



*Guardistor** **MOTOR RELAY**

The PTC thermistors in the winding of the **GUARDISTOR** motor have a maximum current rating of 70 MA. They increase many times in resistance when the limiting temperature of the motor's insulation is approached. To protect the motor from overheating, these positive thermistors are connected in series with the holding coil of a control relay. The relay contacts open when the motor starts to overheat and reclose when the winding cools to a safe operating temperature.

THE GUARDISTOR MOTOR RELAY is furnished in the form of a panel suitable for mounting in a control cabinet or starter box. Three styles are available:

Style #435C877G01—220 V. (Reconnectable for 110 V.)

Style #435C877G02—440 V. (Reconnectable for 220 V.)

Style #435C877G03—550 V.

Mounting space required is 2-1/4" x 3-3/8". Depth of the panel is 3-5/32"—although a cabinet depth of 3-3/4" is needed for electrical clearance.

The panel circuit consists of a transformer, two silicon rectifier diodes, a relay and a 6-point terminal block for connections. See Fig. 1.

A signal light may be used to indicate when the protection relay has operated to shutdown a motor. Where the Guardistor motor relay is furnished in a NEMA I enclosure, the light will be supplied in the cover when so ordered.

Circuit #3 shows the wiring of the signal light in an automatic restarting control scheme. Manual resetting by pushbutton in an automatic cycling drive may be obtained by rearranging the circuit.

Circuit #4 shows a signal light in a scheme which allows start-stop pushbutton control. A separate pushbutton is needed to reset the CR relay.

Pushbuttons are not furnished as part of the Guardistor Motor Relay.

CONNECT TO THE TERMINAL BLOCK according to the diagram on the panel. Connect the AC voltage of the control circuit to the two points on the left. Connect the two PTC thermistor leads from the motor to the points on the right. The two central points are to the relay contacts which may be wired in series with the holding coil of the motor power contactor to provide shutdown protection. Double break contacts rated 800 volt-amperes are furnished. They are capable of handling the coil

current of standard linestarters up to NEMA 4 size. The relay is rated for heavy duty and shock resistance.

To Reconnect Transformer. The 220 V. relay S#435C877G01 may be used in a 110 V. control circuit. The primary of the transformer has a mid-tap. Remove one of the transformer leads from the terminal block (Pt. 1 or Pt. 2) and cut off or insulate the terminal. Replace this wire with the lead from the transformer mid-tap. Apply 110 volts to the two points on the left.

In the same way the 440 V. relay, S#435C877G02 may be reconnected for use in a 220 V. control circuit.

Power Supply. The Guardistor motor relays are suitable for use on $\pm 15\%$ of the rated voltage when operating from a 60 cycle A-C supply. In all cases when rated voltage 110, 220, 440 or 550 V. is applied to the terminals on the left (1 & 2), the open circuit voltage at the two terminals on the right (5, 6) is about 29 V. D-C.

Control Circuits. The Guardistor motor relay can be used in many control circuits for motor protection. The four attached circuits are suggested as examples. See Figure 2.

Circuit #1 is suitable for automatic restarting processes or where motor power is cycled by means of a thermostat, limit switch, float switch, etc.

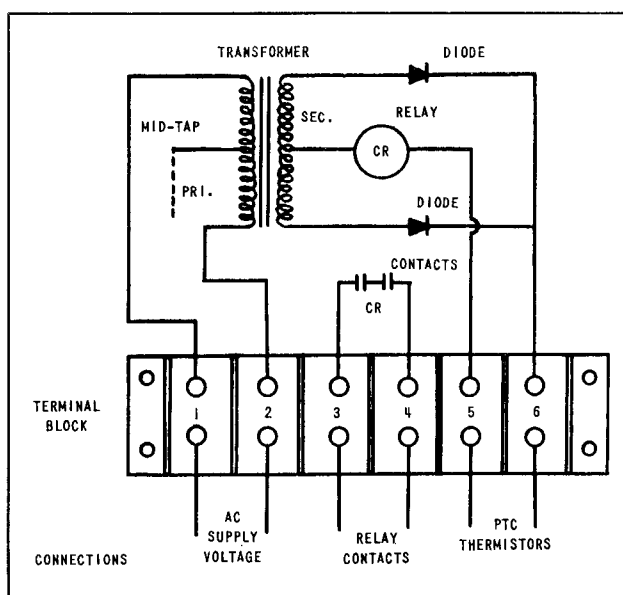


FIG. 1. Wiring Diagram of Guardistor Motor Relay

GUARDISTOR MOTOR RELAY

Circuit #2 is recommended for start-stop push button control by a machine operator. The protection is manually resetting by the start button in this

circuit and the motor will not start until the winding cools and the CR protection relay picks up.

