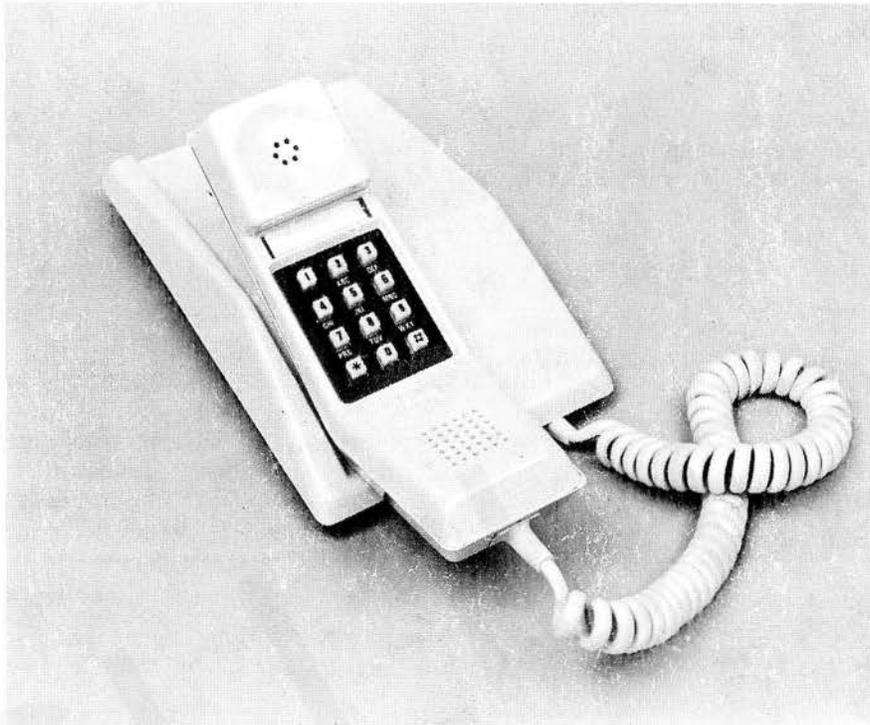


**ePHONE\* CONTEMPRA\* TELEPHONE SETS**  
**QSKE2100- and QSQE2100- TYPE**  
**DESCRIPTION, INSTALLATION, CONNECTIONS, AND MAINTENANCE**



LO-853

**Fig. 1 - QSKE2100A-Type Shown in Off-Hook Position**

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1. GENERAL

1.01 The ePHONE CONTEMPRA can be used as a desk set or a wall mounted set and is equipped with a DIGITONE\* electronic network/dial set into the handset.

- When used as a desk telephone, it rests on feet provided on the base of the set. The handset rests in a recess in the base.
- When used as a wall telephone, the CONTEMPRA telephone set is mounted by mounting holes in the baseplate. The receiver end of the handset engages a projection in the handset recess.

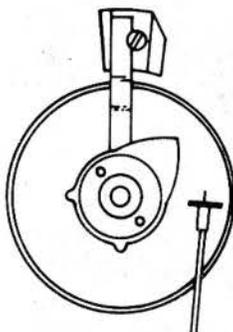
1.02 The network/dial is an integrated circuit assembly which functions as a push button dial and as a telephone set network.

1.03 The ePhone CONTEMPRA telephone sets can be used where non-electronic, single-line CONTEMPRA sets are used now.

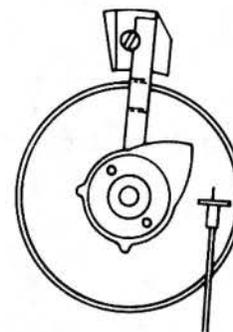
1.04 A polarity guard has been incorporated in the design to allow the dial to operate, if tip and ring are reversed.

1.05 The bottom of these telephone sets is stamped ePhone to make them distinguishable from other non-electronic telephone sets.

1.06 These telephone sets are available in various colors. For their corresponding color code refer to 500-1201-100.



(a) Ringer On



(b) Ringer Off

Fig. 2 — Ringer Cut-Off Feature

2. DESCRIPTION

2.01 The QSKE2100- and QSQE2100- type telephone sets are similar. They differ in that the QSKE2100-type set is equipped with a 3-conductor, round, spade-tip-ended mounting cord, and the QSQE2100-type set is equipped with a 4-conductor, flat (TELADAPT\*), plug-ended mounting cord.

