

TELEPHONE SETS

701, 702, AND 711 TYPES

IDENTIFICATION, INSTALLATION, AND MAINTENANCE

1. GENERAL

1.01 This section covers PRINCESS® telephone sets equipped with rotary dials (Fig. 1).

1.02 Information contained in this section was formerly found in Section 502-710-100, 502-710-200, and 502-710-300 which have been cancelled.

2. IDENTIFICATION

2.01 These sets are equipped with a concealed lamp which illuminates the dial when the handset is removed. This lamp also serves as a

night light under control of a slide switch located in the base at rear of set (Fig. 2).

2.02 The transmission circuit for the 700-type telephone set is the same as for the 500-type telephone set. However, since the ringer is always external with a 701 and 711-type telephone set, there is no ringing capacitor in the network. The 702 type however, incorporates the capacitor and an M1A ringer.

2.03 Table A lists the major components of 700-series PRINCESS telephone sets.

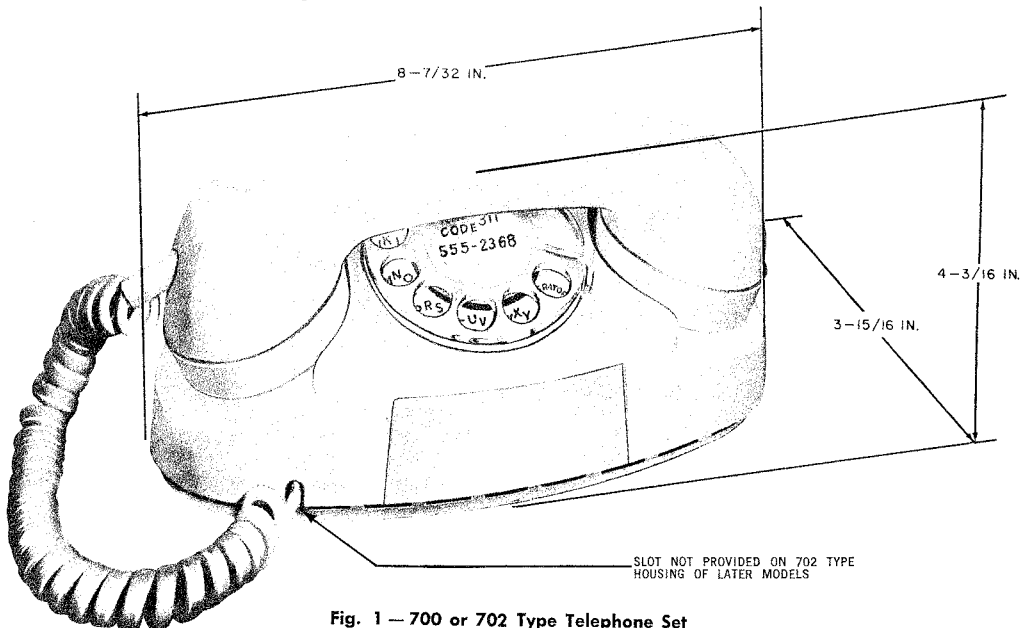


Fig. 1 — 700 or 702 Type Telephone Set

TABLE A
COMPONENTS AND FEATURES — 700-SERIES PRINCESS STYLE TELEPHONE SET

TYPE SET	MOUNTING CORD	NETWORK	INTERNAL RINGING	MESSAGE WAITING LAMP*	USED WITH 1A KTS	USED WITH 1A1, 1A2 KTS
701B	D6AB	495A	No	No	Yes	Yes
701D	D6AB	495A	No	KS-16893L1	Yes	No
702BQ1A (a)	D5Q2A	QNB4A-2	Yes	No	Yes	Yes
702BQ1A (b)	D5Q2A	QNB17A	Yes	No	Yes	Yes
711B	D14H	495A	No	No	No	No

*Lamp Socket - KS16894 List 1.

(a) Manufactured before Jan. 1, 1970.

(b) Manufactured after Jan. 1, 1970.

(c) When equipped with 1635A Inductor.

TABLE A (Cont)
COMPONENTS AND FEATURES — 700-SERIES PRINCESS STYLE TELEPHONE SET

TYPE SET	3-TYPE SPEAKER PHONE	1A HOME INTERPHONE	BUSINESS INTERPHONE	EQUIPPED WITH EXCLUSION SWITCH	TIP PARTY IDENT.
701B	No	No	No	No	Yes (c)
701D	No	No	No	No	No
702BQ1A (a)	Yes	No	No	No	No
702BQ1A (b)	Yes	No	No	No	Yes
711B	Yes	Yes	Yes	Yes	

Note: The following components are common to all 700-series PRINCESS telephone sets:

- Dial 8A
- Dial lamp, Mazda GE46
- Dial lamp, socket, P96W200 for 702BQ1A and P11E410 for other 701 and 702 types
- Handset, G3AR
- Handset cord, H4CJ

2.04 The 700-type telephone sets are available in the following colours:

White (-58)	Aqua blue (-62)
Rose pink (-59)	Turquoise (-64)
	Light beige (-60)

701-Type Telephone Set

2.05 The 701-type telephone sets are rated Manufacture Discontinued (MD).

2.06 The 701B and 701D telephone sets are not equipped with an internal ringer. When a ringer is required, an E1-type external ringer may be used.

2.07 The 701B sets are factory wired for individual line or 2-party flat rate service. Internal wiring changes must be made when other services are to be provided. See sections covering telephone set connections.

2.08 701B telephone sets may be used with the following services:

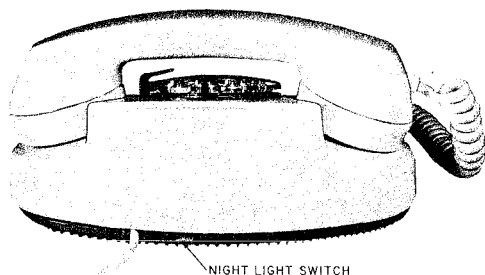


Fig. 2 — 700-Series Telephone Set, Rear View

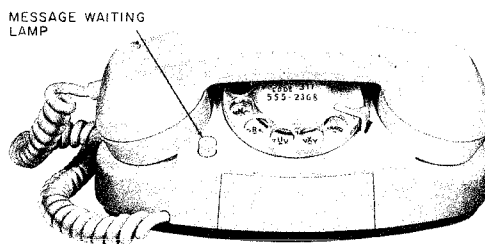


Fig. 3 — 701D-Type Telephone Set

- Tip-Party Identification.

