KEY TELEPHONE UNIT

237-TYPE

IDENTIFICATION, OPERATION, AND CONNECTIONS

1. GENERAL

1.01 This section is reissued to:

- Delete Speakerphone System No. 1A and 1A1 connections
- Add Speakerphone System No. 4A connections to Fig. 2, 3, and 4.

2. IDENTIFICATION

PURPOSE

2.01 ◗The 237-type key telephone unit (KTU) (Fig. 1) provides for bridging of two lines for a 3-way conference in the following arrangements:

- A central office (CO) line and a PBX line
- Two PBX lines or two CO lines

Note: Transmission quality cannot be guaranteed when two CO lines are bridged.

- A CO or PBX line and an intercom line.◖

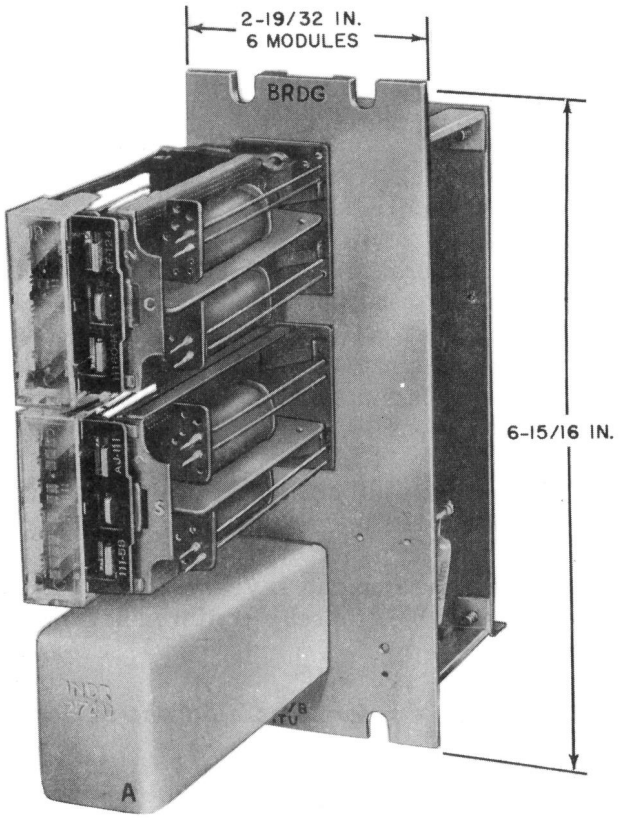


Fig. 1—237B Key Telephone Unit

APPLICATION

- ◗CO or PBX lines used in Key Telephone System No. 1A, 1A1, or 1A2.◖

DESIGN FEATURES

- ◗Circuit can be operated by exclusion switch, external nonlocking key, or converted line pickup key.
- Circuit busy lamp when line pickup key is used.
- Control station can leave conference by placing line on hold and remaining off-hook, allowing other parties to continue conversation without transmission loss.
- Circuit may be controlled by two stations when diode protection is locally furnished.
- Either control station can disconnect from conference leaving two parties to continue conference.
- Compatible with speakerphone.
- Circuit is arranged to cancel conference when handset is placed on-hook or speakerphone is returned to OFF.

- One of the conference lines may be disconnected by returning exclusion key to normal or by operating the nonlocking key.
- No operator assistance necessary.

3. METHOD OF OPERATION

3.01 ***Initiating a Conference Call:***

(1) Establish a call (either an incoming or outgoing call) on either of the lines associated with the bridging circuit.

(2) Place call on HOLD.

Note: Under certain conditions, it is possible to establish a call on the other line without placing the first call on HOLD. This is undesirable since the first party hears the dialing signals which are intolerably loud under these conditions.

(3) Establish a call on the other line associated with the bridging circuit.

(4) Operate the bridging key when both parties are available, thereby conferencing both lines.

3.02 ***Leaving a Conference Call (Control Party Only):***

(1) Operate the hold key.

(2) Operate a third pickup key to answer or establish a call on another line.

Note: The control party may return to the conference by reoperating either of the two associated pickup keys. However, when a conference is placed on HOLD, transmission losses are introduced by the holding bridge which may prevent the remaining conferees from continuing the conference until the control party returns.

