

TYPE 800 HAND TEST TELEPHONE

1. GENERAL

1.01 This section describes the Type 800 Hand Test Telephone. The instrument is a self-contained portable dial-handset intended for use by installers, repairmen, linemen, switchmen and other authorized employees for test or temporary communication use. Such usage is covered in Section 100-202-500.

1.02 This section is reissued to incorporate a description of the cord assemblies which are standard with the Type 801 hand test telephone. The cord assemblies now can also be used with the Type 800 hand test telephone. Marginal arrows are used to identify the new material. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. DESCRIPTION

2.01 The housing of the Type 800 Hand Test Telephone is a lightweight, impact-resistant structure molded of bright red nonconductive polycarbonate fastened together with four thread-cutting screws. The principal half of the shell contains the transmitter contacts at one end, an inductor and three-position slide switch in the handle, and a Type 51A dial at the opposite end, as well as a resistor and capacitor. A mating half houses a standard Type 810 receiver (varistor protected) at the dial end and serves to retain a Type 810 transmitter at the other. A chrome-plated brass finger wheel provides resistance to corrosion, wear, and impact.

2.02 The Type 800 can use all of the spade-terminated cord assemblies associated with the Type 801 (Figure 1 and Table 1). The Type 800 can be used with the central office test cords referred to in Figure 2 and Table 2, but certain modifications are necessary to offer this capability.

2.03 The modifications necessary to change the Type 800 for central office use will dedicate this hand test telephone for central office use only. After this modification, the hand test telephone should be marked "for central office use only." Perform the following procedures to modify a Type 800 for this use:

- Drill a 0.116-inch pilot hole for a No. 6 plastite screw (HD-765600-PB06). (Refer to Figure 3.)
- Attach the red and black leads of resistor plug assembly HD-570008-B to the outside screw terminals and rundown screw.
- Attach the stay cord hook of the resistor assembly to the drilled hole in the housing for strain relief.

2.04 To eliminate the 1500-ohm resistance from the Type 800 circuit perform the following steps:

- Remove the Type 800 housing.
- Cut and splice the two brown resistor leads together (Figure 4).
- Replace the housing.

NOTE: This 1500-ohm resistor must be removed because the HD-570008-B resistor plug assembly has a 1500-ohm resistance built into it.

2.05 A formed-wire belt clip is attached behind the transmitter of the hand test telephone to simplify its being carried by field personnel. When the set is in use, the clip may be retracted against the handset handle where it snaps over the head of a thread-cutting screw mounted near the transmitter end. For central office use the clip may be detached from the set, which can then be suspended from the hole in a housing web from which the clip was removed. Mounting plate D-780869-A (Figure 5) is available separately for attachment to distributing frames or switching equipment support structures and provides a hook for such indoor storage.

2.06 The slide switch provided in the handset handle has three positions:

- With the switch in its unmarked center or neutral position, a talk path exists from terminal 1 (Figure 6) over the dial pulse springs, transmitter, 95-ohm inductor and the C and R contacts of the switch to terminal 2. The receiver is connected in series with a 0.47 microfarad capacitor across the potential drop created by the inductor. When the dial is used, two of its off-normal springs shunt both the receiver and the transmitter, leaving only the pulse springs connected across the line terminals.
- With the switch moved toward the receiver to its C position, the C contacts open the dc path through the transmitter and inductor, leaving the receiver capacitively connected in a monitor circuit.
- With the switch moved toward the transmitter to its R position, a loop test 1500-ohm resistor is inserted in series with the normal circuit as its shunting contacts (R) open. This permits simulating a long loop for tests of switching equipment.

3. CLEANING

3.01 Avoid the use of chlorinated hydrocarbon solvents (trichlorethylene or 1, 1, 1-trichloroethane, for example), benzene, gasoline or methanol (denatured or wood alcohol) when cleaning the housing of the hand test telephone. Ethanol (grain alcohol) or naphtha is safe for use on the plastic material of the housing.

