



MCX300 AM-FM Tuner and Cassette Tape Player

RAULAND-BORG CORPORATION • 3450 West Oakton Street, Skokie, Illinois 60076-2951 • (708) 679-0900

General Information

Description

The Rauland MCX300AM-FM Tuner and Cassette Tape Player comes ready to be rack-mounted. It includes a separate 12-VDC power supply that can be plugged into any convenient 120-VAC power outlet. There are screw terminals for connecting the external antenna required for the AM-FM tuner, and an RCA-type phono jack for connecting the unit's unbalanced monaural audio output to a sound or communications system.

The audio output provides an ample signal for the auxiliary Input of an amplifier or a communications system. See the attached diagram KM0949 for details about connections to the tuner and cassette player.

Unpacking

The MCX300 comes assembled with its knobs and dress panel in place. The only separate items besides the main chassis and the vendor's instruction manual are the 12-VDC power supply and the screws, washers, and Tinnerman nuts for fastening the chassis to the rack:

Supplied Parts

Qty.	Description	Rauland Part No.
1	12-VDC power supply.	VP0145
4	Black #10 flat washers	WJ0305
4	Fiber washers.	WL0315
4	Tinnerman #10-32 speed nuts.	AB3640
4	Black machine screws (#10-32 x 3/8" pan-head Phillips).	B0439

Parts to be Supplied by the Customer

- 1 FM antenna with mast and supporting hardware.
- 1 AM antenna wire with mast and hardware.
- 1 AM/FM antenna coupler and protective housing.

- 2 Spade terminals. The wire end should be of the proper gauge to slip onto the inner conductor or the shield of the shielded cable; the spade end should fit over a #6 screw terminal.
- 1 75Ω shielded cable from the antennas to the tuner.
- 1 Lightning-protection system.
- 1 Shielded cable to connect the MCX300 to a sound or communications system. One end should have an RCA-type phono plug; the other, a suitable connector for the sound or communication system's Auxiliary or Tuner input.

Equipment Damaged in Transit: This equipment was carefully inspected and tested at the factory before it was shipped. If it has been damaged in transit, notify the transportation company immediately to place your claim.

Required Antenna

An external 75-ohm antenna is required for the AM-FM tuner. The type of antenna to use depends upon the equipment's location within the building and the strength of the radio signals in the area. For most installations, Rauland recommends the antenna system shown in Wiring Diagram KM0710 (attached).

Note that the system should be installed with some protection against lightning. Articles 810 and 820 of the National Electrical code, ANSI/NFPA No. 70-1978, provide detailed information regarding the grounding of (a) the mast and the supporting structure, (b) the lead-in wire to an antenna discharge unit, and (c) the coaxial cable system. The Code also specifies the size of the grounding conductors, the locations of the antenna discharge units, the connections to the grounding electrode, and the requirements for the grounding electrode. An example of an installation meeting these requirements is given on the attached Illustration IL0153.

Installation

Location

The unit may be placed in practically any rack with:

- a 120-VAC outlet within reach of the power supply's cord (about six feet) and with enough room to insert the power supply: about 2.1 inches wide, 2.2 inches high (plus the cord strain relief), and 2% inches

- clearance in front of the outlet (to allow for the plug);
- a 19-inch standard width, a 3½ inch vertical space, and an 8-inch depth; and
- an even, moderate temperature.

Rack-mounting

Step 1. If *the rack's holes are not tapped*, insert #10 "U" nuts over the four holes that you will use.

Note: On some extruded holes, you may have to omit the "U" nuts and use thread-forming screws (not supplied).

Step 2. Prepare the four supplied machine screws by placing a black metal washer and then a fiber washer over each one.

Step 3. Insert the MCX300 in the rack and fasten it with the four prepared screws.

Initial Antenna Connections

Step 1. Cut the antenna lead to the proper length and attach suitable terminal lugs to the inner conductor and shield.

