

BELL SYSTEM PRACTICES
Station Installation and Maintenance

SECTION C32.507
Issue 1, 12-3-45
AT&T Co Provisional

TELEPHONE SETS

FEDERAL TELEPHONE AND RADIO CORPORATION

1. GENERAL

1.01 This section covers the description, use, installation, maintenance and connections for combined type telephone sets manufactured by the Federal Telephone and Radio Corporation. Apparatus requirements and adjusting procedures for the associated hand set, ringer and mounting contact spring assembly are also included.

1.02 These telephone sets are anti-sidetone sets consisting of a hand set and a telephone set mounting which in addition to an apparatus blank houses a ringer, an induction coil and condensers. A two conductor cord for connecting the telephone set to the line is also included. The line is terminated at a 42A connecting block near the set.

1.03 In connection with ordering information or reporting equipment installed on service orders, etc., these telephone sets are coded FTR 802A-1. Other apparatus codes referred to herein are for apparatus of Western Electric manufacture.

1.04 These sets have housings made of thermoplastic and have a permanent finish but are fragile and should therefore be handled carefully.

1.05 In general, the sets are installed in accordance with instructions included in the sections in Division C30 covering the locating and mounting of hand telephone sets and the installation of connecting blocks. Consideration should be given to adapting the ringing signal to the subscriber's need as outlined in the section entitled "Service Order and Repair Work—Ringers and Loud Ringing Bells."

2. DESCRIPTION

2.01 These sets are in general similar to the 302-type telephone sets shown in Section C32.502, Figs. 1 and 2 except that they are equipped with an apparatus blank instead of a dial and are used at manual common battery anti-sidetone stations on non-polarized ringing lines of the following classes of service:

Individual Lines (Manual)

Regular P.B.X. stations (Manual) except for night connections when there is an a-c bridge in the P.B.X. trunk or cord circuit:

Note: These sets are subject to bell tapping and accordingly should not be used on party lines or as extension stations on individual lines unless the ringer is disconnected. See 3.02.

2.02 These sets are provided with a two conductor mounting cord and connected as shown in Fig. 1.

2.03 The hand sets are of Federal manufacture but are equipped with a D-141914 transmitter unit and the Connecticut Telephone and Electric Company's receiver unit. The F1 transmitter unit may be used to replace the D-141914 transmitter unit, if required. These hand sets may be zoned the same as the E1E hand sets but may also be used on hotel P.B.X. extensions.

2.04 These sets, except for the transmitter unit and receiver unit, are provided with Federal apparatus. Except for the transmitter unit, Federal apparatus is not interchangeable with other standard apparatus parts.

3. CONNECTIONS

3.01 The connections for these telephone sets are shown in Fig. 1.

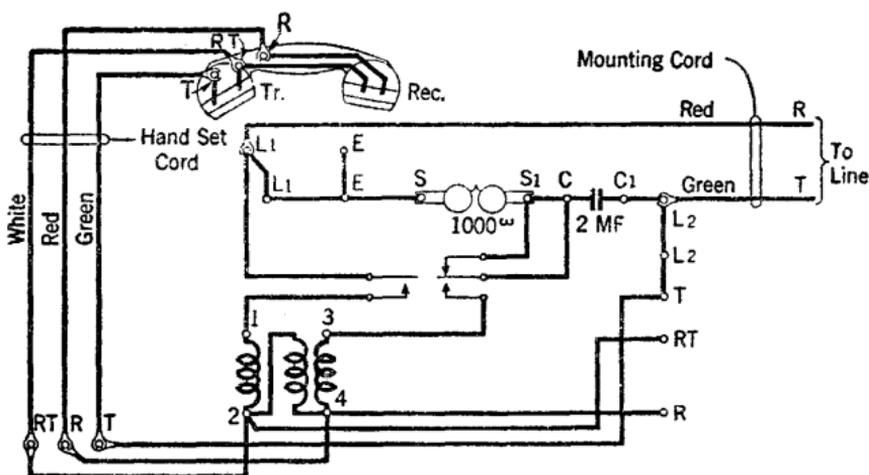


Fig. 1

3.02 The ringer in the set is very low impedance and should be connected in accordance with the connection data for low impedance ringing bridges (2 mf. only) as given in the section entitled "Ringer Connection Limitations—Non-Polarized Ringing Lines." This ringer is also subject to bell tapping and therefore the set should not be used on party lines. Because of the low ringer impedance the set should not be used where more than one telephone is connected to the line unless the ringer is disconnected at the extension stations. To disconnect the ringer in this set, remove the link between terminals E and S on the connecting block in the set.

