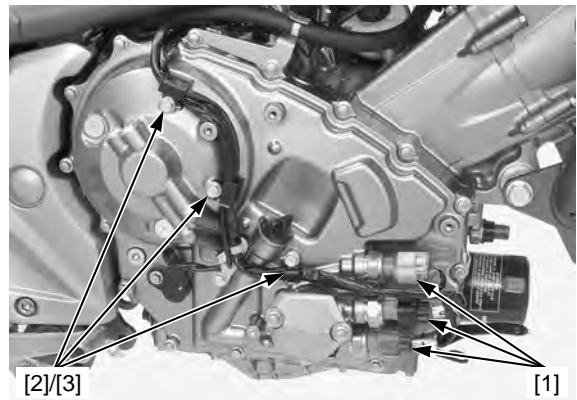
Disconnect the spark plug cap [1].
Release the spark plug wire clamp [2] from the frame.



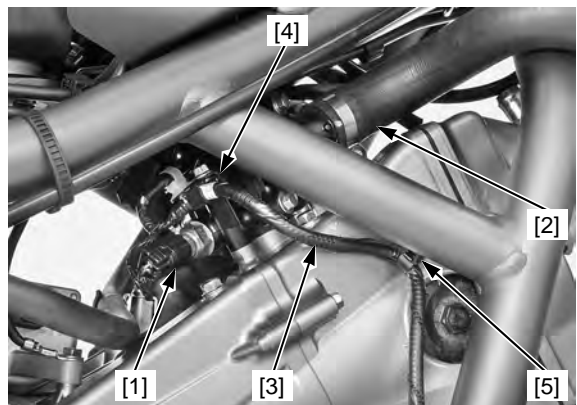
Remove the bolts [1] and stay [2] from the frame.
Disconnect the EOP switch 1P (Gray) connector [3].



Disconnect the clutch EOP sensor 3P connectors [1].
Remove the bolts [2] and clamps [3].



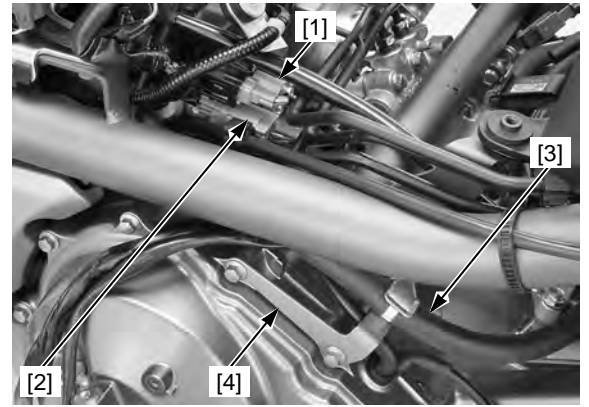
Disconnect the ECT sensor 2P connector [1].
Loosen the band screw and disconnect the water hose [2] from the thermostat cover.
Release the main wire harness [3] from the stay [4] and frame [5].



ENGINE REMOVAL/INSTALLATION

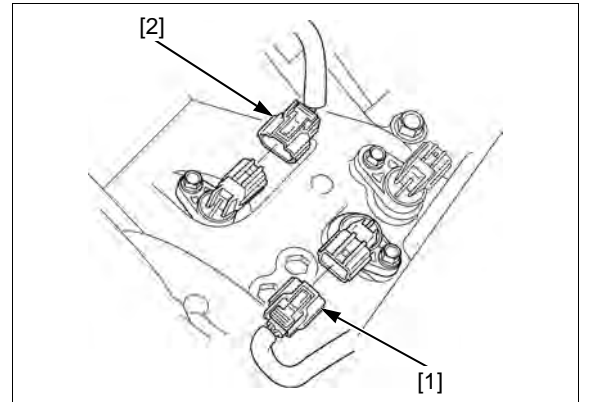
Disconnect the linear solenoid valve 4P (Green) connector [1] and shift spindle angle sensor 3P (Gray) connector [2] and remove them from the ABS modulator stay.

Release the fuel feed hose [3] from the clamp [4].



Disconnect the following:

- Inner mainshaft sensor 3P (Black) connector [1]
- Outer mainshaft sensor 3P (Black) connector [2]

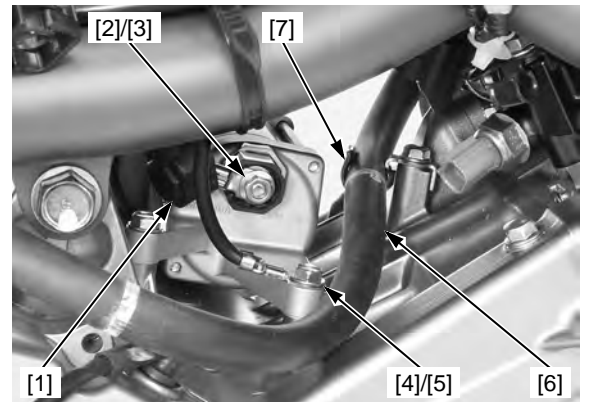


Release the rubber cap [1].

Remove the starter motor terminal nut [2] and disconnect the starter motor cable [3].

Remove the starter motor mounting bolt [4] and disconnect the ground cable [5].

Release the fuel feed hose [6] from the clamp [7].



Remove the drive sprocket bolt [1], washer [2] and drive sprocket [3].



ENGINE REMOVAL/INSTALLATION

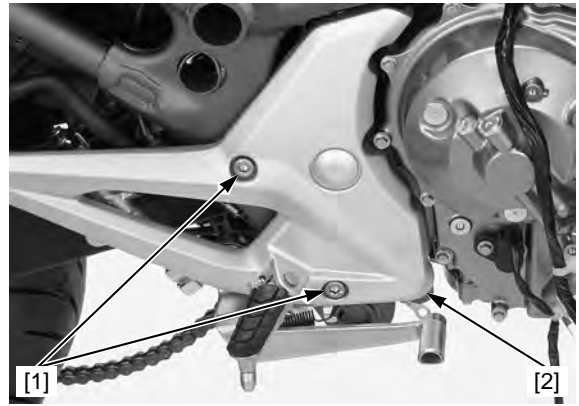
Remove the step holder mounting socket bolts [1] and left step holder [2].



Remove the step holder mounting socket bolts [1] and right step holder [2].

NOTE:

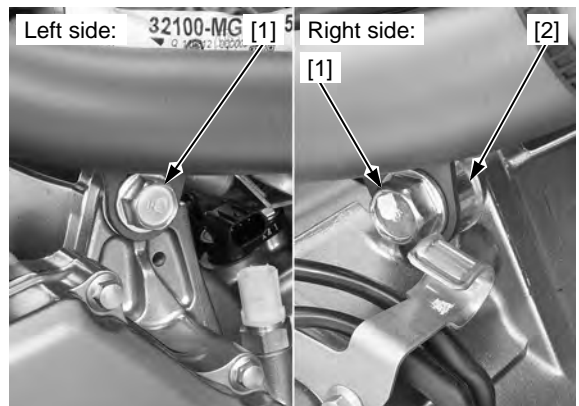
Do not twist the brake hose.



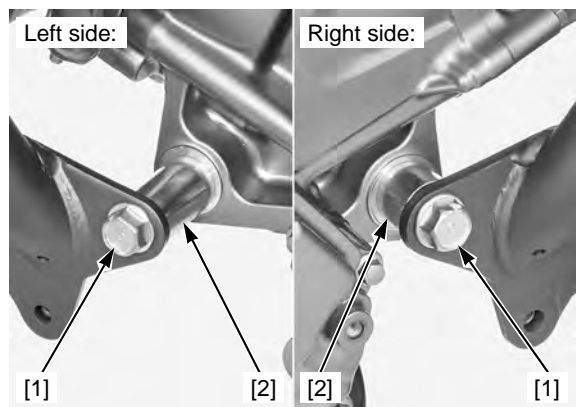
The jack height must be continually adjusted to relieve stress for ease of bolt removal.

Support the engine using a jack or other adjustable support to ease of engine hanger bolts removal.

Remove the upper engine hanger bolts [1] and collar [2].



Remove the front lower hanger bolts [1] and collars [2].



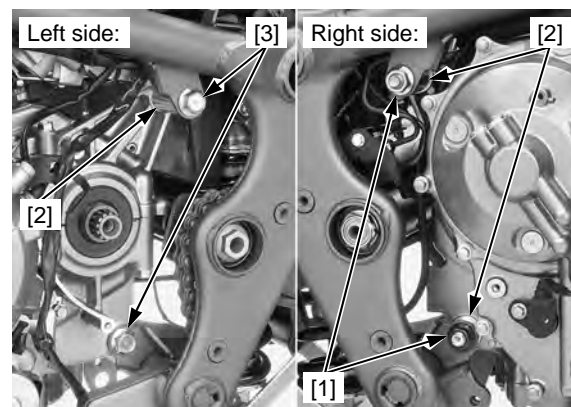
ENGINE REMOVAL/INSTALLATION

Remove the rear engine hanger nuts [1], collars [2] and bolts [3].

Carefully maneuver the engine and remove it out of the frame to the right.

NOTE:

During engine removal, hold the engine securely and be careful not to damage the frame and engine.



ENGINE INSTALLATION (NC700X/XA/S/SA)

NOTE:

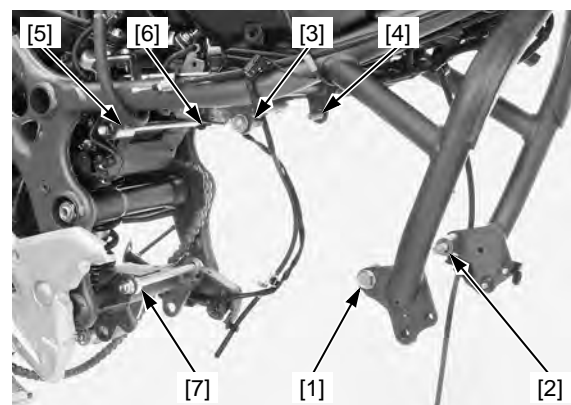
- All the engine mounting bolts and nuts loosely install, then tighten the bolts and nuts to the specified torque in the specified sequence.
- Note the direction of the engine hanger bolts.
 - Front lower right side [1]: 12 x 55 mm bolt and 20 mm collar
 - Front lower left side [2]: 12 x 80 mm bolt and 41 mm collar
 - Upper right side [3]: 12 x 45 mm bolt and 10 mm collar
 - Upper left side [4]: 12 x 35 mm bolt
 - Rear upper side: 12 x 276 mm bolt, 37 mm collar (right side) [5] and 47 mm collar (left side) [6]
 - Rear lower side: 12 x 168 mm bolt and 10 mm collar (right side) [7]
- Place the jack or other adjustable support under the engine.
- The jack height must be continually adjusted to relieve stress for ease bolt installation.
- Carefully align the mounting points with the jack to prevent damage to engine, frame, water hose, wires and cables.
- Route the hoses, wires and cables properly (page 1-25).

During engine installation, hold the engine securely and be careful not to damage the frame and engine.

Place the engine in the frame, then loosely install all the bolts, nuts and collars.

Tighten the rear lower engine hanger nut [1] to the specified torque.

TORQUE: 59 N·m (6.0 kgf·m, 44 lbf·ft)



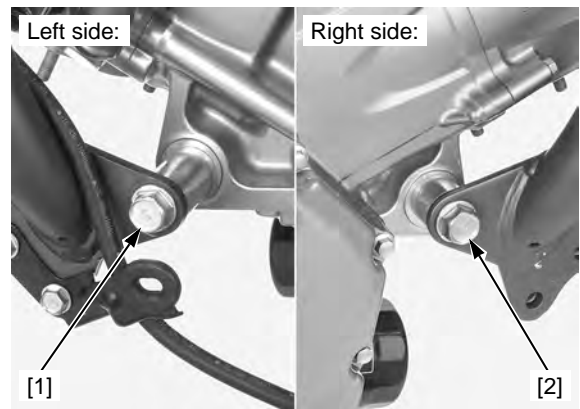
ENGINE REMOVAL/INSTALLATION

Tighten the left front lower engine hunger bolt [1] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

Tighten the right front lower engine hunger bolt [2] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

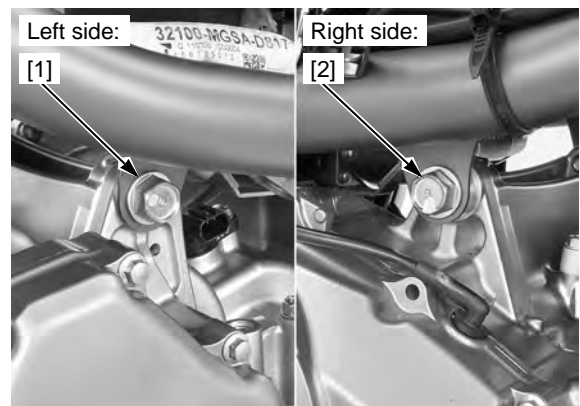


Tighten the left upper engine hunger bolt [1] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

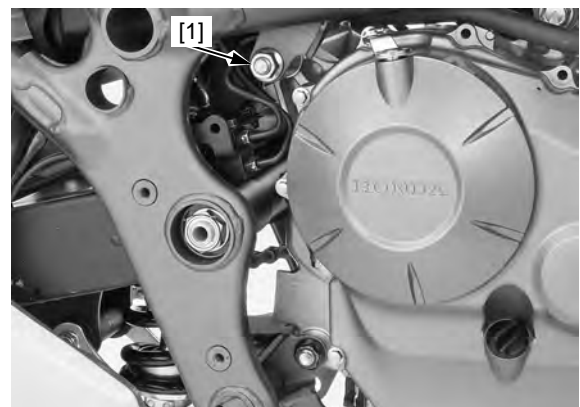
Tighten the right upper engine hunger bolt [2] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Tighten the rear upper engine hunger nut [1] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Install the right step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

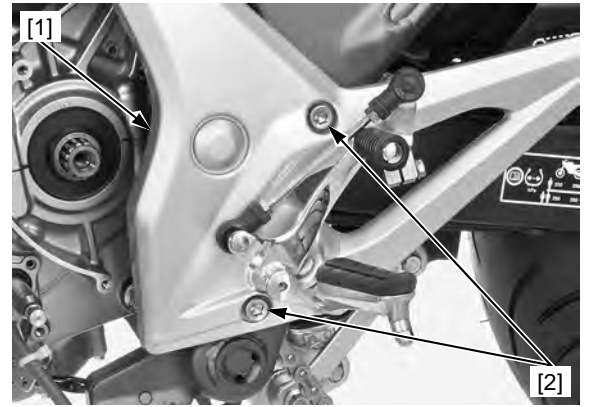
TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



Install the left step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



Install the drive sprocket [1], washer [2] and drive sprocket bolt [3].

Tighten the drive sprocket bolt to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Install the ground cable [1] and starter motor mounting bolt [2].

Tighten the mounting bolt securely.

Install the starter motor cable [3] and starter motor terminal nut [4].

Tighten the starter motor terminal nut to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Reposition the rubber cap [5] properly on the starter motor terminal.

Install the fuel feed hose [6] to the clamp [7].

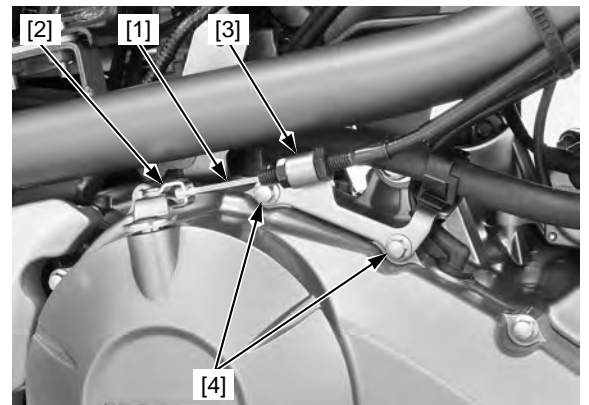
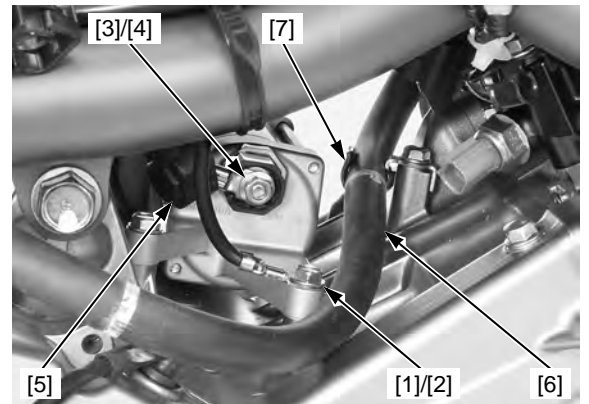
NOTE:

Align the fuel feed hose White paint with clamp.

Connect the clutch cable [1] to the clutch lifter arm [2].

Install clutch cable guide [3] and bolts [4].

Tighten the bolts securely.



ENGINE REMOVAL/INSTALLATION

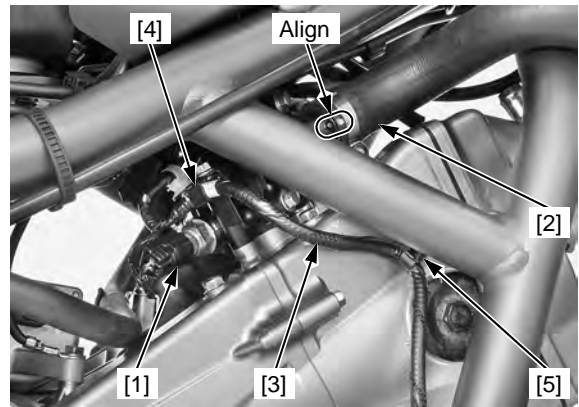
Connect the ECT sensor 2P connector [1].

Connect the water hose [2] to the thermostat cover.

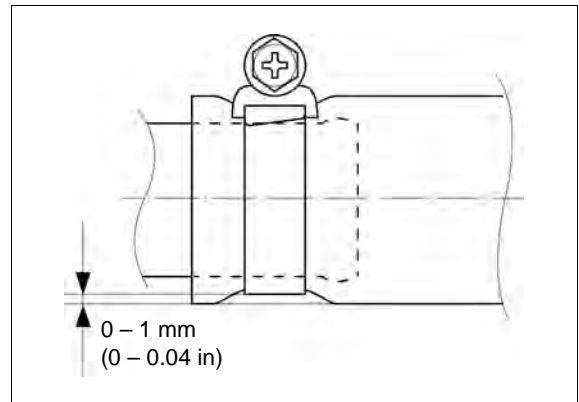
NOTE:

Align the water hose paint mark with the thermostat cover tab.

Install the main wire harness [3] to the stay [4] and frame [5].

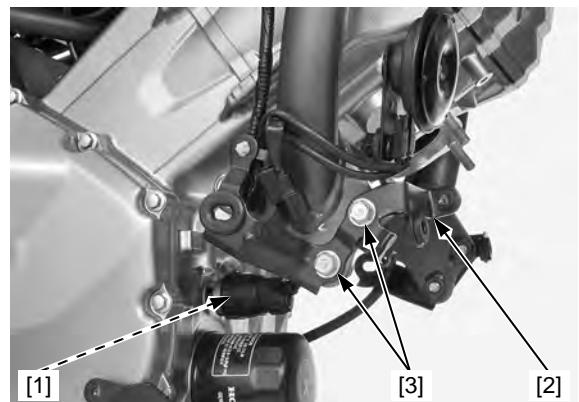


Tighten the water hose band screw to the specified range.



Connect the EOP switch 1P (Gray) connector [1].

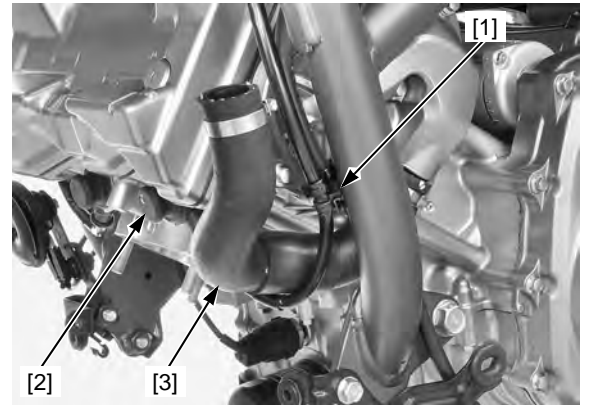
Install the stay [2] and bolts [3] to the frame.
Tighten the bolts securely.



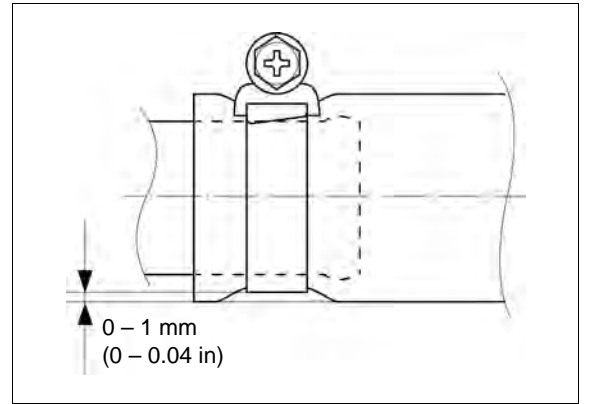
Install the spark plug wire clamp [1] to the frame.
Connect the spark plug cap [2].



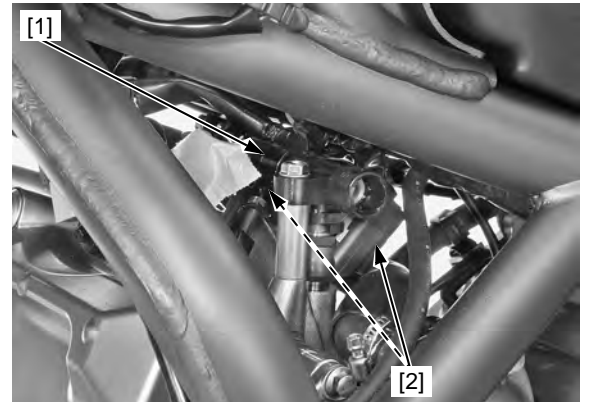
Install the spark plug wire clamp [1] to the frame.
Connect the spark plug cap [2].
Connect the water hose [3] to the water pump.



Tighten the water hose band screw to the specified range.



Install the clip [1] to the fuel rail.
Connect the injector 2P (Gray) connectors [2].



Connect the VS sensor 3P (Black) connector [1].



ENGINE REMOVAL/INSTALLATION

Install the following:

- Fuel tank drain hose B [1]
- Sidestand switch wire [2]
- Neutral switch wire [3]

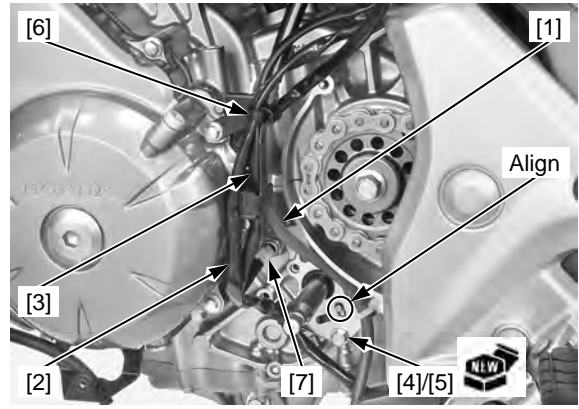
Install the setting plate [4] and a new bolt [5].

NOTE:

Align the setting plate hole with the crankcase boss.

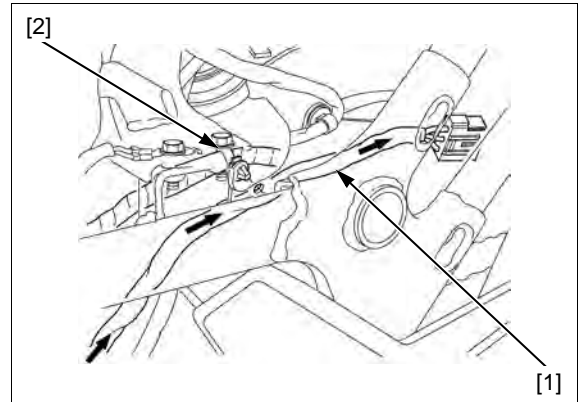
Install the wire band [6].

Connect the neutral switch connector [7].



Route the alternator wire harness [1].

Install the sidestand switch wire harness clamp [2].



Connect the alternator 3P (Black) connector [1].



Install the rear fender B [1] and socket bolts [2].

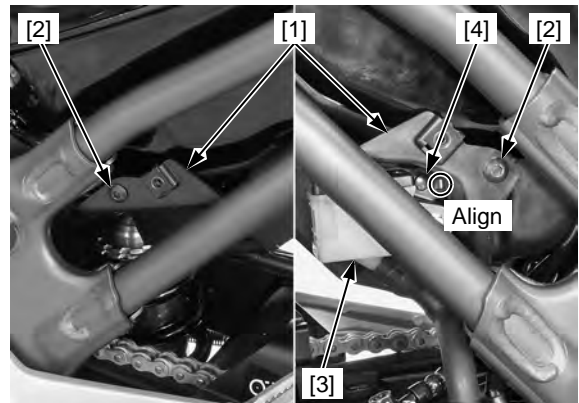
Tighten the socket bolts securely.

Install the rear brake reservoir stay/reservoir [3] and bolt [4].

NOTE:

Align the rear brake reservoir stay with the frame tab.

Tighten the bolt securely.



Connect the CKP sensor 2P (Red) connector [1].

Install the following:

- Throttle body (page 7-18)
- Radiator (page 8-9)
- Radiator reserve tank (page 8-14)
- Exhaust pipe/muffler (page 2-32)
- Left rear cover (page 2-29)

Inspect the following:

- Throttle grip freeplay (page 3-5)
- Clutch lever freeplay (page 3-26)

Adjust the drive chain slack (page 3-16).

Fill the engine with the recommended engine oil (page 3-12).

Connect the quick connect fitting to the fuel injector side (page 7-5).

Fill the recommended coolant mixture to the filler neck and bleed the air (page 8-6).

Check the exhaust system and cooling system for leaks.



ENGINE INSTALLATION (NC700XD/SD)

NOTE:

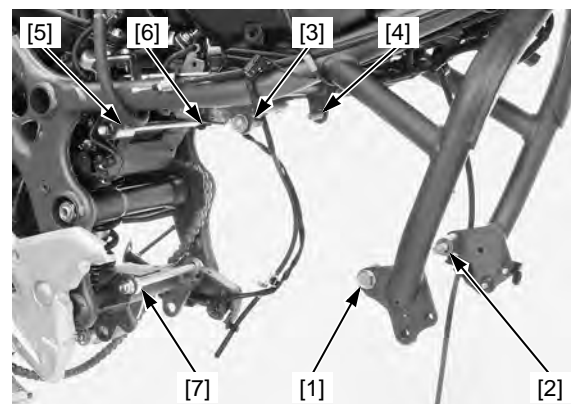
- All the engine mounting bolts and nuts loosely install, then tighten the bolts and nuts to the specified torque in the specified sequence.
- Note the direction of the engine hanger bolts.
 - Front lower right side [1]: 12 x 55 mm bolt and 20 mm collar
 - Front lower left side [2]: 12 x 80 mm bolt and 41 mm collar
 - Upper right side [3]: 12 x 45 mm bolt and 10 mm collar
 - Upper left side [4]: 12 x 35 mm bolt
 - Rear upper side: 12 x 276 mm bolt, 37 mm collar (right side) [5] and 47 mm collar (left side) [6]
 - Rear lower side: 12 x 168 mm bolt and 10 mm collar (right side) [7]
- Place the jack or other adjustable support under the engine.
- The jack height must be continually adjusted to relieve stress for ease bolt installation.
- Carefully align the mounting points with the jack to prevent damage to engine, frame, water hose, wires and cables.
- Route the water hose, wires and cables properly (page 1-25).

During engine installation, hold the engine securely and be careful not to damage the frame and engine.

Place the engine in the frame, then loosely install all the bolts, nuts and collars.

Tighten the rear lower engine hanger nut [1] to the specified torque.

TORQUE: 59 N·m (6.0 kgf·m, 44 lbf·ft)



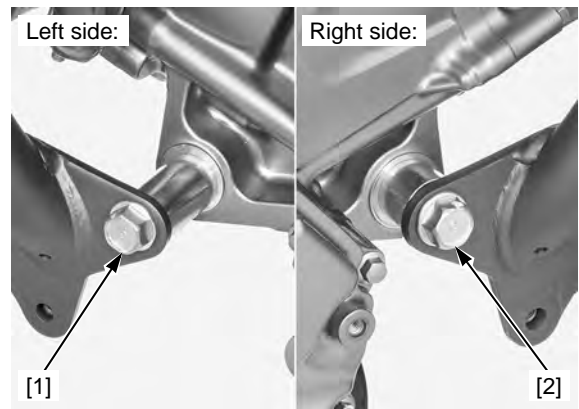
ENGINE REMOVAL/INSTALLATION

Tighten the left front lower engine hunger bolt [1] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

Tighten the right front lower engine hunger bolt [2] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

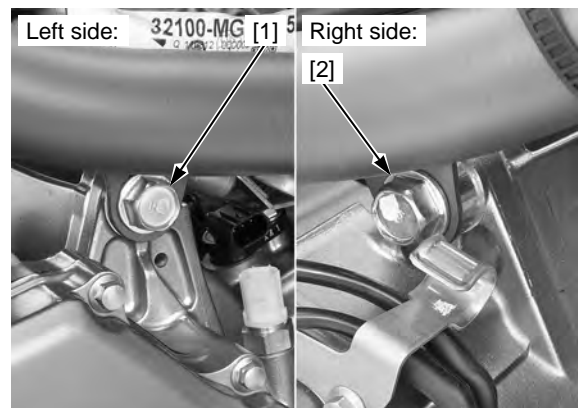


Tighten the left upper engine hunger bolt [1] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

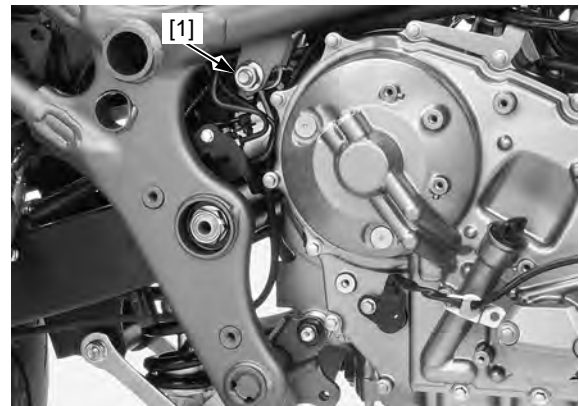
Tighten the right upper engine hunger bolt [2] to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Tighten the rear upper engine hunger nut [1] to the specified torque.

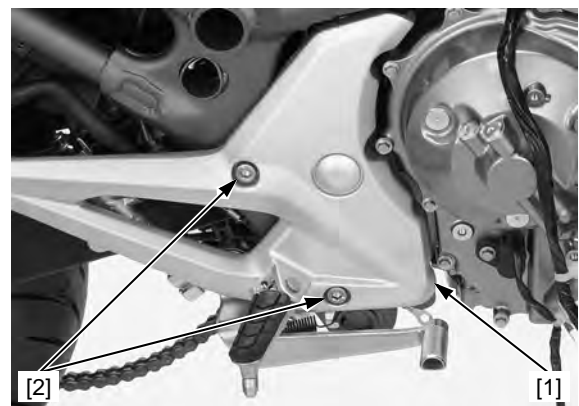
TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Install the right step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



Install the left step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



Install the drive sprocket [1], washer [2] and drive sprocket bolt [3].

Tighten the drive sprocket bolt to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)



Install the ground cable [1] and starter motor mounting bolt [2].

Tighten the mounting bolt securely.

Install the starter motor cable [3] and starter motor terminal nut [4].

Tighten the starter motor terminal nut to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Reposition the rubber cap [5] properly on the starter motor terminal.

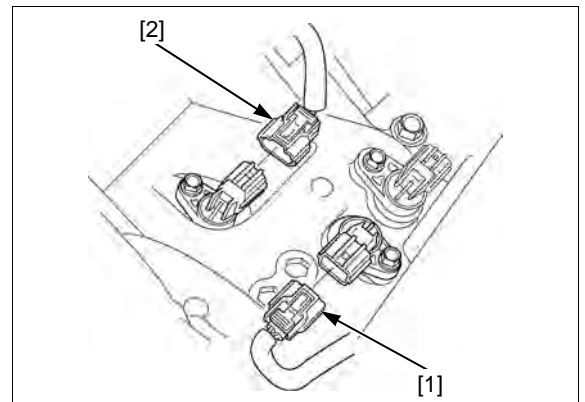
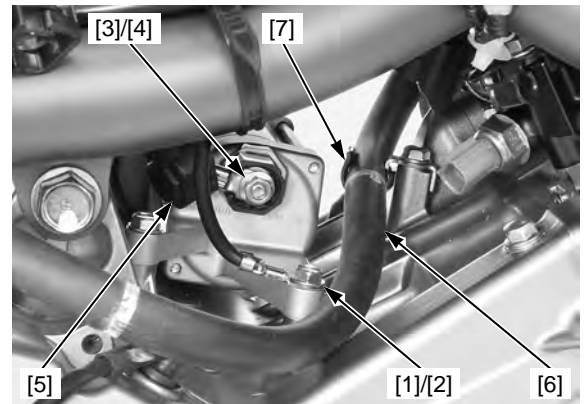
Install the fuel feed hose [6] to the clamp [7].

NOTE:

Align the fuel feed hose White paint with clamp.

Connect the following:

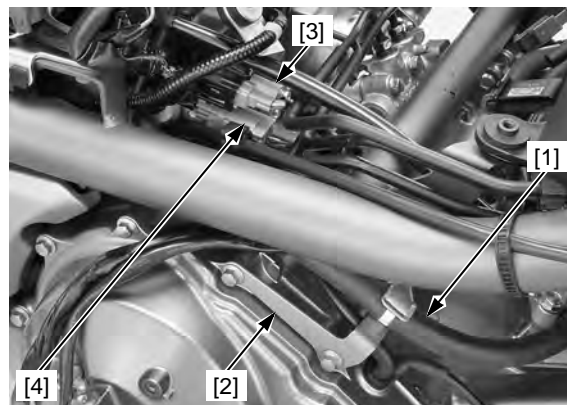
- Inner mainshaft sensor 3P (Black) connector [1]
- Outer mainshaft sensor 3P (Black) connector [2]



ENGINE REMOVAL/INSTALLATION

Install the fuel feed hose [1] to the clamp [2].

Connect the linear solenoid valve 4P (Green) connector [3] and shift spindle angle sensor 3P (Gray) connector [4] and install them to the ABS modulator stay.



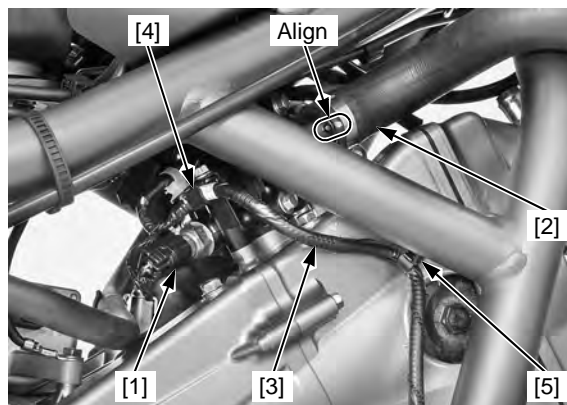
Connect the ECT sensor 2P connector [1].

Connect the water hose [2] to the thermostat cover.

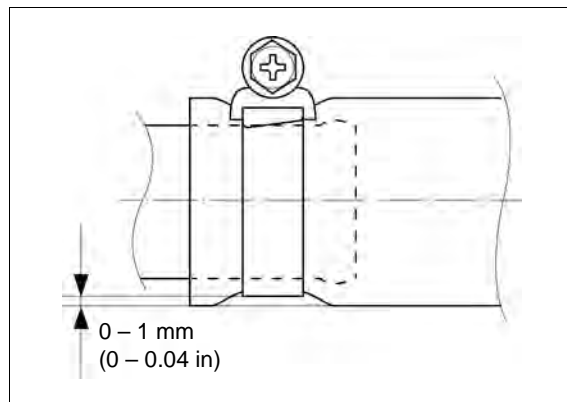
NOTE:

Align the water hose paint mark with the thermostat cover tab.

Install the main wire harness [3] to the stay [4] and frame [5].



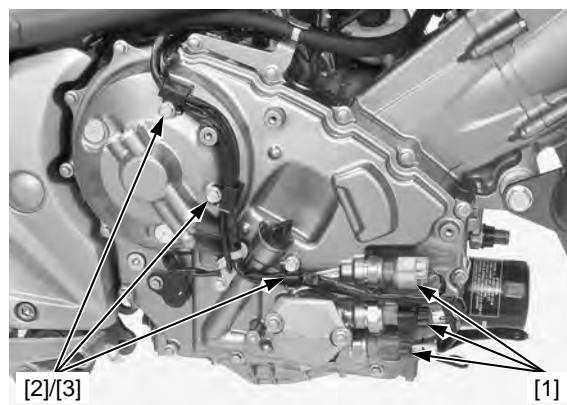
Tighten the water hose band screw to the specified range.



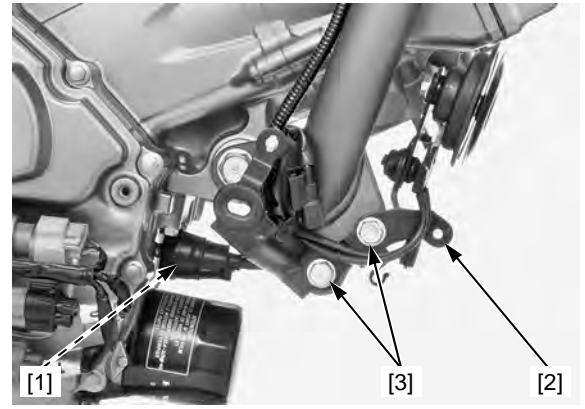
Connect the clutch EOP sensor 3P connectors [1].

Install the clamps [2] and bolts [3].

Tighten the bolts securely.



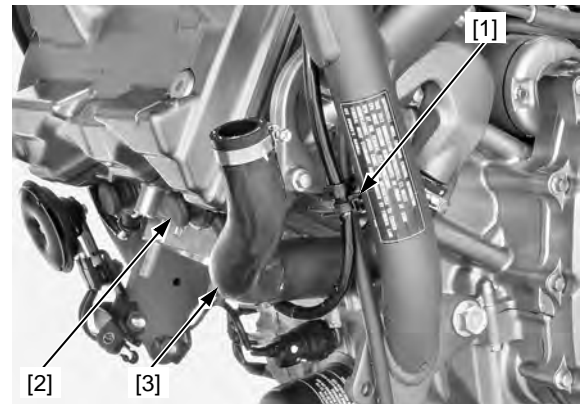
Connect the EOP switch 1P (Gray) connector [1].
Install the stay [2] and bolts [3] to the frame.
Tighten the bolts securely.



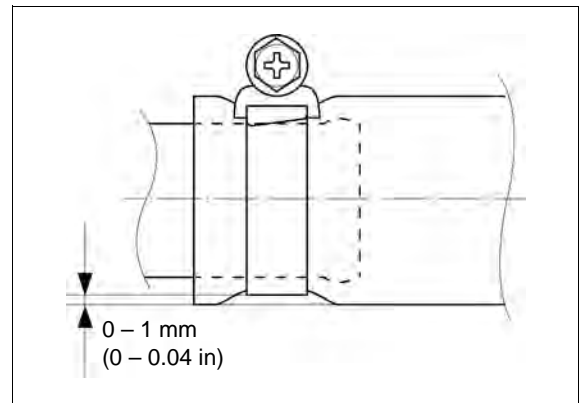
Install the spark plug wire clamp [1] to the frame.
Connect the spark plug cap [2].



Install the spark plug wire clamp [1] to the frame.
Connect the spark plug cap [2].
Connect the water hose [3] to the water pump.



Tighten the water hose band screw to the specified range.

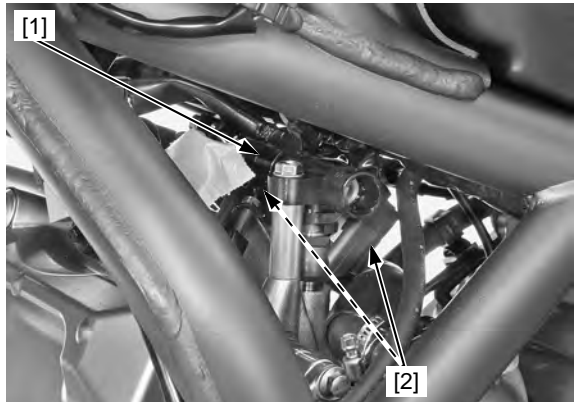


ENGINE REMOVAL/INSTALLATION

Connect the TR sensor 3P (Black) connector [1] and install it to the ABS modulator stay.



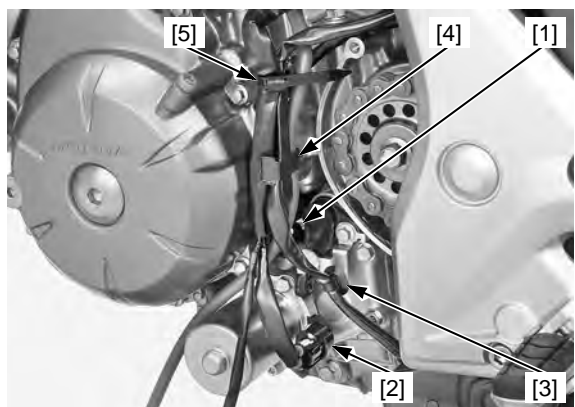
Install the clip [1] to the fuel rail.
Connect the injector 2P (Gray) connectors [2].



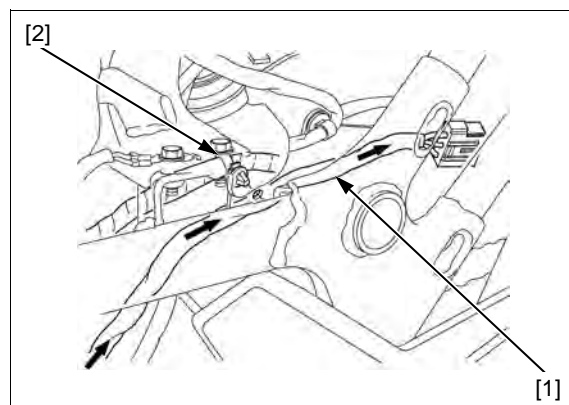
Connect the VS sensor 3P (Black) connector [1] and EOT sensor 2P (Black) connector [2].



Route the wires and hose properly.
Connect the neutral switch wire connector [1] and shift control motor 2P (Black) connector [2].
Install the sidestand switch wire clamp [3] onto the stay.
Set the hose and wires into the stay [4] and install the wire band [5]



Route the alternator wire harness [1].
Install the sidestand switch wire harness clamp [2].

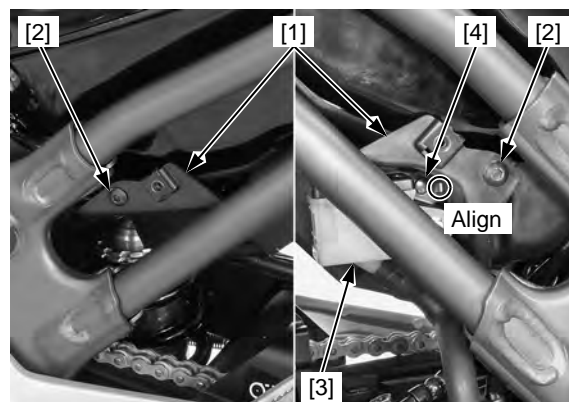


Connect the alternator 3P (Black) connector [1].



Install the rear fender B [1] and socket bolts [2].
Tighten the socket bolts securely.
Install the rear brake reservoir stay/reservoir [3] and bolt [4].

NOTE:
Align the rear brake reservoir stay with the frame tab.
Tighten the bolt securely.



Connect the CKP sensor 2P (Red) connector [1].
Install the following:

- Throttle body (page 7-18)
- Radiator (page 8-9)
- Radiator reserve tank (page 8-14)
- Exhaust pipe/muffler (page 2-32)
- Center cross plate (page 2-32)
- Guard pipe (page 2-30)
- Left rear cover (page 2-30)

Inspect the throttle grip freeplay (page 3-5).

Adjust the drive chain slack (page 3-16).

Fill the engine with the recommended engine oil (page 3-12).

Connect the quick connect fitting to the fuel injector side (page 7-5).

Fill the recommended coolant mixture to the filler neck and bleed the air (page 8-6).

Check the exhaust system and cooling system for leaks.



MEMO

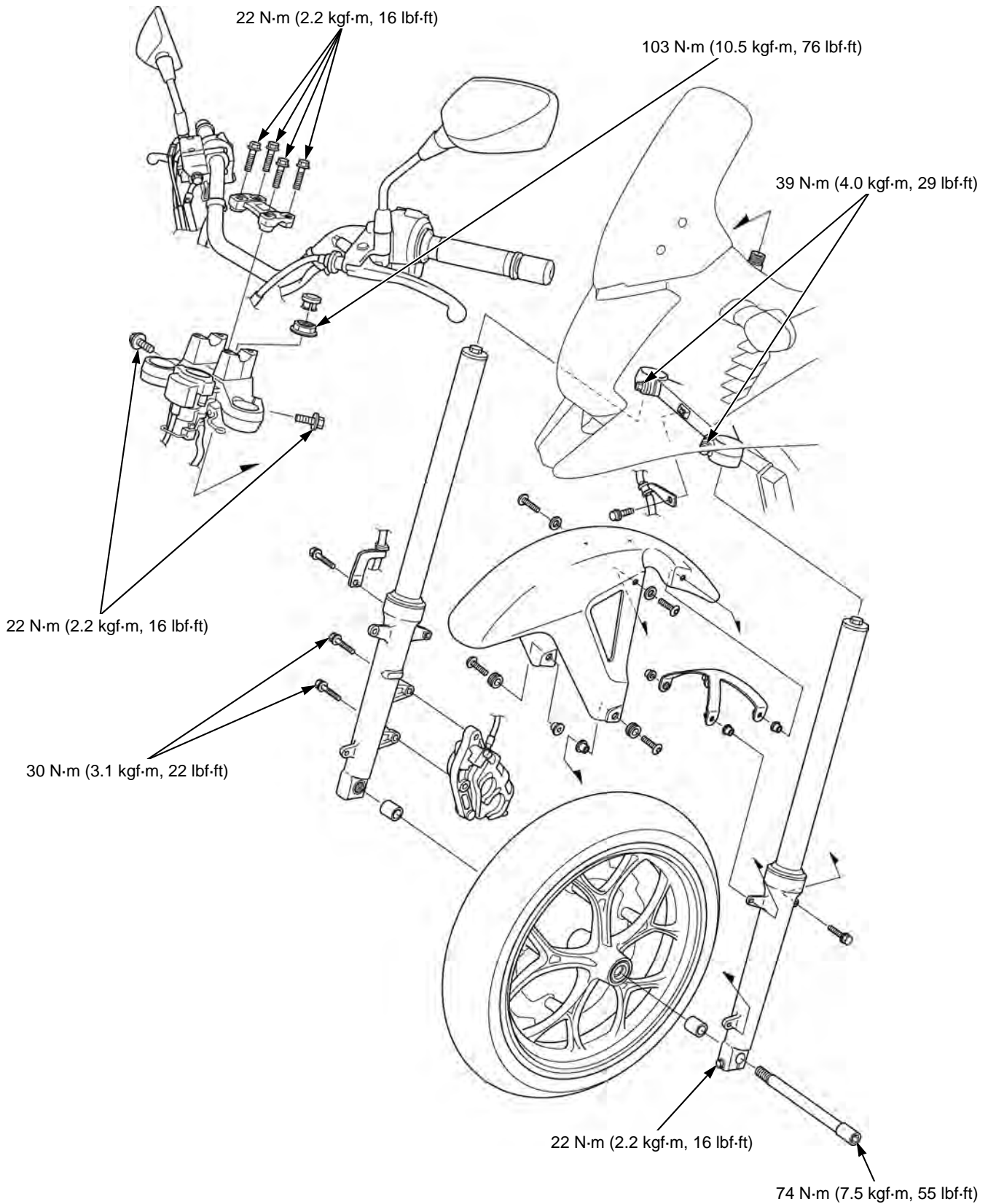
17. FRONT WHEEL/SUSPENSION/STEERING

COMPONENT LOCATION	17-2	FRONT WHEEL	17-20
SERVICE INFORMATION	17-8	FORK.....	17-25
TROUBLESHOOTING.....	17-9	STEERING STEM	17-33
HANDLEBAR	17-10	CLUTCH LEVER (NC700X/XA/S/SA).....	17-42

FRONT WHEEL/SUSPENSION/STEERING

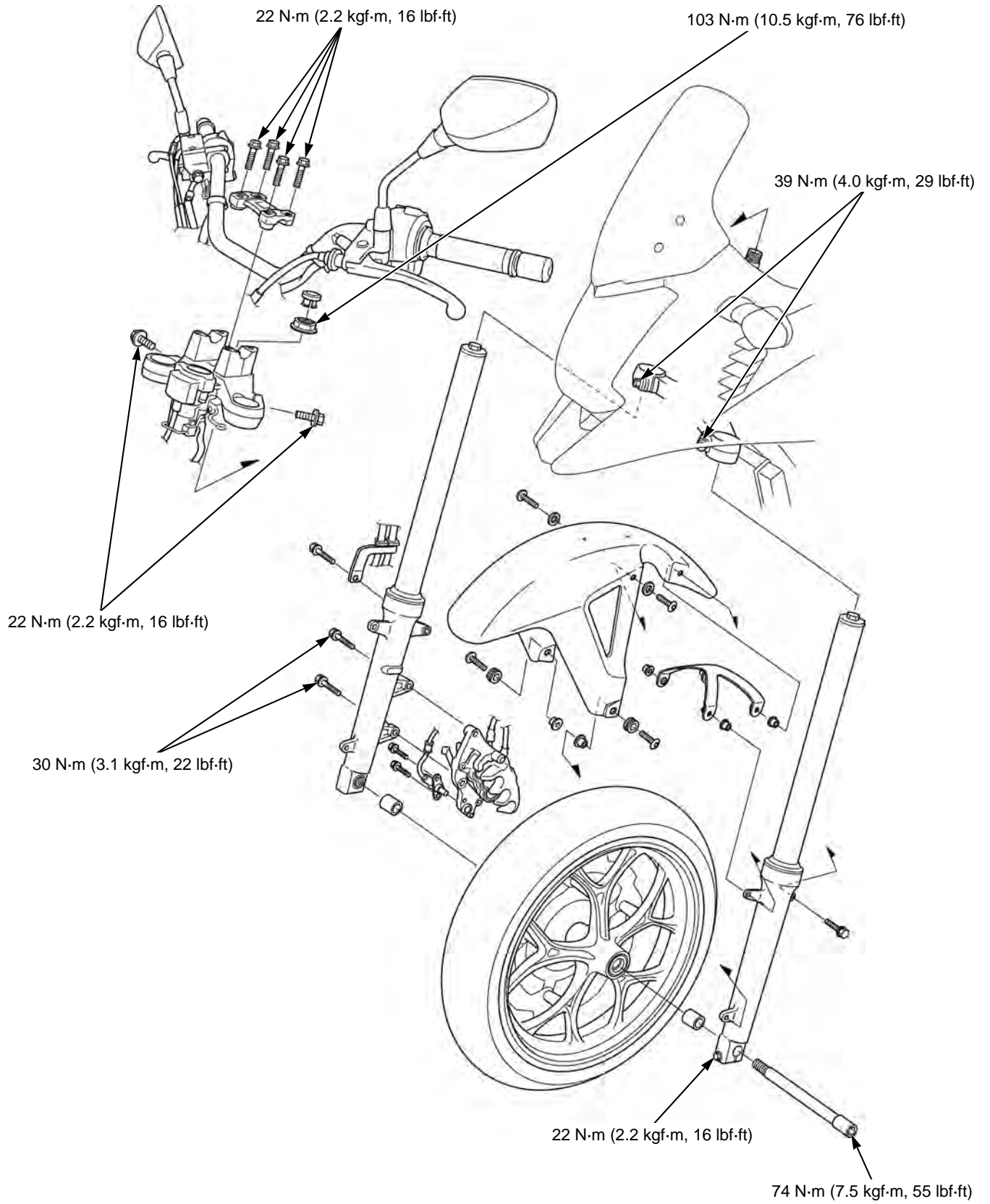
COMPONENT LOCATION

NC700X:



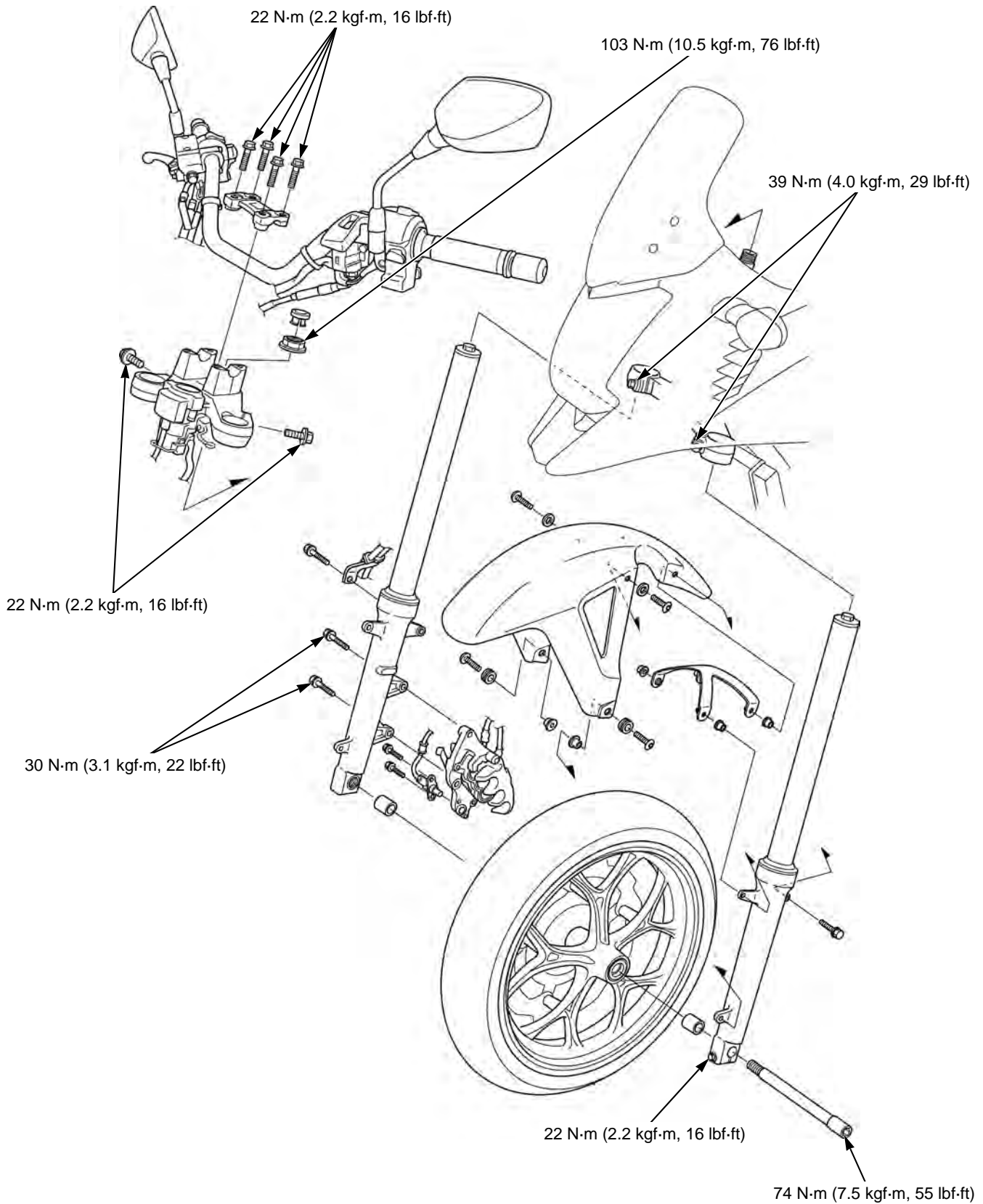
FRONT WHEEL/SUSPENSION/STEERING

NC700XA:



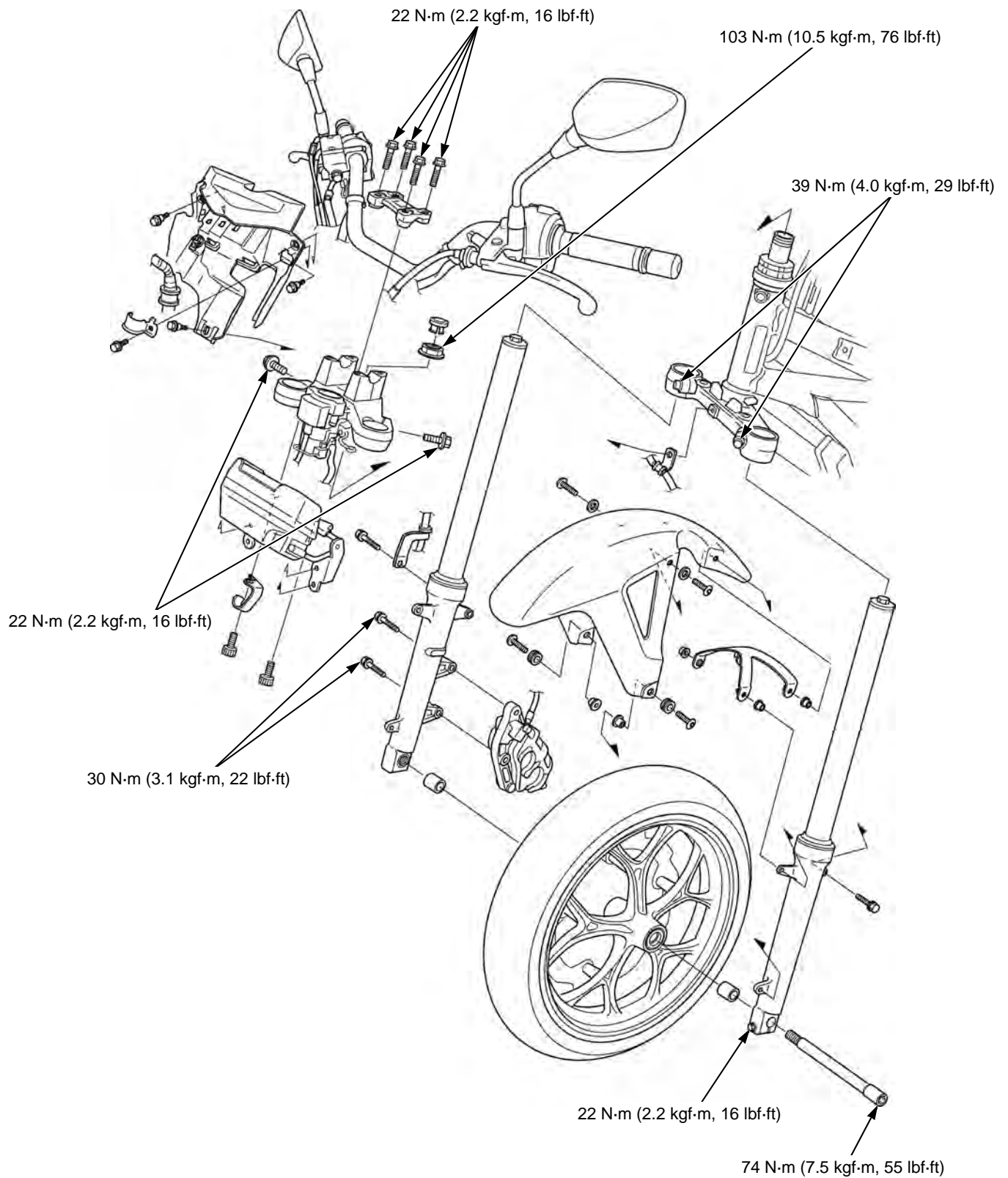
FRONT WHEEL/SUSPENSION/STEERING

NC700XD:



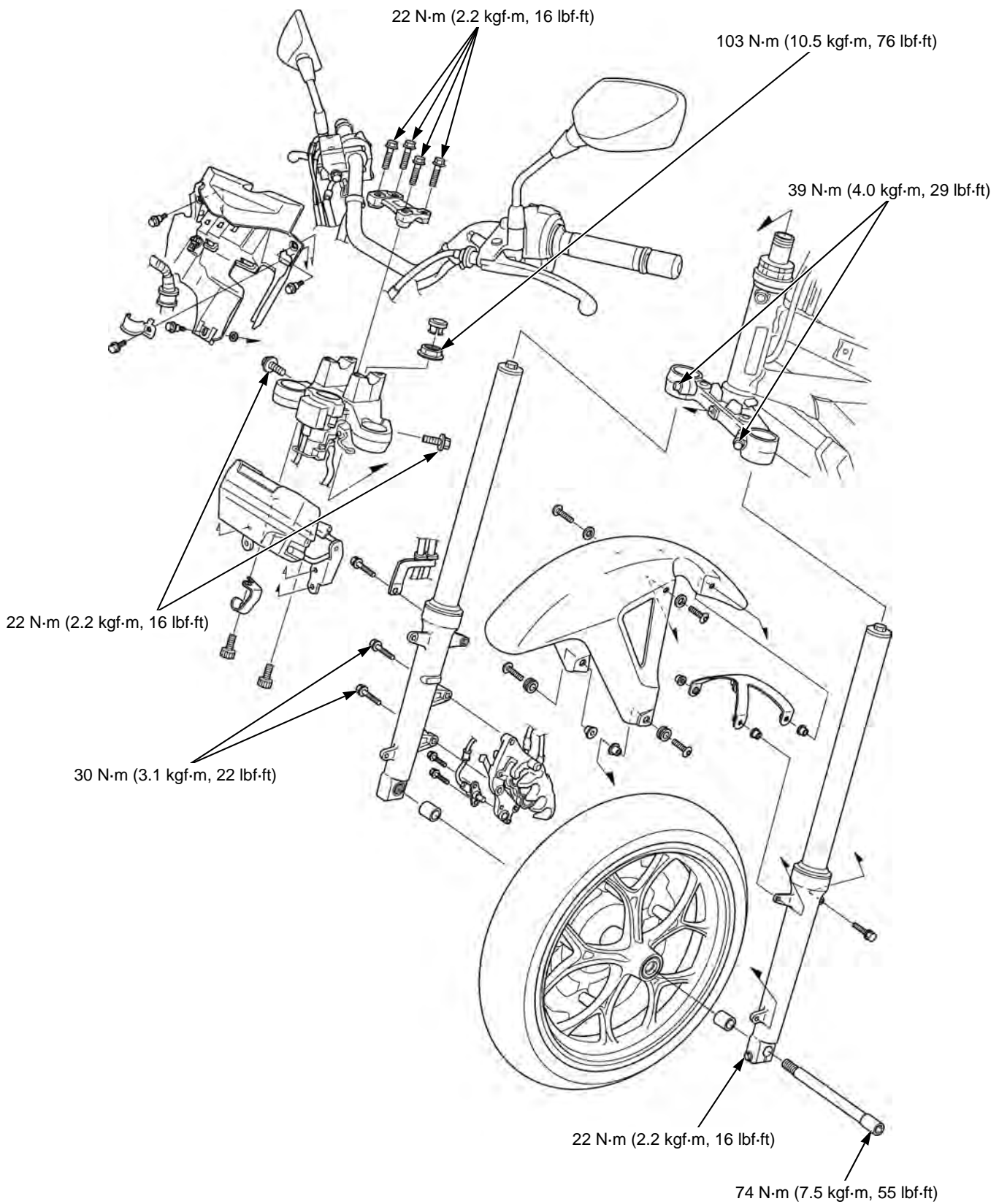
FRONT WHEEL/SUSPENSION/STEERING

NC700S:



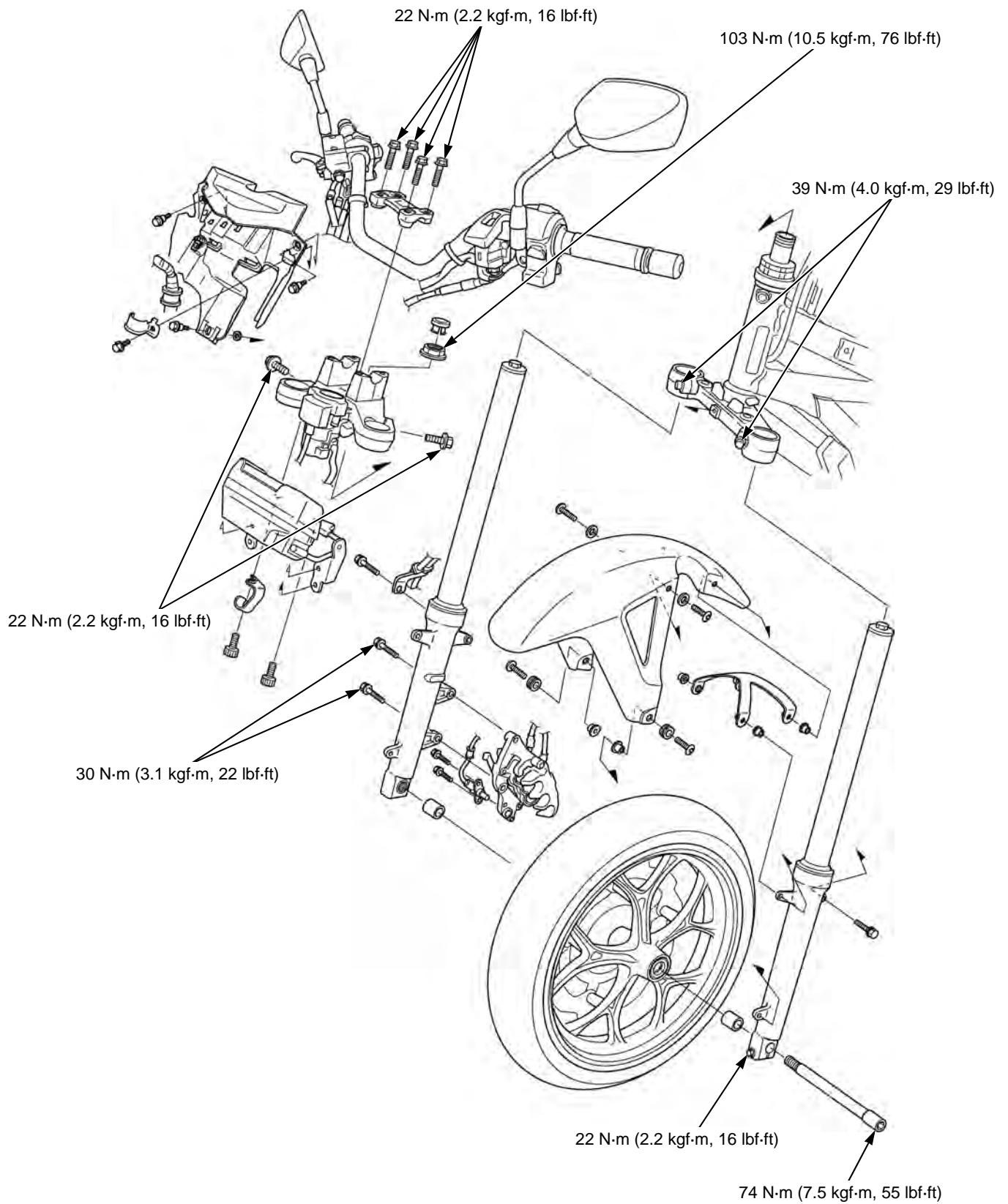
FRONT WHEEL/SUSPENSION/STEERING

NC700SA:



FRONT WHEEL/SUSPENSION/STEERING

NC700SD:



FRONT WHEEL/SUSPENSION/STEERING

SERVICE INFORMATION

GENERAL

- When servicing the front wheel, fork or steering stem, support the motorcycle using a safety stand or hoist.
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Do not operate the brake lever and pedal after removing the caliper and front wheel.
- After the front wheel installation, check the brake operation by applying the brake lever.
- Use only tires marked "TUBELESS" and tubeless valves on rim marked "TUBELESS TIRE APPLICABLE".
- For brake system information (page 19-5).

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD		SERVICE LIMIT	
Minimum tire tread depth		-		1.5 (0.06)	
Cold tire pressure	Driver only	250 kPa (2.50 kgf/cm ² , 36 psi)		-	
	Driver and passenger	250 kPa (2.50 kgf/cm ² , 36 psi)		-	
Axle runout		-		0.2 (0.01)	
Wheel rim runout	Radial	-		2.0 (0.08)	
	Axial	-		2.0 (0.08)	
Wheel balance weight		-		60 g (2.1 oz) max.	
Fork	Spring free length	NC700X/XA/XD	394.9 (15.55)	387.0 (15.24)	
		NC700S/SA/SD	357.0 (14.06)	349.9 (13.78)	
	Tube runout		-		0.20 (0.008)
	Recommended fork fluid		Honda ULTRA CUSHION OIL 10W or equivalent		-
	Fluid level	NC700X/XA/XD	104 (4.1)		-
		NC700S/SA/SD	103 (4.1)		-
	Fluid capacity	NC700X/XA/XD	514 ± 2.5 cm ³ (17.4 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)		-
		NC700S/SA/SD	518 ± 2.5 cm ³ (17.5 ± 0.08 US oz, 18.2 ± 0.09 Imp oz)		-

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Handlebar holder bolt	4	8	22 (2.2, 16)	
Handlebar switch housing screw	4	5	2.5 (0.3, 1.8)	
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Handlebar weight mounting screw	2	6	10 (1.0, 7)	ALOC screw; replace with a new one.
Front brake disc mounting bolt	5	8	42 (4.3, 31)	ALOC bolt; replace with a new one.
Front axle	1	18	74 (7.5, 55)	Apply grease to the sliding surface.
Front axle pinch bolt	1	8	22 (2.2, 16)	
Fork socket bolt	2	8	20 (2.0, 15)	Apply locking agent to the threads.
Bottom bridge pinch bolt	2	10	39 (4.0, 29)	
Fork cap	2	37	22 (2.2, 16)	
Top bridge pinch bolt	2	8	22 (2.2, 16)	
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	ALOC bolt; replace with a new one.
Steering stem adjusting nut	1	26	23 (2.3, 17)	See page 17-38 Apply engine oil to the threads.
Steering stem adjusting lock nut	1	26	-	See page 17-38
Steering stem nut	1	24	103 (10.5, 76)	See page 17-38
Clutch lever pivot bolt (NC700X/XA/S/SA)	1	6	1.0 (0.1, 0.7)	Apply grease to the sliding surface.
Clutch lever pivot nut (NC700X/XA/S/SA)	1	6	6.0 (0.6, 4.4)	

TROUBLESHOOTING

Hard steering

- Steering stem adjusting nut too tight
- Damaged steering head bearings
- Insufficient tire pressure
- Faulty tire

Steers to one side or does not track straight

- Bent fork pipe
- Bent axle
- Worn wheel bearing
- Unequal fork fluid quantity in each fork pipe
- Faulty steering head bearing
- Bent frame
- Faulty wheel bearing
- Weak front fork
- Loose steering stem adjusting nut

Front wheel wobbling

- Bent rim
- Worm wheel bearing
- Faulty tire
- Insufficient tire pressure
- Axle not tightened properly
- Unbalanced tire and wheel

Wheel hard to turn

- Faulty wheel bearing
- Bent axle
- Brake drag

Soft suspension

- Weak fork spring
- Insufficient fork fluid
- Insufficient tire pressure
- Incorrect fork fluid viscosity

Stiff suspension

- Incorrect fork fluid viscosity
- Bent fork pipe
- Clogged fork fluid passage
- Damaged fork pipe and/or fork slider
- Fork pipe binds
- High tire pressure

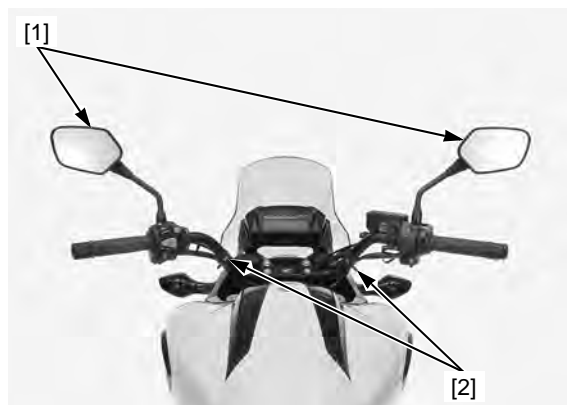
Front suspension noisy

- Insufficient fork fluid
- Loose fork fasteners
- Bent fork pipe

HANDLEBAR

REMOVAL (NC700X/XA/S/SA)

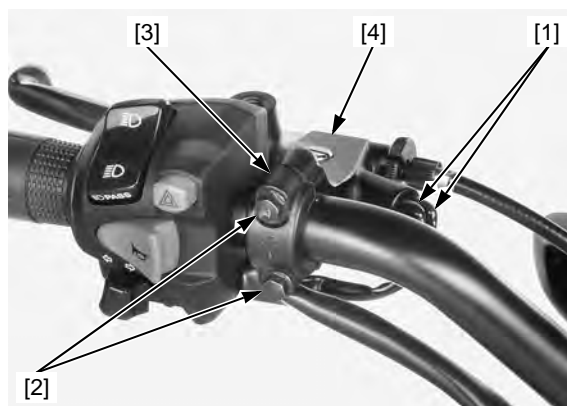
Remove the rearview mirrors [1] and wire bands [2].



Hold the handlebar weight [1] and remove the handlebar weight mounting screw [2], then remove both handlebar weights.



Disconnect the clutch switch connectors [1].
Remove the bolts [2], holder [3] and clutch lever bracket [4].



Remove the screws [1] and separate the left handlebar switch housing [2].
Remove the left handlebar grip rubber [3].

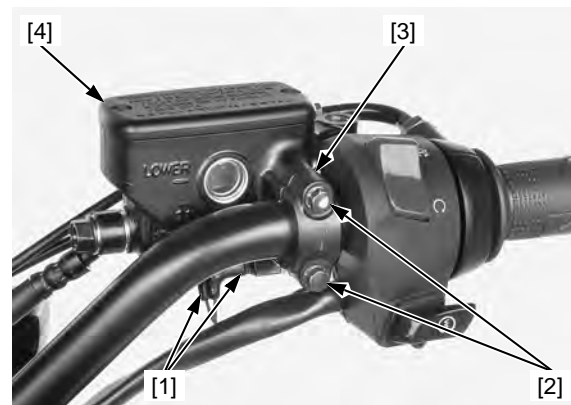


FRONT WHEEL/SUSPENSION/STEERING

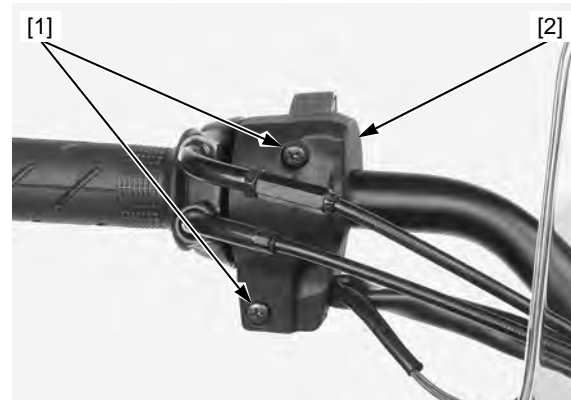
Disconnect the brake light switch connectors [1].
Remove the bolts [2], holder [3] and master cylinder [4].

NOTE:

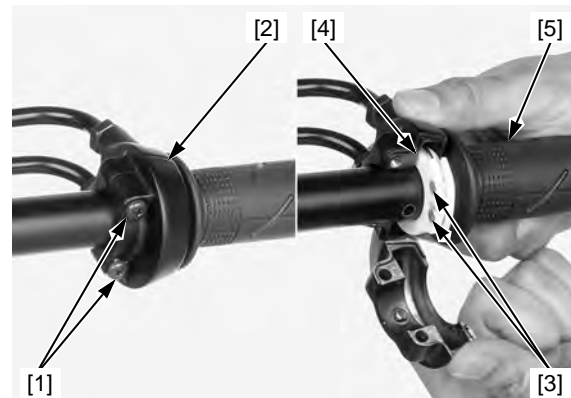
Keep the brake master cylinder upright to prevent air from entering the hydraulic system.



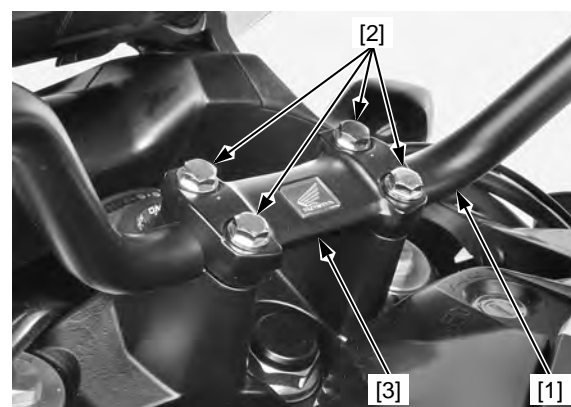
Remove the screws [1].
Separate the right handlebar switch housing [2].



Remove the screws [1].
Separate the throttle housing [2].
Disconnect the throttle cables [3] from the throttle pipe [4], then remove the throttle pipe [5].



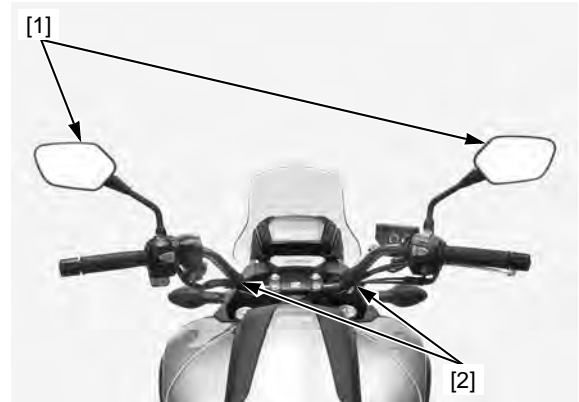
Hold the handlebar [1] and remove the bolts [2] and holder [3].



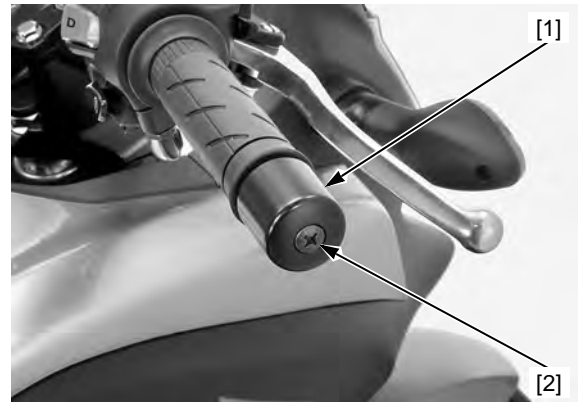
FRONT WHEEL/SUSPENSION/STEERING

REMOVAL (NC700XD/SD)

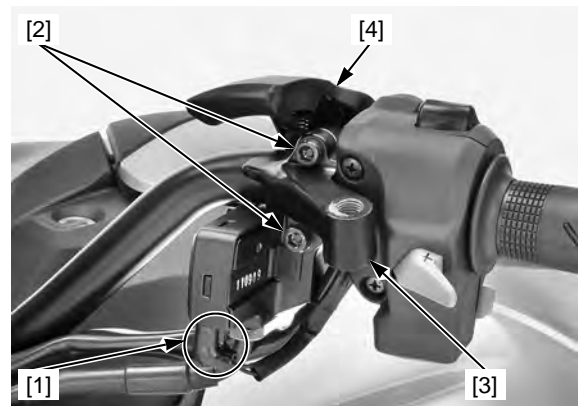
Remove the rearview mirrors [1] and wire bands [2].



Hold the handlebar weight [1] and remove the handlebar weight mounting screw [2], then remove both handlebar weights.



Disconnect the parking brake switch connectors [1].
Remove the socket bolts [2], holder [3] and parking brake lever bracket [4].



Remove the screws [1] and separate the left handlebar switch housing [2].

Remove the left handlebar grip rubber [3].

