232A OR B KEY TELEPHONE UNIT

ELECTROMECHANICAL INTERRUPTER

AND BATTERY FEED UNIT

1.00 GENERAL

1.01 This section covers identification, connections, and maintenance of 232A and B KTU. Fig. 1 shows front and rear views of 232B KTU.

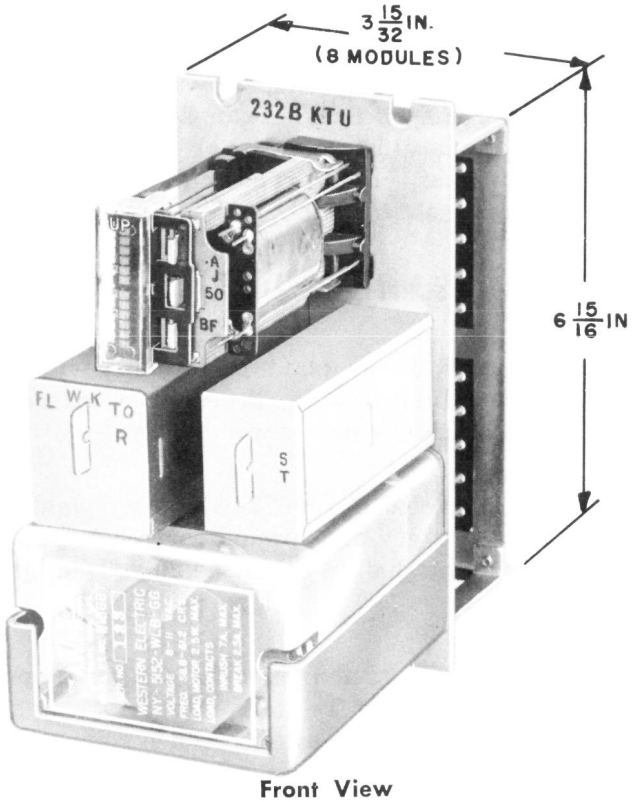
1.02 Due to extensive changes marginal arrows have been omitted.

1.03 It is reissued to:

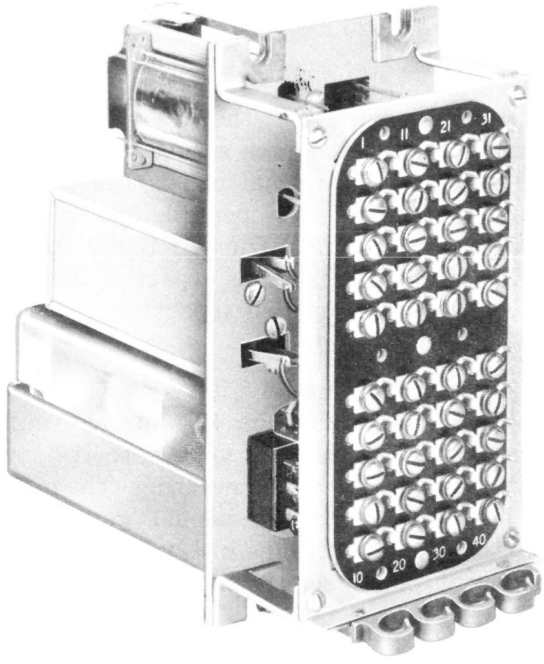
- Add information on 232B KTU.
- Change maximum current drain for interrupter motor to 0.30 amp and eliminate reference to the inrush starting surge.
- Add auxiliary time-out circuit option.

1.04 The 232A or B KTU equipped with a KS-15900, List 1 interrupter furnishes the following timing intervals and features for key telephone systems.

- 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.



