

**ALARM SWITCHES AND SECURITY DEVICES
FOR COIN COLLECTORS/TELEPHONES
IDENTIFICATION AND INSTALLATION**

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1. GENERAL

1.01 Alarm switches are devices which are mechanically connected to a lock, door, or

upper housing and electrically connected to a local alarm panel or central office.

1.02 The purpose of an alarm switch is to alert proper authorities when a coin collector/telephone is being tampered with by unauthorized personnel.

1.03 Security devices are those items which are added to the standard equipment to prevent or discourage thievery and vandalism.

2. ALARM SWITCHES

2.01 There are four current models of alarm switches available; P-372083, 227A, 257A, and 1A switch kit.

P-372083 ALARM SWITCH ASSEMBLY

2.02 The P-372083 alarm switch assembly (Fig. 1) consists of a single-pole double-throw contact spring pile-up mounted on a bracket and wired to three terminals on a terminal block.

2.03 The P-372083 alarm switch assembly is designed for use on all 190 and 200 series coin collectors/telephones and is mounted in the cash compartment above the door. The stop spring of the switch assembly rests on the bolt of the cash compartment lock. When the bolt is released, the switch contacts make and energize the alarm.

2.04 Connections are made to the terminal block as determined by the local operating company. After the connections are made, slide the insulation sleeving, shown in Fig. 1, over the terminal block to prevent shorting.

227A ALARM SWITCH ASSEMBLY

2.05 The 227A alarm switch assembly (Fig. 2) consists of a single-pole double-throw contact spring pile-up mounted on a bracket and wired to three terminals on a terminal block.

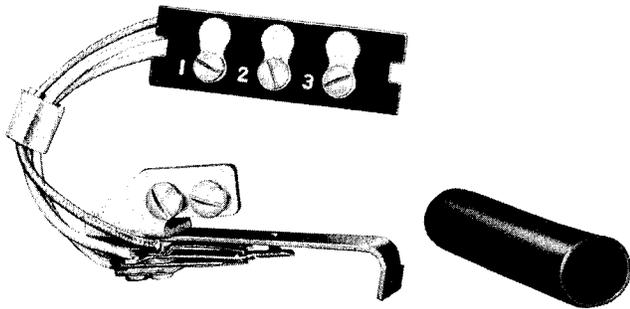


Fig. 1—P-372083 Alarm Switch Assembly

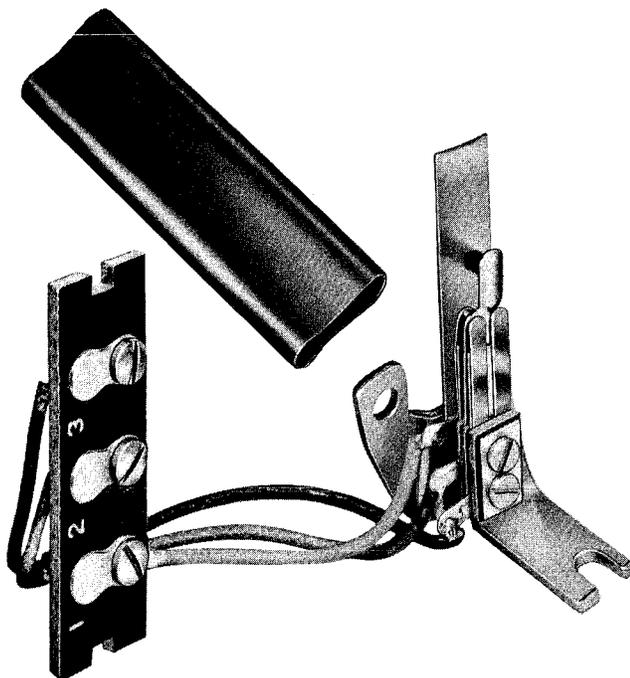


Fig. 2—227A Alarm Switch Assembly

- 2.06 The 227A alarm switch assembly is arranged for use on all coin collectors having upper housings with terminal plate type transfer contacts.
- 2.07 It is intended for use to indicate removal of the upper housing.
- 2.08 Install the 227A alarm switch assembly as shown in Fig. 3.
- 2.09 Connections are made to the terminal block as determined by the local operating company. After the connections are made, slide the insulation

sleeving, shown in Fig. 2, over the terminal block to prevent shorting.

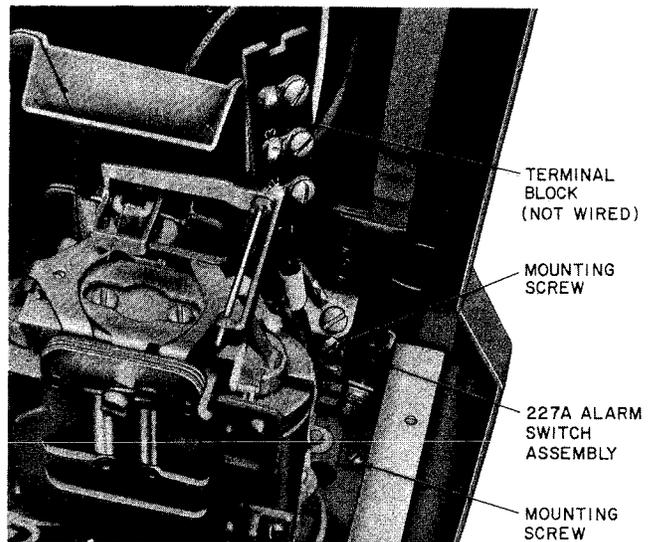


Fig. 3—227A Alarm Switch Assembly Installed

257A ALARM SWITCH ASSEMBLY

2.10 The 257A alarm switch assembly (Fig. 4) consists of a single-pole double-throw sensitive subminiature switch, mounted on a bracket and wired to three terminals on a terminal block.

2.11 The 257A alarm switch assembly is arranged for use on all coin collectors/telephones equipped with a 30-type cash compartment lock and is mounted by using two of the existing lock mounting screws. Fig. 5 shows the switch mounted on a lock.

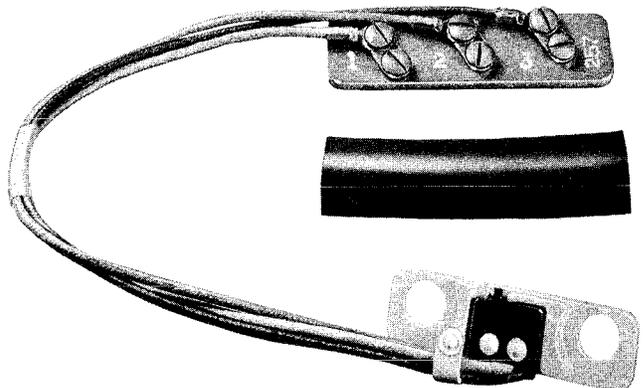


Fig. 4—257A Alarm Switch Assembly

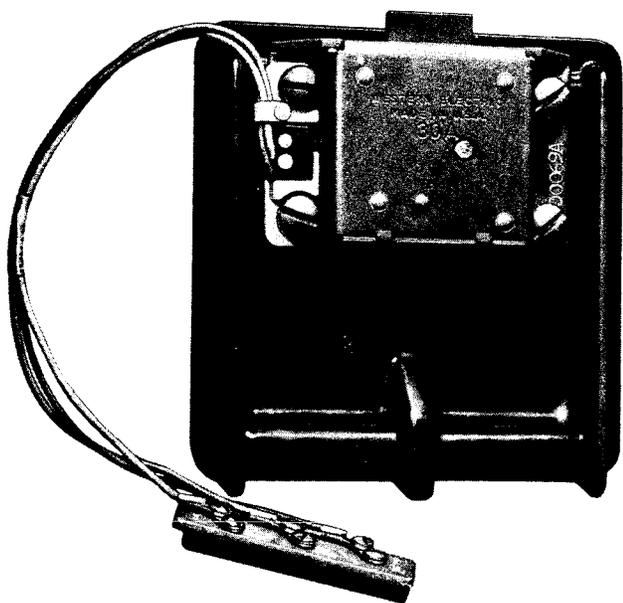


Fig. 5—257A Alarm Switch Assembly Mounted on 30-Type Lock

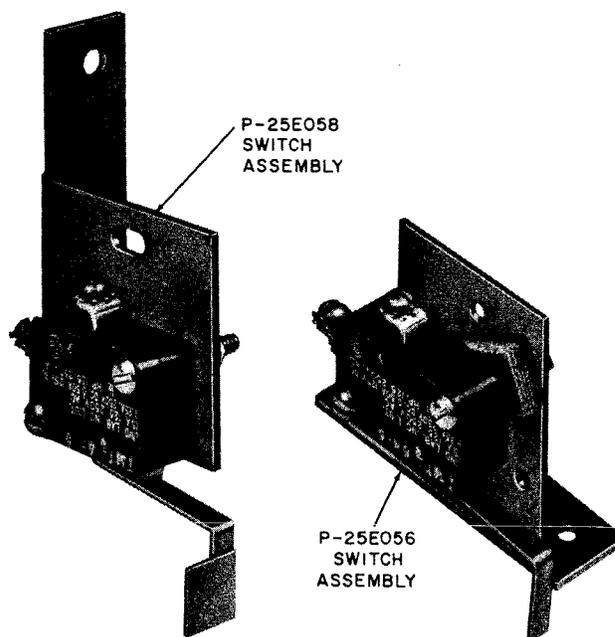


Fig. 6—1A Switch Kit

2.12 A plunger is provided on the 30-type lock which protrudes when the key is turned to trigger the switch.

2.13 Connections are made to the terminal block as determined by the local operating company. After the connections are made, slide the insulation sleeving, shown in Fig. 4, over the terminal strip to prevent shorting.