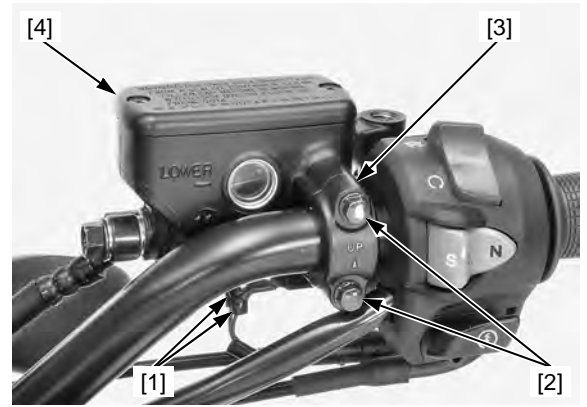


FRONT WHEEL/SUSPENSION/STEERING

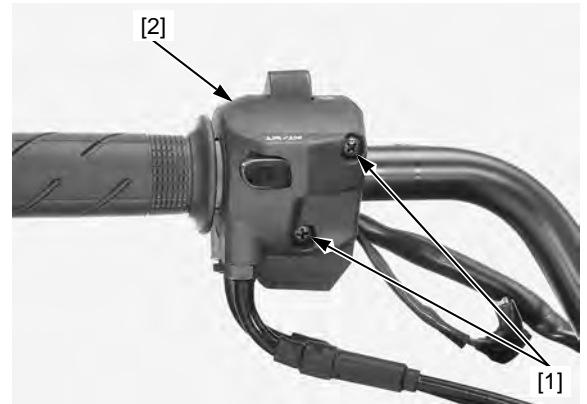
Disconnect the brake light switch connectors [1].
Remove the bolts [2], holder [3] and master cylinder [4].

NOTE:

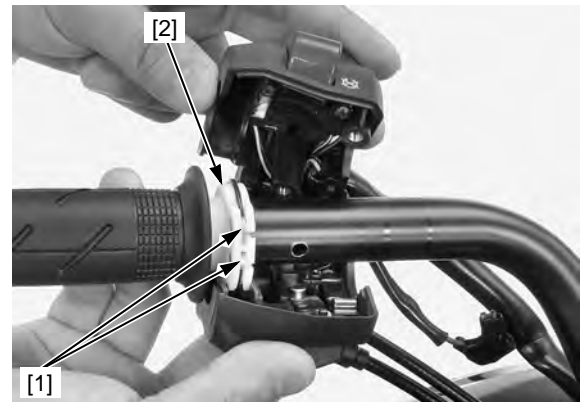
Keep the brake master cylinder upright to prevent air from entering the hydraulic system.



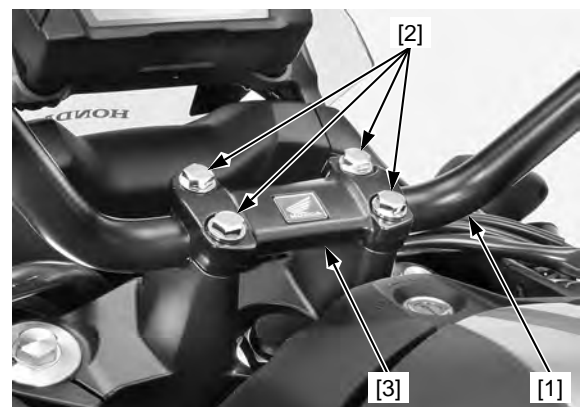
Remove the screws [1].
Separate the right handlebar switch housing [2].



Disconnect the throttle cables [1] from the throttle pipe [2], then remove the throttle pipe.



Hold the handlebar [1] and remove the bolts [2] and holder [3].



FRONT WHEEL/SUSPENSION/STEERING

INSTALLATION (NC700X/XA/S/SA)

NOTE:

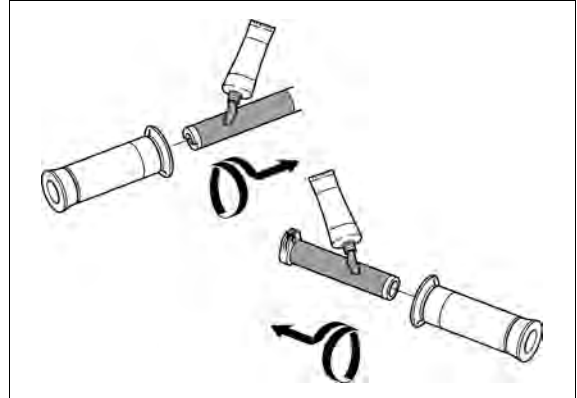
Route the wires, hoses and cables properly (page 1-25).

Clean the inside surface of the handlebar grip and outside surface of the handlebar and throttle pipe.

Apply Honda Bond A, Cemedine #540 or equivalent to the inside surface of the grips and to the clean surface of the left handlebar and throttle pipe.

Allow the adhesive to dry for 1 hour before using.

Wait 3 – 5 minutes and install the grip. Rotate the grips for even application of the adhesive.



Install the handlebar [1] onto the top bridge.

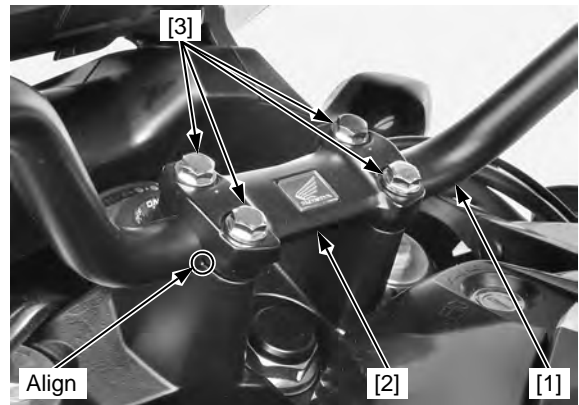
NOTE:

Align the handlebar punch mark with the top bridge top surface.

Hold the handlebar and install the holder [2] and handlebar holder bolts [3] as shown.

Tighten the upper bolts first, then the lower bolts to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



Apply grease to the throttle cable end and throttle pipe flange groove.

Install the throttle pipe [1] to the handlebar.

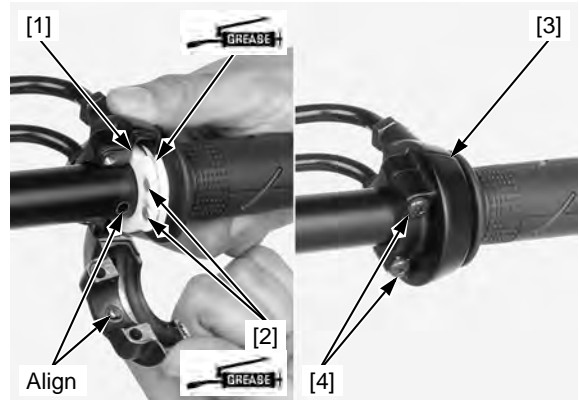
Connect the throttle cable [2] end to the throttle pipe.

Install the throttle housing [3] and screws [4].

NOTE:

Align throttle housing locating pin with the handlebar hole.

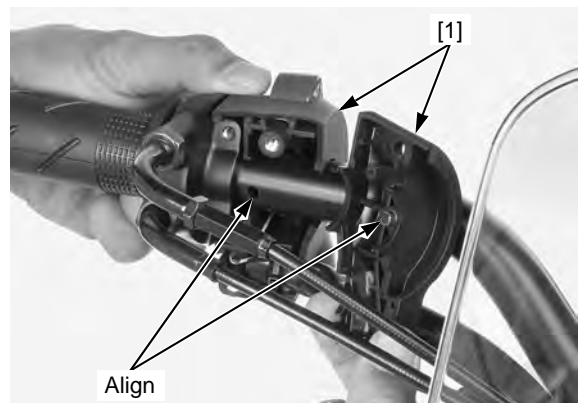
Tighten the screws securely.



Install the right handlebar switch housing [1].

NOTE:

Align the switch housing locating pin with the handlebar hole.



Install the screws [1] and tighten the upper screw first, then tighten the lower screw to the specified torque.

TORQUE: 2.5 N-m (0.3 kgf-m, 1.8 lbf-ft)

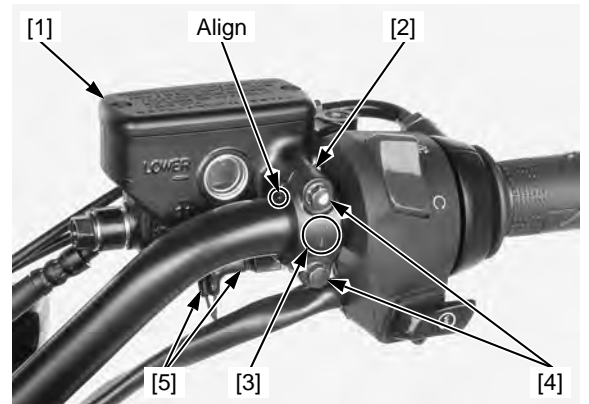


Install the master cylinder [1], holder [2] ("UP" mark [3] facing up) and bolts [4].

Align the end of the master cylinder with the punch mark on the handlebar and tighten the upper bolt first, then the lower bolt to the specified torque.

TORQUE: 12 N-m (1.2 kgf-m, 9 lbf-ft)

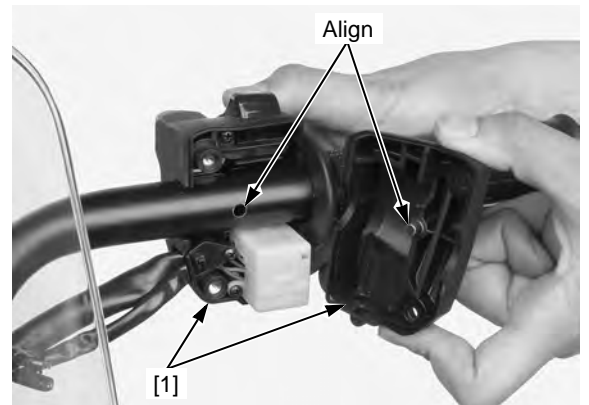
Connect the brake light switch connectors [5].



Install the left handlebar switch housing [1].

NOTE:

Align the switch housing locating pin with the handlebar hole.



Install the screws [1] and tighten the upper screw first, then tighten the lower screw to the specified torque.

TORQUE: 2.5 N-m (0.3 kgf-m, 1.8 lbf-ft)

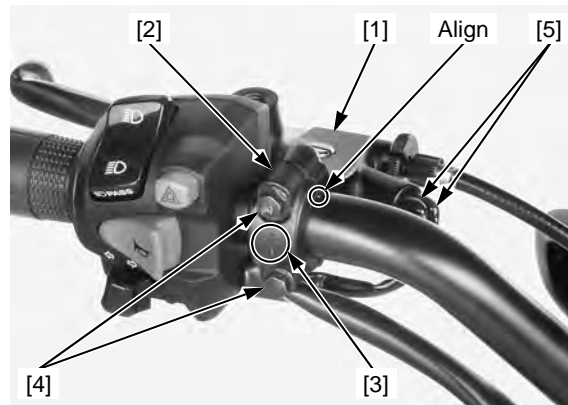


FRONT WHEEL/SUSPENSION/STEERING

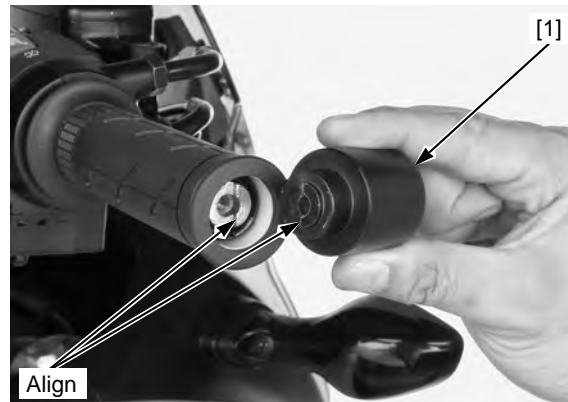
Install the clutch lever bracket [1], holder [2] ("UP" mark [3] facing up) and bolts [4].

Align the end of the clutch lever bracket with the punch mark on the handlebar, and tighten the upper bolt first, then the lower bolt.

Connect the clutch switch connectors [5].



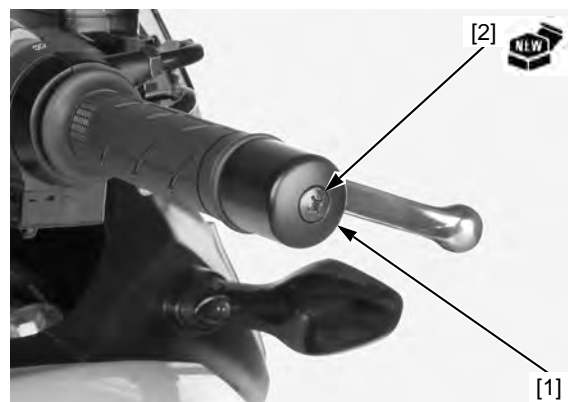
Install the handlebar weight [1] to both handlebars aligning each cutout.



Hold the handlebar weight [1].

Install and tighten a new handlebar weight mounting screw [2] to the specified torque.

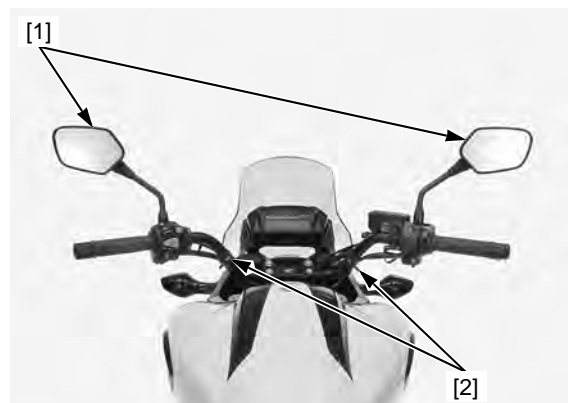
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Install the rearview mirrors [1] and wire bands [2].

Adjust the following:

- Clutch lever freeplay (page 3-26)
- Throttle grip freeplay (page 3-5)



INSTALLATION (NC700XD/SD)

NOTE:

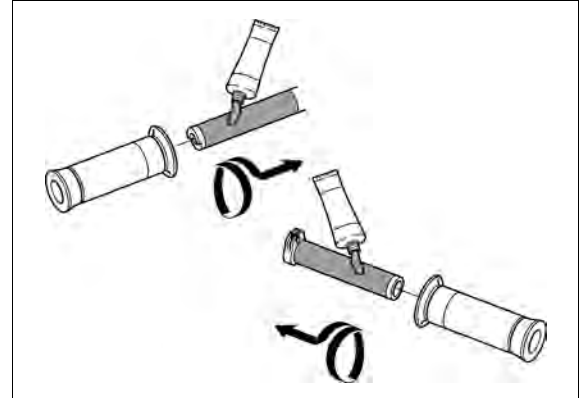
Route the wires, hoses and cables properly (page 1-25).

Clean the inside surface of the handlebar grip and outside surface of the handlebar and throttle pipe.

Apply Honda Bond A, Cemedine #540 or equivalent to the inside surface of the grips and to the clean surface of the left handlebar and throttle pipe.

Allow the adhesive to dry for 1 hour before using.

Wait 3 – 5 minutes and install the grip. Rotate the grips for even application of the adhesive.



Install the handlebar [1] onto the top bridge.

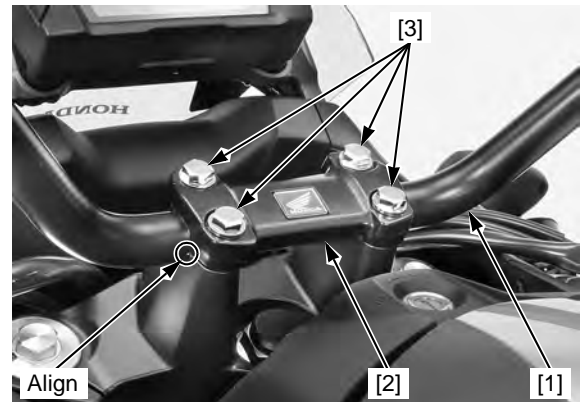
NOTE:

Align the handlebar punch mark with the top bridge top surface.

Hold the handlebar and install the holder [2] and handlebar holder bolts [3] as shown.

Tighten the upper bolts first, then the lower bolts to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



Apply grease to the throttle cable end and throttle pipe flange groove.

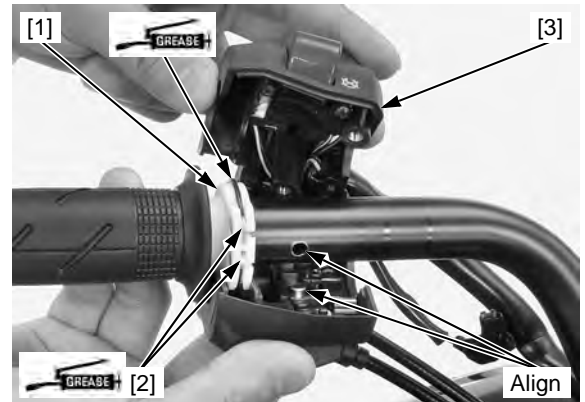
Install the throttle pipe [1] to the handlebar.

Connect the throttle cable [2] end to the throttle pipe.

Install the right handlebar switch housing [3].

NOTE:

Align the switch housing locating pin with the handlebar hole.



Install the screws [1] and tighten the upper screw first, then tighten the lower screw to the specified torque.

TORQUE: 2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



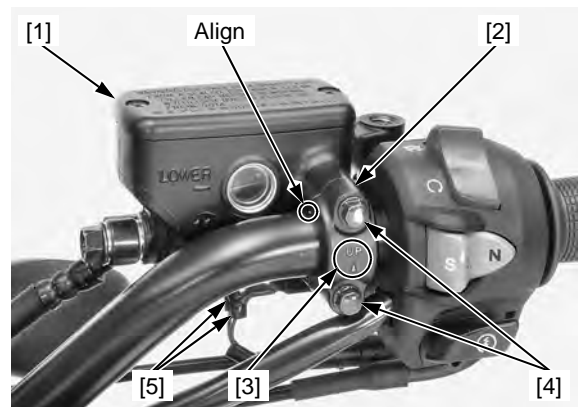
FRONT WHEEL/SUSPENSION/STEERING

Install the master cylinder [1], holder [2] ("UP" mark [3] facing up) and bolts [4].

Align the end of the master cylinder with the punch mark on the handlebar and tighten the upper bolt first, then the lower bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the brake light switch connectors [5].



Install the left handlebar switch housing [1].

NOTE:

Align the switch housing locating pin with the handlebar hole.



Install the screws [1] and tighten the upper screw first, then tighten the lower screw to the specified torque.

TORQUE: 2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



Install the parking brake lever bracket [1].

NOTE:

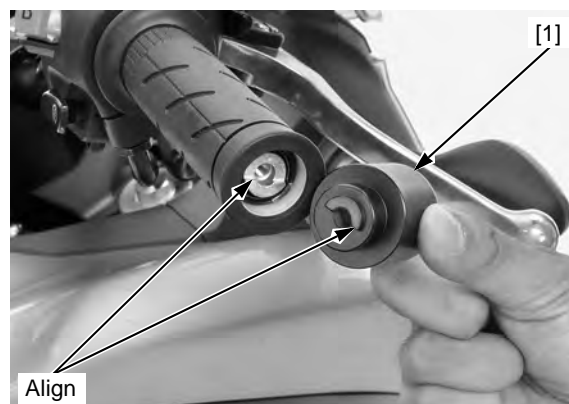
Align the parking brake lever bracket locating pin with the handlebar hole.



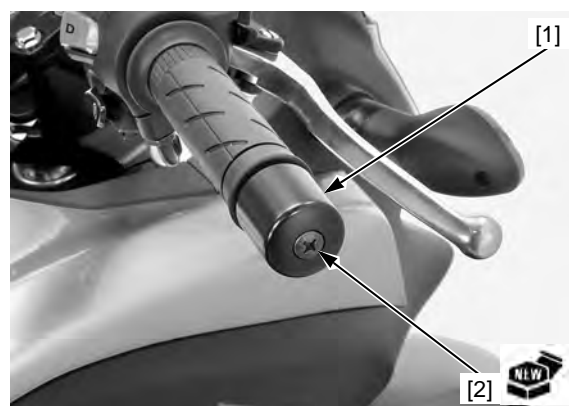
Install the holder [1] and socket bolts [2].
Tighten the socket bolts securely.
Connect the parking brake switch connectors [3].



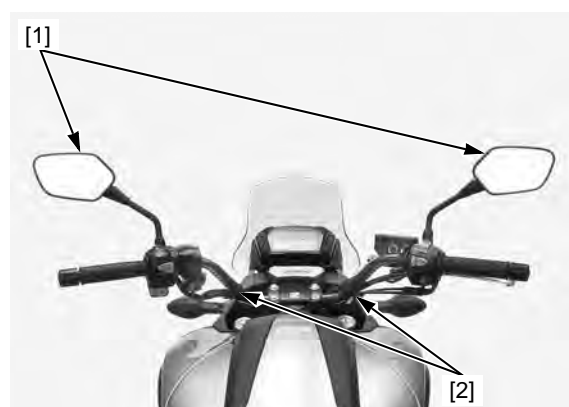
Install the handlebar weight [1] to both handlebars aligning each cutout.



Hold the handlebar weight [1].
Install and tighten a new handlebar weight mounting screw [2] to the specified torque.
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Install the rearview mirrors [1] and wire bands [2].
Adjust the throttle grip freeplay (page 3-5).
Check the parking brake lock operation (page 3-24).



FRONT WHEEL/SUSPENSION/STEERING

INNER WEIGHT REPLACEMENT

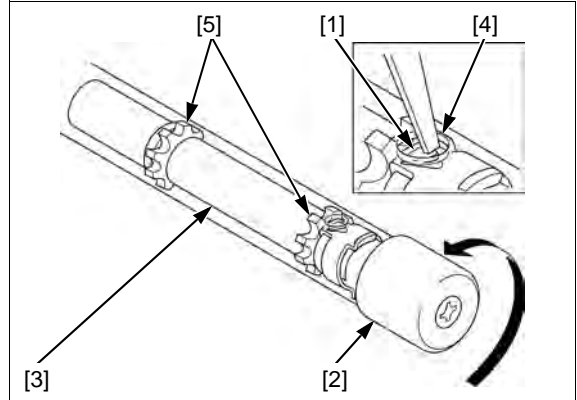
Remove the throttle pipe or grip rubber from the handlebar.

- NC700X/XA/S/SA (page 17-10)
- NC700XD/SD (page 17-12)

Straighten the retainer ring tab [1] by the screwdriver or punch.

Apply lubricant spray through the tab locking hole [4] to the rubber cushions [5] for easy removal.

Temporarily install the handlebar weight [2] and screw, then remove the inner weight assembly [3] by turning the handlebar weight.

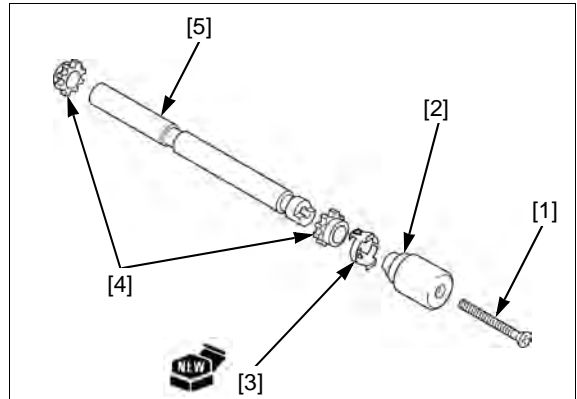


Remove the screw [1], handlebar weight [2], retainer ring [3] and rubber cushions [4] from the inner weight [5].

Install the rubber cushions and new retainer ring onto the inner weight.

Install the handlebar weight to the inner weight align with each cut-outs of the inner weight and handlebar weight.

Install and tighten the handlebar weight screw.

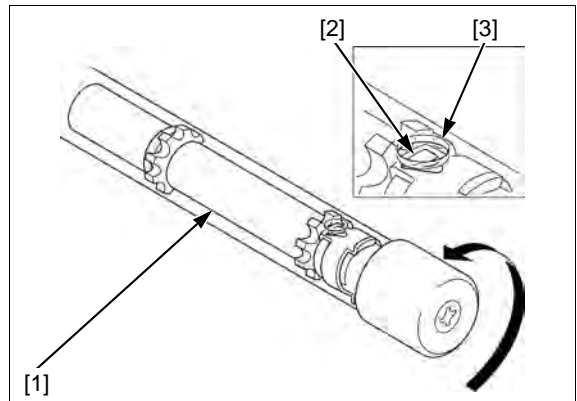


Install the inner weight assembly [1] into the handlebar. Turn the inner weight and hook the weight retainer tab [2] with the tab locking hole [3] in the handlebar.

Remove the screw and handlebar weight.

Install the throttle pipe and grip rubber to the handlebar.

- NC700X/XA/S/SA (page 17-14)
- NC700XD/SD (page 17-17)



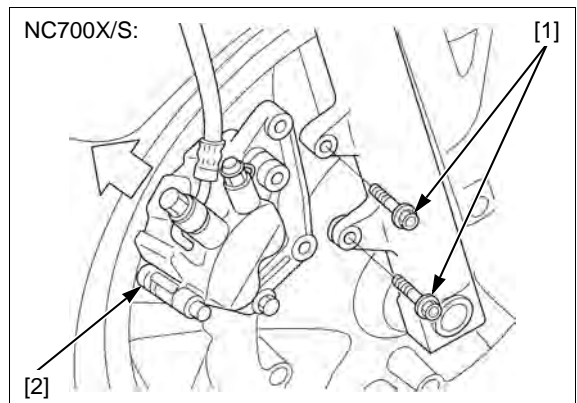
FRONT WHEEL

REMOVAL

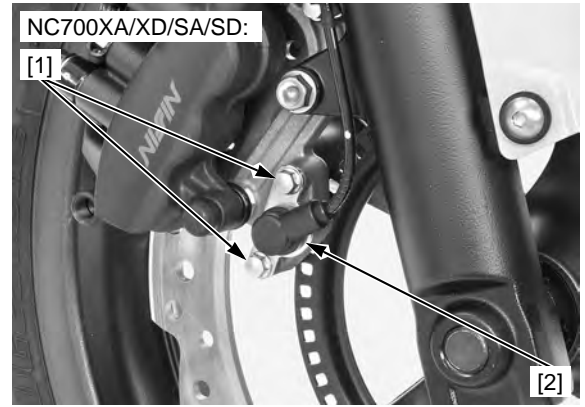
NC700X/S: Remove the front brake caliper mounting bolts [1] and slide the brake caliper/bracket assembly [2].

NOTE:

Do not suspend the brake caliper/bracket assembly from the brake hose. Do not twist the brake hose.



NC700XA/XD/SA/
SD: Remove the brake pads (page 19-17).
Remove the bolts [1] and front wheel speed sensor [2] from the caliper bracket.
Check that there is no iron or other magnetic deposits between the pulser ring and front wheel speed sensor. Remove any deposits.
Check the sensor tip for deformation or damage (e.g., chipped pulser ring teeth).
Replace the front wheel speed sensor if necessary (page 20-25).



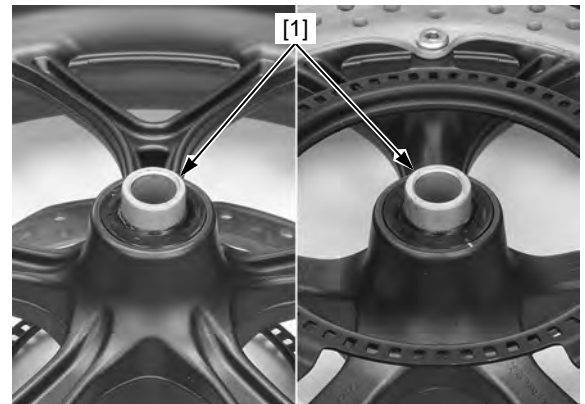
Loosen the front axle pinch bolt [1] and front axle [2].
Support the motorcycle using a safety stand or hoist, raise the front wheel off the ground.

Remove the front axle and front wheel.

NOTE:
Do not operate the brake lever after removing the front wheel.



Remove the side collars [1].



INSPECTION

WHEEL RIM

Check the wheel rim runout by placing the wheel in a truing stand.
Spin the wheel by hand and measure the runout using a dial indicator.

SERVICE LIMITS:

Radial: 2.0 mm (0.08 in)

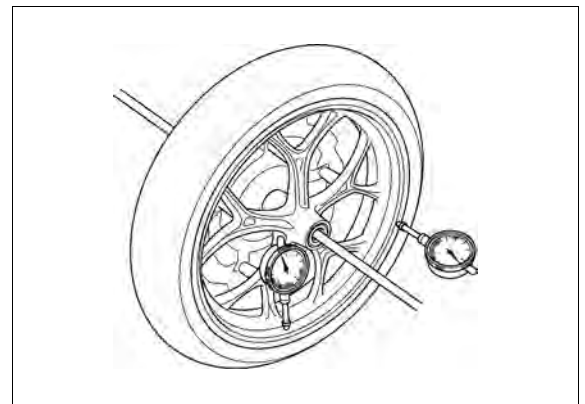
Axial: 2.0 mm (0.08 in)

AXLE

Place the axle on V-blocks.
Turn the axle and measure the runout using a dial indicator.

Actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.01 in)



FRONT WHEEL/SUSPENSION/STEERING

WHEEL BEARING

Turn the inner race of each bearing with your finger.

The bearings should turn smoothly and quietly.

Also check that the outer race fits tightly in the wheel hub.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the wheel hub.

Replace the wheel bearings, if necessary (page 17-22).

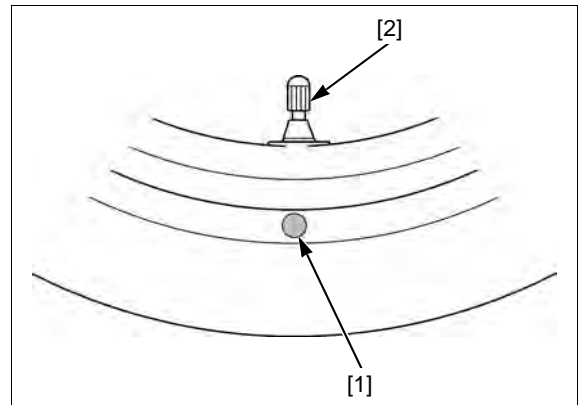
NOTE:

Replace the bearings in pairs.

WHEEL BALANCE

NOTE:

- Carefully check balance before installing the wheel.
- The wheel balance must be checked when the tire is remounted.
- For optimum balance, the tire balance mark [1] (light mass point: a paint dot on the side wall) must be located next to the valve stem [2]. Remount the tire if necessary.



Note the rotating direction marks [1] on the tire, and upon tire installation, always fit the tire so the marks face the same direction.

Mount the wheel, tire and brake disc assembly on an inspection stand.

Spin the wheel, allow it to stop, and mark the lowest (heaviest) part of the wheel with chalk.

Do this 2 or 3 times to verify the heaviest area.

If the wheel is balanced, it will not stop consistently in the same position.

To balance the wheel, install a new balance weight on the lightest side of the rim, on the side opposite the chalk marks. Add just enough weight so the wheel will no longer stop in the same position when it is spun.

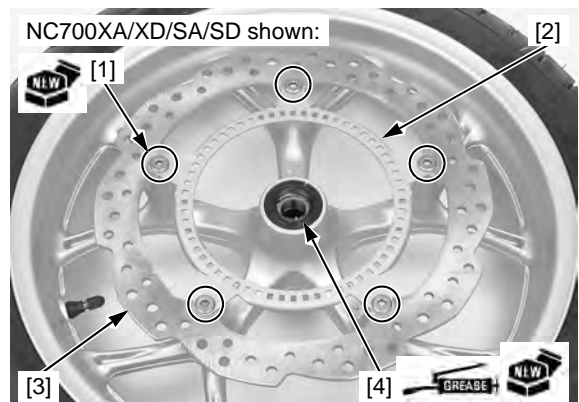
Do not add more than 60 g (2.1 oz) to the wheel.



DISASSEMBLY/ASSEMBLY

Loosen the front brake disc mounting bolts [1] in a crisscross pattern in 2 or 3 steps, and remove the bolts, pulser ring (NC700XA/XD/SA/SD) [2] and brake disc [3].

Remove the front wheel dust seal [4] from the right wheel hub.



Remove the front wheel dust seal [1] from the left wheel hub.



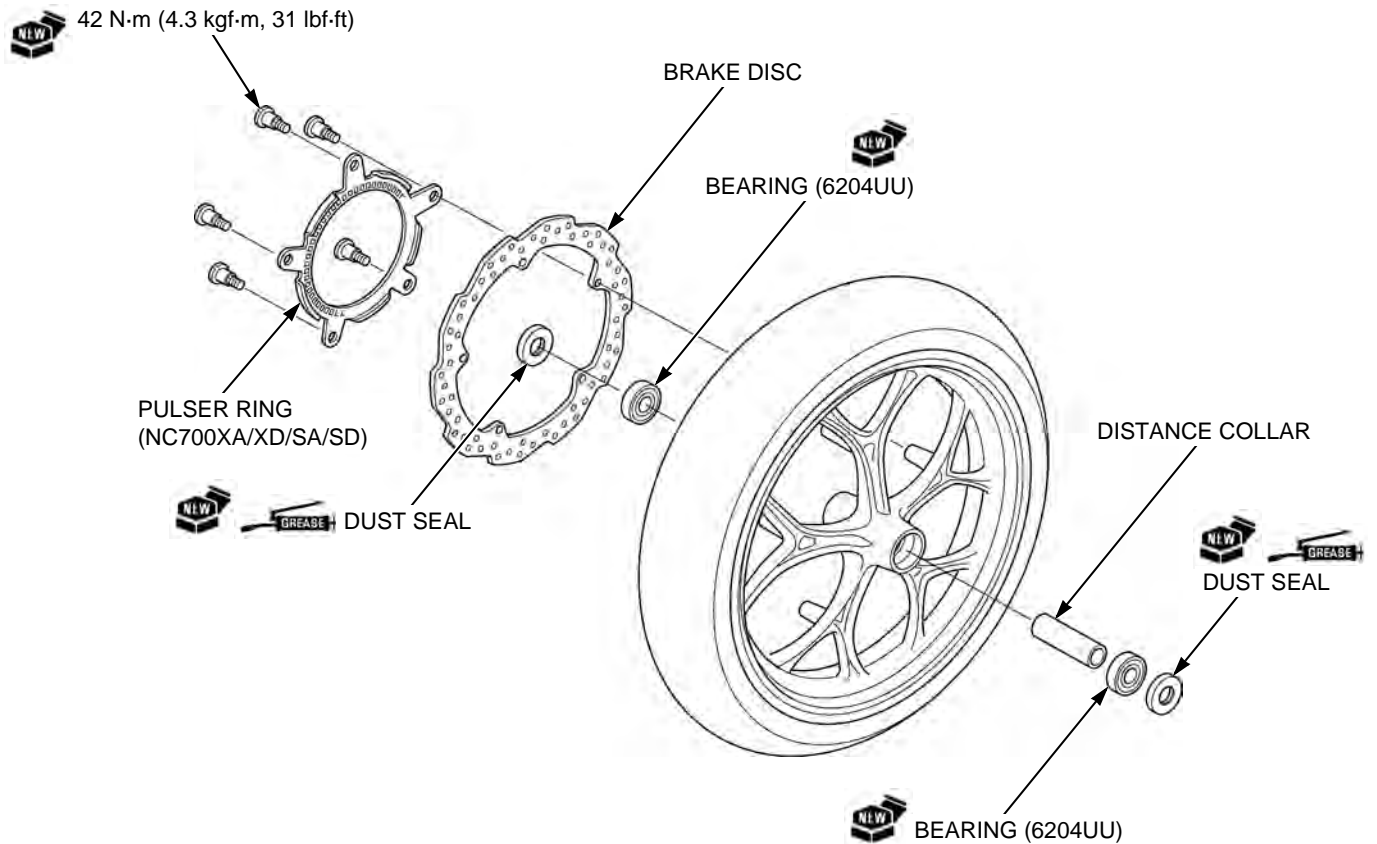
Assembly is in the reverse order of disassembly.

NOTE:

- Replace the front wheel dust seals and front brake disc mounting bolts with new ones.
- Apply grease to the front wheel dust seal lips.
- Install the front wheel dust seal until it is flush with the wheel hub surface.
- Install the front brake disc with the "⇔" marked side facing out.

TORQUE:

**Front brake disc mounting bolt:
42 N·m (4.3 kgf·m, 31 lbf·ft)**



FRONT WHEEL/SUSPENSION/STEERING

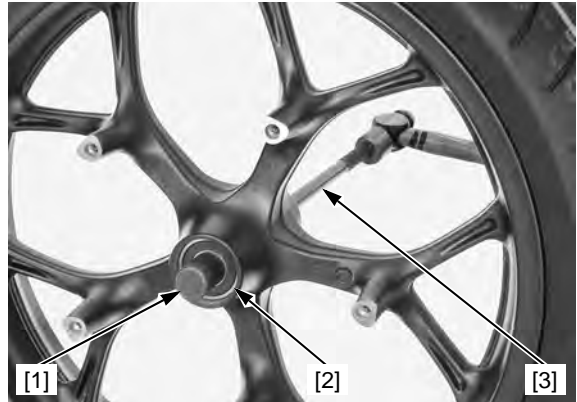
WHEEL BEARING REPLACEMENT

Install the bearing remover head [1] into the bearing [2]. From the opposite side, install the bearing remover shaft [3] and drive out the bearing from the wheel hub.

Remove the distance collar and drive out the other bearing.

TOOLS:

Bearing remover head, 20 mm 07746-0050600
Bearing remover shaft 07GGD-0010100



Never install the old bearing, once the bearing has been removed, the bearing must be replaced with new ones.

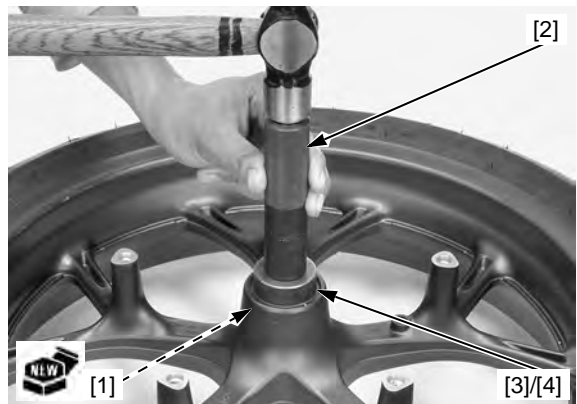
Drive in a new right side bearing [1] squarely with its marked side facing up until it is fully seated.

Install the distance collar.

Drive in a new left side bearing squarely with its marked side facing up until it is seated on the distance collar.

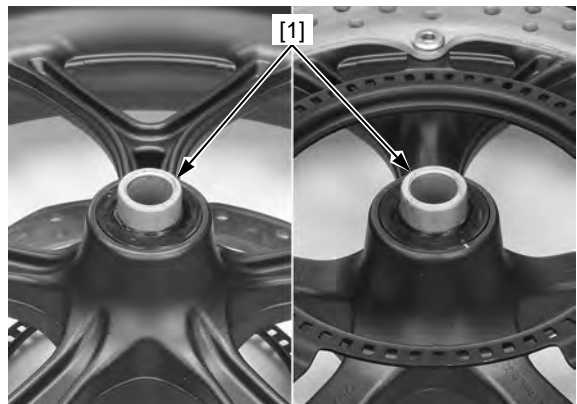
TOOLS:

Driver [2] 07749-0010000
Attachment, 42 x 47 mm [3] 07746-0010300
Pilot, 20 mm [4] 07746-0040500



INSTALLATION

Install the side collars [1].



Install the front wheel between the fork legs.

Apply a thin coat of grease to the front axle sliding surface.

Install the front axle [1] from left side.

Tighten the front axle to the specified torque.

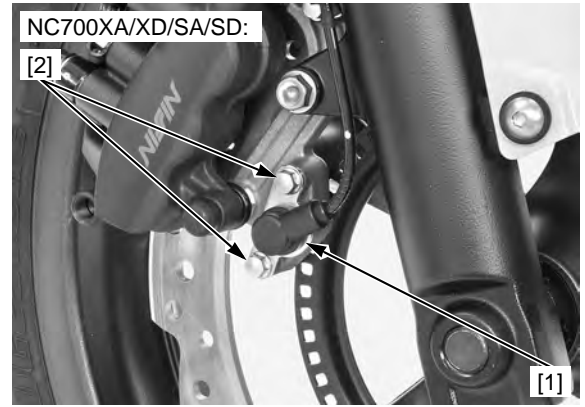
TORQUE: 74 N·m (7.5 kgf·m, 55 lbf·ft)



NC700XA/XD/SA/SD: Install the front wheel speed sensor [1] and bolts [2]. Tighten the bolts securely.

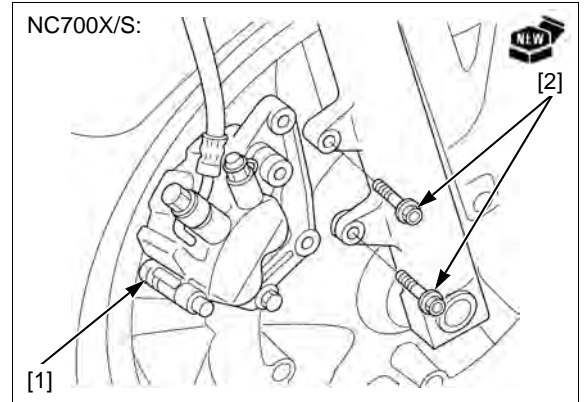
Check the air gap between the front wheel speed sensor and pulser ring (page 20-24).

Install the brake pads (page 19-17).



NC700X/S: Install the front brake caliper/bracket assembly [1] and tighten new brake caliper mounting bolts [2] to the specified torque.

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)



With the front brake applied, pump the forks up and down several times to seat the axle and check brake operation.

Tighten the front axle pinch bolt [1] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



FORK

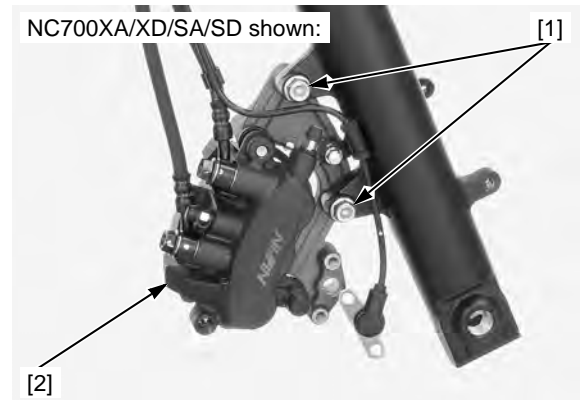
REMOVAL

Remove the following:

- Front wheel (page 17-20)
- Front fender (page 2-28)

Do not suspend the brake caliper/bracket assembly from the brake hose. Do not twist the brake hose.

Remove the brake caliper mounting bolts [1] and brake caliper/bracket assembly [2].

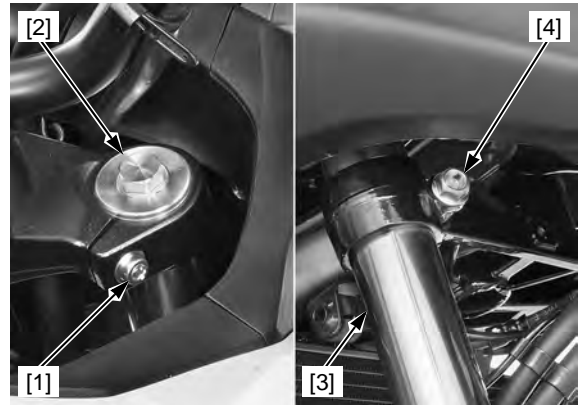


FRONT WHEEL/SUSPENSION/STEERING

Loosen the top bridge pinch bolts [1].

When the fork is ready to be disassembled, loosen the fork cap [2].

Hold the fork legs [3] and loosen the bottom bridge pinch bolts [4] and lower the fork legs, then remove it.



DISASSEMBLY

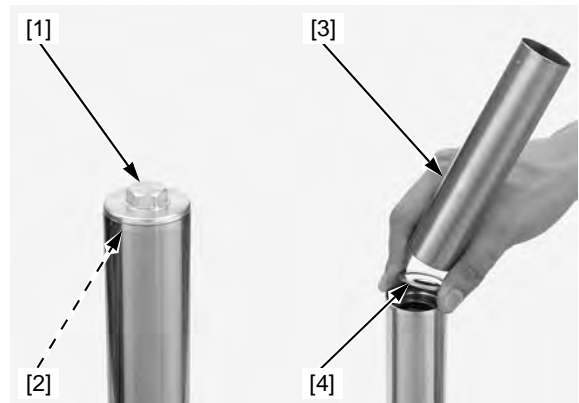
Be careful not to scratch the fork pipe.

Remove the dust seal [1] and stopper ring [2].



Remove the following:

- Fork cap [1]
- O-ring [2]
- Spring collar [3]
- Spring seat [4]



Remove the fork spring [1].

Drain the fork fluid by pumping the fork pipe several times.



FRONT WHEEL/SUSPENSION/STEERING

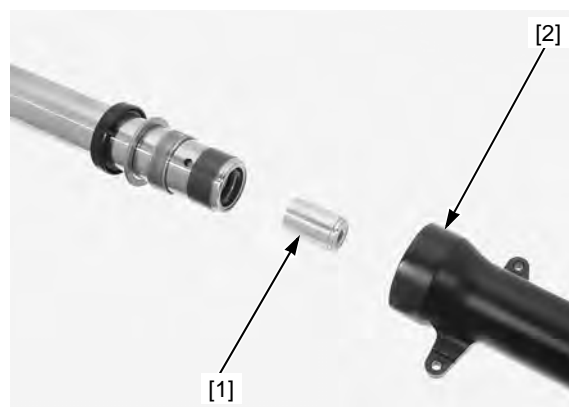
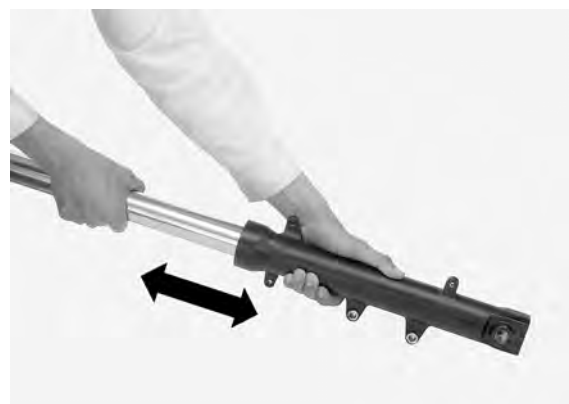
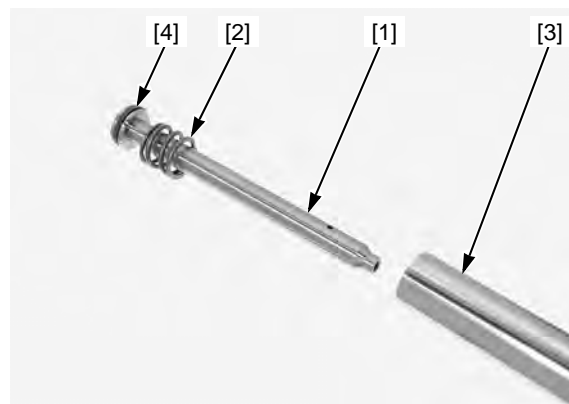
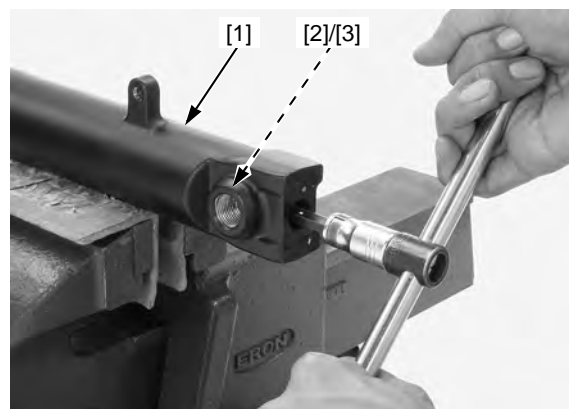
Do not over-tighten the vise on the fork slider. Set the fork slider [1] in a vise with a piece of wood or soft jaws to avoid damage.

If the fork piston turns with the socket bolt, temporarily install the fork spring, spring seat, spring collar and fork cap. Remove the fork socket bolt [2] and sealing washer [3].

Do not remove the fork piston ring [4], unless it is necessary to replace with a new one. Remove the fork piston [1] and rebound spring [2] from the fork pipe [3].

Using quick successive motions, pull the fork pipe out of the fork slider.

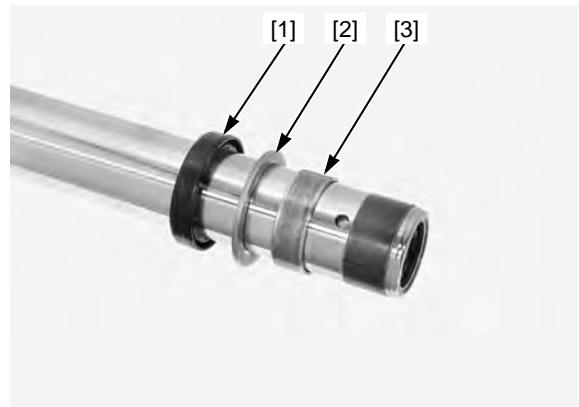
Remove the oil lock piece [1] from the fork slider [2].



FRONT WHEEL/SUSPENSION/STEERING

Remove the following:

- Oil seal [1]
- Back-up ring [2]
- Guide bushing [3]



INSPECTION

FORK SPRING

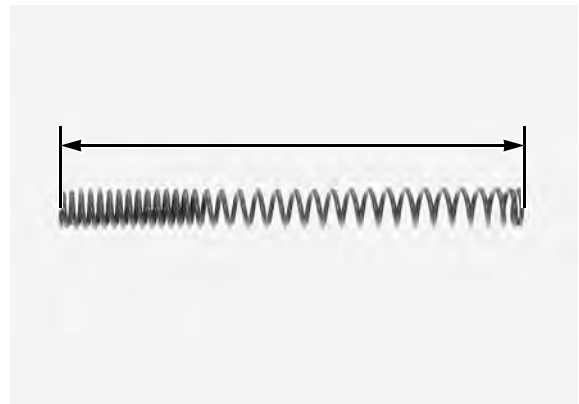
Check the fork spring for fatigue or damage.

Measure the fork spring free length.

SERVICE LIMITS:

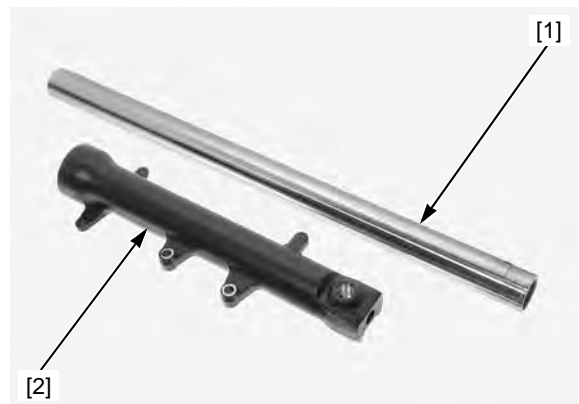
NC700X/XA/XD: 387.0 mm (15.24 in)

NC700S/SA/SD: 349.9 mm (13.78 in)



FORK PIPE/SLIDER

Check the fork pipe [1] and slider [2] for score marks, scratches, or excessive or abnormal wear.

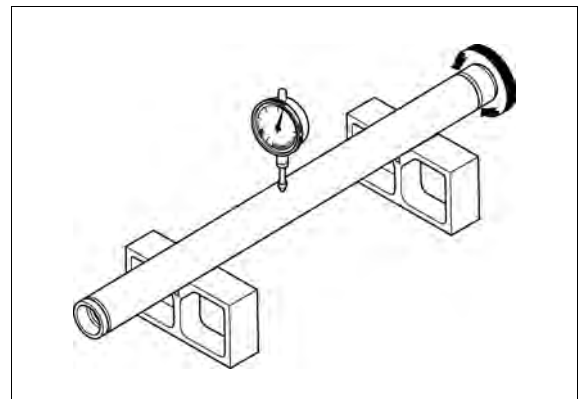


Place the fork pipe on V-blocks.

Turn the fork pipe and measure the runout using a dial indicator.

Actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.20 mm (0.008 in)

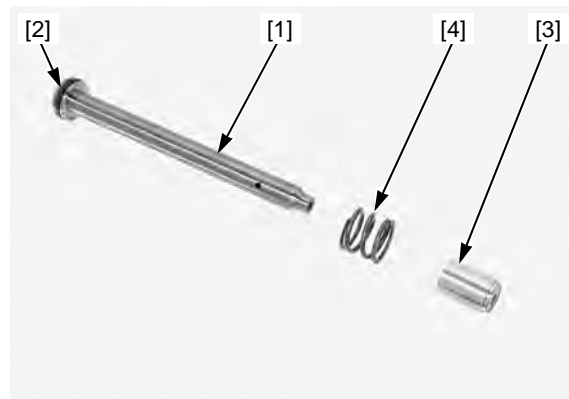


FORK PISTON/REBOUND SPRING/OIL LOCK PIECE

Check the fork piston [1], piston ring [2] and oil lock piece [3] for wear or damage.

Check the rebound spring [4] for fatigue or damage.

Replace any components that are worn or damaged.

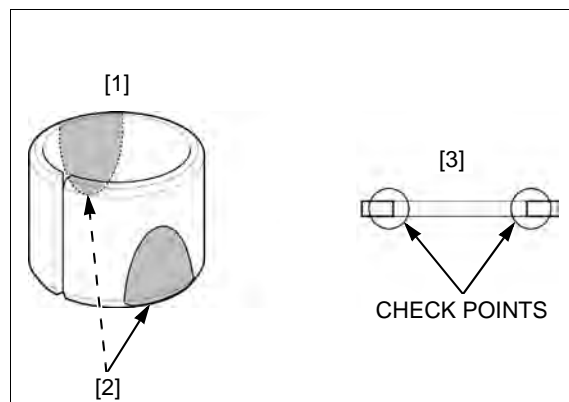


GUIDE BUSHING/SLIDER BUSHING/BACK-UP RING

Visually inspect the slider and guide bushings [1].

Replace the bushings if there is excessive scoring or scratching, or if the teflon is worn so the copper surface appears [2] on more than 3/4 of the entire surface.

Check the back-up ring [3]; replace it if there is any distortion at the points shown.

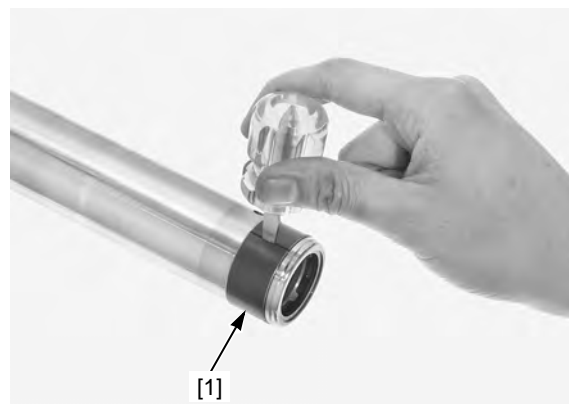


Do not damage the slider bushing, especially the sliding surface. To prevent loss of tension, do not open the bushing more than necessary.

If the slider bushing [1] will be removed, carefully remove the slider bushing by prying the bushing gap with a screwdriver until the bushing can be pulled off by hand.

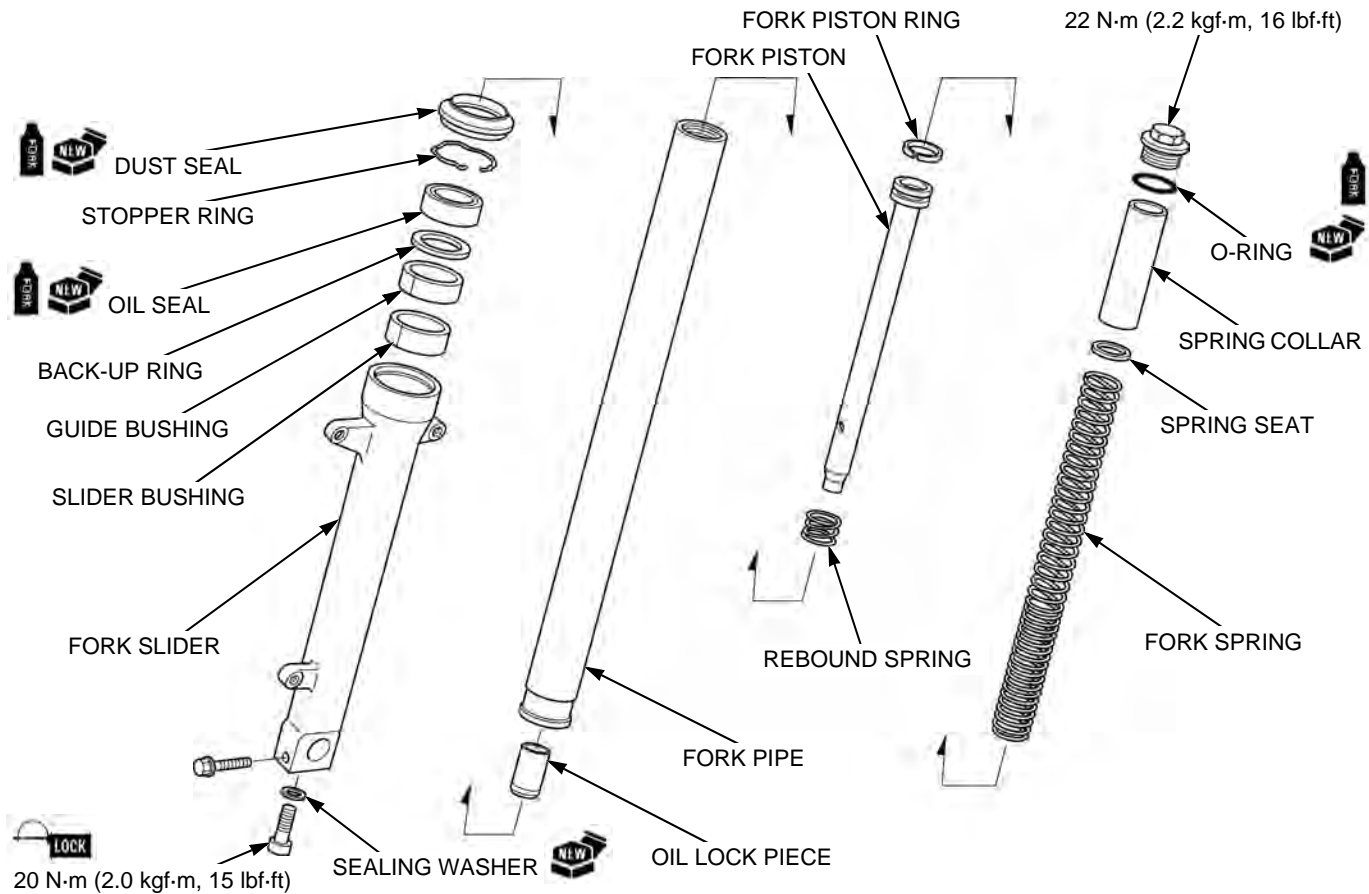
NOTE:

Do not remove the slider bushing, unless it is necessary to replace with a new one.



FRONT WHEEL/SUSPENSION/STEERING

ASSEMBLY



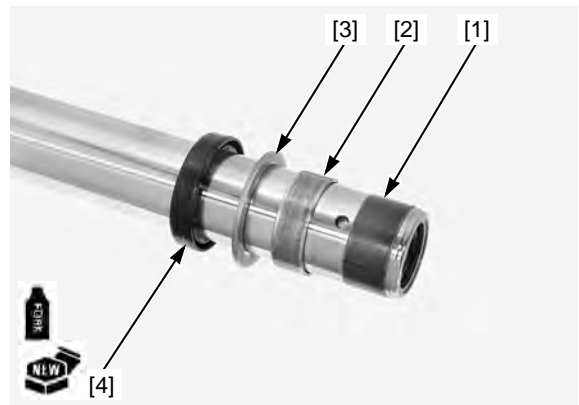
Do not open the bushing slit more than necessary.

Install the slider bushing [1] being careful not to damage the coating of the bushing, if it has been removed.

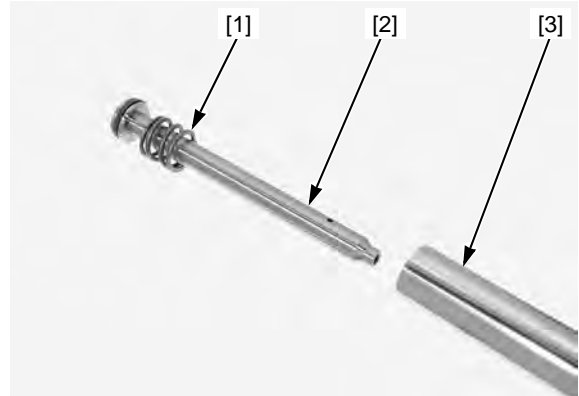
Remove the burrs from the bushing mating surface, being careful not to peel off the coating.

Install the oil seal with its marked side facing up.

Apply fork fluid to a new oil seal lips. Install the guide bushing [2], back-up ring [3] and oil seal [4] onto the fork pipe.

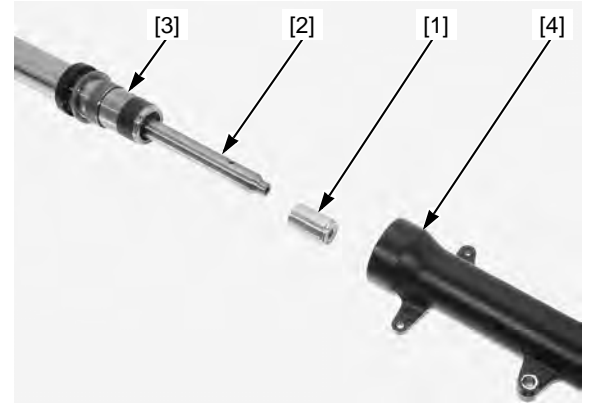


Install the rebound spring [1] to the fork piston [2] and install them into the fork pipe [3].



FRONT WHEEL/SUSPENSION/STEERING

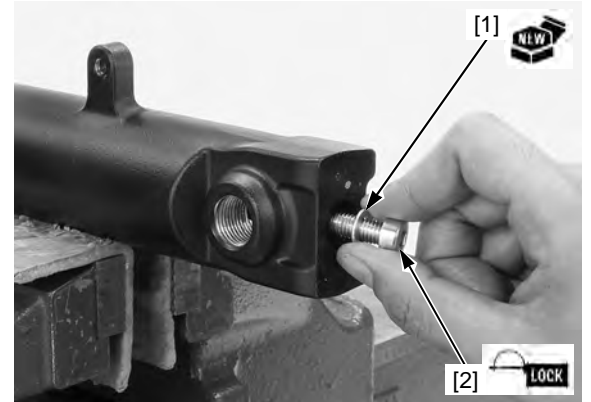
Install the oil lock piece [1] onto the fork piston [2] end.
Install the fork pipe [3] into the fork slider [4].



Do not over-tighten the vise on the fork slider.

Set the fork slider in a vise with a piece of wood or soft jaws to avoid damage.

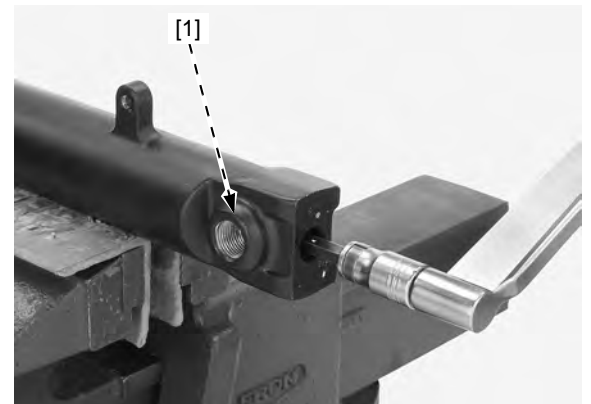
Install a new sealing washer [1] to the fork socket bolt [2].
Apply locking agent to the fork socket bolt threads and install it.



If the fork piston turns with the socket bolt, temporarily install the fork spring, spring seat, spring collar and fork cap.

Tighten the fork socket bolt [1] to the specified torque.

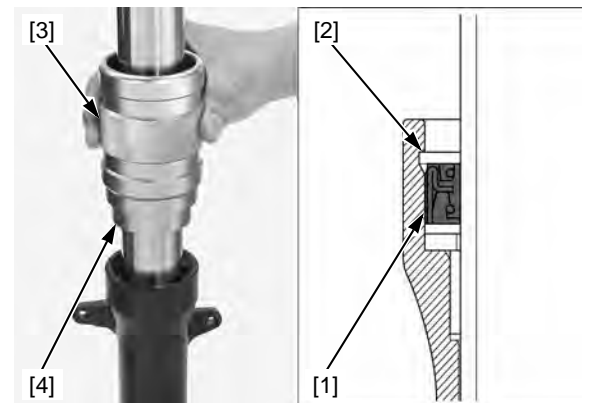
TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



Drive the oil seal [1] until the stopper ring groove [2] is visible using the special tools.

TOOLS:

Fork seal driver [3] 07947-KA50100
Fork seal driver attachment [4] 07947-KF00100

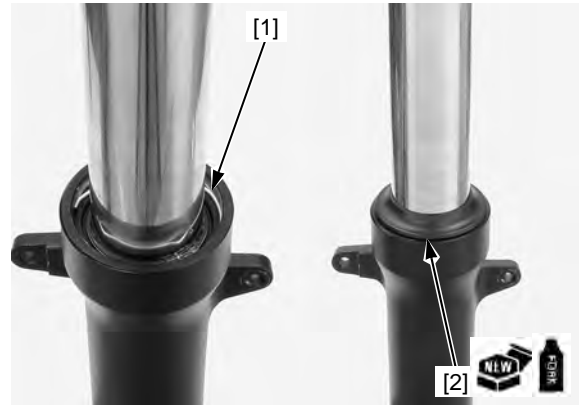


FRONT WHEEL/SUSPENSION/STEERING

Install the stopper ring [1] into the groove of the fork slider securely.

Apply fork fluid to a new dust seal lips.

Install the dust seal [2].



Pour the specified amount of recommended fork fluid into the fork pipe.

RECOMMENDED FORK FLUID:

Honda ULTRA CUSHION OIL 10W or equivalent

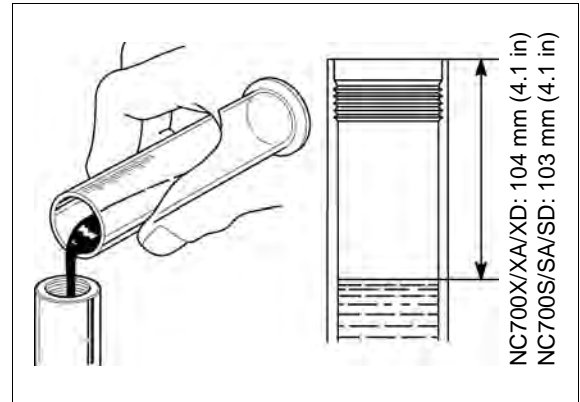
FORK FLUID CAPACITY:

NC700X/XA/XD: 514 ± 2.5 cm³ (17.4 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)

NC700S/SA/SD: 518 ± 2.5 cm³ (17.5 ± 0.08 US oz, 18.1 ± 0.09 Imp oz)

Slowly pump the fork pipe several times to remove any trapped air from the lower portion of the fork pipe.

Compress the fork pipe fully and measure the fluid level from the top of the fork pipe.



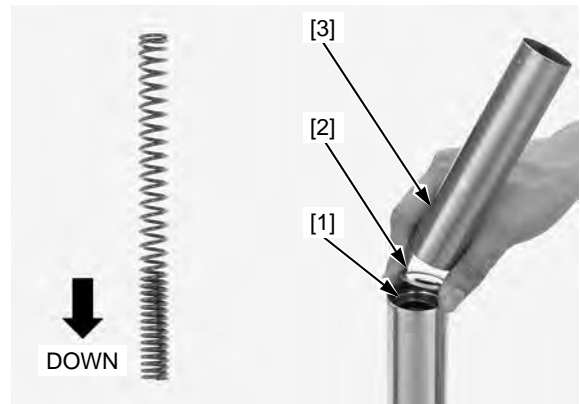
FLUID LEVEL:

NC700X/XA/XD: 104 mm (4.1 in)

NC700S/SA/SD: 103 mm (4.1 in)

Pull the fork pipe up and install the fork spring [1] with the tightly wound coil side facing down.

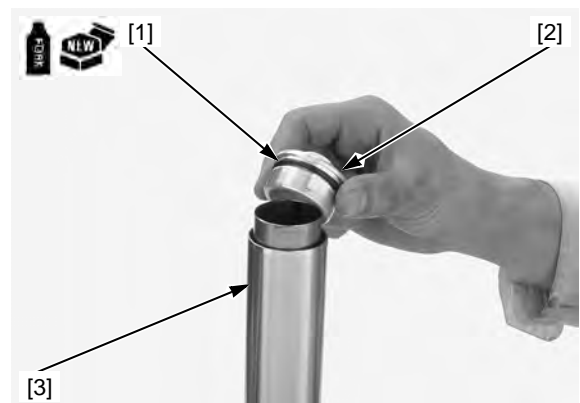
Install the spring seat [2] and spring collar [3].



Apply fork fluid to a new O-ring [1] and install it onto the fork cap [2].

Tighten the fork cap after installing the fork pipe into the fork bridges.

Loosely install the fork cap by pushing it to the fork pipe [3].



INSTALLATION

Route the wires and cables properly (page 1-25).

Install the fork leg through the bottom bridge and top bridge while aligning top surface of fork pipe with the top surface of top bridge.

Tighten the bottom bridge pinch bolts [1] to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

If the fork cap [2] is loosened, tighten the fork cap to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Tighten the top bridge pinch bolts [3] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)



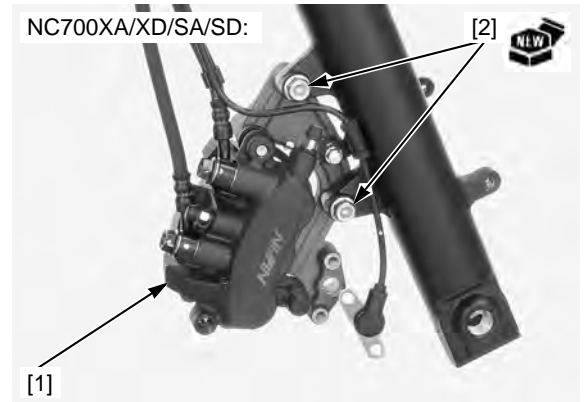
NC700XA/XD/SA/SD:

Install the front brake caliper/bracket assembly [1] and tighten new brake caliper mounting bolts [2] to the specified torque.

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

Install the following:

- Front fender (page 2-28)
- Front wheel (page 17-24)



STEERING STEM

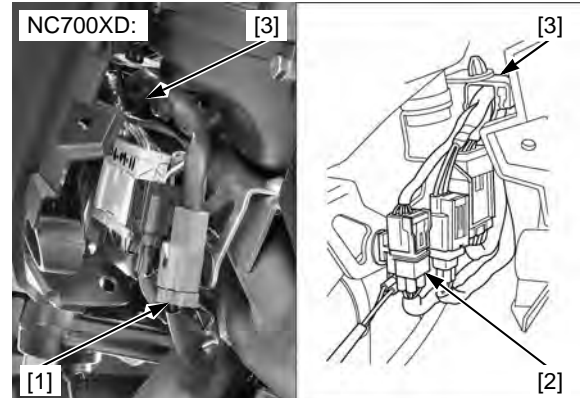
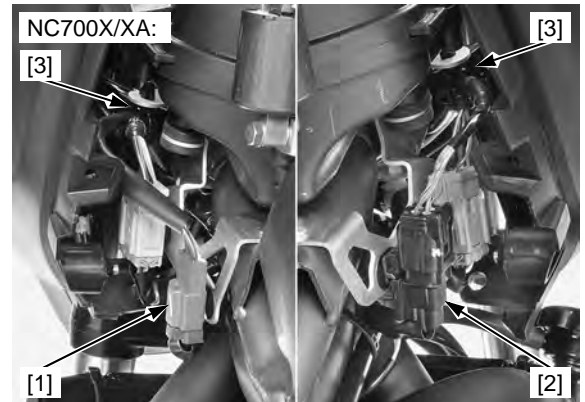
REMOVAL

NC700X/XA/XD: Remove the following:

- Shroud/side cover (page 2-14)
- Handlebar
 - NC700X/XA (page 17-10)
 - NC700XD (page 17-12)

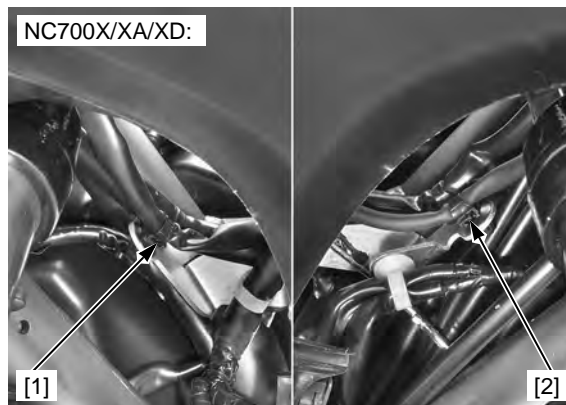
Disconnect the ignition switch 2P (Brown) connector [1] and immobilizer receiver 4P (Black) connector [2].

Release the each wire harness from the clamps [3].

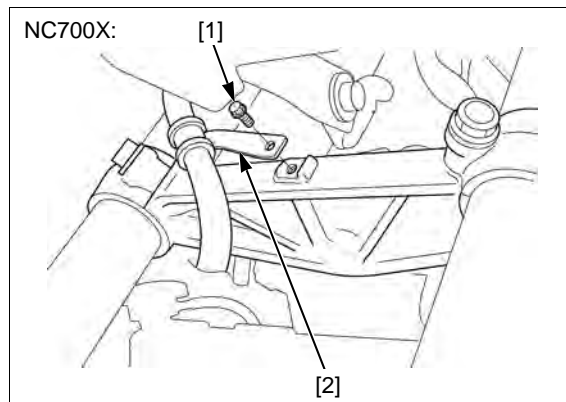


FRONT WHEEL/SUSPENSION/STEERING

NC700X/XA/XD: Remove the ignition switch wire harness clamp [1] and immobilizer receiver wire harness clamp [2].



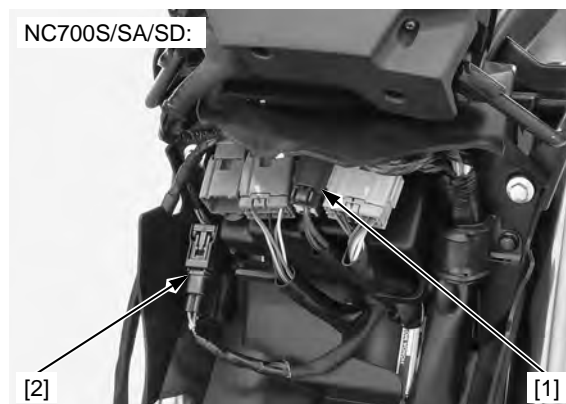
NC700X: Remove the bolt [1] and brake hose clamp [2] from the bottom bridge.



NC700S/SA/SD: Remove the following:

- Headlight/headlight stay (page 2-27)
- Handlebar
 - NC700S/SA (page 17-10)
 - NC700SD (page 17-12)

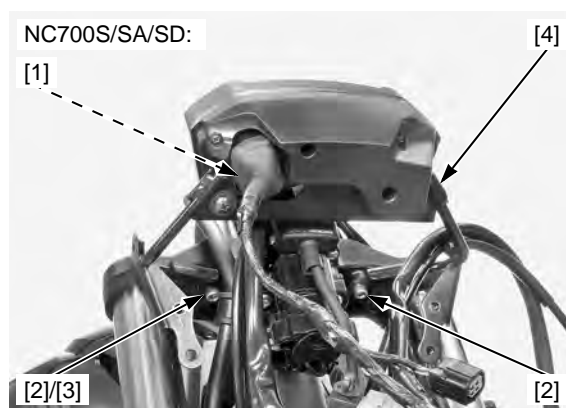
Disconnect the ignition switch 2P (Brown) connector [1] and immobilizer receiver 4P (Black) connector [2].



NC700S/SA/SD: Remove the headlight cover (page 2-27).

Disconnect the combination meter 16P (Gray) connector [1].

Remove the socket bolts [2], brake hose guide [3] and combination meter/stay [4].



Remove the cap.
Remove the steering stem nut [1].

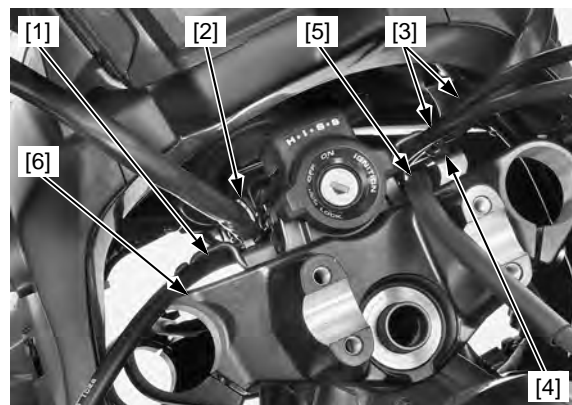


Remove the fork legs (page 17-25).

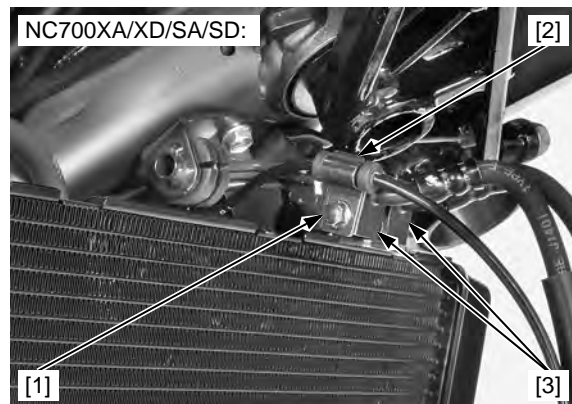
NC700X/XA/XD: Release the following:

- Clutch cable (NC700X/XA) [1]
- Parking brake cable (NC700XD) [1]
- Left handlebar switch wire harness clamp [2]
- Throttle cables [3]
- Right handlebar switch wire harness clamp [4]
- Brake hose [5]

Remove the top bridge [6].

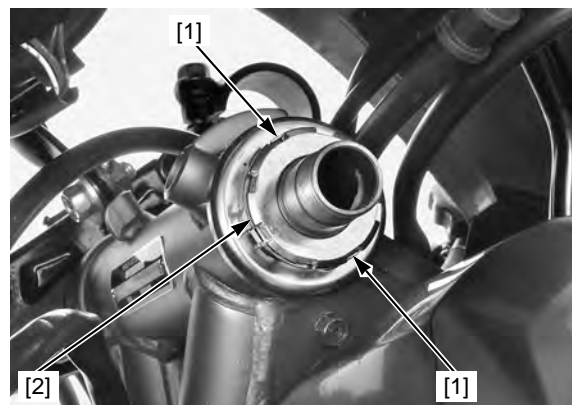


NC700XA/XD/SA/SD: Remove the bolt [1], front wheel speed sensor wire guide [2] and brake hose joints [3].



Straighten the lock washer tabs [1].

Remove the steering stem adjusting lock nut [2] and lock washer.



FRONT WHEEL/SUSPENSION/STEERING

Loosen the steering stem adjusting nut [1] using a special tool.

TOOL:

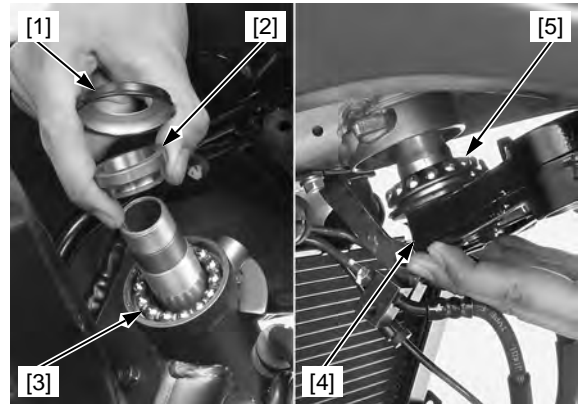
Steering stem socket [2] 07916-3710101

Hold the steering stem and remove the steering stem adjusting nut.



Remove the following:

- Dust seal [1]
- Upper bearing inner race [2]
- Upper steering head bearing [3]
- Steering stem [4]
- Lower steering head bearing [5]



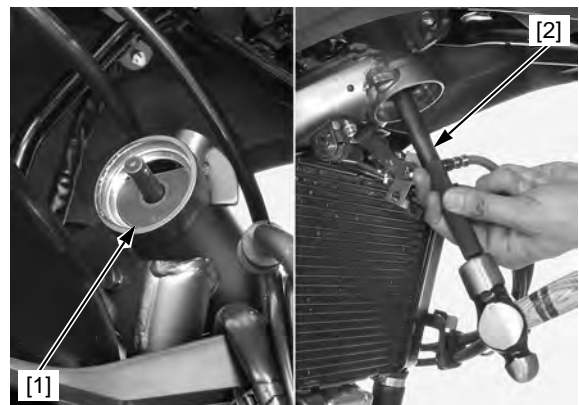
BEARING REPLACEMENT

Replace the bearing, outer and inner races as a set.

