

1A2 KEY TELEPHONE SYSTEM

KEY UNITS

QUJ8A, QUJ9A, QUJ10A, QUN7A, QUN12A, QUN13A, QUN14A AND QUN15A

CONNECTIONS AND MAINTENANCE

1. GENERAL

1.01 This Section covers connection and maintenance information required for a 1A2 Key Telephone System using QUJ8A, QUJ9A, and QUJ10A, Key Service Units and QUN7A, QUN12A, QUN13A, QUN14A and QUN15A Key Telephone Units.

1.02 This Section is reissued to include the connections for the QUN7A, QUN12A, QUN13A, QUN14A and QUN15A Key Telephone Units.

2. LIST OF TABLES AND FIGS.

Table A — QUJ8A KSU Connection Information.

Table B — QUJ9A KSU Connection Information.

Table C & D — QUJ10A KSU Connection Information.

Table E — QUJ10A Dial Intercom Strapping.

Fig. 1 — QUJ8A Key Service Unit Assembly.

Fig. 2 — QUJ8A Key Service Unit Wiring and Power Plant Connections.

Fig. 3 — Block Diagram QUN10A KTU (SU or PBX Line Circuit).

Fig. 4 — Block Diagram QUN11A KTU (Manual Intercom).

Fig. 5 — 66BN1-25 Connecting Block Terminal.

Fig. 5A — Block Diagram QUN7A KTU (Dial Intercom Long Line).

Fig. 5B — Block Diagram QUN12A KTU (Conference Circuit)

Fig. 5C — Block Diagram QUN13A KTU (Automatic DC Signaling Tie Line)

Fig. 5D — Block Diagram QUN14A KTU (Short Range Tie Line)

Fig. 5E — Block Diagram QUN15A KTU (Off-Premise Extension)

Fig. 6 — QUJ9A Key Service Unit Assembly.

Fig. 6A — QUJ10A Key Service Unit Assembly.

Fig. 7 — Block Diagram QUN10A KTU (SU or PBX Line Circuit).

Fig. 8 — Block Diagram QUN8A KTU (Dial Intercom Control).

Fig. 9 — Block Diagram NSQ4131L1 KTU (Dial Intercom Selector).

Fig. 10 — Block Diagram QUN11A KTU (Manual Intercom).

Fig. 11 — PB Circuit Connecting Block Terminals and Audible Signal Strapping for QUJ9A KSU.

Fig. 12 — Addition of 247B KTU for Touch Tone Service QUJ9A and QUJ10A KSU only.

Fig. 13 — QUJ9A Key Service Unit Wiring and Power Plant Connections.

Fig. 14 — Interrupter Connections for the QUJ8A and QUJ9A KSU.

Fig. 15 — Power Supply Connections QUJ8A KSU.

Fig. 16 — Power Supply Connections QUJ9A KSU.

Fig. 17 — QUJ10A Wiring Information.

Fig. 18 — QUJ10A Wiring Information and Power Plant Connections.

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3. CONNECTIONS QJ8A KSU



3.01 Key Service Units must be grounded in an approved manner using a number 14 ground wire. A multiple post grounding terminal located on the top of 66 type connecting block will be used for connection of ground wire.

3.02 Terminate incoming line (T & R Leads) and connect key and running cables (TI, R1, A, AI, LG, B, RC) as shown in Table A.

3.03 The ± 105 volt audible signal if required must be supplied from an external source such as QGG1A Frequency Generator or 101G, List 5 or 4, Power Plant. See Fig. 2 for connections.

3.04 Pushbutton and buzzer circuits should be connected as required. Fig. 2 indicates spare punchings on the 66 type block.

3.05 When assigning jacks to a KSU use the lowest numbered jack that will accommodate the KTU. This will allow for future growth without reassignment of jacks.

audible signal if required
 and from an external source
 Frequency Generator or 101G,
 ant. See Fig. 2 for connec-

and buzzer circuits should be
 required. Fig. 2 indicates
 the 66 type block.

Key jacks to a KSU use the
 standard jack that will accommo-
 date 1000 will allow for future growth
 of jacks.

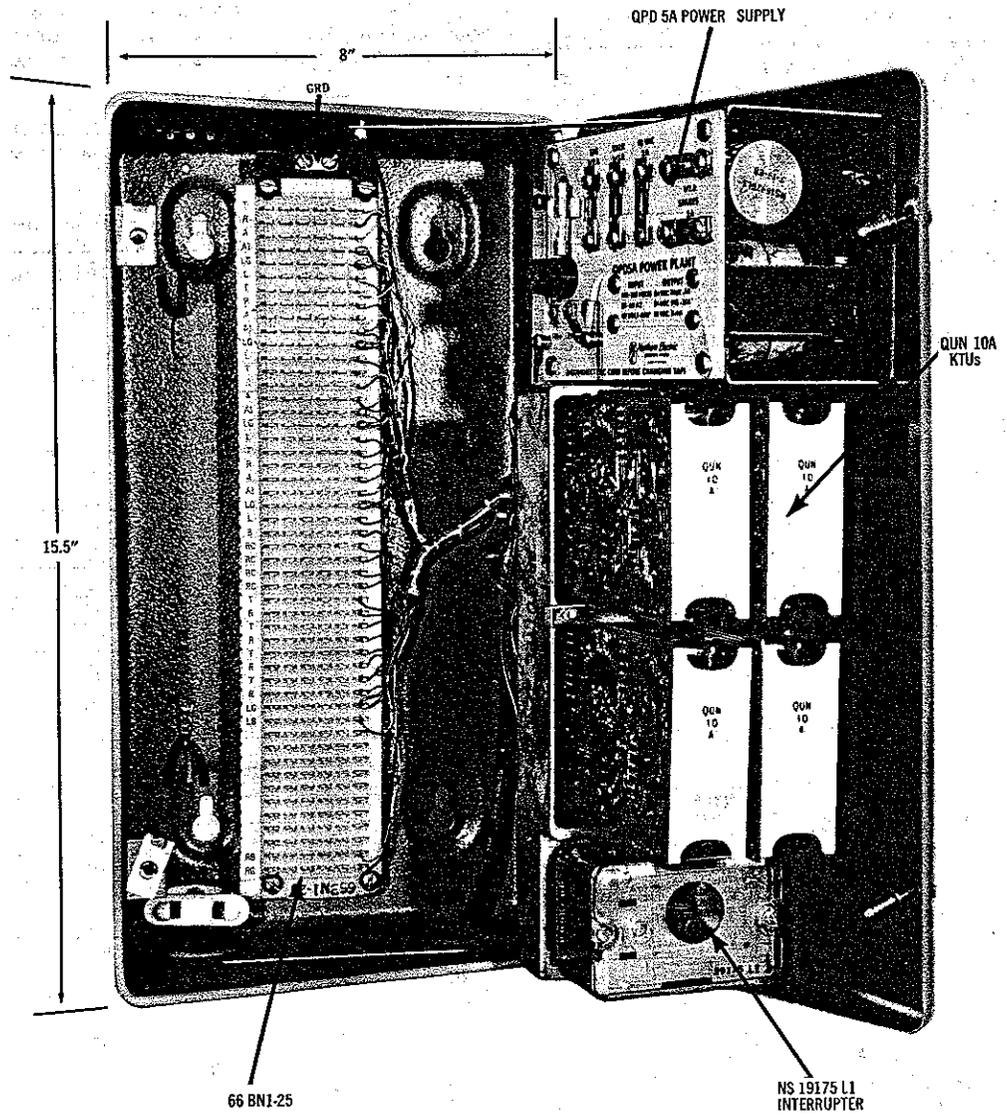


Fig. 1 - QJ8A Key Service Unit

TABLE A
QUJ8A KSU CONNECTION INFORMATION

| KTU | Lead Des. | PCB Conn. Term. | Connections at 66-Type Conn. Block for the Following Plug-In Loc | | | |
|---|-----------|-----------------|--|----|----|----|
| | | | J1 | J2 | J3 | J4 |
| QUN10A KTU (SU/PBX LINE) (SEE FIG. 3) | T | 14 | 30 | 32 | 34 | 36 |
| | R | 9 | 31 | 33 | 35 | 37 |
| | T1 | 12 | 1 | 7 | 13 | 19 |
| | R1 | 13 | 2 | 8 | 14 | 20 |
| | A | 16 | 3 | 9 | 15 | 21 |
| | A1 | — | 4 | 10 | 16 | 22 |
| | LG | 6 | 5 | 11 | 17 | 23 |
| | L | 8 | 6 | 12 | 18 | 24 |
| | B | — | 25 | 25 | 25 | 25 |
| RC | 1 | 26 | 27 | 28 | 29 | |
| QUN11A KTU MAN I/C LINE (SEE FIG. 4) | — | 14 | 30 | 32 | 34 | 36 |
| | — | 9 | 31 | 33 | 35 | 37 |
| | T1 | 12 | 1 | 7 | 13 | 19 |
| | R1 | 13 | 2 | 8 | 14 | 20 |
| | A | 16 | 3 | 9 | 15 | 21 |
| | A1 | — | 4 | 10 | 16 | 22 |
| | LG | 6 | 5 | 11 | 17 | 23 |
| | L | 8 | 6 | 12 | 18 | 24 |
| | — | 1 | 26 | 27 | 28 | 29 |
| QUN13A KTU AUTOMATIC DC SIGNALING TIE LINE (SEE FIG. 5C) | T | 14 | 30 | 32 | 34 | 36 |
| | R | 9 | 31 | 33 | 35 | 37 |
| | T1 | 12 | 1 | 7 | 13 | 19 |
| | R1 | 13 | 2 | 8 | 14 | 20 |
| | A | 16 | 3 | 9 | 15 | 21 |
| | A1 | — | 4 | 10 | 16 | 22 |
| | LG | 6 | 5 | 11 | 17 | 23 |
| | L | 8 | 6 | 12 | 18 | 24 |
| | B | — | 25 | 25 | 25 | 25 |
| RC | 1 | 26 | 27 | 28 | 29 | |
| QUN14A SHORT RANGE TIE LINE (SEE FIG. 5D) | T2 | 14 | 30 | 32 | 34 | 36 |
| | RC1 | 9 | 31 | 33 | 35 | 37 |
| | T1 | 12 | 1 | 7 | 13 | 19 |
| | R | 13 | 2 | 8 | 14 | 20 |
| | LA | 16 | 3 | 9 | 15 | 21 |
| | B | — | 25 | 25 | 25 | 25 |
| | LG | 6 | 5 | 11 | 17 | 23 |
| | RC2 | 8 | 6 | 12 | 18 | 24 |
| LB | 1 | 26 | 27 | 28 | 29 | |

ions at 66-Type
Block for the
ing Plug-In Loc

| | | |
|--|----|----|
| | J3 | J4 |
| | 34 | 36 |
| | 35 | 37 |
| | 13 | 19 |
| | 14 | 20 |
| | 15 | 21 |
| | 16 | 22 |
| | 17 | 23 |
| | 18 | 24 |
| | 25 | 25 |
| | 28 | 29 |
| | 34 | 36 |
| | 35 | 37 |
| | 13 | 19 |
| | 14 | 20 |
| | 15 | 21 |
| | 16 | 22 |
| | 17 | 23 |
| | 18 | 24 |
| | 28 | 29 |
| | 34 | 36 |
| | 35 | 37 |
| | 13 | 19 |
| | 14 | 20 |
| | 15 | 21 |
| | 25 | 25 |
| | 17 | 23 |
| | 18 | 24 |
| | 28 | 29 |

