



**CONSTRUCTION AND
MAINTENANCE PRACTICES
OUTSIDE PLANT**

**SECTION 23
PART 102**

**INSTALLATION OF 332-TYPE TELEPHONE SET
FOR SUBSCRIBERS' WITH IMPAIRED HEARING**

CONTENTS	ITEM NUMBER
General	102.1
Installation	102.2
Maintenance	102.3
Connections	102.4

102.1 **GENERAL:** This practice covers the installation and maintenance procedures for the Western Electric Type 332CW handset telephone which contains a mechanical-type amplifier in the receiver circuit to provide increased receiving volume for subscribers with impaired hearing.

102.2 **INSTALLATION:** The Western Electric Type 332CW telephone set is equipped with a five conductor line cord which requires the use of a 44A connecting block and a 101A type cover when all five conductors are used, such as on grounded ringing lines or party lines having automatic toll ticketing (SATT). When only four conductors are used, the cord can be connected to a 42A connecting block and in such case, place the yellow conductor under the 42A block.

102.2-a It will be necessary to provide three No. 6 dry cells in a battery box to furnish battery to the mechanical amplifier. Mount the battery box on the wall or other support as close as practicable to the set.

102.2-b When installing the 332-type telephone set on a party line it will also be necessary to install a sub-set having a ringer of the required frequency as frequency ringers are not available for this telephone set. The ringer in the telephone set in this case is disconnected by moving the red ringer lead from terminal LI of the induction coil to terminal K on the connecting block.

102.2-c **332-Type Telephone Set With Spotter Dial:** It will be necessary to supply a separate ringer as described in 102.2-b when installing a 332-type telephone set with spotter dial. The method of obtaining the correct polarity of a 332-type telephone set with spotter dial is the same as for other telephone sets and is described in Part 2.

102.2-d When a 332-type telephone set is equipped with a spotter dial, it shall be identified by the addition of a suffix code to the manufacturer's code on the base of the set. For example 332CWS1. The suffix codes for 332-type telephone sets equipped with spotter dials are as follows:

Party	Code
1	S1
2	S2
3	S3
4	S4
5	S5

102.2-e This supplemental code shall be included with the manufacturer's code number when reporting equipment to the O.K. desk or when drawing out or returning equipment to the storeroom.

102.2-f When the installation has been completed, the operation of the set should be explained to the subscriber. The set may be wired so that the amplifier switch is "on" or "off" when the handset is removed from its mounting. The choice of operation should be left to the subscriber. It should be brought to the subscriber's attention that when the person with the impaired hearing is the principal user, the set is normally preferred with the amplifier "on" arrangement when the handset is removed from the cradle.

102.2-g It should be explained to the subscriber that the best reception is usually obtained with the lowest volume setting which permits satisfactory hearing. Under the following circumstances, the set may howl when the volume control is set at "H": When talking on a short loop, when the handset is placed on a table or similar surface, or when

the receiver is held close to but not against the ear. By changing the volume setting to "M" or "L", the howling may be avoided by always leaving the volume setting at "M" or "L" except during conversations in which the greater amplification is necessary, and then turn the volume down to "M" or "L" before placing the receiver to or removing the receiver from the ear.

102.3 MAINTENANCE: The amplifier plunger shall meet the following requirements:

- (a) The plunger when pulled to the full extent of its stroke shall remain in the upper position.
- (b) When slowly pushed down from the upper position in any of the volume settings, the plunger shall return to the normal lower position of its own weight.
- (c) When turned in either direction in the upper or lower positions, the plunger shall come to a positive stop at each of the four volume settings.

