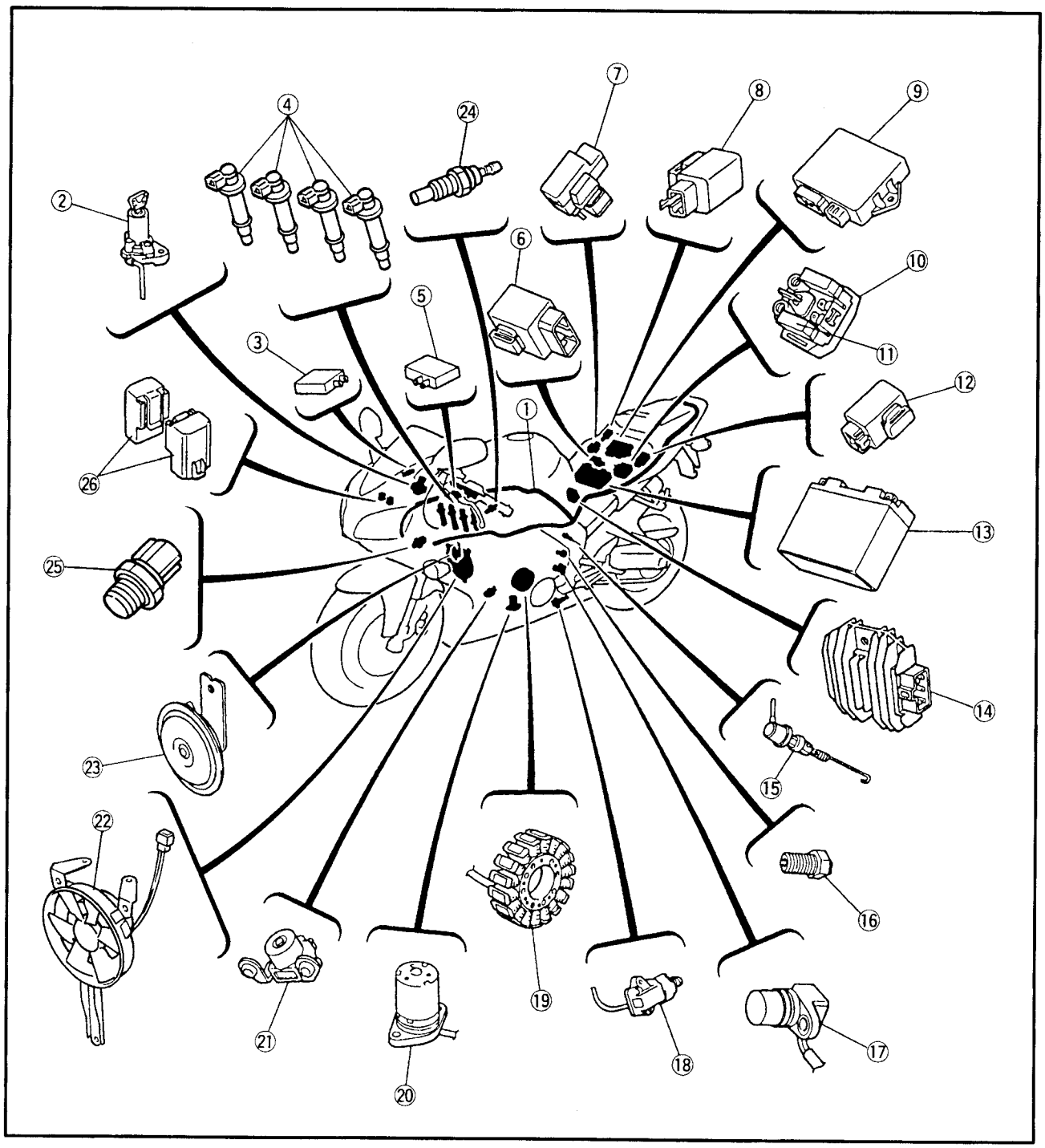
CHAPTER 8.
ELECTRICAL

EB800000

ELECTRICAL

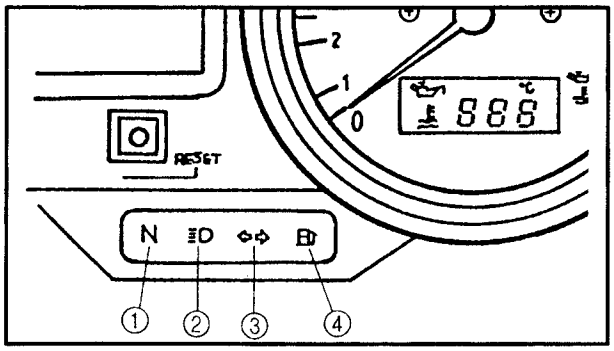
ELECTRICAL COMPONENTS

① Wire harness
② Main switch
③ Front brake light switch
④ Plug top ignition coils
⑤ Clutch switch
⑥ Starting circuit cutoff relay
⑦ Fuse box
⑧ Flasher relay
⑨ CDI unit
⑩ Starter relay
⑪ Main fuse
⑫ Oil level relay
⑬ Battery
⑭ Rectifier/regulator
⑮ Rear brake light switch
⑯ Neutral switch
⑰ Speed sensor
⑱ Sidestand switch
⑲ Stator coil assembly
⑳ Oil level switch
㉑ Pickup coil
㉒ Radiator fan
㉓ Horn
㉔ Thermo unit
㉕ Thermo switch
㉖ Headlight relay (HI, LO)



INSTRUMENT FUNCTIONS

INDICATOR LIGHTS



① Neutral indicator light "N"
② High beam indicator light "≡D"
③ Turn indicator light "⇦⇨"
④ Fuel indicator light "⛽"

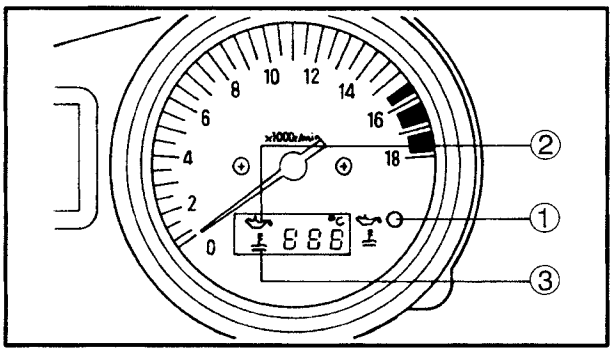
Turn indicator light "⇦⇨"
This indicator flashes when the turn switch is moved to the left or right.

Neutral indicator light "N"
This indicator comes on when the transmission is in neutral.

High beam indicator light "≡D"
This indicator comes on when the headlight high beam is used.

Fuel indicator light "⛽"
When the fuel level drops below approximately 3.7 L, this light will come on.
When this light comes on, fill the fuel tank at the first opportunity.

OIL LEVEL/COOLANT TEMPERATURE WARNING LIGHT



① Oil level/coolant temperature warning light "🛢🌡"
② Oil level symbol "🛢"
③ Coolant temperature symbol "🌡"

This warning light has two functions.

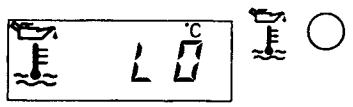
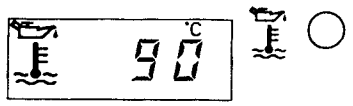
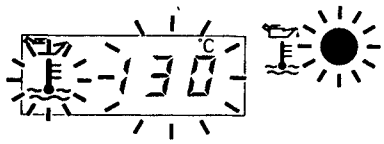
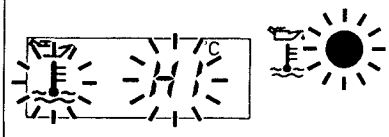
- The light will come on and symbol "🛢" will flash if the engine oil level is low. If this symbol flashes, stop the engine immediately and fill it with oil to the specified level.
- The light will come on and symbol "🌡" will flash if the coolant temperature is too high. The following chart shows the conditions of the indicator light, symbol and temperature display in accordance with the coolant temperature.

CAUTION:

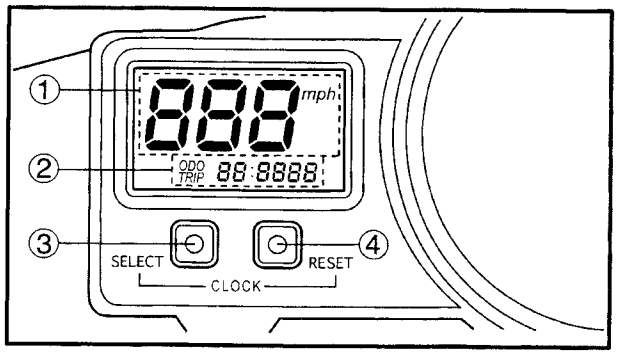
- **Do not run the motorcycle until you know it has sufficient engine oil.**
- **Do not run the motorcycle if the engine is overheated.**

NOTE:

Even if the oil is filled to the specified level, the warning light may flicker when riding on a slope or during sudden acceleration or deceleration, but this is normal.

Coolant temperature	Display	Conditions	What to do
0°C ~ 40°C (0°F ~ 104°F)		Symbol is on and "LO" is displayed.	Go ahead with riding.
41°C ~ 117°C (106°F ~ 243°F)		Symbol is on and temperature is displayed.	Go ahead with riding.
118°C ~ 140°C (244°F ~ 284°F)		Symbol and temperature flashes and indicator light comes on.	Stop the motorcycle and allow it to idle until the coolant temperature goes down. If the temperature does not go down, stop the engine. Refer to "OVERHEATING" in chapter 9.
141 °C ~ (286°F)		Symbol flashes, "HI" is displayed and flashes, and the indicator light comes on.	Stop the engine and allow it to cool. Refer to "OVERHEATING" in chapter 9.

COMBINATION METER



① Speedometer
② Clock, odometer
③ "SELECT" button
④ "RESET" button

This combination meter is equipped with the following.
- A speedometer
- An odometer
- Two trip odometers
- A fuel reserve tripmeter
- A clock

To change the speedometer display from kilometers to miles, press the "SELECT" button for at least two seconds.

Odometer and trip meters

Use the trip meters to estimate how far you can ride on a tank of fuel.
Use the fuel reserve trip meter to see the distance traveled from when the fuel level dropped to the reserve level.

Push the "SELECT" button to change between the odometer mode "ODO" and the trip odometer modes "TRIP 1"and "TRIP 2" in the following order:
"ODO" → "TRIP 1" → "TRIP 2" → "ODO"

When the fuel level indicator light comes on the odometer display will automatically change to the fuel reserve trip meter mode "TRIP F" and start counting the distance traveled from that point. Push the "SELECT" button to change between the fuel odometer, trip odometer and odometer modes in the following order:
"TRIP F" → "TRIP 1" → "TRIP 2" → "ODO" → "TRIP F"

To reset a trip odometer to 0.0, select it by pushing the "SELECT" button and push the "RESET" button for at least one second. To reset the fuel reserve trip meter, select it by pushing the "SELECT" button and push the "RESET" button for at least one second.
The display will return to "TRIP 1". If you do not reset the fuel reserve trip meter manually, it will automatically reset and return to "TRIP 1" after refueling and the motorcycle has traveled both 5 km and for approximately 3 minutes.

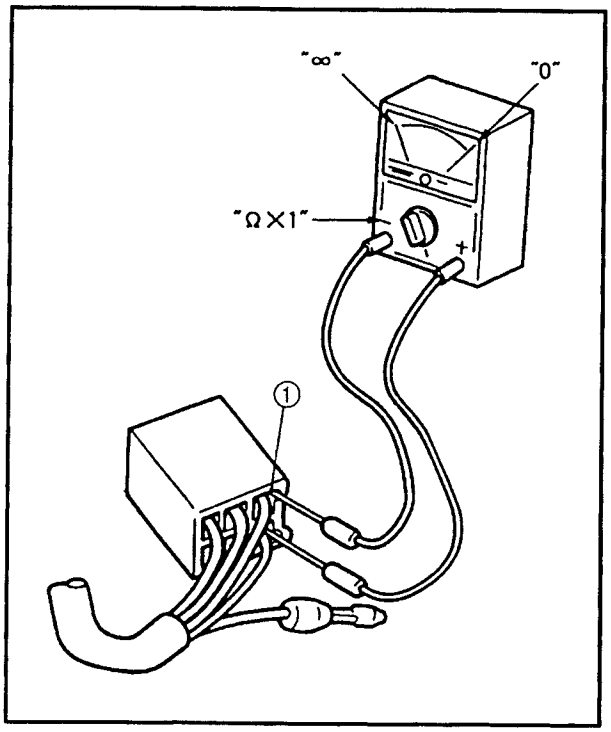
Clock

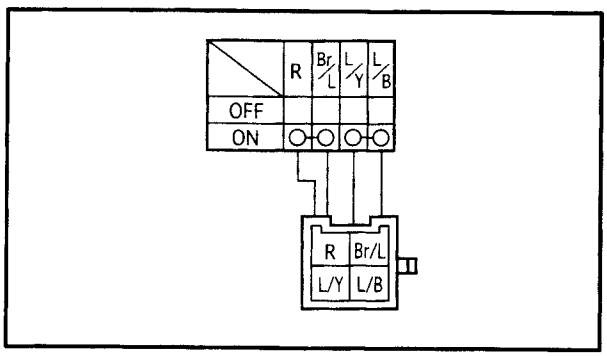
To change the display to the clock mode, push both the "SELECT" and "RESET" buttons.
To set the clock:

1. Push both the "SELECT" and "RESET" buttons for at least two seconds.
2. When the hour digits start flashing, push the "RESET" button to set the hours.
3. Push the "SELECT" button to change the minutes.
4. When the minute digits start flashing, push the "RESET" button to set the minutes.
5. Push the "SELECT" button to start the clock.

NOTE:

After setting the clock, be sure to push the "SELECT" button before turning the main switch to "OFF", otherwise the clock will not be set.





EB801000

SWITCHES

CHECKING SWITCH CONTINUITY

Check each switch for continuity with the pocket tester. If the continuity reading is incorrect, check the wiring connections and if necessary, replace the switch.

CAUTION:

Never insert the tester probes into the coupler terminal slots ①. Always insert the probes from the opposite end of the coupler, taking care not to loosen or damage the leads.

	Pocket tester **90890-03112**

NOTE:

- Before checking for continuity, set the pocket tester to "0" and to the "Ω × 1" range.
- When checking for continuity, switch back and forth between the switch positions a few times.

The terminal connections for switches (e.g., main switch, engine stop switch) are shown in an illustration similar to the one on the left.
The switch positions are shown in the far left column and the switch lead colors are shown in the top row in the switch illustration.

NOTE:

"○——○" indicates a continuity of electricity between switch terminals (i.e., a closed circuit at the respective switch position).

The example illustration on the left shows that:

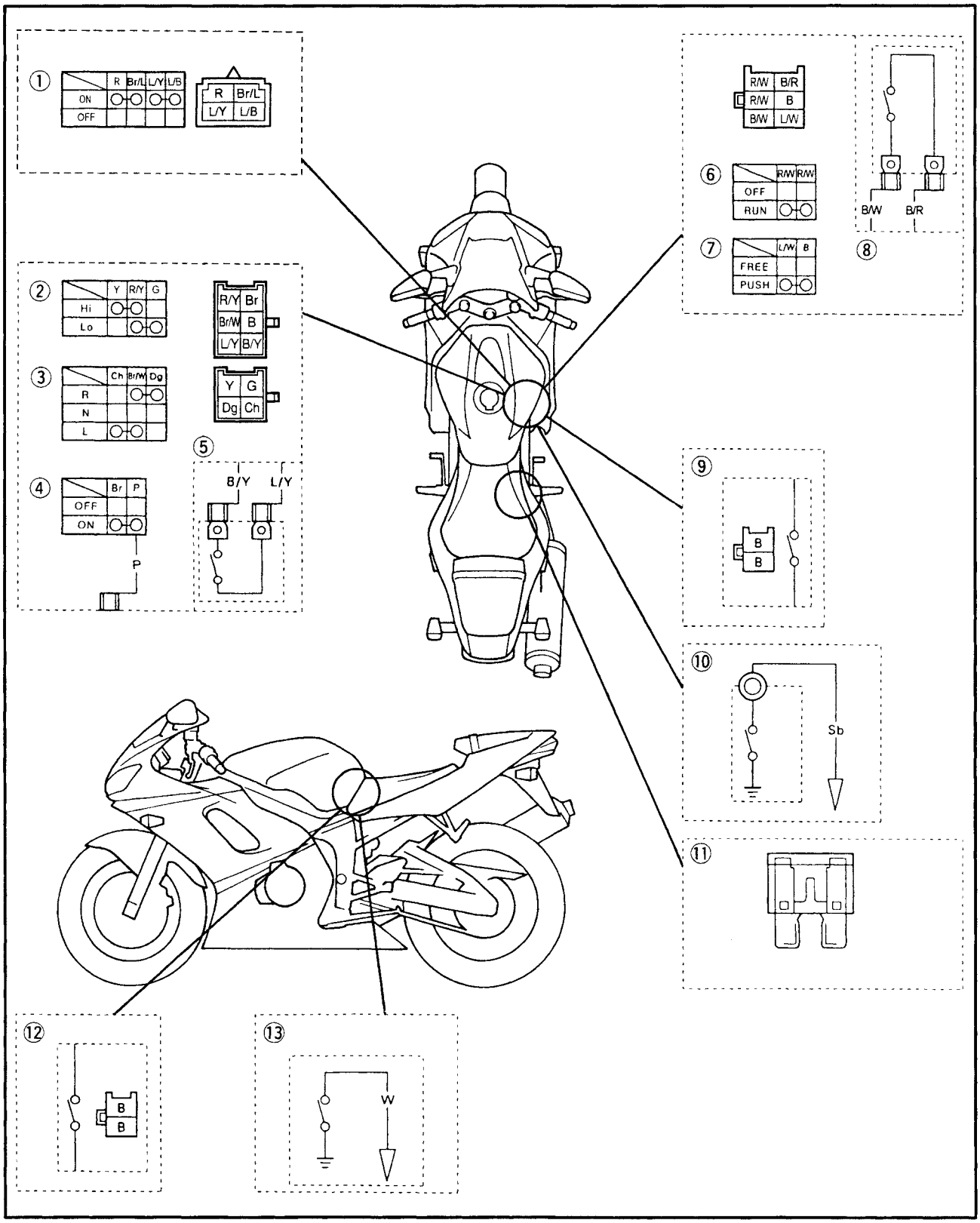
There is continuity between blue/red and red when the switch is set to "P≦".
There is continuity between blue/red and blue, between brown/blue and red, and between blue/yellow and blue/black when the switch is set to "ON".

