KEY EQUIPMENT 10A AND 6030A KEY

1. GENERAL

1.01 This section covers the key equipment 10A and 6030A key for customers with impaired hearing.

2. DESCRIPTION

Key Equipment 10A

2.01 The key equipment 10A is designed to be used at manual or dial common battery stations. The key equipment 10A employs a 207-type hand telephone set or its equivalent, a 23A electron tube amplifier (shown in Fig. 1), and a 9A battery box with 1-1/2-volt and 67-1/2-volt battery supply. It also has a 6013B key (see Figs. 2 and 3), which has an on-off switch to turn the amplifier on and off and a volume control dial.

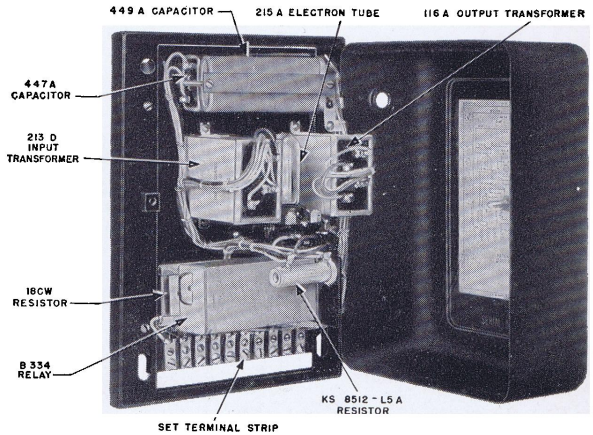


Fig. 1—23A Amplifier

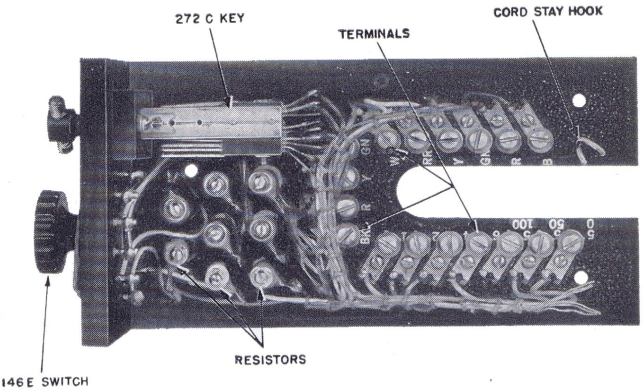


Fig. 2—6013B Key (Internal)

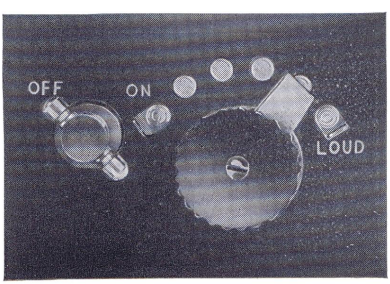


Fig. 3—6013B Key (Front)

6030A Key

2.02 The 6030A key is designed to be used at common battery, local battery talking, and magneto stations. The 6030A key has the same external appearance as the 6017-type key. It contains a 111B mechanical-type amplifier, a 129F capacitor, and a 3-position lever. (See Fig. 4.) The 129F capacitor is connected across the transmitter unit of the 111B amplifier to prevent packing. The key has one normal and two operated positions. The normal position is in the center between the two

operated positions. In one operated position the amplifier is disconnected from the receiver unit, in the normal (center) position the amplifier volume is low, and in the remaining operated position the amplifier volume is high.

2.03 A 1A battery box and three KS-6522 dry cells are used with the 6030A key.

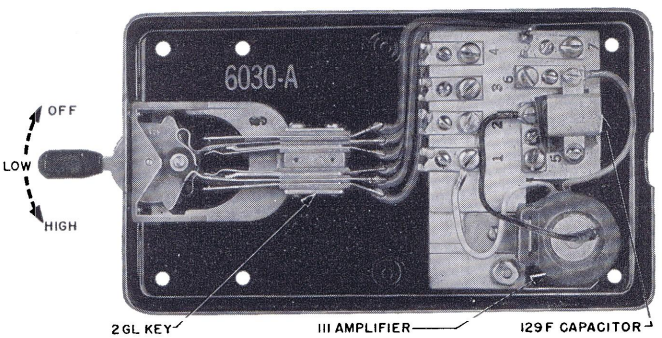


Fig. 4—6030A Key (Internal)

3. USE

3.01 For classes of service with which key equipment 10A and 6030A key may be used, see Section C30.015, Stations Equipped with Amplifiers.

