HONDA

# SHOP MANUAL


## CB1100SFY

## COOLING SYSTEM

| ITEM | | SPECIFICATIONS |
|---|---|---|
| Coolant capacity | Radiator and engine | 3.2 ℓ (3.4 US qt , 2.8 Imp qt) |
| | Reserve tank | 0.5 ℓ (0.5 US qt , 0.4 Imp qt) |
| Radiator cap relief pressure | | 108 – 137 kPa (1.1 – 1.4 kgf/cm², 16 – 20 psi) |
| Thermostat | Begin to open | 80 – 84 °C (176 – 183 °F) |
| | Fully open | 95 °C (203 °F) |
| | Valve lift | 8 mm (0.3 in) minimum |
| Recommended antifreeze | | High quality ethylene glycol antifreeze containing corrosion protection inhibitors |
| Standard coolant concentration | | 50% mixture with soft water |

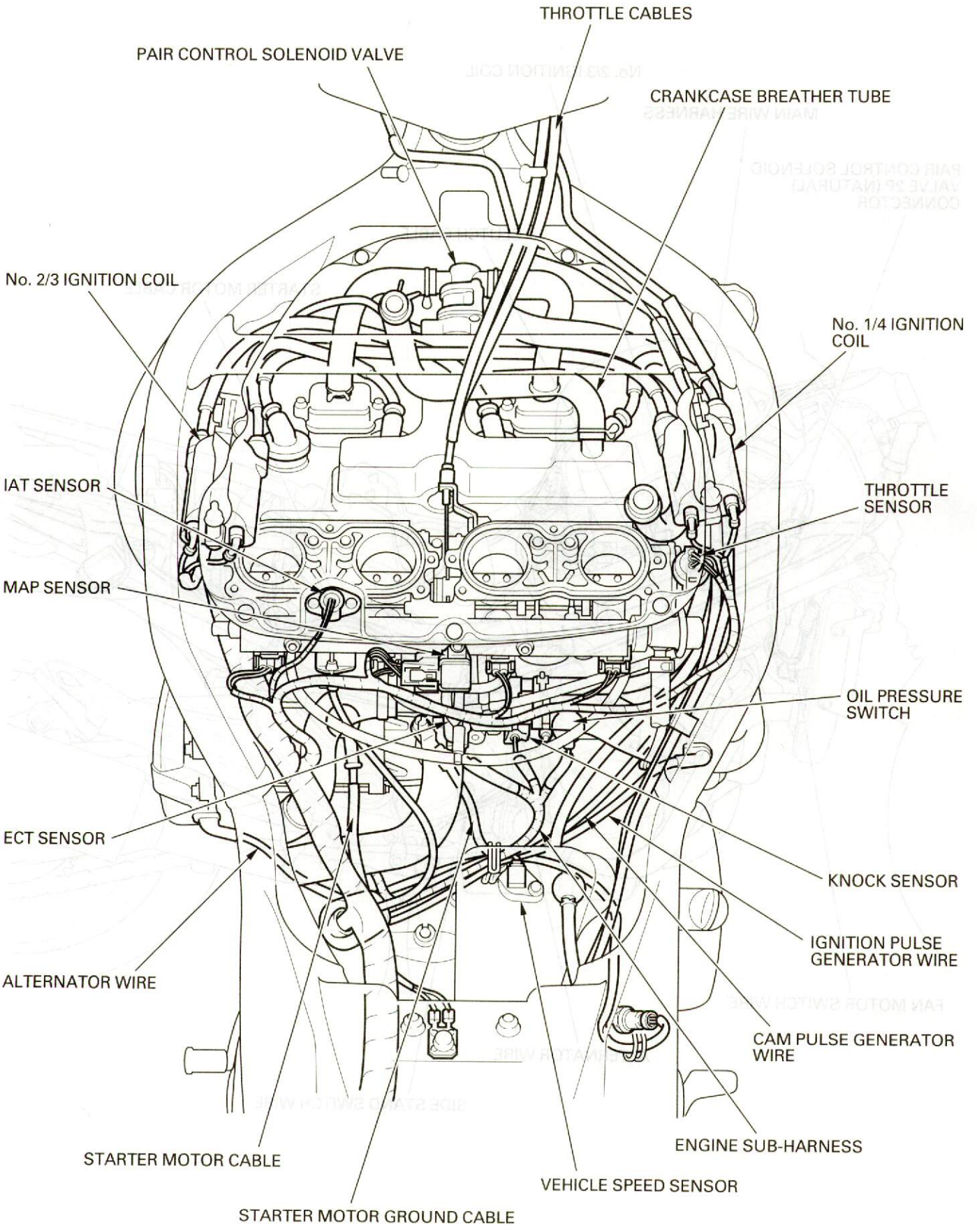
## CYLINDER HEAD/VALVES

Unit: mm (in)

| ITEM | | | STANDARD | SERVICE LIMIT |
|---|---|---|---|---|
| Cylinder compression | | | 1,275 kPa (13.0 kgf/cm², 185 psi) at 350 min⁻¹ (rpm) | ——— |
| Cylinder head warpage | | | ——— | 0.10 (0.004) |
| Valve, valve guide | Valve clearance | IN | 0.16 ± 0.03 (0.006 ± 0.001) | ——— |
| | | EX | 0.22 ± 0.03 (0.009 ± 0.001) | ——— |
| | Valve stem O.D. | IN | 4.975 – 4.990 (0.1959 – 0.1965) | 4.965 (0.1955) |
| | | EX | 4.960 – 4.975 (0.1953 – 0.1959) | 4.950 (0.1949) |
| | Valve guide I.D. | IN | 5.000 – 5.012 (0.1969 – 0.1973) | 5.040 (0.1984) |
| | | EX | 5.000 – 5.012 (0.1969 – 0.1973) | 5.040 (0.1984) |
| | Stem-to-guide clearance | IN | 0.010 – 0.037 (0.0004 – 0.0015) | ——— |
| | | EX | 0.025 – 0.052 (0.0010 – 0.0020) | ——— |
| | Valve guide projection above cylinder head | IN | 16.3 – 16.5 (0.64 – 0.65) | ——— |
| | | EX | 16.3 – 16.5 (0.64 – 0.65) | ——— |
| | Valve seat width | IN/EX | 0.90 – 1.10 (0.035 – 0.043) | 1.5 (0.06) |
| Valve spring free length | Inner | IN/EX | 37.4 (1.47) | 35.4 (1.39) |
| | Outer | IN/EX | 40.6 (1.60) | 38.6 (1.52) |
| Valve lifter | Valve lifter O.D. | IN/EX | 25.978 – 25.993 (1.0228 – 1.0233) | 25.97 (1.022) |
| | Valve lifter bore I.D. | IN/EX | 26.010 – 26.026 (1.0240 – 1.0246) | 26.04 (1.025) |
| Camshaft | Cam lobe height | IN | 38.32 – 38.40 (1.509 – 1.512) | 38.02 (1.497) |
| | | EX | 38.38 – 38.46 (1.511 – 1.514) | 38.08 (1.499) |
| | Runout | | ——— | 0.05 (0.002) |
| | Oil clearance | | 0.020 – 0.074 (0.0008 – 0.0029) | 0.10 (0.004) |

## FRAME (Cont'd)

| ITEM | Q'TY | THREAD DIA. (mm) | TORQUE N·m (kgf·m, lbf·ft) | REMARKS |
|---|---|---|---|---|
| **REAR WHEEL/SUSPENSION:** | | | | |
| Rear axle nut | 1 | 18 | 118 (12.0 , 87) | NOTE 7 |
| Rear brake disc mounting bolt | 6 | 8 | 42 (4.3 , 31) | NOTE 8 |
| Driven sprocket nut | 5 | 12 | 108 (11.0 , 80) | NOTE 7 |
| Rear shock absorber mounting nut | 2 | 10 | 42 (4.3 , 31) | NOTE 7 |
| Swingarm pivot nut | 1 | 18 | 93 (9.5 , 69) | NOTE 7 |
| Footpeg holder socket bolt | 2 | 10 | 39 (4.0 , 29) | |
| Drive chain slider bolt | 2 | 6 | 9 (0.9 , 6.5) | NOTE 8 |
| **HYDRAULIC BRAKE:** | | | | |
| Front brake master cylinder holder bolt | 2 | 6 | 12 (1.2 , 9) | |
| Front brake master cylinder cap screw | 2 | 4 | 1 (0.15 , 1.1) | |
| Brake lever pivot bolt | 1 | 6 | 1 (0.1 , 0.7) | |
| Brake lever pivot nut | 1 | 6 | 6 (0.6 , 4.3) | |
| Brake lever adjuster | 1 | 5 | 4 (0.4 , 2.9) | |
| Front brake switch screw | 1 | 4 | 1 (0.12 , 0.9) | |
| Right front brake caliper mounting bolt | 2 | 8 | 31 (3.2 , 23) | NOTE 8 |
| Left front brake caliper pivot bolt | 1 | 8 | 31 (3.2 , 23) | NOTE 8 |
| Left front brake caliper bolt (second master joint) | 1 | 8 | 26 (2.7 , 20) | NOTE 8 |
| Caliper body B bolt | 9 | 8 | 32 (3.3 , 24) | NOTE 8 |
| Front brake caliper slide pin (main) | 3 | 12 | 23 (2.3 , 17) | NOTE 2 |
| Front brake caliper slide pin (sub) | 3 | 8 | 13 (1.3 , 9) | NOTE 2 |
| Pad pin | 3 | 10 | 18 (1.8 , 13) | |
| Brake caliper bleeder | 6 | 8 | 6 (0.6 , 4.3) | |
| Second master cylinder mounting bolt | 2 | 8 | 31 (3.2 , 23) | NOTE 8 |
| Second master cylinder push rod nut | 1 | 8 | 18 (1.8 , 13) | |
| Second master cylinder connector | 2 | 6 | 10 (1.0 , 7) | |
| Rear master cylinder mounting bolt | 2 | 6 | 12 (1.2 , 9) | |
| Rear master cylinder reservoir mounting bolt | 1 | 6 | 12 (1.2 , 9) | |
| Rear master cylinder push rod nut | 1 | 8 | 18 (1.8 , 13) | |
| Rear master cylinder hose joint screw | 1 | 4 | 1 (0.15 , 1.1) | NOTE 2 |
| Brake hose oil bolt | 12 | 10 | 34 (3.5 , 25) | |
| Brake pipe joint | 8 | 10 | 17 (1.7 , 12) | NOTE 5 |
| Brake pipe 2/3 way joint | 2 | 6 | 12 (1.2 , 9) | |
| Brake hose clamp bolt | 2 | 6 | 12 (1.2 , 9) | |
| Delay valve mounting bolt | 2 | 6 | 12 (1.2 , 9) | |
| PCV (Proportional Control Valve) mounting bolt | 2 | 6 | 12 (1.2 , 9) | |
| Right front brake hose clamp bolt | 1 | 6 | 12 (1.2 , 9) | |
| **IGNITION SYSTEM:** | | | | |
| Ignition coil mounting nut | 4 | 6 | 16 (1.6 , 12) | |
| Ignition coil mounting nut | 2 | 6 | 10 (1.0 , 7) | |
| **LIGHTS/METERS/SWITCHES:** | | | | |
| Tail/brake light mounting bolt | 2 | 6 | 7 (0.7 , 5.1) | |
| Rear turn signal unit mounting nut | 2 | 10 | 5 (0.5 , 3.6) | |
| Combination meter mounting bolt | 2 | 4 | 2 (0.2 , 1.4) | |
| Fan motor switch | 1 | 16 | 18 (1.8 , 13) | NOTE 1 |
| Ignition switch mounting bolt | 2 | 8 | 25 (2.5 , 18) | |
| Side stand switch mounting bolt | 1 | 6 | 10 (1.0 , 7) | |


THROTTLE CABLES
PAIR CONTROL SOLENOID VALVE
CRANKCASE BREATHER TUBE
No. 2/3 IGNITION COIL
No. 1/4 IGNITION COIL
IAT SENSOR
THROTTLE SENSOR
MAP SENSOR
OIL PRESSURE SWITCH
ECT SENSOR
KNOCK SENSOR
IGNITION PULSE GENERATOR WIRE
ALTERNATOR WIRE
CAM PULSE GENERATOR WIRE
ENGINE SUB-HARNESS
STARTER MOTOR CABLE
VEHICLE SPEED SENSOR
STARTER MOTOR GROUND CABLE

## EXHAUST EMISSION CONTROL SYSTEM (SECONDARY AIR SUPPLY SYSTEM)

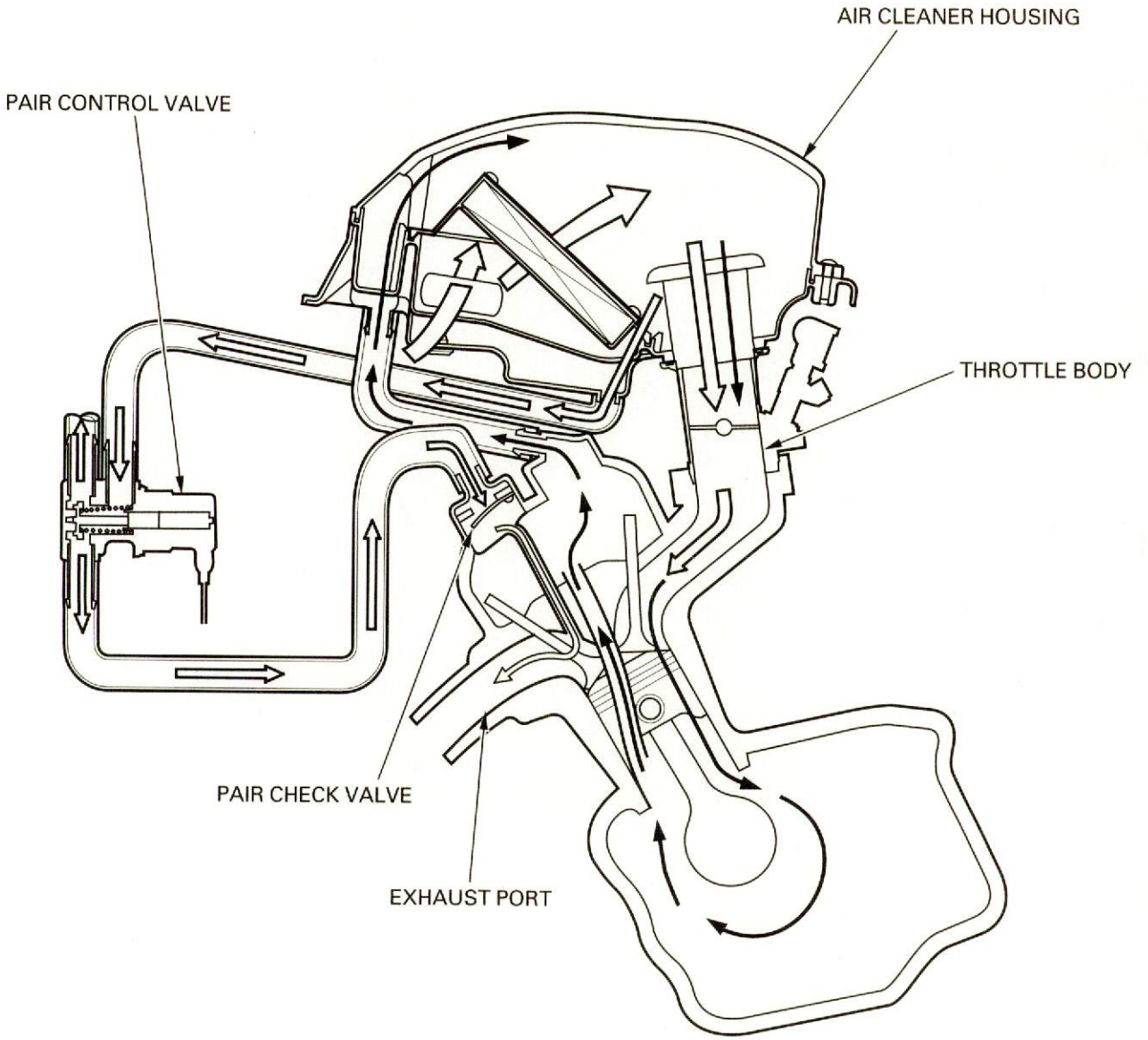
The exhaust emission control system is composed of a lean fuel injection setting, and no adjustments should be made except idle speed adjustment with the throttle stop screw. The exhaust emission control system is separate from the crankcase emission control system.

The exhaust emission control system consists of a secondary air supply system which introduces filtered air into the exhaust gases in the exhaust port. Fresh air is drawn into the exhaust port by the function of the PAIR (Pulse Secondary Air Injection) control valve.

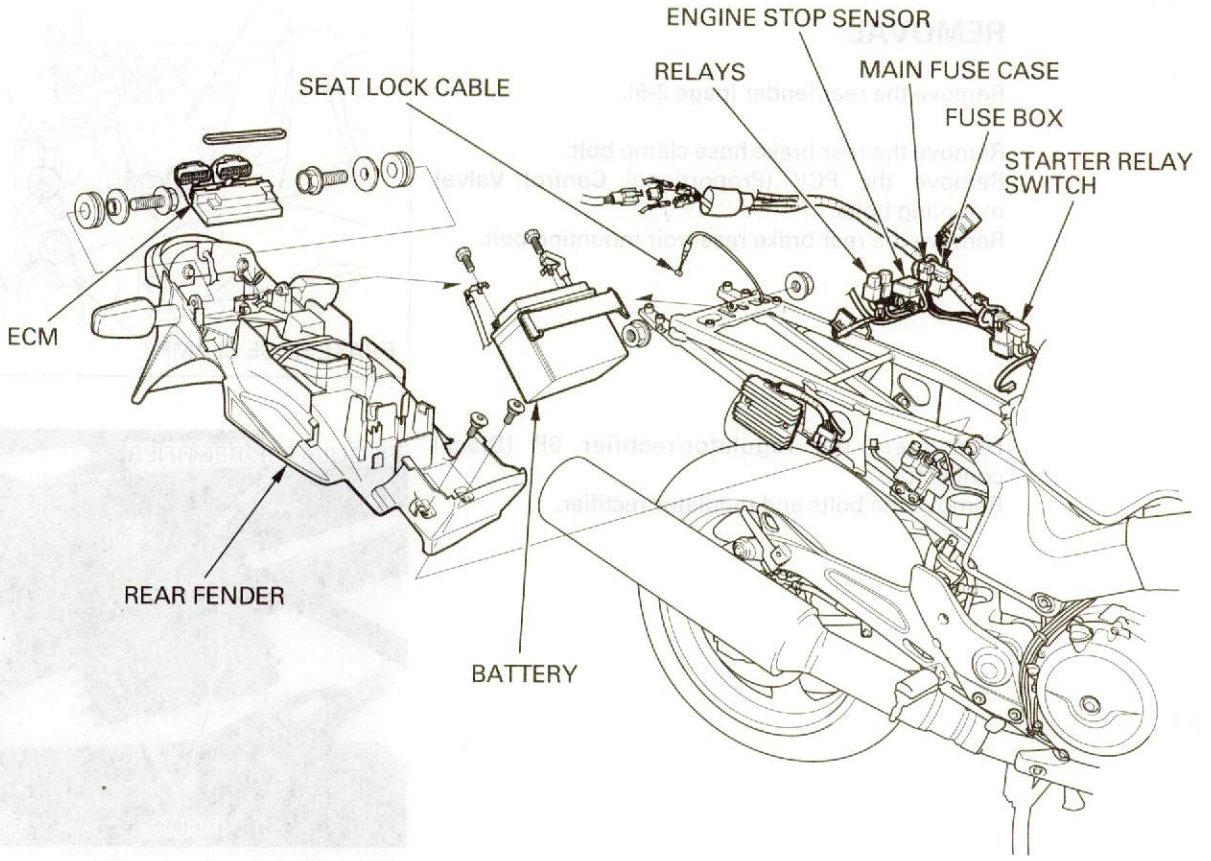
This charge of fresh air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water vapor.

The reed valve prevent reverse air flow through the system. The PAIR control valve is operated by the solenoid valve. The solenoid valve is controlled by the PGM-FI unit, and the fresh air passage is opened/closed according the running condition (ECT/IAT/TP/MAP sensor and engine revolution).

No adjustments to the secondary air supply system should be made, although periodic inspection of the components is recommended.



## INSTALLATION




NOTE:

While installing the rear fender, route the wire harness properly (page 1-24).

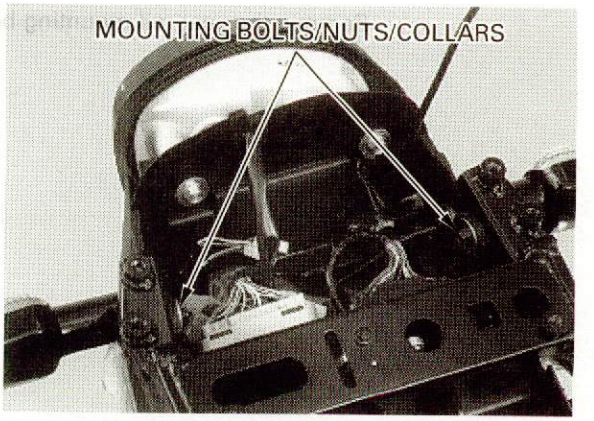
Install and tighten the front side mounting special bolts securely.


