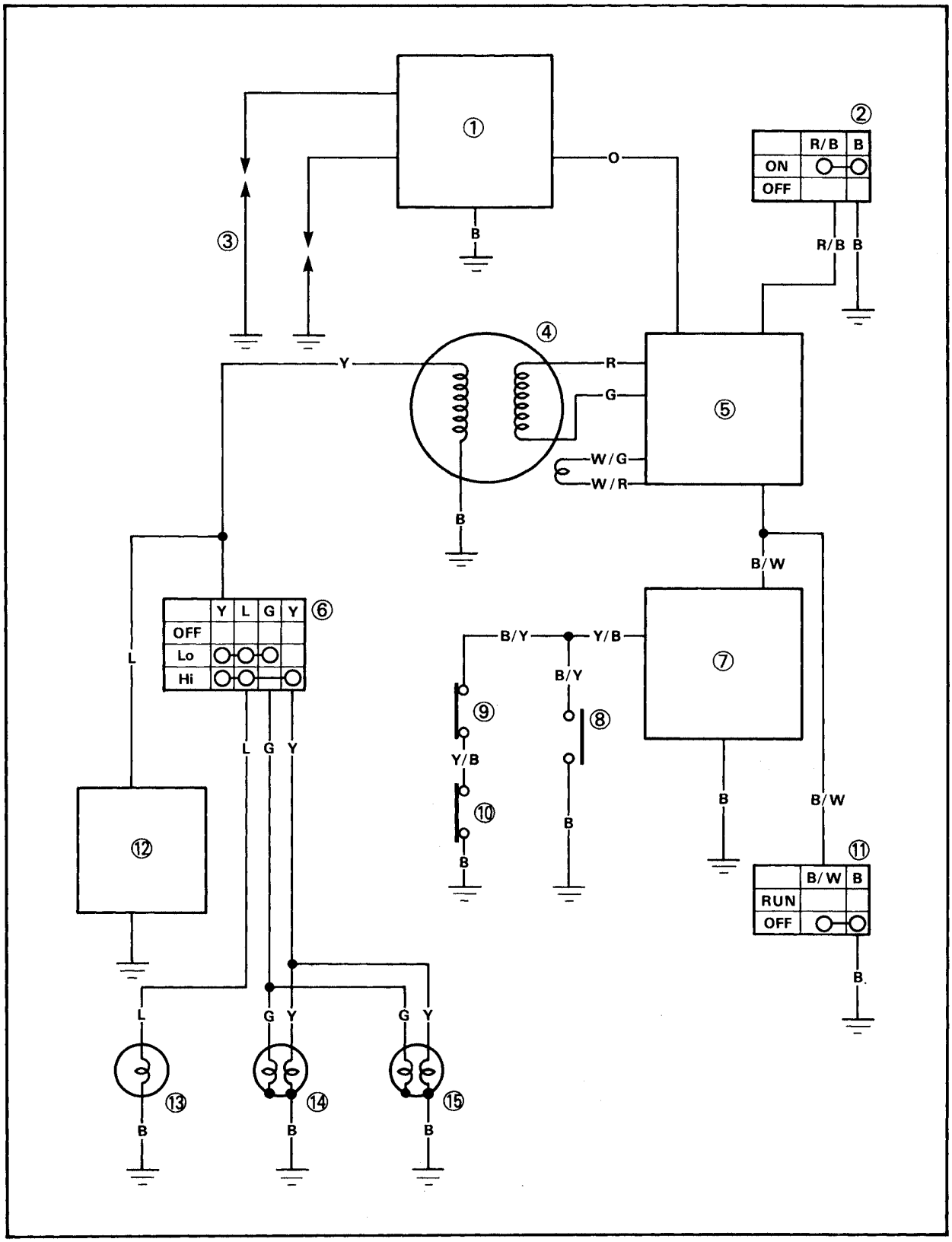
# CHAPTER 7
# ELECTRICAL

# ELECTRICAL

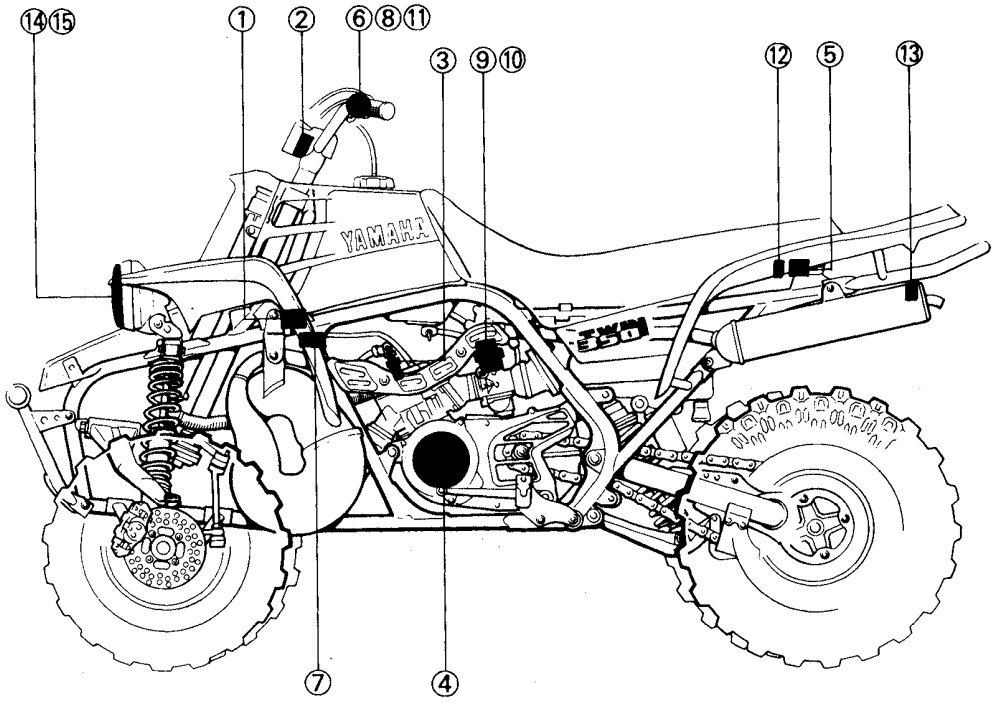
## YFZ350T CIRCUIT DIAGRAM



① Ignition coil
② Main switch
③ Spark plug
④ CDI magneto
⑤ CDI unit
⑥ "LIGHTS" (Dimmer) switch
⑦ T.O.R.S. (Throttle override system) control unit
⑧ Throttle switch
⑨ Carburetor switch (Left)
⑩ Carburetor switch (Right)
⑪ "ENGINE STOP" switch
⑫ Voltage regulator
⑬ Taillight
⑭ Headlight (Left)
⑮ Headlight (Right)

