

## RELAYS

### 275, 276, 291, 292, 301, 303, 316, 320, AND 321 TYPES

### REQUIREMENTS

#### 1. GENERAL

1.01 This section covers general information for 275-, 276-, 291-, 292-, 301-, 303-, 316-, 320-, and 321-type (mercury contact) relays.

1.02 This section is reissued to include 316-, 320-, and 321-type relays.

1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

1.04 These relays consist of contacts in a glass envelope enclosed with operating winding(s) in a metal container mounted on an electron tube type base for plug connection. The test set (J94725A) for these relays is equipped with sockets for making test connections to the windings and the contacts. Lamps are provided on the test set to indicate contact performance. The testing methods are covered in Section 040-263-501.

**Caution:** Do not disassemble any of these types of relays since the glass contact switch element mounted within the outside steel shell contains a gas under high pressure. In case the glass envelope of an exposed switch element is broken, pieces of glass may be propelled with sufficient force to cause personal injury, particularly to the eyes.

1.05 Since the 276-, 291-, 292-, 301-, 303-, 316-, 320-, and 321-type relays are magnetically biased, the electrical requirements apply when positive polarity is connected to the terminal marked + unless otherwise specified on the cir-

cuit requirements table. In some cases, the biasing effect is of such a magnitude that the relay will not release unless the current is reversed. In these cases, the circuit requirements table specifies a negative release or hold current.

1.06 **Operate:** A relay is said to *operate* if, when current is connected to its winding, the normally closed contacts are opened and the normally open contacts are closed.

1.07 **Nonoperate:** A relay is said to *nonoperate* if, when current is connected to its winding, the normally closed contacts do not open and the normally open contacts do not close.

1.08 **Hold:** A relay is said to *hold* if, after the relay has operated and the current is reduced abruptly, the normally closed contacts remain open and the normally open contacts remain closed.

**Note:** Where a negative sign precedes the hold value on the circuit requirements table, the relay shall remain in its operated position.

1.09 **Release:** A relay is said to *release* if, after the relay has operated and the current through the relay winding is removed or reduced abruptly, the normally closed contacts again close and the normally open contacts again open.

**Note:** Where a negative sign precedes the release value on the circuit requirements table, the relay shall return to its normal position.

**2. REQUIREMENTS**

**2.01 *Electrical Requirements***

(a) A relay shall meet the electrical requirements specified on the circuit requirements table. The soak applies only before the application of the operate current, and the requirements shall be applied in the following order: Soak, operate, hold, release, and nonoperate.

(b) The electrical requirements shall be met as covered in Section 040-263-501.

(c) The figures referred to by BSP figure numbers on the circuit requirements table are illustrated by the figures shown in Section 040-263-501.

**3. ADJUSTING PROCEDURES**

**3.01 *Electrical Requirements* (Req 2.01)**

(1) A relay which fails to meet the requirements which are applied in accordance with the testing methods covered in Section 040-263-501 shall be replaced.