

## 6A KEY TELEPHONE SYSTEM

### SINGLE TALKING LINK

### CONNECTIONS

#### 1. GENERAL

1.01 This section is reissued to:

- Show 207B and 226A KTUs MD.
- Add connections for 18,000-ohm resistor when dial tone is furnished by a 224A(MD) or B KTU and a 247B KTU is furnished for TOUCH TONE® calling
- Add information on use of TOUCH-TONE® dial stations with the 225A KTU.
- Show minor wiring changes.

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 electromechanical flash, wink, ring, and time-out circuit (232-type KTU).

#### 2. CONNECTIONS

2.01 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).

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

#### 2.03 Connection Index

Table A—Wiring Options Associated With System

Table B—Wiring Options Associated With Stations

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

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

Fig. 3—Addition of Preset Conference and Time-Out Circuit (217B KTU) and Long Line Circuit (225A KTU)

Fig. 4—Addition of Three Station Line Circuits (215A KTU)

Fig. 5—Addition of Camp-On Control Circuit (224B KTU)

Fig. 6—Addition of Add-On Conference Circuit [226A (MD) or B KTU]

Fig. 7—Addition of Dial Tone and Interrupted Ringing [227A (MD) or B KTU]

Fig. 8—Addition of Auxiliary Relay Busy Lamp Circuit [227A (MD) or B KTU]

Fig. 9—Addition of Auxiliary Relay Lamp Flash Circuit [227A (MD) or B KTU]

Fig. 10—Addition of Station Busy Circuit [227A (MD) or B KTU]

Fig. 11—Addition of TOUCH-TONE Adapter Circuit [247A (MD) with 207B (MD) or C, 214B (MD), and 215A KTUs]

Fig. 14—Addition of TOUCH-TONE Adapter Circuit (247B with 234A and 215A KTUs)

Fig. 12—Addition of TOUCH-TONE Adapter Circuit [247A (MD) with 234A and 215A KTUs]

3. DRAWINGS

Fig. 13—Addition of TOUCH-TONE Adapter Circuit [247B with 207B (MD) or C, 214B (MD), and 215A KTUs]

3.01 This section is based on the following drawings: SD-69286, SD-69447, and SD-69529.

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 (MD) 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 wire 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

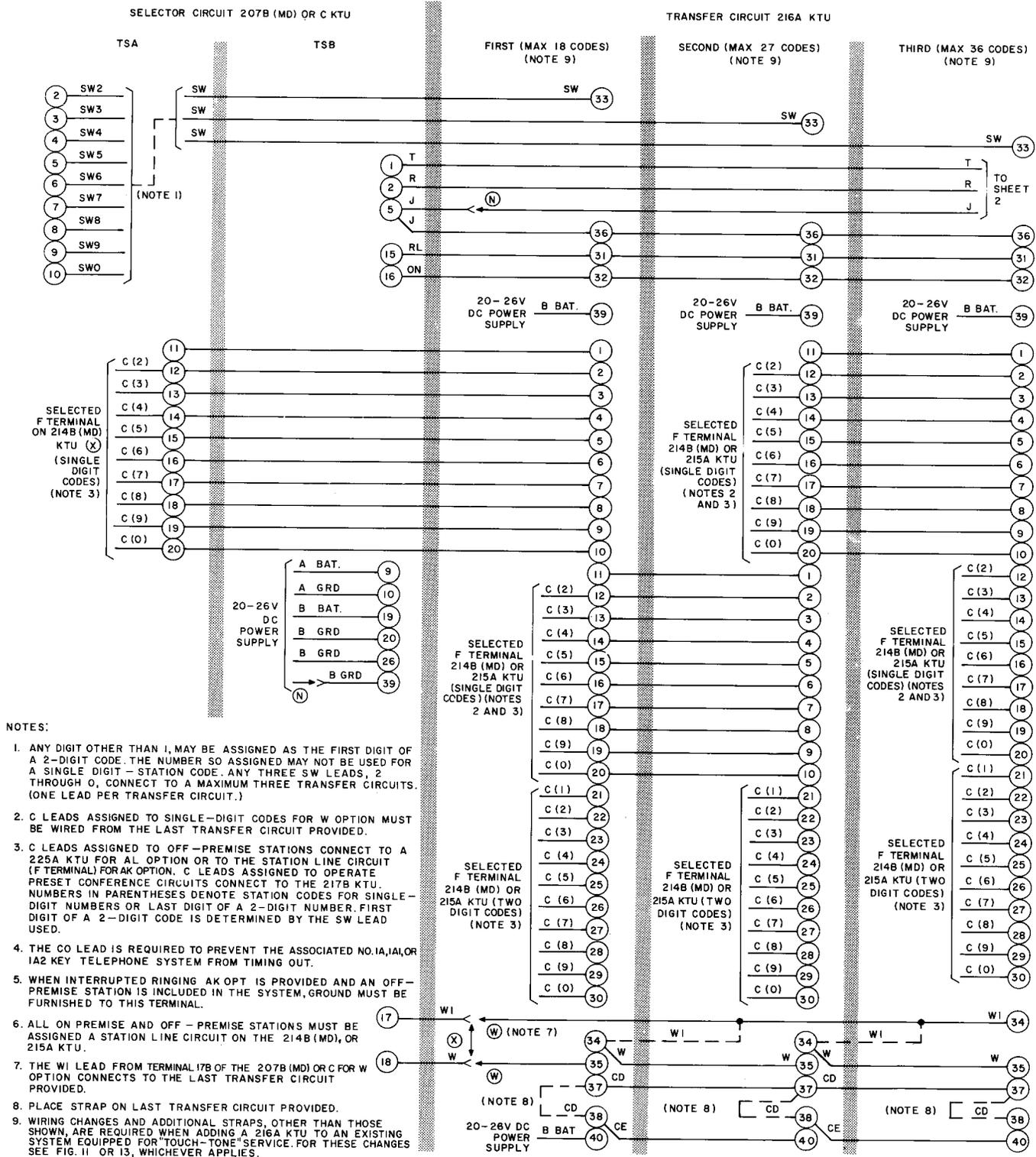


Fig. 1—Connections for Basic Units [207B(MD) or C, 214B(MD), 216A and 19B KTUs] Sheet 1

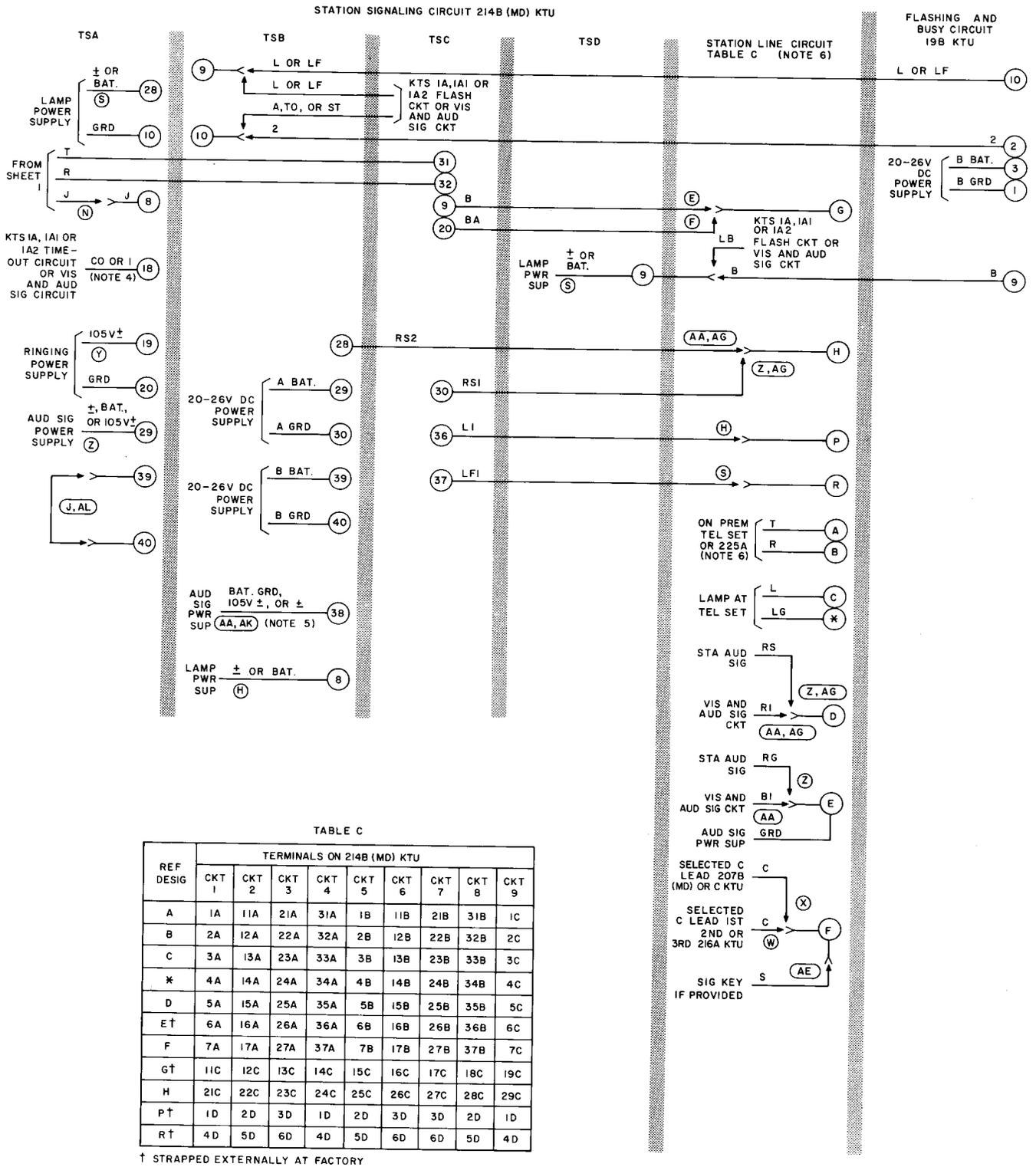


Fig. 1—Connections for Basic Units [207B(MD) or C, 214B(MD), 216A and 19B KTUs] Sheet 2

