

ELECTRICAL SYSTEM

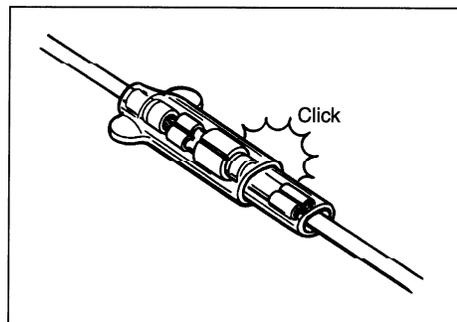
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CAUTIONS IN SERVICING

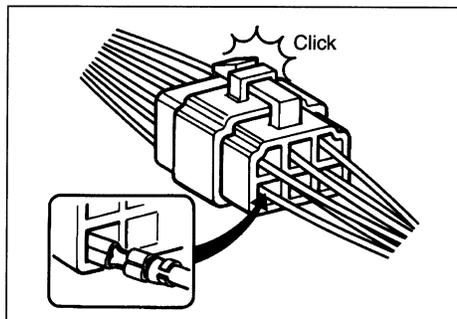
CONNECTOR

- When disconnecting a connector, be sure to hold the terminals; do not pull the lead wires.
- When connecting a connector, push it in so it is firmly attached.
- Inspect the connector for corrosion, contamination and any breakage in the cover.



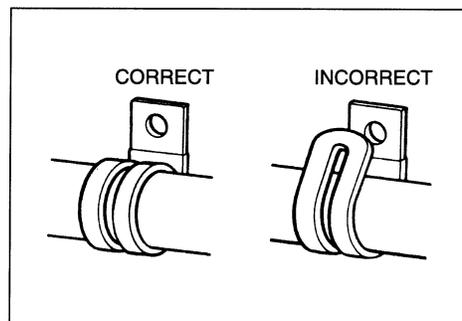
COUPLER

- With a lock-type coupler, be sure to release the lock before disconnecting it. When connecting a coupler, push it in until the lock clicks shut.
- When disconnecting a coupler, be sure to hold the coupler; do not pull the lead wires.
- Inspect each terminal on the coupler for looseness or bends.
- Inspect each terminal for corrosion and contamination.



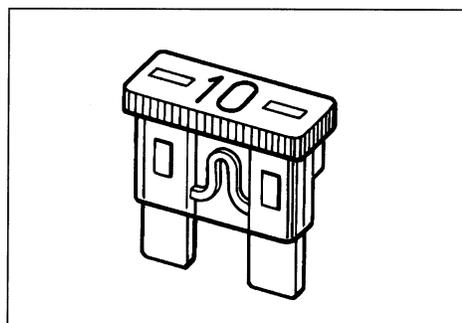
CLAMPS

- Refer to "WIRE, CABLE AND HOSE ROUTING" (☞ 8-13 to -16) for proper clamping procedures.
- Bend the clamp properly as shown in the illustration.
- When clamping the wire harness, do not allow it to hang down.
- Do not use wire or any other substitute for the band-type clamp.



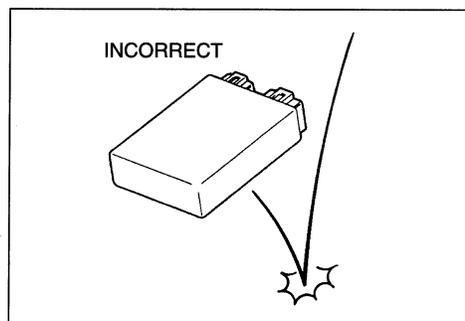
FUSE

- When a fuse blows, always investigate the cause, correct the problem and then replace the fuse.
- Do not use a fuse of a different capacity.
- Do not use any substitutes for the fuse (e.g., wire).



SEMI-CONDUCTOR EQUIPPED PARTS

- Do not drop any part that contains a semi-conductor (e.g., ignitor, regulator/rectifier).
- When inspecting the part, follow the inspection instructions carefully. Neglecting proper procedures may cause this part to be damaged.



BATTERY

- The MF battery used in this motorcycle does not require maintenance (e.g., electrolyte level inspection, distilled water replenishing).
- During normal charging, no hydrogen gas is produced. However, if the battery is overcharged, hydrogen gas may be produced. Therefore, be sure that there are no fire or spark sources nearby (e.g., short-circuit) when charging the battery.
- Be sure to recharge the battery in a well-ventilated and open area.
- Note that the charging system for the MF battery is different from that of a conventional battery. Do not replace the MF battery with a conventional battery.

CONNECTING BATTERY

- When disconnecting terminals from the battery for disassembly or servicing, be sure to disconnect the negative (⊖) terminal first.
- When connecting terminals to the battery, be sure to connect the positive (⊕) terminal first.
- If the terminal is found corroded, remove the battery, pour warm water over it and clean with a wire brush.
- Upon completion of connection, apply grease lightly.
- Put a cover over the positive (⊕) terminal.

WIRING PROCEDURE

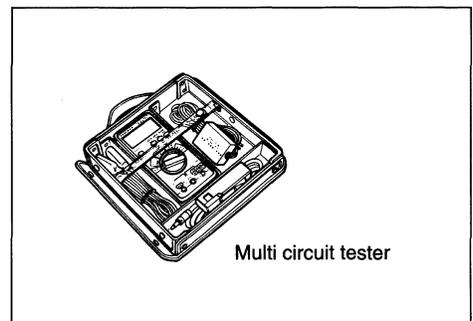
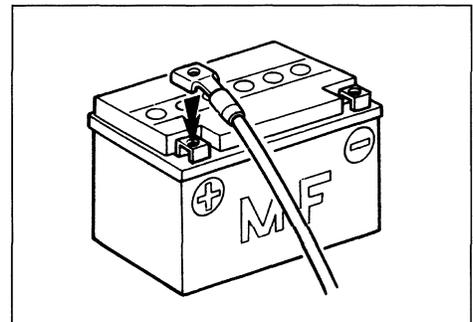
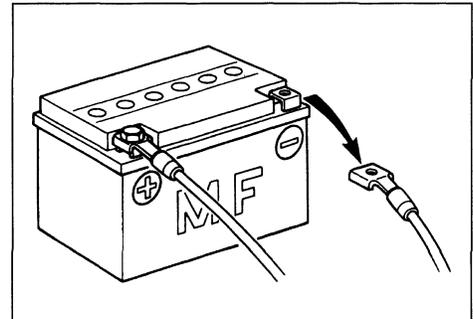
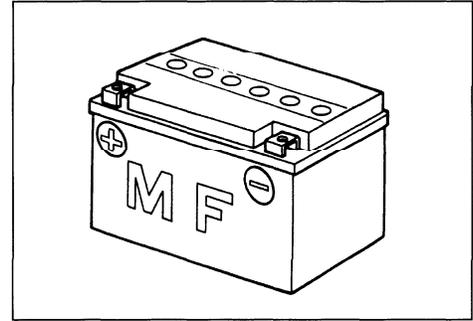
- Route the wire harness properly according to “WIRE HARNESS ROUTING” (☞ 8-13 to -15).

USING MULTI CIRCUIT TESTER

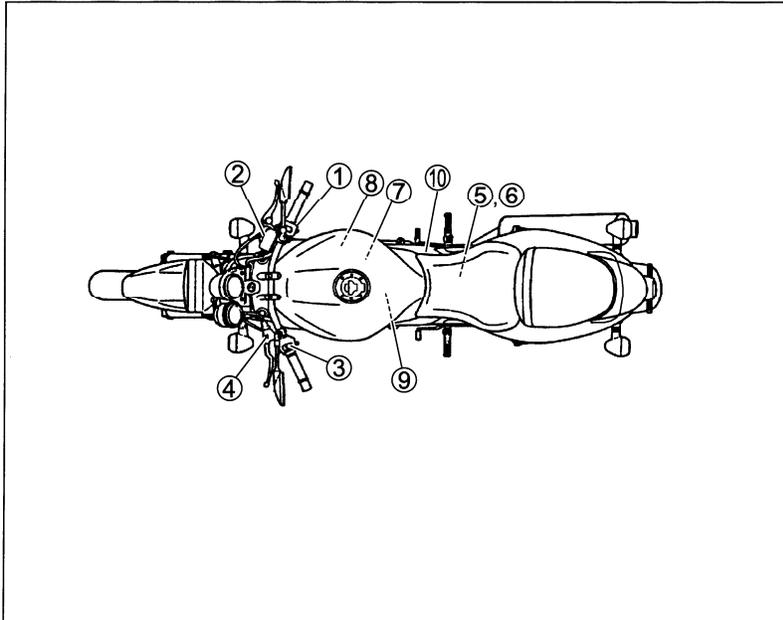
- Be sure to use positive (⊕) and negative (⊖) probes of the tester properly. Their false use may cause damage in the tester.
- If the current values are not known, start measuring in the higher range.
- Taking a measurement where voltage is applied in the resistance range may cause damage in the tester. When measuring resistance, check to make sure that no voltage is applied there.
- After using the tester, turn the switch to the OFF position.

▲ CAUTION

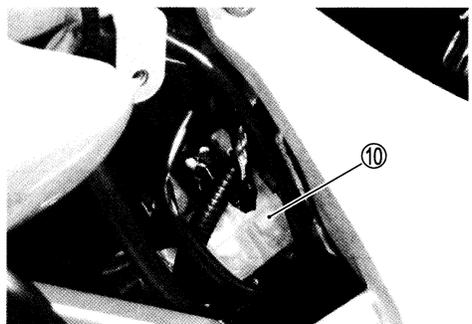
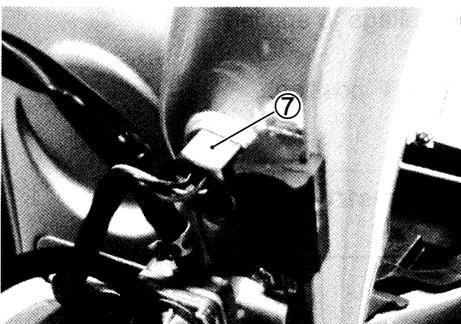
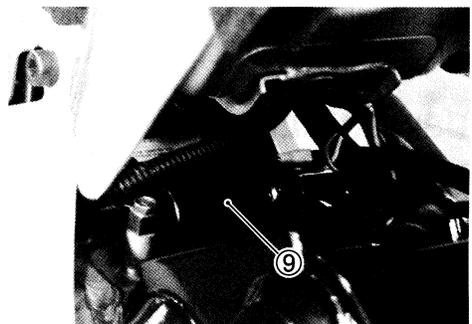
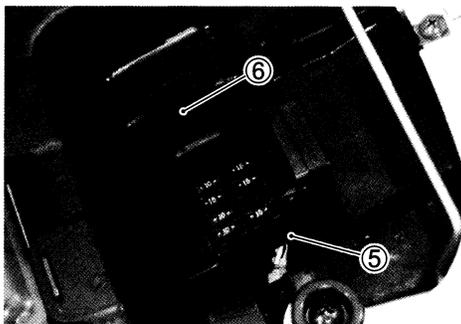
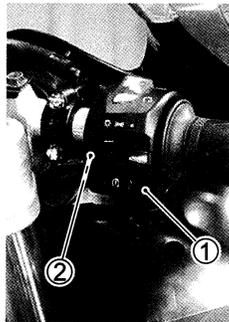
Before using the multi tester, read the instruction manual.

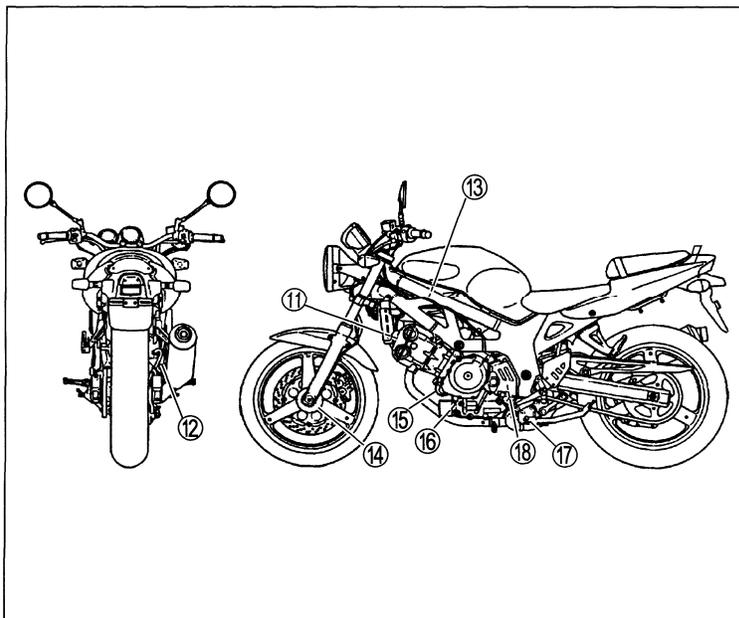


LOCATION OF ELECTRICAL COMPONENTS

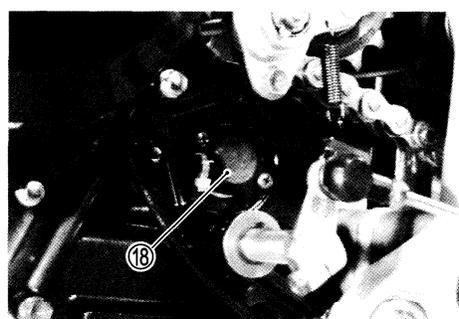
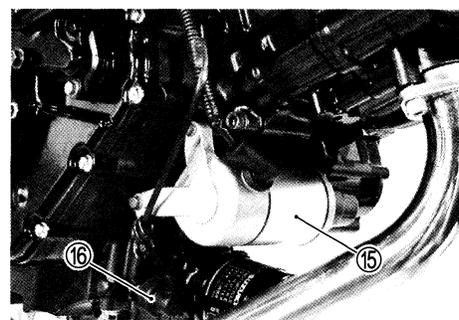
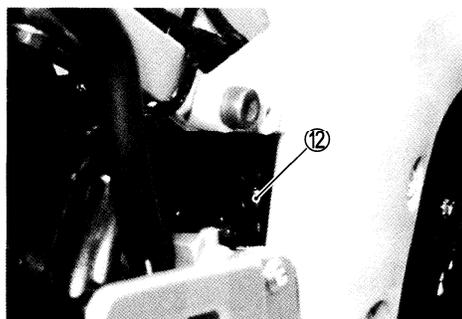


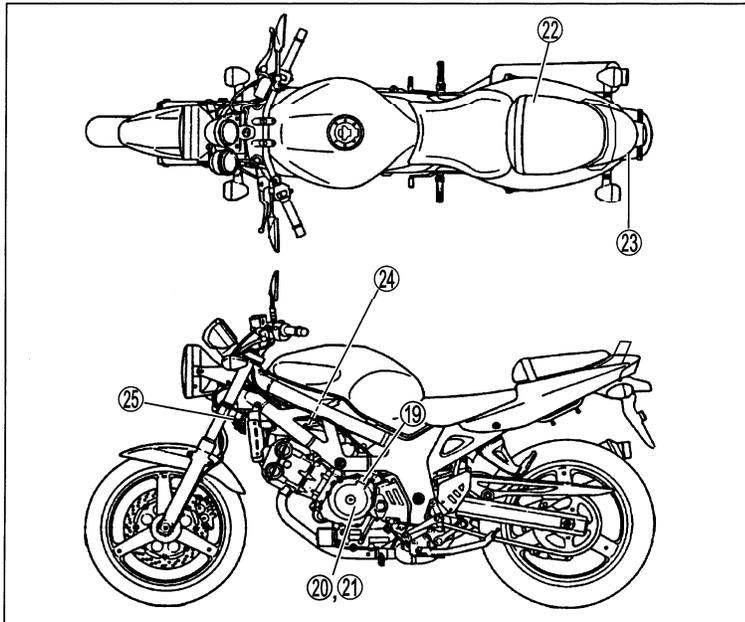
- ① Handlebar switch (R)
- ② Front brake switch
- ③ Handlebar switch (L)
- ④ Clutch switch
- ⑤ Fuse box
- ⑥ Turn signal/side-stand relay
- ⑦ Fuel level indicator switch
- ⑧ Throttle position sensor
- ⑨ Ignition coil (rear)
- ⑩ Starter relay