**COLOR CODE**

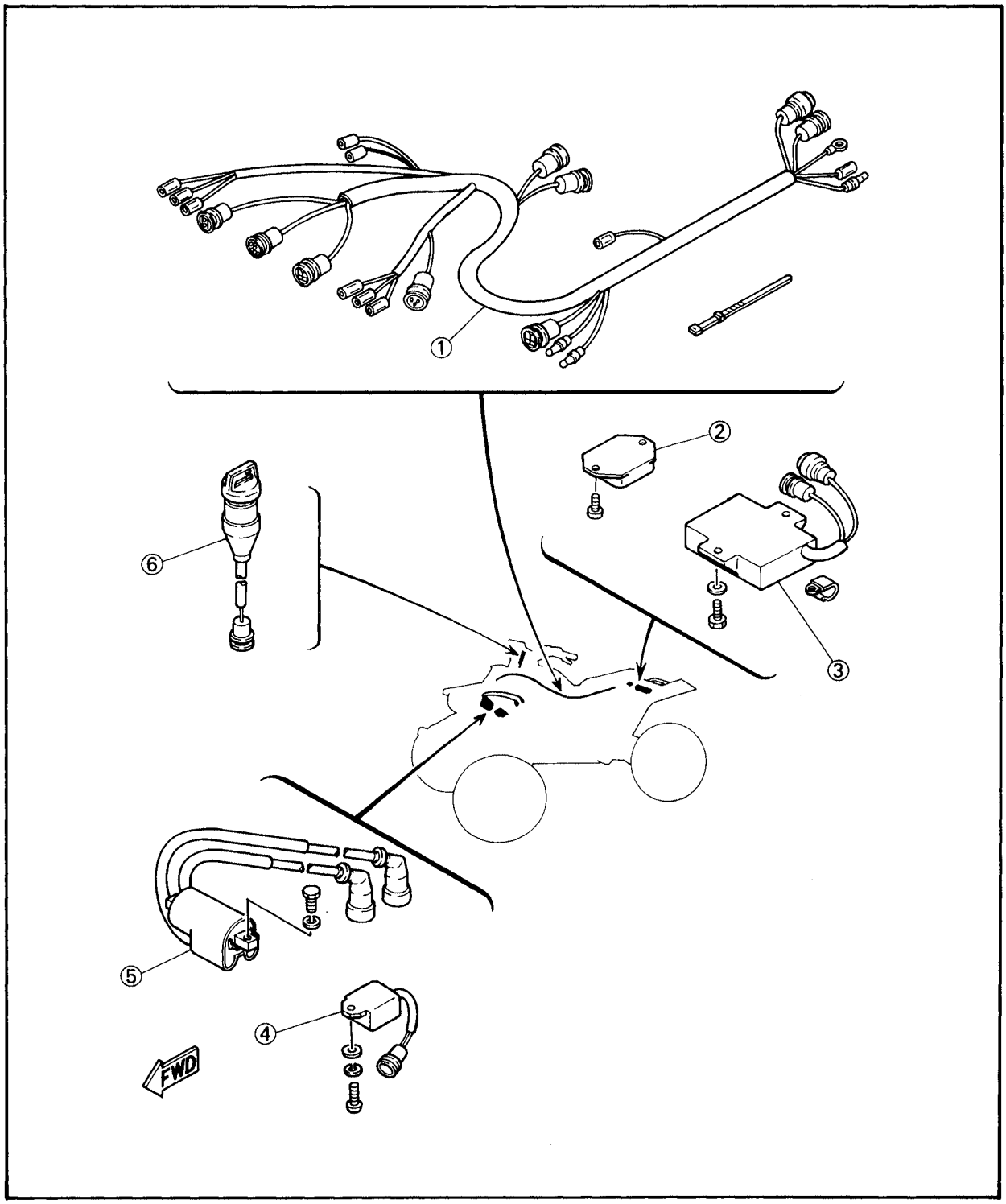
| | | | |
|---|---|---|---|
| B | Black | B/W | Black/White |
| R | Red | R/W | Red/White |
| L | Blue | W/G | White/Green |
| Y | Yellow | W/R | White/Red |
| G | Green | G/L | Green/Blue |
| O | Orange | R/B | Red/Black |
| W | White | Y/B | Yellow/Black |
| Br | Brown | B/Y | Black/Yellow |



