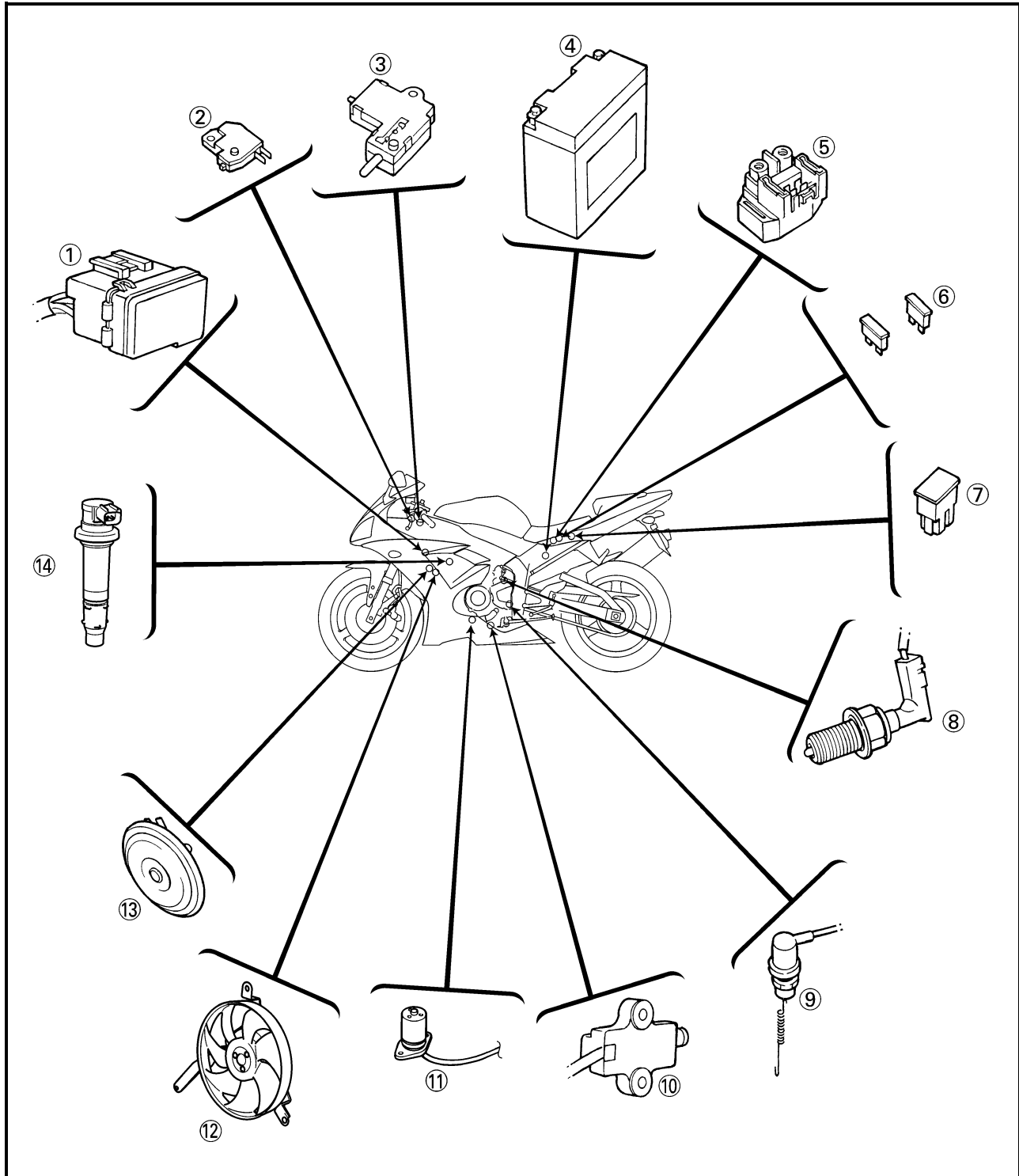


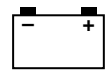
EAS00729

ELECTRICAL

ELECTRICAL COMPONENTS

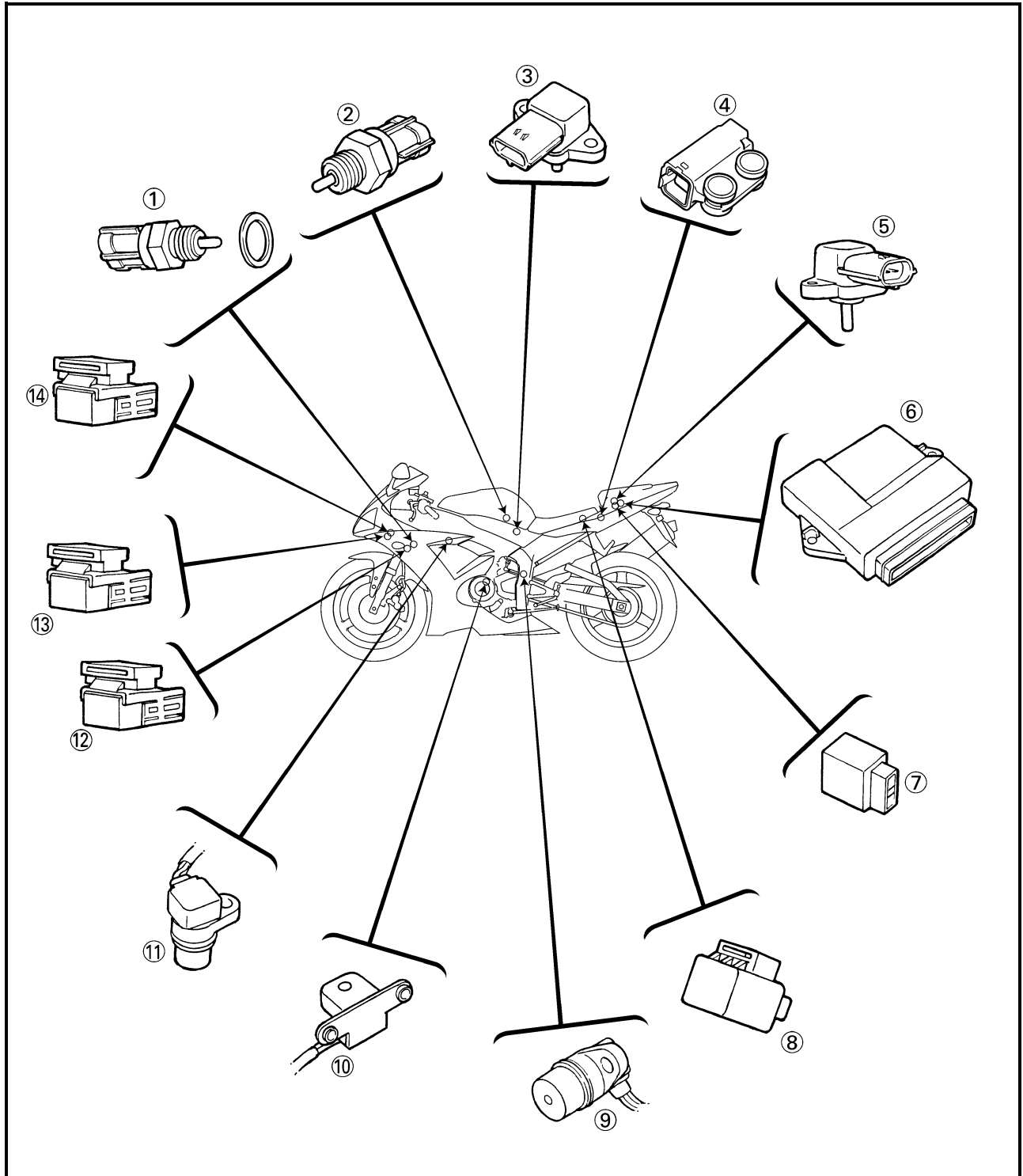
- ① Fuse box
- ② Front brake switch
- ③ Clutch switch
- ④ Battery
- ⑤ Starter relay
- ⑥ Fuel injection system fuse
- ⑦ Main fuse
- ⑧ Neutral switch
- ⑨ Rear brake switch
- ⑩ Sidestand switch
- ⑪ Oil level switch
- ⑫ Radiator fan motor
- ⑬ Horn
- ⑭ Ignition coil

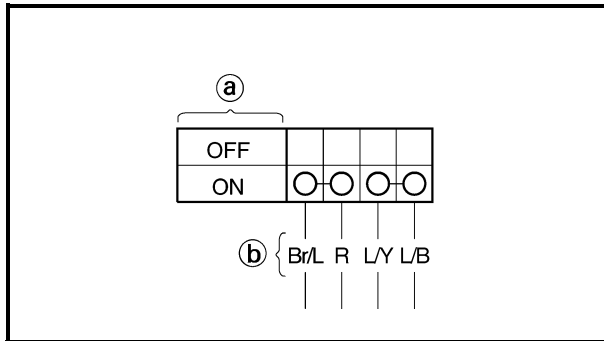
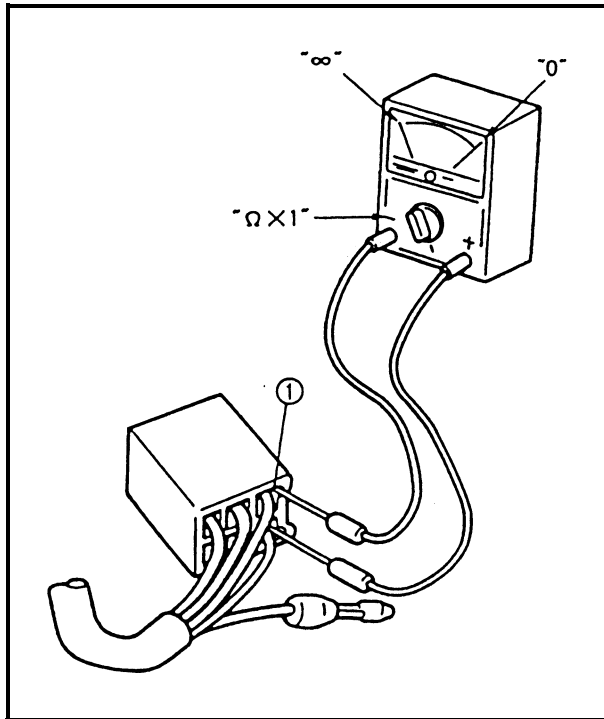
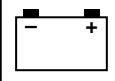




- ① Coolant temperature sensor
- ② Intake air temperature sensor
- ③ Intake air pressure sensor
- ④ Lean angle cut-off switch
- ⑤ Atmospheric pressure sensor
- ⑥ ECU
- ⑦ Starting circuit cut-off relay

- ⑧ Turn signal relay
- ⑨ Speed sensor
- ⑩ Crankshaft position sensor
- ⑪ Cylinder identification sensor
- ⑫ Radiator fan motor relay
- ⑬ Headlight relay 1
- ⑭ Headlight relay 2





EAS00730

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
YM-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.

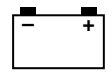
The switch positions ① are shown in the far left column and the switch lead colors ② are shown in the top row in the switch illustration.

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 brown/blue and red when the switch is set to “ON”.



EAS00731

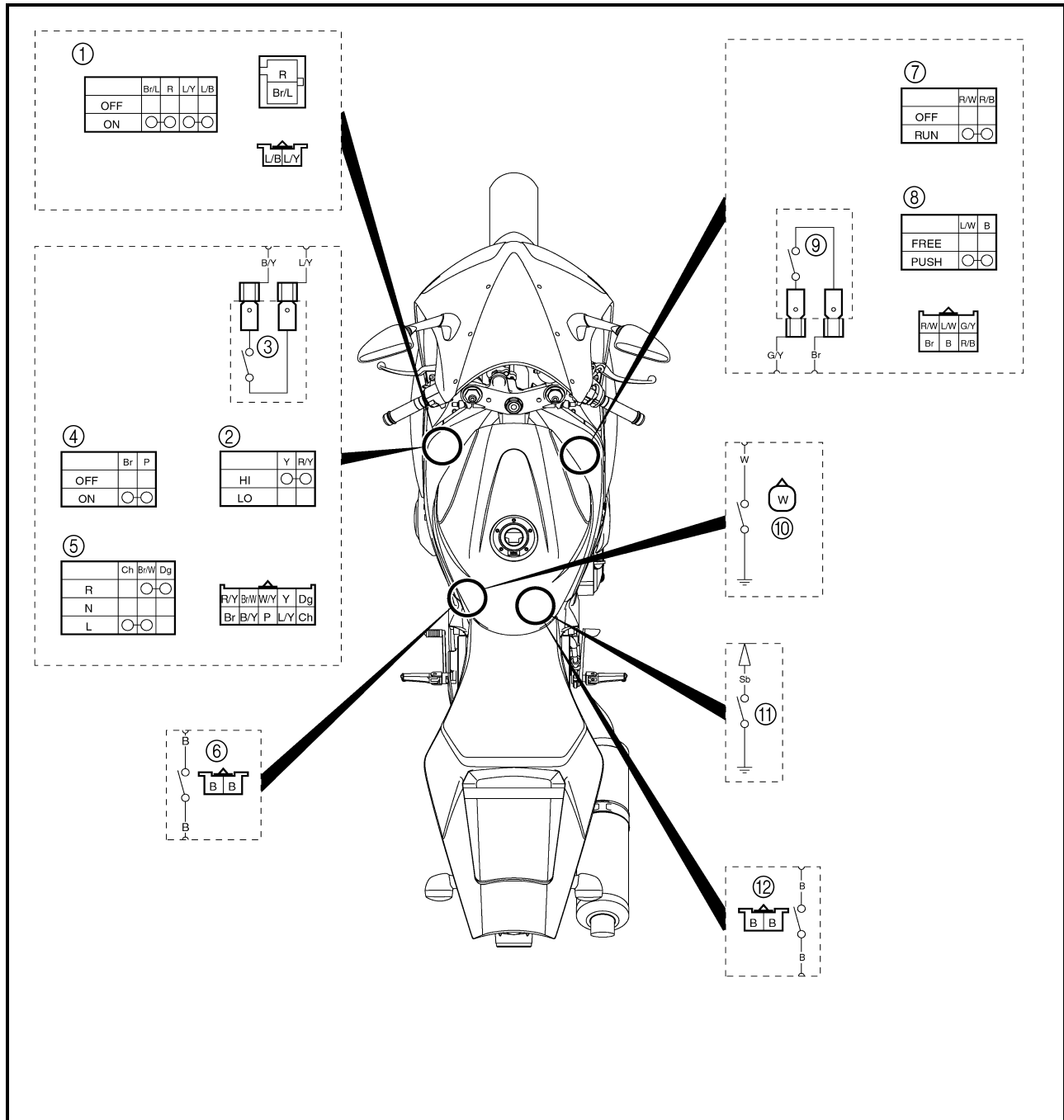
CHECKING THE SWITCHES

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.

Improperly connected → Properly connect.

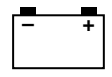
Incorrect continuity reading → Replace the switch.



- ① Main switch
- ② Dimmer switch
- ③ Clutch switch
- ④ Horn switch
- ⑤ Turn signal switch

- ⑥ Sidestand switch
- ⑦ Engine stop switch
- ⑧ Start switch
- ⑨ Front brake light switch
- ⑩ Oil level gauge

- ⑪ Neutral switch
- ⑫ Rear brake light switch



EAS00732

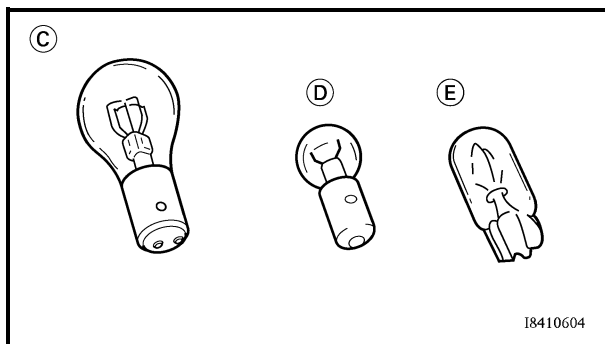
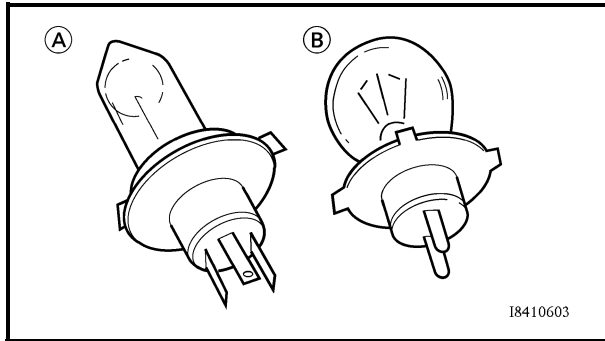
CHECKING THE BULBS AND BULB SOCKETS

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.

