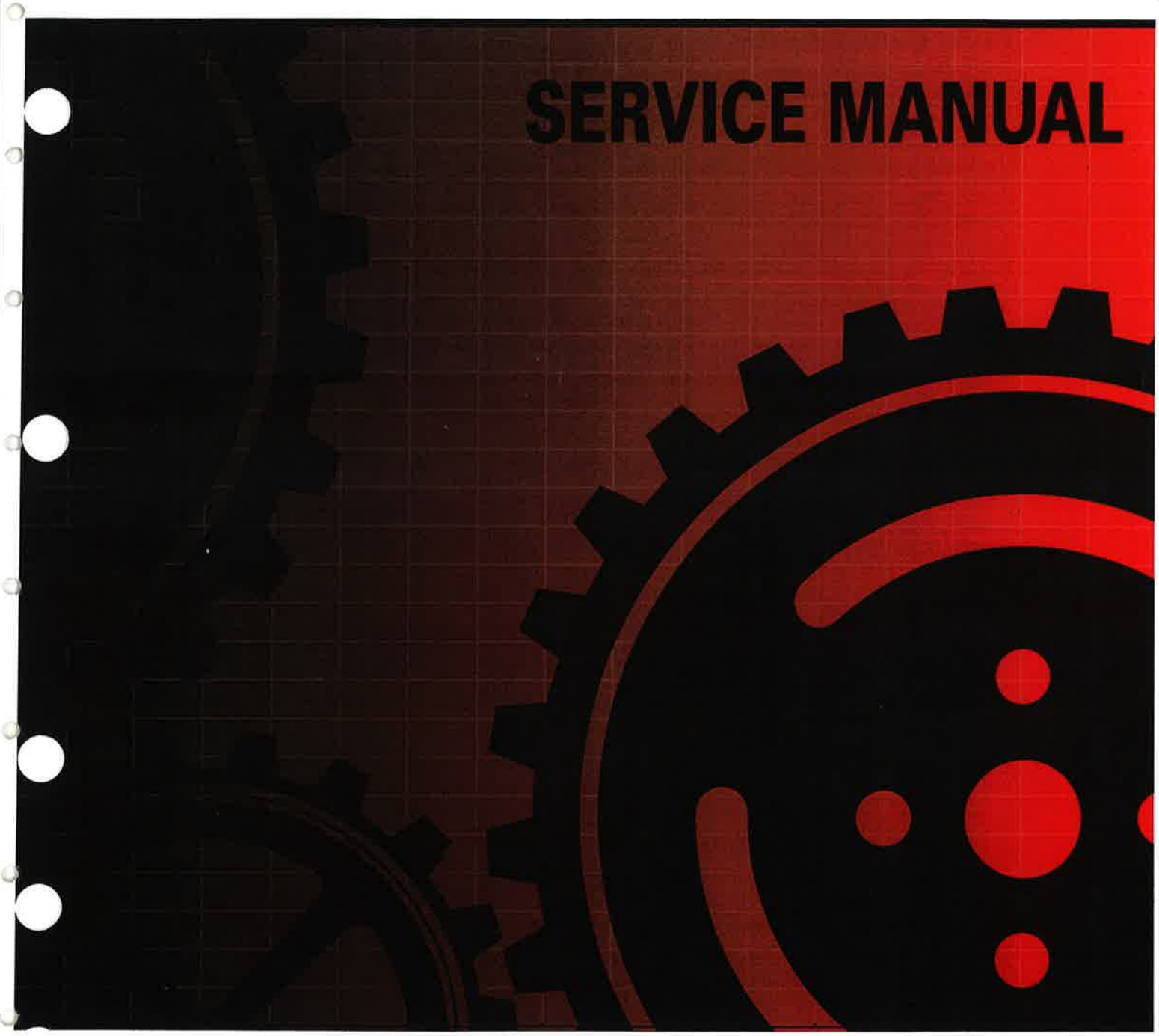
2021

HONDA



Trail125A

1. GENERAL INFORMATION

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 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 recommended 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 is "Spec (Specific)" Service Manual. The service and repair information for this model is described in this manual as specific information. Refer to "Basic" Service Manual for basic/common service information and instructions.

Follow the Maintenance Schedule recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB).
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.

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 judgment.
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.

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.

INSTRUCTION SYMBOL

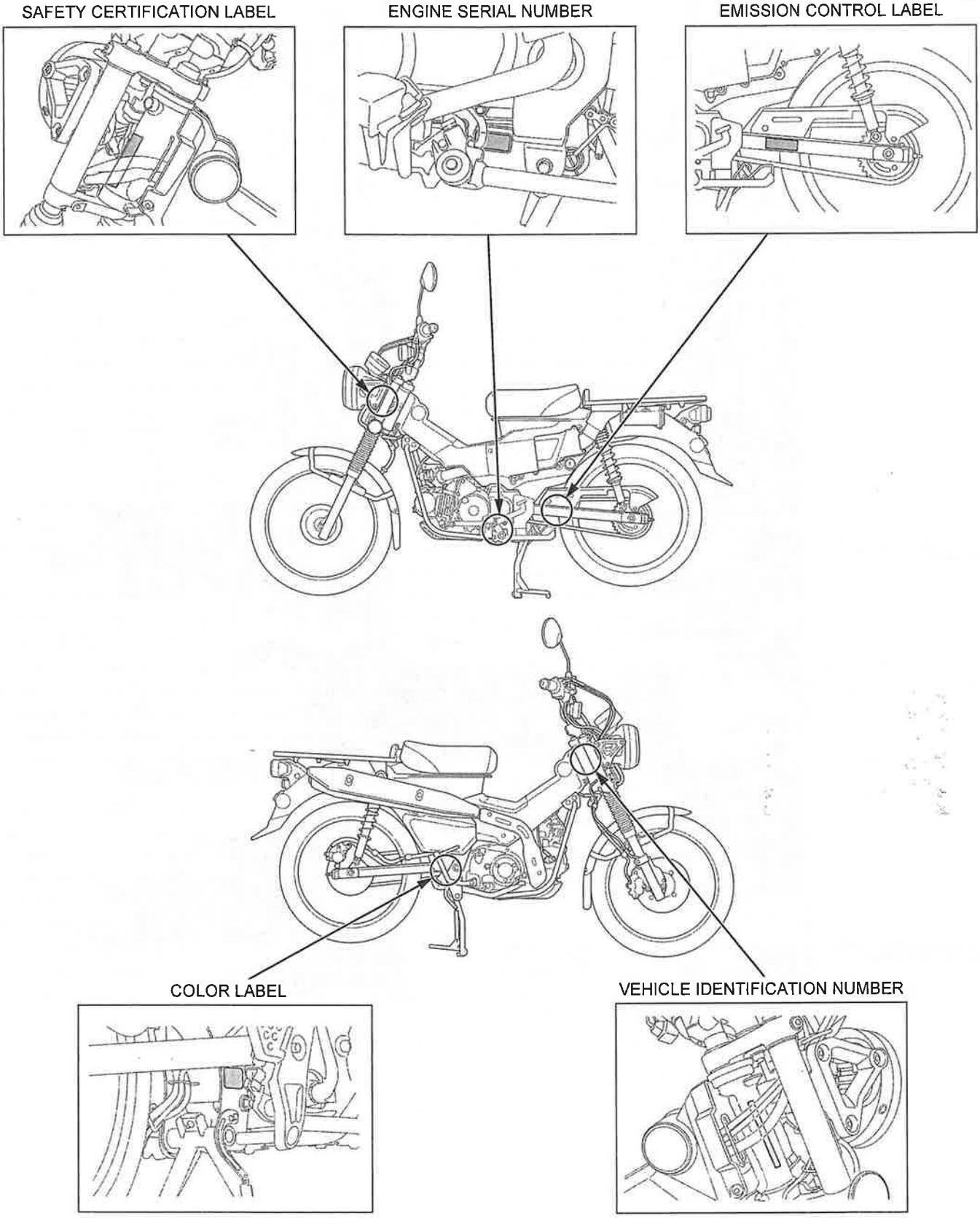
	Removal or Disassembly procedure. Disconnect the connector.		Installation or Assembly procedure. Connect the connector.
	Order of removal/disassembly with a point of note.		Order of installation/assembly with a point of note.
	Tighten specified torque.		Replace with a new one before assembly.
	Check the part for an inspection.		Measure the part for an inspection.
	Turn ignition switch to OFF.		Turn ignition switch to ON.
	Start the engine.		Measure a resistance or check continuity.
	Measure a voltage.		Measure an ampere.
	Use the Honda special tool.		Refer to "Basic" Service Manual for the instruction.

LUBRICATION AND SEAL SYMBOL

	Use the recommend engine oil.		Apply molybdenum oil solution (mixture of an engine oil and molybdenum grease in a ration of 1:1).
	Apply a specified grease. Use a multi-purpose grease unless otherwise specified.		Apply a liquid sealant.
	Apply a locking agent. Use a medium strength one unless otherwise specified.		Use DOT 4 brake fluid.
	Use a specified fork oil or suspension fluid.		

MODEL IDENTIFICATION

- Model name: Trail 125
- Destination: 50-states (meets California)



SPECIFICATIONS

GENERAL SPECIFICATIONS

ITEM				SPECIFICATIONS
DIMENSIONS	Overall length			1,960 mm (77.2 in)
	Overall width			805 mm (31.7 in)
	Overall height			1,085 mm (42.7 in)
	Wheelbase			1,255 mm (49.4 in)
	Seat height			800 mm (31.5 in)
	Footpeg height			300 mm (11.8 in)
	Ground clearance			165 mm (6.5 in)
	Curb weight			117 kg (258 lbs)
	Maximum weight capacity			120 kg (265 lbs)
FRAME	Frame type			Back bone type
	Front suspension			Telescopic fork
	Front axle travel			98 mm (3.9 in)
	Rear suspension			Swingarm
	Rear axle travel			86 mm (3.4 in)
	Front tire size			80/90 – 17M/C 44P
	Rear tire size			80/90 – 17M/C 50P
	Front tire brand			GP – 5D (IRC)
	Rear tire brand			GP – 5 (IRC)
	Front brake			Hydraulic disc brake
	Rear brake			Hydraulic disc brake
	Caster angle			27° 0'
	Trail length			80 mm (3.1 in)
	Fuel tank capacity			5.3 liter (1.40 US gal, 1.17 Imp gal)
	Fuel tank reserve capacity			1.1 liter (0.29 US gal, 0.24 Imp gal)
ENGINE	Cylinder			Single cylinder 80° inclined from vertical
	Bore and stroke			52.4 x 57.9 mm (2.06 x 2.28 in)
	Displacement			125 cm^3 (7.6 cu-in)
	Compression ratio			9.3 : 1
	Valve train			Chain driven, OHC
	Intake valve	opens	at 1 mm (0.04 in) lift	2° BTDC
		closes	at 1 mm (0.04 in) lift	25° ABDC
	Exhaust valve	opens	at 1 mm (0.04 in) lift	34° BBDC
		closes	at 1 mm (0.04 in) lift	0° TDC
	Lubrication system			Forced pressure and wet sump
	Oil pump type			Trochoid
	Cooling system			Air cooled
	Air filtration			Viscous paper element
	Engine dry weight			24.7 kg (54.5 lbs)
	Emission control system			Crankcase emission control system
				Three-way catalytic converter
				Evaporative emission control system
FUEL SYSTEM	Type			PGM-FI
	Throttle bore			24 mm (0.9 in)

ITEM			SPECIFICATIONS
DRIVE TRAIN	Clutch system		Multi-plate, wet
	Clutch operation system		Automatic centrifugal type
	Transmission		Constant mesh, 4-speed
	Primary reduction		3.350 (67/20)
	Final reduction		2.785 (39/14)
	Gear ratio	1st	2.500 (35/14)
		2nd	1.550 (31/20)
		3rd	1.150 (23/20)
		4th	0.923 (24/26)
	Gearshift pattern		Left foot down up system N - 1 - 2 - 3 - 4
ELECTRICAL	Ignition system		Full transistorized
	Starting system		Kickstarter with electric starter
	Charging system		Single phase output alternator
	Regulator/rectifier		SCR opened/single phase, half wave rectification
	Lighting system		Alternator

FUEL & ENGINE SPECIFICATIONS

FUEL SYSTEM

Unit: mm (in)

ITEM	SPECIFICATIONS
Throttle body identification number	GQYYB
Engine idle speed	1,400 ± 100 rpm
Throttle grip free play	2 – 6 (0.1 – 0.2)
Fuel pressure at idle	263 – 316 kPa (2.7 – 3.2 kgf/cm^2, 38 – 46 psi)
Fuel pump flow (at 12 V)	82 cm^2 (2.8 US oz, 2.9 Imp oz) minimum/10 seconds

LUBRICATION SYSTEM

Unit: mm (in)

ITEM		STANDARD	LIMIT
Engine oil capacity	After draining	0.7 liter (0.7 US qt, 0.6 Imp qt)	–
	After disassembly	0.9 liter (1.0 US qt, 0.8 Imp qt)	–
Recommended engine oil		Pro Honda GN4 4-stroke oil (U.S.A. & Canada) or equivalent motorcycle oil API service classification: SG or higher JASO T903 standard: MA Viscosity: SAE 10W-30"	–
Oil pump rotor	Tip clearance	0.15 (0.006)	0.20 (0.008)

CYLINDER HEAD/VALVES

Unit: mm (in)

ITEM			STANDARD	LIMIT
Cylinder compression			1.2 MPa (12.2 kgf/cm^2, 174 psi) at 600 rpm	–
Cylinder head warpage			–	0.10 (0.004)
Valve clearance		IN	0.10 ± 0.02 (0.004 ± 0.001)	–
		EX	0.17 ± 0.02 (0.007 ± 0.001)	–
Camshaft	Cam lobe height	IN	32.657 – 32.897 (1.2857 – 1.2952)	32.627 (1.2845)
		EX	32.481 – 32.721 (1.2788 – 1.2882)	32.451 (1.2776)
Rocker arm, rocker arm shaft	Shaft O.D.	IN/EX	9.974 - 9.986 (0.3927 – 0.3931)	–
Valve stem O.D.		IN	4.975 – 4.990 (0.1959 – 0.1965)	4.965 (0.1955)
		EX	4.955 – 4.970 (0.1951 – 0.1957)	4.945 (0.1947)
Valve guide I.D.		IN/EX	5.000 – 5.012 (0.1969 – 0.1973)	5.042 (0.1985)

ITEM		STANDARD	LIMIT
Valve guide projection above cylinder head	IN/EX	10.1 – 10.3 (0.40 – 0.41)	–
Valve seat width	IN/EX	1.0 (0.04)	1.5 (0.06)
Valve spring free length	IN/EX	33.14 (1.305)	32.48 (1.279)

CYLINDER/PISTON

Unit: mm (in)

ITEM			STANDARD	LIMIT
Cylinder	I.D.		52.405 – 52.415 (2.0632 – 2.0636)	52.500 (2.0669)
	Warpage		–	0.10 (0.004)
Piston, piston rings, piston pin	Piston O.D.		52.380 – 52.395 (2.0622 – 2.0628) at 6.5 mm (0.26 in) from bottom	52.300 (2.0591)
	Piston pin bore I.D.		13.002 – 13.008 (0.5119 – 0.5121)	13.020 (0.5126)
	Piston pin O.D.		12.994 – 13.000 (0.5116 – 0.5118)	12.980 (0.5110)
	Piston ring end gap (RIKEN)	Top	0.10 – 0.25 (0.004 – 0.010)	0.35 (0.014)
		Second	0.10 – 0.30 (0.004 – 0.012)	0.40 (0.016)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.90 (0.035)
	Piston ring end gap (TPR)	Top	0.10 – 0.25 (0.004 – 0.010)	0.35 (0.014)
		Second	0.35 – 0.50 (0.014 – 0.020)	0.60 (0.024)
		Oil (side rail)	0.10 – 0.35 (0.004 – 0.014)	0.55 (0.022)
	Piston ring-to-ring groove clearance (RIKEN)	Top	0.030 – 0.065 (0.0012 – 0.0026)	–
		Second	0.015 – 0.050 (0.0006 – 0.0020)	–
	Piston ring-to-ring groove clearance (TPR)	Top	0.015 – 0.050 (0.0006 – 0.0020)	–
		Second	0.015 – 0.050 (0.0006 – 0.0020)	–
Connecting rod small end I.D.			13.010 – 13.028 (0.5122 – 0.5129)	13.038 (0.5133)

CLUTCH/GEARSHIFT LINKAGE

Unit: mm (in)

ITEM			STANDARD	LIMIT
Manual clutch	Disc thickness		2.5 – 2.7 (0.10 – 0.11)	2.3 (0.09)
	Plate warpage		–	0.20 (0.008)
	Clutch spring free height		28.20 (1.110)	27.64 (1.088)
	Primary driven gear I.D.		23.000 – 23.021 (0.9055 – 0.9063)	–
	Clutch outer guide	I.D.	16.991 – 17.009 (0.6689 – 0.6696)	–
		O.D.	22.959 – 22.980 (0.9039 – 0.9047)	–
	Mainshaft O.D. at clutch outer guide		16.966 – 16.984 (0.6680 – 0.6687)	–
Centrifugal clutch	Clutch drum I.D.		104.0 – 104.2 (4.09 – 4.10)	104.3 (4.11)
	Clutch weight lining thickness		1.5 – 1.7 (0.06 – 0.07)	1.0 (0.04)
	One-way clutch drum I.D.		42.000 – 42.020 (1.6535 – 1.6543)	–
	One-way clutch roller O.D.		4.990 – 5.000 (0.1965 – 0.1959)	–
	Primary drive gear I.D.		21.030 – 21.058 (0.8280 – 0.8291)	–
	Crankshaft O.D. at primary drive gear		20.967 – 20.980 (0.8255 – 0.8260)	–
Clutch brake lining thickness			3.35 (0.132)	2.50 (0.132)

ALTERNATOR/STARTER CLUTCH

Unit: mm (in)

ITEM		STANDARD	LIMIT
Starter driven gear boss	O.D.	45.660 – 45.673 (1.7976 – 1.7981)	–
Starter driven gear boss	I.D.	26.987 – 27.008 (1.0625 – 1.0633)	–

CRANKSHAFT/TRANSMISSION

Unit: mm (in)

ITEM				STANDARD	LIMIT
Crankshaft	Connecting rod side clearance			0.10 – 0.35 (0.004 – 0.014)	0.45 (0.018)
	Connecting rod radial clearance			0 – 0.012 (0 – 0.0005)	0.05 (0.002)
	Runout	Right outside		–	0.10 (0.004)
		Right inside		–	0.05 (0.002)
		Left side		–	0.05 (0.002)
Transmission	Gear I.D.		M2, M3	17.000 – 17.018 (0.6693 – 0.6700)	–
			C1	18.000 – 18.018 (0.7087 – 0.7094)	–
			C4	20.000 – 20.021 (0.7874 – 0.7882)	–
	Bushing O.D.		C1	17.966 – 17.984 (0.7073 – 0.7080)	–
	Bushing I.D.		C1	15.000 – 15.018 (0.5906 – 0.5913)	–
	Mainshaft O.D.		at M3	16.966 – 16.984 (0.6680 – 0.6687)	–
	Countershaft O.D.		at C1 bushing	14.966 – 14.984 (0.5892 – 0.5899)	–
Shift fork/ Shift drum	Shift fork I.D.			10.000 – 10.018 (0.3937 – 0.3944)	–
	Shift fork shaft O.D.			9.986 – 9.995 (0.3931 – 0.3935)	–
	Shift fork claw thickness			4.93 – 5.00 (0.194 – 0.197)	4.83 (0.190)
Kickstarter	Pinion I.D.			20.000 – 20.021 (0.7874 – 0.7882)	–
	Spindle O.D.			19.959 – 19.980 (0.7858 – 0.7866)	–

FRAME & CHASSIS SPECIFICATIONS

FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Unit: mm (in)

ITEM		STANDARD	LIMIT
Cold tire pressure	Driver only	175 kPa (1.8 kgf/cm^2, 25 psi)	–
Axle runout		–	0.2 (0.01)
Wheel rim runout	Radial	–	1.0 (0.04)
	Axial	–	1.0 (0.04)
Wheel hub-to-rim distance		8 – 10 (0.3 – 0.4)	–
Fork	Spring free length	401.8 (15.82)	393.8 (15.50)
	Recommended fork fluid	Fork fluid (viscosity:10W)	–
	Fluid level	140 (5.5)	–
	Fluid capacity	120 ± 2.5 cm^3 (4.1 ± 0.08 US oz, 4.2 ± 0.09 Imp oz)	–

REAR WHEEL/BRAKE/SUSPENSION

Unit: mm (in)

ITEM		STANDARD	LIMIT
Cold tire pressure	Driver only	225 kPa (2.3 kgf/cm^2, 33 psi)	–
Axle runout		–	0.2 (0.01)
Wheel rim runout	Radial	–	1.0 (0.04)
	Axial	–	1.0 (0.04)
Wheel hub-to-rim distance		28.4 – 30.4 (1.12 – 1.20)	–
Drive chain	Slack	25 – 35 (1.0 – 1.4)	50 (2.0)
	Size/link	DID428HDS3-108RB	–

HYDRAULIC BRAKE

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Front	Specified brake fluid		Honda DOT 4 brake fluid	–
	Brake disc thickness		3.3 – 3.7 (0.13 – 0.15)	3.0 (0.12)
	Brake disc warpage		–	0.30 (0.012)
	Brake master cylinder	Cylinder I.D.	12.700 – 12.743 (0.5000 – 0.5017)	–
		Piston O.D.	12.657 – 12.684 (0.4983 – 0.4994)	–
	Caliper	Cylinder I.D.	25.400 – 25.450 (1.0000 – 1.0020)	–
		Piston O.D.	25.335 – 25.368 (0.9974 – 0.9987)	–
Rear	Specified brake fluid		Honda DOT 4 brake fluid	–
	Brake disc thickness		3.8 – 4.2 (0.15 – 0.17)	3.5 (0.14)
	Brake disc warpage		–	0.30 (0.012)
	Brake master cylinder	Cylinder I.D.	12.700 – 12.743 (0.5000 – 0.5017)	–
		Piston O.D.	12.657 – 12.684 (0.4983 – 0.4994)	–
	Caliper	Cylinder I.D.	32.030 – 32.080 (1.2610 – 1.2630)	–
		Piston O.D.	31.948 – 31.998 (1.2578 – 1.2598)	–
	Master cylinder push rod length		64 – 66 (2.5 – 2.6)	–

ELECTRICAL SYSTEM SPECIFICATIONS

PGM-FI SYSTEM

ITEM	SPECIFICATIONS
EOT sensor resistance (20°C/68°F)	2.513 – 2.777 kΩ
Fuel injector resistance	11.4 – 12.6 Ω
IACV sensor resistance	117 – 143 Ω
EVAP Purge Control Solenoid Valve Resistance	37 – 44 Ω
IAT sensor resistance (40°C/104°F)	1.041 – 1.231 kΩ

IGNITION SYSTEM

Unit: mm (in)

ITEM		SPECIFICATIONS
Spark plug	Standard	CPR6EA–9 (NGK)/U20EPR9 (DENSO)
	High speed	CPR7EA-9 (NGK)/U22EPR9 (DENSO)
Spark plug gap		0.8 – 0.9 (0.03 – 0.04)
Ignition coil peak voltage		100 V minimum
CKP sensor peak voltage		0.7 V minimum
Ignition timing		7° BTDC at idle speed

ABS SYSTEM

Unit: mm (in)

ITEM		SPECIFICATIONS
Wheel speed sensor air gap (between fork bracket and pulser ring)		0.54 – 1.04 (0.021 – 0.041)
Pre-start diagnosis complete	Indicator OFF	Above 10 km/h (6 mph)
Self-diagnosis complete	Warning clear	Above 30 km/h (19 mph)

BATTERY/CHARGING SYSTEM

ITEM			SPECIFICATIONS
Battery	Type		YTZ5S
	Capacity		12 V – 3.5 Ah
	Current leakage		0.08 mA max.
	Voltage	Fully charged	12.8 V minimum
		Needs charging	Below 12.3 V
	Charging current	Normal	0.4 A/5 – 10 hr
		Quick	3.0 A/0.5 h
Alternator	Capacity		0.19 kW/5,000 rpm
	Charging coil resistance (20°C/68°F)		0.2 – 1.0 Ω

LIGHTS/METERS/SWITCHES

ITEM		SPECIFICATIONS
Bulbs	Headlight	LED
	Position light	LED
	Brake/tail light	LED
	Turn signal light	LED
	High beam indicator	LED
	Meter light	LED
	ABS indicator	LED
	Neutral indicator	LED
	MIL	LED
Fuse	Main fuse	25 A
	Sub fuse	15 A x 1 / 10 A x 5
Fuel level sensor resistance	Full	7 – 11 Ω
	Empty	384 – 396 Ω

TORQUE VALUE

- Each fastener should be tightened to the standard torque value except the fasteners specified torque value.
- Q'TY: Quantity, DIA: Thread diameter [mm], TRQ: Tightening torque [N·m (kgf·m, lbf·ft)]

STANDARD TIGHTENING TORQUE

FASTENER TYPE	TRQ	FASTENER TYPE	TRQ
5 mm hex bolt and nut	5.2 (0.5, 3.8)	5 mm screw	4.2 (0.4, 3.1)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9.0 (0.9, 6.6)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt	12 (1.2, 9)
10 mm hex bolt and nut	34 (3.5, 25)	8 mm flange bolt and nut	27 (2.8, 20)
12 mm hex bolt and nut	54 (5.5, 40)	10 mm flange bolt and nut	39 (4.0, 29)

FUEL PUMP UNIT

ITEM	Q'TY	DIA	TRQ	REMARKS
Fuel pump set plate nut	4	6	12 (1.2, 9)	→2-4

AIR CLEANER

ITEM	Q'TY	DIA	TRQ	REMARKS
Air cleaner housing cover screw	8	5	1.1 (0.1, 0.8)	
Insulator band bolt	3	4	1.5 (0.2, 1.1)	

THROTTLE BODY

ITEM	Q'TY	DIA	TRQ	REMARKS
Throttle cable A lock nut (throttle body side)	1	6	4.5 (0.5, 3.3)	
Throttle cable B lock nut (throttle body side)	1	6	4.5 (0.5, 3.3)	
IACV mounting screw	3	4	2.1 (0.2, 1.5)	
Sensor unit screw	2	4	2.1 (0.2, 1.5)	
Throttle cable bracket screw	1	5	3.4 (0.3, 2.5)	

LUBRICATION SYSTEM

ITEM	Q'TY	DIA	TRQ	REMARKS
Engine oil drain bolt	1	12	24 (2.4, 18)	
Oil pump cover bolt	2	5	5.2 (0.5, 3.8)	
Engine oil centrifugal filter cover bolt	3	5	5.0 (0.5, 3.7)	Apply locking agent.

CYLINDER HEAD

ITEM	Q'TY	DIA	TRQ	REMARKS
Timing hole cap	1	14	6.0 (0.6, 4.4)	
Crankshaft hole cap	1	30	8.0 (0.8, 5.9)	
Valve adjusting screw lock nut	2	5	9.0 (0.9, 6.6)	Apply oil to the threads and seating surface.
Cylinder head cap nut	4	8	24 (2.4, 18)	Apply oil to the threads and seating surface.
Cam sprocket bolt	1	8	27 (2.8, 20)	Apply oil to the threads and seating surface.
Cam chain tensioner sealing bolt	1	14	22 (2.2, 16)	
Cam chain tensioner arm pivot bolt	1	8	16 (1.6, 12)	
Cam chain guide lower roller pivot bolt	1	6	10 (1.0, 7)	

CYLINDER/PISTON

ITEM	Q'TY	DIA	TRQ	REMARKS
Cam chain guide roller pin bolt	1	8	10 (1.0, 7)	
Cylinder stud bolt	4	8	–	→2-22

CLUTCH/GEARSHIFT LINKAGE

ITEM	Q'TY	DIA	TRQ	REMARKS
Right crankcase cover protector bolt	3	6	12 (1.2, 9)	
Shift drum stopper arm bolt	1	6	12 (1.2, 9)	Apply locking agent
Gearshift cam plate socket bolt	1	6	10 (1.0, 7)	Apply locking agent
Centrifugal clutch lock nut	1	14	64 (6.5, 47)	Apply oil to the threads and seating surface.
Clutch center lock nut	1	14	64 (6.5, 47)	Apply oil to the threads and seating surface.
Clutch lifter plate bolt	3	6	12 (1.2, 9)	
Clutch adjusting screw lock nut	1	8	12 (1.2, 9)	
Shift return spring pin	1	8	30 (3.1, 22)	

ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	DIA	TRQ	REMARKS
Flywheel nut	1	12	64 (6.5, 47)	Apply oil to the threads and seating surface.
Starter clutch outer mounting torx bolt	6	6	16 (1.6, 12)	Apply locking agent.

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	DIA	TRQ	REMARKS
Drive sprocket fixing plate bolt	2	6	12 (1.2, 9)	
Engine hanger nut	3	10	59 (6.0, 44)	

BODY PANELS

ITEM	Q'TY	DIA	TRQ	REMARKS
Left pivot plate nut	1	10	27 (2.8, 20)	
Right pivot plate nut	1	12	54 (5.5, 40)	
Rear brake master cylinder mounting bolt	2	6	12 (1.2, 9)	Pre-coated (ALOC) bolt, replace with a new one.

SIDESTAND

ITEM	Q'TY	DIA	TRQ	REMARKS
Sidestand pivot bolt	1	10	18 (1.8, 13)	
Sidestand pivot nut	1	10	44 (4.5, 32)	Self-lock nut
Sidestand switch bolt	1	6	10 (1.0, 7)	Pre-coated (ALOC) bolt, replace with a new one.

EXHAUST PIPE/MUFFLER

ITEM	Q'TY	DIA	TRQ	REMARKS
Exhaust pipe joint nut	2	8	27 (2.8, 20)	
Exhaust pipe mounting bolt	1	8	27 (2.8, 20)	
Exhaust pipe mounting nut	1	8	27 (2.8, 20)	
Muffler cover socket nut	4	6	9.0 (0.9, 6.6)	
Exhaust pipe stud bolt	2	8	–	→3-19
Muffler tail cap bolt	3	6	12 (1.2, 9)	
Spark arrestor mounting bolt	3	6	9.0 (0.9, 6.6)	

FRONT WHEEL

ITEM	Q'TY	DIA	TRQ	REMARKS
Front axle nut	1	12	59 (6.0, 44)	Self lock-nut
Front brake disc bolt	4	8	42 (4.3, 31)	Pre-coated (ALOC) bolt, replace with a new one.
Front pulser ring bolt	3	5	7.0 (0.7, 5.2)	Pre-coated (ALOC) bolt, replace with a new one.
Front spoke	36	BC2.9	3.2 (0.3, 2.4)	

FORK

ITEM	Q'TY	DIA	TRQ	REMARKS
Top bridge pinch bolt	2	8	29 (3.0, 21)	
Bottom bridge pinch bolt	2	8	29 (3.0, 21)	
Fork cap bolt	2	20	22 (2.2, 16)	
Fork socket bolt	2	8	20 (2.0, 15)	Apply locking agent.
Fork boot band screw	4	3	0.35 (0.04, 0.3)	

HANDLEBAR

ITEM	Q'TY	DIA	TRQ	REMARKS
Handlebar upper holder bolt	4	8	27 (2.8, 20)	
Handlebar lower holder nut	2	8	27 (2.8, 20)	Self lock-nut
Left handlebar switch screw	2	5	2.5 (0.3, 1.8)	
Right handlebar switch screw	2	5	2.5 (0.3, 1.8)	
Handlebar weight screw	2	6	9.0 (0.9, 6.6)	Pre-coated (ALOC) bolt, replace with a new one.
Throttle cable A lock nut	1	10	3.0 (0.3, 2.2)	
Throttle cable B lock nut	1	12	3.0 (0.3, 2.2)	
Throttle cable A adjust nut	1	7	3.8 (0.4, 2.8)	

STEERING STEM

ITEM	Q'TY	DIA	TRQ	REMARKS
Steering stem lock nut	1	24	88 (9.0, 65)	➔3-25
Steering stem top thread	1	26	–	

REAR WHEEL

ITEM	Q'TY	DIA	TRQ	REMARKS
Rear axle nut	1	12	59 (6.0, 44)	Self lock-nut
Driven sprocket nut	4	8	32 (3.3, 24)	Self lock-nut
Driven sprocket stud bolt	4	8	–	Apply locking agent.➔3-27
Rear brake disc bolt	4	8	42 (4.3, 31)	
Rear spoke	36	BC3.2	3.7 (0.4, 2.7)	

REAR SUSPENSION

ITEM	Q'TY	DIA	TRQ	REMARKS
Shock absorber lower mounting nut	2	10	29 (3.0, 21)	
Shock absorber upper mounting nut	2	12	44 (4.5, 32)	
Swingarm pivot nut	1	12	54 (5.5, 40)	

FRONT BRAKE

ITEM	Q'TY	DIA	TRQ	REMARKS
Front caliper bleed valve	1	8	5.4 (0.6, 4.0)	
Front master cylinder reservoir cap screw	2	4	1.5 (0.2, 1.1)	
Front brake hanger pin	1	10	17 (1.7, 13)	
Front brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	
Front brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Front brake hose oil bolt	2	10	34 (3.5, 25)	
Front brake caliper bracket pin bolt	1	8	17 (1.7, 13)	
Front brakelight switch screw	1	4	1.2 (0.1, 0.9)	
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	Pre-coated (ALOC) bolt, replace with a new one.

REAR BRAKE

ITEM	Q'TY	DIA	TRQ	REMARKS
Rear caliper bleed valve	1	8	5.4 (0.6, 4.0)	
Rear master cylinder reservoir cap screw	2	4	1.5 (0.2, 1.1)	
Rear brake hanger pin	1	10	17 (1.7, 13)	
Rear brake hose oil bolt	2	10	34 (3.5, 25)	
Rear brake master cylinder mounting bolt	2	6	12 (1.2, 9)	Pre-coated (ALOC) bolt, replace with a new one.
Rear master cylinder push rod lock nut	1	8	17 (1.7, 13)	
Rear brake hose connector screw	1	4	1.5 (0.2, 1.1)	

PGM-FI SYSTEM

ITEM	Q'TY	DIA	TRQ	REMARKS
EOT sensor	1	10	14 (1.4, 10)	
O2 sensor	1	12	25 (2.5, 18)	

IGNITION SYSTEM

ITEM	Q'TY	DIA	TRQ	REMARKS
Spark plug	1	10	16 (1.6, 12)	
Ignition switch mounting screw	2	8	27 (2.8, 20)	

ELECTRIC STARTER

ITEM	Q'TY	DIA	TRQ	REMARKS
Starter motor terminal nut	1	6	7.0 (0.7, 5.2)	
Starter motor case bolt	2	5	4.9 (0.5, 3.6)	

ABS

ITEM	Q'TY	DIA	TRQ	REMARKS
Brake pipe joint nut	2	10	14 (1.4, 10)	

LIGHTS/METERS/SWITCHES

ITEM	Q'TY	DIA	TRQ	REMARKS
Turn signal light screw	4	4	0.9 (0.1, 0.7)	
Headlight aim adjusting bolt	1	4	2.0 (0.2, 1.5)	
Speedometer screw	2	5	1.0 (0.1, 0.7)	

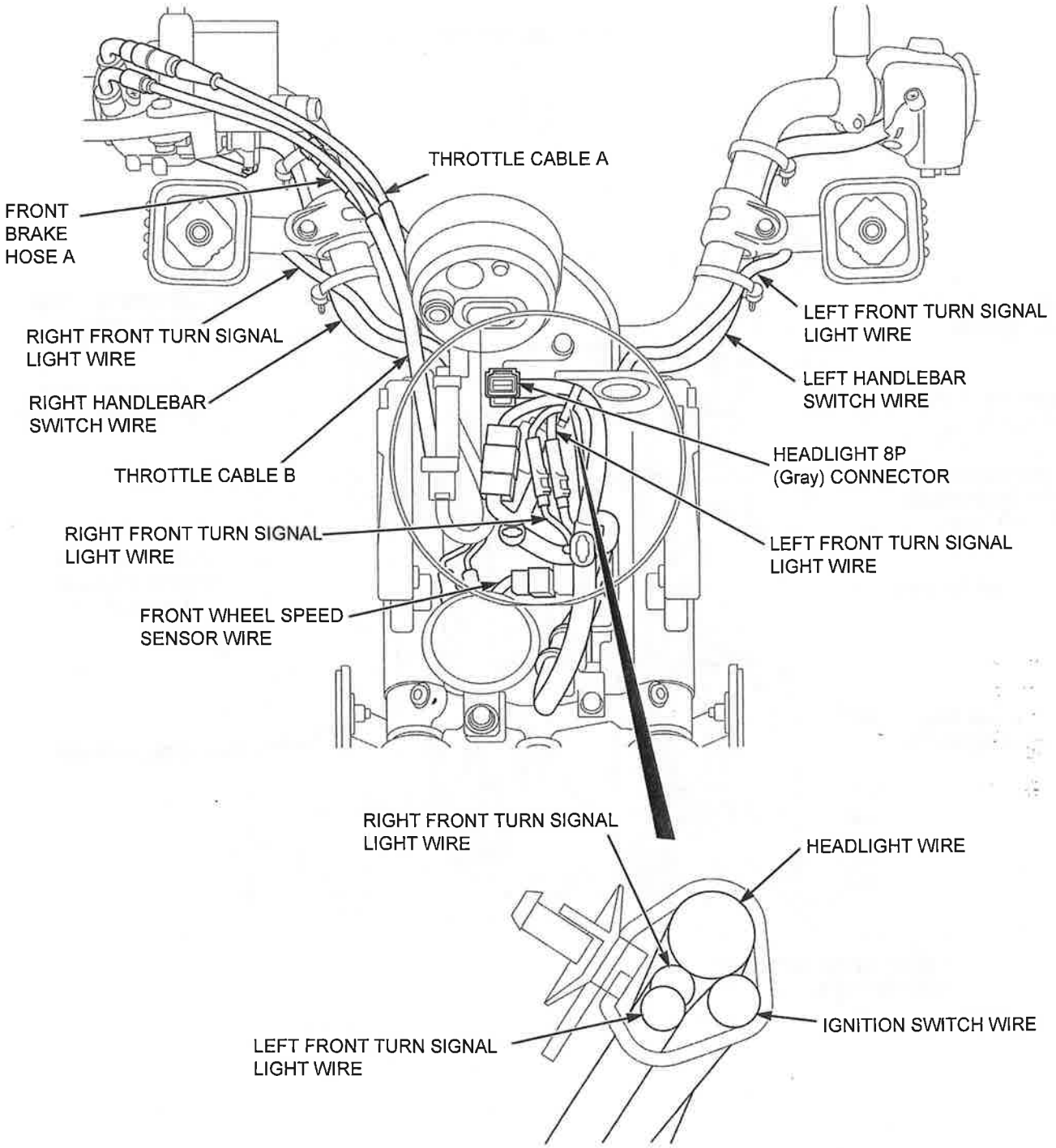
OTHERS

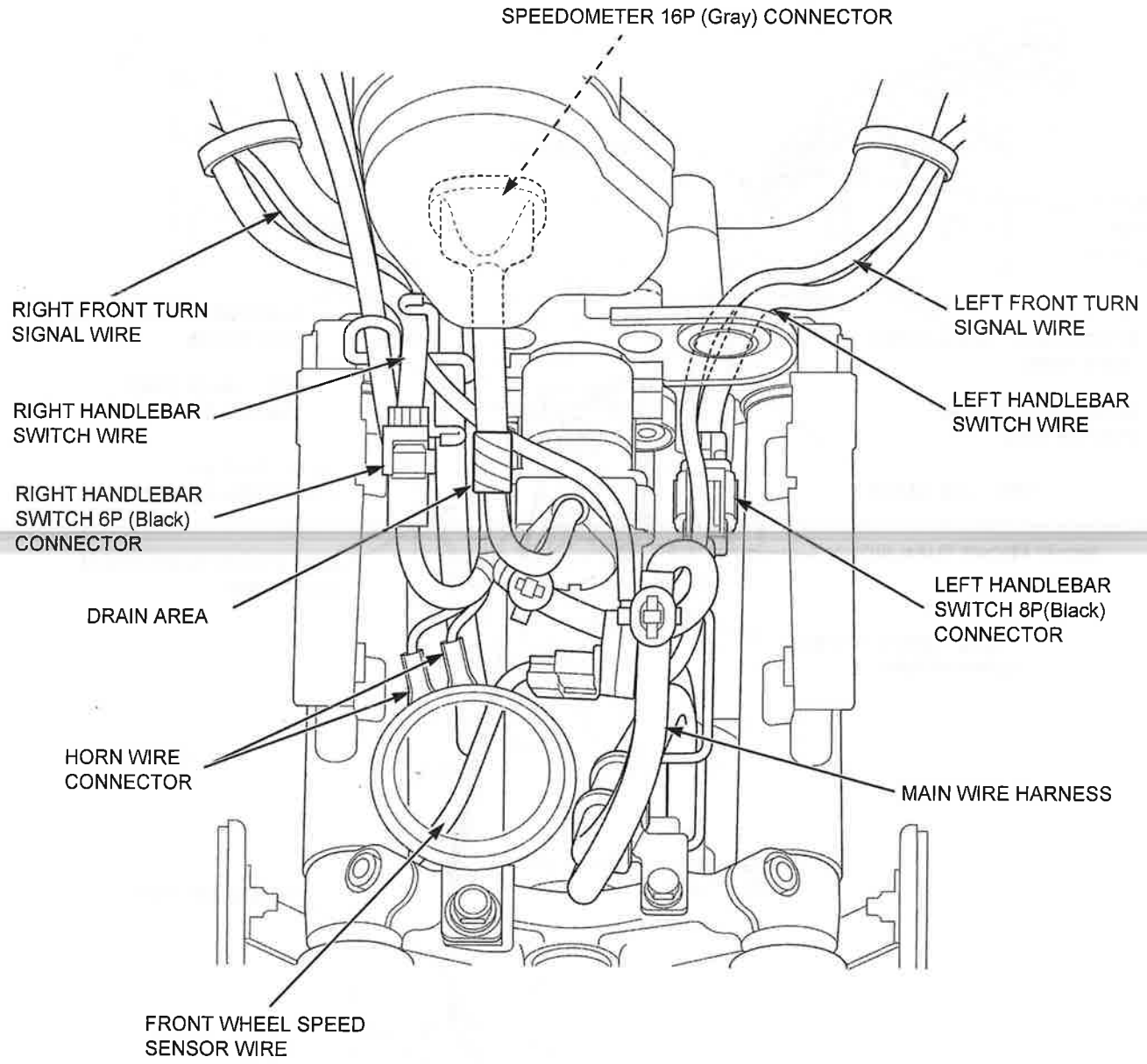
ITEM	Q'TY	DIA	TRQ	REMARKS
Rear reflex reflector mounting nut	1	5	1.5 (0.1, 0.8)	Self-lock nut
Front & rear side reflex reflector mounting nut	4	6	1.5 (0.1, 0.8)	Self-lock nut

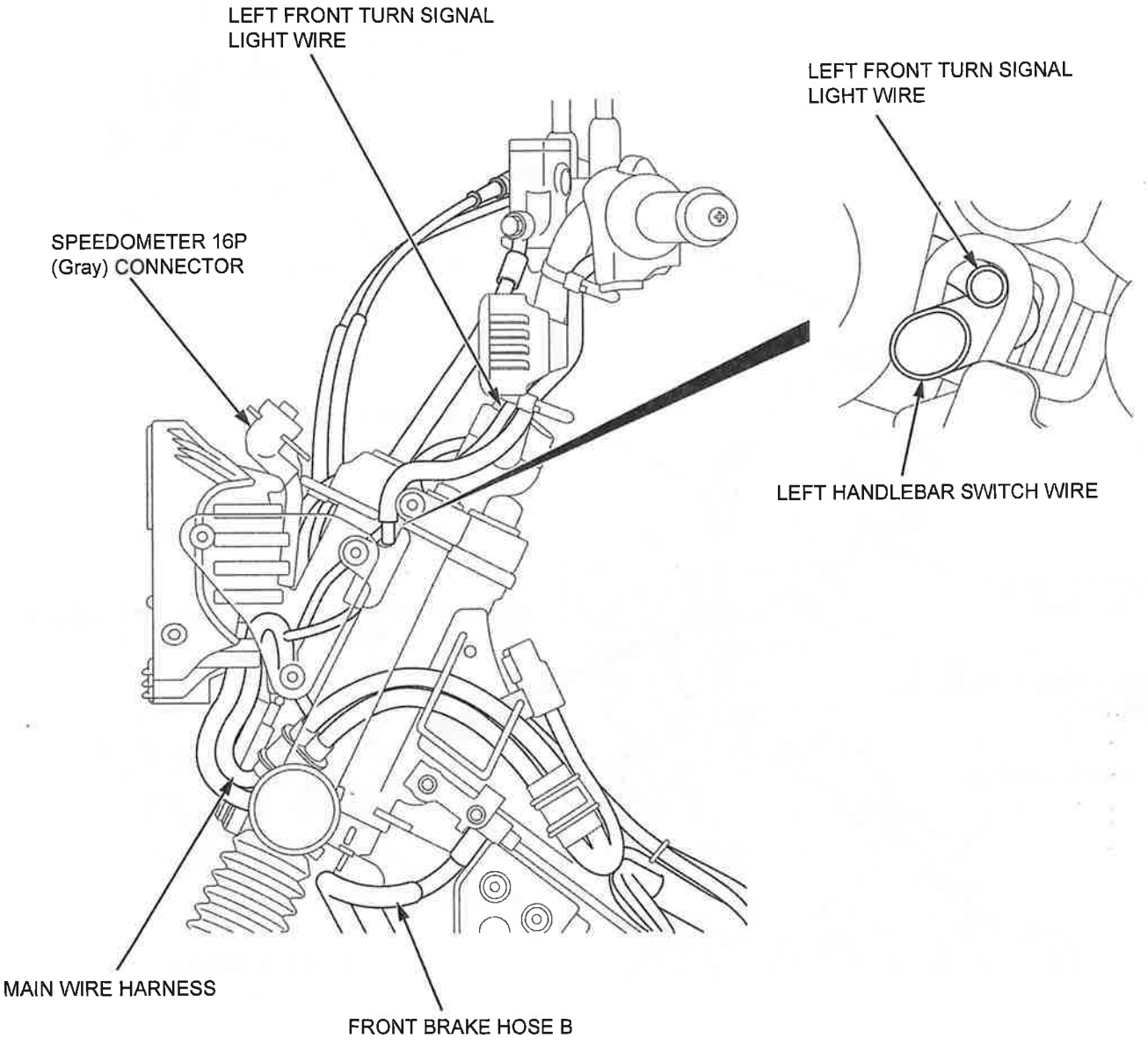
SPECIAL TOOL LIST

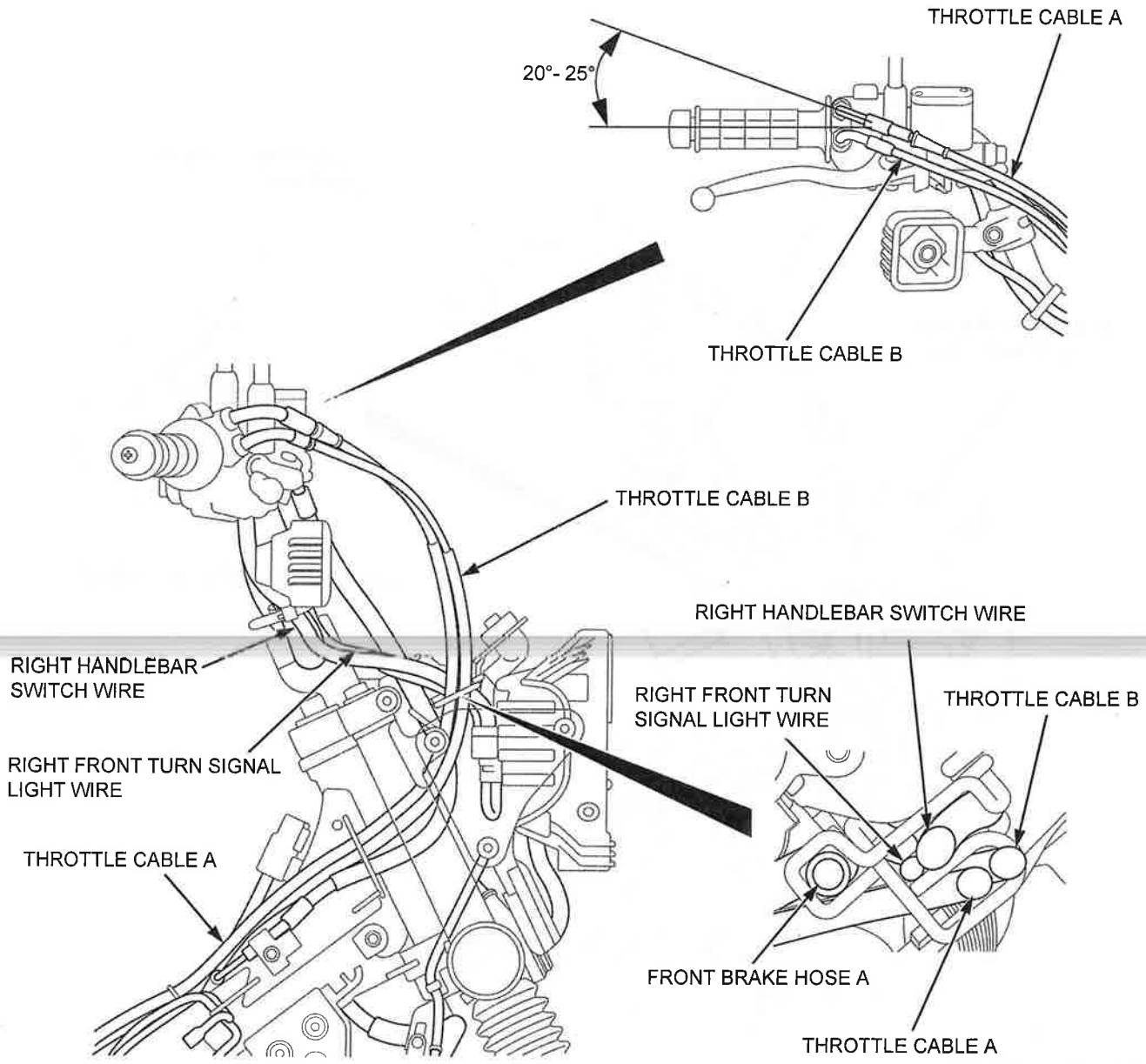
TITLE	TOOL No.	TOOL NAME
Fuel & Engine	07406-0040004 or 07406-004000B (U.S.A. only) or 07406-004000C (U.S.A. only)	Fuel pressure gauge
	070MJ-K260100 (Not available in U.S.A.)	Fuel pressure gauge attachment set
	07AMJ-HW3A100 (U.S.A. only)	Fuel pressure manifold hose
	07AAJ-S6MA200 (U.S.A. only)	Fuel adaptor male B
	07AMJ-K26A100 (U.S.A. only)	Fuel adaptor female 90°
	070PZ-ZY30100	SCS connector
	07708-0030100 or equivalent commercially available in U.S.A.	Lock nut wrench, 8 x 9 mm
	07708-0030400 or 07908-3290200 (U.S.A. only)	Valve adjusting wrench
	07725-0030000	Universal holder
	07757-0010000	Valve spring compressor
	07959-KM30101	Valve spring compressor attachment
	07984-MA60001 or 07984-MA6000D (U.S.A. only)	Valve guide reamer, 5.0 mm
	07942-MA60000	Valve guide driver, 4.8 mm
	07743-0020000 (Not available in U.S.A.)	Valve guide adjusting driver
	07716-0020100	Lock nut wrench, 20 x 24 mm
	07716-0020500 or equivalent commercially available in U.S.A.	Extension bar
	07724-0050002 or equivalent commercially available in U.S.A.	Clutch center holder
	07725-0040001	Flywheel holder
	07KMC-HE00100	Flywheel puller, 30 mm
	07631-0010000 or equivalent commercially available in U.S.A.	Universal bearing puller
	07JMF-KW70100 (Not available in U.S.A.)	Assembly set, 14 mm
	07AMF-K26A100 (U.S.A. only)	Threaded adapter, 16x1.5 x 14x1.0 mm
	07931-ME4010B (U.S.A. only)	Assembly shaft, 22 x 1.5 x 240 mm
	07931-HB3020A (U.S.A. only)	Special nut
	07YMF-KPB0100 (U.S.A. only)	Assembly collar
Frame & Chassis	07746-0050300	Remover head, 12 mm
	07746-0050100	Bearing remover shaft
	07749-0010000	Driver
	07746-0010100	Attachment, 32 x 35 mm
	07746-0040200	Pilot, 12 mm
	07748-0010001 or equivalent commercially available in U.S.A.	Oil seal remover
	07746-0010200	Attachment, 37 x 40 mm
	07916-3710101	Steering stem socket
	07GMD-KS40100	Ball race remover shaft
	07747-0010300	Fork seal driver attachment, 27.2 mm
	07746-0010300	Bearing driver attachment 42 x 47 mm
	07746-0040400	Pilot, 17 mm
	07914-SA50001	Snap ring pliers
Electrical System	07HGJ-0020100 (Not available in U.S.A.) with commercially available digital multimeter (impedance 10 MΩ/DCV minimum)	Peak voltage adapter
	MTP07-0286 (U.S.A. only)	IgnitionMate peak voltage tester

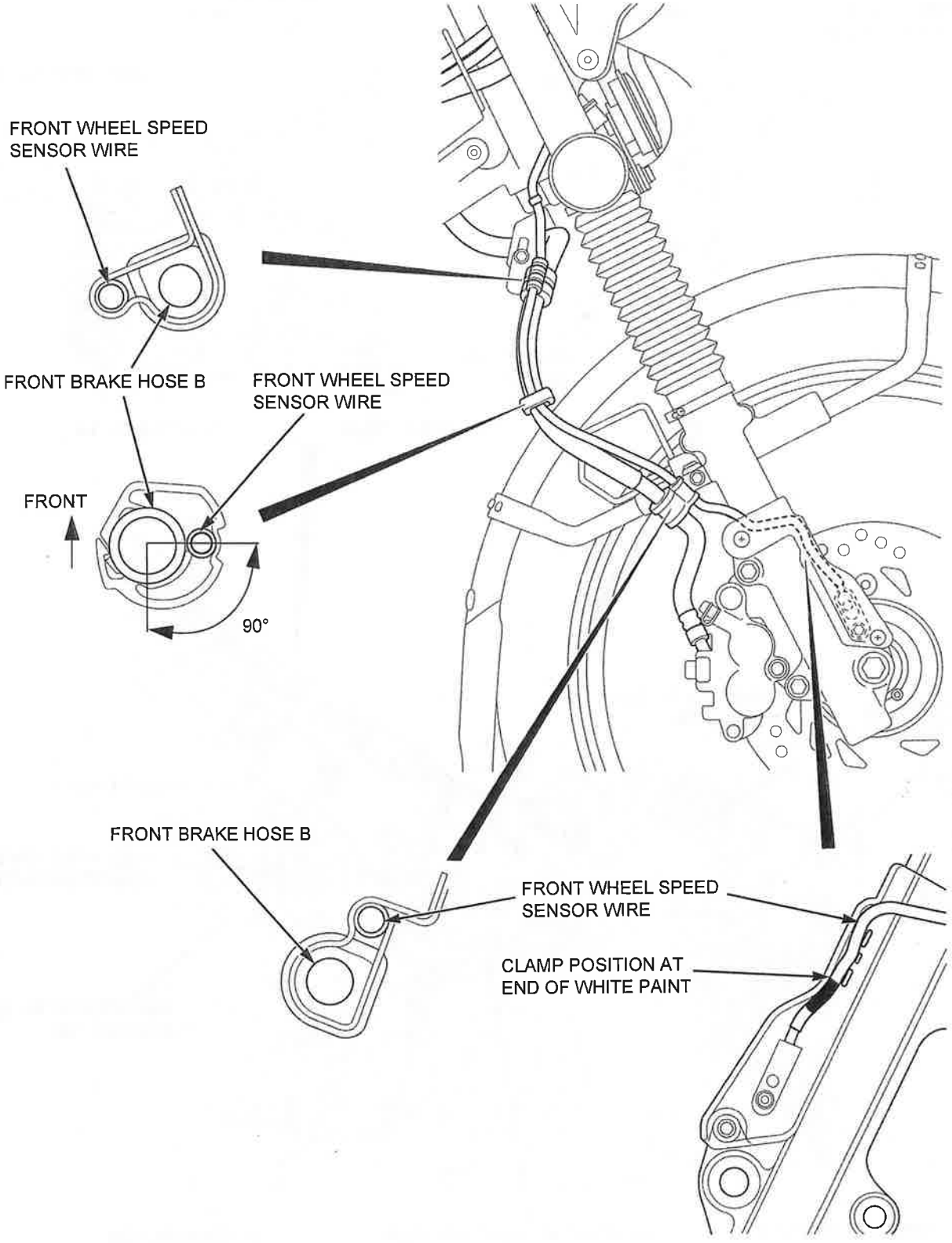
CABLE & HARNESS ROUTING

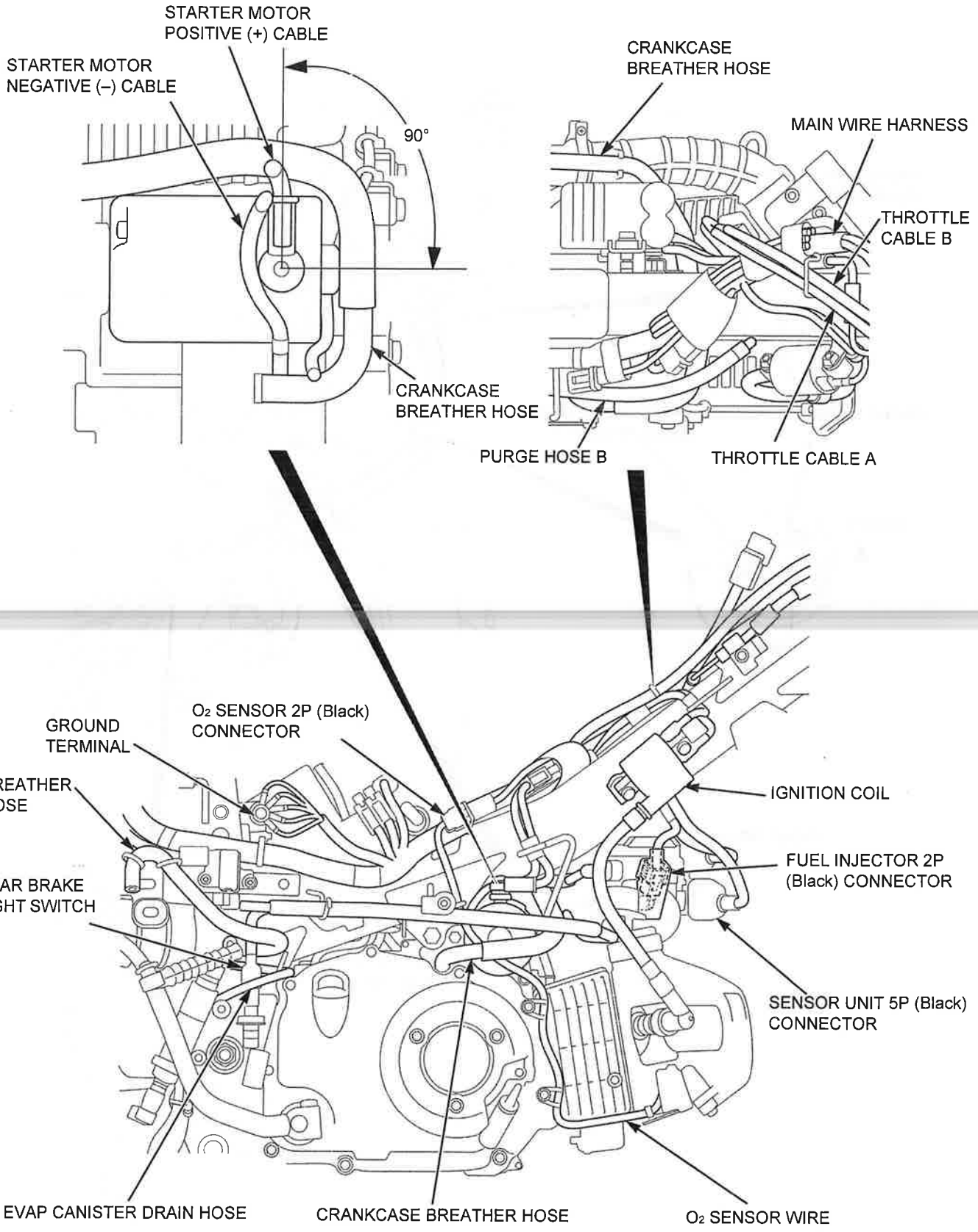


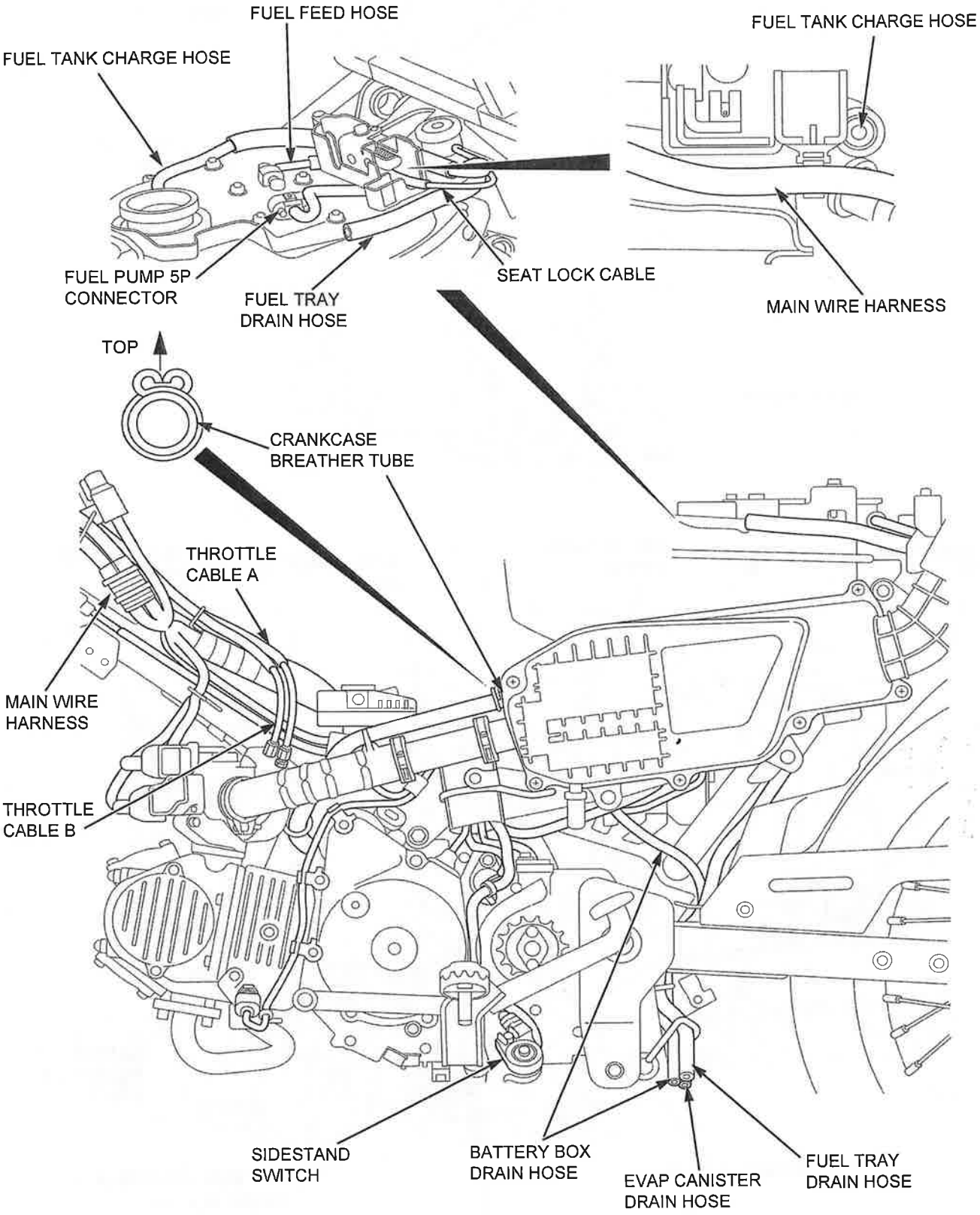

SPEEDOMETER 16P (Gray) CONNECTOR
RIGHT FRONT TURN SIGNAL WIRE
LEFT FRONT TURN SIGNAL WIRE
RIGHT HANDLEBAR SWITCH WIRE
LEFT HANDLEBAR SWITCH WIRE
RIGHT HANDLEBAR SWITCH 6P (Black) CONNECTOR
DRAIN AREA
LEFT HANDLEBAR SWITCH 8P(Black) CONNECTOR
HORN WIRE CONNECTOR
MAIN WIRE HARNESS
FRONT WHEEL SPEED SENSOR WIRE

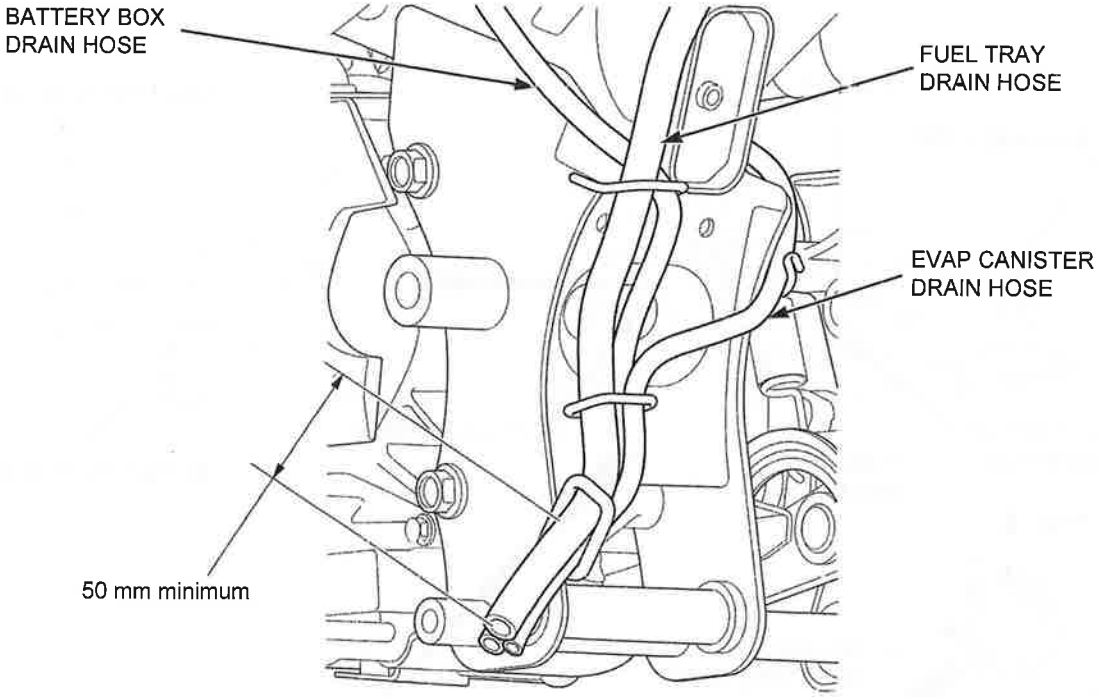

LEFT FRONT TURN SIGNAL
LIGHT WIRE
LEFT FRONT TURN SIGNAL
LIGHT WIRE
SPEEDOMETER 16P
(Gray) CONNECTOR
LEFT HANDLEBAR SWITCH WIRE
MAIN WIRE HARNESS
FRONT BRAKE HOSE B

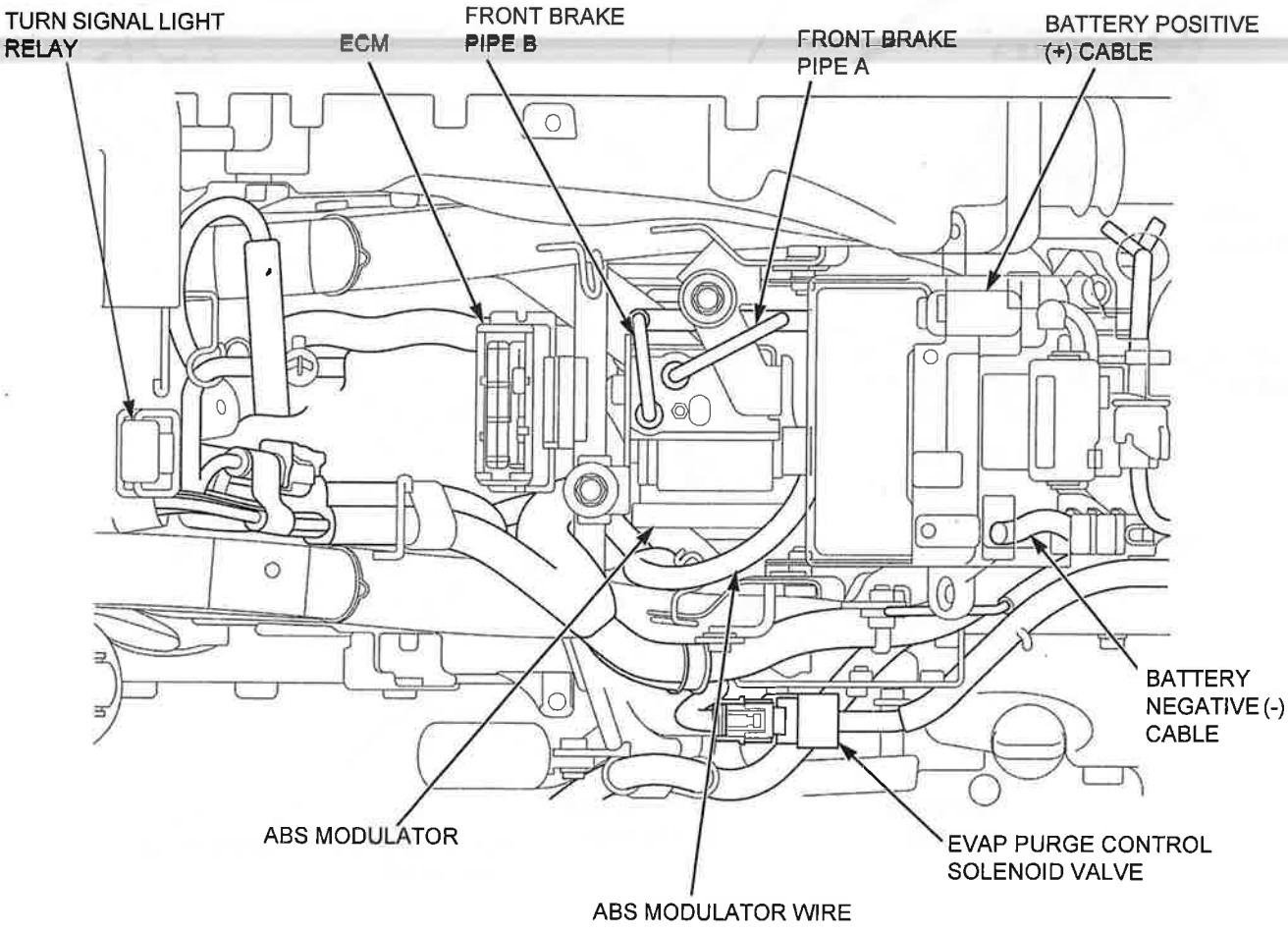

THROTTLE CABLE A
20°- 25°
THROTTLE CABLE B
THROTTLE CABLE B
RIGHT HANDLEBAR SWITCH WIRE
RIGHT HANDLEBAR SWITCH WIRE
RIGHT FRONT TURN SIGNAL LIGHT WIRE
RIGHT FRONT TURN SIGNAL LIGHT WIRE
THROTTLE CABLE B
THROTTLE CABLE A
FRONT BRAKE HOSE A
THROTTLE CABLE A

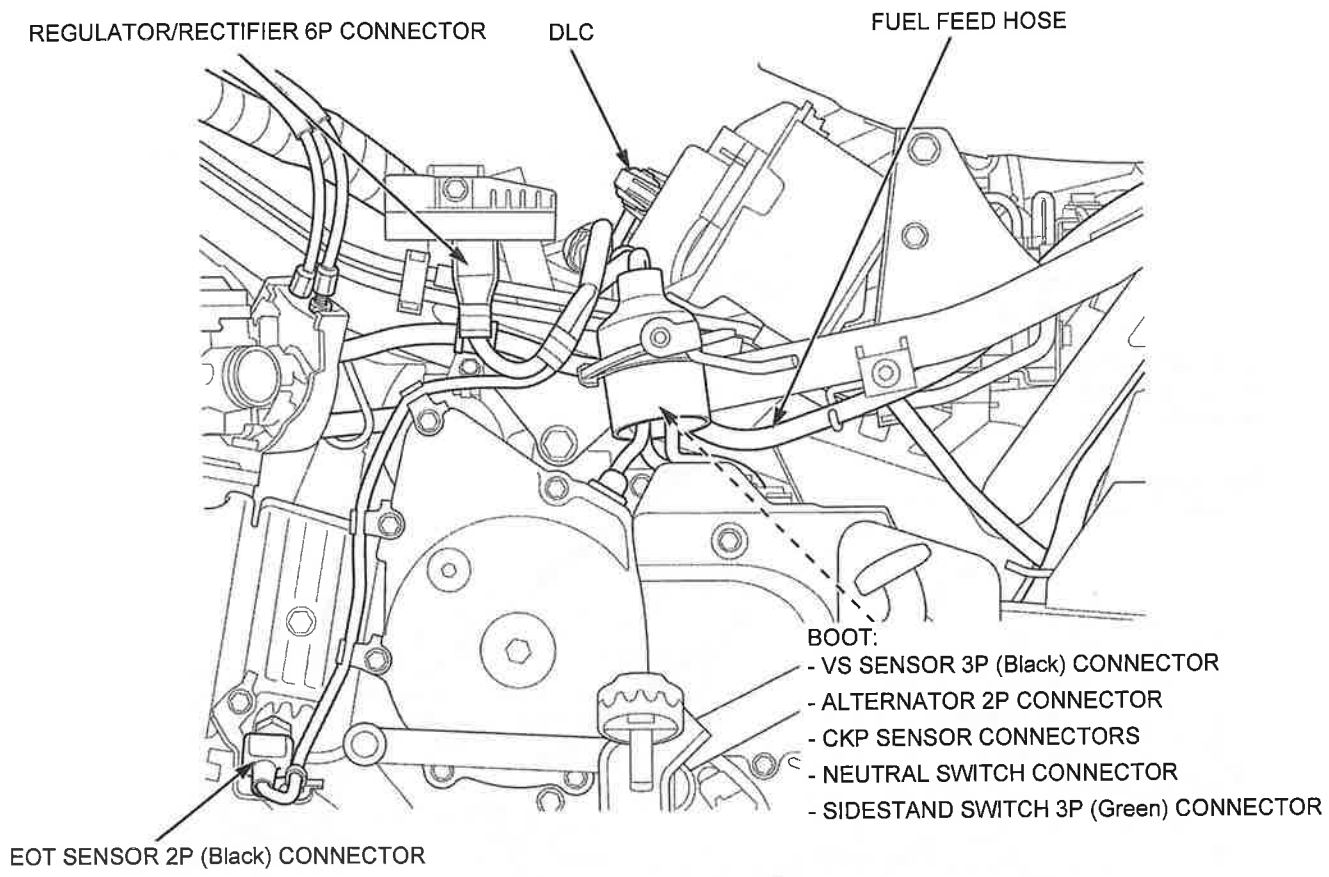

FRONT WHEEL SPEED SENSOR WIRE
FRONT BRAKE HOSE B
FRONT WHEEL SPEED SENSOR WIRE
FRONT
90°
FRONT BRAKE HOSE B
FRONT WHEEL SPEED SENSOR WIRE
CLAMP POSITION AT END OF WHITE PAINT

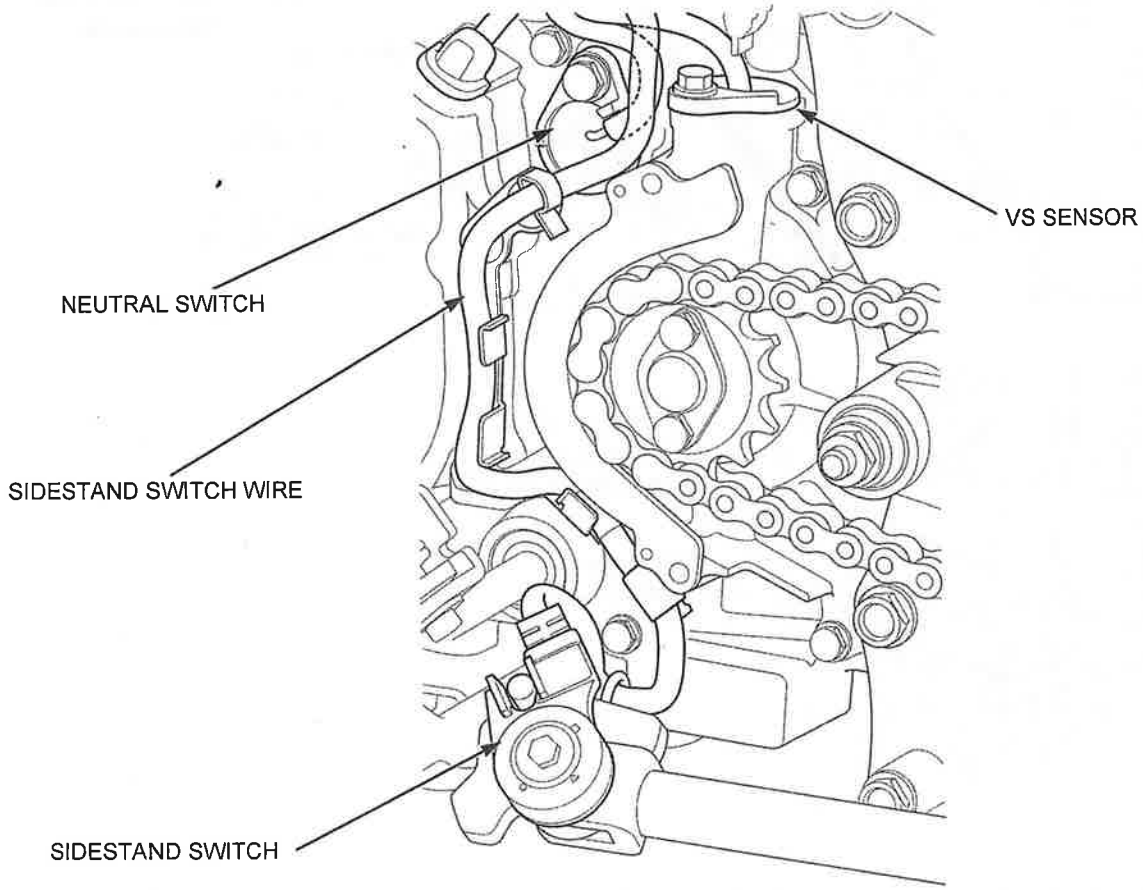

STARTER MOTOR POSITIVE (+) CABLE
STARTER MOTOR NEGATIVE (–) CABLE
90°
CRANKCASE BREATHER HOSE
CRANKCASE BREATHER HOSE
MAIN WIRE HARNESS
THROTTLE CABLE B
PURGE HOSE B
THROTTLE CABLE A
GROUND TERMINAL
O2 SENSOR 2P (Black) CONNECTOR
BREATHER HOSE
IGNITION COIL
FUEL INJECTOR 2P (Black) CONNECTOR
REAR BRAKE LIGHT SWITCH
SENSOR UNIT 5P (Black) CONNECTOR
EVAP CANISTER DRAIN HOSE
CRANKCASE BREATHER HOSE
O2 SENSOR WIRE