EB801010

CHECKING THE SWITCHES

Check each switch for damage or wear, proper connections, and also for continuity between the terminals. Refer to "CHECKING SWITCH CONTINUITY".

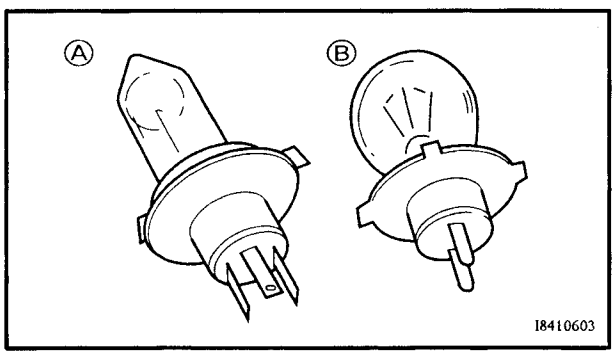
Damage/wear → Repair or replace the switch.
Improperly connected → Properly connect.
Incorrect continuity reading → Replace the switch.

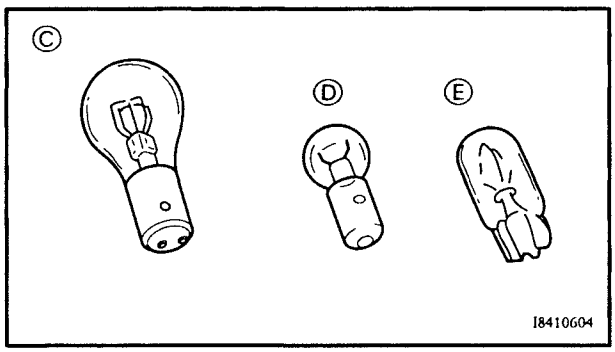


① Main switch
② Dimmer switch
③ Turn signal switch
④ Horn switch
⑤ Clutch switch
⑥ Engine stop switch
⑦ Start switch
⑧ Front brake light switch
⑨ Rear brake light switch
⑩ Neutral switch
⑪ Fuse
⑫ Sidestand switch
⑬ Oil level switch

EB801020
CHECKING THE BULBS AND BULB SOCKETS

Check each bulb and bulb socket for damage or wear, proper connections, and also for continuity between the terminals.
Damage/wear → Repair or replace the bulb, bulb socket or both.
Improperly connected → Properly connect.
Incorrect continuity reading → Repair or replace the bulb, bulb socket or both.





TYPES OF BULBS

The bulbs used on this motorcycle are shown in the illustration on the left.
- Bulbs Ⓐ and Ⓑ are used for headlights and usually use a bulb holder which must be detached before removing the bulb. The majority of these bulbs can be removed from their respective socket by turning them counterclockwise.
- Bulb Ⓒ is used for turn signal and tail/brake lights and can be removed from the socket by pushing and turning the bulb counterclockwise.
- Bulbs Ⓓ and Ⓔ are used for meter and indicator lights and can be removed from their respective socket by carefully pulling them out.

CHECKING THE CONDITION OF THE BULBS

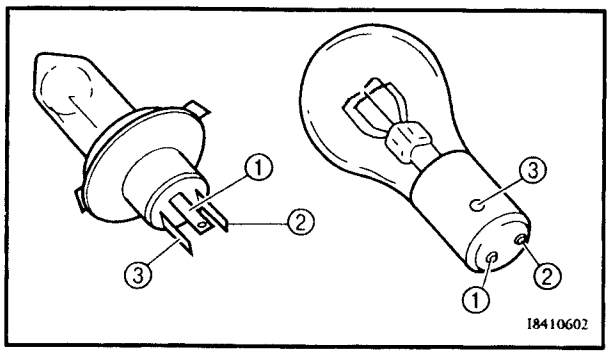
The following procedure applies to all of the bulbs.
1. Remove:
   - bulb

⚠ WARNING

Since the headlight bulb gets extremely hot, keep flammable products and your hands away from the bulb until it has cooled down.

CAUTION:

- **Be sure to hold the socket firmly when removing the bulb. Never pull the lead, otherwise it may be pulled out of the terminal in the coupler.**
- **Avoid touching the glass part of the headlight bulb to keep it free from oil, otherwise the transparency of the glass, the life of the bulb and the luminous flux will be adversely affected. If the headlight bulb gets soiled, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.**



2. Check:
   - bulb (for continuity)
     (with the pocket tester)
     No continuity → Replace.

	Pocket tester **90890-03112**

NOTE:

Before checking for continuity, set the pocket tester to "0" and to the "Ω × 1" range.

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a. Connect the tester positive probe to terminal ① and the tester negative probe to terminal ③, and check the continuity.
b. Connect the tester positive probe to terminal ② and the tester negative probe to terminal ③, and check the continuity.
c. If either of the readings indicate no continuity, replace the bulb.

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CHECKING THE CONDITION OF THE BULB SOCKETS

The following procedure applies to all of the bulb sockets.

1. Check:
   - bulb socket (for continuity)
     (with the pocket tester)
     No continuity → Replace.

	Pocket tester **90890-03112**

NOTE:

Check each bulb socket for continuity in the same manner as described in the bulb section; however, note the following.

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a. Install a good bulb into the bulb socket.
b. Connect the pocket tester probes to the respective leads of the bulb socket.
c. Check the bulb socket for continuity.
   If any of the readings indicate no continuity, replace the bulb socket.

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CHECKING THE LEDs

The following procedure applies to all of the LEDs.

1. Check:
   LED (for proper operation)

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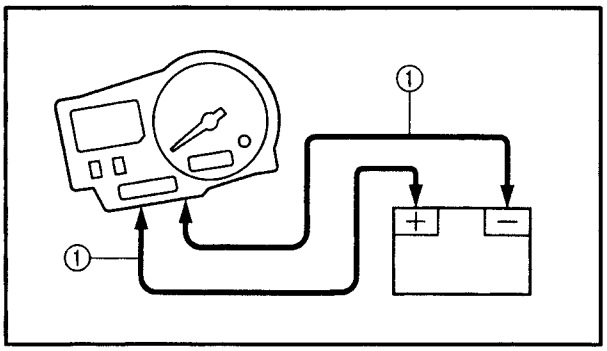
a. Disconnect the meter assembly coupler (meter assembly side).
b. Connect two jumper leads ① from the battery terminals to the respective coupler terminals as shown.



⚠ WARNING

- **A wire that is used as a jumper lead must have at least the same capacity of the battery lead, otherwise the jumper lead may burn.**
- **This check is likely to produce sparks, therefore make sure that no flammable gas or fluid is in the vicinity.**

c. When the jumper leads are connected to the terminals the respective LED should illuminate.
   Does not light → Replace the meter assembly.

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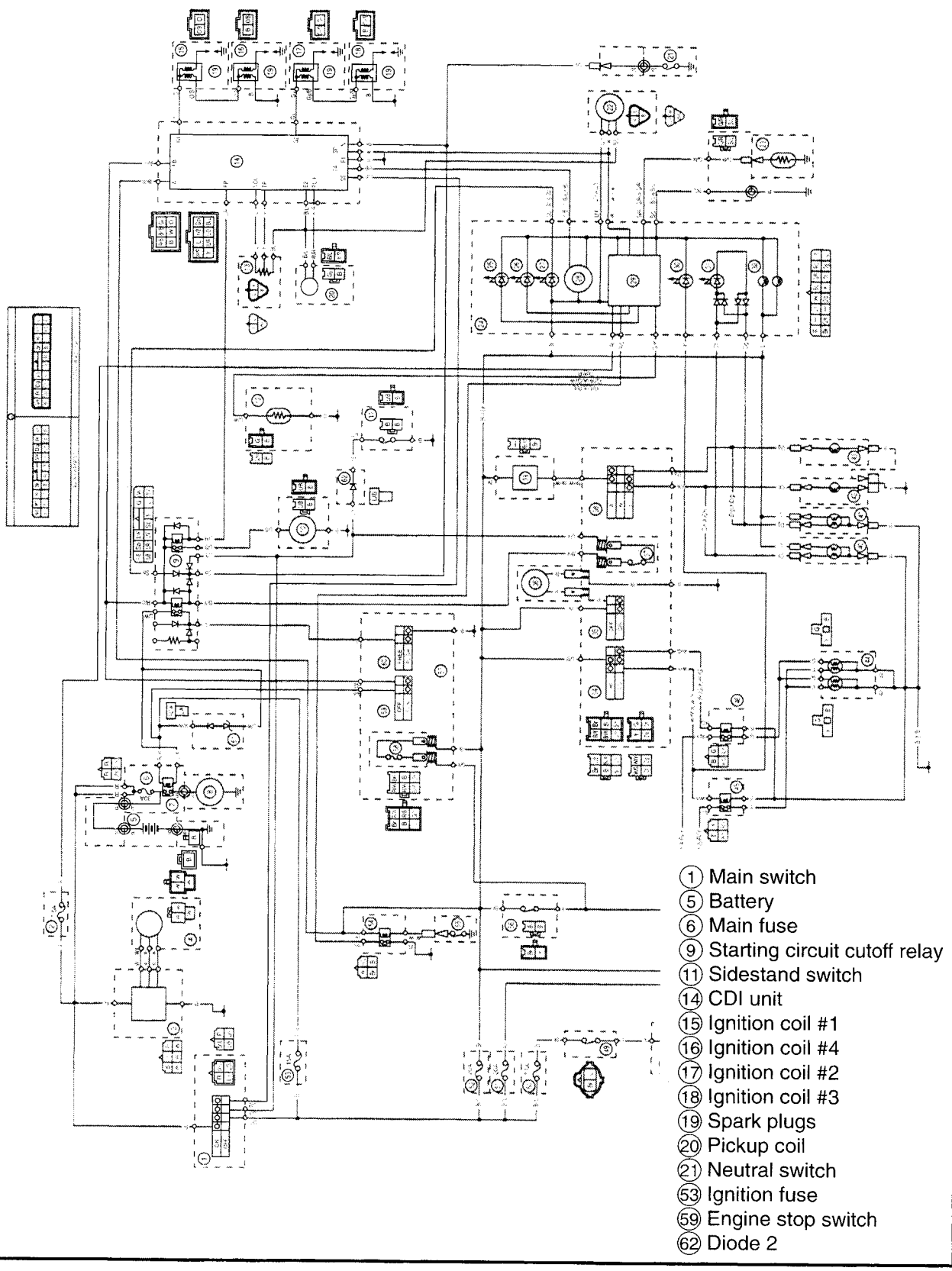
EB802001

IGNITION SYSTEM

CIRCUIT DIAGRAM



① Main switch
⑤ Battery
⑥ Main fuse
⑨ Starting circuit cutoff relay
⑪ Sidestand switch
⑭ CDI unit
⑮ Ignition coil #1
⑯ Ignition coil #4
⑰ Ignition coil #2
⑱ Ignition coil #3
⑲ Spark plugs
⑳ Pickup coil
㉑ Neutral switch
㊸ Ignition fuse
㊾ Engine stop switch
㊷ Diode 2

EB802011

TROUBLESHOOTING

The ignition system fails to operate (no spark or intermittent spark).

Check:
1. main and ignition fuses
2. battery
3. spark plugs
4. ignition spark gap
5. spark plug cap resistance
6. ignition coil resistance
7. pickup coil resistance
8. main switch
9. engine stop switch
10. neutral switch
11. sidestand switch
12. starting circuit cutoff relay
13. wiring
    (of the entire ignition system)

NOTE:

- Before troubleshooting, remove the following part(-s):

1) rider seat
2) fuel tank
3) air filter case
4) heat protector plate
5) front cowling inner panel (right)
6) side cowling inner panel (right)
7) side cowling (right)

- Troubleshoot with the following special tool (-s).

Ignition checker
90890-06754
Pocket tester
90890-03112

EB802400

1. Main and ignition fuses

- Check the main and ignition fuses for continuity.
  Refer to "CHECKING THE FUSES" in chapter 3.
- Are the main and ignition fuses OK?

YES → (proceed)

NO → Replace the fuse(-s).

EB802401

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Min. open-circuit voltage
12.8 V or more at 20°C (68°F)

- Is the battery OK?

YES → (proceed)

NO →
- Clean the battery terminals.
- Recharge or replace the battery.

EB802403

3. Spark plugs

The following procedure applies to all of the spark plugs.
- Check the condition of the spark plug.
- Check the spark plug type.
- Measure the spark plug gap.
  Refer to "CHECKING THE SPARK PLUGS" in chapter 3.

Standard spark plug
CR10EK (NGK)
CR9EK (NGK) (California)
Spark plug gap
0.6 ~ 0.7 mm (0.02 ~ 0.03 in)

- Is the spark plug in good condition, is it of the correct type, and its gap within specification?

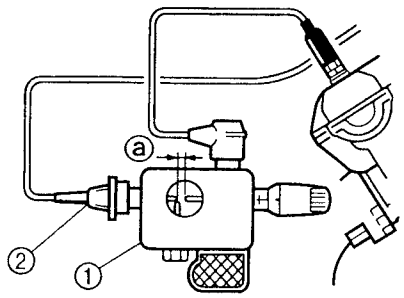
YES → (proceed)

NO → Re-gap or replace the spark plug.

EB802405

4. Ignition spark gap

The following procedure applies to all of the spark plugs.
- Disconnect the spark plug cap from the spark plug.
- Connect the ignition checker ① as shown.
- ② Spark plug cap
- Set the main switch to "ON".
- Measure the ignition spark gap ⓐ.
- Crank the engine by pushing the start switch and gradually increase the spark gap until a misfire occurs.



I8110202

Min. ignition spark gap
6 mm (0.24 in)

- Is there a spark and is the spark gap within specification?

NO

YES

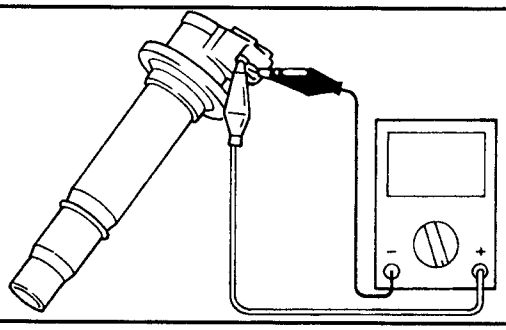
The ignition system is OK.

EB802409

6. Ignition coil resistance

The following procedure applies to all of the ignition coils.
- Disconnect the ignition coil connectors from the ignition coil terminals.
- Connect the pocket tester (Ω × 1) to the ignition coil as shown.

Tester positive probe →
ignition coil terminal
Tester negative probe →
ignition coil terminal

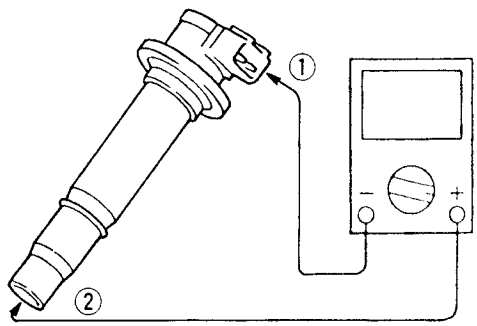


- Measure the primary coil resistance.

Primary coil resistance
0.238 ~ 0.322 Ω at 20°C (68°F)

- Connect the pocket tester (Ω × 1k) to the ignition coil as shown.
- Measure the secondary coil resistance.

Tester positive probe →
ignition coil terminal ①
Tester positive probe →
spark plug terminal ②



Secondary coil resistance
8.16 ~ 11.04 kΩ at 20°C (68°F)

- Is the ignition coil OK?

YES

NO

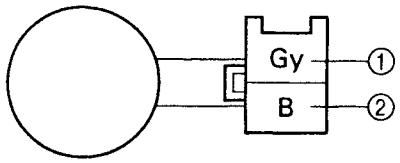
Replace the ignition coil.

EB802410

7. Pickup coil resistance

- Disconnect the pickup coil coupler from the wire harness.
- Connect the pocket tester (Ω × 100) to the pickup coil terminal.

Tester positive probe → gray ①
Tester negative probe → black ②



- Measure the pickup coil resistance.

Pickup coil resistance
248 ~ 372 Ω at 20°C (68°F)
(between gray and black)

- Is the pickup coil OK?

YES → NO

Replace the pickup coil.

EB802411

8. Main switch

- Check the main switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the main switch OK?

YES → NO

Replace the main switch.

EB802412

9. Engine stop switch

- Check the engine stop switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the engine stop switch OK?

YES → NO

Replace the right handlebar switch.

EB802413

10. Neutral switch

- Check the neutral switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the neutral switch OK?

YES → NO

Replace the neutral switch.

EB802414

11. Sidestand switch

- Check the sidestand switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the sidestand switch OK?

YES → NO

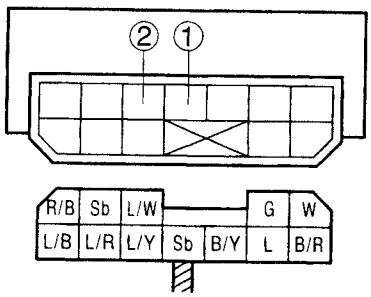
Replace the side-stand switch.

EB802415

12. Starting circuit cutoff relay

- Remove the relay unit from the wire harness.
- Connect the pocket tester (Ω × 1) to the relay terminals as shown.
- Check the starting circuit cutoff relay for continuity.

Tester positive probe → sky blue ① **Tester negative probe → blue/yellow ②**	**No continuity**
Tester positive probe → blue/yellow ② **Tester negative probe → sky blue ①**	**Continuity**



NOTE:

When you switch the "–" and "+" leads of the digital pocket tester, the readings in the above chart will be reversed.

- Are the tester readings correct?

YES ⇩

NO ⇩

Replace the starting circuit cutoff relay.

EB802416

13. Wiring

- Check the entire ignition system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the ignition system's wiring properly connected and without defects?