SECTION 518-410-401

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

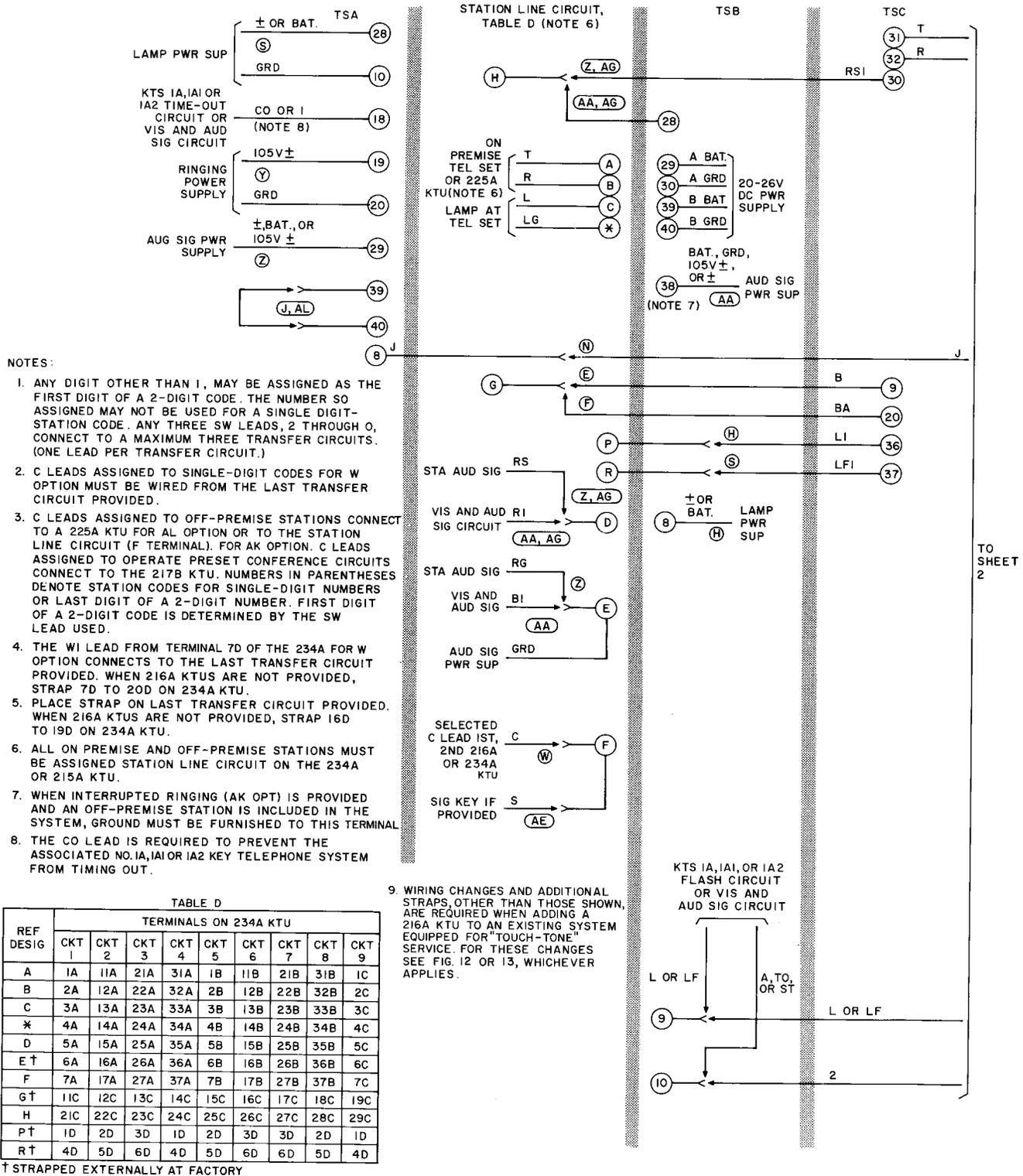


Fig. 2—Connections for Basic Units (234A, 216A and 19B KTUs) Sheet 1

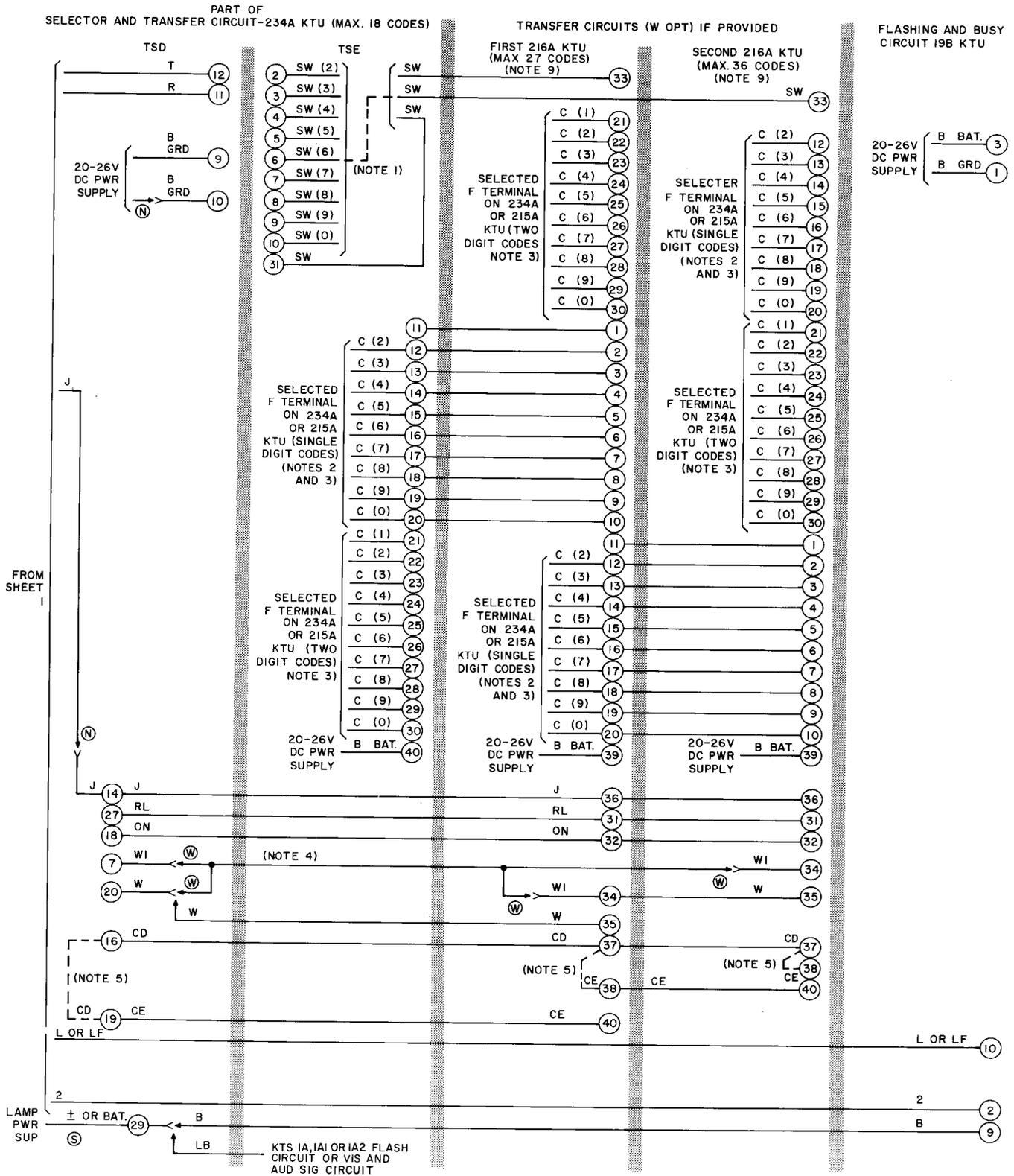


Fig. 2—Connections for Basic Units (234A, 216A and 19B KTUs) Sheet 2

SECTION 518-410-401

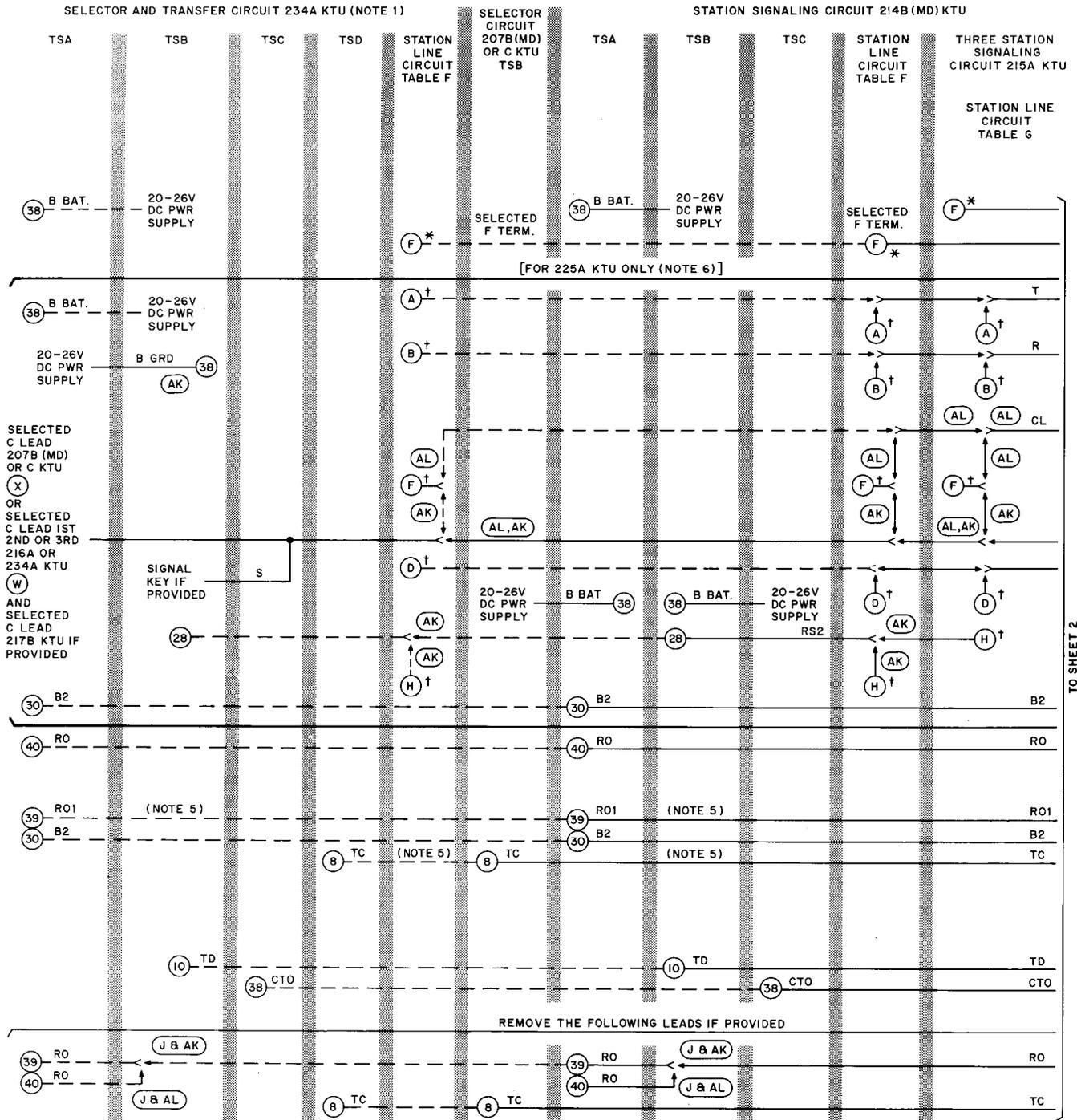
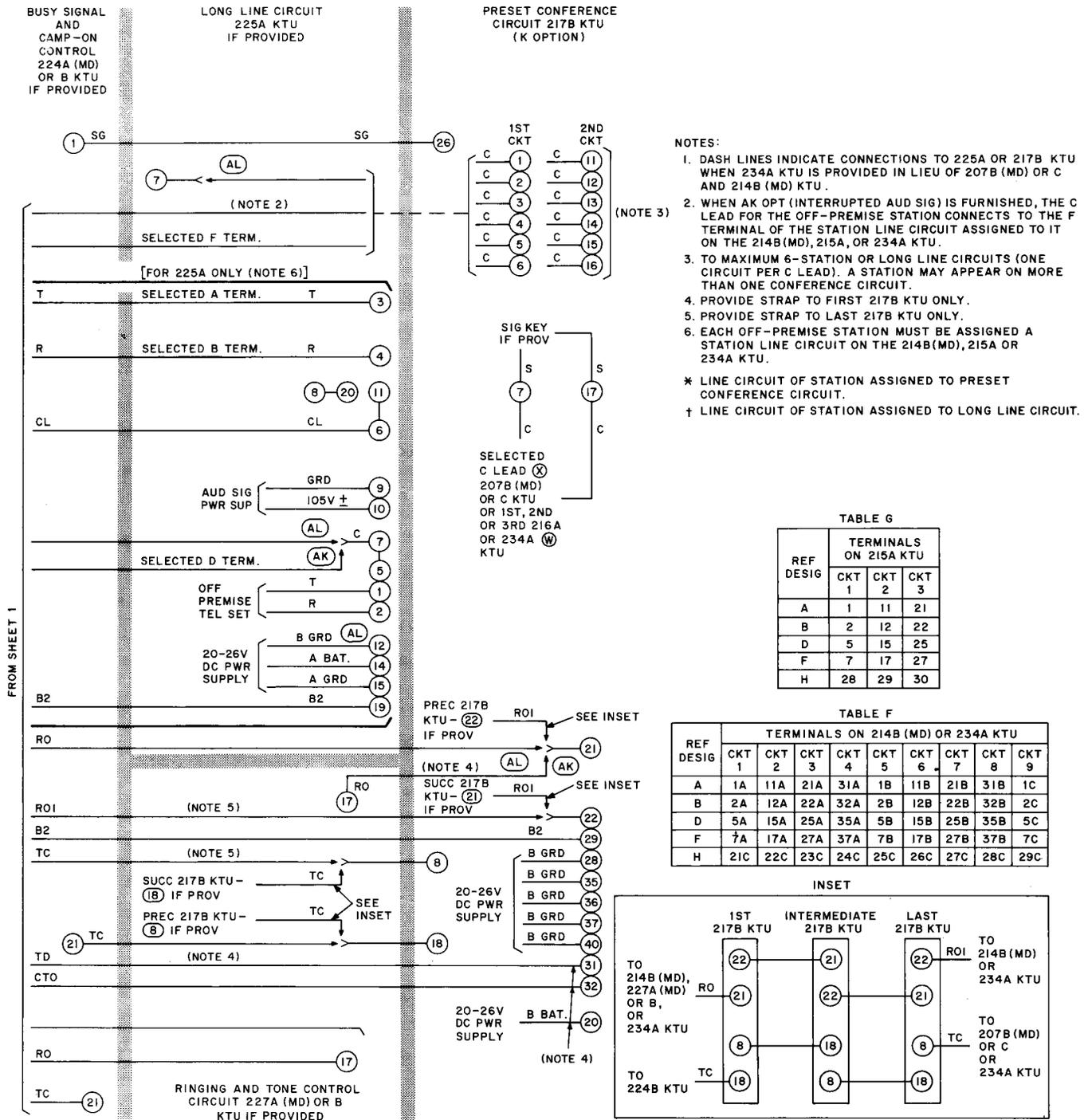
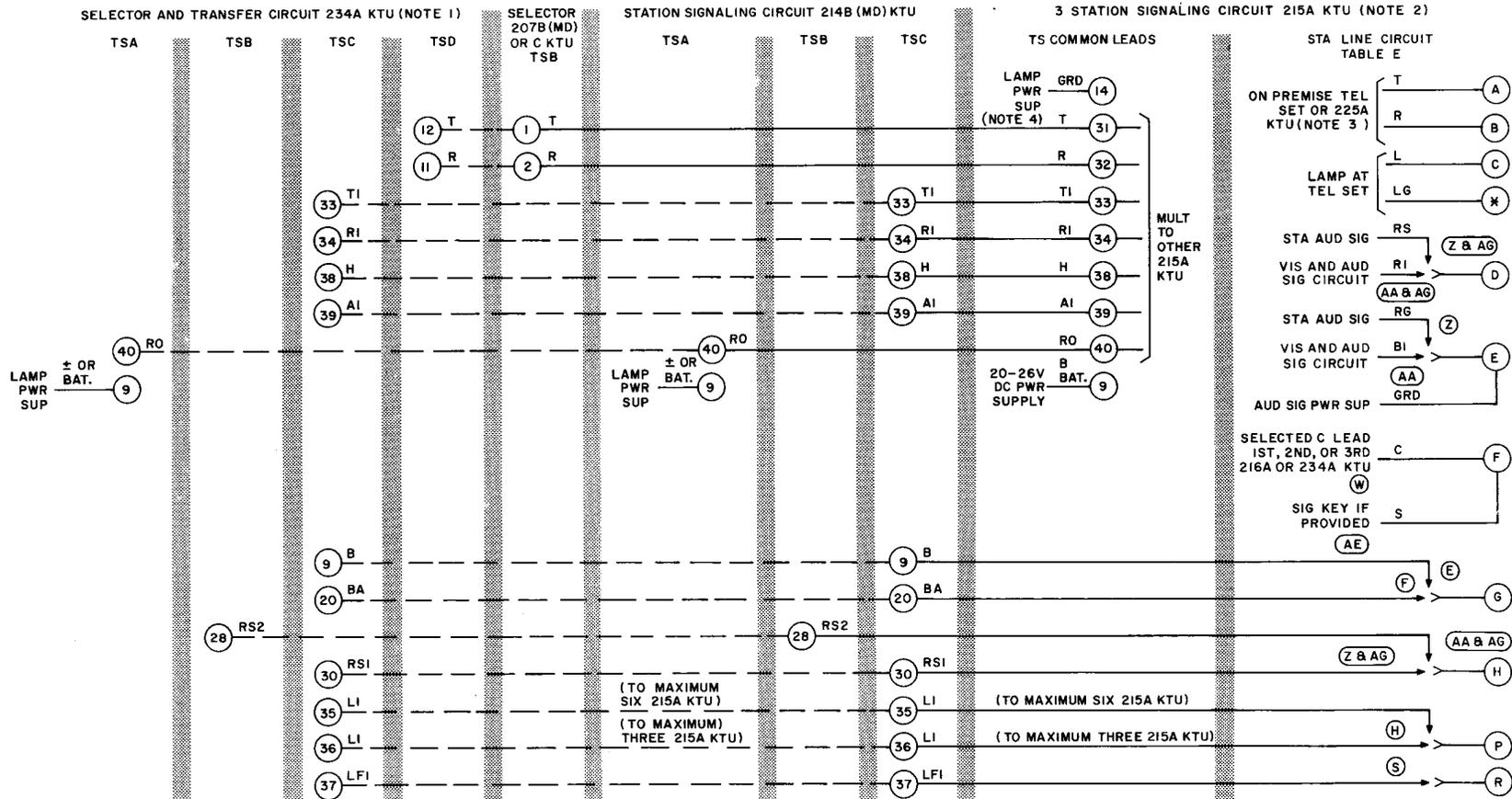


Fig. 3—Addition of Preset Conference and Time-Out Circuit (217B KTU) and Long Line Circuit (225A KTU) Sheet 1



◆ Fig. 3—Addition of Preset Conference and Time-Out Circuit (217B KTU) and Long Line Circuit (225A KTU) Sheet 2 ◆



NOTES:

1. DASHED LINES INDICATE CONNECTIONS TO 215A KTU WHEN 234A KTU IS PROVIDED IN LIEU OF 207B (MD) OR C KTU AND 214B (MD) KTU.
2. PROVIDE ONE 215A KTU FOR EACH THREE STATIONS OVER NINE ON THE SYSTEM (W OPT).
3. ALL ON-PREMISE AND OFF-PREMISE STATIONS MUST BE ASSIGNED A STATION LINE CIRCUIT.
4. TERMINAL 31 IS CONNECTED AS SHOWN WHEN 215A KTU IS ASSIGNED TO ROTARY DIAL STATIONS. WHEN THE 215A KTU IS ASSIGNED TO "TOUCH-TONE" DIAL STATIONS, TERMINAL 31 CONNECTS TO THE TOUCH-TONE ADAPTER. SEE FIG. 11, 12, 13, OR 14 WHICHEVER APPLIES.

