

SERVICING INFORMATION

CONTENTS

TROUBLESHOOTING	8- 2
FI SYSTEM MALFUNCTION CODE AND DEFECTIVE CONDITION ...	8- 2
ENGINE	8- 4
RADIATOR (COOLING SYSTEM)	8- 9
CHASSIS	8-10
BRAKES	8-11
ELECTRICAL	8-12
BATTERY	8-13
WIRE HARNESS, CABLE AND HOSE ROUTING	8-14
WIRE HARNESS ROUTING	8-14
ENGINE ELECTRICAL PARTS SET-UP	8-16
REGULATOR/RECTIFIER INSTALLATION	8-17
THROTTLE CABLE ROUTING	8-18
THROTTLE BODY INSTALLATION/HOSE ROUTING	8-19
CRANKCASE BREATHER HOSE ROUTING	8-20
CLUTCH HOSE ROUTING	8-21
COOLING SYSTEM HOSE ROUTING	8-22
FRONT BRAKE HOSE ROUTING	8-23
REAR BRAKE HOSE ROUTING	8-24
FUEL TANK DRAIN HOSE ROUTING	8-25
FUEL TANK INSTALLATION	8-26
PAIR (AIR SUPPLY) SYSTEM HOSE ROUTING	8-27
SEAT LOCK CABLE ROUTING	8-28
SIDE-STAND SET-UP	8-29
BRAKE PEDAL/FOOTREST SET-UP	8-29
SPECIAL TOOLS	8-30
TIGHTENING TORQUE	8-34
ENGINE	8-34
FI SYSTEM PARTS	8-35
CHASSIS	8-36
TIGHTENING TORQUE CHART	8-37
SERVICE DATA	8-38

TROUBLESHOOTING

FI SYSTEM MALFUNCTION CODE AND DEFECTIVE CONDITION

MALFUNCTION CODE	DETECTED ITEM	DETECTED FAILURE CONDITION
		CHECK FOR
C00	NO FAULT	—
C11	Camshaft position sensor	The signal does not reach ECM for more than 3 sec. after receiving the starter signal.
		The camshaft position sensor wiring and mechanical parts (Camshaft position sensor, intake cam pin, wiring/coupler connection)
C12	Crankshaft position sensor	The signal does not reach ECM for more than 2 sec. after receiving the starter signal.
		The crankshaft position sensor wiring and mechanical parts (Crankshaft position sensor, wiring/coupler connection)
C13	Intake air pressure sensor	The sensor should produce following voltage. ($0.50\text{ V} \leq \text{sensor voltage} < 4.85\text{ V}$) Without the above range, C13 is indicated.
		Intake air pressure sensor, wiring/coupler connection
C14	Throttle position sensor	The sensor should produce following voltage. ($0.20\text{ V} \leq \text{sensor voltage} < 4.80\text{ V}$) Without the above range, C14 is indicated.
		Throttle position sensor, wiring/coupler connection
C15	Engine coolant temperature sensor	The sensor voltage should be the following. ($0.15\text{ V} \leq \text{sensor voltage} < 4.5\text{ V}$) Without the above range, C15 is indicated.
		Engine coolant temperature sensor, wiring/coupler connection
C21	Intake air temperature sensor	The sensor voltage should be the following. ($0.15\text{ V} \leq \text{sensor voltage} < 4.5\text{ V}$) Without the above range, C21 is indicated.
		Intake air temperature sensor, wiring/coupler connection
C22	Atmospheric pressure sensor	The sensor voltage should be the following. ($0.50\text{ V} \leq \text{sensor voltage} < 4.5\text{ V}$) Without the above range, C22 is indicated.
		Atm. pressure sensor, wiring/coupler connection
C23	Tip over sensor	The sensor voltage should be the following for more than 2 sec. after ignition switch turns ON. ($0.20\text{ V} \leq \text{sensor voltage} < 4.80\text{ V}$) Without the above value, C23 is indicated.
		Tip over sensor, wiring/coupler connection
C24 or C25	Ignition signal	Crankshaft position sensor signal is produced and ECM determines the ignition signal but signal from ignition coil is interrupted continuous by 4 times or more. In this case, the code C24 or C25 is indicated.
		Ignition coil, wiring/coupler connection, power supply from the battery

C28	Secondary throttle valve actuator	No operating voltage is supplied from the ECM, C28 is indicated. STVA can not operate.
		STVA lead wire/coupler, STVA
C29	Secondary throttle valve position sensor	The sensor should produce following voltage. ($0.10\text{ V} \leq \text{sensor voltage} < 4.90\text{ V}$) Without the above range, C29 is indicated.
		Secondary throttle position sensor, wiring/coupler connection
C31	Gear position signal	Gear position signal voltage should be higher than the following for more than 2 seconds. (Gear position switch voltage $\geq 0.6\text{ V}$) Without the above value, C31 is indicated.
		Gear position sensor, wiring/coupler connection, gearshift cam, etc.
C32 or C33	Fuel injector	Crankshaft position sensor signal is produced and ECM determines the injection signal but fuel injection signal is interrupted continuous by 4 times or more. In this case, the code C32 or C33 is indicated.
		Injector, wiring/coupler connection, power supply to the injector
C41	Fuel pump relay	No voltage is applied to fuel pump although fuel pump relay is turned ON, or voltage is applied to fuel pump although fuel pump relay is turned OFF.
		Fuel pump relay, connecting lead, power source to fuel pump relay
C42	Ignition switch	Ignition switch signal is not input in the ECM.
		Ignition switch, lead wire/coupler
C44	Heated oxygen sensor (HO2S) [For E-02, 19]	During O2 feedback control, O2 sensor voltage is higher or lower than the specification. No signal is detected during engine operation or no electrical power is supplied from the battery.
		HO2S lead wire/coupler connection Battery voltage supply to the HO2S
C49	PAIR control solenoid valve (PAIR valve)	When no operating voltage is supplied from the ECM, C49 is indicated. PAIR valve can not operate.
		PAIR valve lead wire/coupler

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	Compression too low	
	1. Tappet clearance out of adjustment	Adjust.
	2. Worn valve guides or poor seating of valves	Repair or replace.
	3. Mistimed valves	Adjust.
	4. Excessively worn piston rings	Replace.
	5. Worn-down cylinder bores	Replace.
	6. Starter motor cranks too slowly	See electrical section.
	7. Poor seating of spark plugs	Retighten.
	Plugs not sparking	
	1. Fouled spark plugs	Clean or replace.
	2. Wet spark plugs	Clean and dry.
	3. Defective ignition coil or camshaft position sensor	Replace.
	4. Open or short in high-tension cords	Replace.
	5. Defective crankshaft position sensor	Replace.
	6. Defective ECM	Replace.
	7. Open-circuited wiring connections	Repair or replace.
	No fuel reaching the intake manifold	
	1. Clogged fuel filter or fuel hose	Clean or replace.
	2. Defective fuel pump	Replace.
	3. Defective fuel pressure regulator	Replace.
	4. Defective fuel injector	Replace.
	5. Defective fuel pump relay	Replace.
	6. Defective ECM	Replace.
	7. Open-circuited wiring connection	Check and repair.
	Incorrect fuel/air mixture	
	1. Throttle position sensor out of adjustment	Adjust.
	2. Defective fuel pump	Replace.
	3. Defective fuel pressure regulator	Replace.
	4. Defective throttle position sensor	Replace.
	5. Defective crankshaft position sensor	Replace.
	6. Defective intake air pressure sensor	Replace.
	7. Defective atmospheric pressure sensor	Replace.
	8. Defective ECM	Replace.
	9. Defective engine coolant temp. sensor	Replace.
	10. Defective intake air temp. sensor	Replace.
Engine idles poorly.	1. Tappet clearance out of adjustment	Adjust.
	2. Poor seating of valves	Replace or repair.
	3. Defective valve guides	Replace.
	4. Worn down camshaft	Replace.
	5. Too wide spark plug gaps	Adjust or replace.
	6. Defective ignition coil	Replace.
	7. Defective crankshaft position sensor	Replace.
	8. Defective ECM	Replace.
	9. Defective throttle position sensor	Replace.
	10. Defective fuel pump	Replace.
	11. Imbalanced throttle valve	Adjust.
	12. Damaged or cracked vacuum hose	Replace.

Complaint	Symptom and possible causes	Remedy
Engine stalls often.	Incorrect fuel/air mixture	
	1. Defective intake air pressure sensor or circuit	Repair or replace.
	2. Clogged fuel filter	Clean or replace.
	3. Defective fuel pump	Replace.
	4. Defective fuel pressure regulator	Replace.
	5. Damaged or cracked vacuum hose	Replace.
	6. Defective engine coolant temp. sensor	Replace.
	7. Defective thermostat	Replace.
	8. Defective intake air temp. sensor	Replace.
	Fuel injector improperly operating	
	1. Defective fuel injector	Replace.
	2. No injection signal from ECM	Repair or replace.
	3. Open or short circuited wiring connection	Repair or replace.
	4. Defective battery or low battery voltage	Replace or recharge.
	Control circuit or sensor improperly operating	
	1. Defective ECM	Replace.
	2. Defective fuel pressure regulator	Replace.
	3. Defective throttle position sensor	Replace.
	4. Defective intake air temp. sensor	Replace.
	5. Defective camshaft position sensor	Replace.
	6. Defective crankshaft position sensor	Replace.
	7. Defective engine coolant temp. sensor	Replace.
	8. Defective fuel pump relay	Replace.
	Engine internal parts improperly operating	
	1. Fouled spark plugs	Clean.
	2. Defective crankshaft position sensor or ECM	Replace.
	3. Clogged fuel hose	Clean.
	4. Tappet clearance out of adjustment	Adjust.

Complaint	Symptom and possible causes	Remedy
Noisy engine	Excessive valve chatter 1. Too large tappet clearance 2. Weakened or broken valve springs 3. Worn tappet or cam surface 4. Worn and burnt camshaft journal	Adjust. Replace. Replace. Replace.
	Noise seems to come from piston 1. Worn down pistons or cylinders 2. Combustion chambers fouled with carbon 3. Worn piston pins or piston pin bore 4. Worn piston rings or ring grooves	Replace. Clean. Replace. Replace.
	Noise seems to come from timing chain 1. Stretched chain 2. Worn sprockets 3. Tension adjuster not working	Replace. Replace. Repair or replace.
	Noise seems to come from clutch 1. Worn splines of countershaft or hub 2. Worn teeth of clutch plates 3. Distorted clutch plates, driven and drive 4. Worn clutch release bearing 5. Weakened clutch dampers	Replace. Replace. Replace. Replace. Replace the primary driven gear.
	Noise seems to come from crankshaft 1. Rattling bearings due to wear 2. Worn and burnt big-end bearings 3. Worn and burnt journal bearings 4. Too large thrust clearance	Replace. Replace. Replace. Replace thrust bearing.
	Noise seems to come from transmission 1. Worn or rubbing gears 2. Worn splines 3. Worn or rubbing primary gears 4. Worn bearings	Replace. Replace. Replace. Replace.
	Noise seems to come from water pump 1. Too much play on pump shaft bearing 2. Worn or damaged impeller shaft 3. Worn or damaged mechanical seal 4. Contact between pump case and impeller	Replace. Replace. Replace. Replace.
	Engine runs poorly in high speed range.	
	Defective engine internal/electrical parts 1. Weakened valve springs 2. Worn camshafts 3. Valve timing out of adjustment 4. Too narrow spark plug gaps 5. Ignition not advanced sufficiently due to poorly working timing advance circuit 6. Defective ignition coil 7. Defective crankshaft position sensor 8. Defective ECM 9. Clogged air cleaner element 10. Clogged fuel hose, resulting in inadequate fuel supply to injector 11. Defective fuel pump 12. Defective throttle position sensor 13. Defective secondary throttle position sensor or its actuator	Replace. Replace. Adjust. Adjust. Replace ECM. Replace. Replace. Replace. Clean or replace. Clean and prime. Replace. Replace. Replace.

Complaint	Symptom and possible causes	Remedy
Engine runs poorly in high speed range.	Defective air flow system	
	1. Clogged air cleaner element	Clean or replace.
	2. Defective throttle valve	Adjust or replace.
	3. Defective secondary throttle valve	Adjust or replace.
	4. Sucking air from throttle body joint	Repair or replace.
	5. Defective ECM	Replace.
	6. Imbalanced throttle valve synchronization	Adjust.
	Defective control circuit or sensor	
	1. Low fuel pressure	Repair or replace.
	2. Defective throttle position sensor	Replace.
	3. Defective intake air temp. sensor	Replace.
	4. Defective camshaft position sensor	Replace.
	5. Defective crankshaft position sensor	Replace.
	6. Defective gear position switch	Replace.
	7. Defective intake air pressure sensor	Replace.
	8. Defective atmospheric pressure sensor	Replace.
	9. Defective ECM	Replace.
	10. Throttle position sensor out of adjustment	Adjust.
	11. Defective secondary throttle position sensor and/or secondary throttle valve actuator	Replace.
Engine lacks power.	Defective engine internal/electrical parts	
	1. Loss of tappet clearance	Adjust.
	2. Weakened valve springs	Replace.
	3. Valve timing out of adjustment	Adjust.
	4. Worn piston rings or cylinders	Replace.
	5. Poor seating of valves	Repair.
	6. Fouled spark plug	Clean or replace.
	7. Incorrect spark plug	Adjust or replace.
	8. Clogged injector	Clean or replace.
	9. Throttle position sensor out of adjustment	Adjust.
	10. Clogged air cleaner element	Clean or replace.
	11. Imbalanced throttle valve synchronization	Adjust.
	12. Sucking air from throttle valve or vacuum hose	Retighten or replace.
	13. Too much engine oil	Drain out excess oil.
	14. Defective fuel pump or ECM	Replace.
	15. Defective crankshaft position sensor and ignition coil	Replace.
	Defective control circuit or sensor	
	1. Low fuel pressure	Repair or replace.
	2. Defective throttle position sensor	Replace.
	3. Defective intake air temp. sensor	Replace.
	4. Defective camshaft position sensor	Replace.
	5. Defective crankshaft position sensor	Replace.
	6. Defective gear position switch	Replace.
	7. Defective intake air pressure sensor	Replace.
	8. Defective atmospheric pressure sensor	Replace.
	9. Defective ECM	Replace.
	10. Imbalanced throttle valve synchronization	Adjust.
	11. Throttle position sensor out of adjustment	Adjust.
	12. Defective secondary throttle position sensor and/or secondary throttle valve actuator	Replace.

