

6A KEY TELEPHONE SYSTEM

SINGLE-TALKING LINK

CONNECTIONS

1. GENERAL

1.01 This section is reissued to:

- (a) Show minor wiring changes.
- (b) Provide connection information for
 - Auxiliary relay circuit 227B KTU, which replaces the 227A KTU rated MD.
 - TOUCH-TONE® adapter, 247A (MD) KTU, formerly covered in Section 518-410-410.
- (c) Delete installation information.

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.02 Identification and installation information for this system is covered in Section 518-410-100.

1.03 The visual and audible signal circuit referred to in this section is the electro-mechanical flash, wink, ring, and time-out circuit (232-type KTU).

2. CONNECTIONS

2.01 The connection diagrams serve as a guide to the installer in connecting the 6A Key Telephone System units to provide the desired features.

2.02 When adding a TOUCH-TONE adapter (247-type KTU) to a system that will have TOUCH-TONE and rotary dial stations, the following applies:

- (a) TOUCH-TONE and rotary dial stations must be assigned line circuits on separate KTUs [214B (MD), 234A, or 215A]. This insures that the TOUCH-TONE adapter will be activated only by TOUCH-TONE dial stations.

- (b) The number of each type dial station would determine whether they are assigned to the 9-station KTU [214B (MD) or 234A] or 3-station KTU (215A).

2.03 Where diodes, resistors, etc., are shown to be furnished on a local basis, use a 228A KTU (bridging unit) or equivalent for terminations.

2.04 Connection Index

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Table B — Wiring Options Associated With Stations

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Fig. 2 — Connections for Basic Units (234A, 216A, and 19B KTUs)

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Fig. 13 — Addition of TOUCH-TONE Adapter Circuit [247A (MD) with 234A and 215A KTUs]

Fig. 14 — Addition of TOUCH-TONE Adapter Circuit [247B with 207B or C, 214B (MD), and 215A KTUs]

Fig. 15 — Addition of TOUCH-TONE Adapter Circuit (247B with 234A and 215A KTUs)

TABLE A
WIRING OPTIONS ASSOCIATED
WITH SYSTEM

WIRING	OPTION	
X	Without (Max 9 Codes)	Transfer Circuit
W	With (Over 9 Codes)	
K	With	Preset Conference
J	Without	
G	With	Camp-On
N	Without	
H	Without	Aux Rel Busy Lamp Ckt (Note 1)
M	With	
S	Without	Aux Rel Lamp Flash Ckt (Note 2)
V	With	
AK	Interrupted	Audible Signal
AL	Single Spurt	
AJ	Dial, Busy, and Audible Tone (Note 3)	
AQ	Busy Signal and Camp-On Control Circuit When Used With a 207B KTU	
AR	Preset Conference Time-Out Circuit	

Note 1: Provide *M* option when system is over 40 busy lamps.

Note 2: Provide *V* option when system is over 20 simultaneous flashing lamps.

Note 3: A 207C or 234A KTU is required when dial tone is furnished.

TABLE B
WIRING OPTIONS ASSOCIATED
WITH STATIONS

WIRING	OPTION	
E	With	Automatic Cutoff (Note 1)
F	Without	
Y	Over <i>T</i> & <i>R</i> Leads	Sta Aud Sig
Z	Over Sep Sig Pair	
AA	Sta Assoc with Com Aud Arr	
Q	With	Aux Rel Sta Ckt (MD) (Note 2)
AG	Without	
AG	Without	Add-On Transfer Ckt (Note 3)
AO	With	
AE	Local Sta or Off Prem Sta When <i>AK</i> Opt is Provided	Sig Key Selection of Station
AF	Off Prem Sta When <i>AL</i> Opt is Provided	
AB	Sta to Originate Add-On Conference (MD)	
AS	Without	Station Busy
AT	With	

Note 1: A station wired for *F* option cannot camp on the system.

Note 2: Provide *Q* option when a station that originates add-on conferencing (*AB* option) is also associated with *Z* or *AA* option.

Note 3: Provide *AO* option for each station that originates the add-on conference circuit.

SECTION 518-410-401

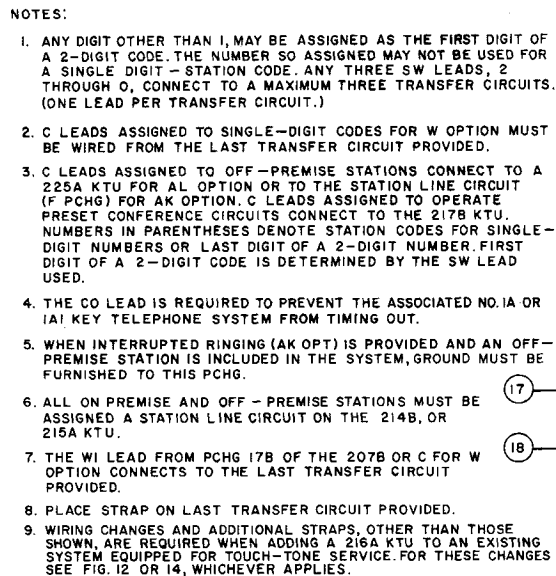


Fig. 1 — Connections for Basic Units [207B or C, 214B (MD), 216A, and 19B KTUs] (Sheet 1)

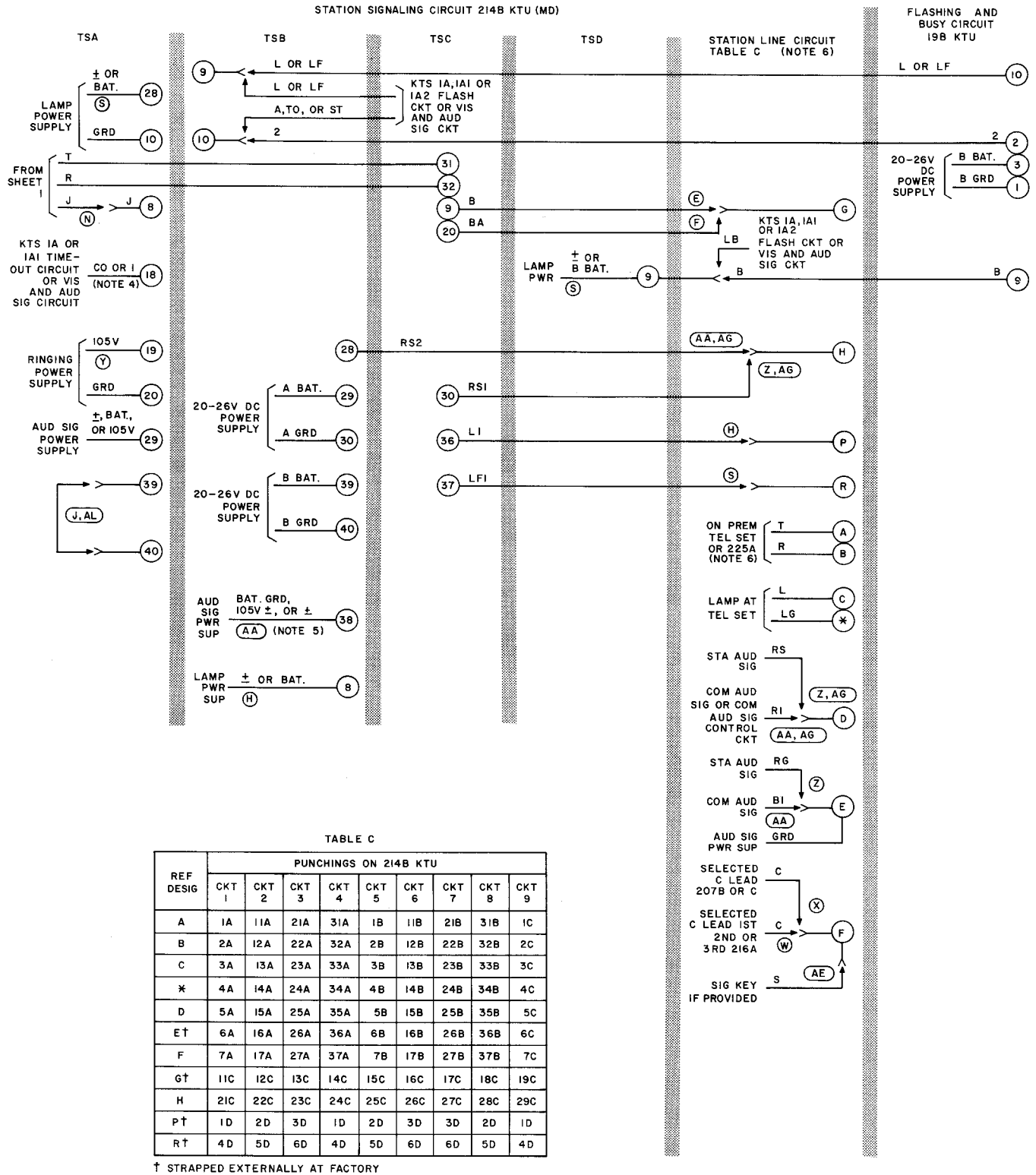


Fig. 1 — Connections for Basic Units [207B or C, 214B (MD), 216A, and 19B KTUs] (Sheet 2)

PART OF SELECTOR AND TRANSFER CIRCUIT-234A KTU (MAX. 18 CODES)

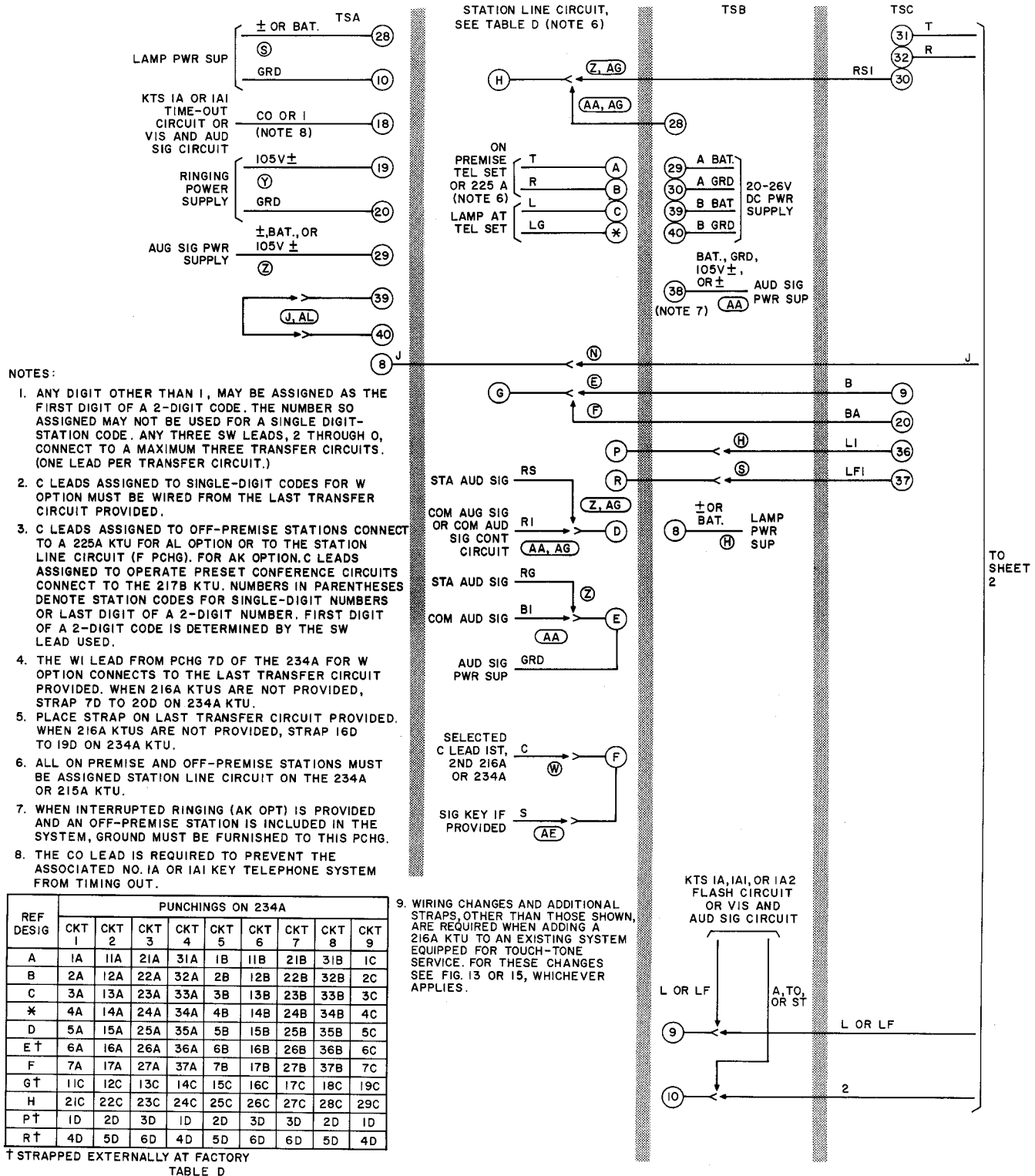


Fig. 2 — Connections for Basic Units (234A, 216A, and 19B KTUs) (Sheet 1)