4. INSTALLATION

4.01 Follow standard installation procedure for locating and mounting keys, telephones, subsets, and battery boxes.

4.02 The wire run between the 6013B key and the 23A amplifier shall be as short as practicable and shall not exceed 75 feet in length. Runs closely paralleling other circuits, such as telephone lines, teletype, loudspeaker, etc., shall be avoided.

4.03 The key and amplifier may be connected together with inside wire or inside wiring cable as follows: at antisidetone stations where inside wire is used, the connections shall be made with a run of triple wire for the input and output leads and a pair for the relay lead (see Fig. 5). When inside

wiring cable is used and the run between the key and amplifier exceeds 25 feet, provide one pair for each connection between key and amplifier..

4.04 The 23A amplifier should be mounted so that the electron tube is in a vertical position.

6030A Key

4.06 The 6030A key should not be mounted in a flat horizontal position as it may cause the transmitter in the 111B amplifier to become packed.

5. CONNECTIONS

Key Equipment 10A

5.01 A schematic drawing of the key equipment for an anti-sidetone common battery station is shown in Fig. 5. Wiring diagrams using a 207- or 214-type telephone set are shown in Figs. 6 and 7.

5.02 When inside wiring cable is used and the run between the key and amplifier exceeds 25 feet, remove the strap between amplifier terminals 2 and 3 (see Fig. 5). Wire as shown in Table A.

TABLE A

Terminals 23A Amplifier	Terminals 6013B Key
1	1
2	2
3	2
4	4
5	5*
6	6

*See Note D on Fig. 5.