NO ⇩

Properly connect or repair the ignition system's wiring.

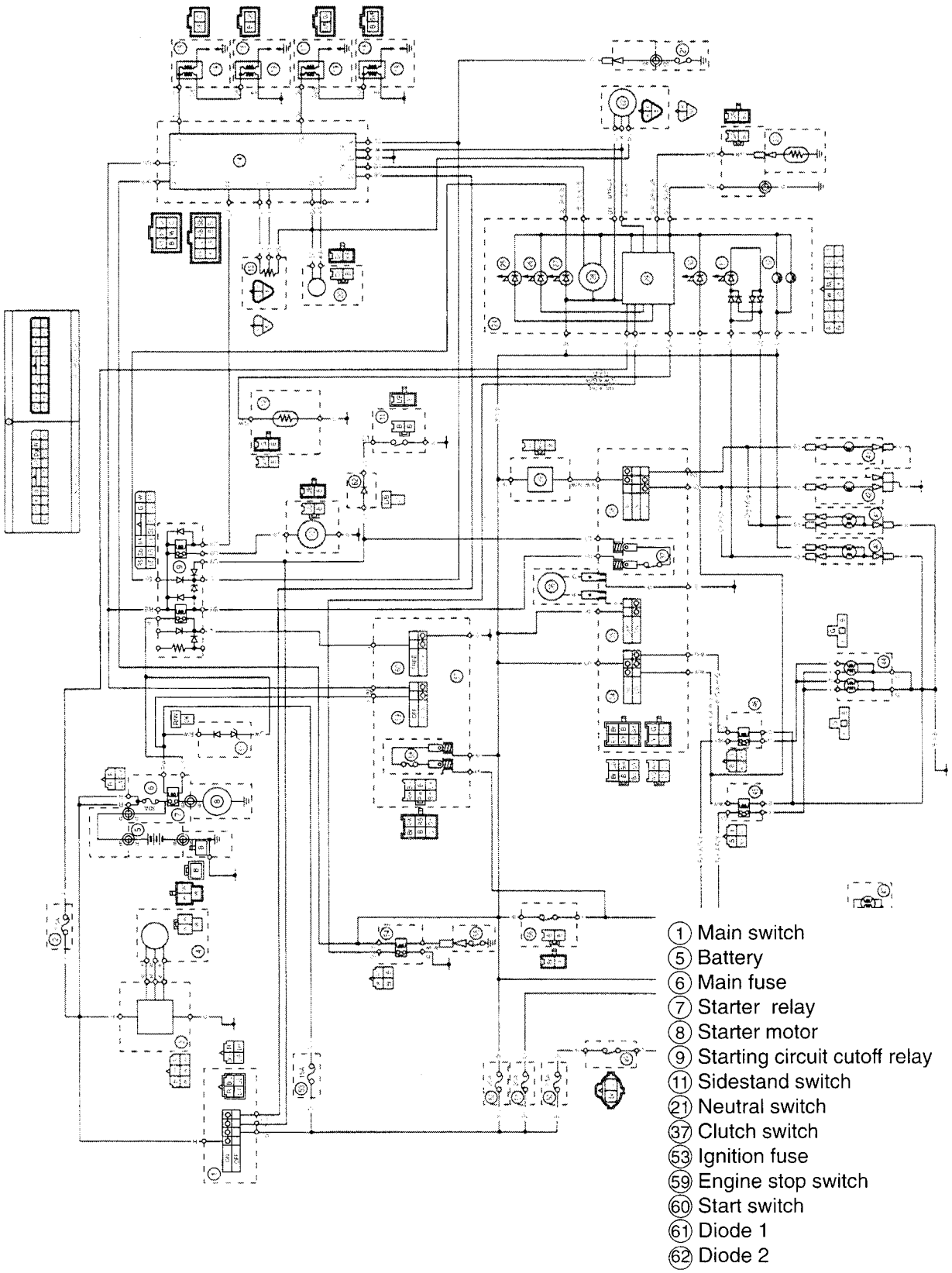
YES ⇩

Replace the ignitor unit.

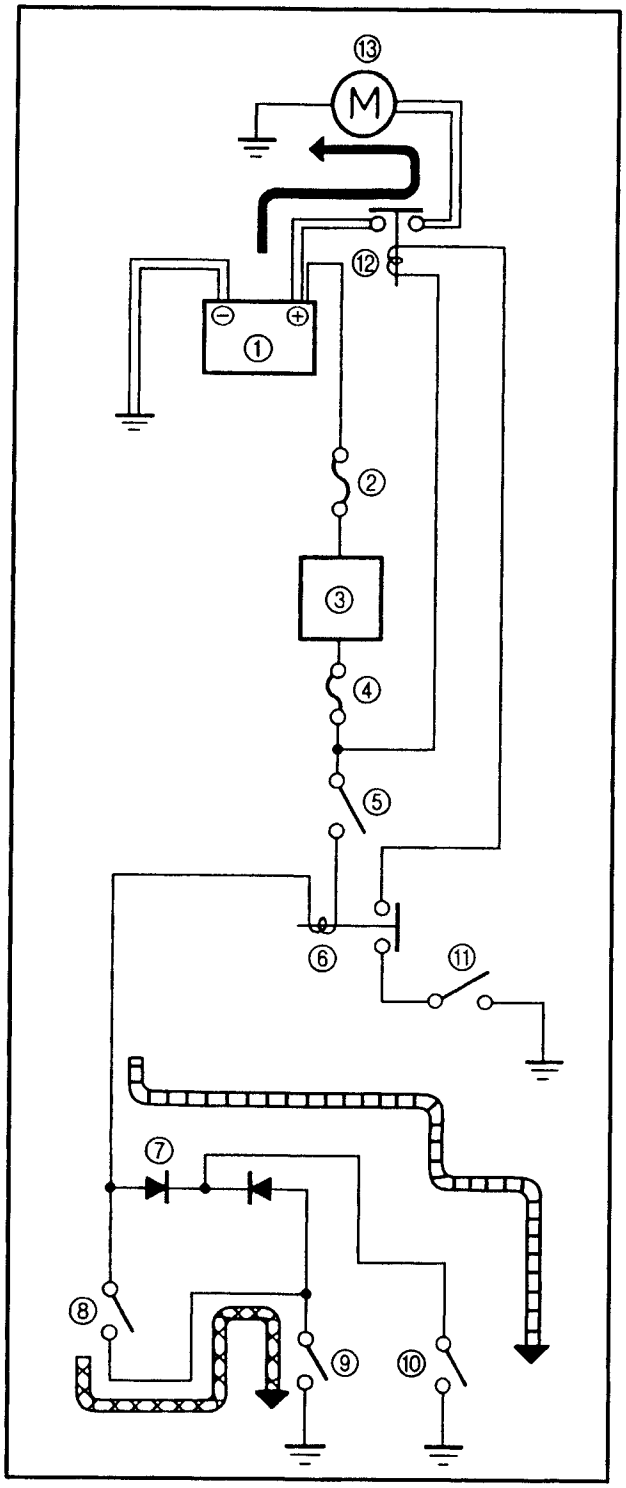
EB803000

ELECTRIC STARTING SYSTEM

CIRCUIT DIAGRAM



① Main switch
⑤ Battery
⑥ Main fuse
⑦ Starter relay
⑧ Starter motor
⑨ Starting circuit cutoff relay
⑪ Sidestand switch
㉑ Neutral switch
㊲ Clutch switch
㊸ Ignition fuse
㊾ Engine stop switch
㊿ Start switch
(61) Diode 1
(62) Diode 2



EB803010

STARTING CIRCUIT CUTOFF SYSTEM OPERATION

If the engine stop switch is set to "○" and the main switch is set to "ON" (both switches are closed), the starter motor can only operate if at least one of the following conditions is met:

- The transmission is in neutral (the neutral switch is closed).
- The clutch lever is pulled to the handlebar (the clutch switch is closed) and the sidestand is up (the sidestand switch is closed).

The starting circuit cutoff relay prevents the starter motor from operating when neither of these conditions has been met. In this instance, the starting circuit cutoff relay is open so current cannot reach the starter motor. When at least one of the above conditions has been met the starting circuit cutoff relay is closed and the engine can be started by pressing the start switch.

WHEN THE TRANSMISSION IS IN NEUTRAL

WHEN THE SIDESTAND IS UP AND THE CLUTCH LEVER IS PULLED TO THE HANDLEBAR

① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ Engine stop switch
⑥ Starting circuit cutoff relay
⑦ Diode
⑧ Clutch switch
⑨ Sidestand switch
⑩ Neutral switch
⑪ Start switch
⑫ Starter relay
⑬ Starter motor

EB803020

TROUBLESHOOTING

The starter motor fails to turn.

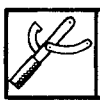
Check:
1. main and ignition fuses
2. battery
3. starter motor
4. starting circuit cutoff relay
5. Diode
6. starter relay
7. main switch
8. engine stop switch
9. neutral switch
10. sidestand switch
11. clutch switch
12. start switch
13. wiring
    (of the entire starting system)

NOTE:

- Before, troubleshooting, remove the following part(-s):

1) rider seat
2) fuel tank
3) air filter case
4) front cowling inner panels
5) Side cowling inner panels
6) Side cowlings

- Troubleshoot with the following special tool (-s).



Pocket tester
90890-03112

EB802400

1. Main and ignition fuses

- Check the main and ignition fuses for continuity.
  Refer to "CHECKING THE FUSES" in chapter 3.
- Are the main and ignition fuses OK?

YES

NO → Replace the fuse(-s).

EB802401

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Open-circuit voltage
12.8 V or more at 20°C (68°F)

- Is the battery OK?

YES

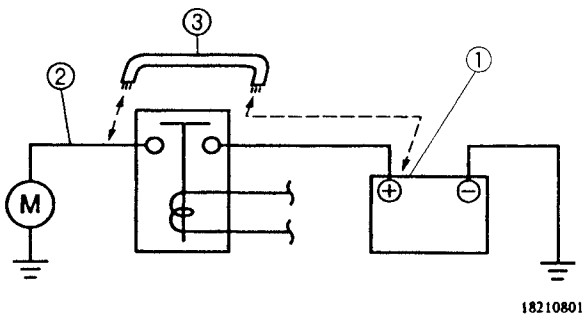
NO →

- Clean the battery terminals.
- Recharge or replace the battery.

EB803400

3. Starter motor

- Connect the battery positive terminal ① and starter motor lead ② with a jumper lead ③.



⚠ WARNING

- **A wire that is used as a jumper lead must have at least the same capacity of the battery lead, otherwise the jumper lead may burn.**
- **This check is likely to produce sparks, therefore make sure that no flammable gas or fluid is in the vicinity.**

- Does the starter motor turn?

YES

NO →

Repair or replace the starter motor.

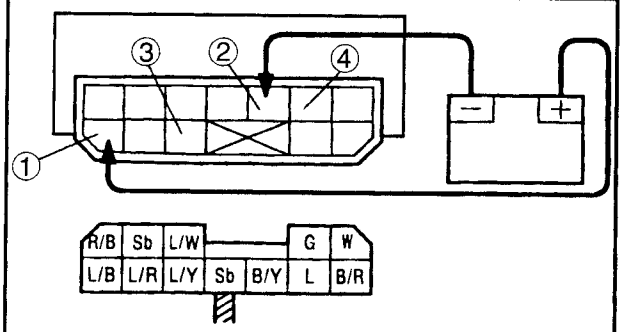
EB803402

4. Starting circuit cutoff relay

- Disconnect the relay from the coupler.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the relay terminals as shown.

Battery positive terminal → red/black ①
Battery negative terminal → black/yellow ②

Tester positive probe → blue/white ③
Tester negative probe → blue ④



- Does the starting circuit cutoff relay have continuity between black and blue/white?

YES

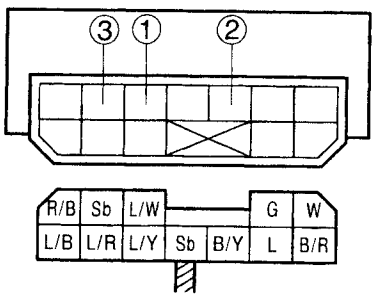
NO → Replace the starting circuit cutoff relay

EB803403

5. DIODE

- Disconnect the relay from the coupler.
- Connect the pocket tester (Ω × 1) to the relay terminals as shown.
- Measure the starting circuit cutoff relay for continuity as follows.

Tester positive probe → sky blue ① **Tester negative probe → black/yellow ②**	**No continuity**
Tester positive probe → sky blue ① **Tester negative probe → blue/yellow ③**	
Tester positive probe → black/yellow ② **Tester negative probe → sky blue ①**	**Continuity**
Tester positive probe → blue/yellow ③ **Tester negative probe → sky blue ①**	



NOTE:

When you switch the "–" and "+" leads of the digital pocket tester, the readings in the above chart will be reversed.

- Are the tester readings correct?

YES

NO → Replace the starting circuit cutoff relay

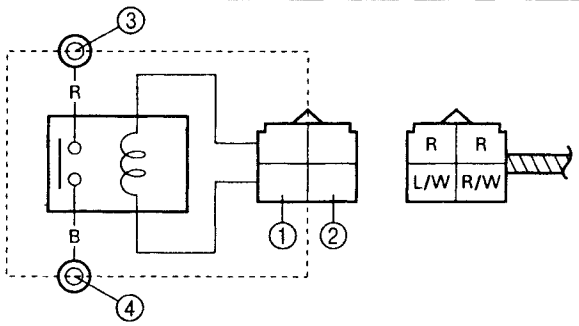
EB803404

6. Starter relay

- Disconnect the starter relay from the coupler.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the starter relay coupler as shown.

Battery positive terminal → red/white ①
Battery negative terminal → blue/white ②

Tester positive probe → red ③
Tester negative probe → black ④



- Does the starter relay have continuity between red and black?

YES → Replace the starter relay.

NO

EB802411

7. Main switch

- Check the main switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the main switch OK?

YES

NO → Replace the main switch.

EB802412

8. Engine stop switch

- Check the engine stop switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the engine stop switch OK?

YES

NO → Replace the right handlebar switch.

EB802413

9. Neutral switch

- Check the neutral switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the neutral switch OK?

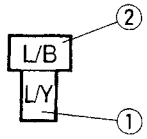
YES

NO → Replace the neutral switch.

10. Diode

- Check the diode for continuity.
- Disconnect the diode from the coupler.
- Connect the pocket tester (Ω × 1) to the diode terminals as a shown.
- Measur the diode for continuity as follows.

Tester positive probe → blue/yellow ① **Tester negative probe → blue/black ②**	**No continuity**
Tester positive probe → blue/black ② **Tester negative probe → blue/yellow ①**	**Continuity**



- Is the diode ok?

YES

NO → Replace the diode.

EB8022414

11. Sidestand switch

- Check the sidestand switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the sidestand switch OK?

YES → (continue)

NO → Replace the sidestand switch.

EB803405

12. Clutch switch

- Check the clutch switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the clutch switch OK?

YES → (continue)

NO → Replace the clutch switch.

EB803406

13. Start switch

- Check the start switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the start switch OK?

YES → (continue)

NO → Replace the right handlebar switch.

EB803408

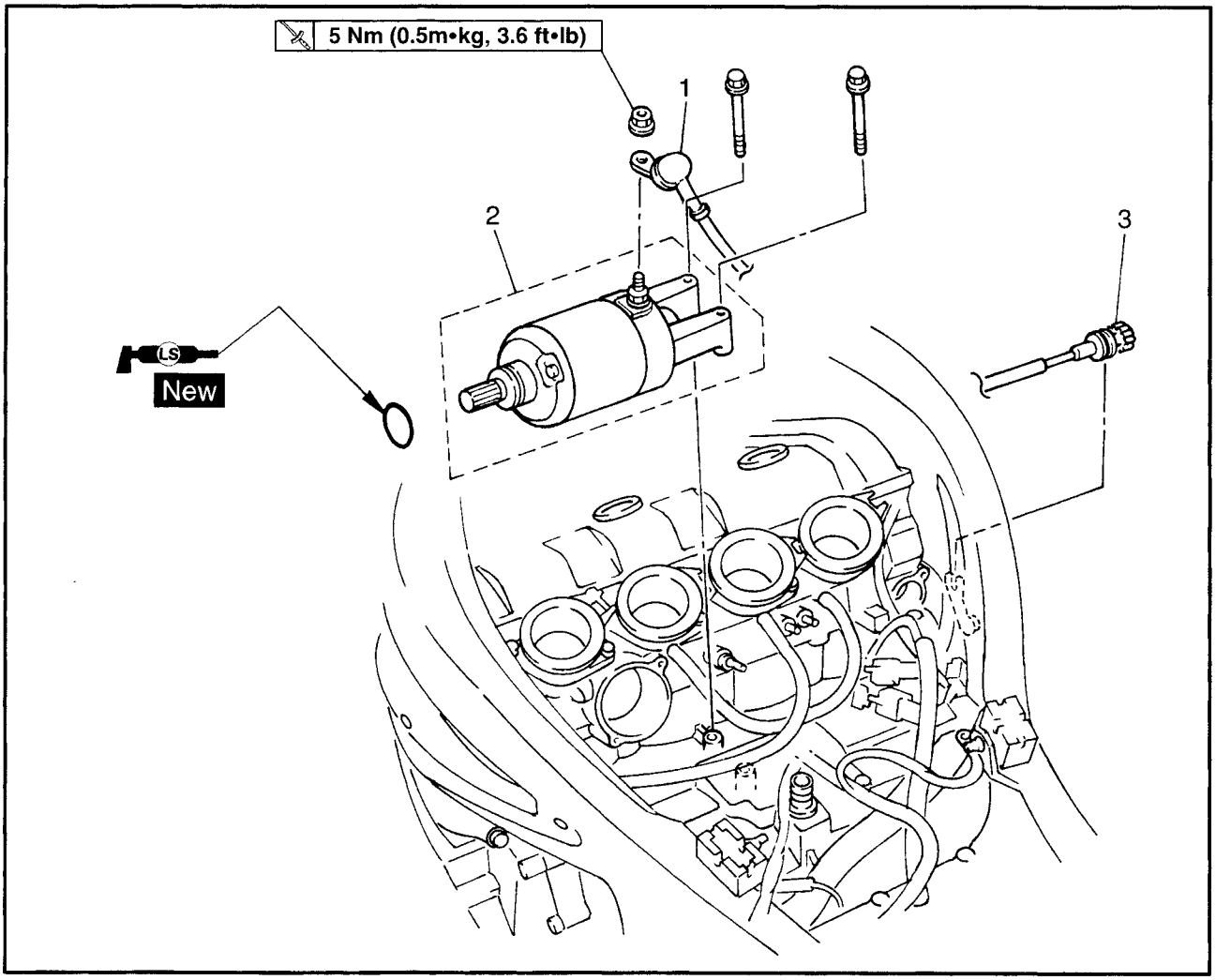
14. Wiring

- Check the entire starting system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the starting system's wiring properly connected and without defects?