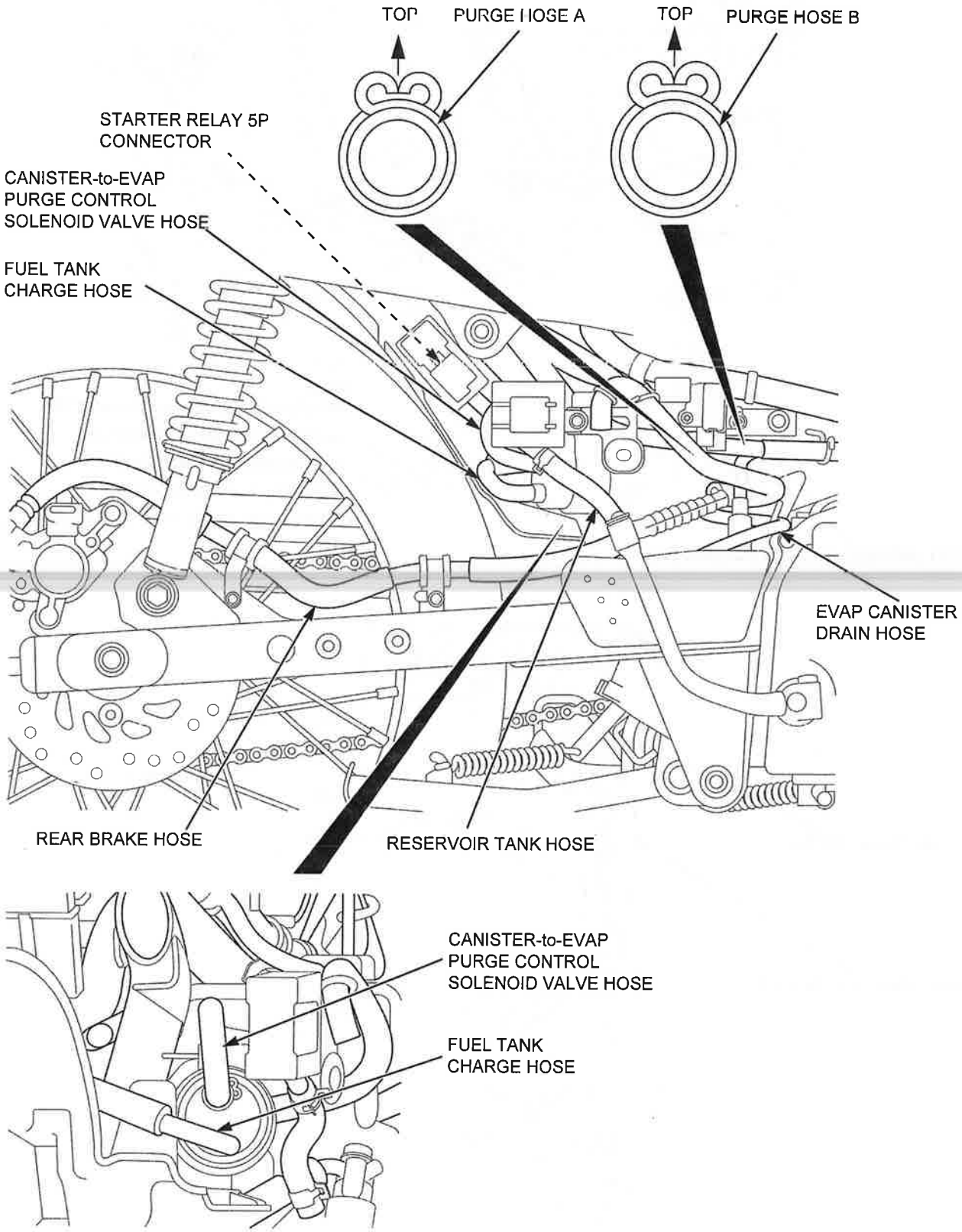

FUEL FEED HOSE
FUEL TANK CHARGE HOSE
FUEL TANK CHARGE HOSE
FUEL PUMP 5P CONNECTOR
FUEL TRAY DRAIN HOSE
SEAT LOCK CABLE
MAIN WIRE HARNESS
TOP
CRANKCASE BREATHER TUBE
THROTTLE CABLE A
MAIN WIRE HARNESS
THROTTLE CABLE B
SIDESTAND SWITCH
BATTERY BOX DRAIN HOSE
EVAP CANISTER DRAIN HOSE
FUEL TRAY DRAIN HOSE

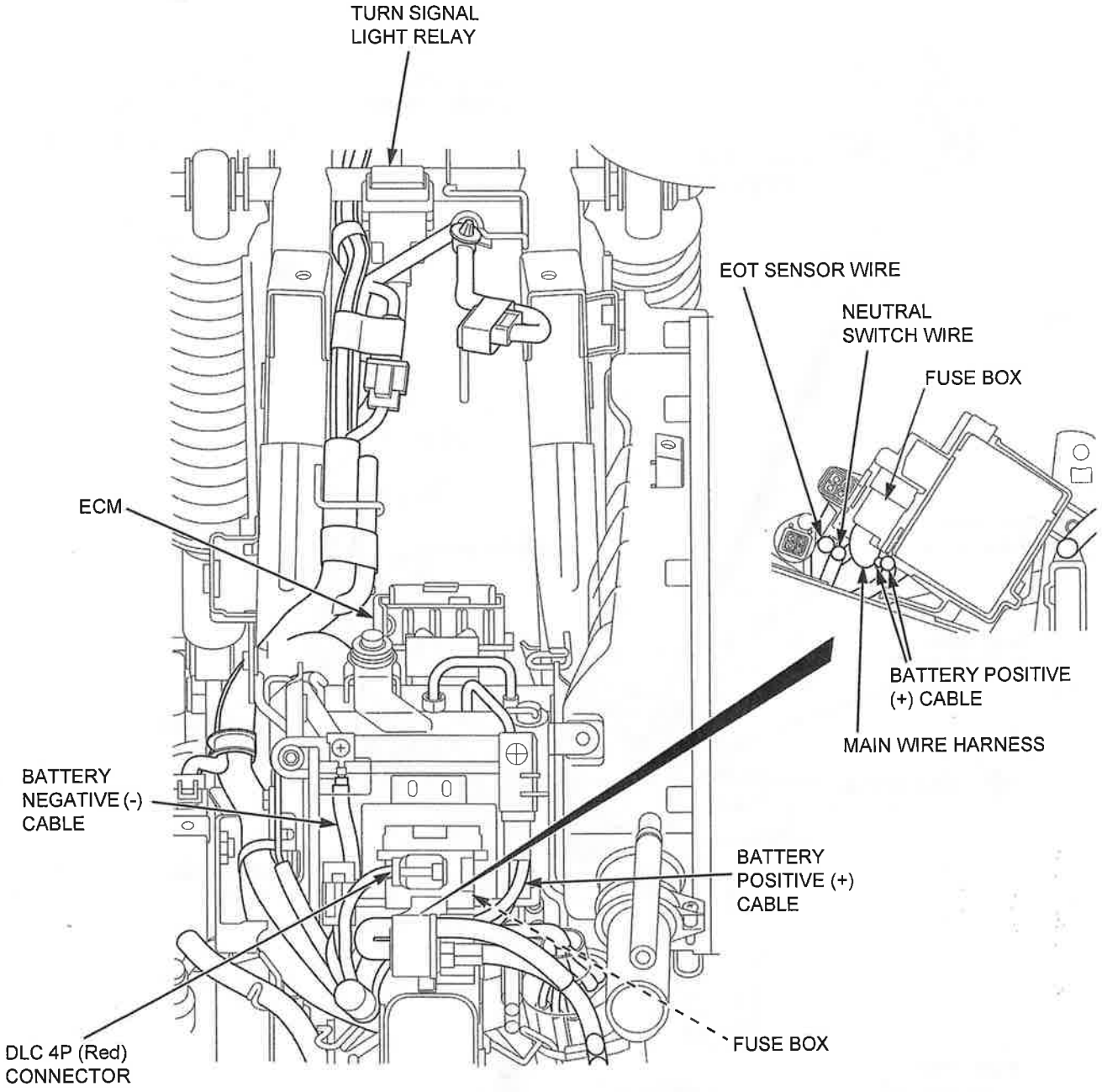

BATTERY BOX
DRAIN HOSE
FUEL TRAY
DRAIN HOSE
EVAP CANISTER
DRAIN HOSE
50 mm minimum

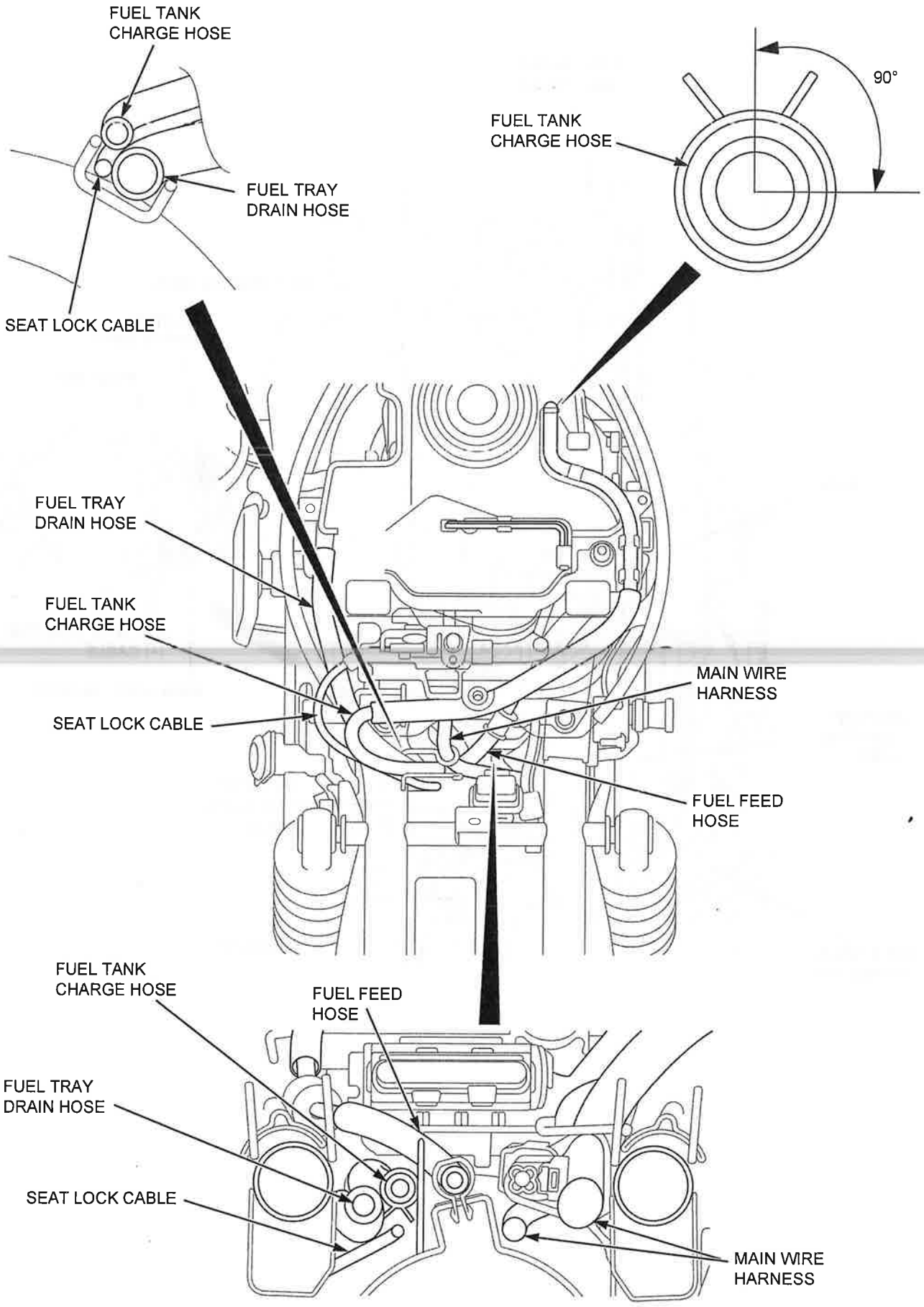

TURN SIGNAL LIGHT
RELAY
ECM
FRONT BRAKE
PIPE B
FRONT BRAKE
PIPE A
BATTERY POSITIVE
(+) CABLE
BATTERY
NEGATIVE (-)
CABLE
ABS MODULATOR
EVAP PURGE CONTROL
SOLENOID VALVE
ABS MODULATOR WIRE

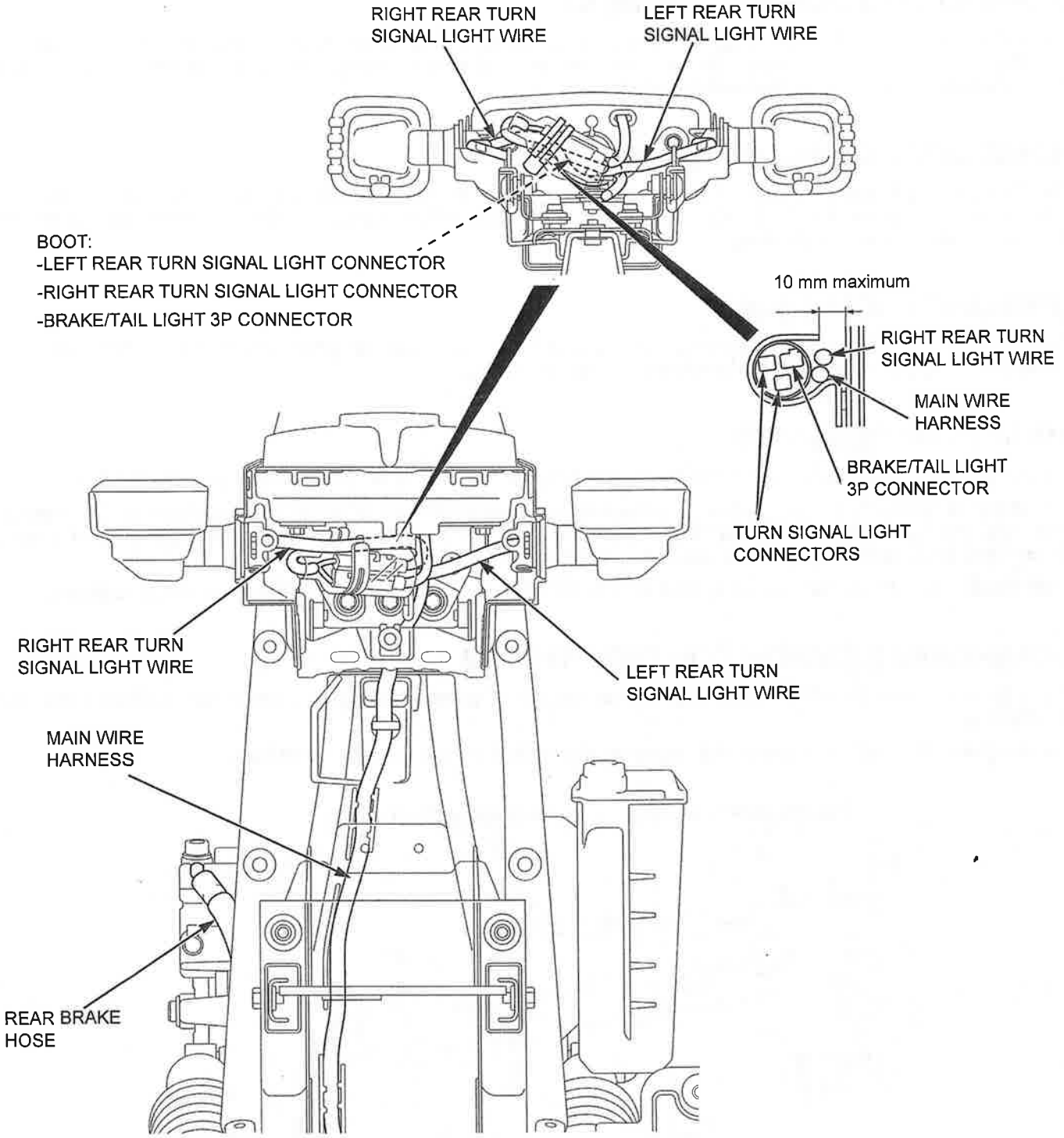

REGULATOR/RECTIFIER 6P CONNECTOR
DLC
FUEL FEED HOSE
BOOT:
- VS SENSOR 3P (Black) CONNECTOR
- ALTERNATOR 2P CONNECTOR
- CKP SENSOR CONNECTORS
- NEUTRAL SWITCH CONNECTOR
- SIDESTAND SWITCH 3P (Green) CONNECTOR
EOT SENSOR 2P (Black) CONNECTOR


VS SENSOR
NEUTRAL SWITCH
SIDESTAND SWITCH WIRE
SIDESTAND SWITCH


TOP
PURGE HOSE A
TOP
PURGE HOSE B
STARTER RELAY 5P CONNECTOR
CANISTER-to-EVAP PURGE CONTROL SOLENOID VALVE HOSE
FUEL TANK CHARGE HOSE
EVAP CANISTER DRAIN HOSE
REAR BRAKE HOSE
RESERVOIR TANK HOSE
CANISTER-to-EVAP PURGE CONTROL SOLENOID VALVE HOSE
FUEL TANK CHARGE HOSE


TURN SIGNAL
LIGHT RELAY
EOT SENSOR WIRE
NEUTRAL
SWITCH WIRE
FUSE BOX
ECM
BATTERY POSITIVE
(+) CABLE
MAIN WIRE HARNESS
BATTERY
NEGATIVE (-)
CABLE
BATTERY
POSITIVE (+)
CABLE
FUSE BOX
DLC 4P (Red)
CONNECTOR


FUEL TANK CHARGE HOSE
FUEL TRAY DRAIN HOSE
SEAT LOCK CABLE
90°
FUEL TANK CHARGE HOSE
FUEL TRAY DRAIN HOSE
FUEL TANK CHARGE HOSE
SEAT LOCK CABLE
MAIN WIRE HARNESS
FUEL FEED HOSE
FUEL TANK CHARGE HOSE
FUEL FEED HOSE
FUEL TRAY DRAIN HOSE
SEAT LOCK CABLE
MAIN WIRE HARNESS


RIGHT REAR TURN SIGNAL LIGHT WIRE
LEFT REAR TURN SIGNAL LIGHT WIRE
BOOT:
-LEFT REAR TURN SIGNAL LIGHT CONNECTOR
-RIGHT REAR TURN SIGNAL LIGHT CONNECTOR
-BRAKE/TAIL LIGHT 3P CONNECTOR
10 mm maximum
RIGHT REAR TURN SIGNAL LIGHT WIRE
MAIN WIRE HARNESS
BRAKE/TAIL LIGHT 3P CONNECTOR
TURN SIGNAL LIGHT CONNECTORS
RIGHT REAR TURN SIGNAL LIGHT WIRE
LEFT REAR TURN SIGNAL LIGHT WIRE
MAIN WIRE HARNESS
REAR BRAKE HOSE

EMISSION CONTROL SYSTEMS

EXHAUST EMISSION REQUIREMENT

The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) require manufacturers to certify that their vehicles comply with applicable emissions standards during their useful life, when operated and maintained according to the instructions provided.

NOISE EMISSION REQUIREMENT

The EPA also requires that vehicles built after January 1, 1983 comply with applicable noise emission standards for one year or 3,730 miles (6,000 km) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided.

WARRANTY COMPLIANCE

Compliance with the terms of the Distributor's Limited Warranty for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect.

SOURCE OF EMISSIONS

The combustion process produces carbon monoxide (CO), oxides of nitrogen (NOx) and hydrocarbons (HC).

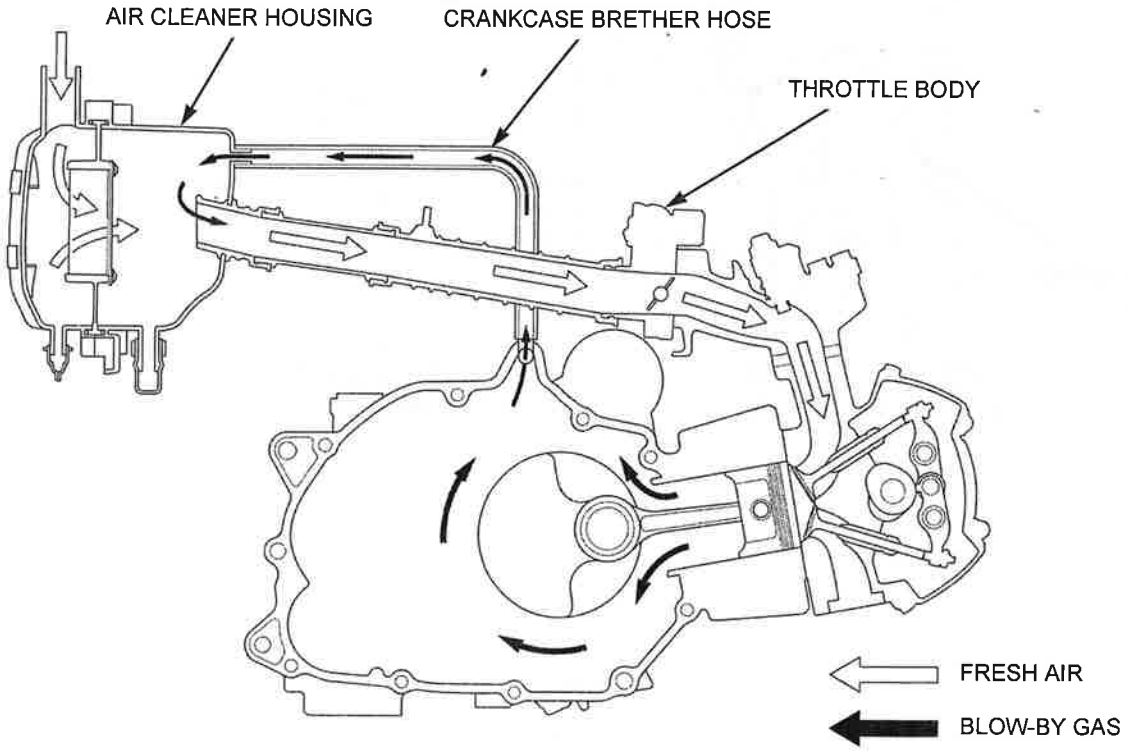
The control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subject to sunlight. Carbon monoxide does not react in the same way, but it is toxic. Uncontrolled fuel evaporation also releases hydrocarbons to the atmosphere.

Honda Motor Co., Ltd. utilizes various system 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

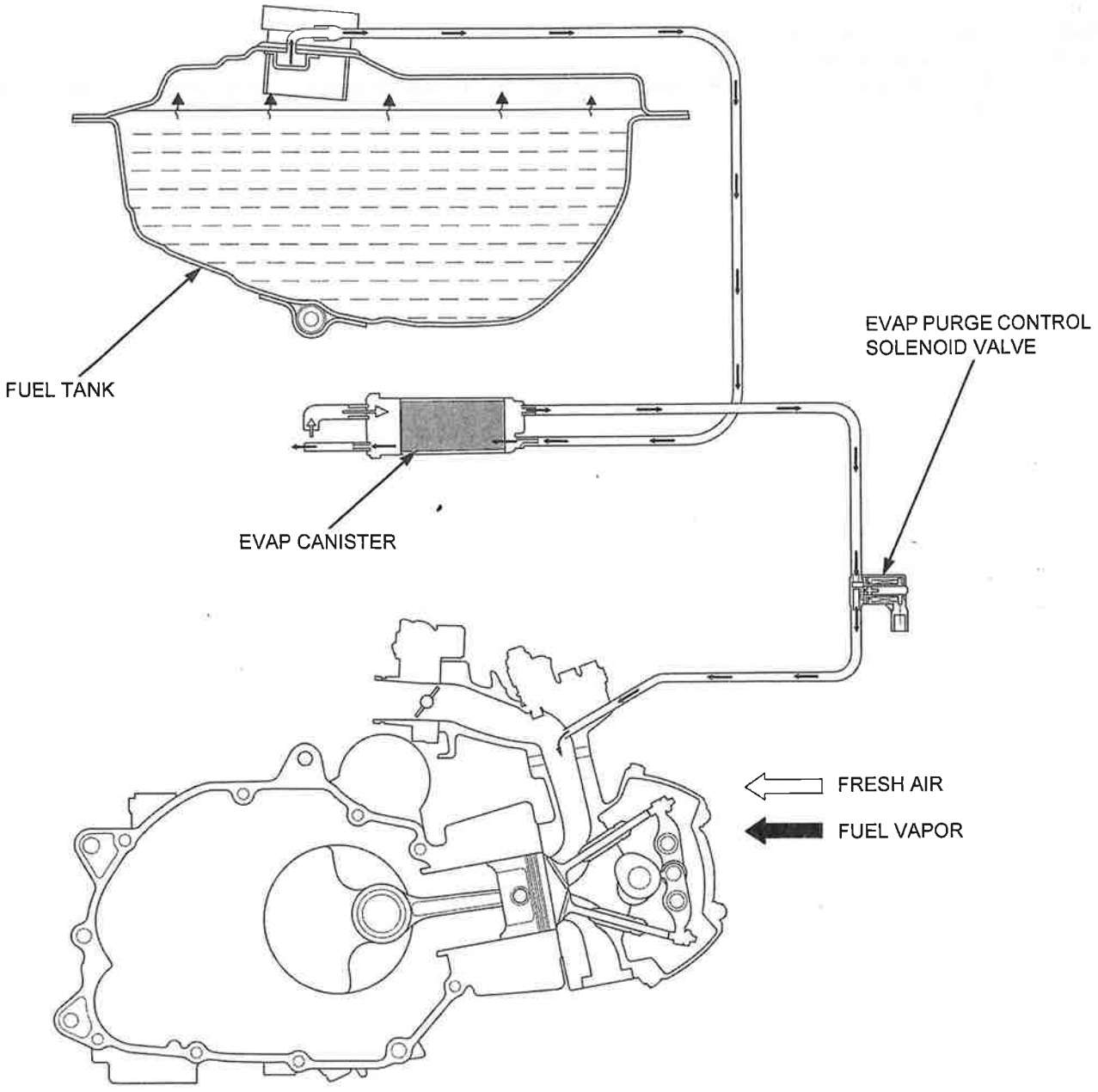
THREE-WAY CATALYTIC CONVERTER

This vehicle is 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 NOx in the engine's exhaust to carbon dioxide (CO_2), dinitrogen (N_2), and water vapor.

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

EVAPORATIVE EMISSION CONTROL SYSTEM

This model complies with CARB evaporative emission requirements. Fuel vapor from the fuel tank is routed into the evaporative emission (EVAP) canister where absorbed and stored while the engine is stopped. When the engine is running and the evaporative emission (EVAP) purge control solenoid valve is open, fuel vapor in the EVAP canister is drawn into the engine through the intake pipe.



FUEL PERMEATION EMISSION CONTROL SYSTEM

This vehicle complies with the Fuel Permeation Emission Control regulations of the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB). The fuel tank, fuel hoses, and fuel vapor charge hoses used on this vehicle incorporate fuel permeation control technologies. Tampering with the fuel tank, fuel hoses, or fuel vapor charge hoses to reduce or defeat the effectiveness of the fuel permeation technologies is prohibited by federal regulations.

NOISE EMISSION CONTROL SYSTEM

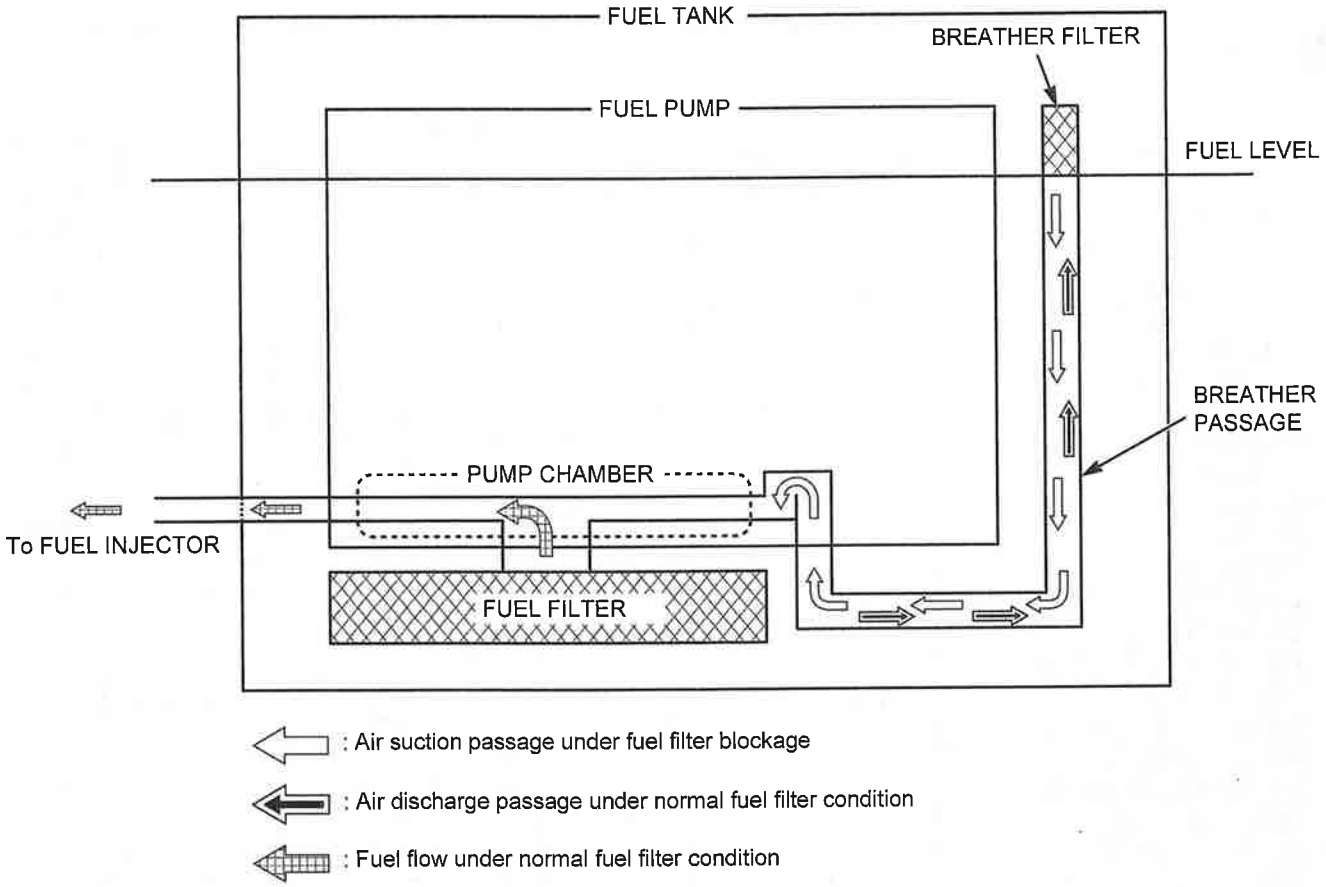
TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: U.S. Federal law prohibits, or Canadian provincial law may prohibit the following acts or the causing there of: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or 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; (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. Removing or disabling any emissions compliance component, or replacing any compliance component with a non-compliant component.

TECHNICAL FEATURES

FUEL PUMP SYSTEM WITH A FUEL FILTER BLOCKAGE REMINDER FUNCTION



The fuel pump system consists of the following components:

- Fuel pump chamber
- Fuel filter
- Breather passage
- Breather filter

Under normal condition, the fuel pump chamber sucks fuel through the fuel filter and then supplies it to the fuel injector.

When the fuel filter is clogged, the fuel is sucked into the pump chamber through the breather passage in order to keep the vehicle running. The breather filter is located in the upper inner side of fuel tank. When the fuel is consumed to the point where the breather filter is exposed above the fuel level, a certain amount of air will be drawn into the pump chamber via the breather filter and breather passage. This incoming air produces "a lack of fuel", which impairs engine performance in order to notify the rider of the fuel filter blockage. This symptom works as a reminder for the filter replacement.

This system eliminates the need of fuel filter replacement according to a fixed interval, as the rider will experience the symptom and notice the filter blockage during vehicle usage.

The driveability remains normal as long as the fuel level in tank is maintained above the breather filter because no air will be drawn into the pump chamber, even when the fuel filter is clogged.

If the fuel in tank is sufficient but such symptom as poor engine performance, lack of fuel, or engine start failure exist, perform the fuel supply test.

MAINTENANCE SCHEDULE

- 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.

- Refer to "Basic" Service Manual for each maintenance instruction except the instructions described in this manual.

		ITEMS	NOTE	FREQUENCY (NOTE 1)								REGULAR REPLACE	REFER TO PAGE
				X1,000 mi	0.6	4	8	12	16	20	24		
				X1,000 km	1.0	6.4	12.8	19.2	25.6	32.0	38.4		
EMISSION RELATED ITEMS	*	FUEL LINE				I	I	I	I	I	I		→2-2
	*	THROTTLE OPERATION				I	I	I	I	I	I		
		AIR CLEANER	NOTE2					R			R		→2-7
		CRANKCASE BREATHER	NOTE3			C	C	C	C	C	C		
		SPARK PLUG				I	R	I	R	I	R		→4-23
	*	VALVE CLEARANCE				I	I	I	I	I	I		→2-16
		ENGINE OIL			R	R	R	R	R	R	R	1 year	→2-14
		ENGINE OIL STRAINER SCREEN					C		C		C		→2-14
	**	ENGINE OIL CENTRIFUGAL FILTER					C		C		C		→2-14
	*	ENGINE IDLE SPEED				I	I	I	I	I	I		
	*	EVAPORATIVE EMISSION	NOTE4					I			I		
NON-EMISSION RELATED ITEMS		DRIVE CHAIN		Every 500 km (300 mi) I, L									
		DRIVE CHAIN SLIDER				I	I	I	I	I	I		
		BRAKE FLUID	NOTE5			I	I	I	I	I	I	2 years	
		BRAKE PADS WEAR				I	I	I	I	I	I		
		BRAKE SYSTEM				I	I	I	I	I	I		
		BRAKE LIGHT SWITCH				I	I	I	I	I	I		
		HEADLIGHT AIM				I	I	I	I	I	I		→4-46
	*	CLUTCH SYSTEM			I	I	I	I	I	I	I		
		SIDESTAND				I	I	I	I	I	I		
	*	SUSPENSION				I	I	I	I	I	I		
	*	SPARK ARRESTER	NOTE6			C	C	C	C	C	C		→3-19
	*	NUTS, BOLTS, FASTENERS					I		I		I		
	**	WHEELS/TIRES				I	I	I	I	I	I		
	**	STEERING HEAD BEARINGS					I		I		I		

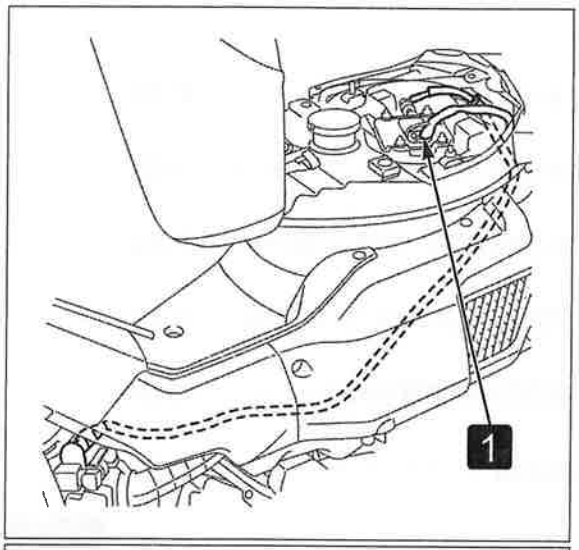
- * Should be serviced by a dealer, unless the owner has proper tools and service data and is mechanically qualified.
- ** In the interest of safety, we recommend these items be serviced only by a dealer.

NOTES:

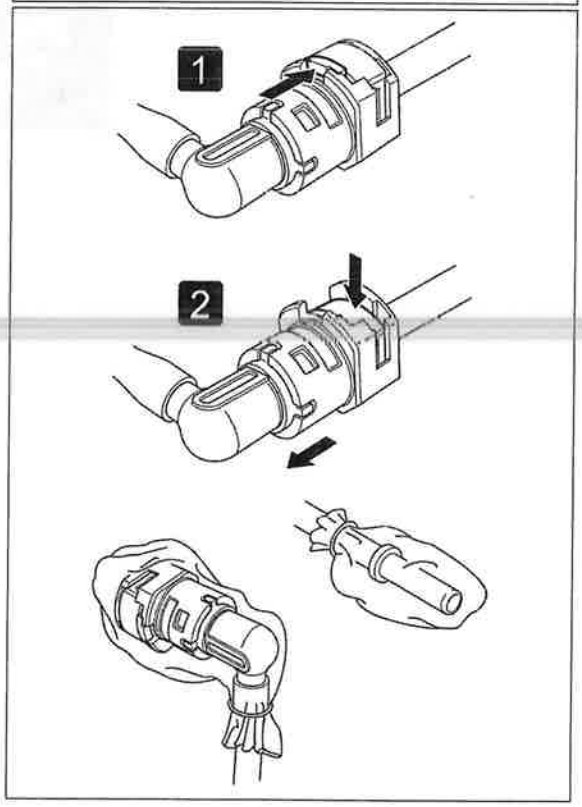
1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently when riding in unusually wet or dusty areas.
3. Service more frequently when riding in rain or at full throttle.
4. 50 STATE (meets California)
5. Replacement requires mechanical skill.
6. USA only.

2. FUEL & ENGINE

FUEL LINE



- This vehicle uses resin for the part of materials in the fuel feed hose. Do not bend or twist the fuel feed hose.
- Fuel tank cover ➔3-9
- 1 Fuel pump 5P connector
- Let the engine idle until it stops.
- Battery negative (–) cable ➔4-44

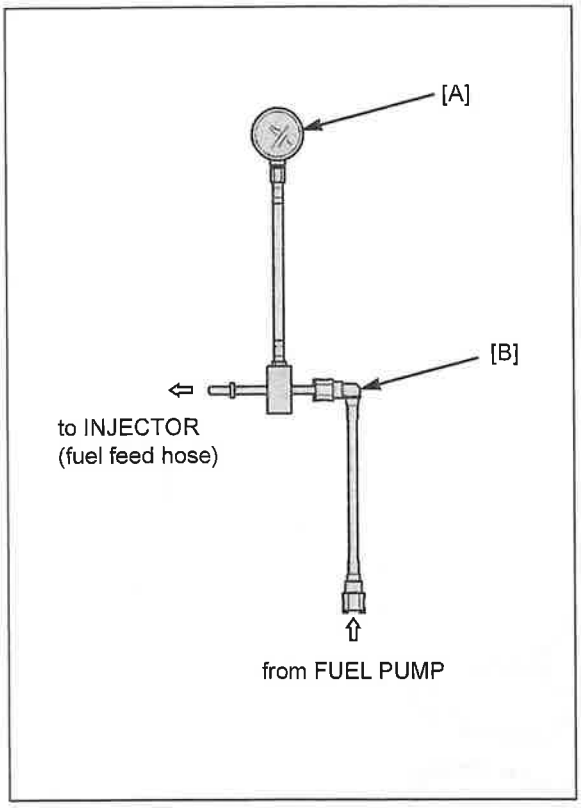


- Do not use tools in removal. If the connector does not move, alternately pull and push the connector until it comes off easily.
- Check the fuel quick connect fitting for dirt, and clean if necessary.
- Place a shop towel over the quick connect fitting.
- 1 Push the retainer tab forward.
- 2 Press down the retainer and disconnect the connector from the fuel joint.
- Check the retainer condition and replace the fuel hose if necessary.
- To prevent damage and keep foreign matter out, cover the disconnected connector and pipe end with the plastic bags.
- Press the connector onto the fuel joint until the retainer locks with a "CLICK". If it is hard to connect, put a small amount of engine oil on the pipe end.
- Make sure the connection is secure; check visually and by pulling the connector.
- After installing the removed parts, turn the ignition switch ON. (Do not start the engine.)
  The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat 2 or 3 times, and check that there is no leakage in the fuel supply system.

FUEL SUPPLY TEST

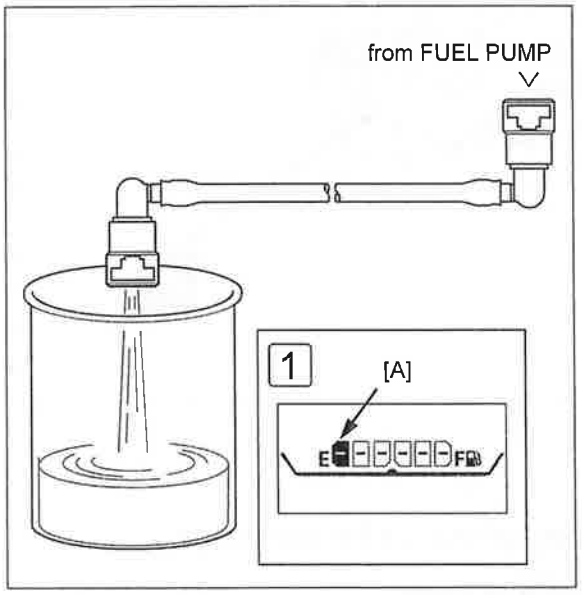
- If the fuel in the tank is sufficient but such symptom as poor engine performance, lack of fuel, or engine failures to start, perform the following.
- Perform the fuel pressure test. ➔2-3
- If the fuel pressure is within specification, perform the fuel flow inspection. ➔2-3
- Perform the fuel flow inspection in the specified fuel quantity. ➔2-3

FUEL PRESSURE TEST



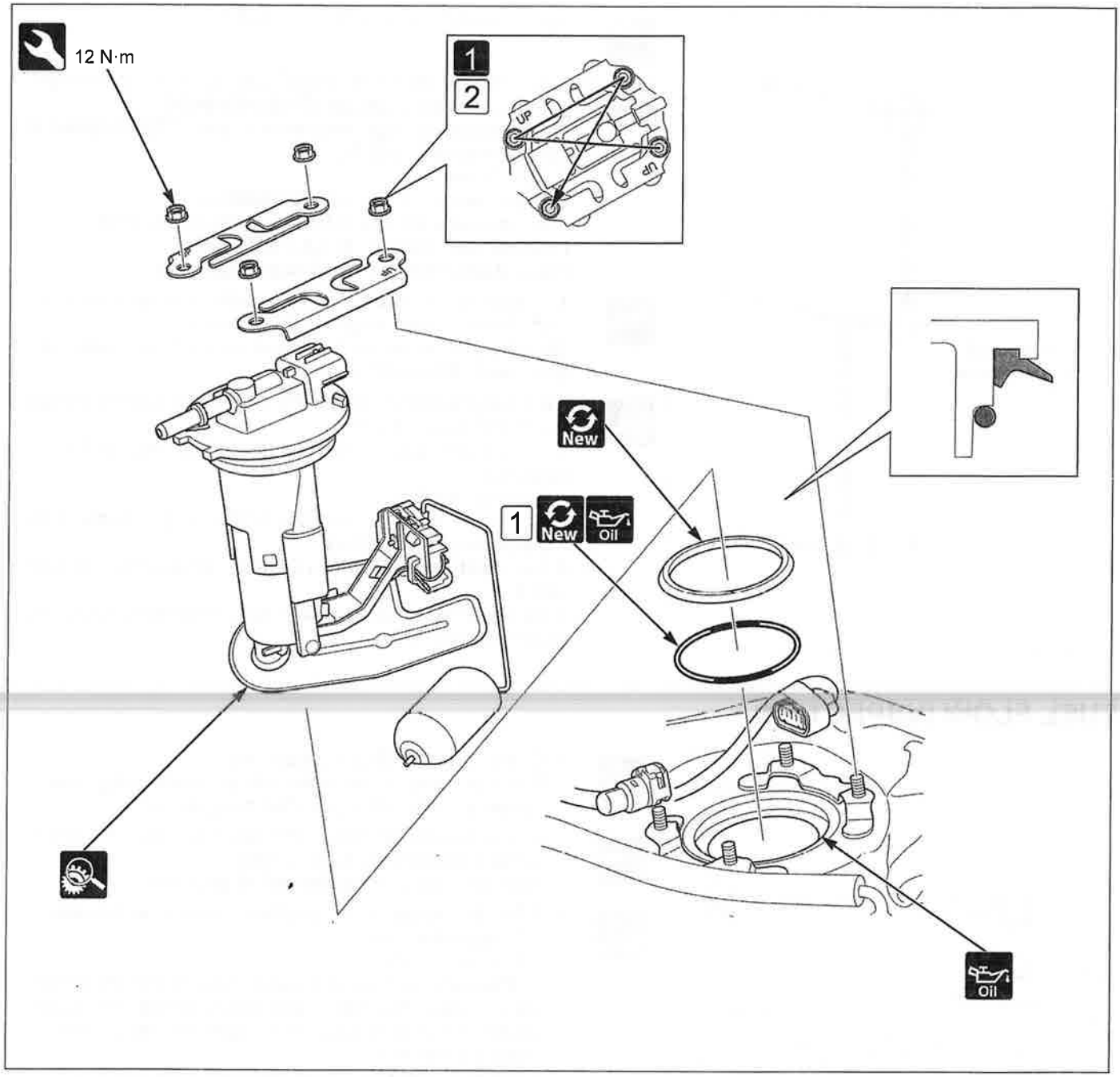
- Quick connect fitting (fuel pump side).
- Attach the fuel pressure gauge, attachments and manifold.
  [A] Fuel pressure gauge: 07406-0040004
  [B] Pressure gauge attachment set: 070MJ-K260100 (Not available in U.S.A.)
  U.S.A. Tools:
  Fuel pressure gauge: 07406-004000C
  Fuel pressure manifold hose: 07AMJ-HW3A100
  Fuel adaptor male B: 07AAJ-S6MA200
  Fuel adaptor female 90°: 07AMJ-K26A100
- Temporarily connect the positive cable and negative cable to the battery and fuel pump 5P connector.
  Start the engine and let it idle and read the fuel pressure.
  Standard: 263 – 316 kPa
- If the fuel pressure is higher than specified, replace the fuel pump assembly. ➔2-4
- If the fuel pressure is lower than specified, inspect the following.
  – Fuel line leaking
  – Any erratic swing or vibration of the gauge needle in the pressure gauge reading.
- If the needle has swing or vibration, replace the fuel filter. ➔2-5
- If the needle is not swing or vibration, replace the fuel pump assembly. ➔2-4

FUEL FLOW INSPECTION



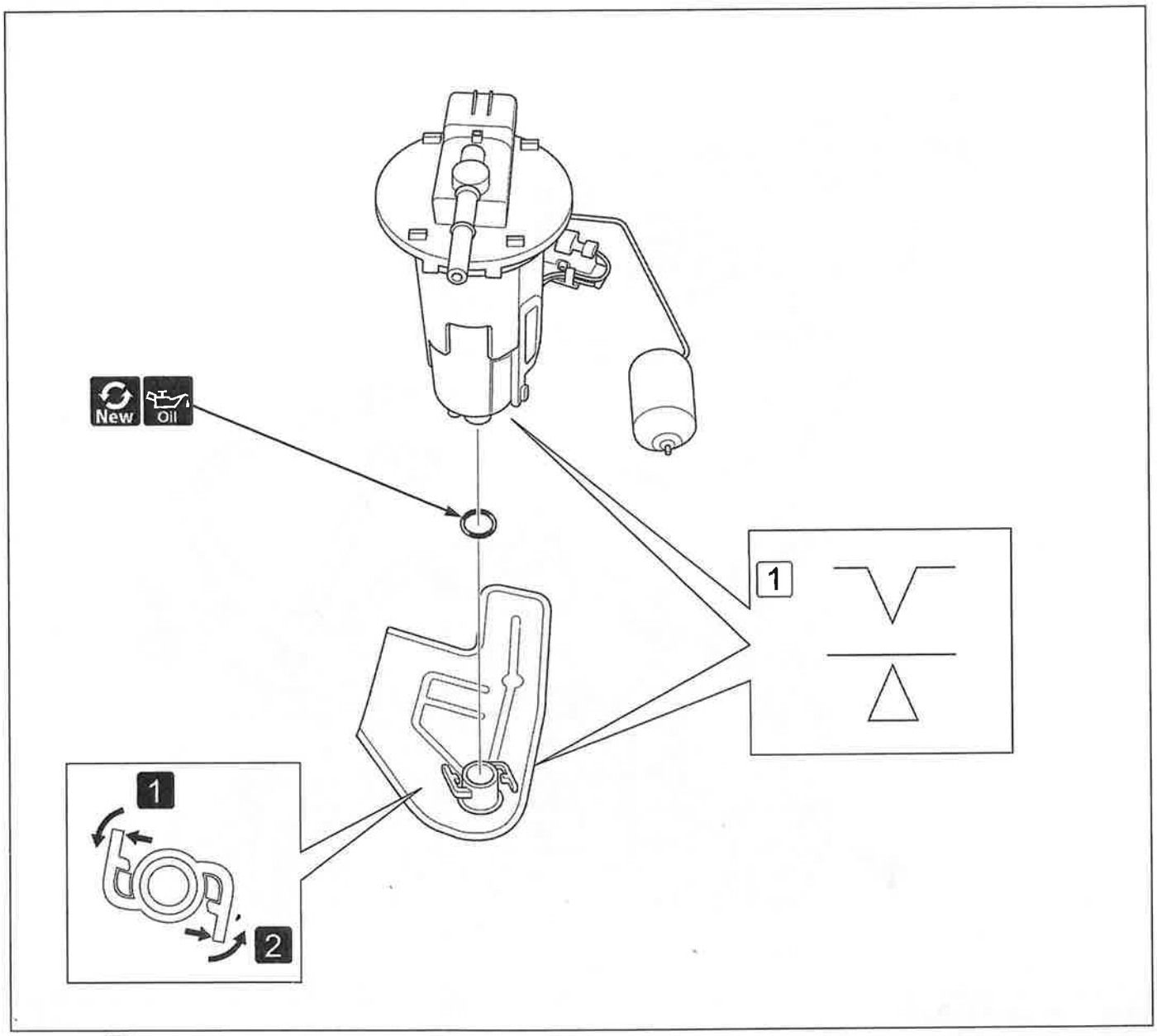
- Quick connect fitting (injector side)
- Place the end of the hose into an approved gasoline container. Wipe off any spilled out gasoline.
- The fuel pump operates for 2 seconds. Repeat 5 times to meet the total measuring time.
  Standard: 82 cm³ minimum/ 10 seconds
- If fuel flow is less than specified, inspect the following:
  – Clogged fuel hose
  – Fuel pump unit
- [1] Place the vehicle on the level ground with its center-stand. Adjust the fuel in the tank until the fuel gauge segment [A] is positioned at the specified range, and inspect the fuel flow.
  SPECIFIED RANGE: One segment (Not blinking)
- If the fuel flow is above specification, check for other malfunctioning parts.
- If the fuel flow is under specification, replace the fuel filter.➔2-5

FUEL PUMP UNIT



- Fuel tank cover ➔3-9
- Quick connect fitting (fuel pump side)
- 1 Loosen the nuts in a crisscross pattern in several steps.
- Carefully remove the fuel pump unit from the fuel tank to prevent damage the fuel level sensor.
- [1] Apply engine oil to the O-ring and install it to the fuel pump unit.
- [2] Tighten the fuel pump set plate nuts in the specified sequence as shown.
- Fuel clogged or excessively damaged
- Fuel pump malfunction and inspection

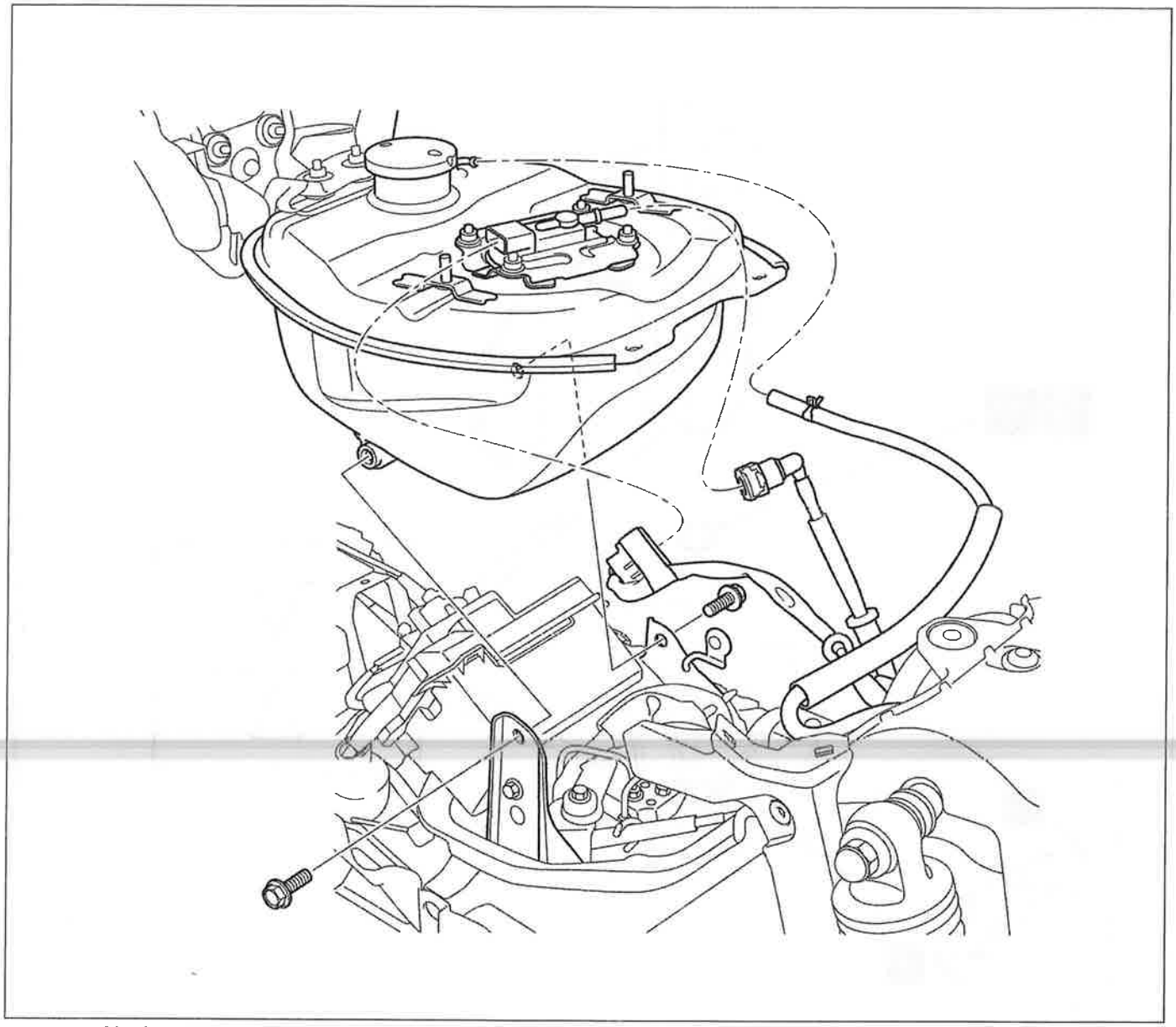
FUEL FILTER



- 1 Release the hooks from the stoppers by slightly spreading the hooks.
- 2 Turn the filter.
- Pull up the filter and remove it from the fuel pump.

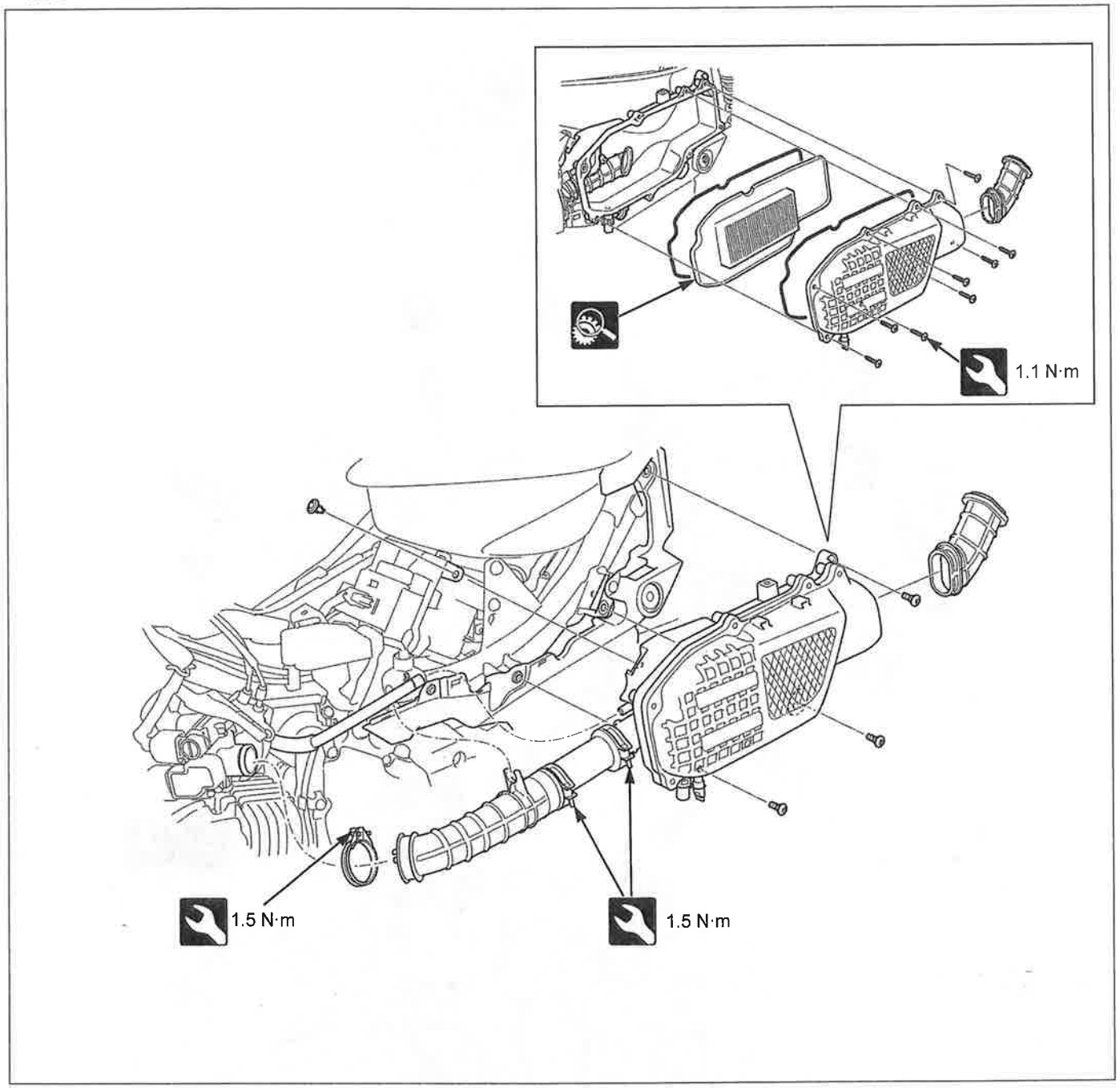
- [1] Align with the triangle marks on the filter and fuel pump body.
- Turn the filter until the hooks are completely secured by the stoppers.

FUEL TANK



- Air cleaner ➔2-7
- Main pipe side cover ➔3-7
- Quick connect fitting (fuel pump side) ➔2-2

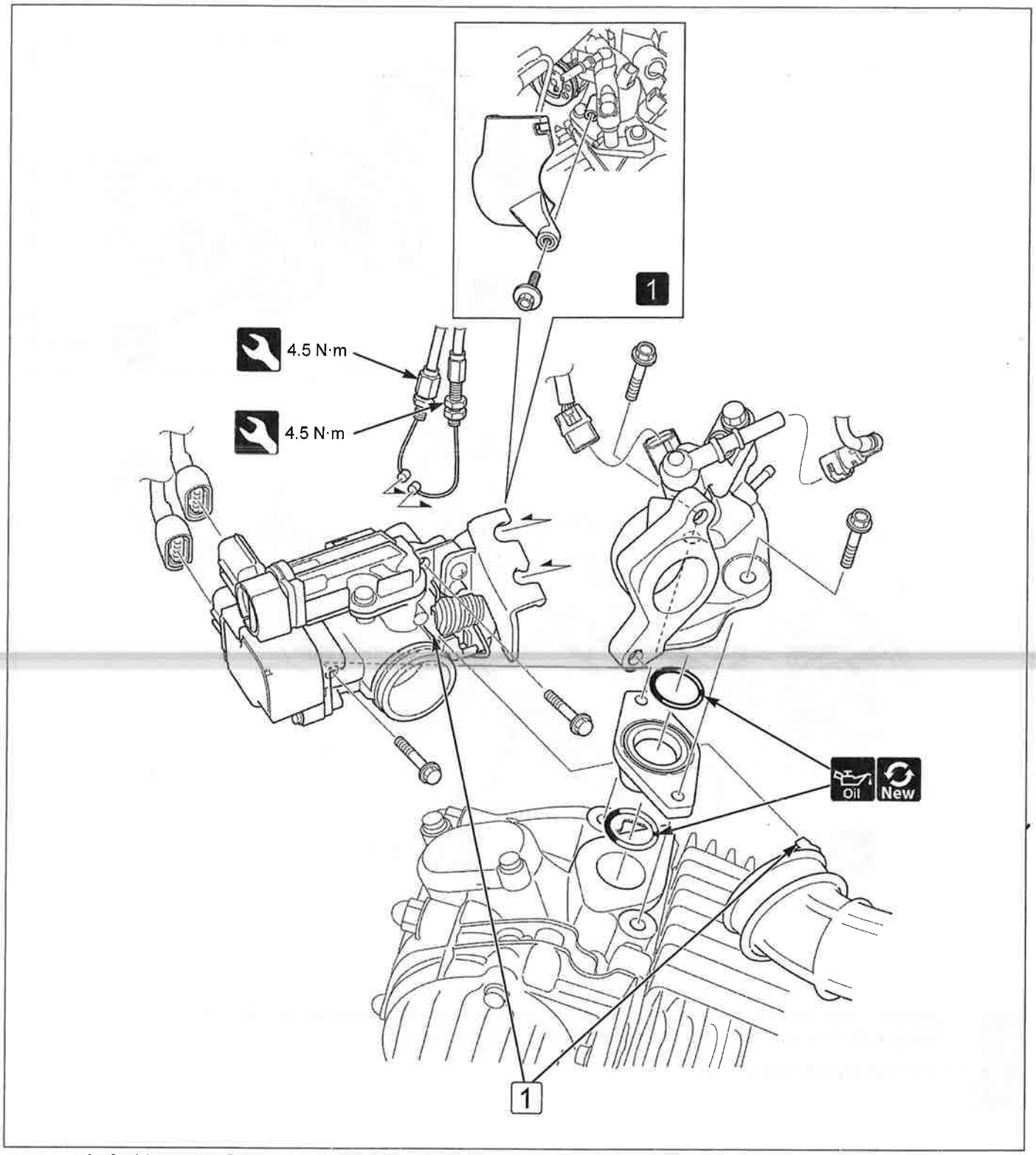
AIR CLEANER



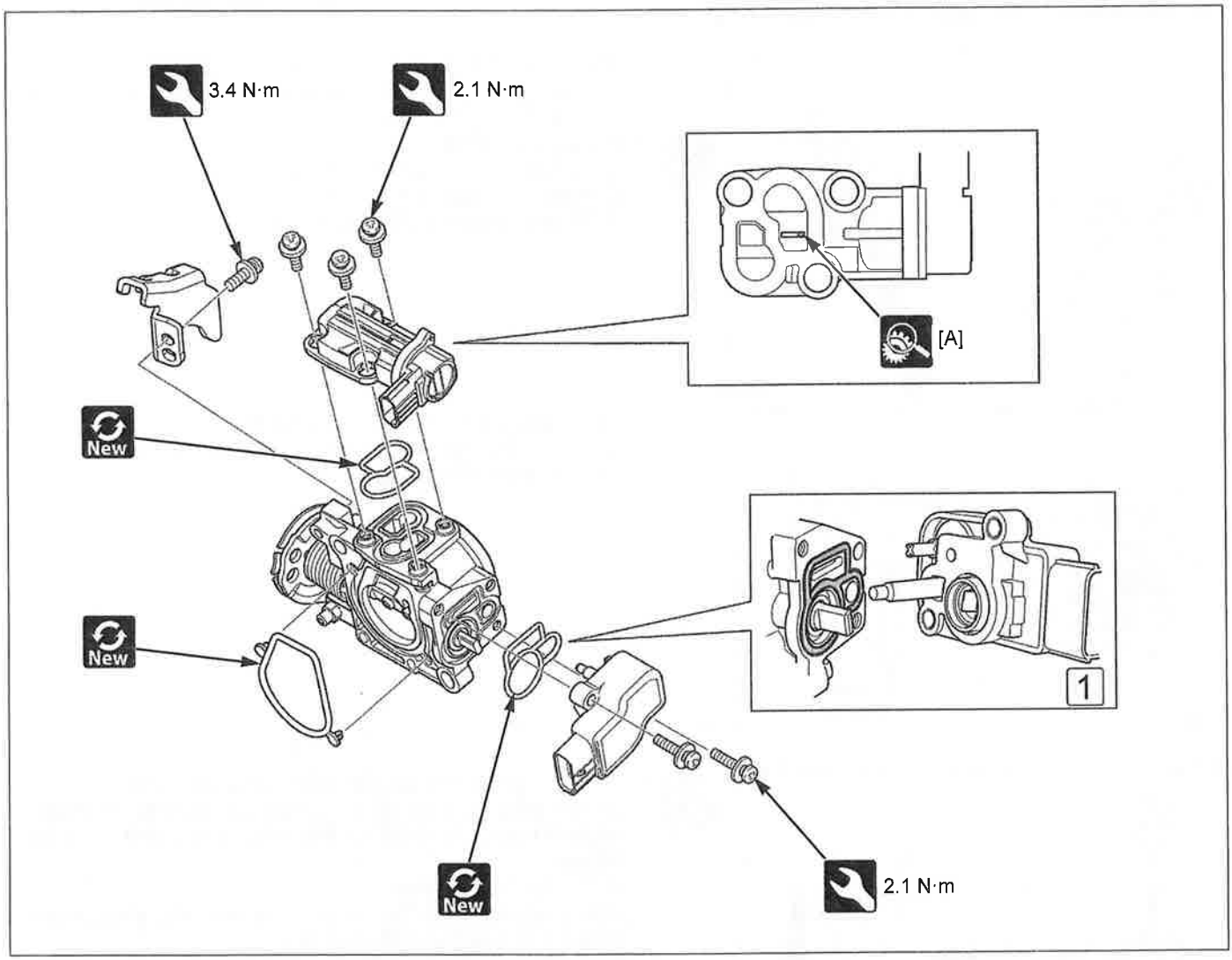
- Discard the air cleaner element in accordance with the maintenance schedule. ➔1-34
- Replace the element any time if it is excessively dirty or damaged.

- Left main pipe side cover ➔3-7

THROTTLE BODY



- Left side cover ➔3-10
- 1 Remove the throttle cover.
- Quick connect fitting (injector side) ➔2-2
- [1] Align the lug with the slot.
- TP Sensor reset procedure ➔2-10
- Throttle body cleaning and inspection



- The throttle body is factory pre-set. Do not disassemble in a way other than shown in this manual.
- Do not loosen or tighten the white painted fasteners. Loosening or tightening it can cause throttle body malfunction.

Sensor unit

- Throttle body ➔2-8

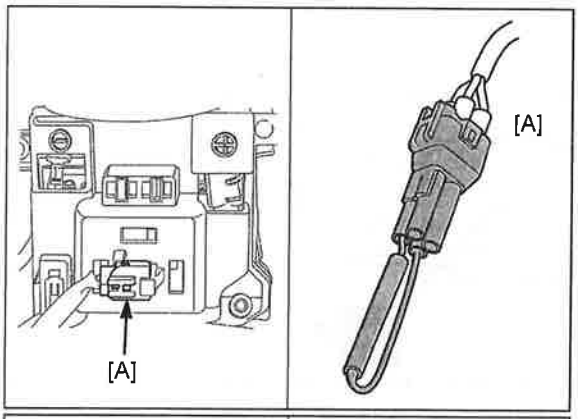
- [1] Install the sensor unit to the throttle body by aligning the clip of the sensor unit and boss of the throttle valve.
- Perform the TP sensor reset procedure. ➔2-10

IACV

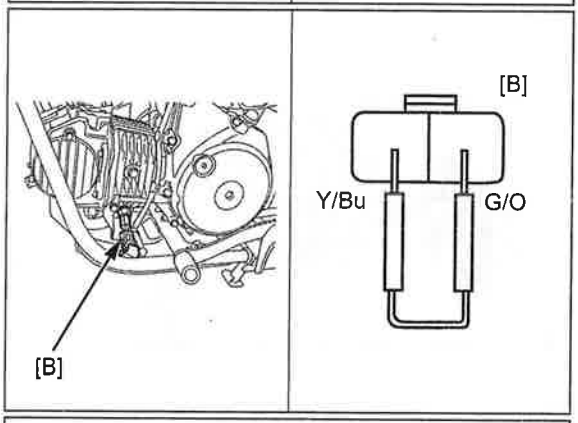
- Throttle body ➔2-8

- Check the IACV for wear or damage.
- The IACV operation can be checked visually as follows:
  1. Connect the IACV 4P (Black) connector.
  2. Turn the ignition switch ON, check the slide piece [A] operation.

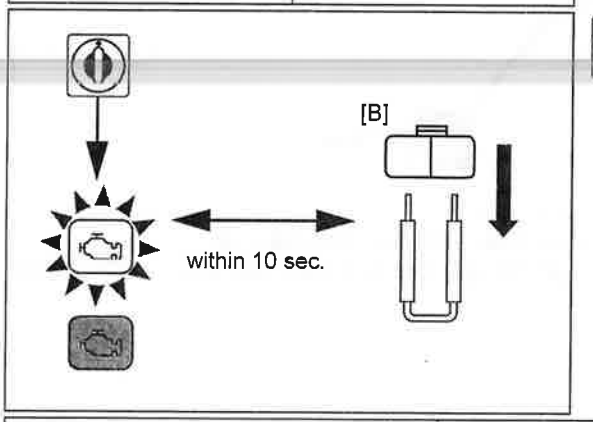
TP SENSOR RESET PROCEDURE



- Make sure that DTC is not stored in ECM. If the DTC is stored in ECM, TP sensor reset mode won't start by following the procedure below.
- Battery lid. ➔3-6
- Connector cover from the DLC [A]
- Connect the special tool to the DLC.
  SCS connector: 070PZ-ZY30100

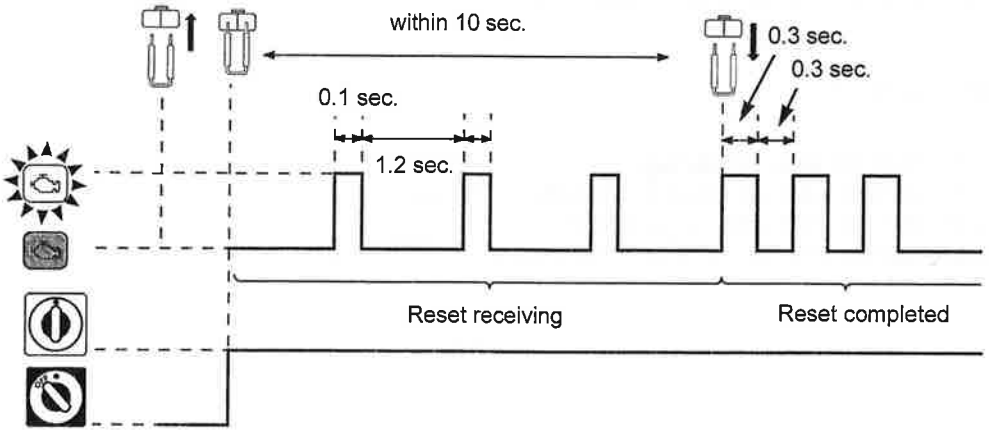


- EOT sensor 2P (Black) connector [B]
- Short the EOT sensor terminals with jumper wire.
  Connection: Y/Bu – G/O

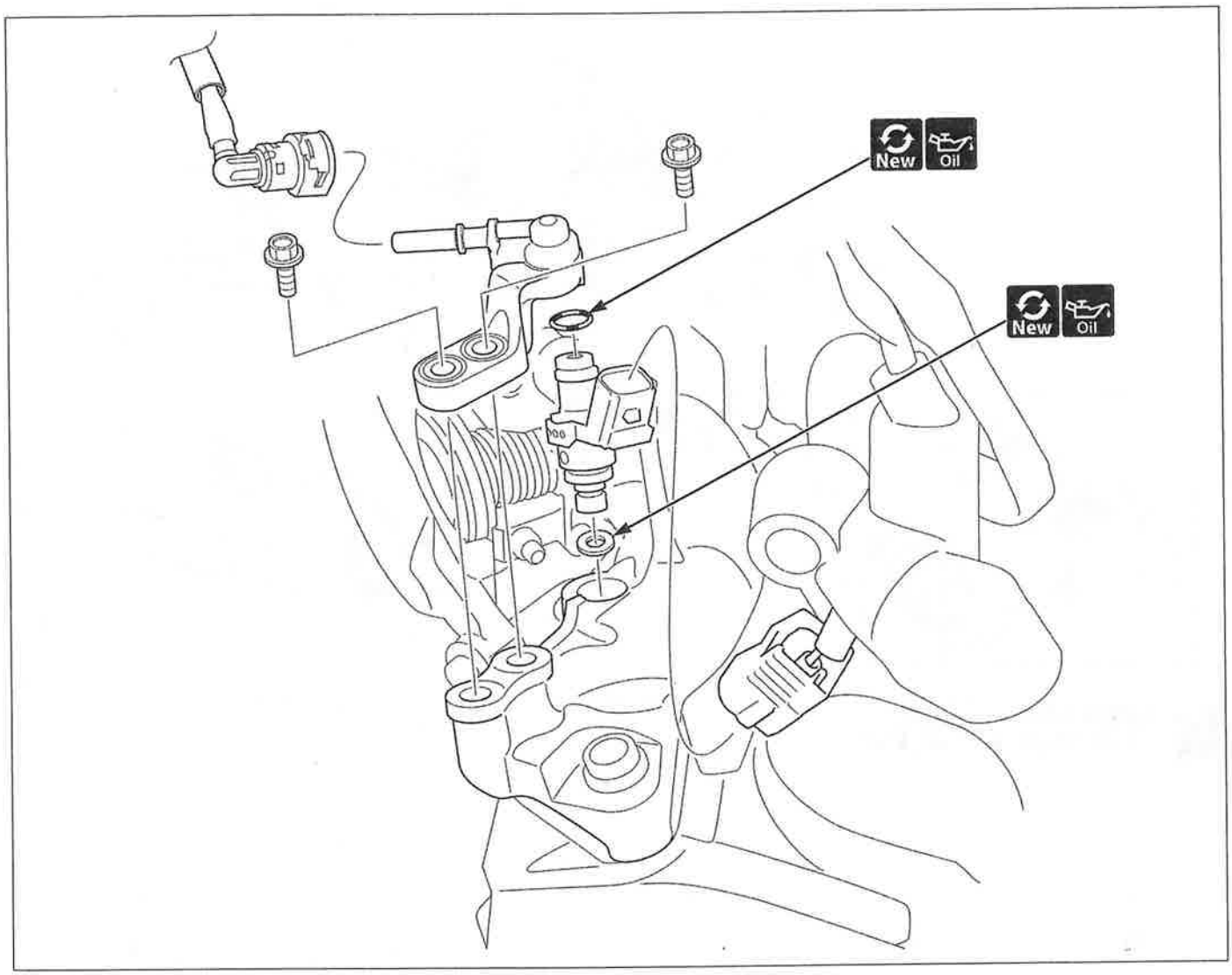


- Turn the ignition switch ON then disconnect the jumper wire from the EOT sensor 2P (Black) connector within 10 seconds while the MIL is blinking (reset receiving pattern).
- Check for the MIL blinks.
  After disconnecting the jumper wire, the MIL should start blinking. (reset completed pattern)
  If the jumper wire is connected for more than 10 seconds, the MIL will stay ON (unsuccessful pattern). Try again from the first.
- Check the engine idle speed.

