232-TYPE KEY TELEPHONE UNITS

(INTERRUPTER)

IDENTIFICATION AND CONNECTIONS

1. GENERAL

1.01 This section is reissued to show the 232B key telephone unit (KTU) rated MD and replaced by the 232C.

1.02 This issue of the section is based on the following drawings:

SD-69294-01, Issue 6

CD-69294-01, Issue 5

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawing(s), reference should be made to the SDs and CDs to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

2.01 The 232A (MD), 232B (MD), or ▶232C KTU◀ equipped with an optional 10-volt ac or 24-volt dc plug-in interrupter (Fig. 1) furnishes timing intervals and features for key telephone systems (KTS) as follows:

- Audible Signal—1 second on, 3 seconds off
- Lamp Flash—0.5 second on, 0.5 second off
- Lamp Wink—0.475 second on, 0.025 second off
- Busy Tone—0.5 second on, 0.5 second off
- Audible Ringing Tone—1 second on, 3 seconds off
- Manual intercommunicating line with busy lamp
- Time-out circuit.

2.02 *Ordering Guide:*

- ▶Unit, Telephone, Key, 232C◀

Associated Apparatus or Equipment (Order Separately)

- Interrupter, KS-15900, List 1 (for 10 volts ac)
- Interrupter, KS-19384, List 2 (for 24 volts dc)

2.03 The 232B (MD) KTU differs from 232A (MD) KTU as follows:

- Contact 4 of BF relay is wired internally.
- All internal battery connections terminate on terminal 24.

2.04 ▶The 232C KTU differs from the 232B (MD) KTU as follows:

- Contact 4 of BF relay terminates on terminal 39.
- External strap is provided to allow the 232C KTU to function as a 232B (MD) KTU.
- External strap may be removed to allow the 232C KTU to operate in the new mode (when used with SS1A equipped for privacy).◀

2.05 On 232A (MD), 232B (MD), and ▶232C KTUs◀ the TO, ST, and BF relays along with the interrupter socket are factory-wired to a 40-screw terminal panel. Lamp lead terminations are arranged for operation of up to two-hundred 51A lamps.

2.06 A KS-15900, List 1 (10 volts ac) or KS-19384, List 2 (24 volts dc) interrupter must be separately ordered for the KTU.

