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AR-40 / AR-40X

Antenna Rotator

INSTRUCTION MANUAL

General

The Hy-Gain AR-40 antenna rotator is designed to support and rotate large TV antennas, small CB base antennas, and small Amateur antennas. The AR-40 is rated to rotate antennas with up to 1.5 sq. ft. of wind area when mast mounted or 3.0 sq. ft. when mounted inside a tower.

The AR-40 rotator unit must be wired to the control unit with a 5-wire cable. Number 22 gauge 5 conductor cable will allow normal operation for cable lengths of up to 75 feet (22.86 m). For longer runs, use a heavier gauge wire.

The control unit must be placed inside the house or other protected location. The maximum voltage produced by the control unit is 18 VAC.

Pre-Installation Check and Calibration

Before mounting the rotator unit on your mast or tower, check the operation with the control unit and cable. Strip all conductors at both ends of the cable and attach to the terminals. Connect terminal 1 to terminal 1, etc. On the control box, simply insert the bare wire between the nut and the terminal and tighten the screw. Do not wrap the wire around the screw!

Plug the control unit line cord into a convenient wall outlet. Turn the direction control knob to "N". Momentarily press down on the start button. The rotator will start to turn and the indicator light will come on. When the rotator reaches "N", it will automatically stop and the light will go off.

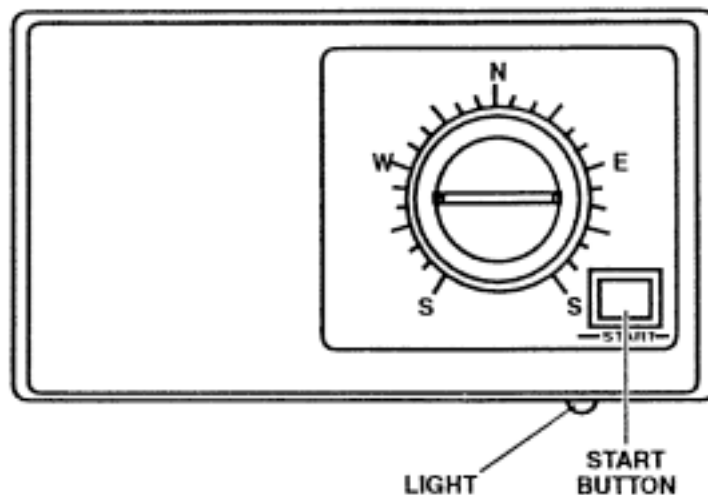


Figure I

Control Unit-Top View with Cover

Turn the knob COUNTERCLOCKWISE to "S" and press the start button. If the rotator unit stops before the South position and the indicator light turns off, adjust the "CCW end of rotation" shaft counterclockwise as far as it will go. The adjustments for end of rotation are located on the bottom side of the control box. Turn the unit to "W", stop, then again back to "S", using the method as described previously. If the control light remains on this time, slowly turn the "CCW" shaft clockwise until the light goes off.

Turn the knob CLOCKWISE to "S" and press the start button. The rotator unit should turn clockwise toward the "South" position. If the rotator stops before reaching the "South" position and the indicator light turns off, adjust the "CW end of rotation" shaft clockwise as far as it will go. Turn the unit to "E", stop, then again back to "S". If the light remains on, slowly turn the "CW" shaft counterclockwise until the light turns off.

Leave the rotator in the full clockwise (South) position for installation. Disconnect the power plug and remove the 5-wire cable from the control unit. Note the wire colors before removing.

WARNING:

Metal masts and towers must be placed so that if they fall, they cannot contact power lines, be a hazard to individuals, or endanger property! Antennas, masts, and towers are conductors of electricity. If the antenna, mast or tower comes in contact with power lines, you can be electrocuted!