3.03 ***Releasing a Conference Call:***

(1) Control party—Place handset on-hook or

(2) Return manual exclusion key to normal or

(3) Operate speakerphone OFF button.

Note: The control party can remain connected to either line after the conference has been released by depressing the pickup key for the line which is to remain connected, and momentarily operating the nonlocking key or restoring the exclusion key to normal.

4. CONNECTIONS

4.01 When a nonlocking key is used to control the bridging circuit, a locally provided KS-15724, List 1 diode (or equivalent) must be installed in the A lead of the control station set. For KS-15724 diode connections, refer to "Station Busy Lamp" option for the particular set in the associated connection section. Failure to install the diode may cause damage to transistor Q3, a false hold condition, or both, in the 400D KTU line circuit. These conditions are caused when the control station goes on-hook after a conference is completed.

Two-Station Control

4.02 When two stations are connected to the bridging circuit, each of the station sets may independently or jointly control the circuit. When the circuit is connected to two station sets, operation is the same as when connected to only one station set.

Note: When two station sets are to be provided with bridging circuit control by using nonlocking keys, two KS-15724, List 1 (or equivalent) diodes must be locally supplied and connected as shown in Fig. 4.

4.03 When one of the two control stations is using the bridging circuit and the other station goes off-hook, the BL leads from each telephone set will provide a locking path for the operated circuit. If the first station terminates the call before the second station, the nonlocking control key on the telephone set at the first station must be momentarily operated to release the bridging circuit.

4.04 When one station is using the bridging circuit and the other station is not in use, the circuit will release when the station goes on-hook or the speakerphone is turned off.

4.05 When a conference call is in a held condition, the bridging circuit remains operated.

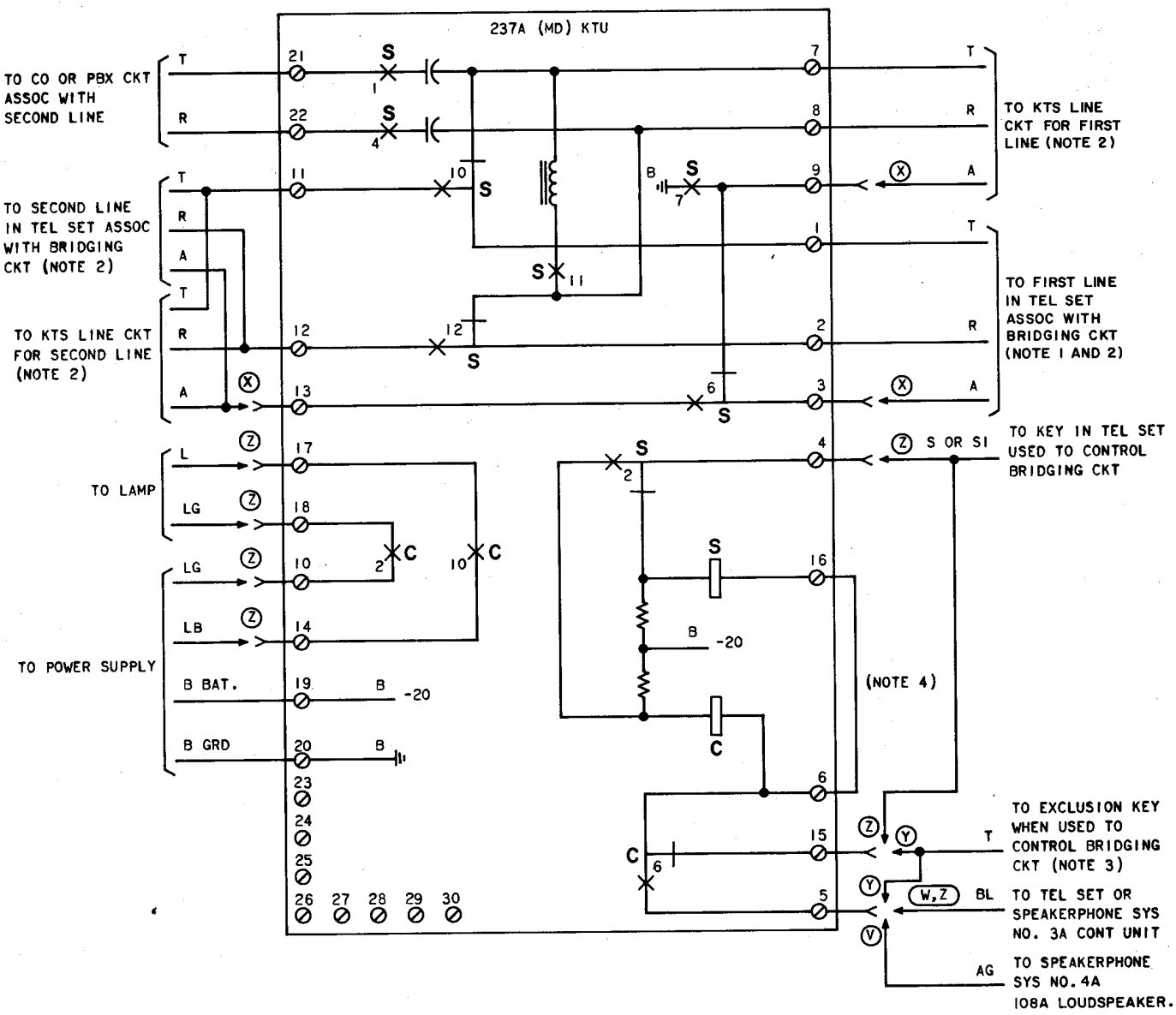
Note: To minimize transmission losses, each line associated with the 237A or B key telephone unit should be connected to the same type line equipment. This is necessary due to the differences in design of holding circuits.