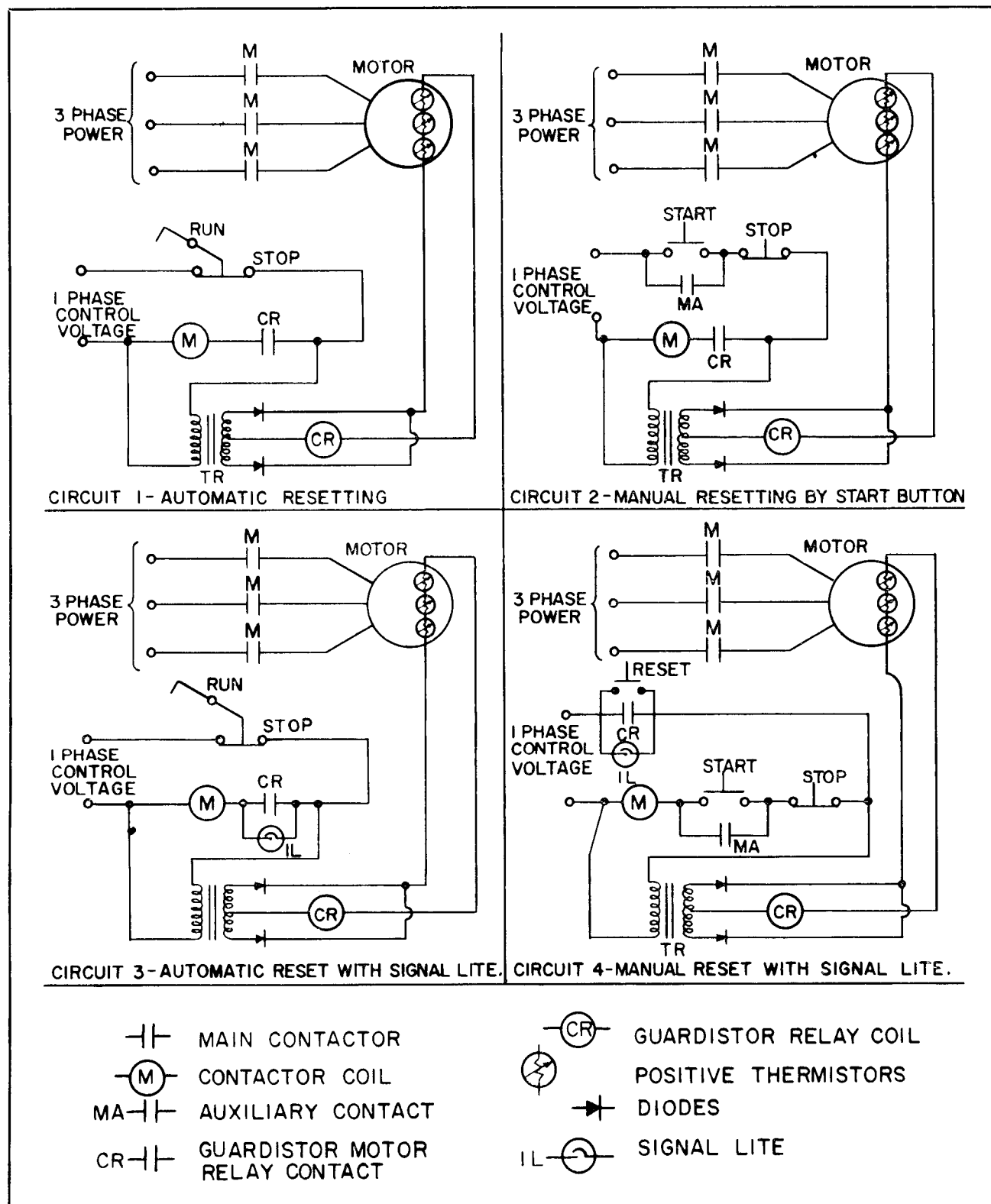


FIG. 2. Various Control Circuits applicable to Gaurdistor Motor Relay



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