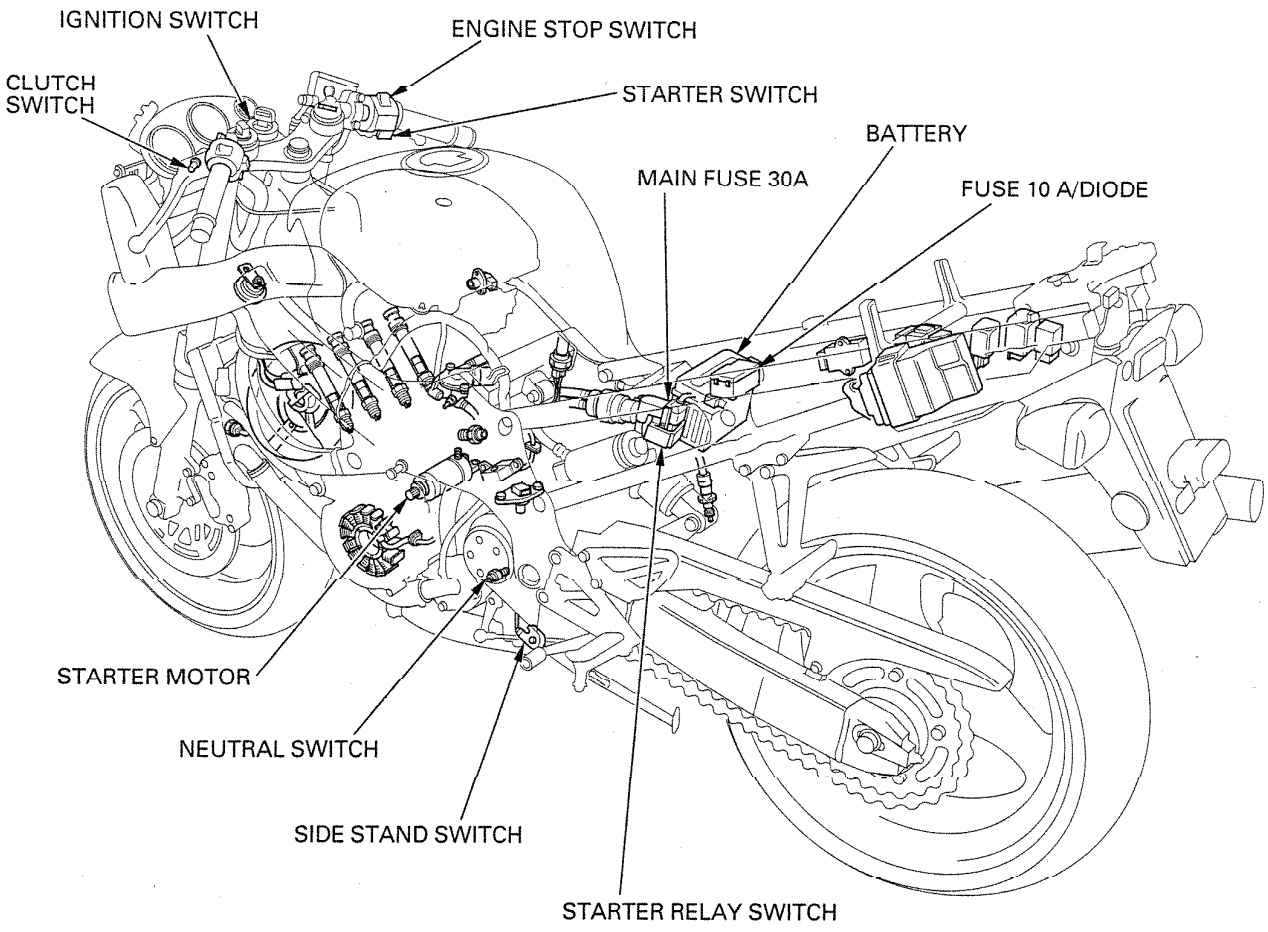
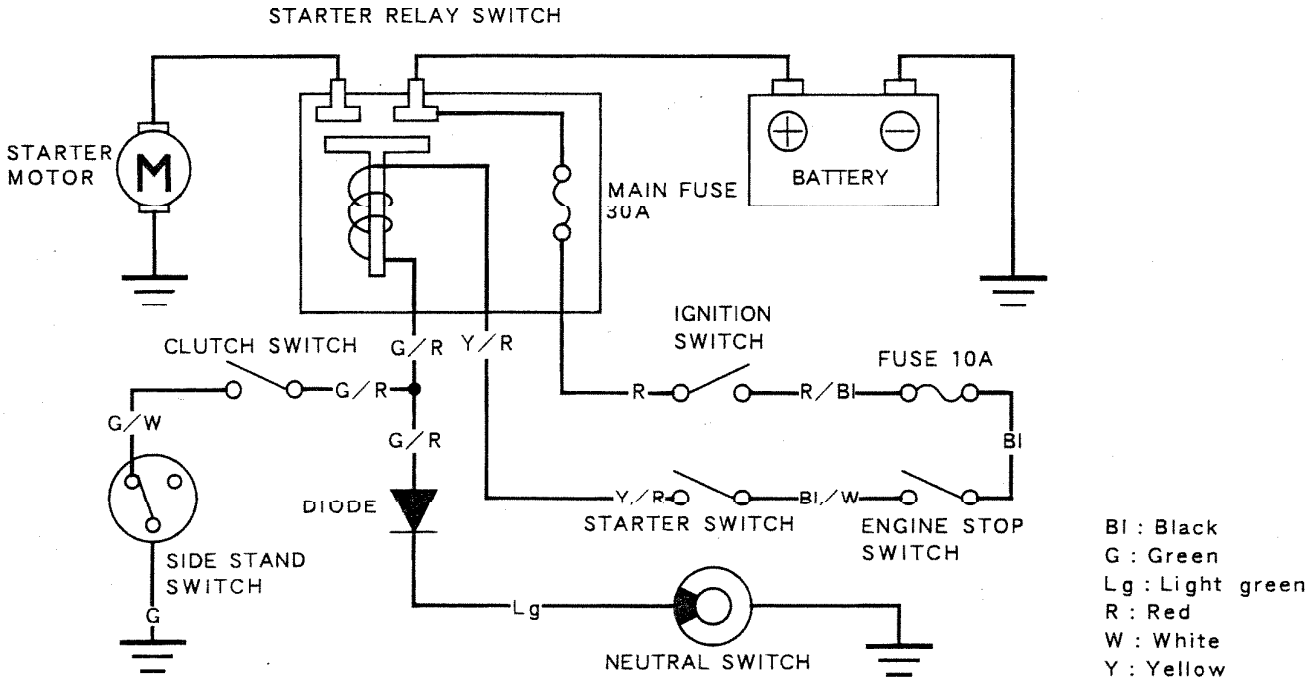

IGNITION SWITCH
ENGINE STOP SWITCH
CLUTCH SWITCH
STARTER SWITCH
BATTERY
MAIN FUSE 30A
FUSE 10 A/DIODE
STARTER MOTOR
NEUTRAL SWITCH
SIDE STAND SWITCH
STARTER RELAY SWITCH


STARTER RELAY SWITCH
STARTER MOTOR
M
MAIN FUSE 30A
BATTERY
CLUTCH SWITCH
G/R
Y/R
IGNITION SWITCH
FUSE 10A
R
R/Bl
G/W
G/R
Bl
DIODE
Y/R
Bl/W
STARTER SWITCH
ENGINE STOP SWITCH
SIDE STAND SWITCH
G
Lg
NEUTRAL SWITCH
Bl : Black
G : Green
Lg : Light green
R : Red
W : White
Y : Yellow

18. ELECTRIC STARTER

SERVICE INFORMATION	18-1	STARTER RELAY SWITCH	18-10
TROUBLESHOOTING	18-2	CLUTCH DIODE	18-11
STARTER MOTOR	18-4		

SERVICE INFORMATION

GENERAL

⚠WARNING

Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.

- The starter motor can be serviced with the engine in the frame.
- When checking the starter system, always follow the steps in the troubleshooting flow chart (page 18-2).
- A weak battery may be unable to turn the starter motor quickly enough, or supply adequate ignition current.
- If the current is kept flowing through the starter motor to turn it while the engine is not cranking over, the starter motor may be damaged.
- See section 10 for starter clutch servicing.
- See section 19 for following components:
  - —Ignition switch
  - —Engine stop switch
  - —Starter switch
  - —Neutral switch
  - —Side stand switch
  - —Clutch switch

SPECIFICATIONS

Unit: mm (in)

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

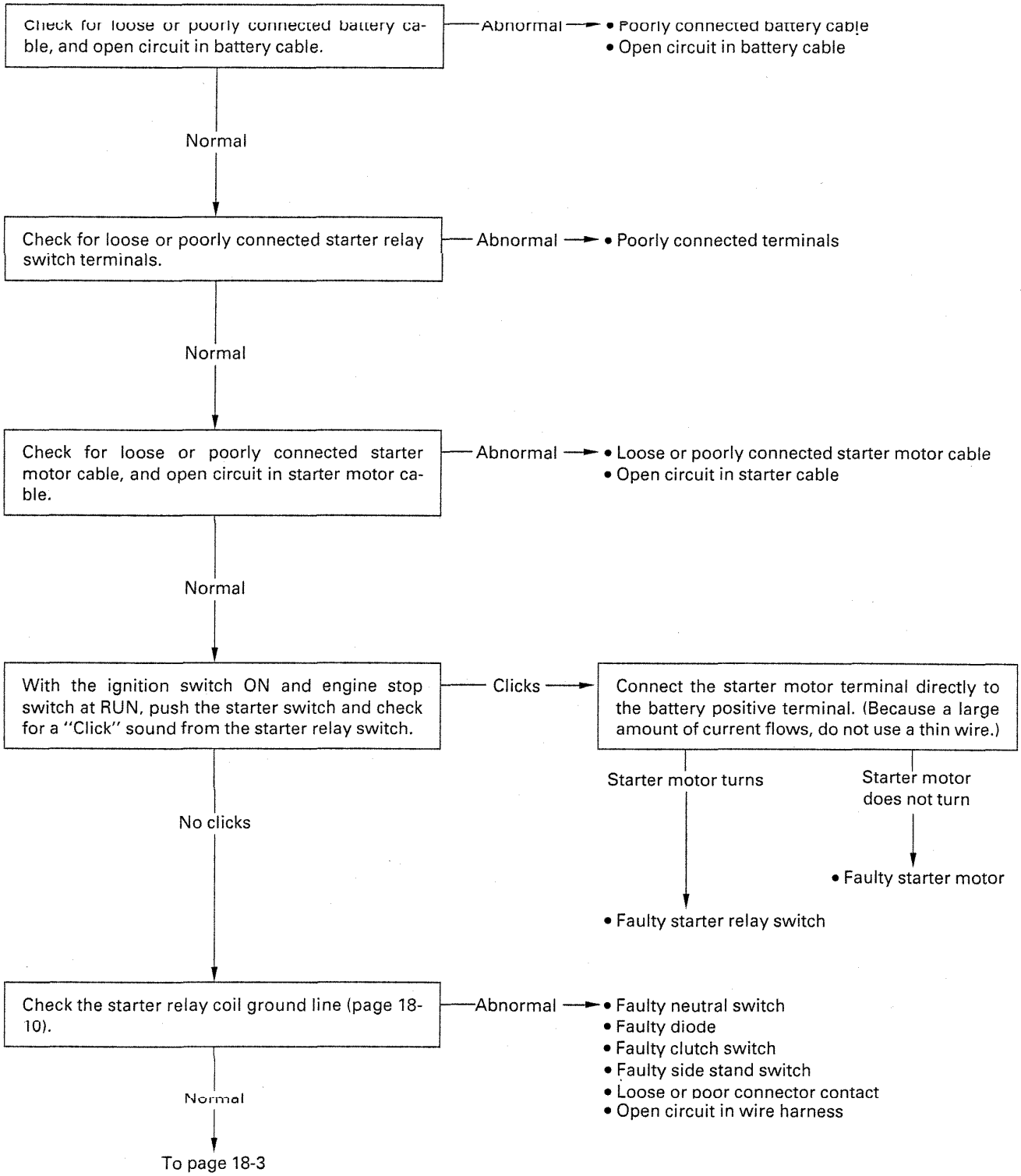
TORQUE VALUE

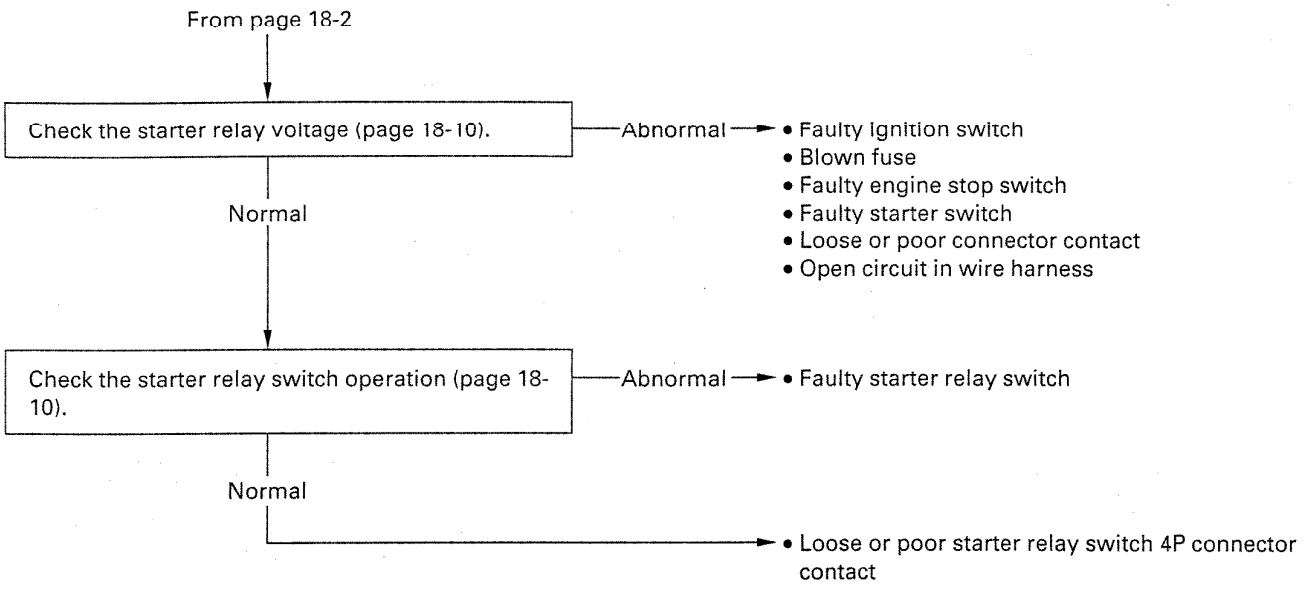
Starter motor terminal nut 10 N·m (1.0 kgf·m , 7 lbf·ft)

TROUBLESHOOTING

Starter motor will not turn

- Check for a blown main fuse (30 A) or sub-fuse (10 A).
- Check that the battery is fully charged and in good condition.