Complaint	Symptom and possible causes	Remedy
Engine overheats	Defective engine internal parts	
	1. Heavy carbon deposit on piston crowns	Clean.
	2. Not enough oil in the engine	Add oil.
	3. Defective oil pump or clogged oil circuit	Replace or clean.
	4. Sucking air from intake pipes	Retighten or replace.
	5. Use of incorrect engine oil	Change.
	6. Defective cooling system	See radiator section.
	Lean fuel/air mixture	
	1. Short-circuited intake air pressure sensor/lead wire	Repair or replace.
	2. Short-circuited intake air temp. sensor/lead wire	Repair or replace.
	3. Sucking air from intake pipe joint	Repair or replace.
	4. Defective fuel injector	Replace.
	5. Defective engine coolant temp. sensor	Replace.
	The other factors	
	1. Ignition timing too advanced due to defective timing advance system (engine coolant temp. sensor, gear position switch, crankshaft position sensor and ECM)	Replace.
	2. Drive chain too tight	Adjust.
Dirty or heavy exhaust smoke	1. Too much engine oil in the engine	Check with the inspection window. Drain excess oil.
	2. Worn piston rings or cylinders	Replace.
	3. Worn valve guides	Replace.
	4. Scored or scuffed cylinder walls	Replace.
	5. Worn valves stems	Replace.
	6. Defective stem seal	Replace.
	7. Worn oil ring side rails	Replace.
Slipping clutch	1. Weakened clutch springs	Replace.
	2. Worn or distorted pressure plate	Replace.
	3. Distorted clutch plates or clutch plate	Replace.
Dragging clutch	1. Some clutch spring weakened while others are not	Replace.
	2. Distorted pressure plate or clutch plate	Replace.
Transmission will not shift.	1. Broken gearshift cam	Replace.
	2. Distorted gearshift forks	Replace.
	3. Worn gearshift pawl	Replace.
Transmission will not shift back.	1. Broken return spring on shift shaft	Replace.
	2. Rubbing or sticky shift shaft	Repair or replace.
	3. Distorted or worn gearshift forks	Replace.
Transmission jumps out of gear.	1. Worn shifting gears on driveshaft or countershaft	Replace.
	2. Distorted or worn gearshift forks	Replace.
	3. Weakened stopper spring on gearshift stopper	Replace.

RADIATOR (COOLING SYSTEM)

Complaint	Symptom and possible causes	Remedy
Engine overheats	1. Not enough engine coolant	Add engine coolant.
	2. Radiator core clogged with dirt or scale	Clean.
	3. Faulty cooling fan	Repair or replace.
	4. Defective cooling fan thermo-switch	Replace.
	5. Clogged water passage	Clean.
	6. Air trapped in the cooling circuit	Bleed air.
	7. Defective water pump	Replace.
	8. Use of incorrect engine coolant	Replace.
	9. Defective thermostat	Replace.
Engine overcools	1. Defective cooling fan thermo-switch	Replace.
	2. Extremely cold weather	Put on radiator cover.
	3. Defective thermostat	Replace.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Heavy steering	<ol style="list-style-type: none"> 1. Overtightened steering stem nut 2. Broken bearing in steering stem 3. Distorted steering stem 4. Not enough pressure in tires 	Adjust. Replace. Replace. Adjust.
Wobbly handlebars	<ol style="list-style-type: none"> 1. Loss of balance between right and left front forks 2. Distorted front fork 3. Distorted front axle or crooked tire 4. Loose steering stem nut 5. Worn or incorrect tire or wrong tire pressure 6. Worn bearing/race in steering stem 	Replace. Repair or replace. Replace. Adjust. Adjust or replace. Replace.
Wobbly front wheel	<ol style="list-style-type: none"> 1. Distorted wheel rim 2. Worn front wheel bearings 3. Defective or incorrect tire 4. Loose axle or axle pinch bolt 5. Incorrect front fork oil level 	Replace. Replace. Replace. Retighten. Adjust.
Front suspension too soft	<ol style="list-style-type: none"> 1. Weakened springs 2. Not enough fork oil 3. Wrong viscous fork oil 4. Improperly set front fork spring adjuster 5. Improperly set front fork damping force adjuster 	Replace. Replenish. Replace. Adjust. Adjust.
Front suspension too stiff	<ol style="list-style-type: none"> 1. Too viscous fork oil 2. Too much fork oil 3. Improperly set front fork spring adjuster 4. Improperly set front fork damping force adjuster 5. Bent front axle 	Replace. Drain excess oil. Adjust. Adjust. Replace.
Noisy front suspension	<ol style="list-style-type: none"> 1. Not enough fork oil 2. Loose bolts on suspension 	Replenish. Retighten.
Wobbly rear wheel	<ol style="list-style-type: none"> 1. Distorted wheel rim 2. Worn rear wheel bearing or swingarm bearings 3. Defective or incorrect tire 4. Worn swingarm and rear suspensions 5. Loose nuts or bolts on rear suspensions 	Replace. Replace. Replace. Replace. Retighten.
Rear suspension too soft	<ol style="list-style-type: none"> 1. Weakened spring of shock absorber 2. Leakage of oil from shock absorber 3. Improperly set rear spring unit adjuster 4. Improperly set damping force adjuster 	Replace. Replace. Adjust. Adjust.
Rear suspension too stiff	<ol style="list-style-type: none"> 1. Bent shock absorber shaft 2. Bent swingarm pivot shaft 3. Worn swingarm and suspension bearings 4. Improperly set rear suspension adjuster 5. Improperly set damping force adjuster 	Replace. Replace. Replace. Adjust. Adjust.
Noisy rear suspension	<ol style="list-style-type: none"> 1. Loose nuts or bolts on rear suspension 2. Worn swingarm and suspension bearings 	Retighten. Replace.

BRAKES

Complaint	Symptom and possible causes	Remedy
Insufficient brake power	<ol style="list-style-type: none"> 1. Leakage of brake fluid from hydraulic system 2. Worn pads 3. Oil adhesion on friction surface of pads/shoe 4. Worn disc 5. Air in hydraulic system 6. Not enough brake fluid in the reservoir 	Repair or replace. Replace. Clean disc and pads. Replace. Bleed air. Replenish.
Brake squeaking	<ol style="list-style-type: none"> 1. Carbon adhesion on pad surface 2. Tilted pad 3. Damaged wheel bearing 4. Loose front-wheel axle or rear-wheel axle 5. Worn pads or disc 6. Foreign material in brake fluid 7. Clogged return port of master cylinder 	Repair surface with sandpaper. Correct pad fitting or replace. Replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder.
Excessive brake lever stroke	<ol style="list-style-type: none"> 1. Air in hydraulic system 2. Insufficient brake fluid 3. Improper quality of brake fluid 	Bleed air. Replenish fluid to specified level; bleed air. Replace with correct fluid.
Leakage of brake fluid	<ol style="list-style-type: none"> 1. Insufficient tightening of connection joints 2. Cracked hose 3. Worn piston and/or cup 	Tighten to specified torque. Replace. Replace piston and/or cup.
Brake drags	<ol style="list-style-type: none"> 1. Rusty part 2. Insufficient brake lever or brake pedal pivot lubrication 	Clean and lubricate. Lubricate.

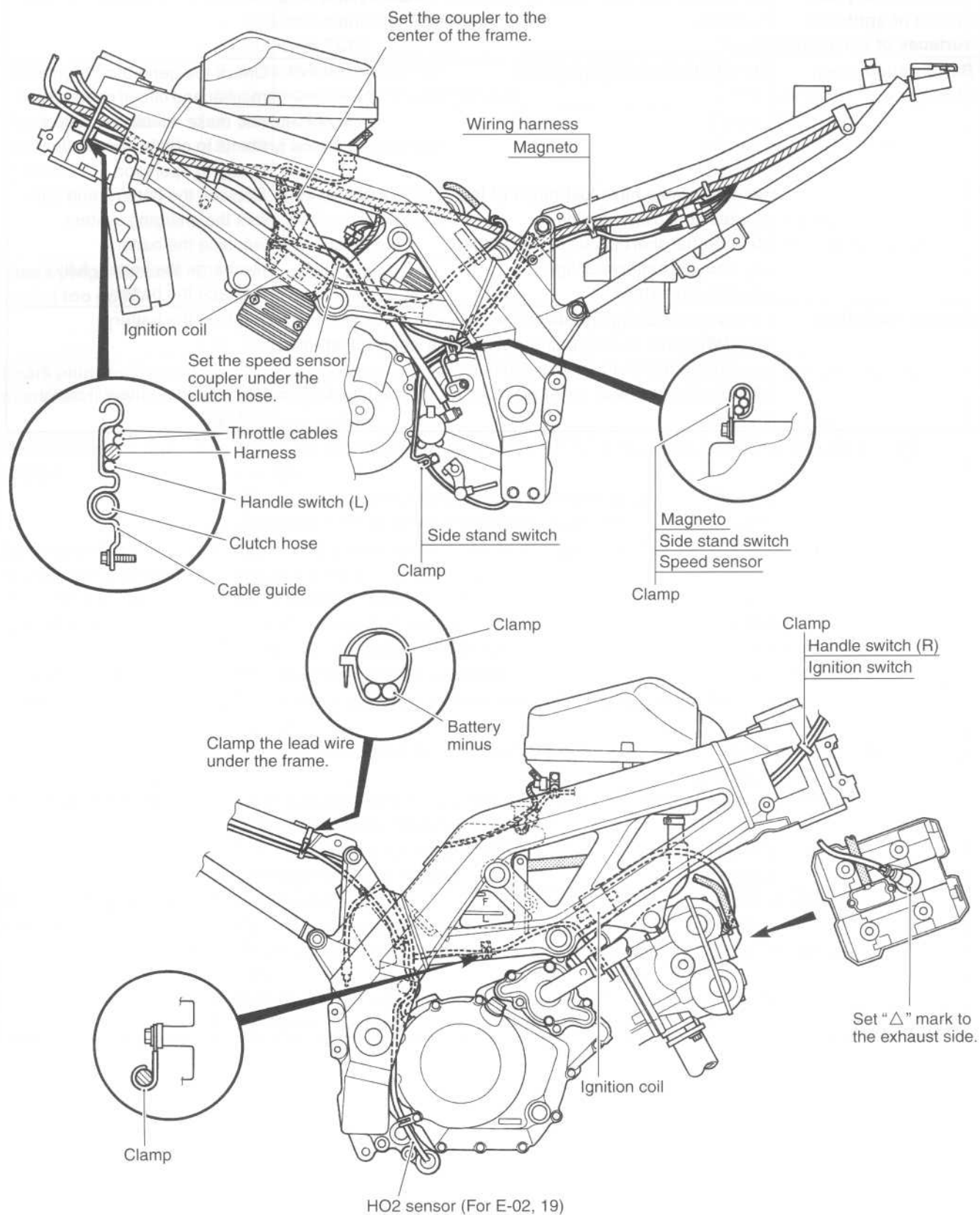
ELECTRICAL

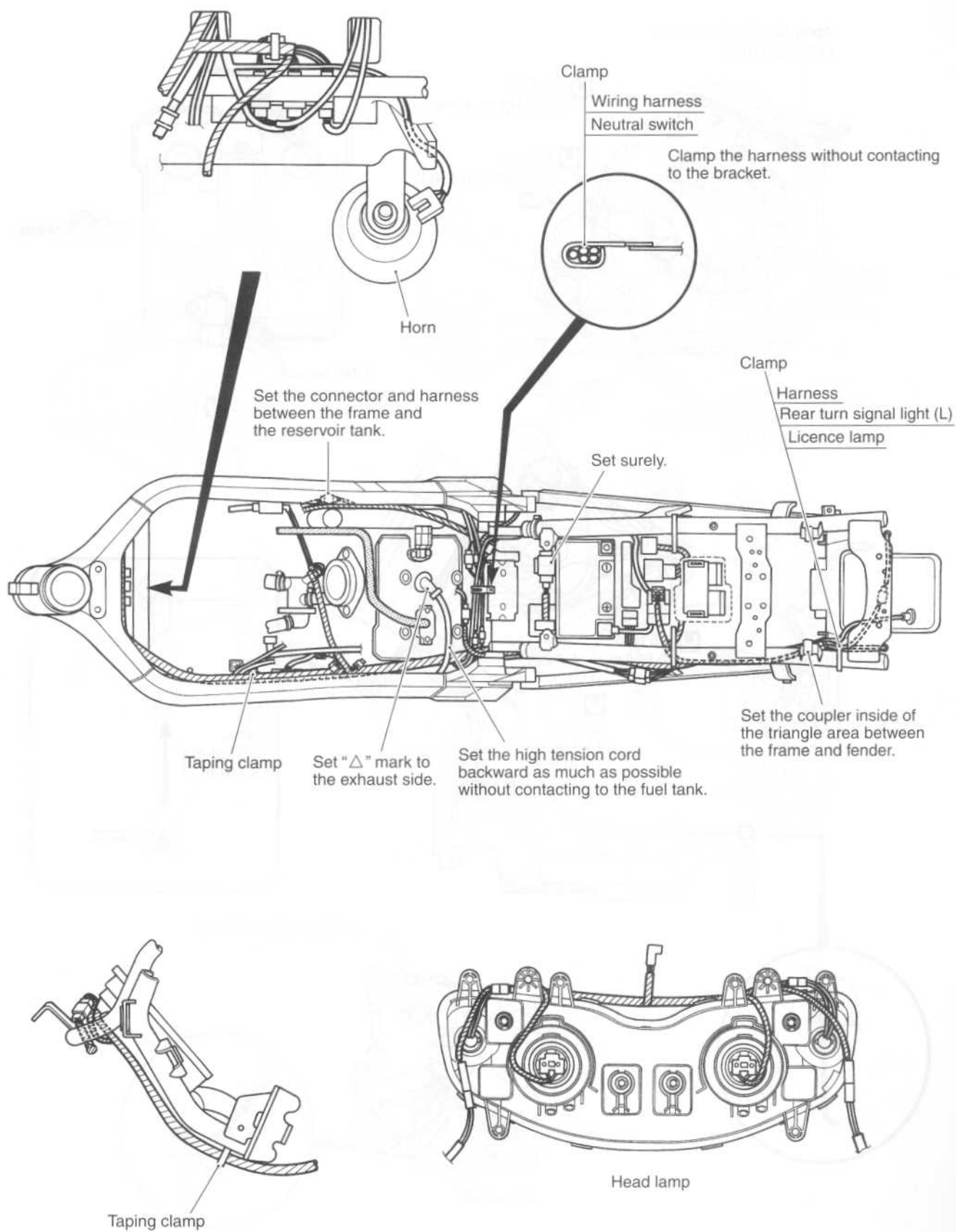
Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking	<ol style="list-style-type: none"> 1. Defective ignition coil or camshaft position sensor 2. Defective spark plugs 3. Defective crankshaft position sensor 4. Defective ECM 5. Defective tip over sensor 6. Open-circuited wiring connections 	Replace. Replace. Replace. Replace. Replace. Check and repair.
Spark plugs soon become fouled with carbon.	<ol style="list-style-type: none"> 1. Mixture too rich 2. Idling speed set too high 3. Incorrect gasoline 4. Dirty air cleaner element 5. Too cold spark plugs 	Consult FI system. Adjust fast idle or throttle stop screw. Change. Clean or replace. Replace with hot type plugs.
Spark plugs become fouled too soon.	<ol style="list-style-type: none"> 1. Worn piston rings 2. Worn piston or cylinders 3. Excessive clearance of valve stems in valve guides 4. Worn stem oil seal 	Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	<ol style="list-style-type: none"> 1. Too hot spark plugs 2. Loose spark plugs 3. Too lean mixture 	Replace with cold type plugs. Retighten. Consult FI system.
Generator does not charge.	<ol style="list-style-type: none"> 1. Open- or short-circuited lead wires, or loose lead connection 2. Short-circuited, grounded or open generator coils 3. Short-circuited or punctured regulator/rectifiers 	Repair or replace or retighten. Replace. Replace.
Generator does charge, but charging rate is below the specification.	<ol style="list-style-type: none"> 1. Lead wires tend to get short- or open-circuited or loosely connected at terminals 2. Grounded or open-circuited stator coils or generator 3. Defective regulator/rectifier 4. Defective cell plates in the battery 	Repair or retighten. Replace. Replace. Replace the battery.
Generator over-charges	<ol style="list-style-type: none"> 1. Internal short-circuit in the battery 2. Damaged or defective resistor element in the regulator/rectifier 3. Poorly grounded regulator/rectifier 	Replace the battery. Replace. Clean and tighten ground connection.
Unstable charging	<ol style="list-style-type: none"> 1. Lead wire insulation frayed due to vibration, resulting in intermittent short-circuiting 2. Internally short-circuited generator 3. Defective regulator/rectifier 	Repair or replace. Replace. Replace.
Starter button is not effective.	<ol style="list-style-type: none"> 1. Run down battery 2. Defective switch contacts 3. Brushes not seating properly on starter motor commutator 4. Defective starter relay/starter interlock switch. 5. Defective main fuse 	Repair or replace. Replace. Repair or replace. Replace. Replace.

