INSTALLATION
TELEPHONE, W.E. CO. TYPE 332

1. GENERAL

1.01 This practice covers the installation and checkout procedures for W.E. Co. Type 332 telephones. This telephone is designed to provide additional volume for persons with impaired hearing and includes a mechanical type amplifier in the receiver circuit.

2. INSTALLATION

2.01 Installation of the 332 telephone set varies from a conventional telephone set in that two extra battery leads are necessary for the mechanical amplifier. Three dry cells along with a battery box are required for operating the amplifier and a frequency ringer must be employed when party line ringing is desired.

2.02 After the installation has been completed, the operation of the telephone set should be explained to the customer. The telephone 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 customer; however, it should be pointed out that if the person with the impaired hearing is the principal user, then the telephone should be arranged so that the amplifier is "on" when the handset is removed.

2.03 It should be explained to the customer that best reception is usually obtained with the lowest volume setting which permits satisfactory hearing. Otherwise, the telephone handset may howl when the volume control is set at "H" and the customer will think that the telephone is defective. The handset will howl when talking on short loops, placing the handset on a table or similar hard surface or if the handset is kept close but not against the ear.

Dry Cell Batteries and Battery Box

2.04 To operate the mechanical amplifier, it will be necessary to provide three No. 6 dry cells in a battery box. The battery box should be mounted as close as practicable to the connecting block. The total voltage required to operate the mechanical amplifier is 4.5 volts dc; therefore, it will be necessary to connect the three 1-1/2 volt, No. 6 dry cells in series. Prior to mounting the battery box to the wall, connect the batteries together in a series circuit to provide the necessary 4.5 volts, then connect two leads (one to a positive battery terminal and the other to a negative battery terminal) and extend them to the connecting block. Mount the battery box to the wall with a wood screw, making certain that the screw fits the rectangular portion of the keyhole in the battery box. Connect the battery leads to the two terminals that correspond to the black and blue leads of the line cord (refer to Figure 2). No polarity requirement need be observed for this connection.

Type 322 Telephone Equipped with SATT Dial

2.05 It will be necessary to supply a separate ringer when installing a Type 332 telephone on party lines. To obtain the correct polarity, the wiring must be modified to correspond with that shown in Figure 3.

2.06 When a Type 332 telephone set is equipped with a SATT dial, it should be identified by the addition of a suffix code to the manufacturer's code on the base of the telephone. The suffix codes for Type 332 telephones equipped with SATT dials are as follows:

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

3. TESTING AND INSPECTION

3.01 The following paragraphs set forth a final inspection and testing procedure that should be performed after installation of the telephone.

Amplifier Hookswitch Plunger

3.02 The amplifier hookswitch plunger (located on the right side of cradle) should meet the following requirements:

(a) When pulled to the full extent of its stroke, it shall remain in the upper position.

(b) When slowly pushed down from the upper position in any of the volume settings, the hookswitch 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 hookswitch plunger shall come to a positive stop at each of the four volume settings.

Mechanical Amplifier

3.03 Perform the following tests to check the operation of the mechanical 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. Turn the volume control to "M" and then to "H" and check the volume at each position. Move the volume control to both "M" positions and check for equal amplitude.

(2) If there is no increase in volume between off and "L" on the tests in step (1), check the batteries and amplifier contacts and springs. If the trouble persists, replace the 111B amplifier and associated No. 129F condenser. If replacement items are not available or if they have been replaced and the telephone still fails to function, replace the telephone.

(3) If the telephone goes dead when turned to the "L" position, disconnect the No. 129F condenser associated with the amplifier. If this clears the trouble, replace the condenser; if not, inspect the batteries and check contact springs.

(4) If there is no increase in volume between "L" and "M" or "M" and "H", inspect the amplifier volume control and spring contacts in accordance with paragraph 3.06. If the trouble still remains after proceeding with paragraph 3.06, replace the telephone.