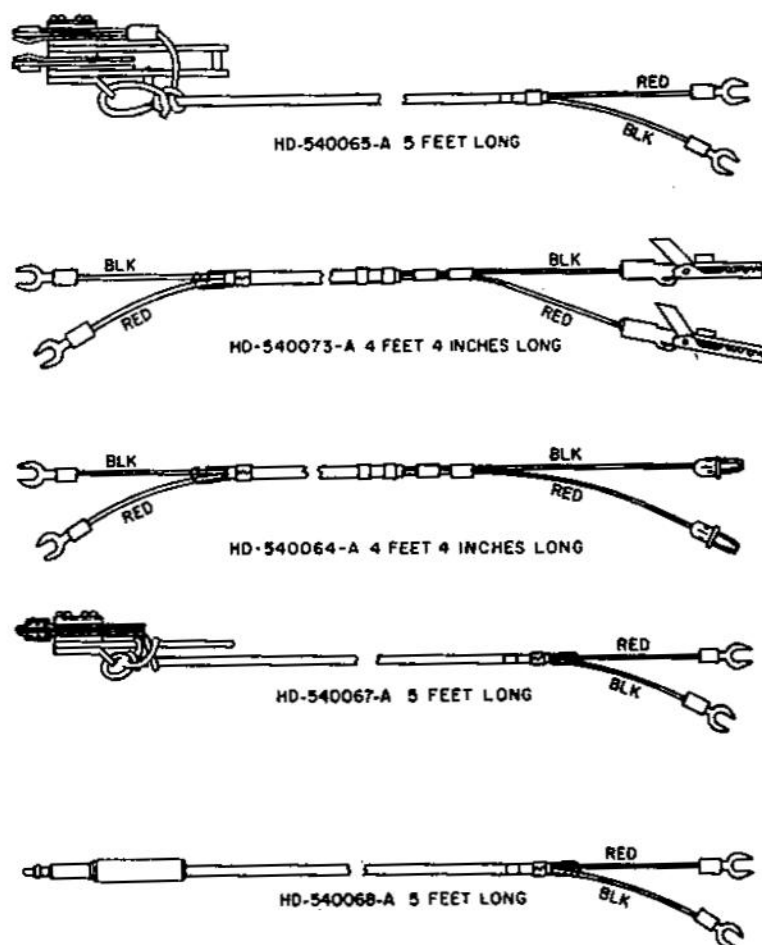


Figure 1. Miscellaneous Test Cords.

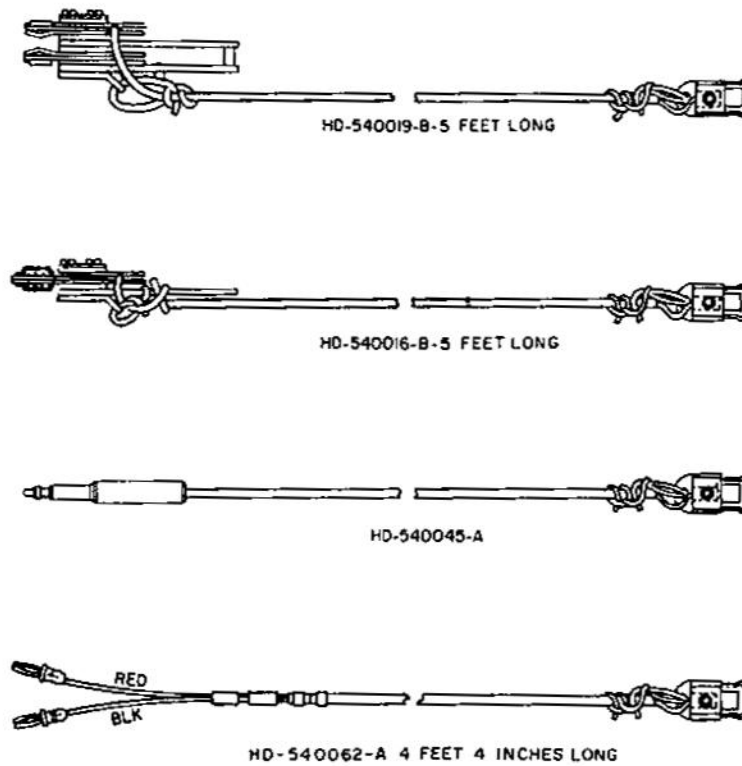


Figure 2. Central Office Test Cords.

