

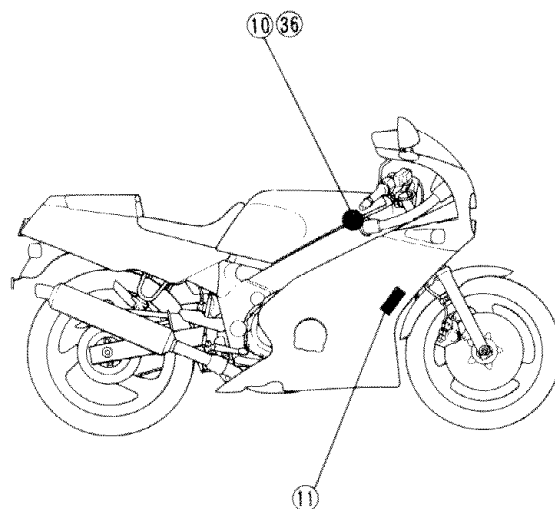
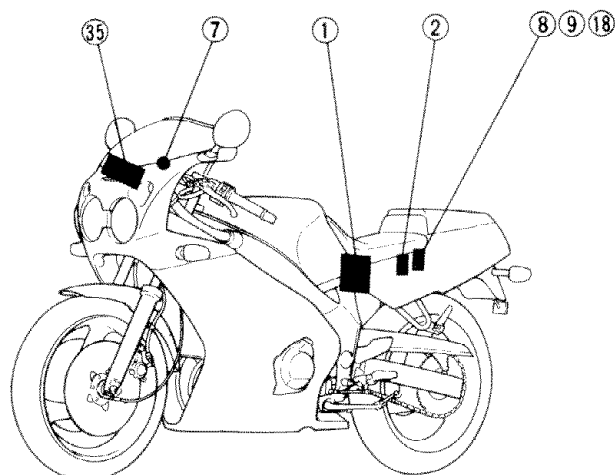


Aforementioned circuit diagram shows the cooling circuit in the circuit diagram.

NOTE:

For the color codes see page 8-2.

- ① Battery
- ② Fuse (main)
- ⑦ Main switch
- ⑧ Fuse (ignition)
- ⑨ Fuse (fan)
- ⑩ Thermo switch
- ⑪ Fan motor
- ⑱ Fuse (signal)
- ⑳ Engine temperature gauge
- ㉑ Thermo unit





TROUBLESHOOTING

FAN MOTOR DOES NOT TURN.

Procedure

Check;

1. Fuse (main and fan)
2. Battery
3. Fan motor (Test 1)
4. Fan motor (Test 2)
5. Thermo switch
6. Wiring connection
(Entire cooling system)

NOTE:

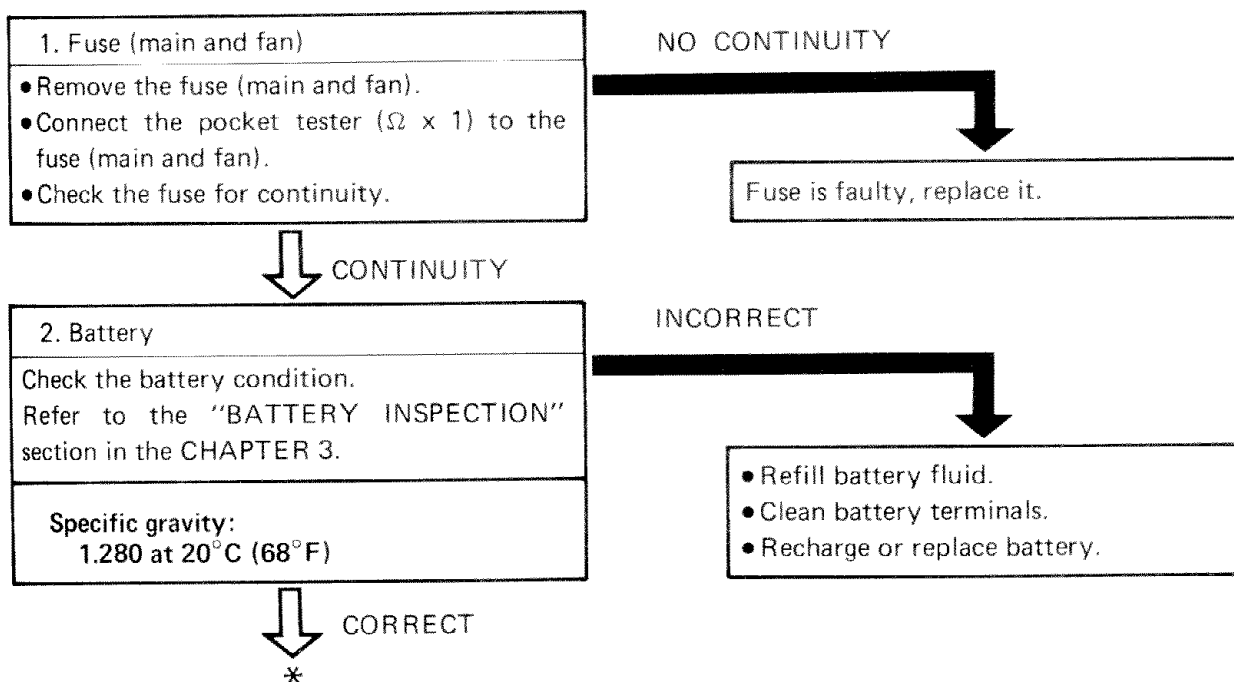
- Remove the following before troubleshooting.

- 1) Seat (front and rear)
- 2) Top cover
- 3) Fuel tank
- 4) Air filter case

- Use the following special tool in this troubleshooting.



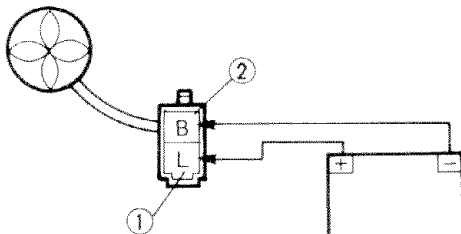
Pocket tester:
YU-03112
90890-03112



**3. Fan motor (test 1)**

- Disconnect the fan motor coupler.
- Connect the battery voltage as shown.

Battery (+) lead → Blue ① terminal
Battery (-) lead → Black ② terminal



- Check the fan motor for operation.

NO OPERATIVE

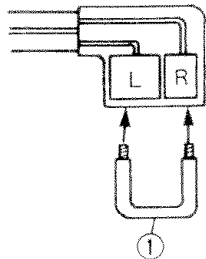
Replace fan motor.



