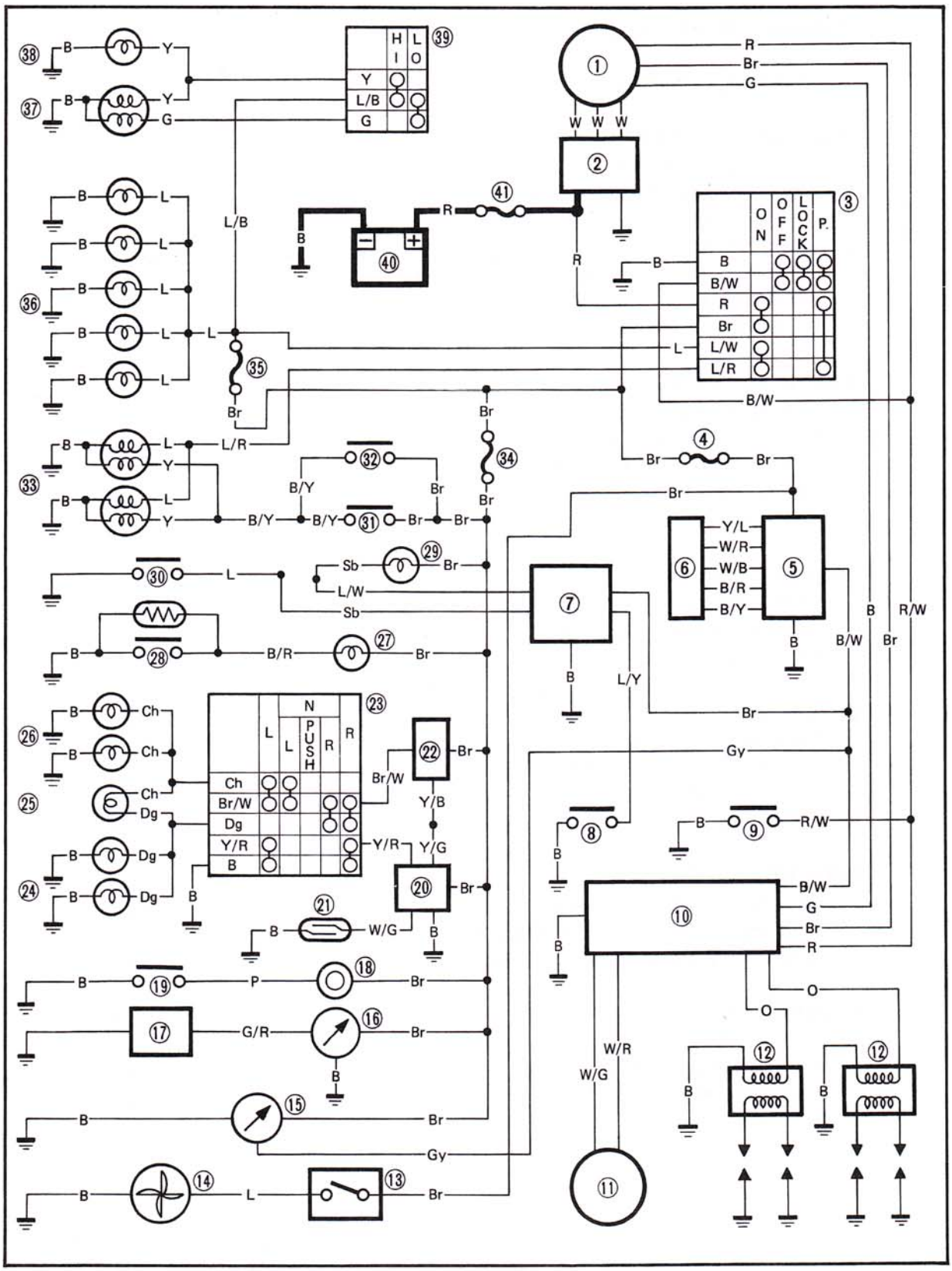
CHAPTER 7.
ELECTRICAL

ELECTRICAL

RZ500N CIRCUIT DIAGRAM



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1. AC magneto
2. Rectifier/Regulator
3. Main switch
4. Fuse "YPVS" (10A)
5. YPVS control unit
6. YPVS servomotor unit
7. Sidestand control unit
8. Sidestand switch
9. "ENGINE STOP" switch
10. CDI unit
11. Pickup coil
12. Ignition coil
13. Thermo-switch
14. Fan motor
15. Tachometer
16. Temperature gauge
17. Thermo unit
18. Horn
19. "HORN" switch
20. Flasher cancelling unit
21. Reed switch
22. Flasher relay
23. "TURN" switch
24. Flasher light (Right)
25. "TURN" indicator light
26. Flasher light (Left)
27. "OIL" indicator light
28. Oil level switch
29. "NEUTRAL" indicator light
30. Neutral switch
31. Rear brake switch
32. Front brake switch
33. Tail/Brake light
34. Fuse "SIGNAL" (10A)
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. Battery
41. Main fuse (20A)

COLOR CODE

O . . . . . .Orange	Dg . . . . . .Dark green	B/R . . . . . .Black/Red
R . . . . . .Red	Ch . . . . . .Chocolate	B/Y . . . . . .Black/Yellow
L . . . . . .Blue	Gy . . . . . .Gray	L/W . . . . . .Blue/White
Br. . . . . .Brown	Sb . . . . . .Sky blue	L/R . . . . . .Blue/Red
B . . . . . .Black	Y/R . . . . . .Yellow/Red	L/B. . . . . .Blue/Black
Y . . . . . .Yellow	B/W . . . . . .Black/White	G/R . . . . . .Green/Red
W. . . . . .White	Br/W. . . . . .Brown/White	W/G . . . . . .White/Green
G . . . . . .Green	R/W . . . . . .Red/White	W/B . . . . . .White/Black
P . . . . . .Pink	W/R . . . . . .White/Red	L/Y . . . . . .Blue/Yellow
Y/B . . . . . .Yellow/Black	G/Y . . . . . .Green/Yellow	
Y/L . . . . . .Yellow/Blue	R/Y . . . . . .Red/Yellow	

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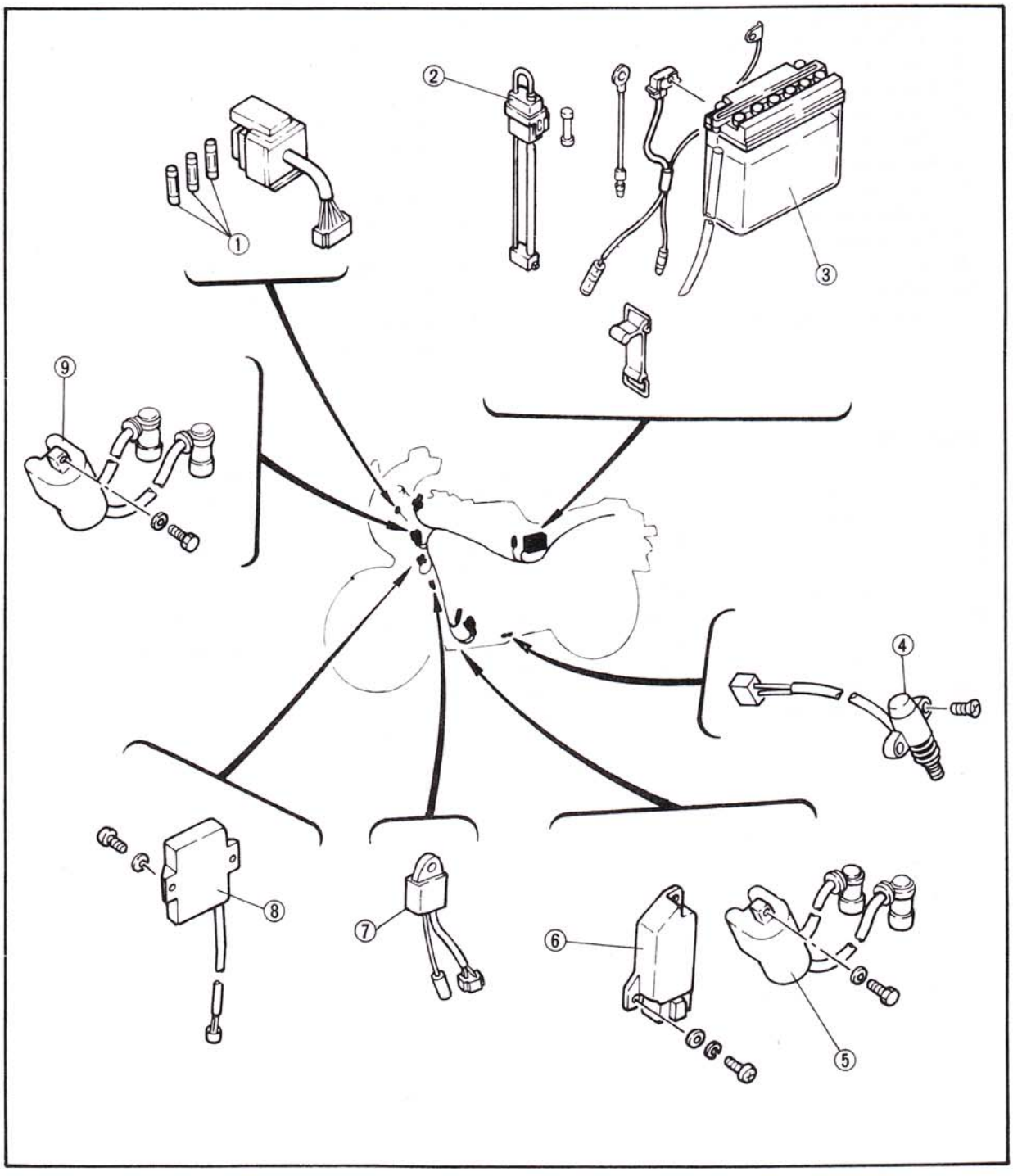
ELECTRICAL COMPONENTS (1)

1. Fuse box
   (HEADLIGHT: 15A, YPVS: 10A, SIGNAL: 10A)
2. Main fuse
3. Battery
4. Sidestand switch
5. Ignition coil (Lower cylinder)
6. Rectifier/Regulator
7. Sidestand control unit
8. CDI unit
9. Ignition coil (Upper cylinder)

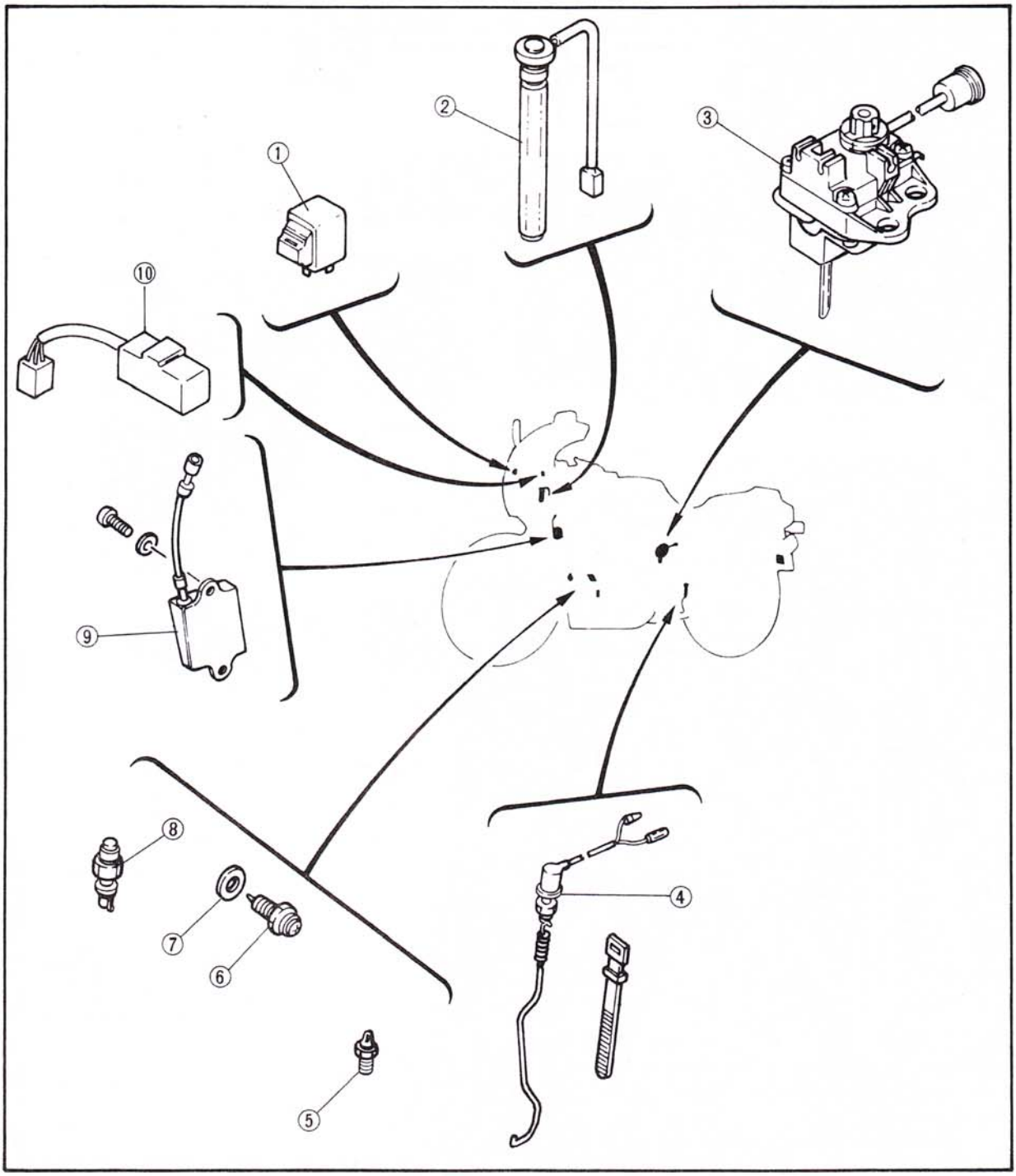
IGNITION COIL:
Primary winding resistance: 0.67Ω ± 20% at (68°F)
Secondary winding resistance: 12 kΩ ± 20% at (68°F)
BATTERY:
Capacity: 12V 5.5AH
Specific gravity: 1.280



ELECTRICAL COMPONENTS (2)

1. Flasher relay
2. Oil level switch
3. Servomotor
4. Brake switch (Rear)
5. Thermo unit
6. Neutral switch
7. Gasket
8. Thermo unit
9. YPVS control unit
10. Flasher cancelling unit

PICKUP COIL RESISTANCE/COLOR:
112Ω ± 20% at 20°C (68°F) (White/Green – White/Red)
SOURCE COIL RESISTANCE:
127Ω ± 20% at 20°C (68°F) (Green – Brown) 18.8Ω ± 20% at 20°C (68°F) (Brown – Red)



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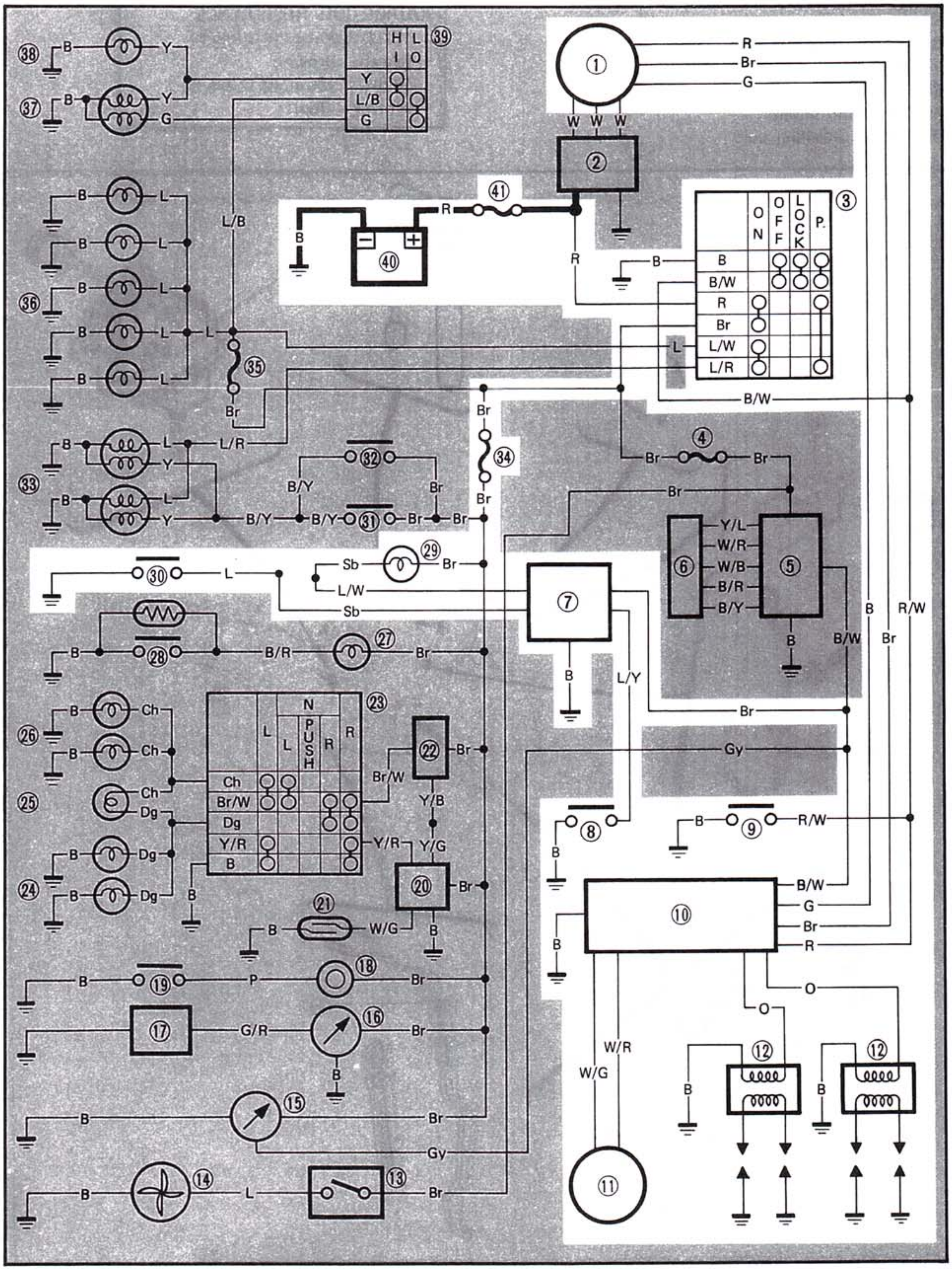
IGNITION AND STARTING SYSTEM

Below circuit diagram shows ignition and starting system.