If no ringer is in place, the 1635A inductor must be used for identification. (See Fig. 13 and 14).

- 1A1 and 1A2 key telephone systems
- 3-type speakerphone system

2.09 The 701D telephone set is equipped with a message waiting lamp (see Fig. 3 & 4). This set is intended for use with PBX which provides message waiting feature.

702 Type Telephone Set

2.10 The 702 type telephone set Fig. 5. is similar to the 701 type except that an internal ringer (MIA) is provided in the base of the set.

2.11 The 702B type telephone set replaces the 701B type set.

2.12 The 702B type differs from the 701 and 711 types, in that it uses a printed circuit type network and quick connect terminals. Cord connections are made to the networks by pushing spade tips into split terminals, Figs. 10 and 11. 702B Sets manufactured before Jan. 1, 70 are equipped with the QNB4A-2 network and after that date, the QNB17A network.



2.13 When inserting or removing spade tips from quick-connect terminals, longnose pliers must be used. For detailed instructions, see Para. 3.02.

2.14 The QNB17A Network has provision for a modification which provides protection from spurious detection of radio frequency signals which may interfere with telephone conversations in certain locations. The modification is accomplished by adding two NS169921 capacitors in the holes designated C5 and C6 on the printed circuit board.

2.15 The 702B and 702BQ1A telephone sets with QWB4A-2 Networks are *not* designed for use with:

- 1A1 and 1A2 Key Telephone Systems.
- *Tip Party identification.* The 702BQ1A set equipped with the QNB17A Network facilitates wiring changes within the telephone to allow its use for these services and also with 3 type Speakerphone.