4.06 ***Connection Index***

Fig. 2—237A (MD) KTU, Schematic and Connections

Fig. 3—237B KTU, Schematic and Connections

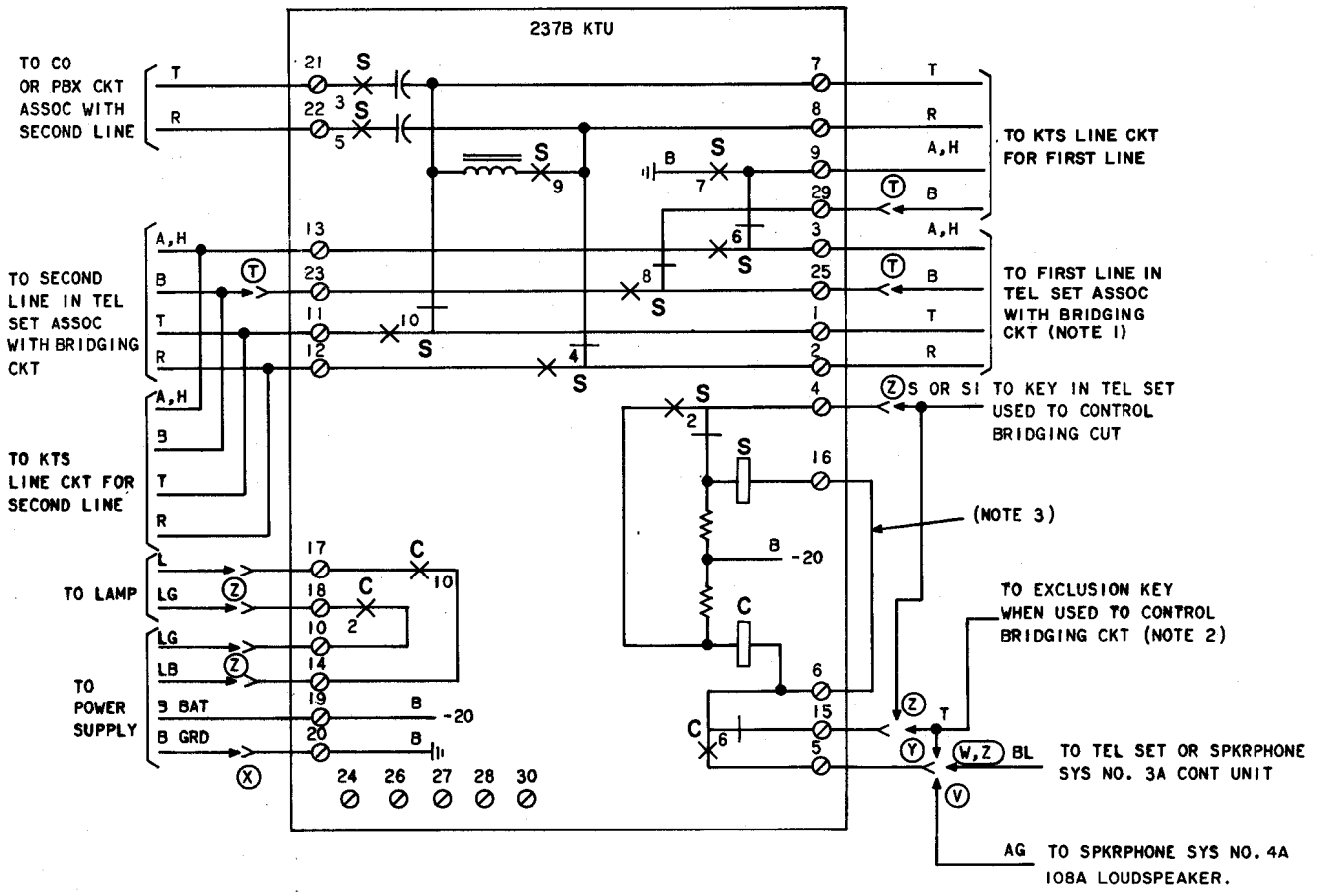
Fig. 4—AG and BL Lead Connections for 2-Station Control.