Starter motor turns slowly
- Weak battery
- Poorly connected battery cable
- Poorly connected starter motor cable
- Faulty starter motor

Starter motor turns, but engine does not turn
- Faulty starter clutch (section 10)

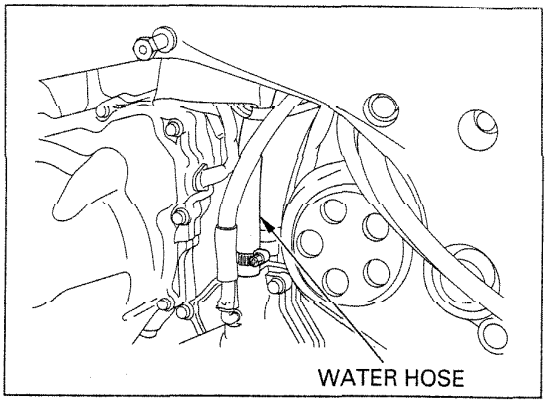
Starter relay switch "clicks", but engine does not turn over
- Crankshaft does not turn due to engine problem
- Faulty starter clutch (section 10)
- Faulty starter reduction gear (section 10)

STARTER MOTOR

REMOVAL

⚠WARNING

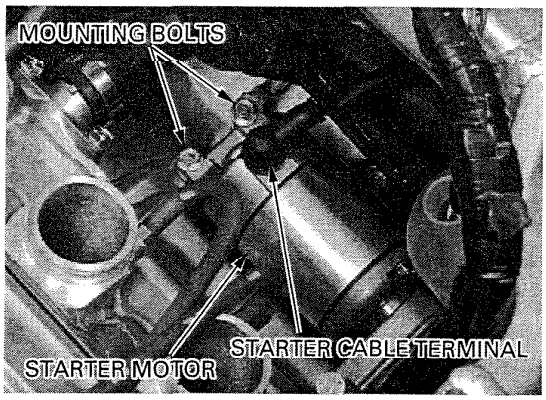
Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.



Remove the fuel tank (page 2-3).

Drain the coolant from the system by removing the drain bolt on the water pump (page 6-5).
Disconnect the water hose from the water pump.

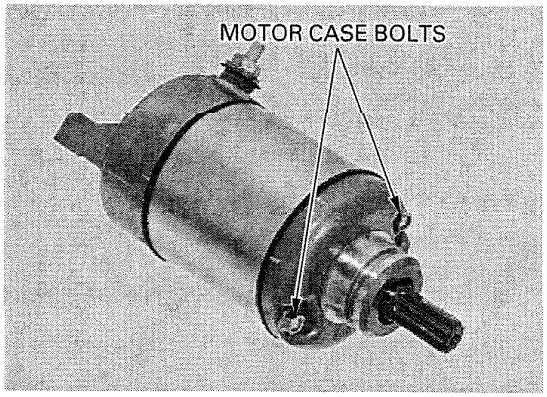
Remove the rubber cap, terminal nut and starter motor cable.
Pull the water hose aside.
Remove the two mounting bolts and the starter motor from the crankcase.



Remove the O-ring from the starter motor.

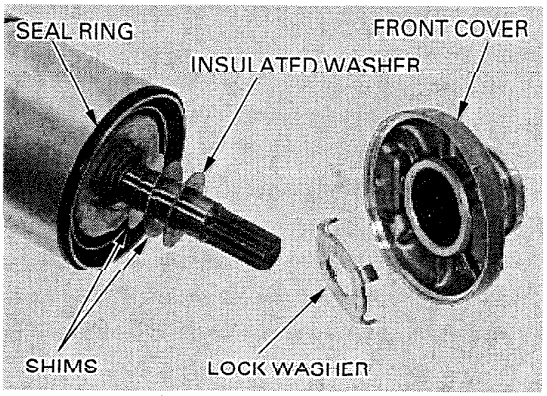
DISASSEMBLY

Remove the starter motor case bolts.
Remove the O-rings from starter motor case bolts.

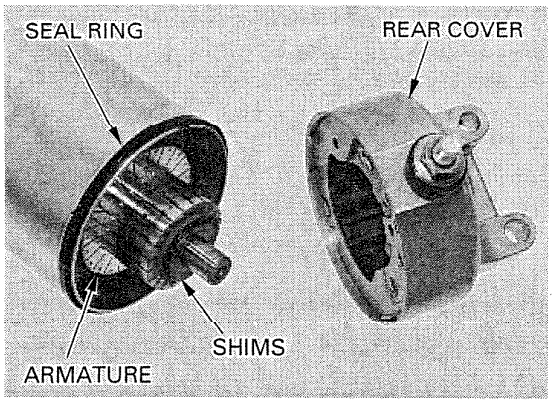


Record the location and number of shims.

Remove the following:
—front cover
—seal ring
—lock washer
—insulated washer
—shims

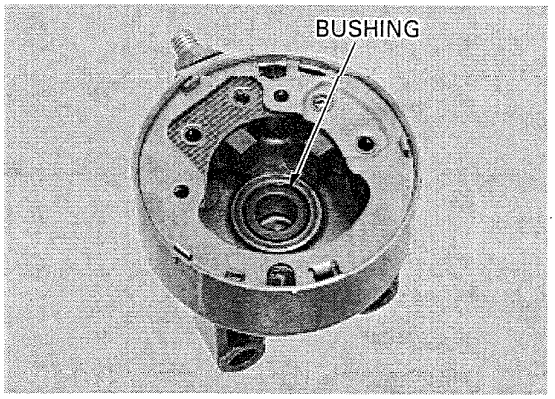


— rear cover
— seal ring
— shims
— armature

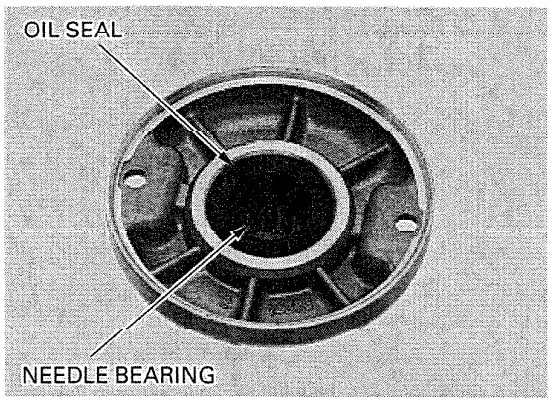


INSPECTION

Check the bushing in the rear cover for wear or damage.



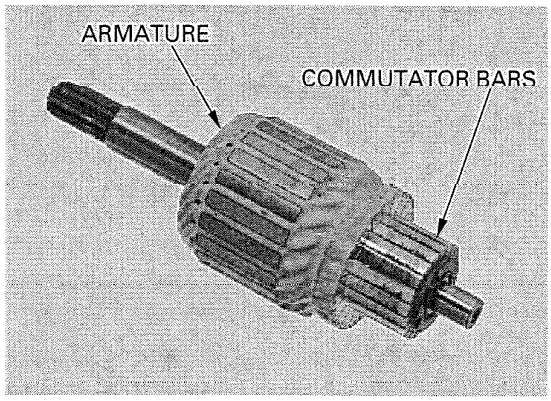
Check the oil seal and needle bearing in the front cover for deterioration, wear or damage.



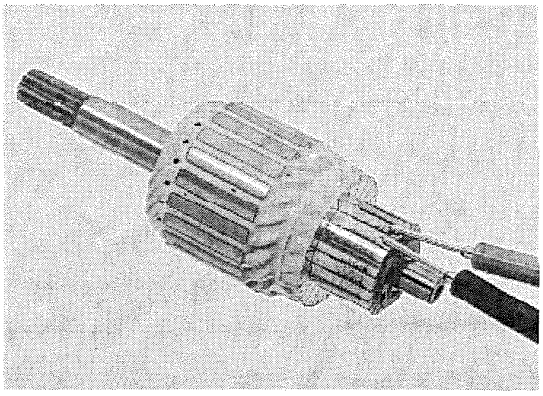
Check the commutator bars of the armature for discoloration.

NOTE:

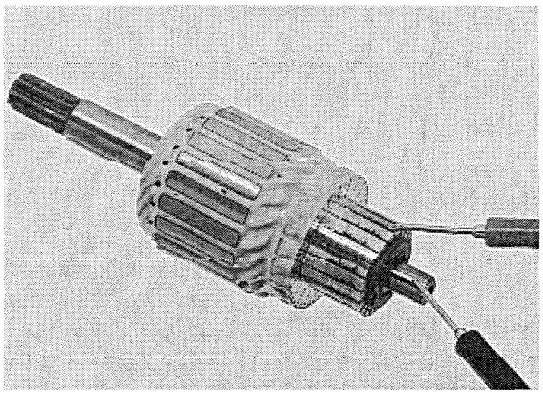
Do not use emery or sand paper on the commutator.



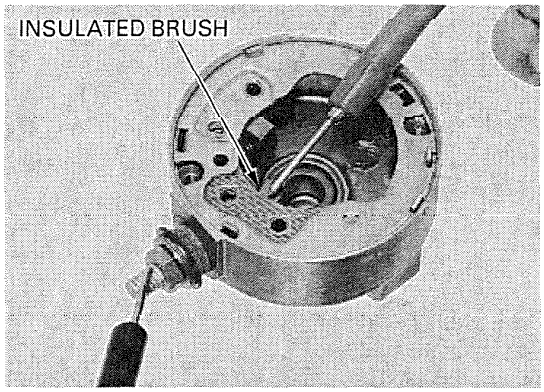
Check for continuity between pairs of commutator bars.
There should be continuity.



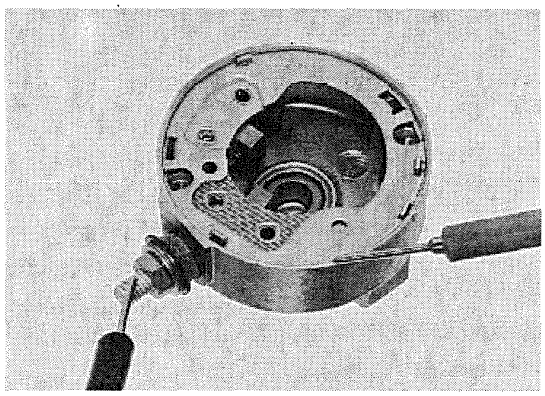
Check for continuity between each commutator bar and the armature shaft.
There should be no continuity.



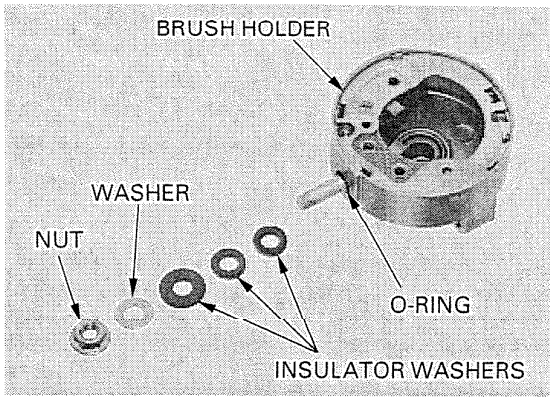
Check for continuity between the insulated brush and cable terminal.
There should be continuity.



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

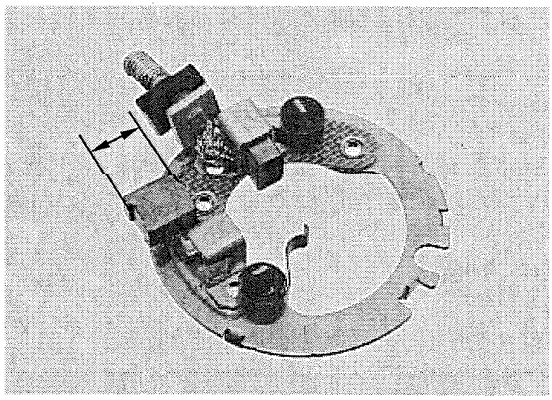


Remove the following:
- nut
- washer
- insulator washers
- O-ring
- brush holder
- brushes

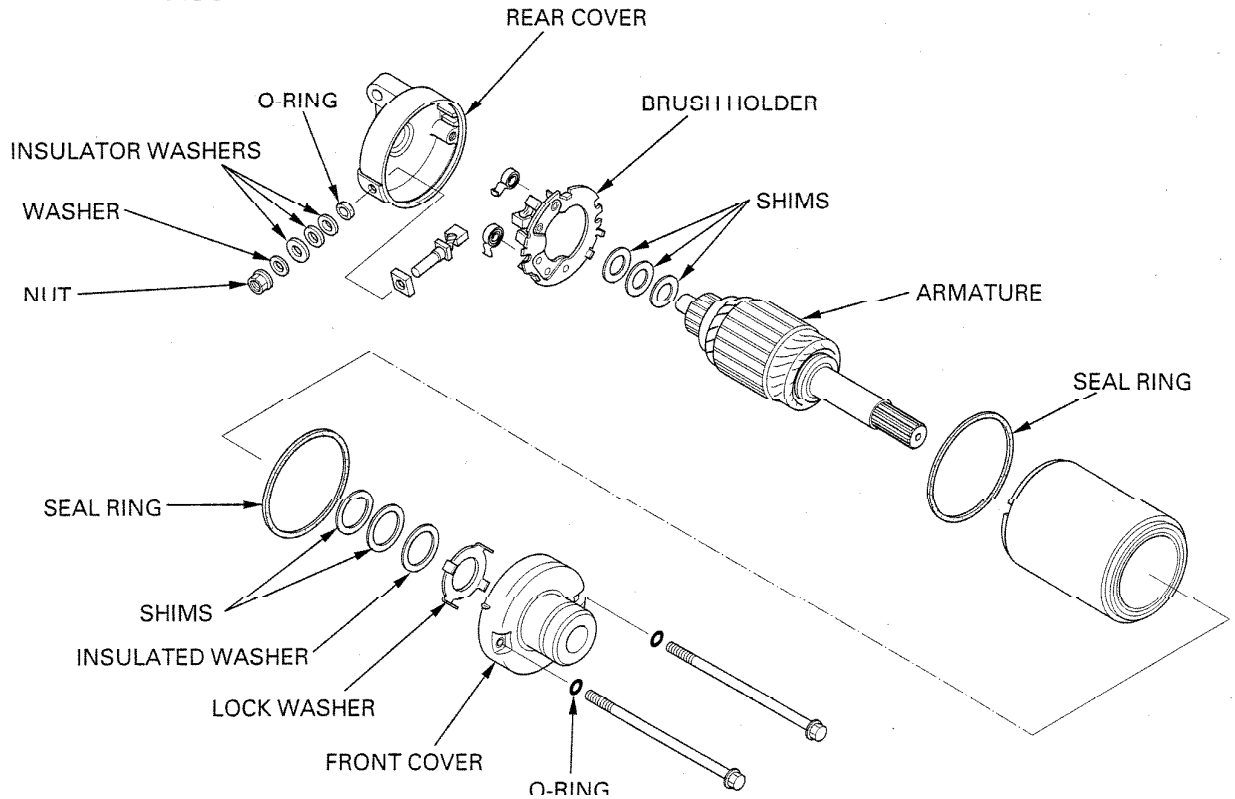


Measure the brush length.

