

## TELEPHONE SETS — 300 SERIES

### MAINTENANCE

#### 1.00 INTRODUCTION

**1.01** This section covers the requirements and adjusting procedures for the maintenance of telephone sets of types 302, 304, 306, 307, 309, 332, 334, 354, 356, and 357.

**1.02** The 300-type sets for specific uses are covered in other C sections.

#### 2.00 GENERAL

**2.01** Inspect exterior and interior of telephone set for loose, displaced, or broken parts and determine if any such defects are responsible for the trouble condition, prior to proceeding with routine maintenance.

- Check baseplate mounting screw to make certain there is a lock washer under the

head of each. If absent, install Shakeproof No. 3099-08-01 (C) lock washer or replace baseplate mounting screw with special head RHM screw, P-467742.

- Replace defective parts when parts are available; otherwise, replace set. The 426A electron tubes can be used to replace the 313A, 333A, 372A, and 405 electron tubes.
- When a 101A gong attachment is to be used on a set equipped with a ringer volume control, the gongs shall be interchanged and the gong attachment placed on the stationary gong.

**2.02** Table A lists some of the troubles that may occur, their probable causes, and corrective measures.

**TABLE A**

Trouble	Probable Causes	Corrective Measures
Bell does not ring.	Ringer disconnected or wired wrong in set	Connect correctly.
	Open winding	Replace ringer.
	Metal particles in armature gap	Remove particles with Scotch tape or approved equivalent.
	No ground (party lines)	Check ground circuit.
	Open tube	Short-circuit yellow and black tube leads and, if ringer operates when ringing voltage of correct polarity is applied, replace tube.
Bell is too loud.	Stroke limiting arm not properly adjusted	Reduce armature travel.
Bell is not loud enough.	Set on sound absorbent material or stroke limiting arm not properly adjusted	Place set on hard surface or adjust stroke limiting arm.

TABLE A (Cont)

Trouble	Probable Causes	Corrective Measures
Bell taps during dialing, operating switch, or when bridged party is called.	Incorrect wiring Bias spring tension too low	Check mounting cord and ringer connections.
		Move spring to higher tension notch. If ringer still cross-rings, replace ringer. Do not adjust bias spring.
Bell keeps ringing when handset is removed.	Open in handset cord or at dial pulse contacts	Replace cord or dial.
	Open induction coil or set wiring	Replace coil.
	Line contacts on switch do not close	Clean contacts and check alignment.
Bell rings, no one on line.	Open handset cord or receiver unit	Replace handset cord or receiver unit.
	Dial "off normal shunt" contacts closed	Replace dial.
	Open induction coil or transmission capacitor	Replace parts.
	Switch receiver contacts do not open	Check contacts.
No dial tone, set seems dead.	Open mounting or handset cords	Replace cord.
	Defective receiver unit	Replace unit.
	Dial pulse contacts open or "off normal shunt" contacts closed	Replace dial.
	Open induction coil	Replace coil.
	Switch contacts do not operate	Clean and adjust contacts.
Dial tone cannot be broken.	Dial pulse contacts do not open	Replace dial.
	Line reversed (tip party in No. 1 XBR office)	Reverse line.
Loud clicks occur during dialing.	Dial "off normal shunt" contacts do not close	Replace dial.
Calling party cannot hear.	Open or shorted receiver unit or handset cord	Replace defective parts.
	Dial "off normal shunt" contacts closed	Replace dial.
	Open in induction coil	Replace induction coil.
Called party cannot hear.	Switch receiver contacts do not open	Clean and adjust contacts.
	Defective transmitter or handset cord open	Replace transmitter or handset cord.

### 3.00 TYPES 302, 304, 306, 307, 309, 354, 356, AND 357

#### 3.01 CONTACTS

- Clean contacts using a 265C tool with a clean blade.
- The contacting surface of each contact shall fall wholly within the mating surface of the opposing contact; if not, replace set.

#### 3.02 PLUNGERS

- If plungers bind or squeak, open set and check for sticky plungers or lever pin or lack of end play in the set (see Fig. 1).
- Lubricate bearing surfaces with a No. 2 or softer graphite pencil.