2.02 The QSKE2100ACX and QSQE2100ACX telephone sets are equipped with a QSE10ACX handset in place of the QSE10A handset. The QSE10ACX handset contains a QUUIE receiver unit which is a balanced-armature, flux-coil receiver unit for use in hard of hearing applications.

2.03 The ringer volume control on the telephone set is a wheel which extends through the side of the baseplate of the set. The baseplate is stamped with a large and small bell symbol to indicate the direction in which the wheel must be turned to raise or lower the volume.

2.04 To provide the ringer cut-off feature, change the position of the lever associated with the ringer volume control wheel. With the housing removed, remove the screw that holds the lever in contact with the wheel (Fig. 2(a)). Shift the lever to the opposite end of the slot; place the screw in the hole that was covered by the lever and tighten the screw (Fig. 2(b)).

2.05 The QSKE2100- and QSQE2100-type telephone sets are wired for individual service. Wiring changes allow for the following services.

- Tip party flat rate
- Ring party flat rate
- NE-1A1 or NE-1A2 Key Telephone System
- Speakerphone

**Note:** The CONTEMPRA telephone sets cannot be used for tip party ANI service.

2.06 A recall button, which can be used to disconnect for redialing, is located on the handset. This eliminates the need to operate the line switch on each call.

\* DIGITONE and TELADAPT are trademarks of Northern Telecom Limited

### 3. INSTALLATION

3.01 Installation of the ePHONE CONTEMPRA telephone set should be in accordance with local procedures.

#### 3.02 To remove the housing from the base.

- (1) Remove card retainer (or window) located near the front of the housing. By inserting the tip of an NS-16750L3 releaser into the small slotted hole at the edge of the window. Ensure that the tip does not enter the hole by more than  $\frac{1}{8}$  inch as an underlying screw may hinder the lateral movement of the tool. Apply slight lateral pressure to the handle of the tool (Fig. 3). This bows the window upward so that its edges may be grasped with the finger tips of the other hand to spring it out.
- (2) Remove the number card, if present.
- (3) Loosen the exposed captive screw sufficiently so that the front of the housing can be lifted free of the base.
- (4) Continued lifting of the cover disengages the housing latches and frees the cover.

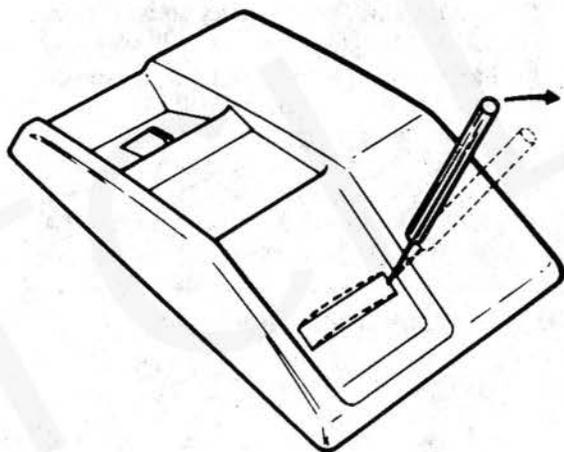


Fig. 3 — Removal of Card Retainer

#### 3.03 To open the handset.

- (1) Remove the card retainer (See 3.02) and the number card located above the dial.

- (2) Remove the handset grommet by holding the handset with the back in the palm of the hand. Insert the tip of the NS-16750L3 releaser into the small slot adjacent to the grommet (Fig. 4). Press the handle of the tool towards the grommet and push the tip into the slot as far as it will go. Push the handle of the releaser away from the grommet to release the spring, and gently ease the grommet out of the handset shell.
- (3) Once the grommet has been withdrawn, two screws are exposed. Remove these two screws.
- (4) Loosen (do not remove) the two captive screws in the card retainer well sufficiently to separate the handset sections at the receiver end. Lift the grommet end of the back half of the handset housing and slide it toward the receiver end thus opening the handset.