OPERATIVE

4. Fan motor (test 2)

- Turn the main switch to "ON"
- Disconnect the thermo switch coupler.
- Connect the terminal with the jumper ① lead as shown.



NO OPERATIVE

Wiring circuit from battery to fan motor connector is faulty, repair.



OPERATIVE



5. Thermo switch

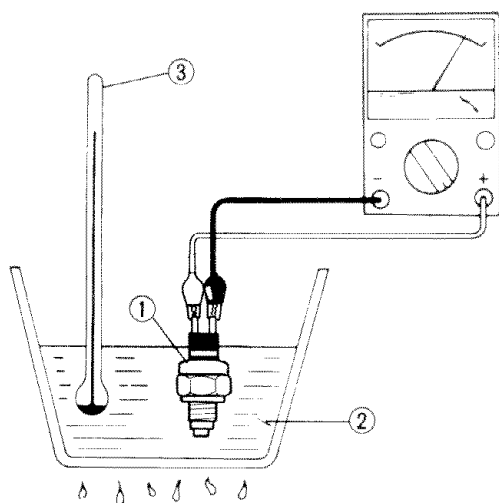
- Remove the thermo switch from the thermostat housing.
- Connect the pocket tester ($\Omega \times 1$) to the thermo switch ①.
- Immerse the thermo switch in the water ②.
- Check the thermo switch for continuity. Note temperatures while heating the water with the temperature gauge ③.

| Test step | Water temperature | Good condition |
|-----------|--|----------------|
| 1 | 0 ~ 98°C (32 ~ 208.4°F) | X |
| 2 | More than 105 ± 3°C (221.0 ± 5.4°F) | ○ |
| 3* | 105 to 98°C (221.0 to 208.4°F) | ○ |
| 4* | Less than 98°C (208.4°F) | X |

Test 1 & 2; Heat-up tests

Test 3* & 4*; Cool-down tests

○ : Continuity X : No continuity



⚠ WARNING:

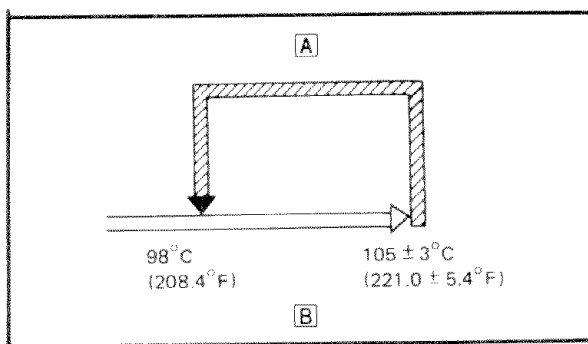
Handle the thermo switch with special care. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be replaced.



Thermo switch:

8 Nm (0.8 m · kg, 5.8 ft · lb)

Three bond sealock® # 10



- [A] THERMO SWITCH "ON", FAN "ON"
[B] COOLANT TEMPERATURE

BAD CONDITION

Replace thermo switch.



WHEN ENGINE IS HOT, TEMPERATURE GAUGE DOES NOT MOVE.

Procedure

Check;

1. Fuse (main and signal)
2. Battery
3. Main switch
4. Thermo unit
5. Voltage
6. Wiring connection
(Entire cooling system)

NOTE:

- Remove the following parts before troubleshooting.
 - 1) Seat (front and rear)
 - 2) Side cowlings
 - 3) Top cover
 - 4) Fuel tank
 - 5) Air filter case
 - 6) Upper cowling
- Use the following special tool(s) in this troubleshooting.



Pocket tester:
YU-03112
90890-03112

1. Fuse (main and signal)

- Remove the fuse (main and signal).
- Connect the pocket tester ($\Omega \times 1$) to the fuse.
- Check the fuse for continuity. Refer to "FUSE INSPECTION" in the CHAPTER 3.

NO CONTINUITY

Fuse is faulty, replace it.

CONTINUITY

2. Battery

Check the battery condition. Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

INCORRECT

Specific gravity:
1.280 at 20°C (68°F)

- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.

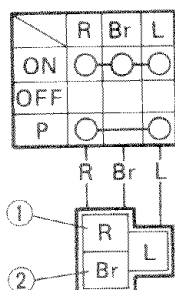
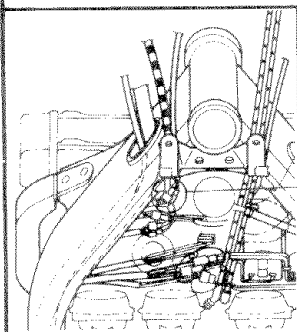
CORRECT

*



3. Main switch

- Disconnect the main switch coupler from the wireharness.
- Check the switch component for the continuity between "Red ① and Brown ②". Refer to the "CHECKING OF SWITCHES" section.



INCORRECT



Main switch is faulty, replace it.



CORRECT

4. Thermo unit

- Drain the coolant and remove the thermo unit.

⚠ WARNING:

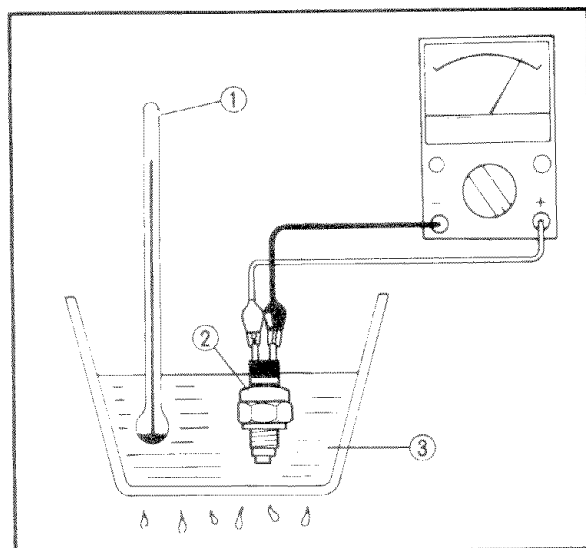
Handle the thermo unit with special care. Never subject it to strong or allow it to be dropped. Should it be dropped, it must be replaced.

- Immerse the thermo unit ② in coolant ③.
- Measure the resistance at each temperature as tabulated.

① Thermometer

| Coolant temperature | Resistance |
|---------------------|------------|
| 50°C (122°F) | 154Ω |
| 80°C (176°F) | 47 ~ 57Ω |
| 100°C (212°F) | 26 ~ 29Ω |
| 120°C (248°F) | 16Ω |

- After measuring the thermo unit, install the unit.





