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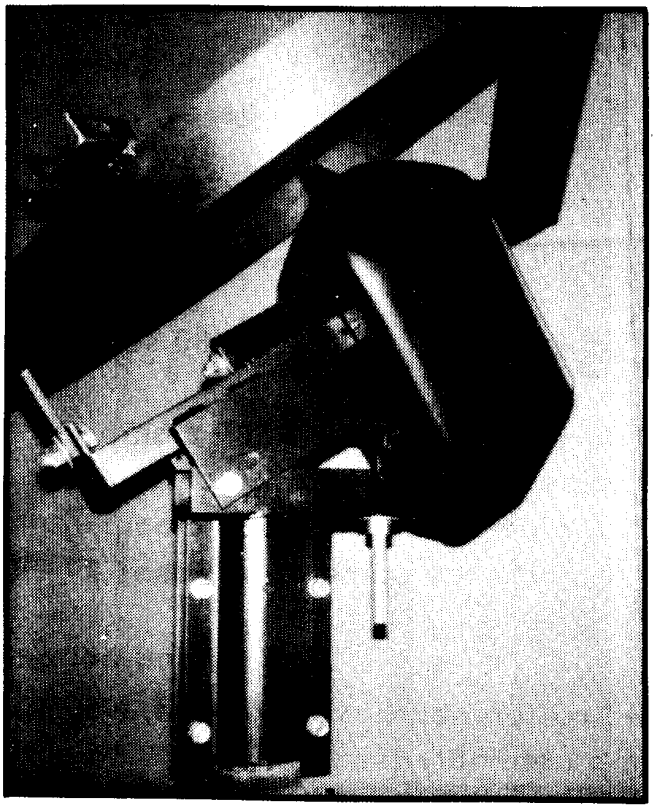
INSTRUCTION & ASSEMBLY MANUAL



HORIZON 180

MOTORIZED HORIZON-TO-HORIZON POLAR MOUNT

MADE IN AMERICA

1. General Information

Sensor — High resolution reed sensor provides 10 counts per degree; i.e. 7 counts across KU band video (at 3 db points), or 20 counts across C band video.

Accuracy — Excellent antenna pointing accuracy/repeatability, due to high resolution sensor and freedom from mechanical deflection or gear backlash.

Motor — 24 v./36 v. D.C. input, at 2½ amperes.

Limits — Limit switches stop mount at 150 degrees rotation, adjustable to 180 degrees if desired.

Speed — Traverses 150 degrees of arc in 70-80 seconds.

Pole — For 3½" O.D. pipe use No. 213569 clamp.
For 4" O.D. pipe use No. 213572 clamp.
For 4½" O.D. pipe use No. 213584 clamp.
(Hardware remains the same in all cases.)

2. Parts List . . .

One fully assembled motor/gearbox drive unit, No. 901205.
One pipe mast clamp assembly (see above).
One threaded elevation adjusting rod, No. 213717.
One frame assembly; varies according to model.
One bolt kit, No. 212397, containing:

- one (1) 5/8" washer, No. 800059
- two (2) 5/8" hex nuts, No. 220027
- one (1) 5/8" x 5½" bolt, No. 700688
- one (1) 3/8" dia lock pin, No. 160018
- four (4) 1/2" hex nuts, No. 220003
- four (4) 1/2" x 2¾" hex bolts, No. 700574
- six (6) 1/2" lock washers 800008
- four (4) 3/4" washers No. 800086
- two (2) 1/2" fine thread nuts, No. 220285
- two (2) 1/2 x 1½" fine thread bolts, No. 701012
- one (1) flanged bushing, No. 230079
- two (2) 3/4" hex nuts, No. 220042
- one (1) 5/8" x 2" bolt, No. 700805

3. Installation of Support Mast . . .

Foundation Types

There are two types of foundations that can be used; and both are very effective when used in proper soil conditions. It is important to remember that the foundation is what anchors the antenna during extreme weather conditions. If installed properly your dish will provide stable, dependable performance year after year.

