

TELEPHONE SETS

500, 501, 554, AND 556 TYPES

IDENTIFICATION, INSTALLATION, AND MAINTENANCE

1. GENERAL

1.01 This section is reissued to:

- Remove information on TOUCH-TONE[®] telephone sets.
- Include maintenance information formerly found in Section 502-510-300, Issue 3.
- Add the 95C apparatus blank.
- Change housing assembly part numbers.
- Revise method of replacing defective ringing capacitor.
- Place all MD information in Table A.

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.02 Uses of these telephone sets may be found in the station set sections pertaining to selection for general and specific uses.

1.03 Selection of station apparatus for 1A, 1A1, and 1A2 key telephone systems is covered in the connections section for the particular telephone set.

1.04 Code numbers such as 500C/D cover both manual and dial versions, respectively, of the same type telephone set to permit converting to either type without changing the code number stamped on the base. The letter *R* was added to the code number at one time to indicate the set was equipped with a retractile handset cord.

2. IDENTIFICATION

2.01 *Purpose* — The 500-, 501-, 554-, and 556-type telephone sets are single line sets for use in common battery areas, manual or dial.

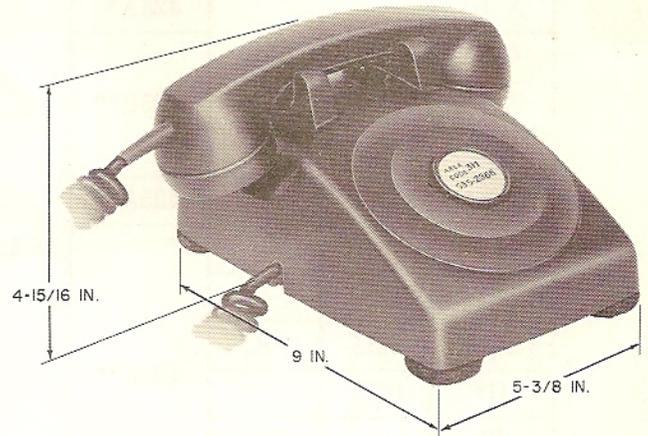


Fig. 1 — 500A, C, E, J, L, R, or 501A, C, J Telephone Set



Fig. 2 — 500B, D, F, K, M, S, or 501B, D, K Telephone Set

2.02 *Ordering Guide* — All parts of the set enclosed by the housing mount on the metal base. The network and line switch are riveted to the base and are not replaceable. Table A lists components of these sets.

TABLE A
TELEPHONE SET COMPONENT PARTS

SET	CODE	COMPONENT										
		DIAL	APP BLK§	NET	RINGER	HANDSET	MTG CORD	ELECTRON TUBE	HOUSING ASSY			
500	A/B*	9C†	95C	425A¶	C4A††	G1A or G3A	D3BN		P-80D200			
	C/D			425E**					P-80D500			
	E/F*								P-80E100			
	H*		95C	425A			D4BJ		P-80D200			
	J/K*						D3BN		P-80E100			
	L/M		95C	425E**			D4BJ		P-80D200			
	P*						D10P		P-80E300			
	R/S						9C†		D4BJ	P-81K000		
	U*		95C						P-80E100			
	W		9C†	95C			425A¶		C4A††	D3BN	426A	P-80D200
	Y											425E**
		P-80D200										
501	A/B*	9C†	95C	425A¶	C4A††	D4PJ		P-80E100				
	C/D			425E**				P-80E300				
	F*		95C	425A				P-80D200				
	J/K*											
	P*		95C	425E**								
	U*											
554	A/B	95C			C4A		426A	P-80F400				
556	A/B											

* MD

¶ Includes 311A equalizer

† Replaces 7C or 7D dial

** Replaces 425B network

‡ Replaces 7G or 7H dial

†† Early models had C2A ringer

‡ Replaces 95A or 95B apparatus blank

‡‡ Early models had C3A ringer



Fig. 3 — 500H, P, or 501P Telephone Set



Fig. 4 — 500U or 501U Telephone Set



Fig. 5 — 500W/Y Telephone Set

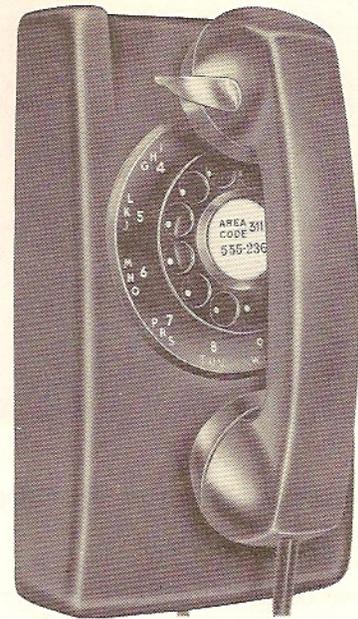


Fig. 6 — 554B or 556B Telephone Set

2.03 Color — These sets are available in all standard colors as indicated in Section 500-120-100. Components available in color include the dial or apparatus blank, handset, mounting cord, and housing. Components other than the housing must have the code completed by adding the desired color suffix. The housing P- number must have the desired color suffix substituted for its last two digits.