Remove the upper outer race using a special tool.

TOOLS:

Ball race remover set 07953-MJ10000
Remover attachment [1] 07953-MJ10100
Remover handle [2] 07953-MJ10200



Remove the lower bearing outer race using the special tool and suitable shaft.

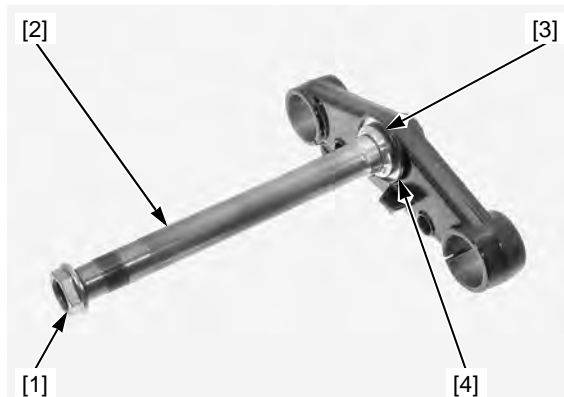
TOOL:

Bearing remover [1] 07946-3710500



Temporarily install the steering stem nut [1] onto the steering stem [2] to prevent the threads from being damaged when removing the lower inner race [3] from the steering stem.

Remove the lower inner race with a chisel or equivalent tools, being careful not to damage the steering stem. Remove the steering head bearing dust seal [4].



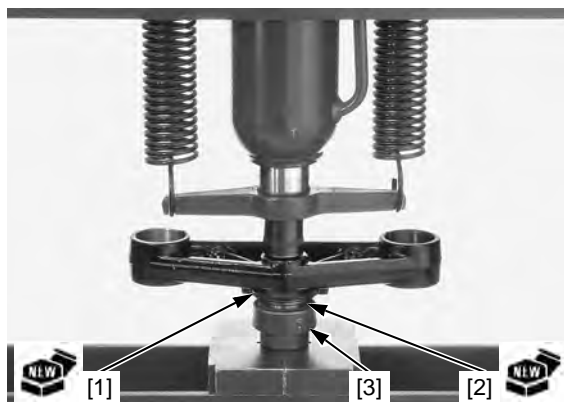
Apply specified grease to a new steering head bearing dust seal lips (page 1-23).

Install the steering head bearing dust seal [1] to the steering stem.

Install a new lower inner race [2] using a hydraulic press and special tool.

TOOL:

Attachment, 30 mm I.D. [3] 07746-0030300

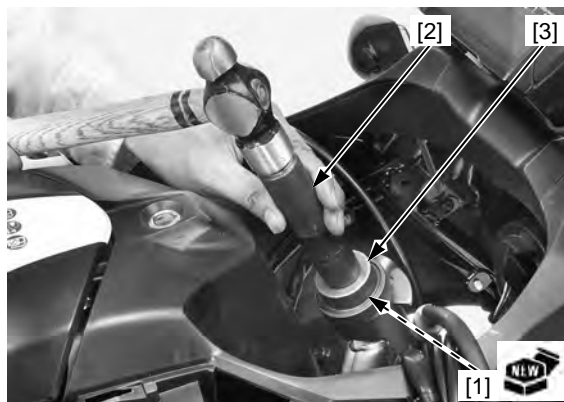


Drive in a new upper outer race [1] using the special tools.

TOOLS:

Driver [2] 07749-0010000

Attachment, 42 x 47 mm [3] 07746-0010300

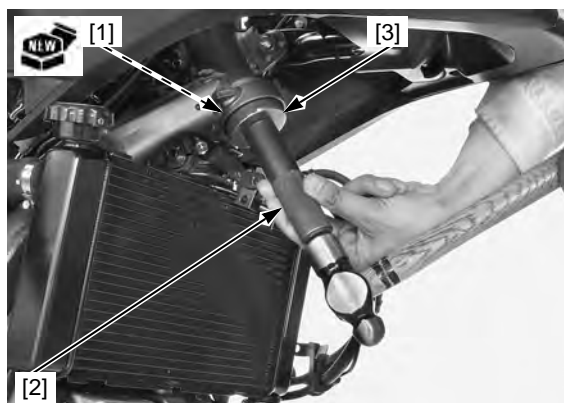


Drive in a new lower outer race [1] using the special tools.

TOOLS:

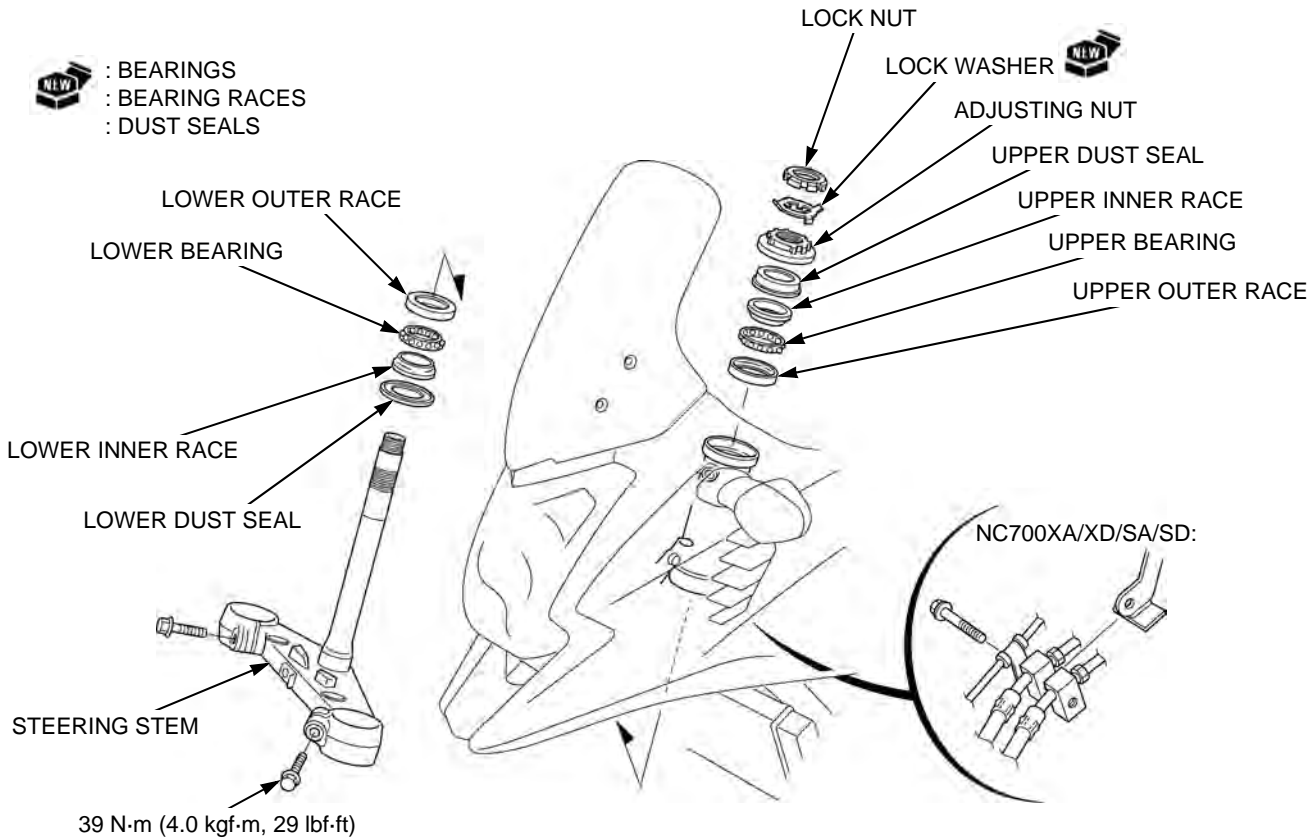
Driver [2] 07749-0010000

Attachment, 52 x 55 mm [3] 07746-0010400



FRONT WHEEL/SUSPENSION/STEERING

INSTALLATION

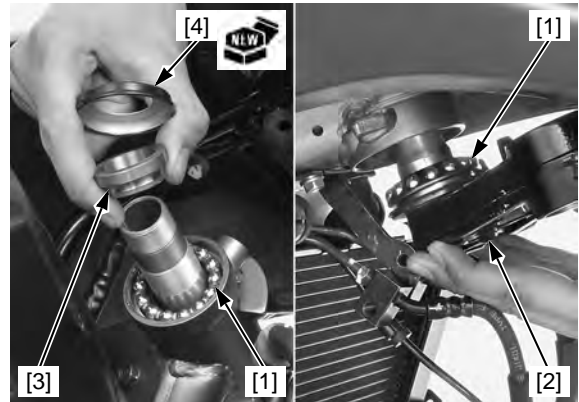


Apply 3 – 5 g (0.1 – 0.2 oz) of specified grease to each steering head bearing inner races and outer races sliding surface (page 1-23).

Apply specified grease to a new steering head bearing dust seal lips (page 1-23).

Install the bearings [1] in the lower inner race and upper outer race.

Install the steering stem [2], upper inner race [3] and dust seal [4].



Apply engine oil to the steering stem adjusting nut [1] threads.

Install and tighten the steering stem adjusting nut to the specified torque using a special tool.

TOOL:

Steering stem socket [2] 07916-3710101

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



Move the steering stem left and right, lock-to-lock five times to seat the bearings.



Retighten the adjusting nut [1] to the specified torque using a special tool.

TOOL:
Steering stem socket [2] 07916-3710101

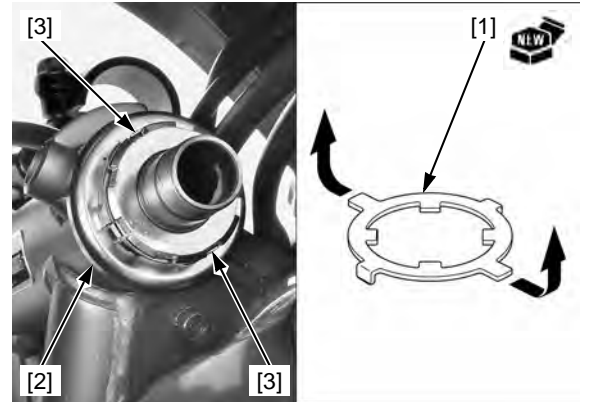
TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



Install a new lock washer [1], aligning its short bent tabs with the grooves in the steering stem adjusting nut.

Install the lock nut [2] until it contacts with the lock washer.

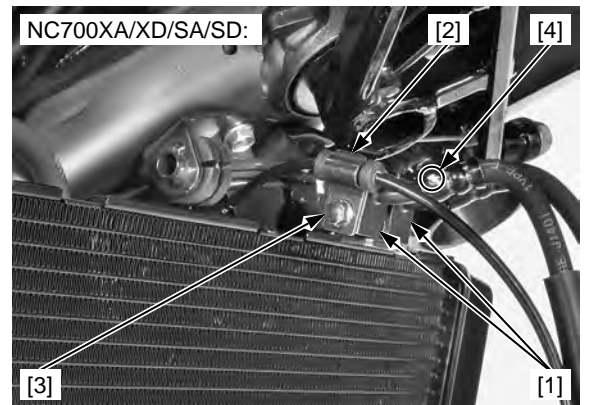
Further tighten the lock nut, within 90°, to align its grooves with the tabs of the lock washer. Bend up the long lock washer tabs [3] into the grooves of the lock nut.



NC700XA/XD/SA/SD: Install the brake hose joints [1], front wheel speed sensor wire guide [2] and bolt [3].

- NOTE:**
- Route the wires, hose and cable properly (page 1-25).
 - Note the installation position of the brake hose joints.
 - Right side: Brake sub hose C (white painted [4] hose)
 - Left side: Front brake hose D

Tighten the bolt securely.



FRONT WHEEL/SUSPENSION/STEERING

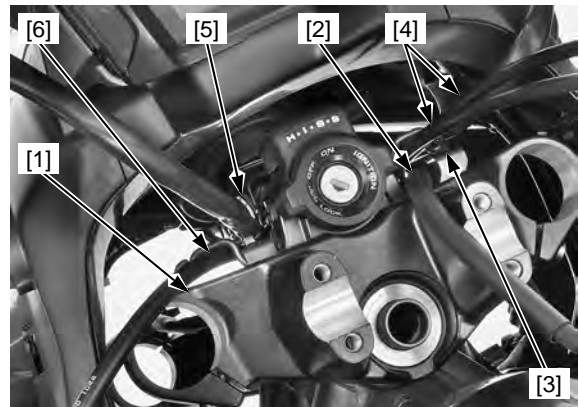
Install the top bridge [1].

NC700X/XA/XD: Install the following:

- Brake hose [2]
- Right handlebar switch wire harness clamp [3]
- Throttle cables [4]
- Left handlebar switch wire harness clamp [5]
- Clutch cable (NC700X/XA) [6]
- Parking brake cable (NC700XD) [6]

NOTE:

Route the wires, hose and cable properly (page 1-25).



Install the steering stem nut [1], but do not tighten the steering stem nut yet.

Install the fork legs (page 17-33).

Tighten the steering stem nut to the specified torque.

TORQUE: 103 N·m (10.5 kgf·m, 76 lbf·ft)

Turn the steering stem left and right, lock-to-lock several times to make sure the steering stem moves smoothly without play or binding.

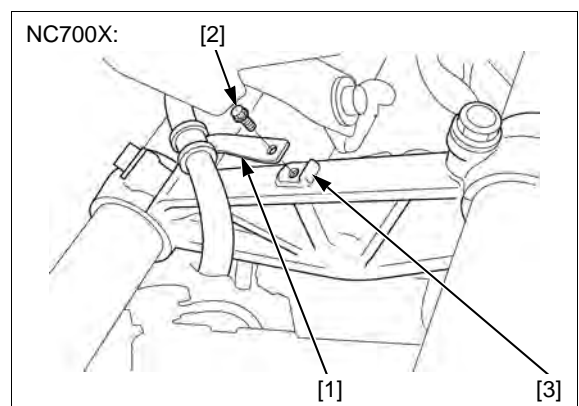
Install the cap to the steering stem nut.



NC700X: Install the brake hose clamp [1] and bolt [2] to the bottom bridge.

NOTE:

Be sure to rest the brake hose clamp against the bottom bridge tab [3].



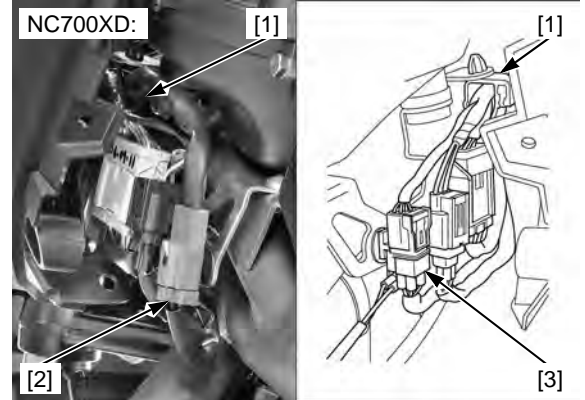
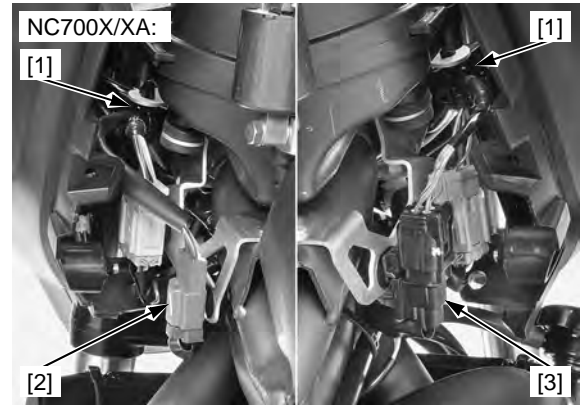
NC700X/XA/XD: Install the ignition switch wire harness clamp [1] and immobilizer receiver wire harness clamp [2].



NC700X/XA/XD: Install the wire harness from the clamps [1].
Connect the ignition switch 2P (Brown) connector [2] and immobilizer receiver 4P (Black) connector [3].

Install the following:

- Shroud/side cover (page 2-14)
- Handlebar
 - NC700X/XA (page 17-14)
 - NC700XD (page 17-17)

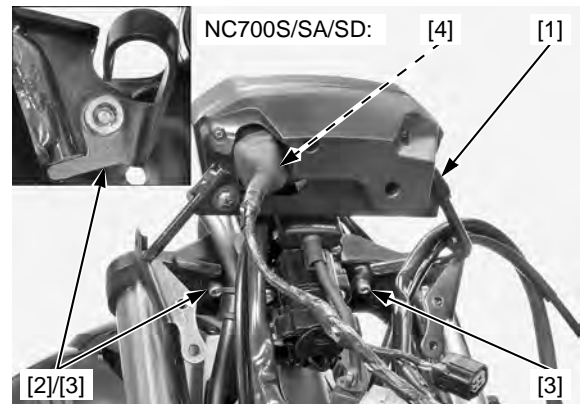


NC700S/SA/SD: Install the combination meter/stay [1], brake hose guide [2] and socket bolts [3].

NOTE:

- Route the wires, hose and cable properly (page 1-25).
- Install the brake hose guide against the combination meter stay.

Connect the combination meter 16P (Gray) connector [4].



NC700S/SA/SD: Install the headlight cover (page 2-27).

Connect the ignition switch 2P (Brown) connector [1] and immobilizer receiver 4P (Black) connector [2].

Install the following:

- Headlight/headlight stay (page 2-27)
- Handlebar
 - NC700S/SA (page 17-14)
 - NC700SD (page 17-17)

Perform the digital clock set procedure (page 22-14).

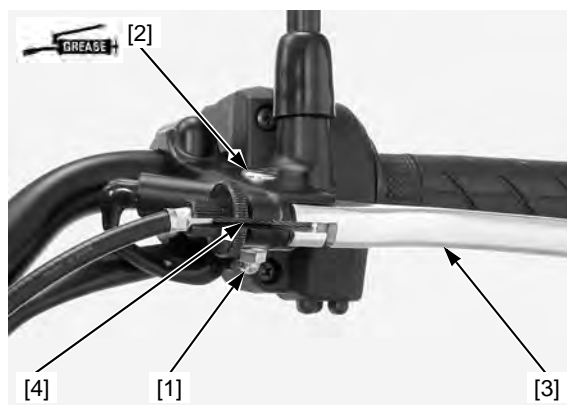


CLUTCH LEVER (NC700X/XA/S/SA)

REMOVAL/INSTALLATION

Remove the clutch lever pivot nut [1] and bolt [2].

Remove the clutch lever [3] and disconnect the clutch cable [4].



Connect the clutch cable [1] to the clutch lever [2].

Install the clutch lever to the clutch lever bracket.

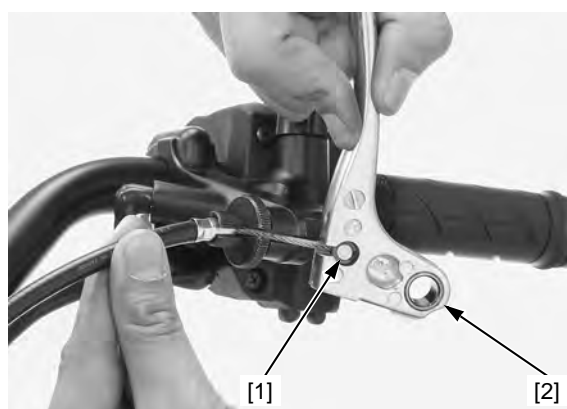
Apply grease to the clutch lever pivot bolt sliding surface.

Install and tighten the clutch lever pivot bolt to the specified torque.

TORQUE: 1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

Install and tighten the clutch lever pivot nut to the specified torque while holding the clutch lever pivot bolt.

TORQUE: 6.0 N·m (0.6 kgf·m, 4.4 lbf·ft)



18. REAR WHEEL/SUSPENSION

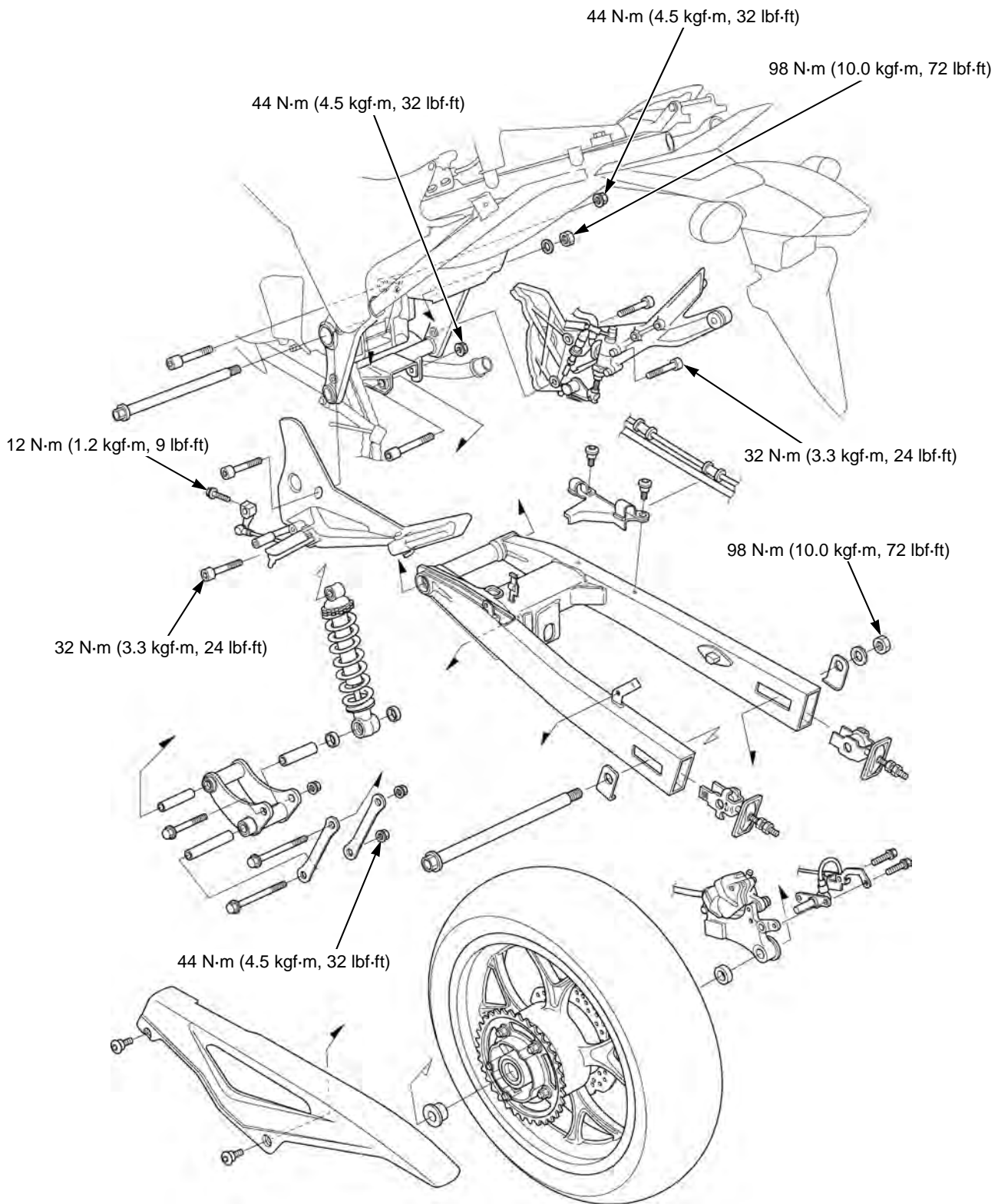
COMPONENT LOCATION	18-2	SHOCK LINKAGE.....	18-13
SERVICE INFORMATION	18-4	SHOCK ABSORBER	18-14
TROUBLESHOOTING.....	18-5	SWINGARM	18-16
REAR WHEEL	18-6		

REAR WHEEL/SUSPENSION

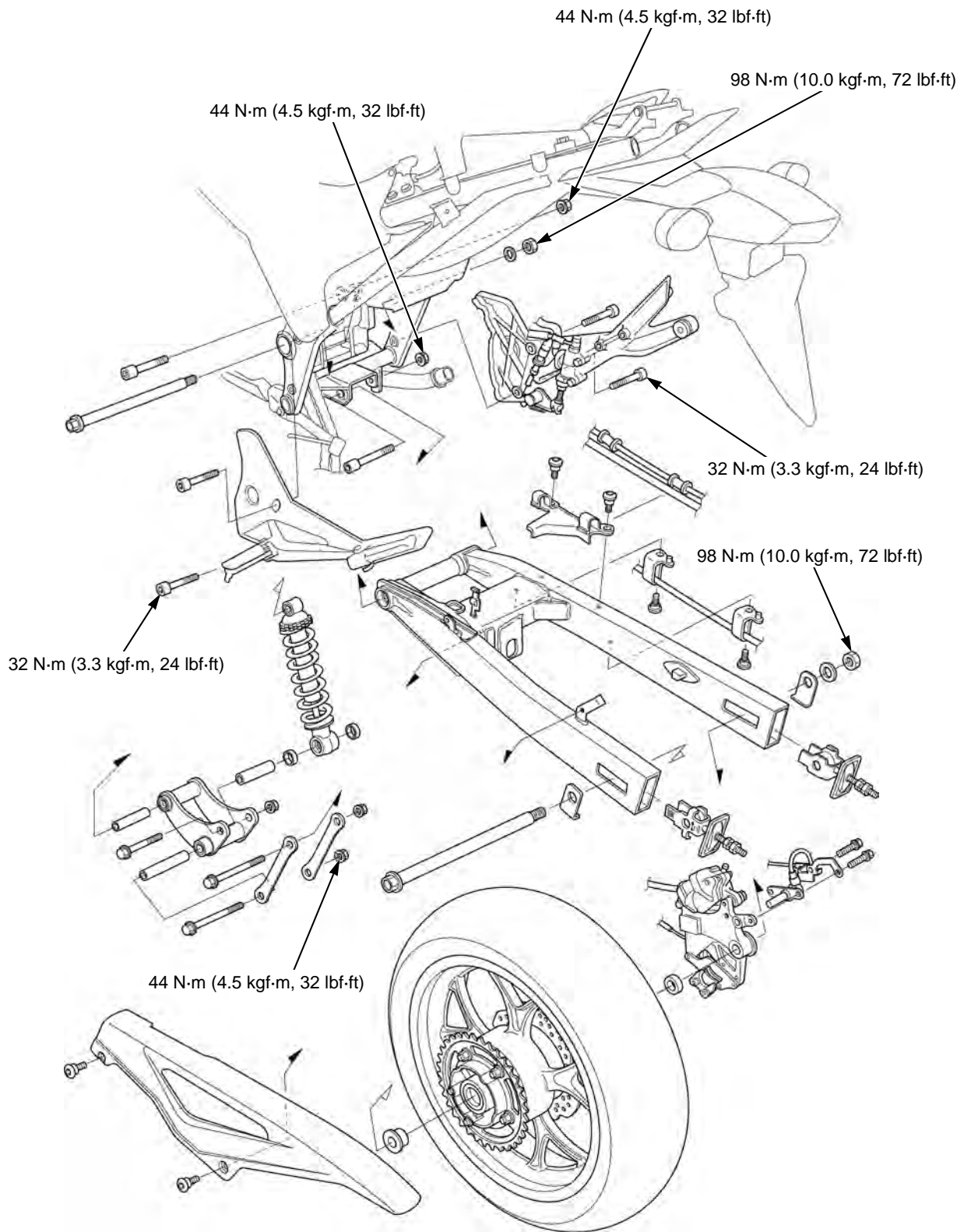
COMPONENT LOCATION

NC700X/XA/S/SA:

NC700XA/SA shown:



NC700XD/SD:



REAR WHEEL/SUSPENSION

SERVICE INFORMATION

GENERAL

- When servicing the rear wheel and suspension, support the motorcycle using a safety stand or hoist.
- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- After the rear wheel installation, check the brake operation by applying the brake pedal.
- Use only tires marked "TUBELESS" and tubeless valves on rim marked "TUBELESS TIRE APPLICABLE".
- Use genuine Honda replacement bolts and nuts for all suspension pivot and mounting point.
- For brake system information (page 19-5).

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD		SERVICE LIMIT	
Minimum tire tread depth		-		2.0 (0.08)	
Cold tire pressure	Driver only	290 kPa (2.90 kgf/cm ² , 42 psi)		-	
	Driver and passenger	290 kPa (2.90 kgf/cm ² , 42 psi)		-	
Axle runout		-		0.2 (0.01)	
Wheel rim runout	Radial	-		2.0 (0.08)	
	Axial	-		2.0 (0.08)	
Wheel balance weight		-		60 g (2.1 oz) max.	
Drive chain	Size/link	NC700X/XA/S/SA	DID	DID520V0-114LE	-
			RK	RK520MKO-114LE	-
		NC700XD/SD	DID	DID520V0-112LE	-
			RK	RK520MKO-112LE	-
	Slack	NC700X/XA/XD		30 – 40 (1.2 – 1.6)	-
		NC700S/SA/SD		25 – 35 (1.0 – 1.4)	-

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Driven sprocket nut	5	12	108 (11.0, 80)	U-nut
Rear brake disc mounting bolt	5	8	42 (4.3, 31)	ALOC bolt; replace with a new one.
Rear axle nut	1	18	98 (10.0, 72)	U-nut
Shock absorber mounting nut	2	10	44 (4.5, 32)	U-nut
Shock arm nut	1	10	44 (4.5, 32)	U-nut
Shock link nut	2	10	44 (4.5, 32)	U-nut
Drive chain slider mounting screw	2	5	5.9 (0.6, 4.4)	
Swingarm pivot nut	1	18	98 (10.0, 72)	U-nut
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Gearshift arm pinch bolt (NC700X/XA/S/SA)	1	6	12 (1.2, 9)	ALOC bolt; replace with a new one.

TROUBLESHOOTING

Steers to one side or does not track straight

- Drive chain adjusters not adjusted equally
- Bent axle
- Bent frame
- Worn swingarm pivot components

Rear wheel wobbling

- Bent rim
- Worn wheel bearing
- Worn driven flange bearing
- Faulty tire
- Bent frame or swingarm
- Axle not tightened properly
- Unbalanced tire and wheel
- Insufficient tire pressure

Wheel hard to turn

- Brake drag
- Faulty wheel bearing
- Faulty driven flange bearing
- Bent axle
- Drive chain too tight (page 3-16)

Soft suspension

- Weak shock absorber spring
- Oil leakage from damper unit
- Insufficient tire pressure

Stiff suspension

- Bent shock absorber damper rod
- Damaged suspension or swingarm pivot bearing
- Bent swingarm pivot or frame

Rear suspension noisy

- Loose suspension fasteners
- Faulty shock absorber

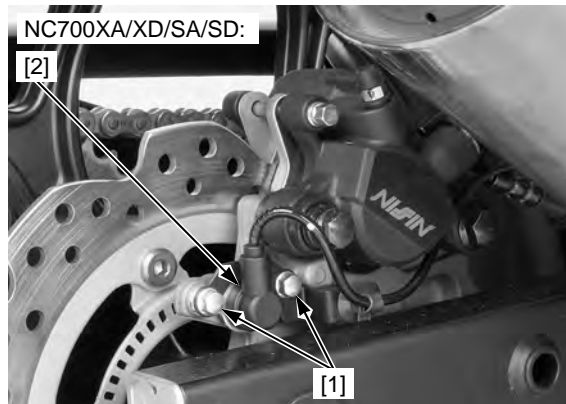
REAR WHEEL/SUSPENSION

REAR WHEEL

REMOVAL

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

NC700XA/XD/SA/SD: Remove the bolts [1] and rear wheel speed sensor [2].



Loosen the lock nut [1], drive chain adjusting nut [2] and axle nut [3].

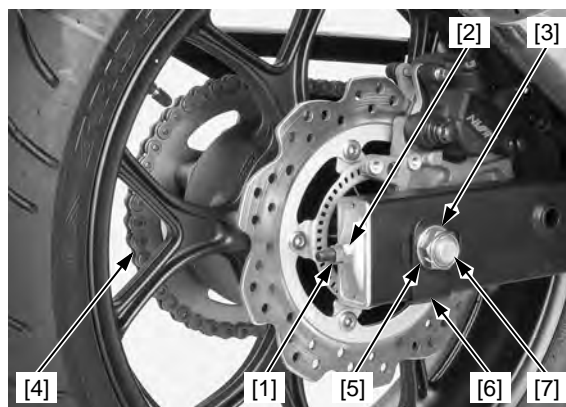
Push the rear wheel forward.

Derail the drive chain [4] from the driven sprocket.

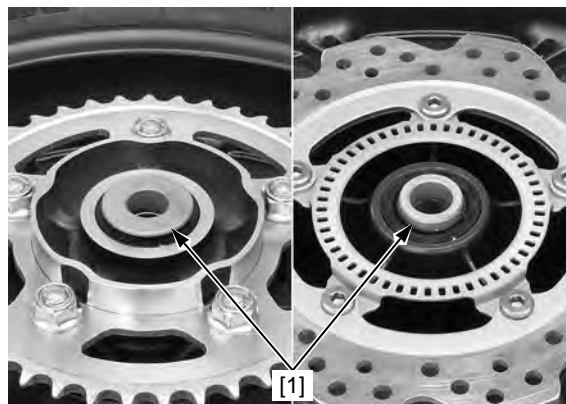
Remove the axle nut, washer [5] and adjusting plate [6].

Do not operate the brake pedal after removing the rear wheel.

Remove the axle [7], adjusting plate and rear wheel.



Remove the side collars [1].



INSPECTION

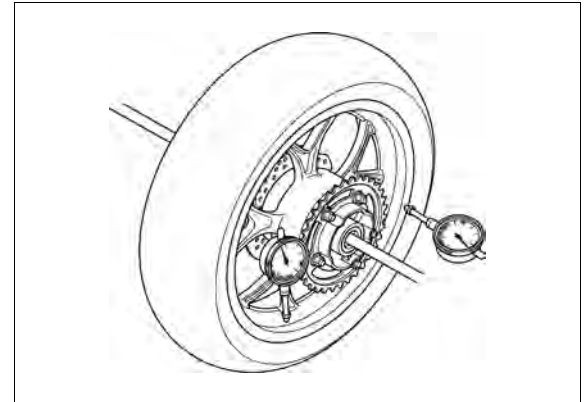
WHEEL RIM

Check the rim runout by placing the wheel in a truing stand. Spin the wheel by hand, and measure the runout using a dial indicator.

SERVICE LIMITS:

Radial: 2.0 mm (0.08 in)

Axial: 2.0 mm (0.08 in)



AXLE

Place the axle on V-blocks.

Turn the axle and measure the runout using a dial indicator.

Actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.01 in)

WHEEL AND DRIVEN FLANGE BEARINGS

Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the outer race fits tightly in the wheel hub and driven flange.

Replace the bearings as a set.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the wheel hub and driven flange.

WHEEL BALANCE

For wheel balance servicing (page 17-22).

DRIVEN SPROCKET

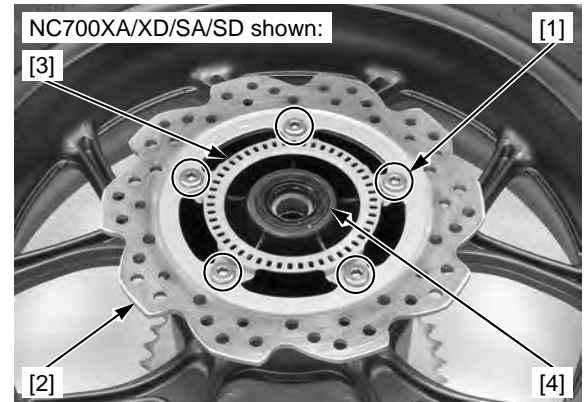
For driven sprocket inspection (page 3-18).

DISASSEMBLY

Loosen the rear brake disc mounting bolts [1] in a crisscross pattern in 2 or 3 steps.

Remove the rear brake disc mounting bolts, brake disc [2] and pulser ring (NC700XA/XD/SA/SD) [3].

Remove the dust seal [4] from the right wheel hub.



REAR WHEEL/SUSPENSION

Remove the dust seal [1] from the driven flange [2].

If you will disassemble the driven flange, loosen the driven sprocket nuts [3] in a crisscross pattern in 2 or 3 steps, before removing the driven flange from the left wheel hub.

Remove the driven flange assembly.



Remove the damper rubbers [1] and O-ring [2].



Remove the driven sprocket nuts [1] and driven sprocket [2].



Drive out the rear wheel distance collar B [1].

TOOLS:

Driver [2]

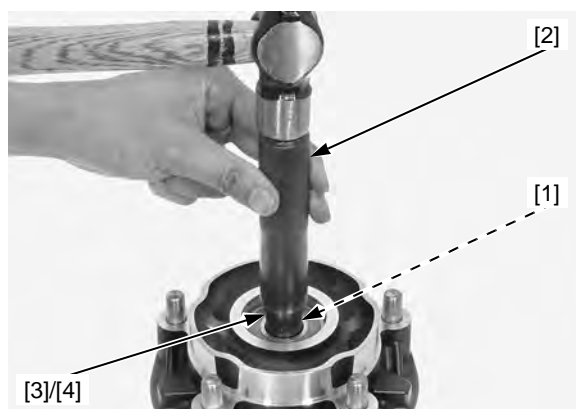
Attachment, 22 x 24 mm [3]

Pilot, 20 mm [4]

07749-0010000

07746-0010800

07746-0040500



Drive out the driven flange bearing [1].



Install the bearing remover head [1] into the bearing. From the opposite side, install the bearing remover shaft [2] and drive out the bearing from the wheel hub.

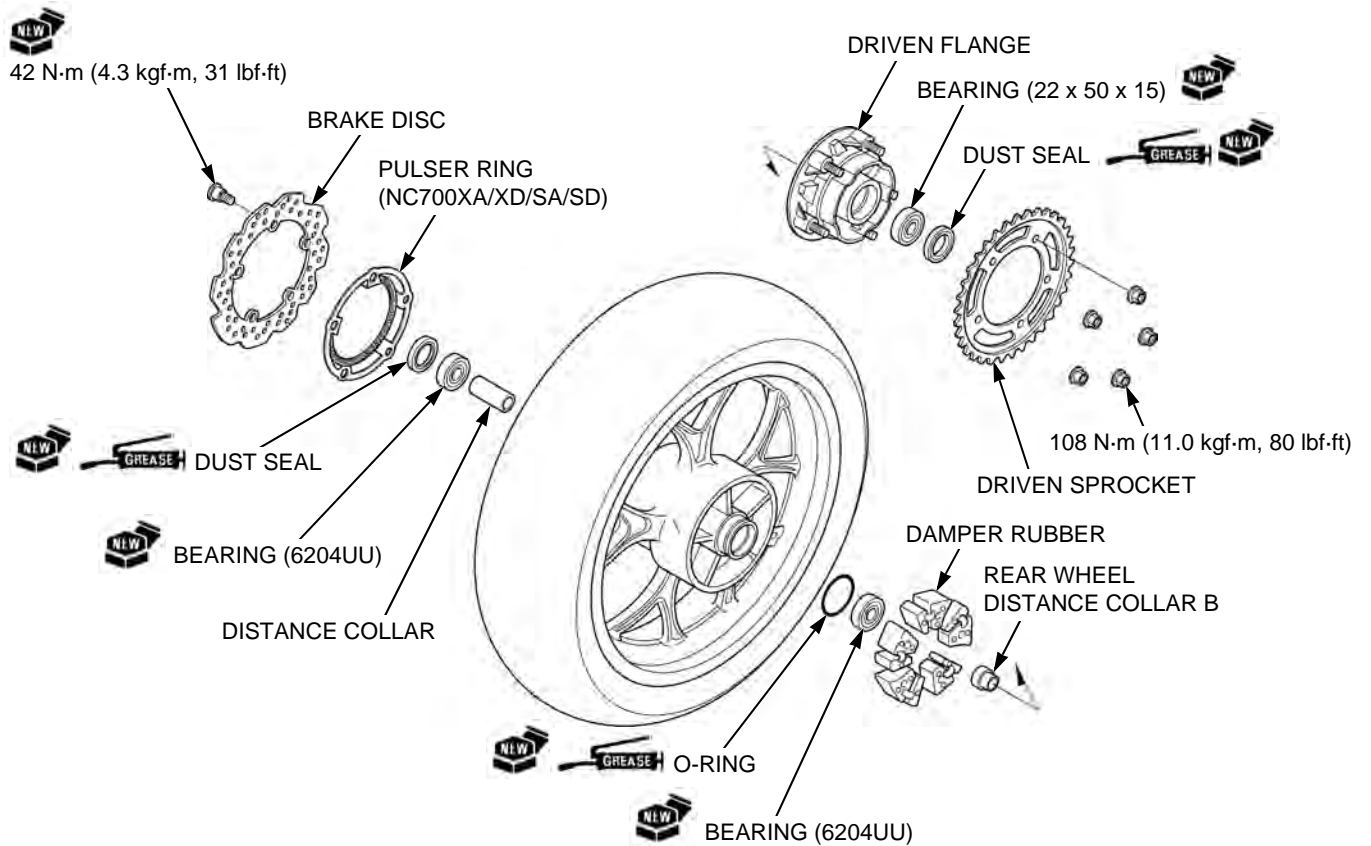
TOOLS:

- Bearing remover head, 20 mm** 07746-0050600
- Bearing remover shaft** 07GGD-0010100

Remove the distance collar and drive out the other bearing.



ASSEMBLY



REAR WHEEL/SUSPENSION

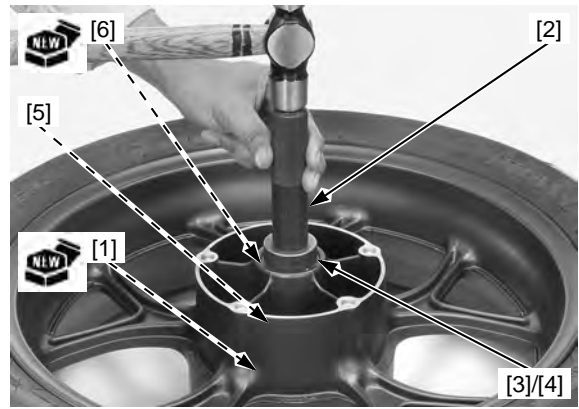
Never install the old bearing, once the bearing has been removed, the bearing must be replaced with new ones.

Drive in a new right side bearing [1] squarely until it is fully seated.

TOOLS:
Driver [2] 07749-0010000
Attachment, 42 x 47 mm [3] 07746-0010300
Pilot, 20 mm [4] 07746-0040500

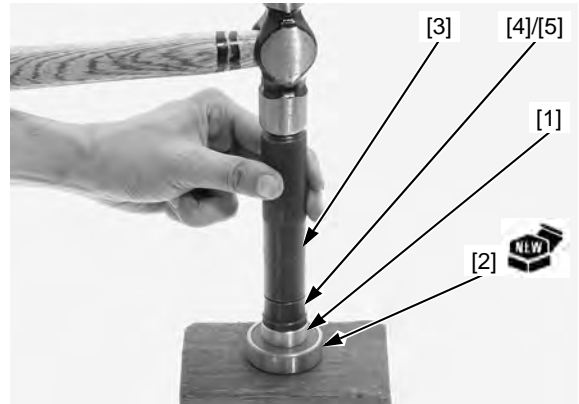
Install the distance collar [5].

Drive in a new left side bearing [6] squarely until it is seated on the distance collar.



Drive the rear wheel distance collar B [1] to a new driven flange bearing [2].

TOOLS:
Driver [3] 07749-0010000
Attachment, 28 x 30 mm [4] 07946-1870100
Pilot, 20 mm [5] 07746-0040500



Drive in the driven flange bearing/collar [1] squarely with its collar side facing down until it is fully seated.

TOOLS:
Driver [2] 07749-0010000
Attachment, 42 x 47 mm [3] 07746-0010300
Pilot, 20 mm [4] 07746-0040500



Install the driven sprocket [1] to the driven flange.

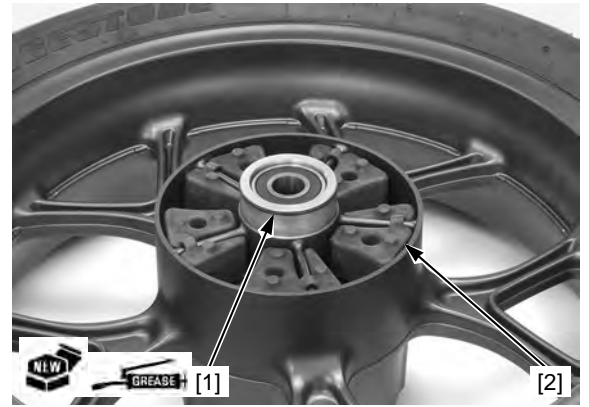
NOTE:
 Install the driven sprocket with its marked side facing out.

Temporarily install the driven sprocket nuts [2].



Apply grease to a new O-ring [1].

Install the damper rubbers [2] and the O-ring into the left wheel hub.



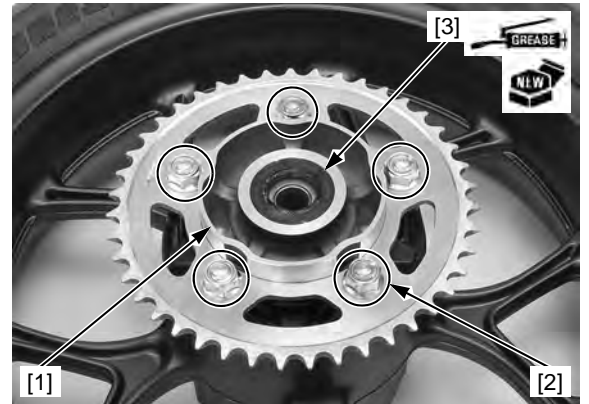
Install the driven flange assembly [1] into the left wheel hub.

Tighten the driven sprocket nuts [2] to the specified torque in a crisscross pattern in 2 or 3 steps.

TORQUE: 108 N·m (11.0 kgf·m, 80 lbf·ft)

Apply grease to a new dust seal lips.

Install the dust seal [3] to the driven flange.



Install the pulser ring (NC700XA/XD/SA/SD) [1] onto right wheel hub.

Install the rear brake disc [2] with its arrow mark [3] facing out.

Install and tighten new brake disc bolts [4] to the specified torque in a crisscross pattern in 2 or 3 steps.

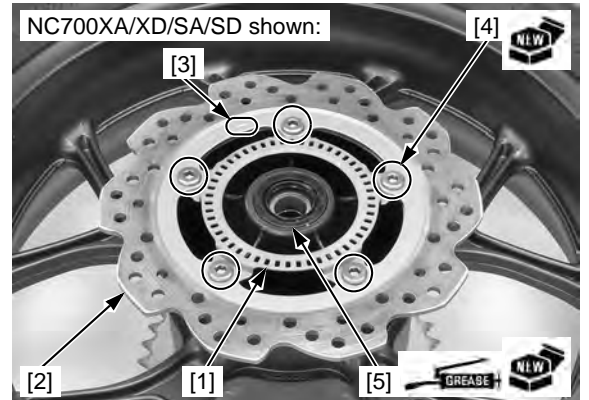
TORQUE: 42 N·m (4.3 kgf·m, 31 lbf·ft)

Apply grease to a new dust seal lips.

Install the dust seal [5] to the right wheel hub.

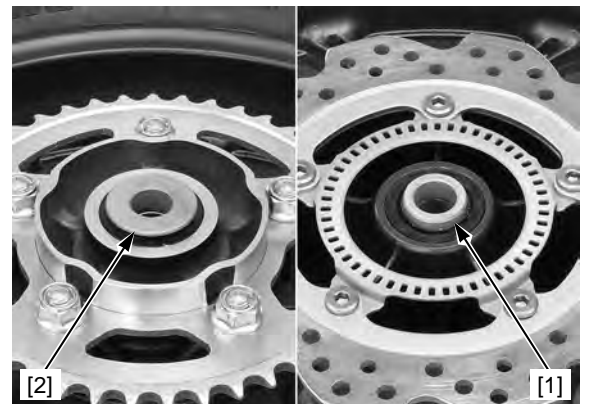
NOTE:

Do not get grease on the brake disc.



INSTALLATION

Install the right side collar [1] and left side collar [2].

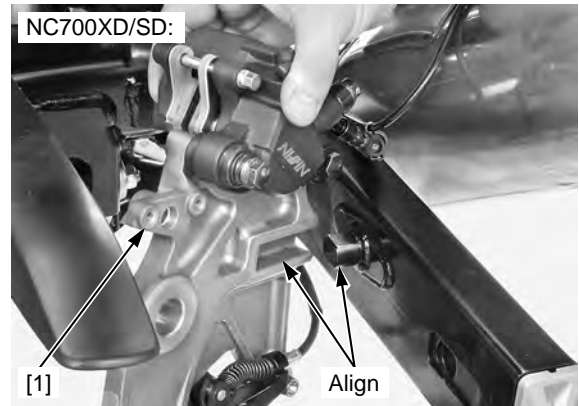
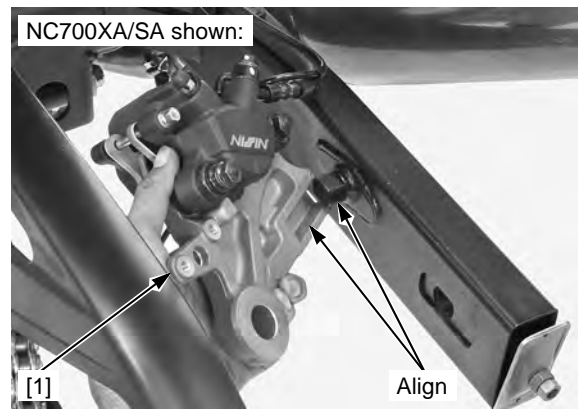


REAR WHEEL/SUSPENSION

Install the brake caliper/bracket assembly [1] to the swingarm.

NOTE:

Align the bracket groove with swingarm tab.



Be careful not to damage the brake pads.

Install the rear wheel in the swingarm aligning the brake disc between the brake pads.

Install the drive chain [1] over the driven sprocket.

Apply a thin coat of grease to the rear axle outer surface.

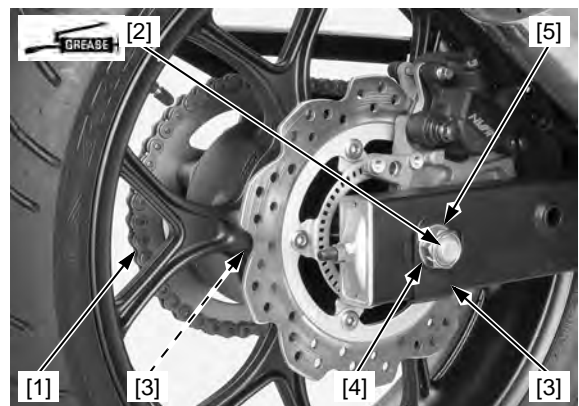
Install the rear axle [2] from the left side through the axle adjusting plate [3], swingarm, rear wheel and collars.

Install the adjusting plate, washer [4] and rear axle nut [5].

Tighten the rear axle nut to the specified torque.

TORQUE: 98 N·m (10.0 kgf·m, 72 lbf·ft)

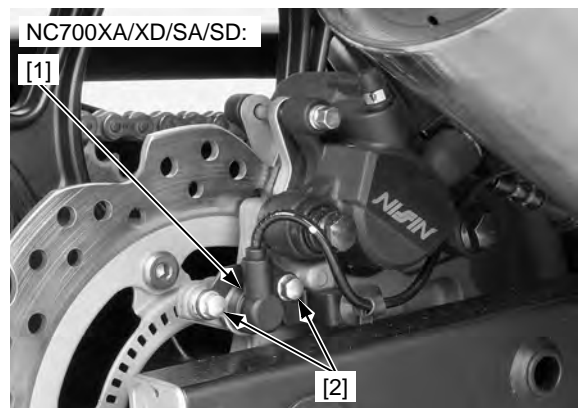
Adjust the drive chain slack (page 3-16).



NC700XA/XD/SA/SD: Install the rear wheel speed sensor [1] and bolts [2]. Tighten the bolts securely.

Check the air gap between the rear wheel speed sensor and pulser ring (page 20-24).

NC700XD/SD: Check the parking brake lock operation (page 3-24).



SHOCK LINKAGE

REMOVAL/INSTALLATION

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

Remove the following:

- Shock link bolt [1] and nut [2]
- Shock absorber lower mounting bolt [3] and nut [4]
- Shock arm bolt [5] and nut [6]
- Shock linkage assembly [7]

Installation is in the reverse order of removal.

TORQUE:

Shock absorber mounting nut:

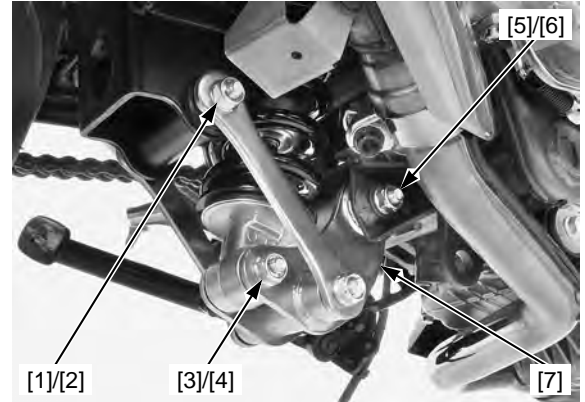
44 N·m (4.5 kgf·m, 32 lbf·ft)

Shock arm nut:

44 N·m (4.5 kgf·m, 32 lbf·ft)

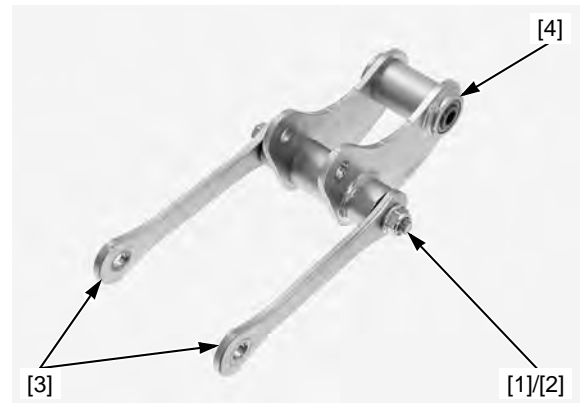
Shock link nut:

44 N·m (4.5 kgf·m, 32 lbf·ft)



DISASSEMBLY/INSPECTION/ASSEMBLY

Remove the shock link bolt [1], nut [2] and shock links [3] from the shock arm [4].



Remove the collars [1] from the shock arm [2].

Check the collars for wear, damage or fatigue.

Check the shock arm for cracks or damage.

Replace them if necessary.

Check the needle bearings [3] for damage or loose fit.

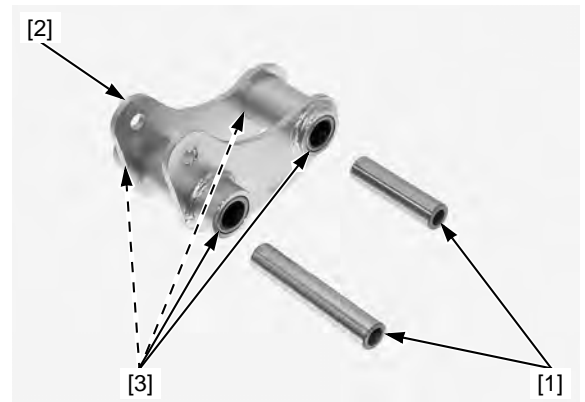
If the needle bearings are damaged, replace them (page 18-14).

Assembly is in the reverse order of disassembly.

TORQUE:

Shock link nut:

44 N·m (4.5 kgf·m, 32 lbf·ft)



REAR WHEEL/SUSPENSION

BEARING REPLACEMENT

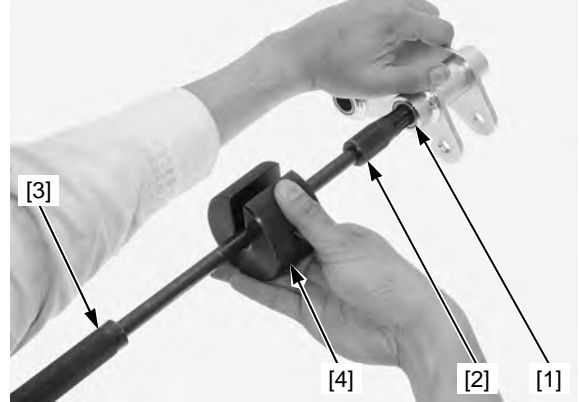
Remove the needle bearings [1] using the special tools.

TOOLS:

Bearing remover set, 17 mm [2] 07936-3710300

Remover handle [3] 07936-3710100

Remover weight [4] 07741-0010201



Never install the old bearing, once the bearing has been removed, the bearing must be replaced with new ones.

Apply molybdenum disulfide grease to new needle bearings rotating area.

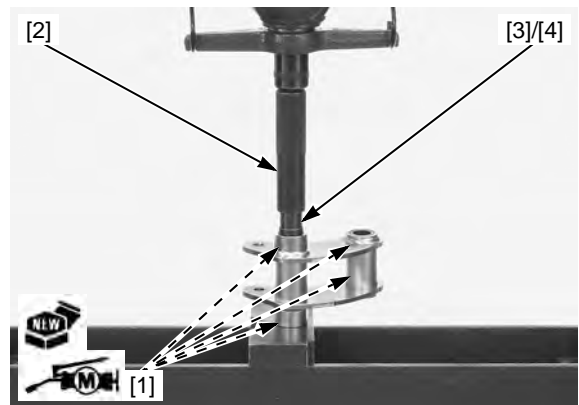
Install the needle bearings [1] with the marked and dust seal side facing out until it is flush with the shock arm surface using a hydraulic press and special tools as shown.

TOOLS:

Driver [2] 07749-0010000

Attachment, 22 x 24 mm [3] 07746-0010800

Pilot, 17 mm [4] 07746-0040400



SHOCK ABSORBER

REMOVAL/INSTALLATION

Support the motorcycle using a safety stand or hoist, raise the rear wheel off the ground.

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the shelter/side cover (NC700S/SA/SD) (page 2-15).

Remove the shock arm bolt [1] and nut [2].

Remove the shock absorber lower mounting bolt [3] and nut [4].



Remove the shock absorber upper mounting nut [1].

Remove the shock absorber upper mounting socket bolt [2] and shock absorber.

Installation is in the reverse order of removal.

TORQUE:

Shock absorber mounting nut:

44 N·m (4.5 kgf·m, 32 lbf·ft)

Shock arm nut:

44 N·m (4.5 kgf·m, 32 lbf·ft)



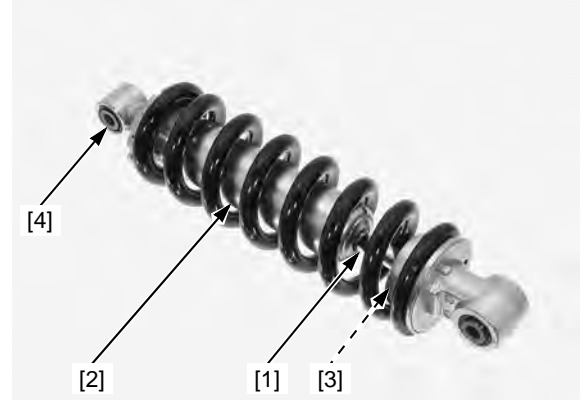
INSPECTION

Visually inspect the shock absorber for wear or damage.

Check the following:

- Damper rod [1] for bend or damage
- Damper unit [2] for deformation or oil leaks
- Rubber bumper [3] for wear or damage
- Bushing [4] for wear or damage

Replace the shock absorber as an assembly if necessary.



Remove the collar [1] and dust seals [2].

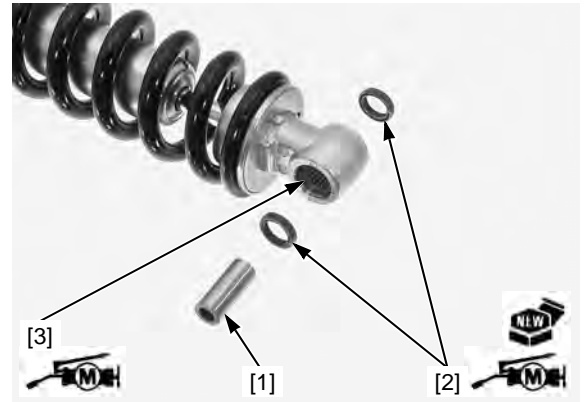
Check the needle bearings [3] for damage or loose fit, replace it if necessary (page 18-15).

Check the collar for wear or damage, replace it if necessary.

Apply molybdenum disulfide grease to the needle bearings rotating area and new dust seal lips.

Install the dust seals until it is flush with the shock absorber surface.

Install the collar.

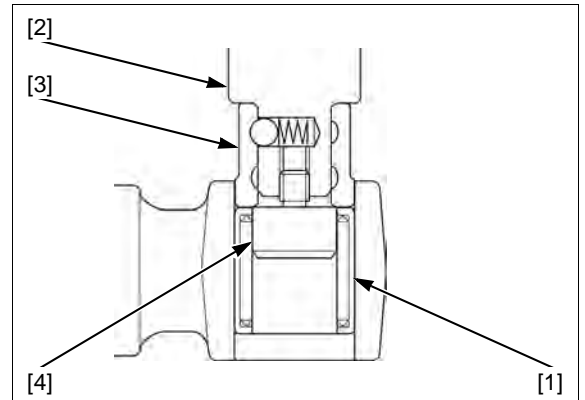


BEARING REPLACEMENT

Drive the needle bearing [1] out of the lower pivot using a hydraulic press and special tool.

TOOLS:

- | | |
|-----------------------------------|----------------------|
| Driver [2] | 07749-0010000 |
| Attachment, 22 x 24 mm [3] | 07746-0010800 |
| Pilot, 17 mm [4] | 07746-0040400 |



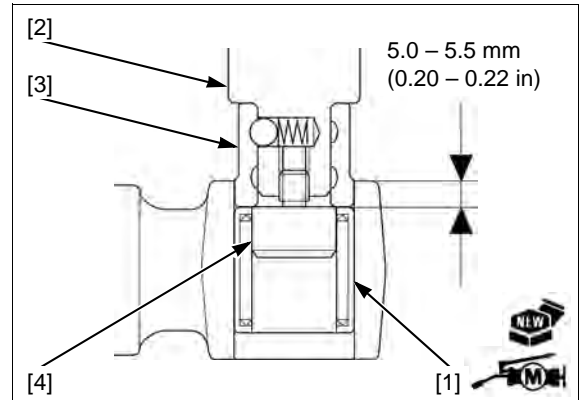
Never install the old bearing, once the bearing has been removed, the bearing must be replaced with new ones.

Apply molybdenum disulfide grease to new needle bearings rotating area.

Install the needle bearing [1] into the lower pivot to the specified range using a hydraulic press and special tools as shown.

TOOLS:

- | | |
|-----------------------------------|----------------------|
| Driver [2] | 07749-0010000 |
| Attachment, 22 x 24 mm [3] | 07746-0010800 |
| Pilot, 17 mm [4] | 07746-0040400 |



REAR WHEEL/SUSPENSION

SHOCK ABSORBER DISPOSAL PROCEDURE

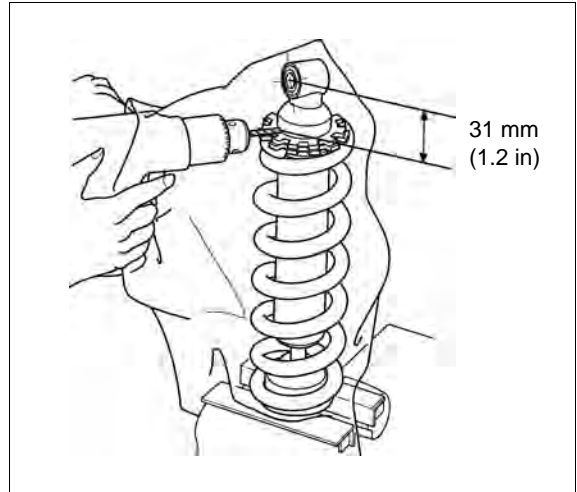
Center punch the shock absorber to mark the drilling point.

Wrap the shock absorber inside a plastic bag. Support the shock absorber in a vise as shown. Through the open end of the bag, insert a drill motor with a sharp 2 – 3 mm (5/64 – 1/8 in) drill bit.

NOTICE

- Do not use a dull drill bit which could cause a build-up of excessive heat and pressure inside the damper, leading to an explosion and severe injury.
- The shock absorber contains nitrogen gas and oil under high pressure. Do not drill any further down the damper case than the measurement given above, or you may drill into the oil chamber. Then high pressure oil may cause serious injury.
- Always wear eye protection to avoid getting metal shavings in your eyes when the gas pressure is released. The plastic bag is only intended to shield you from the escaping gas.

Hold the bag around the drill motor and briefly run the drill motor inside the bag; this will inflate the bag with air from the motor and help keep the bag from getting caught in the bit when you start.



SWINGARM

REMOVAL

Remove the following:

- Rear wheel (page 18-6)
- Muffler (page 2-32)

NC700X/XA/S/SA: Remove the gearshift arm pinch bolt [1] and gearshift arm [2].



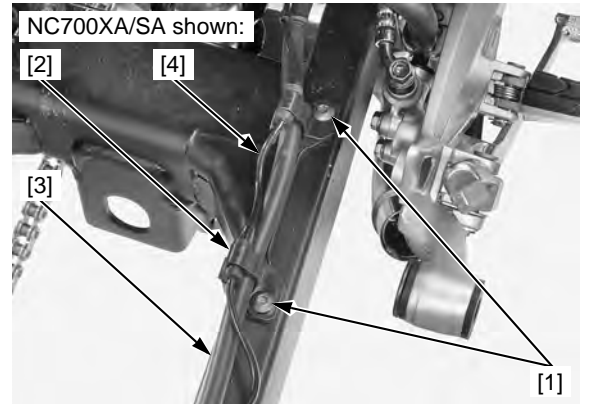
Remove the step holder mounting socket bolts [1] and left step holder [2].



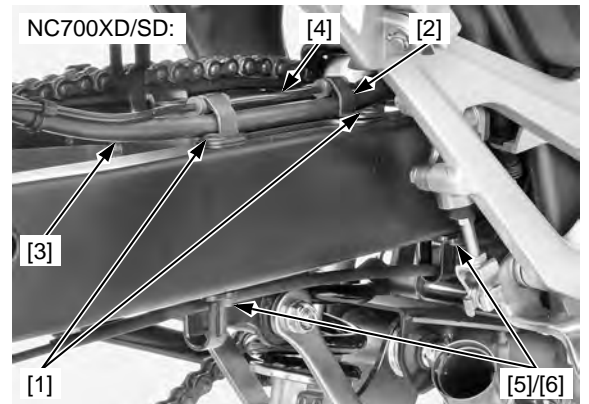
Remove the socket bolts [1] and drive chain case [2].



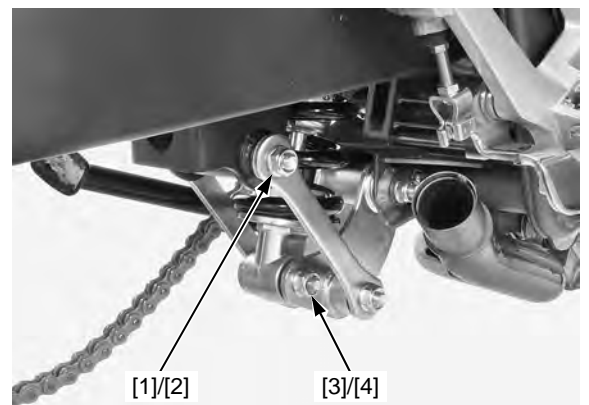
NC700X/XA/S/SA: Remove the socket bolts [1] and brake hose guide [2].
Release the brake hose [3] and rear wheel speed sensor wire (NC700XA/SA) [4] from the brake hose guide.



NC700XD/SD: Remove the socket bolts [1] and brake hose guide [2].
Release the brake hose [3] and rear wheel speed sensor wire [4] from the brake hose guide.
Remove the screws [5] and parking brake cable guides [6].



Remove the shock link bolt [1] and nut [2].
Remove the shock absorber lower mounting bolt [3] and nut [4].



REAR WHEEL/SUSPENSION

Remove the step holder mounting socket bolts [1] and right step holder [2].

NOTE:

Do not twist the brake hose.



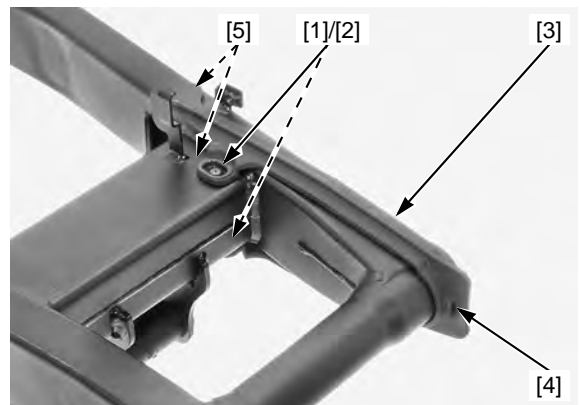
Remove the swingarm pivot nut [1], washer [2], pivot bolt [3] and swingarm [4].



DISASSEMBLY/INSPECTION

Remove the drive chain slider mounting screws [1] and washers [2].

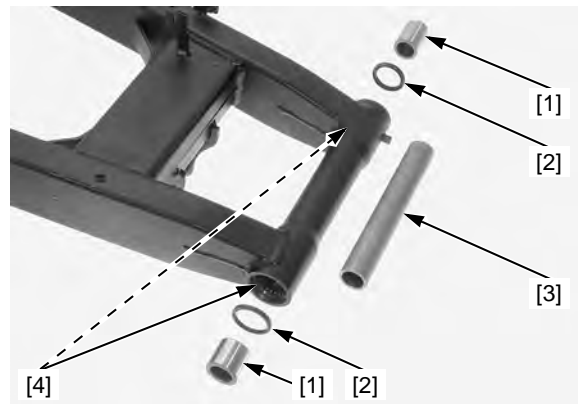
Remove the drive chain slider [3] by releasing the slider slit [4] from the swingarm tab and slider tabs [5] from the swingarm holes.



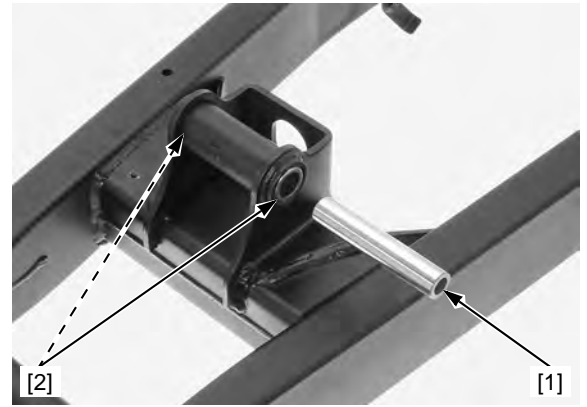
Remove the pivot collars [1], dust seals [2] and distance collar [3] from the swingarm pivot.

Check the collar for wear, damage or fatigue.

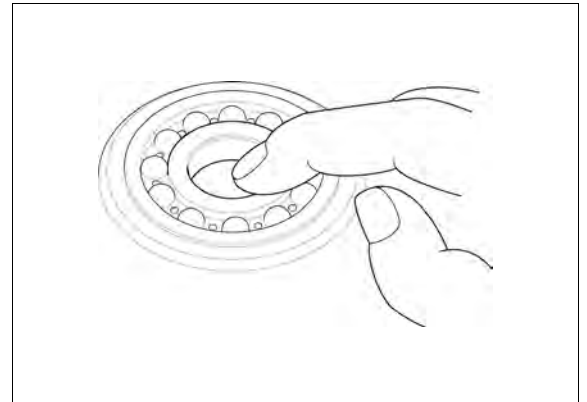
Check the needle bearings [4] for damage or loose fit, replace it if necessary (page 18-19).



Remove the collar [1] from the shock absorber bracket.
Check the collar for wear, damage or fatigue.
Check the needle bearings [2] for damage or loose fit, replace it if necessary (page 18-19).



Turn the inner race of the right side pivot ball bearings with your finger.
The bearing should turn smoothly and quietly.
Also check that the bearing outer race fits tightly in the swingarm pivot.
Remove and discard the bearing if the race does not turn smoothly and quietly, or if it fits loosely in the swingarm pivot (page 18-19).



PIVOT BEARING REPLACEMENT

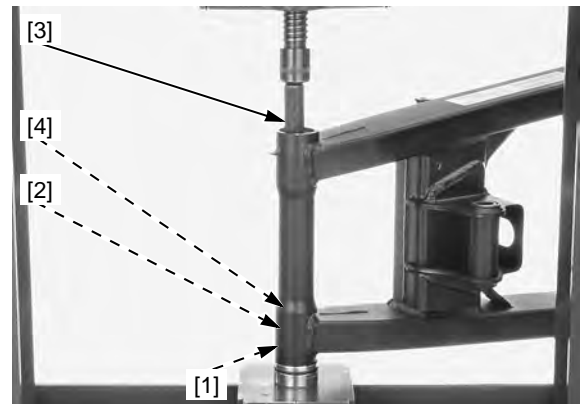
Remove the snap ring [1] from the right pivot.



Drive the needle bearing [1] and ball bearing [2] out of the right pivot using a hydraulic press and special tool.

TOOLS:
Driver, 15 x 280L [3]
Pilot, 28 mm [4]

07949-3710001
07746-0041100



REAR WHEEL/SUSPENSION

Drive the needle bearing [1] out of the left pivot using a hydraulic press and special tool.

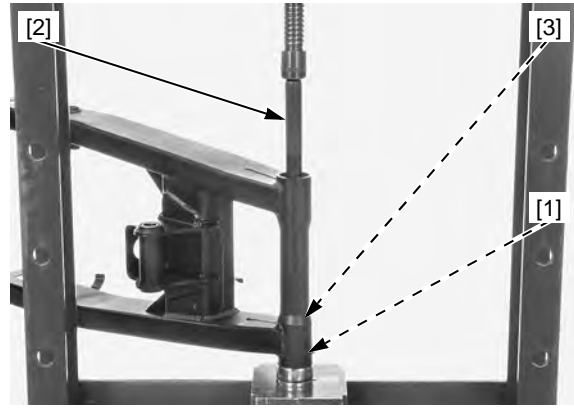
TOOLS:

Driver, 15 x 280L [2]

07949-3710001

Pilot, 32 mm [3]

07MAD-PR90200



Remove the needle bearings [1] out of the shock absorber bracket using the special tools.

TOOLS:

Bearing remover set, 17 mm [2]

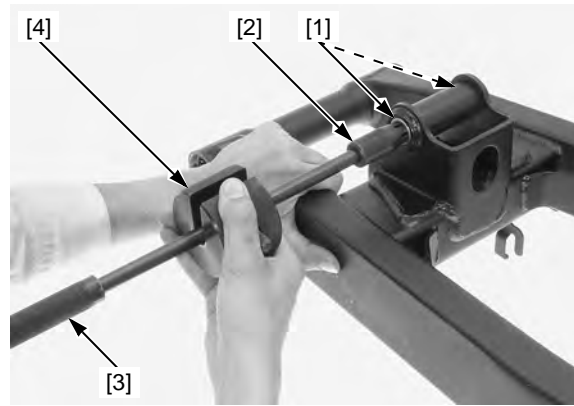
07936-3710300

Remover handle [3]

07936-3710100

Remover weight [4]

07741-0010201



Apply molybdenum disulfide grease to a new needle bearing rotating area.

Install the needle bearing [1] into the left pivot with the marked side facing up to the specified range using a hydraulic press and special tools as shown.

TOOLS:

Driver [2]

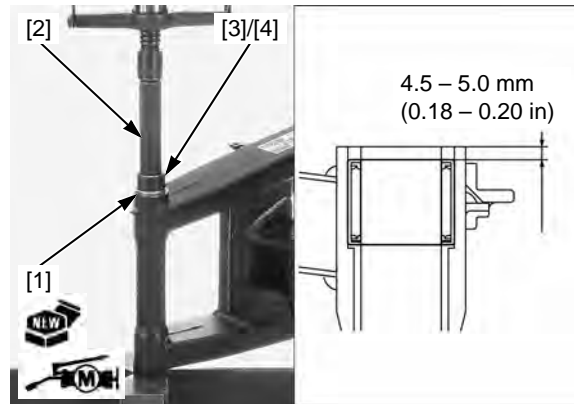
07749-0010000

Attachment, 37 mm [3]

07ZMD-MBW0200

Pilot, 28 mm [4]

07746-0041100



Apply grease to a new ball bearing rotating area.

Install the ball bearing [1] into the right pivot with the marked side facing out until it is fully seated using a hydraulic press and special tools as shown.

TOOLS:

Driver [2]

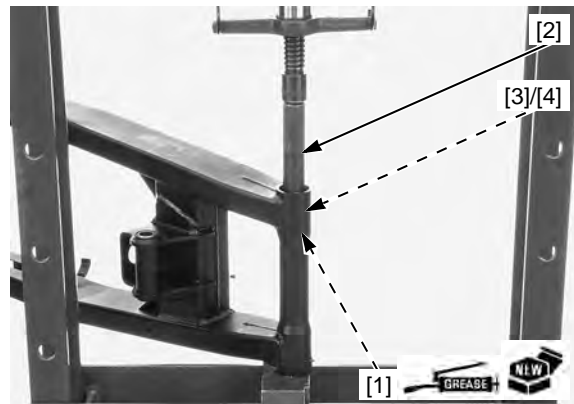
07749-0010000

Attachment, 37 mm [3]

07ZMD-MBW0200

Pilot, 20 mm [4]

07746-0040500

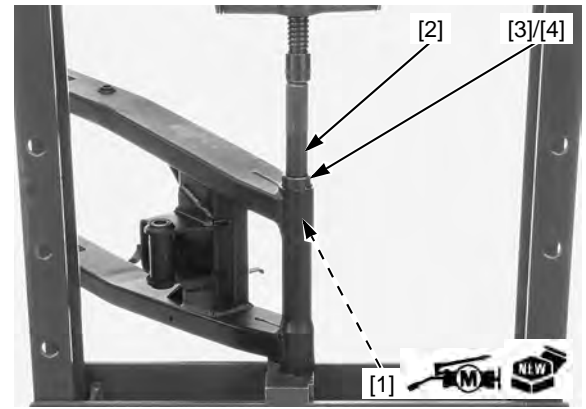


Apply molybdenum disulfide grease to a new needle bearing rotating area.

Install the needle bearing [1] into the right pivot with the marked side facing out until it is fully seated using a hydraulic press and special tools as shown.

TOOLS:

Driver [2]	07749-0010000
Attachment, 37 mm [3]	07ZMD-MBW0200
Pilot, 30 mm [4]	07746-0040700

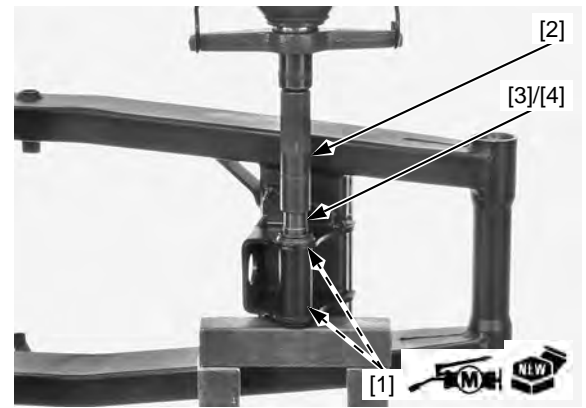


Apply molybdenum disulfide grease to a new needle bearing rotating area.

Install the needle bearings [1] into the shock absorber bracket with the marked side facing out until it is flush with the bracket surface using a hydraulic press and special tools as shown.