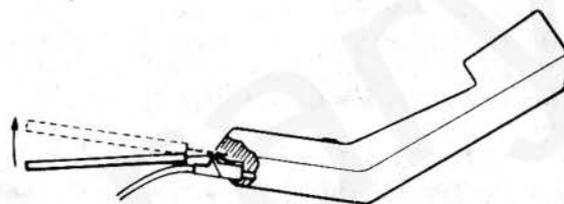


Fig. 4 — Removal of Handset Grommet

#### 3.04 Mounting an ePHONE CONTEMPRA telephone set to the wall.

- (1) Remove line cord. The center keyhole opening in the base is normally used for the entry of the station wiring. The hole at the line switch end of the set and the one just below the ringer, are used for normal wall mounting.
- (2) For mounting on a outlet box, the keyhole at the center of the set and the one just below the ringer are used. Additional space may be opened for the entrance of the wire from the outlet box, when necessary, by placing the set on a flat surface, placing a screwdriver in the knockout adjacent to the center keyhole and giving the screwdriver a sharp knock downward. This action shears out an additional opening leading into the center keyhole.
- (3) If a mounting screw fails to hold, knockouts can be made, as above, near the handset cord or under the switch plunger, as necessary, for the addition of another screw. These knockouts should not be opened unnecessarily.
- (4) If it is necessary to bring the station wire up the wall from from the baseboard, an opening can be uncovered for wire entry by removing the handset cord grommet from the base, rotating it 180° and replacing it.

**3.05 To reassemble the housing to the baseplate.**

- (1) Dress line cord lead and other wiring away from the housing retaining screw post on the base of the telephone set.
- (2) Place the housing at a angle to the base.
- (3) Press rear of housing down and towards the back of the base to engage the housing latches with the notches in the base.
- (4) Push front of housing down, ensuring that latches remain in notches, so that the retaining screw enters the tapped post in the base. Tighten the screw.
- (5) Insert station card number and retainer window into the card retainer well.

**3.06 To reassemble the handset.**

- (1) Align the jacketed portion of the handset cord which projects beyond the grommet and into the handset, so that it will fit the channel in the transmitter cup assembly.
- (2) Dress receiver leads away from posts.
- (3) Carefully align sections so that the two screws in the number plate slot engage the tapped post holes in the other section.
- (4) Pull the grommet end down so that the two sections fit together.
- (5) Replace two screws in the grommet cutout and tighten down the two in the card retainer well.
- (6) Slide the grommet into the square hole in the end of the handset housing with the retaining clip facing the instrument section of the handset. Fully seat the grommet so that the clip engages. The grommet shoulder should be flush with the surface of the housing.
- (7) Insert station number card and card holder window into the card retainer well.

**4. CONNECTIONS**

- 4.01 Connection information for the QSKE2100A and QSQE2100A telephone sets is shown in Tables B,C, and D.
- 4.02 A schematic diagram for the telephone sets is shown in Fig. 5.

4.03 If the telephone set is wired for A lead control, the mounting cord must be replaced with an NE-D4QC cord.

4.04 For wall mount application, where connection must be made to bare copper wire, all connections at L1 and G must be transferred to the corresponding screw terminals on the terminal strip assembly.

**5. MAINTENANCE**

5.01 Maintenance of the QSKE2100A and QSQE-2100A telephone sets should be limited to cleaning and adjusting line switch contacts and replacing the components listed in Table A.

**TABLE A  
FIELD REPLACEABLE COMPONENTS**

|   |                        |
|---|------------------------|
| Network/Dial Ringer   | QDN21A                 |
| Handset   | NE-D1QA                |
| Handset Cord  | QSE10A                 |
| Mounting Cord   | NE-H5QE                |
|   | NE-D3Q5A or NE-D4QH-87 |
| Feet  | PO96D326(4)            |
| Line Switch   | PO894971               |
| Transmitter Unit  | QUAG2A*                |
| Receiver Unit   | QUUID†                 |
| Receiver Unit   | QUUIE†                 |
| <p>* The QUAG2A is polarity-sensitive and does not function if polarity is reversed.</p> <p>† The QUUIE receiver unit may be substituted for the QUUID receiver unit in hard of hearing applications. If these receiver units are not available from repair stock, the QUUID and QUUIE may be replaced by the QUUIA and QUUIC respectively.</p> |                        |

**5.02 To replace transmitter.**

- (1) Open handset ( See 3.03).
- (2) Loosen two screws attaching network/dial and transmitter up to the instrument section.
- (3) Remove network/dial leads from transmitter.
- (4) Lift the dial and transmitter cup as a unit.
- (5) Substitute transmitter.
- (6) Replace screws.
- (7) Replace network/dial leads ensuring correct polarity.
- (8) Close handset ( See 3.06).