Reset procedure and MIL blinking pattern

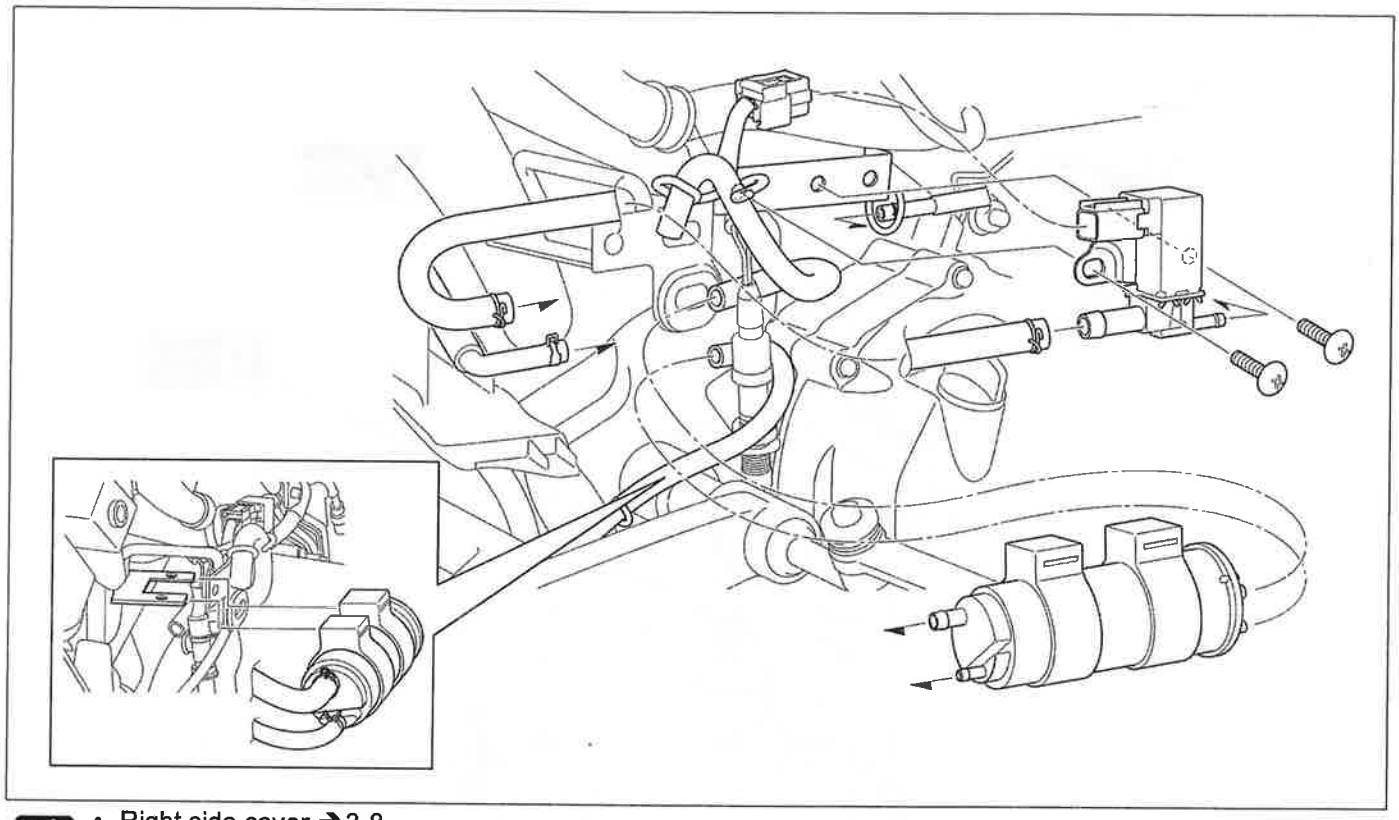


INJECTOR



- Quick connect fitting (injector side) ➔2-2

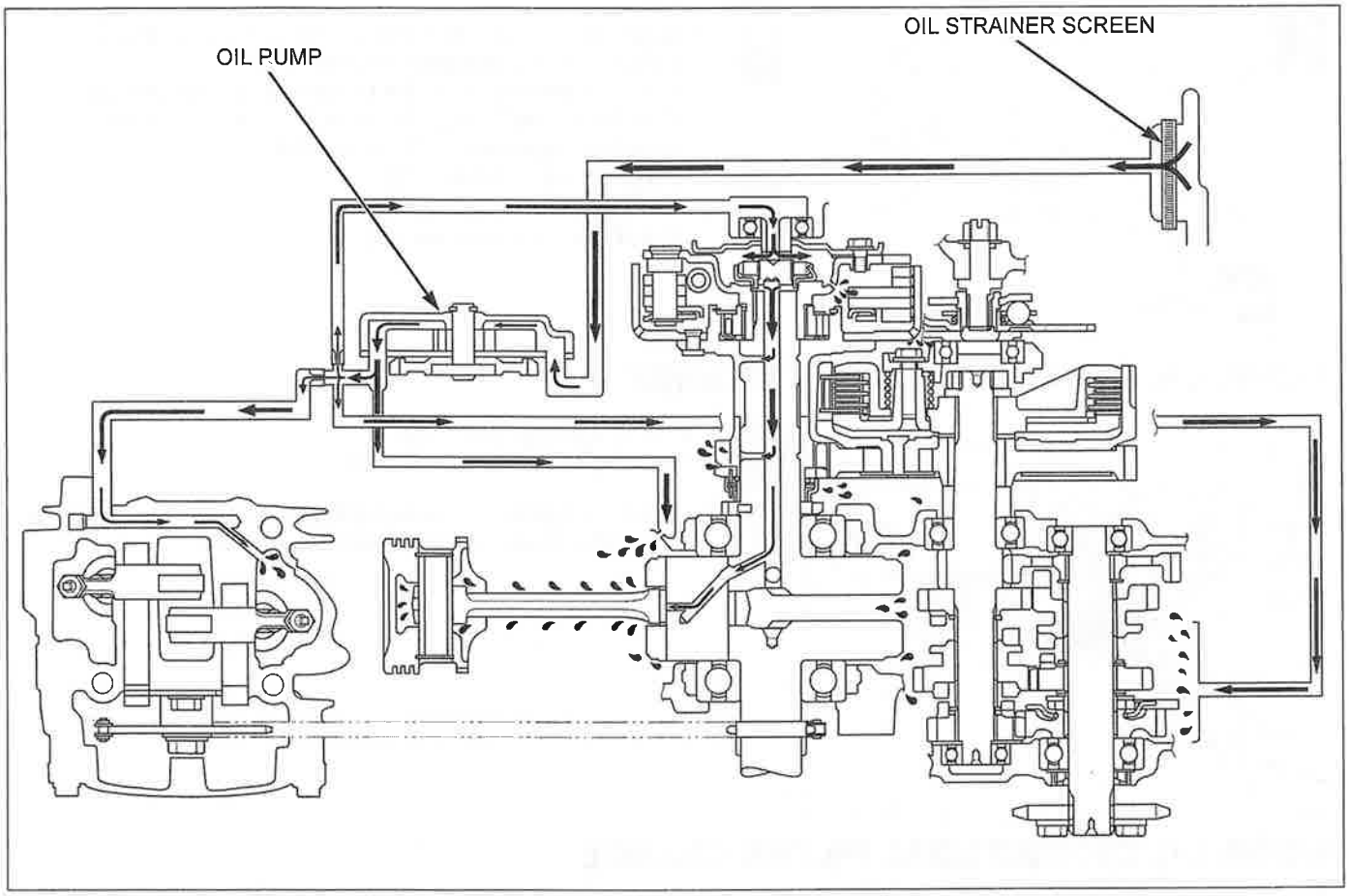
EVAP SYSTEM



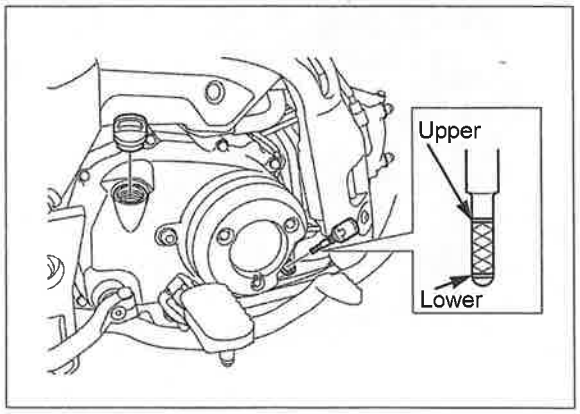
- Right side cover ➔3-8
- Rear brake reservoir ➔3-33

LUBRICATION SYSTEM

SYSTEM DIAGRAM

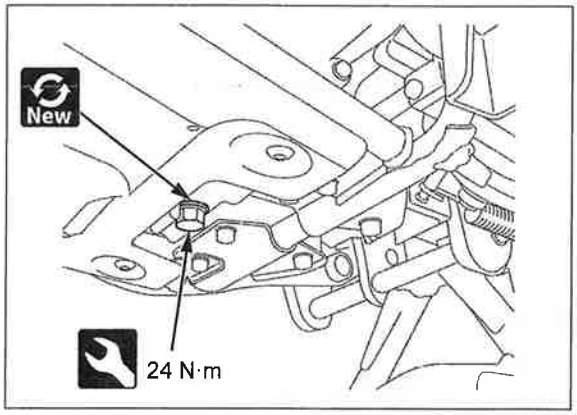


ENGINE OIL LEVEL CHECK



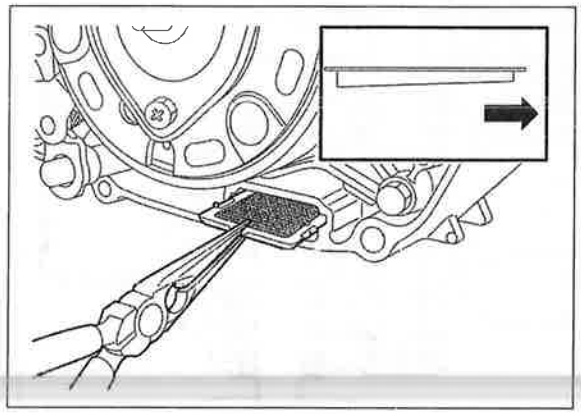
- Place the vehicle on the level ground with its centerstand.
- Let the engine idle for 3 – 5 minutes.
- Wait for 2 – 3 minutes.
- Remove the dipstick and wipe off the oil with a clean cloth.
- Insert the dipstick without screwing it in, remove it and check the oil level on all faces of the dipstick is between the upper level and the lower level marks.
- If the oil level is below or near the lower level line on the dipstick, add the recommended oil to the upper level by removing the oil filler cap.
- **RECOMMENDED ENGINE OIL:**
  Pro Honda GN4 4-stroke oil (U.S.A. & Canada) or equivalent motorcycle oil
  API service classification: SG or higher
  JASO T903 standard: MA
  Viscosity: SAE 10W-30"

ENGINE OIL



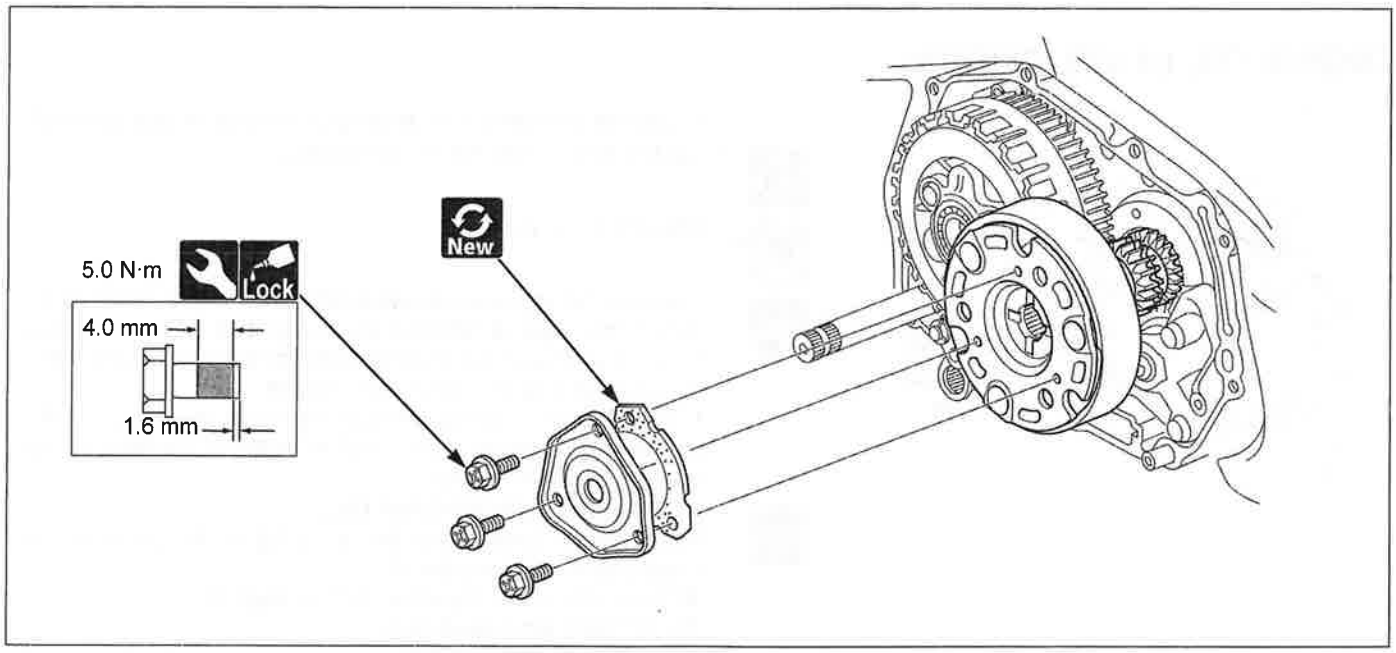
- Remove the drain bolt and sealing washer. Drain oil completely.
- Install the oil drain bolt with a new sealing washer and tighten it to the specified torque.
- Fill the crankcase with the recommended engine oil.
- Check that the O-ring on the oil filler cap is in good condition, and replace it if necessary.
- **ENGINE OIL CAPACITY:**
  0.7 liter after draining
  0.9 liter after disassembly

ENGINE OIL STRAINER SCREEN CHANGE



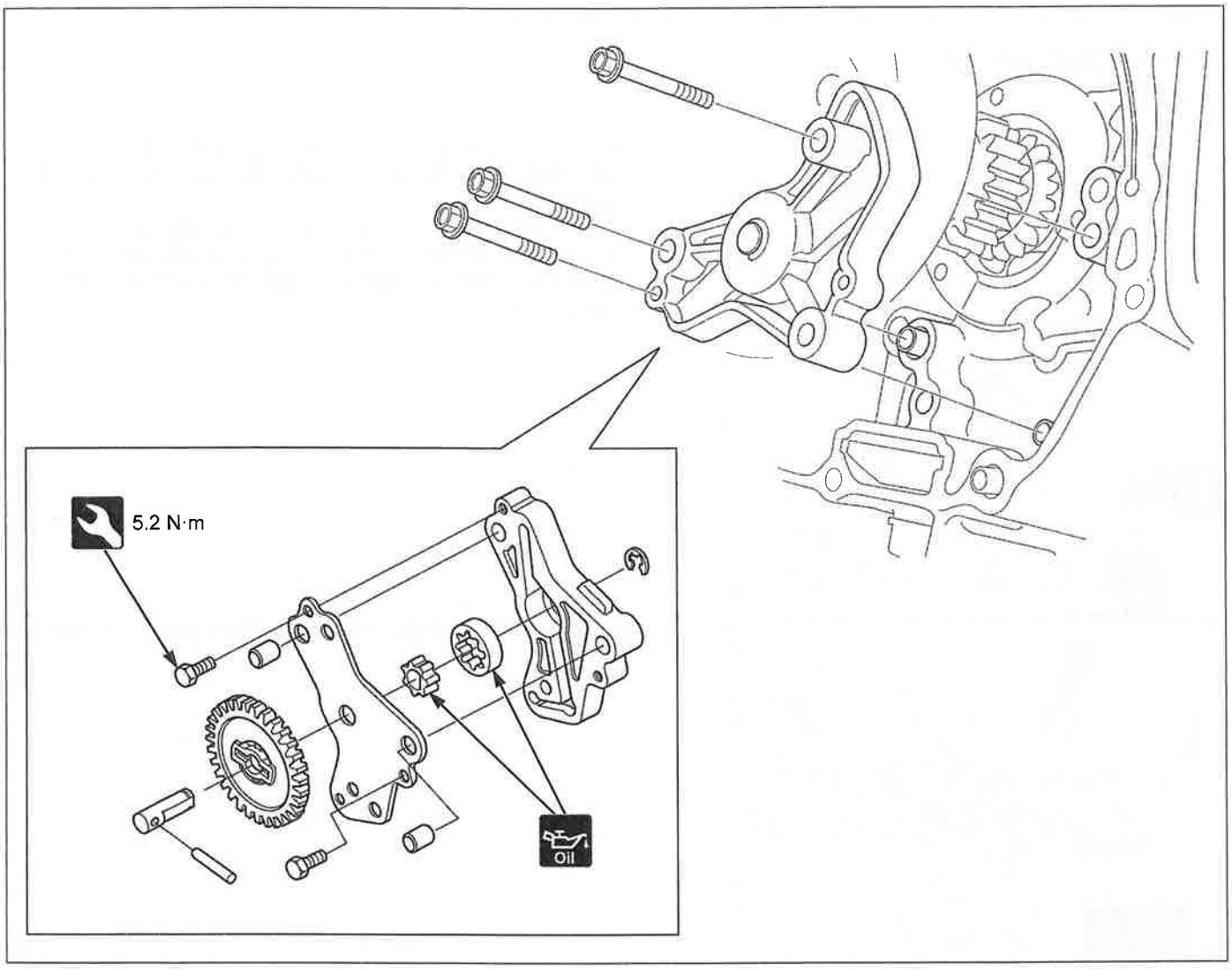
- Drain engine oil completely.
- Right crankcase cover ➔2-23
- Install the oil strainer screen with its tapered side facing the crankcase side and thinner edge facing up.

ENGINE OIL CENTRIFUGAL FILTER CHANGE



- Drain engine oil completely.
- Right crankcase cover ➔2-23
- Clean the oil centrifugal filter cover and inside of the drive plate.
- Install a new gasket with its sealed side facing the oil centrifugal filter cover.

OIL PUMP



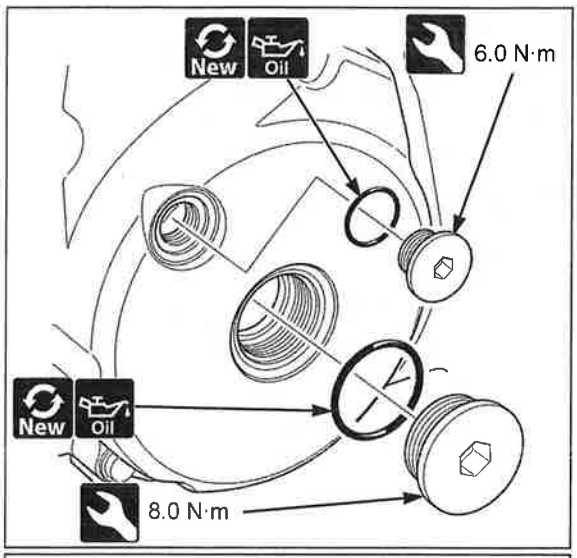
- Right crankcase cover ➔2-23
- Oil pump inspection

CYLINDER HEAD

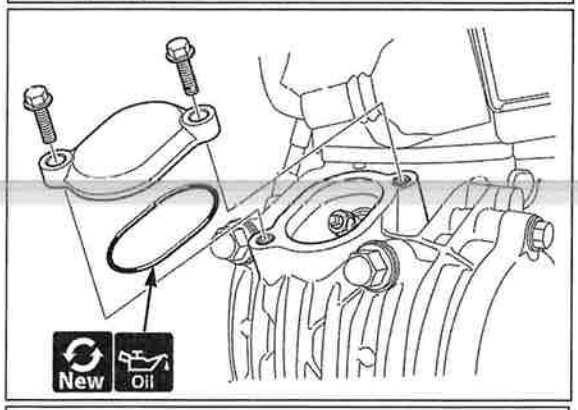
- This service can be performed with the engine installed in the frame.

VALVE CLEARANCE

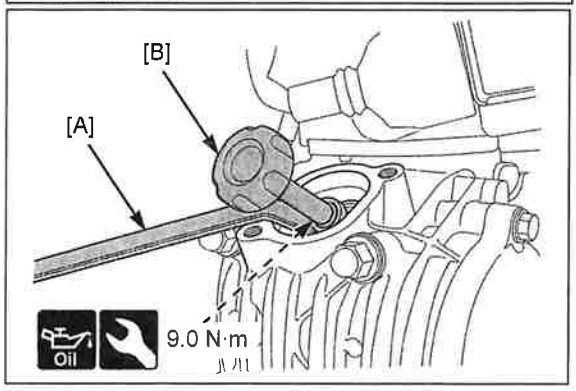
INSPECTION



- Inspect while the engine is cold (below 35 °C).
- After the valve clearance inspection, check the engine idle speed.
- Timing hole cap/O-ring, crankshaft hole cap/O-ring
- Rotate the crankshaft counterclockwise and align the "T" mark on the flywheel with the index notch on the left crankcase cover.

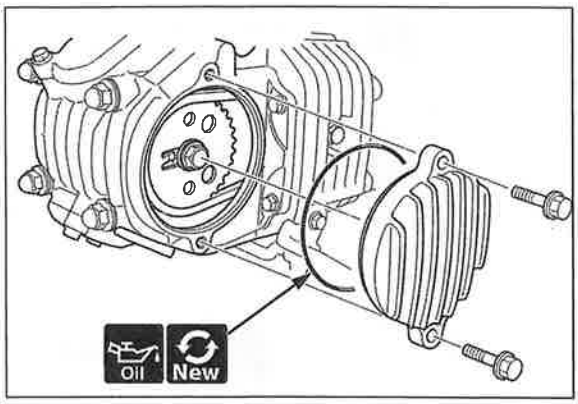


- Remove the two bolts and valve adjusting caps/O-rings.

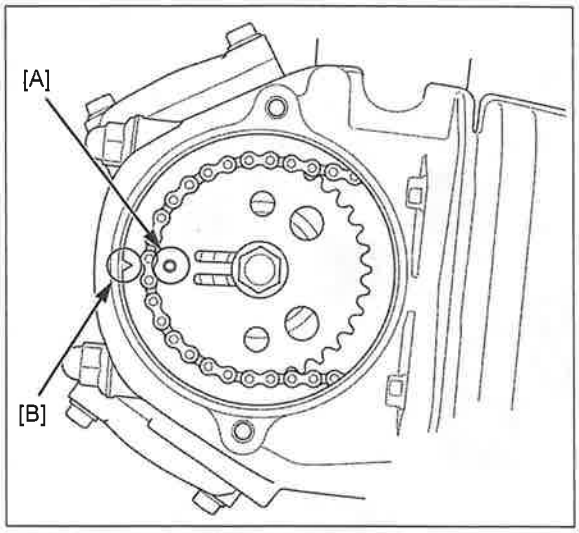


- Valve clearance (Insert a feeler gauge between the valve adjusting screw and valve stem).
  IN: 0.10 ± 0.02 mm, EX: 0.17 ± 0.02 mm
  [A] Lock nut wrench, 8 x 9 mm: 07708-0030100 or equivalent commercially available in U.S.A.
  [B] Valve adjusting wrench: 07708-0030400 or 07908-3290200 (U.S.A. only)
- Loosen the lock nut and turn the adjusting screw until there is a slight drag on the feeler gauge.
- Hold the adjusting screw and tighten the lock nut.
- Recheck after tightening.

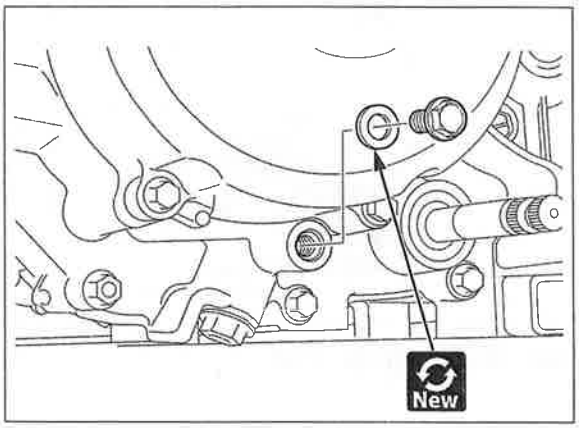
CAMSHAFT/ROCKER ARM



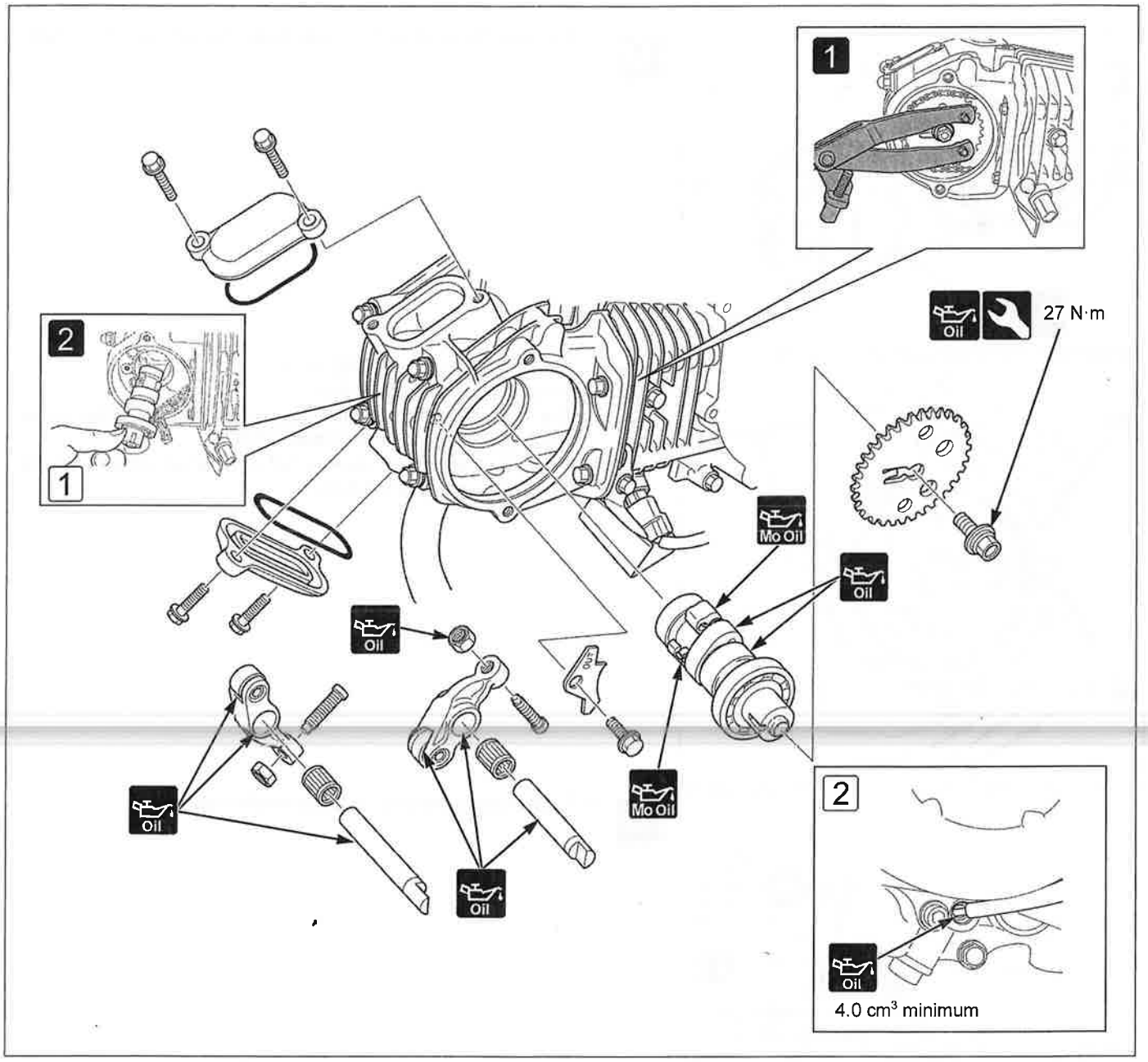
- Remove the bolt and cylinder head left side cover /gasket.



- Set the piston to the TDC on the compression stroke. ➔2-16
- The mark [A] on the sprocket is aligned with the index notch [B] on the cylinder head. (TDC).
  If the cam sprocket mark is not in position shown, rotate the crankshaft one full turn



- Cam chain tensioner sealing washer and bolt.

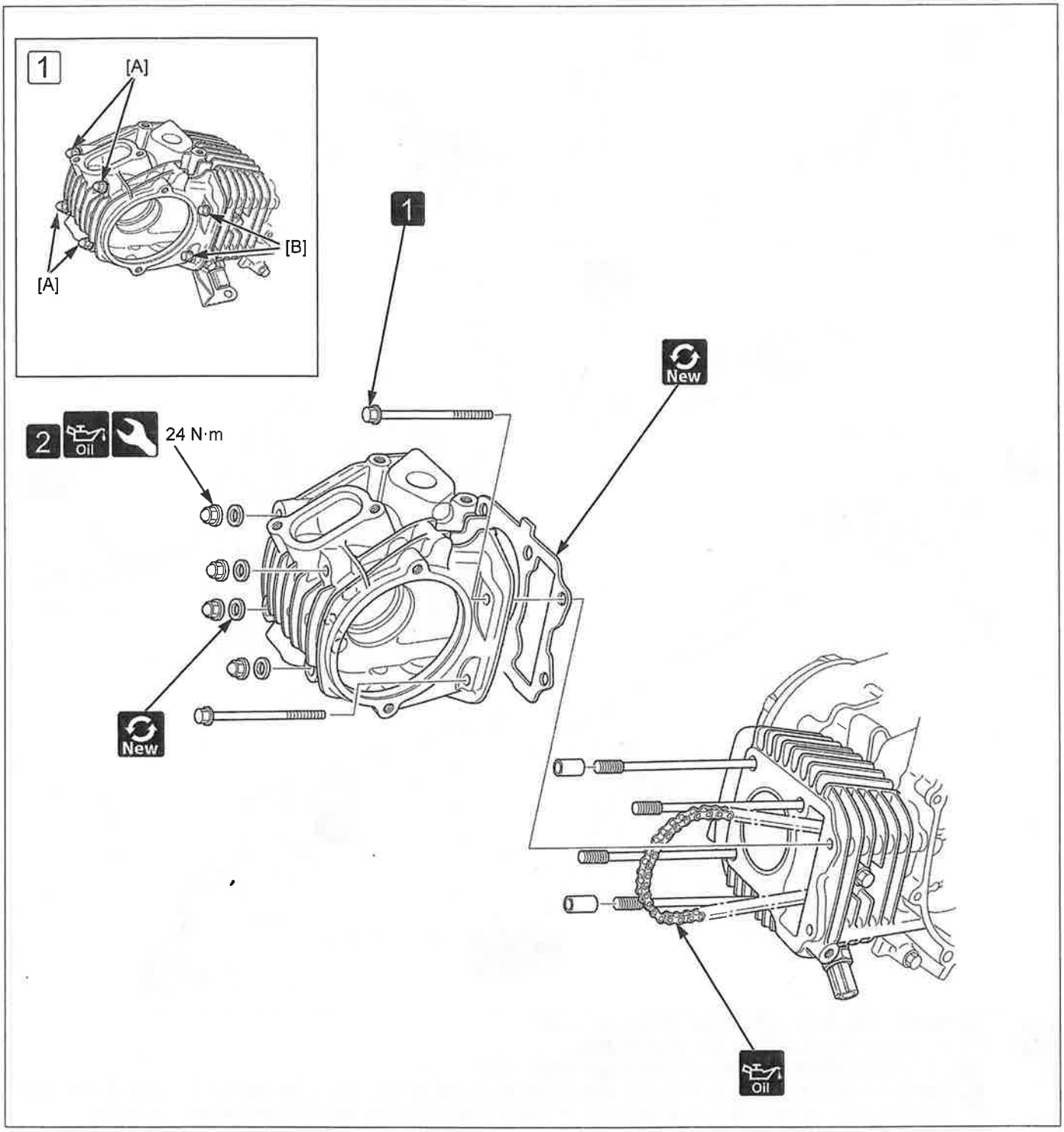


- Remove the bolt, cam sprocket from the camshaft and cam chain off the cam sprocket.
- 1 Hold the cam sprocket by using the special tool.
  Universal holder: 07725-0030000
- 2 Remove the camshaft from the cylinder head while holding the rocker arms to ease removal.

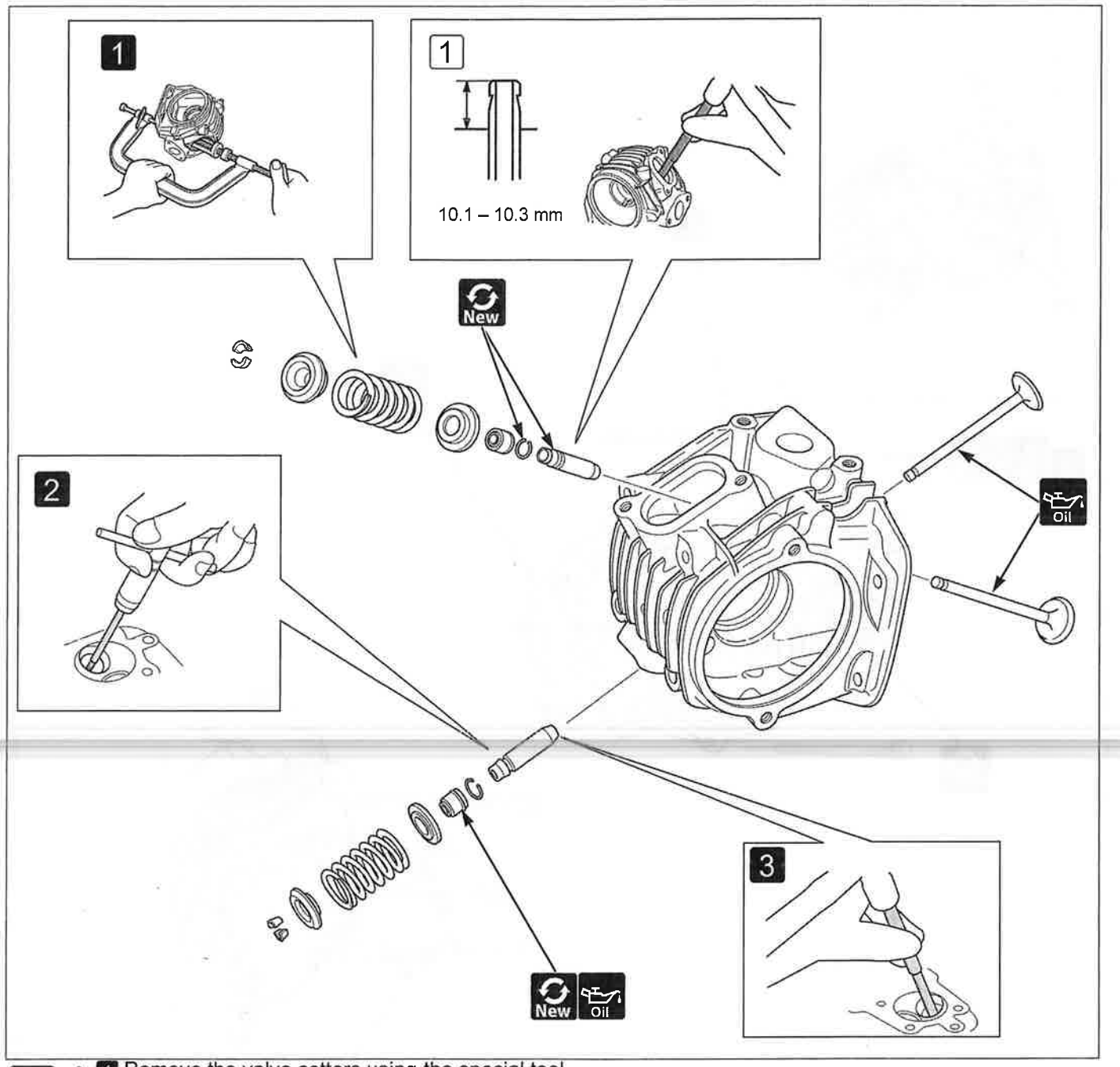
- Inspect cam sprocket, camshaft and camshaft bearings for damage, abnormal wear, deformation, burning or clogs in oil passages.
- Measure each part according to cylinder head/valves specification. Replace any part if it is out of service limit.

- [1] Install the camshaft into the cylinder head with its groove facing forward while holding the rocker arms to ease installation.
- Install and tighten the cam sprocket bolt to specified torque.
- [2] Pour 4.0 cm^3 minimum of engine oil into the push rod.

- Camshaft inspection.



- Insulator ➔2-8
- Exhaust pipe/muffler ➔3-19
- Spark plug cap ➔4-23
- O_2 sensor ➔4-21
- Camshaft ➔2-17
- Air cleaner housing mounting bolts ➔2-7
- 1 Remove the cylinder head bolts.
- 2 Loosen the cylinder head nuts in a crisscross pattern in several steps.
- 1 Install the cylinder head nuts [A] first, then the cylinder head bolts [B].

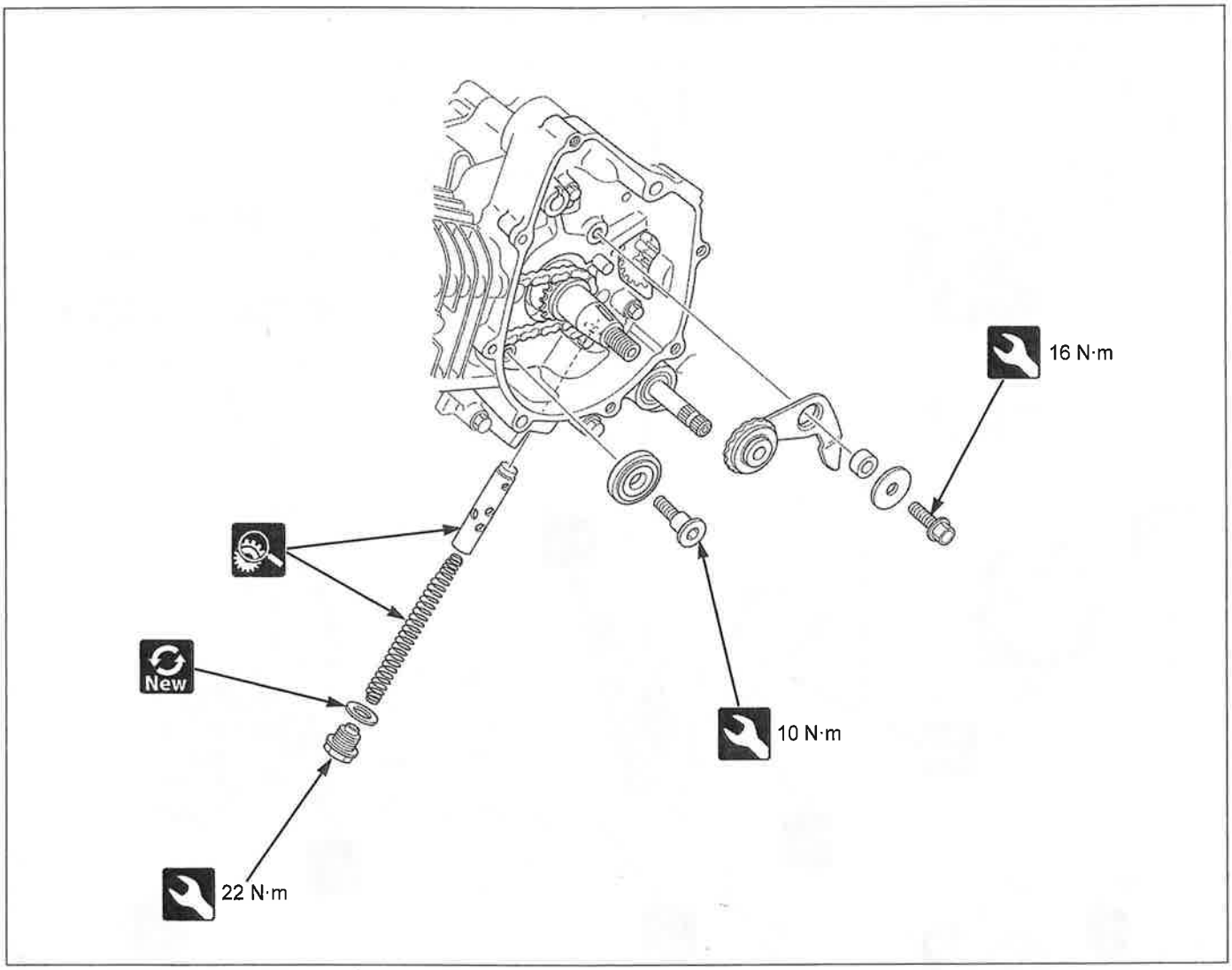


- 1 Remove the valve cotters using the special tool.
  Valve spring compressor: 07757-0010000
  Valve spring compressor attachment: 07959-KM30101
- 2 Ream the valve guide to remove any carbon build up before measuring the guide I.D. Insert the reamer [1] from the combustion chamber side of the cylinder head and always rotate the reamer clockwise.
  Valve guide reamer, 5.0 mm: 07984-MA60001 or 07984-MA6000D (U.S.A. only)
- 3 Support the cylinder head and drive the valve guides out of the cylinder head from the combustion chamber side.
  Valve guide driver, 4.8 mm: 07942-MA60000

- [1] Drive new clips and valve guides into the cylinder head to the specified height from the cylinder head.
  VALVE GUIDE PROJECTION: IN/EX: 10.1 – 10.3 mm
  Valve guide adjusting driver: 07743-0020000 (Not available in U.S.A.)

Basic
- Valve and valve spring inspection.
- Valve guide inspection.
- Valve seat inspection.

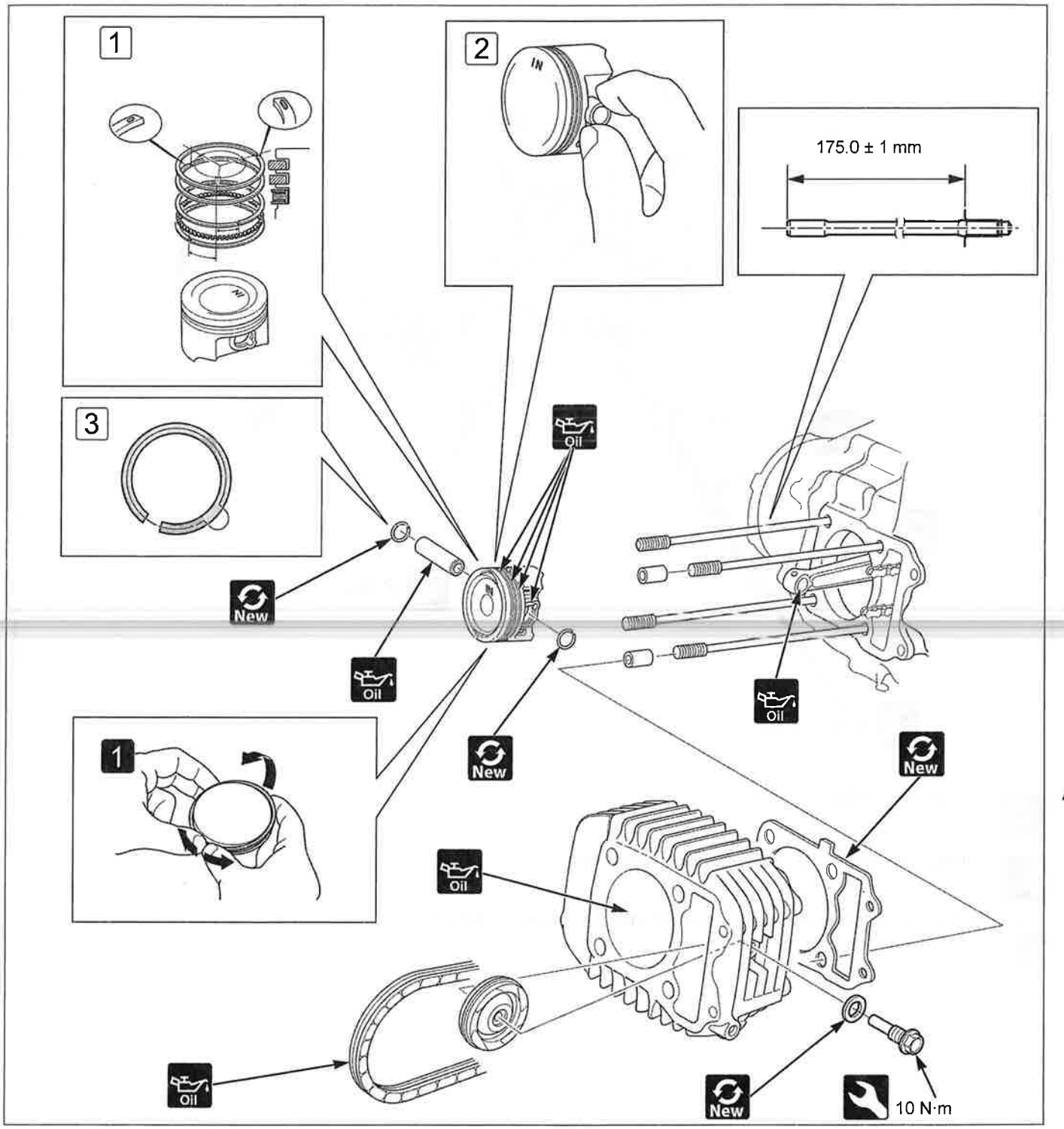
CAM CHAIN TENSIONER



- Alternator ➔2-26
- Inspect tensioner spring length and push rod.
- Pour 4.0 cm^3 minimum of engine oil into the push rod.➔2-17

CYLINDER/PISTON

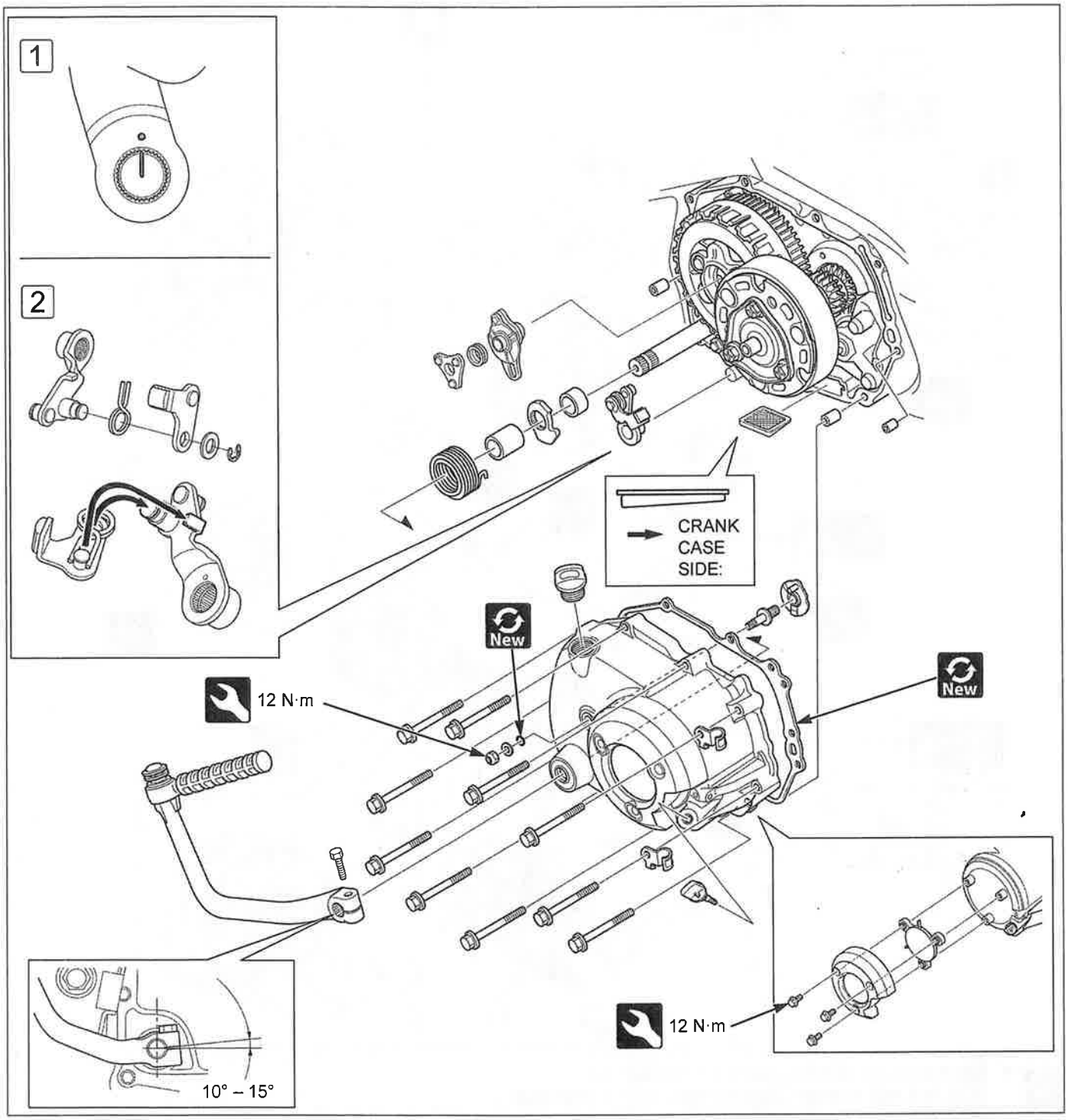
- This service can be performed with the engine installed in the frame.



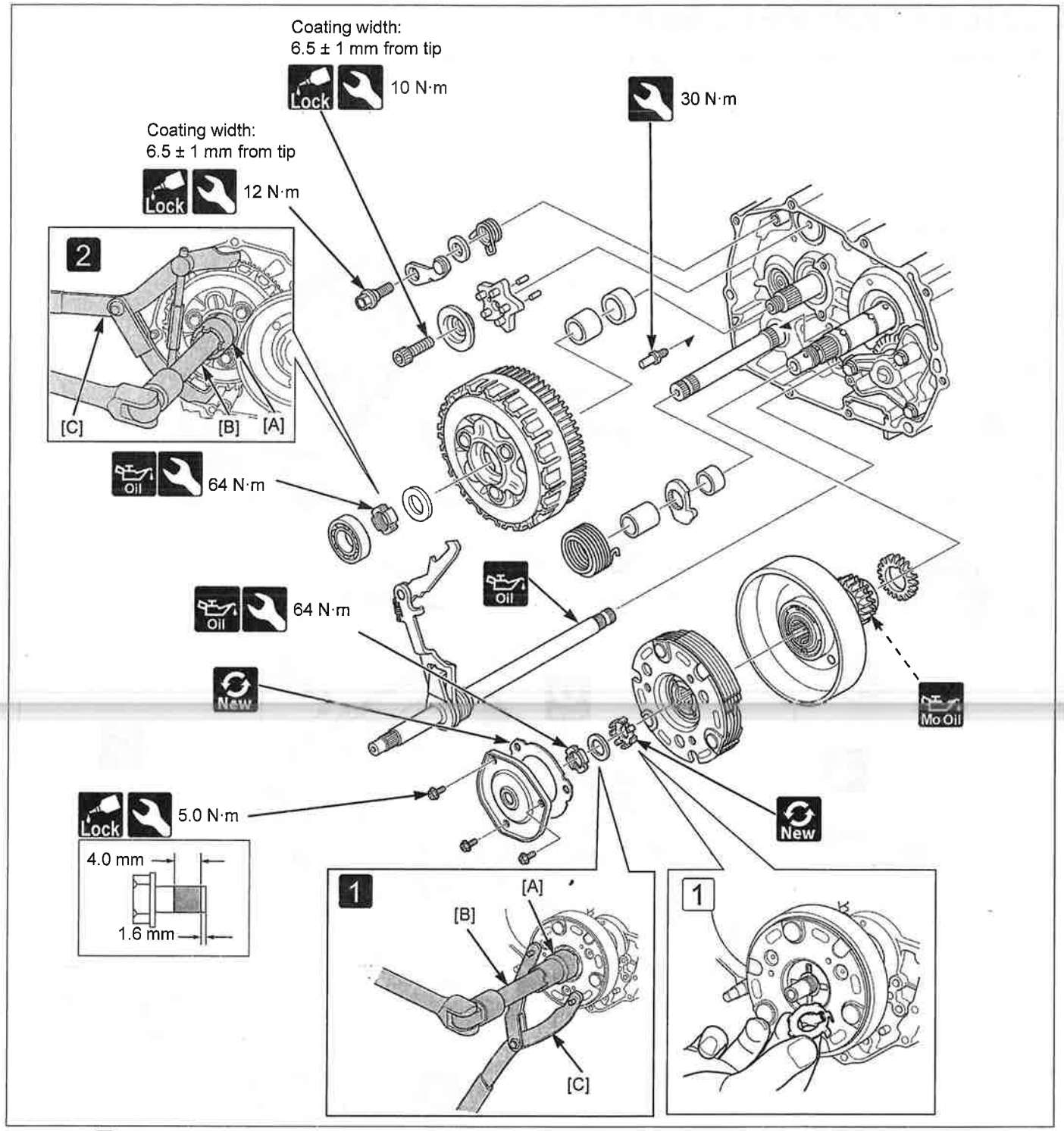
- Cylinder head ➔2-16
- EOT sensor connector ➔4-21
- 1 Spread each piston ring and remove it by lifting up at a point opposite the gap.
- [1] Carefully install the piston rings into the piston ring grooves with the markings facing up.
- [2] Install the piston with the "IN" mark facing the intake side.
- [3] Do not align the piston pin clip end gap with the piston cut-out.
- Piston and piston rings inspection
- Cylinder inspection

CLUTCH/GEARSHIFT LINKAGE

- This service can be performed with the engine installed in the frame.

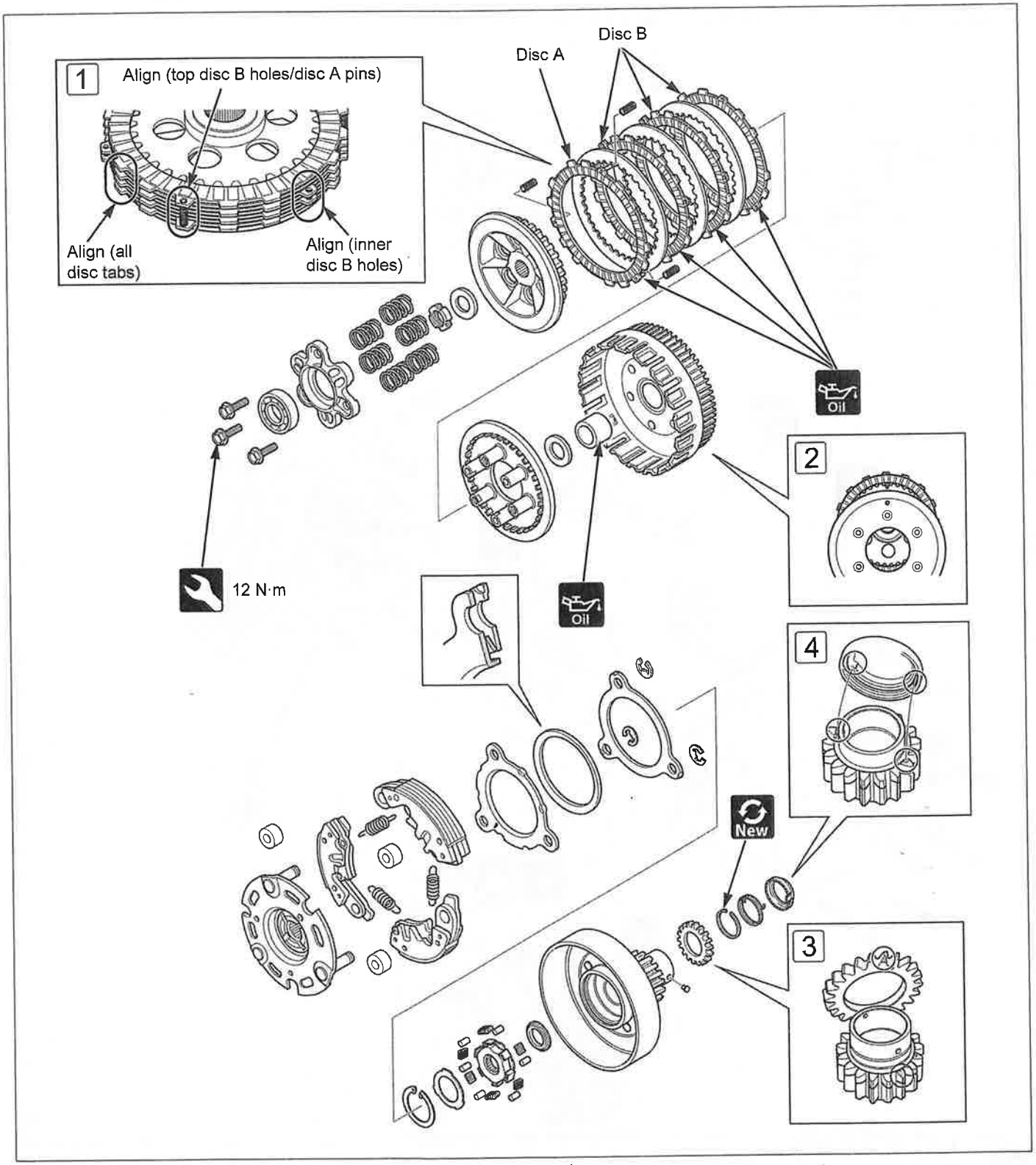


- Gearshift pedal ➔3-13
- Step bar ➔3-16
- Exhaust pipe/muffler ➔3-19
- Loosen bolts in criss cross pattern in several steps.
- Check the kickstarter spindle oil seal is in good condition, replace if necessary.
- [1] Punch mark on the clutch lever and index line on the gearshift spindle.
- [2] Install the clutch lever onto the brake plate aligning the spring ends with the boss on the clutch lever.
- Adjust the clutch system lock nut after installing the right crankcase cover.



- 1 Loosen the lock nut using the special tools
  [A] Lock nut wrench, 20 x 24 mm: 07716-0020100
  [B] Extension bar: 07716-0020500 or equivalent commercially available in U.S.A.
  [C] Universal holder: 07725-0030000
- 2 Hold the primary drive and driven gear with gear holder. Loosen the clutch center lock nut using the special tool and remove it.
  [A] Lock nut wrench, 20 x 24 mm: 07716-0020100
  [B] Extension bar: 07716-0020500 or equivalent commercially available in U.S.A.
  [C] Clutch center holder: 07724-0050002 or equivalent commercially available in U.S.A.
- 1 Install a new lock washer onto the crankshaft aligning its inner tab with the groove of the drive plate.

- This service can be serviced with the engine installed in the frame.

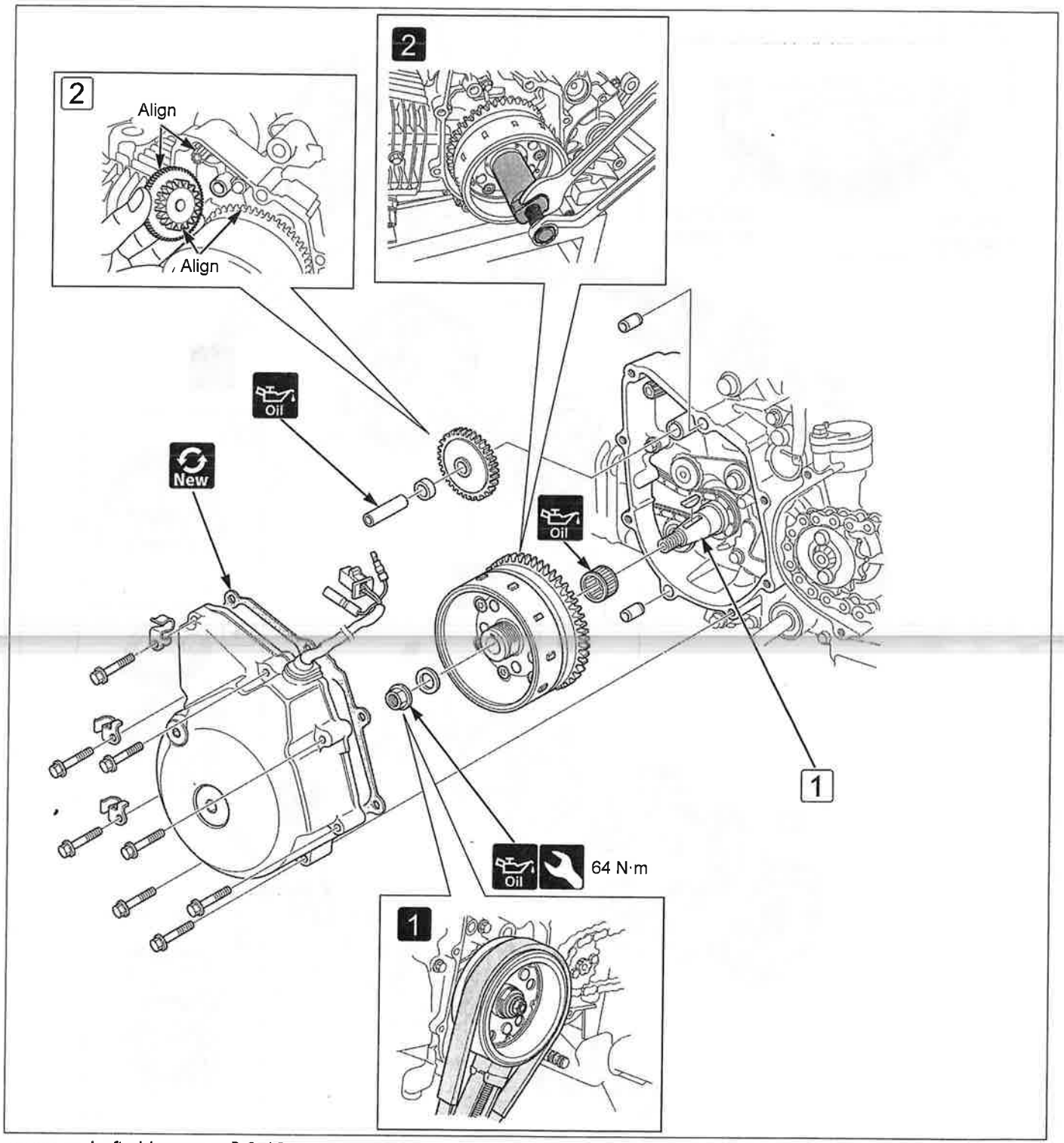


- 1 Turn the clutch discs so their tabs are lined up as shown.
- 2 Install the pressure plate onto the clutch center, while aligning the marks of the clutch center and pressure plate.
- 3 Rotate the sub-gear and align the cut-out of each gear.
- 4 Install the spring retainer on the centrifugal clutch outer while aligning the spring end and sub-gear holes.
- Clutch inspection

Basic

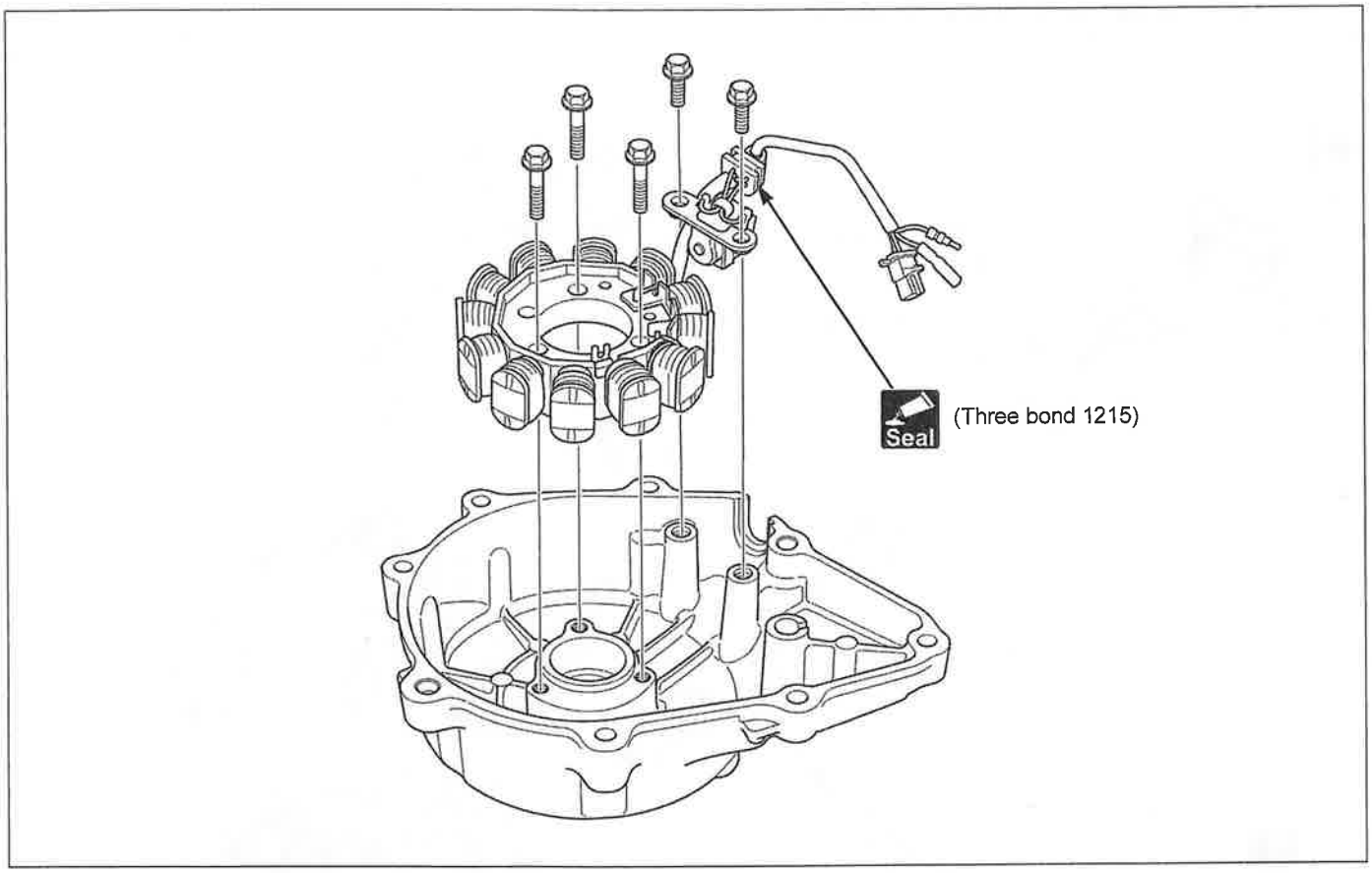
ALTERNATOR/STARTER CLUTCH

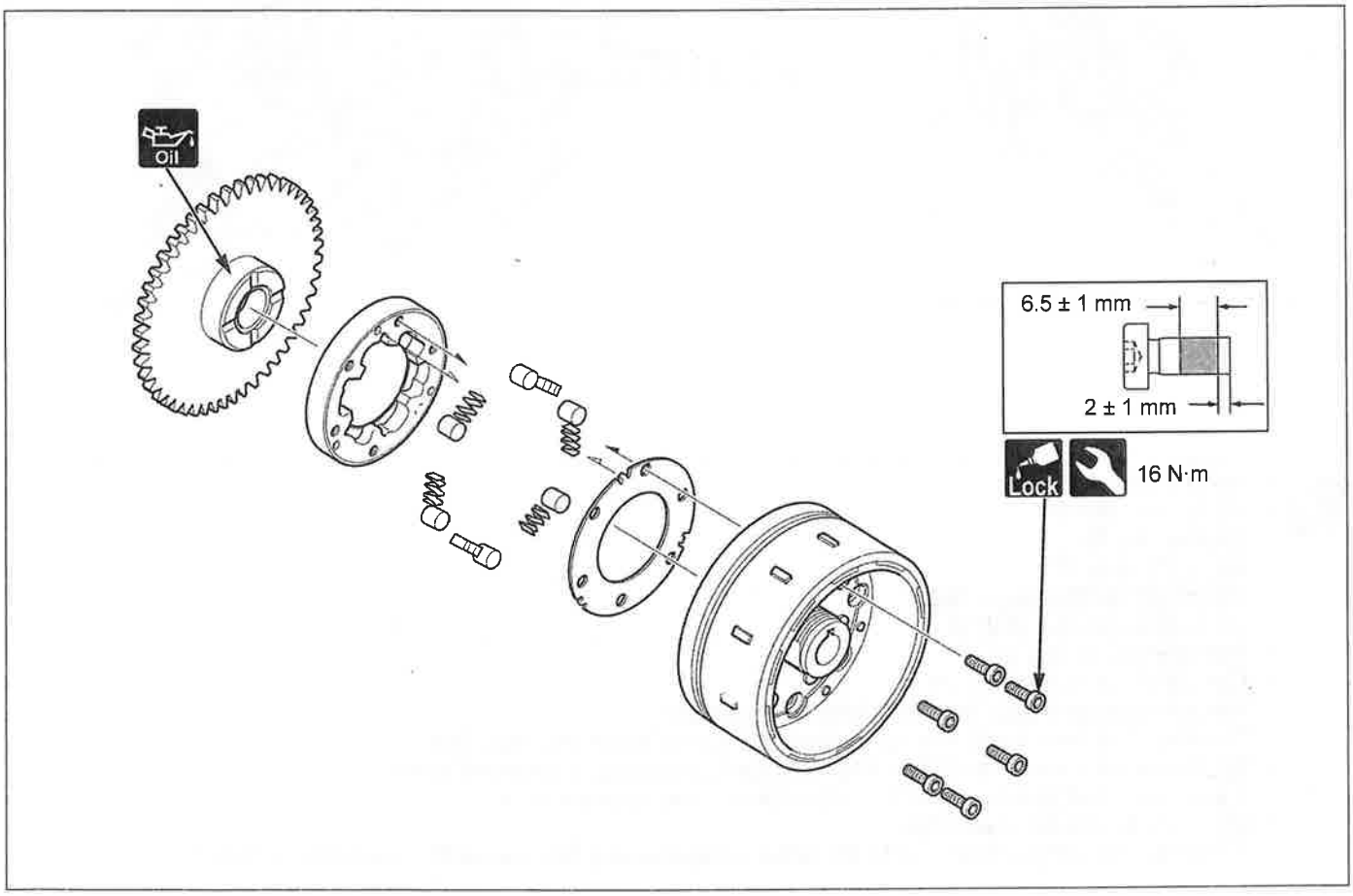
- This service can be serviced with the engine installed in the frame.



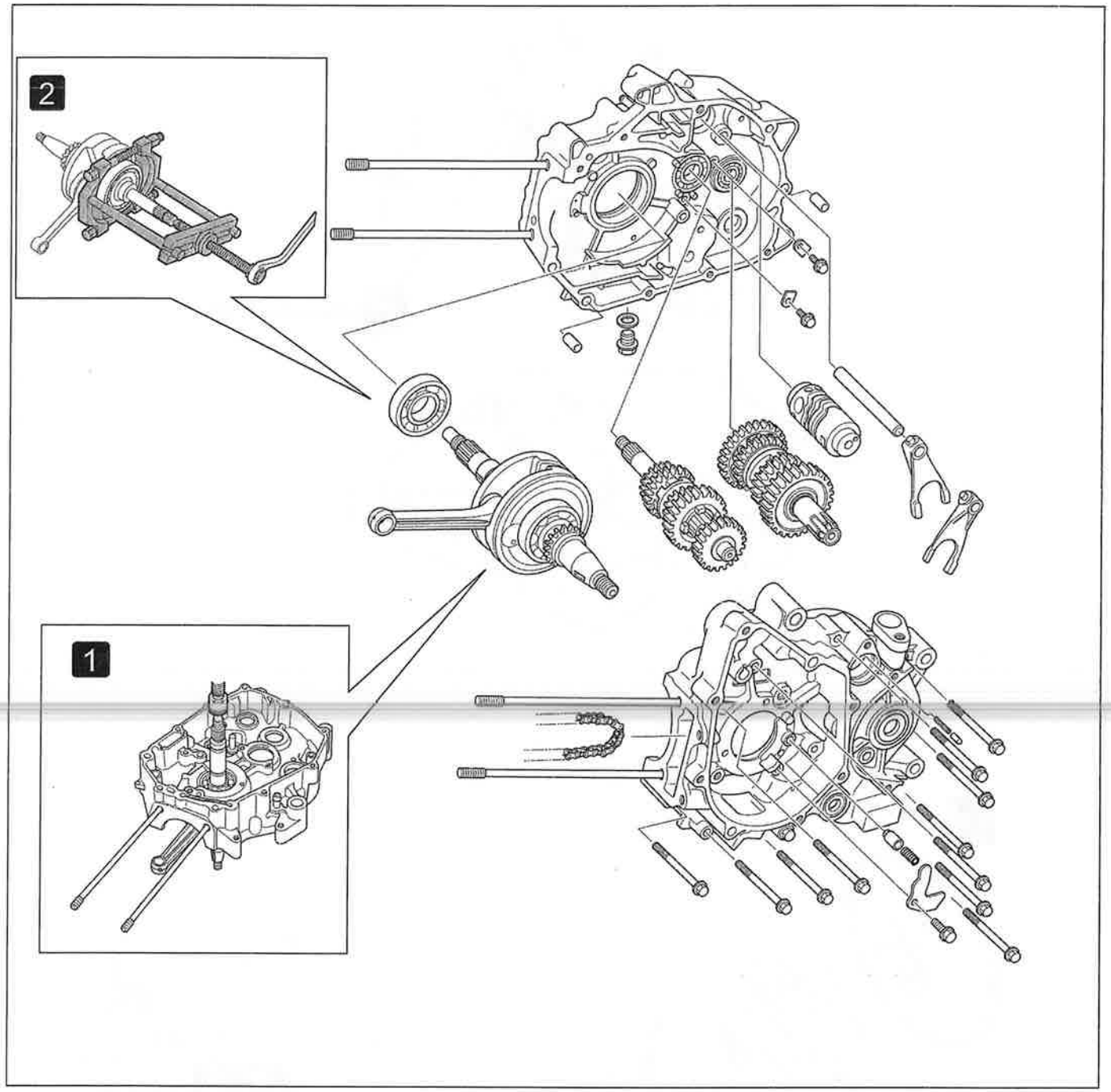
- Left side cover ➔3-10
- Drive sprocket cover ➔3-14
- 1 Flywheel nut.
  Flywheel holder: 07725-0040001
- 2 Flywheel
  Flywheel puller, 30 mm: 07KMC-HE00100

- [1] Clean any oil and grease from crankshaft and flywheel contact area. Install the flywheel onto the crankshaft by aligning the key way on the flywheel with the woodruff key.
- [2] Install the starter reduction gear with aligning the starter drive gear and starter driven gear.


Seal
(Three bond 1215)


Oil
6.5 ± 1 mm
2 ± 1 mm
Lock
16 N·m

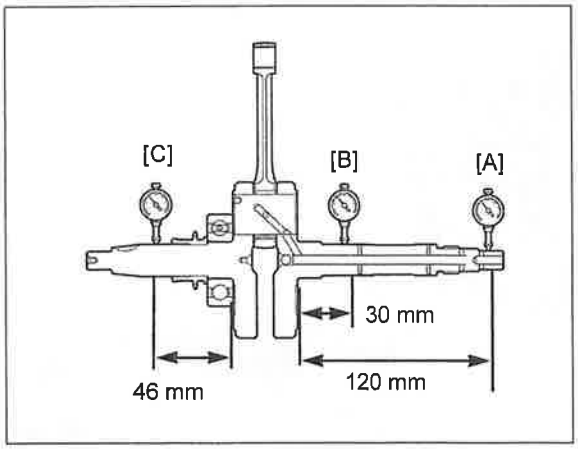
CRANKCASE/CRANKSHAFT



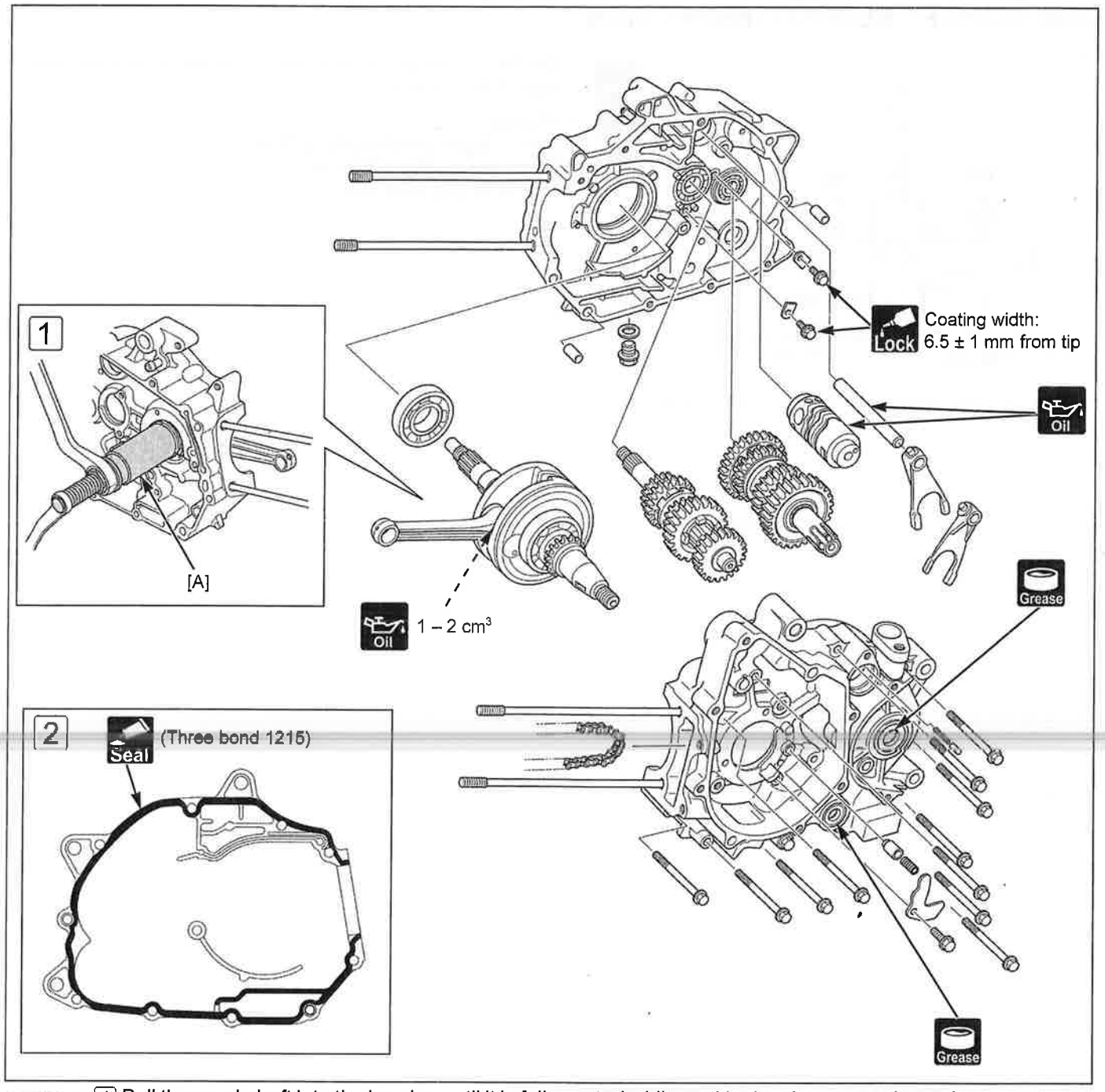
- Neutral switch ➔4-28
- VS sensor ➔4-48
- Engine ➔2-33
- Oil pump ➔2-15
- Clutch/gearshift linkage ➔2-23
- Oil centrifugal filter ➔2-14
- Cylinder/piston ➔2-22
- Cam chain tensioner ➔2-21
- Remove the crankcase bolts in a crisscross pattern.
- Place the crankshaft with the right crankcase facing down and separate.
- 1 Remove the crankshaft from the right crankcase using a hydraulic press.
- If the crankshaft bearing remains in the right crankcase, remove it.
- 2 Bearing from the crankshaft

Universal bearing puller: 07631-0010000 or equivalent commercially available in U.S.A.

CRANKSHAFT RUNOUT INSPECTION



- Set the crankshaft on V-blocks and measure the runout using a dial indicator.
- Runout
  Limit: Right outside [A]: 0.10 mm
  Right inside [B]: 0.05 mm
  Left side [C]: 0.05 mm

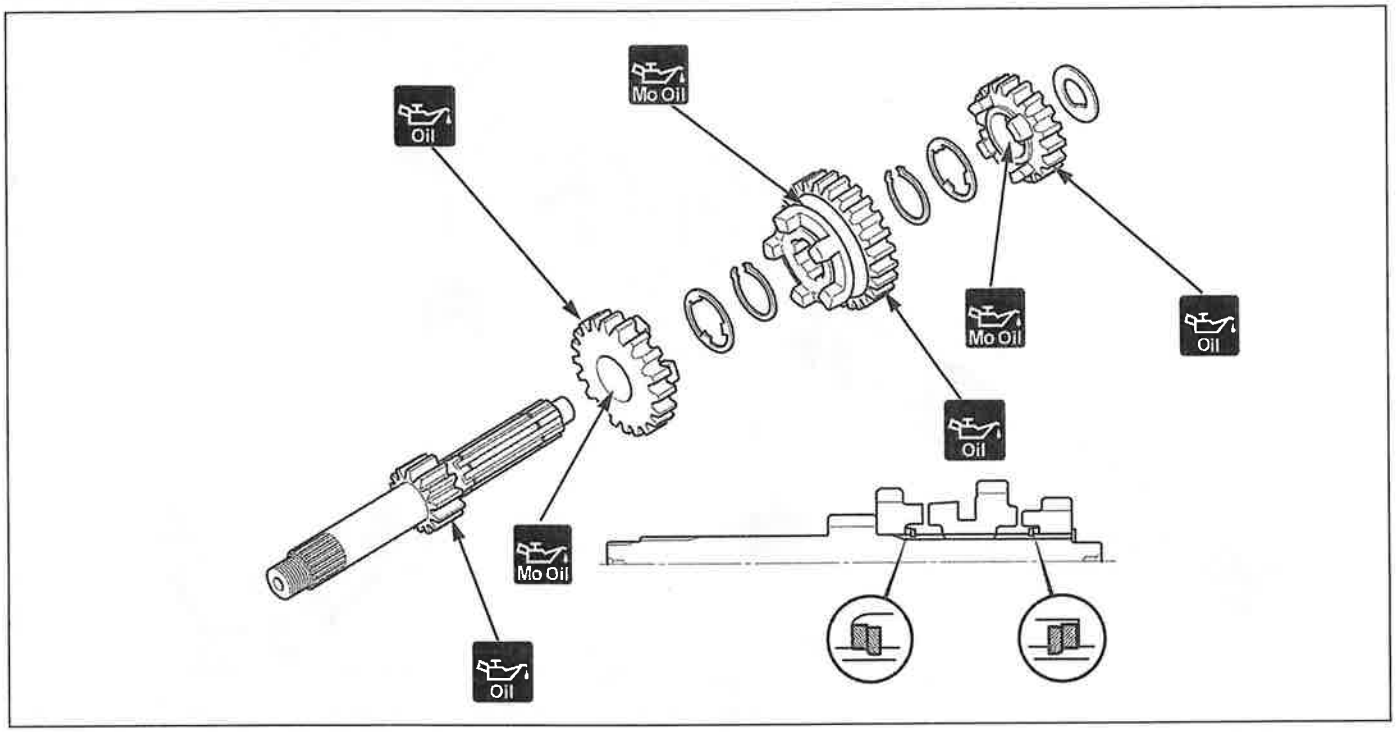


- 1 Pull the crankshaft into the bearing until it is fully seated while positioning the connecting rod in the cylinder sleeve opening on the right crankcase.
  [A] Assembly set, 14 mm: 07JMF-KW70100 (Not available in U.S.A.)
  U.S.A. tools:
  Threaded adapter, 16x1.5 x 14x1.0 mm: 07AMF-K26A100
  Assembly shaft, 22 x 1.5 x 240 mm: 07931-ME4010B
  Special nut: 07931-HB3020A
  Assembly collar: 07YMF-KPB0100
- 2 Apply sealant (Three bond 1215 or equivalent) to the right crankcase mating surface.