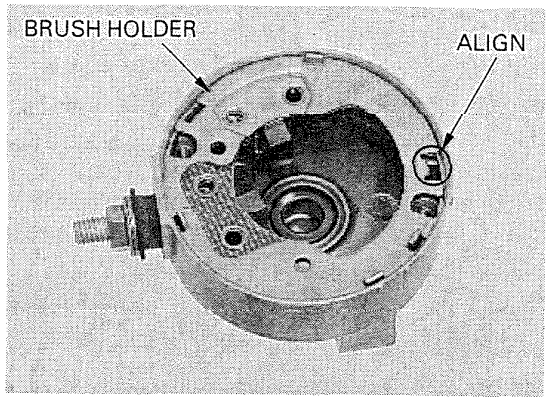
SERVICE LIMIT: 6.5 mm (0.26 in)



ASSEMBLY



Install the brushes into the brush holder.
Install the cable terminal and brush holder into the rear cover, aligning the holder tab with the rear cover groove.

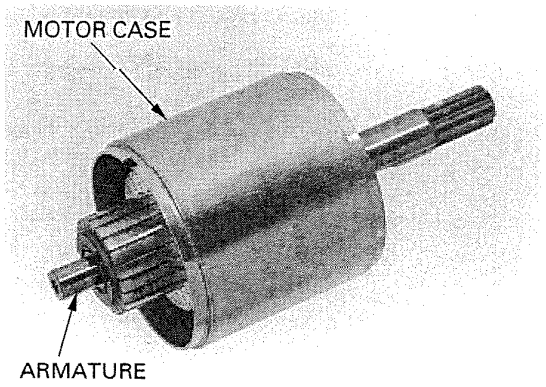


Install the following:
- new O-ring
- insulator washers
- washer
- nut

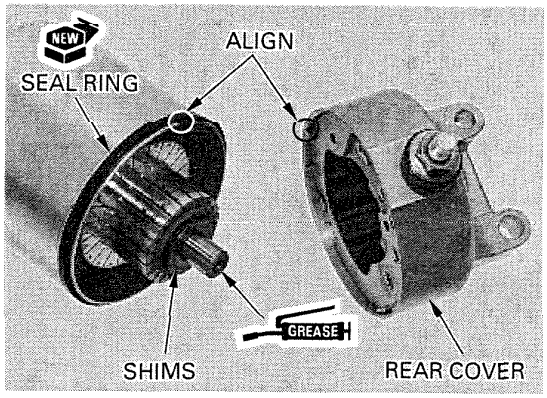
Install the armature in the motor case.
When installing the armature into the motor case, hold the armature tightly to keep the magnet of the case from pulling the armature against it.

CAUTION:

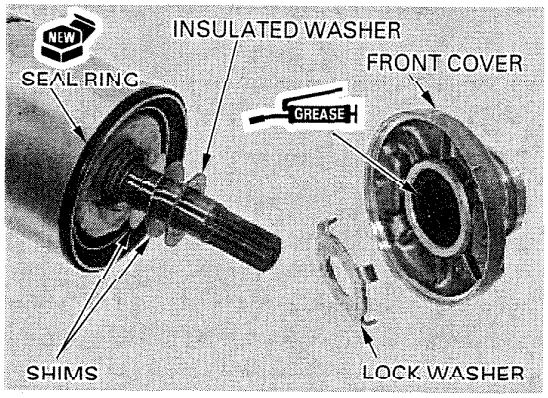
The coil may be damaged if the magnet pulls the armature against the case.



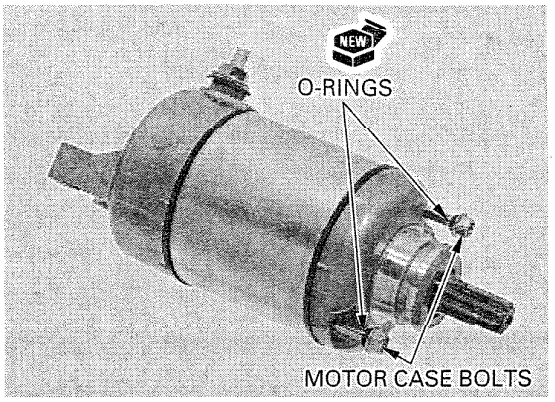
Install the same number of shims in the same locations as noted during disassembly.
Install a new seal ring onto the motor case.
Apply thin coat of grease to the armature shaft end.
Install the rear cover, while pushing in the brushes into the brush holder and aligning the brush holder tab with the motor case groove.



Install the shims and insulated washer onto the armature shaft.
Install a new seal ring onto the motor case.
Apply grease to the oil seal lip and needle bearing in the front cover.
Install the lock washer onto the front cover.
Install the front cover.

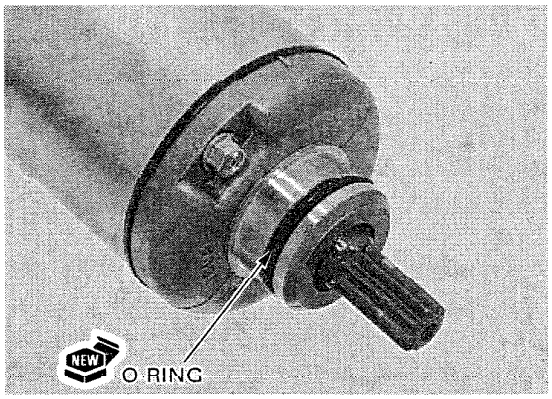


Install new O-rings onto the motor case bolts.
Install and tighten the motor case bolts.



INSTALLATION

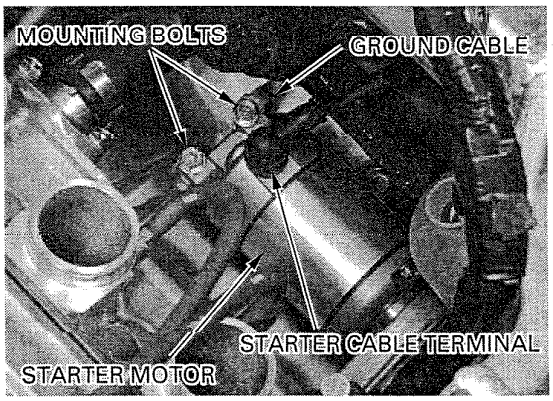
Coat a new O-ring with oil and install it into the starter motor groove.



Install the starter motor into the crankcase.
Install the ground cable and mounting bolts, and tighten the bolts securely.
Connect the starter motor cable.
Install and tighten the terminal nut.

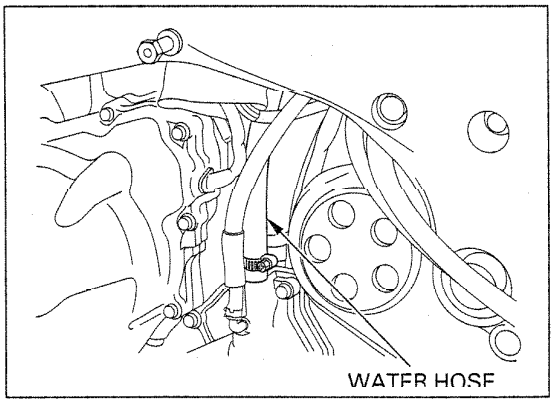
TORQUE : 10 N·m (1.0 kgf·m , 7 lbf·ft)

Install the rubber cap securely.



Connect the water hose to the water pump.
Install the fuel tank (page 2-3).

Fill and bleed the cooling system (page 6-4).



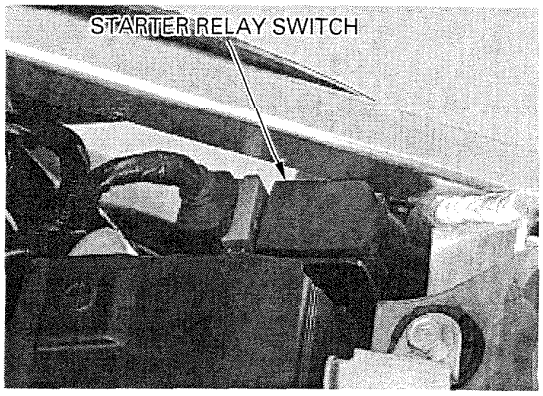
STARTER RELAY SWITCH

INSPECTION

Remove the seat (page 2-2).

Shift the transmission into neutral.
Turn the ignition switch ON and engine stop switch to RUN.
Push the starter switch.
The coil is normal if the starter relay switch clicks.

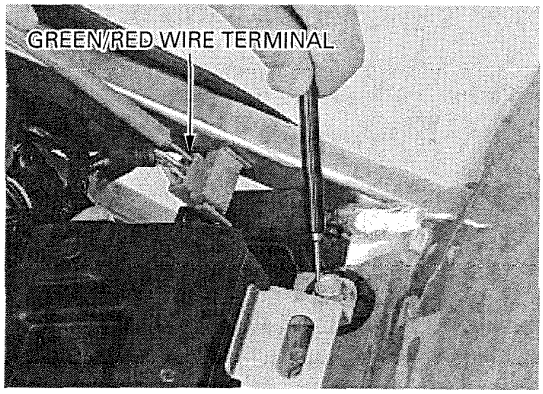
If you don't hear the switch "CLICK", inspect the relay switch using the procedure below.



GROUND LINE

Disconnect the starter relay switch 4P connector.
Check for continuity between the green/red wire (ground line) terminal and ground.

If there is continuity when the transmission is in neutral or when the clutch is disengaged and the side stand is retracted, the ground circuit is normal. (In neutral, there is a slight resistance due to the diode.)



STARTER RELAY VOLTAGE

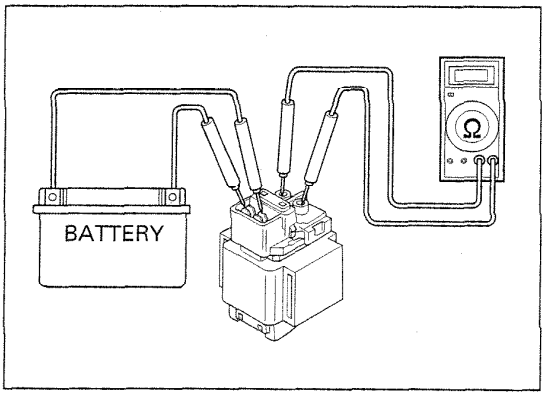
Connect the starter relay switch 4P connector.
Shift the transmission into neutral.
Measure the voltage between the yellow/red wire terminal (+) and ground (−).

If the battery voltage appears only when the starter switch is pushed with the ignition switch ON and engine stop switch at RUN, it is normal.

OPERATION CHECK

Disconnect the starter relay switch 4P connector and cables.
Connect a fully charged 12 V battery positive wire to the relay switch yellow/red wire terminal and negative wire to the green/red wire terminal.

There should be continuity between the cable terminals while the battery is connected, and no continuity when the battery is disconnected.

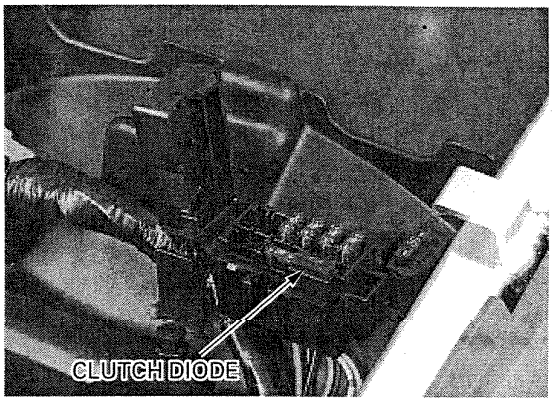


CLUTCH DIODE

INSPECTION

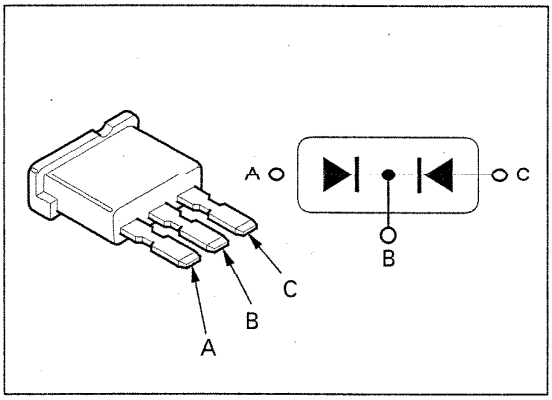
Remove the seat (page 2-2).

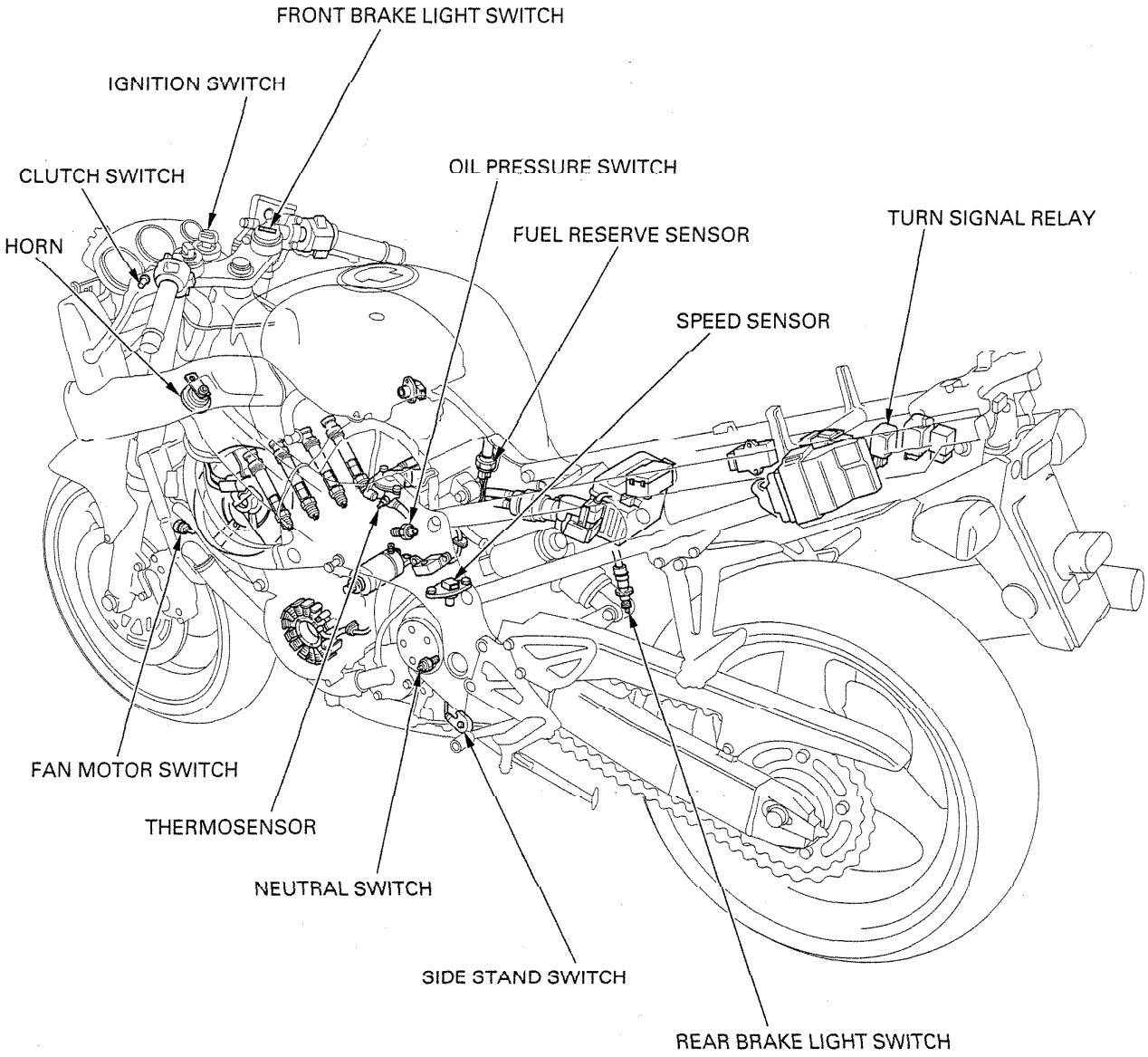
Open the fuse box cover and remove the clutch diode.