102.3-a Amplifier:

- (1) Call the testboard and with the amplifier turned off, ask the testboardman to talk in an even tone of voice. Set the volume control to "L" and turn the amplifier on. A distinct gain in volume should be evident. Then turn the volume control to "M" and then to "H" and check for gain in volume at each position. Check volume at both "M" positions for equal amplitude. Repeat the above tests.
- (2) If there is no increase in volume between off and "L" on these tests, check contact springs as outlined in items 102.3-d and 102.3-e and check battery. If the trouble is not corrected here, replace the 111B amplifier and the associated 129F condenser. If replacement parts are not available or if they have been replaced and the set still fails to function, replace the telephone set.
- (3) If the set goes dead when turned to the "L" position, disconnect the 129F condenser associated with amplifier. If this clears the trouble, replace the condenser, if not check the contact springs and battery as outlined in Items 102.3-d and 102.3-e.

- (4) If there is no increase in volume between "L" and "M" or "M" and "H", inspect the amplifier volume control as indicated in Item 102.3-e. If this does not clear the trouble, replace the set.
- (5) Should the set howl with the amplifier volume control set at "H" and the receiver held against the ear in a normal talking position, it will be necessary to replace the amplifier and then the handset, checking each time for howling. If the trouble continues after changing these units, replace the complete set.

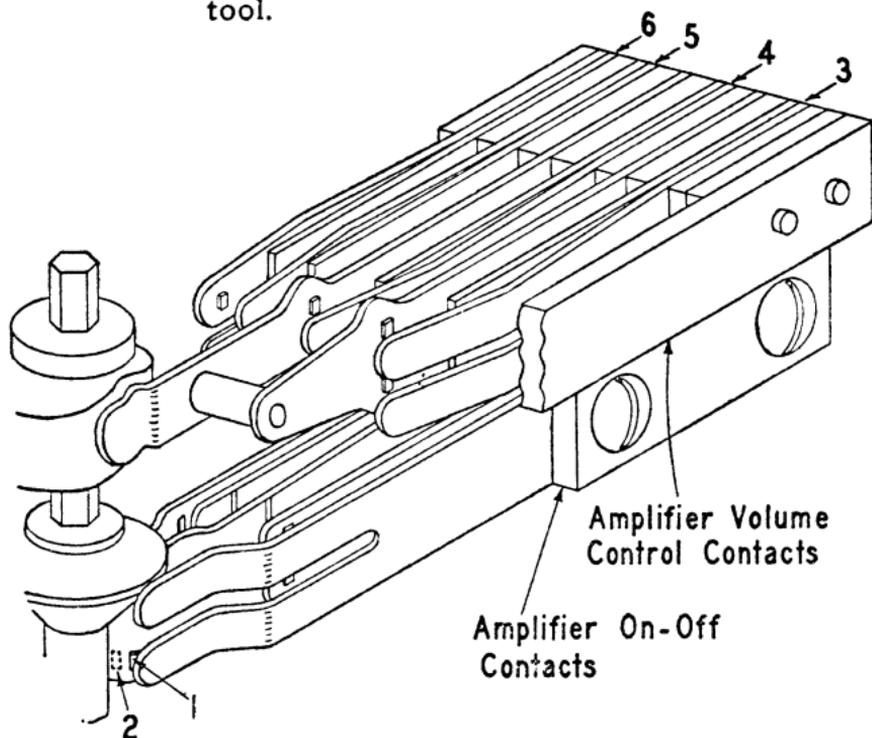
102.3-b Amplifier Battery:

- (1) When the No. 6 dry cells used with the 332 set are installed or replaced, they shall be marked with the date of installation or replacement. The plant department shall keep on file a record of the date of installation or replacement of these batteries. From this file, the batteries will be replaced on a routine basis at twelve month intervals from the date of installation. If a repairman should make a maintenance call within four months of the replacement date of the batteries, they should be replaced at this time.

102.3-c Contact Springs and Contacts:

- (1) Due to the difficulty of adjusting the contact springs in the field, it is preferable that the set be replaced when difficulty is experienced with the spring assembly. If a replacement set is not available, a No. 363 tool should be used to make the necessary adjustments. Disconnect the battery from the set before making any spring adjustments.

- (2) Clean contacts by burnishing with a No. 265B tool.



