

SERVICE

1A1 KEY TELEPHONE SYSTEM

200H PACKAGED UNITS

1. GENERAL

1.01 This section is reissued to:

- Revise tables and figures
- Provide additional option information.

1.02 This issue of the section is based on the following drawings:

- SD-69286-01 Issue 8D
- SD-69354-01 Issue 6D
- SD-69447-01 Issue 6D
- SD-69529-01 Issue 6B

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawing(s), reference should be made to the SDs and CDs to determine the extent of the changes and the manner in which the section may be affected.

1.03 Additional information regarding the 200H packaged KTU may be found in a reference section of the 518 Division BSPs.

2. CONNECTIONS

2.01 See Fig. 1 for strapping arrangements between KTUs, power connections, and key cable connections.

2.02 Fig. 2 and 3 provide connections for the 247A(MD) and 247B KTUs, respectively, when TOUCH-TONE® calling is required. Fig. 4 provides Y2 card options in 247B KTU.

2.03 Tables A, B, C, and D provide option information. Table E provides current drain information and Table F shows features, and connections for key cables at both the KTUs and

terminal strips E, F, G, H, and J on the 64B1-100 Cable Terminal.

2.04 This package is factory-wired for the digit 2 to be used as the initial digit of 2-digit codes. When required, any other digit except 1 may be used as the initial digit. The digit so assigned cannot be used as a single-digit station code. Connecting the SW2 lead to selected terminal 2A through 9A on 207C KTU determines the first digit. Example: SW lead connected to 2A terminal the first digit is 2, and if connected to 3A the first digit is 3, etc.

2.05 Station selection may be accomplished through the operation of a locally furnished signal key. Signaling keys 551A or 549-type may be provided by 1A, 1A1, or 1A2 Key Telephone Systems, or equivalent keys may be used. See Table A for signal key lead connections.

2.06 For all system arrangements where direct current is used to operate bells, buzzers, or lamps, assume a current drain of 0.056 amp for each 7A-type bell or buzzer and a current drain of 0.035 amp for each A3 lamp. The current drain for the 2-talking link is shown in Table E.

2.07 Connection Index:

Table A—SD-69354-01 Options in 200H-Type KTU

Table B—SD-69286-01 (6A Key Telephone System) Options Used With 200H-Type KTU

Table C—SD-69447-01 (247A KTU) Options Used With 200H-Type KTU

Table D—SD-69529-01 (247B KTU) Options Used With 200H-Type KTU

Table E—Current Drain Requirements for 2-Talking Link Arrangements

Table F—Features and Connections at KTUs and Terminal Strips E, F, G, H, and J on the 64B1-100 Cable Terminal

Fig. 1—Strapping and Connection of the 200H-Type KTU

Fig. 2—Addition of TOUCH-TONE® Adapter Circuit, 247A KTU(MD) with 222A and 223A KTUs

Fig. 3—Addition of TOUCH-TONE® Adapter Circuit, 247B KTU with 222A and 223A KTUs

Fig. 4—Y2 Card Options in 247B KTU

→TABLE A←

SD-69354-01 OPTIONS IN 200H-TYPE KTU

| FEATURES SEE TABLE F AND FIG. 1 | | OPTIONS |
|---|--------------------------------------|---------|
| Station audible signal | Over T and R leads | Y |
| | Over separate signaling pair | Z |
| Flash, wink, ring, and time-out circuit | Provided in package | X |
| | Provided externally | W |
| Electro-mechanical flash, wink, ring and time-out circuit | KS-15900, List 1 interrupter, 10v ac | T |
| | KS-19384, List 2 interrupter, 24v dc | V |

→TABLE B←

SD-69286-01 (6A KEY TELEPHONE SYSTEM) OPTIONS USED WITH 200H-TYPE KTU

| TYPE OPTION | FEATURES | OPTIONS |
|----------------|---|---------|
| SYSTEM | Used with single- or 2-link arrangement | A |
| | Used with selector only arrangement | B |
| | With camp-on | G |
| | Without auxiliary relay busy lamp circuit | H |
| | Without preset conference | J |
| | Without auxiliary relay lamp flash circuit | S |
| | Two-talking link arrangement with camp-on | T |
| | Over nine codes | W |
| | Without add-on transfer circuit or auxiliary relay station circuit | AG |
| | Dial, busy, and audible tone* | AJ |
| | Interrupted ringing | AK |
| | Single spurt ringing | AL |
| | Busy signal and camp-on control circuit when used with 207B KTU | AQ |
| STATION | Is automatically cut off | E |
| | Is not automatically cut off | F |
| | Audible signal over T and R leads | Y |
| | Audible signal over separate signal pair | Z |
| | Signal key selection of local or off-premise station when interrupted ringing is provided | AE |

*Only busy tone is furnished.