No continuity → Repair or replace the bulb, bulb socket or both.



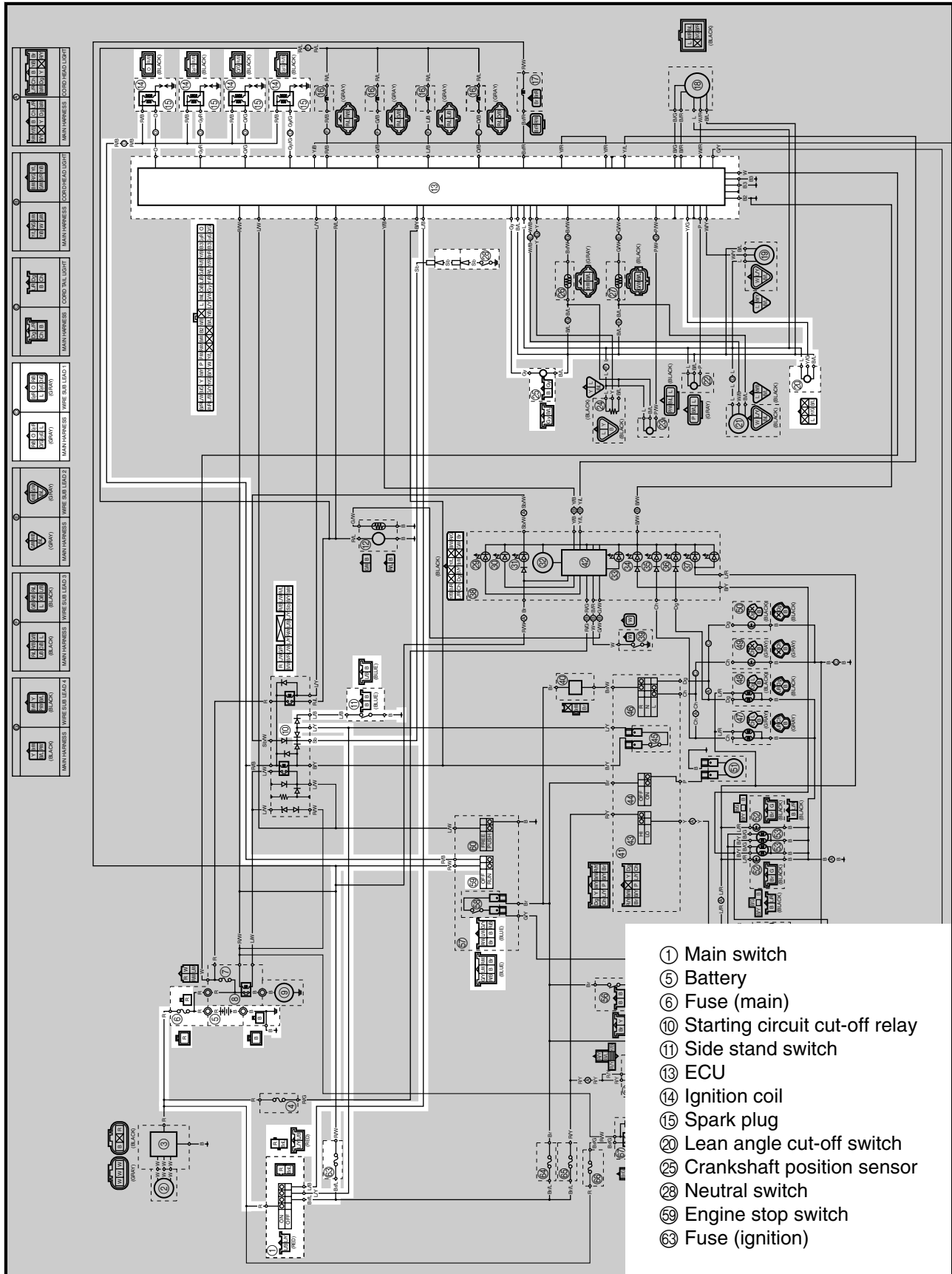
TYPES OF BULBS

The bulbs used on this motorcycle are shown in the illustration on the left.

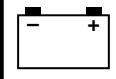
- Bulbs (A) and (B) are used for the headlights and usually use a bulb holder that must be detached before removing the bulb. The majority of these types of bulbs can be removed from their respective socket by turning them counterclockwise.
- Bulb (C) is used for turn signal and tail/brake lights and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

EAS00735

**IGNITION SYSTEM
CIRCUIT DIAGRAM**



- ① Main switch
- ⑤ Battery
- ⑥ Fuse (main)
- ⑩ Starting circuit cut-off relay
- ⑪ Side stand switch
- ⑬ ECU
- ⑭ Ignition coil
- ⑮ Spark plug
- ⑳ Lean angle cut-off switch
- ㉕ Crankshaft position sensor
- ㉘ Neutral switch
- ㉛ Engine stop switch
- ㉞ Fuse (ignition)



EAS00737

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. ignition coil resistance
6. crankshaft position sensor resistance
7. main switch
8. engine stop switch
9. neutral switch
10. sidestand switch
11. starting circuit cut-off relay
12. wiring connections
(of the entire ignition system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. air filter case
 4. bottom cowling
 5. right side cowling
- Troubleshoot with the following special tool(s).

	<p>Dynamic spark tester YM-34487</p> <p>Pocket tester YM-03112</p>
--	--

EAS00738

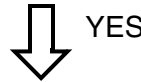
<p>1. Main and ignition fuses</p> <ul style="list-style-type: none"> • Check the main and ignition fuses for continuity. Refer to “CHECKING THE FUSES” in chapter 3. • Are the main and ignition fuses OK?



Replace the fuse(s).

EAS00739

<p>2. Battery</p> <ul style="list-style-type: none"> • Check the condition of the battery. Refer to “CHECKING AND CHARGING THE BATTERY” in chapter 3. 		
<table border="1"> <tr> <td style="text-align: center;"></td> <td> <p>Minimum open-circuit voltage 12.8 V or more at 20°C (68°F)</p> </td> </tr> </table>		<p>Minimum open-circuit voltage 12.8 V or more at 20°C (68°F)</p>
	<p>Minimum open-circuit voltage 12.8 V or more at 20°C (68°F)</p>	
<ul style="list-style-type: none"> • Is the battery OK? 		



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

EAS00741

<p>3. Spark plugs</p> <p>The following procedure applies to all of the spark plugs.</p> <ul style="list-style-type: none"> • 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. 		
<table border="1"> <tr> <td style="text-align: center;"></td> <td> <p>Standard spark plug CR9EIA 9 (NGK) IU27D (DENSO)</p> <p>Spark plug gap 0.8 ~ 0.9 mm (0.032 ~ 0.035 in)</p> </td> </tr> </table>		<p>Standard spark plug CR9EIA 9 (NGK) IU27D (DENSO)</p> <p>Spark plug gap 0.8 ~ 0.9 mm (0.032 ~ 0.035 in)</p>
	<p>Standard spark plug CR9EIA 9 (NGK) IU27D (DENSO)</p> <p>Spark plug gap 0.8 ~ 0.9 mm (0.032 ~ 0.035 in)</p>	
<ul style="list-style-type: none"> • Is the spark plug in good condition, is it of the correct type, and is its gap within specification? 		



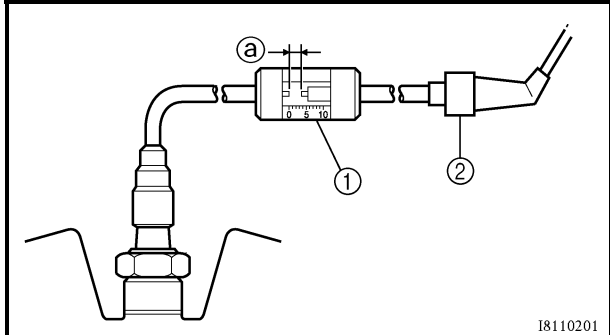
Re-gap or replace the spark plug.


EAS00743

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 Ignition coil
- Set the main switch to “ON”.
- Measure the ignition spark gap ③.
- Crank the engine by pushing the starter switch and gradually increase the spark gap until a misfire occurs.



 **Minimum ignition spark gap**
6 mm (0.24 in)

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



The ignition system is OK.

EAS00747

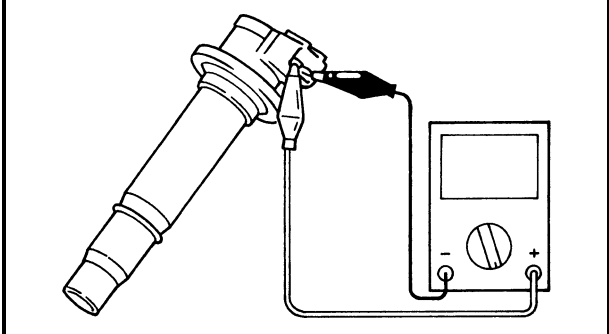
5. Ignition coil resistance

The following procedure applies to all of the ignition coils.


- Disconnect the ignition coil leads from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) to the ignition coil as shown.

Positive tester probe →
ignition coil terminal

Negative tester probe →
ignition coil terminal



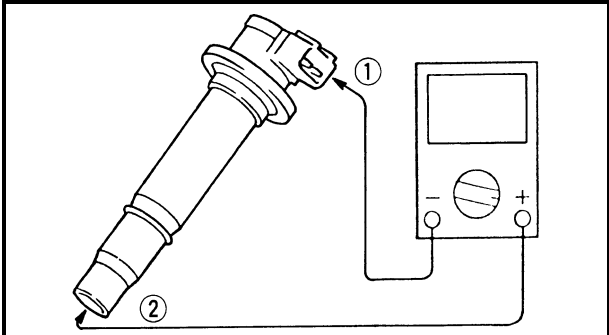
- Measure the primary coil resistance.

 **Primary coil resistance**
1.19 ~ 1.61 Ω at 20 °C (68 °F)


- Connect the pocket tester ($\Omega \times 1k$) to the ignition coil as shown.

Negative tester probe →
ignition coil terminal ①

Positive tester probe →
spark plug terminal ②



- Measure the secondary coil resistance.

 **Secondary coil resistance**
8.5 ~ 11.5 k Ω at 20 °C (68 °F)

- Is the ignition coil OK?



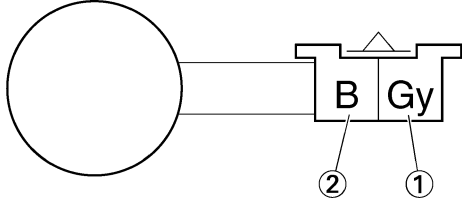
Replace the ignition coil.

EAS00748


6. Crankshaft position sensor resistance

- Disconnect the crankshaft position sensor coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 100$) to the crankshaft position sensor coupler as shown.

Positive tester probe → gray ①
Negative tester probe → black ②



- Measure the crankshaft position sensor resistance.

 **Crankshaft position sensor resistance**
 248 ~ 372 Ω at 20 °C (68 °F)
 (between gray and black)

- Is the crankshaft position sensor OK?



Replace the crankshaft position sensor.

EAS00749

7. Main switch

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

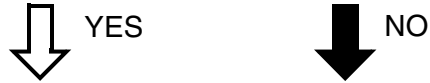


Replace the main switch.

EAS00750

8. Engine stop switch

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



Replace the right handlebar switch.

EAS00751

9. Neutral switch

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



Replace the neutral switch.

EAS00752

10. Sidestand switch

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



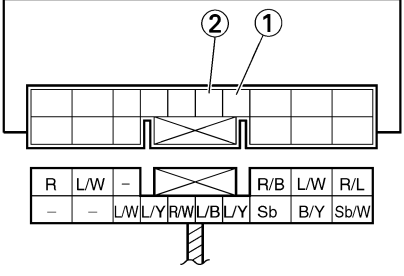
Replace the side-stand switch.

EAS00753

11. Starting circuit cut-off relay

- Disconnect the starting circuit cut-off relay coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) to the starting circuit cut-off relay coupler as shown.
- Check the starting circuit cut-off relay for continuity.

Positive tester probe → blue/yellow ① Negative tester probe → blue/black ②	Continuity
Positive tester probe → blue/black ② Negative tester probe → blue/yellow ①	No continuity



R	L/W	-	R/B	L/W	R/L
-	-	L/W/L/Y	Sb	B/Y	Sb/W

NOTE: _____
 When you switch the positive and negative tester probes, the readings in the above chart will be reversed.

- Are the tester readings correct?

↓ YES

↓ NO

Replace the starting circuit cut-off relay.

EAS00754

12. Wiring

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

↓ YES

↓ NO

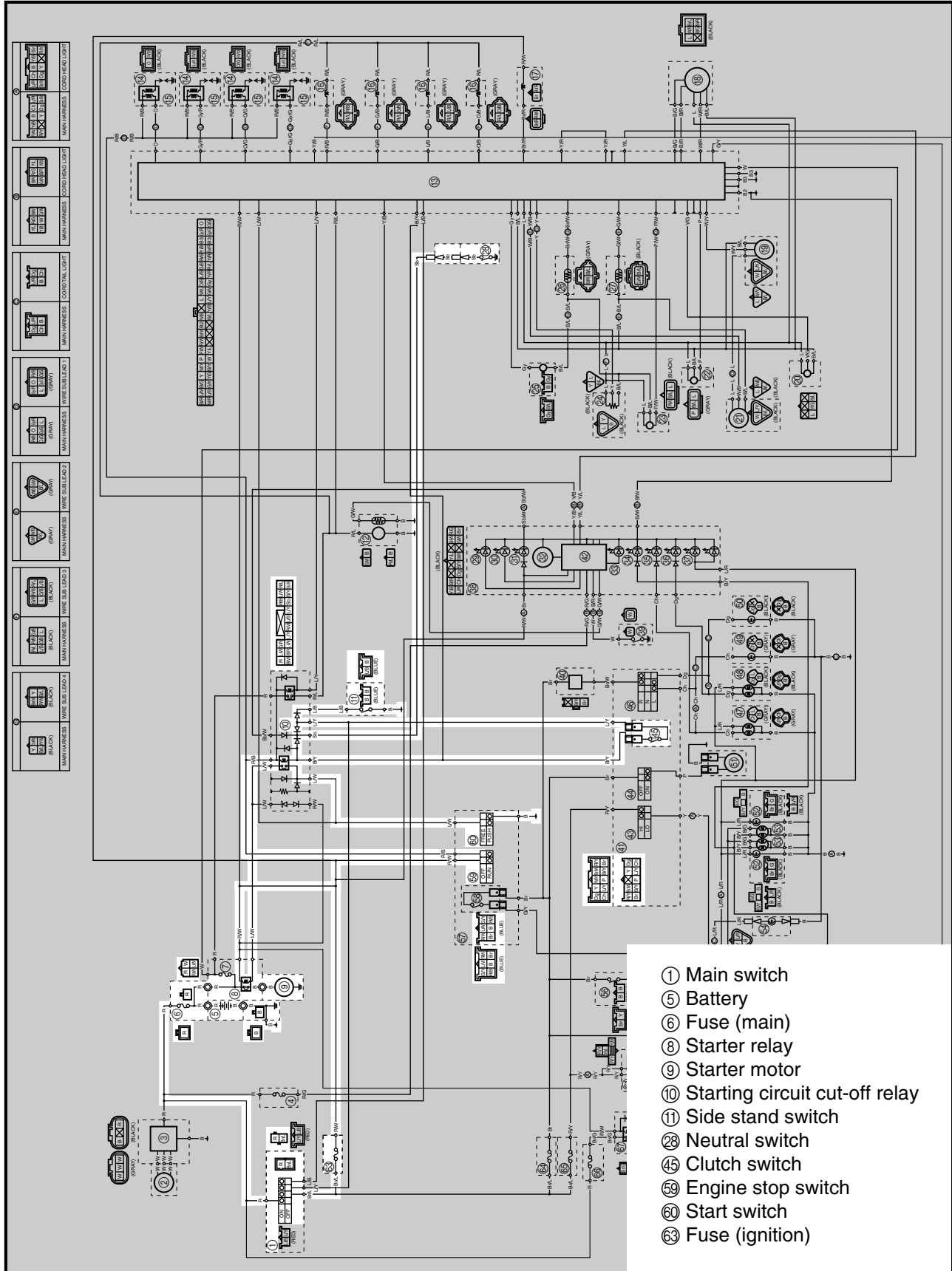
Replace the ignitor unit.

Properly connect or repair the ignition system's wiring.