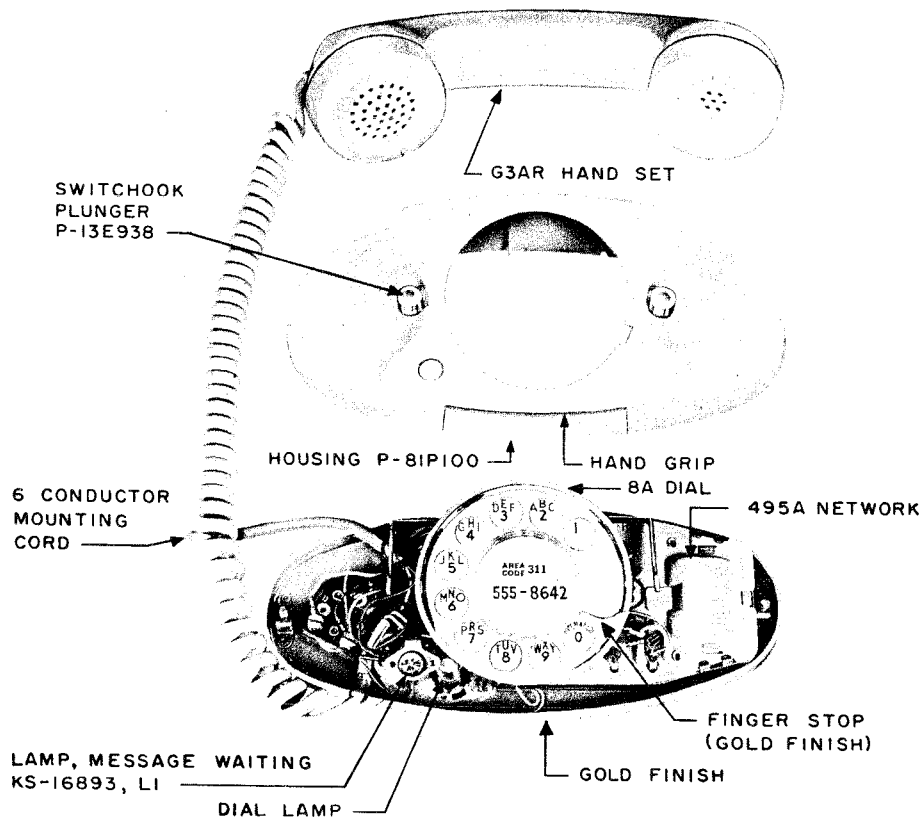


Fig. 4 — 701D Telephone Set with Housing Removed

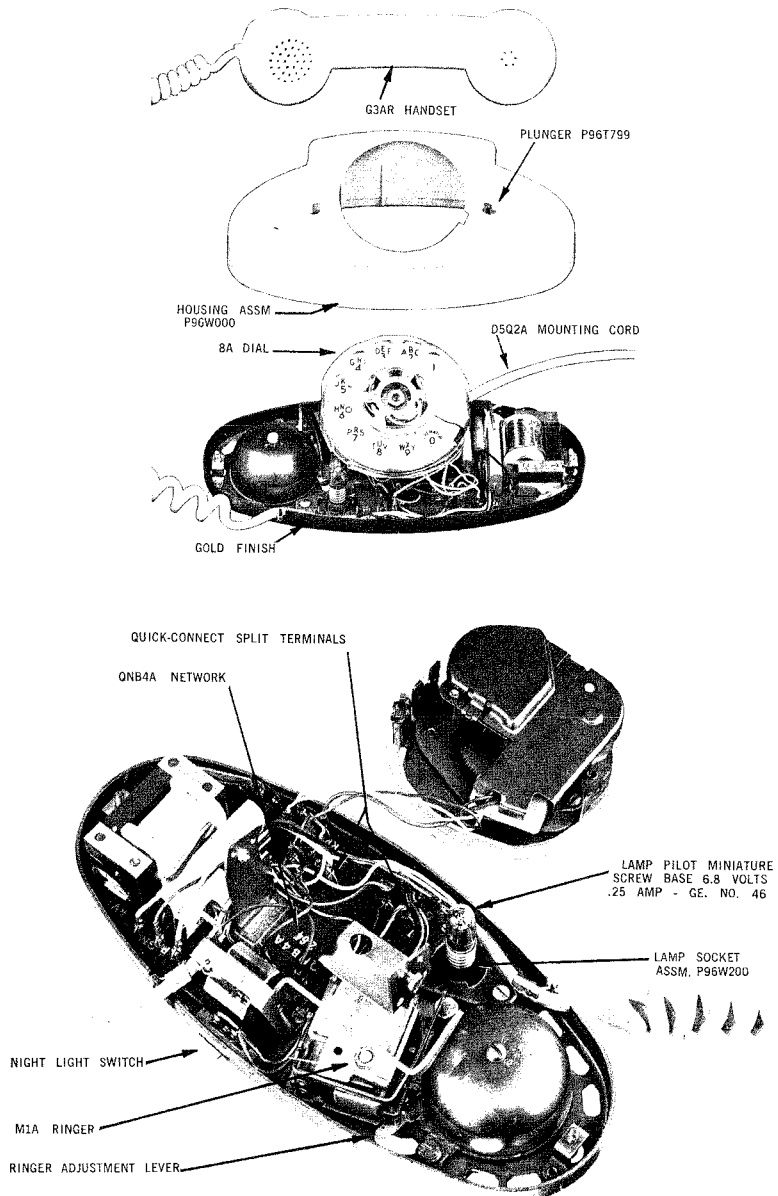


Fig. 5 - 702BQ1A Telephone Set Showing Circuit Board Network

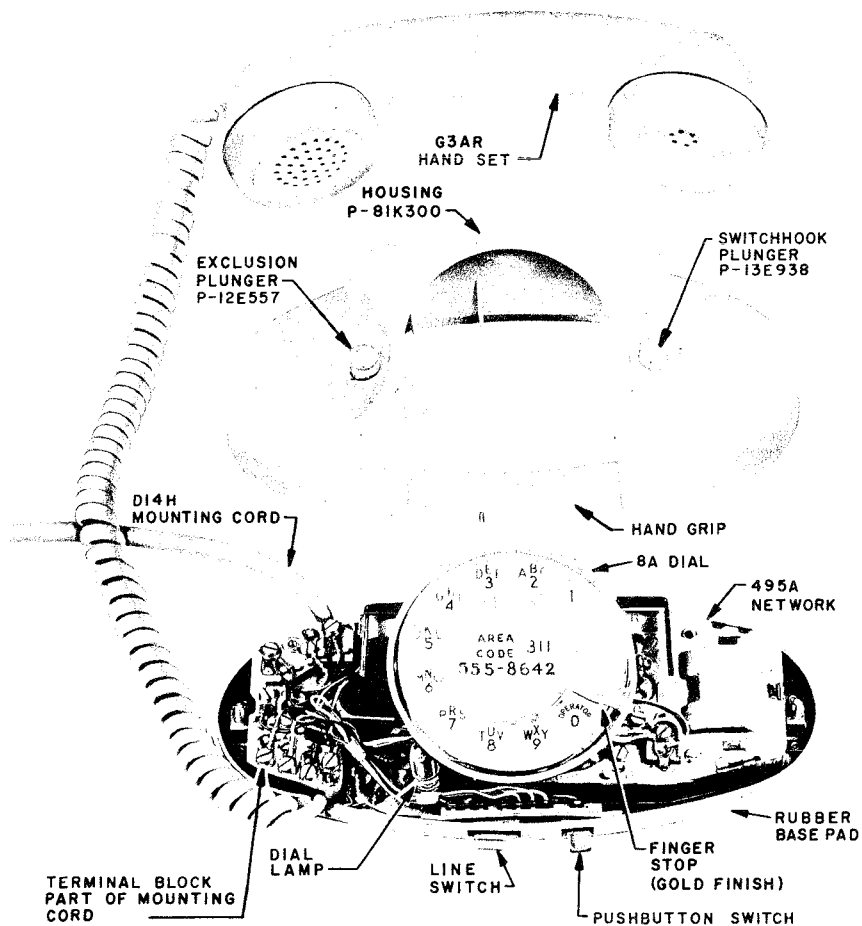


Fig. 6 — 711B Telephone Set with Housing Removed

711B Telephone Set

2.16 The 711B telephone set (Fig. 6) is not equipped with an internal ringer. When a ringer is required, an E1-type external ringer may be used.

2.17 The 711B telephone set is equipped with a slide switch for line selection and a switch (push-to-operate) for signaling.

2.18 This set is factory wired for 2-line pickup, exclusion, and signaling. The exclusion feature is operated by raising the left switch hook plunger.

2.19 This set may also be used with the following services:

- 1A HOME INTERPHONE system
- BUSINESS INTERPHONE system (F)
- 3-type speakerphone system

2.20 This set is not equipped for "A" lead control and cannot be used with 1A1 or 1A2 key telephone systems, or for Tip-party Identification.

3. INSTALLATION

3.01 Insofar as possible, be guided by the customer's wishes in placing apparatus. Consider the following:

- Safety for yourself, customer, and maintenance personnel.
- Availability of power outlet for transformer.
- Location of telephone set so ringer volume is adequate for area.
- General appearance of installation.

Quick-Connect Terminals

3.02 When inserting or removing spade tips from quick-connect terminals of the 702 type telephone, long-nose pliers must be used. On the early design of clip, the cross slot type, always grasp the spade tip by the wing.

To remove the spade tip grasp the wing of the spade with the pliers held vertically. Insert the tip of the C or D type screwdriver under the tip of the longnose pliers and twist screwdriver so as to lever the pliers upward. *To insert* the spade tip, place it loosely in the quick-connect terminal. Then press it firmly into place with one tip of the pliers on each wing of spade tip. (See Fig. 10) On the later design, dual clip type, *to remove* the spade tip, grasp the spade tip by the shank with long-nose pliers. Use the blade of a screwdriver as a fulcrum to lift the end of the pliers and spade tip clear of the clip. (See Fig. 11) *To insert* spade tip, place it easily in place with the long-nose pliers. Care must be taken to dress all set wiring so as to prevent it from interfering with the switch assembly or dial mechanism. (See Fig. 12)