Step 2. Connect the Inner conductor to the Dist ("Distant") antenna screw terminal and the shield to the Gnd screw terminal. To ensure a proper antenna reference, **connect** a #22-AWG **or** larger wire between the Gnd screw terminal and the equipment rack (if it is grounded) or some other earth ground.

Audio Output Connections

Step 1. Use a single-conductor shielded cable of suitable length to **connect the Audio** jack on the back of the chassis to the *Auxiliary* or *Tuner* input of the sound or communications system. One end of the cable should terminate in a male RCA-type phono plug; the other end should have a connector that matches the input to the sound or communications system.

Step 2. Plug the RCA-type phono plug into the *Audio* jack of the MCX300, and the other end of the cable into the *Auxiliary* or *Tuner* input of the main system.

Power Connections

Insert the DC power plug of the power supply into the *Pwr Sply* jack on the back of the MCX300, then plug the power supply itself into a suitable 120-VAC outlet.

Setting the Controls

The following settings can be tried initially. Make adjustments as needed to obtain the best performance. You may find it helpful to play the unit through its monitor speaker and adjust the controls for the most pleasing sound there.

Volume: Between "3 o'clock" and "6 o'clock."

Tone: The fully clockwise setting is flat. Rotating this control counterclockwise rolls off the treble.

Balance: Center (note, however, that the unit's output is wired to blend the left and right channels, so this control has little effect).

Fader: Center (note, however, that the unit's output is wired to blend the front and rear channels, so this control has little effect).

Antenna Adjustments

Step 1. Tune in a strong AM station around 1400 KHz.

Step 2. If AM station overload is a problem, transfer the inner conductor lead from the Dist to the Local terminal on the back of the chassis.

Outdoor Antennas

The attached IL0153 suggests a grounding system for an AM/FM antenna system; KM07 10, on page 6, illustrates a way of mounting the AM and FM antennas.

The following Rauland-Borg parts are used in the suggested system:

(A) FMT-65 FM Antenna.

(B) LVO027 AM/FM Antenna Coupler, which includes:

- The coupler itself.
- An outdoor housing.
- Two screws for mounting the coupler inside the housing.

● A "U" bolt and related hardware for mounting the housing to the mast.

● Two "F" **connectors** for plugging the coaxial cables into the coupler.

(C) QC0126 Lightning Arrestor. This includes the hardware needed to mount the coupler to the mast.

The remaining parts shown in KM0710 (wires, coaxial cable, the masts, and the AM insulators) are readily available from suppliers.

Important: Mount the parts firmly to the mast, as shown in the illustrations, to properly ground the antenna system.

Operating Instructions

Refer to the separately supplied vendor's instructions for the tuner and cassette player's operation and care.

The Monitor-Program Switch

The MCX300 includes a front-panel speaker and a four-position switch:

- The "Monitor" position plays the unit through the

front-panel speaker.