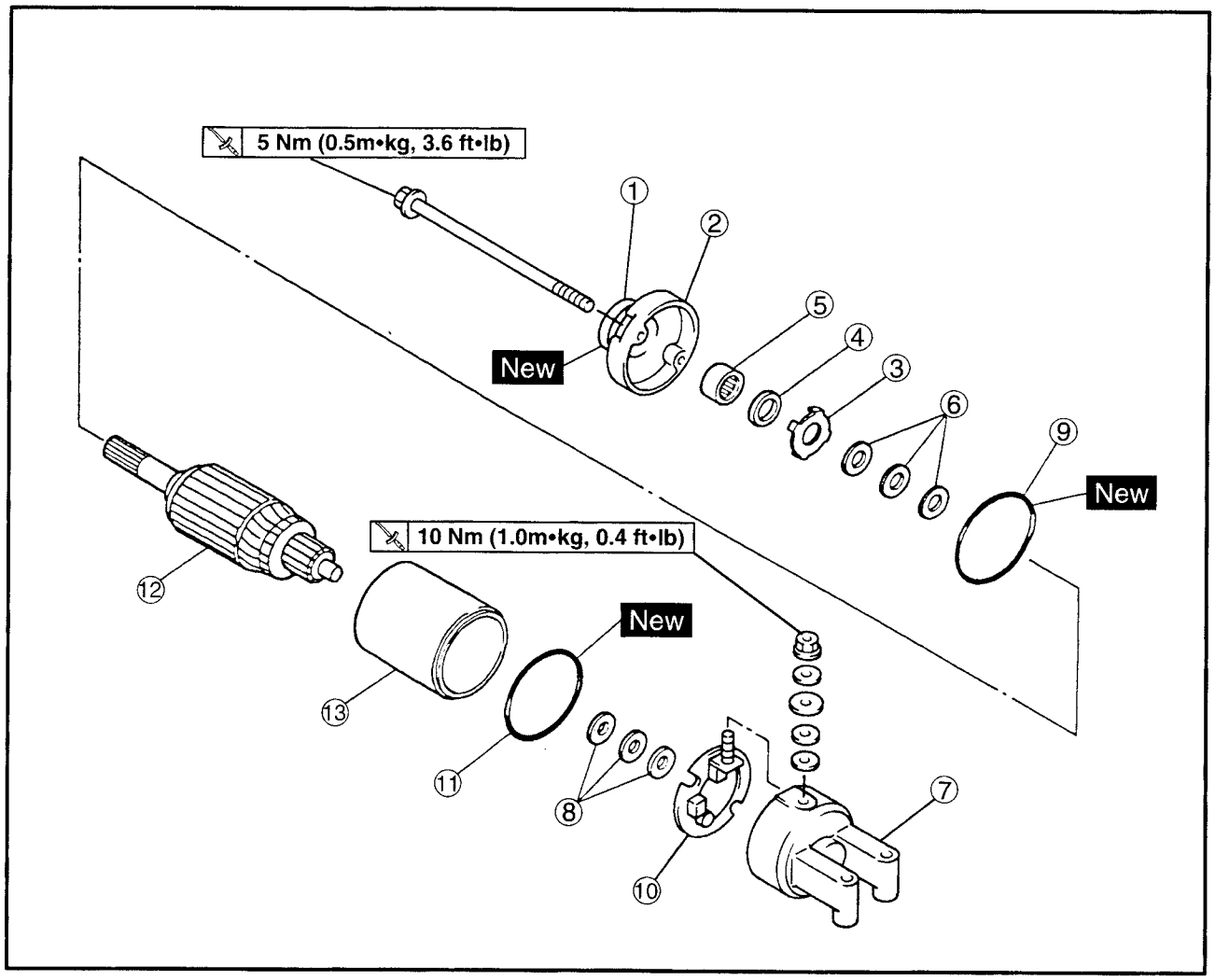
NO → Properly connect or repair the starting system's wiring.

YES → The starting system circuit is OK.

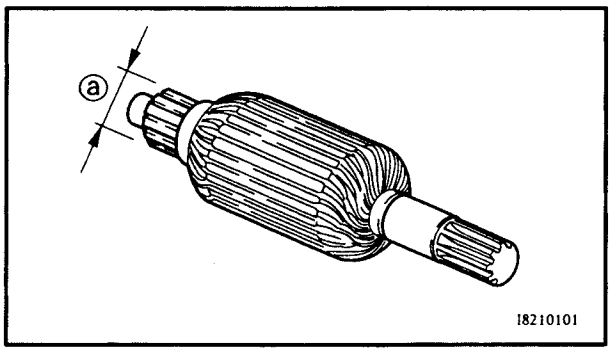
EAS00767
STARTER MOTOR

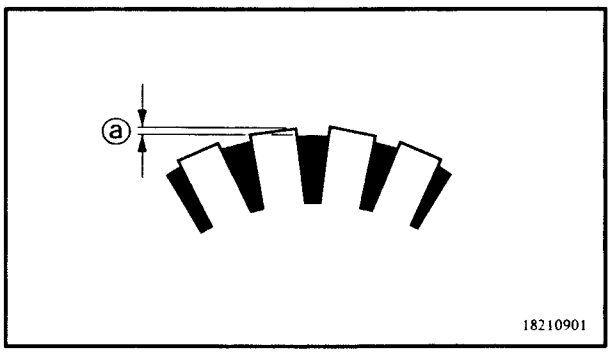


Order	Job/Part	Q'ty	Remarks
	Removing the starter motor		Remove the parts in the order listed.
	Rider seat		Refer to "SEATS" in chapter 3.
	Fuel tank		Refer to "FUEL TANK" in chapter 3.
	Carburetors		Refer to "CARBURETORS" in chapter 6.
	Coolant		Drain Refer to "CHANGING THE COOLANT" in chapter 3.
	Thermostat		Refer to "THERMOSTAT" in chapter 5.
1	Starter motor lead	1	
2	Starter motor assembly	1	
3	Throttle stop screw	1	
			For installation, reverse the removal procedure.



Order	Job/Part	Q'ty	Remarks
	Disassembling the starter motor		Remove the parts in the order listed.
①	O-ring	1	
②	Starter motor front cover	1	
③	Lock washer	1	
④	Oil seal	1	
⑤	Bearing	1	
⑥	Washer set	1	
⑦	Starter motor rear cover	1	
⑧	Washer set	1	
⑨	O-ring	2	
⑩	Brush holder set	1	
⑪	O-ring	1	
⑫	Armature assembly	1	
⑬	Starter motor yoke	1	
			For assembly, reverse the disassembly procedure.





EB803511

CHECKING THE STARTER MOTOR

1. Check:
   • commutator
   Dirt → Clean with 600 grit sandpaper.
2. Measure:
   • commutator diameter ⓐ
   Out of specification → Replace the starter motor.

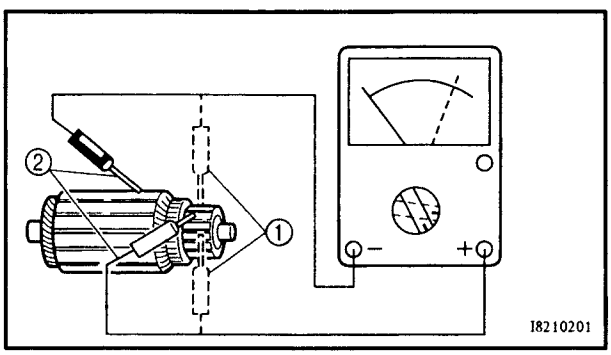
Min. commutator diameter
27 mm (1.06 in)

3. Measure:
   • mica undercut ⓐ
   Out of specification → Scrape the mica to the proper measurement with a hacksaw blade which has been grounded to fit the commutator.

Mica undercut
0.7 mm (0.03 in)

NOTE:

The mica must be undercut to ensure proper operation of the commutator.



4. Measure:
   • armature assembly resistances (commutator and insulation)
   Out of specification → Replace the starter motor.

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Measure the armature assembly resistances with the pocket tester.

Pocket tester
90890-03112

Armature assembly
Commutator resistance ①
0.012 ~ 0.022 Ω at 20°C (68°F)
Insulation resistance ②
Above 1 MΩ at 20°C (68°F)

b. If any resistance is out of specification, replace the starter motor.

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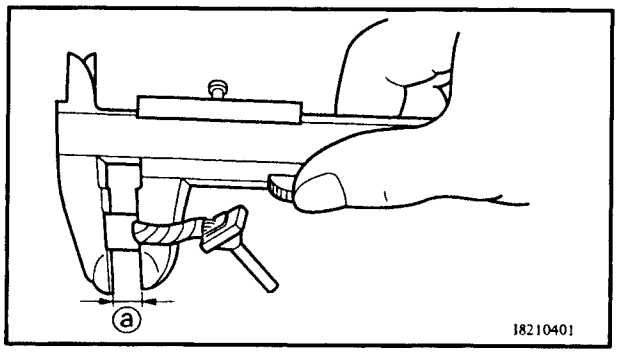
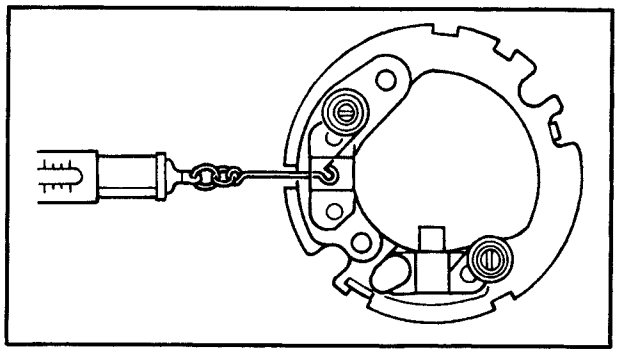


5. Measure:
   • brush length ⓐ
   Out of specification → Replace the brushes as a set.

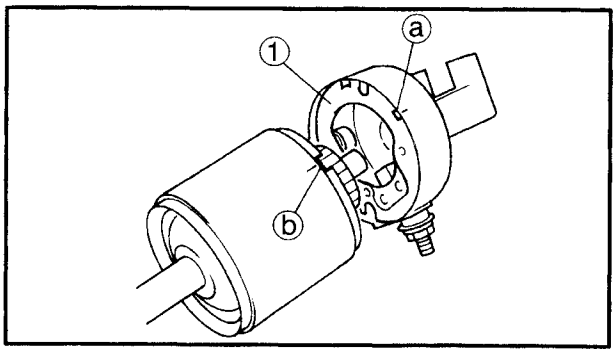
Min. brush length
3.5 mm (0.14 in)



6. Measure:
   • brush spring force
   Out of specification → Replace the brush springs as a set.

Brush spring force
7.16 ~ 9.52 N (7.16 ~ 9.52 g, 25.77 ~ 34.27 oz)

7. Check:
   • gear teeth
   Damage/wear → Replace the gear.
8. Check:
   • bearing
   • oil seal
   Damage/wear → Replace the defective part(-s).



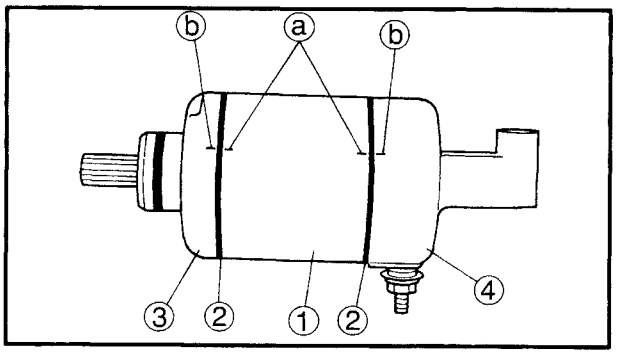
EB803701

ASSEMBLING THE STARTER MOTOR

1. Install:
   • brush seat ①

NOTE:

Align the tab ⓐ on the starter motor rear cover with the slot ⓑ in the yoke.



2. Install:
   • starter motor yoke ①
   • O-rings ② New
   • starter motor front cover ③
   • starter motor rear cover ④
   • bolts 5 Nm (0.5 m•kg, 3.6 ft•lb)

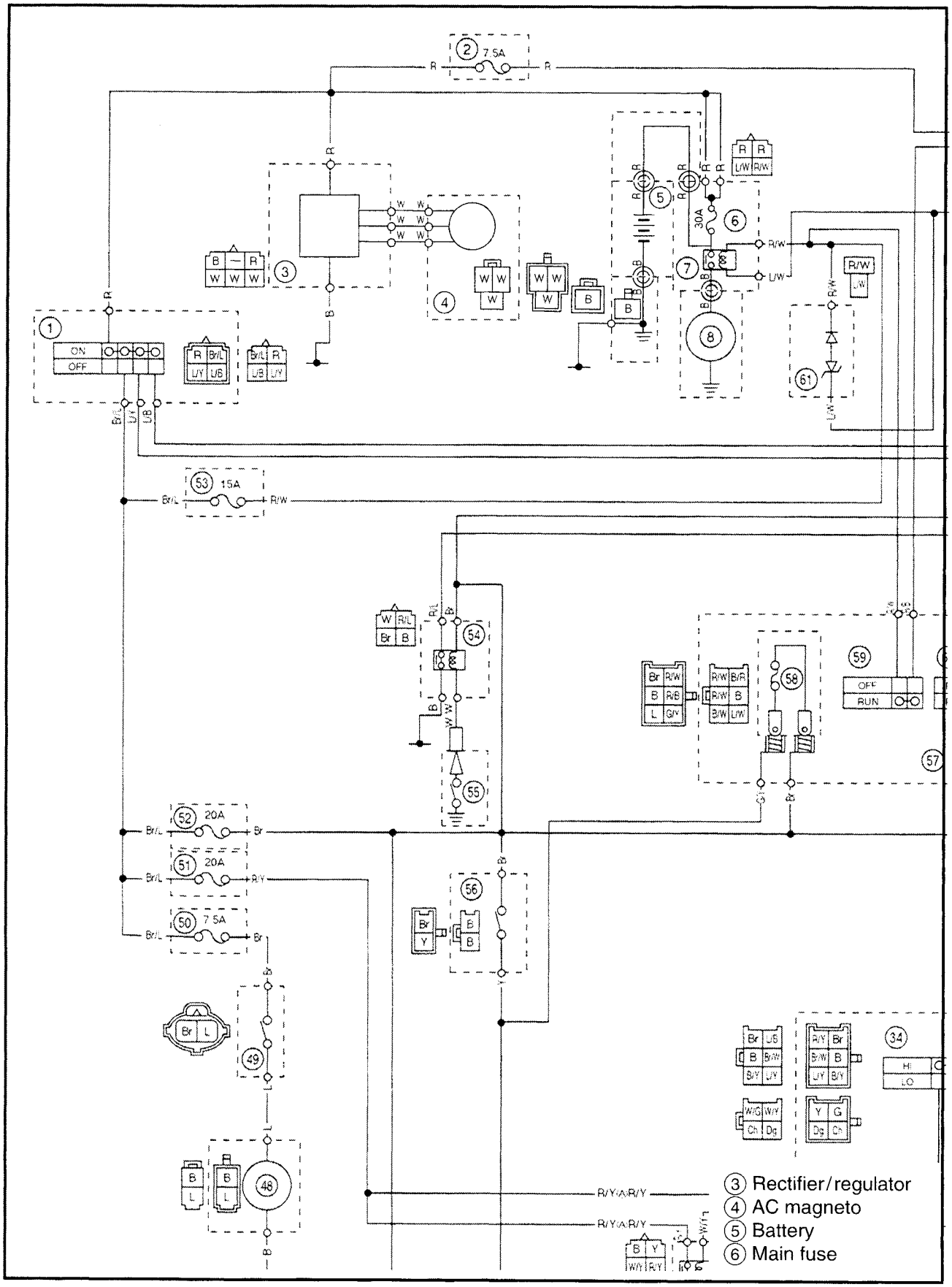
NOTE:

Align the match marks ⓐ on the starter motor yoke with the match marks ⓑ on the front and rear covers.

EB804000

CHARGING SYSTEM

CIRCUIT DIAGRAM



EB804010

TROUBLESHOOTING

The battery is not being charged.

Check:
1. main fuse
2. battery
3. charging voltage
4. stator coil assembly resistance
5. wiring
   (of the entire charging system)

NOTE:

- Before troubleshooting, remove the following part(-s):

1) rider seat
2) fuel tank

- Troubleshoot with the following special tool(-s).

Engine tachometer
90793-80009
Pocket tester
90890-03112

EB802400

1. Main fuse

- Check the main fuse for continuity. Refer to "CHECKING THE FUSES" in chapter 3.
- Is the main fuse OK?

YES → NO

Replace the fuse.

EB802401

2. Battery

- Check the condition of the battery. Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Open-circuit voltage
12.8 V or more at 20°C (68°F)

- Is the battery OK?

YES → NO

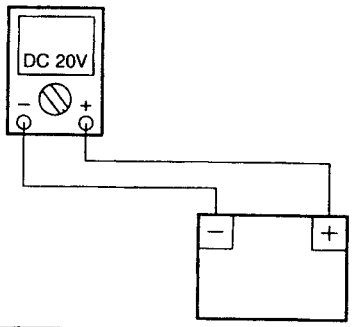
- Clean the battery terminals.
- Recharge or replace the battery.

EB804400

3. Charging voltage

- Connect the engine tachometer to the spark plug lead of cylinder #1.
- Connect the pocket tester (DC 20 V) to the battery as shown.

Tester positive probe → battery positive terminal
Tester negative probe → battery negative terminal



- Start the engine and let it run at approximately 5,000 r/min.
- Measure the charging voltage.

