

## STATION LINE CONCENTRATORS

### 235- AND 236-TYPE KEY TELEPHONE UNITS

### IDENTIFICATION AND CONNECTIONS

#### 1. GENERAL

1.01 This section is reissued to:

- Revise option information in Fig. 3, 4, 5, and 6
- Add Table A

1.02 When a 446F diode and 185A network are added to the 235A (MD) or 236A (MD) KTU they become identical to the 235B and 236B KTUs, respectively (Fig. 1 and 2).

#### 2. IDENTIFICATION

##### PURPOSE

- To reduce the number of conductors required to connect key system line circuit units and CALL DIRECTOR<sup>®</sup> concentrator telephone sets or large capacity 400-type key mountings

##### APPLICATION

- Used with 1A1, 1A2, or 6A Key Telephone Systems.
- A 235B KTU can be used as a station line concentrator for a maximum of 18 line circuits in conjunction with 634-, 638-, or their equivalent TOUCH-TONE type CALL DIRECTOR telephone sets. A 236B KTU can be used for a maximum of 30 lines with 635-, 639-, or their equivalent TOUCH-TONE type sets or 400-type key mountings. More than one 236B KTU may be required with larger 400-type key mountings where the number of lines exceed 30, with a maximum of 120 lines. Station line concentrator units must be supplied on a per station basis.

#### ORDERING GUIDE

Unit, Telephone, Key, 235B

Unit, Telephone, Key, 236B

(a) *Optional Components (ordered and installed separately)*

- P-90D033 Printed Wiring Board Assembly
- Diode, 446F for 235A (MD) and 236A (MD) KTU
- Diode, 400(\*) for 235A (MD) and 236A (MD) KTU
- Network, 185A for 235A (MD) and 236A (MD) KTU

\* Add type suffix

#### DESIGN FEATURES

- Circuitry for connecting a common transmission pair and control lead through a combination of two switching relays to the selected line circuit. Refer to Table A for relay operating combinations.
- Option of common audible or individual line ringer.
- Power failure option when common audible is not required.
- Common audible with power failure.

#### 3. CONNECTIONS

3.01 All lamp control, speakerphone, and A1 leads from CALL DIRECTOR set or 400-type key mountings bypass station concentrator units and are wired directly to the station line unit.