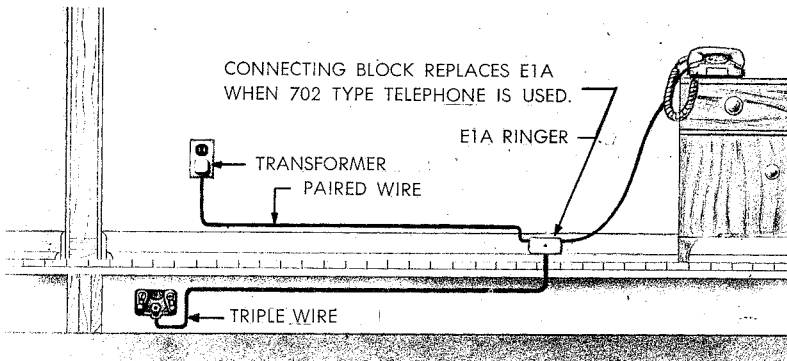


Fig. 7 — Typical Installation of 701B or 702BQ1A Telephone Set

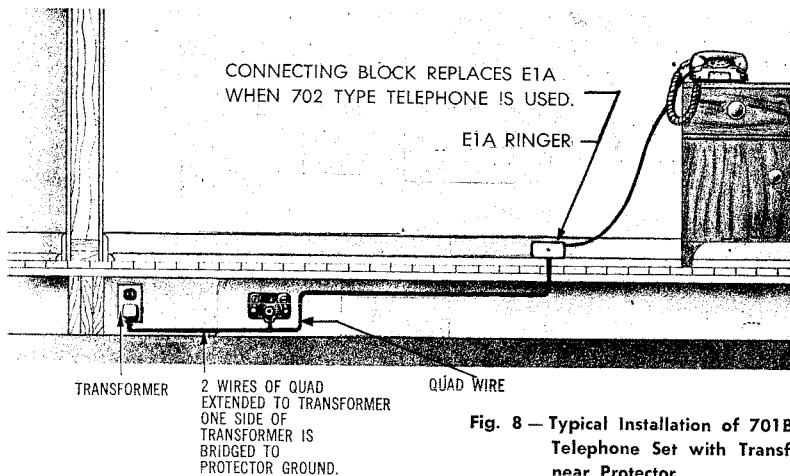


Fig. 8 — Typical Installation of 701B or 702BQ1A Telephone Set with Transformer located near Protector

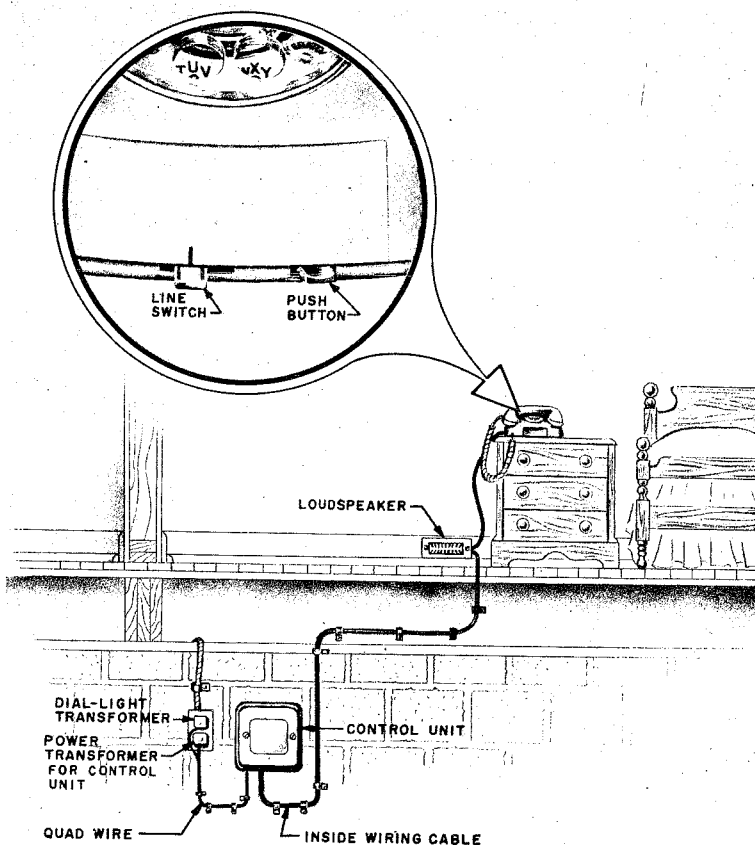


Fig. 9 — Installation of 711B Telephone Set As Used With Home Interphone System

Dial Light Transformer

- 3.03** Select a 105-120 volt ac receptacle that is on a circuit not controlled by a switch. A 2012A transformer should be used with each telephone set. For multiple installations, see section covering station transformers.
- 3.04** For proper illumination of the dial, the length of the wire between the transformer and the telephone set should not exceed 250 feet of standard inside wire. *Do not use a 25-foot mounting cord because of added resistance.*
- 3.05** When necessary to avoid customer's reaction to the use of receptacle, purchase locally a C.S.A. approved "cube tap" such as the Hale Brothers #1270 and use it for the customer's requirements. Because of insecurity do not plug the 2012A transformer into a cube tap.
- 3.06** Where the 2012A transformer may become dislodged from the receptacle, a 2A clamp should be used to secure it.

3.07 When installing a dial-light transformer, make certain that telephone protector and/or signaling ground conductor is connected to the best ground available as outlined in the section entitled Protector and Signaling Grounds. If the best ground available is a telephone ground rod, the telephone ground rod shall be bonded to the power service ground electrode in the same premises as outlined in the section entitled Protector and Signaling Grounds.

3.08 Damage to the transformer may result if a sufficient difference of potential is allowed to develop between power and telephone grounds. Because a difference of potential appears between the windings of the transformer, voltage from a lightning surge could break down the insulation between the windings.