Amplifier Battery

3.04 When the No. 6 dry cells used with this telephone are installed or replaced, they should be marked with the date of installation or replacement. The plant department will keep on file a record of the date of installation or replacement of these batteries. From the 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, he should replace the batteries at that time and have the date recorded.

Contact Springs and Contacts

3.05 Owing to the difficulty of adjusting the springs in the field, the telephone should be replaced when difficulty arises with the spring assembly. The contacts should be inspected and, if necessary, cleaned with a burnishing tool.

Amplifier On-Off Springs and Contacts

3.06 The amplifier spring assembly should be inspected for proper contact sequence, contact follow, contact separation, spring separation and spring clearance. Proceed with the following inspection (refer to Figure 1):

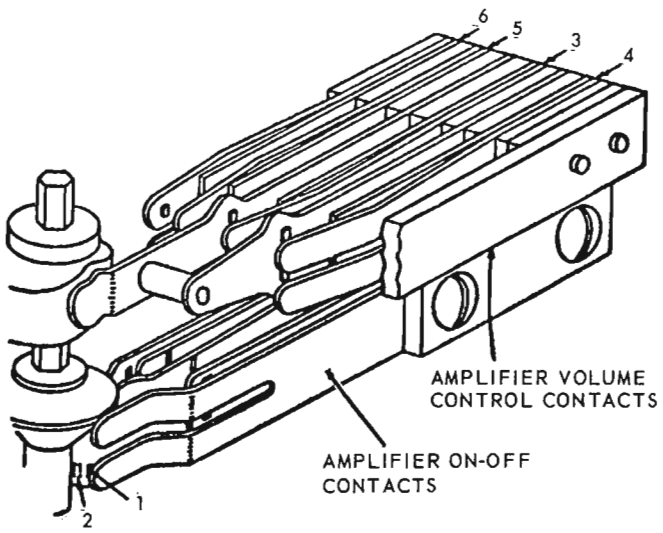

Figure 1. Amplifier Volume Control and On-Off Contacts.

(a) Contact Sequence — Both normally closed contacts at 1 shall break before either of the normally open contacts at 2 make. Check by visual inspection.

(b) Contact Follow - All bifurcated contact springs, including those making contact when the hookswitch plunger is in a normal position, shall have perceptible follow.

(c) Contact Separation - There shall be a contact separation of at least .010 inch between all mating contacts when open. Check by visual inspection.

(d) Spring Separation - There shall be a separation of at least 1/64 inch between adjacent springs, including stop springs, that are not intended to make contact. Check by visual inspection.

(e) Spring Clearance - There shall be a clearance of at least 1/64 inch between operating spring and the metal shaft of the hookswitch plunger. Check by visual inspection.

Amplifier Volume Control Springs and Contacts

3.07 The amplifier volume control springs and contacts should meet the following requirements:

(a) Contact Sequence - Contacts shall be opened or closed for each of the volume settings as indicated in Table 1.

Table 1. Contact Squence

Contact No.	Volume		
	Low	Medium	High
3	Closed	Closed	Open
4	Closed	Open	Open
5	Open	Closed	Closed
6	Open	Open	Closed

(b) Contact Follow - All contact springs which make contact in any one of the four positions shall have a perceptible follow. Check by visual inspection.

(c) Contact Separation - All mating contacts, when open, shall have a separation of at least .010 inch. Check by visual inspection.

(d) Spring Separation - There shall be a separation of at least 1/64 inch between adjacent springs, including stop springs, that are not intended to make contact. Check by visual inspection.

4. CONNECTIONS

4.01 The Type 332 telephone set is received from the supplier wired with the amplifier connected when the handset is removed from its cradle and disconnected when the hookswitch 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 hookswitch 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:

Blue wire - from terminal 4 to terminal 1.

Slate wire - from terminal 2 to terminal 3.

Brown-blue wire - from terminal 1 to terminal 4.