Check for continuity between the diode terminals. When there is continuity, a small resistance value will register.

If there is continuity in one direction, the diode is normal.




FRONT BRAKE LIGHT SWITCH
IGNITION SWITCH
CLUTCH SWITCH
OIL PRESSURE SWITCH
HORN
FUEL RESERVE SENSOR
TURN SIGNAL RELAY
SPEED SENSOR
FAN MOTOR SWITCH
THERMOSENSOR
NEUTRAL SWITCH
SIDE STAND SWITCH
REAR BRAKE LIGHT SWITCH

19. LIGHTS/METERS/SWITCHES

SERVICE INFORMATION	19-1	OIL PRESSURE INDICATOR	19-12
HEADLIGHT	19-3	IGNITION SWITCH	19-12
TURN SIGNAL LIGHT	19-3	HANDLEBAR SWITCHES	19-13
BRAKE/TAILLIGHT	19-4	BRAKE LIGHT SWITCH	19-14
LICENSE LIGHT	19-5	CLUTCH SWITCH	19-15
COMBINATION METER	19-6	NEUTRAL SWITCH	19-15
SPEEDOMETER/SPEED SENSOR	19-8	SIDE STAND SWITCH	19-15
TACHOMETER	19-9	LOW FUEL INDICATOR/ FUEL RESERVE SENSOR	19-16
COOLANT TEMPERATURE GAUGE/ THERMOSENSOR	19-9	HORN	19-17
COOLING FAN MOTOR SWITCH	19-11	TURN SIGNAL RELAY	19-18

SERVICE INFORMATION

GENERAL

⚠WARNING

- ***A halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.***
- ***Use an electric heating element to heat the water/coolant mixture for the thermosensor inspection. Keep all flammable materials away from the electric heating element. Wear protective clothing, insulated gloves and eye protection.***

- Note the following when replacing the halogen headlight bulb.
  - —Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to fail.
  - —If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
  - —Be sure to install the dust cover after replacing the bulb.
- Check the battery condition before performing any inspection that requires proper battery voltage.
- A continuity test can be made with the switches installed on the motorcycle.
- The following color codes used are indicated throughout this section.

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

19

SPECIFICATIONS

ITEM		SPECIFICATIONS
Bulbs	Headlight (High/low beam)	12V – 60/55W
	Brake/taillight	12V – 21/5W × 2
	License light	12V – 4CP
	Front turn signal/running light	12V–32/3CP (23/8W) × 2
	Rear turn signal light	12V–32CP (23W) × 2
	Instrument light	12V–1.1W × 3
	Turn signal indicator	12V – 1.1W × 2
	High beam indicator	12V – 1.1W
	Neutral indicator	12V – 1.1W
	Oil pressure indicator	12V – 1.1W
	Low fuel indicator	LED
Fuse	Main fuse	30A
	Sub-fuse	10A × 4
Thermosensor resistance	At 80°C (176°F)	47–57 Ω
	At 120°C (248°F)	14–18 Ω
Fan motor switch	Starts to close (ON)	98–102 °C (208–216 °F)
	Stops to open (OFF)	93–97 °C (199–207 °F)

TORQUE VALUES

Thermosensor	10 N·m (1.0 kgf·m , 7 lbf·ft)	Apply sealant to the threads
Fan motor switch	18 N·m (1.8 kgf·m , 13 lbf·ft)	
Ignition switch mounting bolt	25 N·m (2.5 kgf·m , 18 lbf·ft)	
Neutral switch	12 N·m (1.2 kgf·m , 9 lbf·ft)	
Side stand switch bolt	10 N·m (1.0 kgf·m , 7 lbf·ft)	
Fuel reserve sensor	23 N·m (2.3 kgf·m , 17 lbf·ft)	

HEADLIGHT

BULB REPLACEMENT

⚠WARNING

A halogen headlight bulb becomes very hot while the headlight is ON, and remains hot for a while after it is turned OFF. Be sure to let it cool down before servicing.

Disconnect the headlight connector.
Remove the dust cover.

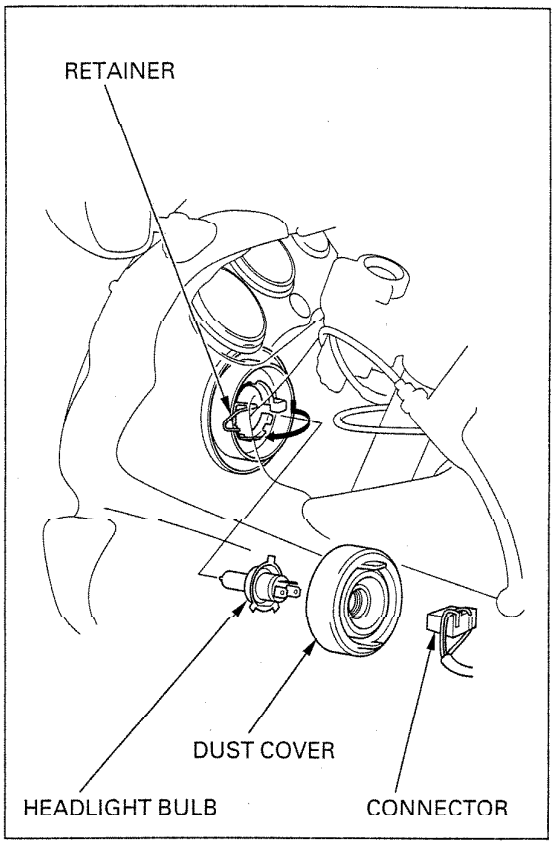
Unhook the bulb retainer and replace the headlight bulb.

CAUTION:

Avoid touching halogen headlight bulb. Finger prints can create hot spots that cause a bulb to break.

If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.

Install the removed parts in the reverse order of removal.



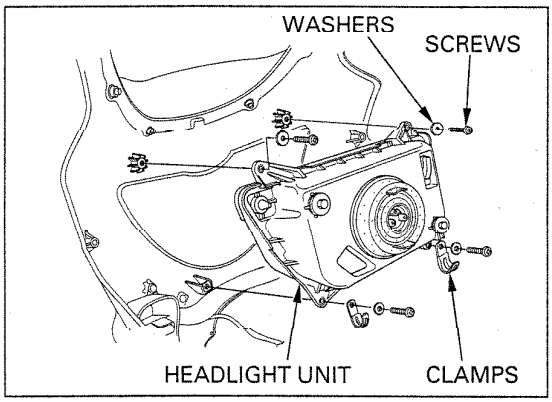
REMOVAL/INSTALLATION

Remove the front fairing (page 2-5).

Remove the four screws, washers, two clamps and the headlight unit.

Route the wires and hose properly (page 1-18).

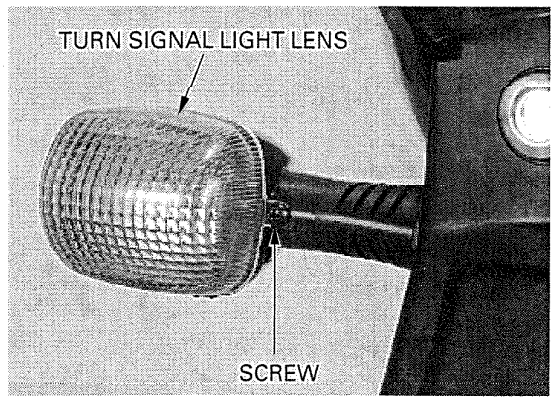
Install the headlight unit in the reverse order of removal.



TURN SIGNAL LIGHT

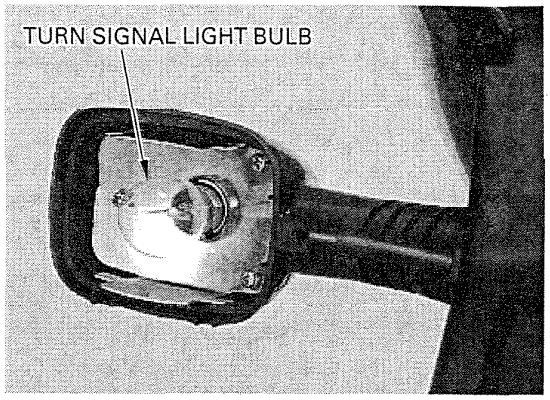
BULB REPLACEMENT

Remove the screw and turn signal light lens.



While pushing the bulb in, turn it counterclockwise to remove it, and replace it with a new one.

Make sure that the lens gasket is installed in position and is in good condition, and replace it with new one if necessary.
Install the lens, aligning the slot with the tab of the turn signal light, and tighten the screw.



REMOVAL/INSTALLATION

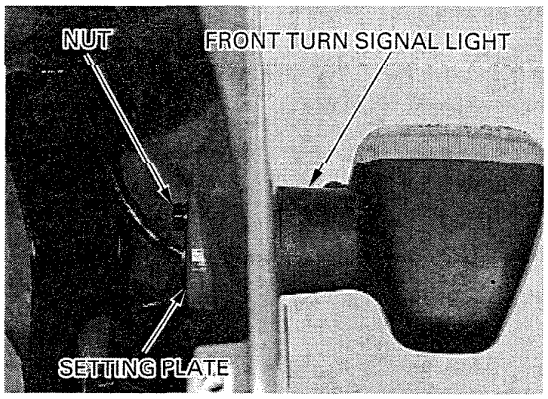
Front: Remove the instrument panels (page 2-5).
Rear: Remove the seat (page 2-2).

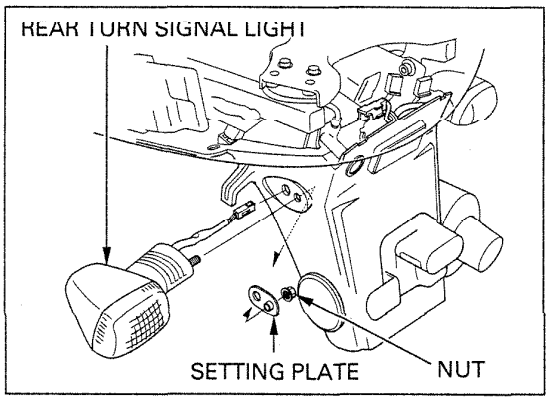
Disconnect the turn signal light connectors.
Remove the nut, setting plate and the turn signal light.

Install the turn signal light in the reverse order of removal.

NOTE:

Route the turn signal light wire properly (page 1-18).



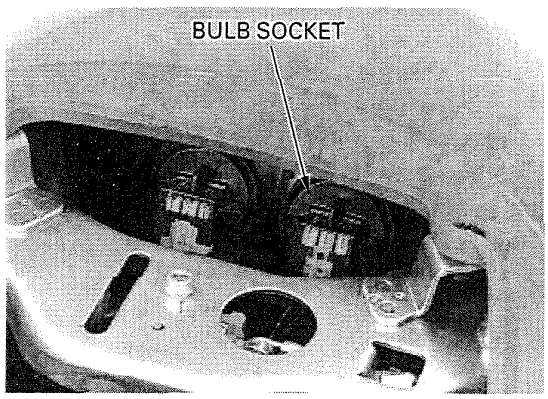


BRAKE/TAILLIGHT

BULB REPLACEMENT

Remove the seat (page 2-2).

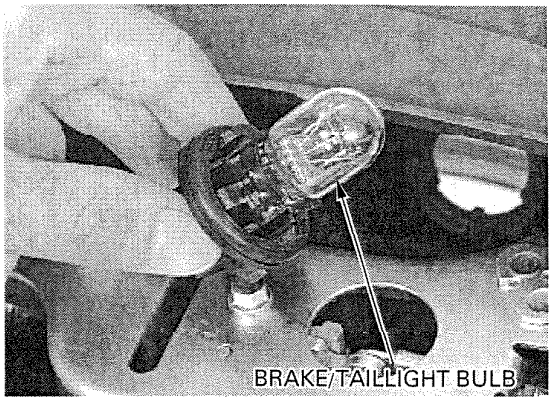
Turn the socket counterclockwise and remove it from the brake/taillight.



Pull the brake/taillight bulb out of the socket and replace it with a new one.

Install the socket by turning it clockwise.

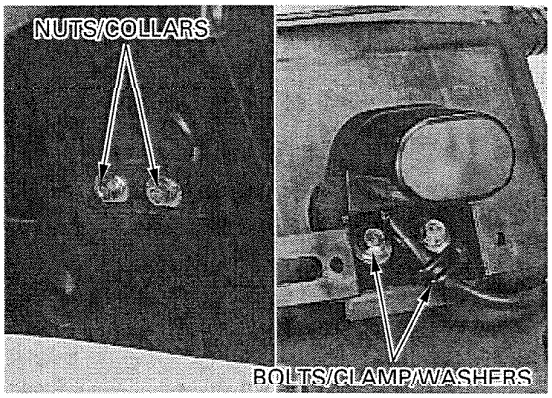
Install the seat (page 2-2).



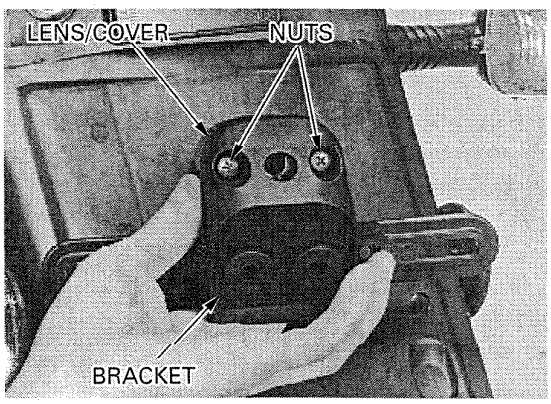
LICENSE LIGHT

BULB REPLACEMENT

Remove the following:
- two nuts and collars
- bolts, wire clamp and washers
- number plate bracket from the rear fender



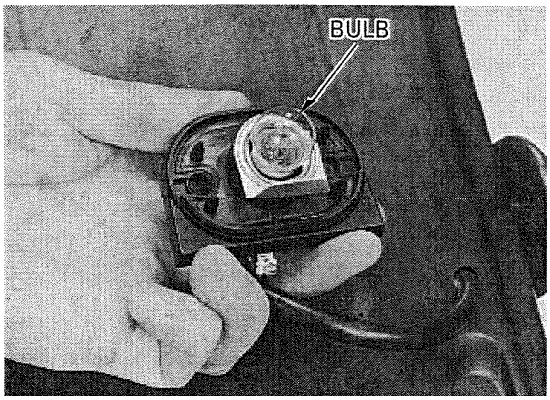
- two nuts
- lens, lens cover and license light base from the number plate bracket



While pushing the bulb in, turn it counterclockwise to remove it, and replace it with a new one.