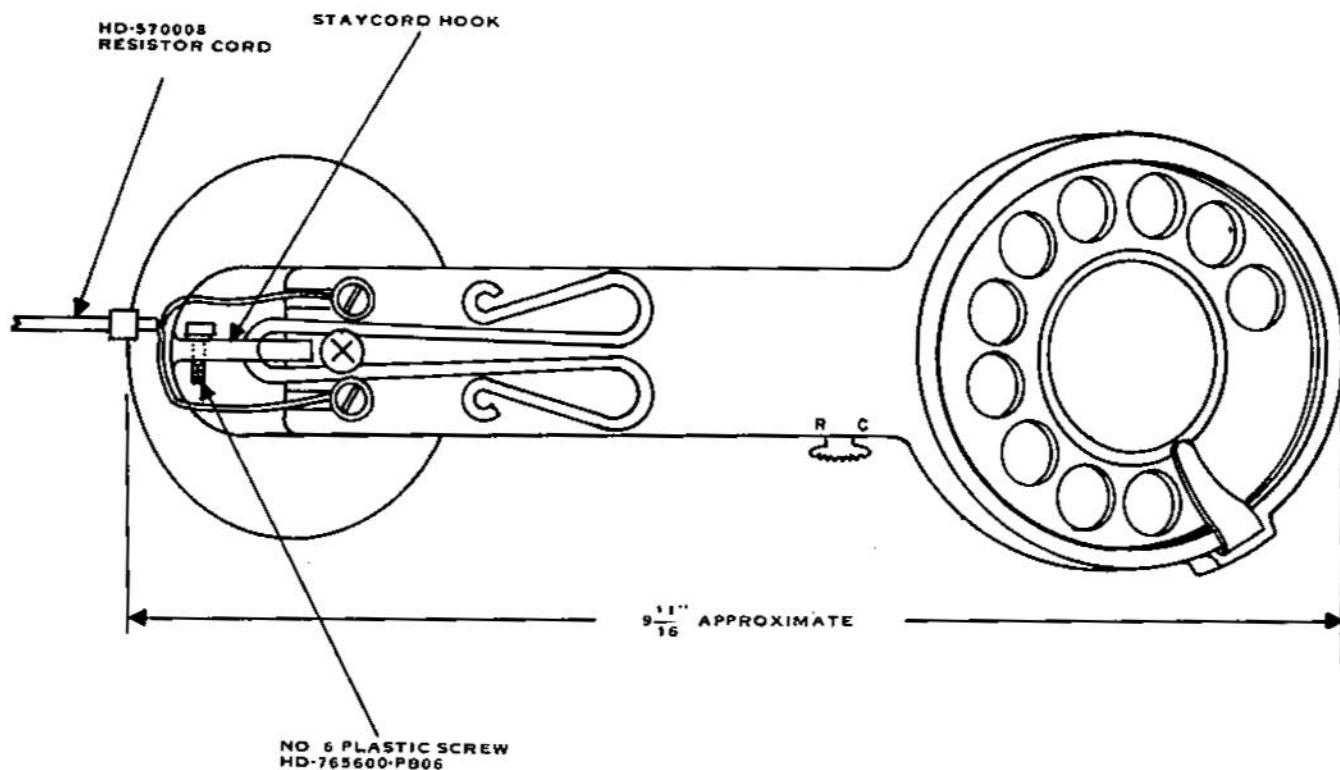


Figure 3. Modification for Resistor Plug Addition.

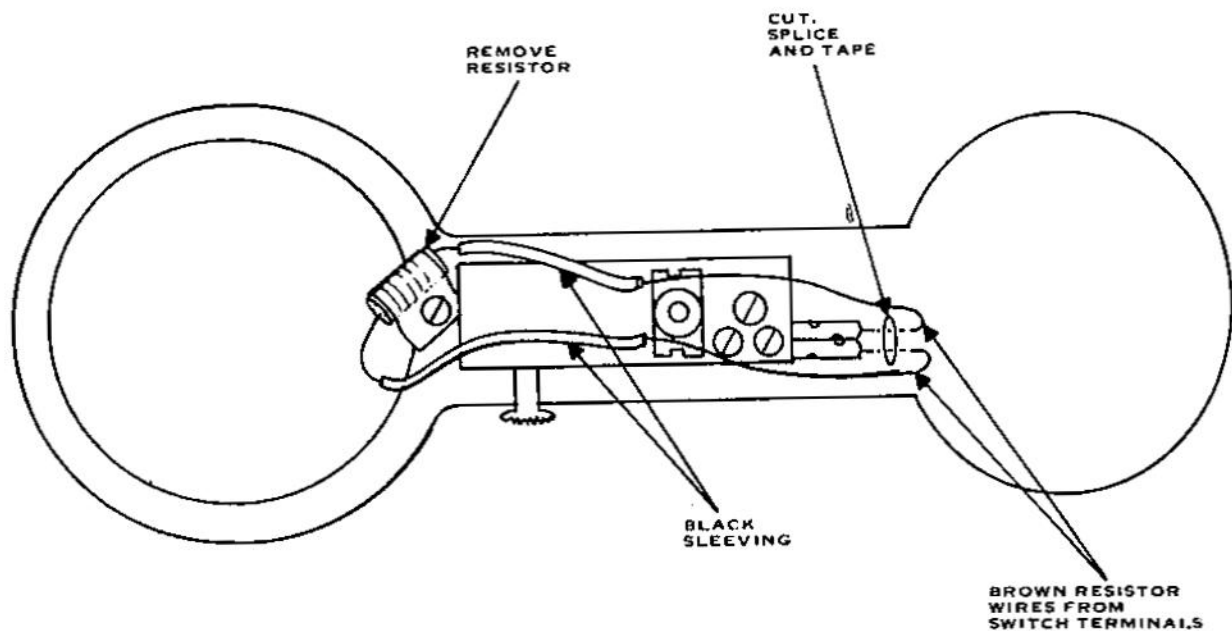


Figure 4. Removal of 1500 Ohm Resistor.

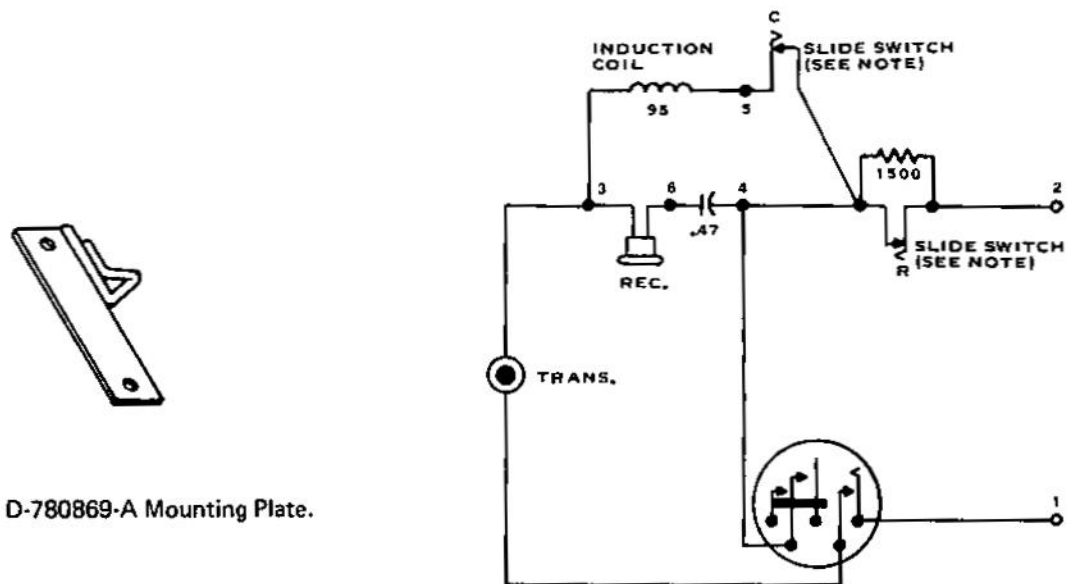


Figure 5. D-780869-A Mounting Plate.