## ELECTRICAL COMPONENTS

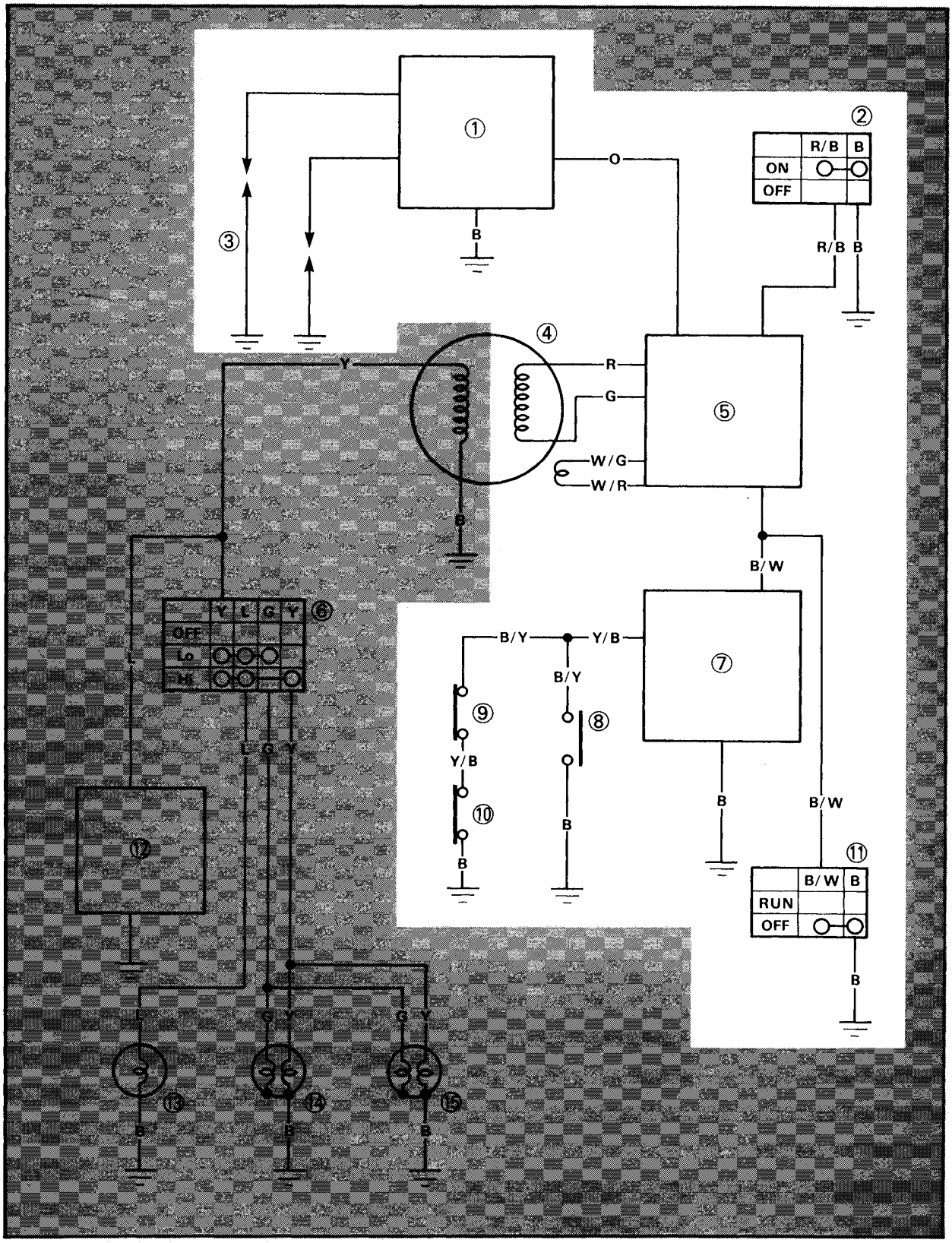
① Wireharness
② Voltage regulator
③ CDI unit
④ T.O.R.S. control unit
⑤ Ignition coil
⑥ Main switch

| SPECIFICATIONS | RESISTANCE |
|---|---|
| IGNITION COIL: | |
| PRIMARY | 0.28 ~ 0.38Ω |
| SECONDARY | 4.7 ~ 7.1 kΩ |
| PICK-UP COIL | 94 ~ 140Ω |
| SOURCE COIL | 13.7 ~ 20.5Ω |
| LIGHTING COIL | 0.26 ~ 0.38Ω |



# IGNITION SYSTEM

## CIRCUIT DIAGRAM

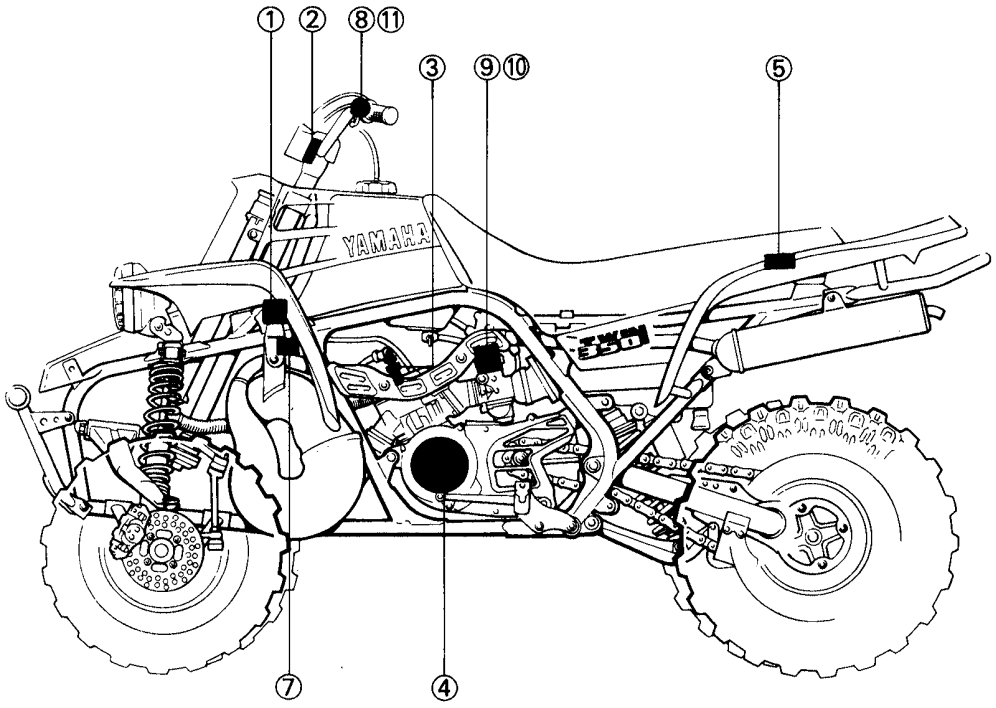


Aforementioned circuit diagram shows ignition circuit in circuit diagram.