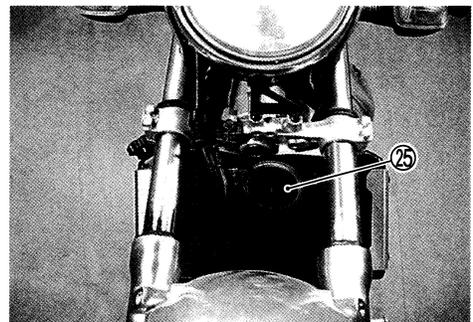
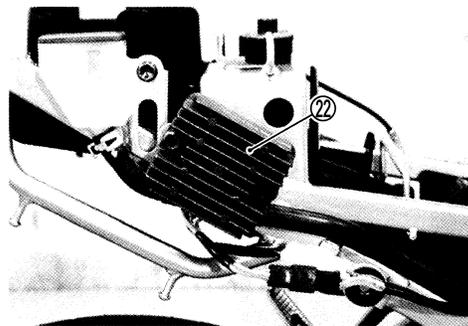
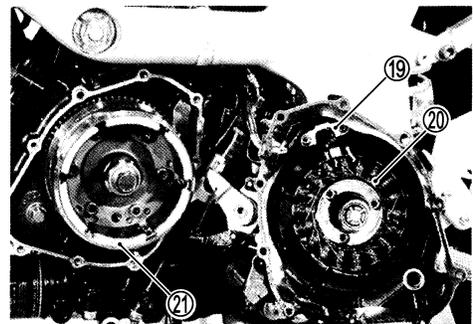


- ⑪ Fan motor switch
- ⑫ Stop lamp switch
- ⑬ Ignition coil (Front side)
- ⑭ Speed sensor
- ⑮ Starter motor
- ⑯ Oil presser switch
- ⑰ Side stand switch
- ⑱ Neutral switch





- ①⑨ Signal generator
- ②⑩ Generator stator
- ③⑪ Generator rotor
- ④⑫ Regulator/Rectifier
- ⑤⑬ Ignitor
- ⑥⑭ Water temperature switch
- ⑦⑮ Horn

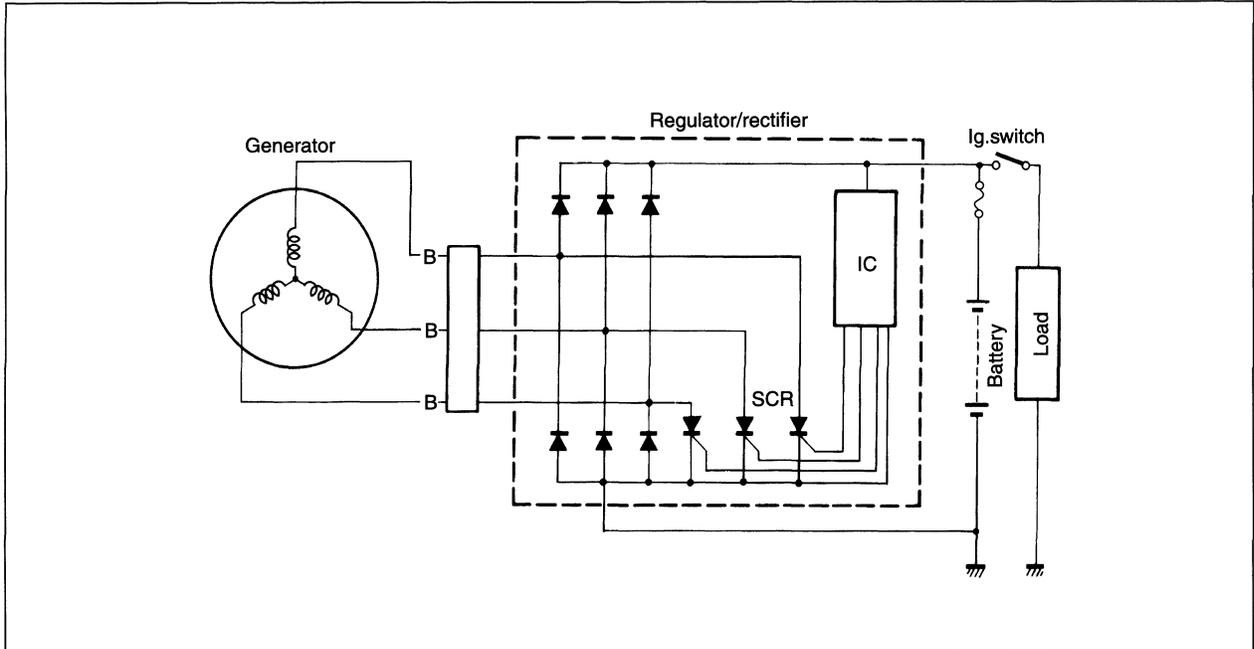


CHARGING SYSTEM

DESCRIPTION

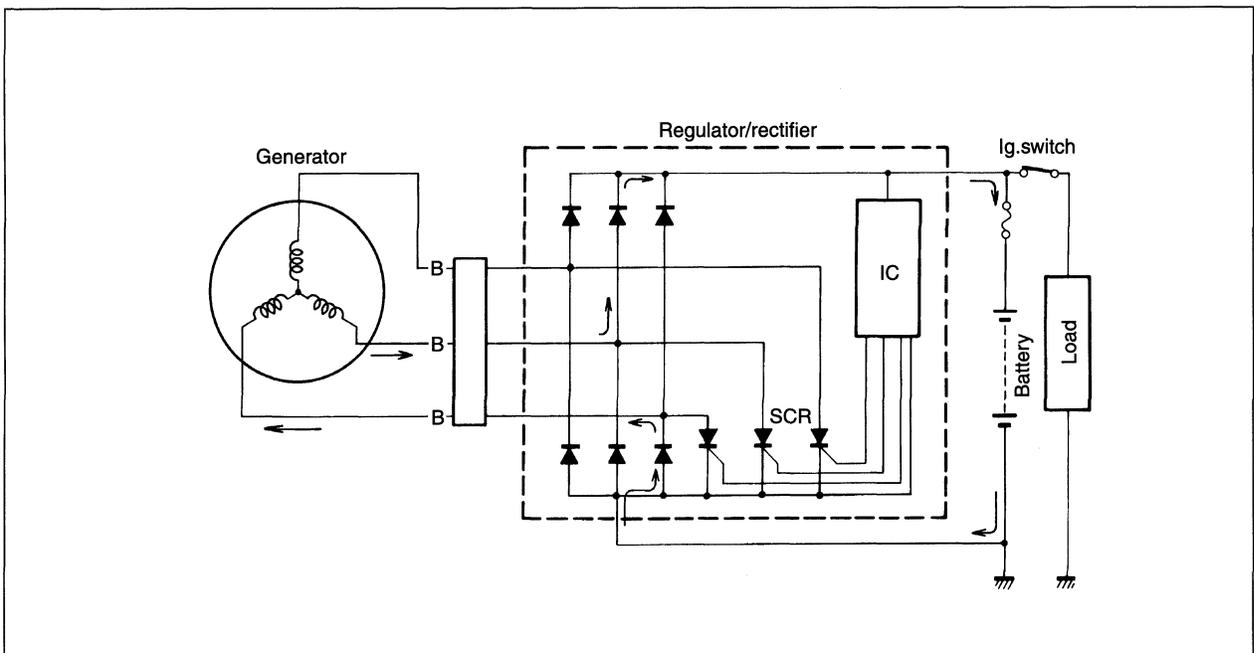
The circuit of the charging system is indicated in the figure, which is composed of a generator, regulator/rectifier unit and battery.

The AC current generated from the generator is rectified by the rectifier and is turned into DC current, then it charges the battery.



FUNCTION OF REGULATOR

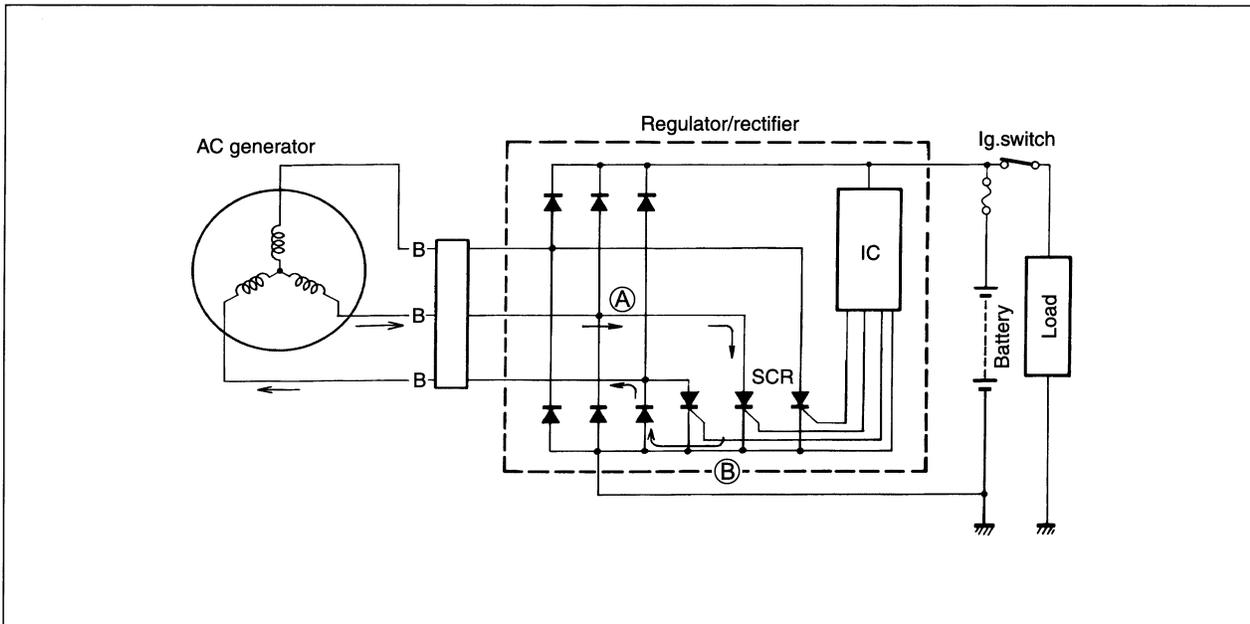
While the engine r/min is low and the generated voltage of the generator is lower than the adjusted voltage of regulator, the regulator does not function. However, the generated current charges the battery directly at this time.



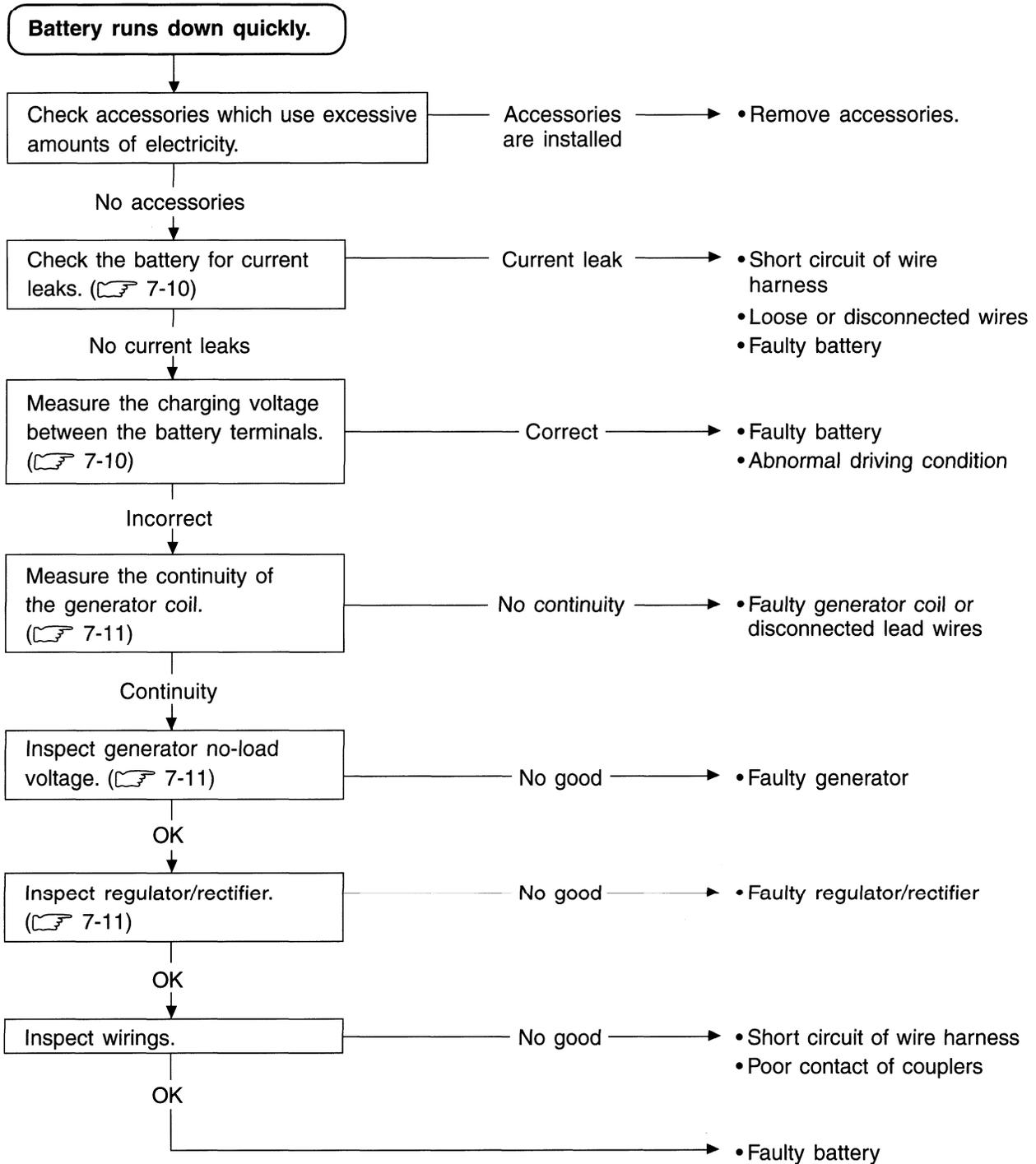
7-8 ELECTRICAL SYSTEM

When the engine r/min becomes higher, the generated voltage of the generator also becomes higher and the voltage between the battery terminals becomes high accordingly. When it reaches the adjusted voltage of the I.C., (Integrated Circuit) and it is turned "ON", a signal will be sent to the SCR (Thyristor) gate probe and the SCR will be turned "ON".

Then, the SCR becomes conductive in the direction from point (A) to point (B). At this time, the current generated from the generator gets through the SCR without charging the battery and returns to generator again. At the end of this state, since the AC current generated from generator flows to point (B), the reverse current tends to flow to SCR. Then, the circuit of SCR turns to the OFF mode and begins to charge the battery again. Thus these repetitions maintain charging voltage and current to the battery constant and protect it from overcharging.



TROUBLESHOOTING



Others

Battery overcharge	<ul style="list-style-type: none"> • Faulty regulator/rectifier • Faulty battery • Poor contact of generator lead wire coupler
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INSPECTION

BATTERY CURRENT LEAK INSPECTION

- Turn the ignition switch to the “OFF” position.
- Remove the frame covers (R), (L), and the seat. (👉 4-4)
- Remove the electric parts hold ①.
- Disconnect the battery ⊖ lead wire.
- Connect the multi circuit tester between the battery ⊖ terminal and the battery ⊖ lead wire.

NOTE:

Leakage is evident if the reading is over 1 mA.

DATA Battery current leak: Under 1 mA

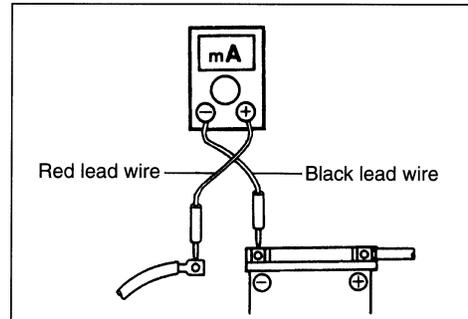
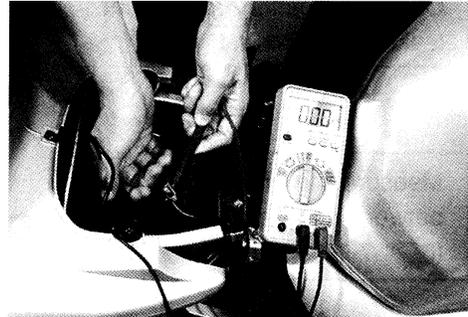
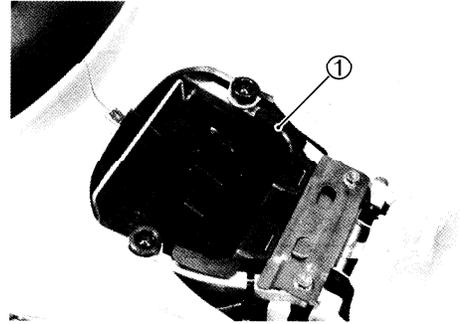
Tester knob indication: Current (---, 20 mA)

TOOL 09900-25008: Multi circuit tester set

CAUTION

- * Because the current leak might be large, turn the tester to the high range first to avoid tester damage.
- * Do not turn the ignition switch to the “ON” position when measuring the current.

When checking to find the excessive current leak, remove the couplers and connectors, one by one, checking each part.