NOTE:
SLIDE SWITCH SHOWN IN CENTER OR TALK POSITION.

Figure 6. Schematic Diagram.

Table 1. Miscellaneous Test Cord Assemblies.

ORDER NUMBER	DESCRIPTION
HD-540073-A	A 4-foot 4-inch-long, two-conductor cord, equipped with insulation-piercing alligator clips at one end and spade terminals at the other end (Figure 2).
HD-540067-A	A 5-foot-long, two-conductor cord (Figure 2), one end terminated with a two-contact plug for insertion into switch test jacks, the other end is terminated with spare terminals.
HD-540064-A	A 4-foot 4-inch-long, two-conductor cord (Figure 2), one end terminated with banana plugs, the other end with spare terminals.
HD-540068-A	A 5-foot-long, two-conductor cord; one end terminated with a switchboard type plug, the other end terminated with spare terminals (Figure 2).
HD-540065-A	A 5-foot-long, two-conductor cord, one end terminated with a four-contact plug (Figure 2) for insertion into switch test jacks, the other end terminated with spade terminals. A pushbutton on the four-contact plug is used to short two of the contacts on the switch being tested.

Table 2. Central Office Test Cord Assemblies.

ORDER NUMBER	DESCRIPTION
HD-570008-A	A 2.5-inch-long, two-conductor cord. Cord is equipped with spade terminals at one end and a plug at the other end. The plug receives the jack of other test cords. This cord has a 1500-ohm resistor wired in series with one of the conductors to simulate a long line loop. A mode switch either inserts or removes the 1500-ohm resistor from the line. This cord is used in central office testing to simulate a long line loop.
HD-540019-B	A 5-foot-long, two-conductor cord, one end terminated with a four-contact plug (Figure 3) for insertion into switch test jacks, the other end terminated with a jack to mate with the plug of the HD-570008-A cord. A pushbutton on the four-contact plug is used to short two of the contacts on the switch being tested.
HD-540016-B	A 5-foot-long, two-conductor cord, one end terminated with a two-contact plug (Figure 3) for insertion into switch jacks, the other end terminated with a jack to mate with the plug of the HD-570008-A cord.
HD-540045-A	A 5-foot-long, two-conductor cord, one end terminated with a switchboard type plug, the other end terminated with a jack (Figure 3) to mate with the plug of the HD-570008-A cord. This cord is used for test of central office and PBX equipment accessed by test or patch jacks.
HD-540062-A	A 4-foot 4-inch-long, two-conductor cord (Figure 3), one end terminated with banana plugs, the other end terminated with a jack to mate with the plug of the HD-570008-A cord.

TYPE 801 HAND TEST TELEPHONE
DESCRIPTION

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1. GENERAL

1.01 This section describes the Type 801 hand test telephone designed for use by installers and central office maintenance personnel.

1.02 The Type 801 hand test telephone (Figure 1) is a dial-equipped handset that can be used to perform dialing, talking, monitoring, and line polarity tests. A convex mode switch located in the hand grip is used to condition the telephone for the various tests. The performance features of the hand test telephone are as follows:

- (a) A built-in high-impedance coupling circuit in the monitoring mode to prevent interference with data transmission.
- (b) A capability for inserting a 1,500-ohm series resistor into the line loop for simulating long-loop conditions in the central office.
- (c) A talk mode in which the transmitter is directly coupled with a line and the receiver is coupled to the line with a capacitor that prevents dc biasing. In this mode, the hand test telephone is essentially a common battery series telephone.

1.03 The hand test telephone can be connected to the equipment in the central office, permitting maintenance personnel to observe operation of the equipment under test. Entry and withdrawal from a line can be accomplished without any disturbing clicks.

1.04 This section is reissued to incorporate the latest changes to the hand test telephone and to describe the new cord assemblies for it. Marginal arrows are used to indicate

changes. Remove and destroy all copies of Issue 2 and its addendum. File this issue in their place.

2. DESCRIPTION

2.01 The Type 801 hand test telephone is designed to use standard GTE Automatic Electric components such as the Type 154A dial (mounting modified) and the transmitter and receiver capsules used in the Type 810 handset.

2.02 The components are housed in a high-impact polycarbonate housing and are arranged to provide a better weight distribution than previous models. This housing also provides the test telephone with good electrical properties as well as high-impact properties in both high- and low-temperature ranges. The housing is arranged into two halves with a tongue-and-groove arrangement at the mating edges for improved resistance against entry of water. Both housing halves are fastened together with machine screws that enter through one housing half into metal brackets fastened to the other half.