Charging voltage
14 V at 5,000 r/min

NOTE:
Make sure that the battery is fully charged.

- Is the charging voltage within specification?

NO → YES

The charging circuit is OK.

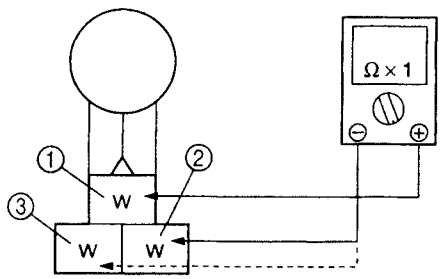
EB804401

4. Stator coil assembly resistances

- Remove the generator cover.
- Connect the pocket tester (Ω × 1) to the stator coil assembly coupler as shown.

Tester positive probe → white ①
Tester negative probe → white ②

Tester positive probe → white ①
Tester negative probe → white ③



- Measure the stator coil assembly resistances.

Stator coil resistance
0.27 ~ 0.33 Ω at 20°C (68°F)

- Is the stator coil assembly OK?

YES → The charging circuit is OK.

NO → Replace the stator coil assembly.

EB804404

5. Wiring

- Check the wiring connections of the entire charging system.
  Refer to "CIRCUIT DIAGRAM".
- Is the charging system's wiring properly connected and without defects?

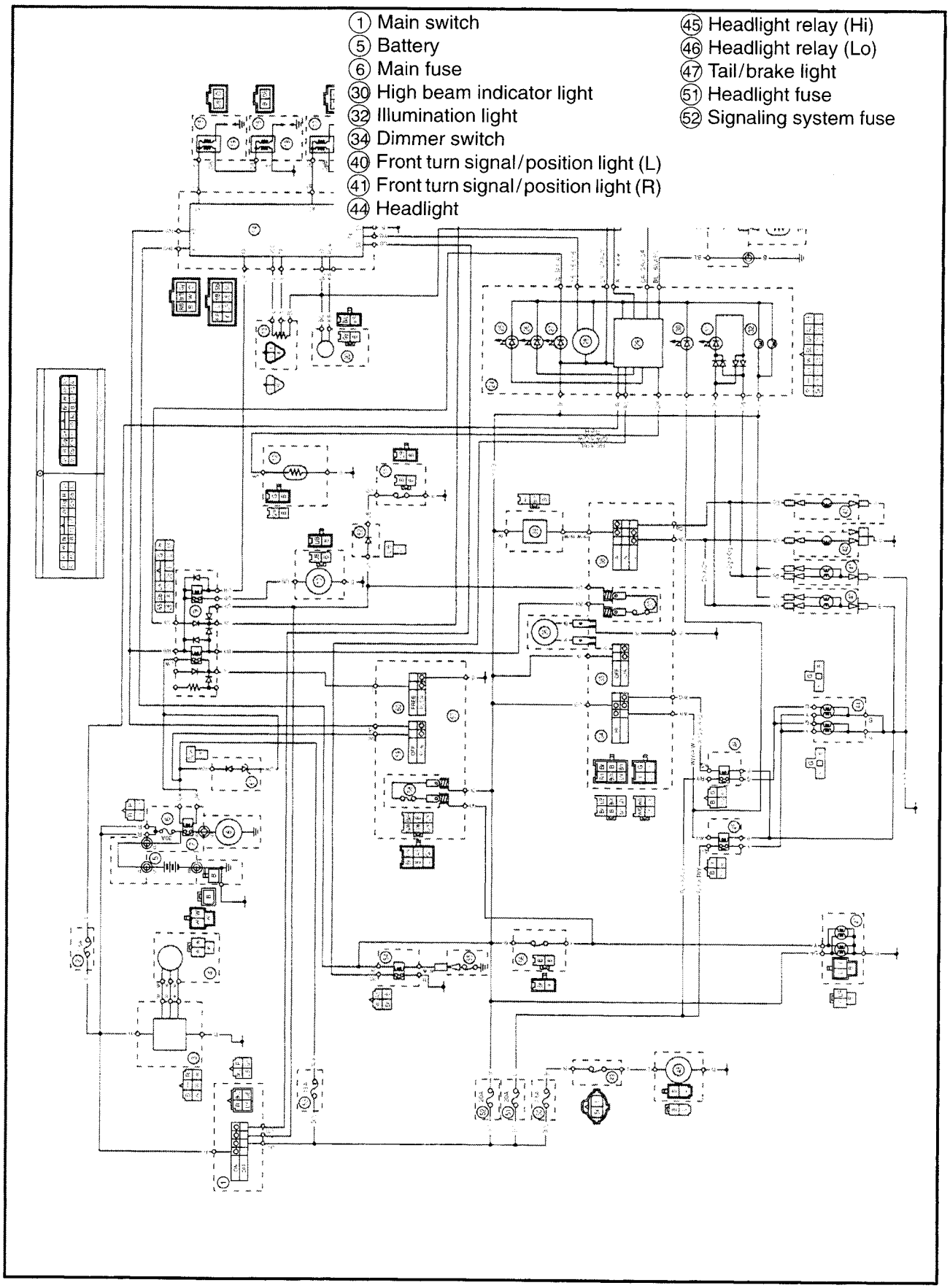
NO → Properly connect or repair the charging system's wiring.

YES → Replace the rectifier/regulator.

EB805000

LIGHTING SYSTEM

CIRCUIT DIAGRAM



EB805010

TROUBLESHOOTING

Any of the following fail to light: headlight, high beam indicator light, taillight, auxiliary light or meter light.

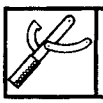
Check:
1. main, signaling system, and headlight fuses
2. battery
3. main switch
4. dimmer switch
5. wiring
   (of the entire charging system)

NOTE:

- Before troubleshooting, remove the following part(-s):

1) seats
2) fuel tank
3) air filter case
4) front cowling inner panels
5) front cowling
6) rear cowling

- Troubleshoot with the following special tool(-s).



Pocket tester
90890-03112

EB802400

1. Main, signaling system, and headlight fuses

- Check the main, signaling system, and headlight fuses for continuity.
  Refer to "CHECKING THE FUSES" in chapter 3.
- Are the main, signaling system, and headlight fuses OK?

YES

NO → Replace the fuse(-s).

EB802401

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Open-circuit voltage
12.8 V or more at 20°C (68°F)

- Is the battery OK?

YES

NO →
- Clean the battery terminals.
- Recharge or replace the battery.

EB802411

3. Main switch

- Check the main switch for continuity.
  Refer to "CHECKING THE SWITCHES".
- Is the main switch OK?

YES

NO → Replace the main switch.

EB805401

4. Dimmer switch

- Check the dimmer switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the dimmer switch OK?

YES → NO

The dimmer switch is faulty. Replace the left handlebar switch.

EB805404

5. Wiring

- Check the entire lighting system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the lighting system's wiring properly connected and without defects?

YES → Check the condition of each of the lighting system's circuits. Refer to "CHECKING THE LIGHTING SYSTEM".

NO → Properly connect or repair the lighting system's wiring.

EB805410

CHECKING THE LIGHTING SYSTEM

1. The headlight and the high beam indicator light fail to come on.

1. Headlight bulb and socket

- Check the headlight bulb and socket for continuity. Refer to "CHECKING THE BULBS AND BULB SOCKETS".
- Are the headlight bulb and socket OK?

YES → NO → Replace the headlight bulb, socket or both.

2. High beam indicator light LED

- Check the LED of the high beam indicator light. Refer to "CHECKING THE LEDs".
- Is the high beam indicator light LED OK?

YES → NO → Replace the meter assembly.

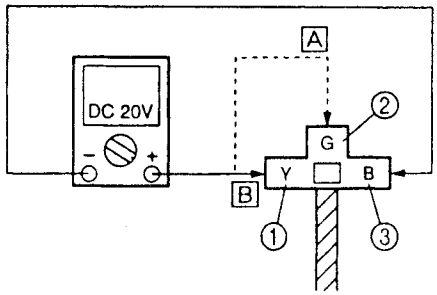
3. Voltage

- Connect the pocket tester (DC 20 V) to the headlight and high beam indicator light couplers as shown.

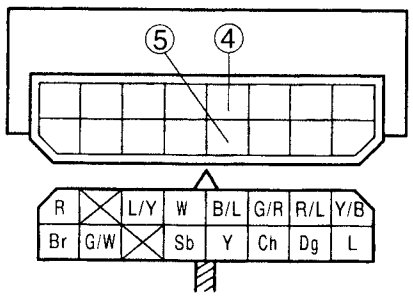
A When the dimmer switch is set to "≡D"
B When the dimmer switch is set to "≡D"

Headlight
Tester positive probe → yellow ① or green ②
Tester negative probe → black ③
High beam indicator light
Tester positive probe → yellow ④
Tester negative probe → black/blue ⑤

Headlight coupler (wire harness side)



Meter assembly couply (wire harness side)



- Set the main switch to "ON".
- Set the dimmer switch to " ≡D " or " ≡D ".
- Measure the voltage (12 V) of yellow (green) ② on the headlight coupler (headlight side).
- Is the voltage within specification?

YES

NO

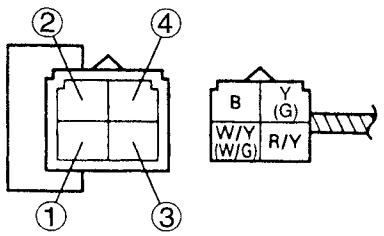
The wiring circuit from the main switch to the headlight coupler is faulty and must be repaired.

4. Headlight relay (Hi or Lo)

- Disconnect the headlight relay from the coupler.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the headlight relay terminals as shown.

Battery positive terminal → white/yellow (white/green) ①
Battery negative terminal → black ②

Tester positive probe → yellow (green) ④
Tester negative probe → red/yellow ③



- Does the headlight relay have continuity between yellow (green) and red/yellow?

YES

NO

This circuit is OK.

Replace the headlight relay.

EB805411
2. Illumination fails to come on.

1. Meter light bulb and socket.

- Check the meter light bulb and socket for continuity.
  Refer to "CHECKING THE BULBS AND BULB SOCKETS".
- Are the meter light bulb and socket OK?

YES

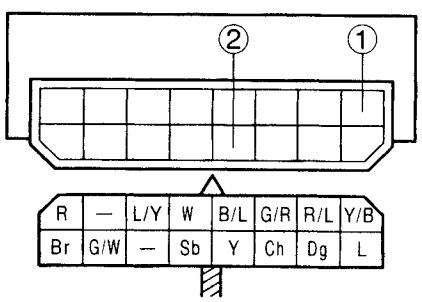
NO

Replace the meter light bulb, socket or both.

2. Voltage

- Connect the pocket tester (20 V) to the meter assembly coupler (wire harness side) as shown.

Tester positive probe → blue ①
Tester negative probe → black/blue ②



• Set the main switch to "ON".
• Measure the voltage (12 V) of blue ① on the meter assembly coupler (wire harness side).
• Is the voltage within specification?

YES → This circuit is OK.

NO → The wiring circuit from the main switch to the meter assembly coupler is faulty and must be repaired.

• Set the main switch to "ON".
• Measure the voltage (12 V) of blue/red ① on the tail/brake light coupler (wire harness side).
• Is the voltage within specification?

YES → This circuit is OK.

NO → The wiring circuit from the main switch to the tail/brake light coupler is faulty and must be repaired.

EB805412
3. A tail/brake light fails to come on.

1. Tail/brake light bulb and socket

• Check the tail/brake light bulb and socket for continuity.
Refer to "CHECKING THE BULBS AND BULB SOCKETS".
• Are the tail/brake light bulb and socket OK?

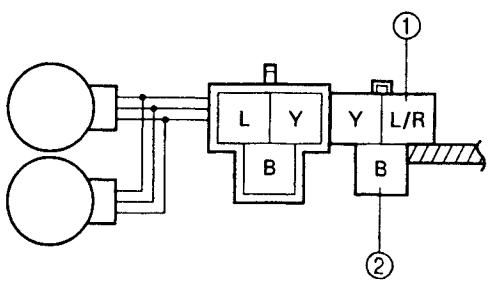
YES

NO → Replace the tail/brake light bulb, socket or both.

2. Voltage

• Connect the pocket tester (DC 20 V) to the tail/brake light coupler (wire harness side) as shown.

Tester positive probe → blue/red ①
Tester negative probe → black ②



EB805413
4. The turn signal/position light fails to come on.

1. Turn signal/position light bulb and socket

• Check the turn signal/position light bulb and socket for continuity.
Refer to "CHECKING THE BULBS AND BULB SOCKETS".
• Are the turn signal/position light bulb and socket OK?

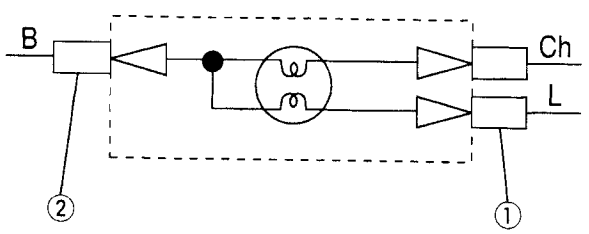
YES

NO → Replace the turn signal/position light bulb, socket or both.

2. Voltage

• Connect the pocket tester (DC 20 V) to the turn signal/position light couplers (wire harness side) as shown.

Tester positive probe → blue ①
Tester negative probe → black ②



- Set the main switch to "ON".
- Measure the voltage (12 V) of blue ① on the turn signal/position light couplers (wire harness side).
- Is the voltage within specification?

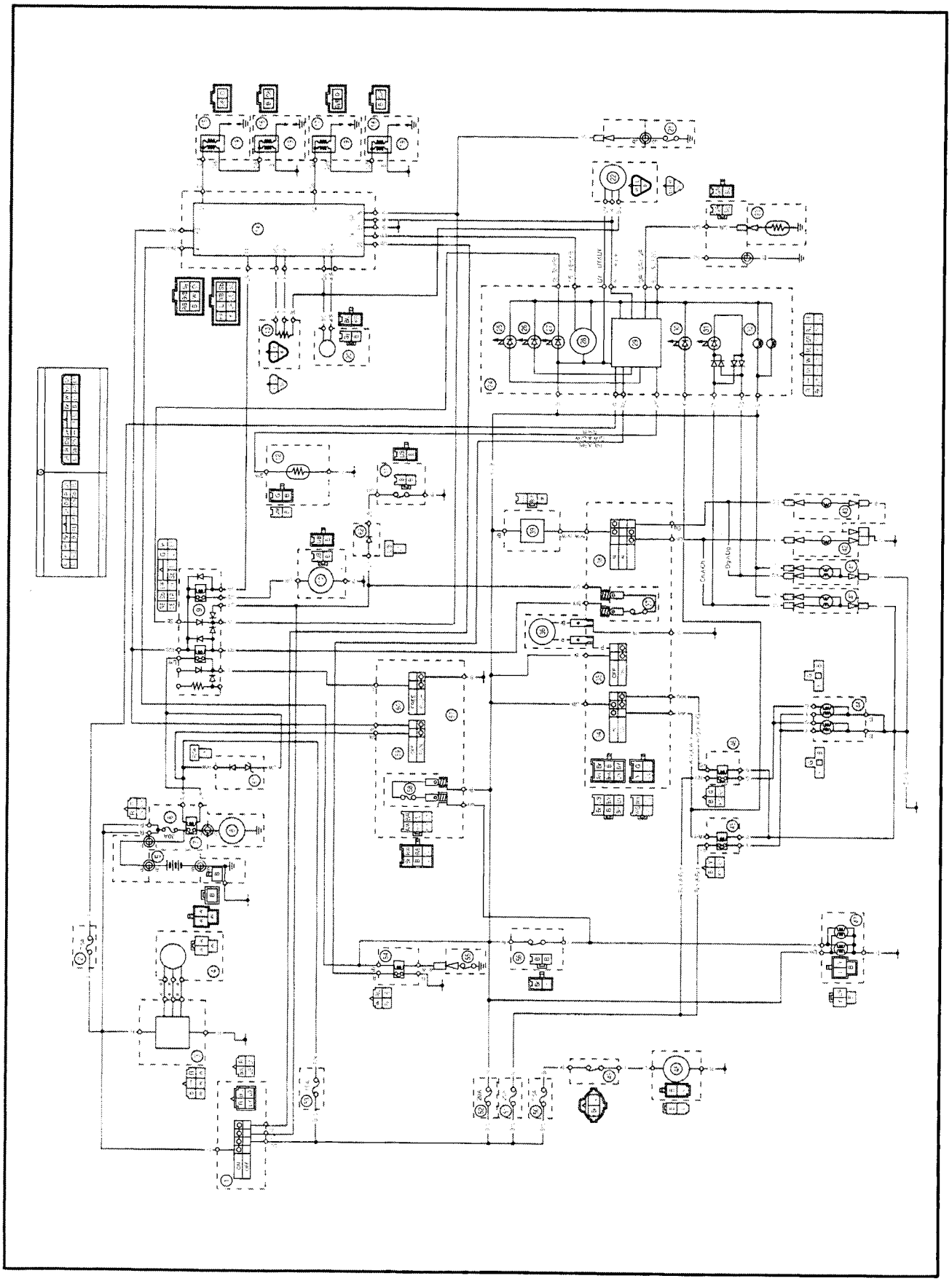
YES → This circuit is OK.

NO → The wiring circuit from the main switch to the turn signal/position light connectors is faulty and must be repaired.

EB806000

SIGNALING SYSTEM

CIRCUIT DIAGRAM



① Main switch
⑤ Battery
⑥ Main fuse
⑨ Starting circuit cutoff relay
⑫ Fuel sender
㉑ Neutral switch
㉒ Speed sensor
㉕ Fuel level indicator light
㉖ Oil level/coolant temperature warning light
㉗ Neutral indicator light
㉘ Tachometer
㉙ Combination meter
㉛ Turn signal indicator light
㉟ Horn switch
㊱ Horn
㊳ Turn signal switch
㊴ Flasher relay
㊵ Front turn signal/position light (L)
㊶ Front turn signal/position light (R)
㊷ Rear turn signal light (L)
㊸ Rear turn signal light (R)
㊼ Tail/brake light
㊷ Signaling system fuse
㊹ Oil level relay
㊺ Oil level switch
㊻ Rear brake light switch
㊽ Front brake light switch

EB806010

TROUBLESHOOTING

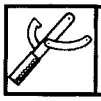
• Any of the following fail to light: turn signal light, brake light or an indicator light.
• The horn fails to sound.

