

SERVICING INFORMATION

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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 3 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. ($0.10\text{ V} \leq \text{sensor voltage} < 4.80\text{ V}$) Without the above range, C13 is indicated. Intake air pressure sensor, wiring/coupler connection.
C14	Throttle position sensor	The sensor should produce following voltage. ($0.10\text{ V} \leq \text{sensor voltage} < 4.80\text{ V}$) 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. ($0.10\text{ V} \leq \text{sensor voltage} < 4.60\text{ V}$) 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. ($0.10\text{ V} \leq \text{sensor voltage} < 4.60\text{ V}$) 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. ($0.10\text{ V} \leq \text{sensor voltage} < 4.80\text{ V}$) Without the above range, C22 is indicated. Atm. pressure sensor, wiring/coupler connection.
C23	Tip over sensor	The sensor voltage should be less than the following for more than 4 sec. after ignition switch turns ON. ($0.20\text{ V} \leq \text{sensor voltage} < 4.60\text{ V}$) Without the above value, C23 is indicated. Tip over sensor, wiring/coupler connection.
C24 or C25	Ignition signal	Crankshaft position sensor (pick-up coil) signal is produced but signal from ignition coil is interrupted continuous by two 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	When no actuator control signal is supplied from the ECM or communication signal does not reach ECM or operation voltage does not reach STVA motor, C28 is indicated. STVA can not operate. STVA lead wire/coupler.
C29	Secondary throttle position sensor	The sensor should produce following voltage. ($0.10 \text{ V} \leq \text{sensor voltage} < 4.80 \text{ V}$) 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 4 seconds. (Gear position switch voltage $> 1.0 \text{ V}$) Without the above value, C31 is indicated. Gear position sensor, wiring/coupler connection. Gearshift cam etc.
C32 or C33	Fuel injector signal	When fuel injection signal stops, the C32 or C33 is indicated. Injector, wiring/coupler connection, power supply to the injector.
C41	Fuel pump relay signal	When no signal is supplied from fuel pump relay, C41 is indicated. Fuel pump relay, connecting lead, power source to fuel pump relay.
C42	Ignition switch signal	Ignition switch signal is not input in the ECM. Ignition switch, lead wire/coupler.
C44 (Except for USA)	Heated oxygen sensor (HO ₂ S)	The sensor voltage should be less than the following after warming up condition. (Sensor voltage $< 0.4 \text{ V}$) Without the above value, C44 is indicated. Heater operation voltage does not reach in the oxygen heater circuit, C44 in indicated. The Heater can not operate. HO ₂ S lead wire/coupler connection. Battery voltage supply to the HO ₂ S.

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	<p>Compression too low</p> <ol style="list-style-type: none"> 1. Tappet clearance out of adjustment. 2. Worn valve guides or poor seating of valves. 3. Mistimed valves. 4. Excessively worn piston rings. 5. Worn-down cylinder bores. 6. Starter motor cranks too slowly. 7. Poor seating of spark plugs. <p>Plugs not sparking</p> <ol style="list-style-type: none"> 1. Fouled spark plugs. 2. Wet spark plugs. 3. Defective ignition coil or camshaft position sensor. 4. Open or short in high-tension cords. 5. Defective crankshaft position sensor. 6. Defective ECM. 7. Open-circuited wiring connections. <p>No fuel reaching the intake manifold</p> <ol style="list-style-type: none"> 1. Clogged fuel filter or fuel hose. 2. Defective fuel pump. 3. Defective fuel pressure regulator. 4. Defective fuel injector. 5. Defective fuel pump relay. 6. Defective ECM. 7. Open-circuited wiring connections. <p>Incorrect fuel/air mixture</p> <ol style="list-style-type: none"> 1. Throttle position sensor out of adjustment. 2. Defective fuel pump. 3. Defective fuel pressure regulator. 4. Defective throttle position sensor. 5. Defective crankshaft position sensor. 6. Defective intake air pressure sensor. 7. Defective atmospheric pressure sensor. 8. Defective ECM. 9. Defective engine coolant temp. sensor. 10. Defective intake air temp. sensor. 	<p>Adjust. Repair or replace. Adjust. Replace. Replace. See electrical section. Retighten.</p> <p>Clean. Clean and dry. Replace. Replace. Replace. Replace. Repair or replace.</p> <p>Clean or replace. Replace. Replace. Replace. Replace. Replace. Check and repair.</p> <p>Adjust. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace.</p>
Engine idles poorly.	<ol style="list-style-type: none"> 1. Tappet clearance out of adjustment. 2. Poor seating of valves. 3. Defective valve guides. 4. Worn down camshaft. 5. Too wide spark plug gaps. 6. Defective ignition coil. 7. Defective crankshaft position sensor. 8. Defective ECM. 9. Defective throttle position sensor. 10. Defective fuel pump. 11. Imbalanced throttle valve. 12. Damaged or cracked vacuum hose. 	<p>Adjust. Replace or repair. Replace. Replace. Adjust or replace. Replace. Replace. Replace. Replace. Replace. Adjust. Replace.</p>

Complaint	Symptom and possible causes	Remedy
Engine stalls often	<p>Incorrect fuel/air mixture</p> <ol style="list-style-type: none"> 1. Defective intake air pressure sensor or circuit. 2. Clogged fuel filter. 3. Defective fuel pump. 4. Defective fuel pressure regulator. 5. Damaged or cracked vacuum hose. 6. Defective engine coolant temp. sensor. 7. Defective thermostat. 8. Defective intake air temp. sensor. <p>Fuel injector improperly operating</p> <ol style="list-style-type: none"> 1. Defective fuel injector. 2. No injection signal from ECM. 3. Open or short circuited wiring connection. 4. Defective battery or low battery voltage. <p>Control circuit or sensor improperly operating</p> <ol style="list-style-type: none"> 1. Defective ECM. 2. Defective fuel pressure regulator. 3. Defective throttle position sensor. 4. Defective intake air temp. sensor. 5. Defective camshaft position sensor. 6. Defective crankshaft position sensor. 7. Defective engine coolant temp. sensor. 8. Defective fuel pump relay. <p>Engine internal parts improperly operating</p> <ol style="list-style-type: none"> 1. Fouled spark plugs. 2. Defective crankshaft position sensor or ECM. 3. Clogged fuel hose. 4. Tappet clearance out of adjustment. 	<p>Repair or replace. Clean or replace. Replace. Replace. Replace. Replace. Replace. Replace.</p> <p>Replace. Repair or replace. Repair or replace. Replace or recharge.</p> <p>Replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace.</p> <p>Clean. Replace. Clean. Adjust.</p>

Complaint	Symptom and possible causes	Remedy
Noisy engine.	<p>Excessive valve chatter</p> <ol style="list-style-type: none"> 1. Too large tappet clearance. 2. Weakened or broken valve springs. 3. Worn tappet or cam surface. 4. Worn and burnt camshaft journal. <p>Noise seems to come from piston</p> <ol style="list-style-type: none"> 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. <p>Noise seems to come from timing chain</p> <ol style="list-style-type: none"> 1. Stretched chain. 2. Worn sprockets. 3. Tension adjuster not working. <p>Noise seems to come from clutch</p> <ol style="list-style-type: none"> 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. <p>Noise seems to come from crankshaft</p> <ol style="list-style-type: none"> 1. Rattling bearings due to wear. 2. Worn and burnt big-end bearings. 3. Worn and burnt journal bearings. 4. Too large thrust clearance. <p>Noise seems to come from transmission</p> <ol style="list-style-type: none"> 1. Worn or rubbing gears. 2. Worn splines. 3. Worn or rubbing primary gears. 4. Worn bearings. <p>Noise seems to come from water pump</p> <ol style="list-style-type: none"> 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. 	<p>Adjust. Replace. Replace. Replace.</p> <p>Replace. Clean. Replace. Replace.</p> <p>Replace. Replace. Repair or replace.</p> <p>Replace. Replace. Replace. Replace. Replace the primary driven gear.</p> <p>Replace. Replace. Replace. Replace thrust bearing.</p> <p>Replace. Replace. Replace. Replace.</p> <p>Replace. Replace. Replace. Replace.</p>
Engine runs poorly in high speed range.	<p>Defective engine internal/electrical parts</p> <ol style="list-style-type: none"> 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. 	<p>Replace. Replace. Adjust. Adjust. Replace ECM.</p> <p>Replace. Replace. Replace. Clean. Clean and prime.</p> <p>Replace. Replace. Replace.</p>

Complaint	Symptom and possible causes	Remedy
Engine runs poorly in high speed range.	<p>Defective air flow system</p> <ol style="list-style-type: none"> 1. Clogged air cleaner element. 2. Defective throttle valve. 3. Defective secondary throttle valve. 4. Sucking air from throttle body joint. 5. Defective ECM. 6. Imbalanced throttle valve synchronization. <p>Defective control circuit or sensor</p> <ol style="list-style-type: none"> 1. Low fuel pressure. 2. Defective throttle position sensor. 3. Defective intake air temp. sensor. 4. Defective camshaft position sensor. 5. Defective crankshaft position sensor. 6. Defective gear position switch. 7. Defective intake air pressure sensor. 8. Defective atmospheric pressure sensor. 9. Defective ECM. 10. Throttle position sensor out of adjustment. 11. Defective secondary throttle position sensor and/or secondary throttle valve actuator. 	<p>Clean or replace. Adjust or replace. Adjust or replace. Repair or replace. Replace. Adjust.</p> <p>Repair or replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Adjust. Replace.</p>
Engine lacks power.	<p>Defective engine internal/electrical parts</p> <ol style="list-style-type: none"> 1. Loss of tappet clearance. 2. Weakened valve springs. 3. Valve timing out of adjustment. 4. Worn piston rings or cylinders. 5. Poor seating of valves. 6. Fouled spark plug. 7. Incorrect spark plug. 8. Clogged injector. 9. Throttle position sensor out of adjustment. 10. Clogged air cleaner element. 11. Imbalanced throttle valve synchronization. 12. Sucking air from throttle valve or vacuum hose. 13. Too much engine oil. 14. Defective fuel pump or ECM. 15. Defective crankshaft position sensor and ignition coil. <p>Defective control circuit or sensor</p> <ol style="list-style-type: none"> 1. Low fuel pressure. 2. Defective throttle position sensor. 3. Defective intake air temp. sensor. 4. Defective camshaft position sensor. 5. Defective crankshaft position sensor. 6. Defective gear position switch. 7. Defective intake air pressure sensor. 8. Defective atmospheric pressure sensor. 9. Defective ECM. 10. Imbalanced throttle valve synchronization. 11. Throttle position sensor out of adjustment. 12. Defective secondary throttle position sensor and/or secondary throttle valve actuator. 	<p>Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Adjust or replace. Clean. Adjust. Clean. Adjust. Retighten or replace. Drain out excess oil. Replace. Replace.</p> <p>Repair or replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Replace. Adjust. Adjust. Replace.</p>

Complaint	Symptom and possible causes	Remedy
Engine overheats.	<p>Defective engine internal parts</p> <ol style="list-style-type: none"> 1. Heavy carbon deposit on piston crowns. 2. Not enough oil in the engine. 3. Defective oil pump or clogged oil circuit. 4. Sucking air from intake pipes. 5. Use of incorrect engine oil. 6. Defective cooling system. <p>Lean fuel/air mixture</p> <ol style="list-style-type: none"> 1. Short-circuited intake air pressure sensor/lead wire. 2. Short-circuited intake air temp. sensor/lead wire. 3. Sucking air from intake pipe joint. 4. Defective fuel injector. 5. Defective engine coolant temp. sensor. <p>The other factors</p> <ol style="list-style-type: none"> 1. Ignition timing too advanced due to defective timing advance system (engine coolant temp. sensor, gear position switch, crankshaft position sensor and ECM.) 2. Drive chain too tight. 	<p>Clean. Add oil. Replace or clean. Retighten or replace. Change. See radiator section.</p> <p>Repair or replace. Repair or replace. Repair or replace. Replace. Replace.</p> <p>Replace.</p> <p>Adjust.</p>
Dirty or heavy exhaust smoke.	<ol style="list-style-type: none"> 1. Too much engine oil in the engine. 2. Worn piston rings or cylinders. 3. Worn valve guides. 4. Scored or scuffed cylinder walls. 5. Worn valves stems. 6. Defective stem seal. 7. Worn oil ring side rails. 	<p>Check with inspection window. Drain excess oil. Replace. Replace. Replace. Replace. Replace. Replace.</p>
Slipping clutch.	<ol style="list-style-type: none"> 1. Weakened clutch springs. 2. Worn or distorted pressure plate. 3. Distorted clutch plates or clutch plate. 	<p>Replace. Replace. Replace.</p>
Dragging clutch.	<ol style="list-style-type: none"> 1. Some clutch spring weakened while others are not. 2. Distorted pressure plate or clutch plate. 	<p>Replace. Replace.</p>
Transmission will not shift.	<ol style="list-style-type: none"> 1. Broken gearshift cam. 2. Distorted gearshift forks. 3. Worn gearshift pawl. 	<p>Replace. Replace. Replace.</p>
Transmission will not shift back.	<ol style="list-style-type: none"> 1. Broken return spring on shift shaft. 2. Rubbing or sticky shift shaft. 3. Distorted or worn gearshift forks. 	<p>Replace. Repair or replace. Replace.</p>
Transmission jumps out of gear.	<ol style="list-style-type: none"> 1. Worn shifting gears on driveshaft or countershaft. 2. Distorted or worn gearshift forks. 3. Weakened stopper spring on gearshift stopper. 	<p>Replace. Replace. Replace.</p>

RADIATOR (COOLING SYSTEM)

Complaint	Symptom and possible causes	Remedy
Engine overheats.	<ol style="list-style-type: none"> 1. Not enough engine coolant. 2. Radiator core clogged with dirt or scale. 3. Faulty cooling fan. 4. Defective cooling fan thermo-switch. 5. Clogged water passage. 6. Air trapped in the cooling circuit. 7. Defective water pump. 8. Use of incorrect engine coolant. 9. Defective thermostat. 	<p>Add engine coolant. Clean. Repair or replace. Replace. Clean. Bleed air. Replace. Replace. Replace.</p>
Engine overcools.	<ol style="list-style-type: none"> 1. Defective cooling fan thermo-switch. 2. Extremely cold weather. 3. Defective thermostat. 	<p>Replace. Put on radiator cover. Replace.</p>