Front View



Rear View

Fig. 1 — 232B Key Telephone Unit

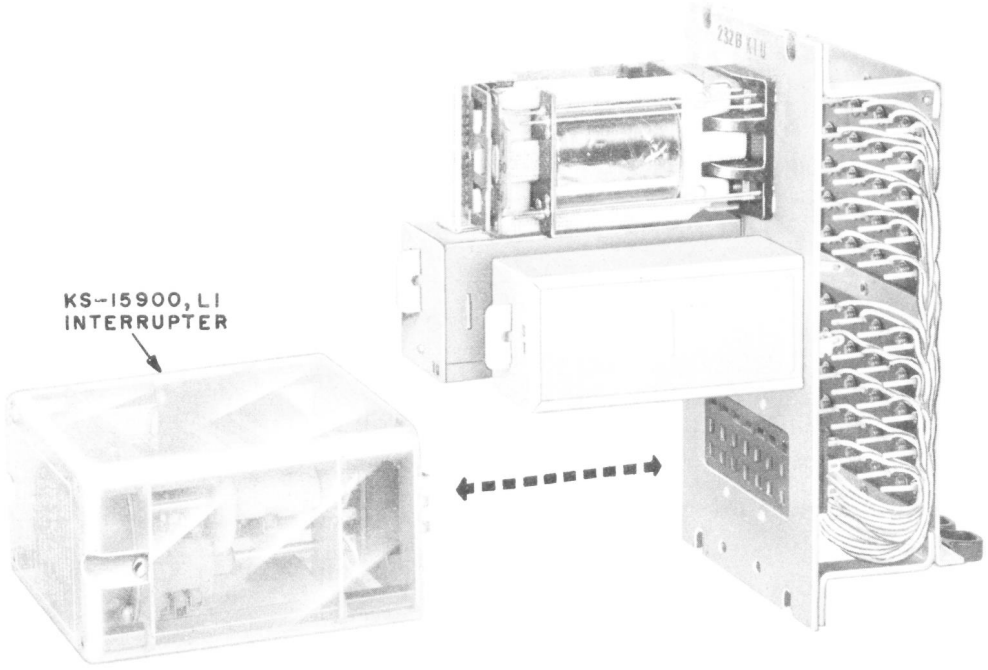


Fig. 2 — Installation of Interrupter Unit

1.05 The 232B KTU differs from 232A KTU as follows:

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

1.06 On 232A or B KTU, the *TO, ST,* and *BF* relays and interrupter socket are factory-wired to a 40-screw terminal panel. Lamp leads are arranged to provide for possible operation of two-hundred 51A lamps. The KS-15900, List 1 interrupter is not furnished as a part of 232A or B KTU and must be ordered separately.

1.07 The KS-15900, List 1 interrupter motor is designed to operate on 10 volts ac (minimum 8 volts ac, maximum 11 volts ac). It draws no more than 0.30 amp when operating. The motor rotates two nylon (or equivalent) gear-driven cams. These cams operate the interrupter springs. A transparent plastic cover encloses all moving parts.

1.08 The KS-15900, List 1 interrupter unit is installed as shown in Fig. 2. When installing interrupter, be sure it is fully seated in its socket and held firmly in place by the adjustable bracket. Plug-in arrangement makes it easy to replace or service interrupter unit. The bracket, not shown, must be removed in order to install or remove interrupter.

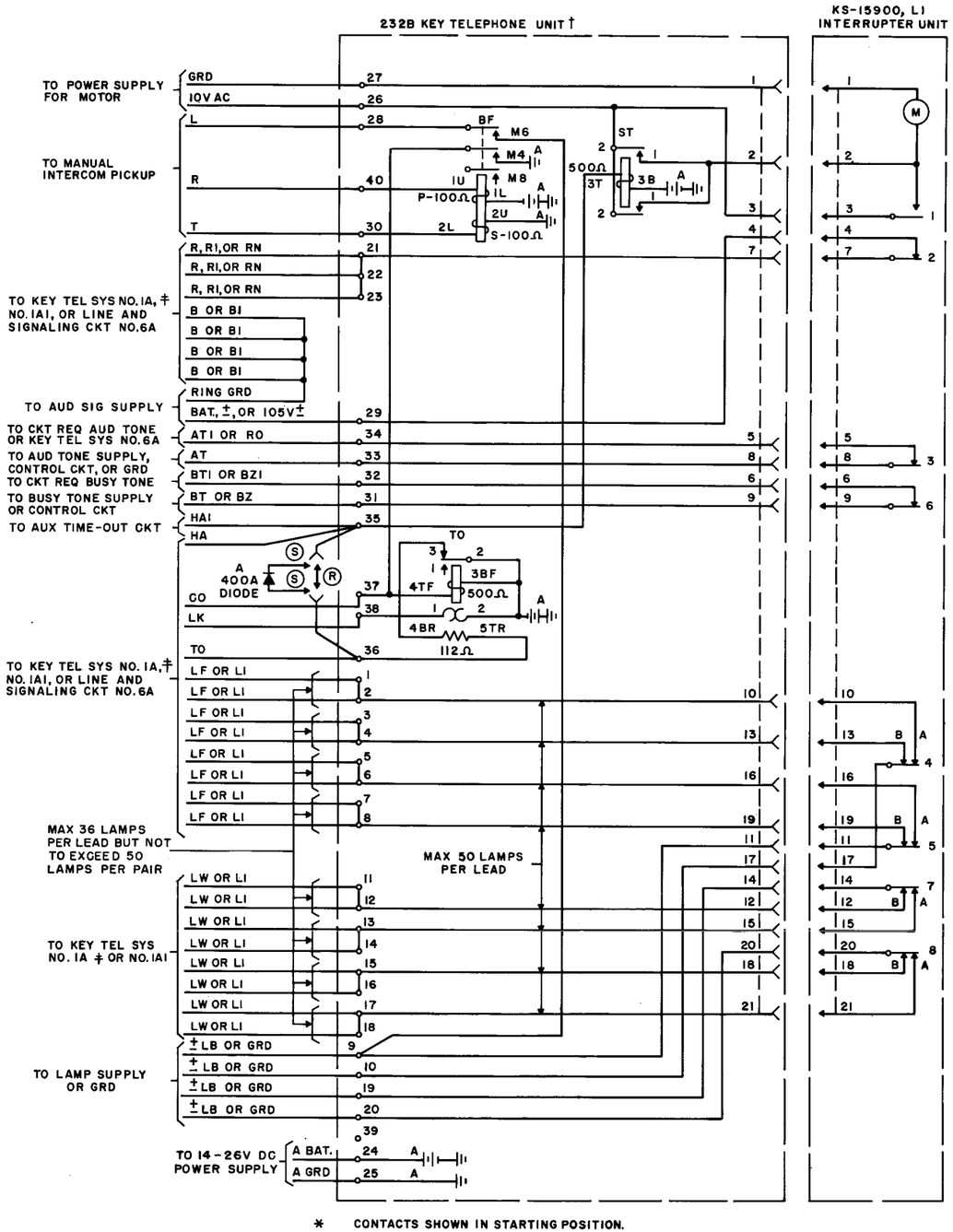
1.09 The 232A or B KTU can be installed on any apparatus mounting or relay rack designed to mount, or arranged with adapters to mount, the panel-type KTU.