1. **AC magneto**
2. Rectifier/Regulator
3. **Main switch**
4. Fuse "YPVS" (10A)
5. YPVS control unit
6. YPVS servomotor unit
7. **Sidestand control unit**
8. **Sidestand switch**
9. **"ENGINE STOP" switch**
10. **CDI unit**
11. **Pickup coil**
12. **Ignition coil**
13. Thermo-switch
14. Fan motor
15. Tachometer
16. Temperature gauge
17. Thermo unit
18. Horn
19. "HORN" switch
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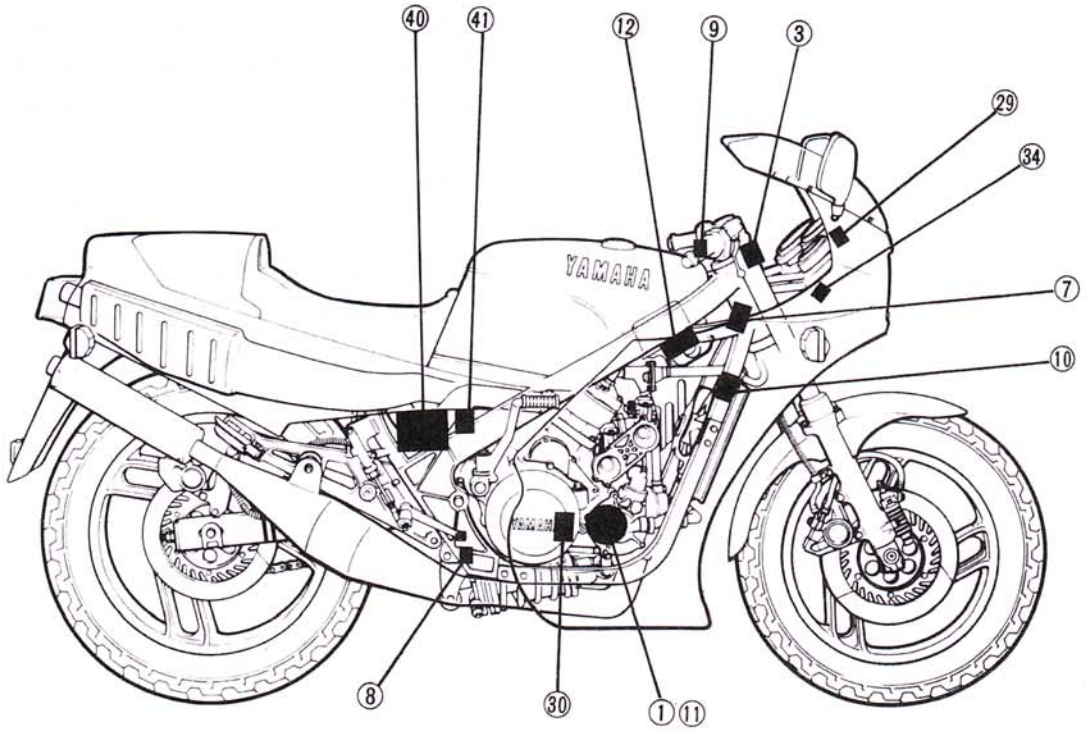
21. Reed switch
22. Flasher relay
23. "TURN" switch
24. Flasher light (Right)
25. "TURN" indicator light
26. Flasher light (Left)
27. "OIL" indicator light
28. Oil level switch
29. **"NEUTRAL" indicator light**
30. **Neutral switch**
31. Rear brake switch
32. Front brake switch
33. Tail/Brake light
34. **Fuse "SIGNAL" (10A)**
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. **Battery**
41. **Main fuse (20A)**



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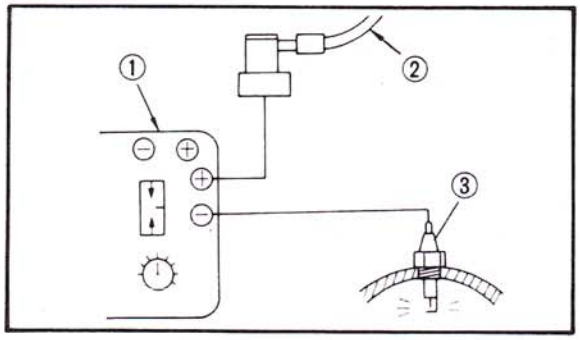
TROUBLESHOOTING

The entire ignition system can be checked for misfire and weak spark by using the Electro Tester.

1. Warm up the engine so that all of the electrical components are at operating temperature.



2. Connect:
   - Electro Tester (90890-03021) ①
3. Start the engine, and increase the spark gap until misfire occurs. (Test at various r/min between idle and red line.)

② Spark plug wire
③ Spark plug

CAUTION:

Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

Minimum Spark Gap: 6 mm (0.24 in)

Faulty ignition system operation (at the minimum spark gap or smaller) → Follow the troubleshooting chart until the source of the problem is located.

TROUBLESHOOTING CHART (1)

ENGINE DOES NOT START

↓

Remove the lower and left center cowlings.

↓ OK

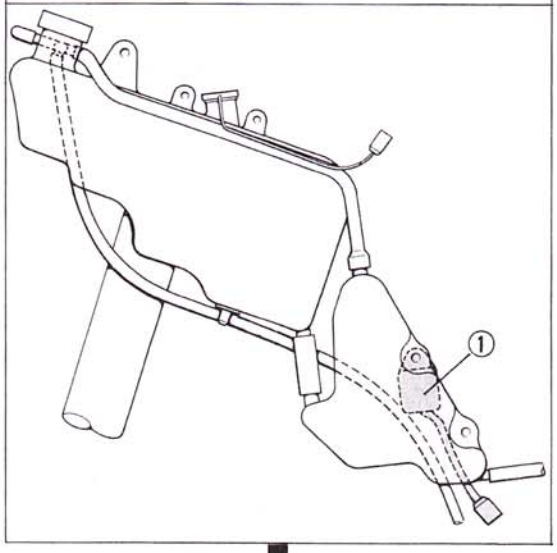
Check the entire ignition for connections. → Faulty → Correct.

↓

Main and "ENGINE STOP" switches are turned to "ON".

↓

Disconnect the sidestand control unit ① connector.



↓

Try to start the engine. → Engine does not start. → See "TROUBLESHOOTING, TROUBLESHOOTING CHART (2) and (3)".

↓

Engine can be started.

↓

See "TROUBLESHOOTING CHART(2)".

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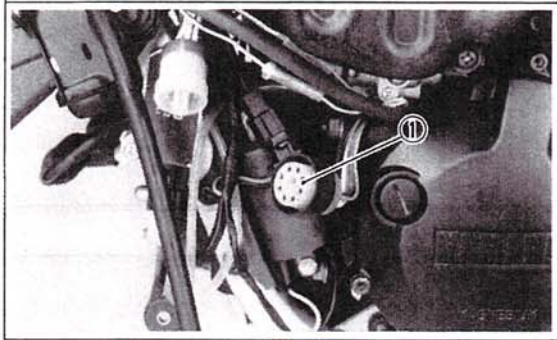
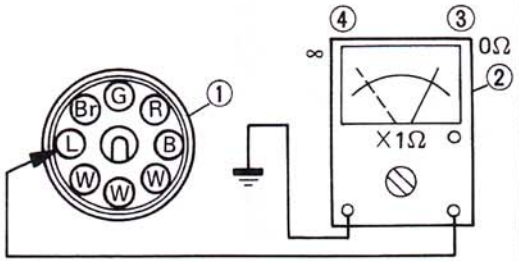
TROUBLESHOOTING CHART (2)

Disconnect the AC magneto connector ① and measure the neutral switch resistance with the Pocket Tester ② .

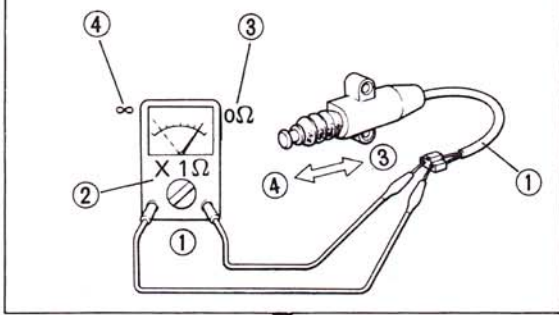


→ Out of specification → Replace the neutral switch.

When the transmission is in neutral: 0Ω ③
When the transmission is in gear: ∞ ④



Disconnect the sidestand switch connector ① and measure the sidestand switch resistance with the Pocket Tester ② .



→ Out of specification → Replace the sidestand switch.

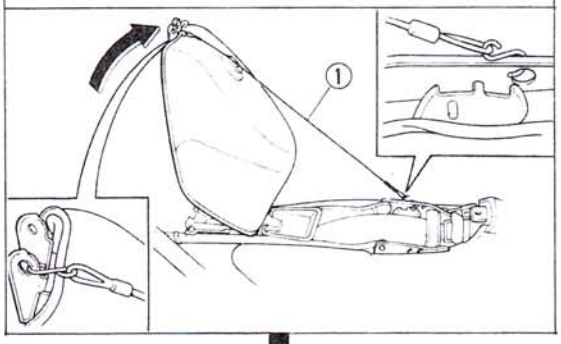
When the sidestand is up: 0Ω ③
When the sidestand is down: ∞ ④

Sidestand control unit is faulty, replace the unit.

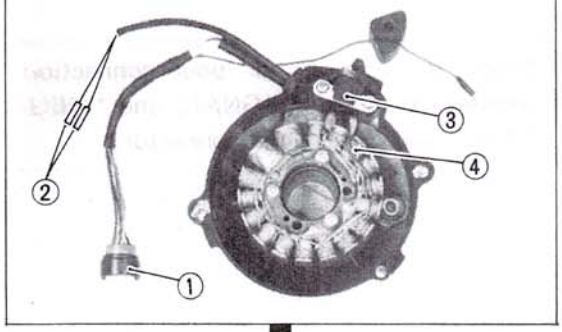
7

TROUBLESHOOTING CHART (3)

Remove the fuel tank securing bolt, and pull up the fuel tank. Use the fuel tank holding wire ① to hold the fuel tank.

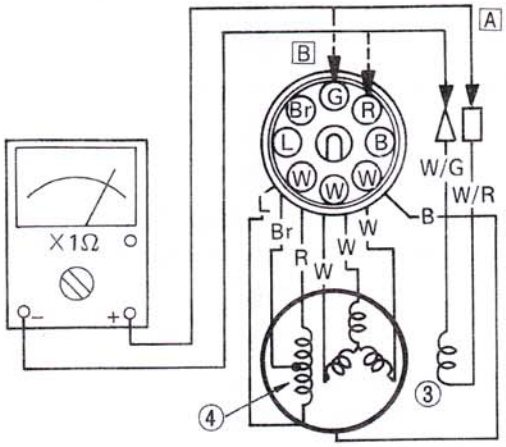


Disconnect the AC magneto ① and pickup coil ② connectors. Measure the pickup ③ and source ④ coils resistance.

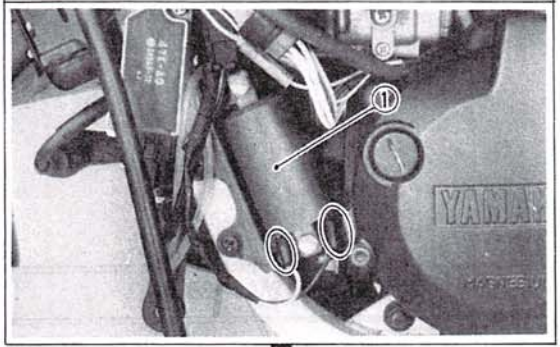


Out of specification → Replace the coil(s).

Ⓐ Pickup coil:
112Ω ± 20% at 20°C (68°F)
(White/Green – White/Red)
Ⓑ Source coil:
127Ω ± 20% at 20°C (68°F)
(Red – Green)
18.8Ω ± 20% at 20°C (68°F)
(Brown – Red)

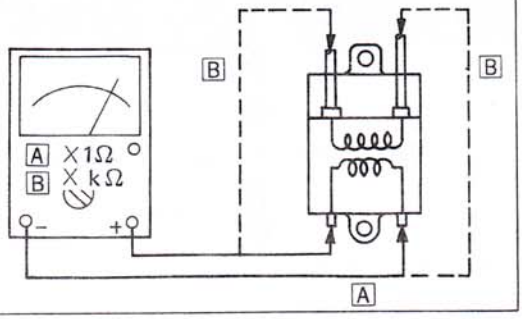


Disconnect the ignition coil leads. Measure the ignition coils ① primary and secondary coils resistance.



Out of specification → Replace the coil(s).

Ⓐ Primary:
0.67Ω ± 20% at 20°C (68°F)
Ⓑ Secondary:
12 kΩ ± 20% at 20°C (68°F)



CDI unit is faulty, replace the unit.

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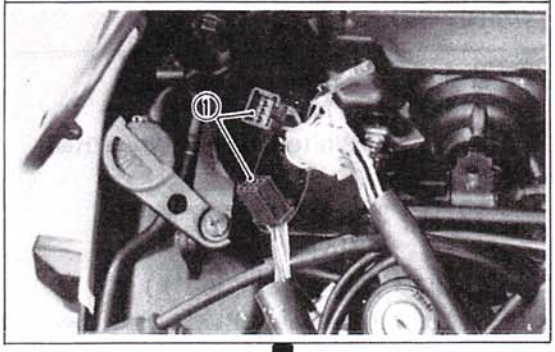
TROUBLESHOOTING CHART (4)

"NEUTRAL" INDICATOR LIGHT DOES NOT COME ON.

↓

Remove the meter assembly and disconnect the indicator light connector ①.



↓

Turn the main switch "ON".

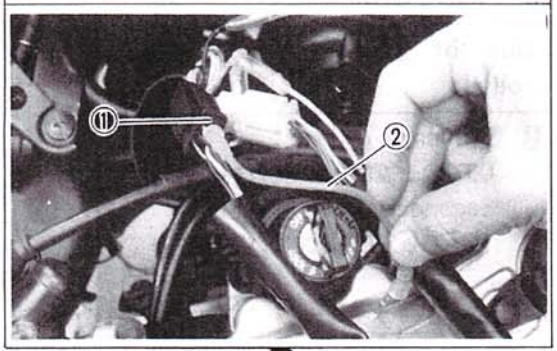
↓

Check the battery voltage (12V) on the Brown lead from the wire harness.

NO → Check for an open or poor connection between the fuse (SIGNAL) and "NEUTRAL" indicator light connector.

↓ YES

Reconnect the indicator light connector. Connect the Blue/White lead ① from the wire harness to "ground" on the frame; use a jumper lead ② .



↓

"NEUTRAL" indicator light comes on.

NO → Replace the bulb (12V – 3.4W).

↓ YES

Check the neutral switch. See "TROUBLESHOOTING CHART (2)".

→ Replace the neutral switch.