4. NUMBER CARD

4.01 These sets are equipped with a number card frame and card. The standard number card Form E-1164S or 1165S used with 5J type dials may also be used in this number card frame by removing the wire loop over the card window, placing the standard number card under the window after first removing the outer rim of the card up to the perforations in the card and then snapping the wire loop back into place over the window. The 445 tool may be used to lift one end of the wire loop from under the rim of the number card frame in removing the wire loop.

5. MAINTENANCE

Caution: Whenever housing is removed from telephone set mounting, take care that loosened screws in base do not scratch or mar desk or table surface.

Ringer

5.01 Clean the points of contact between the armature and the pole faces by inserting a strip of Bell Seal bond or approved equivalent between the contact and each pole face in turn while pressing the armature against the respective pole face. Repeat until a clean paper shows no sign of dirt.

5.02 **Biasing Spring Adjustment:** The biasing spring is provided with four adjustments by means of the four notches in the spool head. As the sets with this ringer are to be used only in manual systems on individual lines without extensions (or hotel P.B.X. extensions), it is recommended that the biasing spring be inserted in the notch which furnishes the desired ring. If satisfactory ringing cannot be obtained with the spring in a notch, the spring should not be bent but the set replaced. Be sure that the spring is fully seated in the notch. Make several tests to ensure that the spring will not hop out of the selected notch during ringings. If there is any doubt that the spring will not remain securely in the notch selected, the set should be replaced.

5.03 The armature travel should be minimum .024", maximum .032". The 126B and 126C gauges may be used to check the .024 and .032 inch adjustments. If the ringer fails to meet these limits and does not ring satisfactorily, replace the set.

5.04 Gongs may be adjusted by loosening the gong mounting screws just enough to permit rotating the gongs with some friction. Then proceed to adjust in accordance with instructions in Division C30 covering ringers and loud ringing bells, tests and adjustments.

Plunger and Switch Contact Spring Assembly

5.05 The plunger and switch contact spring assembly is somewhat similar to Fig. 1, Section C32.575.

5.06 **Cleaning:** Clean contacts with a clean 265B tool.

5.07 **Contact Alignment:** Contacts shall line up so that the full width of the contacting surface of each contact falls wholly within the length of the other mating contact. If the contact springs do not meet this requirement, loosen the spring assembly with a 3-1/2 inch cabinet screwdriver and shift the springs until the opposing contacts are approximately centered. Take precautions to see that the bushings go through the holes and then tighten screws securely.

5.08 Contact Follow: Both contacts on the same spring shall make with their respective opposing contacts at approximately the same time and the contacts shall have a perceptible follow.

5.09 Contact Separation: There shall be an air gap of minimum .012 inch between the contacts when the plungers are depressed to the level of the hand set supporting surfaces.

5.10 Spring Clearance: There shall be a clearance between springs which are not intended to make contact of approximately 1/32 inch.

5.11 Contact Margins: To ensure proper contact margins, all contacts shall make before the plungers reach a point approximately 1/16 inch from their extreme upper position and break before they reach a point 1/16 inch from the lowest position they take with the hand set in place on the housing.

5.12 If the requirements in Paragraphs 5.08 to 5.11 inclusive are not met, adjust the contact springs close to a point where they leave the clamping plate and insulators with a 466A tool or approved equivalent. When adjusting contact springs take care not to kink them. If springs are kinked, replace set.

5.13 Plungers: The plungers and plunger lever shall move freely without binding or squeaking throughout the entire travel. To clean the plunger, remove housing and clean plungers and holes in housing in a manner similar to that described in the section in Division C30 entitled "Telephone Set Mountings—H Type—Maintenance."

5.14 When the hand set is slowly lifted from the housing, the plungers shall move upward and come to a positive stop.

5.15 When the hand set is slowly lowered into place on the housing, the plungers shall move downward until the hand set rests on the supporting surfaces.

5.16 If the plungers or plunger lever fail to operate properly, replace the set.

Complete Set

5.17 If apparatus or parts other than the transmitter unit require replacement or cannot be made to meet the above adjustments, replace the set.