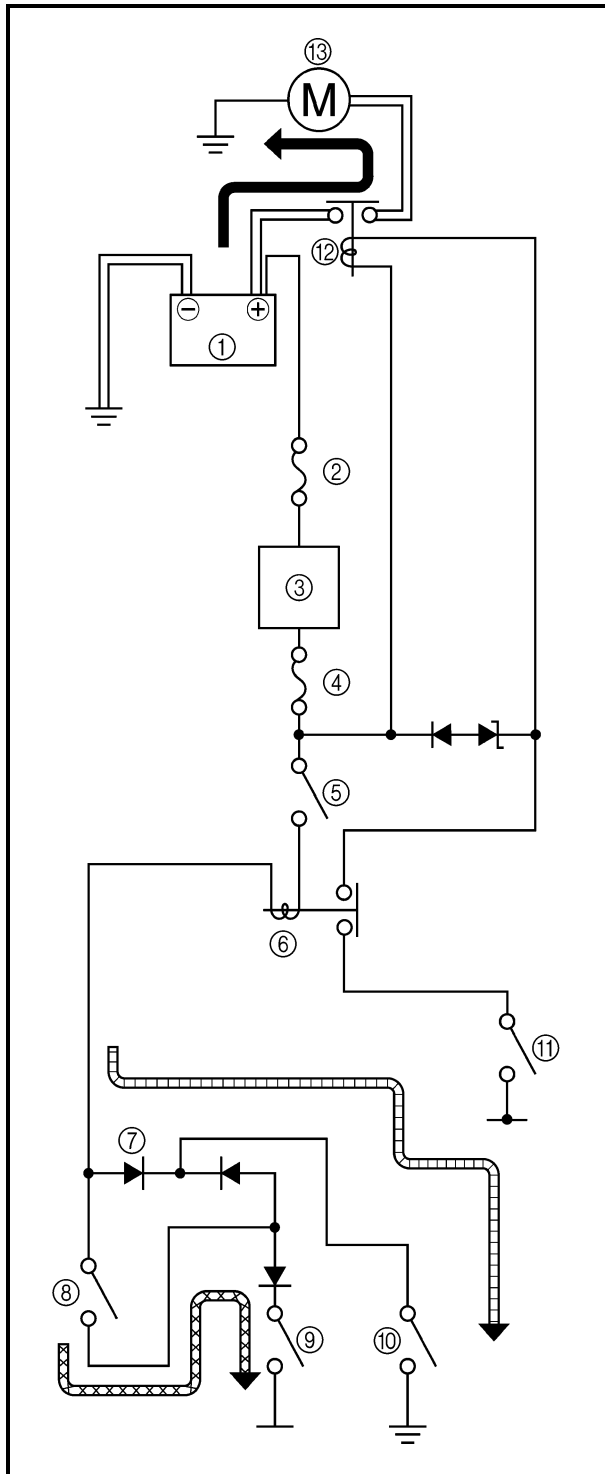


EAS00755

ELECTRIC STARTING SYSTEM CIRCUIT DIAGRAM



- ① Main switch
- ⑤ Battery
- ⑥ Fuse (main)
- ⑧ Starter relay
- ⑨ Starter motor
- ⑩ Starting circuit cut-off relay
- ⑪ Side stand switch
- ⑳ Neutral switch
- ㉔ Clutch switch
- ㉙ Engine stop switch
- ㉞ Start switch
- ㉟ Fuse (ignition)



EAS00756


STARTING CIRCUIT CUT-OFF 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:

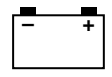
- The transmission is in neutral (the neutral switch is closed).
- The clutch lever is pulled to the handlebar (the clutch switch is closed) and the side-stand is up (the sidestand switch is closed).

The starting circuit cut-off relay prevents the starter motor from operating when neither of these conditions has been met. In this instance, the starting circuit cut-off relay is open so current cannot reach the starter motor. When at least one of the above conditions has been met the starting circuit cut-off relay is closed and the engine can be started by pressing the starter 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 cut-off relay
- ⑦ Diode
- ⑧ Clutch switch
- ⑨ Sidestand switch
- ⑩ Neutral switch
- ⑪ Start switch
- ⑫ Starter relay
- ⑬ Starter motor



EAS00757

TROUBLESHOOTING

The starter motor fails to turn.

Check:

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

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. left side cowling
- Troubleshoot with the following special tool(s).



**Pocket tester
YM-03112**

EAS00738

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).

EAS00739

2. Battery

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



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

- Is the battery OK?

↓ YES

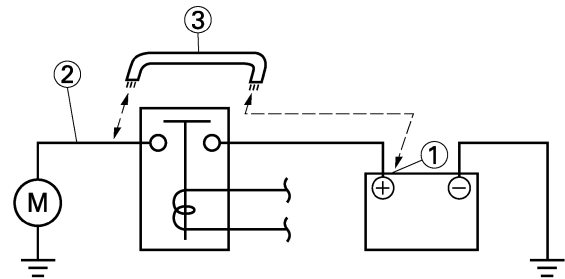
↓ NO

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

EAS00758

3. Starter motor

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



18210801

⚠ WARNING

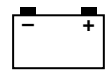
- A wire that is used as a jumper lead must have at least the same capacity or more as that of the battery lead, otherwise the jumper lead may burn.
- This check is likely to produce sparks, therefore make sure nothing flammable is in the vicinity.

- Does the starter motor turn?

↓ YES

↓ NO

Repair or replace the starter motor.



EAS00759

4. Starting circuit cut-off relay

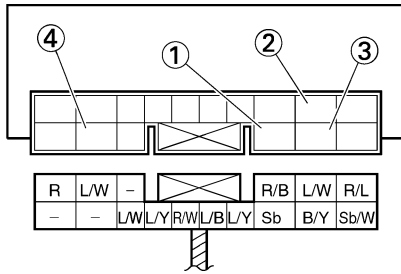
- Disconnect the starting circuit cut-off relay coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the starting circuit cut-off relay coupler as shown.

Positive battery terminal → red/black ①

Negative battery terminal → black/yellow ②

Positive tester probe → blue/white ③

Negative tester probe → blue/white ④



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

YES

NO

Replace the starting circuit cut-off relay.

EAS00761

5. Starter relay

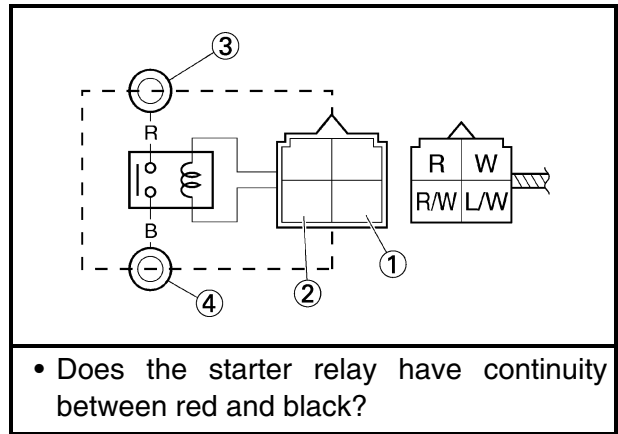
- Disconnect the starter relay coupler from the coupler.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the starter relay coupler as shown.

Positive battery terminal → red/white ①

Negative battery terminal → blue/white ②

Positive tester probe → red ③

Negative tester probe → black ④



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

YES

NO

Replace the starter relay.

EAS00749

6. Main switch

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

YES

NO

Replace the main switch.

EAS00750

7. 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.

EAS00751

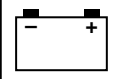
8. Neutral switch

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

YES

NO

Replace the neutral switch.



EAS00752

9. Sidestand switch

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



Replace the side-stand switch.

EAS00763

10. Clutch switch

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



Replace the clutch switch.

EAS00764

11. Start switch

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

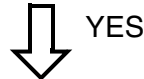


Replace the right handlebar switch.

EAS00766

12. Wiring

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

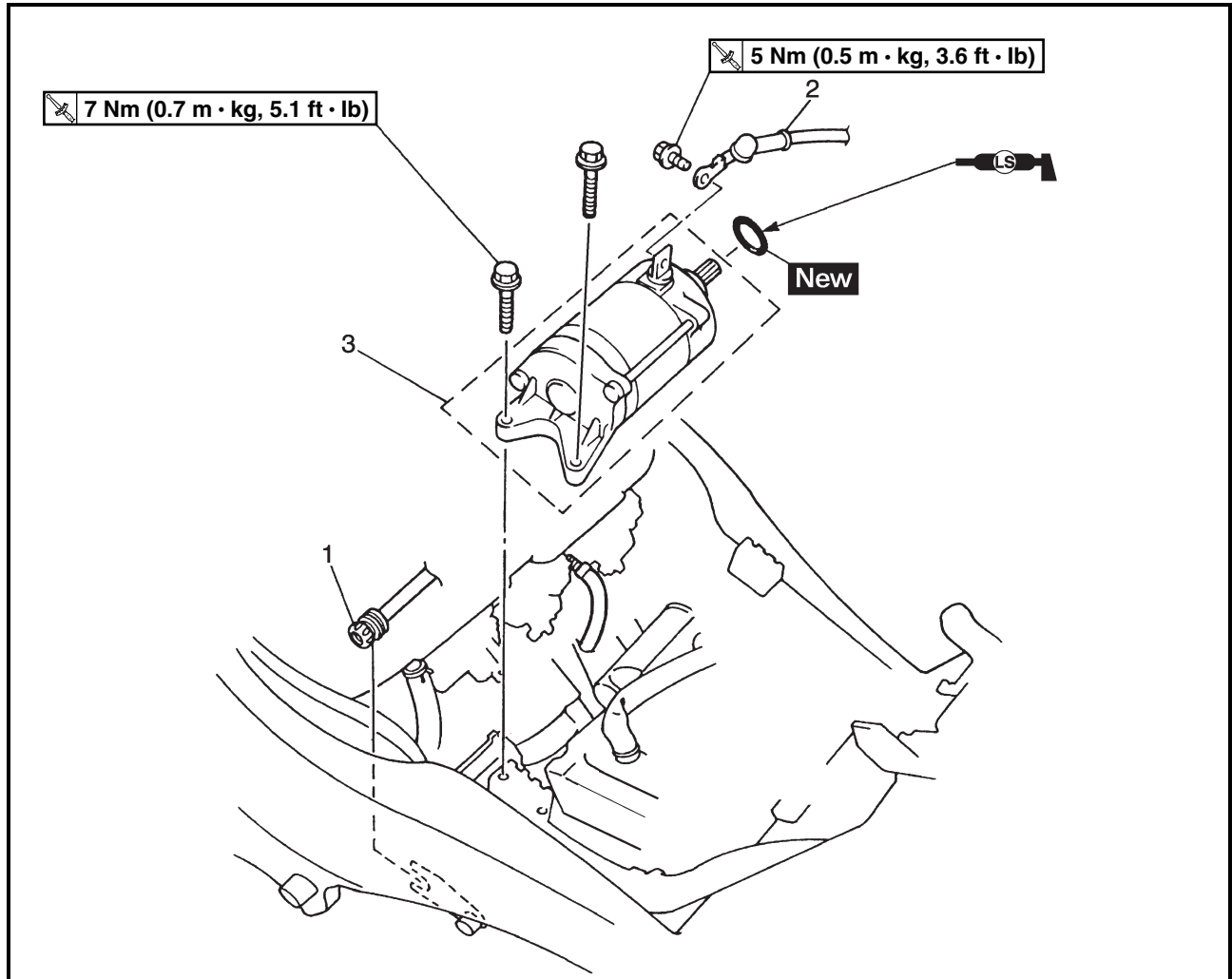


The starting system circuit is OK.

Properly connect or repair the starting system's wiring.

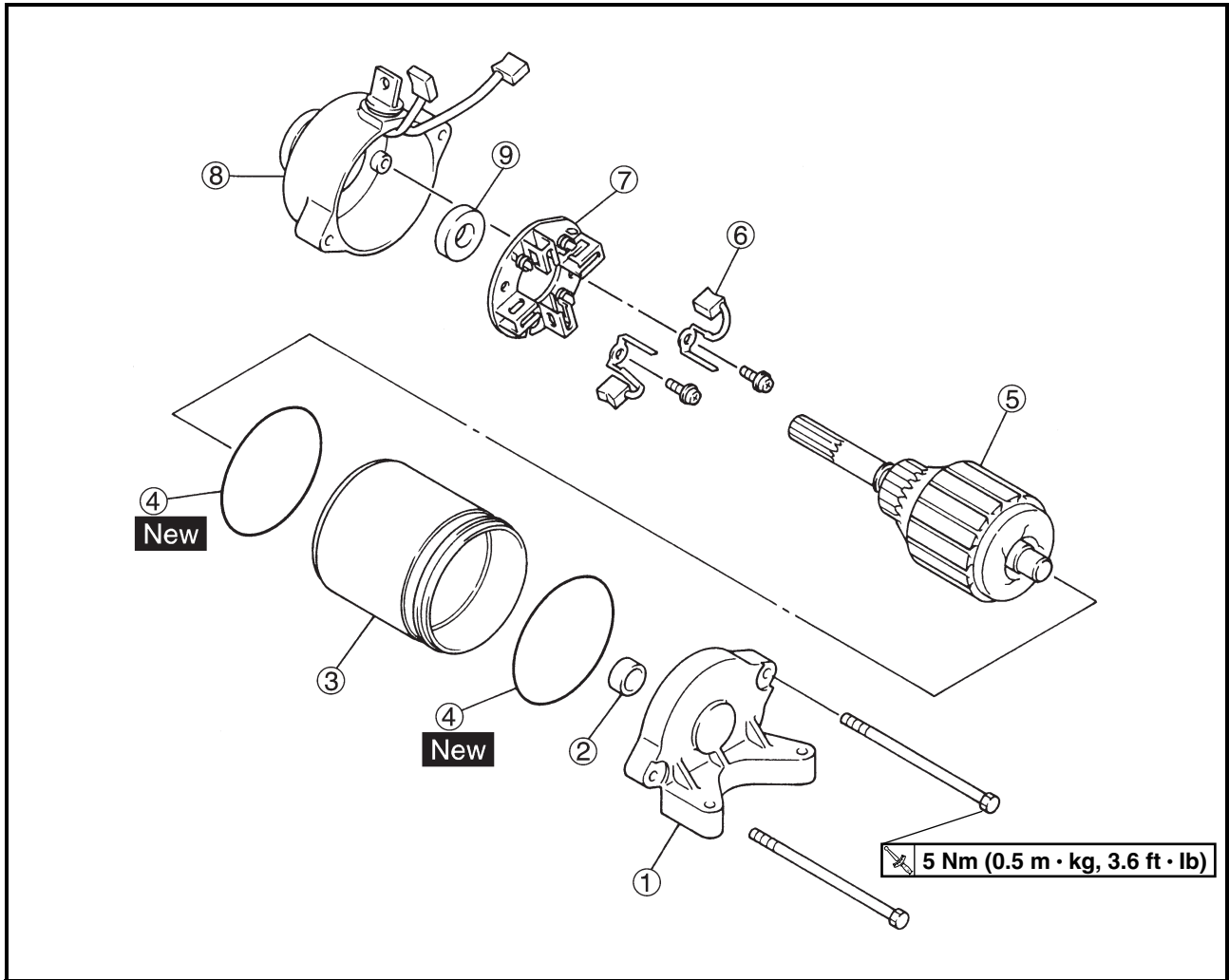
EAS00767

STARTER MOTOR

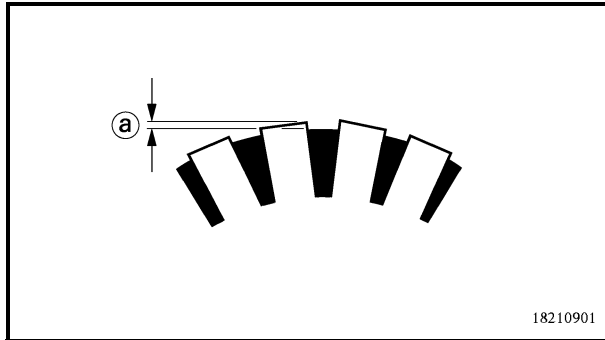
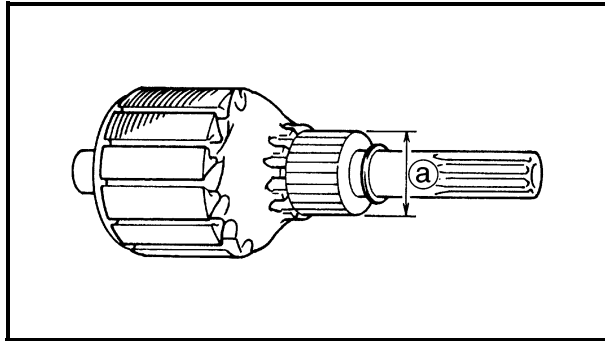


Order	Job/Part	Q'ty	Remarks
	Removing the starter motor		Remove the parts in the order listed.
	Rider seat		Refer to "SEATS" in chapter 3.
	Fuel tank		Refer to "FUEL TANK" in chapter 3.
	Left side cowling		Refer to "COWLINGS" in chapter 3.
1	Throttle stop screw	1	
2	Starter motor lead	1	
3	Starter motor assembly	1	
			For installation, reverse the removal procedure.

