

INSTALLATION INSTRUCTIONS

CDE MODEL AR-10
ANTENNA ROTOR AND CONTROL BOX

GENERAL

Model AR-10 Antenna Rotor is designed to support and rotate television antennas and provide control and direction indication at a remote point. AR-10, in its basic configuration, (without mast adapters or thrust bearings) is recommended for any antenna which can be mounted directly to the stub shaft protruding from the top of the unit. Ideal service can be obtained from one of the current (up to seven or eight element) YAG or log periodic "in-line" antennas in suburban service with the antenna mounted directly to the stub shaft as shown in Figure 1. These antennas will normally be rated by the manufacturer for service up to 50 to 75 miles. If it is desired to mount a larger antenna such as a longer in-line type with cross braces, a die cast adapter is available, list price \$2.00 part number AOO-50461-00, which fastens to the shaft of the rotor and to a mast. The mast may then be used to attach larger antennas. When it is desired that a particularly secure installation be achieved, a thrust bearing, part number TA-6, list price \$3.30, may also be used. The thrust bearing is recommended for installation of larger antennas, when two antennas are used or in high wind areas. Exceptional service may be obtained from the heavy duty CDR rotors AR-22R automatic and TR-2C manual. The heavy duty rotors are recommended when top performance, large stacked arrays are desired or when high wind loads are encountered.

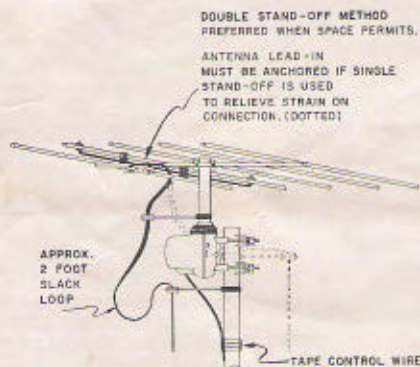


Fig. 1 — AR-10 INSTALLED

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 four connections using the recommended wire sizes and lengths that will be utilized in the installation. The rotor unit is shipped from the factory set at the end of rotation in full "NORTH" counter-clockwise position (looking down at the top of the rotor). After assuring that operation is correct, return rotator to full north counter-clockwise end of rotation. Then clamp the antenna in final position after mounting, facing the antenna due north. IF DUE NORTH HAPPENS TO COINCIDE DIRECTLY WITH ONE STATION DIRECTION, IT IS BEST TO ADJUST SLIGHTLY AWAY (COUNTER-CLOCK) FROM THAT POSITION SO THAT THE ROTATOR WILL NOT CUSTOMARILY RUN UP AGAINST THE STOP POSITION IN ORDINARY SERVICE. TO DO SO WILL PROLONG THE LIFE OF THE GEAR TRAIN.

It is intended that this rotor be clamped to 1 1/4" to 1 1/2" O.D. aluminum or thin-wall steel masts. The clamps and hardware provided will dig into such masts and hold them securely so that the antenna will not slip, once it is installed.

In the event of difficulty in mounting the 3/4" rotor stub shaft to certain antennas, two mounting blocks MRU-90 (small circular blocks) are to be used inside the U-bolts furnished with the antenna. The blocks allow the U-bolt to be tightened securely to the stub shaft.

In mounting the antenna to the stub shaft, be certain that the receiving side of the antenna is pointed to compass North and that sufficient slack is provided in the lead-in to allow full 360° rotation from North through West, South, East and back to North. It is suggested that a stand-off insulator be placed as shown in

