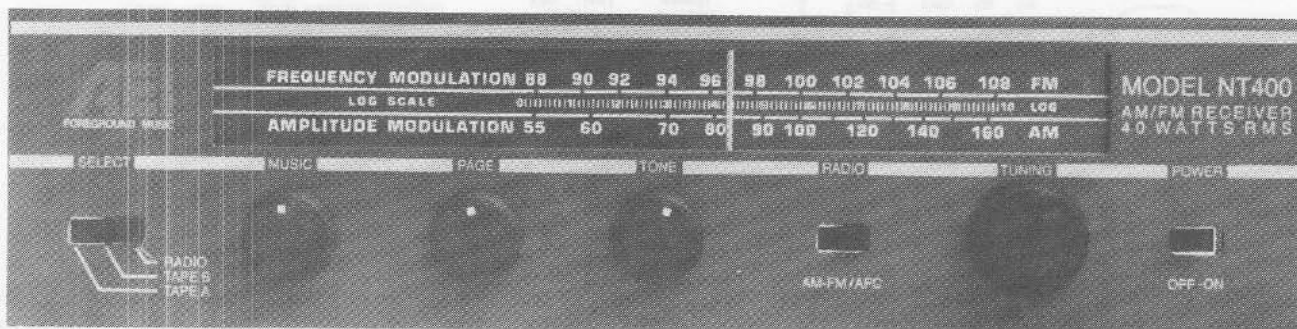


AEI MODEL NT400

OPERATING INSTRUCTIONS



WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS RECEIVER TO RAIN OR MOISTURE.

DESCRIPTION

This unit is a solid state monaural paging receiver which includes a radio tuner, microphone/line preamplifier, and power amplifier all housed in one convenient package. The radio portion of this unit will receive the 88-108 Mhz FM band as well as the 540-1650 KHz AM band. The audio output power of this unit is 40 watts.

There are seven controls on the front panel of the receiver identified as: SELECT, MUSIC, PAGE, TONE, RADIO, TUNING, and POWER. The SELECT switch allows the selection of the radio or one of two high impedance external inputs as the source for the music input. The MUSIC control adjusts the volume level of the input chosen. The PAGE control adjusts the volume level of a paging source which may be either a low impedance balanced microphone or balanced line input as selected by a switch on the rear panel. The TONE control adjusts the treble response of both the music and page. The RADIO switch selects either AM or FM (with AFC) as the radio source. On FM only models this switch turns the AFC on or off. The TUNING knob selects the frequency of the station desired as indicated by the pointer on the slide rule dial. the POWER switch turns the entire unit on and off as well as any accessory plugged into the outlet socket on the rear of the unit.

Screw terminals are provided to manually mute the music by means of a contact closure if desired. Screw terminals are also provided for connection of an external antenna(s). Power output provisions include both 4 and 8 ohms for direct speaker connections as well as 25 and 70 volt lines for speaker distribution systems.

These receivers are housed in a sturdy steel cabinet measuring 13-1/2" x 10-7/8" x 3-5/8" which may be rack mounted by use of the Raymer Model RPK-2 rack mounting kit. These units operate from a standard 120 volt AC 60 Hz power source and are protected by a push-to-reset circuit breaker.

UNPACKING

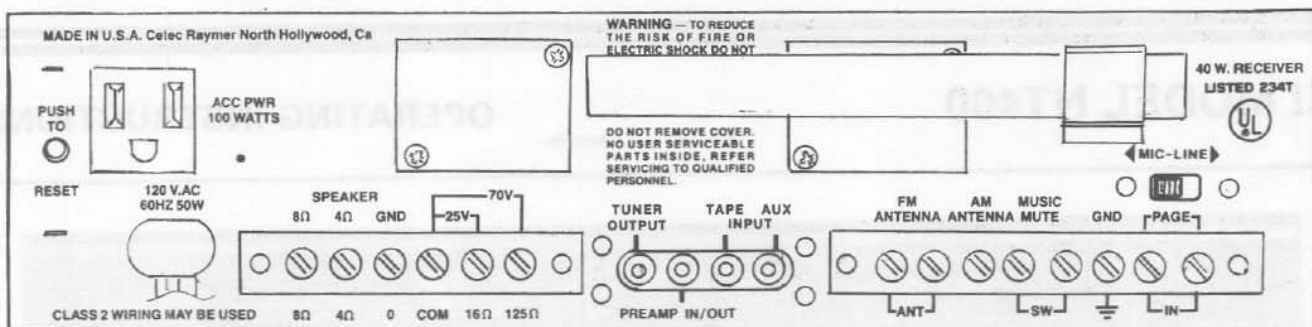
The unit is to be removed carefully from the carton and inspected for any possible damage in transit. If there is any evidence of any damage which might have occurred in shipment, immediately notify your supplier, or the transportation company which delivered it. Claims for damage sustained in transit 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.