FLASHING AND BUSY
CIRCUIT 19B KTU

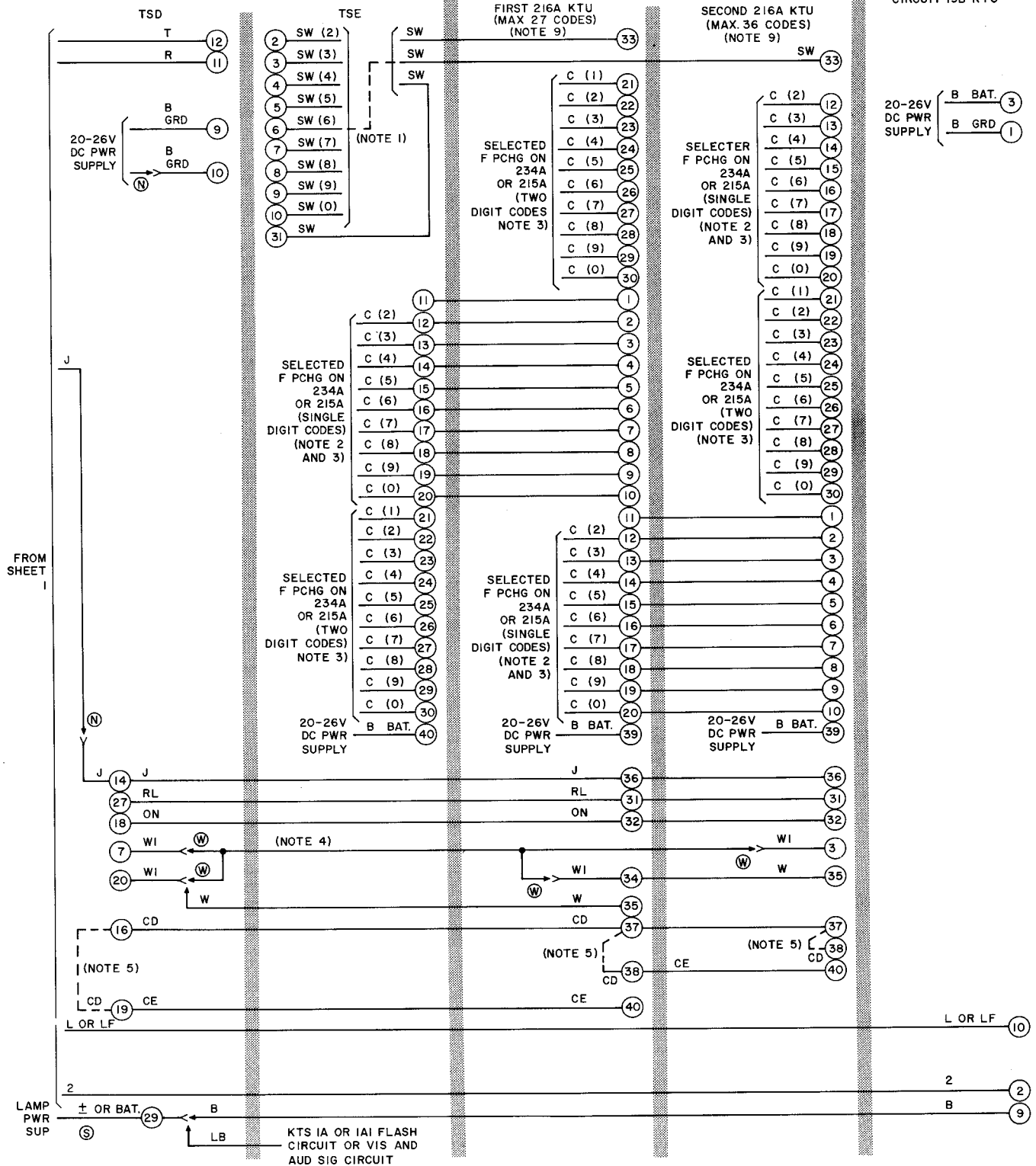


Fig. 2 — Connections for Basic Units (234A, 216A, and 19B KTUs) (Sheet 2)

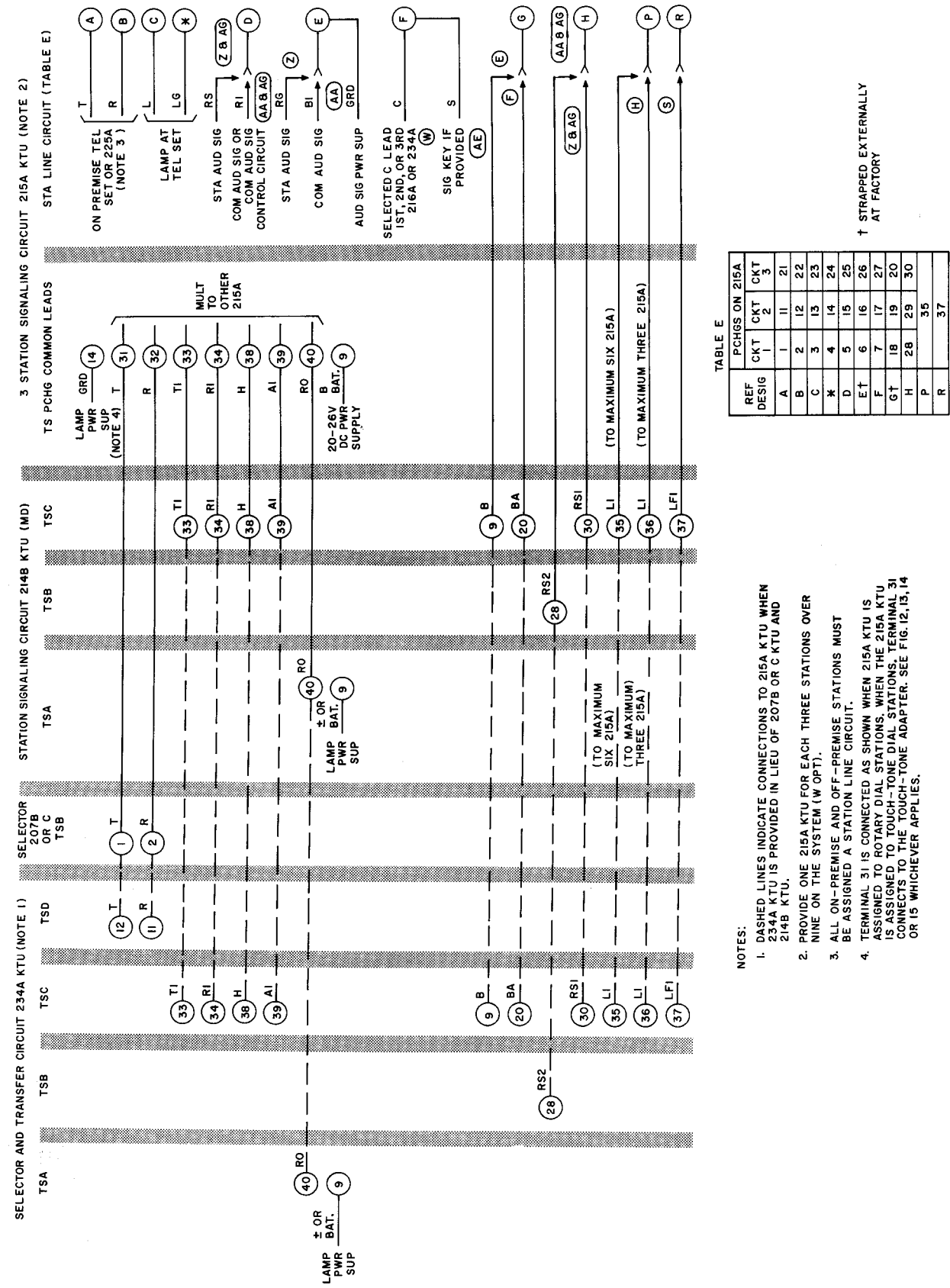


Fig. 3 Addition of Three Station Line Circuits (215A KTU)

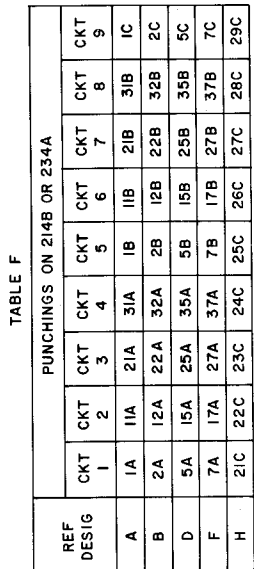


Fig. 4 — Addition of Long Line Circuit (225A KTU)

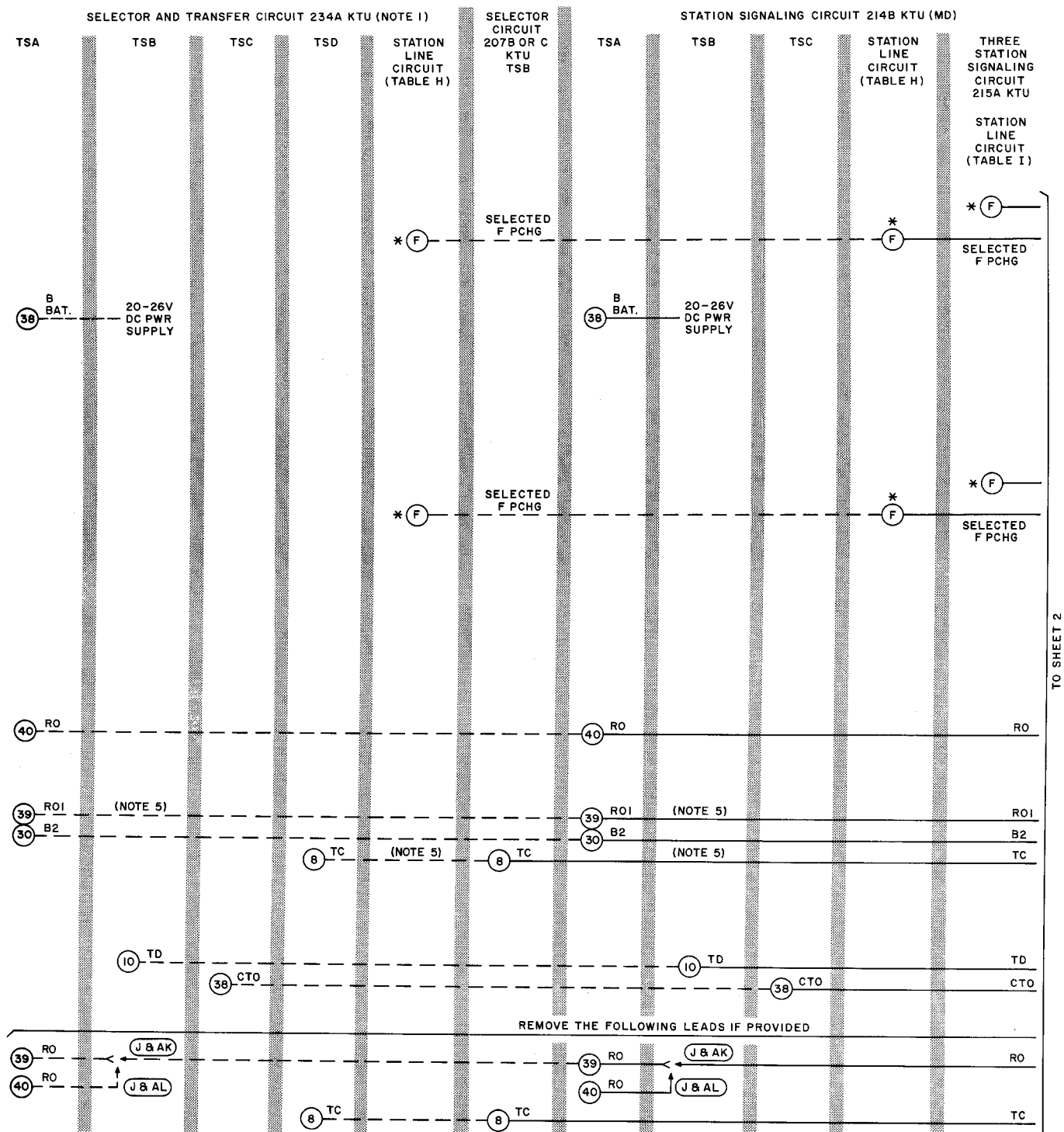
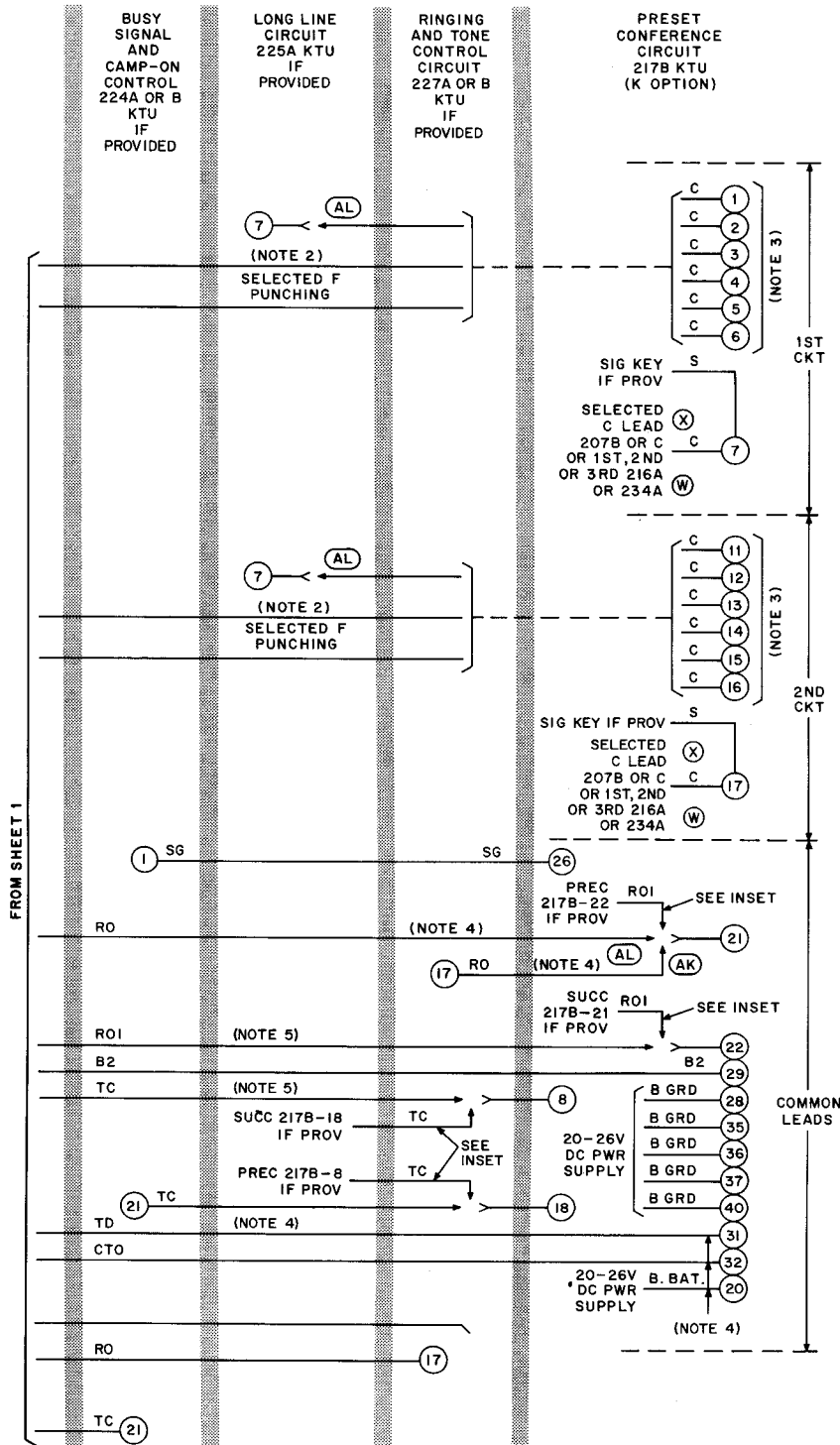