BATTERY

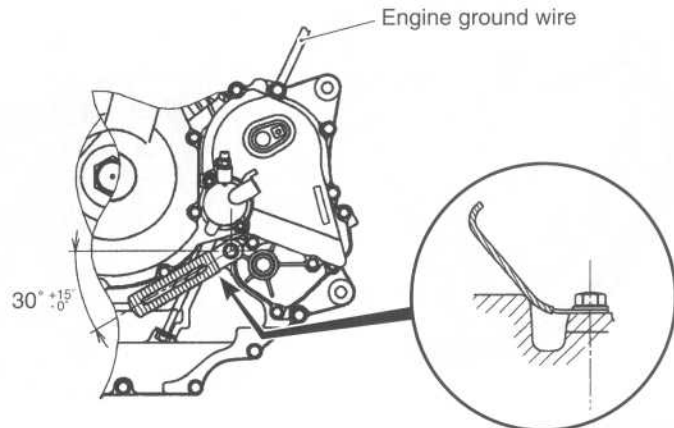
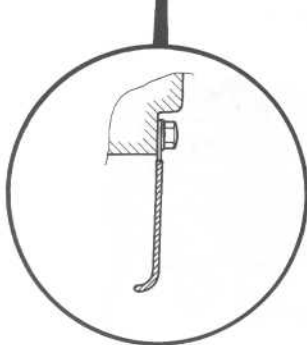
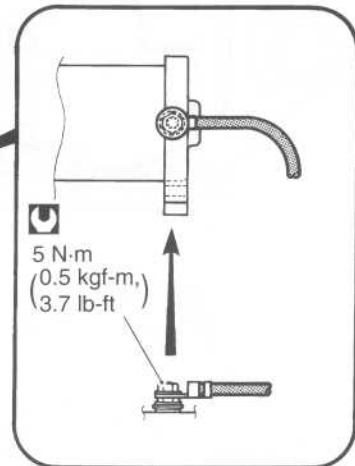
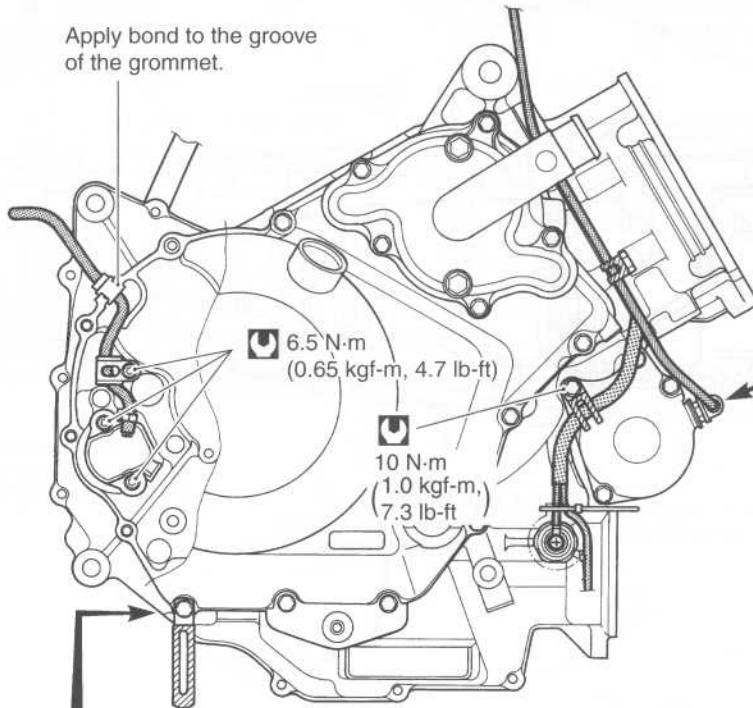
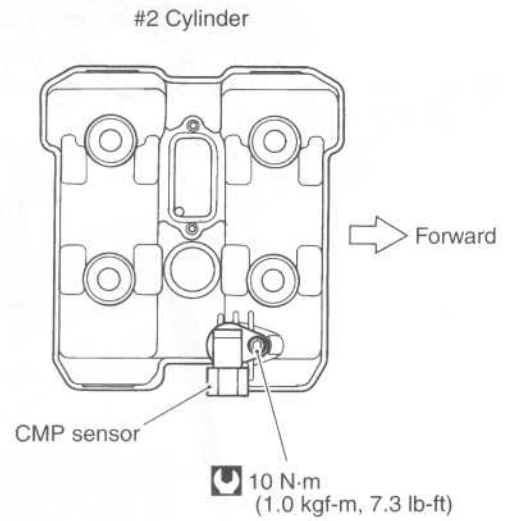
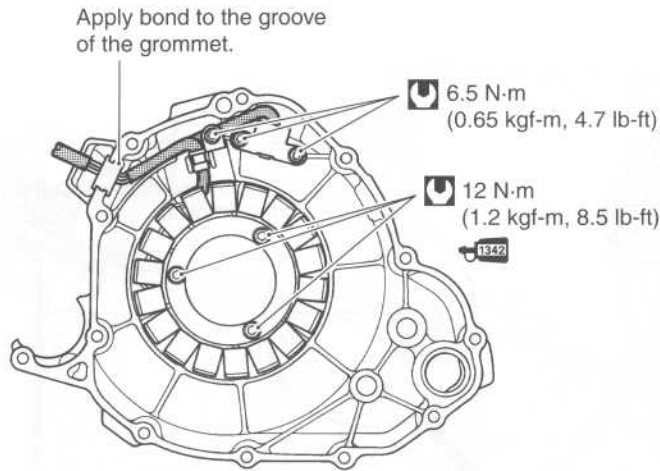
Complaint	Symptom and possible causes	Remedy
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates	<ol style="list-style-type: none"> 1. Cracked battery case 2. Battery has been left in a run-down condition for a long time. 	<p>Replace the battery.</p> <p>Replace the battery.</p>
Battery runs down quickly.	<ol style="list-style-type: none"> 1. Trouble in charging system 2. Cell plates have lost much of their active material as a result of overcharging. 3. Internal short-circuit in the battery 4. Too low battery voltage 5. Too old battery 	<p>Check the generator, regulator/rectifier and circuit connections and make necessary adjustments to obtain specified charging operation.</p> <p>Replace the battery, and correct the charging system.</p> <p>Replace the battery.</p> <p>Recharge the battery fully.</p> <p>Replace the battery.</p>
Battery "sulfation"	<ol style="list-style-type: none"> 1. Incorrect charging rate (When not in use battery should be checked at least once a month to avoid sulfation.) 2. The battery was left unused in a cold climate for too long. 	<p>Replace the battery.</p> <p>Replace the battery if badly sulfated.</p>

