

INSTALLATION INSTRUCTIONS CDE MODEL AR-22R

CLASS
252.16

ANTENNA ROTOR AND CONTROL BOX

GENERAL

Model AR-22R Antenna Rotor is designed to support and rotate the largest television antennas. The rotor will support stacked arrays and deep fringe area antennas. AR-22R is **not** intended for large Ham beams. Large Ham beams may present a sufficiently high wind resistance to rotate the antenna without being energized. This will have the effect of changing the AR-22R synchronization. For very windy areas or large beams, the CDE TR-44 or HAM-M rotors are recommended.

The AR-22R is rated to support a dead vertical weight of 150 pounds, has 500 inch pounds of motor stall torque and resists an overturning moment of approximately 4000 inch pounds without guying. The control box will control to within 6° accuracy. The rotor is lubricated for long life and is suitable to approximately -15°F. The clicking sound when rotating is normal.

INSTALLATION

Prior to mounting the rotor on the mast, it is well to check the operation of both rotator and control box wired for each of the 4 connections. **CAUTION — BEFORE OPERATING UNIT READ LABEL ON BOTTOM OF CHASSIS.** Model AR-22R operates from 115 VAC 60 cycle.

The rotator unit is shipped from the factory set at the end of rotation in full "NORTH" counter-clockwise position (looking down at top of rotor). The unit should be checked using all the wire to be used in the installation. The wire should be according to the recommended wire sizes.

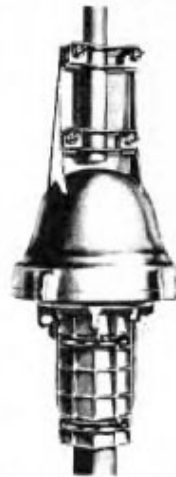
Note that the rotor mast clamps are reversible. Turning them allows clamping to large diameter (up to 2") or small diameter (down to 7/8") masts. The lower mast support may be removed from the rotor base plate so that the rotor without the lower mast support may be mounted in a tower.

Standard four-wire conductor cable is available at any electronics supply houses. Be sure to use the recommended sizes (gauges).

The lower mast support casting is shipped unmounted; feed the cable through the rubber grommet in the terminal cover plate and strip each conductor end. Connect as shown in Figure 1. Then mount the lower mast support casting to the Rotor base with four hex head bolts and lock-washers, tighten them securely.

To relieve strain on the antenna lead-in cable, standoff insulators should be mounted on the mast as follows: With the Rotor in "end" position, mount a standoff insulator directly above upper mast support and another immediately below lower mast support as shown. The standoffs should be 180° apart. Dress antenna down-lead through the standoffs, allowing sufficient slack for complete rotation. See Figure 2.

The AR-22R control box is electrically identical to the previous model AR-22 and is fully interchangeable with previously manufactured AR-22 rotors.



USE THE FOLLOWING WIRE SIZES:

Wire Gauge	Max. No. of Feet
22	100
20	150
18	220
16	350
14	550

GUYING

Two guy wire lugs are provided on the lower mast support casting for guying purposes. The use of standard 3/16" or 1/4" guy thimbles with adequate size wires, using turnbuckle adjustments, is recommended. Care should be taken not to tighten guy wires excessively. The installation should have a slight freedom of movement to prevent storm damage.

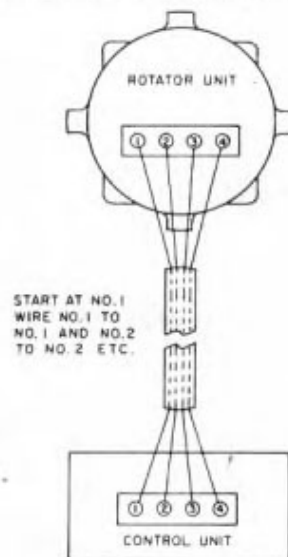


Fig. 1

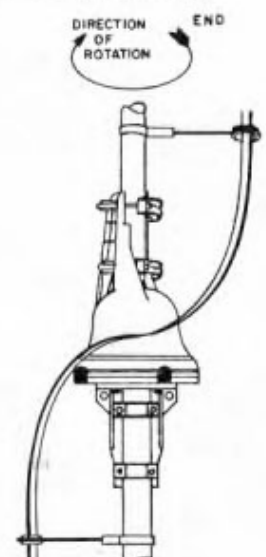


Fig. 2

LIGHTNING PROTECTION

Radio and television equipment installation is covered in article 810 of the National Electrical Code. The code, Pamphlet NF-PA 70, is prepared and published by National Fire Protection Association, 60 Batterymarch Street, Boston,

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Massachusetts, copies of which are available for \$1.00 (1962 edition). We recommend that the provisions be adopted in AR-22R installations. The provisions call for certain minimum clearances between power lines and antenna lead-ins. Lead-in conductors attached to buildings must be installed so that they cannot swing closer than 2 feet to conductors carrying 250 volts or closer than 4 inches to 150 volts. Obviously, tall mast installations with considerable whip or installations that could be blown over in storms, should be mounted farther from power lines and in such a way that they will not contact power lines if fractured or bent in a storm.