Fig. 5 — Addition of Preset Conference and Time-Out Circuit (217B KTU) (Sheet 1)



NOTES:

1. DASH LINES INDICATE CONNECTIONS TO 217B KTU WHEN 234A KTU IS PROVIDED IN LIEU OF 207B OR C AND 214B KTU.
 2. WHEN AK OPT (INTERRUPTED AUD SIG) IS FURNISHED, THE C LEAD FOR THE OFF-PREMISE STATION CONNECTS TO THE F PUNCHING OF THE STATION LINE CIRCUIT ASSIGNED TO IT ON THE 214B, 215A, OR 234A.
 3. TO MAXIMUM 6-STATION OR LONG LINE CIRCUITS (ONE CIRCUIT PER C LEAD). A STATION MAY APPEAR ON MORE THAN ONE CONFERENCE CIRCUIT.
 4. PROVIDE STRAP TO FIRST 217B ONLY.
 5. PROVIDE STRAP TO LAST 217B ONLY.
- * LINE CIRCUIT OF STATION ASSIGNED TO PRESET CONFERENCE CIRCUIT.

TABLE I

REF DESIG	PCHGS ON 215A		
	CKT 1	CKT 2	CKT 3
F	7	17	27

TABLE H

REF DESIG	PUNCHINGS ON 214B OR 234A								
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9
F	7A	17A	27A	37A	7B	17B	27B	37B	7C

INSET

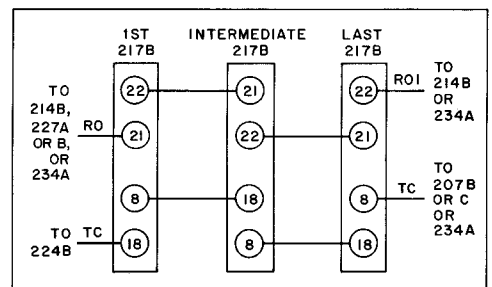


Fig. 5 — Addition of Preset Conference and Time-Out Circuit (217B KTU) (Sheet 2)

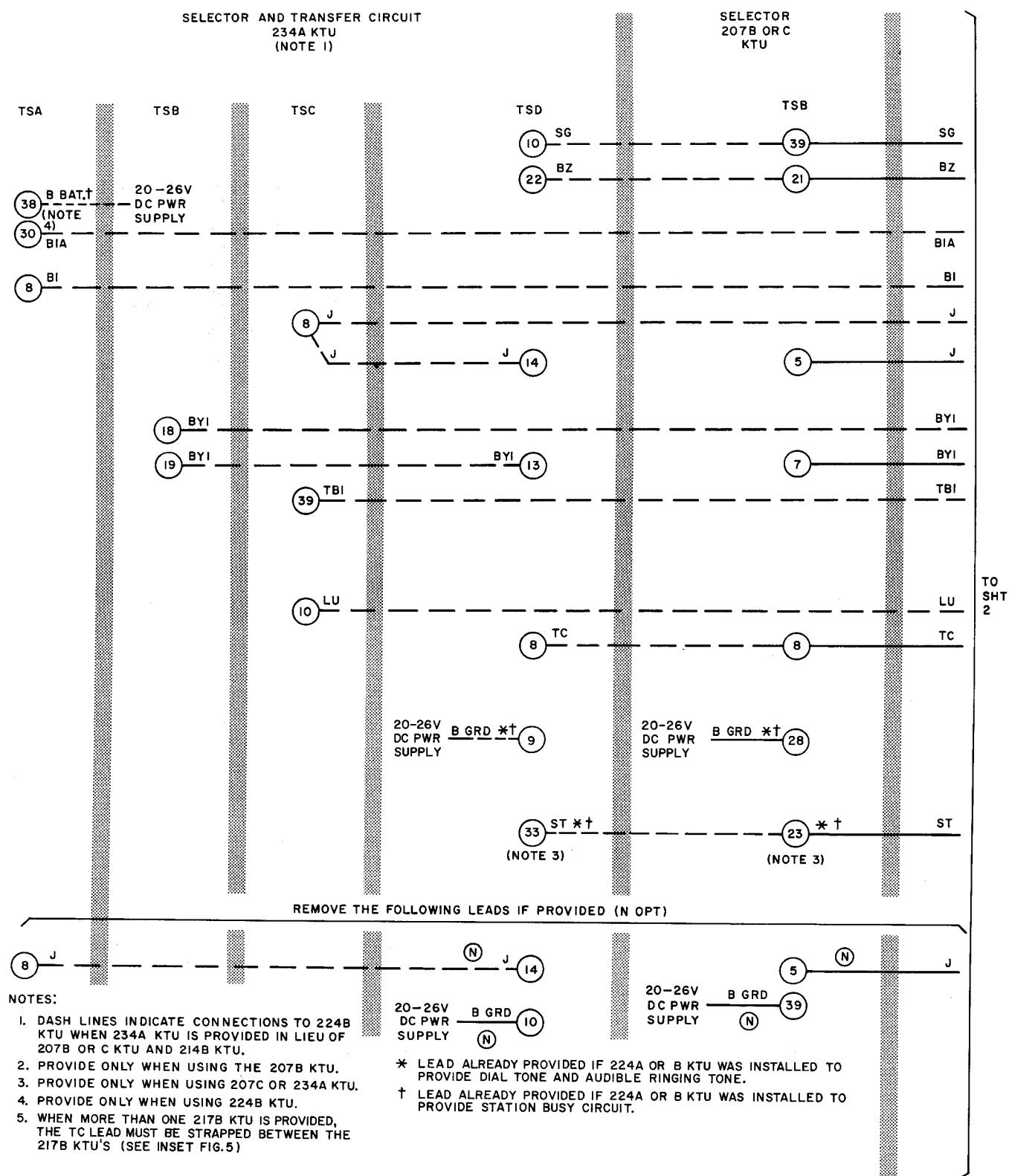


Fig. 6 — Addition of Camp-On Control Circuit (224B KTU) (Sheet 1)

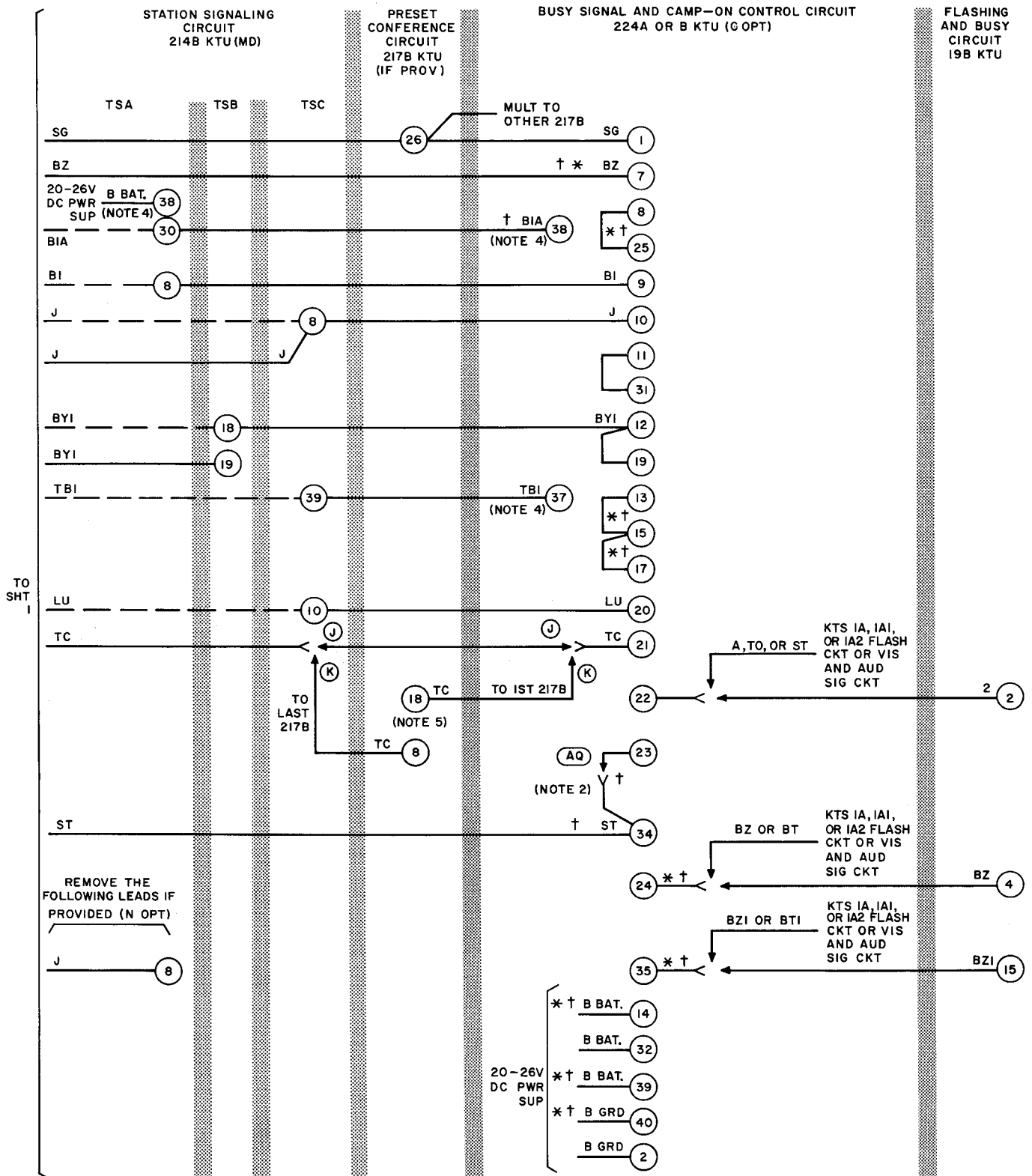


Fig. 6 — Addition of Camp-On Control Circuit (224B KTU) (Sheet 2)

NOTES:

1. DASH LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 214B KTU.
 2. AN ADD-ON TRANSFER CKT IS REQUIRED FOR EACH STATION ORIGINATING ADD-ON CONFERENCE. USE A 227A OR B KTU FOR SINGLE LINE ADD-ON OR A 229B KTU FOR SINGLE OR MULTIPLE LINE ADD-ON.
 3. PROVIDE ONE NONLOCKING SIGNAL KEY FOR EACH ADD-ON CONFERENCE CKT.
 4. PLACE STRAP ON LAST 226A OR B KTU ONLY.
 5. PLACE B BAT ON FIRST 226A OR B KTU ONLY.
 6. MORE THAN ONE STATION CAN ORIGINATE THE SAME ADD-ON CONFERENCE CKT BY MULTIPLYING THE "M" LEADS OF THE ADD-ON TRANSFER CKTS. TO PCHG 15 OF THE SAME 226A OR B KTU.
 7. PROVIDE ONE 226A OR B KTU FOR EACH CENTRAL OFFICE OR PBX LINE TO BE CONFERENCED.
 8. RESISTOR REQUIRED ON 226A KTU ONLY. ORDER AND PLACE LOCALLY.
 9. USE ONLY THE MS RELAY OF THE 227A KTU OR ANY RELAY (CAI, CA2, OR MS) OF THE 227B KTU FOR A SINGLE ADD-ON TRANSFER CIRCUIT. (SEE TABLE L)
- * LINE CKT OF STATION ORIGINATING CONFERENCE.