1A SWITCH KIT

2.14 The 1A switch kit (Fig. 6) consists of two microswitches, assembled with associated brackets, actuators, and screws.

2.15 It is designed for use in the 1A1 and 1A2 coin telephone sets.

2.16 The P-25E056 switch assembly mounts above the cash compartment with its actuator detecting the retraction of the cash compartment door locking bolt.

2.17 The P-25E058 switch assembly mounts in the upper left portion of the backplate to detect removal of the cover unit assembly.

2.18 Install the switch kit in accordance with Fig. 7 using four No. 6-32 by 1/4 RHM screws.

2.19 Connections are made to the switches as determined by the local operating company.

3. SECURITY DEVICES

3.01 Security devices include locks, studs, special tools, special backplate, covers, ring seals, armored cords, and a switch hook kit.

A. Locks



Locks and keys will be shipped only on orders that specify the responsible persons to whom they are to be directed.

Upper Housing and Cover Assembly Locks

3.02 There are three current models of locks available for upper housings and cover assemblies; 10-type, 27-type, and 29-type (Fig. 8). Each of these locks is a lever tumbler type using a corrugated key.

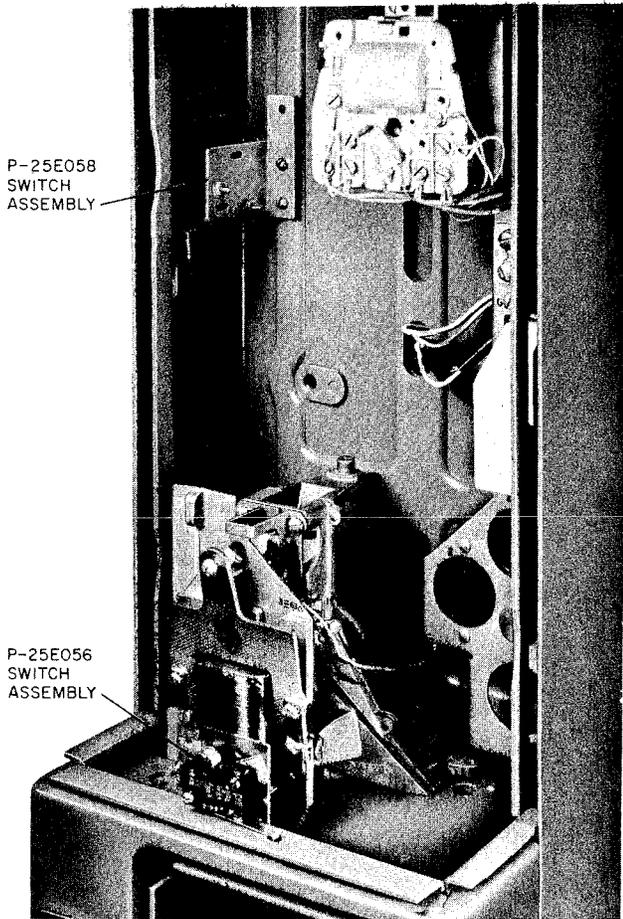


Fig. 7—1A Switch Kit Installed on 1A1 Coin Telephone Set

3.03 The 10-type and 27-type locks are intended for use in upper housing assemblies of 190 and 200 series coin collectors/telephones.

3.04 The 27-type is similar to the 10-type except it is equipped with a key trapping feature (called a key snatcher). When a key is turned in this lock, the key snatcher grabs it and a P-248585 release tool is required to remove the key (Fig. 9). The release tool is ordered in the same manner as a key.



Use of release tool requires removal of cash compartment door, coin receptacle, and left front mounting screw of coin receptacle rail.

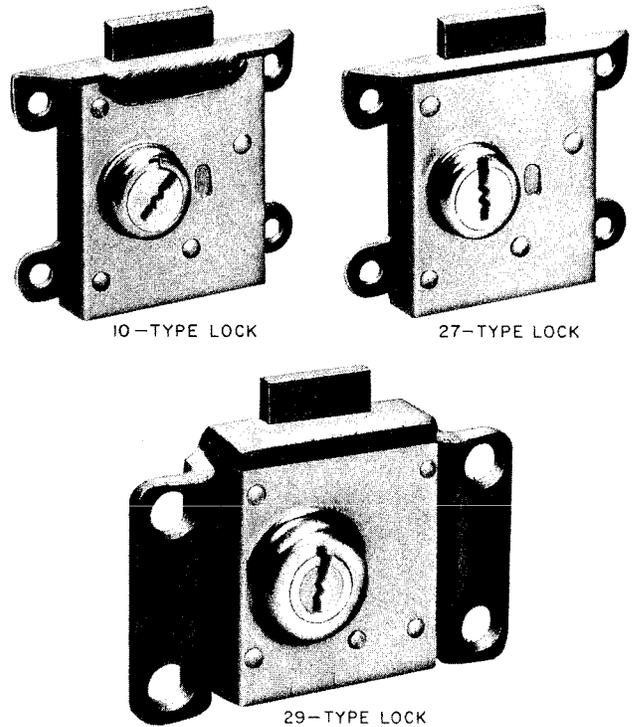


Fig. 8—Upper Housing And Cover Assembly Locks

3.05 The 29-type lock is intended for use in the cover assemblies of 1A-, 2A-, 235-, and 1235-type coin telephones.

Cash Compartment Locks

3.06 There are two current models of locks available for cash compartments; 14-type and 30-type (Fig. 10). Each of these locks is a lever tumbler type using a corrugated key.

3.07 The 14- and 30-type locks are intended for use with 1A-type coin collector door and 4A- and 5A-type cash compartment doors plus cash compartment of 1A-type coin telephones.

3.08 The 30-type lock is arranged for but not equipped with a 257A alarm switch assembly (Fig. 5).

3.09 When a 14-type lock is used on a 1A-type coin collector door, a P-20F653 plug washer (Fig. 11 and 12) must be used to fill a portion of the lock hole to discourage the use of a door puller.

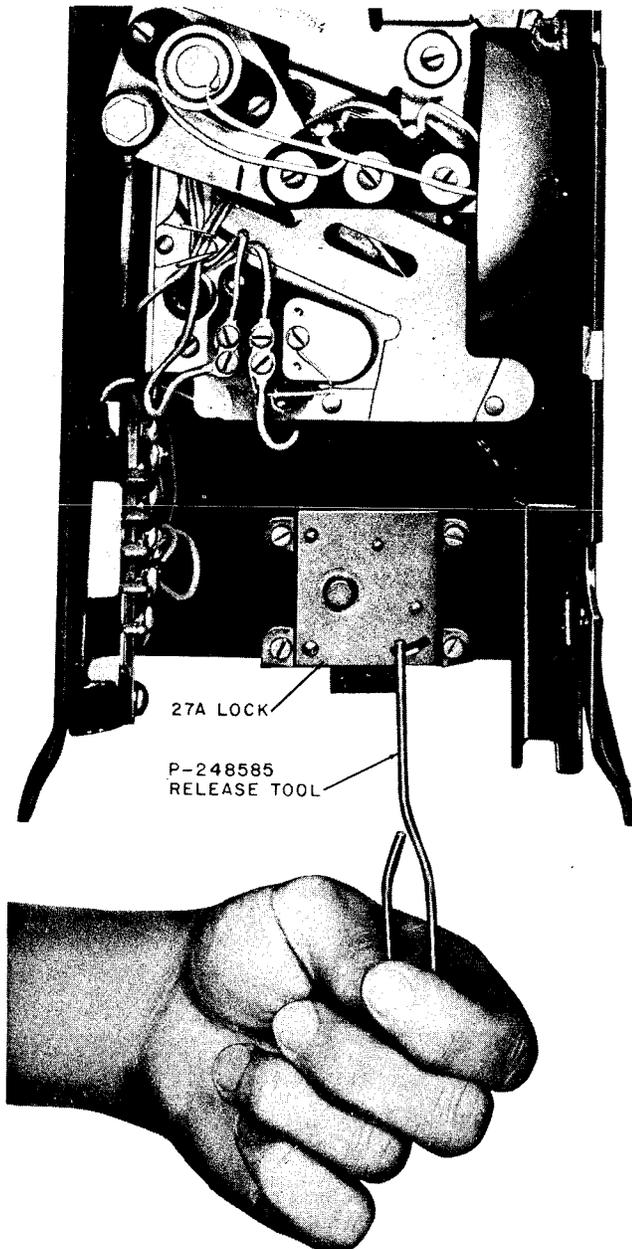


Fig. 9—27A Lock Mounted in Upper Housing Showing Use of P-248585 Release Tool

KS-19277 Lock and Associated Parts

3.10 The KS-19277 lock and associated parts (Fig. 13) are designed to give additional security to the upper housing. The arrangement consists of a screw type lock and appropriate

fasteners which secure upper housing to either backplate or mounting surface.

3.11 The lock (Fig. 14) mounts in a specially provided hole in the lower right side of the upper housing. Drilling this hole is a difficult operation and it is not recommended that it be done in the field.

3.12 The lock is held in place by a spring steel washer and heavy steel nut (Fig. 15). Use of a tubular key permits the back of the lock to rotate and screw on to the end of a security fastener.

3.13 The lock cannot be used on coin collectors equipped with 2-coil relays, or those without a lower right security stud hole.

3.14 The P-13A091 BKX terminal assembly (Fig. 16) must be replaced with a P-25E300 terminal assembly to provide clearance for fasteners (Fig. 17 and 18).