Basic
- Crankshaft inspection
- Connecting rod inspection

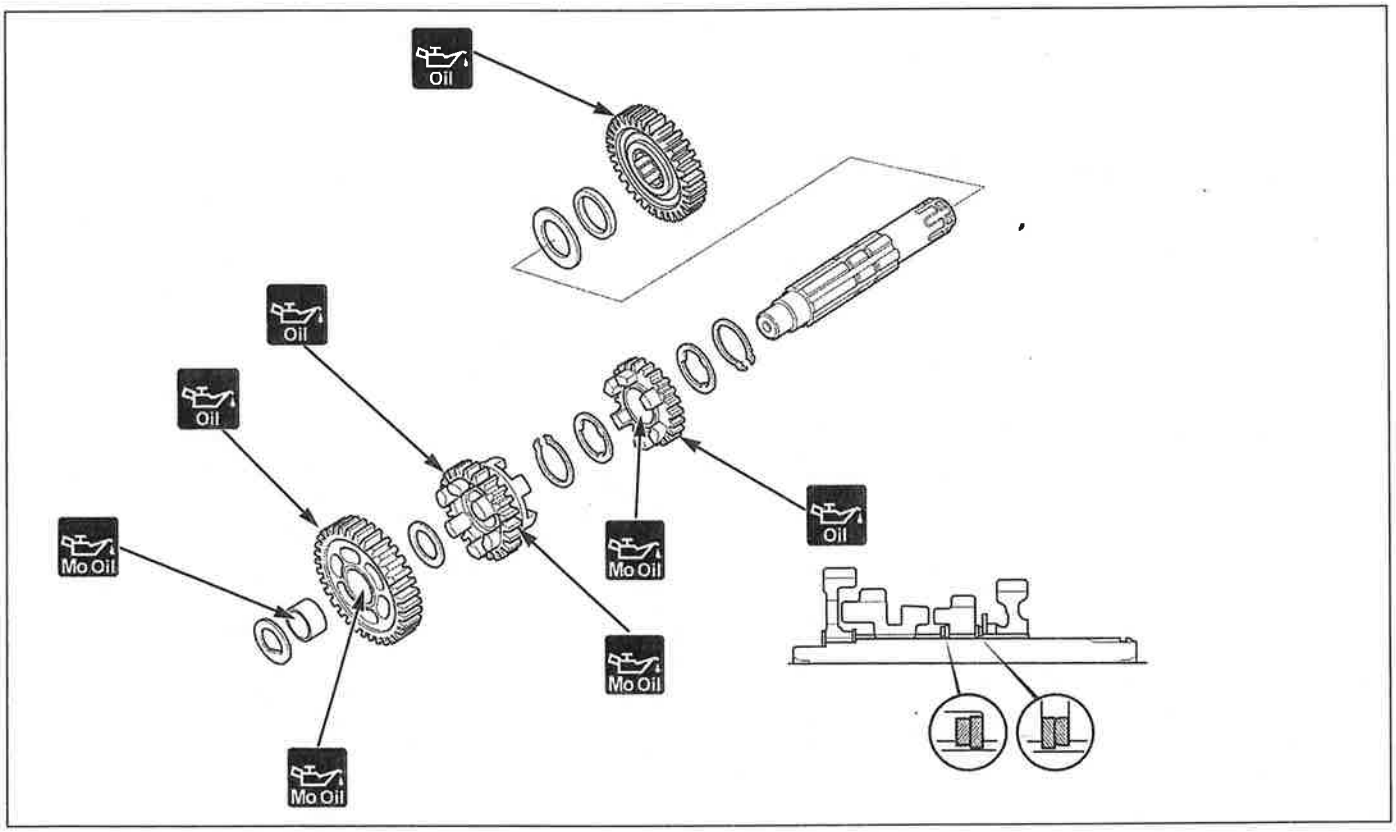
TRANSMISSION

MAINSHAFT



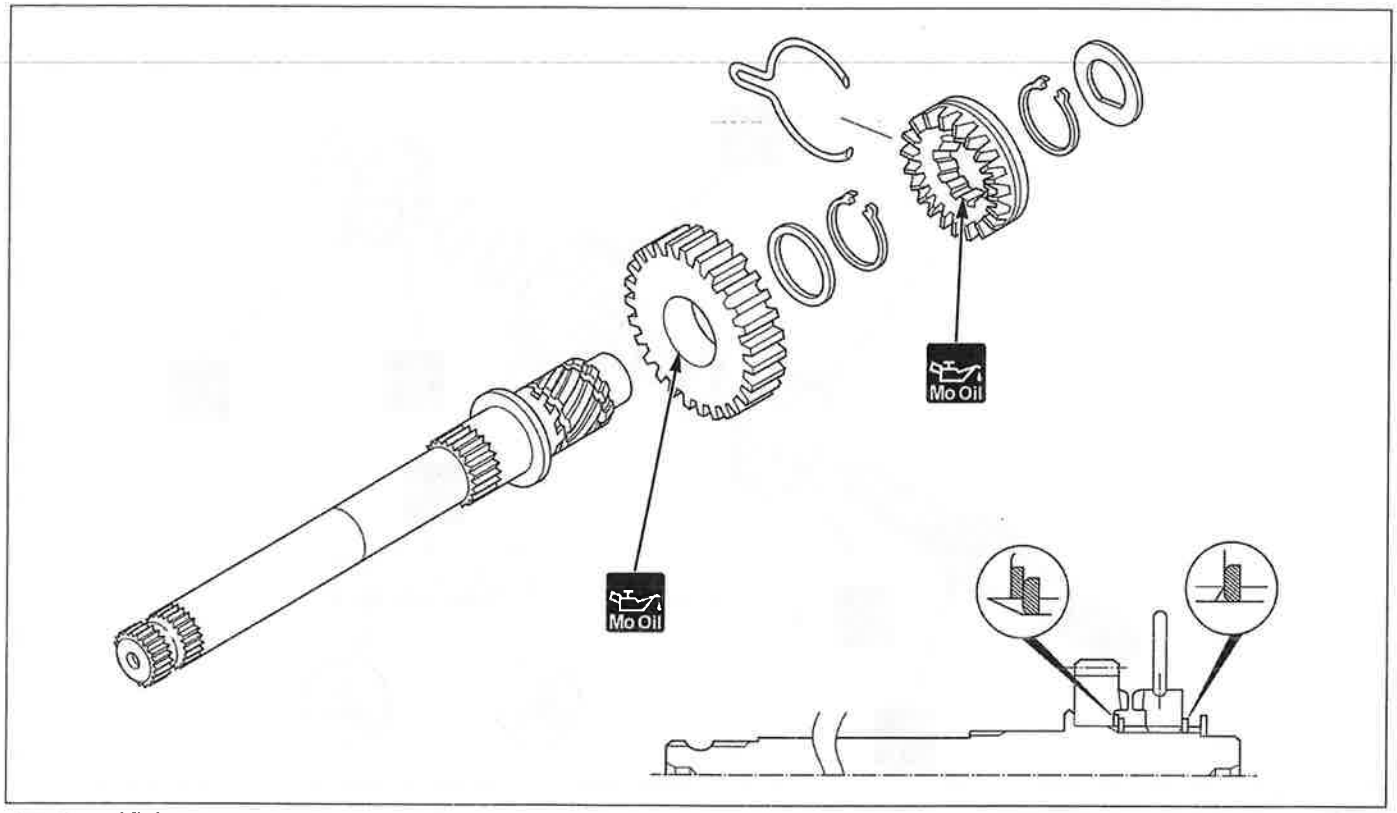
Basic • Transmission inspection

COUNTERSHAFT



Basic • Transmission inspection

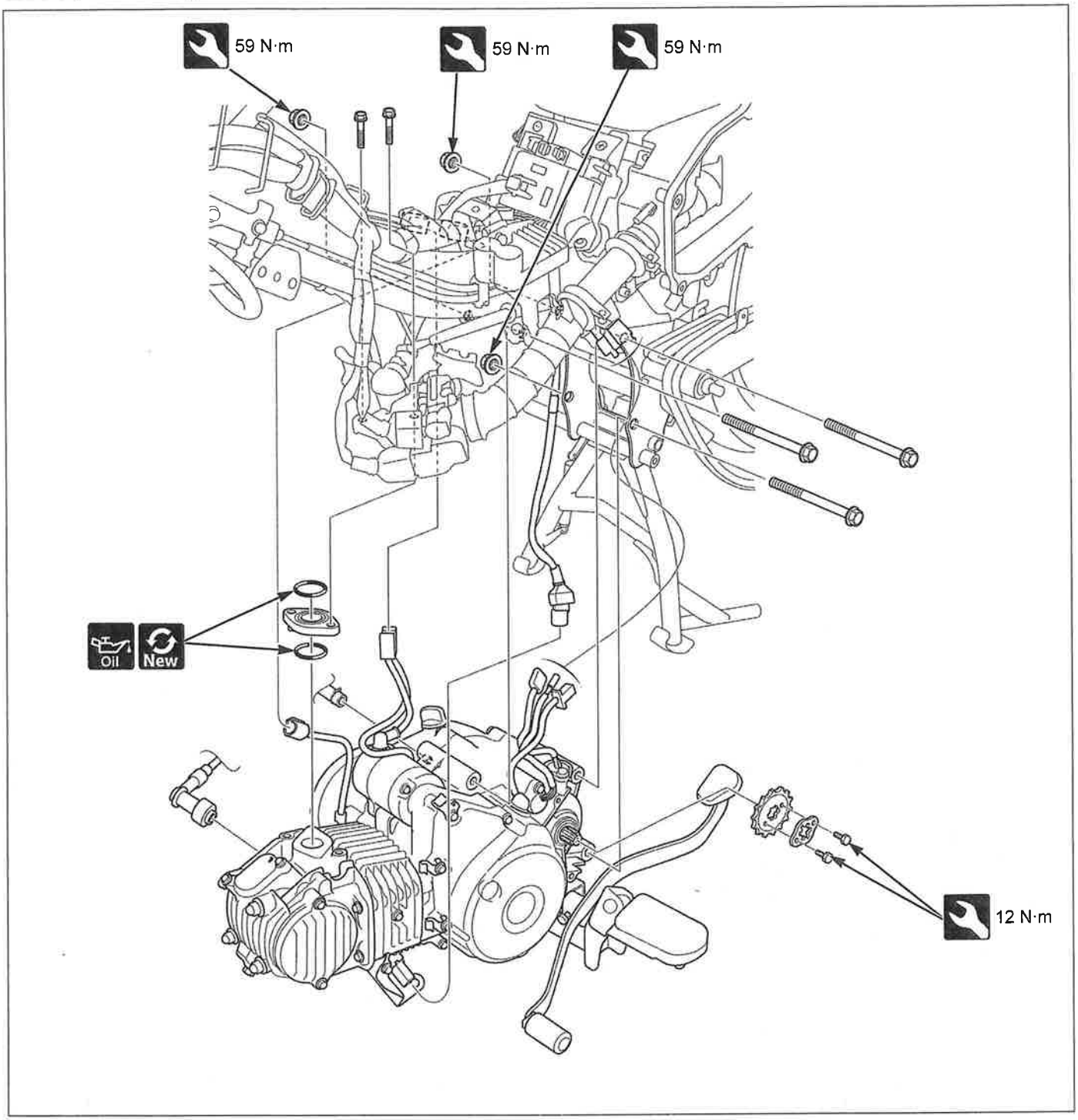
KICKSTARTER



Basic

- Kickstarter inspection

ENGINE UNIT

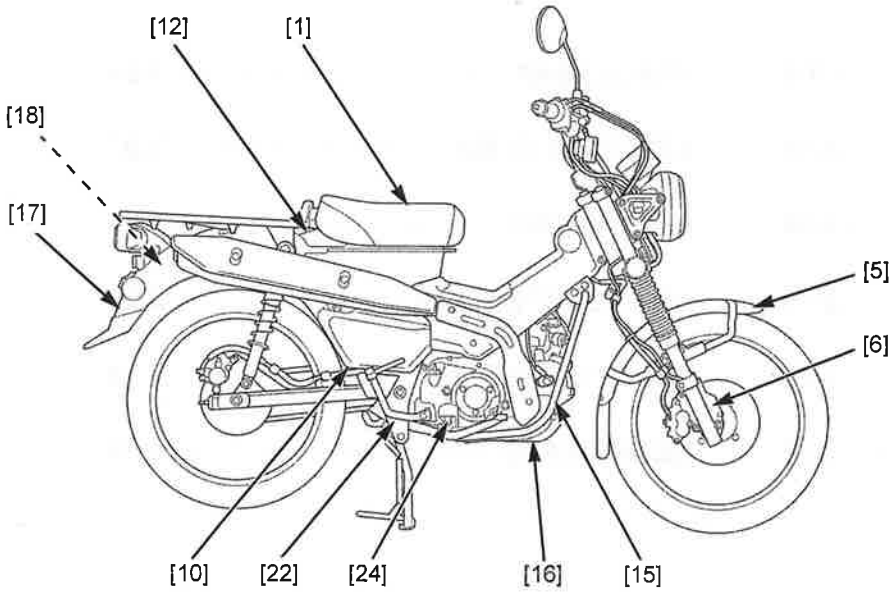


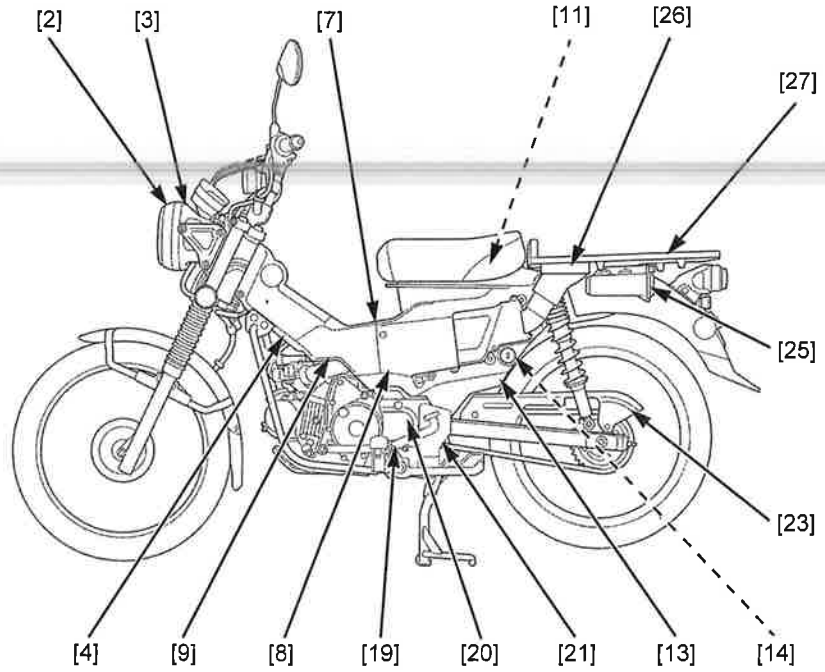
- Main pipe side cover ➔3-7
- Left side cover ➔3-10
- Under cover pipe ➔3-11
- Drive sprocket cover ➔3-14
- Exhaust pipe/muffler ➔3-19

MEMO

3. FRAME & CHASSIS

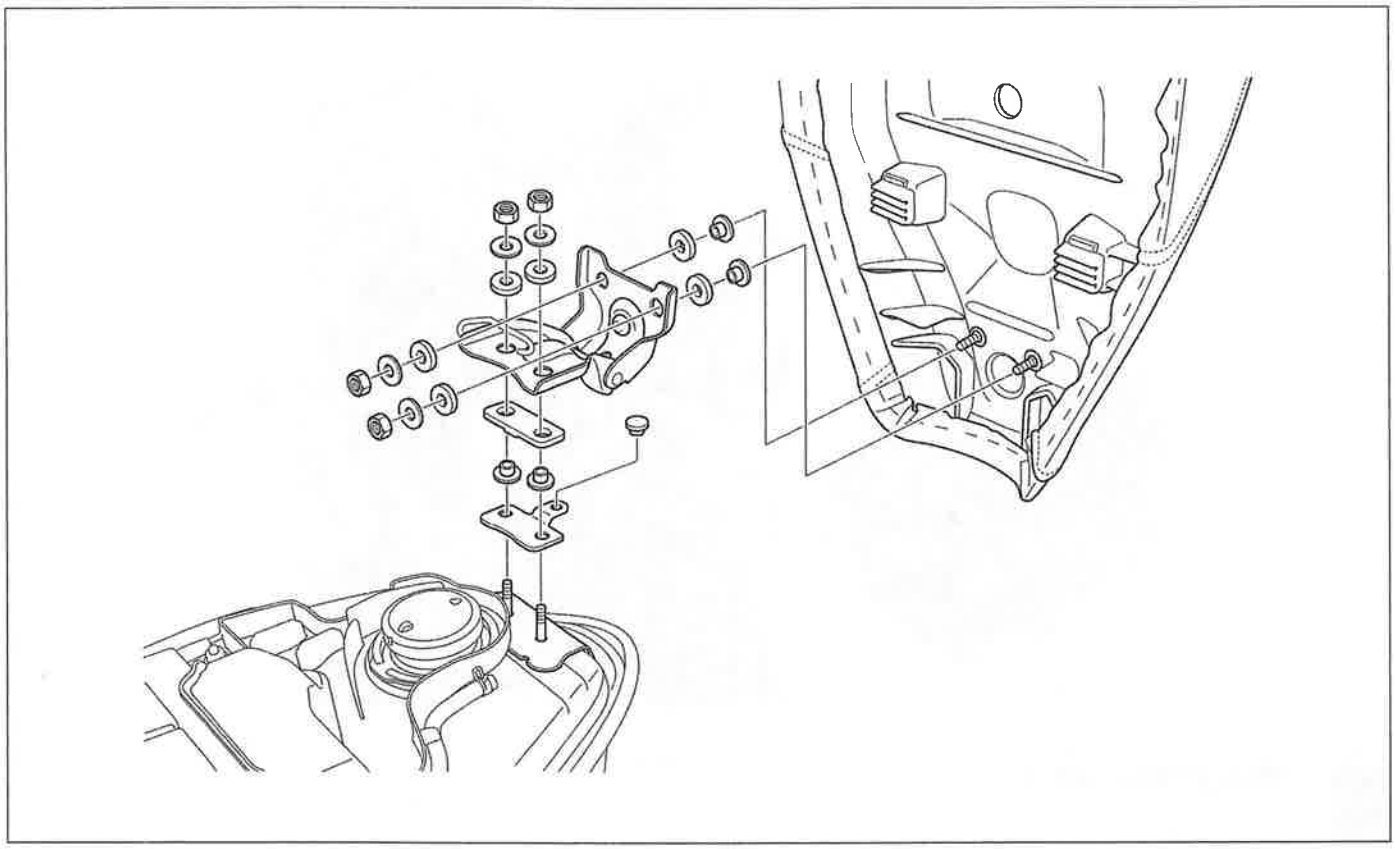
BODY PANELS



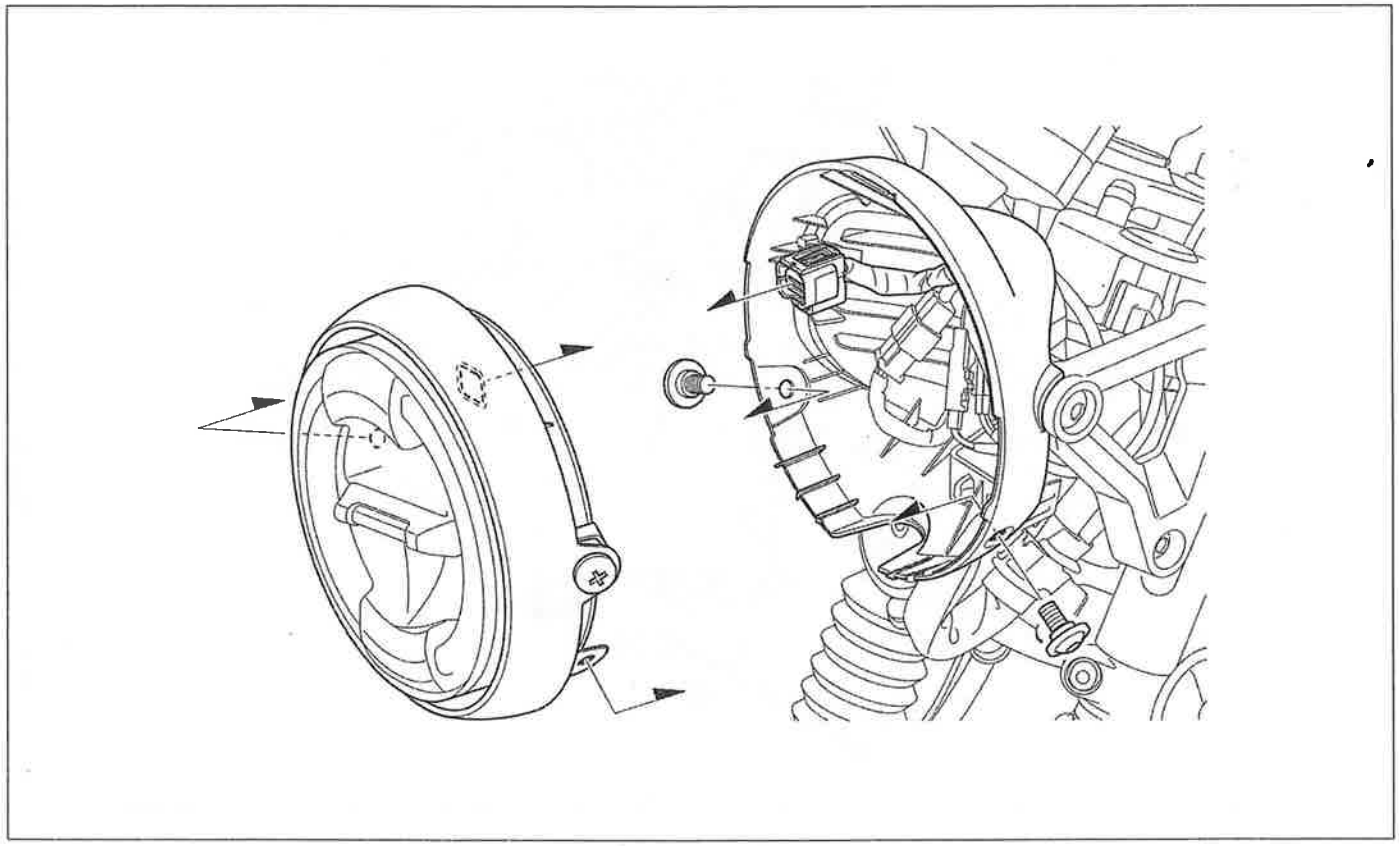


[1] Seat ➔3-3
[2] Headlight cover ➔3-3
[3] Headlight case ➔3-4
[4] Main pipe lower cover ➔3-4
[5] Front fender ➔3-5
[6] Wheel speed sensor cover ➔3-5
[7] Battery lid ➔3-6
[8] Air cleaner garnish ➔3-6
[9] Main pipe side cover ➔3-7
[10] Right side cover ➔3-8
[11] Fuel tank cover ➔3-9
[12] Rear center cover ➔3-8
[13] Left side cover ➔3-10
[14] Seat lock key cylinder ➔3-10
[15] Under cover pipe ➔3-11
[16] Under cover ➔3-11
[17] Rear fender ➔3-12
[18] Rear inner fender ➔3-13
[19] Gearshift pedal➔3-13
[20] Drive sprocket cover➔3-14
[21] Left pivot plate ➔3-14
[22] Right pivot plate ➔3-15
[23] Drive chain case➔3-15
[24] Step bar ➔3-16
[25] Tool box ➔3-16
[26] Air cleaner duct case ➔3-17
[27] Rear carrier ➔3-17

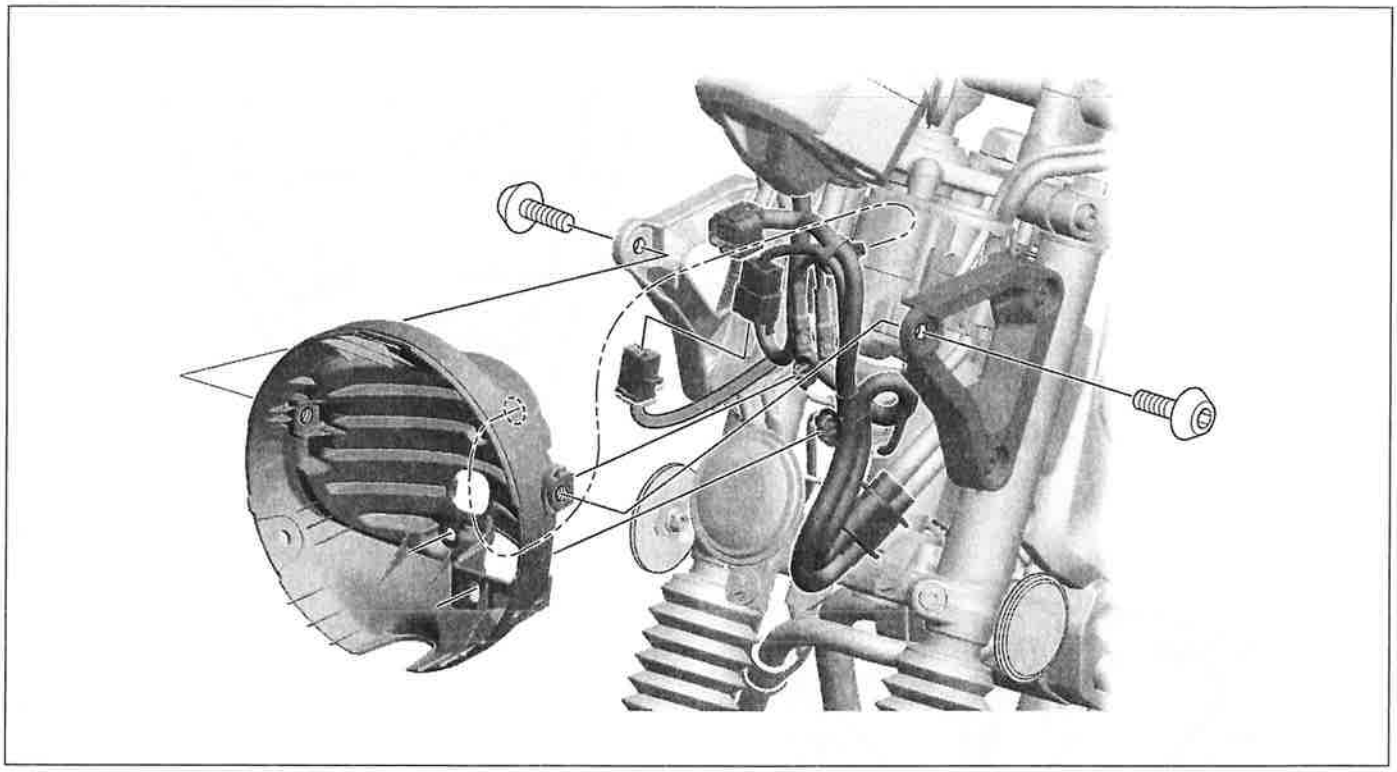
SEAT



HEADLIGHT COVER

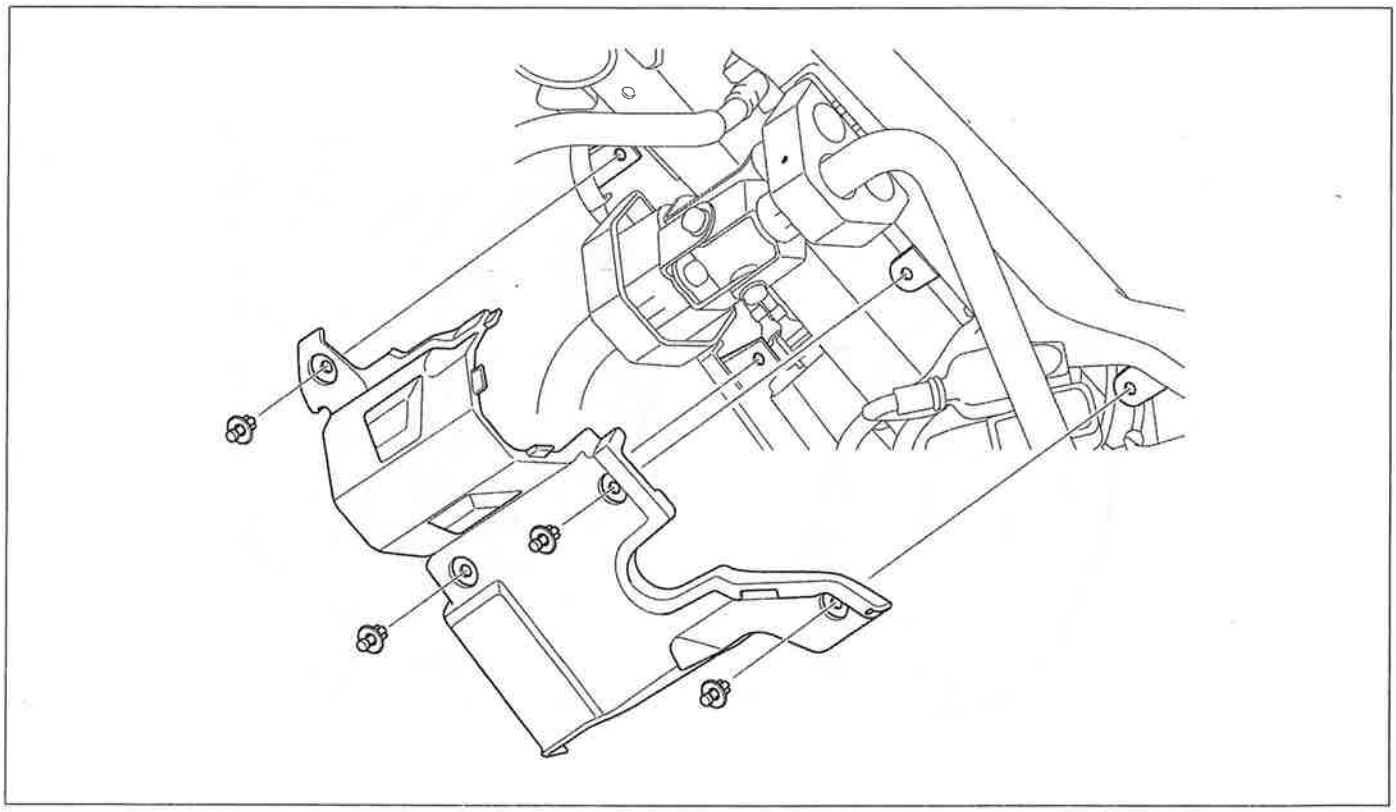


HEADLIGHT CASE

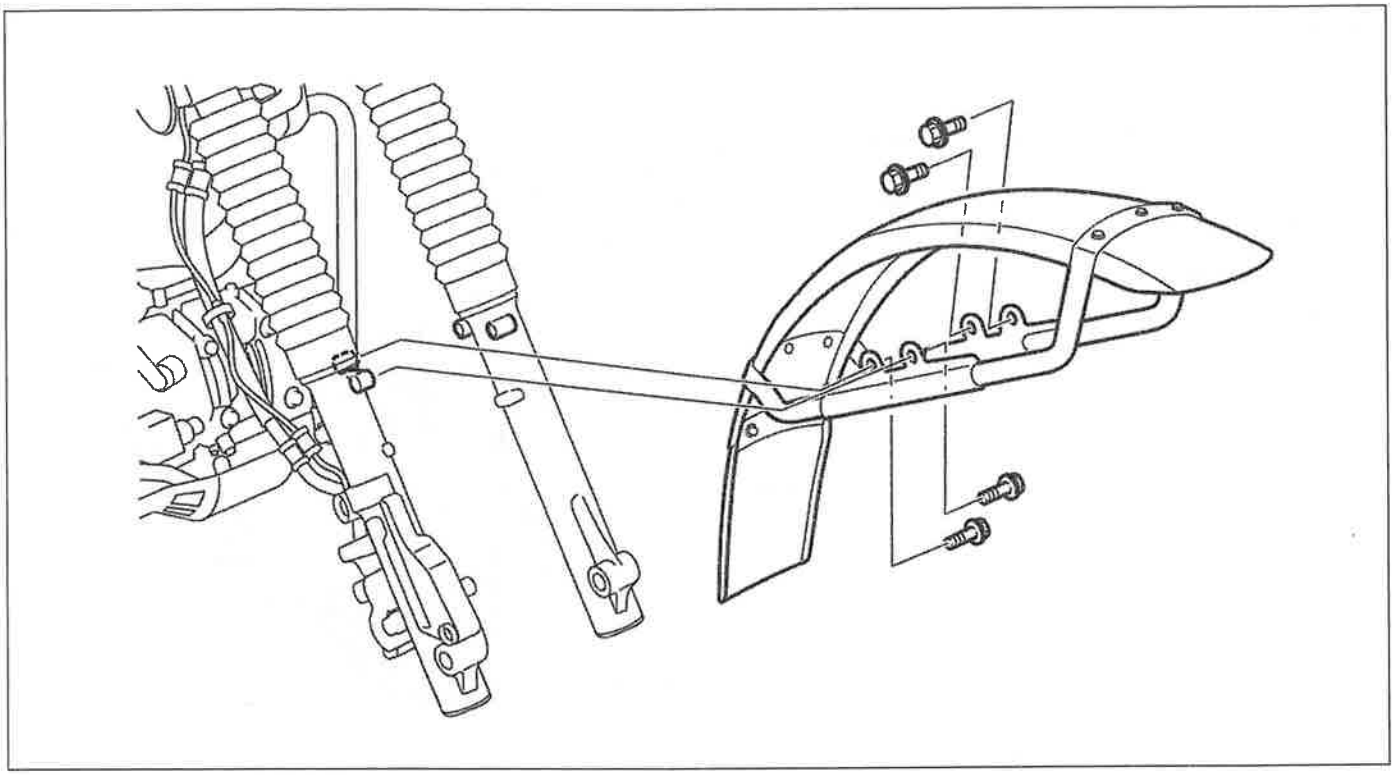


- Headlight cover ➔3-3

MAIN PIPE LOWER COVER

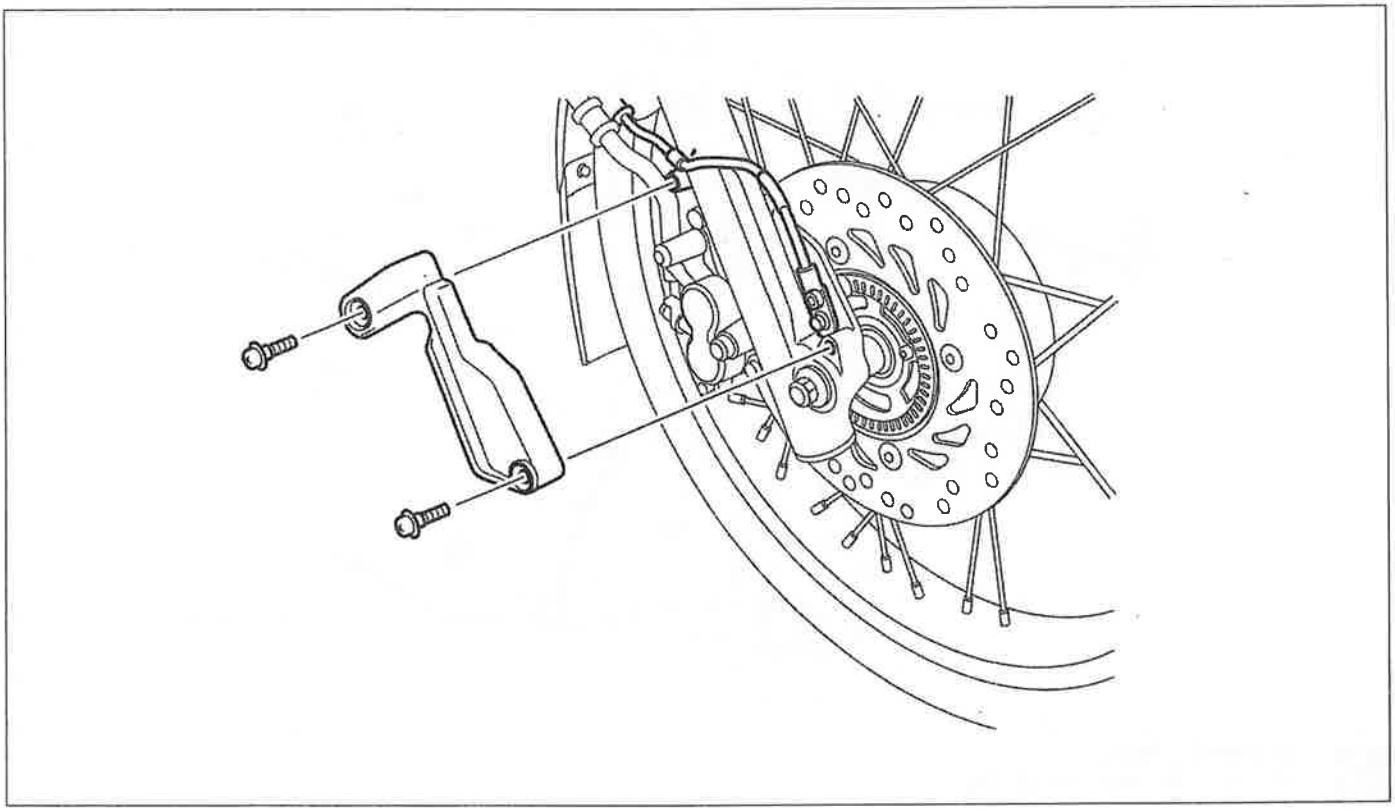


FRONT FENDER

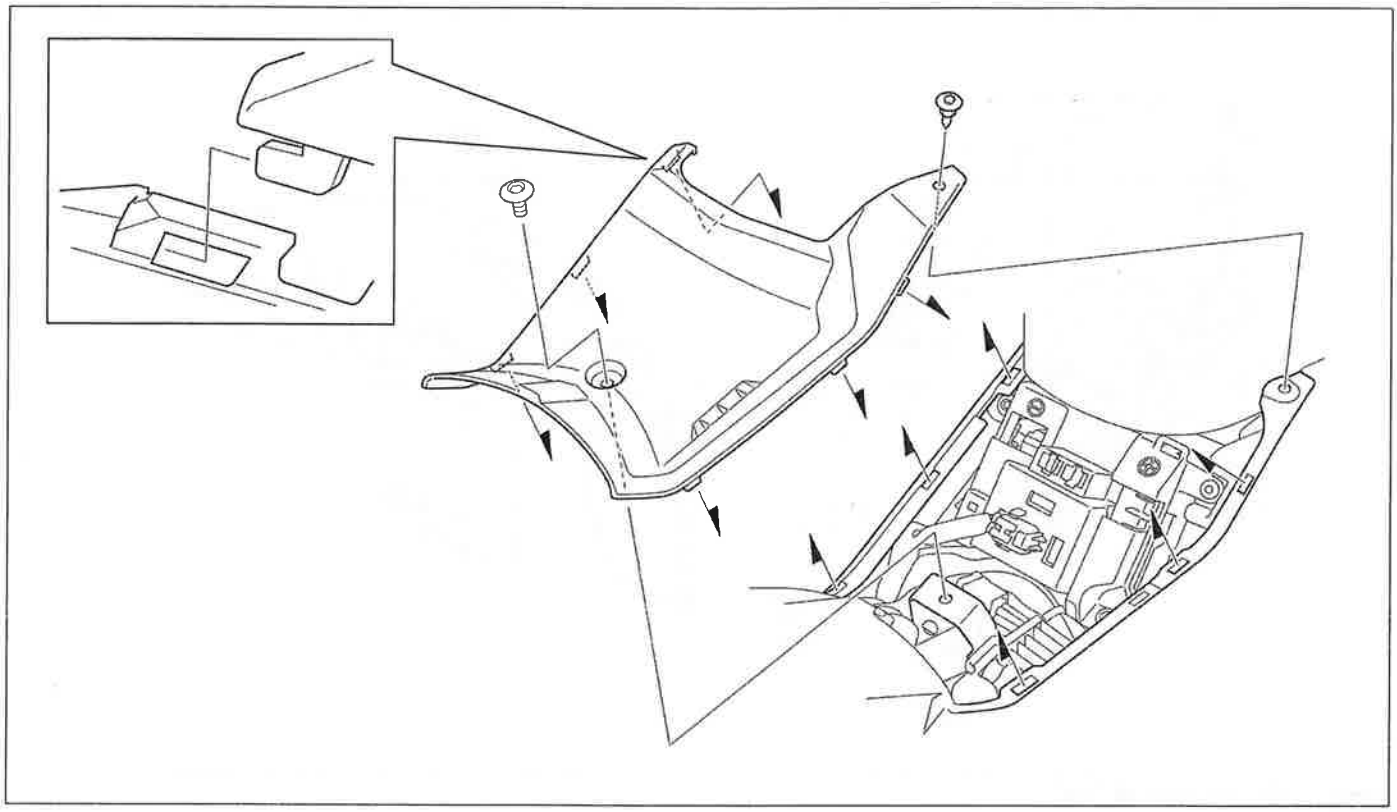


- Front wheel ➔3-20

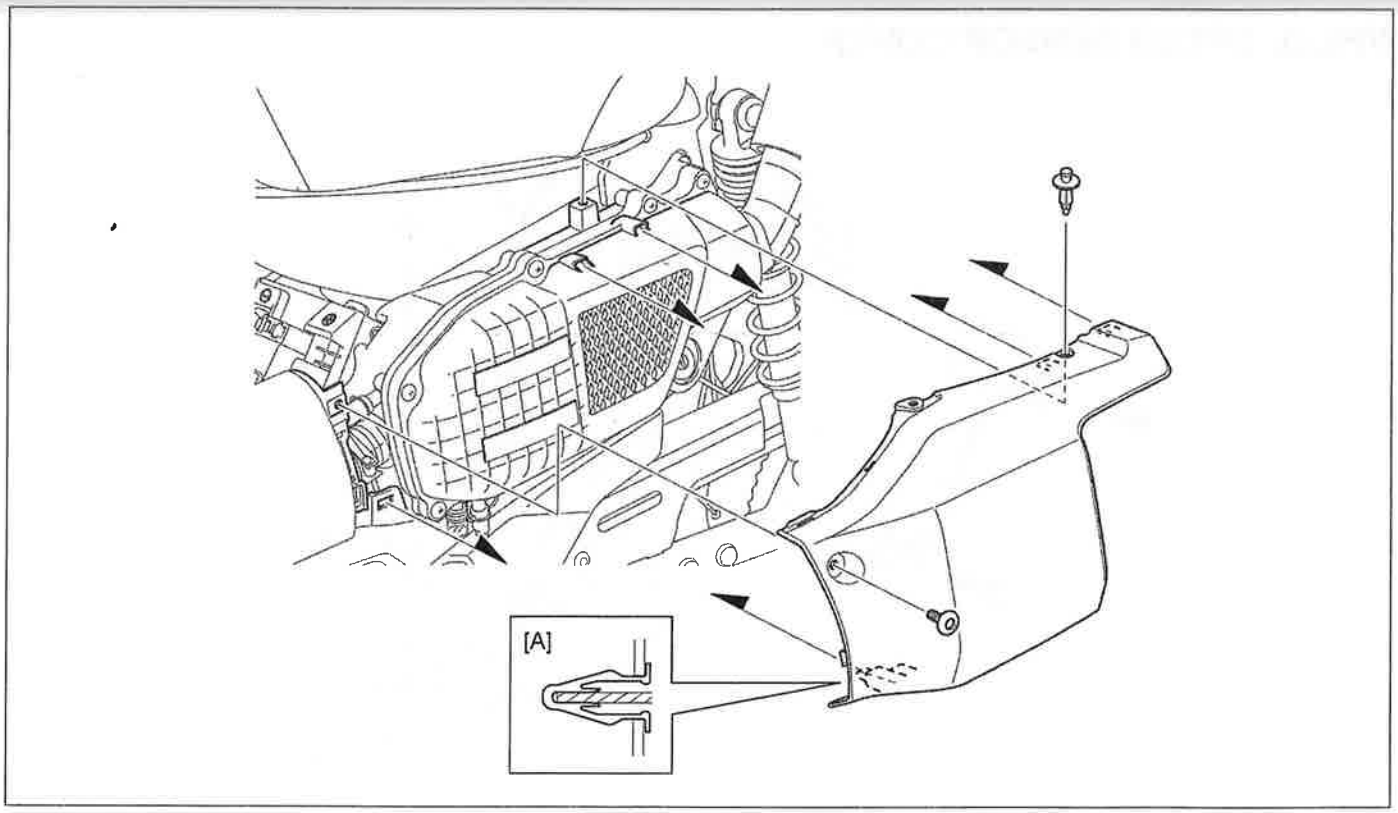
WHEEL SPEED SENSOR COVER



BATTERY LID



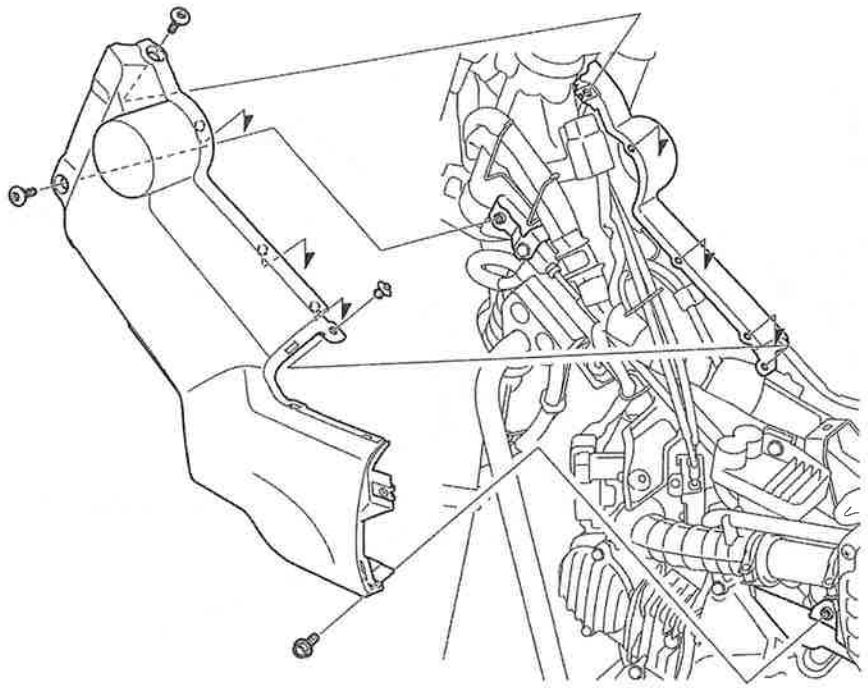
AIR CLEANER GARNISH



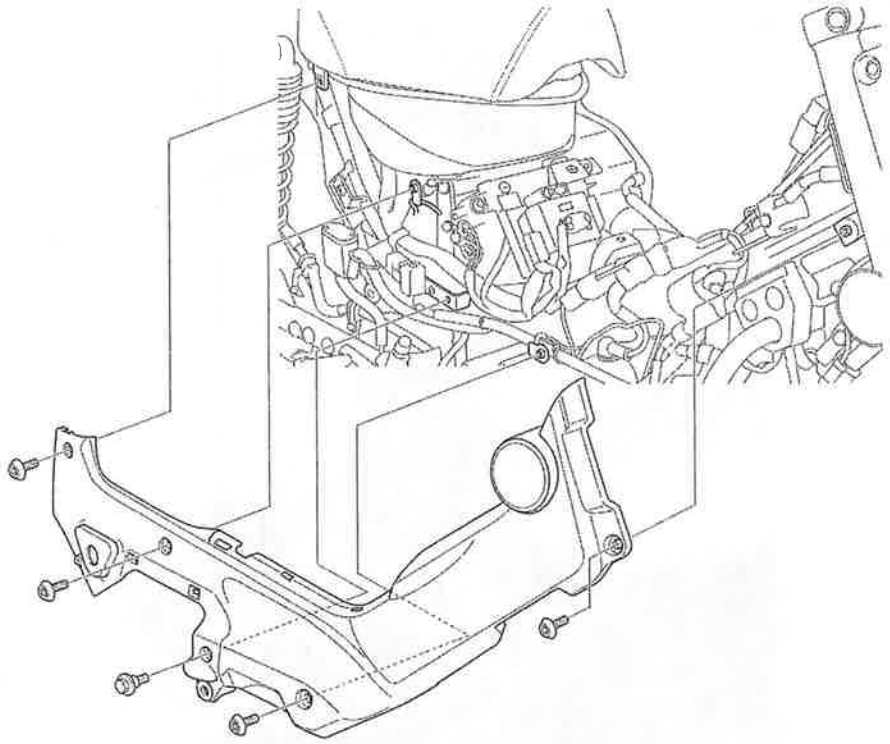
- Battery lid ➔3-6
- Release the snap fit clip [A]

MAIN PIPE SIDE COVER

Left side shown:

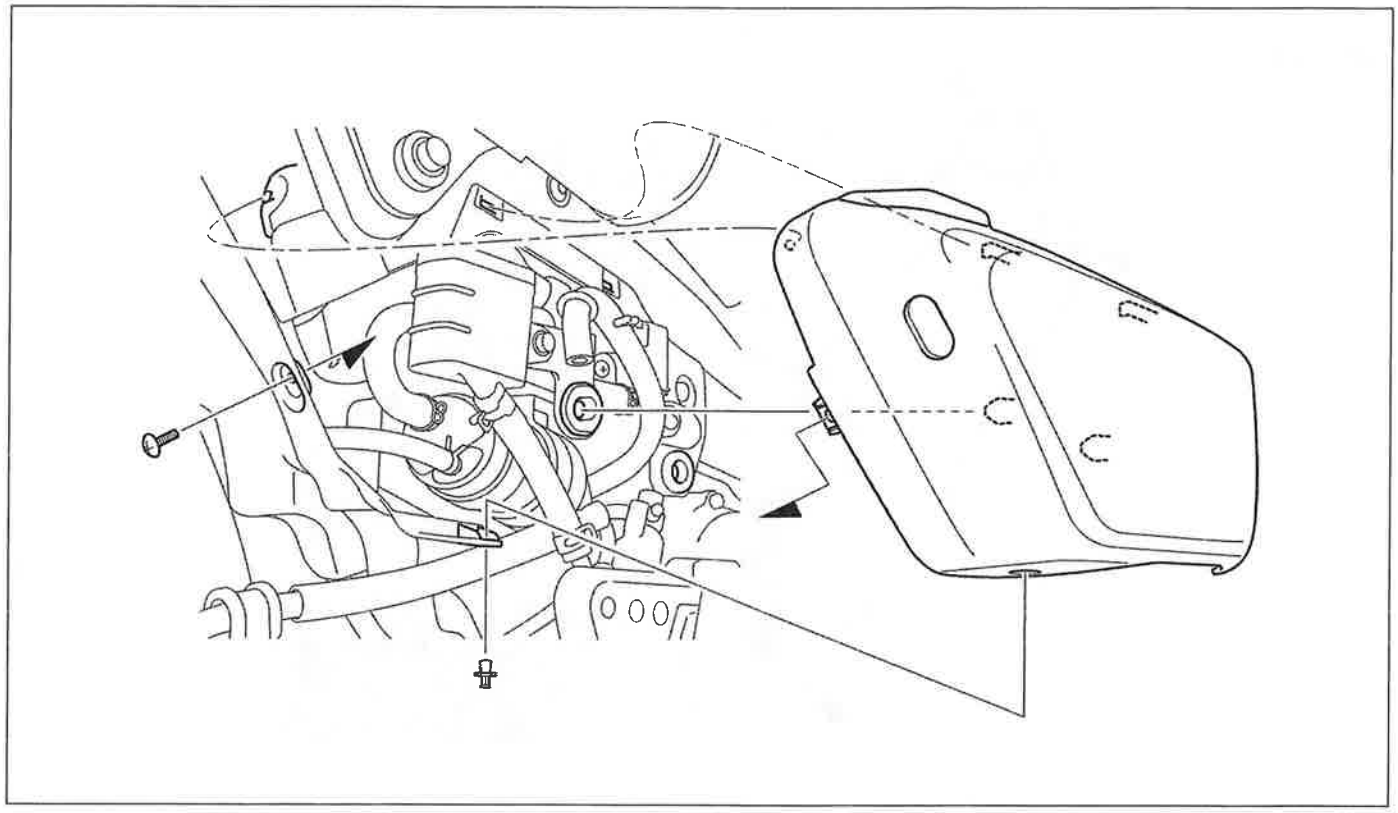


Right side shown:

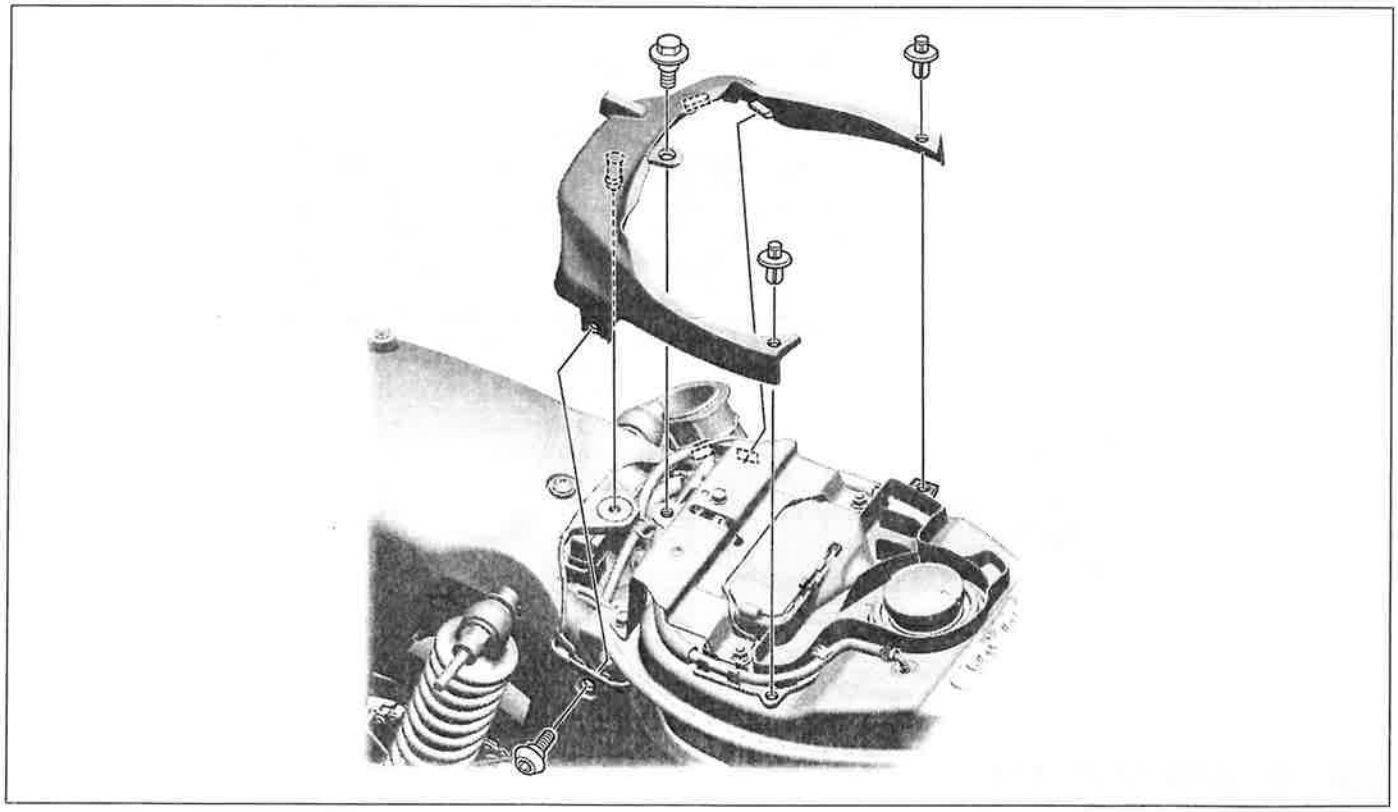


- Air cleaner garnish ➔3-6
- Main pipe lower cover ➔3-4
- Exhaust pipe/muffler ➔3-19

RIGHT SIDE COVER

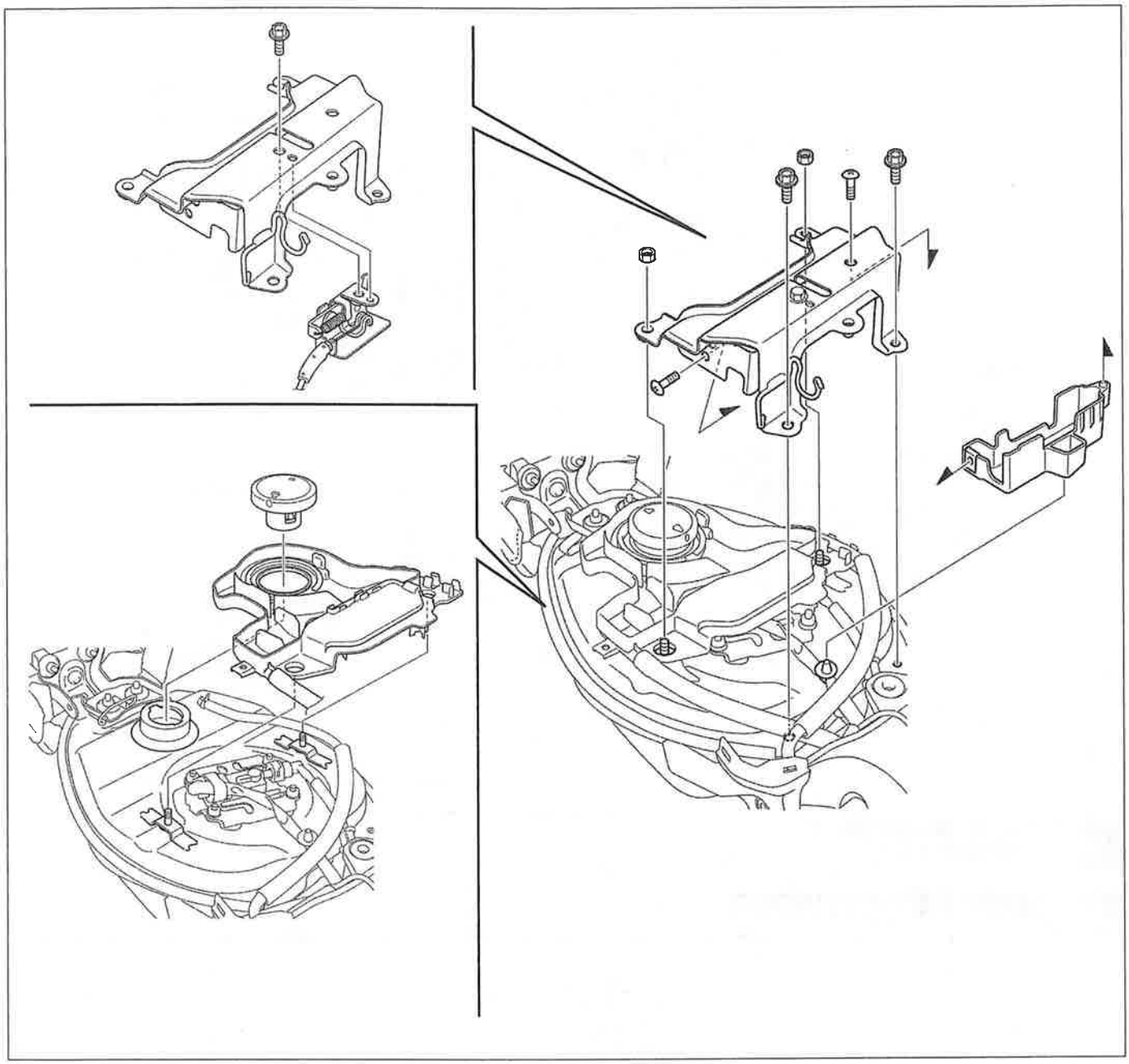


REAR CENTER COVER



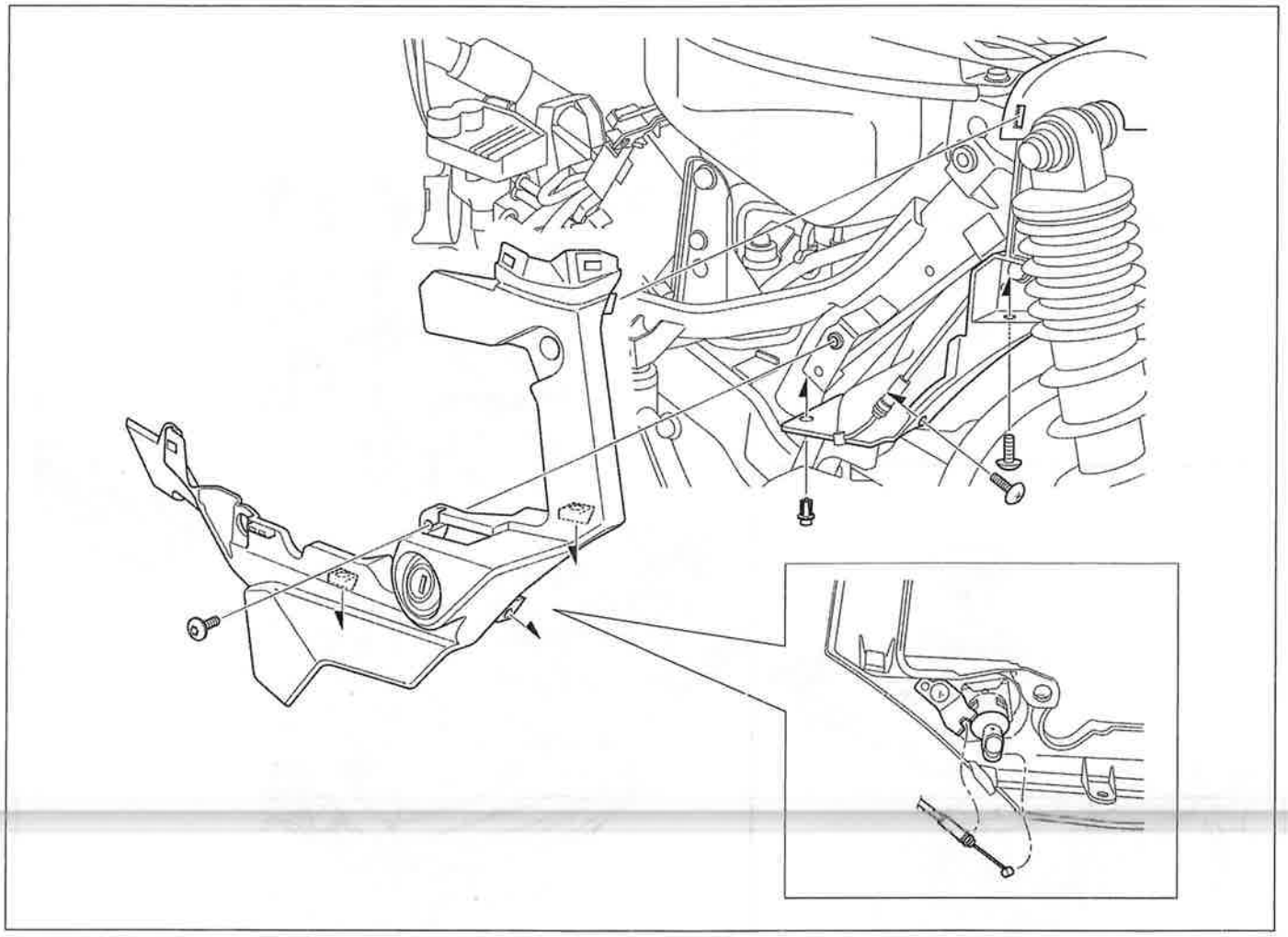
- Rear carrier ➔3-17

FUEL TANK COVER



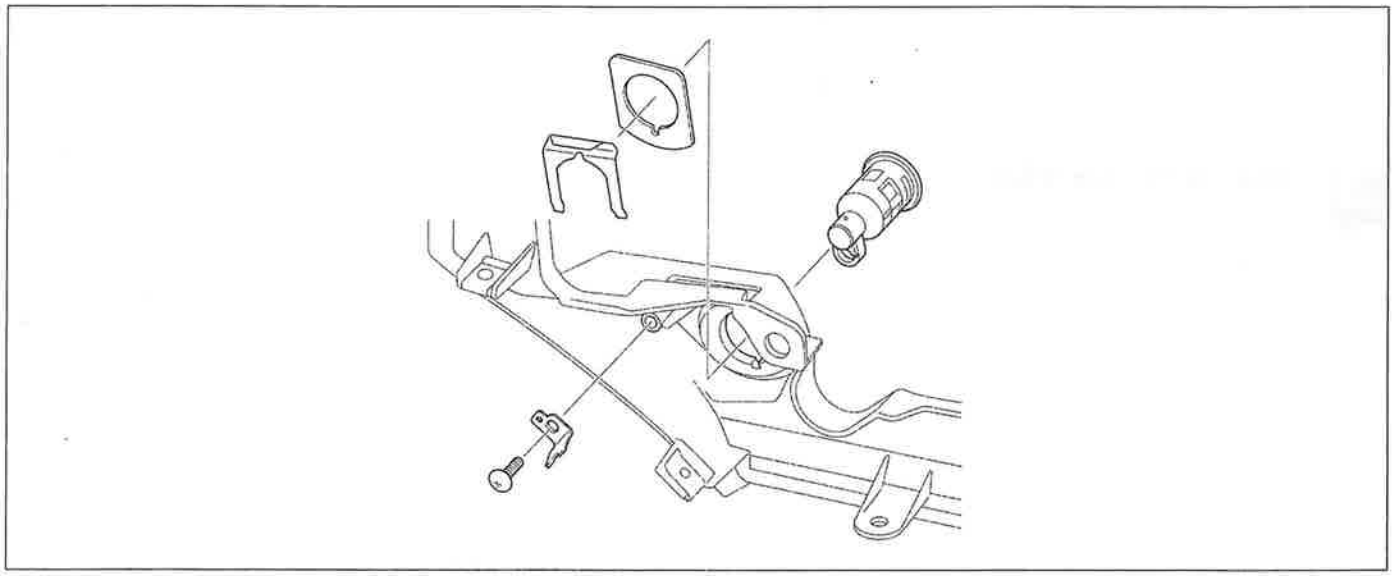
- Rear center cover ➔3-8

LEFT SIDE COVER



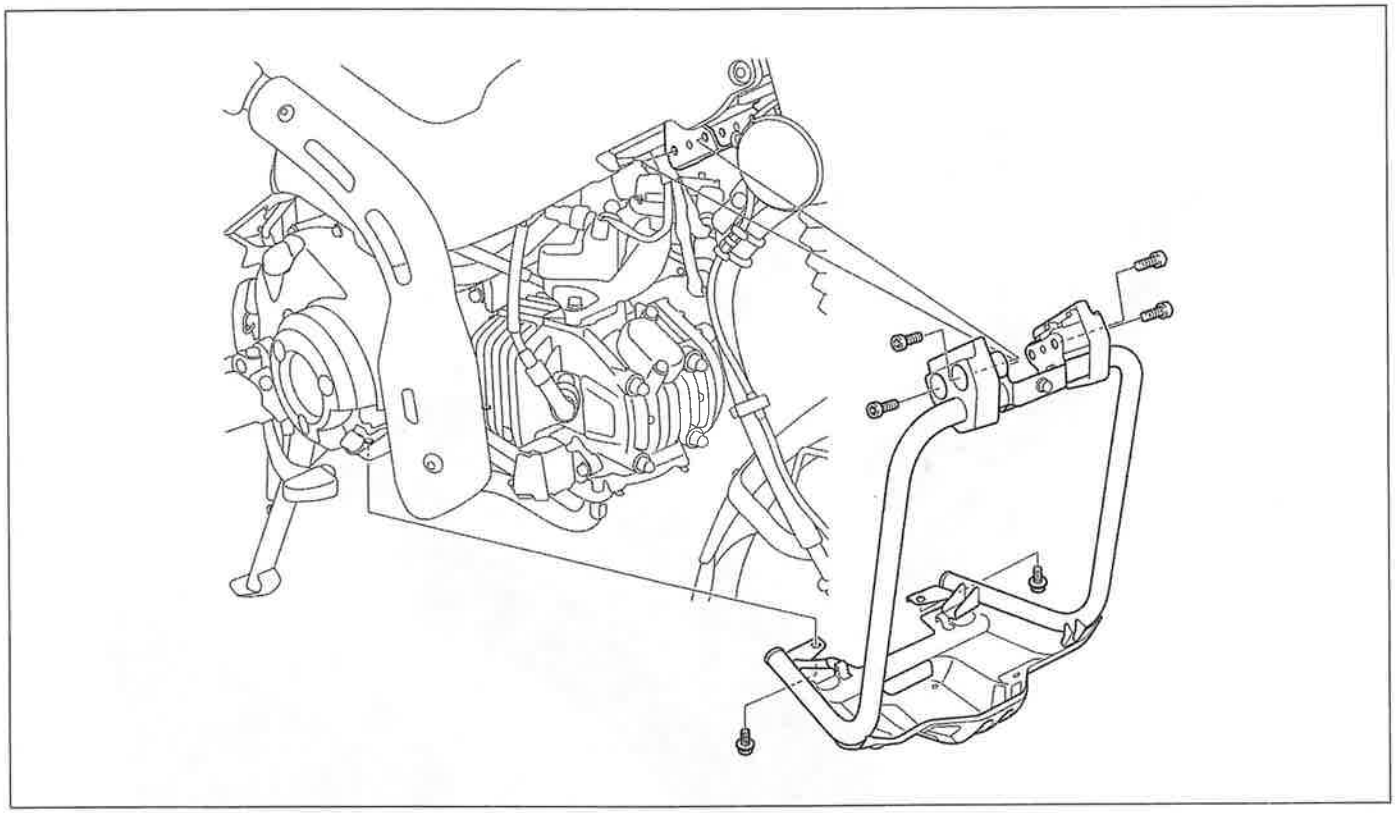
- Rear center cover ➔3-8
- Air cleaner ➔2-7

SEAT LOCK KEY CYLINDER



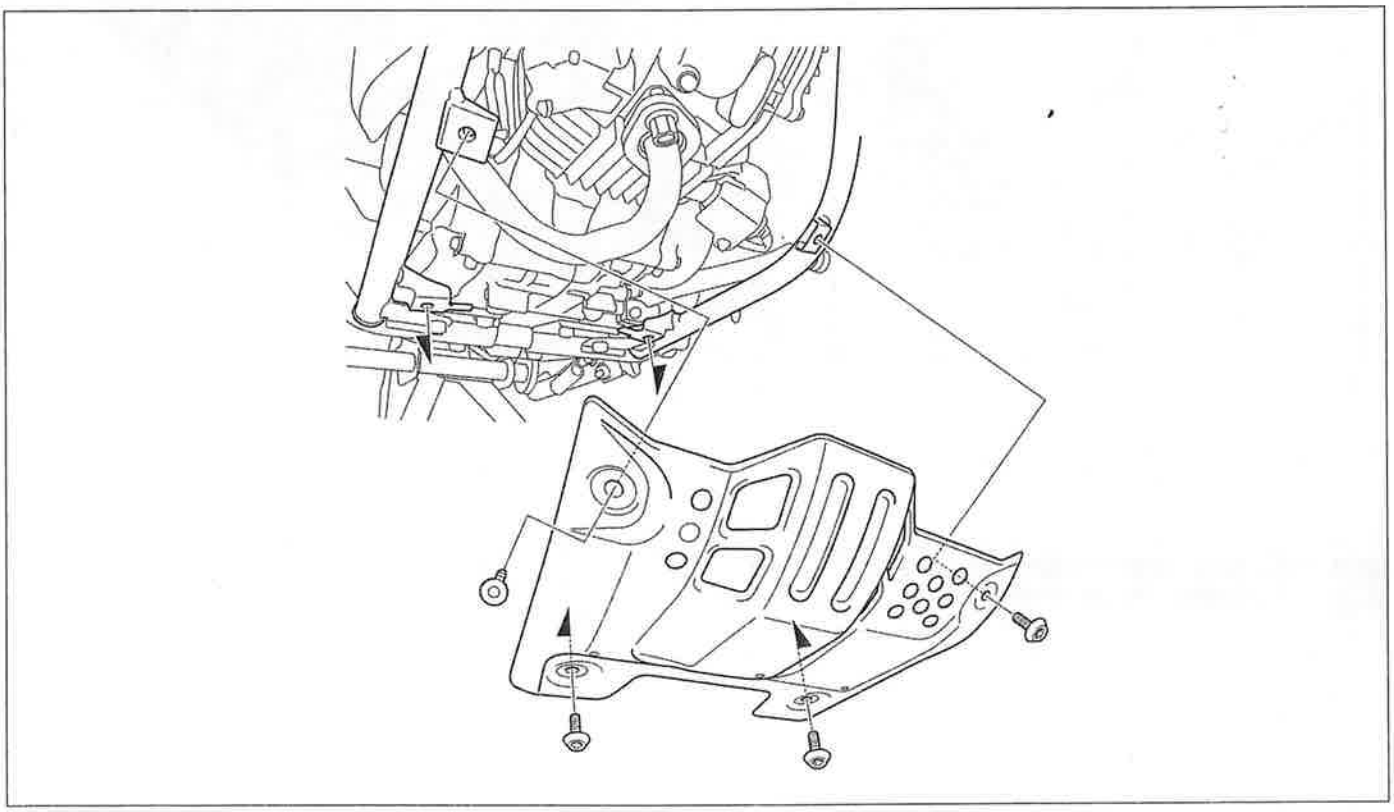
- Left side cover ➔3-10

UNDER COVER PIPE

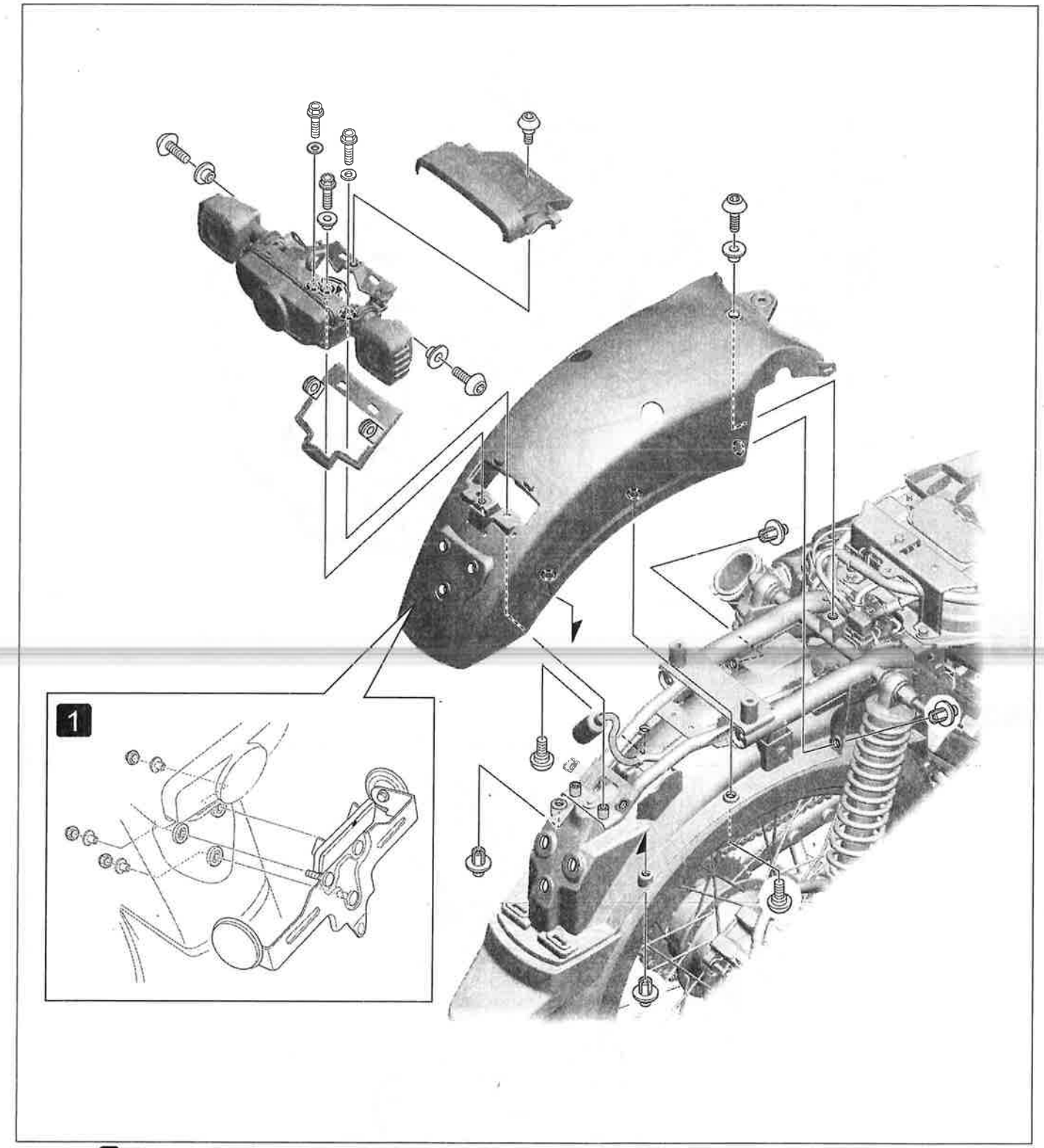


- Main pipe lower cover ➔3-4

UNDER COVER

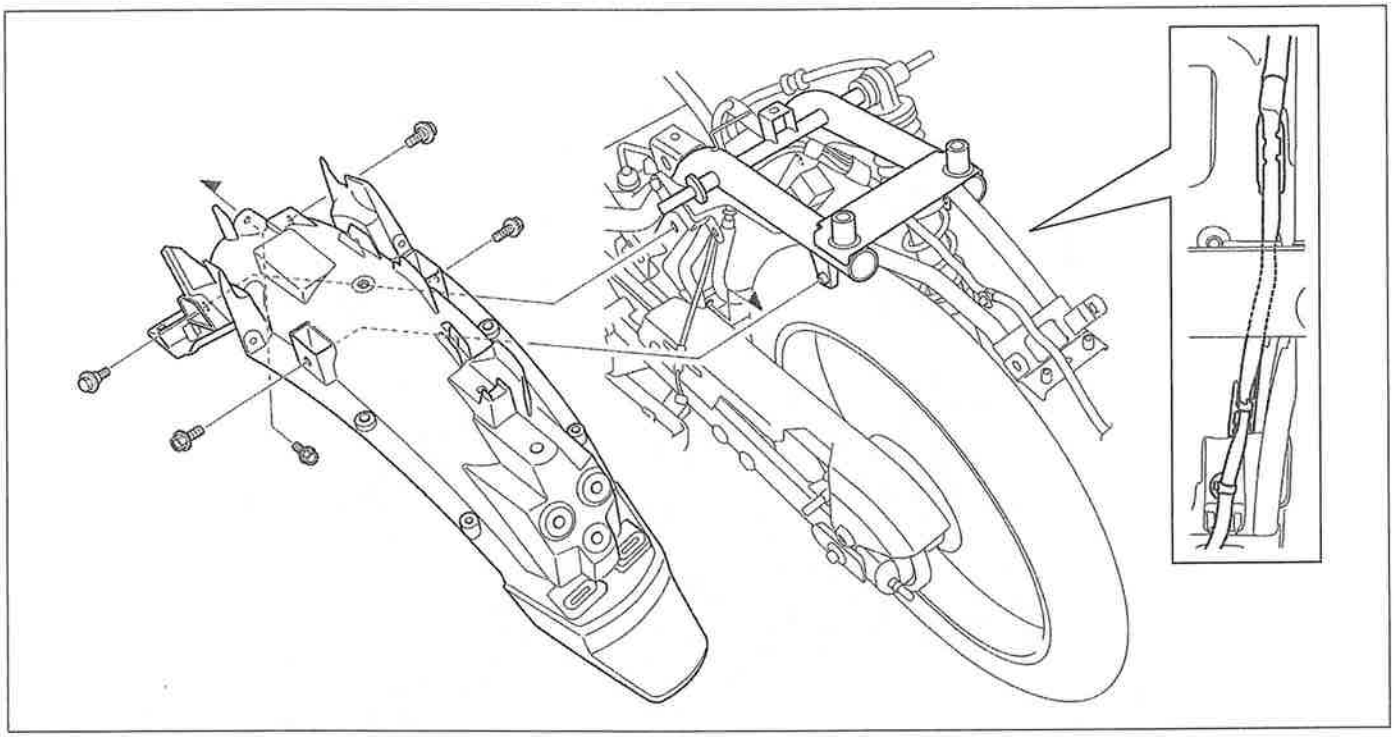


REAR FENDER



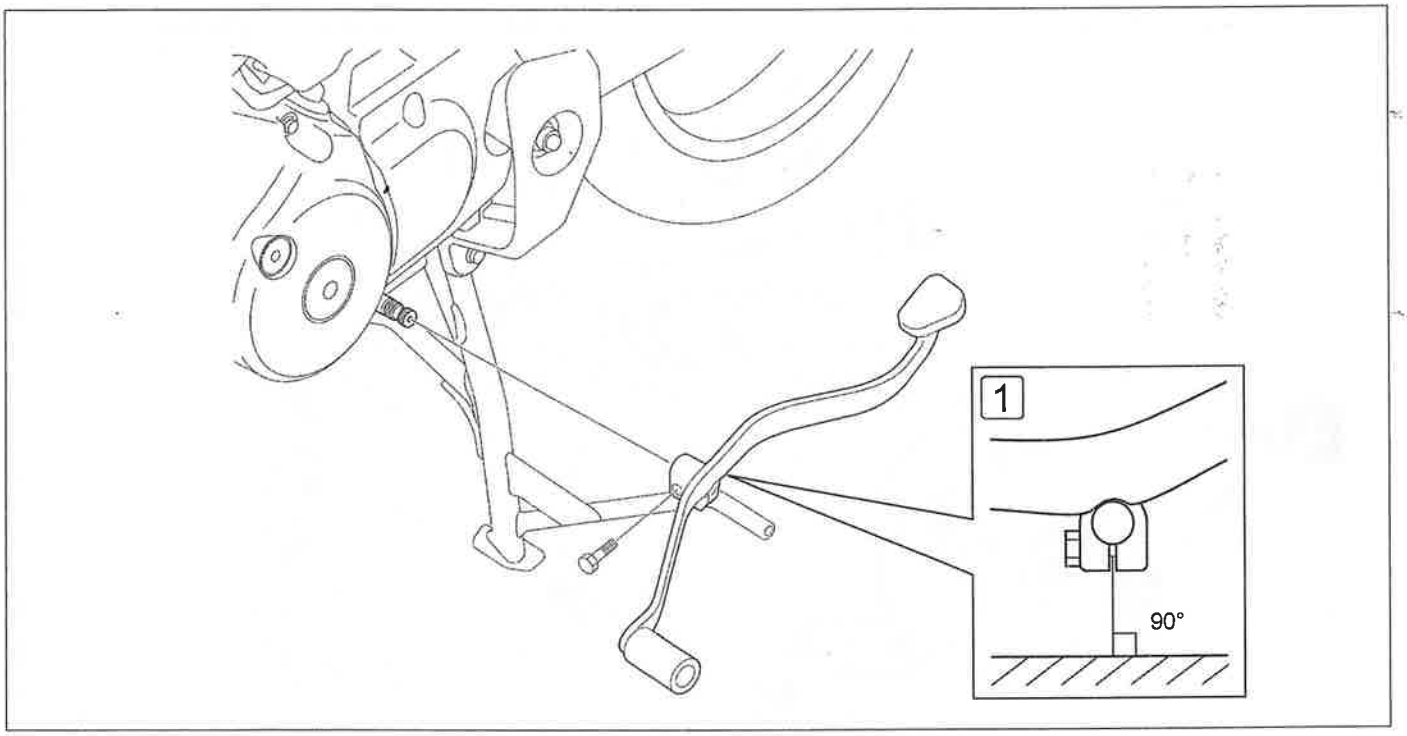
- 1 Remove the number plate bracket.
- Rear center cover ➔3-8

REAR INNER FENDER



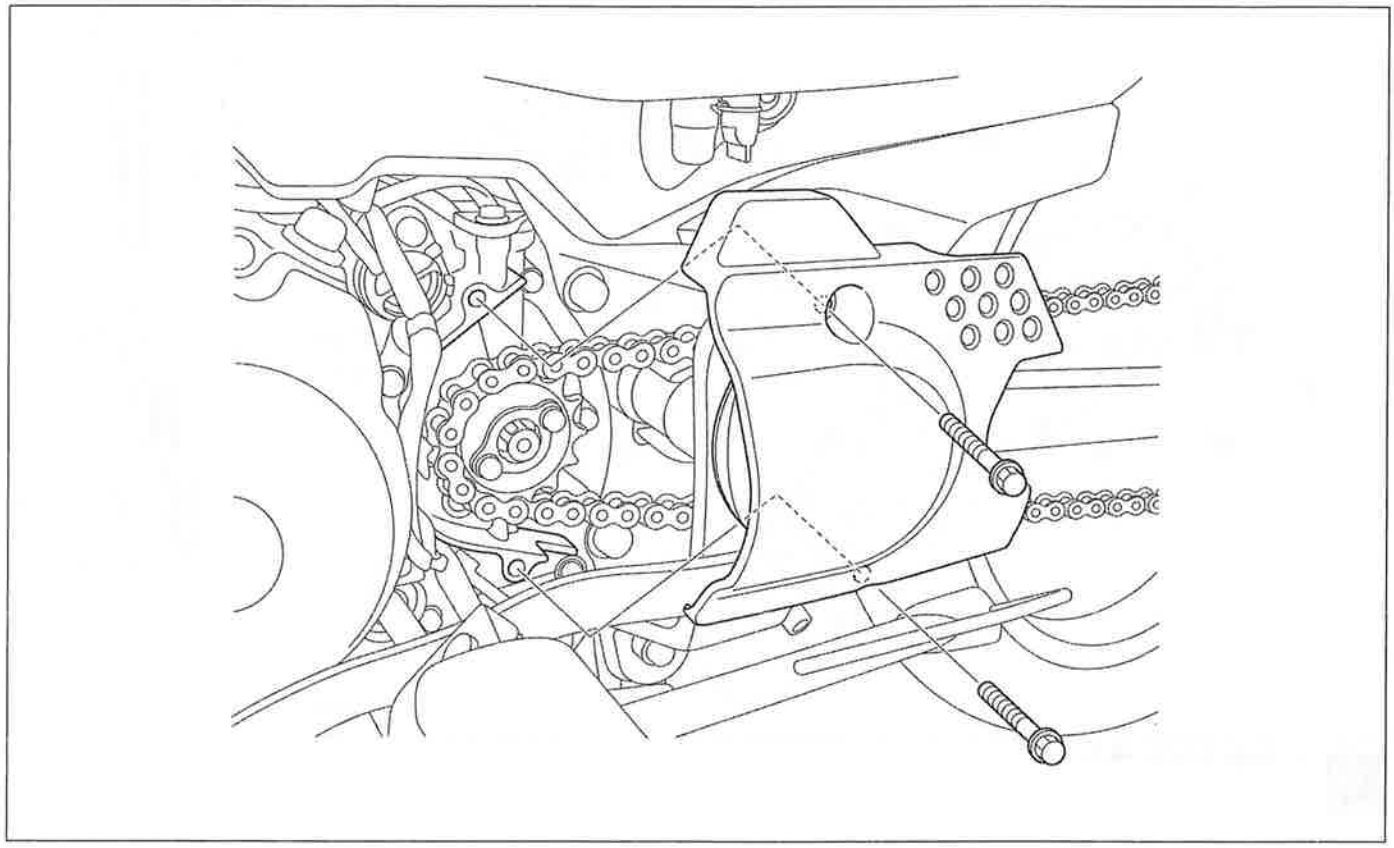
- Rear fender ➔3-12

GEARSHIFT PEDAL

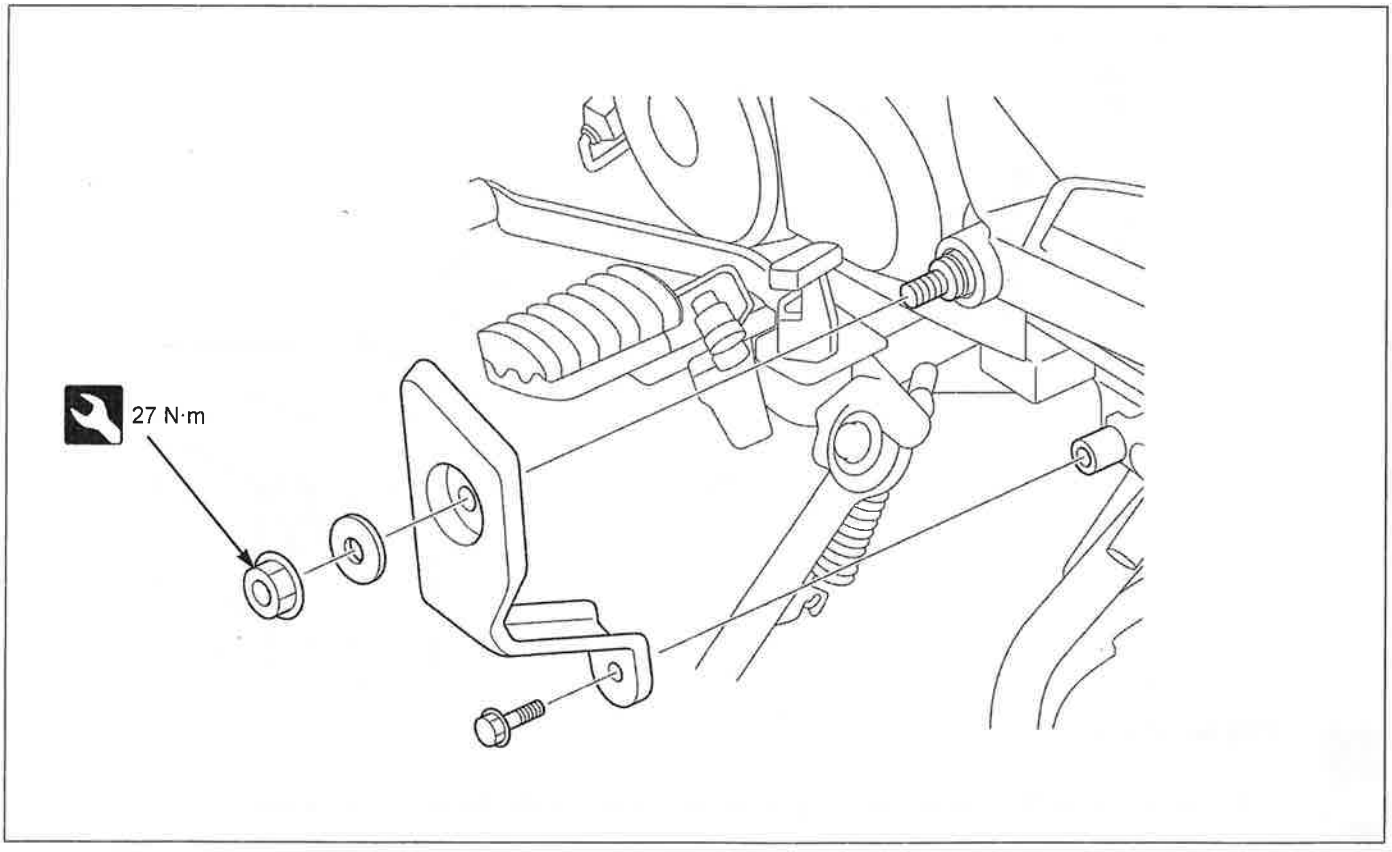


- Step bar ➔3-16
- [1] Install the gearshift pedal so that the groove become perpendicular to ground as shown.