Install the rear mounting collar, bolt and nut. Tighten the nuts while holding the bolts.

Install the removed parts in the reverse order of removal.

NOTE:

Route the wires properly (page 1-24).

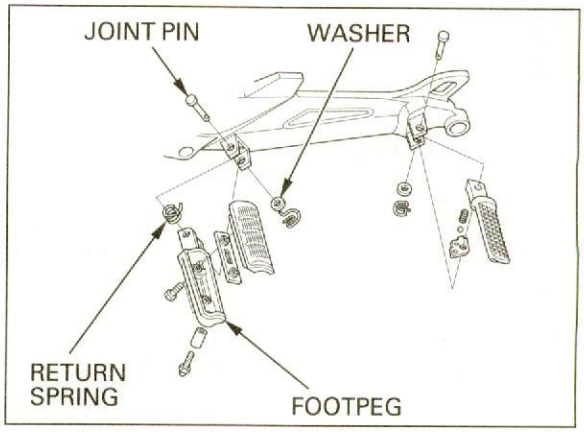


## INSTALLATION

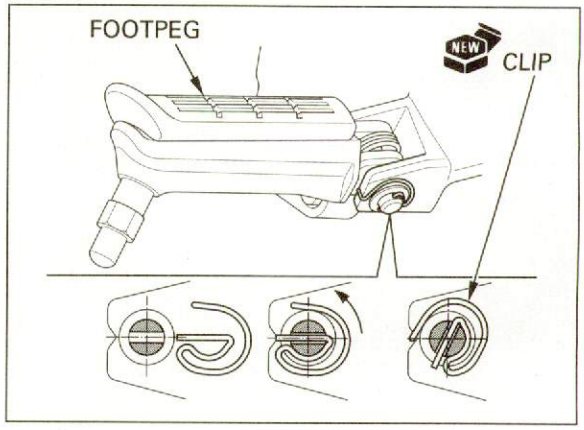
**CAUTION:**

***Do not reuse the retaining clip.***

Install the footpeg onto the holder, then install the return spring, joint pin and washer.

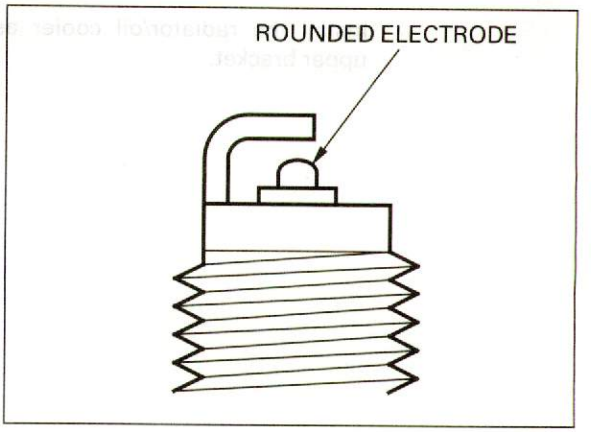



Push the new retaining clip into the joint pin hole. Turn the retaining clip with the joint pin, then hook the clip end into the V-cut groove of the footpeg holder.



*Always use specified spark plugs on this motorcycle.*

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

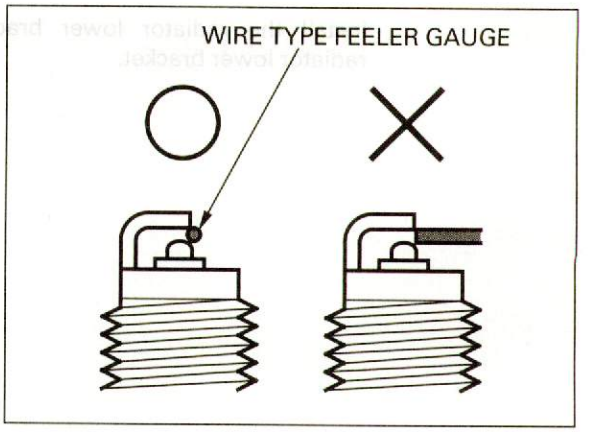



**SPECIFIED SPARK PLUG:** CR8EHVX−9 (NGK)

Check the gap between the center and side electrodes with a wire type feeler gauge.

**CAUTION:**

***To prevent damaging the platinum coating of the center electrodes, use a wire type feeler gauge to check the spark plug gap.***

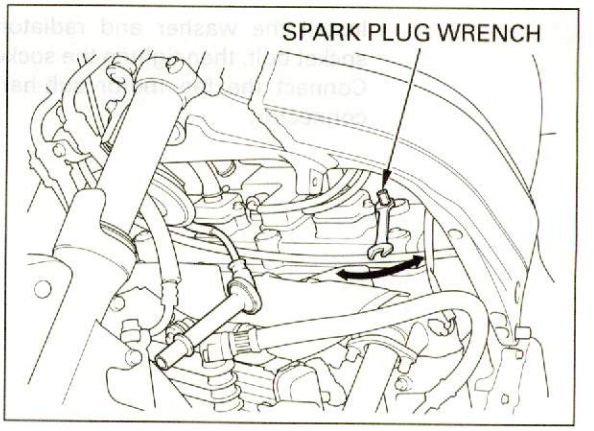



Make sure that the 1.0 mm (0.04 in) plug gauge does not insert between the gap.
If the gauge can be inserted into the gap, replace the plug with a new one.

**CAUTION:**

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

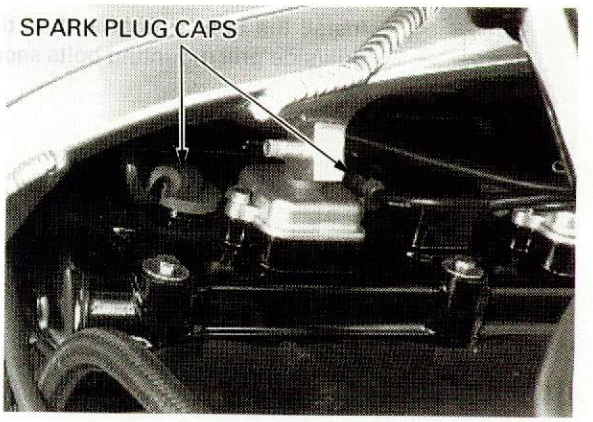
Reinstall the spark plug in the cylinder head and hand tighten, then torque to specification.




**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)

If using the new plug, install as follows:
Install and hand tighten the new spark plug, then tighten it about 1/2 turn after the sealing washer contacts the seat of the plug hole.

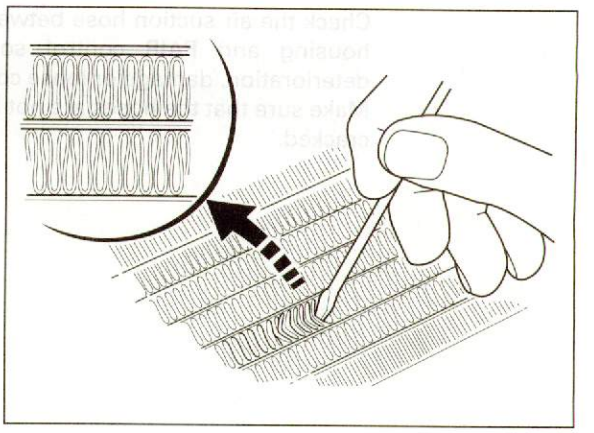
Install the spark plug caps.



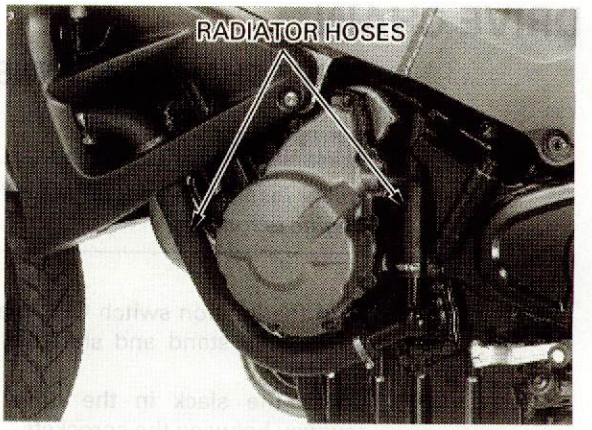
# COOLING SYSTEM

Remove the radiator grill (page 2-4).

Check the radiator air passages for clogging or damage.
Straighten bend fins, and remove insects, mud or other obstructions with compressed air or low water pressure.
Replace the radiator if the air flow is restricted over more than 20 % of the radiating surface.



Inspect the radiator hoses for cracks or deterioration, and replace if necessary.
Check the tightness of all hose clamps and fasteners.




# SECONDARY AIR SUPPLY SYSTEM

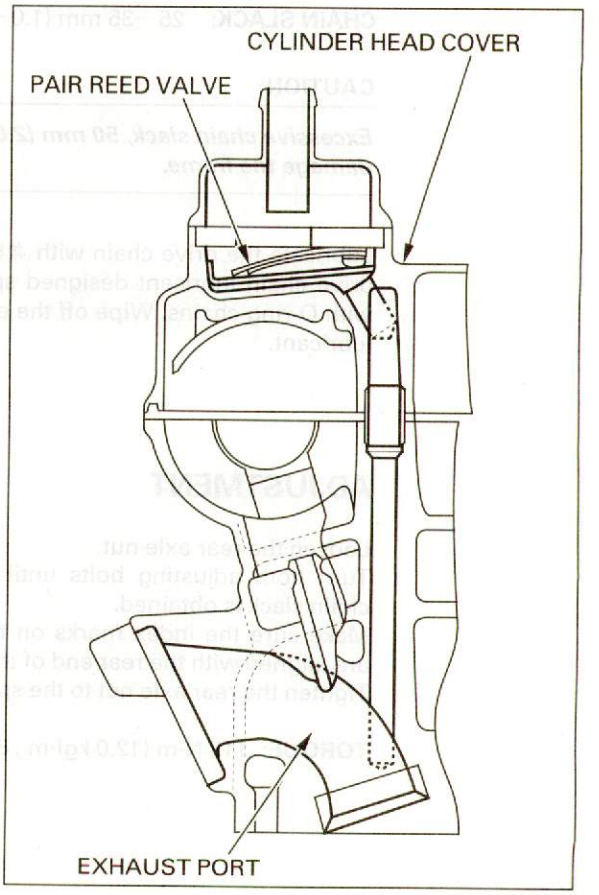
NOTE:

- This model is equipped built-in secondary air supply system. The pulse secondary air supply system is located on the cylinder head cover.
- The secondary air supply system introduces filtered air into exhaust gases in the exhaust port. The secondary air is drawn into the exhaust port whenever there is negative pressure pulse in the exhaust system. This charged secondary air promotes burning of the unburned exhaust gases and changes a considerable amount of hydrocarbons and carbon monoxide into relatively harmless carbon dioxide and water.

Check the PAIR (pulse secondary air injection) tubes between the PAIR control solenoid valve and cylinder head cover for deterioration, damage or loose connections. Make sure that the hoses are not cracked.

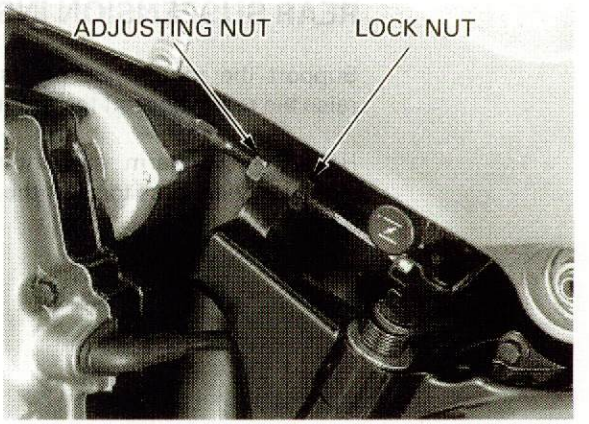
NOTE:

If the hoses show any signs of heat damage, inspect the PAIR check valve in the PAIR reed valve cover for damage.



Major adjustments are performed at the clutch arm. Loosen the lock nut and turn the adjusting nut to adjust free play.
Hold the adjusting nut securely while tightening the lock nut.

If proper free play cannot be obtained, or the clutch slips during test ride, disassemble and inspect the clutch (see section 9).

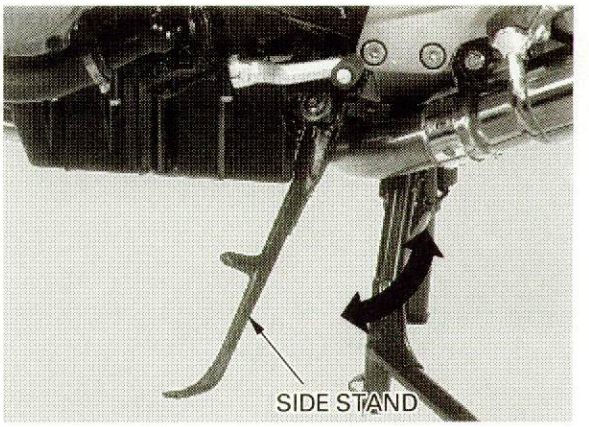


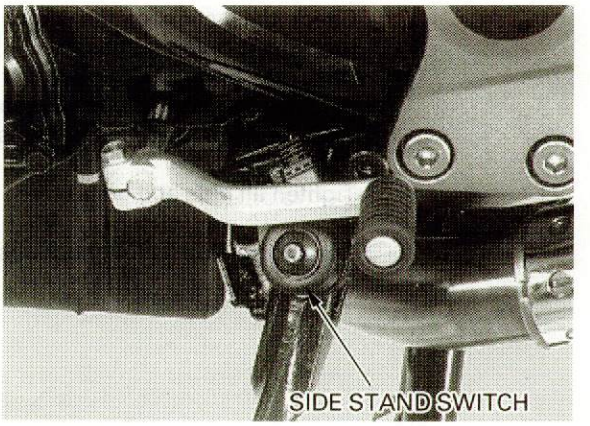

## SIDE STAND

Support the motorcycle on a lever surface.

Check the side stand spring for damage or loss of tension.
Check the side stand assembly for freedom of movement and lubricate the side stand pivot if necessary.
Check the side stand ignition cut-off system:
- Sit astride the motorcycle and raise the side stand.
- Start the engine with the transmission in neutral, then shift the transmission into gear, with the clutch lever squeezed.
- Move the side stand full down.
- The engine should stop as the side stand is lowered.

If there is a problem with the system, check the side stand switch (section 19).




## SUSPENSION

**⚠WARNING**

***Loose, worn or damaged suspension parts impair motorcycle stability and control. Repair or replace any damaged components before riding. Riding a motorcycle with faulty suspension increases your risk of an accident and possible injury.***

### FRONT SUSPENSION INSPECTION

Check the action of the forks by operating the front brakes and compressing the front suspension several times.
Check the entire assembly for signs of leaks, damage or loose fasteners.
Replace damaged components which cannot be repaired.
Tighten all nuts and bolts.

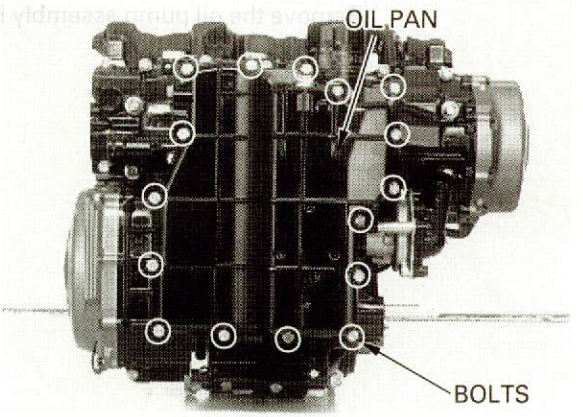
Refer to section 13 for fork service.

Install the oil pan onto the lower crankcase.
Temporarily tighten the two bolts first, then tighten the all bolts in a crisscross pattern in 2–3 steps.

Install the exhaust pipe (page 2-13).
Fill the crankcase with recommended oil (page 3-16).

NOTE:

After installation, check that there are no oil leaks.

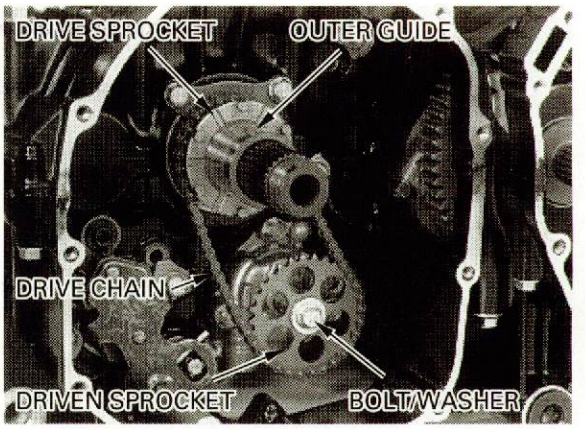



# OIL PUMP

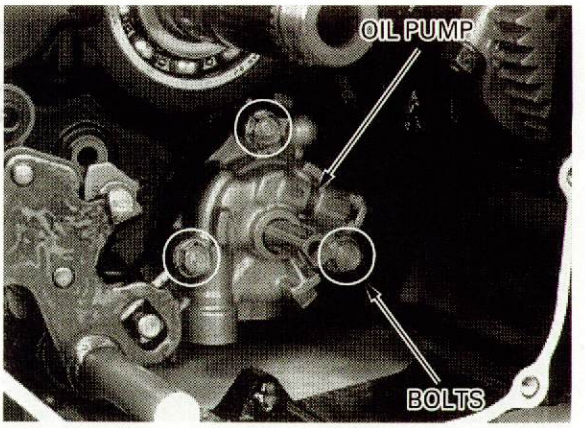
## REMOVAL

Remove the following:
– Clutch assembly (page 9-4)
– Oil strainer and oil pipes (page 4-4)

Remove the bolt/washer, then remove the oil pump drive/driven sprocket, clutch outer guide and drive chain as an assembly.




Remove the three flange bolts and oil pump assembly.



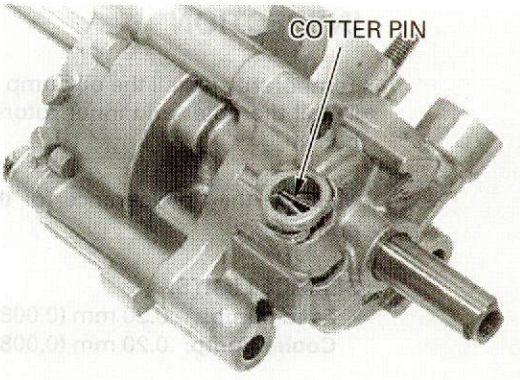

## DISASSEMBLY

NOTE:

If any portion of the oil pump is worn beyond the specified service limit, replace the oil pump as an assembly.

Straighten and remove the cotter pin.
Remove the valve seat, spring and pressure relief valve.

Check the pressure relief valve for wear or damage.



# 5.FUEL SYSTEM (Programmed Fuel Injection)



5

## SERVICE INFORMATION

### GENERAL

**⚠WARNING**

- ***Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.***
- ***Be sure to relieve the fuel pressure while the engine is OFF.***
- ***Bending or twisting the control cables will impair smooth operation and could cause the cables to stick or bind, resulting in loss of vehicle control.***

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.

