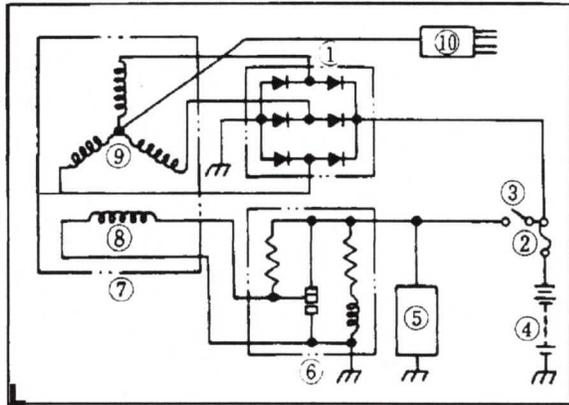


6-2. CHARGING SYSTEM

A. Charging circuit diagram



- | | | |
|----------------|----------------------|----------------|
| 1. Rectifier | 4. Load | 9. Stator coil |
| 2. Fuse | 6. Voltage regulator | 10. Relay unit |
| 3. Main switch | 7. A.C. Generator | |
| 4. Battery | 8. Field coil | |

B. A.C. Generator

1. Checking method.

- Connect D.C. voltmeter to the battery terminals. Battery should be fully charged.
- Start engine.
- Accelerate engine to approximately 2,000 rpm or more and check generated voltage.

Generated voltage:
 $14.5 \pm 0.5 \text{ v}$

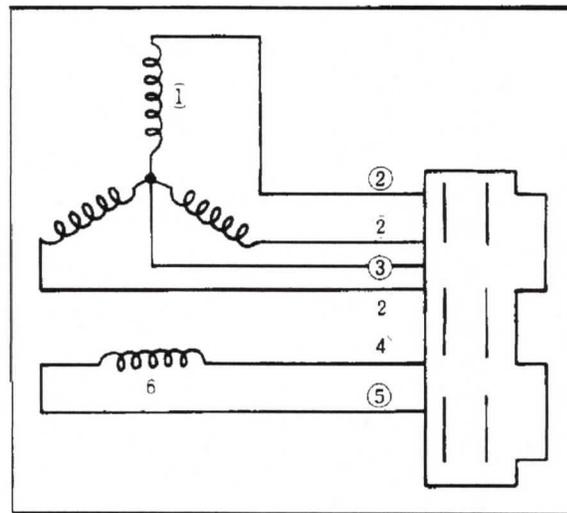
- If the indicated voltage cannot be reached, then perform the tests in step 2.

NOTE:

Never disconnect wires from the battery while the generator is in operation. If the battery is disconnected, the voltage across the generator terminals will increase, damaging the diodes.

- Resistance test of field coil and stator coil. Check the resistance between terminals. If resistance is out of specification, coil is broken. Check the coil connections. If the coil connections are good, then the coil is broken inside and it should be replaced.

Field coil resistance:
(Green-Black)
 $5.25\Omega \pm 10\%$ at 20°C
Stator coil resistance:
(W1-W2, W2-W3, W3-W1)
 $0.46\Omega \pm 10\%$ at 20°C

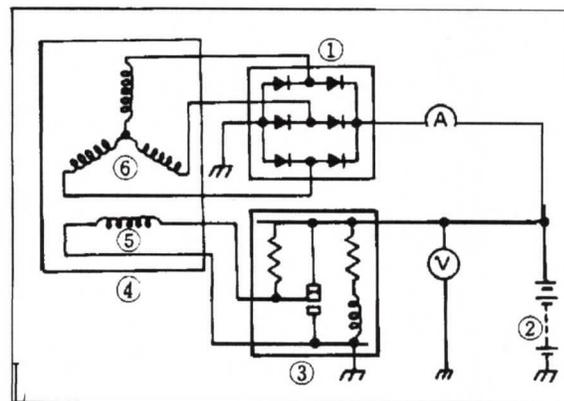


- | | |
|---------------------------|---------------|
| 1. Stator coil | 4. Black |
| 2. White | 5. Sky blue |
| 3. Yellow (Pick up cable) | 6. Field coil |

C. Voltage regulator

The regulator's function is to pass a controlled amount of current through the field windings which creates a magnetic field that produces a charging voltage in the three stator windings.