TABLE E

REF DESIG	TERMINALS ON 215A KTU		
	CKT 1	CKT 2	CKT 3
A	1	11	21
B	2	12	22
C	3	13	23
X	4	14	24
D	5	15	25
E †	6	16	26
F	7	17	27
G †	18	19	20
H	28	29	30
P	35		
R	37		

† STRAPPED EXTERNALLY AT FACTORY

Fig. 4—Addition of Three Station Line Circuits (215A KTU)

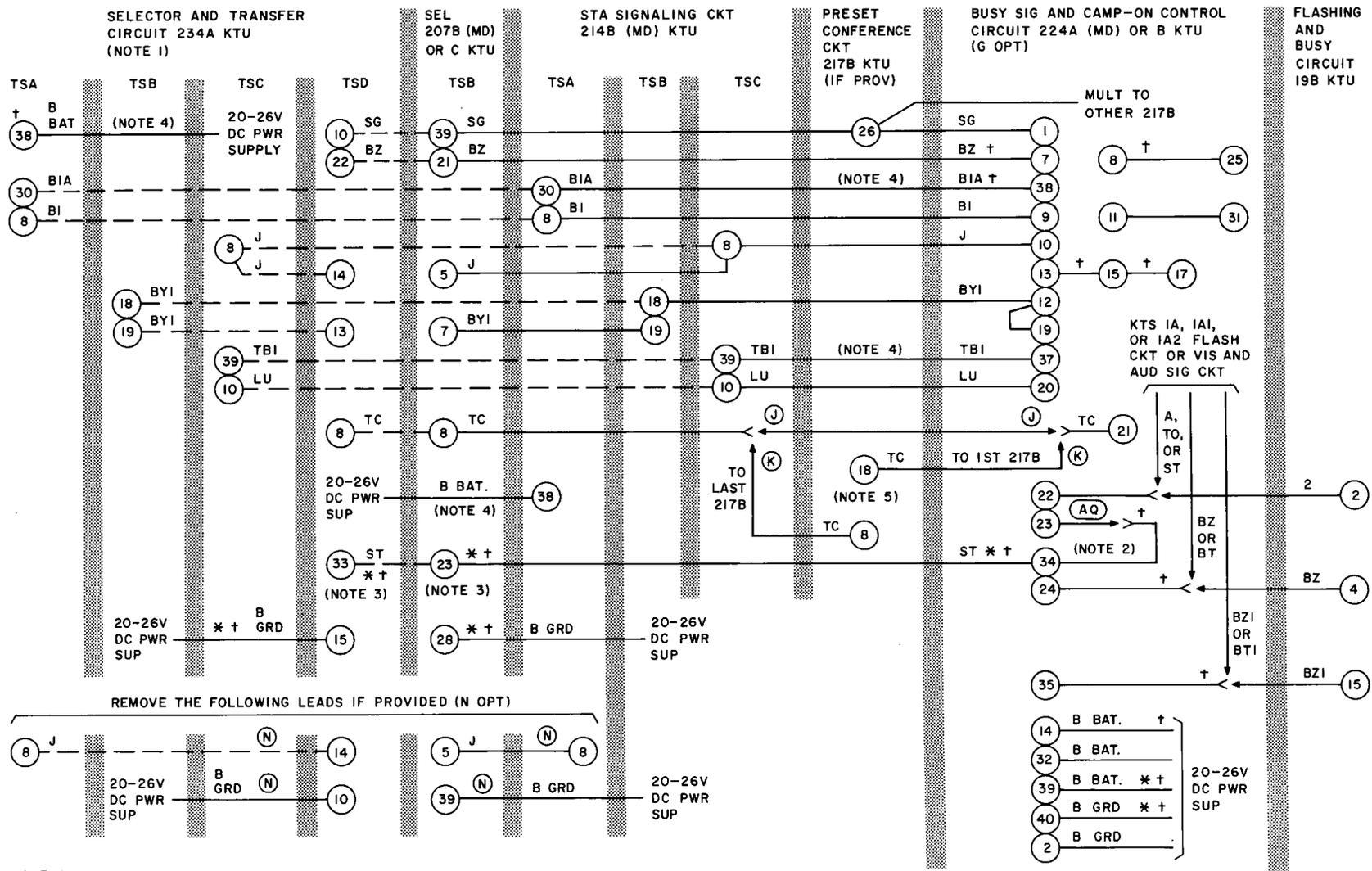
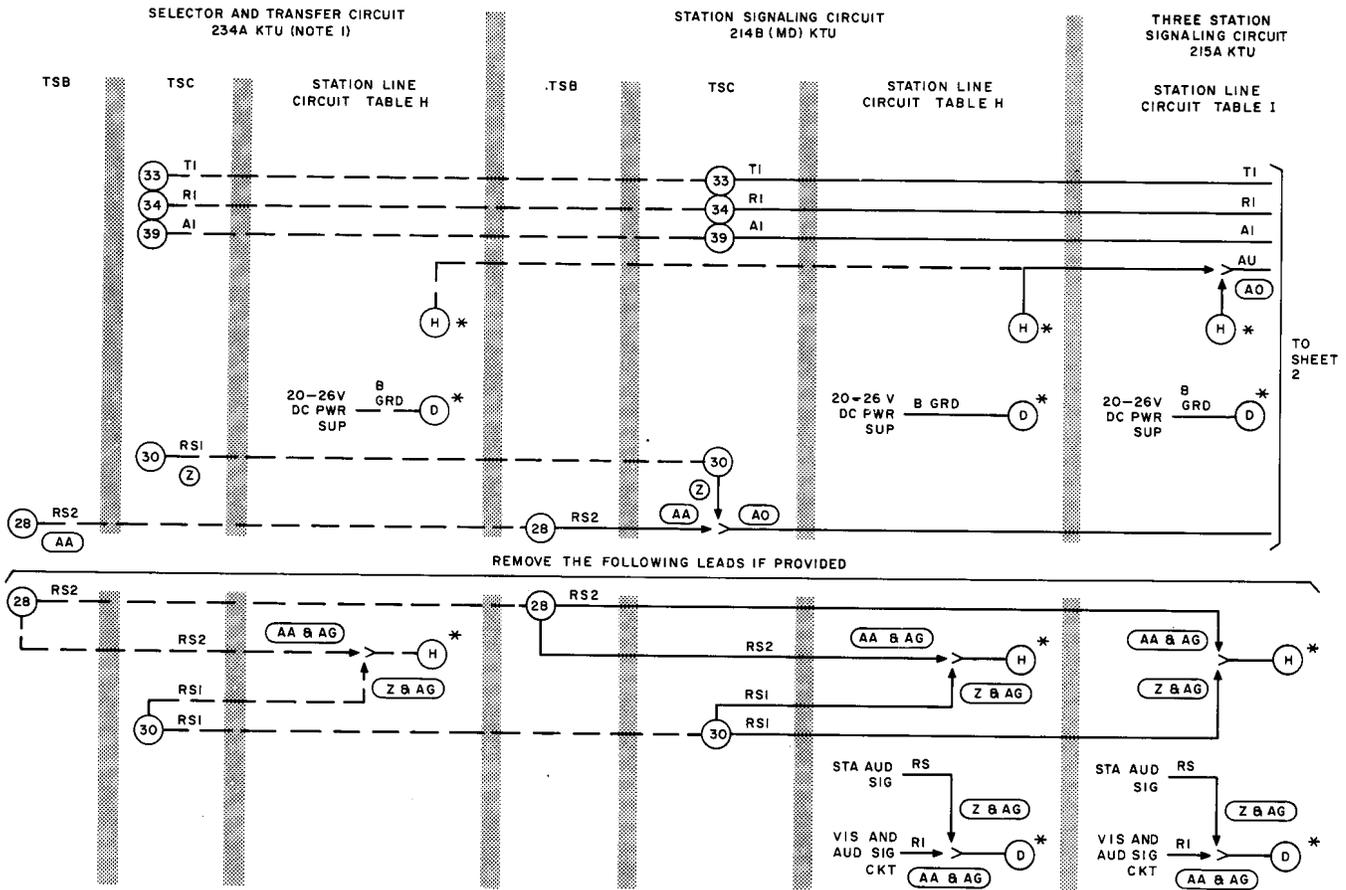


Fig. 5—Addition of Camp-On Control Circuit (224B KTU)

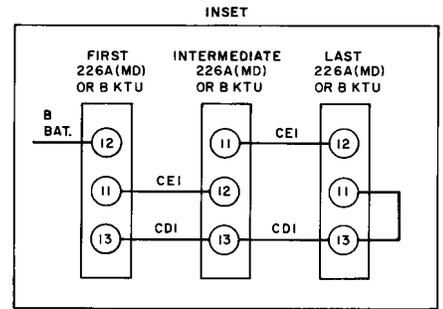
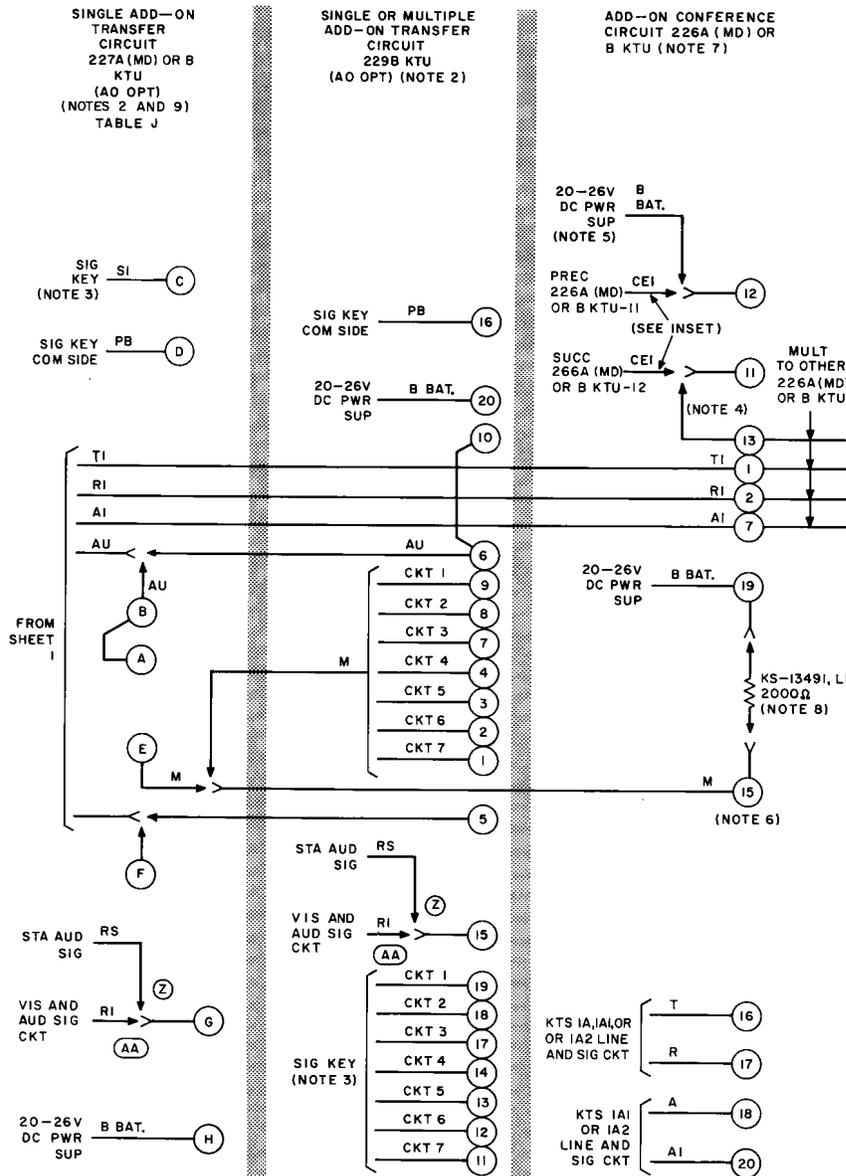
**SECTION 518-410-401**

**NOTES:**

1. DASH LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 214B(MD) KTU.
  2. AN ADD-ON TRANSFER CKT IS REQUIRED FOR EACH STATION ORIGINATING ADD-ON CONFERENCE. USE A 227A(MD) 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(MD) OR B KTU ONLY.
  5. PLACE B BAT ON FIRST 226A(MD) 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 TERMINAL 15 OF THE SAME 226A(MD) OR B KTU.
  7. PROVIDE ONE 226A(MD) OR B KTU FOR EACH CENTRAL OFFICE OR PBX LINE TO BE CONFERENCED.
  8. RESISTOR REQUIRED ON 226A(MD) KTU ONLY. ORDER AND PLACE LOCALLY.
  9. USE ONLY THE MS RELAY OF THE 227A (MD) KTU OR ANY RELAY (CA1, CA2, OR MS) OF THE 227B KTU FOR A SINGLE ADD-ON TRANSFER CIRCUIT. (SEE TABLE J)
- \* LINE CKT OF STATION ORIGINATING CONFERENCE.