102.3-d Amplifier On-Off Springs and Contacts:

- (1) **Contact Sequence:** Both normally closed contacts at 1 shall break before either of the normally open contacts at 2 make. Check by eye.
- (2) **Contact Follow:** All split contact springs including those making contact when the plunger is in a normal position shall have perceptible follow.
- (3) **Contact Separation:** There shall be a separation of at least .010" between all mating contacts when opened. Check by eye.
- (4) **Spring Separation:** There shall be a separation of at least 1/64" between adjacent springs, including stop springs, that are not intended to make contact. Check by eye.
- (5) **Spring Clearance:** There shall be a clearance of at least 1/64" between the operating spring and the metal shaft of the plunger. Check by eye.

102.3-e Amplifier Volume Control Springs and Contacts:

- (1) **Contact Sequence:** Contacts shall be opened or closed for each of the volume settings as indicated in the following table:

Contacts	Volume		
	Low	Medium	High
3	Closed	Closed	Open
4	Closed	Open	Open
5	Open	Closed	Closed
6	Open	Open	Closed

- (2) **Contact Follow:** All contact springs which make contact in any one of the four positions shall have a perceptible follow. Check by eye.
- (3) **Contact Separation:** All mating contacts when open shall have a separation of at least .010". Check by eye.
- (4) **Spring Separation:** At all times there shall be a separation of at least 1/64" between adjacent springs, including spring stops, that are not intended to make contact. Check by eye.

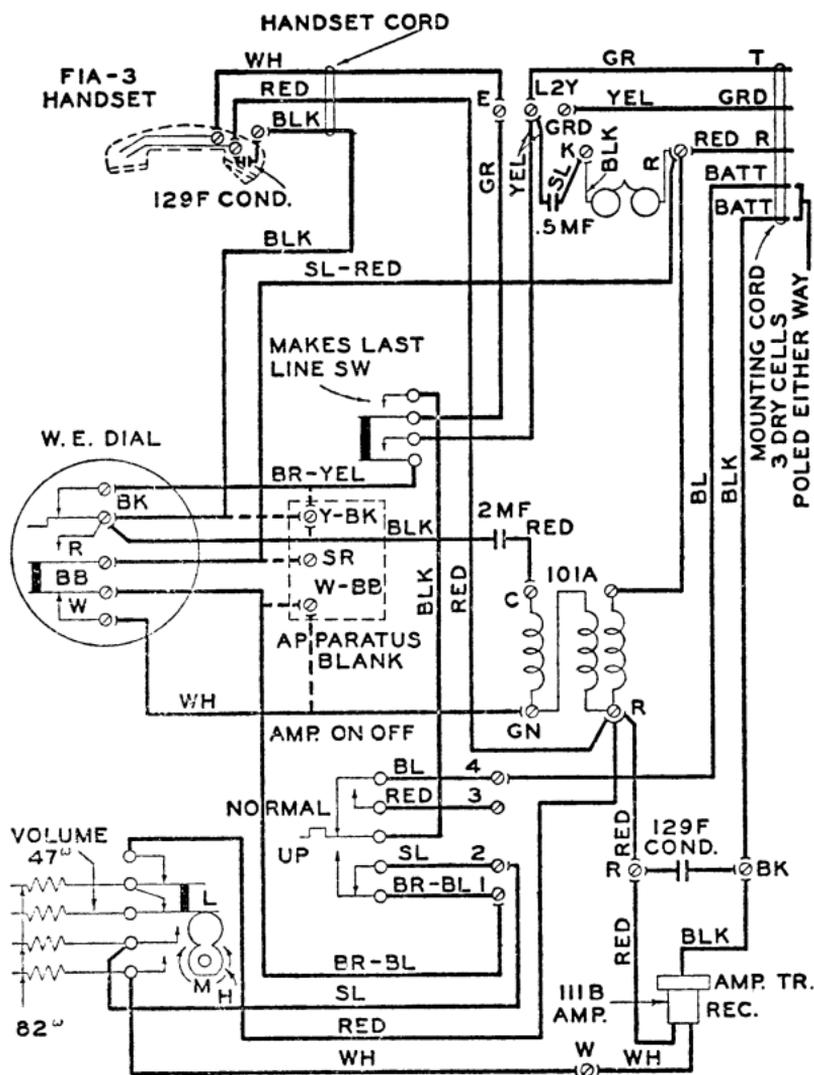
102.4 CONNECTIONS: The Type 332 telephone set is received from the supplier wired with the amplifier connected when the handset is removed and disconnected when the plunger is raised from its normal position. If it is desired to have the amplifier disconnected when the handset is removed and connected when the plunger is raised from its normal position, the connections should be changed at the terminals on the strip adjacent to the spring pile-up as follows:

