Reyrolle Protection

TYPE TJM
NORMAL INVERSE AND VERY INVERSE
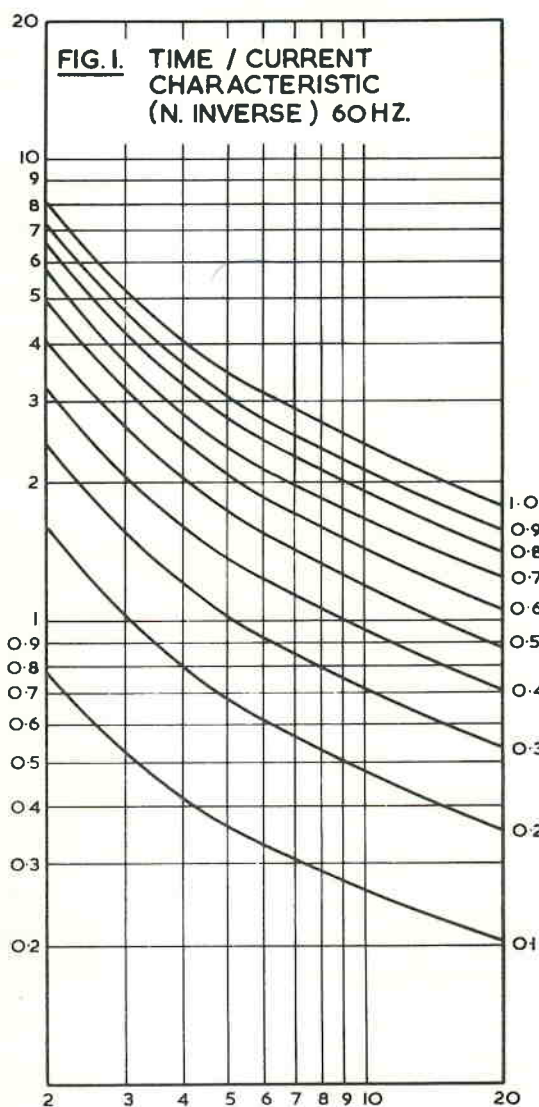## RELAYS FOR USE AT 60HZ.

SECTION

3

SEPTEMBER 1979

The type TJM10, 11, 12 and 13 relays (Normal Inverse) described in Leaflet TJM10, 11, 12 and 13 and the type TJM20, 21 and 22 relays (Very Inverse) described in leaflet TJM20, 21 and 22 are equally suitable for use on a 60Hz supply.

The information given is applicable to the above relays at 60Hz with the exception of the Time/current characteristics and burden which are given below.

BURDEN (at current setting) = 3·5VA.

FIG. I. TIME / CURRENT CHARACTERISTIC (N. INVERSE) 60HZ.

CURRENT (MULTIPLES OF PLUG SETTING)

FIG. 2. TIME / CURRENT CHARACTERISTIC (V. INVERSE) 60HZ.
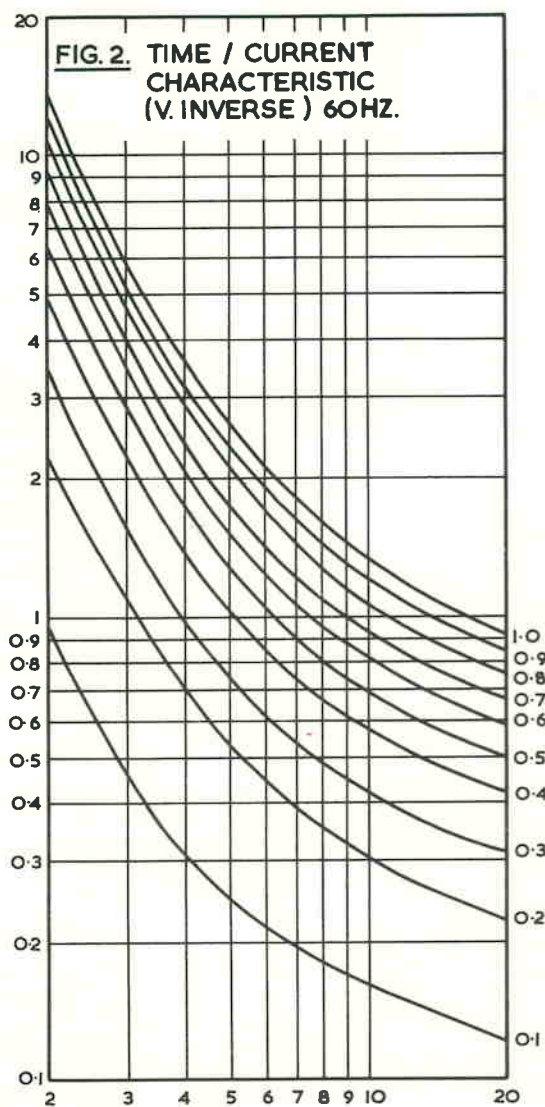
CURRENT (MULTIPLES OF PLUG SETTING)

