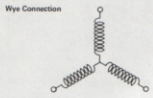
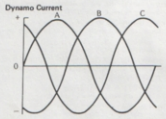
When the ignition switch is turned on, current controlled by the regulator flows to the field coil, and the resulting magnetic field (that accompanies electron flow) is concentrated in the rotor. When starting the engine, the kick starter or starter motor turns the crankshaft, and magnetic lines of force cut through the armature windings (3), generating current. These windings are connected in a wye connection (Fig. 548) to produce a 3 phase alternating current (Fig. 549). Since the voltages of these 3 phases overlap, there is a continuous, even supply of current for the circuit components.

Wye Connection



548

Dynamo Current



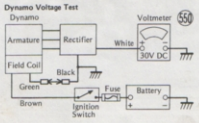
549

If the battery, rectifier, and regulator are all good but there is low voltage or insufficient charging current, the dynamo may be defective. A defective dynamo is due to either an electrical short or open in the field coil or armature. Either an electrical short or open will result in a low output or no output at all.

Dynamo test

Before making this test, check the condition of the battery (Pg. 176) and rectifier (Pg. 173). If the battery voltage is less than 12 volts, charge the battery. Both the output voltage and output amperage should be checked. Before starting the dynamo test warm up the engine to obtain actual dynamo operating conditions.

Dynamo Voltage Test



550

To check the output voltage:

- Remove the headlight unit (Pg. 98), and disconnect the 9-pin connector which is in the headlight housing. This removes the load from the dynamo.
- Remove the left side cover.
- Disconnect the rectifier white lead from the battery + lead.
- Set a multimeter to the 30V DC range, and connect its + lead to the rectifier white lead and its – lead to chassis ground.

551

- Check that the ignition switch is turned off, and disconnect the regulator 3-pin connector.

CAUTION **If the regulator connector is disconnected with the ignition switch on, the regulator may be damaged.**

- Connect the green and the black leads together at the plug.

552

CAUTION **When connecting the green and the black leads be certain that the connection does not get shorted to chassis ground. Also, to avoid battery discharge, do not leave these leads connected any longer than necessary; disconnect them after finishing the test.**

- Start the engine, run it at the rpm noted in Table 104, and note the meter reading. A lower reading indicates the dynamo is defective.

CAUTION **After starting the engine, DO NOT allow the engine to run at a higher rpm than shown in the table (not above 2,000 rpm) in order to avoid damage to the rectifier or other electrical components.**