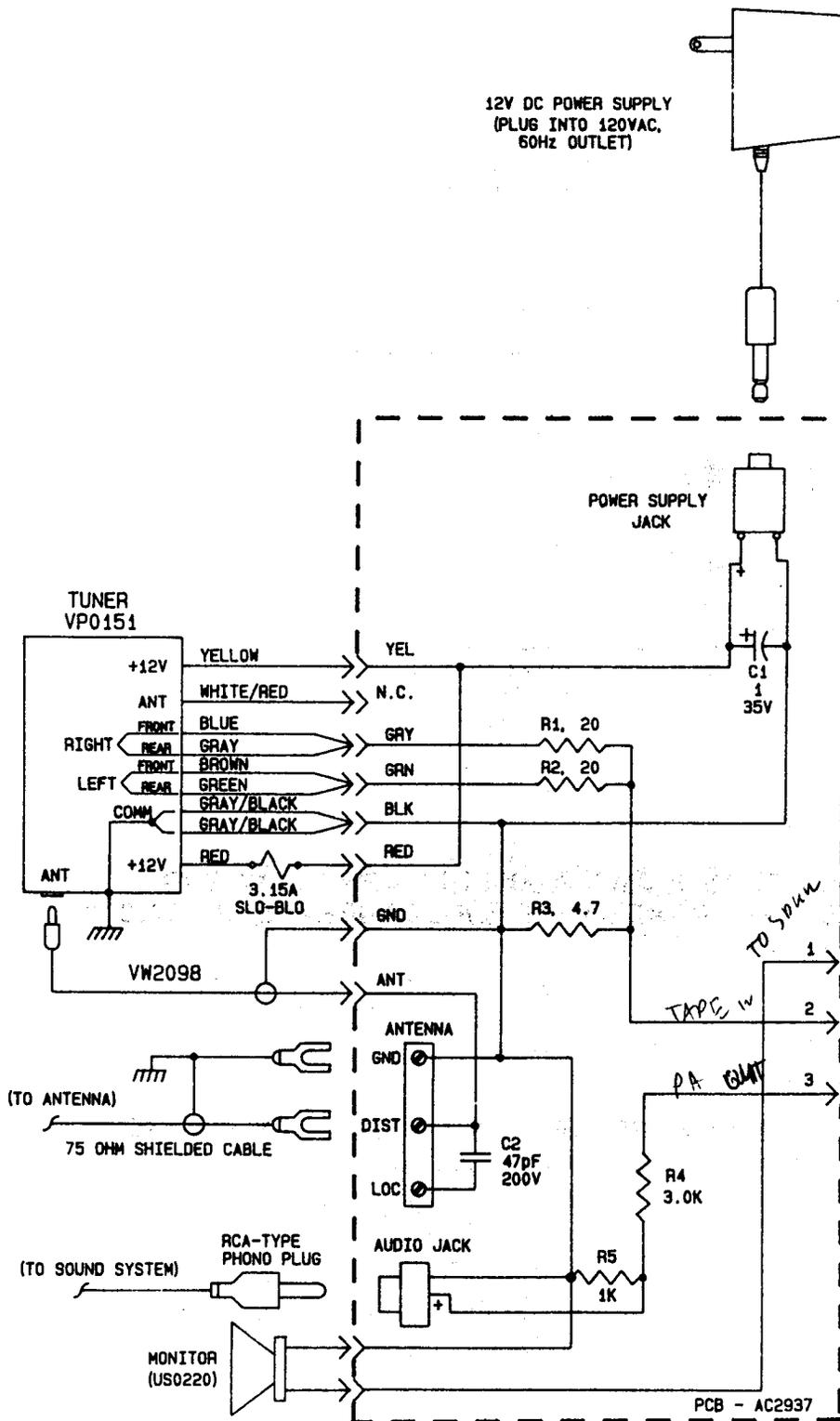
● The "Program" position plays the unit through the interconnected system.

● The "Program/Monitor" position plays the unit through both the system and the monitor speaker.

● The "Off" position disconnects the unit's output from both the system and the monitor speaker.

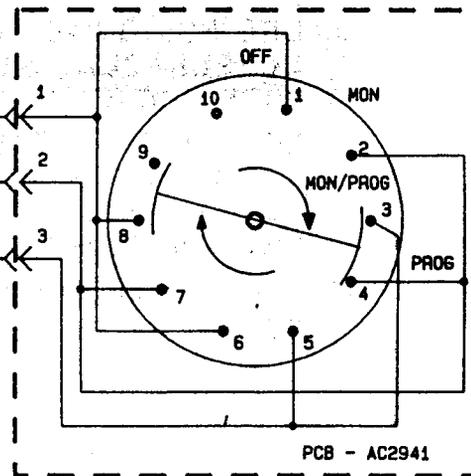
DRG. NO.		KM0949 C	
DATE		9-29-89	
ISS	CHANGE		
A	SWITCHED R1 AND R3. 4-19-90		
B	ADDED GND TO COMM OF TUNER. 5-1-90		
C	ADDED LEADS TO VP0151. 5-4-90		