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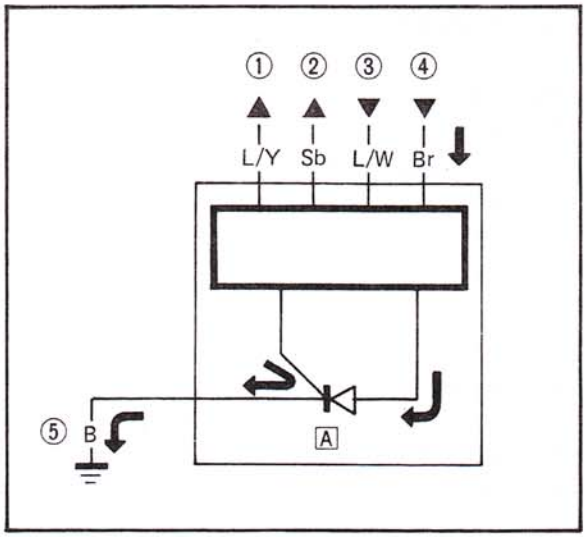


DESCRIPTION

Sidestand Control Unit

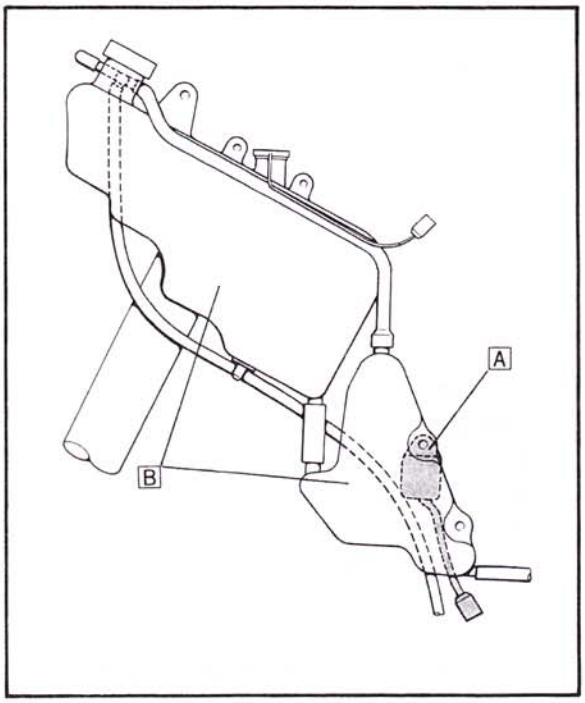
The starting circuit on this model consists of the sidestand control unit, neutral switch, and the sidestand switch. If the engine stop switch and the main switch are both on, the engine can be started only if:

a. The transmission is in neutral (the neutral switch is on).

or if

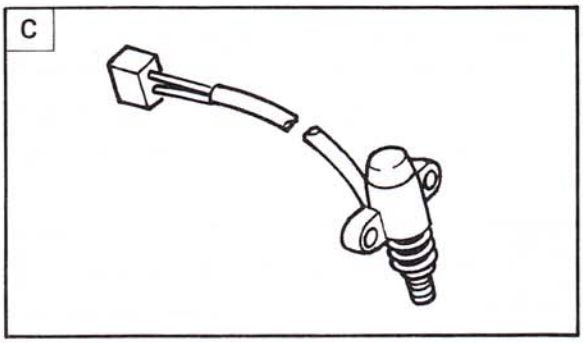
b. The sidestand is up (the sidestand switch is on the neutral switch is off).

The sidestand control unit prevents the engine from starting when neither of these conditions has been met. When one or both of the above conditions have been met, the engine can be started. The motorcycle can be ridden, however, only when the sidestand is up.



← WHEN THE TRANSMISSION IS IN GEAR AND THE SIDESTAND IS DOWN.

① To sidestand switch (Blue/Yellow)
② To neutral switch (Sky blue)
③ From neutral light (Blue/White)
④ From CDI unit (Brown)
⑤ Black
A SIDESTAND CONTROL UNIT
B OIL TANK
C SIDESTAND SWITCH



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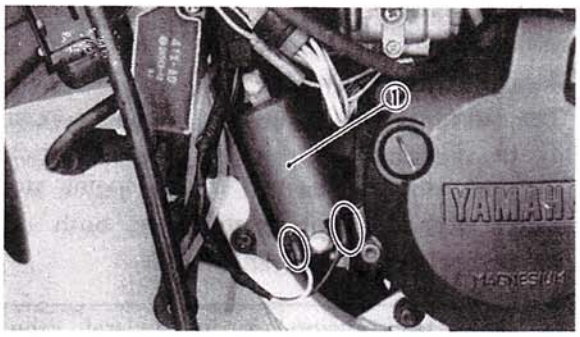
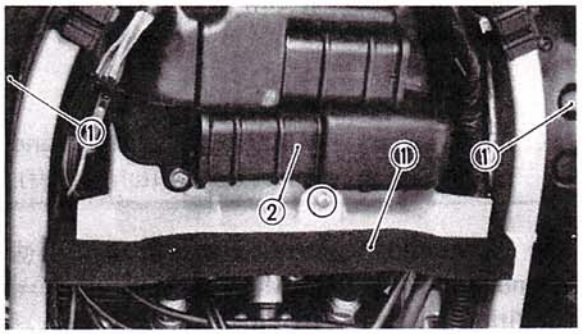


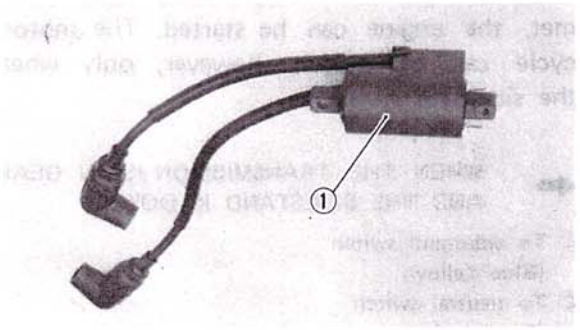
IGNITION COIL

Removal

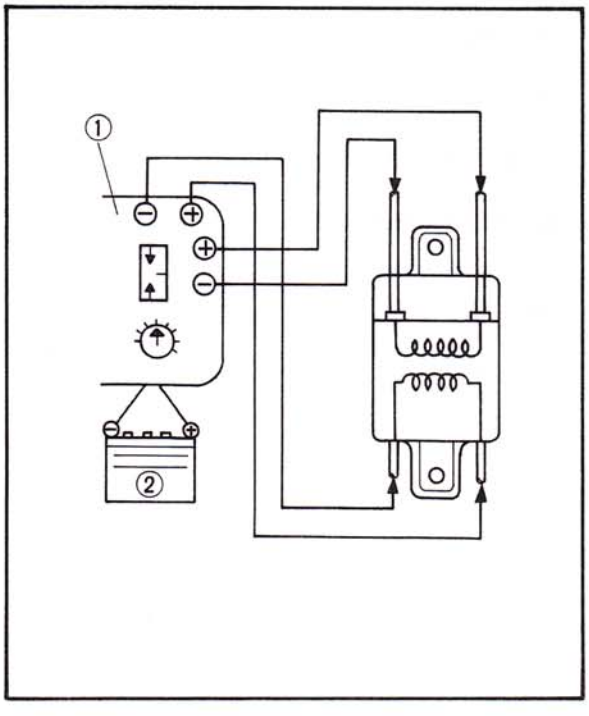
1. Remove:
   - Lower cowling
   - Ignition coil (Lower cylinder) ①



2. Remove:
   - Bolt (Fuel tank)
3. Pull up the fuel tank.
4. Remove:
   - Center cowlings
   - Air ducts ①
   - Air filter box ②



5. Remove:
   - Ignition coil ①



Ignition Spark Gap Test

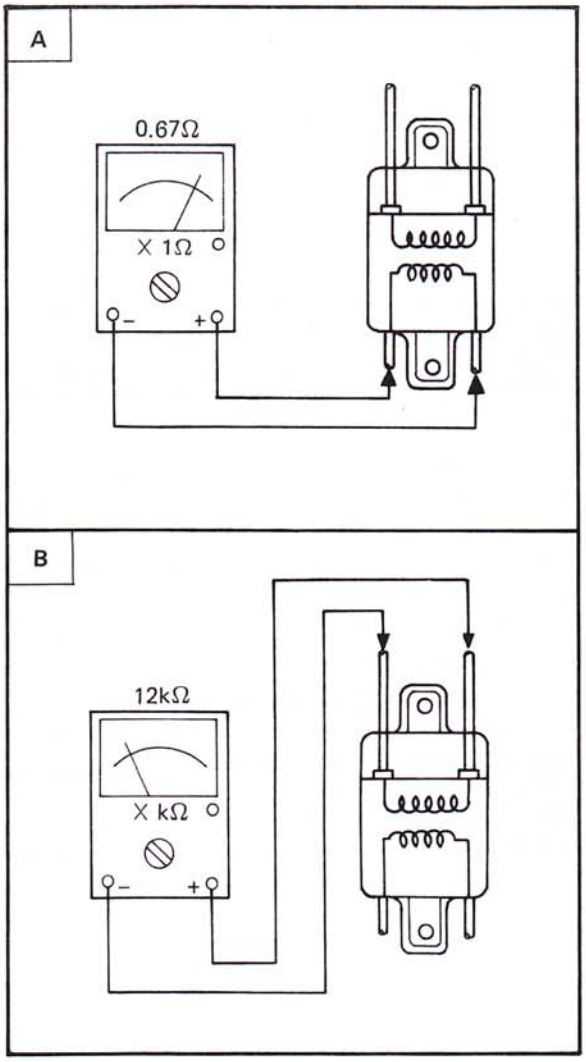
1. Remove:
   - Lower cowling
   - Bolt (Fuel tank)
2. Disconnect:
   - Ignition coil leads
   - Spark plug leads
3. Connect:
   - Electro Tester (90890-03021) ①

NOTE:
Be sure to use a fully charged battery.

4. Turn the spark plug gap adjuster and increase the gap to the maximum limit unless misfire occurs first.

Minimum Spark Gap: 6 mm (0.24 in)

② Battery (12V)



Ignition Coil Resistance Test

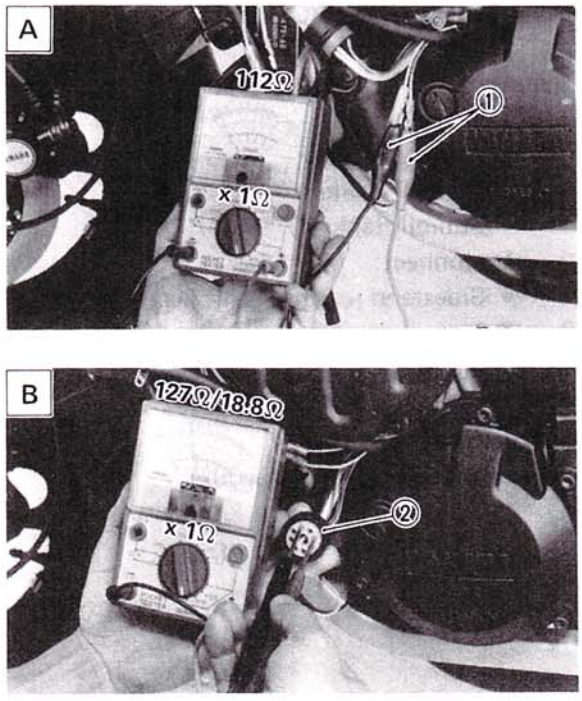
1. Connect:
   - Pocket Tester (90890-03104)
2. Measure:
   - Primary coil resistance [A]
   - Secondary coil resistance [B]
   - Spark plug cap resistance.

   Out of specification → Replace.

Primary Coil Resistance [A] :
0.67Ω ± 20% at 20°C (68°F)
Secondary Coil Resistance [B] :
12 kΩ ± 20% at 20°C (68°F)
Spark Plug Cap:
5 kΩ ± 10% at 20°C (68°F)

Installation

Reverse the removal procedure.



PICKUP AND SOURCE COIL RESISTANCE

1. Remove:
   - Lower cowling
2. Disconnect:
   - Pickup coil connectors ①
   - AC magneto connector ②
3. Measure:
   - Pickup coil resistance [A]
   - Source coil resistance [B]

   Use the Pocket Tester (90890-03104).

   Out of specification → Replace.

Pickup Coil Resistance [A] :
112Ω ± 20% at 20°C (68°F)
(White/Green – White/Red)
Source Coil Resistance [B] :
127Ω ± 20% at 20°C (68°F)
(Green – Brown)
18.8Ω ± 20% at 20°C (68°F)
(Brown – Red)

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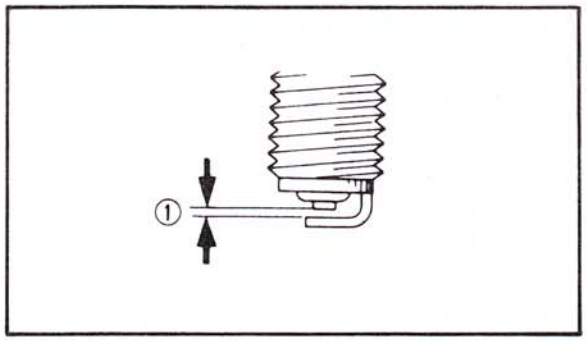


SPARK PLUG

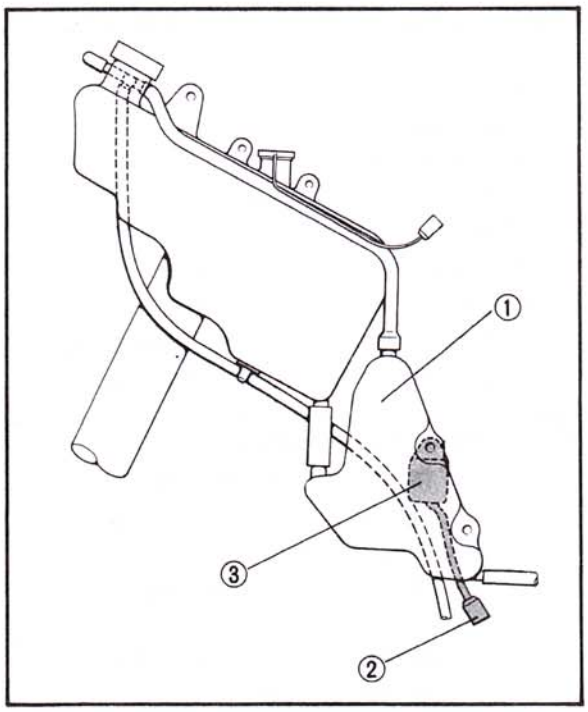
1. Inspect:
   - Plug
     Burns/Fouling/Wear → Replace.
2. Measure:
   - Electrode gap ①
     Out of specification → Clean off carbon and regap.

Electrode Gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

NOTE:
Clean and inspect spark plugs every 6,000 km (4,000 mi) and replace after initial 12,000 km (8,000 mi).

Type:
BR9HS (NGK),
W27FSR (NIPPONDENSO)

Spark plug:
20 Nm (2.0 m·kg, 14 ft·lb)



SIDESTAND CONTROL UNIT

Removal

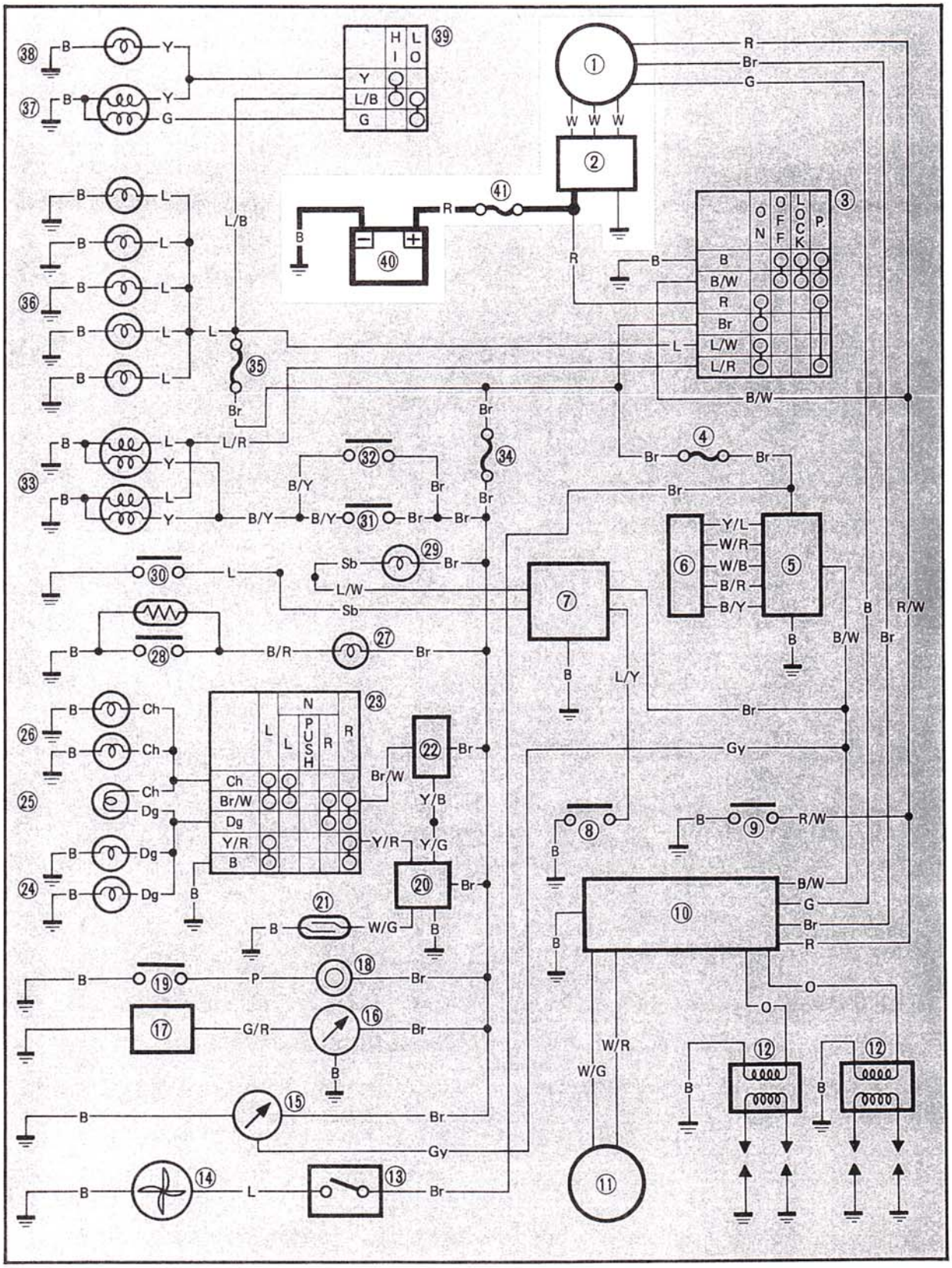
1. Remove:
   - Lower cowling
   - Center cowling
   - Sub-oil tank ①
2. Disconnect:
   - Sidestand control unit lead ②
3. Remove:
   - Sidestand control unit ③

Installation

Reverse the removal procedure.

