

P & B GOLDS' RELAYS

MAINTENANCE AND ADJUSTMENT INSTRUCTIONS

All relays are carefully calibrated and balanced before despatch. If they are functioning correctly and are visually in order routine overhauls and maintenance are NOT recommended, but routine inspection should be carried out.

The following adjustments should be made if the three sets of contacts are not in line either on no load or on load.

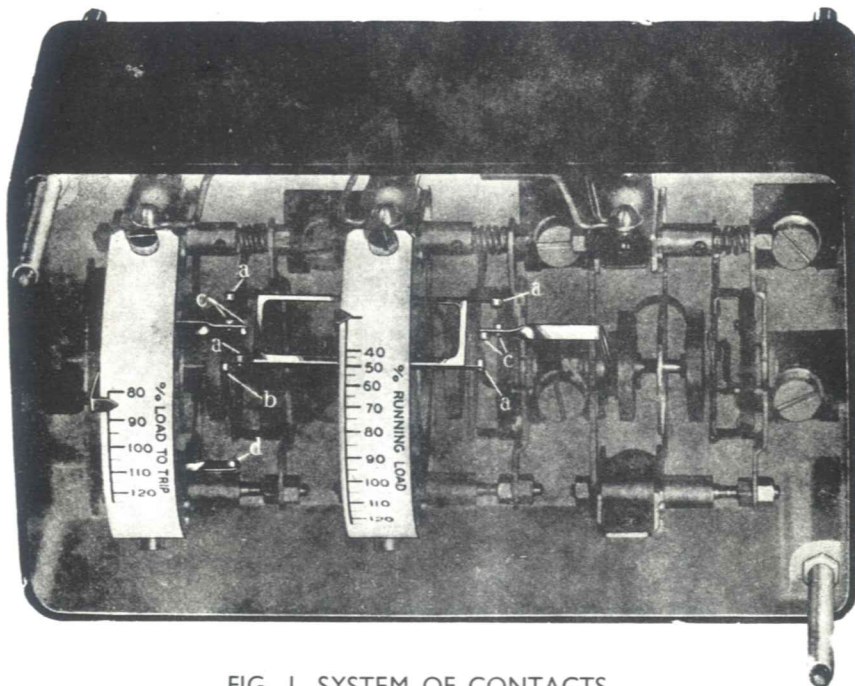


FIG. 1. SYSTEM OF CONTACTS

ALIGNMENT OF CONTACTS. With no current in the Relay the single phasing contacts (c) should lie mid-way between the contacts (a) shown in Fig. 1 and the indicating pointer on the centre unit should be on the zero line of the per cent. running load scale. In common with all thermal Instruments of the bi-metallic type there is no well-defined zero and if the pointer is within $1/32$ " of the zero line no adjustment should be made. If there is a greater difference the three sets of contacts should be brought into line with the pointer on the zero line by using a No. 9 B.A. spanner on the square end of each coil unit which projects through the bridge bar. Only a very small movement of the spanner should be required to make this adjustment.

After ensuring that the contacts are in alignment on no load the contacts (c) should likewise float mid-way between the contacts (a) on load. If they are not in line this may be due to the motor currents being unbalanced by differences in the windings or in the phase voltages; it may also be due to the use of unmatched current transformers, or to the adjustment of the relay heaters having been upset. In any case the trouble can be cured by suitable adjustment of the heaters. The accuracy of the indication at 100% load shown on the "per cent. running load" scale should be first checked by means of a reliable ammeter. If correct no adjustment is required to the heater of the centre unit. If incorrect, and the relay is reading high, the heater requires moving further away from the operating coil, or if low, closer to it. This is effected by rotating the spring loaded hexagon headed screw clamping the top end of the bar carrying the heater. (*Before turning the screw slacken the grub screw which locks it, and tighten the grub screw after making the required adjustment.*) As a rough guide to the movement required, $1/16$ th of a turn of the screw will alter the reading about 1% at 100% load on the running load scale. If the arms carrying the contacts (c) on the two outer units are either in advance of or behind the centre line between contacts (a) the heaters should be adjusted in the same way as the centre one.

The gap between the face of the heater and coil should be approximately parallel. In the unlikely event of so much adjustment being necessary that the gap is not parallel, the other end of the heater bar should be suitably moved by unlocking the two nuts between which it is held and moving them one way or the other the required amount.

It is only in the event of want of alignment between the three sets of contacts that an adjustment of this kind should be necessary.

INSTANTANEOUS TRIPS. These are carefully calibrated before despatch and no adjustment should be required. If for any reason the trips do not operate at the settings shown on the "times full load" scales, adjustment is made by loosening the locking nut on the stop stud under the top of the scale and turning the stud to vary the gap between the armature and transformer core until the setting is correct.