12V DC POWER SUPPLY
(PLUG INTO 120VAC,
60HZ OUTLET)

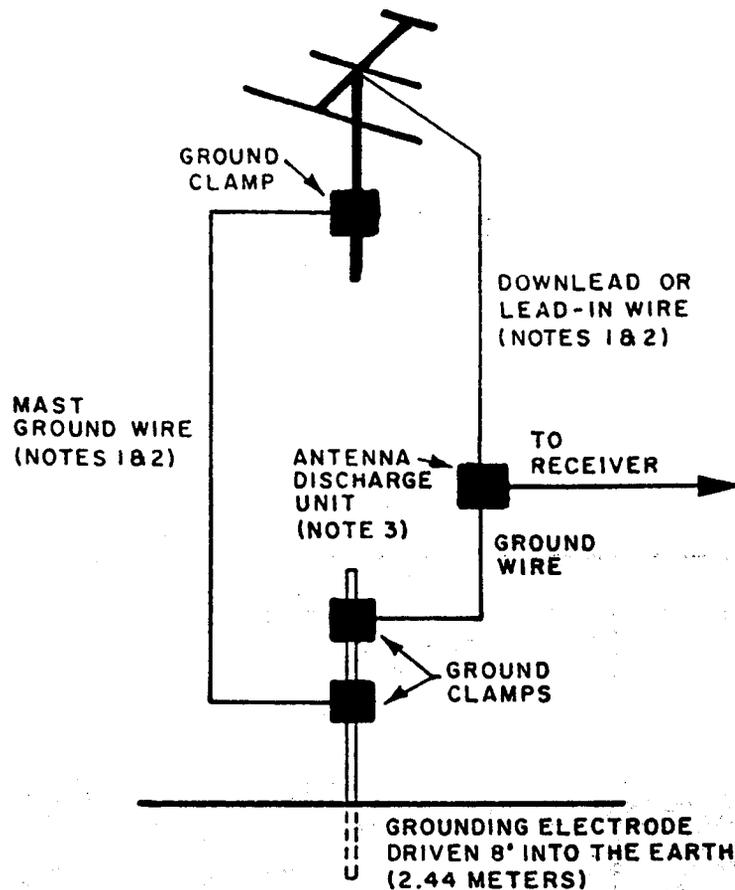


NOTES:

1. UNLESS OTHERWISE SPECIFIED:
RESISTANCE IS IN OHMS,
+/- 5%.
CAPACITANCE IS RATED IN
MICROFARADS, pF = PICOFARAD.
ALL RESISTORS ARE 1/2 WATT.
2. CIRCUIT BOARD IS IN TWO
PARTS.