**Fig. 6—Addition of Add-On Conference Circuit [226A(MD) or B KTU] Sheet 1**



**TABLE H**

REF DESIG	TERMINALS ON 214B (MD) OR 234A KTU								
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9
D	5A	15A	25A	35A	5B	15B	25B	35B	5C
H	21C	22C	23C	24C	25C	26C	27C	28C	29C

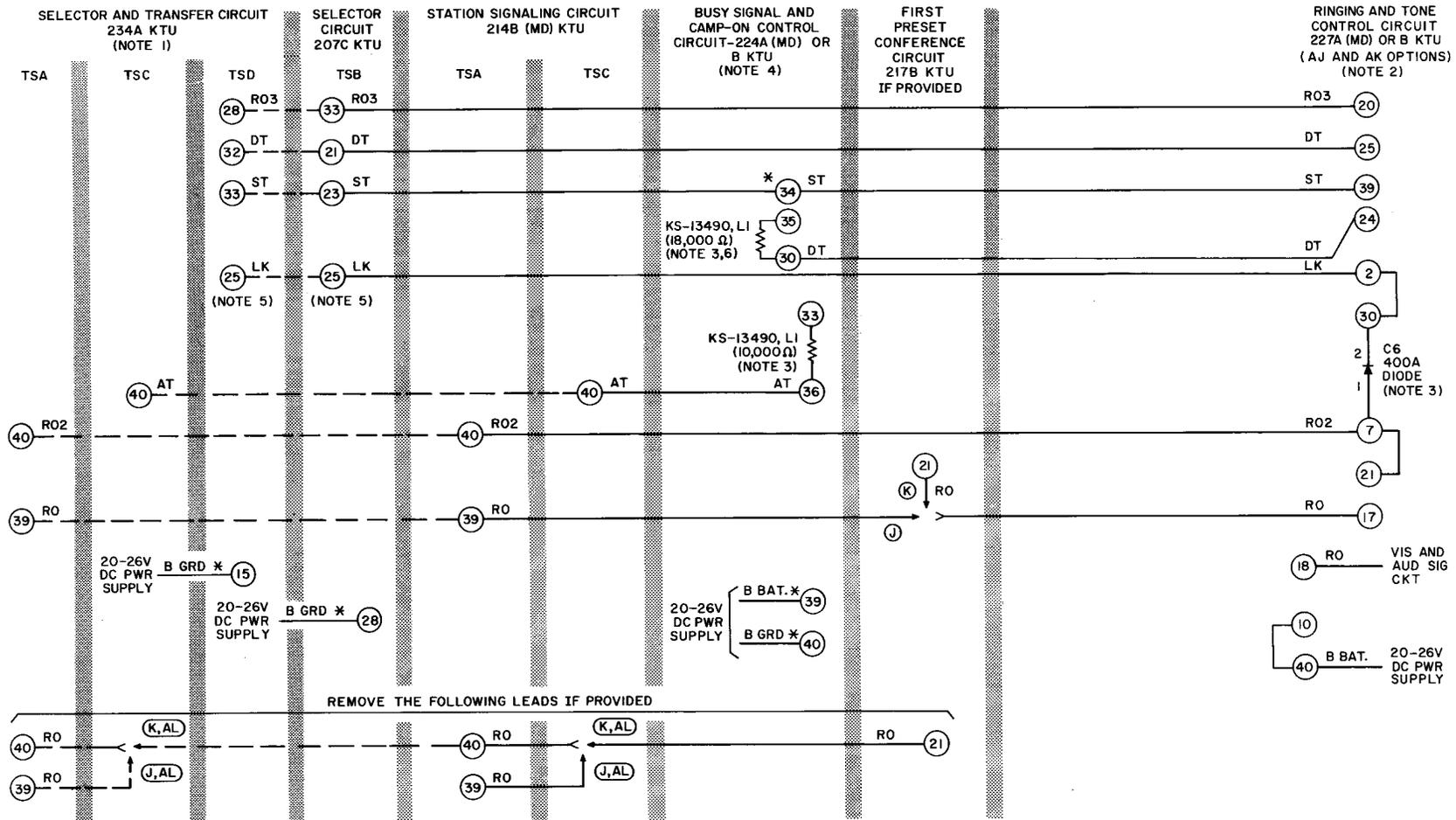
**TABLE I**

REF DESIG	TERMINALS ON 215A KTU		
	CKT 1	CKT 2	CKT 3
D	5	15	25
H	28	29	30

**TABLE J**

REF DESIG	RELAY AND TERMINAL DESIGNATIONS		
	227B KTU		
	CA1 RELAY	CA2 RELAY	MS RELAY
A	5	8	2
B	14	20	26
C	12	18	24
D	15	21	27
E	11	17	23
F	36	34	30
G	31	33	39
H	1	10	40

Fig. 6—Addition of Add-On Conference Circuit [226A(MD) or B KTU] Sheet 2



NOTES:

1. DASHED LINES INDICATE CONNECTIONS TO 227A (MD) OR B KTU WHEN 234A KTU IS PROVIDED IN LIEU OF 207C KTU AND 214B (MD) KTU.
2. WHEN INTERRUPTED RINGING (AK OPT) IS ADDED TO AN EXISTING SYSTEM CHANGES ARE REQUIRED ON LONG LINE CIRCUITS IF PROVIDED (SEE FIG. 4).
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 (MD) OR B KTU), THE LK LEAD IS CONNECTED

DIFFERENTLY THAN IS SHOWN. SEE FIG. 11, 12, 13, OR 14 WHICHEVER APPLIES.

6. REQUIRED ONLY IF ASSOCIATED WITH A 247B "TOUCH-TONE" ADAPTER.
- \* LEAD ALREADY PROVIDED IF 224A (MD) OR B WAS INSTALLED TO PROVIDE CAMP-ON OR STATION BUSY CIRCUIT.

▶ Fig. 7—Addition of Dial Tone and Interrupted Ringing [227A(MD) or B KTU] ◀

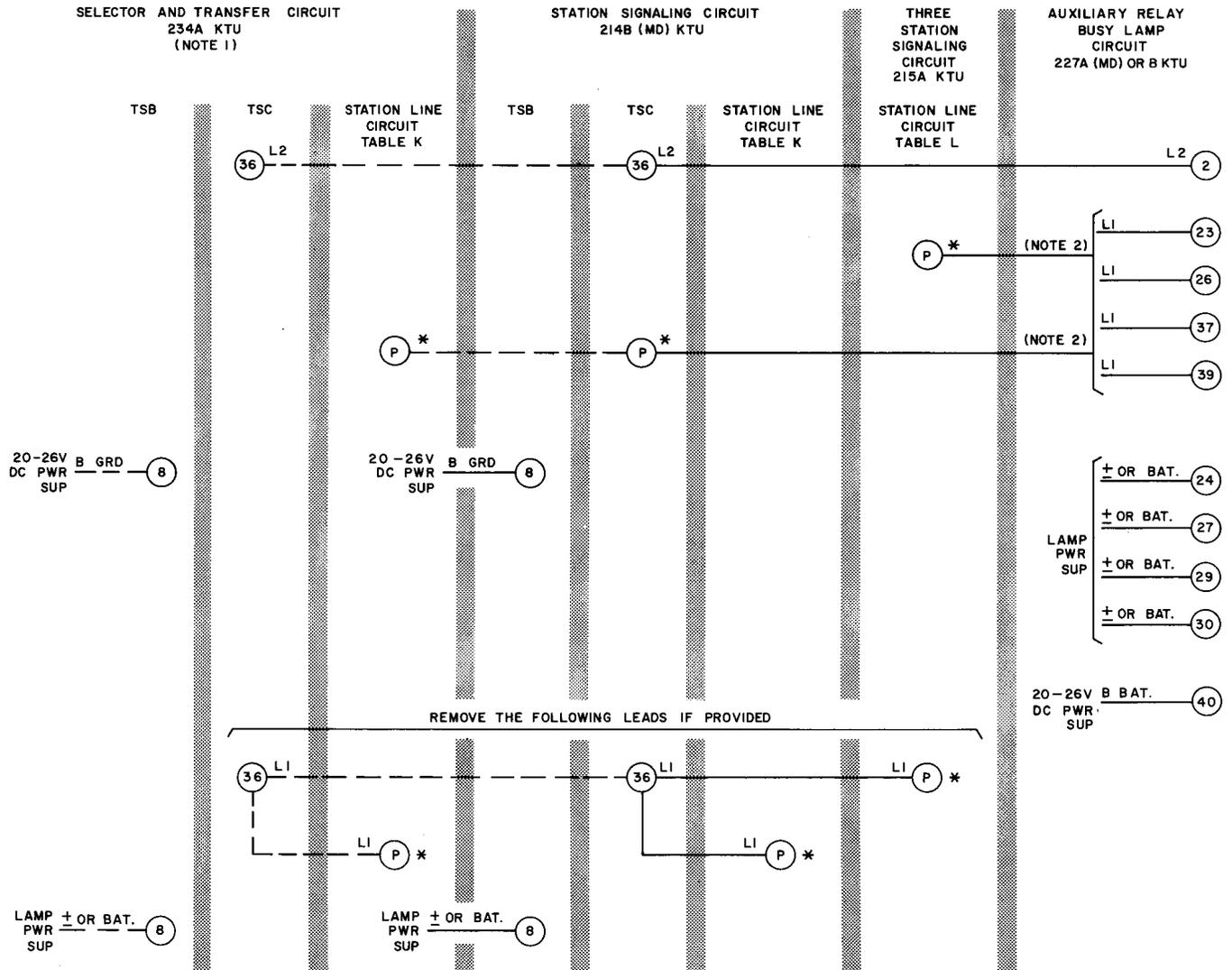


TABLE K

REF DESIG	TERMINALS ON 214B (MD) OR 234A KTU								
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9
P	ID	2D	3D	ID	2D	3D	3D	2D	ID