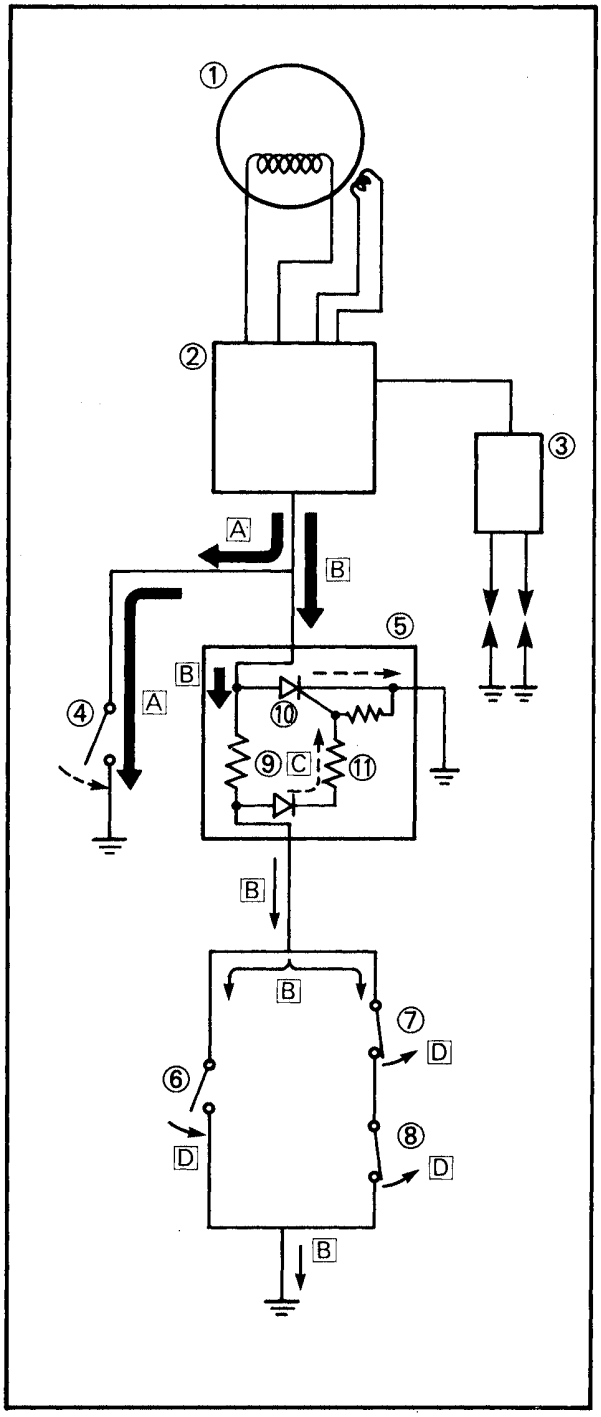
**NOTE:**

For the encircled numbers and color codes, see page 7-2.

① Ignition coil
② Main switch
③ Spark plug
④ CDI magneto
⑤ CDI unit
⑦ T.O.R.S. control unit
⑧ Throttle switch
⑨ Carburetor switch (Left)
⑩ Carburetor switch (Right)
⑪ "ENGINE STOP" switch



# IGNITION SYSTEM




## THROTTLE OVERRIDE SYSTEM (T.O.R.S.)

The ignition circuit on this model consist of the CDI magneto, CDI unit, ignition coil, spark plug, engine stop switch, T.O.R.S. control unit, throttle switch and carburetor switches.

When the engine stop switch ④ is turned to "STOP", the engine stop control current [A] flows to the ground through it; then, the engine will not start.

### Operation of T.O.R.S.

1) Current [B] flows into the T.O.R.S. control unit ⑤, where it is decreased by resistance ⑨. The current then flows into the carburetor switches ⑦ and ⑧ or throttle switch ⑥. As a result, no current flows into the thyristor ⑩, thereby keeping the engine running.

2) If the carburetor and throttle switches ⑥, ⑦ and ⑧ are all turned off, the current [C] from the CDI unit flows into the thyristor ⑩, which is thus turned on, thereby grounding the engine stop control current [B] of the CDI unit.

① CDI magneto
② CDI unit
③ Ignition coil
④ "ENGINE STOP" switch
⑤ T.O.R.S. control unit
⑥ Throttle switch
⑦ Carburetor switch (Left)
⑧ Carburetor switch (Right)
⑨ Resistance
⑩ Thyristor
⑪ Resistance
[D] At accelerating throttle

## TROUBLESHOOTING

### Troubleshooting 1.

**NOTE:**

Before this troubleshooting, remove the seat, front fender and rear fender.

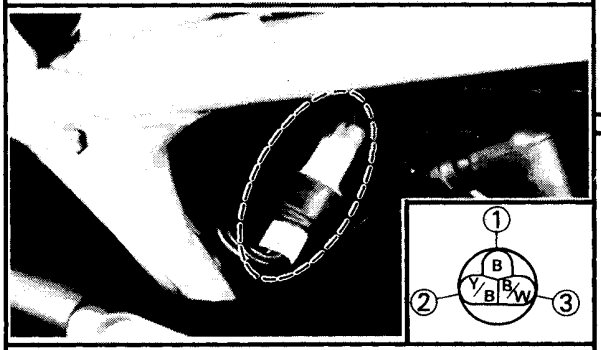
**IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).**

1. Throttle lever free play check
   - Check the throttle lever free play. Refer to "CHAPTER 2. THROTTLE LEVER ADJUSTMENT" section.

FAULTY → Adjust the throttle lever free play.

OK ↓

2. Cancellation of the T.O.R.S.
   - Disconnect the T.O.R.S. control unit coupler (Black ①, Yellw/Black ②, Black/White ③).




OK → Go to the Troubleshooting 2.

- Start the engine.

ENGINE DOES NOT RUN ↓

3. Spark plug inspection
   - Check the spark plug condition. Refer to "CHAPTER 2. SPARK PLUG INSPECTION" section.

FAULTY → Replace or regap spark plug.

OK ↓

*

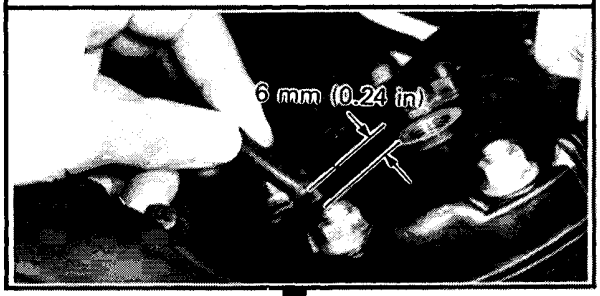
*

4. Ignition spark test (With spark plug)
   - Install the spark plug to the plug cap.
   - Ground the spark plug to the cylinder head.
   - Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN", then, shift the gear in neutral and set the parking brake.
   - Kick the kick crank forcefully.
   - Check the ignition spark condition.

SPARK → Ignition circuit is good.