WIRE HARNESS, CABLE AND HOSE ROUTING WIRE HARNESS ROUTING

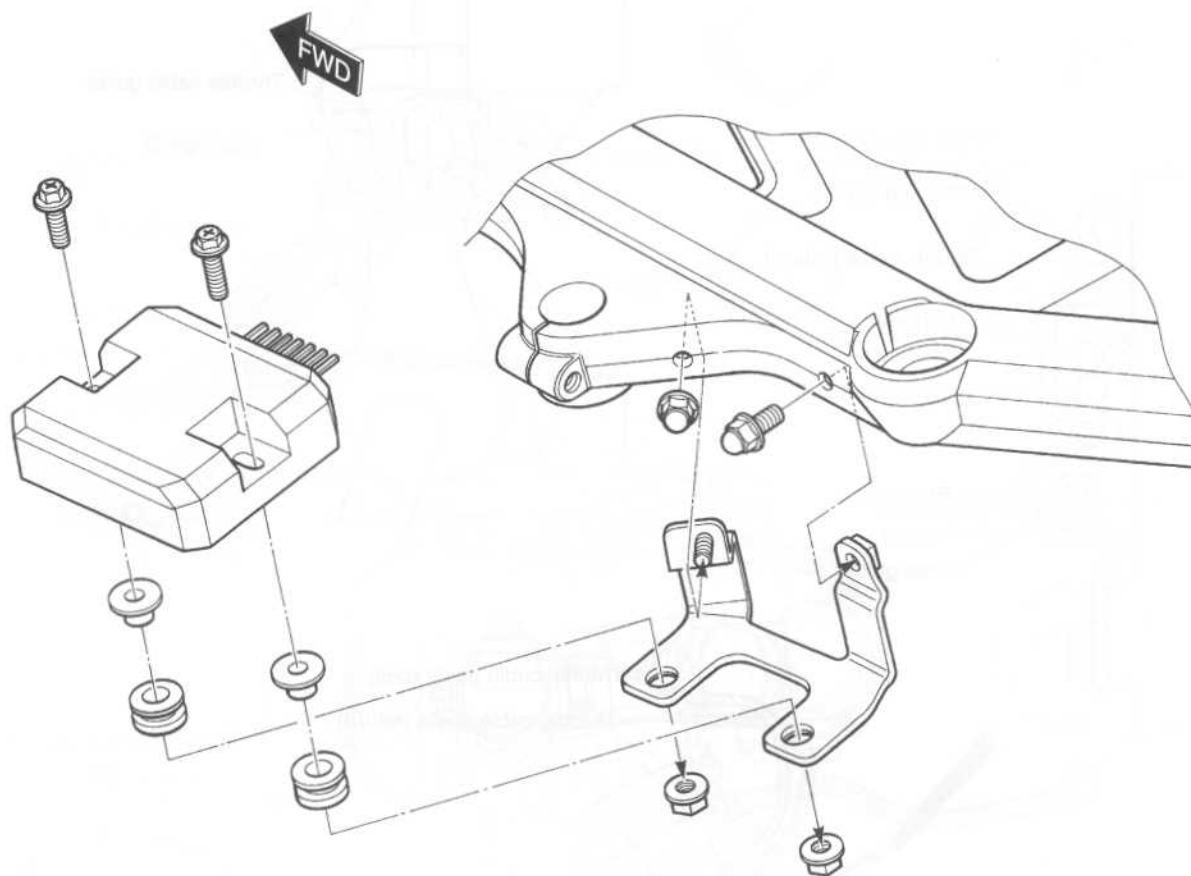




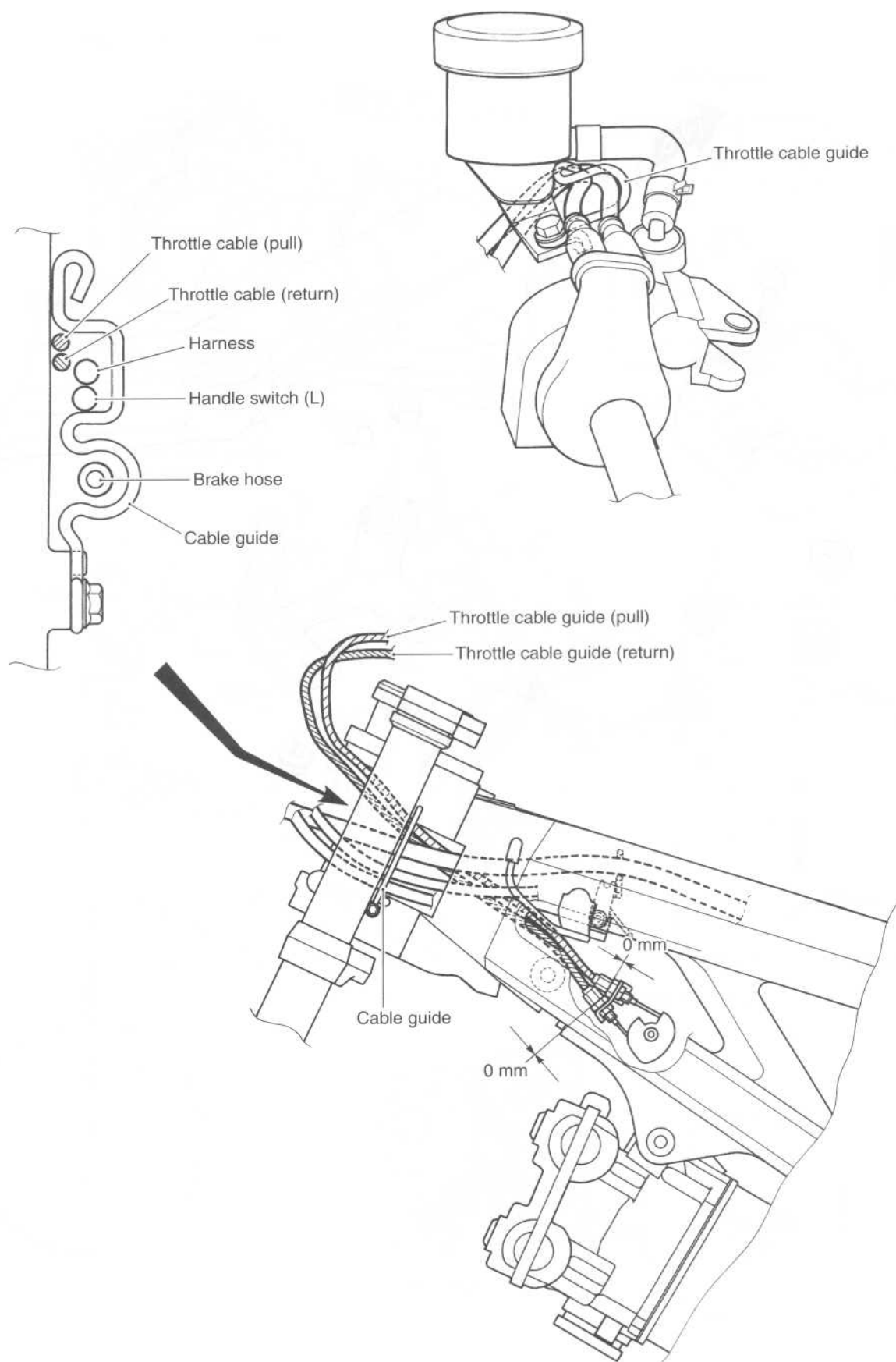
ENGINE ELECTRICAL PARTS SET-UP



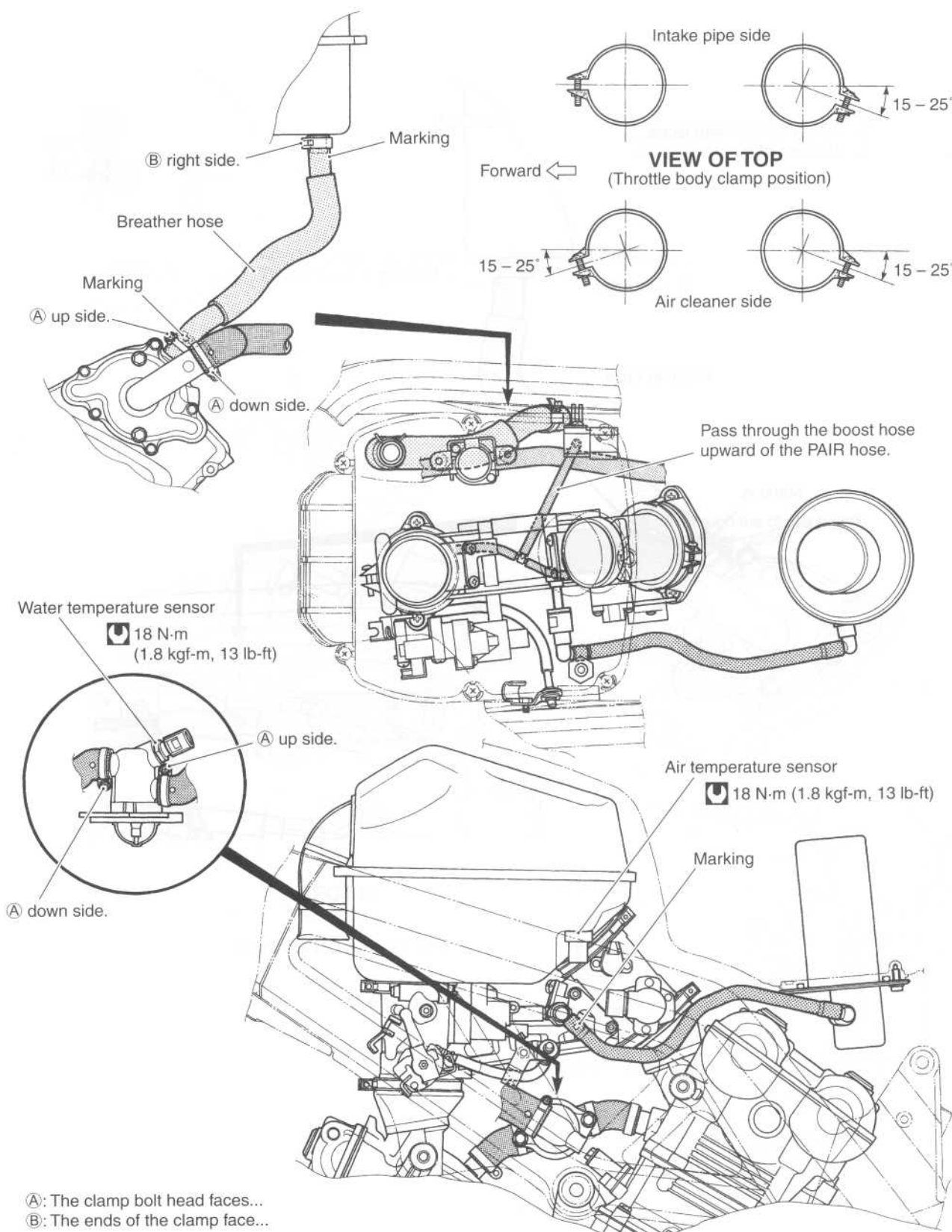
REGULATOR/RECTIFIER INSTALLATION



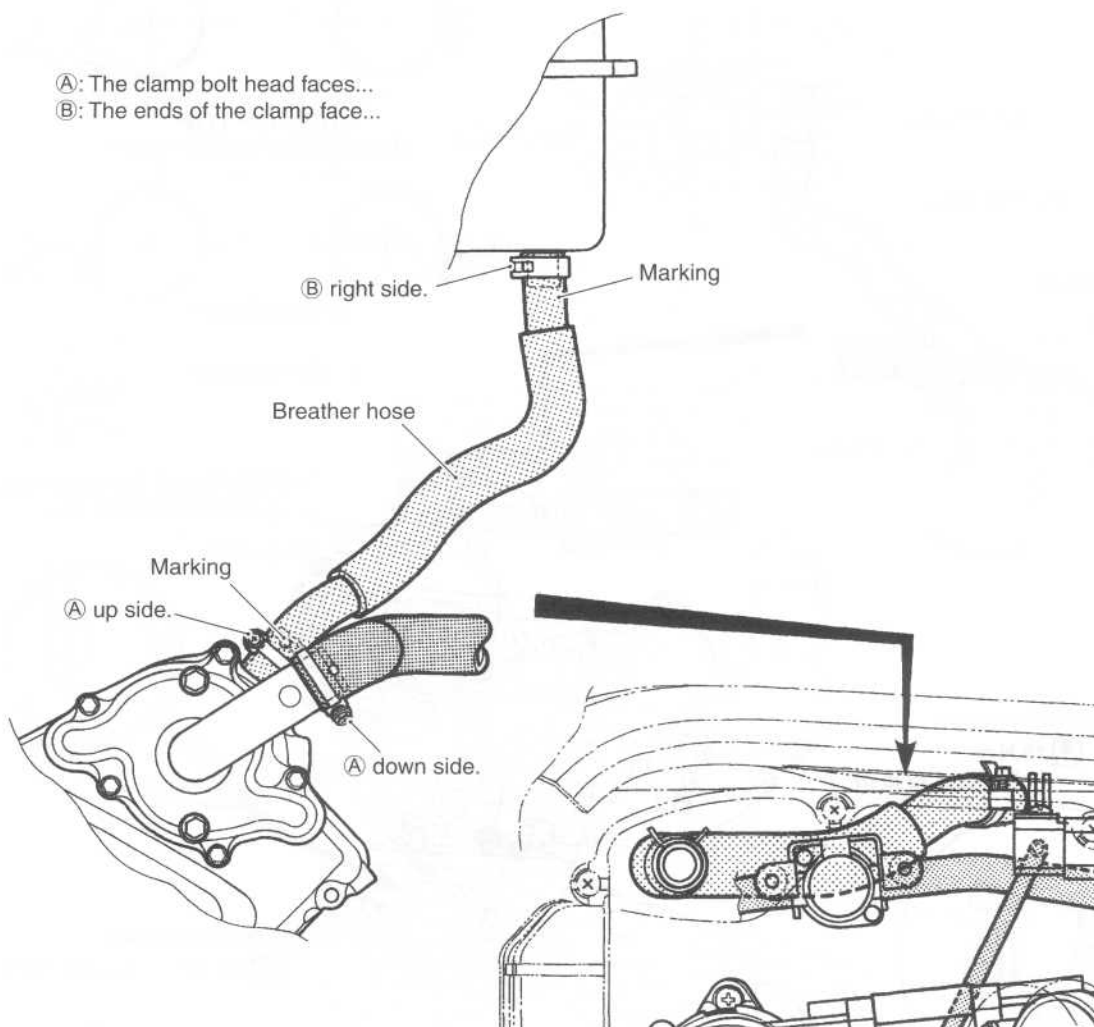
THROTTLE CABLE ROUTING



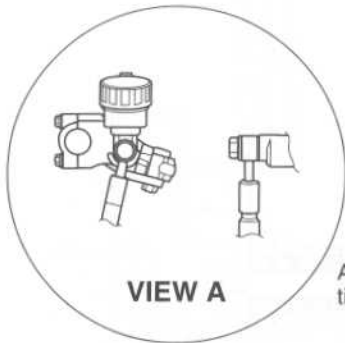
THROTTLE BODY INSTALLATION/HOSE ROUTING



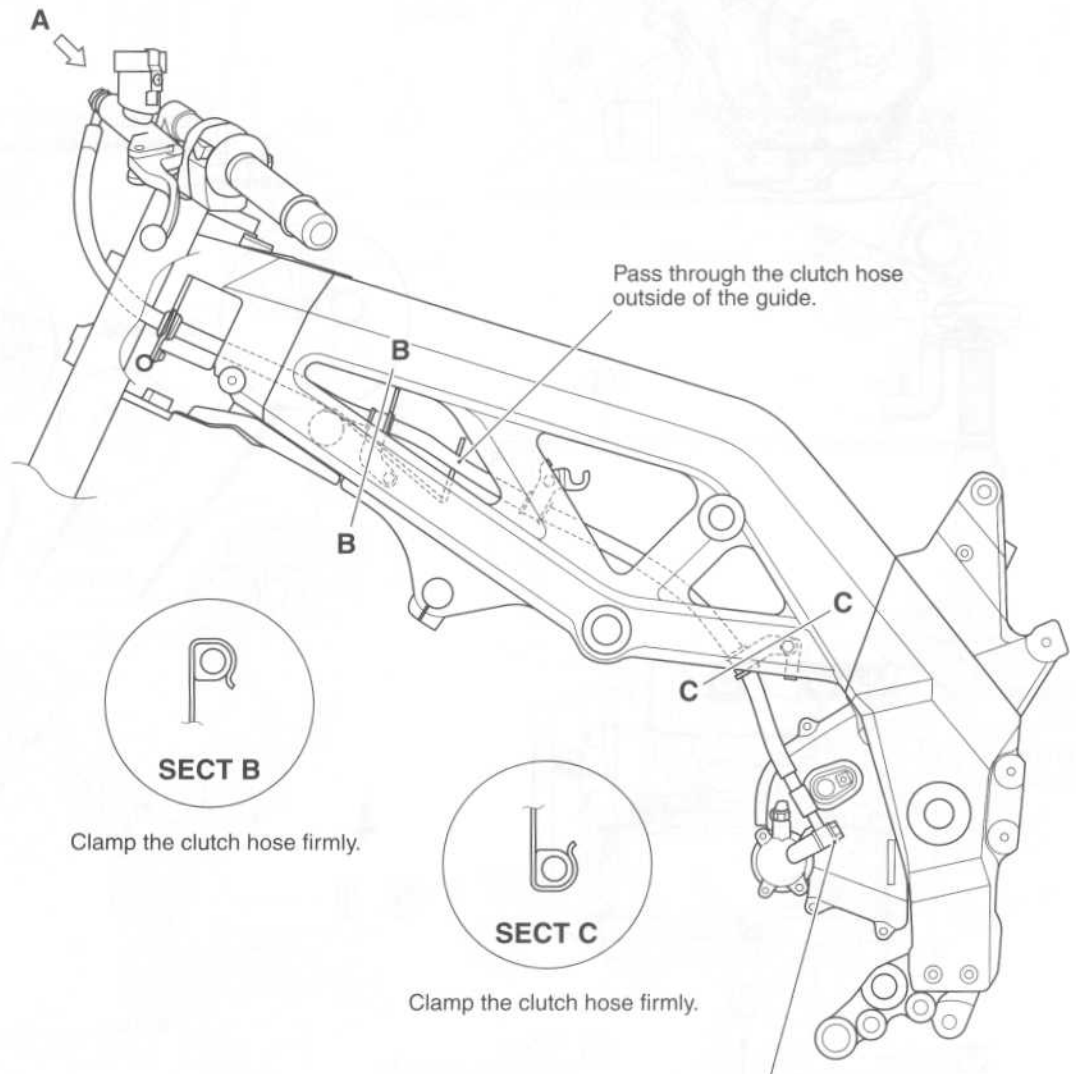
CRANKCASE BREATHER HOSE ROUTING



CLUTCH HOSE ROUTING



After the clutch cable hose union touching to the stopper, tighten the union bolt.



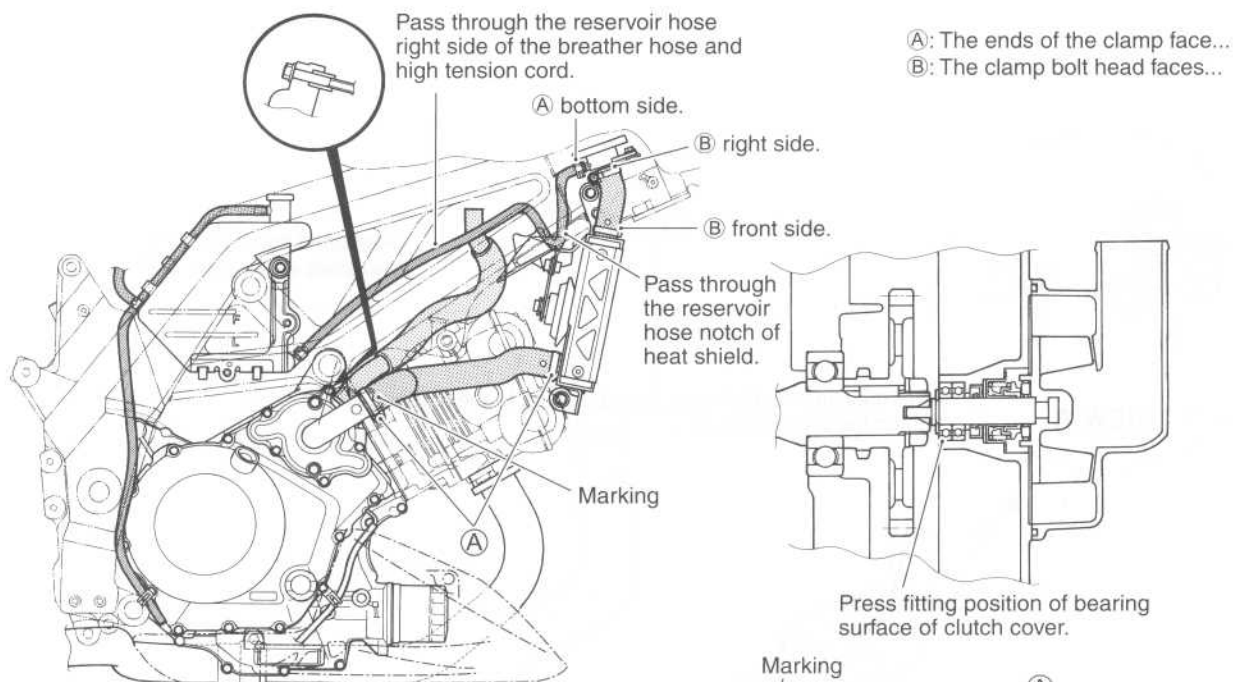
Clamp the clutch hose firmly.



