

Relays-usage of.

Relays-they are in effect, as we use them on our bikes and in modern cars, nothing more than a high current switch, being controlled by a low current switch circuit. If you had the old air horns on your car in the 60s (and even on your bike!) then the current (quantity of electricity) taken by the compressor motor would have burnt out the average horn button and even the wiring in moments, so we fitted a relay.

Another 'relay' is the Solenoid that fires up the starter, in this case it carries even more current for the starter motor and even the switching current of the solenoid in this case can be high enough to need another small relay to pull it in. (In this context the word relay and solenoid are synonymous)

The basic relay will have 4 connections. Two Coil connections and a power in and power out connection-a 'make'-switch function and. (In the case of the starter solenoid you often see only one coil connection as the other one is connected to the case which is of course bolted to the earth.) But then older starter solenoids can have another terminal which is for the ballast resistor-part of the starting circuit.

The next most common relay found in vehicles would have 5 terminals; the same two coil connections, then a 'break' circuit as well as the 'make' circuit. This is in fact is a 'change over' function, very useful for making sure one circuit is switched off before another one comes on, ie an 'OR' function.

So how would we use relays? In lighting circuits there are liable to be several areas of trouble that can be over come or avoided. If you increase the power of your headlamp bulb (or add the odd spot light!) then you would soon start to over-load the original light switches and dip-switches. Fit a relay. They other area of trouble is with older wiring and switches, which tarnish/corrode especially when there is a lot of switches, wiring and interconnections. In the case of my Motor Guzzi (lovely machine-no oil leaks!) there were at least 8 connectors between the battery and headlamp bulb. As found, with 30 yr old wiring, the battery voltage (engine at rest, lights on) was 11.8V. Headlamp voltage was 8.4V.

Fit relay, battery 11.8V headlamp 11.4V.

In the Norton motorcycle case the Rotarys might benefit from such relays as there is plenty of wiring and connectors 'getting in the way' The MKIII might benefit from a relay or two as the wiring/connectors gets old.

Don't be tempted to use the change over function of one relay as the dip switch either as the main power will still have to come through some switch (ignition and/or light switch).

The way to wire up basic relays for lights is to supply a fresh feed, using next size up wiring, from the battery and a fresh fuse as a power source. For the operating function of the relay use the original ignition-light-dip switch wiring to power the relay coil. Your control of the lighting stays exactly the same but there is far less

power loss or chance of burning things out.

In all other older Norton Motor cycles you would not have much of a reason to add the complexity of a relay, and mostly there is only a switch or two in the circuit so these should be made good if there was any failings.

6V machines although having lower voltage and therefore more to lose in the first place mostly have less switches in the way of the electricity, lower wattage bulbs=less to lose, and the overall lower power set up means they have less power to use up on relay coil current. (0.25-0.5Amp) So no real need or advantage for relays.