Thermo unit:
15 Nm (1.5 m · kg, 11 ft · lb)
Use water resistant sealant.

CAUTION:

Avoid overtightening.

OUT OF SPECIFICATION

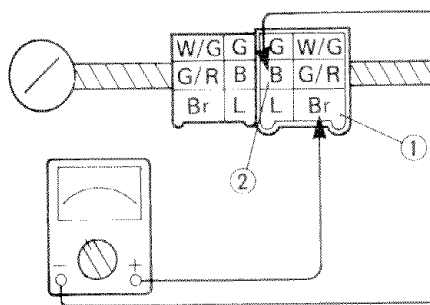
Thermo unit is faulty, replace it.



MEET
SPECIFICATIONS

5. Voltage

- Connect the pocket tester (DC20V) to the temperature gauge leads.



Tester (+) lead → Brown ① lead

Tester (-) lead → Black ② lead

- Turn the main switch to "ON".
- Check for voltage (12V) on the "Brown" lead at the temperature gauge connector.

OUT OF SPECIFICATION

Wiring circuit from main switch to temperature gauge connector, repair.



MEETS
SPECIFICATION (12V)

6. Wiring connection

Check the entire cooling system for connections. Refer to the "WIRING DIAGRAM" section.

POUR CONNECTION

Correct.



CORRECT

Temperature gauge is faulty, replace it.

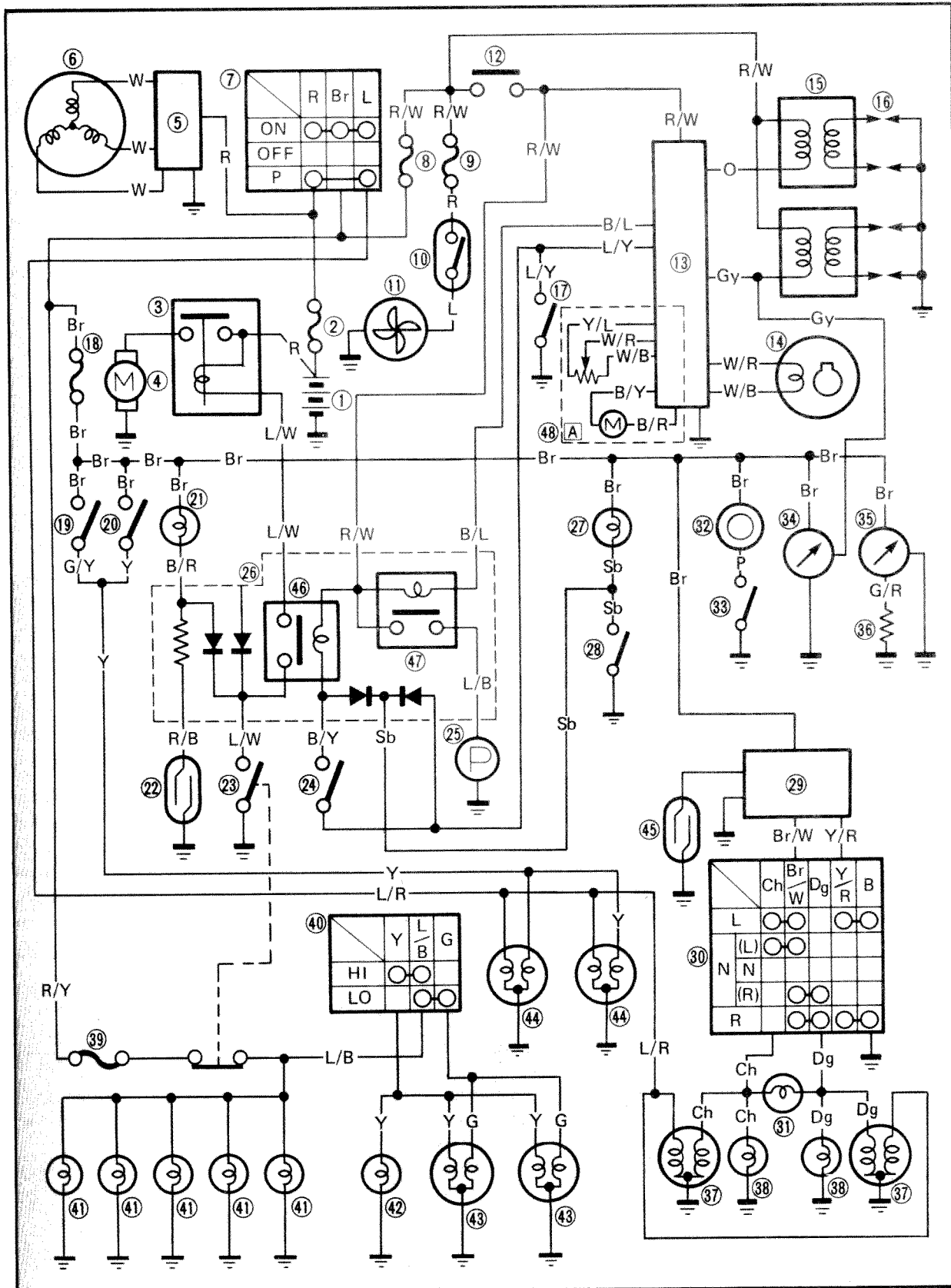


— MEMO —



FUEL PUMP SYSTEM

CIRCUIT DIAGRAM



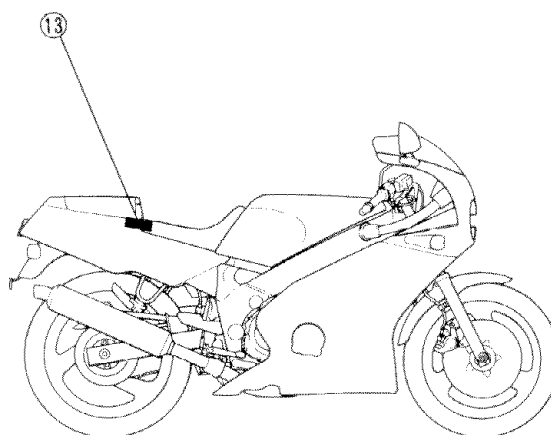
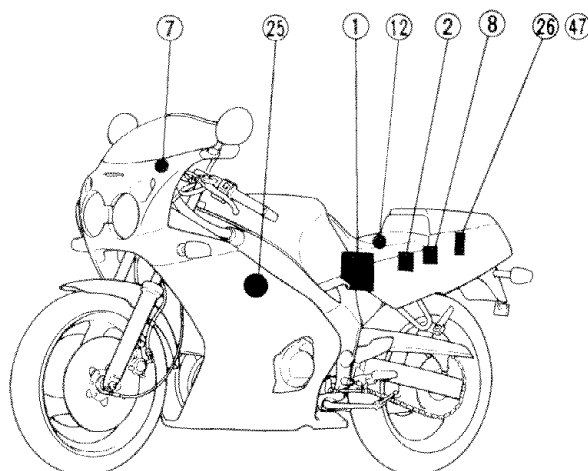


Aforementioned circuit shows fuel pump system circuit in circuit diagram.