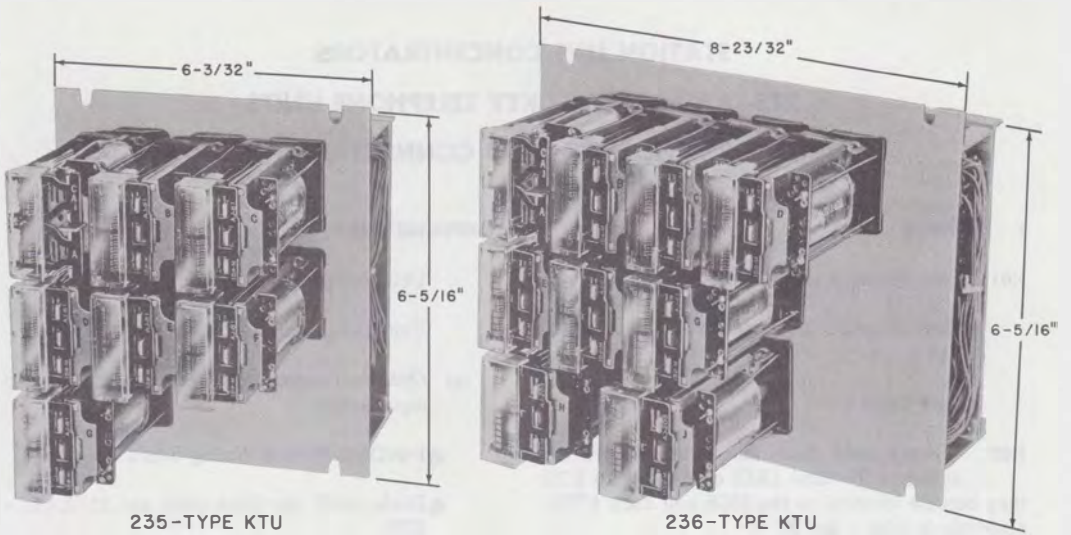


Fig. 1—Station Line Concentrator KTUs, Front View

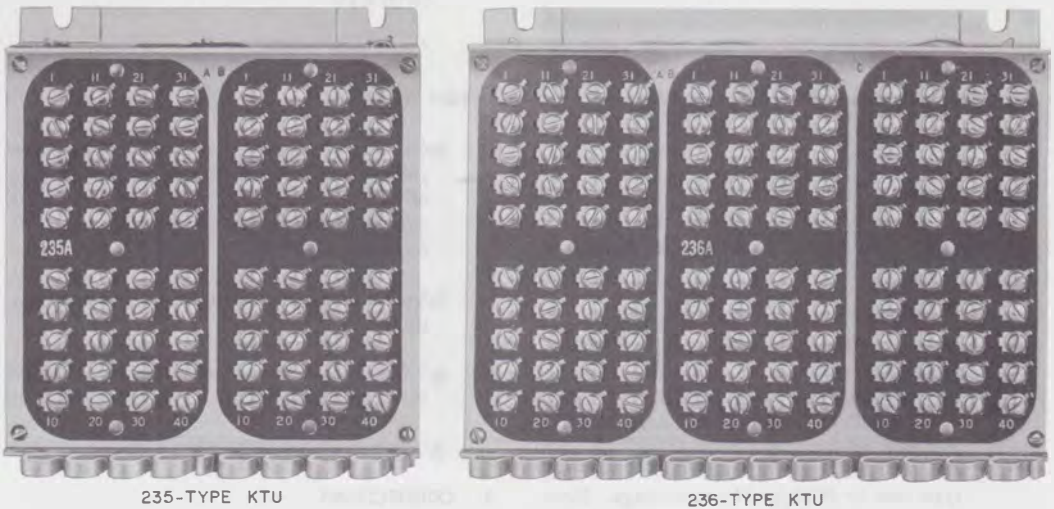


Fig. 2—Station Line Concentrator KTUs Rear View

TABLE A

COMBINATIONS OF RELAYS OPERATED IN STATION  
LINE CONCENTRATOR WHEN ASSOCIATED KEY POSITION IS OPERATED

KEY POS (NOTE)	RELAYS															
	236A OR B KTU										235A OR B KTU					
	A	B	C	CA1	D	E	F	G	H	J	A	B	C	D	E	F
1	•	•									•	•				
2	•		•								•		•			
3		•	•									•	•		•	
4	•				•						•			•		
5		•			•							•		•		
6				•					•				•	•		
7			•		•						•				•	
8		•				•						•			•	
9			•			•							•		•	
10					•	•								•	•	
11			•				•					•				•
12					•		•						•			•
13						•	•						•			•
14					•			•						•		•
15						•		•				•				•
16							•	•					•			•
17	•								•				•			•
18		•							•					•		•
19			•						•							
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25		•								•						
26			•							•						
27					•					•						
28						•				•						
29							•			•						
30								•		•						

Note: Key Mountings with more than 30 pick-up key positions would require additional 236-type KTUs and relay combinations would be identical for each 30 succeeding key positions.

**3.02** When the busy lamp feature is furnished in CALL DIRECTOR telephone sets equipped with headset jacks (638-, 639-, and equivalent TOUCH-TONE types), a P-90D033 Printed Wiring Board Assembly must be added to the 235- or 236-type KTU as shown in Fig. 4 or 6.

**3.03** Modification of 235A and 236A KTUs are required when used with 400D KTUs. The modification prevents a false-hold condition or damage to the Q3 transistor in the 400D KTU caused by large transient voltages occurring when the associated concentrator type CALL DIRECTOR set goes on-hook. Modification of concentrator units is not required when used with 1A1 KTS, or 400B or C KTUs in 1A2 KTS.

**CONNECTION INDEX**

Table B—Options

Fig. 3—Connections for 235-Type KTU When Used With 634-, 635-, and Their Equivalent TOUCH-TONE Telephone Sets

Fig. 4—Connections for 235-Type KTU When Used With 638-, 639-, and Their Equivalent TOUCH-TONE Telephone Sets and P-90D033 Printed Wiring Board Assembly.

Fig. 5—Connections for 236-Type KTU When Used With 634-, 635-, and Their Equivalent TOUCH-TONE Telephone Sets

Fig. 6—Connections for 236-Type KTU When Used With 638-, 639-, and Their Equivalent TOUCH-TONE Telephone Sets

For other information, refer to:

DRAWING	TITLE
SD and CD-69498-01	(Key Telephone System No. 6A, 1A1, and 1A2, Station Line Concentrator, 634-, 635-, 1634-, and 1635-Type Telephone Set Circuits)
SD and CD-69499-01	(Key Telephone System No. 1A1, 1A2, and 6A Station Line Concentrator Key and Telephone Circuit, 638-, 1638-, 639-, and 1639-Type Telephone Sets)
SD and CD-69513-01	(Key Telephone System No. 1A2, CO, or PBX Line Circuits)
SD and CD-69580-01	(Key Telephone System No. 1A1 or 1A2, Station Busy Lamp Circuit)