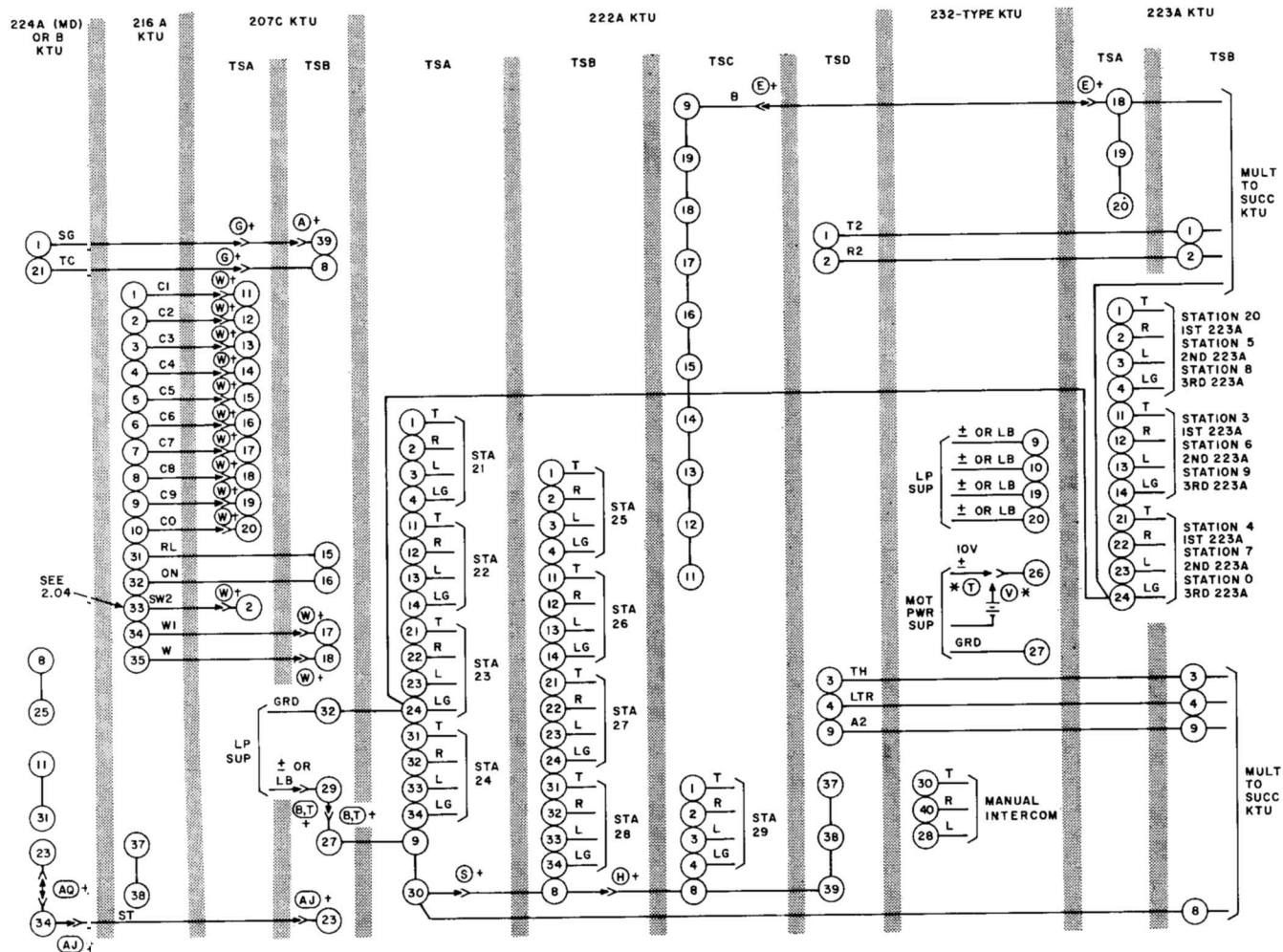


Fig. 1—Strapping and Connections of KTU (Sheet 1)