CHARGING OUTPUT INSPECTION

- Remove the fram covers (R), (L), and the seat. (👉 4-4)
- Remove the electric parts holder.
- Start the engine, turn the lighting switch to ON and the dimmer switch to HI and run the engine at 5 000 r/min.

Measure the DC voltage between the battery ⊕ and ⊖ terminals using a multi-circuit tester. If the tester reads under 13.5V or over 15.0V, inspect the stator coil, regulator/rectifier which are mounted in the generator.

NOTE:

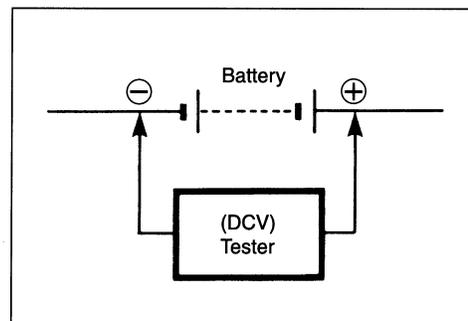
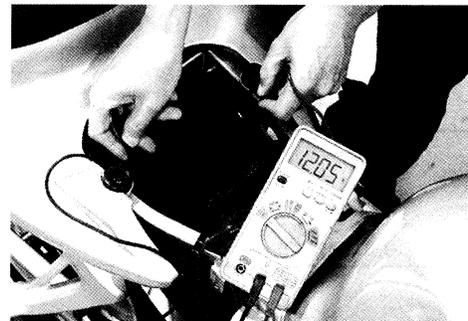
When performing this test, make sure that the battery is fully-charged.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (---)

DATA Charging output (Regulated voltage)

Specification: 13.5 – 15.0V at 5 000 r/min.



GENERATOR COIL RESISTANCE INSPECTION

- Remove the seat tail cover. (☞ 6-4)
- Disconnect the generator coupler ①.

Measure the resistance between the three lead wires.

Also check that the stator core is insulated.

If the resistance is not specified value, replace the stator with a new one.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

DATA Generator coil resistance
Specification: 0.2 – 0.55 Ω

NOTE:

When making above test, it is not necessary to remove the generator.

GENERATOR NO-LOAD PERFORMANCE INSPECTION

- Remove the seat tail cover. (☞ 6-4)
- Start the engine and keep it running at 5 000 r/min.

Using a multi circuit tester, measure the voltage between three lead wires.

If the tester reads under the specified value, replace the generator with a new one.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (~)

DATA Generator no-load performance (When engine is cold)
Specification: More than 70V (AC) at 5 000 r/min

REGULATOR/RECTIFIER INSPECTION

- Remove the seat tail cover. (☞ 6-4)
- Disconnect the generator coupler ①.

Using a multi circuit tester, measure the voltage between the lead wires in the following table.

If voltage is incorrect, replace the regulator/rectifier.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Diode test (→←)

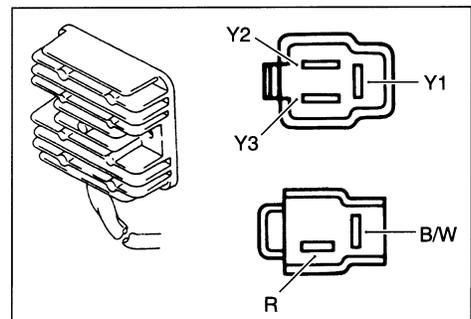
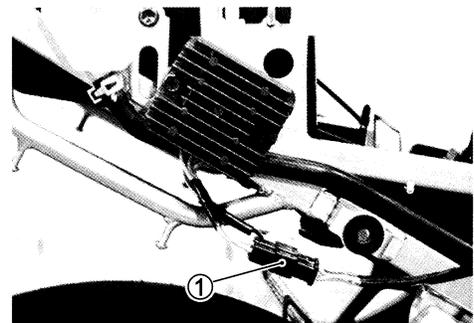
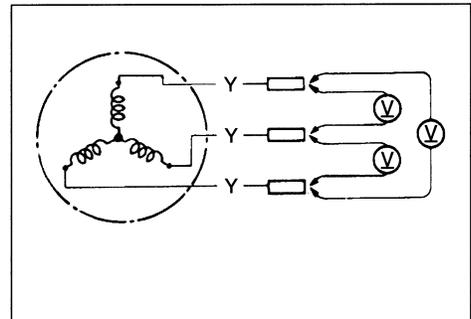
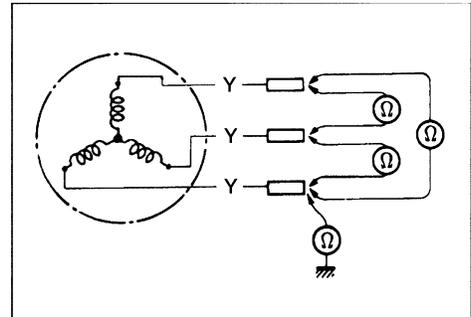
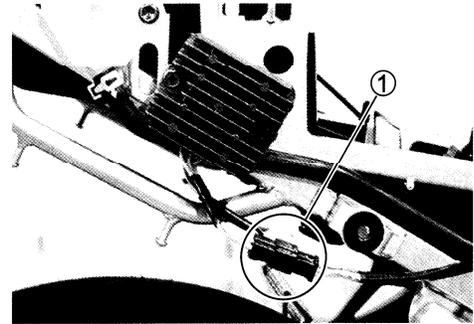
Unit: V

Probe of tester to:	⊕ Probe of tester to:				
	R	Y1	Y2	Y3	B/W
R		0.4 – 0.7	0.4 – 0.7	0.4 – 0.7	0.5 – 0.8
Y1	Approx. 1.5		Approx. 1.5	Approx. 1.5	0.4 – 0.7
Y2	Approx. 1.5	Approx. 1.5		Approx. 1.5	0.4 – 0.7
Y3	Approx. 1.5	Approx. 1.5	Approx. 1.5		0.4 – 0.7
Ⓛ B/W	Approx. 1.5	Approx. 1.5	Approx. 1.5	Approx. 1.5	

B: Black, B/R: Black with Red tracer, B/W: Black with White tracer

NOTE:

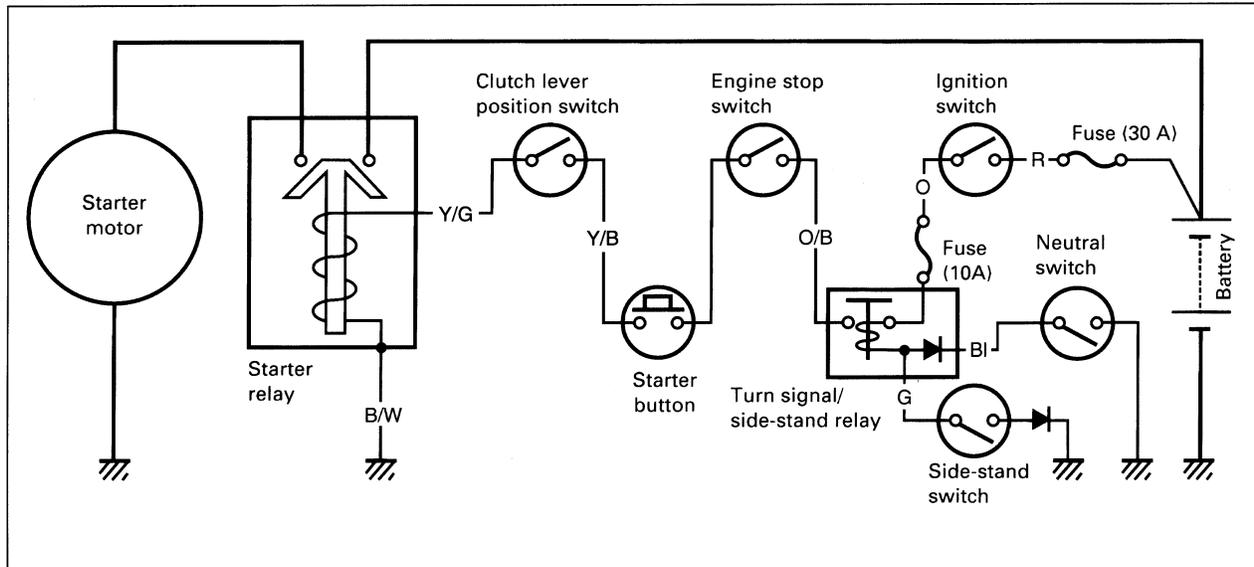
If the tester read under 1.4V, replace the battery of multi circuit tester when do not connecting the tester probes.



STARTER SYSTEM AND SIDE-STAND IGNITION INTERLOCK SYSTEM

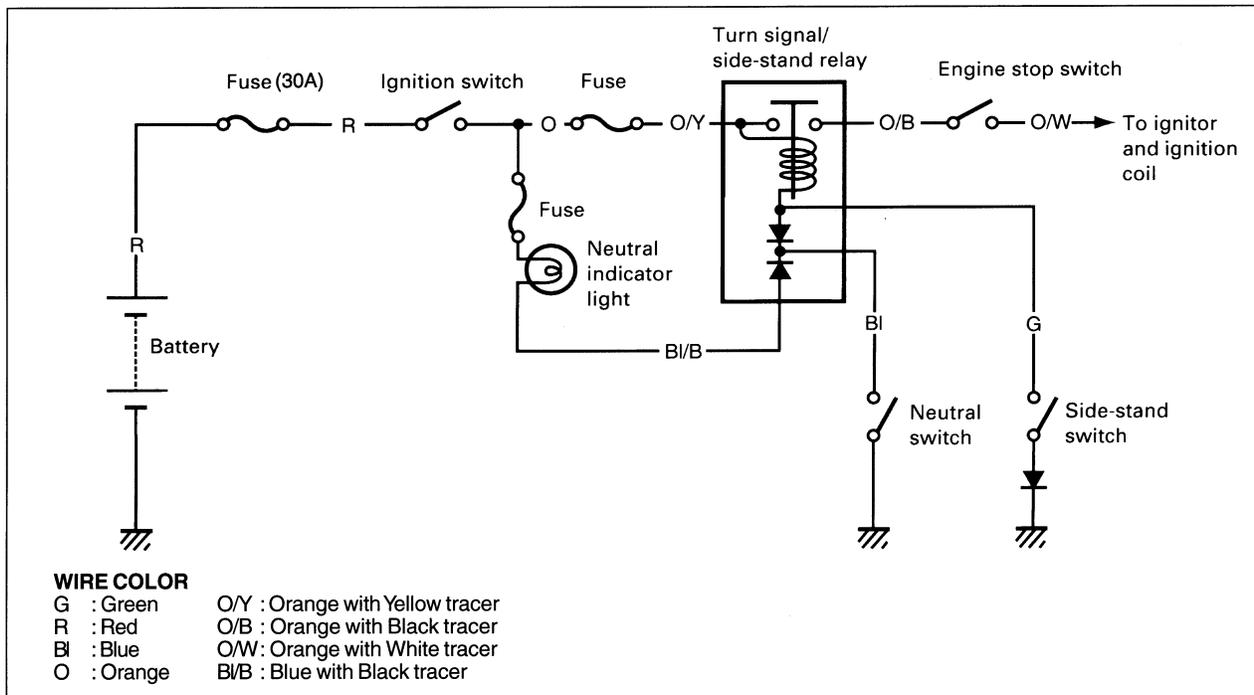
STARTER SYSTEM DESCRIPTION

The starter system consists of the following components: the starter motor, starter relay, clutch lever position switch, turn signal/side-stand relay, side-stand switch, neutral switch, starter button, engine stop switch, ignition switch and battery. Pressing the starter button (on the right handlebar switch) energizes the starter relay, causing the contact points to close, thus completing the circuit from the starter motor to the battery. The starter motor draws about 80 amperes to start the engine.



SIDE-STAND/IGNITION INTERLOCK SYSTEM DESCRIPTION

This side-stand/ignition interlock system prevents the motorcycle from being started with the sidestand down. The system is operated by an electric circuit provided between the battery and ignition coil.

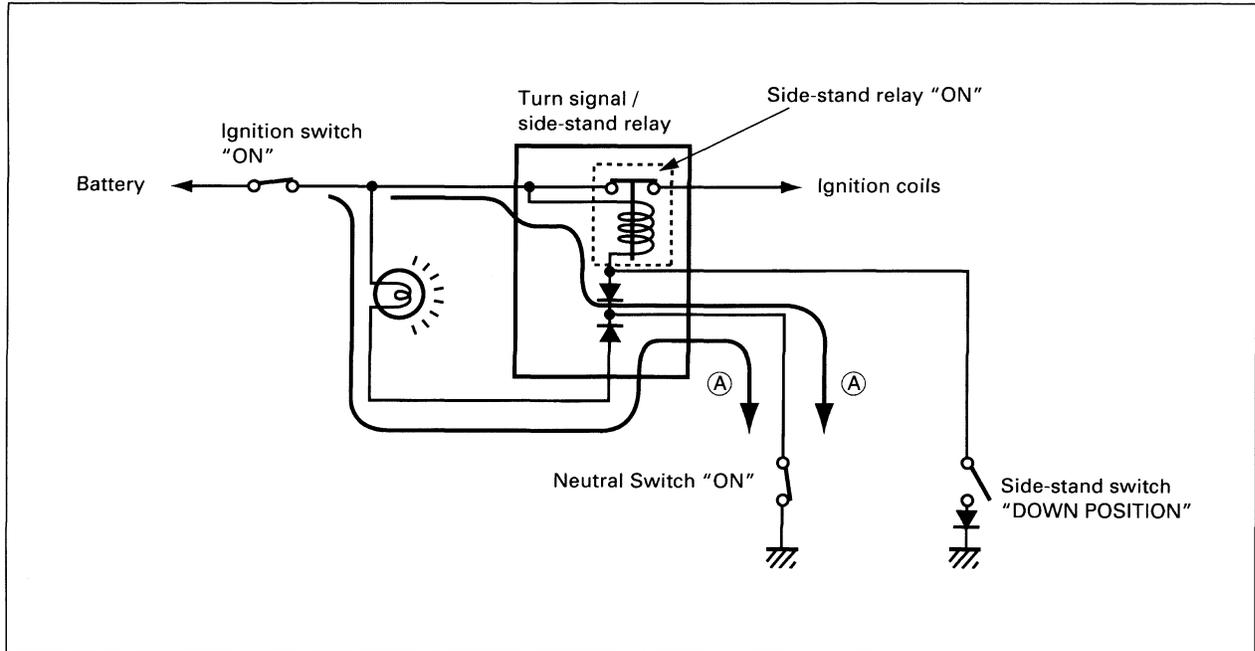


The circuit consists of the turn signal/side-stand relay, neutral indicator light and switches. The ignition coils will send voltage to the spark plugs dependant on what gear the transmission is in and whether the side-stand is either up or down. The neutral and side-stand switches work together in this system.

The ignition coils work only in two situations as follows.

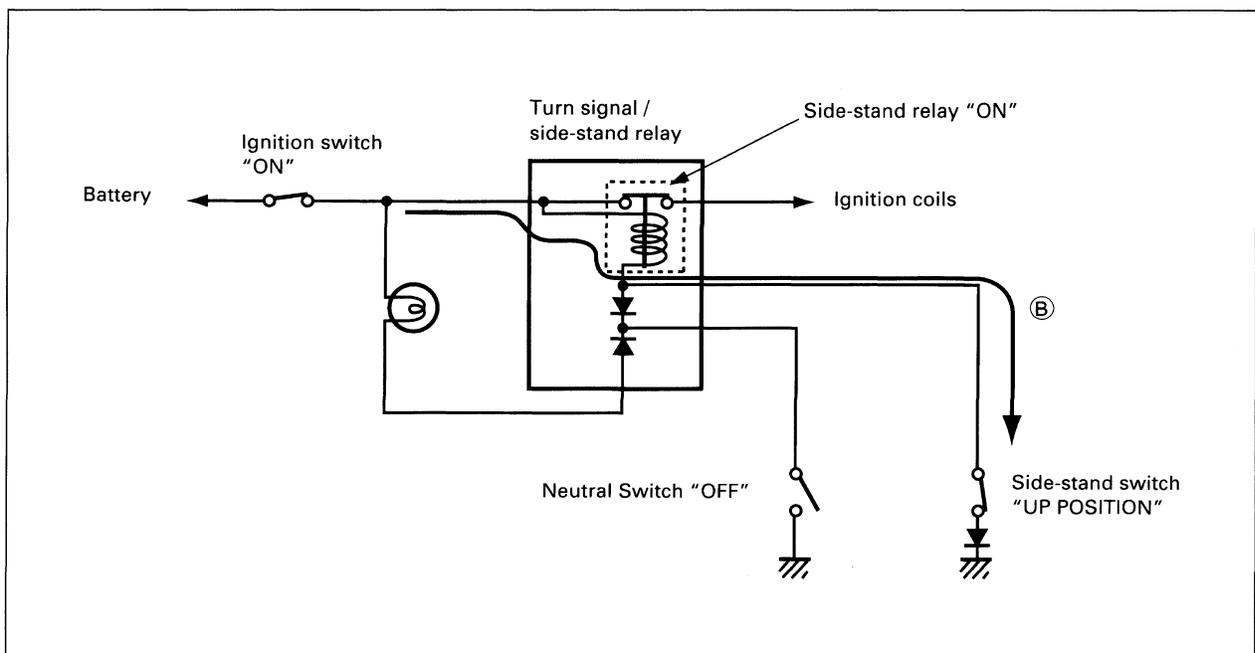
1. Transmission: Neutral (ON) Side-stand: Down (OFF)

The current flow (A) switches "ON" the side-stand relay and the ignition coils send voltage to the spark plugs even when the side-stand is kept down.

