

BELL SYSTEM PRACTICES
Station Installation and Maintenance

SECTION C32.601
Issue 1, June, 1953
AT&T Co Standard

MULTI-BUTTON KEY TELEPHONE SETS

MAINTENANCE

1. GENERAL

1.01 This section covers the requirements and adjusting procedures for the maintenance of the multi-button key telephone sets.

1.02 The maintenance of handsets, dials, ringers, etc. which are common to other station telephone sets is covered in the sections dealing with these various apparatus items.

1.03 440 and 460-type telephone sets having a second suffix letter of E or G in the code, are supplied arranged for use with the 1A key telephone system and may be arranged for use with the 1A1 key telephone system by changing the internal wiring. SD-69206-01 should be referred to for the proper connection arrangement of the various codes of sets applicable to either system.

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

2. REQUIREMENTS

2.01 In maintaining key telephone sets, the requirements and procedures given in the section of the C30 Division entitled "Telephone Set Mountings—H Type—Maintenance" shall be followed in addition to those specified herein.

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

2.03 On sets equipped with a latch (Fig. 1 View AA) neither button associated with the latch should lock when both are operated together.

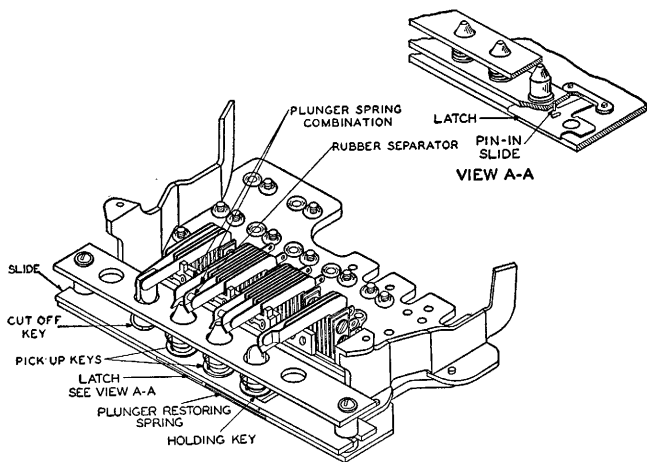


Fig. 1—561G Key

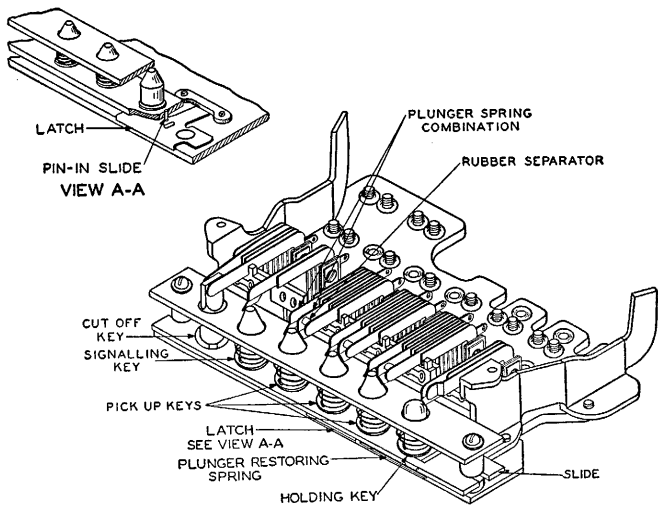


Fig. 2—562L Key

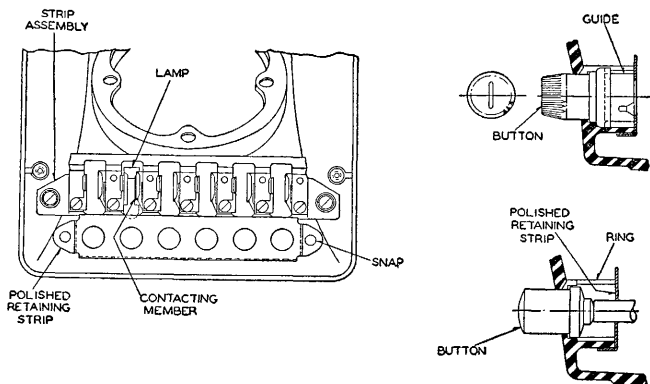


Fig. 3—Typical Views Showing Button and Lamp Assembly

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

Note: When replacing the base on the housing, on sets arranged for cut-off, care should be taken that the projection on the shaft of the turn button key unit engages the slot in the turn button.

2.05 The sets and keys shall meet the requirements as outlined in Table 1.

Note: In order to make key contacts accessible, open the set and remove the two hexagonal head screws holding the key frame to the base with a No. 129B tool. Turn the key over, taking care not to put excessive strain on the connections. Adjust contacts of the units in trouble, if necessary, using a No. 363 tool (on heavy spring of holding key use a No. 466A tool) and recheck requirements applying to the spring pileup readjustment.