CHARGING SYSTEM

Below circuit diagram shows charging cricuit.



1. **AC magneto**
2. **Rectifier/Regulator**
3. Main switch
4. Fuse "YPVS" (10A)
5. YPVS control unit
6. YPVS servomotor unit
7. Sidestand control unit
8. Sidestand switch
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31. Rear brake switch
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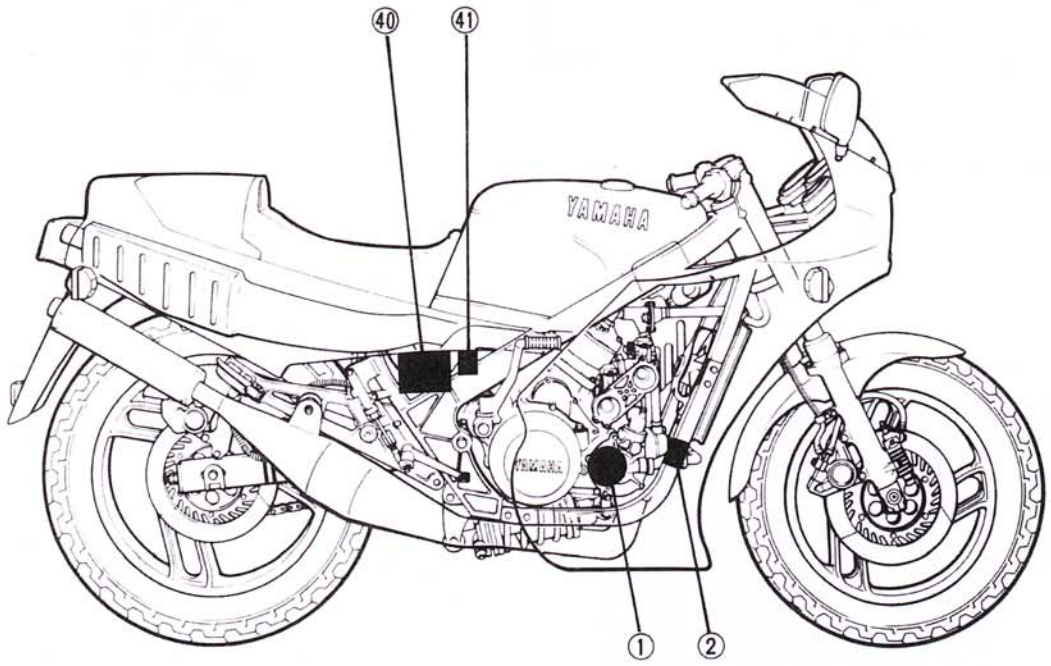
33. Tail/Brake light
34. Fuse "SIGNAL" (10A)
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. **Battery**
41. **Main fuse (20A)**



7

TROUBLESHOOTING CHART

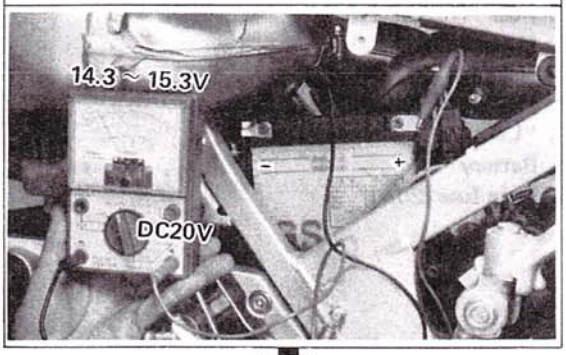
THE BATTERY IS NOT CHARGED

Remove the seat, rear cowling, side cover, and battery cover.

Measure the battery for voltage and specific gravity.
Battery voltage: More than 12V
Specific gravity: 1,280

→ Recharge the battery.

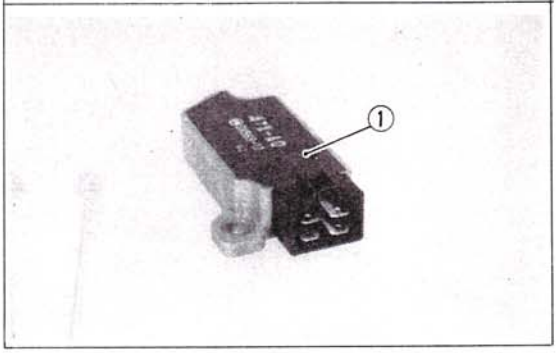
Connect the Pocket Tester to the battery to measure the generator voltage.



Start the engine and accelerate to about 2,000 r/min or more.

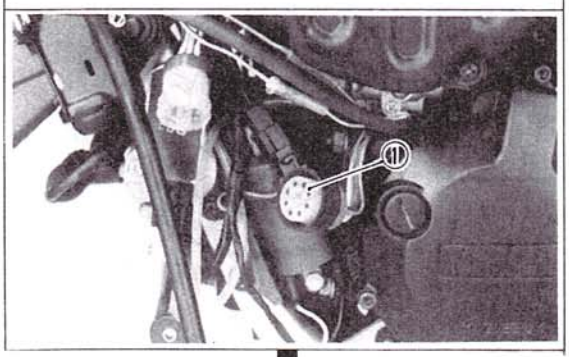
Generator Voltage:
more than 15.3V

Replace the rectifier/regulator ①.



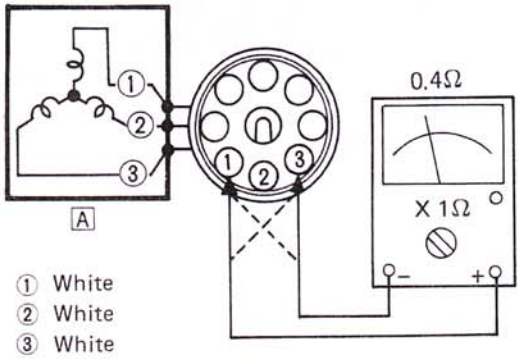
Generator Voltage:
Less than 14.3V

Disconnect the AC magneto lead connector ① and measure the stator coil resistance.



Out of specification → Replace the coil assembly.

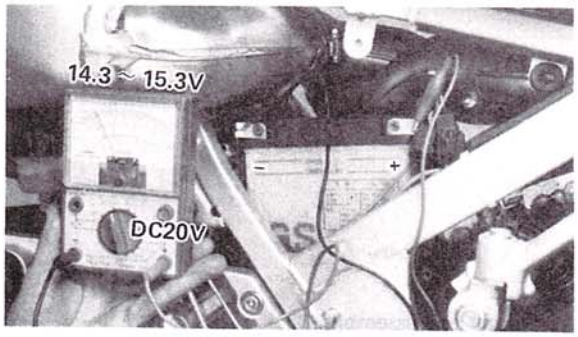
Stator coil [A] :
0.4Ω ± 20% at 20°C (68°F)
(White – White)



① White
② White
③ White

Replace the rectifier/regulator.

7



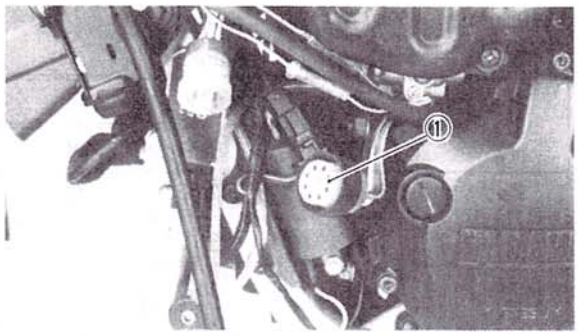
GENERATOR VOLTAGE INSPECTION

1. Remove:
   - Rear cowling
   - Side cover
   - Battery cover
2. Connect:
   - Pocket Tester (90890-03104)
3. Start the engine and accelerate the engine to approximately 2,000 r/min.
4. Measure:
   - Generator voltage
     Out of specification → Replace the stator coil and/or rectifier/regulator.

	Generator Voltage: **14.3 ~ 15.3V**

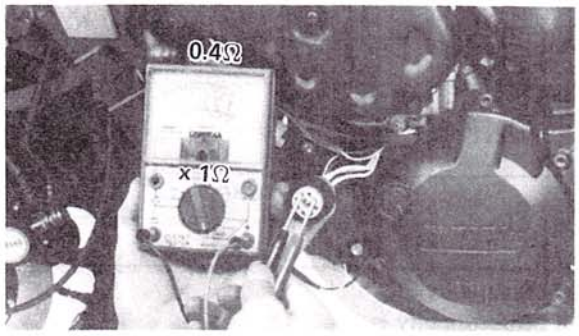
CAUTION:

Never disconnect the wires from the battery while the generator is operating. If the battery is disconnected, the voltage across the generator terminals will increase and damage the semi-conductors.



STATOR COIL INSPECTION

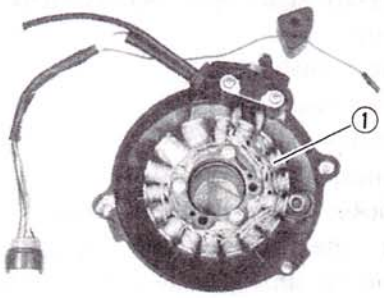
1. Remove:
   - Lower cowling
2. Disconnect:
   - AC magneto connector ①



3. Connect:
   - Pocket Tester (90890-03104)
4. Measure:
   - Stator coil resistance
     Out of specification → Replace stator coil assembly.

	Stator Coil Resistance: **0.4Ω ± 20% at 20°C (68°F)** **(White – White)**

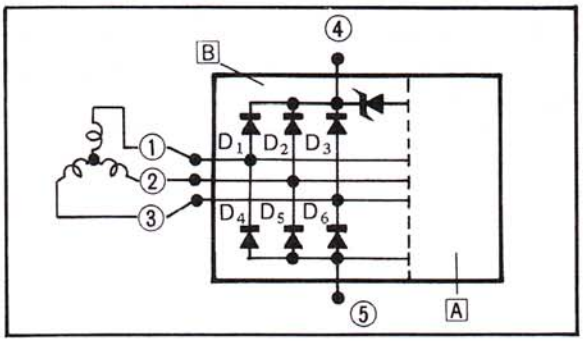
7



① Stator coil assembly

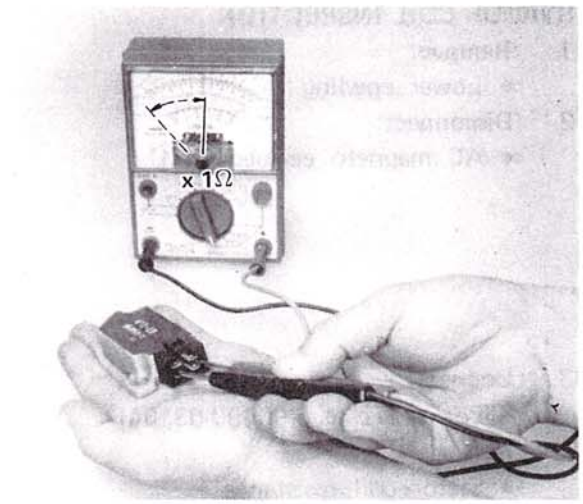
RECTIFIER INSPECTION

1. Remove:
   - Lower cowling
2. Disconnect:
   - Rectifier/regulator lead
3. Remove:
   - Rectifier/regulator
4. Check:
   - Diodes (All)
     Use the Pocket Tester (90890-03104).
     Defective element → Replace rectifier/regulator.



① White
② White
③ White
④ Red
⑤ Ground

A IC Regulator
B Rectifier



Checking element	Pocket tester connecting point		Good
	(+) (Red)	(−) (Black)	
D_1	④	①	○
	①	④	x
D_2	④	②	○
	②	④	x
D_3	④	③	○
	③	④	x
D_4	⑤	①	x
	①	⑤	○
D_5	⑤	②	x
	②	⑤	○
D_6	⑤	③	x
	③	⑤	○

○ : Continuity
X : Discontinuity (∞)

CAUTION:

Do not overcharge rectifier or damage may result.

Avoid:

- A short circuit
- Inverting + and – battery leads
- Direct connection of rectifier to battery

NOTE:

The results of "○" and "X" should be reversed according to the polarity of the specific Pocket Tester used.

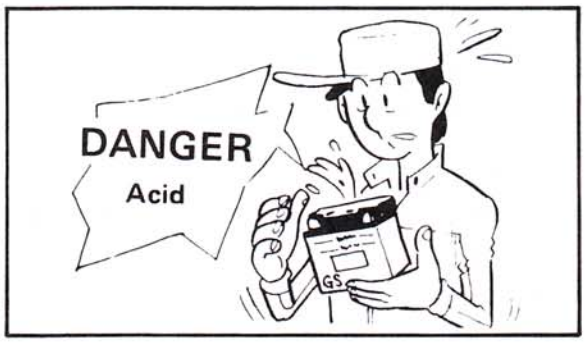
BATTERY

CAUTION:

To insure maximum battery performance be sure to:

- Charge a new battery before use.
- Maintain proper electrolyte level.
- Charge at proper current; 0.55 amps/ 10 hrs. or until the specific gravity reaches 1.280 at 20°C (68°F).

Failure to observe these points will result in a shortened battery life.



WARNING:

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.

Always follow these preventive measures:

- Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.
- Wear protective eye gear when handling or working near batteries.

Antidote (EXTERNAL):
- SKIN – Flush with water.
- EYES – Flush with water for 15 minutes and get immediate medical attention.

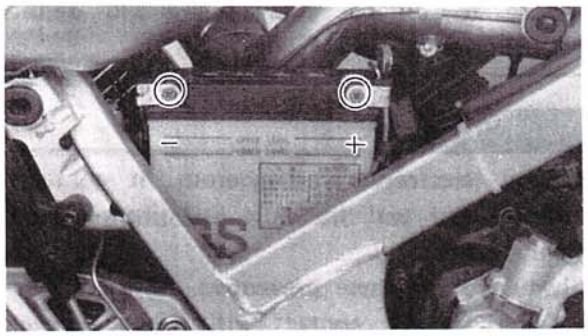
Antidote (INTERNAL):
- Drink large quantities of water or milk and follow with milk of magnesia, beaten egg, or vegetable oil.
  Get immediate medical attention.

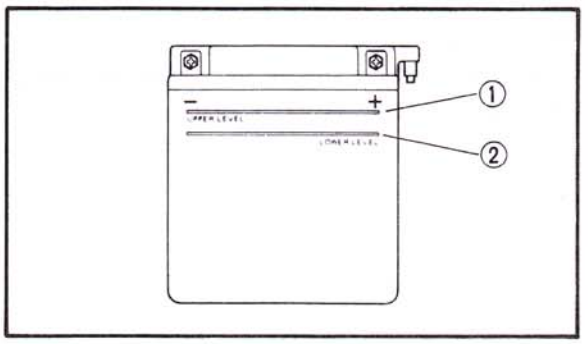
Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:
- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks, or open flampes (e.g., welding equipment, lighted cigarettes, etc.)
- DO NOT SMOKE when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN:

Inspection

1. Remove:
   - Seat
   - Rear cowling
   - Side cover
   - Battery cover
   - Battery
     Disconnect negative lead first.
2. Inspect:
   - Battery fluid level
     Below lower level → Add distilled water.

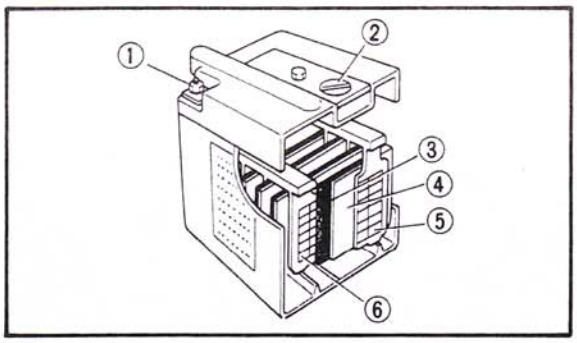




NOTE:

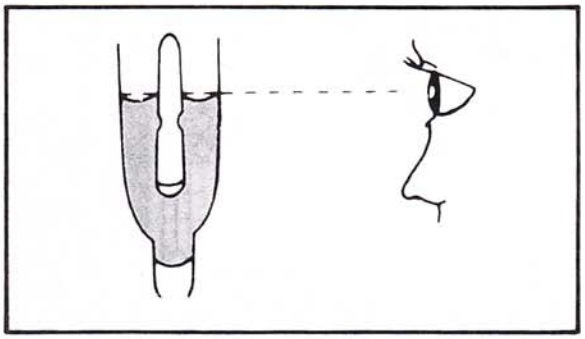
Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate one cell to be lower than the rest.

