

STATION SETS

INDOOR LOCATION

INSTALLATION

1.00 GENERAL

1.01 This section is reissued to revise the procedure for handling spare cord conductors as explained in 4.03. The use of the KS-19147, List 1 cord tip insulator is included.

1.02 This section includes information pertaining to fastening of station sets, terminating wire and cord conductors at station sets, and checking the installation by means of a service check before leaving customer's premises. Types of station sets covered in this section are as follows:

- Subscriber sets and desk-type hand telephone sets.
- Hangup-type hand telephone sets.
- Wall-type telephone sets.
- Combined-type telephone sets.

1.03 Information pertaining to the installation of multibutton sets will be found in C Sections covering minor and major systems.

2.00 FASTENING STATION SETS

2.01 Subscriber sets, wall sets, associated connecting blocks, and backboards should be

fastened securely to a substantial mounting surface. Fasteners to be used for mounting station sets are shown in Table A.

2.02 All screws must enter laths or studding where set or backboard is mounted on plaster on wood lath. Where screws strike the space between laths, move the set if first hole can be covered; otherwise, slant screws.



Be certain that fasteners will not extend into or through a surface in a manner that may cause possible damage, such as punctured copper tubing or cables or torn clothing.

2.03 When mounted on a desk or table, station set or associated connecting block should not interfere with the normal operation of the desk or table.

3.00 BACKBOARDS

Backboards should be used only when required. **Do not** use backboard unless:

- Mounting surface is uneven or damp.
- A secure mounting could not otherwise be obtained.
- It is necessary to insulate special apparatus from metal mounting surfaces.
- It is necessary to avoid drilling excessive holes in order to provide better appearance at desk locations.

TABLE A
FASTENERS USED FOR MOUNTING STATION SETS

Mounting Surface	Plastic Cover Sets			Metal and Wooden Sets		
	No. of Fasteners*		Size and Type of Fasteners	No. of Fasteners*		Size and Type of Fasteners
	Wall Set	Sub. Set		Wall Set	Sub. Set	
Hardwood (including Wooden Backboards)	2	2	3/4-in., No. 8 RH blued wood screws	2	2	1-1/4 in., No. 8 RH blued wood screws
Softwood	2	4	1-in., No. 8 RH blued wood screws	4	4	1-1/2 in., No. 8 RH blued wood screws
Plaster on Wood Lath	2	4	1-1/2 in., No. 8 RH blued wood screws	4	4	2-in., No. 8 RH blued wood screws
Side of Wood-Paneled Desk (Place fastener in framing around panel.)		3	See type of wood surface above.		3	See type of wood surface above.
Metal Backboard		3	8-32 x 1/4 in., RH galvanized machine screws		3	8-32 x 5/8 in., RH galvanized machine screws
Metal Desks		2	5/8-in., No. 8 RH self-tapping screws		2	1-in., No. 8 RH self-tapping screws
Plaster on Masonry or Plaster Block	2	4	2-in., No. 8 RH blued wood screws in No. 10 plastic anchors	4	4	2-1/2 in., No. 8 RH blued wood screws in No. 10 plastic anchors
Masonry	2	4	1-in., No. 8 RH blued wood screws in No. 10 plastic anchors	4	4	1-1/2 in., No. 8 RH blued wood screws in No. 10 plastic anchors
Sheetrock, Beaver, or Similar Composition Board	2	4	Wall screw anchor	4	4	Wall screw anchor
Solid Metal	2	2	10-24 x 3/4 in., FH bright machine screws	2	2	10-24 x 1 in., FH bright machine screws
Plaster on Metal Lath; Plaster on Plaster Board	2	2	Wall screw anchor, 1/8 x 4 in., BH toggle bolts	2	2	Wall screw anchor, 1/8 x 4 in., BH toggle bolts
Metal Sheath on Solid Wood	2	4	1-in., No. 8 RH blued wood screws	4	4	1-1/2 in., No. 8 RH blued wood screws
Metal Sheath over Furring on Brick	2	4	1-in., No. 8 RH blued wood screws	4	4	1-1/4 in., No. 8 RH blued wood screws
Metal Sheath over Furring on Plaster on Lath	2	4	1 or 1-1/2 in., No. 8 RH blued wood screws	4	4	1-1/2 or 2 in., No. 8 RH blued wood screws

* Where two fasteners are specified, with the exception of wall-hanging type, place fasteners diagonally opposite each other with one fastener near cord entrance hole.

4.00 TERMINATING WIRE AND CORD CONDUCTORS AT STATION SETS

4.01 Station wire and cord conductors should be terminated as shown in Fig. 1. To avoid interference, cord tip is turned down when two wires and a cord tip are connected to a terminal.

4.02 All cord and wire conductors within the station set should be formed and terminated so that they will not interfere with any moving part. Spade tips or skinned wire should come in contact only with terminal to which the connection is made.

4.03 Spare cord conductors may be terminated under spare screw terminals. If spare terminals are not available, the KS-19147, List 1 cord tip insulator should be used. The use of this insulator will prevent damage to the cord conductor when the insulator is removed to terminate the conductor. Adhesive type insulators are not recommended.

4.04 Avoid leaving excessive slack in station wire within station sets. Leave only enough slack to allow for possible retermination of the wire, such as reversing the tip and ring due to a change in class of service.

4.05 Where wire is not concealed at subscriber set or wall set, a fastener should be placed within approximately 2 inches of the set.