3.15 There are three fasteners available for use with the KS-19277 lock (Fig. 13).

- (a) P-25E301 bolt fastener—short shoulder; intended for use in installations with 3/16-inch thick backboards.
- (b) P-25E302 bolt fastener—long shoulder; intended for use in installations with 5/16-inch thick backboards.
- (c) P-25E303 stud fastener—intended for use in installations where security studs are not required.

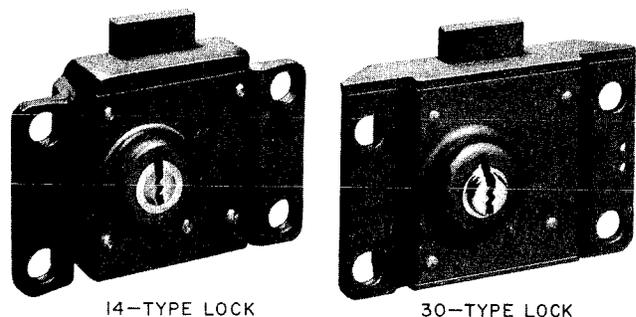


Fig. 10—Cash Compartment Locks

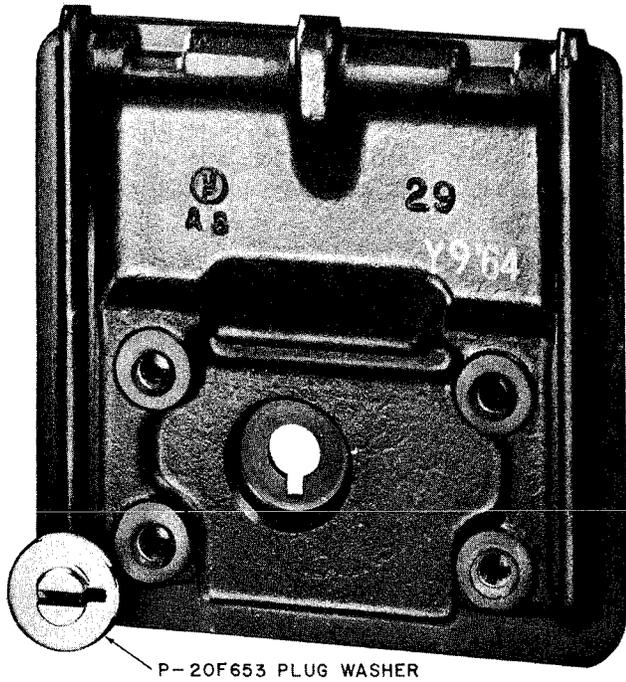


Fig. 11—1A-Type Coin Collector Door and P-20F653 Plug Washer

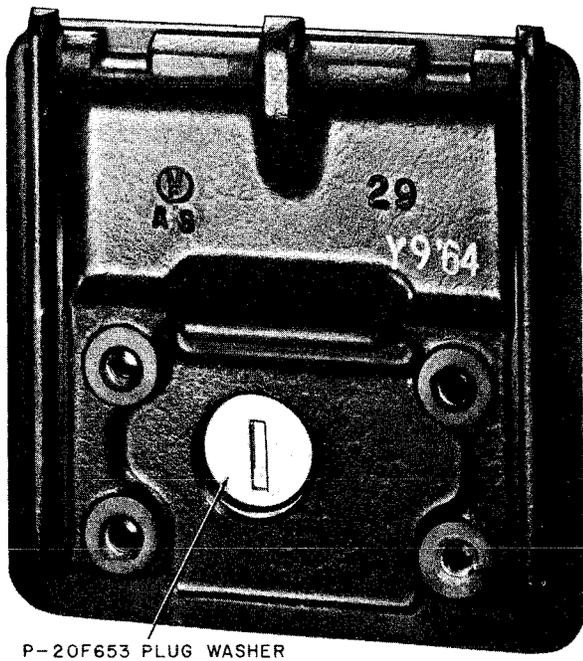


Fig. 12—P-20F653 Plug Washer Installed in 1A-Type Coin Collector Door

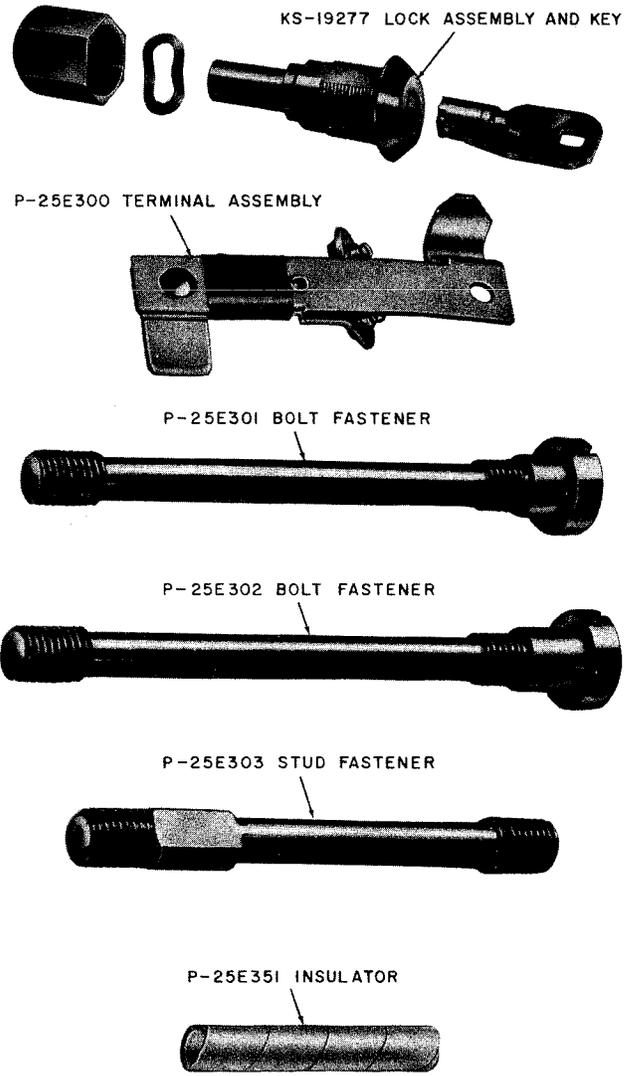


Fig. 13—KS-19277 Lock And Associated Parts

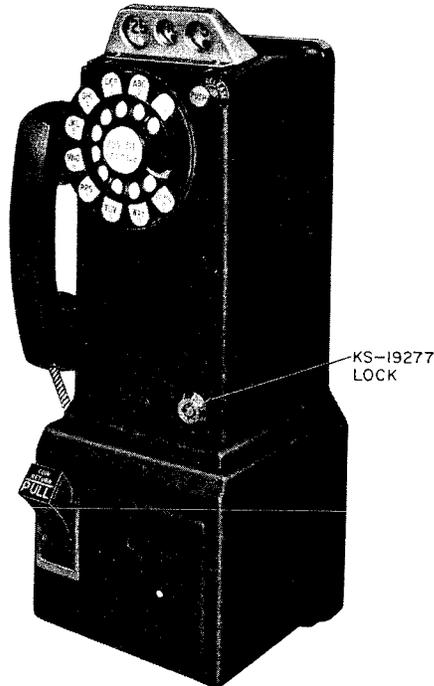


Fig. 14—Coin Collector Equipped with KS-19277 Lock

3.16 Two methods may be used to determine if mounting surfaces on existing installations are equipped with keyhole slots. This can be done without removing the coin collector from its mounting fixture. Check the following:

- If a security stud is present in the lower right security stud hole (Fig. 16), the appropriate bolt fastener (3.15) may be used after removing the security stud.
- If a security stud is absent in the lower right security stud hole, place a small-bladed screwdriver in this hole (Fig. 19). If blade enters to a depth of at least 3/4-inch, a keyhole slot is present (Fig. 20) and the appropriate bolt fastener can be used. If the keyhole slot is missing, replace mounting surface to permit use of a bolt fastener or use stud fastener.

3.17 Use of bolt fasteners is limited by the surface (backboards, shelf, or booth) upon which the coin collector is mounted.



In vulnerable locations where prying of upper housing is more likely, always use bolt fastener.

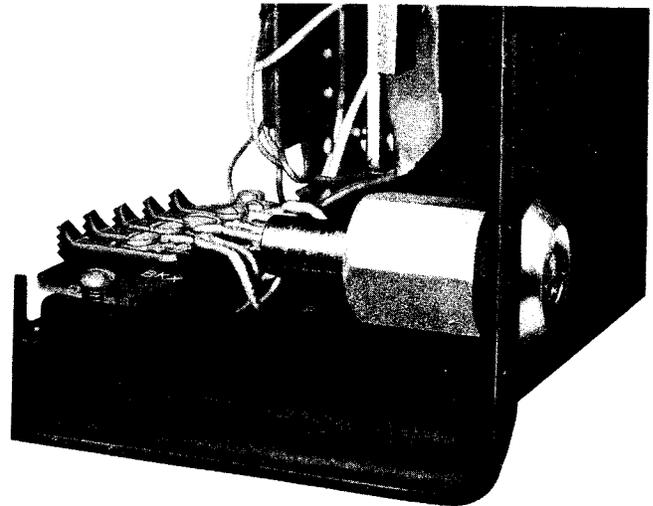


Fig. 15—KS-19277 Lock Installed in Upper Housing

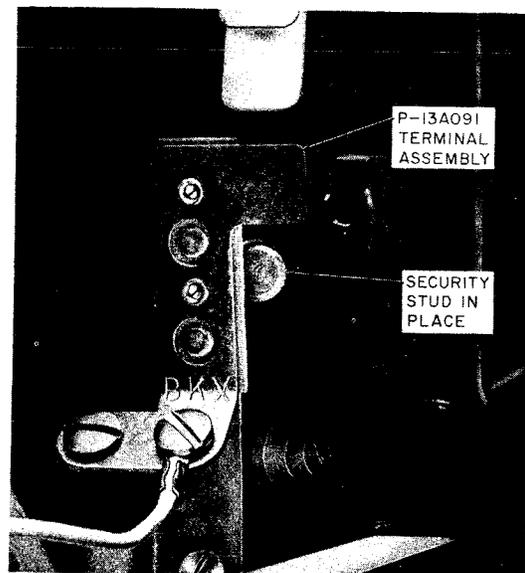


Fig. 16—P-13A091 Terminal Assembly with Security Stud Installed

3.18 The P-25E301 and P-25E302 bolt fasteners screw from the rear into the lower right security stud hole (viewed from front), of the coin collector backplate (Fig. 18). The coin collector is installed on the mounting surface in the same manner as any other coin collector equipped with security studs.