Page 5
Revised August 1974



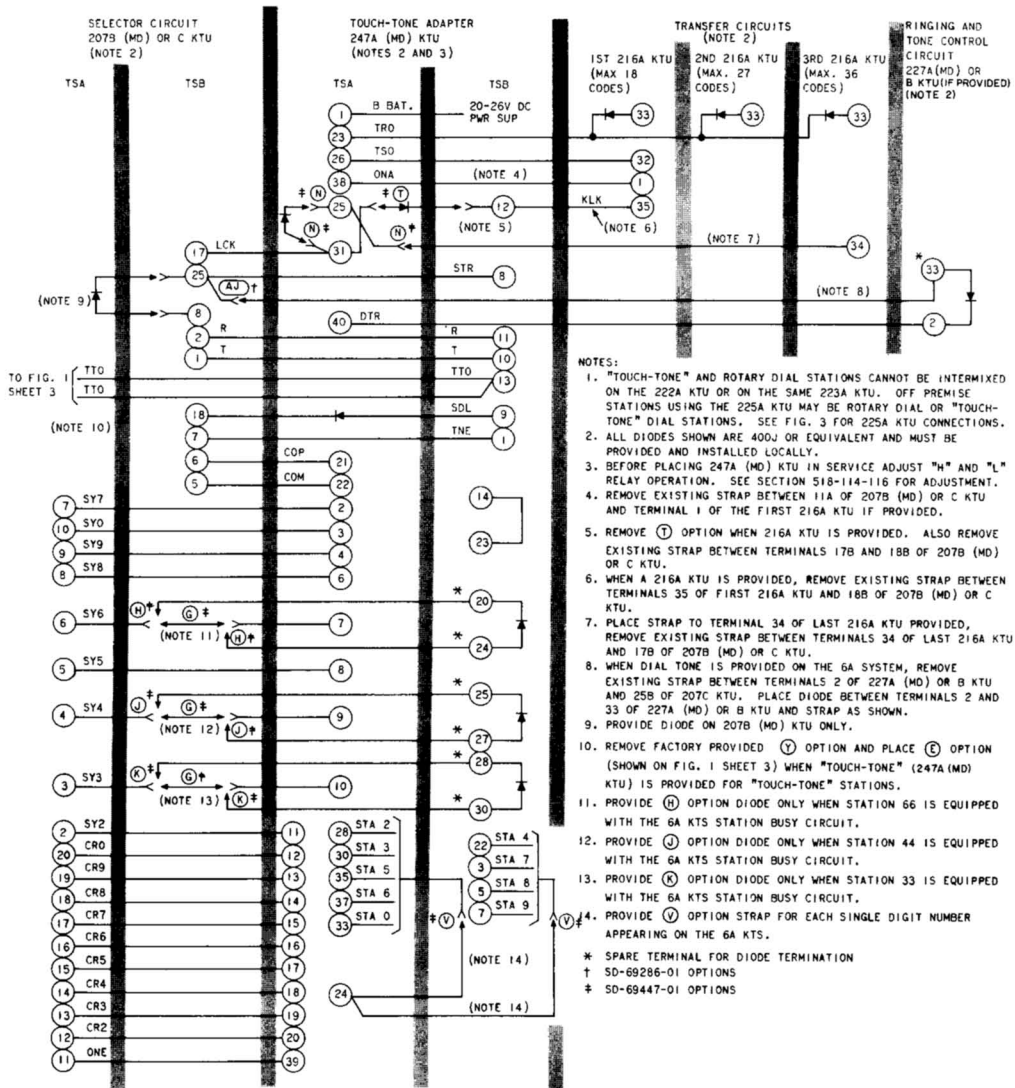


Fig. 2—Addition of TOUCH-TONE® Adapter Circuit, 247A KTU (MD) With 222A and 223A KTUs