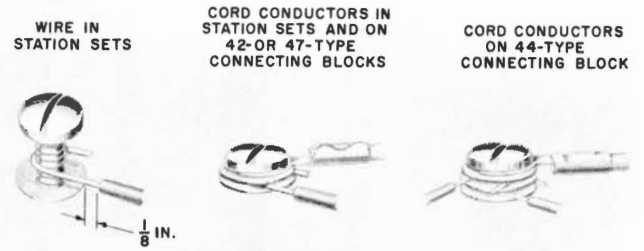


Fig. 1 — Terminating Station Wire and Cord Conductors

5.00 SUBSCRIBER SETS AND HAND TELEPHONE SETS

5.01 A combination of a subscriber set and a hangup- or desk-type hand telephone set, commonly called a 2-piece set, must be considered as a single unit when installed in a given location.

5.02 In those cases where subscriber set and hangup- or desk-type hand telephone set are separated, the following should be observed:

- Signal must be heard satisfactorily in area served by talking set.
- To provide adequate transmission and to prevent crosstalk, maximum wire lengths in feet between subscriber set and hangup- or desk-type hand telephone set are shown in Table B.

TABLE B
MAXIMUM WIRE LENGTHS
SUBSCRIBER SET TO HAND TELEPHONE SET

Type Station	No. of Circuits	Inside Wiring Cable	Lead-Covered Cable	Station Wires
			feet	
Common Battery	One	250	250	250
	Two or more paralleling	15	20	90
Local Battery Talking—Common Battery Signaling	One	100	100	100
	Two or more paralleling	5	5	20



Fig. 2 — Hinges Reversed

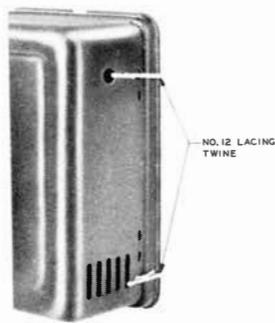


Fig. 3 — No. 12 Lacing Twine

634-Type Subscriber Set

5.03 Number of conductors required between subscriber set and hangup- or desk-type hand telephone set may be found in C Section covering connections for the particular type of set.

5.04 Where there would be interference when opening a hinged cover:

- Remove hinges, and replace them on base in reverse position (see Fig. 2).
- Locking screw will hold cover in place.

Note: Where hinges are reversed and there is a possibility of the cover's falling when locking screw is loosened, the cover should be tied to base of set with No. 12 lacing twine or equivalent (see Fig. 3).

Mounting

5.05 Subscriber sets equipped with 425B networks or closed induction coils (101-type with B- or C-type ringers) may be mounted side-by-side or one above the other without causing crosstalk. To avoid crosstalk, subscriber sets equipped with other types of coils and ringers (open core) should be placed a minimum of 13 inches apart, measured center-to-center (see Fig. 4).

5.06 When necessary, a subscriber set may be mounted on a table. In this instance, a telephone set mounting cord may be used between the stand and outlet box or connecting block (see Fig. 5).

5.07 Subscriber sets with relays should always be mounted in a plumb, vertical position.

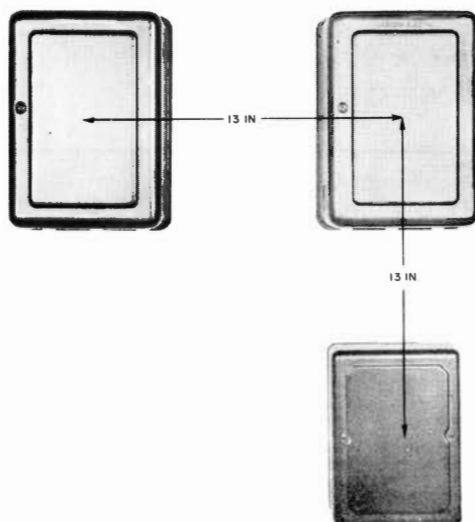


Fig. 4 — Subscriber Set Separation to Prevent Cross Induction

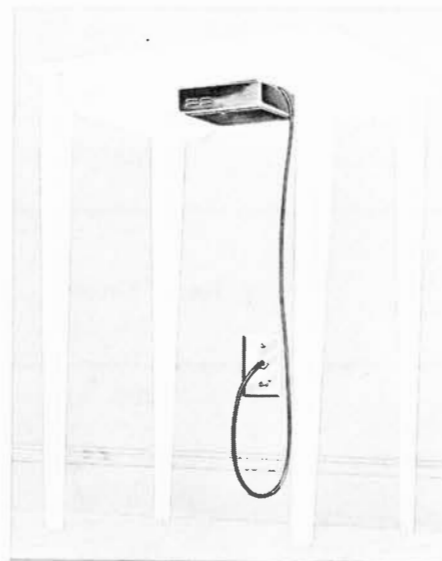


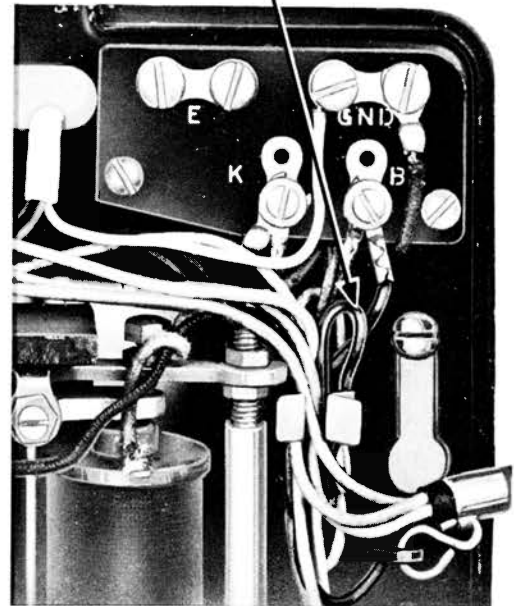
Fig. 5 — Subscriber Set Mounted on Table