EAS00768



Order	Job/Part	Q'ty	Remarks
	Disassembling the starter motor		Disassembly the parts in the order listed.
①	Starter motor rear cover	1	
②	Bearing	1	
③	Starter motor yoke	1	
④	O-ring	2	
⑤	Armature assembly	1	
⑥	Brush	2	
⑦	Brush holder	1	
⑧	Starter motor front cover	1	
⑨	Bearing	1	
			For assembly, reverse the disassembly procedure.



18210901

EAS00769

CHECKING THE STARTER MOTOR

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



Commutator wear limit
23.5 mm (0.93 in)

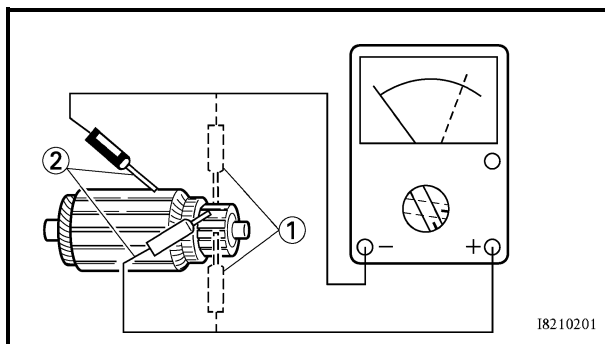
3. Measure:
 - mica undercut ②
Out of specification → Scrape the mica to the proper measurement with a hacksaw blade that has been grounded to fit the commutator.



Mica undercut
1.5 mm (0.059 in)

NOTE:

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



18210201

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.



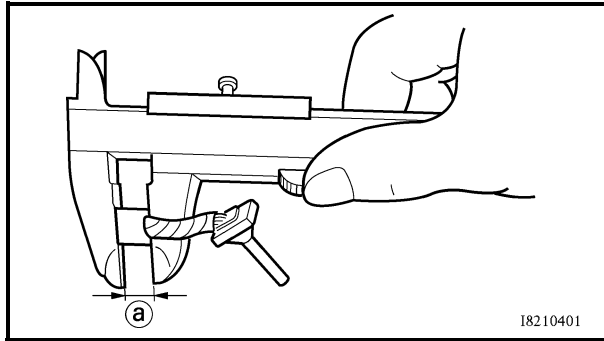
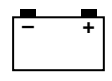
Pocket tester
YM-03112



Armature coil
Commutator resistance ①
0.009 ~ 0.011 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.





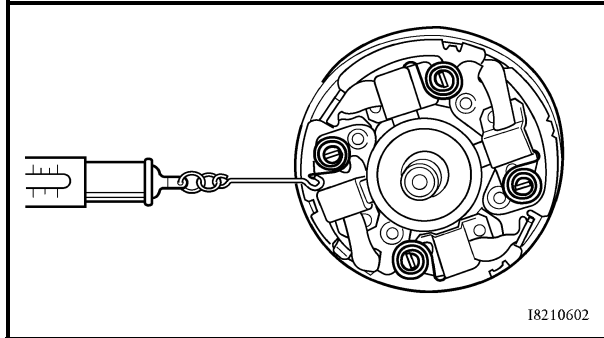
5. Measure:

- brush length ①

Out of specification → Replace the brushes as a set.



Brush length wear limit
3.65 mm (0.14 in)



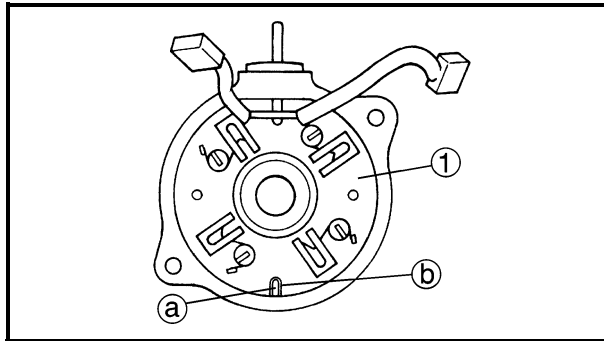
6. Measure:

- brush spring force

Out of specification → Replace the brush springs as a set.



Brush spring force
5.28 ~ 7.92 N
(528 ~ 792 g, 19.01 ~ 28.51 oz)



7. Check:

- gear teeth

Damage/wear → Replace the gear.

EAS00772

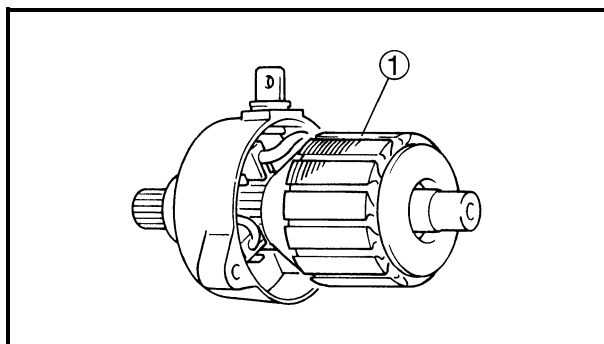
ASSEMBLING THE STARTER MOTOR

1. Install:

- brush seat ①

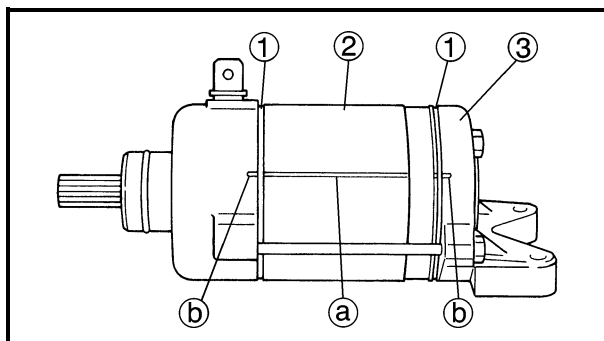
NOTE: _____

Align the tab ① on the brush seat with the slot ② in the starter motor rear cover.



2. Install:

- armature ①



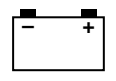
3. Install:

- starter motor yoke ②
- O-rings ① **New**
- starter motor rear cover ③
- bolts

5 Nm (0.5 m · kg, 3.6 ft · lb)

NOTE: _____

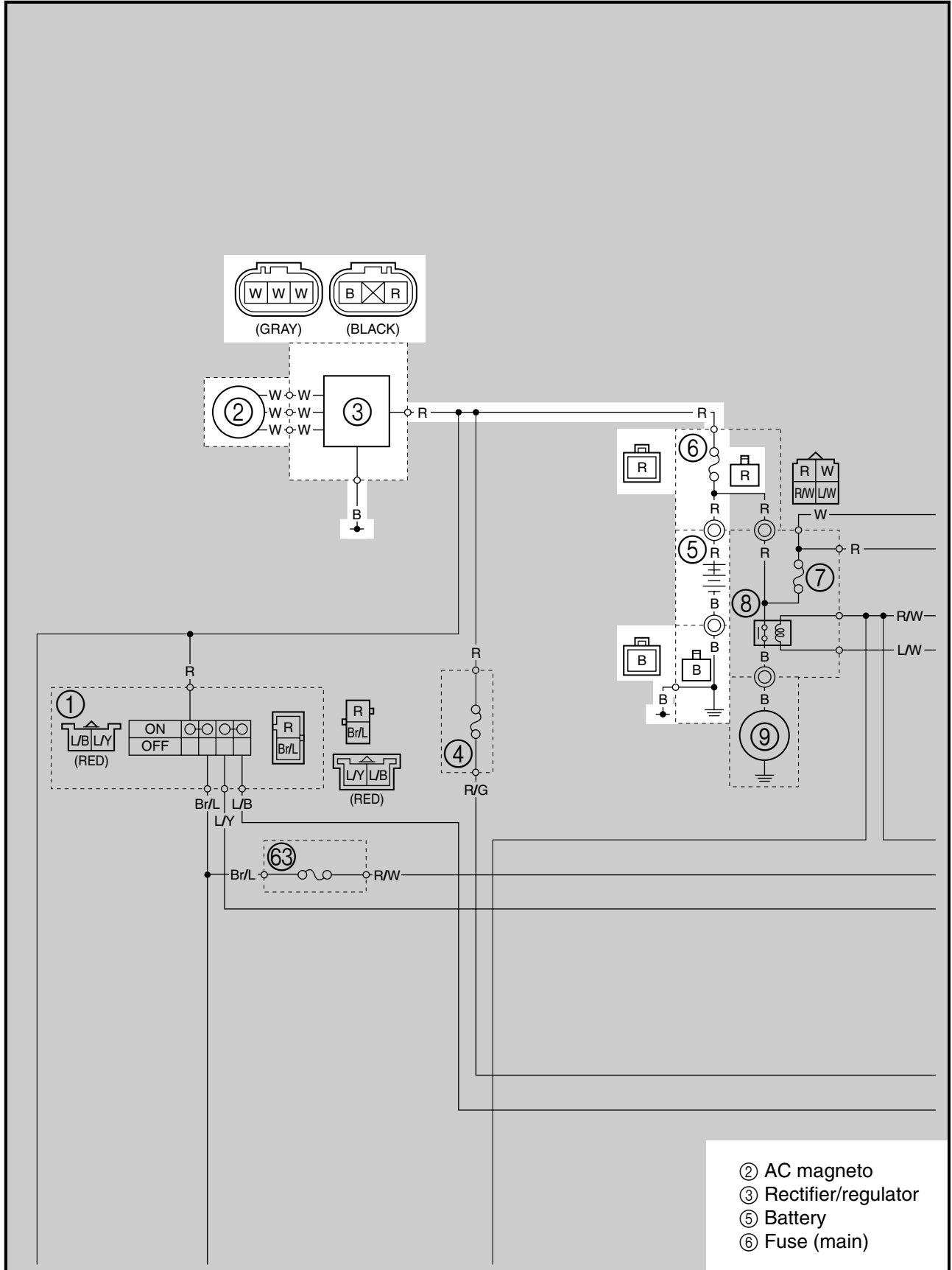
Align the match marks ① on the starter motor yoke with the match marks ② on the front and rear covers.



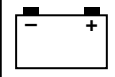
EAS00773

CHARGING SYSTEM

CIRCUIT DIAGRAM



- ② AC magneto
- ③ Rectifier/regulator
- ⑤ Battery
- ⑥ Fuse (main)



EAS00774

TROUBLESHOOTING

The battery is not being charged.

Check:

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

NOTE: _____

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. bottom cowling
- Troubleshoot with the following special tool(s).



**Pocket tester
YM-03112**

EAS00738

1. Main fuse

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



Replace the fuse.

EAS00739

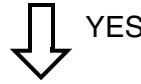
2. Battery

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



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

- Is the battery OK?



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

EAS00775

3. Charging voltage

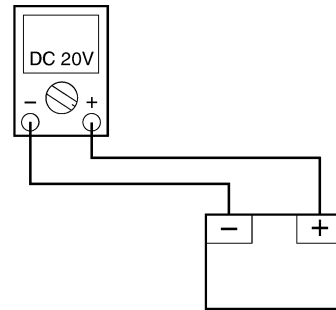
- Set the engine tachometer to the ignition coil of cylinder #1.
- Connect the pocket tester (DC 20 V) to the battery as shown.

Positive tester probe →

positive battery terminal

Negative tester probe →

negative battery 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**

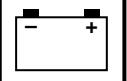
NOTE: _____

Make sure the battery is fully charged.

- Is the charging voltage within specification?



The charging circuit is OK.



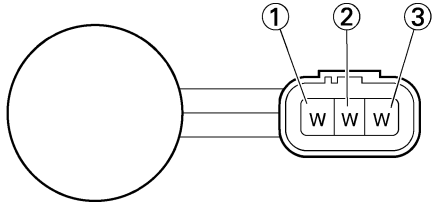
EAS00776

4. Stator coil resistance


- Remove the generator cover.
- Connect the pocket tester ($\Omega \times 1$) to the stator coils as shown.

Positive tester probe → white ①
Negative tester probe → white ②

Positive tester probe → white ①
Negative tester probe → white ③



- Measure the stator coil resistances.

 **Stator coil resistance**
0.19 ~ 0.23 Ω at 20°C (68°F)

- Is the stator coil OK?





Replace the stator coil assembly.

EAS00779

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?

 YES

 NO

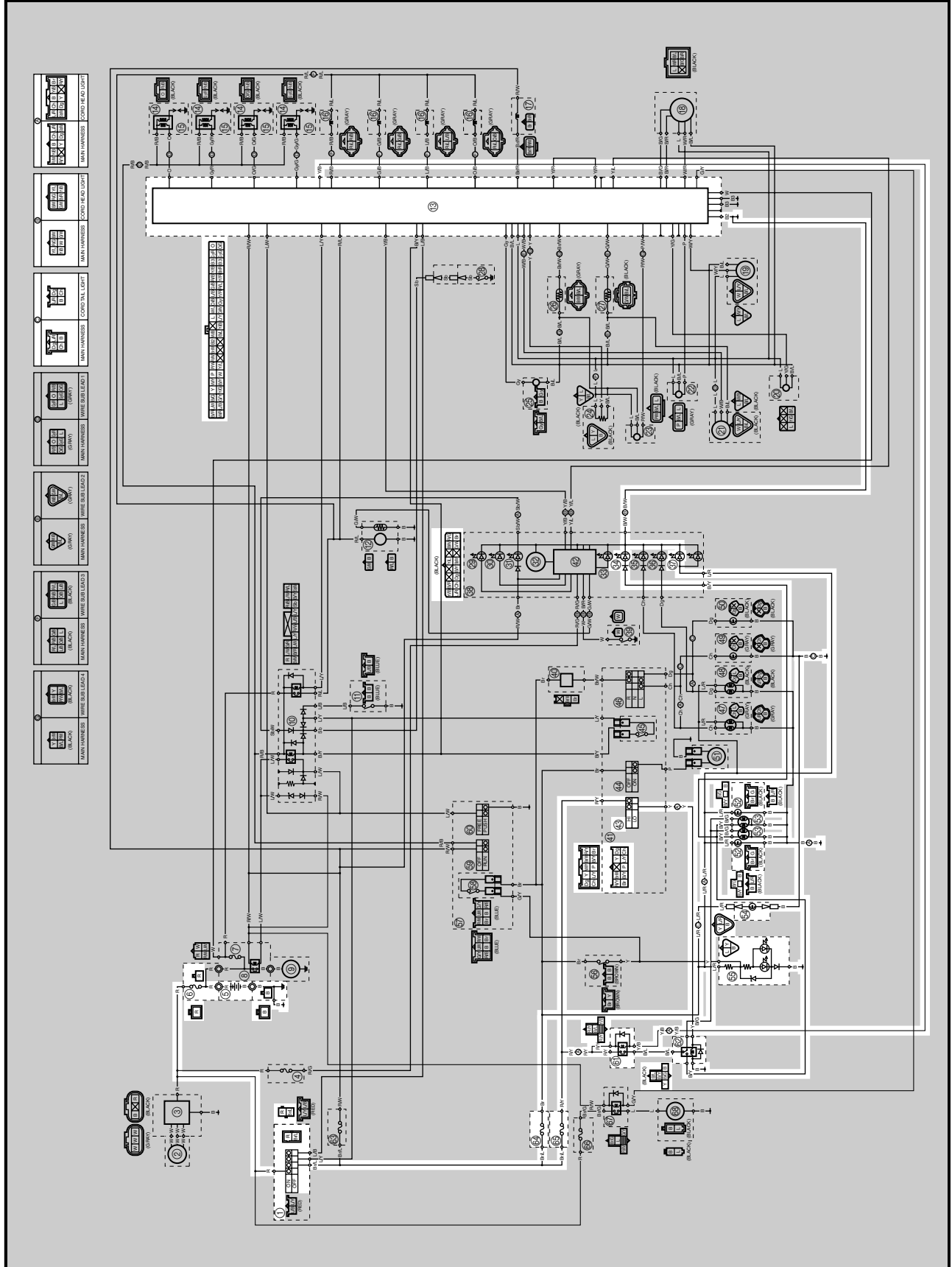
Replace the rectifier/regulator.

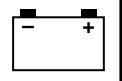
Properly connect or repair the charging system's wiring.