4.02 Figure 2 illustrates the connections that are required when the telephone is equipped with a W.E. Co. dial and an A.E. Co. SATT dial. Figure 3 illustrates the connections when an A.E. Co. SATT dial is used and the ringer modified for party line service.

4.03 The type 332 telephone set is equipped with a five-conductor line cord which requires the use of a Type 15 connecting block.

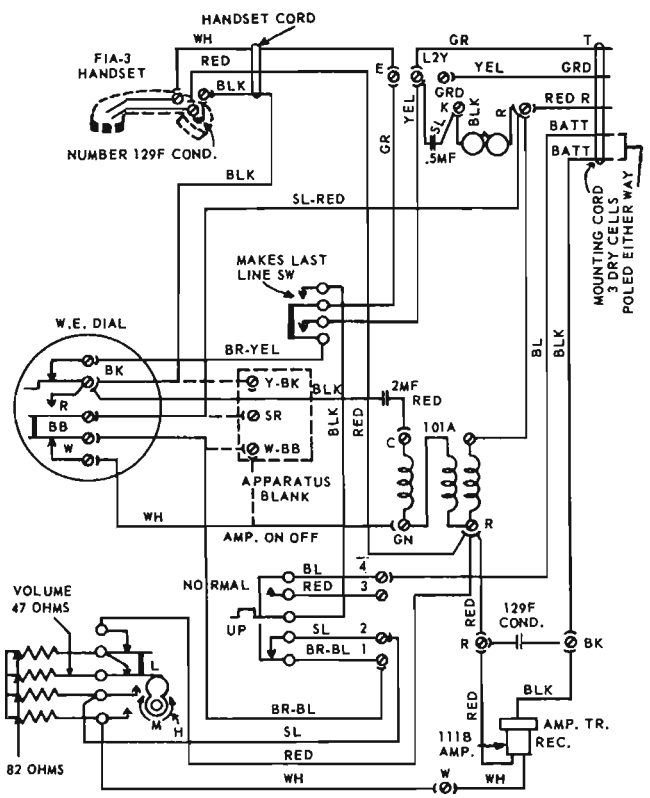

Figure 2. Type 332 Telephone with W. E. Co. Dial.

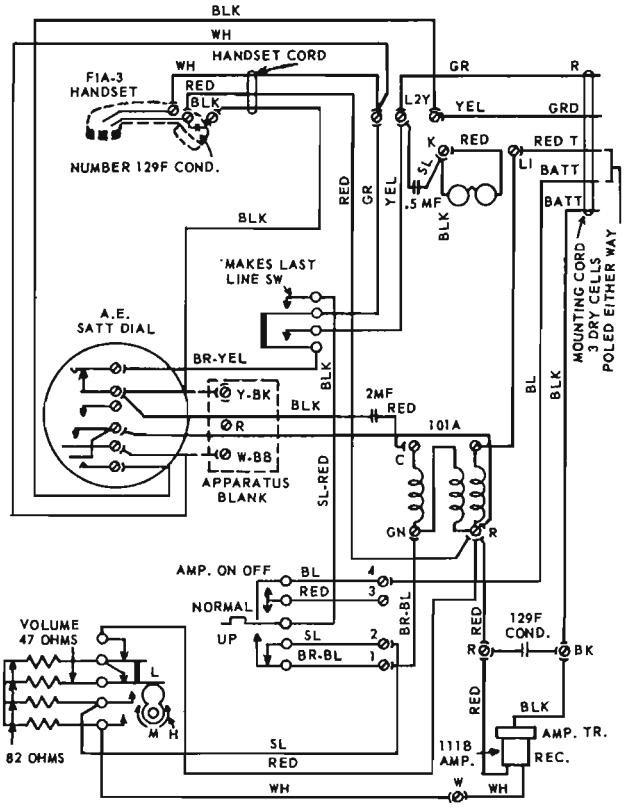

Figure 3. Type 332 Telephone with A.E. Co. SATT Dial and Ringer Modified for Party Line Service.