NO SPARK

5. Ignition spark gap test (Without spark plug and cap)
   - Remove the spark plugs and plug caps.
   - Hold the spark plug lead 6 mm (0.24 in) from the cylinder head.
   - Repeat the aforementioned test.
   - Check the ignition spark condition.




SPARK → Spark plug and/or plug cap is faulty. Replace faulty part(s).

NO SPARK

6. "ENGINE STOP" and main switches conduct check.
   - Check the "ENGINE STOP" and main switches for continuity. Refer to "SWITCHES TEST" section.

FAULTY → "ENGINE STOP" and/or main switches is faulty. Replace faulty part(s).

OK

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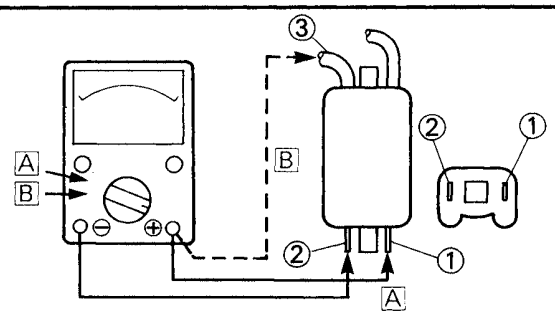
7. Ignition coil resistance test
   - Disconnect the ignition coil leads (Orange ① and Black ②) and spark plug lead ③.
   - Connect the Pocket Tester (YU-03112) as shown.
   - Measure the primary and secondary coil resistances.

**Primary Coil Resistance [A]:**
**0.28~0.38Ω at 20°C (68°F)**
**Secondary Coil Resistance [B]:**
**4.7~7.1 kΩ at 20°C (68°F)**

OUT OF SPECIFICATION → Ignition coil is faulty. Replace it.

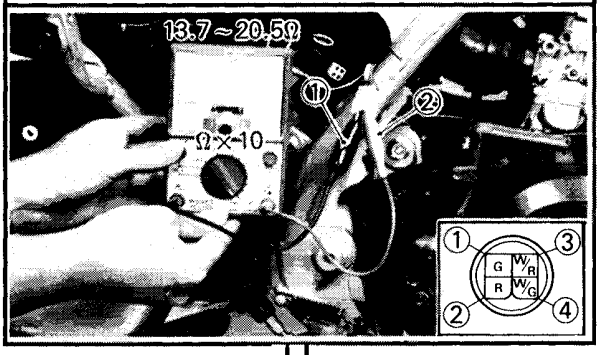



BOTH RESISTANCES MEET SPECIFICATIONS

8. Source coil resistance test
   - Disconnect the CDI magneto coupler (Green ①, Red ②, White/Red ③ and White/Green ④) from the wireharness.
   - Connect the Pocket Tester (YU-03112) to the CDI magneto leads.
   - Measure the source coil resistance.

**Source Coil Resistance (Green ① – Red ②):**
**13.7~20.5Ω at 20°C (68°F)**

OUT OF SPECIFICATION → Source coil is faulty. Replace stator assembly.




OK

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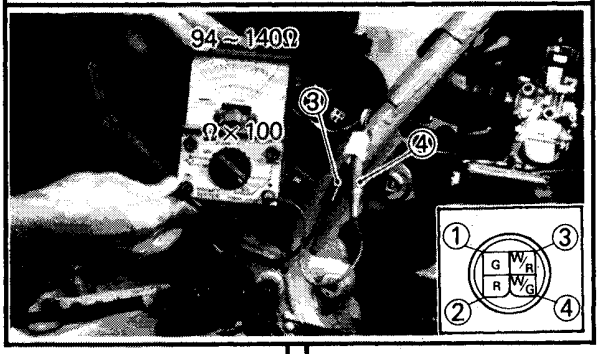
9. Pickup coil resistance test
   - Disconnect the CDI magneto coupler (Green ①, Red ②, White/Red ③ and White/Green ④) from the wireharness.
   - Connect the Pocket Tester (YU-03112) to the pickup coil leads.
   - Measure the pickup coil resistance.

**Pickup Coil Resistance**
**(White/Red ③ – White/Green ④)**
**94 ~ 140Ω at 20°C (68°F)**




OUT OF SPECIFICATION → Pickup coil is faulty. Replace stator assembly.

BOTH RESISTANCES MEET SPECIFICATIONS

10. Check entire ignition system for connections.
    - Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

OK

CDI unit is faulty. Replace it.

**Troubleshooting 2. (T.O.R.S.)**

**NOTE:**

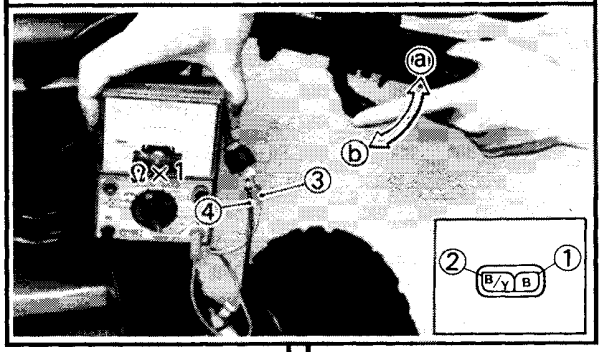
Before this troubleshooting 2., troubleshooting 1. should be performed.

1. Throttle lever switch test
   - Disconnect the throttle lever switch coupler (Black ① and Black/Yellow ②) from the wireharness.
   - Connect the positive lead ③ of the Pocket Tester (YU-03112) to the Black/Yellow lead ②.
   - Connect the negative lead ④ of the Pocket Tester to the Black lead ①.
   - Check the switch for continuity.

BAD CONDITION → Throttle lever switch is faulty. Replace it.

| Throttle Lever | Good Condition | Bad Condition | | |
|---|---|---|---|---|
| Open ⓐ | ○ | × | ○ | × |
| Close ⓑ | × | × | ○ | ○ |

○: Continuity ×: Discontinuity




GOOD CONDITION

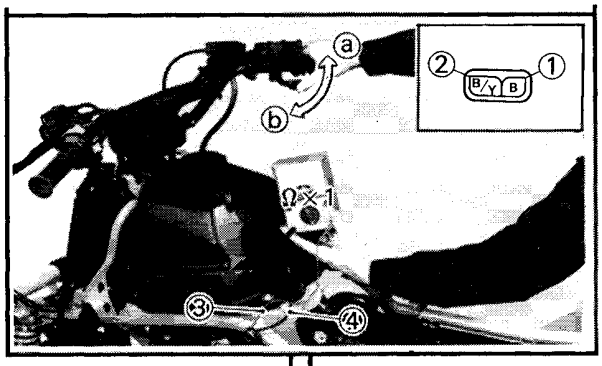
2. Carburetor switches test
   - Disconnect the carburetor switch coupler (Black ① and Black/Yellow ②) from the wireharness.
   - Connect the positive lead ③ of the Pocket Tester (YU-03112) to the Black/Yellow lead ②.
   - Connect the negative lead ④ of the Pocket Tester to the Black lead ②.
   - Check the switch for continuity.
   - Repeat the above steps for the another carburetor switch.