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

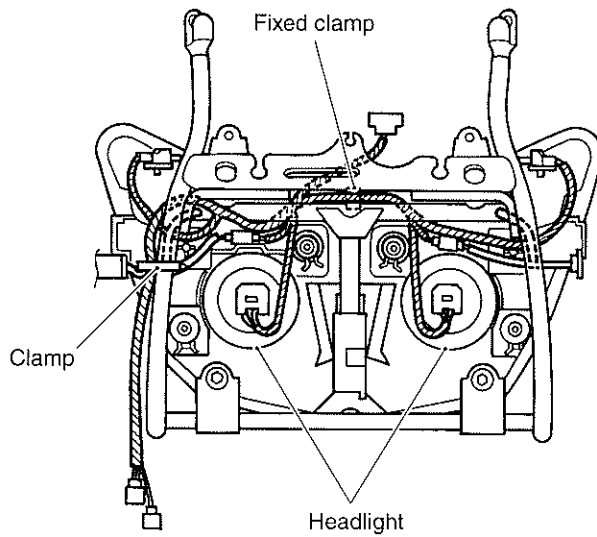
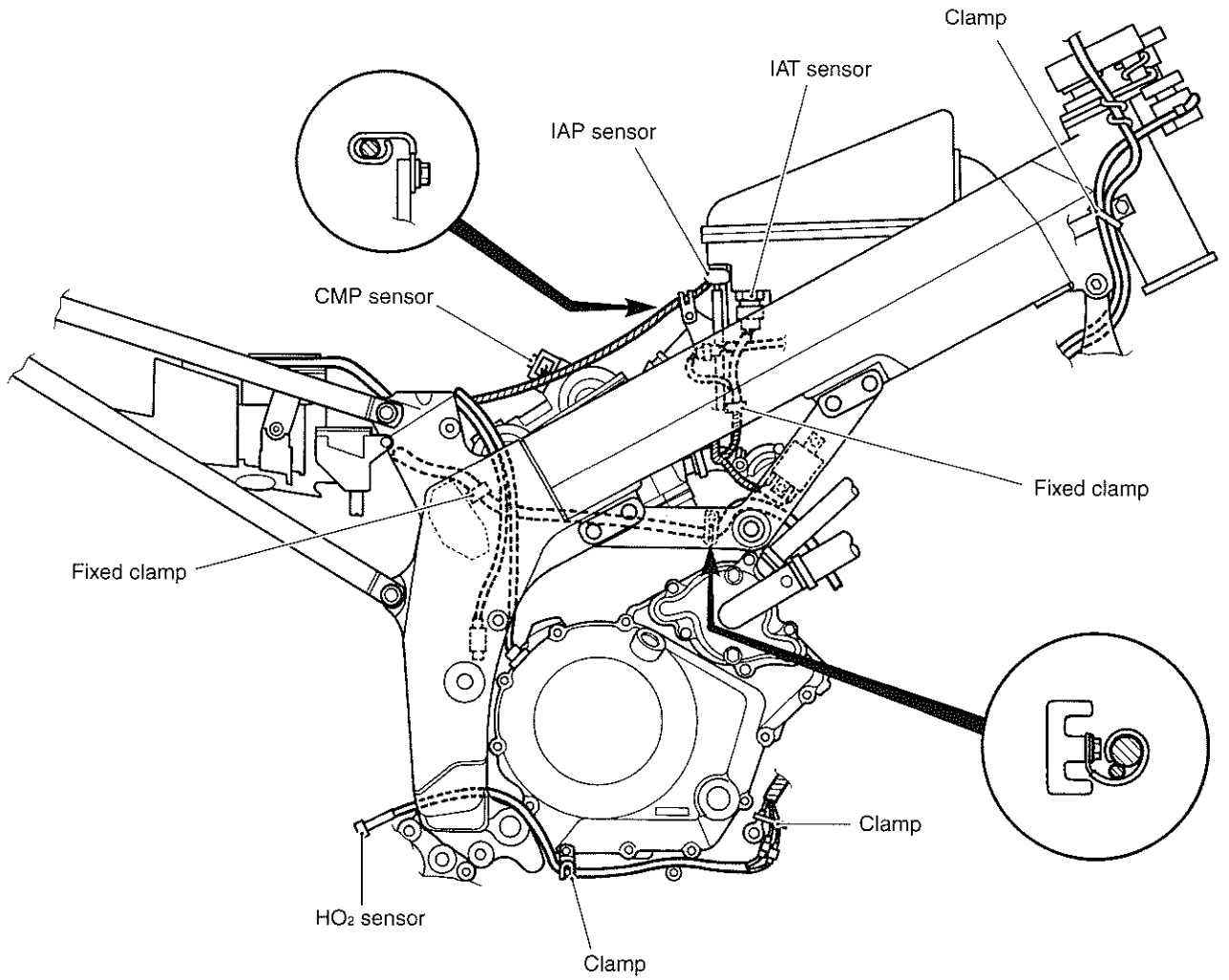
Complaint	Symptom and possible causes	Remedy
Insufficient brake power.	<ol style="list-style-type: none"> 1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on friction surface of pads/shoe. 4. Worn disc. 5. Air in hydraulic system. 6. Not enough brake fluid in the reservoir. 	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.

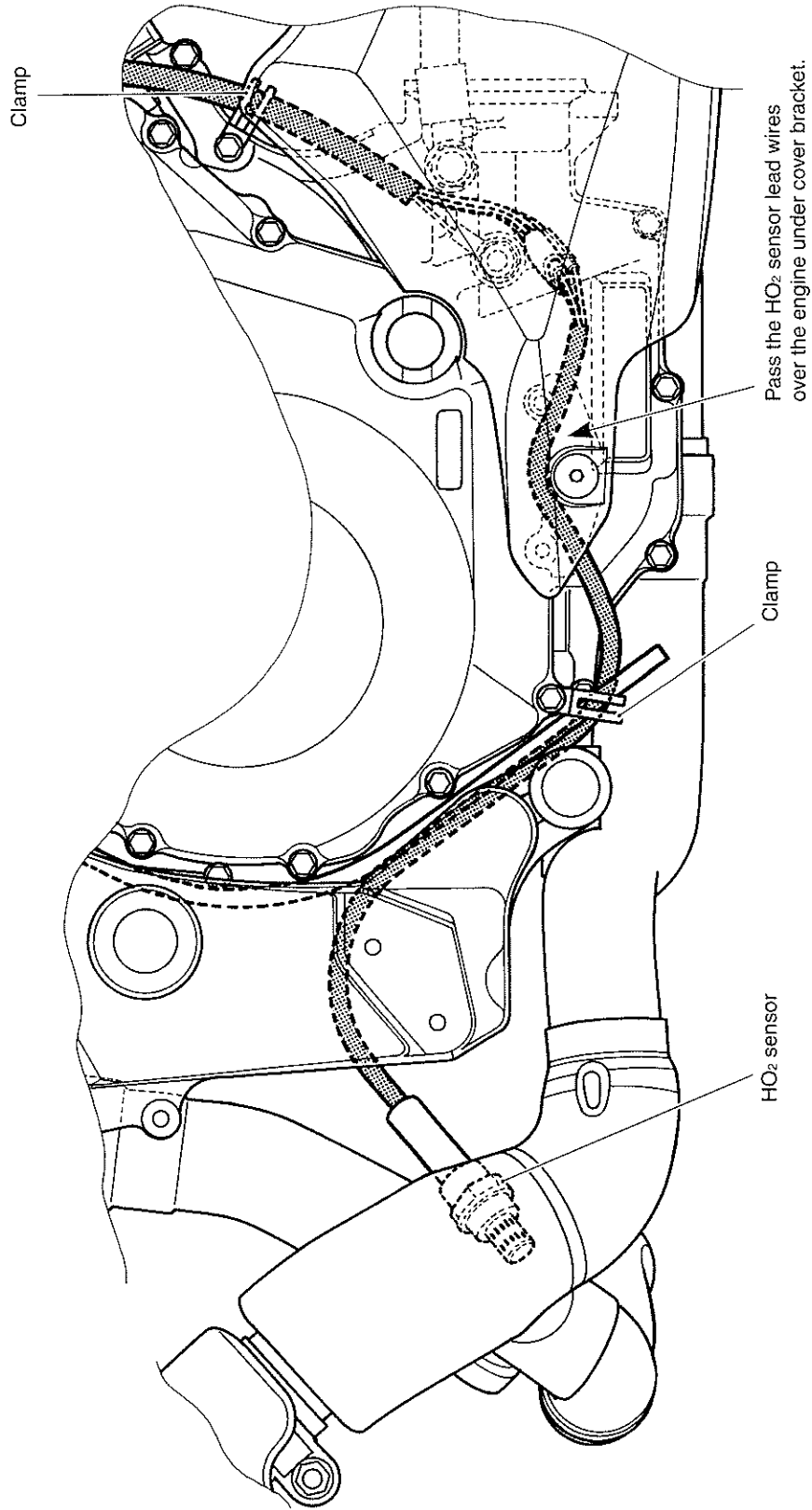
ELECTRICAL

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. Overheated the engine. 3. Loose spark plugs. 4. Too lean mixture. 	Replace with cold type plugs. Tune up. Retighten. Consult FI system.
Generator does not charge.	<ol style="list-style-type: none"> 1. Open- or short-circuited lead wires, or loose lead connections. 2. Short-circuited, grounded or open generator coils. 3. Short-circuited or panctured 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

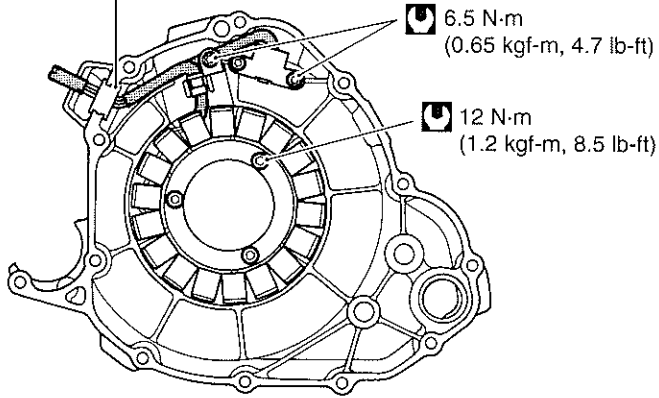
Complaint	Symptom and possible causes	Remedy
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates.	<ol style="list-style-type: none"> 1. Cracked battery case. 2. Battery has been left in a run-down condition for a long time. 	<p>Replace the battery.</p> <p>Replace the battery.</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>



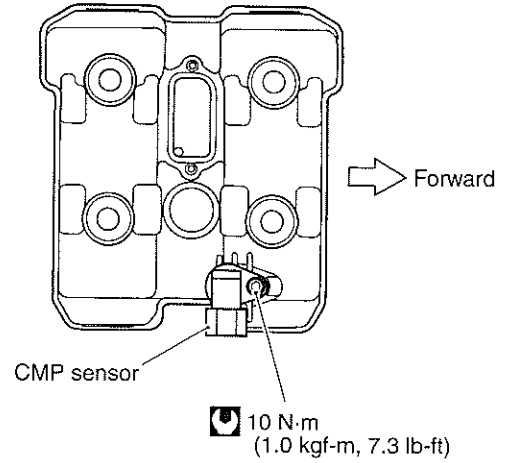


ENGINE ELECTRICAL PARTS SET-UP

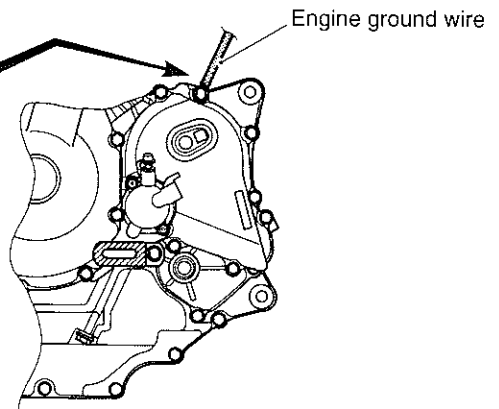
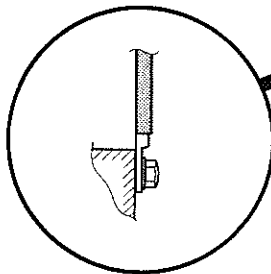
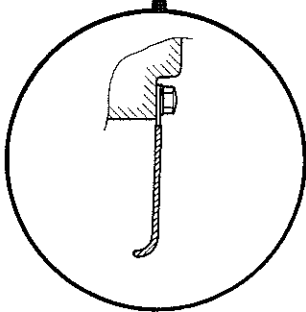
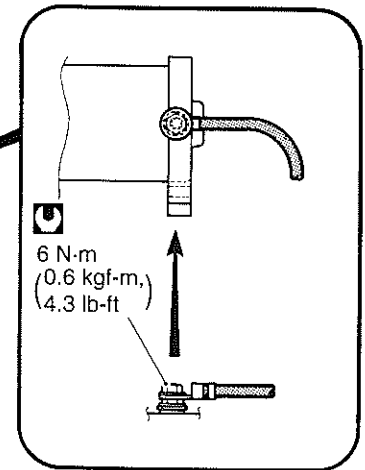
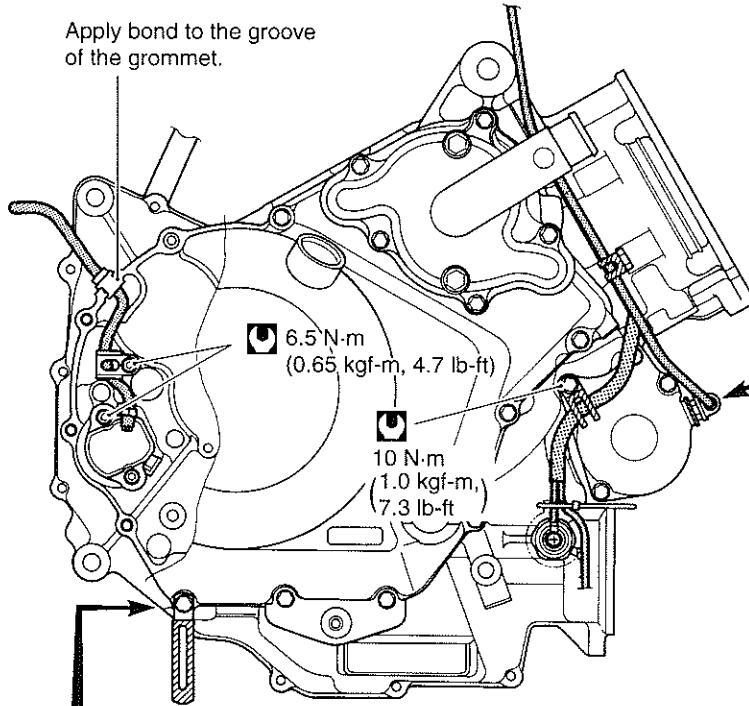
Apply bond to the groove of the grommet.