The code specifies that approved lightning arrestors should be used for each lead-in unless the lead is enclosed in metal conduit in which case the shield should be protected with arrestors or be grounded. The arrestors should be located outside the building as close as possible to the point of entry to the building.

Masts and metal parts should be permanently grounded using #10 copper or #8 aluminum building wire. Grounding wires should not make sharp bends and should run as straight as possible to the grounding stake or if possible to the nearest cold water pipe outside the building. Clamps should be permanent and secure. Do not bury aluminum wire in ground. Grounding stakes should be 3/4" I.D. galvanized pipe or equivalent at least 18" away from house foundation. The ground rod should be driven as deeply as possible but not less than 4 feet. An ideal installation can be shown:

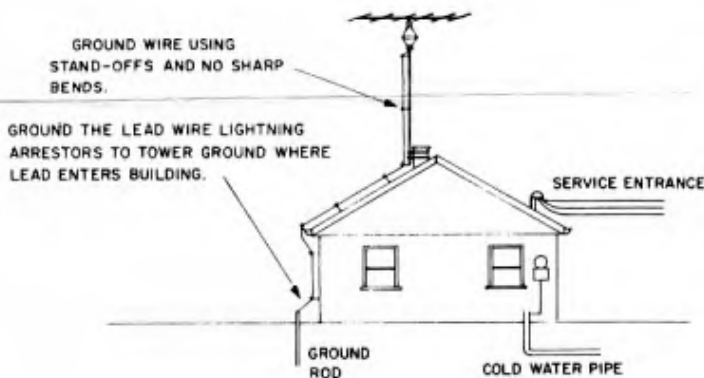


Fig. 3 - GROUNDING SYSTEM

UHF & COLOR

Special care must be exercised when installing UHF or Color TV antenna lead-ins. Special lead-in cable should be used especially for color or UHF. Shielded twin lead may be used which is ordinarily matched in impedance (300 ohm) to the TV set and to the antenna. Coaxial cable may be used but check that it matches the impedance of the TV set and antenna. If it does not, be sure to use matching transformers at the set if the coax does not match the set and at the antenna if the coax does not match the antenna.

If ordinary 300 ohm twin lead-in wire is used for UHF or color (not recommended), special care is required to avoid grounding out the signal or changing the phase of the color signal. Avoid running the lead close to the building, gutters, or anything metal. Twisting the lead-in may minimize ghosts. You may have to experiment to find the best installation method and location.

NOTICE TO SERVICEMAN: Leave this instruction sheet with the Customer. It contains his operating instructions.

BI-296 REV. 3-66

CIRCUIT DESCRIPTION

The following diagram shows the schematic circuit description.

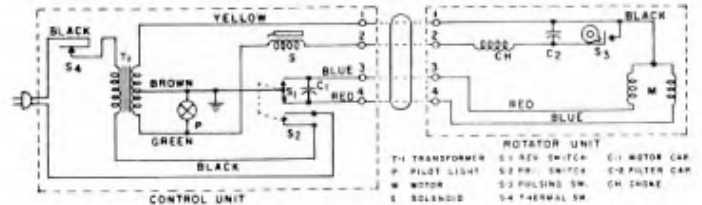


Fig. 4 - SCHEMATIC

OPERATION

Move the dial knob until the knob marking indicates the desired direction. The red pointer will now show the position of the antenna as it is moving. It is desirable to have the red pointer come to a stop before reversing direction.

When turning the knob thru an angle greater than 330° allow the unit to pulse a few times before completing the turn. Do not force the knob when the end of rotation is reached.

(A) IMPORTANT—IF LIGHTS REMAIN ON AFTER PULSING HAS STOPPED it indicates [with the exception noted in (B)] that the Rotor and control box are not synchronized with each other and the motor is stalled. Do not allow this condition to continue because the temperature of the motor is rising unnecessarily. Correct this condition by synchronizing per instructions under paragraph on "Synchronization," or on the underside of the control box. (B) IMPORTANT—IF PULSING SOUND IS NOT EVIDENT WHEN YOU TURN THE KNOB, either to the right or left, it indicates that the thermostat has come into play. This protective device in the transformer automatically shuts off the power to the Rotor unit when the rotator has been operated continuously for too long a period of time (usually 10 to 15 minutes) or when the Rotor and control box have been allowed to remain out of synchronization with each other with the power on as mentioned above. To REMEDY, line the knob up with the red pointer, and allow the rotator to rest until the temperature drops. This will take about 5 minutes. The thermostat will then close and the rotator will again be operative. Test for synchronization by following the instructions for synchronizing.