Cords

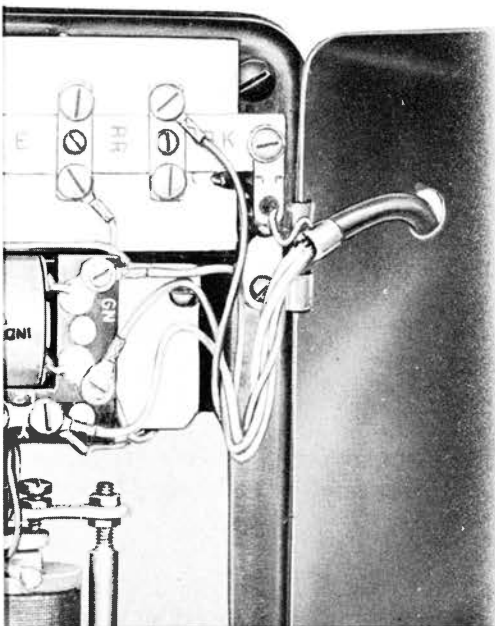
5.08 Cords should be fastened securely to subscriber sets so that no strain will be placed on the cord conductors. Fig. 6 and 7 show typical cord arrangements in 634- and 684-type subscriber sets.

Note: On 634-type subscriber set, if there is a possibility of the stay hook's short-circuiting terminals or lugs or causing a cross between them and the cover, the stay hook may be fastened to the bottom screw of the top hinge, as shown in Fig. 8. When this is done, the cord anchor should not be removed.