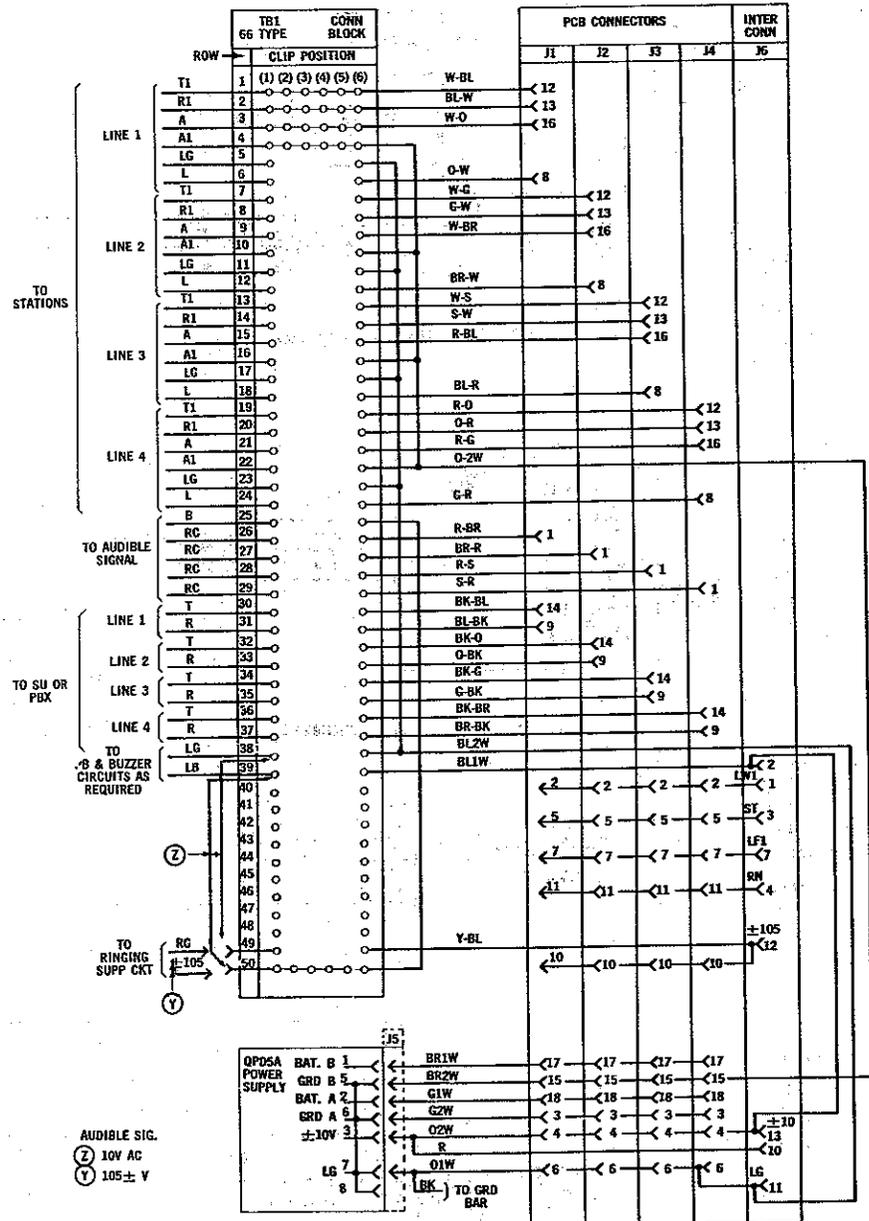


Fig. 2 -- QJ8A Key Service Unit Wiring

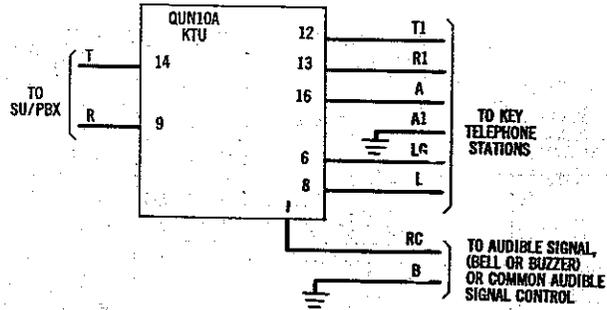


Fig. 3 — Block Diagram QUN10A

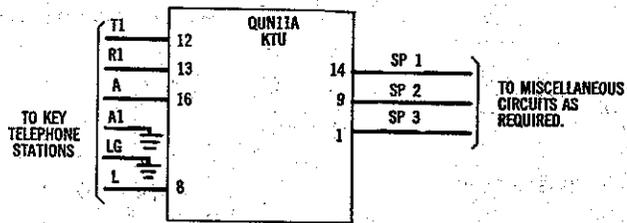


Fig. 4 — Block Diagram QUN11A

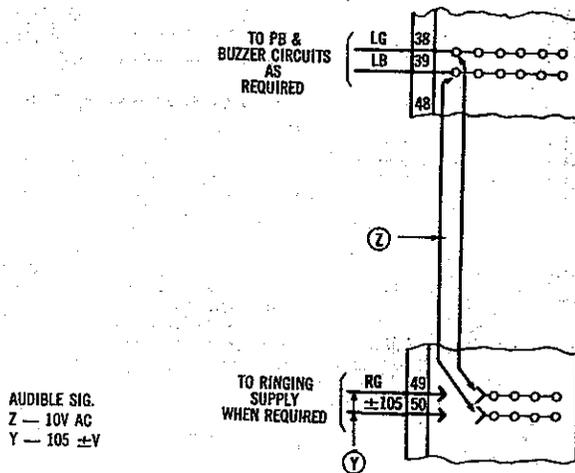


Fig. 5 — 66BNT-25 Connecting Block

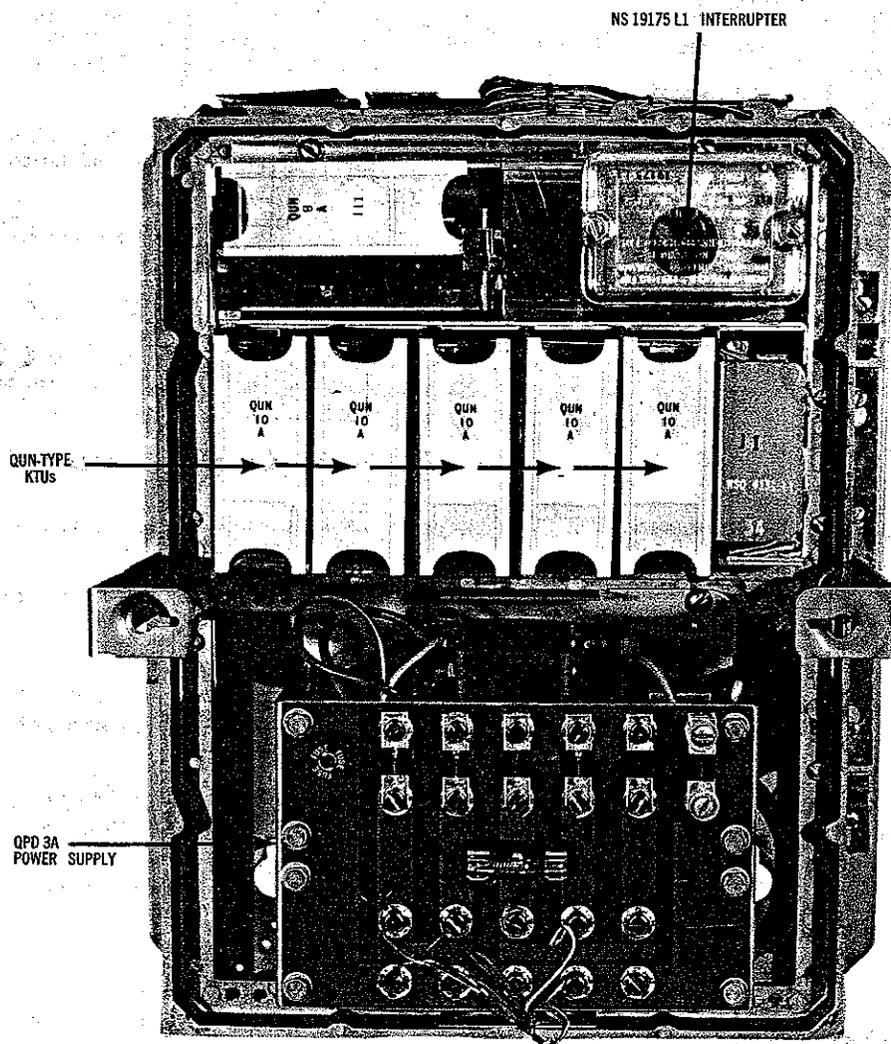


Fig. 6 - QJ9A Key Service Unit

4. CONNECTIONS QUJ9A

- 4.01 Grounding same as for QUJ8A KSU (Para. 3.01).
- 4.02 Terminate incoming line (T & R Leads) and connect key or running cables as shown in Table B.
- 4.03 The ± 105 volt audible signal if required must be supplied from an external source such as QGG1A Frequency Generator or 101G Power Plant. (See Fig. 13 for connections.)
- 4.04 Pushbutton and buzzer circuits should be connected as required. Fig. 13 indicates spare punching on the 66 type blocks.
- 4.05 See Table B for assignment of jacks. Use lowest jack number possible to allow for future growth.
- 4.06 **Touch-Tone Service QUJ9A**
Material Required:
A—247BQB Touch-Tone Adapter.
B—Y7 Card.
C—QPD2A Power Plant. (To be used with the QUJ9A KSU).
- Note:* When Touch-Tone only service is provided the NSQ4131L1 selector is not required.

4.07 Removing Power Plant

- (a) Remove and insulate the leads connected to the QPD3A Power Plant.
- (b) Remove Power Plant.
- (c) Install and connect the Touch-Tone Adapter as shown in Fig. 12.
- (d) Connect the QPD2A Power Plant to the B Connecting Block as shown in Fig. 13.

5. CONNECTIONS QUJ10A KEY SERVICE UNIT

- 5.01 Unit must be grounded in an approved manner using a No. 14 wire.
- 5.02 Connecting information for incoming lines and key cables are shown in Tables C and D.

5.03 The ± 105 volt audible signal if required must be supplied from an external source such as QGG1A Frequency Generator or a 101G Power Plant. If 10V AC is used strap Block B-50 to Block D-48.

5.04 Block B and D have spare punchings which may be used for Pushbutton and Buzzer Circuits. See Fig. 18.

5.05 Assignment information for KTUs is contained in Tables C and D.

5.06 Dial intercom strapping information is contained in Table E.

Note: If Touch-Tone only service is to be provided the NSQ4131 L1 Selector will not be required.

5.07 See Para. 4.06 for material required to provide Touch-Tone service.

5.08 See Para. 4.07 for instructions on removing Power Plant.

5.09 Connect the QPD2A Power Plant as shown in Fig. 18.

6. GENERAL MAINTENANCE

6.01 The maintenance is limited to replacement of circuit boards.

Note: Exercise care when inserting or removing the KTU to avoid damage to the printed wiring and other circuit components.

