BL Cars Limited
Service Product Training Centre

Electrical Symbols and Definition

ELECTRICAL SYMBOLS AND DEFINITION

COLOUR CODE

The following symbols are used in Leyland circuit diagrams to represent the colours of the cables specified:

N = Brown	U = Blue	R = Red
P = Purple	G = Green	LG = Light Green
W = White	Y = Yellow	B = Black
O = Orange	K = Pink	S = Slate

When the diagram specifies two colours for a cable, the first is its predominant colour and the second is the colour of a tracer stripe on it, eg: GB = Green cable with a black tracer stripe, LGN = A light green cable with a brown tracer stripe.

The colours themselves, when shown as predominant colours, usually identify circuits or specific parts of a circuit.

N = Main battery feeds.
W = Essential ignition circuits, not fused.
LG,G = Auxiliary ignition circuits, fused.
U = Headlamp circuits.
R = Side and tail lamp circuits, etc.
B = Earth connections.
P = Auxiliary, non-ignition circuits, often fused.

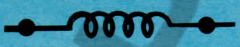
OTHER SYMBOLS USED IN WIRING DIAGRAMS

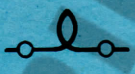

Positive


Negative

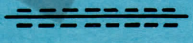

Cable earth


battery


coil

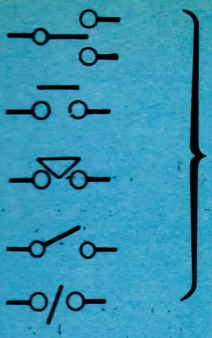

bulb


fuse

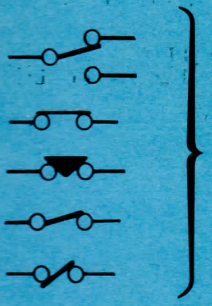

screened cable

capacitor, electrolytic


capacitor

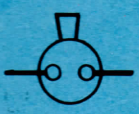


switch normally open



switch normally closed

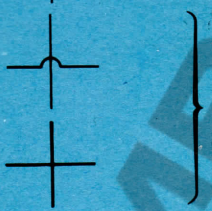
gauge



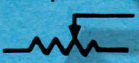
horn

snap connections

crossed wires connected



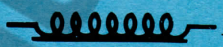
crossed wires not connected



resistor, variable

resistor, fixed value

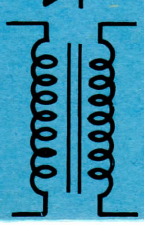
thermistor



inductance

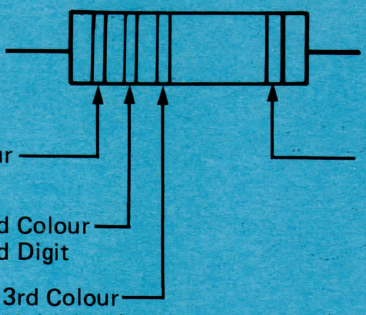
socket and plug

Diode



transformer

RESISTOR VALUE COLOUR CODE



Black 0
Brown 1
Red 2
Orange 3
Yellow 4
Green 5
Blue 6
Violet 7
Grey 8
White 9

Example:— 1st digit = Red = 2
2nd digit = Blue = 6
3rd digit = Brown = 1
= 260Ω

Example:— 1st digit = Yellow = 4
2nd digit = Brown = 1
3rd digit = Orange = 3
= 41,000Ω = 41 KΩ

CABLE SIZES

It is essential to use a new cable of the correct size whenever faulty wiring is replaced. Appropriate sizes for different amperage ratings are shown here.

Number and diameter Wires. mm	inches	Approx continuous current rating amperes
14/0.25	14/0.010	6,00
14/0.30	14/0.012	8.75
28/0.30	28/0.012	17.50
44/0.30	44/0.012	27.50
65/0.30	65/0.012	35.00
84/0.30	84/0.012	45.00
97/0.30	97/0.012	50.00
120/0.30	120/0.012	60.00

The first entry in the table signifies that a continuous current rating of 6.00 amperes requires a cable consisting of 14 identical strands of wire, each of which is 0.25 mm or 0.010 inches diameter.

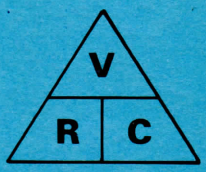
OHMS LAW

States that the electrical current flowing in a conductor is equal to the voltage applied to the conductor divided by the resistance of the conductor:

Resistance = $\frac{v}{c}$

Current = $\frac{v}{r}$

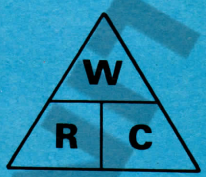
Voltage = RxC



Watt (W) is the unit of power, (work done), when a current of 1 amp flows through a resistance of 1 ohm.

Voltage in volts x current in amps = power in Watts or W = V x R

$V = \frac{w}{c}$ $C = \frac{w}{r}$



SYSTEMATIC FAULT ANALYSIS

1. COLLECT EVIDENCE

Collect as much evidence as possible.
Do not rely on just a few symptoms.
It is important to make use of all the senses, i.e. sight, smell and sound, which can often contribute valuable evidence.

2. ANALYSE EVIDENCE

Consider all the evidence collected.

3. LOCATE FAULT

Narrow down the fault area to the particular component which has to be dealt with, using test equipment and any information available as well as the senses.

4. DETERMINE AND REMOVE CAUSE

Determine why the fault occurred.
Trace and rectify cause if possible.

5. RECTIFY FAULT

Adjust, repair or replace the faulty component but only after step 4 is completed.

6. CHECK SYSTEM

Ensure the fault is properly and permanently fixed and the equipment operates correctly.
If difficulty is experienced in locating the fault in step 3, return to step 1 again to check that the correct approach to the fault is being made.

HPG Ltd