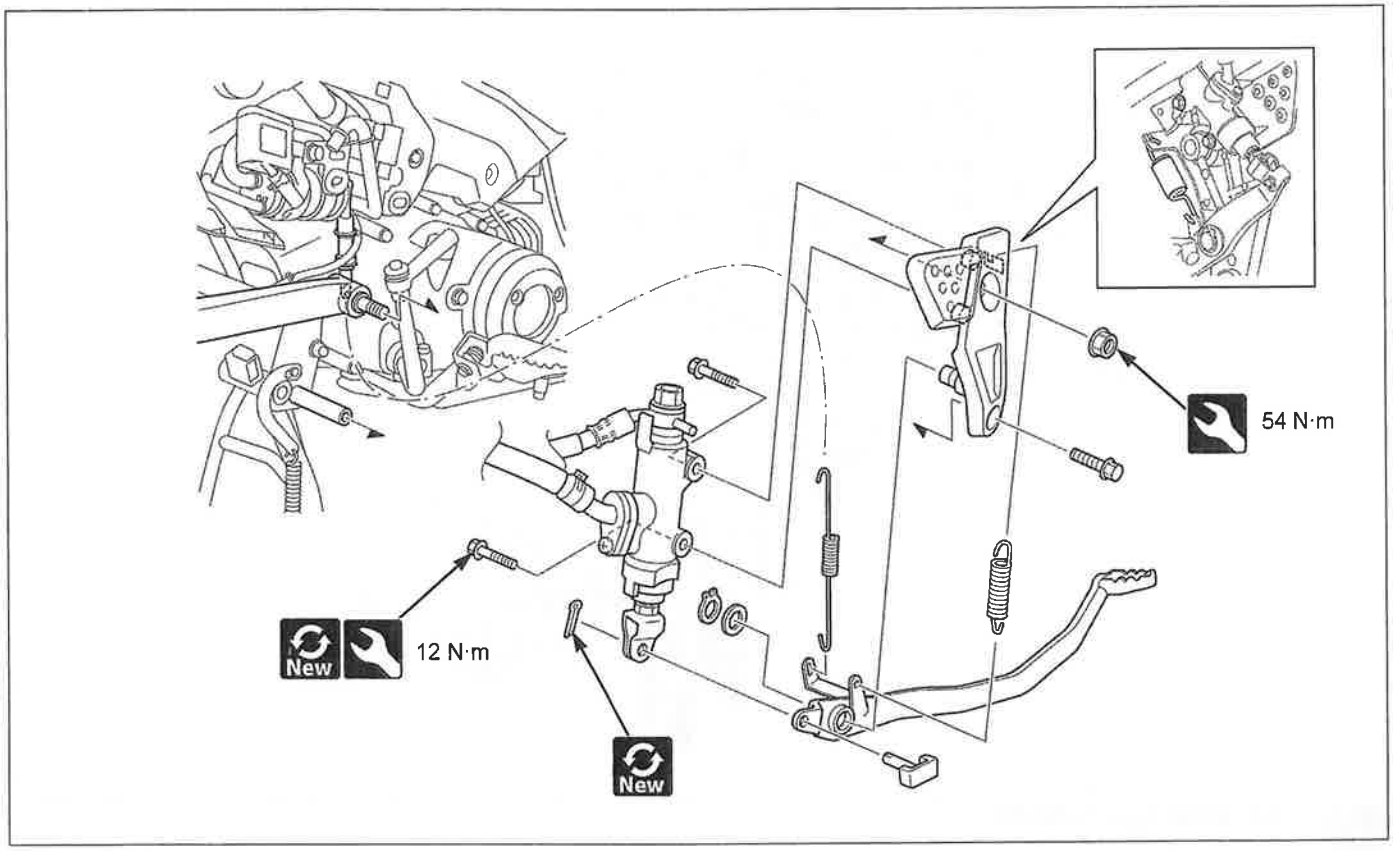
DRIVE SPROCKET COVER



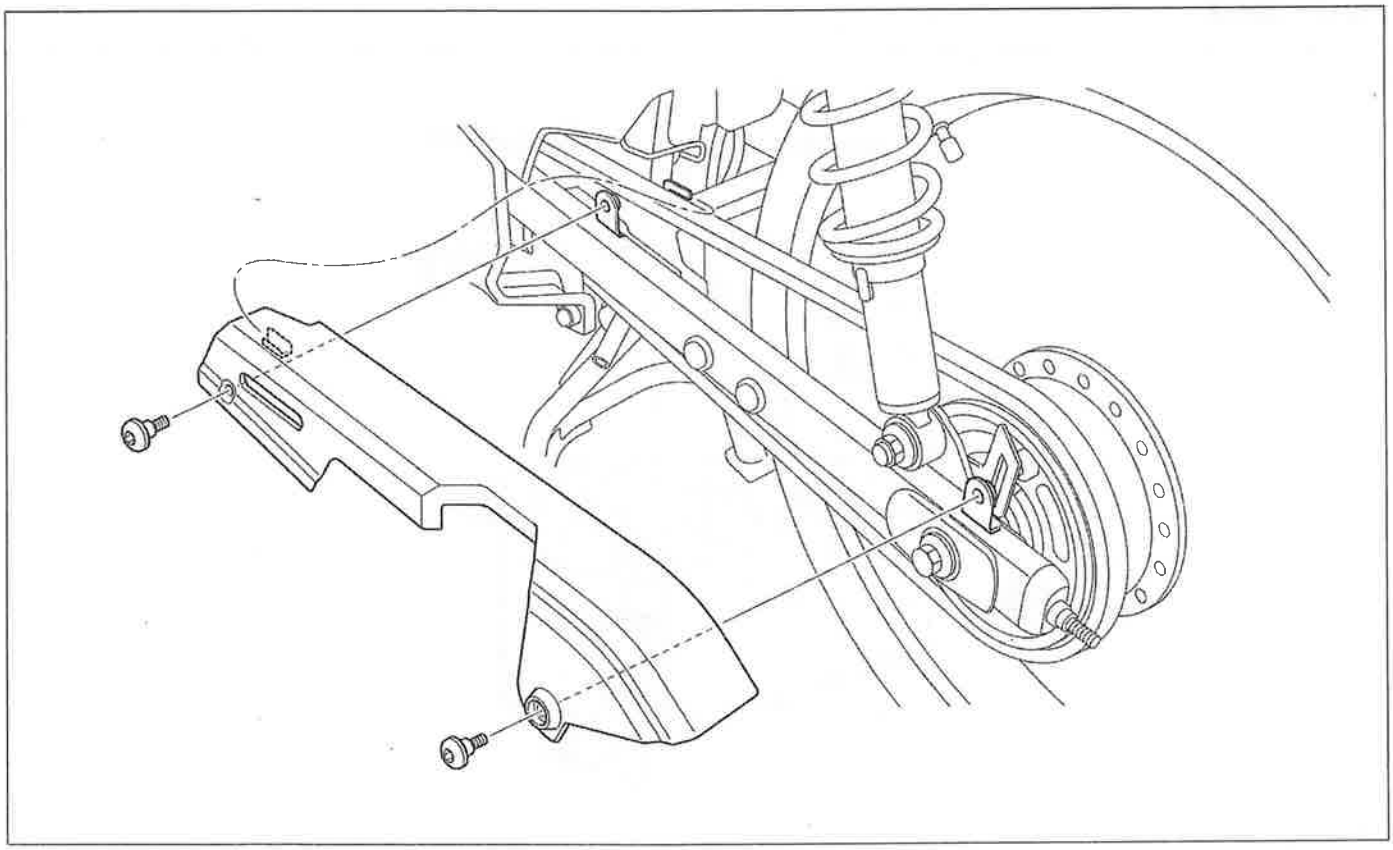
LEFT PIVOT PLATE



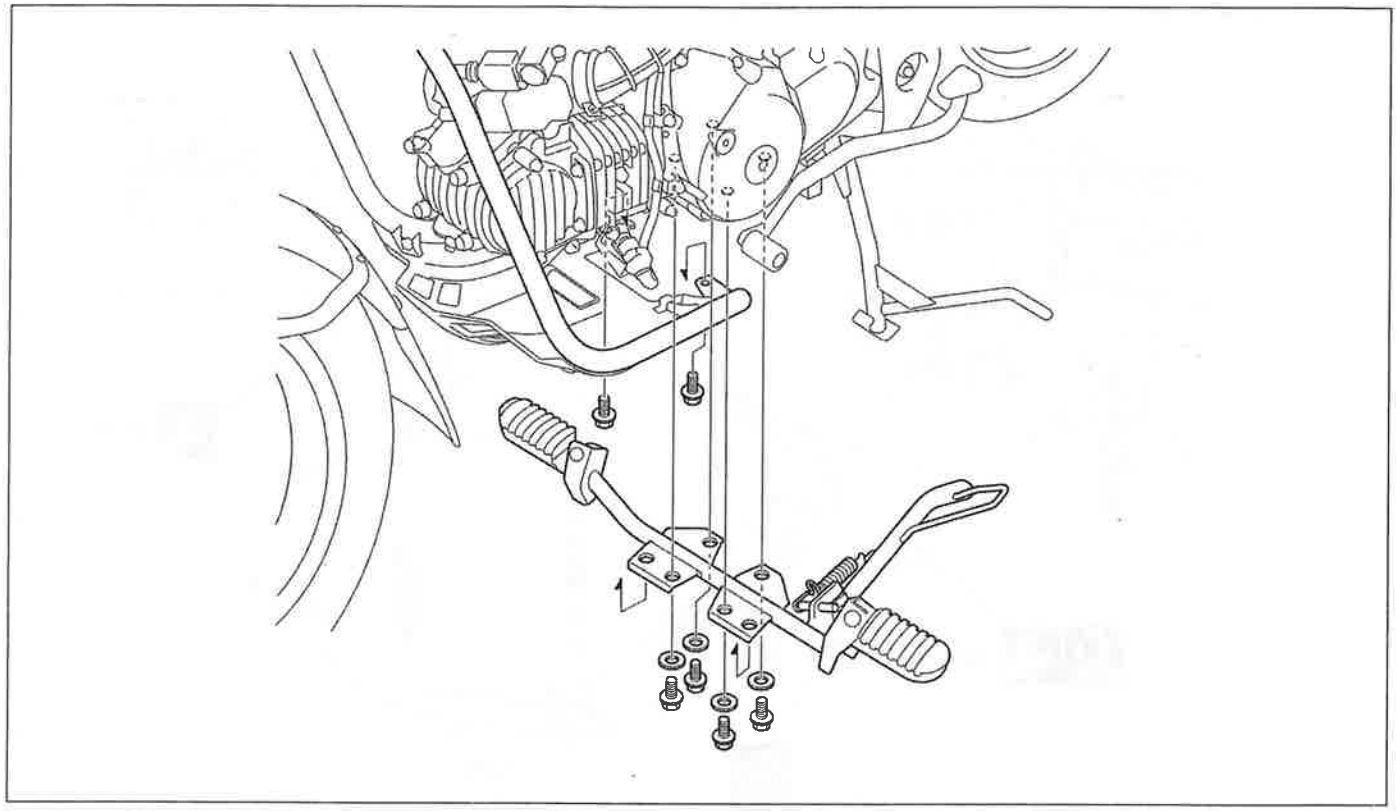
RIGHT PIVOT PLATE



DRIVE CHAIN CASE

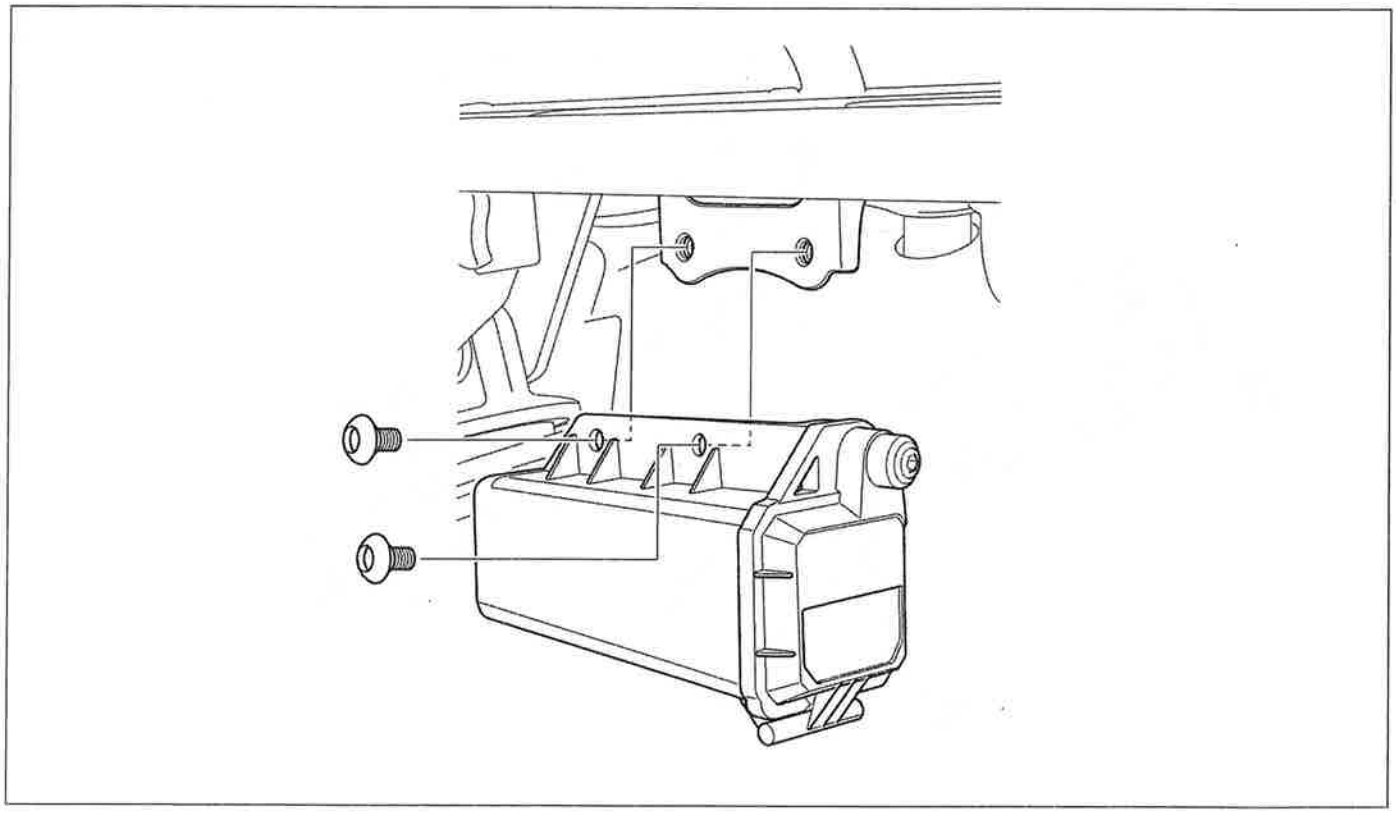


STEP BAR

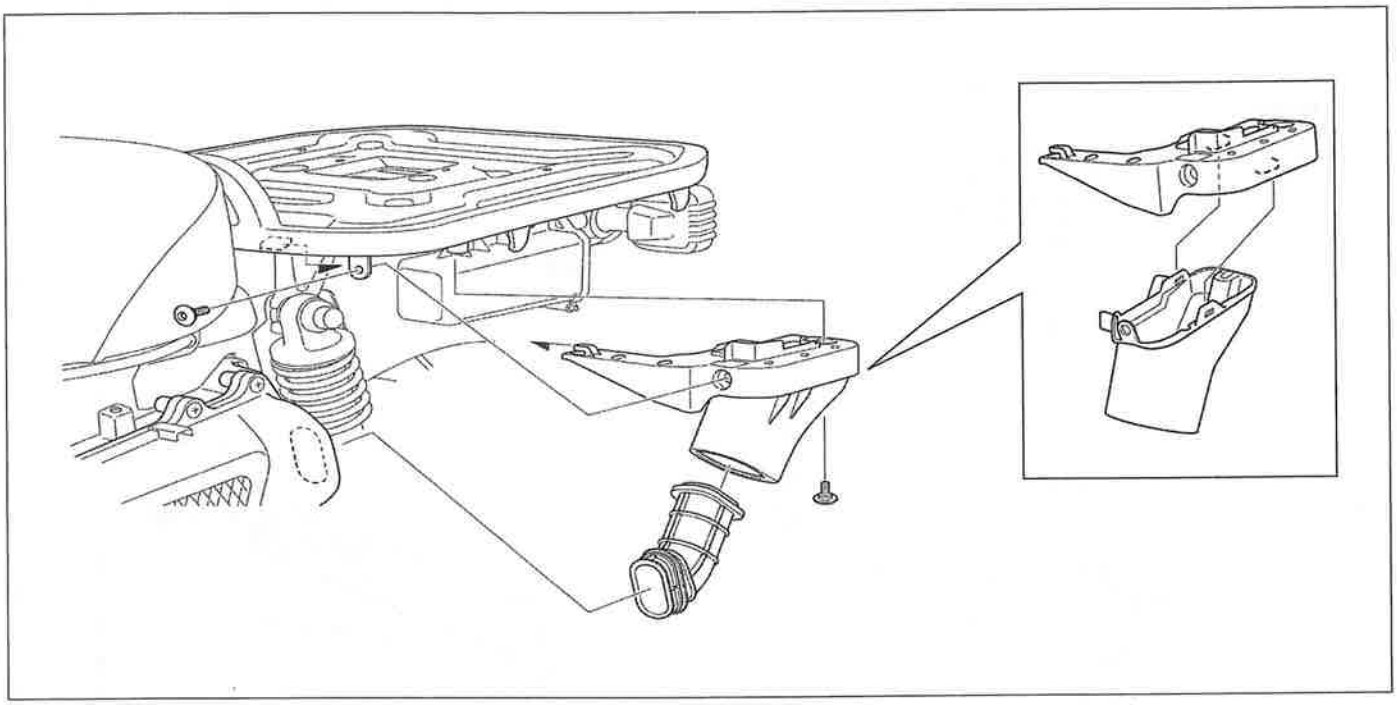


- Sidestand switch ➔4-53

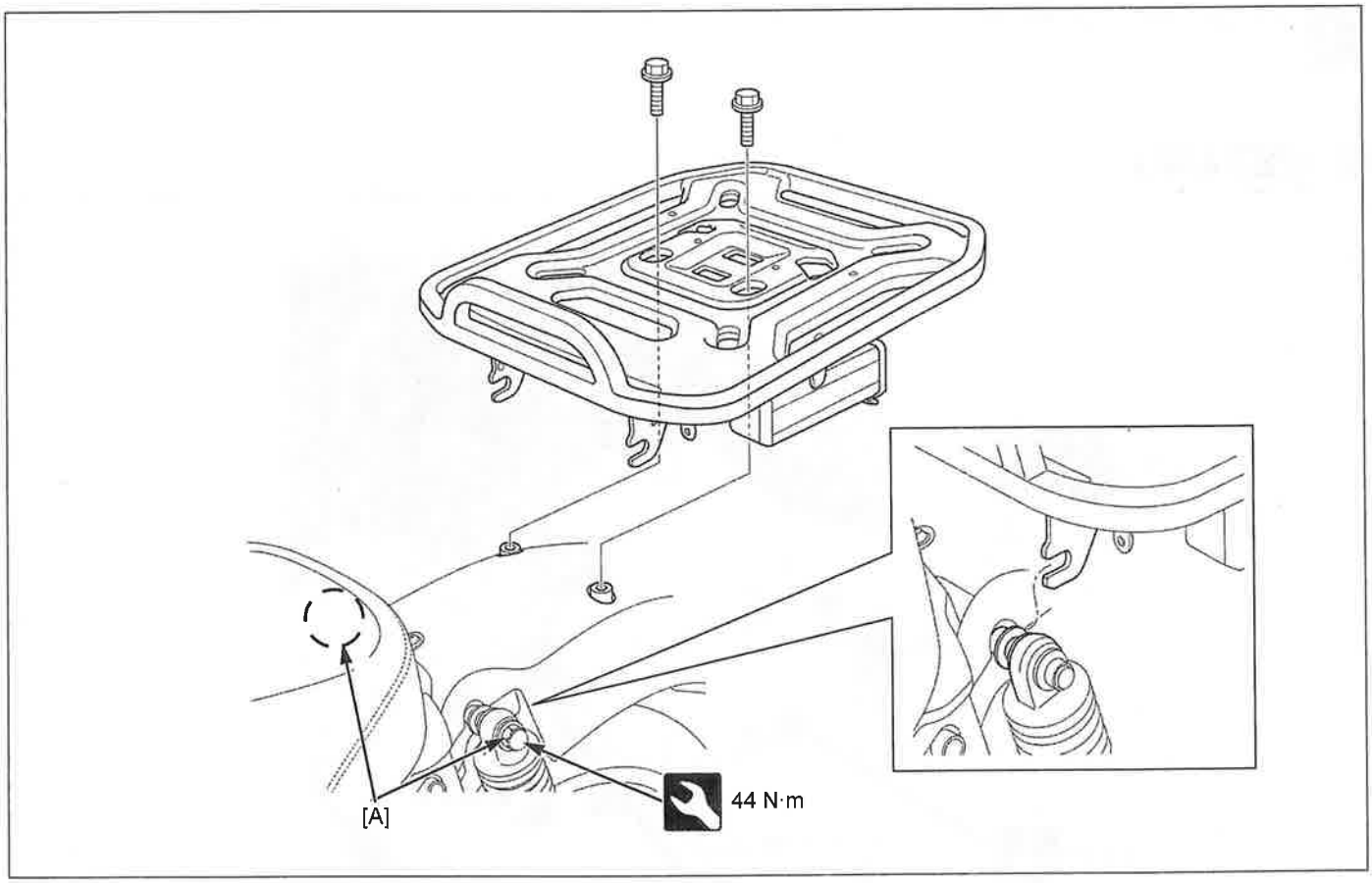
TOOL BOX



AIR CLEANER DUCT CASE

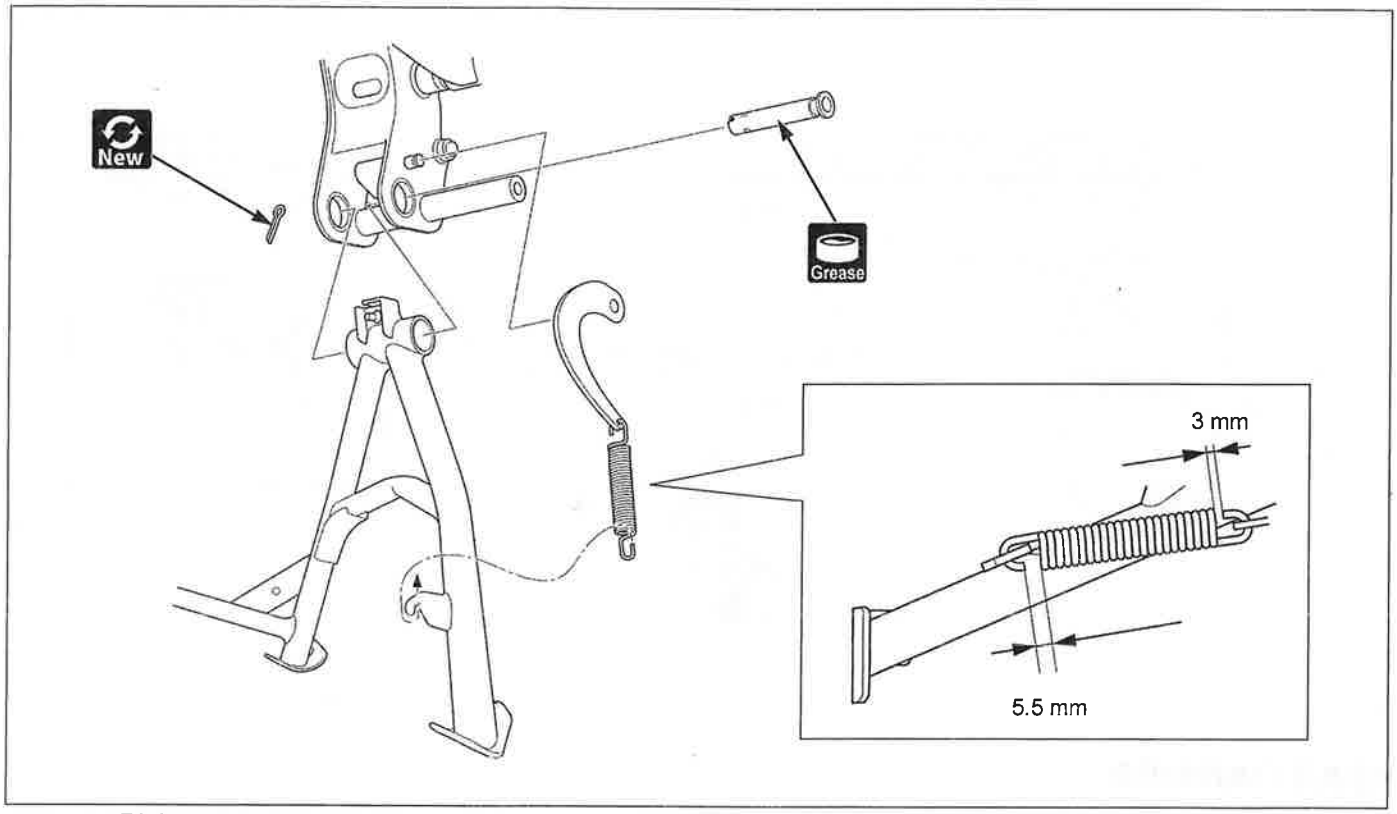


REAR CARRIER



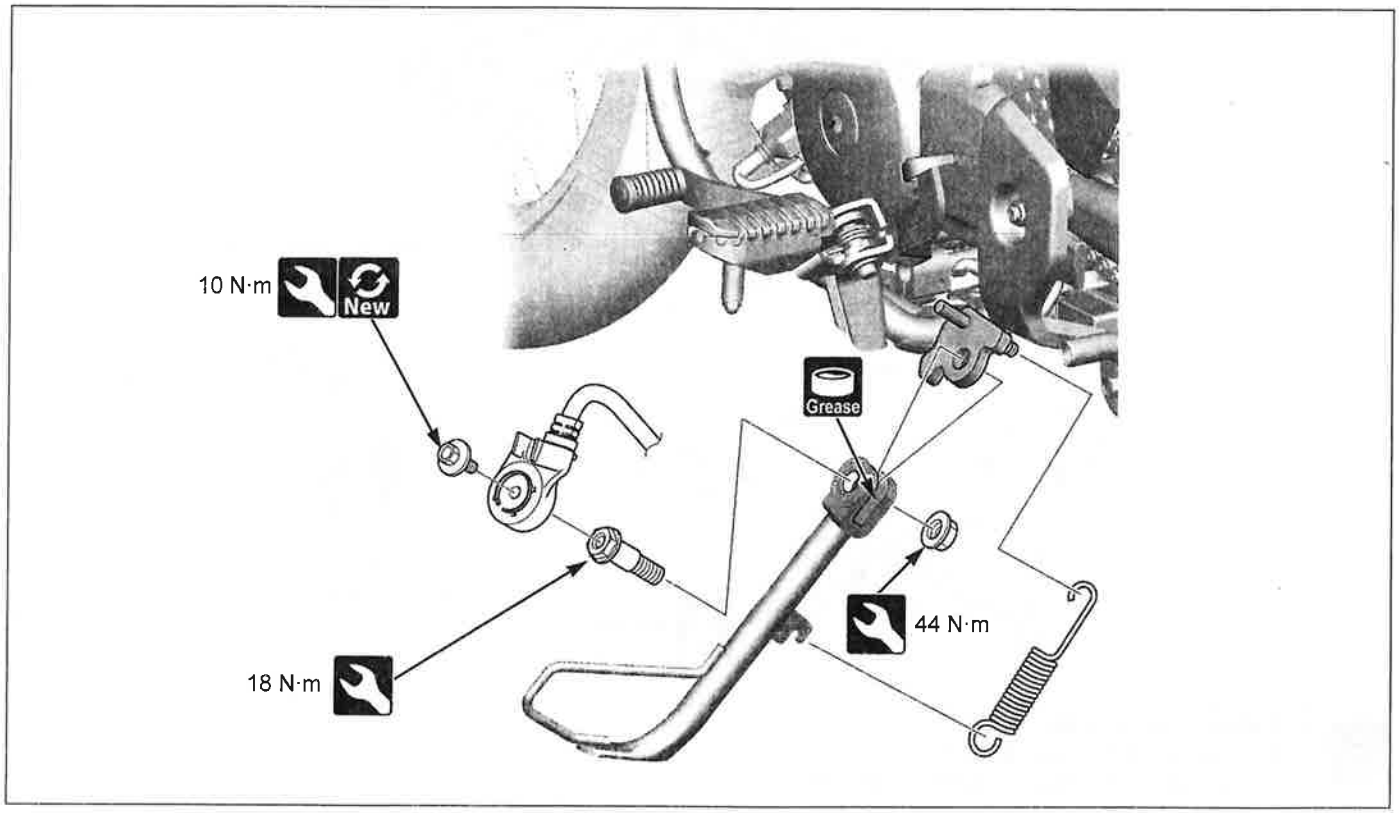
- Exhaust pipe/muffler ➔3-19
- Air cleaner duct case ➔3-17
- Loosen the rear shock absorber nuts [A].

CENTERSTAND

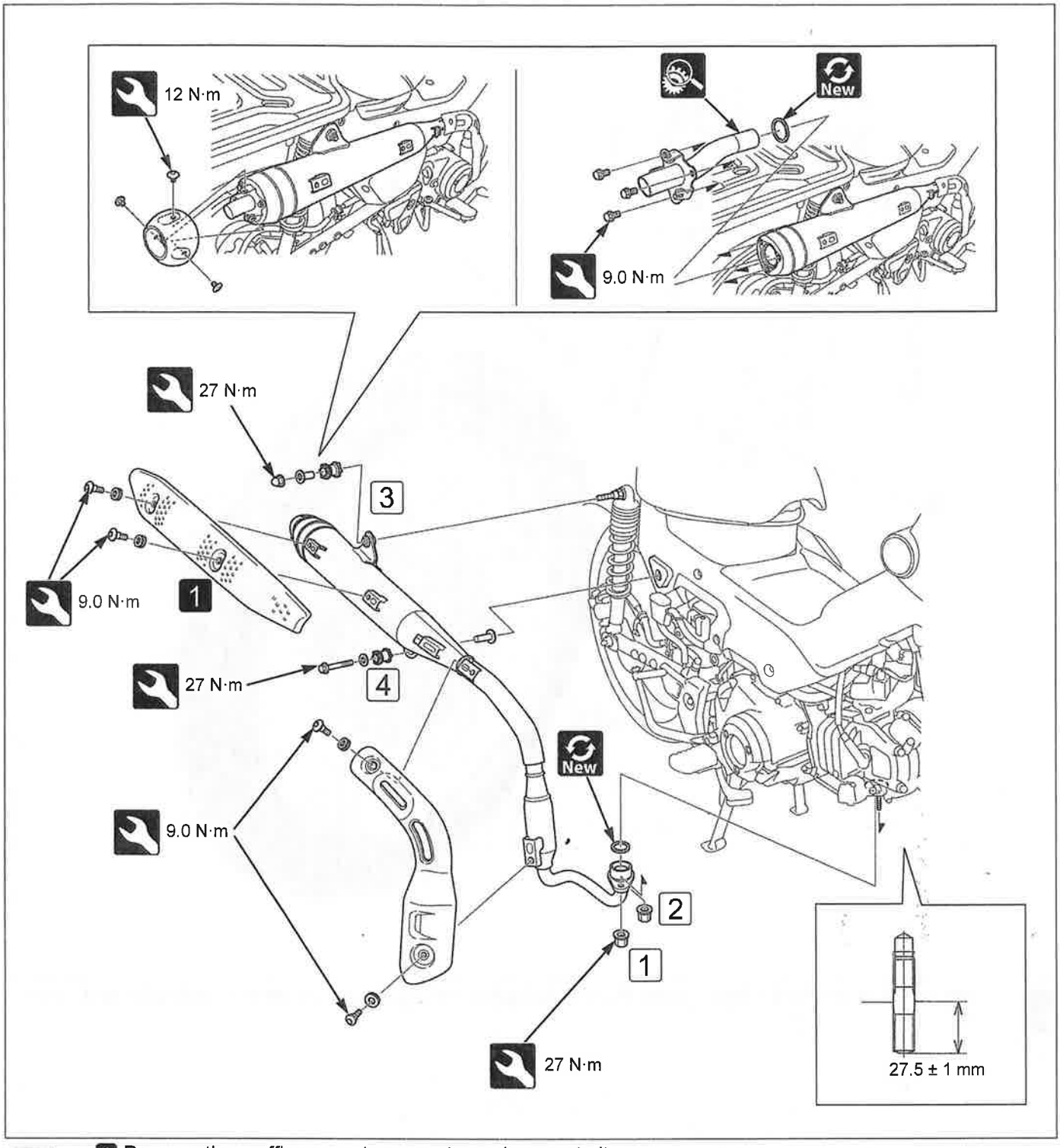


• Right pivot plate ➔3-15

SIDESTAND



EXHAUST PIPE/MUFFLER

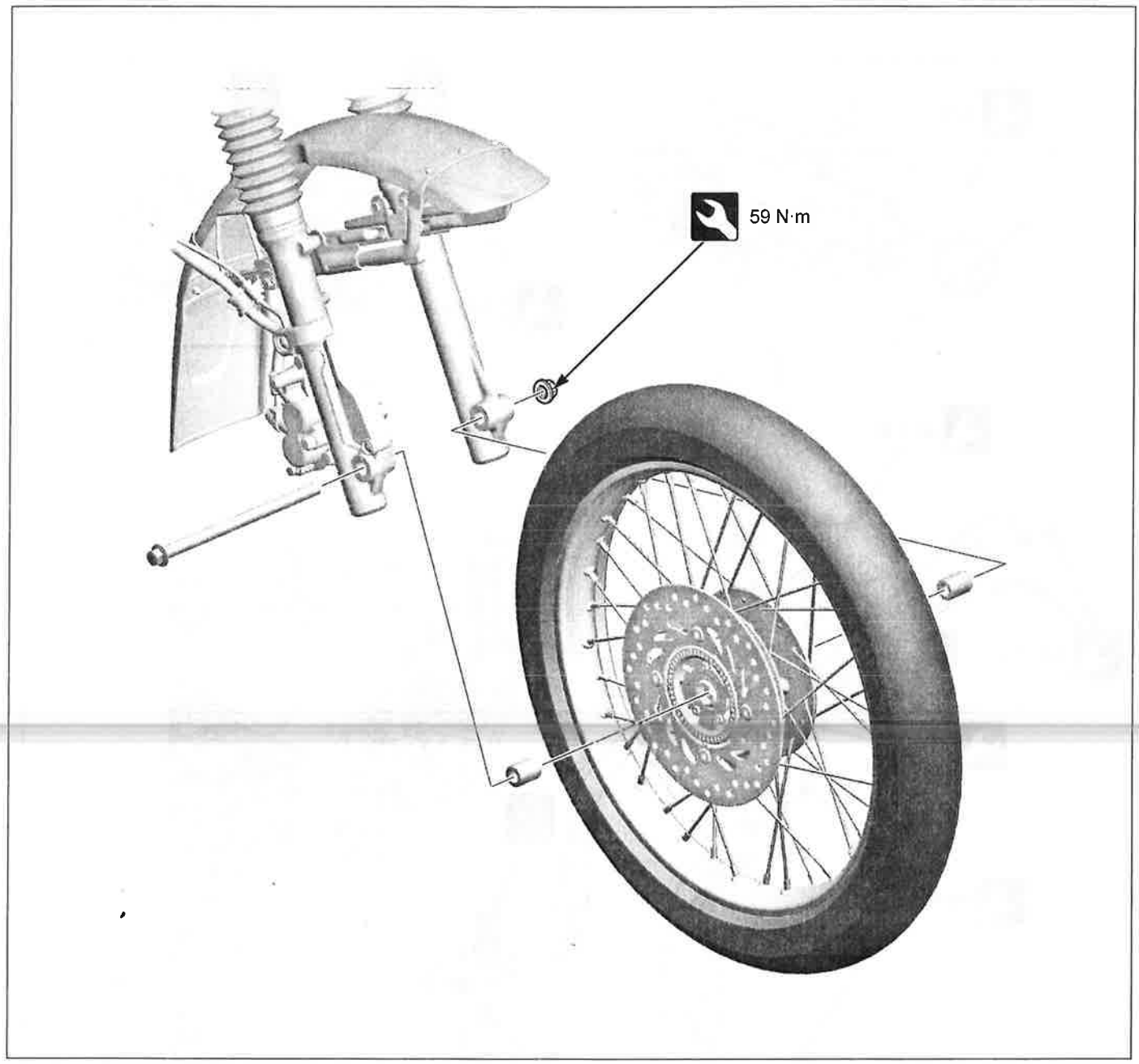


- 1 Remove the muffler cover to prevent any damage to it.
- Right side cover ➔3-8
- Under cover ➔3-11

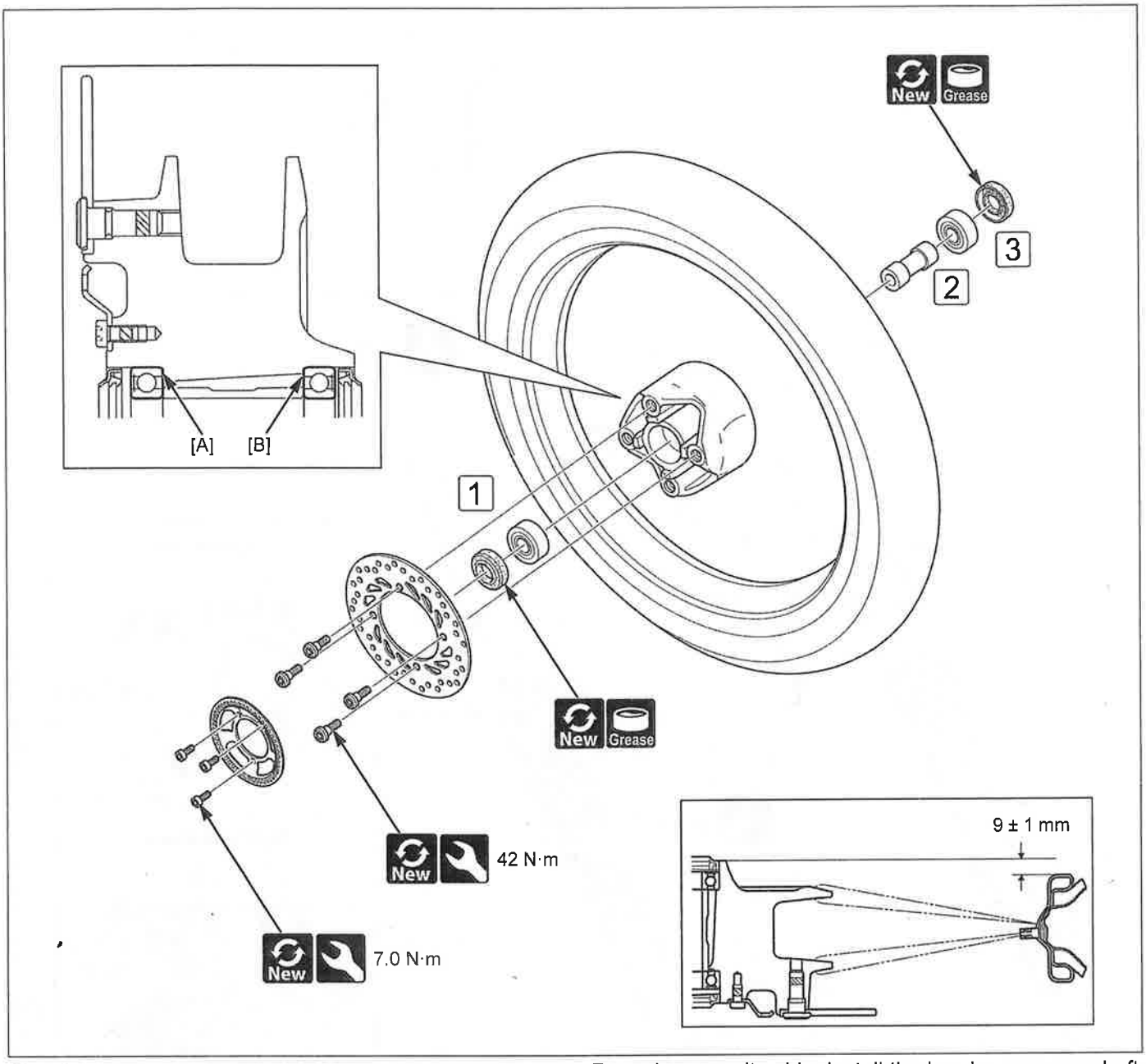
- Tightening procedure 1, 2, 3, 4 after temporary tightening.
- Install the muffler cover after tightening procedure 3.

- Clean the spark arrestor in accordance with the maintenance schedule. ➔1-34

FRONT WHEEL

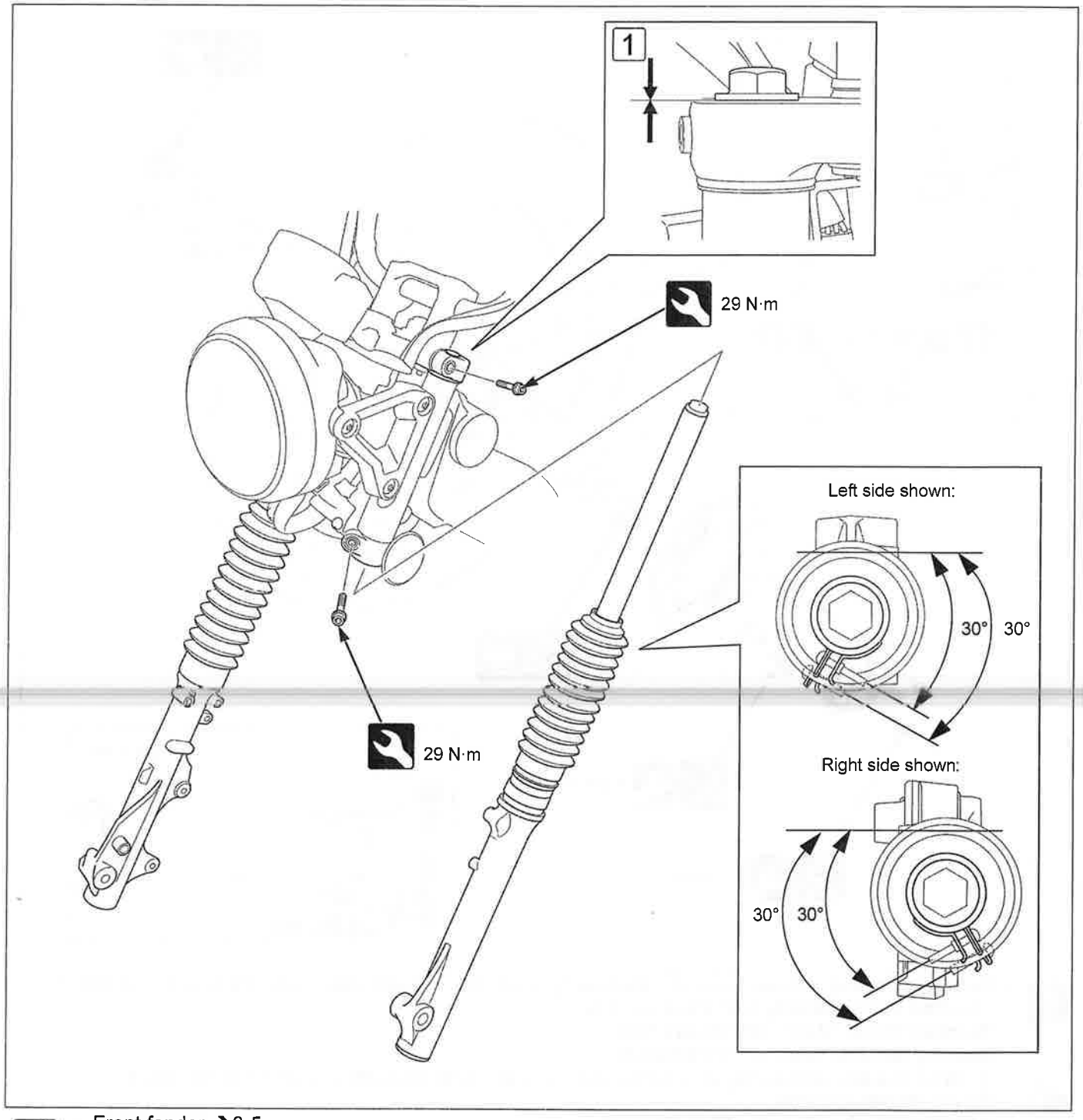


- After installing the front wheel, inspect front wheel speed sensor air gap (between fork bracket and pulser ring).

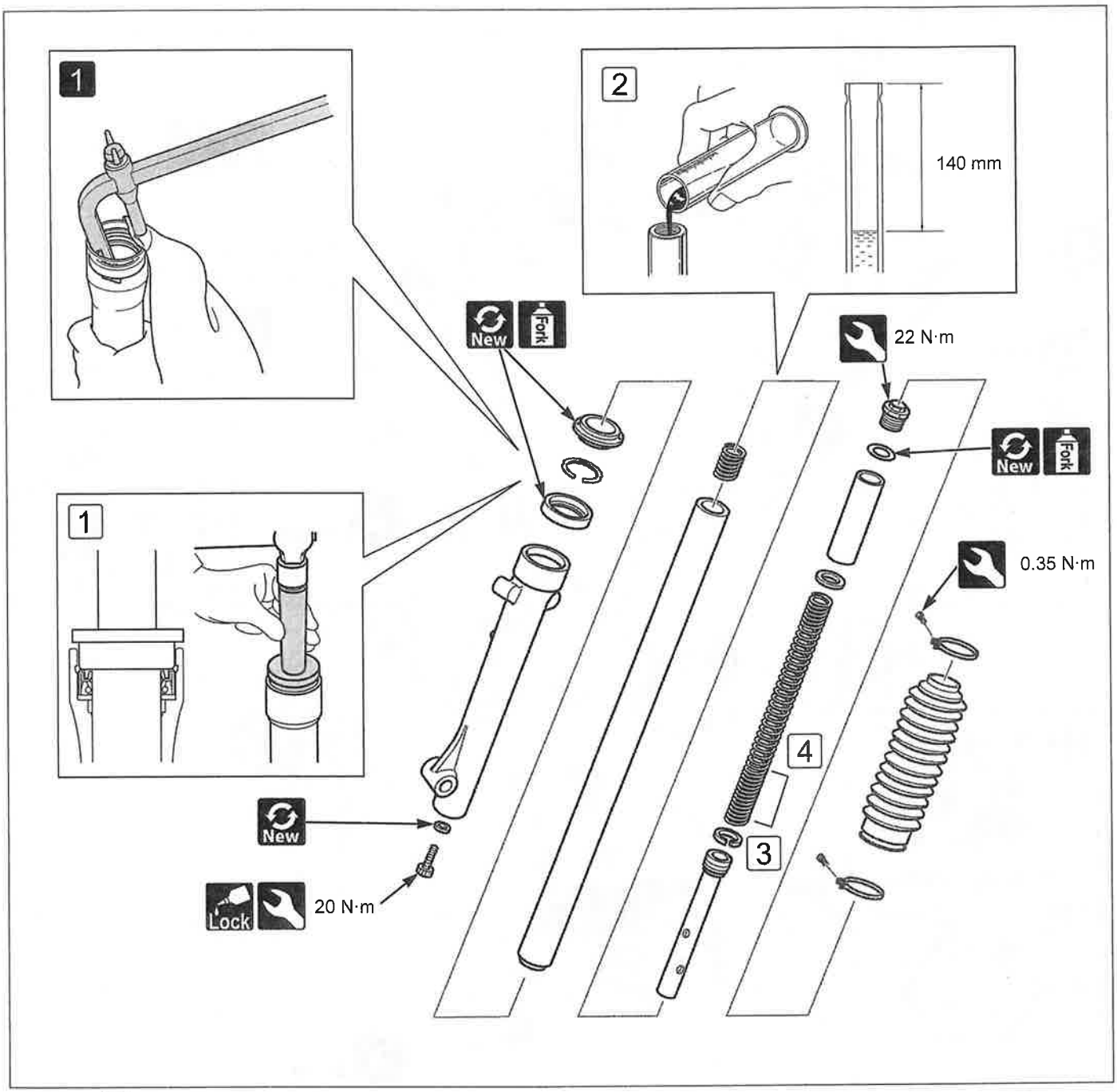


- Install the bearing remover head into the bearing. From the opposite side, install the bearing remover shaft and drive out the bearing from the wheel hub.
  Remover head, 12 mm: 07746-0050300
  Bearing remover shaft: 07746-0050100
- [1] Drive in a new left bearing [A] squarely with its sealed side facing outside until it is fully seated.
  Driver: 07749-0010000
  Attachment, 32 x 35 mm: 07746-0010100
  Pilot, 12 mm: 07746-0040200
- [2] Install the distance collar.
- [3] Drive in a new right bearing [B] squarely with its sealed side facing outside until its inner race is seated on the distance collar.
  Driver: 07749-0010000
  Attachment, 32 x 35 mm: 07746-0010100
  Pilot, 12 mm: 07746-0040200
- Wheel disassembly and inspection

FORK

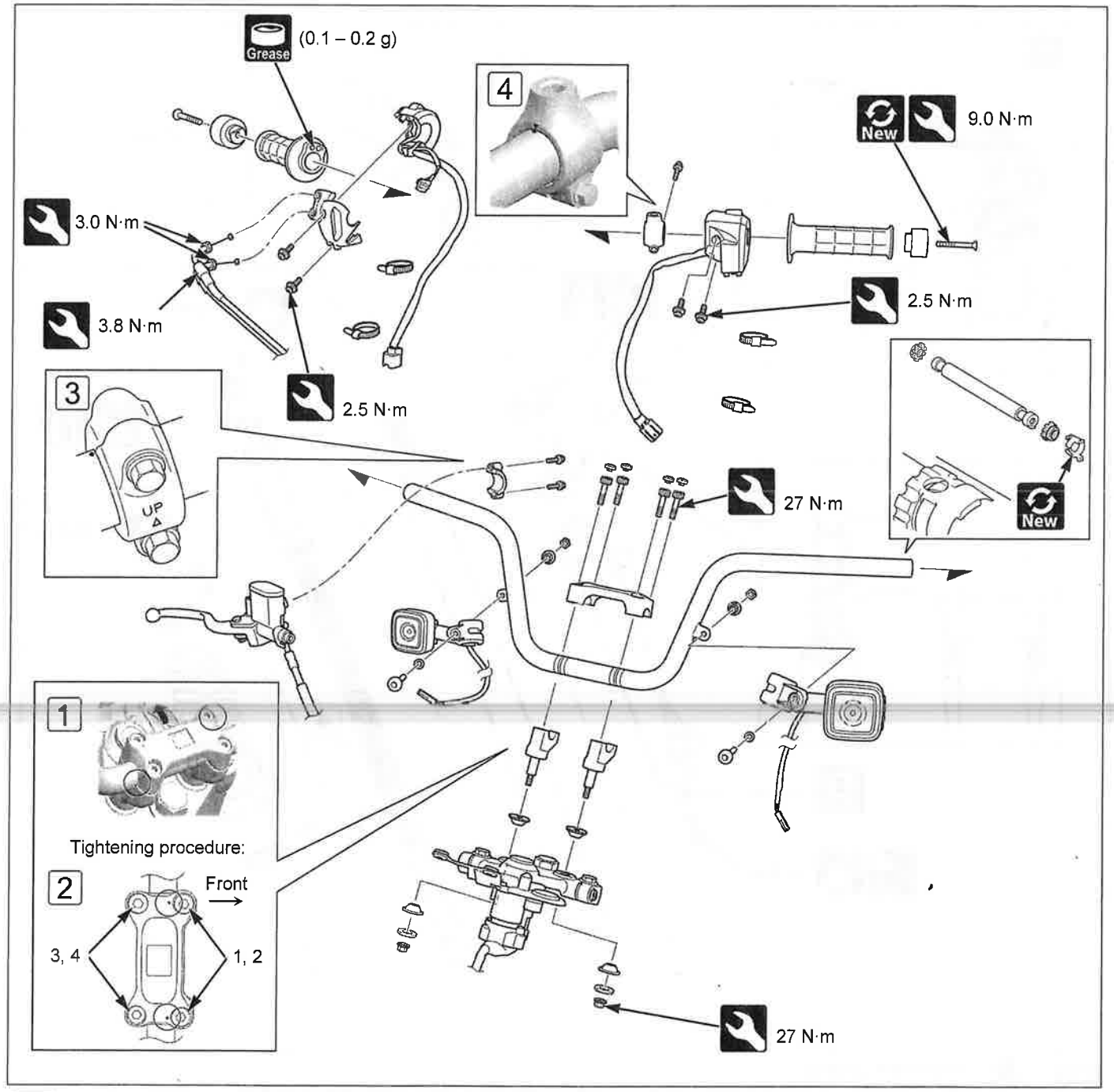


- Front fender ➔3-5
- Wheel speed sensor➔4-41
- Brake caliper ➔3-30
- [1] Install the front fork so that the end of the fork slider is aligned with the top bridge upper surface.



- 1 Remove the oil seal.
  Oil seal remover: 07748-0010001 or equivalent commercially available in U.S.A.
- 1 Drive in a new oil seal squarely with its marked side facing up until it is fully seated.
  Driver: 07749-0010000
  Attachment, 37 x 40 mm: 07746-0010200
- 2 Pour the specified amount of recommended fork fluid into the fork pipe.
  RECOMMENDED FORK FLUID: Fork fluid (viscosity:10W)
  FORK FLUID CAPACITY: 120 ± 2.5 cm³
- Compress the fork pipe fully and measure the fluid level from the top of the fork pipe.
  FORK FLUID LEVEL: 140 mm
- 3 Install the piston ring with its unevenness side facing down.
- 4 Pull the fork pipe up and install the fork spring with its tightly wound coil side facing down.
- Fork disassembly and inspection

HANDLEBAR



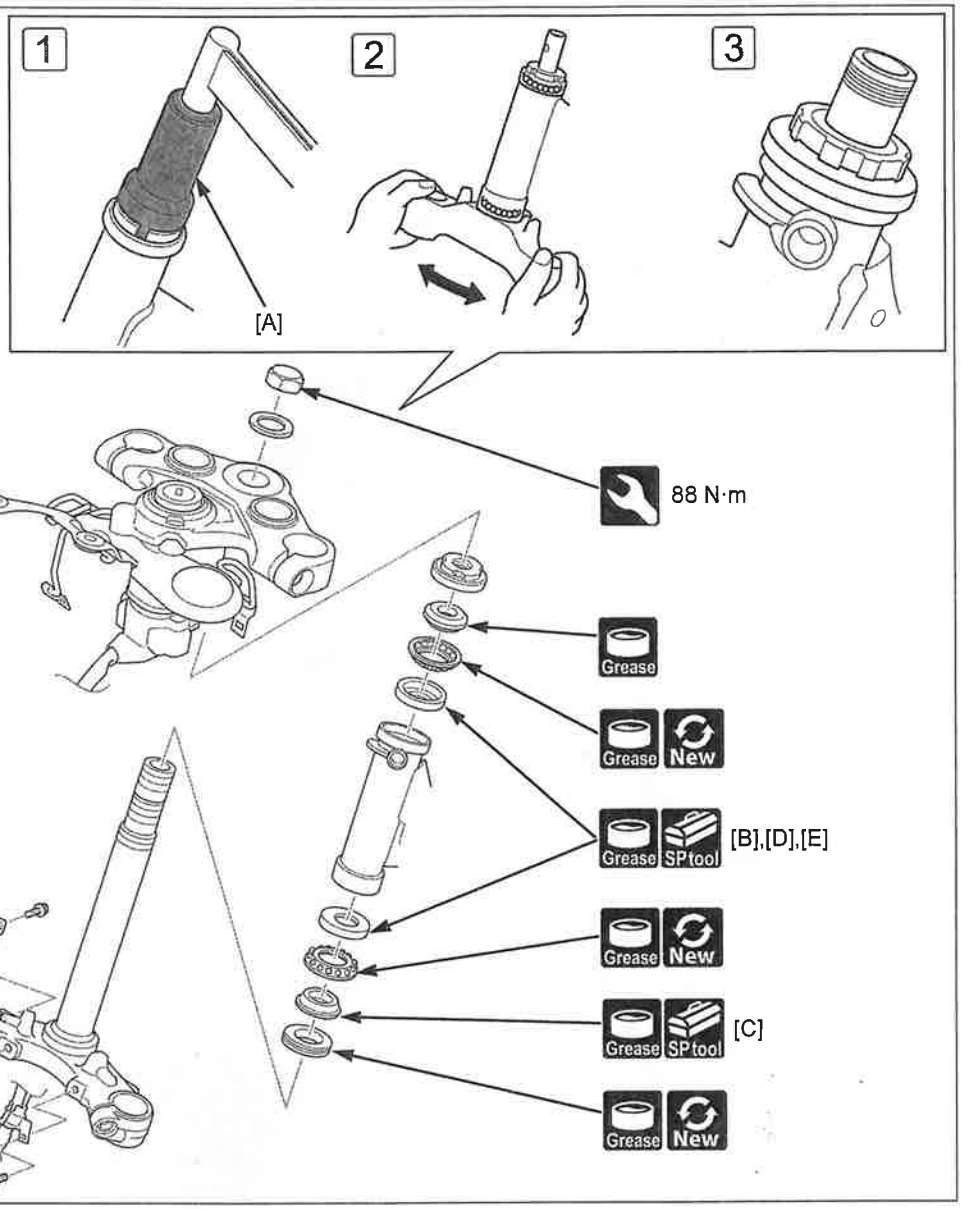
- Headlight case ➔3-4

- [1] Install the handlebar onto the lower holders by aligning the punch mark on the handlebar with the top edge of the lower holder. Install the upper holders with the punch marks facing forward.
- [2] Install the socket bolts and tighten them to the specified torque in the specified sequence as shown.
- [3] Install the brake master cylinder and holder with the "UP" mark facing up. Align the edge of the master cylinder with the punch mark on the handlebar.
- [4] Install the back mirror holder with the punch mark on the handle bar. Align the alignment mark of the back mirror holder with the punch mark on the handlebar.

- Handlebar disassembly/assembly and inspection.

STEERING STEM

Grease: Each 3.0 – 5.0 grams
Multi-purpose extreme pressure grease NLGI #2 (ALVANIA EP2 manufactured by Shell, EXCELITE EP2 manufactured by KYODO YUSHI CO., LTD. or equivalent)

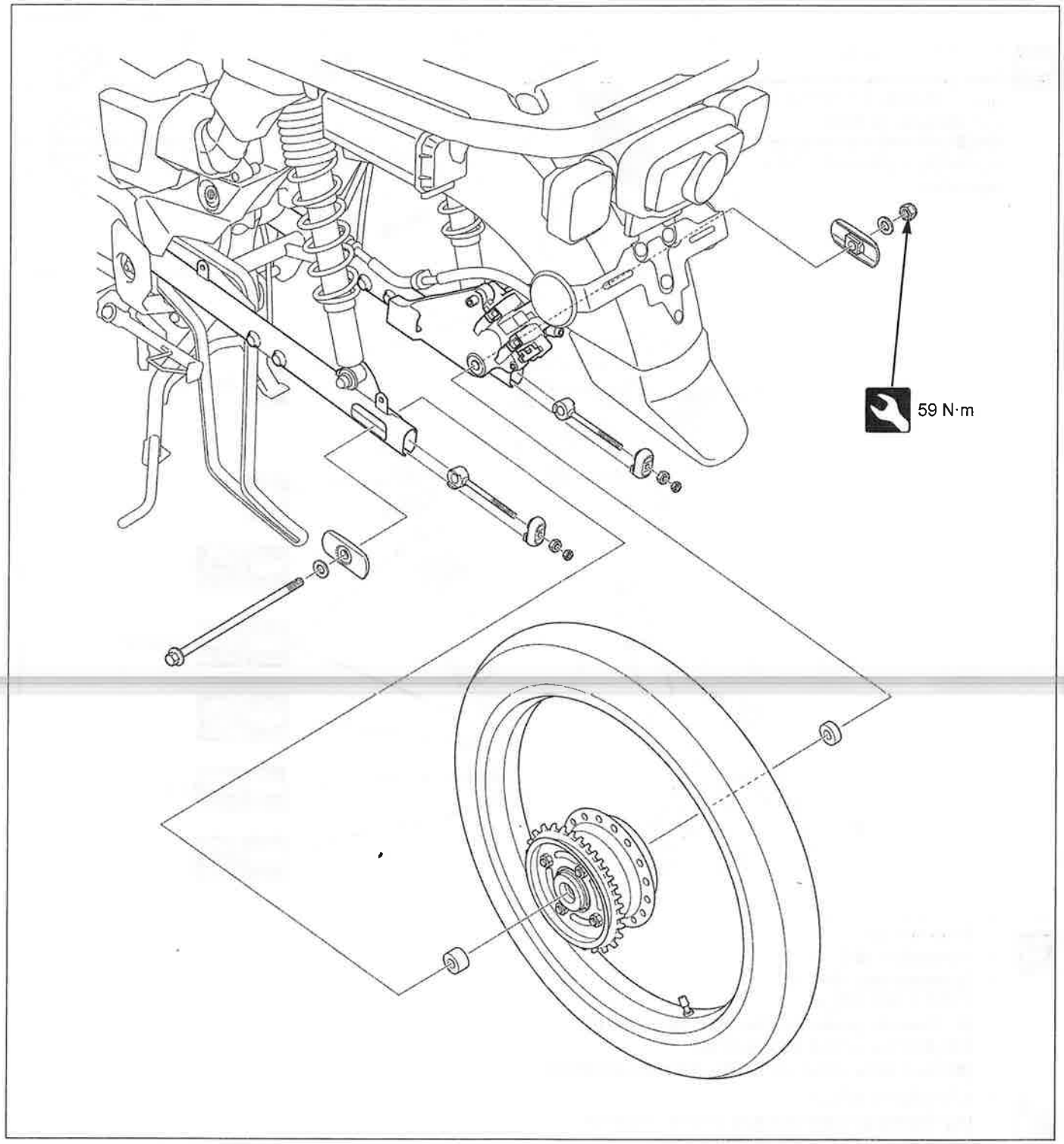


- Fork ➔3-22
- Handlebar ➔3-24
- Speedometer ➔4-48
- STEERING STEM:
  [A] Steering stem socket: 07916-3710101
- STEERING STEM BEARINGS
  [B] Ball race remover shaft: 07GMD-KS40100

- STEERING STEM:
  [A] Steering stem socket: 07916-3710101
- STEERING STEM BEARINGS:
  [C] Fork seal driver attachment, 27.2 mm: 07747-0010300, [D] Driver: 07749-0010000
  [E] Bearing driver attachment 42x47 mm: 07746-0010300
- [1] Install the top thread. Hold the steering stem and tighten the stem top thread to the initial torque.
  TORQUE: 27 N·m
- [2] Turn the steering stem lock-to-lock several times to seat the bearing. Completely loosen the top thread.
- [3] Tighten the top thread fully by hand while holding the steering stem.
- Install the top bridge, washer then tighten the stem nut to the specified torque.
  TORQUE: 88 N·m

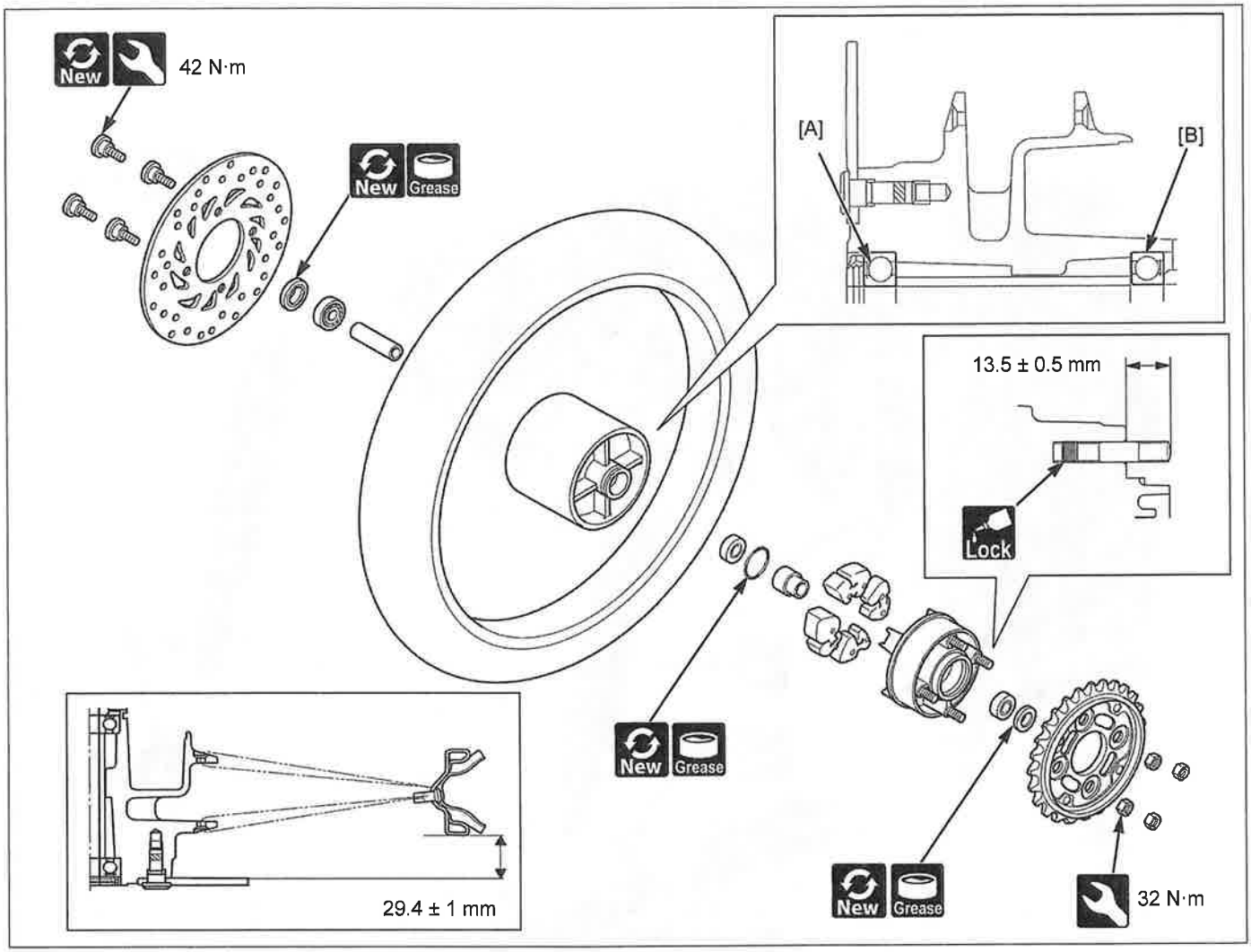
- Steering disassembly/assembly and inspection.

REAR WHEEL



Basic

- Wheel inspection.