① UPPER level
② LOWER level

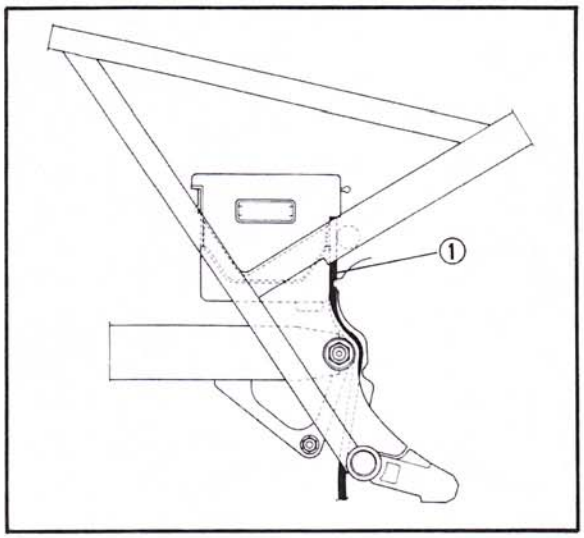


- Warpage or buckling of plates or insulators is evident.

① Terminal
② Cap
③ Insulator
④ Separation plate
⑤ Negative electrode
⑥ Positive electrode



3. Measure:
   - Specific gravity:
     Less than 1.280 → Recharge battery.
4. Install:
   - Battery
     Connect positive lead first.
5. Check:
   - Breather hose ①
     Improper routing → Correct.
     Obstruction/Damage → Replace.



Battery Storage

The battery should be stored if the motorcycle is not to be used for a long period.

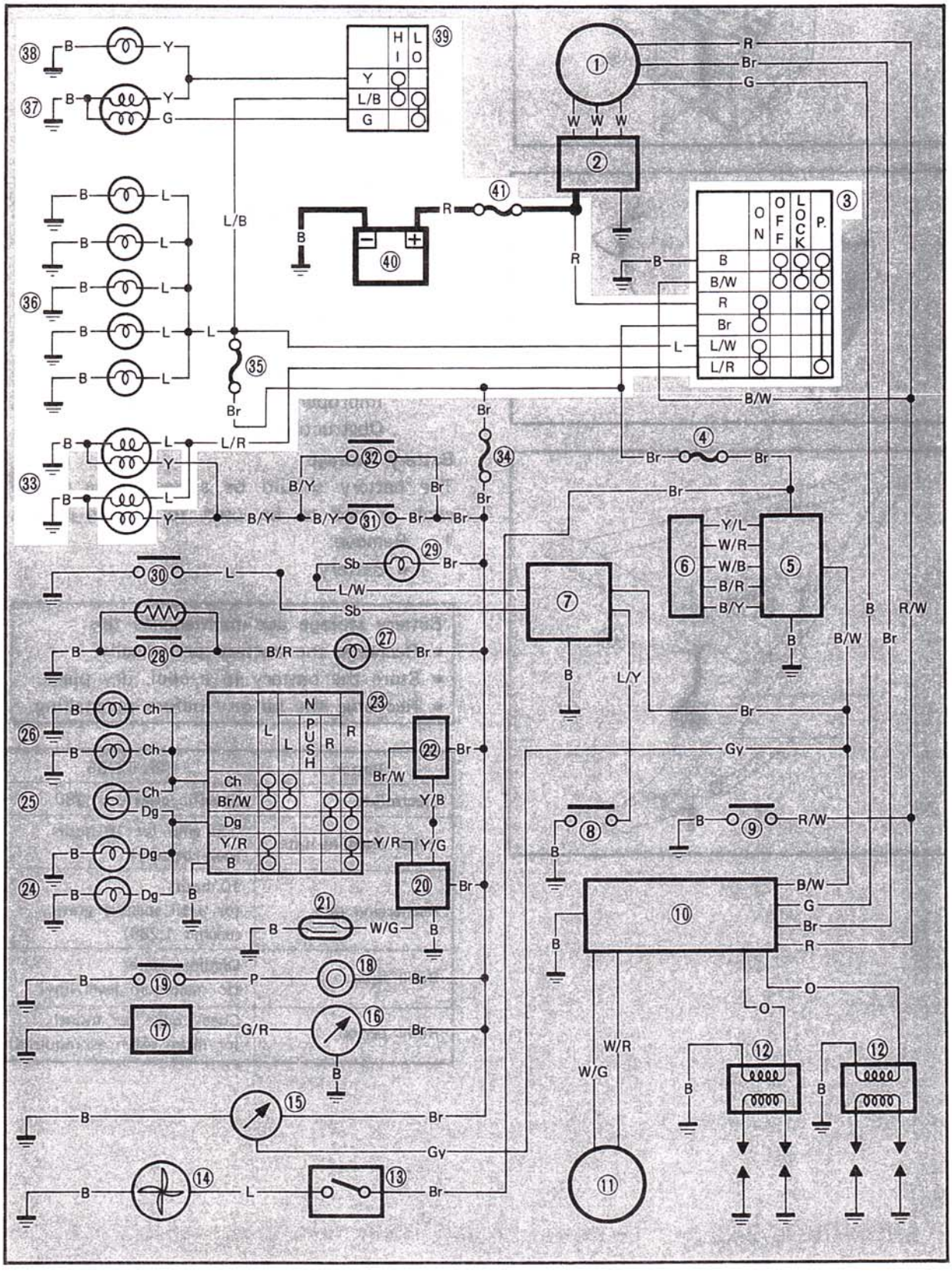
1. Remove:
   - Battery

Battery storage and maintenance tips:
- Recharge the battery periodically.
- Store the battery in a cool, dry place.
- Recharge the battery before reinstalling.

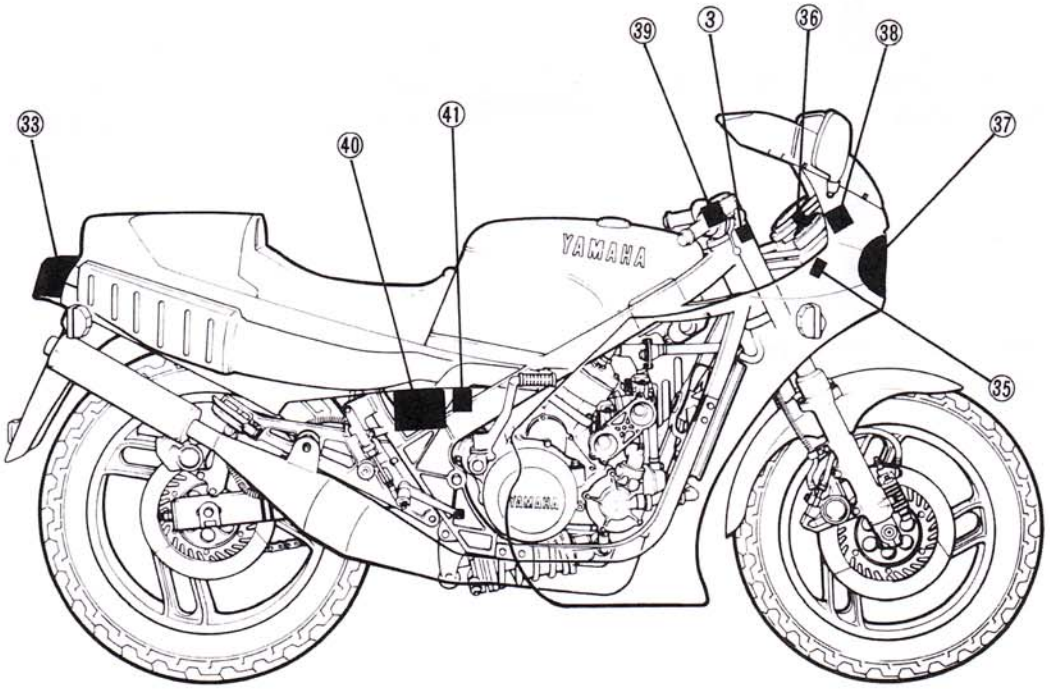
Battery	12N 5.5-3B
Electrolyte	Specific gravity: 1.280
Initial charging rate	0.55 amp for 10 hours (new battery)
Recharging rate	10 hours (or until specific gravity reaches 1.280)
Refill fluid	Distilled water (to maximum level line)
Refill period	Check once per month (or more often as required)

LIGHTING SYSTEM

Below circuit diagram shows lighting circuit.



1. AC magneto
2. Rectifier/Regulator
3. **Main switch**
4. Fuse "YPVS" (10A)
5. YPVS control unit
6. YPVS servomotor unit
7. Sidestand control unit
8. Sidestand switch
9. "ENGINE STOP" switch
10. CDI unit
11. Pickup coil
12. Ignition coil
13. Thermo-switch
14. Fan motor
15. **Tachometer**
16. Temperature gauge
17. Thermo unit
18. **Horn**
19. **"HORN" switch**
20. **Flasher cancelling unit**
21. **Reed switch**
22. **Flasher relay**
23. **"TURN" switch**
24. **Flasher light (Right)**
25. **"TURN" indicator light**
26. **Flasher light (Left)**
27. **"OIL" indicator light**
28. **Oil level switch**
29. "NEUTRAL" indicator light
30. Neutral switch
31. **Rear brake switch**
32. **Front brake switch**
33. **Tail/Brake light**
34. **Fuse "SIGNAL" (10A)**
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. **Battery**
41. **Main fuse (20A)**



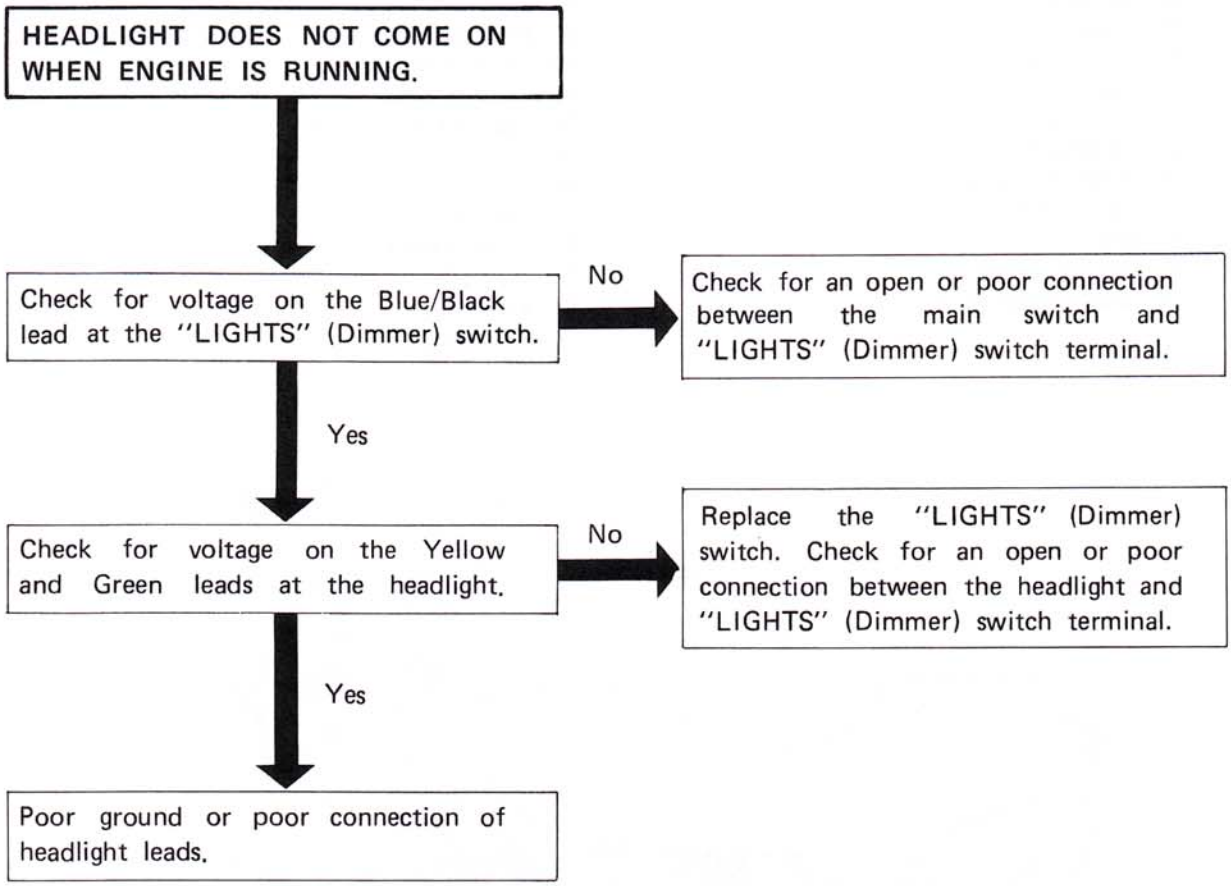
7

LIGHTING TESTS AND CHECKS

The battery provides power for operation of the headlight, taillight, and meter lights. If none of the above fail to operate, proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level, or a defective charging system.
Also check fuse condition. Replace any "open" fuses. There are individual fuses for various circuits (see complete Circuit Diagram).

NOTE:
Check each bulb first before performing the following check.

TROUBLESHOOTING CHART (1)



TROUBLESHOOTING CHART (2)

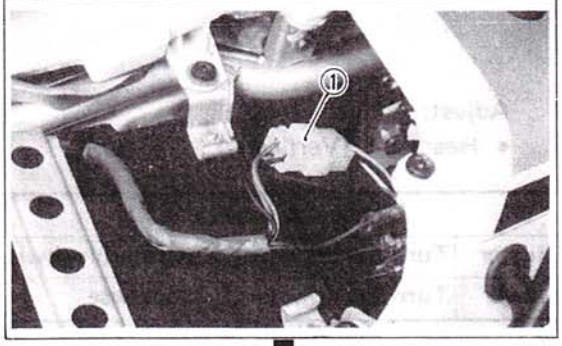
TAILLIGHTS DO NOT COME ON WHEN ENGINE IS RUNNING.

↓

Remove the seat.

↓

Check for voltage (12V) on Blue leads ① at the tail/brake lights.

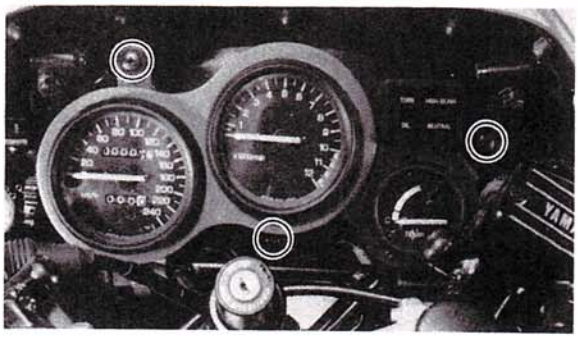


No → Check for an open or poor connection between the main switch and tail/brake lights.

↓ Yes

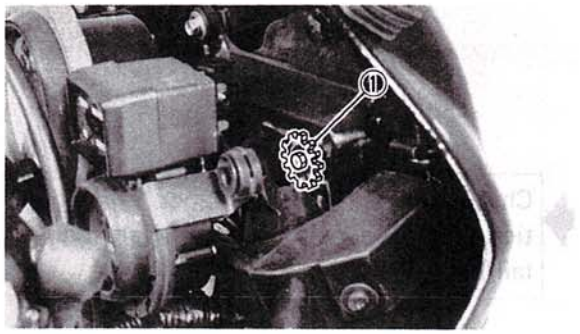
Poor ground or poor connection on Black leads at tail/brake lights.

7



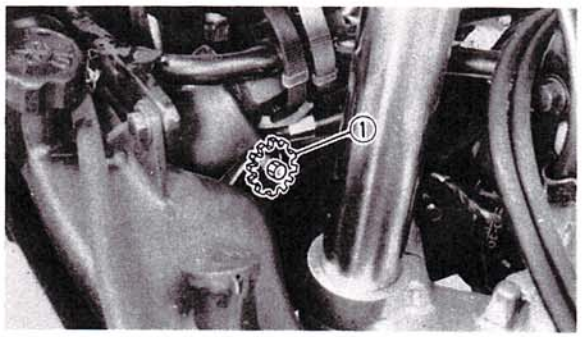
HEADLIGHT ADJUSTMENT

1. Remove:
   - Meter assembly



2. Adjust:
   - Headlight (Horizontally)

Horizontal Adjustment	
Right	Turn the adjuster ① clockwise
Left	Turn the adjuster ① counterclockwise



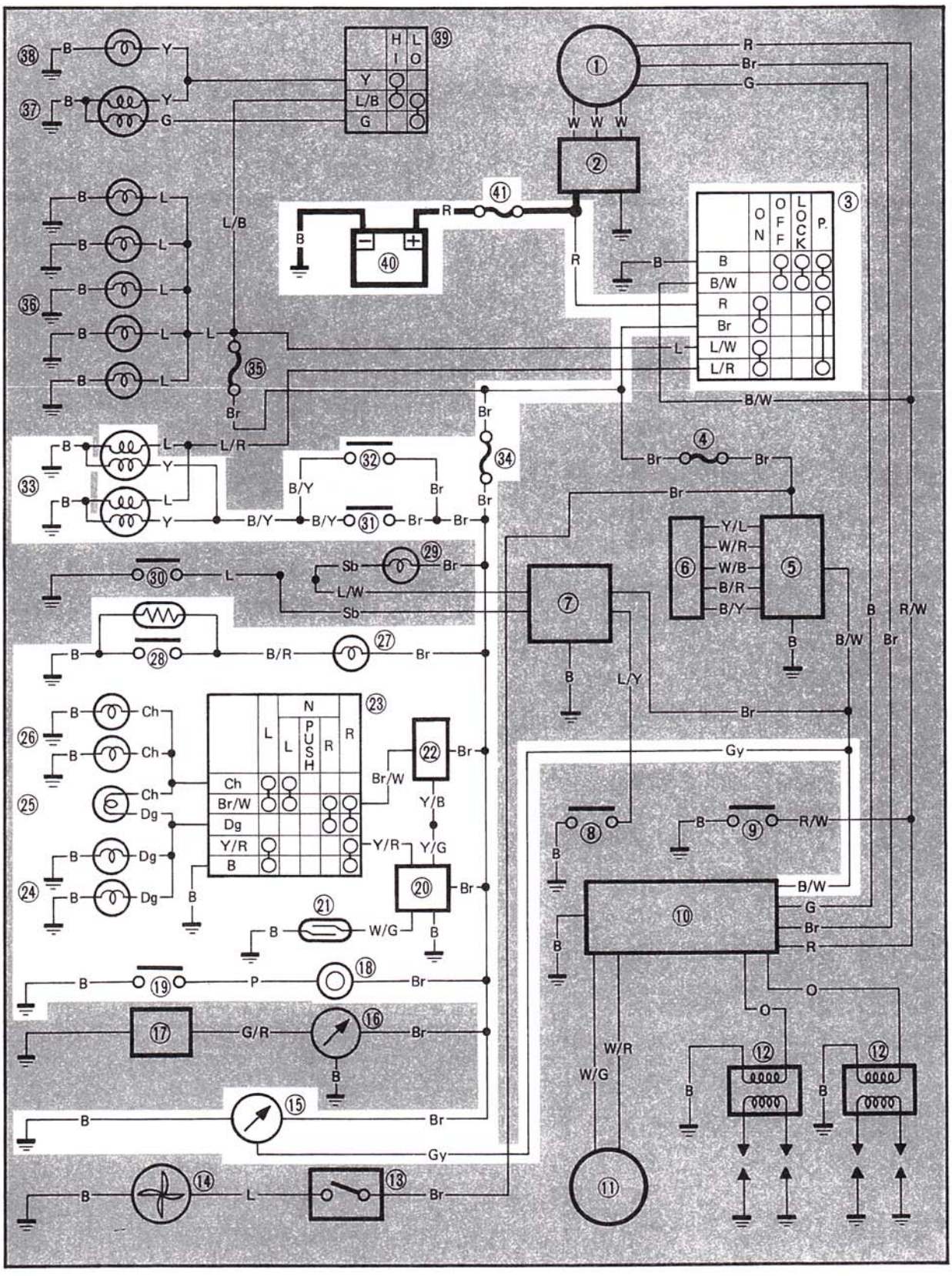
3. Adjust:
   - Headlight (Vertically)

Vertical Adjustment	
Higher	Turn the adjuster ① counterclockwise
Lower	Turn the adjuster ① clockwise

7

SIGNAL SYSTEM

Below circuit diagram shows signal circuit.