2.04 Design Features — 501-type telephone sets are identical to a similarly coded 500-type set except for the addition of a 3-element, cold-cathode, gas-filled tube, coded 426A.

(a) **500A/B, C/D, J/K, and 501A/B, C/D, J/K**

- Basic single-line sets.
- Early model sets *without* equalizers are stamped with the letter *T* above the code number on the base.

(b) **500E/F and 501F**

- Equipped with P-19A411 plunger switch (Fig. 7) to avoid interference with dialing or talking of another customer on a party line.



Fig. 7 — 500F or 501F Telephone Set, Plunger Switch

- With set off hook, only the receiver is bridged on the line as a monitor until the plunger switch is lifted to connect the talking and dialing circuits.

(c) **500L/M**

- Supplied wired for 1A1 or 1A2 key telephone systems.
- Equipped with 4-conductor mounting cord which may be required for a separate ringing circuit.
- Earlier sets which were converted for 1A1 or 1A2 key telephone system use will have an asterisk (*) stamped on the base after the code number.

(d) **500H, P, and 501P**

- Includes GE46 dial illuminating lamp which operates when the handset is lifted.
- A 6-8 volt ac or dc power source must be provided.

(e) **500U and 501U**

- Equipped with 584C key, a GE46 lamp, and a resistor to provide dial-light/night-light feature. When key is in ON position, lamp operates at reduced brilliance for night light.

- When handset is lifted off hook, lamp lights at full brilliance.
- A 6-8 volt ac or dc power source must be provided.

(f) **500R/S** — Factory-wired for speakerphone.

(g) **500W/Y** — Equipped with a KS-19572L1 neon lamp to provide message waiting service.

(h) **554A/B and 556A/B**

- These sets are standard, single-line, wall mounted telephone sets. The 556A/B is the same as the 554A/B except for the addition of a 426A tube.
- With wiring modifications, 554A/B sets are suitable for A lead control.

3. INSTALLATION

(a) **Housings**

- 500- and 501-type sets — housings are secured to the base by two P-44E734 captive screws (Fig. 8).

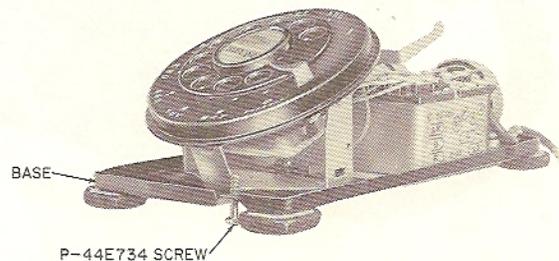
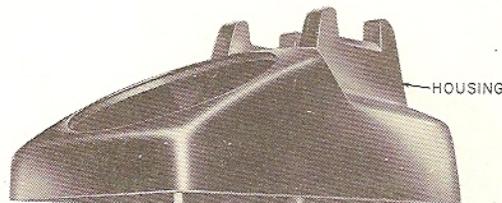


Fig. 8 — 500-Type Telephone Set, Housing Assembly

- 554- and 556-type sets — designed as handset hanger (Fig. 9).

(1) Removal

- Push inward on tab of snap fastener (Fig. 10) located in handset cord slot.
- Lift lower part of housing outward and upward, releasing snap fastener, and disengaging latch opening assembly (Fig. 10 and 11).

(2) Replacement

- Slip housing over handset hook and dial and engage latch spring assembly (Fig. 12).
- Press firmly on lower part of housing to engage snap fastener and catch.



