

## **TELETYPEWRITER CONTROL RELAYS**

### **DESCRIPTION AND REQUIREMENTS**

#### **1. GENERAL**

1.01 This section contains information pertaining to the maintenance of control relays used with teletypewriters.

1.02 This section is reissued to add information on the KS-14229 and KS-14230 control relays. These relays are of a hinged-armature, rather than a solenoid type and employ commercial power supply for their operation.

Note: The Ward Leonard K42219 and K42220 relays are the same as the corresponding KS-14229 and KS-14230 relays except for the mounting arrangement.

1.03 The term control relay originally referred only to TP72484 relays. These relays are of the solenoid type and are provided with both front and back contacts which may be adjusted either for "break" or for "make" control as desired.

#### **2. CLEANING**

2.01 If necessary, relays shall be cleaned in accordance with Section P30.010.

Note: The plunger of the TP72484 relay should be cleaned before any readjustments are made.

#### **3. REQUIREMENTS AND PROCEDURES**

##### **(A) Control Relay TP72484**

##### **Break Control**

3.01 Relays adjusted for "break" control should meet the following requirements. See Fig. 1.

- (a) Contact gap, relay operated, Min .025", Max .030".
- (b) Contact pressure, relay unoperated, Min 5 oz, Max 6 oz.
- (c) Front contact spring should reliably clear middle contact spring when relay is fully operated.
- (d) Plunger should fully operate on current of .040 ampere (normal operating current is .050 ampere).
- (e) To adjust for contact pressure, bend middle spring and for gap, bend inner spring.