NOTES:

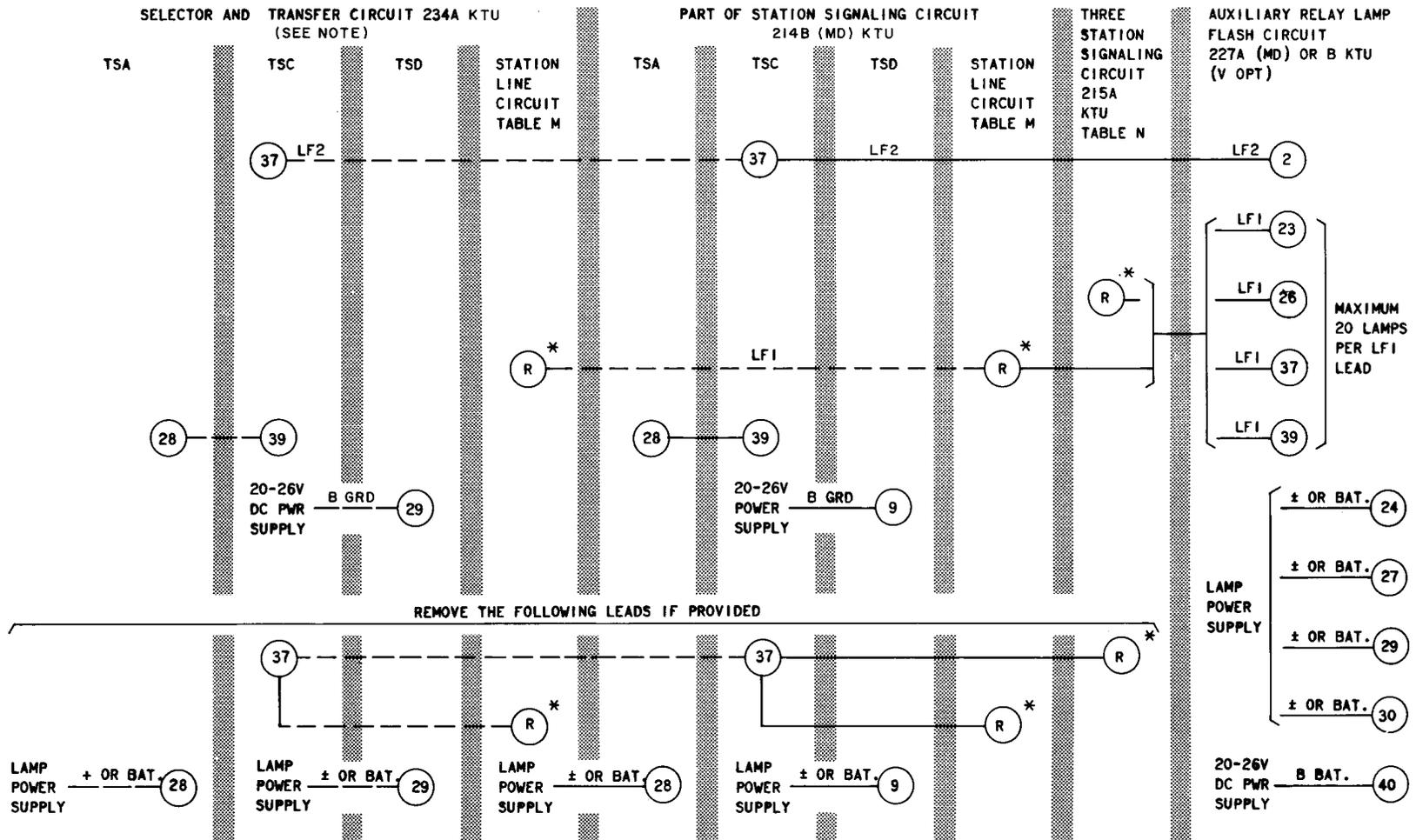
- DASH LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 214B (MD) KTU.
- MAXIMUM 20 LAMPS PER LI LEAD.

\* LINE CKT INVOLVED.

TABLE L

REF DESIG	TERMINALS ON 215A KTU		
	CKT 1	CKT 2	CKT 3
P	35		

Fig. 8—Addition of Auxiliary Relay Busy Lamp Circuit [227A(MD) or B KTU]



NOTE:  
 DASH LINES INDICATE CONNECTIONS WHEN  
 234A KTU IS PROVIDED IN LIEU OF 214B (MD) KTU.  
 \* LINE CKT INVOLVED.

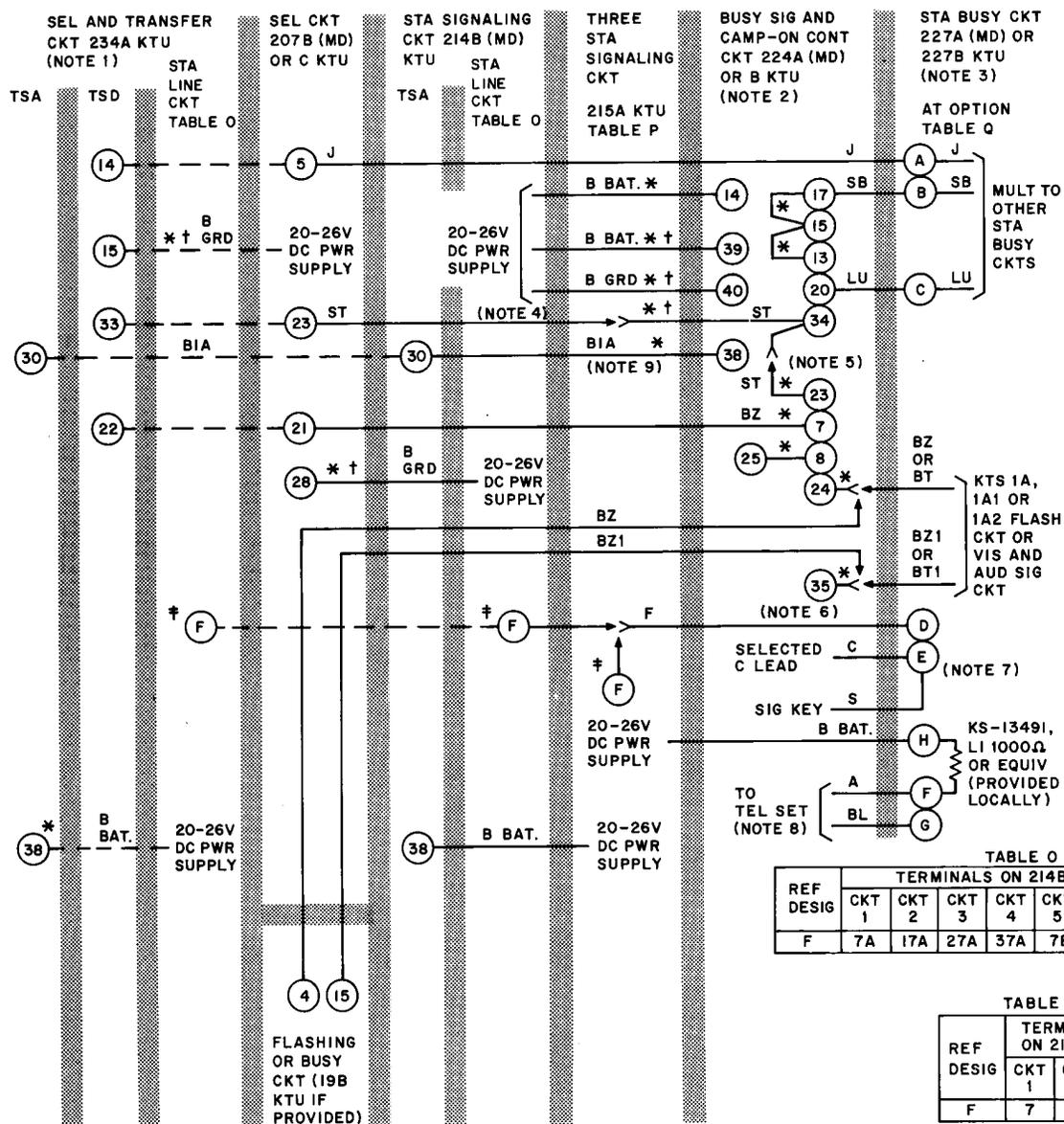
TABLE M

REF DESIG	TERMINALS ON 214B (MD) OR 234A KTU								
	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 N

REF DESIG	TERMINALS ON 215A KTU		
	CKT 1	CKT 2	CKT 3
R	37		

Fig. 9—Addition of Auxiliary Relay Lamp Flash Circuit [227A(MD) or B KTU]



**NOTES:**

1. DASHED LINES INDICATE CONNECTIONS WHEN 234A KTU IS PROVIDED IN LIEU OF 207B (MD) OR C AND 214B (MD) KTU.
2. PROVIDE A 224A (MD) 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 (MD) KTU WILL PROVIDE FOR TWO STATIONS AND A 227B KTU WILL PROVIDE FOR THREE STATIONS (SEE TABLE Q). WHEN USING THE 227B KTU THE CA1 RELAY CANNOT BE USED TO PROVIDE OTHER 6A KTS FEATURES.
4. PROVIDE ONLY WHEN USING 207C KTU OR 234A KTU.
5. PROVIDE ONLY WHEN USING 207B (MD) KTU.
6. REMOVE EXISTING C AND S LEADS FROM SELECTED F TERMINAL AND CONNECT TO REFERENCE DESIGNATION TERMINAL E OF THE 227A (MD) OR B KTU. CONNECT SELECTED F TERMINAL TO 227A (MD) OR B KTU AS SHOWN.
7. SELECTED C LEAD FROM 207B (MD) 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 KTS 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 O**

REF DESIG	TERMINALS ON 214B (MD) 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 P**

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

**TABLE Q**

REF DESIG	RELAY AND TERM. DESIG		
	227B KTU		
	227A (MD) KTU		
	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. 10—Addition of Station Busy Circuit [227A(MD) or B KTU]**