3.09 Grounding the transformer is not necessary unless this ground is required for signaling.

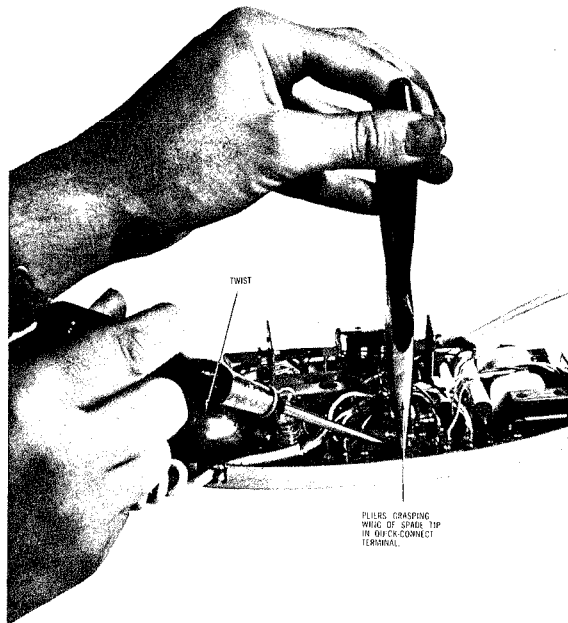


Fig. 10 — Method for Removing Spade Tips from a 702BQ1A Telephone Equipped With Quick-Connect Terminals

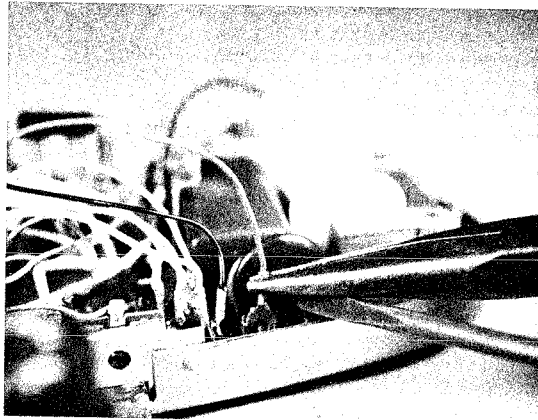


Fig. 11 — Method of removing Spade Tip
from a 702BQ1A equipped with
latest Quick-Connect Terminals

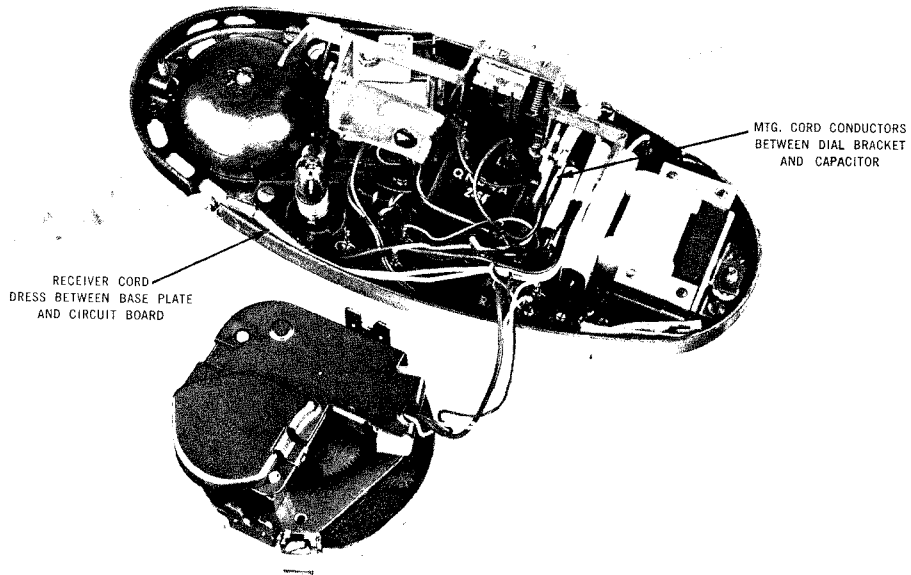


Fig. 12 — Telephone — Location of Set Cording

Ringer

3.10 Where required, an E1A Ringer should be installed with each 701-type telephone. This ringer may also serve as a connecting block. A centrally located QCY1A1 bell chime ringer may also be used. Where the E1A ringer cannot be located for good distribution of sound, a 687A subscriber set may be installed instead. In the case of a 702 type telephone, the M1A ringer is incorporated as part of the telephone and no external ringer is normally required.

3.11 At the request of the customer, the E1A Ringer normally associated with the 701B telephone may be omitted, or in the case of the 702BQ1A the ringer may be disconnected, except when it is the only ringer on the line. Where no ringer is used, the mounting cord of the 701-type telephone should be terminated on a QBB1A connecting block and the mounting cord of the 711B telephone set, should be terminated on 44A connecting blocks. The 702-type telephone set is normally terminated on a QBB1A connecting block except when wired for 1A1 key operation in which case a 44A block should be used.

3.12 If a ringer cut-off feature is required, this can be accomplished on the 702-type telephone set by removing the blocking screw from the base of the telephone. This will allow the ringer volume adjusting lever to completely silence the bell. (See appropriate Section on M1A Ringer). This cut-off feature should not be provided unless called for on the service order.

Inductor

3.13 Where no ringer is used with a 701 type telephone and tip-party identification is required, a 1635A inductor shall be installed in the Princess set as shown in Fig. 13 and 14. The inductor is ordered separately. The procedure for installing is as follows:

1. Remove housing from set.
2. Loosen dial and lay aside to provide working space.
3. Insert inductor as shown in Fig. 14.
4. Connect leads for tip party with indentifying ground.
5. Mount dial assuring that the dial mounting lug is between the 1635A inductor bracket and the dial mounting bracket. (See Fig. 14).

3.14 Tip party identification on the 702BQ1A telephone set is provided by using windings of the M1A ringer. (Refer to section covering connections).

Electron Tube

3.15 When an electron tube is required to combat inductive interference install the tube in the base of the 701B telephone set only in the following manner:

1. Remove plastic housing.
2. Remove dial.
3. Remove and discard the mounting screw furnished as part of the electron tube.
4. Redress terminal 2 end of 27-ohm resistor and resistor lead toward night-light socket.
5. Check to see that lead on terminal end of resistor does not touch dial support bracket.
6. Place the tube in space below dial with dome of tube toward night-light socket and base of plastic tube bracket against dial support bracket (see Fig. 15).
7. If sufficient clearance for the dome of the tube was provided in step 4 above, the lower end of the tube bracket base will drop into place forward of the switch assembly base.
8. Dress tube leads up and across tube between night-light and dial support bracket.
9. Carefully replace the dial, redressing wires as required, so that the glass portion of the tube is *not* held firmly after the dial is secured in place.
10. A D-161488 connector assembly is required and must be ordered separately. Connect the leads from the tube as shown in the section entitled Inductive Noise. (Section 500-112-100CA).
11. Check to see that no wires are fouled in the switch arms, and replace the plastic upper housing.