6.02 To replace circuit boards

- (1) Loosen the screws holding the slide retainer bar.
- (2) Slide the retainer bar until the notches in the guide and card line up.
- (3) Grasp and pull the circuit board out of the connector.

6.03 When inserting another card where a defective card is suspected, make sure that the proper options are strapped on the option block. See connecting information pertaining to the QUN-type KTUs.

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6.04 The miniature relay on the KTUs are factory adjusted and field adjustments shall not be attempted. Do not attempt to remove the relay dust cover.

Note: The plug edge of each QUN-type KTU is treated with a lubricant to assist in insertion or removal from its mounting receptacle. Do not wipe off lubricant.

6.05 The QUJ8A has a cover guide which locks when the cover is open. To close the cover, the guide must be raised.

6.06 On QUJ8A and QUJ9A KSUs, the interrupter is retained in its socket by means of a captive screw.

6.07 Wiring Information:
QUJ8A — Fig. 2
QUJ9A — Fig. 13
QUJ10A — Fig. 17 & 18



6.08 The 1A2 QUN-type KTUs require a minimum of 20 volts DC signal battery to operate reliably. Maximum is 26V.



6.09 No sidetone will be detected when the QSE4B type test set, or equivalent, is used to test dial or manual intercom circuits.

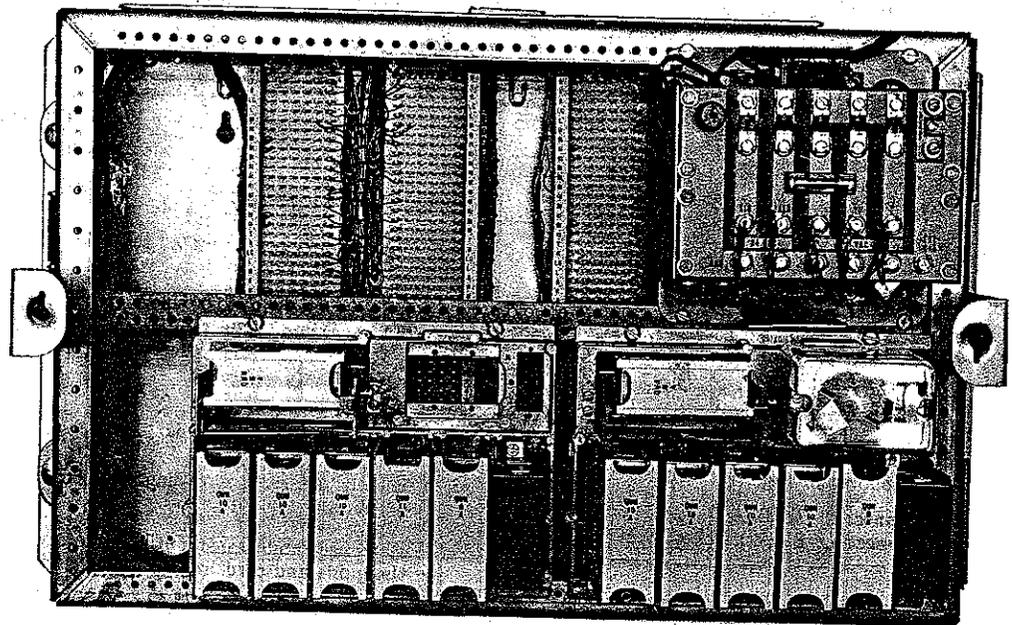


Fig. 6A — QUJ10A Key Service Unit Assembly

TABLE B

QUJ9A KEY SERVICE UNIT CONNECTION INFORMATION

| KTU | LEAD DESIG. | PCB CONN TERM. | CONNECTIONS AT 66 TYPE CONN BLOCK FOR THE FOLLOWING PLUG IN LOCATIONS | | | | | | |
|---|----------------|----------------------|--|-----|-----|-----|-----|-----|---------|
| | | | J1 | J2 | J3 | J4 | J5 | J6 | J7 |
| QUN 10A KTU (SU/PBX LINE) (SEE FIG. 7) | T | 14 | B1 | B3 | B5 | B7 | B9 | B11 | B13 |
| | R | 9 | B2 | B4 | B6 | B8 | B10 | B12 | B14 |
| | T1 | 12 | A1 | A7 | A13 | A19 | A25 | A31 | A37 |
| | R1 | 13 | A2 | A8 | A14 | A20 | A26 | A32 | A38 |
| | A | 16 | A3 | A9 | A15 | A21 | A27 | A33 | A39 |
| | A1 | — | A4 | A10 | A16 | A22 | A28 | A34 | A40 |
| | LG | 6 | A5 | A11 | A17 | A23 | A29 | A35 | A41 |
| | L | 8 | A6 | A12 | A18 | A24 | A30 | A36 | A42 |
| | B | — | B15 | B15 | B15 | B16 | B16 | B16 | B16 |
| | RC | 1 | B17 | B18 | B19 | B20 | B21 | B22 | B23 |
| QUN 8A KTU (DIAL I/C CONTROL) (SEE FIG. 8) | STP | 14 | | | | | | | B13 |
| | RS | 9 | | | | | | | B14 |
| | T1 | 12 | | | | | | | A37 |
| | R1 | 13 | | | | | | | A38 |
| | BY | 16 | | | | | | | A39 |
| | LG | 6 | | | | | | | A41 |
| | L | 8 | | | | | | | A42 |
| | B | — | | | | | | | B24 B25 |
| | RR | 1 | | | | | | | B23 |
| | RST | 0 | | | | | | | B37 |
| TT | 19 | | | | | | | B36 | |
| QUN 19 NSQ 4131-L1 KTU (DIAL I/C LINE SEL) (SEE FIG. 9) | RST | 14 | | | | | | B11 | |
| | ALL1 | 9 | | | | | | B12 | |
| | STP | 13 | | | | | | A32 | |
| | R1 | 16 | | | | | | B26 | |
| | R2 | 8 | | | | | | B27 | |
| | R3 | 1 | | | | | | B28 | |
| | R4 | 0 | | | | | | B29 | |
| | R5 | 19 | | | | | | B30 | |
| | R6 | 24 | | | | | | B31 | |
| | R7 | 25 | | | | | | B32 | |
| R8 | 26 | | | | | | B33 | | |
| R9 | 28 | | | | | | B34 | | |
| R0 | 29 | | | | | | B35 | | |
| QUN 11A KTU MAN I/C LINE (SEE FIG. 10) | — | 14 | B1 | B3 | B5 | B7 | B9 | B11 | B13 |
| | — | 9 | B2 | B4 | B6 | B8 | B10 | B12 | B14 |
| | T1 | 12 | A1 | A7 | A13 | A19 | A25 | A31 | A37 |
| | R1 | 13 | A2 | A8 | A14 | A20 | A26 | A32 | A38 |
| | A | 16 | A3 | A9 | A15 | A21 | A27 | A33 | A39 |
| | A1 | — | A4 | A10 | A16 | A22 | A28 | A34 | A40 |
| | LG | 6 | A5 | A11 | A17 | A23 | A29 | A35 | A41 |
| | L | 8 | A6 | A12 | A18 | A24 | A30 | A36 | A42 |
| | — | 1 | B17 | B18 | B19 | B20 | B21 | B22 | B23 |
| | — | — | | | | | | | |

(Table 13 continued on next page.)

ion:
2
13
17 & 18

12 QUN-type KTUs re-
minimum of 20 volts DC
to operate reliably. Maxi-

etone will be detected
the QSEAB type test set,
is used to test dial or
om circuits.

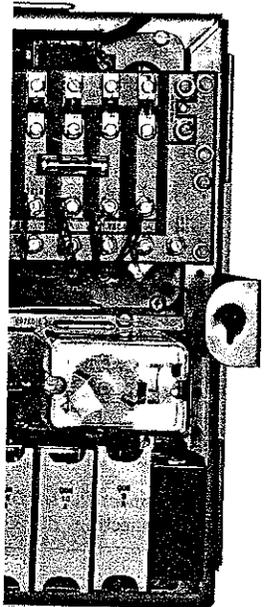


TABLE B

QUJ9A KEY SERVICE UNIT CONNECTION INFORMATION (CONT'D)

| KTU | LEAD DESIG. | PCB CONN TERM. | CONNECTIONS AT 66 TYPE CONN BLOCK FOR THE FOLLOWING PLUG-IN LOCATIONS | | | | | | |
|---|----------------|----------------------|--|-----|-----|-----|-----|-----|-----|
| | | | J1 | J2 | J3 | J4 | J5 | J6 | J7 |
| QUN 13A KTU Automatic DC Signaling Tie Line (See Fig. 5C) | T | 14 | B1 | B3 | B5 | B7 | B9 | B11 | B13 |
| | R | 9 | B2 | B4 | B6 | B8 | B10 | B12 | B14 |
| | T1 | 12 | A1 | A7 | A13 | A19 | A25 | A31 | A37 |
| | R1 | 13 | A2 | A8 | A14 | A20 | A26 | A32 | A38 |
| | A | 16 | A3 | A9 | A15 | A21 | A27 | A33 | A39 |
| | A1 | — | A4 | A10 | A16 | A22 | A28 | A34 | A40 |
| | LG | 6 | A5 | A11 | A17 | A23 | A29 | A35 | A41 |
| | L | 8 | A6 | A12 | A18 | A24 | A30 | A36 | A42 |
| | B | — | B15 | B15 | B15 | B16 | B16 | B16 | B16 |
| | RC | 1 | B17 | B18 | B19 | B20 | B21 | B22 | B23 |
| QUN 14A KTU Short Range Tie Line (See Fig. 5D) | T2 | 14 | B1 | B3 | B5 | B7 | B9 | B11 | B13 |
| | RCA | 9 | B2 | B4 | B6 | B8 | B10 | B12 | B14 |
| | T1 | 12 | A1 | A7 | A13 | A19 | A25 | A31 | A37 |
| | R | 13 | A2 | A8 | A14 | A20 | A26 | A32 | A38 |
| | LA | 16 | A3 | A9 | A15 | A21 | A27 | A33 | A39 |
| | — | — | A4 | A10 | A16 | A22 | A28 | A34 | A40 |
| | LG | 6 | A5 | A11 | A17 | A23 | A29 | A35 | A41 |
| | RCB | 8 | A6 | A12 | A18 | A24 | A30 | A36 | A42 |
| | B | — | B15 | B15 | B15 | B16 | B16 | B16 | B16 |
| | LB | 1 | B17 | B18 | B19 | B20 | B21 | B22 | B23 |
| QUN 15A KTU Off-Premises Extension (See Fig. 5E) | T | 14 | | | | | | B11 | B13 |
| | R | 9 | | | | | | B12 | B14 |
| | T1 | 12 | | | | | | A31 | A37 |
| | R1 | 13 | | | | | | A32 | A38 |
| | A | 16 | | | | | | B26 | A39 |
| | L | 8 | | | | | | B27 | A42 |
| | RC | 1 | | | | | | B28 | B23 |
| | S1 | 0 | | | | | | B29 | B37 |
| | S2 | 19 | | | | | | B30 | B36 |
| | A1 | 15 | | | | | | A34 | A40 |
| LG | 6 | | | | | | A35 | A41 | |
| B | — | | | | | | B16 | B16 | |
| QUN 7A KTU Dial Intercom Long Link (See Fig. 5A) | T | 14 | B1 | B3 | B5 | B7 | B9 | B11 | B13 |
| | R | 9 | B2 | B4 | B6 | B8 | B10 | B12 | B14 |
| | T1 | 12 | A1 | A7 | A13 | A19 | A25 | A31 | A37 |
| | R1 | 13 | A2 | A8 | A14 | A20 | A26 | A32 | A38 |
| | RB | 16 | A3 | A9 | A15 | A21 | A27 | A33 | A39 |
| | — | — | A4 | A10 | A16 | A22 | A28 | A34 | A40 |
| | — | 6 | A5 | A11 | A17 | A23 | A29 | A35 | A41 |
| | RG | 8 | A6 | A12 | A18 | A24 | A30 | A36 | A42 |
| | RX | 1 | B17 | B18 | B19 | B20 | B21 | B22 | B23 |
| | | | | | | | | | |