CAUTION:

- ***Do not apply commercially available carburetor cleaners to the inside of the throttle bore, which is coated with molybdenum.***
- ***Do not snap the throttle valve from full open to full close after the throttle cable has been removed. It may cause incorrect idle operation.***
- ***Seal the cylinder head intake ports with tape or a clean cloth to keep dirt and debris from entering the intake ports after the throttle body has been removed.***
- ***Do not damage the throttle body. It may cause incorrect throttle and idle valve synchronization.***
- ***Prevent dirt and debris from entering the throttle bore, fuel tube and return tube, clean them using compressed air.***
- ***The throttle body is factory pre-set. Do not disassemble in a way other than shown in this manual.***
- ***Do not loosen or tighten the white painted bolts and screws of the throttle body. Loosening or tightening them can cause throttle and idle valve synchronization failure.***
- ***Tighten the yellow painted bolts and screw of the throttle body to the specified torque. Yellow painted parts of the throttle body not shown in this manual should not be disassembled.***
- ***Do not push the fuel pump base under the fuel tank when the fuel tank is stored.***
- ***Always replace the O-ring when the fuel pump is removed.***

| Number of PGM-FI malfunction indicator blinks | | Causes | Symptoms (Fail-safe contents) | Refer to page |
|---|---|---|---|---|
| 11 |  Blinks | • Loose or poor contact on vehicle speed sensor connector<br>• Open or short circuit in vehicle speed sensor connector<br>• Faulty vehicle speed sensor | • Engine operates normally | 5-24 |
| 12 |  Blinks | • Loose or poor contact on No. 1 injector connector<br>• Open or short circuit in No. 1 injector wire<br>• Faulty No. 1 injector | • Engine does not start | 5-26 |
| 13 |  Blinks | • Loose or poor contact on No. 2 injector connector<br>• Open or short circuit in No. 2 injector wire<br>• Faulty No. 2 injector | • Engine does not start | 5-29 |
| 14 |  Blinks | • Loose or poor contact on No. 3 injector connector<br>• Open or short circuit in No. 3 injector wire<br>• Faulty No. 3 injector | • Engine does not start | 5-32 |
| 15 |  Blinks | • Loose or poor contact on No. 4 injector connector<br>• Open or short circuit in No. 4 injector wire<br>• Faulty No. 4 injector | • Engine does not start | 5-35 |
| 18 |  Blinks | • Loose or poor contact on cam pulse generator<br>• Open or short circuit in cam pulse generator<br>• Faulty cam pulse generator | • Engine does not start | 5-38 |
| 19 |  Blinks | • Loose or poor contact on ignition pulse generator connector<br>• Open or short circuit in ignition pulse generator<br>• Faulty ignition pulse generator | • Engine does not start | 5-40 |
| 21 |  Blinks | • Faulty $O_2$ sensor | • Engine operates normally | 5-42 |
| 23 |  Blinks | • Faulty $O_2$ sensor heater | • Engine operates normally | 5-44 |
| 25 |  Blinks | • Loose or poor contacts on knock sensor connector<br>• Open or short circuit in knock sensor wire<br>• Faulty knock sensor | • Engine operates normally | 5-48 |
| 33 |  Blinks | • Faulty $E^2$ -PROM in ECM | • Engine operates normally<br>• Does not hold the self-diagnosis data | 5-49 |

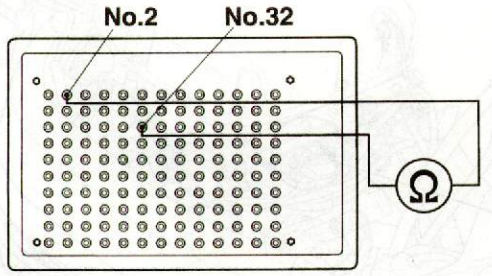
A voltage marked* refers to the value when the voltage reading at the TP sensor 3P connector (page 5-19) shows 5V. When the reading shows other than 5 V, derive a voltage at the test harness as follows:

In the case of a voltage of 4.75 V at the TP sensor 3P connector:

0.4 × 4.75/5.0 = 0.38 V
0.6 × 4.75/5.0 = 0.57 V

Thus, the solution is "0.38−0.57 V"

Measure the resistance at the test pin box terminals.

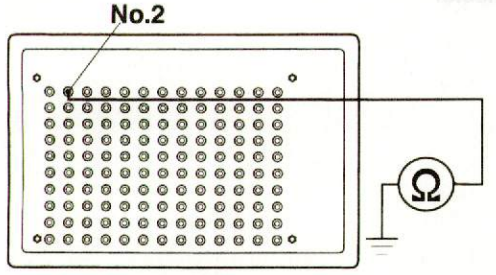



**Connection:** No. 2 – No. 32
**Standard:** 9 – 15 Ω (20 °C/68 °F)

Out of range → • Open circuit in Black/White and/or Pink/Blue wire

Normal

Check for continuity between the test pin box terminal and ground.

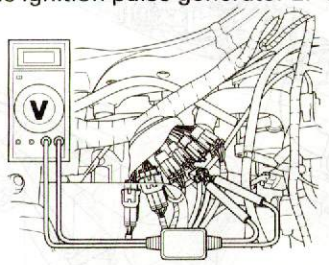



**Connection:** No. 2 – Ground
**Standard:** No continuity

Continuity → • Short circuit in Pink/Blue wire

No continuity → • Replace the ECM with a new one, and inspect it again.

Crank the engine with the starter motor, and measure the ignition pulse generator peak voltage at the ignition pulse generator 2P connector.

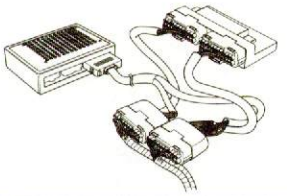


**Connection:** Yellow (+) – White/Yellow (–)
**Standard:** 0.7 V minimum (20 °C/68 °F)

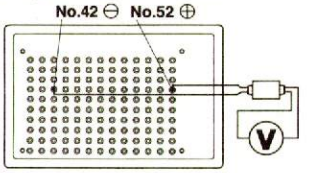
Out of range → • Faulty ignition pulse generator

Normal

Disconnect the ignition pulse generator 2P connector.
Disconnect the ECM connectors.
Connect the test harness to ECM connectors.



Crank the engine with the starter motor, and measure the ignition pulse generator peak voltage at the test pin box terminals.

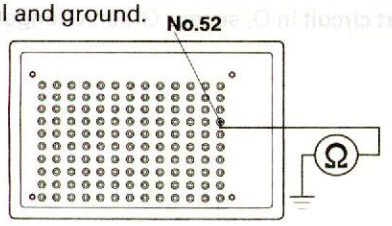



**Connection:** No. 52 (+) – No. 42 (–)
**Standard:** 0.7 V minimum (20 °C/68 °F)

Out of range → • Open circuit in White/Yellow wire
• Open circuit in Yellow wire

Normal

Check for continuity between the test pin box terminal and ground.




**Connection:** No. 52 – Ground
**Standard:** No continuity

Continuity → • Short circuit in Yellow wire

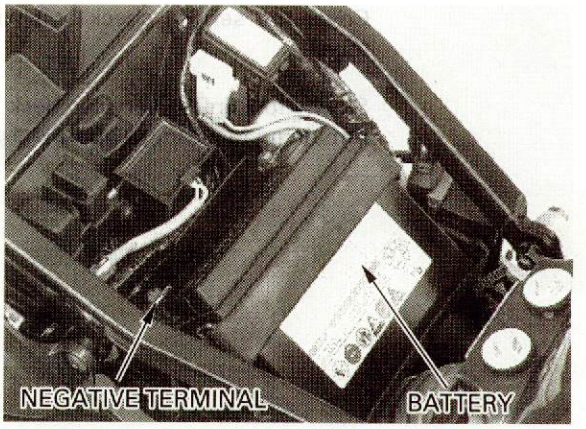
No continuity → • Replace the ECM with a new one, and inspect it again

# FUEL LINE INSPECTION

## FUEL PRESSURE INSPECTION

**⚠WARNING**

- ***Gasoline is extremely flammable and is explosive under certain conditions.***
- ***Be sure to relieve fuel pressure while the engine is OFF.***
- ***If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death.***

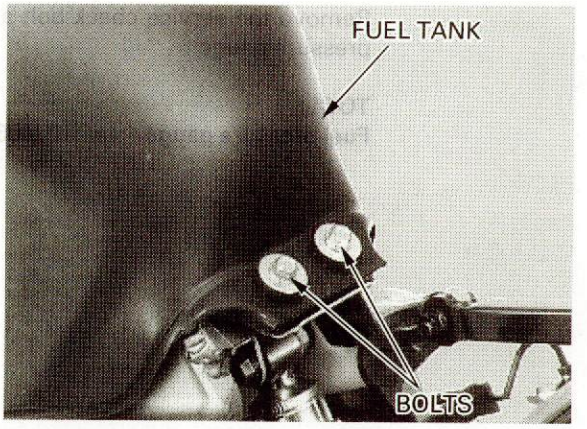



**CAUTION:**

- ***Before disconnecting fuel tubes, release the fuel pressure by loosening the service check bolt at the fuel tank.***
- ***Always replace the sealing washer when the service check bolt is removed or loosened.***

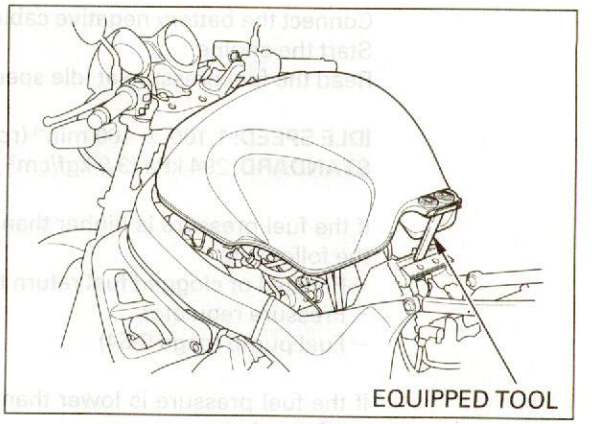
Remove the seat (page 2-2).

Unfasten the battery holder band and disconnect the battery negative cable from the battery terminal.

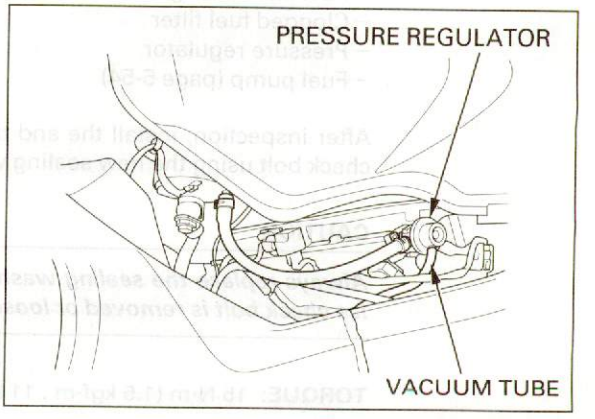



Remove the fuel tank mounting bolts.

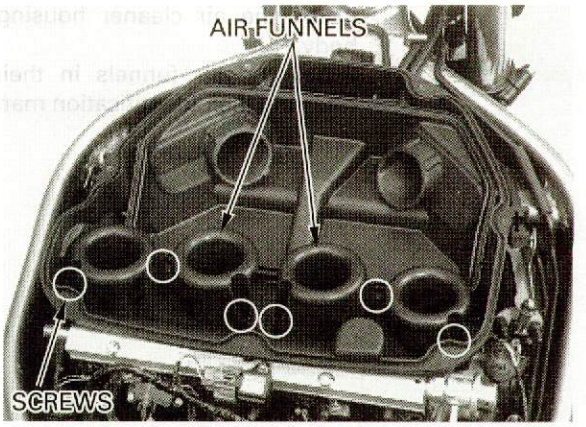
Lift the rear end of the fuel tank and support it using a equipped tool (rear axle wrench extension) as shown.




Disconnect the pressure regulator vacuum tube and plug the vacuum tube.

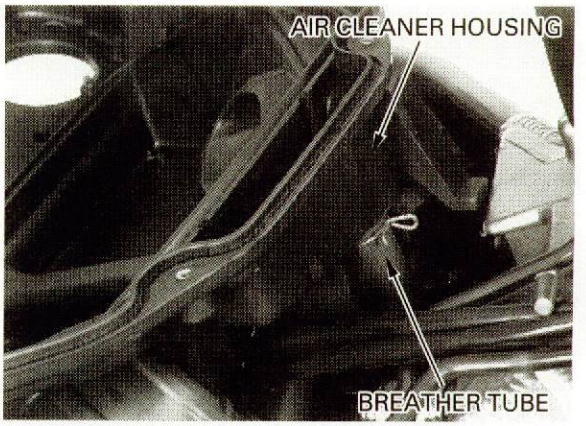


Remove the air funnel/air cleaner housing mounting screws, then remove the air funnels.



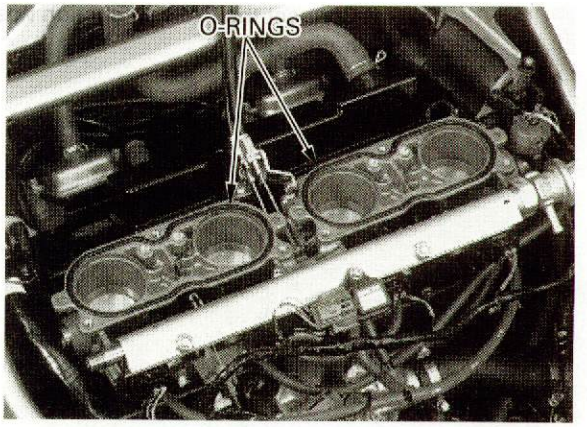

Disconnect the crankcase breather tube from the air cleaner housing.

Remove the air cleaner housing.

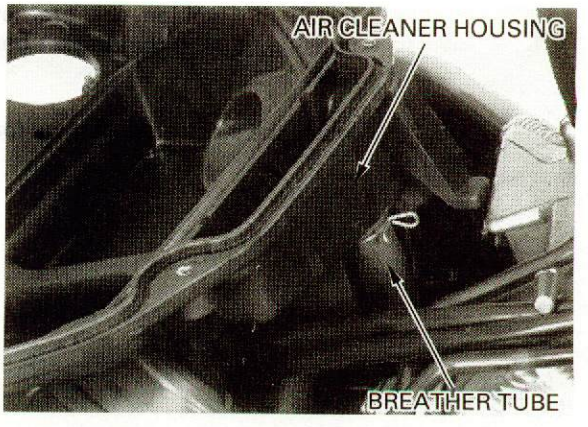



## INSTALLATION

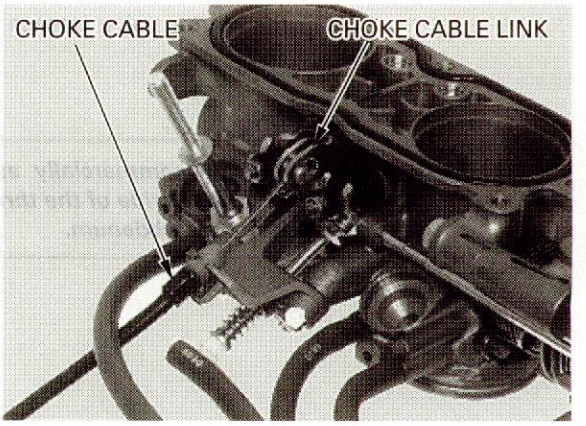
Check that the throttle body O-rings are in good condition, replace if necessary.



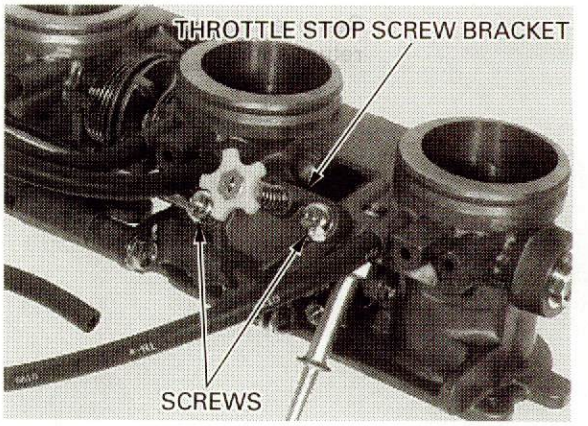

Connect the crankcase breather tube to the air cleaner housing.
Install the air cleaner housing onto the throttle body.



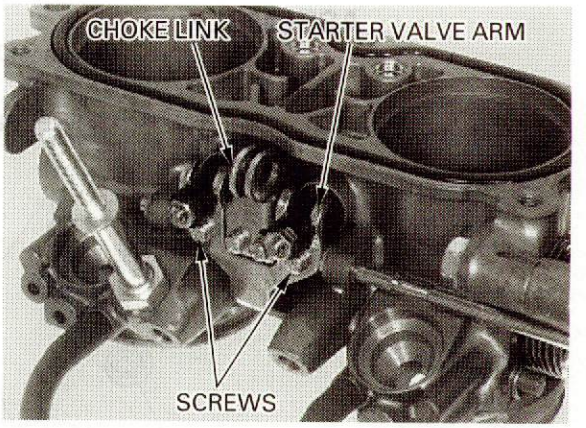
**No. 1/2 starter valve:**
Unhook the choke cable from the cable bracket, the remove the cable end from the link.



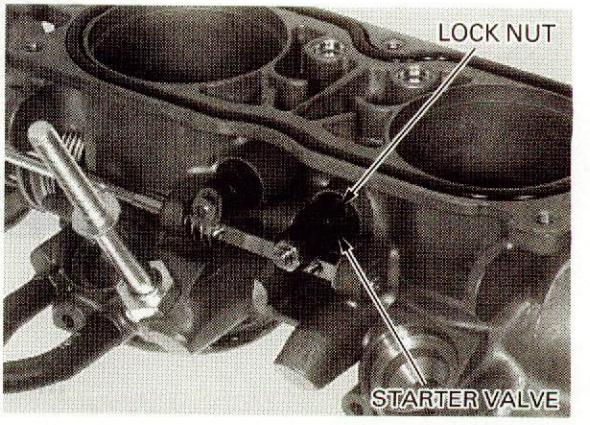

Remove the screws and throttle stop screw/choke cable bracket.




Remove the starter valve arm screws and starter valve arm.
Remove the screws and choke link.




Loosen the lock nuts and remove the starter valve assembly.



**4. CALCULATE RESULT COMPARISON**
Compare the measurement to the result of the following calculation.

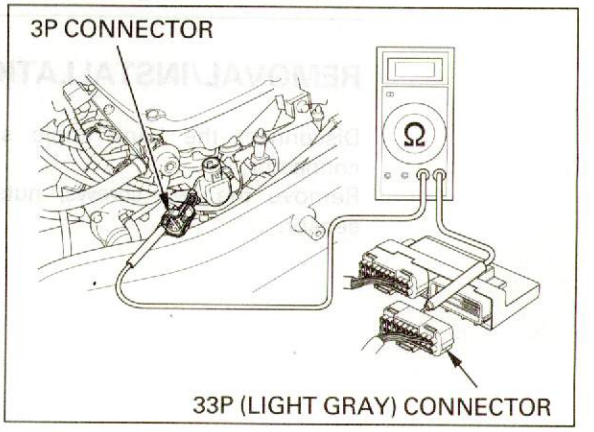
With the throttle fully open:
**Measured input voltage × 0.824 = Vo**

The sensor is normal if the measurement output voltage measured in step 2 is within 10% of Vo.

With the throttle fully closed:
**Measured input voltage × 0.1 = Vc**

The sensor is normal if the throttle closed output voltage measured in step 3 is within 10% of Vc.

Using an analog meter, check that the needle of the voltmeter swings slowly when the throttle is opened gradually.




**CONTINUITY INSPECTION**
Support the rear end of the fuel tank (page 2-11).

Disconnect the ECM 22P (Light gray) connector and the TP sensor 3P connector.
Check for continuity between the ECM and TP sensor.

If there is no continuity, check the open or short circuit in wire harness.

# BANK ANGLE SENSOR

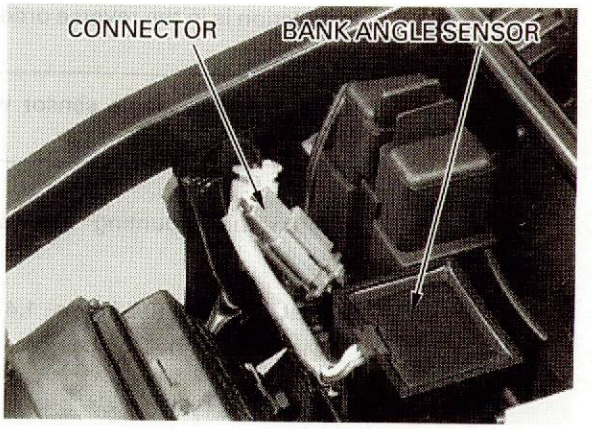
## INSPECTION

Support the motorcycle on its center stand.
Remove the seat (page 2-2).

*Do not disconnect the bank angle sensor connector during inspection.*

Turn the ignition switch ON and measure the voltage between the following terminals of the bank angle sensor connector with the connector connected.

| TERMINAL | STANDARD |
|---|---|
| White (+) – Green (–) | Battery voltage |
| Red/Green (+) – Green (–) | 0 – 1 V |




Turn the ignition switch OFF.
Remove the screws and bank angle sensor.

# SYSTEM TESTING

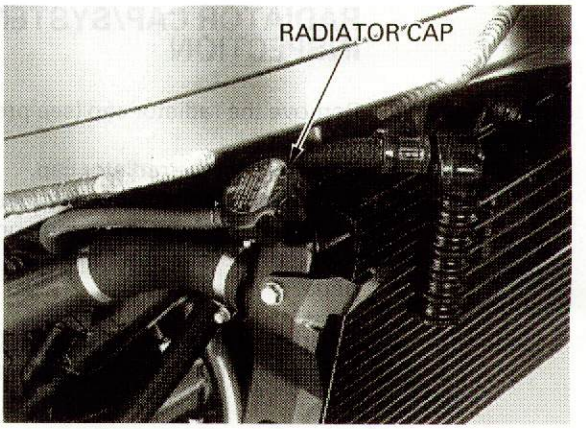
**⚠WARNING**

***The engine must be cool before removing the radiator cap, or severe scalding may result.***

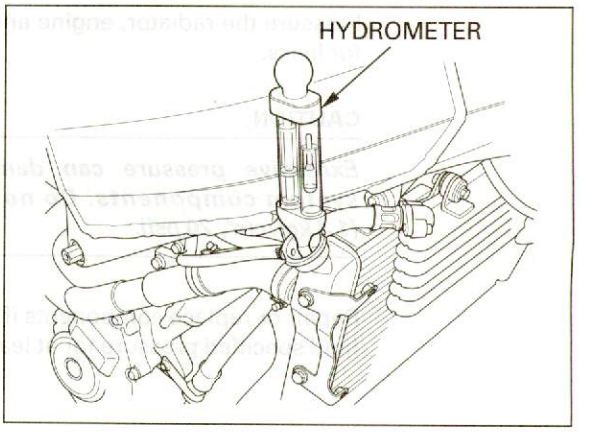
## COOLANT (HYDROMETER TEST)

Remove the radiator grill (page 2-4).

