

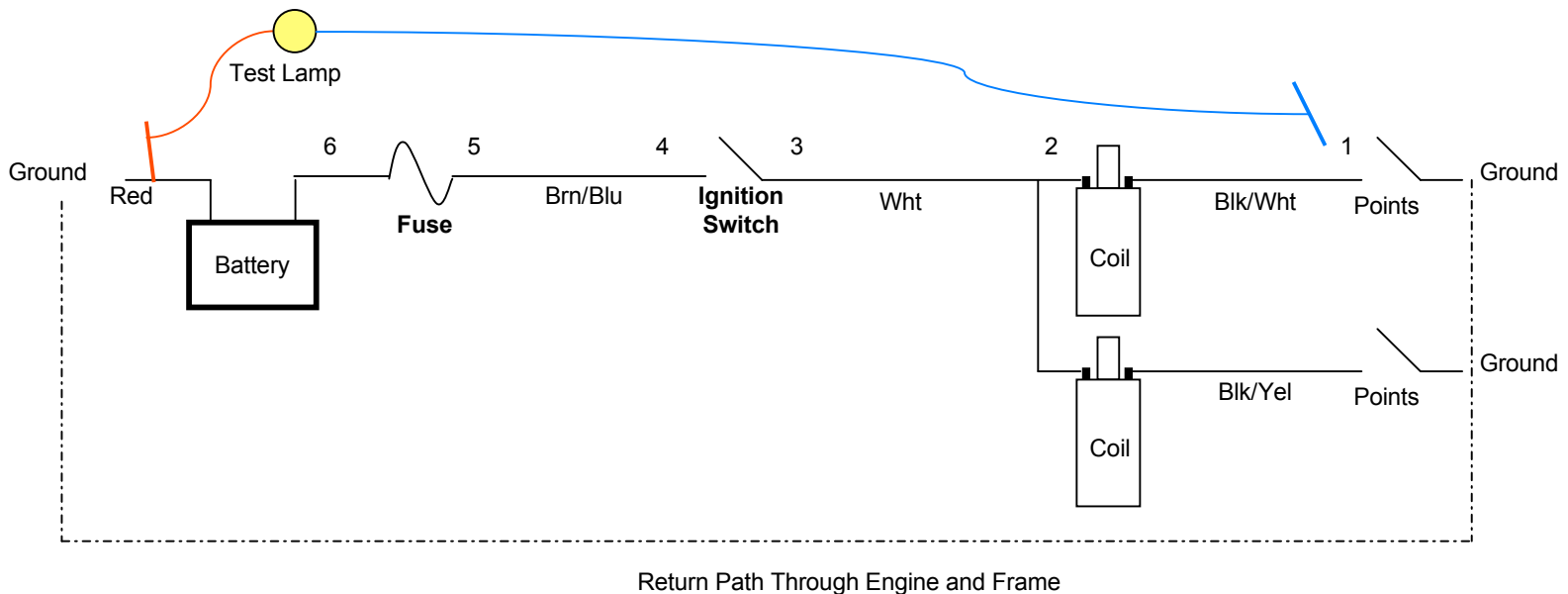
# Troubleshooting Lucas Motorcycle Electrical Systems

(alternator systems shown)

Here are some simple rules and diagrams to help you diagnose electrical issues:

- Each electrical system is made up of 3 discrete sections (ignition, lighting and charging) that should be treated as a separate and independent system for the purposes of repair.
- Even if the bulb looks good, test it by placing its contacts on a battery charger.
- Even if a fuse looks good test it with a meter or test lamp.
- Lucas uses bare brass switch contacts. If you wash your bike often, the soap may cause corrosion on the unprotected contacts. Usually a little WD-40 and exercise will cure this.
- Just because a battery measures 12V does not mean anything. Try turning ON the headlamp for 1 minute and then measuring the battery voltage with the headlamp ON.
- Use a logical and systematic approach to fault finding. Don't jump around! The following diagrams should help you organize your thoughts.
- Use a simple test lamp to check for the presence or absence of power.