TABLE C
QUJ10A KSU CONNECTION INFORMATION

(CONT'D)

LOCK FOR THE

| | |
|-----|-----|
| J6 | J7 |
| B11 | B13 |
| B12 | B14 |
| A31 | A37 |
| A32 | A38 |
| A33 | A39 |
| A34 | A40 |
| A35 | A41 |
| A36 | A42 |
| B16 | B16 |
| B22 | B23 |
| B11 | B13 |
| B12 | B14 |
| A31 | A37 |
| A32 | A38 |
| A33 | A39 |
| A34 | A40 |
| A35 | A41 |
| A36 | A42 |
| B16 | B16 |
| B22 | B23 |
| B11 | B13 |
| B12 | B14 |
| A31 | A37 |
| A32 | A38 |
| A33 | A39 |
| A34 | A40 |
| A35 | A41 |
| A36 | A42 |
| B16 | B16 |
| B22 | B23 |
| B11 | B13 |
| B12 | B14 |
| A31 | A37 |
| A32 | A38 |
| A33 | A39 |
| A34 | A40 |
| A35 | A41 |
| A36 | A42 |
| B16 | B16 |
| B22 | B23 |

| KTU | LEAD DESIG. | JK TERM | CONNECTIONS AT 66 TYPE CONNECTING BLOCK | | | | | | | | | | | | | |
|----------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | CASTING A | | | | | | | CASTING B | | | | | | |
| | | | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 |
| QUN 10A SU OR PBX LINE | T R T1 R1 A A1 LG L B RC | 14 9 12 13 16 15 6 8 1 | A1 A1R A2 A3 A4 A5 A6 A7 A8 A8R | A9 A9R A10 A11 A12 A13 A14 A15 A16 A16R | A17 A17R A18 A19 A20 A21 A22 A23 A24 A24R | A25 A25R A26 A27 A28 A29 A30 A31 A32 A32R | A33 A33R A34 A35 A36 A37 A38 A39 A40 A40R | B1 B1R B2 B3 B4 B5 B6 B7 B8 B8R | B19 B19R B20 B21 B22 B23 B24 B25 B26 B26R | C1 C1R C2 C3 C4 C5 C6 C7 C8 C8R | C9 C9R C10 C11 C12 C13 C14 C15 C16 C16R | C17 C17R C18 C19 C20 C21 C22 C23 C24 C24R | C25 C25R C26 C27 C28 C29 C30 C31 C32 C32R | C33 C33R C34 C35 C36 C37 C38 C39 C40 C40R | D1 D1R D2 D3 D4 D5 D6 D7 D8 D8R | D19 D19R D20 D21 D22 D23 D24 D25 D26 D26R |
| QUN 11A MANUAL I/C LINE | SP1 SP2 T R A A1 LG L SP3 | 14 9 12 13 16 — 8 1 | A1 A1R A2 A3 A4 A5 A6 A7 A8R | A9 A9R A10 A11 A12 A13 A14 A15 A16R | A17 A17R A18 A19 A20 A21 A22 A23 A24R | A25 A25R A26 A27 A28 A29 A30 A31 A32R | A33 A33R A34 A35 A36 A37 A38 A39 A40R | B1 B1R B2 B3 B4 B5 B6 B7 B8R | B19 B19R B20 B21 B22 B23 B24 B25 B26R | C1 C1R C2 C3 C4 C5 C6 C7 C8R | C9 C9R C10 C11 C12 C13 C14 C15 C16R | C17 C17R C18 C19 C20 C21 C22 C23 C24R | C25 C25R C26 C27 C28 C29 C30 C31 C32R | C33 C33R C34 C35 C36 C37 C38 C39 C40R | D1 D1R D2 D3 D4 D5 D6 D7 D8R | D19 D19R D20 D21 D22 D23 D24 D25 D26R |
| QUN 13A AUTOMATIC DC TIE LINE | T R T1 R1 A A1 LG L B RC | 14 9 12 13 16 6 8 1 | A1 A1R A2 A3 A4 A5 A6 A7 A8 A8R | A9 A9R A10 A11 A12 A13 A14 A15 A16 A16R | A17 A17R A18 A19 A20 A21 A22 A23 A24 A24R | A25 A25R A26 A27 A28 A29 A30 A31 A32R | A33 A33R A34 A35 A36 A37 A38 A39 A40R | B1 B1R B2 B3 B4 B5 B6 B7 B8R | B19 B19R B20 B21 B22 B23 B24 B25 B26R | C1 C1R C2 C3 C4 C5 C6 C7 C8R | C9 C9R C10 C11 C12 C13 C14 C15 C16R | C17 C17R C18 C19 C20 C21 C22 C23 C24R | C25 C25R C26 C27 C28 C29 C30 C31 C32R | C33 C33R C34 C35 C36 C37 C38 C39 C40R | D1 D1R D2 D3 D4 D5 D6 D7 D8R | D19 D19R D20 D21 D22 D23 D24 D25 D26R |
| QUN 14A SHORT RANGE TIE LINE | T2 RC1 T1 R LA R B LG RL2 LB | 14 9 12 13 16 — 6 8 1 | A1 A1R A2 A3 A4 A8 A6 A7 A8R | A9 A9R A10 A11 A12 A16 A14 A15 A16R | A17 A17R A18 A19 A20 A24 A22 A23 A24R | A25 A25R A26 A27 A28 A32 A30 A31 A32R | A33 A33R A34 A35 A36 A40 A38 A39 A40R | B1 B1R B2 B3 B4 B8 B6 B7 B8R | B19 B19R B20 B21 B22 B26 B24 B25 B26R | C1 C1R C2 C3 C4 C8 C6 C7 C8R | C9 C9R C10 C11 C12 C16 C14 C15 C16R | C17 C17R C18 C19 C20 C24 C22 C23 C24R | C25 C25R C26 C27 C28 C32 C30 C31 C32R | C33 C33R C34 C35 C36 C40 C38 C39 C40R | D1 D1R D2 D3 D4 D8 D6 D7 D8R | D19 D19R D20 D21 D22 D26 D24 D25 D26R |
| QUN 7A DIAL I/C LONG LINE | T R T1 R1 RB — — RG RX | 14 9 12 13 16 — — 8 1 | A1 A1R A2 A3 A4 A5 A6 A7 A8R | A9 A9R A10 A11 A12 A13 A14 A15 A16R | A17 A17R A18 A19 A20 A21 A22 A23 A24R | A25 A25R A26 A27 A28 A29 A30 A31 A32R | A33 A33R A34 A35 A36 A37 A38 A39 A40R | B1 B1R B2 B3 B4 B5 B6 B7 B8R | B19 B19R B20 B21 B22 B23 B24 B25 B26R | C1 C1R C2 C3 C4 C8 C6 C7 C8R | C9 C9R C10 C11 C12 C16 C14 C15 C16R | C17 C17R C18 C19 C20 C24 C22 C23 C24R | C25 C25R C26 C27 C28 C32 C30 C31 C32R | C33 C33R C34 C35 C36 C40 C38 C39 C40R | D1 D1R D2 D3 D4 D8 D6 D7 D8R | D19 D19R D20 D21 D22 D26 D24 D25 D26R |

QUJ10A - Connection at 66 Type Connecting Blocks
 KTU QUN10A - SU or PBX Line Circuit
 KTU QUN11A - Manual I/C Circuit
 KTU QUN13A - Automatic DC Signalling Tie Line
 KTU QUN14A - Short Range Tie Line
 KTU QUN7A - Dial Intercom Long Line.
 Note: Some clips are split, A1R indicates: -
 A Block - Row 1 - Right Side.