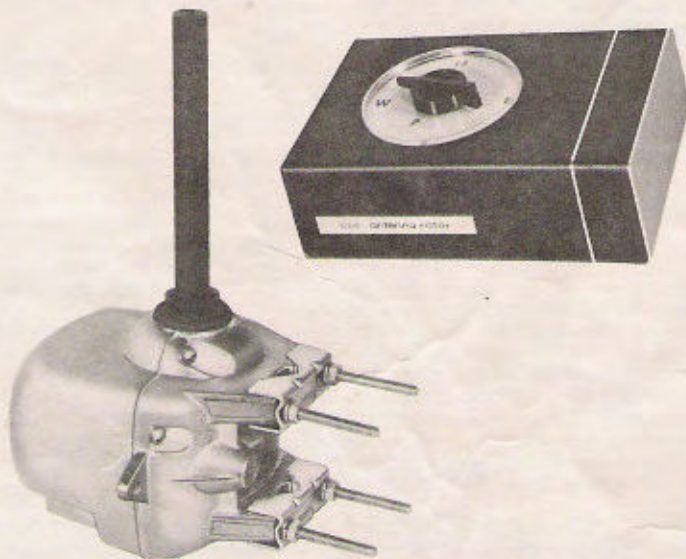


Figure 1 so that there is no chance of the slack in the lead-in loop becoming fouled. It is suggested that careful attention be paid to a neat and workmanlike connection of the control cable to the rotor terminals. Be sure to wind the connecting wires around the terminal screws so that tightening of the screws tightens the wire. Also be sure that no excess wire is left between terminals; that insulation is snug against the terminals; and that a little slack is left between the terminals and the cover plate. The control cable should be run in a short loop to the mast and taped securely in place. To avoid flexing in wind the cable should be secured at 4 to 6 foot intervals down the mast and tower. The lead-in should be anchored using appropriate stand-off insulators.

USE THE FOLLOWING WIRE SIZES:

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

GUYING THE ROTATOR

The rotator is designed so that the unit may be guyed using two lugs cast into the smaller of the two housing die castings. It is recommended that tall mast installations be guyed to stabilize the system and help prevent wind damage.

Figure 2 shows in plan view (viewed from top) an ideal method of guying.

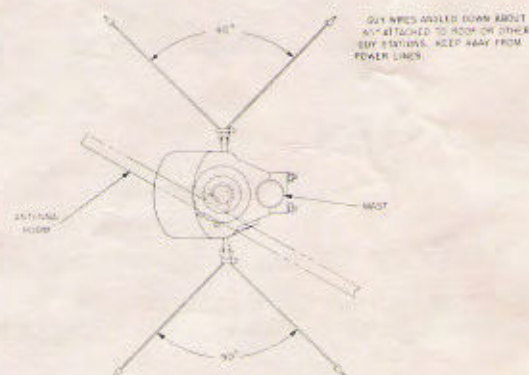


Fig. 2 — GUY WIRES

CDE ROTOR MODEL AR-10

SYNCHRONIZATION

1. 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.

LIGHTNING PROTECTION

Radio and television equipment installation is covered in article 810 of the National Electrical Code. The code, Pamphlet NFPA 70, is prepared and published by National Fire Protection Association, 60 Batterymarch Street, Boston, Massachusetts, copies of which are available for \$1.00 (1962 edition). We recommend that the provisions be adopted in AR-10 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 No. 10 copper or No. 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:

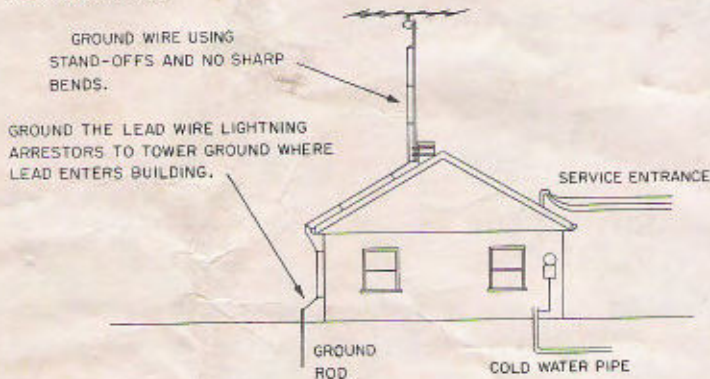


Fig. 3 — GROUNDING SYSTEM

UHF & COLOR

Special care must be exercised when installing UHF or color TV antenna lead-ins. It is recommended that shielded twin lead or coaxial lead in wire be used for UHF and color. Follow the manufacturers

recommendations for matching the impedance of the lead in wire to the TV set and to the antenna.