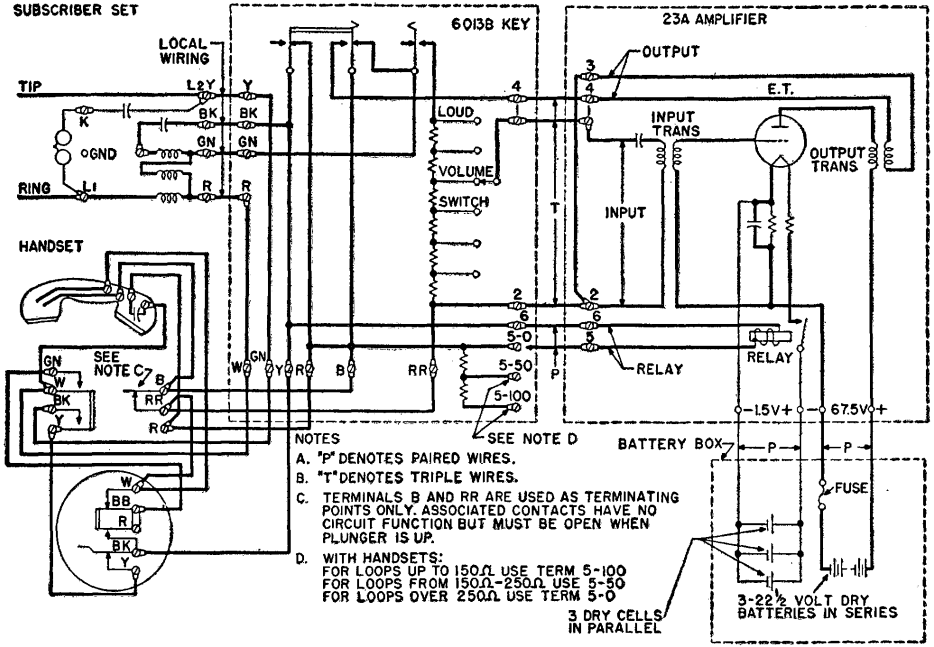


Fig. 5—Schematic Drawing of Key Equipment 10A

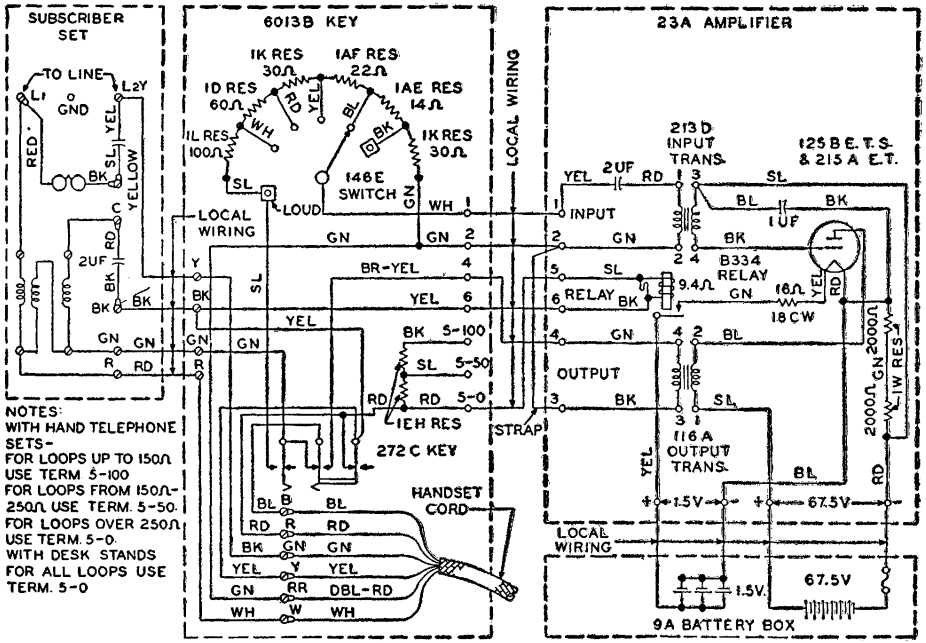


Fig. 6—Key Equipment 10A—Amplifier, Key, Subset—Schematic

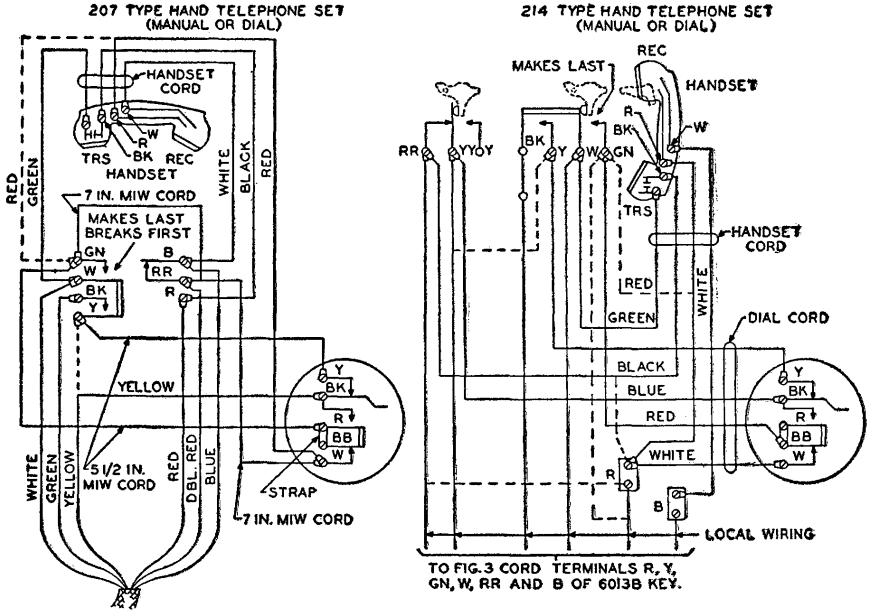


Fig. 7—Key Equipment 10A—207- and 214-type Hand Telephone Set—Schematic

6030A Key, Common Battery Stations

5.03 Typical connections of common battery stations for different type antisidetone telephone sets are shown in Figs. 8 to 11, inclusive. However, the 6030A key may be used for pratically all types of antisidetone common battery stations by bridging the amplifier input across the R and GN terminals of the 101A induction coil, or across equivalent terminals of other common battery antisidetone coils, thereby inserting the amplifier output in the receiver circuit.

6030A Key, LBT-CBS Stations

5.04 Typical connections for local battery talking and common battery signaling for different antisidetone stations are shown in Figs. 12 to 15, inclusive.

5.05 At local battery stations using a common battery source of supply with a 634BD subset, it will be necessary to make some circuit modification employing an F2B, or equivalent, handset to separate line, transmitter, and amplifier battery as shown in Fig. 15.

6030A Key Magneto Stations

5.06 Typical connections for a hand telephone set at an antisidetone station are shown in Fig. 16. This set is arranged to prevent a drain on the amplifier battery when the station is not in use.