Fig. 9 — 554- or 556-Type Telephone Set, Handset Rest Position

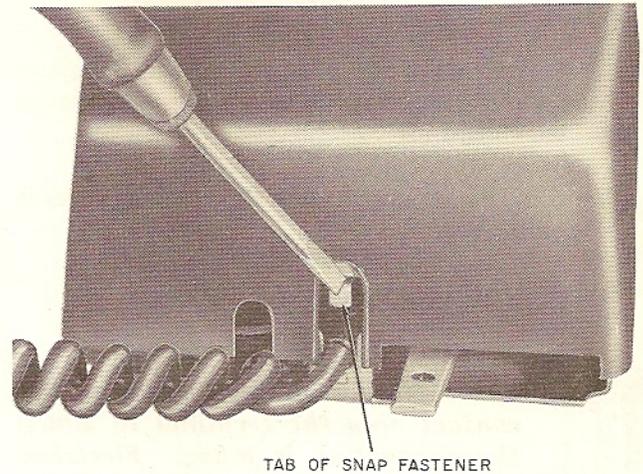


Fig. 10 — Wall Telephone Set Housing Removal

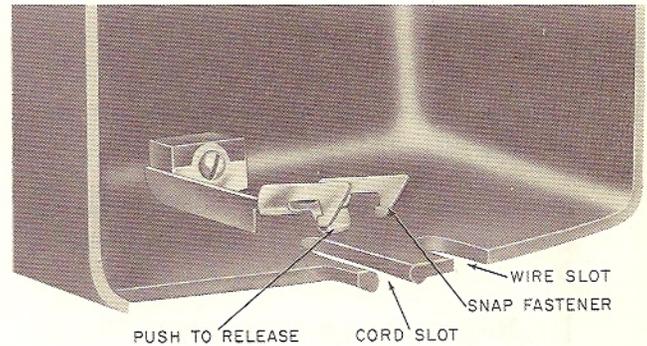


Fig. 11 — Wall Telephone Set Housing Interior

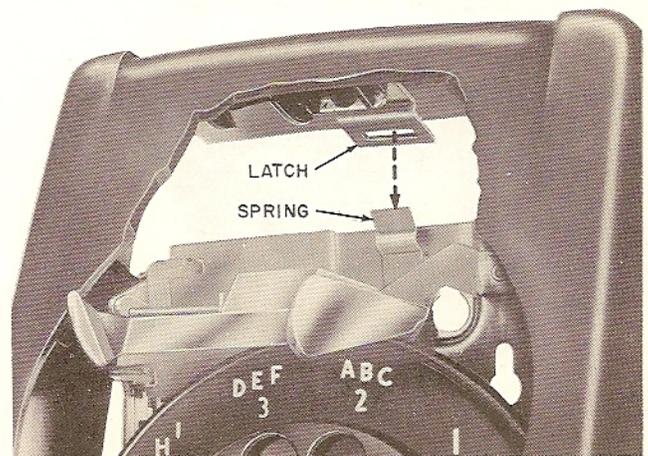
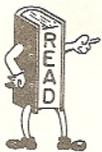


Fig. 12 — Replacing Wall Telephone Set Housing

(b) *Mounting Wall Sets*

- Several holes are provided in the baseplate for more flexibility in mounting to minimize backboard use.
- Can be mounted directly over a conduit outlet box.

(c) *Mounting Cords*



Spade tips or skinned wires should contact only the terminal to which the connection is made. Electrical contact with the metal tab of the network housing may cause the exposed dial finger stop or handset hook on wall sets to become energized with ringing voltage or dc line voltage.

- Dress cord leads to avoid interference with moving parts and ringer gongs.
- 9-, 13-, and 25-foot extra length mounting cords (3- or 4-conductor only) are installed by:
 - (1) Remove ringer mounting screw (Fig. 13).
 - (2) Insert cord stay under ringer frame.
 - (3) Reinsert mounting screw.
 - (4) Position cord grommet so that cord is protected where it enters set.

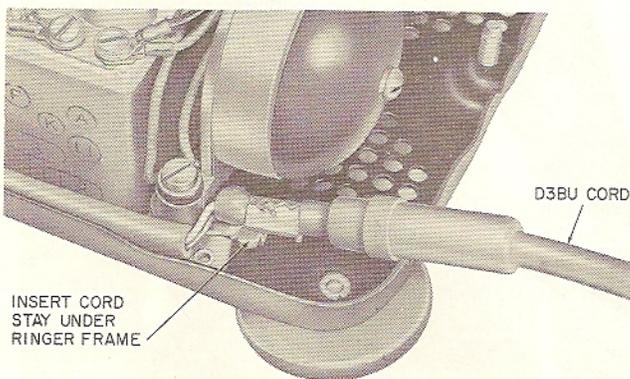


Fig. 13 — Installing Extra Length Cord

(d) *Apparatus Blanks*

- (1) 95A — Used only on sets with three-point dial mountings (Fig. 14).
- (2) 95B (Fig. 15)
 - Can be used in all sets (Fig. 16, 17, and 18).
 - Bracket must be inverted in wall sets.
- (3) 95C
 - Same external appearance as 95B (Fig. 15).
 - Install by fitting on dial mounting bracket and replacing housing (Fig. 19 and 20).