SECTION 518-410-401

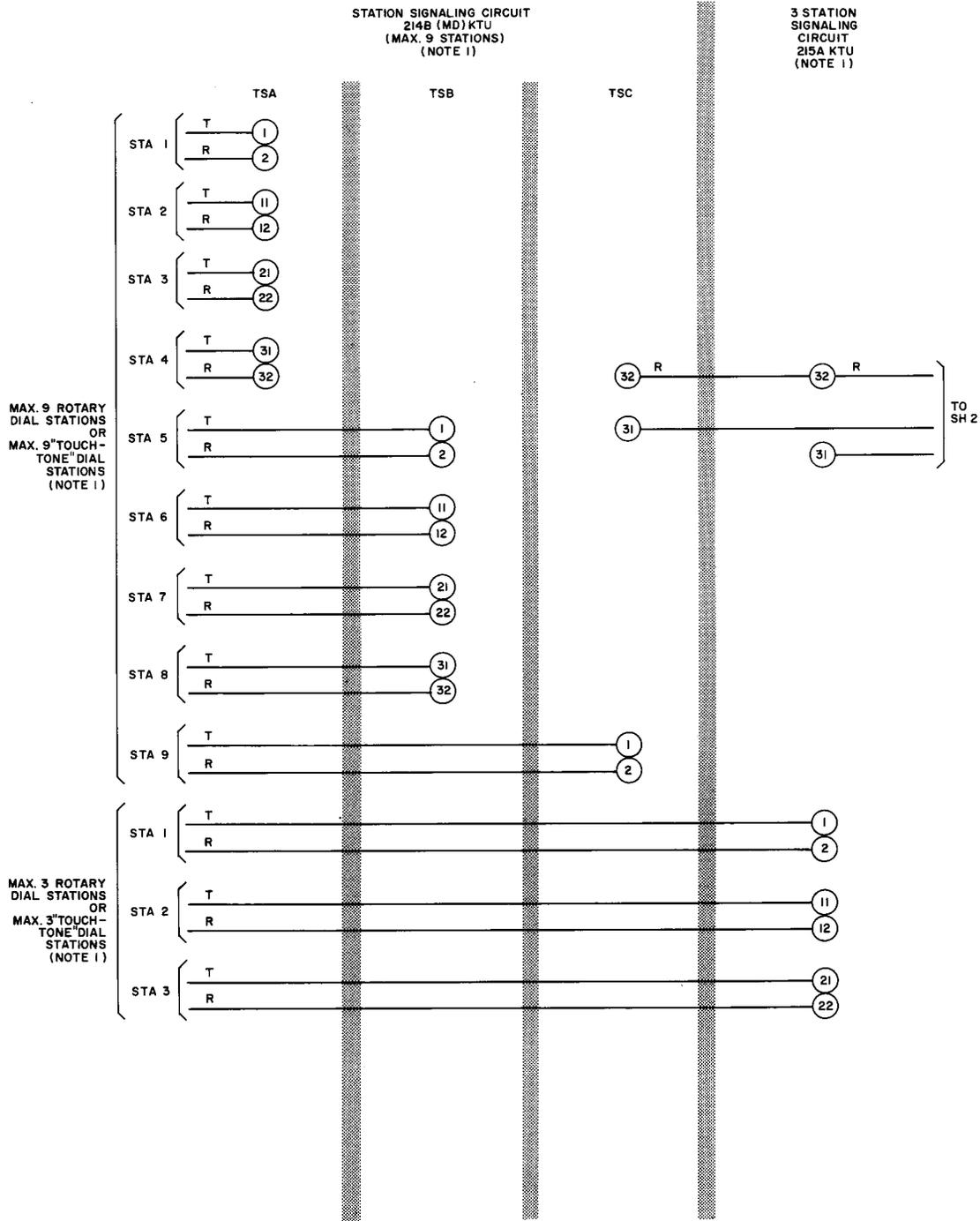


Fig. 11—Addition of TOUCH-TONE Adapter Circuit [247A(MD) with 207B(MD) or C, 214B(MD) and 215A KTUs] Sheet 1

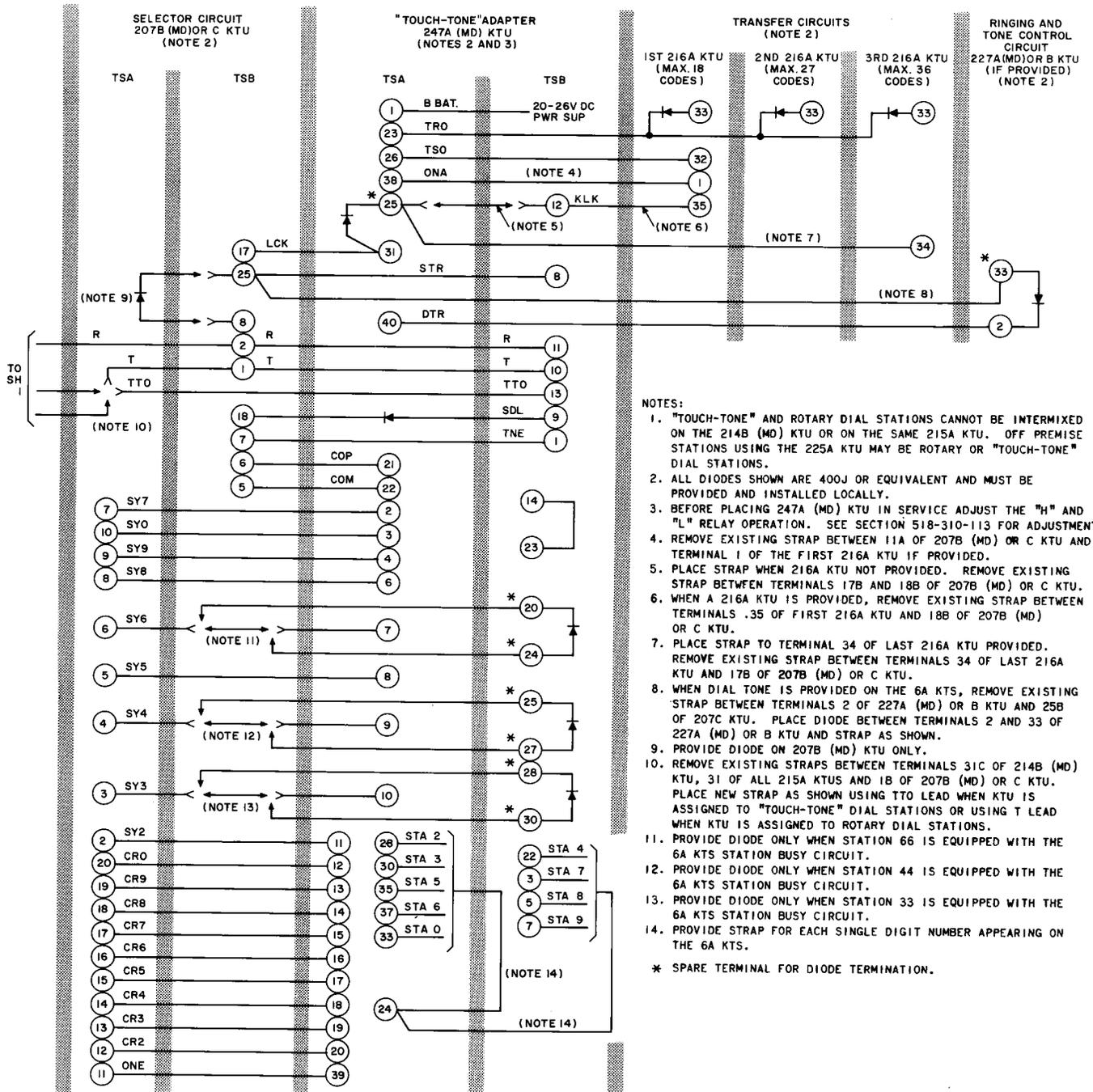


Fig. 11—Addition of TOUCH-TONE Adapter Circuit [247A(MD) with 207B(MD) or C, 214B(MD) and 215A KTUs] Sheet 2

SECTION 518-410-401

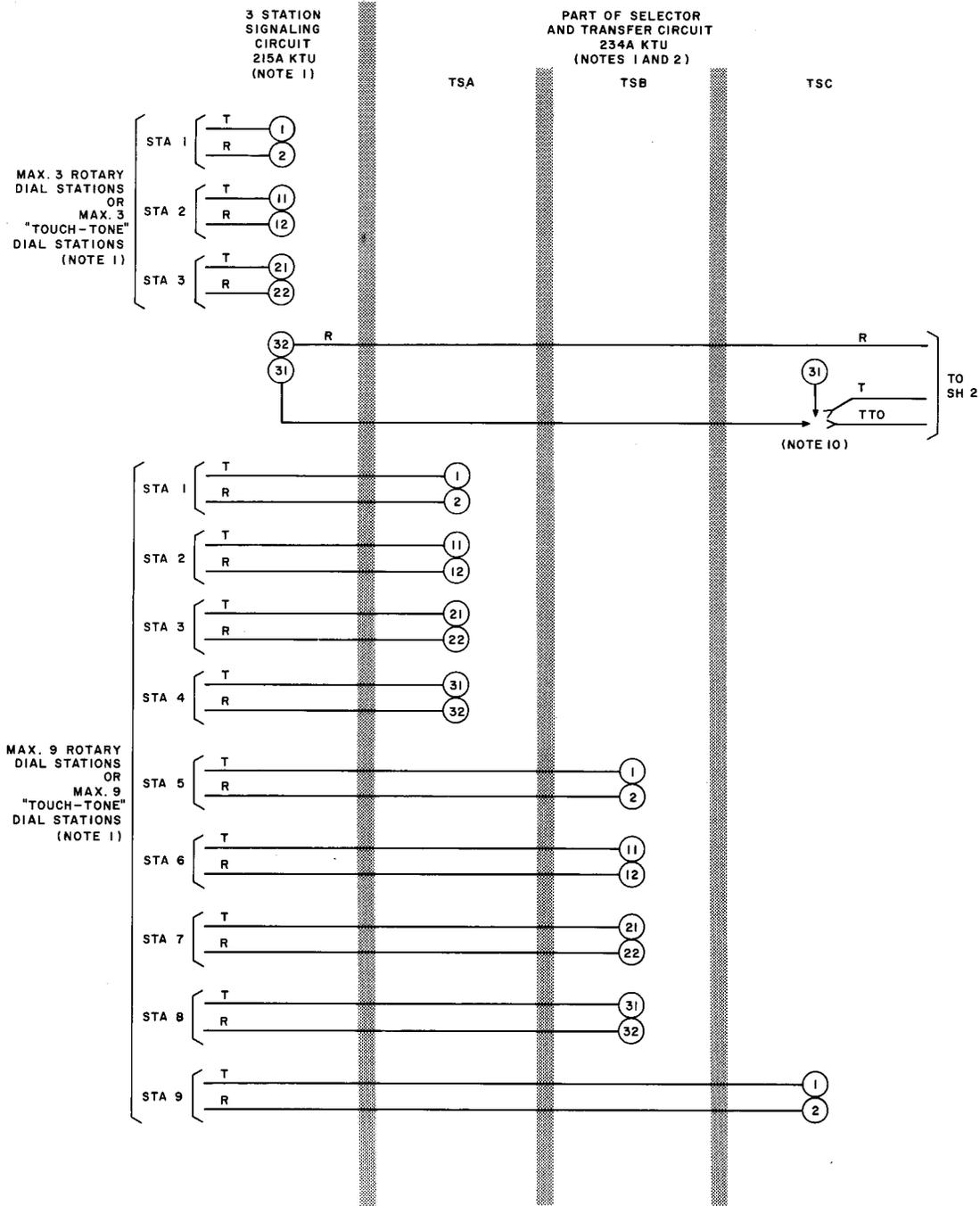


Fig. 12—Addition of TOUCH-TONE Adapter Circuit [247A(MD) with 234A and 215A KTUs] Sheet 1