SECTION 518-250-901CA

TABLE D

| KTU | LEAD DESIG. | JK TERM | CONNECTIONS AT 66 TYPE BLOCKS | | | | | | | | | | | | | |
|----------------------------------|-------------|---------|-------------------------------|------|------|------|------|------|------|-----------|------|------|------|------|------|------|
| | | | CASTING A | | | | | | | CASTING B | | | | | | |
| | | | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 |
| QUN 8A KTU DIAL I/C CONTROL | STP | 14 | A1 | A9 | A17 | A25 | A33 | B1 | B19 | C1 | C9 | C17 | C25 | C33 | D1 | D19 |
| | RS | 9 | A1R | A9R | A17R | A25R | A33R | B1R | B19R | C1R | C9R | C17R | C25R | C33R | D1R | D19R |
| | T | 12 | A2 | A10 | A18 | A26 | A34 | B2 | B20 | C2 | C10 | C18 | C26 | C34 | D2 | D20 |
| | R | 13 | A3 | A11 | A19 | A27 | A35 | B3 | B21 | C3 | C11 | C19 | C27 | C35 | D3 | D21 |
| | BY | 16 | A4 | A12 | A20 | A28 | A36 | B4 | B22 | C4 | C12 | C20 | C28 | C36 | D4 | D22 |
| | LG | 6 | A6 | A14 | A22 | A30 | A38 | B6 | B24 | C6 | C14 | C22 | C30 | C38 | D6 | D24 |
| | L | 8 | A7 | A15 | A23 | A31 | A39 | B7 | B25 | C7 | C15 | C23 | C31 | C39 | D7 | D25 |
| | B | — | A8 | AA16 | A24 | A32 | A40 | B8 | B26 | C8 | C16 | C24 | C32 | C40 | D8 | D26 |
| | RR | 1 | A8R | A16R | A24R | A32R | A40R | B8R | B26R | C8R | C16R | C24R | C32R | C40R | D8R | D26R |
| | RST | 0 | B37 | B38 | B39 | B40 | A41 | B9 | B27 | D37 | D38 | D39 | D40 | C41 | D9 | D27 |
| TT | 19 | B37R | B38R | B39R | B40R | A42 | B10 | B28 | D37R | D38R | D39R | D40R | C42 | D10 | D28 | |
| NSQ 4131 LI DIAL I/C SELECTOR | RST | 14 | | | | | A33 | B1 | B19 | | | | | C33 | D1 | D19 |
| | ALL1 | 9 | | | | | A33R | B1R | B19R | | | | | C33R | D1R | D19R |
| | ON | 12 | | | | | A34 | B2 | B20 | | | | | C34 | D2 | D20 |
| | STP | 13 | | | | | A35 | B3 | B21 | | | | | C35 | D3 | D21 |
| | R1 | 16 | | | | | A36 | B4 | B22 | | | | | C36 | D4 | D22 |
| | R2 | 8 | | | | | A39 | B7 | B25 | | | | | C39 | D7 | D25 |
| | R3 | 1 | | | | | A40R | B8R | B26R | | | | | C40R | D8R | D26R |
| | R4 | 0 | | | | | A41 | B9 | B27 | | | | | C41 | D9 | D27 |
| | R5 | 19 | | | | | A42 | B10 | B28 | | | | | C42 | D10 | D28 |
| | R6 | 24 | | | | | A47 | B15 | B33 | | | | | C47 | D15 | D33 |
| | R7 | 25 | | | | | A48 | B16 | B34 | | | | | C48 | D16 | D34 |
| | R8 | 26 | | | | | A49 | B17 | B35 | | | | | C49 | D17 | D35 |
| | R9 | 28 | | | | | A41R | B9R | B27R | | | | | C41R | D9R | D27R |
| | R0 | 29 | | | | | A42R | B10R | B28R | | | | | C42R | D10R | D28R |
| | ALL2 | 30 | | | | | A43R | B11R | B29R | | | | | C43R | D11R | D29R |
| | RX1 | 32 | | | | | A45R | B13R | B31R | | | | | C45R | D13R | D31R |
| | RX2 | 33 | | | | | A46R | B14R | B32R | | | | | C46R | D14R | D32R |
| | RX3 | 35 | | | | | A48R | B16R | B34R | | | | | C48R | D16R | D34R |
| | RX4 | 20 | | | | | A43 | B11 | B29 | | | | | C43 | D11 | D29 |
| | RX5 | 21 | | | | | A44 | B12 | B30 | | | | | C44 | D12 | D30 |
| RX6 | 22 | | | | | A45 | B13 | B31 | | | | | C45 | D13 | D31 | |
| RX7 | 23 | | | | | A46 | B14 | B32 | | | | | C46 | D14 | D32 | |
| RX8 | 31 | | | | | A44R | B12R | B30R | | | | | C44R | D12R | D30R | |
| RX9 | 34 | | | | | A47R | B15R | B33R | | | | | C47R | D15R | D33R | |
| RX0 | 38 | | | | | A50R | B18R | B36R | | | | | C50R | D18R | D36R | |
| QUN 8A DIAL I/C TRANSFER | ALL2 | 14 | A1 | A9 | A17 | A25 | A33 | B1 | B19 | C1 | C9 | C17 | C25 | C33 | D1 | D19 |
| | RD | 9 | A1R | A9R | A17R | A25R | A33R | B1R | B19R | C1R | C9R | C17R | C25R | C33R | D1R | D19R |
| | ALL1 | 12 | A2 | A10 | A18 | A26 | A34 | B2 | B20 | C2 | C10 | C18 | C26 | C34 | D2 | D20 |
| | RR | 13 | A3 | A11 | A19 | A27 | A35 | B3 | B21 | C3 | C11 | C19 | C27 | C35 | D3 | D21 |
| | BY | 16 | A4 | A12 | A20 | A28 | A36 | B4 | B22 | C4 | C12 | C20 | C28 | C36 | D4 | D22 |
| | RS | 8 | A7 | A15 | A23 | A31 | A39 | B7 | B25 | C7 | C15 | C23 | C31 | C39 | D7 | D25 |
| | ON | 1 | A8R | A16R | A24R | A32R | A40R | B8R | B26R | C8R | C16R | C24R | C32R | C40R | D8R | D26R |
| TR2 | 0 | B37 | B38 | B39 | B40 | A41 | B9 | B27 | D37 | D38 | D39 | D40 | C41 | D9 | D27 | |
| TR3 | 19 | B37R | B38R | B39R | B40R | A42 | B10 | B28 | D37R | D38R | D39R | D40R | C42 | D10 | D28 | |

(Table D continued on next page)

TABLE D (CONT'D)

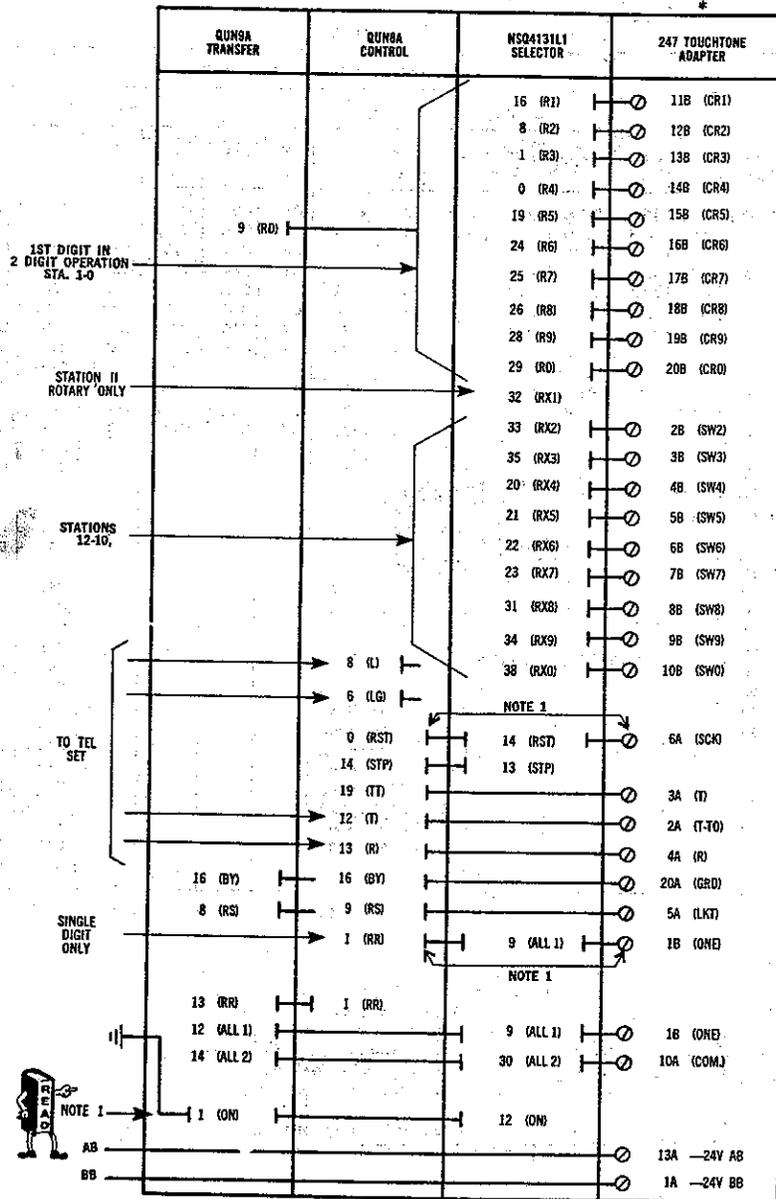
| KTU | LEAD DESIG. | JK TERM | CONNECTIONS AT 66 TYPE BLOCKS | | | | | | | | | | | | | | |
|-----------------------------------|-------------------------------|---------|-------------------------------|------|------|------|------|------|------|-----------|------|------|------|------|------|------|------|
| | | | CASTING A | | | | | | | CASTING B | | | | | | | |
| | | | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 | JK 1 | JK 2 | JK 3 | JK 4 | JK 5 | JK 6 | JK 7 | |
| QUN 15A OFF-PREMISES EXTENSION | T | 14 | A1 | A9 | A17 | A25 | A33 | B1 | B19 | C1 | C9 | C17 | C25 | C33 | D1 | D19 | |
| | R | 9 | A1R | A9R | A17R | A25R | A33R | B1R | B19R | C1R | C9R | C17R | C25R | C33R | D1R | D19R | |
| | T1 | 12 | A2 | A10 | A18 | A26 | A34 | B2 | B20 | C2 | C10 | C18 | C26 | C34 | D2 | D20 | |
| | R1 | 13 | A3 | A11 | A19 | A27 | A35 | B3 | B21 | C3 | C11 | C19 | C27 | C35 | D3 | D21 | |
| | A | 16 | A4 | A12 | A20 | A28 | A36 | B4 | B22 | C4 | C12 | C20 | C28 | C36 | D4 | D22 | |
| | LG | 6 | A6 | A14 | A22 | A30 | A38 | B6 | B24 | C6 | C14 | C22 | C30 | C38 | D6 | D24 | |
| | L | 8 | A7 | A15 | A23 | A31 | A39 | B7 | B25 | C7 | C15 | C23 | C31 | C39 | D7 | D25 | |
| | B | - | A8 | AA16 | A24 | A32 | A40 | B8 | B26 | C8 | C16 | C24 | C32 | C40 | D8 | D26 | |
| | RC | 1 | A8R | A16R | A24R | A32R | A40R | B8R | B26R | C8R | C16R | C24R | C32R | C40R | D8R | D26R | |
| | S1 | 0 | B37 | B38 | B39 | B40 | A41 | B9 | B27 | D37 | D38 | D39 | D40 | C41 | D9 | D27 | |
| | S2 | 19 | B37R | B38R | B39R | B40R | A42 | B10 | B28 | D37R | D38R | D39R | D40R | C42 | D10 | D28 | |
| | A1 | 15 | A5 | A13 | A21 | A29 | A37 | B5 | B23 | C5 | C13 | C21 | C29 | C37 | D5 | D23 | |
| | QUN 12A CONFERENCE CIRCUIT | T | 14 | | | | | A33 | B1 | B19 | | | | | C33 | D1 | D19 |
| | | R | 9 | | | | | A33R | B1R | B19R | | | | | C33R | D1R | D19R |
| | | T2 | 12 | | | | | A34 | B2 | B20 | | | | | C34 | D2 | D20 |
| R2 | | 13 | | | | | A35 | B3 | B21 | | | | | C35 | D3 | D21 | |
| A2 | | 16 | | | | | A36 | B4 | B22 | | | | | C36 | D4 | D22 | |
| L | | 8 | | | | | A39 | B7 | B25 | | | | | C39 | D7 | D25 | |
| S | | 1 | | | | | A40R | B8R | B26R | | | | | C40R | D8R | D26R | |
| T | | 0 | | | | | A41 | B9 | B27 | | | | | C41 | D9 | D27 | |
| R | | 19 | | | | | A42 | B10 | B28 | | | | | C42 | D10 | D28 | |
| T | | 24 | | | | | A47 | B15 | B33 | | | | | C47 | D15 | D33 | |
| R | | 25 | | | | | A48 | B16 | B34 | | | | | C48 | D16 | D34 | |
| A | | 26 | | | | | A49 | B17 | B35 | | | | | C49 | D17 | D35 | |
| T1 | | 28 | | | | | A41R | B9R | B27R | | | | | C41R | D9R | D27R | |
| R1 | | 29 | | | | | A42R | B10R | B28R | | | | | C42R | D10R | D28R | |
| A1 | | 30 | | | | | A43R | B11R | B29R | | | | | C43R | D11R | D29R | |
| BL1 | 32 | | | | | A45R | B13R | B31R | | | | | C45R | D13R | D31R | | |
| LG | 6 | | | | | A38 | B6 | B24 | | | | | C38 | D6 | D24 | | |
| ET | 35 | | | | | A48R | B16R | B34R | | | | | C48R | D16R | D34R | | |
| BL2 | 33 | | | | | A46R | B14R | B32R | | | | | C46R | D14R | D32R | | |
| B | 27 | | | | | A50 | B18 | B36 | | | | | C50 | D18 | D36 | | |
| B1 | 34 | | | | | A47R | B15R | B33R | | | | | C47R | D15R | D33R | | |
| B2 | 38 | | | | | A50R | B18R | B36R | | | | | C50R | D18R | D36R | | |

