TELEPHONE SETS — 440, 460 TYPES

MAINTENANCE

1.00 GENERAL

1.01 Maintenance of handsets, dials, ringers, etc, is covered in sections dealing with these components.

1.02 To avoid unnecessary interruption of service to other stations while working at a station, disconnect ring (R) and control (A) conductors of line or lines serving station from system's circuit at any convenient place.

1.03 To avoid damaging or causing binding of parts, use care when housings are removed or replaced.

1.04 When replacing housing of sets arranged for cutoff, care should be taken that projection on shaft of turn-button key unit engages slot in turn button.

1.05 Make a visual inspection of exterior and interior of sets for obvious defects such as loose, displaced, or broken parts; loose connections; displaced wiring; obstruction of moving parts; or presence of foreign matter that may interfere with proper operation of set.

1.06 Sets and keys shall meet requirements in Table A.

2.00 EXCLUSION SWITCH AND PLUNGER UNIT

No field maintenance shall be performed other than cleaning of contacts with a 265C tool. Replace set if there is a failure of any of the following requirements.

- Exclusion plunger shall remain in operated position when pulled up to full extent of its stroke.
- It shall return to fully depressed position when handset is placed on cradle.
- Exclusion plunger shall drop of its own weight from midposition to fully depressed position when right plunger is fully depressed.
- With housing removed, normally closed contacts shall make with a perceptible follow when exclusion switch is operated by manual means.
- With housing removed, open contacts shall have a minimum separation of 0.015 inch. Gauge by eye. (Three thicknesses of good bond paper are approximately 0.015 inch.)

TABLE A

REQUIREMENTS FOR 440- AND 460-TYPE KEY TELEPHONE SETS

Requirement	Key Involved				Exclusion Switch	Corrective Procedure
	Push Button			Turn Cutoff		
	HLD	PU	Signal			
All key buttons shall operate freely.	•	•	•	•		Clean button and recess. In sets without sleeves, sand diameter of base of button to fit freely in recess, or replace with translucent button P-472437; in sets with slotted recesses, replace with button P-482841 and sleeve P-482842.
Pickup keys shall lock reliably before plunger is fully operated and shall snap up (release) when any other pickup key plunger is fully operated or when hold key is operated and released slowly.		•				Clean shaft and bearing surface of plunger and latch plate, or replace set.
Turn-button keys shall lock reliably in each operated position, and side thrust in any direction shall not cause its contacts to make or break.				•		Clean shaft and bearing surface of plunger and associated springs. Adjust springs if necessary. Use K-14774, L2 lubricant.
Contact Sequence: Normally closed contacts of spring combination shall break before normally open contacts make.	*	•		•	•	Adjust as required (see 5.02, 5.03). *When hold key is released, latch plate shall release before normally closed contacts of hold key make.
Contact Follow: All contacts including those normally made, shall make with a perceptible (0.010″) follow.	•	•	•	•	•	Adjust contact springs (see 5.02, 5.03).
Contact Separation: Minimum clearance between open contacts in nonoperate or operated position shall be as shown.	0.010″	0.010″	0.010″	0.010″	1/64″	Adjust as required (see 5.02, 5.03). Excessive separation will result in failure of sequence under (*) above.
Contact Cleaning: Contacts which test open, noisy, or show evidence of dirt shall be cleaned.	•	•	•	•	•	Clean as per 5.04.

3.00 PUSH BUTTONS

3.01 If push buttons bind:

- See if dirt or other foreign matter has accumulated on bearing surface of push buttons or collars.
- Clean only with a water-dampened cloth. *DO NOT USE LUBRICANTS OR SOLVENTS.*
- If cleaning does not correct condition, replace set.

3.02 Access to push buttons and collars may be obtained by opening set and removing button-retaining strip (Fig. 1).

3.03 Button-retaining strip is fastened to set housing by means of snaps. It may be removed by lifting each end with point of a screw driver or other similar tool inserted under end of strip.

3.04 If button-retainer snaps do not hold retainer in place, spread three prongs on retainer snap.

4.00 LAMPS

4.01 To ensure maximum illumination from 51A lamps:

- Replace cracked push buttons or collars.
- Remove any accumulated dirt or film from push buttons, collars, lamp bulbs and contacting surfaces with slightly water-moistened cloth. *DO NOT USE SOLVENTS OF ANY KIND.*
- Position each lamp near its associated button. Spring tension should be adequate to hold lamp in desired position (Fig. 1).

4.02 Lamps should be removed from lamp sockets with a KS-6320 tool (orange stick). Insert orange stick under glass bulb of lamp and pry gently to dislodge lamp.