**BLACK CORD CONDUCTOR
FOLDED TO TAKE UP SLACK**



**Fig. 7 — Wire and Cord Terminated in
684-Type Subscriber Set**



**Fig. 6 — Wire and Cord Terminated in
634-Type Subscriber Set**

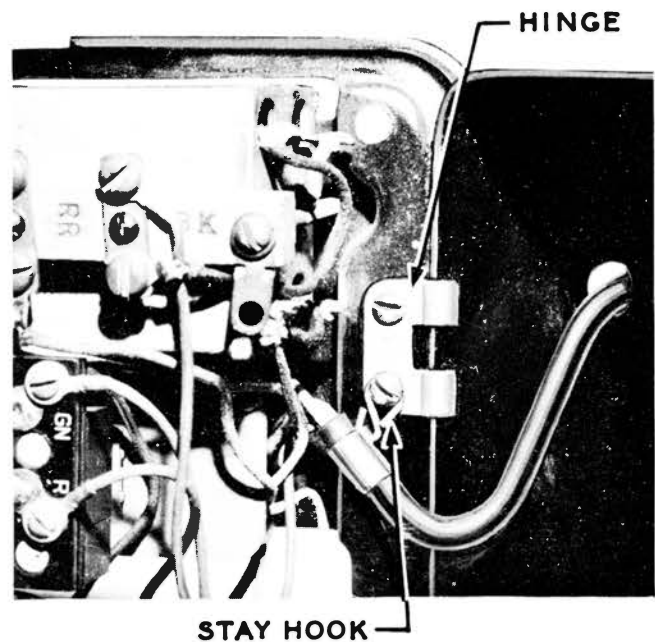


Fig. 8 — 634-Type Subscriber Set

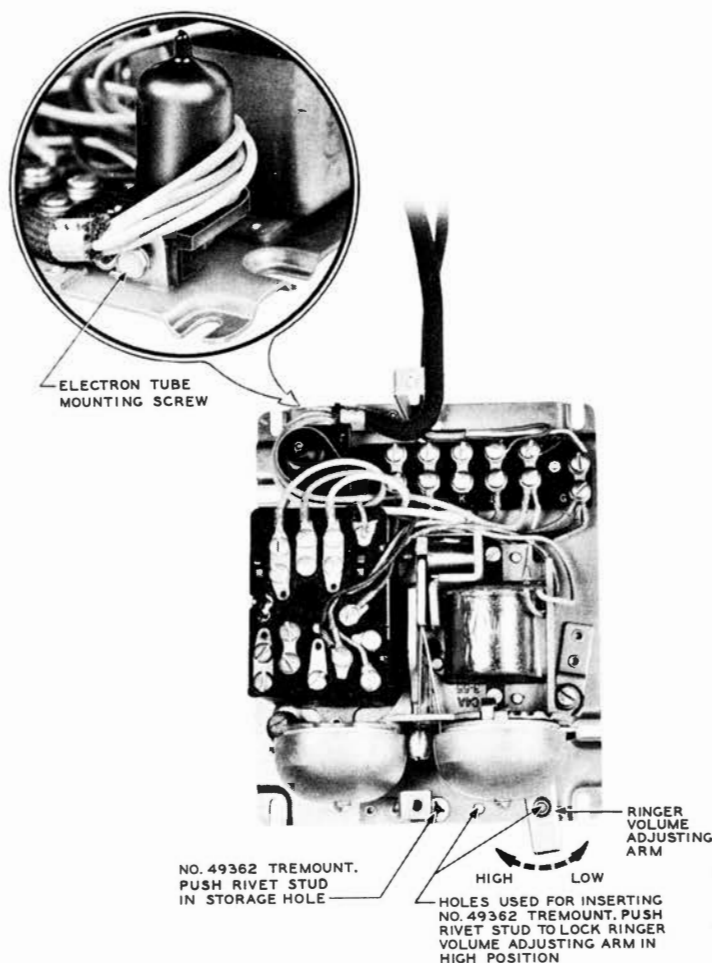


Fig. 9 — Wire and Mounting Cord Terminated in 685- and 686-Type Subscriber Sets

5.09 Fig. 9 shows a typical method of terminating wire and mounting cord in 686-type subscriber set. The method of securing mounting cord in 685-type subscriber set is also shown in Fig. 9.

5.10 When terminating cords with tie strings in subscriber sets, fasten tie strings to eyelet. Fasten the string to cord with three or four cable stitches.

5.11 Where location of a subscriber set does not result in raising cords above floor level, cord may be shortened by knotting (see Fig. 10). Locate cord knot near subscriber set.

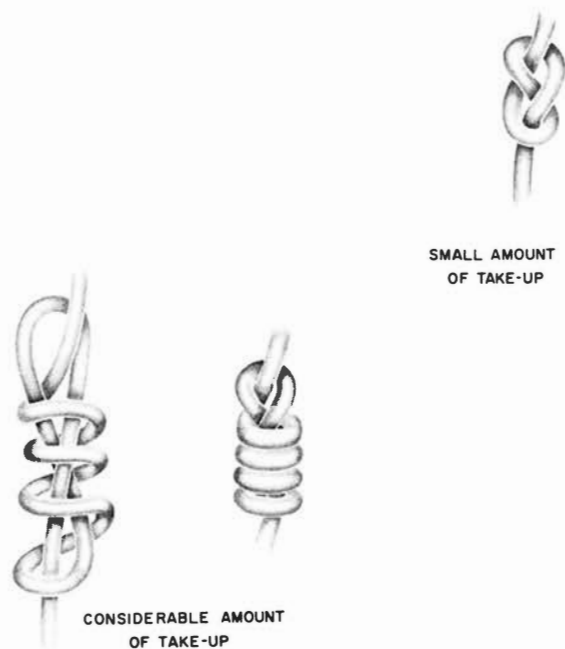


Fig. 10 — Mounting Cord Take-Up

Ringers

5.12 Subscriber sets equipped with a ringer volume control should be located so customer will have access to the ringer volume adjusting arm.

5.13 Ringer volume control on 685-, 686-, and 687-type subscriber sets normally comes locked in the high position. To enable customer to adjust ringer volume, place 49362 Tremount push rivet stud in the storage hole (shown in Fig. 9).

5.14 For one method of providing a ringer cutoff feature, see C Section covering C-type ringers.



Ringer cutoff feature should not be provided unless authorized by service order.

5.15 Normally, place subscriber sets with ringer gongs down. A typical exception to this general rule occurs when sets are installed horizontally under desks or tables.



Fig. 11 — Handset at Left



Fig. 12 — Handset in Front



Fig. 13 — Installed on Desk

6.00 HANGUP-TYPE HAND TELEPHONE SET

Mounting

6.01 Whenever possible, hangup-type hand telephone sets should be mounted on walls with switchhook to right or left of mounting. Dial should be mounted parallel to wall. This arrangement will reduce the possibility of handset's being knocked from cradle and will prevent cutoffs while dialing (see Fig. 11 and 12).

6.02 When installing hangup-type set on desks or tables, handset should normally line up with front of desk or table. This will reduce the chance of accidentally knocking handset off the switchhook. A 33A auxiliary bracket is used when a G-type mounting is attached to a desk or table where the top overhangs more than 1-1/2 inches (see Fig. 13 and 14).

6.03 When required (see 3.00), use a 164-type backboard for mounting hangup-type hand telephone sets. Fasten backboard to mounting surface as shown in C Section entitled Backboards. Where no backboard is used, fasten mounting bracket to mounting surface with four screws of the type specified in Table A.

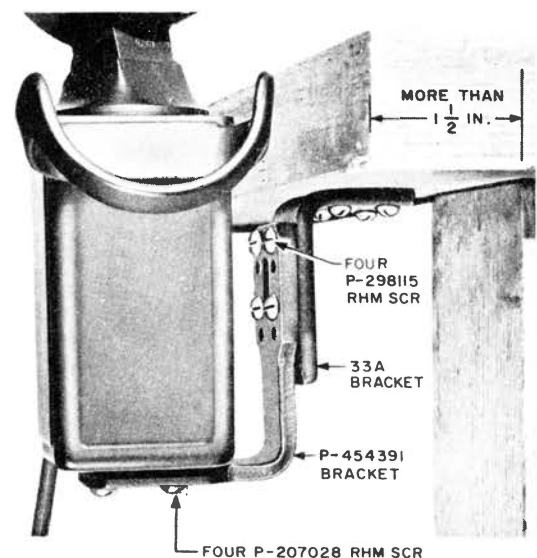


Fig. 14 — Installed with 33A Auxiliary Bracket

Dial

6.04 Dial should be adjusted to the most suitable position for customer.

6.05 The 41A and 43A dial mountings used with G-type handset mounting are arranged so dial may be rotated. Dial is locked in one of 12 positions, 30-degree intervals, by means of notches in base of dial mounting. Notches engage two studs at the top of handset mounting. Dial may be rotated as follows (see Fig. 15) :

1. Loosen dial positioning screw.
2. Lift dial slightly and revolve to the desired position.
3. Lower dial into place.
4. Retighten dial positioning screw.