SERVICING

On page 3 and 4 you will find an exploded view of the rotator and control box. Parts and service may be obtained through your local dealer, or by writing to Cornell-Dubilier Electronics, Rotor Parts Department, 2070 Maple Street, Des Plaines, Illinois. If the rotor is returned for service it must be packaged securely and sent to Cornell-Dubilier Electronics, 118 E. Jones Street, Fuquay-Varina, North Carolina. You must state the reason for return and describe the malfunction. CDE will advise you the cost of repair and send you the repaired unit as soon as payment is received. CDE is not liable for damages incurred in transit to the factory.

SYNCHRONIZATION

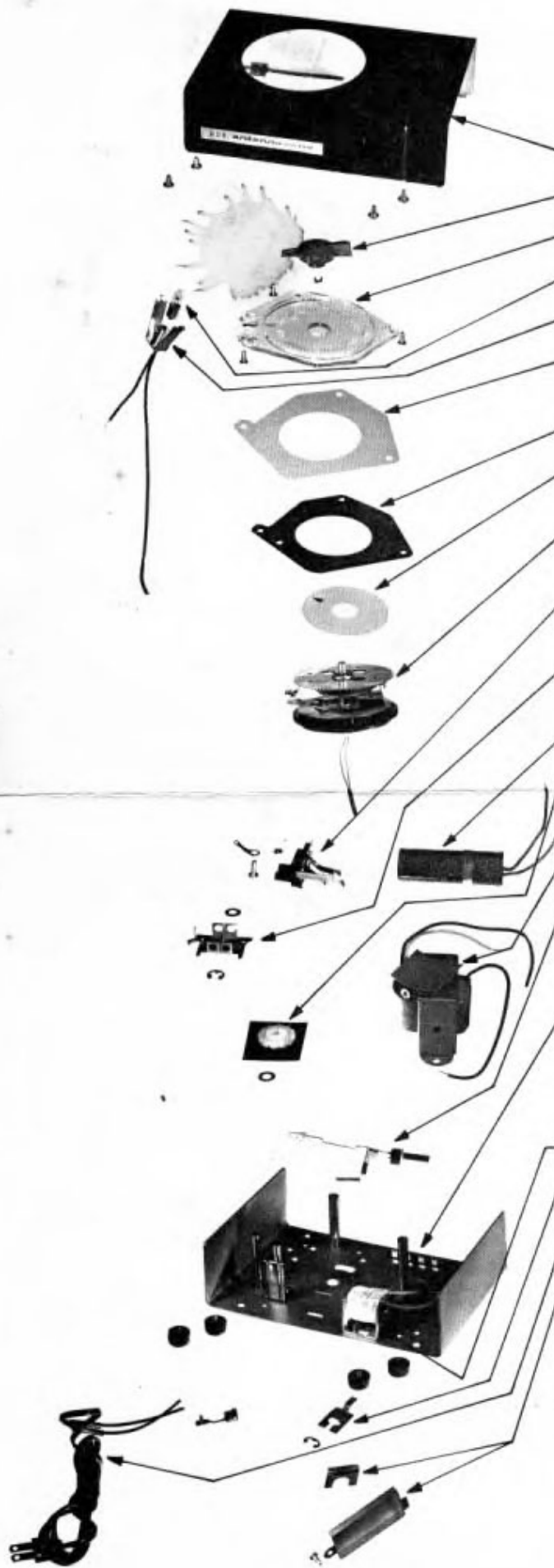
Synchronize the Rotor unit with the control box unit in 2 steps as follows:

1. Turn the knob to the extreme counter-clockwise position—do not force. If the lights remain on after pulsing stops, trip the synchronization lever found on the bottom of chassis until they go out.
2. Now turn the knob to the extreme clockwise position. If the lights remain on after pulsing stops, trip the lever until they go out. The units are now synchronized.