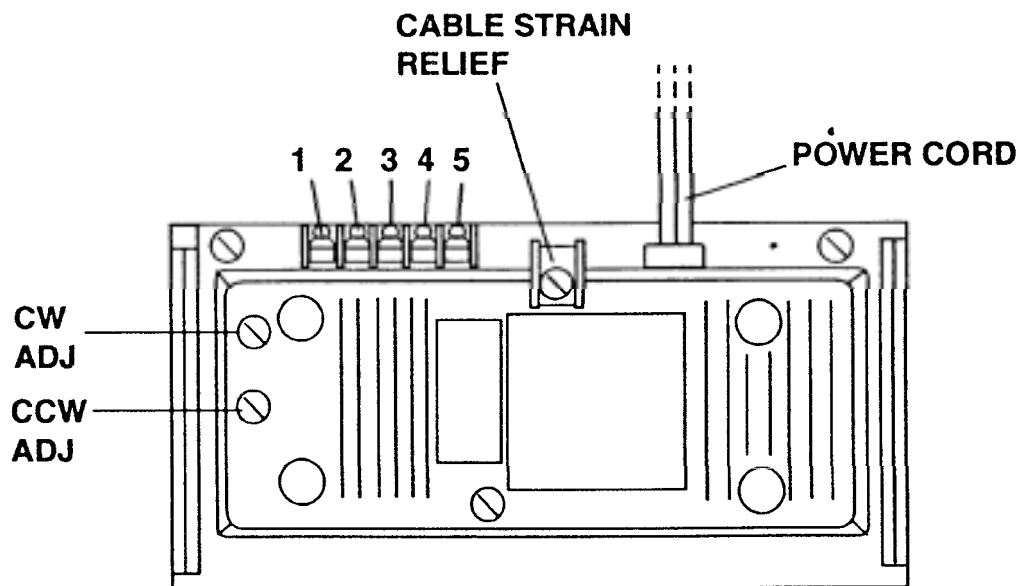


Figure 2
Control Unit-Bottom View

Installation on Mast

Mount the rotator to the lower mast support and then attach the support to the mast. (See Figure 3) Attach one end of the 5-wire cable to the rotator unit terminals. The cover and grommet must be slipped over the cable prior to attaching it. Secure the 5-wire cable to the mast for strain-relief. Mast guy wires may be attached to the rotator's lower mast support. Attach the upper mast to the rotator unit and secure. Install the antenna on the upper mast, pointing South. The feedline rotation loop should allow for complete CCW rotation.

Route the 5-wire cable to the control unit and connect as before. Check the operation of the rotator system as in the pre-installation check

