Chapter 43

SWITCH, MAGNETIC RELAY (MAGNETIC DEVICES 155 SERIES)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Switch, magnetic relay (Type 155/2732) ...	*Stores Ref. 5CW/5864*
Contact arrangement ...	*Two stacks, each single pole single throw, normally open*
Switch, magnetic relay (Type 155/2733) ...	*Stores Ref. 5CW/5865*
Contact arrangement ...	*Two stacks, each single pole double throw*
Coil resistance	*230 ohms ± 10%*
Contact rating	*15 amp. (continuous)*

Introduction

1. Switches, magnetic relay, of the 155 series are designed for heavy duty and heavy overloads for short periods, as in motor starting. The moving contact blades are separately spring loaded to assure good contact pressure. The relays comprise four main components, viz:— the soft iron frame, the armature assembly, the magnetising coil and the contact stacks.

DESCRIPTION

Relay frame

2. The frame is a U shaped stamping having unequal length of arms. The longer arm has the armature assembly attached by screws while the shorter arm is used as a mounting base for the contact stacks. Between these arms the magnetising coil, with its soft iron core, is secured by a single screw. This screw also secures the mounting bracket for the relay, beneath the relay frame. The mounting bracket has two 4 B.A. clearance holes at 2 $\frac{19}{32}$ inch centres.

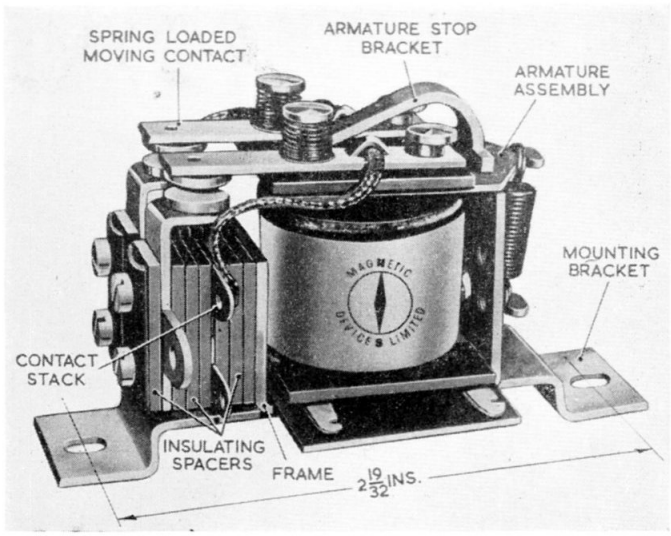

Fig. 1. Typical (155 Series) relay

(A.L.57, Feb. 56)

Armature assembly

3. The moving armature pivots about the top of the longer arm of the frame. It is spring loaded at its outer end and held by the armature stop at its inner end. The armature stop bracket also forms the anchor for the armature spring. The armature carries the moving contact blades. These are spring loaded and freely pivoted so that, the early movement of the armature causes the fixed and moving contact to align and further movement compresses the springs and assures good contact pressure. Each moving contact blade is connected by flexible copper braid to the connection lugs which are fitted as part of the contact stack.

Magnetising coil

4. The coil is designed to operate at nominal 24 volts and its resistance is 230 ohms $\pm$ 10%. Connections are brought out to tabs at the base of the coil and the coil assembly is vacuum impregnated for tropical use.

Contact stacks

5. These are attached to the short arm of the relay frame and the arrangement of contact and insulating spacers will vary with the duty of the relay. Fig. 1 shows two stacks, each arranged to give a single pole, single way, normally open scheme of contacts, as for Stores Ref. 5CW/5864 relays. The double pole, change over contact arrangement, required for Stores Ref. 5CW/5865 relays would have additional fixed contacts fitted above the moving blades which would then have double-sided contacts.

SERVICING

6. Before fitting new relays they may be checked for operation by ensuring that, when standing on a level base, the armature will move its full travel when 18 volts is applied to the coil. The contact pressure when the nominal 24 volts is applied should be 28 grams. The coil may be tested for insulation resistance and for continuity which should lie within the limits given at para. 4.

7. The relay contacts should be periodically inspected for pitting by arcing, and if pitting is excessive the relay should be renewed or removed for servicing in a workshop. The relay should be inspected for security of mounting and electrical connection, and operated over normal voltage range.