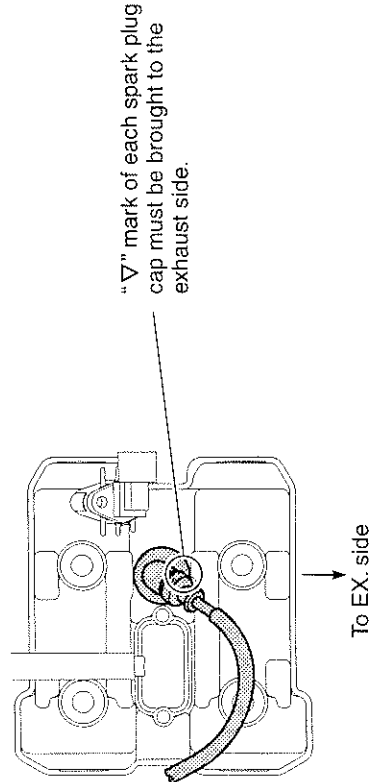
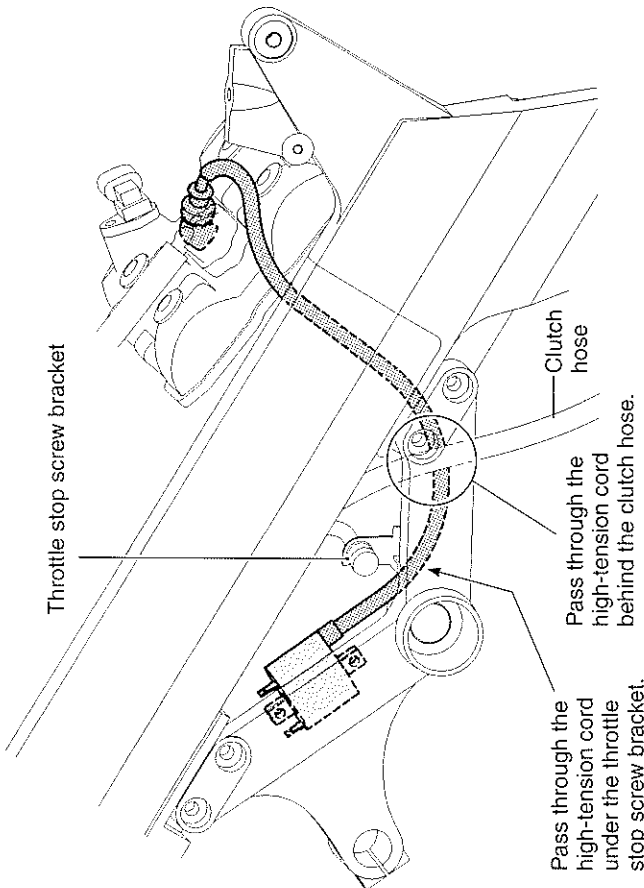
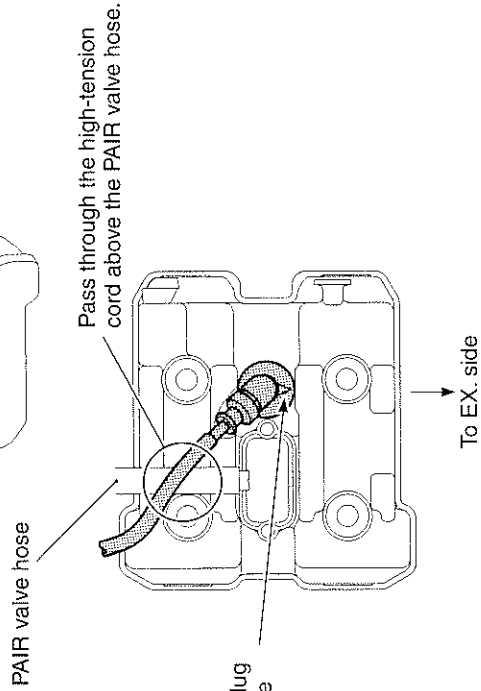
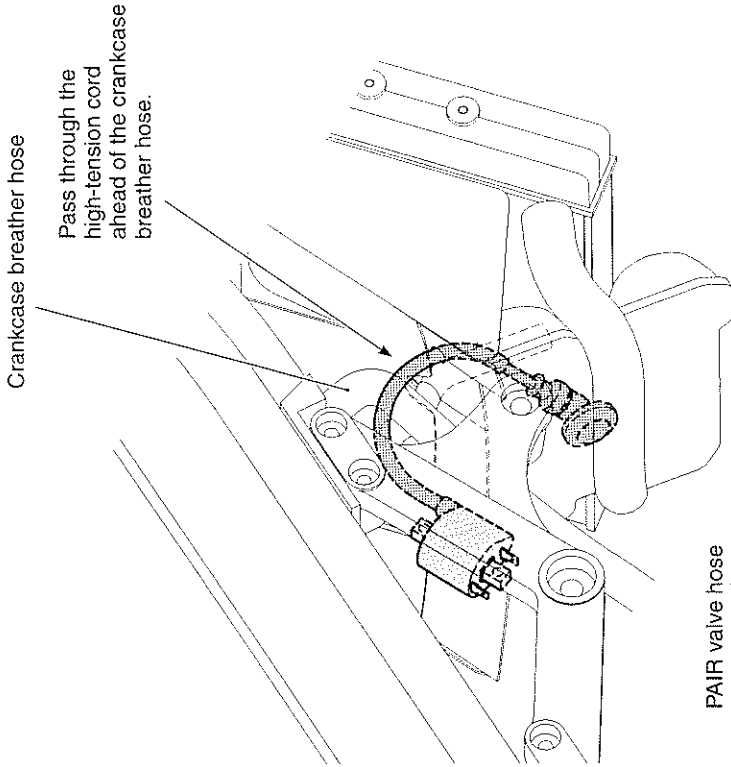
#2 Cylinder



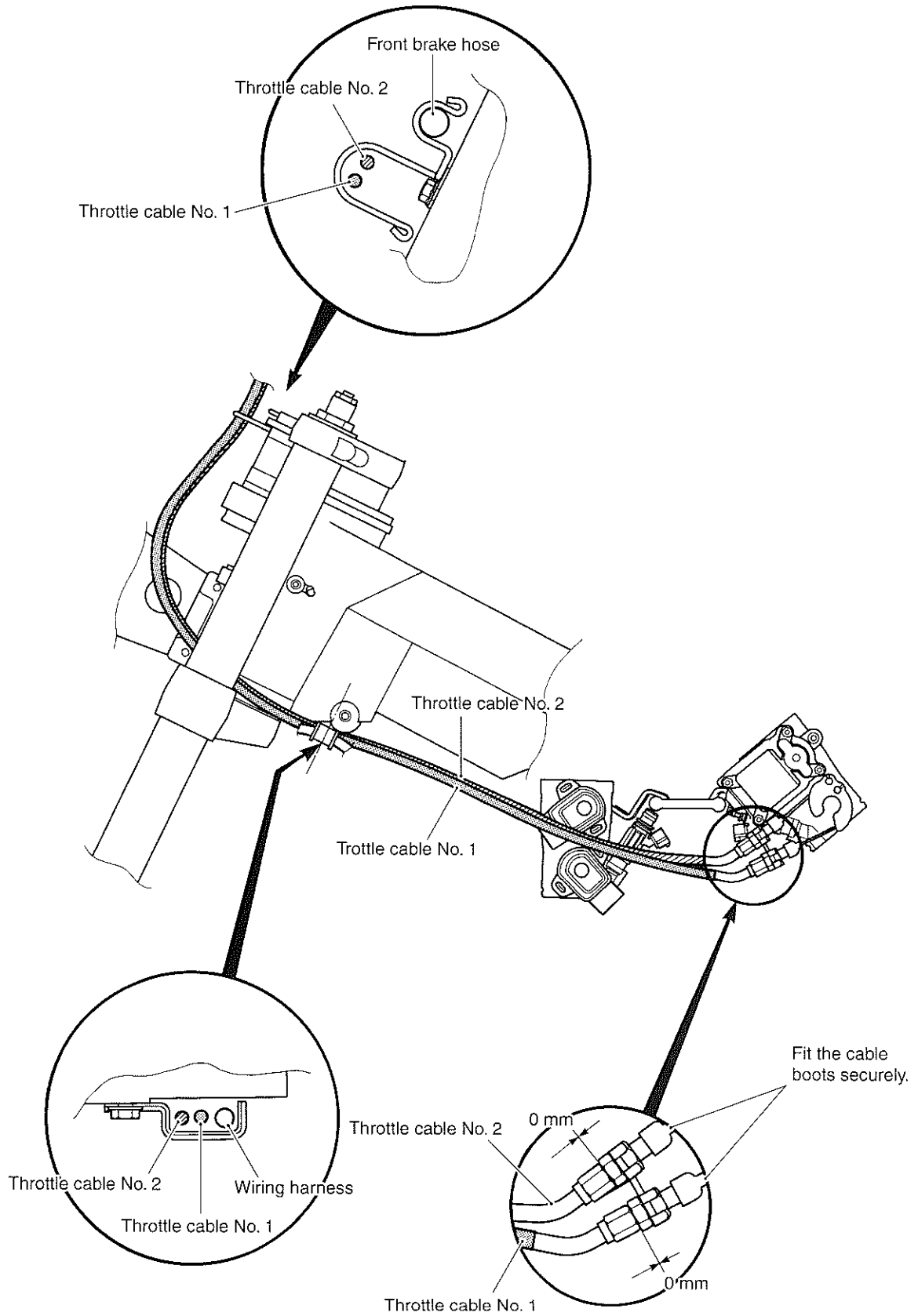
Apply bond to the groove of the grommet.



