Installation and
Maintenance Procedures

INSTALLATION AND MAINTENANCE
A. E. Co., Type 31 Recorder Connector

1. GENERAL

1.01 The Type 31 Recorder Connector Unit is an electronic device (See Fig.1) that produces an audible warning signal (Beep Tone) to both the calling and called parties indicating that their conversation is being recorded. This signal is heard approximately every 15 seconds and lasts for a duration of one-fifth of a second at a frequency of 1400 cycles.

Fig. 1. View of Type 31 Recorder Connector

1.02 The recorder connector operates on 120 volt commercial power which is furnished from the recording apparatus to which it is connected.

1.03 The purpose of using a warning tone signal with a recorder is to conform with FCC (Federal Communications Commission) regulations.

2. INSTALLATION

2.01 The recorder connector must be mounted vertically (ventilating holes on the bottom) preferably on a wall or stationary desk. Consideration must be given to the availability of a power outlet near the proposed location. The recorder connector should never be mounted in a location where ventilation is restricted.

2.02 The recorder connector unit is equipped with 5 binding terminals. See Fig.2.

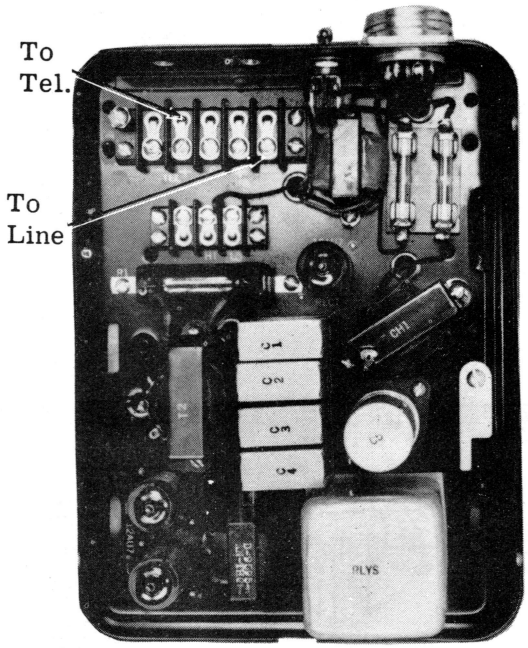


Fig. 2. View of Recorder Connector with Door Removed.

2.03 Two of these terminals marked (+ and -) are used to connect the recorder connector to the telephone line, the other two, also labeled (+ and -) connect to the telephone instrument. The terminal marked "C" is not used.

3. WIRING CONNECTIONS

3.01 Connections to the line and to the telephone are shown in Fig.3.

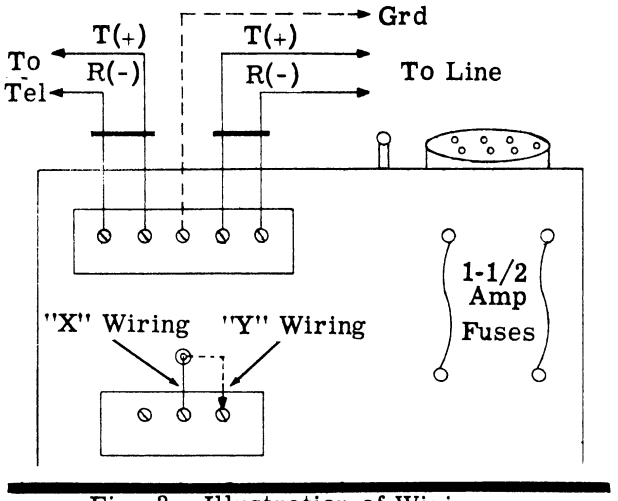


Fig. 3. Illustration of Wiring Connections.

3.02 The recorder connector is set for "X" wiring at the factory for recorders having automatic volume control. See Table 1 to be certain correct wiring is used for the type recorder being used. See Fig. 4 for wiring schematic.