TOOLS:

Driver [2]	07749-0010000
Attachment, 22 x 24 mm [3]	07746-0010800
Pilot, 17 mm [4]	07746-0040400



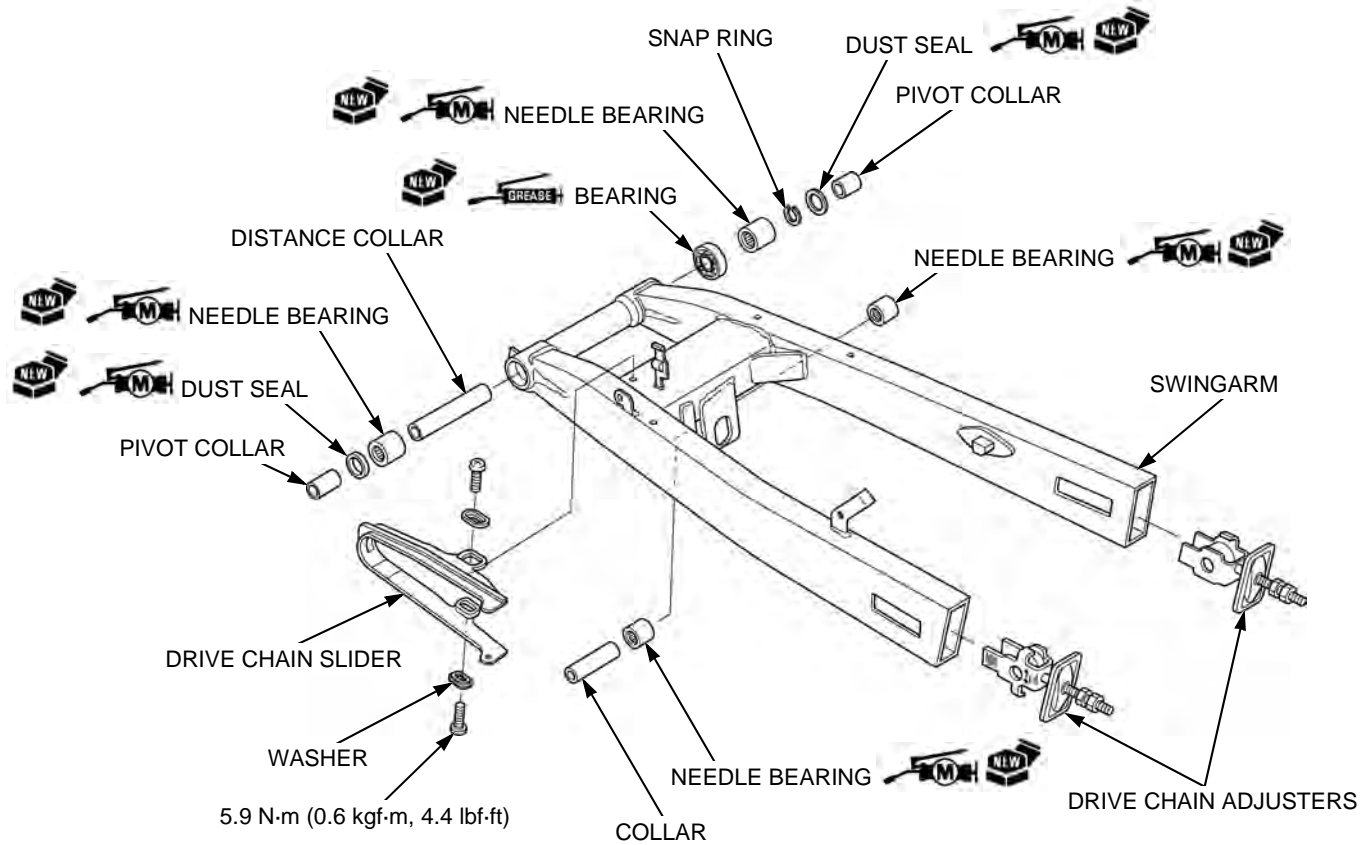
Install the snap ring [1] into the right pivot groove securely.

NOTE:

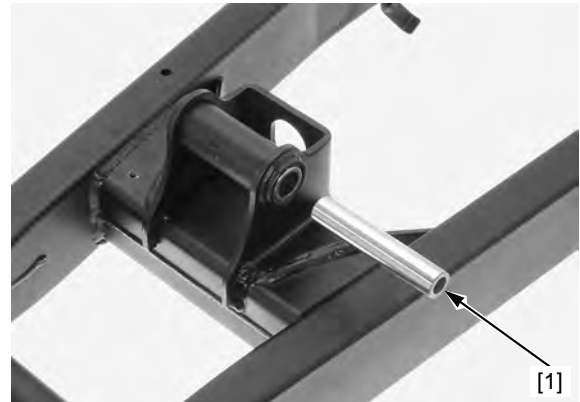
- Do not reuse the snap ring which could easily spin in the groove.
- Make sure that the snap ring is firmly seated in the groove.



REAR WHEEL/SUSPENSION ASSEMBLY



Install the collar [1] to the shock absorber bracket.



Apply molybdenum disulfide grease to new dust seal rips.

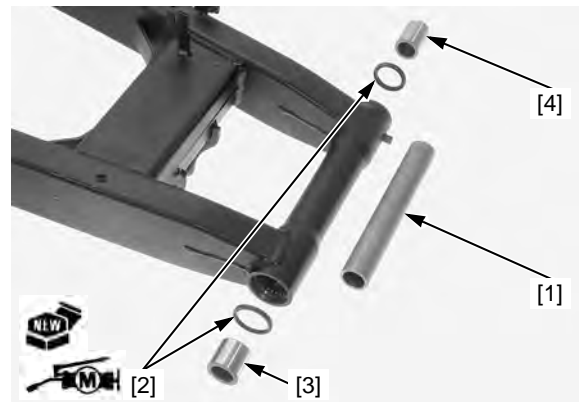
Install the distance collar [1] and dust seals [2] to the swingarm pivot.

NOTE:

Install the dust seal flush with the pivot surface.

Install the wide pivot collar [3] to the swingarm right pivot.

Install the narrow pivot collar [4] to the swingarm left pivot.



Install the drive chain slider [1].

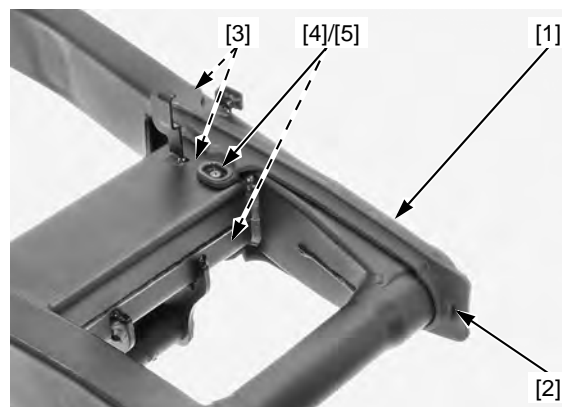
NOTE:

- Align the drive chain slider slit [2] from the swingarm tab.
- Align the drive chain slider tabs [3] from the swingarm holes.

Install the washers [4] and drive chain slider mounting screws [5].

Tighten the drive chain slider mounting screws to the specified torque.

TORQUE: 5.9 N-m (0.6 kgf-m, 4.4 lbf-ft)



INSTALLATION

Apply a thin coat of grease to the swingarm pivot bolt sliding surface.

Set the drive chain [1] onto the swingarm [2] and install the swingarm to the frame.

Install the swingarm pivot bolt [3] from the left side.



Install the washer [1] and swingarm pivot nut [2].

Tighten the swingarm pivot nut to the specified torque.

TORQUE: 98 N-m (10.0 kgf-m, 72 lbf-ft)



Install the right step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

TORQUE: 32 N-m (3.3 kgf-m, 24 lbf-ft)



REAR WHEEL/SUSPENSION

Install the shock arm [1] and shock absorber lower mounting bolt [2] to the shock absorber.

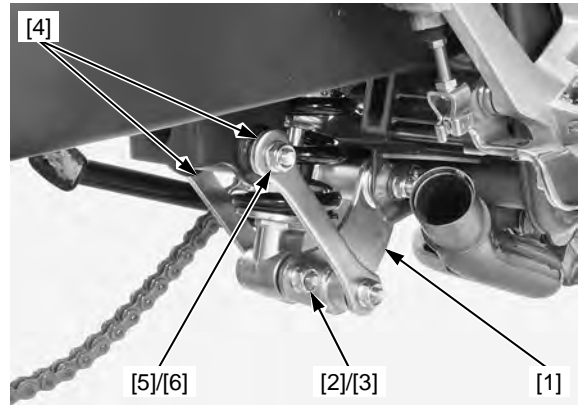
Install and tighten the shock absorber lower mounting nut [3] to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the shock links [4] and shock link bolt [5] to the swingarm.

Install and tighten the shock link nut [6] to the specified torque.

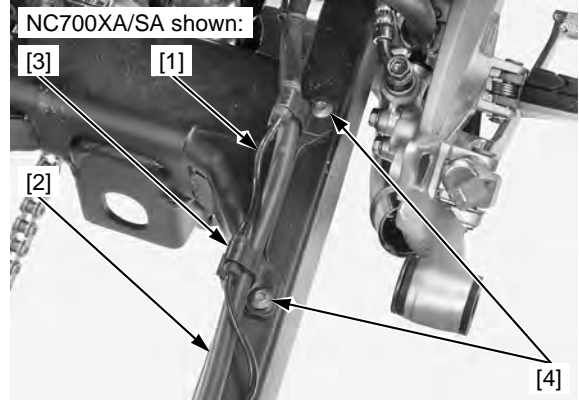
TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)



NC700X/XA/S/SA: Install the rear wheel speed sensor wire (NC700XA/SA) [1] and brake hose [2] to the brake hose guide [3].

Install the brake hose guide and socket bolts [4].

Tighten the socket bolts securely.



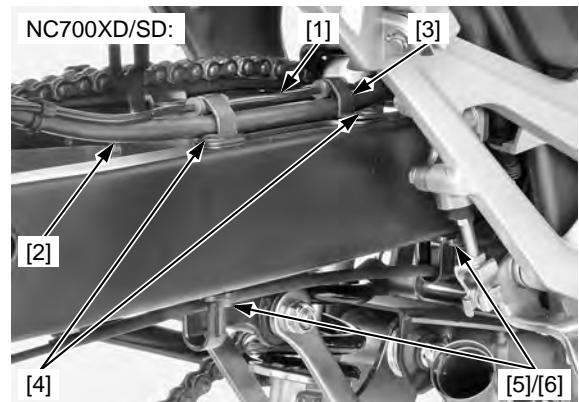
NC700XD/SD: Install the rear wheel speed sensor wire [1] and brake hose [2] to the brake hose guide [3].

Install the brake hose guide and socket bolts [4].

Tighten the socket bolts securely.

Install the parking brake cable guides [5] and screws [6].

Tighten the screws securely.



Install the drive chain case [1] and socket bolts [2].

Tighten the socket bolts securely.



Install the left step holder [1] and step holder mounting socket bolts [2].

Tighten the step holder mounting socket bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



NC700X/XA/S/SA: Install the gearshift arm [1] to the gearshift spindle.

NOTE:

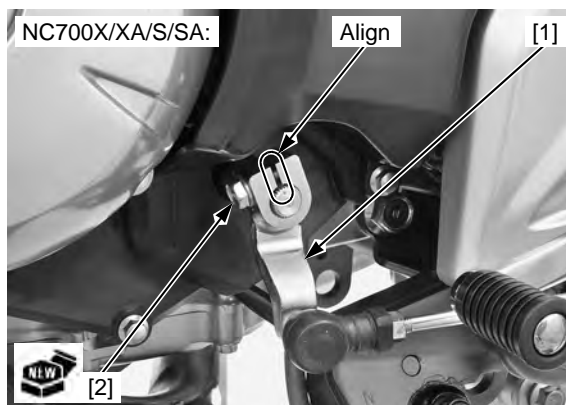
Align the gearshift arm slit with the gearshift spindle punch mark.

Install and tighten a new gearshift arm pinch bolt [2] to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the following:

- Muffler (page 2-32)
- Rear wheel (page 18-11)



MEMO

19. HYDRAULIC BRAKE

COMPONENT LOCATION	19-2	REAR MASTER CYLINDER	19-23
SERVICE INFORMATION	19-5	FRONT BRAKE CALIPER (NC700X/S)	19-26
TROUBLESHOOTING.....	19-7	FRONT BRAKE CALIPER (NC700XA/XD/SA/SD)	19-28
BRAKE FLUID REPLACEMENT/AIR BLEEDING (NC700X/S)	19-8	REAR BRAKE CALIPER	19-30
BRAKE FLUID REPLACEMENT/AIR BLEEDING (NC700XA/XD/SA/SD)	19-11	PARKING BRAKE CALIPER (NC700XD/SD)	19-32
BRAKE PAD/DISC	19-16	BRAKE PEDAL	19-37
FRONT MASTER CYLINDER	19-20	PARKING BRAKE LEVER (NC700XD/SD)	19-38

HYDRAULIC BRAKE

COMPONENT LOCATION

NC700XA/SA shown:

12 N·m (1.2 kgf·m, 9 lbf·ft)

34 N·m (3.5 kgf·m, 25 lbf·ft)

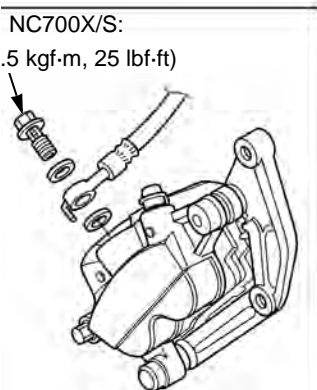
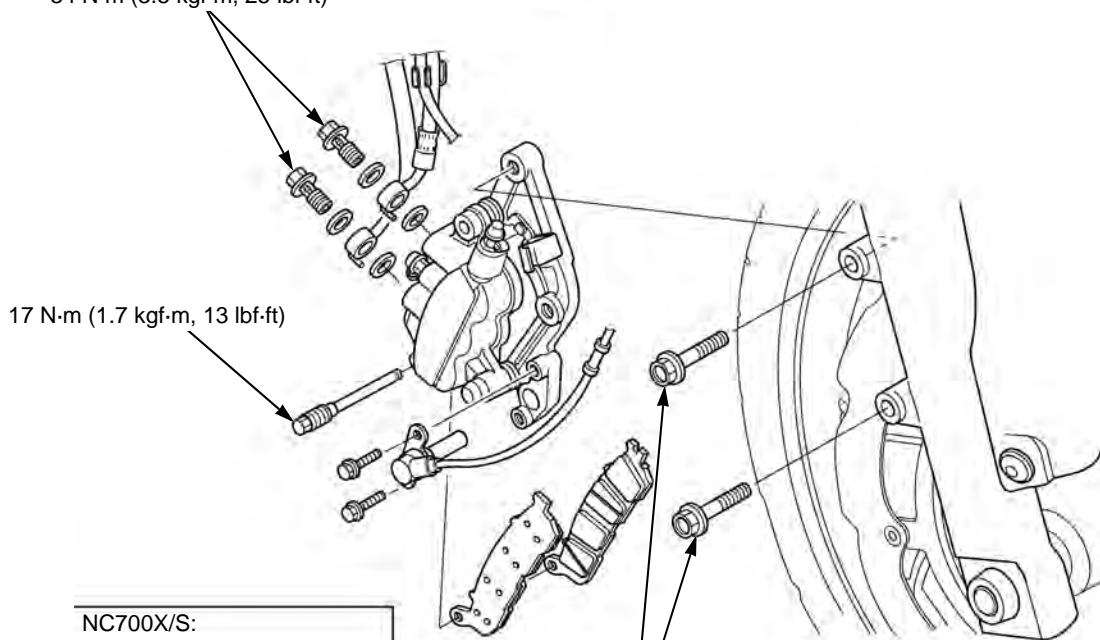
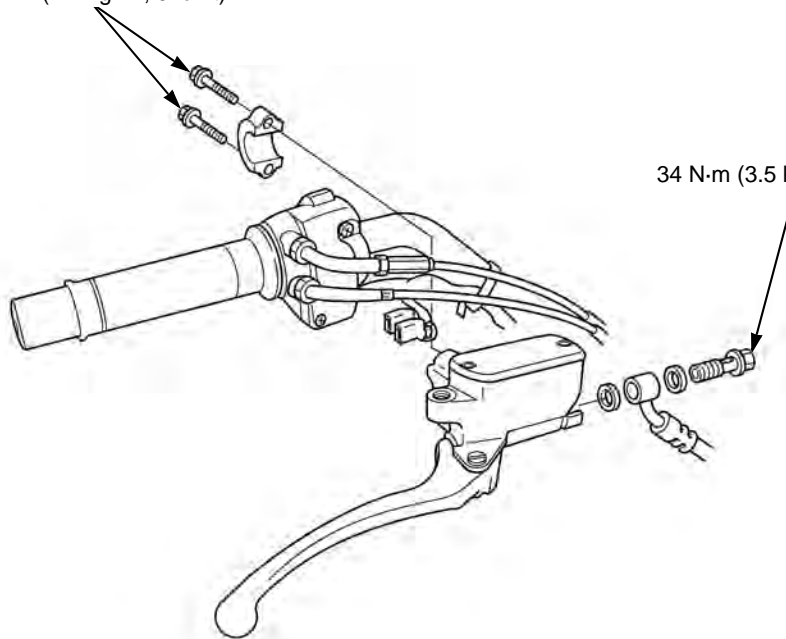
34 N·m (3.5 kgf·m, 25 lbf·ft)

17 N·m (1.7 kgf·m, 13 lbf·ft)

NC700X/S:

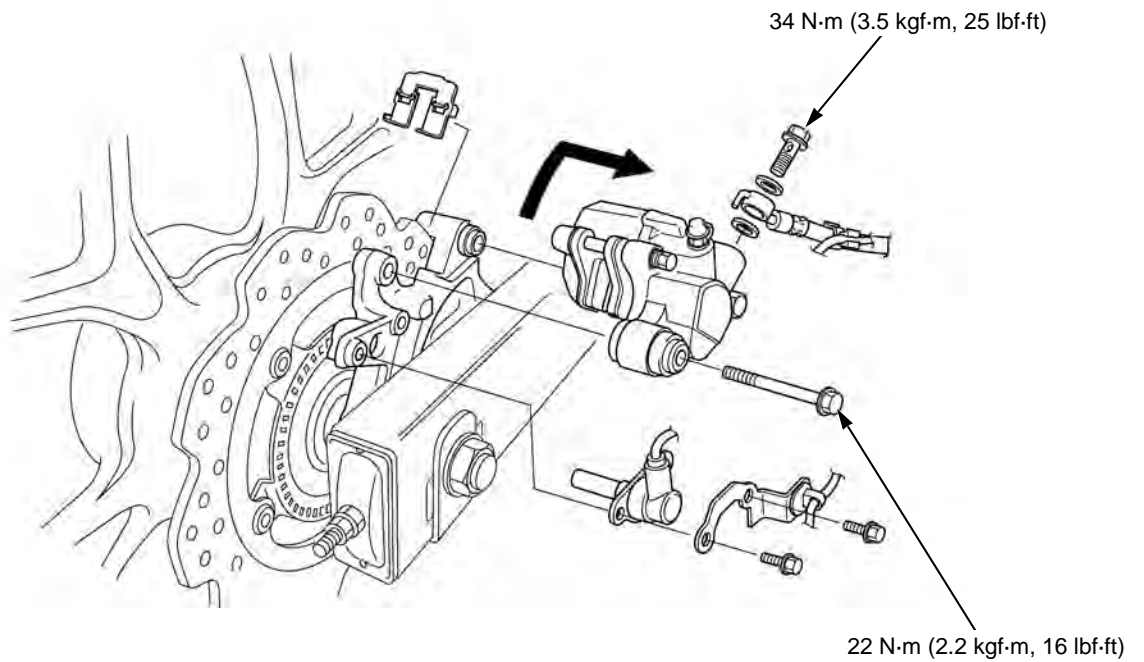
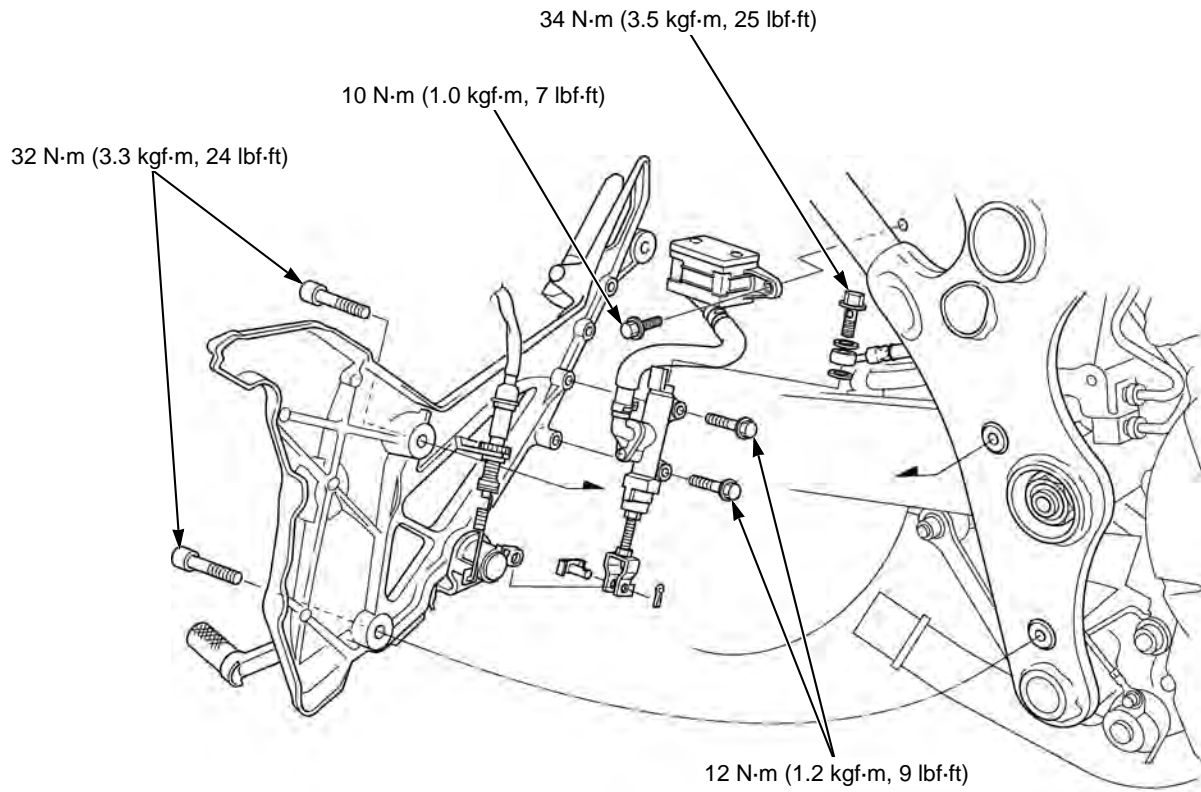
34 N·m (3.5 kgf·m, 25 lbf·ft)

30 N·m (3.1 kgf·m, 22 lbf·ft)



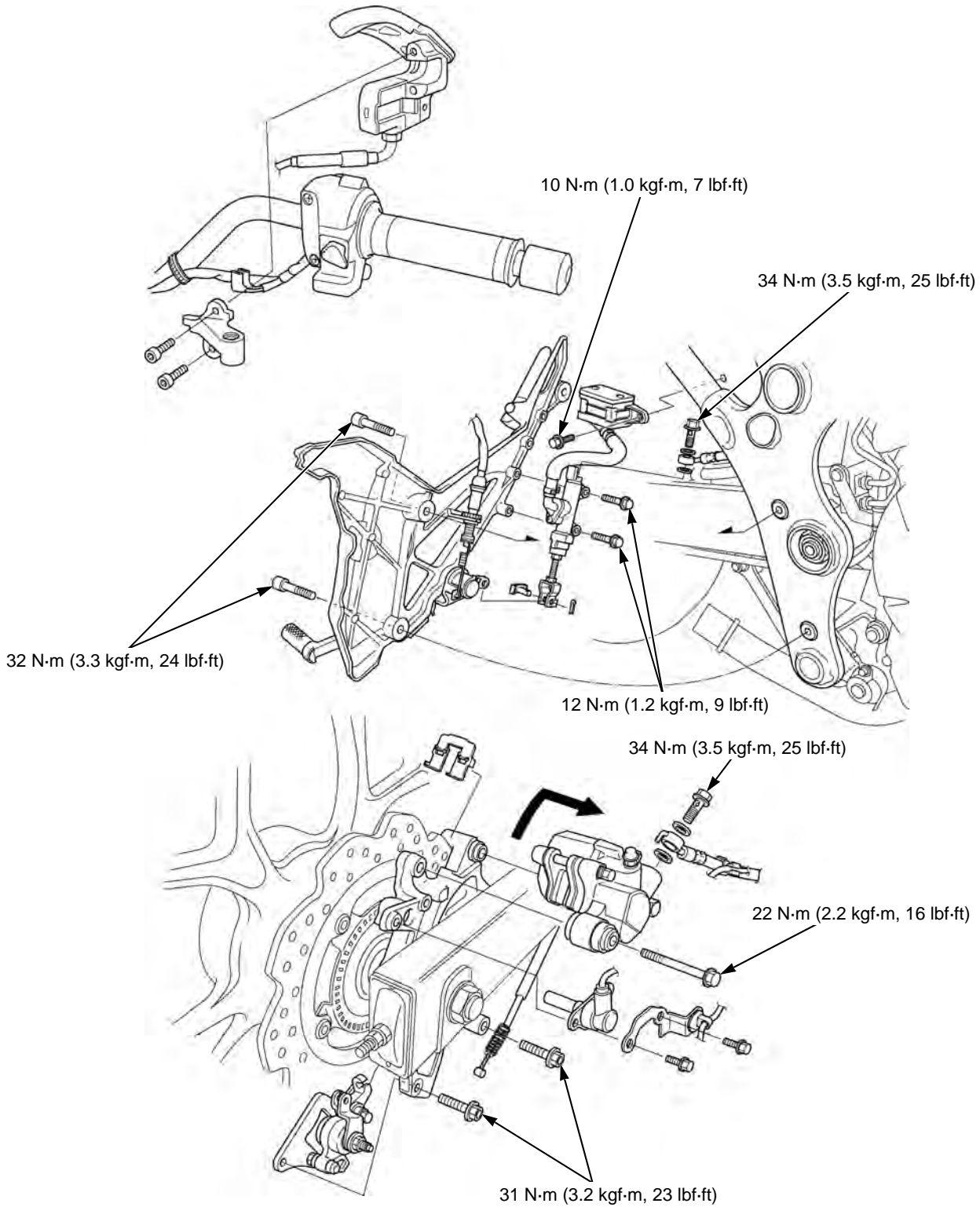
NC700X/XA/S/SA:

NC700XA/SA shown:



HYDRAULIC BRAKE

NC700XD/SD:



SERVICE INFORMATION

GENERAL

⚠ CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

NOTICE

Spilling brake fluid will severely damage instrument lenses and painted surface. It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cover; make sure the front reservoir is horizontal first.

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.
- Check the brake system by applying the brake lever or pedal after the air bleeding.
- Never allow contaminants (dirt, water, etc.) to get into an open reservoir.
- Once the hydraulic system has been opened, or if the brake feels spongy, the system must be bled.
- Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid, they may not be compatible.
- Always check brake operation before riding the motorcycle.
- This section covers service of the conventional brake components of the brake system. For Anti-lock Brake System (ABS) service (page 20-4).

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Front	Specified brake fluid	DOT 4	–	
	Brake disc thickness	4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)	
	Brake disc warpage	–	0.30 (0.012)	
	Master cylinder I.D.	11.000 – 11.043 (0.4331 – 0.4348)	11.055 (0.4352)	
	Master piston O.D.	10.957 – 10.984 (0.4314 – 0.4324)	10.945 (0.4309)	
	Caliper cylinder I.D. (NC700X/S)	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)	
	Caliper piston O.D. (NC700X/S)	26.918 – 26.968 (1.0598 – 1.0617)	26.91 (1.059)	
	Caliper cylinder I.D. (NC700XA/XD/SA/SD)	Cylinder A	22.650 – 22.700 (0.8917 – 0.8937)	22.712 (0.8941)
		Cylinder B	27.000 – 27.050 (1.0630 – 1.0650)	27.060 (1.0654)
	Caliper piston O.D. (NC700XA/XD/SA/SD)	Piston A	22.585 – 22.618 (0.8892 – 0.8905)	22.56 (0.888)
Piston B		26.918 – 26.968 (1.0598 – 1.0617)	26.91 (1.059)	
Rear	Specified brake fluid	DOT 4	–	
	Brake disc thickness	4.8 – 5.2 (0.19 – 0.20)	4.0 (0.16)	
	Brake disc warpage	–	0.30 (0.012)	
	Master cylinder I.D.	14.000 – 14.043 (0.5512 – 0.5529)	14.055 (0.5533)	
	Master piston O.D.	13.957 – 13.984 (0.5495 – 0.5506)	13.945 (0.5490)	
	Caliper cylinder I.D.	38.18 – 38.23 (1.503 – 1.505)	38.24 (1.506)	
	Caliper piston O.D.	38.098 – 38.148 (1.4999 – 1.5019)	38.09 (1.500)	
	Brake pedal height	85.0 – 87.0 (3.35 – 3.43)	–	

HYDRAULIC BRAKE

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Brake caliper bleed valve (NC700X/S)	2	8	5.4 (0.6, 4.0)	
Brake caliper bleed valve (NC700XA/XD/SA/SD)	3	8	5.4 (0.6, 4.0)	
Master cylinder reservoir cover screw	4	4	1.5 (0.2, 1.1)	
Rear brake reservoir mounting bolt	1	6	10 (1.0, 7)	
Brake pad pin	2	10	17 (1.7, 13)	
Rear brake caliper mounting bolt	1	8	22 (2.2, 16)	ALOC bolt; replace with a new one.
Front master cylinder holder bolt	2	6	12 (1.2, 9)	
Brake hose oil bolt (NC700X/S)	4	10	34 (3.5, 25)	
Brake hose oil bolt (NC700XA/XD/SA/SD)	5	10	34 (3.5, 25)	
Front brake light switch screw	1	4	1.2 (0.1, 0.9)	
Front brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	Apply 0.10 g (0.004 oz) silicone grease to the sliding surface.
Front brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Rear master cylinder mounting bolt	2	6	12 (1.2, 9)	
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Rear master cylinder hose joint screw	1	4	1.5 (0.2, 1.1)	Apply locking agent to the threads.
Rear master cylinder push rod lock nut	1	8	17 (1.7, 13)	
Front brake caliper pin	1	8	22 (2.2, 16)	Apply locking agent to the threads. Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Front brake caliper bracket pin	1	8	12 (1.2, 9)	Apply locking agent to the threads. Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	ALOC bolt; replace with a new one.
Rear brake caliper pin	1	12	27 (2.8, 20)	Apply 0.4 g (0.01 oz) silicone grease to the sliding surface.
Parking brake caliper mounting bolt (NC700XD/SD)	2	8	31 (3.2, 23)	ALOC bolt; replace with a new one.
Parking brake caliper pin bolt (NC700XD/SD)	1	8	22 (2.2, 16)	Apply locking agent to the threads.
Parking brake pad pin (NC700XD/SD)	2	8	17 (1.7, 13)	ALOC bolt; replace with a new one.
Parking brake adjuster bolt lock nut (NC700XD/SD)	1	8	17 (1.7, 13)	
Parking brake cable mounting nut (NC700XD/SD)	1	10	10 (1.0, 7)	

TROUBLESHOOTING

Brake lever/pedal soft or spongy

- Air in hydraulic system
- Leaking hydraulic system
- Contaminated brake pad/disc
- Worn caliper piston seal
- Worn master cylinder piston cups
- Worn brake pad/disc
- Contaminated caliper
- Contaminated master cylinder
- Caliper not sliding properly
- Low brake fluid level
- Clogged fluid passage
- Warped/deformed brake disc
- Sticking/worn caliper piston
- Sticking/worn master cylinder piston
- Bent brake lever/pedal

Brake lever/pedal hard

- Clogged/restricted hydraulic system
- Sticking/worn caliper piston
- Caliper not sliding properly
- Worn caliper piston seal
- Sticking/worn master cylinder piston
- Bent brake lever/pedal

Brake drags

- Contaminated brake pad/disc
- Misaligned wheel
- Badly worn brake pad/disc
- Warped/deformed brake disc
- Caliper not sliding properly
- Clogged/restricted hydraulic system
- Sticking/worn caliper piston
- Clogged master cylinder port
- Sticking master cylinder piston

HYDRAULIC BRAKE

BRAKE FLUID REPLACEMENT/AIR BLEEDING (NC700X/S)

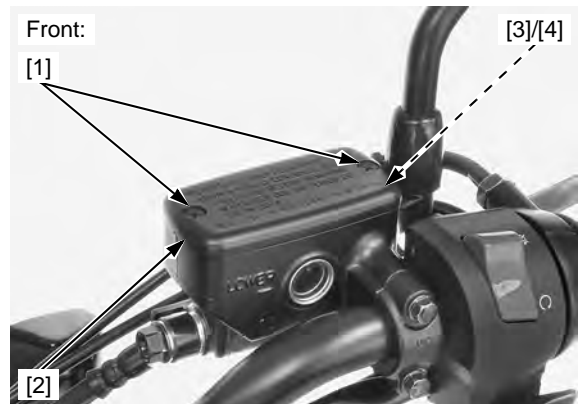
NOTE:

- Do not allow foreign material to enter the system when filling the reservoir.
- When using a commercially available brake bleeder, follow the manufacture's operating instructions.

BRAKE FLUID DRAINING

Front brake: Turn the handlebar until the reservoir is parallel to the ground.

Remove the reservoir cover screws [1], reservoir cover [2], set plate [3] and diaphragm [4].



Rear brake: Support the motorcycle in an upright position.

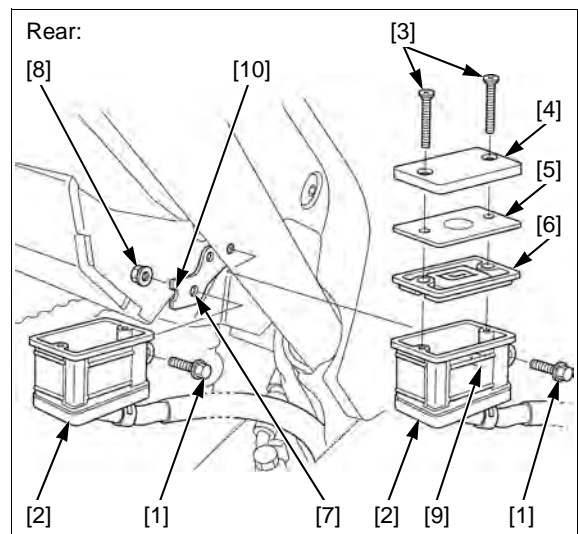
Remove the rear brake reservoir mounting bolt [1] and reservoir [2].

Remove the cover screws [3], reservoir cover [4], set plate [5] and diaphragm [6].

Temporarily install the reservoir and mounting bolt to the reservoir stay lower hole [7] using a 6 mm nut [8].

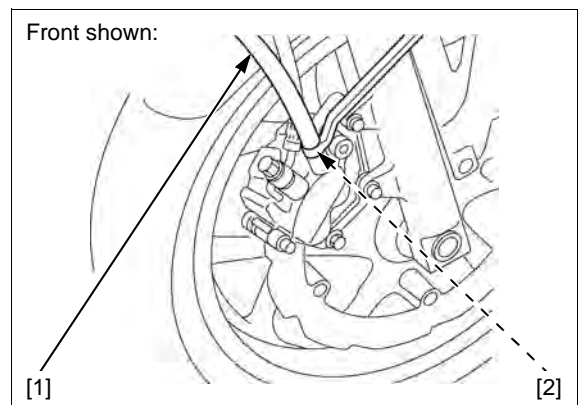
NOTE:

Align the reservoir tab [9] with the reservoir stay cut out [10].



Connect a bleed hose [1] to the caliper bleed valve [2].

Loosen the bleed valve and pump the brake lever/pedal until no more fluid flows out of the bleed valve.



BRAKE FLUID FILLING/AIR BLEEDING

Do not mix different types of fluid. There are not compatible.

Fill the reservoir with DOT 4 brake fluid from a sealed container.

Connect a automatic refill system to the reservoir.

If an automatic refill system is not used, add fluid when the fluid level in the reservoir is low.

NOTE:

- Check the fluid level often while bleeding the brake to prevent air from being pumped into the system.
- When using a brake bleeding tool, follow the manufacturer's operating instructions.



Connect a commercially available brake bleeder [1] to the bleed valve [2].

Operate the brake bleeder and loosen the bleed valve.

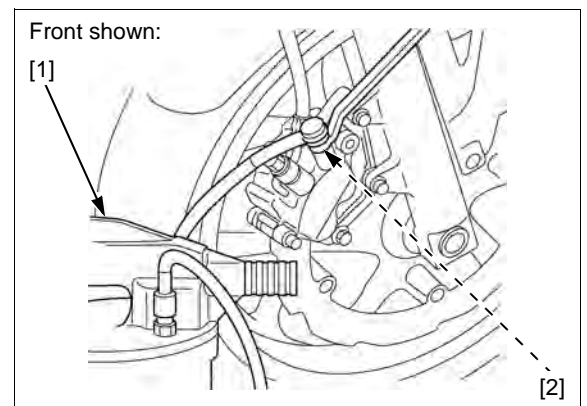
If air enters the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Perform the bleeding procedure until the system is completely flushed/bled.

Close the bleed valve and operate the brake lever/pedal. If it still feels spongy, bleed the system again.

After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 5.4 N-m (0.6 kgf-m, 4.0 lbf-ft)



If the brake bleeder is not available, perform the following procedure.

Pump up the system pressure with the brake lever/pedal until the lever/pedal resistance is felt.

Connect a bleed hose [1] to the bleed valve [2].

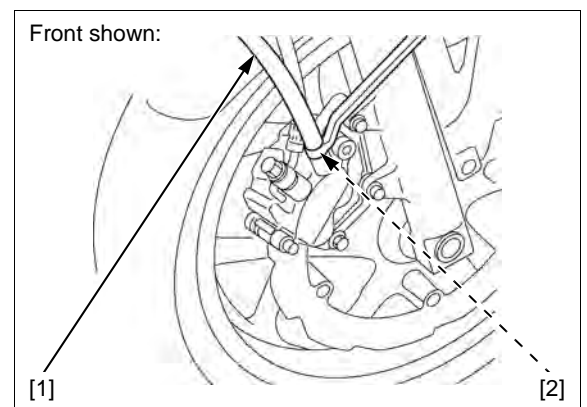
1. Squeeze the brake lever/pedal all the way and loosen the bleed valve 1/4 turn. Wait several seconds and then close the bleed valve.

NOTE:

- Do not release the brake lever/pedal until the bleed valve has been closed.
2. Release the brake lever/pedal slowly and wait several seconds after it reaches the end of its travel.
 3. Repeat the steps 1 and 2 until there are no air bubbles in the bleed hose.

After bleeding the system completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 5.4 N-m (0.6 kgf-m, 4.0 lbf-ft)



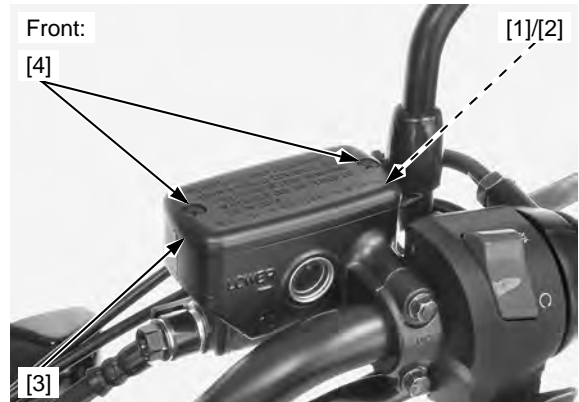
HYDRAULIC BRAKE

Do not mix different types of fluid. There are not compatible. Fill the reservoir with DOT 4 brake fluid from a sealed container to the casting ledge [1].



Front brake: Install the diaphragm [1], set plate [2], reservoir cover [3] and reservoir cover screws [4], then tighten the screws to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)



Rear brake: Remove the 6 mm nut [1], rear brake reservoir mounting bolt [2] and reservoir [3].

Install the diaphragm [4], set plate [5] and reservoir cover [6].
Install and tighten the cover screws [7] to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

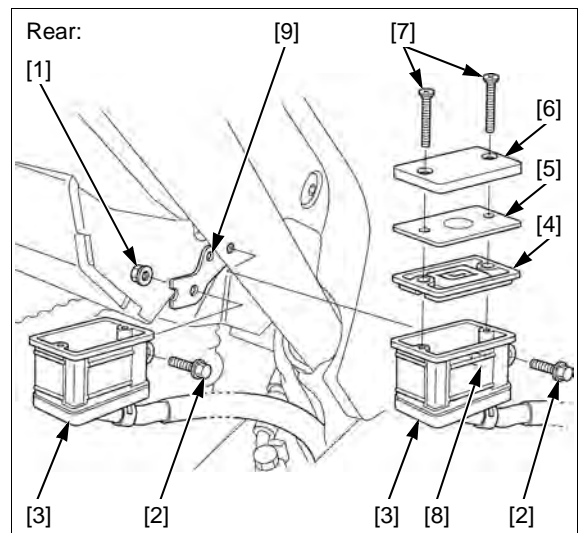
Install the reservoir and rear brake reservoir mounting bolt.

NOTE:

Align the reservoir tab [8] with the reservoir stay upper hole [9].

Tighten the bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



BRAKE FLUID REPLACEMENT/AIR BLEEDING (NC700XA/XD/SA/SD)

NOTE:

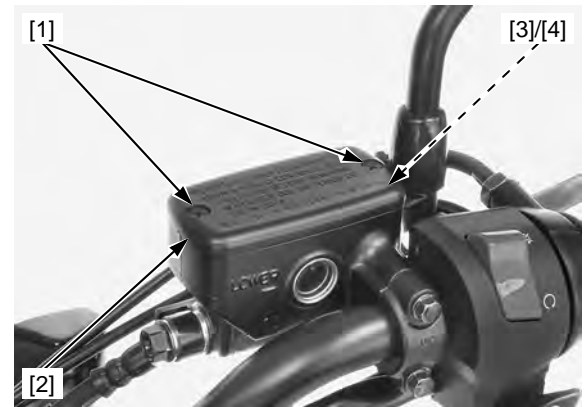
- Do not allow foreign material to enter the system when filling the reservoir.
- When using a commercially available brake bleeder, follow the manufacture's operating instructions.

BRAKE FLUID DRAINING

LEVER BRAKE LINE

Turn the handlebar until the reservoir is parallel to the ground.

Remove the reservoir cover screws [1], reservoir cover [2], set plate [3] and diaphragm [4].



Connect a bleed hose [1] to the front brake caliper upper bleed valve [2].

Loosen the upper bleed valve and pump the brake lever until no more fluid flows out of the bleed valve.



PEDAL (COMBI) BRAKE LINE

Support the motorcycle in an upright position.

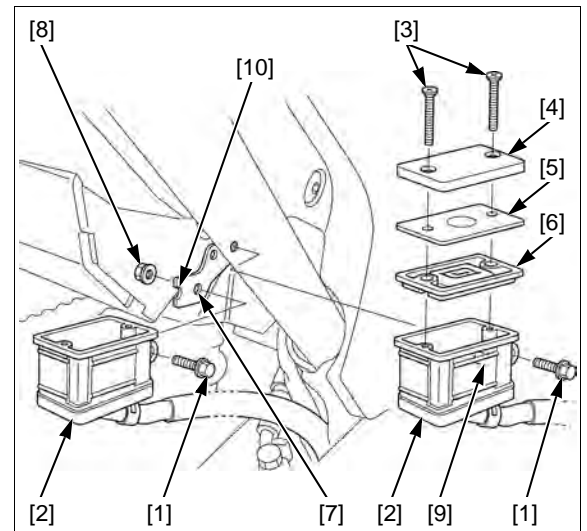
Remove the rear brake reservoir mounting bolt [1] and reservoir [2].

Remove the cover screws [3], reservoir cover [4], set plate [5] and diaphragm [6].

Temporarily install the reservoir and mounting bolt to the reservoir stay lower hole [7] using a 6 mm nut [8].

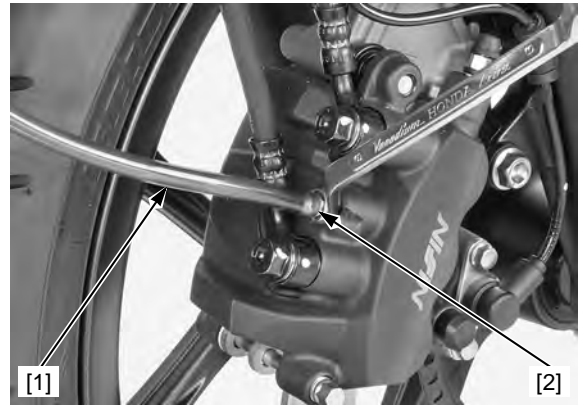
NOTE:

Align the reservoir tab [9] with the reservoir stay cut out [10].

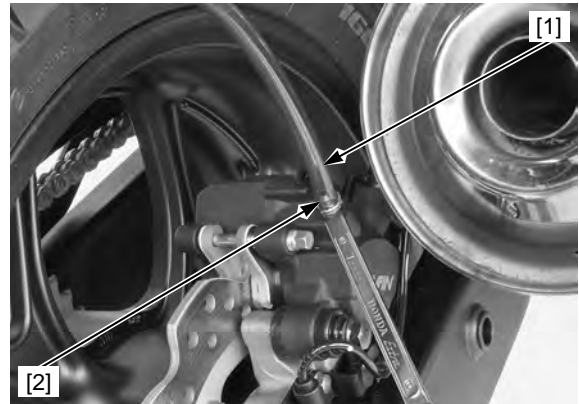


HYDRAULIC BRAKE

Connect a bleed hose [1] to the front brake caliper center bleed valve [2].
Loosen the center bleed valve and pump the brake pedal until no more fluid flows out of the bleed valve.
Tighten the bleed valve.

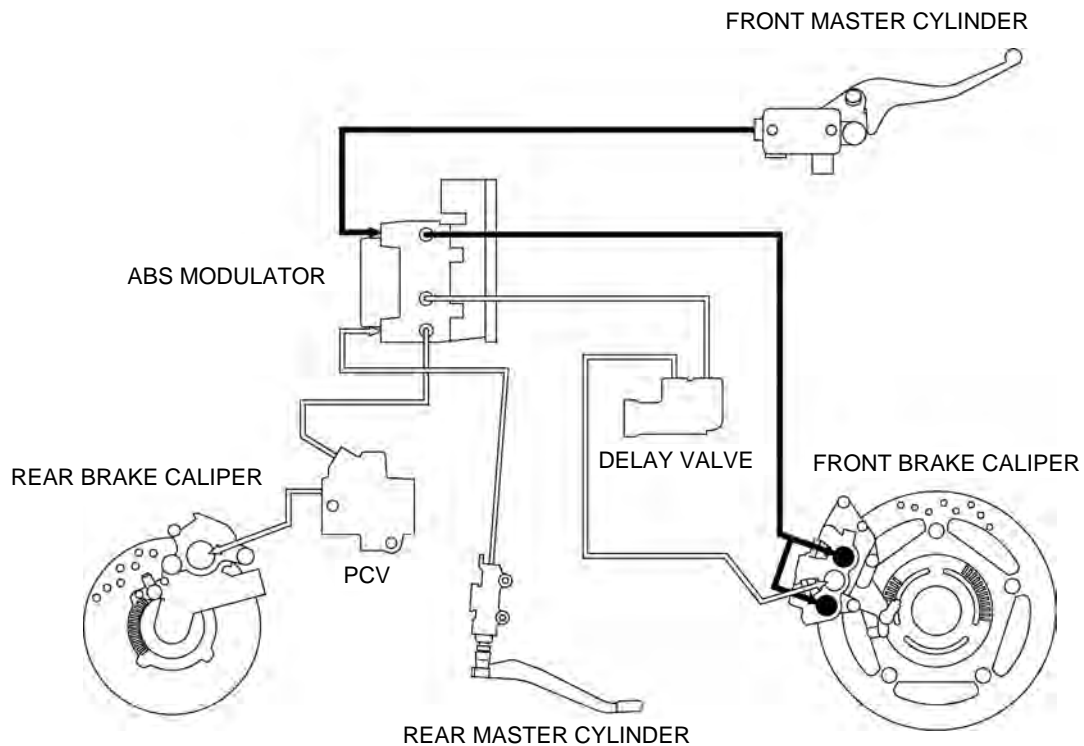


Connect a bleed hose [1] to the rear brake caliper bleed valve [2].
Loosen the bleed valve and pump the brake pedal until no more fluid flows out of the bleed valve.
Tighten the bleed valve.



BRAKE FLUID FILLING/AIR BLEEDING

BRAKE FLUID LINE



LEVER BRAKE LINE

Close the bleed valves.

Fill the reservoir with DOT 4 brake fluid from a sealed container.

Connect an automatic refill system to the reservoir.

NOTE:

- If an automatic refill system is not used, add brake fluid when the fluid level in the reservoir is low.
- Check the fluid level often while bleeding the brakes to prevent air from being pumped into the system.
- When using a brake bleeding tool, follow the manufacturer's operating instructions.
- If air is entering the bleeder from around the bleed valve threads, seal the threads with teflon tape.

Connect a commercially available brake bleeder [1] to the front brake caliper upper bleed valve.

Operate the brake bleeder and loosen the bleed valve.

Perform the bleeding procedure until the system is completely flushed/bled.

Close the bleed valve and operate the brake lever. If it is still spongy, bleed the system again.

After bleeding the air completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 5.4 N-m (0.6 kgf-m, 4.0 lbf-ft)

If a brake bleeder is not available, use the following procedure:

Fill the reservoir with DOT 4 brake fluid from a sealed container.

Connect a bleed hose [1] to the front brake caliper upper bleed valve [2].

Pressurize the system with the brake lever until lever resistance is felt.

1. Squeeze the brake lever all the way and loosen the bleed valve 1/4 turn and then close the bleed valve.

NOTE:

- Do not release the lever until the bleed valve has been closed.
2. Release the brake lever slowly and wait several seconds after it reaches the end of its travel.
 3. Repeat steps 1. and 2. until air bubbles do not appear in the bleed hose.

After bleeding the air completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 5.4 N-m (0.6 kgf-m, 4.0 lbf-ft)

Fill the reservoir with DOT 4 brake fluid from a sealed container to the casting ledge [1].

Install the diaphragm and set plate.

Install the reservoir cover and tighten the screws to the specified torque.

TORQUE: 1.5 N-m (0.2 kgf-m, 1.1 lbf-ft)



HYDRAULIC BRAKE

PEDAL (COMBI) BRAKE FLUID FILLING

Add fluid and bleed any air from the pedal brake line in the sequence as follow:

1. Front brake caliper center bleed valve
2. Rear brake caliper bleed valve

Fill the reservoir with DOT 4 brake fluid from a sealed container.

Operate the brake pedal several times to bleed any air from the master cylinder.



Connect a commercially available brake bleeder [1] to the front brake caliper center bleed valve.

NOTE:

If air is entering the bleeder from around the bleed valve threads, seal the threads with teflon tape.

1. Operate the brake bleeder and loosen the front brake caliper center bleed valve. Add fluid when the fluid level in the master cylinder is low to prevent drawing air into the system.
2. Repeat the above procedures until a sufficient amount of fluid flows out of the front brake caliper center bleed valve.



It is not a problem if the fluid flowing out from the center bleed valve contains air bubbles because the lines will be bled later (page 19-15).

Connect a commercially available brake bleeder [1] to the rear brake caliper bleed valve.

Repeat above step 1. and 2. for rear brake caliper bleed valve.

Bleed the hydraulic system (page 19-15).



If a brake bleeder is not available, use the following procedure:

Connect a bleed hose [1] to the front brake caliper center bleed valve [2].

1. Pump the brake pedal several (5 – 10) times quickly, then push the brake pedal all the way down, loosen the front brake caliper center bleed valve 1/4 of turn.

Wait several seconds and close the bleed valve.

Release the brake pedal slowly and wait several seconds after it reaches the end of its travel.

2. Repeat the above procedures until a sufficient amount of the fluid flows out from the front brake caliper center bleed valve.

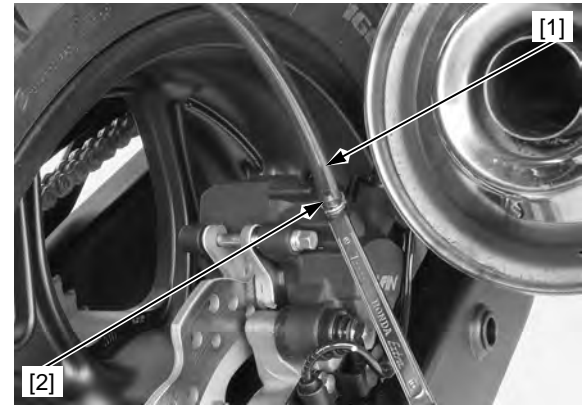


It is not a problem if the fluid flowing out from the front brake caliper center bleed valve contains air bubbles because the lines will be bled later (page 19-15).

Connect a bleed hose [1] to the rear brake caliper bleed valve [2].

Repeat above steps 1. and 2. for the rear brake caliper bleed valve.

Bleed the rear hydraulic system (page 19-15).



PEDAL (COMBI) BRAKE AIR BLEEDING

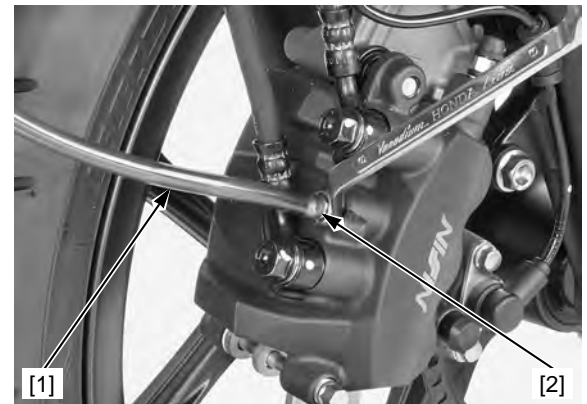
Connect a bleed hose [1] to the front brake caliper center bleed valve [2].

1. Pump the brake pedal several (5 – 10) times quickly, then push the brake pedal all the way down, loosen the front brake caliper center bleed valve 1/4 of turn.

Wait several seconds and close the bleed valve.

Release the brake pedal slowly and wait several seconds after it reaches the end of its travel.

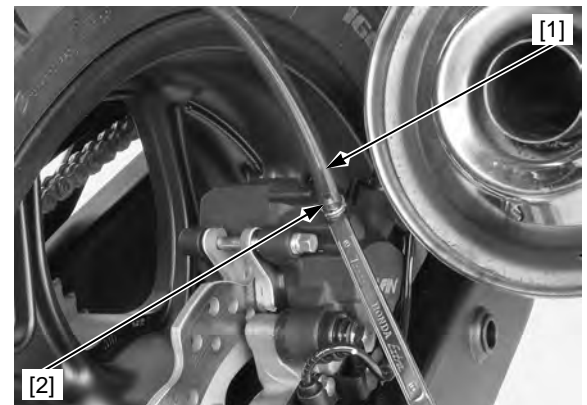
2. Repeat the above procedures until air bubbles do not appear in the transparent hose.



Connect a bleed hose [1] to the rear brake caliper bleed valve [2].

Repeat above steps 1. and 2. for the rear brake caliper bleed valve.

Note that you may feel strong resistance on the rear (combi) brake pedal during pumping when bleeding air from the caliper. This symptom is caused by the PCV function. Be sure to apply the brake pedal fully.



After there are no more air bubbles in the fluid, repeat the air bleeding procedure about 2 or 3 times at each bleed valve.

Make sure the bleed valves are closed and operate the brake pedal. If it still feels spongy, bleed the system again.

After bleeding the air completely, tighten the brake caliper bleed valve to the specified torque.

TORQUE: 5.4 N-m (0.6 kgf-m, 4.0 lbf-ft)

Fill the reservoir [1] with DOT 4 brake fluid from a sealed container to the "UPPER" level [2].



HYDRAULIC BRAKE

Remove the 6 mm nut [1], rear brake reservoir mounting bolt [2] and reservoir [3].

Install the diaphragm [4], set plate [5] and reservoir cover [6].

Install and tighten the cover screws [7] to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

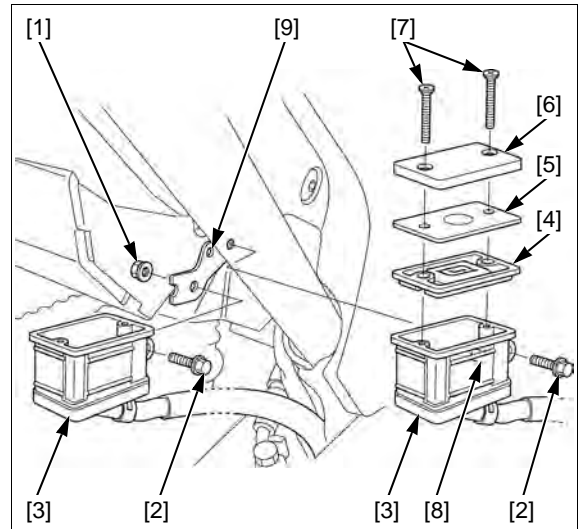
Install the reservoir and rear brake reservoir mounting bolt.

NOTE:

Align the reservoir tab [8] with the reservoir stay upper hole [9].

Tighten the bolt to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



BRAKE PAD/DISC

FRONT BRAKE PAD REPLACEMENT (NC700X/S)

NOTE:

- Always replace the brake pads in pairs to assure even disc pressure.
- Check the brake fluid level in the brake master cylinder reservoir as this operation causes the level to rise.

Remove the brake pad pin [1] and brake pads [2].

NOTE:

Do not operate the brake lever after removing the brake pads.

Install new brake pads to the brake caliper so their ends seat against the retainer.

NOTE:

Make sure that the retainer and pad spring are installed to the brake caliper.

Check that the brake pad pin stopper ring [3] is in good condition, replace if necessary.

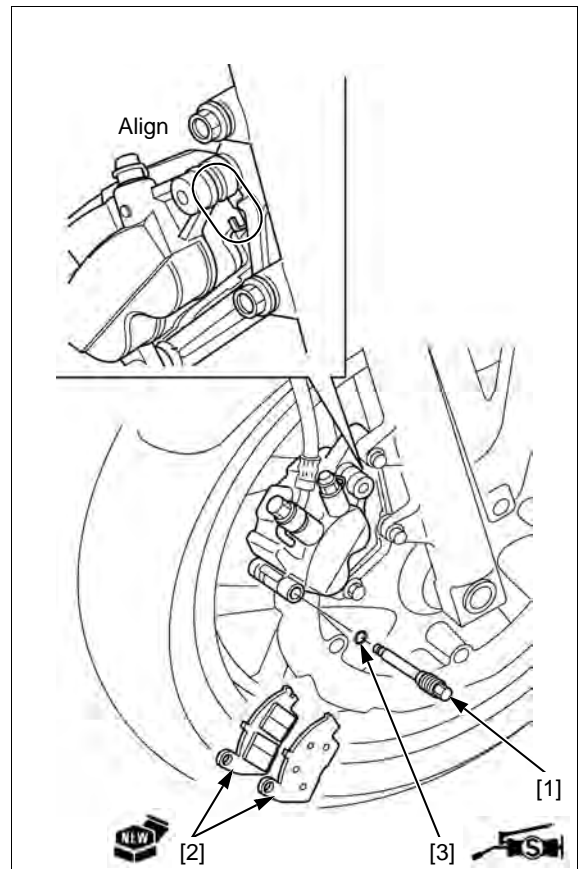
Apply silicone grease to the brake pad pin stopper ring and install it to the brake pad pin groove.

Install the brake pad pin by pushing the pads against the pad spring to align the brake pad pin holes in the pads and brake caliper.

Tighten the brake pad pin to the specified torque.

TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)

Operate the brake lever to seat the caliper piston against the pads.



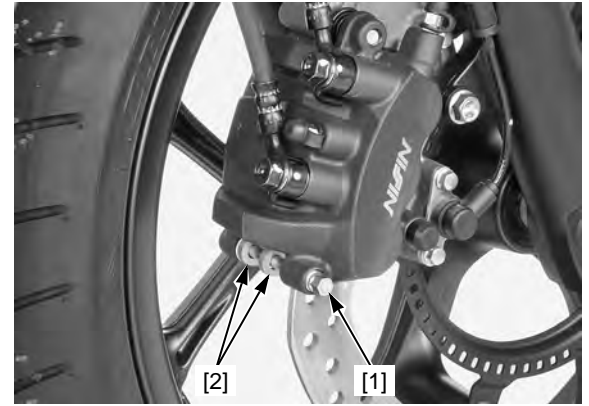
FRONT BRAKE PAD REPLACEMENT (NC700XA/XD/SA/SD)

NOTE:

- Always replace the brake pads in pairs to assure even disc pressure.
- Check the brake fluid level in the brake master cylinder reservoir as this operation causes the level to rise.

Do not operate the brake lever after removing the brake pads.

Remove the brake pad pin [1] and brake pads [2].



Install new brake pads [1] to the brake caliper so their ends seat against the retainer.

NOTE:

Make sure that the retainer is installed to the caliper bracket.

Check that the brake pad pin stopper ring [2] is in good condition, replace if necessary.

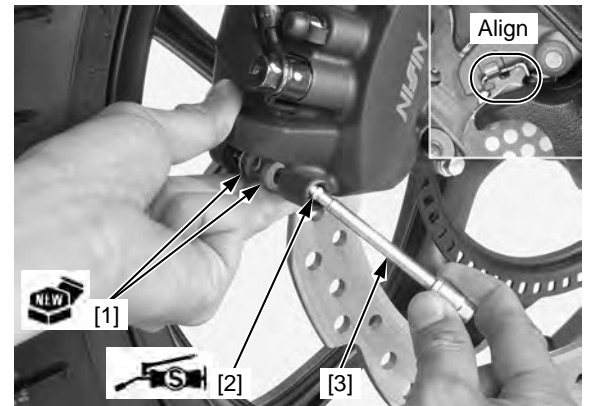
Apply silicone grease to the brake pad pin stopper ring and install it to the brake pad pin [3] groove.

Install the brake pad pin by pushing the pads against the pad spring to align the brake pad pin holes in the pads and brake caliper.

Tighten the front brake pad pin to the specified torque.

TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)

Operate the brake lever to seat the caliper piston against the pads.



HYDRAULIC BRAKE

REAR BRAKE PAD REPLACEMENT

NOTE:

- Always replace the brake pads in pairs to assure even disc pressure.
- Check the brake fluid level in the brake master cylinder reservoir as this operation causes the level to rise.

Remove the brake pad pin [1] and rear brake caliper mounting bolt [2].



Do not operate the brake pedal after removing the brake pads.

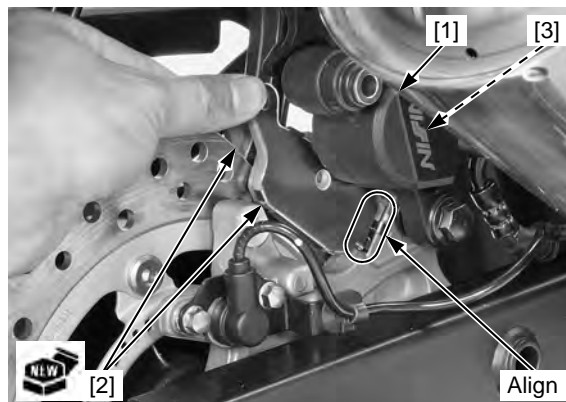
Lift the caliper [1] and remove the brake pads [2].

Install new brake pads to the brake caliper so their ends seat against the retainer.

NOTE:

Make sure that the retainer and pad spring [3] are installed to the brake caliper.

Lower the caliper.

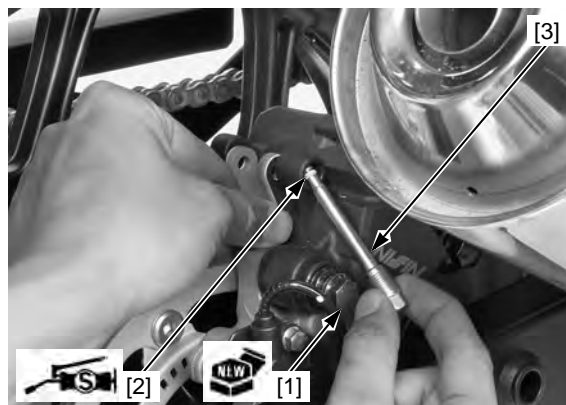


Loosely install a new rear brake caliper mounting bolt [1].

Check that the brake pad pin stopper ring [2] is in good condition, replace it if necessary.

Apply silicone grease to the brake pad pin stopper ring.

Install the brake pad pin [3] by pushing the pads against the pad spring to align the brake pad pin holes in the pads and brake caliper.



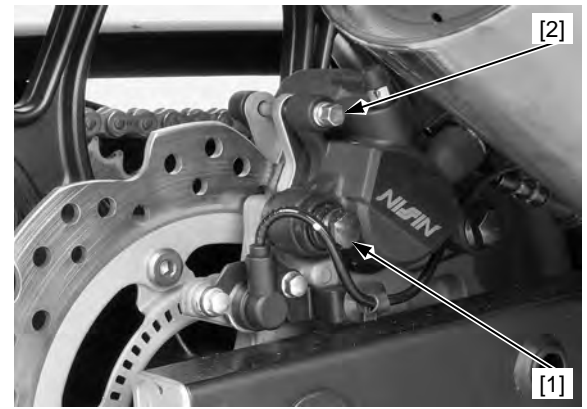
Tighten the rear brake caliper mounting bolt [1] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Tighten the brake pad pin [2] to the specified torque.

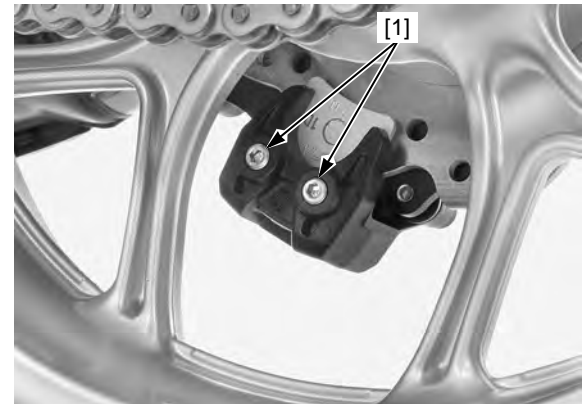
TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)

Operate the brake pedal to seat the caliper pistons against the pads.

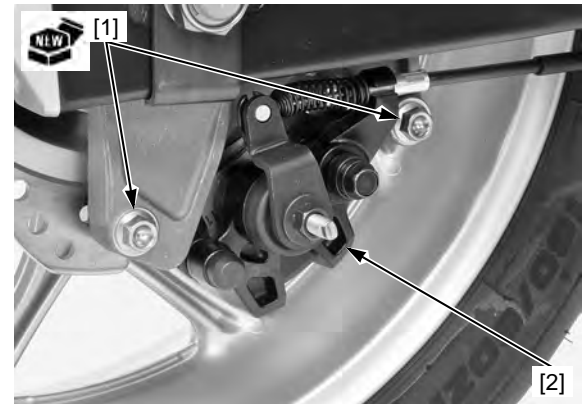


PARKING BRAKE PAD REPLACEMENT (NC700XD/SD)

Loosen the parking brake pad pins [1].



Remove the brake caliper mounting bolt [1] and caliper [2] from the bracket.



Remove the parking brake pad pins [1] and pads [2].

Make sure the pad spring is installed in position.

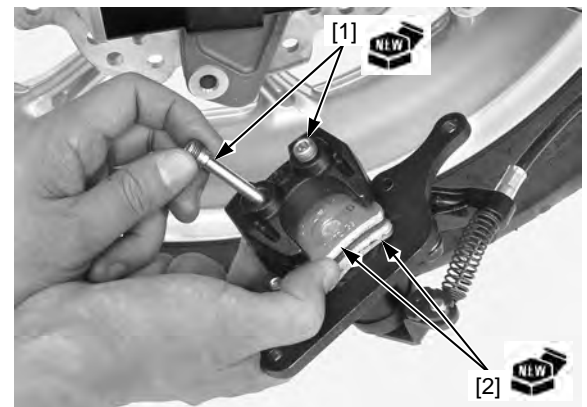
Install new parking brake pads and pad pins.

Install the parking brake caliper and new mounting bolts and tighten the bolt to the specified torque.

TORQUE: 31 N·m (3.2 kgf·m, 23 lbf·ft)

Tighten the parking brake pad pins to the specified torque.

TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)



HYDRAULIC BRAKE

BRAKE DISC INSPECTION

Visually inspect the brake discs for damage or crack.

Measure the brake disc thickness using a micrometer.

SERVICE LIMITS:

Front: 4.0 mm (0.16 in)

Rear: 4.0 mm (0.16 in)

Replace the brake disc if the smallest measurement is less than the service limit.



Measure the brake discs warpage using a dial indicator.

SERVICE LIMITS:

Front: 0.30 mm (0.012 in)

Rear: 0.30 mm (0.012 in)

Check the wheel bearings for excessive play, if the warpage exceeds the service limit.

Replace the brake disc if the wheel bearings are normal.



FRONT MASTER CYLINDER

REMOVAL/INSTALLATION

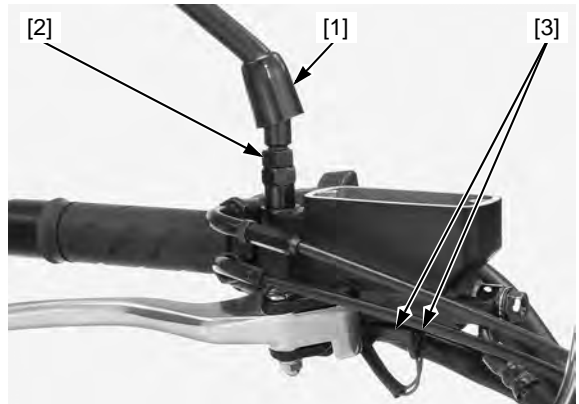
Drain the brake fluid from the hydraulic system:

- NC700X/S (page 19-8)
- NC700XA/XD/SA/SD (page 19-11)

Release the dust cover [1].

Loosen the lock nut [2] and remove the rearview mirror.

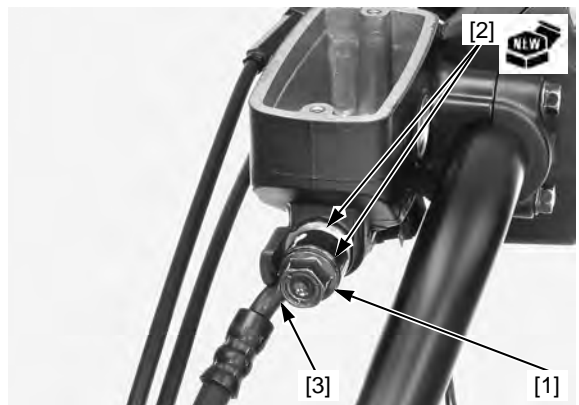
Disconnect the brake light switch connectors [3].



Remove the brake hose oil bolt [1], sealing washers [2] and brake hose [3].

NOTE:

When removing the oil bolt, cover the end of the brake hose to prevent contamination.



Remove the bolts [1], holder [2] and master cylinder [3].
Installation is in the reverse order of removal.

NOTE:

- Install the master cylinder holder with the "UP" mark [4] facing up.
- Align the end of the master cylinder with the handlebar punch mark.
- Tightening the front master cylinder holder bolts, upper bolt first, then the lower bolt to the specified torque.
- Replace the sealing washers with new ones.
- Install the brake hose eyelet joint against the master cylinder stopper.

TORQUE:

Front master cylinder holder bolt:

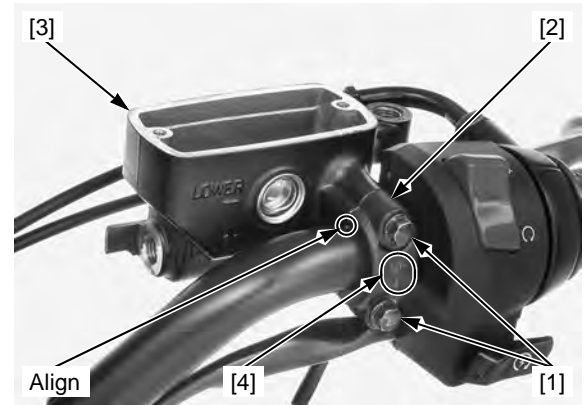
12 N·m (1.2 kgf·m, 9 lbf·ft)

Brake hose oil bolt:

34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill the reservoir to the upper level and bleed the front brake system:

- NC700X/S (page 19-9)
- NC700XA/XD/SA/SD (page 19-12)



HYDRAULIC BRAKE

DISASSEMBLY/ASSEMBLY

Disassemble and assemble the front master cylinder as following the illustration.

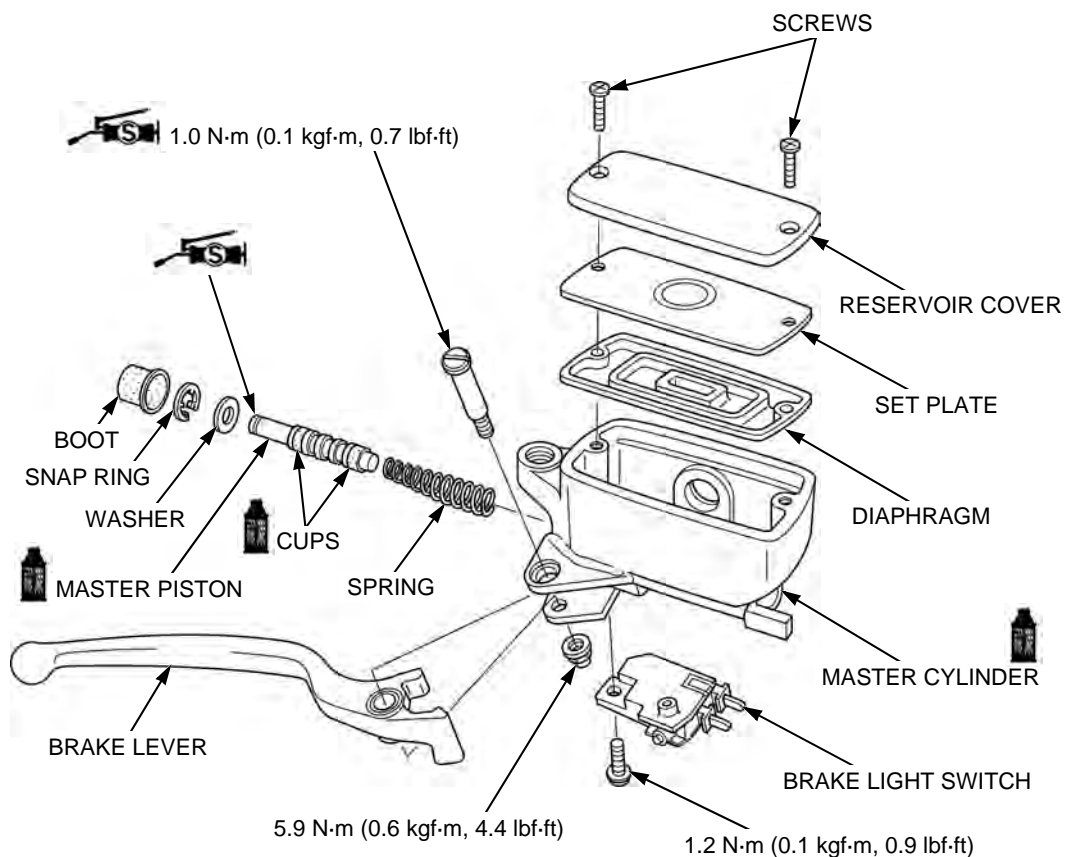
NOTE:

- Be careful not to damage the boot.
- When removing and installing the snap ring, use the special tool.

TOOL:

Snap ring pliers **07914-SA50001**

- Replace the piston and cups as a set.
- Apply brake fluid to the master piston and cups.
- Apply brake fluid to the master cylinder inside.
- Do not allow the piston cup lips to turn inside out.
- Make sure the snap ring is firmly seated in the groove.
- Align the brake light switch boss and master cylinder hole.
- Apply 0.10 g (0.004 oz) of silicone grease to the brake lever sliding surface and lever-to-master piston contacting area.
- Apply 0.10 g (0.004 oz) of silicone grease to the brake lever pivot bolt sliding surface.

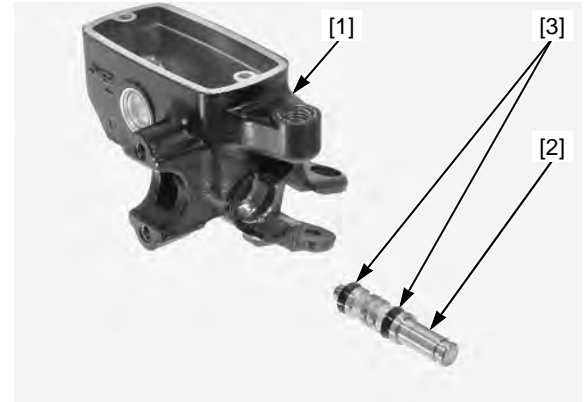


INSPECTION

Check the master cylinder [1] for scoring, scratches or damage.

Check the master piston [2] for scoring, scratches or damage.

Check the piston cups [3] for wear, deterioration or damage.



Measure the master cylinder I.D.

SERVICE LIMIT: 11.055 mm (0.4352 in)

Measure the master piston O.D.

SERVICE LIMIT: 10.945 mm (0.4309 in)



REAR MASTER CYLINDER

REMOVAL/INSTALLATION

Drain the brake fluid from the hydraulic system:

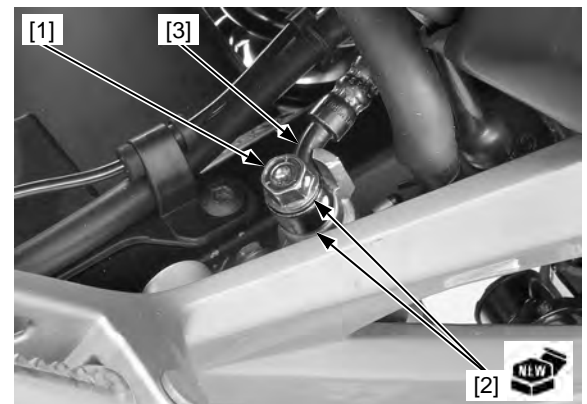
- NC700X/S (page 19-8)
- NC700XA/XD/SA/SD (page 19-11)

Remove the muffler (page 2-32).

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose [3].

NOTE:

When removing the oil bolt, cover the end of the brake hose to prevent contamination.



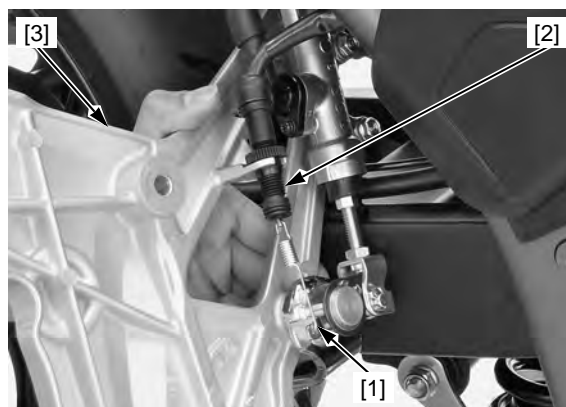
Remove the step holder mounting socket bolts [1] and right step holder [2].



HYDRAULIC BRAKE

Unhook the brake light switch spring [1].

Remove the brake light switch [2] from the right step holder [3], then remove the right step holder.



Remove and discard the cotter pin [1].

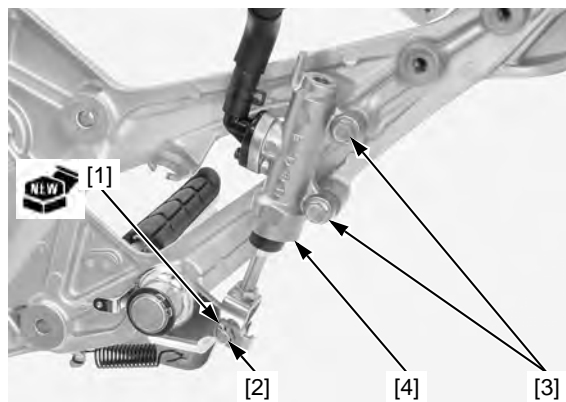
Remove the joint pin [2] and disconnect the push rod joint from the brake pedal.

Remove the master cylinder mounting bolts [3] and master cylinder [4] from the right step holder.

Installation is in the reverse order of removal.

NOTE:

- Replace the cotter pin and sealing washers with new ones.
- Install the brake hose eyelet joint against the master cylinder stopper.



TORQUE:

Rear master cylinder mounting bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)

Step holder mounting socket bolt:

32 N·m (3.3 kgf·m, 24 lbf·ft)

Brake hose oil bolt:

34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill the reservoir to the upper level and bleed the rear brake system:

- NC700X/S (page 19-9)
- NC700XA/XD/SA/SD (page 19-12)

DISASSEMBLY/ASSEMBLY

Disassemble and assemble the rear master cylinder as following the illustration.