EAS00780

LIGHTING SYSTEM

CIRCUIT DIAGRAM





- ① Main switch
- ⑤ Battery
- ⑥ Fuse (main)
- ⑬ ECU
- ⑳ Hi beam indicator light
- ㉓ Meter light
- ㉔ Dimmer switch
- ㉕ Auxiliary light
- ㉖ Headlight
- ㉗ License light
- ㉘ Taillight
- ㉙ Headlight relay (on/off)
- ㉚ Headlight relay (dimmer)
- ㉛ Fuse (signal)
- ㉜ Fuse (headlight)

EAS00781

TROUBLESHOOTING

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

Check:

1. main, signal and headlight fuses
2. battery
3. main switch
4. dimmer switch
5. headlight relay (on/off)
6. headlight relay (dimmer)
7. wiring connections
(of the entire lighting system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. side cowlings
 4. tail cowling
- Troubleshoot with the following special tool(s).

	Pocket tester YM-03112
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EAS00738

1. Main, signal and headlight fuses
<ul style="list-style-type: none"> • Check the main, signal and headlight fuses for continuity. Refer to "CHECKING THE FUSES" in chapter 3. • Are the main, signal and headlight fuses OK?



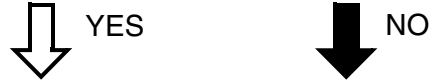
Replace the fuse(s).

EAS00739

2. Battery
<ul style="list-style-type: none"> • Check the condition of the battery. Refer to "CHECKING AND CHARGING THE BATTERY" in chapter 3.

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

• Is the battery OK?



<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
--

EAS00749

3. Main switch
<ul style="list-style-type: none"> • Check the main switch for continuity. Refer to "CHECKING THE SWITCHES". • Is the main switch OK?



Replace the main switch.

EAS00784

4. Dimmer switch
<ul style="list-style-type: none"> • Check the dimmer switch for continuity. Refer to "CHECKING THE SWITCHES". • Is the dimmer switch OK?



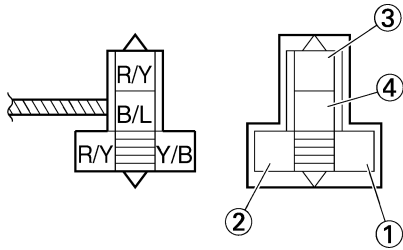
The dimmer switch is faulty. Replace the left handlebar switch.

5. Headlight relay (on/off)

- Disconnect the headlight relay (on/off) from the coupler.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the headlight relay (on/off) coupler as shown.

Positive battery lead → red/yellow ①
Negative battery lead → yellow/black ②

Positive tester probe → red/yellow ③
Negative tester probe → black/blue ④



• Does the headlight relay (on/off) have continuity between red/yellow and black/blue?

↓ YES

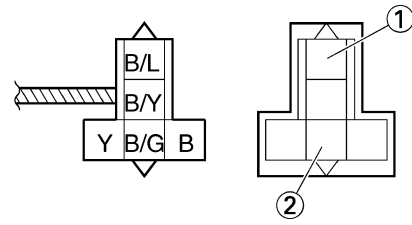
↓ NO

Replace the headlight relay (on/off).

6. Headlight relay (dimmer)

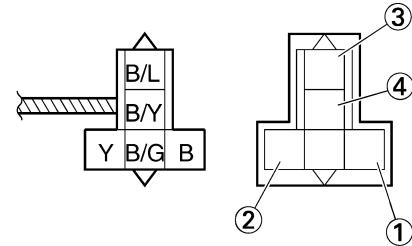
- Disconnect the headlight relay (dimmer) from the coupler.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the headlight relay (dimmer) coupler as shown.

Low-beam
Positive tester probe → black/blue ①
Negative tester probe → black/green ②



Hi-beam
Positive battery lead → yellow ①
Negative battery lead → black ②

Positive tester probe → black/blue ③
Negative tester probe → black/yellow ④



• Does the headlight relay (dimmer) have continuity?

↓ YES

↓ NO

Replace the headlight relay (dimmer).

EAS00787

7. Wiring

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

↓ YES

↓ NO

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

Properly connect or repair the lighting system's wiring.

EAS00788

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?

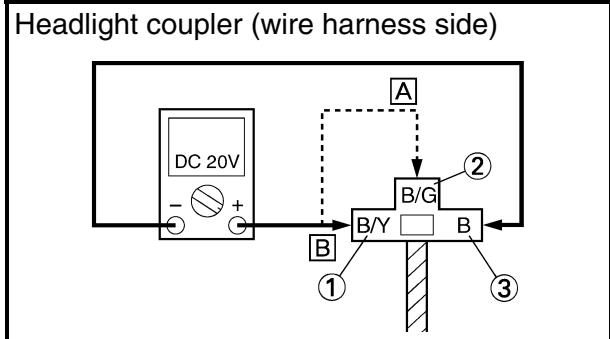


Replace the headlight bulb, socket or both.

2. Voltage

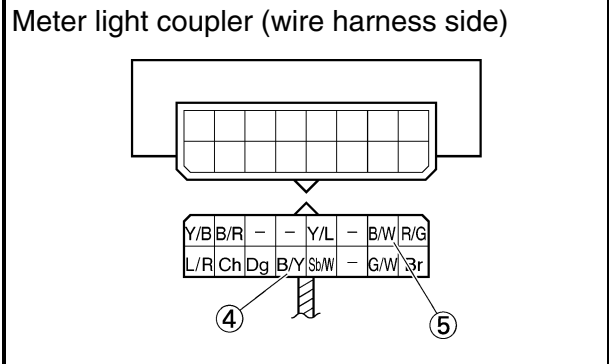
- Connect the pocket tester (DC 20 V) to the headlight and high beam indicator light coupler as shown.



- [A] When the dimmer switch is set to “ ”
- [B] When the dimmer switch is set to “ ”

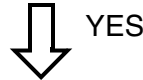


Headlight
 Positive tester probe → black/yellow ① or black/green ②
 Negative tester probe → black ③

High beam indicator light
 Positive tester probe → black/yellow ④
 Negative tester probe → black/white ⑤



- Set the main switch to “ON”.
- Start the engine and headlight to ON.
- Set the dimmer switch to “ ” or “ ”.
- Measure the voltage (DC 12 V) of green ② on the headlight coupler (wire harness side).
- Is the voltage within specification?



This circuit is OK.

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

EAS00789

2. The meter light 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

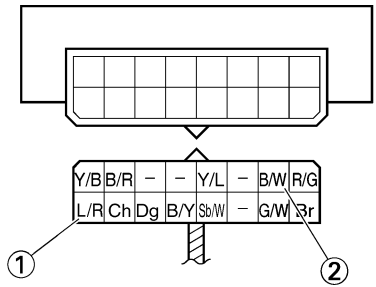
↓ NO

Replace the meter light bulb, socket or both.

2. Voltage

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

Positive tester probe → blue/red ①
Negative tester probe → black/white ②



- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of blue ① on the meter light coupler (wire harness side).
- Is the voltage within specification?

↓ YES

↓ NO

This circuit is OK.

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

EAS00790

3. The 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

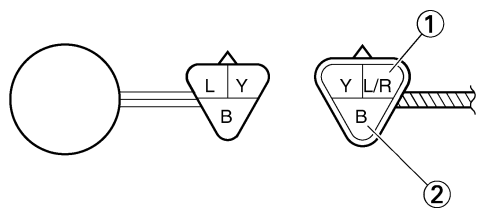
↓ NO

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.

Positive tester probe → blue/red ①
Negative tester probe → black ②



- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of blue/red ① on the tail/brake light coupler (tail/brake light side).
- Is the voltage within specification?

↓ YES

↓ NO

This circuit is OK.

Wiring circuit from the main switch to the tail/brake light coupler is faulty and must be repaired.

EAS00791

4. The auxiliary light fails to come on.

1. Auxiliary light bulb and socket

- Check the auxiliary light bulb and socket for continuity. Refer to “CHECKING THE BULBS AND SOCKETS”
- Are the auxiliary light bulb and socket OK?

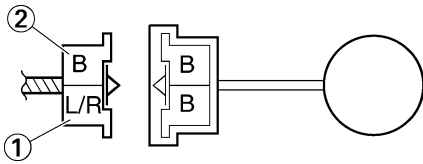


Replace the auxiliary light bulb, socket or both.

2. Voltage

- Connect the pocket tester (DC 20 V) to the auxiliary light connectors (auxiliary light side) as shown.

Positive tester probe → blue/red ①
 Negative tester probe → black ②



- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of blue/red ① on the auxiliary light connectors (auxiliary light side).
- Is the voltage within specification?



This circuit is OK.

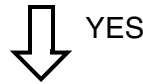
The wiring circuit from the main switch to the auxiliary light connectors is faulty and must be repaired.

EAS00792

5. The license plate light fails to come on.

1. License plate light bulb and socket

- Check the license plate light bulb and socket for continuity. Refer to “CHECKING THE BULBS AND BULB SOCKETS”
- Are the license plate light bulb and socket OK?

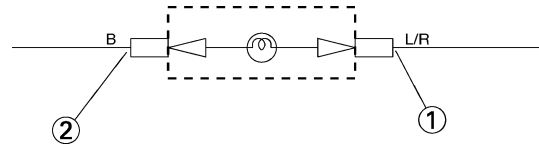


Replace the license plate light bulb, socket or both.

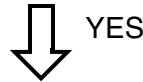
2. Voltage

- Connect the pocket tester (DC 20 V) to the license plate light coupler (license plate light side) as shown.

Positive tester probe → blue/red ①
 Negative tester probe → black ②

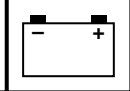


- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of blue/red ① on the license plate light coupler (license plate light side).
- Is the voltage within specification?



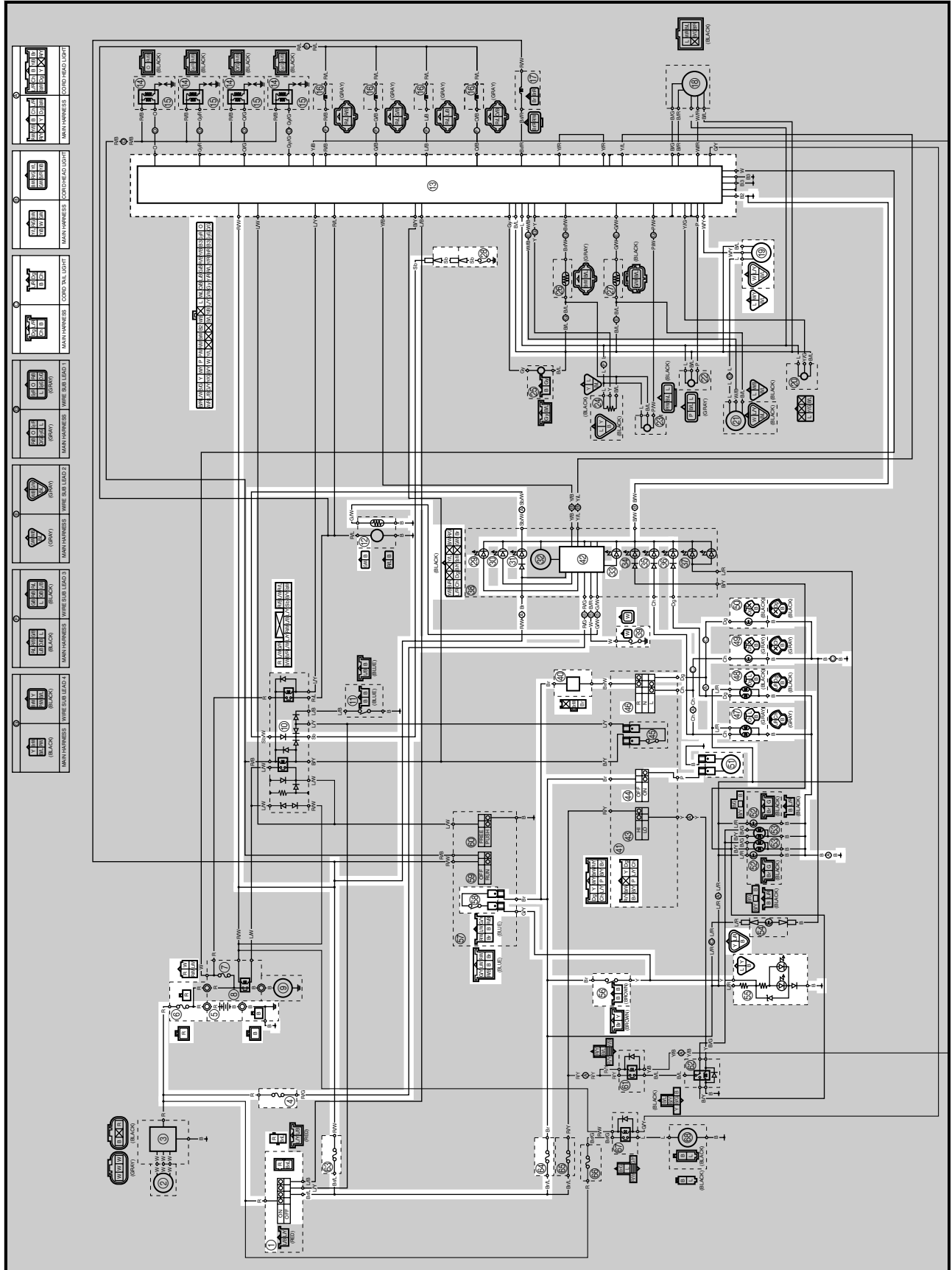
This circuit is OK.

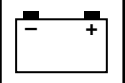
The wiring circuit from the main switch to the license plate light coupler is faulty and must be repaired.



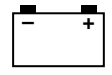
EAS00793

SIGNALING SYSTEM
CIRCUIT DIAGRAM





- ① Main switch
- ④ Fuse (back up)
- ⑤ Battery
- ⑥ Fuse (main)
- ⑩ Starting circuit cut-off relay
- ⑫ Fuel pump
- ⑬ ECU
- ⑰ Speed sensor
- ⑳ Neutral switch
- ㉑ Fuel level warning light
- ⑳ Oil level warning light
- ㉑ Neutral indicator light
- ㉓ Coolant temperature indicator light
- ㉕ Turn signal indicator light (L)
- ㉖ Turn signal indicator light (R)
- ㉙ Oil level gauge
- ㉚ Flasher relay
- ㉜ Multi-function meter
- ㉞ Horn switch
- ㉟ Turn signal switch
- ㊱ Front flasher light (L)
- ㊲ Front flasher light (R)
- ㊳ Rear flasher light (L)
- ㊴ Rear flasher light (R)
- ㊵ Horn
- ㊶ Tail/brake light
- ㊷ Rear brake switch
- ㊸ Front brake switch
- ㊹ Fuse (ignition)
- ㊺ Fuse (signal)



EAS00794

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, ignition, signaling and back up fuses
2. battery
3. main switch
4. wiring connections
(of the entire signaling system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. bottom cowling
 4. side cowlings
 5. tail cowling
- Troubleshoot with the following special tool(s).



**Pocket tester
YM-03112**

EAS00738

1. Main, ignition, signaling and back up fuses
 - Check the main, ignition, signaling and back up fuses for continuity. Refer to "CHECKING THE FUSES" in chapter 3.
 - Are the main, ignition, signaling and back up fuses OK?

↓ YES

↓ NO

Replace the fuse(s).

EAS00739

2. Battery

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



**Minimum 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.

EAS00749

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.

EAS00796

CHECKING THE SIGNALING SYSTEM

1. The horn fails to sound.

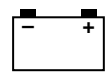
1. Horn switch

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

↓ YES

↓ NO

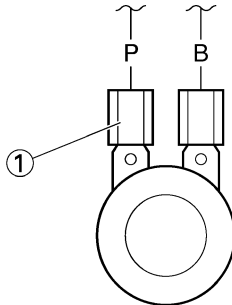
Replace the left handlebar switch.



2. Voltage

- Connect the pocket tester (DC 20 V) to the horn connector at the horn terminal as shown.

Positive tester probe → pink ①
Negative tester probe → ground



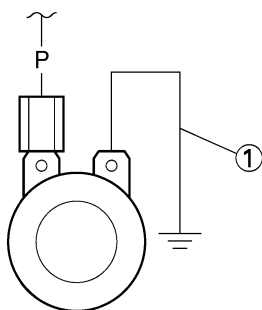
- Set the main switch to "ON".
- Push the horn switch.
- Measure the voltage (DC 12 V) of pink at the horn terminal.
- Is the voltage within specification?



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?



Replace the horn.

The horn is OK.

EAS00797

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

1. Tail/brake light bulb and socket

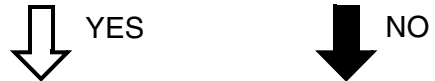
- Check the tail/brake light bulb and socket for continuity. Refer to "CHECKING THE BULBS AND BULB SOCKETS"
- Are the tail/brake light bulb and socket OK?



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?