1. AC magneto
2. Rectifier/Regulator
3. **Main switch**
4. Fuse "YPVS" (10A)
5. YPVS control unit
6. YPVS servomotor unit
7. Sidestand control unit
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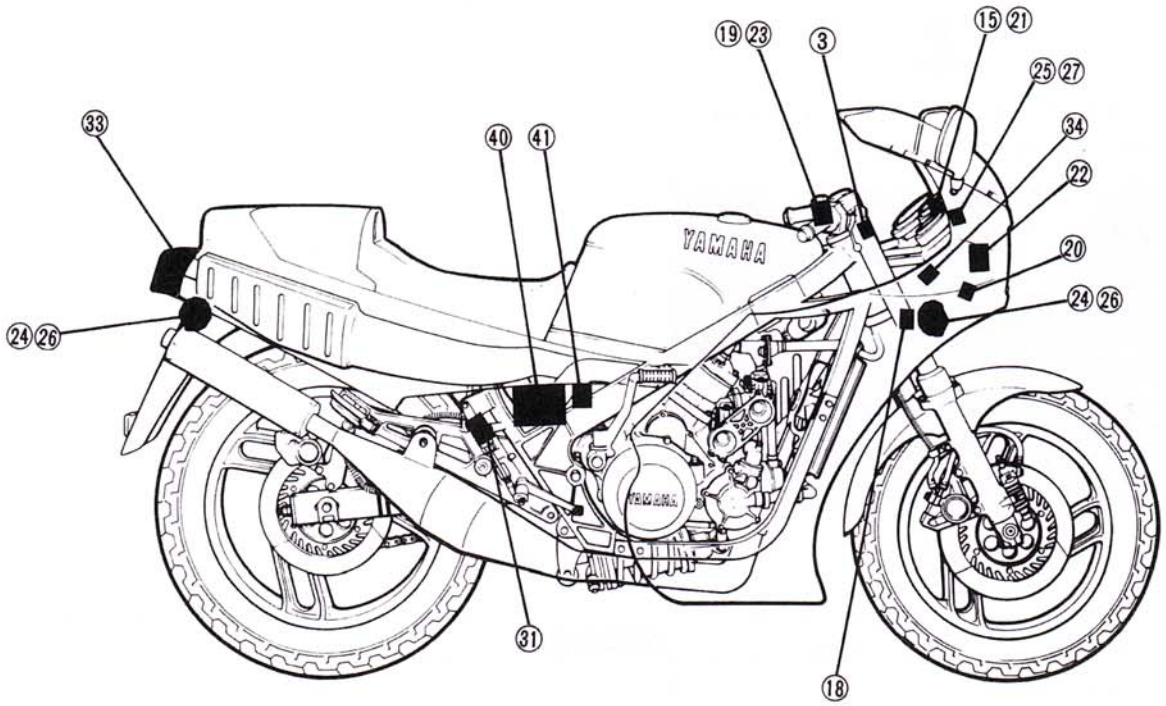
9. "ENGINE STOP" switch
10. CDI unit
11. Pickup coil
12. Ignition coil
13. Thermo-switch
14. Fan motor
15. Tachometer
16. Temperature gauge
17. Thermo unit
18. Horn
19. "HORN" switch
20. Flasher cancelling unit
21. Reed switch
22. Flasher relay
23. "TURN" switch
24. Flasher light (Right)
25. "TURN" indicator light
26. Flasher light (Left)
27. "OIL" indicator light
28. Oil level switch
29. "NEUTRAL" indicator light
30. Neutral switch
31. Rear brake switch
32. Front brake switch
33. **Tail/Brake light**
34. Fuse "SIGNAL" (10A)
35. **Fuse "HEAD" (15A)**
36. **Meter light**
37. **Headlight**
38. **"HIGH BEAM" indicator light**
39. **"LIGHTS" (Dimmer) switch**
40. **Battery**
41. **Main fuse (20A)**



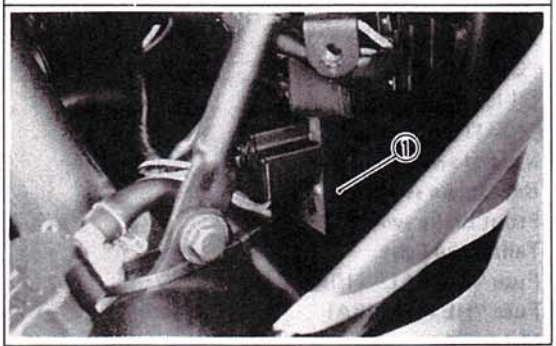
7

TROUBLESHOOTING CHART (1)

FLASHER LIGHTS DO NOT COME ON.

↓

Remove the meter assembly, and disconnect the flasher relay ①, connector.



↓

Turn the main switch "ON".

↓

Check for the battery voltage (12V) on the Brown lead from the wire harness.

No → Check for an open or poor connection between the flasher relay and main switch.

↓ Yes

Connect the Brown lead and Brown/White lead; use a jumper lead ①.

↓

Turn the "TURN" switch to Blue and/or Red, and check if the lights come on.

→ If any flasher light does not come on, replace the bulb.

↓

If all flasher lights come on, replace the flasher relay.

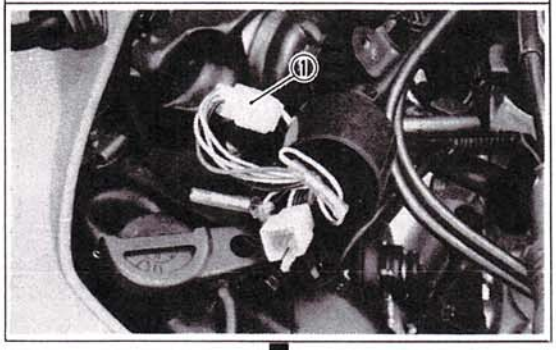
7

TROUBLESHOOTING CHART (2)

FLASHER CANCELLING UNIT DOES NOT OPERATE.

↓

Remove the meter assembly and disconnect the flasher cancelling unit ① connector.



↓

Turn the main switch "ON" and operate the handlebar switch. If the signal operates normally in "L", "R", and "OFF", the flasher relay and bulbs are in good condition.

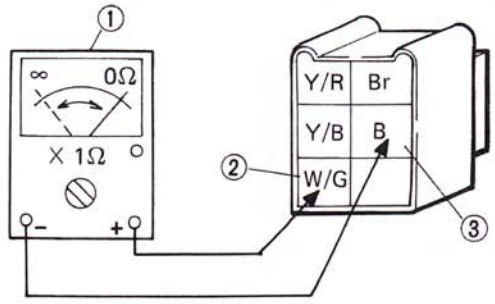
No → Replace the flasher relay and/or bulb(s).

↓ Yes

Connect the Pocket Tester ① to the White/Green ② and Black ③ leads on the wire harness. Lift the front wheel and rotate the wheel by hand, and check for reed switch continuity.

→ Out of specification → Replace the speedometer assembly.

If the tester needle swings back and forth between "0Ω" and "∞".



↓

Flasher cancelling unit is faulty, replace the unit.

7

TROUBLESHOOTING CHART (3)

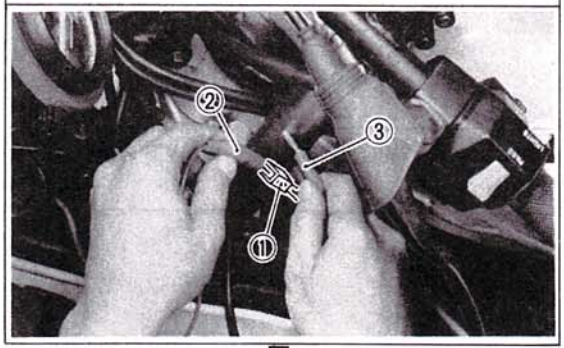
"OIL" INDICATOR LIGHT DOES NOT COME ON.

↓

Turn the main switch "ON".

↓

Disconnect the oil level switch connector ① and connect the Black/Red lead ② from the wire harness to "ground" on the frame; use a jumper lead 3 .



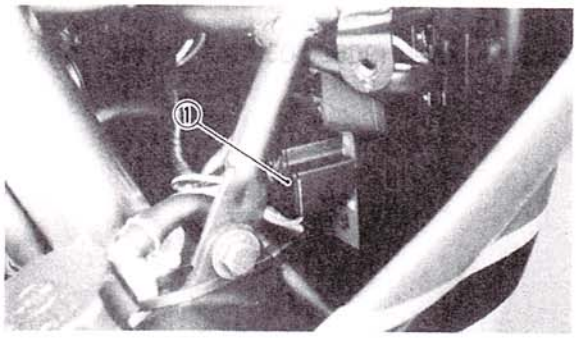
↓

"OIL" indicator light comes on. comes on.

No → Replace the bulb (12V-3.4W) and/or check for an open or poor connection between the indicator light connector and oil level switch.

Yes ↓

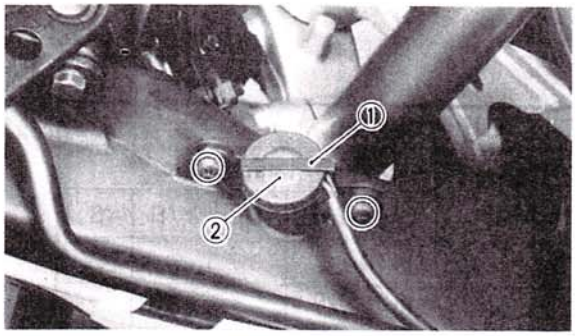
Replace the oil level switch.



SELF-CANCELLING FLASHER SYSTEM

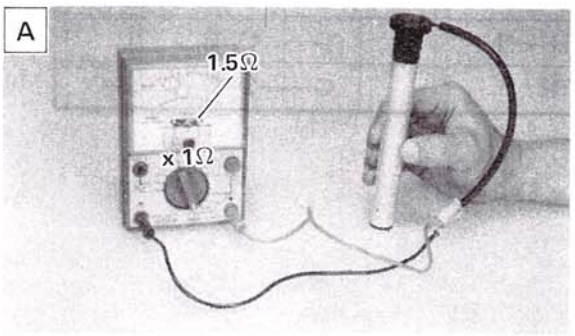
Description

The flasher cancelling unit ① turns off the turn signal after a period of time or distance involved in turning or changing lanes. Generally, the signal will cancel after either 10 seconds, or 150 meters (490 feet), whichever is greater. At very low speed, the function is determined by distance; at high speed, especially when changing speeds, the cancelling determination is a combination of both times and distance. The self-cancelling mechanism only operates when the motorcycle is moving; thus the signal will not self-cancel while you are stopped at an intersection.



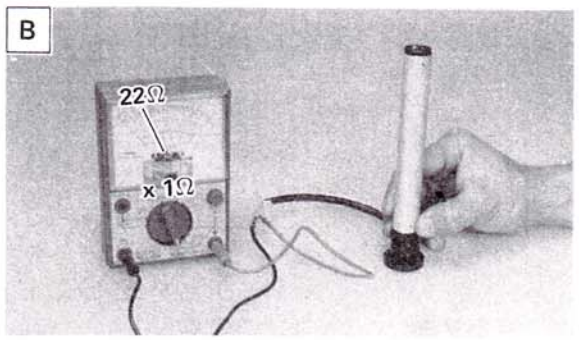
OIL LEVEL SWITCH

1. Remove:
   - Retainer ①
   - Oil level switch ②



2. Measure:
   - Oil level switch resistance
     Use the Pocket Tester (90890-03104)
     Out of specification → Replace.

	Oil Level Switch: **[A] Float is Down: Approx.1.5Ω ①** **[B] Float is Up: Approx. 22Ω ②**



3. Install:
   - Oil level switch
   - Retainer

SIGNAL SYSTEM

SWITCHES

Switches may be checked for continuity with the Pocket Tester (90890-03104) on the "ohm x 1" position.

A Main Switch

① Switch Position	② Lead Color					
	B	B/W	R	Br	L/W	L/R
ON			○—○		○—○	
OFF	○—○					
LOCK	○—○					
P	○—○			○—○		○

B "ENGINE STOP" Switch

① Switch Position	② Lead Color	
	B	R/W
OFF		
RUN	○	○

C "LIGHTS" (Dimmer) Switch

① Switch Position	② Lead Color		
	Y	L/B	G
HI	○—○		
LO		○—○	○

D "TURN" Switch

① Switch Position	② Lead Color				
	Ch	Br/W	Dg	Y/R	B
L	○—○			○—○	
L → N	○	○			
④ N → Push					
R → N		○—○			
R		○—○		○—○	