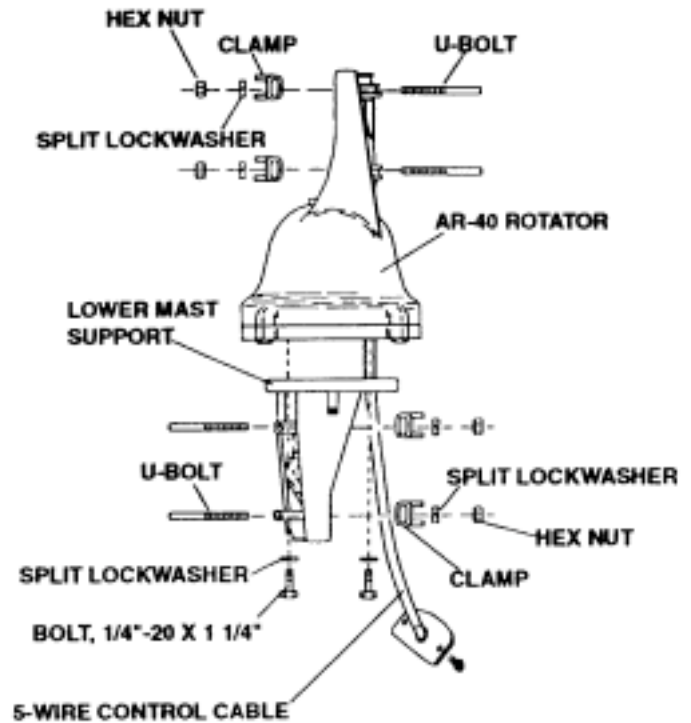


Figure 3 Rotator Mounting with Lower Mast Support

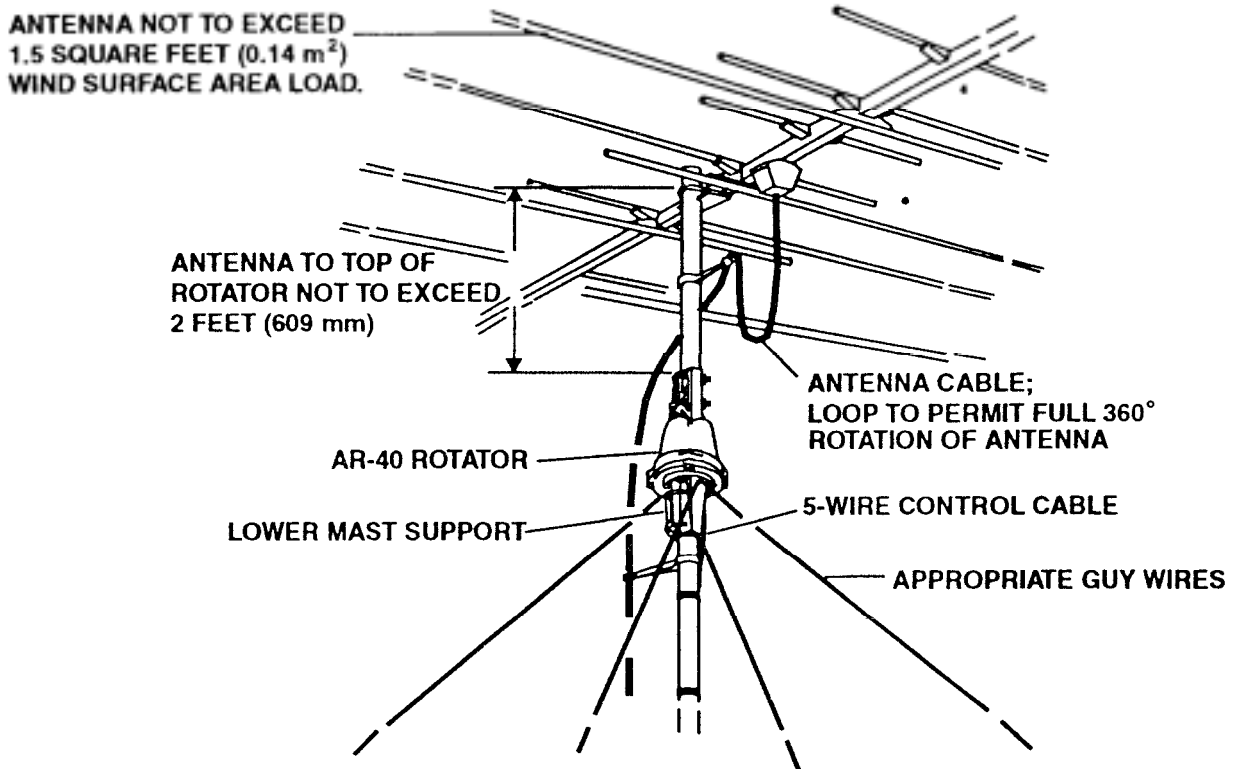


Figure 4 Mast Mounted Rotator

Top of Tower Mounting

Top of tower installation is similar to mast mounting. (See Figure 5) Spacer washers must be used between the rotator bottom and tower plate. This allows the rotator housing bolt heads to clear the tower plate. The tower plate must be drilled in four (4) places using the template provided with this manual, unless already pre-drilled. A large hole must also be drilled or cut for control cable access.

Inside Tower Mounting

The rotator is mounted inside a tower to a flat rotor-plate by means of four (4) bolts furnished in the hardware kit. Locate the rotator in the tower directly under the thrust bearing or mast guide tube. Spacer washers must be used between the rotator bottom and rotor plate. This allows the rotator housing bolt heads to clear the rotor plate. The rotor plate must be drilled in four (4) places using the template provided with this manual, unless already pre-drilled. A large hole must also be drilled or cut for control cable access.

Tighten the four bolts, but not to the final tightness. Observe how the rotator turns. It must rotate the mast within the thrust bearing or guide tube without binding. If binding occurs, either move the rotator slightly on the rotor plate, or add shims between the mast and the upper mast support. The maximum O.D. of the mast is 2 1/16". After centering the mast, tighten the four mounting bolts to the rotor plate. Install the antenna on the upper mast, pointing South. The feedline rotation loop should allow for complete CCW rotation. Secure the feedline and control cable to the tower for strain relief.

Grounding

Metal towers or masts must be grounded properly at the tower location before the tower or mast is erected. This is to minimize electrical hazard and the possibility of lightning damage. Do not bury bare aluminum wires or stakes in the ground. Use 8 foot copper-clad ground stakes and No. 10 copper wire for best results.