REAR WHEEL

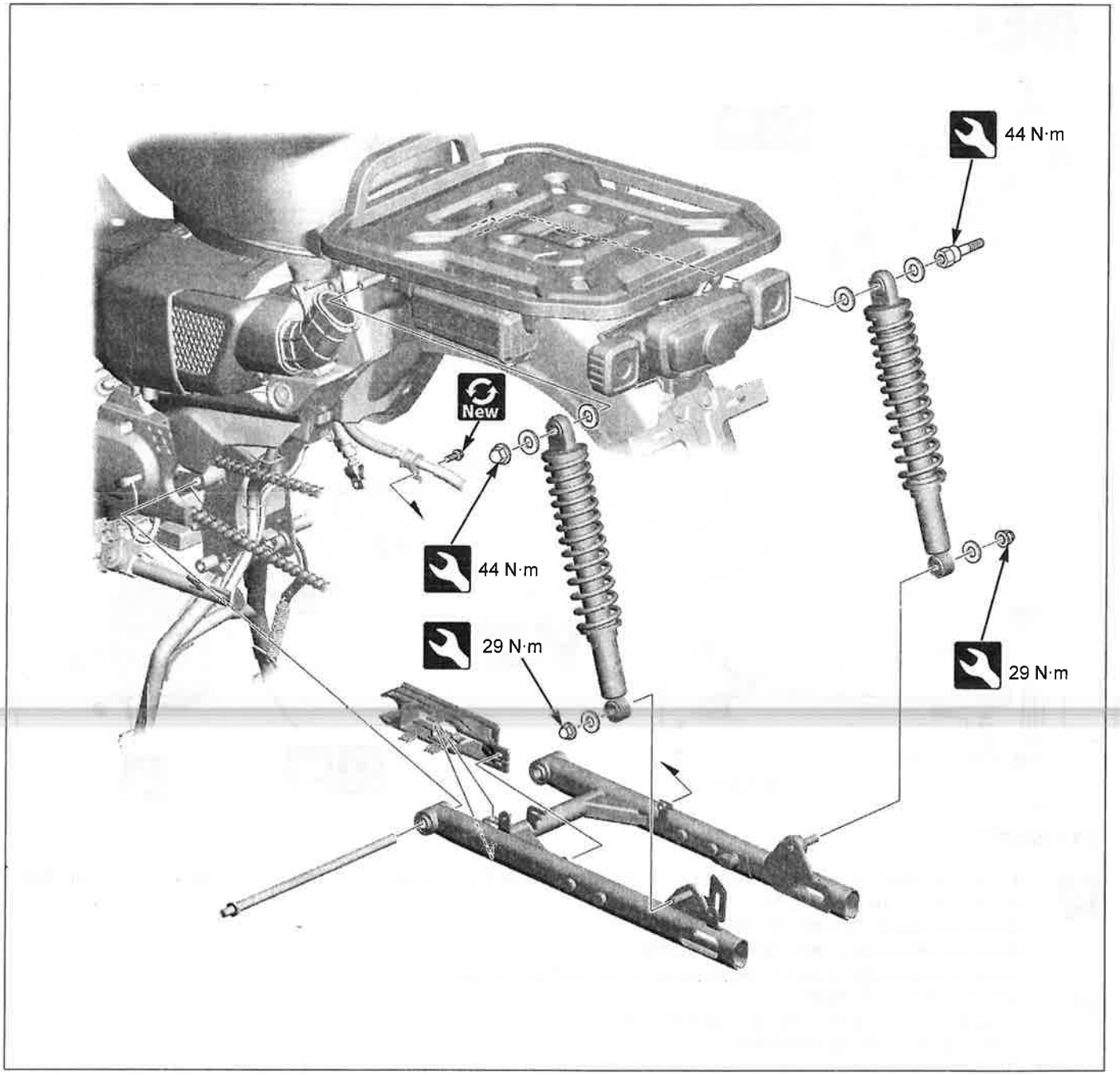
- Install the bearing remover head into the bearing. From the opposite side, install the bearing remover shaft and drive out the bearing from the wheel hub.
  Remover head, 12 mm: 07746-0050300
  Bearing remover shaft: 07746-0050100
- Drive in a new right bearing [A] squarely until it is fully seated.
  Driver: 07749-0010000
  Attachment, 37 x 40 mm: 07746-0010200
  Pilot, 12 mm: 07746-0040200
- Drive in a new left bearing [B] squarely with its sealed side facing outside until its inner race is seated on the distance collar.
  Driver: 07749-0010000
  Attachment, 37 x 40 mm: 07746-0010200
  Pilot, 12 mm: 07746-0040200
- Install the distance collar.
- Wheel disassembly and inspection

Basic

DRIVEN FLANGE

- Drive out the bearing from the driven flange.
- Drive in a new bearing squarely with its marked side facing up until it is fully seated.
  Driver: 07749-0010000
  Attachment, 37 x 40 mm: 07746-0010200
  Pilot, 17 mm: 07746-0040400

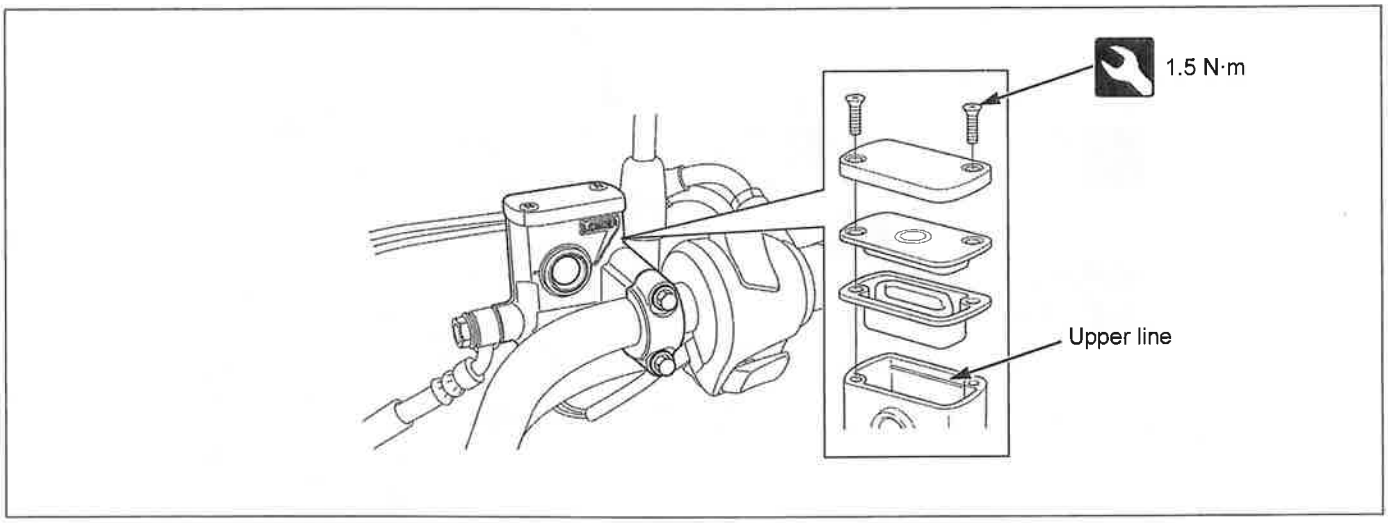
REAR SUSPENSION



- Exhaust pipe/muffler ➔3-19
- Air cleaner duct case ➔3-17
- Rear wheel ➔3-26
- Left pivot plate ➔3-14
- Rear brake master cylinder ➔3-32

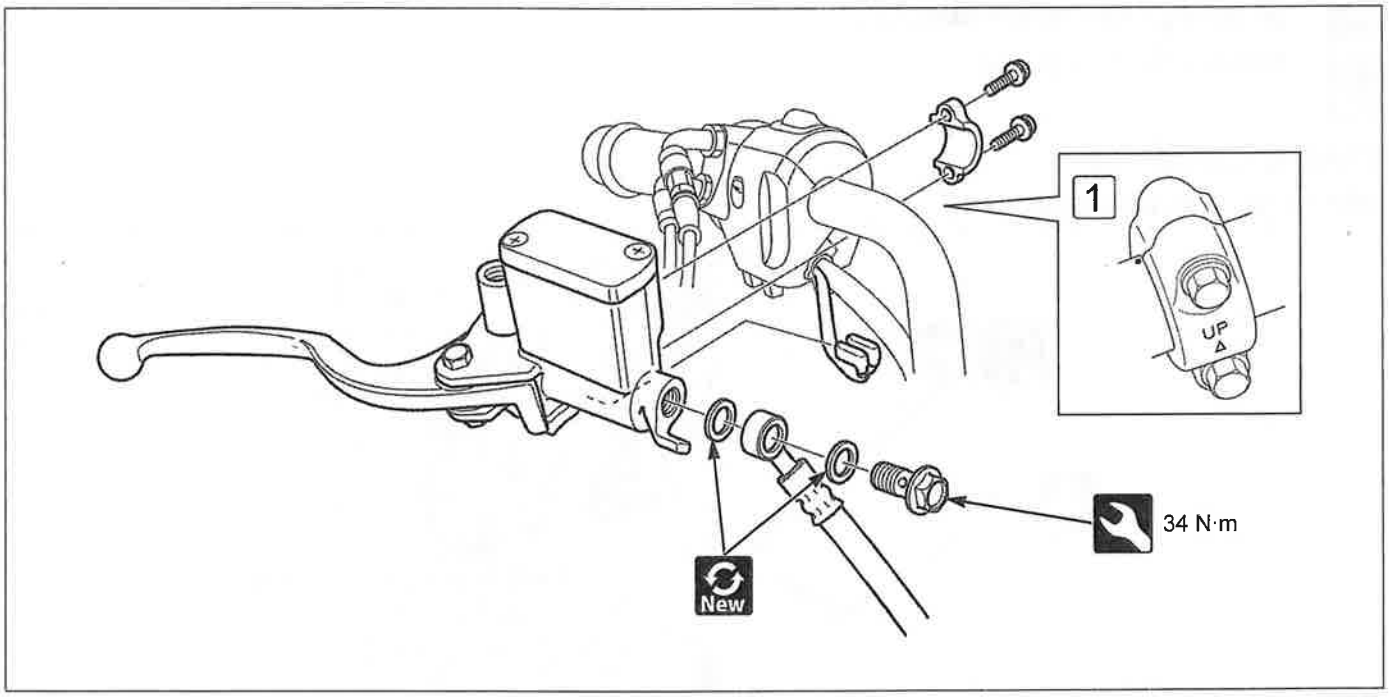
FRONT BRAKE

BRAKE FLUID REPLACEMENT

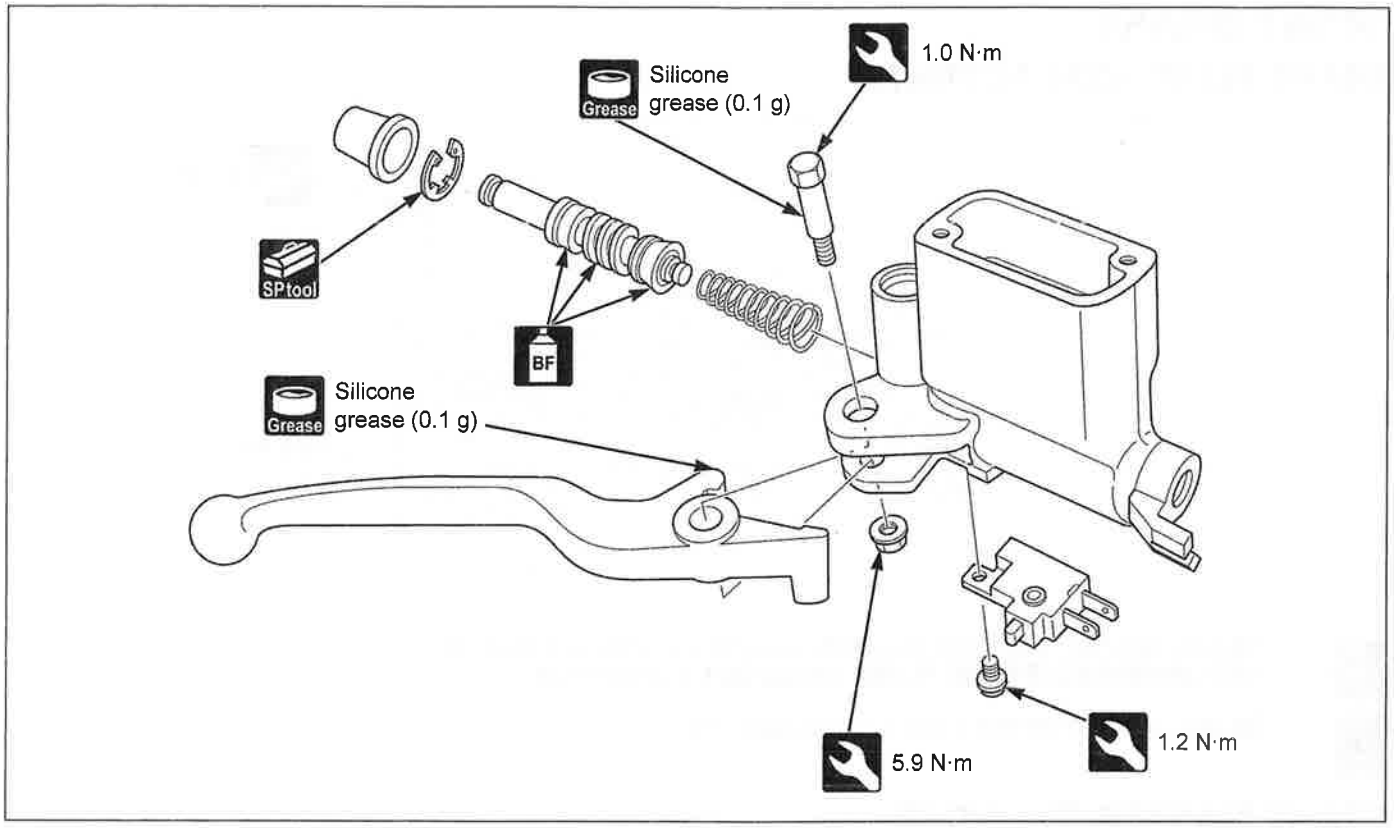


- Add the reservoir with brake fluid from a sealed container to the set line.
  RECOMMENDED BRAKE FLUID: Honda DOT 4 brake fluid
- Details instruction of the brake fluid replacement.

BRAKE MASTER CYLINDER



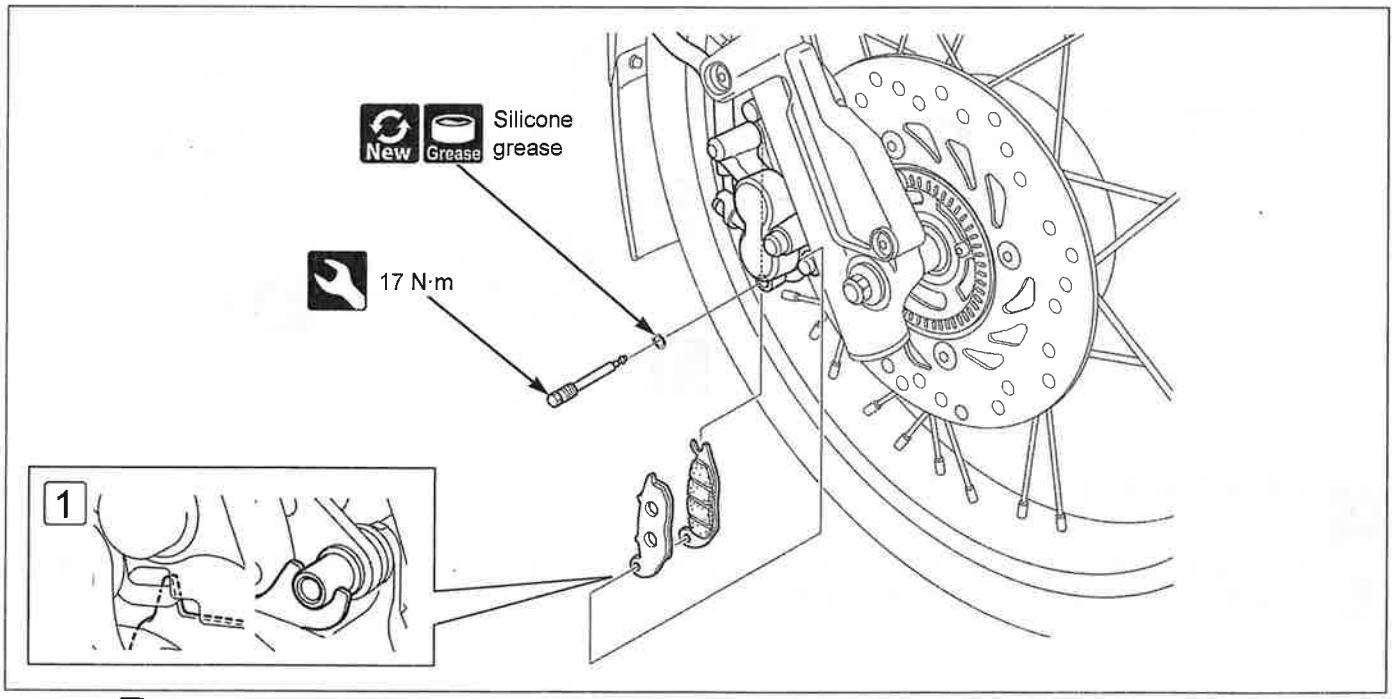
- Brake fluid ➔3-29
- [1] Install the brake master cylinder and holder with the "UP" mark facing up and align the edge of the master cylinder with the punch mark on the handlebar.



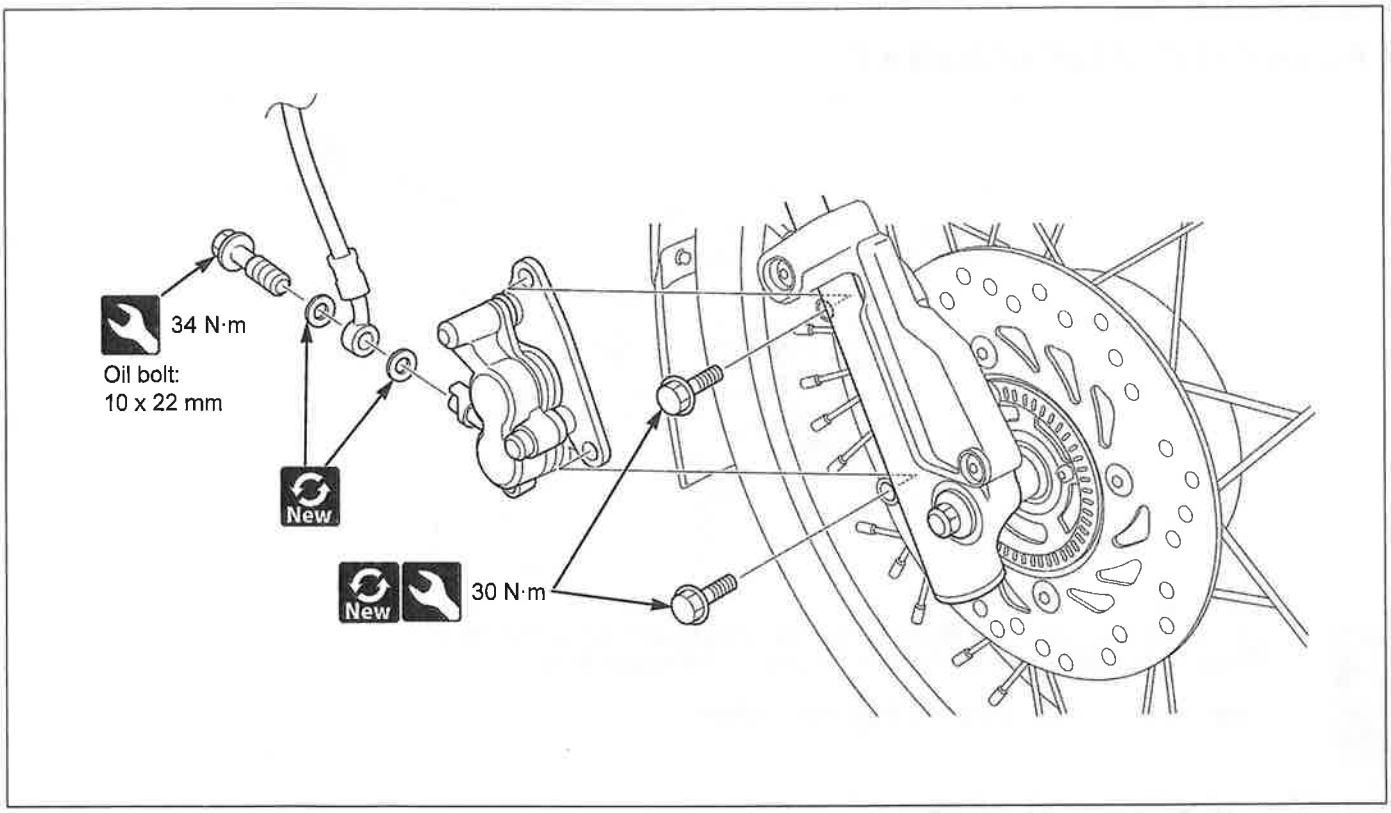
- Remove the snap ring using the special tool.
  Snap ring pliers: 07914-SA50001
- Master cylinder inspection

BRAKE CALIPER

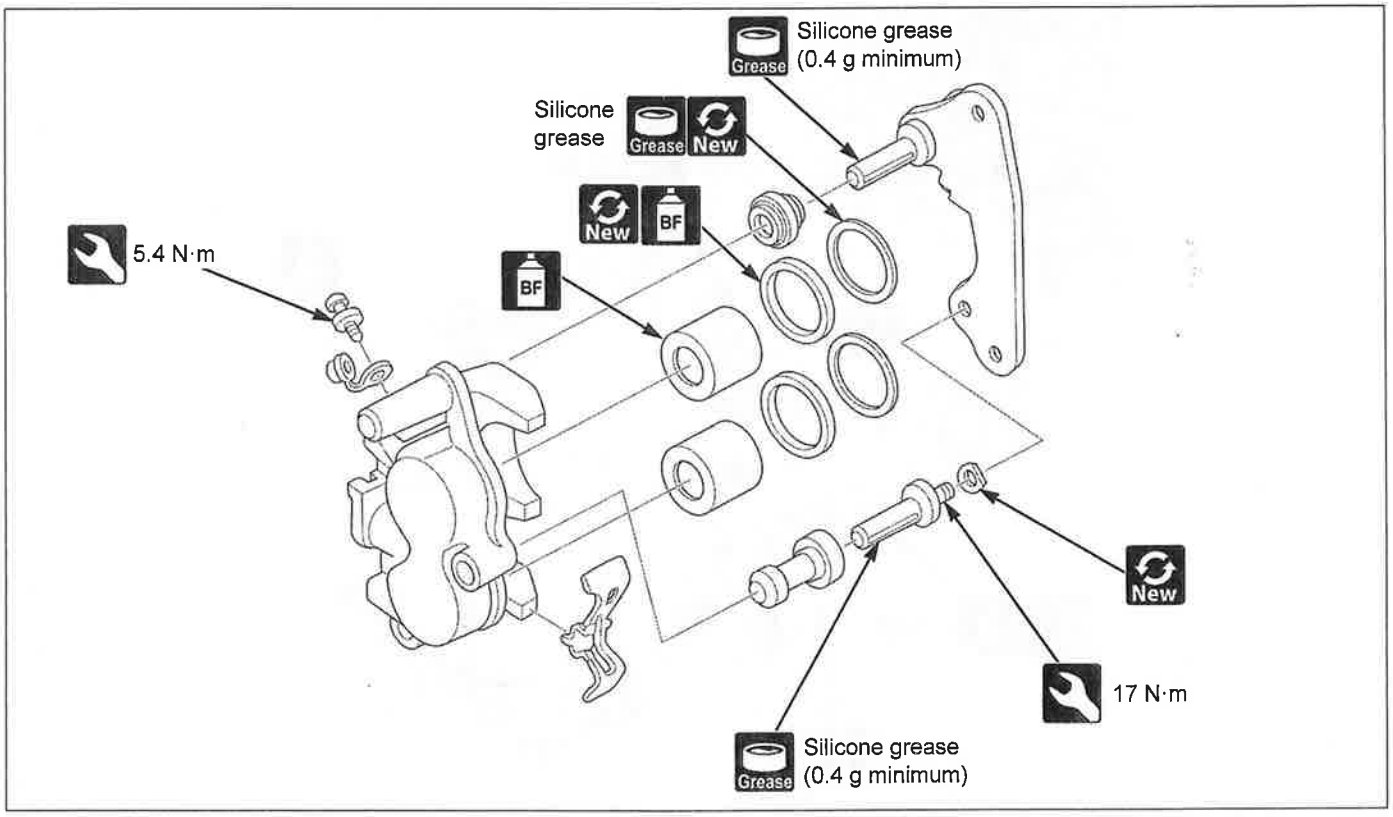
BRAKE PAD REPLACEMENT



- 1 Install brake pads so that they are set on the brake caliper bracket and bracket pin.



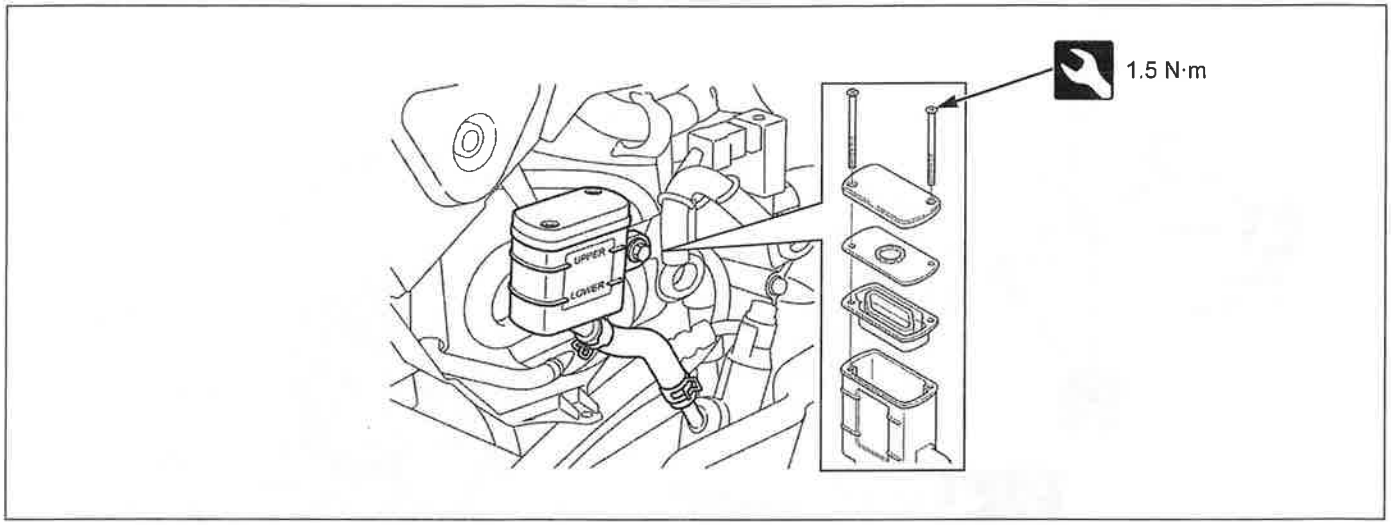
- Brake fluid ➔3-29



- Brake caliper inspection

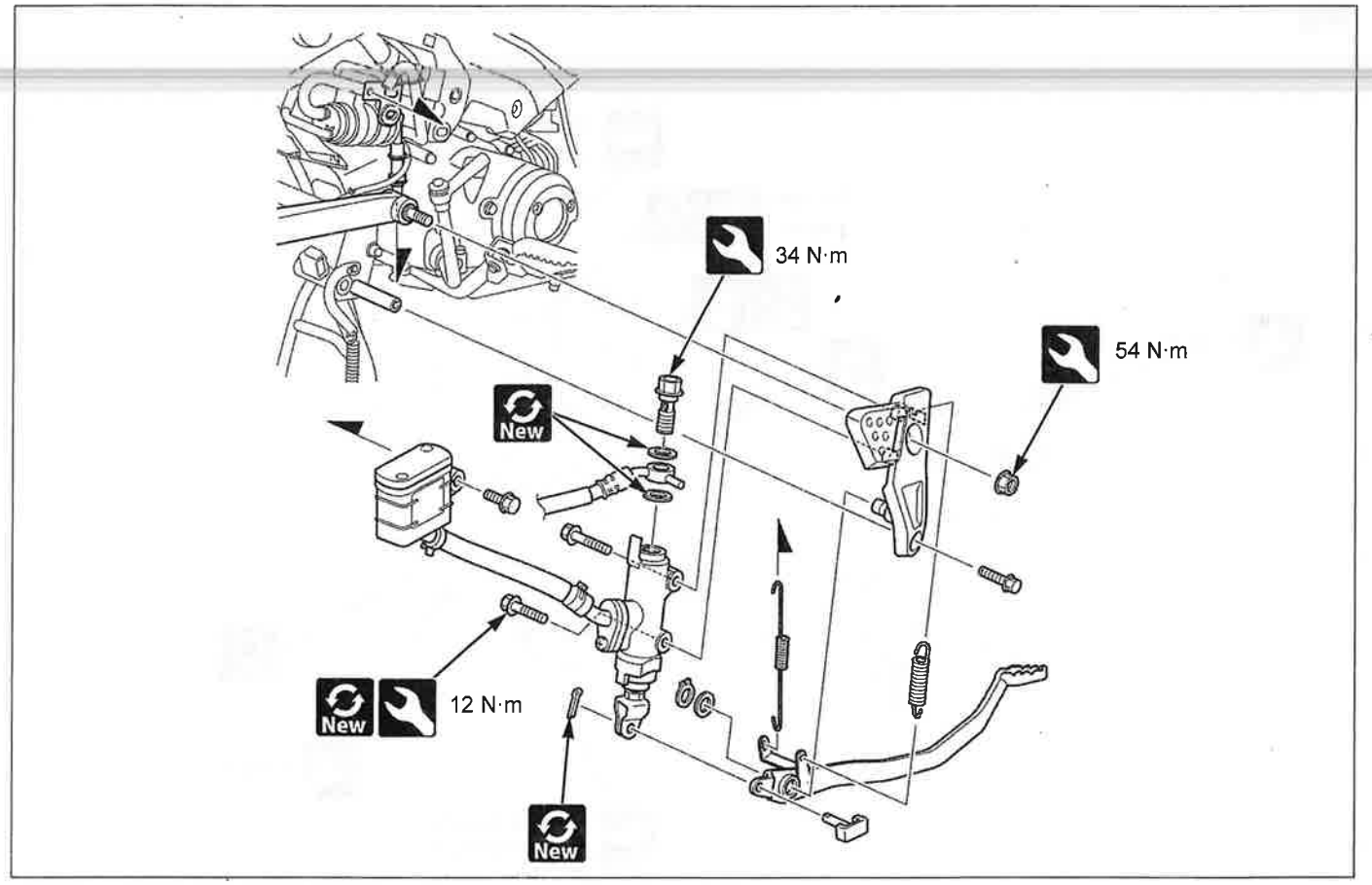
REAR BRAKE

BRAKE FLUID REPLACEMENT

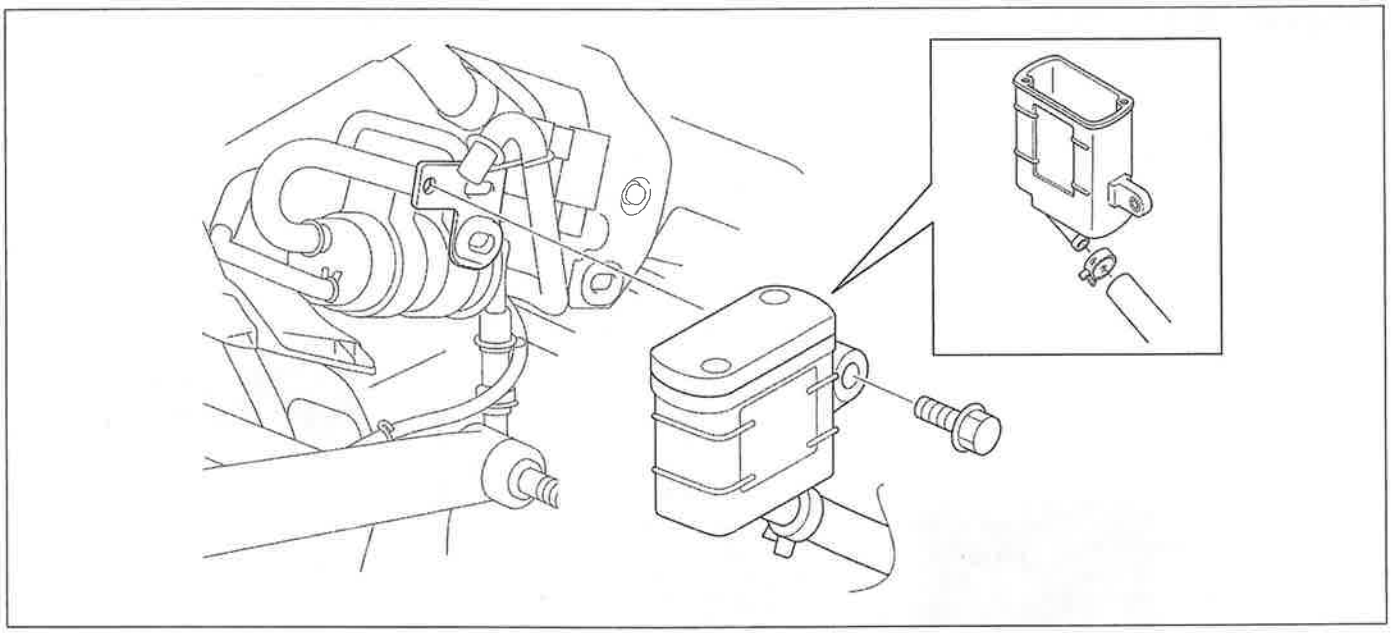


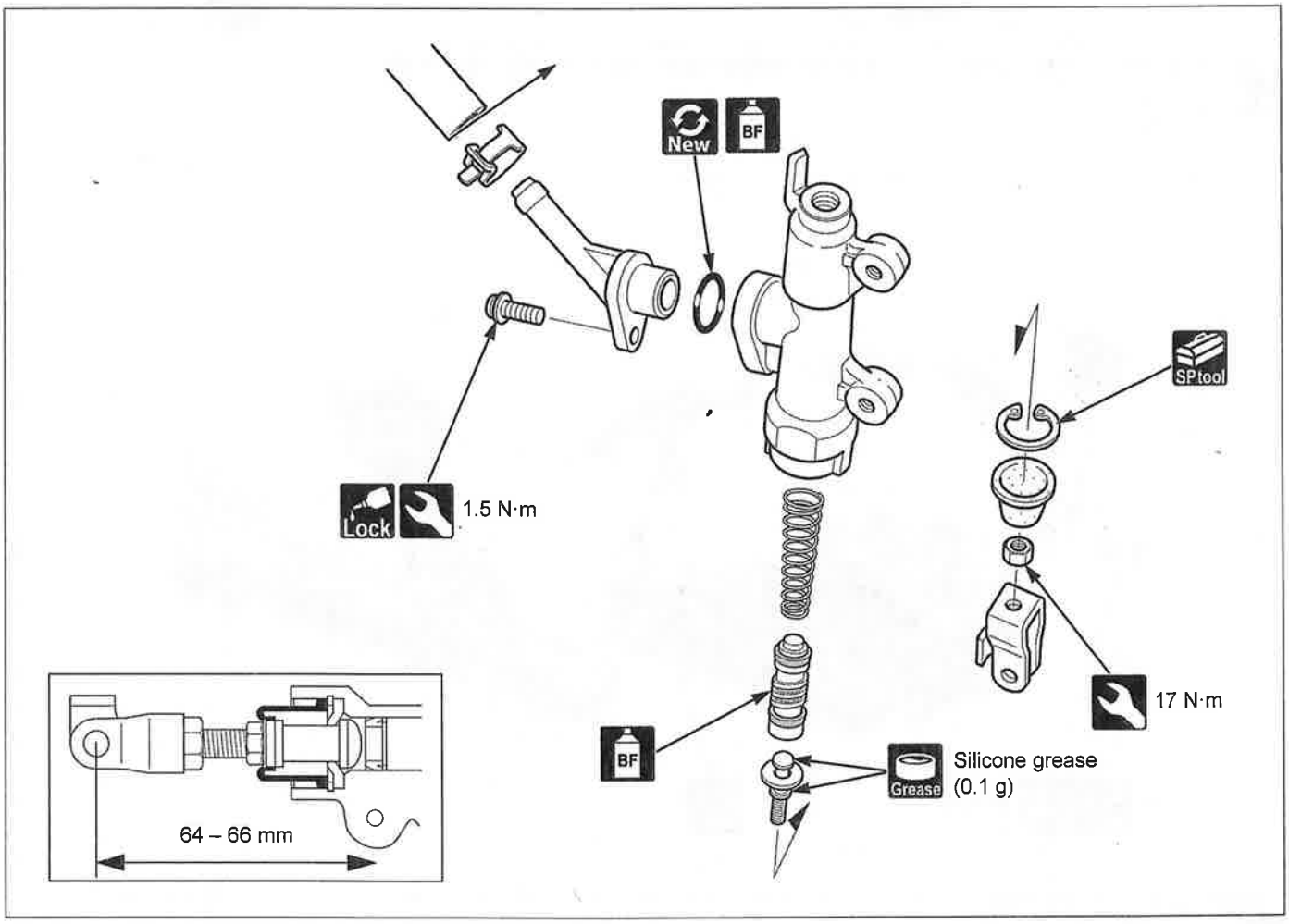
- Add the brake fluid to the reservoir from a sealed container to the set line.
  RECOMMENDED BRAKE FLUID: Honda DOT 4 brake fluid
- Details instruction of the brake fluid replacement.

BRAKE MASTER CYLINDER



- Right side cover ➔3-8
- Brake fluid ➔3-32

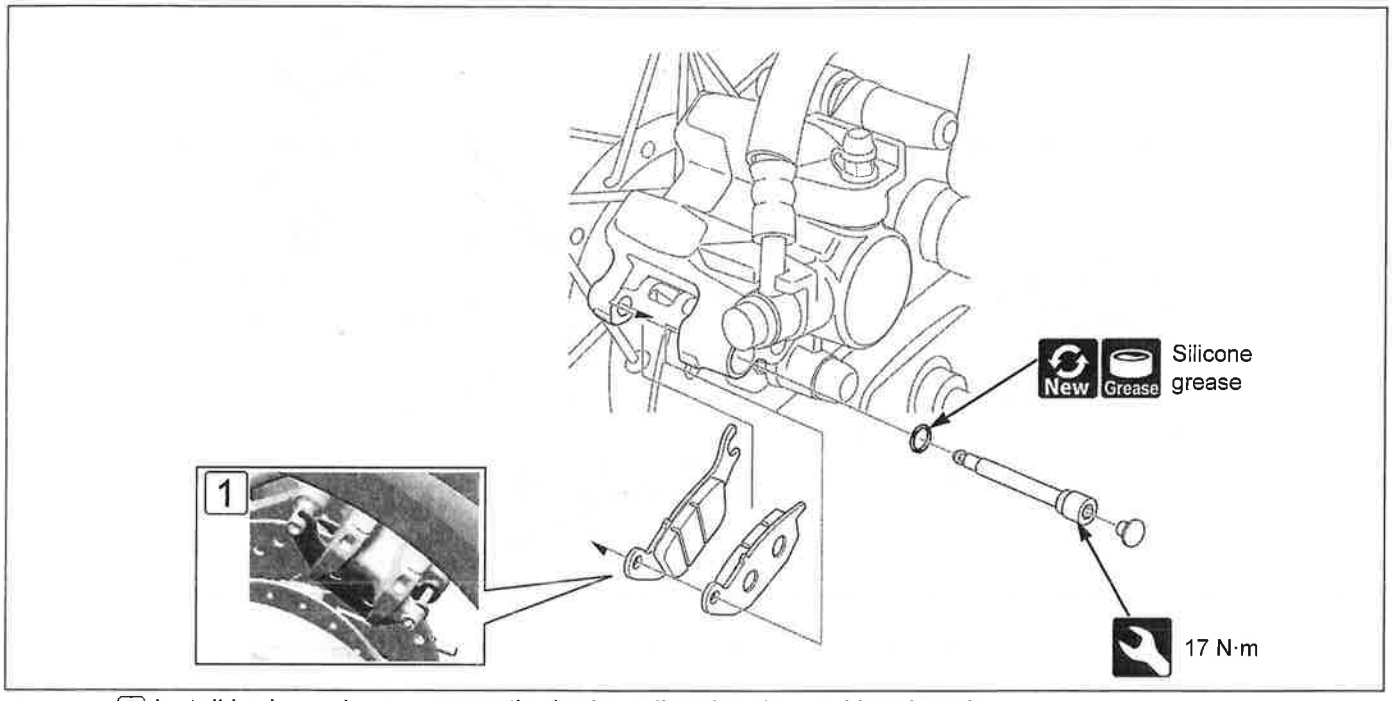




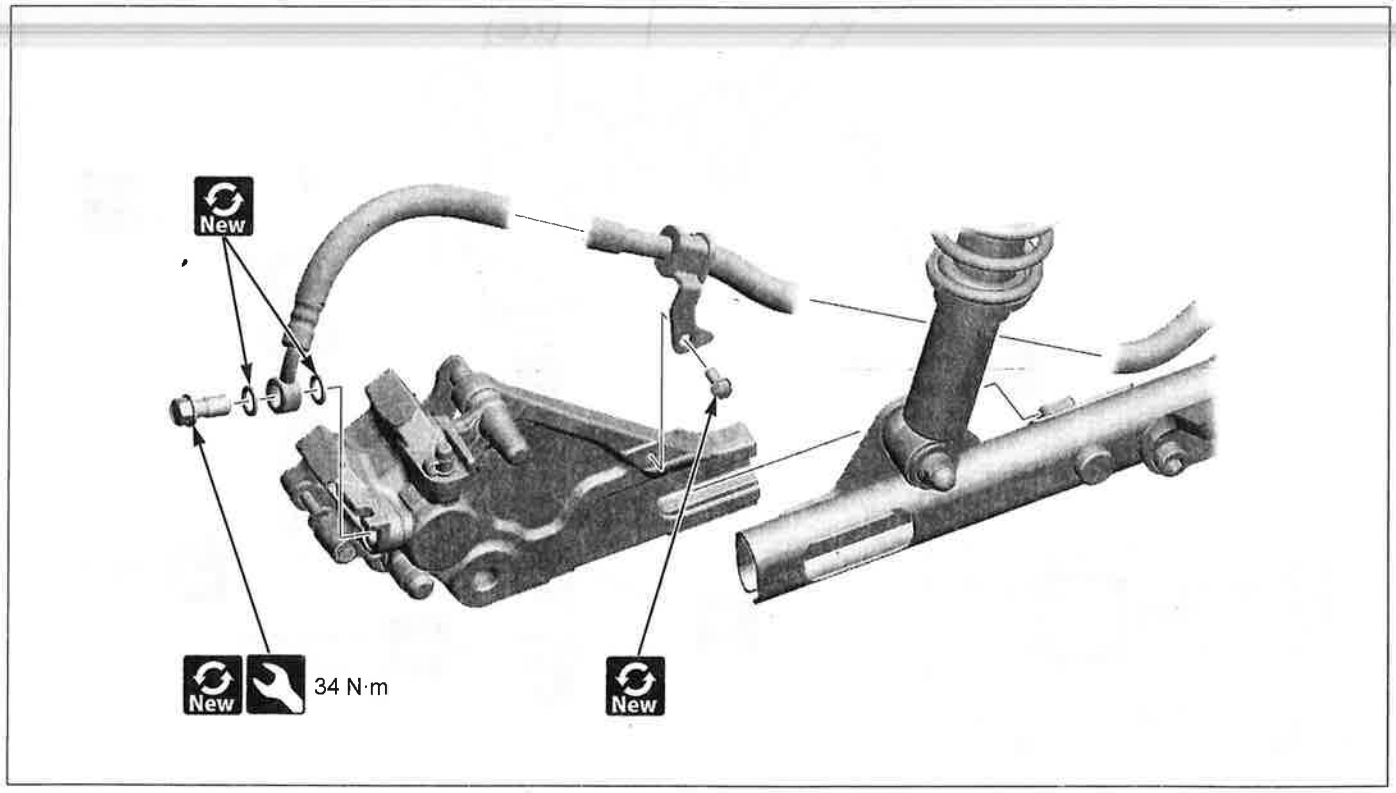
- Remove the snap ring using the special tool.
  Snap ring pliers: 07914-SA50001

BRAKE CALIPER

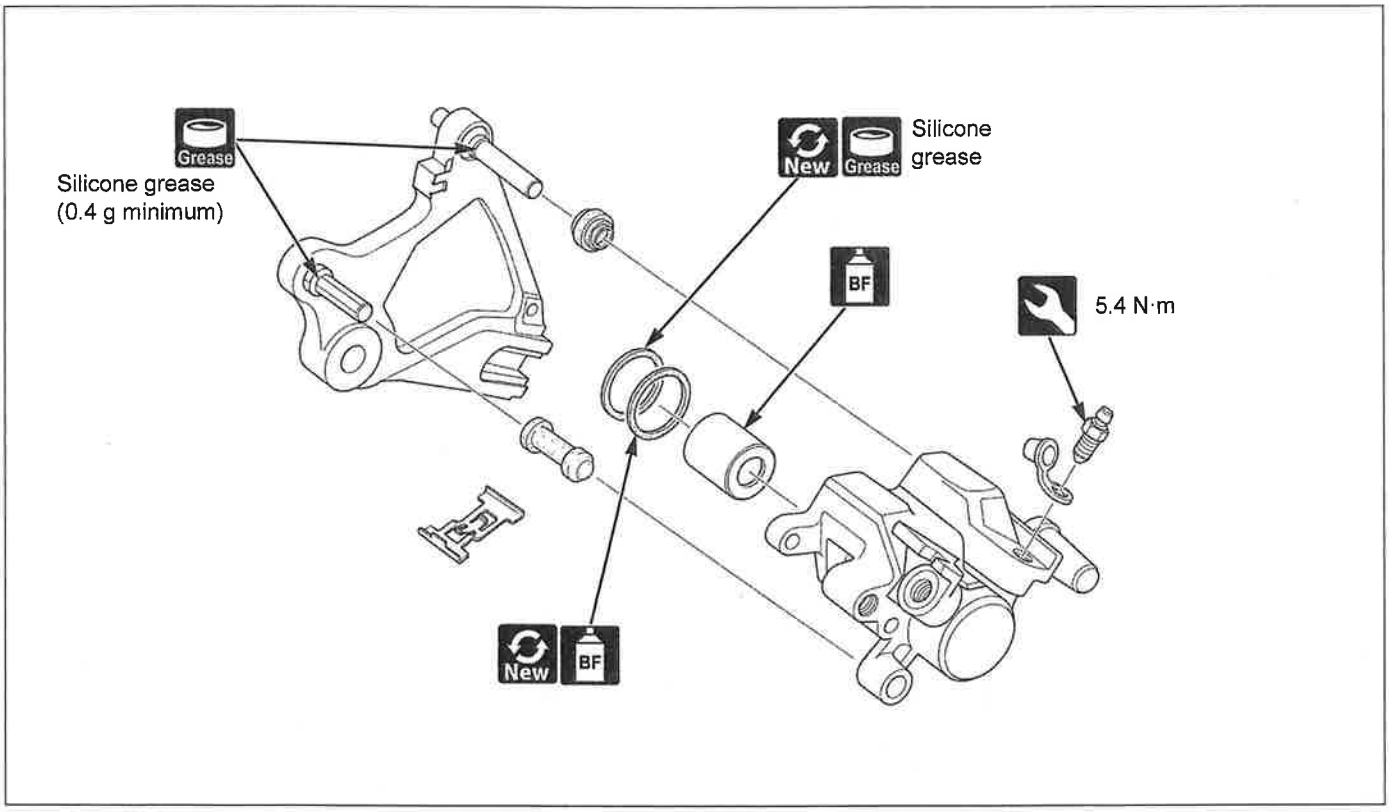
BRAKE PAD REPLACEMENT



- 1 Install brake pads as a set on the brake caliper bracket and bracket pin.



- Rear wheel ➔3-26



Basic

- Brake caliper inspection

MEMO

4. ELECTRICAL SYSTEM

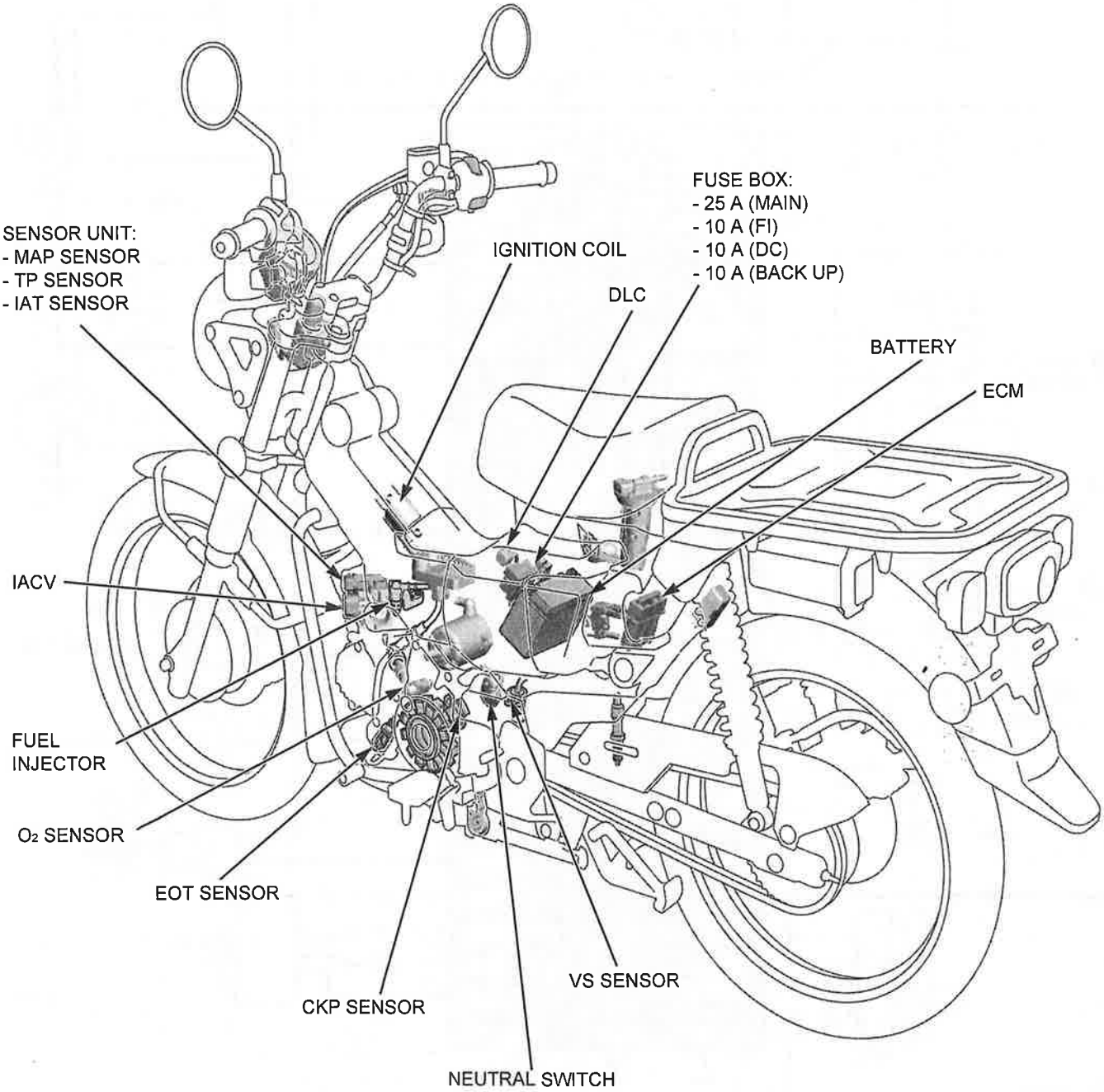
PGM-FI SYSTEM

- Refer to "Basic Service Manual" for the following information.
  – PGM-FI technical feature and each sensor function.
  – Symptom troubleshooting for the PGM-FI system.
  – MCS (Motorcycle Communication System) information.

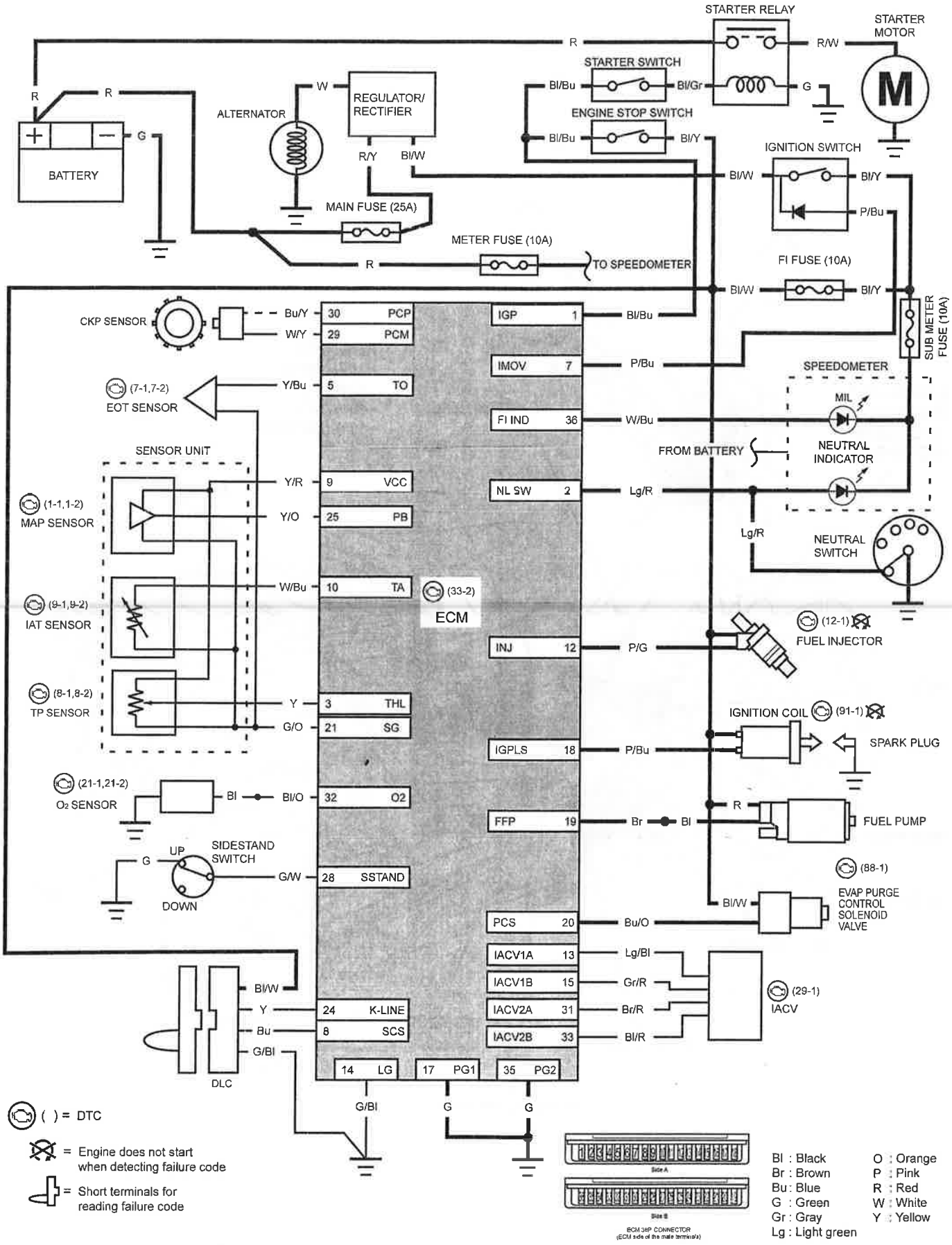
DTC CODE INDEX

DTC	Function Failure	Symptom/Fail-safe function	Page
1-1	MAP sensor malfunction • MAP sensor low voltage	• Engine operates normally	→4-5
1-2	MAP sensor malfunction • MAP sensor high voltage	• Engine operates normally	→4-6
7-1	EOT sensor malfunction • EOT sensor low voltage	• Hard start at a low temperature	→4-7
7-2	EOT sensor malfunction • EOT sensor high voltage	• Hard start at a low temperature	→4-8
8-1	TP sensor malfunction • TP sensor low voltage	• Poor engine acceleration	→4-9
8-2	TP sensor malfunction • TP sensor high voltage	• Poor engine acceleration	→4-10
9-1	IAT sensor malfunction • IAT sensor low voltage	• Engine operates normally	→4-11
9-2	IAT sensor malfunction • IAT sensor high voltage	• Engine operates normally	→4-12
12-1	Injector malfunction	• Engine does not start • Injector, fuel pump and ignition coil shut down	→4-13
21-1	O_2 sensor malfunction • O_2 sensor low voltage	• Engine operates normally	→4-14
21-2	O_2 sensor malfunction • O_2 sensor high voltage	• Engine operates normally	→4-15
29-1	IACV malfunction	• Engine stalls, hard to start, rough idling	→4-16
33-2	ECM EEPROM malfunction	• Engine stalls, hard to start, rough idling • Does not hold the self diagnosis data • Does not erase the self diagnosis data with SCS connector	→4-17
88-1	EVAP purge control solenoid valve malfunction • Loose or poor contact of the EVAP purge control solenoid valve connector • EVAP purge control solenoid valve or its circuit malfunction	• Engine operates normally	→4-18
91-1	Ignition coil primary circuit malfunction • Ignition coil or its circuit malfunction	• Engine does not start • Injector and ignition coil shut down	→4-19

PGM-FI SYSTEM LOCATION



PGM-FI SYSTEM DIAGRAM

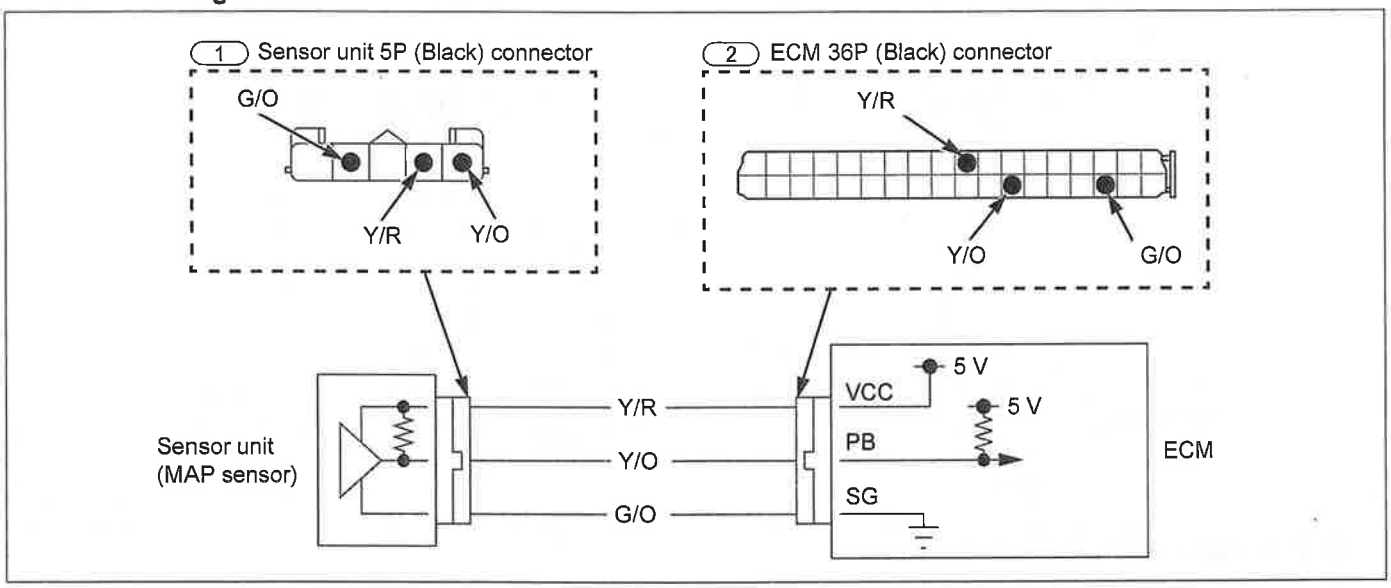


DTC TROUBLESHOOTING

DTC 1-1 (MAP SENSOR LOW VOLTAGE)

- Fuel tank ➔2-6

MAP Sensor Diagram



1. MAP Sensor System Inspection

- Check the MAP sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. Sensor unit Power Input Voltage Inspection

- Connection: Y/R (+) – G/O (–)
- Is the voltage within 4.75 – 5.25 V?

No ▶

- Check an open or short circuit in Y/R.
- If there is no open or short circuit, replace the ECM with a new one ➔4-20, and recheck.

Yes ▼

3. MAP Sensor Output Line Inspection

- Check a short circuit in Y/O wire.
- Is there short circuit?

Yes ▶

- Faulty Y/O wire.

No ▼

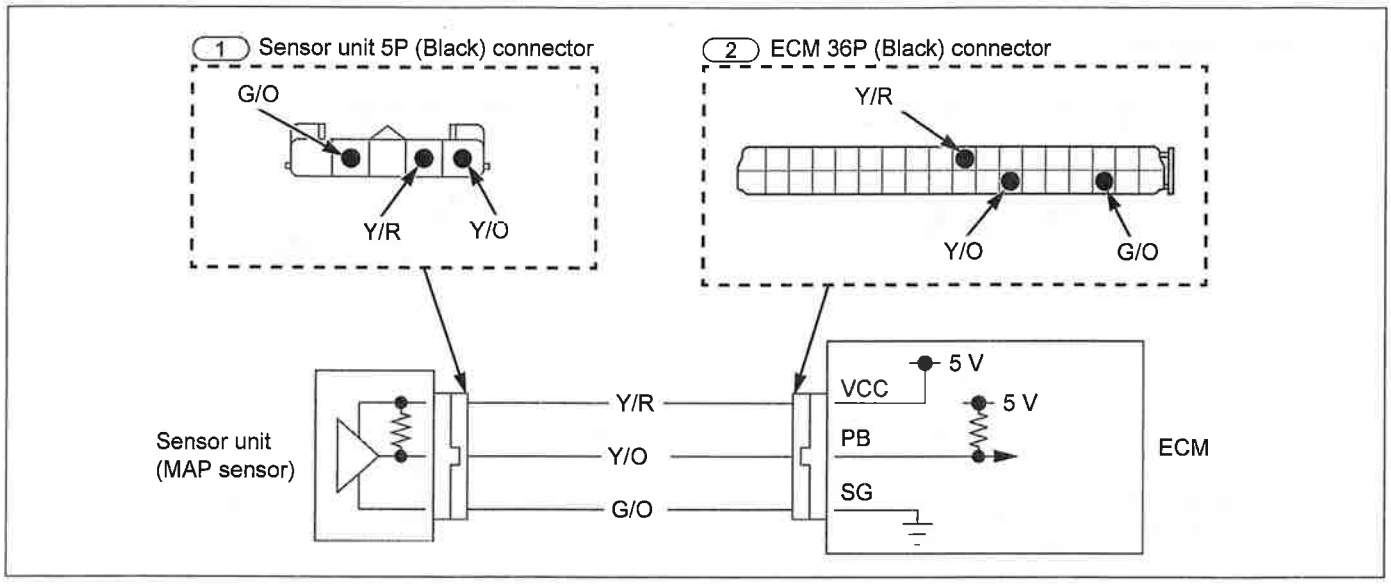
4. MAP Sensor Inspection

- Replace the sensor unit (MAP sensor) with a new one ➔2-8, and recheck.
- Erase the DTC's
- Check the MAP sensor with MCS
- If DTC 1-1 is indicated, replace the ECM with a new one ➔4-20, and recheck.

DTC 1-2 (MAP SENSOR HIGH VOLTAGE)

- Fuel tank ➔2-6

MAP Sensor Diagram



1. MAP Sensor System Inspection

- Check the MAP sensor voltage with MCS.
- Is the voltage about 5 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. MAP Sensor System Inspection 2

1

- Install the jumper wire between the terminals.
  Connection: Y/O– G/O
- Check the MAP sensor voltage with MCS.
- Is the voltage about 0 V indicated?

Yes ▶

- Replace the sensor unit (MAP sensor) with a new one ➔2-8, and recheck.

No ▼

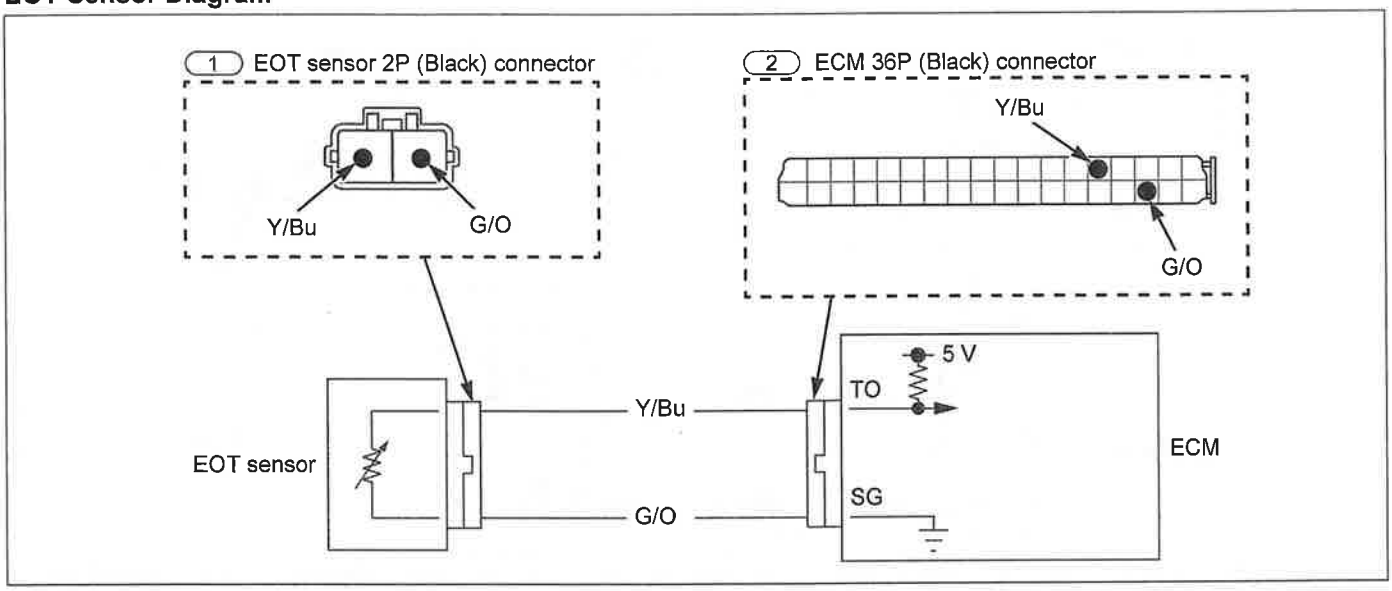
3. MAP Sensor Output Line Inspection

- Check an open circuit in Y/O and G/O wire.
- If there is no open circuit, replace the ECM with a new one ➔4-20, and recheck.

DTC 7-1 (EOT SENSOR LOW VOLTAGE)

- Fuel tank ➔2-6

EOT Sensor Diagram



1. EOT Sensor System Inspection

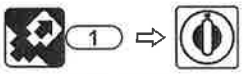
- Check the EOT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. EOT Sensor Inspection



- Check the EOT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Replace the EOT sensor with a new one ➔4-21, and recheck.

Yes ▼

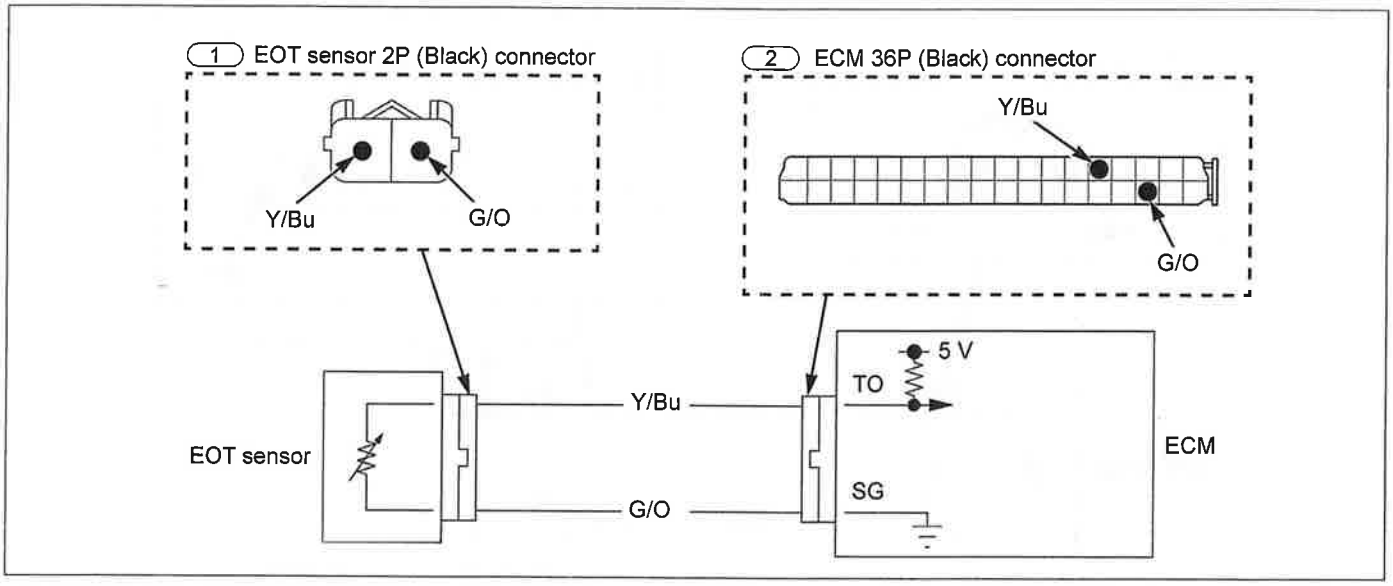
3. EOT Sensor Output Line Inspection

- Check a short circuit in Y/Bu wire.
- If there is no short circuit, replace the ECM with a new one ➔4-20, and recheck.

DTC 7-2 (EOT SENSOR HIGH VOLTAGE)

- Fuel tank ➔2-6

EOT Sensor Diagram



1. EOT Sensor System Inspection

- Check the EOT sensor voltage with MCS.
- Is the voltage about 5 V indicated?

No ►

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. EOT Sensor Inspection

1 ⇨

- Install the jumper wire between the terminals.
  Connection: Y/Bu – G/O
- Check the EOT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

Yes ►

- Replace the EOT sensor with a new one ➔4-21, and recheck.

No ▼

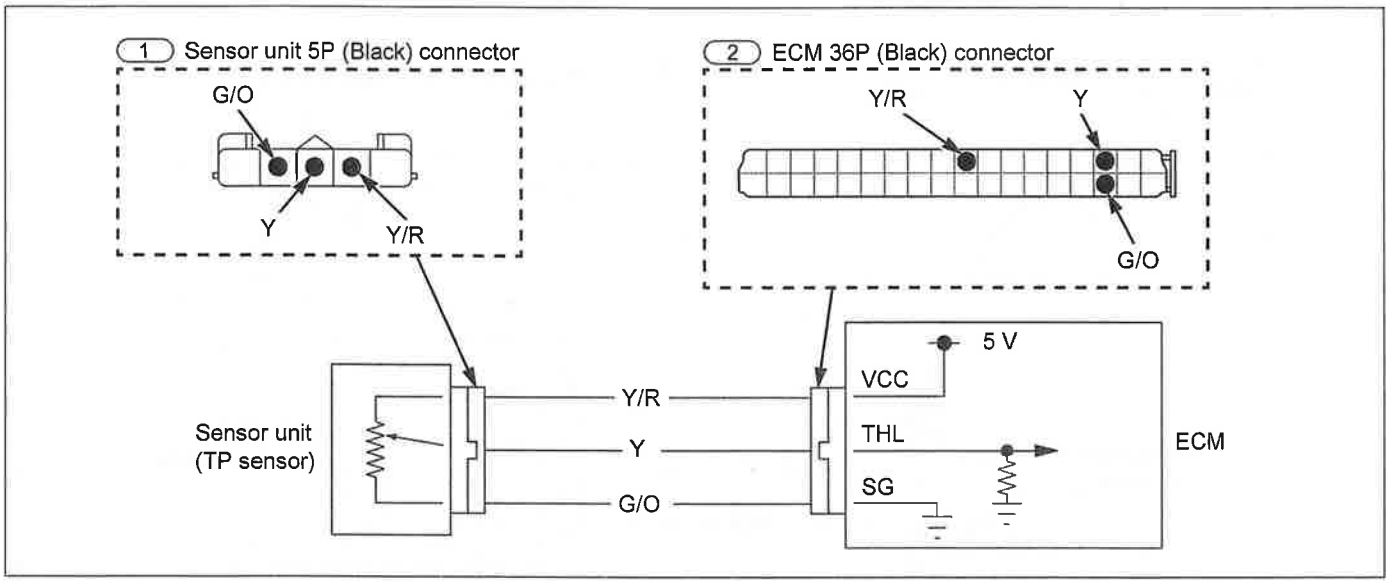
3. EOT Sensor Output Line Inspection

- Check an open circuit in Y/Bu and G/O wire.
- If there is no open circuit, replace the ECM with a new one ➔4-20, and recheck.

DTC 8-1 (TP SENSOR LOW VOLTAGE)

- Fuel tank ➔2-6

TP Sensor Diagram



1. TP Sensor System Inspection

- Check the TP sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. Sensor unit Power Input Voltage Inspection

- Connection: Y/R (+) – G/O (–)
- Is the voltage within 4.75 – 5.25 V?

No ▶

- Check an open or short circuit in Y/R wires.
- If there is no open or short circuit, replace the ECM with a new one ➔4-20, and recheck.

Yes ▼

3. TP Sensor Output Line Inspection

- Check an open or short circuit in Y wire.
- Is there open or short circuit?

Yes ▶

- Faulty Y wire

No ▼

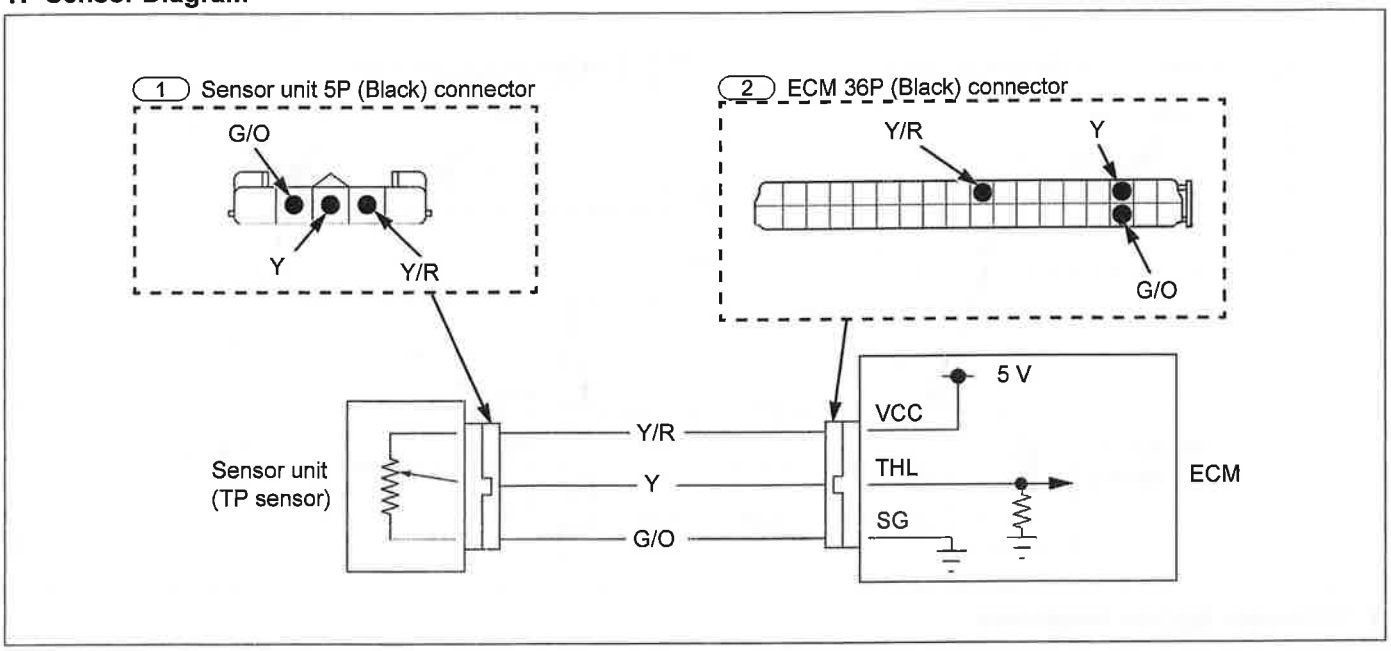
4. TP Sensor Inspection

- Replace the sensor unit (TP sensor) with a new one ➔2-8
- Erase the DTC's.
- Check the TP sensor with MCS.
- If DTC 8-1 is indicated, replace the ECM with a new one ➔4-20, and recheck.

DTC 8-2 (TP SENSOR HIGH VOLTAGE)

- Fuel tank ➔2-6

TP Sensor Diagram



1. TP Sensor System Inspection

- Check the TP sensor voltage with MCS when the throttle fully closed.
- Is the voltage about 5 V indicated?

No ▶

- Check the TP sensor voltage with MCS.
- Operate the throttle from fully closed to fully opened.
- If the voltage does not increase continuously, replace the sensor unit (TP sensor) with a new one ➔2-8, and recheck.

Yes ▼

2. TP Sensor Ground Line Inspection

- Check a open circuit in G/O wire.
- Is there open circuit?

Yes ▶

- Faulty G/O wire

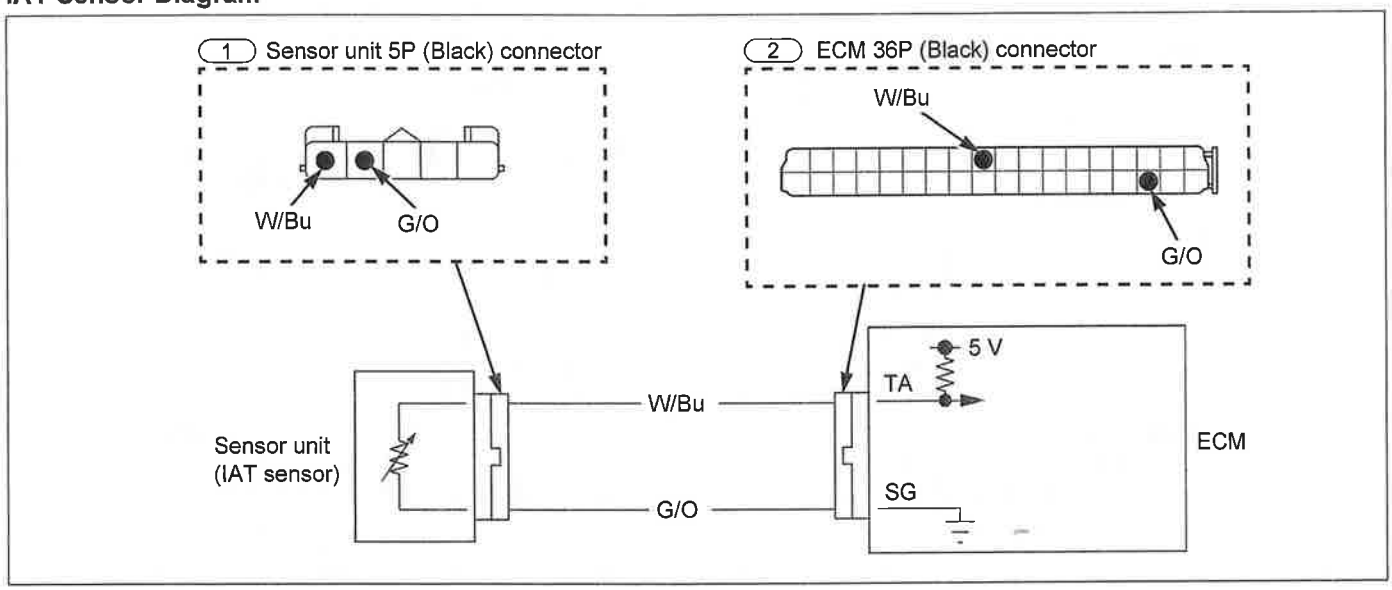
No ▼

- Replace the throttle body with a new one ➔2-8
- Erase the DTC's.
- If DTC 8-2 is still indicated, replace the ECM with a new one ➔4-20, and recheck.

DTC 9-1 (IAT SENSOR LOW VOLTAGE)

- Fuel tank ➔2-6

IAT Sensor Diagram



1. IAT Sensor System Inspection

- Check the IAT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. IAT Sensor Inspection

1 ⇨

- Check the IAT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

No ▶

- Replace the sensor unit (IAT sensor) with a new one ➔2-8, and recheck.

Yes ▼

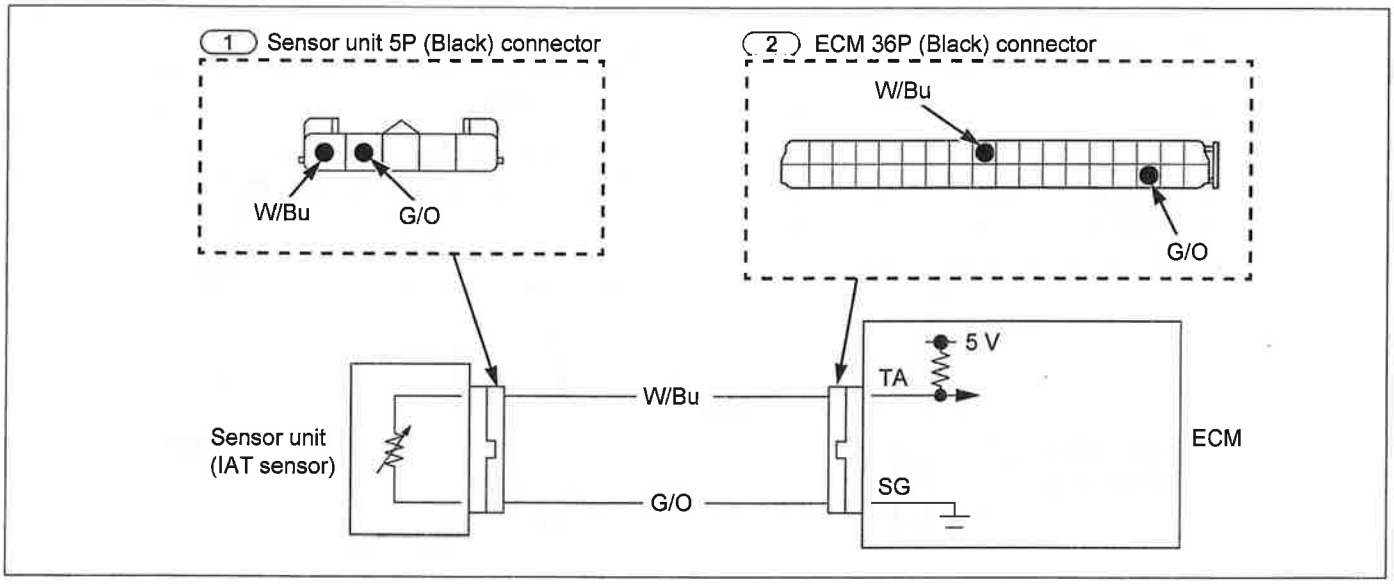
3. IAT Sensor Output Line Inspection

- Check an short circuit in W/Bu wire.
- If there is no short circuit, replace the ECM with a new one ➔4-20, and recheck.

DTC 9-2 (IAT SENSOR HIGH VOLTAGE)

- Fuel tank ➔2-6

IAT Sensor Diagram



1. IAT Sensor System Inspection

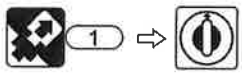
- Check the IAT sensor voltage with MCS.
- Is the voltage about 5 V indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. IAT sensor Inspection



- Install the jumper wire between the terminals.
  Connection: W/Bu – G/O
- Check the IAT sensor voltage with MCS.
- Is the voltage about 0 V indicated?

Yes ▶

- Replace the sensor unit (IAT sensor) with a new one ➔2-8, and recheck.

No ▼

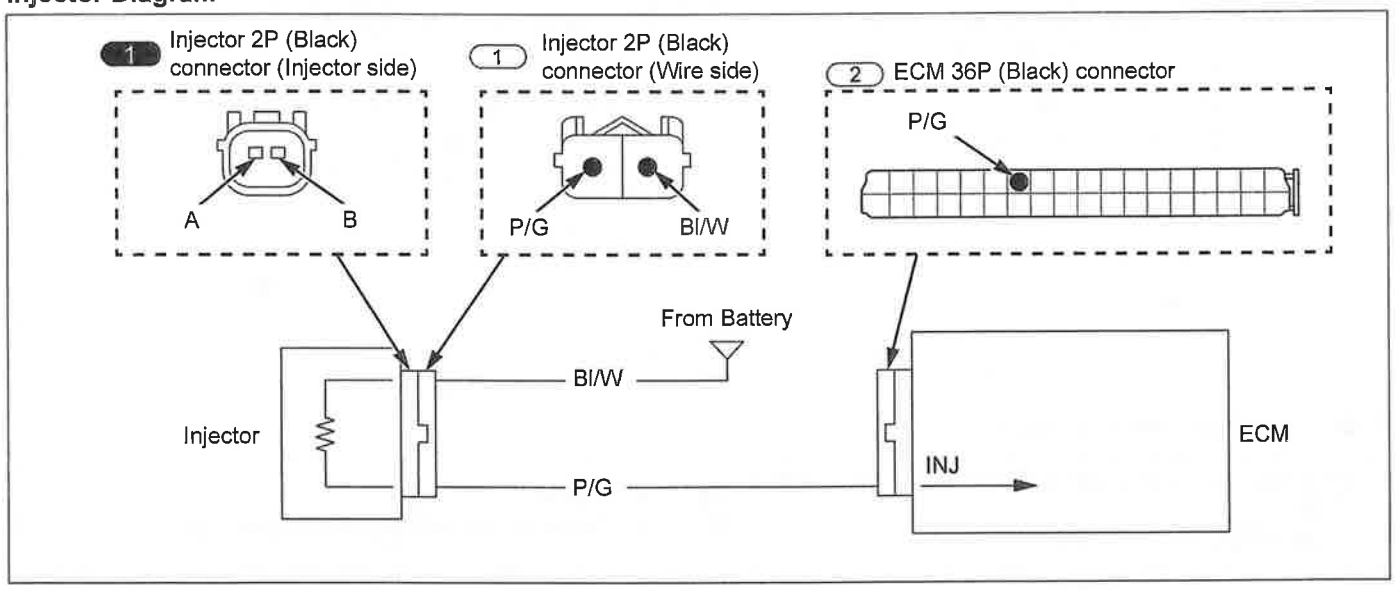
3. IAT Sensor Voltage Input Line Inspection

- Check an open circuit in W/Bu and G/O wire.
- If there is no open circuit, replace the ECM with a new one ➔4-20, and recheck.

DTC 12-1 (INJECTOR)

- Fuel tank ➔2-6

Injector Diagram



1. Fuel Injector System Inspection

- Check the fuel injector with MCS.
- Is the DTC 12-1 indicated?

No ▶
- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. Fuel Injector Input Voltage Inspection

- Connection: Bl/W (+) – Ground (–)
- Does the battery voltage exist?

No ▶
- Faulty Bl/W wire

Yes ▼

3. Fuel Injector Signal Line Inspection

- Check a open or short circuit in P/G wire.
- Is there open or short circuit?

Yes ▶
- Faulty P/G wire

No ▼

4. Fuel Injector Resistance inspection

- Connection: A – B
- Is the resistance within 11.4 – 12.6 Ω?