6.06 The 43A dial mounting may also be tilted as much as 45 degrees backward in 15-degree intervals. Dial is tilted as follows (see Fig. 15) :

1. Loosen dial positioning screw.
2. Raise dial and tilt to desired angle.
3. Lower dial into place.
4. Retighten dial positioning screw.

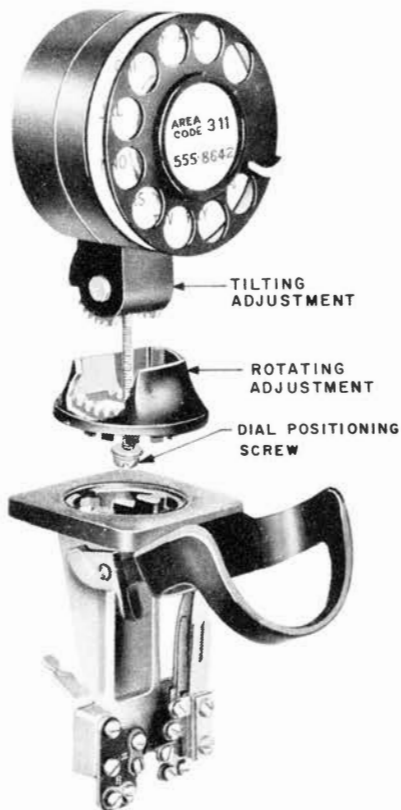


Fig. 15 — Positioning Adjustments of 43A Dial Mounting

6.07 The 39A dial mounting used with C1 hand set mounting has two mounting holes in base and can be attached directly to C1 hand set mounting with the two screws furnished (see Fig. 16).

- Dial can be faced to any of the four sides of the C1 mounting.
- An adapter and two mounting screws are furnished with 39A dial mounting (see Fig. 16).
- By mounting this adapter on C1 mounting and placing 39A dial mounting on adapter, the dial can be positioned to each of the four corners of C1 mounting.
- The above operations allow the dial to be placed in eight positions.
- Mount 39A dial mounting directly to C1 mounting whenever practical.
- Use an offset screwdriver to place these mounting screws.

Wiring

6.08 When terminating inside wire, leave sufficient slack to enable switchhook assembly to be reassembled in housing. Fig. 17 shows typical wiring of hangup-type hand telephone set.

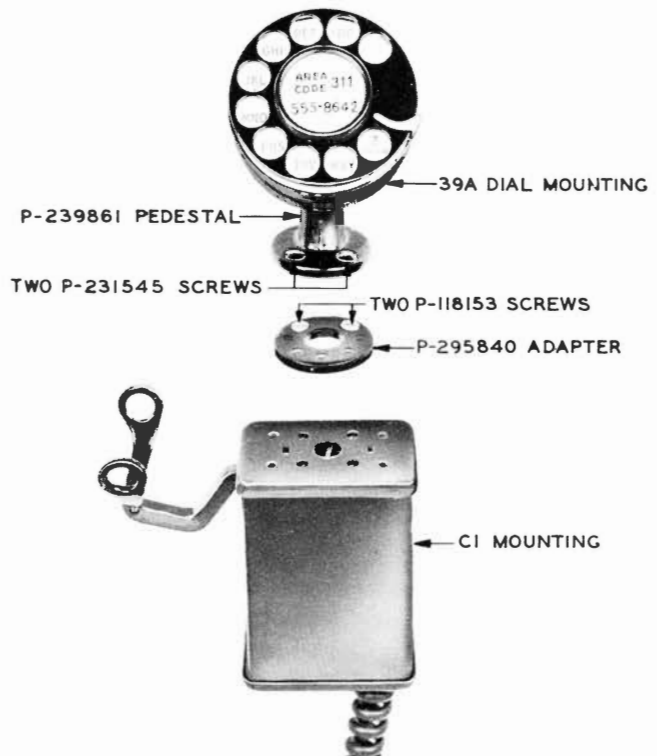


Fig. 16 — 39A Dial Mounting with C1 Hand Set Mounting

7.00 WALL-TYPE TELEPHONE SETS

Mounting

7.01 Wall-type telephone sets should be mounted at a height most suitable for the customer. Generally, the determining factor will be whether the customer will sit or stand while using the telephone.

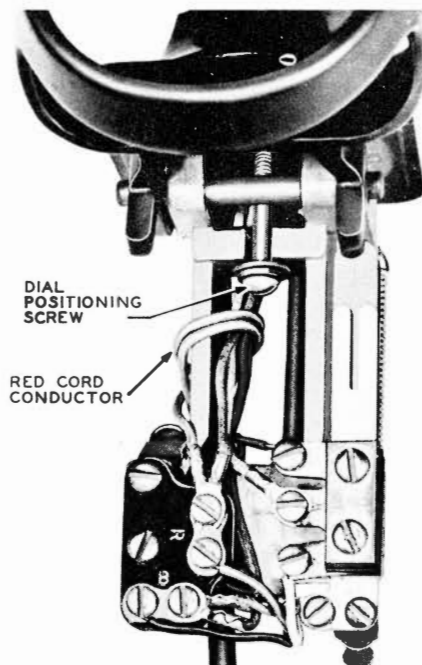


Fig. 17 — Wiring of Hangup-Type Hand Telephone Set

7.02 Baseplate of 500-type wall telephone set manufactured after January, 1959, is provided with additional holes to permit mounting set directly to conduit outlet box.