Check:
1. main and signaling system fuses
2. battery
3. main switch
4. wiring
   (of the entire signaling system)

NOTE:

• Before troubleshooting, remove the following part(-s):
1) seats
2) fuel tank
3) air filter case
4) front cowling inner panels
5) bottom cowling
6) side cowling inner panels
7) side cowlings
8) windshield
9) rear cowling

• Troubleshoot with the following special tool (-s).



Pocket tester
90890-03112

EB802400

1. Main and signaling system fuses

• Check the main and signaling system fuses for continuity.
Refer to "CHECKING AND CHARGING THE FUSES" in chapter 3.
• Are the main and signaling system fuses OK?

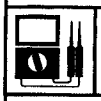
YES

NO → Replace the fuse(-s).

EB802401

2. Battery

• Check the condition of the battery.
Refer to "CHECKING THE BATTERY" in chapter 3.



Open-circuit voltage
12.8 V or more at 20°C (68°F)

• Is the battery OK?

YES

NO → • Clean the battery terminals.
• Recharge or replace the battery.

EB802411

3. Main switch

• Check the main switch for continuity.
Refer to "CHECKING THE SWITCHES".
• Is the main switch OK?

YES

NO → Replace the main switch.

EB806400

4. Wiring

• Check the entire signaling system's wiring.
Refer to "CIRCUIT DIAGRAM".
• Is the signaling system's wiring properly connected and without defects?

YES → Check the condition of each of the signaling system's circuits. Refer to "CHECKING THE SIGNALING SYSTEM".

NO → Properly connect or repair the signaling system's wiring.

EB806410

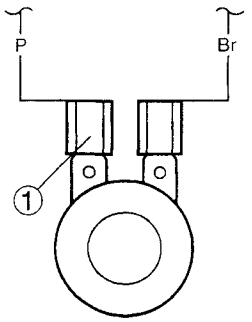
CHECKING THE SIGNALING SYSTEM

1. The horn fails to sound.

1. Horn switch
• Check the horn switch for continuity. Refer to "CHECKING THE SWITCHES". • Is the horn switch OK?

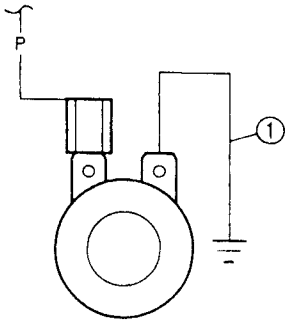
⇩ YES ⇩ NO

Replace the left handlebar switch.

2. Voltage
• Connect the pocket tester (DC 20 V) to the horn connector at the horn terminal as shown.
Tester positive probe → pink ① **Tester negative probe → ground**

• Set the main switch to "ON". • Push the horn switch. • Measure the voltage (12 V) of pink ① at the horn terminal. • Is the voltage within specification?

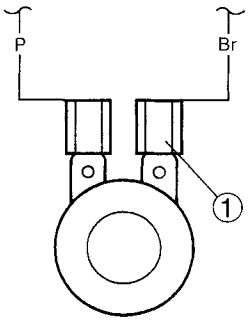
⇩ YES ⇩ NO

The wiring circuit from the main switch to the horn connector is faulty and must be repaired.

3. Horn
• Disconnect the black connector at the horn terminal. • Connect a jumper lead ① to the horn terminal and ground the jumper lead. • Set the main switch to "ON". • Push the horn switch. • Does the horn sound?


⇩ NO ⇩ YES

The horn is OK.

4. Voltage
• Connect the pocket tester (DC 20 V) to the horn connector at the black terminal as shown.
Tester positive probe → black ① **Tester negative probe → ground**

• Set the main switch to "ON". • Measure the voltage (12 V) of brown ① at the horn terminal. • Is the voltage within specification?

⇩ YES ⇩ NO

Repair or adjust the horn.

Replace the horn.

EB806411

2. A tail/brake light fails to come on.

1. Tail/brake light bulb and socket
- Check the tail/brake light bulb and socket for continuity.
  Refer to "CHECKING THE BULBS AND BULB SOCKETS".
- Are the tail/brake light bulb and socket OK?

YES → 2. Brake light switches

NO → Replace the tail/brake light bulb, socket or both.

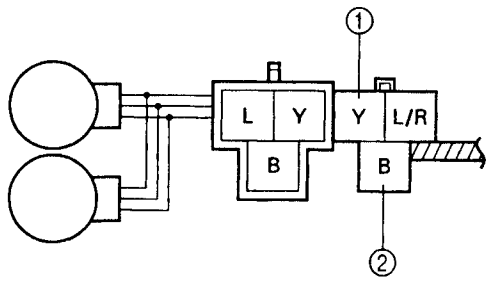
2. Brake light switches
- Check the brake light switches for continuity.
  Refer to "CHECKING THE SWITCHES".
- Is the brake light switch OK?

YES → 3. Voltage

NO → Replace the brake light switch.

3. Voltage
- Connect the pocket tester (DC 20 V) to the tail/brake light coupler (wire harness side) as shown.

Tester positive probe → yellow ①
Tester negative probe → black ②



- Set the main switch to "ON".
- Pull in the brake lever or push down on the brake pedal.
- Measure the voltage (12 V) of yellow at the tail/brake light coupler (wire harness side).
- Is the voltage within specification?

YES → This circuit is OK.

NO → The wiring circuit from the main switch to the tail/brake light coupler is faulty and must be repaired.

EB806413

3. A turn signal light, turn signal indicator light or both fail to blink.

1. Turn signal light bulb and socket
- Check the turn signal light bulb and socket for continuity.
  Refer to "CHECKING THE BULBS AND BULB SOCKETS".
- Are the turn signal light bulb and socket OK?

YES → 2. Turn signal indicator light LED

NO → Replace the turn signal light bulb, socket or both.

2. Turn signal indicator light LED
- Check the LED of the turn signal indicator light.
  Refer to "CHECKING THE LEDs".
- Is the turn signal indicator light LED OK?

YES → Replace the meter assembly.

NO → Replace the meter assembly.

3. Turn signal switch

- Check the turn signal switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the turn signal switch OK?

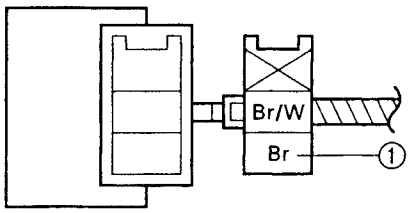
YES → 4. Voltage

NO → Replace the left handlebar switch.

4. Voltage

- Connect the pocket tester (DC 20 V) to the relay coupler (wire harness side) as shown.

Tester positive probe → brown ①
Tester negative probe → ground



- Set the main switch to "ON".
- Measure the voltage (12 V) of brown ① at the turn signal relay coupler (wire harness side).
- Is the voltage within specification?

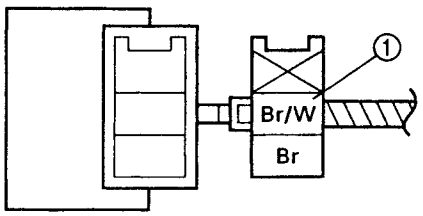
YES → 5. Voltage

NO → The wiring circuit from the main switch to the turn signal relay coupler (turn signal relay side) is faulty and must be repaired.

5. Voltage

- Connect the pocket tester (DC 20 V) to the turn signal relay coupler (wire harness side) as shown.

Tester positive probe → brown/white ①
Tester negative probe → ground



- Set the main switch to "ON".
- Set the turn signal switch to " ⇦ " or " ⇨ ".
- Measure the voltage (12 V) or brown/white at the turn signal relay coupler (wire harness side).
- Is the voltage within specification?

YES → 6. Voltage

NO → The turn signal relay is faulty and must be replaced.

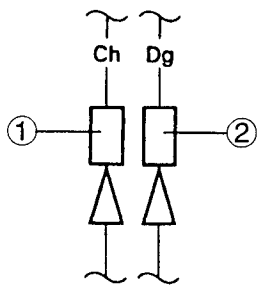
6. Voltage

- Connect the pocket tester (DC 20 V) to the turn signal light connectors or the meter assembly coupler (wire harness side) as shown.

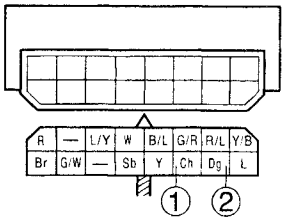
[A] Turn signal light
[B] Turn signal indicator light

Left turn signal light
Tester positive probe → chocolate ①
Tester negative probe → ground
Right turn signal light
Tester positive probe → dark green ②
Tester negative probe → ground

[A]



[B]



• Set the main switch to "ON".
• Set the turn signal switch to " ⇦ " or " ⇨ ".
• Measure the voltage (12 V) of chocolate ① or dark green ② at the turn signal light connector (wire harness side).
• Is the voltage within specification?

YES → This circuit is OK.

NO → The wiring circuit from the turn signal switch to the turn signal light connector is faulty and must be repaired.

EB806414
4. The neutral indicator light fails to come on.

1. Neutral indicator light LED
• Check the LED of the neutral indicator light. Refer to "CHECKING THE LEDs".
• Is the neutral indicator light LED OK?

YES → 2. Neutral switch
• Check the neutral switch for continuity. Refer to "CHECKING THE SWITCHES".
• Is the neutral switch OK?

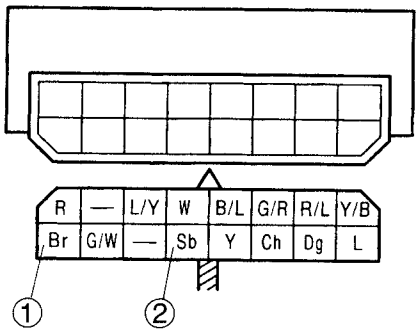
YES → This circuit is OK.

NO → Replace the neutral switch.

NO → Replace the meter assembly.

3. Voltage
• Connect the pocket tester (DC 20 V) to the meter assembly coupler (wire harness side) as shown.

Tester positive probe → brown ①
Tester negative probe → sky blue ②



• Set the main switch to "ON".
• Measure the voltage (12 V) of brown ① and sky blue ② at the meter assembly coupler.
• Is the voltage within specification?

YES → This circuit is OK.

NO → The wiring circuit from the main switch to the meter light bulb coupler is faulty and must be repaired.

EB806416
5. The oil level warning light fails to come on.

1. Oil level warning light LED
• Check the LED of the oil level warning light. Refer to "CHECKING THE LEDs".
• Is the oil level warning light LED OK?

YES → This circuit is OK.

NO → Replace the meter assembly.

2. Oil level switch

- Drain the engine oil and remove the oil level switch from the oil pan.
- Check the oil level switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the oil level switch OK?

YES

NO

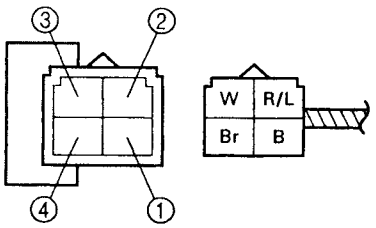
Replace the oil level switch.

3. Oil level relay

- Disconnect the oil level relay from the coupler.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the oil level relay terminals as shown.

Battery positive terminal → brown ①
Battery negative terminal → white ②

Tester positive probe → red/blue ③
Tester negative probe → black ④



- Does the oil level relay have continuity between red/blue and black?

YES

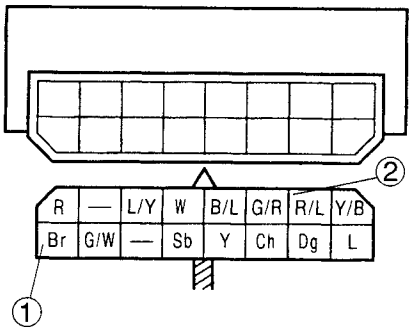
NO

Replace the oil level relay.

4. Voltage

- Connect the pocket tester (DC 20 V) to the meter assembly coupler (wire harness side) as shown.

Tester positive probe → brown ①
Tester negative probe → red/blue ②



- Set the main switch to "ON".
- Measure the voltage (12 V) of brown ① and red/blue at the meter assembly coupler.
- Is the voltage within specification?

YES

NO

This circuit is OK.

The wiring circuit from the main switch to the meter assembly coupler is faulty and must be repaired.

EB806417

6. The fuel level indicator light fails to come on.

1. Fuel level indicator light LED

- Check the LED of the fuel level indicator light. Refer to "CHECKING THE LEDs".
- Is the fuel level indicator light LED OK?

YES

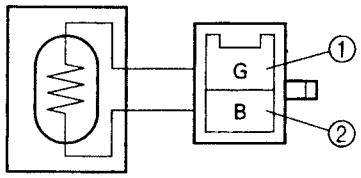
NO

Replace the meter assembly.

2. Fuel sender

- Disconnect the fuel sender coupler from the wire harness.
- Drain the fuel from the fuel tank and remove the fuel sender from the fuel tank.
- Check the fuel sender for continuity.

Tester positive probe → green ①
Tester negative probe → black ②



- Is the fuel sender OK?

YES

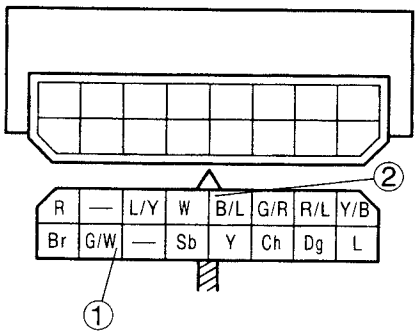
NO

Replace the fuel sender.

3. Voltage

Connect the pocket tester (DC 20 V) to the meter assembly coupler (wire harness side) as shown.

Tester positive probe → green/white ①
Tester negative probe → black/blue ②



- Set the main switch to "ON".
- Measure the voltage (12 V).
- Is the voltage within specification?

YES

NO

This circuit OK.

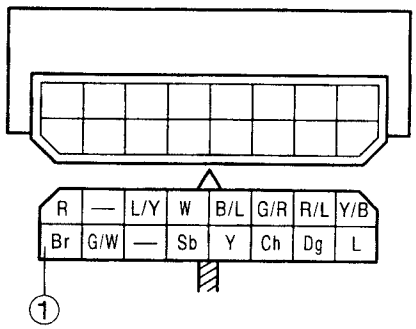
The wiring circuit from the main switch to the meter assembly coupler is faulty and must be repaired.

EAS00805
7.The clock fails to come on.

1. Voltage

Connect the pocket tester (20 V DC) to the clock coupler (clock side) as shown.

Tester positive probe → brown ①
Tester negative probe → ground



Set the main switch to "ON".
Measure the voltage (12 V).
Is the voltage within specification?

YES

NO

The wiring circuit from the main switch to the clock coupler (clock side) is faulty and must be repaired.

2. Clock

Check that the clock is operating properly.
When setting the clock after its power source has been disconnected (e.g., when the battery is removed), first set the clock to 1:00 AM and then to the correct time.
Is the clock operating properly?

YES

NO

This circuit is OK.

Replace the

EAS00806

8. The speedometer fails to come on.

1. Speedometer bulb socket

- Check the speedometer bulb socket for continuity.
- Is the speedometer bulb socket OK?

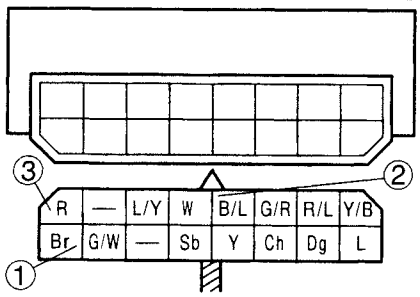
YES / NO

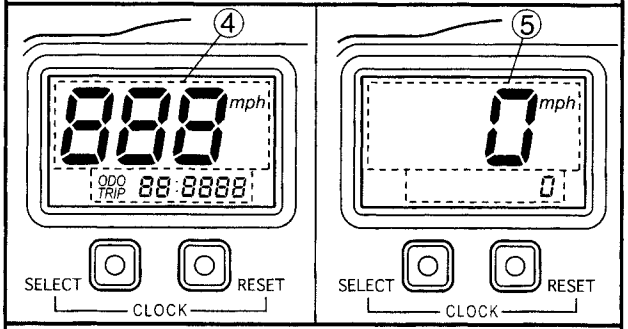
Replace the speedometer bulb socket.

2. Voltage

- Connect the pocket tester (20 V DC) to the speedometer coupler (wire harness side) as shown.

Battery positive lead → green/yellow ①
Battery negative lead → black/blue ②
Battery positive lead → red ③





NOTE:

First, connect the battery to the brown ① and black/blue ② coupler terminals, then connect the battery positive lead to the red ③ terminal.
When connecting the battery, check whether the startup display ④ appears first and then after approximately three seconds the normal display appears ⑤ .

Does the startup display appear first and then after approximately three seconds the normal display appears?

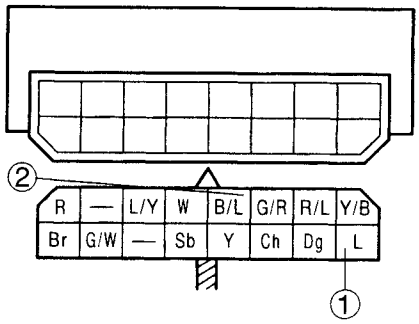
YES / NO

Replace the speedometer.

3. Voltage

- Connect the pocket tester (20 V DC) to the speedometer bulb socket coupler (wire harness side) as shown.

Tester positive probe → blue ①
Tester negative probe → black/blue ②



- Set the main switch to "ON".
- Measure the voltage (12 V) of blue ① on the speedometer bulb socket coupler (wire harness side).
- Is the voltage within specification?

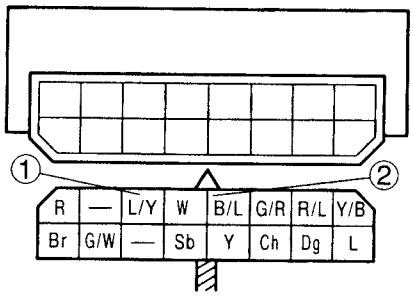
YES / NO

The wiring circuit from the main switch to the speedometer bulb socket coupler (wire harness side) is faulty, repair it.