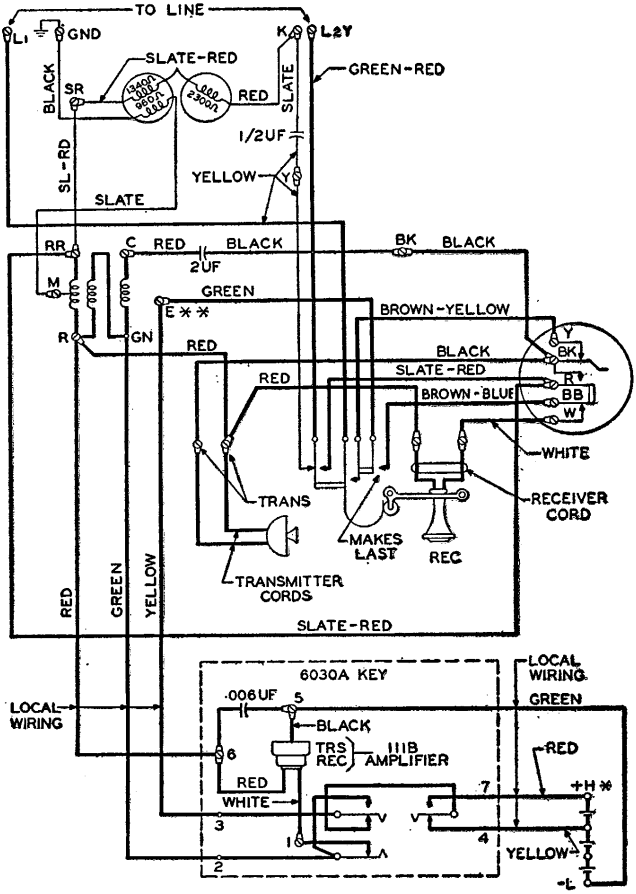
5.07 Where the 6030A key is to be added to an existing magneto station, it will be necessary to substitute the antisidetone set shown in Fig. 16 for the existing apparatus.

5.08 If the addition of the key to an existing wall set is desired, the wall set should be replaced with the proper station handset or modified locally to provide a switchhook assembly having an additional set of make contacts to prevent amplifier battery drain when the station is idle.

5.09 If spare terminals are needed and are not available in the set, a D-161488 connector may be used. This terminal, when wired and covered with the tubing which is provided with the connector, can be stowed away in the set. If tubing is not available, the connector can be covered with tape.

5.10 A station arranged for operator telephone sets requires a varistor connected in the receiver circuit, as shown in Section C65.882 Varistors, 3A, 4A, 5A, 33A, and 37 Types, Connections.

5.11 For terminating telephone set mounting cords on a connecting block, a 44A connecting block should be used (see Fig. 11).



*THE SUM OF BATTERIES "L" AND "H" SHALL NOT EXCEED 4.5 VOLTS

**TERMINAL E OR CONNECTOR D161488.

Fig. 8—6030A Key and 653CE Subset (Rewired)

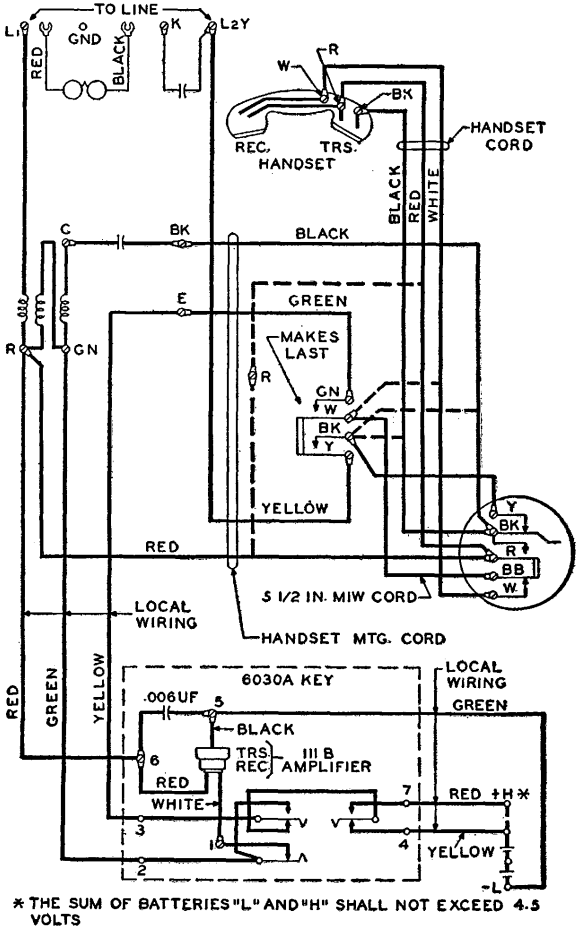


Fig. 9—6030A Key and 202-type Antisidetone Hand Telephone Set (Rewired)