No ▶
- Faulty fuel injector

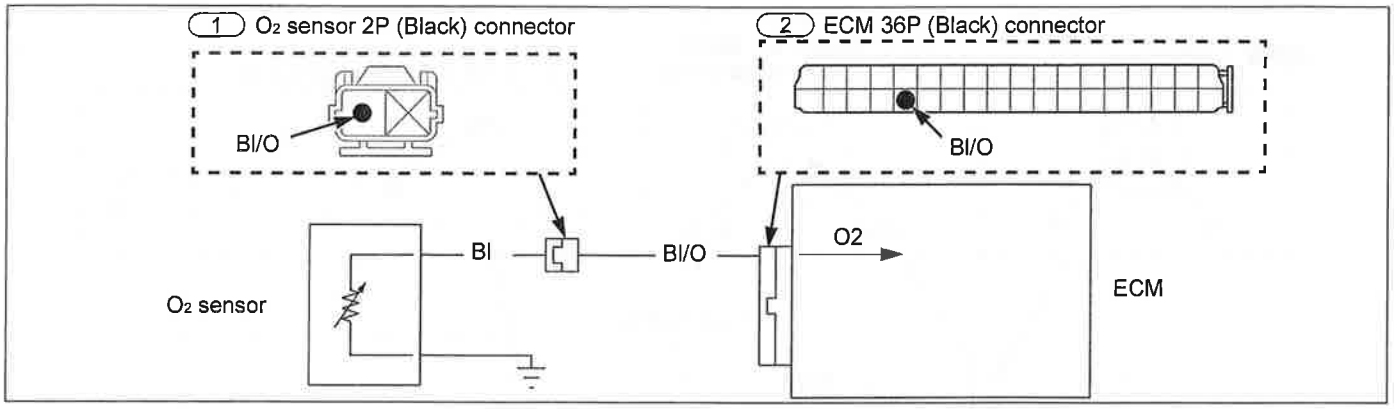
Yes ▼

- Replace the ECM with a new one ➔4-20, and recheck.

DTC 21-1 (O_2 SENSOR LOW VOLTAGE)

- Fuel tank ➔2-6

O_2 Sensor Diagram



1. O_2 Sensor System Inspection

• Test-ride the vehicle and check the O_2 sensor with MCS. • Is the DTC 21-1 indicated?	No ►	• Intermittent failure • Loose or poor contact at the connector

Yes ▼

2. O_2 Sensor Circuit Inspection

• Check the short circuit in Bl/O wires. • Are there short circuit?	Yes ►	• Faulty Bl/O wire.

No ▼

3. Fuel Supply Test (Fuel Pressure Test)

• Perform the fuel pressure test. ➔2-3 • Is the fuel pressure within specification?	No ►	• Check that there is any erratic swing or vibration of the gauge needle in the pressure gauge reading. – If the needle is swing or vibration, replace the fuel filter. ➔2-5 – If the needle is stable, replace the fuel pump unit. ➔2-4

Yes ▼

4. Fuel Supply Test (Fuel Flow Test)

• Adjust the fuel in the tank until the fuel gauge segment is positioned the specified range, and inspect the fuel flow.➔2-3 • Is the fuel flow within specification?	No ►	• Replace the fuel filter. ➔2-5

Yes ▼

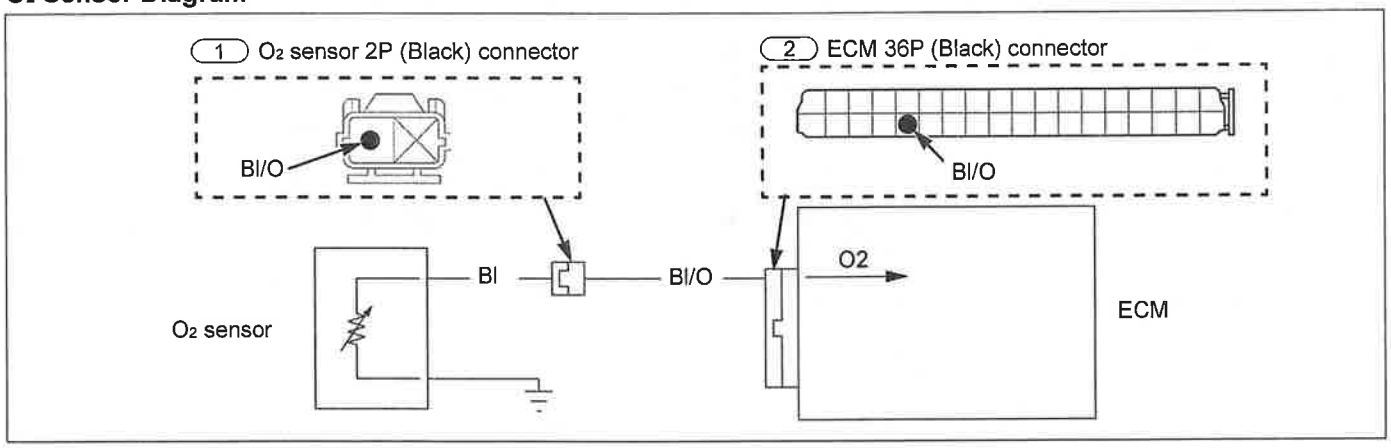
5. O_2 Sensor Inspection

- Replace the O_2 sensor with a new one. ➔4-21
- Erase the DTC's.
- Test-ride the vehicle and check the O_2 sensor with MCS.
- If DTC 21-1 is indicated, replace the ECM with a new one ➔4-20, and recheck.

DTC 21-2 (O_2 SENSOR HIGH VOLTAGE)

- Fuel tank ➔2-6

O_2 Sensor Diagram



1. O_2 Sensor System Inspection

- Test-ride the vehicle and check the O_2 sensor with MCS.
- Is the DTC 21-2 indicated?

No ▶

- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. O_2 Sensor Circuit Inspection

- Check the open circuit in Bl/O wires.
- Are there open circuit?

Yes ▶

- Faulty Bl/O wire.

No ▼

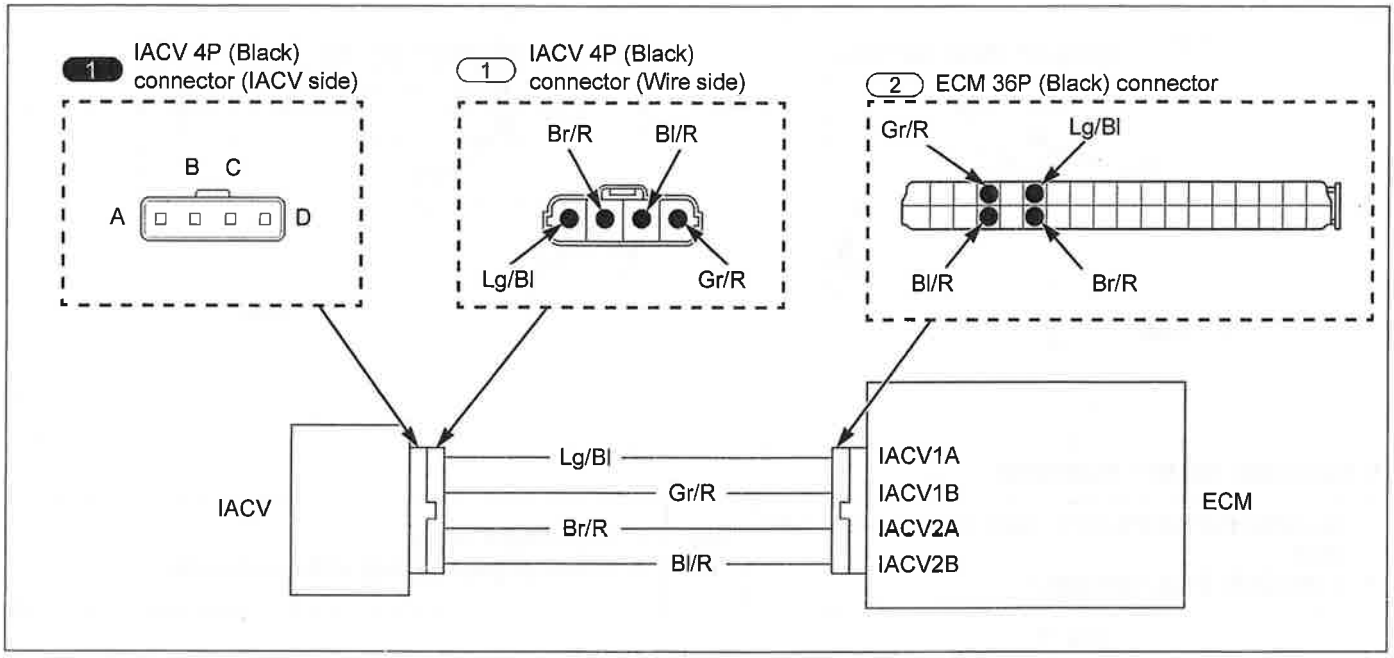
3. O_2 Sensor Inspection

- Replace the O_2 sensor with a new one. ➔4-21
- Erase the DTC's.
- Test-ride the vehicle and check the O_2 sensor with MCS.
- If DTC 21-2 is indicated, replace the ECM with a new one ➔4-20, and recheck.

DTC 29-1 (IACV)

- Fuel tank ➔2-6

IACV Diagram



1. IACV System Inspection

- Check the IACV with MCS.
- Is the DTC 29-1 indicated?

No ▶
- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. IACV Circuit Inspection

- Check a open or short circuit in Lg/Bl, Gr/R, Br/R and Bl/R wires.
- Is there open or short circuit?

Yes ▶
- Faulty Lg/Bl, Gr/R, Br/R and Bl/R wire

No ▼

3. IACV Resistance Inspection

- Connection: A – D, B – C
- Is the resistance within 117 – 143 Ω?

No ▶
- Faulty IACV

Yes ▼

4. IACV Short Circuit Inspection

- Connection: A – B, C – D
- Is there continuity?

Yes ▶
- Faulty IACV

No ▼

- Replace the ECM with a new one ➔4-20, and recheck.

DTC 33-2 (EEPROM)

1. EEPROM System Inspection

- Check the EEPROM with MCS.
- Is the DTC 33-2 is indicated?

No ▶

- Intermittent failure

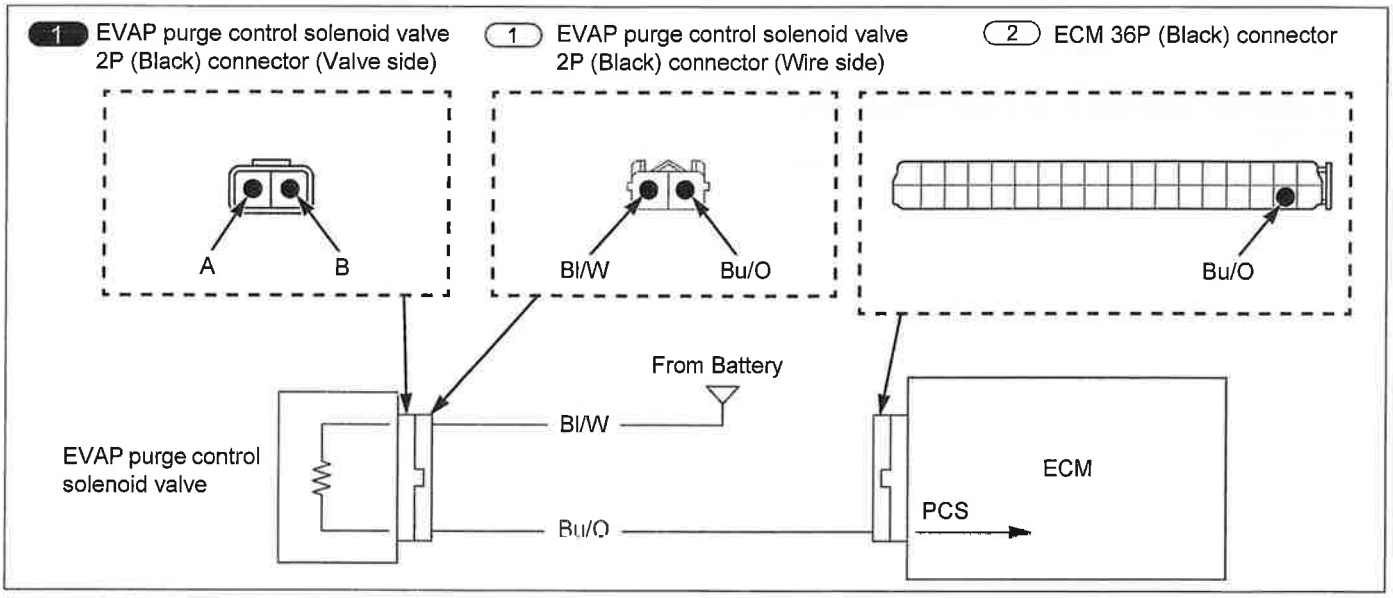
Yes ▼

- Replace the ECM with a new one. ➔4-20, and recheck.

DTC 88-1 (EVAP PURGE CONTROL SOLENOID VALVE)

- Fuel tank ➔2-6

EVAP Purge Control Solenoid Valve Diagram



1. EVAP Purge Control Solenoid Valve System Inspection

- Check the EVAP purge control solenoid valve with MCS.
- Is the DTC 88-1 indicated?

No ▶
- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. EVAP Purge Control Solenoid Valve Input Voltage Inspection

- Connection: Bl/W (+) – Ground (–)
- Does the battery voltage exist?

No ▶
- Faulty Bl/W wire

Yes ▼

3. EVAP Purge Control Solenoid Valve Signal Line Inspection

- Check an open or short circuit in Bu/O wire.
- Is there open or short circuit?

Yes ▶
- Faulty Bu/O wire

No ▼

4. EVAP Purge Control Solenoid Valve Resistance inspection

- Connection: A – B
- Is the resistance within 37 – 44 Ω?

No ▶
- Faulty EVAP purge control solenoid valve

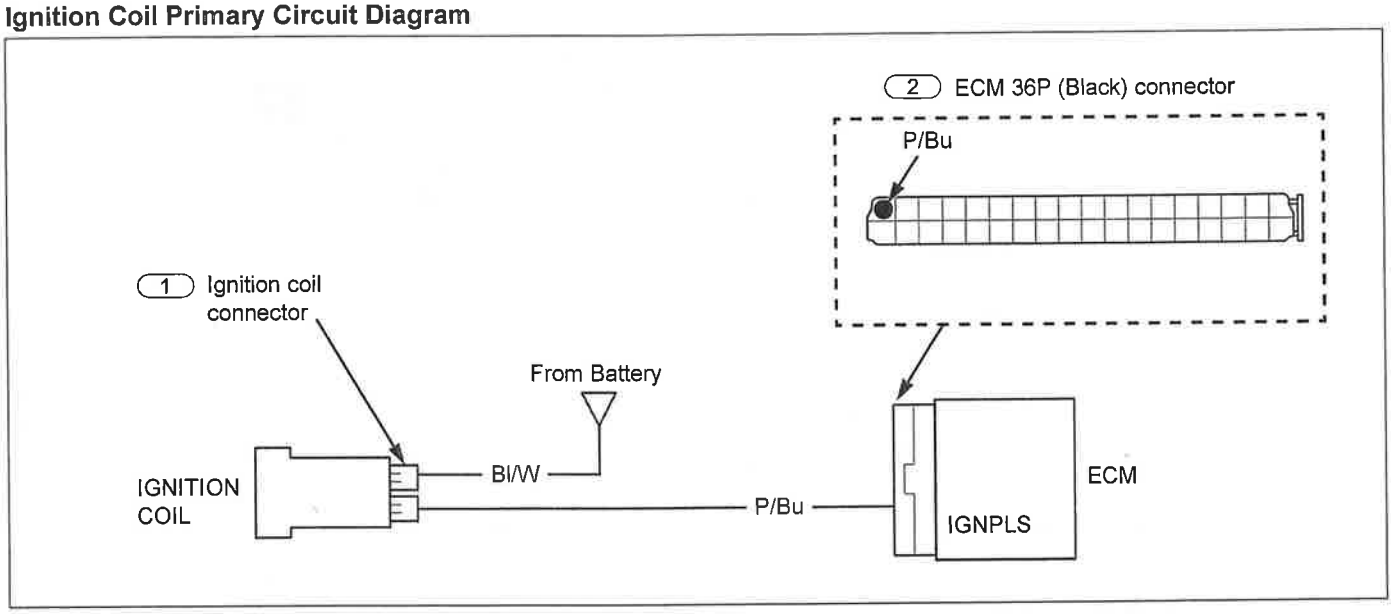
Yes ▼

- Replace the ECM with a new one ➔4-20, and re-check.

DTC 91-1 (IGNITION COIL PRIMARY CIRCUIT)

- Fuel tank ➔2-6

Ignition Coil Primary Circuit Diagram



1. Ignition Coil Primary Circuit System Inspection

- Check the Ignition coil with MCS.
- Is the DTC 91-1 is indicated?

No ▶
- Intermittent failure
- Loose or poor contact at the connector

Yes ▼

2. Ignition Coil Primary Circuit Input Voltage Inspection

- Connection: Bl/W (+) – Ground (–)
- Does the battery voltage exist?

No ▶
- Faulty Bl/W wire

Yes ▼

3. Ignition Coil Primary Circuit Signal Line Inspection

- Check an open or short circuit in P/Bu wire
- Is there open or short circuit?

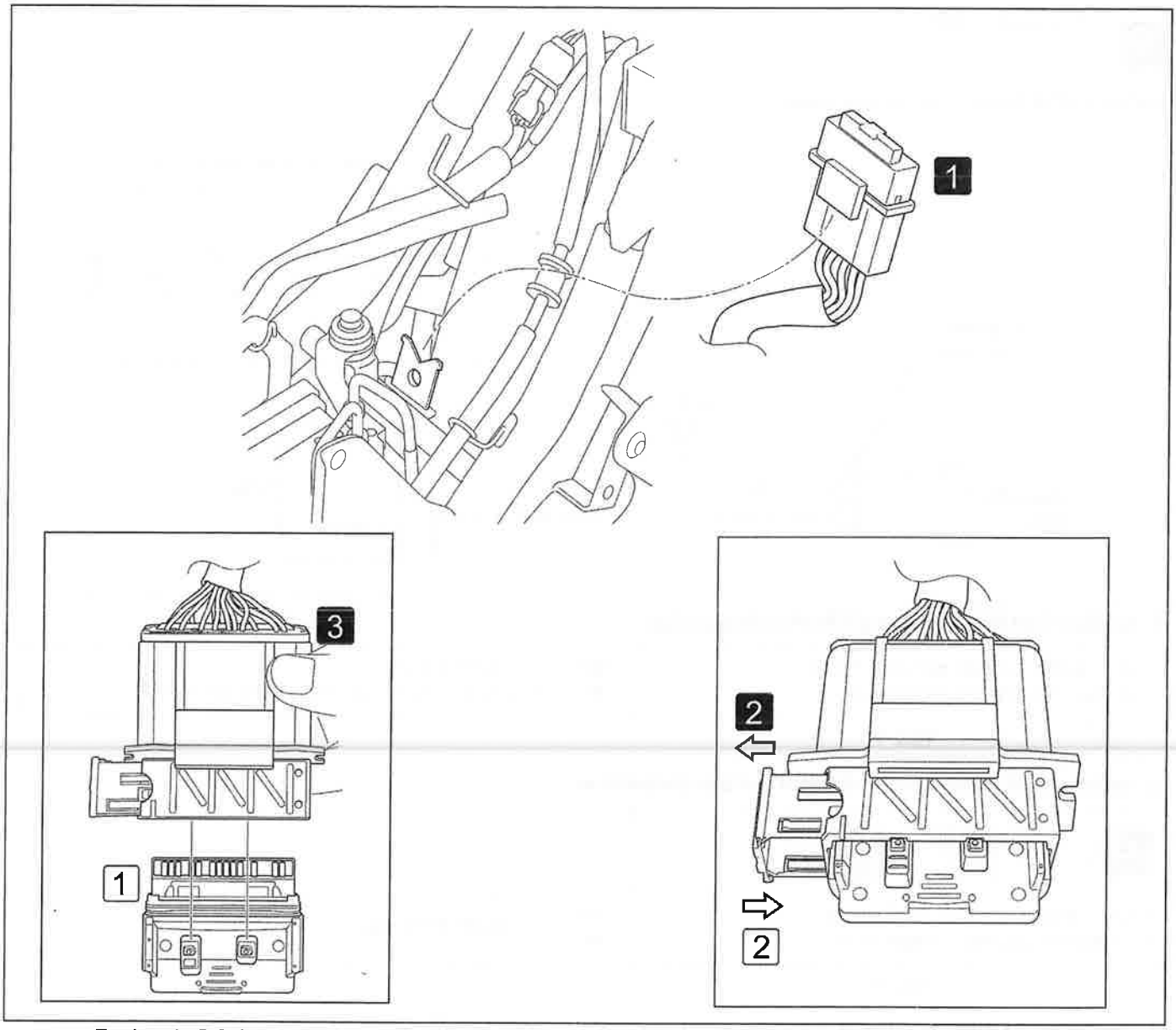
Yes ▶
- Faulty P/Bu wire

No ▼

4. Ignition Coil Inspection

- Replace the ignition coil with a new one ➔4-23, and recheck.
- Erase the DTC's.
- Start the engine and check the ignition coil with MCS.
- If DTC 91-1 is indicated, replace the ECM with a new one ➔4-20, and recheck.

ECM

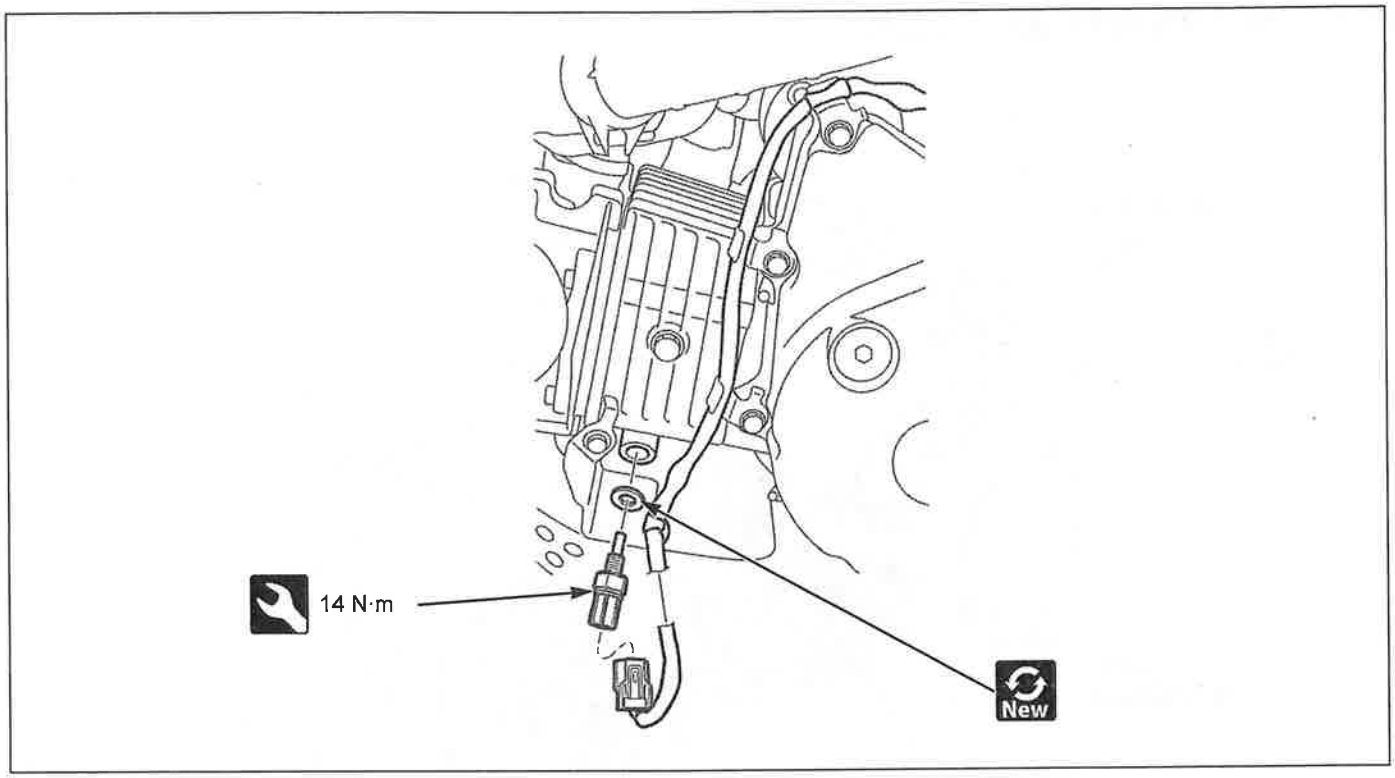


- Fuel tank ➔2-6
- 1 Pull ECM storage rubber from stay.
- 2 Pull the ECM cover lock tab until "click" sound.
- 3 Remove ECM from ECM cover.
  To prevent damage and keep foreign matter out, cover connector with the plastic bag.

- 1 Make sure the ECM dry and the rubber is in the correct position then align ECM with ECM cover.
- 2 Push ECM lock cover completely until "click" sound.
- Fuel tank ➔2-6

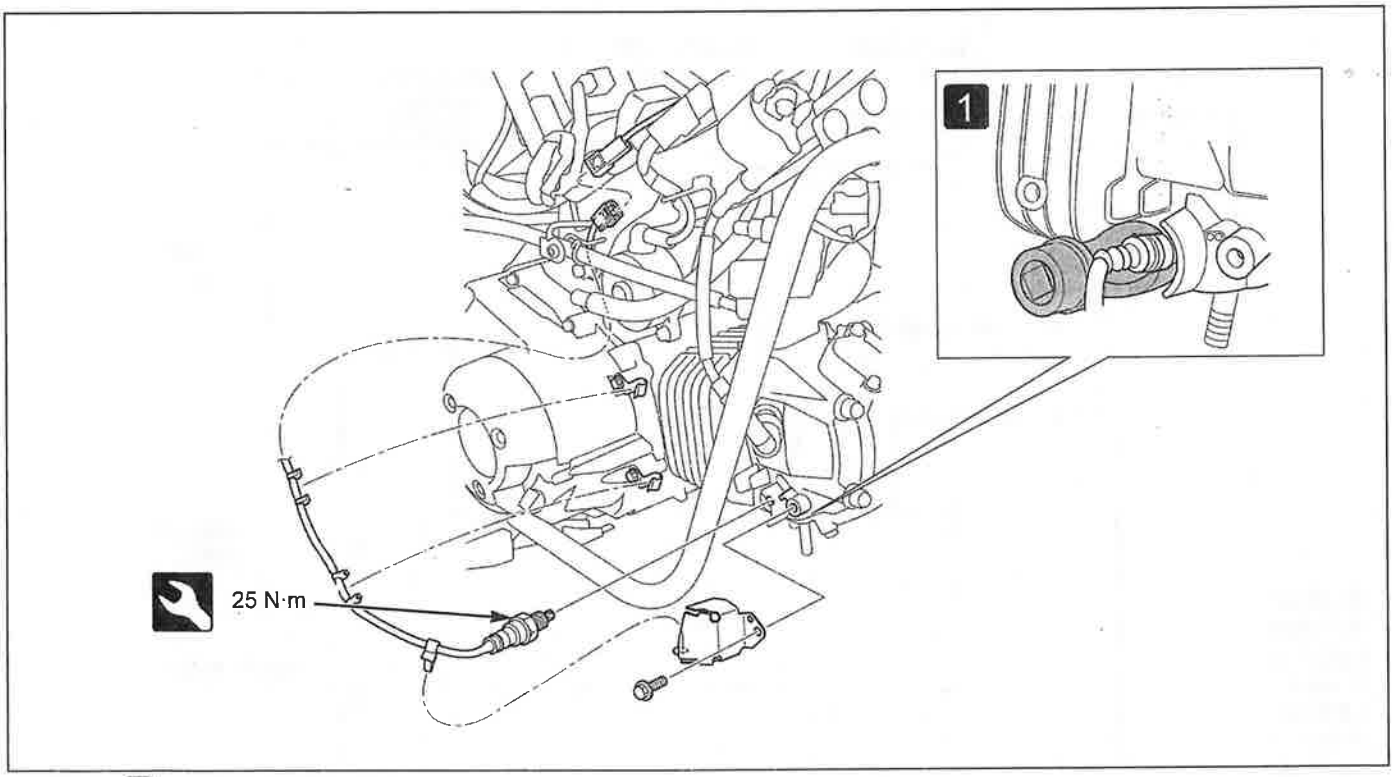
- ECM power circuit and ground circuit inspection

EOT SENSOR



Basic • EOT sensor inspection

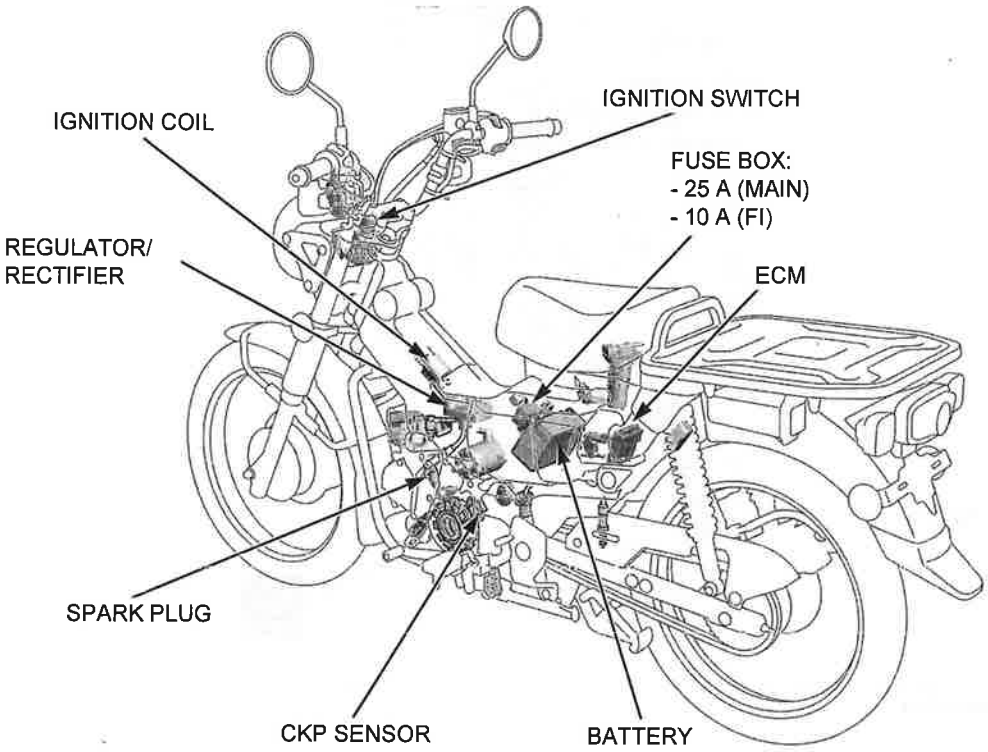
O_2 SENSOR



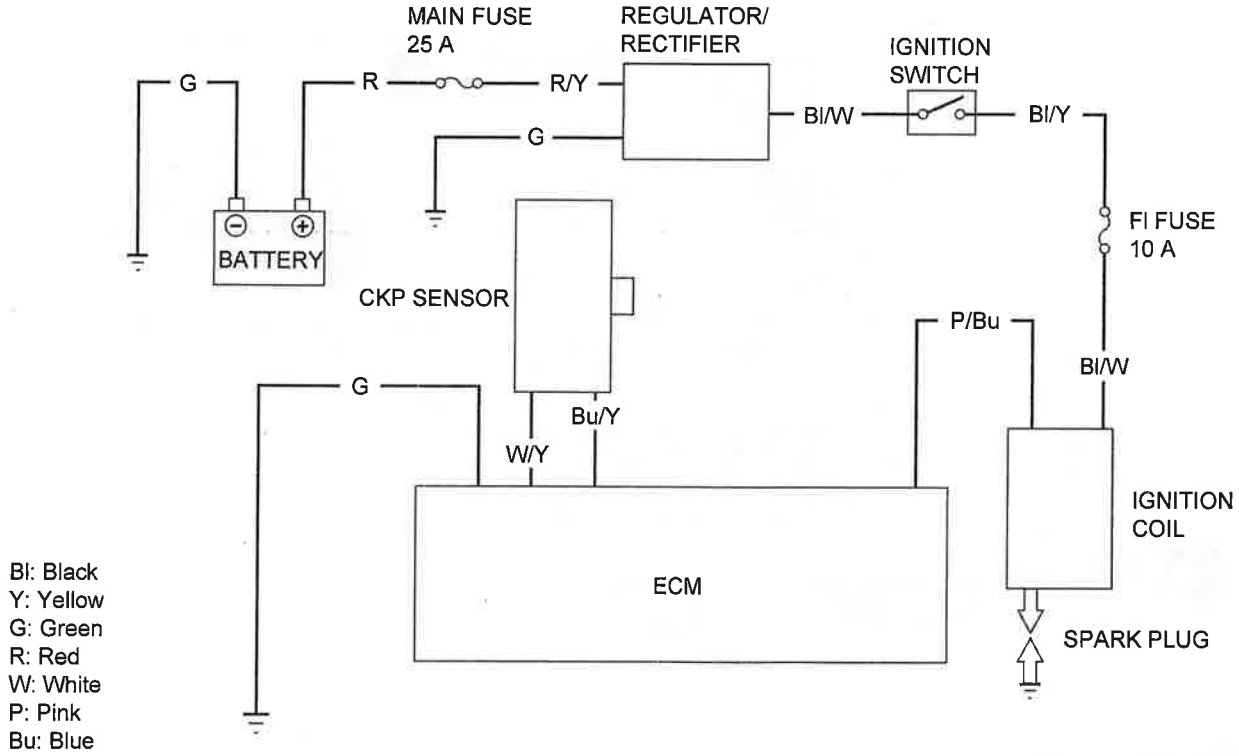
• 1 Remove the O_2 sensor.
Flare nut socket: FRXM17 (Snap on) or equivalent

IGNITION SYSTEM

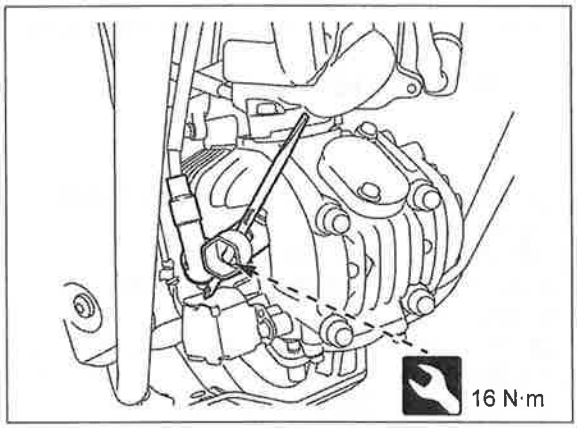
IGNITION SYSTEM LOCATION



IGNITION SYSTEM DIAGRAM



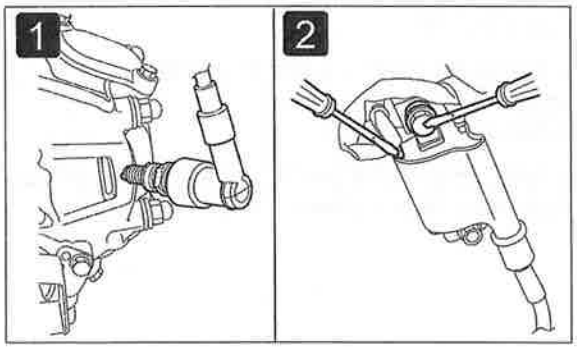
SPARK PLUG REPLACEMENT



- Spark plug inspection

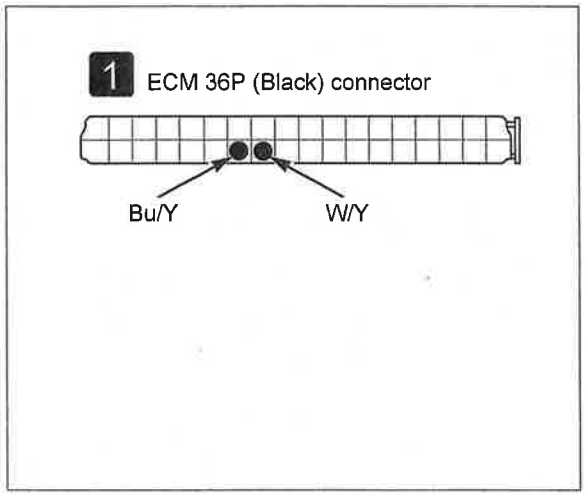
INSPECTION

IGNITION COIL PRIMARY PEAK VOLTAGE

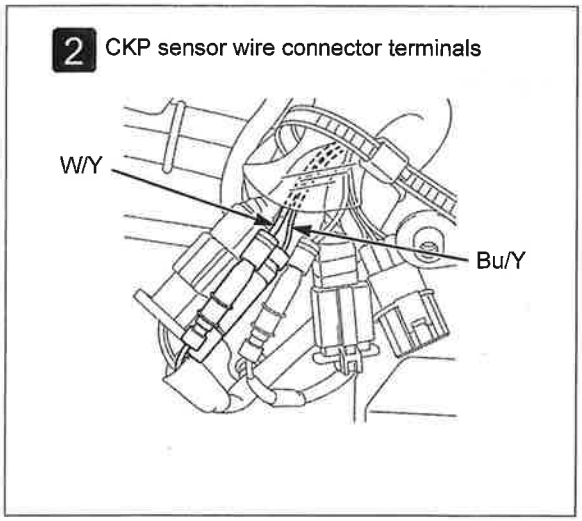


- Refer to "Basic Service Manual" for the detail information of ignition coil primary peak voltage inspection.
- Support the vehicle with its centerstand on a level surface.
- Main pipe side cover ➔3-7
- Disconnect the spark plug cap from the spark plug.
- Connect a known-good spark plug to the spark plug cap and ground it to the cylinder head bolt as done in a spark test.
- With the ignition coil primary wires connected, connect the peak voltage adaptor probes to the ignition coil primary terminal and ground.
  CONNECTION: P/Bu (+) – Ground (–)
- Check the initial voltage at this time.
  STANDARD VOLTAGE: Battery voltage
- Squeeze the brake lever fully.
- Retract the sidestand.
- Crank the engine with the starter and measure the ignition coil primary peak voltage.
  PEAK VOLTAGE: 100 V minimum

CKP SENSOR PEAK VOLTAGE

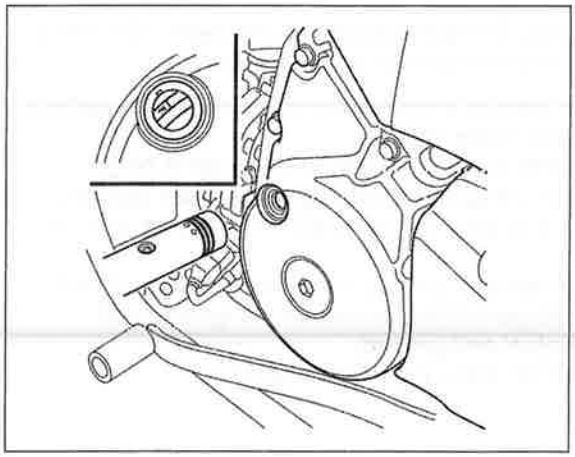


- Support the vehicle with its centerstand on a level surface.
- Fuel tank ➔2-6
- Disconnect the ECM 36P (Black) connector.
- Connect the peak voltage adaptor probes to the following terminals.
  CONNECTION: Bu/Y (+) – W/Y (–)
- Shift the transmission in neutral, and then crank the engine with the starter and measure the CKP sensor peak voltage.
  PEAK VOLTAGE: 0.7 V minimum
  If the value is abnormal, measure the peak voltage at the CKP sensor.



- 2 Disconnect the Alternator inner and outer connectors.
- Connect the peak voltage adaptor probes to the following terminals.
  CONNECTION: Bu/Y (+) – W/Y (–)
- Crank the engine with the starter and measure the CKP sensor peak voltage.
  PEAK VOLTAGE: 0.7 V minimum
  – If the value is abnormal, replace the Alternator with a known-good one and recheck.
  – If the value is normal, check for open circuit or loose connection between the CKP sensor wire connector terminals and ECM 36P (Black) connector.

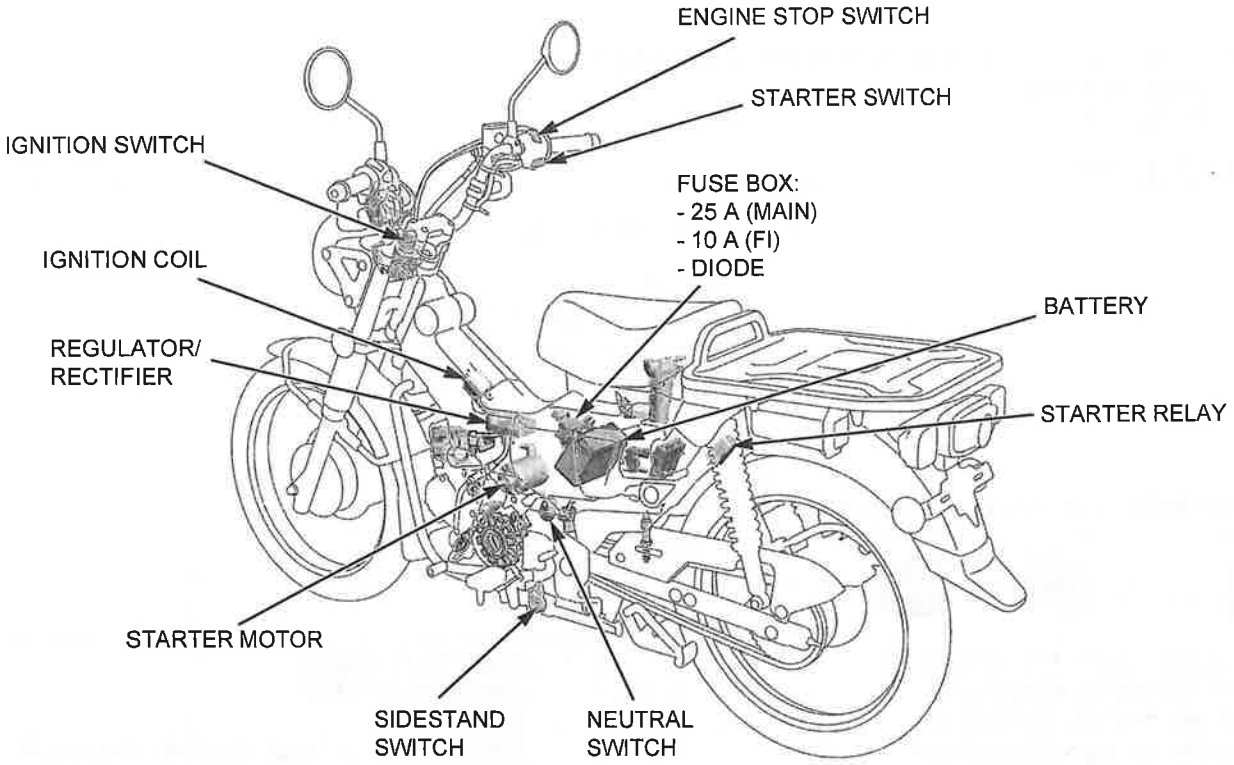
IGNITION TIMING



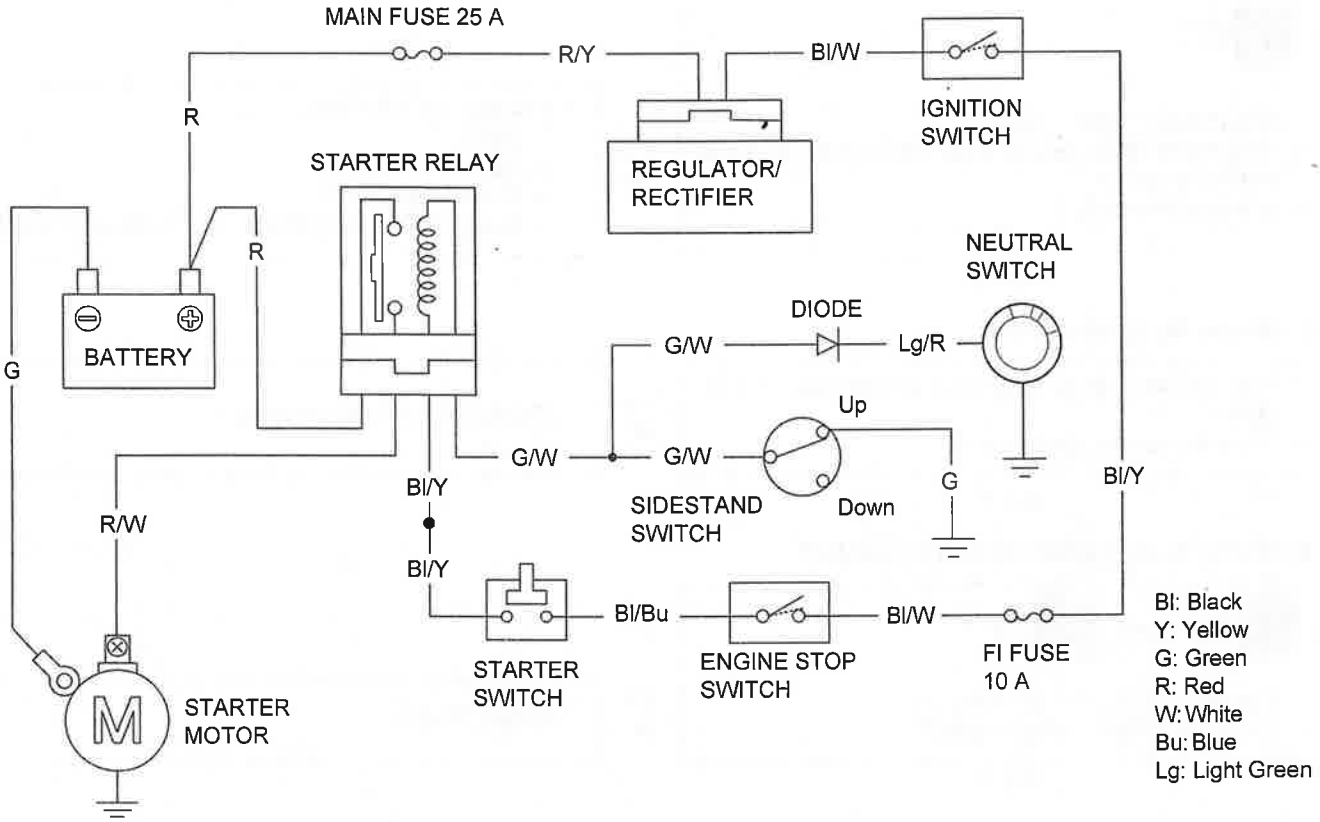
- Warm up the engine to normal operating temperature.
- Timing hole cap ➔2-16
- Connect the timing light to the spark plug wire.
- Start the engine and let it idle
  IDLE SPEED: 1,400 ± 100 rpm
- The ignition timing is correct if the "F" mark on the flywheel aligns with the index mark on the left crankcase cover.

ELECTRICAL STARTER

ELECTRICAL STARTER SYSTEM LOCATION



ELECTRICAL STARTER SYSTEM DIAGRAM



ELECTRICAL STARTER TROUBLESHOOTING

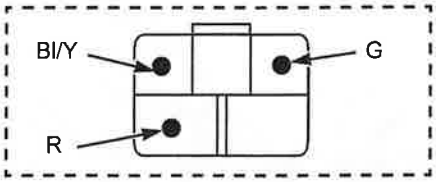
STARTER MOTOR DOES NOT TURN

- Right main pipe side cover ➔3-7

- Loose or poor contacts of related terminal/connector
- Battery condition
- Burned fuse

Connector Diagram

(1) Starter relay 5P connector



1. Starter Relay Coil Input Circuit inspection

(1) ⇨ ⇨ (1)

- Connection: Bl/Y (+) – Ground (–)
- Turn engine stop switch to "○".
- Push and hold the start button.
- Does the battery voltage exist?

No ▶

- Inspect the following.
  – Engine stop switch
  – Starter switch
  – Starter relay coil input circuit related circuit

Yes ▼

2. Starter Relay Coil Ground Circuit inspection

(1)

- Connection: G/W – Ground
- Retract the sidestand or shift the transmission into neutral position.
- Is there continuity?

No ▶

- Inspect the following.
  – Diode
  – Neutral switch
  – Sidestand switch
  – Starter relay coil ground circuit related circuit

Yes ▼

3. Starter Relay inspection

- Replace the starter relay with a new one, and re-check.
- Does the starter motor turn?

Yes ▶

- Faulty original starter relay

No ▼

4. Starter Relay Switch Circuit inspection

(1) ⇨ (1)

- Connection: R (+) – Ground (–)
- Does the battery voltage exist?

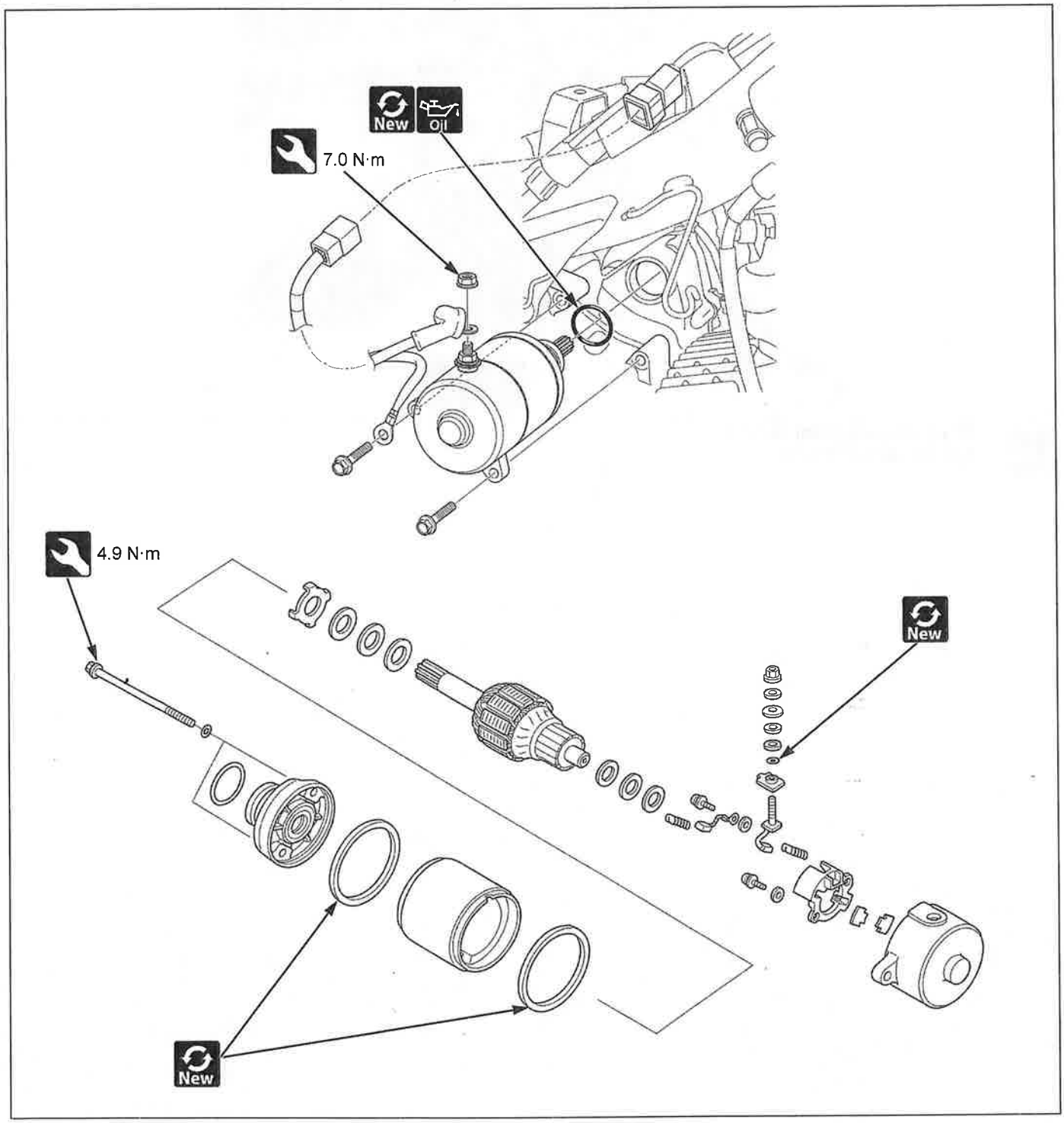
No ▶

- Faulty R wire

Yes ▼

- Check for a short or open circuit in starter motor cable.
- If there is no faulty circuit, replace the starter motor with a new one, and recheck.

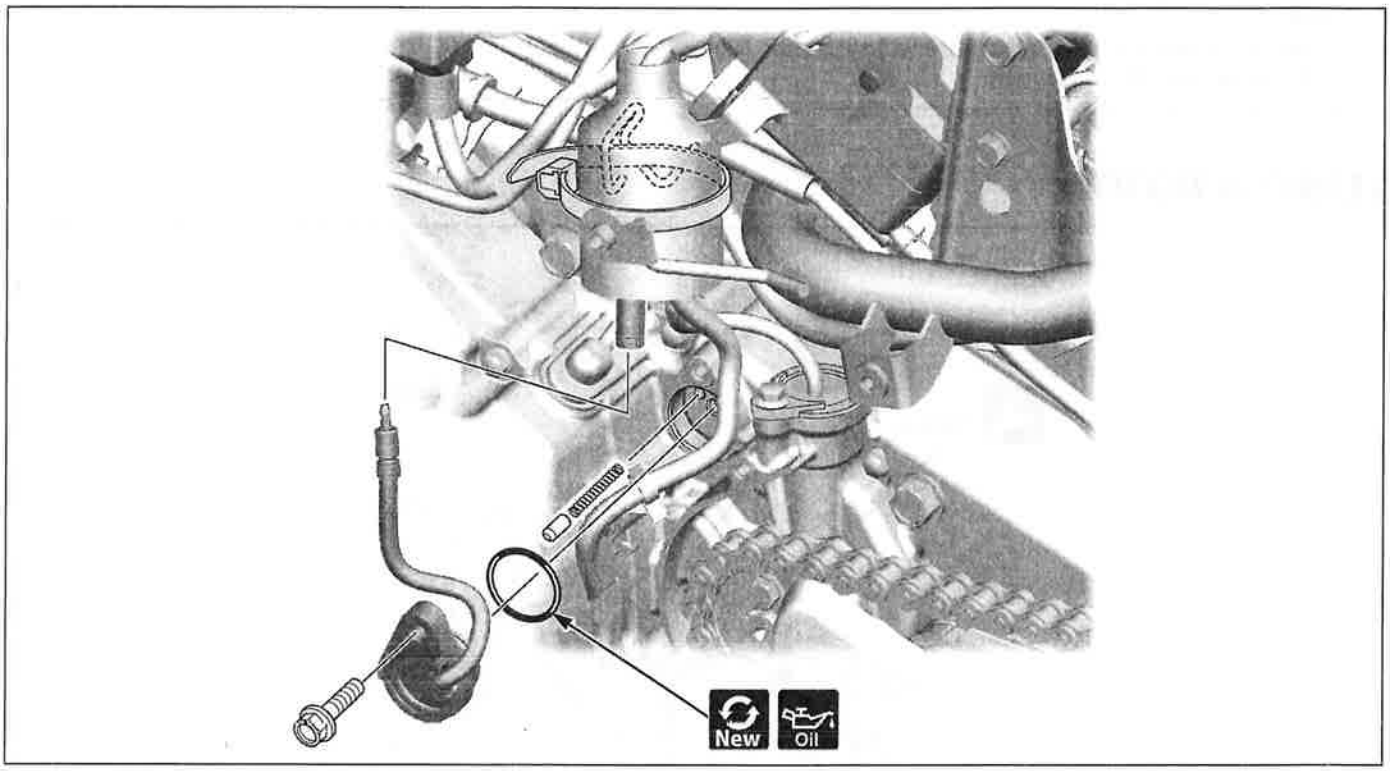
STARTER MOTOR



- Right main pipe side cover ➔3-7
- Battery negative (-) terminal ➔4-44

- Electric starter inspection

NEUTRAL SWITCH



- Drive sprocket cover ➔3-14
- Left side cover ➔3-10

ABS

- Refer to "Basic Service Manual" for the following information.
  – ABS technical feature and each function.
  – Troubleshooting for the ABS.
  – MCS (Motorcycle Communication System) information.

DTC CODE INDEX

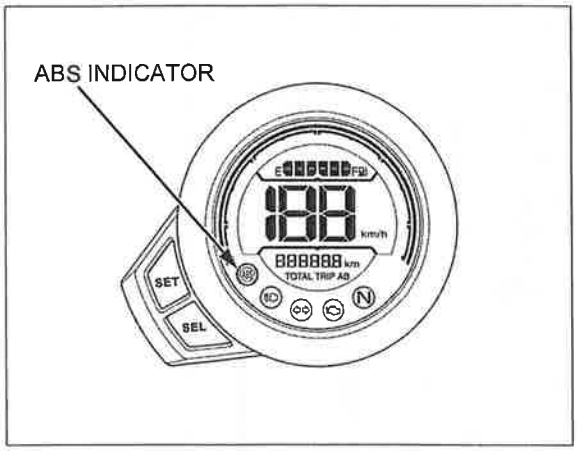
DTC	Function Failure	Detection		Symptom/Fail-safe function	Page
		*A	*B		
–	ABS indicator malfunction • ABS modulator voltage input line • Indicator related wires • Speedometer • ABS modulator • ABS MAIN fuse (15 A) • ABS SUB fuse (10 A)			• ABS indicator never come ON at all	→4-33
				• ABS indicator stays ON	→4-33
1-1	Front wheel speed sensor circuit inspection • Wheel speed sensor or related wires	○	○	• Stops ABS operation	→4-35
1-2	Front wheel speed sensor malfunction • Wheel speed sensor, pulser ring or related wires • Electromagnetic interference		○	• Stops ABS operation	→4-35
1-3	VS sensor circuit malfunction • VS sensor or related wires	○	○	• Stops ABS operation	→4-36
1-4	VS sensor malfunction • VS sensor or related wires • Electromagnetic interference		○	• Stops ABS operation	→4-36
2-1	Front pulser ring • Pulser ring or related wires		○	• Stops ABS operation	→4-35
3-3	Solenoid valve malfunction (ABS modulator)	○	○	• Stops ABS operation	→4-37
3-4					
4-1	Front wheel lock • Riding condition		○	• Stops ABS operation	→4-35
4-2	Front wheel lock (Wheelie) • Riding condition		○		
5-1	Pump motor lock • Pump motor (ABS modulator) or related wires • ABS MAIN fuse (15 A)	○	○	• Stops ABS operation	→4-38
5-2	Pump motor stuck off • Pump motor (ABS modulator) or related wires • ABS MAIN fuse (15 A)	○	○	• Stops ABS operation	→4-38
5-3	Pump motor stuck on • Pump motor (ABS modulator) or related wires • ABS MAIN fuse (15 A)	○	○	• Stops ABS operation	→4-38
5-4	Power supply relay malfunction • Power supply relay (ABS modulator) or related wires • ABS MAIN fuse (15 A)	○	○	• Stops ABS operation	→4-38
6-1	Power circuit under voltage • Input voltage (too low) • ABS MAIN fuse (15 A) • ABS SUB fuse (10 A)	○	○	• Stops ABS operation	→4-39

DTC	Function Failure	Detection		Symptom/Fail-safe function	Page
		*A	*B		
6-2	Power circuit over voltage • Input voltage (too high)	O	O	• Stops ABS operation	➔4-39
7-1	Tire malfunction • Tire size • Incorrect sprocket gear ratio (Sprockets not recommended for the vehicle are installed)		O	• Stops ABS operation	➔4-40
8-1	ABS control unit • ABS control unit malfunction (ABS modulator)	O	O	• Stops ABS operation	➔4-40

*A: Pre-start self-diagnosis

*B: Ordinary self-diagnosis: diagnoses while the vehicle is running (after pre-start self-diagnosis)

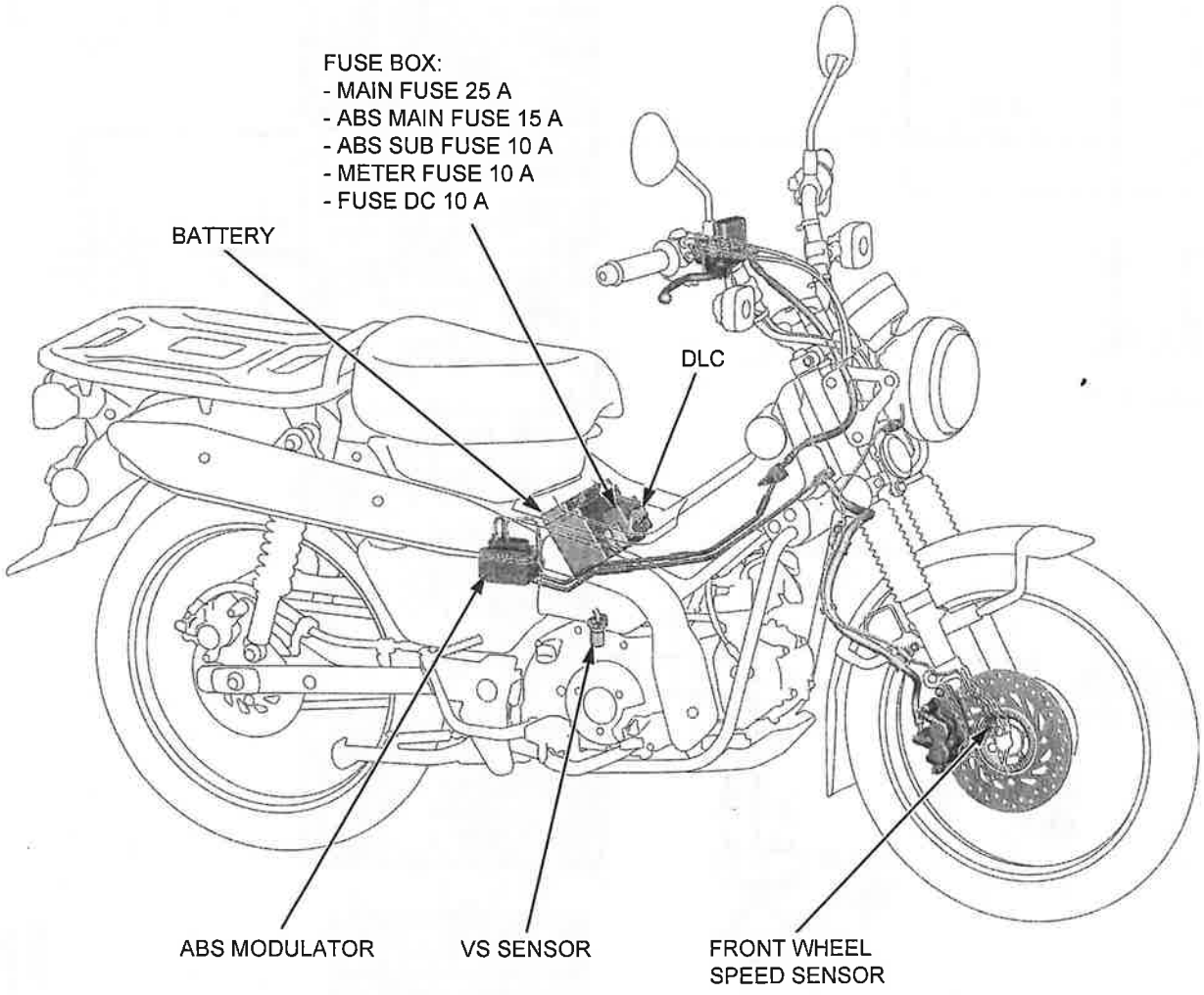
How To Erase the DTC Without MCS



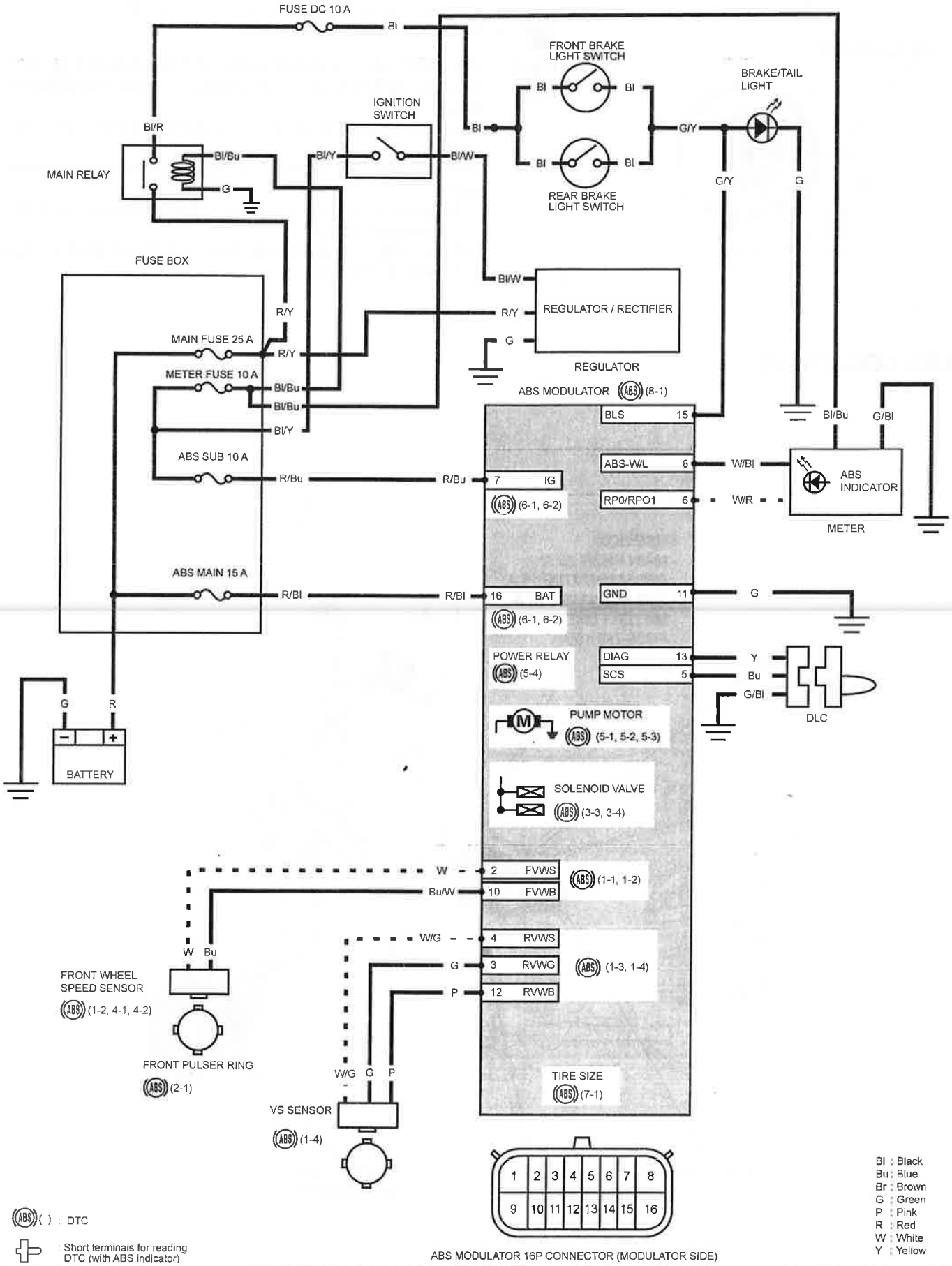
- Connect the SCS service connector. ➔2-10
- Squeeze the front brake lever.

- The ABS indicator should come on 2 seconds and go off.
- After the ABS indicator is off, release the brake lever immediately.
- After the ABS indicator is on, squeeze the brake lever immediately.
- After the ABS indicator is off, release the brake lever immediately.
  - When code erasure is complete, the ABS indicator blinks 2 times and stay on.
  - If the ABS indicator is not blink, the data has not been erased, so try again.

ABS LOCATION



ABS DIAGRAM


FUSE DC 10 A
Bl
FRONT BRAKE LIGHT SWITCH
BRAKE/TAIL LIGHT
IGNITION SWITCH
Bl/R
MAIN RELAY
Bl/Bu
G
Bl/Y
Bl/W
G/Y
REAR BRAKE LIGHT SWITCH
FUSE BOX
R/Y
REGULATOR / RECTIFIER
REGULATOR
MAIN FUSE 25 A
METER FUSE 10 A
ABS SUB 10 A
ABS MAIN 15 A
ABS MODULATOR (ABS) (8-1)
BLS 15
ABS-W/L 8
W/Bl
ABS INDICATOR
METER
RP0/RPO1 6
W/R
7 IG
(ABS) (6-1, 6-2)
R/Bu
16 BAT
R/Bl
GND 11
BI/Bu
G/Bl
POWER RELAY
(ABS) (5-4)
DIAG 13
SCS 5
Y
Bu
G/Bl
DLC
PUMP MOTOR
(ABS) (5-1, 5-2, 5-3)
SOLENOID VALVE
(ABS) (3-3, 3-4)
BATTERY
2 FVWS
10 FVWB
W
Bu/W
(ABS) (1-1, 1-2)
4 RVWS
3 RVWG
12 RVWB
W/G
(ABS) (1-3, 1-4)
FRONT WHEEL SPEED SENSOR
(ABS) (1-2, 4-1, 4-2)
FRONT PULSER RING
(ABS) (2-1)
VS SENSOR
(ABS) (1-4)
TIRE SIZE
(ABS) (7-1)
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
ABS MODULATOR 16P CONNECTOR (MODULATOR SIDE)
(ABS) ( ) : DTC
: Short terminals for reading DTC (with ABS indicator)
Bl : Black
Bu : Blue
Br : Brown
G : Green
P : Pink
R : Red
W : White
Y : Yellow

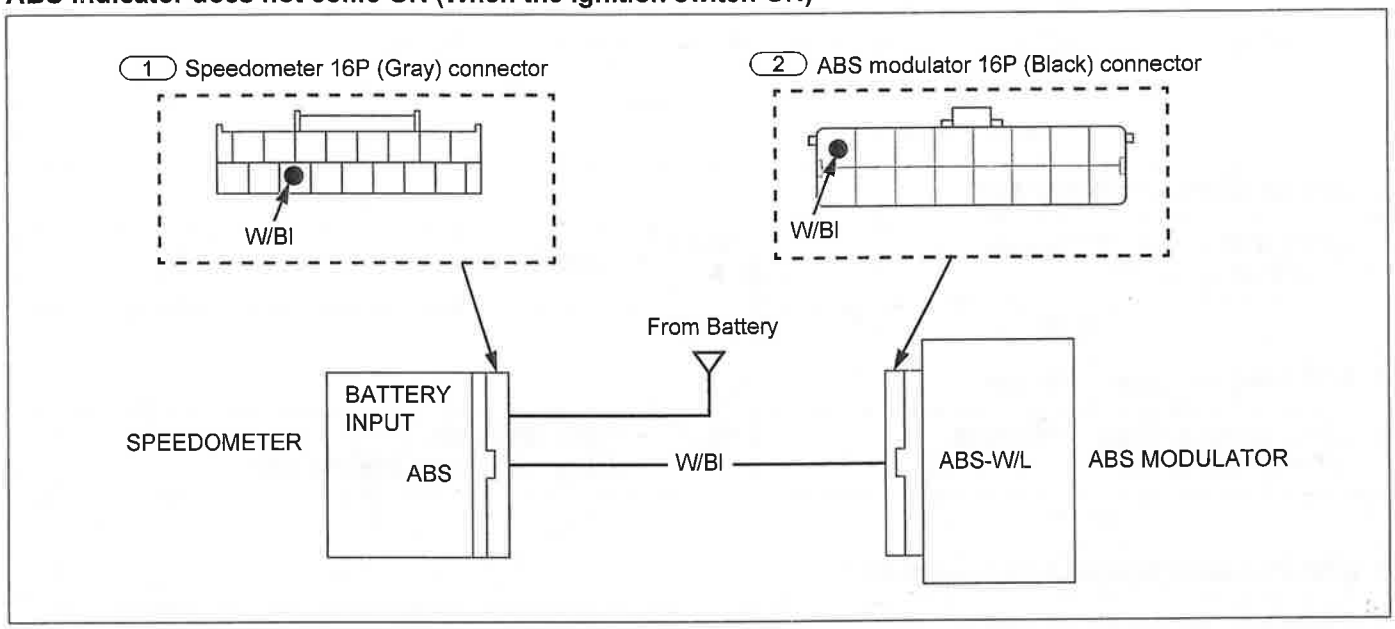
DTC TROUBLESHOOTING

- Before starting this troubleshooting, check the burned fuse and initial function of the meter.
- Use a fully charged battery. Do not diagnose with a charger connected to the battery.
- Perform inspection with the ignition switch OFF, unless otherwise specified.
- All connector diagrams in the troubleshooting are viewed from the terminal side.
- 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 DTC and test-ride the vehicle to check that the ABS indicator operates normally during pre-start self-diagnosis.

ABS indicator malfunction

- Fuel tank ➔2-6
- Speedometer ➔4-48

ABS indicator does not come ON (When the ignition switch ON)



1. ABS Indicator Inspection

2 ⇨

- Check the ABS indicator.
- Does the ABS indicator come on?

Yes ▶ • Faulty ABS modulator

No ▼

2. ABS indicator Line Inspection

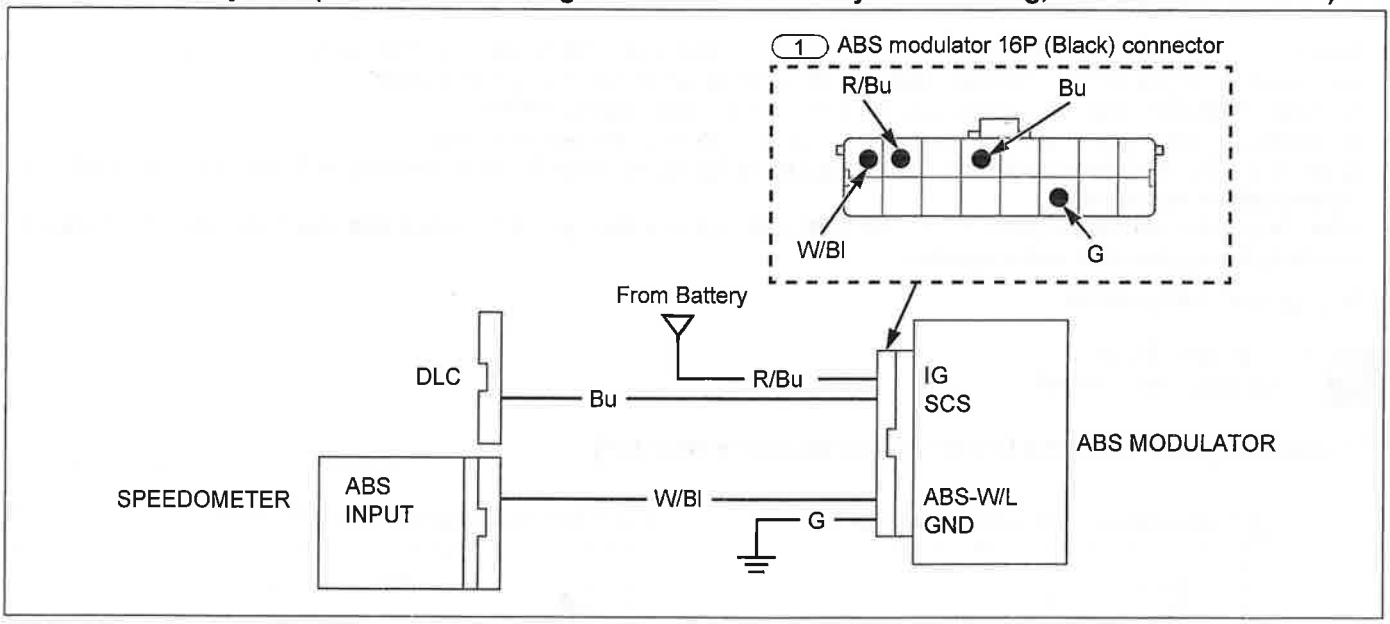
- Check a short circuit in W/Bl wire.
- Is there short circuit?

No ▶ • Faulty Speedometer

Yes ▼

- Faulty W/Bl wire

ABS indicator stays ON (Indicator does not go off when the motorcycle is running, but DTC is not stored)



1. Service Check Line Inspection

• Check a short circuit in Bu wire. • Is there short circuit?	Yes ▶	• Faulty Bu wire

No ▼

2. ABS Indicator Line Inspection

• Check an open circuit in W/Bl wire. • Is there open circuit?	Yes ▶	• Faulty W/Bl wire • If wire is ok, faulty speedometer.

No ▼

3. ABS Modulator Ground Line Inspection

• Check an open circuit in G wire. • Is there open circuit?	Yes ▶	• Faulty G wire

No ▼

4. ABS Modulator Power Line Inspection

⇨ 1 • Connection: R/Bu (+) – Ground (–) • Does the battery voltage exist?	No ▶	• Faulty R/Bu wire

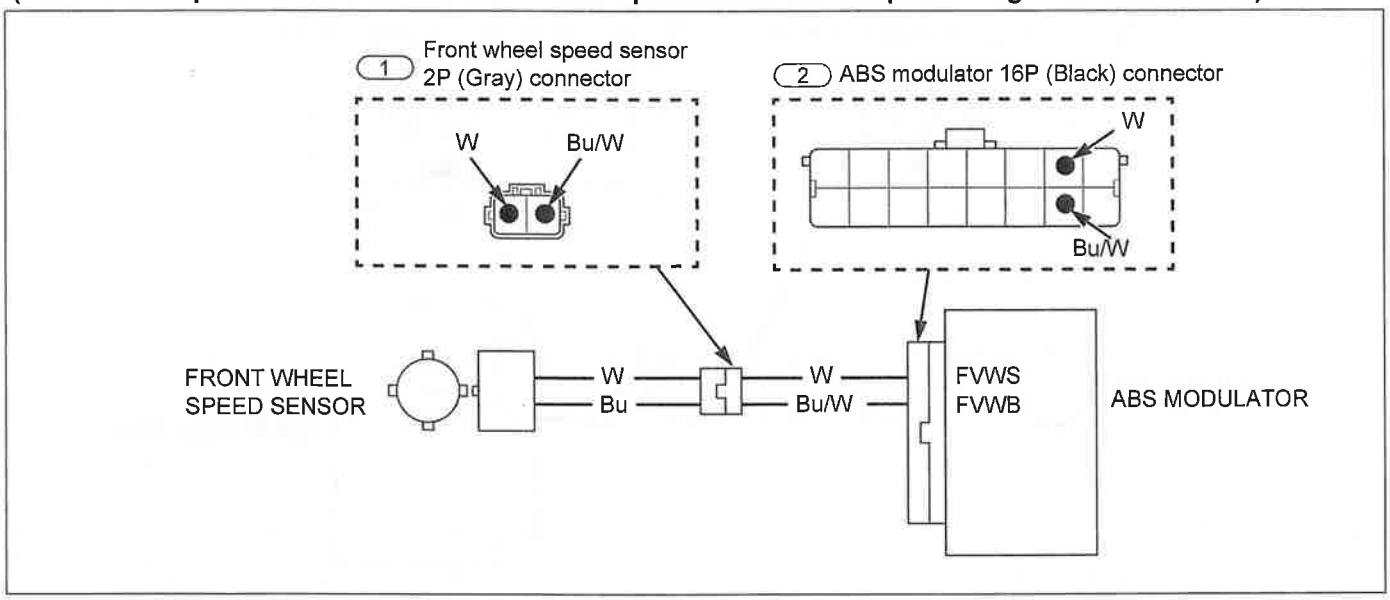
Yes ▼

• Faulty ABS modulator

DTC 1-1, 1-2, 2-1, 4-1, 4-2

- Fuel tank ➔2-6

(Front wheel speed sensor circuit / Front wheel speed sensor / Front pulser ring / Front wheel lock)



1. Air Gap Inspection

• Measure the air gap. • Is the air gap correct?	No ▶	• Check each part for deformation, looseness and correct accordingly. Recheck the air gap.

Yes ▼

2. Speed Sensor and Pulser Ring Inspection

• Check the speed sensor and pulser ring. • Is the sensor and pulser ring in good condition and properly installed?	No ▶	• Remove any deposits. • Install properly or replace faulty part.

