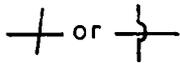


Electrical Drawing Symbols

The symbols shown below are used for electrical circuits throughout this manual.

WIRING



Two conductors crossing on a circuit diagram - no connection.



Two conductors connected on a circuit diagram.



Three adjacent conductors connected.



Boundary line around part of a circuit diagram.



Earth connection.



Connection to frame, chassis or case; not necessarily earthed.

SWITCHES



Single pole single throw (SPST) make contact.



Single pole double throw (SPDT) change-over contact.



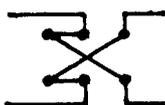
Single pole double throw (SPDT) centre off.



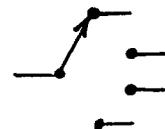
Double pole single throw (DPST) make contact.



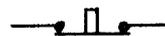
Double pole double throw (DPDT) change-over contact
(Two versions shown).



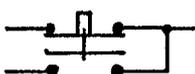
Multi-way (usually rotary) selector switch.



Single pole push to make switch.



Single pole push to break switch.



Single pole push button change-over switch.

RELAYS

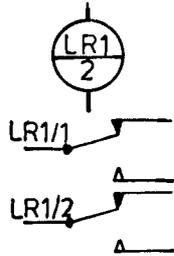
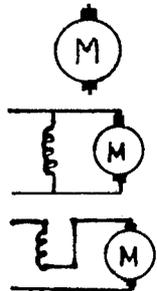


Diagram annotated; upper half - relay identification (LR1 = Locking Relay 1); lower half - number of contacts. Relay coil resistance and operating voltage normally identified in associated text or parts listing as appropriate.

Contact identification; 1st set LR1/1; 2nd set LR1/2. Unless stated otherwise all diagrams are drawn with relays de-energised.

MOTORS

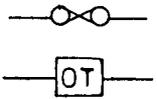


Permanent magnet motor for dc only.

Shunt wound field motor. (For dc only)

Series wound field motor. (For ac and dc working)

PROTECTIVE DEVICES



Fuse

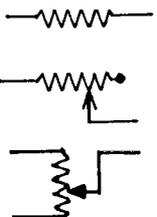
Overload trip unit - either mechanical or thermal.

METERS



The letter placed in the circle indicates, A = ammeter, V = voltmeter.

RESISTIVE DEVICES



Fixed value resistance.

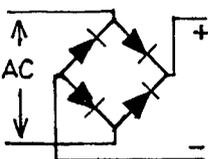
Variable resistance

Potentiometer.

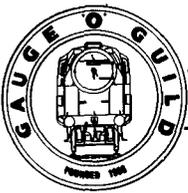
SEMI-CONDUCTORS



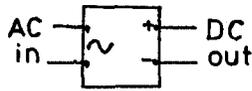
Diode (half wave rectifier)



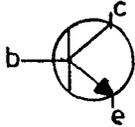
Diode bridge (full wave rectifier).



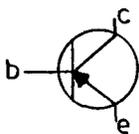
SEMI-CONDUCTORS (continued)



Encapsulated diode bridge
(Full wave rectifier)



NPN Transistor



PNP Transistor

INDICATORS

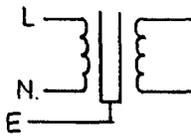


Signal indicator or lamp

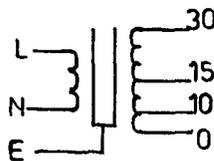


Light Emitting Diode (LED)

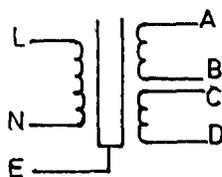
TRANSFORMERS



Basic transformer with earthed core.

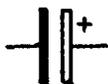


Transformer with multi-tapped secondary. In the example illustrated, by selecting the appropriate pair of connections the transformer can supply 5, 10, 15, 20 or 30 volts. By connecting the 0 and 30 volt tappings to a bridge rectifier and the 15 volt tapping to the common return connection a transformer of this type can supply a 12 volt split potential system.



Transformer with separate secondary windings of equal voltage output. Each secondary winding can be used for a separate panel controller as there is no electrical connection between them. Joining connections B and C will give double the voltage and provide the three connections required for a split potential system. Joining connections A-C and B-D will double the output current capacity.

CAPACITORS



Polarized (Electrolytic) capacitor



Non-polarized capacitor