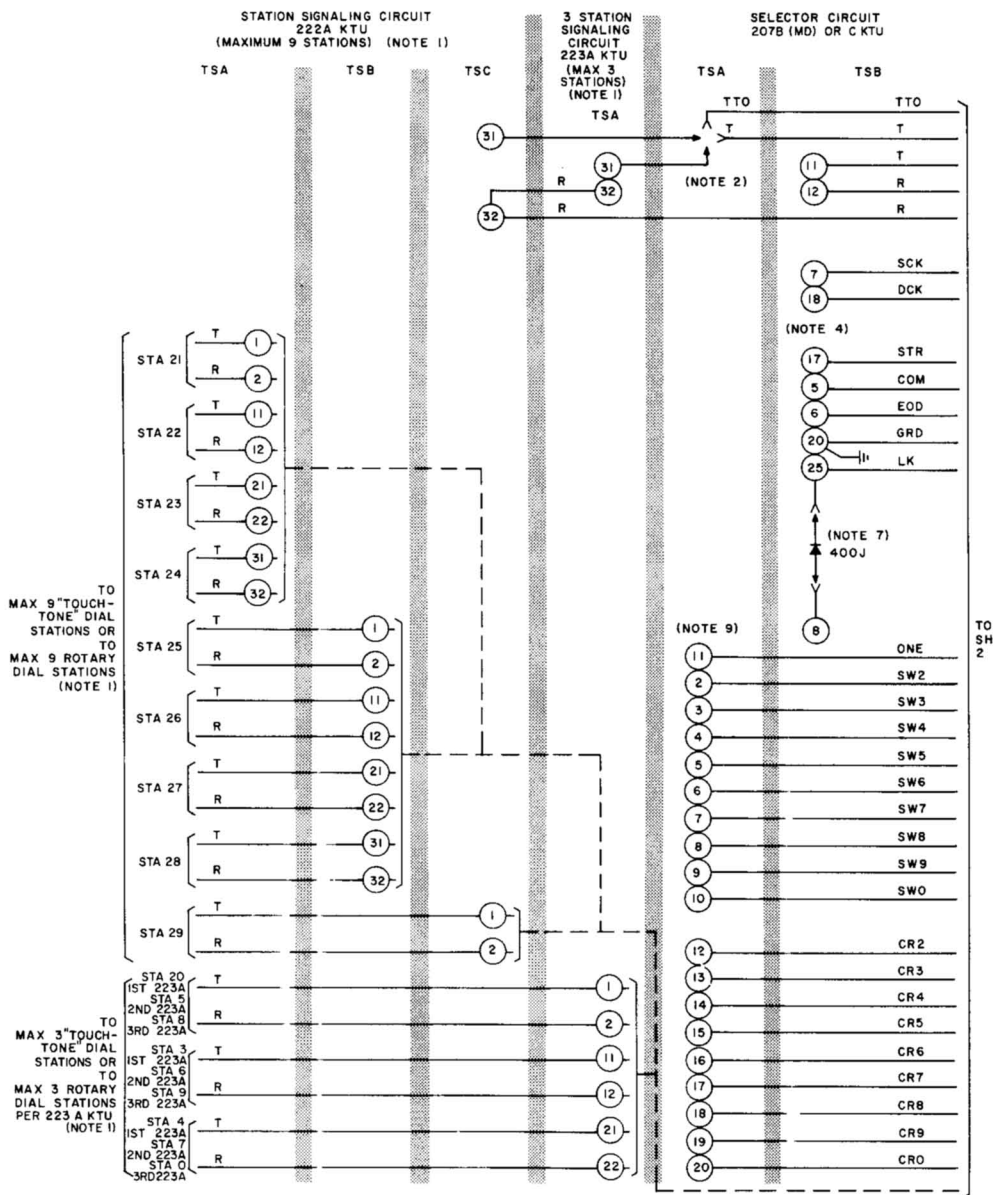
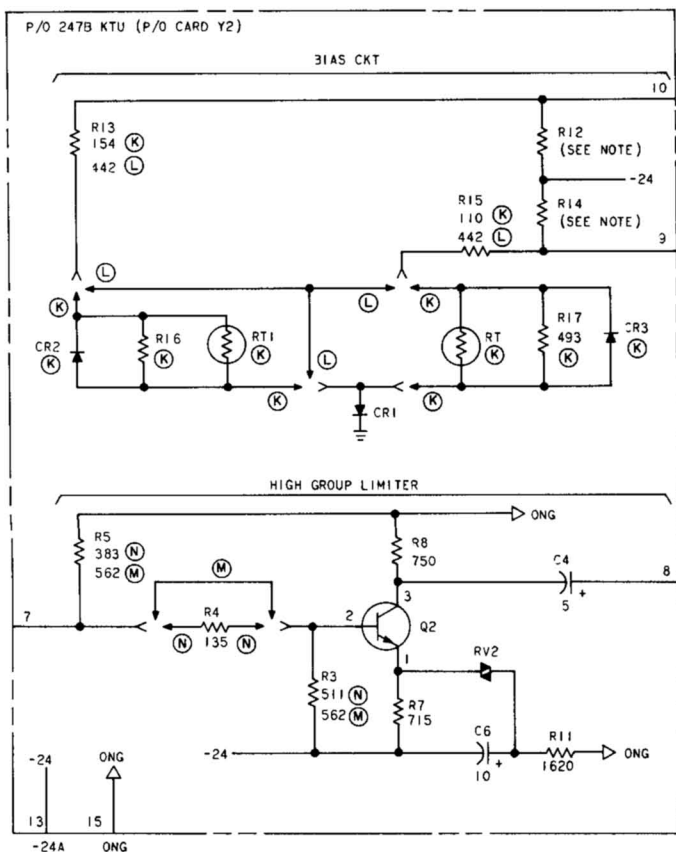