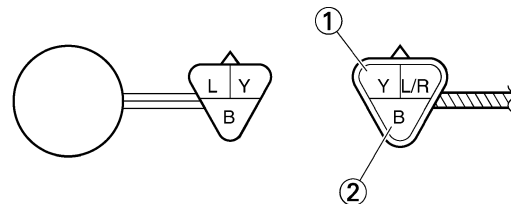


Replace the brake light switch.

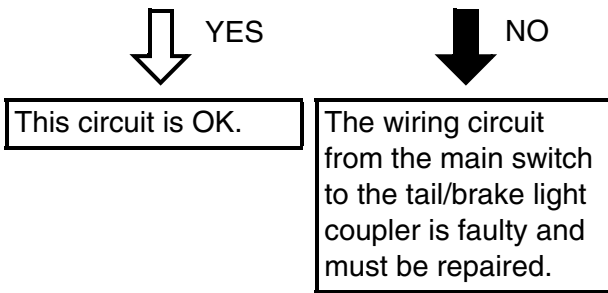
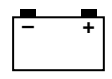
3. Voltage

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

Positive tester probe → yellow ①
Negative tester probe → black ②



- Set the main switch to "ON".
- Pull in the brake lever or push down on the brake pedal.
- Measure the voltage (DC 12 V) of yellow ① on the tail/brake light coupler (wire harness side).
- Is the voltage within specification?



EAS00799

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

1. Turn signal indicator 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?



Replace the turn signal light bulb, socket or both.

2. Turn signal switch

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

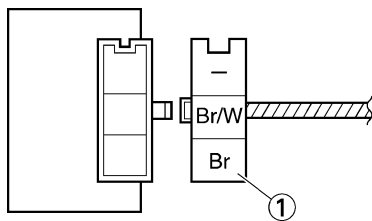


Replace the left handlebar switch.

3. Voltage

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

Positive tester probe → brown ①
Negative tester probe → ground



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

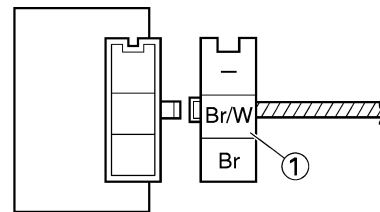


The wiring circuit from the main switch to the turn signal relay coupler is faulty and must be repaired.

4. Voltage

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

Positive tester probe → brown/white ①
Negative tester probe → ground



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

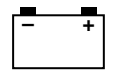


The turn signal relay is faulty and must be replaced.

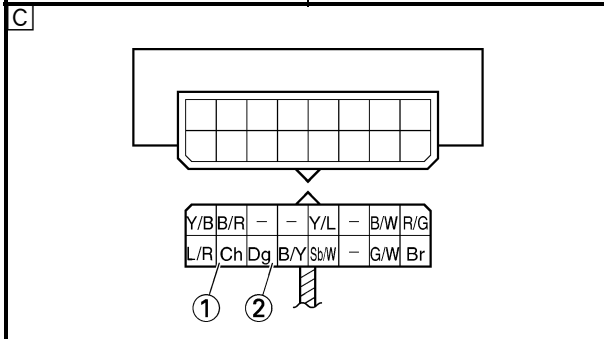
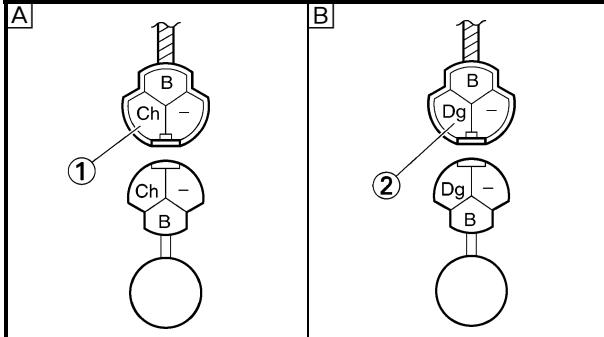
5. Voltage

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

- Ⓐ Front turn signal light
- Ⓑ Rear turn signal light
- Ⓒ Turn signal indicator light



Left turn signal light
Positive tester probe → chocolate ①
Negative tester probe → ground
Right turn signal light
Positive tester probe → dark green ②
Negative tester probe → ground



- Set the main switch to “ON”.
- Set the turn signal switch to “←” or “→”.
- Measure the voltage (DC 12 V) of the chocolate ① or dark green ② at the turn signal light connector (wire harness side).
- Is the voltage within specification?

↓ YES ↓ NO

This circuit is OK.

The wiring circuit from the turn signal switch to the turn signal light connector is faulty and must be repaired.

EAS00801

4. The neutral indicator light fails to come on.

1. Neutral indicator light bulb and socket
- Check the neutral indicator light bulb and socket for continuity. Refer to “CHECKING THE BULBS AND BULB SOCKETS”
 - Are the neutral indicator light bulb and socket OK?

↓ YES

↓ NO

Replace the neutral indicator light bulb, socket or both.

2. Neutral switch
- Check the neutral switch for continuity. Refer to “CHECKING THE SWITCHES”.
 - Is the neutral switch OK?

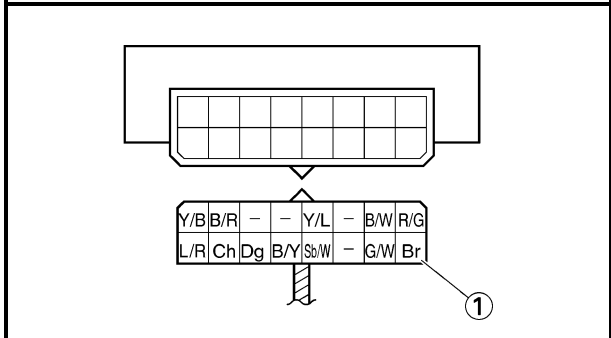
↓ YES

↓ NO

Replace the neutral switch.

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

Positive tester probe → brown ①
Negative tester probe → ground



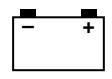
- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of brown at the meter light bulb coupler (wire harness side).
- Is the voltage within specification?

↓ YES

↓ NO

This circuit is OK.

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



EAS00802

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

1. Oil level warning light bulb and socket

- Check the oil level warning light bulb and socket for continuity. Refer to “CHECKING THE BULBS AND BULB SOCKETS”
- Are the oil level warning light bulb and socket OK?

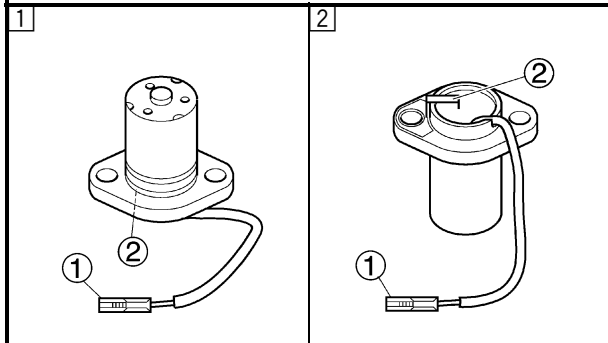


Replace the oil level warning light bulb, socket or both.

2. Engine oil level gauge

- Drain the engine oil and remove the engine oil level switch from the oil pan.
- Connect the pocket tester ($\Omega \times 100$) to the engine oil level gauge as shown.

Positive tester probe → Connector ① (white)
 Negative tester probe → Body earth ②



- Measure the engine oil level gauge resistance.

	Oil level gauge resistance
①	108 ~ 132 Ω at 20 °C
②	526 ~ 624 Ω at 20 °C

- Is the engine oil level gauge OK?

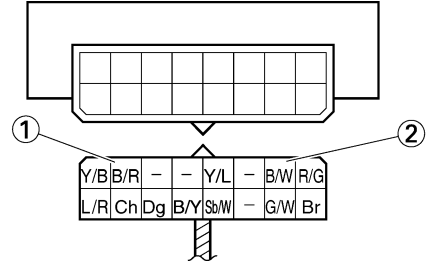


Replace the engine oil level gauge

3. Voltage

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

Positive tester probe → black/red ①
 Negative tester probe → black/white ②



- Set the main switch to “ON”.
- Measure the voltage (DC 12 V) of black/red ① and black/white ② at the meter assembly coupler.
- Is the voltage within specification?



This circuit is OK.

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

EAS00803

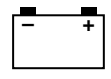
6. The fuel level indicator light fails to come on.

1. Fuel level indicator light bulb and socket

- Check the fuel level indicator light bulb and socket for continuity. Refer to “CHECKING THE BULBS AND BULB SOCKETS”
- Are the fuel level indicator light bulb and socket OK?



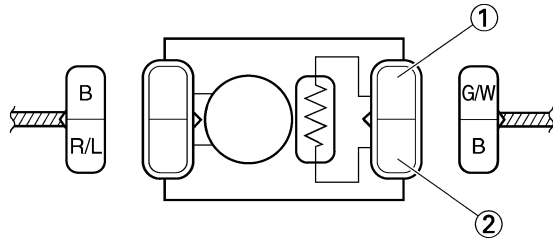
Replace the fuel level indicator light bulb, socket or both.



2. Fuel sender

- Drain the fuel from the fuel tank and remove the fuel pump from the fuel tank.
- Disconnect the fuel sender coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) to the fuel sender as shown.

Positive tester probe → green/white ①
Negative tester probe → black ②



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

↓ YES

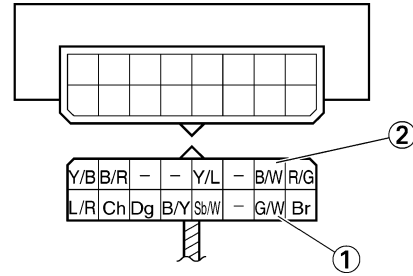
↓ NO

Replace the fuel sender.

3. Voltage

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

Positive tester probe → green/white ①
Negative tester probe → black/white ②



- Set the main switch to "ON".
- Measure the voltage (DC 12 V) of green/white ① and black/white ② 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.

EAS00806

7. The speedometer fails to come on.

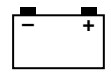
1. Multi-function meter bulb socket

- Check the multi-function meter bulb socket for continuity.
 Refer to "CHECKING THE BULBS AND BULB SOCKETS"
- Is the multi-function meter bulb socket OK?

↓ YES

↓ NO

Replace the multi-function meter.

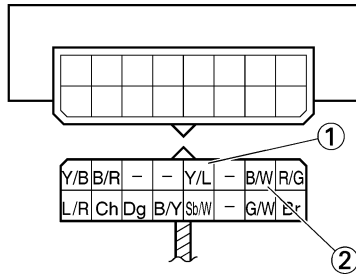


2. Voltage

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

Positive tester probe → yellow/blue ①

Negative tester probe → black/white ②



- Set the main switch to “ON”.
- Elevate the rear wheel and slowly rotate it.
- Measure the voltage (DC 5 V) of yellow/blue ① on the meter assembly coupler (wire harness side).
- Is the voltage within specification?

NO

YES

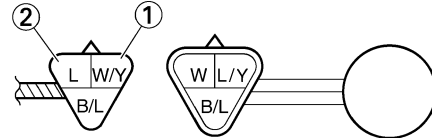
Replace the multi-function meter.

3. Speed sensor

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

Positive tester probe → white/yellow ①

Negative tester probe → blue ②



- Set the main switch to “ON”.
- Elevate the rear wheel and slowly rotate it.
- Measure the voltage (DC 5 V) of yellow and black/yellow. With each full rotation of the rear wheel, the voltage reading should cycle from 0.6 V to 4.8 V to 0.6 V to 4.8 V.
- Does the voltage reading cycle correctly?

YES

NO

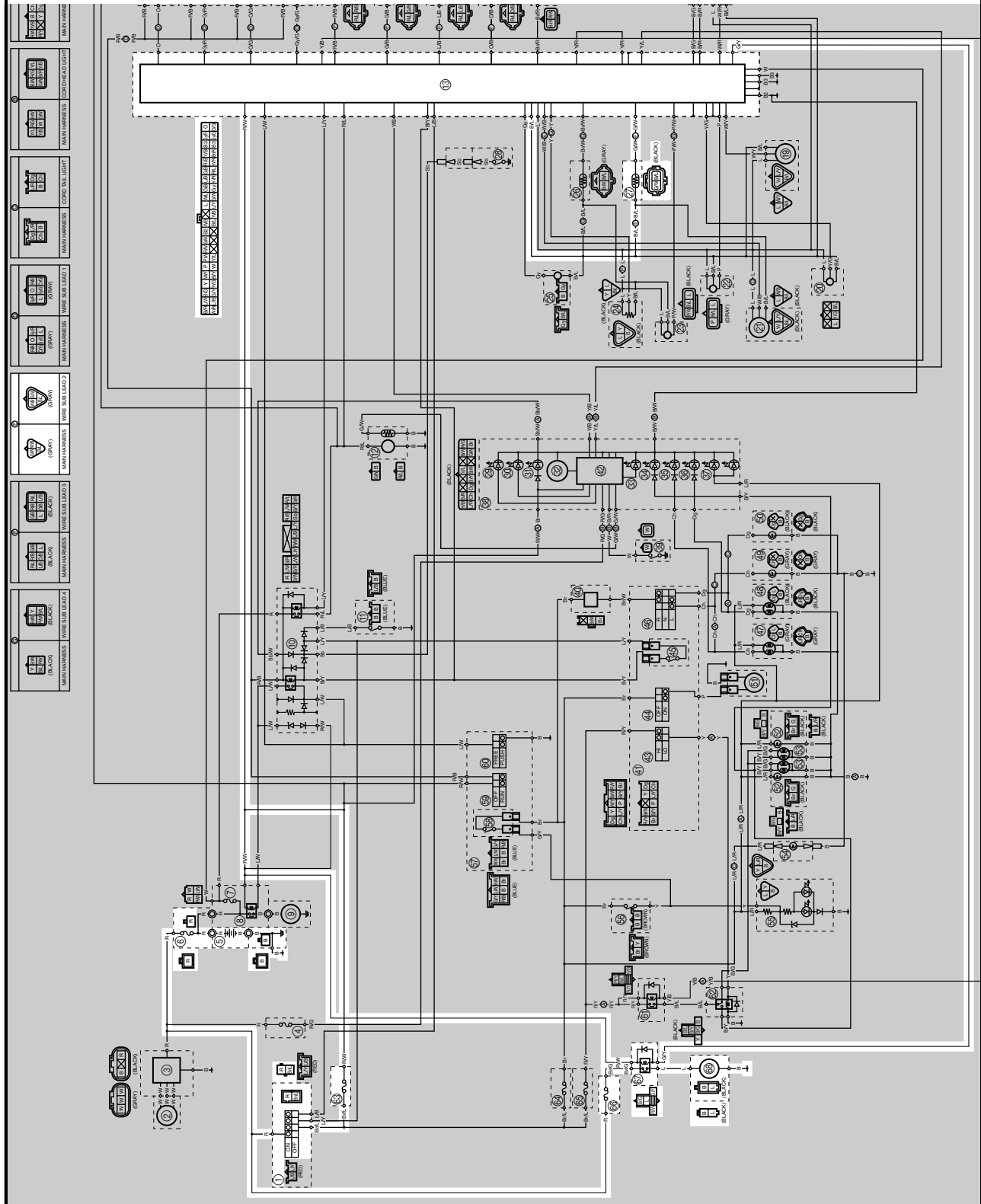
This circuit is OK.

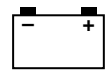
Replace the speed sensor.

EAS00807

**COOLING SYSTEM
CIRCUIT DIAGRAM**

- ① Main switch
- ⑤ Battery
- ⑥ Fuse (main)
- ⑬ ECU
- ⑲ Coolant temperature sensor
- ⑳ Fuse (ignition)
- ⑥⑥ Fuse (fan motor)
- ⑥⑦ Fan motor relay
- ⑥⑧ Fan motor





EAS00808

TROUBLESHOOTING

- The radiator fan motor fails to turn.
- The coolant temperature meter (meter assembly) fails to indicate when the engine is warm.

Check:

1. main, ignition and radiator fan motor fuses
2. battery
3. main switch
4. radiator fan motor
5. radiator fan motor relay
6. coolant temperature sensor
7. wiring connections
(the entire cooling system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. seat
 2. fuel tank
 3. bottom cowling
 4. side cowlings
- Troubleshoot with the following special tool(s).



**Pocket tester
YM-03112**

EAS00738

1. Main, ignition and fan motor 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).

EAS00739

2. Battery

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



**Minimum 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.

EAS00749

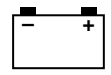
3. Main switch

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

↓ YES

↓ NO

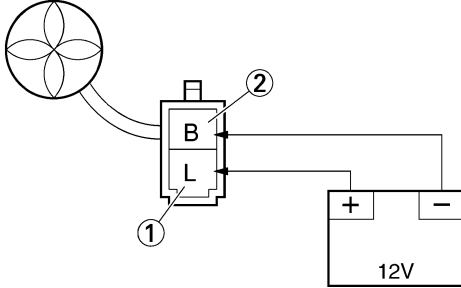
Replace the main switch.



