

MODEL 869-15 AM-FM RECEIVER OPERATING INSTRUCTIONS

DESCRIPTION

The Raymer Model 869-15 is a monaural solid state background music receiver consisting of a sensitive high fidelity AM-FM tuner and a 15 watt (RMS) audio amplifier with microphone pre-amplifier. The unit has an external amplifier jack, and Aux/Phono jack, a Multiplex Converter jack, and a microphone jack. It also has speaker outputs for 4 or 8 ohms as well as 25 and 70 volt line. Provision is made for matching either a low or high impedance microphone to the input of the amplifier by means of a selector switch.

The receiver also features an electronic switching (PRECEDENCE) circuit in place of a relay to quickly fade out the music while paging; after the page, the music is smoothly restored.

UNPACKING:

The unit is to be removed carefully from the carton and inspected for any possible damage in transit. If there is any evidence of any damage which might have occurred in shipment, notify your dealer at once, or the transportation company which delivered it. Claims for damage sustained in transit must be made upon the Carrier. Save all packing material for inspection by the claim agent who will furnish you with the proper forms and will also give you the necessary instructions for filing a claim. In addition to the Unit, there should be a warranty card included in the carton.

To insure proper servicing and to protect your rights under the warranty, be sure to fill in the warranty registration card without delay and mail to the factory.

WARRANTY

This unit has been very carefully inspected and should require no further service. Each unit is warranted to be free from defects in material and workmanship under normal use and service for a period of one year from date of delivery to the original purchaser. If this unit appears to be defective, the factory will repair any unit returned within said one year, providing all transportation charges are pre-paid, and which our examination shall disclose to our satisfaction to be defective.

This Warranty does not include free labor, nor is it applicable to any unit which shall have been subject to accident, tampered with, mis-used, abused, or altered in any manner whatsoever. Further, this Warranty shall not apply to any unit which has been connected improperly.

It is recommended that any unit on which service is required, be processed through your dealer wherever possible.

This Warranty is expressly in lieu of all other Warranties, expressed or implied, and of all other obligations or liabilities on our part. We neither assume nor authorize any other person to assume for us any other liability in connection with the products manufactured by Trutone Electronics, Inc.

INSTALLATION:

Because of its attractive appearance this unit may be placed on a table or a shelf. Although the unit has ample vents for normal ventilation, sufficient space should be allowed around it to permit free air flow. DO NOT PLACE it on top of vacuum tube equipment. DO NOT STORE OR OPERATE it in areas where the ambient temperature exceeds 140 degrees Fahrenheit. If installed in a cabinet, ample ventilation must be allowed around the unit.

Plug the AC line cord in any outlet furnishing 105 to 120 volts, 60 cycles AC.

An AC receptacle is located on the back of the chassis to supply power to other components such as phonograph motor, etc. The auxiliary equipment connected to the AC receptacle is controlled by the POWER on-off switch so that turning off the unit turns off all equipment.

OUTPUT CONNECTIONS

All connections are made on the rear panel of the unit.

The speaker(s) or line matching transformers are connected to the screw terminal board located on the rear panel. Connections are to be made between the terminal marked GND (O) and the impedance or line voltage according to the type of output required. For short distances any ordinary insulated wire, such as parallel lamp cord, may be used.

Connecting a total load impedance at any tap less than the impedance indicated will deteriorate the performance of the unit. When a speaker with an impedance of 8 ohms is connected to the amplifier, use the terminals on the amplifier marked GND and 8 Ω . For a 4 ohm speaker or two 8 ohm speakers in parallel, use GND and 4 Ω .

Connecting to the 25 volt or 70 volt tap on the unit permits the use of a number of speakers each with its own corresponding line matching transformer, thereby eliminating the necessity of calculating impedances. The tap on the line matching transformer is selected to give the power desired for each speaker. The total of all the power settings should be no greater than the amplifier output rating.

Long lines have an appreciable resistance with a resultant power loss. The use of parallel matching transformers on either 25 volt or 70 volt lines is recommended for long distances. When it is desired to have less than 15% power loss on low impedance lines and 5% on high impedance lines, the following table may be used as a guide for the proper wire size to be used. In all cases, it is advisable to run as heavy a wire as possible consistent with the requirements.

WIRE SIZE B & S	MAXIMUM LENGTH OF LINE BETWEEN OUTPUT AND LOAD			
	4 Ohms	8 Ohms	42 Ohms (25V)	332 Ohms (70V)
14	125'	250'	400'	3600'
16	75'	150'	250'	2200'
18	50'	100'	160'	1400'
20	25'	50'	90'	900'

The External Amplifier (EXT. AMP.) jack is to be used when it is desired to connect to an external amplifier for greater power. It can also be used to feed the signal from the tuner to a tape recorder which has an Aux or Line input. Both the external and internal amplifiers will operate simultaneously when the external unit is plugged in the EXT. AMP. jack.