3.19 To install a bolt fastener on existing installations, it is necessary to disconnect

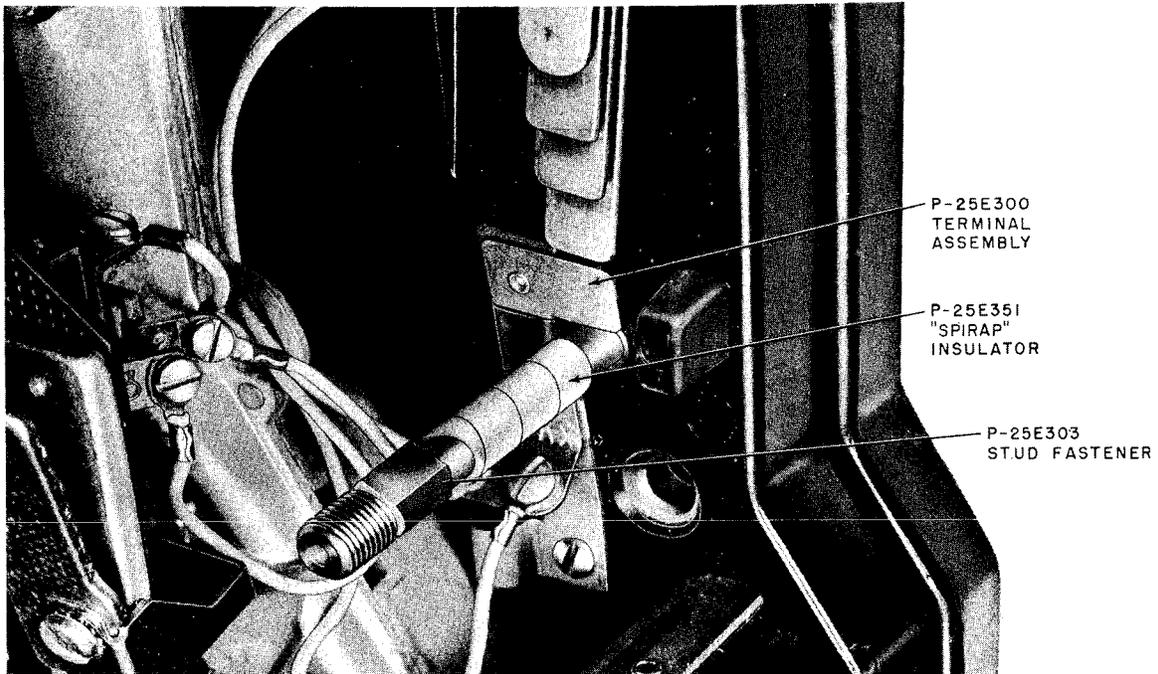


Fig. 17—New Terminal Assembly, Insulator, and Stud Fastener

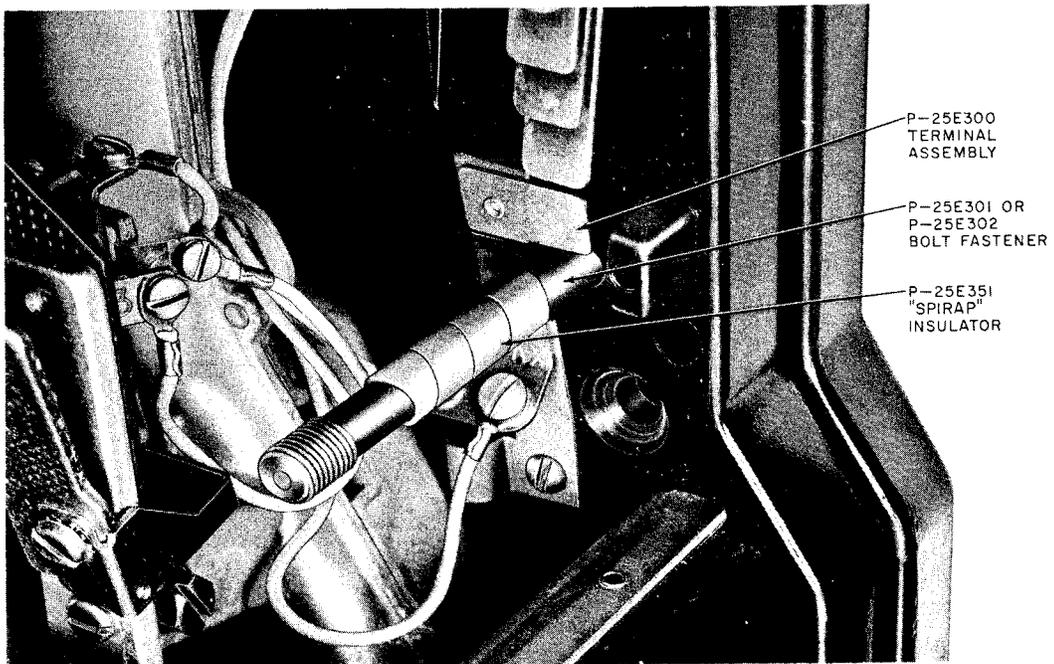


Fig. 18— New Terminal Assembly, Insulator, and Bolt Fastener

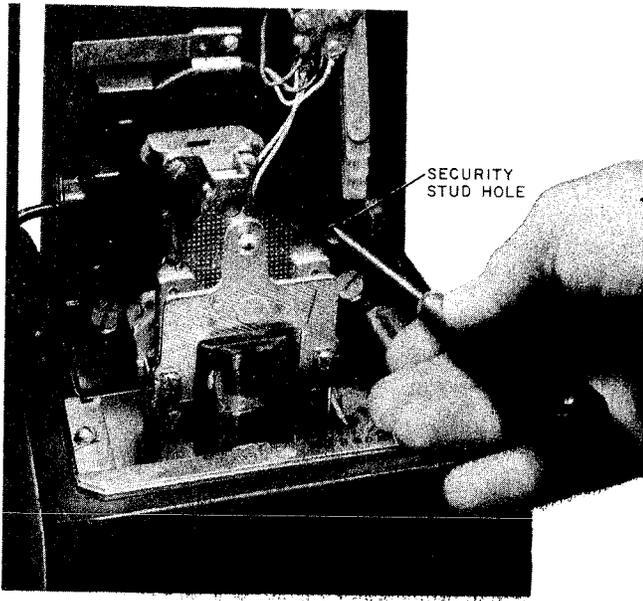


Fig. 19—Method of Determining if Mounting Surface is Equipped with Keyhole Slots

and remove the coin collector from its mounting surface.

3.20 Use the P-25E303 stud fastener (Fig. 17) where maximum security is *not* essential, but where protection is desired against unauthorized use of the 10-type upper housing key.

3.21 The stud fastener can be installed without removing the backplate assembly from its mounting surface.

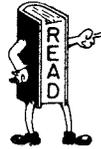
3.22 Use a P-25E351 "SPIRAP" insulator on either the bolt or stud fastener (Fig. 17 and 18). The purpose of the "SPIRAP" is to eliminate the possibility of the fastener grounding the lower lug of the housing contacts. To install, start at the BKX terminal and wind the "SPIRAP" in "barber pole fashion" around the stud or bolt. Do not allow the "SPIRAP" to cover any of the threads on the exposed end of the stud or bolt. Redress the wiring to the upper housing contacts (Fig. 21).

3.23 Apply a coating of KS-19094 antiseize compound to the threaded area of the bolt or stud fastener which engages the security lock.

3.24 After the bolt or stud fastener is properly installed, fasten upper housing as follows:

(a) Insert the tubular key into the KS-19277 lock.

(b) Apply and maintain a slight forward pressure on the key while rotating it in a clockwise direction until the key is hand tight. Do not force the key beyond this point. To remove the key, turn counterclockwise to the first release position and pull the key away from the lock.



Do not use pliers or other tools or instruments on the handle of the key. Do not file tab off end of key. Once the upper cover assembly has been drawn to the backplate assembly so that the upper cover assembly lock can be engaged, there is no need to further tighten the KS-19277 lock.