INSTALLATION

Each receiver has ample vents for normal cooling by means of air circulation and should be installed in a manner which permits free air flow around the unit. DO NOT PLACE ANY OBJECT ON TOP OF THE UNIT WHICH WILL BLOCK THE AIR FLOW OF THESE VENTS. DO NOT STORE OR OPERATE THE UNIT IN A HOT AREA WHERE THE TEMPERATURE EXCEEDS 140° F.

The unit may be mounted in a standard 19 inch rack by using a Raymer Model RPK-2 rack panel kit. These kit requires a vertical height of only 5-1/4".

The power required to operate these units is 105-120 volts AC 60 Hz. The AC power cord on the unit has 3 prongs and must be connected into a matching 3-wire grounded outlet to provide a safety ground for the receiver. An AC receptacle is provided on the rear panel of the receiver to provided power for accessory equipment. This receptacle is controlled by the POWER on-off switch so that the accessory equipment is turned on and off with the receiver.

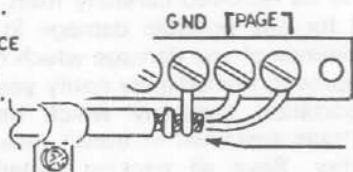


CONNECTIONS

All connections are made on the rear panel of the unit. Connection to the AUX INPUT, TAPE INPUT, TUNER OUTPUT and PREAMP IN/OUT are each made by means of a standard RCA type phone jack. These circuits require the use of a shielded audio patch cord with a phono plug when connecting to auxiliary equipment. All other connections are made by means of screw terminals. With the exception of the PAGE INPUT, these circuits may be connected with unshielded wire. Refer to Figure 1 for the proper wiring of the PAGE INPUT.

FIGURE 1.

LOW IMPEDANCE
MICROPHONE
INPUT WIRING.



NOTE:
SHIELD ON
MICROPHONE
CABLE MUST
BE CONNECTED
TO GROUND

PAGE INPUT

This input is a low impedance balanced circuit which may be used to match either a microphone or line input as determined by the switch located directly above the these terminals. With the switch in the MIC position, this input has a sensitivity of 1/2 mv. to match the output of a 150 to 250 ohm low impedance microphone. Because of the high gain of this circuit, care must be taken in wiring this input to prevent oscillation caused by capacitive feedback from the output wiring. Microphone wiring requires the use of a shielded cable with two center conductors. These two conductors should be connected to the terminals marked PAGE and the shield to the GND terminal. No other wiring should be included inside of the shield and any unused wires in the cable must be grounded to prevent R.F. pickup.

When the switch is in the LINE position, this input has a sensitivity of 50 mv. and an input impedance of 1000 ohms. In this position the PAGE input may be used from a phone system as the paging source. The PAGE input may be directly connected to the 600 ohm "paging port" output of registered PABX or switchboard equipment. Such equip-

ment contains the protective circuitry required by the FCC. If a paging output is not available from the telephone equipment, then either the Raymer Model TAP trunk access paging adaptor or the Raymer Model TSA telephone station access paging adaptor must be used to properly match this input to the phone system. UNDER NO CIRCUMSTANCES MAY THIS INPUT BE DIRECTLY CONNECTED TO THE NATIONAL TELECOMMUNICATIONS NETWORK. Input wiring to the receiver from the phone circuit may be made with unshielded wire. However, if this wire is cabled with the output wiring or if oscillation, noise, or R.F. interference is noted, these wires should be shielded and connected as shown in Figure 1.

TAPE and AUX INPUTS

These inputs are high impedance unbalanced and have an input sensitivity of 1/4 volt to match the output from most tape players or other audio equipment with line level output. A Raymer Model TM-2 should be used when converting one of these inputs to a 600 ohm balanced input. To convert either of these inputs to a 10,000 ohm balanced bridging input requires the use of either the Raymer Model MDT or Model DLT. These inputs are alternate music channel sources as chosen by the SELECT switch on the front panel.

ANTENNA INPUTS

Separate antenna inputs are made available for the AM and FM portion of the tuner by means of a terminal board. For normal FM reception, the short antenna lead supplied with the unit is sufficient for most locations. In the event that the tuner is located in a remote area, an external Dipole antenna will increase the number of distant stations that can be received. This external antenna is to be connected across the terminals marked FM ANT.

