



INSTALLATION AND OPERATION INSTRUCTIONS

MODEL 840 BACKGROUND MUSIC RECEIVER

Model 840 is an all solid state background music receiver consisting of a sensitive Hi Fidelity FM Tuner and a 30 watt (RMS) audio amplifier with microphone pre-amplifier. The unit has an external amplifier jack, a crystal phono jack, a Multiplex Converter jack, and a microphone jack. It also has speaker outputs for 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. Included is a microphone precedence circuit to permit suppression of the music channel while paging.

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 the Receiver 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.

CONNECTIONS:

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

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.

When a speaker with an impedance of 8 ohms or more is connected to the amplifier, use the terminals on the amplifier marked "GND" and "8". If, however, the speaker uses a 25 or 70 volt line transformer, connect the speaker transformer to the terminals marked "Com 2" and "25 V" (or "70 V") according to the line desired. If a balanced output line is to be employed, disconnect the jumper between "Com 2" and "GND"; for an unbalanced line the jumper remains connected between "Com 2" and "GND".

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 8 ohm line 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		
	8 Ohms	21 Ohms (25V)	166 Ohms (70V)
14	250'	200'	1800'
16	150'	120'	1100'
18	100'	80'	700'
20	50'	45'	450'

When it is desirable to suppress the music channel while paging, connect the microphone precedence circuit as shown in Figure 1.

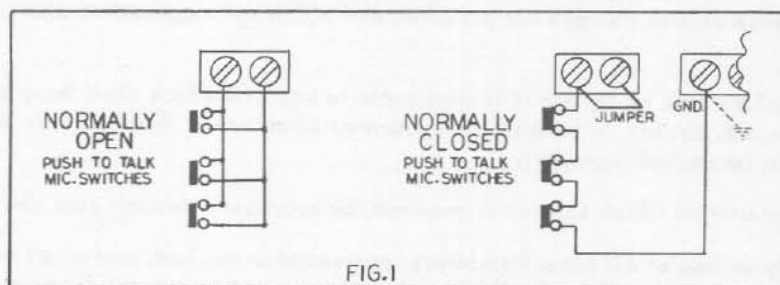


FIG.1

For normal 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 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 a built-in pre-amplifier. 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.

The crystal phono input jack enables the amplifier in the unit to be used for playing of records, using a crystal or ceramic cartridge.

A slide switch is provided to select the proper input impedance for the microphone. The High Z position will match either crystal or dynamic high impedance microphones. The Low Z position will match microphones in the 150 to 500 ohm impedance range.

OPERATION:

The front panel has four knobs and three slide switches. The functions of the knobs are as indicated. The Microphone 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 FM portion or phono. 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 Tuning knob is to select the desired FM station. The music switch is used to select radio, or phono. The slide switch at the lower left is to turn the unit on or off. The slide switch at the lower right is used for AFC defeat.

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, the AFC selector switch should be left in the "on" position. For very precise tuning, or for tuning a weak station next to a powerful station on FM, it is suggested that the AFC selector switch be set to the "off" position until the station is received the loudest. The switch is then to be moved to the "on" position and the station will be properly tuned and locked in position.

Optimum performance of any transistor amplifier depends upon the proper current delivered at the output terminals. Four output impedance taps are available: 8 ohms, 21 ohms (25 volt line) and 166 ohms (70 volt line). Connecting a total load impedance at any tap less than the impedance indicated will cause the transistors to deliver more current than they were designed for and will deteriorate the performance of the unit and cause damage to the transistors. To prevent this from occurring and to protect the components, the unit is equipped with a circuit breaker that will trip if the output impedance is below the specified rated value; for example, if two 8 ohm speakers are connected in parallel (resulting in a 4 ohm impedance), and in turn connected to the 8 ohm output terminal, the circuit breaker will trip as soon as the volume control is turned up to the unit's maximum output.

When output leads are run near an unshielded microphone input plug, or when run together with the microphone precedence leads, a supersonic oscillation may occur. When this does occur, it will appear as a distortion in the amplifier output, and oftentimes will cause the circuit breaker to "trip".

To prevent this oscillation from occurring, it is recommended that shielded microphone plugs be used wherever possible. In the event that an unshielded plug or a molded cable assembly is used, keep the output leads away from the Microphone input(s) and Microphone precedence leads.

In installations where there is no alternative but to run both output and microphone precedence lines together, a .1 Mfd capacitor is to be connected from one side of the Microphone Precedence terminal to ground. This will shunt out the feedback signal and more than likely prevent the supersonic oscillation.

The power transistors are mounted on the back panel. In the event it becomes necessary to replace these transistors, be certain that:

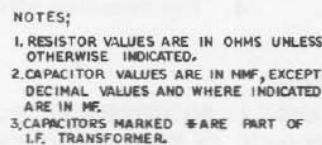
1. No grit or metal particles are lodged between the transistor and the mica or back panel.
2. The mica insulator is not damaged.
3. Both sides of the mica insulator are covered with Dow Corning 7 Silicone Grease or equivalent.
4. The mounting screws are tight, and also that the protective cover does not touch the transistor.

CAUTION:

THIS UNIT IS EQUIPPED WITH A CIRCUIT BREAKER DESIGNED TO PROTECT THE TRANSISTORS AGAINST OVERLOAD. IN THE EVENT THAT THE CIRCUIT BREAKER CONSTANTLY "KICKS OUT", CHECK THE LOAD ON THE OUTPUT OF THE AMPLIFIER FOR EITHER A SHORT CIRCUIT OR AN IMPEDANCE LOWER THAN THE VALUE RECOMMENDED. IF THERE IS NO SHORT CIRCUIT AND THE LOAD IS CORRECT, CHECK TO SEE IF POSSIBLY THE INPUT AND OUTPUT OR MICROPHONE PRECEDENCE LEADS ARE RUNNING CLOSE TOGETHER. IF THEY ARE, THEY SHOULD BE SEPARATED AND TREATED AS INDICATED ABOVE. IN THE EVENT THAT THE LOAD IS CORRECT AND THE LEADS ARE NOT RUNNING TOGETHER, DO NOT ATTEMPT TO DEFEAT THE FUNCTION OF THE CIRCUIT BREAKER BUT HAVE THE UNIT CHECKED FOR OTHER DEFECTS.

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TITLE;
MODEL 840
30 WATT FM RECEIVER, WITH PAGING.

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