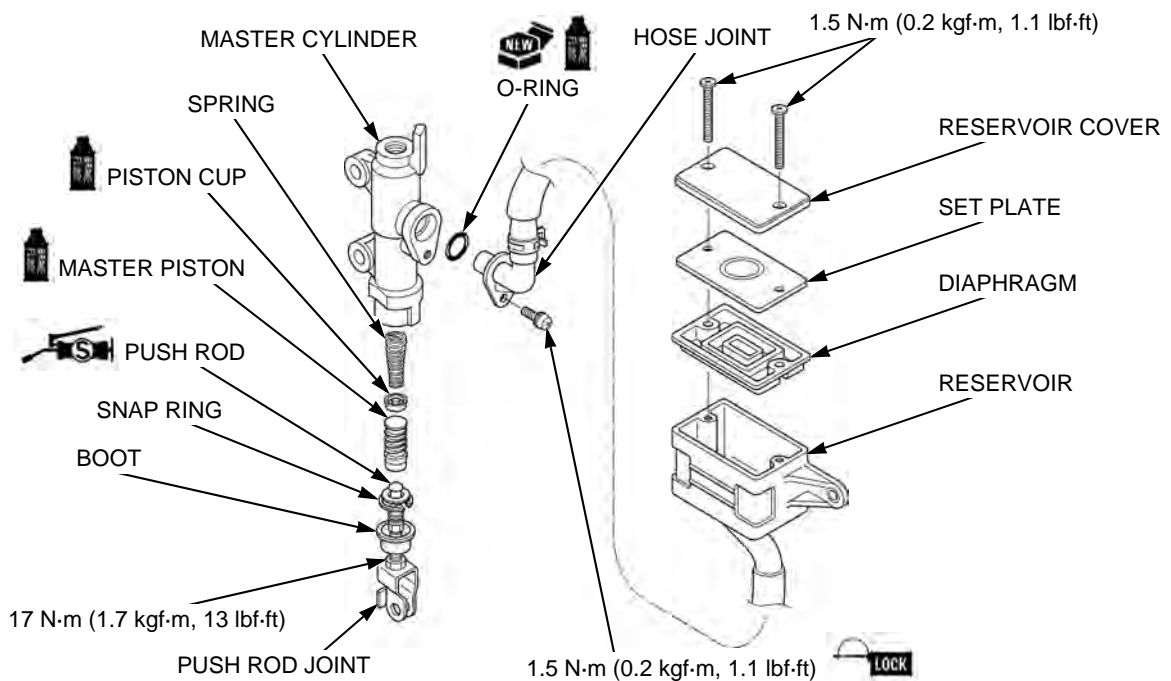
NOTE:

- Be careful not to damage the boot.
- When removing and installing the snap ring, use the special tool.

TOOL:

Snap ring pliers 07914-SA50001

- Replace the piston, spring and cup as a set.
- Apply brake fluid to the master piston and cups.
- Apply brake fluid to the master cylinder inside.
- Do not allow the piston cup lips to turn inside out.
- Apply silicone grease to the push rod sliding area and boot fitting area.
- Make sure the snap ring is firmly seated in the groove.
- Replace the hose joint O-ring with a new one.
- Apply brake fluid to a new hose joint O-ring.
- Apply locking agent to the rear master cylinder hose joint screw threads.

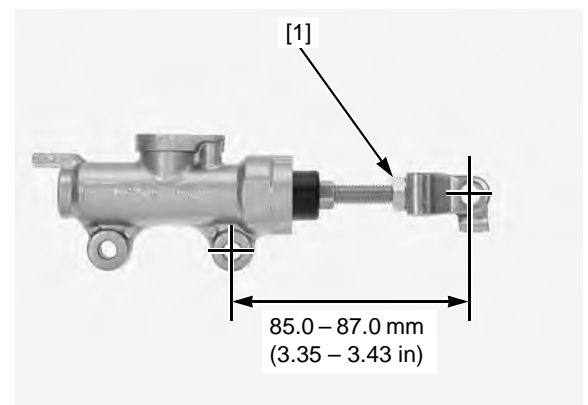


If the push rod joint is disassembled, adjust the push rod length so that the distance from the center of the master cylinder lower mounting hole to the center of the joint pin hole is standard length as shown.

STANDARD LENGTH: 85.0 – 87.0 mm (3.35 – 3.43 in)

After adjustment tighten the push rod lock nut [1] to the specified torque.

TORQUE: 17 N-m (1.7 kgf-m, 13 lbf-ft)



HYDRAULIC BRAKE

INSPECTION

Check the master cylinder [1] for scoring, scratches or damage.

Check the master piston [2] for scoring, scratches or damage.

Check the piston cup [3] for wear, deterioration or damage.

Measure the master cylinder I.D.

SERVICE LIMIT: 14.055 mm (0.5533 in)

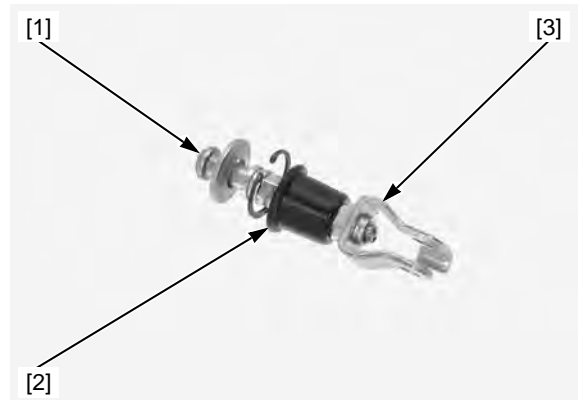
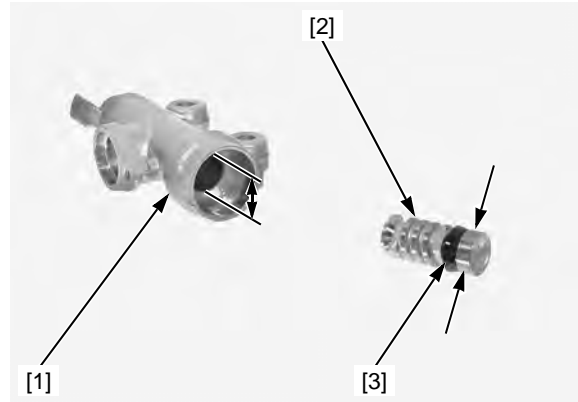
Measure the master piston O.D.

SERVICE LIMIT: 13.945 mm (0.5490 in)

Check the following:

- Push rod [1] for bent
- Boot [2] for damage
- Rod joint [3] for damage

Replace the damaged part if necessary.



FRONT BRAKE CALIPER (NC700X/S)

REMOVAL/INSTALLATION

Drain the brake fluid from the hydraulic system (page 19-8).

Remove the brake pads (page 19-16).

When removing the oil bolt, cover the end of brake hose to prevent contamination.

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose.

Remove the brake caliper mounting bolts [3] and brake caliper/bracket assembly [4].

Installation is in the reverse order of removal.

NOTE:

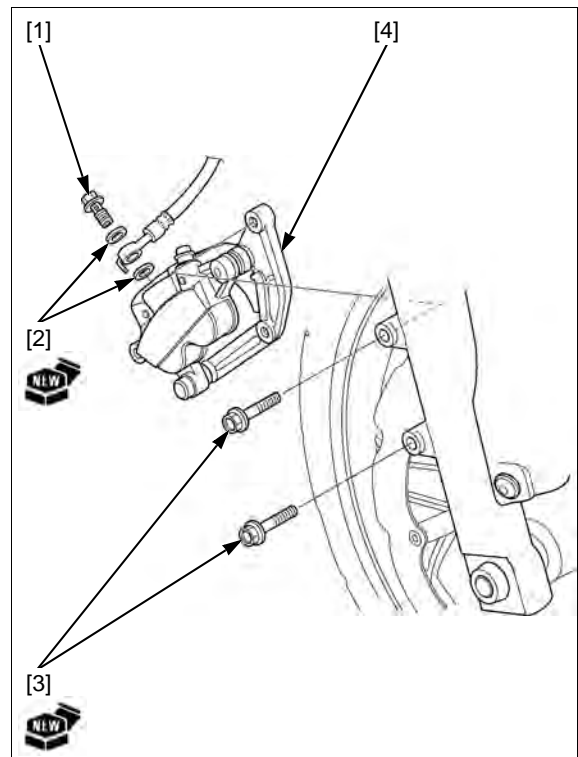
- Replace the front brake caliper mounting bolts and sealing washers with new ones.
- Install the brake hose eyelet joint between the brake caliper body.
- Route the hoses properly (page 1-25).

TORQUE:

Front brake caliper mounting bolt:
30 N·m (3.1 kgf·m, 22 lbf·ft)

Brake hose oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill the reservoir to the upper level and bleed the front brake system (page 19-9).

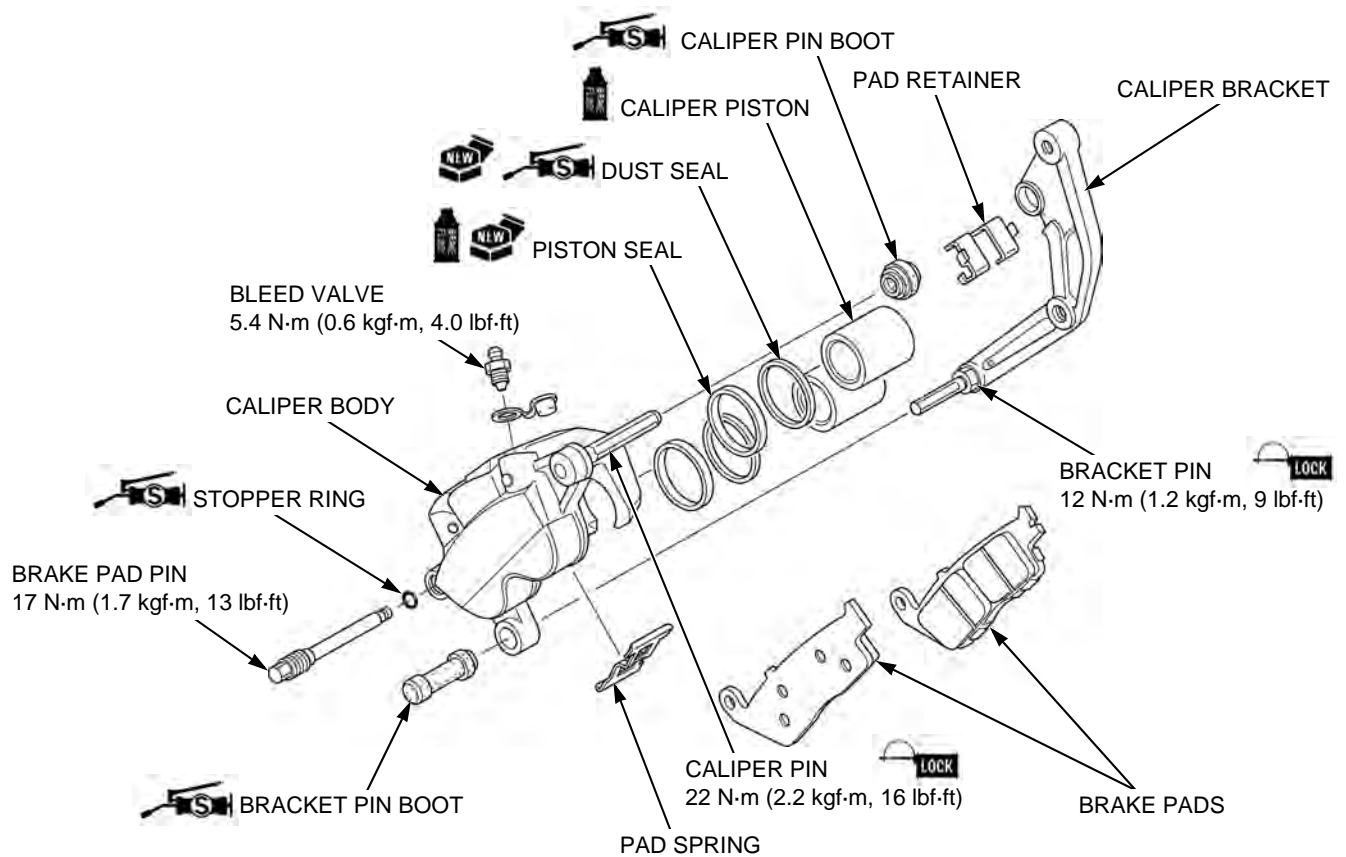


DISASSEMBLY/ASSEMBLY

Disassemble the front brake caliper as following the illustration.

NOTE:

- Be careful not to damage the piston sliding surface.
- If the caliper pin boot and bracket pin boot are hard or deteriorated, replace it with a new one.



Place a shop towel over the pistons.

Do not use high pressure air or bring the nozzle too close to the inlet.

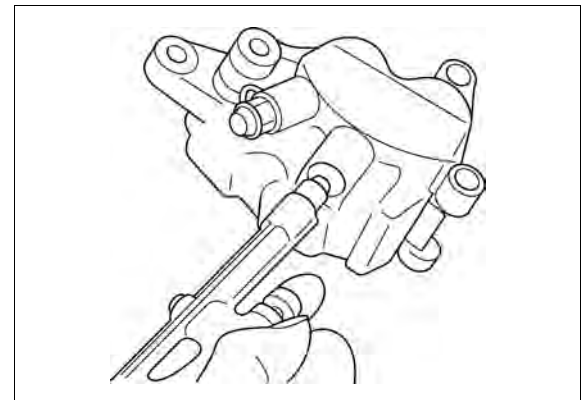
Position the caliper body with the pistons down and apply small squirts of air pressure to the fluid inlet to remove the pistons.

Clean the seal grooves with clean brake fluid.

Assembly is in the reverse order of disassembly.

NOTE:

- Apply locking agent to the caliper pin and bracket pin threads.
- Replace the piston seals and dust seals with new ones.
- Apply brake fluid to the caliper pistons and new piston seals.
- Apply silicone grease to new dust seals.
- Install the pistons with the opening toward the pads.
- Apply Honda Bond A, Cemedine #540 or equivalent to the brake pad retainer mating surface.
- Apply 0.4 g (0.01 oz) of silicone grease to the caliper pin and bracket pin sliding surface.



HYDRAULIC BRAKE

INSPECTION

Check the caliper cylinder for scoring or other damage.

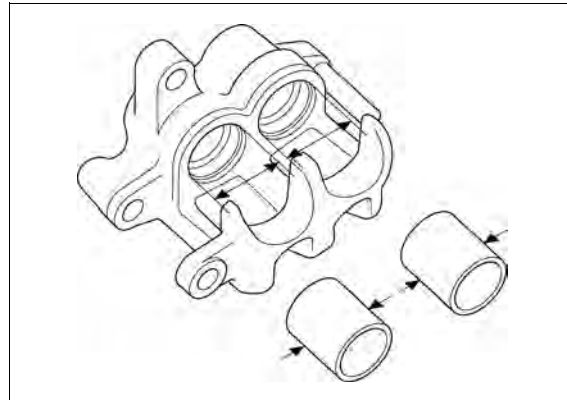
Measure the each caliper cylinder I.D.

SERVICE LIMIT: 27.060 mm (1.0654 in)

Check the caliper pistons for scratches, scoring or other damage.

Measure the each caliper piston O.D.

SERVICE LIMIT: 26.91 mm (1.059 in)



FRONT BRAKE CALIPER (NC700XA/ XD/SA/SD)

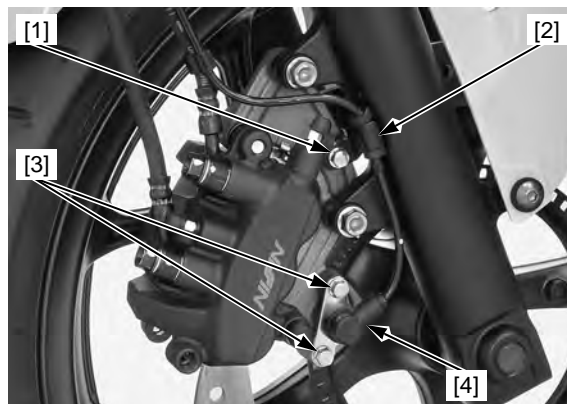
REMOVAL/INSTALLATION

Drain the brake fluid from the hydraulic system (page 19-11).

Remove the brake pads (page 19-17).

Remove the bolt [1] and front wheel speed sensor wire guide [2].

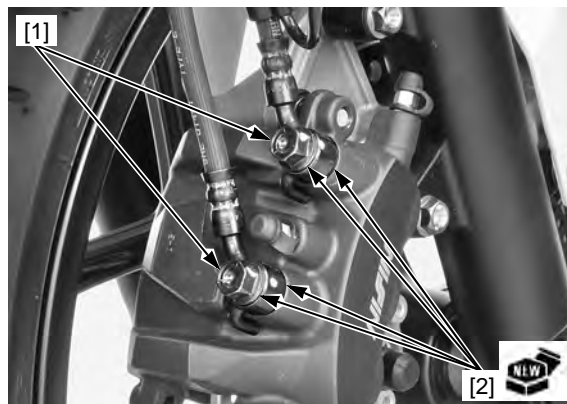
Remove the bolts [3] and front wheel speed sensor [4].



Remove the brake hose oil bolts [1], sealing washers [2] and brake hoses.

NOTE:

When removing the oil bolt, cover the end of brake hose to prevent contamination.



Remove the brake caliper mounting bolts [1] and brake caliper/bracket assembly [2].

Installation is in the reverse order of removal.

NOTE:

- Replace the front brake caliper mounting bolts and sealing washers with new ones.
- Install the brake hose eyelet stopper against the caliper body.
- Route the hoses and wire properly (page 1-25).

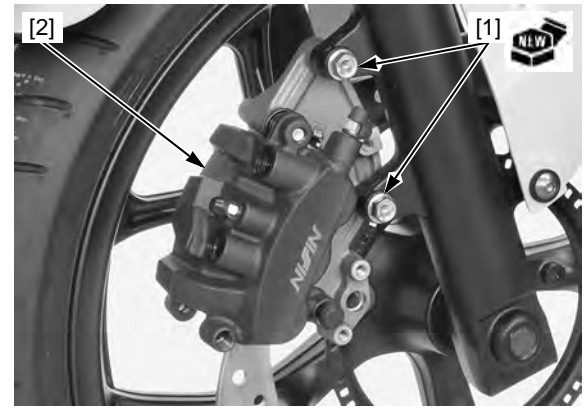
TORQUE:

Front brake caliper mounting bolt:
30 N·m (3.1 kgf·m, 22 lbf·ft)

Brake hose oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill the reservoir to the upper level and bleed the front brake system (page 19-12).

Check the air gap between the front wheel speed sensor and pulser ring (page 20-24).

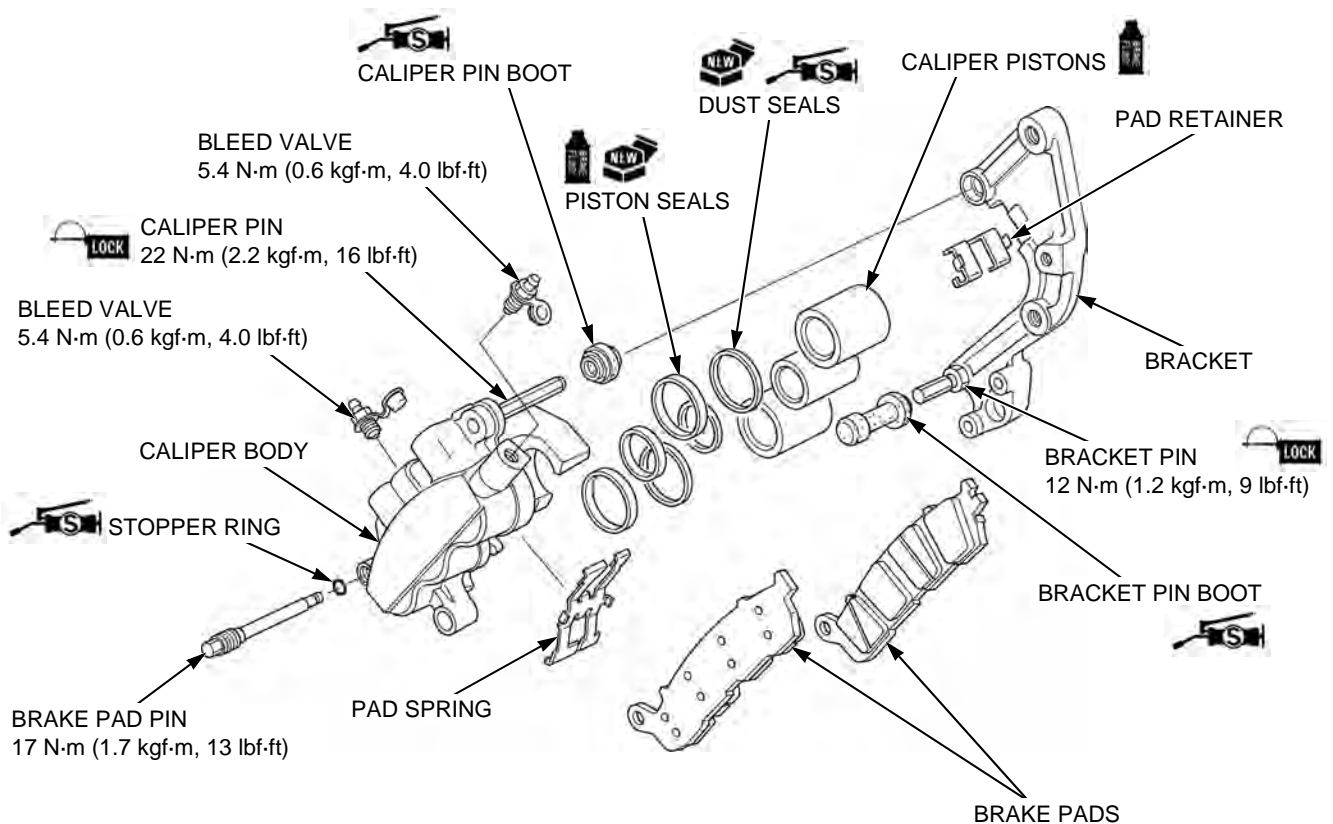


DISASSEMBLY/ASSEMBLY

Disassemble the front brake caliper as following the illustration.

NOTE:

- Be careful not to damage the piston sliding surface.
- If the caliper pin boot and bracket pin boot are hard or deteriorated, replace it with a new one.



HYDRAULIC BRAKE

Place a shop towel over the pistons.

Do not use high pressure air or bring the nozzle too close to the inlet.

Position the caliper body with the pistons facing down and apply small squirts of air pressure to the fluid inlet to remove the pistons.

Clean the seal grooves with clean brake fluid.

Assembly is in the reverse order of disassembly.

NOTE:

- Apply locking agent to the caliper pin and bracket pin threads.
- Replace the piston seals and dust seals with new ones.
- Apply brake fluid to the caliper pistons and new piston seals.
- Apply silicone grease to new dust seals.
- Install the pistons with the opening toward the pads.
- Apply Honda Bond A, Cemedine #540 or equivalent to the brake pad retainer mating surface.
- Apply 0.4 g (0.01 oz) of silicone grease to the caliper pin and bracket pin sliding surface.



INSPECTION

Check the caliper cylinders for scoring or other damage.

Measure the each caliper cylinder I.D.

SERVICE LIMIT:

Cylinder A [1]: 22.712 mm (0.8941 in)

Cylinder B [2]: 27.060 mm (1.0654 in)

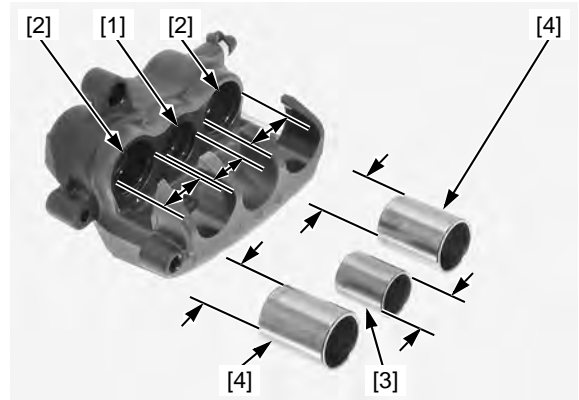
Check the caliper pistons for scratches, scoring or other damage.

Measure the each caliper piston O.D.

SERVICE LIMIT:

Piston A [3]: 22.56 mm (0.888 in)

Piston B [4]: 26.91 mm (1.059 in)



REAR BRAKE CALIPER

REMOVAL/INSTALLATION

Drain the brake fluid from the hydraulic system:

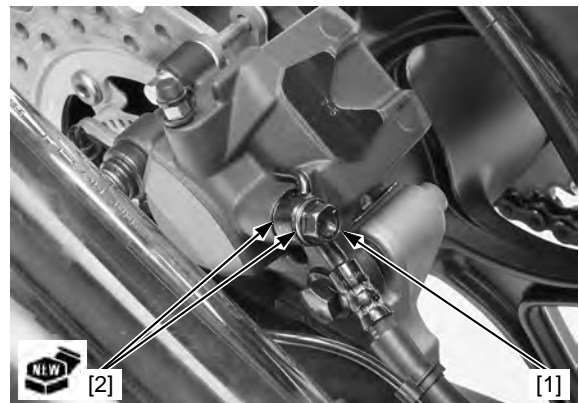
- NC700X/S (page 19-8)
- NC700XA/XD/SA/SD (page 19-11)

Remove the brake hose oil bolt [1], sealing washers [2] and brake hose.

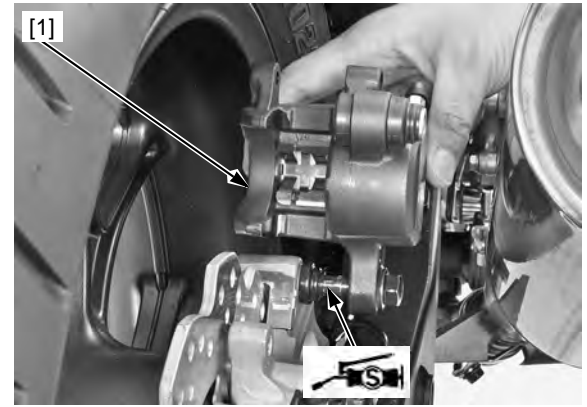
NOTE:

When removing the oil bolt, cover the end of brake hose to prevent contamination.

Remove the brake pads (page 19-18).



Remove the brake caliper [1] from the caliper bracket.
 Remove the rear wheel (page 18-6).
 Remove the caliper bracket from the swingarm.
 Installation is in the reverse order of removal.



NOTE:

- Replace the sealing washers with new ones.
- Apply 0.4 g (0.01 oz) of silicone grease to the brake caliper pin sliding surface.
- Install the brake hose eyelet stopper against the caliper body.
- Route the hoses and wire properly (page 1-25).

TORQUE:

Brake hose oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Fill the reservoir to the upper level and bleed the rear brake system:

- NC700X/S (page 19-9)
- NC700XA/XD/SA/SD (page 19-12)

NC700XA/XD/SA/SD: Check the air gap between the rear wheel speed sensor and pulser ring (page 20-24).

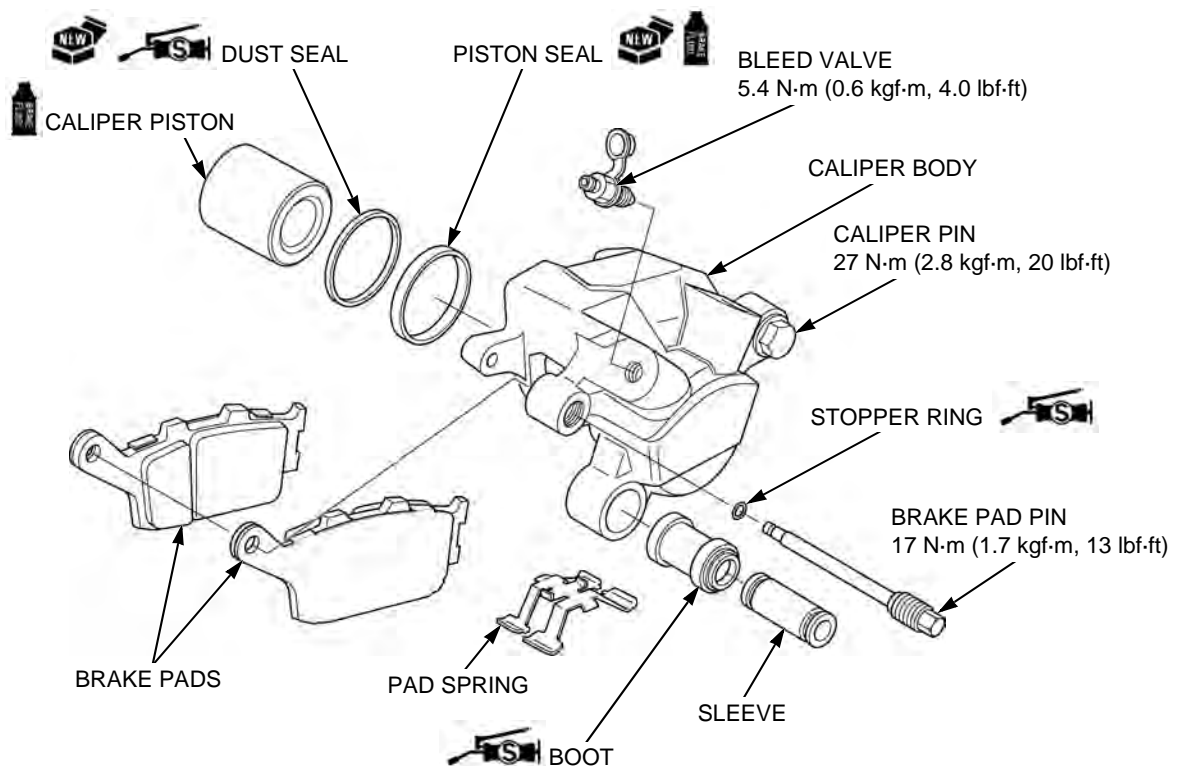
DISASSEMBLY/ASSEMBLY

Disassemble the rear brake caliper as following the illustration.

NOTE:

- Be careful not to damage the piston sliding surface.
- If the caliper pin boot and sleeve boot are hard or deteriorated, replace it with a new one.

NC700XA/XD/SA/SD shown:



HYDRAULIC BRAKE

Place a shop towel over the piston.

Do not use high pressure air or bring the nozzle too close to the inlet.

Position the caliper body with the piston facing down and apply small squirts of air pressure to the fluid inlet to remove the piston.

Clean the seal grooves with clean brake fluid.

Assembly is in the reverse order of disassembly.

NOTE:

- Replace the piston seal and dust seal with new ones.
- Apply brake fluid to the caliper piston and new piston seal.
- Apply silicone grease to new dust seal.
- Install the piston with the opening toward the pads.
- Apply Honda Bond A, Cemedine #540 or equivalent to the brake pad retainer mating surface.
- Apply 0.4 g (0.01 oz) of silicone grease to the boot inside.



INSPECTION

Check the caliper cylinder for scoring, scratches or damage.

Measure the caliper cylinder I.D.

SERVICE LIMIT: 38.24 mm (1.506 in)

Check the caliper piston for scoring, scratches or damage.

Measure the caliper piston O.D.

SERVICE LIMIT: 38.09 mm (1.500 in)



PARKING BRAKE CALIPER (NC700XD/SD)

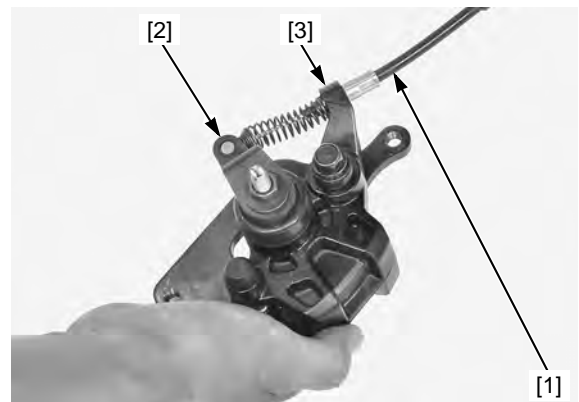
REMOVAL/INSTALLATION

Remove the parking brake pads (page 19-19).

Disconnect the parking brake cable [1] from the brake arm [2] and remove it from cable stay [3] of the caliper body.

Installation is in the reverse order of removal.

Check the parking brake lock operation (page 3-24).



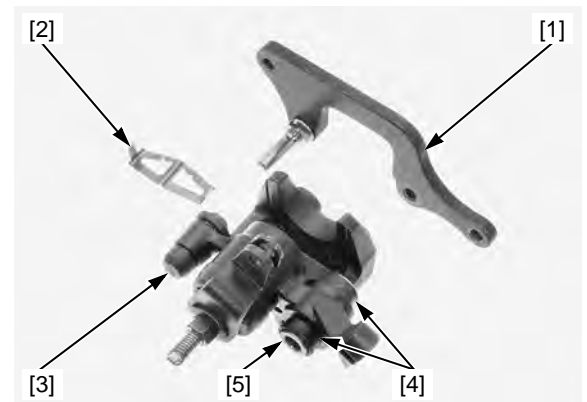
DISASSEMBLY

Remove the caliper pin bolt [1].



Remove the following:

- Caliper bracket [1]
- Pad spring [2]
- Bracket pin boot [3]
- Caliper pin boot [4]
- Sleeve [5]



Remove the parking brake adjuster bolt lock nut [1] while holding the brake arm [2].

Remove the brake arm.



Remove the brake shaft boot [1].



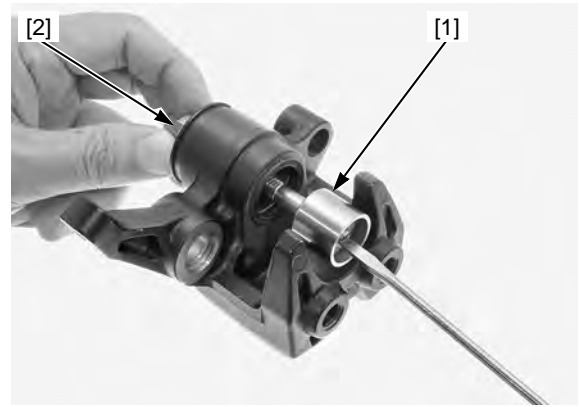
HYDRAULIC BRAKE

Remove the adjuster bolt/piston [1] while holding the brake shaft [2].

Remove the brake shaft.

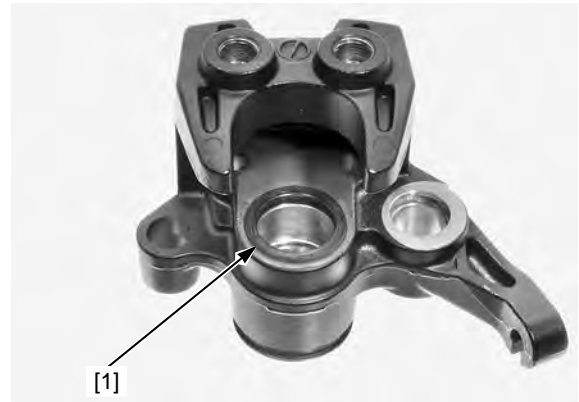
NOTE:

Do not disassemble the adjuster bolt/piston.



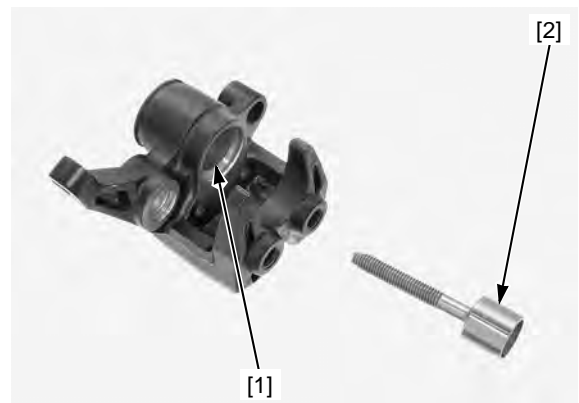
Remove the dust seal [1].

Clean the caliper cylinder and brake shaft sliding surface.

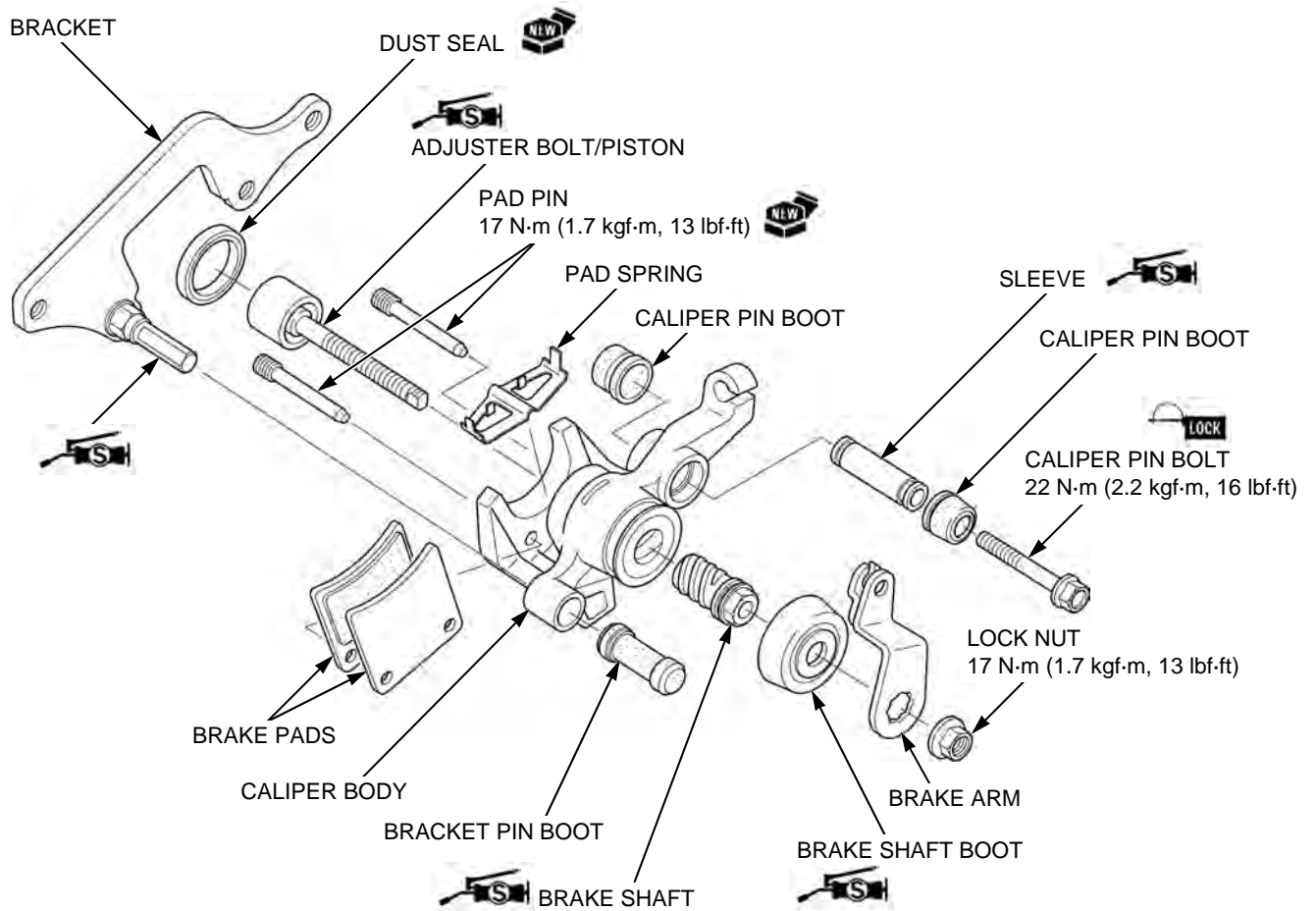


INSPECTION

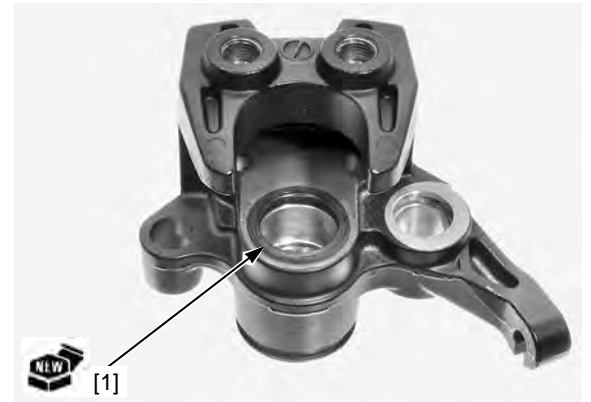
Check the caliper cylinder [1] and piston [2] for scoring, scratches or damage.



ASSEMBLY



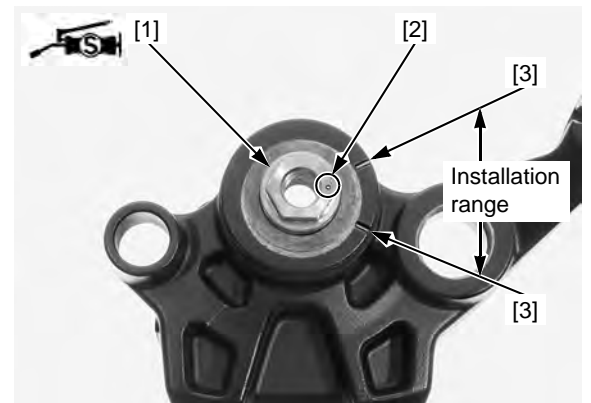
Install a new dust seal [1] into the seal groove in the caliper.



Apply 0.4 g (0.01 oz) minimum of silicone grease to the outer surface of the brake shaft [1].

Position the brake shaft so that the punch mark [2] is between the index lines [3] (installation range), and screw the shaft into the caliper.

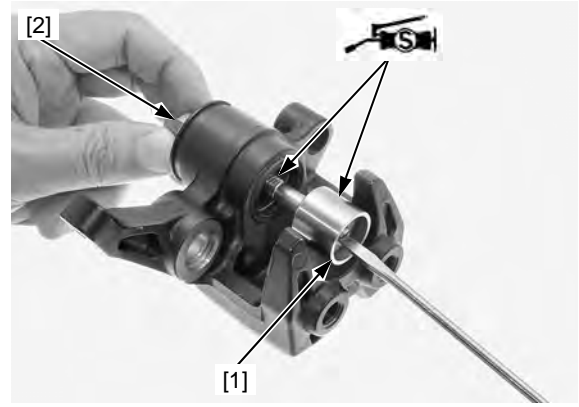
Make sure that the punch mark is positioned between the index lines with the shaft fully installed.



HYDRAULIC BRAKE

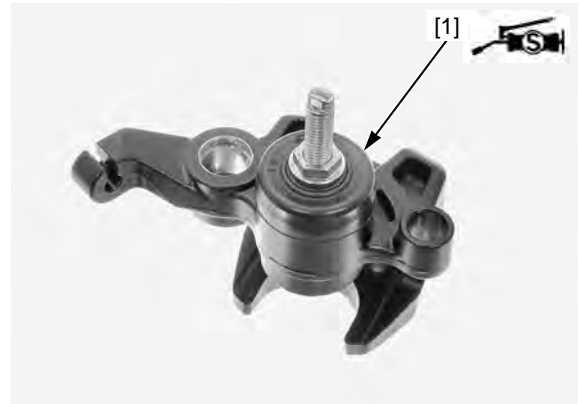
Apply 0.4 g (0.01 oz) minimum of silicone grease to the adjuster bolt threads and piston sliding surface.

Install the adjuster bolt/piston [1] while holding the brake shaft [2].

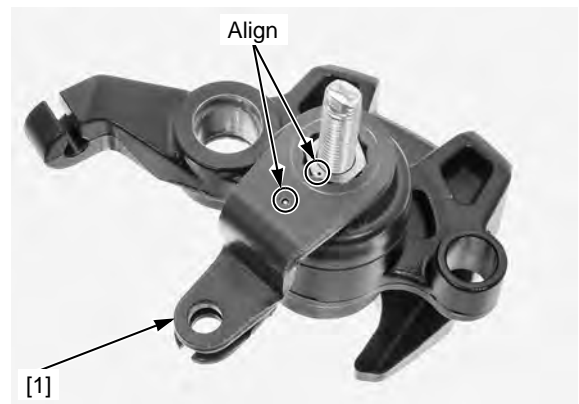


Apply 0.4 g (0.01 oz) minimum of silicone grease to the brake shaft boot lips.

Install the brake shaft boot [1] to the caliper groove.



Install the brake arm [1] by aligning with the punch marks.



Install the lock nut [1] and tighten it to the specified torque while holding the brake arm [2].

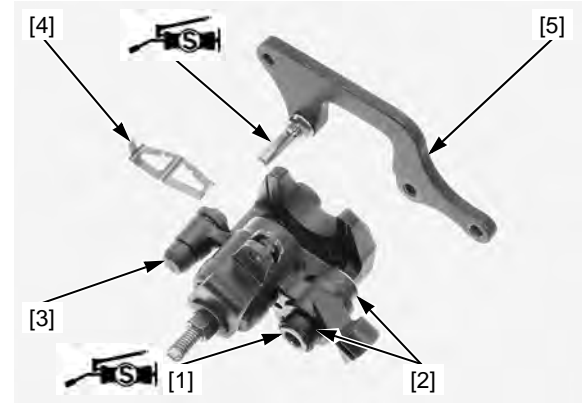
TORQUE: 17 N·m (1.7 kgf·m, 13 lbf·ft)



Apply 0.4 g (0.01 oz) minimum of silicone grease of silicone grease to the bracket pin and sleeve sliding surface.

Install the following:

- Sleeve [1]
- Caliper pin boots [2]
- Bracket pin boot [3]
- Pad spring [4]
- Caliper bracket [5]



Apply locking agent to the parking brake caliper pin bolt threads.

Install the parking brake caliper pin bolt [1] and tighten it to the specified torque.

TORQUE: 22 N-m (2.2 kgf-m, 16 lbf-ft)



BRAKE PEDAL

REMOVAL/INSTALLATION

Remove the muffler (page 2-32).

Remove the step holder mounting socket bolts [1] and right step holder [2].

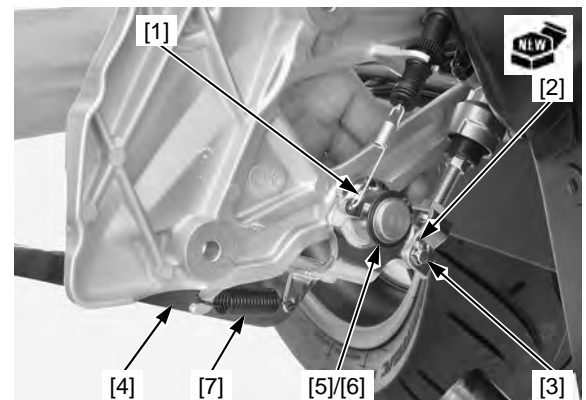


Unhook the brake light switch spring [1] from the brake pedal.

Remove and discard the cotter pin [2].

Remove the joint pin [3] and disconnect the push rod lower joint from the brake pedal [4].

Remove the snap ring [5], washer [6], return spring [7] and brake pedal.



HYDRAULIC BRAKE

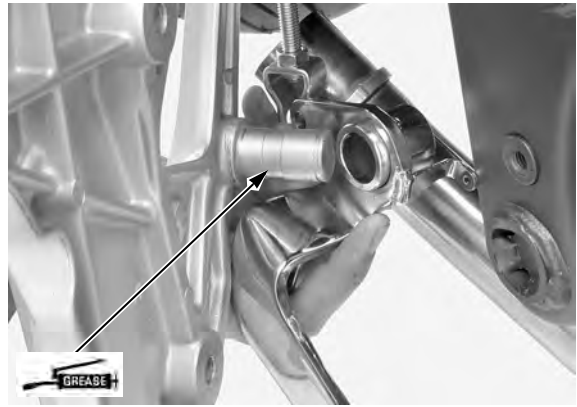
Installation is in the reverse order of removal.

NOTE:

- Apply grease to the brake pedal pivot sliding area.
- Replace the cotter pin with a new one.

TORQUE:

Step holder mounting socket bolt:
32 N·m (3.3 kgf·m, 24 lbf·ft)



PARKING BRAKE LEVER (NC700XD/SD)

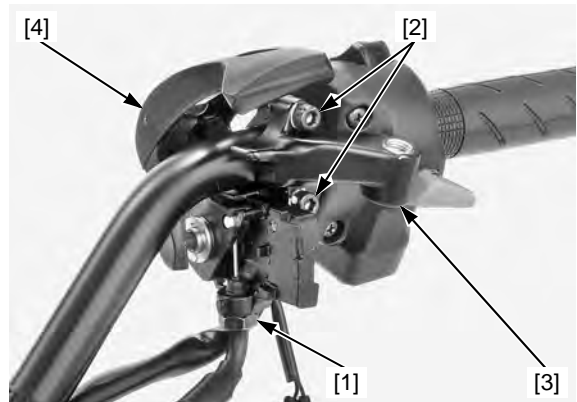
REMOVAL/INSTALLATION

Remove the following:

- Left rearview mirror (page 17-12)
- Parking brake switch (page 22-23)

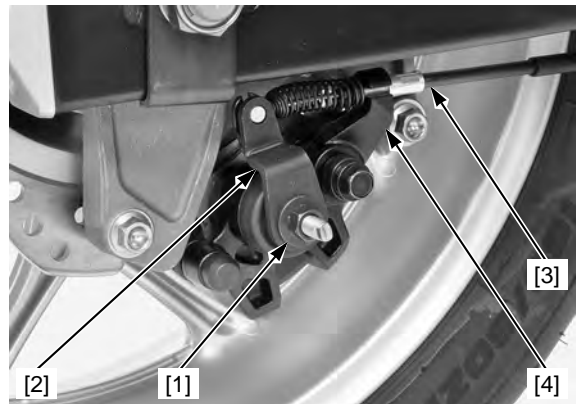
Loosen the parking brake cable mounting nut [1].

Remove the socket bolts [2], holder [3] and parking brake lever bracket [4].



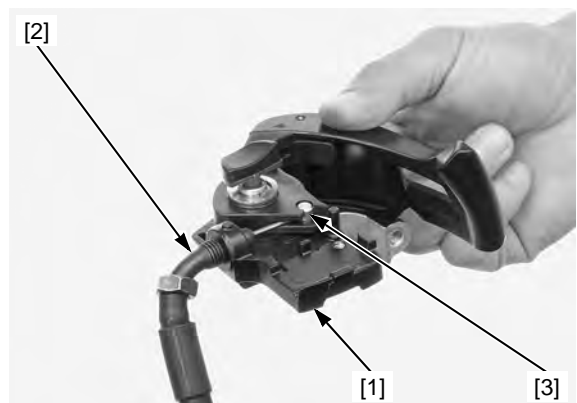
Remove the parking brake adjuster bolt lock nut [1] while holding the brake arm [2].

Remove the brake arm and release the parking brake cable [3] from the cable guide [4].



Turn the parking brake lever bracket [1] and remove the parking brake cable joint [2] from the bracket.

Disconnect the parking brake cable [3].



Installation is in the reverse order of removal.

NOTE:

- Align the parking brake lever bracket locating pin with the handlebar hole.
- Route the cables and wire harness properly (page 1-25).

TORQUE:

Parking brake adjuster bolt lock nut:

17 N·m (1.7 kgf·m, 13 lbf·ft)

Parking brake cable mounting nut:

10 N·m (1.0 kgf·m, 7 lbf·ft)

Check the parking brake lock operation (page 3-24).

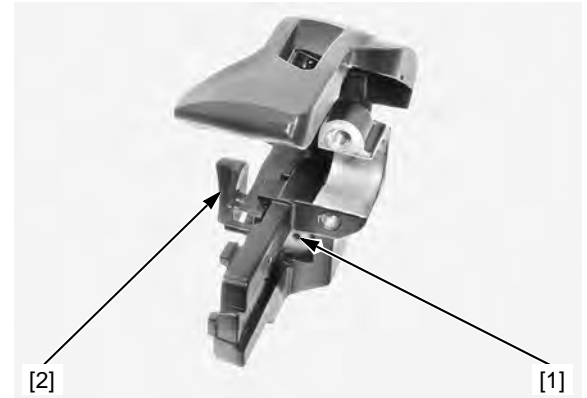


DISASSEMBLY

Remove the lower holder cap [1].



Remove the spring pin [1] and release shaft [2].

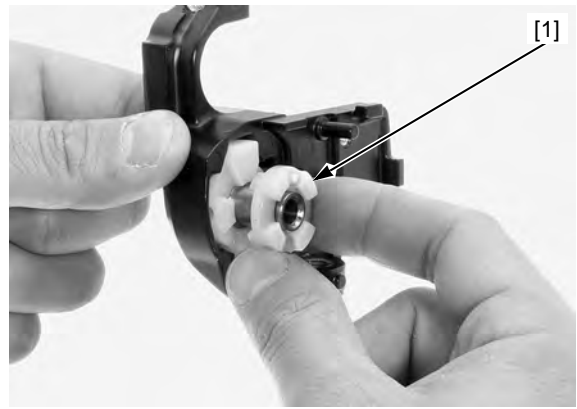


Remove the E-clip [1], washer [2] and parking brake lever [3].

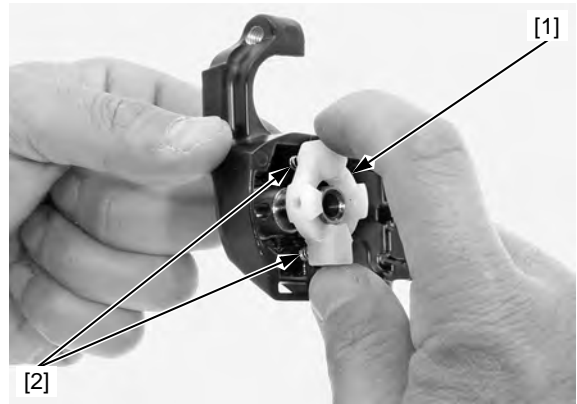


HYDRAULIC BRAKE

Remove the ratchet B [1].

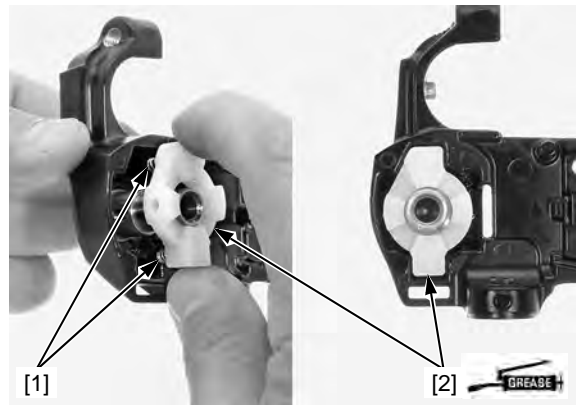


Remove the ratchet A [1] and springs [2].

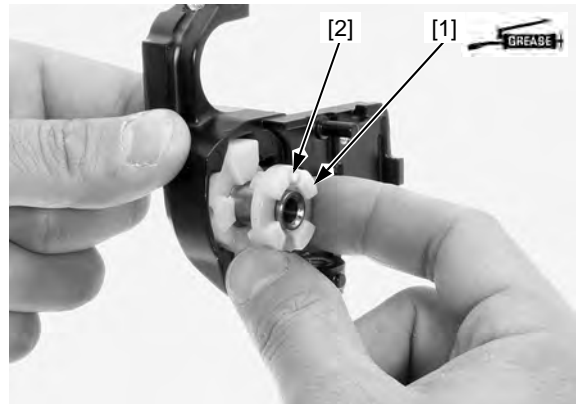


ASSEMBLY

Apply grease to the ratchet A teeth and sliding surface.
Install the springs [1] and ratchet A [2].

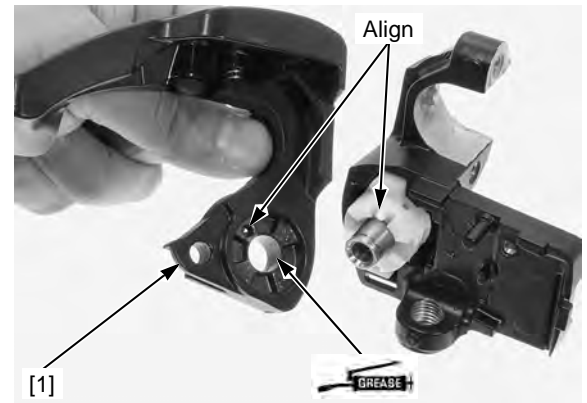


Apply grease to the ratchet B teeth and sliding surface.
Install the ratchet B [1] with its tab [2] facing up.

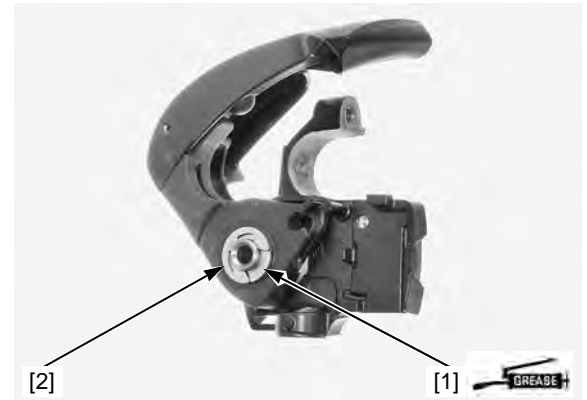


Apply grease to the parking brake lever sliding surface.
Install the parking brake lever [1].

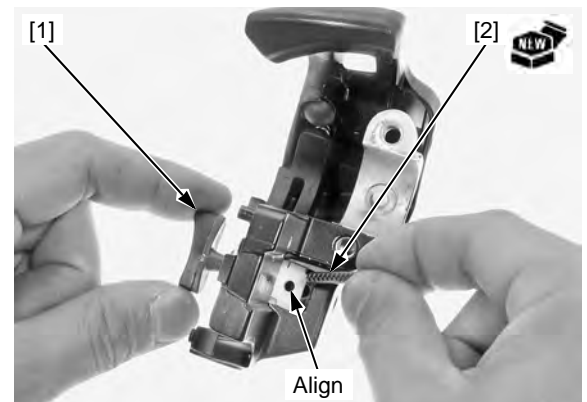
NOTE:
Align the parking brake lever hole with the ratchet B tab.



Apply grease to the washer sliding surface.
Install the washer [1] and E-clip [2].



Install the release shaft [1] and new spring pin [2] while aligning the hole of the release shaft, ratchet A and parking brake lever bracket.



Install the lower holder cap [1].



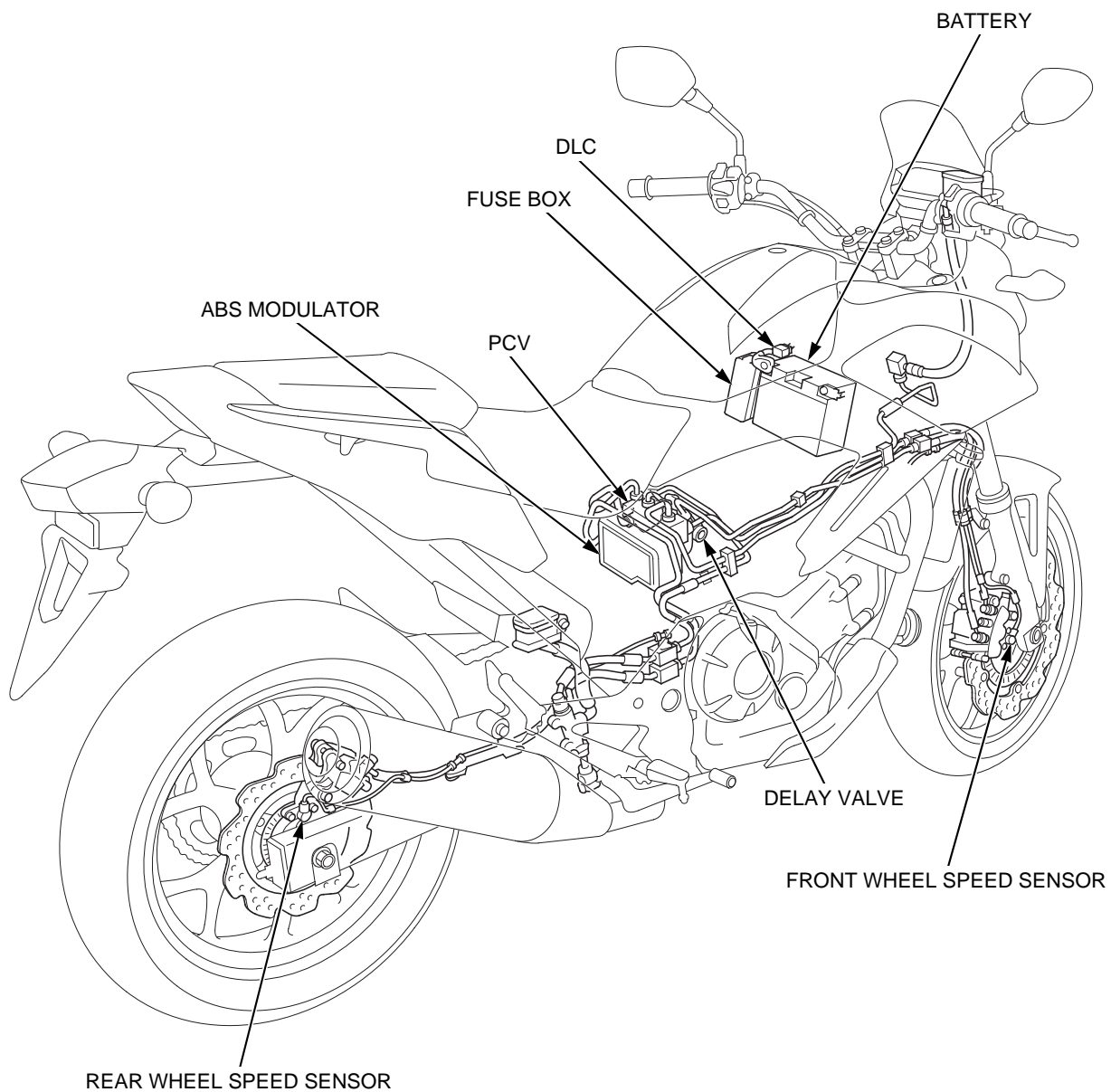
MEMO

20. ANTI-LOCK BRAKE SYSTEM (ABS)

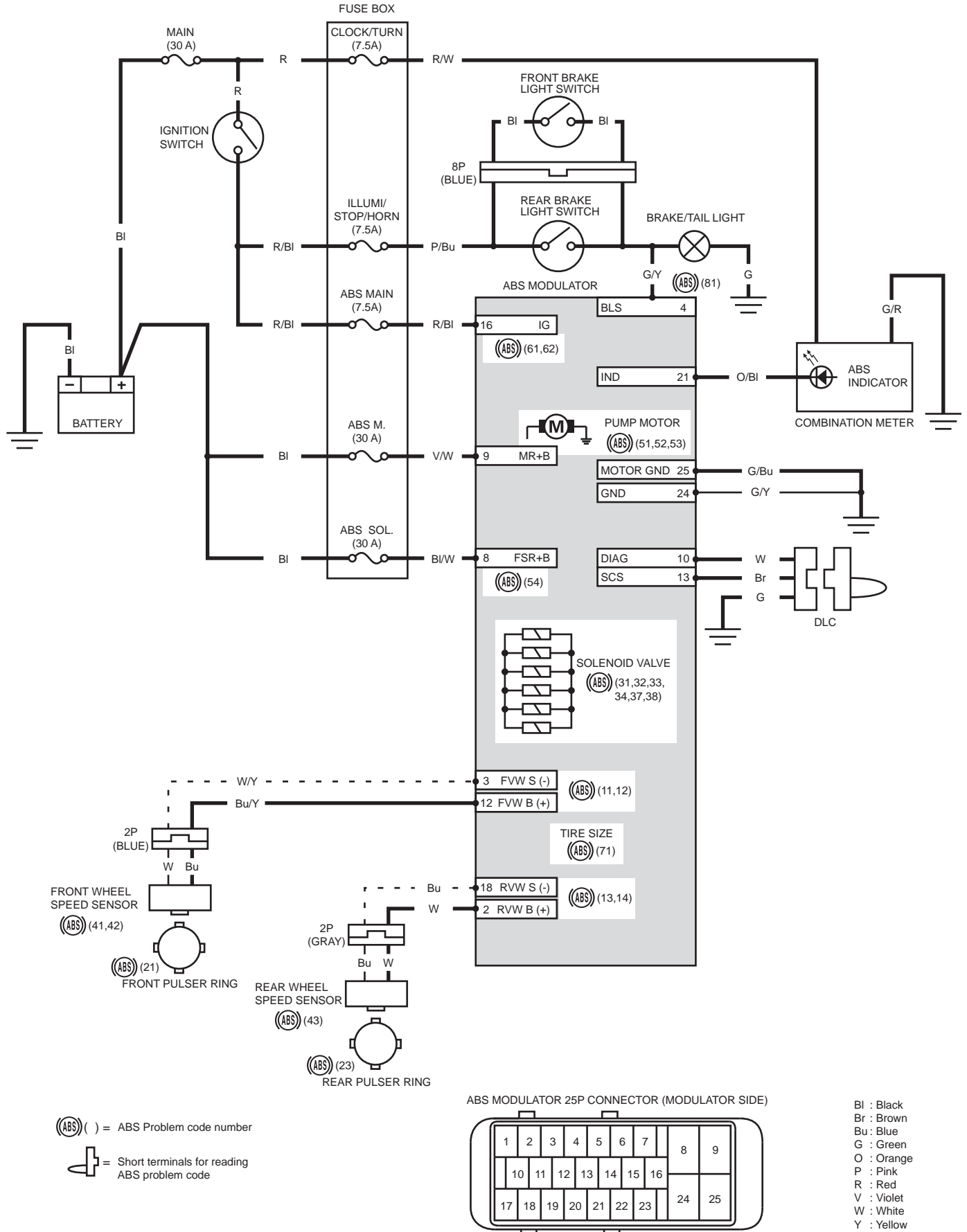
ABS SYSTEM LOCATION	20-2	ABS INDICATOR CIRCUIT TROUBLESHOOTING	20-12
ABS SYSTEM DIAGRAM.....	20-3	ABS TROUBLESHOOTING.....	20-15
SERVICE INFORMATION	20-4	WHEEL SPEED SENSOR	20-24
ABS CONNECTOR LOCATIONS	20-5	PCV	20-28
ABS TROUBLESHOOTING INFORMATION.....	20-7	DELAY VALVE.....	20-28
ABS INDICATOR PROBLEM CODE INDEX	20-10	ABS MODULATOR	20-29

ANTI-LOCK BRAKE SYSTEM (ABS)

ABS SYSTEM LOCATION



ABS SYSTEM DIAGRAM



ANTI-LOCK BRAKE SYSTEM (ABS)

SERVICE INFORMATION

GENERAL

NOTICE

The ABS modulator may be damaged if dropped. Also if a connector is disconnected when current is flowing, the excessive voltage may damage the control unit. Always turn off the ignition switch before servicing.

- This section covers service of the Anti-lock Brake System (ABS). Refer to information for the combi brake system servicing (page 19-5).
- Pre-start self-diagnosis starts when the ignition switch is turned ON. The ABS modulator control unit receives signals and detects whether the ABS system functions normally. Pre-start self-diagnosis starts when the vehicle speed goes above 6 km/h (4 mph) approximately. The ABS system and the vehicle running condition are monitored constantly after pre-start self-diagnosis until the ignition switch is turned OFF.
- When the ABS modulator control unit detects a problem, the ABS indicator blinks to notify the rider of the problem. To detect the faulty part, retrieve the problem code by shorting the DLC terminals.
- When the ABS control unit detects a problem, it stops the ABS function and switches back to the combi brake operation, and the ABS indicator blinks or stays on. Take care during the test ride.
- Read "ABS TROUBLESHOOTING INFORMATION" carefully, inspect and troubleshoot the ABS system according to the Diagnostic Troubleshooting flow chart. Observe each step of the procedures one by one. Write down the problem code and probable faulty part before starting diagnosis and troubleshooting.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- After troubleshooting, erase the problem code and perform the pre-start self-diagnosis to be sure that the ABS indicator is operating normally.
- Troubles not resulting from a faulty ABS (e.g. brake disc squeak, unevenly worn brake pad) cannot be recognized by the ABS diagnosis system.
- When the wheel speed sensor and/or pulser ring is replaced, check the clearance (air gap) between both components.
- The ABS control unit (ECU) is mounted on the modulator (the modulator with the built-in ECU). Do not disassemble the ABS modulator. Replace the ABS modulator as an assembly when the it is faulty.
- Be careful not to damage the wheel speed sensor and pulser ring when removing and installing the wheel.
- The following color codes are used throughout this section.

Bl = Black
Br = Brown

Bu = Blue
G = Green

O = Orange
P = Pink

R = Red
V = Violet

W = White
Y = Yellow

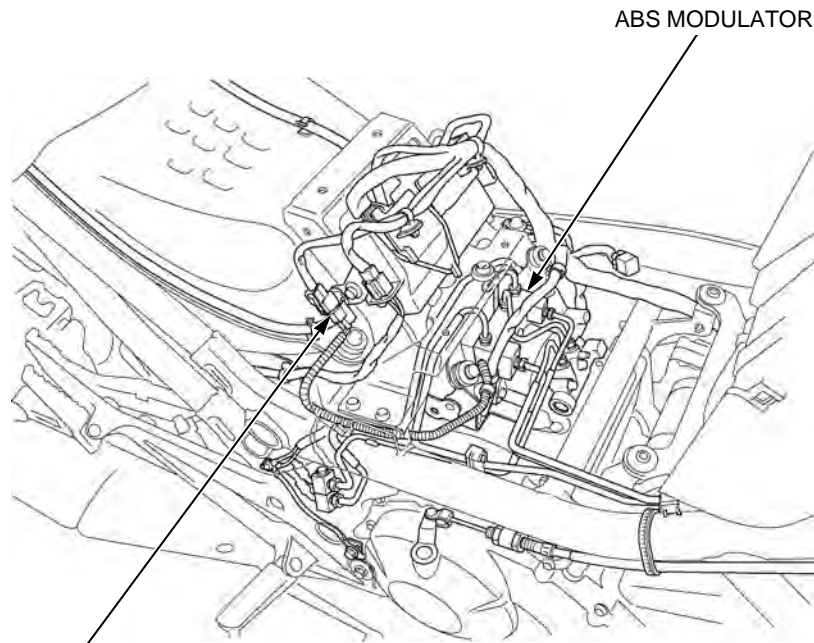
TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Step holder mounting socket bolt	4	8	32 (3.3, 24)	
Brake pipe joint nut	14	10	14 (1.4, 10)	Apply brake fluid to the threads and sliding surface.
PCV mounting bolt	2	6	12 (1.2, 9)	
Delay valve mounting bolt	2	6	12 (1.2, 9)	

ABS CONNECTOR LOCATIONS

NOTE 1: Remove the shroud/side cover (NC700XA/XD) (page 2-14).

NOTE 1: Remove the shelter/side cover (NC700SA/SD) (page 2-15).

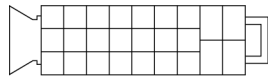


ABS MODULATOR

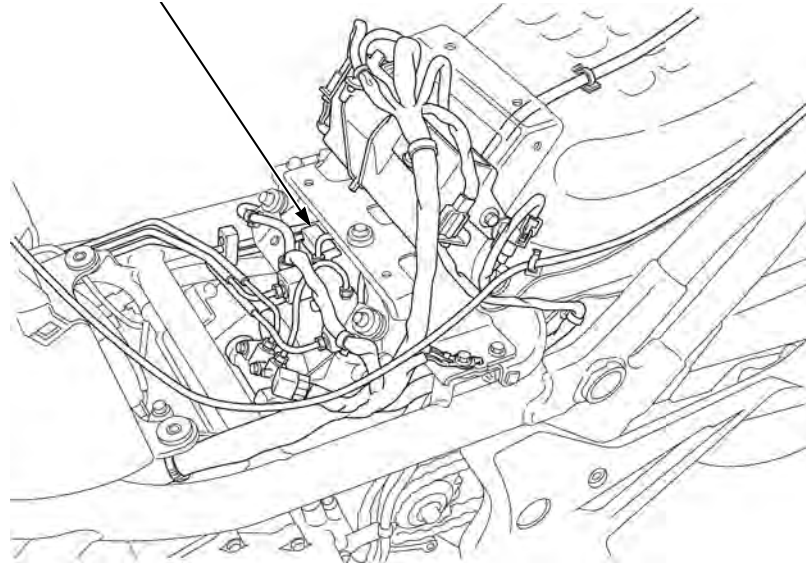


REAR WHEEL SPEED SENSOR
2P (GRAY) CONNECTOR (NOTE 1)

NOTE 2: Remove the luggage box (page 2-19).



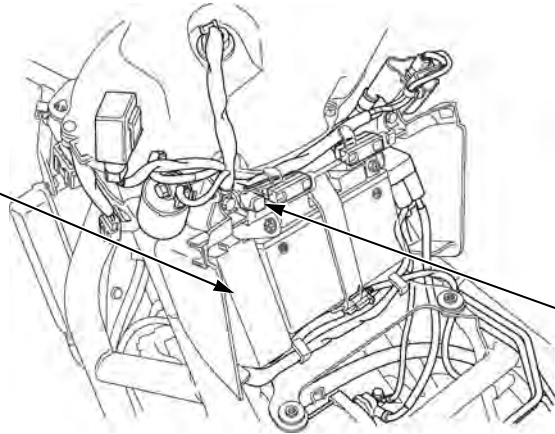
ABS MODULATOR 25P CONNECTOR (NOTE 2)



ANTI-LOCK BRAKE SYSTEM (ABS)

NOTE 3: Remove the maintenance lid (page 21-6).

- FUSE BOX (NOTE 3)
- ABS fuse 30 A (ABS M.)
 - ABS fuse 30 A (ABS SOL.)
 - ABS fuse 7.5 A (ABS MAIN)



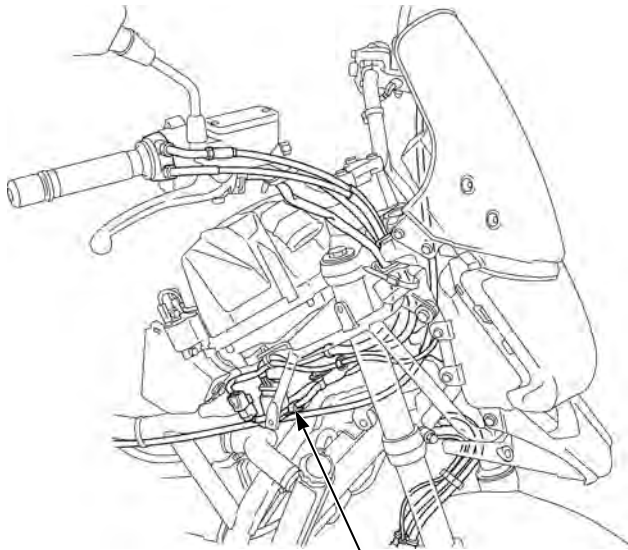
DLC
(NOTE 3)



NOTE 4: Remove the shroud/side cover (NC700XA/XD) (page 2-14).

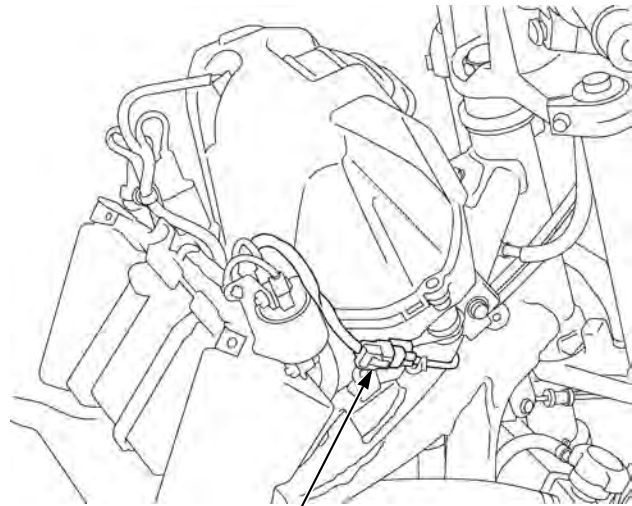
NOTE 5: Remove the side cowl (NC700SA/SD) (page 2-13).

NC700XA/XD:



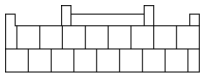
FRONT WHEEL SPEED SENSOR
2P (BLUE) CONNECTOR (NOTE 4)

NC700SA/SD:

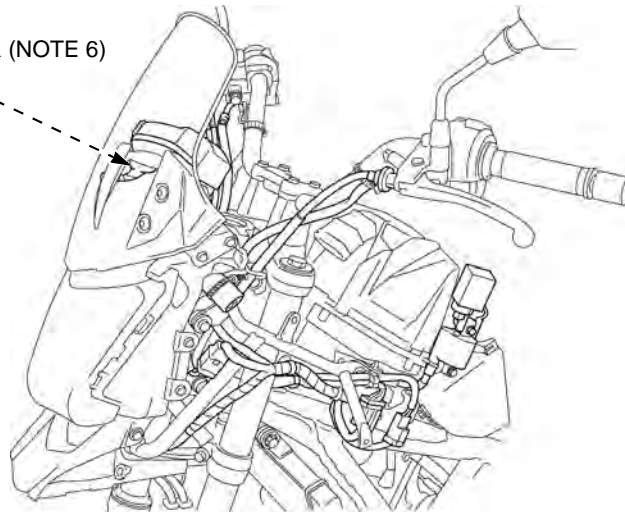


FRONT WHEEL SPEED SENSOR
2P (BLUE) CONNECTOR (NOTE 5)

NOTE 6: Remove the windscreen (page 2-23).



COMBINATION METER
16P (GRAY) CONNECTOR (NOTE 6)



ABS TROUBLESHOOTING INFORMATION

SYSTEM DESCRIPTION

SUMMARY OF ABS PRE-START SELF-DIAGNOSIS SYSTEM

The ABS pre-start self-diagnosis system diagnoses the electrical system as well as the operating status of the modulator. When there is any abnormality, the problem and the associated part can be detected by reading the problem code.

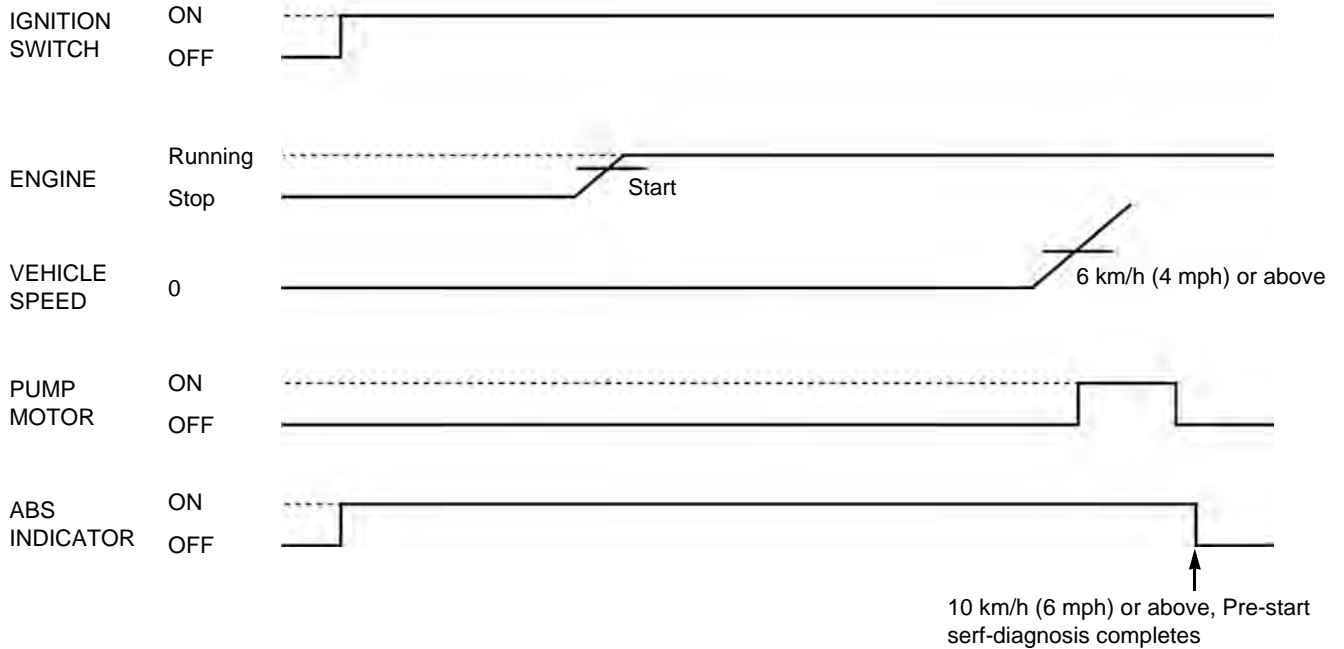
When the motorcycle is running, pulse signals generated at the front/rear wheel speed sensor are sent to the ABS Control Unit. When the ABS Control Unit detects that vehicle speed reaches 6 km/h (4 mph), the pump motor is temporarily operated to check if the ABS system functions normally. If the system is normal, pre-start self-diagnosis is complete by the time the vehicle speed reaches 10 km/h (6 mph) approximately.

If a problem is detected, the ABS indicator blinks or comes on and stays on to notify the rider of the problem. The self-diagnosis is also made while the motorcycle is running, and the ABS indicator blinks when a problem is detected.

When the ABS indicator blinks, the cause of the problem can be identified by retrieving the problem code following the specified retrieval procedure (page 20-8).