QUJ10A Connections at 66 Type Connecting Blocks.
 KTU - NSQ4131 L1 Selector
 KTU - QUN8A Selector Control
 KTU - QUN9A Transfer
 KTU - QUN15A Off-Premises Extension
 KTU - QUN12A Conference Circuit

Note: Some Clips are Split. A1R Indicates:-
 A Block - Row 1 - Right Side.

| CASTING B | | | | |
|-----------|------|------|------|------|
| JK 3 | JK 4 | JK 5 | JK 6 | JK 7 |
| C17 | C25 | C33 | D1 | D19 |
| C17R | C25R | C33R | D1R | D19R |
| C18 | C26 | C34 | D2 | D20 |
| C18R | C26R | C34R | D2R | D20R |
| C19 | C27 | C35 | D3 | D21 |
| C19R | C27R | C35R | D3R | D21R |
| C20 | C28 | C36 | D4 | D22 |
| C20R | C28R | C36R | D4R | D22R |
| C22 | C30 | C38 | D6 | D24 |
| C22R | C30R | C38R | D6R | D24R |
| C23 | C31 | C39 | D7 | D25 |
| C23R | C31R | C39R | D7R | D25R |
| C24 | C32 | C40 | D8 | D26 |
| C24R | C32R | C40R | D8R | D26R |
| D39 | D40 | C41 | D9 | D27 |
| D39R | D40R | C41R | D9R | D27R |
| | | C42 | D10 | D28 |
| | | C42R | D10R | D28R |
| | | C33 | D1 | D19 |
| | | C33R | D1R | D19R |
| | | C34 | D2 | D20 |
| | | C34R | D2R | D20R |
| | | C35 | D3 | D21 |
| | | C35R | D3R | D21R |
| | | C36 | D4 | D22 |
| | | C36R | D4R | D22R |
| | | C39 | D7 | D25 |
| | | C39R | D7R | D25R |
| | | C40R | D8R | D26R |
| | | C40R | D8R | D26R |
| | | C41 | D9 | D27 |
| | | C41R | D9R | D27R |
| | | C42 | D10 | D28 |
| | | C42R | D10R | D28R |
| | | C47 | D15 | D33 |
| | | C47R | D15R | D33R |
| | | C48 | D16 | D34 |
| | | C48R | D16R | D34R |
| | | C49 | D17 | D35 |
| | | C49R | D17R | D35R |
| | | C41R | D9R | D27R |
| | | C42R | D10R | D28R |
| | | C43R | D11R | D29R |
| | | C43R | D11R | D29R |
| | | C45R | D13R | D31R |
| | | C45R | D13R | D31R |
| | | C46R | D14R | D32R |
| | | C46R | D14R | D32R |
| | | C48R | D16R | D34R |
| | | C48R | D16R | D34R |
| | | C43 | D11 | D29 |
| | | C43 | D11 | D29 |
| | | C44 | D12 | D30 |
| | | C44 | D12 | D30 |
| | | C45 | D13 | D31 |
| | | C45 | D13 | D31 |
| | | C46 | D14 | D32 |
| | | C46 | D14 | D32 |
| | | C44R | D12R | D30R |
| | | C44R | D12R | D30R |
| | | C47R | D15R | D33R |
| | | C47R | D15R | D33R |
| | | C50R | D18R | D36R |
| | | C50R | D18R | D36R |

TABLE E
QUJ10A Dial Intercom Strapping



NOTE 1. Provide when selector not required.

— indicates punching on 66 Type Block which will be dependent on jack used for KTU, therefore must be assigned at time of installation.

* If not required provide only straps from QUN8A to NSQ4131L1.

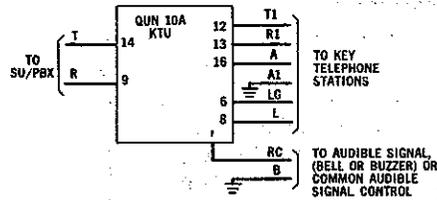


Fig. 7 - QUN10A Block Diagram

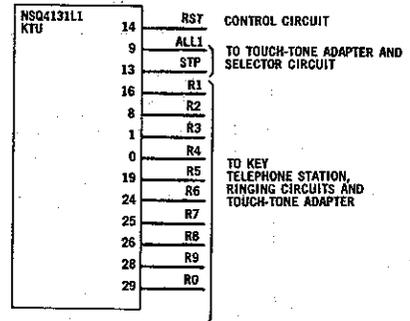


Fig. 9 - Block Diagram NSQ41311

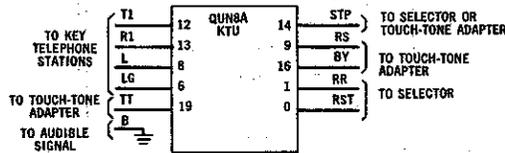


Fig. 8 - Block Diagram QUN8A

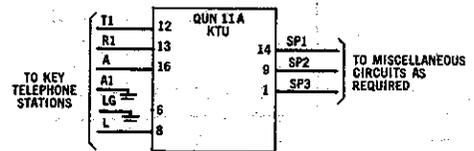


Fig. 10 - Block Diagram QUN11A

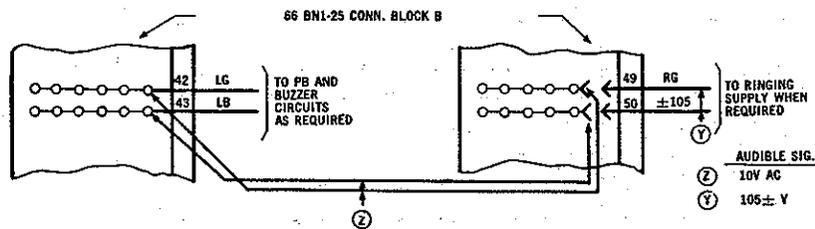
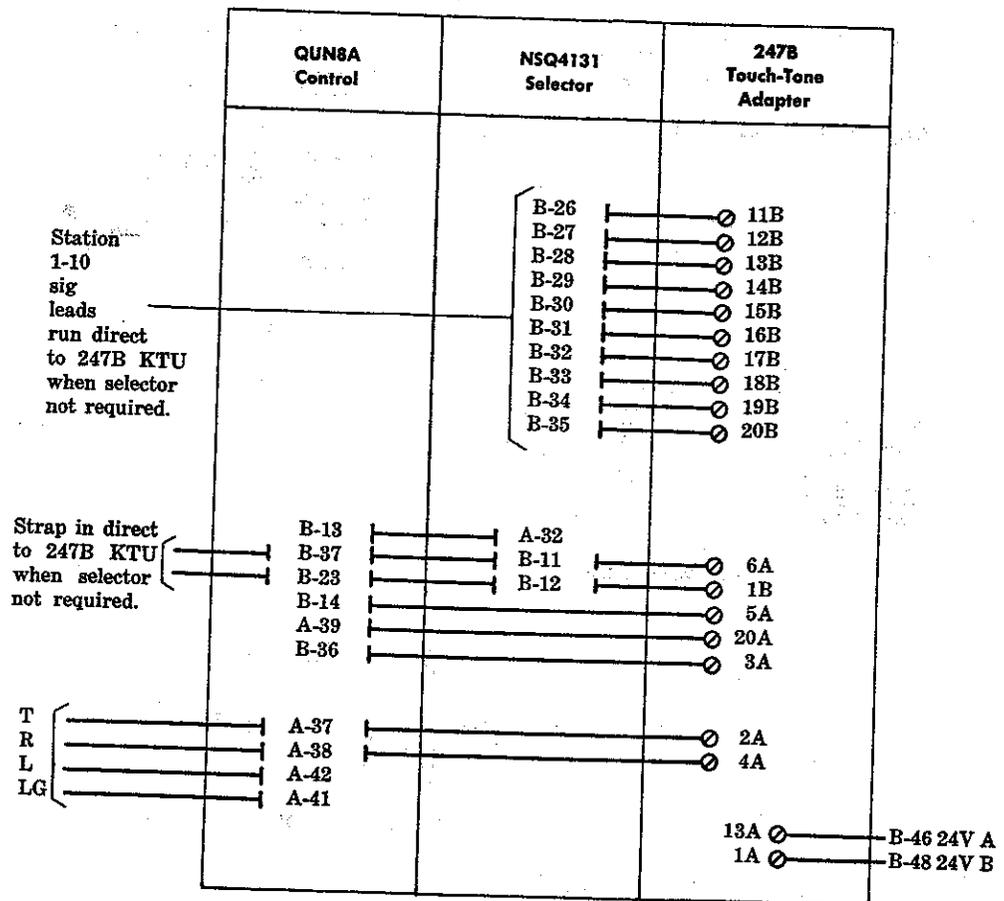


Fig. 11 - QUJ9A Key Service Unit Connection Information

| * 247 TOUCHTONE ADAPTER | |
|-------------------------|--|
| 11B (CR1) | |
| 12B (CR2) | |
| 13B (CR3) | |
| 14B (CR4) | |
| 15B (CR5) | |
| 16B (CR6) | |
| 17B (CR7) | |
| 18B (CR8) | |
| 19B (CR9) | |
| 20B (CR0) | |
| 2B (SW2) | |
| 3B (SW3) | |
| 4B (SW4) | |
| 5B (SW5) | |
| 6B (SW6) | |
| 7B (SW7) | |
| 8B (SW8) | |
| 9B (SW9) | |
| 10B (SW0) | |
| 6A (SCK) | |
| 3A (T) | |
| 2A (T-TO) | |
| 4A (R) | |
| 20A (GRD) | |
| 5A (LKT) | |
| 1B (ONE) | |
| 18 (ONE) | |
| 10A (COM.) | |
| 13A -24V AB | |
| 1A -24V BB | |