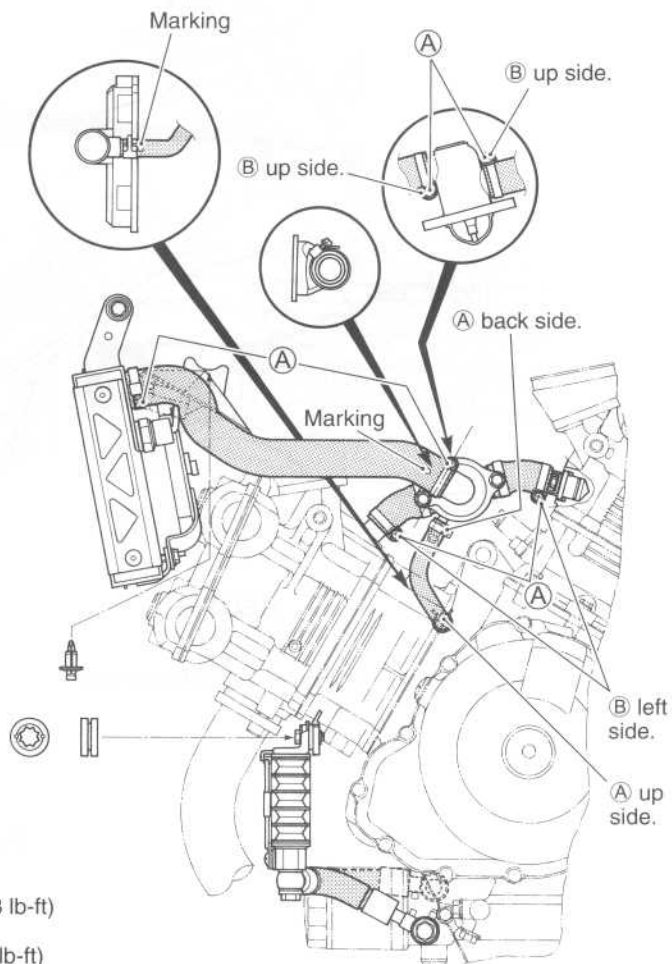
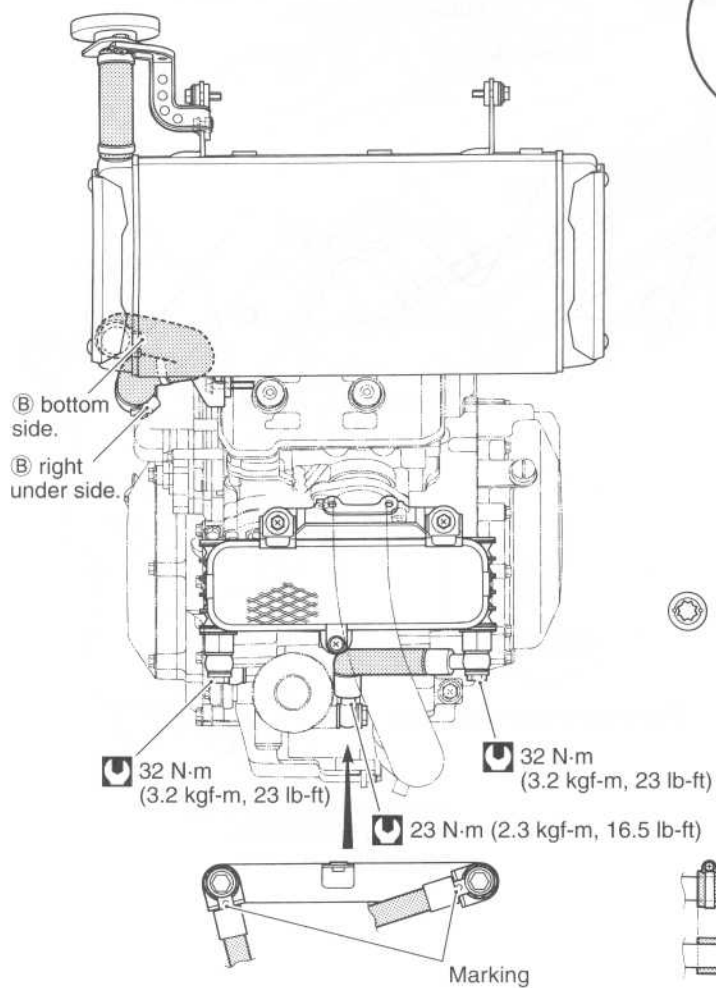
Clamp the clutch hose firmly.

After the clutch hose union touching to the stopper, tighten the union bolt.

COOLING SYSTEM HOSE ROUTING

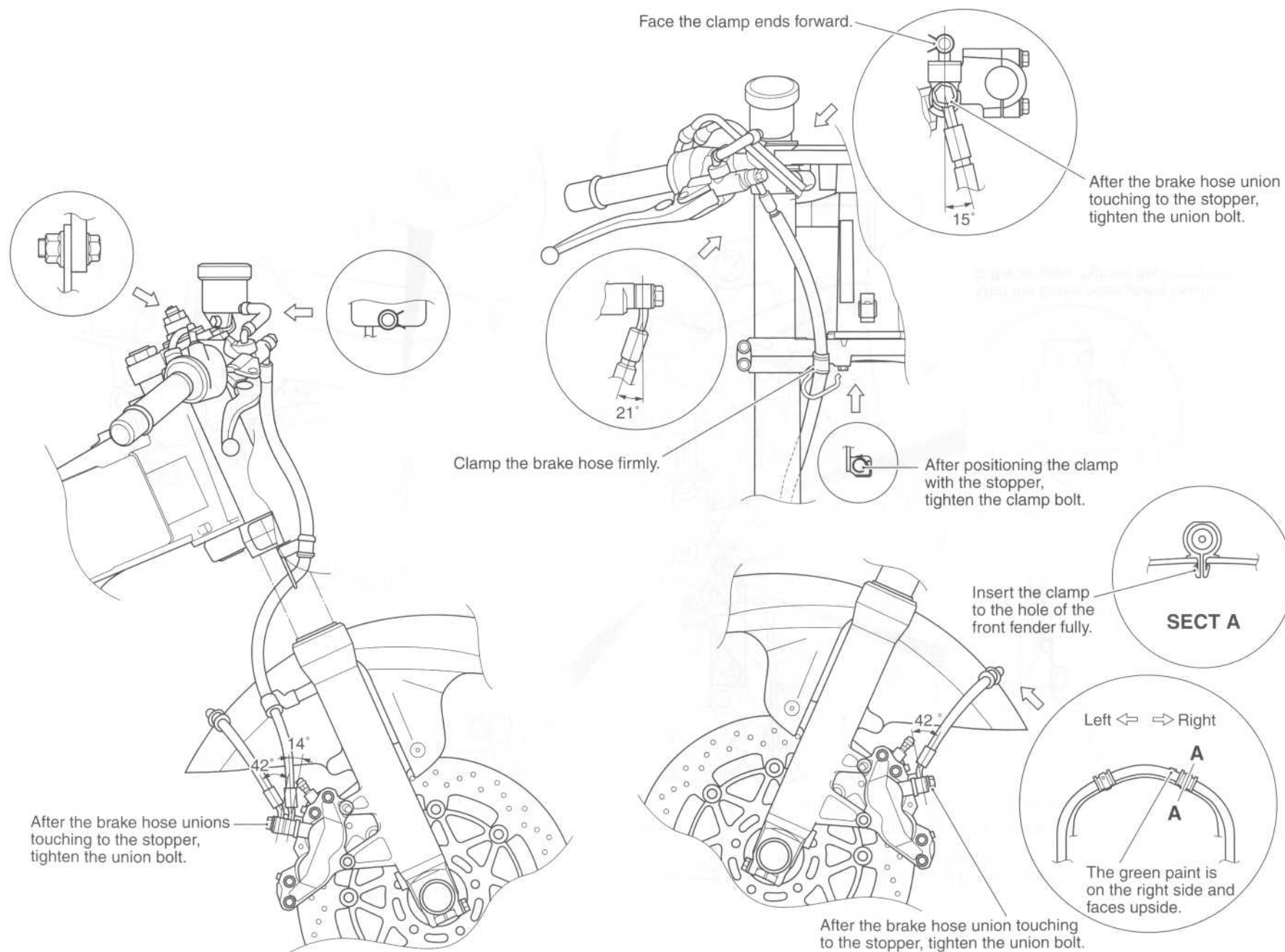


Press fitting position of bearing surface of clutch cover.

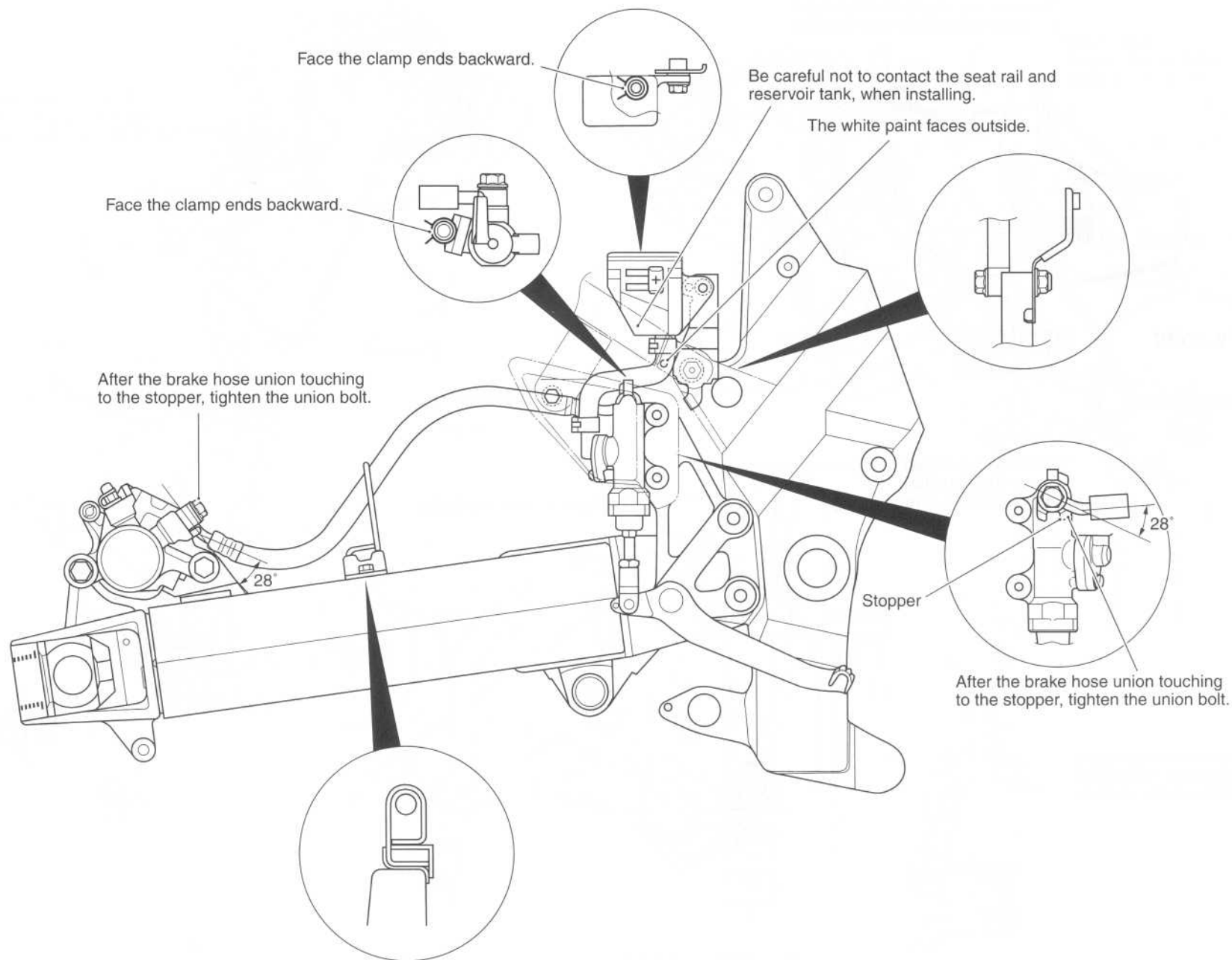


A Tighten the clamp bolt to the specified torque.
2 N-m (0.2 kgf-m, 1.5 lb-ft)