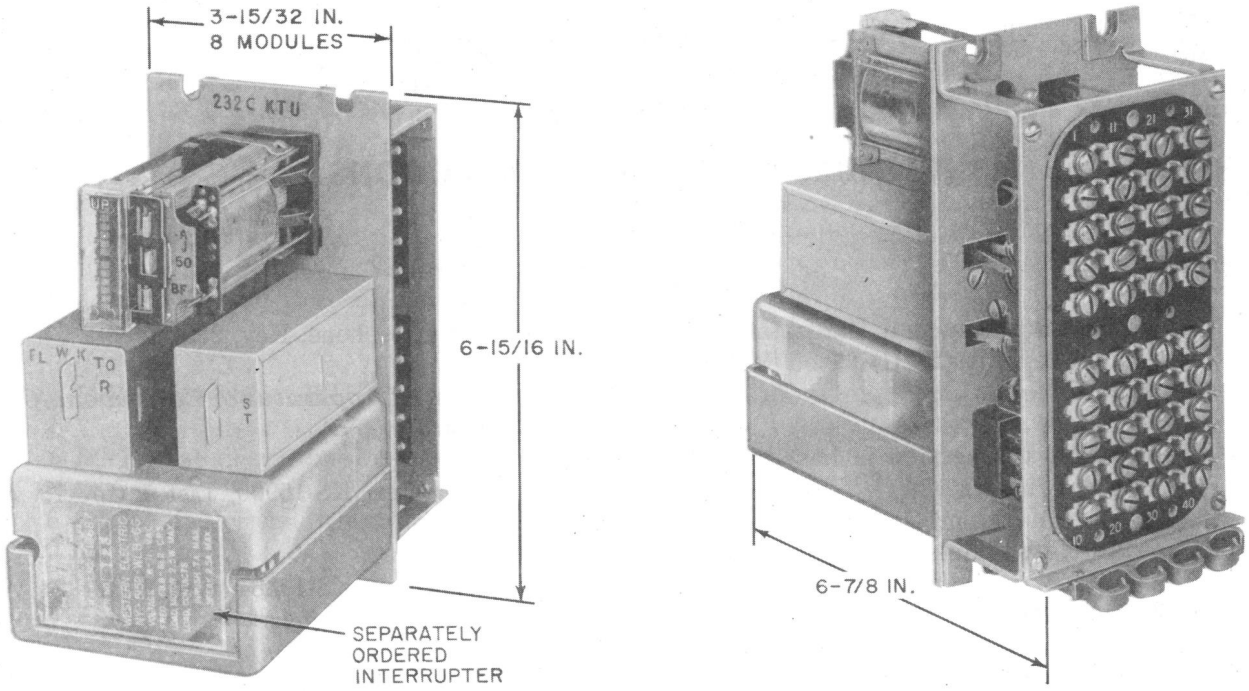


Fig. 1—232C Key Telephone Unit

2.07 The 232A (MD), 232B (MD), and 232C KTU can be installed on any apparatus mounting or relay rack designed to mount, or arranged with adapters to mount, panel type KTUs. Mounting screws are furnished.

INTERRUPTERS

2.08 The KS-15900, List 1 interrupter is for 10 volts ac operation (minimum 8 volts ac, maximum 11 volts ac). The current requirement is 0.30 ampere maximum. The motor drives two nylon (or equivalent) cams which operate the interrupter springs. A transparent plastic cover encloses all moving parts.

2.09 The KS-19384, List 1 (MD) is for ***polarized*** 24 volts dc operation. It is equipped with a solid state multidiode inverter mounted within the plastic cover which converts 24 volts dc to 60 Hz for operation of a synchronous-type drive motor. The KS-19384, List 1 compares in size and contact switching capability to the KS-15900, List 1.

2.10 The KS-19384, List 2 replaces the KS-19384, List 1 (MD) interrupter and is for nonpolarized 24 volts dc operation, minimum 20 volts, maximum 28 volts. The current requirement is 0.19 ampere maximum. Except for a solid state multidiode inverter and a 60-Hz synchronous-type motor, the KS-19384, List 2 compares with the KS-15900, List 1 interrupter.