**TABLE B  
TABLE OF CONNECTIONS FOR QSQE2100 TYPE**

|                    | LINE CORD AT INTERCONNECT PCB (Note 2) |    |   |     | RINGER |   |     |    |
|--------------------|--|----|---|-----|--------|---|-----|----|
| COLOR              | R                                      | G  | Y | BK  | BK     | S | S-R | R  |
| BRIDGED PARTY      | L2                                     | L1 | G | AUX | L1     | K | A   | L2 |
| RING PARTY         | L2                                     | L1 | G | AUX | G      | K | A   | L2 |
| TIP PARTY (Note 1) | L2                                     | L1 | G | AUX | L1     | K | A   | G  |

**TABLE C  
CONNECTION FOR QSKE2100 TYPE**

|                    | LINE CORD AT CONNECTING BLOCK |   |   | LINE CORD AT INTERCONNECT PCB (Note 2) |    |   | RINGER |   |     |    |
|--------------------|-------------------------------|---|---|--|----|---|--------|---|-----|----|
| COLOR              | R                             | G | Y | R                                      | G  | Y | BK     | S | S-R | R  |
| BRIDGED PARTY      | R                             | G | Y | L2                                     | L1 | G | L1     | K | A   | L2 |
| RING PARTY         | R                             | G | Y | L2                                     | L1 | G | G      | K | A   | L2 |
| TIP PARTY (Note 1) | R                             | G | Y | L2                                     | L1 | G | L1     | K | A   | G  |

**Note 1:** To help reduce line noise, the (R) ringer lead may be changed from L2 to L3. This disconnects the ringer from the line when the handset is off-hook; however, the ringer does not operate when the recall button is depressed.

**Note 2:** For wall mount application, where connection must be made to bare copper wire, all connections at L1, L2 and G must be transferred to the corresponding screw terminals on the terminal strip assembly.

**TABLE D  
TABLE OF CONNECTIONS FOR "A" LEAD CONTROL**

|                               | LINE CORD AT<br>CONN. BLOCK | LINE CORD AT<br>INTERCONNECT<br>PCB (Note 2) | RINGER     | LINE<br>SWITCH | HANDSET<br>CORD |
|-------------------------------|-----------------------------|--|------------|----------------|-----------------|
| COLOR                         | R G Y BK                    | R G Y BK                                     | BK S S-R R | S S-Y S-BR     | R G             |
| A LEAD<br>CONTROL<br>(Note 1) | RING TIP A1 A               | L2 L1 G AUX                                  | L1 K A L2  | L3 G AUX       | L2 F            |

**Note 1:** Use an NE-D4QC cord.

**Note 2:** For wall mount application, where connection must be made to bare copper wire, all connections at L1, L2 and G must be transferred to the corresponding screw terminals on the terminal strip assembly.