NOTE: _____

For the color codes, see page 8-2.

- ① Battery
- ② Fuse (main)
- ⑦ Main switch
- ⑧ Fuse (ignition)
- ⑫ "ENGINE STOP" switch
- ⑬ Ignitor unit
- ⑮ Fuel pump
- ⑮ Relay assembly
- ⑮ Fuel pump relay





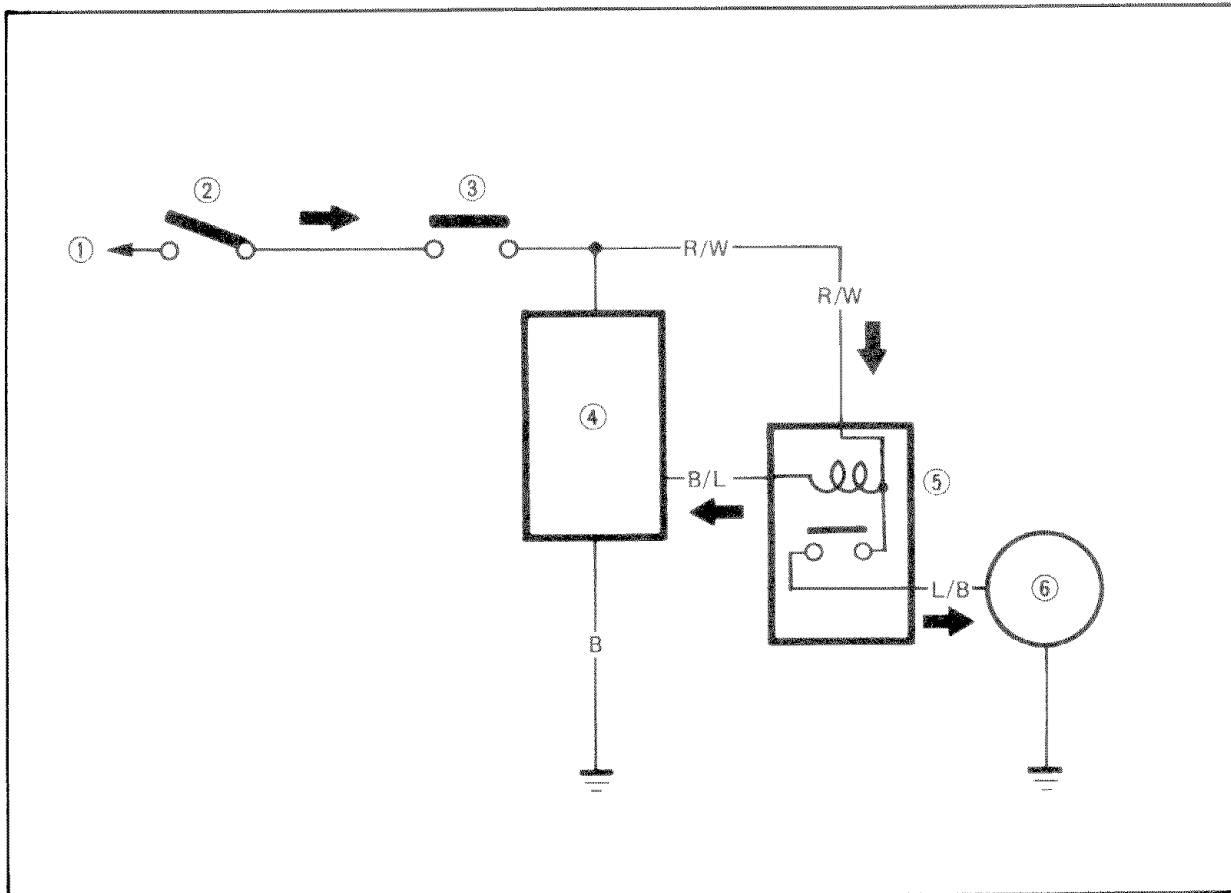
FUEL PUMP CIRCUIT OPERATION

The fuel pump circuit consists of the fuel pump relay, fuel pump, "ENGINE STOP" switch and digital ignitor unit.

The digital ignition unit includes the control unit for the fuel pump.

The fuel pump starts and stops as indicated in the chart below.

- ① To main fuse and battery
- ② Main switch
- ③ "ENGINE STOP" switch
- ④ Digital ignitor unit
- ⑤ Fuel pump relay
- ⑥ Fuel pump



| FUEL PUMP | | |
|---|------------------------|-----------------------|
| START | | STOP |
| • Main/Engine stop switch turned to "ON" | • Engine turned on | • Engine turned off |
| For about 5 seconds when carburetor fuel level is low | After about 0.1 second | After about 5 seconds |



TROUBLESHOOTING

FUEL PUMP FAILS TO OPERATE.

Procedure

- | | |
|-------------------------|-------------------------------------|
| 1. Fuse (main) | 5. Fuel pump relay (relay assembly) |
| 2. Battery | 6. Fuel pump |
| 3. Main switch | 7. Wiring connection |
| 4. "ENGINE STOP" switch | (Entire fuel system) |