Fig. 3—♦Addition of TOUCH-TONE® Adapter Circuit, 247B KTU With 222A and 223A KTUs♦ (Sheet 1)



NOTE:

THE VALUES OF RESISTORS R12 AND R14 SHOULD BE SELECTED FROM THE FOLLOWING LIST TO PROVIDE REQUIRED BIAS.

| VOLTAGE ACROSS CR1 | RESISTANCE VALUE | | | |
|-----------------------|------------------|------|------|------|
| | R12 | R14 | | |
| | (K) | (L) | (K) | (L) |
| 5.8V TO 6.0V | 3120 | 3320 | 4020 | 4270 |
| 6.1V TO 6.3V | 3650 | 3920 | 4810 | 5230 |
| 6.4V TO 6.6V | 4480 | 4750 | 6420 | 6810 |

OPTIONS:

(K) AND (M) ARE FACTORY FURNISHED.

Fig. 4—Y2 Card Options in 247B KTU

→TABLE C←

SD-69447-01 (247A KTU) OPTIONS USED WITH 200H-TYPE KTU

| FEATURES | | | OPTIONS |
|---|--|--------|---------|
| KTS No. 6A one-link and 2-link arrangements | When station busy circuits are not provided | G | |
| | When station busy circuit is provided with | STA 33 | K |
| | | STA 44 | J |
| | | STA 66 | H |
| When one or more 216A KTU are provided | | | N |
| When 216A KTU is not provided | | | T |
| Single-digit station code | | | V |
| 2-link arrangements 222A KTU with | Rotary dial station | | Y |
| | “TOUCH-TONE”® dial station | | E |

→TABLE D←

SD-69529-01 (247B KTU) OPTIONS USED WITH 200H-TYPE KTU

| FEATURES | OPTIONS |
|--|---------|
| When 216A KTU (with KTS No. 6A) is not provided | T |
| Strapping for single-digit code, single- or 2-link | V |

→TABLE E←

CURRENT DRAIN REQUIREMENTS FOR 2-TALKING LINK ARRANGEMENTS

| 2-TALKING LINK ARRANGEMENT | BATTERY SUPPLY AMPERES | | | |
|--|--|--------|--|--------|
| | MAX CURRENT DRAIN AT MIN VOLTAGE (20 VOLTS) | | CURRENT DRAIN DURING NORMAL TALKING CONDITION (24 VOLTS) | |
| | A BAT. | B BAT. | A BAT. | B BAT. |
| Installation over 9 codes and using transfer circuit | 0.374 | 0.827 | 0.205 | 0.200 |
| Installation with camp-on circuit | 0.454 | 1.007 | 0.215 | 0.210 |

TABLE F
200H-TYPE KTU CONNECTIONS TERMINAL STRIP E

| FEATURE | STA | LEAD DESIG | 64B1-100 CABLE TERMINAL | | | TERM. ON 207C KTU | TERM. ON 222A KTU | TERM. ON 223A KTU | TERM. ON 232A (MD) OR B KTU | TERM. ON 224A (MD) OR B KTU | |
|------------------|-----|---------------|----------------------------|----------------------|------|----------------------------|----------------------------|----------------------------|---|---|--|
| | | | TS E | INSIDE WIRE CABLE | | | | | | | |
| Dial Intercom | 21 | T | 1 | (W-BL) | [W] | BLUE BINDER | | 1A | | | |
| | | R | 2 | (BL-W) | [BL] | | | 2A | | | |
| | | LG | 3 | (W-O) | [W] | | | 4A | | | |
| | | | 4 | (O-W) | [O] | | | 3A | | | |
| | 22 | T | 5 | (W-G) | [W] | | | 11A | | | |
| | | R | 6 | (G-W) | [G] | | | 12A | | | |
| | | LG | 7 | (W-BR) | [W] | | | 14A | | | |
| | | | 8 | (BR-W) | [BR] | | | 13A | | | |
| | 23 | T | 9 | (W-S) | [W] | | | 21A | | | |
| | | R | 10 | (S-W) | [S] | | | 22A | | | |
| | | LG | 11 | (R-BL) | [R] | | | 24A | | | |
| | | | 12 | (BL-R) | [BL] | | | 23A | | | |
| | 24 | T | 13 | (R-O) | [R] | | | 31A | | | |
| | | R | 14 | (O-R) | [O] | | | 32A | | | |
| | | LG | 15 | (R-G) | [R] | | | 34A | | | |
| | | | 16 | (G-R) | [G] | | | 33A | | | |
| | 25 | T | 17 | (R-BR) | [R] | | | 1B | | | |
| | | R | 18 | (BR-R) | [BR] | | | 2B | | | |
| | | LG | 19 | (R-S) | [R] | | | 4B | | | |
| | | | 20 | (S-R) | [S] | | | 3B | | | |
| | 26 | T | 21 | (BK-BL) | [BK] | | | 11B | | | |
| | | R | 22 | (BL-BK) | [BL] | | | 12B | | | |
| | | LG | 23 | (BK-O) | [BK] | | | 14B | | | |
| | | | 24 | (O-BK) | [O] | | | 13B | | | |
| | 27 | T | 25 | (BK-G) | [BK] | | | 21B | | | |
| | | R | 26 | (G-BK) | [G] | | | 22B | | | |
| | | LG | 27 | (BK-BR) | [BK] | | | 24B | | | |
| | | | 28 | (BR-BK) | [BR] | | | 23B | | | |
| | 28 | T | 29 | (BK-S) | [BK] | | | 31B | | | |
| | | R | 30 | (S-BK) | [S] | | | 32B | | | |
| | | LG | 31 | (Y-BL) | [Y] | | | 34B | | | |
| | | | 32 | (BL-Y) | [BL] | | | 33B | | | |
| | 29 | T | 33 | (Y-O) | [Y] | | | 1C | | | |
| | | R | 34 | (O-Y) | [O] | | | 2C | | | |
| | | LG | 35 | (Y-G) | [Y] | | | 4C | | | |
| | | | 36 | (G-Y) | [G] | | | 3C | | | |
| | 20 | T | 37 | (Y-BR) | [Y] | | | | 1A | 1st | |
| | | R | 38 | (BR-Y) | [BR] | | | | 2A | | |
| | | LG | 39 | (Y-S) | [Y] | | | | 4A | | |
| | | | 40 | (S-Y) | [S] | | | | 3A | | |