Make sure that the seal rubber is installed in position and is in good condition, and replace it with new one if necessary.

Install the removed parts in the reverse order of removal.

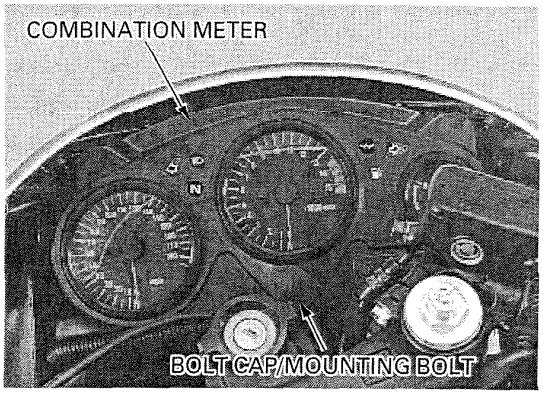


COMBINATION METER

BULB REPLACEMENT

Remove the instrument panels (page 2-5).

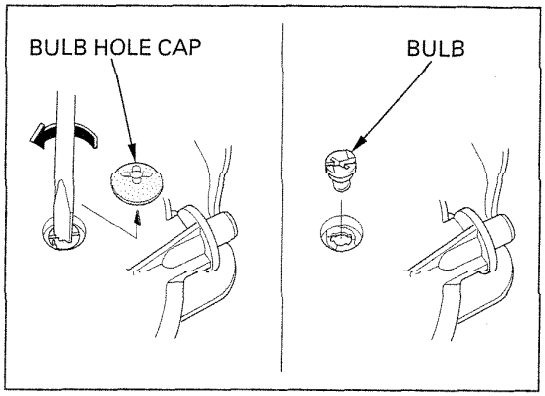
Remove the bolt cap and meter mounting bolt.
Remove the combination meter from the fairing stay by sliding it downward.



Remove the bulb hole cap from the meter lower case.
Remove the bulb from the printed circuit board by turning it 45° counterclockwise.

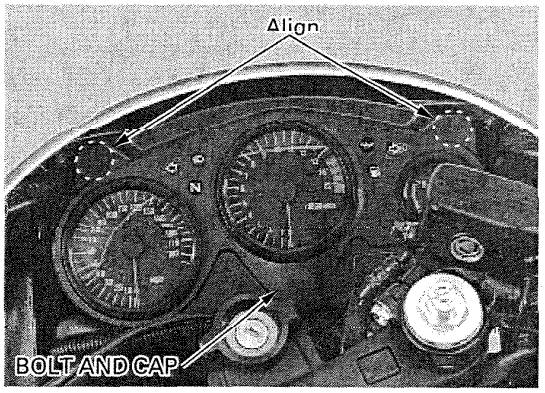
The combination meter may be damaged if the bulb is removed or installed while the ignition switch is ON.

Install a new bulb and turn it clockwise to lock it.
Install the bulb hole cap.



Install the combination meter by aligning the two bosses with the grommets of the fairing stay.
Install the mounting bolt and bolt cap.

Install the instrument panels (page 2-5).

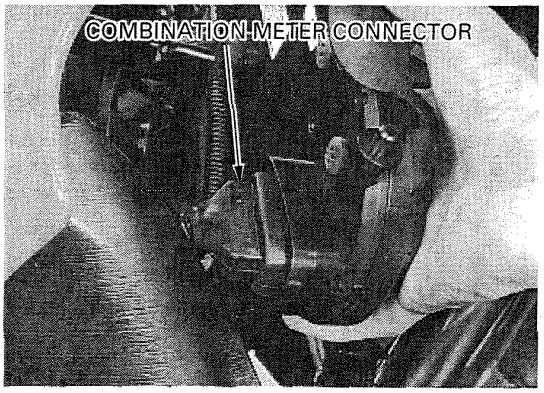


REMOVAL/INSTALLATION

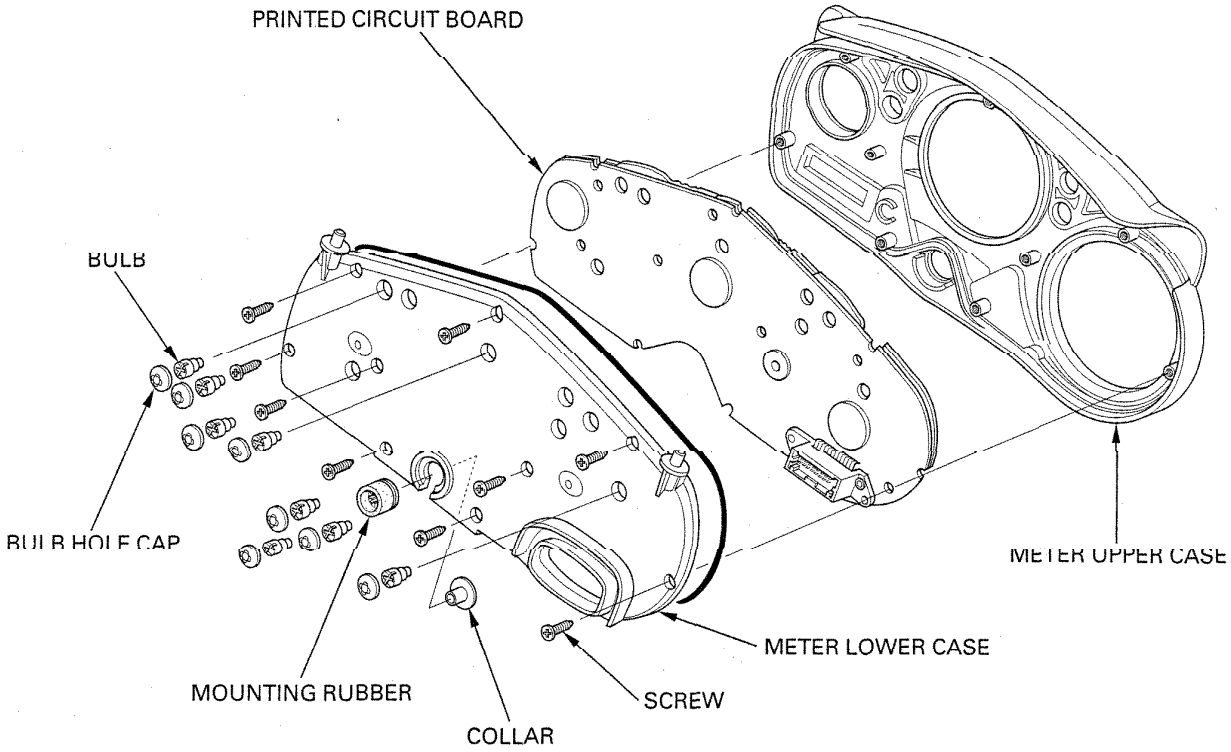
Remove the combination meter from the fairing stay (see above).

Disconnect the connector and remove the combination meter.

Install the combination meter in the reverse order of removal.

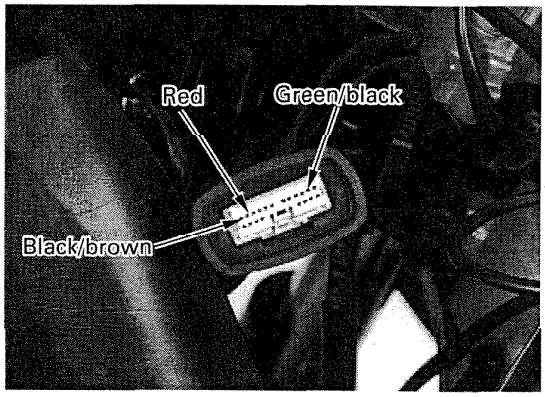


DISASSEMBLY/ASSEMBLY



POWER/GROUND LINE INSPECTION

Remove the combination meter (page 19-6).
Check the following at the wire harness side connector of the combination meter.



POWER INPUT LINE

Measure the voltage between the Black/brown wire terminal (+) and ground (−).
There should be battery voltage with the ignition switch ON.
If there is no voltage, check for open circuit in Black/brown wire.

BACK-UP VOLTAGE LINE

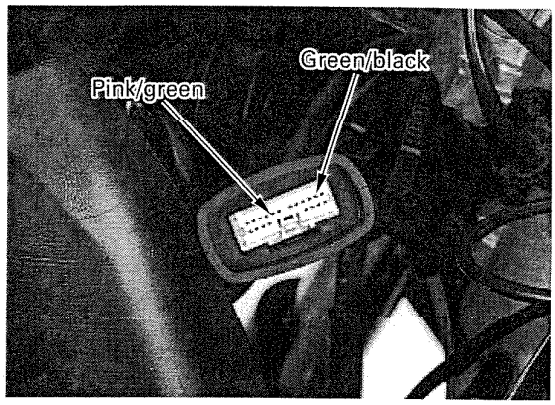
Measure the voltage between the Red wire terminal (+) and ground (−).
There should be battery voltage at all times.
If there is no voltage, check for open circuit in red wire.

SENSOR GROUND LINE

Check for continuity between the Green/black wire terminal and ground.
There should be continuity at all times.
If there is no continuity, check for open circuit in Green/black wire.

SPEEDOMETER/SPEED SENSOR

SYSTEM INSPECTION

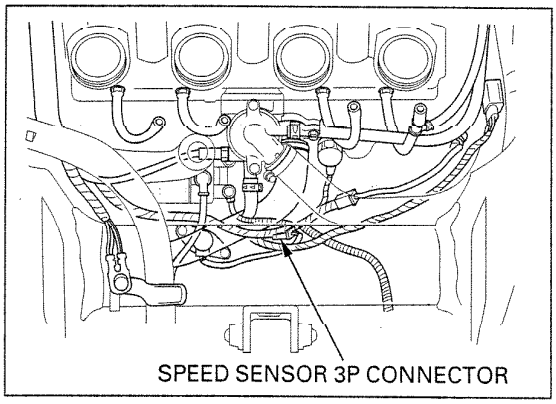


Check that the tachometer and coolant temperature gauge function properly.

- If they do not function, perform the power/ground line inspection of the combination meter (see above).
- If they function, shift the transmission in neutral, disconnect the combination meter connector (page 19-6) and turn the ignition switch ON.
  Measure the voltage between the Pink/green (+) and Green/black (−) wire terminals of the wire harness side connector.
  Slowly turn the rear wheel by hand.
  There should be 0 V to 5 V pulse voltage.

− If pulse voltage appears, replace the printed circuit board.
− If pulse voltage does not appear, check for open or short circuit in Pink/green wire.
  If the Pink/green wire is OK, check the speed sensor.

SPEED SENSOR INSPECTION



Raise the fuel tank (page 2-3).

Turn the ignition switch ON and measure the voltage between the Black (+) and Green (−) wire terminals of the speed sensor 3P connector with the connector connected.
There should be battery voltage.
If there is no voltage, check for open circuit in related wires.

Shift the transmission in neutral and turn the ignition switch ON.
Measure the voltage between the Pink (+) and Green (−) wire terminal of the sensor connector with the connector connected.
Slowly turn the rear wheel by hand.
There should be 0 to 5 V pulse voltage.

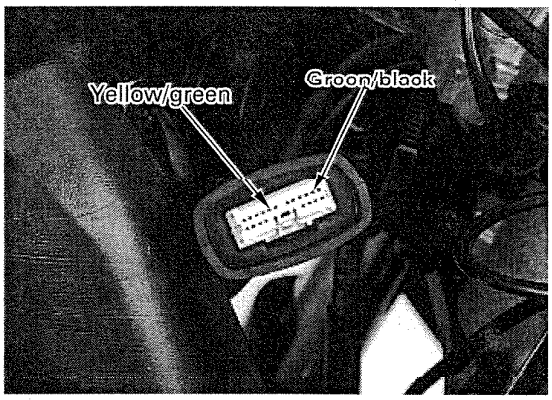
TACHOMETER

SYSTEM INSPECTION

Check that the speedometer and coolant temperature gauge function properly.

- If they do not function, perform the power/ground line inspection of the combination meter (page 19-7).
- If they function, disconnect the combination meter connector (page 19-6) and turn the ignition switch ON.
  Measure the voltage between the Yellow/green (+) and Green/black (−) wire terminals of the wire harness side connector.
  There should be battery voltage.

− If there is battery voltage, replace the printed circuit board.
− If there is no voltage, check for open or short circuit in Yellow/green wire.

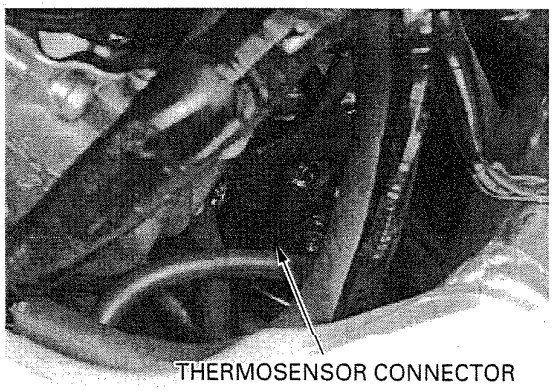


COOLANT TEMPERATURE GAUGE/ THERMOSENSOR

SYSTEM INSPECTION

Check that the speedometer and tachometer function properly.

- If they do not function, perform the power/ground line inspection of the combination meter (page 19-7).
- If they function, raise the fuel tank (page 2-3), disconnect the thermosensor wire connector and ground it with a jumper wire.

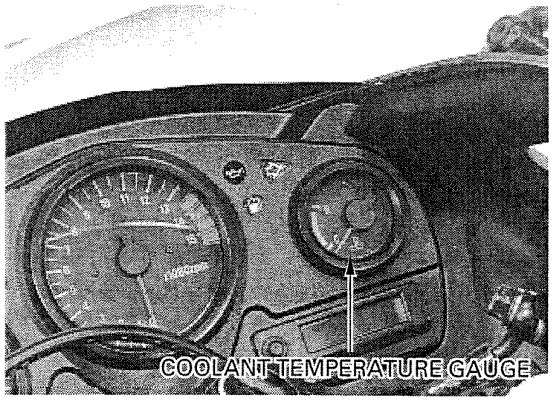


Turn the ignition switch ON and check the coolant temperature gauge needle.
The needle should move to "H".

CAUTION:

Immediately turn the ignition switch OFF when the needle moves to "H" (hot) to prevent the gauge from being damaged.