Wiring

7.03 Where wires are run exposed, they may be brought into the 354 wall-type telephone set through cord slot (see Fig. 18).

7.04 Concealed wiring may enter 354 (Fig. 18) and 554 (Fig. 19) wall-type telephone sets through the opening provided in metal base.

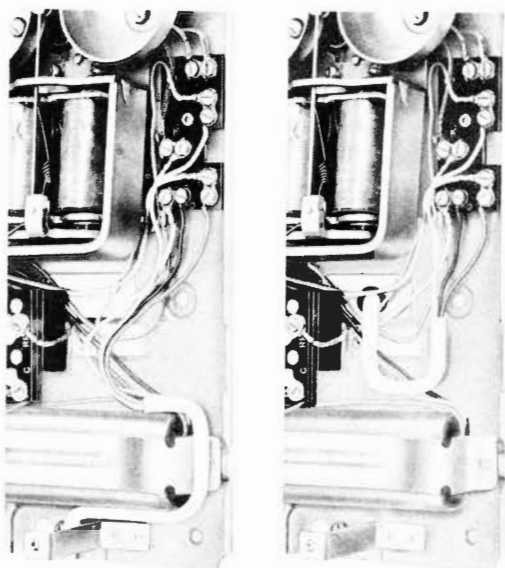
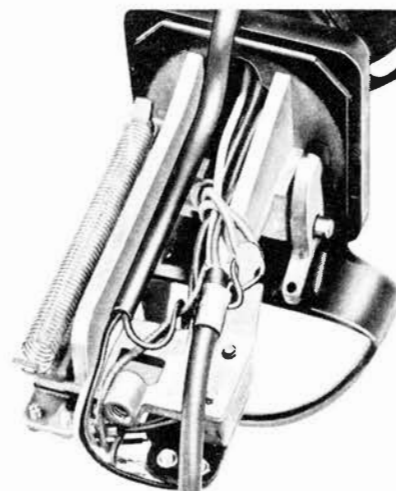


Fig. 18 — Inside Wire Terminated in 354 Wall-Type Telephone Set

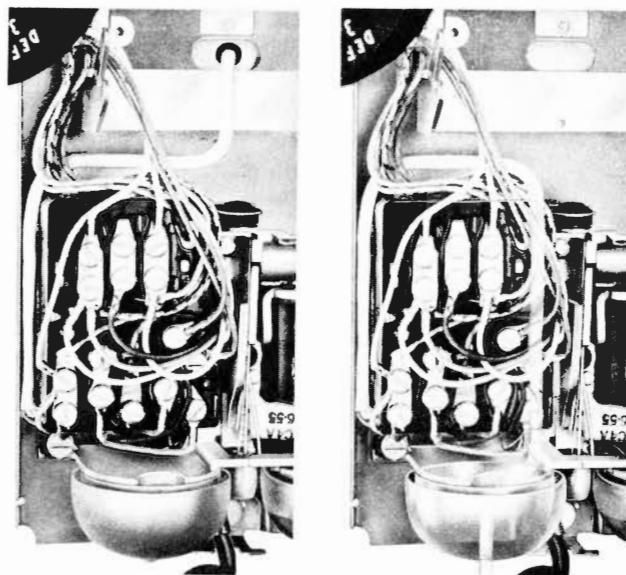


Fig. 19 — Inside Wire Terminated in 554 Wall-Type Telephone Set

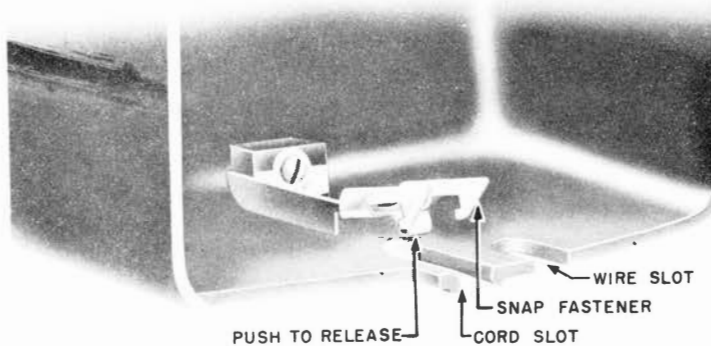


Fig. 20 — Entrance Hole in Housing of 554 Wall-Type Telephone Set

7.05 The 554 wall-type telephone sets have a separate entrance hole provided for inside wire (see Fig. 20).

Note: On 554-type sets which do not have a wire slot, inside wire may enter cord slot.

7.06 Where it is necessary for exposed wire to enter the top of the wall-type telephone set, set may be mounted on a backboard and wire brought down wiring channel in the backboard and through hole in metal base of the set.

8.00 DESK-TYPE TELEPHONE SETS

8.01 The 3- or 4-conductor mounting cords associated with desk-type telephone sets are normally terminated on 42-type connecting blocks (see Fig. 21, 22, and 23).