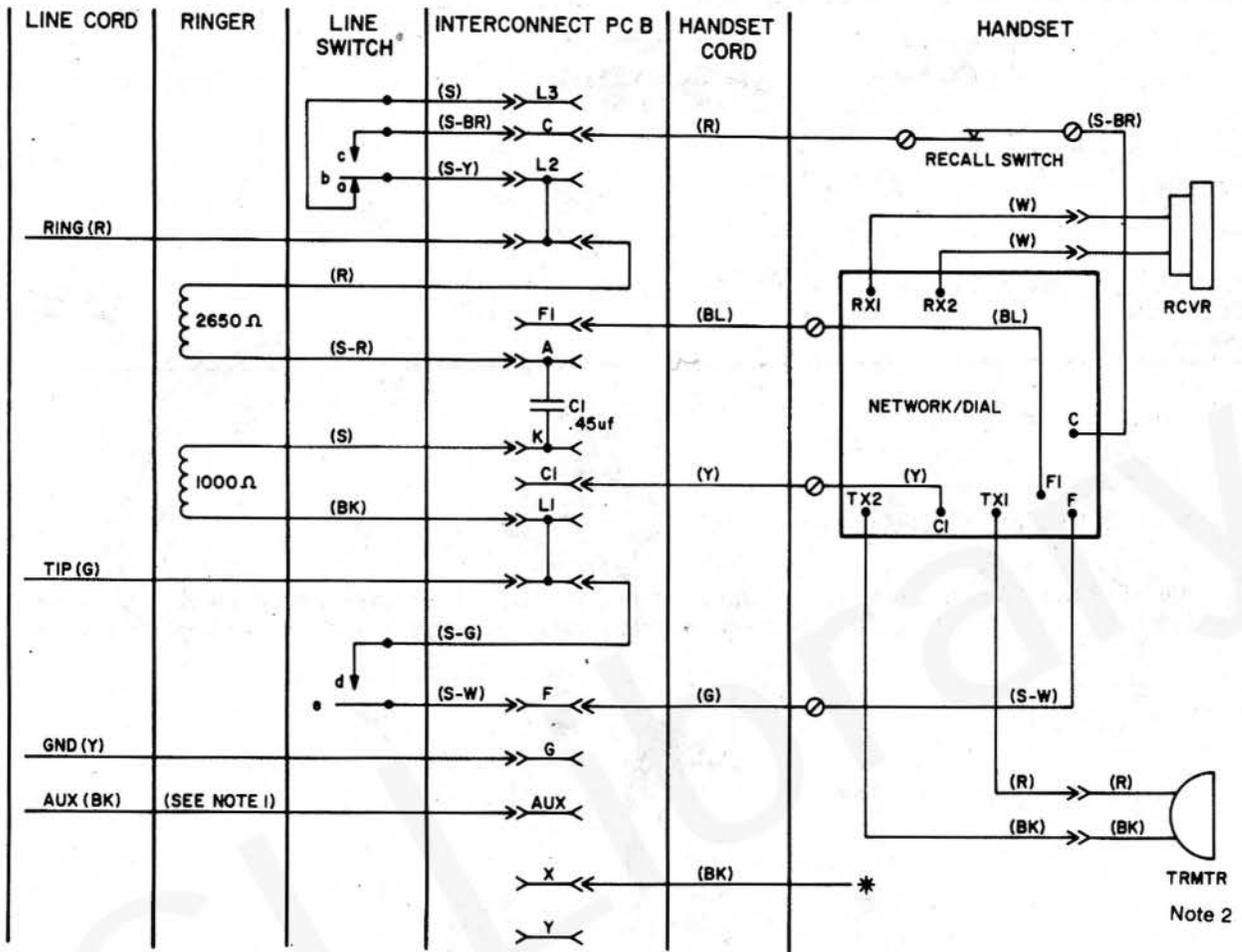


Fig. 5 — Schematic Diagram - QSKE2100A and QSQE2100A Type Telephone Sets

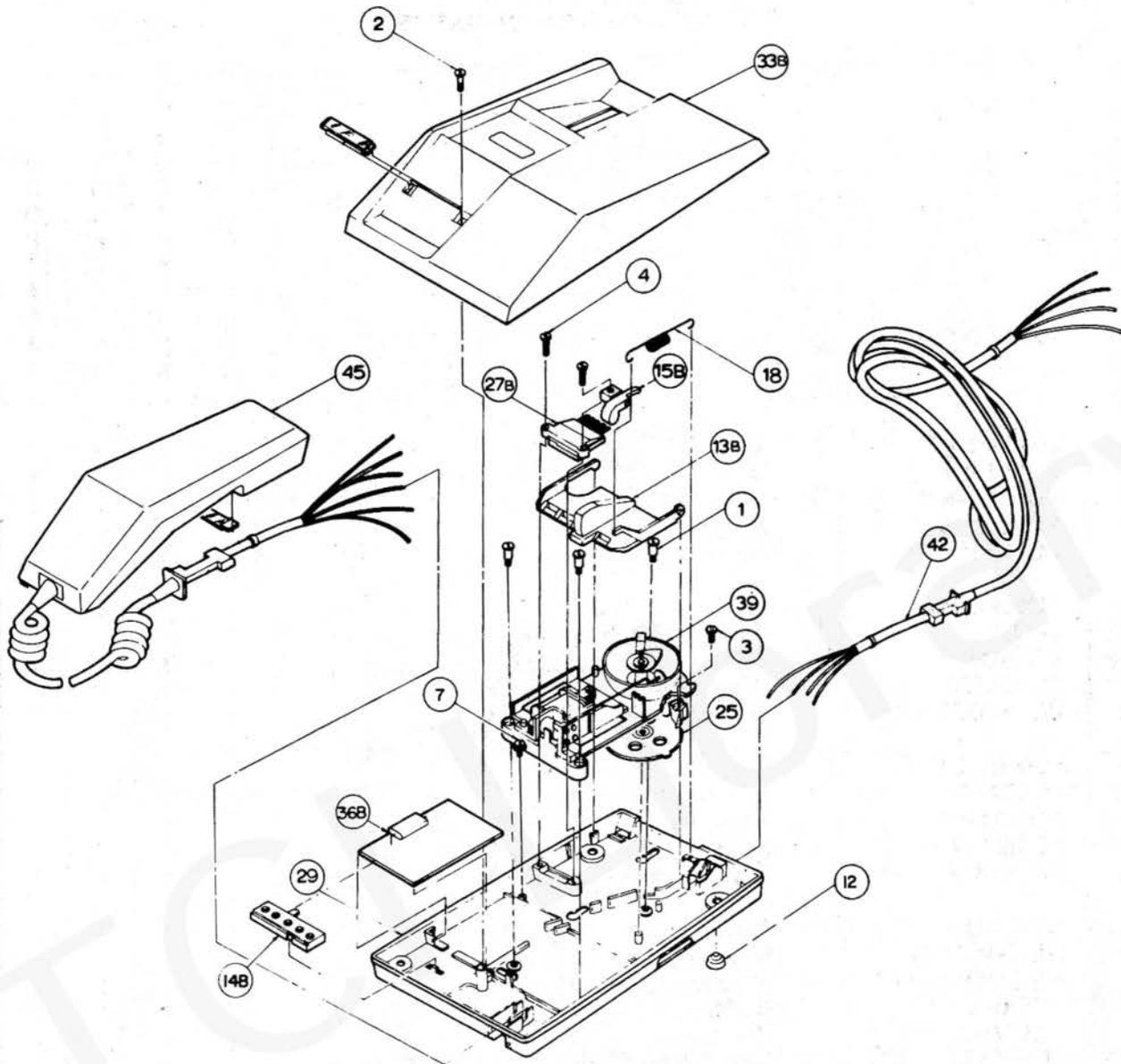


Fig. 6 — Exploded view - QSKE2100A and QSQE2100A Type Telephone Sets

**TABLE E  
TELEPHONE SET  
IDENTIFICATION OF PARTS**

| ITEM NO. | PART NO.   | DESCRIPTION               | Q<br>S<br>K<br>E<br>2<br>1<br>0<br>0<br>A<br>C<br>X | Q<br>S<br>Q<br>E<br>2<br>1<br>0<br>0<br>A<br>C<br>X | Q<br>S<br>K<br>E<br>2<br>1<br>0<br>0<br>A | Q<br>S<br>Q<br>E<br>2<br>1<br>0<br>0<br>A |
|----------|------------|---------------------------|---|---|---|---|
| 1        | P043A456   | Screw                     | 3   | 3   | 3   | 3   |
| 2        | PO511307   | Screw                     | 1   | 1   | 1   | 1   |
| 3        | PO502646   | Screw                     | 1   | 1   | 1   | 1   |
| 4        | PO99C968   | Screw                     | 2   | 2   | 2   | 2   |
| 7        | PO565857   | Screw                     | 1   | 1   | 1   | 1   |
| 12       | PO96D326   | Foot                      | 4   | 4   | 4   | 4   |
| 13B      | PO96D337   | Switch Operating Plunger  | 1   | 1   | 1   | 1   |