CASES

Case reference numbers: 1c, 3a, $^2/_3$V, 1V or 2V.

Key to case reference numbers: See cases leaflet for dimensions:

1c = Single pole projecting non-drawout.
3a = 3 pole horizontal projecting non-drawout.

$^2/_3$V = $^2/_3$ Pole Vedette drawout.
1V = Single pole Vedette drawout.
2V = 2 pole Vedette drawout.

APPLICATION

For systems where fault current decreases appreciably with distance from source.

DESCRIPTION

The type TJM20 relay is similar to the type TJM10 in constructional details.

3 versions of the relay are available.

Type TJM20: Basic IDMTL relay
Type TJM21: Basic IDMTL relay + High set Element
Type TJM22: Basic IDMTL relay + Directional Element

TECHNICAL INFORMATION: TJM20

Frequency: 50Hz.
Rating: 1 or 5A.
Current Settings: O/C 50 to 200%, earth fault 20-80%, 10-40% adjustable in 7 equal steps by plug bridge.
Pick-up Current: 100-130% of plug setting.
Reset Current: not less than 90% of plug setting.
Time Settings
Operating Time: See Fig. 1.
Reset Time: typically 30 seconds at time multiplier setting 1.0 and zero input current.
Overshoot Time: less than 65ms.

ACCURACY

Timing characteristic:	The overall accuracy complies with BS142 (1966).
Frequency Error:	Within +9 to −3% of the time of operation at the reference frequency, over the range −6 to +2% of reference frequency.
Temperature Error:	The time of operation has a temperature coefficient not greater than 0.2%/°C over the range −5% to +40°C. The coefficient is such that the time of operation decreases with increase of temperature.

BURDEN

Approximately 3VA at setting, see Figs. 2 and 3 for typical impedance/current characteristics of 1A and 5A relays.

THERMAL RATINGS

The relay will withstand the following overloads for 1.0 sec.
5A overcurrent (50-200% settings): 50 × plug setting current with a maximum of 250A.
1A overcurrent (50-200% settings) ⎱ 50 × plug setting current
5A earth fault (10-40% settings) ⎰ with a maximum of 50A.
1A earth fault (10-40% settings) ⎰