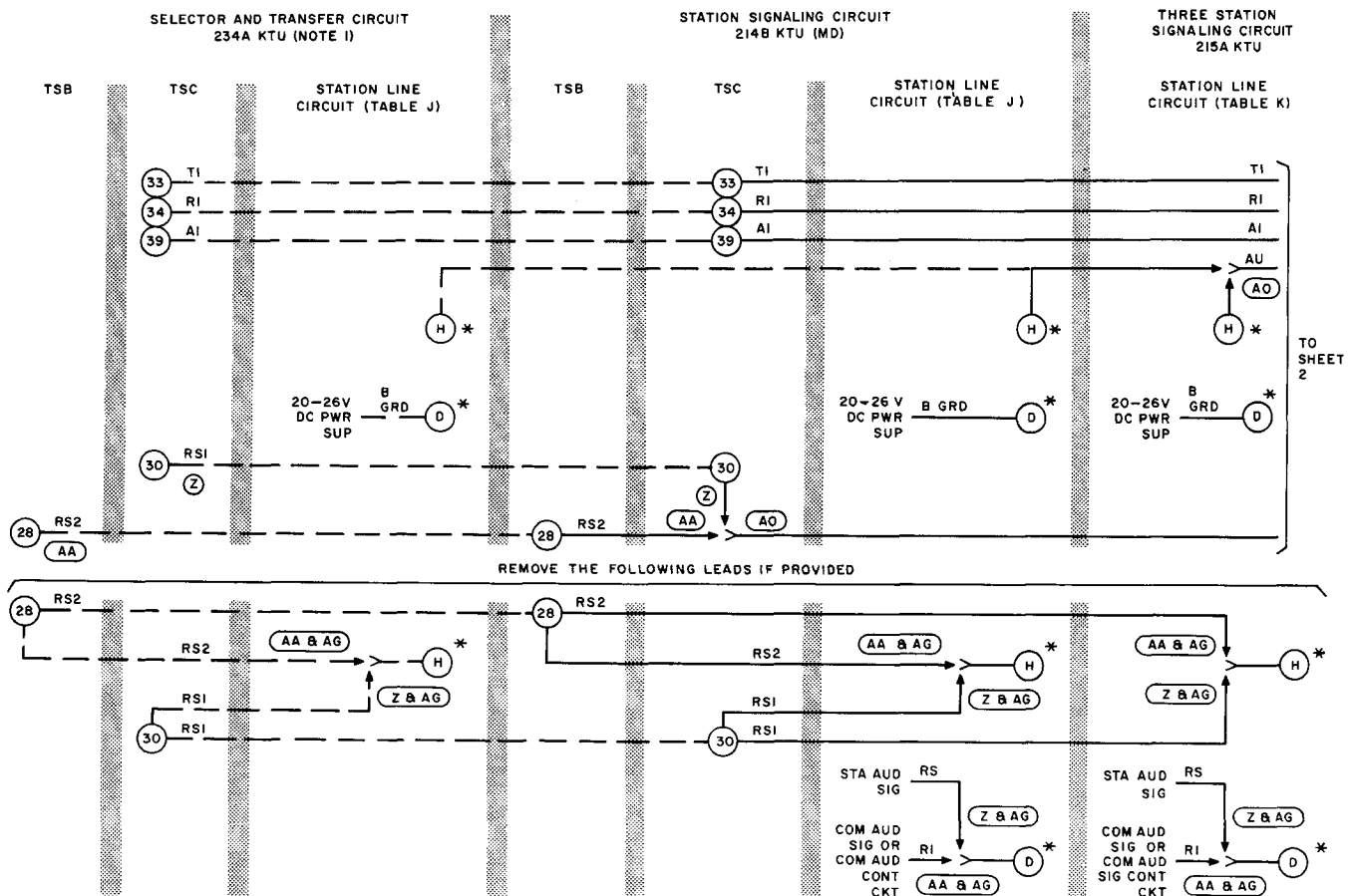


Fig. 7 — Addition of Add-On Conference Circuit (226A or B KTU) (Sheet 1)

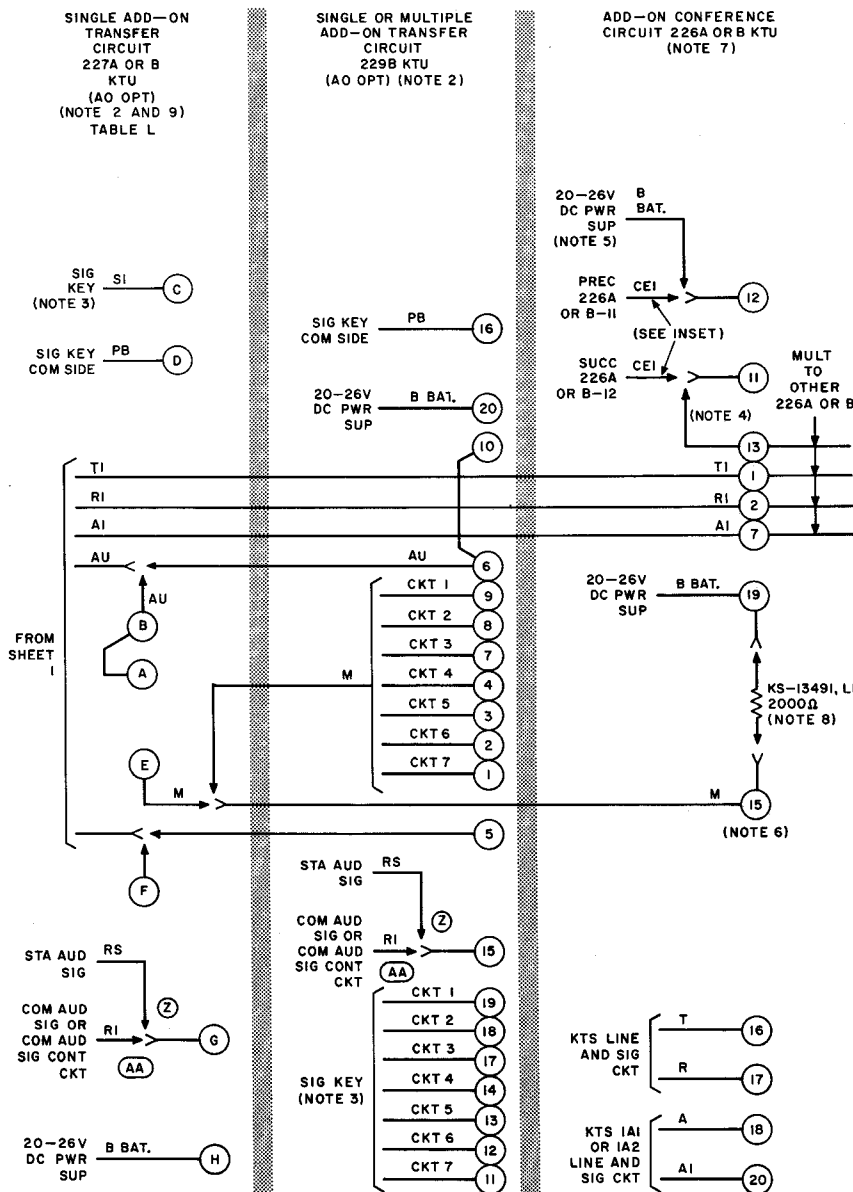
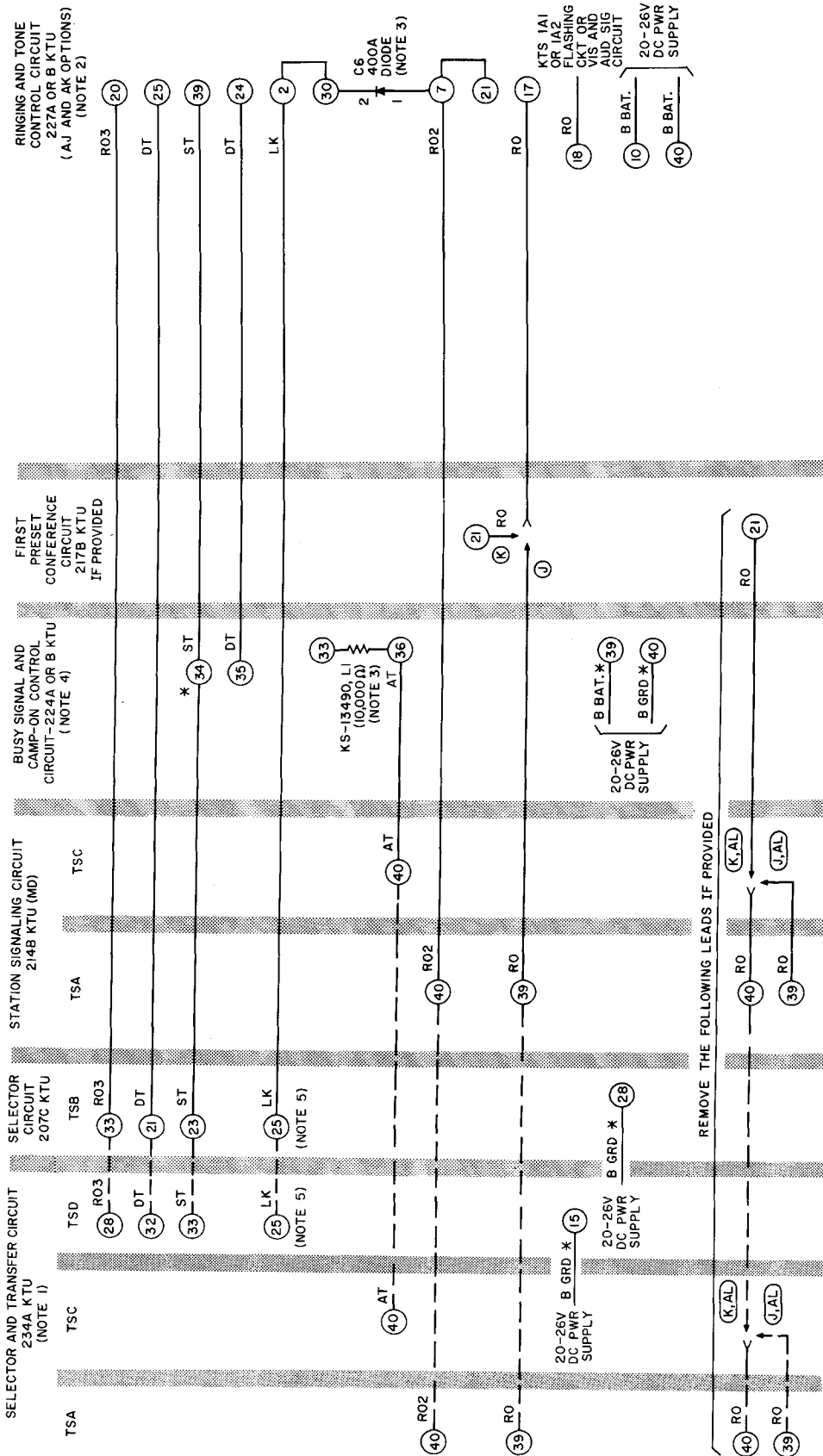


Fig. 7 — Addition of Add-On Conference Circuit (226A or B KTU) (Sheet 2)