WIRING	USED WITH RECORDER HAVING:
X	AUTOMATIC VOLUME CONTROL
Y	MICROPHONE INPUT
X	LOW LEVEL AMPLIFIER
Y	HIGH LEVEL AMPLIFIER

TABLE 1

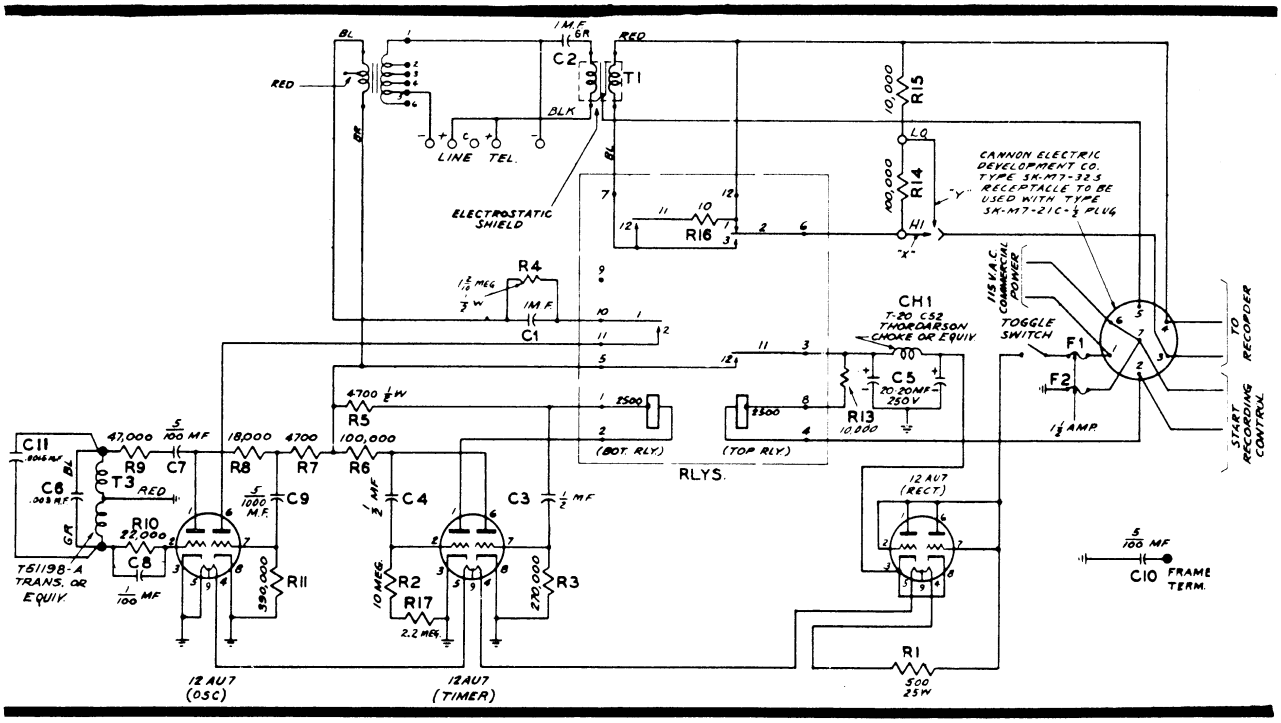


Fig. 4. Wiring Schematic of A. E. Co. Type 31 Recorder Connector

3.03 To use the recorder connector in conjunction with key telephone instruments, a four conductor line cord must be installed and modifications made in the telephone set per one of the methods shown in paragraphs 3.05 thru 3.09.

3.04 Clarification of lines in Figures 5 thru 9:

1. Heavy line indicates - new or transferred wire.
2. Dashed line indicates - removed strap or wire.
3. Thin line indicates - existing wire not transferred.