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

CIRCUIT DESCRIPTION

The following diagram shows the schematic circuit description.

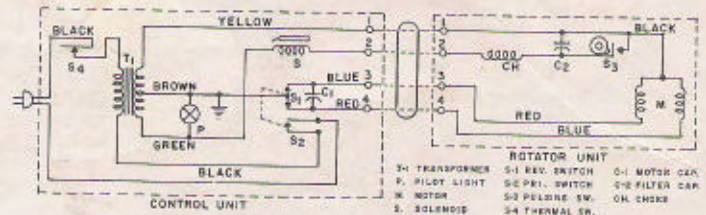


Fig. 4 — SCHEMATIC

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 thermostats 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 thermostats will then close and the rotator will again be operative.

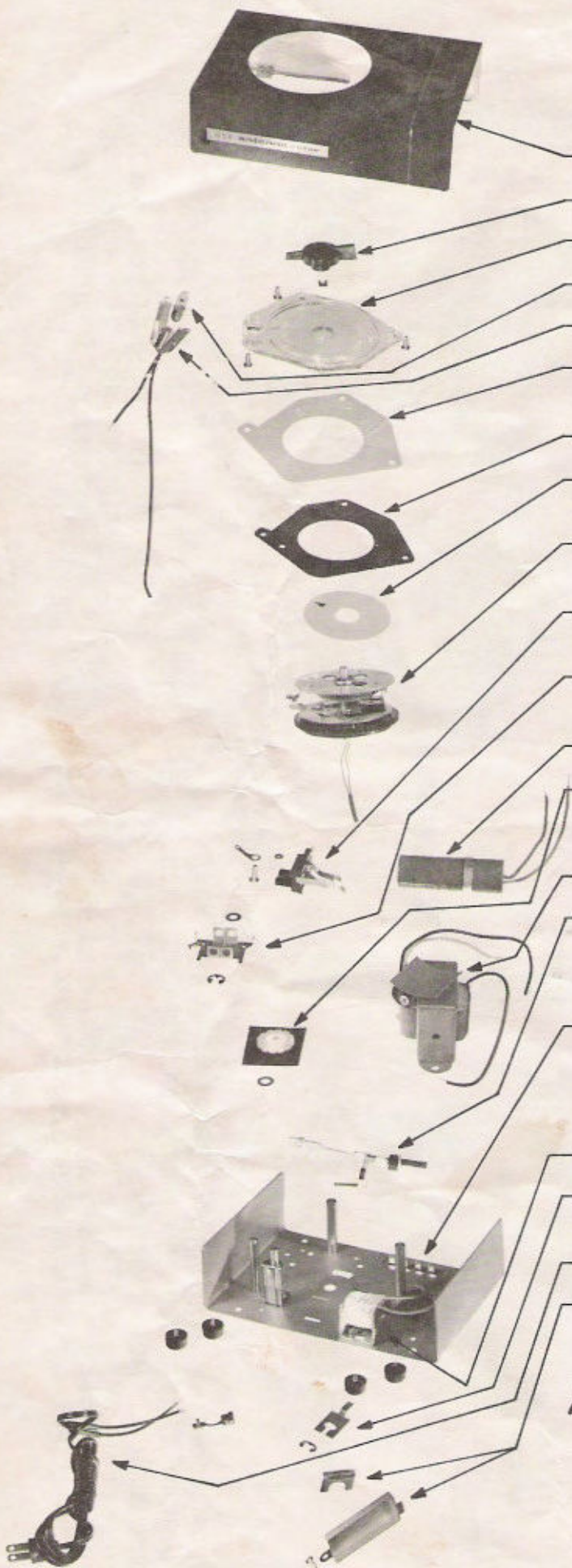
Test for synchronization by following the instructions for synchronizing.