BAD CONDITION → Carburetor switch(s) is faulty. Replace the carburetor switch assembly(s).

| Carburetor Switch | Good Condition | Bad Condition | | |
|---|---|---|---|---|
| Open ⓐ | × | × | ○ | ○ |
| Close ⓑ | ○ | × | ○ | × |

○: Continuity ×: Discontinuity

# IGNITION SYSTEM




GOOD CONDITION

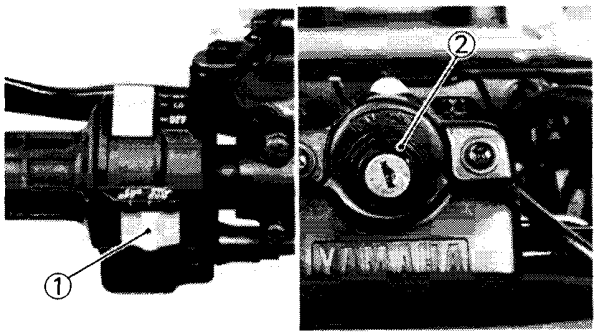
POOR CONNECTION

3. Check entire T.O.R. System for connections.
   •Refer to "WIRING DIAGRAM" section.

→ Correct.

OK

T.O.R.S. control unit is faulty.
Replace it.




**SWITCHES TEST**

Switches may be checked for continuity with a Pocket Tester (YU-03112) on the "Ohm × 1" position.

① "ENGINE STOP" switch
② Main switch

**Main Switch**

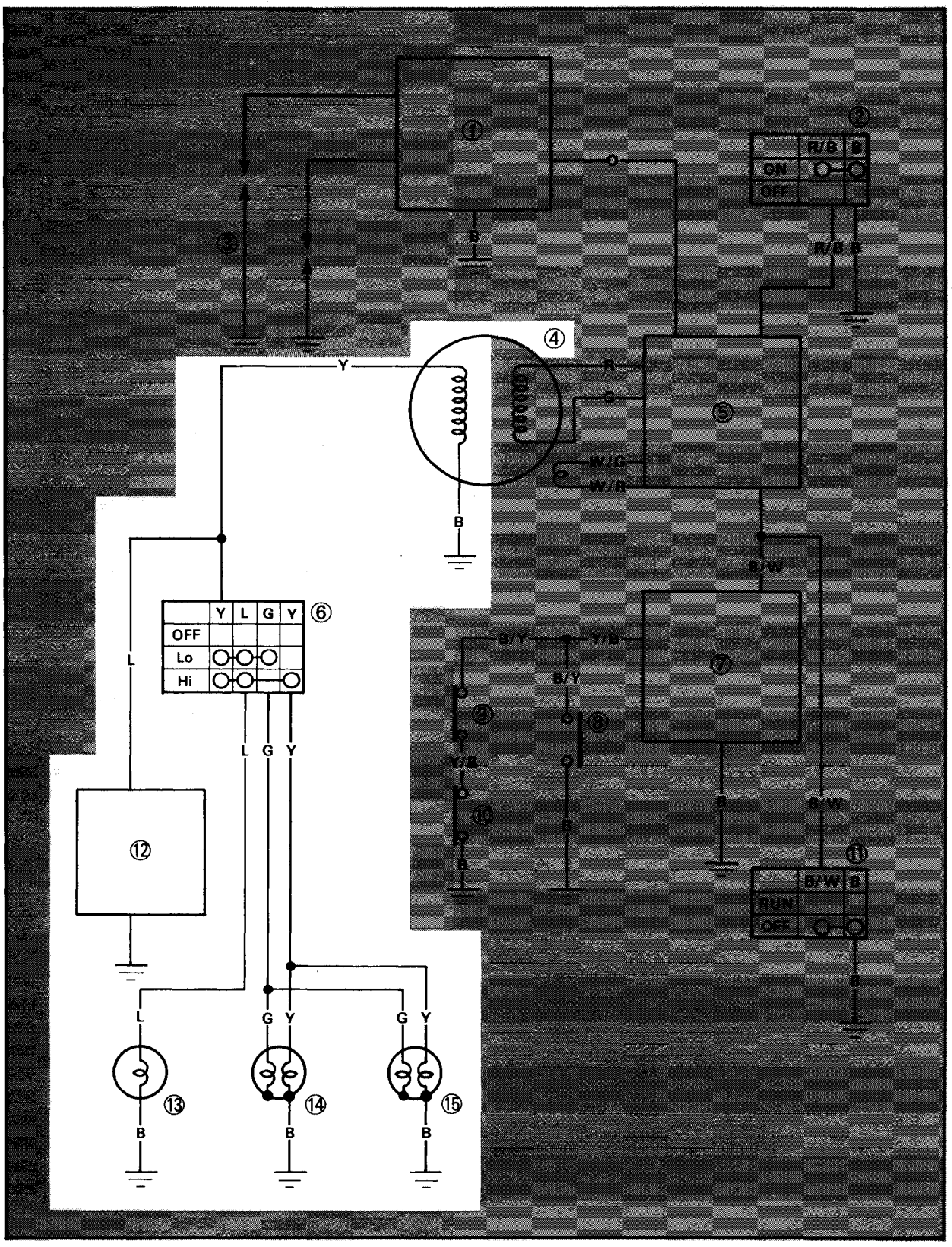
| Switch Position | Lead Color | | | |
|---|---|---|---|---|
| | R/W | B/R | R | Br |
| OFF | | | | |
| ON | ○—○ | | ○—○ | |