NOTES:
1. THE STATION UTILIZING THE BRIDGING CIRCUIT MUST BE EQUIPPED WITH A HOLD KEY. THE BRIDGING CIRCUIT MAY BE CONTROLLED BY A NONLOCKING KEY OR AN EXCLUSION KEY.
2. THE A LEAD IS OMITTED IN KEY TEL SYS NO. 1A.
3. WHEN THE CIRCUIT IS CONTROLLED BY THE EXCLUSION KEY, REMOVE THE EXCLUSION LEADS FROM IT AND IR TERMINALS IN TELEPHONE SET AND INSULATE. B GROUND IS CONNECTED TO THE BK-BL LEAD ON THE EXCLUSION KEY.
4. REMOVE STRAP BETWEEN TERMINALS 6 AND 16 WHEN TESTING OR READJUSTING RELAY C OR S.

(Z) CONTROLLED BY NONLOCKING KEY.
(Y) CONTROLLED BY EXCLUSION KEY.
(X) CONNECTED TO KEY TEL SYS NO. 1A1 OR 1A2.
(W) CONNECTED TO SPEAKERPHONE SYS NO. 3A CONT UNIT.
(V) CONNECTED TO SPEAKERPHONE SYS NO. 4A 108A LOUDSPEAKER.

Fig. 2—237A (MD) KTU Schematic and Connections

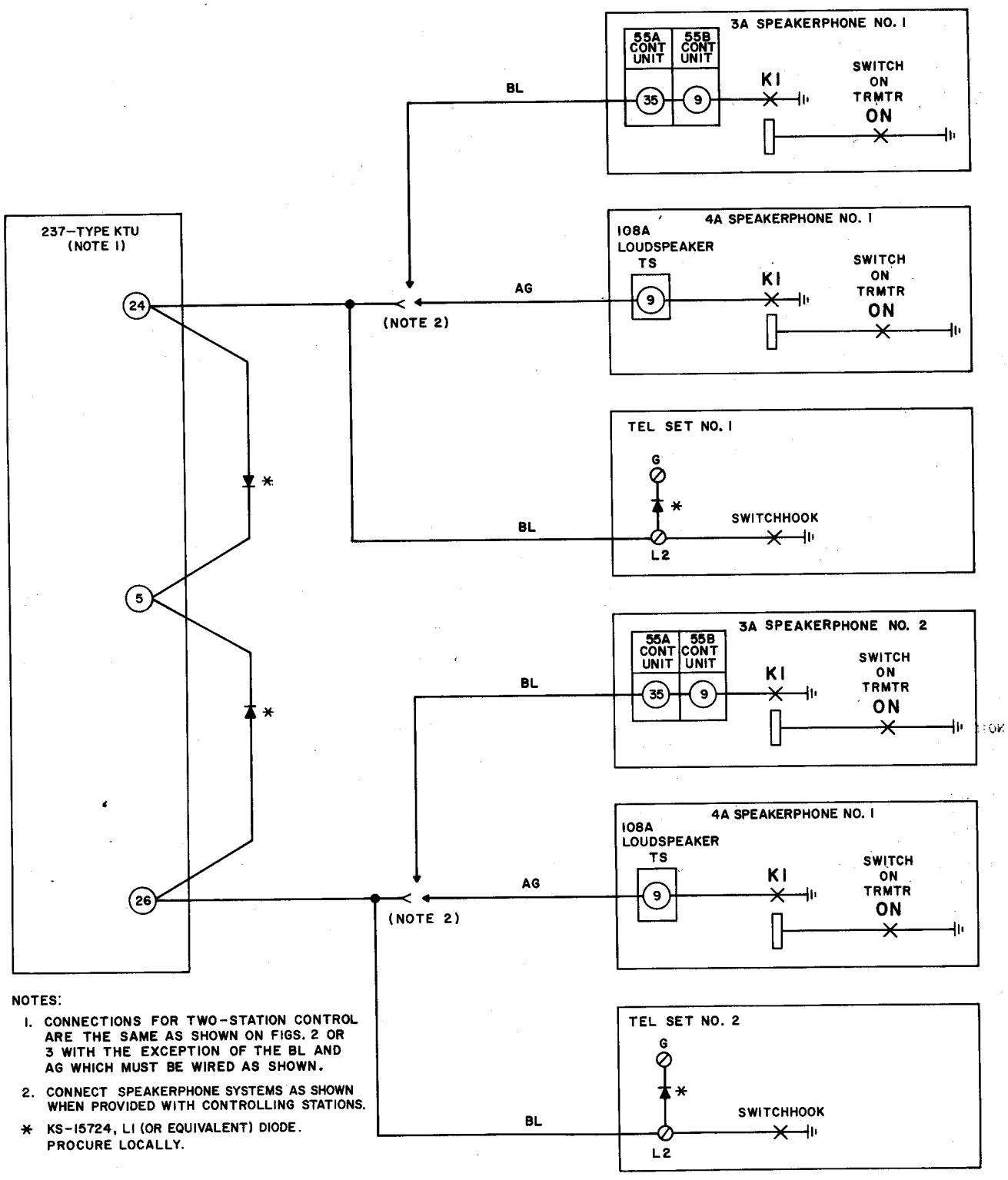


NOTES:

1. THE STATION UTILIZING THE BRIDGING CIRCUIT MUST BE EQUIPPED WITH A HOLD KEY. THE BRIDGING CIRCUIT MAY BE CONTROLLED BY A NONLOCKING KEY OR AN EXCLUSION KEY.