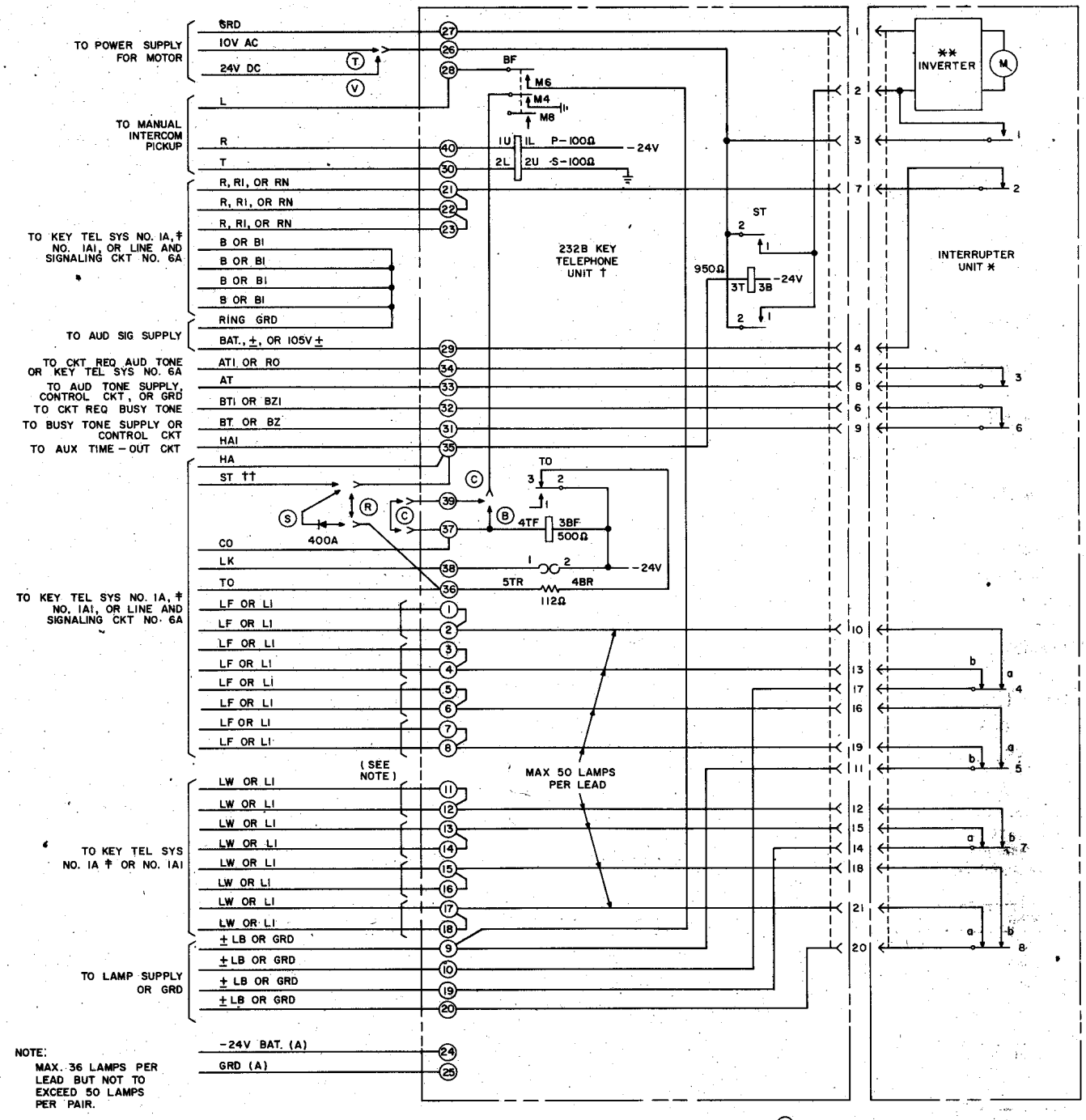
2.11 The interrupter unit is installed as shown in Fig. 1. When installing, ensure that the unit is fully seated into the socket and held firmly in place by the adjustable bracket. The plug-in arrangement simplifies unit replacement. The bracket must be removed to install or remove the interrupter unit.

3. CONNECTIONS

3.01 Fig. 2 shows connections to 232-type KTU.

4. MAINTENANCE

4.01 Maintenance of interrupters is not recommended. Should trouble occur within an interrupter, replace the unit.



LEGEND

* CONTACTS SHOWN IN STARTING POSITION.

† ON 232A KTU, BF RELAY BATTERY CONNECTION TERMINATES ON TERMINAL 24. TO AND ST RELAY BATTERY CONNECTIONS TERMINATE ON TERMINAL 39. CONTACT M4 OF BF RELAY IS NOT WIRED TO 4TF OF TO RELAY.

‡ DO NOT CONNECT TO 50-SERIES KTU.

** PROVIDED WITH KS-19384 ONLY.

†† FOR USE WHEN ONLY THE INTERRUPTER CIRCUIT IS TO BE PROVIDED.

(B) 232B

(C) 232C

(R) WITHOUT AUXILIARY TIME-OUT CIRCUIT.

(S) WITH AUXILIARY TIME-OUT CIRCUIT.

(T) KS-15900 INTERRUPTER

(V) KS-19384 INTERRUPTER

Fig. 2—Electromechanical Interrupter and Battery Feed Circuit

4.02 Fig. 3 shows interrupter contact timing interval information.

5. DESCRIPTION OF OPERATION

STARTING

5.01 The interrupter motor is provided power through ST relay contacts. ST relay is operated when ground is furnished to any of the following leads.

- ***HA*** by line circuit KTU
- ***HA1*** by auxiliary time-out circuit
- ***ST*** by line circuit when time-out circuit is not required.
- ***TO*** by line circuit KTU.