− If the needle moves, check the thermosensor.
− If the needle does not move, check for open circuit in Green/blue wire.
  If the Green/blue wire is OK, replace the printed circuit board.



THERMOSENSOR INSPECTION

⚠WARNING

Keep all flammable materials away from the electric heating element. Wear protective clothing, insulated gloves and eye protection.

Remove the carburetor assembly (page 5-15).

Disconnect the thermosensor connector and remove the thermosensor.

Suspend the thermosensor in a pan of coolant (50—50 mixture) on an electric heating element and measure the resistance through the sensor as the coolant heats up.

NOTE:

- Soak the thermosensor in coolant up to its threads with at least 40 mm (1.57 in) from the bottom of the pan to the bottom of the sensor.
- Keep the temperature constant for 3 minutes before testing. A sudden change of temperature will result in incorrect readings. Do not let the thermometer or thermosensor touch the pan.

Temperature	80 °C (176 °F)	120 °C (248 °F)
Resistance	47—57 Ω	14—18 Ω

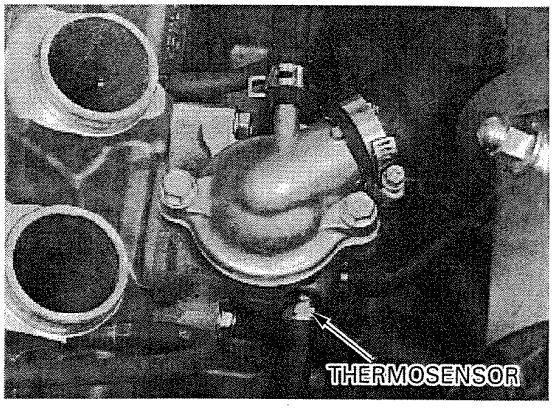
Replace the thermosensor if it is out of specifications by more than 10 % at any temperature listed.

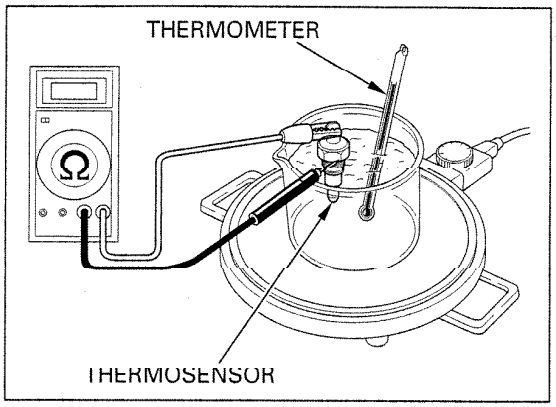
Apply sealant to the thermosensor threads. Do not apply sealant to the sensor head.
Install and tighten the thermosensor.

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

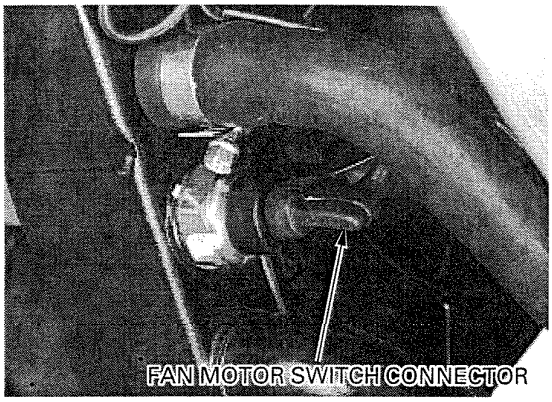
Connect the thermosensor connector.

Install the carburetor assembly (page 5-30).
Fill and bleed the cooling system (page 6-4).





COOLING FAN MOTOR SWITCH

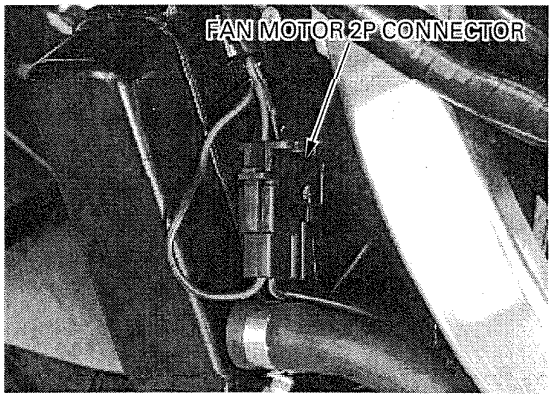


Remove the left side fairing (page 2-4).

INSPECTION

Fan motor does not stop
Turn the ignition switch OFF, disconnect the connector from the fan motor switch and turn the ignition switch ON again.

- If the fan motor does not stop, check for short circuit between the fan motor and switch.
- If the fan motor stops, replace the fan motor switch.



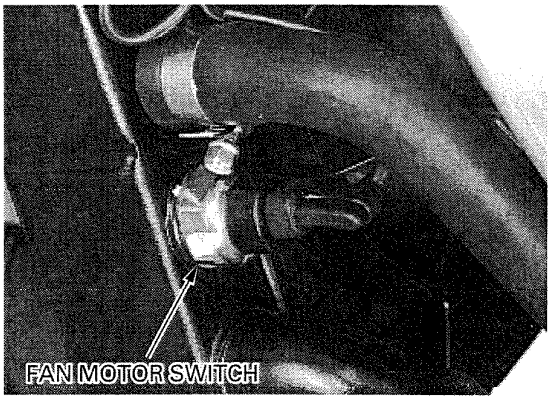
Fan motor does not start
Before testing, check for a blown fan motor fuse.
Warm up the engine to operating temperature.

Disconnect the connector from the fan motor switch and ground the connector with a jumper wire.
Turn the ignition switch ON and check the fan motor.

- If the motor starts, check the connection at the fan motor switch terminal. If it is OK, replace the fan motor switch.
- If the fan motor does not start, measure the voltage between the Black/blue (+) and Green (−) wire terminals at the fan motor 2P connector. There should be battery voltage.

− If there is battery voltage, replace the fan motor.
− If there is no voltage, check for open circuit in Black/blue and Green wires.

REMOVAL/INSTALLATION



Drain the coolant (page 6-5).

Disconnect the fan motor switch connector and remove the switch.

Install a new O-ring onto the fan motor switch.
Install and tighten the fan motor switch.

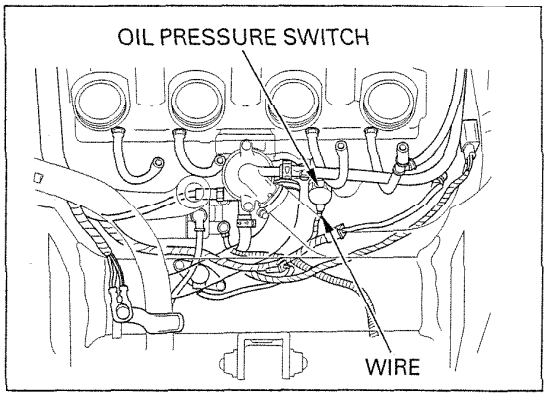
TORQUE : 18 N·m (1.8 kgf·m , 13 lbf·ft)

Connect the fan motor switch connector.

Fill and bleed the cooling system (page 6-4).

OIL PRESSURE INDICATOR

INSPECTION



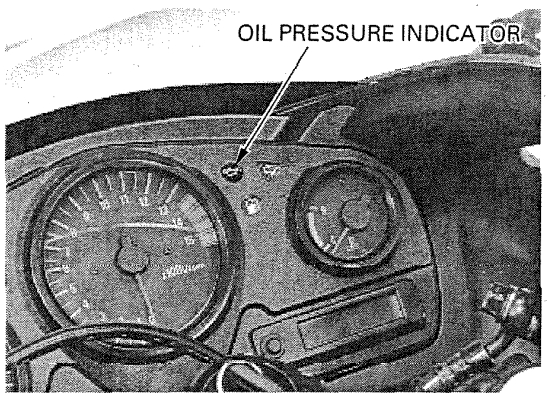
Indicator does not come on with the ignition switch turned ON

Remove the fuel tank (page 2-3).

Remove the rubber cap, and disconnect the oil pressure switch wire by removing the terminal screw.

Ground the wire terminal to the engine with a jumper wire.

Turn the ignition switch ON and check the oil pressure indicator.

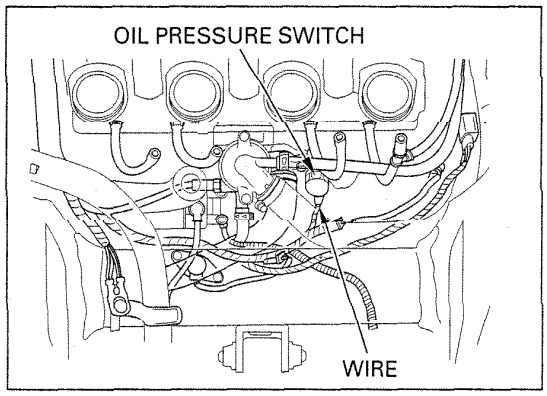


- If the indicator comes on, replace the oil pressure switch (page 4-3).
- If the indicator does not come on, check for open circuit in Bu/R wire.

Indicator stays on while the engine is running

Remove the rubber cap, and disconnect the oil pressure switch wire by removing the terminal screw.

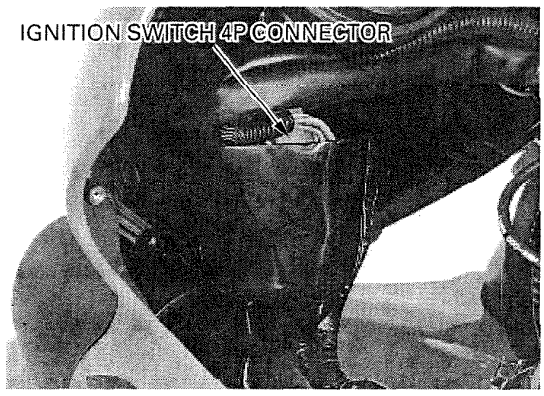
Check for continuity between the wire terminal and ground.



- If there is continuity, check for short circuit in Bu/R wire.
- If there is no continuity, check the oil pressure (page 4-3).
  If the oil pressure is normal, replace the oil pressure switch (page 4-3).

IGNITION SWITCH

INSPECTION

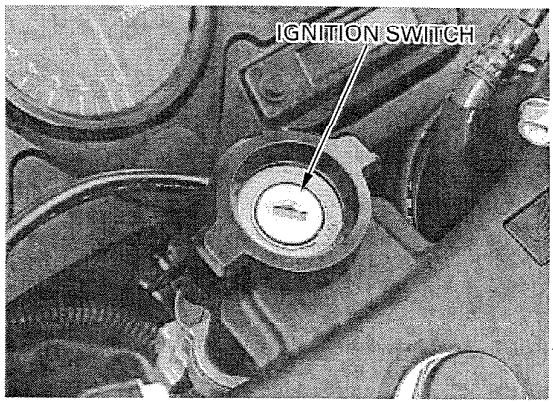


Remove the left air intake duct (page 2-6).

Disconnect the ignition switch 4P (white) connector.

Check for continuity between the connector terminals in each switch position.
Continuity should exist between the color coded wires as follows:

Color / Position	R	R/Bl	Bu/O
ON	○	○	○
OFF			
LOCK			



REMOVAL/INSTALLATION

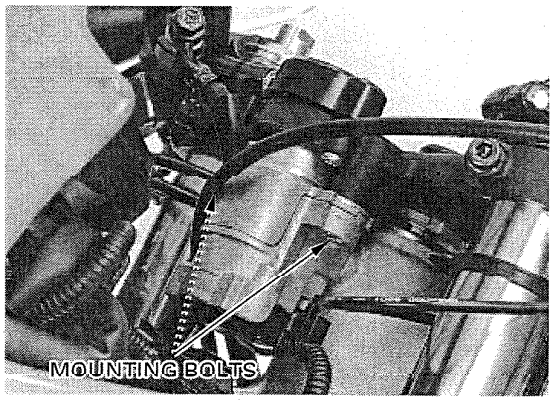
Disconnect the ignition switch 4P (white) connector (page 19-12).

Remove the two mounting bolts (T40) and the ignition switch.

Install the ignition switch and tighten the mounting bolts.

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

Install the removed parts in the reverse order.



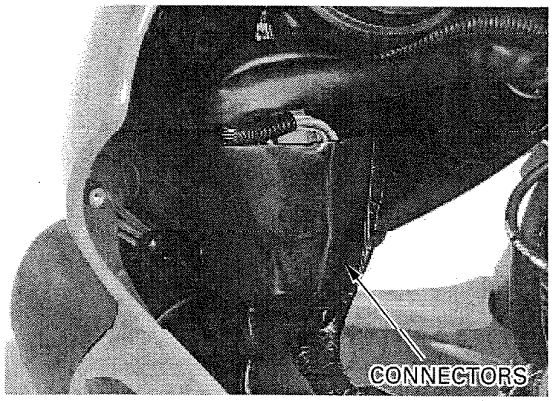
HANDLEBAR SWITCHS

Remove the left air intake duct (page 2-6).

Disconnect the right handlebar switch 3P and 4P (Red) connectors and left handlebar switch 13P connector.
Check for continuity between the connector terminals in each switch position.
Continuity should exist between the color coded wires as follows:

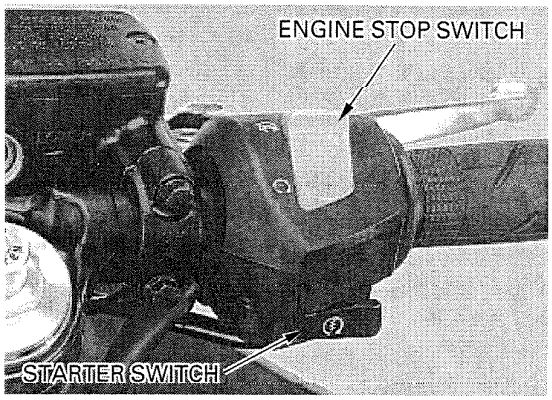
ENGINE STOP SWITCH

Color / Position	Bl/Y	Bl/W
OFF		
RUN	○	○



STARTER SWITCH

Color / Position	Y/R	Bl/W	Bl/R	Bu/W
FREE			○	○
PUSH	○	○		



TURN SIGNAL SWITCH

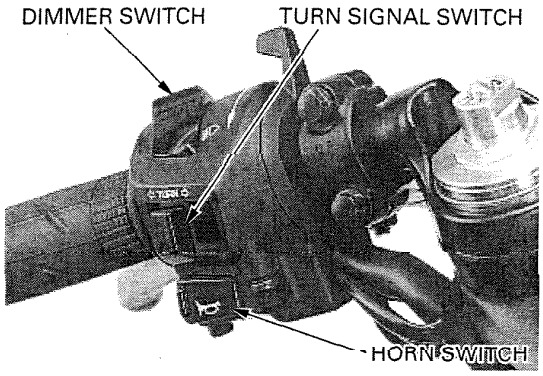
Color / Position	Gr	Lb	O	Bl/Br	O/W	Lb/W
⇦	○		○	○	○	
N				○	○	○
⇨	○	○		○		○

DIMMER SWITCH

Color / Position	Bu	Bu/W	W
Hi	○	○	
(N)	○	○	○
Lo		○	○

HORN SWITCH

Color / Position	Bl/Br	Lg
FREE		
PUSH	○	○

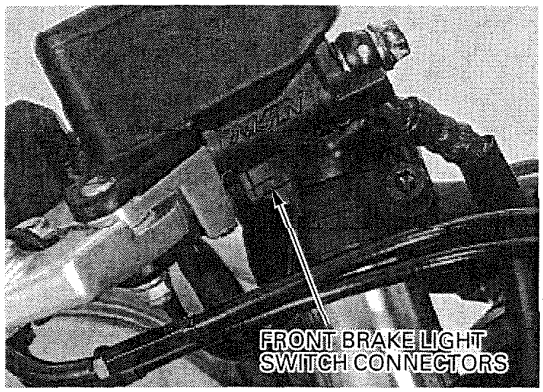


BRAKE LIGHT SWITCH

FRONT

Disconnect the front brake light switch wire connectors and check for continuity between the switch terminals.