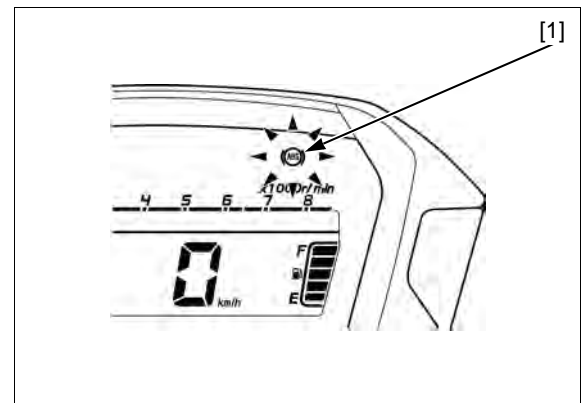
If the ABS indicator does not come on when the ignition switch is turned ON, or the ABS indicator stays on after the pre-start self-diagnosis procedure is complete, the ABS indicator may be faulty. Follow the troubleshooting (page 20-12).

Pre-start self-diagnosis when normal:



PRE-START SELF-DIAGNOSIS PROCEDURE

1. Turn the ignition switch ON and engine stop switch to "O".
2. Make sure the ABS indicator [1] comes on.
3. Start the engine.
4. Ride the motorcycle and increase the vehicle speed to approximately 10 km/h (6 mph).
5. The ABS is normal if the ABS indicator goes off.

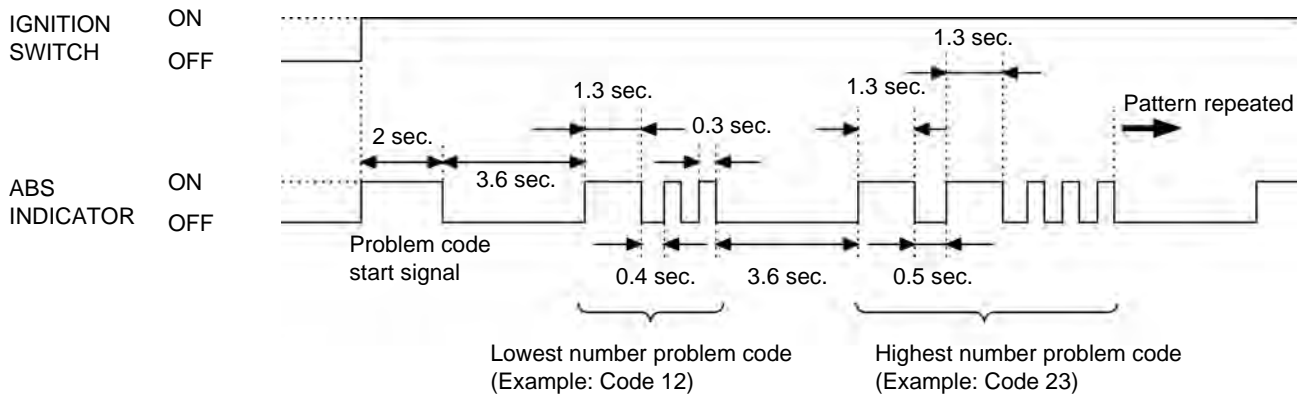


ANTI-LOCK BRAKE SYSTEM (ABS)

PROBLEM CODE INDICATION PATTERN

NOTE:

- The ABS indicator denotes the problem codes from 11 to 81. the ABS indicator has two types of blinks, a long blink and short blink. The long blink lasts for 1.3 seconds, the short blink lasts for 0.3 seconds. When two long blinks occur, and three short blinks, that problem code is 23 (two long blinks = 20 blinks, three short blinks = 3 blinks). Then, go to the troubleshooting and see problem code 23.
- When the ABS control unit stores some problem codes, the ABS indicator shows the problem codes in the order from the lowest number to highest number. For example, when the ABS indicator indicates code 12, then indicates code 23, two failures have occurred.



When the problem code is not stored:



PROBLEM CODE READOUT

NOTE:

- The ABS indicator indicates the problem code by blinking a specified number of times.
- The problem code is not erased by turning the ignition switch to OFF while the problem code is being output. Note that turning the ignition switch to ON again does not indicate the problem code. To show the problem code again, repeat the problem code retrieval procedures from the beginning.
- Be sure to make a note of the retrieval problem code(s).
- After diagnostic troubleshooting, erase the problem code(s) and perform the pre-start self-diagnosis to be sure that there is no problem in the ABS indicator (indicator is operating normally).
- Do not apply the front or rear brake during retrieval.

Turn the ignition switch ON and engine stop switch to "O".

Start the engine and test ride the motorcycle above 10 km/h (6 mph).

If the ABS indicator blinks or stays on, follow the steps described below:

1. Turn the ignition switch OFF.

Remove the maintenance lid (page 21-6).

Remove the DLC [1] from the battery box.

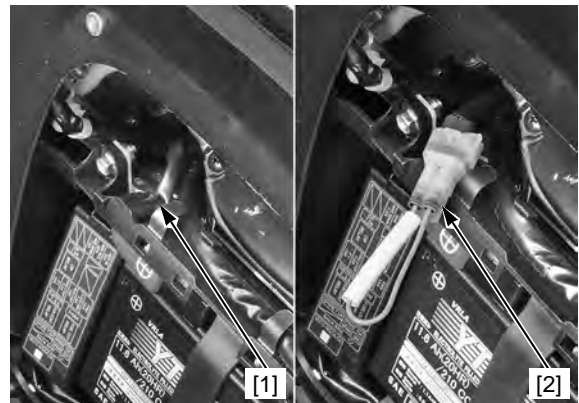
Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

SCS connector [2]

070PZ-ZY30100



- Turn the ignition switch ON and engine stop switch to "O".

The ABS indicator [1] should come on 2 seconds (start signal) (then goes off 3.6 seconds) and starts problem code indication.

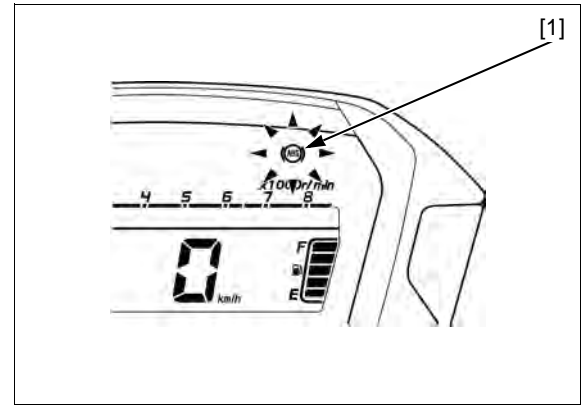
- The problem code is indicated by the number of the times of the ABS indicator blinking.

If the problem code is not stored, the ABS indicator stays on.

- Turn the ignition switch OFF and remove the special tool from the DLC.

Install the DLC to the battery box.

Install the maintenance lid (page 21-6).



ERASING PROBLEM CODE

- Turn the ignition switch OFF.

Remove the maintenance lid (page 21-6).

Remove the DLC [1] from the battery box.

Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

SCS connector [2]

070PZ-ZY30100

- Turn the ignition switch ON and engine stop switch to "O" while squeezing the brake lever. The ABS indicator should come on 2 seconds and go off.

- Release the brake lever immediately after the ABS indicator is off. The ABS indicator should come on.

- Squeeze the brake lever immediately after the ABS indicator is on. The ABS indicator should go off.

- Release the brake lever immediately after the ABS indicator is off.

When code erasure is complete, the ABS indicator blinks 2 times and stays on.

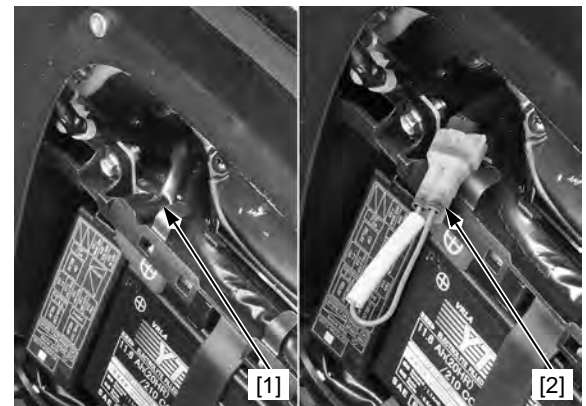
If the ABS indicator does not blink 2 times, the data has not been erased, so try again.

If the ABS indicator blinks 2 times and blinks, faulty ABS system, go to ABS troubleshooting (page 20-10)

- Turn the ignition switch OFF and remove the special tool from the DLC.

Install the DLC to the battery box.

Install the maintenance lid (page 21-6).



ANTI-LOCK BRAKE SYSTEM (ABS)

ABS INDICATOR PROBLEM CODE INDEX

NOTE:

- The ABS indicator might blink in the following cases. Correct the faulty part.
 - Incorrect tire pressure.
 - Tires not recommended for the motorcycle were installed (incorrect tire size).
 - Deformation of the wheel or tire.
- The ABS indicator might blink while riding under the following conditions. This is temporary failure. Be sure to erase the problem code (page 20-9).
Then, test ride the motorcycle above 10 km/h (6 mph) and check the problem code by retrieving the self-diagnosis system (page 20-8). Ask the rider for the riding conditions in detail when the motorcycle is brought in for inspection.
 - The motorcycle has continuously run bumpy roads.
 - The front wheel leaves the ground for a long time when riding (wheelie).
 - Only either the front or rear wheel rotates.
 - The ABS operates continuously.
 - The ABS control unit has been disrupted by an extremely powerful radio wave (electromagnetic interference).

Problem Code	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
–	<ul style="list-style-type: none"> • ABS modulator voltage input line • Indicator related wires • Speedometer • ABS modulator • ABS fuse 7.5 A (ABS MAIN) 			<ul style="list-style-type: none"> • ABS indicator never come ON at all 	20-12
				<ul style="list-style-type: none"> • ABS indicator stays ON at all 	20-13
11	Front wheel speed sensor circuit malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires 	○	○	<ul style="list-style-type: none"> • Stops ABS operation 	20-15
13	Rear wheel speed sensor malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires 	○	○		20-17
12	Front wheel speed sensor circuit malfunction <ul style="list-style-type: none"> • Wheel speed sensor or related wires • Electromagnetic interference 		○	<ul style="list-style-type: none"> • Stops ABS operation 	20-15
14	Rear wheel speed sensor malfunction <ul style="list-style-type: none"> • Wheel speed sensor, pulser ring or related wires • Electromagnetic interference 		○		20-17
21	Front pulser ring <ul style="list-style-type: none"> • Pulser ring or related wires 		○	<ul style="list-style-type: none"> • Stops ABS operation 	20-15
23	Rear pulser ring <ul style="list-style-type: none"> • Pulser ring or related wires 		○		20-17
31	Solenoid valve malfunction (ABS modulator)	○	○	<ul style="list-style-type: none"> • Stops ABS operation 	20-19
32					
33					
34					
37					
38					
41	Front wheel lock <ul style="list-style-type: none"> • Riding condition 		○	<ul style="list-style-type: none"> • Stops ABS operation 	20-15
42	Front wheel lock (Wheelie) <ul style="list-style-type: none"> • Riding condition 		○		
43	Rear wheel lock <ul style="list-style-type: none"> • Riding condition 		○		20-17
51	Motor lock <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS fuse 30 A (ABS M.) 	○	○	<ul style="list-style-type: none"> • Stops ABS operation 	20-20
52	Motor stuck off <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS fuse 30 A (ABS M.) 	○	○		
53	Motor stuck on <ul style="list-style-type: none"> • Pump motor (ABS modulator) or related wires • ABS fuse 30 A (ABS M.) 	○	○		
54	Fail-safe relay malfunction <ul style="list-style-type: none"> • Fail-safe relay (ABS modulator) or related wires • ABS fuse 30 A (ABS SOL.) 	○	○		

ANTI-LOCK BRAKE SYSTEM (ABS)

Problem Code	Function failure	Detection		Symptom/Fail-safe function	Refer to
		A	B		
61	Power circuit/Under voltage <ul style="list-style-type: none">• Input voltage (too low)• ABS fuse 7.5 A (ABS MAIN)	○	○	• Stops ABS operation	20-22
62	Power circuit/Over voltage <ul style="list-style-type: none">• Input voltage (too high)	○	○	• Stops ABS operation	
71	Tire malfunction <ul style="list-style-type: none">• Tire size		○	• Stops ABS operation	20-24
81	ABS control unit <ul style="list-style-type: none">• ABS control unit malfunction (ABS modulator)	○	○	• Stops ABS operation	20-24

(A) Pre-start self-diagnosis (page 20-7)

(B) Ordinary self-diagnosis: diagnoses while the motorcycle is running (after pre-start self-diagnosis)

ABS INDICATOR CIRCUIT TROUBLESHOOTING

ABS INDICATOR DOES NOT COME ON (when the ignition switch turned ON)

1. Combination Meter Power/ground Line Inspection

Check the combination meter power and ground lines (page 22-10).

Are the wires normal?

YES – GO TO STEP 2.

NO – Open circuit in related wires

2. Indicator Operation Inspection

Pull up the lock lever [1] and disconnect the ABS modulator 25P connector [2].

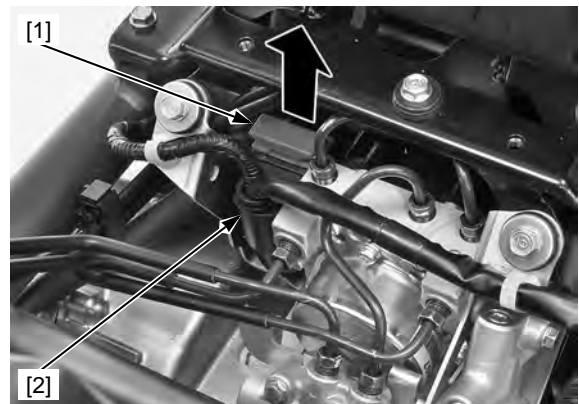
Turn the ignition switch ON and engine stop switch to "O".

Check the ABS indicator.

Does the ABS indicator come on?

YES – Faulty ABS modulator

NO – GO TO STEP 3.



3. Indicator Signal Line Short Circuit Inspection

Turn the ignition switch OFF.

Check for continuity between the ABS modulator 25P connector [1] of the wire harness side and ground.

Connection: Orange/black – Ground

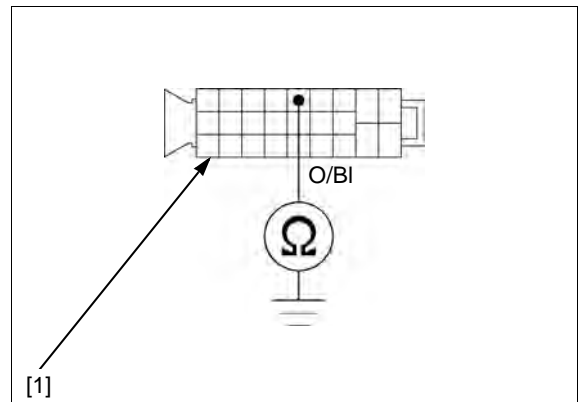
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Short circuit in Orange/black wire

NO – Faulty combination meter



ABS INDICATOR STAYS ON (Indicator does not go off when the motorcycle is running, Problem code is not indicated by the retrieval procedure)

1. Service Check Line Short Circuit Inspection

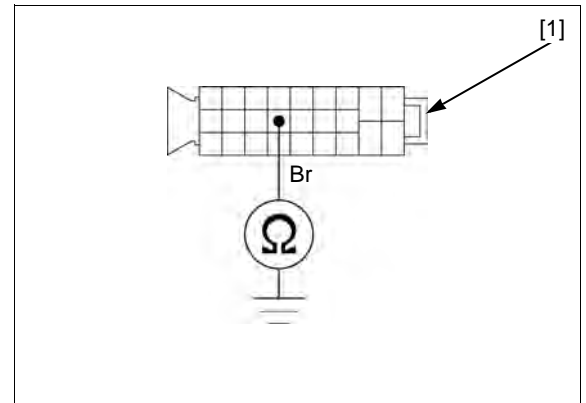
Disconnect the ABS modulator 25P connector [1].
Check for continuity between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Brown – Ground

TOOL:
Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** – Short circuit in Brown wire
- NO** – GO TO STEP 2.



2. Indicator Operation Inspection

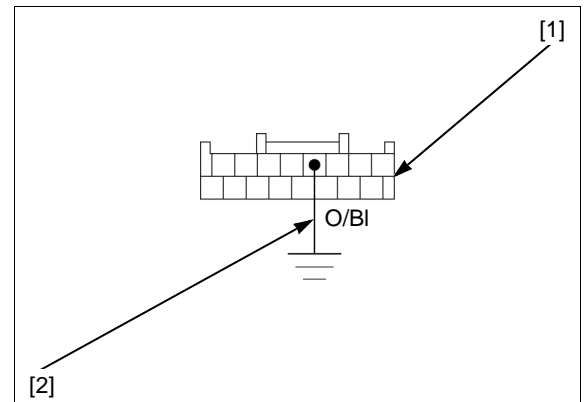
With the connector connected, short the combination meter 16P (Gray) connector [1] of the wire harness side and ground with a jumper wire [2].

Connection: Orange/black – Ground

Turn the ignition switch ON and engine stop switch to "O".
Check the ABS indicator.

Does it go off?

- YES** – GO TO STEP 3.
- NO** – Faulty combination meter



3. Indicator Signal Line Open Circuit Inspection

Turn the ignition switch OFF.
Remove the jumper wire from the combination meter 16P (Gray) connector.

Short the ABS modulator 25P connector [1] of the wire harness side and ground with a jumper wire [2].

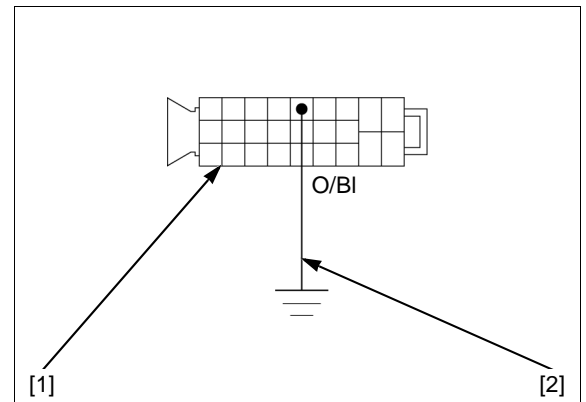
Connection: Orange/black – Ground

TOOL:
Test probe 07ZAJ-RDJA110

Turn the ignition switch ON and engine stop switch to "O".
Check the ABS indicator.

Does it go off?

- YES** – GO TO STEP 4.
- NO** – Open circuit in Orange/black wire



ANTI-LOCK BRAKE SYSTEM (ABS)

4. Logic Ground Line Open Circuit Inspection

Turn the ignition switch OFF.

Remove the jumper wire from the ABS modulator 25P connector [1].

Check for continuity between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Green/yellow – Ground

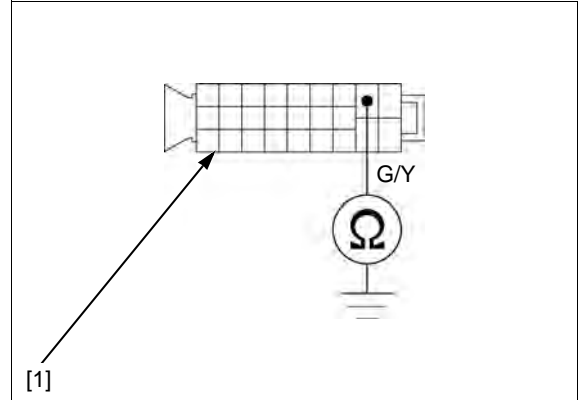
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Green/yellow wire



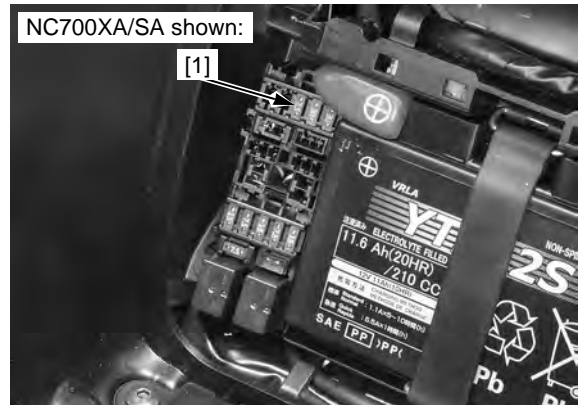
5. Fuse Inspection

Check the ABS fuse 7.5 A (ABS MAIN) [1] in the fuse box for blown.

Is the fuse blown?

YES – GO TO STEP 6.

NO – GO TO STEP 7.



6. Power Input Line Short Circuit Inspection

With the ABS fuse 7.5 A (ABS MAIN) removed, check for continuity between the ABS modulator 25P connector [1] of the wire harness side and ground.

Connection: Red/black – Ground

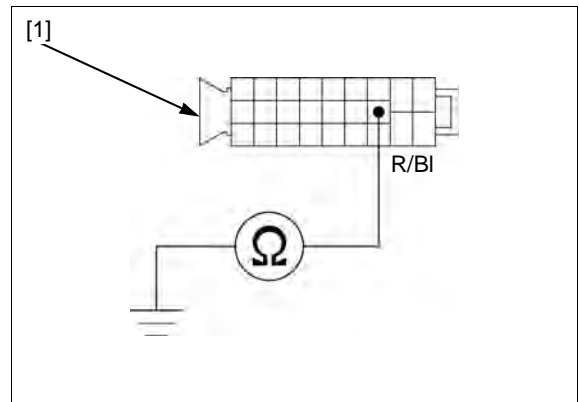
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Short circuit in Red/black wire. Replace the ABS fuse 7.5 A (ABS MAIN) with a new one, and recheck.

NO – Intermittent failure. Replace the ABS fuse 7.5 A (ABS MAIN) with a new one, and recheck.



7. Power Input Line Open Circuit Inspection

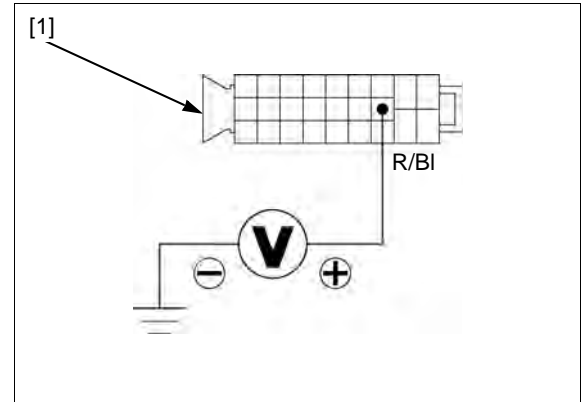
Turn the ignition switch ON and engine stop switch "O".
 Measure the voltage between the ABS modulator 25P connector [1] of wire harness side and ground.

Connection: Red/black (+) – Ground (-)
Standard: Battery voltage

TOOL:
Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

- YES** – Faulty ABS modulator.
NO – Open circuit in Red/black wire between the ABS modulator 25P connector and ignition switch



ABS TROUBLESHOOTING

NOTE:

- Perform inspection with the ignition switch OFF, unless otherwise specified.
- Refer to the ABS connector locations (page 20-5).
- All connector diagrams in the troubleshooting are viewed from the terminal side.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- When the ABS modulator assembly is detected to be faulty, recheck the wire harness and connector connections closely before replacing it.
- After diagnostic troubleshooting, erase the problem code (page 20-9) then test ride the motorcycle above 30 km/h (18 mph) and check the other problem code by retrieving the self-diagnosis system (page 20-8).
- Before starting the diagnosis and troubleshooting, check the ABS indicator circuit (page 20-12).

PROBLEM CODE 11, 12, 21, 41 or 42 (Front Wheel Speed Sensor/Front Pulser Ring/Front Wheel Lock)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 20-10). This is temporary failure. Erase the problem code (page 20-9) then test ride the motorcycle above 30 km/h (18 mph) and check the problem code by retrieving the self-diagnosis system (page 20-8).
- If the problem code 41 is indicated, check the front brake for drag.

1. Speed Sensor Air Gap Inspection

Measure the air gap between the speed sensor and pulser ring (page 20-24).

Is the air gap correct?

- YES** – GO TO STEP 2.
NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

ANTI-LOCK BRAKE SYSTEM (ABS)

2. Speed Sensor Condition Inspection

Inspect the area around the speed sensor:

Check that there is iron or other magnetic deposits between the pulser ring [1] and wheel speed sensor [2], and the pulser ring slots for obstructions.

Check the installation condition of the pulser ring or wheel speed sensor for looseness.

Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 3.

NO – Remove any deposits. Install properly or replace faulty part.



3. Front Wheel Speed Sensor Line Short Circuit Inspection (at sensor side)

Turn the ignition switch OFF.

Disconnect the front wheel speed sensor 2P (Blue) connector [1].

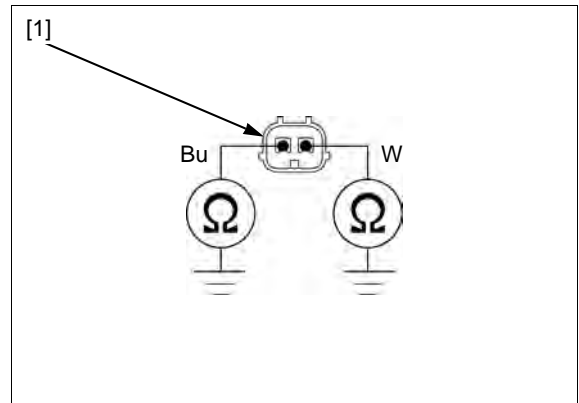
Check for continuity between each terminal of the sensor side front wheel speed sensor 2P (Blue) connector and ground.

Connection: Blue – Ground
White – Ground

Is there continuity?

YES – Faulty front wheel speed sensor

NO – GO TO STEP 4.



4. Front Wheel Speed Sensor Line Short Circuit Inspection (at wire harness side)

Disconnect the ABS modulator 25P connector.

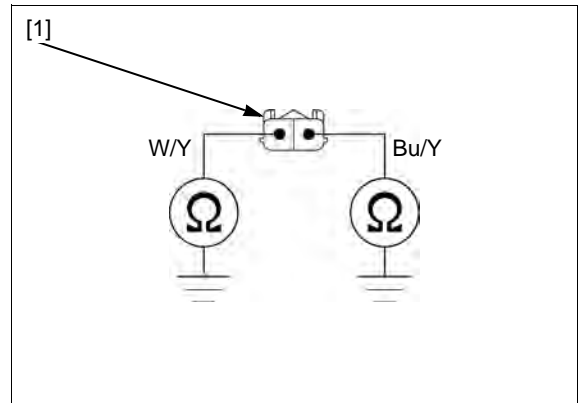
Check for continuity between each terminal of the wire harness side front wheel speed sensor 2P (Blue) connector [1] and ground.

Connection: Blue/yellow – Ground
White/yellow – Ground

Is there continuity?

YES – • Short circuit in Blue/yellow wire
• Short circuit in White/yellow wire

NO – GO TO STEP 5.



5. Speed Sensor Line Open Circuit Inspection

Short the ABS modulator 25P connector [1] terminals of the wire harness side with a jumper wire [2].

Connection: Blue/yellow – White/yellow

TOOL:

Test probe 07ZAJ-RDJA110

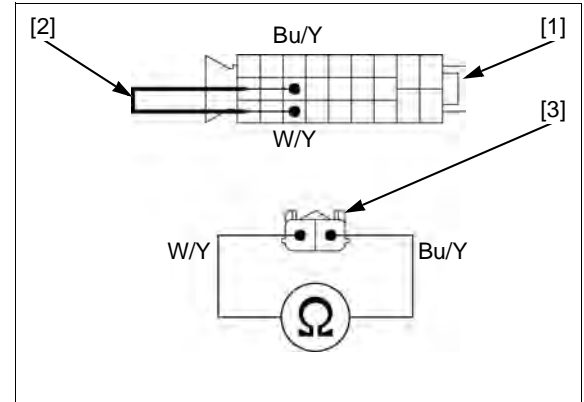
Check for continuity between the terminals of the wire harness side front wheel speed sensor 2P (Blue) connector [3].

Connection: Blue/yellow – White/yellow

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in Blue/yellow or White/yellow wire



6. Failure Reproduction with a New Speed Sensor

Replace the front wheel speed sensor with a new one (page 20-25).

Connect the ABS modulator 25P and front wheel speed sensor 2P (Blue) connectors.

Erase the problem code (page 20-9).

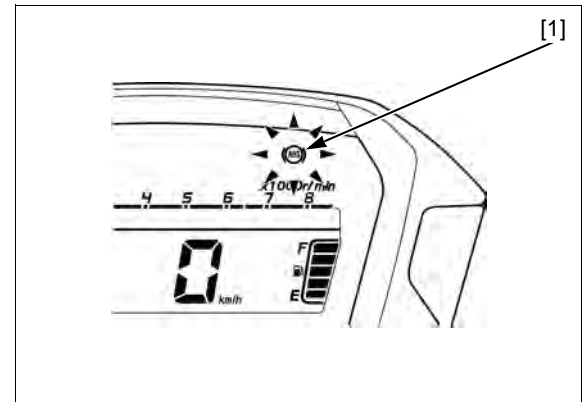
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Dose the ABS indicator indicate the code "11, 12, 21, 41 or 42"?

YES – Faulty ABS modulator.

NO – Faulty removed wheel speed sensor



PROBLEM CODE 13, 14, 23 or 43 (Rear Wheel Speed Sensor/Rear Pulser Ring/Rear Wheel Lock)

NOTE:

- The ABS indicator might blink under unusual riding or conditions (page 20-10). This is temporary failure. Erase the problem code (page 20-9) then test ride the motorcycle above 30 km/h (18 mph) and check the problem code by retrieving the self-diagnosis system (page 20-8).
- If the problem code 43 is indicated, check the rear brake for drag.

1. Speed Sensor Air Gap Inspection

Measure the air gap between the speed sensor and pulser ring (page 20-24).

Is the air gap correct?

YES – GO TO STEP 2.

NO – Check each part for deformation and looseness and correct accordingly. Recheck the air gap.

ANTI-LOCK BRAKE SYSTEM (ABS)

2. Speed Sensor Condition Inspection

Inspect the area around the speed sensor:

Check that there is iron or other magnetic deposits between the pulser ring [1] and wheel speed sensor [2], and the pulser ring slots for obstructions.

Check installation condition of the pulser ring or wheel speed sensor for looseness.

Check the pulser ring and sensor tip for deformation or damage (e.g., chipped pulser ring teeth).

Are the sensor and pulser ring in good condition?

YES – GO TO STEP 3.

NO – Remove any deposits. Install properly or replace faulty part.



3. Rear Wheel Speed Sensor Line Short Circuit Inspection (at sensor side)

Turn the ignition switch OFF.

Disconnect the rear wheel speed sensor 2P (Gray) connector [1].

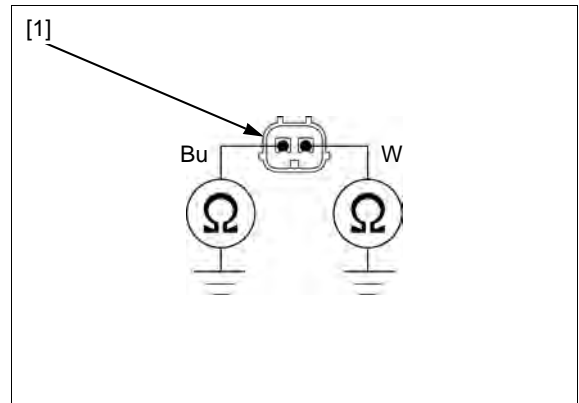
Check for continuity between each terminal of the sensor side rear wheel speed sensor 2P (Gray) connector and ground.

Connection: Blue – Ground
White – Ground

Is there continuity?

YES – Faulty rear wheel speed sensor

NO – GO TO STEP 4.



4. Rear Wheel Speed Sensor Line Short Circuit Inspection (at wire harness side)

Disconnect the ABS modulator 25P connector.

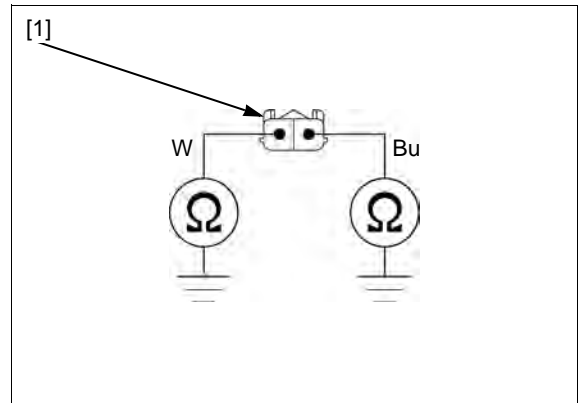
Check for continuity between each terminal of the wire harness side rear wheel speed sensor 2P (Gray) connector [1] and ground.

Connection: Blue – Ground
White – Ground

Is there continuity?

YES – • Short circuit in Blue wire
• Short circuit in White wire

NO – GO TO STEP 5.



5. Speed Sensor Line Open Circuit Inspection

Short the ABS modulator 25P connector [1] terminals of the wire harness side with a jumper wire [2].

Connection: Blue – White

TOOL:

Test probe 07ZAJ-RDJA110

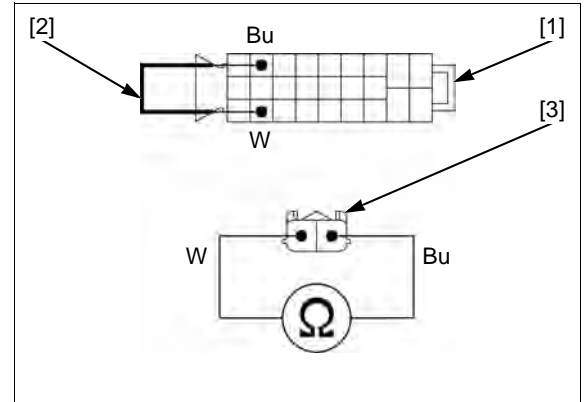
Check for continuity between the terminals of the wire harness side rear wheel speed sensor 2P (Gray) connector [3].

Connection: Blue – White

Is there continuity?

YES – GO TO STEP 6.

NO – Open circuit in Blue or White wire



6. Failure Reproduction with a New Speed Sensor

Replace the rear wheel speed sensor with a new one (page 20-26).
Connect the ABS modulator 25P and rear wheel speed sensor 2P (Gray) connectors.

Erase the problem code (page 20-9).

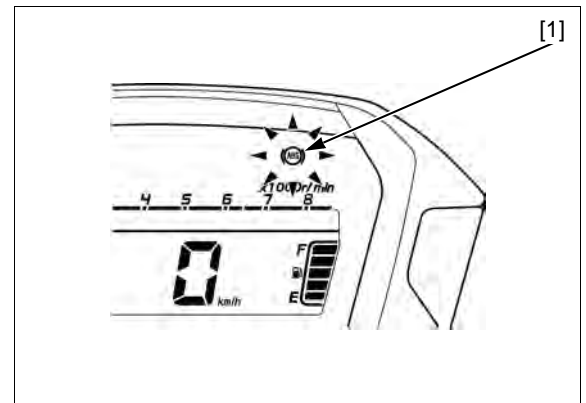
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "13, 14, 23 or 43"?

YES – Faulty ABS modulator

NO – Faulty removed wheel speed sensor



PROBLEM CODE 31, 32, 33, 34, 37 or 38 (Solenoid Valve)

1. Failure Reproduction

Erase the problem code (page 20-9).

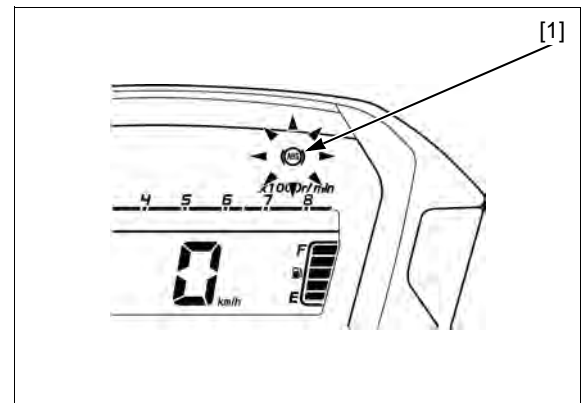
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "31, 32, 33, 34, 37 or 38"?

YES – Faulty ABS modulator

NO – Solenoid valve is normal (intermittent failure).



ANTI-LOCK BRAKE SYSTEM (ABS)

PROBLEM CODE 51, 52 or 53 (Pump Motor)

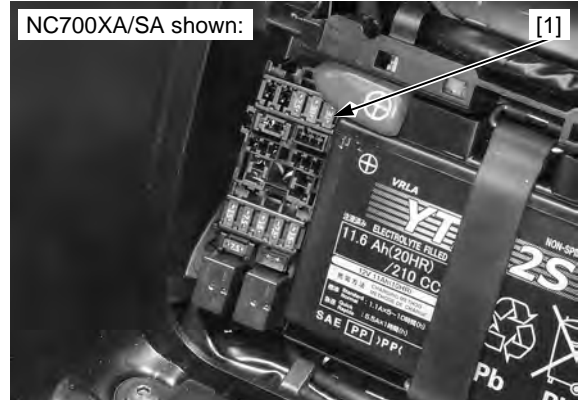
1. Fuse Inspection

Check the ABS fuse 30 A (ABS M.) [1] in the fuse box for blown.

Is the fuse blown?

YES – GO TO STEP 2.

NO – GO TO STEP 3.



2. Motor Power Input Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector [1].

Check for continuity between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Violet/white – Ground

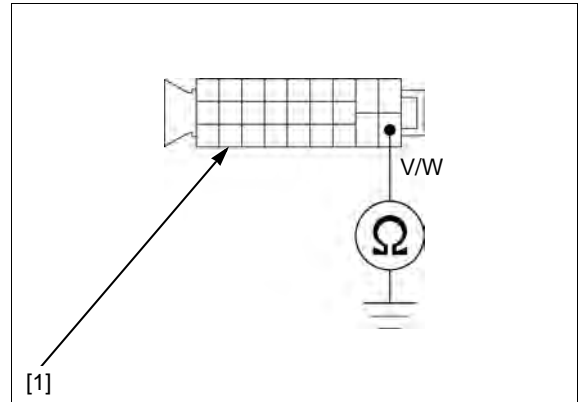
TOOL:

Test probe 07ZAJ-RDJA110

Is there continuity?

YES – Short circuit in Violet/white wire

NO – Intermittent failure. Replace the ABS fuse 30 A (ABS M.) with a new one, and recheck.



3. Motor Power Input Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector [1].

Measure the voltage between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Violet/white (+) – Ground (-)

Standard: Battery voltage

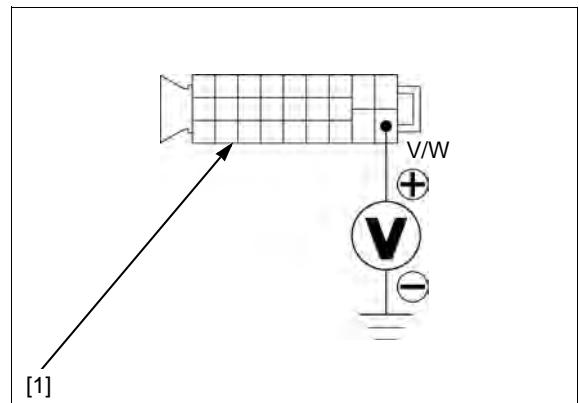
TOOL:

Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

YES – GO TO STEP 4.

NO – Open circuit in Violet/white or Black wire between the battery and ABS modulator 25P connector



4. Failure Reproduction

Connect the ABS modulator 25P connector.

Erase the problem code (page 20-9).

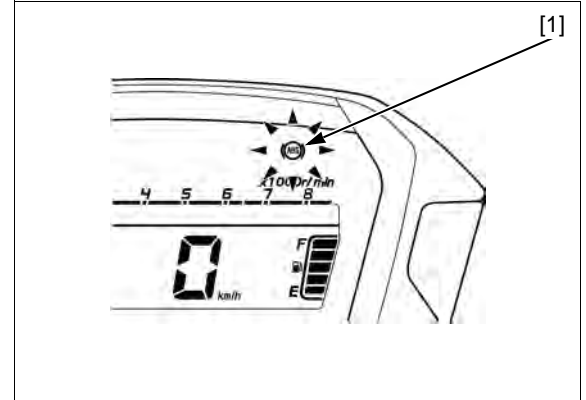
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "51, 52 or 53"?

YES – Faulty ABS modulator

NO – Pump motor is normal (intermittent failure).



PROBLEM CODE 54 (Fail-safe Relay)

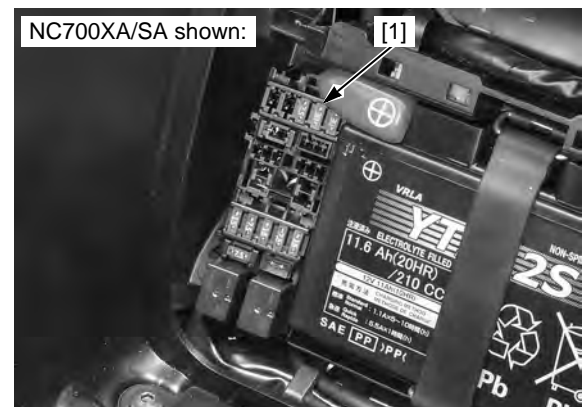
1. Fuse Inspection

Check the ABS fuse 30 A (ABS SOL.) [1] in the fuse box for blown.

Is the fuse blown?

YES – GO TO STEP 2.

NO – GO TO STEP 3.



2. Relay Power Input Line Short Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector [1].

Check for continuity between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Black/white – Ground

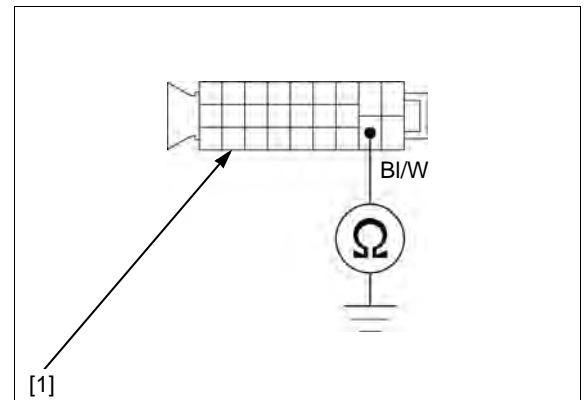
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – Short circuit in Black/white wire

NO – Intermittent failure. Replace the ABS fuse 30 A (ABS SOL.) with a new one, and recheck.



ANTI-LOCK BRAKE SYSTEM (ABS)

3. Relay Power Input Line Open Circuit Inspection

Turn the ignition switch OFF.

Disconnect the ABS modulator 25P connector [1].

Measure the voltage between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Black/white (+) – Ground (–)

Standard: Battery voltage

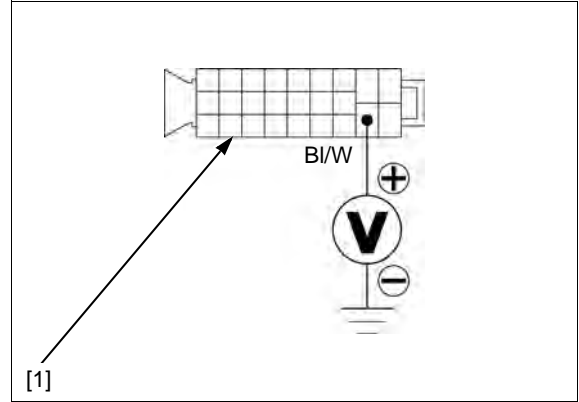
TOOL:

Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

YES – GO TO STEP 4.

NO – Open circuit in Black/white or Black wire between the battery and ABS modulator 25P connector



4. Failure Reproduction

Connect the ABS modulator 25P connector.

Erase the problem code (page 20-9).

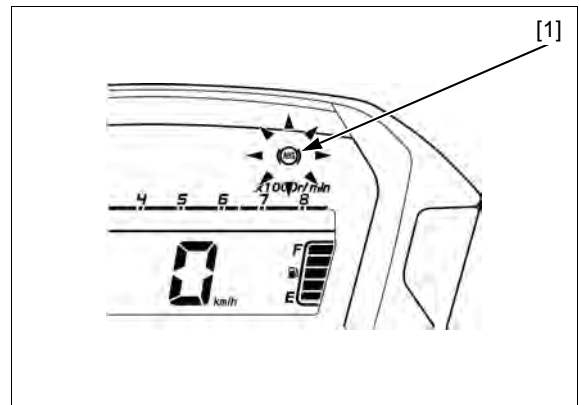
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "54"?

YES – Faulty ABS modulator

NO – Fail-safe relay is normal (intermittent failure)



PROBLEM CODE 61 or 62 (Power Circuit)

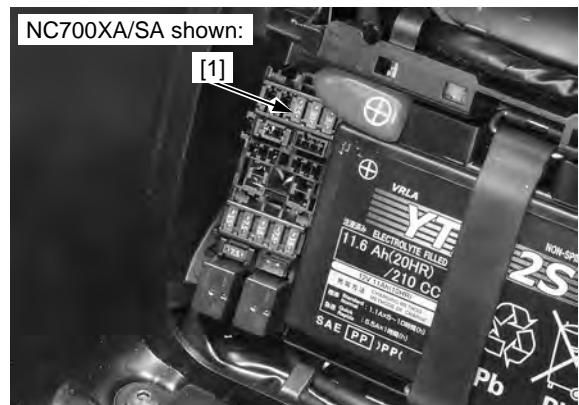
1. Fuse Inspection

Check the ABS fuse 7.5 A (ABS MAIN) [1] in the fuse box for blown.

Is the fuse blown?

YES – GO TO STEP 2.

NO – GO TO STEP 3.



2. Power Input Line Short Circuit Inspection

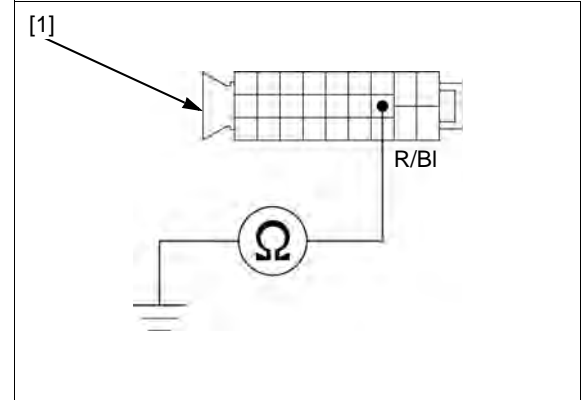
Turn the ignition switch OFF.
 Disconnect the ABS modulator 25P connector [1].
 With the ABS fuse 7.5 A (ABS MAIN) removed, check for continuity between the ABS modulator 25P connector of the wire harness side and ground.

Connection: Red/black – Ground

TOOL:
Test probe 07ZAJ-RDJA110

Is there continuity?

- YES** – Short circuit in Red/black wire
- NO** – Intermittent failure. Replace the ABS fuse 7.5 A (ABS MAIN) with a new one, and recheck.



3. Power Input Line Open Circuit Inspection

Turn the ignition switch OFF.
 Disconnect the ABS modulator 25P connector [1].
 Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the ABS modulator 25P connector of the wire harness side and ground.

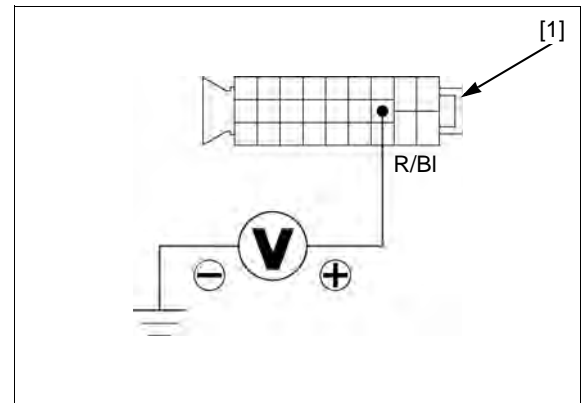
Connection: Red/black (+) – Ground (-)

Standard: Battery voltage

TOOL:
Test probe 07ZAJ-RDJA110

Does the standard voltage exist?

- YES** – GO TO STEP 4.
- NO** – Open circuit in Red/black wire between the ABS modulator 25P connector and ignition switch

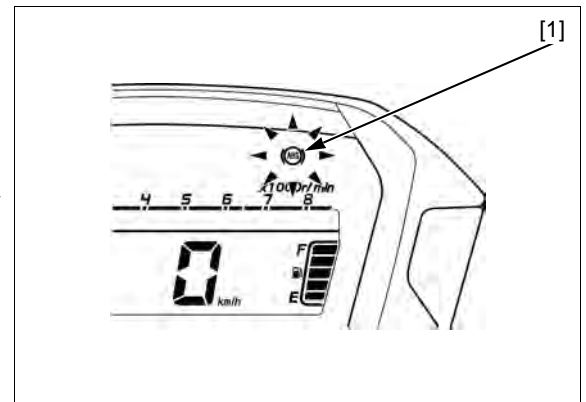


4. Failure Reproduction

Turn the ignition switch OFF.
 Connect the ABS modulator 25P connector.
 Erase the problem code (page 20-9).
 Test ride the motorcycle above 30 km/h (18 mph).
 Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "61 or 62"?

- YES** – Faulty ABS modulator
- NO** – Power circuit is normal (intermittent failure)



ANTI-LOCK BRAKE SYSTEM (ABS)

PROBLEM CODE 71 (Tire Size)

NOTE:

- Check the following and correct the faulty part.
 - Incorrect tire pressure.
 - Tires not recommended for the motorcycle were installed (incorrect tire size).
 - Deformation of the wheel or tire.

1. Failure Reproduction

If the above items are normal, recheck the problem code indication:

Erase the problem code (page 20-9).

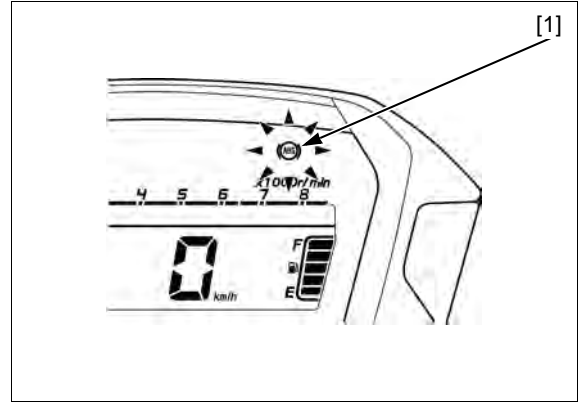
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "71"?

YES – Faulty ABS modulator

NO – Tire size is normal (intermittent failure)



PROBLEM CODE 81 (ABS Control Unit)

1. Failure Reproduction

Erase the problem code (page 20-9).

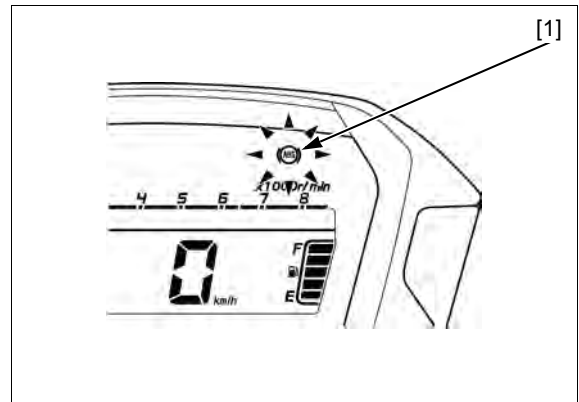
Test ride the motorcycle above 30 km/h (18 mph).

Retrieve the problem code (page 20-8) and recheck the ABS indicator [1].

Does the ABS indicator indicate the code "81"?

YES – Faulty ABS modulator

NO – ABS control unit is normal (intermittent failure)



WHEEL SPEED SENSOR

AIR GAP INSPECTION

Support the motorcycle securely using a hoist or equivalent and raise the wheel off the ground.

Measure the clearance (air gap) between the sensor and pulser ring at several points by turning the wheel slowly.

It must be within specification.

STANDARD: 0.54 – 1.14 mm (0.021 – 0.045 in)

The clearance (air gap) cannot be adjusted.

If it is not within specification, check each part for deformation, looseness or damage.

Check the wheel speed sensor for damage, and replace if necessary.

Check the pulse ring for deformation or damage, and replace if necessary.

- Front pulser ring (page 17-22)
- Rear pulser ring (page 18-7)



**WHEEL SPEED SENSOR
REPLACEMENT**

NOTE:

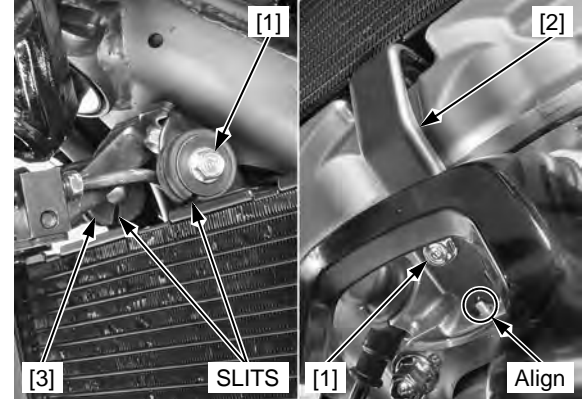
Refer to procedure for the pulser ring removal/ installation.

- Front pulser ring (page 17-22)
- Rear pulser ring (page 18-7)

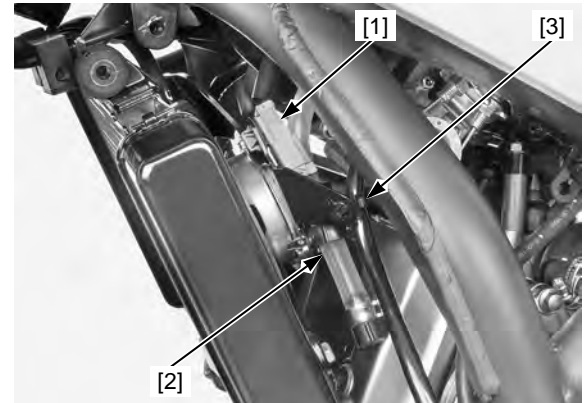
**FRONT WHEEL SPEED SENSOR REMOVAL/
INSTALLATION**

Remove the bolts [1] and radiator lower stay [2].

Release the radiator boss from the radiator mounting rubber [3].

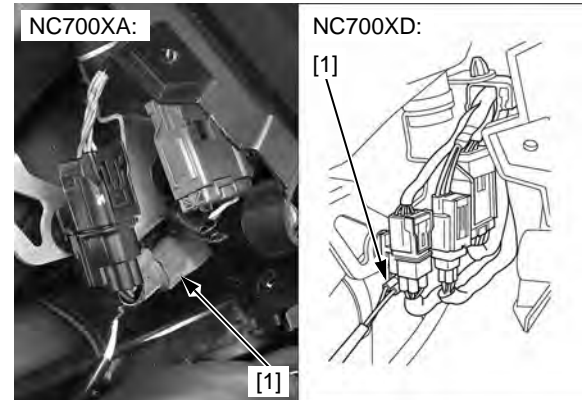


Release the fan motor 3P (Gray) connector [1], air cleaner housing drain hose [2] and spark plug wire [3] from the radiator.



NC700XA/XD: Remove the shroud/side cover (page 2-14).

Remove the front wheel speed sensor 2P (Blue) connector [1] from the frame and disconnect the connector.

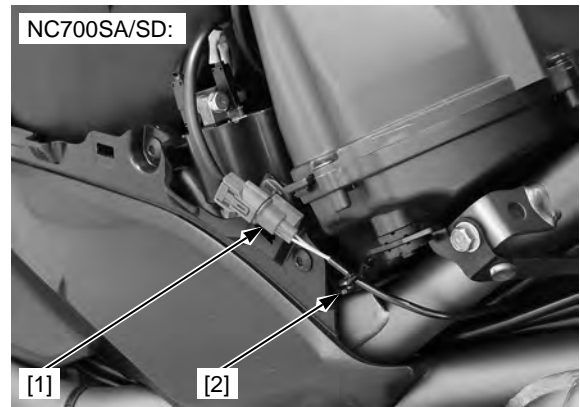


ANTI-LOCK BRAKE SYSTEM (ABS)

NC700SA/SD: Remove the side cowl (page 2-13).

Remove the front wheel speed sensor 2P (Blue) connector [1] from the side cover and disconnect the connector.

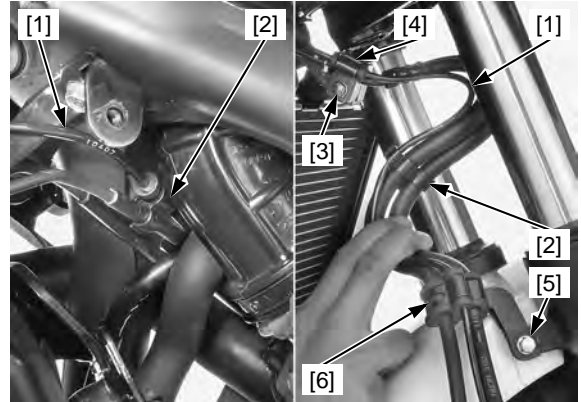
Release the sensor wire from the guide [2].



Release the sensor wire [1] from the clamps [2].

Remove the bolt [3] and speed sensor wire clamp [4], then release the speed sensor wire.

Remove the bolt [5] and brake hose clamp [6], then release the speed sensor wire.



Release the sensor wire [1] from the clamp [2].

Remove the bolt [3] and front wheel speed sensor wire guide [4].

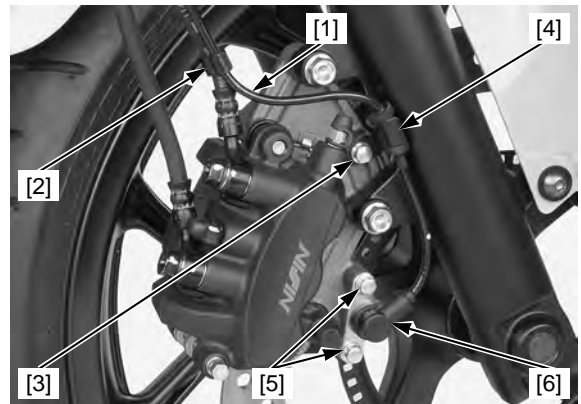
Remove the bolts [5] and front wheel speed sensor [6].

Clean around the mounting area of the caliper bracket thoroughly, and be sure that no foreign material is allowed to enter the mounting hole.

Installation is in the reverse order of removal.

NOTE:

- Route the wire and hoses properly (page 1-25).
- Make sure the radiator mounting rubber slits facing down.
- Align radiator lower stay slit with cylinder head tab.



REAR WHEEL SPEED SENSOR REMOVAL/INSTALLATION

Remove the following:

- Shroud/side cover (NC700XA/XD) (page 2-14)
- Shelter/side cover (NC700SA/SD) (page 2-15)
- Muffler (page 2-32)

Remove the step holder mounting socket bolts [1] and right step holder [2].



ANTI-LOCK BRAKE SYSTEM (ABS)

Disconnect the rear wheel speed sensor 2P (Gray) connector [1].

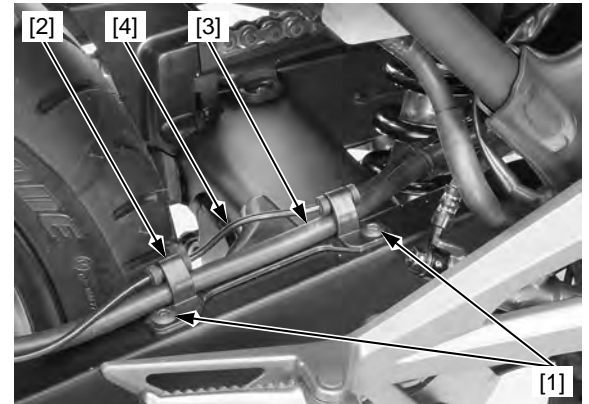
Release the rear wheel speed sensor 2P (Gray) connector from the ECM box [2].

Release the clamp [3].



Remove the socket bolts [1] and brake hose guide [2].

Release the brake hose [3] and rear wheel speed sensor wire [4] from the brake hose guide.



Remove the clamp [1] and release the rear wheel speed sensor wire [2].

Remove the bolts [3] and rear wheel speed sensor [4].

Clean around the mounting area of the caliper bracket thoroughly, and be sure that no foreign material is allowed to enter the mounting hole.

Installation is in the reverse order of removal.

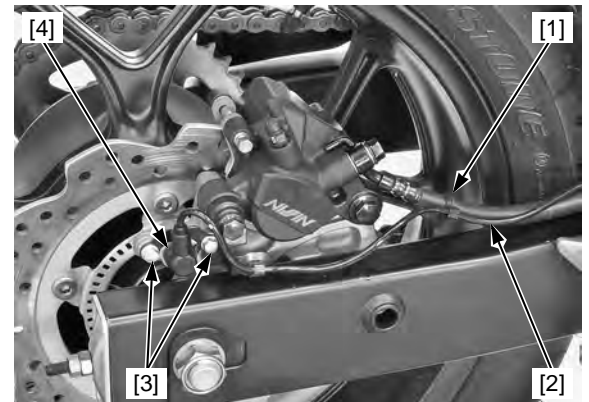
NOTE:

Route the wire and hoses properly (page 1-25).

TORQUE:

Step holder mounting socket bolt:

32 N·m (3.3 kgf·m, 24 lbf·ft)



ANTI-LOCK BRAKE SYSTEM (ABS)

PCV

REMOVAL/INSTALLATION

Drain the brake fluid from the lever/pedal brake line hydraulic systems (page 19-11).

Remove the luggage box (page 2-19).

Loosen the brake pipe joint nuts [1] and disconnect the brake pipe from the PCV [2].

Remove the PCV mounting bolt (long) [3], PCV mounting bolt (short) [4] and PCV.

NOTE:

Be careful not to bent or damage the brake pipes.

Installation is in the reverse order of removal.

TORQUE:

PCV mounting bolt:

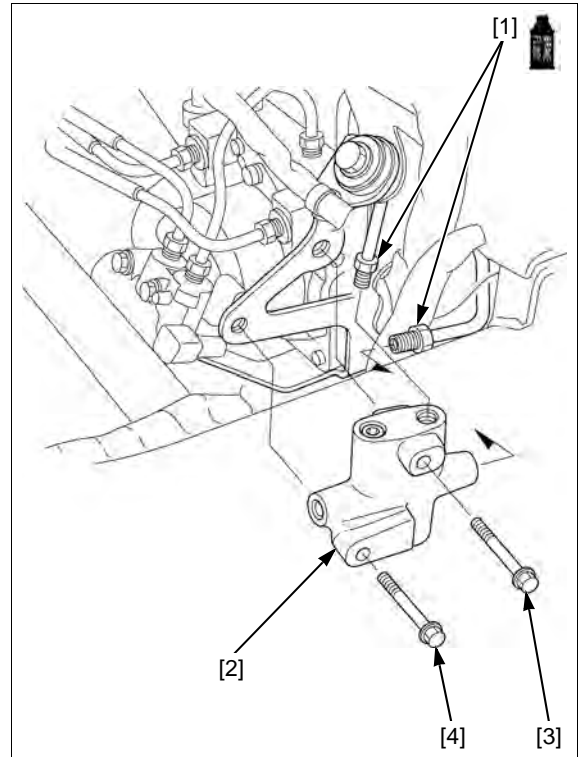
12 N·m (1.2 kgf·m, 9 lbf·ft)

Brake pipe joint nut:

14 N·m (1.4 kgf·m, 10 lbf·ft)

NOTE:

Apply brake fluid to the joint nut threads and sliding surface.



DELAY VALVE

REMOVAL/INSTALLATION

Drain the brake fluid from the lever/pedal brake line hydraulic systems (page 19-11).

Remove the luggage box (page 2-19).

Loosen the brake pipe joint nut [1], and disconnect the brake pipe from the delay valve [2].

Remove the delay valve mounting bolts [3] and delay valve.

NOTE:

Be careful not to bent or damage the brake pipes.

Installation is in the reverse order of removal.

TORQUE:

Delay valve mounting bolt:

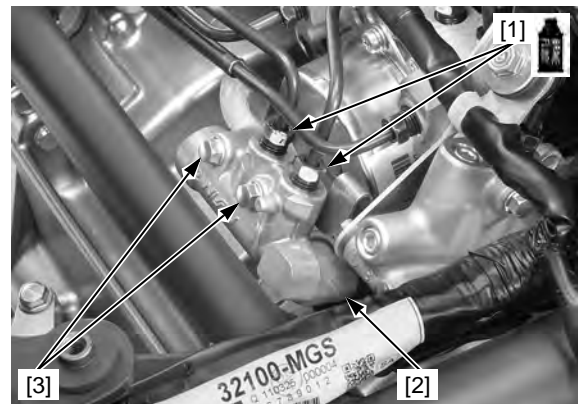
12 N·m (1.2 kgf·m, 9 lbf·ft)

Brake pipe joint nut:

14 N·m (1.4 kgf·m, 10 lbf·ft)

NOTE:

Apply brake fluid to the joint nut threads and sliding surface.



ABS MODULATOR

REMOVAL/INSTALLATION (NC700XA/SA)

NOTE:

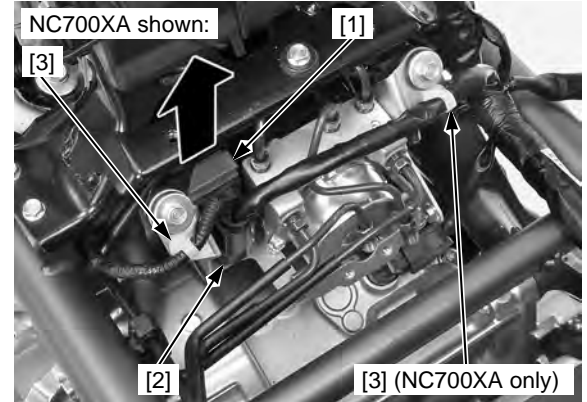
Be careful not to bend or damage the brake pipes during assembly or removal.

Remove the following:

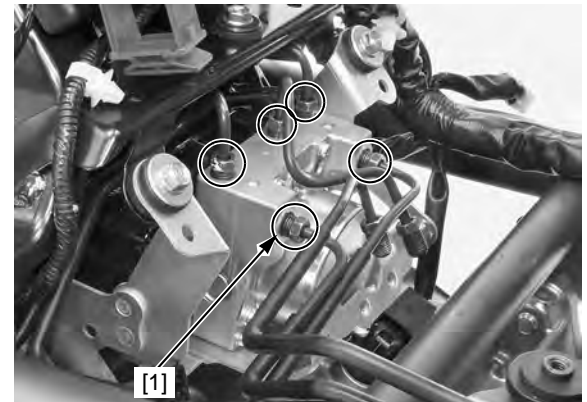
- Delay valve (page 20-28)
- PCV (page 20-28)

Pull up the lock lever [1] and disconnect the ABS modulator 25P connector [2].

Release the main wire harness clamp(s) [3] from the ABS modulator stay.



Loosen the brake pipe joint nuts [1] and disconnect the brake pipes from the ABS modulator.



Remove the ABS modulator stay mounting bolts [1], collars [2] and ABS modulator assembly [3].

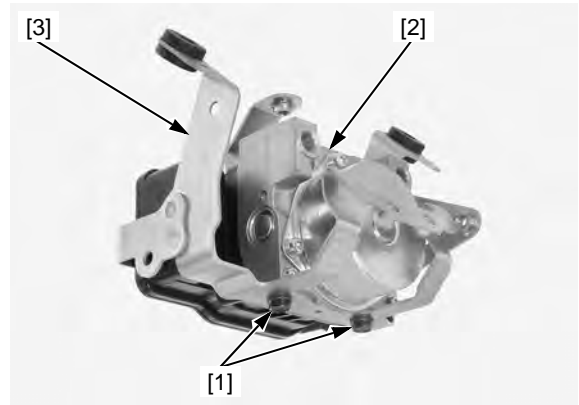
NOTE:

Be careful not to bent or damage the brake pipes.



ANTI-LOCK BRAKE SYSTEM (ABS)

Remove the ABS modulator mounting bolts [1] and ABS modulator [2] from the ABS modulator stay [3].



Installation is in the reverse order of removal.

NOTE:

- Apply brake fluid to the joint nut threads and sliding surface.
- Route the wire harness properly (page 1-25).

TORQUE:

PCV mounting bolt:

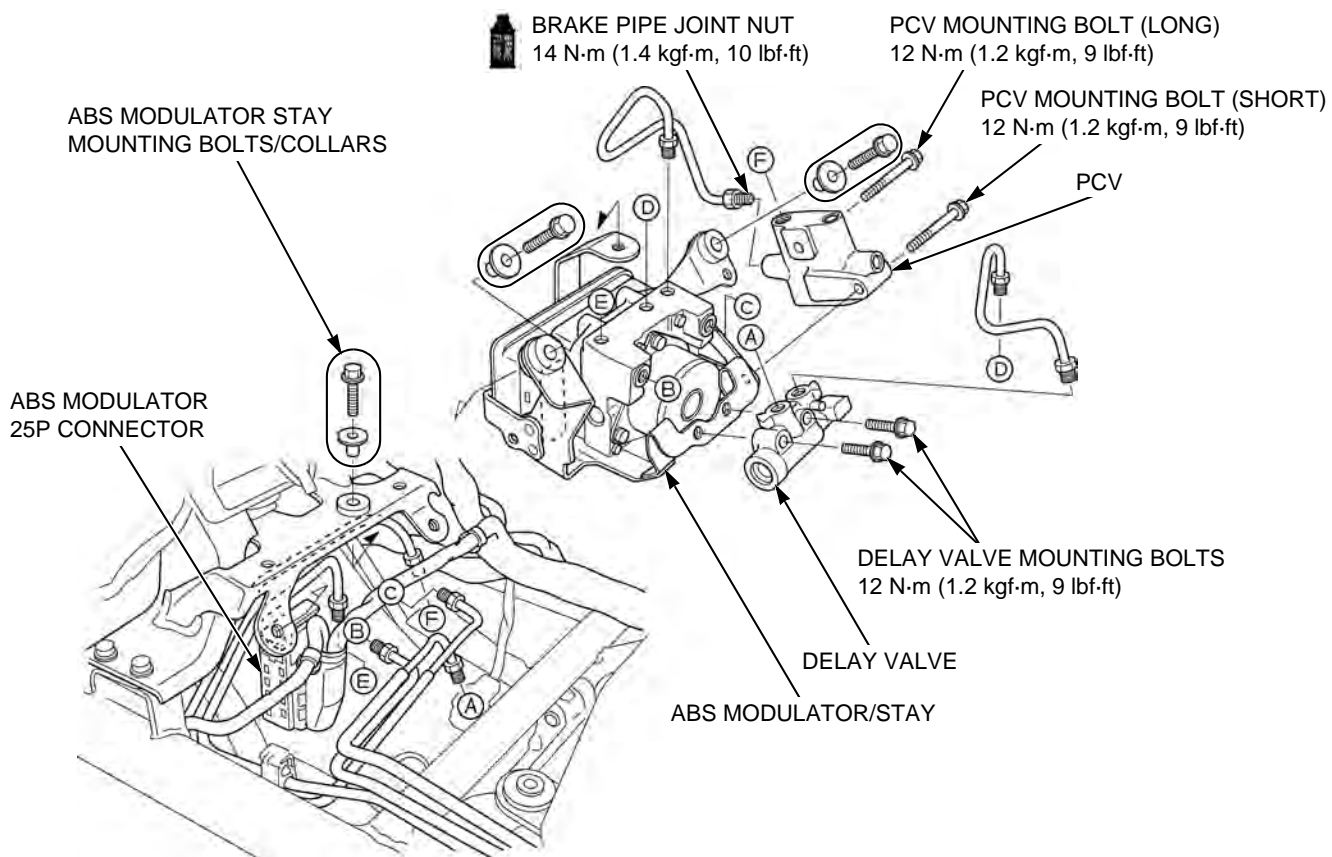
12 N·m (1.2 kgf·m, 9 lbf·ft)

Delay valve mounting bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)

Brake pipe joint nut:

14 N·m (1.4 kgf·m, 10 lbf·ft)



REMOVAL/INSTALLATION (NC700XD/SD)

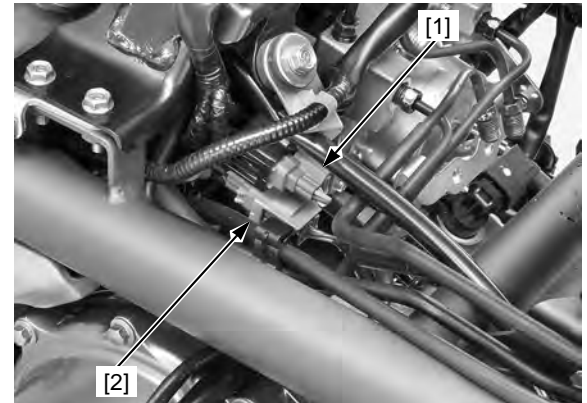
NOTE:

Be careful not to bend or damage the brake pipes during assembly or removal.

Remove the following:

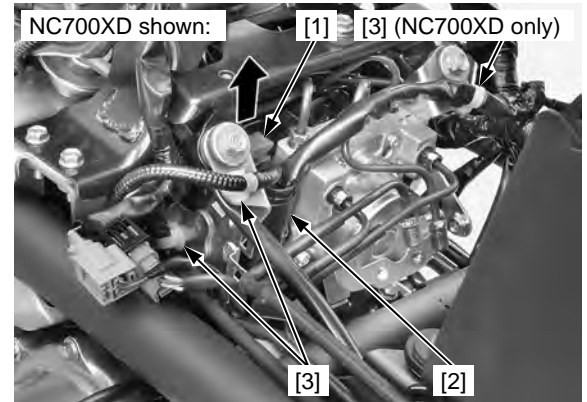
- Delay valve (page 20-28)
- PCV (page 20-28)

Remove the linear solenoid valve 4P (Green) connector [1] and shift spindle angle sensor 3P (Gray) connector [2] from the ABS modulator stay.

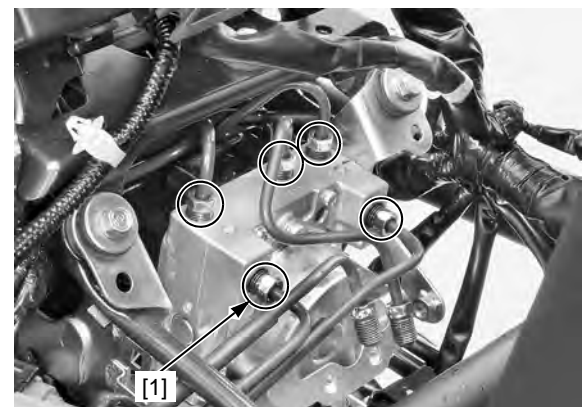


Pull up the lock lever [1] and disconnect the ABS modulator 25P connector [2].

Release the main wire harness clamps [3] from the ABS modulator stay.



Loosen the brake pipe joint nuts [1] and disconnect the brake pipes from the ABS modulator.



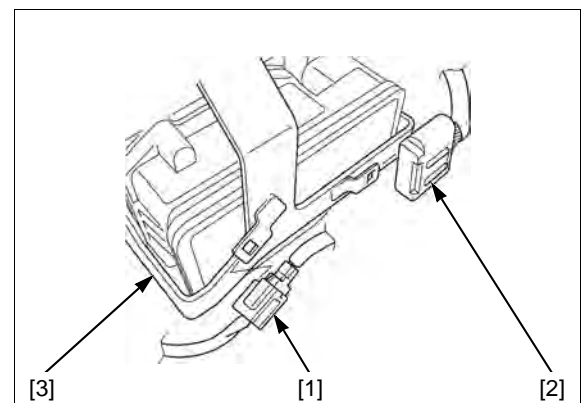
Remove the center cross plate (page 2-32).

Remove the TR sensor 3P (Black) connector [1] and Junction D 24P connector [2] from the ABS modulator stay.

Remove the ABS modulator assembly [3].

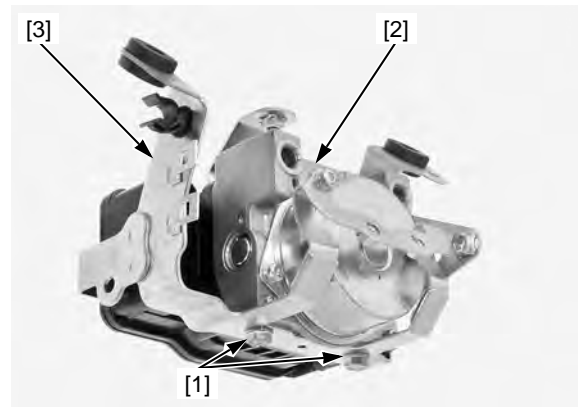
NOTE:

Be careful not to bent or damage the brake pipes.



ANTI-LOCK BRAKE SYSTEM (ABS)

Remove the ABS modulator mounting bolts [1] and ABS modulator [2] from the ABS modulator stay [3].



Installation is in the reverse order of removal.

NOTE:

- Apply brake fluid to the joint nut threads and sliding surface.
- Route the wire harness properly (page 1-25).