8.02 Cord conductors shall be terminated so that they do not lie directly over screw terminals or center post of connecting block, nor project beyond the edge of connecting block.

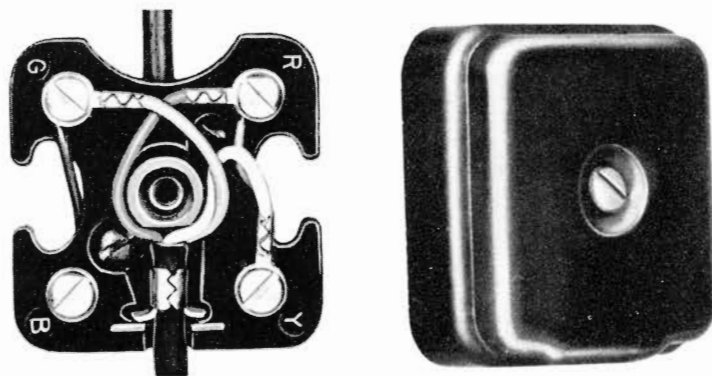


Fig. 21 — Terminating 1-5 8 Inch Cord Conductors

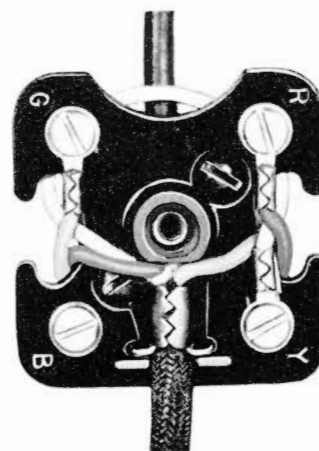


Fig. 22 — Terminating 4-Inch Cord Conductors

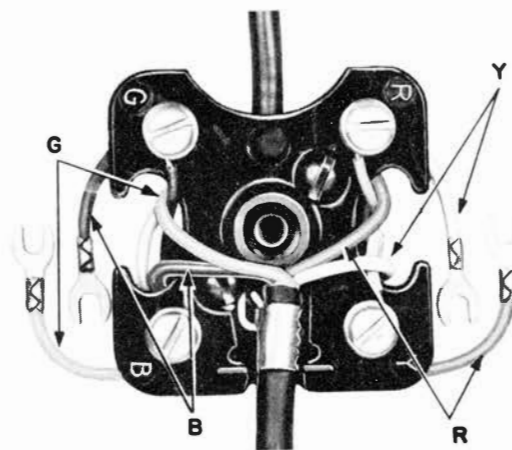
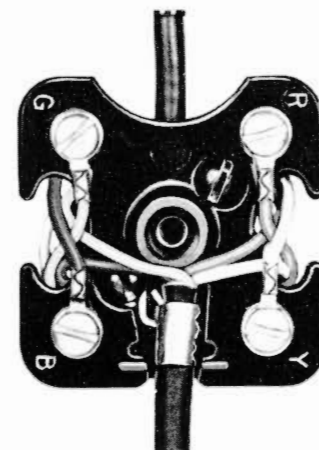


Fig. 23 — Terminating 6-Inch Cord Conductors

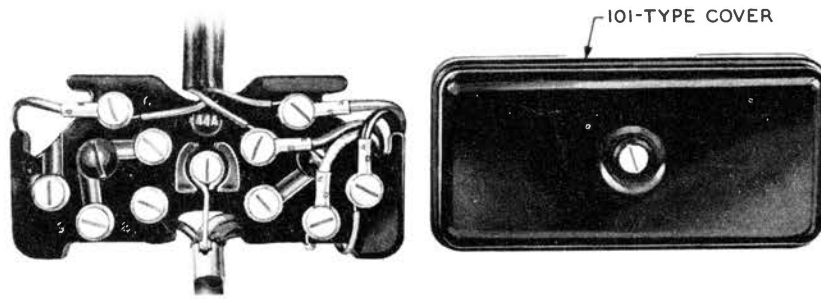


Fig. 24 — 5-Conductor Cord Terminated on 44A Connecting Block

8.03 Where desk-type telephones having mounting cords with five or more cord conductors are installed, 44A-type connecting blocks should be used (see Fig. 24).

- At desk locations, mounting cords should be fastened so no portion of the cord rests on the floor.

8.04 When the 47-type connecting block is used, the cord conductors should be terminated as shown in Fig. 25.

8.05 Where 5 to 12 conductors are to be terminated, the 47C connecting block should be used.

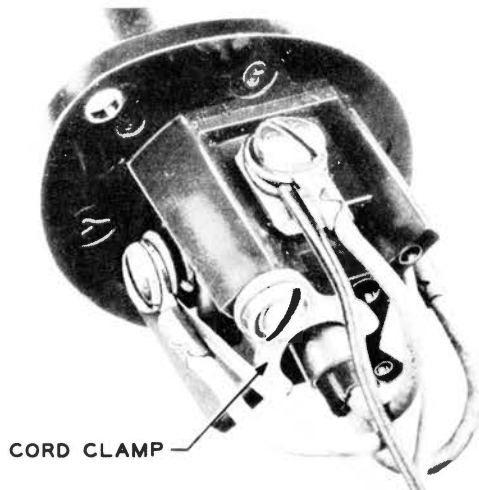


Fig. 25 — Cording of 47-Type Connecting Block

Dial Light or Night Light

8.06 A KS-16184, List 3 or 2012A transformer should be used as a source of low-voltage ac power for desk-type telephone sets equipped with night light or dial feature (see C Section entitled Induction Coils, Networks, Equalizers, and Transformers). Connect lamp leads to two terminals on the transformer. Plug transformer into any parallel-blade 115-volt 60-cycle convenience outlet. Only one dial light or night light may be connected to a transformer. For BEST illumination, not more than 150 feet of paired station wire or inside wiring cable should be used between the transformer and station set.