2.03 The Type 801 hand test telephone is bright orange and is approximately 10-1/4 inches long, 3-1/8 inches wide,

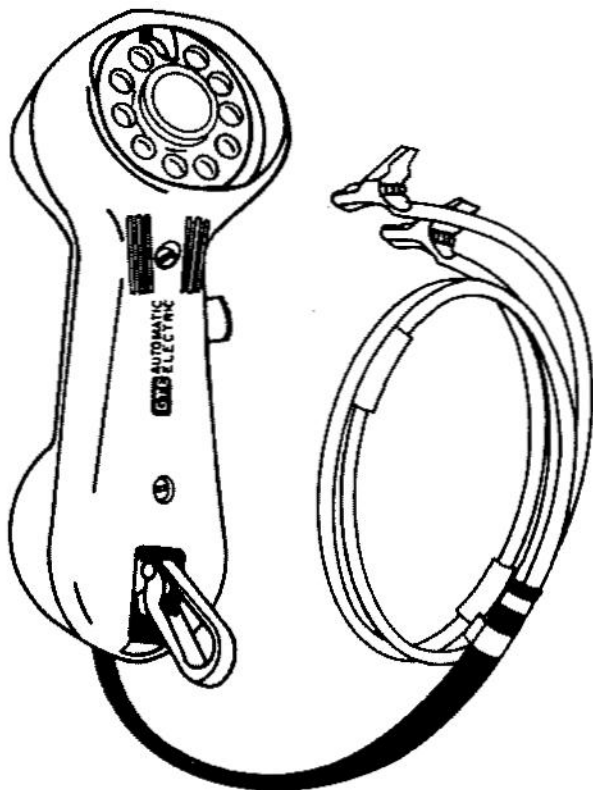


Figure 1. Type 801 Hand Test Telephone.

and 3-1/2 inches high and weighs approximately 25 ounces (less test cords).

2.04 The relationship of the transmitter and receiver to each other in the housing and to the user, and the design of the outer housing area adjacent to the receiver and transmitter that come in contact with the user, are the same as in the Type 810 handset and provide effective acoustical coupling with the user.

2.05 The Type 801 hand test telephone has a belt hook with a spring-tensioned jaw at the transmitter end of the housing that is intended to ensure positive connection to the metal rings of the lineman's belt and prevent accidental uncoupling of the hook. An optional bracket (HD-731059-A) is available that will enable the belt hook (D-621484-A) to slip over the lineman's belt. These parts are available in kit form (HH-880022-1).

2.06 The dial (modified Type 154A) has a high-impact polycarbonate fingerwheel. The transmitter and receiver are shunted during dialing by a set of contacts on the dial. By not routing these dial pulses through the transmitter and receiver, their possible distortion will be minimized.

2.07 The hand test telephone is equipped with a mode switch that provides the following modes of operation:

- (a) Monitor (normal position).
- (b) Momentary talk (depress while in monitor position).
- (c) Locking talk (depress and slide toward the receiver to lock).

The operation of the mode switch allows direct movement from modes a to b to simulate an on-hook to off-hook condition for use in testing for multiple seizures of switching equipment. The action of the spring assembly actuator is linear and does not allow for lessening of contact pressure when the switch is moved from mode b to mode c. The switch assembly is unoperated in mode a.

2.08 All major subcomponents of the hand test telephone such as the dial, main terminal board, transformer, and mode switch are wired for easy replacement in servicing. In addition, the standard transmitter and receiver are easily replaceable modules. The hand test telephone, shown schematically in Figure 2, can be equipped with one of several connecting cords that enable it to be connected to a line outside the central office, a test jack at the switch room in the central office, or a switchboard jack. The cords are described in parts 3 and 6.

3. TEST CORDS

General

3.01 Various types of test cords are available for use in conjunction with the Type 801 hand test telephone. A special resistor cord (HD-570008-A, Figure 3) is furnished for central office use. This cord is equipped with a slide switch that inserts 1,500 ohms of resistance into the loop on tests, simulating a long-loop condition. The central office test cords, (Figure 4) are terminated at one end with a plug that mates with the resistor cord assembly of the L-9078-80 hand test telephone.

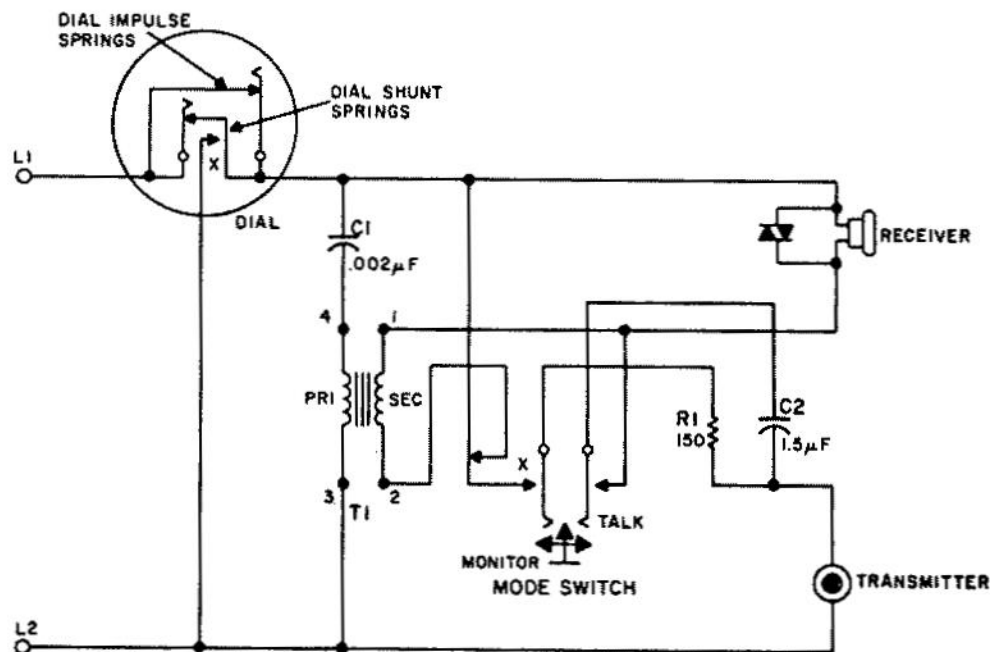


Figure 2. Schematic of Type 801 Hand Test Telephone.