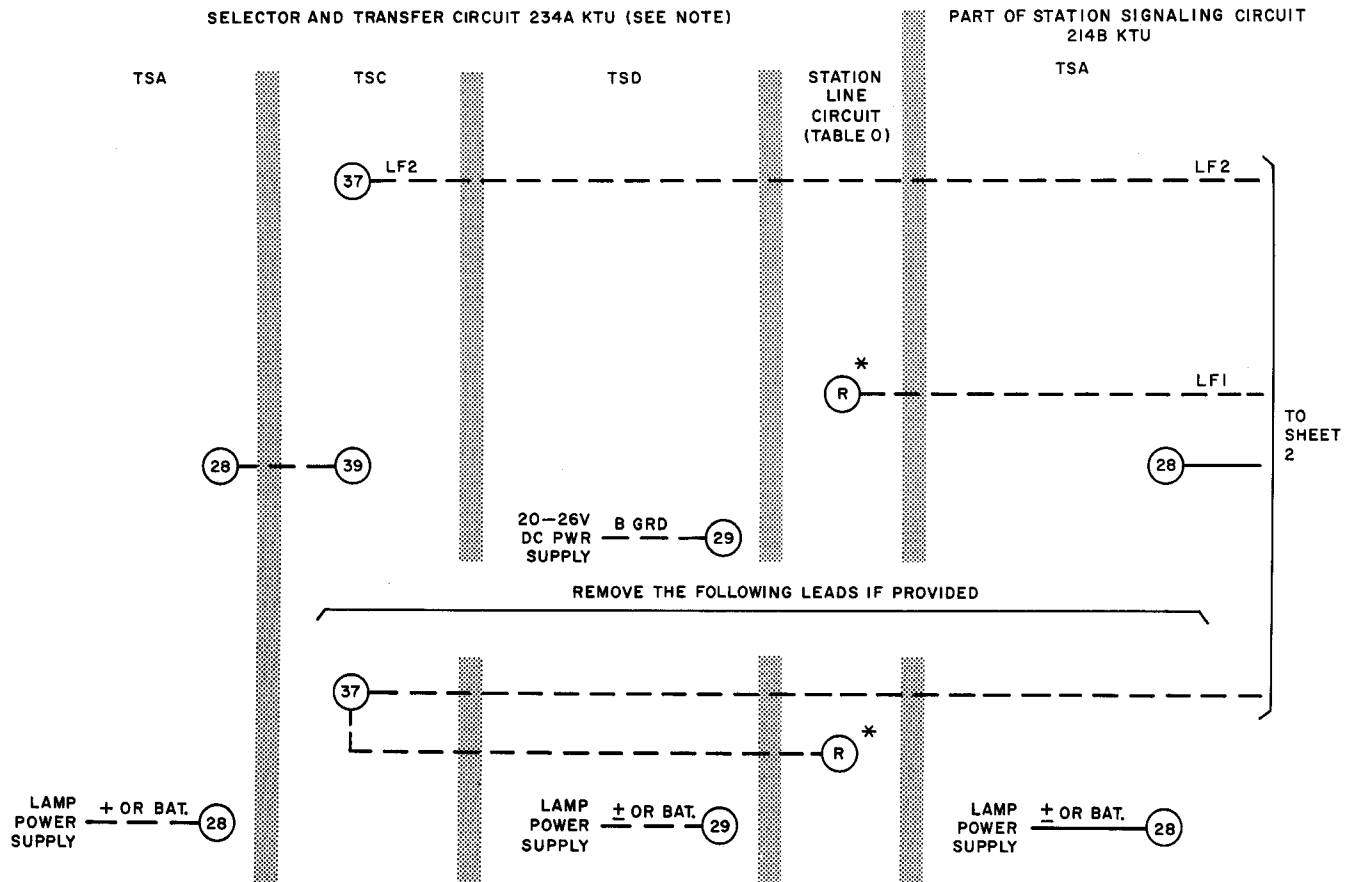
NOTES:

1. DASHED LINES INDICATE CONNECTIONS TO 227A OR B KTU WHEN 234A KTU IS PROVIDED IN LIEU OF 207C KTU AND 214B KTU.
2. WHEN INTERRUPTED RINGING (AK OPT) IS ADDED TO AN EXISTING SYSTEM CHANGES ARE REQUIRED ON LONG LINE CIRCUITS IF PROVIDED (SEE FIG. ENTITLED ADDITION OF LONG LINE CIRCUIT).
3. ORDER AND PLACE LOCALLY.
4. PROVIDE A 224B KTU IF NOT ALREADY PROVIDED FOR CAMP-ON OR STATION BUSY FEATURE.
5. WHEN DIAL TONE IS ADDED TO AN EXISTING SYSTEM EQUIPPED WITH A TOUCH-TONE ADAPTER (247A OR B KTU), THE LK LEAD IS CONNECTED

DIFFERENTLY THAN IS SHOWN SEE FIG. 12, 13, 14, OR 15 WHICHEVER APPLIES.

* LEAD ALREADY PROVIDED IF 224A OR B WAS INSTALLED TO PROVIDE CAMP-ON OR STATION BUSY CIRCUIT.

Fig. 8 — Addition of Dial Tone and Interrupted Ringing (227A or B KTU)



NOTE

DASH LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 214B KTU.

* LINE CKT INVOLVED.

Fig. 10—Addition of Auxiliary Relay Lamp Flash Circuit (227A or B KTU) (Sheet 1)

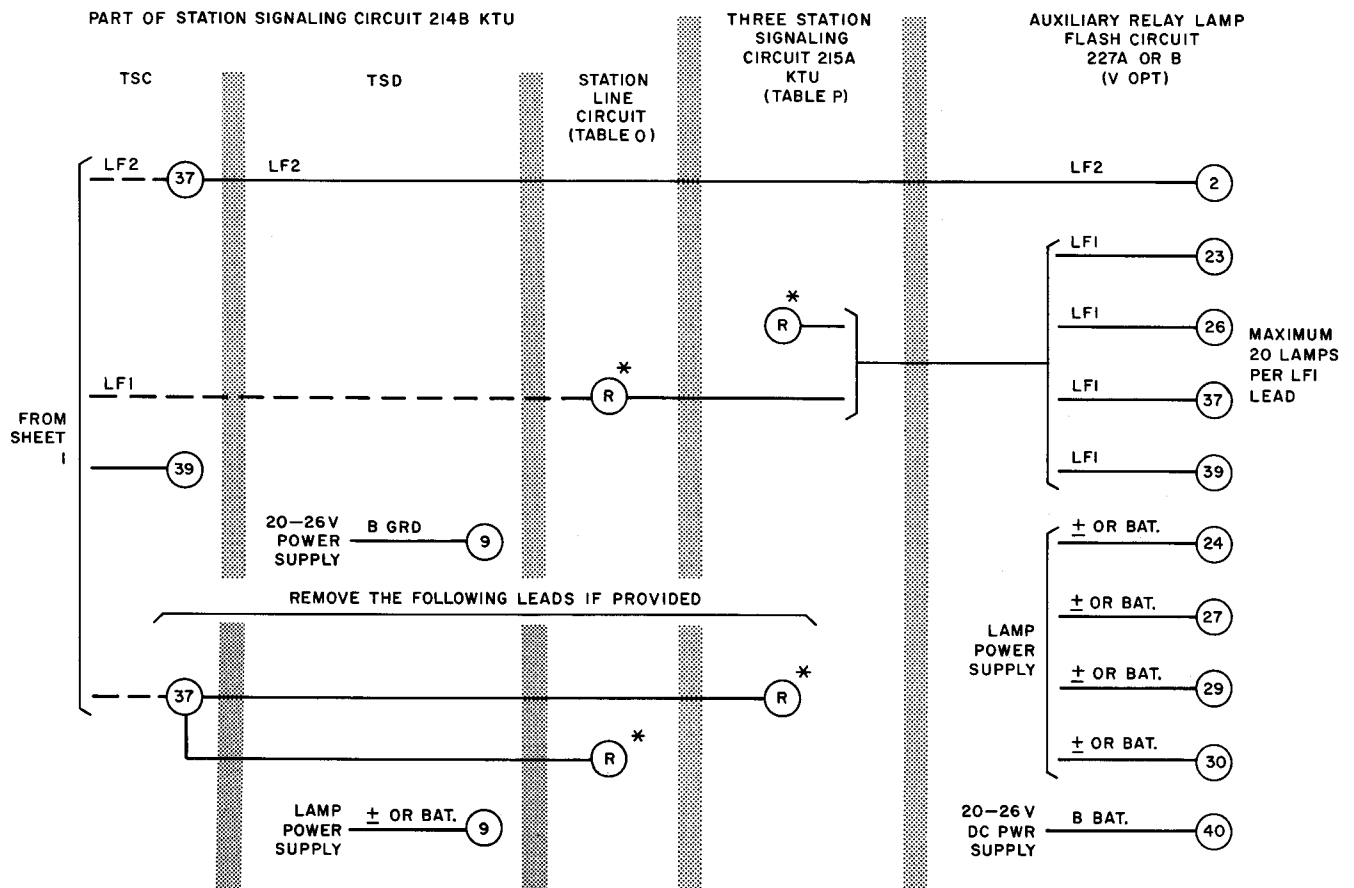


TABLE O

REF DESIG	PUNCHINGS ON 214B OR 234A								
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9
R	4D	5D	6D	4D	5D	6D	6D	5D	4D

TABLE P

REF DESIG	PCHGS ON 215A		
	CKT 1	CKT 2	CKT 3
R	37		

Fig. 10—Addition of Auxiliary Relay Lamp Flash Circuit (227A or B KTU) (Sheet 2)

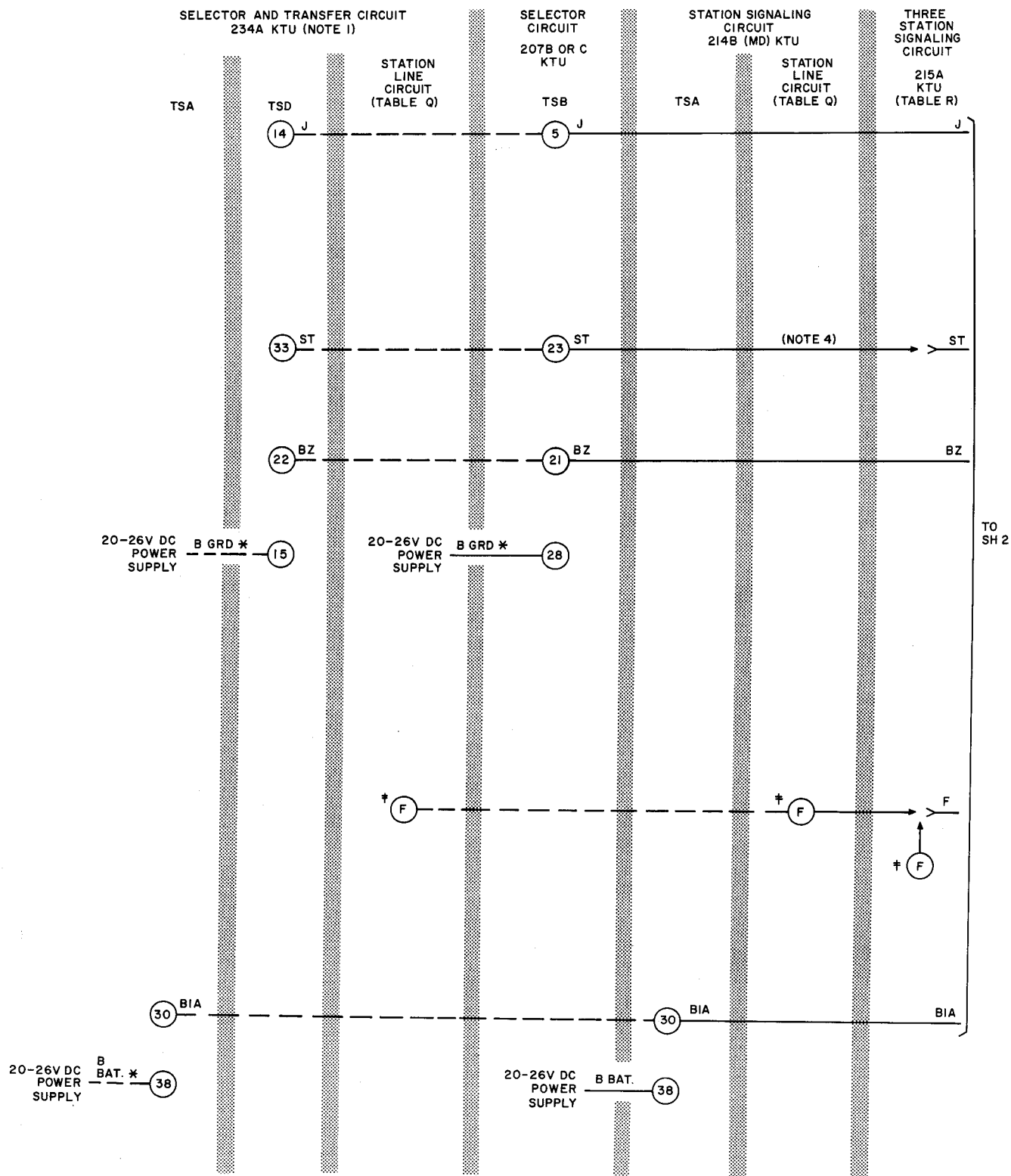
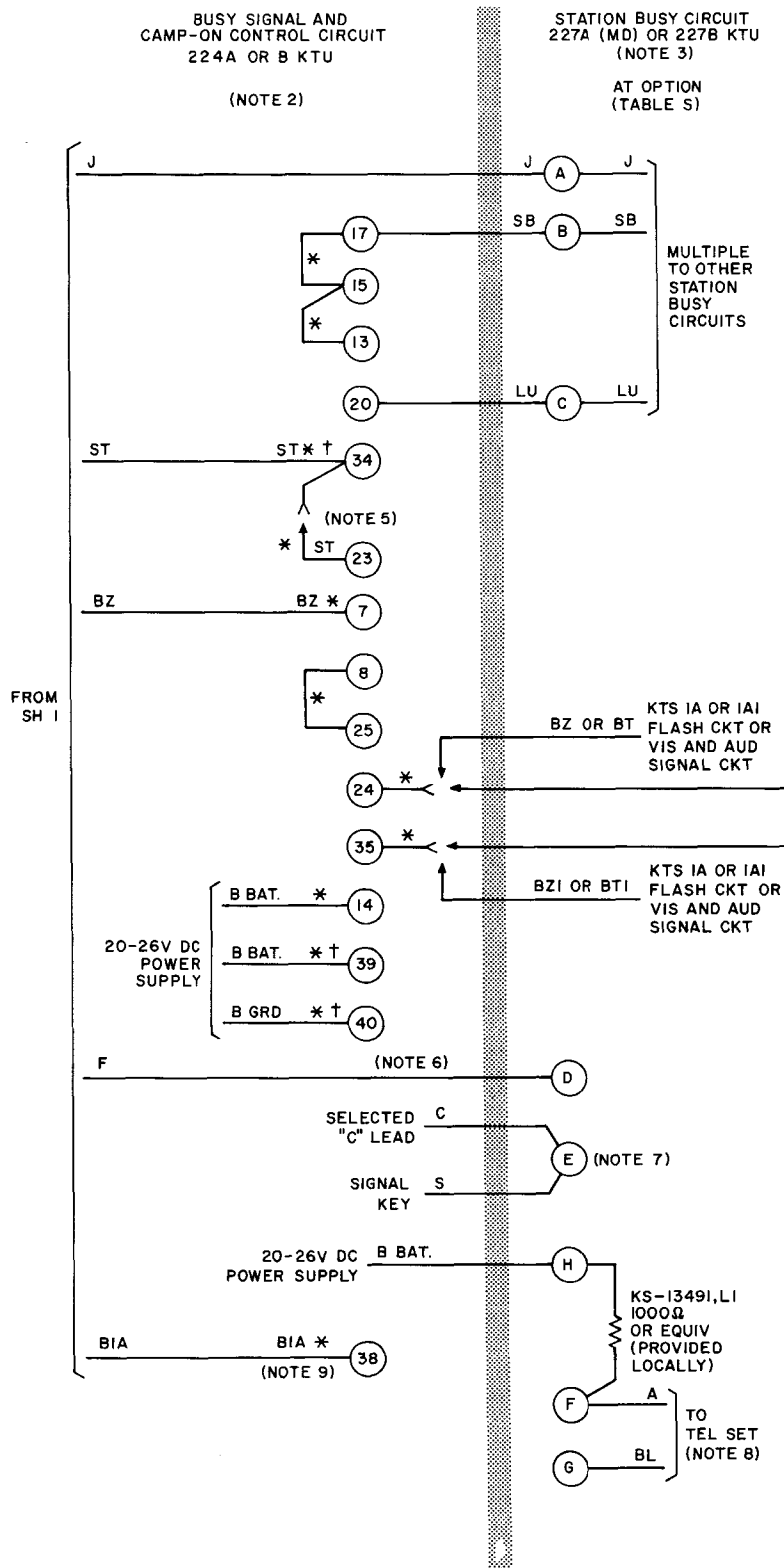