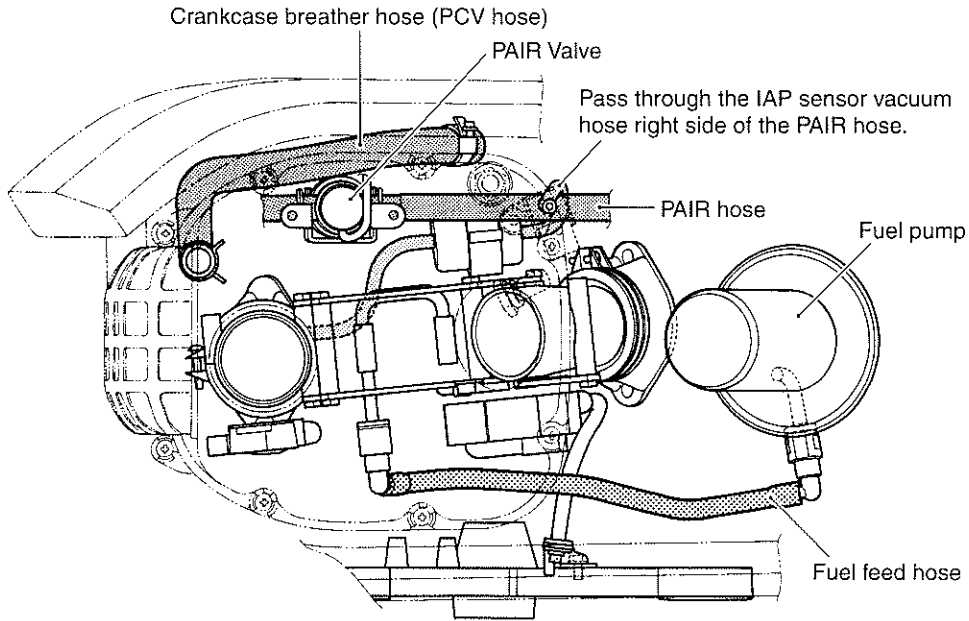
HIGH-TENSION CORD ROUTING



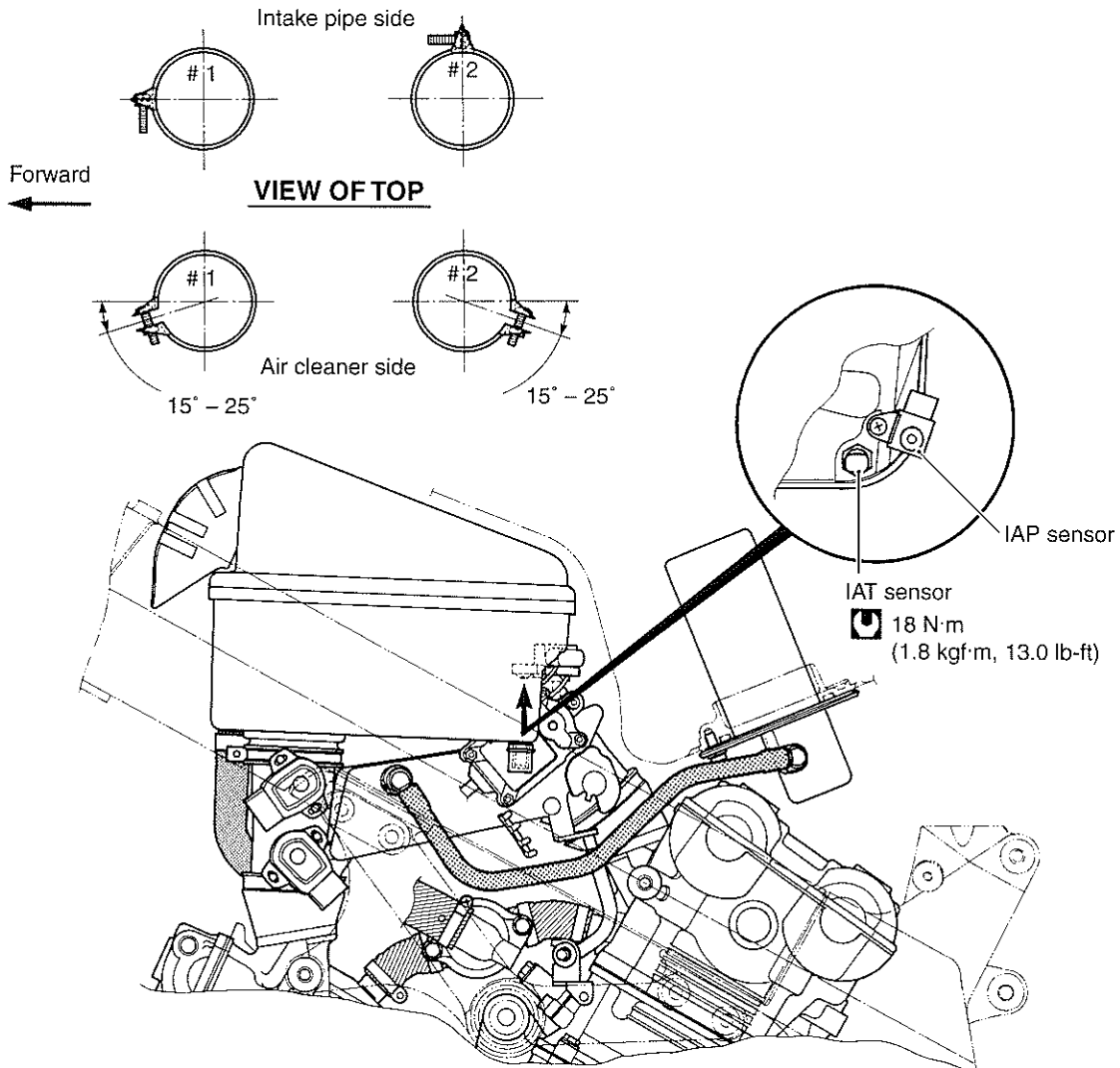
THROTTLE CABLE ROUTING



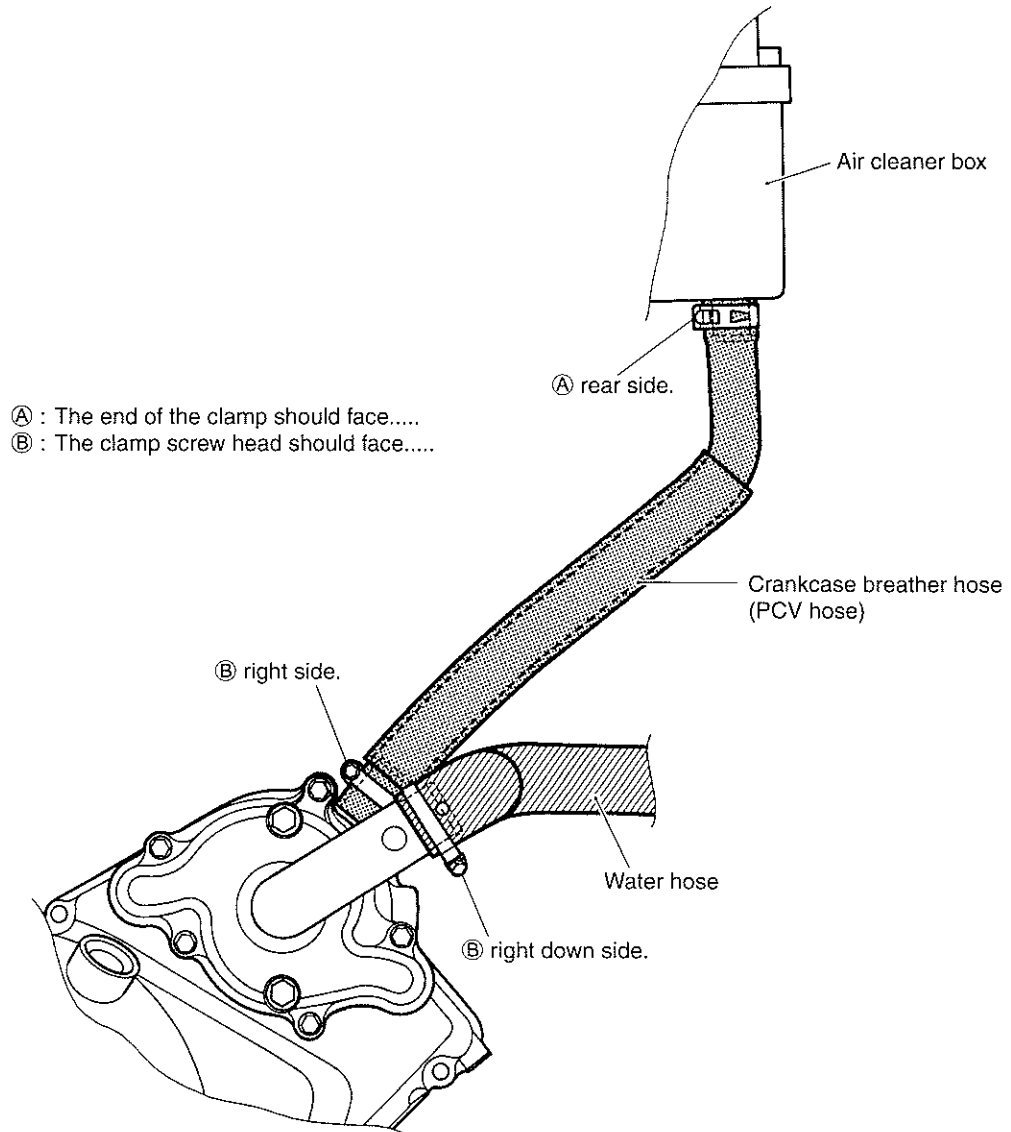
THROTTLE BODY INSTALLATION/HOSE ROUTING



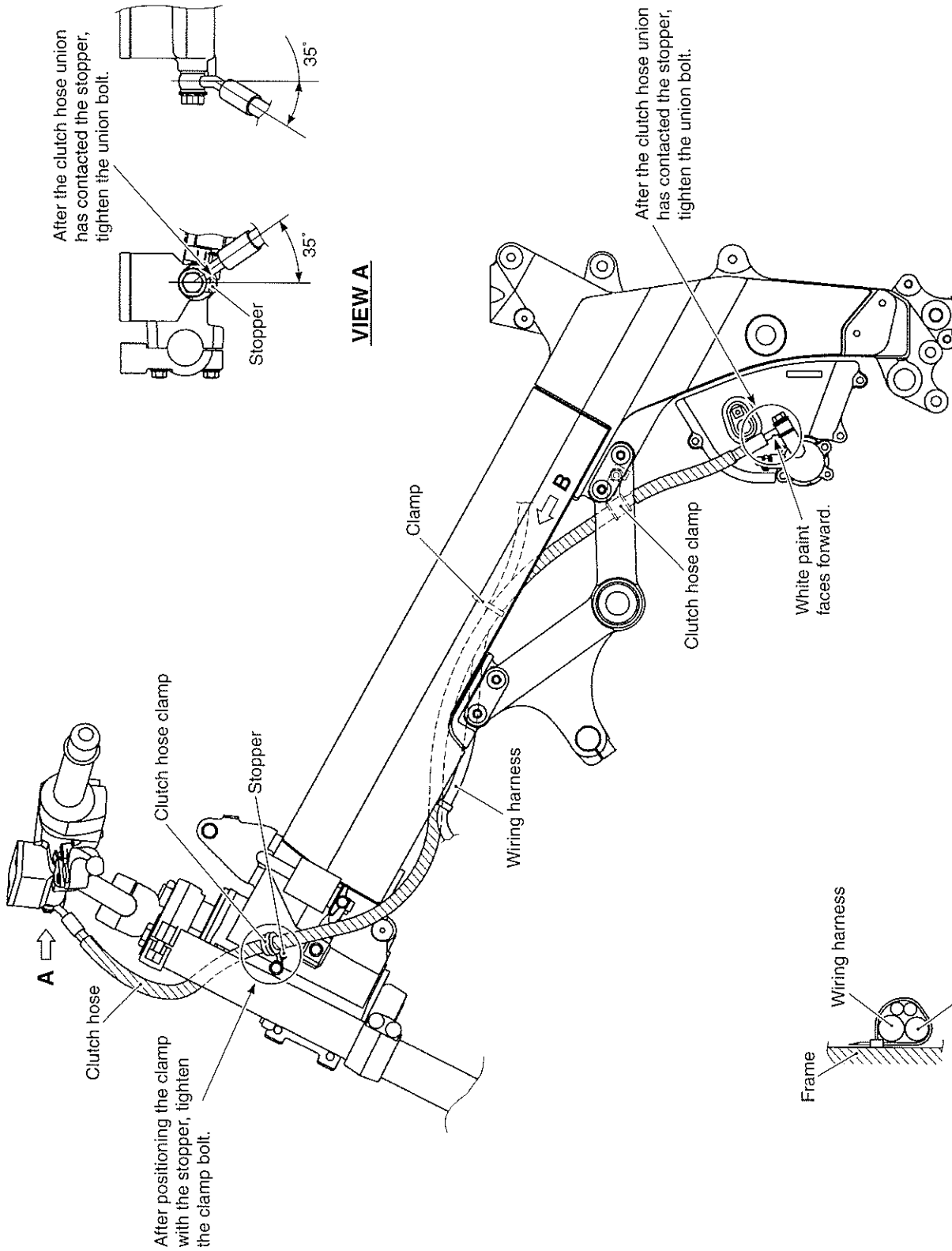
THROTTLE BODY CLAMP POSITION



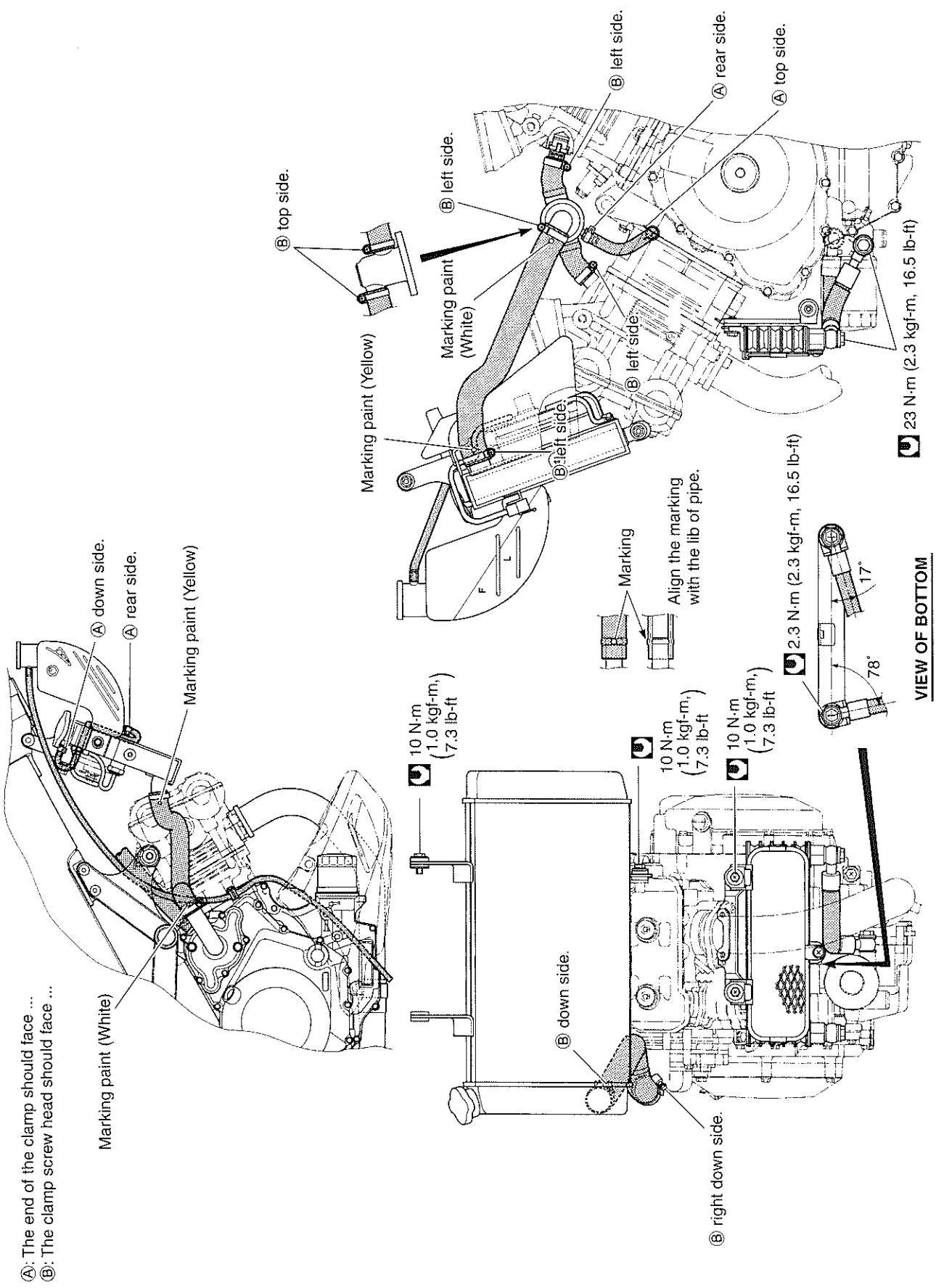
CRANKCASE BREATHER HOSE ROUTING



CLUTCH HOSE ROUTING



COOLING SYSTEM HOSE ROUTING



(A): The end of the clamp should face ...
 (B): The clamp screw head should face ...