To replace dial light, type No. 47, in the control unit, remove the four cover screws and lift cover from chassis.

All moving parts and motor bearings are lubricated at the factory for all weather use.

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

Parts and service can be obtained through your local dealer, or by writing to Cornell-Dubilier Electronics, Rotor Parts Department, 2070 Maple Street, Des Plaines, Illinois.



D00 50065-00	CONTROL BOX ASB'Y COMPLETE	\$19.00
A00 50430-00	COVER, NAMEPLATE	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.

Installation Instructions

ROTOR SHAFT ADAPTER

Part No. A00-50461-00

\$2.00

Installation Instructions

1. Install antenna rotor on rotor mounting pole using clamps, nuts and lockwashers furnished with antenna rotor. Refer to installation instructions furnished with antenna rotor. Install as shown in figure 1.
2. Slip adapter over the black steel shaft until it is in contact with lock ring located above the black rubber weather shield.
3. Insert and tighten two SM-220-2 screws very tightly against black shaft. Tighten top screw first. It is important that these screws be very tight and secure.
4. Slip the antenna mounting pipe into the top of the adapter over the black rotor shaft until it contacts the bottom of the adapter.
5. Insert and tighten four SM-120-2 screws to secure antenna pipe to adapter. If aluminum pipe is used, it may be deformed by the screws until it touches the black shaft inside the adapter.

Extra Large Installations

For extra large installations or in high wind areas, use TA-6 thrust bearing (not furnished with adapter) as shown in figure 2. TA-6 thrust bearing is available thru your CDE dealer or may be ordered from the address listed below @ \$3.30.

ANTENNA ROTOR, ADAPTER AND THRUST BEARING FOR LARGE INSTALLATION

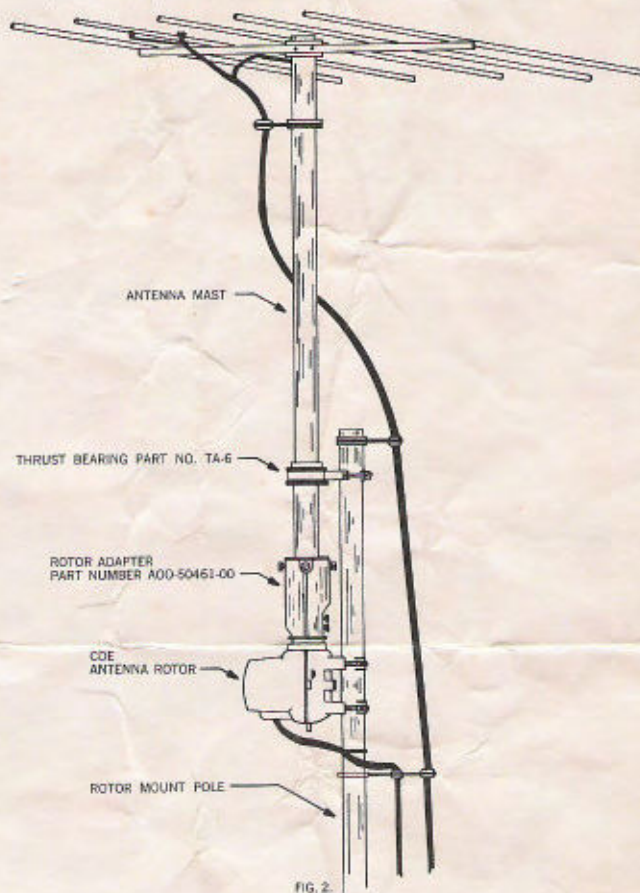


FIG. 2.