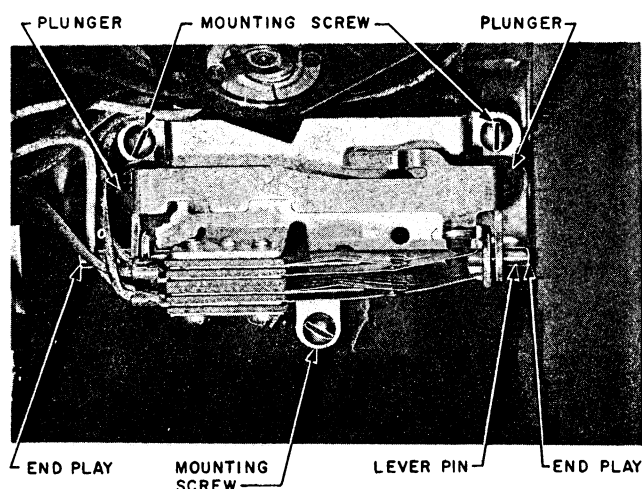


Fig. 1 — Plunger Assembly

#### 3.03 SWITCHHOOK

- When handset is placed on or removed from hook, hook should move freely without binding or squeaking.
- Binding may be caused by either a bent pin or bent switchhook. If this trouble occurs, replace defective part.
- Squeaks may be caused by a dirty pin. Remove pin; clean pin and bearing holes using a KS-2423 cloth moistened with KS-8760 petroleum spirits.
- When reassembling, care should be taken to be sure the undercut in the pin is assembled so that the screw for the helical spring engages with the undercut (see Fig. 2).

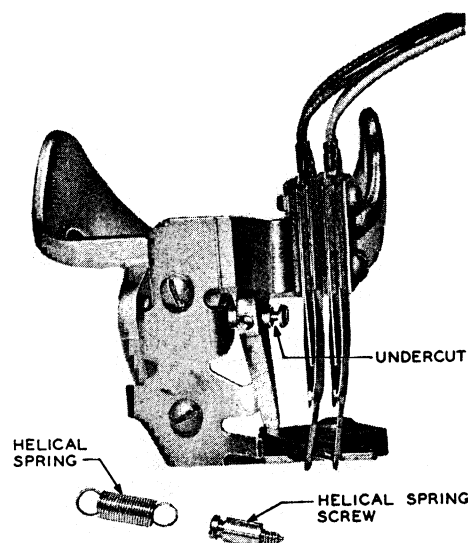


Fig. 2 — Switchhook Assembly

#### 3.04 BASEPLATE FEET

- Feet which are badly cut, excessively worn, or embedded with foreign matter shall be replaced with P-11E213 molded neoprene feet or covered with KS-8035 triangular friction pads.
- If a foot is replaced, both feet on that end of the set shall be equipped with neoprene feet. Secure neoprene foot to telephone baseplate with a P-297756 screw and a P-11E212 nut.
- Felt covered feet shall be equipped with triangular friction pads. If one foot is equipped with a friction pad, both feet on that end shall be so equipped.
- Friction pads shall not be attached to neoprene feet.

#### 3.05 ASSEMBLY

- Unused mounting cord conductors shall be individually taped and stored.
- Check all wiring and cords to ensure that there is no interference with any moving parts.
- Be sure the base is flush with the housing before tightening base screws.

#### 4.00 332 AND 334 TYPES

- Both sets are equipped with a 111B amplifier and a 129F capacitor (see Fig. 3).