There should be continuity with the front brake lever squeezed and no continuity with the lever released.

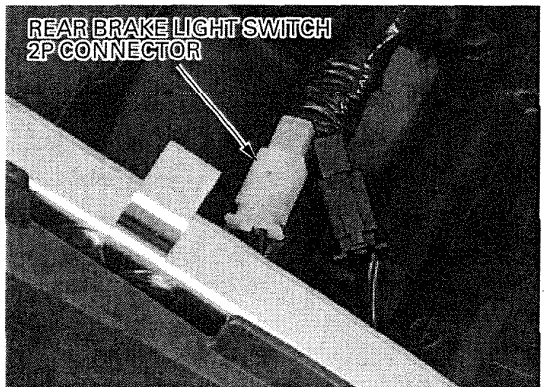


REAR

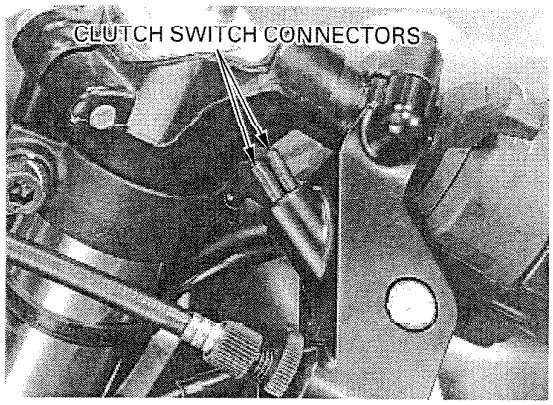
Remove the seat (page 2-2).

Disconnect the rear brake light switch 2P (white) connector and check for continuity between the connector terminals.

There should be continuity with the rear brake pedal depressed and no continuity with the pedal released.



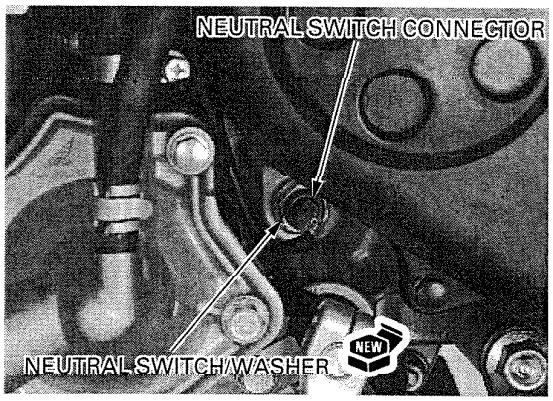
CLUTCH SWITCH



Disconnect the clutch switch wire connectors and check for continuity between the switch terminals.

There should be continuity with the clutch lever squeezed and no continuity with the lever released.

NEUTRAL SWITCH



INSPECTION

Disconnect the neutral switch wire connector.
Check for continuity between the switch terminal and engine ground.
There should be continuity with the transmission in neutral, and no continuity with the transmission in gear except neutral.

REMOVAL/INSTALLATION

Disconnect the neutral switch wire connector.
Remove the neutral switch from the crankcase.

Install the neutral switch with a new sealing washer and tighten it.

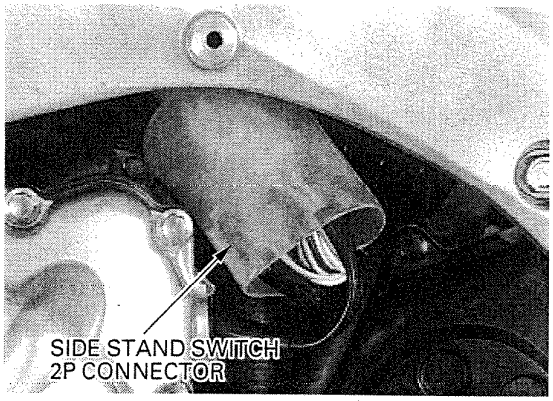
TORQUE : 12 N·m (1.2 kgf·m , 9 lbf·ft)

Connect the neutral switch wire connector.

SIDE STAND SWITCH

Remove the left side fairing (page 2-2).

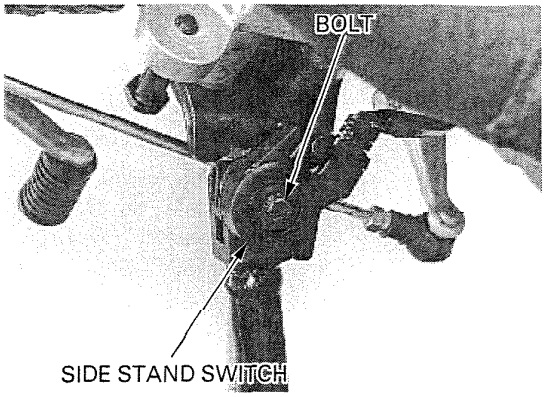
INSPECTION



Disconnect the side stand switch 2P (green) connector.
Check for continuity between the connector terminals.
There should be continuity with the side stand retracted and no continuity with the side stand lowered.

REMOVAL/INSTALLATION

Disconnect the side stand switch 2P (green) connector.
Remove the side stand switch bolt and the switch.



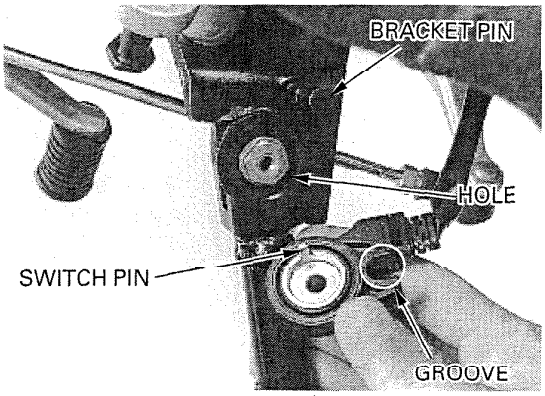
Install the side stand switch by aligning the switch pin with the side stand hole and the switch groove with the bracket pin.
Install the side stand switch bolt and tighten it.

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

Install the removed parts in the reverse order.

NOTE:

Route the side stand switch wire properly (page 1-18).

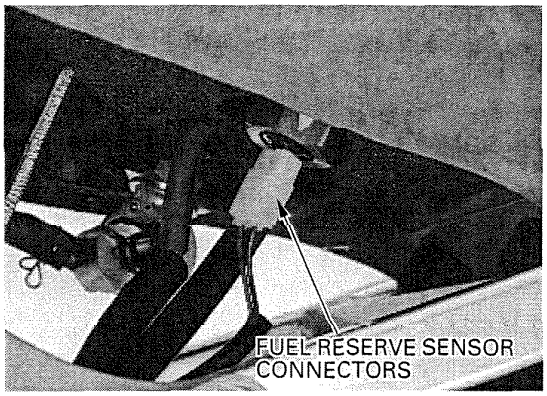


LOW FUEL INDICATOR/FUEL RESERVE SENSOR

INSPECTION

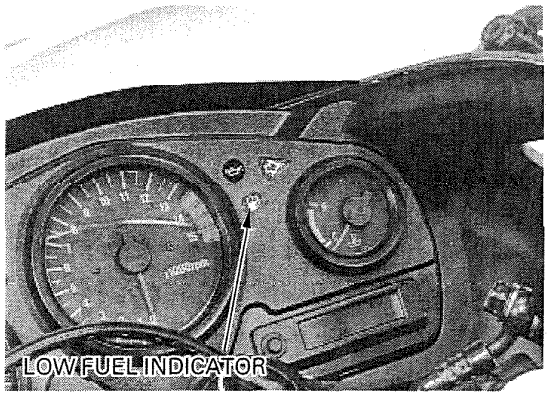
Raise the fuel tank (page 2-3).

Low fuel indicator does not go off
Disconnect the Brown/black wire connector from the fuel reserve sensor.
Turn the ignition switch ON and check the low fuel indicator.
- If the indicator does not come on, replace the fuel reserve sensor.
- If the indicator comes on, check for short circuit in Brown/black wire.



Low fuel indicator does not come on
Check that the speedometer, tachometer and coolant temperature gauge function properly.
- If they do not function, perform the power/ground line inspection of the combination meter (page 19-7).
- If they function, disconnect the fuel reserve sensor connectors and short the connector terminals with a jumper wire.
  Turn the ignition switch ON and check the low fuel indicator.

—If the indicator comes on, replace the fuel reserve sensor.
—If the indicator does not come on, check for an open circuit in Brown/black and Green/black wires.
If they are OK, replace the printed circuit board (page 19-7).



REMOVAL/INSTALLATION

⚠WARNING

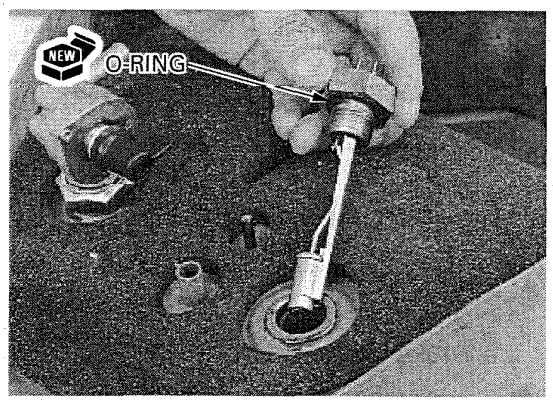
Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.

Remove the fuel tank (page 2-3).

Remove the fuel reserve sensor from the fuel tank.

Install a new O-ring into the sensor groove properly and install the reserve sensor, and tighten it.

TORQUE : 23 N·m (2.3 kgf·m , 17 lbf·ft)

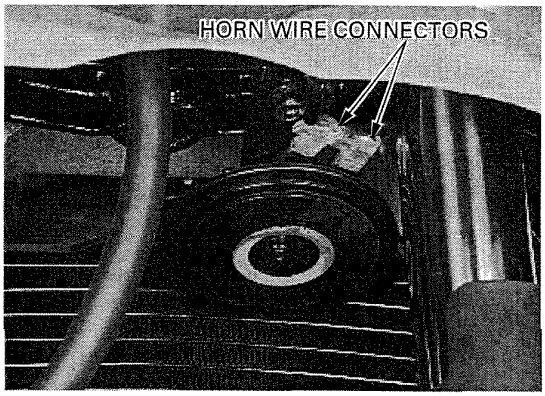


Check for leakage from the reserve sensor.
Install the fuel tank (page 2-3).

HORN

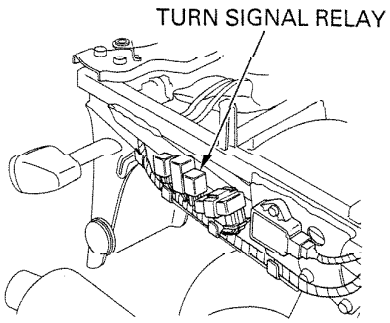
Disconnect the wire connectors from the horn.
Connect a 12 V battery to the horn terminals.

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



TURN SIGNAL RELAY

49 state/California type shown:



Turn signal light does not blink

Remove the seat cowl (page 2-2).

Disconnect the turn signal relay connector.

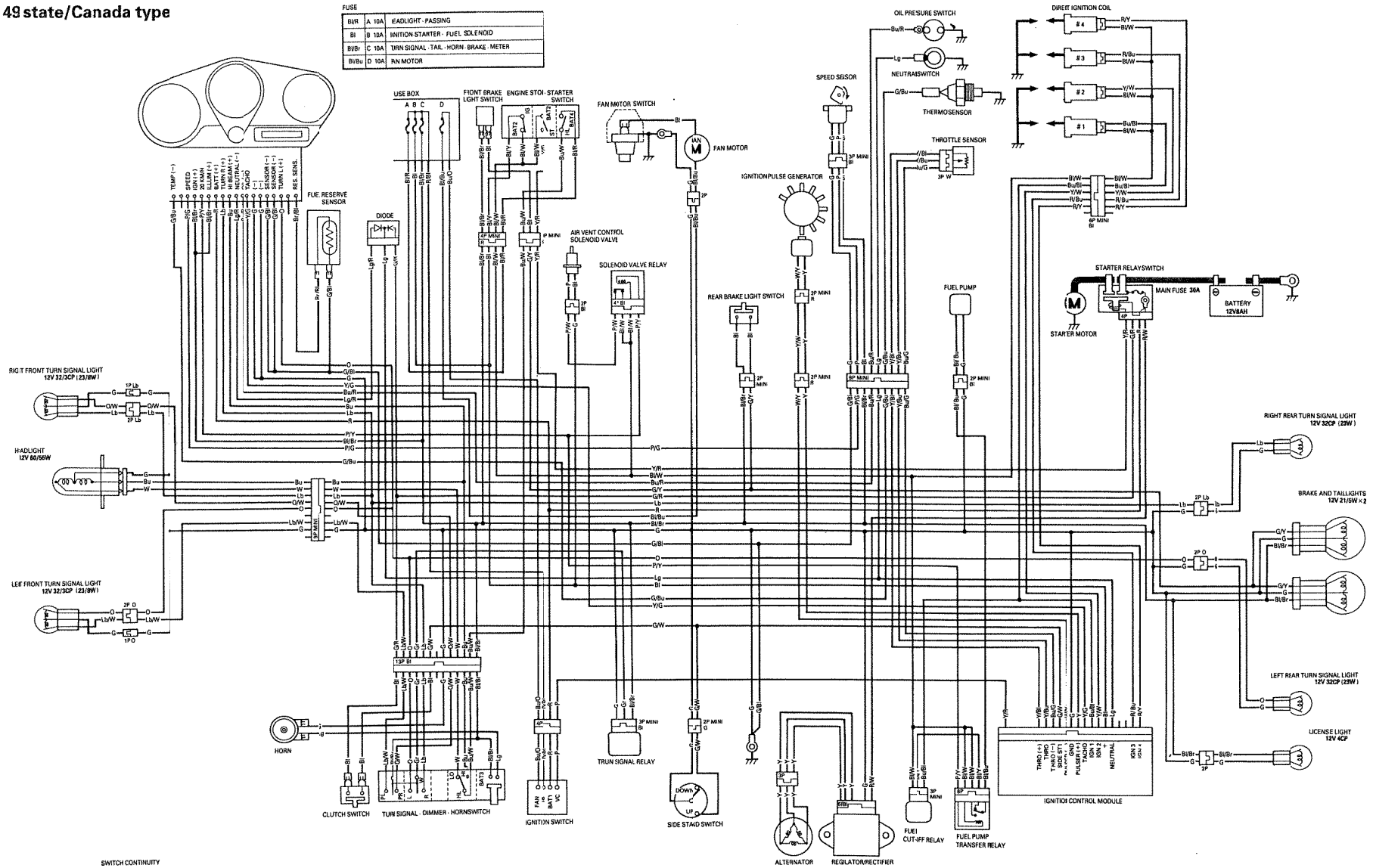
Connect the Black/brown and Gray wire terminals of the wire harness side connector with a jumper wire.