Marking paint (White)

Marking paint (Yellow)

Marking paint (Yellow)

10 N·m
(1.0 kgf-m,
7.3 lb-ft)

10 N·m
(1.0 kgf-m,
7.3 lb-ft)

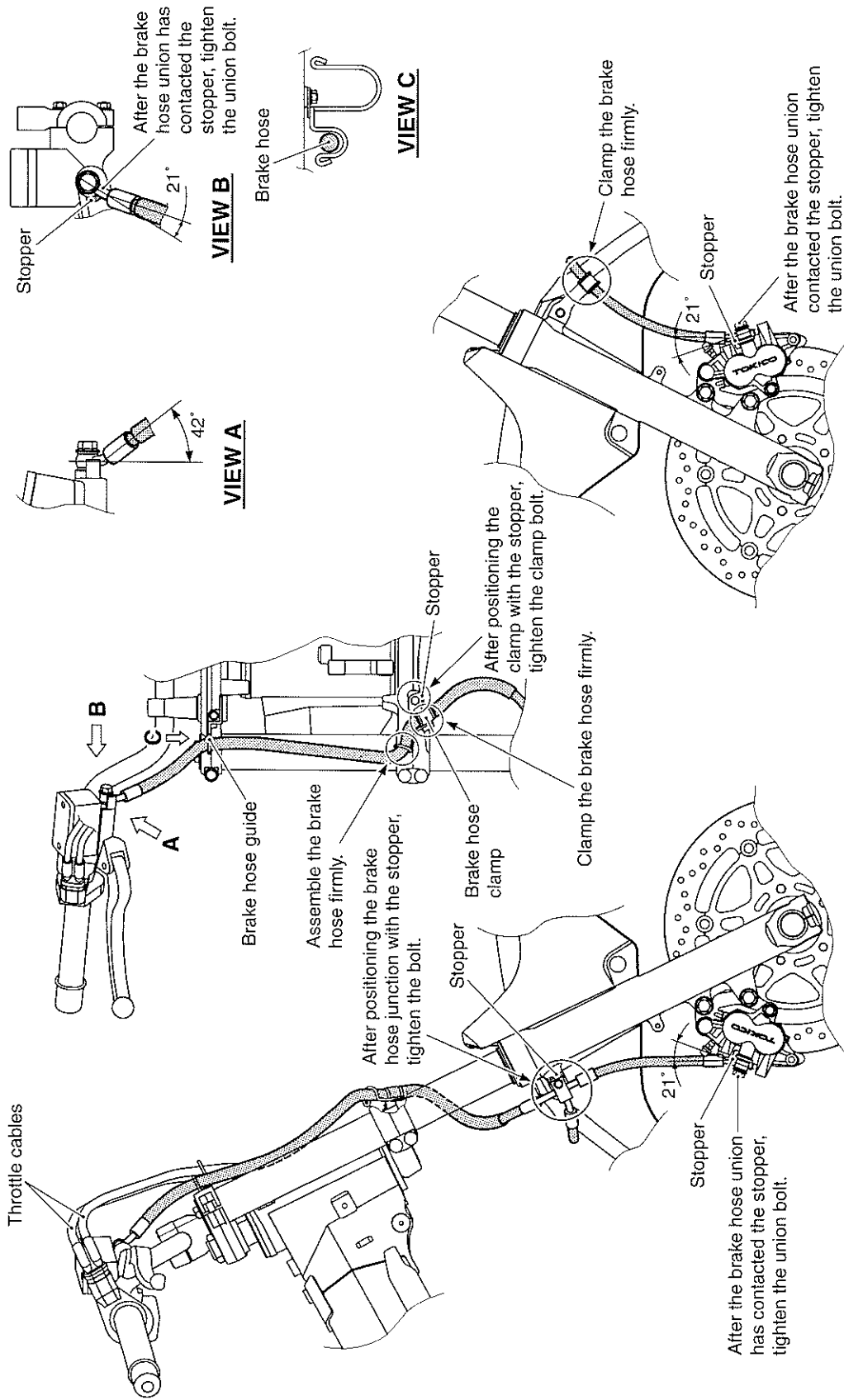
10 N·m
(1.0 kgf-m,
7.3 lb-ft)

2.3 N·m (2.3 kgf-m, 16.5 lb-ft)

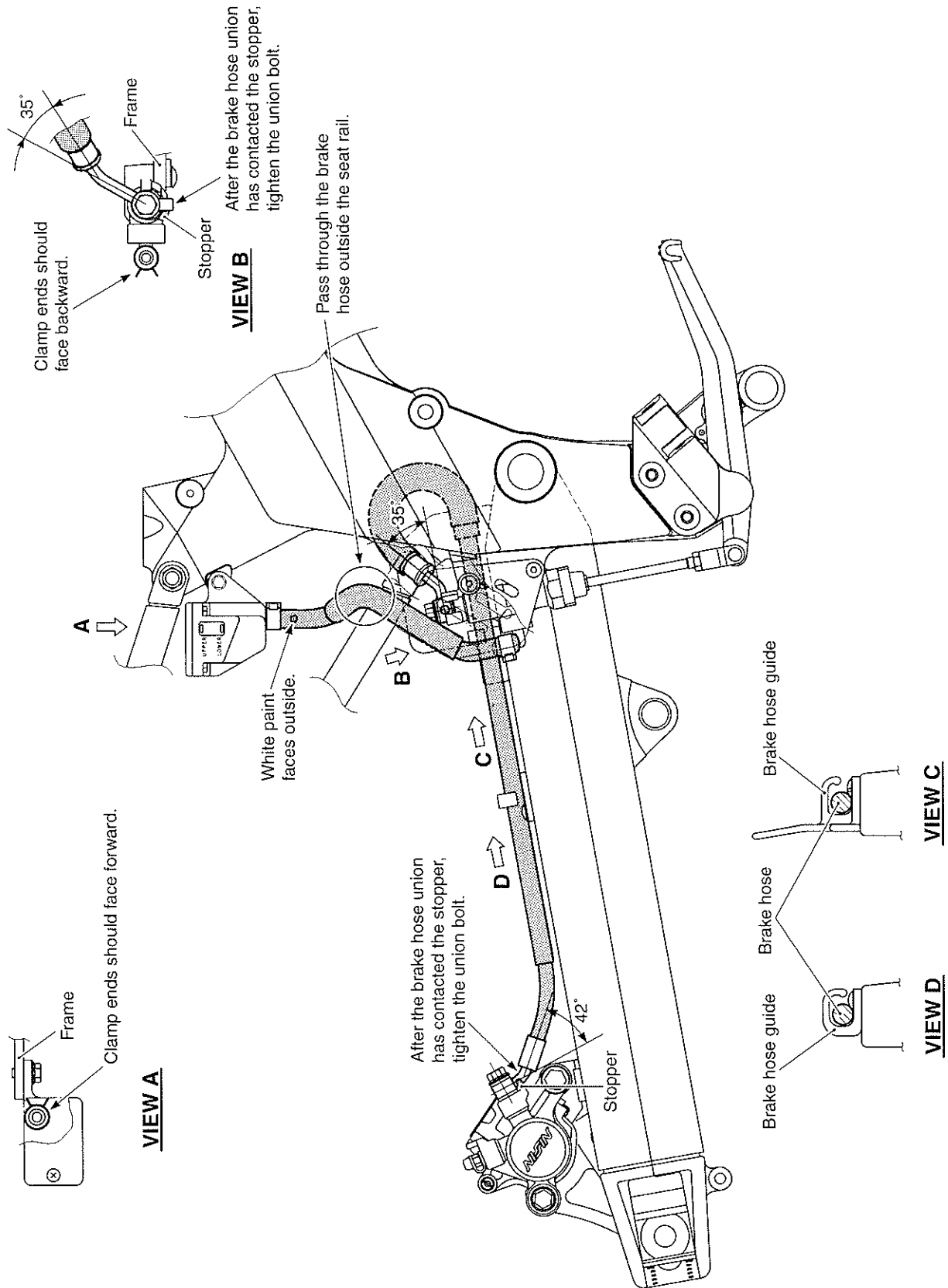
23 N·m (2.3 kgf-m, 16.5 lb-ft)