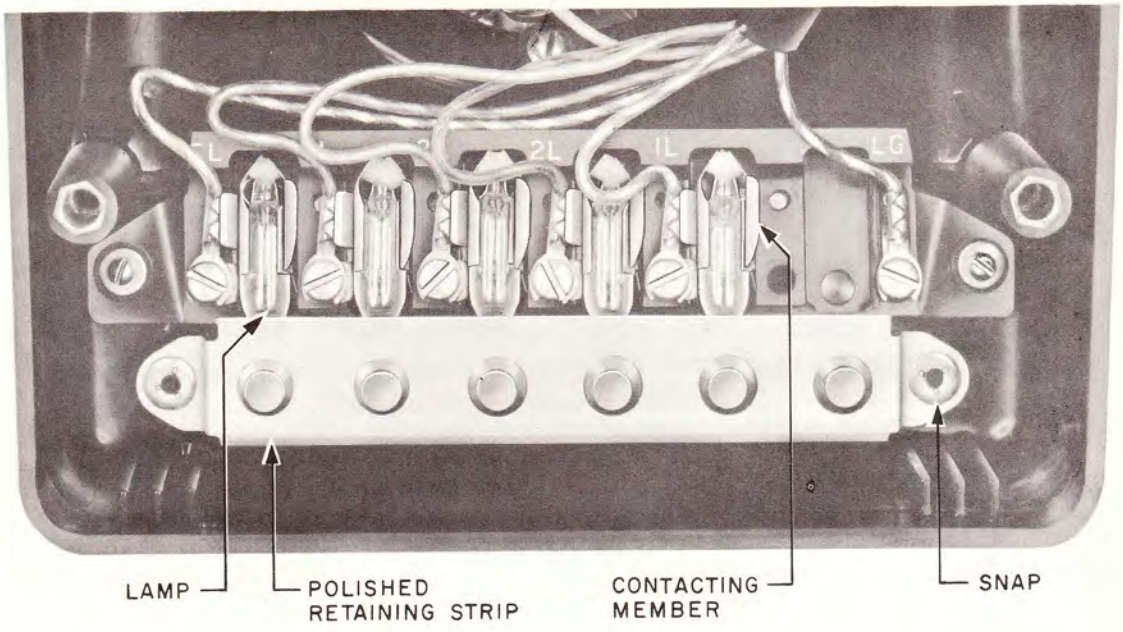

Fig. 1 — Button and Lamp Assembly

5.00 561- AND 562-TYPE KEYS

5.01 In order to make key contacts (Fig. 2) accessible, open set and remove two hexagonal head screws holding key frame to base. Turn key over, taking care not to put excessive strain on connections. (Hexagonal head screws are found on underside of set base, near pads of front feet.)

Contacts

5.02 Open spring contacts shall have a minimum separation of 0.010 inch. Gauge by eye. Spring contacts shall have a perceptible follow. If these requirements cannot be met, make adjustment or replace key unit. Minimum separation between adjacent springs shall be 1/64 inch. Gauge by eye.

5.03 Use a 466A tool (for heavier gauge springs) and a 363 tool (for lighter gauge springs) to adjust spring and contact separation of 561- and 562-type keys. Place tool at a point adjacent to contact spring pile-up. Use light pressure on tool when making adjustments. Sharp bends or kinks should not be placed in springs.

After making any adjustment of springs or contacts, test key for proper operation.

5.04 To clean dirty contacts:

1. Place clean burnisher blade (266E tool) of contact burnisher (265C tool) between contacts to be cleaned.
2. Push contacts closed on burnisher blade with an orange stick (KS-6320 tool).
3. Move burnisher blade back and forth between contacts several times.
4. Wipe burnisher blade clean on a clean dry cloth. Do not wipe on fingers.
5. Replace key unit in telephone set and test operation.

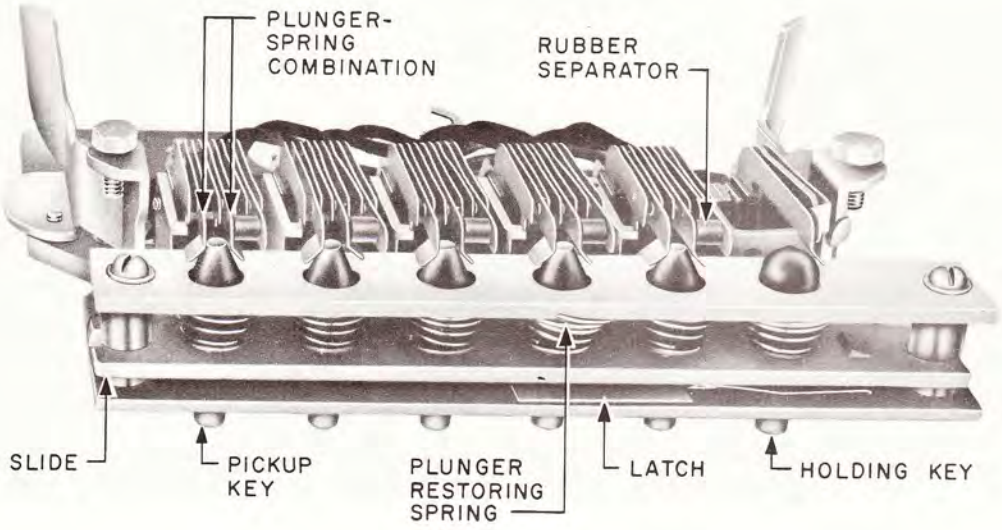

Fig. 2 — 562-type Key

Plungers

5.05 If a number of plungers are in the locked position, hold down all but one of the operated buttons to remove pressure on latch plate. Operate first or second pickup key, or operate hold button.

5.06 Pressure applied to any key button blocked by an eyelet (P-339942 assembled with flange up) shall not operate key plunger or release any operated key button.

5.07 Replace set if following requirements cannot be met:

- When a locking plunger is operated and locks, it shall release any previously locked plunger.
- When any push-button plunger is released, unrestrained, from its fully operated position, it shall return to the normal position with a snap.
- A turn-button operated plunger, when fully rotated 90 degrees clockwise, shall maintain its operated position; when rotated counterclockwise from the operated position, it shall be self-restoring the last 30 degrees of rotation to its nonoperative position.
- A locked plunger shall not release during down stroke of hold plunger.
- A locked plunger shall be released on upstroke of hold plunger from its operated position.
- On sets equipped with a latch, Fig. 2, neither plunger associated with latch shall lock when both are operated together.