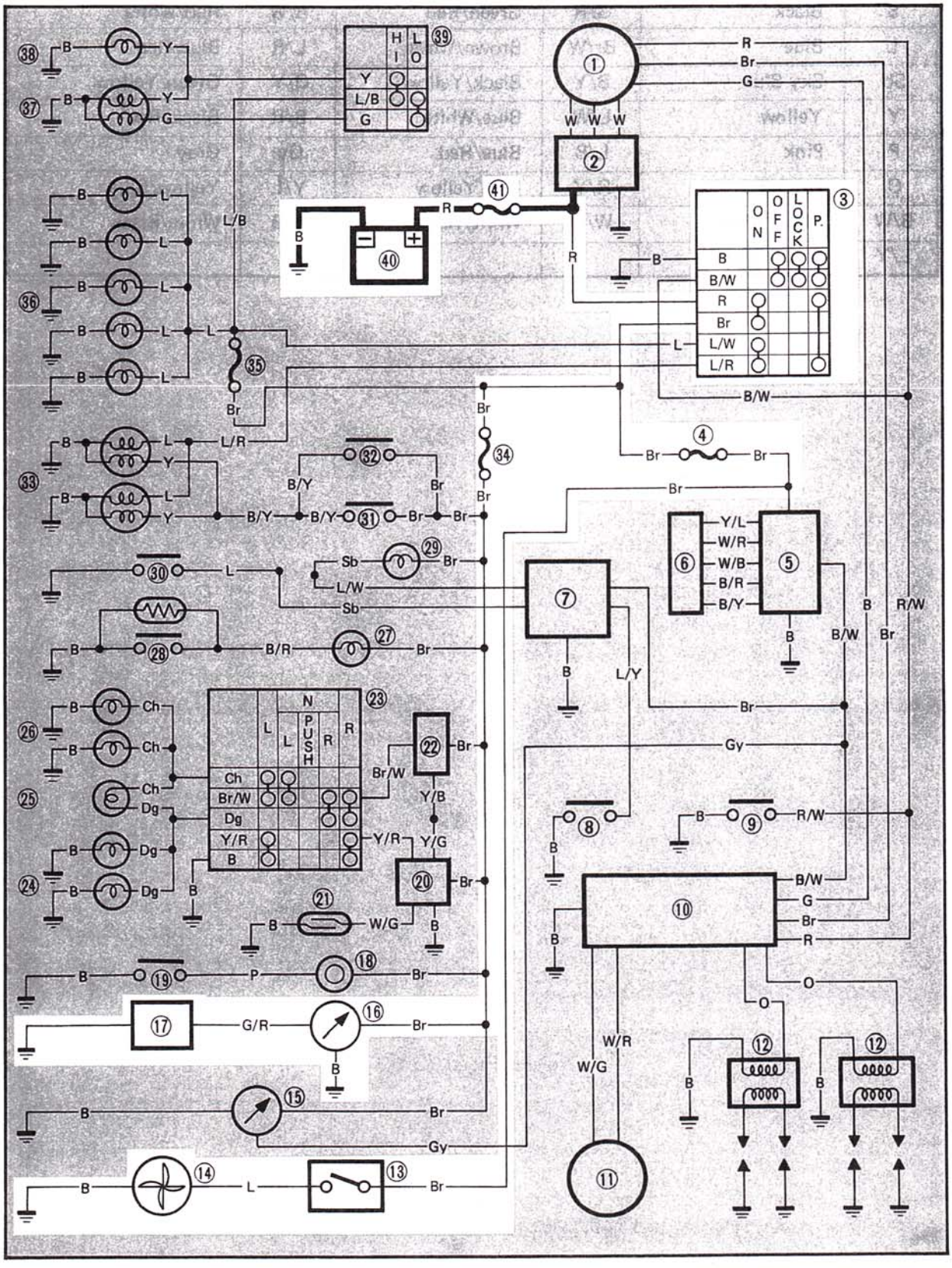
E "HORN" Switch

③ Button Position	② Lead Color	
	P	B
PUSH	○—○	
OFF		

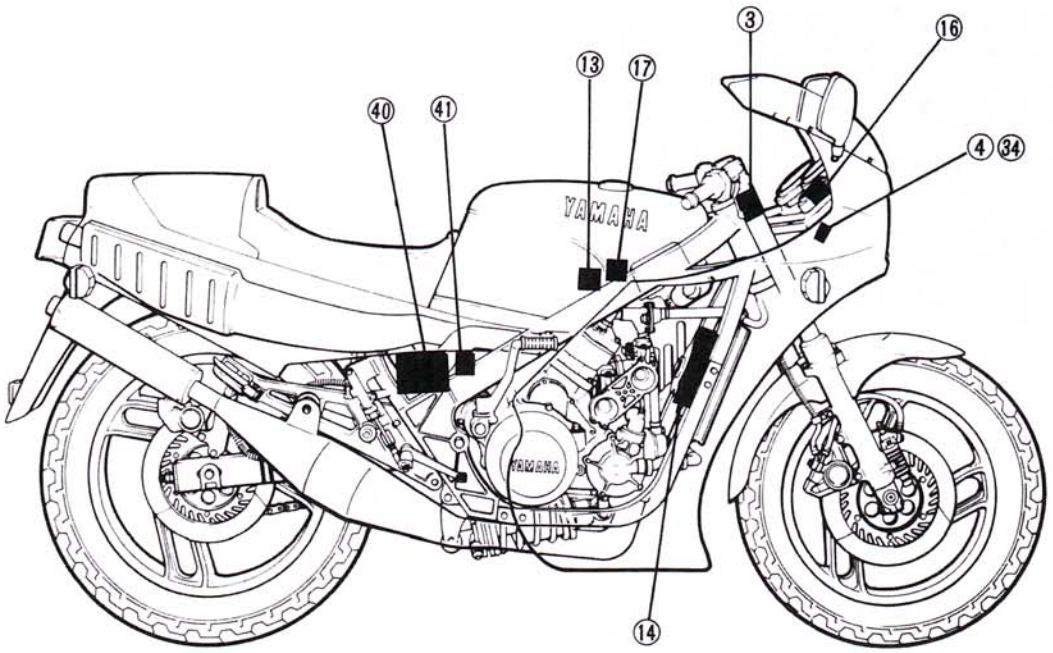
Br	Brown	G	Green	Y/B	Yellow/Black
R	Red	Dg	Dark Green	W/G	White/Green
W	White	Ch	Chocolate	Y/R	Yellow/Red
B	Black	G/R	Green/Red	R/W	Red/White
L	Blue	Br/W	Brown/White	L/R	Blue/Red
Sb	Sky Blue	B/Y	Black/Yellow	G/Y	Green/Yellow
Y	Yellow	L/W	Blue/White	B/R	Black/Red
P	Pink	L/B	Blue/Red	Gy	Gray
O	Orange	R/Y	Red/Yellow	Y/L	Yellow/Blue
B/W	Black/White	W/R	White/Red	W/B	White/Black
L/Y	Blue/Yellow				

COOLING SYSTEM

Below circuit diagram shows cooling circuit.



1. AC magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Fuse "YPVS" (10A)**
5. YPVS control unit
6. YPVS servomotor unit
7. Sidestand control unit
8. Sidestand switch
9. "ENGINE STOP" switch
10. CDI unit
11. Pickup coil
12. Ignition coil
13. **Thermo-switch**
14. **Fan motor**
15. Tachometer
16. **Temperature gauge**
17. **Thermo unit**
18. Horn
19. "HORN" switch
20. Flasher cancelling unit
21. Reed switch
22. Flasher relay
23. "TURN" switch
24. Flasher light (Right)
25. "TURN" indicator light
26. Flasher light (Left)
27. "OIL" indicator light
28. Oil level switch
29. "NEUTRAL" indicator light
30. Neutral switch
31. Rear brake switch
32. Front brake switch
33. Tail/Brake light
34. **Fuse "SIGNAL" (10A)**
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. **Battery**
41. **Main fuse (20A)**



7

TROUBLESHOOTING CHART (1)

TEMPERATURE GAUGE DOES NOT OPERATE.

↓

Remove the fuel tank securing bolt, and pull up the fuel tank. Use the fuel tank holding wire to hold the fuel tank.

↓

Turn the main switch "ON".

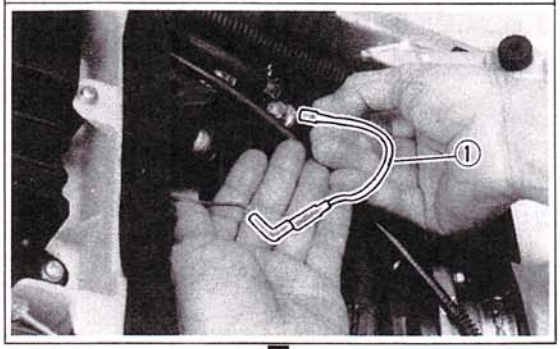
↓

Disconnect the thermo unit connector. Check the battery voltage (12V) on Green/Red lead from the wire harness.

→ No → Check for an open or poor connection between the fuse "SIGNAL" and thermo unit connector.

↓ Yes

Disconnect the thermo unit connector. Connect the Green/Red lead from the wire harness to "ground" on the frame; use a jumper lead ① .



↓

The temperature gauge needle will swing from "C" to "H".

→ No → Replace the temperature gauge.

↓ Yes

Replace the thermo unit.

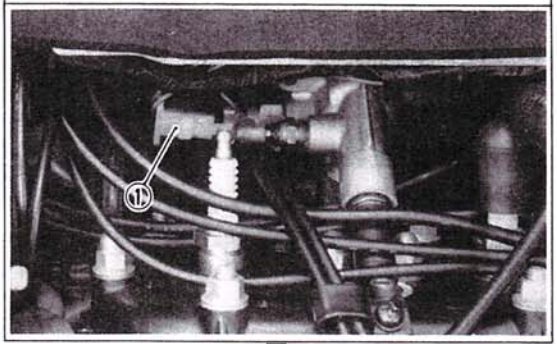
7

TROUBLESHOOTING CHART (2)

ELECTRIC FAN MOTOR DOES NOT OPERATE.

↓

Disconnect the thermo switch ① lead.

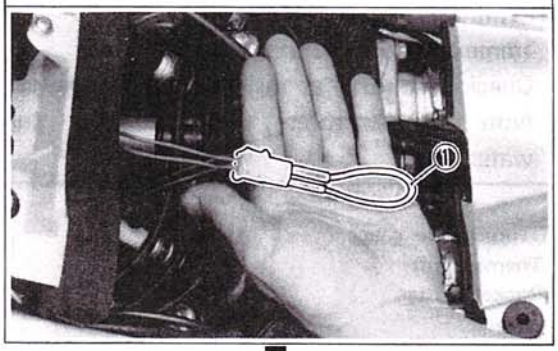


↓

Check for the battery voltage (12V) on Brown lead from the wire harness. → Check for an open or poor connection between the main switch and thermo switch connector.

↓

Connect the Brown lead and Blue lead; use a jump lead ①.



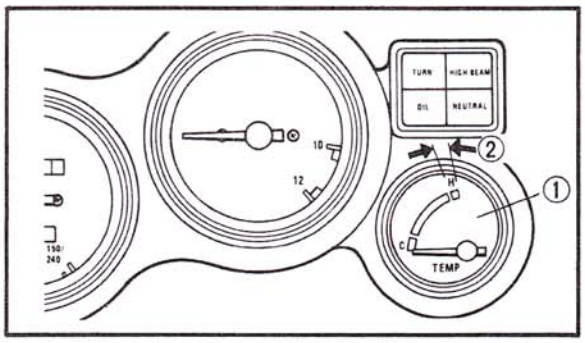
↓

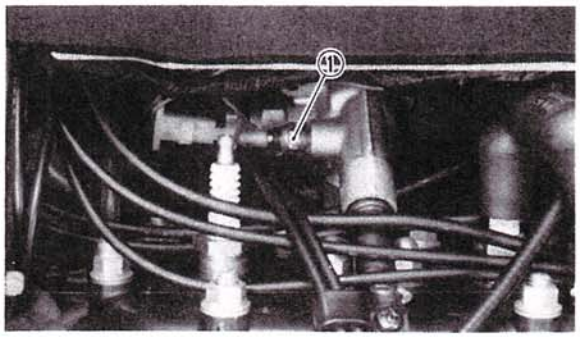
If the fan motor operates. → No → Replace the fan motor.

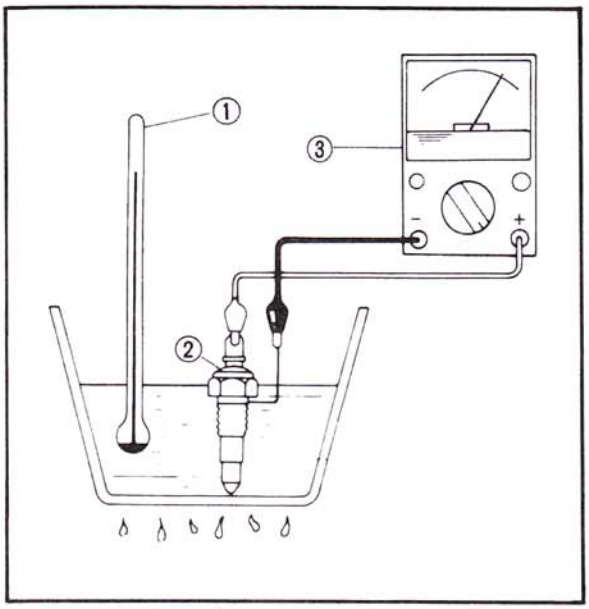
↓ Yes

Replace the thermo switch.

7







THERMO UNIT AND THERMOMETER

Operation

The thermo unit has less resistance at higher temperatures and thus allows more current to pass through. When more current flows to the coil in the temperature gauge, the armature to which the needle is attrached by the increased magnetic field. In this way, the needle indicates the temperature.

① Temperature gauge
② Red zone

Thermo Unit Inspection

1. Remove:
   - Air baffle plate
   - Thermo unit ①

CAUTION:

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

2. Check:
   - Thermo unit operation
     Out of specification → Replace.

Thermo unit inspection steps:
- Immerse thermo-unit in water.
- Check continuity at indicated temperatures. Note temperatures while heating the water.

① Temperature gauge
② Thermo unit
③ Pocket Tester
④ Water

Water Temperature	50°C (122°F)	80°C (176°F)	100°C (212°F)
Resistance	153.9Ω	47.5 ~ 56.8Ω	26.2 ~ 29.3Ω

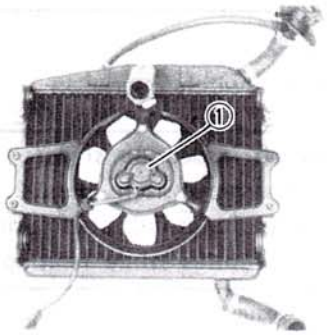
3. Install:
   - Thermo unit
4. Tighten:
   - Thermo unit

Thermo Unit:
15 Nm (1.5 m·kg, 11 ft·lb)

5. Install:
   - Air baffle plate ①

CAUTION:

After replacing the thermo unit, check the coolant level in the radiator and also check for any leakage.

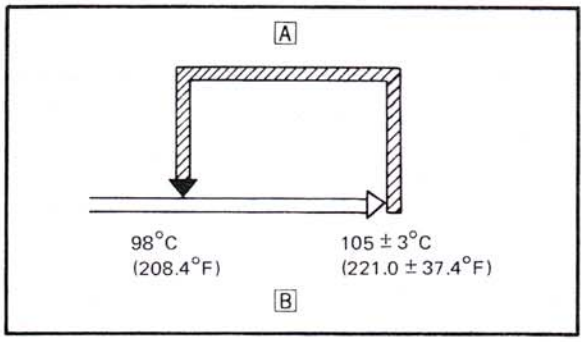


① Electric fan motor

ELECTRIC FAN AND THERMO SWITCH

Operation

The electric fan will be switched ON or OFF according to the coolant temperature in the radiator.

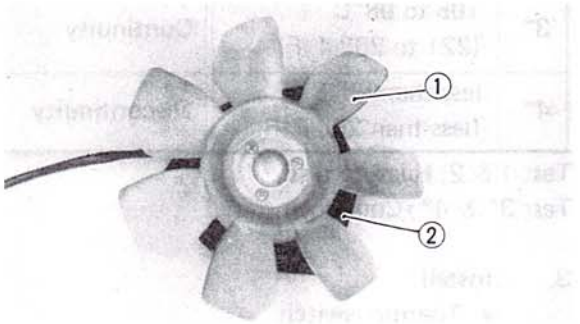


NOTE:

The electric fan is controlled by the thermo switch when the main switch is "ON". Thus, under certain operating conditions, this fan may continue to run until the engine temperature has cooled down to about 91°C (195.8°F).

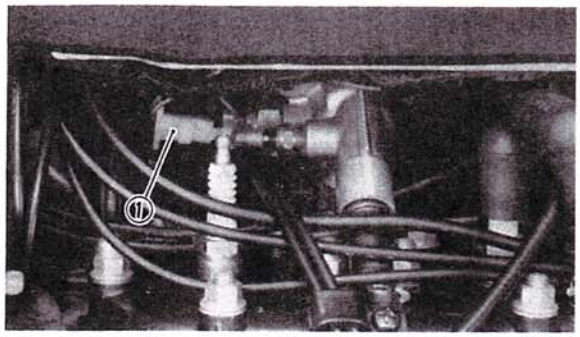
A THERMO SWITCH "ON"
B COOLANT TEMPERATURE

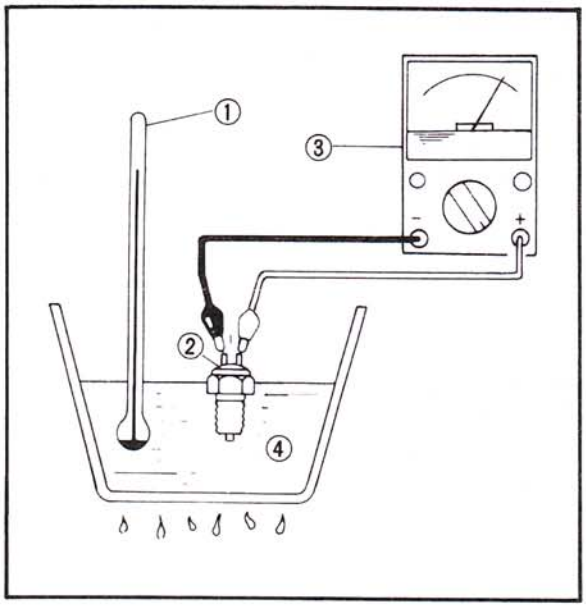
Electric Fan Inspection

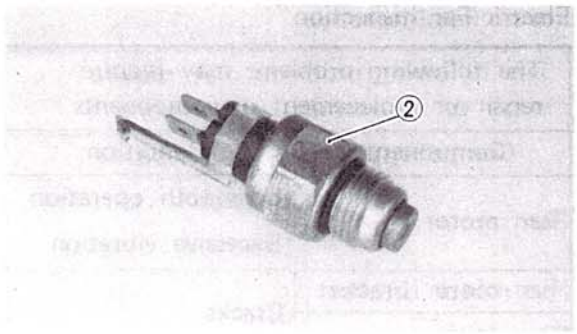


The following problems may require repair or replacement of components	
Component	Condition
Fan motor	Unsmooth operation Excessive vibration
Fan motor bracket	Cracks
Fan blades	
Securing bolts	Looseness

① Fan
② Electric fan motor







Thermo Switch Inspection

1. Remove:
   - Air baflle plate
   - Thermo switch ①

CAUTION:

Handle the thermo switch very carefully. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be replaced.

2. Inspect:
   - Thermo switch operation

Thermo switch inspection steps:
- Immerse thermo switch in oil.
- Check continuity as indicated temperatures. Note temperatures while heating the oil.