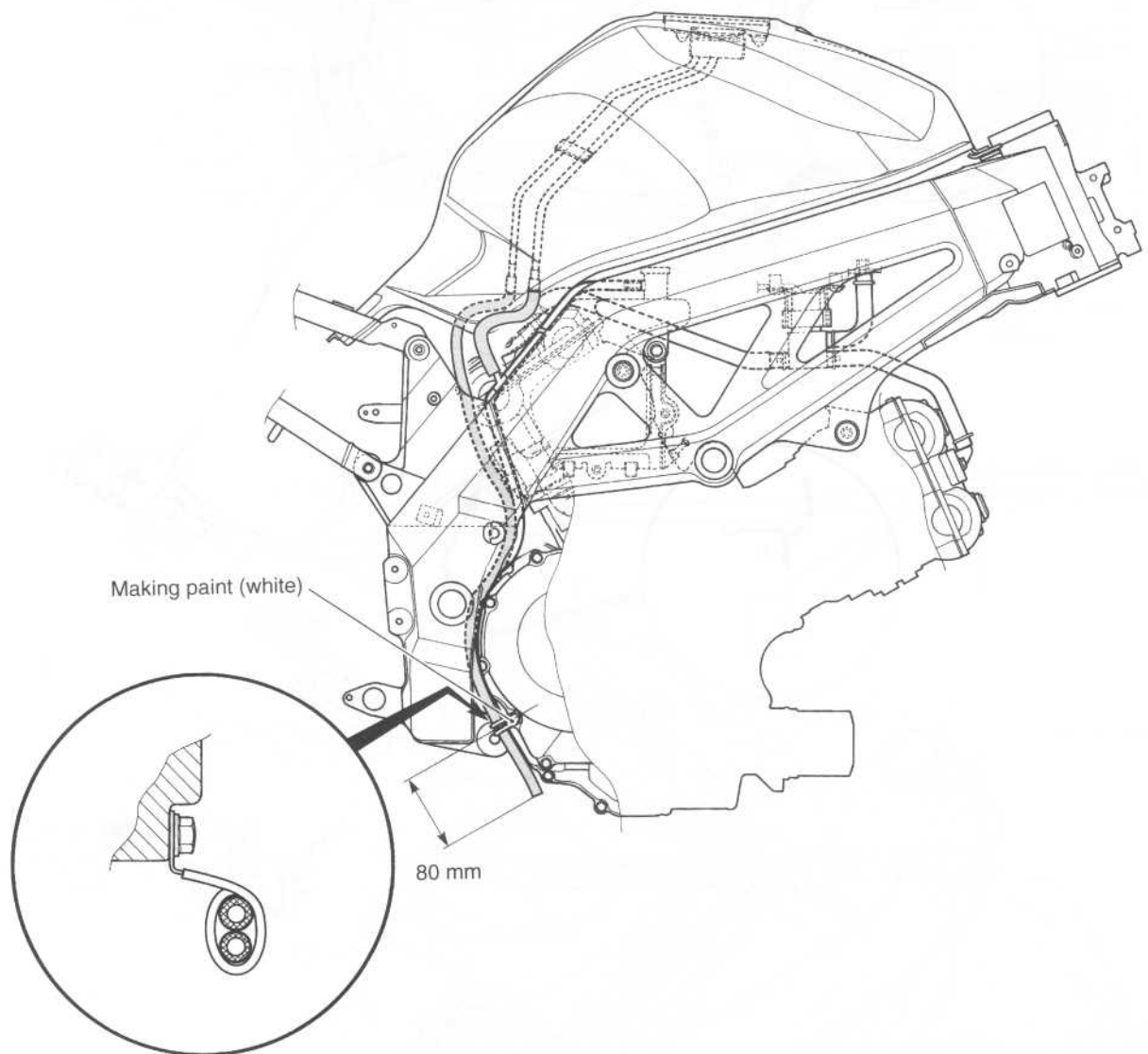
FRONT BRAKE HOSE ROUTING



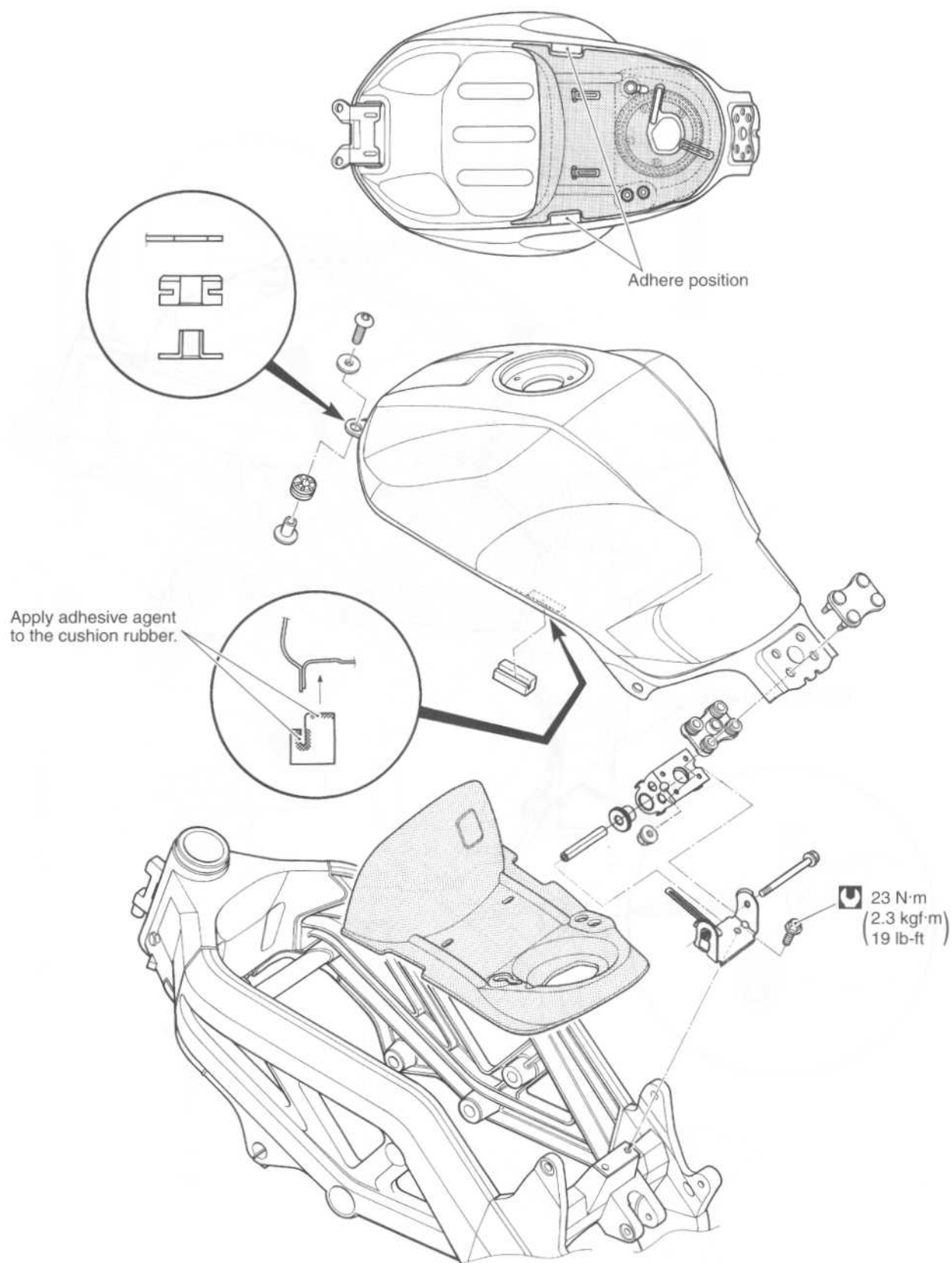
REAR BRAKE HOSE ROUTING



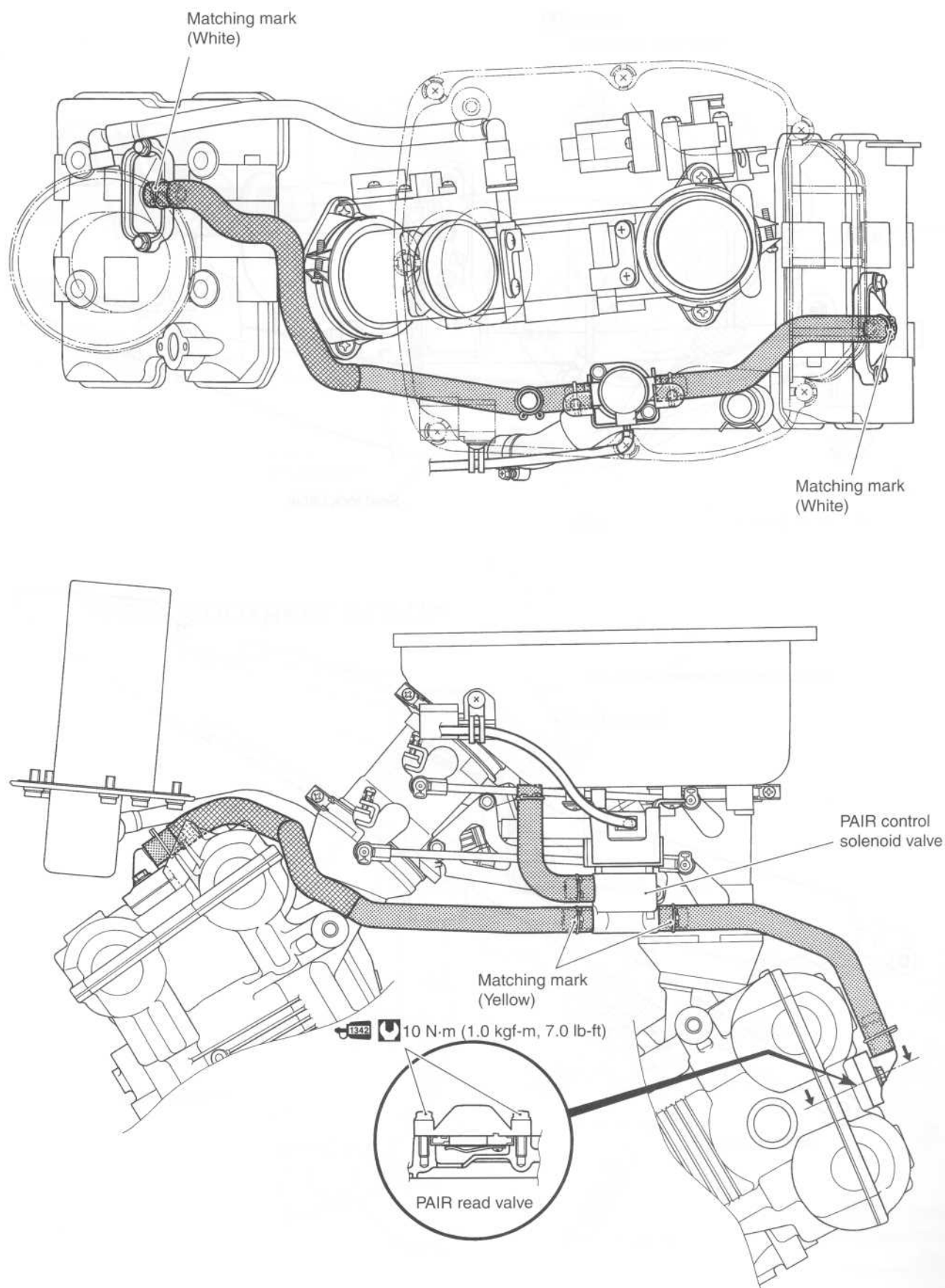
FUEL TANK DRAIN HOSE ROUTING



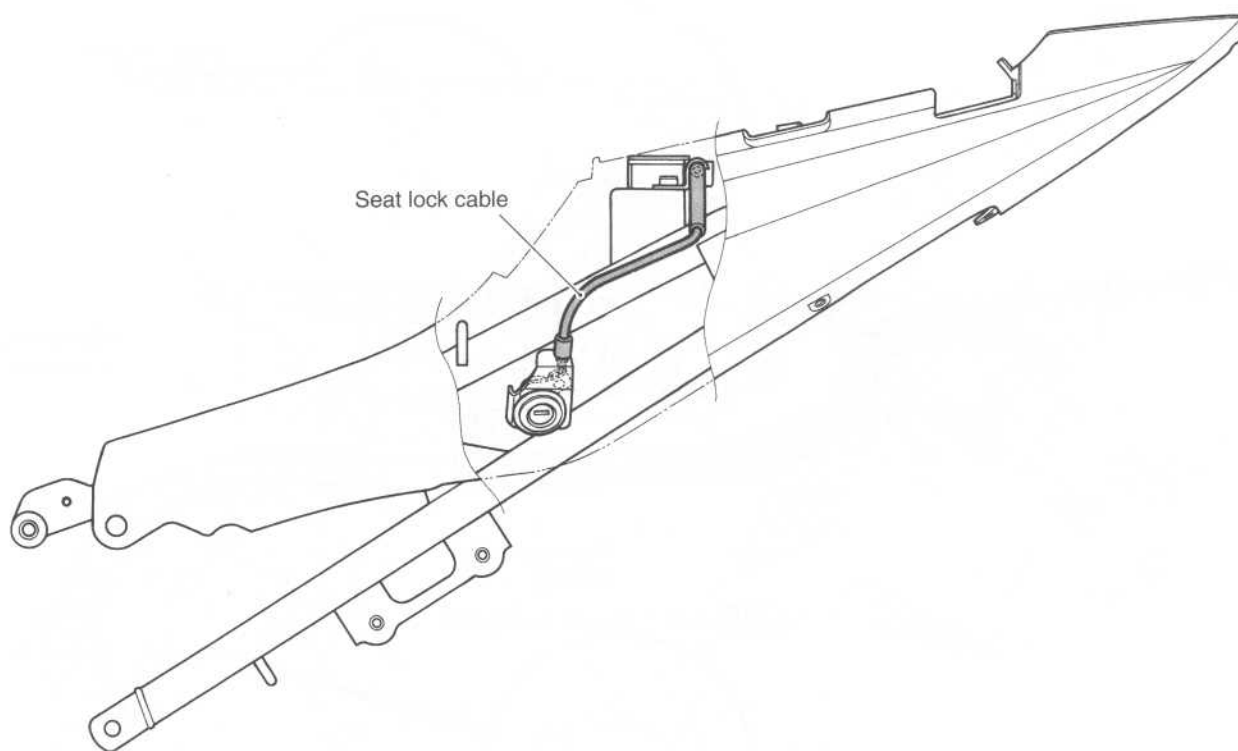
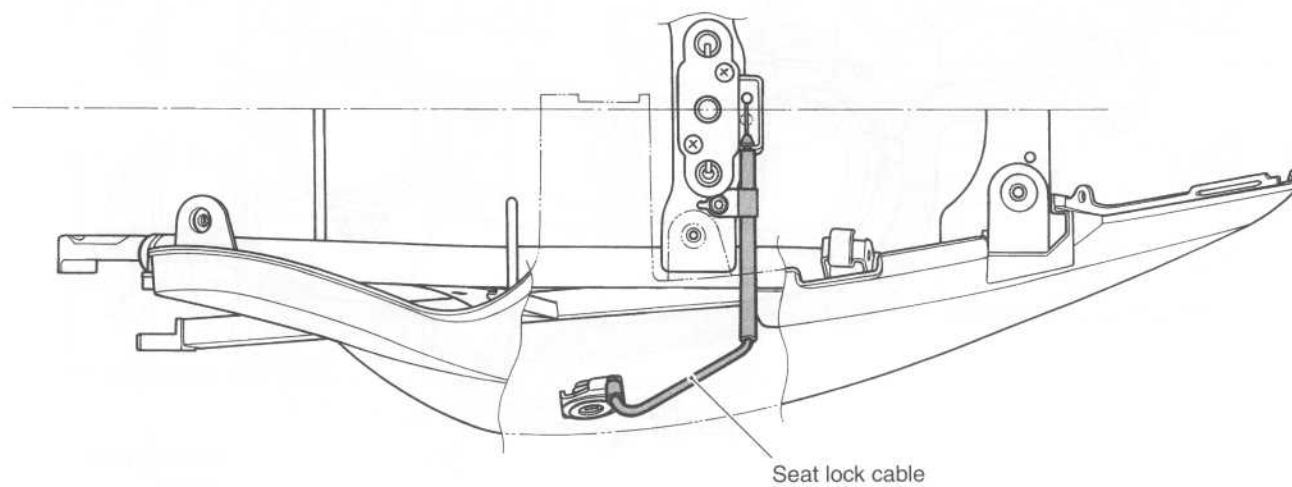
FUEL TANK INSTALLATION