3.25 When an upper housing equipped with a KS-19277 lock is removed for maintenance, apply a coating of KS-19094 antiseize compound to the threaded area of the bolt or stud fastener

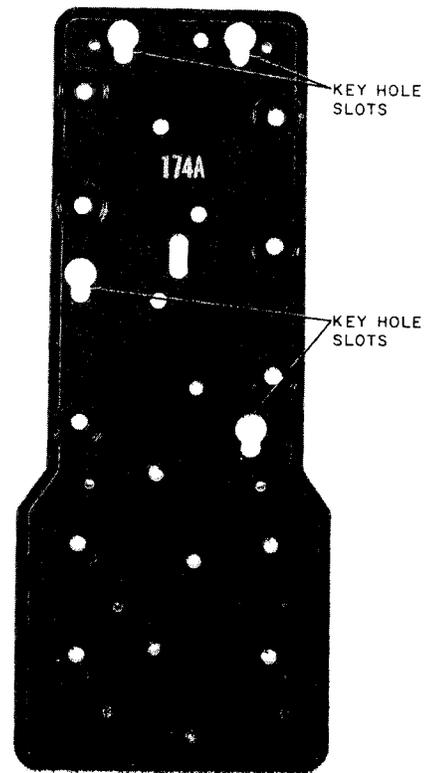


Fig. 20—174A Backboard with Four Keyhole Slots for Security Studs and Bolt Fastener

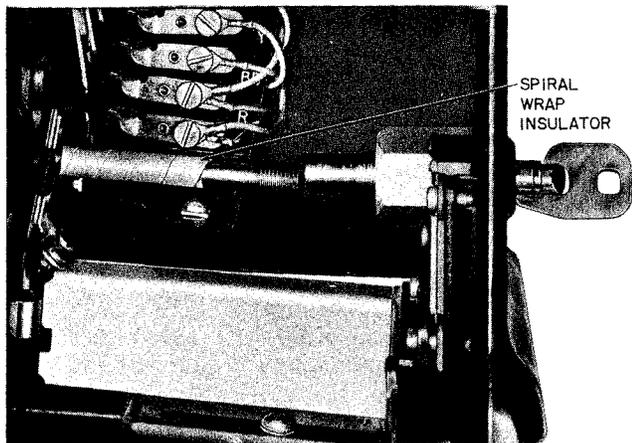


Fig. 21— Cutaway Section of Upper Housing Showing Mating of Bolt Fastener and KS-19277 Lock

which engages the security lock. The compound will facilitate subsequent installations and removals of the upper housing.

B. Security Studs

3.26 Security studs are used to give added strength to the mounting of a coin collector/telephone on a backboard. Four versions are available as shown in Fig. 22.



Security studs can be used only if the backboard is designed with key-hole slots that align with the security stud mounting holes in the coin collector.

3.27 The P-10E070 and P-12E798 studs are used with the 190 and 200 series coin collectors plus the 235 and 1235 panel telephones. The P-40Y060 and P-40Y061 studs are used with the 1A-type coin telephones.

3.28 Security studs with long shoulders are intended for use in installations with 5/16-inch thick backboards. Those with short shoulders are intended for use in installations with 3/16-inch thick backboards.

C. 719A Tool

3.29 A 719A tool (Fig. 23) is used in conjunction with the locks on the 1A-, 2A-, 235-, and

1235-type coin telephones. It is required to release or engage the locking mechanism on both the cover assemblies and cash compartment doors.

NOTE:
ALL DIMENSIONS SHOWN ARE IN INCHES.

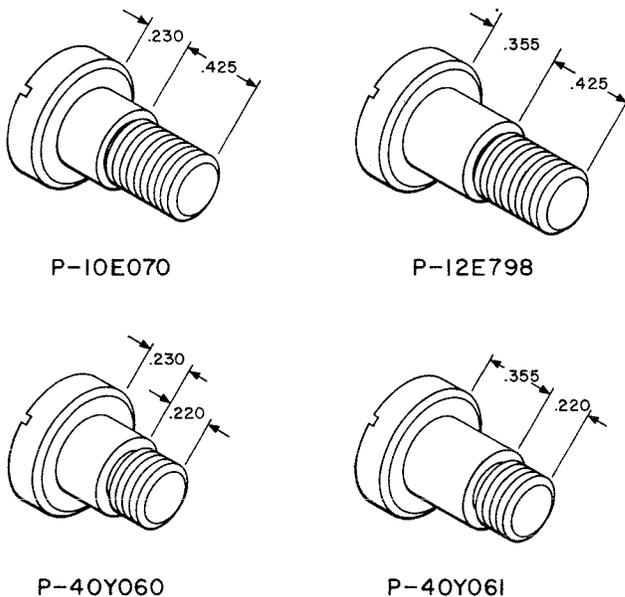


Fig. 22—Security Studs

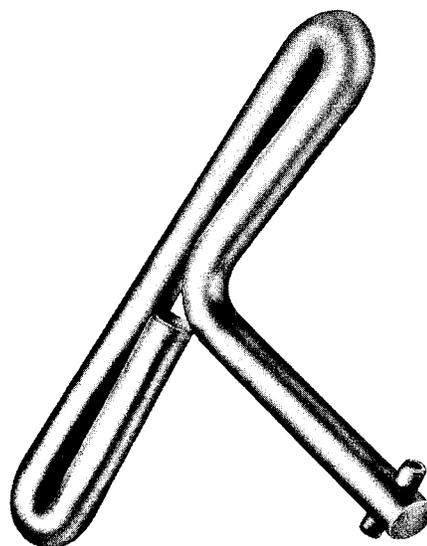


Fig. 23—719A Tool

D. 1A Backplate

3.30 The 1A backplate made of sheet steel (Fig. 24), is intended for use on coin collectors equipped with aluminum backplates to reduce the possibility of breaking away the lower housing by means of a pry bar.

3.31 The 1A backplate is provided with clearance holes for security studs and mounting screws. It is fastened to the coin collector backplate by replacing the four lower housing assembly screws with one P-12E799 and three P-13E656 high-strength flathead steel screws (Fig. 25). The replacement screws must be ordered separately.

3.32 The 1A backplate cannot be used with 139A backboards or 19-type shelves.

E. Coin Receptacle Covers

3.33 The 1D coin receptacle cover is a zinc chromate finished metal cover intended for use with a 1B or 1C coin receptacle. It is provided with a self-locking mechanism which is set from the inside before being sealed to the coin receptacle and automatically locks itself on the inside when removed from the cash compartment.

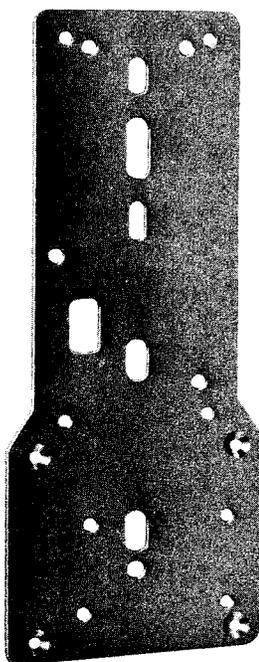


Fig. 24—1A Backplate

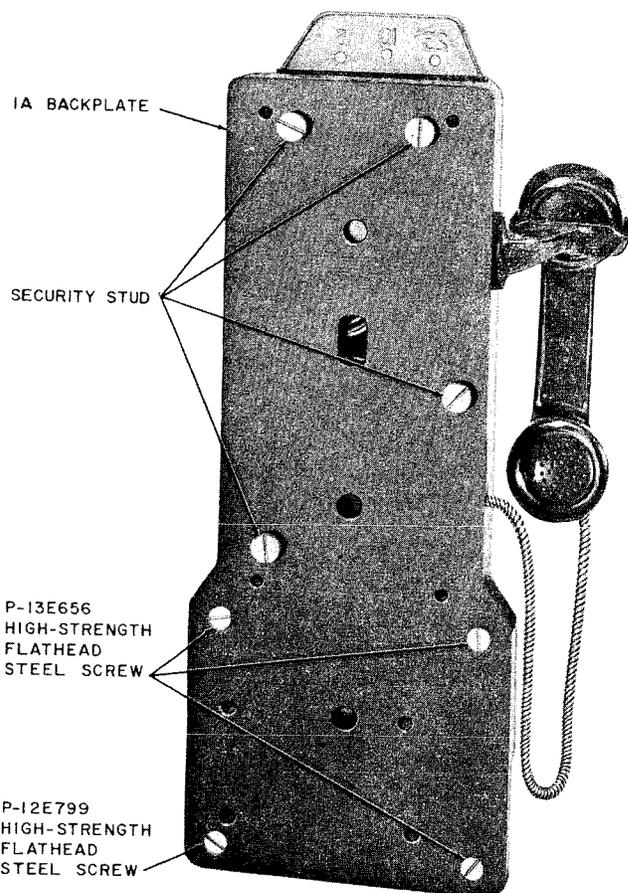


Fig. 25— Rear View of Coin Collector with 1A Backplate Attached

3.34 The 1E coin receptacle cover is similar to the 1D coin receptacle cover except it is provided with an insulated contact to facilitate the use of a coin level detector.

F. Ring Seals

3.35 Ring seals, formed from sheet aluminum, (Fig. 26) are used to seal the coin receptacle cover to the cash box.

3.36 The ring seal is placed in the hasp staple in the same manner as a padlock and crimped with a ring seal press.

G. Armored Cords and Handsets

3.37 All new coin collectors/telephones and all reissued 200-type coin collectors are furnished with handsets equipped with PVC jacketed cords

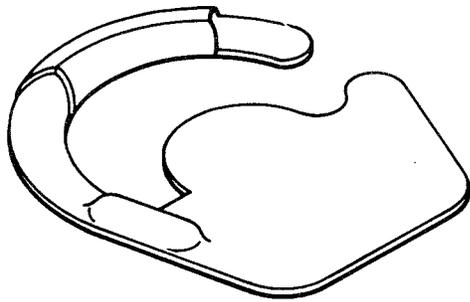


Fig. 26—Typical Ring Seal

having an outer covering of stainless steel flexible hose. The transmitter and receiver caps are cemented to the handset handle (Fig. 27).