Fig. 11 — Addition of Station Busy Circuit (227A or B KTU) (Sheet 1)



NOTES:

1. DASHED LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 207B OR C AND 214B KTU.
2. PROVIDE A 224A OR B KTU IF NOT ALREADY PROVIDED FOR THE CAMP-ON OR DIAL TONE AND AUDIBLE RINGBACK TONE FEATURE.
3. THE STATION BUSY CIRCUIT REQUIRES A RELAY PER STATION SO EQUIPPED. A 227A KTU WILL PROVIDE FOR TWO STATIONS AND A 227B KTU WILL PROVIDE FOR THREE STATIONS (SEE TABLE S), WHEN USING THE 227B KTU THE CA1 RELAY CANNOT BE USED TO PROVIDE OTHER 6A FEATURES.
4. PROVIDE ONLY WHEN USING 207C KTU OR 234A KTU.
5. PROVIDE ONLY WHEN USING 207B KTU.
6. REMOVE EXISTING C AND S LEADS FROM SELECTED "F" PUNCHING AND CONNECT TO REFERENCE DESIGNATION TERMINAL E OF THE 227A OR B KTU. CONNECT SELECTED "F" PUNCHING TO 227A OR B KTU AS SHOWN.
7. SELECTED "C" LEAD FROM 207B OR C OR 234A KTU FOR "X" OPTION OR FROM 216A OR 234A KTU FOR "W" OPTION AND FROM 217B KTU IF STATION IS PART OF A PRESET CONFERENCE.
8. WHEN CONNECTING "BL" LEAD BE SURE TO INSTALL DIODE IN TEL SET. USE STATION BUSY OPTION AS SHOWN IN CONNECTION PRACTICE OF TYPE SET USED. CONNECT "A" LEAD TO PICK UP KEY ASSIGNED TO PICK UP 6A LINE.
9. PROVIDE ONLY WHEN USING 224B KTU.
- * LEAD ALREADY PROVIDED IF 224B KTU WAS INSTALLED TO PROVIDE CAMP-ON FEATURE.
- † LEAD ALREADY PROVIDED IF 224B KTU WAS INSTALLED TO PROVIDE DIAL TONE AND AUDIBLE RING-BACK TONE FEATURE.
- ‡ LINE CIRCUIT OF STATION ORIGINATING STATION BUSY CIRCUIT.

TABLE Q

REF DESIG	PUNCHINGS ON 214B OR 234A KTU								
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9
F	7A	17A	27A	37A	7B	17B	27B	37B	7C

TABLE R

REF DESIG	PUNCHINGS ON 215A KTU		
	CKT 1	CKT 2	CKT 3
F	7	17	27

TABLE S

REF DESIG	RELAY AND TERM. DESIG.		
	227B		
	CA1	CA2	MS
A	11	17	23
B	14	20	26
C	12	18	24
D	16	22	28
E	15	21	27
F	1	10	40
G	5	8	2
H	3	36	37

Fig. 11 — Addition of Station Busy Circuit (227A or B KTU) (Sheet 2)

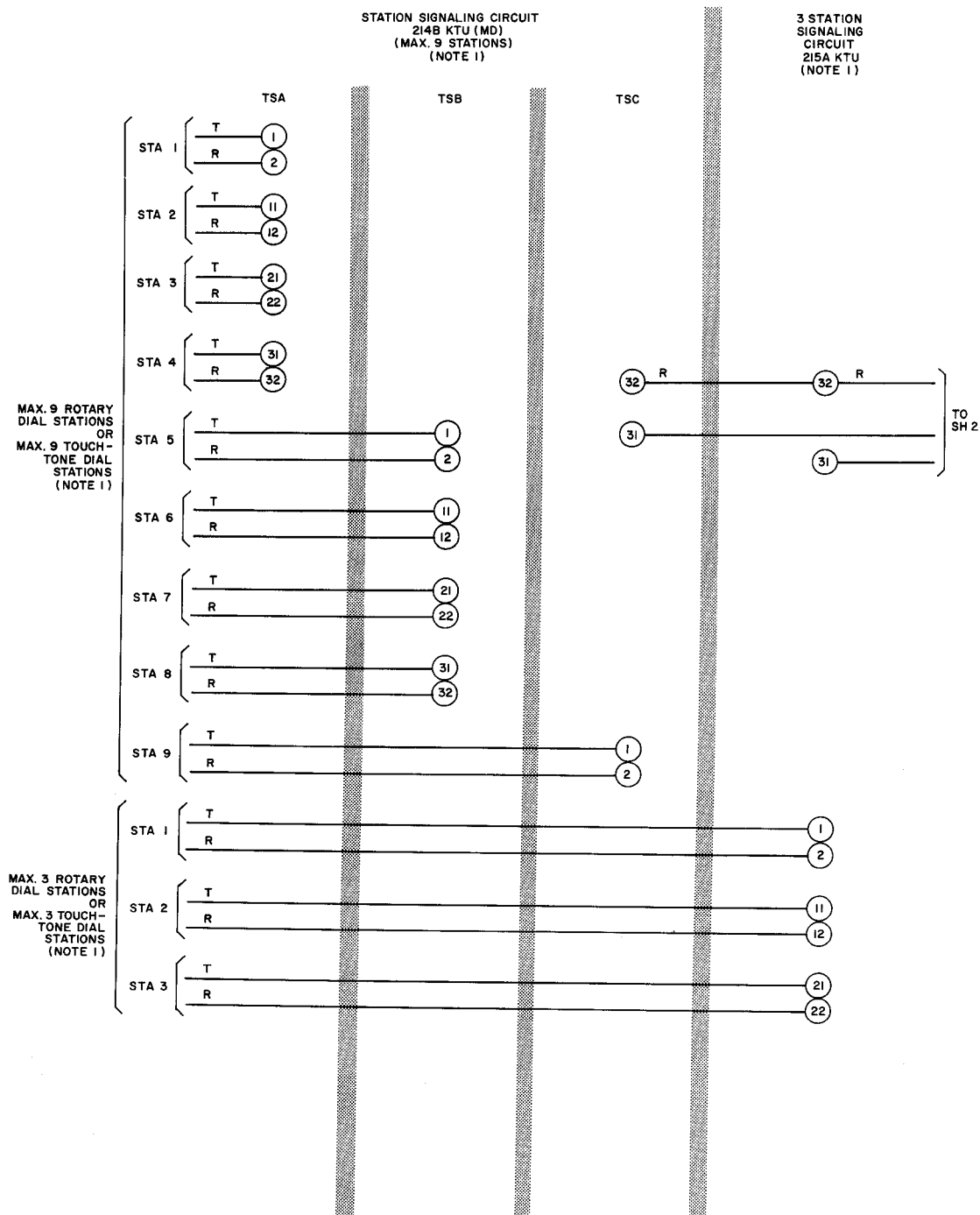


Fig. 12 — Addition of TOUCH-TONE Adapter Circuit [247A (MD) KTU with 207B or C, 214B (MD), and 215A KTUs] (Sheet 1)

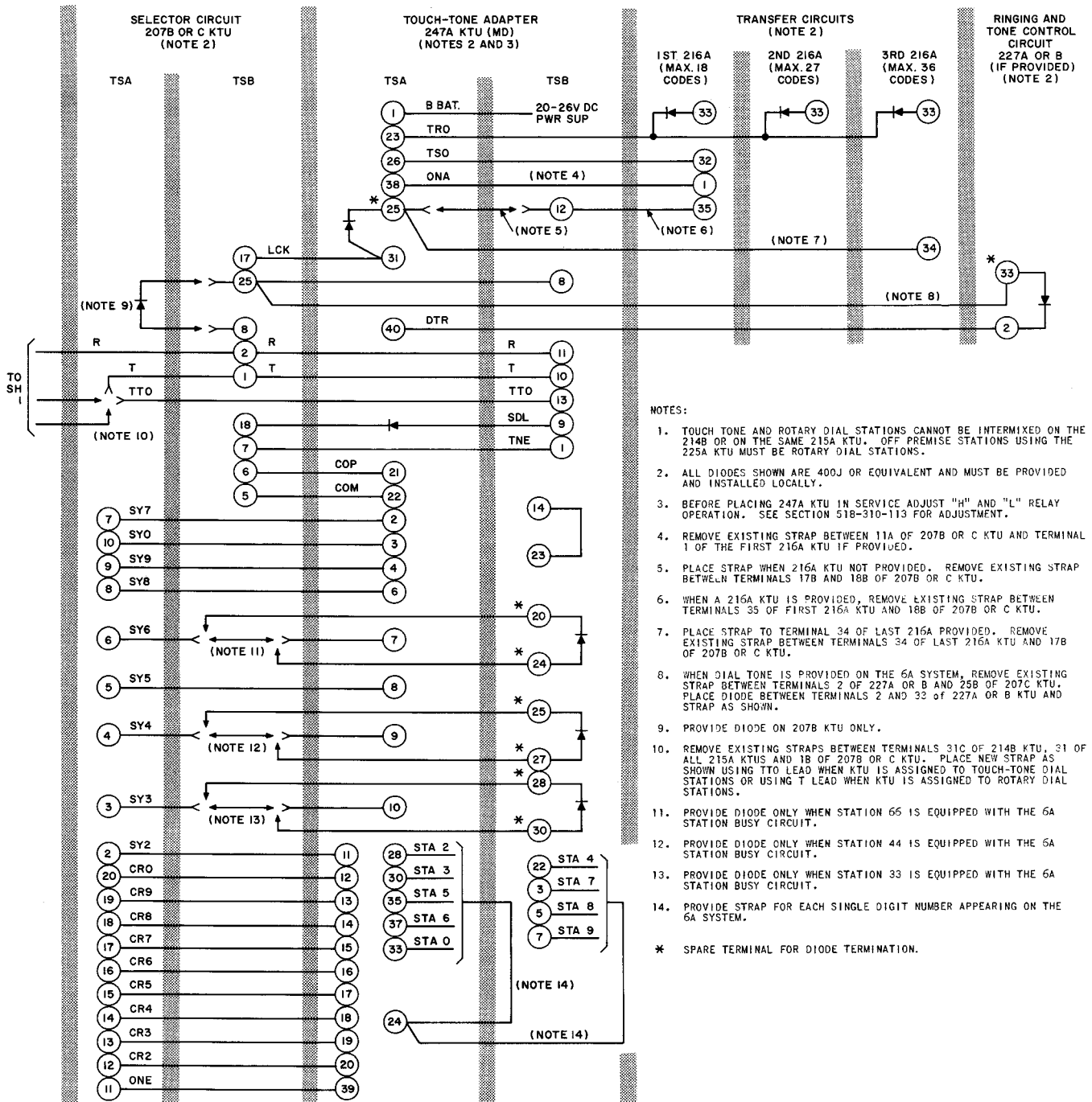


Fig. 12 — Addition of TOUCH-TONE Adapter Circuit [247A (MD) KTU with 207B or C, 214B (MD), and 215A KTUs] (Sheet 2)