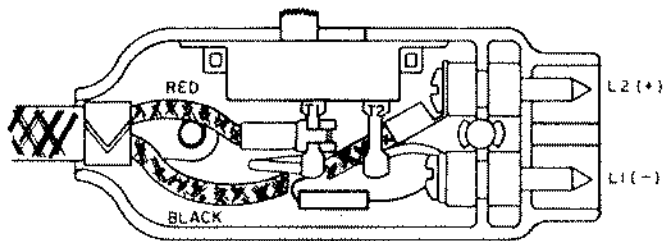
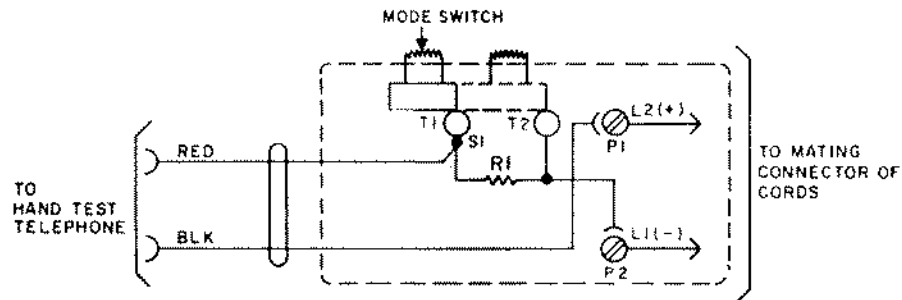


Figure 3. Resistor Cord Assembly (HD-570008-A).

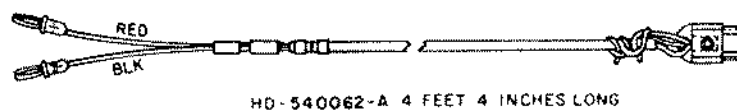
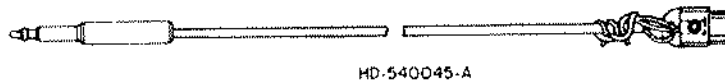
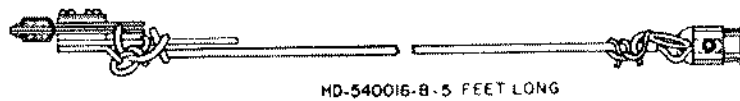
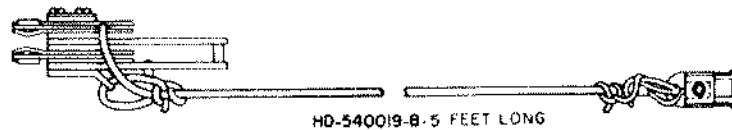


Figure 4. Central Office Test Cords.

3.02 The outside plant handset (L-9078-A1) is equipped with a cord (HD-540073-A) equipped with insulation-piercing alligator clips (Figure 5). Cords referenced in this figure can also be used in place of the HD-570008-A or HD-570073-A cords and would be a dedicated handset using the central office cord.

Test Cord Installation

3.03 Use the following procedures to install any spade-ended test cords into the Type 801 hand test telephone:

- Remove the three housing screws and separate the two halves of the hand test telephone. To separate, lift the upper housing slightly at the belt hook end, grasp the upper housing at the dial end, and pull upward and backward toward the transmitter end to disengage the housing hook from the receiver bracket spring.
- Position the test cord leads as shown in Figure 6.
- Connect test cord leads to the terminal screws and the cord retainer to the cord retaining screw.
- Reassemble the two halves of the hand test telephone.

4. METHOD OF OPERATION

Monitoring and Dialing on a Line

4.01 Use the following procedures to monitor and dial on a line:

- Set the mode switch to the monitor position.
- Connect the test clips or plug to the line being tested and ascertain that the line is idle or busy. If busy, withdraw from the line.
- If dialing is to follow, depress the mode switch to the talk position before dialing.

Testing Central Office Switching Equipment

4.02 Use the following procedures for testing central office switching equipment:

- Ensure that the switch is idle (monitor mode).
- Busy out the switch by operating the busy key on the switch, and insert the test plug into the switch test jack.