EAS00809

4. Radiator fan motor

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



Positive battery lead → blue ①
 Negative battery lead → black ②

- Does the radiator fan motor turn?



The radiator fan motor is faulty and must be replaced.

5. Radiator fan motor relay

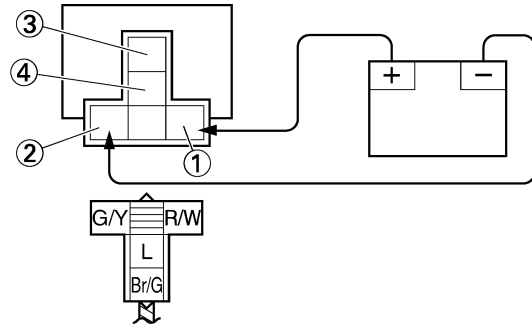
- Disconnect the radiator fan motor relay from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the radiator fan motor terminal as shown.
- Check the radiator fan motor of continuity.

Positive battery terminal → red/white ①

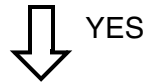
Negative battery terminal → green/yellow ②

Tester positive probe → brown/green ③

Tester negative probe → blue ④



- Does the radiator fan motor have continuity between brown/black and blue?



Replace the radiator fan motor.

EAS00812

6. Coolant temperature sensor

- Remove the coolant temperature sensor from the thermostat housing.
- Connect the pocket tester ($\Omega \times 1k$) to the coolant temperature sensor ① as shown.
- Immerse the coolant temperature sensor in a container filled with coolant ②.

NOTE:

Make sure the coolant temperature sensor terminals do not get wet.

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



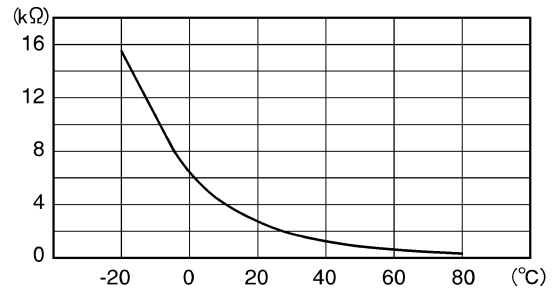
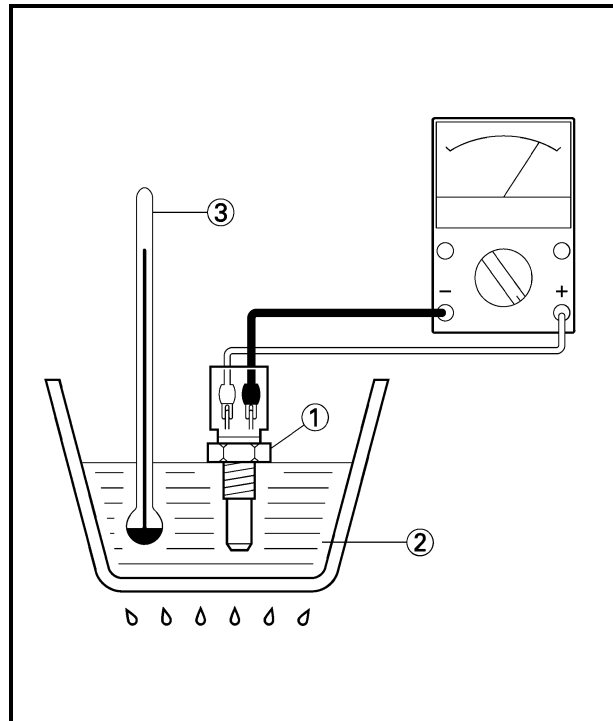
Coolant temperature sensor resistance
 0 °C (32 °F): 5.21 ~ 6.37 k Ω
 80 °C (176 °F): 0.29 ~ 0.35 k Ω

⚠ WARNING

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



Coolant temperature sensor
 20 Nm (2.0 m · kg, 14 ft · lb)
 Three bond sealock®10



• Does the coolant temperature sensor operate properly?

↓ YES

↓ NO

Replace the coolant temperature sensor.

EAS00813

7. Wiring

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

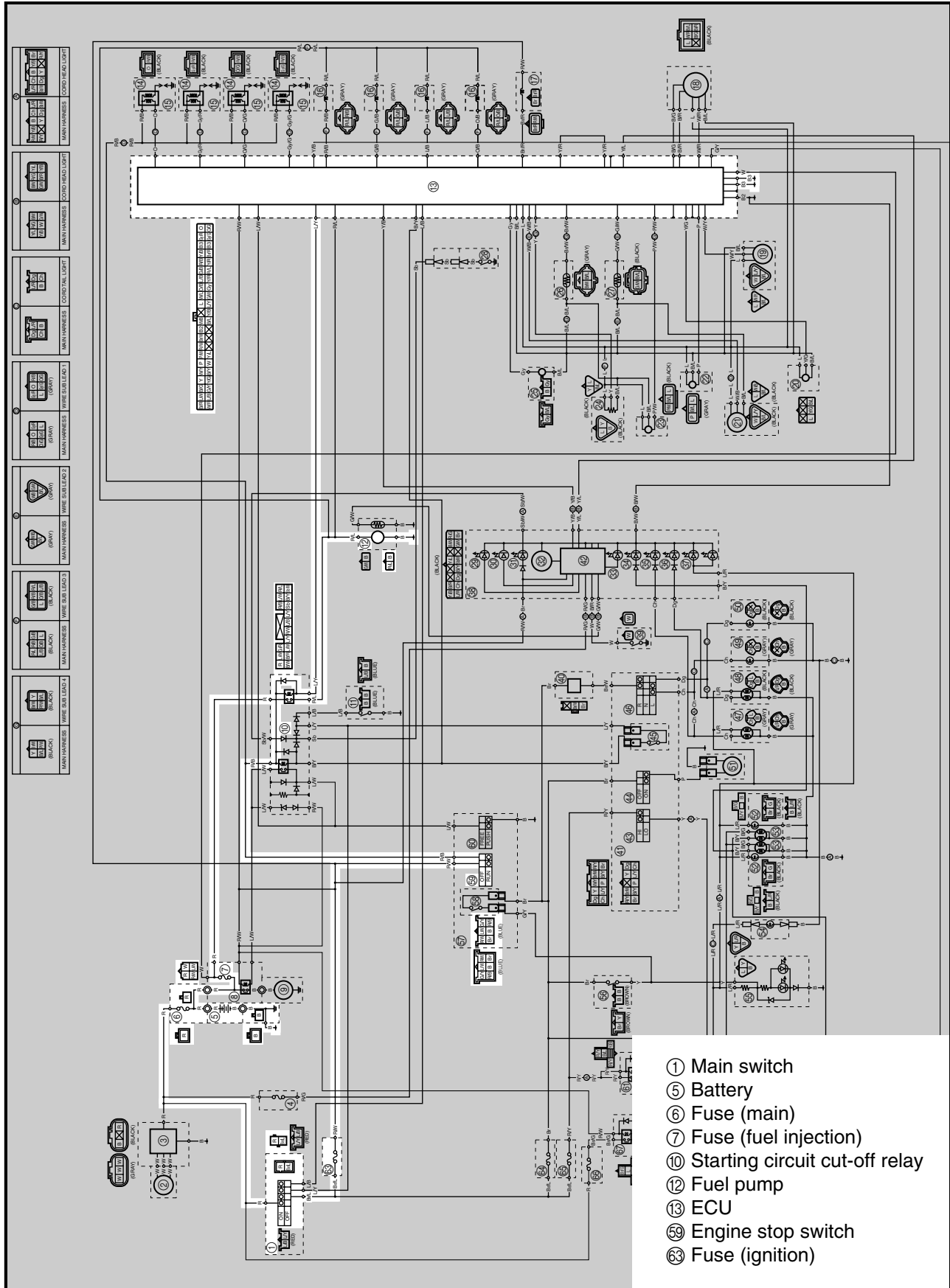
↓ YES

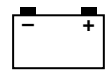
↓ NO

This circuit is OK.

Properly connect or repair the cooling system's wiring.

FUEL PUMP SYSTEM
CIRCUIT DIAGRAM



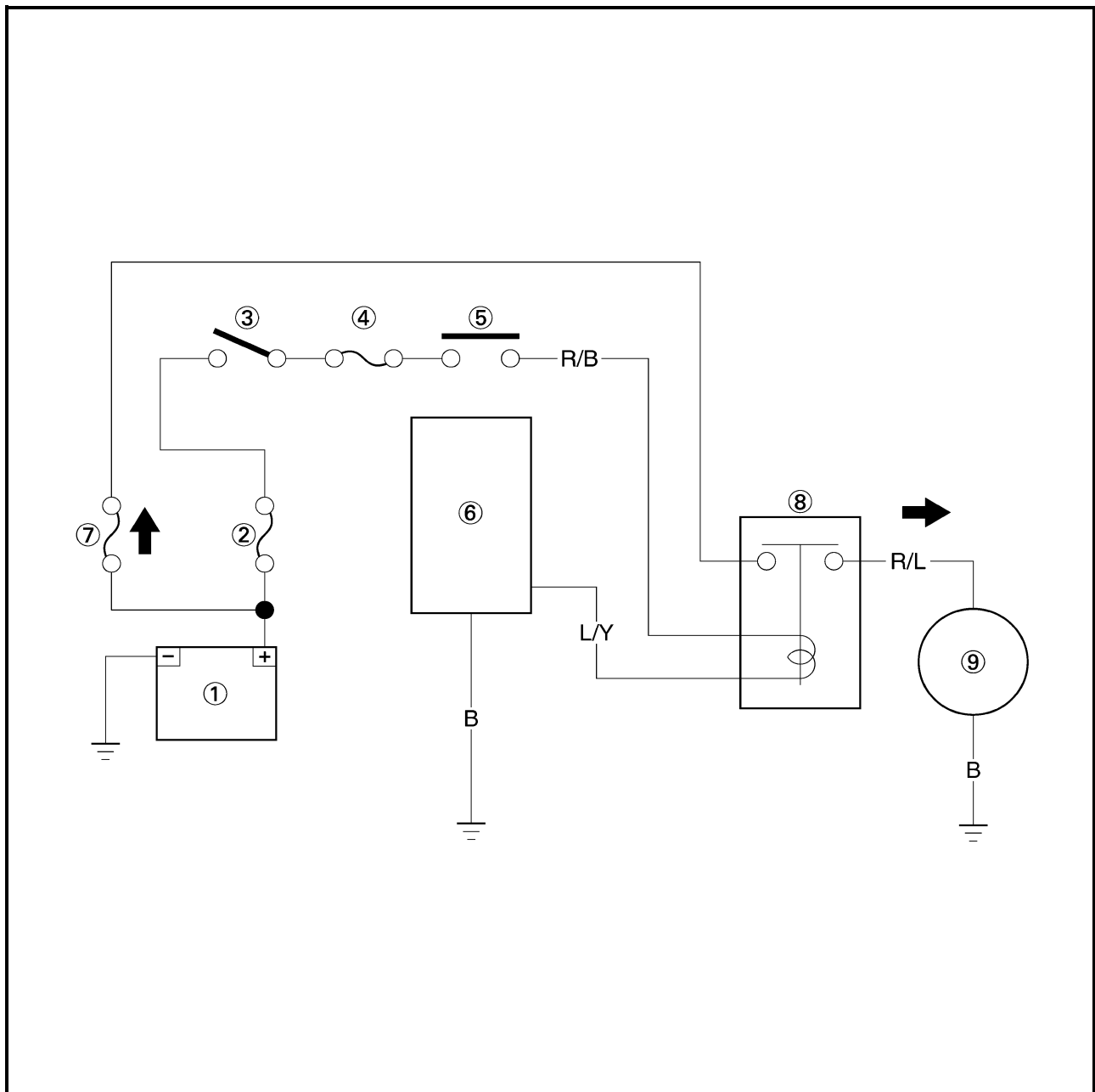


EAS00815

FUEL PUMP SYSTEM

The ECU includes the control unit for the fuel pump.

- ① Battery
- ② Main fuse
- ③ Main switch
- ④ Ignition fuse
- ⑤ Engine stop switch
- ⑥ ECU
- ⑦ Fuel injection system fuse
- ⑧ Fuel injection system relay
- ⑨ Fuel pump



EAS00816

TROUBLESHOOTING

If the fuel pump fails to operate.

Check:

1. Main and fuel injection system fuses
2. Battery
3. Main switch
4. Engine stop switch
5. Starting circuit cut-off relay
(the fuel injection system relay)
6. Fuel pump
7. Wiring connections
(the entire fuel system)

NOTE:

- Before troubleshooting, remove the following part(s):
 1. Seat
 2. Fuel tank
- Troubleshoot with the following special tool(s).

Pocket tester
YM-03112

EAS00738

1. Main and fuel injection system 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).

EAS00739

2. Battery

- Check the condition of the battery. Refer to “CHECKING THE BATTERY” in chapter 3.

Minimum 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.

EAS00749

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.

EAS00750

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.

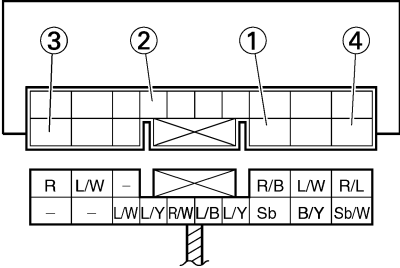
EAS00759

5. Starting circuit cut-off relay

- Disconnect the starting circuit cut-off relay coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the starting circuit cut-off relay coupler as shown.

Positive battery lead → red/black ①
Negative battery lead → blue/yellow ②

Positive tester probe → red ③
Negative tester probe → red/blue ④



- Does the starting circuit cut-off relay have continuity between red and red/blue?

↓ YES

↓ NO

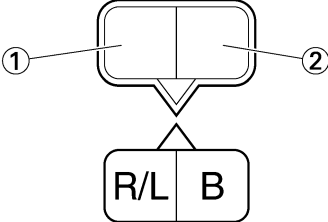
Replace the starting circuit cut-off relay.

EAS00817

6. Fuel pump resistance

- Disconnect the fuel pump coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) to the fuel pump coupler as shown.

Positive tester probe → red/blue ①
Negative tester probe → black ②



- Measure the fuel pump resistance.

Fuel pump resistance
0.2 ~ 3.0 Ω at 20 °C (68 °F)

- Is the fuel pump OK?

↓ YES

↓ NO

Replace the fuel pump.

EAS00818

7. Wiring

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

↓ YES

↓ NO

Replace the ECU.

Properly connect or repair the fuel system's wiring.

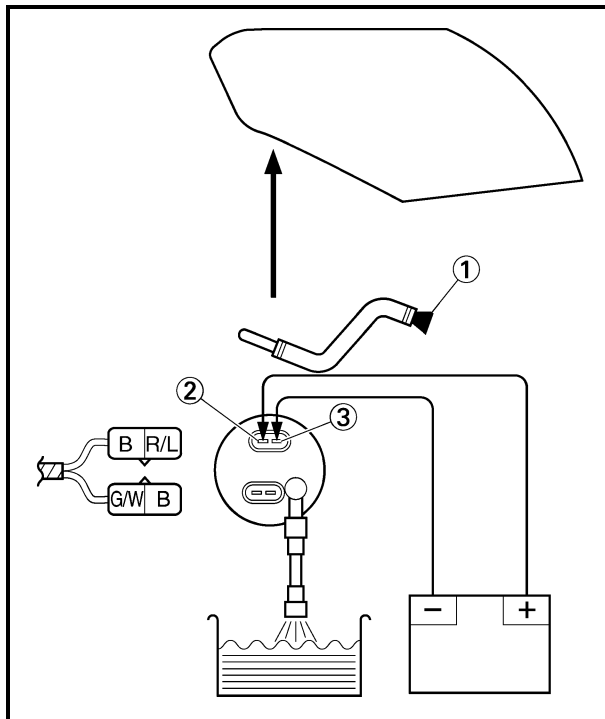
EAS00819

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 refueling.
- 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 the engine is completely cool before performing the following test.



1. Check:
 - Fuel pump operation



- a. Insert the plug ① to fuel return hose end.
- b. Fill the fuel tank.
- c. Put the end of the fuel hose into an open container.
- d. Connect the battery (DC 12 V) to the fuel pump coupler as shown.

Positive battery lead → red/blue ②
Negative battery lead → black ③

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



TROUBLESHOOTING

NOTE:

The following guide for troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to basic troubleshooting. Refer to the relative procedure in this manual for checks, adjustments, and replacement of parts.