- When adjusting the regulator, a D.C. voltmeter, ammeter, and tachometer are necessary. They are connected as illustrated, and adjustment should be made in the following sequence:

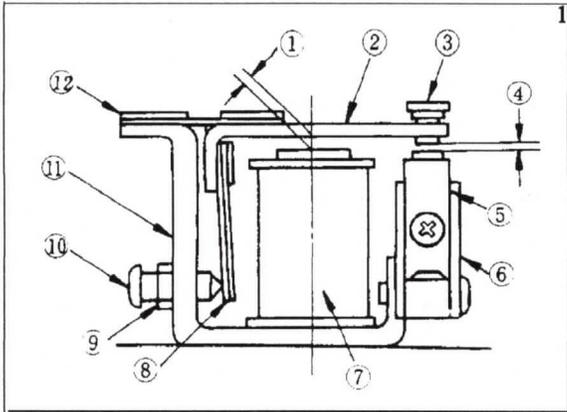


- | | | |
|--------------|----------------------|------------------|
| A. Ammeter | 1. Rectifier | 4. AC. Generator |
| V. Voltmeter | 2. Battery | 6. Field coil |
| | 3. Voltage regulator | 6. Stator coil |

- Remove the regulator from the frame, and check the contact points. If the point surfaces are rough, they should be smoothed with sand paper (#500 or #600). After sandpapering, thoroughly clean contact points with contact point cleaner.

b. Check the core and points for gap adjustment. If any gap is incorrect, it should be adjusted.

First adjust the core gap and then the point gap
 Core gap 0.6 ~ 1.0 mm
 Point gap 0.3 ~ 0.4 mm



- Core gap 5. upper contact 9 Locknut
- 2. Armature 6. Contact set 10 Adjusting screw
- 3. Lower contact 7. Coil 11. Yoke
- 4. Point gap 8. Adjusting spring 12. Contact spring

c. Charging voltage output can be controlled at the regulator. Inside the housing is a screw that pushes against a flat spring steel plate. This is the adjusting screw.

d. Before starting engine, disconnect wire connector (coupler) containing 5 wires from rectifier (1 red, 1 black, 3 white).

Remove the RED wire from the connector. Connect pocket tester (DC20V) red tester lead (+) to red wire from rectifier. Connect tester black (-) to good ground. Start engine. Tester should indicate 14.5 ~ 15 V (DC).

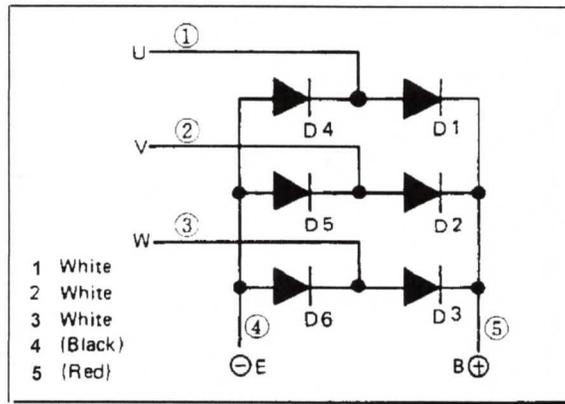
CAUTION:
 Take care to not short the red wire. If this wire is shorted, the rectifier could be damaged.

D. Checking silicon rectifier

1. Check silicon rectifier as specified using the Yamaha Pocket Tester.

Continuity: Con

Checking element	Pocket tester connecting point		Element O.K.	Replace (element shorted)	Replace (element opened)
	(+) (red)	(-) (black)			
D1	B U	U B	Con ∞	Con Con	
D2	B V	V B	Con ∞	Con Con	
D3	B W	W B	Con ∞	Con Con	∞
D4	U E	E U	Con ∞	Con Con	∞ ∞
D5	V E	E V	Con ∞	Con Con	∞ ∞
D6	W E	E W	Con ∞	Con Con	∞



Even if only one element is broken, replace assembly.

CAUTION:
 The silicon rectifier can be damaged if subjected to overcharging. Special care should be taken to avoid a short circuit, and/or incorrect connection of the positive and negative leads at the battery. Never connect the rectifier directly to the battery to make a check.

E. Battery

1. Checking

- a. If battery sulfation (white accumulation) occurs on plates due to lack of battery electrolyte, the battery should be replaced.
 - b. If the bottoms of the cells are filled with corrosive material falling off the plates, the battery should be replaced.
2. The service life of a battery is usually 2 to 3 years, but lack of care as described below will shorten the life of the battery.