Ringer Isolator

3.16 When a Ringer Isolator is used to combat inductive interference refer to Section 500-112-100CA for connections.

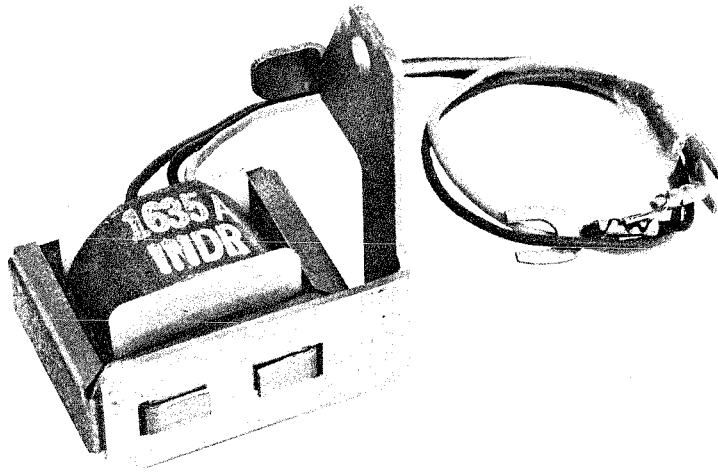


Fig. 13 — 1635A Inductor

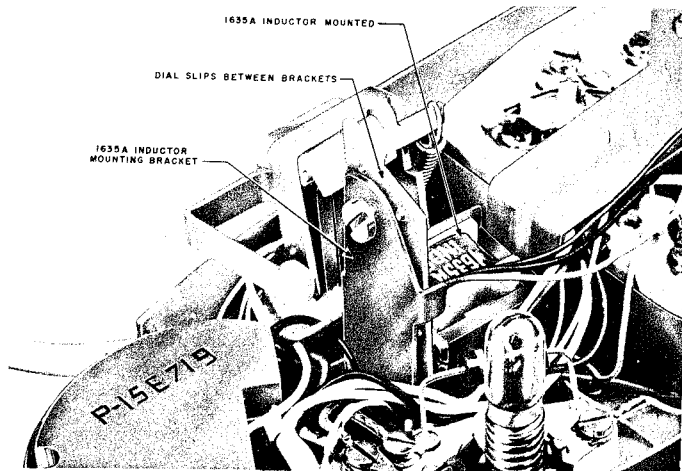


Fig. 14 — 1635A Inductor Mounted in
701B Telephone Set

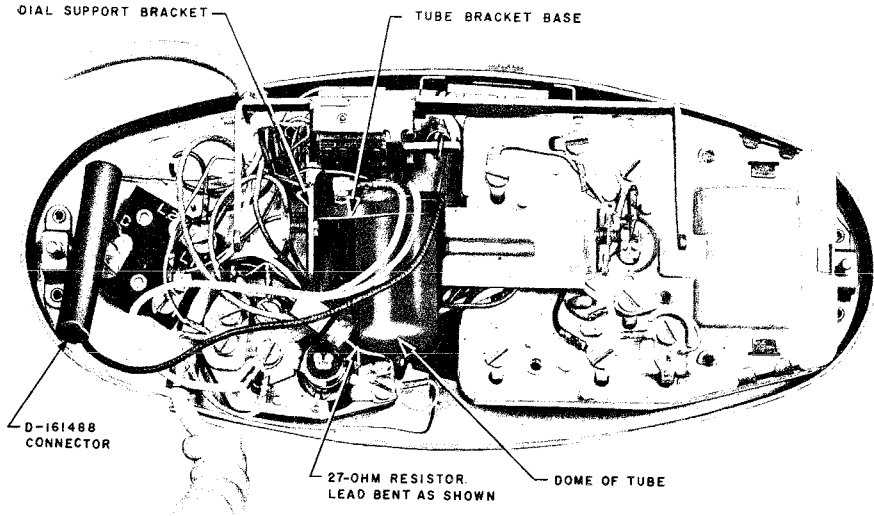


Fig.15 — Location of Cold-Cathode Tube in 701B Telephone Set

The P-15E719 Weight

3.17 The P-15E719 weight is designed to reduce sliding of the 701B and 701D telephone sets on smooth surfaces during dialing.



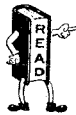
Make sure that no wires are caught between the weight and base of set.

3.18 The weight mounts in the telephone set directly over the terminal block (Fig. 16). All leads to the block must be dressed so that the spade tips fall wholly within the boundaries of the block (Fig. 17). The weight shall rest flat on the base of the telephone set. Insert the P-24E510 spring retainer as shown in Fig. 18.

PORTABLE INSTALLATION

3.19 For portable installation of the 701-type telephone set, arrange as follows:

- Replace 6-conductor mounting cord with 4-conductor cord terminating in 283B plug.
- Extend tip, ring, ground, and transformer leads to 404B jack.



*On 2-party tip stations requiring ground identification, be sure that jacks and plugs are installed in accordance with the section entitled **Jacks and Plugs**.*

3.20 Where a 702-type telephone is used in a portable installation, the D5Q2A mounting cord need not be changed. Connect to 283B plug in the same manner as shown for QBB1A connecting block.

3.21 The 711B telephone set is not intended for portable installation.

3.22 Where only one dial-light telephone set is installed, one transformer may be multiplied to two or more jacks.

3.23 Where two or more dial-light telephone sets are installed, an individual 2012A transformer must be connected to each jack, or see Section covering station transformers, multiple installations.