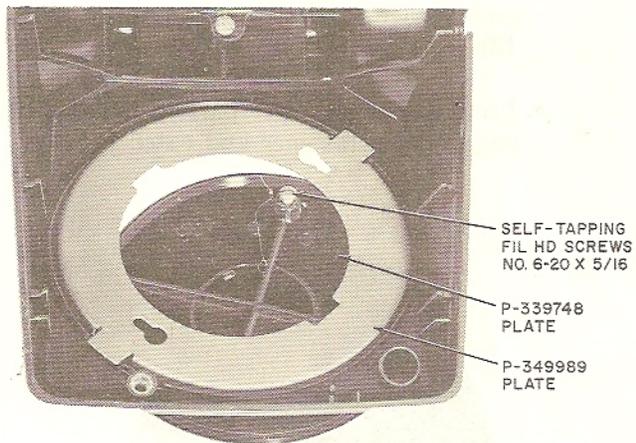


Fig. 14 — 500-Type Telephone Set With 95A Apparatus Blank



Fig. 15 — 500-Type Telephone Set With 95B or 95C Apparatus Blank, Exterior

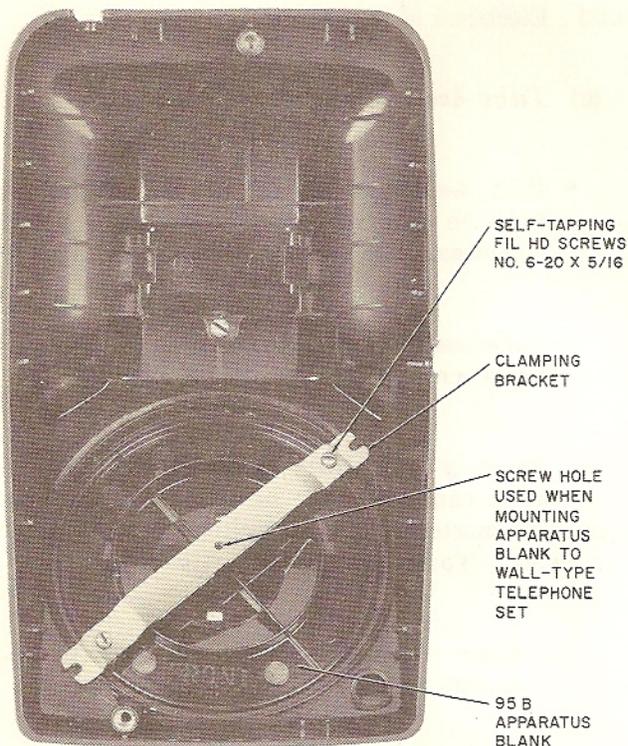


Fig. 16 — 500- and 501-Type Telephone Set With 95B Apparatus Blank, Interior

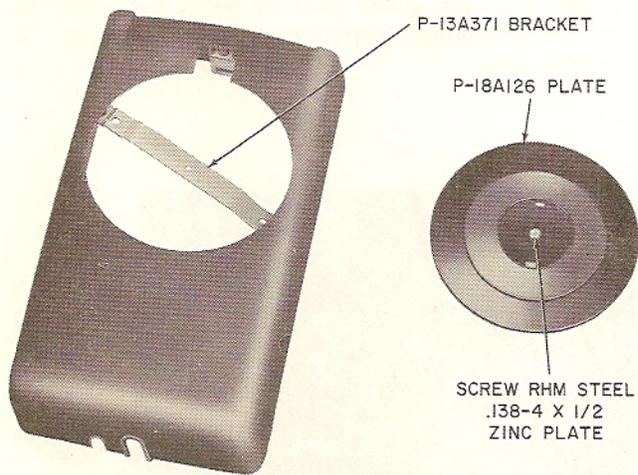


Fig. 17 — 554- or 556-Type Telephone Set With 95B Apparatus Blank

(e) *Ringer*

- Mounted to base with two P-43A456 washer-head mounting screws in rubber grommets.

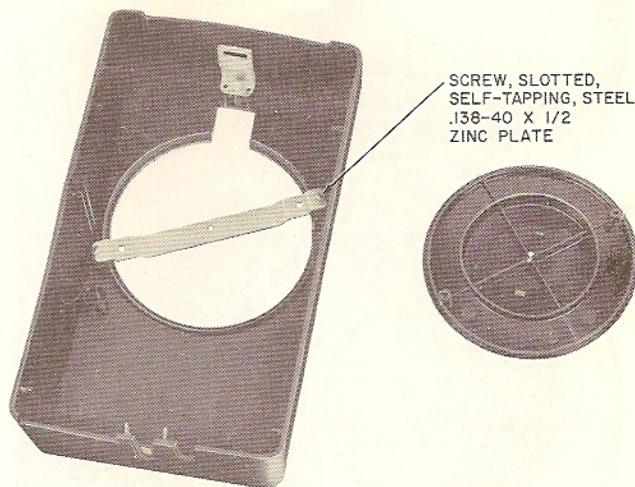


Fig. 18 — 554- or 556-Type Telephone Set With 95B Apparatus Blank, Interior

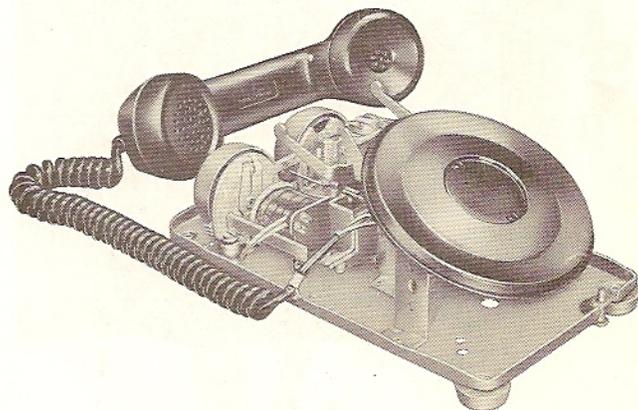


Fig. 19 — 95C Apparatus Blank on Dial Mounting Bracket in 500- or 501-Type Telephone Set

- Ringer off position can be provided, when authorized locally, by bending back ringer stop spring to provide a fifth position (OFF) on the ringer volume control.