Note: Because of added resistance, do not use 25-foot mounting cords.

8.07 Before installing a dial light transformer, make certain that telephone protector and/or signaling ground conductor is connected to the best ground available. If the best ground available is a telephone ground rod, the telephone ground rod shall be bonded to the power service ground electrode on the same premises, as outlined in the C Section entitled Protector and Signaling Grounds.

- Damage to the transformer may result if a sufficient difference of potential is allowed to develop between the power and telephone grounds. Because difference of ground potential appears between the windings of the transformer, voltage from a lightning surge could break down the insulation between the windings.

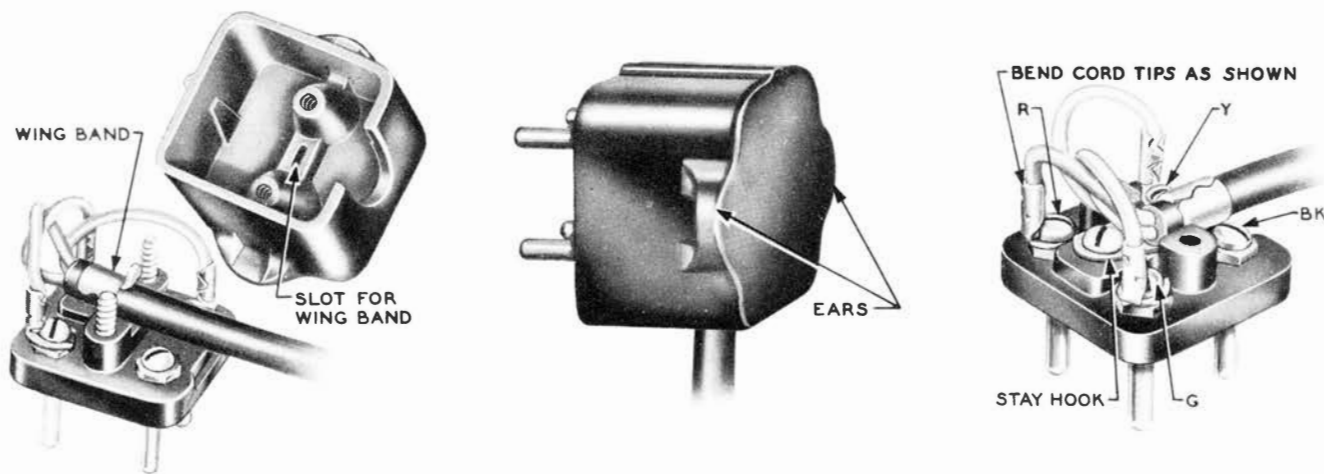


Fig. 26 — Terminating Cords on 283B Plug

9.00 STATION PLUGS

9.01 Station plugs for use with flush and non-flush station jacks are furnished in:

- Brown, ivory, or beige with four contacts.
- Brown and ivory with eight contacts.

9.02 For portable telephone sets requiring two or four conductors, use the 283B plug. This plug will accommodate cords equipped with wing-type stay bands as well as stay hooks. The cover has two projecting ears that provide a more positive grip when removing plug from associated jack (see Fig. 26).

9.03 For portable telephone sets used on station systems requiring five to eight conductors, the 274A plug is used (see Fig. 27).

9.04 Where more than one jack is installed, they must be mounted in the same relative position. The cord should always enter the plug as shown in Fig. 26.

9.05 Terminating station cords in plug:

1. Mounting cord must be placed on the connection side of the plug between the green-black and red-yellow terminating points. See Fig. 26.



Note: White cord conductor should be terminated before mounting cord is tied in place.

Fig. 27 — Terminating Cords on 274A Plug

2. Terminate conductors as indicated by the color designations stamped adjacent to terminals except for tip party stations requiring identification as indicated in following paragraph.



For tip party stations wired for accounting identification, terminate green conductor of station cord on BK terminal of plug instead of on G terminal. A corresponding change is required in the station wiring of the associated jacks. (See C Section entitled Connecting Blocks, Jacks, and Plugs.) Where existing installations are visited, terminations at jacks and plugs for tip party should be changed if necessary.

3. Spade tipped conductors should be bent up toward the cover as shown in Fig. 26.
4. One edge of the wing band must be placed in the larger (shallow drilled) of the two holes in the base.
5. The cover must be placed so that the cord and the wing band will seat in their respective slots.

6. Care should be exercised to have body of the plug properly seated in cover before tightening screws in order to decrease the possibility of pinching cord conductors or stripping threads.

10.00 SERVICE CHECK



As an aid in satisfying the customer and providing trouble-free service, the following items should be verified before leaving the job:

- Adequate telephone service on premises.
- Proper operation of all station equipment.
- Customer's understanding of correct use of his equipment.
- Customer's possession of current directory and knowledge of calling area.
- Customer's acceptance of ringer tone and volume.
- Customer's possession of instruction card.
- Correct telephone number in number card holder.
- Over-all appearance of installation.