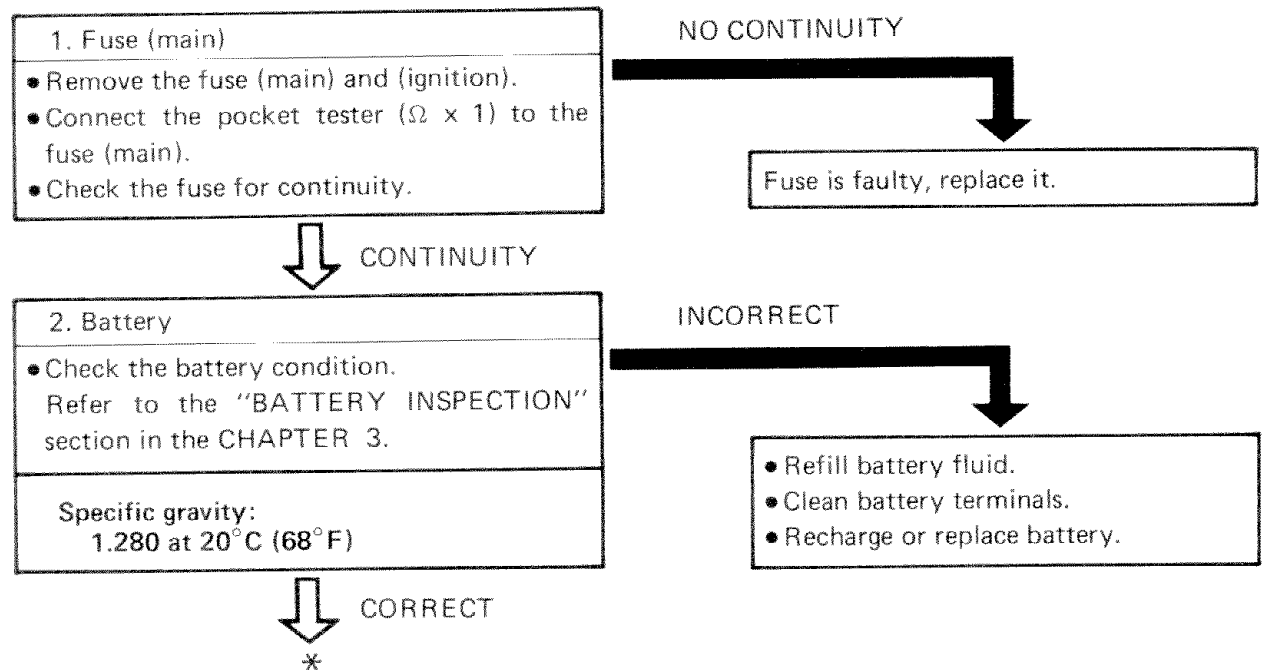
NOTE:

- Remove the following before troubleshooting.

| | |
|--------------------------|--------------|
| 1) Seat (front and rear) | 3) Fuel tank |
| 2) Top cover | |
- Use the following special tool in this troubleshooting.



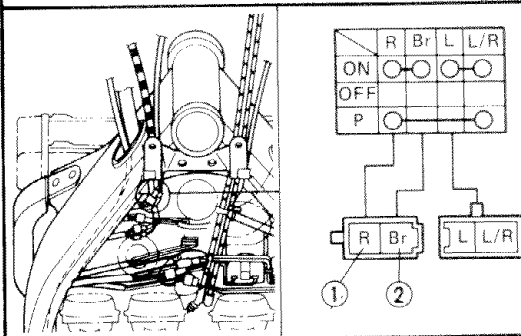
Pocket tester:
YU-03112
90890-03112





3. Main switch

- Disconnect the main switch coupler and lead from the wire harness.
- Check the switch component for the continuity between "Red ① and Brown ②". Refer to the "CHECKING OF SWITCHES" section.



INCORRECT

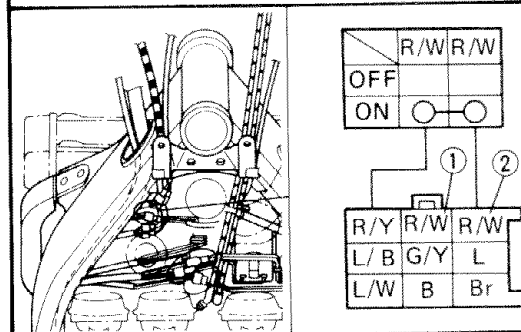
Replace main switch.



CORRECT

4. "ENGINE STOP" switch

- Disconnect the "ENGINE STOP" switch coupler from the wire harness.
- Check the switch component for the continuity between "Red/White ① and Red/White ②". Refer to the "CHECKING OF SWITCHES" section.



INCORRECT

Replace handlebar switch (right).



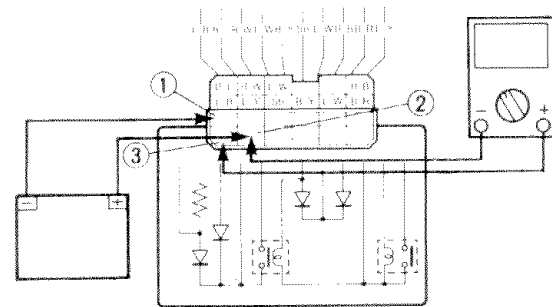
CORRECT



5. Fuel pump relay (relay assembly)

- Disconnect the fuel pump relay coupler from the wire harness.
- Connect the pocket tester ($\Omega \times 1$) and battery (12V) voltage to the fuel pump relay coupler terminals.

Tester (+) lead → Blue/Black ① terminal
 Tester (-) lead → Red/White ② terminal
 Battery (+) lead → Red/White ② terminal
 Battery (-) lead → Black/Blue ③ terminal



- Check the relay for continuity.

NO CONTINUITY

Replace relay assembly.

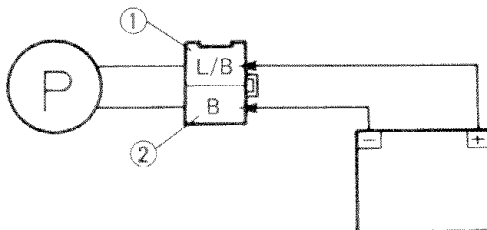


CONTINUITY

6. Fuel pump

- Disconnect the fuel pump coupler from the wire harness.
- Connect the battery voltage as shown.

Battery (+) lead → Blue/Black ① terminal
 Battery (-) lead → Black ② terminal



- Check the fuel pump operation.

NO OPERATIVE

Replace fuel pump.



OPERATIVE

*



7. Wiring connection

Check the entire fuel system for connections.
Refer to the "WIRING DIAGRAM" section.