Fig. 16 — P-15E719
Weight Re-
moved
from 701B
Telephone
Set

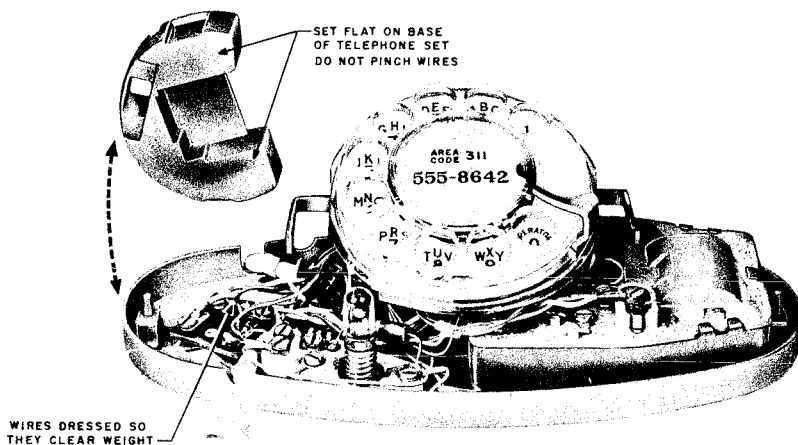


Fig. 17 — P-15E719
Weight
Mounted
in 701B
Telephone
Set

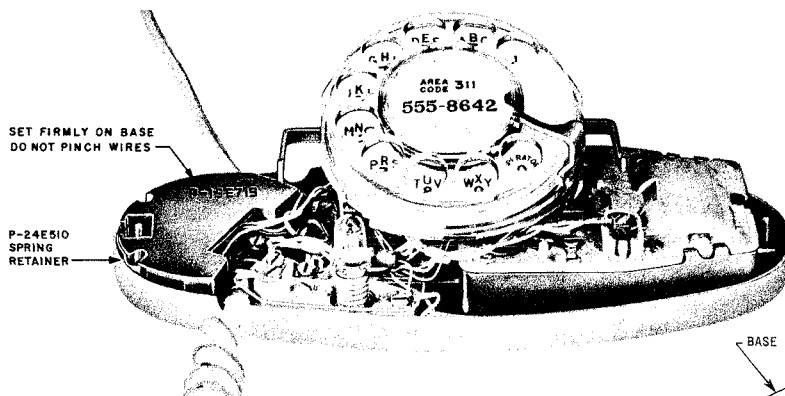
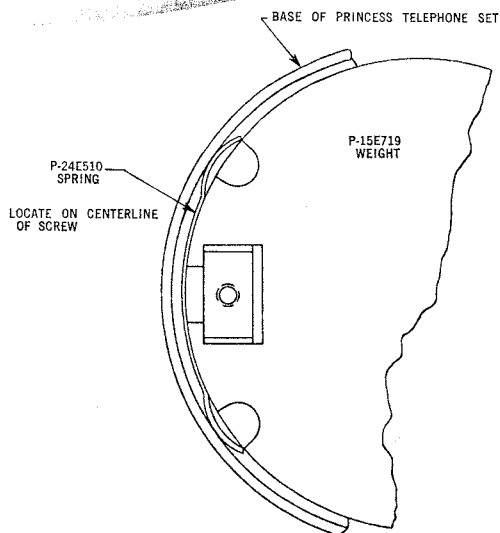


Fig. 18 — Location of P24E510 Spring



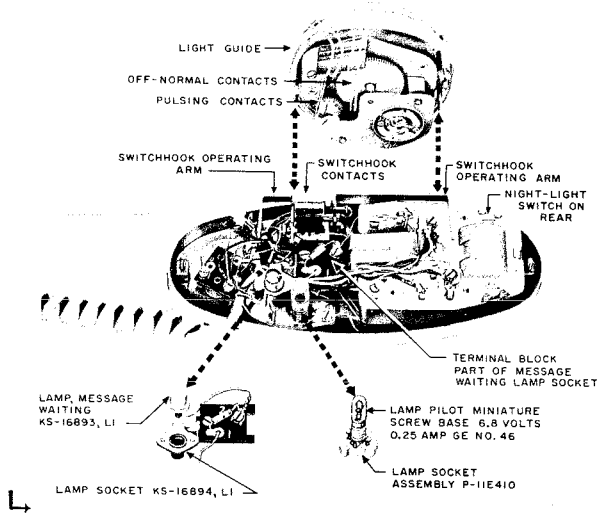
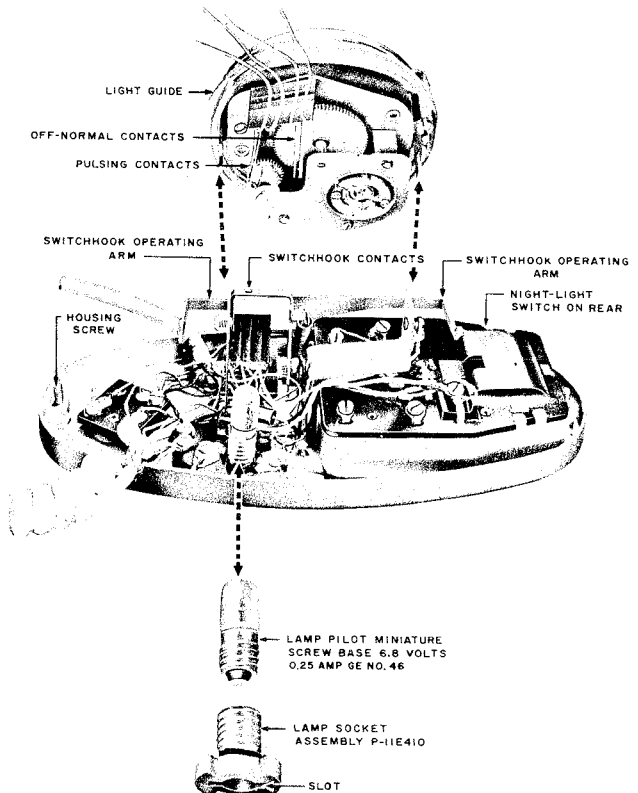