Move blue wire from terminal 4 to terminal 1.

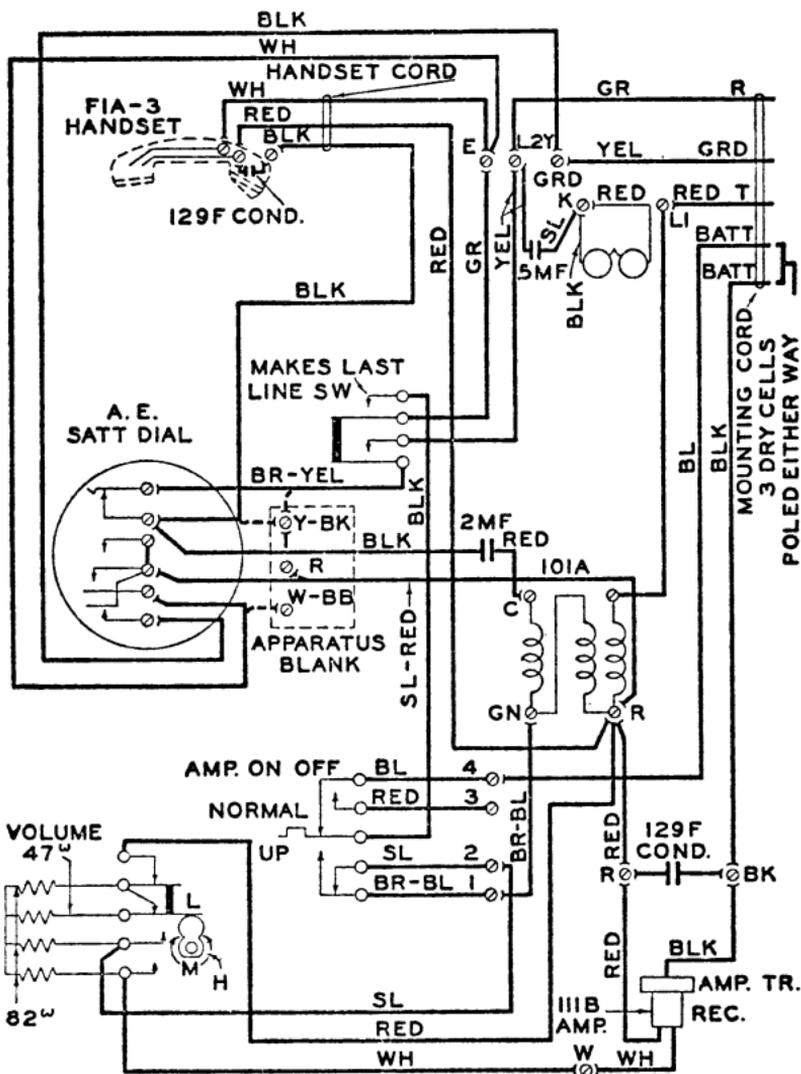
Move slate wire from terminal 2 to terminal 3.

Move brown-blue wire from terminal 1 to terminal 4.

102.4-a The following circuit drawings show the 332-type telephone set equipped with a Western Electric dial and an Automatic Electric spotter dial, respectively.



332 CW
HANDSET TELEPHONE



MODIFIED 332 CW
HANDSET TELEPHONE

102.4-b If it is desired to silence the ringer, move the red ringer lead from terminal L1 of the induction coil to terminal K on the connecting block.