For AM reception, the receiver 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. In instances where the tuner is used inside of an all-metal building or in a weak reception area, an outside antenna is required. Connect an external antenna lead to the terminal marked AM ANT.

PREAMP IN/OUT

This jack provides access to the mixer bus which is the circuit in the receiver that connects the output of the preamplifier to the input of the power amplifier. Anything connected to this circuit must be high impedance to prevent shorting out the page and music. This jack may be used as an output to drive the input of a tape recorder or another amplifier. When used as an input, the source may be from a Raymer Model TGSP-4 to provide a chime annunciator signal or alarm tone. The Raymer Model TRG tone ringing generator may be used for loud telephone ringing requirements such as a night bell. By connecting a signaling or alarm signal in this manner, it is unaffected by the front panel controls.

TUNER OUTPUT

This high impedance output circuit is not effected by the music mute function. The signal from this jack is only from the radio as selected on the front panel and may be connected to an external amplifier to simultaneously provide a music only system, unaffected by the paging function of the receiver. When used to drive a Music-On-Hold arrangement, the Raymer Model 701 is usually required to provide the 8 ohm or 500 ohm output necessary to match the phone equipment.

OUTPUT CONNECTIONS

20 or 40 watts RMS power output is provided for 4 or 8 ohm speaker lines or for distribution on 25 volt or 70 volt lines. Output connections are made by means of screw terminals on the face of the unit.

Long speaker lines have an appreciable resistance with resulting power loss. To avoid this power loss, the use of matching transformers on either 25 volt or 70 volt lines is recommended. This arrangement also allows the connection of multiple speakers which have different power requirements. In all cases it is advisable to run as heavy a wire as possible consistent with requirements. To avoid inducing hum into the speaker lines do not run speaker cables parallel to power line cables.

In some areas 70 volt distribution lines must be run in conduit. Check your local city electrical codes before

installing a 70 volt speaker system to determine the local code requirements.

The 4 OHM and 8 OHM outputs are used when connecting directly to speaker voice coils. When a speaker or a series-parallel array of speakers with an impedance of 8 ohms is connected to the amplifier output, use the terminals marked 8 OHMS and GND. Use the terminals marked 4 OHMS and GND for a speaker circuit with a 4 ohm impedance. Do not simultaneously load both outputs at their rated impedance as this will appear as a demand for twice the rated output from the amplifier and represent an overload to the unit. In a similar manner, do not load both the speaker output and the 25 or 70 volt output simultaneously at full power demand. A combination of speaker loads is permissible using the various outputs from the amplifier; however, the sum of these demands should not exceed the rated power output of the amplifier.

The 25 VOLT and 70 VOLT outputs are used with speaker distribution systems in which each speaker has a line matching transformer which is connected for the specific wattage requirement of that speaker. This permits the use of a large number of speakers with various sound level requirements to operate from a common source. By rating these transformers in the wattage which they demand across a 25 volt or 70 volt line, there is no necessity in calculating total impedance. The total wattage demand of such a speaker line may be determined by adding up the sum of all the speaker demands in the system. This total should not exceed the wattage rating of the amplifier used to drive the system. Connection to the 25 volt or 70 volt outputs is made by means of screw terminals on the face of the unit, use the terminals marked COMM and 25V (or 70V) according to the line desired.

Optimum performance of any amplifier depends upon proper impedance match between the output and the load. Connecting a load of mismatched impedance to an amplifier will deteriorate the overall performance of the system. To accurately measure the impedance of a speaker line, the Raymer Model LWT should be used. This test instrument permits direct reading of the wattage demand or impedance of a speaker line and is a valuable aid in determining opens, shorts or mismatch conditions.

WARRANTY

THIS UNIT HAS BEEN VERY CAREFULLY INSPECTED AND 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 SALE TO THE ORIGINAL PURCHASER. THIS WARRANTY DOES NOT EXTEND TO ANY UNIT WHICH BEEN SUBJECT TO ABUSE, MISUSE, NEGLIGENCE, ACCIDENT, IMPROPER INSTALLATION, OR ALTERATIONS. THE OBLIGATION OF CETEC RAYMER UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OF ANY DEFECT IN MATERIAL OR WORKMANSHIP AND/OR THE REPLACEMENT OF ANY DEFECTIVE PART, PROVIDED THE UNIT IS RETURNED TO CETEC RAYMER TRANSPORTATION PREPAID.

IT IS RECOMMENDED THAT ANY UNIT ON WHICH SERVICE IS REQUIRED BE PROCESSED THROUGH YOU DISTRIBUTOR OR INSTALLATION COMPANY 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 CETEC RAYMER.

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7315 Fulton Ave., No. Hollywood, CA 91605 • (213) 875-0423