4. Speedometer sensor

- Connect the pocket tester (20 V DC) to the speedometer coupler (wire harness side) as shown.

Tester positive probe → blue/yellow ①
Tester negative probe → black/blue ②



- Set the main switch to "ON".
- Elevate the rear wheel and slowly rotate it.
- Measure the voltage (5 V) of blue/yellow and black/blue. With each full rotation of the rear wheel, the voltage reading should cycle from 0 V to 5 V to 0 V to 5 V.
- Does the voltage reading cycle correctly?

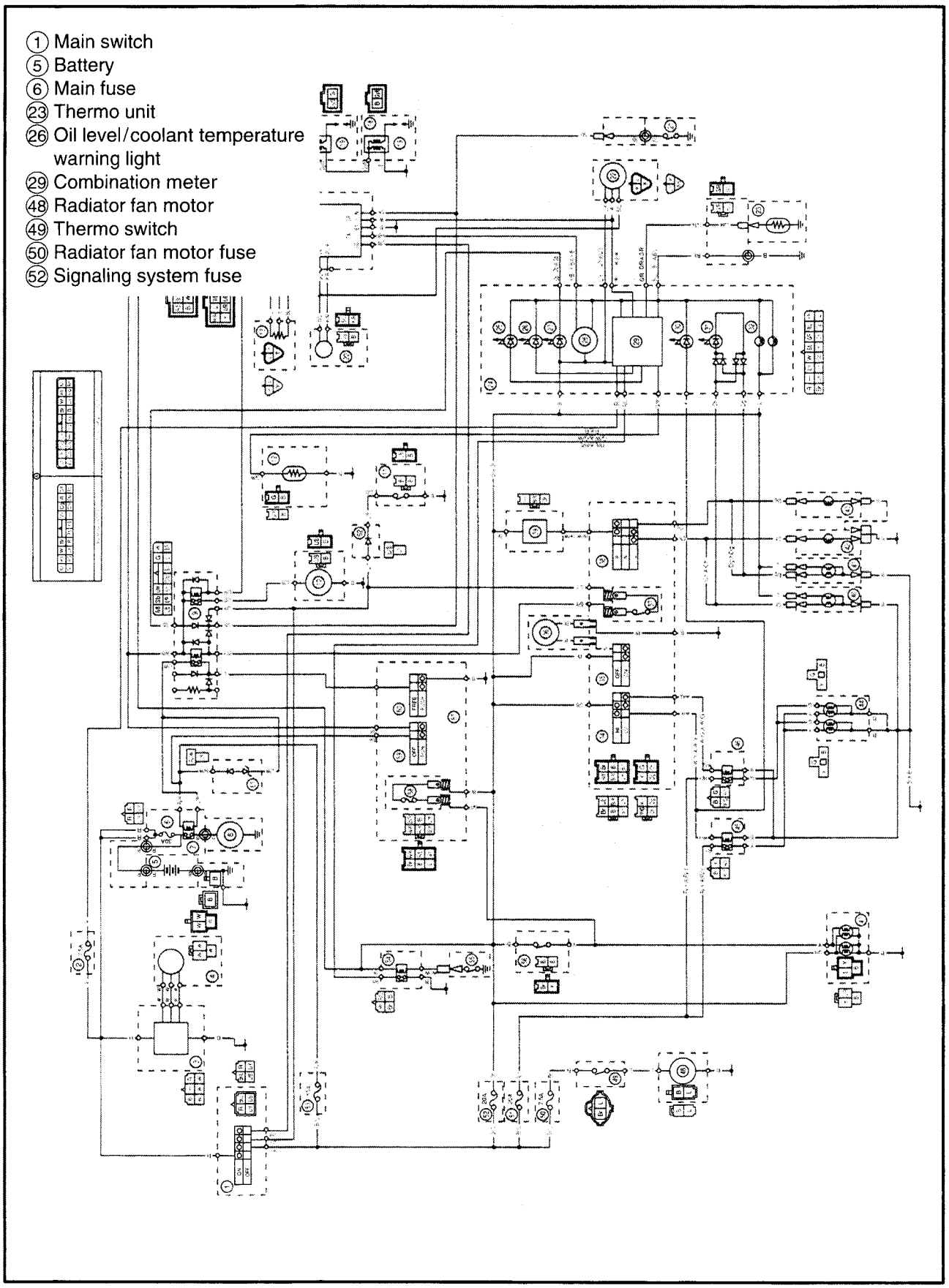
YES → This circuit is OK.

NO → Replace the speedometer sensor.

EB807000

COOLING SYSTEM

CIRCUIT DIAGRAM



EB807010

TROUBLESHOOTING

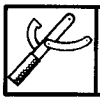
• The radiator fan motor fails to turn.
• The coolant temperature display and/or warning light fails to indicate when the engine is warm.

Check:
1. main, signal system, and radiator fan motor fuses
2. battery
3. main switch
4. radiator fan motor
5. thermo switch
6. thermo unit
7. wiring
   (the entire cooling system)

NOTE:

• Before troubleshooting, remove the following part(-s):
1) rider seat
2) bottom cowling
3) front cowling inner panels
4) side cowling inner panels
5) side cowlings
6) windshield

• Troubleshoot with the following special tool (-s).



Pocket tester
90890-03112

EB802400

1. Main, signal system and radiator fan motor fuses

• Check the main, signal system, and radiator fan motor fuses for continuity.
Refer to "CHECKING THE FUSES" in chapter 3.
• Are the main, signal system, and radiator fan motor fuses OK?

YES ⇩ NO ⇩

Replace the fuse(-s).

EB802401

2. Battery

• Check the condition of the battery.
Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Open-circuit voltage
12.8 V or more at 20°C (68°F)

• Is the battery OK?

YES ⇩ NO ⇩

• Clean the battery terminals.
• Recharge or replace the battery.

EB802411

3. Main switch

• Check the main switch for continuity.
Refer to "CHECKING THE SWITCHES".
• Is the main switch OK?

YES ⇩ NO ⇩

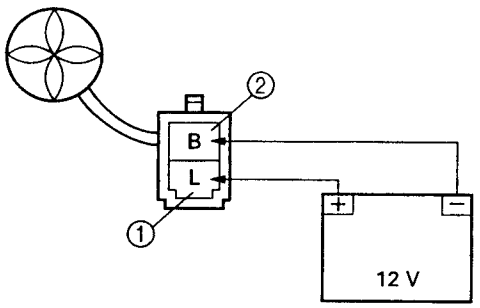
Replace the main switch.

EB807400

4. Radiator fan motor (test 1)

• Disconnect the radiator fan motor coupler from the wire harness.
• Connect the battery (12 V) as shown.

Battery positive lead → blue ①
Battery negative lead → black ②



• Does the radiator fan motor turn?

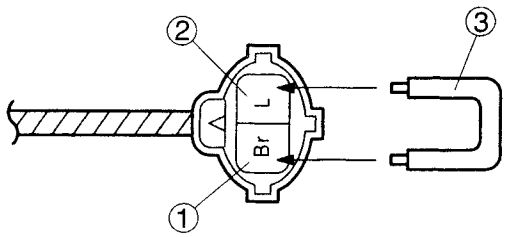
YES ⇩ NO ⇩

The radiator fan motor is faulty and must be replaced.

EB807400

5. Radiator fan motor (test 2)

- Disconnect the thermo switch coupler.
- Set the main switch to "ON".
- Connect the brown ① and blue ② terminals with a jumper lead ③ as shown.



- Does the radiator fan motor turn?

YES

NO

The wiring circuit from the main switch to the radiator fan motor coupler is faulty and must be repaired.

6. Thermo switch

- Remove the thermo switch from the radiator.
- Connect the pocket tester (Ω × 1) to the thermo switch ① as shown.
- Immerse the thermo switch in a container filled with coolant ②.

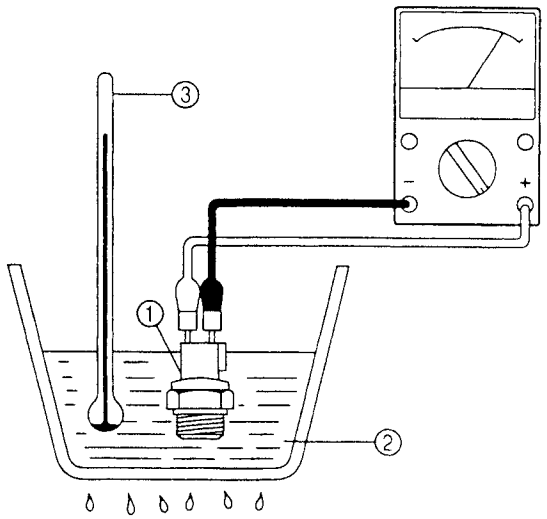
NOTE:

Make sure that the thermo switch terminals do not get wet.

- Place a thermometer ③ in the coolant.
- Slowly heat the coolant, then let it cool to the specified temperature as indicated in the table.
- Check the thermo switch for continuity at the temperatures indicated in the table.

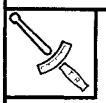
Test step	Coolant temperature / Thermo switch	Continuity
1	0 ~ 105 ± 3°C (0 ~ 221 ± 5.4°F)	NO
2	More than 105 ± 3°C (221 ± 5.4°F)	YES
3*	105 ± 3°C to 100 ± 3°C (221 ± 5.4°F to 212 ± 5.4°F)	YES
4*	Less than 100 ± 3°C (212 ± 5.4°F)	NO

Test steps 1 & 2: Heating phase
Test steps 3* & 4*: Cooling phase



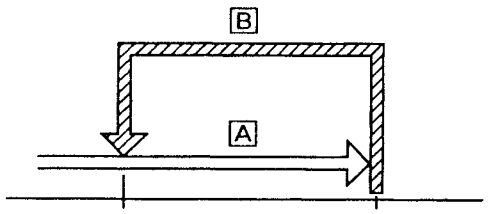
⚠ WARNING

- **Handle the thermo switch with special care.**
- **Never subject the thermo switch to strong shocks. If the thermo switch is dropped, replace it.**



Thermo switch
28 Nm (2.8 m•kg, 20 ft•lb)
Three bond sealock® 10

A The thermo switch circuit is open and the radiator fan is off.
B The thermo switch circuit is closed and the radiator fan is on.



- Does the thermo switch operate properly as described above?

YES

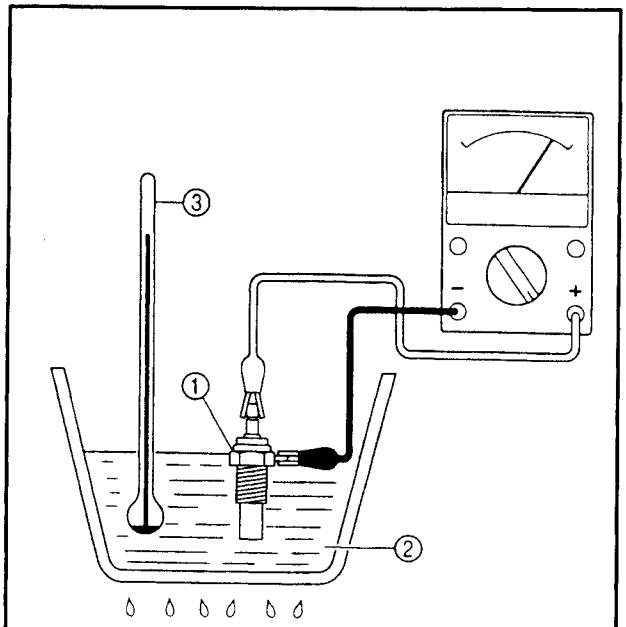
NO

Replace the thermo switch.

7. Thermo unit

- Remove the temperature sender from the cylinder head.
- Connect the pocket tester (Ω × 10) to the thermo unit ① as shown.
- Immerse the thermo unit in a container filled with coolant ②.
- Place a thermometer ③ in the coolant.
- Slowly heat the water, then let it cool down to the specified temperature.
- Check the thermo unit for continuity at the temperatures indicated below.

Thermo unit resistance
50.6 ~ 64.2 Ω at 80°C (176°F)
17.3 ~ 16.1 Ω at 120°C (248°F)



⚠ WARNING

Handle the temperature sender with special care.
Never subject the temperature sender to strong shocks. If the temperature sender is dropped, replace it.

Temperature sender
15 Nm (1.5 m•kg, 11 ft•lb)
Three bond sealock® 10

YES

NO

Replace the temperature sender.

EB807403

8. Wiring

- Check the entire cooling system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the cooling system's wiring properly connected and without defects?

YES

NO

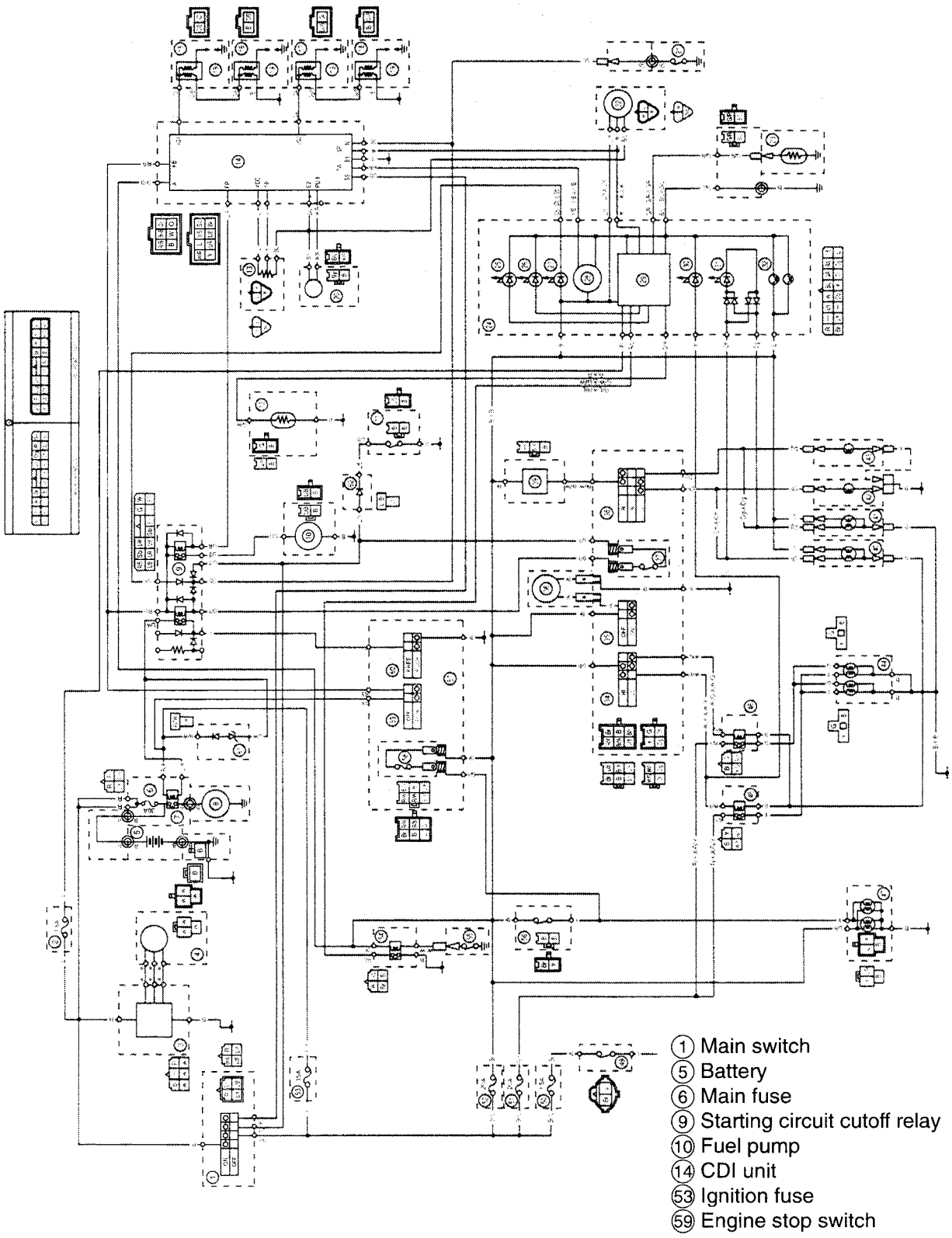
Replace the combination meter.

Properly connect or repair the cooling system's wiring.