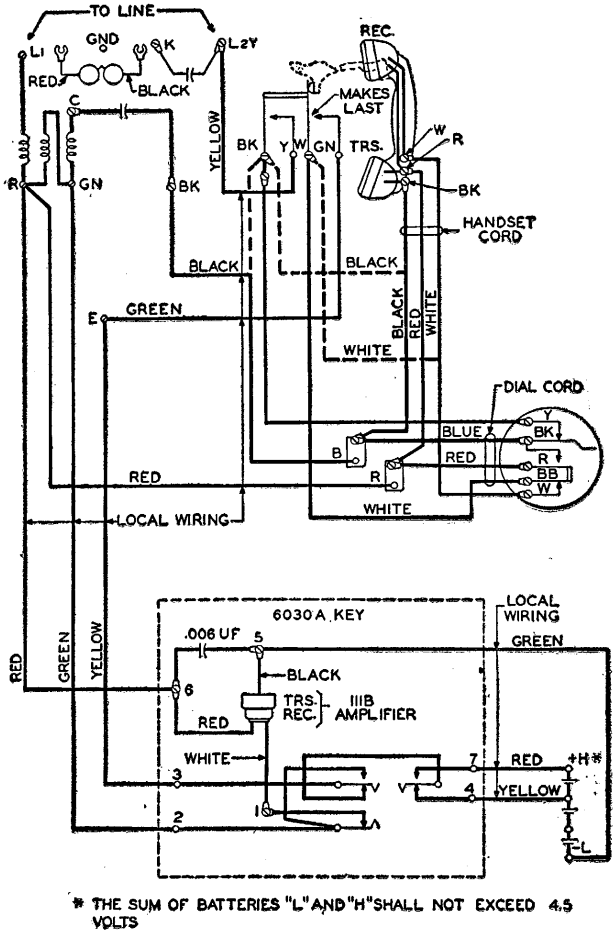


Fig. 10—6030A Key and 211-type Antisidetone Hand Telephone Set (Rewired)

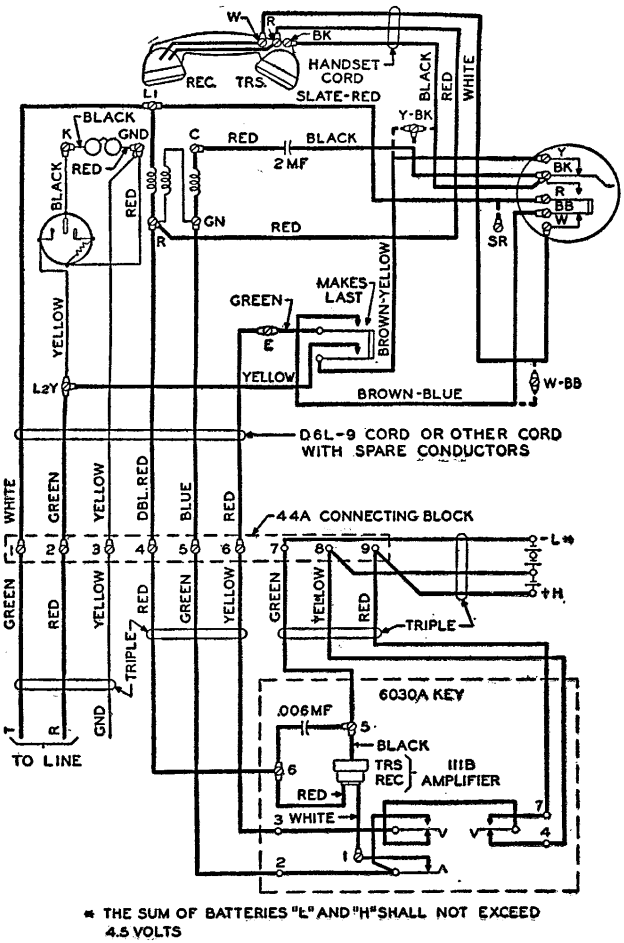
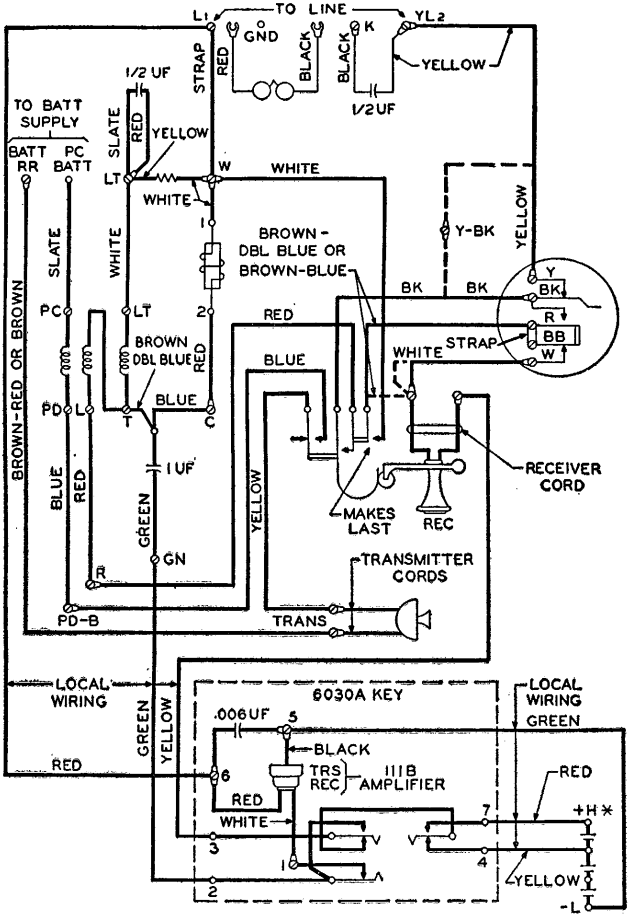