STARTING FAILURES

ENGINE**Cylinder(s) and cylinder head(s)**

- Loose spark plug
- Loose cylinder head or cylinder
- Damaged cylinder head gasket
- Damaged cylinder gasket
- Worn or damaged cylinder
- Incorrect valve clearance
- Improperly sealed valve
- Incorrect valve-to-valve-seat contact
- Incorrect valve timing
- Faulty valve spring
- Seized valve

Piston(s) and piston ring(s)

- Improperly installed piston ring
- Damaged, worn or fatigued piston ring
- Seized piston ring
- Seized or damaged piston

Air filter

- Improperly installed air filter
- Clogged air filter element

Crankcase and crankshaft

- Improperly assembled crankcase
- Seized crankshaft

FUEL SYSTEM**Fuel tank**

- Empty fuel tank
- Clogged fuel filter
- Clogged fuel strainer
- Clogged fuel tank drain hose
- Clogged rollover valve
- Clogged rollover valve hose
- Deteriorated or contaminated fuel

Fuel pump

- Faulty fuel pump
- Faulty fuel pump relay

Throttle body (-ies)

- Deteriorated or contaminated fuel
- Sucked-in air

ELECTRICAL SYSTEMS

Battery

- Discharged battery
- Faulty battery

Fuse(s)

- Blown, damaged or incorrect fuse
- Improperly installed fuse

Spark plug(s)

- Incorrect spark plug gap
- Incorrect spark plug heat range
- Fouled spark plug
- Worn or damaged electrode
- Worn or damaged insulator

Ignition coil(s)

- Cracked or broken ignition coil body
- Broken or shorted primary or secondary coils
- Faulty spark plug lead

Ignition system

- Faulty ECU
- Faulty crankshaft position sensor
- Broken generator rotor woodruff key

Switches and wiring

- Faulty main switch
- Faulty engine stop switch
- Broken or shorted wiring
- Faulty neutral switch
- Faulty start switch
- Faulty sidestand switch
- Faulty clutch switch
- Improperly grounded circuit
- Loose connections

Starting system

- Faulty starter motor
- Faulty starter relay
- Faulty starting circuit cut-off relay
- Faulty starter clutch

EAS00846

INCORRECT ENGINE IDLING SPEED

ENGINE

Cylinder(s) and cylinder head(s)

- Incorrect valve clearance
- Damaged valve train components

Air filter

- Clogged air filter element

FUEL SYSTEM

Throttle body(-ies)

- Damaged or loose throttle body joint
- Improperly synchronized throttle bodies
- Improperly adjusted engine idling speed (throttle stop screw)
- Improper throttle cable free play
- Flooded throttle body
- Faulty air induction system

ELECTRICAL SYSTEMS

Battery

- Discharged battery
- Faulty battery

Spark plug(s)

- Incorrect spark plug gap
- Incorrect spark plug heat range
- Fouled spark plug
- Worn or damaged electrode
- Worn or damaged insulator

Ignition coil(s)

- Broken or shorted primary or secondary coils
- Cracked or broken ignition coil

Ignition system

- Faulty ECU
- Faulty crankshaft position sensor
- Broken generator rotor woodruff key

EAS00848

POOR MEDIUM-AND-HIGH-SPEED PERFORMANCE

Refer to "STARTING FAILURES".

ENGINE

Air filter

- Clogged air filter element

FUEL SYSTEM

Fuel pump

- Faulty fuel pump

EAS00850

FAULTY GEAR SHIFTING

SHIFTING IS DIFFICULT

Refer to "CLUTCH DRAGS".

SHIFT PEDAL DOES NOT MOVE

Shift shaft

- Improperly adjusted shift rod
- Bent shift shaft

Shift drum and shift forks

- Foreign object in a shift drum groove
- Seized shift fork
- Bent shift fork guide bar

Transmission

- Seized transmission gear
- Foreign object between transmission gears
- Improperly assembled transmission

JUMPS OUT OF GEAR

Shift shaft

- Incorrect shift pedal position
- Improperly returned stopper lever

Shift forks

- Worn shift fork

Shift drum

- Incorrect axial play
- Worn shift drum groove

Transmission

- Worn gear dog

EAS00851

FAULTY CLUTCH

CLUTCH SLIPS

Clutch

- Improperly assembled clutch
- Improperly adjusted clutch cable
- Loose or fatigued clutch spring
- Worn friction plate
- Worn clutch plate

Engine oil

- Incorrect oil level
- Incorrect oil viscosity (low)
- Deteriorated oil

CLUTCH DRAGS

Clutch

- Unevenly tensioned clutch springs
- Warped pressure plate
- Bent clutch plate
- Swollen friction plate
- Bent clutch push rod
- Broken clutch boss
- Burnt primary driven gear bushing
- Match marks not aligned

Engine oil

- Incorrect oil level
- Incorrect oil viscosity (high)
- Deteriorated oil

EAS00855

OVERHEATING

ENGINE

Clogged coolant passages

- Cylinder head(s) and piston(s)
- Heavy carbon buildup

Engine oil

- Incorrect oil level
- Incorrect oil viscosity
- Inferior oil quality

COOLING SYSTEM

Coolant

- Low coolant level

Radiator

- Damaged or leaking radiator
- Faulty radiator cap
- Bent or damaged radiator fin

Water pump

- Damaged or faulty water pump
- Thermostat
- Thermostat stays closed
- Oil cooler
- Clogged or damaged oil cooler
- Hose(s) and pipe(s)
- Damaged hose
- Improperly connected hose
- Damaged pipe
- Improperly connected pipe

FUEL SYSTEM

Throttle body(-ies)

- Incorrect main jet setting
- Incorrect fuel level
- Damaged or loose throttle body joint

Air filter

- Clogged air filter element

CHASSIS

Brake(s)

- Dragging brake

ELECTRICAL SYSTEMS

Spark plug(s)

- Incorrect spark plug gap
- Incorrect spark plug heat range

Ignition system

- Faulty ignitor unit

EAS00856

OVERCOOLING

COOLING SYSTEM

Thermostat

- Thermostat stays open

EAS00857

POOR BRAKING PERFORMANCE

- Worn brake pad
- Worn brake disc
- Air in hydraulic brake system
- Leaking brake fluid
- Faulty brake caliper kit
- Faulty brake caliper seal
- Loose union bolt
- Damaged brake hose
- Oil or grease on the brake disc
- Oil or grease on the brake pad
- Incorrect brake fluid level

EAS00861

FAULTY FRONT FORK LEGS

LEAKING OIL

- Bent, damaged or rusty inner tube
- Cracked or damaged outer tube
- Improperly installed oil seal
- Damaged oil seal lip
- Incorrect oil level (high)
- Loose damper rod assembly bolt
- Damaged damper rod assembly bolt copper washer
- Cracked or damaged cap bolt O-ring

EAS00863

UNSTABLE HANDLING

Handlebars

- Bent or improperly installed right handlebar
- Bent or improperly installed left handlebar

Steering head components

- Improperly installed upper bracket
- Improperly installed lower bracket (improperly tightened ring nut)
- Bent steering stem
- Damaged ball bearing or bearing race

Front fork leg(s)

- Uneven oil levels (both front fork legs)
- Unevenly tensioned fork spring (both front fork legs)
- Broken fork spring
- Bent or damaged inner tube
- Bent or damaged outer tube

Swingarm

- Worn bearing or bushing
- Bent or damaged swingarm

MALFUNCTION

- Bent or damaged inner tube
- Bent or damaged outer tube
- Damaged fork spring
- Worn or damaged outer tube bushing
- Bent or damaged damper rod
- Incorrect oil viscosity
- Incorrect oil level

Rear shock absorber assembly(-ies)

- Faulty rear shock absorber spring
- Leaking oil or gas

Tire(s)

- Uneven tire pressures (front and rear)
- Incorrect tire pressure
- Uneven tire wear

Wheel(s)

- Incorrect wheel balance
- Deformed cast wheel
- Damaged wheel bearing
- Bent or loose wheel axle
- Excessive wheel runout

Frame

- Bent frame
- Damaged steering head pipe
- Improperly installed bearing race

EAS00866

FAULTY LIGHTING OR SIGNALING SYSTEM

HEADLIGHT DOES NOT COME ON

- Wrong headlight bulb
- Too many electrical accessories
- Hard charging
- Incorrect connection
- Improperly grounded circuit
- Poor contacts (main switch)
- Burnt-out headlight bulb

HEADLIGHT BULB BURNT OUT

- Wrong headlight bulb
- Faulty battery
- Faulty rectifier/regulator
- Improperly grounded circuit
- Faulty main switch
- Headlight bulb life expired

TAIL/BRAKE LIGHT DOES NOT COME ON

- Too many electrical accessories
- Incorrect connection

TAIL/BRAKE LIGHT BULB BURNT OUT

- Faulty battery
- Incorrectly adjusted rear brake light switch

TURN SIGNAL DOES NOT COME ON

- Faulty turn signal switch
- Faulty turn signal relay
- Burnt-out turn signal bulb
- Incorrect connection
- Damaged or faulty wire harness
- Improperly grounded circuit
- Faulty battery
- Blown, damaged or incorrect fuse

TURN SIGNAL BLINKS SLOWLY

- Faulty turn signal relay
- Faulty main switch
- Faulty turn signal switch
- Incorrect turn signal bulb

TURN SIGNAL REMAINS LIT

- Faulty turn signal relay
- Burnt-out turn signal bulb

TURN SIGNAL BLINKS QUICKLY

- Incorrect turn signal bulb
- Faulty turn signal relay
- Burnt-out turn signal bulb

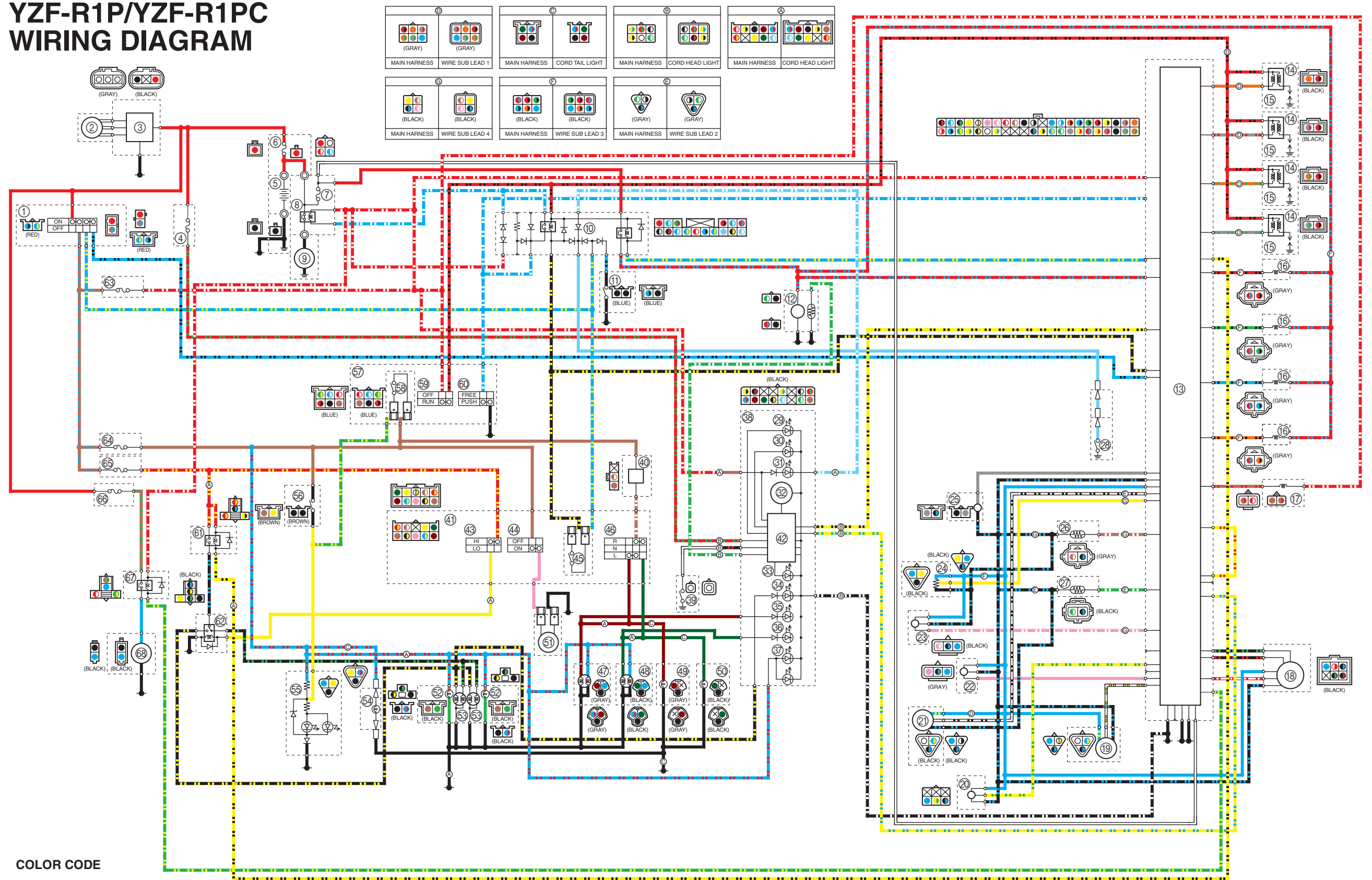
HORN DOES NOT SOUND

- Improperly adjusted horn
- Damaged or faulty horn
- Faulty main switch
- Faulty horn switch
- Faulty battery
- Blown, damaged or incorrect fuse
- Faulty wire harness

YZF-R1P/YZF-R1PC WIRING DIAGRAM

- ① Main switch
- ② AC magneto
- ③ Rectifier/regulator
- ④ Fuse (back up)
- ⑤ Battery
- ⑥ Fuse (main)
- ⑦ Fuse (fuel injection system)
- ⑧ Starter relay
- ⑨ Starter motor
- ⑩ Starting circuit cut-off relay
- ⑪ Sidestand switch
- ⑫ Fuel pump
- ⑬ ECU
- ⑭ Ignition coil
- ⑮ Spark plug
- ⑯ Fuel injector
- ⑰ AI system solenoid
- ⑱ EXUP servo motor
- ⑲ Speed sensor
- ⑳ Lean angle cut-off switch
- ㉑ Cylinder identification sensor
- ㉒ Atmospheric pressure sensor
- ㉓ Intake air pressure sensor
- ㉔ Throttle position sensor
- ㉕ Crankshaft position sensor
- ㉖ Intake air temperature sensor
- ㉗ Coolant temperature sensor
- ㉘ Neutral switch
- ㉙ Fuel level warning light
- ㉚ Oil level warning light
- ㉛ Neutral indicator light
- ㉜ Tachometer
- ㉝ Coolant temperature indicator light
- ㉞ High beam indicator light
- ㉟ Turn signal indicator light (L)
- ㊱ Turn signal indicator light (R)
- ㊲ Meter light
- ㊳ Meter assembly
- ㊴ Oil level gauge
- ㊵ Turn signal relay
- ㊶ Left handlebar switch
- ㊷ Multi-function meter
- ㊸ Dimmer switch
- ㊹ Horn switch
- ㊺ Clutch switch
- ㊻ Turn signal switch
- ㊼ Front turn signal light (L)
- ㊽ Front turn signal light (R)
- ㊾ Rear turn signal light (L)
- ㊿ Rear turn signal light (R)
- ① Horn
- ② Auxiliary light
- ③ Headlight
- ④ License light
- ⑤ Tail/brake light
- ⑥ Rear brake switch
- ⑦ Right handlebar switch
- ⑧ Front brake switch
- ⑨ Engine stop switch
- ⑩ Start switch
- ⑪ Headlight relay (on/off)
- ⑫ Headlight relay (dimmer)
- ⑬ Fuse (ignition)
- ⑭ Fuse (signal)
- ⑮ Fuse (headlight)
- ⑯ Fuse (fan motor)
- ⑰ Fan motor relay
- ⑱ Fan motor

YZF-R1P/YZF-R1PC WIRING DIAGRAM



COLOR CODE

Black	Dark green	Pink	Yellow	Black/White	Blue/White	Brown/White	Green/White	Orange/Black	Red/Green	Sky blue/White	Yellow/Black
Blue	Green	Red	Black/Green	Black/Yellow	Blue/Yellow	Brown/Green	Green/Yellow	Orange/Green	Red/Blue	White/Black	Yellow/Green
Brown	Gray	Sky blue	Black/Blue	Blue/Black	Brown/Blue	Green/Black	Gray/Green	Pink/White	Red/White	White/Red	Yellow/Blue
Chocolate	Orange	White	Black/Red	Blue/Red	Brown/Red	Green/Red	Gray/Red	Red/Black	Red/Yellow	White/Yellow	Yellow/Red



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