

MERCURY CONTACT—PLUG-IN RELAYS

REQUIREMENTS

1. GENERAL

1.01 This section covers general information for the following type of mercury contact relays.

275	301	320
276	303	321
293	316	→ 334←

1.02 This section is reissued to:

- Add the 334-type relay.
- Delete the 291-type relay which has been "Manufacture Discontinued"
- Delete the 294-, 313-, 314-, 315-, 322-, 323-, 326-, 328-, and 330-type relays which are not plug-in relays
- Revise 1.04.

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 a base for plug connection. The test set (J94725A) for these relays, with the exception of the 334-type, 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, except for the 334-type, 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 275-, 276-, 292-, 301-, 303-, 316-, 320-, 321-, and ♦334-♦ type relays are magnetically biased, the electrical requirements apply when positive polarity is connected to the terminal marked + unless otherwise specified on the circuit 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, except where soak current reversals are specified in the electrical requirements (such as 316-type relays), 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* (Reqt 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.

4. DISPOSAL OF PRESSURIZED MERCURY CONTACT RELAYS

- 4.01 Mercury relays should be tested after being removed from the circuit to verify that they are defective.
- 4.02 All mercury relays contain a glass envelope partially filled with mercury and pressurized with hydrogen gas at 250 psi. Because of the hazards of mercury contamination, mercury relays should *never* be disposed of through a common rubbish removal service.
- 4.03 Damaged 8-pin or 11-pin base mercury relays should receive special handling. When the alignment pin has been broken off, the relays should be placed in a plastic bag to retain the mercury in the event that the glass envelope is broken. Hands should be washed after handling these type of relays to remove any possible residue of mercury.
- 4.04 Disposal of defective mercury relays should be made by shipping them to the nearest Western Electric service center for further shipment to Nassau Smelting and Refining Company.
- 4.05 While handling defective relays, maintenance personnel must wear safety glasses and remove personal jewelry such as watches and rings.