VIEW OF BOTTOM

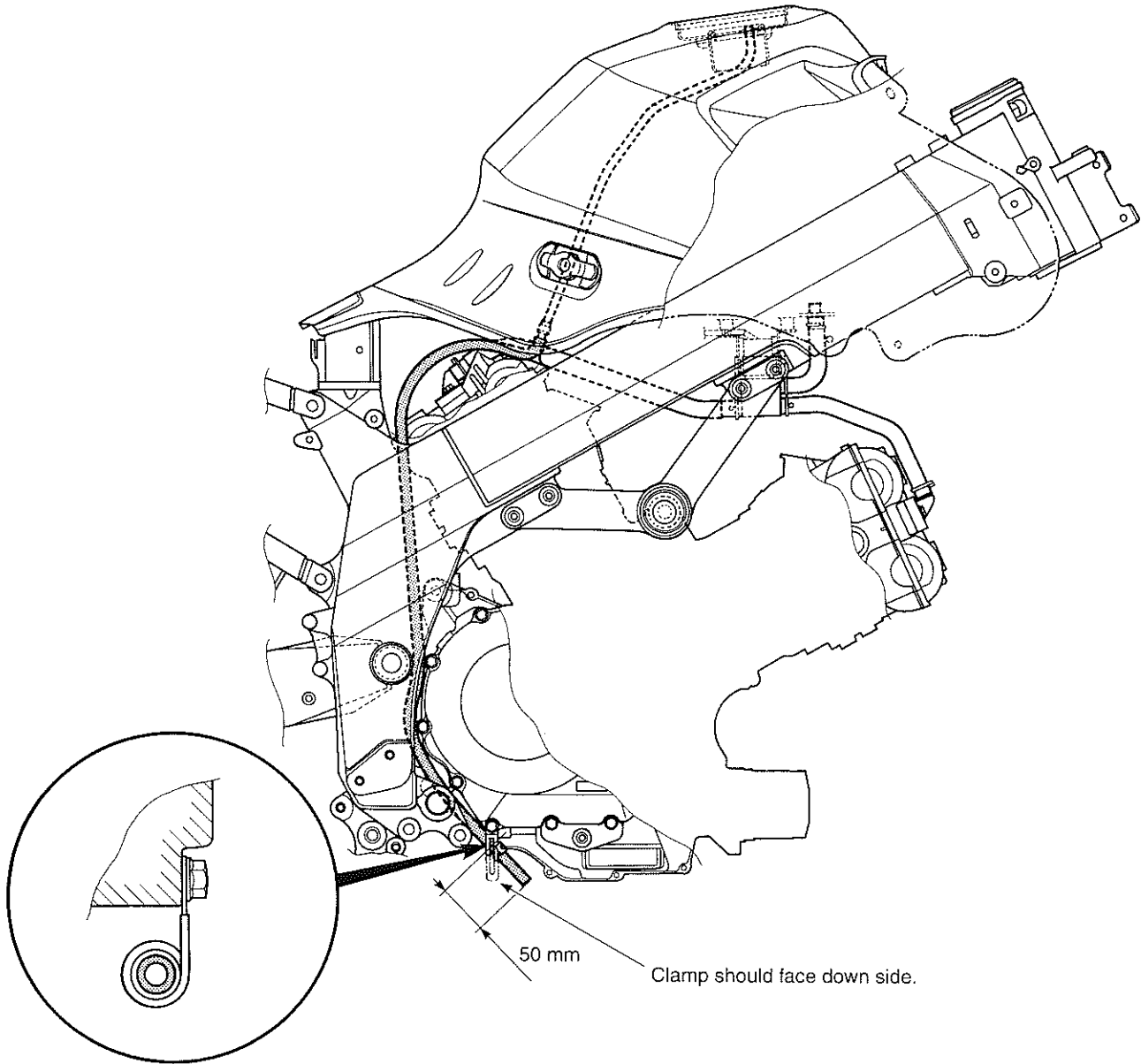
FRONT BRAKE HOSE ROUTING



REAR BRAKE HOSE ROUTING

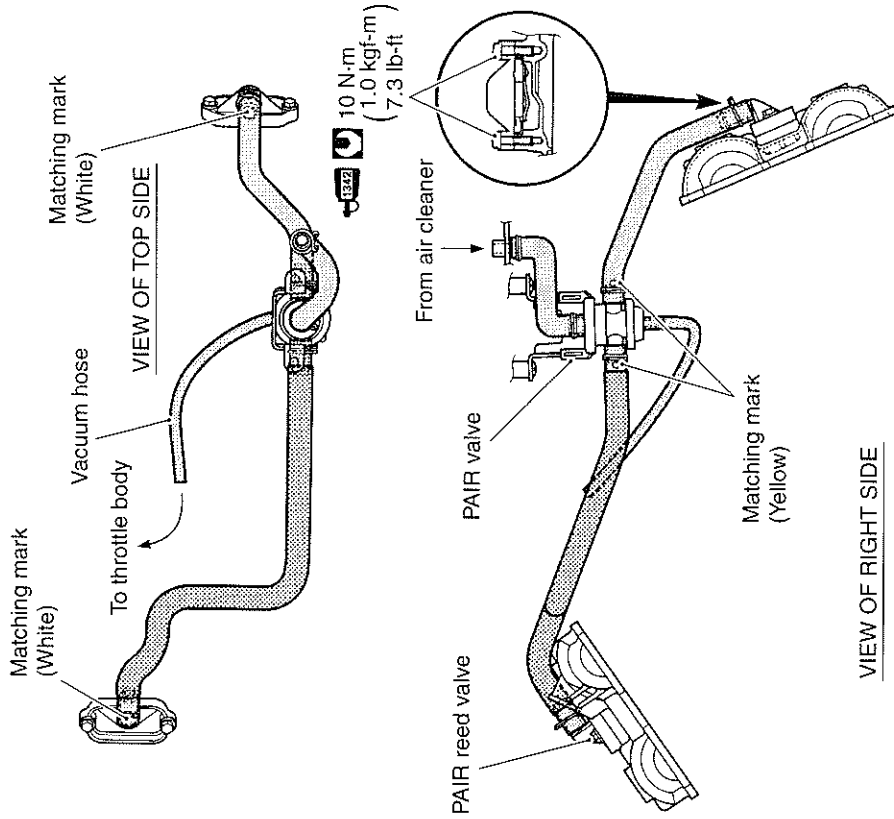


FUEL TANK DRAIN HOSE ROUTING

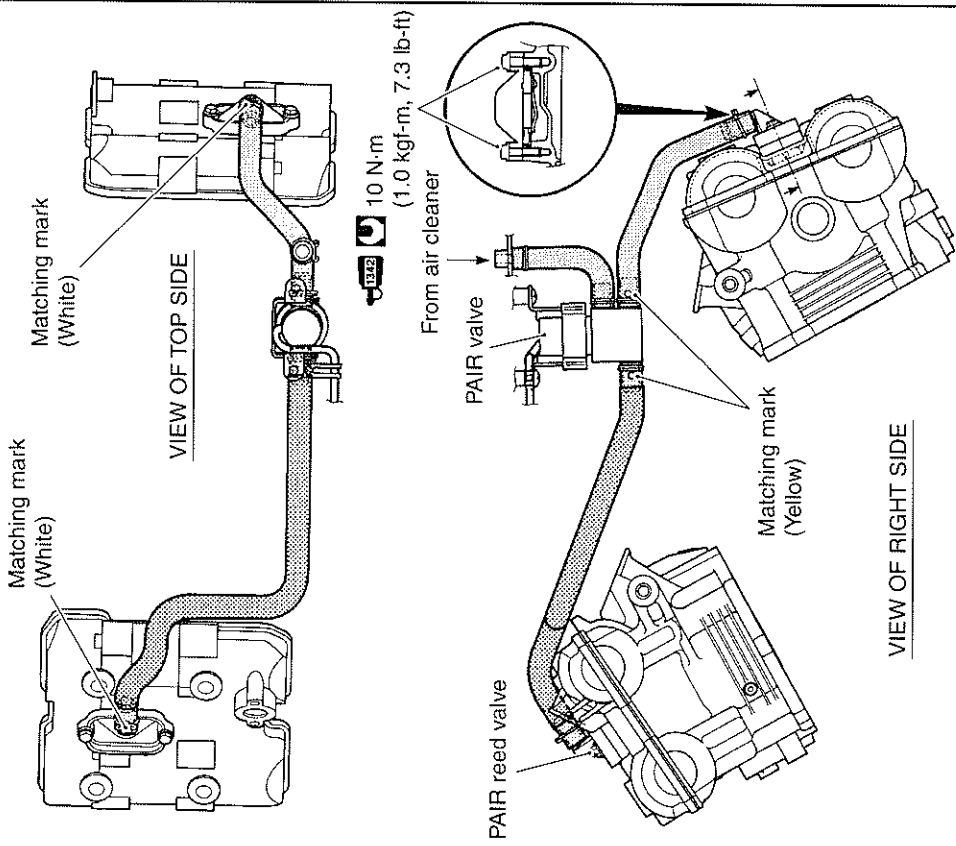


PAIR (AIR SUPPLY) SYSTEM HOSE ROUTING

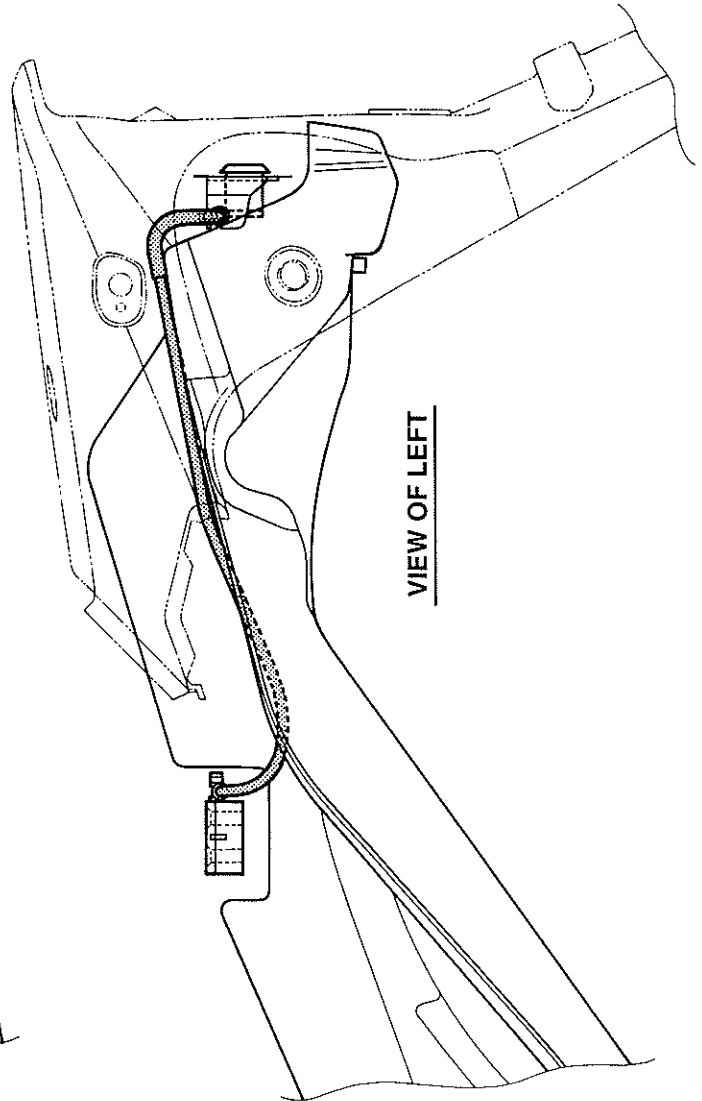
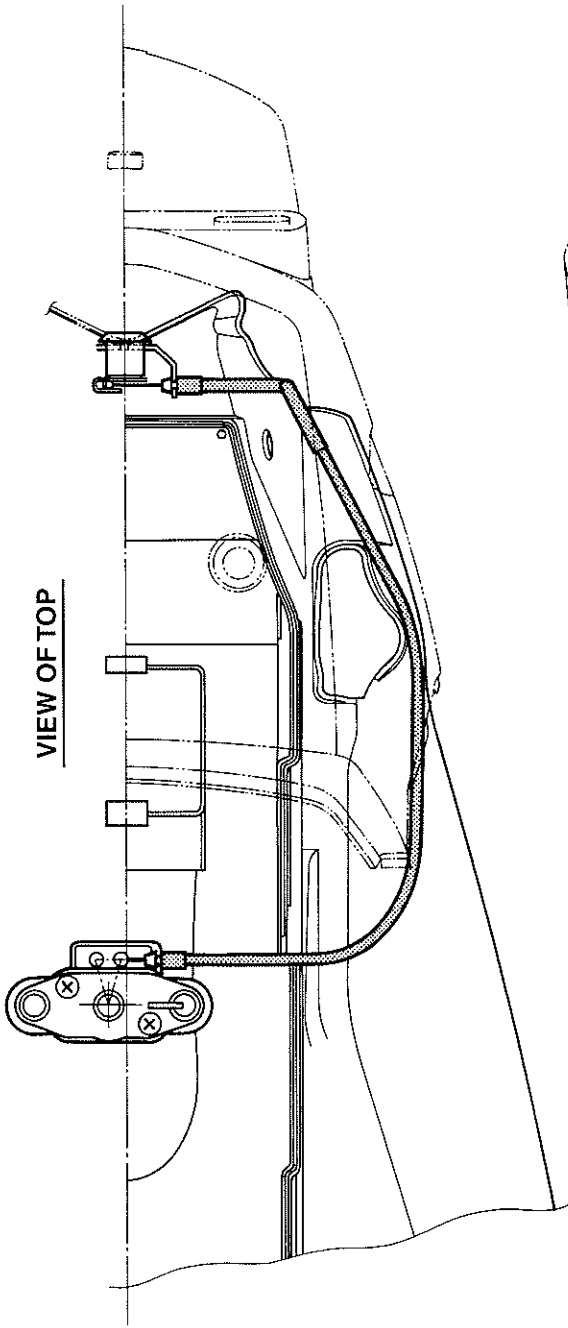
For USA/CANADA/AUSTRALIA