2. WHEN THE CIRCUIT IS CONTROLLED BY THE EXCLUSION KEY, REMOVE THE EXCLUSION LEADS FROM IT AND IR TERMINALS IN TELEPHONE SET AND INSULATE. B GROUND IS CONNECTED TO THE BK-BL LEAD ON THE EXCLUSION KEY.
3. REMOVE STRAP BETWEEN TERMINALS 6 AND 16 WHEN TESTING OR READJUSTING RELAYS C OR S.

(T) CONNECTED TO KEY TEL SYS NO. 1A.
(V) CONNECTED TO SPEAKERPHONE SYSTEM NO. 4A 108A LOUDSPEAKER.
(W) CONNECTED TO SPEAKERPHONE SYSTEM NO. 3A CONTROL UNIT.
(X) CONNECTED TO KEY TEL SYS NO. 1A1 OR 1A2.
(Y) CONTROLLED BY EXCLUSION KEY.
(Z) CONTROLLED BY NONLOCKING KEY.

Fig. 3—237B KTU, Schematic and Connections



NOTES:

1. CONNECTIONS FOR TWO-STATION CONTROL ARE THE SAME AS SHOWN ON FIGS. 2 OR 3 WITH THE EXCEPTION OF THE BL AND AG WHICH MUST BE WIRED AS SHOWN.
2. CONNECT SPEAKERPHONE SYSTEMS AS SHOWN WHEN PROVIDED WITH CONTROLLING STATIONS.

* KS-15724, L1 (OR EQUIVALENT) DIODE. PROCURE LOCALLY.

Fig. 4—AG and BL Lead Connections for 2-Station Control