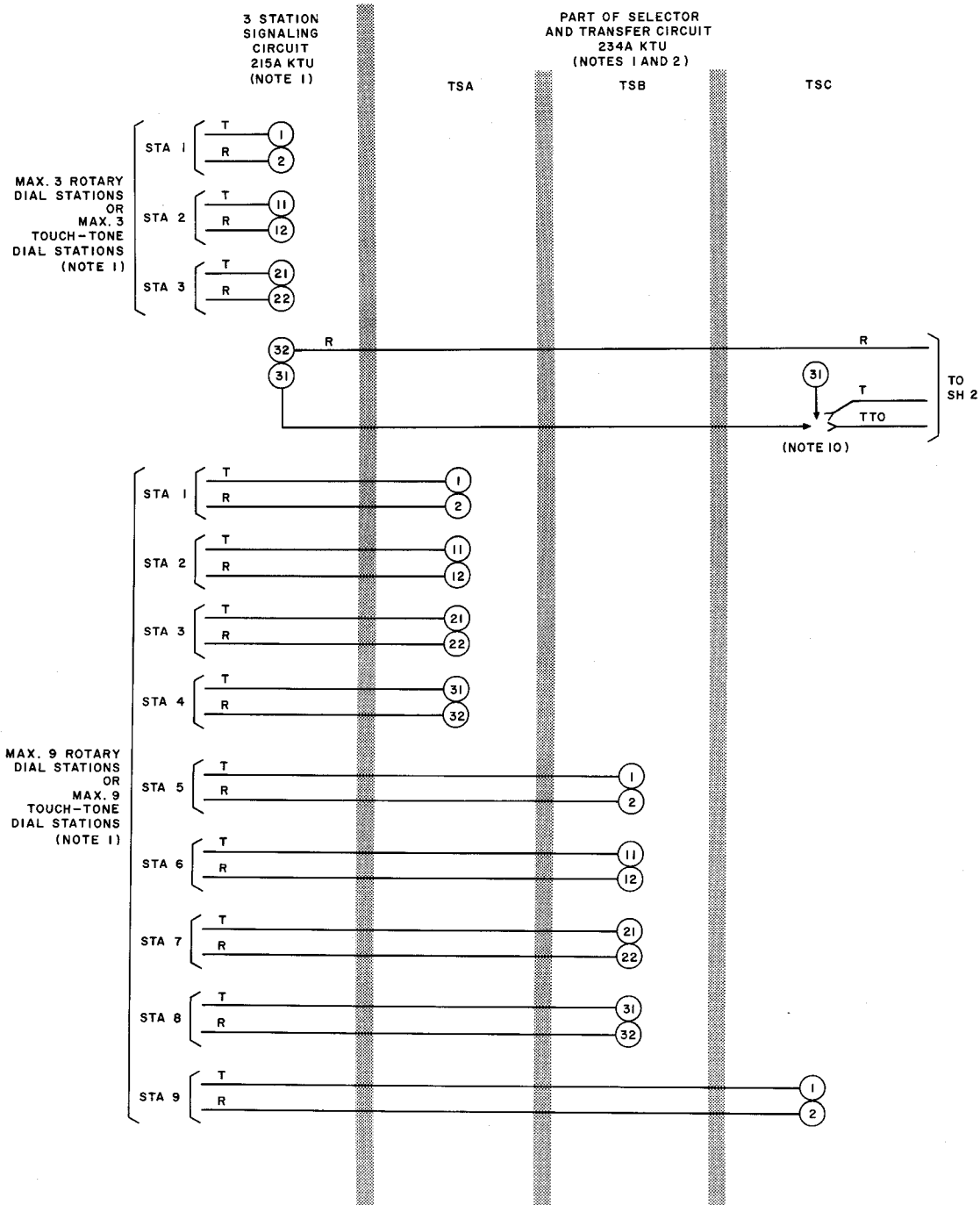


Fig. 13 — Addition of TOUCH-TONE Adapter Circuit [247A (MD) with 234A and 215A KTUs] (Sheet 1)

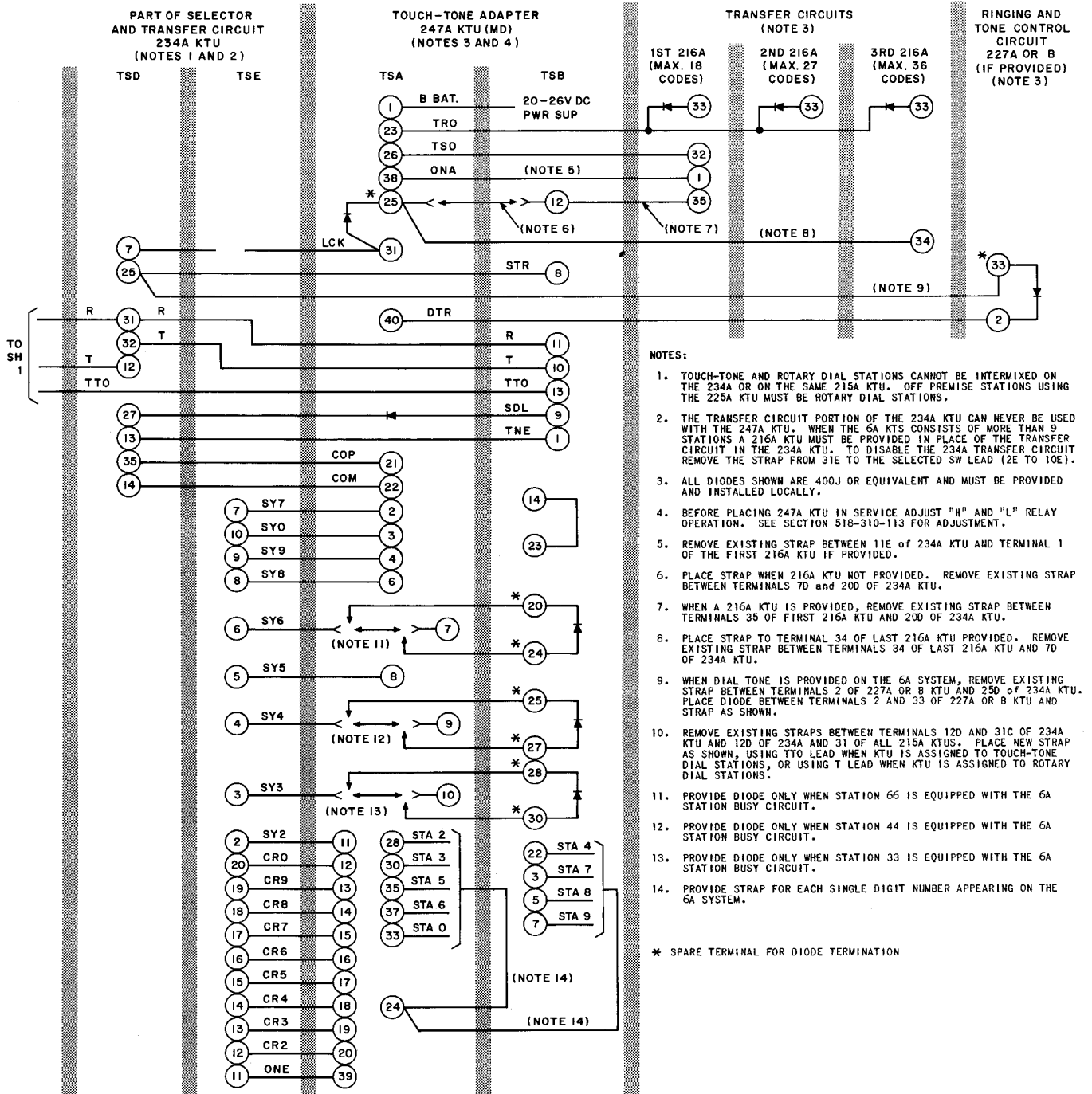


Fig. 13 — Addition of TOUCH-TONE Adapter Circuit [247A (MD) with 234A and 215A KTUs] (Sheet 2)

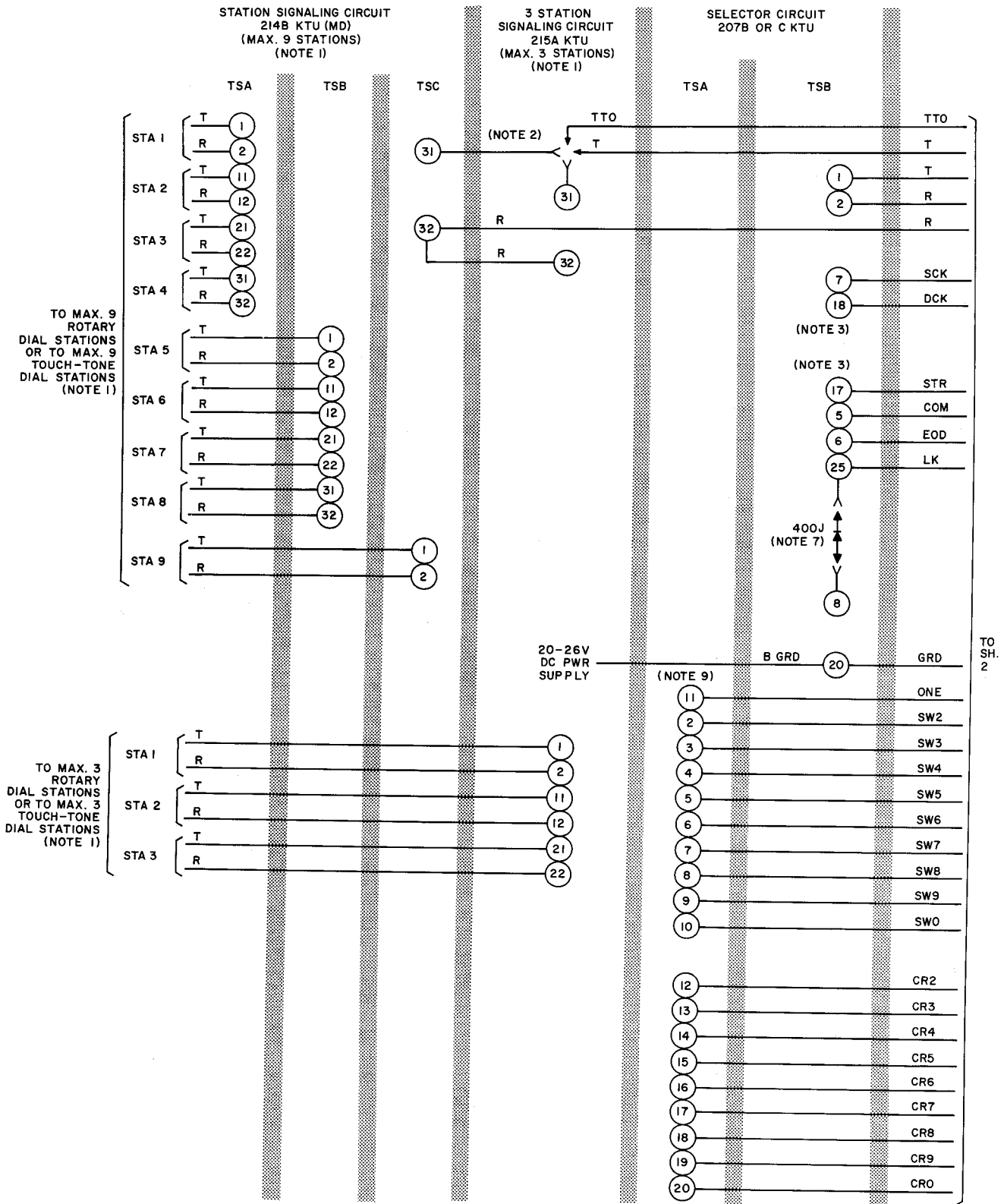


Fig. 14 — Addition of TOUCH-TONE Adapter Circuit [247B with 207B or C, 214B (MD), and 215A KTUs] (Sheet 1)