The Multiplex jack can be used for connecting to a Multiplex Converter to receive simultaneous signals on both FM and Multiplex broadcast, and for Multiplex Stereo Reception.

INPUT CONNECTIONS

All connections are made on the rear panel of the unit, and are clearly identified.

For FM reception a short wire attached to the antenna terminal is sufficient for most locations. In the event that the unit is located in a remote area an external Dipole antenna will increase the efficiency and a number of distant stations can then be received. This external antenna is to be connected across the terminals marked ANT.

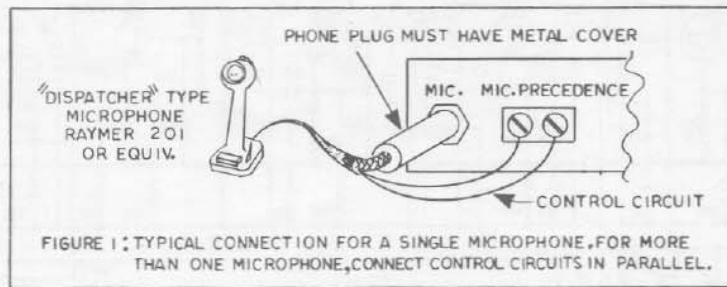
The AUX/PHONO input jack enables the unit to amplify program material from a source other than the self-contained radio tuner. This input is high impedance with a maximum sensitivity of one-half volt and will accommodate the output of a ceramic phono cartridge or the output from any preamplifier such as tape, phono, etc. If the source into the auxiliary input is from leased telephone lines, a Raymer TM-2 telephone adaptor is required to match the telephone lines to the AUX input.

The microphone input jack is for an unbalanced line only. If it is necessary to use a balanced input, an outboard matching transformer such as Raymer Model LMT-150 must be used. If the signal source is a telephone line or a 500 ohm input, the connection can be made to the amplifier by means of a Raymer Telephone Matching Adaptor TM-1 or TM-2. The switch above the microphone input selects the proper input impedance. The Hi-Z position will match either crystal or high impedance dynamic microphones; the Lo-Z position will match microphones in the 150 to 500 ohm range.

CAUTION

TO AVOID POSSIBLE SUPERSONIC OSCILLATION WHICH MIGHT RESULT IN DAMAGE TO THE UNIT, IT IS MANDATORY THAT A SHIELDED (METAL COVER) MICROPHONE PLUG BE USED.

If it is desirable to fade out the music while paging, a "dispatcher" type of microphone, such as Raymer Model 201, or an equivalent microphone with an auxiliary switch should be used. The microphone is to be connected as shown in Figure 1.



When output leads are run near an unshielded microphone input plug or when run together with the microphone precedence leads, a supersonic oscillation may take place. When this does occur, it will appear as a distortion in the amplifier output. To prevent this oscillation it is necessary that shielded microphone plugs be used.

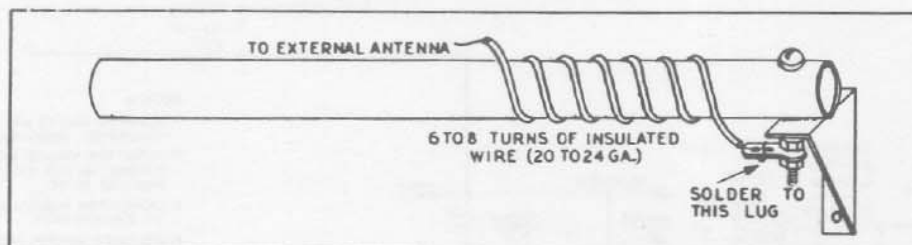
OPERATION:

The front panel has five knobs and two slide switches. The functions of the knobs are as indicated. The Mic. Volume control knob adjusts the level of sound for paging or public address, and is independent of the Music Volume control knob. The Music Volume control knob is used to adjust the level of the sound of the AM and FM portion or phonograph. The Tone control knob can be turned to the position that is most pleasing to the listener as it affects both the high and low frequency response. The Function knob is used to select the AM band, the FM without AFC, or the FM with AFC. The Tuning knob is to select the desired AM or FM station. The Music switch is used to select tuner or phono. The slide switch at the lower left is to turn the unit on or off.

AFC refers to "Automatic Frequency Control" and is an electronic means of keeping the receiver properly tuned to the FM Broadcasting station. Even if the FM Tuner Pointer is not in the exact center of the channel, the AFC will automatically pull in the station to the proper point. However, in tuning a weak station adjacent to a strong one, even if the AFC is in an operating position, it may lock on the stronger signal. It is for this reason that a selector switch has been provided for disabling the AFC.

For normal operation on FM, the Function knob should be turned to the AFC position. For very precise tuning, or for tuning a weak station next to a powerful station on FM, it is suggested that the knob be set in the FM position until the station is received the loudest. The knob is then to be turned to the AFC position and the station will be properly tuned and locked in position.