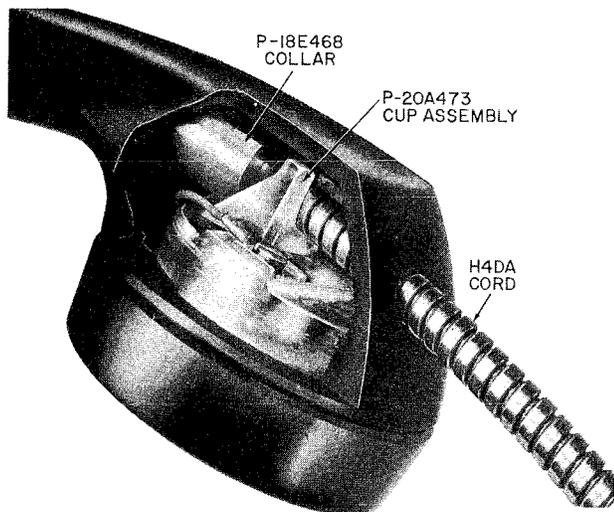


Fig. 27—Handset with Armored Cable

3.38 Use the following procedures to equip existing coin collectors in the field with G3R or F1L handset.

- (1) Refer to Section 506-110-101 entitled Coin Collectors, Identification and Selection for the proper handset.
- (2) Remove the upper housing from the coin collector.
- (3) Disconnect the handset cord conductors and cord fasteners from the coin collector. Before removing old cord from the cord entrance hole

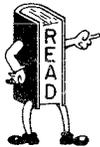
it is recommended a pull wire or equivalent be attached to the old cord as it is being removed. This will aid in pulling in new cord.



Cover the coin relay, hopper, and return chute with a piece of plastic, cloth, or other suitable material to prevent metal drill shavings from falling into these mechanisms.

- (4) Using a small center punch and hammer, mark hole to be drilled and tapped in the coin collector backplate. This hole is to be located in the cord entrance tube halfway between the outer beveled edge of the coin collector and the left edge of the cord chamber (Fig. 28).

- (5) Drill hole located in step 4 with a No. 7 drill.



When drilling aluminum backplates do not exert too much pressure to drill. This may cause drill to cut too fast, thus making hole oversized.

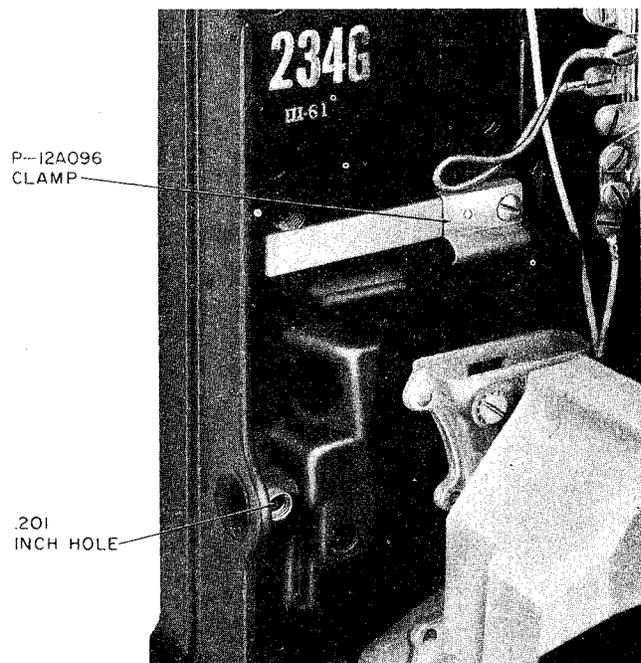


Fig. 28—Location of .201 Inch Hole

- (6) Tap the hole drilled in step 5 using a 1/4-20 tap with a Greenfield T-Handle tap wrench or an approved equivalent.

Caution: *The tap wrench should be long enough to permit the wrench handle to protrude out and beyond the coin relay. This is to prevent injury to the installer or possible damage to the coin relay.*

- (7) Clean metal shavings from the cord entrance hole.
- (8) Using the pull-in wire placed in step 3, pull in new cord.
- (9) Remove the pull-in wire from the new cord and fasten the P-12A096 clamp over the cord (Fig. 29).

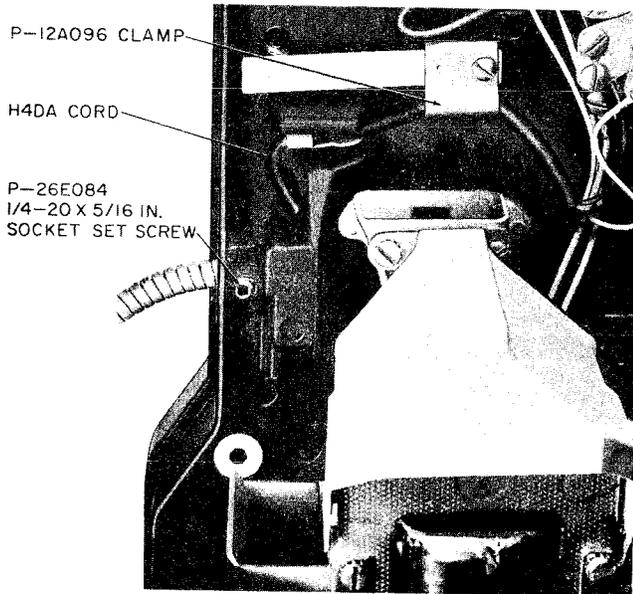


Fig. 29— Installation of Armored Cord

- (10) A P-26E084 1/4-20 by 5/16-inch self-locking setscrew is used to secure the cord to the coin collector backplate (Fig. 29). A flat surface is located approximately 1/4-inch from the set end of the stainless steel flexible hose. Using a 1/8-inch Allen wrench, screw the socket setscrew into the hole drilled in step 5 until it just makes contact with the flat surface of the metal hose. Give the setscrew one full turn. This should hold the cord firmly in the coin collector.

Caution: *Screwing the socket setscrew down more than one turn against the steel flexible hose may damage the cord conductors.*

- (11) Remove the protective covering placed in step 3 and replace the upper housing.

Caution: *Brush out all metal shavings from the coin collector, booth shelf, and booth. Dispose of these metal shavings where they will not cause injury to the public or damage to equipment.*

- 3.39 Refer to Fig. 30 for routing and securing handset cord in 1A-type coin telephone.

- 3.40 Refer to Fig. 31 for routing and securing handset cord in 2A-, 235-, and 1235-type coin telephones.

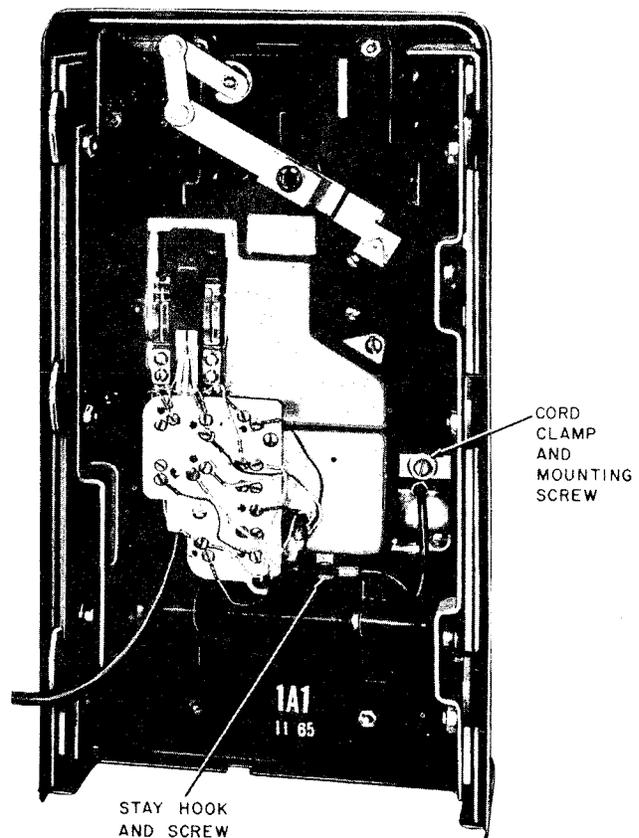


Fig. 30— Location of Armored Cord Mounting Hardware in 1A-Type Coin Telephones

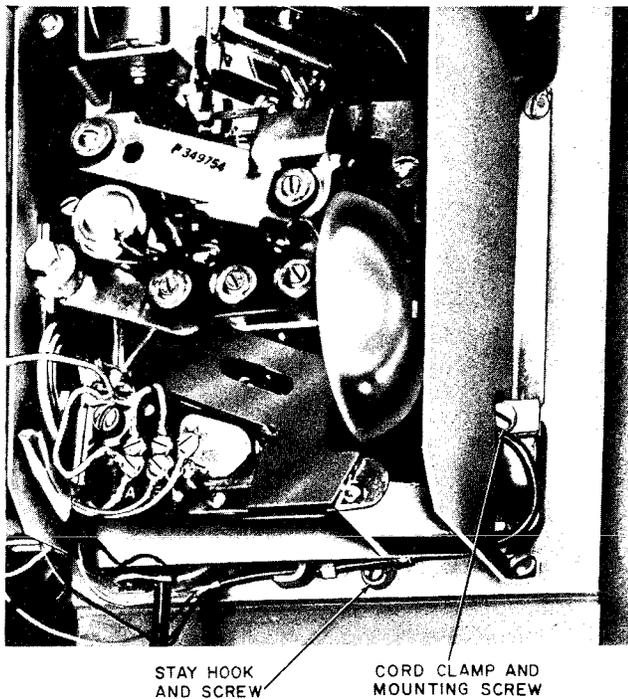


Fig. 31—Location of Armored Cord Mounting Hardware in 2A, 235, and 1235-Type Coin Telephones

H. D-180009 Switch Hook Conversion Kit

3.41 The D-180009 switch hook conversion kit (Fig. 32) is designed to place the rotation stops inside the housing to reduce switch hook blocking. It also permits a simple adjustment of switch hook travel.