Fig. 11—6030A Key and 306-type Telephone Set (Rewired)



* THE SUM OF BATTERIES "L" AND "H" SHALL NOT EXCEED 4.5 VOLTS

Fig. 12—6030A Key with 653BB Subset (Rewired)

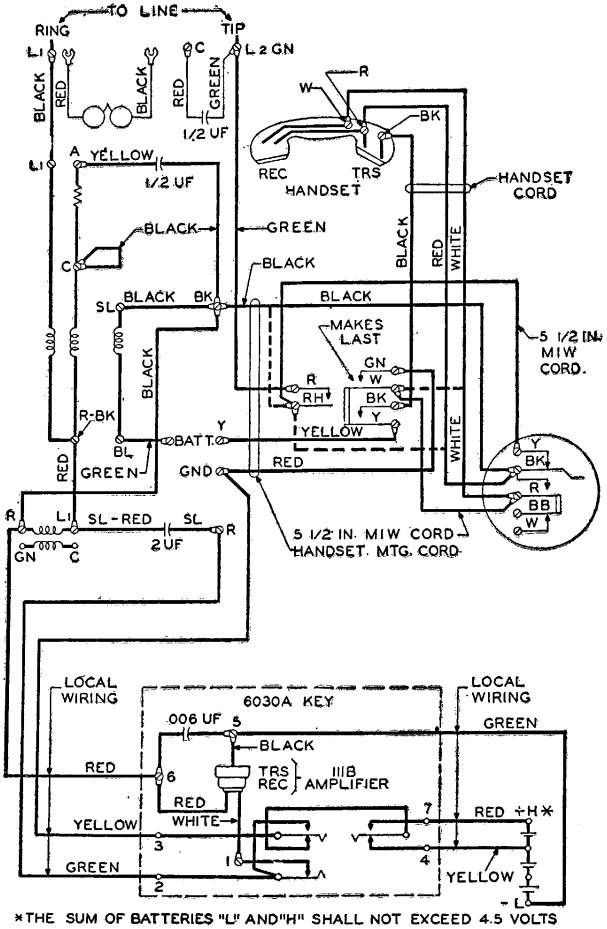


Fig. 13—6030A Key with 634YD Subset and 215-type Telephone Set (Rewired)