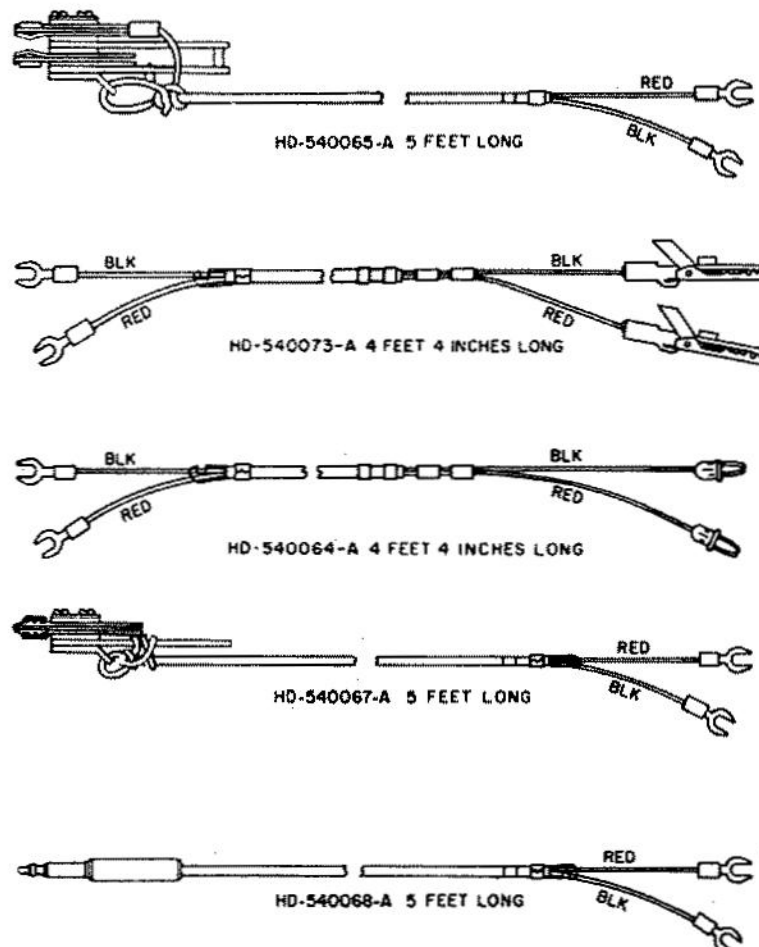


Figure 5. Miscellaneous Test Cords.

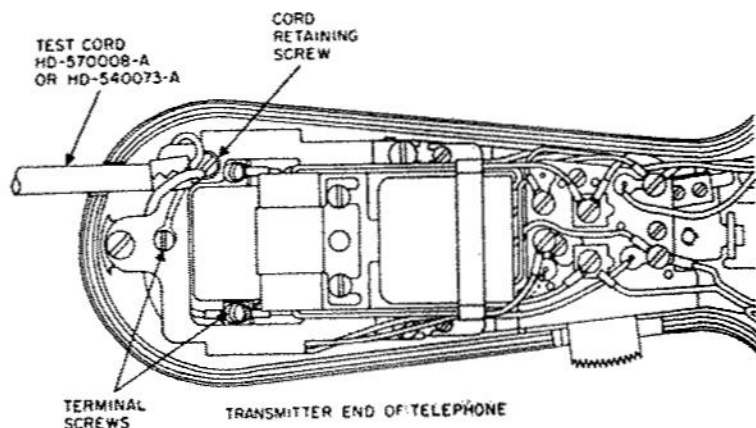


Figure 6. Test Cord Installation.

- (c) To pulse or step the equipment under test by using the dial, depress or set the mode switch to the talk position.
- (d) To simulate a high-resistance loop, set the switch located on the resistor cord to the R IN position.
- (e) To release the switching equipment between successive tests, set the mode switch to the monitor position.
- (f) At the completion of testing, remove the test plug or clips and return the switch to normal by restoring its busy key.

Line Polarity Test

4.03 Polarity of the line wires must be maintained at divided ringing party line stations, at coin telephones and at station installations in a SATT system, PABX, key telephone system, etc. Use the following procedures to perform line polarity tests:

- (a) If the line under test is a party line, monitor (determine if idle) before identifying the polarity of the leads.
- (b) With the mode switch in the talk position, connect one test clip to a known ground as shown in Figure 7.
- (c) Touch the other clip first to one lead and then the other. The lead giving the louder click in the receiver of the hand test telephone and possibly returning dial tone is the minus lead or the ring side of the line.

4.04 The polarity indicator has been incorporated in the Type 801 hand test telephone at the manufacturing plant. Paragraph 6.01 provides ordering information. An on-hook polarity indicator kit (HH-880026-A) has also been developed for use on the Type 801. For assembly of the polarity indicator to the Type 801 refer to Section 997-530-800. Use the following procedures to perform line polarity tests

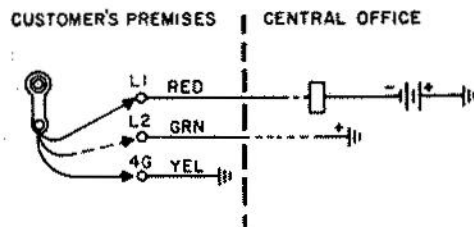


Figure 7. Connection for Line Polarity Test.

with a Type 801 hand test telephone equipped with the polarity indicator kit:

- (a) If the line under test is a party line, determine if the line is idle before identifying the polarity of the leads.
- (b) With the mode switch in the talk position, connect one clip to a known ground as shown in Figure 7.
- (c) Touch the clip to one lead: if the light lights, you have reverse polarity; if the light remains extinguished, you have normal polarity.

5. CLEANING

5.01 To remove oil, grease, and dirt from the telephone and connector housings, it is recommended that only solvents compatible with polycarbonate resins or a light solution of a mild detergent and water be used. Use of the wrong cleaning agents can result in severe deterioration of the hand test telephone.

6. ORDERING INFORMATION

6.01 The part numbers for the Type 801 hand test telephone are as follows:

- (a) L-9078-A1-Type 801 hand test telephone equipped with lineman's test cord (HD-540073-A).