3.05 Modify the 86 telephone set with 1A and 10A wiring per Fig.5.

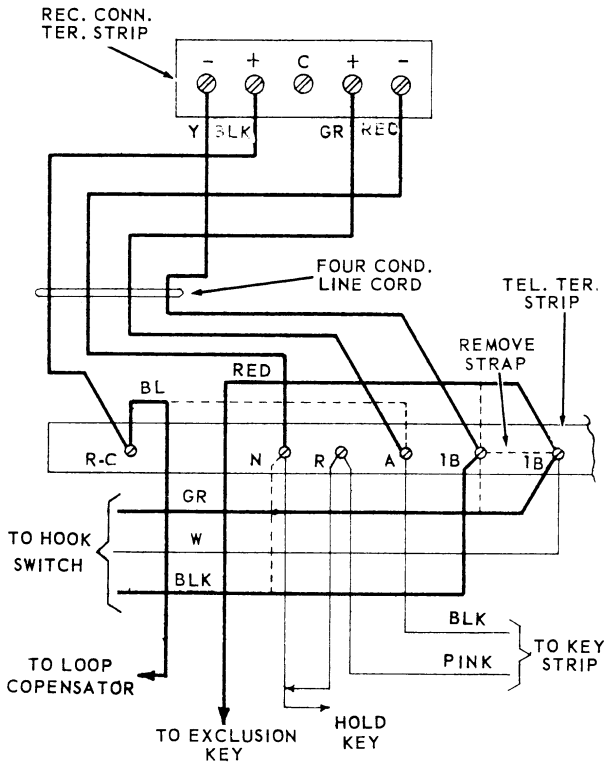


Fig. 5. 1A & 10A Modifications of Type 86 Key Telephone.

3.06 Modify the 86 telephone set with 1A1 and 10A1 wiring per Fig.6.

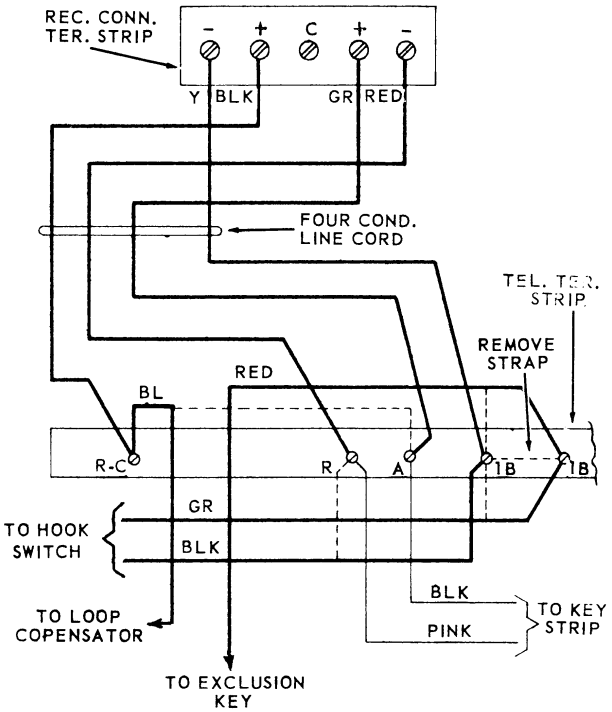


Fig. 6. 1A1 & 10A1 Modifications of Type 86 Key Telephone.

3.07 Modify the 500 telephone set with 1A and 10A wiring per Fig.7.

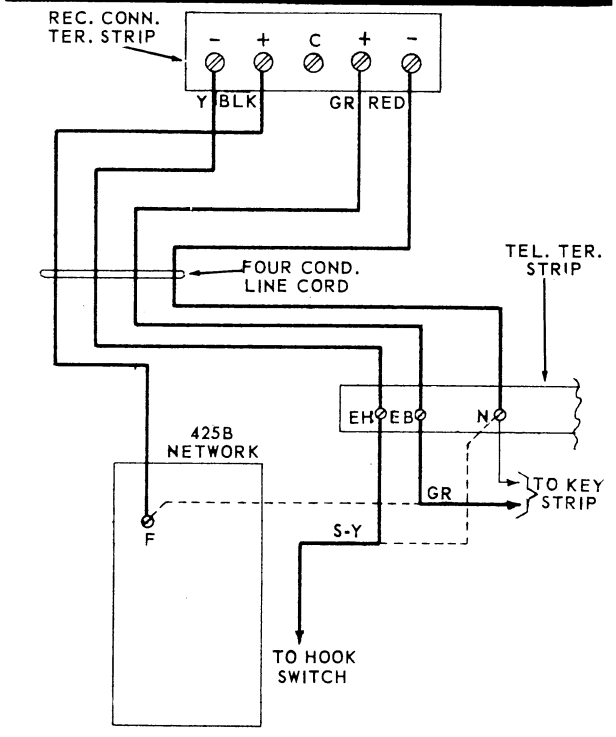


Fig. 7 1A & 10A Modifications of Type 500 Key Telephone.