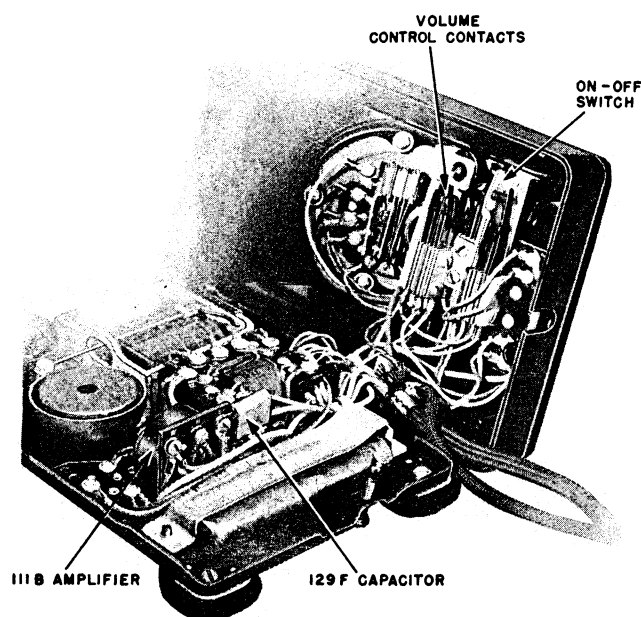


Fig. 3 — 111B Amplifier and 129F Capacitor

- The right-hand plunger also serves as an on-off and volume control switch (see Fig. 4).
- Sets can be wired so the amplifier can be cut either in or out by lifting the right-hand plunger to its fullest extent.
- When testing effect of volume control with test desk, there should be an increase in volume between Off, L, M, and H. If not, inspect volume control contacts, batteries, and amplifier.

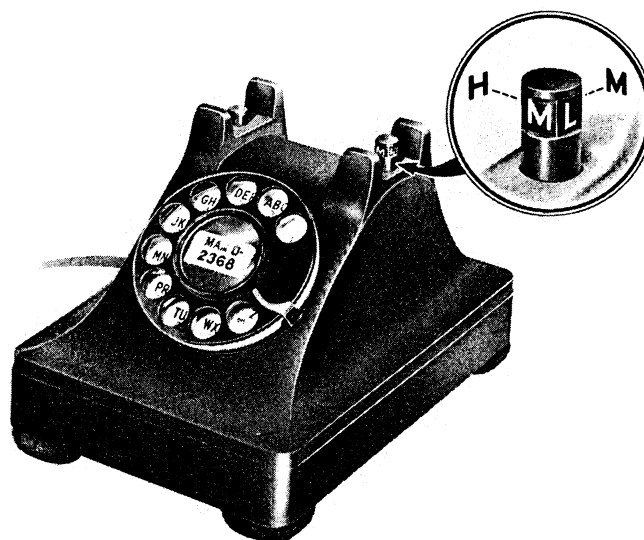


Fig. 4 — Right-hand Plunger

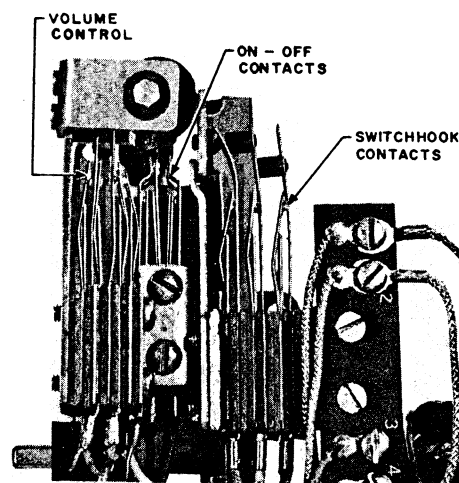


Fig. 5 — Contact Assembly

TABLE B

Trouble	Probable Causes	Corrective Measures
Receiver does not amplify on low volume.	Dead or low batteries	Replace batteries.
	Defective amplifier	Replace 111B amplifier and 129F capacitor.
Set howls when transmitter is tapped.	Handset amplifier defective	Change handset.
		Change 111B amplifier.
		If howling recurs, change complete set.
Receiver does not amplify from low to medium or medium to high.	Contact trouble	See 4.01.
Mechanical or electrical trouble between the control key mounted in upper housing and component parts in the base due to closing.	Insufficient clearance between upper housing and base of set	Place two P-14A100 captive washers on each base screw (see Fig. 7).