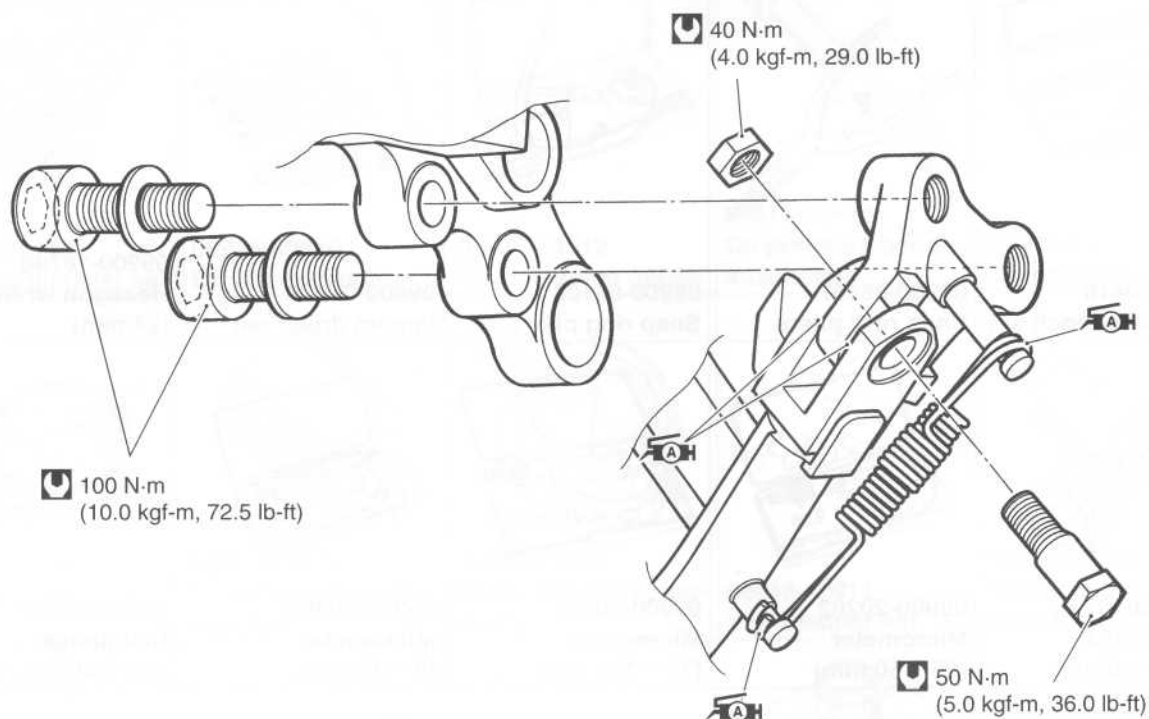
PAIR (AIR SUPPLY) SYSTEM HOSE ROUTING



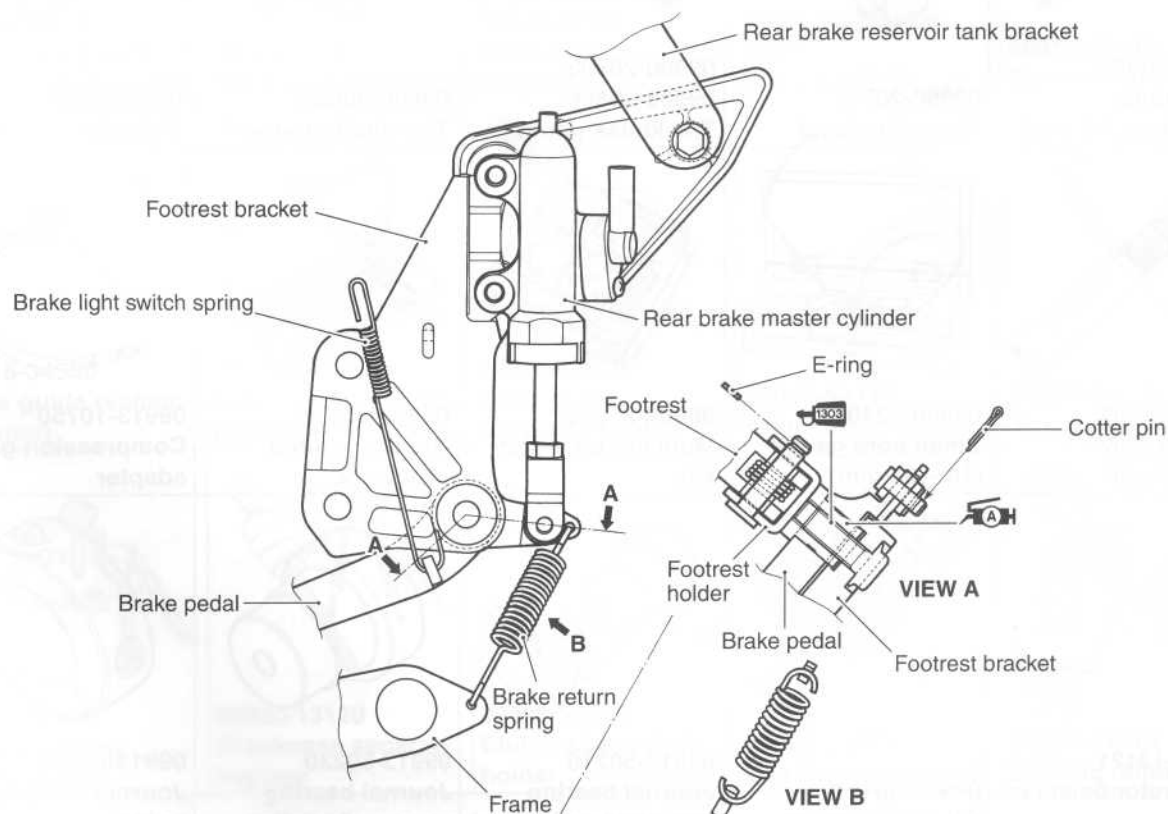
SEAT LOCK CABLE ROUTING





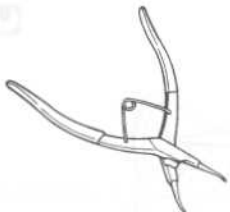








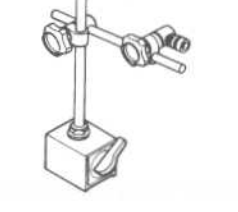
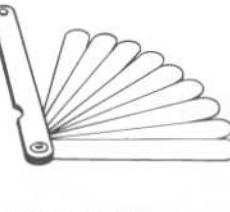

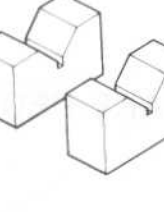





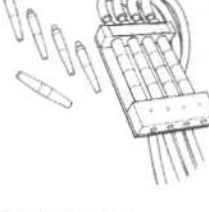




SIDE-STAND SET-UP




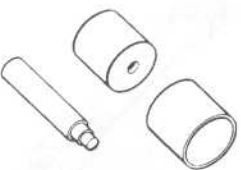






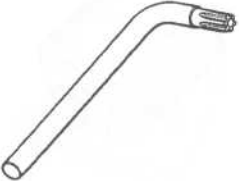
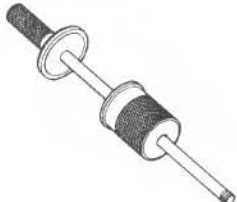

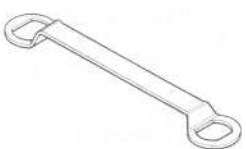
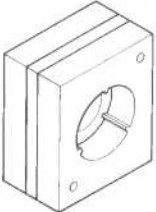



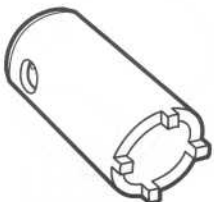

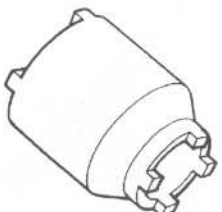

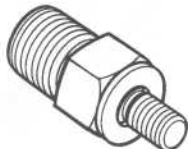
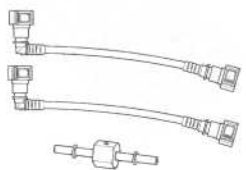

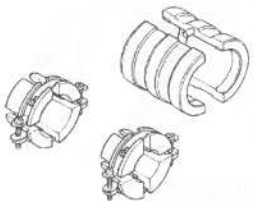

BRAKE PEDAL/FOOTREST SET-UP

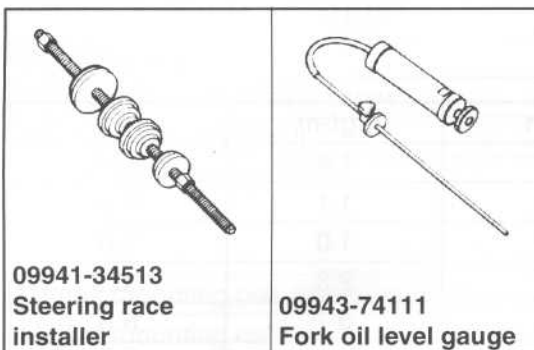


SPECIAL TOOLS

				
09900-00410 Hexagon wrench set	09900-06107 Snap ring pliers	09900-06108 Snap ring pliers	09900-09004 Impact driver set	09900-18740 Hexagon wrench (24 mm)
				
09900-20101 or 09900-20102 Vernier calipers	09900-20202 Micrometer (25 - 50 mm)	09900-20204 Micrometer (75 - 100 mm)	09900-20205 Micrometer (0 - 25 mm)	09900-20602 Dial gauge (1/1 000 mm, 1 mm)
				
09900-20607 Dial gauge (1/100 mm, 10 mm)	09900-20701 Magnetic stand	09900-20803 09900-20806 Thickness gauge	09900-20805 Tire depth gauge	09900-21304 V-block (100 mm)
				
09900-22301 09900-22302 Plastigauge	09900-22403 Small bore gauge (18 - 35 mm)	09900-25008 Multi circuit tester set	09900-25009 Needle pointed probe set	09913-10750 Compression gauge adapter
				
09913-13121 Carburetor balancer set	09913-50121 Oil seal remover	09913-60210 Journal bearing remover/installer set	09913-60230 Journal bearing remover/installer	09913-60240 Journal bearing holder

				
09913-70210 Bearing installer set	09915-40610 Oil filter wrench	09915-64512 Compression gauge	09915-72410 Oil pressure gauge attachment	09915-74511 Oil pressure gauge
				
09915-74521 Oil pressure gauge hose	09915-74532 Oil pressure gauge adaptor	09915-77331 Meter (for high pressure)	09916-10911 Valve lapper set	09916-14510 Valve spring compressor
				
09916-14910 Valve spring compressor attachment	09916-21111 Valve seat cutter set	09916-24480 Solid pilot (N-140-5.5)	Valve seat cutter head See page 3-42.	09916-34542 Reamer handle
				
09916-34550 Valve guide reamer (5.5 mm)	09916-34580 Valve guide reamer (10.8 mm)	09916-44910 Valve guide remover/installer	09916-53340 Attachment	09916-84511 Tweezers
				
09917-47010 Vacuum pump gauge	09920-13120 Crankcase separating tool	09920-53740 Clutch sleeve hub holder	09921-20240 Bearing remover set	09923-73210 Bearing remover

	 09924-74570 Final drive gear bearing installer/ remover	 09924-84510 Bearing installer set	 09924-84521 Bearing installer set	 09925-18011 Steering bearing installer
 09930-10121 Spark plug wrench set	 09930-11920 Torx bit JT40H	 09930-11940 Bit holder	 09930-11950 09930-11960 Torx wrench	 09930-30102 Sliding shaft
 09930-30450 Rotor remover bolt	 09930-44541 Rotor holder	 09930-73110 Starter torque limiter holder	 09930-73120 Starter torque limiter socket	 09930-82720 Mode selection switch
 09940-14911 Steering stem nut wrench	 09940-14940 Swingarm pivot thrust adjuster socket wrench	 09940-14960 Steering nut wrench socket	 09940-14990 Engine mounting thrust adjuster socket wrench	 09940-30250 Front fork assem- bling tool
 09940-40211 Fuel pressure gauge adapter	 09940-40220 Fuel pressure gauge hose attachment	 09940-52841 Front fork inner rod holder	 09940-52861 Front fork oil seal installer	 09940-92720 Spring scale



NOTE: When ordering a special tool, please confirm whether it is available or not.

TIGHTENING TORQUE ENGINE

ITEM		N·m	kgf·m	lb·ft
Cylinder head cover bolt		14	1.4	10.0
Spark plug		11	1.1	8.0
Camshaft journal holder bolt		10	1.0	7.0
Cam chain tension adjuster bolt	[F]	23	2.3	16.5
	[R]	7	0.7	5.0
Cam chain tension adjuster mounting bolt		10	1.0	7.0
Cam drive idle gear/sprocket shaft		40	4.0	29.0
Cam chain tensioner mounting bolt		10	1.0	7.0
Cylinder head nut	[M: 8]	25	2.5	18.0
	[M: 6]	10	1.0	7.0
Cylinder head bolt	[M: 10]	47	4.7	34.0
	[M: 6]	10	1.0	7.0
PAIR read valve cover bolt		10	1.0	7.0
Cylinder nut	[M: 6]	10	1.0	7.0
Water drain bolt	[M: 6]	5.5	0.55	4.0
Clutch sleeve hub nut		95	9.5	68.5
Clutch spring set bolt		10	1.0	7.0
Clutch spring support bolt		23	2.3	16.5
Cam drive idle gear/sprocket nut		70	7.0	50.5
Primary drive gear nut		115	11.5	83.0
Generator cover plug		15	1.5	11.0
Valve timing inspection plug		23	2.3	16.5
Generator rotor bolt		140	14.0	101.0
Starter clutch bolt		25	2.5	18.0
Generator stator set bolt		12	1.2	8.5
Generator stator clamp bolt		6.5	0.65	4.7
Crankshaft position sensor set bolt		6.5	0.65	4.7
Gear position sensor mounting bolt		6.5	0.65	4.7
Gearshift cam stopper bolt		10	1.0	7.0
Gearshift cam stopper plate bolt		10	1.0	7.0
Gearshift arm stopper bolt		23	2.3	16.5
Oil pressure switch		14	1.4	10.0
Crankcase bolt	[M: 6]	11	1.1	8.0
	[M: 8]	26	2.6	19.0
Generator cover bolt	[M: 6]	11	1.1	8.0
Clutch cover bolt	[M: 6]	11	1.1	8.0
Gearshift cover bolt	[M: 6]	11	1.1	8.0
Water pump case bolt	[M: 6]	10	1.0	7.3
Oil gallery plug	[M: 16]	35	3.5	25.5
	[M: 8]	18	1.8	13.0

ITEM		N·m	kgf-m	lb-ft
Oil drain plug		23	2.3	16.5
Piston cooling oil nozzle screw		8	0.8	6.0
Oil pump mounting bolt		10	1.0	7.0
Conrod bearing cap bolt	(Initial)	35	3.5	25.5
	(Final)	After tightening to the above torque, tighten 1/4 of a turn (90°).		
Muffler mounting bolt and exhaust pipe bolt		23	2.3	16.5
Muffler mounting nut		25	2.5	18.0
Oil cooler mounting bolt		10	1.0	7.3
Oil cooler hose union bolt		23	2.3	16.5
Engine sprocket nut		115	11.5	83.0
Engine mounting pinch bolt		23	2.3	16.5
Engine mounting bolt/nut	[M: 12]	93	9.3	67.6
	[M: 10]	55	5.5	40.0
Engine mounting thrust adjuster		12	1.2	8.5
Engine mounting thrust adjuster lock nut		45	4.5	32.5
Cooling fan thermo-switch		17	1.7	12.5

FI SYSTEM PARTS

ITEM	N·m	kgf-m	lb-ft
ECTS	18	1.8	13.0
IATS	18	1.8	13.0
CMPS mounting bolt	10	1.0	7.3
HO2 sensor (For E-02, 19)	47.5	4.75	34.3
Fuel delivery pipe mounting screw	5	0.5	3.7
Fuel pump mounting bolt	10	1.0	7.3
Throttle body connecting bolt	5	0.5	3.7
Actuator motor cover nut	2	0.2	1.5
TPS mounting screw	3.5	0.35	2.5
STPS mounting screw	2	0.2	1.5

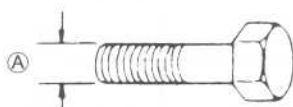
CHASSIS

ITEM	N·m	kgf-m	lb-ft
Steering stem head nut	90	9.0	65.0
Steering stem lock nut	80	8.0	58.0
Front fork upper clamp bolt	23	2.3	16.5
Front fork lower clamp bolt	23	2.3	16.5
Front fork cap bolt	23	2.3	16.5
Front fork inner rod lock nut	15	1.5	11.5
Front fork damper rod bolt	23	2.3	16.5
Front axle	100	10.0	72.5
Front axle pinch bolt	23	2.3	16.5
Handlebar clamp bolt	23	2.3	16.5
Front brake master cylinder mounting bolt	10	1.0	7.0
Front brake caliper mounting bolt	26	2.6	19.0
Front brake caliper housing bolt	23	2.3	16.5
Front brake pad mounting pin	16	1.6	11.5
Brake hose union bolt	23	2.3	16.5
Clutch master cylinder mounting bolt	10	1.0	7.0
Clutch hose union bolt	23	2.3	16.5
Air bleeder valve (Clutch)	5.4	0.54	4.0
Air bleeder valve (Front)	7.5	0.75	5.5
Air bleeder valve (Rear)	6	0.6	4.4
Front brake disc bolt	23	2.3	16.5
Rear brake caliper mounting bolt	23	2.3	16.5
Rear brake caliper sliding pin	27	2.7	20.5
Rear brake master cylinder mounting bolt	10	1.0	7.0
Rear brake master cylinder rod lock nut	18	1.8	13.0
Rear brake pad mounting pin	18	1.8	13.0
Rear brake pad mounting pin plug	2.5	0.25	1.8
Front footrest bracket mounting bolt	23	2.3	16.5
Front footrest bolt	39	3.9	28.0
Swingarm pivot shaft	15	1.5	11.0
Swingarm pivot nut	100	10.0	70.0
Swingarm pivot shaft lock nut	90	9.0	65.0
Rear shock absorber mounting nut (Upper and lower)	50	5.0	36.0
Cushion lever mounting nut (Front)	78	7.8	56.5
Cushion rod mounting nut (Upper and lower)	78	7.8	56.5
Rear brake disc bolt	35	3.5	25.5
Rear axle nut	(For E-03, 28, 33) (For the others)	100 120	72.5 87.0
Rear sprocket nut	60	6.0	43.5
Seat rail bolt	55	5.5	40.0
Steering damper bolt	23	2.3	16.5
Steering damper nut	23	2.3	16.5
Steering stem nut	45	4.5	32.5