- (f) *Handsets* — the G1- or G3-type handsets in these sets may be replaced by a G6AR (MD) or G6B handset for impaired hearing, a G7AR for weak speech, or a G8A (MD) or G8B for noisy locations. Refer to section covering handsets for additional information.

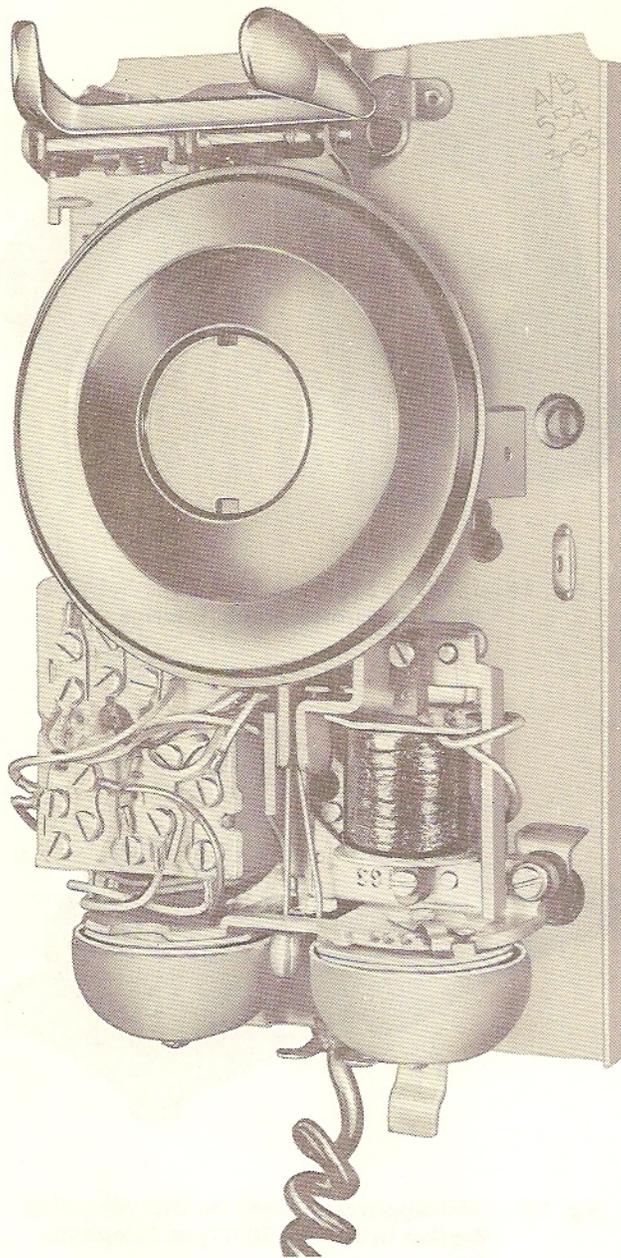


Fig. 20 — 95C Apparatus Blank on Dial Mounting Bracket in 554A/B Telephone Set

4. MAINTENANCE

4.01 Inspect exterior and interior of the sets for obvious defects such as loose, displaced, or broken parts. Check also for obstruction of moving parts or the presence of foreign matter that may interfere with the proper operation of the set.

4.02 Check line and ground terminations before determining trouble causes from Table B.

4.03 Electrical Maintenance

(a) Tube Assembly

- 425A, 4-element tube may be substituted for 426A to care for cases of excessive power induction. See section on inductive noise.
- Tube assembly is held to base of set with single screw (Fig. 21).

(b) **Ringng Capacitor** — an externally mounted 548A capacitor may be used to replace an open or shorted ringing capacitor in the 425-type network. To replace network capacitor:

- (1) Select either of network terminals A or K to which only one lead is connected.
- (2) Remove this lead and connect to one lead of 548A capacitor with a D-161488 connector and insulating sleeve.
- (3) Connect other lead of 548A capacitor to remaining network terminal K or A (Fig. 22).

