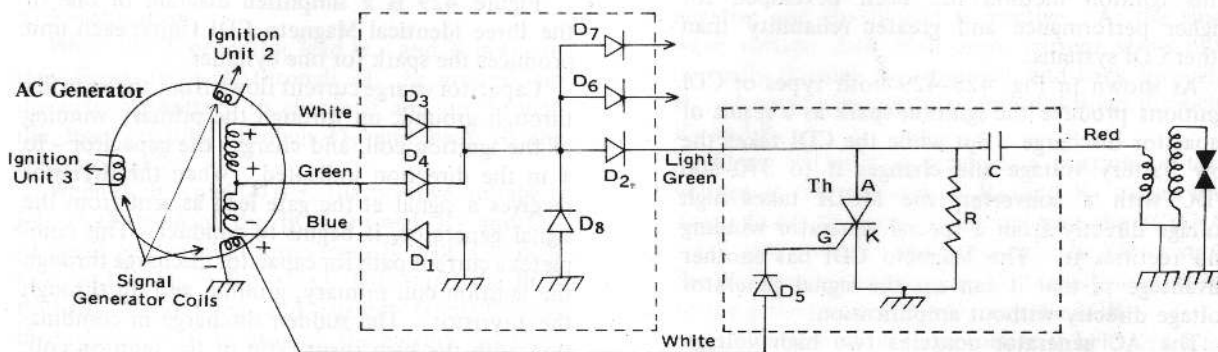


Magneto CD Ignition System

430



Detailed Operation

When the ignition winding voltage is at the polarity indicated in Fig. 430, capacitor charge current flows through D_1 , ground, up through the ignition coil primary, and to the capacitor (C). Return current is from the other side of the capacitor is through D_2 and through either D_3 or D_4 (depending on r.p.m.) back to the generator.

When the signal generator winding is at the indicated polarity, signal voltage is felt at the gate of the thyristor and the thyristor starts conducting to discharge the capacitor. Signal current is from the signal generator winding through ground, from cathode (K) to gate (G) of the thyristor (Th), and via D_5 back to the generator.

After the thyristor starts conducting, the capacitor discharges through the primary winding of the ignition coil to ground and up through the thyristor. In case the motorcycle is turned off just when the capacitor is charged, bleeder resistor (R) slowly discharges the capacitor. The resistance of R is high enough ($390K\Omega$) so that it has negligible effect on the ignition circuit while the engine is running.

Unit #2 and #3 operate in the same manner as above, with charge current flowing through D_6 and D_7 respectively.

Diode D_8 is used to increase the effectiveness of the capacitor charge circuit. As the generator turns and charge voltage from the armature goes back to zero, the inductance of the primary winding of the ignition coil keeps charge current flowing into the capacitor for a short period. The charge path at this time is: Coil \rightarrow C \rightarrow D_2 \rightarrow D_8 \rightarrow ground \rightarrow coil.

Troubleshooting

The first step in troubleshooting is to narrow down the failure to the smallest possible area. The following short guide is divided into three main categories, and each category can be broken down by, further testing until the possible trouble area is traced to the defective part. Testing of the Magneto CDI components is explained after the guide.

CAUTION: Battery failure is not listed as a possible source of ignition trouble since the motorcycle will start and run without the battery. However, running without the battery should be avoided as it will eventually cause failure of the Ignition Units.

H2 Ignition Troubleshooting Guide

Engine will not start at all

First pull off the spark plug wires and use a good plug to test the spark for each cylinder.

- ★ Strong spark all cylinders
 - ✧ Trouble outside ignition system
 - ✧ Plugs firing in wrong order due to wrong wiring
 - ✧ Plugs bad
- ★ Weak spark all cylinders
 - ✧ AC generator bad
 - ✧ Ignition rectifier unit bad
- ★ No spark any cylinder
 - ✧ AC generator bad
 - ✧ Ignition unit bad
 - ✧ Ignition rectifier unit bad
 - ✧ Wiring faulty

Hard to start or no power

- ★ Strong spark all cylinders
 - ✧ Trouble outside ignition system
 - ✧ Plug(s) dirty or bad
 - ✧ Timing incorrect
- ★ Weak spark all cylinders
 - ✧ AC generator bad (especially low-speed winding)
 - ✧ Ignition rectifier unit bad
- ★ Weak spark one cylinder only
 - ✧ High voltage insulation leak
 - ✧ Ignition coil going bad
 - ✧ Signal generator bad
- ★ No spark one cylinder
 - ✧ Wiring faulty
 - ✧ High voltage insulation leak
 - ✧ Ignition coil bad
 - ✧ Ignition unit bad
 - ✧ Ignition rectifier unit bad
 - ✧ Signal generator bad