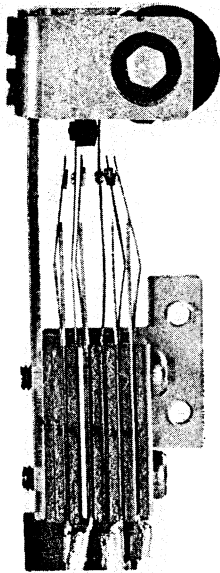


Fig. 6A — Control on Low

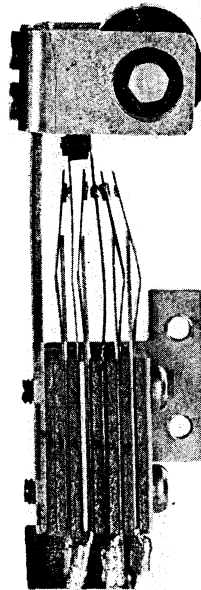


Fig. 6B — Control on Medium

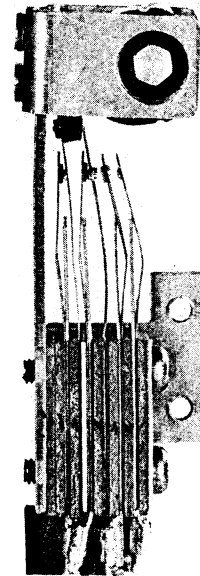


Fig. 6C — Control on High

#### 4.01 VOLUME CONTROL CONTACTS

- If contacts test open, clean using a 265C tool with a clean blade. If trouble still exists, carefully make adjustments with a 363 tool. If adjustment cannot be made satisfactorily, replace set (see Fig. 5).

- Fig. 6A, 6B, and 6C show positions of contacts.

- 4.02 Table B lists some of the troubles that may occur, their probable causes, and corrective measures.

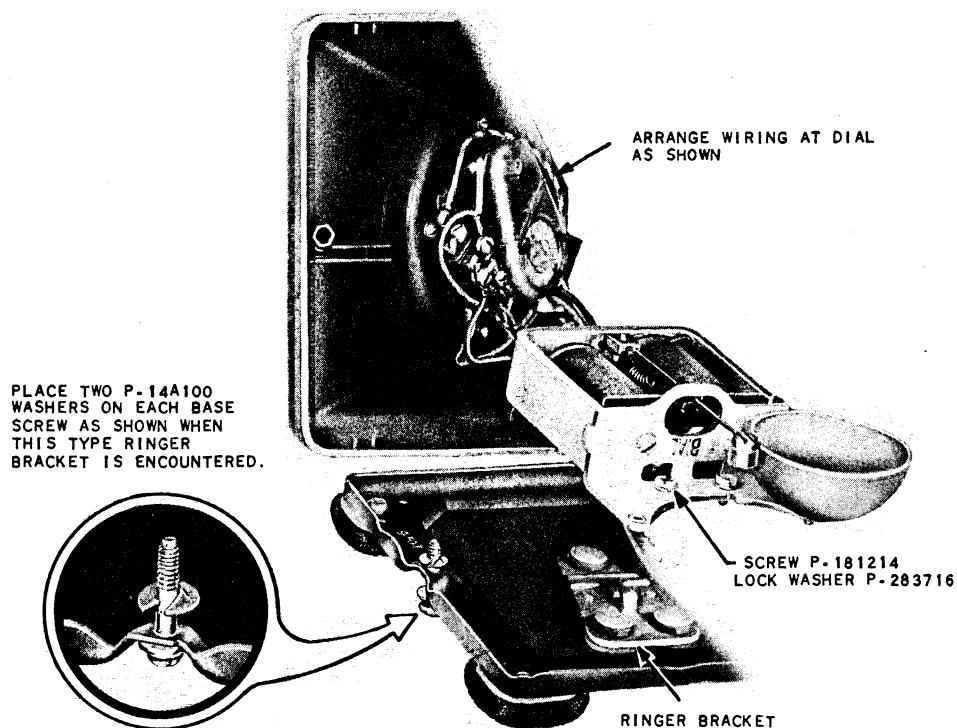


Fig. 7 — Prevention of Interference Between 6-type Dial Wiring and Ringer

## **SECTION C38.549**

### **4.03 BATTERIES**

- Test by connecting leads from meter across terminals BK and 4 or BK and 1 if the right-hand plunger has to be pulled up to connect amplifier in circuit.
- Voltage should exceed 4 volts after meter is connected for approximately 1 minute.
- After checking contacts and batteries, if set still fails to function, replace amplifier and capacitor.
- If set still fails to function, replace set.