TORQUE:

PCV mounting bolt:

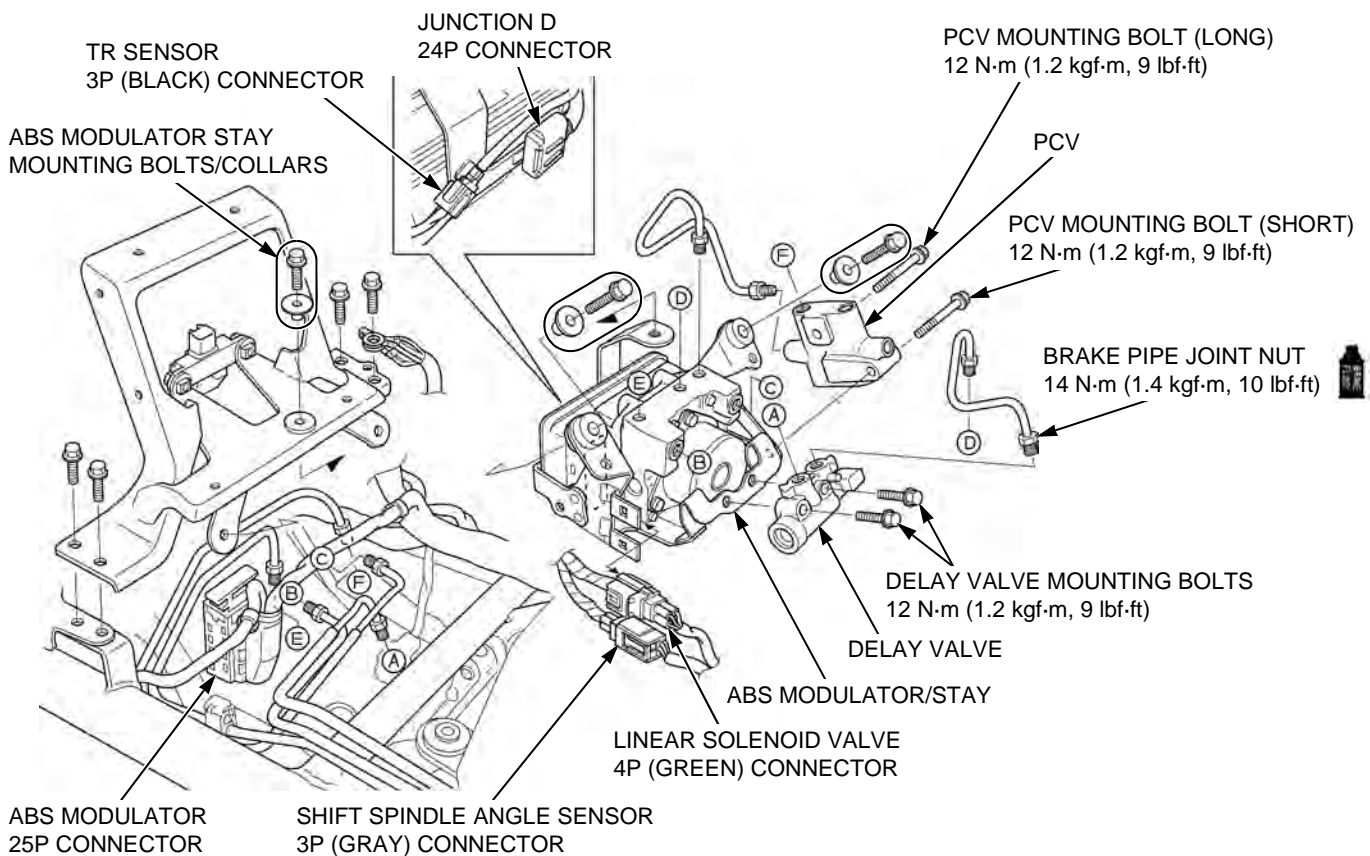
12 N·m (1.2 kgf·m, 9 lbf·ft)

Delay valve mounting bolt:

12 N·m (1.2 kgf·m, 9 lbf·ft)

Brake pipe joint nut:

14 N·m (1.4 kgf·m, 10 lbf·ft)

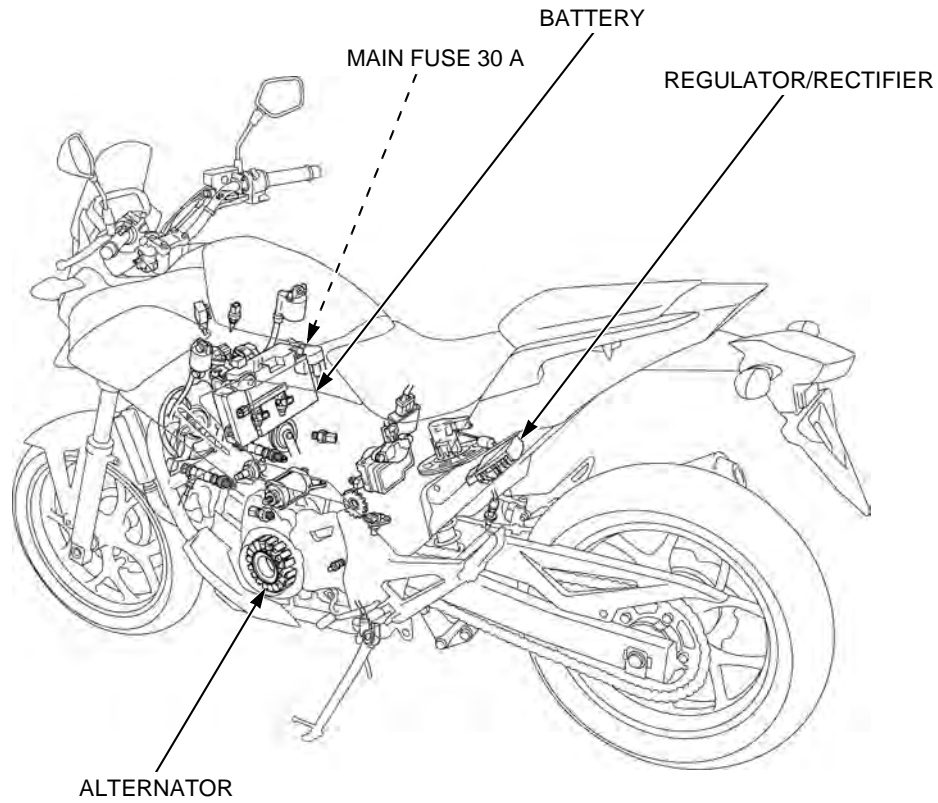


21. BATTERY/CHARGING SYSTEM

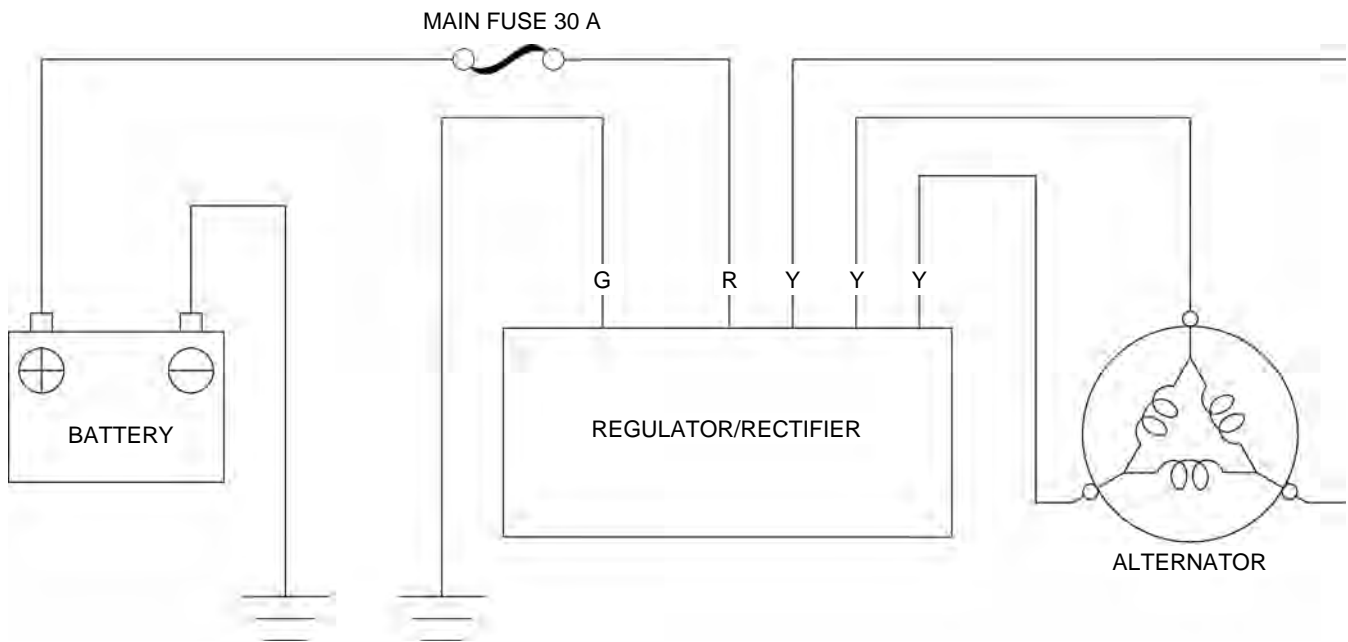
SYSTEM LOCATION.....	21-2	BATTERY.....	21-6
SYSTEM DIAGRAM	21-2	CHARGING SYSTEM INSPECTION	21-7
SERVICE INFORMATION.....	21-3	REGULATOR/RECTIFIER	21-8
TROUBLESHOOTING.....	21-5	ALTERNATOR CHARGING COIL	21-9

BATTERY/CHARGING SYSTEM

SYSTEM LOCATION



SYSTEM DIAGRAM



G: Green
R: Red
Y: Yellow

SERVICE INFORMATION

GENERAL

⚠ WARNING

- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and call your local Poison Control Center or call a physician immediately.

NOTICE

- *Always turn OFF the ignition switch before disconnecting any electrical component.*
- *Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.*
- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space. For maximum service life, charge the stored battery every two weeks.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.
- The maintenance free (MF) battery must be replaced when it reaches the end of its service life.
- The battery can be damaged if overcharged or undercharged, or if left to discharge for long period. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of the battery deteriorates after 2 – 3 years.
- Battery voltage may recover after battery charging, but under heavy load, the battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected as the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharging symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight ON for long periods of time without riding the motorcycle.
- The battery will self-discharge when the motorcycle is not in use. For this reason, charge the battery every two weeks to prevent sulfation from occurring.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 21-5).
- For alternator service (page 13-13).
- The following color codes are used throughout this section.

G = Green

R = Red

Y = Yellow

BATTERY CHARGING

- Turn power ON/OFF at the charger, not at the battery terminal.
- For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.
- Quick charging should only be done in an emergency; slow charging is preferred.

BATTERY TESTING

Refer to the battery tester's Operation Manual for the recommended battery testing procedure.

The recommended battery tester puts a "load" on the battery so the actual battery condition of the load can be measured.

RECOMMENDED BATTERY TESTER: BM-210 or BATTERY MATE or equivalent

BATTERY/CHARGING SYSTEM

SPECIFICATIONS

ITEM		SPECIFICATIONS	
Battery	Type	YTZ12S	
	Capacity	12 V – 11 Ah	
	Current leakage	1.2 mA maximum	
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.4 V
	Charging current	Normal	1.1 A/5 – 10 h
Quick		5.5 A/1 h	
Alternator	Capacity	0.42 kW/5,000 min ⁻¹ (rpm)	
	Charging coil resistance (20°C/68°F)	0.1 – 0.5 Ω	

TROUBLESHOOTING

BATTERY IS DAMAGED OR WEAK

1. BATTERY TEST

Remove the battery (page 21-6).

Check the battery condition using the recommended battery tester.

RECOMMENDED BATTERY TESTER: BM-210 or BATTERY MATE or equivalent

Is the battery good condition?

YES – GO TO STEP 2.

NO – Faulty battery

2. CURRENT LEAKAGE TEST

Install the battery (page 21-6).

Check the battery current leakage test (page 21-7).

Is the current leakage below 1.2 mA?

YES – GO TO STEP 3.

NO – GO TO STEP 6.

3. CHARGING VOLTAGE INSPECTION

Measure and record the battery voltage using a digital multimeter (page 21-6).

Start the engine.

Measure the charging voltage (page 21-7).

Compare the measurement to result of the following calculation.

STANDARD:

Measured BV < Measured CV < 15.5 V

- **BV = Battery Voltage**
- **CV = Charging Voltage**

Is the measured charging voltage within the standard voltage?

YES – Faulty battery

NO – GO TO STEP 4.

4. REGULATOR/RECTIFIER SYSTEM INSPECTION

Check the voltage and resistance at the regulator/rectifier connector (page 21-8).

Are the results of checked voltage and resistance correct?

YES – GO TO STEP 5.

- NO** –
- Open circuit in related wire
 - Loose or poor contacts of related terminal
 - Shorted wire harness

5. ALTERNATOR CHARGING COIL INSPECTION

Check the alternator charging coil (page 21-9).

Is the alternator charging coil resistance within 0.1 – 0.5 Ω (20°C/68°F)?

YES – Faulty regulator/rectifier

NO – Faulty charging coil

6. CURRENT LEAKAGE TEST WITHOUT REGULATOR/RECTIFIER CONNECTOR

Disconnect the regulator/rectifier 2P (Black) connector and recheck the battery current leakage.

Is the current leakage below 1.2 mA?

YES – Faulty regulator/rectifier

- NO** –
- Shorted wire harness
 - Faulty ignition switch

BATTERY/CHARGING SYSTEM

BATTERY

REMOVAL/INSTALLATION

Open the luggage box lid using the ignition key.

Remove the screws [1] and maintenance lid [2].

Remove the battery holder band [3].

Disconnect the battery negative (-) cable [4] first, then disconnect the battery positive (+) cable [5].

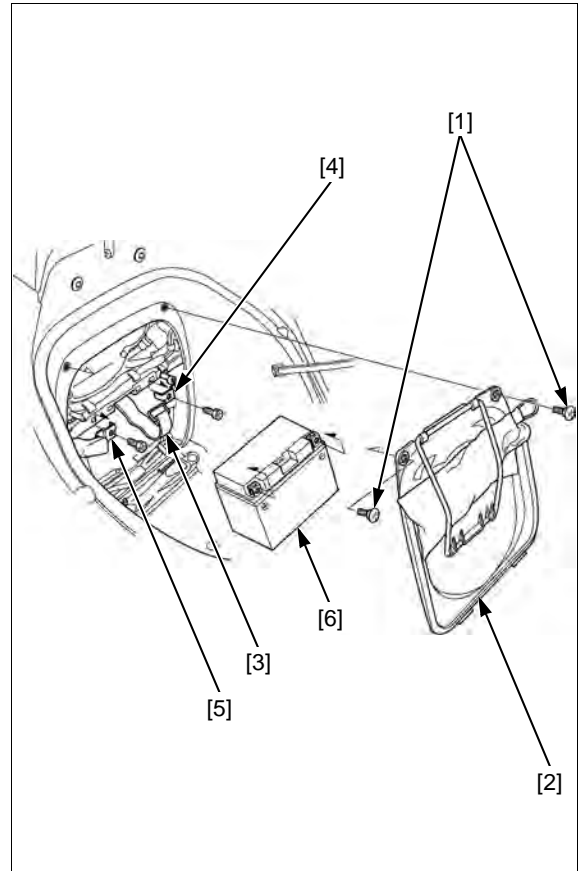
Remove the battery [6].

Installation is in the reverse order of removal.

NOTE:

- Connect the positive (+) cable first, then connect the negative (-) cable.
- For digital clock setting procedure (page 22-14).

Always turn the ignition switch OFF before removing the battery.



VOLTAGE INSPECTION

Remove the maintenance lid (page 21-6).

Measure the battery voltage using a commercially available digital multimeter.

VOLTAGE (20°C/68°F):

Fully charged: 13.0 – 13.2 V

Needs charging: Below 12.4 V



BATTERY TESTING

Remove the battery (page 21-6).

Refer to the instructions that are appropriate to the battery testing equipment available to you.

TOOL:

Battery tester

**BM-210 or
BATTERY MATE
or equivalent**

CHARGING SYSTEM INSPECTION

CURRENT LEAKAGE TEST

Remove the maintenance lid (page 21-6).

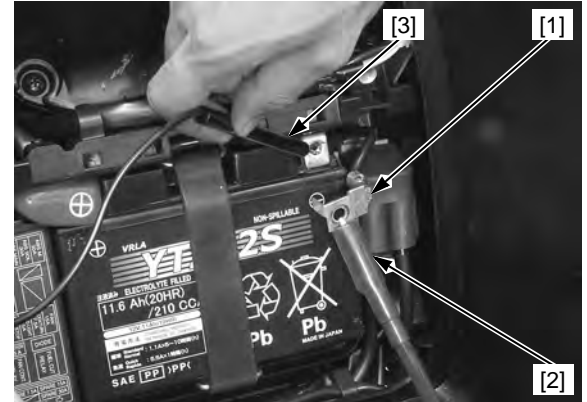
Turn the ignition switch OFF, disconnect the negative (-) cable [1] from the battery.

Connect the ammeter (+) probe [2] to the negative (-) cable and the ammeter (-) probe [3] to the battery (-) terminal.

With the ignition switch OFF, check for current leakage.

NOTE:

- When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow higher than the range selected may blow the fuse in the tester.
- While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow the fuse in the tester.



SPECIFIED CURRENT LEAKAGE: 1.2 mA maximum

If current leakage exceeds the specified value, a shorted circuit is the probable cause.

Locate the short by disconnecting connections one by one and measuring the current.

CHARGING VOLTAGE INSPECTION

NOTE:

Make sure the battery is in good condition before performing this test.

Start the engine and warm it up to the operating temperature; then stop the engine.

Remove the maintenance lid (page 21-6).

Connect the multimeter between the positive terminal [1] and negative terminal [2] of the battery.

NOTE:

- To prevent a short, make absolutely certain which are the positive and negative terminals or cable.
- Do not disconnect the battery or any cable in the charging system without first switching off the ignition switch. Failure to follow this precaution can damage the tester or electrical components.

With the headlight on high beam, restart the engine. Measure the voltage on the multimeter when the engine runs at 5,000 min⁻¹ (rpm).

STANDARD:

Measured BV < Measured CV < 15.5 V

- **BV = Battery Voltage (page 21-6)**
- **CV = Charging Voltage**

If the charging voltage reading is out of the specification, inspect the regulator/rectifier (page 21-8).



BATTERY/CHARGING SYSTEM

REGULATOR/RECTIFIER

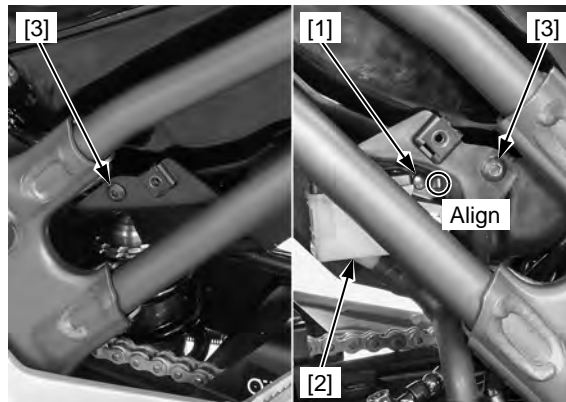
REMOVAL/INSTALLATION

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the shelter/side cover (NC700S/SA/SD) (page 2-15).

Remove the bolt [1] and rear brake reservoir stay/reservoir [2].

Remove the socket bolts [3].



Lower the rear fender B [1].

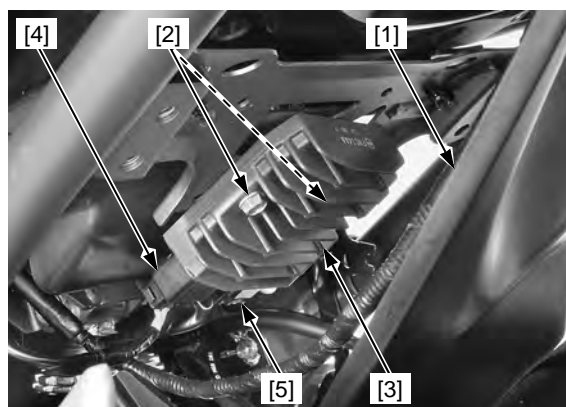
Remove the bolts [2] and regulator/rectifier [3].

Disconnect the alternator 3P (Black) connector [4] and regulator/rectifier 2P (Black) connector [5].

Installation is in the reverse order of removal.

NOTE:

- Route the wire harness and hoses properly (page 1-25).
- Align the rear brake reservoir stay with the frame tab.



SYSTEM INSPECTION

Check connectors for loose contact or corroded terminals.

Inspect the following items:

- Battery charging line (page 21-8)
- Ground line (page 21-9)
- Charging coil (page 21-9)

If all components of the charging system are normal and there are no loose connections at the regulator/rectifier connectors, replace the regulator/rectifier.

BATTERY CHARGING LINE INSPECTION

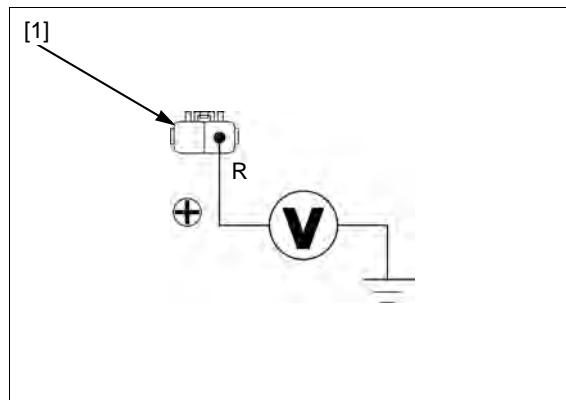
Turn the ignition switch OFF.

Disconnect the regulator/rectifier 2P (Black) connector [1] (page 21-8).

Measure the voltage between the regulator/rectifier 2P (Black) connector terminal at the wire side and ground.

CONNECTION: Red (+) – Ground (–)
STANDARD: Battery voltage

There should be battery voltage at all times.



GROUND LINE INSPECTION

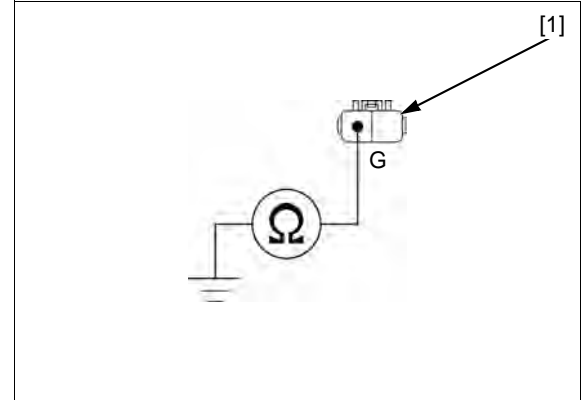
Turn the ignition switch OFF.

Disconnect the regulator/rectifier 2P (Black) connector [1] (page 21-8).

Check for continuity between the regulator/rectifier 2P (Black) connector at the wire side and ground.

CONNECTION: Green – Ground

There should be continuity at all times.



ALTERNATOR CHARGING COIL

CHARGING COIL INSPECTION

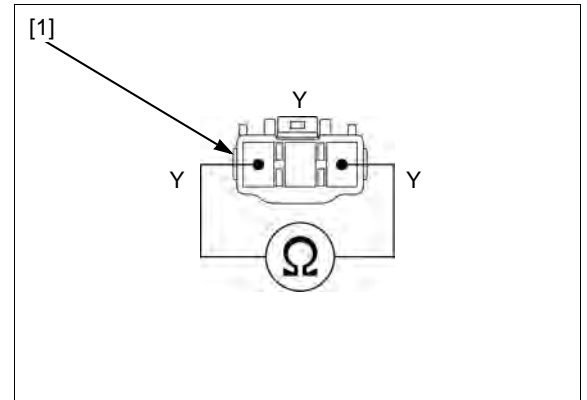
It is not necessary to remove the stator coil to make this test.

Disconnect the alternator 3P (Black) connector [1] (page 21-8).

Measure the resistance between the alternator 3P (Black) connector each terminals at the wire side.

CONNECTION: Yellow – Yellow

STANDARD: 0.1 – 0.5 Ω (20°C/68°F)



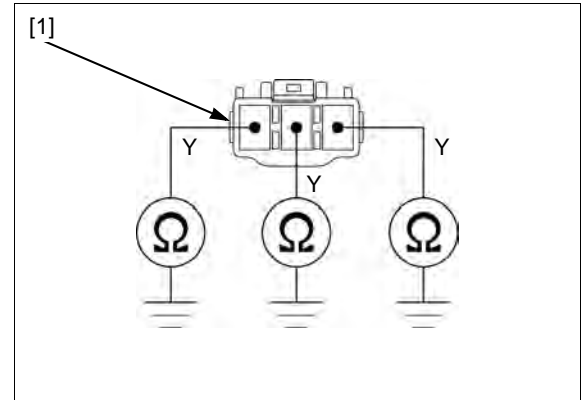
Check for continuity between the alternator 3P (Black) connector [1] each terminals at the wire side and ground.

CONNECTION: Yellow – Ground

STANDARD: No continuity

Replace the stator if the resistance is out of specification, or if any wire has continuity to ground.

For alternator/starter replacement (page 13-13).



MEMO

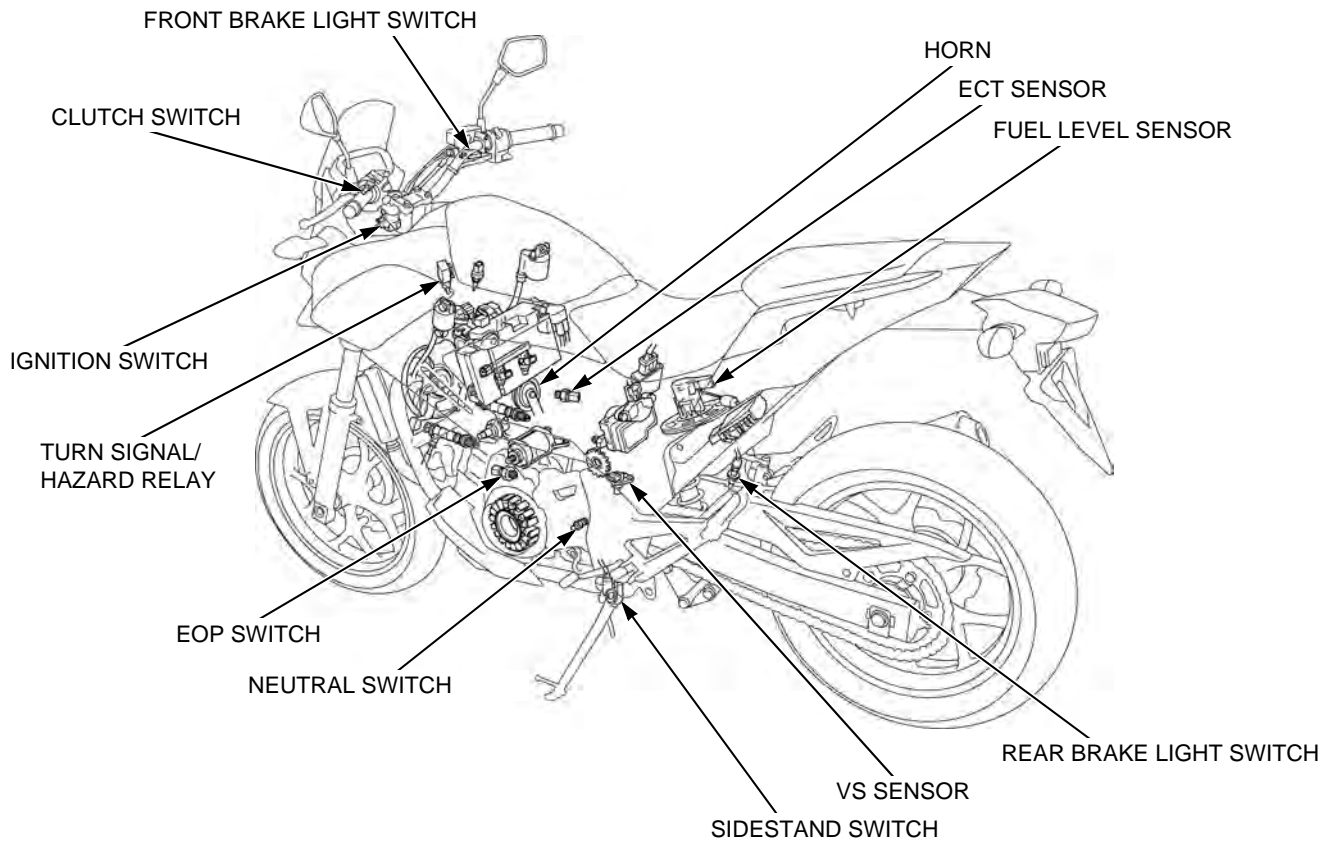
22. LIGHTS/METERS/SWITCHES

SYSTEM LOCATION.....	22-2	ENGINE OIL PRESSURE INDICATOR/EOP SWITCH.....	22-19
SERVICE INFORMATION.....	22-3	FUEL LEVEL SENSOR.....	22-21
TROUBLESHOOTING.....	22-4	PARKING BRAKE INDICATOR/SWITCH (NC700XD/SD).....	22-22
HEADLIGHT.....	22-5	IGNITION SWITCH.....	22-24
TURN SIGNAL LIGHT.....	22-6	HANDLEBAR SWITCHES.....	22-25
POSITION LIGHT.....	22-7	BRAKE LIGHT SWITCH.....	22-26
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COMBINATION METER.....	22-8	NEUTRAL SWITCH.....	22-27
SPEEDOMETER/VS SENSOR.....	22-16	SIDESTAND SWITCH.....	22-28
TACHOMETER.....	22-18	HORN.....	22-29
HIGH COOLANT TEMPERATURE INDICATOR/ECT SENSOR.....	22-18	TURN SIGNAL/HAZARD RELAY.....	22-30

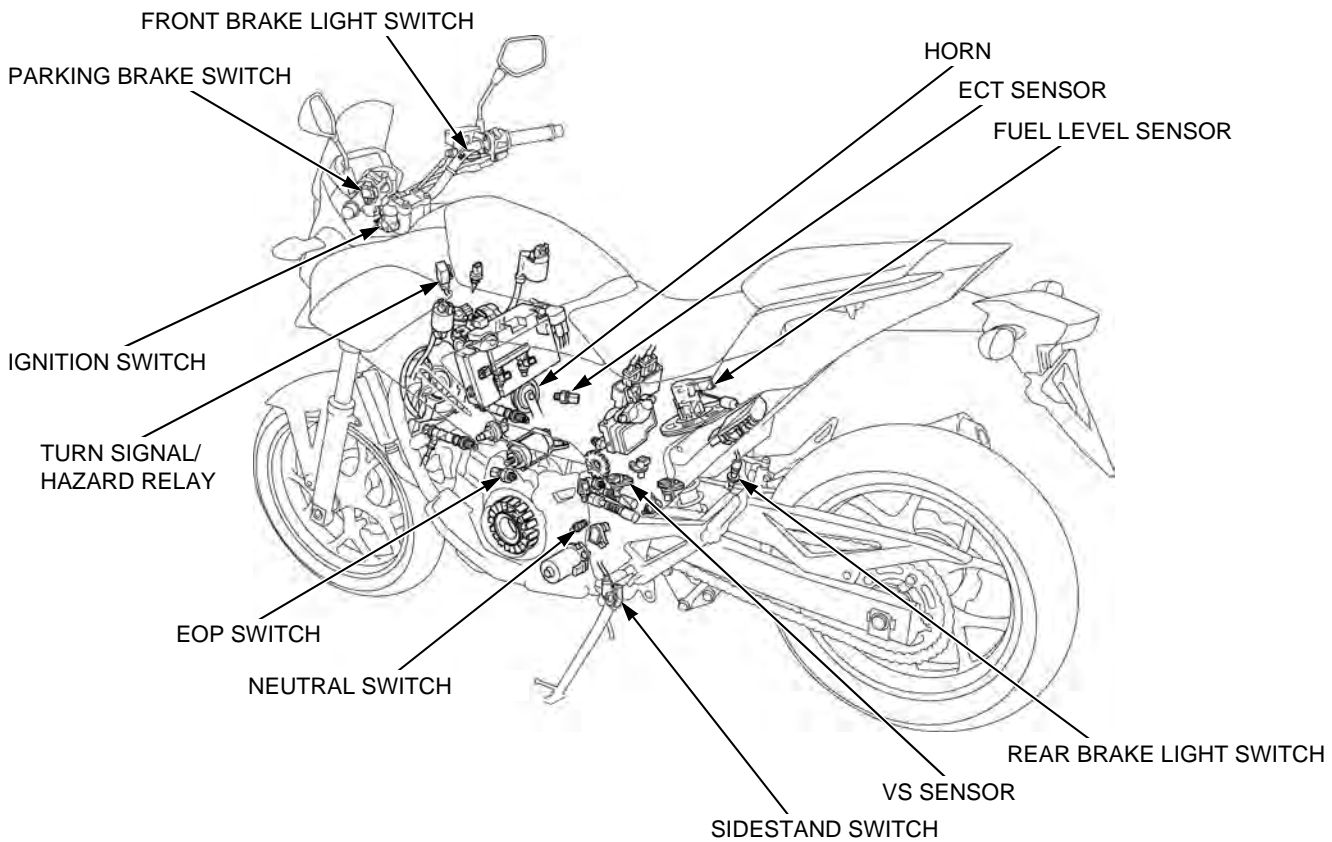
LIGHTS/METERS/SWITCHES

SYSTEM LOCATION

NC700X/XA/S/SA:



NC700XD/SD:



SERVICE INFORMATION

GENERAL

NOTICE

- Note the following when replacing the halogen headlight bulb.
 - Wear clean gloves while replacing the bulb. Do not put fingerprints on the headlight bulb, as they may create hot spots on the bulb and cause it to fail.
 - If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
- Be sure to install the dust cover after replacing the headlight bulb.
- A halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- Use an electric heating element to heat the water/coolant mixture for the ECT sensor inspection. Keep flammable materials away from the electric heating element. Wear protective clothing, insulated gloves and eye protection.
- A continuity test can be made with the switches installed on the motorcycle.
- The following color codes are used throughout this section.

Bu = Blue G = Green P = Pink V = Violet Y = Yellow
 Bl = Black Gr = Gray R = Red W = White

SPECIFICATIONS

ITEM		SPECIFICATIONS
Bulbs	Headlight	12 V – 60/55 W
	Position light	12 V – 5 W
	Brake/tail/license light	12 V – 21/5 W
	Turn signal light	12 V – 21 W x 4
	Instrument light	LED
	Turn signal indicator	LED
	High beam indicator	LED
	Neutral indicator	LED
	Engine oil pressure indicator	LED
	High coolant temperature indicator	LED
	MIL	LED
	HISS indicator	LED
	ABS indicator (NC700XA/XD/SA/SD)	LED
	Parking brake indicator (NC700XD/SD)	LED
Fuse	Main fuse	30 A
	PGM-FI fuse	15 A
	Sub fuse	15 A x 2, 7.5 A x 4
	ABS fuse (NC700XA/XD/SA/SD)	30 A x 2, 7.5 A
	DCT fuse (NC700XD/SD)	30 A, 7.5 A
ECT sensor resistance	40°C (104°F)	1.0 – 1.3 kΩ
	100°C (212°F)	0.1 – 0.2 kΩ
Fuel level sensor resistance	Full	4 – 6 Ω
	Empty	80 – 83 Ω

TORQUE VALUES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N-m (kgf-m, lbf-ft)	REMARKS
Turn signal light mounting screw	4	6	2.5 (0.3, 1.8)	
Combination meter mounting screw	3	5	1.0 (0.1, 0.7)	
Combination meter back cover mounting screw (NC700S/SA/SD)	4	3	0.3 (0.03, 0.2)	
EOP switch	1	PT 1/8	18 (1.8, 13)	Apply sealant to the threads.
Ignition switch mounting bolt	2	8	25 (2.5, 18)	One way bolt; replace with a new one.
Neutral switch	1	10	12 (1.2, 9)	
Parking brake switch screw (NC700XD/SD)	1	4	1.2 (0.1, 0.9)	

TROUBLESHOOTING

SPEED SENSOR/SPEEDOMETER (NC700X/XA/S/SA)

The speedometer operation is abnormal

1. Fuse Inspection

Check for blown main fuse or sub fuse.

Is the fuse blown?

YES – Replace the fuse.

NO – GO TO STEP 2.

2. Battery Inspection

Make sure the battery is fully charged and in good condition.

Is the battery in good condition?

YES – GO TO STEP 3.

NO – Charge or replace the battery (page 21-6).

3. VS Sensor Power Input Voltage Inspection

Disconnect the VS sensor 3P (Black) connector.

Measure the voltage at the VS sensor 3P (Black) connector terminals with the ignition switch turned ON.

CONNECTION: Pink/blue (+) – Green/red (–)

STANDARD: Battery voltage

Is there Battery Voltage?

YES – GO TO STEP 4.

NO –

- Loose or poor contact of related terminals
- Open circuit in Pink/blue wire
- Open circuit in Green/red wire

4. VS Sensor Signal Line Inspection

With the ignition switch OFF, check for continuity between the VS sensor 3P (Black) connector and combination meter 16P (Gray) connector.

CONNECTION: Pink/green – Pink/green

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Pink/green wire

5. VS Sensor Signal Inspection

Connect the VS sensor 3P (Black) connector.

Support the motorcycle using a hoist or other support to raise the rear wheel off the ground.

Measure the output voltage (sensor signal) at the speedometer with the ignition switch turned ON while slowly turning the rear wheel by your hand.

CONNECTION: Pink/green (+) – Green/red (–)

STANDARD: Repeat 0 to 5 V

Is the voltage within specified value?

YES – Faulty combination meter

NO – Faulty VS sensor

HEADLIGHT

NOTE:

For headlight unit removal/installation.

- NC700X/XA/XD (page 2-26)
- NC700S/SA/SD (page 2-27)

BULB REPLACEMENT (NC700X/XA/XD)

Disconnect the headlight 3P (Black) connector [1].

Remove the dust cover [2].

Unhook the bulb retainer [3] and remove the headlight bulb [4].

NOTICE

Avoid touching halogen headlight bulb. Finger prints can create hot spots that cause a bulb to break.

Install a new bulb, while aligning its tabs with the slots of the headlight unit.

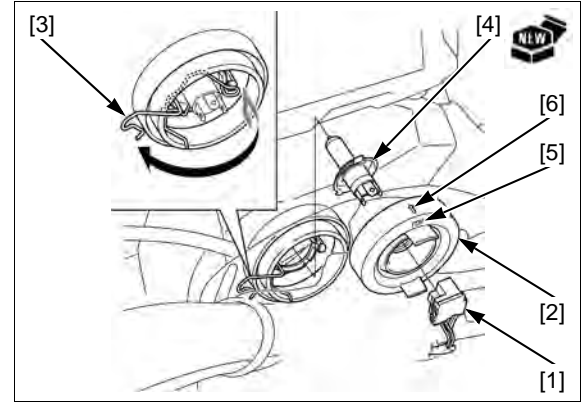
Hook the bulb retainer into the headlight unit groove.

Install the dust cover tightly against the headlight unit.

NOTE:

Install the dust cover with its "TOP" mark [5] and arrow mark [6] facing up.

Connect the headlight 3P (Black) connector.



BULB REPLACEMENT (NC700S/SA/SD)

Remove the headlight/headlight stay (page 2-27).

Remove the dust cover [1].

Unhook the bulb retainer [2] and remove the headlight bulb [3].

NOTICE

Avoid touching halogen headlight bulb. Finger prints can create hot spots that cause a bulb to break.

Install a new bulb, while aligning its tabs with the slots of the headlight unit.

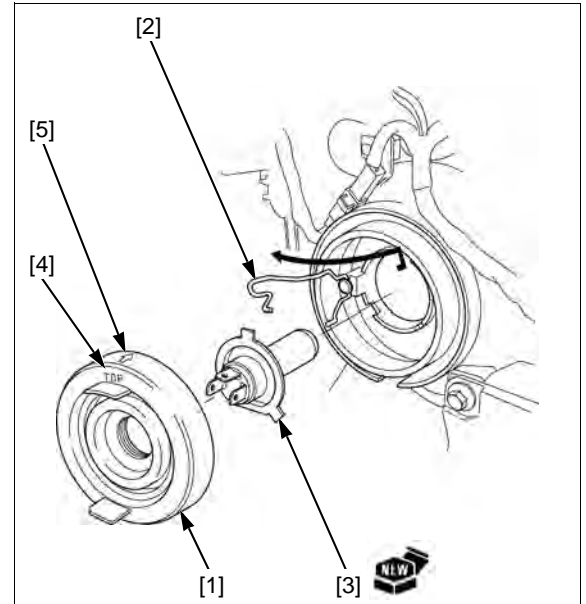
Hook the bulb retainer into the headlight unit groove.

Install the dust cover tightly against the headlight unit.

NOTE:

Install the dust cover with its "TOP" mark [4] and arrow mark [5] facing up.

Install the headlight/headlight stay (page 2-27).



TURN SIGNAL LIGHT

BULB REPLACEMENT

Remove the screws [1] and turn signal light lens [2].

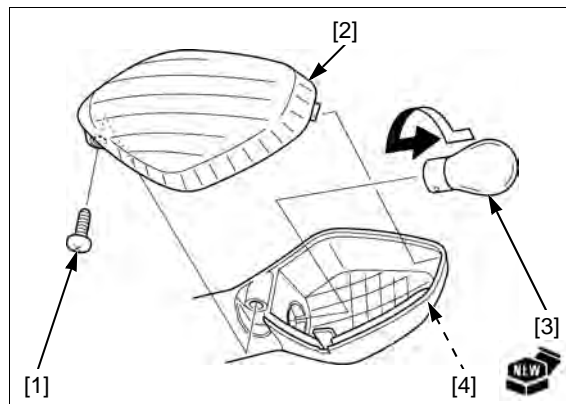
While pushing in the bulb [3], turn it counterclockwise to remove it.

Replace the bulb with a new one.

Check the packing [4] is installed in position and is in good condition, replace it with a new one if necessary.

Install the turn signal light lens and screw.

Tighten the screw securely.



REMOVAL/INSTALLATION

FRONT (NC700X/XA/XD)

Remove the front side cowl (page 2-24).

Remove the turn signal light mounting screw [1], setting plate [2] and turn signal light [3].

Remove the mounting rubber [4].

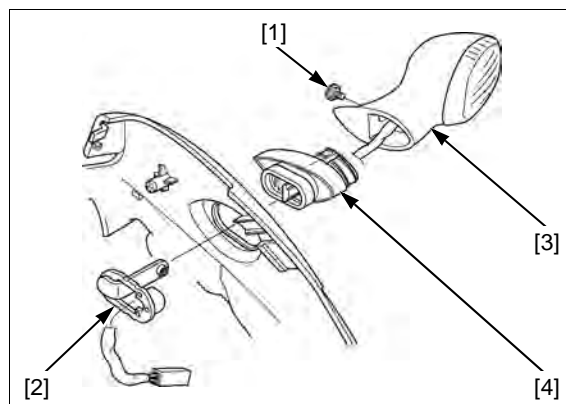
Installation is in the reverse order of removal.

NOTE:

Route the wires properly (page 1-25).

TORQUE:

Turn signal light mounting screw:
2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



FRONT (NC700S/SA/SD)

Remove the headlight/headlight stay (page 2-27).

Disconnect the front turn signal light 3P connector [1].

Remove the turn signal light mounting screw [2], setting plate [3] and turn signal light [4].

Remove the mounting rubber [5].

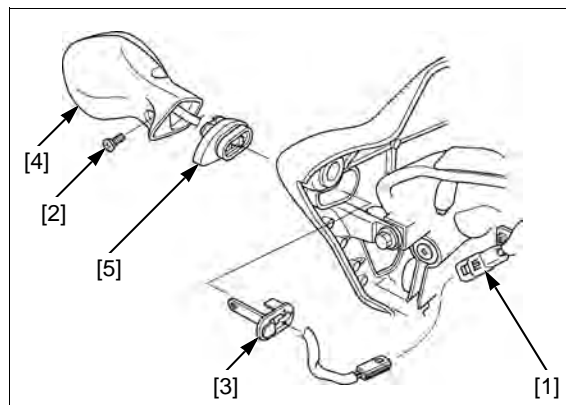
Installation is in the reverse order of removal.

NOTE:

Route the wires properly (page 1-25).

TORQUE:

Turn signal light mounting screw:
2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)



REAR

Remove the tail light cover (page 2-10).

Remove the turn signal light mounting screw [1], setting plate [2] and turn signal light [3].

Remove the mounting rubber [4].

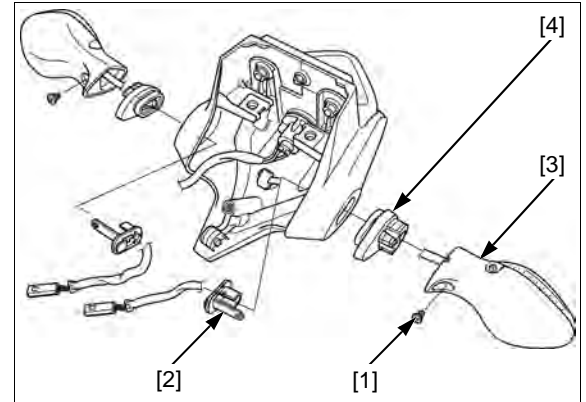
Installation is in the reverse order of removal.

NOTE:

Route the wires properly (page 1-25).

TORQUE:

**Turn signal light mounting screw:
2.5 N·m (0.3 kgf·m, 1.8 lbf·ft)**



POSITION LIGHT

BULB REPLACEMENT (NC700X/XA/ XD)

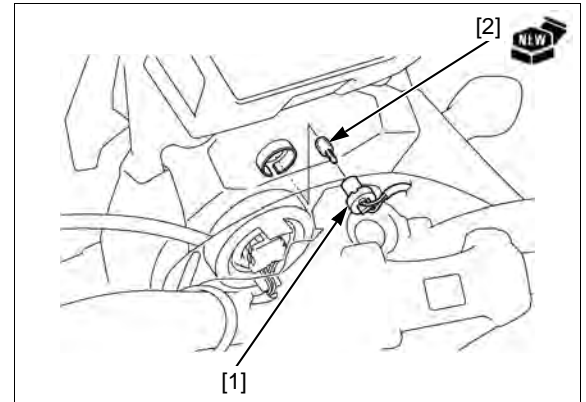
Pull out the position light bulb socket [1].

Remove the bulb [2] from the socket, replace it with a new one.

Installation is in the reverse order of removal.

NOTE:

Route the wires properly (page 1-25).



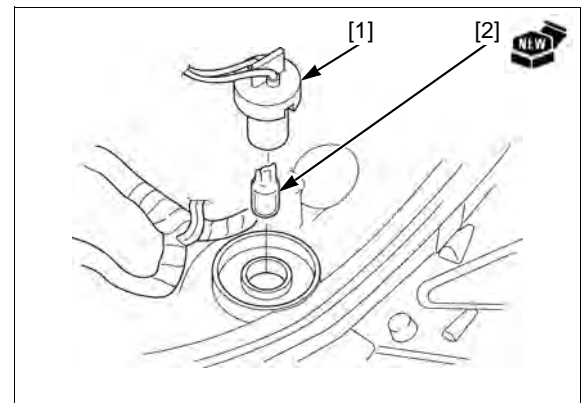
BULB REPLACEMENT (NC700S/SA/ SD)

Remove the headlight/headlight stay (page 2-27).

Pull out the position light bulb socket [1].

Remove the bulb [2] from the socket, replace it with a new one.

Installation is in the reverse order of removal.



BRAKE/TAIL/LICENSE LIGHT

NOTE:

For brake/tail/license light removal/installation (page 2-10).

BULB REPLACEMENT

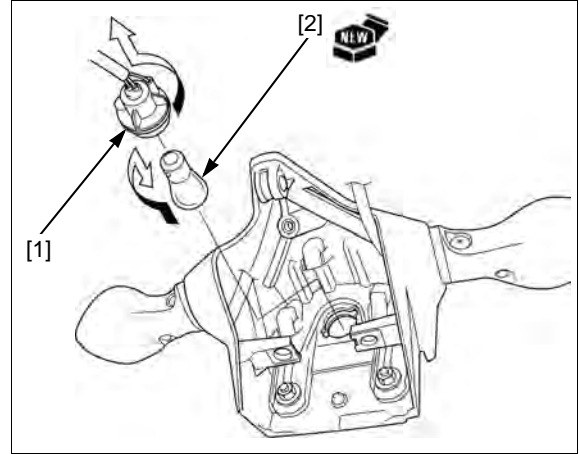
Remove the tail light cover (page 2-10).

Turn the bulb socket [1] counterclockwise and remove it.

While pushing in the bulb [2], turn it counterclockwise to remove it.

Replace the bulb with a new one.

Installation is in the reverse order of removal.



COMBINATION METER

SYSTEM INSPECTION (NC700X/XA/S/SA)

NOTE:

Check for loose or poor contact terminals at the combination meter 16P (Gray) connector.

Turn the ignition switch ON and engine stop switch "O", check that the tachometer segment [1] move to full scale and then tachometer segment go off.

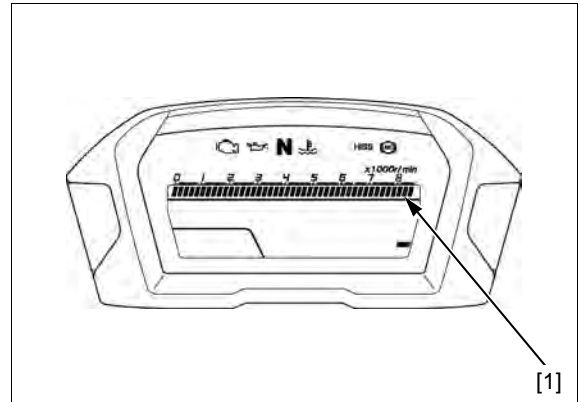
If the tachometer segment does not show initial function, check the combination meter power input line (page 22-10).

If the power and ground lines are OK, replace the combination meter assembly.

- NC700X/XA (page 22-9)
- NC700S/SA (page 22-9)

If the MIL and engine oil pressure indicator are stay on and tachometer, high coolant temperature indicator and HISS indicator does not come on, inspect the following;

- DTC with the HDS (page 4-12)
- TXD/RXD line (page 22-11)



SYSTEM INSPECTION (NC700XD/SD)

NOTE:

Check for loose or poor contact terminals at the combination meter 16P (Gray) connector.

When the ignition switch is turned ON with the engine stop switch "O", the combination meter will show the entire digital display and the tachometer segments [1] will reduce from full scale to zero.

If the tachometer segment does not show initial function, check the combination meter power input line (page 22-10).

If the power and ground lines are OK, replace the combination meter assembly.

- NC700XD (page 22-9)
- NC700SD (page 22-9)

If the MIL and engine oil pressure indicator are stay on and tachometer, high coolant temperature indicator and HISS indicator does not come on, inspect the following;

- DTC with the HDS (page 4-12)
- TXD/RXD line (page 22-11)



REMOVAL/INSTALLATION (NC700X/ XA/XD)

Remove the windscreen (page 2-23).

Remove the dust cover [1].

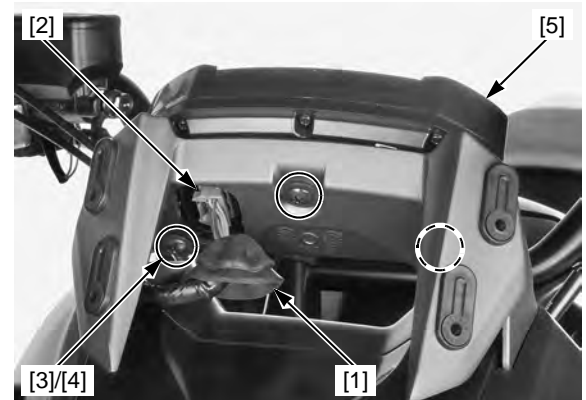
Disconnect the combination meter 16P (Gray) connector [2].

Remove the screws [3], washer [4] and combination meter [5].

Installation is in the reverse order of removal.

TORQUE:

**Combination meter mounting screw:
1.0 N-m (0.1 kgf-m, 0.7 lbf-ft)**



REMOVAL/INSTALLATION (NC700S/ SA/SD)

Remove the headlight/headlight stay (page 2-27).

Remove the combination meter back cover mounting screws [1] and combination meter back cover [2].



LIGHTS/METERS/SWITCHES

Remove the dust cover [1].

Disconnect the combination meter 16P (Gray) connector [2].

Remove the combination meter mounting screws [3], washer [4] and combination meter [5].

Installation is in the reverse order of removal.

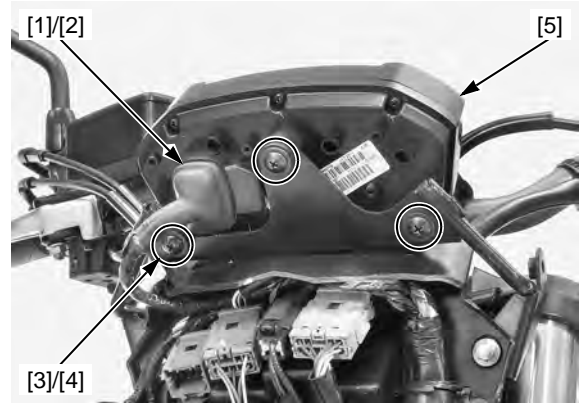
TORQUE:

Combination meter mounting screw:

1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

Combination meter back cover mounting screw:

0.3 N·m (0.03 kgf·m, 0.2 lbf·ft)

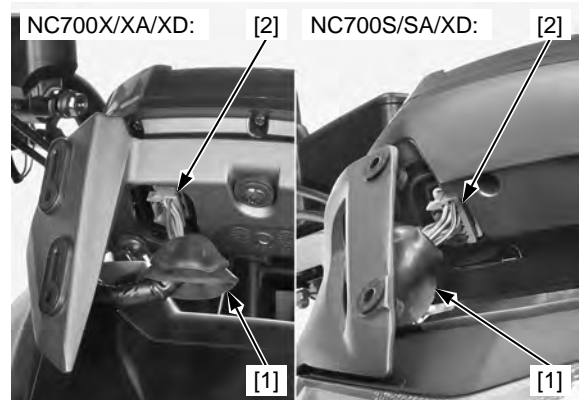


POWER/GROUND LINE INSPECTION

Remove the windscreen (page 2-23).

Remove the dust cover [1] and disconnect the combination meter 16P (Gray) connector [2].

Check the following at the wire harness side connector terminals of the combination meter.



POWER INPUT LINE

Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

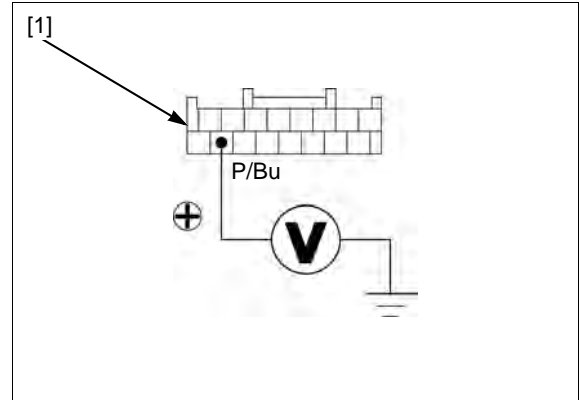
CONNECTION: Pink/blue (+) – Ground (-)

STANDARD: Battery voltage

There should be battery voltage with the ignition switch turned ON.

If there is no voltage, check the following:

- Open circuit in the Pink/blue wire
- Blown sub fuse 7.5 A (ILLUMI/STOP/HORN)



BACK-UP VOLTAGE LINE

Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

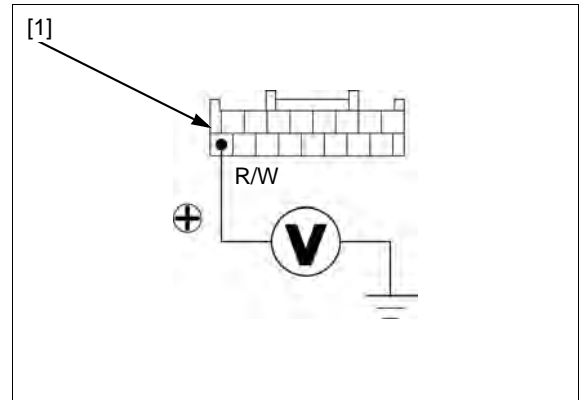
CONNECTION: Red/white (+) – Ground (-)

STANDARD: Battery voltage

There should be battery voltage at all times.

If there is no voltage, check the following:

- Open circuit in the Red/white wire
- Blown sub fuse 7.5 A (CLOCK/TURN)



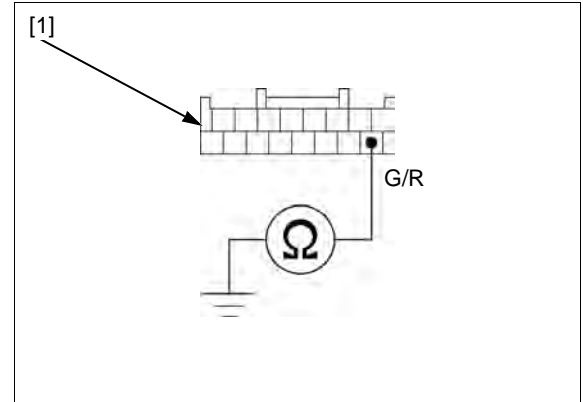
GROUND LINE

Check for continuity at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

CONNECTION: Green/red – Ground

There should be continuity.

If there is no continuity, check for open circuit in Green/red wire.



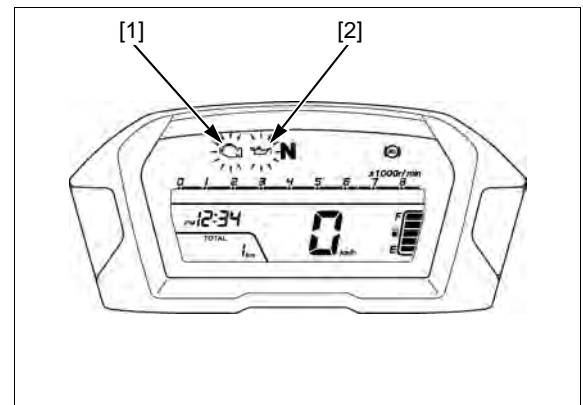
TXD/RXD LINE INSPECTION

NC700X/XA/S/SA

If the MIL [1] and engine oil pressure indicator [2] are stay on and tachometer, high coolant temperature indicator and HISS indicator does not come on with the ignition switch turned ON and engine stop switch "O", check the combination meter TXD/RXD line (page 22-12).

NOTE:

If the engine stop switch turned "⊗", the combination meter indicate same operation.



NC700XD/SD

Turn the ignition switch ON with the engine stop switch "O" and check the combination meter.

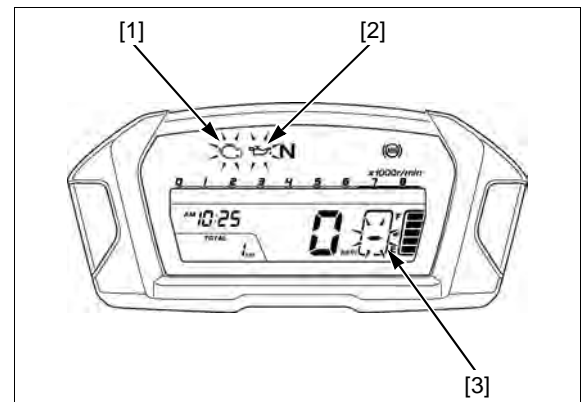
The TXD/RXD line is abnormal if the combination meter shows following:

- MIL [1] and engine oil pressure indicator [2] stay on.
- Shift indicator "-" [3] is blinking.
- Tachometer, high coolant temperature indicator and HISS indicator do not come on.

NOTE:

If the ignition switch is turned ON with the engine stop switch turned "⊗", the same condition will occur.

Check the combination meter TXD/RXD line (page 22-12).



LIGHTS/METERS/SWITCHES

MIL AND ENGINE OIL PRESSURE INDICATOR ARE STAY ON, TACHOMETER, HIGH COOLANT TEMPERATURE INDICATOR AND HISS INDICATOR DOES NOT COME ON AND SHIFT INDICATOR "-" (NC700XD/SD) IS BLINKING (when the ignition switch turned ON)

NOTE:

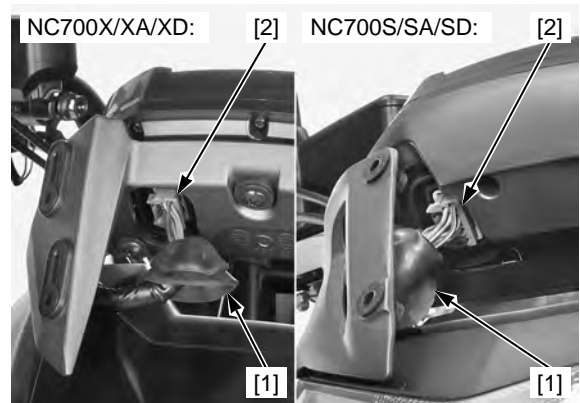
- Check the following items before starting the inspection:
 - Check for loose or poor contact on the combination meter 16P (Gray) connector and ECM/PCM 33P connector, then recheck the DTC.
 - Inspect the sub fuse 7.5 A (ENG STOP)
- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)

1. Combination Meter Serial Line Short Circuit Inspection

Turn the ignition switch OFF.

Remove the windscreen (page 2-23).

Remove the dust cover [1] and disconnect the combination meter 16P (Gray) connector [2].

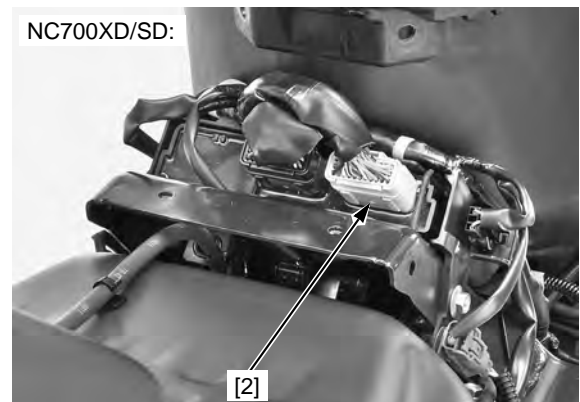
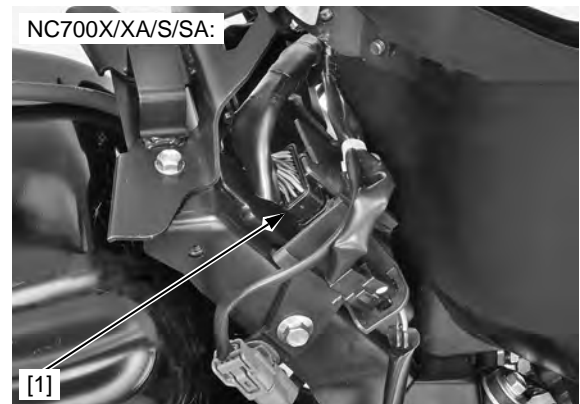


Remove the following:

- Shroud/side cover (NC700X/XA) (page 2-14)
- Side cowl (NC700S/SA) (page 2-13)
- Center cross plate (NC700XD/SD) (page 2-32)

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [2]



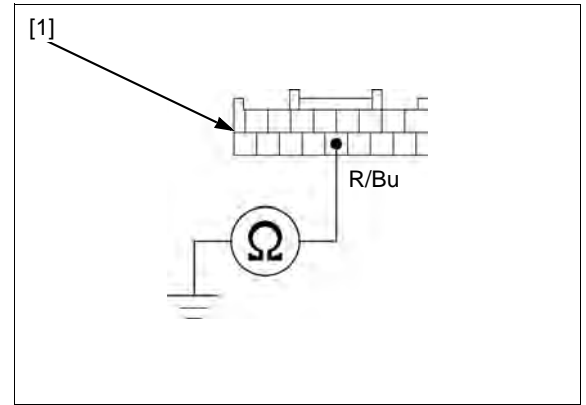
Check for continuity between the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

Connection: Red/blue – Ground

Is there continuity?

YES – Short circuit in Red/blue wire

NO – GO TO STEP 2.



2. Combination Meter Serial Line Open Circuit Inspection

Check for continuity between the combination meter 16P (Gray) connector [1] and ECM/PCM 33P connector [2] of the wire harness side.

Connection: Red/blue – Red/blue

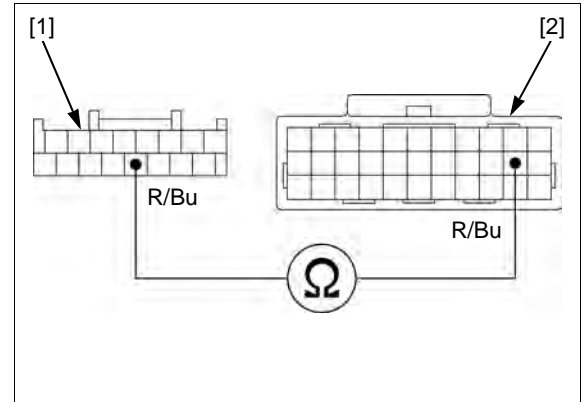
TOOL:

Test probe **07ZAJ-RDJA110**

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in Red/blue wire



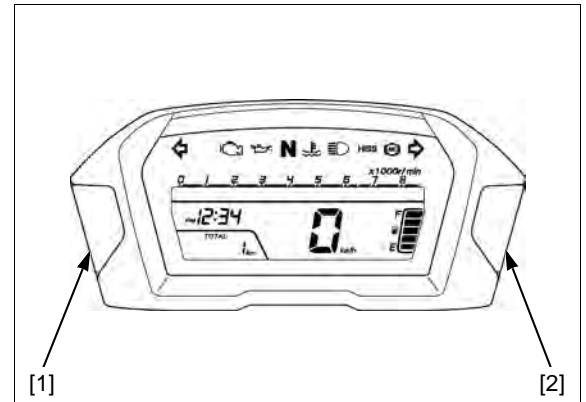
3. Combination Meter Serial Line Output Voltage Inspection

Connect the combination meter 16P (Gray) connector.

Turn the ignition switch ON and engine stop switch "C" while pushing and holding combination meter A button [1] and B button [2] over 10 seconds.

NOTE:

The combination meter enters the communication diagnostic mode.



Measure the voltage at the ECM/PCM 33P connector [1] of the wire harness side and ground.

Connection: Red/blue (+) – Ground (-)

Standard: 8 V or more (Every 5 seconds)

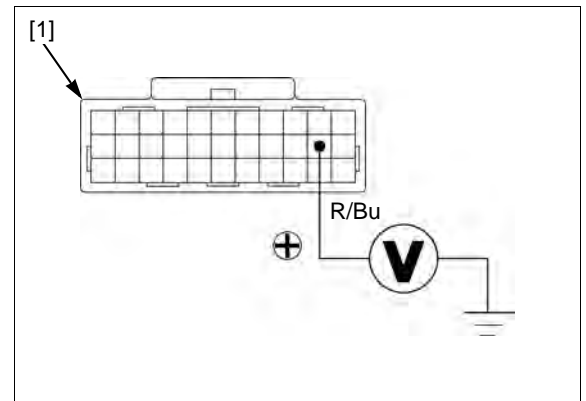
TOOL:

Test probe **07ZAJ-RDJA110**

Does the standard voltage exist?

YES – GO TO STEP 4.

NO – • Replace the combination meter assembly.
 – NC700X/XA/XD (page 22-9)
 – NC700S/SA/SD (page 22-9)



LIGHTS/METERS/SWITCHES

4. ECM Serial Line Output Voltage Inspection

Turn the ignition switch OFF.

Disconnect the combination meter 16P (Gray) connector.

Connect the ECM/PCM 33P connector.

Remove the maintenance lid (page 21-6).

Remove the DLC [1] from the battery box.
Short the DLC terminals using a special tool.

Connection: Brown – Green

TOOL:

SCS connector [2] 070PZ-ZY30100

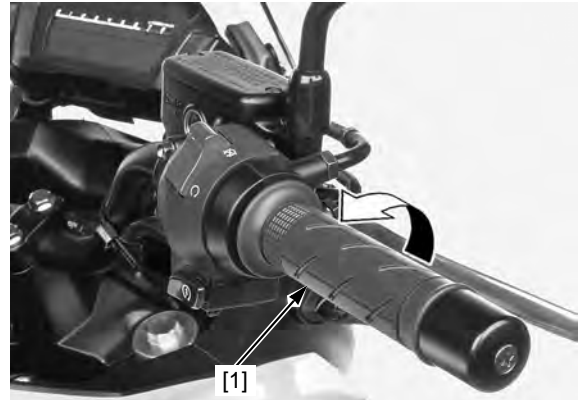


Rotate and hold the throttle grip [1] to the fully open position.

Turn the ignition switch ON while holding the throttle grip at the fully open position over 10 seconds.

NOTE:

The ECM/PCM enters the communication diagnostic mode.



Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side and ground.

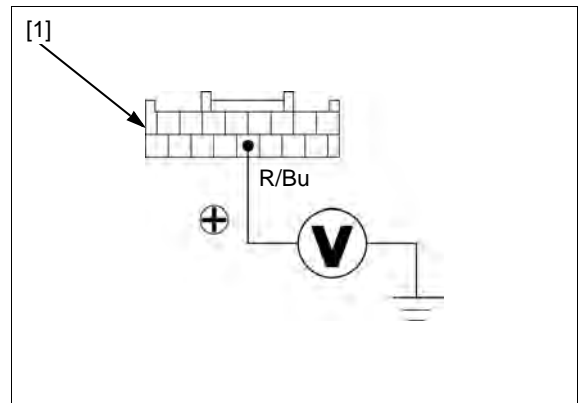
Connection: Red/blue (+) – Ground (-)

Standard: 8 V or more (Every 5 seconds)

Does the standard voltage exist?

YES – Inspect the combination meter (page 22-10).

NO – Replace the ECM/PCM with a known good one, and recheck.



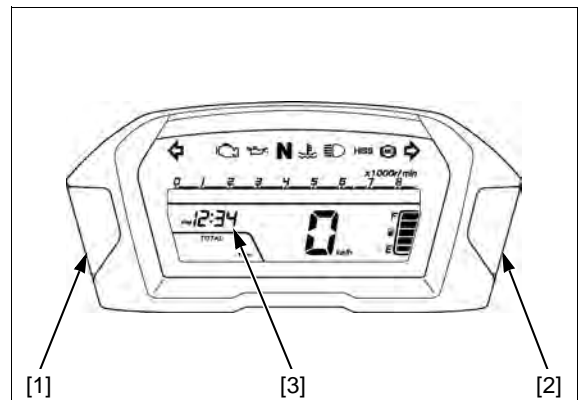
COMBINATION METER DIGITAL CLOCK SET PROCEDURE

Turn the ignition switch ON.

Push and hold both the combination meter A button [1] and B button [2] until the minute digits [3] indicate "1", "2" or "3".

NOTE:

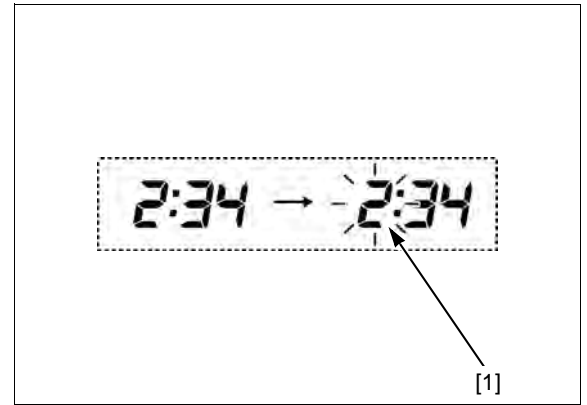
The combination meter enter the back light setting mode.



Push the A button, then hour digits [1] start blinking.

NOTE:

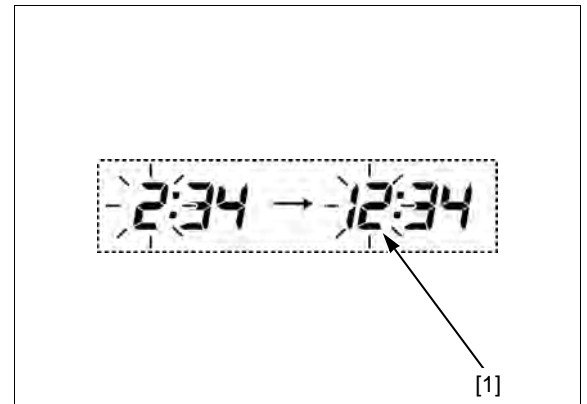
The combination meter enter the clock setting mode.



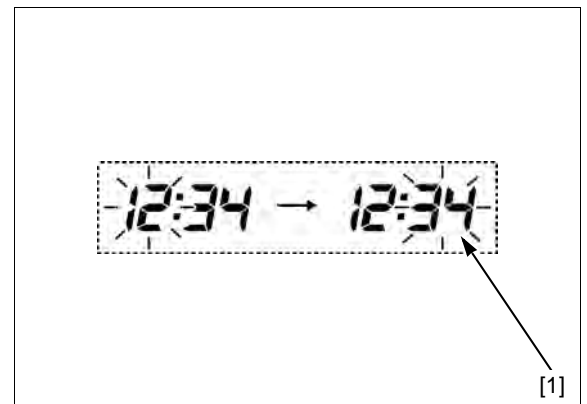
Push the B button until the desired hour [1] and AM/PM are displayed.

NOTE:

Push and hold to advance the hour fast.



Push the A button, then the minute digits [1] start blinking.



Push the B button until the desired minute [1] is displayed.

NOTE:

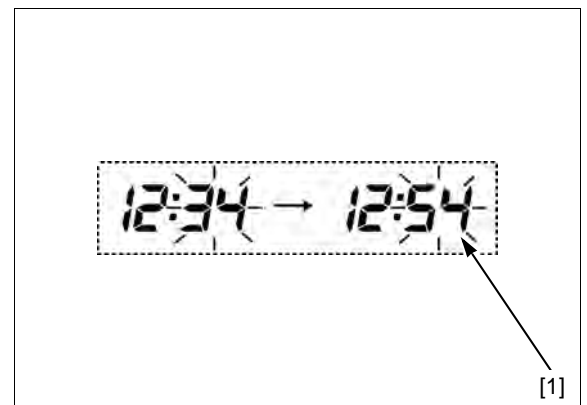
Push and hold to advance the minute fast.

Push the A button, then digital clock is set.

Push the A button and B button.

NOTE:

The combination meter return to the normal mode.



SPEEDOMETER/VS SENSOR

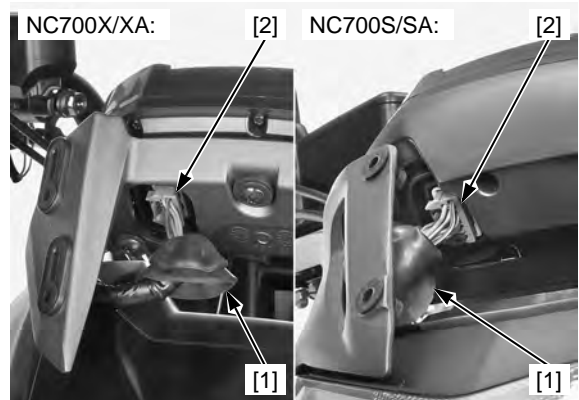
SYSTEM INSPECTION (NC700X/XA/S/SA)

Perform the combination meter system inspection (page 22-8).

Remove the windscreen (page 2-23).

Remove the dust cover [1].

If the system fails the inspection, shift the transmission into neutral, the combination meter 16P (Gray) connector [2] is connected, then turn the ignition switch ON.



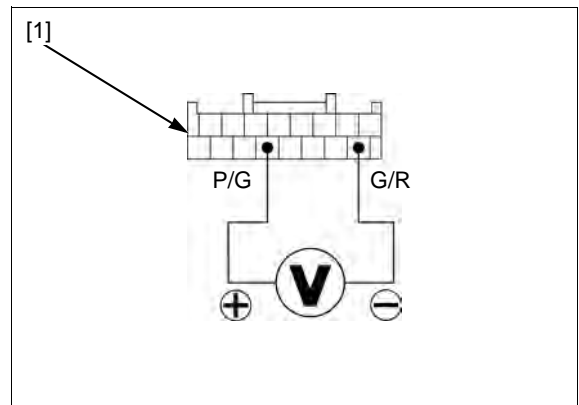
Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side.

CONNECTION: Pink/green (+) – Green/red (-)
STANDARD: Repeat 0 to 5 V

Slowly turn the rear wheel by hand.

There should be 0 to 5 V pulse voltage.

- If pulse voltage appears, replace the combination meter assembly.
 - NC700X/XA (page 22-9)
 - NC700S/SA (page 22-9)
- If pulse voltage does not appear, check for open or short circuit in Pink/green wire. If the Pink/green wire is OK, check for the VS sensor signal line (page 22-17)



SYSTEM INSPECTION (NC700XD/SD)

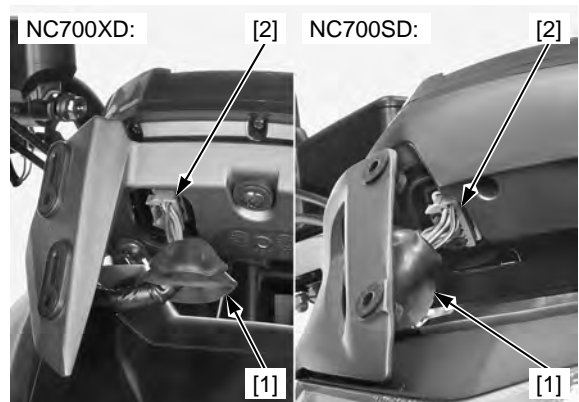
If the speedometer does not operate, check the following:

- Combination meter system inspection (page 22-9)
- MIL blinking: If the MIL blinks 11, check the VS sensor system (page 4-51)
- Shift indicator "-" blinking: If the shift indicator "-" blinks 66, check the VS sensor system (page 12-89).

If the above items are OK, check the VS sensor line as follows:

Remove the windscreen (page 2-23).

Remove the dust cover [1] and disconnect the combination meter 16P (Gray) connector [2].



Turn the ignition switch ON with the engine stop switch "O".

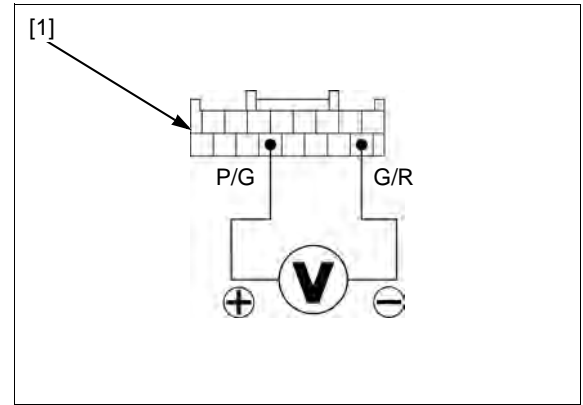
Measure the voltage at the combination meter 16P (Gray) connector [1] of the wire harness side.

CONNECTION: Pink/green (+) – Green/red (-)

Slowly turn the rear wheel by hand.

There should be 0 to 5 V pulse voltage.

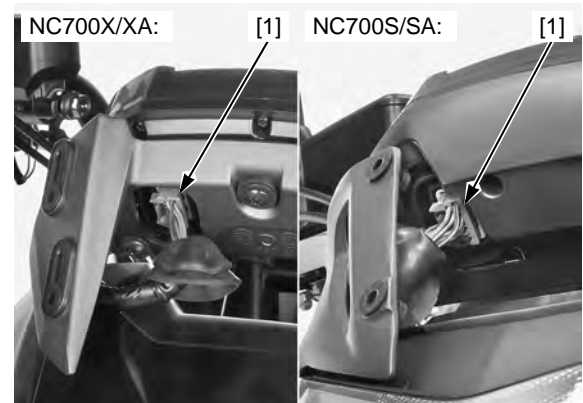
- If pulse voltage appears, replace the combination meter assembly.
 - NC700XD (page 22-9)
 - NC700SD (page 22-9)
- If pulse voltage does not appear, the Pink/green wire has an open circuit.



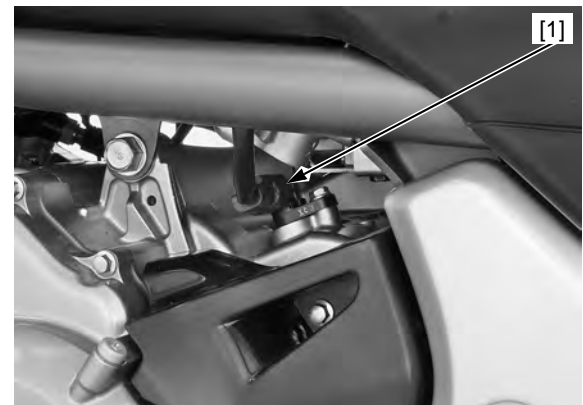
VS SENSOR SIGNAL LINE INSPECTION (NC700X/XA/S/SA)

Remove the windscreen (page 2-23).

Disconnect the combination meter 16P (Gray) connector [1].



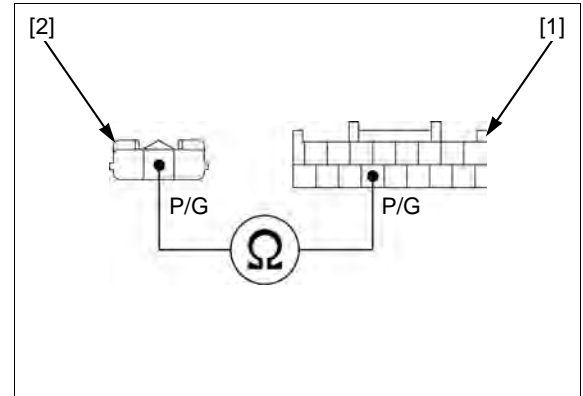
Disconnect the VS sensor 3P (Black) connector [1].



Check for continuity between the combination meter 16P (Gray) connector [1] and VS sensor 3P (Black) connector [2] of the wire harness side.

CONNECTION: Pink/green – Pink/green

If there is no continuity, check for open circuit in Pink/green wire and loose contact of the wire harness connectors.



LIGHTS/METERS/SWITCHES

VS SENSOR REMOVAL/ INSTALLATION

Disconnect the VS sensor 3P (Black) connector [1].

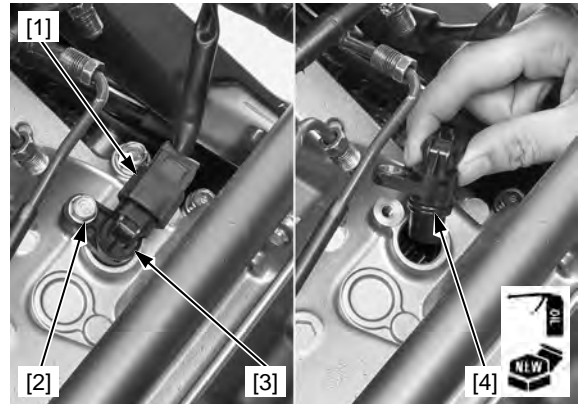
Remove the bolt [2] and VS sensor [3].

Remove the O-ring [4].

Installation is in the reverse order of removal.

NOTE:

- Replace the O-ring with a new one.
- Apply engine oil to a new O-ring.



TACHOMETER

SYSTEM INSPECTION

If the tachometer does not operate, check the following:

- Combination meter system inspection
 - NC700X/XA/S/SA (page 22-8)
 - NC700XD/SD (page 22-9)
- TXD/RXD line (page 22-11)
- CKP sensor
 - NC700X/XA/S/SA (page 5-7)
 - NC700XD/SD (page 5-8)

If the above items are OK, replace the combination meter assembly.

- NC700X/XA/XD (page 22-9)
- NC700S/SA/SD (page 22-9)

HIGH COOLANT TEMPERATURE INDICATOR/ECT SENSOR

SYSTEM INSPECTION

If the high coolant temperature indicator does not operate properly, check the following:

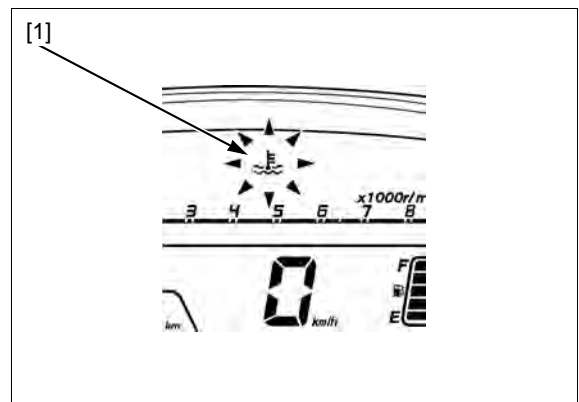
- Combination meter system inspection
 - NC700X/XA/S/SA (page 22-8)
 - NC700XD/SD (page 22-9)
- TXD/RXD line (page 22-11)
- MIL blinking: If the MIL blinks 7, check the ECT sensor system (page 4-45).
- ECT sensor (page 22-19)

If the above items are OK, replace the combination meter assembly.