- (b) L-9078-BO-Type 801 hand test telephone equipped with resistor cord assembly (HD-570008-A) for central office use.
- (c) L-9078-CO-Type 801 hand test telephone without any test cord assemblies.
- (d) L-9078-DO-Type 801 hand test telephone equipped with test cord assembly (HD-540067-A).
- (e) L-9078-AI-Type 801 hand test telephone for outside plant use with cord and polarity indicator.
- (f) L-9078-BOP-Type 801 hand test telephone for central office use with cord and polarity indicator.
- (g) L-9078-COP-Type 801 hand test telephone without cords with polarity indicator.
- (h) L-9078-DOP-Type 801 hand test telephone for central office use with two prong cords and polarity indicator.

6.02 The part numbers for the various cord assemblies are given in Table 1.

7. MODIFICATIONS

7.01 A low-pass filter kit (HH-880042-1) consisting of an inductor assembly (HD-280015-A), an inductor assembly

holder (HD-731089), and a resistor-capacitor assembly is available. This filter kit allows the Type 801 hand test telephone to attach to customer carrier lines without disruption of carrier frequencies. The filter kit is installed as follows:

- (a) With the housings separated, attach the inductor holder to the receiver bracket assembly.
- (b) Attach the inductor assembly to its holder. Dress red, brown, and yellow inductor assembly wires through the transformer strain relief and attach these leads to the screw terminals located on the transmitter holding bracket:
 - (1) RED to Terminal 8.
 - (2) BRN to Terminal 7 (L2).
 - (3) YEL to Terminal 10 (L1).
- (c) Attach the orange (ORN) lead to component terminal board screw terminal 1.
- (d) Attach the resistor-capacitor assembly between component terminal board screw terminal 1 and the receiver terminal (with black dial lead).

→ Table 1. Test Cords.

ORDER NUMBER	DESCRIPTION
HD-570008-A	2.5-foot-long, two-conductor cord. Cord is equipped with spade terminals at one end and a plug at the other end. The plug receives the jack of other test cords. This cord has a 1,500-ohm resistor wired in series with one of the conductors to simulate a long line loop. A mode switch (Figure 3) either inserts or removes the 1,500-ohm resistor from the line. This cord is used in central office testing to simulate a long line loop.
HD-540073-A	4-foot 4-inch-long, two-conductor cord; equipped with insulation-piercing alligator clips at one end and spade terminals at the other end (Figure 5). This cord is standard with the Type L-9078-AO hand test telephone.
HD-150045-A	Alligator test clip for the Type HD-540073-A hand test telephone.
HD-540019-B	5-foot-long, two-conductor cord; one end terminated with a four-contact plug (Figure 4) for insertion into switch test jacks, the other end terminated with a jack to mate with the plug of the HD-570008-A cord. A pushbutton on the four-contact plug is used to short two of the contacts on the switch being tested.
HD-540016-B	5-foot-long, two-conductor cord; one end terminated with a two-contact plug (Figure 4) for insertion into switch test jacks, the other end terminated with a jack to mate with the plug of the HD-570008-A cord.
HD-540045-A	5-foot-long, two-conductor cord; one end terminated with a switchboard-type plug, the other end terminated with a jack (Figure 4) to mate with the plug of the HD-570008-A cord. This cord is used for test of central office and PBX equipment accessed by test or patch jacks.
HD-540067-A	5-foot-long, two-conductor cord (Figure 5); one end terminates with a two-contact plug for insertion into switch test jacks, the other end is terminated with spare terminals. This cord is standard with the L-9078-DO hand test telephone.
HD-540062-A	4-foot 4-inch-long, two-conductor cord (Figure 4); one end terminated with banana plugs, the other end terminated with a jack to mate with the plug of the HD-570008-A cord. The HD-540062-A cord will accept two slip on clips to have available a cord with alligator clips. These two alligator clips are presently system standard, and are: 571984 (material code number) — black alligator clip. 571984 (material code number)—red alligator clip.
HD-540064-A	4-foot 4-inch-long, two-conductor cord (Figure 5); one end terminated with banana plugs, the other end with spare terminals.
HD-540068-A	5-foot-long, two-conductor cord; one end terminated with a switchboard-type plug, the other end terminated with spare terminals (Figure 5).
HD-540065-A	5-foot-long, two-conductor cord; one end terminated with a four-contact plug (Figure 5) for insertion into switch test jacks, the other end terminated with spade terminals. A pushbutton on the four-contact plug is used to short two of the contacts on the switch being tested.
D-543650-C	4-foot-long, four-contact-ended cord assembly for use in EAX offices.
D-543650-B	3-foot-long, one end terminated with a connector to slip over the D-543650-C cord, the other end terminated with MINI-GATOR® clips.

TYPE 801 HAND TEST TELEPHONE
DESCRIPTION

1. GENERAL

"See Addendum" in the margin next to each change. File this addendum directly in front of the addended practice.

1.01 This addendum provides minor changes to Table 1 of Issue 3 of this section.

1.02 Microfiche Copy Recipients. Remove Issue 3 of this section and replace it with the microfiche copy identified as Issue 3, Addendum 1. Changes are marked in the replacing copy.

1.03 Paper Copy Recipients In ink or red pencil, make the changes indicated in part 2 of this addendum. Write

2. CHANGES

2.01 In Table 1, under the column heading DESCRIPTION, change the two material code numbers listed in the eighth description from "571984" and "571984" to "580883" and "580884", respectively.