QUJ9A DIAL INTERCOM STRAPPING

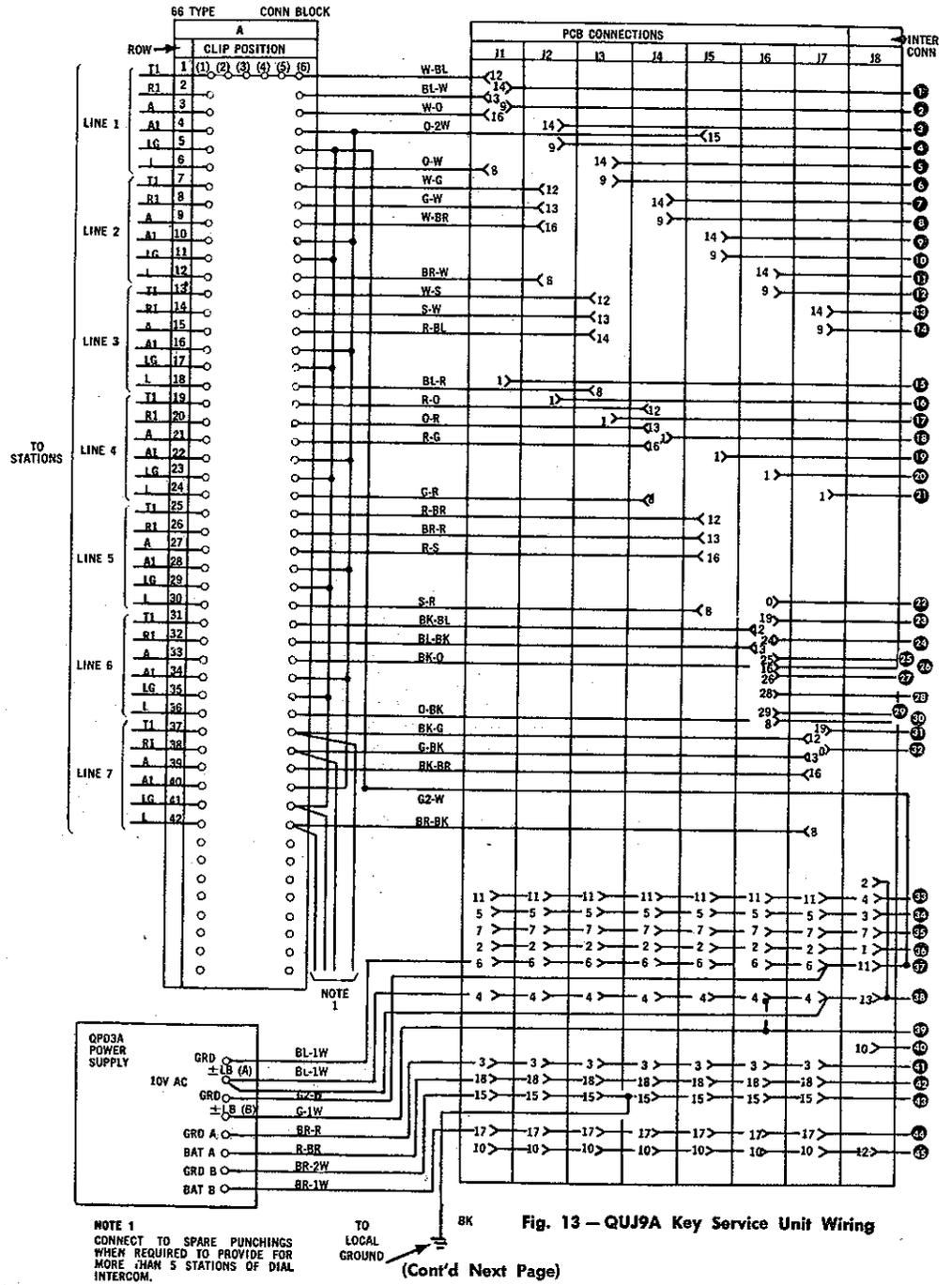


—| Indicates connections at 66 type block.

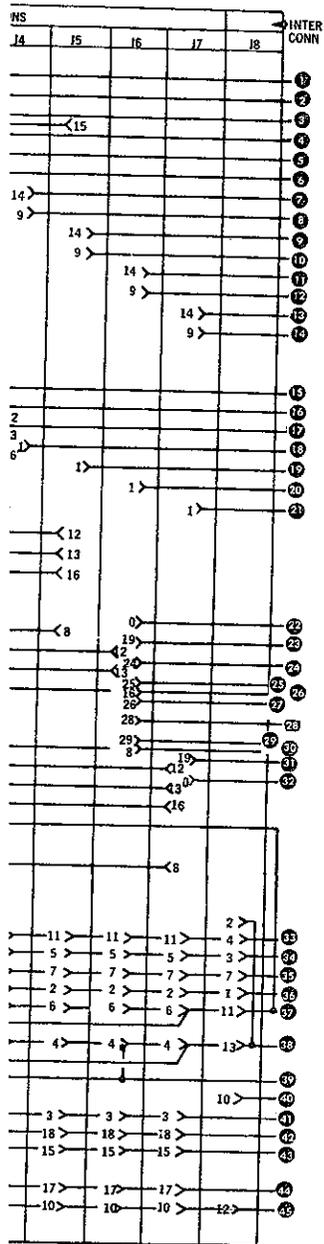
Selector not required if Touch-Tone only service provided.

Fig. 12 - Addition of 247B TOUCH-TONE Adapter

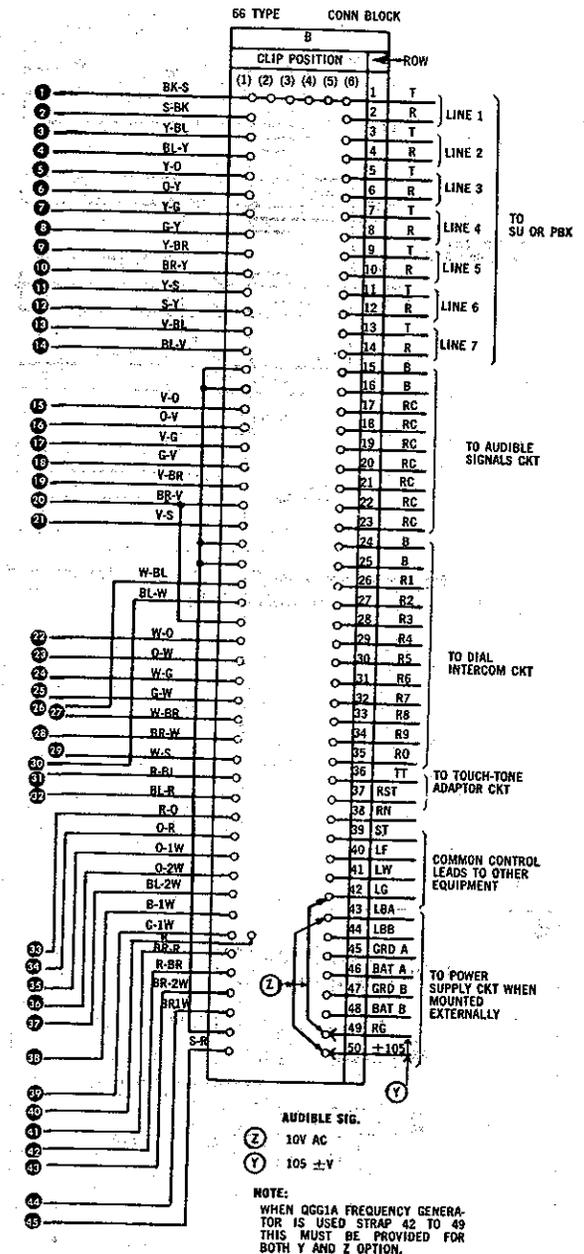
SECTION 518-250-901CA



ISS. C. SECTION 518-250-901CA



Key Service Unit Wiring



SECTION 518-250-901CA

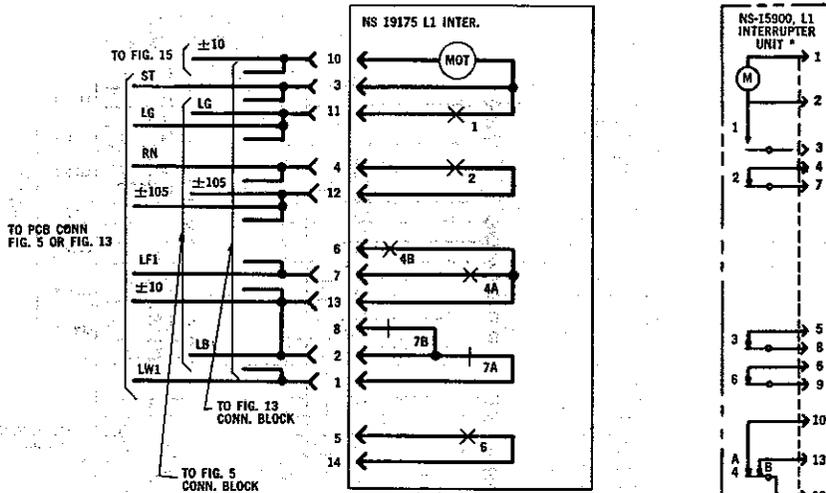


Fig. 14 - Interrupter Circuit Conn. J8 (For QJ9A KSU)
J6 (For QJ8A KSU)

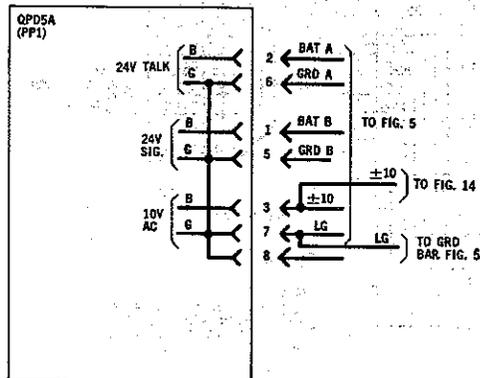
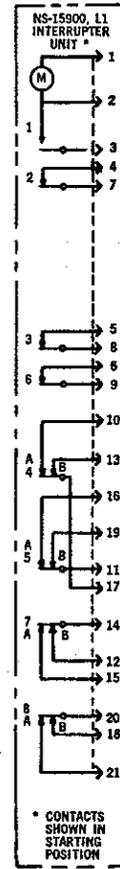


Fig. 15 - Power Supply Circuit Conn. For QJ8A K.S.U.

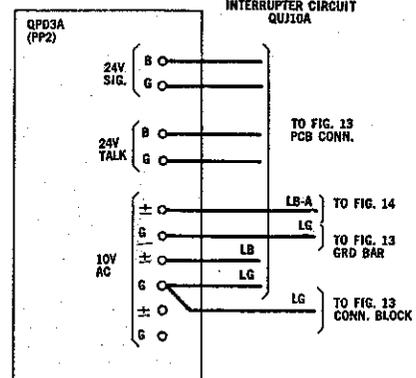
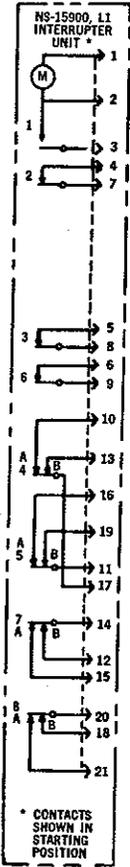


Fig. 16 - Power Supply Circuit Conn. For QJ9A K.S.U.