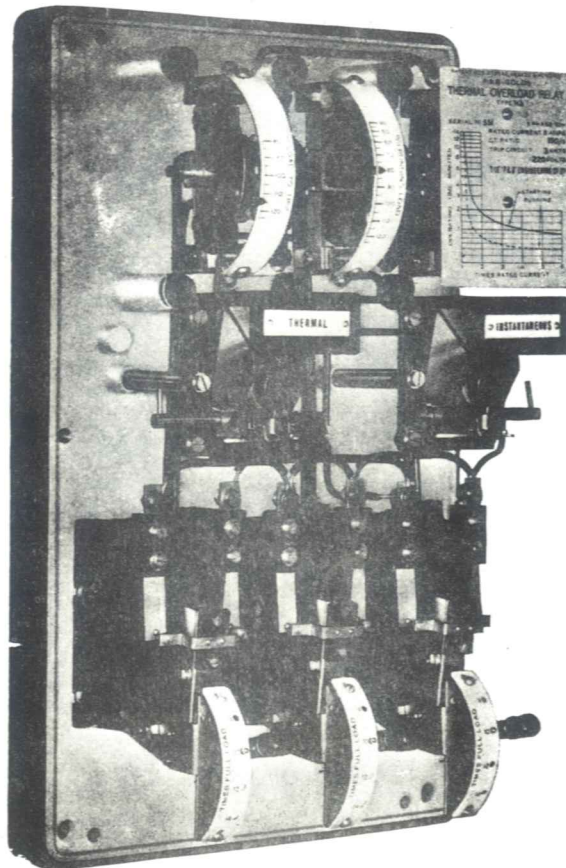


FIG. 2. TYPE M3 WITH INSTANTANEOUS TRIPS

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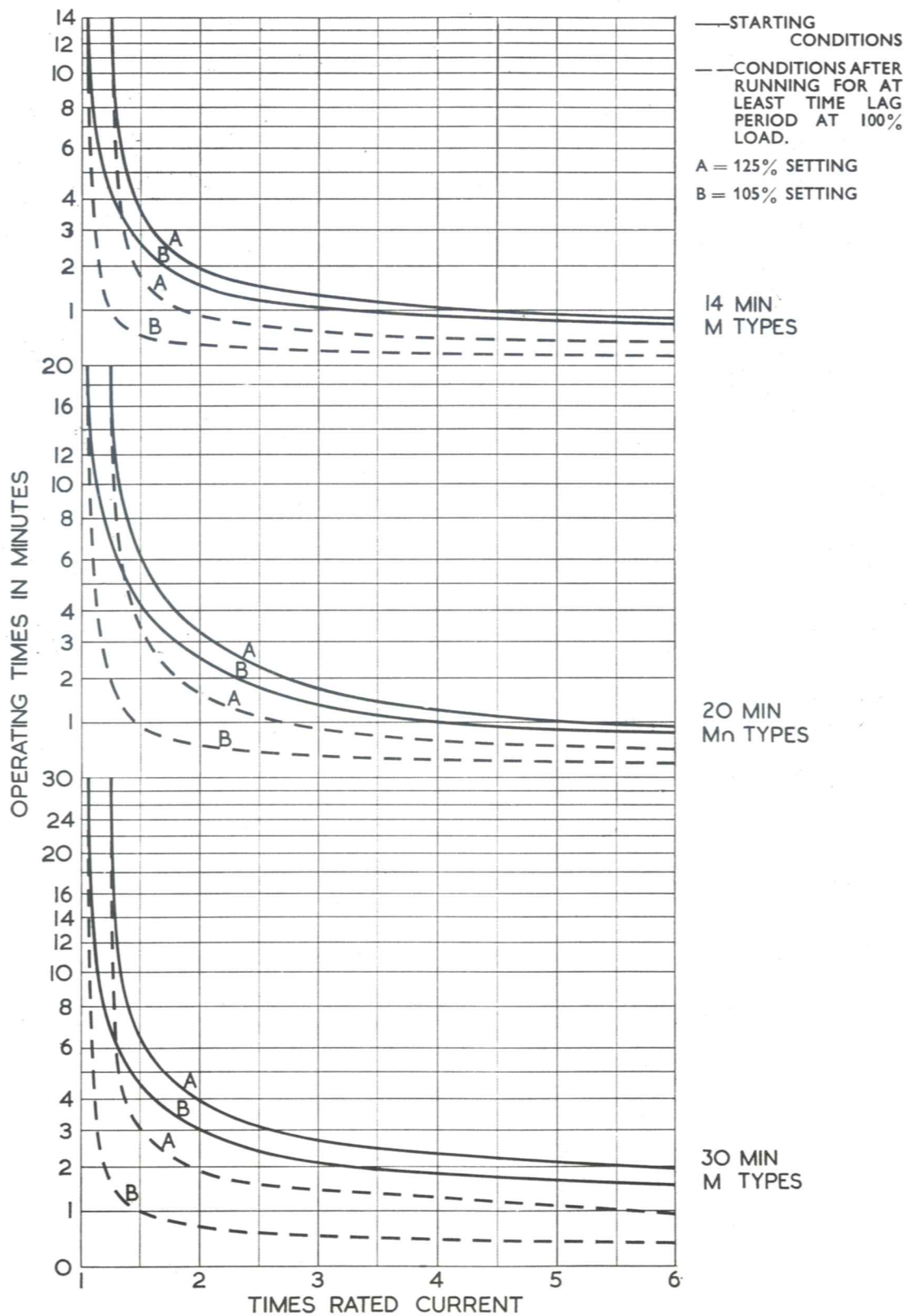
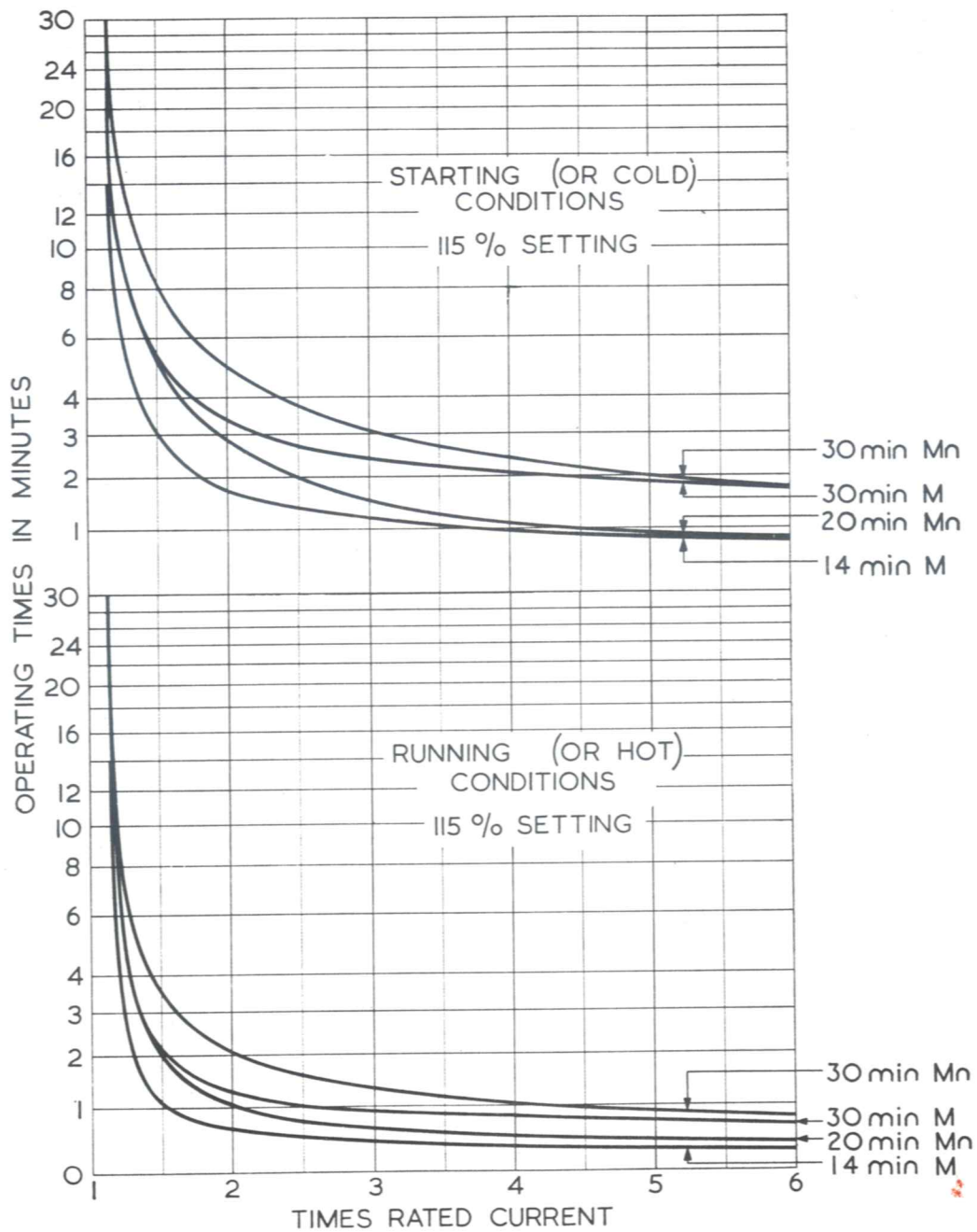


FIG 12. CHARACTERISTIC CURVES SHOWING EFFECT OF VARYING SETTING OF "% LOAD TO TRIP "POINTER"



The standard time lag is 14 minutes for "M" type and 20 minutes for "Mn" type relays which suits the majority of three phase motors. The use of 30 minute relays should be limited to motors designed to carry high overloads or motors having onerous starting conditions—see fig. 11.

Fig. 13—CHARACTERISTIC CURVES COMPARING RELAYS OF DIFFERENT TIME LAGS