CONTACTS

Arrangement: 2 make, self reset.
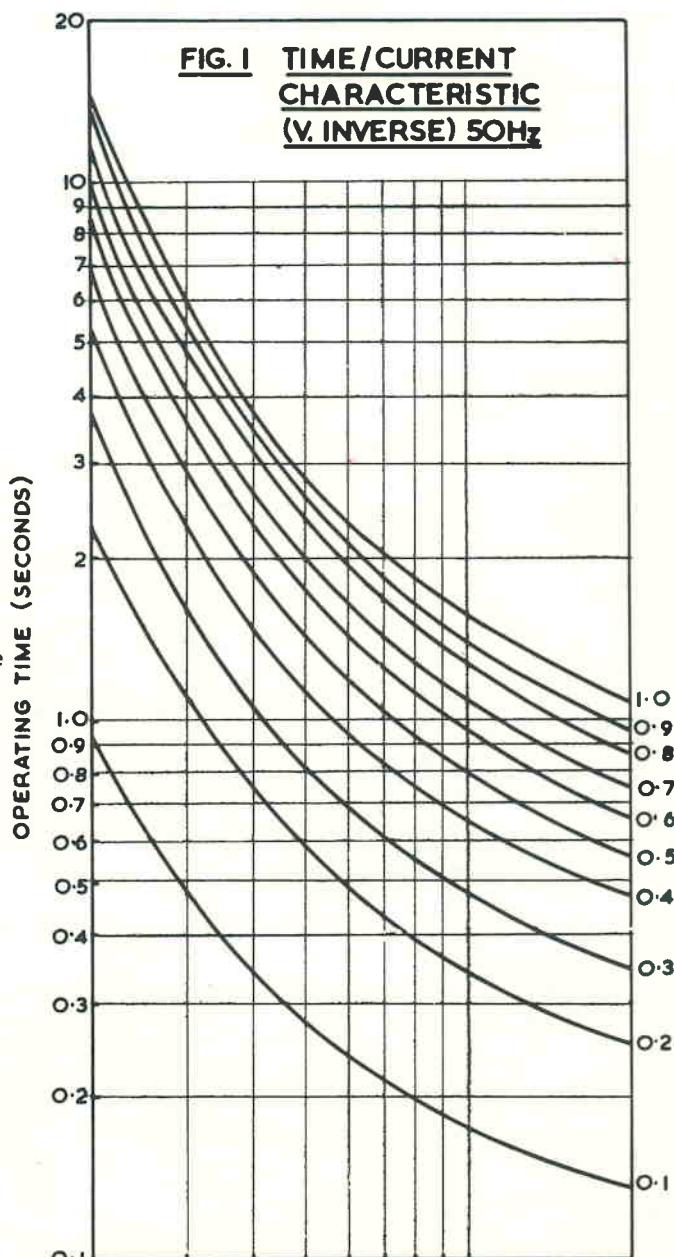Rating: 10A continuously
             30A for 1 sec.

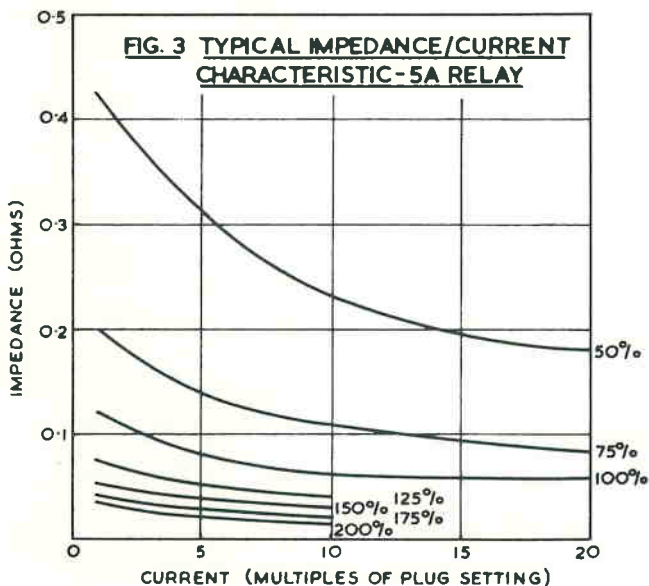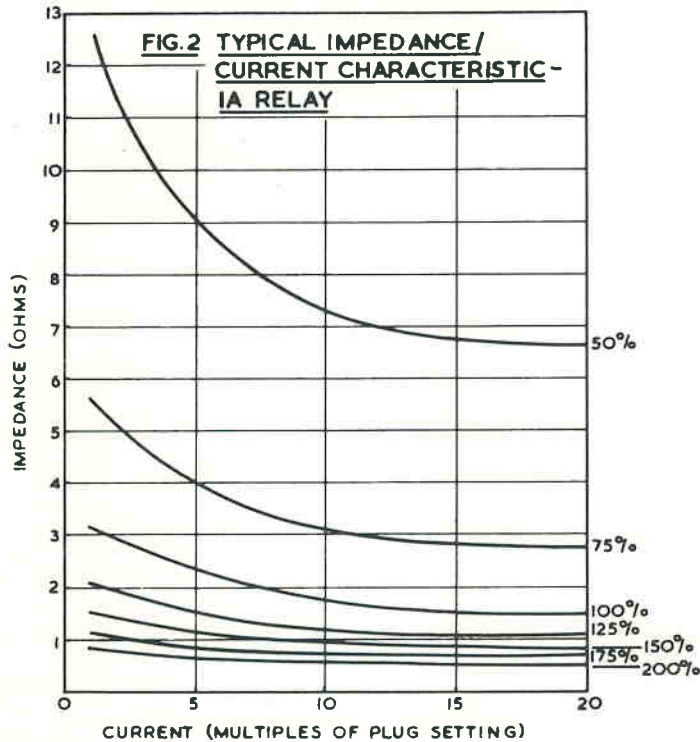## INDICATION