3.08 Modify the 500 telephone set with 1A1 and 10A1 wiring per Fig. 8.

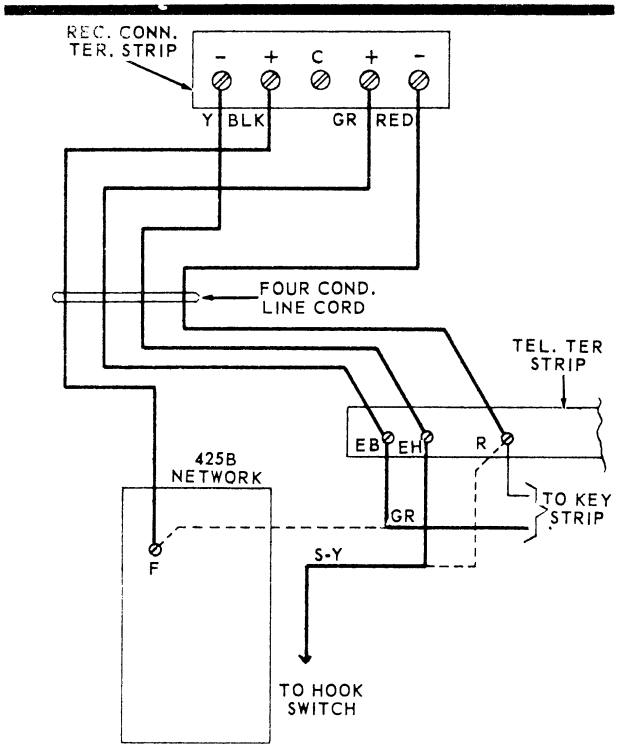


Fig. 8. 1A1 & 10A1 Modifications of Type 500 Key Telephone.

3.09 Modify the 400 telephone set with 1A 10A, 1A1 and 10A1 wiring per Fig. 9.

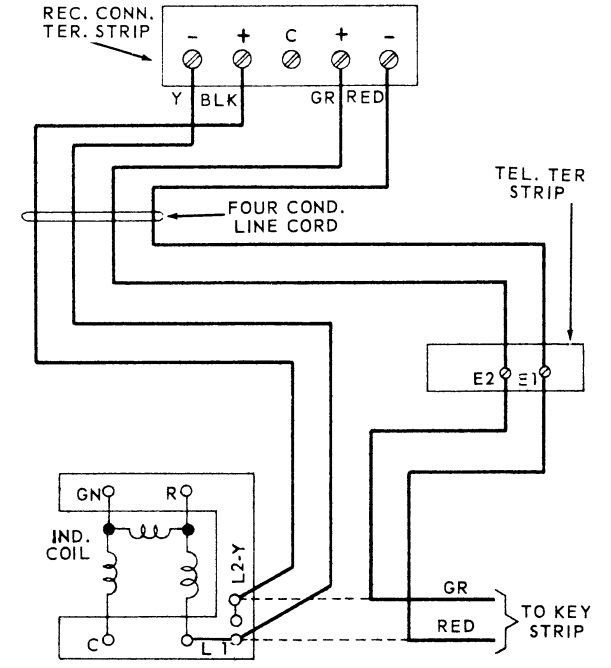


Fig. 9. Modifications of Type 400 Key Telephone.

4. TEST

4.01 After installation of the Type 31 recorder connector, testing procedures in paragraphs 4.09 thru 4.20 must be completed. These tests may also be used for maintenance purposes.

Test Equipment

4.02 (1) SK-M7-21C-1/2 Cannon Plug (Purchase Locally).

4.03 10 Ft. Two Conductor Tirex Cord With Mail Plug.

4.04 5 Ft. Two Conductor Tirex Cord.

4.05 (1) Switch Hand KS-8010 or Equivalent (Start Recorder Control Switch).

4.06 5 Ft. Two Conductor Shielded Cable.

4.07 (1) Hand Test Set.