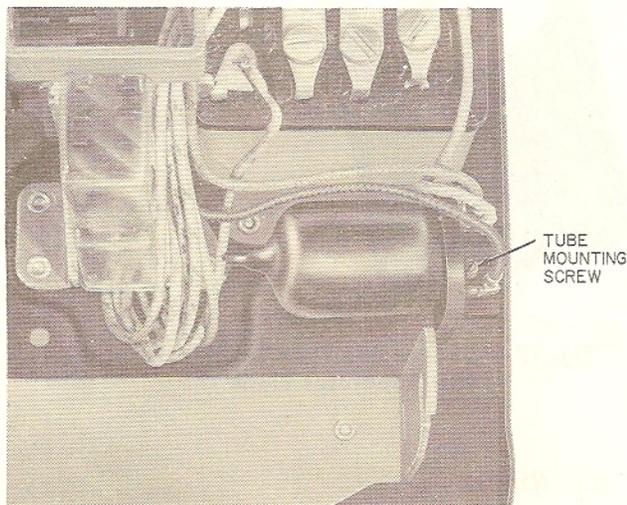


Fig. 21 — 501-Type Telephone Set, Tube Assembly

TABLE B

TROUBLES, PROBABLE CAUSES, AND CORRECTIVE MEASURES

TROUBLE	PROBABLE CAUSE	CORRECTIVE MEASURE
Bell Does Not Ring	Ringer disconnected or incorrectly wired in set.	Connect correctly.
	Volume control wheel in cut-off position.	Move control wheel to ring position.
	Open winding.	Replace ringer.
	Metal particles in armature gap.	Remove with Scotch tape or approved equivalent.
	Open tube.	Short-circuit yellow and black tube leads. If ringer operates when ringing voltage of correct polarity is applied, replace tube.
	Faulty capacitor.	Replace with 548A capacitor.
Bell Too Loud	Volume control wheel in wrong position.	Move control wheel to softer position and advise customer on proper use.
Bell Too Soft	Volume control wheel in wrong position	Move control wheel to louder position and advise customer on proper use.
	Set on sound-absorbent material.	Place set on hard surface.
	Cord touching gong.	Dress cord properly.
Bell Taps While Dialing or Operating Switch	Incorrect wiring.	Check mounting cord and ringer connections.
	Loose gong.	Tighten screw as required.
Bell Rings When Other Party Is Called: Cross Ring or False Ring	Incorrect wiring.	Check mounting cord and ringer connections.
	Biasing tension too low.	Place bias spring in high tension notch. If ringer still cross-rings, replace ringer.
Bell Keeps Ringing When Handset Is Removed	Open handset cord or dial pulse contacts.	Replace handset cord or dial.
	Defective network or open set wiring.	Replace set.
	Line contacts on switch do not close.	Check switch cover and ears. Ears should fit into notches.
No Dial Tone or Set Dead	Open mounting cord or handset cord.	Replace cord.
	Defective receiver unit or varistor shorted.	Replace receiver unit.
	Dial pulse-contacts open or off-normal shunt contacts closed.	Replace dial.

TABLE B (Cont)

TROUBLES, PROBABLE CAUSES, AND CORRECTIVE MEASURES

TROUBLE	PROBABLE CAUSE	CORRECTIVE MEASURE
No Dial Tone or Set Dead	Open induction coil.	Replace telephone set.
	Switch contacts do not operate.	Check switch cover for proper installation.
Cannot Break Dial Tone	Dial pulse contacts do not open.	Replace dial.
	Dial filter capacitor shorted.	Replace telephone set.
Loud Clicks While Dialing	Dial off-normal shunt contacts do not close.	Replace dial.
Cannot Hear	Open or shorted receiver unit or handset cord.	Replace receiver unit or handset cord.
	Dial off-normal shunt contacts closed.	Replace dial.
	Open induction coil or network.	Replace telephone set.
	Switch receiver contacts do not open.	Check switch cover for interference.
Cannot Be Heard	Defective transmitter or open handset cord.	Replace transmitter or handset cord.
High Sidetone	Defective sidetone balancing network.	Replace telephone set.
Dial Lamp Does Not Light	Lamp burned out.	Replace lamp.
	Transformer plug is out of receptacle.	Replace plug.
	Defective transformer.	Replace transformer.
	No power at ac receptacle.	Check with customer for possible blown fuse or for a power-control switch.

4.04 Mechanical Maintenance

(a) *Plungers*

- Should move freely throughout entire travel without binding or squeaking.
- Accessible when handhold cover is removed (Fig. 23).

- Clean with KS-2423 cloth moistened with KS-7860 petroleum spirits and lubricate with a No. 2 or softer graphite pencil.
- Replace housing if plungers do not move freely after cleaning and lubricating.

(b) *Operating Bracket Switch Assembly*

- Should function throughout entire travel without binding or squeaking.