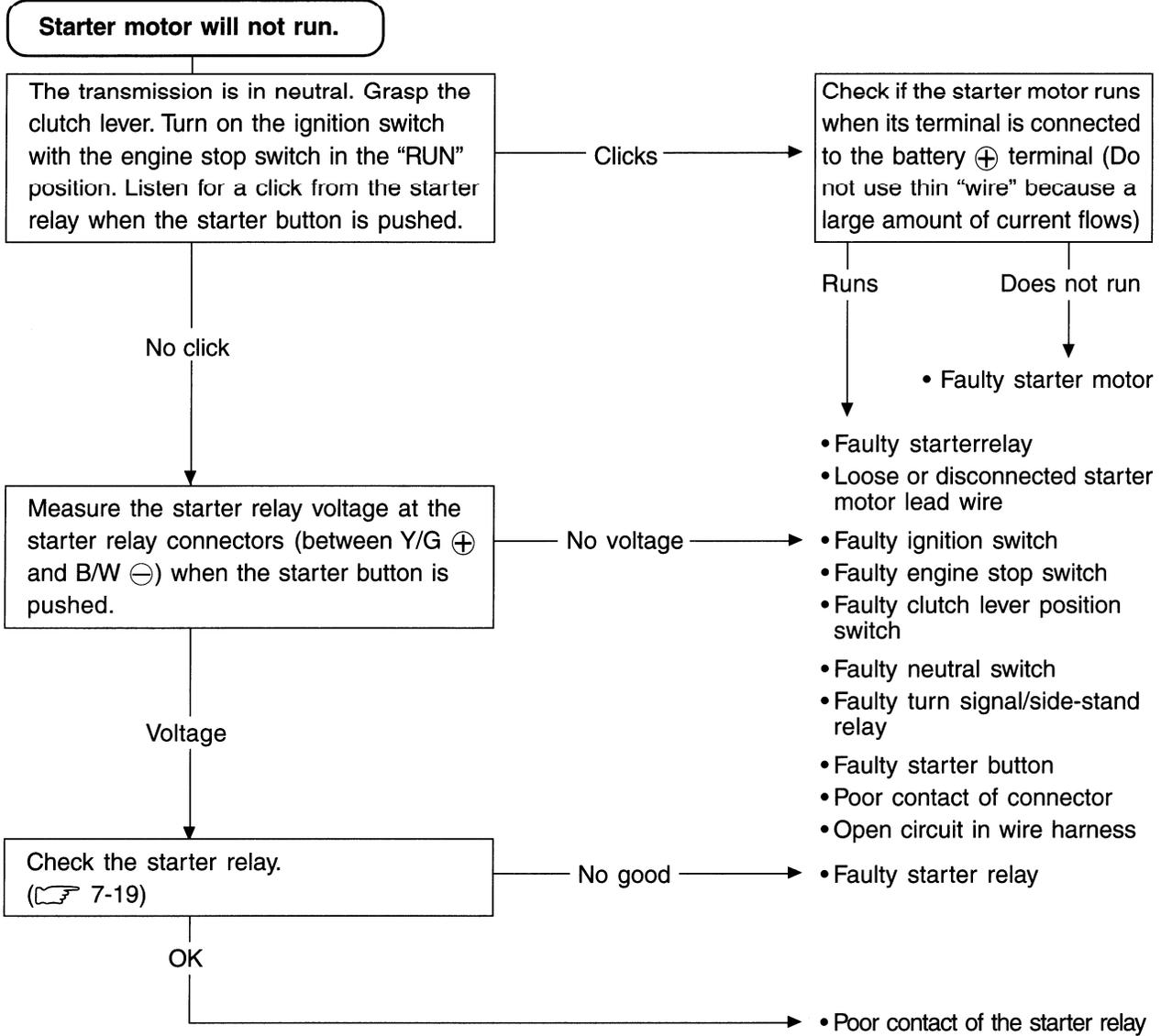


2. Side-stand: Up (ON)

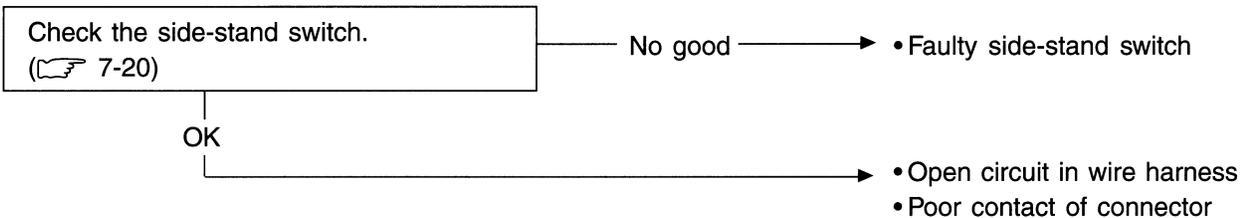
The current flow (B) switches "ON" the side-stand relay and the ignition coils send voltage to the spark plugs. The engine can be started in any gear.



TROUBLE SHOOTING



The starter motor runs when the transmission is in neutral, but does not run when the transmission is in any position other than neutral, with the side-stand up.

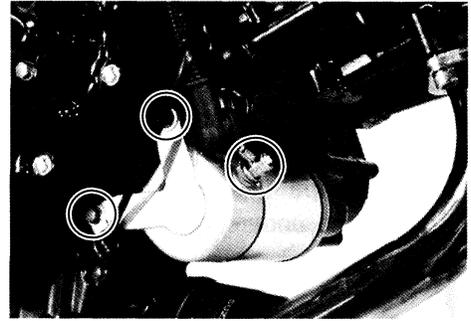


Others

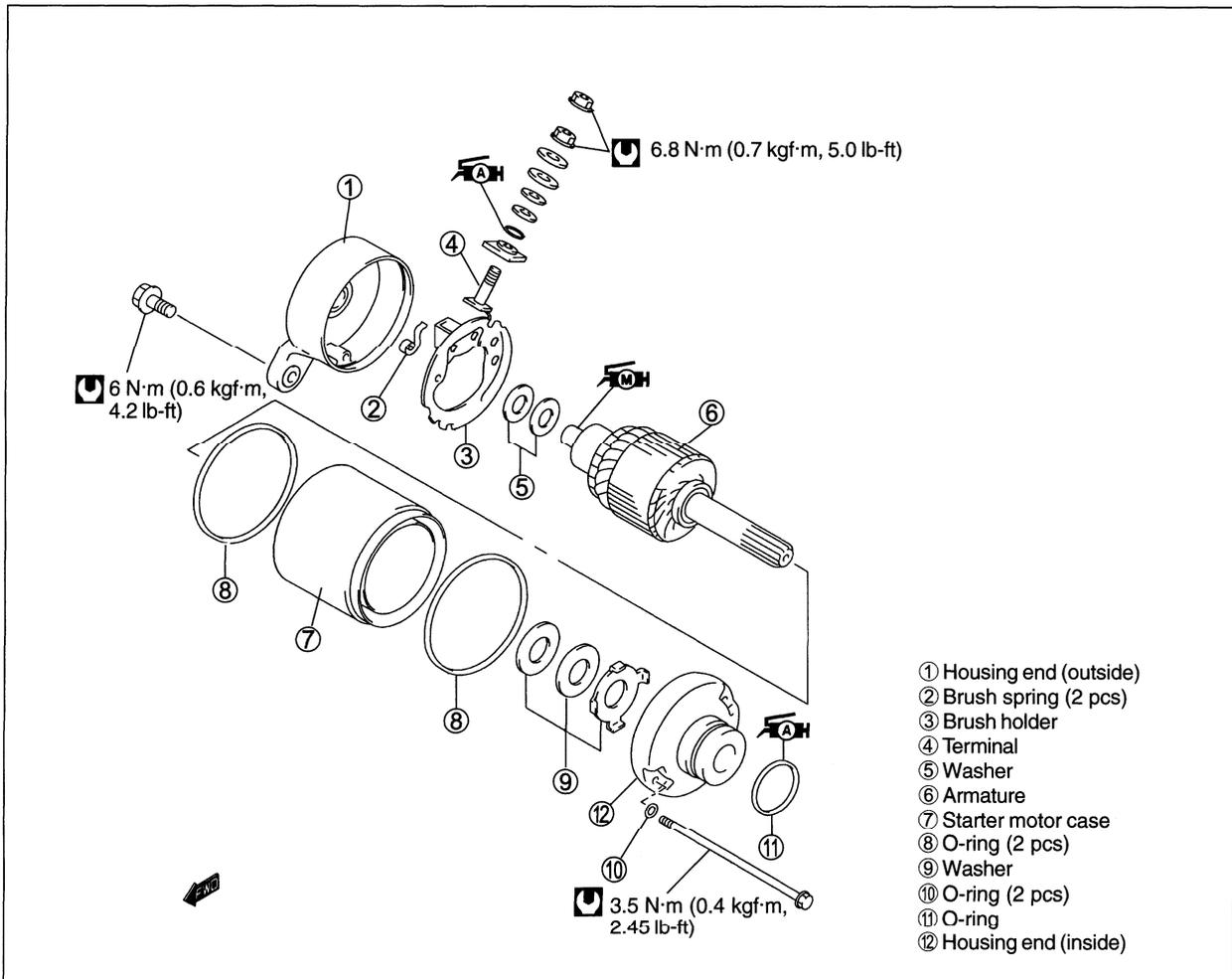
Engine does not turn though the starter motor runs.	• Faulty starter clutch
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STARTER MOTOR REMOVAL AND DISASSEMBLY

- Disconnect the starter motor lead wire and remove the starter motor by removing the mounting bolts.



- Disassemble the starter motor, as shown in the illustration

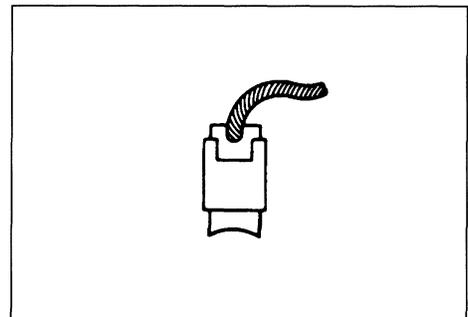


STARTER MOTOR INSPECTION

CARBON BRUSHES

Inspect the carbon brushes for abnormal wear, cracks or smoothness in the brush holder.

If either carbon brush is defective, replace the brush assembly.



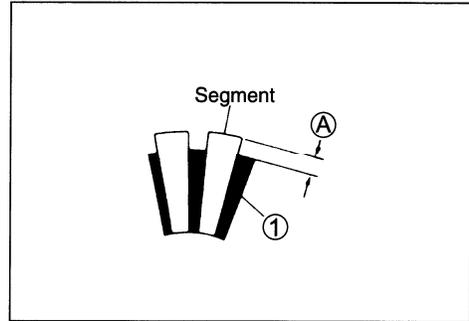
COMMUTATOR

Inspect the commutator for discoloration, abnormal wear or undercut (A).

If the commutator is abnormally worn, replace the armature.

If the commutator surface is discolored, polish it with #400 sandpaper and wipe it using a clean, dry cloth.

If there is no undercut, scrape out the insulator ① with a saw blade.

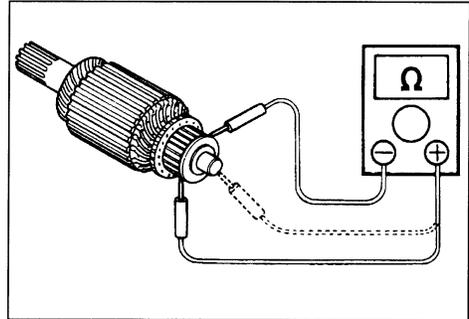


ARMATURE COIL INSPECTION

Measure for continuity between each segment.

Measure for continuity between each segment and the armature shaft.

If there is no continuity between the segments or there is continuity between the segments and shaft, replace the starter motor with a new one.



OIL SEAL INSPECTION

Check the seal lip for damage or leakage.

If any damage is found, replace the housing end (inside).



STARTER MOTOR REASSEMBLY

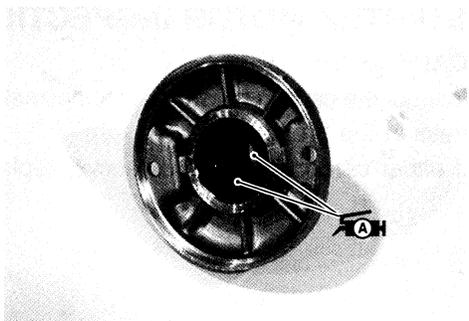
Reassemble the starter motor in the reverse order of disassembly. Pay attention to the following points:

▲ CAUTION

Replace the O-rings with new ones to prevent oil leakage and moisture.

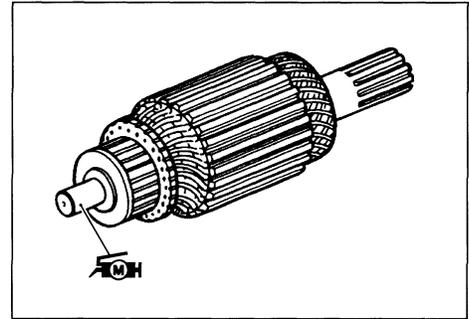
- Apply SUZUKI SUPER GREASE "A" to the lip of the oil seal.

 99000-25030: SUZUKI SUPER GREASE "A"

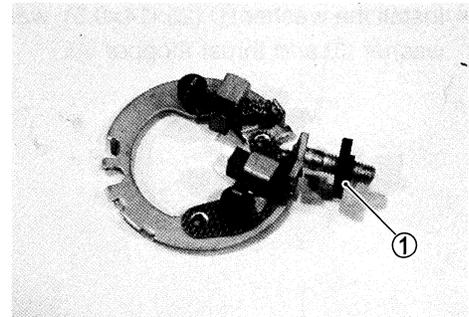


- Apply a small quantity of SUZUKI MOLY PASTE to the armature shaft.

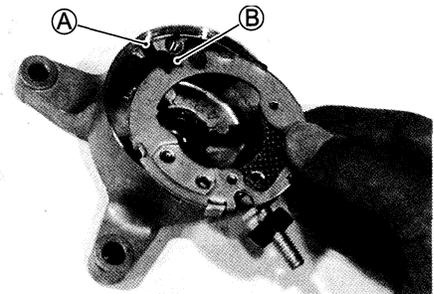
 99000-25140: SUZUKI MOLY PASTE



- Install the spacer ① to brush terminal.



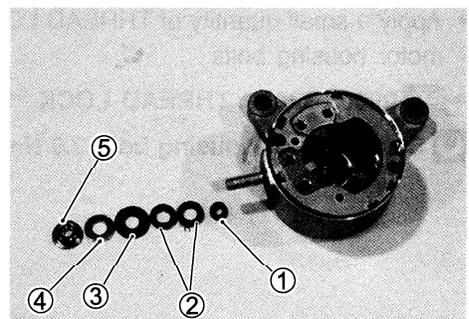
- When installing the brush holder on the near bracket, align the groove (A) of the rear bracket with the projection (B) of the brush holder.



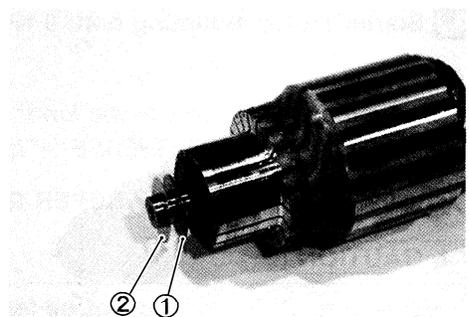
- Install the O-ring ①, washers ② (12×6.5×2) washer ③ (16×6.5×1), washer ④ (14×6.5×1) and nut ⑤.

▲ CAUTION

Replace the O-rings with new ones to prevent oil leakage and moisture.