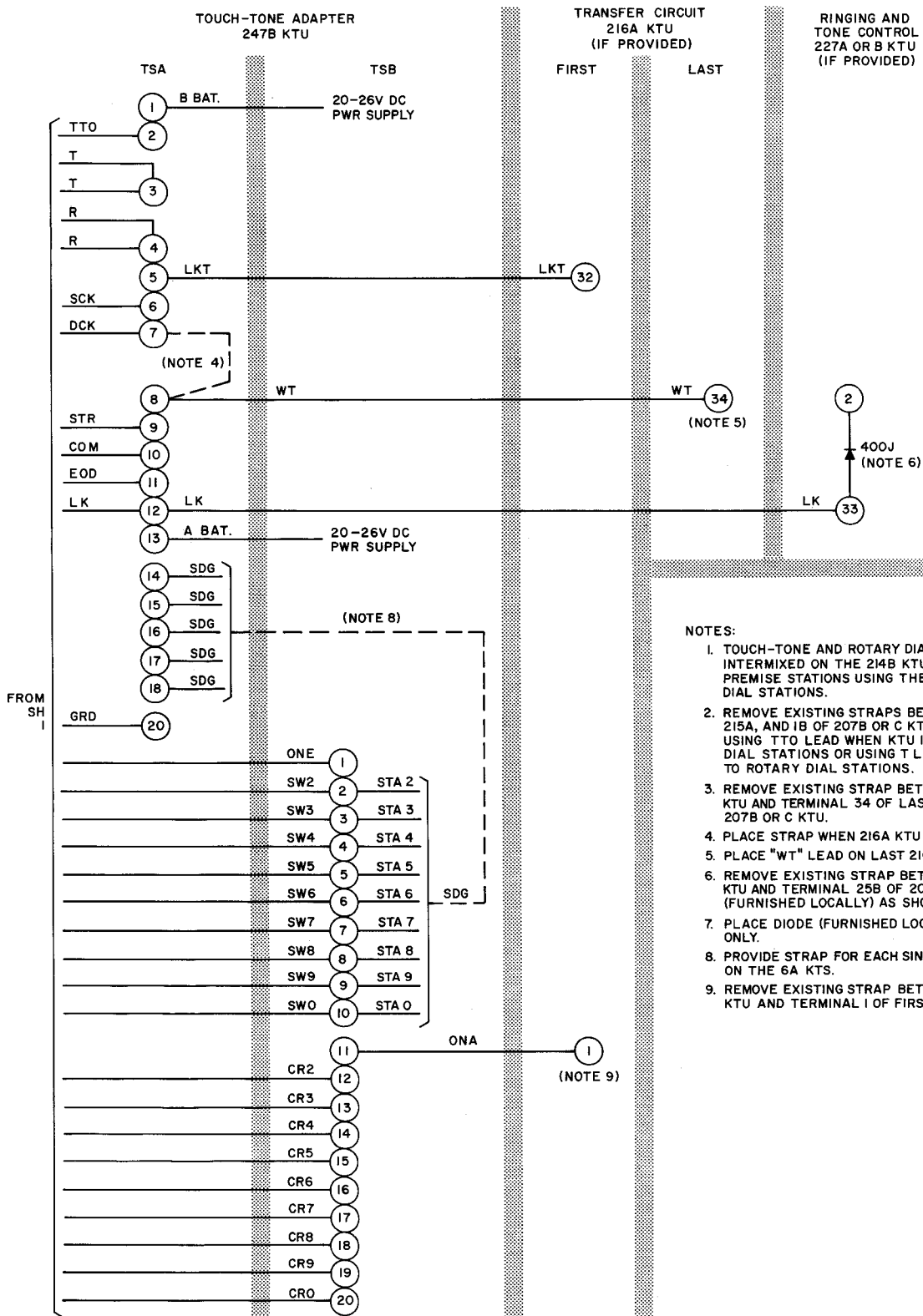


Fig. 14 — Addition of TOUCH-TONE Adapter Circuit [247B with 207B or C, 214B (MD), and 215A KTUs] (Sheet 2)

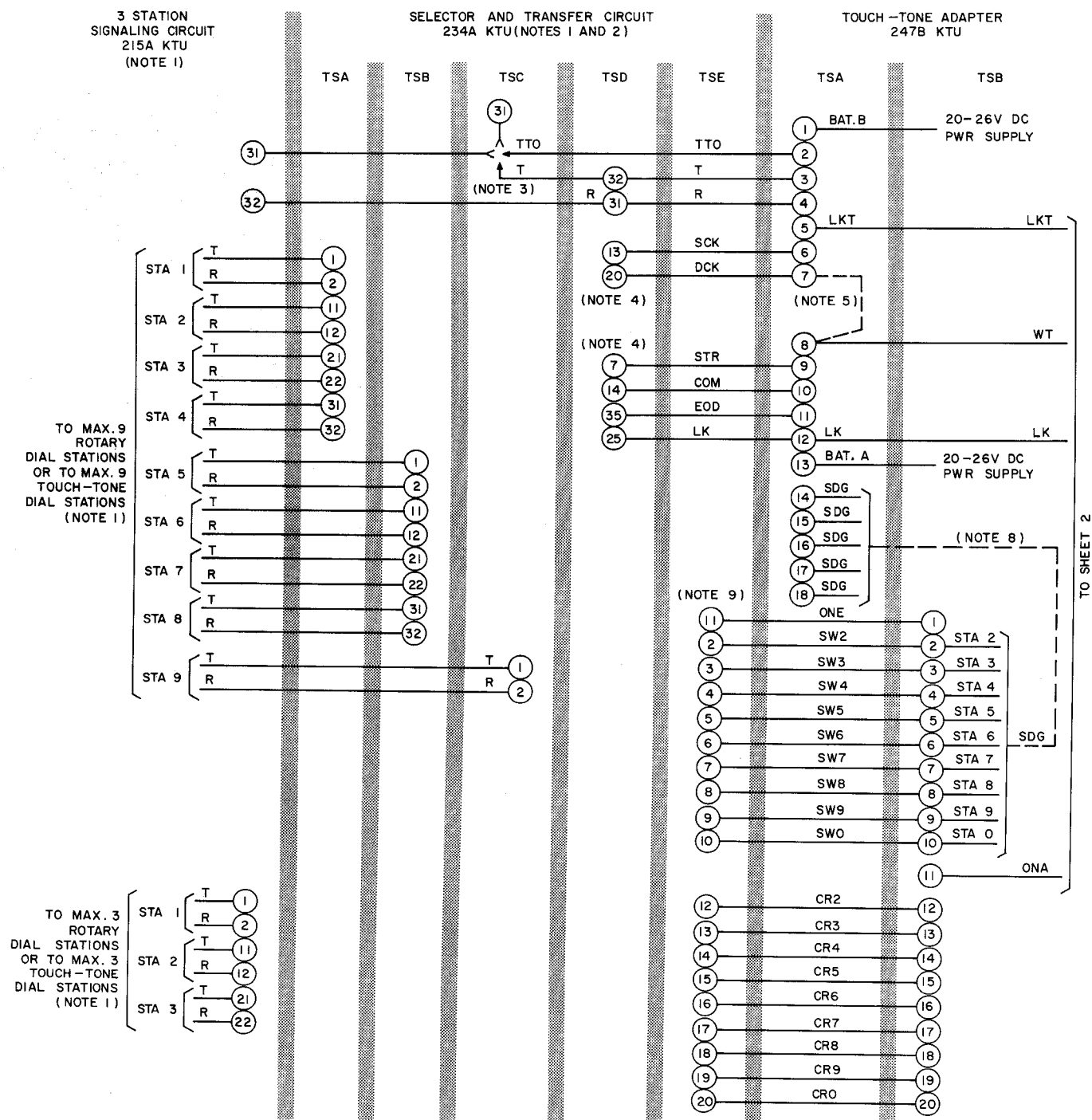
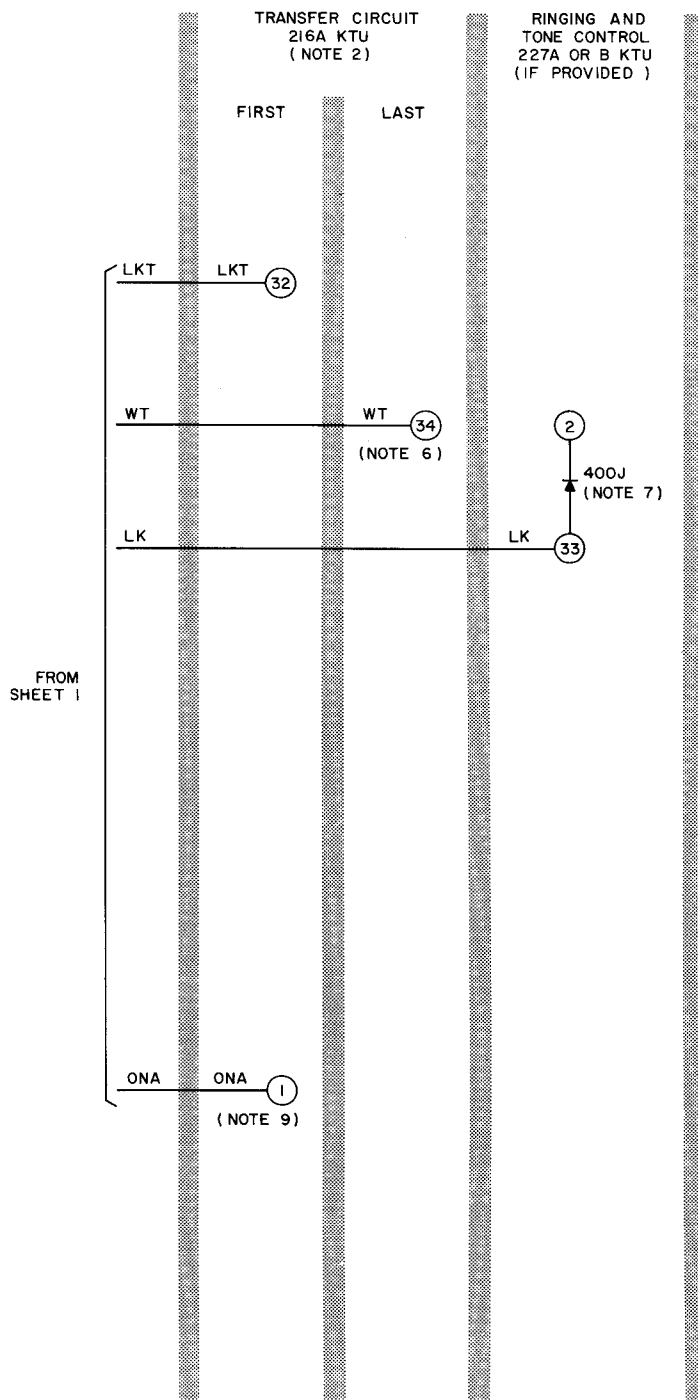


Fig. 15 — Addition of TOUCH-TONE Adapter Circuit (247B with 234A and 215A KTUs) (Sheet 1)



NOTES:

1. TOUCH-TONE AND ROTARY DIAL STATIONS CANNOT BE INTERMIXED ON THE 234A KTU OR ON THE SAME 215A KTU. OFF PREMISE STATIONS USING THE 225A KTU MUST BE ROTARY DIAL STATIONS.
2. THE TRANSFER CIRCUIT PORTION OF THE 234A KTU CAN NEVER BE USED WITH THE 247B KTU. WHEN THE 6A KTS CONSISTS OF MORE THAN 9 STATIONS PROVIDE A 216A KTU IN PLACE OF THE TRANSFER CIRCUIT IN THE 234A (USE FIG. 2 FOR CONNECTIONS REQUIRED). TO DISABLE THE 234A TRANSFER CIRCUIT REMOVE THE STRAP FROM 31E TO THE SELECTED "SW" LEAD (2E TO 10E) ON THE 234A.
3. REMOVE EXISTING STRAPS BETWEEN 31C OF 234A, 31 OF ALL 215A AND 12D OF 234A KTU. PLACE NEW STRAP AS SHOWN, USING TTO LEAD WHEN KTU IS ASSIGNED TO TOUCH-TONE DIAL STATIONS OR USING T LEAD WHEN KTU IS ASSIGNED TO ROTARY DIAL STATIONS.
4. REMOVE EXISTING STRAP BETWEEN TERMINAL 7D AND 20D ON 234A KTU OR BETWEEN 7D AND TERMINAL 34 OF LAST 216A KTU.
5. PLACE STRAP WHEN 216A KTU NOT PROVIDED.
6. PLACE "WT" LEAD ON LAST 216A KTU PROVIDED.
7. REMOVE EXISTING STRAP BETWEEN TERMINAL 2 OF 227A OR B KTU AND 25D OF 234A KTU. PLACE DIODE (FURNISHED LOCALLY) AS SHOWN.
8. PROVIDE STRAP FOR EACH SINGLE DIGIT NUMBER APPEARING ON THE 6A KTS.
9. REMOVE EXISTING STRAP BETWEEN TERMINAL 11E OF 234A KTU AND TERMINAL 1 OF FIRST 216A KTU.

Fig. 15 — Addition of TOUCH-TONE Adapter Circuit (247B with 234A and 215A KTUs) (Sheet 2)