EB808000

FUEL PUMP SYSTEM

CIRCUIT DIAGRAM

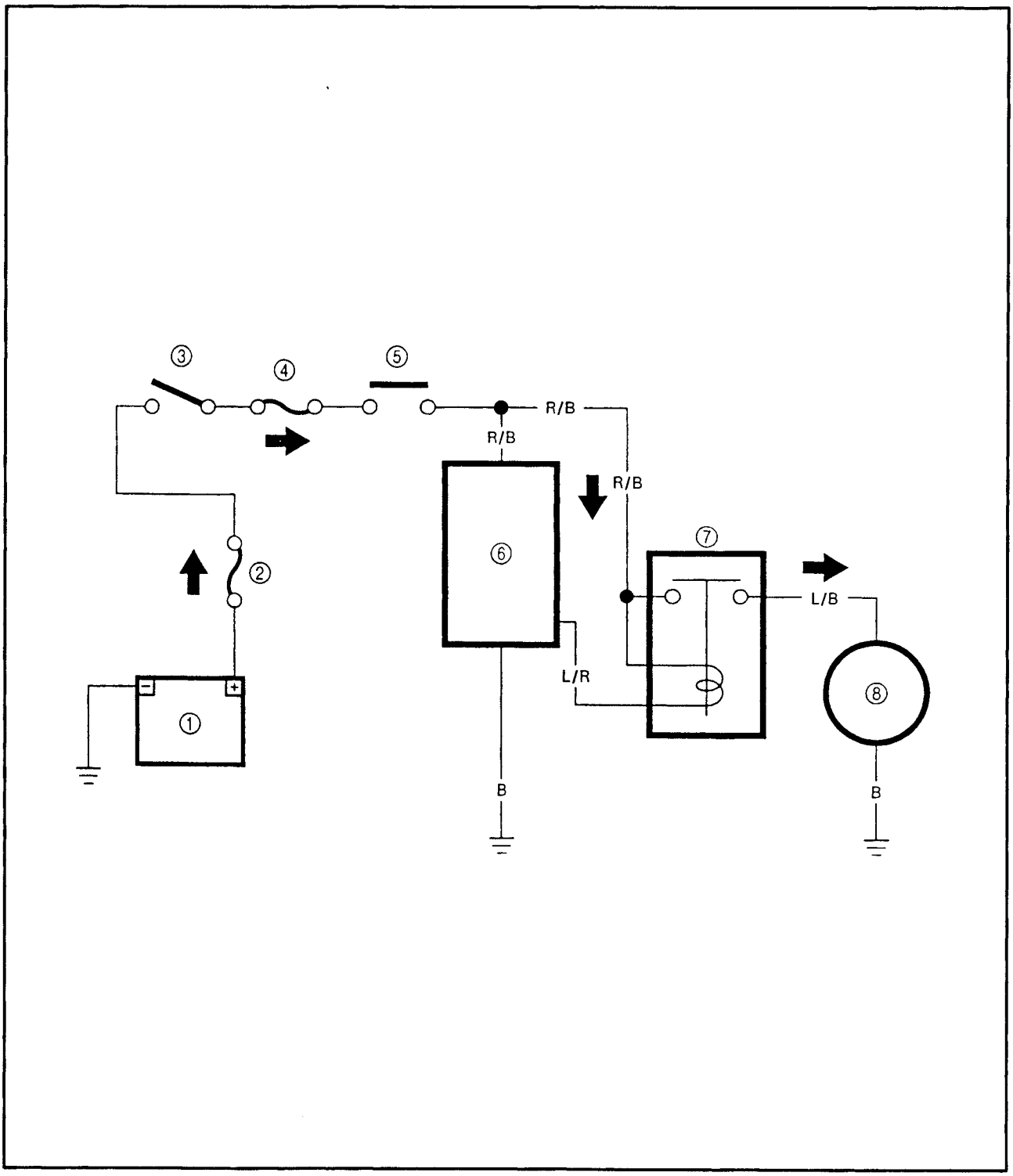


EB806010

FUEL PUMP CIRCUIT OPERATION

The CDI unit includes the control unit for the fuel pump.

① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ Engine stop switch
⑥ CDI unit
⑦ Starting circuit cutoff relay
⑧ Fuel pump



EB806020
TROUBLESHOOTING

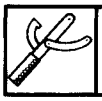
The fuel pump fails to operate.

Check:
1. main and ignition fuses
2. battery
3. main switch
4. engine stop switch
5. starting circuit cutoff relay
6. fuel pump
7. wiring
   (the entire fuel pump system)

NOTE:
- Before troubleshooting, remove the following part(-s):

1) rider seat
2) fuel tank
3) air filter case
4) front cowling inner panel (left)

- Troubleshoot with the following special tool(-s).



Pocket tester
90890-03112

EB802400

1. Main and ignition fuses

- Check the main and ignition fuses for continuity.
  Refer to "CHECKING THE FUSES" in chapter 3.
- Are the main and ignition fuses OK?

YES ⇩ NO ➡

Replace the fuse(-s).

EB802401

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

Open-circuit voltage
12.8 V or more at 20°C (68°F)

- Is the battery OK?

YES ⇩ NO ➡

- Clean the battery terminals.
- Recharge or replace the battery.

EB802411

3. Main switch

- Check the main switch for continuity.
  Refer to "CHECKING THE SWITCHES".
- Is the main switch OK?

YES ⇩ NO ➡

Replace the main switch.

EB802412

4. Engine stop switch

- Check the engine stop switch for continuity.
  Refer to "CHECKING THE SWITCHES".
- Is the engine stop switch OK?

YES ⇩ NO ➡

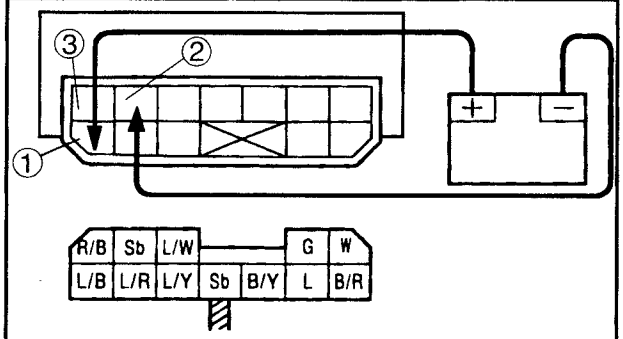
Replace the right handlebar switch.

5. Starting circuit cutoff relay

- Disconnect the relay from the coupler.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the relay terminals as shown.

Battery positive terminal → red/black ①
Battery negative terminal → blue/red ②

Tester positive probe → red/black ①
Tester negative probe → blue/black ③



- Does the fuel pump relay have continuity between red/black and blue/black?

YES → NO

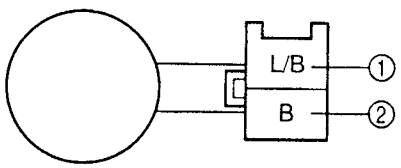
Replace the starting circuit cutoff relay.

EB808400

6. Fuel pump resistance

- Disconnect the fuel pump coupler from the wire harness.
- Connect the pocket tester (Ω × 1) to the fuel pump coupler (fuel pump side) as shown.

Tester positive probe → blue/black ①
Tester negative probe → black ②



- Measure the fuel pump resistance.

Fuel pump resistance
4 ~ 30 Ω at 20°C (68°F)

- Is the fuel pump OK?

YES → NO

Replace the fuel pump.

EB808401

7. Wiring

- Check the entire fuel pump system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the fuel pump system's wiring properly connected and without defects?

YES → NO

Replace the CDI unit.

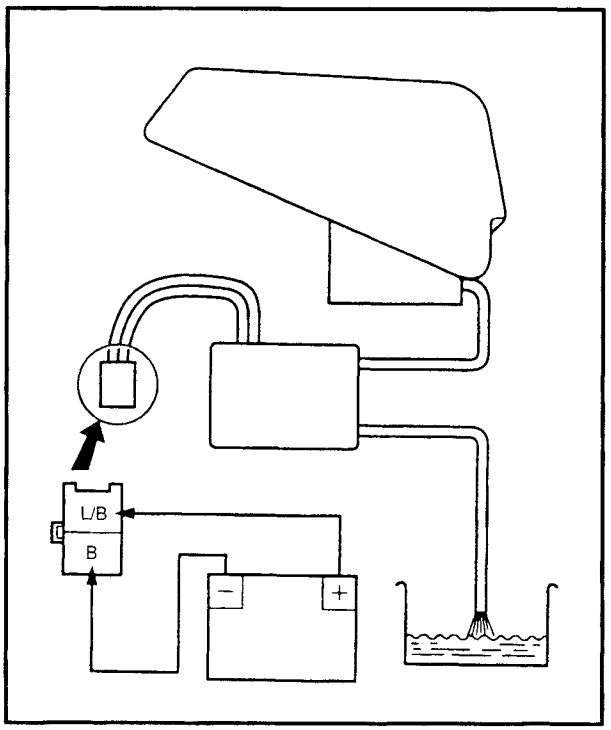
Properly connect or repair the fuel pump system's wiring.

EB808410

CHECKING THE FUEL PUMP

⚠ WARNING

Gasoline is extremely flammable and under certain circumstances there can be a danger of an explosion or fire. Be extremely careful and note the following points:
- **Stop the engine before refuelling.**
- **Do not smoke and keep away from open flames, sparks or any other source of fire.**
- **If you do accidentally spill gasoline, wipe it up immediately with dry rags.**
- **If gasoline touches the engine when it is hot, a fire may occur. Therefore, make sure that the engine is completely cool before performing the following test.**



1. Check:
   - fuel pump operation

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a. Fill the fuel tank.
b. Put the end of the fuel hose into an open container.
c. Connect the battery (12 V) to the fuel pump coupler as shown.

Battery positive lead → blue/black ①
Battery negative lead → black ②

d. If fuel flows out of the fuel hose, the fuel pump is OK. If fuel does not flow, replace the fuel pump.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

EB812000

SELF-DIAGNOSIS

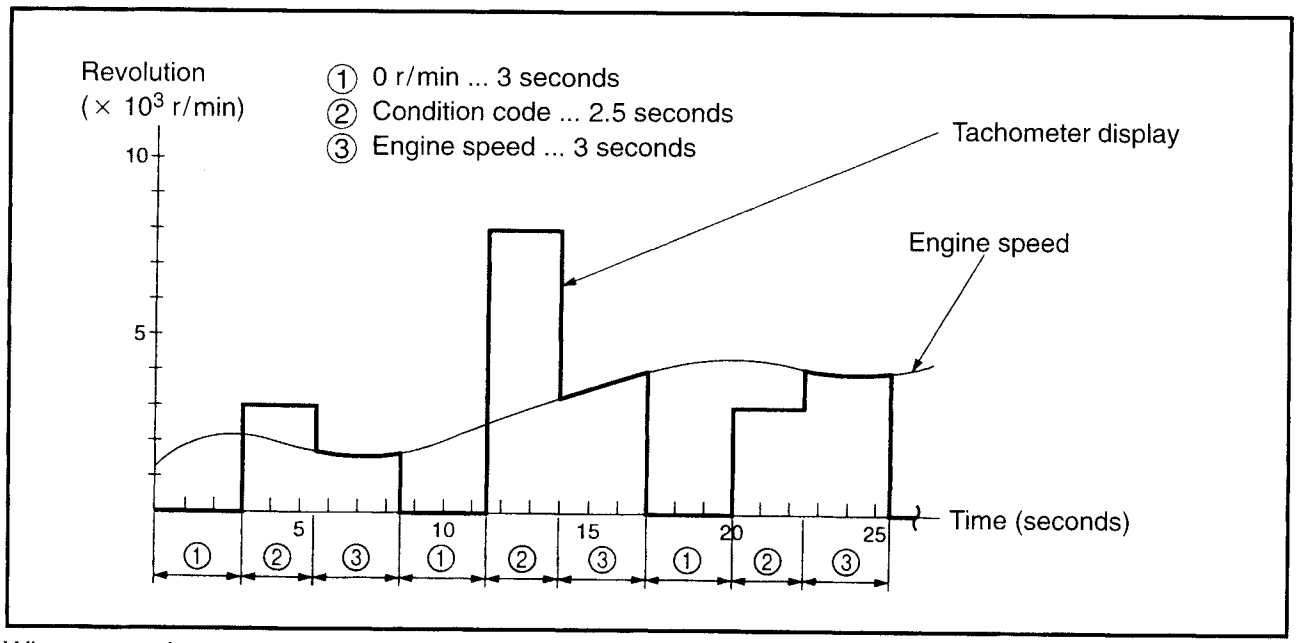
The YZF-R6 L/YZF-R6CL features a self-diagnosing system for the following circuit(-s):

- throttle position sensor
- fuel level indicator light

If any of these circuits are defective, their respective condition codes will be displayed on the tachometer when the main switch is set to "ON" (irrespective of whether the engine is running or not)

Circuit	Defect(-s)	System response	Condition code
Throttle position sensor	• Disconnected • Short-circuit • Locked	• The ignitor unit stays set to the wide-open throttle ignition timing. The motorcycle can be ridden. • The tachometer displays the condition code.	3,000 r/min
Fuel level indicator light	• Improper connection	• The tachometer displays the condition code.	8,000 r/min

Tachometer display sequence



When more than one item is being monitored, the tachometer needle displays the condition codes in ascending order, cycling through the sequence repeatedly.
If the engine is stopped, the engine speed ③ is 0 r/min.

EB812010
TROUBLESHOOTING

The tachometer starts to display the self-diagnosis sequence.

Check:
1. throttle position sensor
2. fuel level indicator light

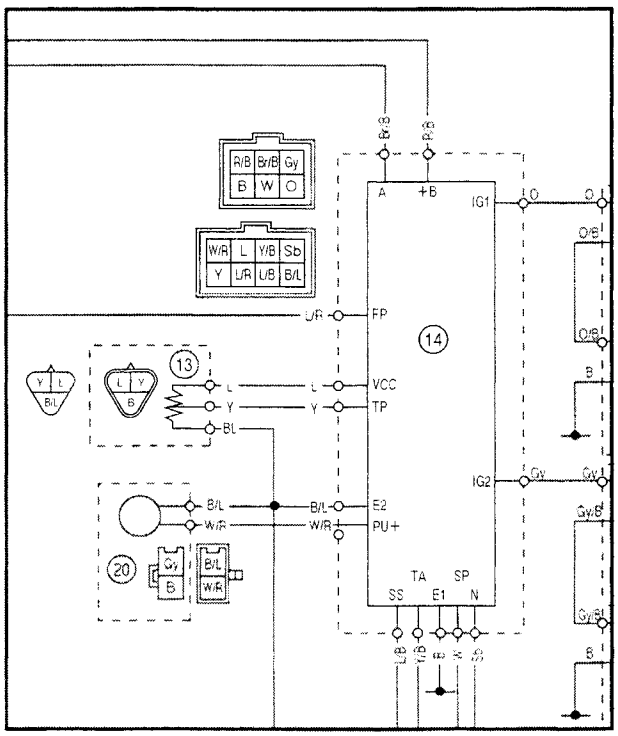
NOTE:
- Before troubleshooting, remove the following part(-s):

1) rider seat
2) fuel tank
3) air filter case
4) right side cowling inner panel
5) right side cowling

- Troubleshoot with the following special tool(-s).

Pocket tester
90890-03112

EB812020
1. Throttle position sensor
CIRCUIT DIAGRAM



⑬ Throttle position sensor
⑭ CDI unit

1. Wire harness
• Check the wire harness for continuity. Refer to "CIRCUIT DIAGRAM". • Is the wire harness OK?

YES ⇩ NO ⇩

Repair or replace the wire harness.

EB812401

2. Throttle position sensor
• Check the throttle position sensor for continuity. Refer to "CHECKING AND ADJUSTING THE THROTTLE POSITION SENSOR" in chapter 6. • Is the throttle position sensor OK?

YES ⇩ NO ⇩

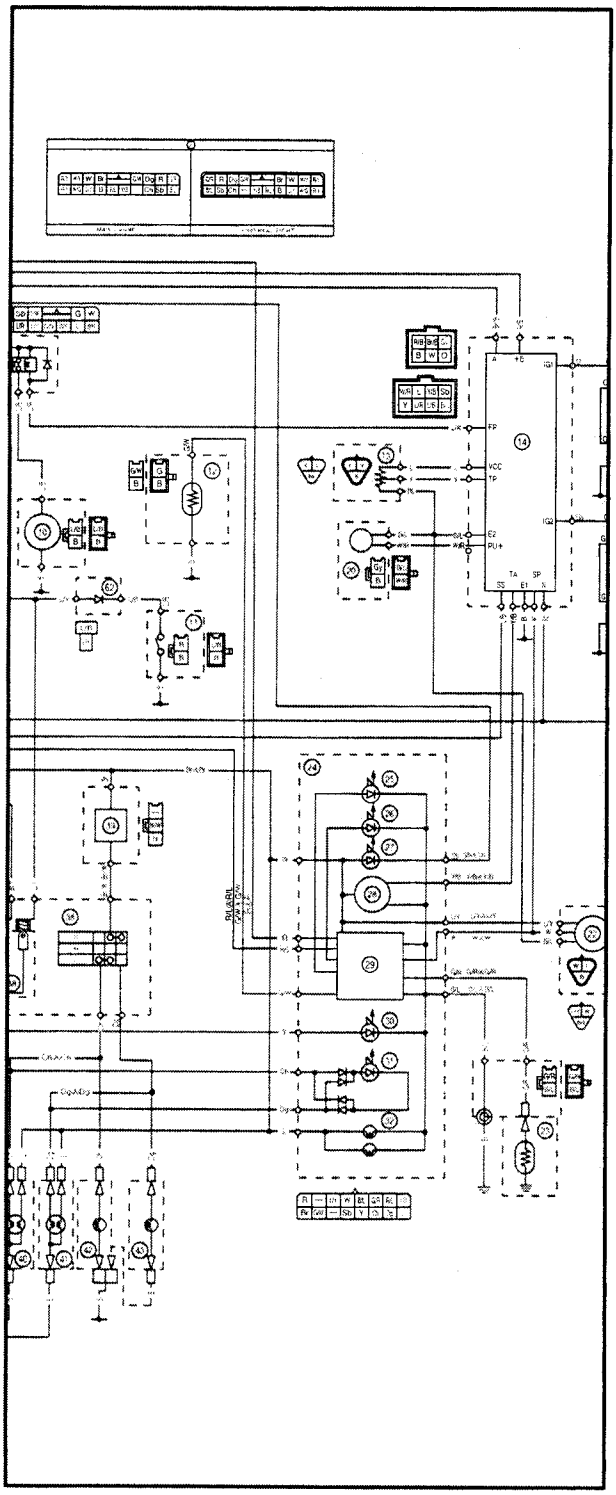
Replace the CDI unit.

Replace the throttle position sensor.

EB812040

2. Fuel level indicator light

CIRCUIT DIAGRAM



⑫ Fuel sender
⑭ CDI unit
㉕ Fuel level indicator light
㉙ Combination meter

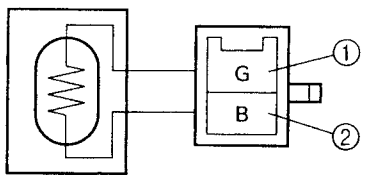
EB812403

1. Fuel level indicator light LED
• Check the LED of the fuel level indicator light. Refer to "CHECKING THE LEDs". • Is the fuel level indicator light LED OK?

⇩ YES ⇩ NO

Repair the fuel level indicator light LED.

EB812404

2. Fuel sender
• Disconnect the fuel sender coupler from the wire harness. • Connect the pocket tester (W × 1) to the fuel sender coupler as shown.
Tester positive probe → green ① **Tester negative probe → black ②**

• Check the fuel sender for continuity. • Is the fuel sender OK?

⇩ YES ⇩ NO

Replace the fuel sender.

EB812405

3. Wire harness
• Check the wire harness for continuity. Refer to "CIRCUIT DIAGRAM". • Is the wire harness OK?

YES → Replace the CDI unit.

NO → Replace or replace the wire harness.