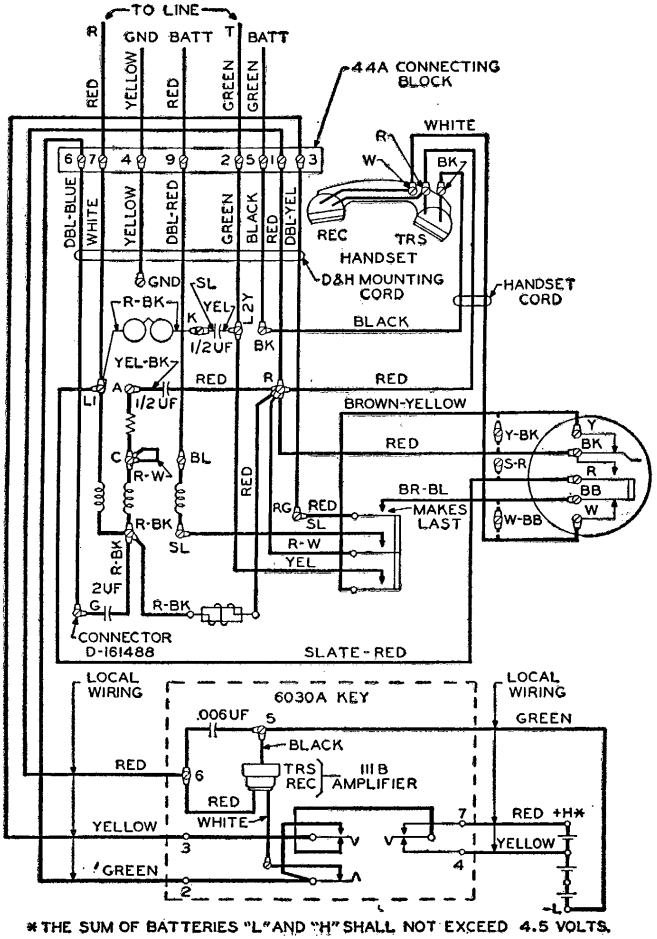


Fig. 14—6030A Key with 307-type Telephone Set (Rewired)

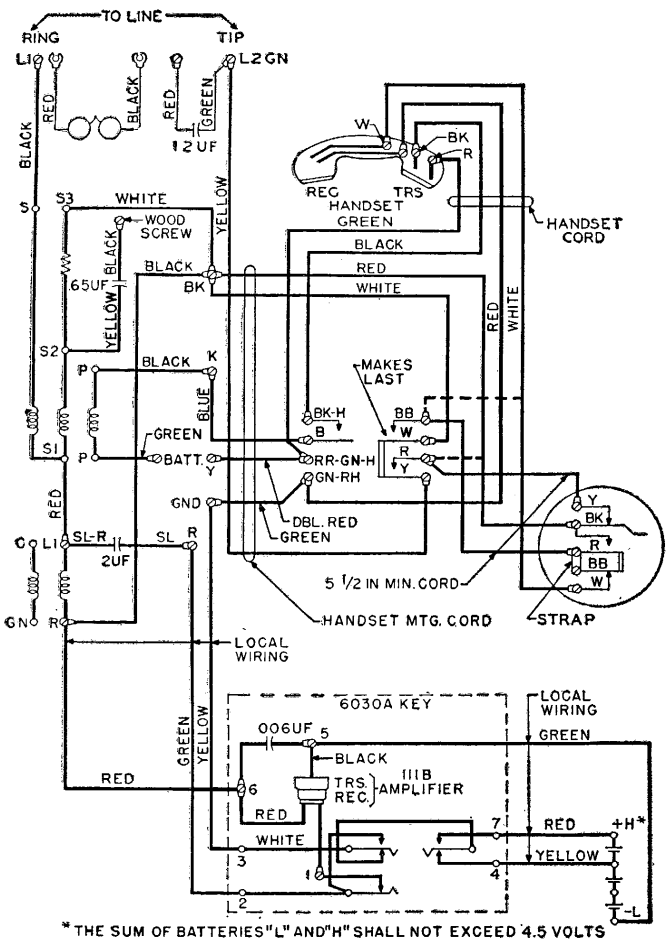
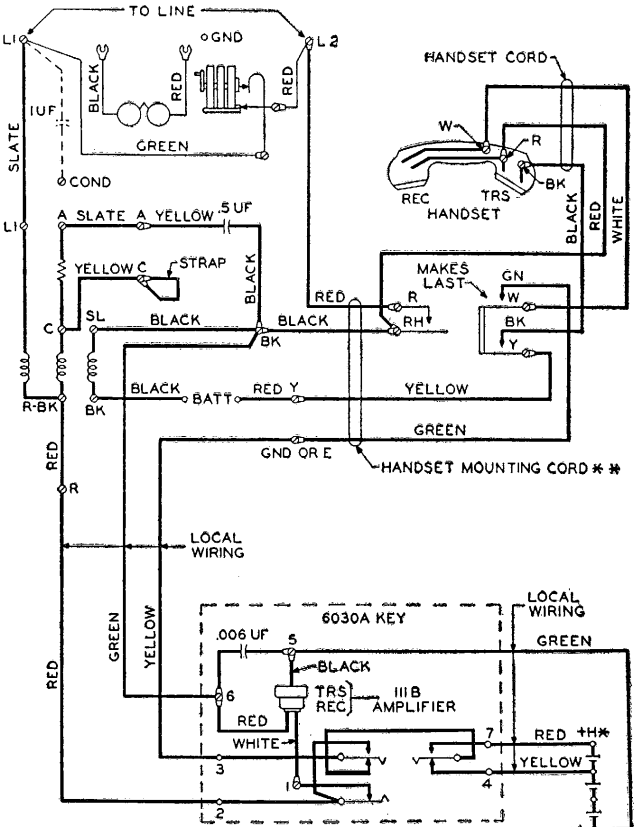


Fig. 15—6030A Key with 634YD Subset and 206-type Telephone Set



* THE SUM OF BATTERIES "L" AND "H" SHALL NOT EXCEED 4.5 VOLTS.