- NC700X/XA/XD (page 22-9)
- NC700S/SA/SD (page 22-9)

If the MIL and engine oil pressure indicator are stay on, tachometer, high coolant temperature indicator and HISS indicator does not come on and shift indicator "-" (NC700XD/SD) is blinking, inspect the following;

- DTC with the HDS (page 4-12)
- TXD/RXD line (page 22-11)

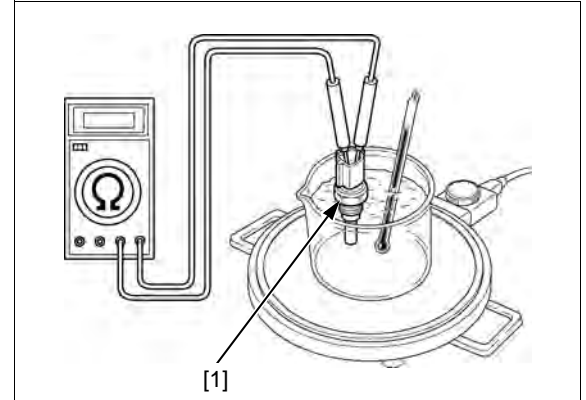


ECT SENSOR UNIT INSPECTION

Remove the ECT sensor (page 4-64).

Suspend the ECT sensor [1] in a pan of coolant (50 – 50 mixture) on an electric heating element and measure the resistance through the sensor as the coolant heats up.

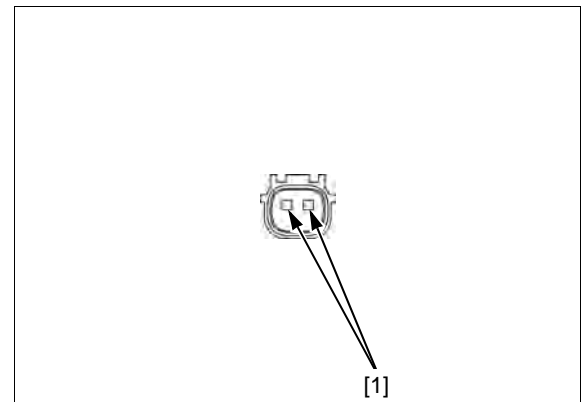
- Soak the ECT sensor in coolant up to its threads with at least 40 mm (1.6 in) from the bottom of the pan to the bottom of the sensor.
- Keep the temperature constant for 3 minutes before testing. A sudden change of temperature will result in incorrect readings. Do not let the thermometer or ECT sensor touch the pan.



Measure the resistance between the ECT sensor terminals [1].

Temperature	40°C (104°F)	100°C (212°F)
Resistance	1.0 – 1.3 kΩ	0.1 – 0.2 kΩ

Replace the ECT sensor if it is out of specification.



ENGINE OIL PRESSURE INDICATOR/ EOP SWITCH

SYSTEM INSPECTION

The engine oil pressure indicator [1] comes on when the ignition switch is turned ON, then goes off when the engine starts.

If the engine oil pressure indicator does not come on with the ignition switch turned ON, check the combination meter system inspection.

- NC700X/XA/S/SA (page 22-8)
- NC700XD/SD (page 22-9)

The engine oil pressure indicator does not go out when the engine running, check the following:

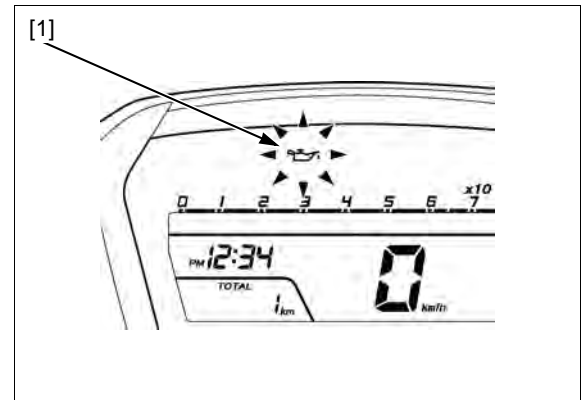
- Engine oil level (page 3-12)
- TXD/RXD line (page 22-11)
- MIL blinking: If the MIL blinks 87, check the EOP switch system (page 4-62)
- Engine oil pressure (page 9-6)
- EOP switch line (page 22-20)
- Replace the EOP switch, and recheck (page 22-20).

If the above items are OK, replace the combination meter assembly.

- NC700X/XA/XD (page 22-9)
- NC700S/SA/SD (page 22-9)

If the MIL and engine oil pressure indicator are stay on and tachometer, high coolant temperature indicator and HISS indicator does not come on, inspect the following;

- DTC with the HDS (page 4-12)
- TXD/RXD line (page 22-11)



EOP SWITCH LINE INSPECTION

Turn the ignition switch OFF.

Disconnect the EOP switch 1P (Gray) connector [1].

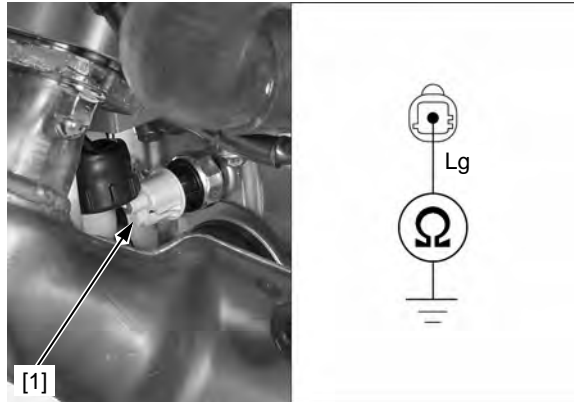
Check for continuity between the EOP switch connector terminal and ground.

CONNECTION: Light green – Ground

- If there is continuity, the Light green wire has a short circuit.
- If there is no continuity, replace the ECM/PCM with a known good one, and recheck.

NOTE:

- If the ECM/PCM is replaced, perform the following:
 - Key Registration Procedure (page 23-6)
 - Clutch Initialize Learning Procedure (NC700XD/SD) (page 12-120)



EOP SWITCH REMOVAL/INSTALLATION

Remove the radiator reserve tank (page 8-14).

Disconnect the EOP switch 1P (Gray) connector [1].

Remove the EOP switch [2] from the crankcase.

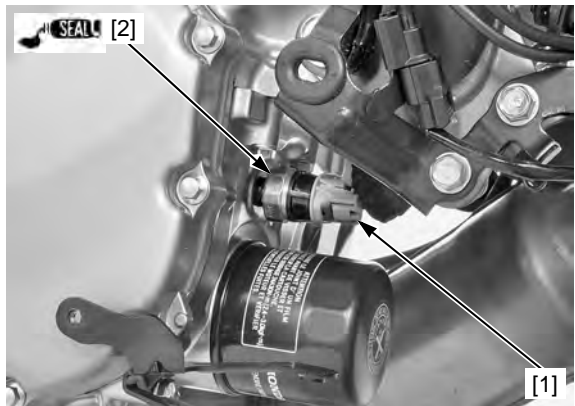
Installation is in the reverse order of removal.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

NOTE:

- Apply sealant to the EOP switch threads.
- Route the wires and hoses properly (page 1-25).

Check the engine oil level (page 3-12).



FUEL LEVEL SENSOR

FUEL LEVEL SENSOR INSPECTION

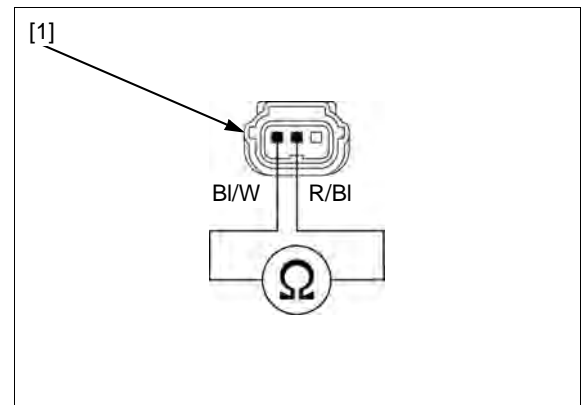
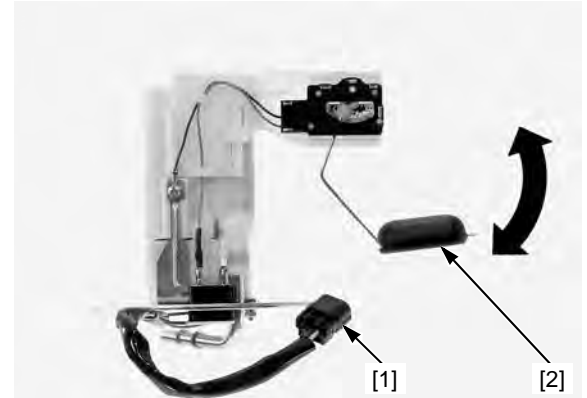
Remove the fuel pump unit (page 7-11).

Connect the ohmmeter to the fuel pump unit 3P (Black) connector [1] terminals.

CONNECTION: Red/black – Black/white

Inspect the resistance of the float [2] at the top and bottom positions.

	FULL	EMPTY
Resistance	4 – 6 Ω	80 – 83 Ω



FUEL METER INSPECTION

If the fuel meter blinks as shown [1] with ignition switch is ON, perform the inspection as follow:

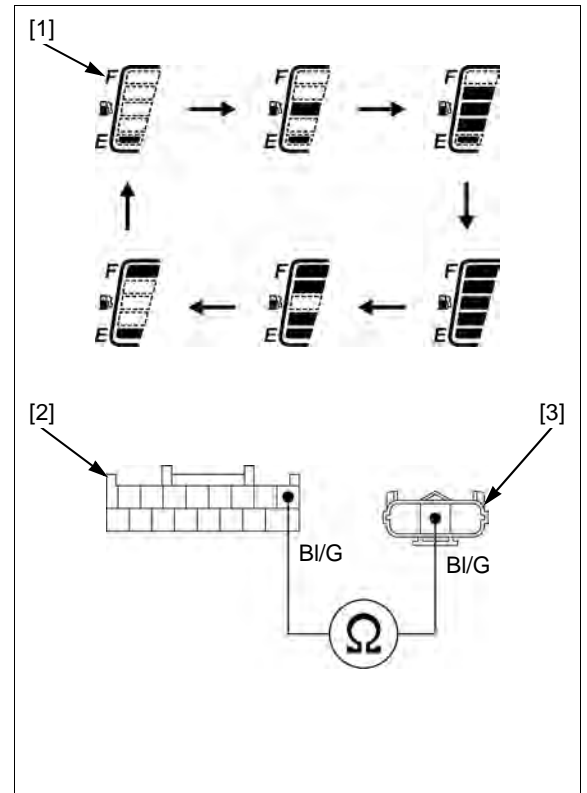
Disconnect the combination meter 16P (Gray) connector (page 22-8).

Disconnect the fuel pump unit 3P (Black) connector (page 7-10).

Check for continuity between the combination meter 16P (Gray) connector [2] and fuel pump unit 3P (Black) connector [3] of the wire harness side.

CONNECTION: Black/green – Black/green

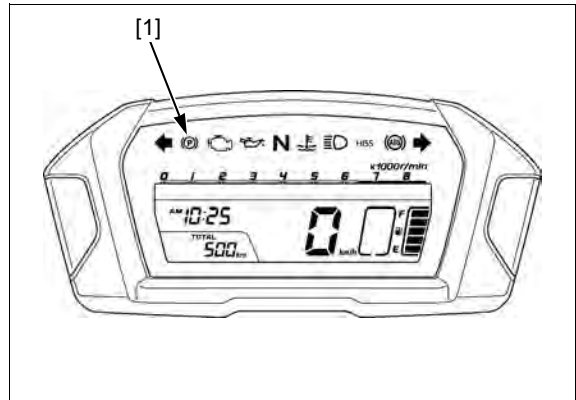
If there is no continuity, check for open circuit in Black/green wire and loose contact of the wire harness connectors.



PARKING BRAKE INDICATOR/SWITCH (NC700XD/SD)

SYSTEM INSPECTION

If the parking brake indicator [1] does not operate properly, check the combination meter system inspection (page 22-9).



If the combination meter system inspection is OK, check the parking brake switch line as follows:

Turn the ignition switch OFF.

Disconnect the parking brake switch connectors [1].

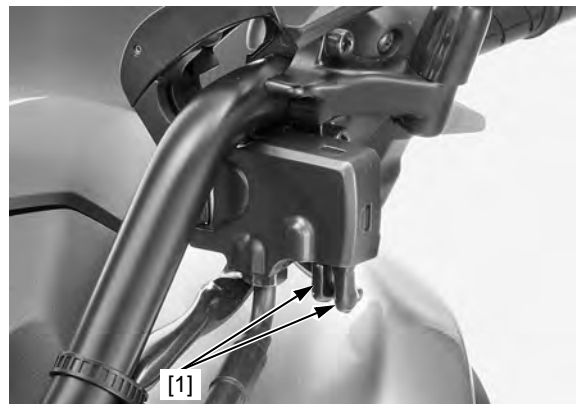
Connect the connector terminals with a jumper wire.

Turn the ignition switch ON.

The parking brake indicator should come on.

If the indicator does not come on, check for open circuit in the Black, Brown and Green wires.

If the indicator comes on, check the parking brake switch (page 22-22).



PARKING BRAKE SWITCH INSPECTION

Disconnect the parking brake switch connectors.

Check for continuity between the parking brake switch terminals [1].

There should be continuity with the parking brake lever pulled, and no continuity with the lever released.

If the parking brake switch does not operate properly, replace the switch (page 22-23).

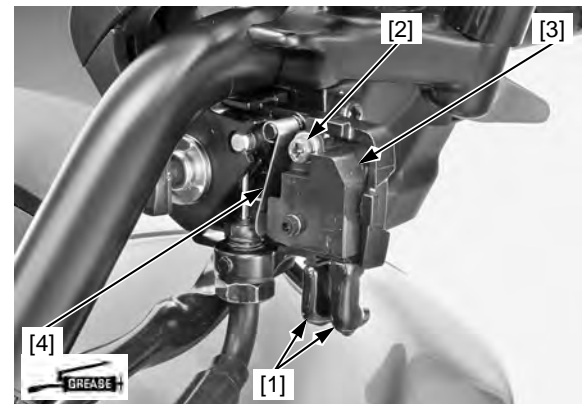


PARKING BRAKE SWITCH REMOVAL/ INSTALLATION

Remove the parking brake lever holder cover [1].



Disconnect the parking brake switch connectors [1].
Remove the parking brake switch screw [2], parking
brake switch [3] and switch spring [4].



Installation is in the reverse order of removal.

NOTE:

- Apply grease to the parking brake switch spring sliding surface.
- Align the parking brake lever holder cover hole with the holder boss.

TORQUE:

Parking brake switch screw:
1.2 N·m (0.1 kgf·m, 0.9 lbf·ft)



IGNITION SWITCH

INSPECTION

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

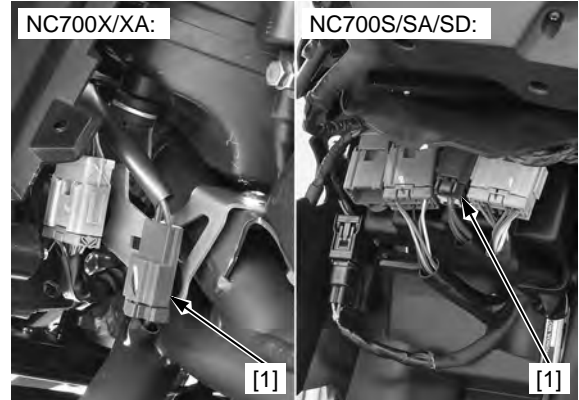
Remove the headlight/headlight stay (NC700S/SA/SD) (page 2-27).

Disconnect the ignition switch 2P (Brown) connector [1].

Check for continuity between the wire terminals of the ignition switch connector in each switch position.

Refer to the wiring diagram for the terminals and switch status:

- NC700X (page 24-2)
- NC700XA (page 24-3)
- NC700XD (page 24-4)
- NC700S (page 24-5)
- NC700SA (page 24-6)
- NC700SD (page 24-7)



REMOVAL/INSTALLATION

Remove the top bridge (page 17-33).

Remove the ignition switch mounting bolts [1] and ignition switch [2].

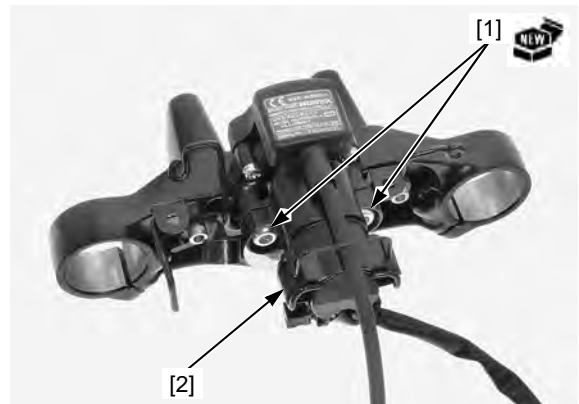
Installation is in the reverse order of removal.

TORQUE:

Ignition switch mounting bolt:
25 N·m (2.5 kgf·m, 18 lbf·ft)

NOTE:

Replace the ignition switch mounting bolts with new ones.



HANDLEBAR SWITCHES

RIGHT HANDLEBAR SWITCH

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the headlight/headlight stay (NC700S/SA/SD) (page 2-27).

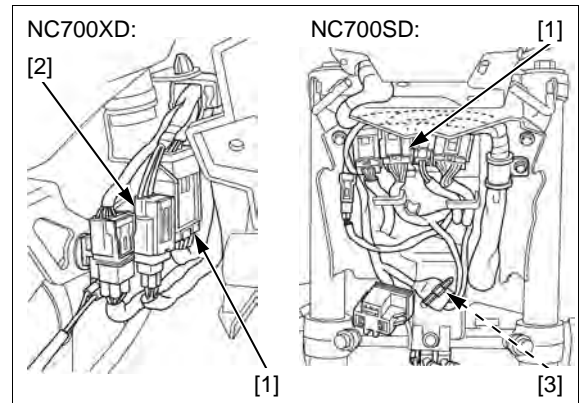
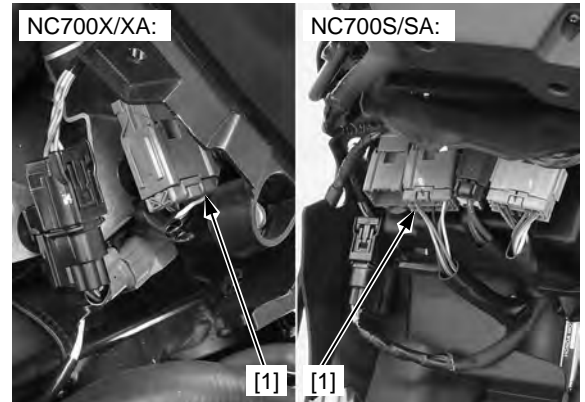
Disconnect the following:

- Right handlebar switch 8P (Blue) connector [1]
- Right handlebar switch 6P (Black) connector (NC700XD) [2]
- Right handlebar switch 7P (Green) connector (NC700SD) [3]

Check for continuity between the wire terminals of the handlebar switch connector in each switch position.

Refer to the wiring diagram for the terminals and switch status:

- NC700X (page 24-2)
- NC700XA (page 24-3)
- NC700XD (page 24-4)
- NC700S (page 24-5)
- NC700SA (page 24-6)
- NC700SD (page 24-7)



LEFT HANDLEBAR SWITCHES

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the headlight/headlight stay (NC700S/SA/SD) (page 2-27).

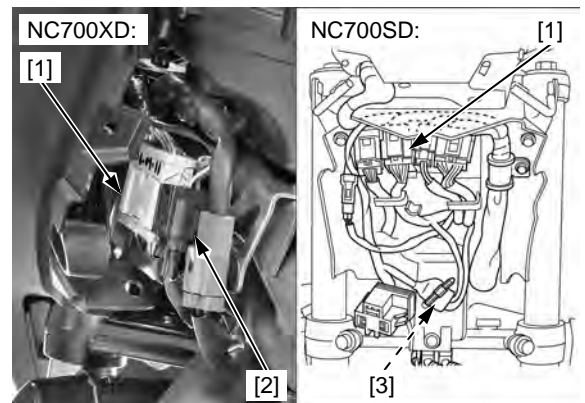
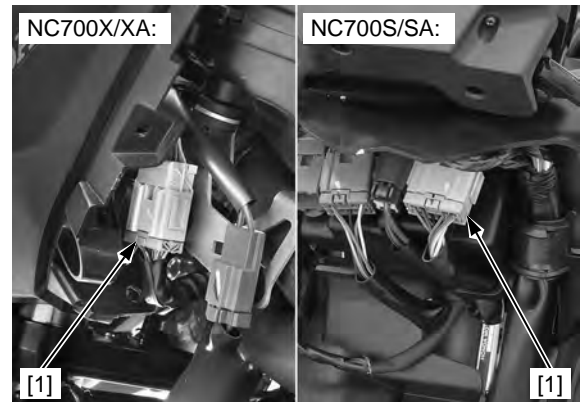
Disconnect the following:

- Left handlebar switch 10P (Gray) connector [1]
- Left handlebar switch 3P (Black) connector (NC700XD) [2]
- Left handlebar switch 7P (Green) connector (NC700SD) [3]

Check for continuity between the wire terminals of the handlebar switch connector in each switch position.

Refer to the wiring diagram for the terminals and switch status:

- NC700X (page 24-2)
- NC700XA (page 24-3)
- NC700XD (page 24-4)
- NC700S (page 24-5)
- NC700SA (page 24-6)
- NC700SD (page 24-7)



BRAKE LIGHT SWITCH

FRONT

Disconnect the front brake light switch connectors and check for continuity between the terminals.

There should be continuity with the brake lever applied, and there should be no continuity with the brake lever released.



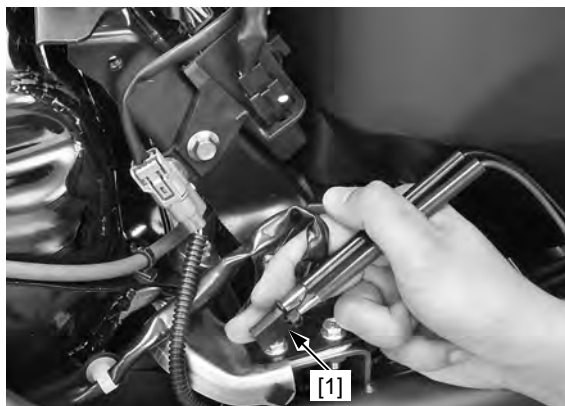
REAR

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the shelter/side cover (NC700S/SA/SD) (page 2-15).

Disconnect the rear brake light switch 3P (Black) connector [1] and check for continuity between the terminals.

There should be continuity with the brake pedal applied, and there should be no continuity with the brake pedal released.



CLUTCH SWITCH (NC700X/XA/S/SA)

Disconnect the clutch switch connectors and check for continuity between the terminals.

There should be continuity with the clutch lever applied, and there should be no continuity with the clutch lever released.

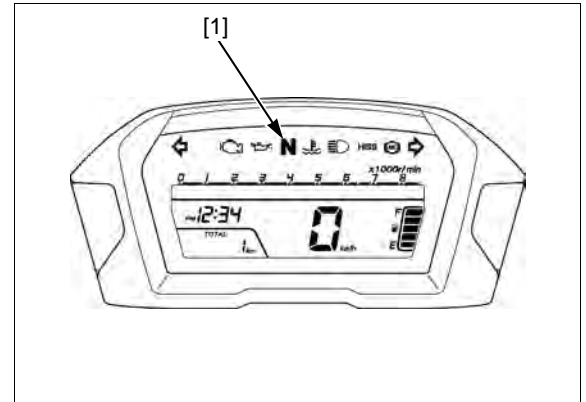


NEUTRAL SWITCH

INSPECTION (NC700X/XA/S/SA)

Make sure that the neutral indicator [1] come on with the ignition switch turned ON and transmission is in neutral.

If the neutral indicator does not come on, inspect as follows:



Remove the left rear cover (page 2-29).

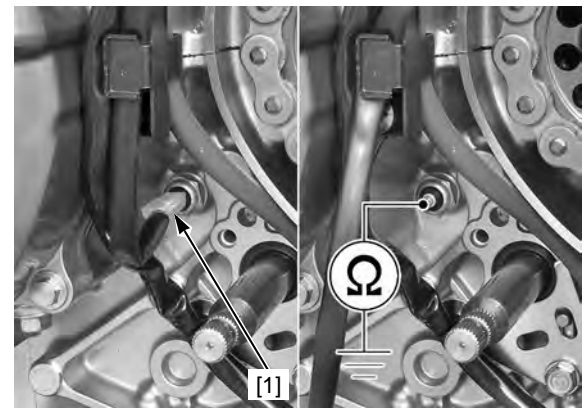
Disconnect the neutral switch connector [1].

Check for continuity between the switch terminal and engine ground.

There should be continuity with the transmission is in neutral, and no continuity when the transmission is into gear.

If the continuity inspection is normal, open circuit in Light green wire between the neutral switch connector and neutral diode or Light green/red wire between the neutral diode and neutral indicator.

If the continuity inspection is abnormal, replace the neutral switch (page 22-28).



INSPECTION (NC700XD/SD)

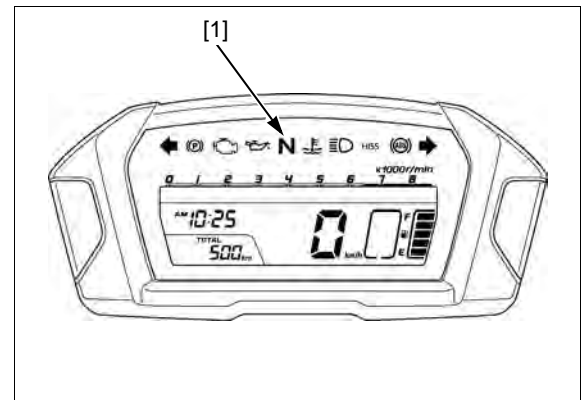
Make sure that the neutral indicator [1] comes on when the ignition switch is turned ON and transmission is in neutral and goes off when the transmission is in gear.

If the neutral indicator does not operate properly, check the shift indicator blinking with the ignition switch ON and the engine stop switch "O".

If DTC 52 is indicated with the shift indicator, check the neutral switch system (page 12-78).

If the shift indicator does not indicate any DTC and the neutral indicator does not light with the transmission in neutral, check for open circuit in the Light green wire between the combination meter and neutral switch.

If the Light green wire is OK, replace the combination meter assembly.



- NC700XD (page 22-9)
- NC700SD (page 22-9)

LIGHTS/METERS/SWITCHES

REMOVAL/INSTALLATION (NC700X/XA/SA)

Drain the engine oil (page 3-13).

Remove the left rear cover (page 2-29).

Disconnect the neutral switch connector [1].

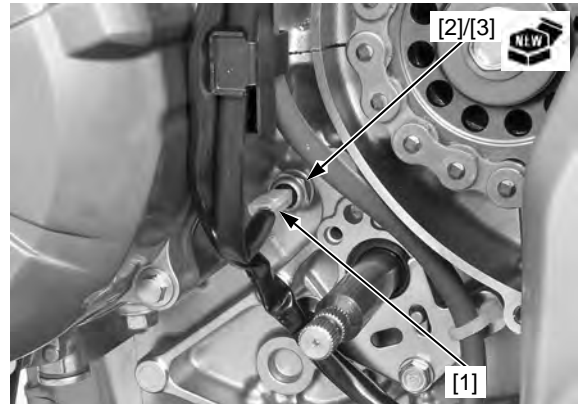
Remove the neutral switch [2] and sealing washer [3].

Install the neutral switch with a new sealing washer. Tighten the neutral switch to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the neutral switch connector.

Fill the engine with the recommended engine oil (page 3-12).



REMOVAL/INSTALLATION (NC700XD/SD)

Remove the shift control motor/reduction gears (page 12-109).

Disconnect the neutral switch connector [1].

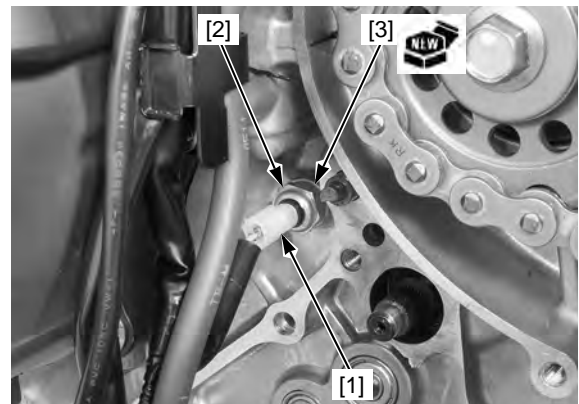
Remove the neutral switch [2] and sealing washer [3] from the crankcase.

Install the neutral switch with a new sealing washer and tighten it.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Connect the neutral switch connector.

Install the reduction gears/shift control motor (page 12-110).



SIDESTAND SWITCH

INSPECTION

Remove the following:

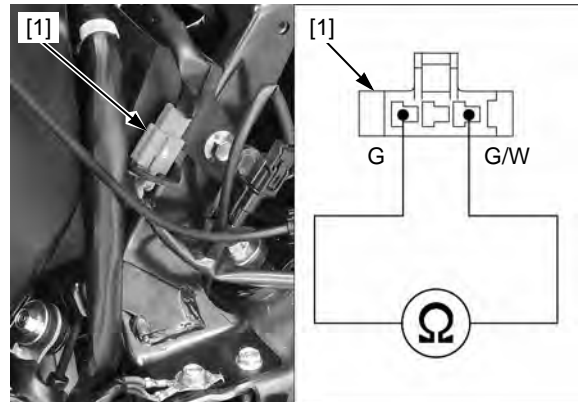
- Shroud/side cover (NC700X/XA/XD) (page 2-14)
- Shelter/side cover (NC700S/SA/SD) (page 2-15)
- Left rear cover (page 2-29)

Disconnect the sidestand switch 3P (Green) connector [1].

Check for continuity between the wire terminals of the sidestand switch 3P (Green) connector switch side.

CONNECTION: Green/white – Green

Continuity should exist only when the sidestand is up.



REMOVAL/INSTALLATION

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

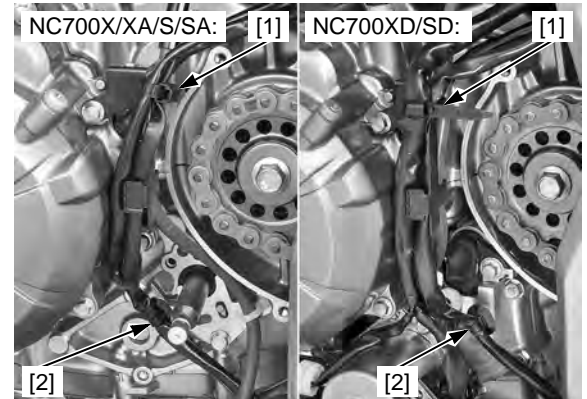
Remove the shelter/side cover (NC700S/SA/XD) (page 2-15)

Disconnect the sidestand switch 3P (Green) connector [1].

Remove the sidestand switch wire clamp [2].



Remove the wire band [1] and sidestand switch wire clamp [2].

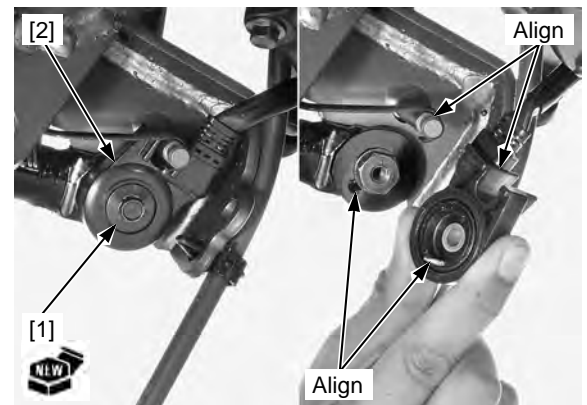


Remove the sidestand switch mounting bolt [1] and sidestand switch [2].

Installation is in the reverse order of removal.

NOTE:

- Replace the sidestand switch mounting bolt with a new one.
- Align the sidestand switch tab with the sidestand hole.
- Align the sidestand switch groove with the return spring holding pin.
- Route the wire properly (page 1-25).



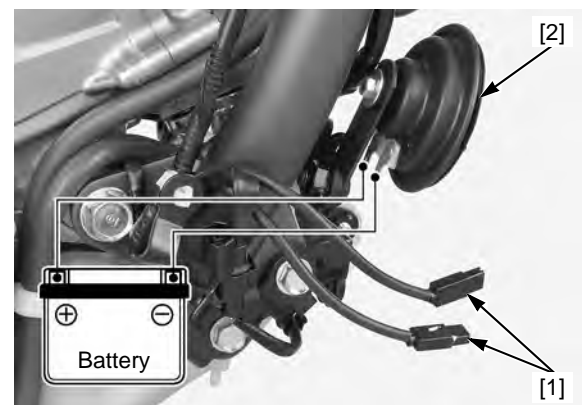
HORN

INSPECTION

Remove the lower cowl (page 2-28).

Disconnect the wire connectors [1] from the horn [2].

Connect the 12 V battery to the horn terminal directly. The horn is normal if it sounds when the 12 V battery is connected across the horn terminals.



LIGHTS/METERS/SWITCHES

REMOVAL/INSTALLATION

Remove the lower cowl (page 2-28).

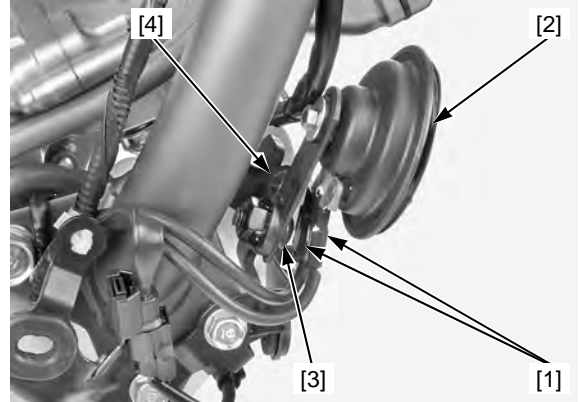
Disconnect the wire connectors [1] from the horn [2].

Remove the bolt [3] and horn.

Installation is in the reverse order of removal.

NOTE:

- Install the horn against the frame stopper [4].
- Route the wire properly (page 1-25).



TURN SIGNAL/HAZARD RELAY

SYSTEM INSPECTION

Remove the center cover (NC700X/XA/XD) (page 2-16).

Remove the side cowl (NC700S/SA/SD) (page 2-13).

Turn the ignition switch OFF.

Release the turn signal/hazard relay [1] from the luggage box.

Disconnect the turn signal/hazard relay 4P connector [2] from the turn signal/hazard relay.

Check the following at the wire harness side 4P connector.



1. Battery Power Source Line Open Circuit Inspection

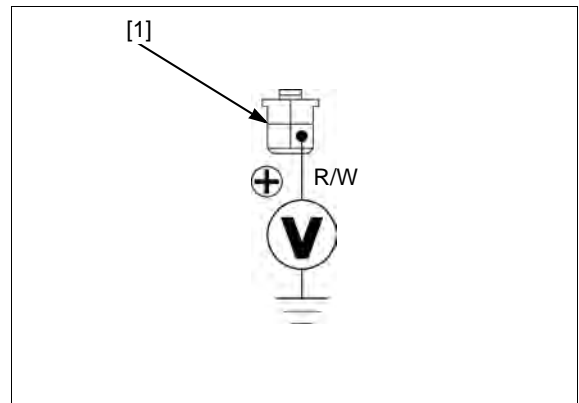
Measure the voltage between the 4P connector [1] terminal and ground.

Connection: Red/white (+) – Ground (-)

Is there battery voltage?

YES – GO TO STEP 2.

- NO** –
- Open circuit in the Red/white wire
 - Blown sub fuse 7.5 A (CLOCK/TURN)



2. Ground Line Open Circuit Inspection

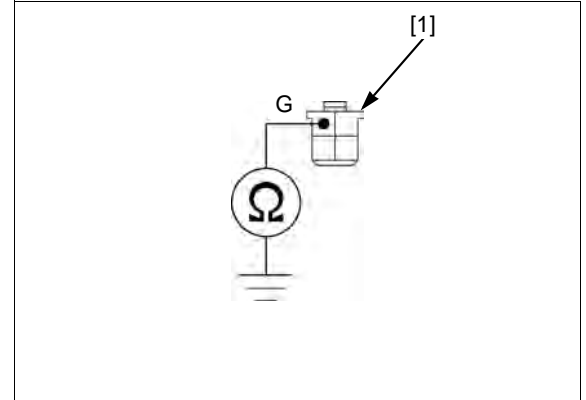
Check for continuity between the 4P connector [1] terminal and ground.

Connection: Green – Ground

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in the Green wire



3. Turn Signal/hazard Switch Line Open Circuit Inspection

Connect the 4P connector [1] terminals with a jumper wire.

Connection: Red/white – Gray

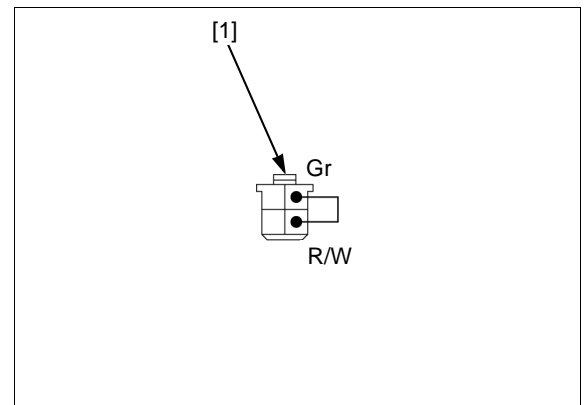
Operate the turn signal switch or push the hazard switch.

Do the turn signal light illuminate?

YES – GO TO STEP 4.

NO –

- Open circuit in the Gray wire
- Faulty turn signal switch or hazard switch (left handlebar switch)
- Faulty turn signal light circuits



4. Ignition Switch Power Source Line Open Circuit Inspection

Turn the ignition switch ON.

Measure the voltage between the 4P connector [1] terminal and ground.

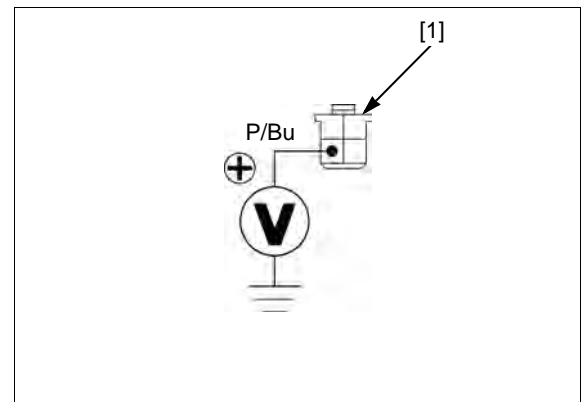
Connection: Pink/blue (+) – Ground (-)

Is there battery voltage?

YES – System is normal, replace the turn signal/hazard relay.

NO –

- Open circuit in the Pink/blue wire
- Blown sub fuse 7.5 A (ILLUMI/STOP/HORN)



LIGHTS/METERS/SWITCHES

REMOVAL/INSTALLATION

Remove the center cover (NC700X/XA/XD) (page 2-16).

Remove the side cowl (NC700S/SA/SD) (page 2-13).

Release the turn signal/hazard relay [1] from the luggage box.

Disconnect the turn signal/hazard relay 4P connector [2] and remove the turn signal/hazard relay.

Installation is in the reverse order of removal.

NOTE:

Route the wire properly (page 1-25).

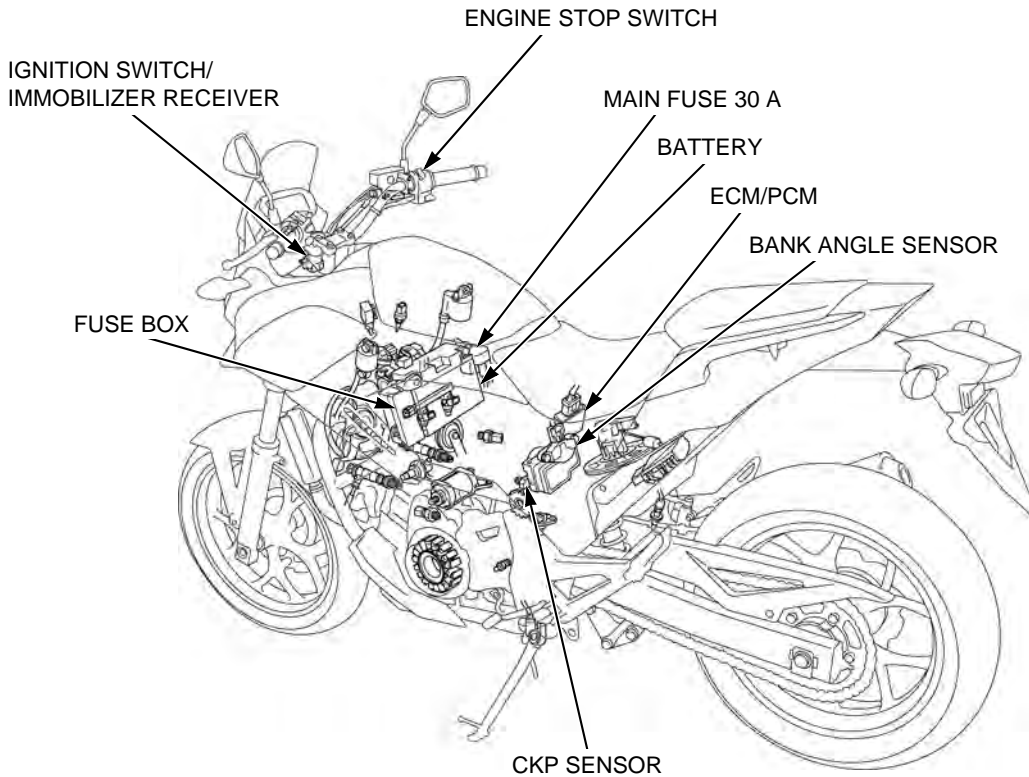


23. IMMOBILIZER SYSTEM (HISS)

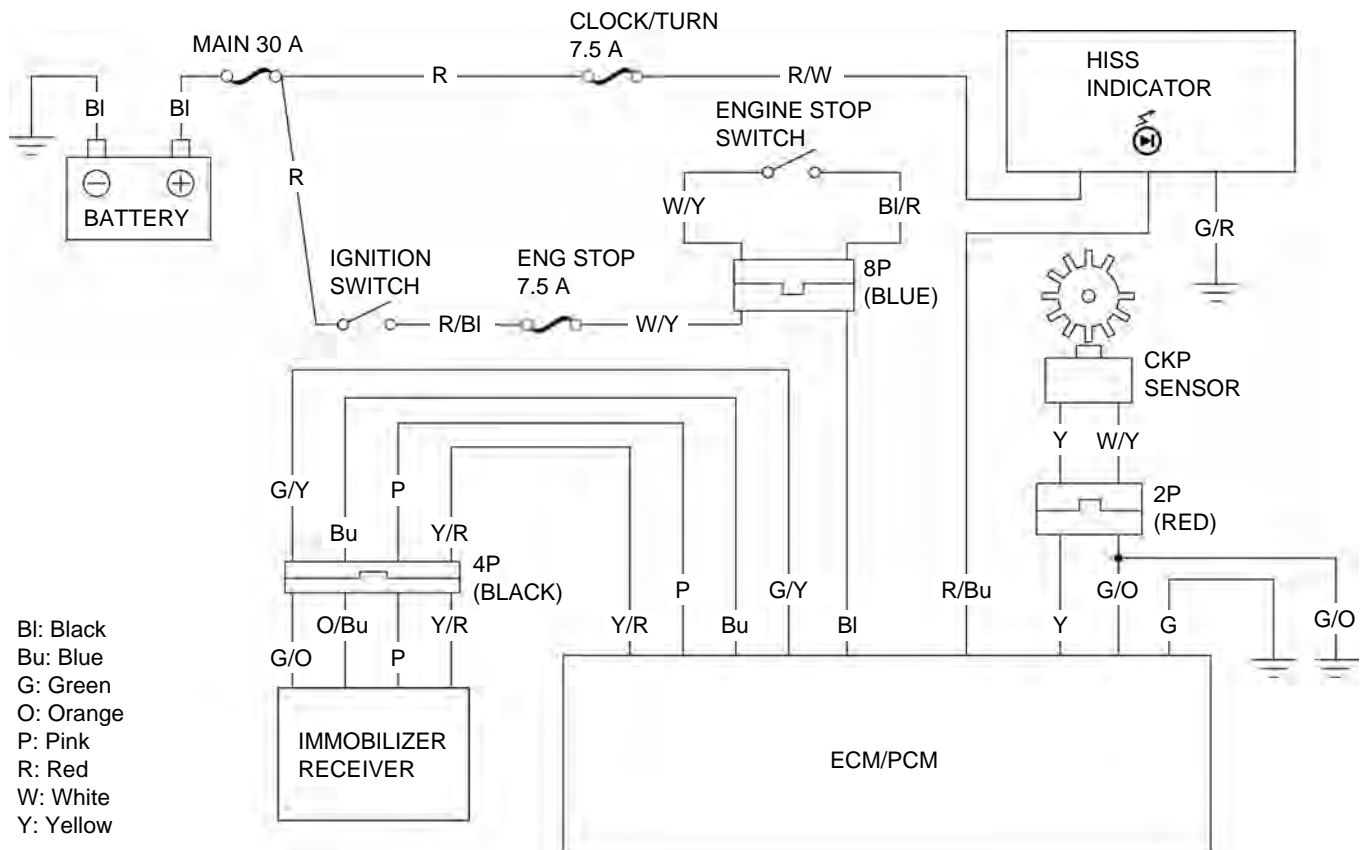
SYSTEM LOCATION.....	23-2	TROUBLESHOOTING	23-8
SYSTEM DIAGRAM	23-2	HISS INDICATOR	23-10
SERVICE INFORMATION	23-3	ECM (NC700X/XA/S/SA)/ PCM (NC700XD/SD)	23-11
KEY REGISTRATION PROCEDURES	23-3	IMMOBILIZER RECEIVER.....	23-12
DIAGNOSTIC CODE INDICATION	23-6		

IMMOBILIZER SYSTEM (HISS)

SYSTEM LOCATION



SYSTEM DIAGRAM



SERVICE INFORMATION

GENERAL

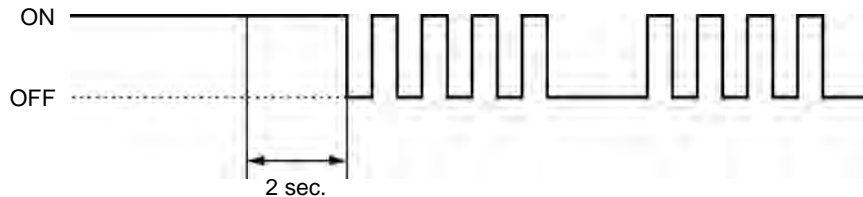
- When checking the immobilizer system (HISS), follow the steps in the troubleshooting flow chart (page 23-8).
- Keep the immobilizer key away from the other vehicle's immobilizer key when using it. The jamming of the key code signal may occur and the proper operation of the system will be obstructed.
- The key has built-in electronic part (transponder). Do not drop and strike the key against a hard material object, and do not leave the key on the dashboard in the car, etc. where the temperature will rise. Do not leave the key in the water for a prolonged time such as by washing the clothes.
- The ECM/PCM as well as the transponder keys must be replaced if all transponder keys have been lost.
- The system does not function with a duplicated key code is registered into the transponder with the immobilizer system (HISS).
- The ECM/PCM can store up to four key codes. (The four keys can be registered.)
- Do not modify the immobilizer system as it can cause the system failure. (The engine cannot be started.)
- For ignition system inspection (page 5-6).
- For ignition switch servicing (page 22-24).
- For engine stop switch inspection (page 22-25).
- For bank angle sensor inspection (page 4-65).
- The following color codes are used throughout this section.

Bl = Black	G = Green	P = Pink	W = White
Bu = Blue	O = Orange	R = Red	Y = Yellow

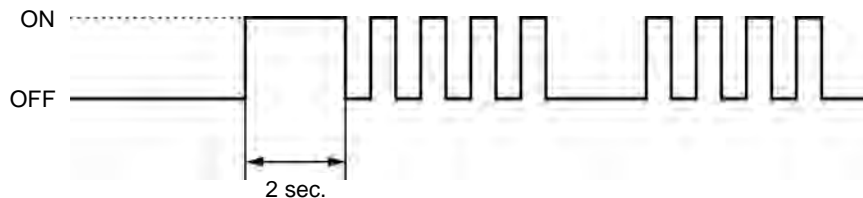
KEY REGISTRATION PROCEDURES

When the key has been lost, or additional spare key is required:

1. Obtain a new transponder key.
2. Grind the key in accordance with the shape of the original key.
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM/PCM using the special tool (page 23-6).
4. Turn the ignition switch ON with the original key and engine stop switch "O". The HISS indicator comes on and it remains on.
 - The code of the original key recognized by the ECM/PCM.
 - If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
5. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds, then it blinks four times repeatedly.



- The immobilizer system (HISS) enters the registration mode. Registrations of all key except the original key inserted in the ignition switch are cancelled. (Registration of the lost key or spare key is cancelled.)
- The spare key must be registered again.
6. Turn the ignition switch OFF and remove the key.
 7. Turn the ignition switch ON with a new key or the spare key. (Never use the key registered in previous steps.) The indicator comes on for two seconds then it blinks four times repeatedly.



- The new key or spare key is registered in the ECM/PCM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
- Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).

IMMOBILIZER SYSTEM (HISS)

8. Repeat the steps 6 and 7 when you continuously register the other new key.

The ECM/PCM can store up to four key codes. (The four keys can be registered.)

9. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor 2P (Red) connector.

10. Turn the ignition switch ON with the registered key.

- The immobilizer system (HISS) returns to the normal mode.

11. Check that the engine can be started using all registered key.

When the ignition switch is faulty:

1. Obtain a new ignition switch assembly.

2. Remove the ignition switch (page 22-24).

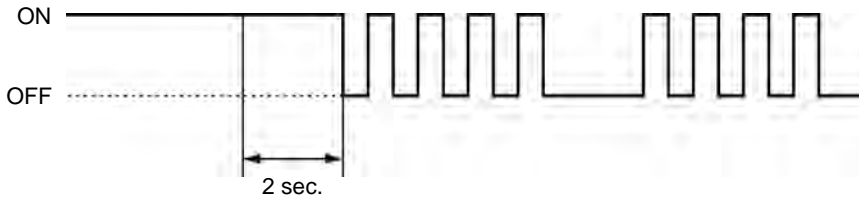
3. Apply 12 V battery voltage to the CKP sensor lines of the ECM/PCM using the special tool (page 23-6).

4. Set the original (registered) key near the immobilizer receiver so that the transponder in the key can communicate with the receiver.

5. Connect a new ignition switch to the wire harness, then turn it to ON with a new transponder key. (keep the ignition switch away from the receiver) and engine stop switch "O". The HISS indicator comes on and it remains on.

- The code of the original key recognized by the ECM/PCM.
- If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).

6. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds then it blinks four times repeatedly.

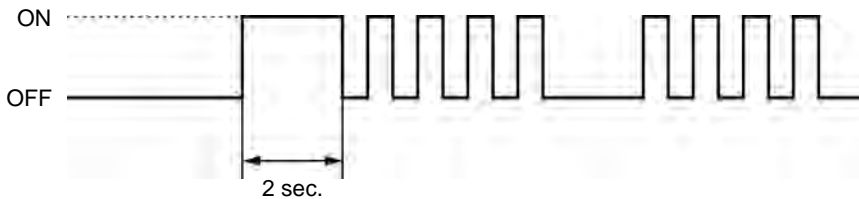


- The immobilizer system (HISS) enters the registration mode. Registrations of all key except the original key set near the receiver are cancelled.

7. Turn the ignition switch OFF and remove the key.

8. Install the ignition switch (page 22-24).

9. Turn the ignition switch ON with a first new key. The indicator comes on for two seconds then it blinks four times repeatedly.



- The first key or spare key is registered in the ECM/PCM.
- If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).

10. Turn the ignition switch OFF and disconnect the red clip of the inspection adaptor from the battery positive (+) terminal.

11. Turn the ignition switch ON (with the first key registered in step 9). The HISS indicator comes on for two seconds then it goes off.

- The immobilizer system (HISS) returns to the normal mode.

12. Turn the ignition switch OFF and connect the red clip of the inspection adaptor to the battery positive (+) terminal.

13. Turn the ignition switch ON (with the first key registered in step 9). The HISS indicator comes on and it remains on.

- The code if the first key is recognized by the ECM/PCM.
- If there is any problem in the immobilizer system (HISS), the system will enter the diagnostic mode and the indicator will remain on for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).

14. Disconnect the red clip of the inspection adaptor from the battery positive (+) terminal for two seconds or more, then connect it again. The indicator remains on for approx. two seconds then it blinks four times repeatedly.
 - The immobilizer system (HISS) enters the registration mode. Registration of the original key used in step 4 is cancelled.
15. Turn the ignition switch OFF and remove the key.
16. Turn the ignition switch ON with a second new key. (Never use the key registered in previous step.) The indicator comes on for two seconds then it blinks four times repeatedly.
 - The second key or spare key is registered in the ECM/PCM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
 - Keep the other transponder key away from the immobilizer receiver more than 50 mm (2.0 in).
17. Repeat the steps 15 and 16 when you continuously register the other new key.

The ECM/PCM can store up to four key codes. (The four keys can be registered.)
18. Turn the ignition switch OFF, remove the inspection adaptor and connect the CKP sensor 2P (Red) connector.
19. Turn the ignition switch ON with the registered key.
 - The immobilizer system (HISS) returns to the normal mode.
20. Check that the engine can be started using all registered key.

When all keys have been lost:

1. Obtain a new ECM/PCM and new key set.
2. Replace the ignition switch with a new one (page 22-24).
3. Replace the ECM/PCM with a new one (page 4-67).
4. Turn the ignition switch ON with a first new key and engine stop switch "O". The HISS indicator comes on for two seconds, then it blinks four times repeatedly.
 - The first key is registered in the ECM/PCM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
5. Turn the ignition switch OFF and remove the first key.
6. Turn the ignition switch ON with a second new key. The HISS indicator comes on for two seconds, then it blinks four times repeatedly.
 - The second key is registered in the ECM/PCM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
7. Turn the ignition switch OFF and remove the second key.
 - The system (ECM/PCM) will not enter the normal mode unless the two keys are registered in ECM/PCM.
 - The third new key cannot be continuously registered. When it is necessary to register the third key, follow the procedures "When the key has been lost, or additional key is required" (page 23-3).
8. Check that the engine can be started using all registered keys.
9. Replace the remaining key set parts.

IMMOBILIZER SYSTEM (HISS)

When the ECM/PCM is faulty:

1. Obtain a new ECM/PCM and two new transponder keys.
2. Grind the keys in accordance with the shape of the original key (or use the key number plate when all key have been lost).
3. Replace the ECM/PCM with a new one (page 4-67).
4. Turn the ignition switch ON with a first new key and engine stop switch "⊙". The HISS indicator comes on for two seconds, then it blinks four times repeatedly.
 - The first key is registered in the ECM/PCM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
5. Turn the ignition switch OFF and remove the first key.
6. Turn the ignition switch ON with a second new key. The HISS indicator comes on for two seconds, then it blinks four times repeatedly.
 - The second key is registered in the ECM/PCM.
 - If there is any problem in the registration, the system will enter the diagnostic mode and the indicator will remain for approx. ten seconds, then it will indicate the diagnostic code (page 23-7).
7. Turn the ignition switch OFF and remove the second key.
 - The system (ECM/PCM) will not enter the normal mode unless the two keys are registered in ECM/PCM.
 - The third new key cannot be continuously registered. When it is necessary to register the third key, follow the procedures "When the key has been lost, or additional key is required" (page 23-3).
8. Check that the engine can be started using all registered keys.

DIAGNOSTIC CODE INDICATION

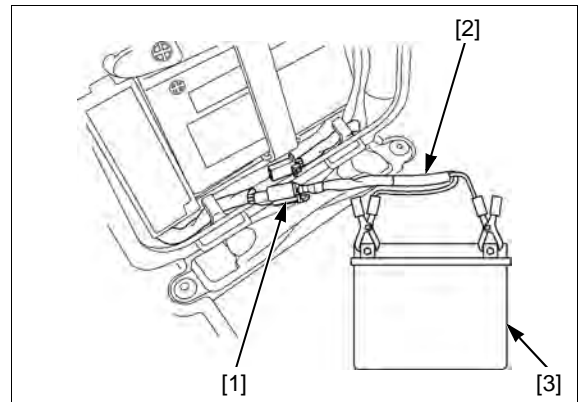
Remove the maintenance lid (page 21-6).

Disconnect the CKP sensor 2P (Red) connector [1].

Connect the inspection adaptor [2] to the wire side connector.
Connect the Red clip of the adaptor to the 12 V battery [3] positive (+) terminal and Black clip to the negative (-) terminal.

TOOL:

Inspection adaptor **07XMZ-MBW0101**

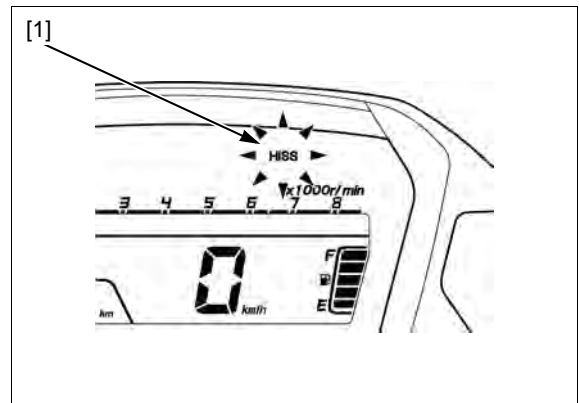


Turn the ignition switch ON with the properly registered key and engine stop switch "⊙".

The HISS indicator [1] will come on for approx. ten seconds then it will start blinking to indicate the diagnostic code if the system is abnormal.

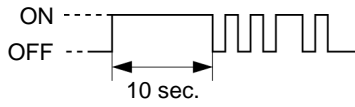



The blinking frequency is repeated.

The HISS indicator remains on when the system is normal. (The system is in the normal mode and the diagnostic code does not appear.)

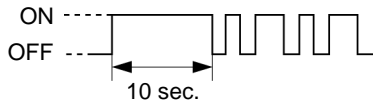




DIAGNOSTIC CODE

When the system (ECM/PCM) enters the diagnostic mode from the normal mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
 <p>ON --- OFF --- 10 sec.</p>	ECM/PCM data is abnormal.	Faulty ECM/PCM	Replace the ECM/PCM.
	Code signals cannot send or receive.	Faulty immobilizer receiver or wire harness	Follow the troubleshooting (page 23-8).
	Identification code is disagree.	Jamming by the other transponder	Keep the other vehicle's transponder key away from the immobilizer receiver more than 50 mm (2.0 in).
	Secret code is disagree.		

When the system (ECM/PCM) enters the diagnostic mode from the registration mode:

BLINKING PATTERN	SYMPTOM	PROBLEM	PROCEDURE
 <p>ON --- OFF --- 10 sec.</p>	Registration is overlapped.	The key is already registered properly.	Use a new key or cancelled key.
	Code signals cannot send or receive.	Communication fails	Follow the troubleshooting (page 23-8).
	Registration is impossible.	The key is already registered on the other system.	Use a new key.

TROUBLESHOOTING

The immobilizer indicator comes on for approx. two seconds then it goes off, when the ignition switch is turned ON with the properly registered key and the HISS functions normally. If there is any problem or the properly registered key is not used, the indicator will remain on.

Immobilizer indicator does not come on when the ignition switch is turned ON

1. Fuse Inspection

Check for blown sub fuse 7.5 A (CLOCK/TURN) and/or sub fuse 7.5 A (ENG STOP).

Is the fuse blown?

YES – Replace the fuse.

NO – GO TO STEP 2.

2. Combination Meter Inspection

Check that the neutral indicator come on with the ignition switch turned ON.

Is the indicator come on?

YES – GO TO STEP 4.

NO – GO TO STEP 3.

3. Combination Meter Power Input Line Inspection

Check the power input line (Red/white wire) at the combination meter 16P (Gray) connector (page 23-10).

Is the voltage specified value?

YES – Faulty combination meter.

NO – Open circuit in Red/white wire

4. TXD/RXD Line Inspection between The ECM/PCM and Combination Meter

Check the TXD/RXD line (Red/blue wire) between the ECM/PCM 33P connector and combination meter 16P (Gray) connector (page 23-10).

Is there continuity?

NO – Open circuit in Red/blue wire

YES – GO TO STEP 5.

5. Power Input Line Inspection at The ECM/PCM Connector

Check the power input line (Black/red and Black wire) at the ECM/PCM 33P connector (page 23-11).

Is the voltage specified value?

YES – GO TO STEP 6.

NO – Open circuit in Black/red and Black wire

6. Ground Line Inspection at The ECM/PCM Connector

Check the ground line (Green/orange and Green wire) at the ECM/PCM 33P connector (page 23-11).

Is there continuity?

YES – • Loose or poor contact of the ECM/PCM 33P connector
• Faulty ECM/PCM

NO – • Open circuit in Green/orange wire
• Open circuit in Green wire

Immobilizer indicator remains on with the ignition switch turned ON

1. Immobilizer Receiver Jamming Inspection

Check that there is any metal obstruction or the other vehicle's transponder key near the immobilizer receiver and key.

Is there any metal obstruction or the other transponder key?

YES – Remove it and recheck.

NO – GO TO STEP 2.

2. First Transponder Key Inspection

Turn the ignition switch ON with the spare transponder key and check the immobilizer indicator. The indicator should come on for 2 seconds then go off.

Is the indicator go off?

YES – Faulty first transponder key

NO – GO TO STEP 3.

3. Diagnostic Code Inspection

Perform the diagnostic code indication procedure (page 23-6). Check that the immobilizer indicator comes on then it starts blinking.

Is the indicator brinks or stay lit?

BRINKS—Read the diagnostic code (page 23-7).

STAY LIT—GO TO STEP 4.

4. TXD/RXD Line Inspection between The ECM/PCM and Combination Meter

Check the TXD/RXD line (Red/blue wire) between the ECM/PCM 33P connector and combination meter 16P (Gray) connector (page 23-10).

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Red/blue wire

5. CKP sensor Line Inspection

Check the CKP sensor lines (Yellow, White/yellow and Green/orange wires) between the ECM/PCM 33P connector and CKP sensor 2P (Red) connector (page 23-11).

Is there continuity?

YES – • Open circuit in Yellow wire
• Open circuit in White/yellow and/or Green/orange wire

NO – Faulty ECM/PCM

Diagnostic code  **is indicated (Code signals cannot send or receive)**

1. Immobilizer Receiver Power Input Line Inspection

Check the power input line (Yellow/red wire) at the immobilizer receiver 4P (Black) connector (page 23-12).

Is there approx. 5 V?

YES – GO TO STEP 2.

NO – Open or short circuit in Yellow/red wire

2. Immobilizer Receiver Ground Line Inspection

Check the ground line (Green/yellow wire) at the immobilizer receiver 4P (Black) connector (page 23-12).

Is there continuity?

YES – GO TO STEP 3.

NO – Open circuit in Green/yellow wire

3. Immobilizer Receiver Signal Line Inspection 1

Check the signal line (Pink wire) at the immobilizer receiver 4P (Black) connector (page 23-12).

Is there approx. 5 V?

YES – GO TO STEP 4.

NO – Open or short circuit in Pink wire

4. Immobilizer Receiver Signal Line Inspection 2

Check the signal line (Blue wire) between the immobilizer receiver 4P (Black) connector and ECM/PCM 33P connector (page 23-12).

Is there continuity?

YES – • Short circuit in Blue wire
• Faulty immobilizer receiver.

NO – Open circuit in Blue wire

IMMOBILIZER SYSTEM (HISS)

HISS INDICATOR

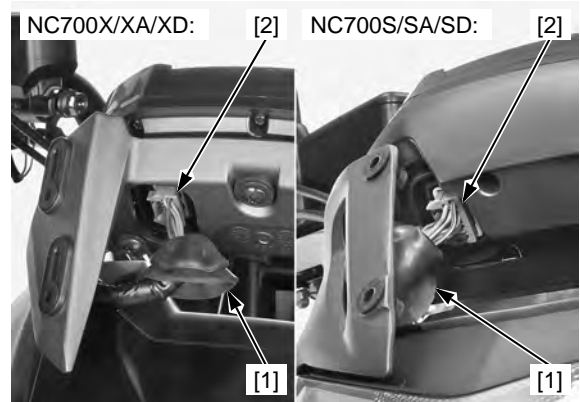
INSPECTION

NOTE:

If the MIL and engine oil pressure indicator are stay on and tachometer, high coolant temperature indicator and HISS indicator does not come on and shift indicator "-" (NC700XD/SD) is blinking, inspect the TXD/RXD line.

Remove the windscreen (page 2-23).

Perform the following inspections with the combination meter 16P (Gray) connector [1] connected.

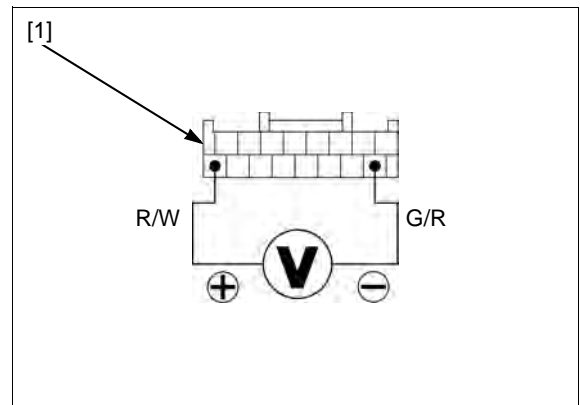


POWER INPUT LINE INSPECTION

Measure the voltage between the combination meter 16P (Gray) connector terminals.

CONNECTION: Red/white (+) – Green/red (-)

There should be battery voltage at all times.



TXD/RXD LINE INSPECTION

Disconnect the following:

- ECM 33P (Black) connector (NC700X/XA/S/SA) [1]
- PCM 33P (Gray) connector (NC700XD/SD) [1]
- Combination meter 16P (Gray) connector [2]

Check for continuity between the ECM/PCM 33P connector and combination meter 16P (Gray) connector.

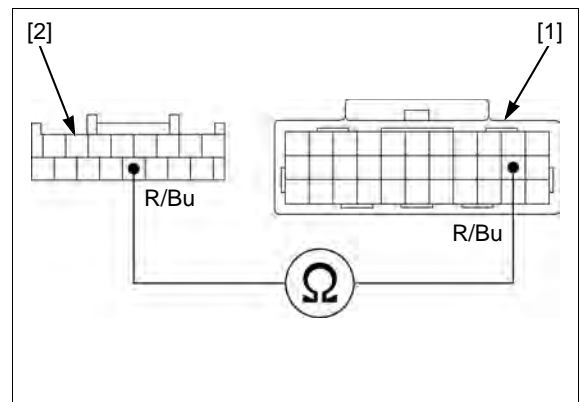
CONNECTION: Red/blue – Red/blue

TOOL:

Test probe 07ZAJ-RDJA110

There should be continuity.

If there is no continuity, replace the wire harness.



ECM (NC700X/XA/S/SA)/PCM (NC700XD/SD)

INSPECTION

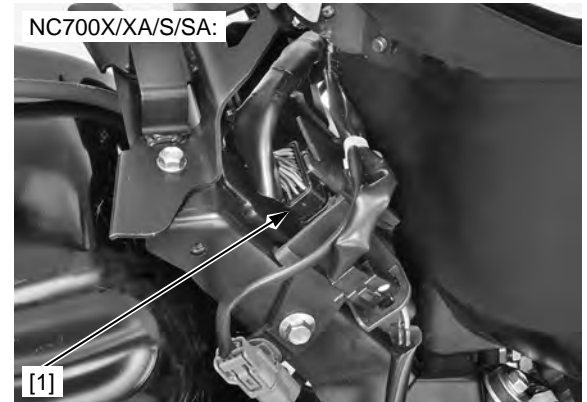
NC700X/XA/S/SA: Remove the shroud/side cover (NC700X/XA) (page 2-14).

Remove the side cowl (NC700S/SA) (page 2-13).

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector [1].

Perform the following inspections at the wire harness side connector of the ECM.

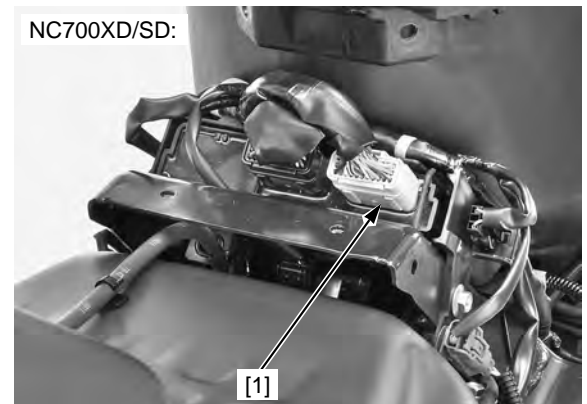


NC700XD/SD: Remove the luggage box lid/hinge assembly (page 2-19).

Turn the ignition switch OFF.

Disconnect the PCM 33P (Gray) connector [1].

Perform the following inspections at the wire harness side connector of the PCM.



POWER INPUT LINE INSPECTION

Turn the ignition switch ON and engine stop switch "O".

Measure the voltage between the ECM/PCM 33P connector [1] terminal and ground.

CONNECTION: Black (+) – Ground (-)

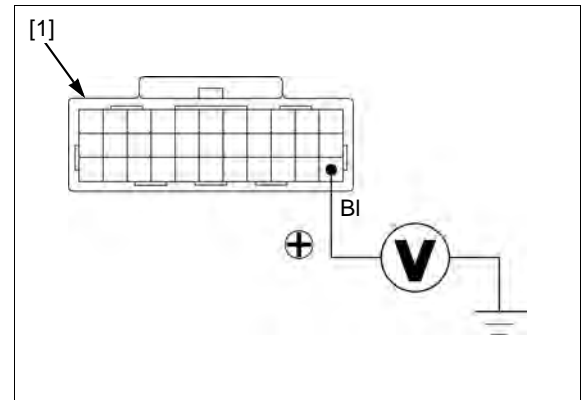
STANDARD: Battery voltage

TOOL:

Test probe

07ZAJ-RDJA110

There should be battery voltage.



IMMOBILIZER SYSTEM (HISS)

GROUND LINE INSPECTION

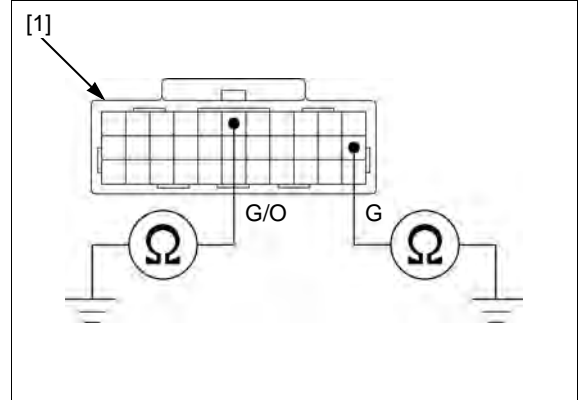
Check for continuity between the ECM/PCM 33P connector [1] terminals and ground.

CONNECTION: Green/orange – Ground
Green – Ground

TOOL:

Test probe 07ZAJ-RDJA110

There should be continuity at all times.



CKP SENSOR LINE INSPECTION

Disconnect the CKP sensor 2P (Red) connector [1] (page 23-6).

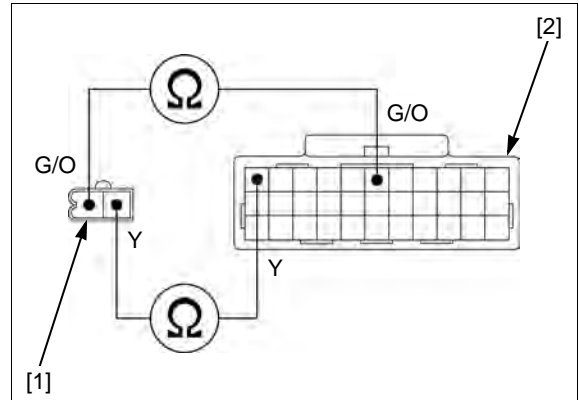
Check for continuity between the ECM/PCM 33P connector [2] and CKP sensor 2P (Red) connector terminals.

CONNECTION: Yellow – Yellow
Green/orange – Green/orange

TOOL:

Test probe 07ZAJ-RDJA110

There should be continuity between the same color wire terminals.



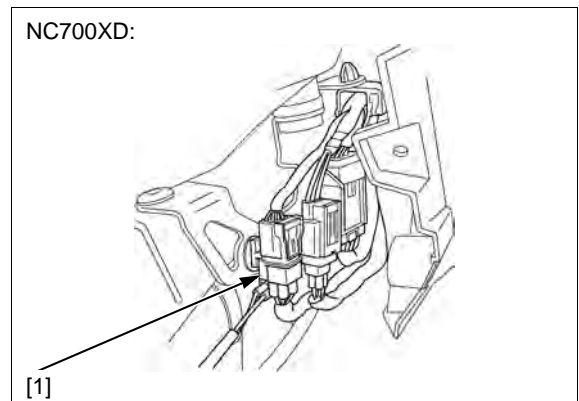
IMMOBILIZER RECEIVER

INSPECTION

Remove the shroud/side cover (NC700X/XA/XD) (page 2-14).

Remove the headlight/headlight stay (NC700S/SA/SD) (page 2-27).

Disconnect the immobilizer receiver 4P (Black) connector [1].

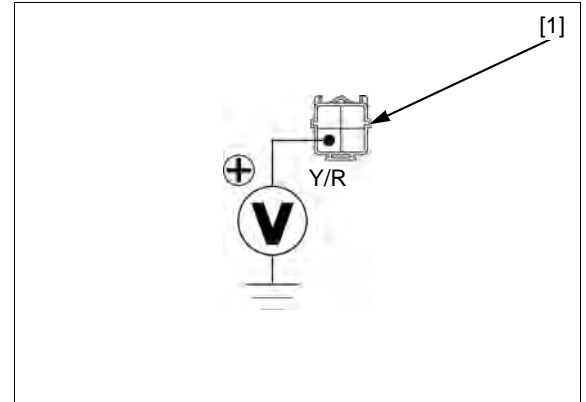


POWER INPUT LINE INSPECTION

Turn the ignition switch ON and engine stop switch "O".
 Measure the voltage between the immobilizer receiver 4P (Black) connector [1] terminal and ground at the wire side.

CONNECTION: Yellow/red (+) – Ground (-)

There should be approx. 5 V.

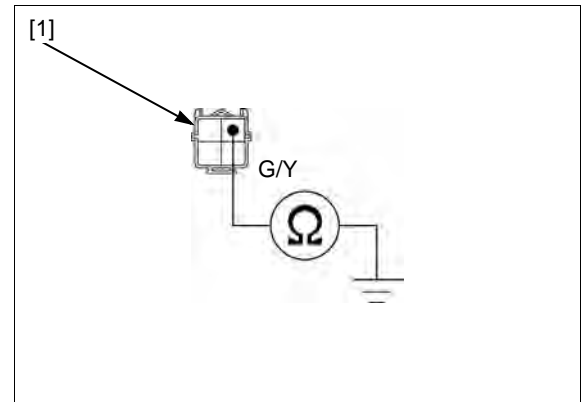


GROUND LINE INSPECTION

Check for continuity between the immobilizer receiver 4P (Black) connector [1] terminal and ground at the wire side.

CONNECTION: Green/yellow – Ground

There should be continuity at all times.

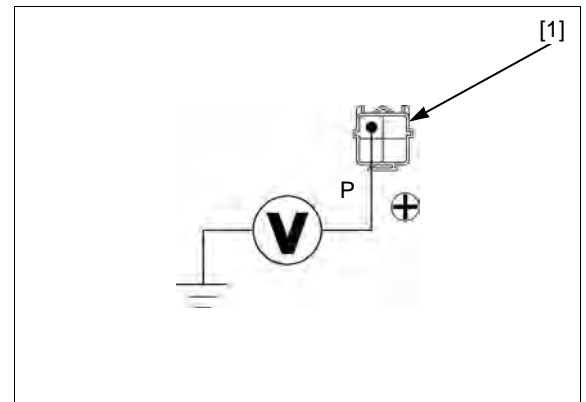


SIGNAL LINE INSPECTION

Turn the ignition switch ON and engine stop switch "O".
 Measure the voltage between the immobilizer receiver 4P (Black) connector [1] terminal and ground at the wire side.

CONNECTION: Pink (+) – Ground (-)

There should be approx. 5 V.



Disconnect the ECM/PCM 33P connector [1] (page 23-11).

Check for continuity between the ECM/PCM 33P connector and immobilizer receiver 4P (Black) connector [2] terminals at the wire side.

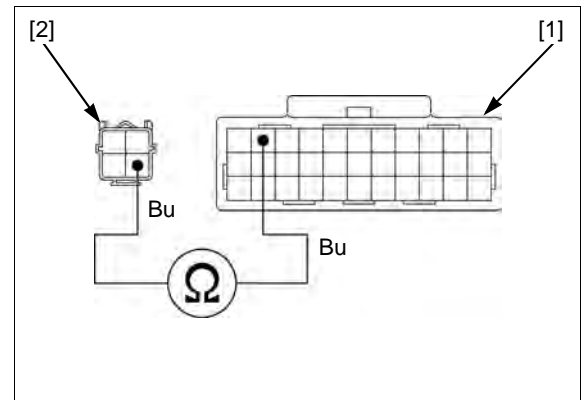
CONNECTION: Blue – Blue

TOOL:

Test probe

07ZAJ-RDJA110

There should be continuity.



IMMOBILIZER SYSTEM (HISS)

Check for continuity between the ECM/PCM 33P connector [1] terminal and ground at the wire side.

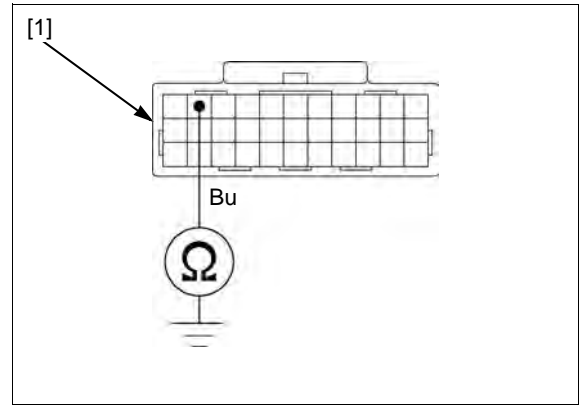
CONNECTION: Blue – Ground

TOOL:

Test probe

07ZAJ-RDJA110

There should be no continuity.



REMOVAL/INSTALLATION

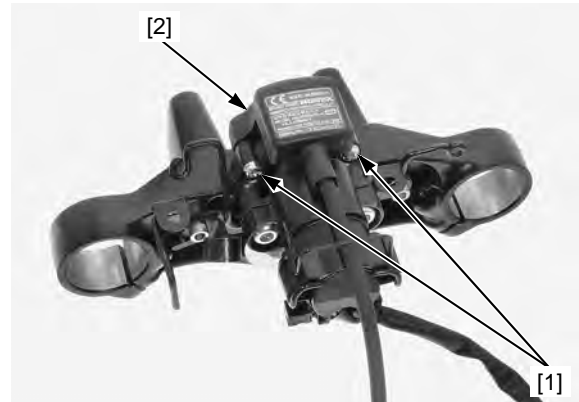
Remove the top bridge (page 17-33).

Remove the screws [1] and the immobilizer receiver [2].

Install a new receiver and tighten the screws.

Install the top bridge (page 17-38).

Route the receiver wire properly (page 1-25).



REPLACEMENT PARTS FOR PROBLEM

Problem	Replacement parts					
	Transponder Key	Immobilizer receiver	ECM/PCM	Ignition switch assembly	Key set	*Accessory lock and key
One Key has been lost, or additional spare key is required	○					
All key has been lost			○		○	
ECM/PCM is faulty	○		○			
Immobilizer receiver is faulty		○				
Ignition switch is faulty				○		
*Accessory lock is faulty						○

*Accessory lock means the luggage box lid lock and seat lock.

24. WIRING DIAGRAM

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