Chapter 44

SWITCH, MAGNETIC RELAY (MAGNETIC DEVICES 595 SERIES)

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Introduction

1. Switches, magnetic relay, of the 595 series may be found in service incorporated as components of larger assemblies, e.g. generator control panel. Appendix 1 to this chapter gives detail of differences found in particular applications of these relays. In most applications the coil is operated at nominal aircraft supply voltage but some may have special voltage values and others may be current operated.

DESCRIPTION

General

2. The relays comprise four main components viz:— the frame, the armature assembly, the magnetising coil and the contact stacks. The frame and the armature assembly, i.e. the magnetic circuit, is of swedish iron and is similar for all applications. The coil winding and the arrangement of the contact stacks will vary with the application of the relay. The contact stack may vary from a single pole ON/OFF switch to 6 pole single throw or 4 pole double throw switching.

3. The design is compact and all connections are brought to solder tags at the end remote from the fixing base. In some applications a pressed metal shield is fitted over the contact stacks to give mechanical protection to the contact leaves and to the operating arms.

Relay frame (*fig. 2*)

4. The frame of the relay is "L" shaped. To the short leg of the frame the soft iron solenoid core is secured by a 6 B.A. screw and two projections from this leg of the frame form the mounting lugs and have 6 B.A. tapped holes. The longer leg of the frame is drilled and tapped to take four screws which secure the armature leaf spring, the armature limit stop saddle and the contact stacks.

Armature assembly

5. The armature is a stamping having two operating arms arranged one on each side of the armature. Between these operating arms a leaf spring is rivetted to the armature and forms the hinge for the moving parts. The leaf spring is fixed to the relay frame by the four screws which locate the contact stacks.

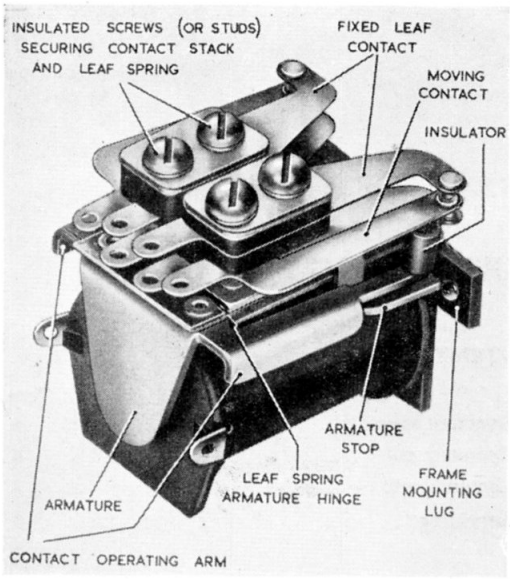

Fig. 1. Typical (595 Series) relay

Directly above the leaf spring is fitted a metal saddle. This saddle has two lugs which overhang the frame and form stops beneath the contact operating arms. These stops are set by the makers to give the required armature travel for specific applications of the relay.

Operating coil

6. The operating coil, while conforming to standard dimensions, will be wound to suit the particular application and may vary from a high resistance for high voltages to a few turns of heavy gauge wire when current operated. The coils are vacuum impregnated for tropical use.

Contact stacks

7. These consist of fixed and moving leaf contacts insulated from each other and from the screws which secure the stack to the relay frame. The moving leaves align with insulated bushes on the operating arms of the armature assembly. In some instances only one stack may be necessary but provision is made for two since the securing screws also locate the leaf spring and armature assembly.

8. In some applications a metal shield is fitted over the relay. In such cases the four screws securing the contact stacks are replaced by studs and nuts. Additional nuts on these studs are used to secure the shield.

SERVICING

9. Little servicing can be carried out on these relays apart from checking security of fixing and that the soldered connections are sound. Care must be taken when handling these relays to ensure that the contact leaves and the armature stops are not distorted. Relays designed to operate at nominal 24 volts should close at a minimum of 18 volts.

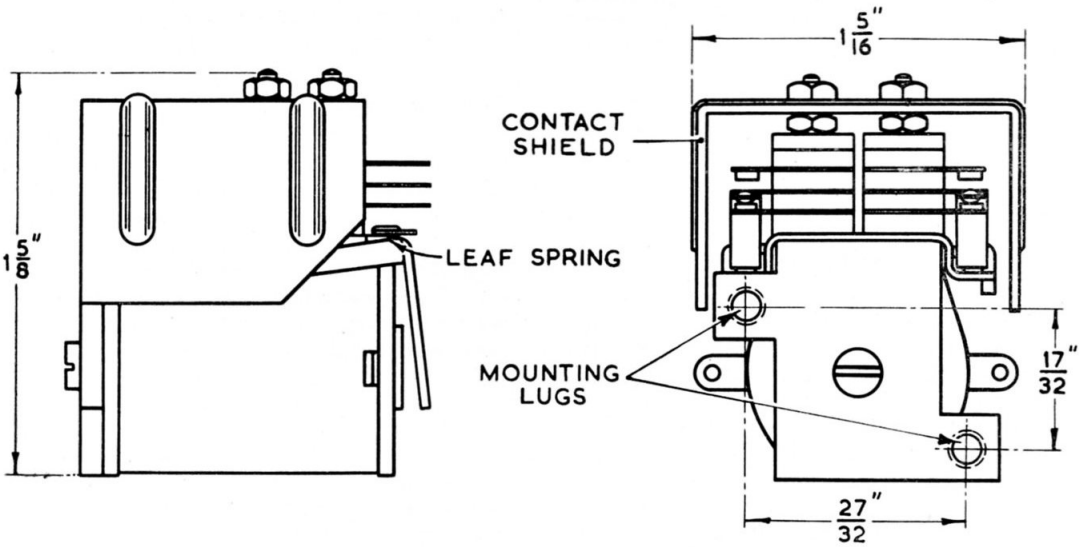

Fig. 2. Installation drawing (with shield)

Appendix 1

LEADING PARTICULARS

Type	Stores Ref.	Operating Coil Data	Contact Stack Arrangement
595/2729	5CW/5866	400 ohms ± 10% Nominal volts 24	2 stacks, each single pole double throw. 5 amp.
595/2730	5CW/5867	400 ohms ± 10% Nominal volts 24	1 stack, single pole double throw. 5 amp.
595/2731	5CW/5868	Current operated (100 turns 20 S.W.G. copper wire). Minimum operating current 2 amp.	1 stack, single pole double throw. 5 amp.
595/3079	5CW/5623	830 ohms ± 10% Pull in volts 16 to 19 Drop out volts 7 to 9	2 stacks, each double pole single throw normally open. 5 amp. (strengthened contacts).
595/3681	5CW/5622	100 ohms ± 10% Maximum pull in volts 14	2 stacks. One single pole normally open, one double pole normally closed. 5 amp.

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