Procedure

4.08 Assemble 4.02 thru 4.06 per Fig.10.

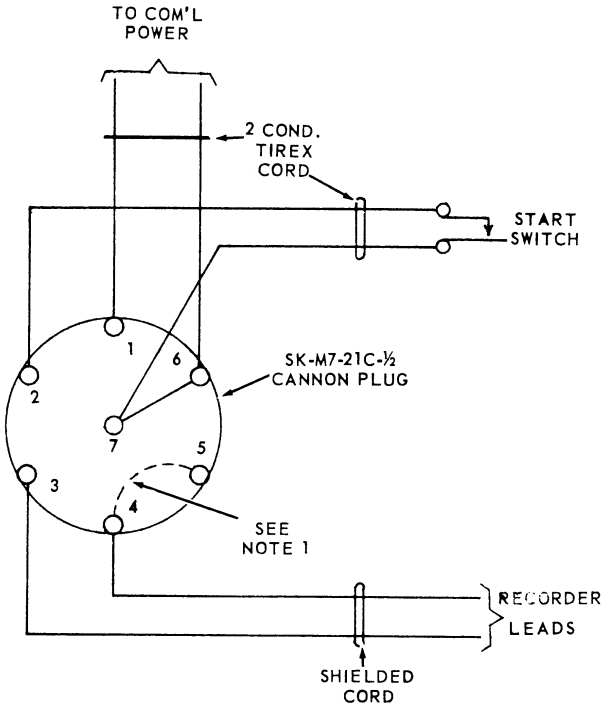
4.09 Attach the cannon plug to the receptacle on top of the recorder connector and tighten the clamping ring.

4.10 Plug the two conductor power plug into the 120 volt commercial power outlet.

4.11 Turn the toggle switch on the recorder connector unit to the "on" position.

4.12 Observe the tubes to see if the filaments are lighted.

Note: The three tubes are in series, if any tube filament is "open" none of the tubes will light.



Note 1: When single conductor shield cord is used, connect shield to ter.4, strap ter. 4 to ter. 5 and connect center wire to ter.3. When a two conductor shield cord is used, connect shield to ter. 5, and one of the center wires to ter. 3. Connect the other center wire to ter. 4.

Fig.10. Diagram of Test Cord to be Used for Testing the Operation of the Type 31 Recorder Connector.

4.13 If the filaments light, allow them to burn for five minutes and proceed as follows:

1. Remove telephone receiver from hook.
2. Break dial tone.
3. Press the "start" switch on the test cord assembly to the "on" position.

4.14 Under this condition, a high pitched tone of approximately 1400 cycles should be heard in the receiver of the telephone at intervals of from 13 to 17 seconds for a duration of approximately 1/5 of a second.

4.15 If this tone is heard, leave receiver off the hook and connect a hand test set to the ends of the "recorder lead" cord of the test cord assembly. The same tone at a reduced volume should be audible at this point.

4.16 Connect the hand test set to the negative and positive terminals of the "Line" (right-hand) end of line connecting block in the recorder connector. The tone should be heard at this point, louder than at the two points described in 4.14 and 4.15. The recorder connector is arranged in this manner to ensure that the party at the distant end of a connection will be able to hear the warning "beep" tone.

4.17 If the tone is heard under the tests described under 4.14, 4.15, and 4.16, a call should be made to the test board to see if the warning tone is audible to the distant party.

4.18 After tests in paragraphs 4.09 thru 4.17 have been made and if they give satisfactory results, the "start" recorder switch on the test cord assembly should be turned to the "off" position. Under this condition the warning tone should not be heard.

4.19 If the tests do not give the results as outlined above, the recorder connector should be checked for open fuses or open wiring on the equipment that is visual. Do not attempt detailed testing or repairs of this equipment in the field. The sheet metal screws which hold the protective rear cover of the recorder connector should not be removed in the field. If trouble cannot be located as outlined in this paragraph, the recorder connector should be replaced and returned to the storeroom properly tagged.

4.20 WARNING: Various exposed terminals in the recorder connector have 120 volt commercial power standing on them when the power is "on". This includes the porcelain resistor and fuse terminals.

5. INSTRUCTIONS TO CUSTOMER

5.01 After the recorder connector is installed and tested, the customer should be advised to contact a firm engaging in the sales and service of recorder equipment to have the power cord, "start" recorder equipment cord and switch, cannon plug and recorder connections made.

5.02 No specific firm or type of recorder equipment should be recommended to the customer.

5.03 The customer should be instructed to leave the toggle switch at the top of the recorder connector unit in the "on" position at all times, except on occasions when the recorder is not to be used for a long period of time (overnight, etc.).