Turn the ignition switch ON and check the turn signal light by operating the turn signal switch.

- If the light does not come on, check for open circuit in Black/brown and Gray wires.
- If the light comes on, check for continuity between the Green wire terminal and body ground.

– If there is no continuity, check for open circuit in green wire.
– If there is continuity, check the connector terminals for loose or poor contact.
If the connector terminals are OK, replace the turn signal relay.

49 state/Canada type



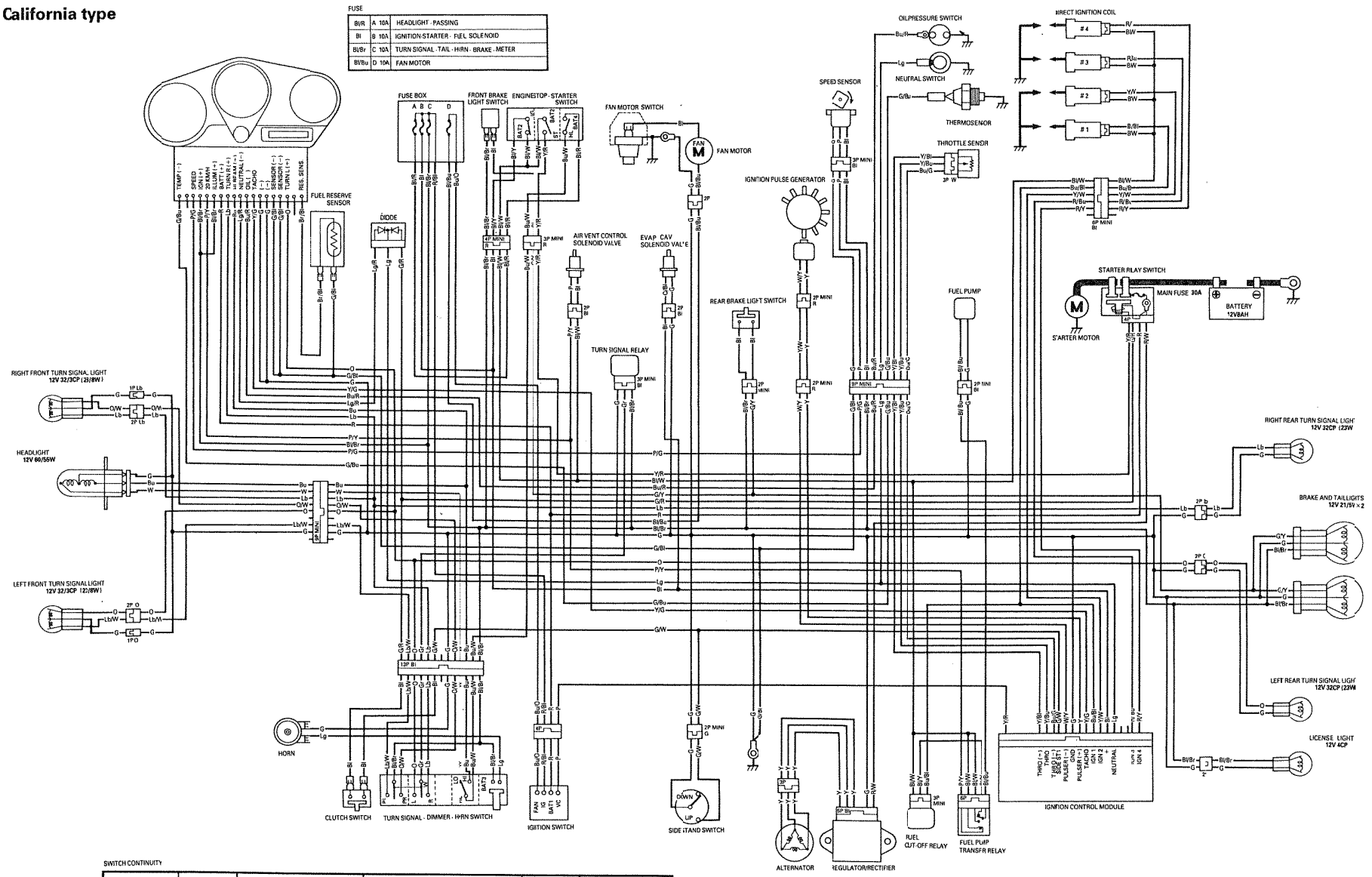
SWITCH CONTINUITY

DIMMER SWITCH				HORN SWITCH		TURN SIGNAL SWITCH						IGNITION SWITCH						ENGINE STOP SWITCH			STARTER SWITCH				
	HL	LO	HI		HO	BAT3		W	R	L	RO	PR	PL		F/N	IG	BAT1	KEY REMOVABILITY*	CONDITION OF LOCK PIN		IG	BAT2		ST	IG	BAT4	HL
HI	○		○	FREE			⇦			○	○			ON				NO		OFF			FREE			○	
(N)	○		○	PUSH	○		N				○			OFF				YES		RUN	○		PUSH	○			
LO	○		○				⇨	○			○			LOCK				YES	OUT								

B ..... BLACK Br ..... BROWN
Y ..... YELLOW O ..... ORANGE
Bl ..... BLUE Lb ..... LIGHT BLUE
G ..... GREEN Lg ..... LIGHT GREEN
R ..... RED P ..... PINK
W ..... WHITE Gr ..... GRAY

0030Z-MBW-6700

California type



SWITCH CONTINUITY

DIMMER SWITCH				HORN SWITCH		TURN SIGNALSWITCH						IGNITION SWITCH					ENGINE STOP SWITCH			STARTER SWITCH				
	HL	LO	HI	HO	BAT3	W	R	L	PO	PR	PL		FAN	IG	BAT1	KEY-EMO -VABILITY	CONDITION OF LOCK PIN		IG	BAT2		ST	IG	BAT4	HL
(N)				FREE		⇦						ON				NO		OF			FREE				
				PUSH		N						OFF				YES		RIN			PUSH				
						⇨						LOCK				YES	OUT								

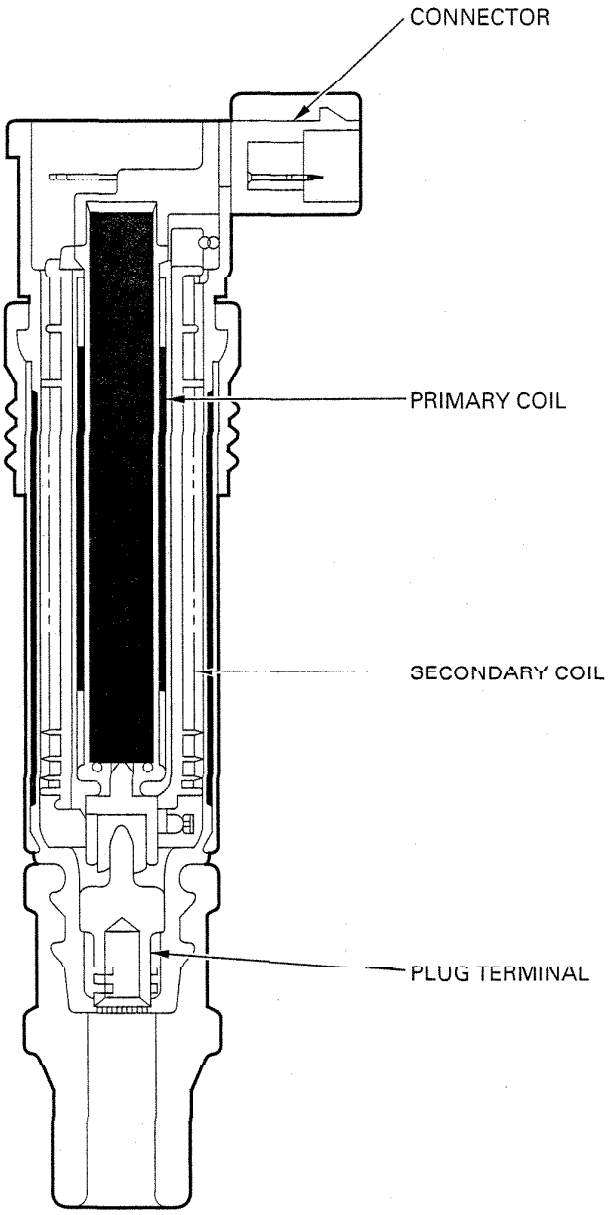
Bl	BLACK	Br	BROWN
Y	YELLOW	O	ORANGE
Bu	BLUE	Lb	LIGHT BLUE
G	GREEN	Lg	LIGHT GREEN
R	RED	P	PINK
W	WHITE	Gr	GRAY

0030Z-MBW-7700

COIL-INTEGRATED SPARK PLUG CAP
(DIRECT IGNITION COIL) 21-1

COIL-INTEGRATED SPARK PLUG CAP (DIRECT IGNITION COIL)

The direct ignition coil is the spark plug cap with the built-in ignition coil. The spark plug wire is omitted, and the light weight and compact size ignition device is accomplished by the direct ignition coil.



MEMO

22. TROUBLESHOOTING

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ENGINE LACKS POWER	22-2	POOR HANDLING	22-4
POOR PERFORMANCE AT LOW AND IDLE SPEED	22-3		

ENGINE DOES NOT START OR IS HARD TO START

		Possible cause
1. Check the fuel flow to carburetor	Not reaching carburetor	• Clogged fuel line and filter • Clogged fuel tank breather tube • Sticking float valve • Faulty fuel pump
Reaching carburetor		
2. Perform a spark test	Weak or no spark	• Faulty spark plug • Fouled spark plug • Loose or disconnected ignition system wires • Faulty ignition pulse generator • Faulty ignition coil • Faulty ignition control module (ICM) • Faulty engine stop switch • Faulty ignition switch
Good spark		
3. Remove and inspect spark plugs	Wet plug	• Flooded carburetor • Starting enrichment (SE) valve ON position (open) • Throttle valve open • Dirty air cleaner
Good condition		
4. Start by following normal procedure	Engine starts but stops	• Improper choke operation • Incorrectly adjusted carburetor • Leaking carburetor insulator • Improper ignition timing (Faulty ICM or ignition pulse generator) • Contaminated fuel
Engine does not start		
5. Test cylinder compression	Low compression	• Valve stuck open • Worn cylinder and piston rings • Damaged cylinder head gasket • Seized valve • Improper valve timing

22

ENGINE LACKS POWER

		Possible cause
1. Raise wheel off the ground and spin by hand	Wheel do not spin freely	• Brake dragging • Worn or damaged wheel bearings • Drive chain too tight
Wheel spins freely		
2. Check tire pressure	Pressure low	• Faulty tire valve • Punctured tire
Pressure normal		
3. Accelerate rapidly low to second	Engine speed doesn't change accordingly when clutch is released	• Clutch slipping • Worn clutch discs/plates • Warped clutch discs/plates • Weak clutch spring • Additive in engine oil
Engine speed reduced when clutch is released		
4. Accelerate lightly	Engine speed does not increase	• Starting enrichment (SE) valve ON position (open) • Clogged air cleaner • Restricted fuel flow • Clogged muffler • Restricted fuel tank breather tube
Engine speed increase		
5. Check ignition timing	Incorrect	• Faulty ignition control module (ICM) • Faulty ignition pulse generator
Correct		
6. Test cylinder compression	Incorrect	• Valve clearance too small • Worn cylinder and piston rings • Damaged cylinder head gasket • Improper valve timing
Normal compression		
7. Check carburetor for clogging	Clogged	• Carburetor not serviced frequently enough
Not clogged		
8. Remove and inspect spark plugs	Fouled or discolored	• Plugs not serviced frequently enough • Incorrect spark plug heat range
Not fouled or discolored		
9. Check oil level and condition	Incorrect	• Oil level too high • Oil level too low • Contaminated oil
Correct		

To page 23-3

From page 23-2

		Possible cause
10. Remove cylinder head cover and inspect lubrication	Valve train not lubricated properly	• Clogged oil passage • Clogged oil orifice
Valve train lubricated properly		
11. Check for engine overheating	Overheating	• Coolant level too low • Fan motor not working (Faulty fan motor or fan motor switch) • Thermostat stuck closed • Excessive carbon build-up in combustion chamber • Use of poor quality fuel • Clutch slipping • Lean fuel mixture • Wrong type of fuel
Not overheating		
12. Accelerate or run at high speed	Engine knocks	• Worn piston and cylinder • Wrong type of fuel • Excessive carbon build-up in combustion chamber • Ignition timing too advance (Faulty ICM) • Lean fuel mixture
Engine does not knock		

POOR PERFORMANCE AT LOW AND IDLE SPEED

		Possible cause
1. Check carburetor pilot screw adjustment	Incorrect	• See section 5
Correct		
2. Check for leaking carburetor insulator	Leaking	• Loose carburetor insulator bands • Damaged carburetor insulator
No leak		
3. Perform spark test	Weak or intermittent spark	• Faulty spark plug • Fouled spark plug • Loose or disconnected ignition system wires • Faulty ignition pulse generator • Faulty ignition coil • Faulty engine stop switch • Faulty ignition control module (ICM) • Faulty ignition switch
Good spark		
4. Check ignition timing	Incorrect	• Faulty ignition control module (ICM) • Faulty ignition pulse generator

POOR PERFORMANCE AT HIGH SPEED

		Possible cause
1. Disconnect fuel tube at carburetor	Fuel flow restricted	• Restricted fuel tube • Restricted fuel tank breather tube • Clogged fuel filter • Faulty fuel valve • Faulty fuel pump
Fuel flows freely		
2. Check carburetor for clogging	Clogged	• Carburetor not serviced frequently enough
Not clogged		
3. Check valve timing	Incorrect	• Cam sprockets not installed properly
Correct		
4. Check ignition timing	Incorrect	• Faulty ignition control module (ICM) • Faulty ignition pulse generator
Correct		
5. Check valve spring	Weak	• Faulty valve spring
Not weak		

POOR HANDLING

	Possible cause
1. If steering is heavy	• Steering stem adjustment nut too tight • Damaged steering head bearings
2. If either wheel is wobbling	• Excessive wheel bearing play • Bent rim • Improperly installed wheel hub • Excessively worn swingarm pivot bearings • Bent frame
3. If the motorcycle pulled to one side	• Front and rear wheels not aligned • Bent fork • Bent swingarm • Bent axle • Bent frame

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