** MODIFICATION OF SET CONSISTS OF TRANSPOSING BLACK LEAD OF HANDSET MOUNTING CORD FROM "BK" TERMINAL TO "RH" TERMINAL OF SWITCHHOOK CONTACTS.

Fig. 16—6030A Key with 400K Subset and 215-type Hand Telephone Set (Rewired)

6. MAINTENANCE

6.01 The test for dry cell batteries used in these receiver amplifiers is covered in Section C37.111, Dry Cell Batteries and Battery Boxes, Description, Installation, and Maintenance.

6.02 Preliminary tests may be made by dialing test codes in dial offices equipped with them. In offices not so equipped it will be necessary to work with the operator or test deskman.

Key Equipment 10A

6.03 **Howling Test:** Turn the amplifier to ON and turn the volume control switch to terminal designated LOUD. Hold the handset close to a sound reflector and attempt to make the set howl by tapping the transmitter lightly with a pencil. If the set howls see Table B.

6.04 The specific relay adjustment requirements used in the deafset amplifier are as follows:

Mechanical Adjustments

Armature Travel	0.030-inch Maximum
Contact Follow	0.005-inch Minimum
Contact Separation	0.005-inch Minimum

Current Flow	Test Values	Readjust Values
Release	5 ma	6 ma
Operate	22 ma	19 ma

6.05 Possible trouble indications on key equipment 10A and corrective measures are listed in Table B.

TABLE B

Trouble	Probable Cause	Corrective Measure
Set howls	Loose receiver	Tighten receiver.
	Transmitter output reversal	Reverse connections 3 and 4 of 23A amplifier.
	Wrong terminal connected in 6013B key	See note D on Fig. 5.
Set does not amplify	Dead or low batteries	Replace batteries.
Tube does not glow	Burnt out filament	Replace tube. **Caution: Remove 55A fuse.**
	B334 relay does not operate	Adjust contacts. Adjust relay (see 6.04).
	Make contact on B334 dirty or does not make	See 6.04.
1-1/2-volt battery relay fails to release	Sticky armature	Clean armature and core (see 6.04). Readjust relay.

6030A Key

6.06 Possible trouble indications on the 6030A key and corrective measures are listed in Table C.

TABLE C

Trouble	Probable Cause	Corrective Measure
Does not amplify or low volume	Dead or low batteries	Replace batteries.
	Defective amplifier	Replace 111B amplifier and 129F capacitor.
Set howls	Receiver loose	Tighten receiver.
	Voltage too high on short loop	Use 1 cell on low and 2 cells on high, eliminating 3rd cell.
Does not amplify from low to high	Contact trouble	Burnish key contacts with 265C WE tool. If still fails change 6030A key.

7. SUPPLIES

7.01 Listed below are apparatus and supplies peculiar to the installation and maintenance of key equipment for impaired hearing. The list does not include items commonly used in station work.

INDEX	ORDERING INFORMATION AND DESCRIPTION
Amplifier	**AMPLIFIER, 23A.** Single stage electron tube amplifier mounted in a subscriber set. Electron tube is not furnished as part of set.
	AMPLIFIER, 111B. A mechanical-type amplifier used in the 6030A key.
Capacitor	**CAPACITOR, 129F.** A 0.006-mf capacitor which is connected across the transmitter unit of the 111B amplifier.
Tube, Electron	**TUBE, ELECTRON, 215A (TYPE N).** A small tube used in 23A amplifier.
Sets (Telephone, Hand)	**SET, TELEPHONE, HAND, 207C-3.**
(Dial)	**SET, TELEPHONE, HAND, 207D-3.**
	SET, TELEPHONE, HAND, 214B-3.
	SET, TELEPHONE, HAND, 214C-3.
	SET, TELEPHONE, HAND, 214D-3.
(Manual)	**SET, TELEPHONE, HAND, 207A-3.**
	SET, TELEPHONE, HAND, 214A-3.
Key	**KEY, 6013B.** This key provides means for connecting amplifier in or out of circuit. The switch and resistors make up a potentiometer for controlling the volume of speech.

7.02 The hand telephone sets listed in this section when equipped with a retractile handset cord will have the suffix R added to the code. For example: Set, Telephone, Hand, 207A-3 when equipped with a retractile cord will be coded Set, Telephone, Hand, 207AR-3.