**"ENGINE STOP" Switch**

| Switch Position | Lead Color | |
|---|---|---|
| | B/W | B |
| RUN | | |
| OFF | ○—— | ——○ |

# LIGHTING SYSTEM

## CIRCUIT DIAGRAM

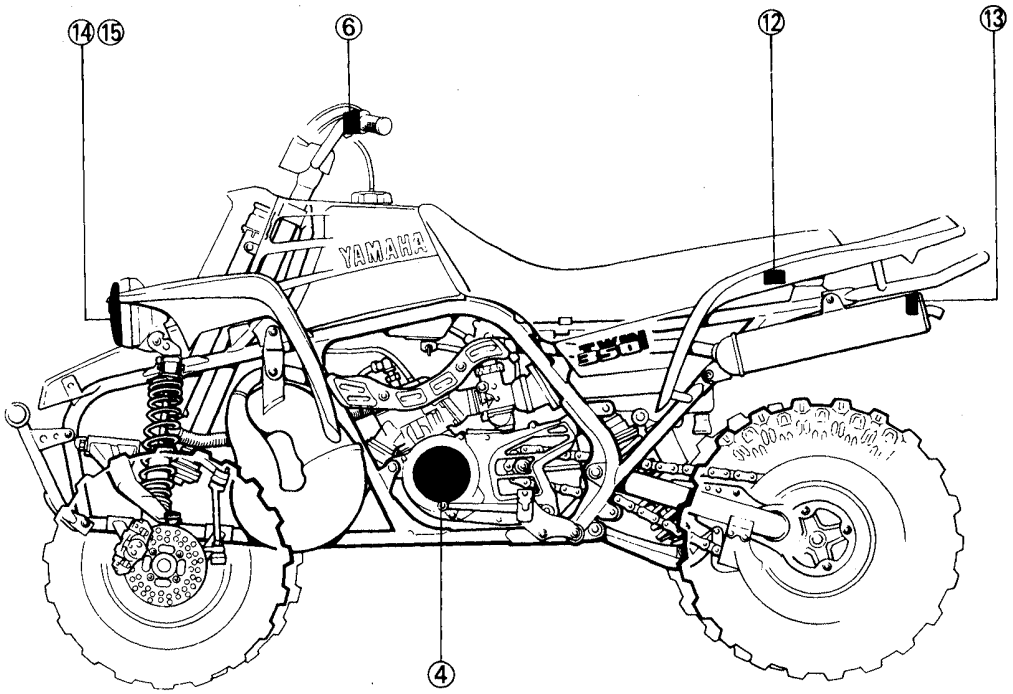


Aforementioned circuit diagram shows lighting circuit in circuit diagram.

**NOTE:**

For the encircled numbers and color codes, see page 7-2.

④ CDI magneto
⑥ "LIGHTS" (Dimmer) switch
⑫ Voltage regulator
⑬ Taillight
⑭ Headlight (Left)
⑮ Headlight (Right)



# LIGHTING SYSTEM

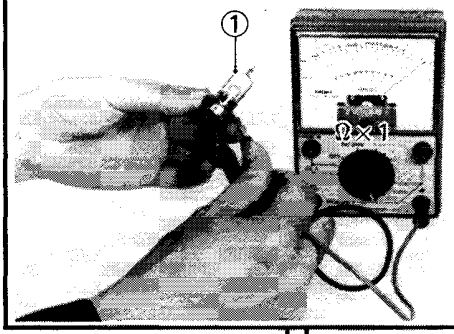
## TROUBLESHOOTING

**NOTE:**

Before this troubleshooting, remove the front fender and rear fender.

**HEADLIGHT DOES NOT COME ON.**

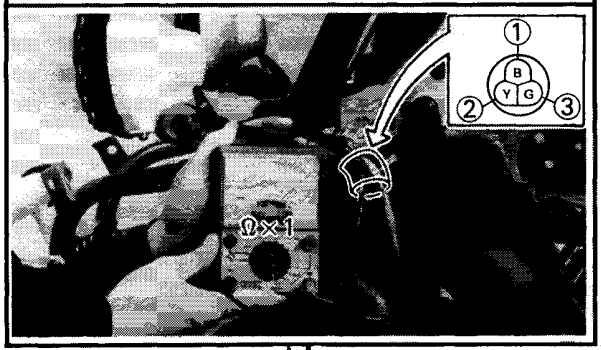
1. Headlight bulb conduct check
   - Remove the headlight bulb ①. Refer to "CHAPTER 2. HEADLIGHT BULB REPLACEMENT" section.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.




CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

2. Headlight bulb socket conduct check
   - Install the bulb to the headlight socket.
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ② and Green ③), and check it for continuity.




CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb socket is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

*

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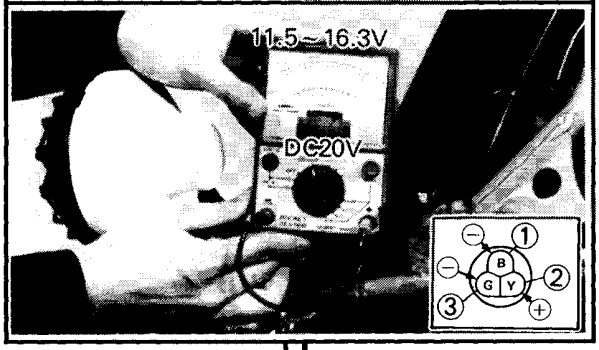
3. Lighting voltage test
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ②) and Green ③).
   - Turn the "LIGHTS" (Dimmer) switch to "LO" or "HI" position.
   - Start the engine and accelerate to specific engine revolution.
   - Measure the lighting voltage.

**Lighting Voltage:**
**11.5V at 2,500 r/min**
**16.3V at 8,000 r/min**



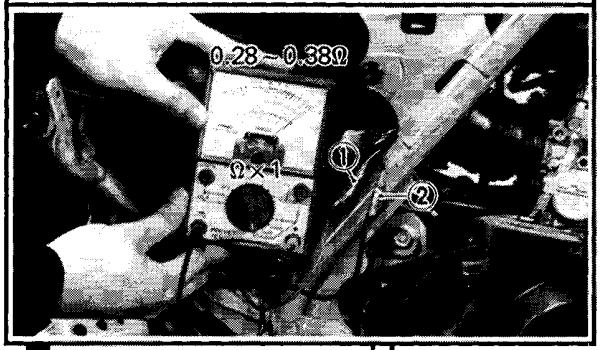

MORE THAN 16.3V AT 8,000 r/min

Voltage regulator is faulty.
Replace it.