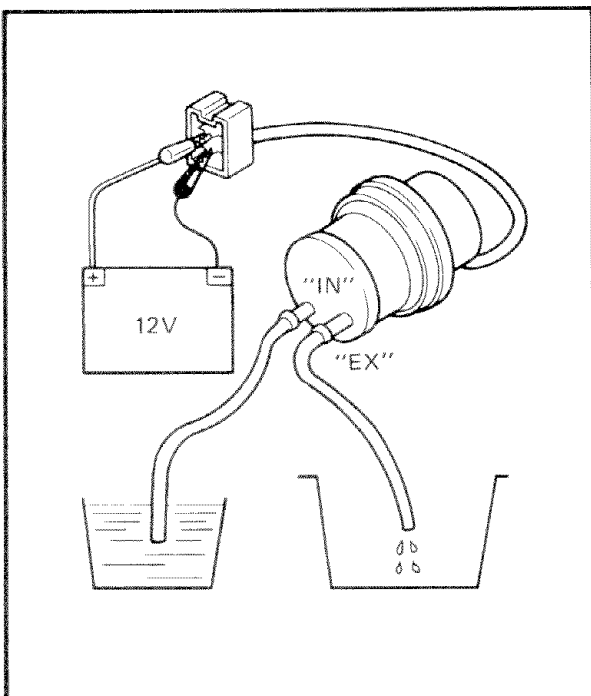
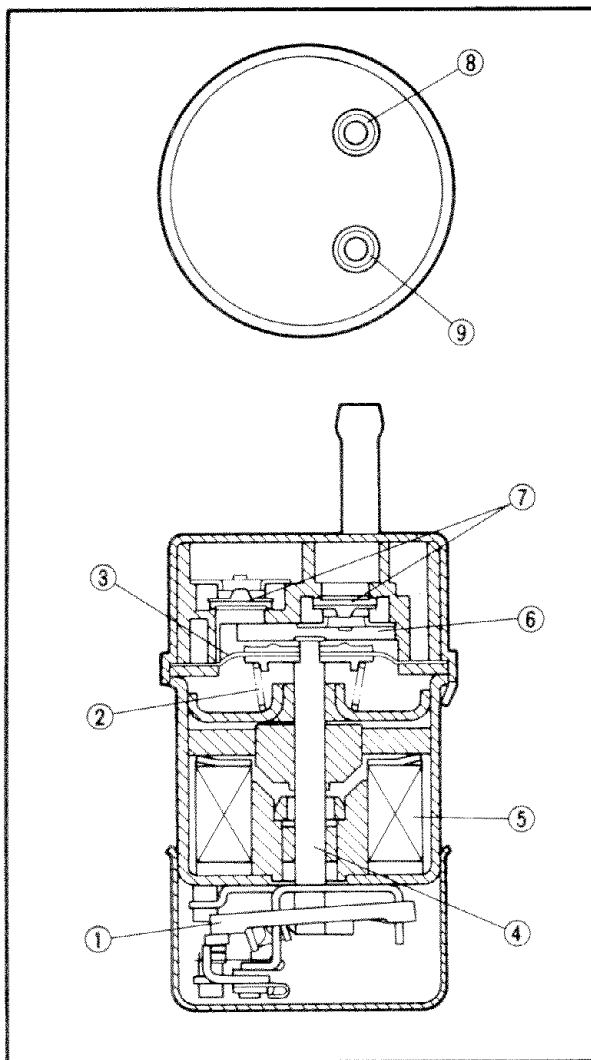
POOR CONNECTION



CORRECT

Replace digital ignitor unit.

Correct.



FUEL PUMP TEST

Operation

The diaphragm is pulled in by the plunger allowing fuel to be sucked into the fuel chamber. Fuel is pushed out from the pump until carb float chamber is filled with fuel, and then the cut-off switch cuts off the circuit.

When the spring pushes the diaphragm further to the end, the cut-off switch turns on and the solenoid coil pulls the plunger with the diaphragm forcing fuel into the fuel chamber.

NOTE:

When the main and "ENGINE STOP" switches are ON, the fuel pump relay is activated for five (5) seconds at which time the fuel pump operates.

- ① Cut-off switch
- ② Spring
- ③ Diaphragm
- ④ Plunger
- ⑤ Solenoid coil
- ⑥ Fuel chamber
- ⑦ Valve
- ⑧ Outlet
- ⑨ Inlet

Inspection

1. Inspect:
 - Fuel pump
 - Cracks/Damage → Replace.
2. Check:
 - Fuel pump operation

Checking steps:

- Connect the suitable hose to fuel pump.
- Put the "IN" side hose into the clean solvent.
- Place the suitable container under the "EX" side hose end.
- Connect the battery to fuel pump terminal.

Battery (+) terminal → "Blue/Black" terminal
 Battery (-) terminal → "Black" terminal

- If solvent flow out from "EX" side hose, fuel pump is good. If not replace the fuel hose.

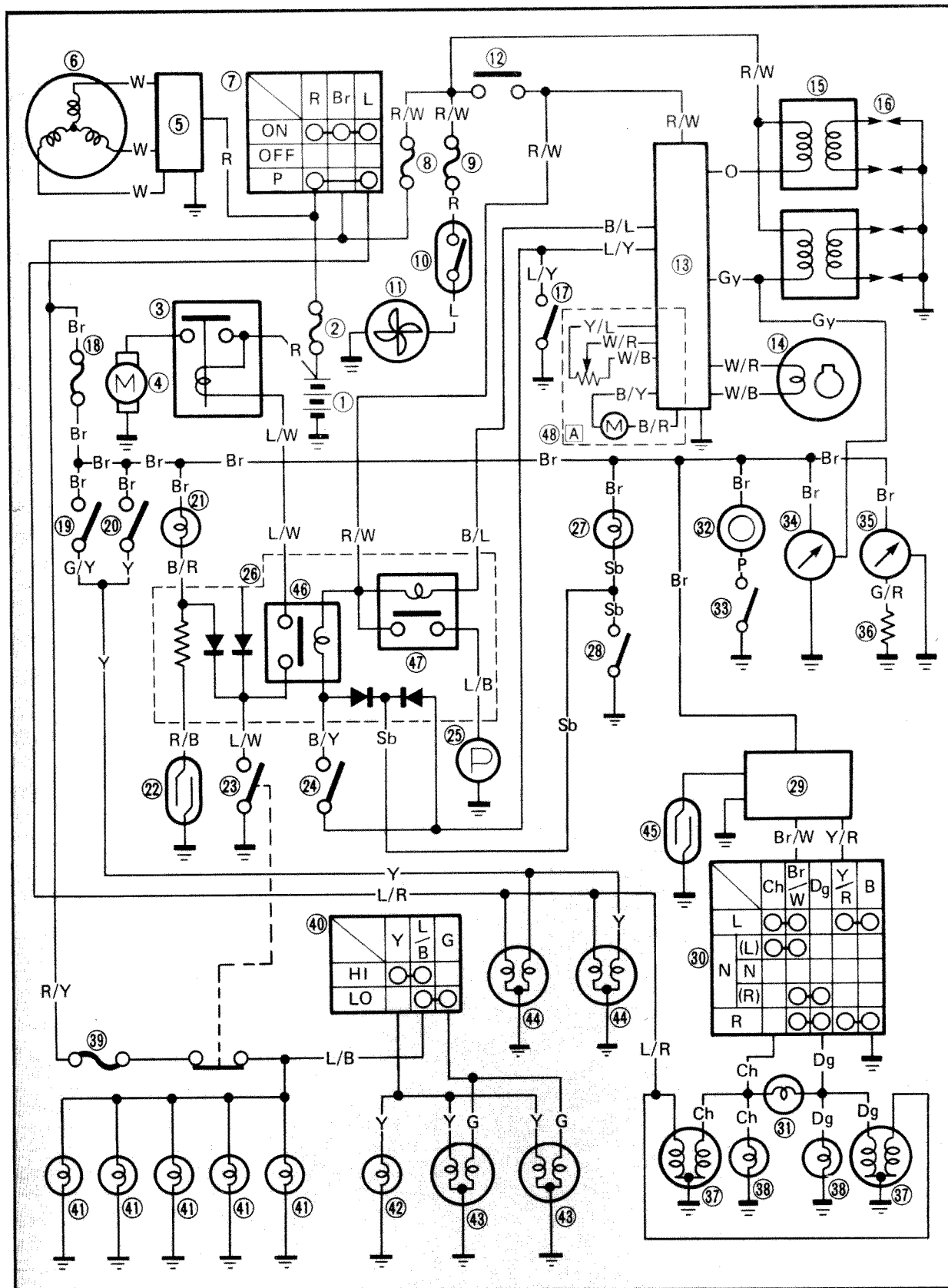
NOTE:

After checking, pump out the solvent from inside of fuel pump.



EXUP SYSTEM (FOR CALIFORNIA ONLY)

CIRCUIT DIAGRAM



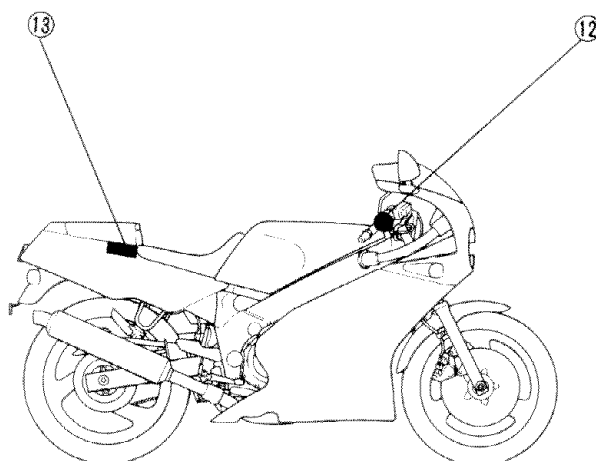
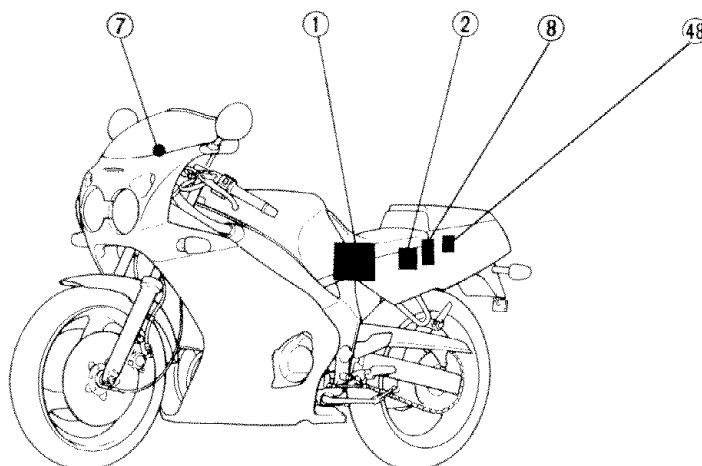


Aformentioned circuit diagram shows EXUP circuit in circuit diagram.

NOTE:

For the color codes, see page 8-2.

- ① Battery
- ② Fuse (main)
- ⑦ Main switch
- ⑧ Fuse (ignition)
- ⑫ "ENGINE STOP" switch
- ⑬ Ignitor unit
- ④⑧ "EXUP" servo motor
- [A] For California only





TROUBLESHOOTING

EXUP SERVOMOTOR DOES NOT OPERATE.

Procedure (1)

Check;

1. EXUP servo motor operation (with EXUP servo motor coupler connected)
2. Voltage
3. EXUP servo motor operation (with EXUP servo motor coupler disconnected)
4. EXUP servo motor resistance (potentiometer resistance)
5. Wiring connection (entire EXUP system)

Procedure (2)

Check;

1. Fuse "MAIN/IGNITION"
2. Battery
3. Main switch
4. "ENGINE STOP" switch
5. Wiring connection (entire EXUP system)

NOTE:

- Remove the following parts before troubleshooting.
 - 1) Seat (front and rear)
 - 2) Side cover (left)
 - 3) Side cowling (left)
- Use the following special tool in this troubleshooting.

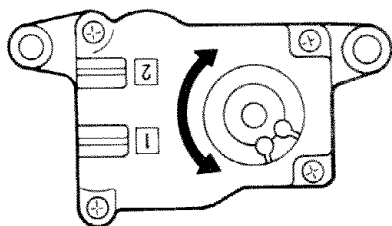


Pocket tester:
YU-03112
90890-03112

Procedure (1)

1. EXUP servo motor operation (with EXUP servo motor coupler connected)

- Disconnect the EXUP cables at EXUP servo motor pulley side.
- Start the engine and rev it up to 2,000 r/min.



PULLY TURNS

Check the EXUP cables connection. If connection is correct. Inspect the EXUP valve and cables. Refer to "ENGINE OVERHAUL" section in the CHAPTER 4.

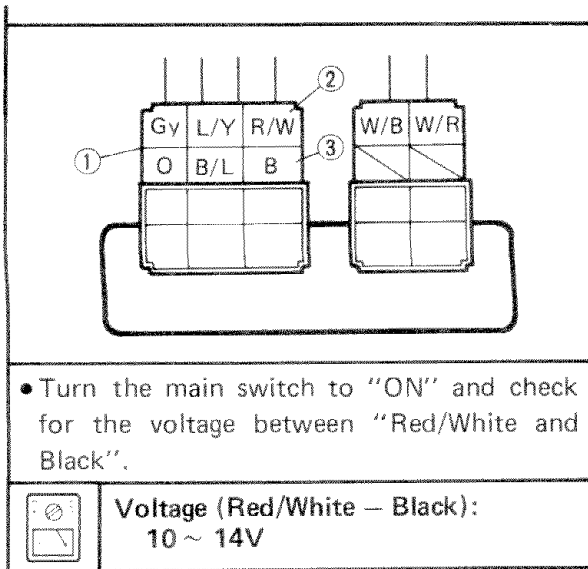
PULLY DOES NOT TURN

2. Voltage

- Connect the pocket tester (DC20V) to the ignitor unit ① connector.