3.42 The conversion kit is designed for field conversion of the 200-type and 1234-type coin collectors.

3.43 Two types of switch hooks exist in the field. The one-piece switch hook has a long shaft while the 2-piece has a short shaft plus an adapter.

3.44 To remove a one-piece switch hook:

- (1) Remove and retain hex head machine screw, lockwasher, tension spring, switch hook arm assembly, and any spacing washer that may be present, from right end of shaft (Fig. 33).
- (2) Slide switch hook to the left and out of bearings.

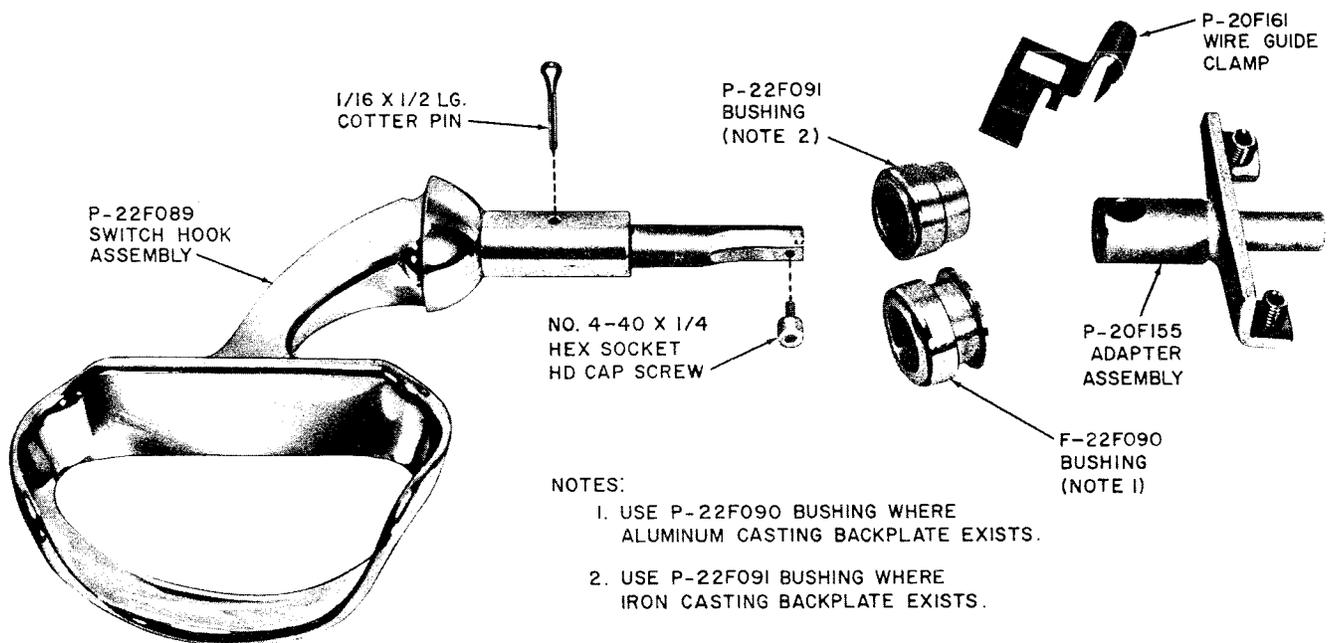


Fig. 32— D-180009 Switch Hook Kit

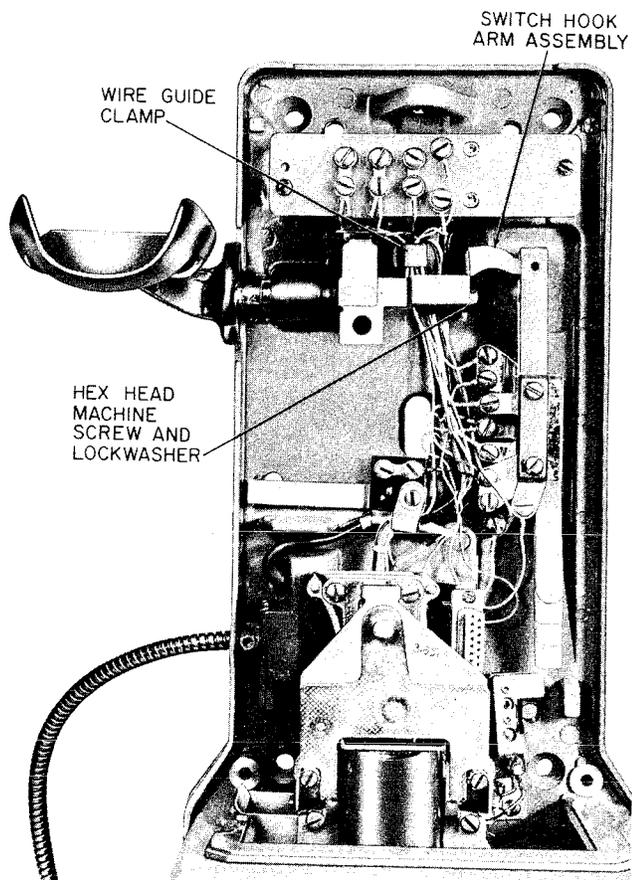


Fig. 33—Old 2-Piece Switch Hook Installed

3.45 If coin collector is located in a corner, a one-piece switch hook may be removed without removing the coin collector from backboard. Do this as follows:

- (1) Perform operations outlined in 3.44 (1).
- (2) Place the larger notch of a 710A bending tool on the switch hook hub as shown in Fig. 34, View A. Apply force on the tool as shown and move the switch hook out, bending it slightly.
- (3) Having partially bent the shaft, move the switch hook to the left. Place the smaller notch of the bending tool over the shaft as shown in Fig. 34, View B. Apply force on the tool as shown.

- (4) Continue moving the switch hook to the left and applying additional bends as needed to remove the switch hook.

3.46 To remove a 2-piece switch hook:

- (1) Perform operations outlined in 3.44 (1).
- (2) Loosen the flathead screw which secures P-12E828 adapter (Fig. 35) to the switch hook shaft.
- (3) Slide switch hook to left and out of bearing.
- (4) Slide adapter to left and out of bearing.

3.47 Remove wire guide clamp (Fig. 33).

3.48 To install new switch hook kit:

- (1) Install P-20F161 wire guide clamp (Fig. 36) on backplate. Ensure that wiring is routed as shown.
- (2) Select correct bushing (Fig. 32) and slide over shaft of switch hook.
- (3) Secure bushing on shaft with a cotter pin (Fig. 37).
- (4) Slide the P-20F155 adapter assembly into right bearing (Fig. 37).
- (5) Slide switch hook assembly with bushing installed, in left bearing to mate with adapter assembly.
- (6) Secure adapter to shaft with hex socket head cap screw (Fig. 38). Screw is furnished with kit.
- (7) Install P-297872 spacing washers as required to reduce excessive end play. End play of switch hook shaft shall not exceed 1/32-inch.
- (8) Place switch hook arm assembly (Fig. 39) retained in 3.44 over switch hook shaft and secure to end of adapter shaft with lockwasher and hex head machine screw retained in 3.44(1). Install tension spring.