() Current color code.

[] MD color code.

TABLE F (Cont)
200H-TYPE KTU CONNECTIONS TERMINAL STRIP F

| FEATURE | STA | LEAD DESIG | 6481-100 CABLE TERMINAL | | | TERM. ON 207C KTU | TERM. ON 222A KTU | TERM. ON 223A KTU | TERM. ON 232A (MD) OR B KTU | TERM. ON 224A (MD) OR B KTU | | |
|------------------------|-----|---------------|----------------------------|----------------------|------|----------------------------|----------------------------|----------------------------|---|---|-----|--|
| | | | TS F | INSIDE WIRE CABLE | | | | | | | | |
| Dial Intercom | 3 | T | 1 | (V-BL) | [V] | BLUE BINDER | | 11A | 1st | | | |
| | | R | 2 | (BL-V) | [BL] | | | 12A | | | | |
| | | LG | 3 | (V-O) | [V] | | | 14A | | | | |
| | | L | 4 | (O-V) | [O] | | | 13A | | | | |
| | 4 | T | 5 | (V-G) | [V] | | | 21A | | 2nd | | |
| | | R | 6 | (G-V) | [G] | | | 22A | | | | |
| | | LG | 7 | (V-BR) | [V] | | | 24A | | | | |
| | | L | 8 | (BR-V) | [BR] | | | 23A | | | | |
| | 5 | T | 9 | (V-S) | [V] | | | 1A | 3rd | | | |
| | | R | 10 | (S-V) | [S] | | | 2A | | | | |
| | | LG | 11 | (W-BL) | [W] | | | 4A | | | | |
| | | L | 12 | (BL-W) | [BL] | | | 3A | | | | |
| | 6 | T | 13 | (W-O) | [W] | | | 11A | | 3rd | | |
| | | R | 14 | (O-W) | [O] | | | 12A | | | | |
| | | LG | 15 | (W-G) | [W] | | | 14A | | | | |
| | | L | 16 | (G-W) | [G] | | | 13A | | | | |
| | 7 | T | 17 | (W-BR) | [W] | | | 21A | | | 3rd | |
| | | R | 18 | (BR-W) | [BR] | | | 22A | | | | |
| | | LG | 19 | (W-S) | [W] | | | 24A | | | | |
| | | L | 20 | (S-W) | [S] | | | 23A | | | | |
| | 8 | T | 21 | (R-BL) | [R] | ORANGE BINDER | | 1A | 3rd | | | |
| | | R | 22 | (BL-R) | [BL] | | | 2A | | | | |
| | | LG | 23 | (R-O) | [R] | | | 4A | | | | |
| | | L | 24 | (O-R) | [O] | | | 3A | | | | |
| | 9 | T | 25 | (R-G) | [R] | | | 11A | | 3rd | | |
| | | R | 26 | (G-R) | [G] | | | 12A | | | | |
| | | LG | 27 | (R-BR) | [R] | | | 14A | | | | |
| | | L | 28 | (BR-R) | [BR] | | | 13A | | | | |
| | 0 | T | 29 | (R-S) | [R] | | | 21A | | | 3rd | |
| | | R | 30 | (S-R) | [S] | | | 22A | | | | |
| | | LG | 31 | (BK-BL) | [BK] | | | 24A | | | | |
| | | L | 32 | (BL-BK) | [BL] | | | 23A | | | | |
| Signal Key Leads | 21 | S | 33 | (BK-O) | [BK] | | | 7A | | | | |
| | 22 | S | 34 | (O-BK) | [O] | | | 17A | | | | |
| | 23 | S | 35 | (BK-G) | [BK] | | | 27A | | | | |
| | 24 | S | 36 | (G-BK) | [G] | | | 37A | | | | |
| | 25 | S | 37 | (BK-BR) | [BK] | | | 7B | | | | |
| | 26 | S | 38 | (BR-BK) | [BR] | | | 17B | | | | |
| | 27 | S | 39 | (BK-S) | [BK] | | | 27B | | | | |
| | 28 | S | 40 | (S-BK) | [S] | | | 37B | | | | |