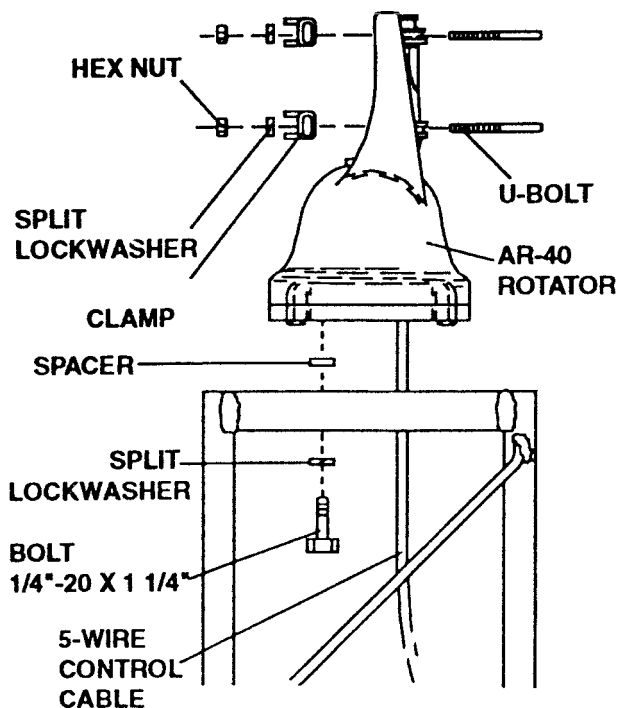


Figure 5 Rotator Mounting on a Tower Top Plate

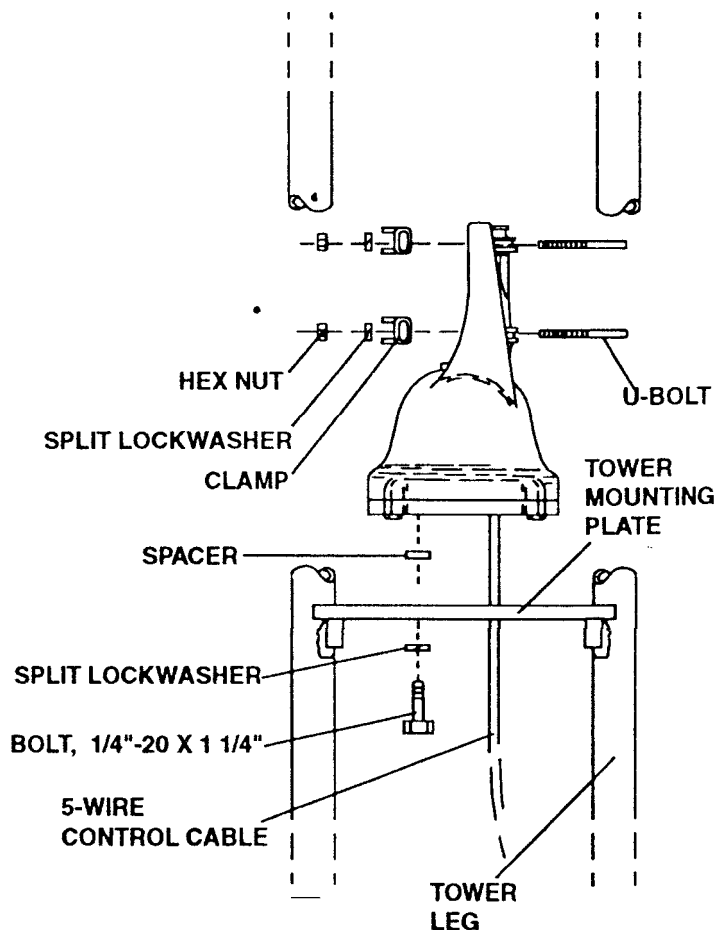


Figure 6 Rotator Mounting in a Tower

AR-40 Parts List

| P/N | Description | Qty |
|-----------|--|------|
| 5084800 | Rotator Unit | 1 |
| 5172600 | Control Unit 110 VAC | 1 or |
| 5079610 | Control Unit 220 VAC | 1 |
| 5030500 | Lower Mast Support | 1 |
| 5042510 | Accessory Kit..... | 1 |
| 107632061 | Screw, 6-32 x 3/8 round head slotted | 2 |
| 110820035 | Screw, 1/4"-20 x 1 1/4" hex head | 4 |
| 5033900 | Terminal Cover,_..... | 1 |
| 5035100 | Mast Clamp..... | 4 |
| 5035200 | U-Bolt..... | 4 |
| 5050200 | Flat washer | 4 |
| 5091400 | Grommet | 1 |
| 556960 | Nut, 1/4"-20 hex | 8 |
| 567115 | Lockwasher, 1/4" split..... | 12 |