Remove the radiator cap.



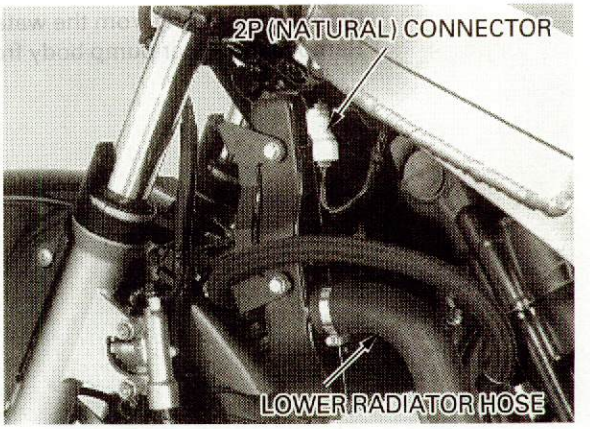

Test the coolant gravity using a hydrometer (see below for "Coolant gravity chart").
For maximum corrosion protection, a 50−50% solution of ethylene glycol and distilled water is recommended (page 6-4).
Look for contamination and replace the coolant if necessary.




### COOLANT GRAVITY CHART

| Coolant temperature °C (°F) / Coolant ratio % | 0 (32) | 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 45 (113) | 50 (122) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1.009 | 1.009 | 1.008 | 1.008 | 1.007 | 1.006 | 1.005 | 1.003 | 1.001 | 0.999 | 0.997 |
| 10 | 1.018 | 1.017 | 1.017 | 1.016 | 1.015 | 1.014 | 1.013 | 1.011 | 1.009 | 1.007 | 1.005 |
| 15 | 1.028 | 1.027 | 1.026 | 1.025 | 1.024 | 1.022 | 1.020 | 1.018 | 1.016 | 1.014 | 1.012 |
| 20 | 1.036 | 1.035 | 1.034 | 1.033 | 1.031 | 1.029 | 1.027 | 1.025 | 1.023 | 1.021 | 1.019 |
| 25 | 1.045 | 1.044 | 1.043 | 1.042 | 1.040 | 1.038 | 1.036 | 1.034 | 1.031 | 1.028 | 1.025 |
| 30 | 1.053 | 1.052 | 1.051 | 1.047 | 1.046 | 1.045 | 1.043 | 1.041 | 1.038 | 1.035 | 1.032 |
| 35 | 1.063 | 1.062 | 1.060 | 1.058 | 1.056 | 1.054 | 1.052 | 1.049 | 1.046 | 1.043 | 1.040 |
| 40 | 1.072 | 1.070 | 1.068 | 1.066 | 1.064 | 1.062 | 1.059 | 1.056 | 1.053 | 1.050 | 1.047 |
| 45 | 1.080 | 1.078 | 1.076 | 1.074 | 1.072 | 1.069 | 1.066 | 1.063 | 1.060 | 1.057 | 1.054 |
| 50 | 1.086 | 1.084 | 1.082 | 1.080 | 1.077 | 1.074 | 1.071 | 1.068 | 1.065 | 1.062 | 1.059 |
| 55 | 1.095 | 1.093 | 1.091 | 1.088 | 1.085 | 1.082 | 1.079 | 1.076 | 1.073 | 1.070 | 1.067 |
| 60 | 1.100 | 1.098 | 1.095 | 1.092 | 1.089 | 1.086 | 1.083 | 1.080 | 1.077 | 1.074 | 1.071 |

Connect the fan motor sub-harness 2P (Natural) connector.
Connect the lower radiator hose.

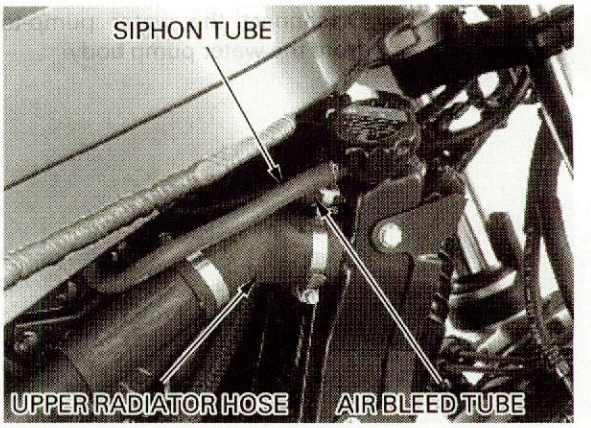



Connect the upper radiator hose.
Connect the siphon tube and air bleed tube to the radiator.

Install the oil cooler onto the brackets, install and tighten the mounting bolts (page 4-14).

Fill the system with recommended coolant (page 6-5).

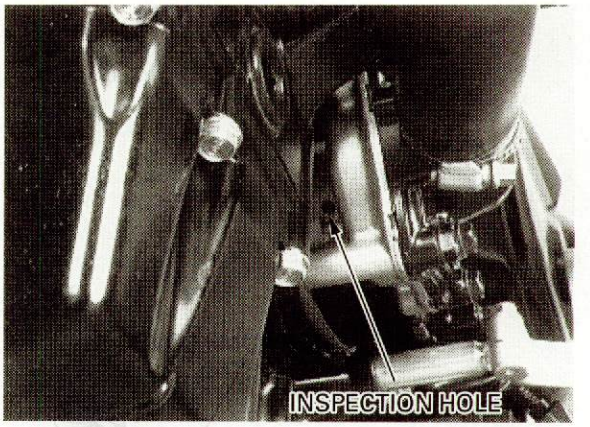
Install the radiator grill (page 2-4).




# WATER PUMP

## MECHANICAL SEAL INSPECTION

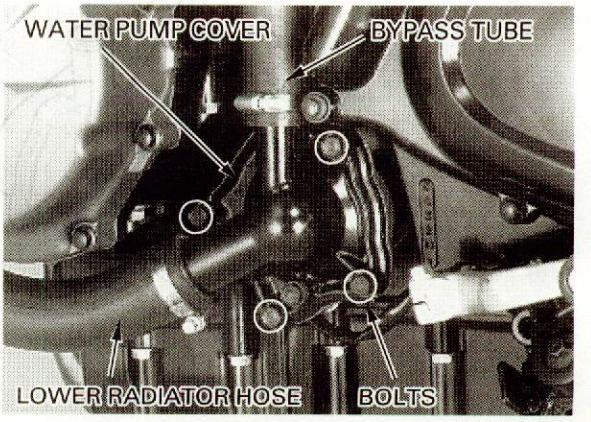
Inspect the inspection hole for signs of coolant leakage.
If there is leakage, the mechanical seal is defective and replace the water pump as an assembly.



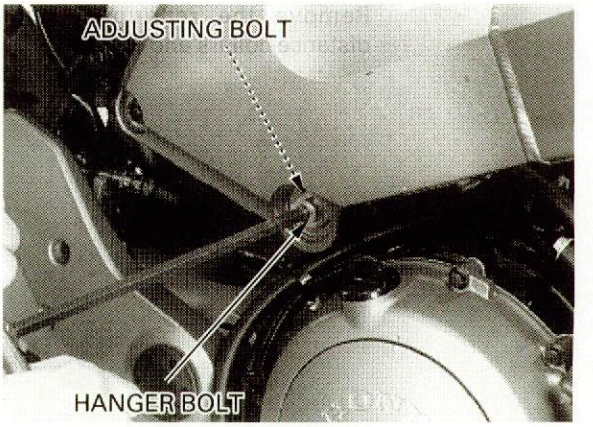

## REMOVAL

Drain the coolant (page 6-4).

Disconnect the lower radiator hose and bypass tube from the water pump cover.
Remove the four flange bolts and water pump cover.

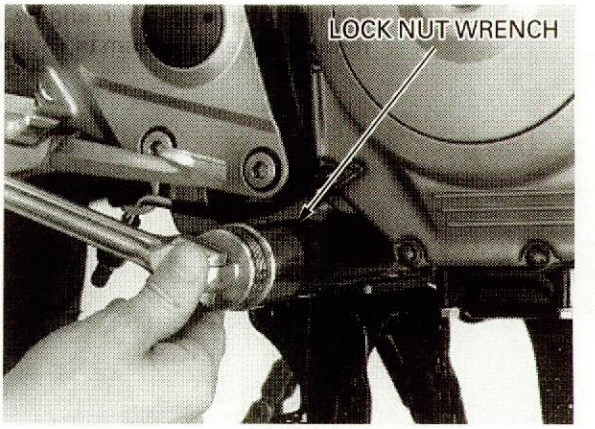


Turn the adjusting bolt with the engine hanger bolt counterclockwise to release the adjusting bolt from the engine.

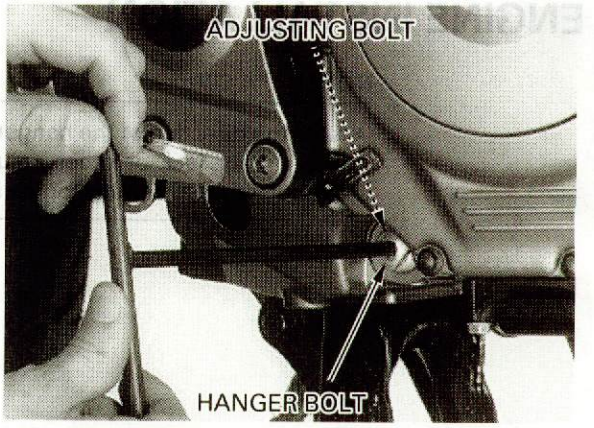



Loosen the rear lower engine hanger adjusting bolt lock nut using the special tool.

**TOOL:**
**Lock nut wrench** 07VMA-MAT0100

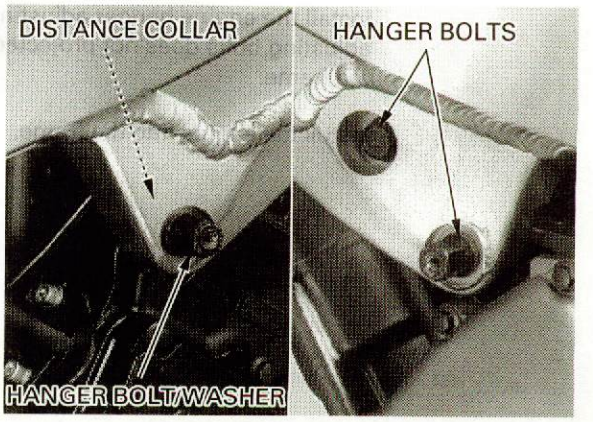



Turn the adjusting bolt with the engine hanger bolt counterclockwise to release the adjusting bolt from the engine.




Support the engine using a jack or other adjustable support to ease of engine hanger bolts removal.

Remove the right engine hanger bolt, washer and distance collar.
Remove the left engine hanger bolts.



## TOOLS

| | | |
|---|---|---|
| Compression gauge attachment | 07RMJ-MY50100 | Equivalent commercially available |
| Valve spring compressor | 07757-0010000 | |
| Valve spring compressor attachment | 07959-KM30101 | |
| Tappet hole protector | 07HMG-MR70002 | |
| Valve guide driver, 5 mm | 07942-MA60000 | |
| Valve guide reamer | 07984-MA60001 | |
| Valve seat cutters | | —these are commercially available |
| Seat cutter, 33 mm (45° IN) | 07780-0010800 | |
| Seat cutter, 29 mm (45° EX) | 07780-0010300 | |
| Flat cutter, 33 mm (32° IN) | 07780-0012900 | |
| Flat cutter, 29 mm (32° EX) | 07780-0013400 | |
| Interior cutter, 34 mm (60° IN) | 07780-0014700 | |
| Interior cutter, 30 mm (60° EX) | 07780-0014000 | |
| Cutter holder, 5 mm | 07781-0010400 | |

# TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These problem can be diagnosed by a compression test or by tracing engine noises to the top-end with a sounding rod stethoscope.
- If the performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky, check for a seized piston ring (Section 11).

**Compression too low, hard starting or poor performance at low speed**

- Valves:
  - —Incorrect valve adjustment
  - —Burned or bent valve
  - —Incorrect valve timing
  - —Broken valve spring
  - —Uneven valve seating
- Cylinder head:
  - —Leaking or damaged head gasket
  - —Warped or cracked cylinder head
- Worn cylinder, piston or piston rings (Section 11)

**Compression too high, overheating or knocking**

- Excessive carbon build-up on piston crown or on combustion chamber

**Excessive smoke**

- Cylinder head:
  - —Worn valve stem or valve guide
  - —Damaged stem seal
- Worn cylinder, piston or piston rings (Section 11)

**Excessive noise**

- Cylinder head:
  - —Incorrect valve adjustment
  - —Sticking valve or broken valve spring
  - —Damaged or worn camshaft
  - —Loose or worn cam chain
  - —Worn or damaged cam chain
  - —Worn or damaged cam chain tensioner
  - —Worn cam sprocket teeth
- Worn cylinder, piston or piston rings (Section 11)

**Rough idle**

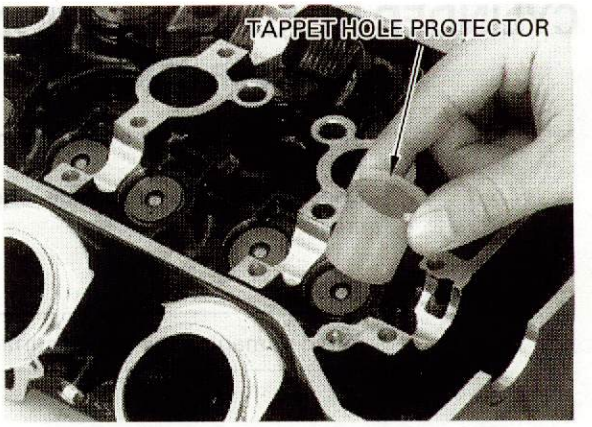
- Low cylinder compression

# CYLINDER HEAD DISASSEMBLY

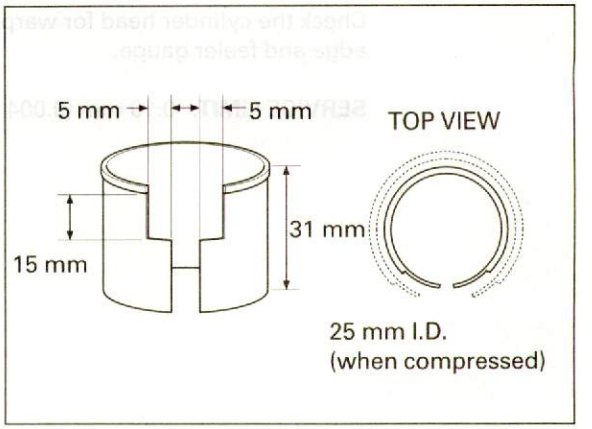
Remove the spark plugs from the cylinder head.

Install the tappet hole protector into the valve lifter bore.

**TOOL:**
**Tappet hole protector** 07HMG-MR70002




An equivalent tool can easily be made from a plastic 35 mm film container as shown.

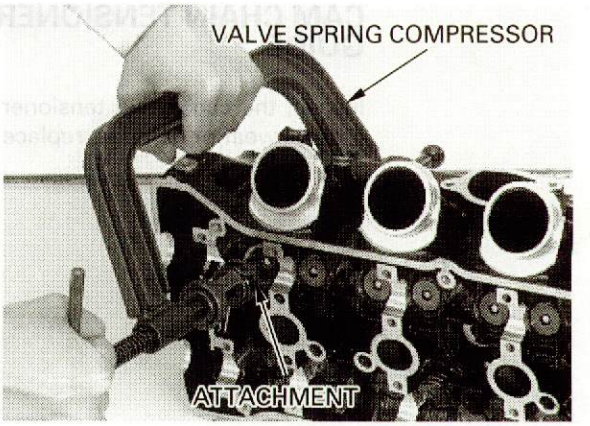



Remove the valve spring cotters using the special tools as shown.

**TOOLS:**
**Valve spring compressor** 07757-0010000
**Valve spring compressor attachment** 07959-KM30101

**CAUTION:**

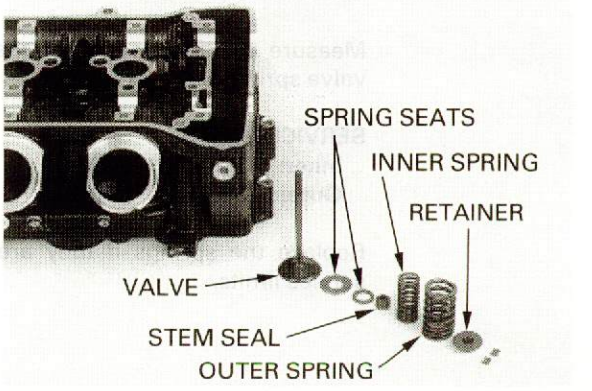
***To prevent loss of tension, do not compress the valve springs more than necessary to remove the cotters.***




Remove the following:
- Spring retainer
- Outer and inner valve springs
- Valve
- Stem seal
- Inner and outer valve spring seats

**NOTE:**

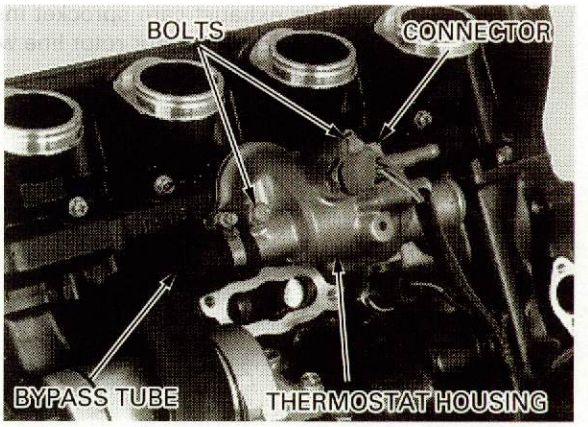
Mark all parts during disassembly so they can be placed back in their original locations.



Install the new O-ring into the groove of the thermostat housing groove.
Install the thermostat housing onto the cylinder head and tighten the bolts securely.

Connect the bypass tube to the thermostat housing.
Connect the ECT/thermo sensor connector.

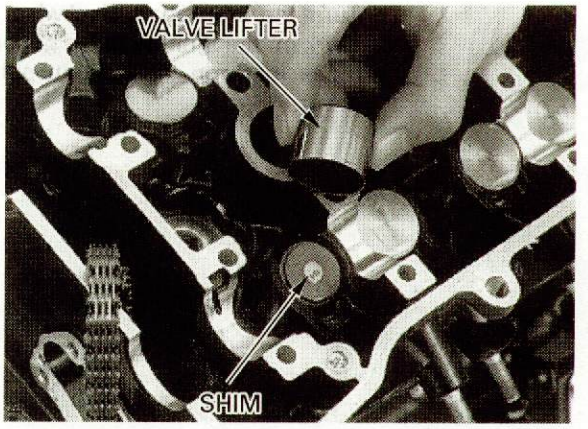
Install the engine into the frame (page 7-5).




## CAMSHAFT INSTALLATION

Apply molybdenum disulfide oil to the outer surface of the each valve lifter.

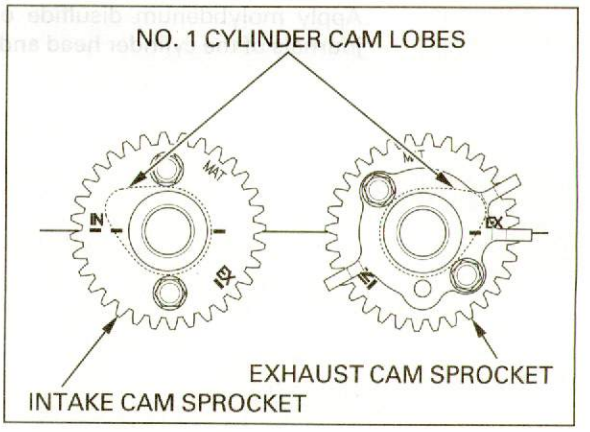
Install the shims and valve lifters into the valve lifter bores.