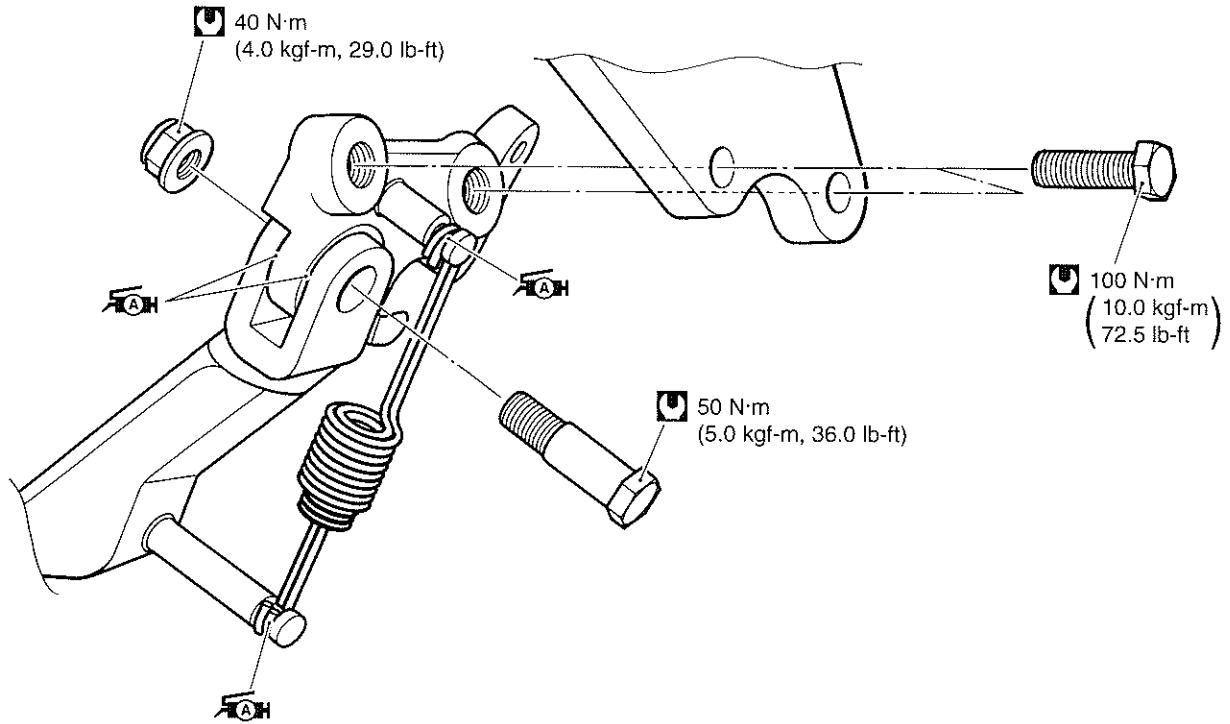
For European markets



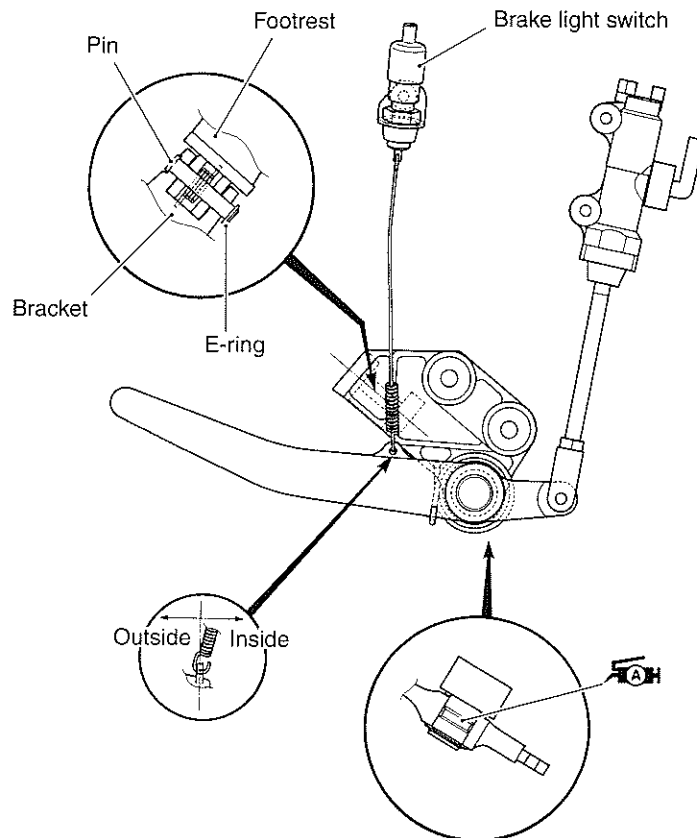
SEAT LOCK CABLE ROUTING



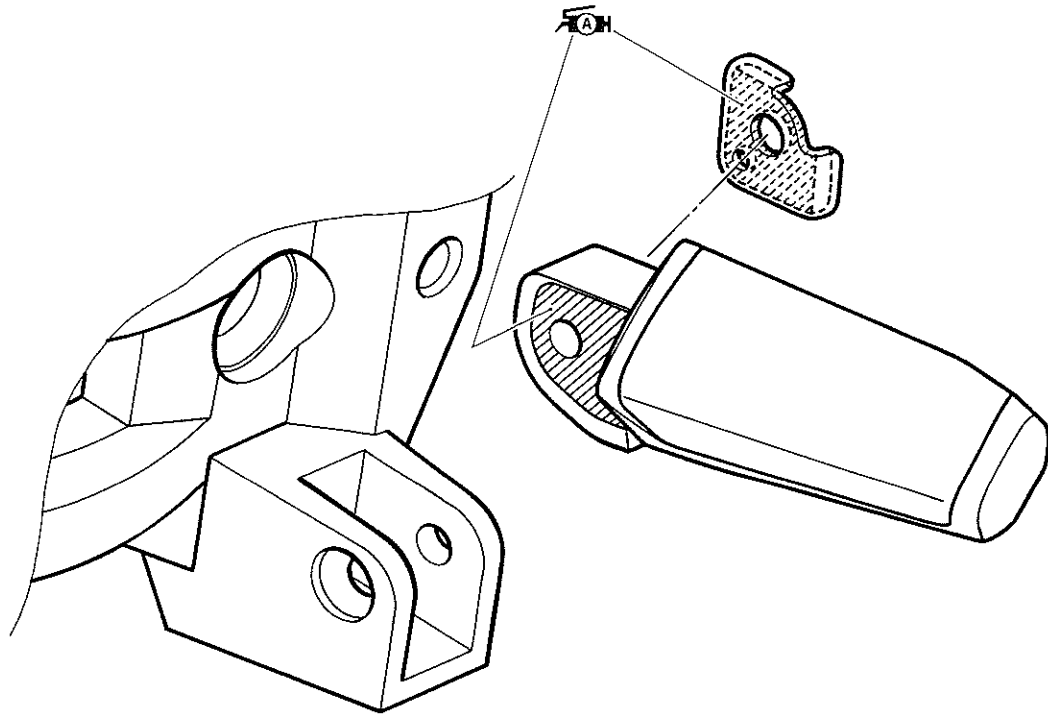
SIDE-STAND SET-UP



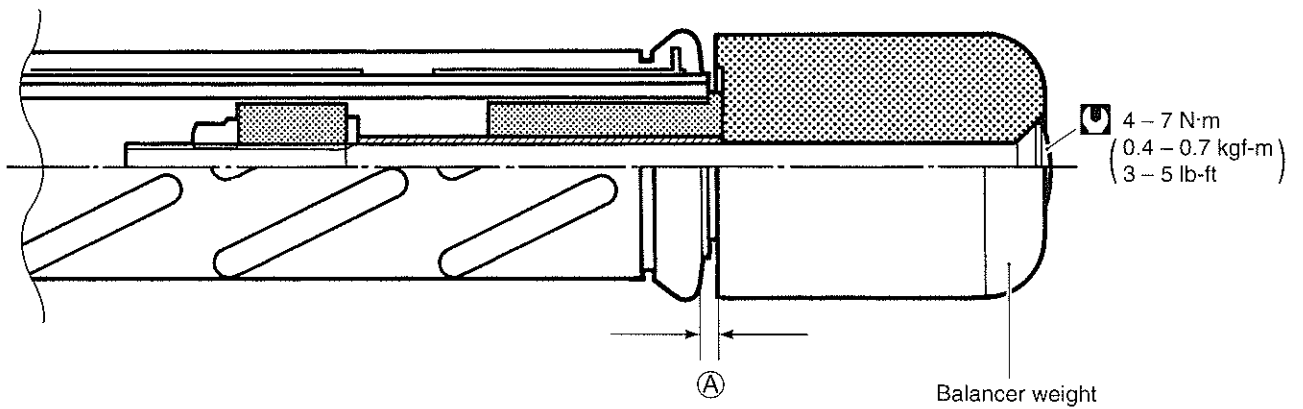
BRAKE PEDAL/FOOTREST SET-UP



FOOTREST SET-UP



HANDLEBAR BALANCER INSTALLATION

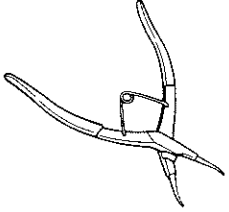
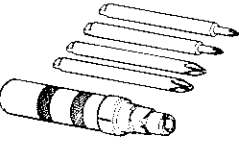
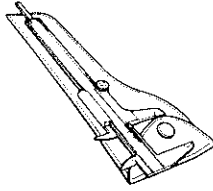
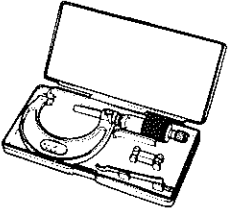
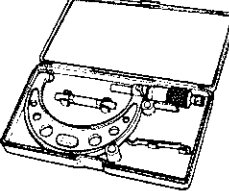
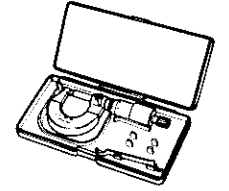
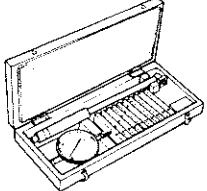
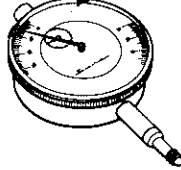
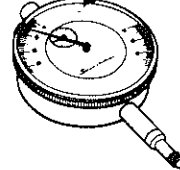
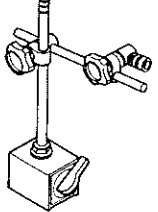
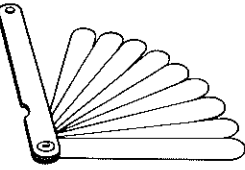
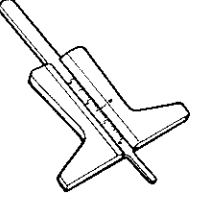
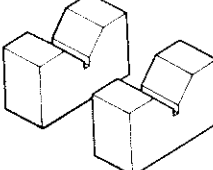
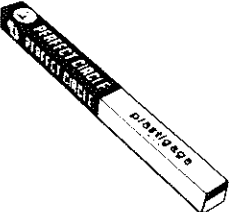
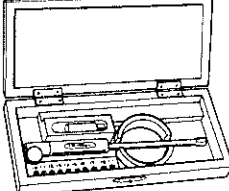
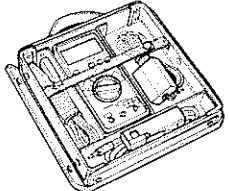
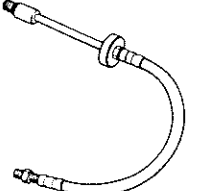
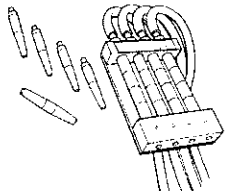
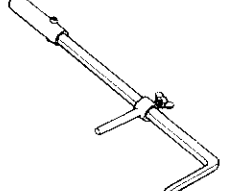
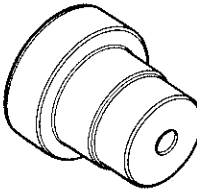
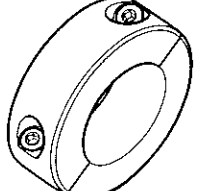
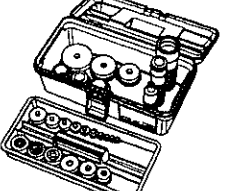

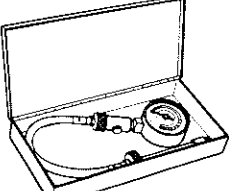


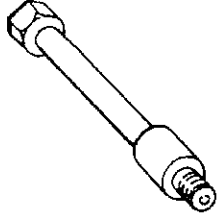
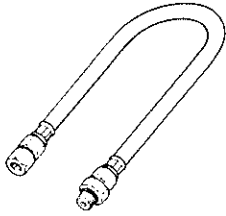
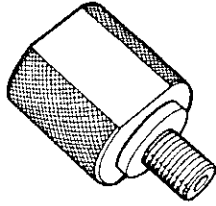
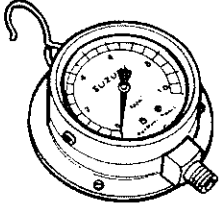
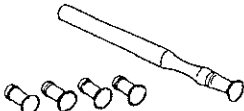
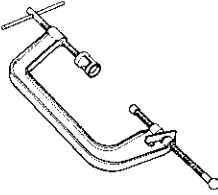
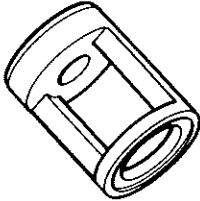
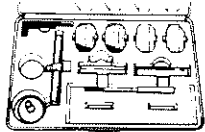
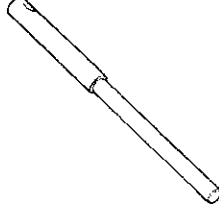
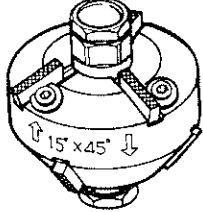
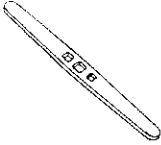

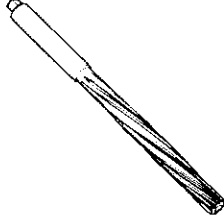

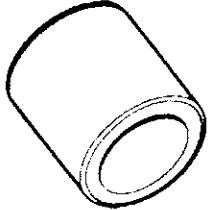
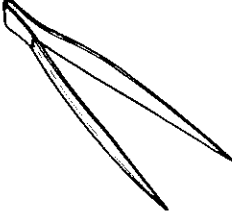
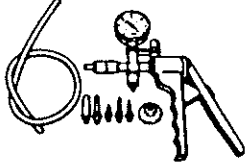
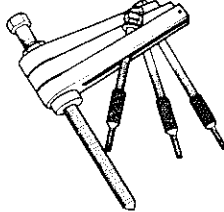
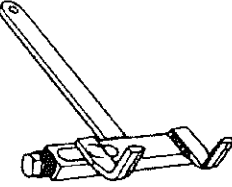
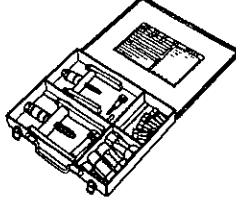
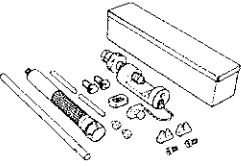
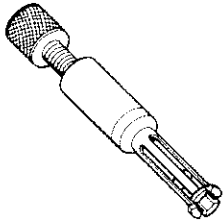
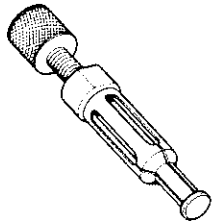
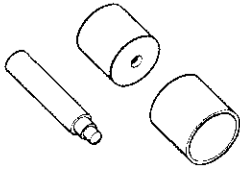
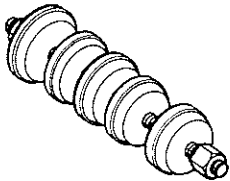
LH clearance $\text{\textcircled{A}}$ is 0 mm.
RH clearance $\text{\textcircled{A}}$ is 0.5 – 1.5 mm.

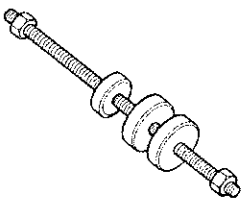
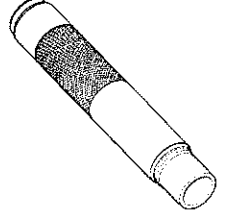
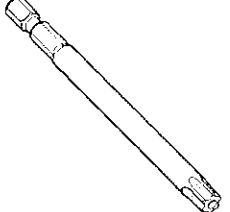
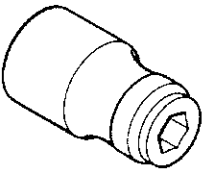
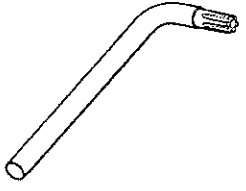
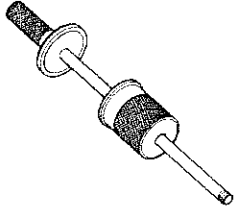
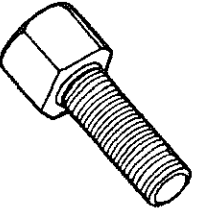
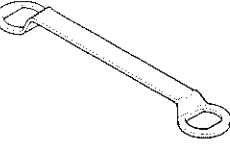
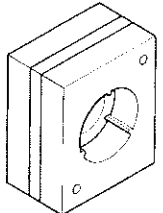
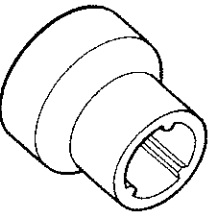
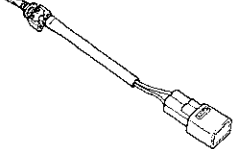
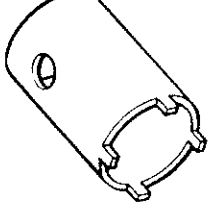
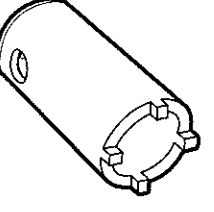
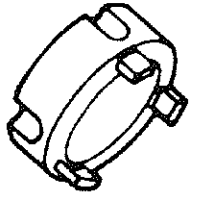
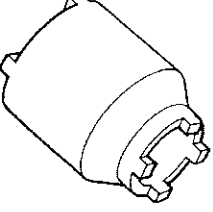
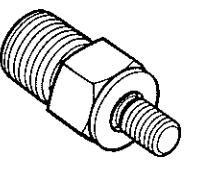
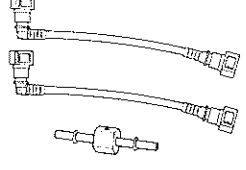
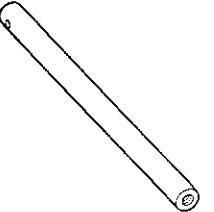
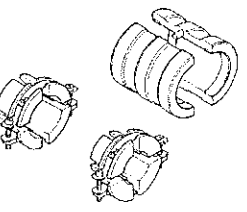

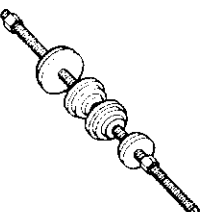
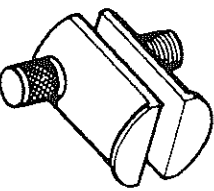
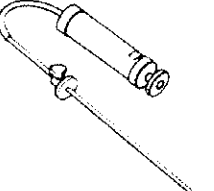
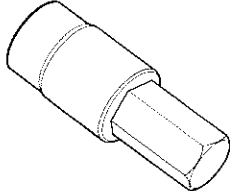
NOTE:

After installing the RH balancer weight, check that throttle grip rotate smoothly by turning it.