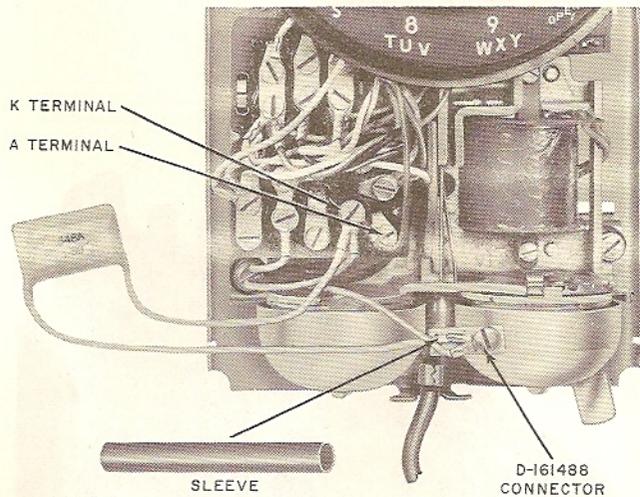


Fig. 22 — Replacing Capacitor

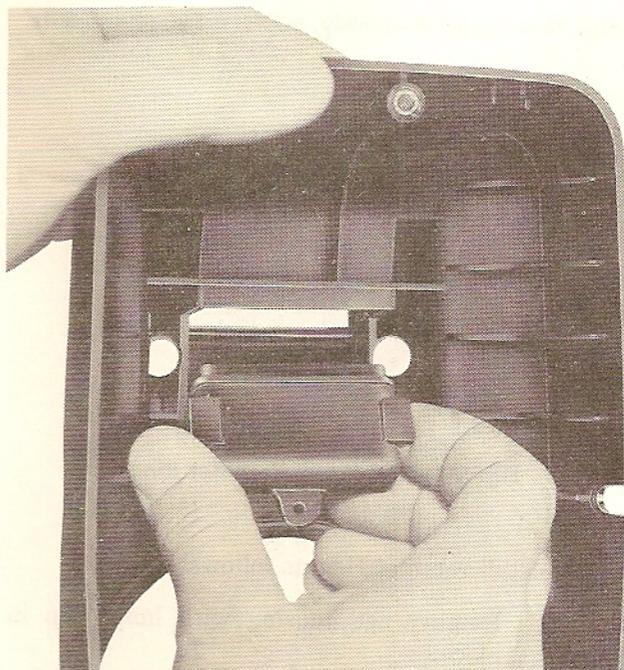


Fig. 23 — Removing Handhold Cover

- Clean bosses on operating bracket arms, spring anchor points, operating bracket, and shaft bearing points with KS-2423 cloth moistened in KS-7860 petroleum spirits and lubricate bearing surfaces with a No. 2 or softer graphite pencil (Fig. 24 and 25).

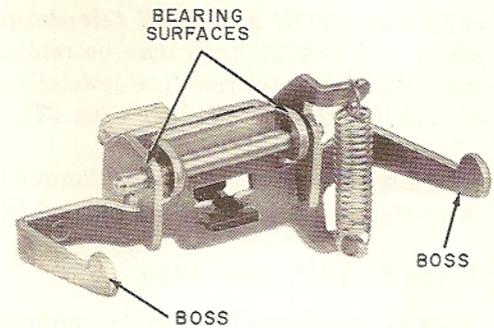


Fig. 24 — Operating Bracket Switch Assembly, 500- and 501-Type Telephone Sets

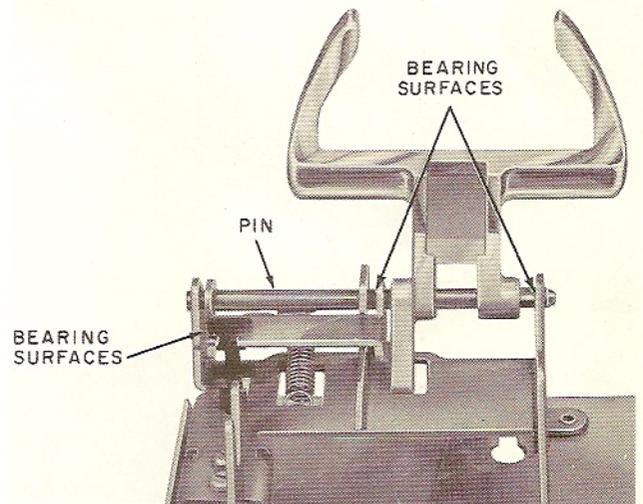


Fig. 25 — Handset Hook Assembly, 554- and 556-Type Telephone Sets

(c) *Switch Contacts*

(1) Line Switch

- Remove line switch cover by depressing slides between thumb and index finger and tilting cover up and away from mounting (Fig. 26).

- Clean contacts with 265C tool.

(2) 584C Key (500U and 501U telephone sets only) — clean contacts of key with 265C tool.

(d) **584C Key (500U and 501U telephone sets only)** — P-484725 knob may be replaced by removing P-356367 setscrew (use jeweler's screwdriver) and lifting knob off shaft (Fig. 27).