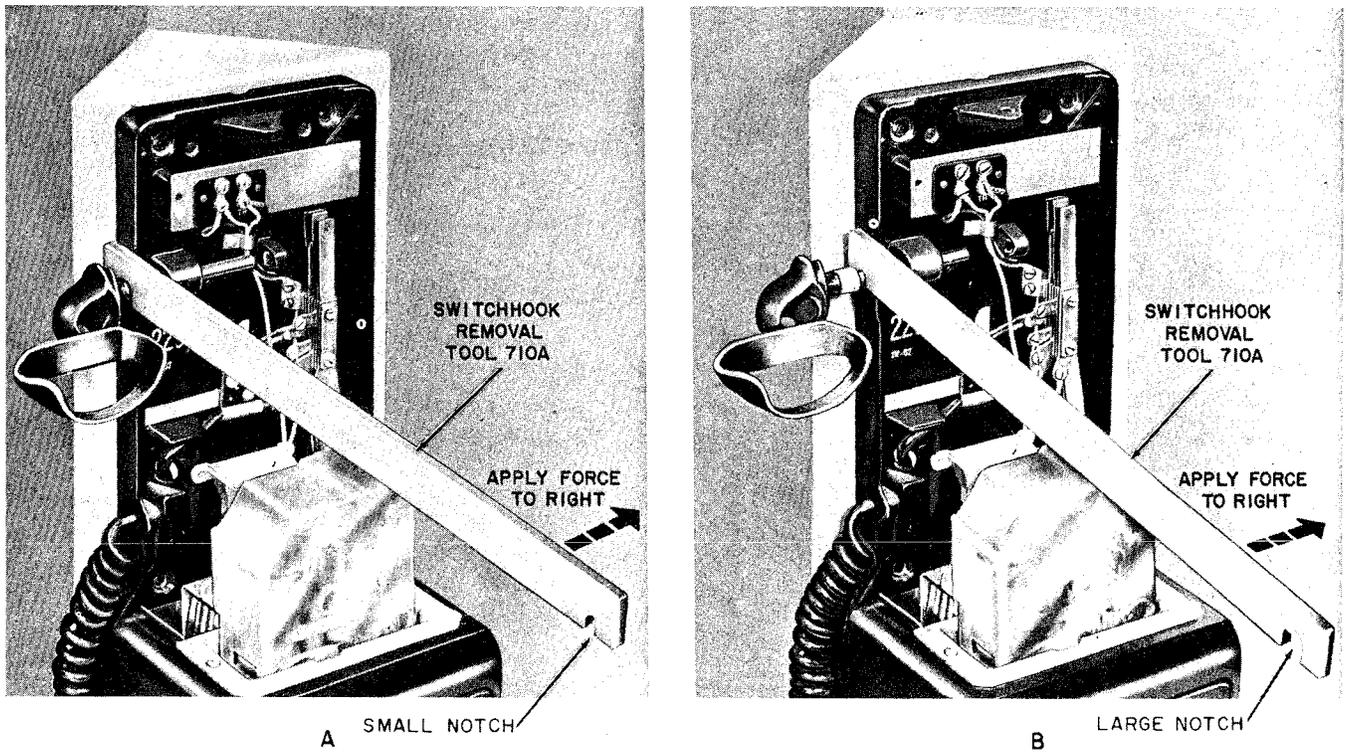


Fig. 34—Removal of 1-Piece Switch Hook Located in Corner

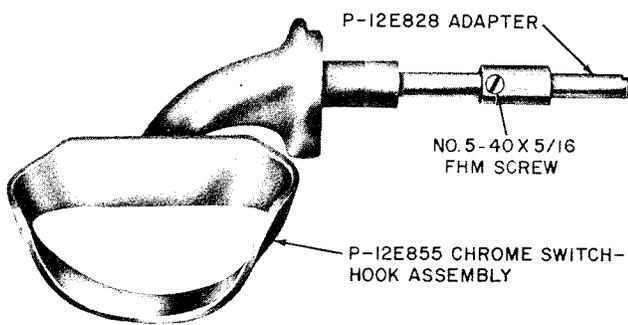


Fig. 35—2-Piece Switch Hook

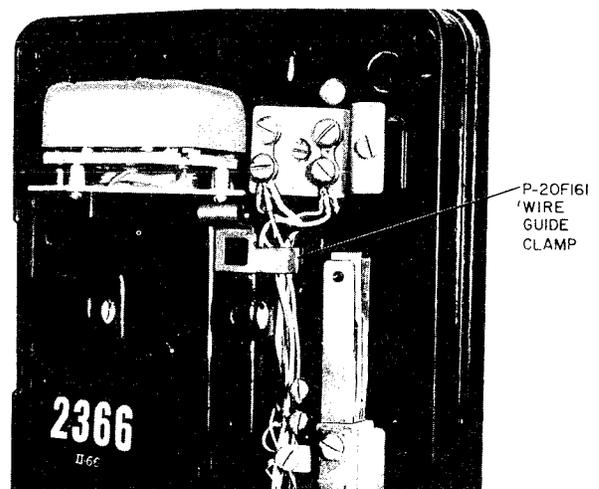


Fig. 36—Installation of Wire Guide Clamp

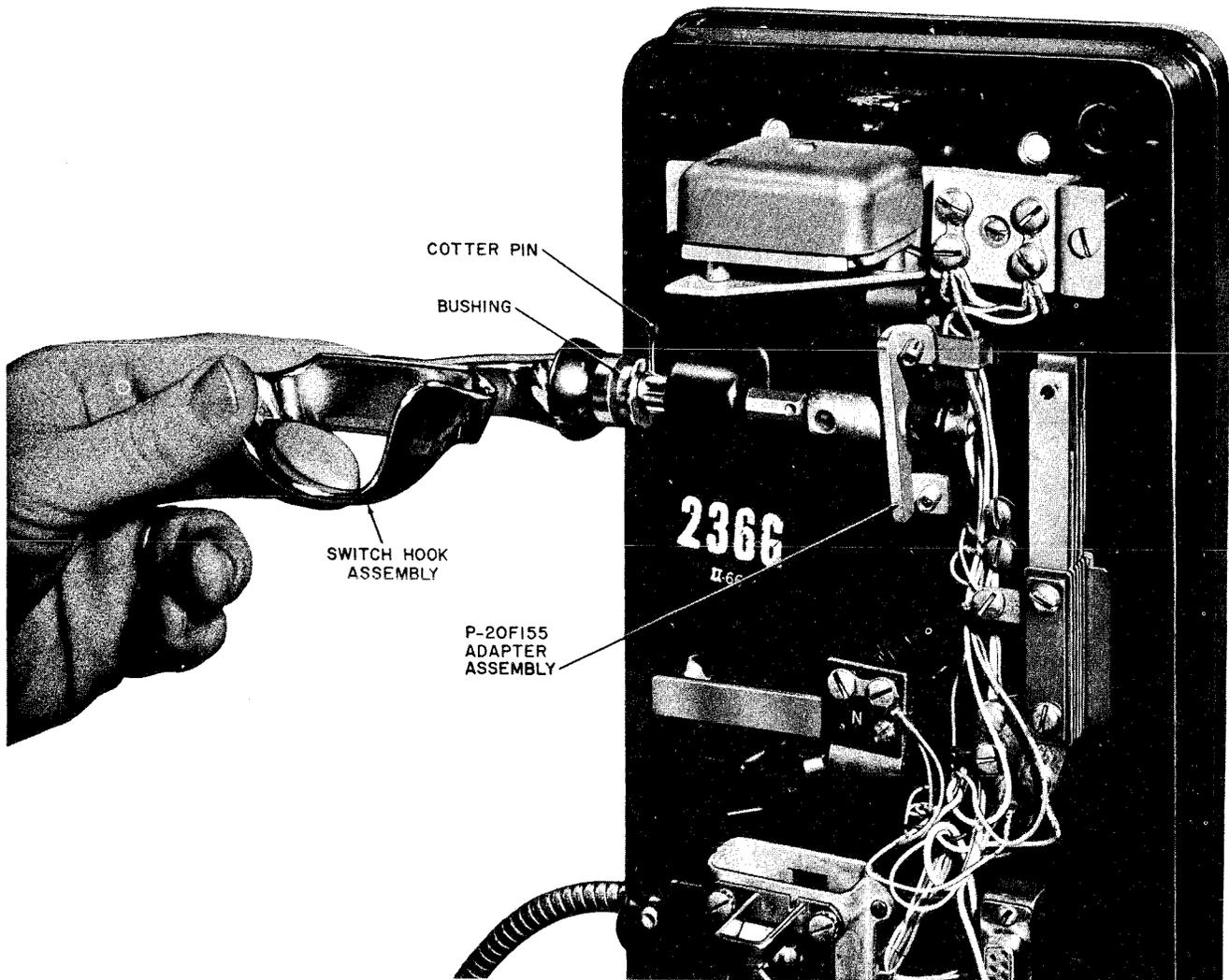


Fig. 37—Installation of Adapter Assembly and Switch Hook Assembly

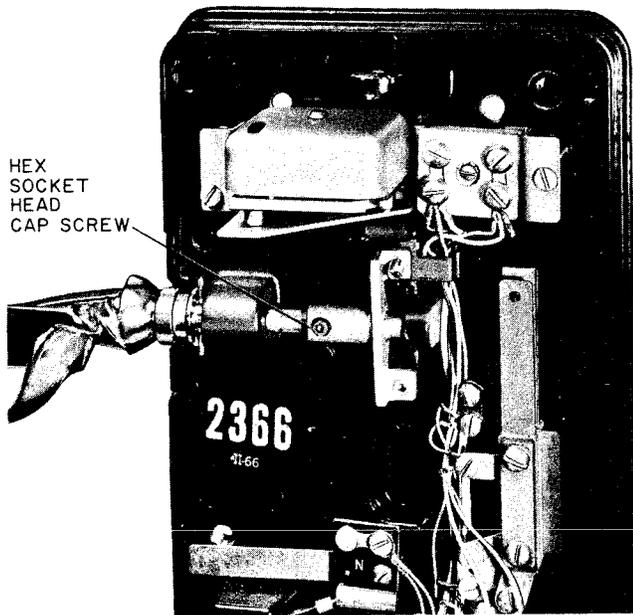


Fig. 38—Method of Securing Adapter to Switch Hook Assembly

3.49 Adjust switch hook travel with the two adjusting screws (Fig. 39) to meet contact spring pile up requirements as described in Section 506-110-301.

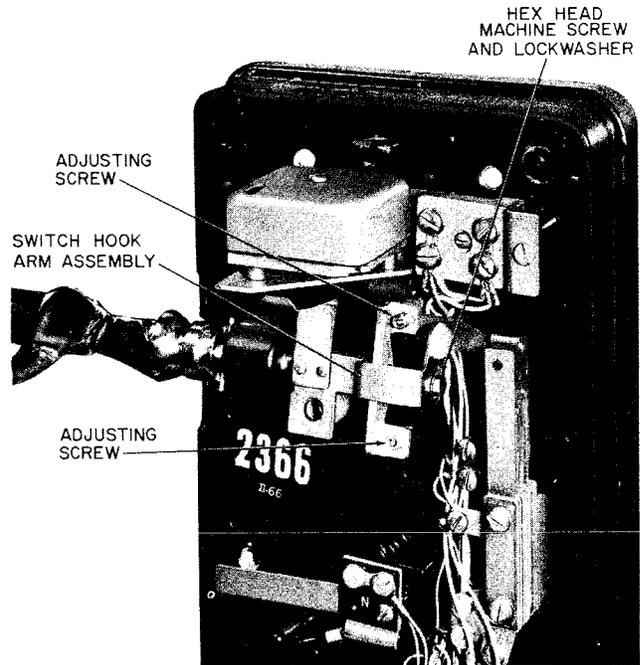


Fig. 39—Installation of Switch Hook Arm Assembly

- 3.50 Ensure that all wires are clear of adapter travel and adjusting screws.
- 3.51 Check switch hook operation as outlined in Section 506-110-301.