SPECIAL TOOLS

 <p>09900-06107 Snap ring pliers</p>	 <p>09900-06108 Snap ring pliers</p>	 <p>09900-09004 Impact driver set</p>	 <p>09900-20101 or 09900-20102 Vernier calipers</p>	 <p>09900-20202 Micrometer (25 - 50 mm)</p>
 <p>09900-20204 Micrometer (75 - 100 mm)</p>	 <p>09900-20205 Micrometer (0 - 25 mm)</p>	 <p>09900-20508 Cylinder gauge set</p>	 <p>09900-20602 Dial gauge (1/1000 mm, 1 mm)</p>	 <p>09900-20607 Dial gauge (1/100 mm, 10 mm)</p>
 <p>09900-20701 Magnetic stand</p>	 <p>09900-20803 09900-20806 Thickness gauge</p>	 <p>09900-20805 Tire depth gauge</p>	 <p>09900-21304 V-block (100 mm)</p>	 <p>09900-22301 09900-22302 Plastigauge</p>
 <p>09900-22403 Small bore gauge (18 - 35 mm)</p>	 <p>09900-25008 Multi circuit tester set</p>	 <p>09913-10750 Compression gauge adapter</p>	 <p>09913-13121 Carburetor balancer set</p>	 <p>09913-50121 Oil seal remover</p>
 <p>09913-60230 Journal bearing remover/installer</p>	 <p>09913-60240 Journal bearing holder</p>	 <p>09913-70210 Bearing installer set</p>	 <p>09915-40610 Oil filter wrench</p>	 <p>09915-64510 Compression gauge</p>

 <p>09915-72410 Oil pressure gauge attachment</p>	 <p>09915-74521 Oil pressure gauge hose</p>	 <p>09915-74532 Oil pressure gauge adaptor</p>	 <p>09915-77331 Meter (for high pressure)</p>	 <p>09916-10911 Valve lapper set</p>
 <p>09916-14510 Valve spring compressor</p>	 <p>09916-14910 Valve spring compressor attachment</p>	 <p>09916-21111 Valve seat cutter set</p>	 <p>09916-24480 Solid pilot (N-140-5.5)</p>	 <p>Valve seat cutter head See page 3-42.</p>
 <p>09916-34542 Reamer handle</p>	 <p>09916-34550 Valve guide reamer (5.5 mm)</p>	 <p>09916-34580 Valve guide reamer (10.8 mm)</p>	 <p>09916-44910 Valve guide remover/installer</p>	 <p>09916-53340 Attachment</p>
 <p>09916-84511 Tweezers</p>	 <p>09917-47010 Vacuum pump gauge</p>	 <p>09920-13120 Crankcase separating tool</p>	 <p>09920-53740 Clutch sleeve hub holder</p>	 <p>09921-20240 Bearing remover set</p>
 <p>09922-22711 Drive chain cutting and joining tool</p>	 <p>09923-73210 Bearing remover</p>	 <p>09923-74511 Bearing puller</p>	 <p>09924-74570 Final drive gear bearing installer/remover</p>	 <p>09924-84510 Bearing installer set</p>

 <p>09924-84521 Bearing installer set</p>	 <p>09925-18011 Steering bearing installer</p>	 <p>09930-11920 Torx bit JT40H</p>	 <p>09930-11940 Bit holder</p>	 <p>09930-11950 Torx wrench</p>
 <p>09930-30102 Sliding shaft</p>	 <p>09930-30450 Rotor remover</p>	 <p>09930-44541 Rotor holder</p>	 <p>09930-73110 Starter torque limiter holder</p>	 <p>09930-73120 Starter torque limiter socket</p>
 <p>09930-82710 Mode selection switch</p>	 <p>09940-14911 Steering stem nut wrench</p>	 <p>09940-14940 Swingarm pivot thrust adjuster socket wrench</p>	 <p>09940-14960 Steering nut wrench socket</p>	 <p>09940-14990 Engine mounting thrust adjuster socket wrench</p>
 <p>09940-40211 Fuel pressure gauge adapter</p>	 <p>09940-40220 Fuel pressure gauge hose attachment</p>	 <p>09940-52841 Front fork inner rod holder</p>	 <p>09940-52861 Front fork oil seal installer</p>	 <p>099340-92720 Spring scale</p>
 <p>09941-34513 Steering race installer</p>	 <p>09941-54911 Bearing outer race remover</p>	 <p>09943-74111 Fork oil level gauge</p>	 <p>09944-28320 HEXAGON BIT</p>	

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
Cylinder nut	[M: 6]	10	1.0	7.0
Water drain bolt	[M: 6]	5.5	0.55	4.0
	[M: 8]	13	1.3	9.5
Clutch sleeve hub nut		150	15.0	108.5
Clutch spring set bolt		10	1.0	7.0
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		160	16.0	115.5
Starter clutch bolt		26	2.6	19.0
Generator stator set bolt		10	1.0	7.0
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]	11	1.1	8.0
Oil gallery plug	[M: 16]	35	3.5	25.5
	[M: 8]	18	1.8	13.0
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°).		

ITEM		N·m	kgf-m	lb-ft
Exhaust pipe bolt		23	2.3	16.5
Muffler mounting bolt/nut		23	2.3	16.5
Oil cooler 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]	75	7.5	54.0
	[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
Engine mounting bracket pinch bolt		23	2.3	16.5
Engine mounting bracket bolt		23	2.3	16.5
Cooling fan thermo-switch		18	1.8	13.0

FI SYSTEM PARTS

ITEM		N·m	kgf-m	lb-ft
Speed sensor rotor bolt		13	1.3	9.5
ECTS		18	1.8	13.0
IATS		18	1.8	13.0
CMPS mounting bolt		8	0.8	5.7
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 and STPS mounting screw		3.5	0.35	2.5

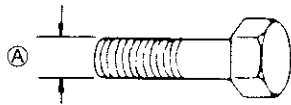
CHASSIS

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	20	2.0	14.5
Front fork damper rod bolt	20	2.0	14.5
Front axle	100	10.0	72.5
Front axle pinch bolt	23	2.3	16.5
Handlebar clamp bolt	23	2.3	16.5
Handlebar holder nut	45	4.5	32.5
Front brake master cylinder mounting bolt	10	1.0	7.0
Front brake caliper mounting bolt	39	3.9	28.0
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	7.5	0.75	5.5
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	19.5
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	17	1.7	12.5
Rear brake pad mounting pin plug	2.5	0.25	1.8
Front footrest bracket mounting bolt	26	2.6	19.0
Swingarm pivot shaft	15	1.5	11.0
Swingarm pivot nut	100	10.0	72.5
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 axle nut	100	10.0	72.5
Rear sprocket nut	60	6.0	43.5
Seat rail mounting bolt	50	5.0	36.0
Cowling brace mounting bolt/nut	35	3.5	25.5

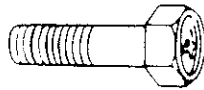
TIGHTENING TORQUE CHART

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 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
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.	—	39.6 (1.56)
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.	36.28 – 36.32 (1.428 – 1.430)	35.98 (1.417)
	EX.	35.68 – 35.72 (1.405 – 1.406)	35.38 (1.393)
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)
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)	0.5 (0.02)
	2nd	RN 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)

ITEM	STANDARD		LIMIT
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.	21.992 – 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 journal holder width	25.2 – 25.4 (0.99 – 1.00)	—
Crankshaft journal width	25.50 – 25.55 (1.004 – 1.006)	—
Crankshaft runout	—	0.05 (0.004)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 400 kPa (4.0 kgf/cm ² , 57 psi) Below 700 kPa (7.0 kgf/cm ² , 100 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	61.5 – 62.5 (2.42 – 2.46)		59.4 (2.34)
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)		—

THERMOSTAT + RADIATOR + FAN

ITEM	STANDARD		LIMIT
Thermostat valve opening temperature	86.5 – 89.5 °C (188 – 193 °F)		—
Thermostat valve lift	Over 8 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 thermostat operating temperature	ON→OFF	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. 1.148 kΩ	—
	60 °C (140 °F)	Approx. 0.587 kΩ	—
	80 °C (176 °F)	Approx. 0.322 kΩ	—

DRIVE TRAIN

Unit: mm (in) Expect ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		1.838 (57/31)	—
Final reduction ratio		2.411 (41/17)	—
Gear ratio	Low	3.000 (36/12)	—
	2nd	1.933 (29/15)	—
	3rd	1.500 (27/18)	—
	4th	1.227 (27/22)	—
	5th	1.086 (25/23)	—
	Top	0.913 (21/23)	—
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	RK525SMOZ7	—
	Links	112 links, ENDLESS	—
	20-pitch length	—	319.4 (12.6)
Drive chain slack		20 – 30 (0.8 – 1.2)	—
Gearshift lever height		25 (1.0)	—

INJECTOR + FUEL PUMP + FUEL PRESSURE REGURATOR

ITEM	SPECIFICATION	NOTE
Injector resistance	12 – 18 Ω at 20 °C (68°F)	
Fuel pump discharge amount	Approx. 1.2 L (1.3/1.1 US/lmp qt) for 30 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	More than 3.7 V		
CKP sensor resistance	130 – 240 Ω		
CKP sensor peak voltage	More than 3.7 V (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. 1.1 k Ω	
	Opened	Approx. 4.3 k Ω	
TP sensor output voltage	Closed	Approx. 1.1 V	
	Opened	Approx. 4.3 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 760 mmHg (100kPa)		
TO sensor resistance	19.1 – 19.7 k Ω		
TO sensor voltage	Approx. 0.4 – 1.4 V		
GP switch voltage	More than 1.0 V (From 1st to top)		
Injector voltage	Battery voltage		
Ignition coil primary peak voltage	More than 150 V (When cranking)		
STP sensor input voltage	4.5 – 5.5 V		
STP sensor resistance	Closed	Approx. 1.1 k Ω	
	Opened	Approx. 4.3 k Ω	
STP sensor output voltage	Closed	Approx. 1.1 V	
	Opened	Approx. 4.3 V	
STV actuator resistance	4.8 – 7.2 Ω		
Heated oxygen sensor output voltage	less than 0.4 V at idle speed (After warming up)		European markets
Heated oxygen sensor resistance	4 – 5 Ω at 23 °C (73.4 °F)		
PAIR solenoid valve resistance	20 – 24 Ω at 20 °C (68 °F)		

THROTTLE BODY

ITEM	SPECIFICATION
ID No.	06G0 (For E-02, 19), 06G1 (For E-33), 06G2 (For E-03, 24, 28)
Bore size	45 mm
Fast idle r/min	1 500 – 2 100 r/min at 25 °C (77 °F)
Idle r/min	1 200 \pm 100 r/min/Warmed engine
Throttle cable play	2.0 – 4.0 r/min (0.08 – 0.16 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		4° B.T.D.C. at 1 200 r/min		
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 – 5 Ω	⊕ tap – ⊖ tap
		Secondary	24 – 37 kΩ	⊕ tap – Plug cap
Crankshaft position sensor peak voltage		More than 3.7 V		When cranking
Ignition coil primary peak voltage		More than 150 V		When cranking
Generator coil resistance		0.2 – 0.5 Ω		Y – Y
Generator Max. output		Approx. 350 W at 5 000 r/min		
Generator no-load voltage (When engine is cold)		More than 75 V (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		
Fuze size	Headlight	HI	15 A	
		LO	15 A	
	Turn signal	15 A		
	Ignition	15 A		
	Fan motor	15 A		
	Meter	10 A		
	Main	30 A		

WATTAGE

Unit: W

ITEM		SPECIFICATION	
		E-03, 24, 28, 33	The others
Headlight	HI	60 × 2	←
	LO	55 × 2	←
Position light			5 × 2
Brake light/Taillight		21/5 × 2	←
Turn signal light		10 × 4	←
Speedometer Tachometer light		LED	←
Turn signal indicator light		LED	←
High beam indicator light		LED	←
Neutral indicator light		LED	←
Over drive indicator light		LED	←
Coolant temperature warning light		LED	←
Oil pressure warning light		LED	←
Fuel injection warning light		LED	←
License light		5	←

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake pedal height	20 – 30 (0.8 – 1.2)		—
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	Front	30.230 – 30.306 (1.1902 – 1.1931)	—
	Rear	38.180 – 38.230 (1.5031 – 1.5051)	—
Brake caliper piston diam.	Front	30.150 – 30.200 (1.1870 – 1.1890)	—
	Rear	38.098 – 38.148 (1.4999 – 1.5019)	—
Wheel rim runout (Front & Rear)	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)

ITEM	STANDARD		LIMIT
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)
Wheel rim size	Front	19M/C × MT 2.50	—
	Rear	17M/C × MT 4.00	—
Tire size	Front	110/80R19M/C 59H	—
	Rear	150/70R17M/C 69H	—
Tire type	Front	BRIDGESTONE: TW101 F	—
	Rear	BRIDGESTONE: TW152 F	—
Tire tread depth	Front	—	1.6 (0.06)
	Rear	—	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front fork stroke	160 (6.3)		—
Front fork spring free length	—		442 (17.4)
Front fork oil level (without spring, inner tube fully compressed)	133.0 (5.24)		—
Rear shock absorber spring adjuster	2nd groove from bottom		—
Rear shock absorber damping force adjuster	Rebound	7/8 turn out from stiffest position	—
Rear wheel travel	159 (6.3)		—
Swingarm pivot shaft runput	—		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	280	2.80	41

FUEL + OIL + ENGINE COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) 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	17L (4.5/3.7 US/lmp gal)		
Engine oil type	SAE 10W/40, API SF or SG		
Engine oil capacity	Change	2 700 ml (2.9/2.4 US/lmp qt)	
	Filter change	2 900 ml (3.1/2.6 US/lmp qt)	
	Overhaul	3 300 ml (3.5/2.9 US/lmp qt)	
Front fork oil type	SUZUKI FORK OIL SS-08 or an equivalent fork oil		
Front fork oil capacity (each leg)	505.0 ml (17.07/17.78 US/lmp oz)		
Brake fluid type	DOT 4		
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		
Engien coolant	Reserve 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)	