ROTOR ADAPTER

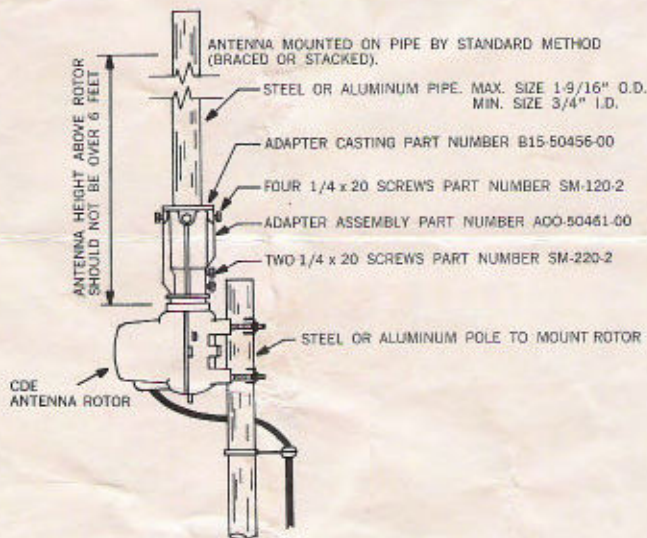


FIG. 1.



CORNELL-DUBILIER ELECTRONICS

DIVISION OF FEDERAL PACIFIC ELECTRIC COMPANY

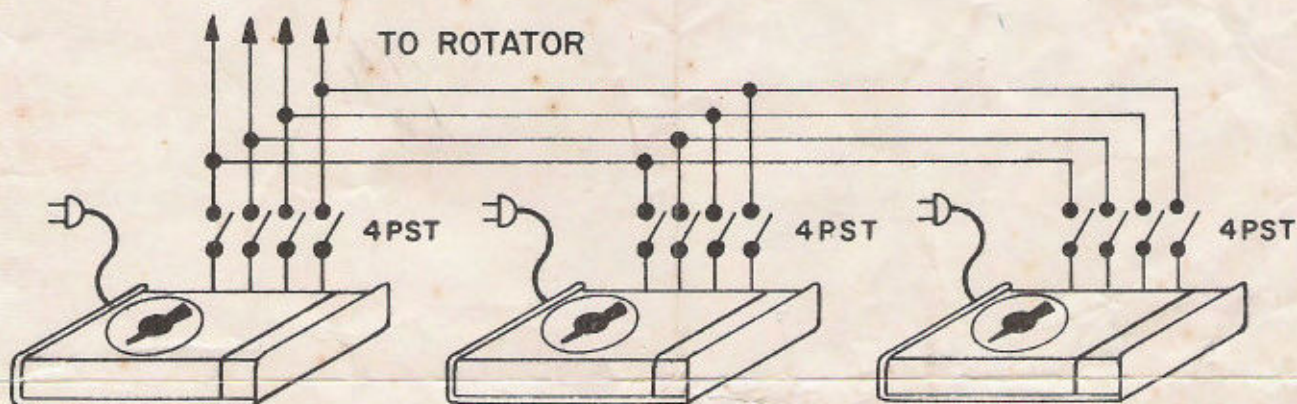
2070 MAPLE STREET, DES PLAINES, ILLINOIS


INSTRUCTIONS FOR OPERATING REMOTE STATIONS FOR AR-10 OR AR-22R AUTOMATIC CONTROLS

NOTE:

The AR-22 control box and either AR-22R or AR-10 control box are fully interchangeable and can be operated with all previous AR-22, AR-1, AR-10, or new AR-22R, or AR-10 units. Any number of remote units may be used.

HOOK-UP INSTRUCTIONS



1. Wire each control box to the rotator through a 4 pole single throw switch. Leave each switch open.
2. Close one switch and synchronize the rotor to the rotator.
3. Turn that control box to South.  open switch.
4. With all switches open, turn all the other control boxes to South. Without closing the switches, synchronize the other controls manually with the sync. levers.

OPERATION:

1. At the station you desire to operate, close 4PST switch. Operate the rotor in the normal fashion.
2. When finished at the station, return the rotator to South and open the switch.

AR-22R control box, not including the rotator, carries Part Number ACU-147. The list price is \$19.00. The control box may be purchased from any Cornell-Dubilier dealer.