INTERRUPTER CIRCUIT QUJ10A

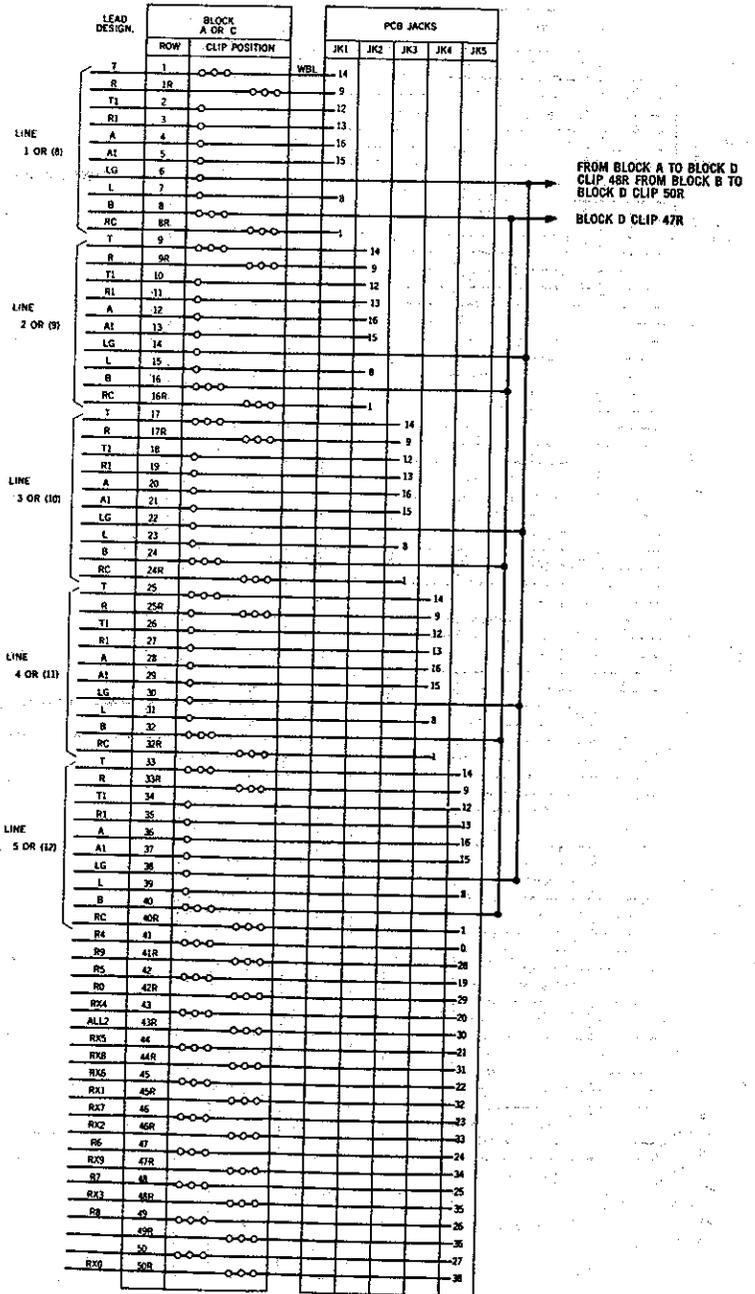
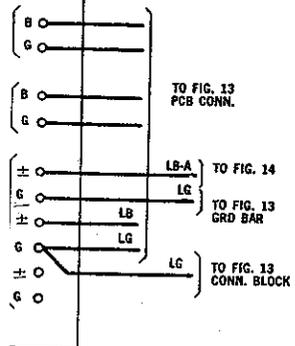


Fig. 17 - QUJ10A Wiring Information (Cont'd on Next Page)

SECTION 518-250-901CA

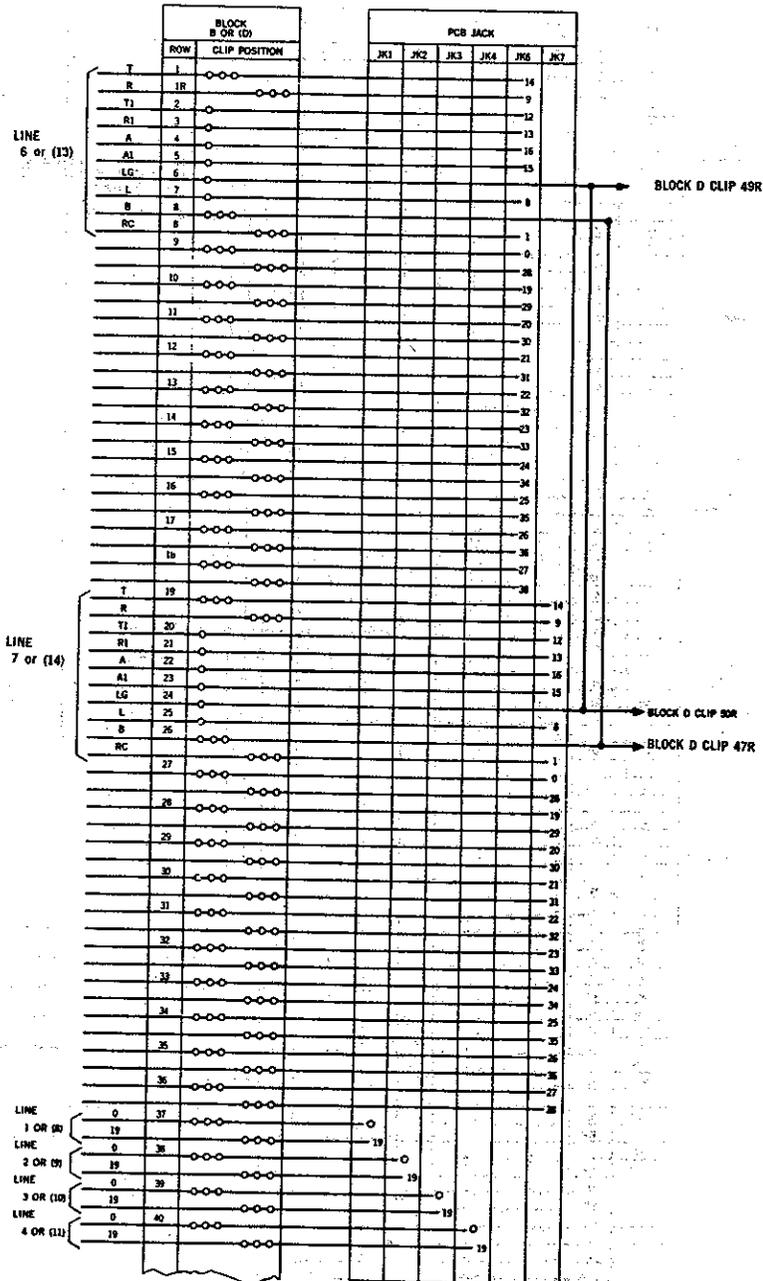


Fig. 17 - QUJ10A Wiring Information (Cont'd)

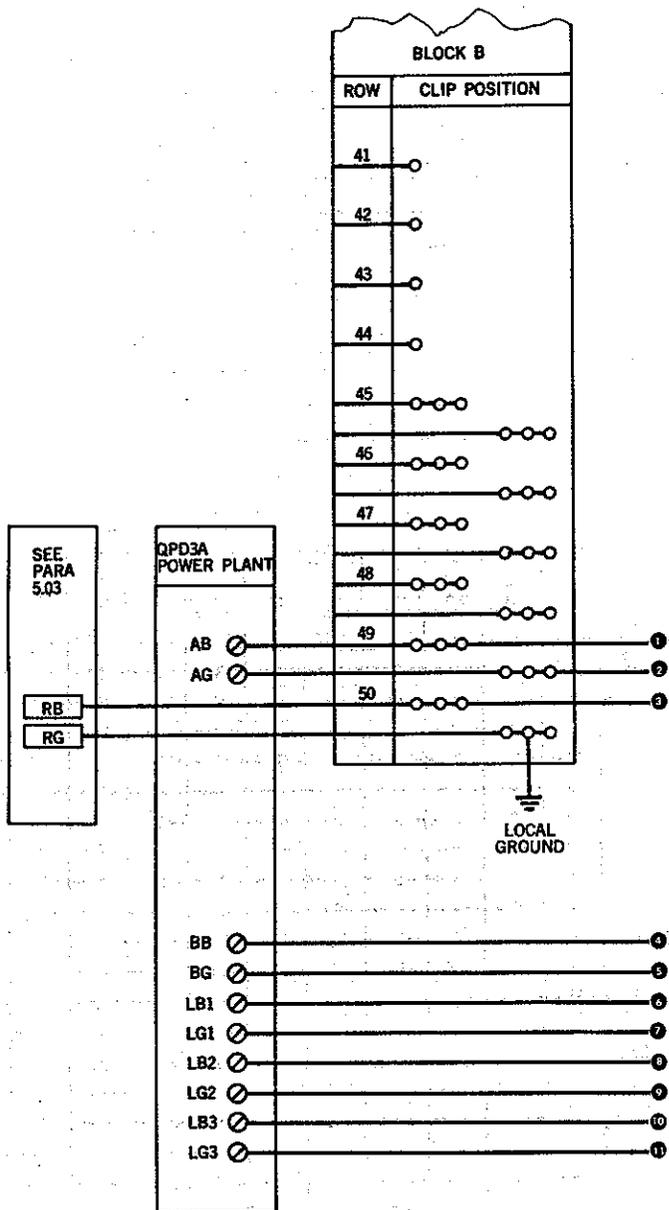


Fig. 18 - QUJ10A Wiring Information & Power Plant Connections
(Cont'd Next Page)

BLOCK D CLIP 45R

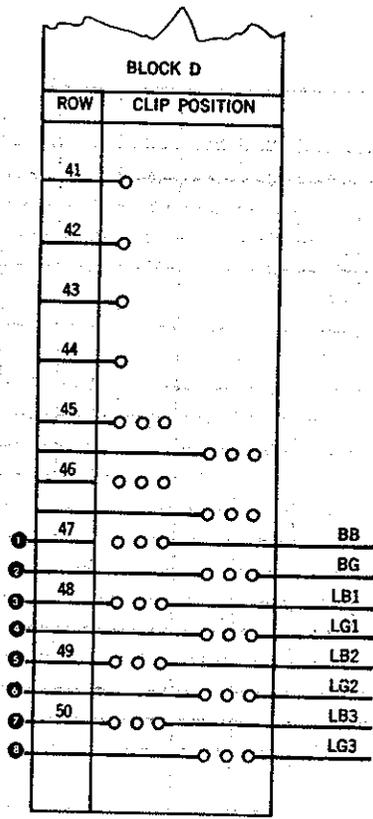
BLOCK D CLIP 52R
BLOCK D CLIP 47R

SECTION 518-250-901CA

| | INT | JK 1A | JK 2A | 3A | 4A | 5A | 6A | 7A | 1B | 2B | 3B | 4B | 5B | 6B | 7B |
|--------|-----|----------|----------|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 BL | | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| 2 O | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 R | | 7 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| | | 4 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| | | 16 | 7 | 7 | 7 | 7 | 7 | 7 | | | | | | | |
| | | 10 | | | | | | | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 12 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | |
| | | 18 | | | | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | 3 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 4 R | | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| 5 BK | | 8 | | | | | | | | | | | | | |
| 6 BL1W | | 9 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 7 B12W | | 14 | 4 | 4 | 4 | 4 | | 4 | | | | | | | |
| 8 O1W | | | | | | 4 | 4 | | 4 | | | | | | 4 |
| 9 O2W | | | | | | | | | | | | | | | |
| 10 G1W | | 17 | | | | | | | | 4 | 4 | 4 | 4 | 4 | 4 |
| 11 G2W | | 20 | | | | | | | | | | | | | |
| | | 5 | | | | 37 | 37 | 37 | | | | | 37 | 37 | 37 |
| | | 6 | | | | 39 | 39 | 39 | | | | | 39 | 39 | 39 |

Fig. 18 - QUJ10A Wiring Information & Power Plant Connections
(Cont'd Next Page)

| 4B | 5B | 6B | 7B |
|----|----|----|----|
| 18 | 18 | 18 | 18 |
| 3 | 3 | 3 | 3 |
| 10 | 10 | 10 | 10 |
| 11 | 11 | 11 | 11 |
| 7 | 7 | 7 | 7 |
| 2 | 2 | 2 | 2 |
| 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 |
| 17 | 17 | 17 | 17 |
| 15 | 15 | 15 | 15 |
| | | | |
| | | | 4 |
| | | | |
| 4 | 4 | 4 | |
| | | | |
| | 37 | 37 | 37 |
| | 39 | 39 | 39 |



ctions