① Temperature gauge
② Thermo switch
③ Pocket Tester
④ Oil

Test step	Oil temperature	Pocket Tester (Ω x 1)
1	0 ~ 98°C (32 ~ 208.4°F)	Discontinutity
2	more than 105° ± 3°C (more than 221.0 ± 37.4°F)	Continuity
3*	105 to 98°C (221 to 208.4°F)	Continuity
4*	less than 98°C (less than 208.4°F)	Discontinuity

Test 1 & 2; Heat-up tests
Test 3* & 4*; Cool-down tests

3. Install:
   - Thermo switch

Thermo Switch: 23 Nm (2.3 m·kg, 27 ft·lb)

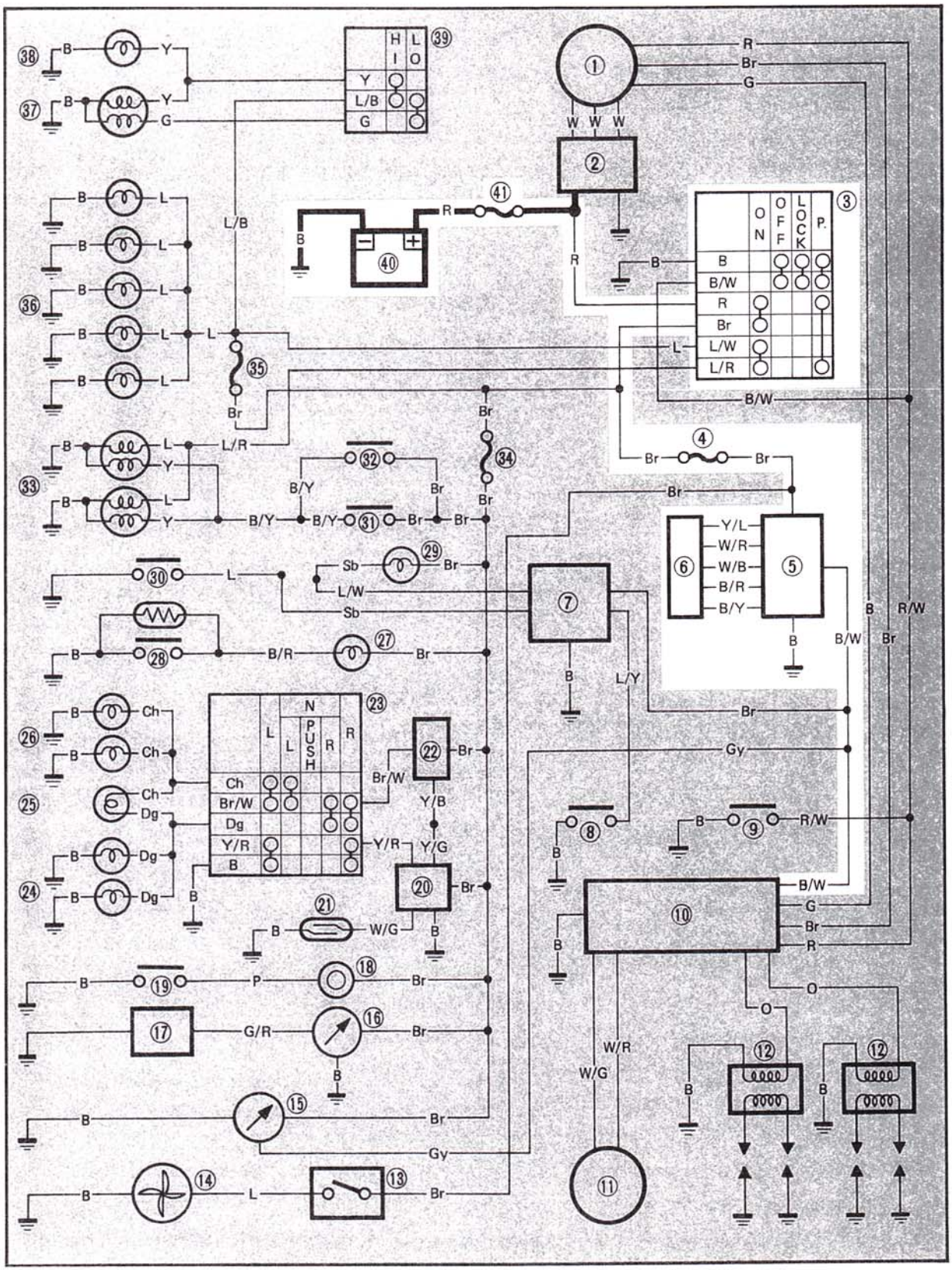
CAUTION:

After replacing the thermo switch, check the coolant level in the radiator and also check for any leakage.

7

YPVS SYSTEM

Blow circuit diagram shows YPVS circuit.



TROUBLESHOOTING CHART (1)

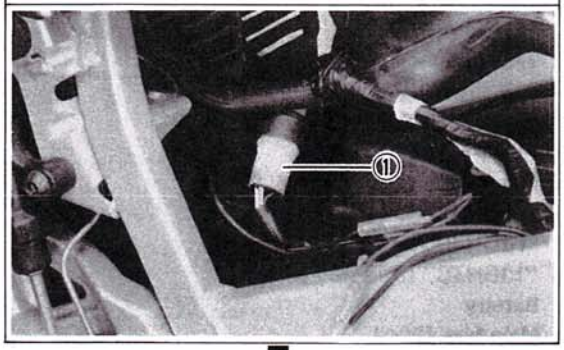
SERVOMOTOR DOES NOT OPERATE

↓

Remove the rear cowling, battery, and battery box.

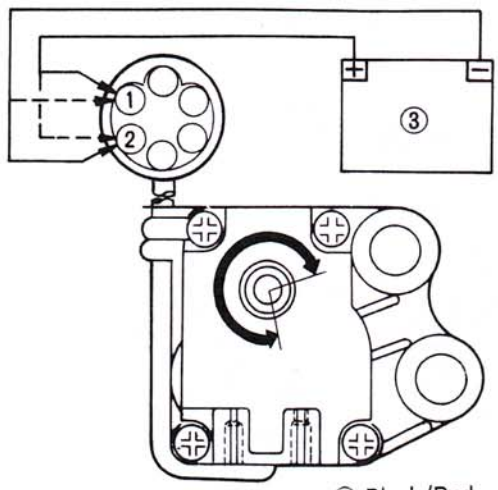
↓

Disconnect the servomotor connector ① and cables.



↓

Check for the servomotor operation; use the battery ③ (12V).



① Black/Red
② Black/Yellow

→

Unsmooth operation →
Replace servomotor assembly.

Servomotor connector	Battery lead	Servomotor pulley
Black/Yellow	(+)	Turn clockwise
Black/Red	(–)	
Black/Yellow	(–)	Turn counter-clockwise
Black/Red	(+)	

↓

Check the YPVS control unit.
See "TROUBLESHOOTING CHART (2)".

7

TROUBLESHOOTING CHART (2)

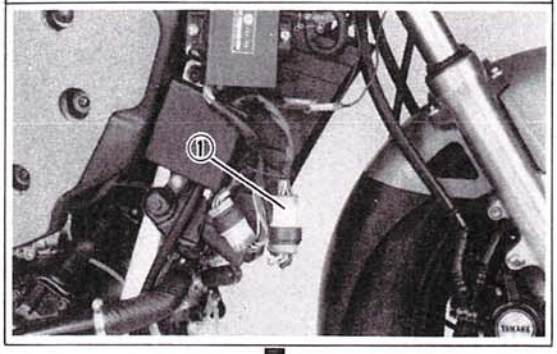
Remove the lower and right center cowlings.

↓

Turn the main switch to "ON".

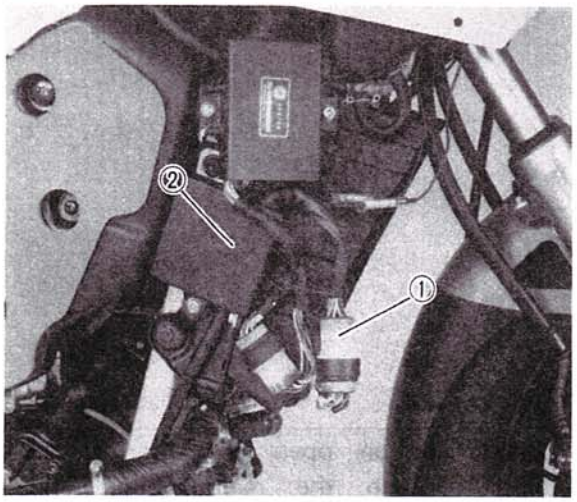
↓

Disconnect the YPVS control unit connector ① and check for the battery voltage (12V) on the Brown lead at the connector. → Check for an open or poor connection between the main switch and YPVS control unit connector.



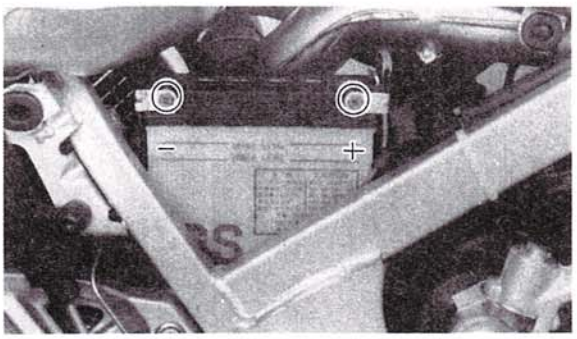
↓

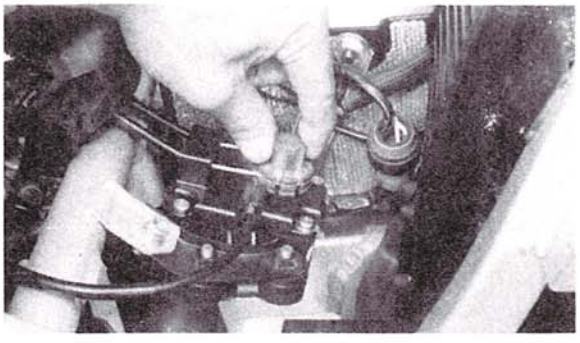
Replace the YPVS control unit.



YPVS CONTROL UNIT

1. Remove:
   - Lower cowling
   - Center cowling (Right)
2. Disconnect:
   - YPVS control unit connector ①
3. Remove:
   - YPVS control unit ②
4. Install
   - YPVS control unit (New)
   - Center cowling (Right)
   - Lower cowling





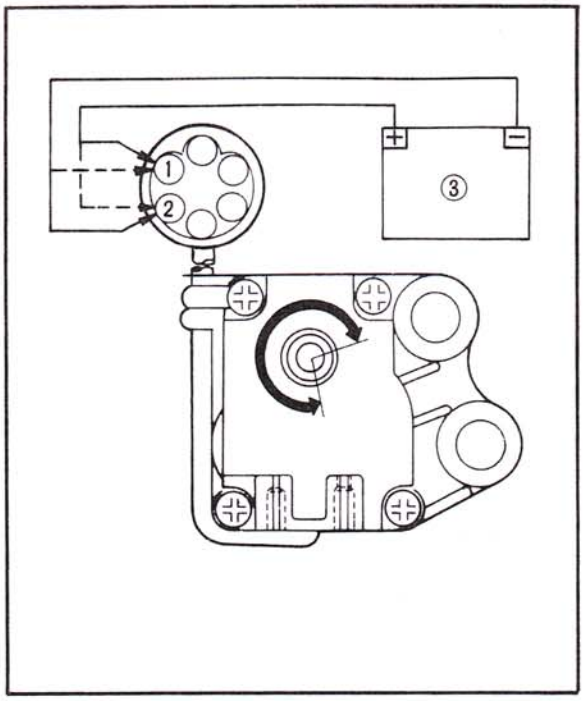
YPVS SERVOMOTOR

1. Remove:
   - Rear cowling
   - Battery

NOTE:
Disconnect the negative lead first.

   - Battery box
2. Disconnect:
   - YPVS cables
   - Oil pump cable
3. Remove:
   - Servomotor

7

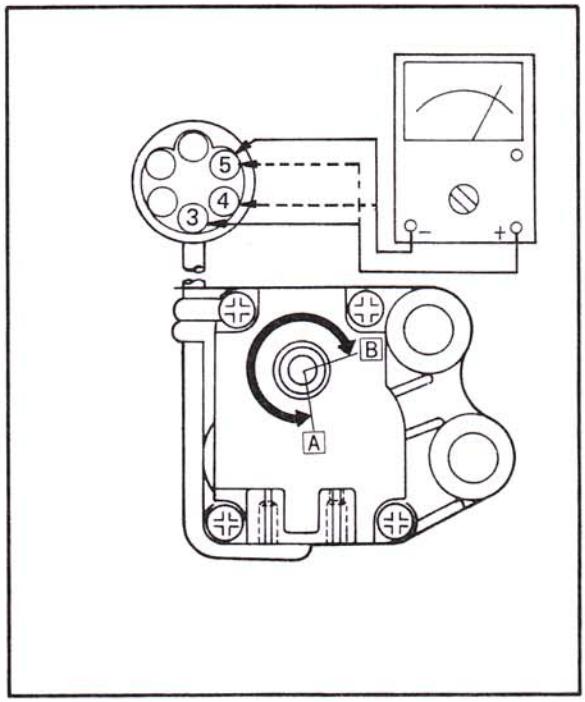


Servomotor Inspection

1. Check:
   - Servomotor operation
     Use a 12V battery ③.
     Unsmooth operation → Replace.

Servomotor connector	Battery lead	Servomotor pulley
Black/Yellow	(+)	Turn clockwise
Black/Red	(−)	
Black/Yellow	(−)	Turn counter-clockwise
Black/Red	(+)	

① Black/Red
② Black/Yellow



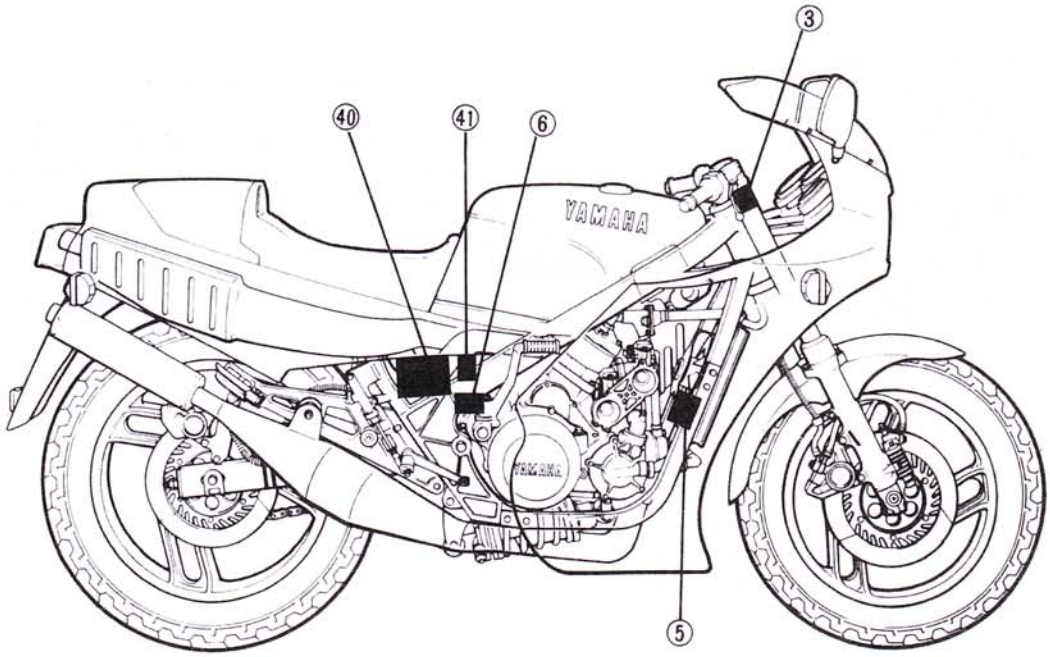
2. Measure:
   - Servomotor resistance
     Use the Pocket Tester (90890-03104).
     Out of specification → Replace.

Pulley position	Servomotor connector	Resistance (at 20°C (68°F))
A	White/Black – White/Red	Less than 5Ω
	White/Red – Yellow/Blue	7.5 kΩ ± 30%
B	White/Black – White/Red	7.5 kΩ ± 30%
	White/Red – Yellow/Blue	Less than 5Ω

③ White/Black
④ Yellow/Blue
⑤ White/Red

7

1. AC magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Fuse "YPVS" (10A)**
5. **YPVS control unit**
6. **YPVS servomotor unit**
7. Sidestand control unit
8. Sidestand switch
9. "ENGINE STOP" switch
10. CDI unit
11. Pickup coil
12. Ignition coil
13. Thermo-switch
14. Fan motor
15. Tachometer
16. Temperature gauge
17. Thermo unit
18. Horn
19. "HORN" switch
20. Flasher cancelling unit
21. Reed switch
22. Flasher relay
23. "TURN" switch
24. Flasher light (Right)
25. "TURN" indicator light
26. Flasher light (Left)
27. "OIL" indicator light
28. Oil level switch
29. "NEUTRAL" indicator light
30. Neutral switch
31. Rear brake switch
32. Front brake switch
33. Tail/Brake light
34. Fuse "SIGNAL" (10A)
35. Fuse "HEAD" (15A)
36. Meter light
37. Headlight
38. "HIGH BEAM" indicator light
39. "LIGHTS" (Dimmer) switch
40. **Battery**
41. **Main fuse (20A)**



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