Contacts 1-2 upper and 1-2 lower are arranged in parallel for the interrupter motor operating voltage path.

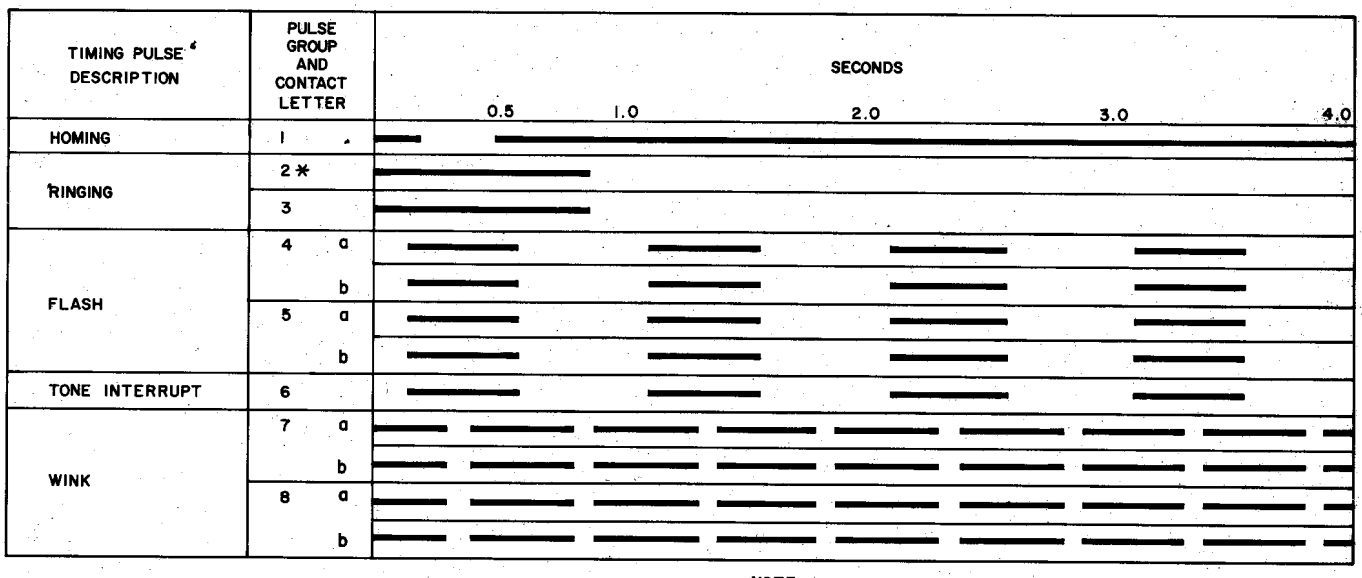
TIME-OUT

5.02 The TO relay provides a means to release locked-in associated line circuit relays for incoming calls with an unattended system. All incoming calls cause TO relay heater winding circuit to close. If call is not answered, thermometal contacts 1-2 (lower) will open after approximately 30 seconds, releasing locked-in relays. When the system is attended, TO relay operates whenever a line is in use, removing battery from heater winding and preventing time-out of locked-in relays.

MANUAL INTERCOMMUNICATING LINE

5.03 The telephone circuit is supplied talking battery through BF relay coil windings. The station shunt provides an operating current path for BF relay. BF relay contacts M6 connect lamp supply to an optional visual signal. BF relay contacts M4 provide ground and cause TO relay to operate which prevents time-out.

▶***Note:*** Contacts M4 on BF relay are wired internally on the 232B (MD) KTU; an external strap is provided on the 232C KTU in order to operate the TO relay and prevent time-out. The external strap may be removed to allow the 232C KTU to operate in the new mode (when used with SS1A equipped for privacy)—see Fig. 2.◀



NOTE:
▬ DENOTES A TIME PULSE DURING WHICH THE CONTACTS ARE CLOSED.
* CLOSURE OF CONTACT 2 IS CONSIDERED AS ZERO TIME REFERENCE.

Fig. 3—Interrupter Contact Timing Intervals