() Current color code.

[] MD color code.

TABLE F (Cont)
200H-TYPE KTU CONNECTIONS TERMINAL STRIP G

| FEATURE | STA | LEAD DESIG | 64B1-100 CABLE TERMINAL | | TERM. ON 207C KTU | TERM. ON 222A KTU | TERM. ON 223A KTU | TERM. ON 232A (MD) OR B KTU | TERM. ON 224A (MD) OR B KTU |
|-----------------------------------|-----|------------|-------------------------|---------------------------|-------------------|-------------------|-------------------|-----------------------------|-----------------------------|
| | | | TS G | INSIDE WIRE CABLE | | | | | |
| Signal Key Leads | 29 | S | 1 | (Y-BL) [Y] | ORANGE BINDER | 7C | | | |
| | 20 | S | 2 | (BL-Y) [BL] | | | 7A | | |
| | 3 | S | 3 | (Y-O) [Y] | | | 17A | 1st | |
| | 4 | S | 4 | (O-Y) [O] | | | 27A | | |
| | 5 | S | 5 | (Y-G) [Y] | | | 7A | 2nd | |
| | 6 | S | 6 | (G-Y) [G] | | | 17A | | |
| | 7 | S | 7 | (Y-BR) [Y] | | | 27A | | |
| | 8 | S | 8 | (BR-Y) [BR] | | | 7A | | |
| | 9 | S | 9 | (Y-S) [Y] | | | 17A | 3rd | |
| | 0 | S | 10 | (S-Y) [S] | | | 27A | | |
| Station Audible Signal — Z Option | 21 | RS RG | 11 12 | (V-BL) [V] (BL-V) [BL] | ORANGE BINDER | 5A 6A | | | |
| | 22 | RS RG | 13 14 | (V-O) [V] (O-V) [O] | | 15A 16A | | | |
| | 23 | RS RG | 15 16 | (V-G) [V] (G-V) [G] | | 25A 26A | | | |
| | 24 | RS RG | 17 18 | (V-BR) [V] (BR-V) [BR] | | 35A 36A | | | |
| | 25 | RS RG | 19 20 | (V-S) [V] (S-V) [S] | | 5B 6B | | | |
| | 26 | RS RG | 21 22 | (W-BL) [W] (BL-W) [BL] | | 15B 16B | | | |
| | 27 | RS RG | 23 24 | (W-O) [W] (O-W) [O] | | 25B 26B | | | |
| | 28 | RS RG | 25 26 | (W-G) [W] (G-W) [G] | | 35B 36B | | | |
| | 29 | RS RG | 27 28 | (W-BR) [W] (BR-W) [BR] | | 5C 6C | | | |
| | 20 | RS RG | 29 30 | (W-S) [W] (S-W) [S] | GREEN BINDER | | 5A 6A | | |
| | 3 | RS RG | 31 32 | (R-BL) [R] (BL-R) [BL] | | | 15A 16A | 1st | |
| | 4 | RS RG | 33 34 | (R-O) [R] (O-R) [O] | | | 25A 26A | | |
| | 5 | RS RG | 35 36 | (R-G) [R] (G-R) [G] | | | 5A 6A | 2nd | |
| | 6 | RS RG | 37 38 | (R-BR) [R] (BR-R) [BR] | | | 15A 16A | | |
| | 7 | RS RG | 39 40 | (R-S) [R] (S-R) [S] | | | 25A 26A | | |

() Current color code.