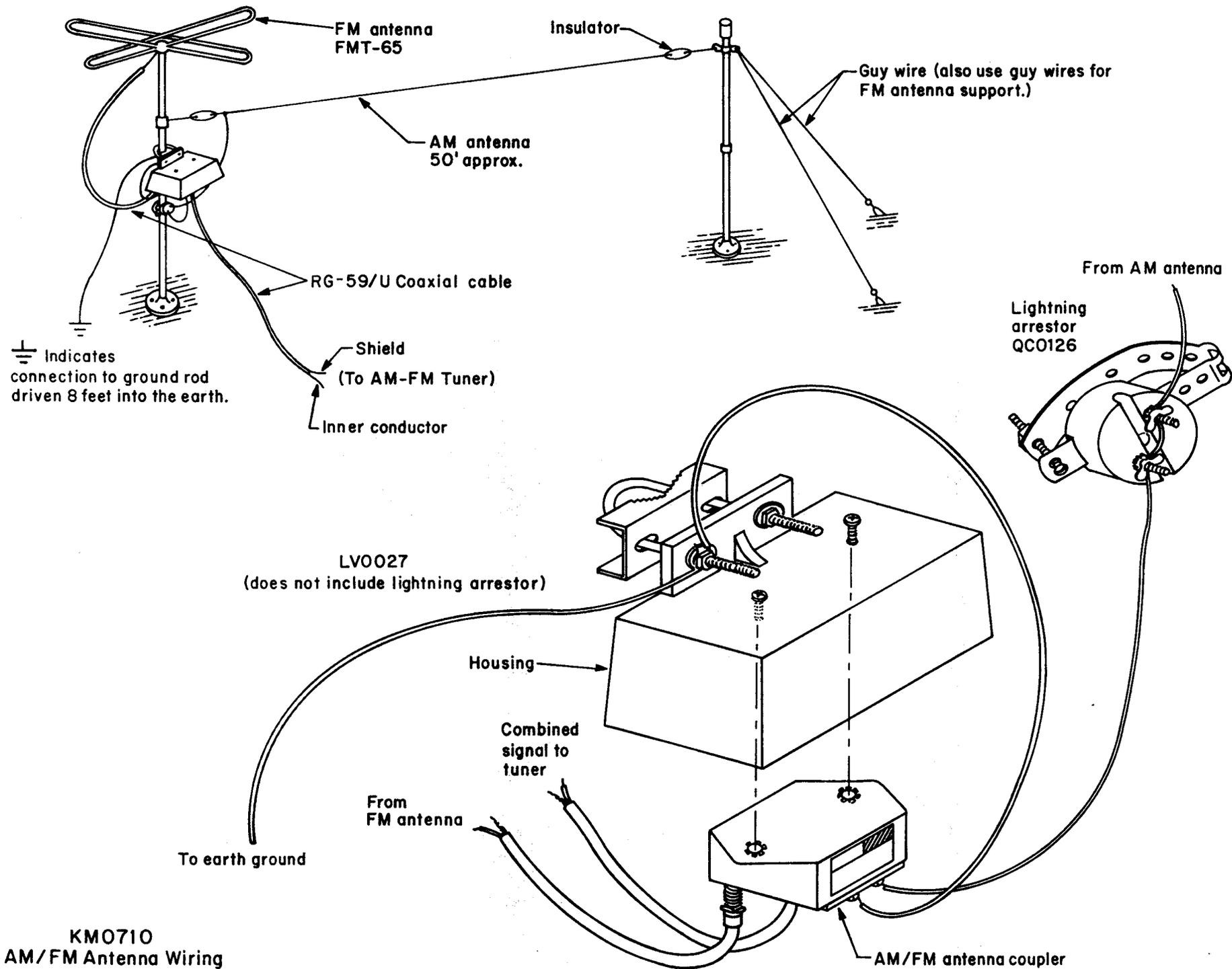
**MODEL MCX300
TUNER UNIT**
RAULAND-BORG CORP.
SKOKIE, IL
MADE IN U.S.A.
KM0949



NOTES:

1. USE NO. 10 AWG COPPER, NO. 8 AWG ALUMINUM, OR NO. 17 AWG COPPER-CLAD STEEL OR BRONZE WIRE (OR LARGER) AS GROUND WIRE FOR BOTH MAST AND LEAD-IN.
2. SECURE THE LEAD-IN WIRE FROM THE ANTENNA TO THE ANTENNA DISCHARGE UNIT AND SECURE THE MAST GROUND WIRE TO BUILDING STRUCTURE WITH STAND-OFF INSULATORS SPACED FROM 4 TO 6 FEET APART.
3. MOUNT THE ANTENNA DISCHARGE UNIT AS CLOSELY AS POSSIBLE TO WHERE THE LEAD-IN ENTERS THE BUILDING STRUCTURE.

FIGURE 1. EXAMPLE OF ANTENNA GROUNDING PER NATIONAL ELECTRICAL CODE INSTRUCTIONS.



KM0710
AM/FM Antenna Wiring