LESS THAN 11.5V AT 2,500 r/min

4. Lighting coil resistance test
   - Disconnect the CDI magneto leads (Yellow ① and Black ②) from the wire-harness.
   - Connect the pocket tester (YU-03112) to the CDI magneto leads.
   - Measure the lighting coil resistance.

**Lighting Coil Resistance**
**(Yellow ① — Black ②):**
**0.28~0.38Ω at 20°C (68°F)**




OK

4. "LIGHTS" (Dimmer) switch conduct check
   - Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SWITCHES TEST" section.

FAULTY

OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

"LIGHTS" (Dimmer) switch is faulty. Replace it.

OUT OF SPECIFICATION

OK

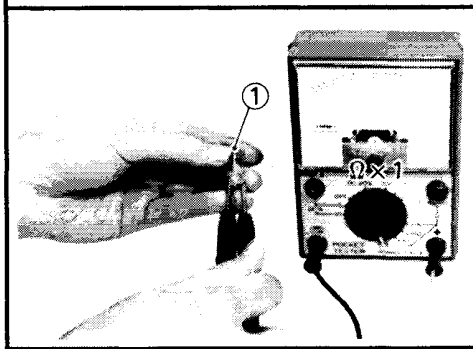
Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

Lighting coil is faulty.
Replace stator assembly.

# LIGHTING SYSTEM

**TAILLIGHT DOES NOT COME ON.**

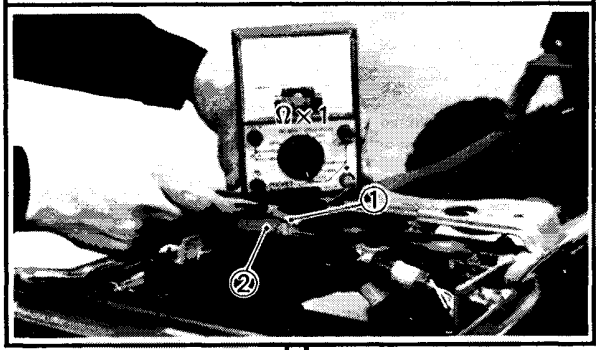
1. Taillight bulb conduct check
   - Remove the taillight bulb ①.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.




CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

2. Taillight bulb socket conduct check
   - Install the bulb to the taillight socket.
   - Connect the Pocket Tester (YU-03112) to the taillight leads (Black ①, Blue ②), and check it for continuity.




CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb socket is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

*

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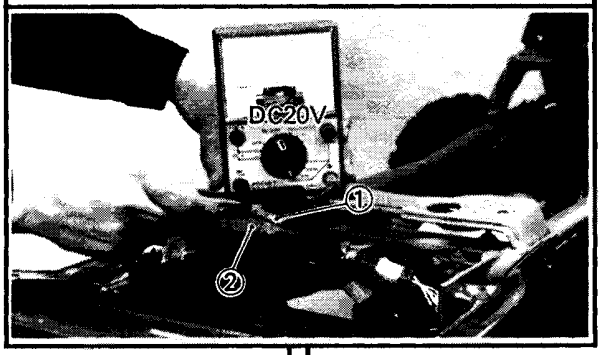
3. Lighting voltage test
   - Connect the Pocket Tester (YU-03112) to the taillight leads (Black ①, Blue ②).
   - Start the engine and accelerate to specific engine revolution.
   - Measure the lighting voltage.

**Lighting Voltage:**
**11.5V at 2,500 r/min**
**16.3V at 8,000 r/min**



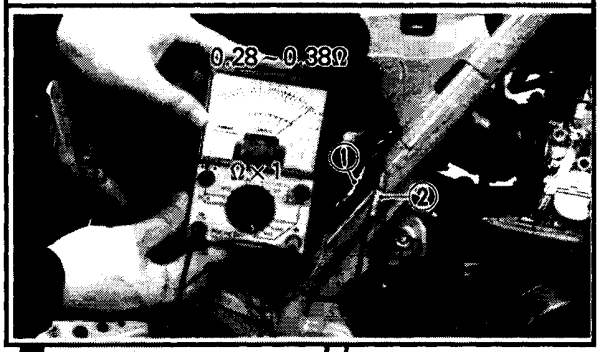

MORE THAN 16.3V AT 8,000 r/min

Voltage regulator is faulty.
Replace it.

LESS THAN 11.5V AT 2,500 r/min

4. Lighting coil resistance test
   - Disconnect the CDI magneto leads (Yellow ① and Black ②) from the wire-harness.
   - Connect the pocket tester (YU-03112) to the CDI magneto leads.
   - Measure the lighting coil resistance.

**Lighting Coil Resistance**
**(Yellow ① — Black ②):**
**0.28~0.38Ω at 20°C (68°F)**




OK

4. "LIGHTS" (Dimmer) switch conduct check
   - Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SWITCH TEST" section.

FAULTY

OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

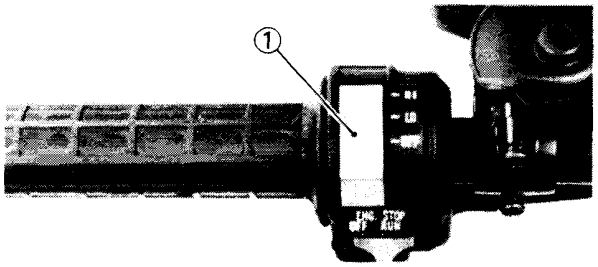
"LIGHTS" (Dimmer) switch is faulty. Replace it.

OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

OUT OF SPECIFICATION

Lighting coil is faulty.
Replace stator assembly.




## SWITCHES TEST

Switches may be checked for continuity with a Pocket Tester (YU-03112) on the "Ohm × 1" position.

① "LIGHTS" (Dimmer) switch

### "LIGHTS" (Dimmer) Switch

| Switch Position | Lead Color | | | |
|---|---|---|---|---|
| | Y | L | G | Y |
| OFF | | | | |
| LO | ○ | ○ | ○ | |
| HI | ○ | ○ | | ○ |