2.00 POWER SUPPLY

2.01 Type of power plant to be used will be determined locally. Refer to C Section covering station systems power supply.

2.02 When the 101G (J86731A) power plant is used, battery and ground for relay operation of this unit shall be from the 20-volt dc talk terminals.

2.03 When 10 volts ac is used for station lamps, KS-15900, List 1 interrupter may also be operated from the same source. When computing total simultaneous load that may be imposed on power plant, consider the 0.30-amp motor load as equivalent to about eight 51A lamps.



* 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.

Ⓡ WITHOUT AUXILIARY TIME-OUT CIRCUIT.

Ⓢ WITH AUXILIARY TIME-OUT CIRCUIT.

Fig. 3 — Electromechanical Interrupter and Battery Feed Circuit

3.00 CONNECTIONS

Fig. 3 shows connections to 232B KTU. Circuit drawing and a description of operation are included as an installation and maintenance aid.

4.00 MAINTENANCE

Do not lubricate any part of KS-15900, List 1 interrupter. Maintenance on interrupter unit is limited to contact cleaning. For this cleaning, interrupter unit shall be removed from 232A or B KTU.

5.00 DESCRIPTION OF OPERATION

STARTING

5.01 Ground on the *TO, HA,* or *HA1* lead operates the *ST* relay. Contacts **1-2** upper and **1-2** lower of the *ST* relay are arranged in parallel and close the operating path of the interrupter motor.

TIME-OUT

5.02 The purpose of *TO* relay is to release locked-in relays of the associated line circuits on incoming calls when the system is unattended. On all incoming calls, a circuit is closed through heater winding of *TO* relay. If call is not answered, thermometal contacts **1** and **2** lower open after an interval of approximately 30 seconds. This releases the locked-in relays. When system is attended, *TO* relay operates whenever a line is in use. The *TO* relay operated removes battery from heater winding, thus preventing time-out of locked-in relays.

MANUAL INTERCOMMUNICATING LINE

5.03 Talking battery is supplied to the connecting telephone circuit through windings of *BF* relay. The *BF* relay operates over the station shunt. Contact **M6** connects lamp supply to a visual signal when provided. On 232B KTU, ground is supplied through contact **M4** to operate *TO* relay, which prevents time-out.

CONTACT 1

5.04 This contact is always open when interrupter is in its starting position. When closed, it completes an auxiliary operating path for the motor. If the *ST* relay releases before completion of a cycle, the motor continues to operate until interrupter again reaches its starting position.

Note: If power failure (blown fuse or commercial supply) occurs during a cycle, recycling to start position takes place on power restoral.

CONTACT 2

5.05 This contact furnishes an interrupted audible signal voltage to connected circuits. The contact is closed at the starting position and remains closed for approximately one second after initial start of interrupter. The contact is then open for three seconds. This cycle is repeated until operation of interrupter ceases.

CONTACT 3

5.06 Operation of this contact closes ringing audible tone, when provided, to the circuits which require it. Its sequence of operation is the same as contact **2.**

CONTACTS 4 AND 5

5.07 These contacts operate approximately 0.5 second on and 0.5 second off. They control frequency of the flashing lamps indicating incoming calls. Current limitation is 2.5 amp per contact.

CONTACT 6

5.08 This contact is used for circuits requiring busy tone. Contacts **4, 5,** and **6** have the same frequency of closure.

CONTACTS 7 AND 8

5.09 These contacts control the station lamp wink circuit indicating a hold condition on the line. These contacts operate at a frequency of approximately 0.475 second on, and approximately 0.025 second off.

Reference: SD-69294-01