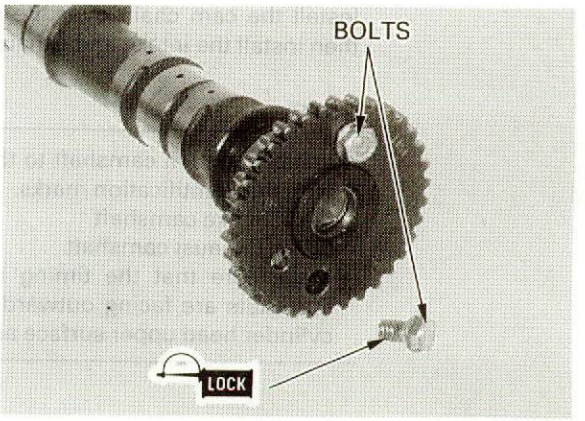

If the cam sprockets are removed, install the cam sprockets onto the camshafts.

NOTE:

- Install the intake cam sprocket with the timing mark (IN) facing outward and the No. 1 cam lobes facing up and out as shown.
- Install the exhaust cam sprocket with the timing mark (EX) facing outward and the No. 1 cam lobes facing up and out as shown.




Clean and apply a locking agent to the cam sprocket bolt threads.
Install the cam sprocket bolts.



# 9. CLUTCH/GEARSHIFT LINKAGE



## SERVICE INFORMATION

### GENERAL

- This section covers service of the clutch, gearshift linkage, shift drum and shift forks. All service can be done with the engine installed in the frame.
- Transmission oil viscosity and level have an effect on clutch disengagement. When the clutch does not disengage or the motorcycle creeps with clutch disengaged, inspect the transmission oil level before servicing the clutch system.

### SPECIFICATIONS

Unit: mm (in)

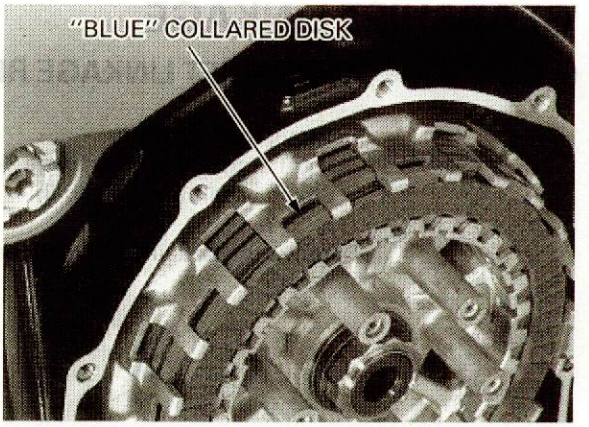
| ITEM | | | STANDARD | SERVICE LIMIT |
|---|---|---|---|---|
| Clutch lever free play | | | 10 – 20 (3/8 – 13/16) | ——— |
| Clutch spring free length | | | 57.4 (2.26) | 56.2 (2.21) |
| Clutch disc thickness | | Blue color | 3.72 – 3.88 (0.146 – 0.153) | 3.5 (0.14) |
| | | Brown color | 3.72 – 3.88 (0.146 – 0.153) | 3.5 (0.14) |
| Clutch plate warpage | | | ——— | 0.30 (0.012) |
| Clutch outer guide | | I.D. | 28.000 – 28.021 (1.1024 – 1.1032) | 28.031 (1.1036) |
| | | O.D. | 34.975 – 34.991 (1.3770 – 1.3776) | 34.965 (1.3766) |
| Mainshaft O.D. at clutch outer guide | | | 27.980 – 27.993 (1.1016 – 1.1021) | 27.970 (1.1012) |
| Shift fork, fork shaft | Fork | I.D. | 12.000 – 12.021 (0.4724 – 0.4733) | 12.03 (0.474) |
| | | Claw thickness | 5.93 – 6.00 (0.233 – 0.236) | 5.9 (0.23) |
| | Fork shaft O.D. | | 11.957 – 11.968 (0.4707 – 0.4712) | 11.95 (0.470) |

### TORQUE VALUES

| | | |
|---|---|---|
| Clutch center lock nut | 127 N·m (13.0 kgf·m , 94 lbf·ft) | Apply oil to the threads<br>Stake the nut |
| Clutch spring bolt/washer | 12 N·m (1.2 kgf·m , 9 lbf·ft) | |
| Right crankcase cover SH bolt | 12 N·m (1.2 kgf·m , 9 lbf·ft) | |
| Right crankcase cover center bolt | 12 N·m (1.2 kgf·m , 9 lbf·ft) | |
| Shift drum center socket bolt | 23 N·m (2.3 kgf·m , 17 lbf·ft) | Apply a locking agent to the threads |
| Shift drum stopper pivot bolt | 12 N·m (1.2 kgf·m , 9 lbf·ft) | |
| Gearshift return spring pin | 23 N·m (2.3 kgf·m , 17 lbf·ft) | |
| Gearshift drum bearing set plate flange bolt | 12 N·m (1.2 kgf·m , 9 lbf·ft) | Apply a locking agent to the threads |
| Gearshift pedal bolt | 10 N·m (1.0 kgf·m , 7 lbf·ft) | |
| Oil pump driven sprocket bolt | 15 N·m (1.5 kgf·m , 11 lbf·ft) | Apply a locking agent to the threads |

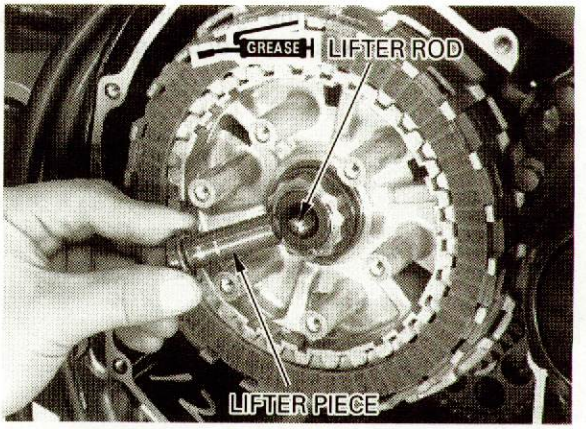
NOTE:

Install the outer clutch disc colored "Blue" in the shallow slot on the clutch outer.

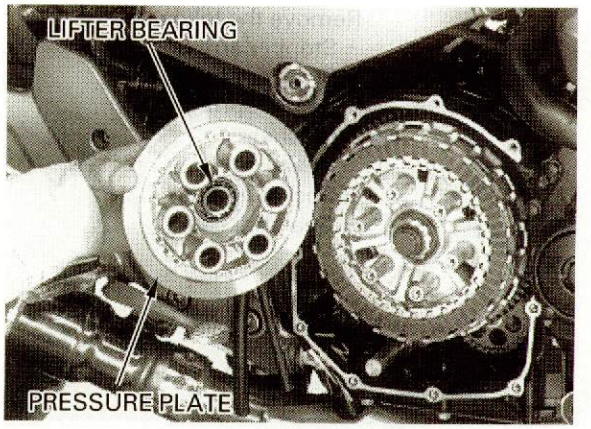



Install the clutch lifter rod into the mainshaft.

Apply grease to the tip of the lifter rod and install clutch lifter piece into the mainshaft.



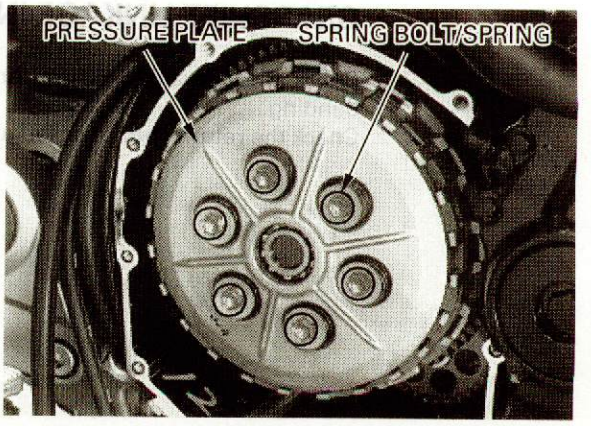

Install the lifter bearing into the pressure plate.
Install the pressure plate.



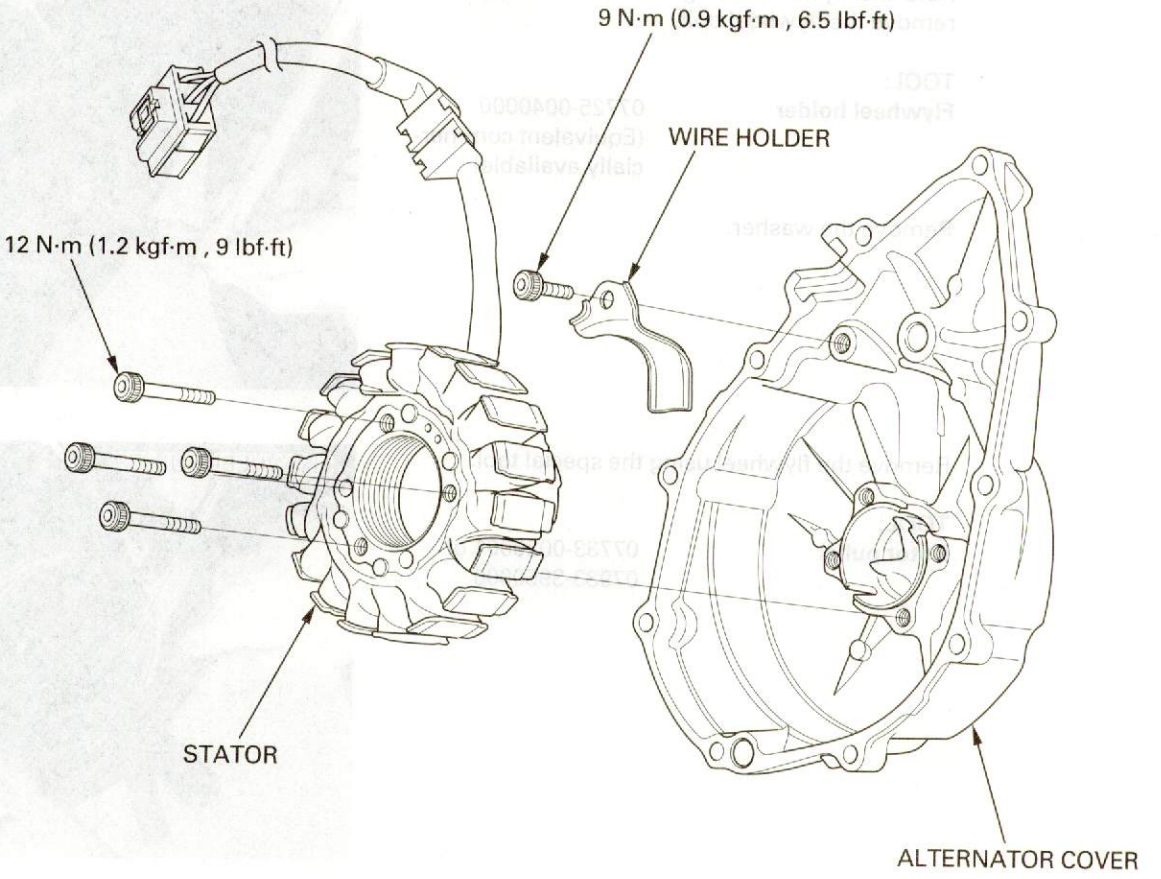

Install the clutch springs and spring bolts. Tighten the bolts in a crisscross pattern in 2–3 steps to the specified torque.

**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)

Install the right crankcase cover (page 9-17).



## INSTALLATION



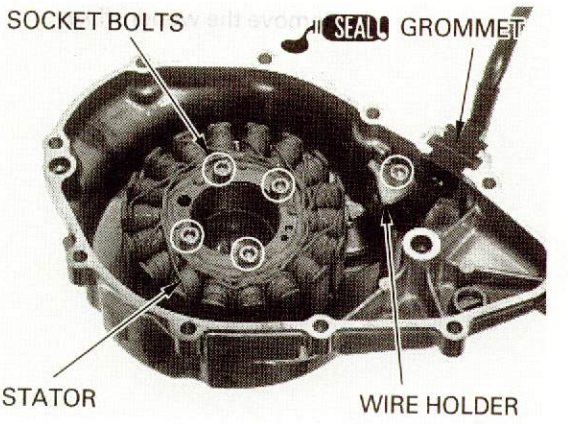

Install the stator into the alternator cover.

Apply sealant to the wire grommet, then install the wire grommet into the alternator groove securely. Install and tighten the socket bolts to the specified torque.

**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)

Install the wire holder and tighten the socket bolt to the specified torque.

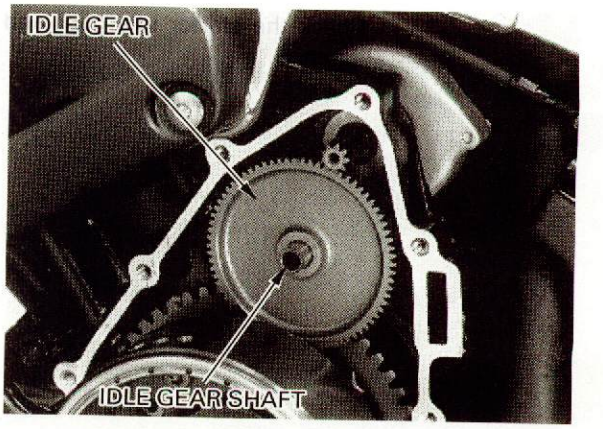
**TORQUE:** 9 N·m (0.9 kgf·m , 6.5 lbf·ft)




## FLYWHEEL REMOVAL

Remove the alternator cover (page 10-2).

Remove the starter idle gear shaft and idle gear.

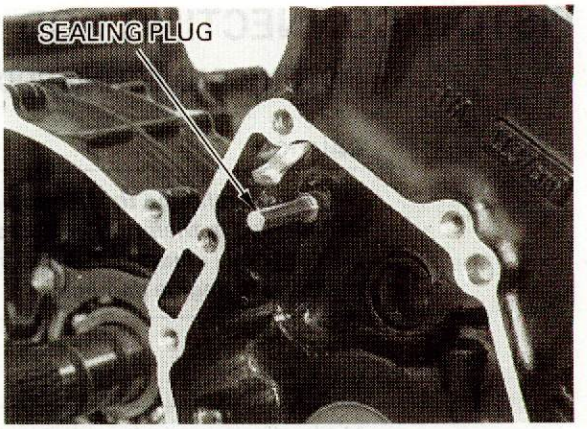


# CRANKCASE SEPARATION

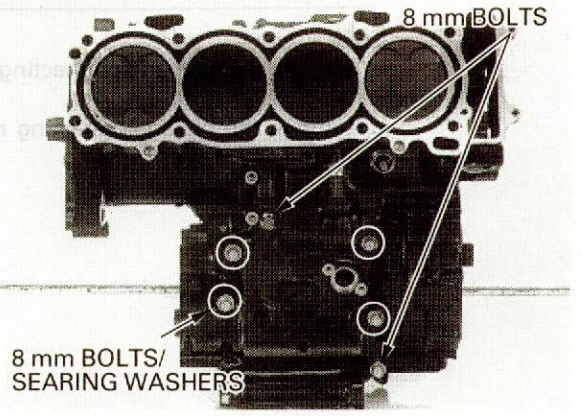
NOTE:

Refer to Service Information (page 11-1) for removal of necessary parts before separating the crankcase.

Remove the sealing plug and O-ring.

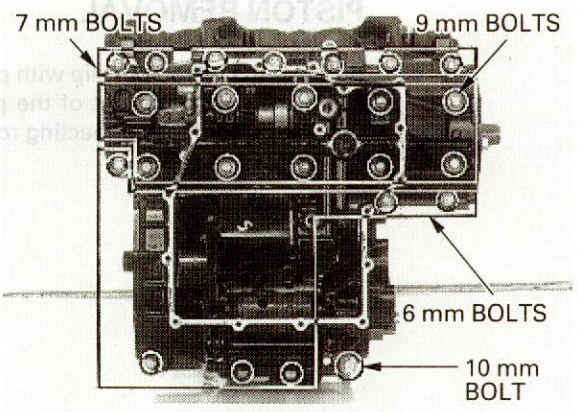



Remove the upper crankcase 8 mm bolts/sealing washers.

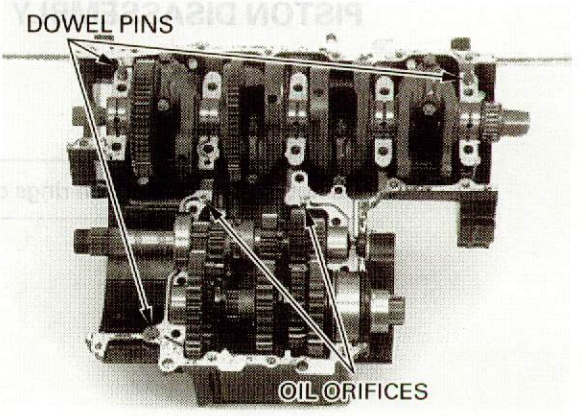



Remove the lower crankcase 6 mm bolts (six), 7 mm bolts (seven) and 10 mm bolt.
Loosen the ten lower crankcase 9 mm bolts in a crisscross pattern in 2–3 steps, then remove the bolts and sealing washers.

Separate the lower crankcase from the upper crankcase.




Remove the dowel pins and oil orifices.



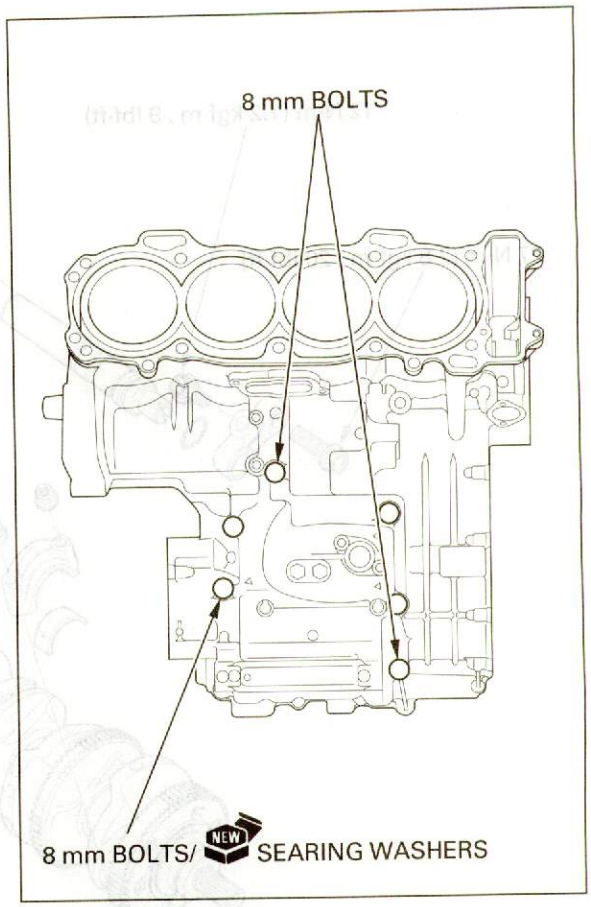
Install the upper crankcase 8 mm bolts and sealing washers.

NOTE:

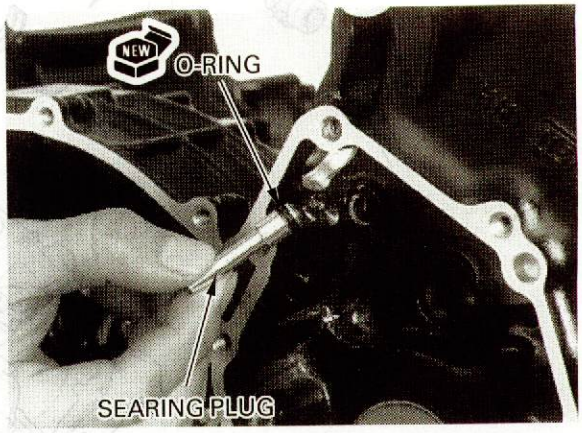
The sealing washer locations are indicated on the upper crankcase using the "△" mark.

Tighten the 8 mm bolts to the specified torque.

**TORQUE:** 25 N·m (2.5 kgf·m , 18 lbf·ft)




Install the new O-ring and sealing plug.