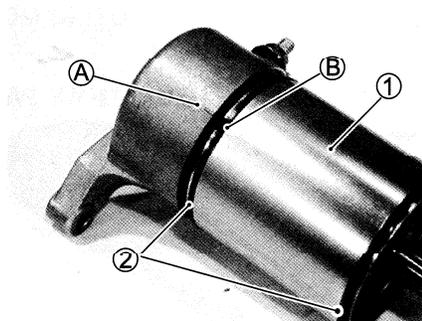
- Install the washer ①. (18×9×0.8), washer (18×9×0.2)



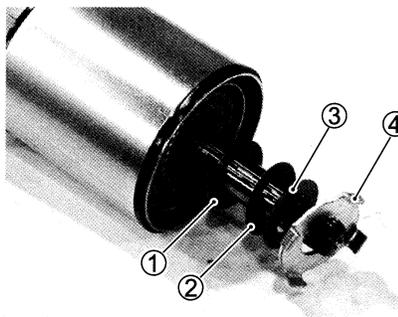
- Install the square ② to starter motor case ①.
- When install the rear bracket to starter motor, align the marks ① on the rear bracket with cut point ② at the starter motor case.

▲ CAUTION

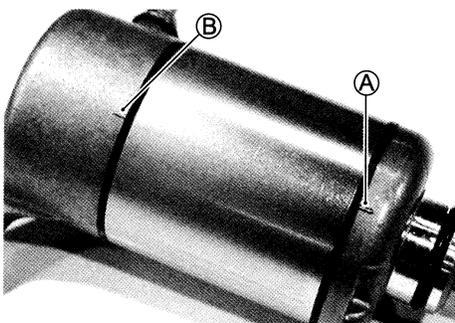
Replace the square rings with new ones to prevent oil leakage and moisture.



- Install the washer ① (25×14×0.5), washer ② (25×14×0.2), slip washer ③ and thrust stopper ④.



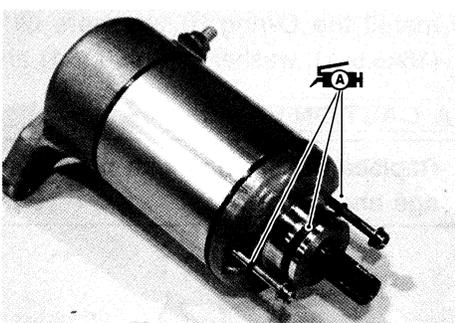
- Install the front bracket.
- Align the marks ① on the front bracket with much the marks ② on the rear bracket.



- Apply a small quantity of THREAD LOCK “1342” to the starter motor housing bolts.

 99000-32050: THREAD LOCK “1342”

 Starter motor housing bolt: 3.5 N·m (0.4 kgf·m 2.45 lb-ft)



- Install the starter motor with two bolts.

 Starter motor mounting bolt: 6 N·m (0.6 kgf·m 4.2 lb-ft)

NOTE:

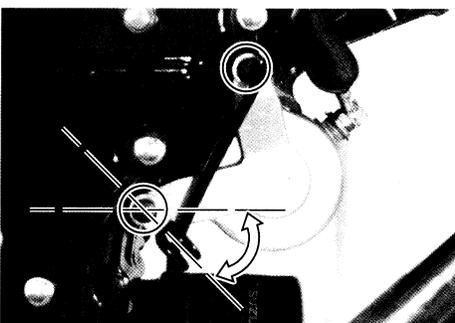
* Fit the ground lead wire to the lower bolt as shown.

* Apply SUZUKI SUPER GREASE “A” to the starter motor O-ring.

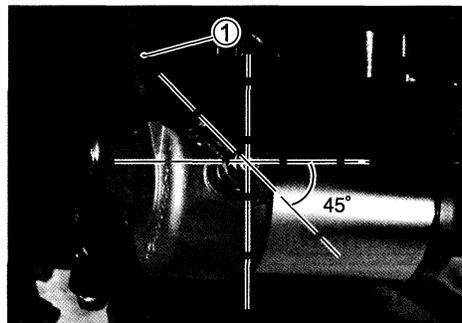
 99000-25030: SUZUKI SUPER GREASE “A”

▲ CAUTION

Use a new O-ring to prevent oil leakage.



- Connect the starter motor read wire as shown, and fit the cap ①.

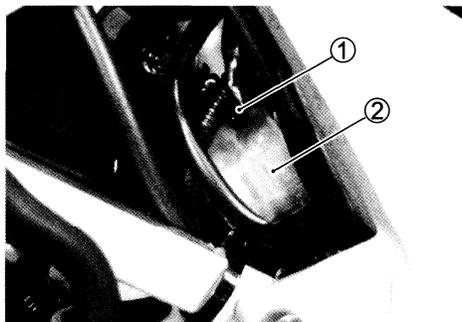


STARTER RELAY INSPECTION

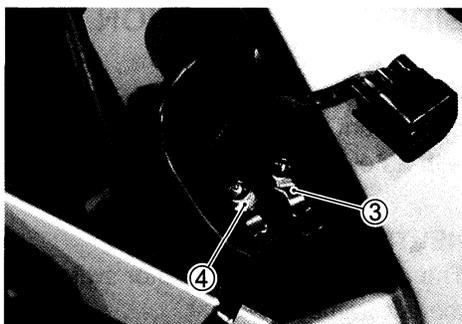
- Remove the frame covers (R), (L). (☞ 6-3)
- Remove the seat and electric parts holder.
- Disconnect the battery ⊖ lead wire.



- Disconnect the starter relay coupler ①.
- Remove the starter relay cover ②.



- Disconnect the starter motor lead wire ③ and battery lead wire ④ at the starter relay.
- Remove the starter relay.



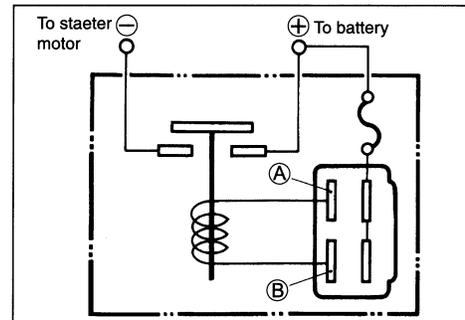
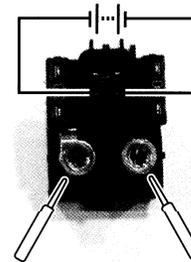
Apply 12 volts to terminals Ⓐ and Ⓑ and measure for continuity between the positive and negative terminals.
If the starter relay clicks and continuity is found, the relay is ok.

 09900-25008: Multi circuit tester set

 Tester knob indication: Continuity test (•••)

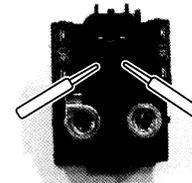
CAUTION

**Do not apply battery voltage to the starter relay for more than five seconds.
This may overheat and damage the relay coil.**



- Check the relay coil for resistance between terminal Ⓐ and terminal Ⓑ.

DATA Starter relay resistance
Specification: 3 – 6 Ω



SIDE-STAND/IGNITION INTERLOCK SYSTEM PART INSPECTION

If the interlock system does not operate properly, check each component. If any abnormality is found, replace the component with a new one.

NEUTRAL SWITCH

The neutral position indicator switch coupler is located inside of the left frame.

- Life and support the fuel tank with its prop stay. (👉 4-4)
- Disconnect the neutral position indicator switch coupler and measure the continuity between Blue and Ground with the transmission in neutral.



	Blue	Ground
ON (in neutral)	○ — ○	○ — ○
OFF (not in neutral)		

SIDE-STAND SWITCH

The side-stand switch coupler is located inside of the left fram.

- Lift and support the fuel tank with its prop stay. (☞ 4-4)
- Disconnect the side-stand switch lead wire coupler ① and measure the voltage between Green and Black/White lead wires.

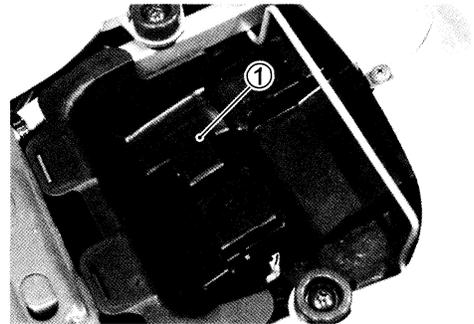
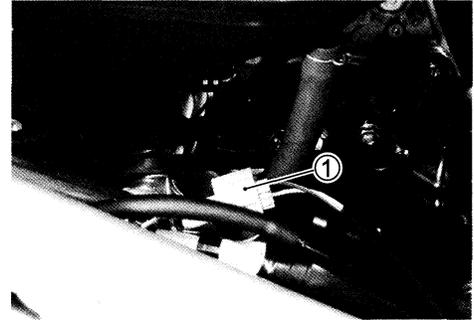
 **09900-25008:Multi circuit tester set**

 **Tester knob indication: Diode test (←→)**

	Green (⊕ Probe)	Black/White (⊖ Probe)
ON (UP-right position)	0.4 – 0.6 V	
OFF (Down position)	1.4 – 1.5 V	

NOTE:

If the tester read under 1.4V, replace the battery of multi circuit tester when do not connecting the tester probes.



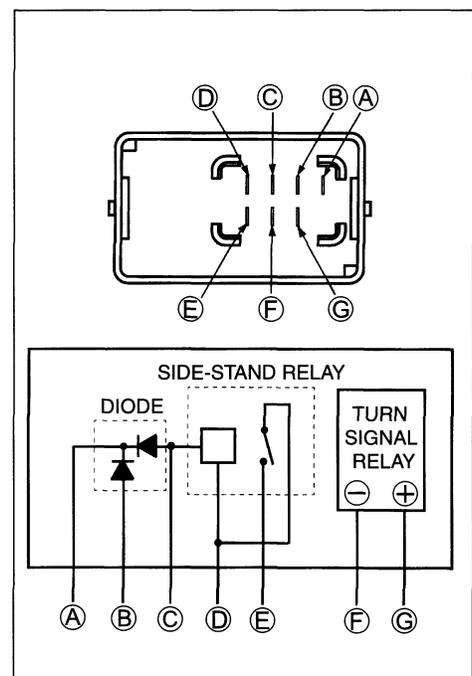
TURN SIGNAL/SIDE-STAND RELAY

The turn signal relay is incorporated with the side-stand relay and diode to form the one component part which is called the turn signal/side-stand relay. It is located under the seat.

- Remove the frame covers (R), (L), and seat.
- Remove the turn signal relay ①.

SIDE-STAND RELAY INSPECTION

First, check the insulation between ④ and ⑤ terminals with tester. Then apply 12 volts to ④ and ③ terminals, ⊕ to ④ and ⊖ to ③, and check the continuity between ④ and ⑤. If there is no continuity, replace turn signal/side-stand relay with a new one.



DIODE INSPECTION

Using multi circuit tester, measure the voltage between the terminals in the following table.

Unit: V

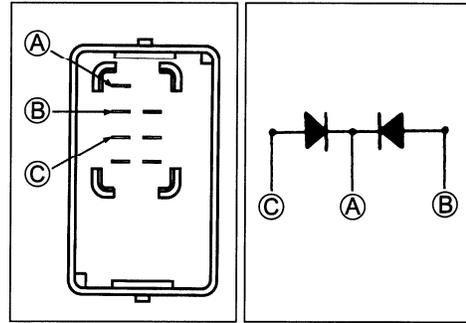
⊖ Probe of tester to:	⊕ Probe of tester to:	
	C, B	A
C, B	0.4 - 0.6	1.4 - 1.5
A	1.4 - 1.5	0.4 - 0.6

 **09900-25008: Multi circuit tester set**

 **Tester knob indication: Diode test (→←)**

NOTE:

If the tester read under 1.4V, replace the battery of multi circuit tester when do not connecting the tester probes.



IGNITION SYSTEM (DIGITAL IGNITOR)

DESCRIPTION

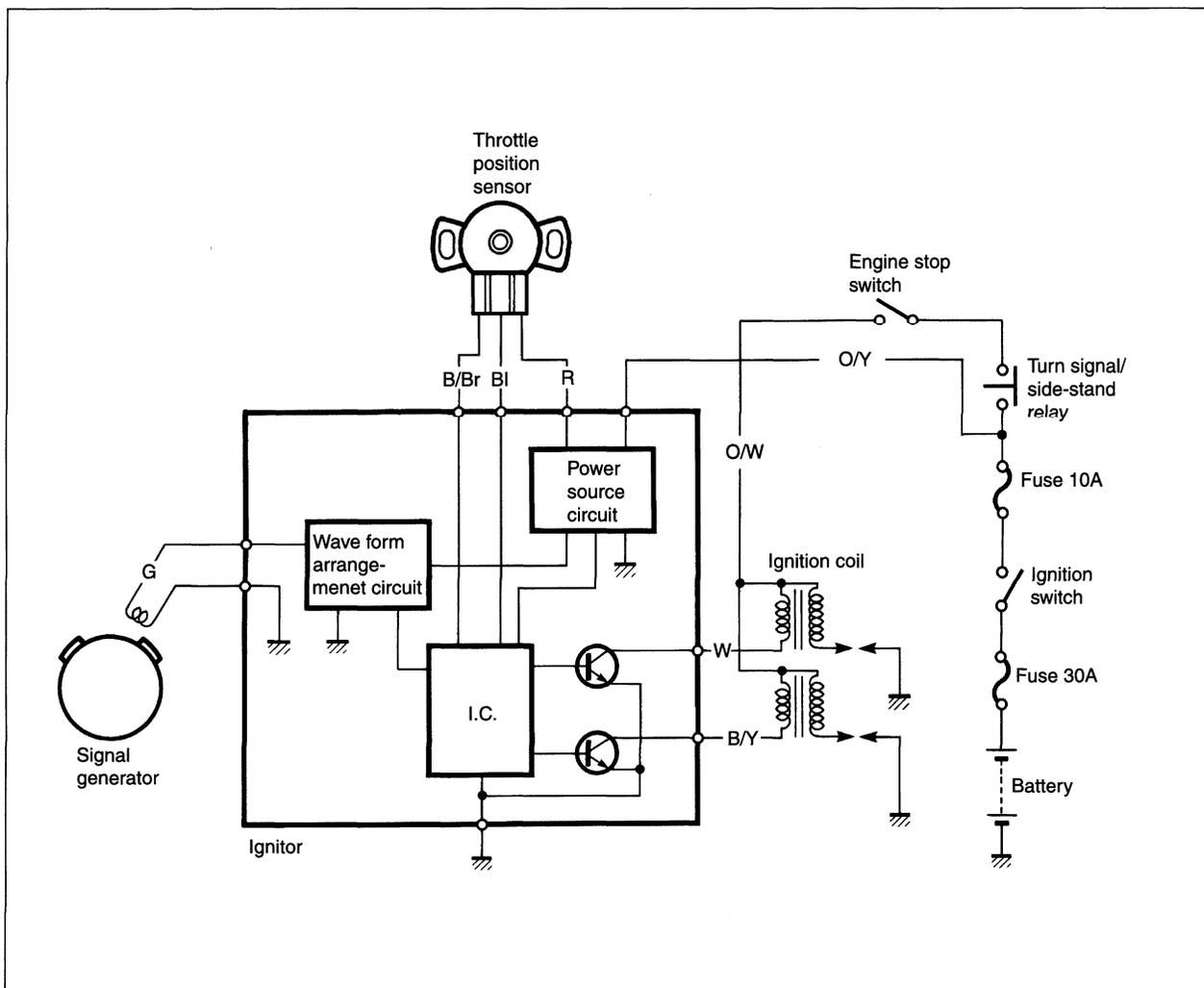
The fully transistorized ignition system consists of the following components: a signal generator (which is made up of the generator rotor and pickup coil), ignitor (including a 8-bit microcomputer), throttle position sensor, two ignition coils and two spark plugs.

The induced signal in the signal generator is sent to the wave-form arrangement circuit and the I.C. receives this signal and calculates the ignition timing. And also the signals of the throttle position sensor revise ignition timing properly. The I.C. outputs the signal to the transistor of the ignition coil output circuit which is connected to the primary windings of the ignition coils which is turned "off" and "on" accordingly. Thus, it induces the secondary current in the ignition coil's secondary windings and produces the spark between the spark plug gaps.