| 14B      | PO96D303   | Terminal Strip Assembly   | 1   | 1   | 1   | 1   |
| 15B      | PO522734   | Weight and Shaft Assembly | 1   | 1   | 1   | 1   |
| 18       | PO96D322   | Coil Spring               | 1   | 1   | 1   | 1   |
| 25       | PO96D324   | Volume Control            | 1   | 1   | 1   | 1   |
| 27B      | PO894971   | Line Switch Assembly      | 1   | 1   | 1   | 1   |
| 29       | PO96D314   | Baseplate                 | 1   | 1   | 1   | 1   |
| 33B      | PO96D200*  | Housing Assembly          | 1   | 1   | 1   | 1   |
| 36       | PO593878   | PCB Assembly              | 1   | 1   | 1   | 1   |
| 39       | NE-D1QA    | Ringer                    | 1   | 1   | 1   | 1   |
| 42       | NE-D4QH-87 | Mounting Cord             | -   | 1   | -   | 1   |
|          | NE-D3Q5A-† | Mounting Cord             | 1   | -   | 1   | -   |
| 45       | QSE10A-†   | Handset                   | -   | -   | 1   | 1   |
|          | QSE10ACX-† | Handset                   | 1   | 1   | -   | -   |
| 66D      | PO896532   | Card Holder Group         | 1   | 1   | 1   | 1   |

\* Replace the last two digits with the appropriate color code.