(e) **Dial Light** — to remove, turn lamp cap and lamp counterclockwise (Fig. 28) and lift out.

(f) **Lamp Cap Retainer Ring**

- 500W/Y telephone sets can be equipped with a P-14E582 retainer ring (Fig. 29) to prevent pilferage of the lamp cap assembly.

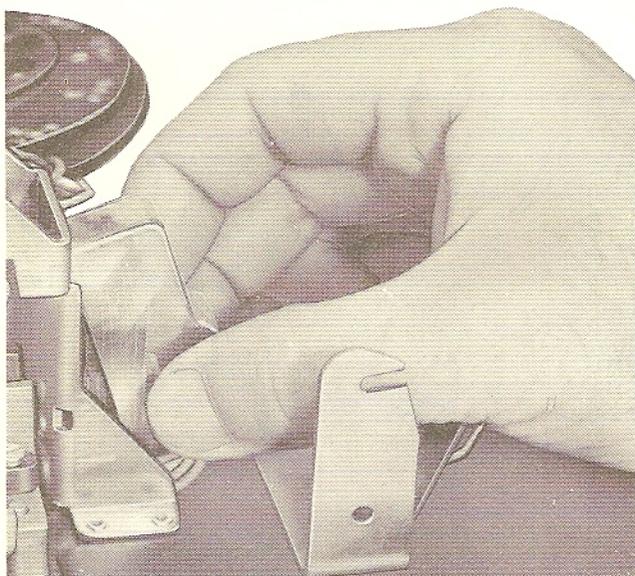


Fig. 26 — Removing Line Switch Cover

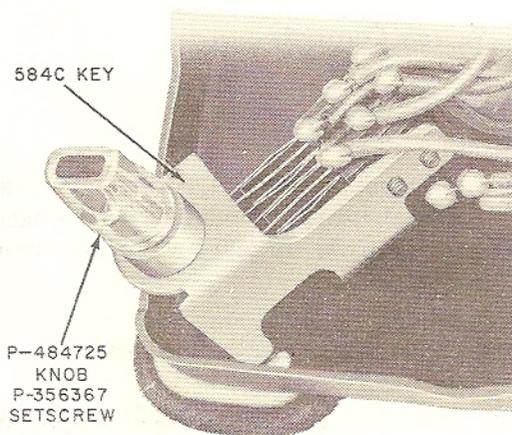


Fig. 27 — 584C Key

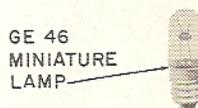
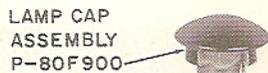


Fig. 28 — Lamp Assembly, 500H/P Telephone Sets

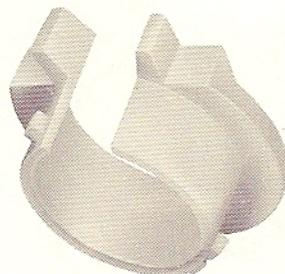


Fig. 29 — P-14E582 Retainer Ring

- Install retainer ring as follows:

- (1) Remove set housing with lamp cap in place.
- (2) Press two tabs of retainer ring together.
- (3) Insert retainer ring into lamp cap so that retainer ring engaging pins fit into lamp cap slots (Fig. 30).
- (4) This prevents normal rotation and removal of the lamp cap.

(g) **Other Components** — for maintenance of handsets, dials, and ringers refer to the sections covering these components.

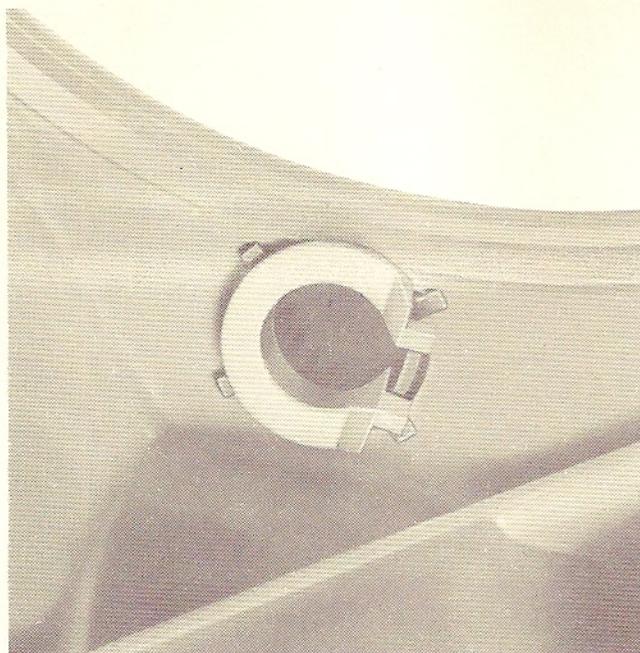


Fig. 30 — Retainer Ring Mounting in Set Housing