

KS-5723 THERMAL TIME-DELAY RELAYS REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

- 1.01 This section covers thermal-type, time-delay relays, KS-5723.
- 1.02 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.
- 1.03 Requirements and associated procedures marked with a number sign (#) need not be checked by the installer unless it is thought that the requirement is not being met or performance indicates that such a check is advisable.
- 1.04 Requirements and associated procedures marked with an asterisk (*) need not be checked during maintenance unless the apparatus or part is made accessible for other reasons, or performance indicates that such a check is advisable.
- 1.05 Description: This time-delay relay contains a convex bimetallic disc which snaps over to a concave shape after being heated by a thermal element, and actuates a single-pole contact. Conversely after the removal of the heating current, the disc cools and releases the contact.

2. REQUIREMENTS

- 2.01 Contact surfaces shall be clean and free from build-ups. Gauge by eye.
- *#2.02 Contact pressure, with the contacts closed, shall be
Minimum - 15 grams
Use gauge.
- 2.03 Relay Mounting: The relay shall be fastened securely to its mounting. Gauge by feel.

2.04 Electrical Requirements

- (a) The relay shall meet the electrical requirements specified in the Circuit Requirements Table or other job information.
- (b) Where electrical requirements are not specified in the Circuit Requirements Table, operation of the List 1 relay shall be checked at any voltage available within the limits of 105 to 125 volts and shall operate within
Minimum - 10 sec.
Maximum - 50 sec.
- (c) Check of electrical requirements may be at the temperature at which the relay is found by the test man, unless H (hot) or C (cold) is specified in the Circuit Requirements Table.
- (d) Where H is specified in the Circuit Requirements Table without heating instructions, the relay coil shall be energized for at least one hour prior to the test.
- (e) Where C is specified in the Circuit Requirements Table without cooling instructions, the relay shall be de-energized for at least 2 hours prior to the test.

- *#2.05 Temperature: The temperature of the contacts shall be :

Maximum 105C - (221F)

If the temperature is thought to be excessive, measure with a thermometer.

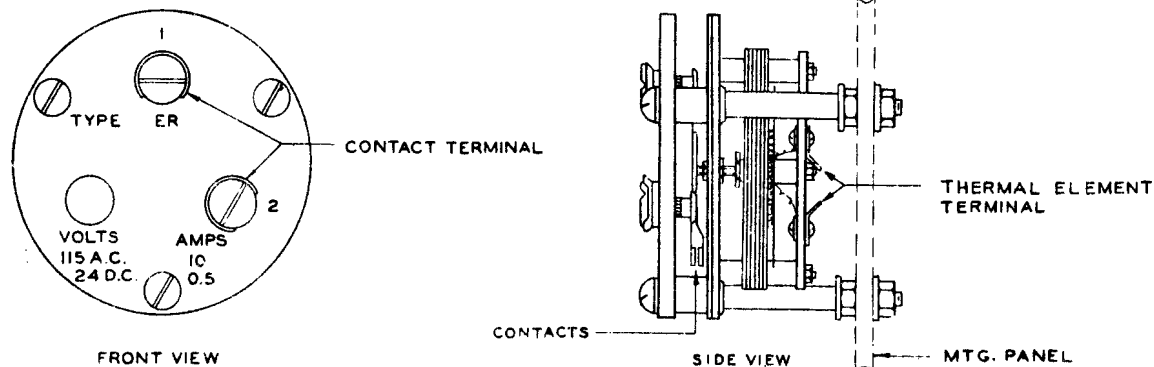


Fig. 1 - Thermal Time-delay Relay, KS-5723

3. ADJUSTING PROCEDURES

3.001 List of Tools, Gauges, Materials, and Test Apparatus (Equivalents may be substituted if desired)

Burnisher, Contact, No. 265C tool
Clip, No. 365 tool (2 required per cord)
Cloth, Abrasive, 150 grade (See Section 065-330-101)
Cloth, Cleaning, Twill Jean, D-98063
Cord, No. 1W13A
Felt Pad
Gauge, 70H
Meter, M9B or Voltmeter, A-C Weston Model 528, ranges 300-150 volts
Spirits, Petroleum
Screwdriver, 3-1/2", KS-6354
Thermometer, R1032, Detail 1 or 2
Wrench, No. 418A tool

3.002 Strapping: To operate the relay electrically in applications having high voltages in the same enclosure, the thermal element should be disconnected by removing connections at the most convenient points in the circuit, and operating voltage applied to it by the use of strapping. No. 1W13A cords (3'-0") with No. 365 clips are suggested for strapping. Lengths of No. 14 wire with KS-6780 clips are equally satisfactory.

3.003 General Procedure

(1) When doing mechanical work on the relay, disconnect it from the working circuit. It may also prove desirable to remove it from its mounting.

3.01 Contact Surfaces (Rq. 2.01)

(1) The purpose of cleaning contacts is to remove any gummy or dirty substance that would interfere with reliable contact. It is not necessary or desirable to keep contacts polished or shining. Clean contacts by wiping with a cloth moistened with petroleum spirits, followed by a dry cloth.

(2) There shall be as little smoothing of contacts as is consistent with satisfactory operation. Contacts should be smoothed while closed. To close normally open contacts, operate the relay electrically. If the contacts have been disconnected, insert a burnishing tool or a strip of abrasive cloth between them and draw it back and forth until the build-ups have been reduced considerably or removed entirely. If the contacts are connected in a live circuit, use the abrasive cloth, only. Then clean the contacts as outlined in (1) above.

*#3.02 Contact Pressure (Rq. 2.02)

(1) To measure the contact pressure, disconnect the contacts and, with

the relay operated electrically, place the tip of the gauge between the contacts and exert a pressure with the gauge away from the stationary contact. Read the gauge as the movable contact leaves the stationary contact.

(2) Since the contact pressure is not adjustable, if the requirement is not met, it will be necessary to replace the entire relay.

3.03 Relay Mounting (Rq. 2.03)

(1) Tighten loose mounting bolts with the screwdriver or the wrench.

3.04 Electrical Requirements (Rq. 2.04)

(1) A rough check may be made of the operation of the relay at any time that its associated equipment is connected to the line, by observing the second hand of an ordinary watch or clock during the interval between the closing of the switch which energizes the heater and the click which occurs as the relay operates. If the relay fails to operate, it should be checked for an open circuit either in the wiring or the heater. To check for an open circuit in the heater, disconnect one or both leads and check for continuity with the M9B meter, if available.

(2) If an M9B meter is not available, an a-c voltmeter should be connected in series with the heater and the voltage applied. If the voltmeter shows no indication, the heater is open.

Note: The above assumes that the operating current is alternating. If, in any application the current is direct, the M9B meter or a d-c voltmeter should, of course, be used.

(3) If the relay fails to meet any of its electrical requirements it should be replaced.

*#3.05 Temperature (Rq. 2.05)

(1) Hold the bulb of the thermometer against the contacts, covering the opposite side of the bulb with a piece of felt or the equivalent.

(2) If the temperature exceeds the specified limits, see that 2.01 and 2.02 are met. If these requirements are met and the temperature is still above the specified limits, refer the matter to the supervisor as the relay may have to be replaced.