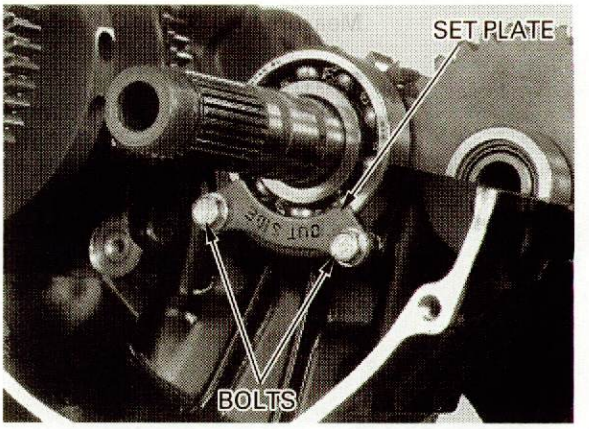


# TRANSMISSION

## REMOVAL/DISASSEMBLY

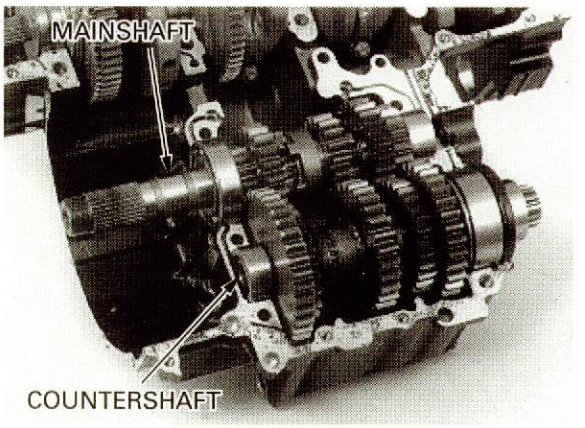
Separate the crankcase halves (page 11-3).

Remove the bolts and mainshaft bearing set plate.



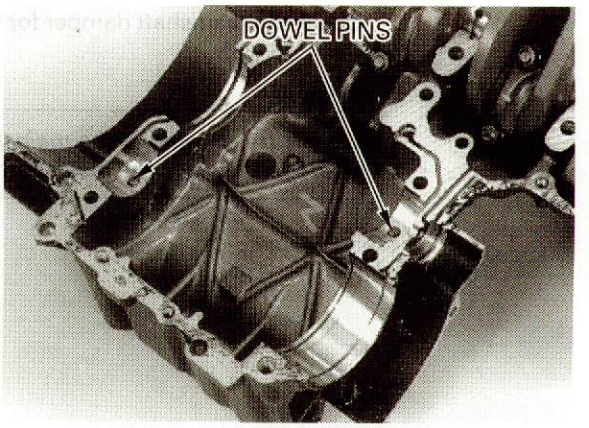

Remove the mainshaft and countershaft assembly.

Remove the oil seal.




Remove the dowel pins.

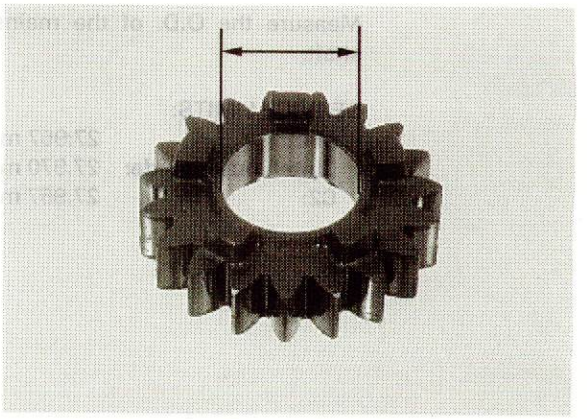
Disassemble the mainshaft and countershaft.



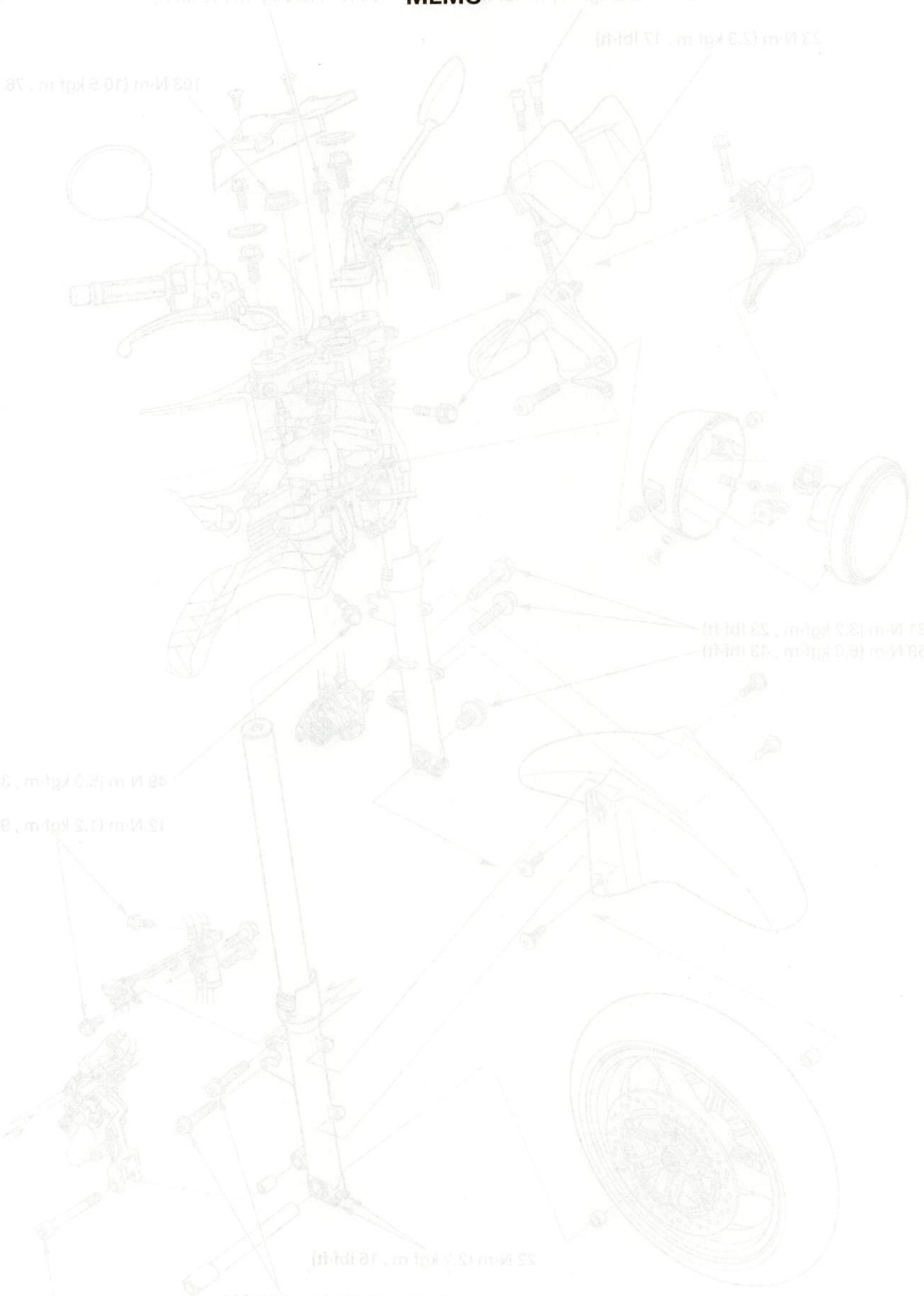

Check the gear dogs, dog holes and teeth for abnormal wear or lack of lubrication.
Measure the I.D. of each gear.

**SERVICE LIMITS:**

| | |
|---|---|
| **M4, M5:** | 31.04 mm (1.222 in) |
| **C1:** | 26.04 mm (1.025 in) |
| **C2, C3:** | 33.04 mm (1.301 in) |



**MEMO**

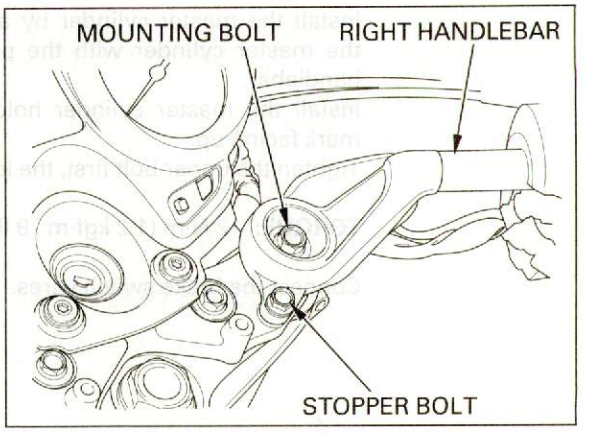


Install the right handlebar onto the top bridge, then install the handlebar mounting bolt and stopper bolt.
Pull the handlebar backward fully, loosely tighten the right handlebar mounting bolt.

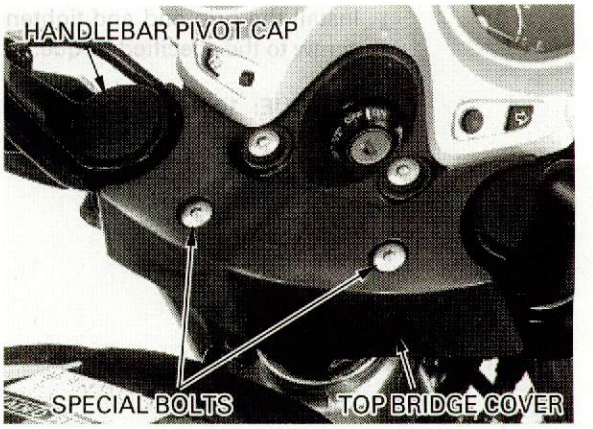
Tighten the right handlebar pinch bolt to the specified torque.

**TORQUE:** 25 N·m (2.6 kgf·m , 19 lbf·ft)

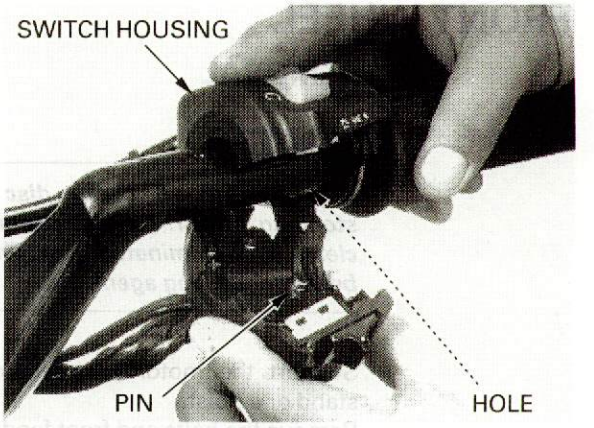
Tighten the right handlebar mounting bolt securely.



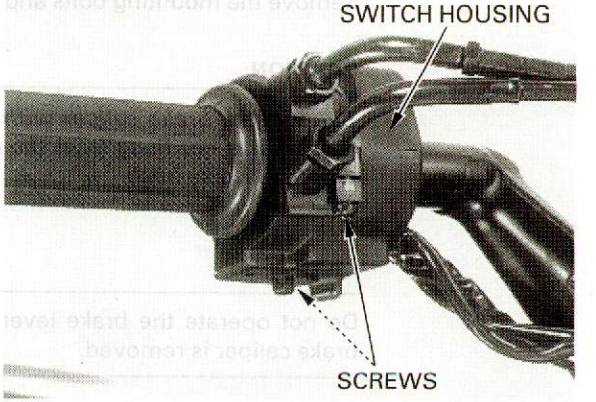

Install the left handlebar pivot cap.
Install the top bridge cover and tighten the special bolts.



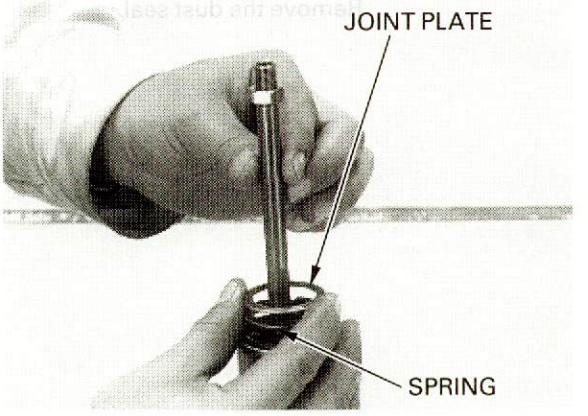

Install the right handlebar switch/throttle housing by aligning its locating pin with the hole in the handlebar.




Tighten the forward screw first, then the rear screw.



Remove the spring joint plate and fork spring.

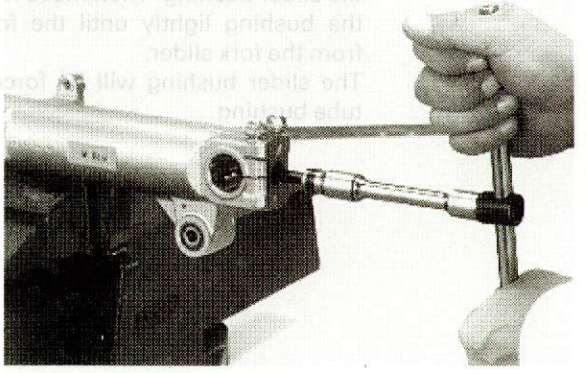



Pour out the fork fluid by pumping the fork tube up and down several times.

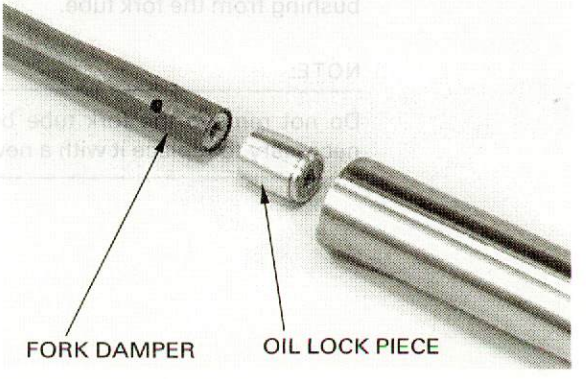
Hold the fork slider in a vice with soft jaws or a shop towel.
Remove the fork socket bolt with a hex wrench.

NOTE:

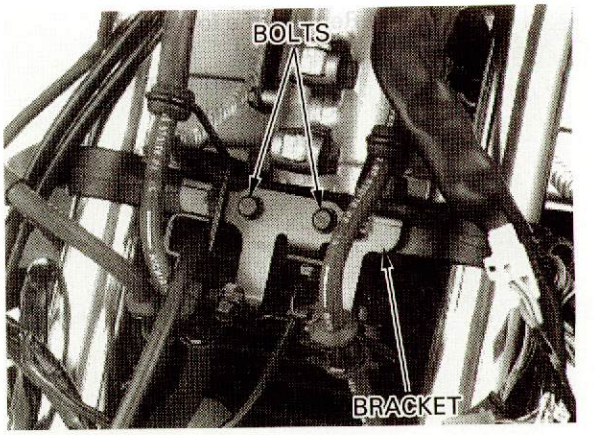
If the fork damper turns together with the socket bolt, temporarily install the fork spring, spring collar and fork cap.



Remove the fork damper assembly and oil lock piece from the fork tube.



Remove the bolts and front brake hose/horn mounting bracket.

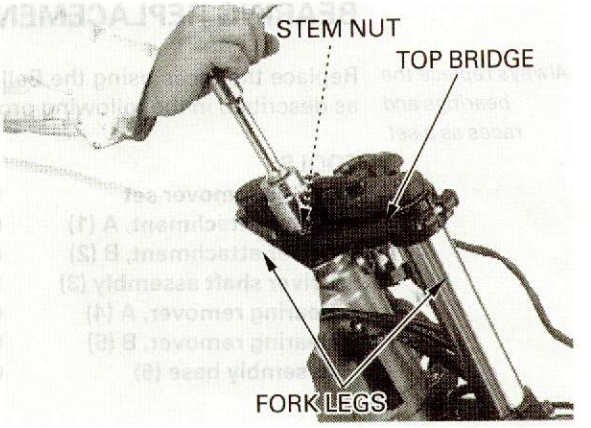



Remove the steering stem nut cap.

Loosen the steering stem nut.

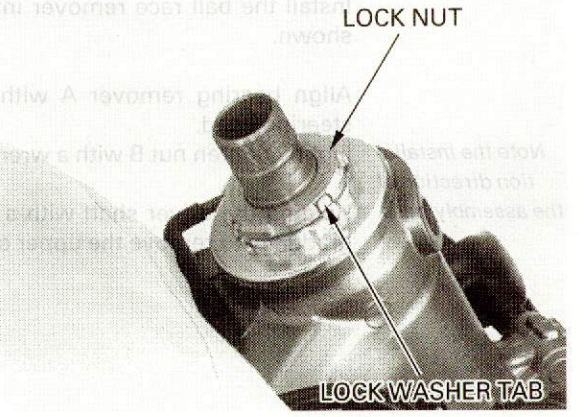
Remove the following:
- Handlebar (page 13-3)
- Fork legs (page 13-17)

Remove the stem nut and the top bridge.




Straighten the tabs of the lock washer.

Remove the lock nut and lock washer.




Remove the steering stem bearing adjusting nut using the special tool.

**TOOL:**
**Steering stem socket** 07916-3710101

# 14. REAR WHEEL/SUSPENSION



## SERVICE INFORMATION

### GENERAL

**⚠WARNING**

- ***A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.***
- ***After the rear wheel installation, check the brake operation by appling the brake lever and pedal.***
- ***The shock absorber contains nitrogen under high pressure. Do not allow fire or heat near the shock absorber.***
- ***Before disposal of the shock absorber, release the nitrogen (page 14-11).***

- When servicing the rear wheel, support the motorcycle using a safety stand or hoist.
- Refer to section 15 for brake system information.
- Use only tires marked "TUBELESS" and tubeless valves on rim marked "TUBELESS TIRE APPLICABLE".
- Use genuine Honda replacement bolts and nuts for all suspension pivot and mounting point.

### SPECIFICATIONS

Unit: mm (in)

| ITEM | | | STANDARD | SERVICE LIMIT |
|---|---|---|---|---|
| Minimum tire tread depth | | | — | 2.0 (0.08) |
| Cold tire pressure | Driver only | | 290 kPa (2.90 kgf/cm², 42 psi) | — |
| | Driver and passenger | | 290 kPa (2.90 kgf/cm², 42 psi) | — |
| Axle runout | | | — | 0.20 (0.008) |
| Wheel rim runout | Radial | | — | 2.0 (0.08) |
| | Axial | | — | 2.0 (0.08) |
| Drive chain | Size/link | DID | DID50ZV-110LE | — |
| | | RK | RK50LFO-110LE | — |
| | Slack | | 25 – 35 (1.0 – 1.4) | 50 (2.0) |
| Shock absorber spring adjuster standard position | | | 3rd groove | — |

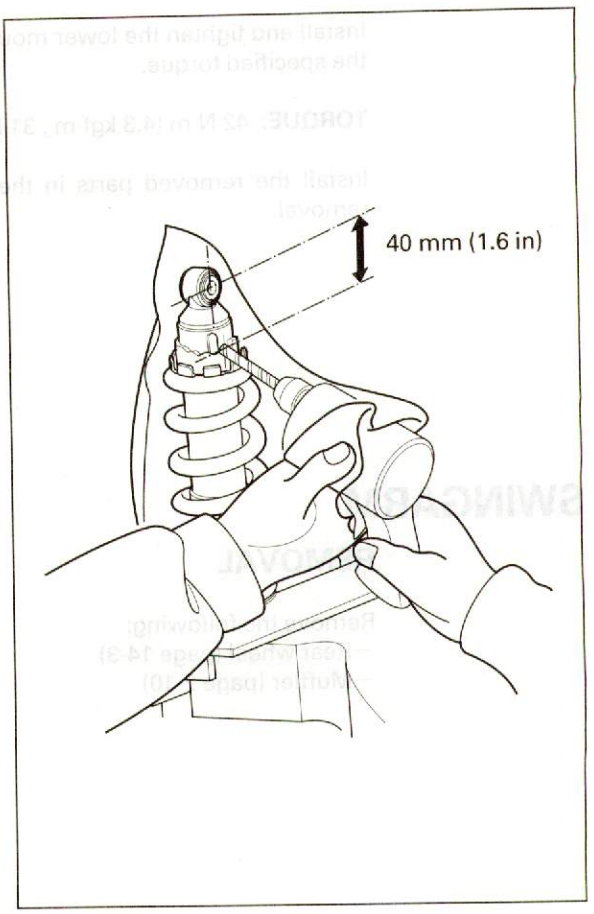
### TORQUE VALUES

| | | |
|---|---|---|
| Rear axle nut | 118 N·m (12.0 kgf·m, 87 lbf·ft) | U-nut |
| Rear brake disc mounting bolt | 42 N·m (4.3 kgf·m, 31 lbf·ft) | ALOC bolt |
| Driven sprocket nut | 108 N·m (11.0 kgf·m, 80 lbf·ft) | U-nut |
| Shock absorber mounting nut | 42 N·m (4.3 kgf·m, 31 lbf·ft) | U-nut |
| Swingarm pivot nut | 93 N·m (9.5 kgf·m, 69 lbf·ft) | U-nut |
| Footpeg holder socket bolt | 39 N·m (4.0 kgf·m, 29 lbf·ft) | |
| Drive chain slider bolt | 9 N·m (0.9 kgf·m, 6.5 lbf·ft) | |
| Drive sprocket special bolt | 54 N·m (5.5 kgf·m, 40 lbf·ft) | |
| Brake hose guide bolt | 12 N·m (1.2 kgf·m, 9 lbf·ft) | |

**SHOCK ABSORBER DISPOSAL PROCEDURE**

Center punch the damper to mark the drilling point.