**TABLE B**  
**OPTIONS**

FEATURE	KTU							
	235				236			
	A		B		A		B	
	634-, 635-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	638-, 639-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	634-, 635-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	638-, 639-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	634-, 635-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	638-, 639-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	634-, 635-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET	638-, 639-, AND TOUCH-TONE EQUIVALENT TYPE TELEPHONE SET
Common Audible	X	X	X	X	Y	Y	Y	Y
Power Failure	W	W	W	W	Z	Z	Z	Z
Common Audible With Power Failure	J	H	J	H	K	J	K	J
With Station Busy Lamp Circuit	M	G	M	G	M	G	M	G
Without Station Busy Lamp Circuit	E	F	-	-	E	F	-	-
Individual Line Signaling	V	V	V	V	T	T	T	T
Not Associated With 400D KTU	F	B	-	-	F	B	-	-
Associated With 400D KTU in No. 1A2 KTS	G	E	-	-	G	E	-	-
29 Lines With Hold	-	-	-	-	R	K	R	K
30 Lines Without Hold	-	-	-	-	N	M	N	M



235 A (MD) KTU

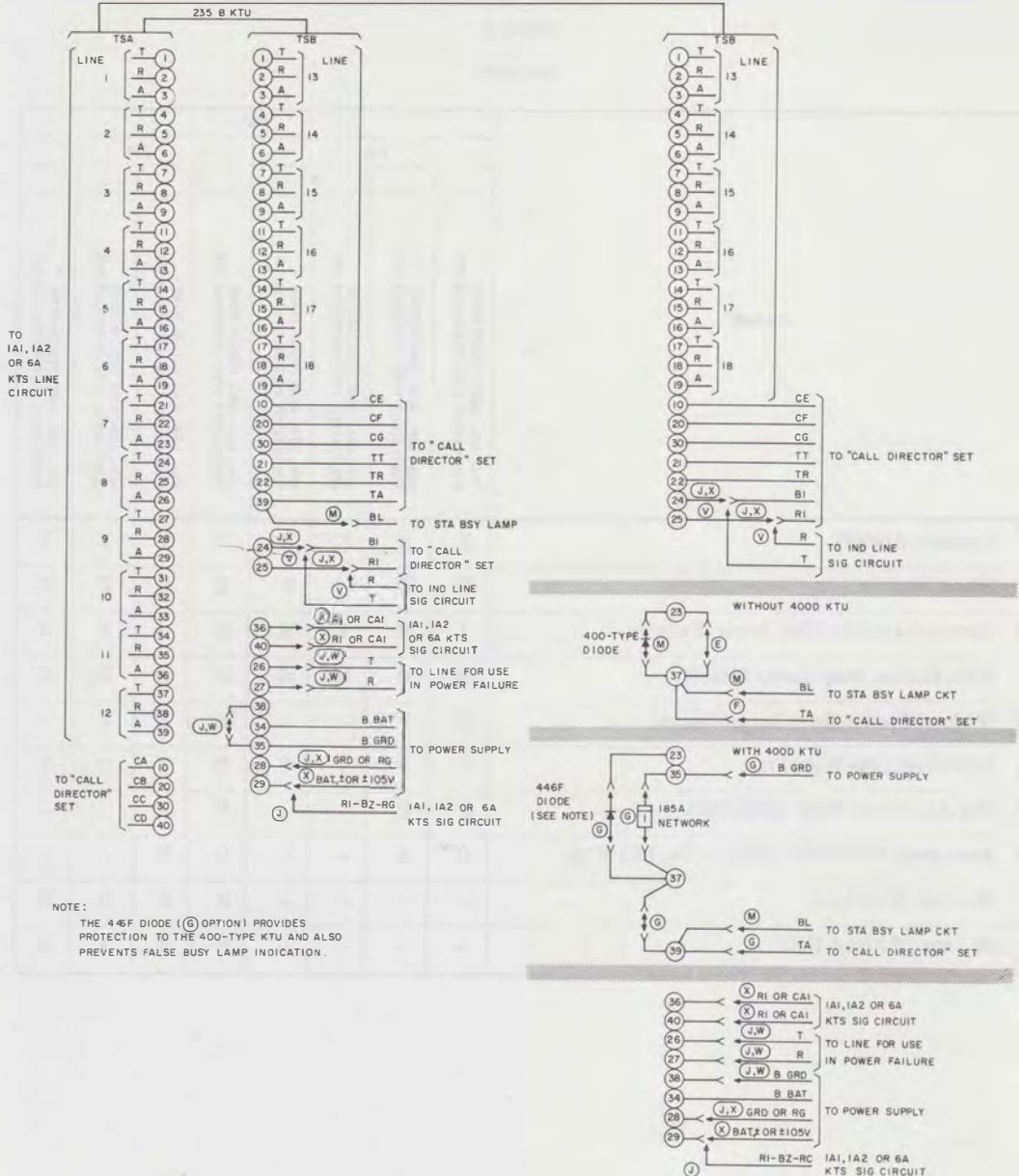
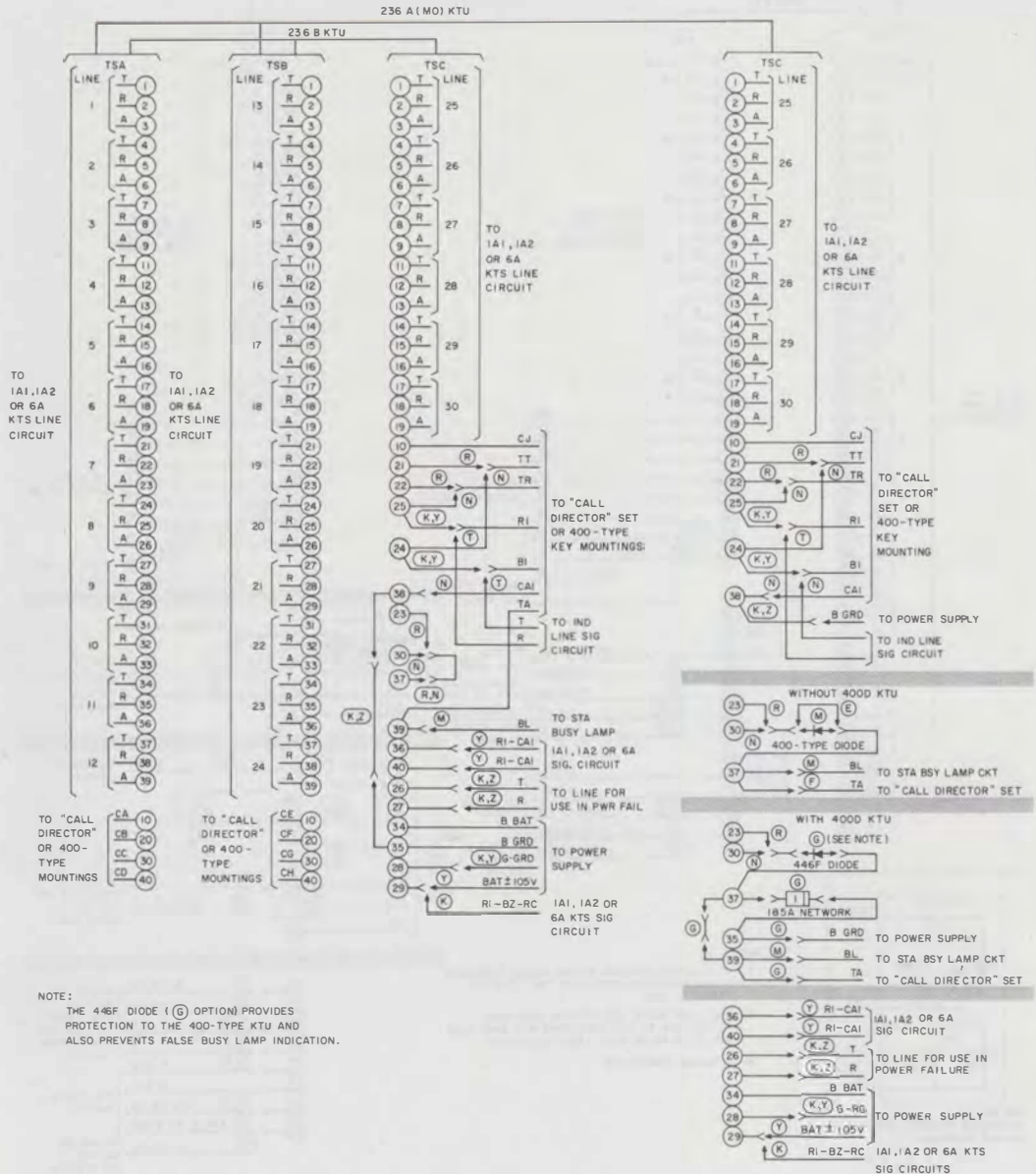


Fig. 3—Connections For 235-Type KTU When Used With 634-, 635- and Their Equivalent TOUCH-TONE Telephone Sets





♦ Fig. 5—Connections for 236-Type KTU When Used With 634-, 635- and Their Equivalent TOUCH-TONE Telephone Sets ♦