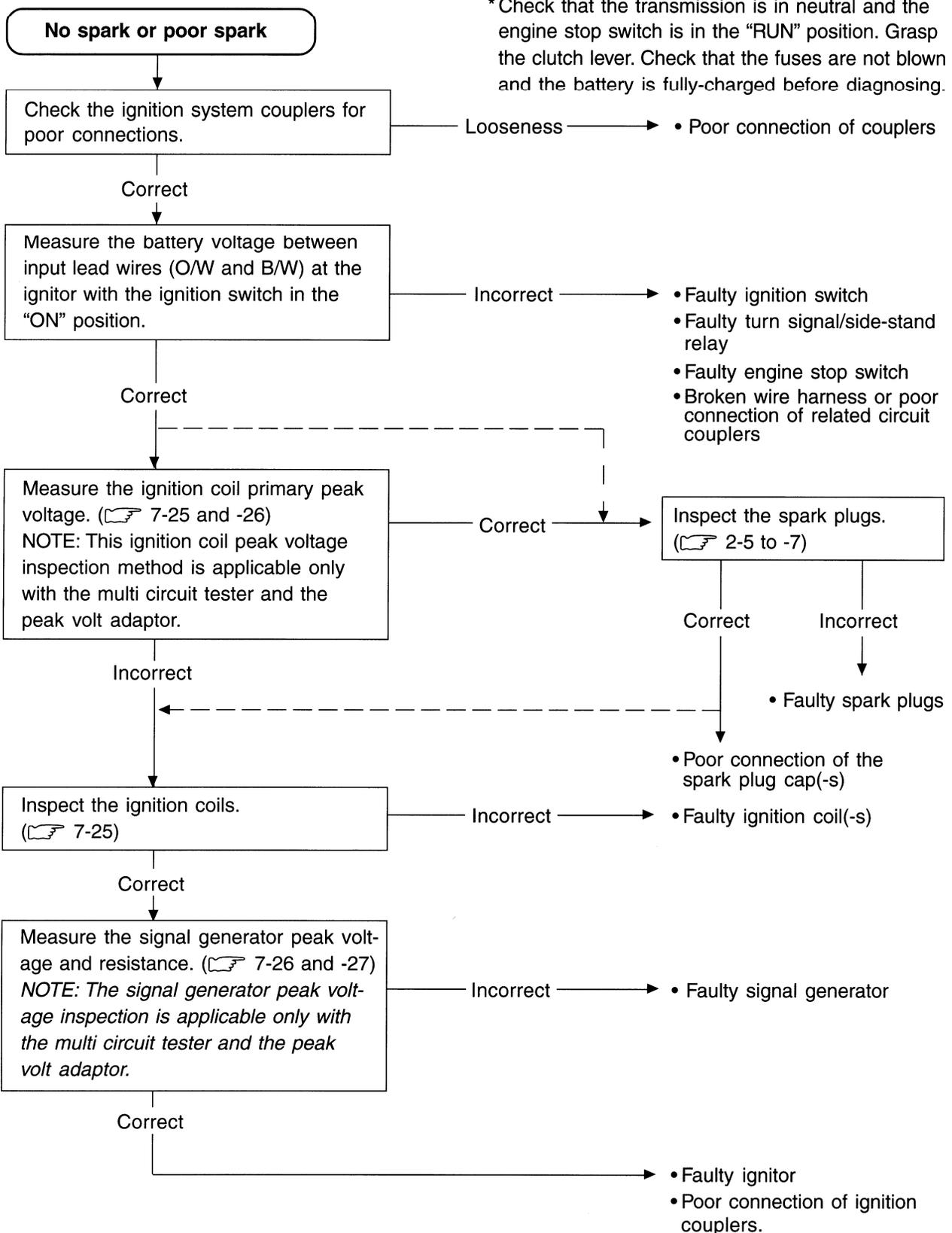
The ignition cutoff circuit is incorporated in the ignitor to prevent the engine from overrevving. If the engine speed reaches 10 500 r/min, this circuit will cutoff the ignition primary current for one of the spark plugs.

▲ CAUTION

The engine is capable of running at over 10 500 r/min without a load, even if the ignition cutoff circuit is in effect; however, this may cause engine damage. Therefore, never run the engine over 10 500 r/min without a load.



TROUBLESHOOTING



INSPECTION

IGNITION COIL PRIMARY PEAK VOLTAGE

- Lift and support the fuel tank with its prop stay. (☞ 4-4)
- Remove all of the spark plug caps. (☞ 2-5)
- Connect two new spark plugs to each spark plug cap and ground them to the cylinder head.

NOTE:

Make sure that all of the spark plug caps and spark plugs are connected properly and the battery is fully-charged.

Measure ignition coil (for #1 cylinder) primary peak voltage in the following procedure.

- Connect the multi circuit tester with the peak voltage adaptor as follows.

Ignition coil (For #1 cylinder): B/Y terminal – Ground
(⊕ Probe) (⊖ Probe)

B/Y: Black with Yellow tracer

NOTE:

Do not disconnect the ignition coil primary wire.

 **09900-25008: Multi circuit tester set**

▲ CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.

- Shift the transmission into neutral, turn the ignition switch to the "ON" position and grasp the clutch lever.
- Press the starter button and allow the engine to crank for a few seconds, and then measure the ignition coil primary peak voltage.
- Repeat the above procedure a few times and measure the highest ignition coil primary peak voltage.

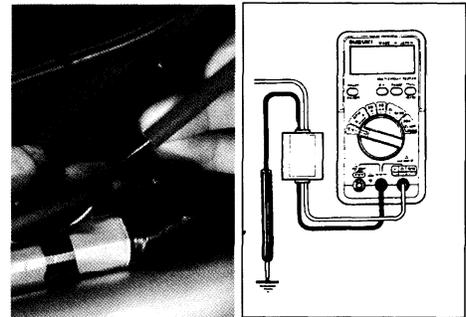
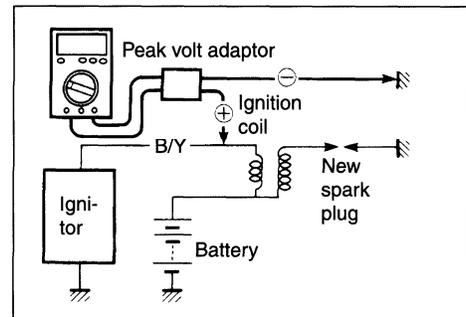
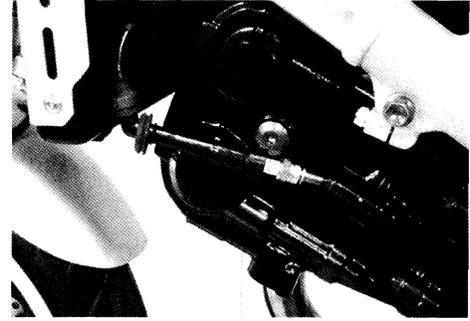
 **Tester knob indication: Voltage (---)**

 **Ignition coil primary peak voltage (# 1)**

Specification: More than 150 V

▲ WARNING

While testing, do not touch the tester probes and spark plugs to prevent receiving an electric shock.



Measure ignition coil (For #2 cylinder) primary peak voltage in the same manner as cylinder ignition coil (For #1 cylinder) measuring procedure.

Ignition coil (For #2 cylinder): White terminal – Ground
 (⊕ Probe) (⊖ Probe)

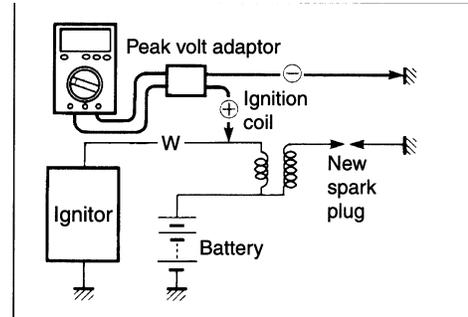
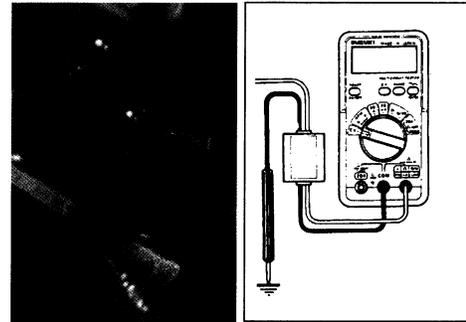
NOTE:

Do not disconnect the ignition coil primary wire.

 **Tester knob indication: Voltage (---)**

DATA Ignition coil primary peak voltage (# 2)
Specification: More than 150 V

If the voltages are lower than the standard values, inspect the ignition coil and the signal generator. (📄 7-26 to -27)



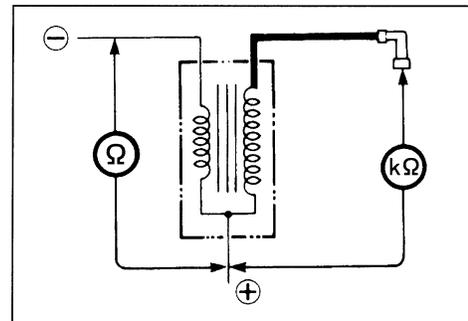
IGNITION COIL RESISTANCE

- Measure the ignition coil resistance in both the primary and secondary windings. If the windings are in sound condition, their resistance should be close to the specified values.

DATA Ignition coil resistance

Primary: 3.5 – 5.5 Ω (⊕ tap – ⊖ tap)

Secondary: 20 – 31 kΩ (Spark plug cap – ⊕ tap)



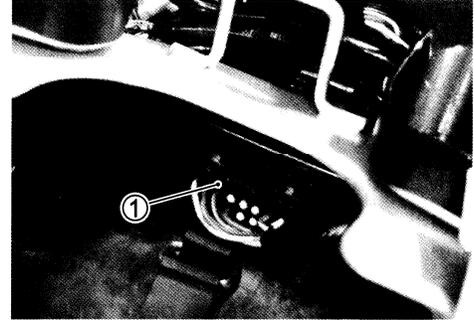
SIGNAL GENERATOR PEAK VOLTAGE

- Remove the rear seat. (☞ 4-4)

NOTE:

Be sure that all of the couplers are connected properly and the battery is fully-charged.

- Disconnect the ignitor coupler ① at the ignitor.



- Measure the signal generator peak voltage between the Green and Brown lead wires on the ignitor coupler.
- Connect the multi circuit tester with the peak voltage adaptor as follows.

Green (+) Probe – White/Blue (–) Probe

TOOL 09900-25008: Multi circuit tester set

NOTE:

* When connecting the multi circuit tester, install a sting (O.D. is below 0.5 mm) to the back side of the ignitor coupler and connect the probes of tester to them.

* Use a sting, its outer diameter is below 0.5 mm, to prevent damaging the rubber of the water proof coupler.

**▲ CAUTION**

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.

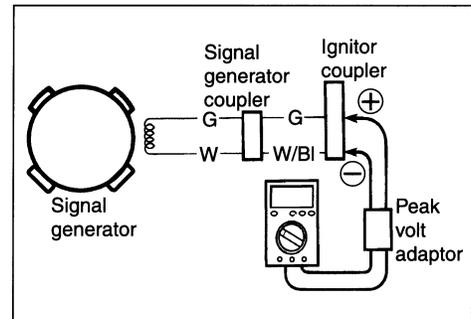
- Shift the transmission into neutral, turn the ignition switch to the "ON" position and grasp the clutch lever.
- Press the starter button and allow the engine to crank for a few seconds, and then measure the signal generator peak voltage.
- Repeat the above procedure a few times and measure the highest signal generator peak voltage.

TESTER Tester knob indication: Voltage (---)

DATA Signal generator peak voltage

Specification: More than 3.0 V (Green – White/Blue)

If the peak voltage measured on the ignitor coupler is lower than the standard value, measure the peak voltage on the signal generator coupler as follows.



- Remove the seat tail cover. (➔ 6-4)
- Disconnect the signal generator coupler and connect the multi circuit tester with the peak volt adaptor.

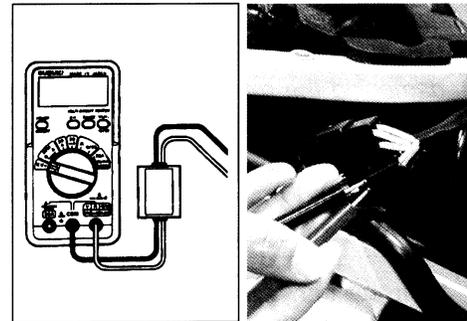
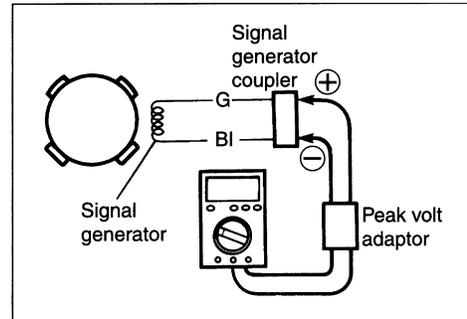
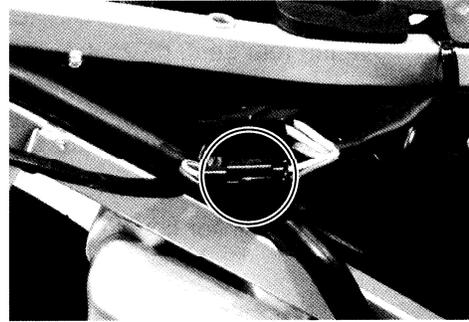
Green (+ Probe) – White (– Probe)

- Measure the signal generator peak voltage in the same manner as on the ignitor coupler.

 **Tester knob indication: Voltage (---)**

DATA Signal generator peak voltage
Specification: More than 3.0 V (Green – White)

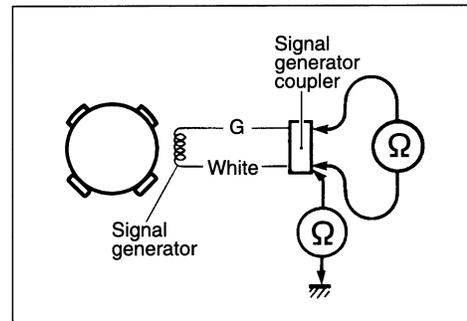
If the peak voltage on the signal generator lead wire couplers is ok but on the ignitor coupler is out of specification, the wire harness must be replaced. If both peak voltages are out of specification, the signal generator must be replaced and re-checked.



SIGNAL GENERATOR

- Remove the secondary gear case cover and disconnect the signal generator couplers.
- Measure the resistance between the lead wires and ground. If the resistance is not within the specified value, the signal generator stator must be replaced.

DATA Signal coil resistance
Specification: 140 – 230 Ω (Green – White)
 $\infty\Omega$ (White – Ground)

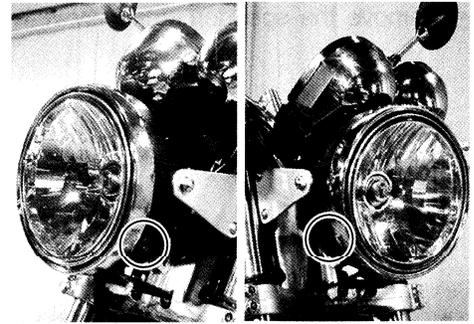


NOTE:
 Refer to the section 3 for signal generator replacement.

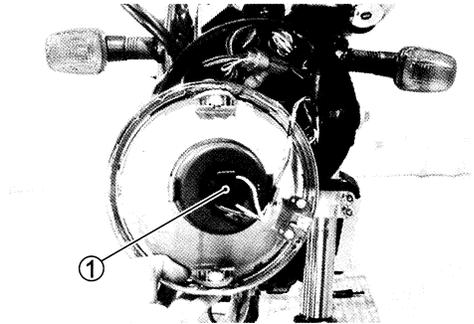
SPEEDOMETER

REMOVAL

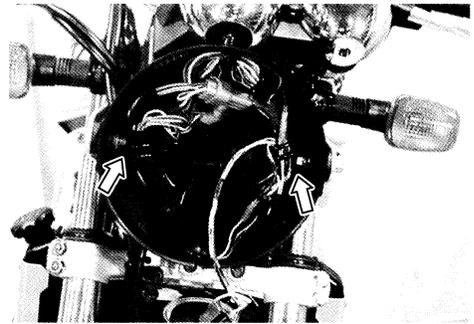
- Remove the headlight with two screws.



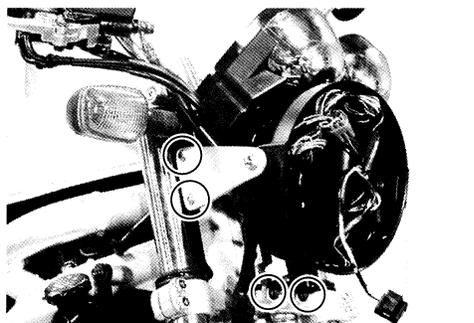
- Disconnect the socket ①.



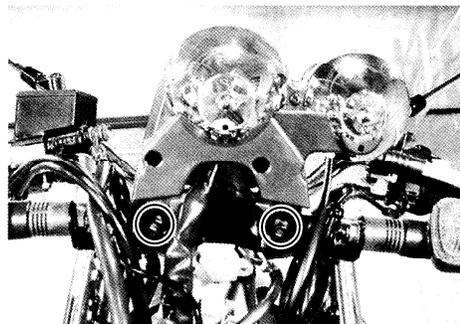
- Disconnect all the lead wire couplers and remove the lead wires from clamp.



- Remove the headlight housing by removing the headlight housing bolts.