Fig. 19 — 701D Telephone Set with Dial and Lamp Socket

Fig. 20 — 701B Telephone Set with Dial and Socket Removed



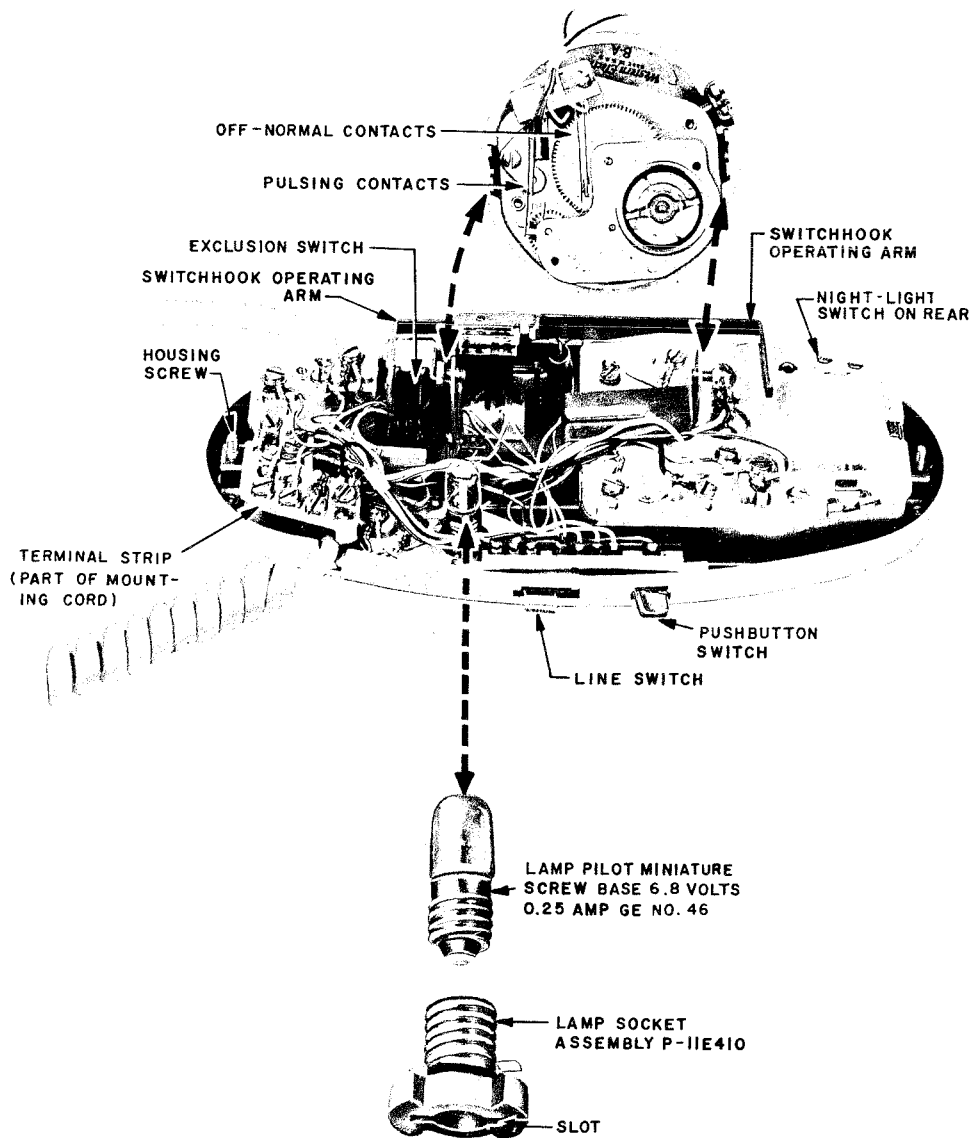


Fig. 21 — 711B Telephone Set with Dial and Socket Removed

4. MAINTENANCE

4.01 Maintenance of the 700-series PRINCESS telephone sets is limited to replacing defective components (Table A) and burnishing or adjusting switch hook contacts.

4.02 Refer to sections covering dials, handsets, cords, ringers, networks, line keys, etc., for maintenance of these components.

4.03 Housings, dial plates, and handsets may be cleaned with a damp KS-2423 cloth. *Do not use scouring cleaners or colored components as this may damage finish.*



When coloured parts are replaced, make certain that the new parts match in colour the remaining parts of set. If unable to match, replace entire set.

Quick Connect Terminals



4.04 The 702 type telephone uses a quick-connect terminal into which the cord conductor spade tips are inserted. Whenever the telephone set housing is removed for maintenance, the tightness of these connections should be checked. If found to be loose, the terminal slot may be forced closed by using longnose pliers. When inserting or removing spade tips from quick-connect terminals, longnose pliers must be used. For detailed instructions, see para. 3.02 and Fig. 10 & 11.

Dial Light

4.05 Slide switch for night-light operation is located on rear of base. Night light (reduced illumination) is obtained with switch operated to the left and handset in place. When handset is removed, dial light increases in brilliance for dialing purposes.

- With switch operated to the right, lamp will light only when handset is removed.

4.06 The following points should be checked if lamp fails to operate:

- Loose connections.

- Defective lamp.
- Defective or unplugged transformer. Use 2A Clamp if it is necessary to secure 2012A transformer.
- Switchhook contacts dirty or improperly adjusted.
- Defective slide switch.
- Commercial power failure.

4.07 If illumination is poor, check that the length of wire between transformer and telephone set does not exceed limits shown in Section covering station transformers. Only one dial light is allowed per 2012A transformer.

4.08 The lamp socket assembly, with the lamp, is easily removed through the base of the set. It is not necessary to open the set for lamp replacement. (See Fig. 19, 20 and 21.)

Sliding While Dialing

4.09 When a Princess (701 type) is encountered on a customer's premises it shall be checked (by lifting) to determine if a balancing weight has been inserted.

4.10 If no weight has been inserted, remove the telephone housing, dress the leads and spade tips to provide space and clearance for a P-15E719 weight. Insert weight and a spring as shown in figures 16, 17 and 18 and Para 3.17 and 3.18.

4.11 Verify with the customer or principal user of the telephone that the extra weight is not objectionable for their particular application. Where serious objections are raised, remove the P-15E719 lead weight.

4.12 The 702BQ1A being equipped with an M1A ringer, eliminates the necessity of providing the P-15E719 weight and this, combined with a redesigned base pad, greatly improves the stability of the telephone set.

Insufficient Ringer Volume

4.13 If the E1A Ringer is located on a baseboard behind furniture, suggest a change of location for the ringer.

SECTION 502-710-101CA

4.14 If relocating the ringer does not produce sufficient sound, a 687A Subscriber Set may be used instead. This subset contains the same C4A ringer as is used in the 500 type telephone.

4.15 In the case of poor ringer volume on a 702BQ1A Princess telephone set, check to see that the M1A ringer is operating satisfactorily, (see section on Ringers M1A) and if not, replace the ringer.

Spacer Washer on 702-Type Telephones

4.16 On early models of 702-type telephones, the bracket at the right hand end of the base, which carries the captive housing retaining bolt, was formed slightly low. Such brackets have a steel washer around the bolt between the bracket and the housing. These brackets can be recognized by their square end. Care should be taken to retain this washer when the set is opened and to put it in place when the set is closed. Brackets, on which the square corners have been sheared off, were formed correctly and do not require the washer.