Wrap the damper unit inside a plastic bag.
Support the damper in a vise as shown.
Through the open end of the bag, insert a drill motor with a sharp 2—3 mm (5/64—1/8 in) drill bit.



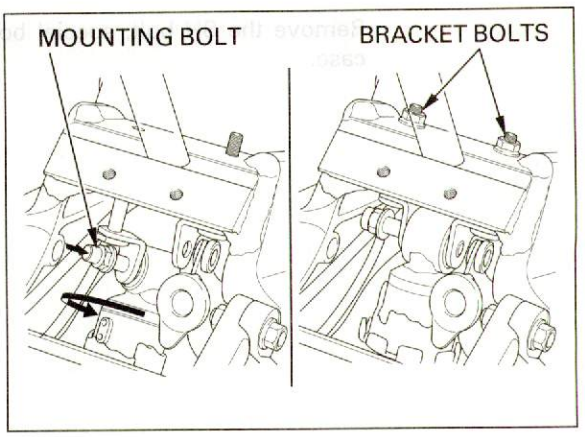

**⚠WARNING**

- ***Do not use a dull drill bit which could cause a build-up of excessive heat and pressure inside the damper, leading to explosion and severe personal injury.***
- ***The shock absorber contains nitrogen gas and oil under high pressure. Do not drill any farther down the damper case than the measurement given above, or you may drill into the oil chamber; oil escaping under high pressure may cause serious personal injury.***
- ***Always wear eye protection to avoid getting metal shaving in your eyes when the gas pressure is released. The plastic bag is only intended to shield you from the escaping gas.***

Hold the bag around the drill motor and briefly run the drill motor inside the bag; this will inflate the bag with air from the motor and help keep the bag from getting caught in the bit when you start.

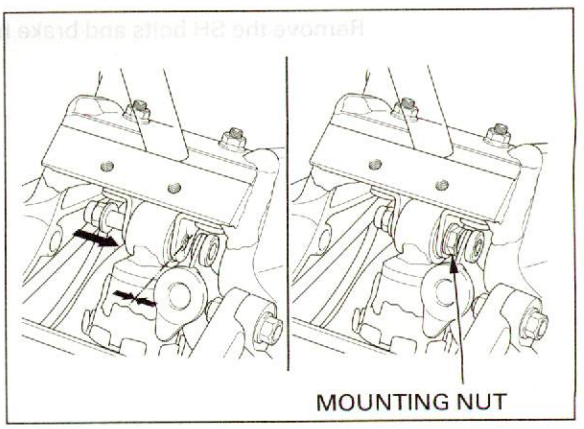
## INSTALLATION

Install the shock absorber upper mounting brackets into the frame.
Install the shock absorber into the frame and install the upper mounting bolt.



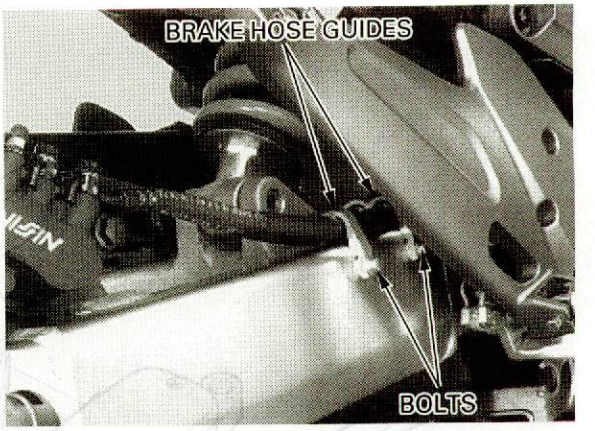

Turn the shock absorber and pull up the left bracket.
Install the shock absorber upper mounting nut.
Set the radiator reserve tank grommet, then tighten the upper mounting bolts/nuts to the specified torque.

**TORQUE:** 42 N·m (4.3 kgf·m , 31 lbf·ft)

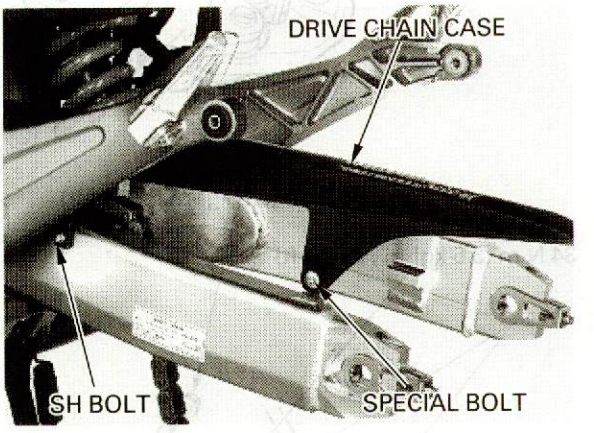


Route the brake hose properly, tighten the brake hose guide bolts to the specified torque.

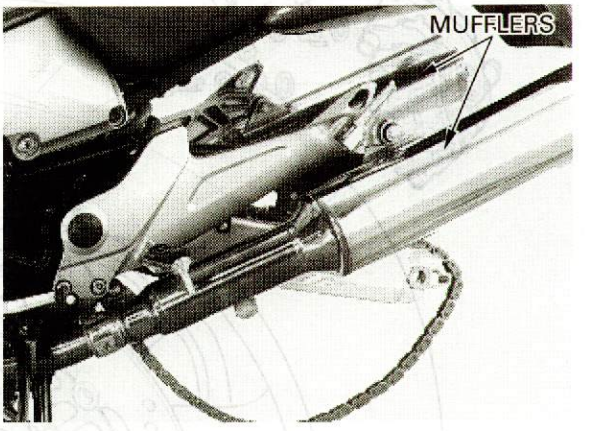
**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)




Install the drive chain case and tighten the SH bolt and special bolt.




Install the following:
- Muffler (page 2-13)
- Rear wheel (page 14-8)



Tighten the reservoir cap screws to the specified torque.

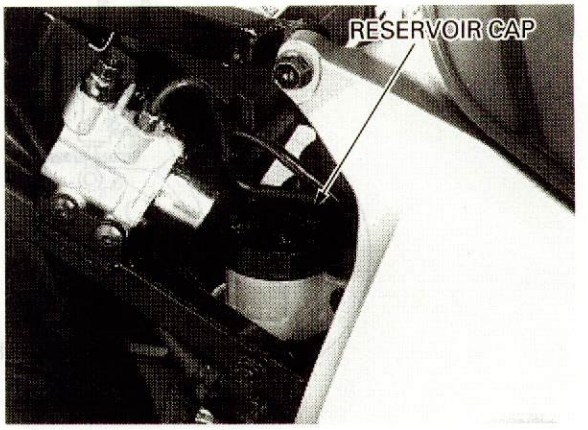
**TORQUE:** 1 N·m (0.15 kgf·m , 1.1 lbf·ft)

Check the front brake operation (page 3-26).


**Pedal brake line**

NOTE:

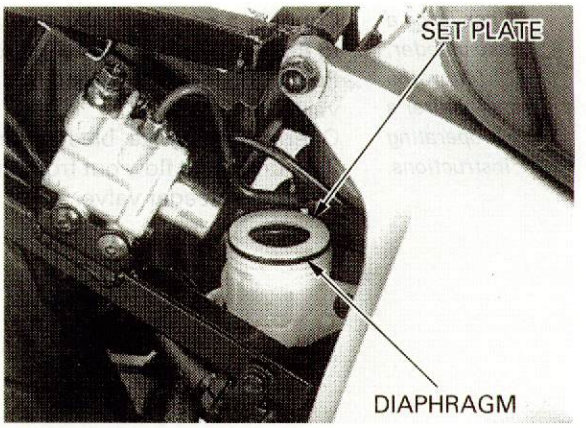
- Before performing this service, prepare the brake fluid 500 $cm^3$ (16.9 US oz, 14.1 Imp oz) or more, because the brake line is long.
- Fluid filling and bleed air from the brake pedal line in the sequence as follow:
  1. Right front caliper center bleed valve
  2. Left front caliper center bleed valve
  3. Rear caliper center bleed valve
  4. Rear caliper outer bleed valve



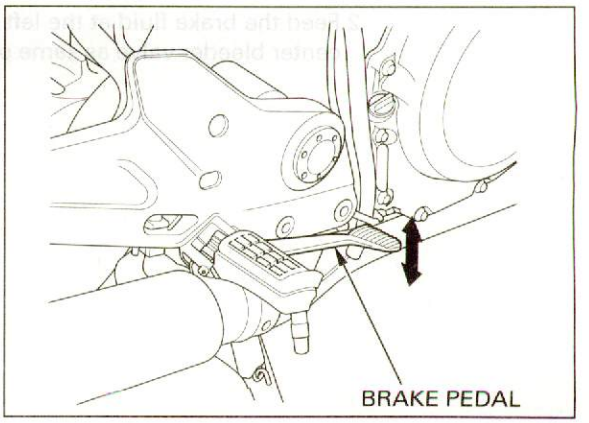

Remove the seat (page 2-2).

Remove the reservoir cap, set plate and diaphragm.

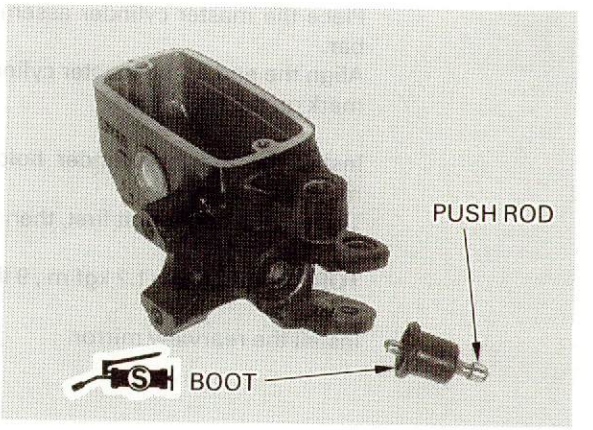
Fill the reservoir with DOT 4 brake fluid.




Pump the brake pedal while filling the brake fluid and feed fluid into the master cylinder.

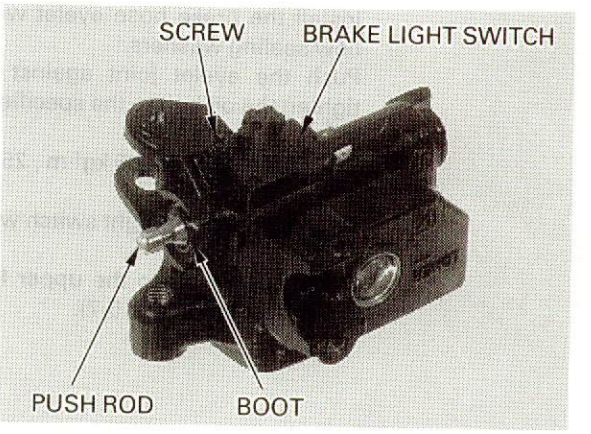


Apply silicone grease to the inside of the boot and master piston tip.
Install the push rod and boot.

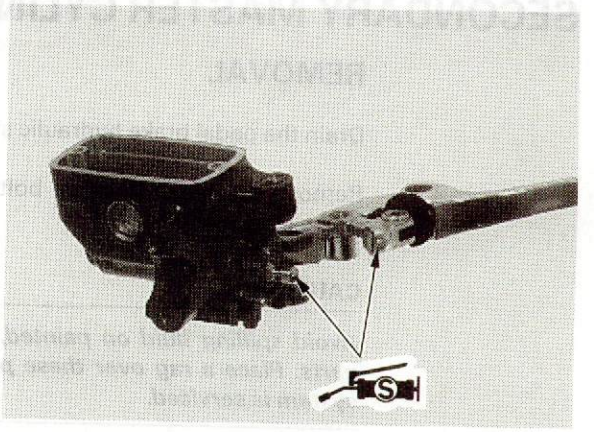



Install the brake light switch and tighten the screw to the specified torque.

**TORQUE:** 1 N·m (0.12 kgf·m , 0.9 lbf·ft)




Apply silicone grease to the contact surface of the master piston, then install the brake lever assembly.

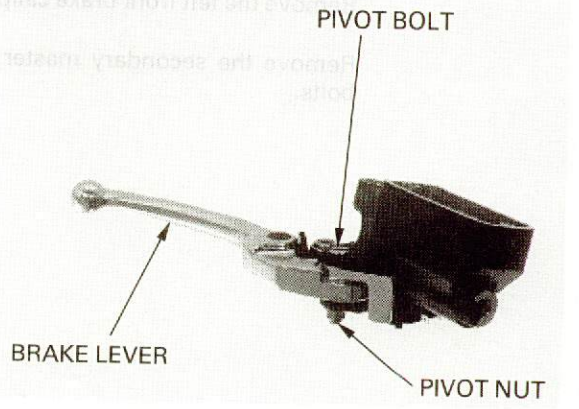


Install and tighten the pivot bolt to the specified torque.

**TORQUE:** 1 N·m (0.1 kgf·m , 0.7 lbf·ft)

Hold the pivot bolt and tighten the pivot nut to the specified torque.

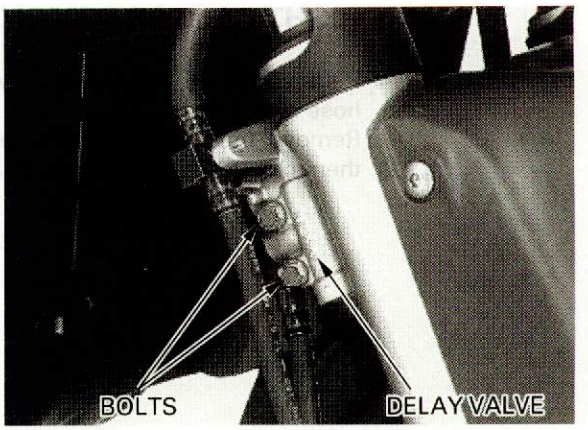
**TORQUE:** 6 N·m (0.6 kgf·m , 4.3 lbf·ft)



## INSTALLATION

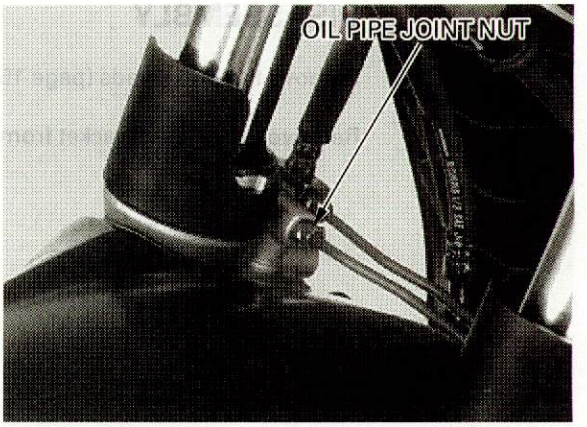
Install the delay valve onto the right fork slide while installing the brake pipe into the delay valve.
Install and tighten the delay valve mounting bolts to the specified torque.

**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)




Tighten the brake pipe joint nut to the specified torque.

**TORQUE:** 17 N·m (1.7 kgf·m , 12 lbf·ft)




Install the 3 way joint and tighten the bolt to the specified torque.

**TORQUE:** 12 N·m (1.2 kgf·m , 9 lbf·ft)

Install the brake hose with the oil bolt and new sealing washers.
Push the eyelet joint against the stopper, then tighten the oil bolt to the specified torque.

**TORQUE:** 34 N·m (3.5 kgf·m , 25 lbf·ft)

Fill the reservoir to the upper level and bleed the pedal brake line (page 15-8).


# FRONT BRAKE CALIPER

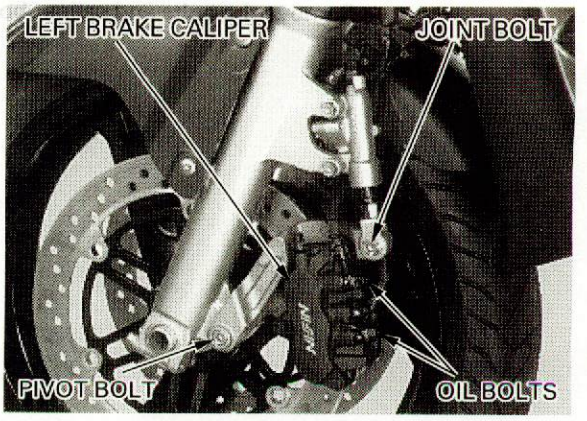
## LEFT CALIPER REMOVAL

**CAUTION:**

***Avoid spilling fluid on painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.***

Drain the lever and pedal brake line hydraulic system (page 15-5).

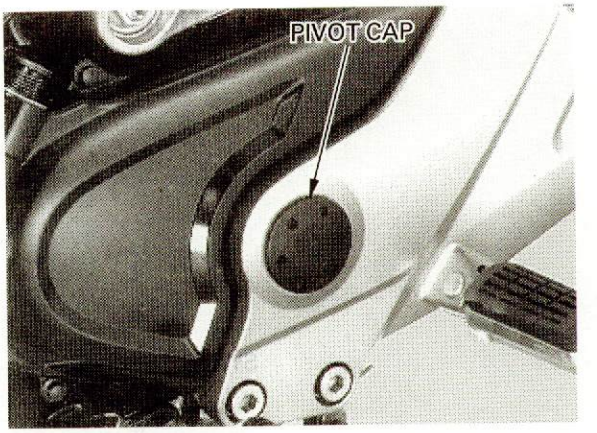
Remove the oil bolts, sealing washers and brake hose eyelet joints.
Remove the secondary master cylinder joint bolt and caliper pivot bolt, then remove the caliper/ bracket as an assembly.



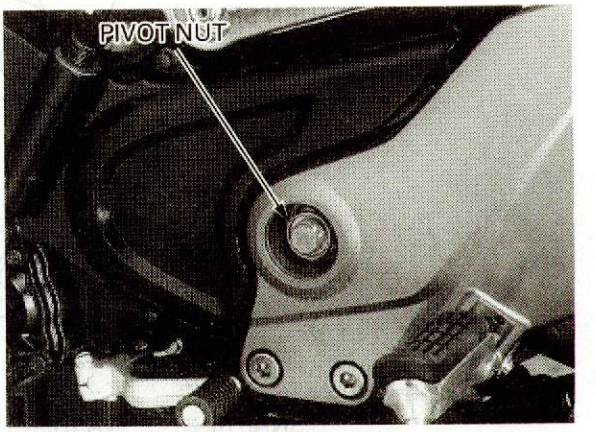
# BRAKE PEDAL

## REMOVAL

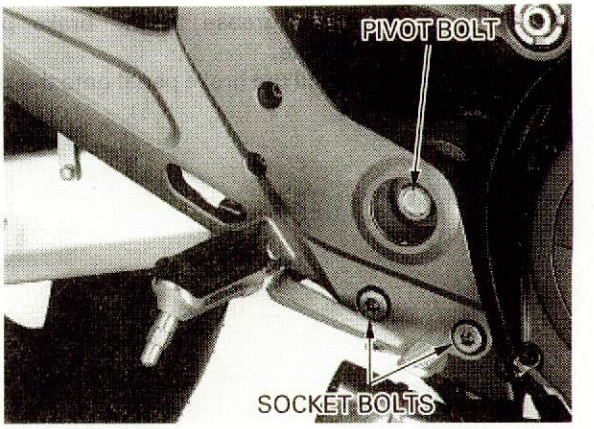
Remove the swingarm pivot cap.




Remove the swingarm pivot nut.

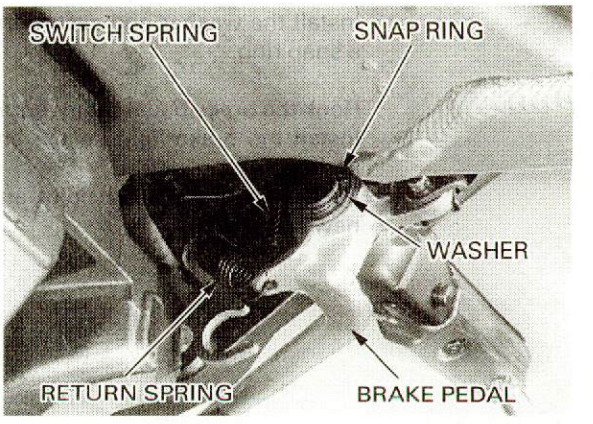



Remove the right footpeg/muffler bracket mounting socket bolts.
Pull the swingarm pivot bolt and right footpeg holder so that the brake pedal pivot snap ring can be removed.

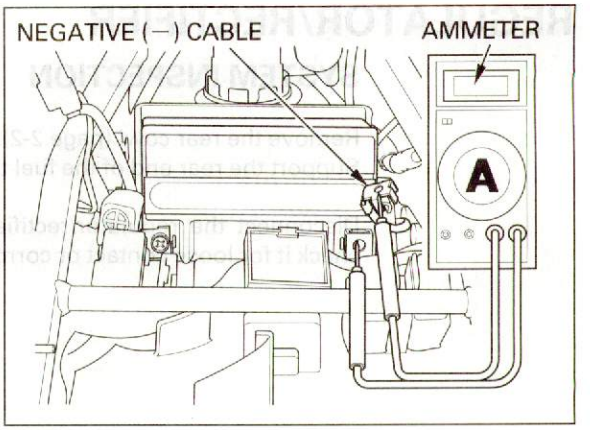



Remove and discard the brake pedal joint cotter pin.
Remove the joint pin.