Factory Service

If service is required, the unit must be packed securely and sent prepaid to:

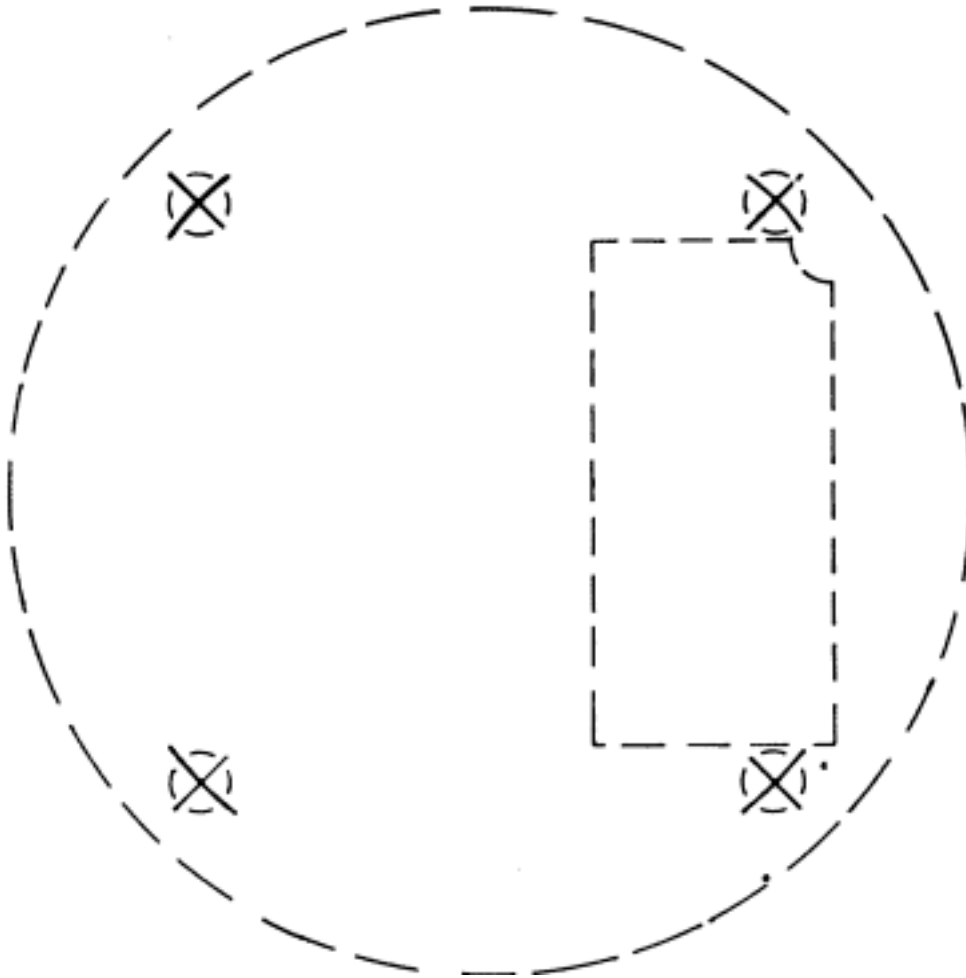
Hy-gain
308 Industrial Park Road
Starkville, Mississippi 39759 USA

For units that are in warranty, no charge will be made for any repair work required. Include a copy of your sales receipt. For out-of-warranty units, call the Customer Service Department for prices and shipping authorization.

The price includes rebuilding the unit, replacing all defective and/or worn parts, and return freight charges. Hy-Gain reserves the right to change prices at its option. when returning items for repair, a check or money order for the repair charges must be included. Be sure to include your name, address, zip code, and telephone number. Also, give a brief description of the problem.

Complete Service Manuals for rotator products can also be obtained from the factory.

HOLES TO BE 17/64 CLEARANCE DRILL



TOWER DRILLING TEMPLATE

This information is believed correct, but no warranty is given or implied and no liability is assumed by Hy-Gain as to its accuracy or completeness. Changes maybe made from time to time so the user should verify all factors tht may be critical. This information is not to be construed as to authorizing or advising use of any patented invention.