	A00 50429-00	ROTATOR ASSEMBLY, COMPLETE INCLUDES LOWER MAST SUPPORT & HDWE.	\$ 35.95
	A00 50425-00	MOUNTING HARDWARE KIT INCLUDES 4 U-BOLTS 8 NUTS & LOCKWASHERS 4 MAST CLAMPS 4 LOWER MAST SUPPORT SCREWS & HARDWARE	2.90
	D15 50304-00	UPPER MAST SUPPORT	5.70
	A00 50419-00	MOTOR ASSEMBLY KIT INCLUDES A00 50365-00 MOTOR & PINION A52 50426-00 CHOKE COIL B00 50081-00 PULSE SWITCH ASB'Y B00 50350-00 TERMINAL BD. ASB'Y C-886-7 CAPACITOR WIRING, SCREWS, MOTOR MOUNT NUTS & LOCKWASHERS	8.25 6.50 .15 .50 .35 .33
	A00 50420-00	MOTOR MOUNT PLATE KIT INCLUDES MOTOR MOUNT PLATE & STUDS 3 MOUNTING SCREWS WIRING WRAP LUG & WASHER	.80
	A00 50421-00	CAM GEAR KIT INCLUDES CAM GEAR, WASHER & COTTER	.35
	A00 50422-00	SPUR GEAR KIT INCLUDES 3 ASSEM'D GEARS (SHT. PINION) UPPER 3 1 ASSEM'D GEAR (LG. PINION) LOWER L. 3 STACKED SPUR GEARS (LOWER R.) 5 SPACERS & WASHERS	2.50
	C15 50313-00	RING GEAR	.90
	A00 50427-00	BEARING STRAP ASSEMBLY INCLUDES 12 BALL BEARINGS	1.10
	D00 50370-00	BASE INCLUDING POSTS (DOES NOT INCLUDE STOP BELOW)	4.25
	A00 50423-00	STOP ARM KIT INCLUDES STOP & SPRING WASHER	.30
	A00 50424-00	BEARING RACE KIT INCLUDES RACE & 4 MOUNTING SCREWS 4 SL-5-2 SCREWS (EA)	1.20 .08
	C00 50349-00	MAST SUPPORT KIT INCLUDES LOWER MAST SUPPORT, INSPECTION PLATE & GROMMET, 2 MOUNTING SCREWS FOR INSPECTION PLATE.	3.10
	A00 50428-00	GREASE FOR ONE ASSEMBLY HDWE. INCLUDED IN A00 50425-00 KIT	.35

AR-22R ROTATOR

ORDER PARTS USING COMPLETE NUMBER & DESCRIPTION. WHERE A PRICE IS INCLUDED FOR A KIT & FOR SEPARATE PARTS EITHER THE KIT OR THE INDIVIDUAL PARTS MAY BE ORDERED.



D00 50065-00	CONTROL BOX ASB'Y COMPLETE	\$19.00
A00 50430-00	COVER, NAMEPLATE & SCREWS	1.85
A00 50431-00	KNOB & SPRING CLIP	.25
A00 50432-00	DIAL FACE & (3) SCREWS	2.50
A18 50403-00	LIGHT BULB	.15
A35 50062-00	LIGHT SOCKET	.25
B14 50061-00	WHITE PLASTIC LIGHT REFLECTOR	.30
B14 50052-00	METAL LIGHT SHIELD	.35
A10 50050-00	INDICATOR PLATE & POINTER	1.40
A00 50433-00	GEAR, SPRING & INSULATOR DISC ASSEMBLY	3.85
A00 50434-00	INSULATOR BLOCK, SPRINGS & HARDWARE ASSEMBLY	.55
A00 50435-00	RIGHT & LEFT PAWLS, SPRING, WASHER & RETAINER	.20
A51 50040-00	ELECTROLYTIC CAPACITOR	1.65
A00 50437-00	ESCAPE WHEEL & WASHER (SHOWN AGAINST BLACK FOR ILLUSTRATION)	.15
A00 50436-00	TRANSFORMER & INSULATOR	4.35
A00 50438-00	CONNECTING BAR KIT INCLUDES SPRING, PAWL ARM, HAND LEVER, PAWL ACTUATOR, SOLENOID ARMATURE & BUMPERS	.95
A00 50439-00	CHASSIS ASSEMBLY INCLUDES POSTS, TERMINAL STRIP, SOLENOID FRAME, COIL ASSEMBLY, LINE CORD ASSEMBLED WITH STRAIN RELIEF, RUBBER FEET & SCREWS	4.25
A00 50440-00	SOLENOID FRAME & COIL ASB'Y	1.25
A00 50441-00	LOST MOTION LEVER & RETAINING RING	.50
A00 50442-00	LINE CORD & STRAIN RELIEF	.70
A00 50443-00	GROUND SPRING, COVER & SCREW.	.20

AR-22R (AR-10) CONTROL BOX

ORDER PARTS USING COMPLETE NUMBER & DESCRIPTION.