Unhook the switch spring and remove the brake light switch from the footpeg holder.
Unhook the brake pedal return spring.
Remove the snap ring, washer and brake pedal from the footpeg holder.



## CURRENT LEAKAGE INSPECTION




Turn the ignition switch off and disconnect the negative battery cable from the battery.
Connect the ammeter (+) probe to the ground cable and the ammeter (−) probe to the battery (−) terminal.
With the ignition switch off, check for current leakage.

NOTE:

- When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow higher than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition on. A sudden surge of current may blow out the fuse in the tester.

**SPECIFIED CURRENT LEAKAGE:** 0.2 mA max.

If current leakage exceeds the specified value, a shorted circuit is likely.
Locate the short by disconnecting connections one by one and measuring the current.

# ALTERNATOR CHARGING COIL

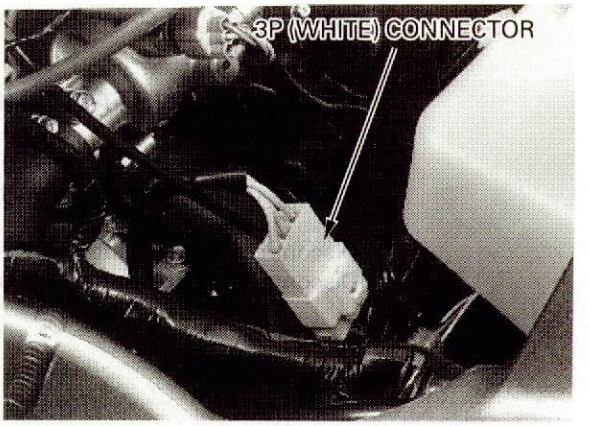
NOTE:

It is not necessary to remove the stator coil to make this test.

## INSPECTION

Support the rear end of the fuel tank (page 2-11).

Disconnect the regulator/rectifier 3P (White) connector.

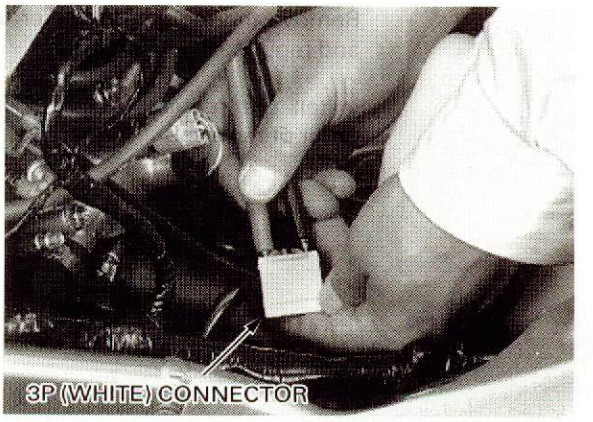



Check the resistance between all three Yellow terminals.

**STANDARD:** 0.1 − 1.0 Ω (at 20 °C/68 °F)

Check for continuity between all three Yellow terminals and Ground.
There should be no continuity.

If readings are far beyond the standard, or if any wire has continuity to ground, replace the alternator stator.
Refer to section 10 for stator removal.

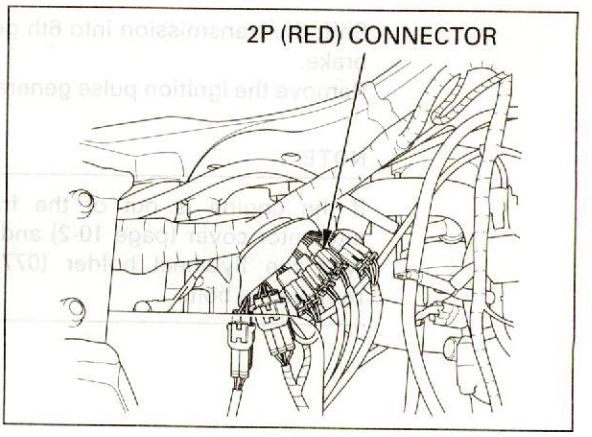


# IGNITION PULSE GENERATOR

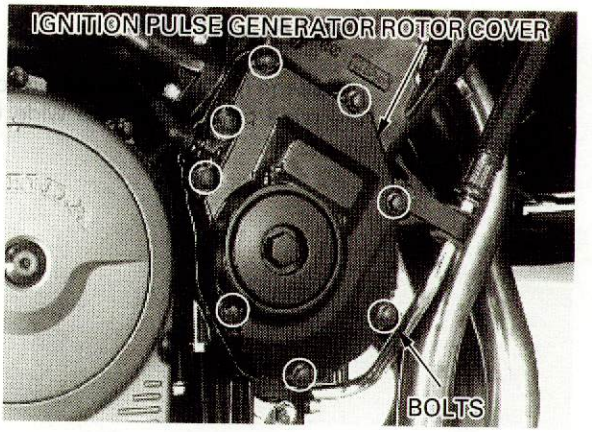
## REMOVAL

Support the rear end of the fuel tank (page 2-11).

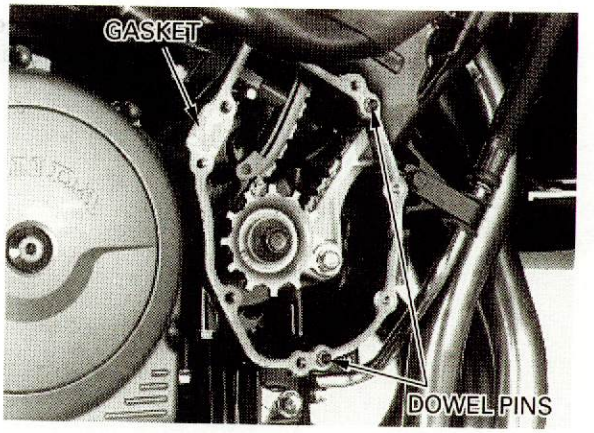
Disconnect the ignition pulse generator 2P (Red) connector.
Release the wire from the wire clamp.



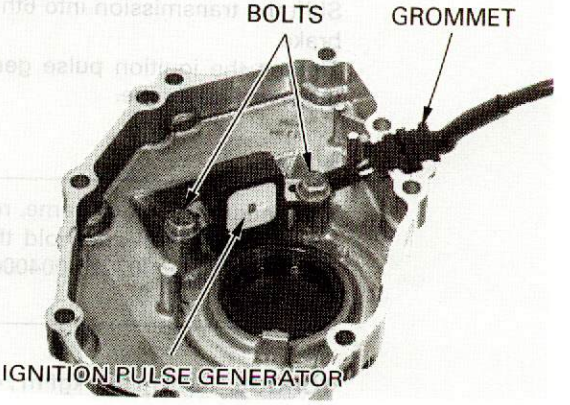

Remove the SH bolts and ignition pulse generator rotor cover.



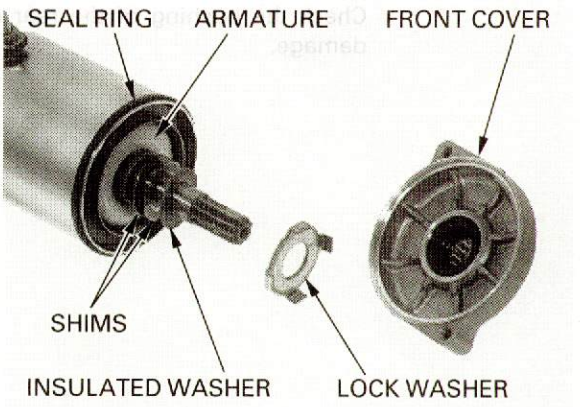

Remove the gasket and dowel pins.




Remove the wire grommet from the cover.
Remove the bolts and ignition pulse generator.

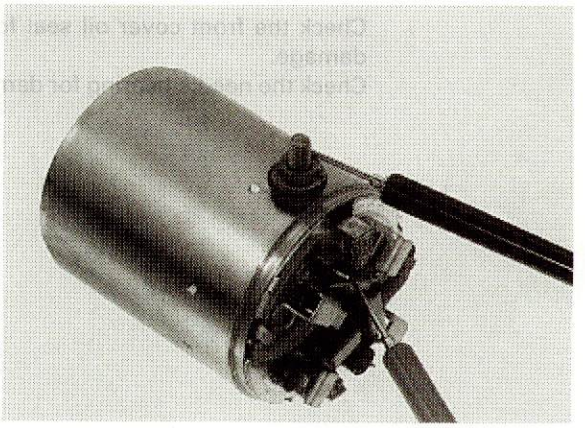


Remove the following:
- Front cover assembly
- Seal ring
- Lock washer
- Insulated washer
- Shims
- Armature

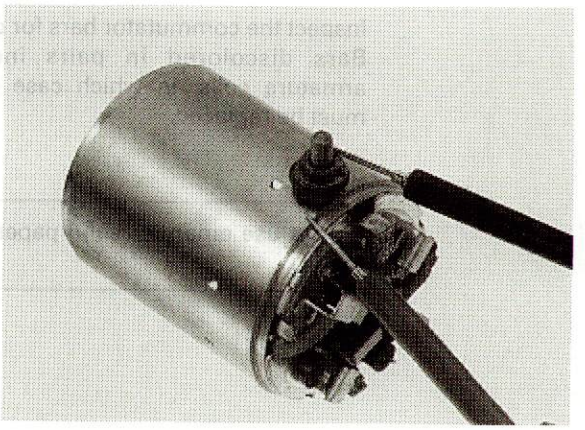



## INSPECTION

Check for continuity between the cable terminal and the brush wire (the indigo colored wire or the insulated brush holder).
There should be continuity.

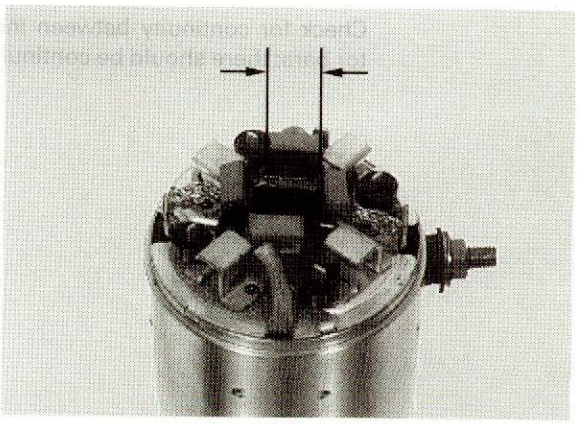


Check for continuity between the motor case and the cable terminal.
There should be no continuity.



Inspect the brushes for damage and measure the brush length.

**SERVICE LIMIT:** 4.5 mm (0.18 in)



# TROUBLESHOOTING

## SPEED SENSOR/SPEEDOMETER

**The odometer/trip meter operate normally, but the speedometer does not operate**
- Faulty speedometer

**The speedometer operate normally, but the odometer/trip meter does not operate**
- Faulty odometer/trip meter

**The speedometer operate is abnormal**
- Check for the following before diagnosing.
  - Blown main or sub fuses
  - Loose or corroded terminals of the connectors
  - Discharged battery

Check for loose or poor contact of the speed sensor 3P (Natural) connector.
With the ignition switch ON and measure the voltage at the speed sensor connector.

Abnormal →
- Loose or poor contact of related terminals
- Open circuit in Black/Brown or Green/Black wires between the battery and speed sensor

Normal ↓

Check for loose or poor contact of the combination meter multi-connectors.
With the ignition switch ON and measure the voltage at the bottom of the speedometer terminals.

Abnormal →
- Loose or poor contact of related terminals
- Open circuit in Black/Brown or Green/Black wires between the battery and speedometer

Normal ↓

With the ignition switch OFF, check for continuity of the Pink/Green wire between the terminals of the speed sensor and speedometer.

Abnormal →
- Open circuit or loose connection in Pink/Green wire

Normal ↓

Support the motorcycle using a hoist or other support to rise the rear wheel off the ground.
Measure the output voltage (sensor signal) at the speedometer with the ignition switch is ON while slowly turning the rear wheel by your hand.

Abnormal →
- Faulty speed sensor
- Loose speed sensor mounting bolts

Normal ↓

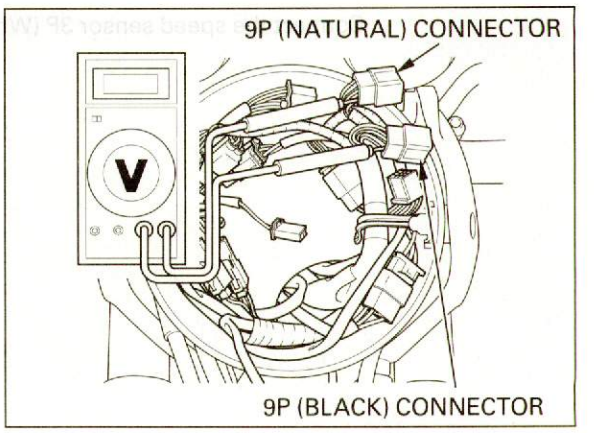
→
- Faulty speed sensor

Support the motorcycle on its center stand and shift the transmission into gear.

Connect the speed sensor 3P (White) connector.
Measure the voltage at the combination meter terminals with the ignition switch is ON while slowly turning the rear wheel by hand.

**CONNECTION:** Pink/Green (+)—Green/Black (−)
**STANDARD:** Repeat 0 to 5V

If the measurement is out of specification, inspect the open circuit in wire harness.

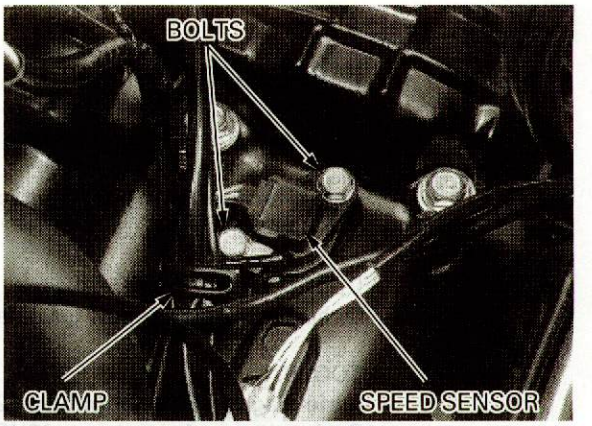



## REMOVAL/INSTALLATION

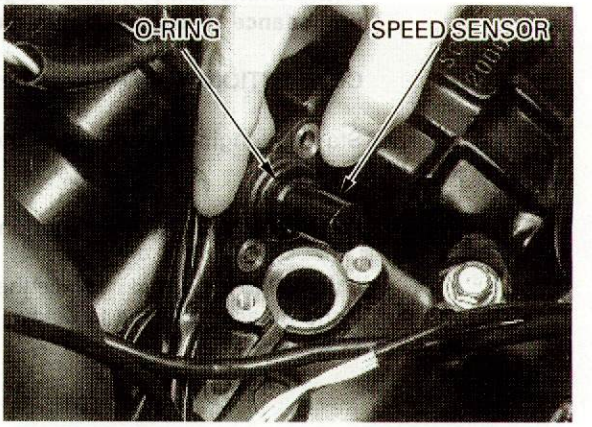
Support the rear end of the fuel tank (page 2-11).

Disconnect the speed sensor 3P (White) connector.

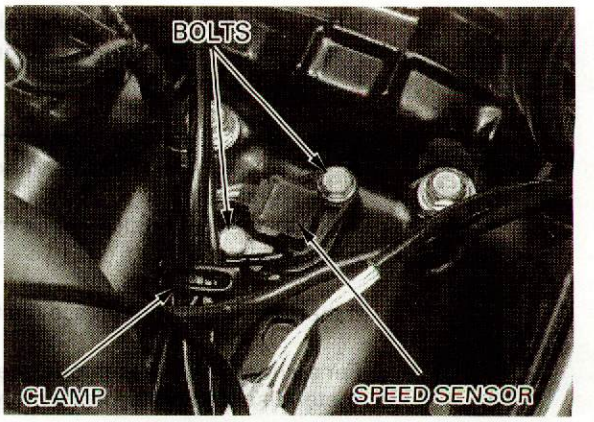
Release the speed sensor wire from the clamp.
Remove the bolts and speed sensor.




Check the O-ring is in good condition, replace if necessary.
Install the speed sensor into the upper crankcase.

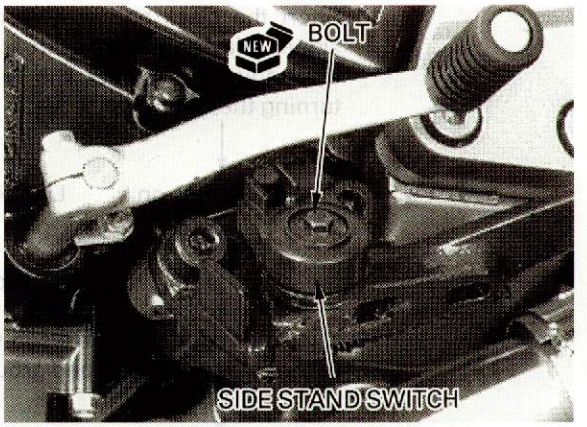



Install and tighten the mounting bolts securely.
Route the sensor wire and clamp it.

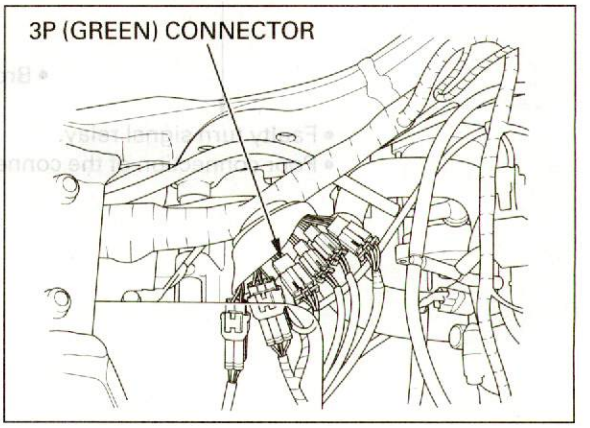


Secure the side stand switch with a new bolt.

**TORQUE:** 10 N·m (1.0 kgf·m , 7 lbf·ft)



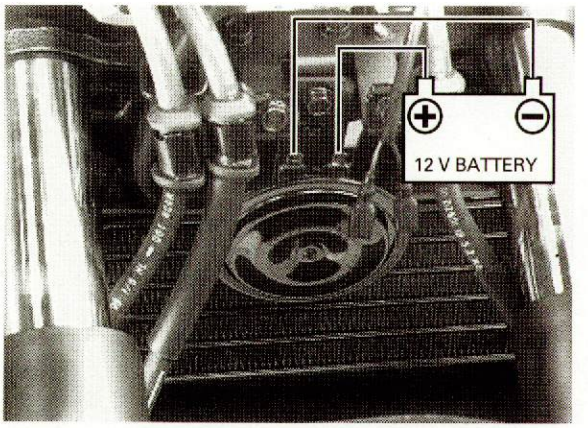

Connect the side stand switch 3P (Green) connector.




# HORN

Disconnect the wire connectors from the horn.

Connect the 12 V battery to the horn terminal directly.
The horn is normal if it sounds when the 12 V battery is connected across the horn terminals.

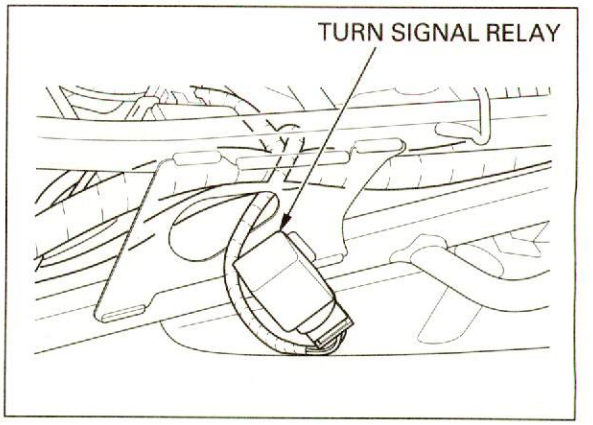



# TURN SIGNAL RELAY

## INSPECTION

Check the following:
- Battery condition
- Burned out bulb or non-specified wattage
- Burned fuse
- Ignition switch and turn signal switch function
- Loose connectors

If the above items are all normal, check the following:
Disconnect the turn signal connectors from the relay.



# TROUBLESHOOTING

NOTE:

The immobilizer indicator comes on for approx. two seconds then it goes off, when the ignition switch is turned ON with the properly registered key and the immobilizer system (HISS) functions normally. If there is any problem or the properly registered key is not used, the indicator will remains on.

**Immobilizer indicator does not come on when the ignition switch is turned ON**

- Check for a blown fuses (10 A).