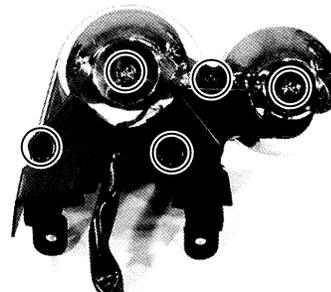


- Remove the speedometer assy with speedometer bolts.

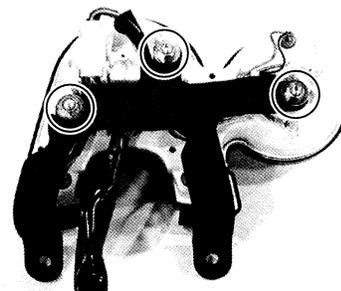


BULB REPLACEMENT

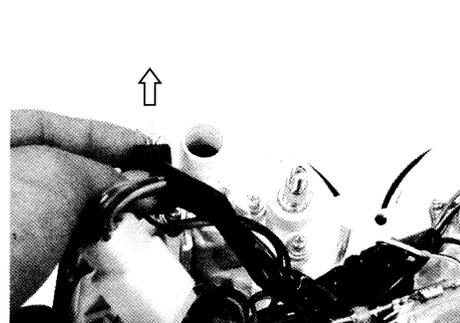
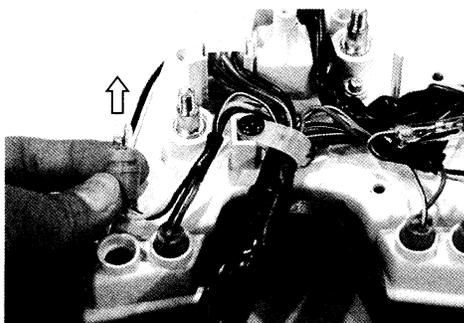
- Remove all the screws.
- Remove the speedometer housing.

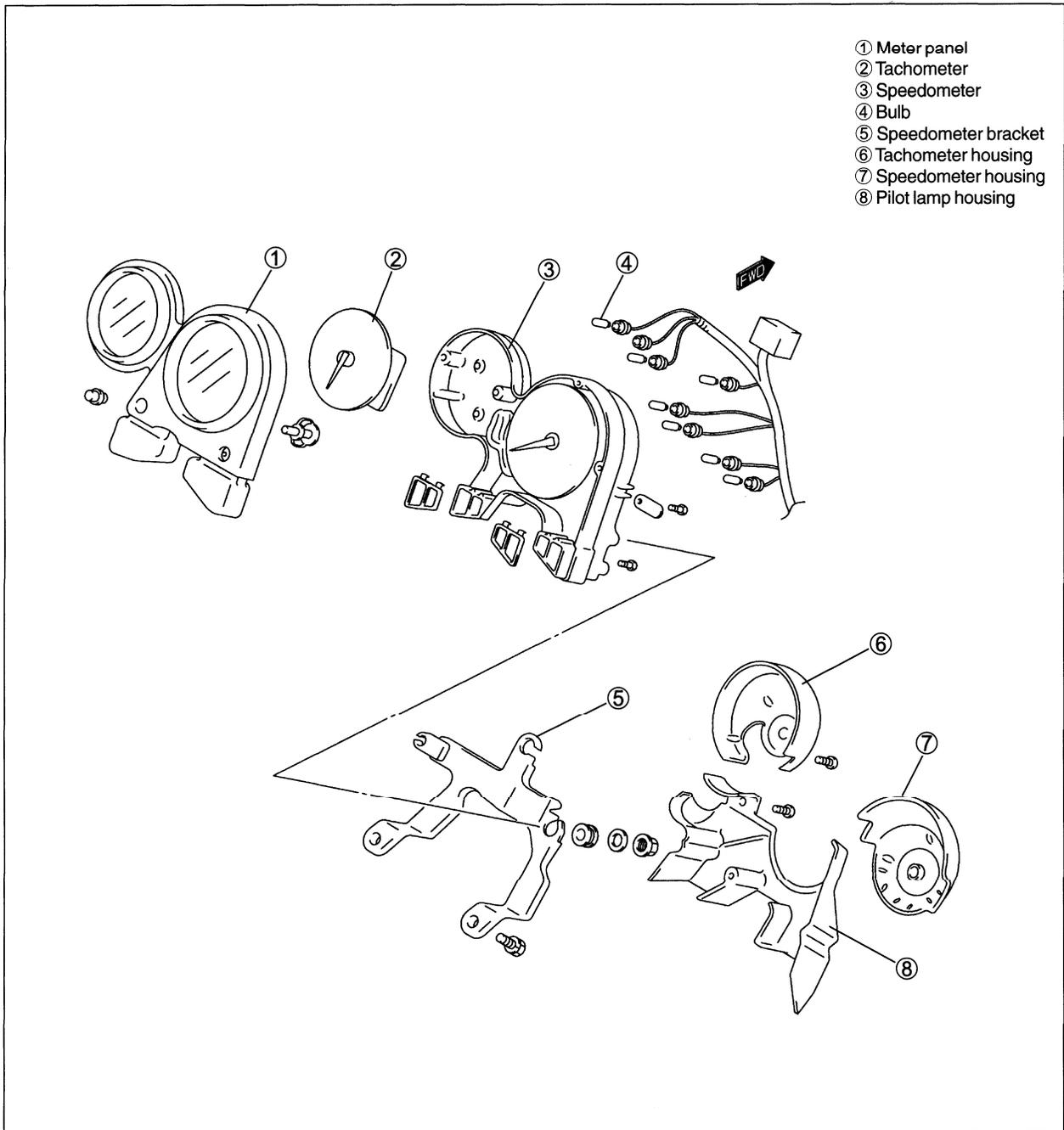


- Remove the meter bracket by removing the nuts.



- Remove the sockets and replace the bulbs.
- Reassemble and remount the speedometer assy in the reverse order of removal and disassembly.



Construction

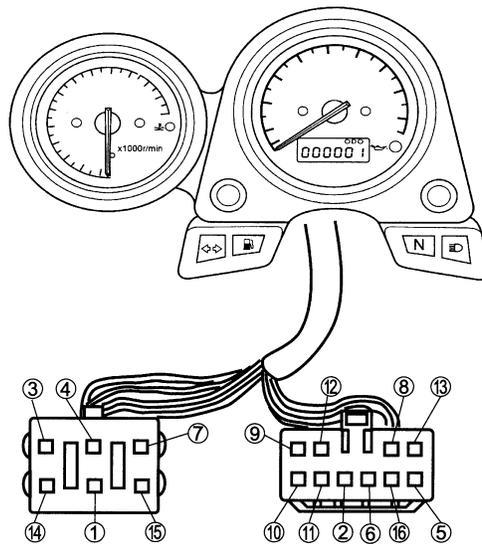
INSPECTION

Using the tester, check the continuity between terminals in the following diagram. If the continuity measured is incorrect, remove and check the bulb.

If the bulb is failure, install the new bulb and check the continuity again. If the bulb is correct, replace the unit with a new one.

ITEM	⊕ Probe of tester to:	⊖ Probe of tester to:
TURN SIGNAL	⑪, ⑫	⑧
FUEL	②	⑤/⑥
NEUTRAL	②	⑬
HI BEAM	⑩	⑧
OIL	②	⑦
OIL (LED)	②	⑦
WATER TEMPERATURE (LED)	②	⑮
METER ILLUMINATION	⑨	⑧

①	BATTERY ⊕
②	IGNITION ⊕
③	SPEED SENSOR ⊕
④	IGNITION COIL (SIGNAL)
⑤	FUEL LEVEL GAUGE B
⑥	FUEL LEVEL GAUGE A
⑦	OIL PRESSURE GAUGE
⑧	GROUND (POWER)
⑨	ILLUMINATION ⊕
⑩	HIGH BEAM ⊕
⑪	TURN (L) ⊕
⑫	TURN (R) ⊕
⑬	NEUTRAL SWITCH
⑭	SPEED SENSOR (SIGNAL)
⑮	WATER TEMPERATURE SWITCH
⑯	GROUND (SIGNAL)



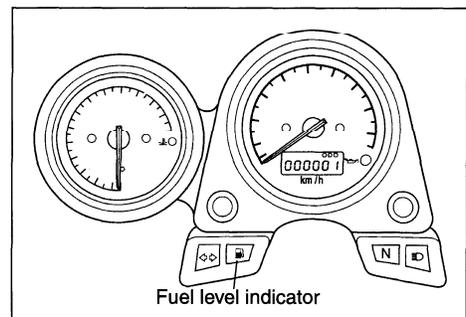
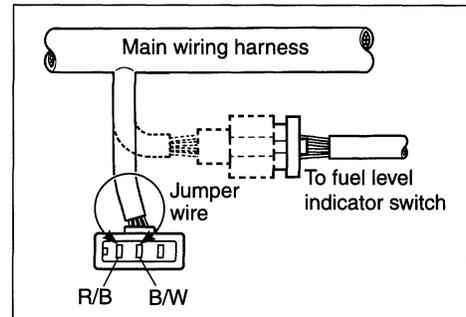
 Tester knob indication: Diode test (→←)

FUEL LEVEL INDICATOR LIGHT INSPECTION

- Lift the fuel tank and support it by prop. (☞ 4-4)
- Disconnect the oil pressure switch lead wire coupler.
- The fuel indicator light lights up for approx. 3 seconds after the ignition switch is turned on then the indicator light should go out.
- Disconnect the fuel level indicator switch lead wire coupler ①.
- Connect a jumper wire between B/W lead and R/B lead coming from the main wiring harness and check whether fuel indicator light is flickering.
- Check if the fuel indicator light will go out within approx. 30 seconds, when disconnecting a jumper wire.

B/W: Black with White tracer

R/B: Red with Black tracer



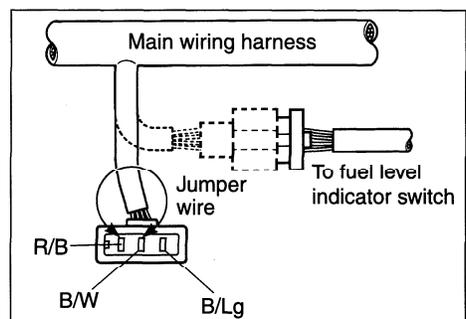
- Connect jumper wires between B/W lead and R/B lead and B/W lead and B/Lg lead coming from the main wiring harness and check whether the fuel indicator light comes on.
- Check if the fuel indicator light will go out within approx. 30 seconds, when disconnecting jumper wires.

R/B: Red with Black tracer

B/W: Black with White tracer

B/Lg: Black with Light green tracer

If the fuel indicator light does not function properly, check the bulb. If the bulb is in good condition, replace the meter with a new one.

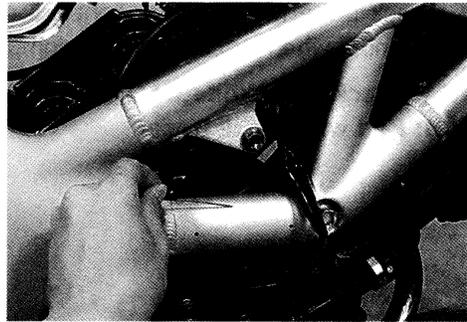


OIL PRESSURE INDICATOR LIGHT INSPECTION

- Disconnect the oil pressure indicator switch lead wire coupler.

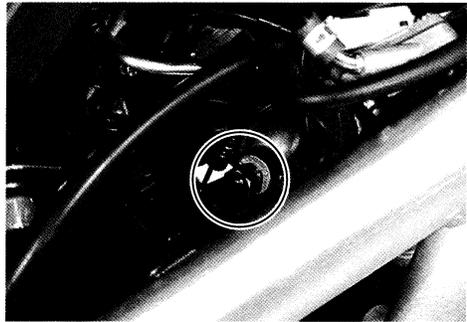


- Ignition switch turns "ON".
- Check if the oil pressure indicator lights up when grounding the lead wire coming from the main wiring harness with a jumper wire.



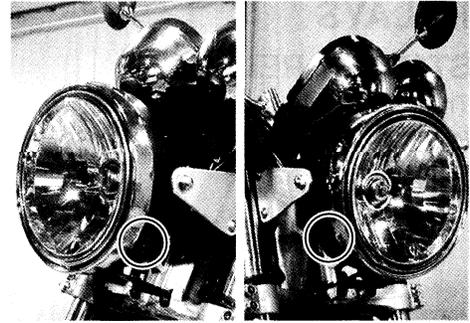
WATER TEMPERATURE INDICATOR LIGHT INSPECTION

- Lift the fuel tank and support it by prop. (☞ 4-4)
- Ignition switch turns "ON".
- Disconnect the water temperature switch lead wire coupler.
- Check if the water temperature indicator lights up when grounding the lead wire coming from the main wiring harness with a jump wire.

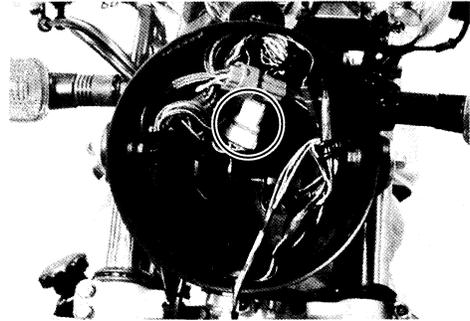


SPEED SENSOR INSPECTION

- Remove the headlight with two screws.



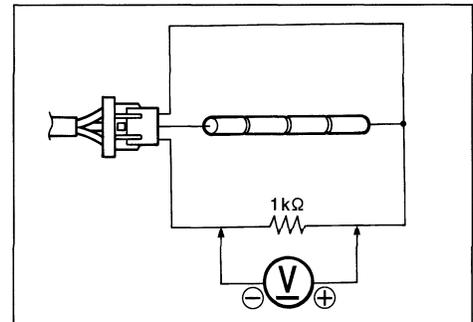
- Disconnect the speed sensor coupler.



- Connect four 1.5V dry cells, 1k Ω resistance and the tester to the speed sensor lead coupler as shown.

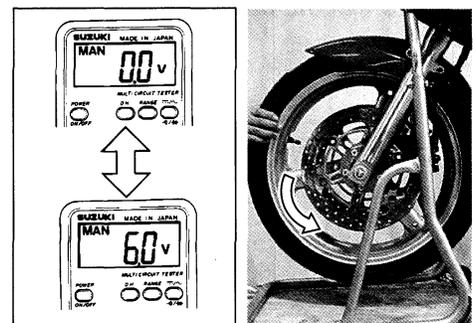
 **09900-25008: Multi-circuit tester**

 **Tester knob indication: Voltage (---)**



Lift and turn the front wheel and check that voltage varies between 0 – 6 V.

If any abnormal condition is noted, replace the sensor.



RELAYS

STARTER RELAY

The starter relay is located behind the left side upper cover.

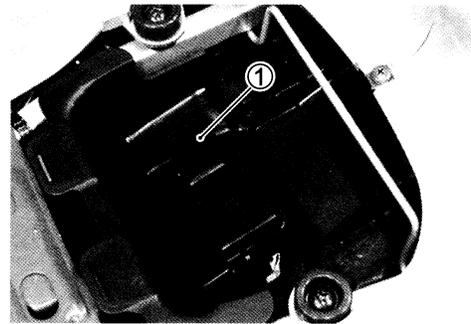
(☞ 7-19 and -20)

TURN SIGNAL SIDE-STAND RELAY

The turn signal relay is incorporated with the side-stand relay and diode to form the one component part which is called the turn signal/side-stand relay.

It is located under the seat.

- Remove the frame covers (R), (L) and seat.
- Remove the turn signal relay ①.



INSPECTION

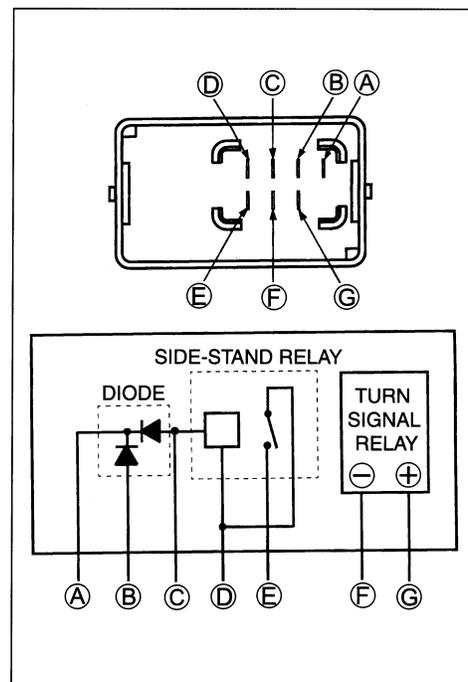
Before removing the turn signal/side-stand relay, check the operation of the turn signal light.

If the turn signal light does not light, inspect the bulb, turn signal switch and circuit connection.