Exclusion Key Plunger

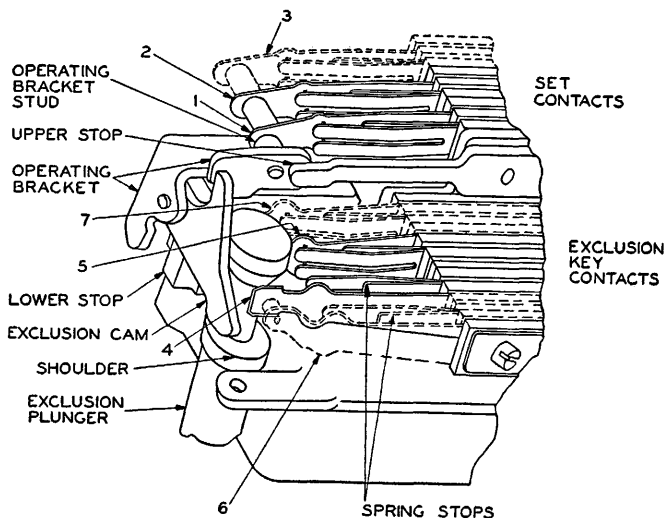


Fig. 4—Exclusion Switch Assembly

2.06 The exclusion plunger shall remain in the operated position when pulled up to the full extent of its stroke. When the handset is placed on the cradle, the plunger shall return to the fully depressed position. Where the switch fails to hold in the operated position, check for insufficient tension on the operating springs, or check that the springs have not shifted to the extent that they bear on the large cylindrical portion of the plunger when it is operated. Too much tension on the operating spring or shifting of the spring may cause the plunger to not release under the weight of the handset.

2.07 When the left-hand plunger is fully depressed the exclusion plunger shall drop of its own weight from the unlocked position to its lower stop position. When the exclusion plunger is in its extreme downward position, the shoulder of the plunger and operating springs 4 and 5 (Fig. 4) shall not touch.

2.08 To adjust tension apply the 466A tool to each operating spring and, holding the tool in the direction to increase or decrease the tension as required, move the tool up and down the spring to increase or reduce the bow slightly.

2.09 To adjust the position of the spring, loosen the spring pileup mounting screws and shift the entire pileup toward the mounting bracket until the pileup is horizontal. Check that the mating contact areas fall wholly within each other. Tighten pileup screws securely.

Lamps

2.10 To insure maximum illumination of buttons on illuminated key button sets, any accumulations of dirt or film on ends of lamps, buttons, rings and polished retaining strip should be removed by wiping with a damp cloth. Check that the illumination from all lamps is approximately equal and adequate for the set location. If a lamp is burned out, replace the lamp.

2.11 The lamps may be lifted out from between the spring contact members of the lamp mounting. Replacing lamps should fit into cavities in the lamp mounting strip. The contacting members on the opposite side of each cavity are lipped at the end to guide the lamp into place. Insert the lamp between these contact members by pressing the lamp into place with fingers. After insertion the lamp should be slipped as near as possible toward its associated buttons to obtain maximum button illumination.

Button Retaining Strip

2.12 The button retaining strip fastened to the housing by means of snaps may be removed by lifting it out at each end with the point of a screw-driver, or other similar tool, inserted under the end of the strip. Care shall be exercised in replacing the strip to insure that the bent up edge along one side of the strip is located toward the front of housing. Should the button retainer snap assembly not hold the retainer securely in place replace the snaps with 6-32 x 3/16" long brass binding head machine screws P-181355. In this case the retaining strip may be removed by removing the two screws. If the mounting holes in the housing for the button retainer have been enlarged to such an extent that 6-32 screws will not engage securely, replace the set.

TABLE 1
Requirements on Key Telephone Sets Not Included in H-Type Mountings

REQUIREMENT	KEY INVOLVED				Excl. Sw. Plunger	PROCEDURE
	Push Buttons			Turn Cut-Off		
	H	PU	Signal			
All key buttons shall operate freely.		X	X	X		Clean button and recess. In sets without sleeves, sand diameter of base of button to fit free 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.		X				Clean plunger shaft and bearing surface of plunger and latch plate or replace set.

TABLE 1 (Continued)

Requirements on Key Telephone Sets Not Included in H-Type Mountings

REQUIREMENT	KEY INVOLVED			Excl. Sw. Plunger	PROCEDURE
	Push Buttons		Turn Cut-Off		
	H	PU	Signal		
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.				X	Clean shaft and bearing surfaces of plunger and associated springs. Adjust springs if necessary.
Contact Sequence — Both normally closed contacts of spring combination shall break before either of the normally open contacts make.	(a)	X		X	Adjust as required. (a) When hold key is released, latch plate shall release before normally closed contacts of hold key make.

TABLE 1 (Continued)

Requirements on Key Telephone Sets Not Included in H-Type Mountings

REQUIREMENT	KEY INVOLVED				Excl. Sw. Plunger	PROCEDURE
	Push Buttons			Turn Cut-Off		
	H	PU	Signal			
Contact Follow — All contact springs, including those normally made, shall make with a perceptible (.010") follow.	X	X	X	X	X	Adjust contact springs.
Contact Separation — Minimum clearance between contacts in normal and operated position shall be as shown.	.010"	.010"	.010"	.010"	1/64"	Adjust as required (b) Excessive separation will result in failure of sequence under (a) above.
Contact Cleaning — Contacts which test open, noisy, or show evidence of dirt shall be cleaned.	X	X	X	X	X	Burnish with 265c tool. Keep blade of tool clean by wiping with dry clean cloth.

NOTE: X indicates that requirement applies.

BELL SYSTEM PRACTICES
Station Installation and Maintenance

ADDENDUM C32.601
Issue 1, August, 1954
AT&T Co Standard

TELEPHONE SETS
440 AND 460 TYPES
MAINTENANCE

1. GENERAL

1.01 This addendum supplements Section C32.601, Issue 1. It is issued to change the title from Multi-Button Key Telephone Sets, Maintenance, to Telephone Sets, 440 and 460 Types, Maintenance. Maintenance of 540- and 560-type telephone sets is covered in Section C32.561.