# 1. The Ignition Circuit

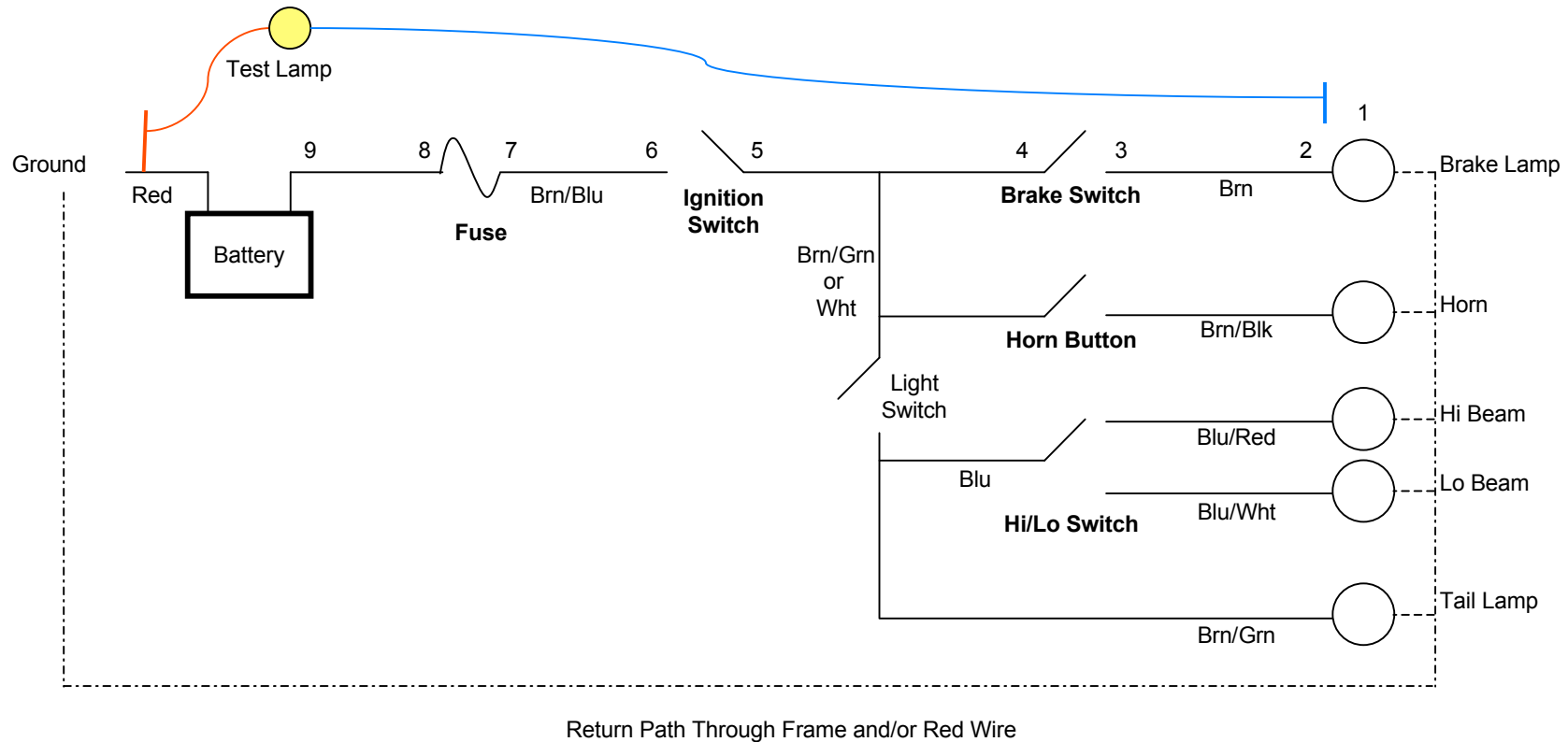


To troubleshoot any electrical issue with this system, start at Point #1 and work back to the battery looking for electrical energy at each of the test points shown. The component or connector that has power going in, but not out is faulty.