Tester (+) lead → Red/White ② terminal

Tester (−) lead → Black ③ terminal



OUT OF SPECIFICATION

Go to the "Procedure (2)".

MEETS SPECIFICATION

3. EXUP servo motor operation (with EXUP servo motor coupler disconnected)

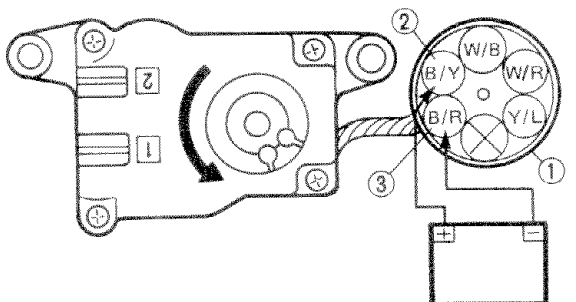
- Disconnect the EXUP cables at EXUP servo motor pulley side.
- Disconnect the EXUP servo motor coupler ① from the wireharness.
- Connect the battery leads to the EXUP servo motor coupler.

Battery positive lead → Black/Yellow ② lead
Battery negative lead → Black/Red ③ lead

- Check for pulley operation by allowing it to rotate several times.

CAUTION:

This test should be performed within a few seconds to prevent further damage.



PULLY DOES NOT TURN

Replace EXUP servo motor.

PULLY TURNS
*



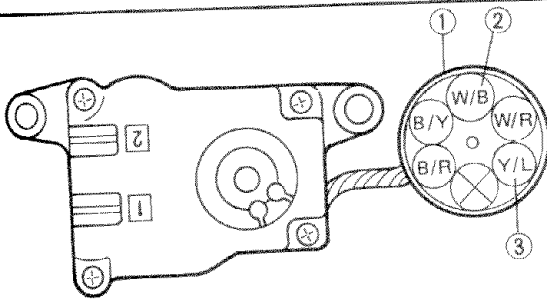
4. EXUP servo motor resistance (potentiometer resistance)

- Disconnect the EXUP servo motor coupler ① from the wireharness.

Steps 1:

- Connect the pocket tester ($\Omega \times 1K$) to the EXUP servo motor couplers.

Tester (+) lead → White/Black ② lead
Tester (–) lead → Yellow/Blue ③ lead



- Measure the EXUP servo motor resistance.

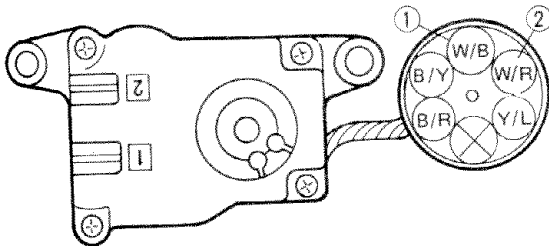


EXUP servo motor resistance:
6.7 ~ 10 k Ω
(White/Black – Yellow/Blue)

Steps 2:

- Connect the pocket tester ($\Omega \times 1K$) to the EXUP servo motor coupler.


Tester (+) lead → White/Black ① lead
Tester (–) lead → White/Red ② lead



- Measure the EXUP servo motor resistance while turning the pully slowly.

OUT OF SPECIFICATION

EXUP servo motor is faulty, replace it.



EXUP servo motor resistance:
0 ~ about 10 k Ω
(White/Black – White/Red)
When pulley is turned one turn.

↓ BOTH MEET
SPECIFICATIONS

5. Wiring connection

Check the entire EXUP system for connections. Refer to the "WIRING DIAGRAM" section.

↓ CORRECT

Ignitor unit is faulty, replace it.

POOR CONNECTION

Correct.



Procedure (2)

1. Fuse "MAIN/IGNITION"

- Remove the fuse "MAIN" and "IGNITION".
- Connect the pocket tester ($\Omega \times 1$) to the fuse "MAIN" and "IGNITION".
- Check the fuse for continuity.

NO CONTINUITY

Replace fuse "MAIN" and/or "IGNITION".



CONTINUITY

2. Battery

- Check the battery condition.
- Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Specific gravity:
1.280 at 20°C (68°F)

INCORRECT

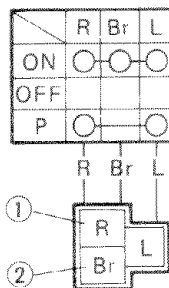
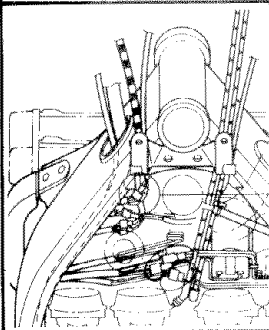
- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.



CORRECT

3. Main switch

- Disconnect the main switch coupler from the wireharness.
- Check the switch component for the continuity between "Red ① and Brown ②". Refer to the "CHECKING OF SWITCHES" section.



INCORRECT

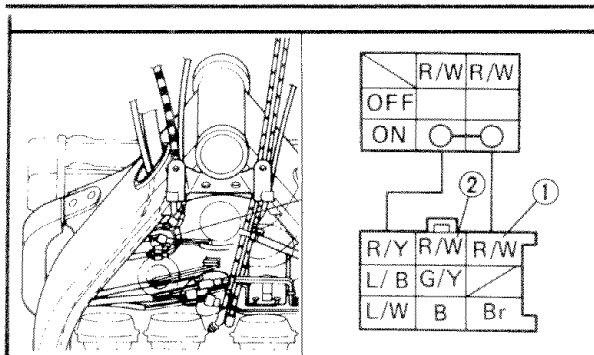
Replace main switch.



CORRECT

4. "ENGINE STOP" switch

- Disconnect the "ENGINE STOP" switch coupler from the wireharness.
- Check the switch component for the continuity between "Red/White ① and Red/White ②". Refer to the "CHECKING OF SWITCHES" section.



INCORRECT

Replace handlebar switch (right).

CORRECT

5. Wiring connection

Check the entire EXUP system for connections. Refer to the "WIRING DIAGRAM" section.

POOR CONNECTION

Correct.

CORRECT

Go to "Procedure (1)".