Hand reset flag.

CONNECTION DIAGRAM

Typical connection diagrams are given in Fig. 4.

TECHNICAL INFORMATION: TJM21 and 22 relays. The additional information relating to the type BC high set element and the type ES directional element is given in Leaflet TJM10/11/12/13.

FIG. I   TIME/CURRENT CHARACTERISTIC (V. INVERSE) 50Hz

CASES

Case reference numbers: 1c, 3a, $^2/_3$V, 1V or 2V

FIG.2 TYPICAL IMPEDANCE/ CURRENT CHARACTERISTIC - 1A RELAY

IMPEDANCE (OHMS)

CURRENT (MULTIPLES OF PLUG SETTING)

NOTE:-
ALL 3 ELEMENTS ARE THE SAME AND ONLY ONE IS SHOWN. TRIP / ALARM CONTACTS ALL PARALLELED IN SIZE 2 CASE.

TRIP / ALARM CIRCUITS
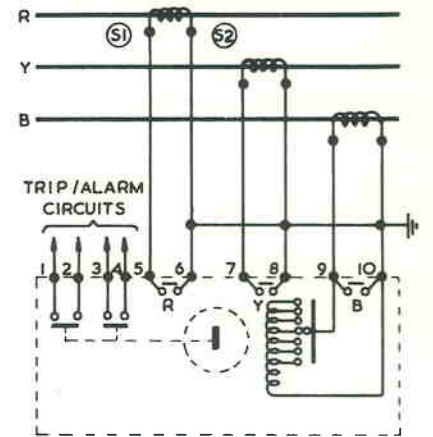
3 PHASE OVERCURRENT PROTECTION
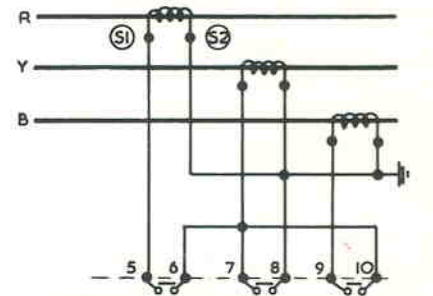
ALTERNATIVE C.T. CONNECTIONS FOR OVERCURRENT/ EARTH FAULT PROTECTION

TERMINAL NUMBERING RELATES TO RELAYS IN VEDETTE CASES

FIG. 4 TYPICAL CONNECTION DIAGRAM

FIG. 3 TYPICAL IMPEDANCE/CURRENT CHARACTERISTIC - 5A RELAY

IMPEDANCE (OHMS)

CURRENT (MULTIPLES OF PLUG SETTING)

Key to case reference numbers: See cases leaflet for dimensions.

1c = Single pole projecting non drawout.
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$^2/_3$V = $^2/_3$ Pole Vedette drawout.
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