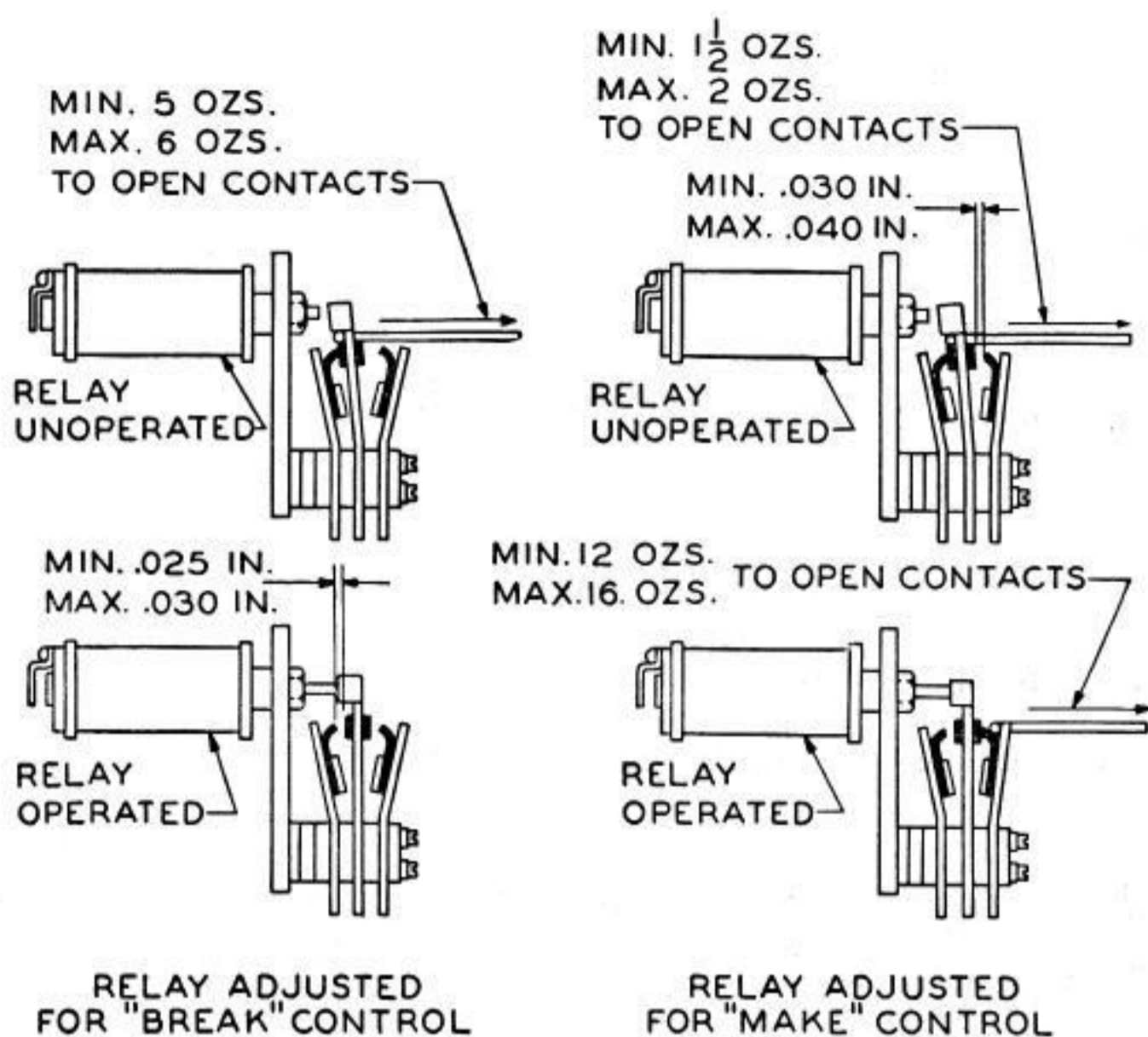


FIG. 1

### Make Control

3.02 Relays adjusted for "make" control should meet the following requirements. See Fig. 1.

- (a) Contact pressure, relay operated, Min 12 oz, Max 16 oz.  
(1) To adjust, bend outer contact spring.
- (b) Contact gap, relay unoperated, Min .030", Max .040".  
(1) To adjust, bend inner (heavy) contact spring.
- (c) "Break" (back) contact pressure, relay unoperated, Min 1-1/2 oz, Max 2 oz.  
(1) To adjust, bend middle contact spring. If necessary to readjust recheck 3.02 (b).
- (d) Plunger should fully operate on current of .040 ampere (normal operating current .050 ampere).

Note: It should not normally be necessary to measure the current unless trouble is experienced.

## (B) Control Relays KS-14229 and KS-14230

### General Description

3.03 The KS-14229, List 1 and KS-14230, List 1 relays are of the double-pole double-throw midget type of power relay. The back contacts are made of palladium. The front contacts are made of silver. The relays are front-connected and are intended to be mounted in a vertical position with the contacts at the top. They are identical except that the KS-14229, List 1, operates on a-c, 60 cycles and the KS-14230, List 1 operates on d-c.

3.04 The KS-14229, List 2 and KS-14230, List 2 relays are the same as the corresponding List 1 relays, except that they include a bracket for mounting in an electrical service assembly.

3.05 The KS-14229, List 3 and KS-14230, List 3 relays are the same as the corresponding List 1 relays except that they are mounted in a black-finished steel knockout box.

3.06 The following table gives the requirements for these relays.

### Requirements for KS-14229 and KS-14230 Relays

Relay	Relay to operate on:	Intended for Use in:	Contact Pressure		Contact Gap
			Normally Closed Contacts	Normally Open Contacts	
KS-14229					
L1	103.5V 60 ~ A-C	TTY Station	1 oz Min	1 oz Min	.030"
L2 (L1 relay plus bracket)		TTY Station			
L3 (L1 relay in steel box)	103.5V 60 ~ A-C	81C1 and 81D1 Switching Units			
KS-14230					
L1	103.5V D-C	TTY Station	1 oz Min	1 oz Min	.030"
L2 (L1 relay plus bracket)		TTY Station			
L3 (L1 relay in steel box)		81C1 and 81D1 Switching Units			

Note: The above requirements are for general checking. No adjustments are provided on these relays.