[] MD color code.

TABLE F (Cont)
200H-TYPE KTU CONNECTIONS TERMINAL STRIP H

| FEATURE | STA | LEAD DESIG | 64B1-100 CABLE TERMINAL | | TERM. ON 207C KTU ** | TERM. ON 222A KTU | TERM. ON 223A KTU | TERM. ON 222A (MD) B or C KTU † | TERM. ON 224A (MD) OR B KTU |
|--|-----|----------------------------|----------------------------|--|----------------------------------|----------------------------|----------------------------|---|---|
| | | | T5 H | INSIDE WIRE CABLE | | | | | |
| Sta Aud Sig — Z Option | 8 | RS RG | 1 2 | (BK-BL) [BK] (BL-BK) [BL] | | | 5A 6A | | |
| | 9 | RS RG | 3 4 | (BK-O) [BK] (O-BK) [O] | | | 15A 16A | 3rd | |
| | 0 | RS RG | 5 6 | (BK-G) [BK] (G-BK) [G] | | | 25A 26A | | |
| To Power Supply | | "B" GRD "B" BAT. (SIG) | 7 8 | (BK-BR) [BK] (BR-BK) [BR] | 20B 19B | | | | |
| To Lamp Supply | | GRD ± or LB | 9 10 | (BK-S) [BK] (S-BK) [S] | 32B 29B | | | | |
| To Power Supply | | "A" GRD "A" BAT. (TALK) | 11 12 | (Y-BL) [Y] (BL-Y) [BL] | 10B 9B | | | | |
| Aud Sig Pwr Sup Options | Y | G GRD | 13 | (Y-O) [Y] | | 20A 6A | | | |
| | Z | GRD or R GRD | * | * | | | | | |
| | Z | 105V± BAT., ±, or 105V± | 14 * | (O-Y) [O] * | | 19A 29A | | | |
| X Option† to Inter- rupter in Package | | CO\$ TO | 15 16 | (Y-G) [Y] (G-Y) [G] | | | | 37 36 | |
| | | BT1 or BZ1 BT or BZ | 17 18 | (Y-BR) [Y] (BR-Y) [BR] | | | | 32 31 | |
| | | RO LF | 19 20 | (Y-S) [Y] (S-Y) [S] | | | | 34 1 | |
| | | GRD 10V AC | 21 22 | (V-BL) [V] (BL-V) [BL] | | | | 27 26 | |
| Lamp Supply | | ± or LB ± or LB | 23 24 | (V-O) [V] (O-V) [O] | | | | 9 10 | |
| W Option‡ to External Interrupter | | CO\$ TO | 25 26 | (V-G) [V] (G-V) [G] | | 18A | | | 22 |
| | | BT1 or BZ1 BT or BZ | 27 28 | (V-BR) [V] (BR-V) [BR] | | | | | 35 24 |
| | | RO LF | 29 30 | (V-S) [V] (S-V) [S] | | 40A 9B | | | |
| | | T R L | 31 32 33 | (W-BL) [W] (BL-W) [BL] (W-O) [W] | | | | 30 40 28 | |
| Lamp Supply | | ± or LB ± or LB | 34 35 | (O-W) [O] (W-G) [W] | | | | 19 20 | |
| Spare | | | 36 | (G-W) [G] | | | | | |
| | | | 37 | (W-BR) [W] | | | | | |
| | | | 38 | (BR-W) [BR] | | | | | |
| | | | 39 40 | (W-S) [W] (S-W) [S] | | | | | |

*Select spare pair locally.

†When KTU is equipped with a 64B1-100 cable terminal, strap (X option) as follows: on terminal strip H strap terminal 15 to 25, 16 to 26, 17 to 27, 18 to 28, 29 to 30. Also make sure the following straps are not provided:

| | |
|---------------------|---------------------|
| from terminal | to terminal |
| 37 (232A [MD] or B) | 31 (232A [MD] or B) |
| 36 (232A [MD] or B) | 1 (232A [MD] or B) |
| 32 (232A [MD] or B) | 35 (224A [MD] or B) |
| | 18 (222A) |
| | 22 (224A [MD] or B) |
| | 9B (222A) |
| | 24 (224A [MD] or B) |

‡ For W option remove all straps mentioned above and connect terminals 25 through 30 on TSH to appropriate terminals on an external interrupter.

\$ The CO lead connection is required when an associated No. 1A, 1A1, or 1A2 system flashing circuit is used as part of the No. 6A installation.

() Current color code.

[] MD color code.

† 232C KTU has factory-placed strap from 37 to 39.

** Improper connection of battery and ground may result in damage to electrolytic capacitor.