SECTION 518-410-401

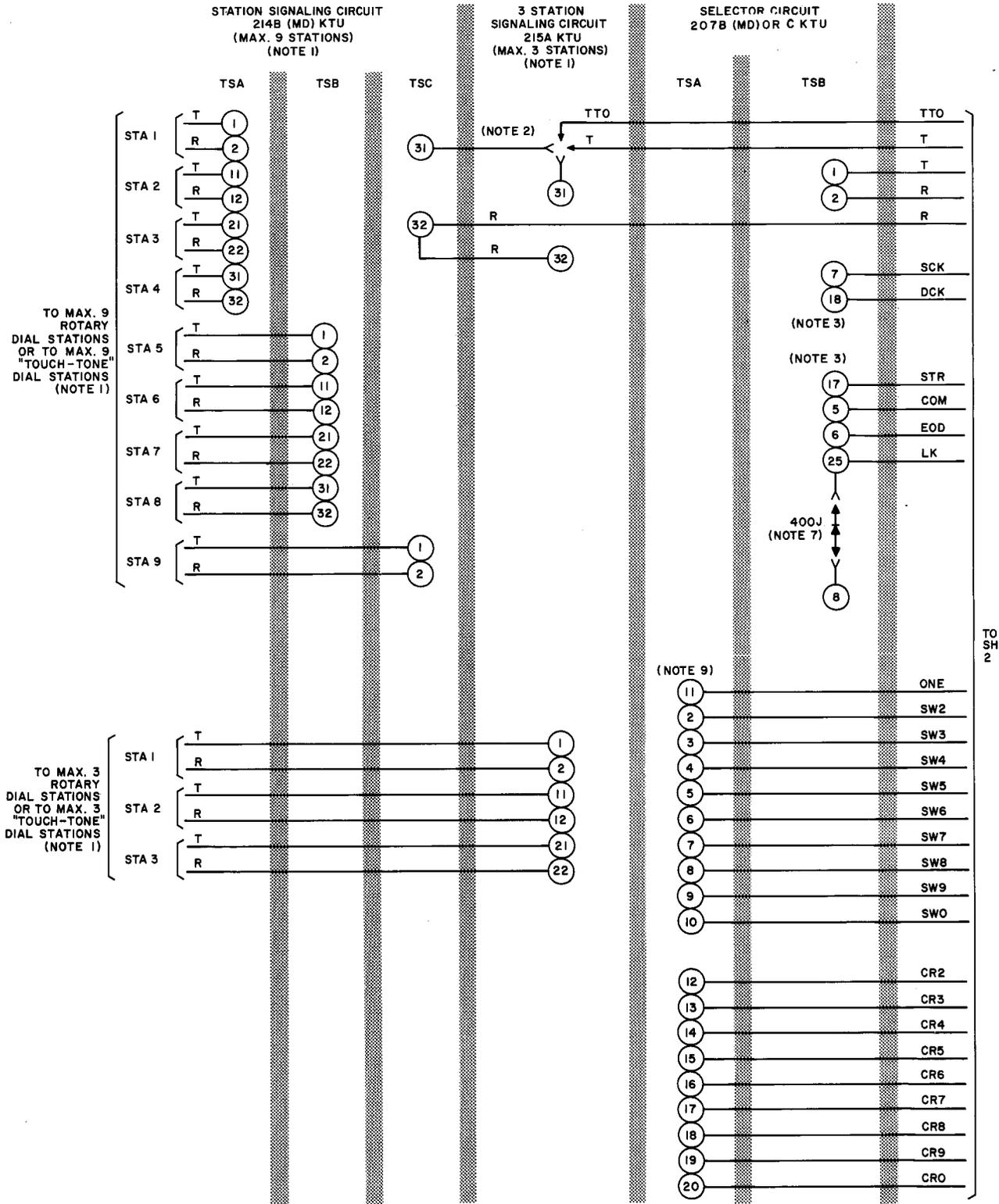
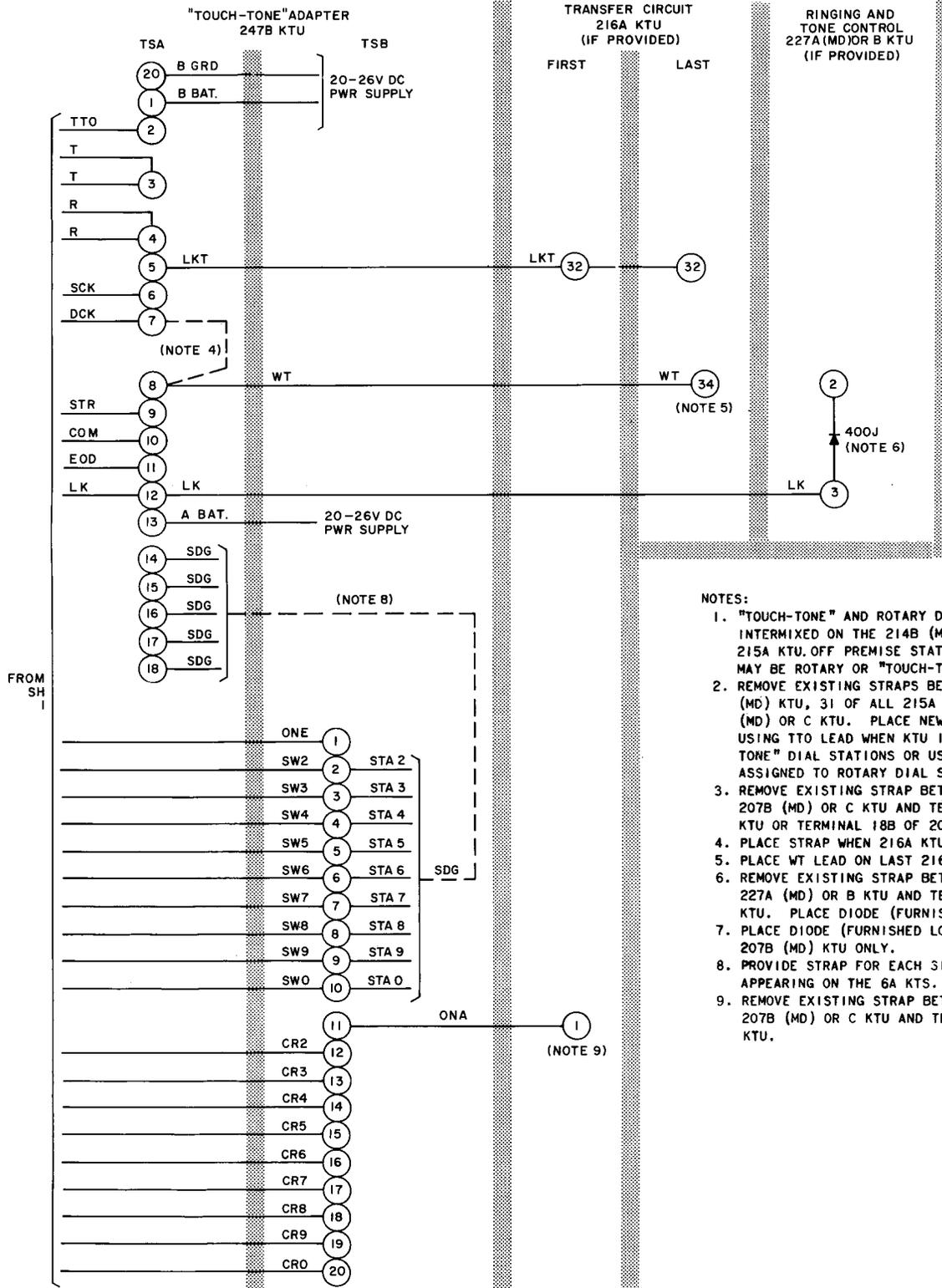


Fig. 13—Addition of TOUCH-TONE Adapter Circuit [247B with 207B(MD) or C, 214B(MD) and 215A KTUs] Sheet 1



- NOTES:
- "TOUCH-TONE" AND ROTARY DIAL STATIONS CANNOT BE INTERMIXED ON THE 214B (MD) KTU OR ON THE SAME 215A KTU. OFF PREMISE STATIONS USING 225A KTU MAY BE ROTARY OR "TOUCH-TONE" DIAL STATIONS.
  - REMOVE EXISTING STRAPS BETWEEN 31C OF 214B, (MD) KTU, 31 OF ALL 215A KTUS, AND 1B OF 207B (MD) OR C 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.
  - REMOVE EXISTING STRAP BETWEEN TERMINAL 17B OF 207B (MD) OR C KTU AND TERMINAL 34 OF LAST 216A KTU OR TERMINAL 18B OF 207B (MD) OR C KTU.
  - PLACE STRAP WHEN 216A KTU NOT PROVIDED.
  - PLACE WT LEAD ON LAST 216A KTU PROVIDED.
  - REMOVE EXISTING STRAP BETWEEN TERMINAL 2 OF 227A (MD) OR B KTU AND TERMINAL 25B OF 207C KTU. PLACE DIODE (FURNISHED LOCALLY) AS SHOWN.
  - PLACE DIODE (FURNISHED LOCALLY) AS SHOWN ON 207B (MD) KTU ONLY.
  - PROVIDE STRAP FOR EACH SINGLE DIGIT NUMBER APPEARING ON THE 6A KTS.
  - REMOVE EXISTING STRAP BETWEEN TERMINAL 11A OF 207B (MD) OR C KTU AND TERMINAL 1 OF FIRST 216A KTU.

Fig. 13—Addition of TOUCH-TONE Adapter Circuit [247B with 207B(MD) or C, 214B(MD) and 215A KTUs] Sheet 2