† Add the appropriate color code.

**TABLE F**  
**QSE10 TYPE HANDSET**  
**IDENTIFICATION OF PARTS**

| ITEM NO. | PART NO.  | DESCRIPTION                            | Q<br>S<br>E<br>1<br>0<br>A<br>C<br>X | Q<br>S<br>E<br>1<br>0<br>A |
|----------|-----------|--|--------------------------------------|----------------------------|
| 1        | PO96D315  | Screw                                  | 2                                    | 2                          |
| 2        | PO502647  | Screw                                  | 4                                    | 4                          |
| 3        | PO502646  | Screw                                  | 3                                    | 3                          |
| 4        | PO249778  | Screw                                  | 5                                    | 5                          |
| 11       | PO96D305  | Receiver Cup                           | 1                                    | 1                          |
| 31B      | PO892200* | Handset Instrument<br>Section Assembly | 1                                    | 1                          |
| 32B      | PO590678  | Transmitter Cup Assembly               | 1                                    | 1                          |
| 33B      | PO610800* | Handset Cover Assembly                 | 1                                    | 1                          |
| 61       | QUU1D     | Receiver Unit                          | -                                    | 1                          |
|          | QUU1E     | Receiver Unit                          | 1                                    | -                          |
| 62       | QUAG2A    | Transmitter Unit                       | 1                                    | 1                          |
| 63       | NE-H5QE-† | Handset Cord                           | 1                                    |                            |
| 64       | QDN21AX   | Network/Dial                           | 1                                    | 1                          |
| 65       | PO896532  | Card Holder Parts Group                | 1                                    | 1                          |
| 66       | PO97L403  | Insulator                              | 1                                    | 1                          |

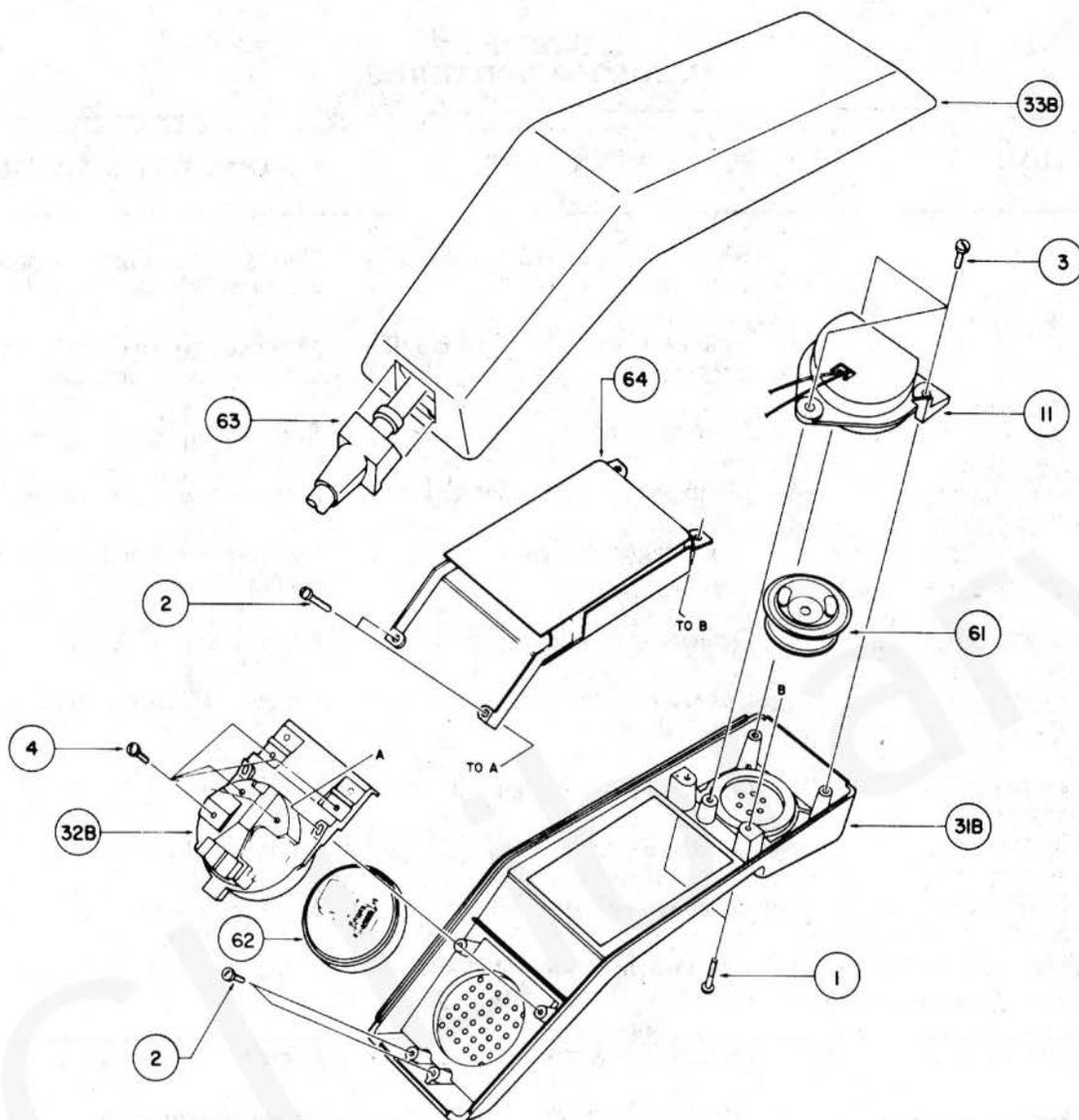
\* Replace the last two digits with the appropriate color code.  
† Add the appropriate code.