Yes ▼

3. Speed Sensor Line Inspection

1 2 • Check an open or short circuit in Bu/W and W wire. • Is there open or short circuit?	Yes ▶	• Faulty Bu/W or W wire

No ▼

4. Failure Reproduction

• Replace the wheel speed sensor with a new one. ➔4-41 • Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC. • Is the DTC 1-1, 1-2, 2-1, 4-1, 4-2 indicated?	No ▶	• Faulty original speed sensor

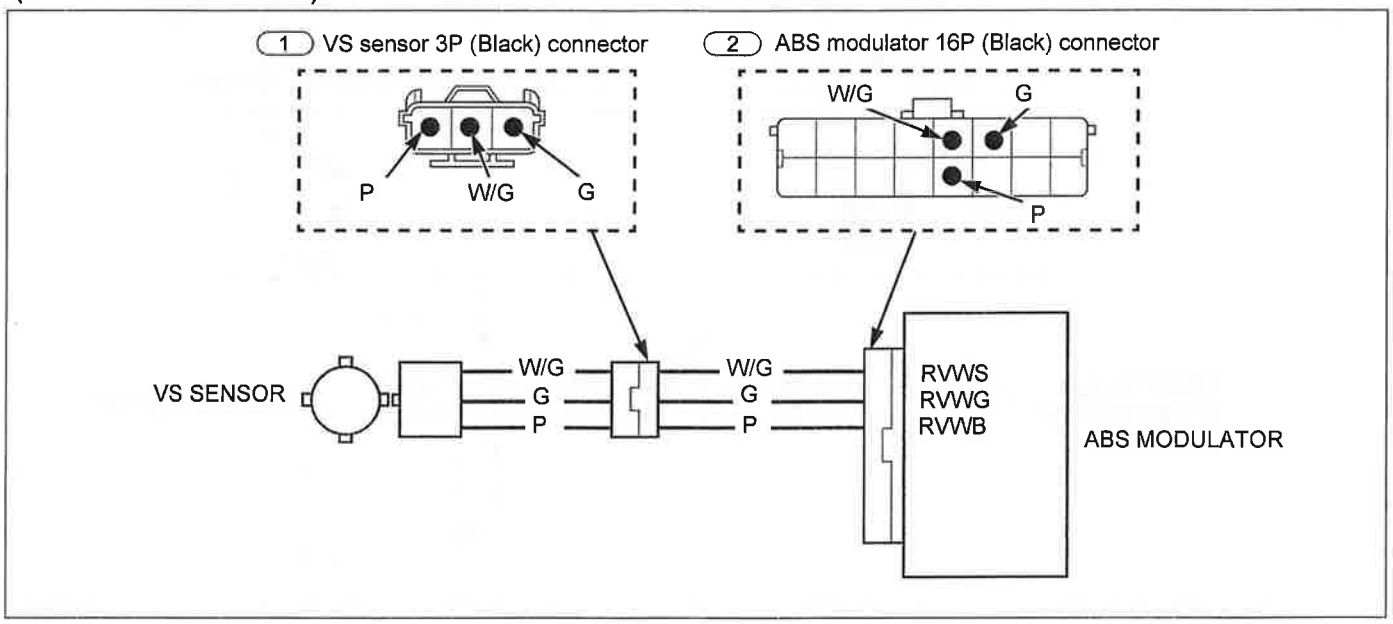
Yes ▼

- Faulty ABS modulator

DTC 1-3, 1-4

- Fuel tank ➔2-6
- VS sensor ➔4-48

(VS sensor malfunction)



1. VS Sensor Signal Line Inspection

1 2

- Check an open or short circuit in P and W/G wire.
- Is there open or short circuit?

Yes ▶

- Faulty P or W/G wire

No ▼

2. VS Sensor Ground Line Inspection

- Check an open circuit in G wire.
- Is there open circuit?

Yes ▶

- Faulty G wire

No ▼

3. Failure Reproduction

- Replace the VS sensor with a new one. ➔4-48
- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 1-3, 1-4 indicated?

No ▶

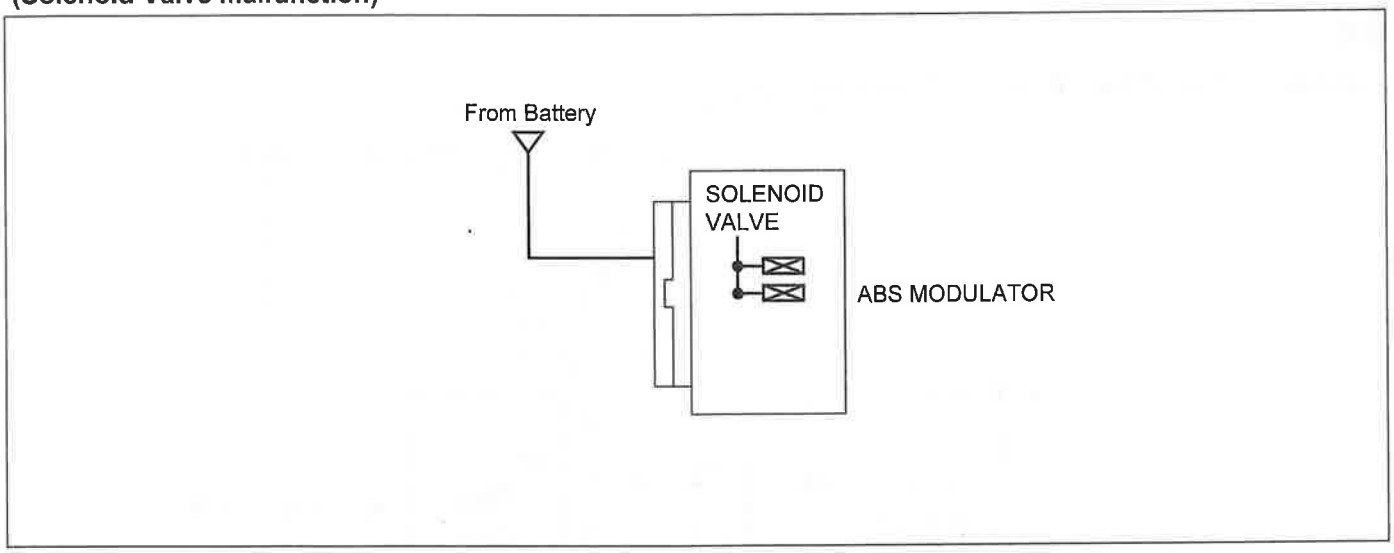
- Faulty original VS sensor

Yes ▼

- Faulty ABS modulator

DTC 3-3, 3-4

(Solenoid Valve malfunction)



1. Failure Reproduction

- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 3-3, 3-4 indicated?

No ▶

- Intermittent failure

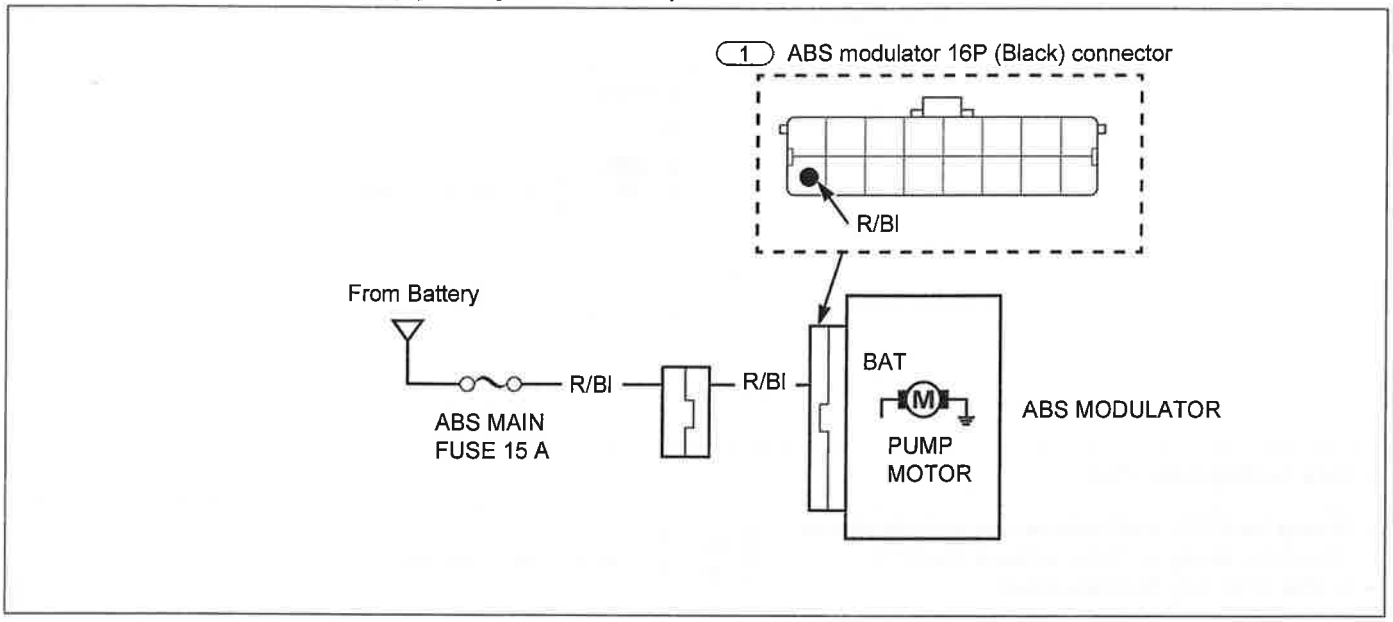
Yes ▼

- Faulty ABS modulator

DTC 5-1, 5-2, 5-3, 5-4

- Fuel tank ➔2-6

(Pump Motor Lock/Power Supply Relay malfunction)



1. ABS Modulator Power Line Inspection

- Connection: R/BI (+) – Ground (–)
- Does the battery voltage exist?

No ▶ • Faulty R/BI wire

Yes ▼

2. Failure Reproduction

- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 5-1, 5-2, 5-3, 5-4 indicated?

No ▶ • Intermittent failure

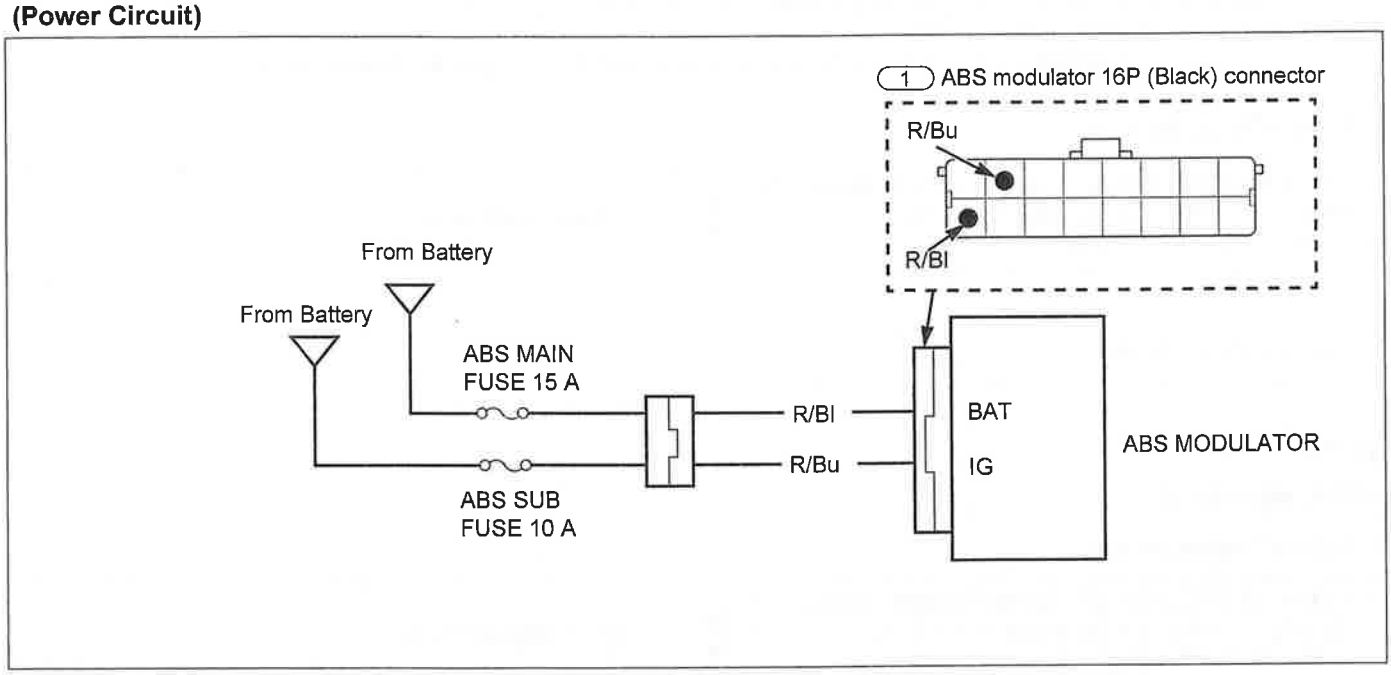
Yes ▼

- Faulty ABS modulator

DTC 6-1, 6-2

- Fuel tank ➔2-6

(Power Circuit)



1. ABS Modulator Power Line Inspection

1 ⇨ ⇨ 1

- Connection: R/Bl (+) – Ground (–)
- Connection: R/Bu (+) – Ground (–)
- Does the battery voltage exist?

No ▶

- Faulty R/Bl wire
- Faulty R/Bu wire

Yes ▼

2. Failure Reproduction

- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 6-1, 6-2 indicated?

No ▶

- Intermittent failure

Yes ▼

- Faulty ABS modulator

DTC 7-1

(Tire Size)

- Check the following and correct the faulty part.
- Incorrect tire pressure
- Tires not recommended for the vehicle were installed (incorrect tire size).
- Deformation of the wheel or tire.
- Incorrect sprocket gear ratio (Sprockets not recommended for the vehicle are installed)

1. Failure Reproduction

- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 7-1 indicated?

No ▶

- Intermittent failure

Yes ▼

- Faulty ABS modulator

DTC 8-1

(ABS Control Unit)

1. Failure Reproduction

- Erase the DTC and test-ride the vehicle above 30 km/h (19 mph), then recheck the DTC.
- Is the DTC 8-1 indicated?

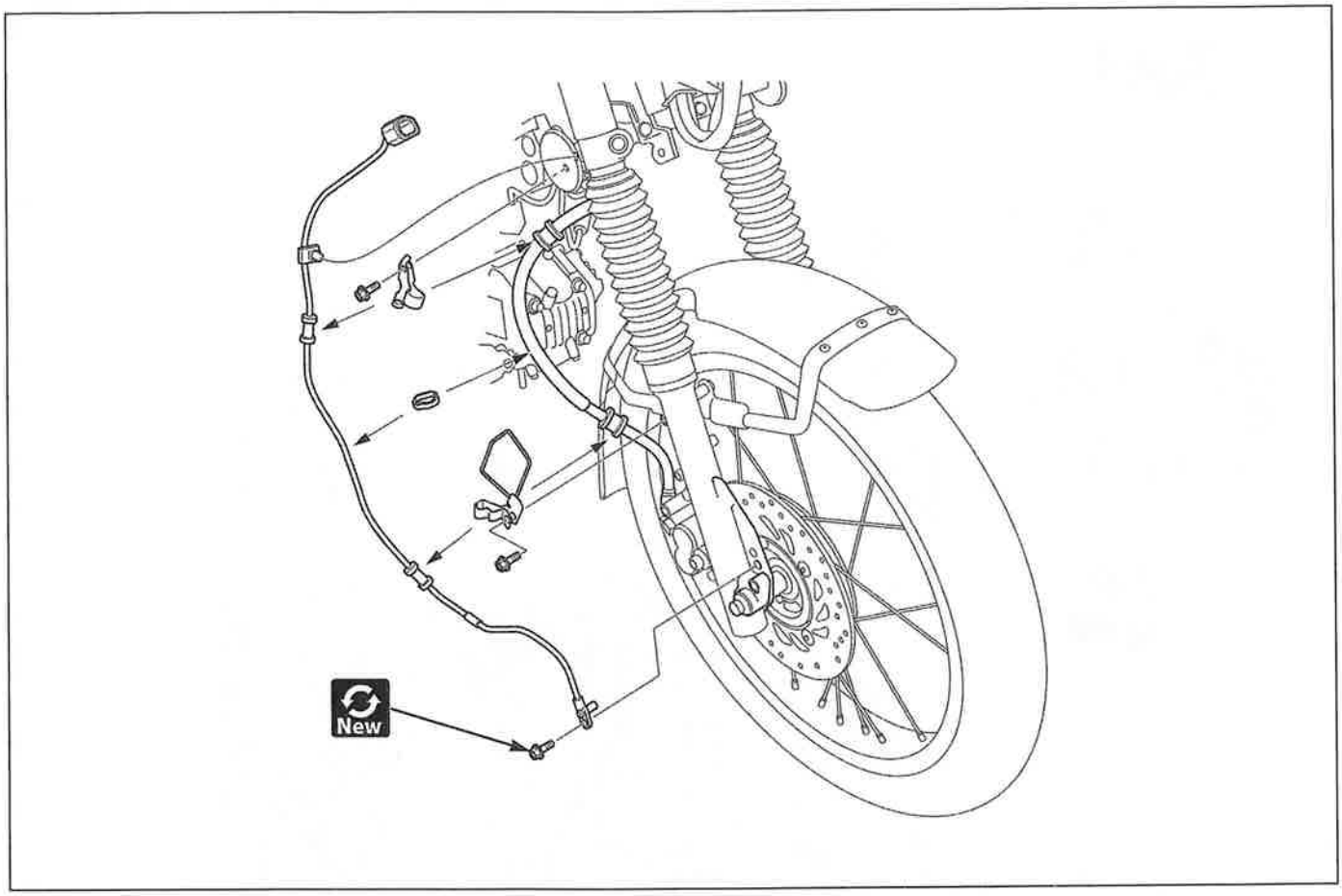
No ▶

- Intermittent failure

Yes ▼

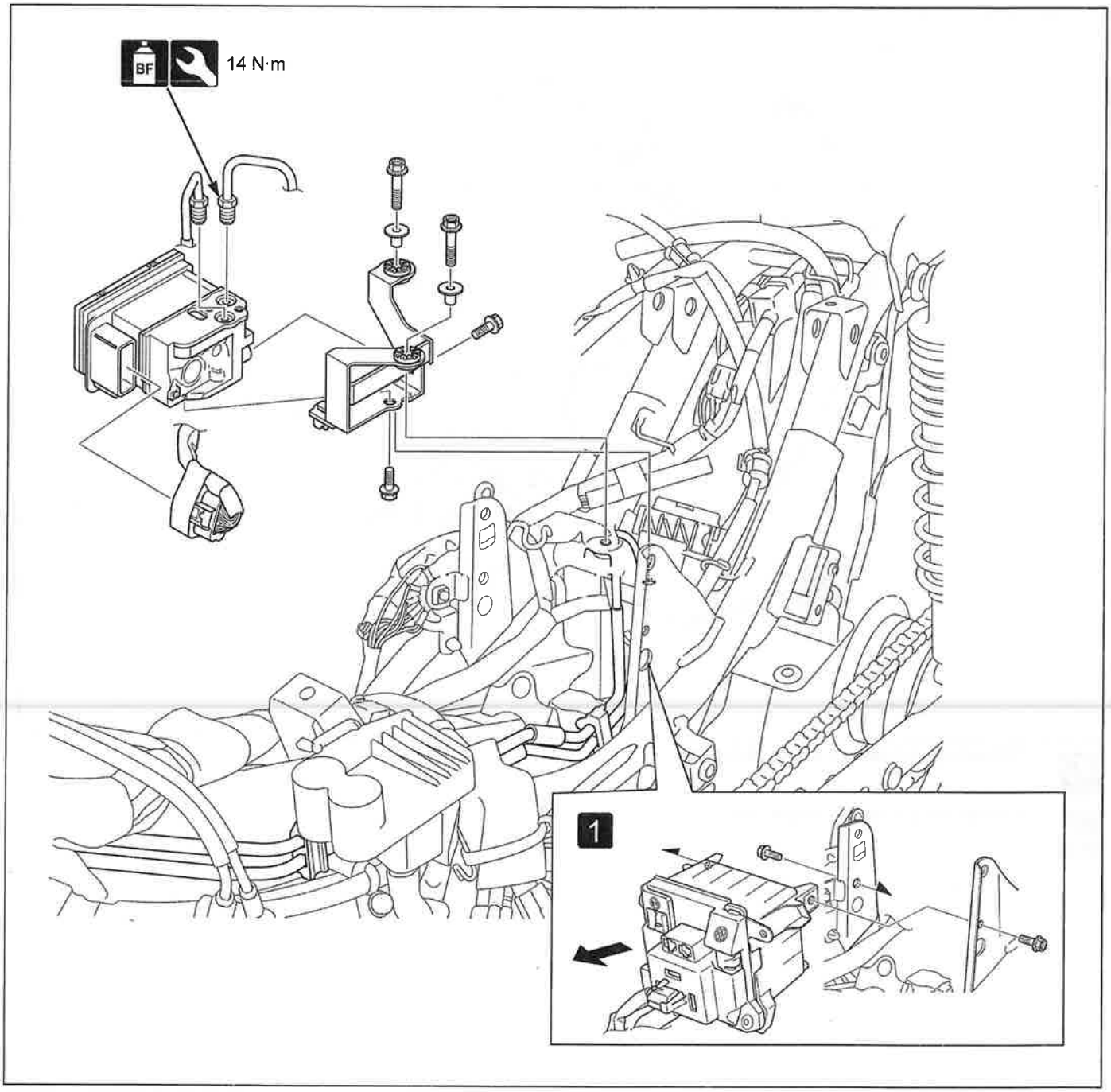
- Faulty ABS modulator

WHEEL SPEED SENSOR



- Wheel speed sensor cover ➔3-5
- Wheel speed sensor inspection

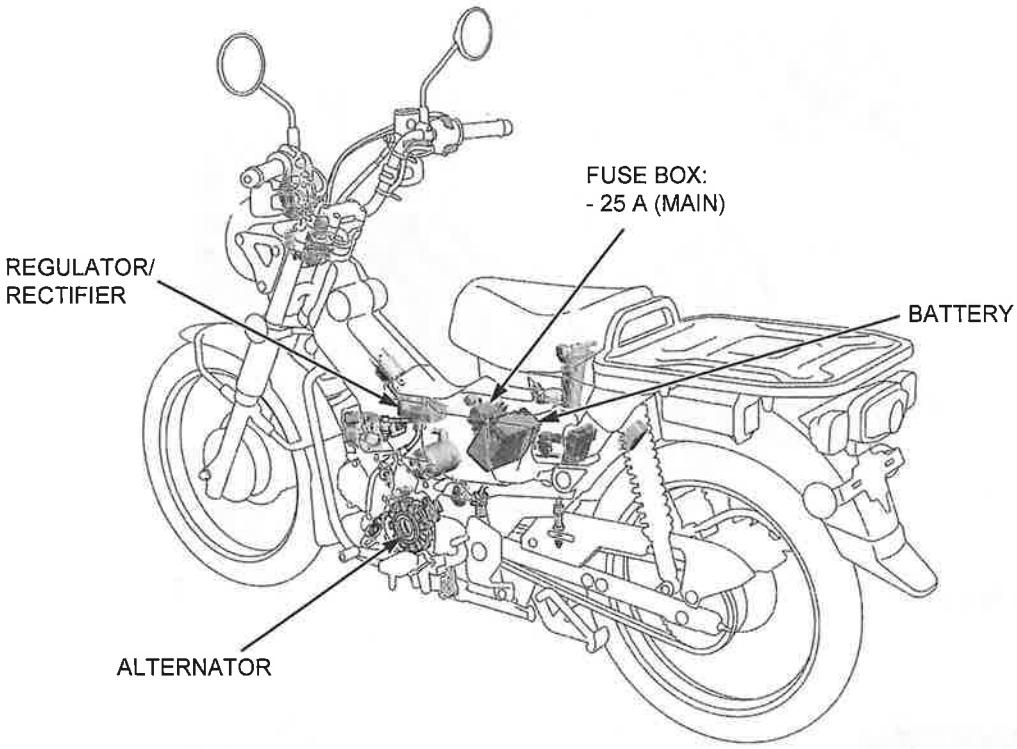
ABS MODULATOR



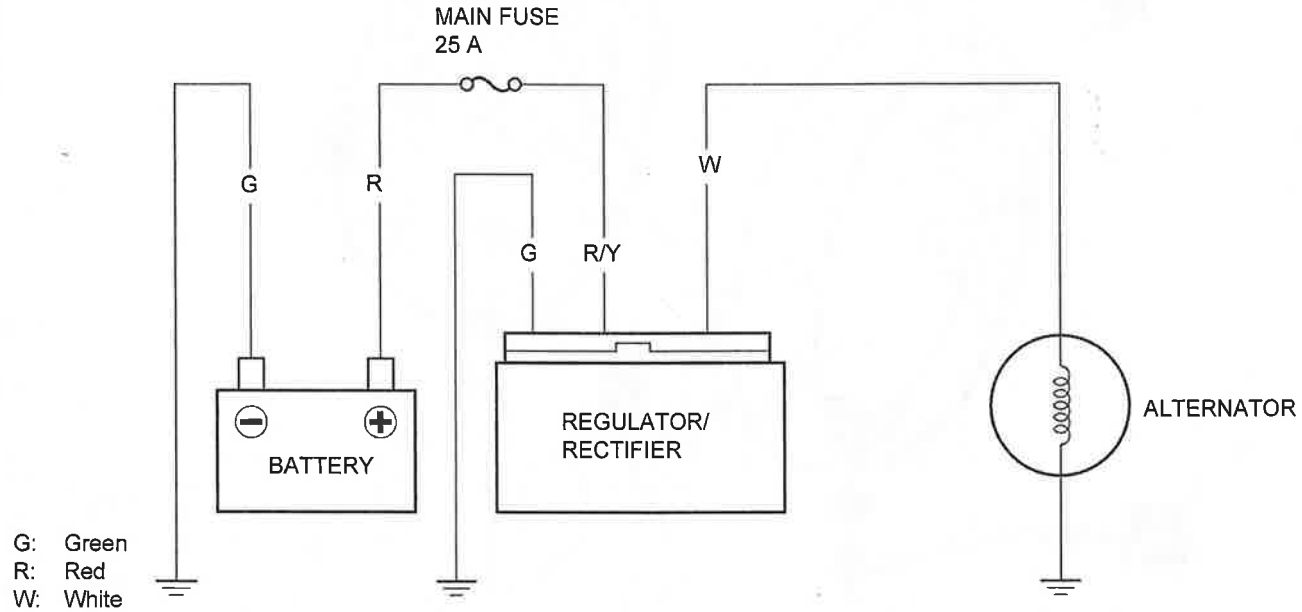
- Brake fluid ➔3-29
- Fuel tank ➔2-6
- 1 Remove the bolts and the battery box.

BATTERY/CHARGING SYSTEM

BATTERY/CHARGING SYSTEM LOCATION



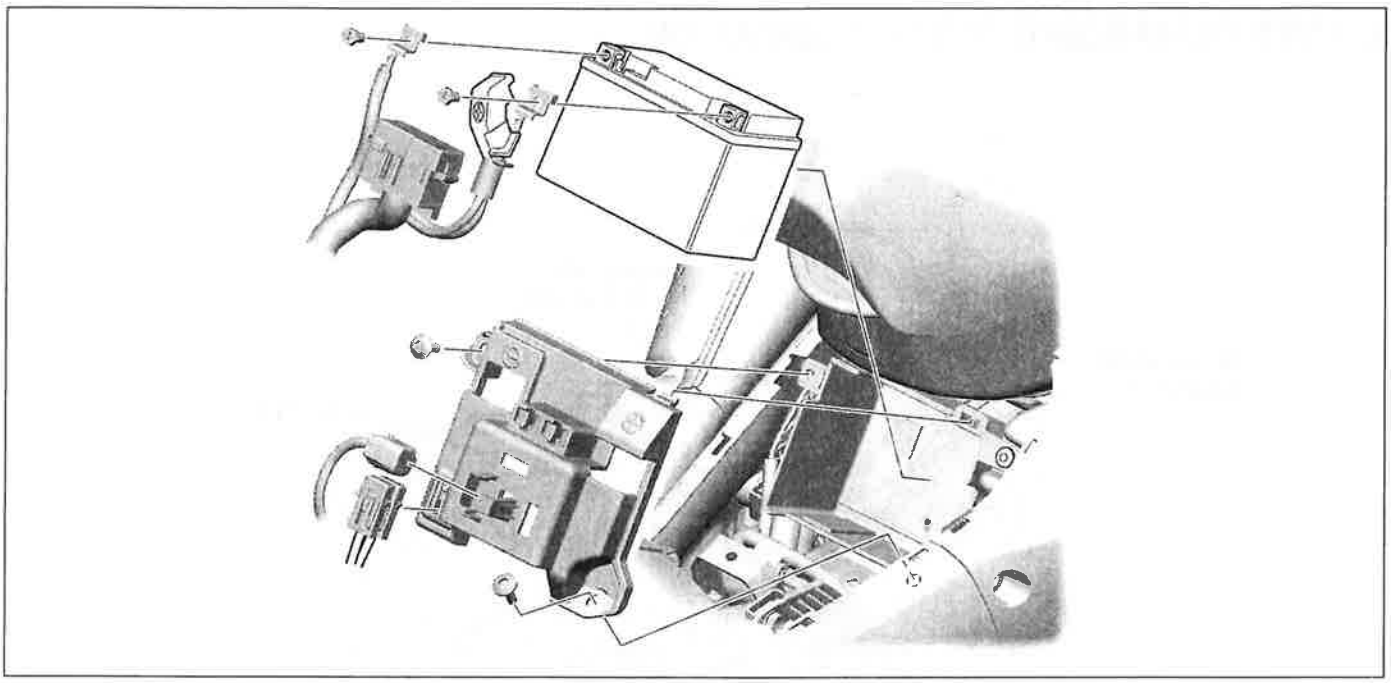
BATTERY/CHARGING SYSTEM DIAGRAM



G: Green
R: Red
W: White
Y: Yellow
Br: Brown
Bl: Black

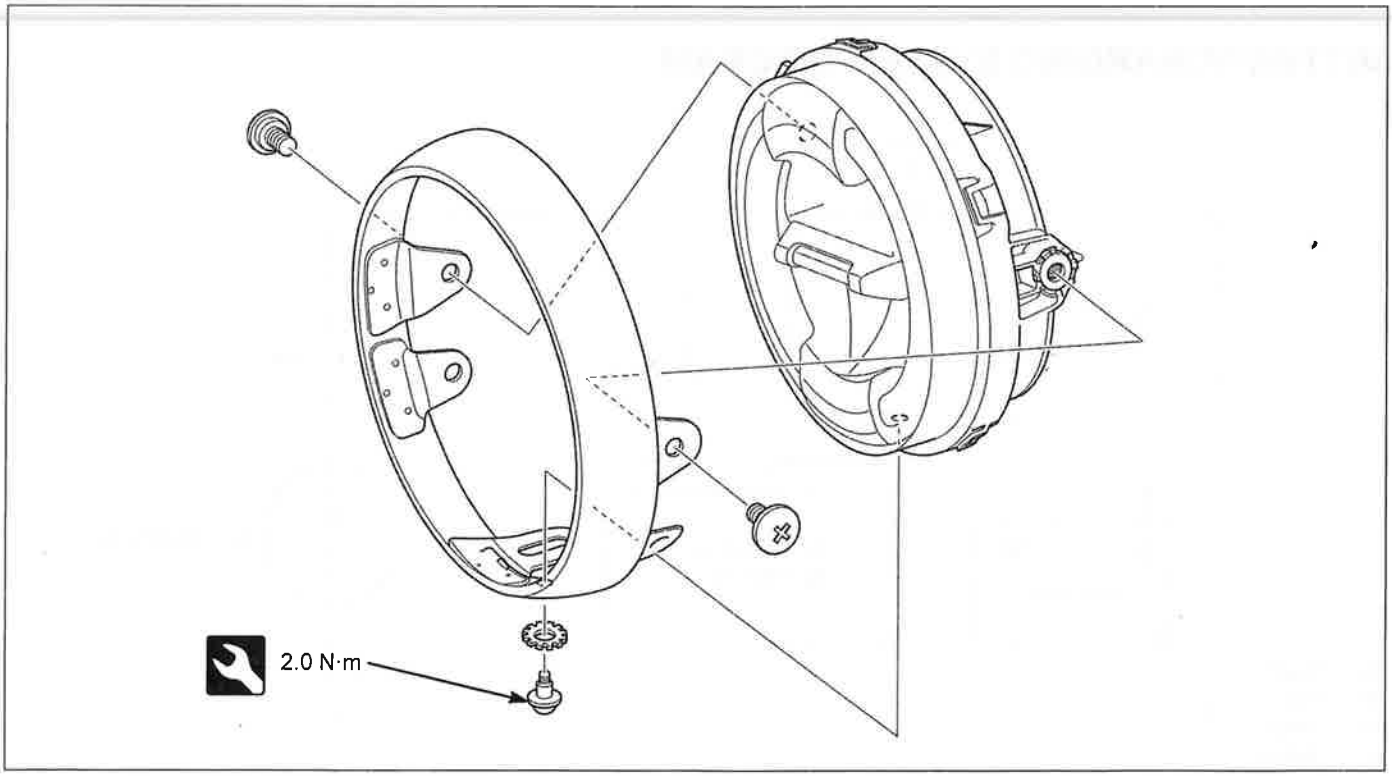
- Battery/charging system information, troubleshooting and inspection

BATTERY

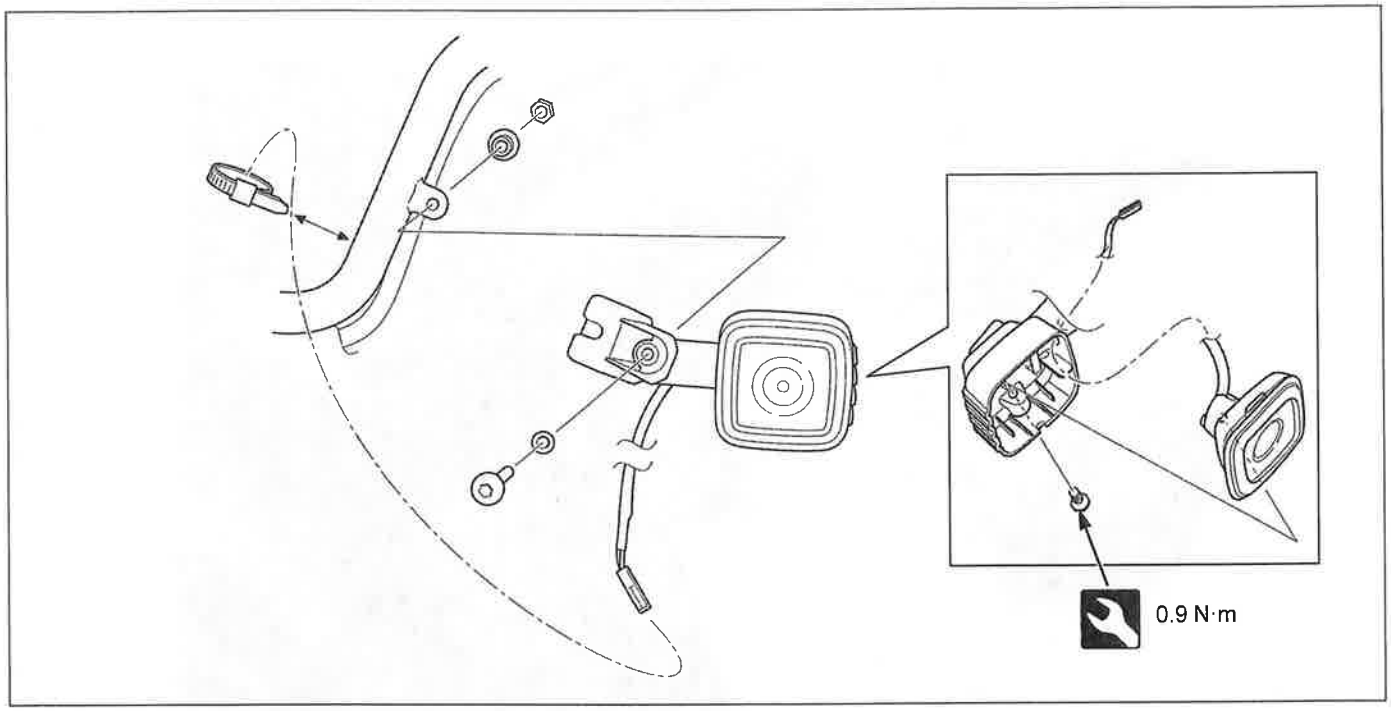


- Battery lid ➔3-6

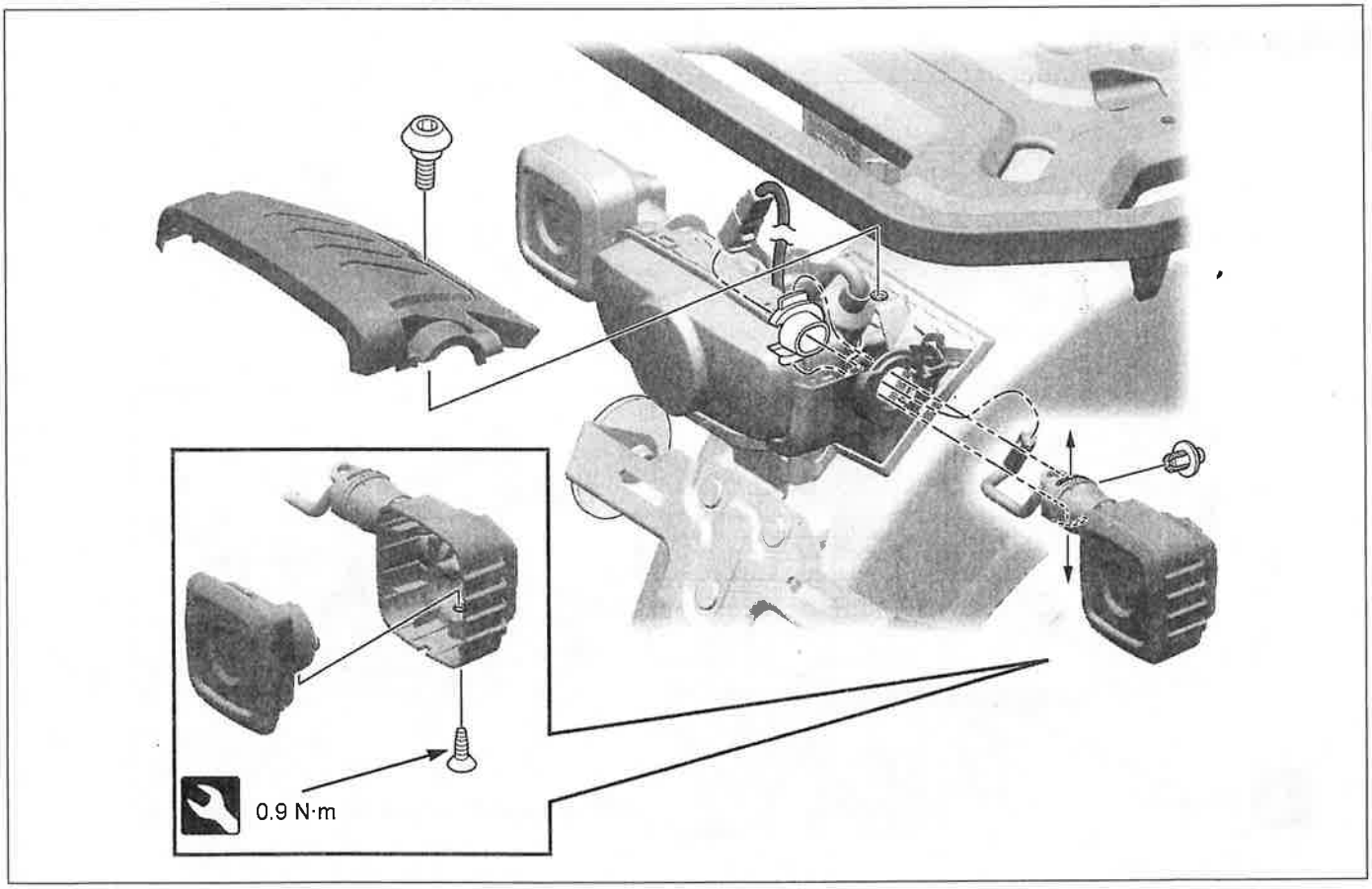
LIGHTING SYSTEM

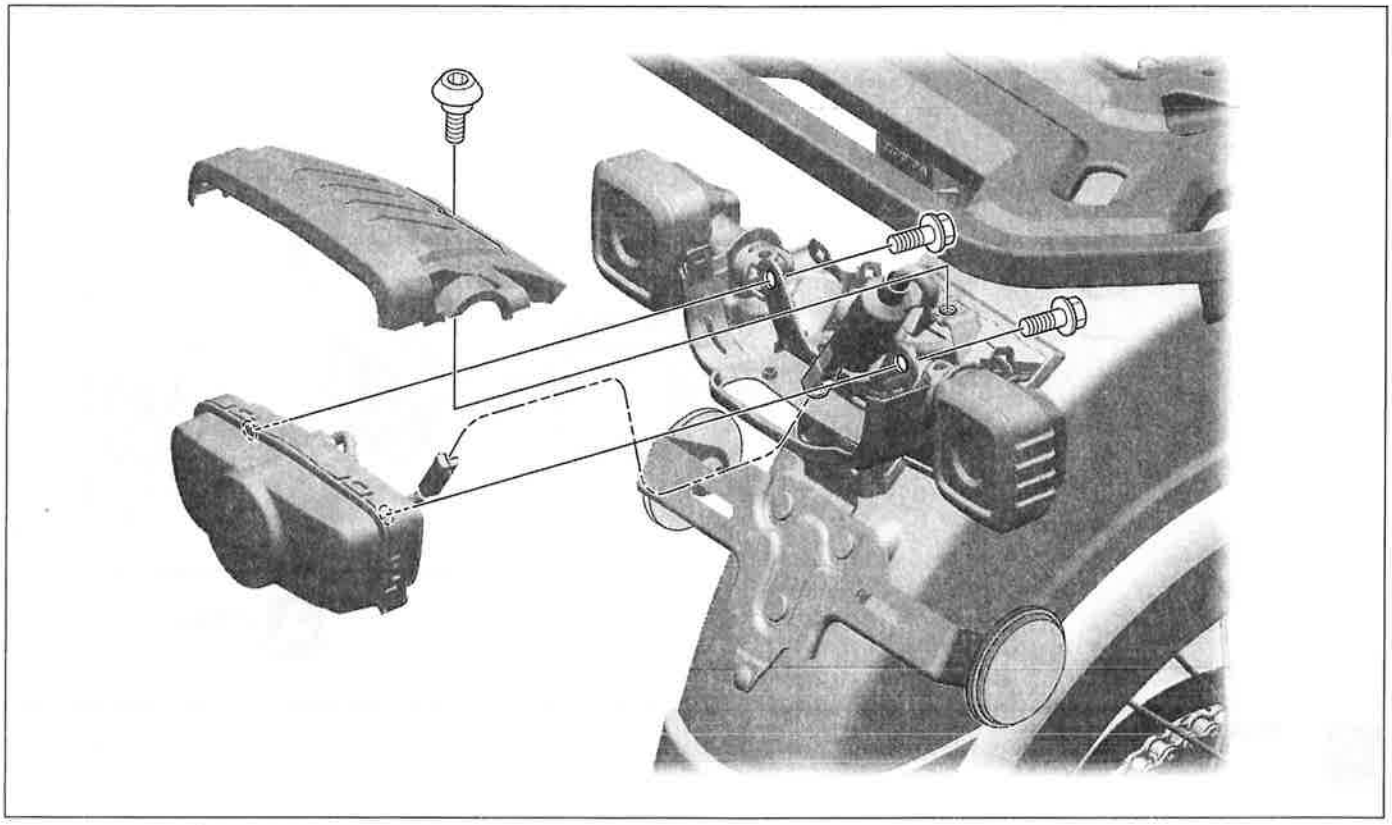


- If the LED headlight is flickering, replace the regulator/rectifier with a known good one, and recheck. If the headlight is still flickering, replace the headlight unit.
- Headlight aim ➔4-46
- Headlight cover ➔3-3

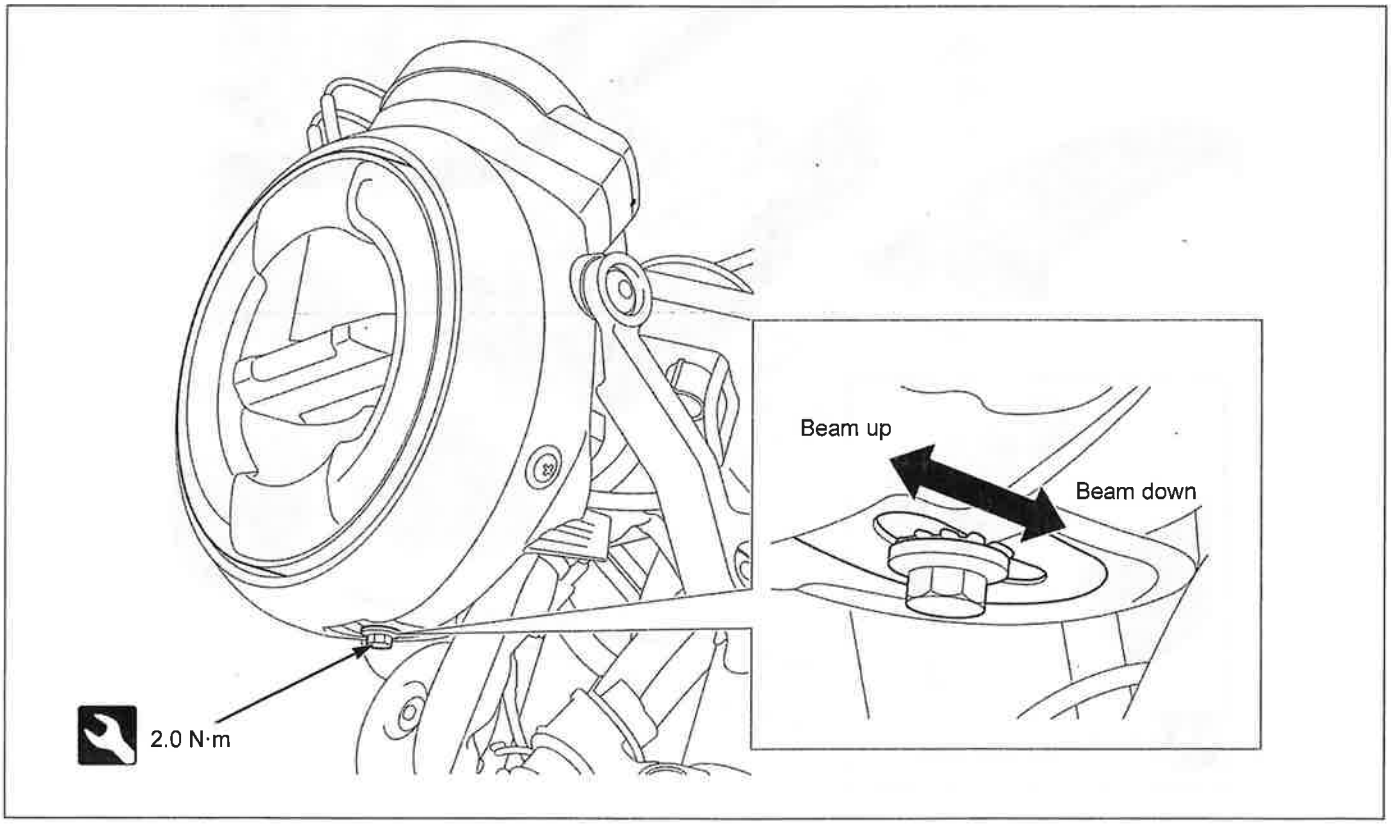


- Headlight cover ➔3-3





HEADLIGHT AIM



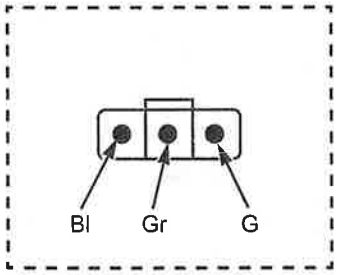
TURN SIGNAL LIGHT TROUBLESHOOTING

- When all turn signal lights blink faster than usual, replace the turn signal light relay with a known good one, and recheck.

ALL TURN SIGNAL LIGHTS DO NOT LIGHT

- Loose or poor contacts of related terminal/connector
- Battery condition
- Burned fuse

(1) Turn signal light relay 3P (Black) connector



1. Turn Signal Light Relay Input Voltage Inspection

(1) ⇨ ⇨ (1)

- Connection: Bl (+) – G (–)
- Does the battery voltage exist?

No ►

- Faulty Bl or G wire

Yes ▼

2. Turn Signal Light Relay Inspection

⇨ (1) (With peak voltage adapter)

- Connection: Gr (+) – G (–)
  (Connector connected)
  Peak voltage adapter: 07HGJ-0020100 or IgnitionMate peak voltage tester: MTP07-0286 (U.S.A. only)
- Battery voltage – Measured voltage = 1.5 V max.?

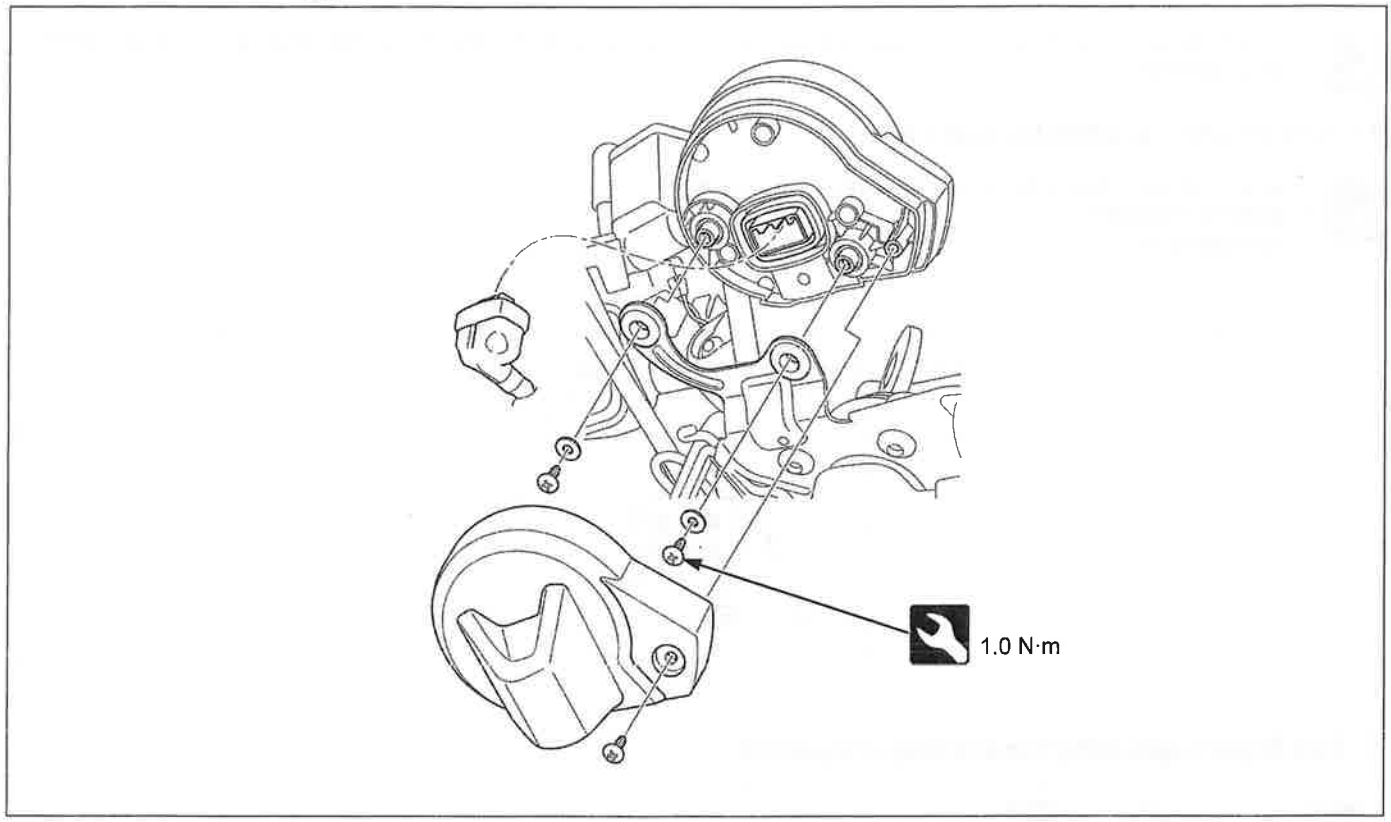
No ►

- Replace the turn signal light relay with a new one, and recheck.

Yes ▼

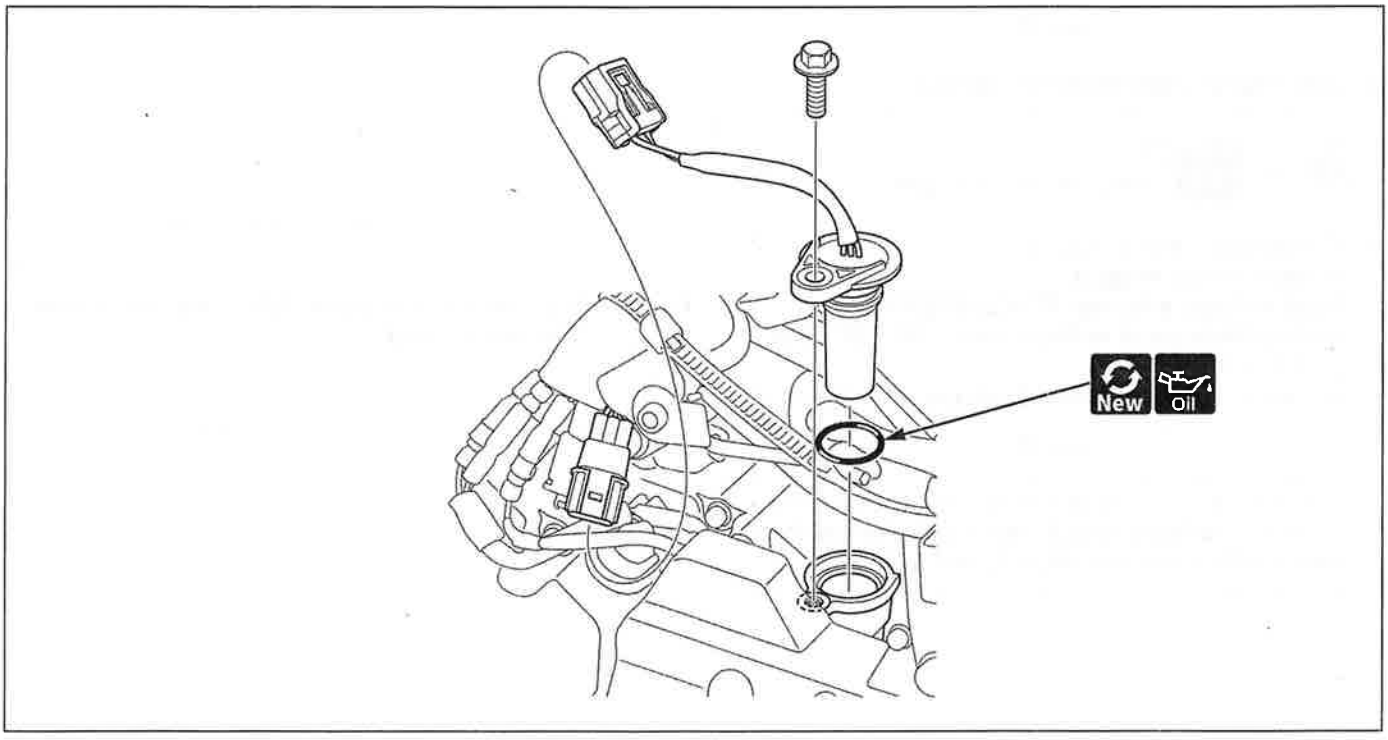
- Check an open or short circuit in Gr, O or Lb wire.
- If there is no faulty circuit, replace the left handlebar switch with a new one ➔3-24, and recheck.

SPEEDOMETER



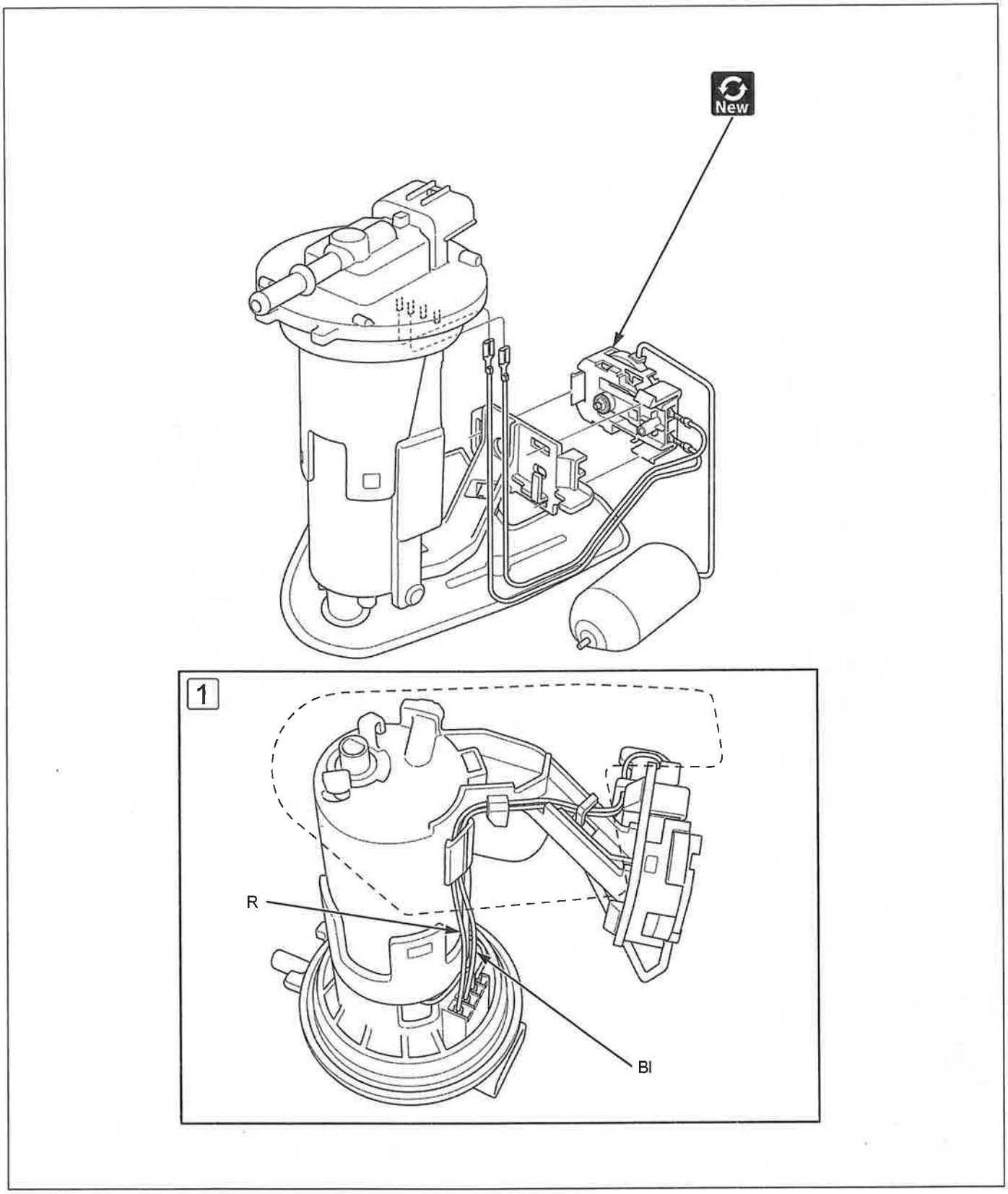
- Headlight case ➔3-4

VS SENSOR



- Left side cover ➔3-10
- Drive sprocket cover ➔3-14

FUEL LEVEL SENSOR

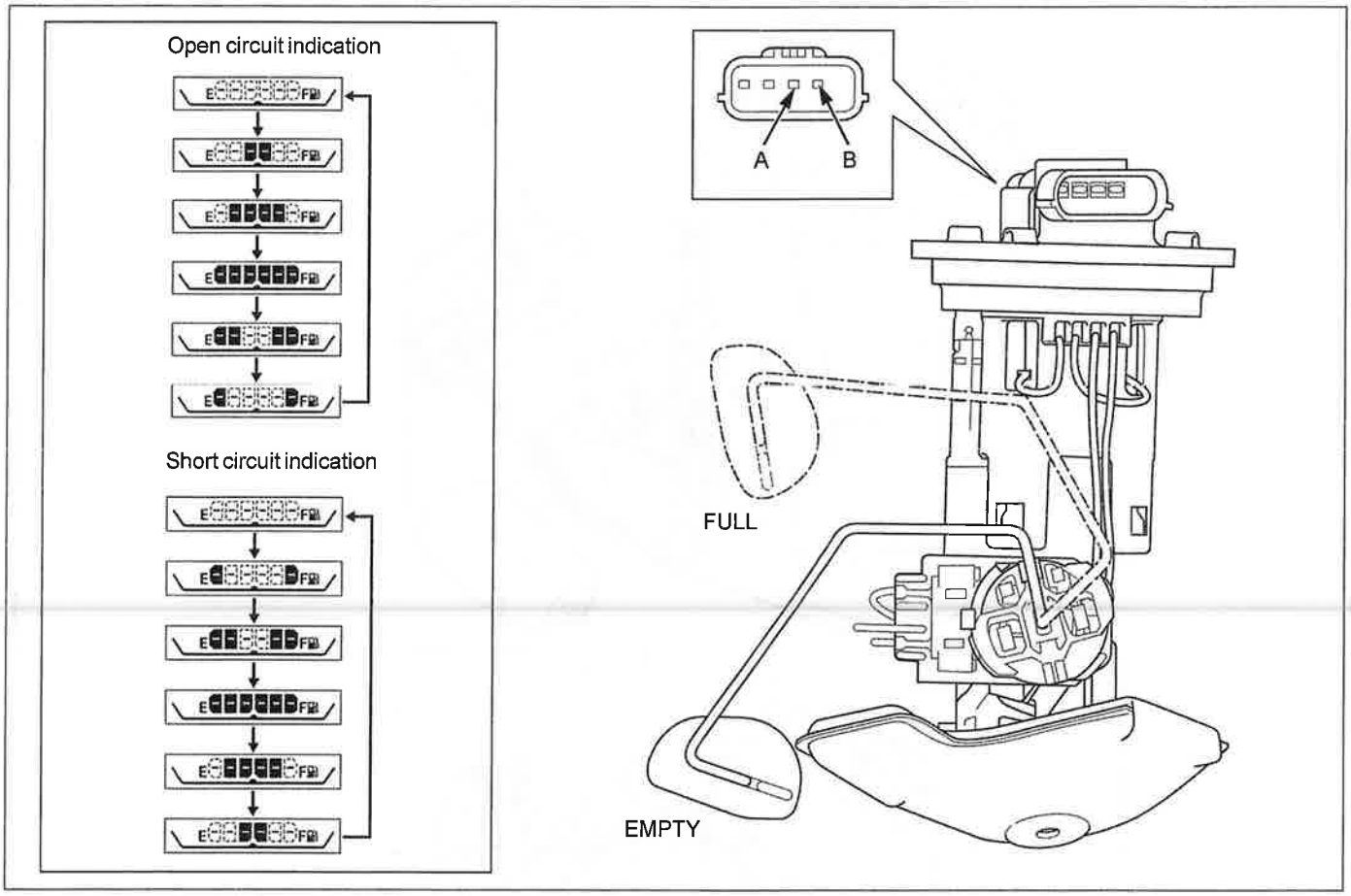


- Fuel pump unit ➔2-4
- 1 Route the fuel level sensor wires to the guide and terminals properly.

FUEL METER TROUBLESHOOTING

FUEL GAUGE FAILURE

- Fuel pump unit ➔2-4
- Loose or poor contacts of related terminal/connector



1. Fuel Level Sensor Circuit Inspection

- Check the Y/W and G/Bl wire.
- Is there open or short circuit?

Yes ▶

- Faulty Y/W, G/Bl wire

No ▼

2. Fuel Level Sensor Inspection

- Connection: A – B
- Standard: FULL 7 – 11 Ω, EMPTY 384 – 396 Ω.
- Is there standard resistance?

No ▶

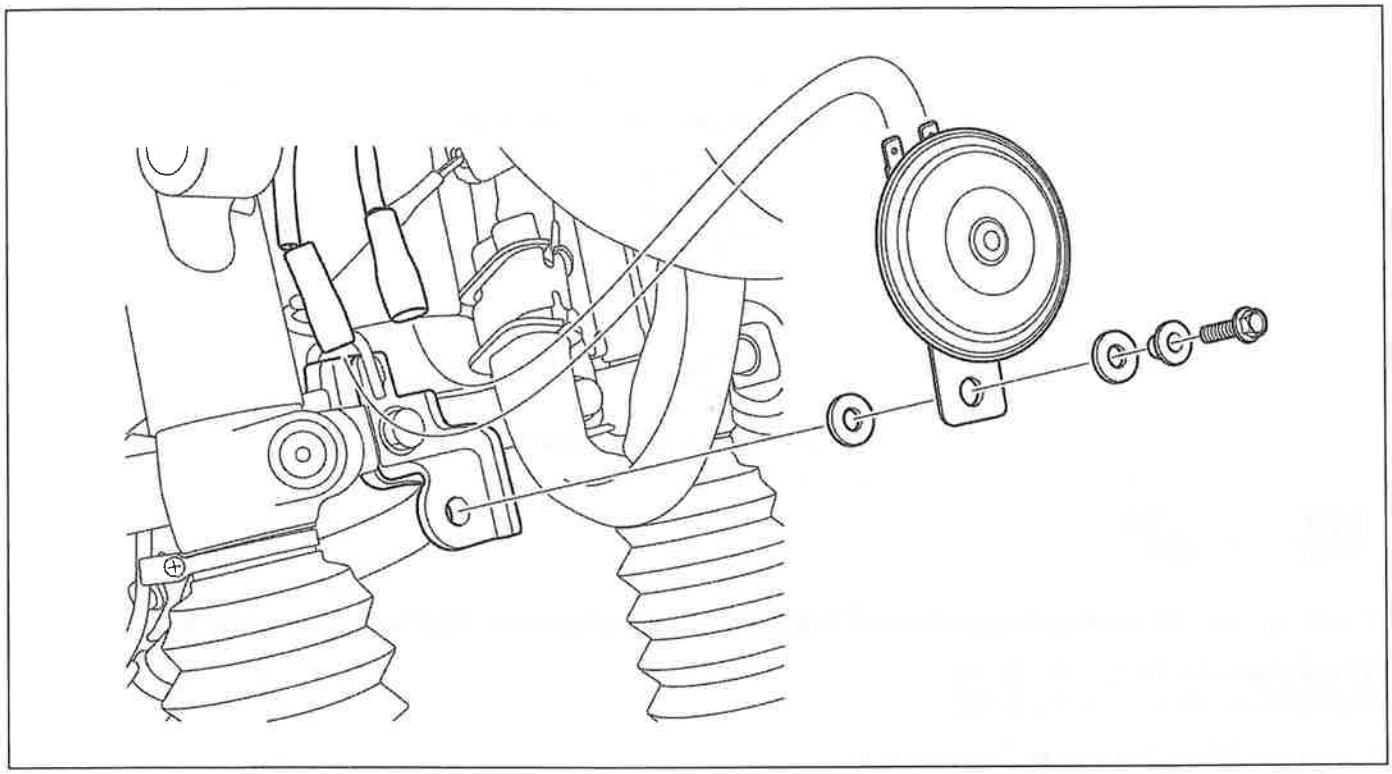
- Replace the fuel level sensor with a new one ➔4-49, and recheck.

Yes ▼

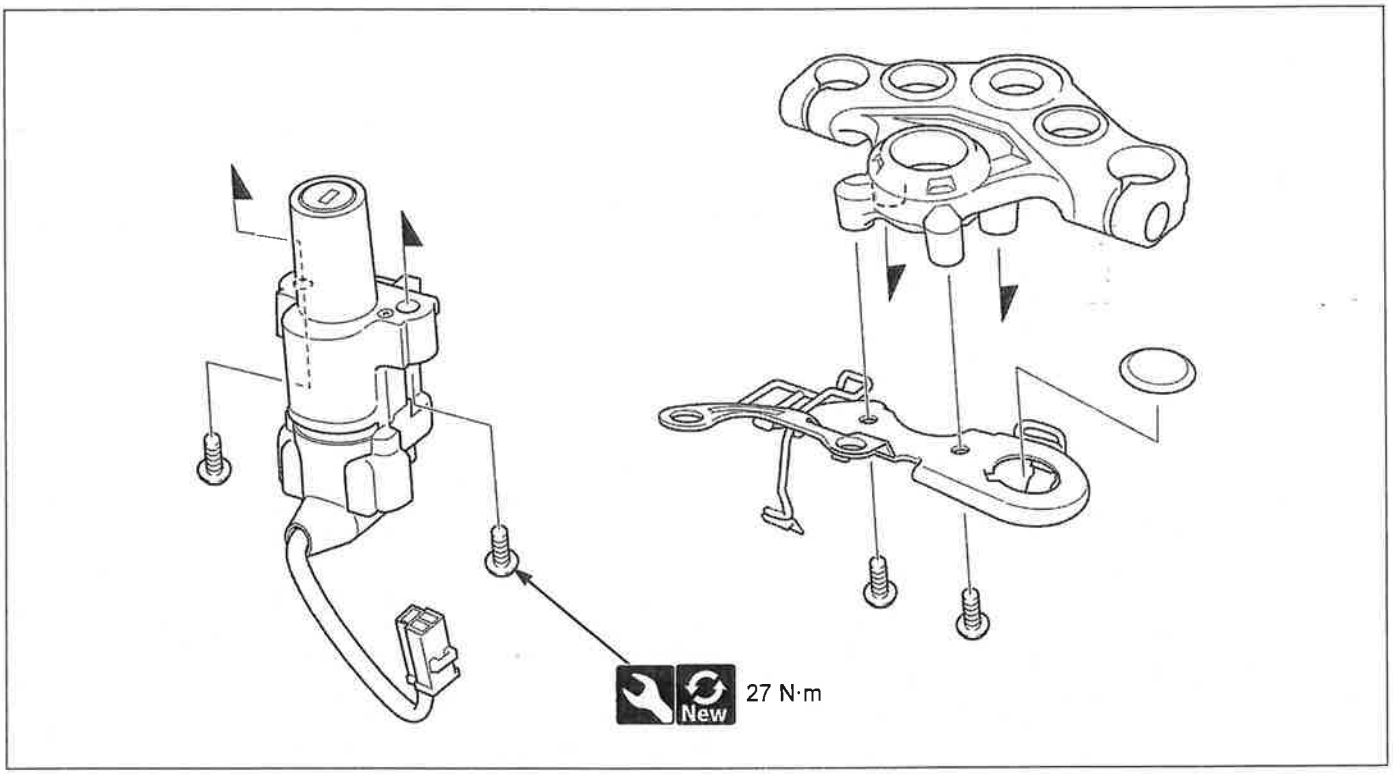
- Replace the meter with a new one ➔4-48, and re-check.

ELECTRICAL COMPONENT

HORN



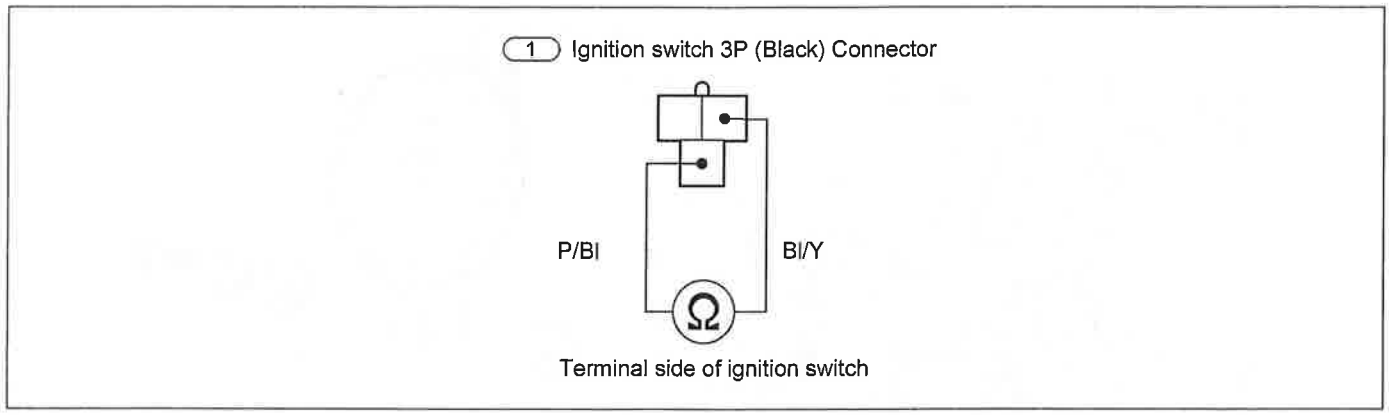
IGNITION SWITCH



- Top bridge ➔3-25

IGNITION SWITCH INSPECTION

- Headlight ➔4-44

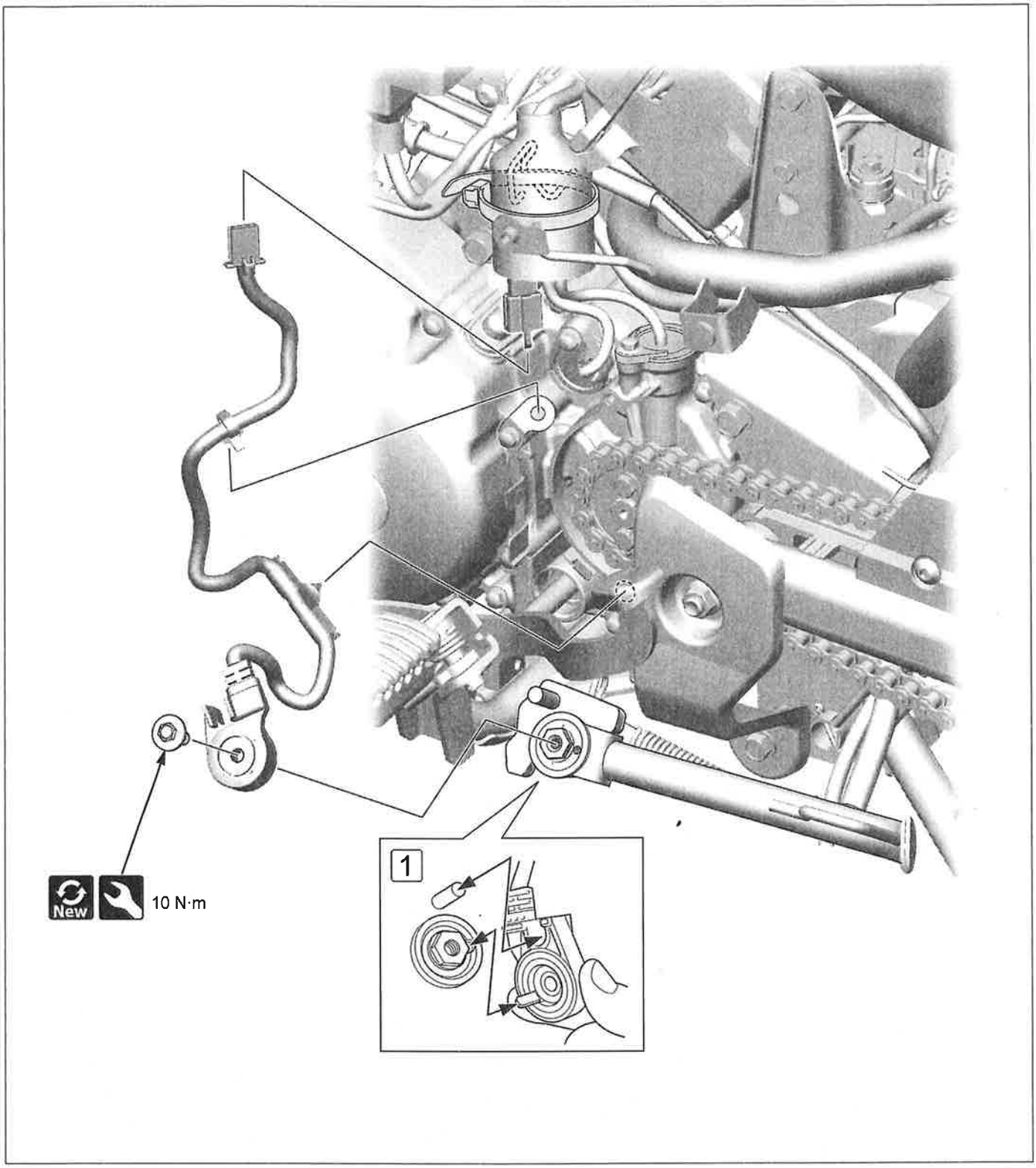


Check for continuity between the ignition switch 3P (Black) connector terminals of the ignition switch side.

Connection: Bl / Y (+) – P / Bl (–)
Connection: Bl / Y (–) – P / Bl (+)

It is normal if there is continuity in one direction.
- The ignition switch is faulty if there is continuity in both directions.

SIDESTAND SWITCH



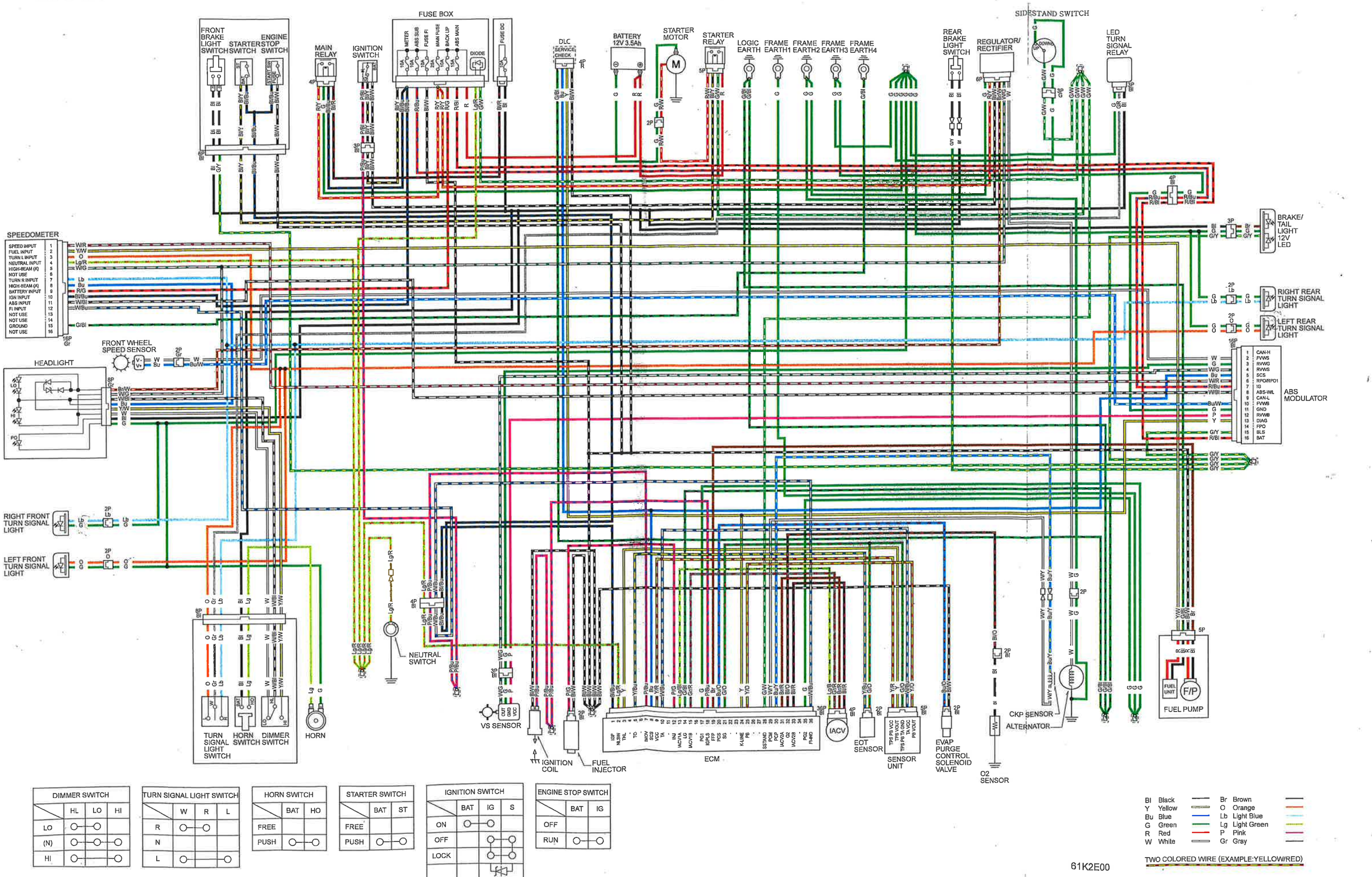
- Drive sprocket cover ➔3-14
- Left side cover ➔3-10

- [1] Align the pin with the hole.

MEMO

INDEX

Trail125A



DIMMER SWITCH	HL	LO	HI
LO	○	○	
(N)	○		○
HI	○		○

TURN SIGNAL LIGHT SWITCH	W	R	L
R	○	○	
N			
L	○		○

HORN SWITCH	BAT	HO
FREE		
PUSH	○	○

STARTER SWITCH	BAT	ST
FREE		
PUSH	○	○

IGNITION SWITCH	BAT	IG	S
ON	○	○	
OFF			
LOCK			

ENGINE STOP SWITCH	BAT	IG
OFF		
RUN	○	○

Bl	Black	Br	Brown
Y	Yellow	O	Orange
Bu	Blue	Lb	Light Blue
G	Green	Lg	Light Green
R	Red	P	Pink
W	White	Gr	Gray

TWO COLORED WIRE (EXAMPLE:YELLOW/RED)

61K2E00