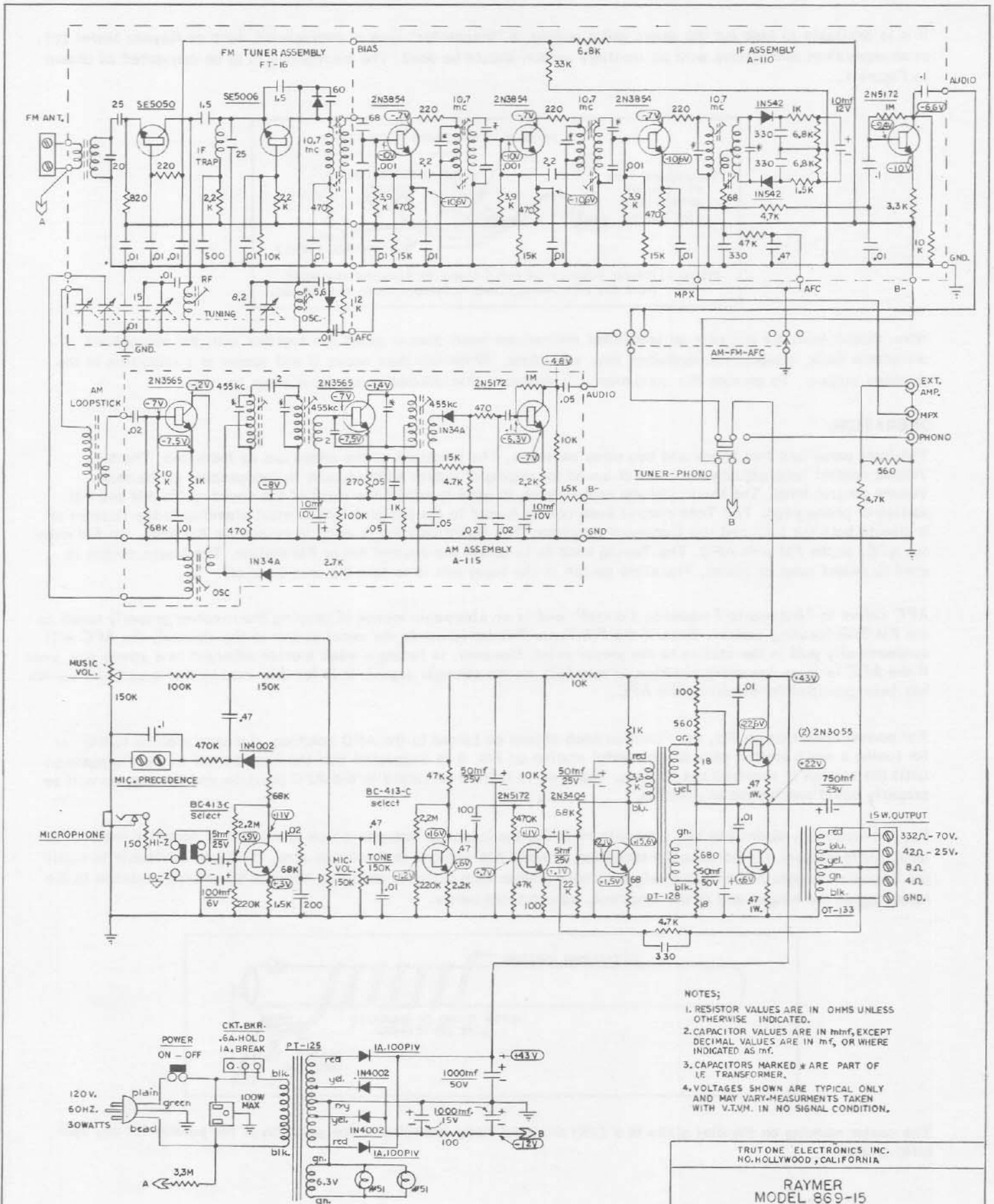
For AM reception, Model 869 has a built-in Hi-Q Ferrite loopstick antenna which is all that is normally required for local AM reception. To increase the reception of weak AM stations in the fringe area, it may be advisable to rotate the loopstick to obtain the loudest signal. Where greater sensitivity is required, connect an external antenna to the metal lug on the hinged end of the loopstick, as indicated below.



The center marking on the dial glass is a LOG scale for easy recording of the position of the pointer for any specific station.

Made in U.S.A. by

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- NOTES;
1. RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE INDICATED.
 2. CAPACITOR VALUES ARE IN mhf, EXCEPT DECIMAL VALUES ARE IN mf, OR WHERE INDICATED AS mf.
 3. CAPACITORS MARKED * ARE PART OF LE TRANSFORMER.
 4. VOLTAGES SHOWN ARE TYPICAL ONLY AND MAY VARY-MEASUREMENTS TAKEN WITH V.T.M. IN NO SIGNAL CONDITION.

TRUTONE ELECTRONICS INC.
 NO. HOLLYWOOD, CALIFORNIA

**RAYMER
 MODEL 869-15**

15 WATT AM/FM RECEIVER WITH PAGING

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