## NOTES:

1. A 3-cylinder harness simply adds a third circuit onto that shown using a Blk/Red points wire.
2. After 1971, the White wire ran to the handlebar switches which incorporated a "kill switch". The wire from the kill switch to the coils is Wht/Blu.

## 2. The Lighting Circuit

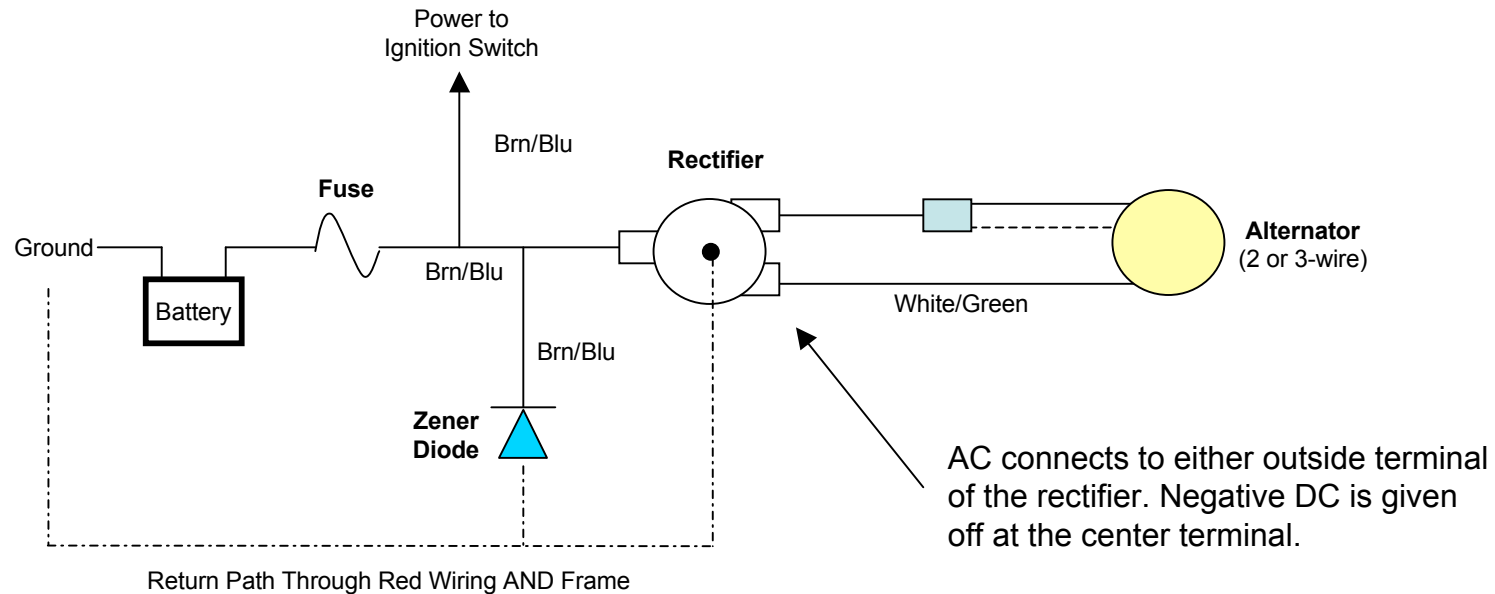


To troubleshoot any electrical issue with this system, start at Point #1 and work back to the battery looking for electrical energy at each of the test points shown. The component or connector that has power going in, but not out is faulty.

### NOTES:

1. Before 1971, the horn devices were reversed. Power ran directly to the horn. Then from the horn, a Brn/Blk wire ran to a chrome button on the handlebars for grounding.
2. After 1968 a front brake lamp switch was added in parallel to the rear using the same color scheme.

### 3. The Charging Circuit



Troubleshooting an issue with the charging system requires special knowledge of batteries, alternators, rectifiers and regulators.

#### NOTES:

1. The system must use Positive (+) ground if you have either a Lucas rectifier or the Zener diode.
2. With the stock system there is a voltage, but NO current regulator.
3. All current not used by the lights and ignition is absorbed by the battery.
4. The charging system is not controlled by the ignition switch and is therefore always ON.