If the bulb, turn signal switch and circuit connection checked are all right, the turn signal relay may be faulty, replace turn signal/side-stand relay with a new one.

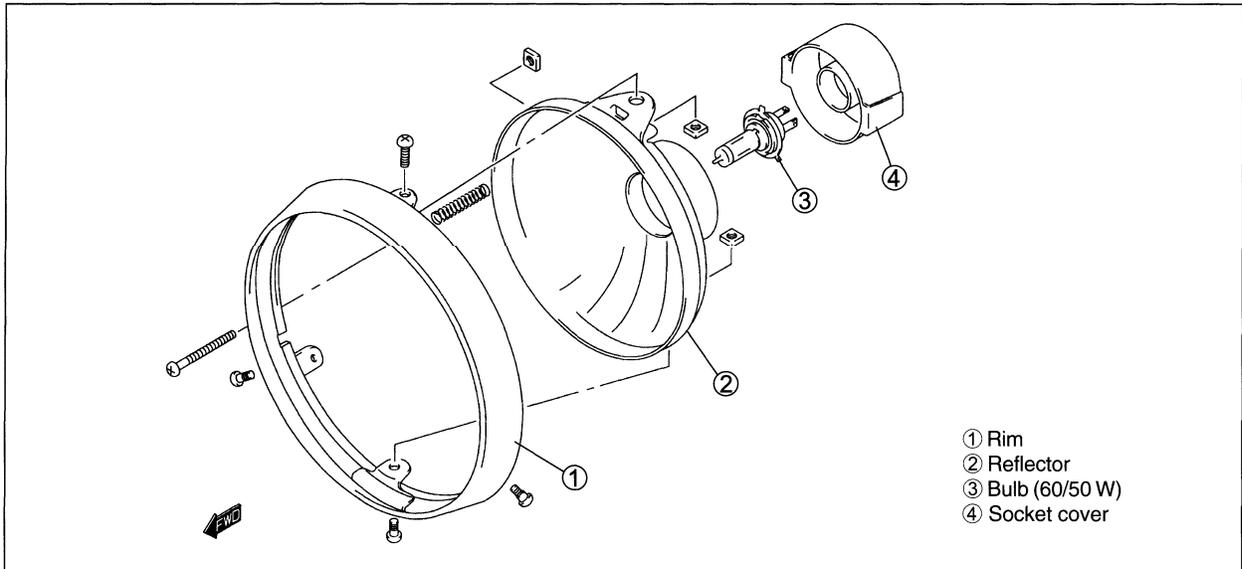
NOTE:

Be sure that the battery used is in fully-charged condition.



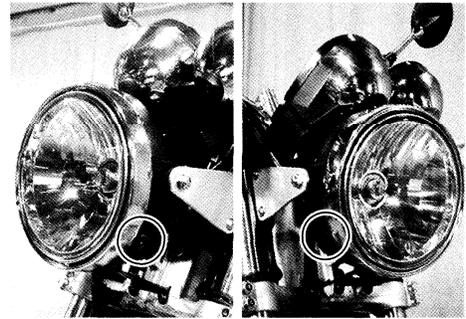
LAMPS

HEADLIGHT

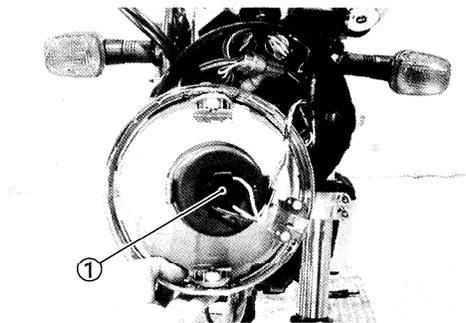


BULB REPLACEMENT

- Remove the headlight with two screws.



- Disconnect the socket ①.



- Remove the socket cover.

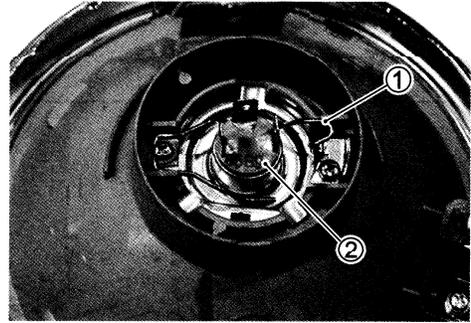


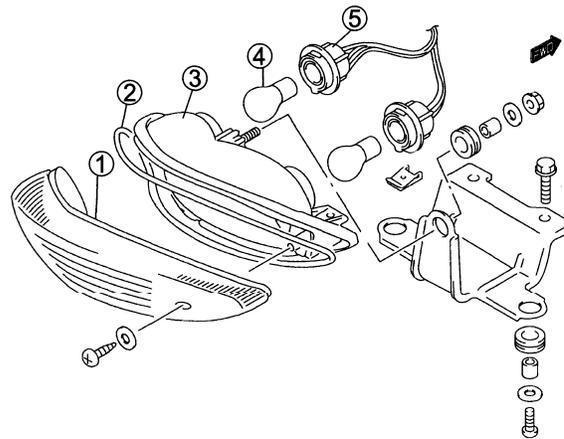
- Unhook the bulb holder spring ①, and pull out the bulb ②.

▲ CAUTION

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

- Reassemble the bulb in the reverse order of removal.



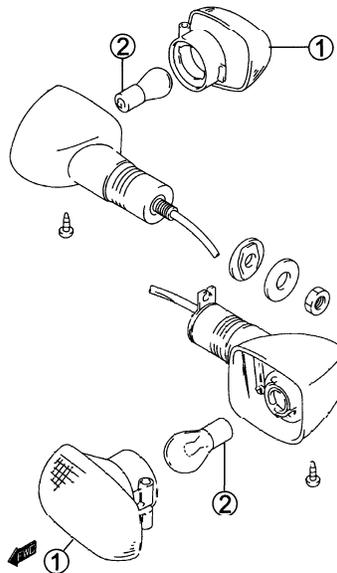
BRAKE LIGHT/TAILLIGHT

- ① Lens
- ② O-ring
- ③ Taillight housing
- ④ Bulb
- ⑤ Socket

Brake light/Taillight bulb ④: 12V 21/5 W

▲ CAUTION

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

TURN SIGNAL LIGHTS

- ① Lens
- ② Bulb

Front turn signal light bulb ②: 12 V 21 W

Rear turn signal light bulb ③: 12 V 21 W

▲ CAUTION

Do not overtighten the lens fitting screws.

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

SWITCHES

Inspect each switch for continuity with a tester. If any abnormality is found, replace the respective switch assemblies with new ones.

IGNITION SWITCH (For Australia)

Color Position	R	O	O/R	B/W
OFF				
ON				

(For Others)

Color Position	R	O	O/R	B/W	Gr	Br
OFF						
ON						
P						

LIGHTING SWITCH (Except for Australia, Canada and U.S.A.)

Color Position	O/Bl	Gr	O/R	Y/W
OFF				
•				
ON				

DIMMER SWITCH

Color Position	Y/W	W	Y
HI			
LO			

TURN SIGNAL SWITCH

Color Position	Lg	Lbl	B
L			
PUSH			
R			

PASSING LIGHT SWITCH (Except for Canada and U.S.A.)

Color Position	O/R	Y
•		
PUSH		

ENGINE STOP SWITCH

Color Position	O/B	O/W
OFF		
RUN		

STARTER BUTTON

Color Position	O/W	Y/G
•		
PUSH		

HORN BUTTON

Color Position	B/Bl	B/W
•		
PUSH		

FRONT BRAKE SWITCH

Color Position	B	B/R
OFF		
ON		

REAR BRAKE LIGHT SWITCH

Color Position	O	W/B
OFF		
ON		

CLUTCH LEVER POSITION SWITCH

Color Position	B/Y	B/Y
OFF		
ON		

OIL PRESSURE SWITCH

Color Position	B	Ground
ON (engine is stopped)		
OFF (engine is running)		

NOTE:

Before inspecting the oil pressure switch, check if the engine oil level is enough. (↗ 2-6)

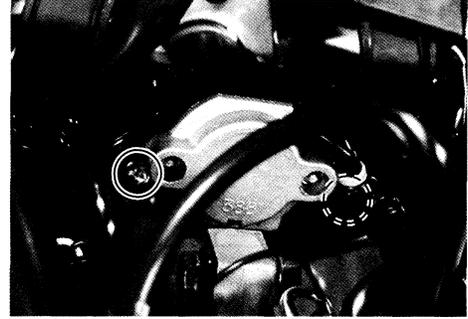
WIRE COLOR

B : Black Lbl : Light blue R : Red
 Br : Brown Lg : Light green Y : Yellow
 Gr : Gray O : Orange W : White

B/Bl : Black with Blue tracer
 B/W : Black with White tracer
 B/Y : Black with Yellow tracer
 B/R : Black with Red tracer
 G/Y : Green with Yellow tracer
 O/B : Orange with Black tracer
 O/Bl : Orange with Blue tracer
 O/R : Orange with Red tracer
 O/W : Orange with White tracer
 O/Y : Orange with Yellow tracer
 W/B : White with Black tracer
 Y/G : Yellow with Green tracer
 Y/W : Yellow with White tracer

IGNITION SWITCH REMOVAL

- Remove the headlight. (👉 6-23)



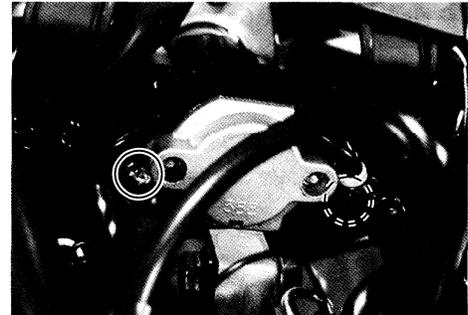
- Remove the ignition coil by using special tool.

TOOL 09930-11920: Torx bit
09930-11940: Bit holder

- Reinstall the ignition switch in the reverse order of removal.

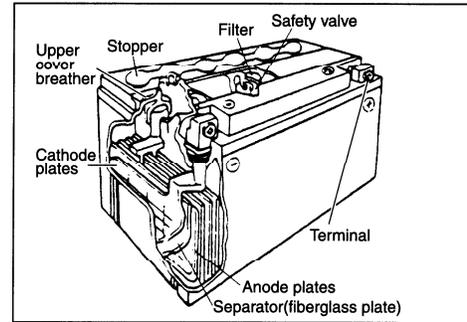


- The torx bolts are precoat bolts therefore when installing the used bolts, apply a small quantity of THREAD LOCK "1342" to their threads.



BATTERY SPECIFICATIONS

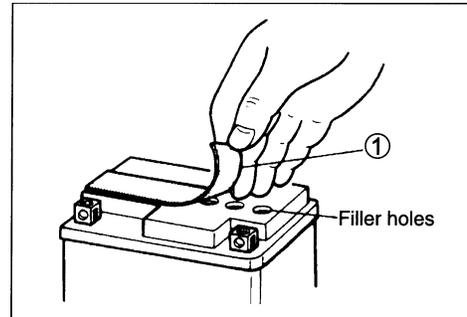
Type designation	YT12A-BS
Capacity	12V, 36.0 kC (10 Ah)/10HR
Standard electrolyte S.G.	1.320 at 20°C (68°F)



INITIAL CHARGING

Filling electrolyte

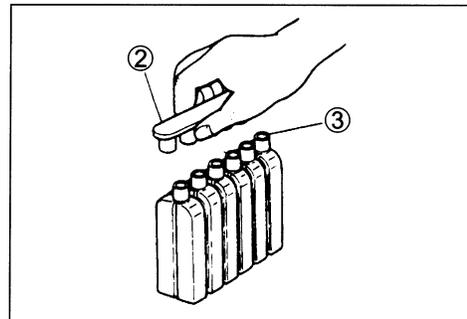
- Remove the aluminum tape ① sealing the battery electrolyte filler holes.



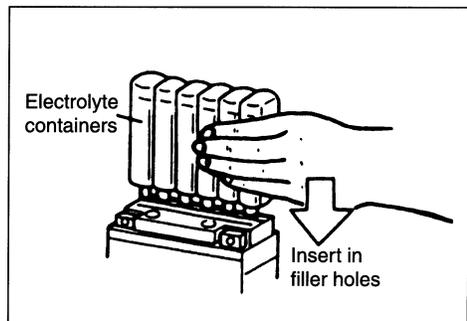
- Remove the caps ②.

NOTE:

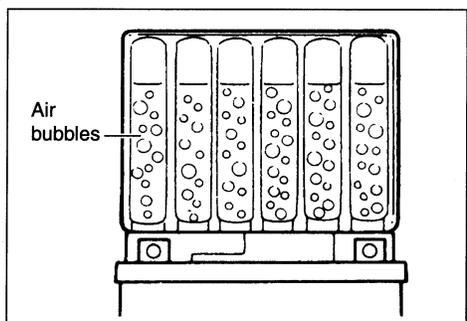
- * After filling the electrolyte completely, use the removed cap ② as the sealed caps of battery-filler holes.
- * Do not remove or pierce the sealed areas ③ of the electrolyte container.



- Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall. Take precaution not to allow any of the fluid to spill.



- Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.



NOTE:

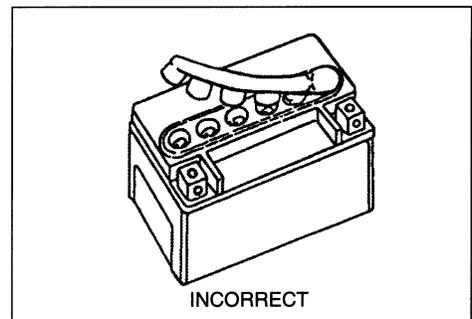
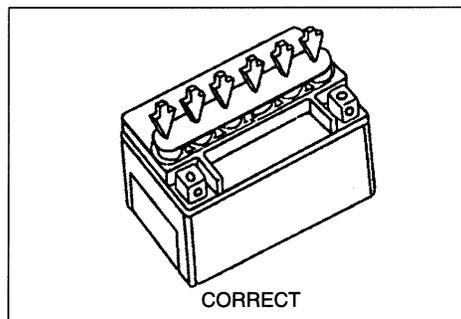
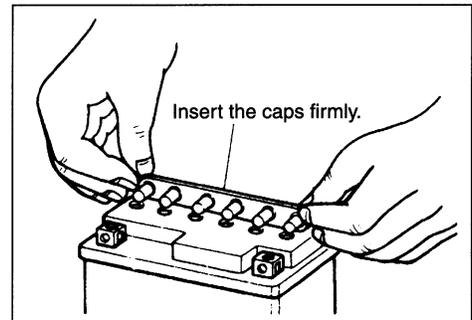
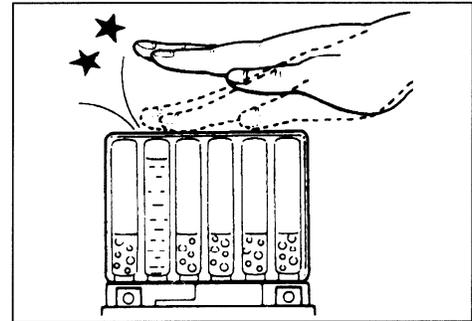
If no air bubbles are coming up from a filler port, tap the bottom of the two or three times.

Never remove the container from the battery.

- After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
- Insert the caps into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.

▲ CAUTION

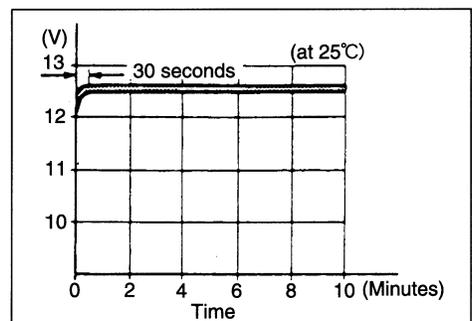
- * Never use anything except the specified battery.
- * Once install the caps to the battery; do not remove the caps.



- Using multi circuit tester, measure the battery voltage. The tester should indicate more than 12.5 – 12.6V (DC) as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger. (Refer to the re-charging operation.)

NOTE:

Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

**SERVICING**

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

RECHARGING OPERATION

- Using the multi circuit tester, check the battery voltage. If the voltage reading is less than the 12.0V (DC), recharge the battery with a battery charger.

▲ CAUTION

When recharging the battery, remove the battery from the motorcycle.

NOTE:

Do not remove the caps on the battery top while recharging.

Recharging time: 5 A for one hour or 1.2 A for 5 to 10 hours

▲ CAUTION

Be careful not to permit the charging current to exceed 7 A at any time.

- After recharging, wait for more than 30 minutes and check the battery voltage with a multi circuit tester.
- If the battery voltage is less than the 12.5V, recharge the battery again.
- If battery voltage is still less than 12.5V, after recharging, replace the battery with a new one.
- When the motorcycle is not used for a long period, check the battery every 1 month to prevent the battery discharge.