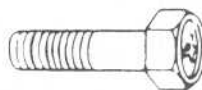
TIGHTENING TORQUE CHART

For other bolts and nuts listed previously, refer to this chart:

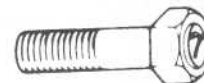
Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt



"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	36 (1.42)	—
	EX.	33 (1.30)	—
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.004 – 0.008)	—
	EX.	0.20 – 0.30 (0.008 – 0.012)	—
Valve guide to valve stem clearance	IN.	0.010 – 0.046 (0.0004 – 0.0018)	—
	EX.	0.030 – 0.066 (0.0012 – 0.0026)	—
Valve guide I.D.	IN. & EX.	5.500 – 5.512 (0.2165 – 0.2170)	—
Valve stem O.D.	IN.	5.475 – 5.490 (0.2156 – 0.2161)	—
	EX.	5.455 – 5.470 (0.2148 – 0.2154)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	41.2 (1.62)
Valve spring tension	IN. & EX.	197 – 227 N (20.1 – 23.1 kgf, 44.3 – 51.0 lbs) at length 35.6 mm (1.40 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	37.78 – 37.82 (1.487 – 1.489)	37.48 (1.476)
	EX.	36.38 – 36.42 (1.432 – 1.434)	36.08 (1.420)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8650 – 0.8659)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)

ITEM	STANDARD	LIMIT
Cam drive idle gear/sprocket thrust clearance	0.15 – 0.29 (0.006 – 0.011)	—
Cylinder head distortion	—	0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure (Automatic de-comp. actuated)	1 000 – 1 400 kPa (10 – 14 kgf/cm ² , 142 – 199 psi)		800 kPa (8 kgf/cm ² , 114 psi)
Compression pressure difference	—		200 kPa (2 kgf/cm ² , 28 psi)
Piston to cylinder clearance	0.015 – 0.025 (0.0006 – 0.0010)		0.12 (0.0047)
Cylinder bore	98.000 – 98.015 (3.8583 – 3.8589)		Nicks or Scratches
Piston diam.	97.980 – 97.995 (3.8575 – 3.8581) Measure at 10 mm (0.4 in) from the skirt end.		97.880 (3.8535)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st	Approx. 8.8 (0.35)	7.0 (0.28)
	2nd	Approx. 10.1 (0.40)	8.1 (0.32)
Piston ring end gap	1st	0.15 – 0.35 (0.006 – 0.014)	0.7 (0.03)
	2nd	0.30 – 0.45 (0.012 – 0.018)	0.7 (0.03)
Piston ring to groove clearance	1st	—	0.18 (0.0071)
	2nd	—	0.15 (0.0059)
Piston ring groove width	1st	0.93 – 0.95 (0.0366 – 0.0374)	—
		1.55 – 1.57 (0.0610 – 0.0618)	—
	2nd	1.01 – 1.03 (0.0398 – 0.0406)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.86 – 0.91 (0.034 – 0.036)	—
		1.38 – 1.40 (0.054 – 0.055)	—
	2nd	0.97 – 0.99 (0.038 – 0.039)	—
Piston pin bore I.D.	22.002 – 22.008 (0.8662 – 0.8665)		22.030 (0.8673)
Piston pin O.D.	21.993 – 22.000 (0.8658 – 0.8661)		21.980 (0.8654)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	22.010 – 22.018 (0.8665 – 0.8668)	22.040 (0.8677)
Conrod big end side clearance	0.17 – 0.32 (0.007 – 0.013)	0.50 (0.020)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	—
Crank pin width	44.17 – 44.22 (1.739 – 1.741)	—
Conrod big end oil clearance	0.040 – 0.064 (0.0016 – 0.0025)	0.080 (0.0031)
Crank pin O.D.	44.976 – 45.000 (1.7707 – 1.7717)	—
Crankshaft journal oil clearance	0.002 – 0.029 (0.0008 – 0.0011)	0.080 (0.0031)
Crankshaft journal O.D.	47.985 – 48.000 (1.8892 – 1.8898)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60 °C, 140 °F)	Above 350 kPa (3.5 kgf/cm ² , 50 psi) Below 650 kPa (6.5 kgf/cm ² , 92 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive plate thickness	No. 1	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
	No. 2 and 3	3.72 – 3.88 (0.146 – 0.153)	3.42 (0.135)
Drive plate claw width	No. 1	13.85 – 13.96 (0.545 – 0.550)	13.05 (0.514)
	No. 2 and 3	13.90 – 14.00 (0.547 – 0.551)	13.10 (0.516)
Driven plate distortion	—		0.10 (0.004)
Clutch spring free length	28.1 (1.11)		26.7 (1.05)
Clutch master cylinder bore	14.000 – 14.043 (0.5512 – 0.5528)		—
Clutch master cylinder piston diam.	13.957 – 13.984 (0.5495 – 0.5505)		—
Clutch release cylinder bore	35.700 – 35.762 (1.4055 – 1.4079)		—
Clutch release cylinder piston diam.	35.650 – 35.675 (1.4035 – 1.4045)		—
Clutch fluid type	DOT 4		

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD		LIMIT
Thermostat valve opening temperature	86.5 – 89.5 °C (188 – 193 °F)		—
Thermostat valve lift	Over 8.0 mm (0.31 in) at 100 °C (212 °F)		—
Radiator cap valve opening pressure	110 kPa (1.1 kgf/cm ² , 15.6 psi)		—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 105 °C (221 °F)	—
	ON → OFF	Approx. 100 °C (212 °F)	—
Engine coolant temperature sensor resistance	20 °C (68 °F)	Approx. 2.45 kΩ	—
	40 °C (104 °F)	Approx. 1.15 kΩ	—
	60 °C (140 °F)	Approx. 0.58 kΩ	—
	80 °C (176 °F)	Approx. 0.32 kΩ	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		
Engine coolant	Reservoir tank side	Approx. 250 ml (0.3/0.2 US/lmp qt)	
	Engine side	Approx. 1 950 ml (2.1/1.7 US/lmp qt)	

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		1.838 (57/31)	—
Final reduction ratio		2.352 (40/17)	—
Gear ratio	Low	2.666 (32/12)	—
	2nd	1.933 (29/15)	—
	3rd	1.500 (27/18)	—
	4th	1.227 (27/22)	—
	5th	1.086 (25/23)	—
	Top	1.000 (24/24)	—
Shift fork to groove clearance		0.1 – 0.3 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width		5.0 – 5.1 (0.197 – 0.201)	—
Shift fork thickness		4.8 – 4.9 (0.189 – 0.193)	—
Drive chain	Type	RK530SMOZ1	—
	Links	108 links, ENDLESS	—
	20-link length	—	319.4 (12.6)
Drive chain slack		20 – 30 (0.8 – 1.2)	—
Gearshift lever height		65 (2.56)	—

INJECTOR + FUEL PUMP + FUEL PRESSURE REGULATOR

ITEM	SPECIFICATION	NOTE
Injector resistance	11 – 13 Ω at 20 °C (68 °F)	
Fuel pump discharge amount	168 ml and more (5.7/5.9 US/Imp oz) for 10 seconds at 300 kPa (3.0 kgf/cm ² , 43 psi)	
Fuel pressure regulator operating set pressure	Approx. 300 kPa (3.0 kgf/cm ² , 43 psi)	

FI-SENSORS

ITEM	SPECIFICATION		NOTE
CMP sensor peak voltage	3.7 V and more		
CKP sensor resistance	130 – 240 Ω		
CKP sensor peak voltage	5.0 V and more (When cranking)		
IAP sensor input voltage	4.5 – 5.5 V		
IAP sensor output voltage	Approx. 2.5 V at idle speed		
TP sensor input voltage	4.5 – 5.5 V		
TP sensor resistance	Closed	Approx. 1.12 k Ω	
	Opened	Approx. 4.26 k Ω	
TP sensor output voltage	Closed	Approx. 1.12 V	
	Opened	Approx. 4.26 V	
ECT sensor input voltage	4.5 – 5.5 V		
ECT sensor resistance	Approx. 2.45 k Ω at 20 °C (68 °F)		
IAT sensor input voltage	4.5 – 5.5 V		
IAT sensor resistance	Approx. 2.45 k Ω at 20 °C (68 °F)		
AP sensor input voltage	4.5 – 5.5 V		
AP sensor output voltage	Approx. 4.0 V at 100 kPa (760 mmHg)		
TO sensor resistance	19.1 – 19.7 k Ω		
TO sensor voltage	1.4 V and less		
GP switch voltage	0.6 V and more (From 1st to top)		
Injector voltage	Battery voltage		
Ignition coil primary peak voltage	200 V and more (When cranking)		
STP sensor input voltage	4.5 – 5.5 V		
STP sensor resistance	Closed	Approx. 0.58 k Ω	
	Opened	Approx. 4.38 k Ω	
STP sensor output voltage	Closed	Approx. 0.58 V at input voltage is 5.0 V	
	Opened	Approx. 4.38 V at input voltage is 5.0 V	
STV actuator resistance	7 – 14 Ω		
Heated oxygen sensor output voltage	0.4 V and less at idle speed		Except for USA
	0.6 V and more at 3 000 r/min		Except for USA
Heated oxygen sensor resistance	4 – 5 Ω at 23 °C (73.4 °F)		Except for USA
PAIR solenoid valve resistance	20 – 24 Ω at 20 °C (68 °F)		

THROTTLE BODY

ITEM	SPECIFICATION
ID No.	16G0 (For E-02, 19), 16G1 (For E-33), 16G2 (For E-03, 24, 28, E-19 UD/UF)
Bore size	52 mm
Fast idle r/min	1 900 – 2 500 r/min at 25 °C (77 °F)
Idle r/min	1 200 ± 100 r/min/Warmed engine
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION	NOTE
Firing order		1-2	
Spark plug	Type	NGK: CR8EK DENSO: U24ETR	
	Gap	0.6 – 0.7 (0.024 – 0.028)	
Spark performance		Over 8 (0.3) at 1 atm.	
Crankshaft position sensor resistance		130 – 240 Ω	BI – G
Ignition coil resistance	Primary	2.8 – 4.2 Ω	⊕ tap – ⊖ tap
	Secondary	24 – 36 kΩ	⊕ tap – Plug cap
Crankshaft position sensor peak voltage		5.0 V and more	When cranking
Ignition coil primary peak voltage		200 V and more	When cranking
Generator coil resistance		0.2 – 0.7 Ω	Y – Y
Generator Max. output		Approx. 400 W at 5 000 r/min	
Generator no-load voltage (When engine is cold)		75 V and more (AC) at 5 000 r/min	
Regulated voltage		14.0 – 15.5 V at 5 000 r/min	
Starter relay resistance		3 – 6 Ω	
Battery	Type designation	FTX14-BS	
	Capacity	12 V 43.2 kC (12 Ah)/10 HR	
Fuse size	Headlight	HI	15 A
		LO	15 A
	Fuel		10 A
	Ignition		15 A
	Turn signal		10 A
	Fan motor		15 A
	Main		30 A

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	60 × 2
	LO	55 × 2
Position light		5 × 2
Brake light/Taillight		LED
Turn signal light		21 × 4
Speedometer/Tachometer light		LED
Turn signal indicator light		LED
High beam indicator light		LED
Neutral indicator light		LED
Fuel indicator light		LED
Coolant temperature/oil pressure/FI indicator light		LED
License light		5

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD		LIMIT
Rear brake pedal height		55 – 65 (2.17 – 2.56)		—
Brake disc thickness	Front	5.0 ± 0.2 (0.197 ± 0.008)		4.5 (0.18)
	Rear	5.0 ± 0.2 (0.197 ± 0.008)		4.5 (0.18)
Brake disc runout (Front & Rear)		—		0.30 (0.012)
Master cylinder bore	Front	15.870 – 15.913 (0.6248 – 0.6265)		—
	Rear	14.000 – 14.043 (0.5512 – 0.5529)		—
Master cylinder piston diam.	Front	15.827 – 15.854 (0.6231 – 0.6242)		—
	Rear	13.957 – 13.984 (0.5495 – 0.5506)		—
Brake caliper cylinder bore	Leading	Front	30.230 – 30.280 (1.1902 – 1.1921)	—
	Trailing		33.960 – 34.010 (1.3370 – 1.3389)	—
		Rear	38.180 – 38.230 (1.5031 – 1.5051)	—
Brake caliper piston diam.	Leading	Front	30.167 – 30.200 (1.1876 – 1.1890)	—
	Trailing		33.901 – 33.934 (1.3346 – 1.3360)	—
		Rear	38.115 – 38.148 (1.5005 – 1.5019)	—
Brake fluid type		DOT 4		—

ITEM	STANDARD		LIMIT
Wheel rim runout (Front & Rear)	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)
Wheel rim size	Front	17 × MT 3.50, 17M/C × MT 3.50	—
	Rear	17 × MT 5.50, 17M/C × MT 5.50	—
Tire size	Front	120/70 ZR17M/C (58W), tubeless	—
	Rear	180/55 ZR17M/C (73W), tubeless	—
Tire type	Front	MICHELIN: PILOT SPORT E	—
	Rear	MICHELIN: PILOT SPORT L	—
Tire tread depth	Front	—	1.6 (0.06)
	Rear	—	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front fork stroke	120 (4.72)		—
Front fork spring free length	296.3 (11.7)		290 (11.4)
Front fork oil level (without spring, inner tube fully compressed)	162 (6.4)		—
Front fork spring adjuster	6th groove from top		
Front fork damping force adjuster	Rebound	1 turn out from stiffest position	
	Compression	1 turn out from stiffest position	
Rear shock absorber spring pre- set length	199.5 (7.85)		—
Rear shock absorber damping force adjuster	Rebound	3/4 turn out from stiffest position	—
	Compression	2-1/4 turns out from stiffest position	
Rear wheel travel	129 (5.08)		—
Swingarm pivot shaft runout	—		0.3 (0.01)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kgf/cm ²	psi	kPa	kgf/cm ²	psi
FRONT	250	2.50	36	250	2.50	36
REAR	250	2.50	36	290	2.90	42

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane (R/2 + M/2) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10 % ethanol, or less than 5 % methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28, 33
	Gasoline used should be graded 91 octane or higher. An unleaded gasoline is recommended.		The others
Fuel tank	16 L (4.2/3.5 US/Imp gal)		E-33
	17 L (4.5/3.7 US/Imp gal)		The others
Engine oil type	SAE 10W-40, API SF or SG		
Engine oil capacity	Change	2 700 ml (2.9/2.4 US/Imp qt)	
	Filter change	2 900 ml (3.1/2.6 US/Imp qt)	
	Overhaul	3 300 ml (3.5/2.9 US/Imp qt)	
Front fork oil type	SUZUKI FORK OIL L01 or an equivalent fork oil		
Front fork oil capacity (each leg)	494 ml (16.69/17.39 US/Imp oz)		