### 5.03 To replace receiver:

- (1) Open handset (See 3.03).
- (2) Loosen completely the three screws holding the receiver cup, and remove the two end screws.
- (3) Lift slightly by leads so that cup and receiver may be grasped as a unit and moved back and upward.
- (4) Slide cup along leads.
- (5) Disconnect and replace receiver.
- (6) Slide cup back along leads.
- (7) Line up front screw (still in cup) with hole in post, and tighten.
- (8) Replace two end screws.
- (9) Reassemble handset (See 3.06).

### 5.04 To replace network/dial.

- (1) Open handset (See 3.03).
- (2) Remove leads from receiver (See 5.03).
- (3) Remove two mounting screws attaching network/dial and transmitter cup to instrument section.
- (4) Remove network/dial leads from transmitter cup.
- (5) Substitute network/dial.
- (6) Reinstall two mounting screws to reconnect dial and transmitter cup to instrument section.
- (7) Reconnect the dial leads (see appropriate schematic diagram.)
- (8) Reassemble handset (See 3.06).



**Fig. 7 — Exploded View - QSE10 Type Handset**

**5.05 Handset cord replacement.**

- (1) See 3.03 for instruction on opening of handset.
- (2) Connect leads (see appropriate schematic diagram).

**5.06 Ringer replacement.**

- (1) Open base (See 3.02).
- (2) Loosen screw in volume control and mounting screw of ringer.
- (3) Replace ringer.

**CHART 1  
FAULT-LOCATION GUIDE**

| INDICATION              | PROBABLE CAUSE  | CORRECTIVE MEASURE   |
|-------------------------|---|--|
| Bell does not ring.     | Ringer disconnected or wired incorrectly.                           | Connect according to appropriate wiring information.       |
|                         | Volume control lever in cutoff position.                            | Move control lever and advise customer of cutoff position. |
|                         | Open winding.   | Replace ringer.  |
|                         | Metal particles in armature gap.                                    | Remove with adhesive tape.                                 |
|                         | Open ringer capacitor.  | Replace interconnect board assembly.                       |
| Cannot trip ring.       | Defective network or open wiring.                                   | Replace network/dial.                                      |
|                         | Contacts on line switch or recall switch do not close.              | Clean or adjust contacts.                                  |
| No dial tone.           | Open mounting or handset cord.                                      | Replace cord.  |
|                         | Defective receiver.   | Replace receiver unit.                                     |
|                         | Defective network.  | Replace network/dial.                                      |
|                         | Line switch and/or recall switch contacts not functioning properly. | Clean or adjust contacts.                                  |
| Cannot break dial tone. | Defective network.  | Replace network/dial.                                      |
| Cannot hear.            | Defective network.  | Replace network/dial.                                      |
|                         | Defective receiver.   | Replace receiver unit.                                     |
| Cannot be heard.        | Defective transmitter unit.   | Replace transmitter unit.                                  |
|                         | Defective network.  | Replace network/dial.                                      |