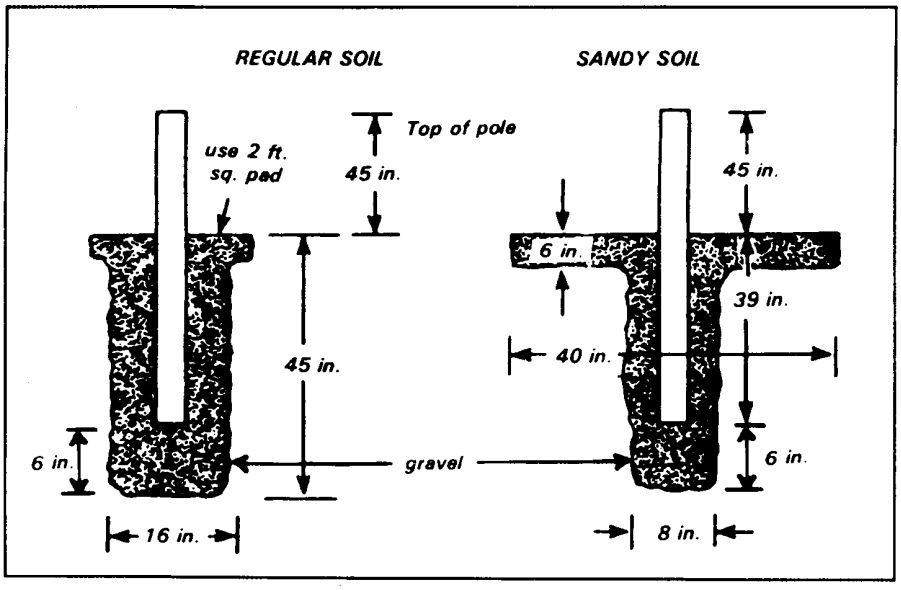
The first step to installing your antenna is to dig a hole and cement the steel pole into the ground. (see Figure 1.)

The height of the pole will depend on the reflector size and slope of pole site.

Finally, and most important, it is essential that the pole be as level as possible. Use a 2' carpenter's level and check for plumb on a side before the cement cures. Consider using 2x4s to brace the pole while pouring the cement to insure that it stays level. Allow the pad to dry 24 to 48 hours, depending on the weather and type of cement used.

The foundation will drain properly if 6" of gravel is placed at the bottom of the hole. A hardening agent such as Quick-Rok can also be used to substantially decrease curing time.

Figure 1.



Tools Required

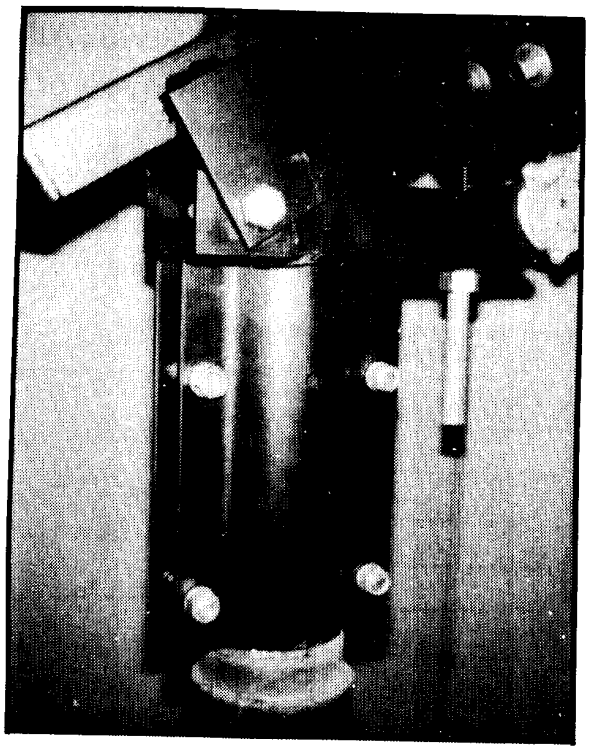
15/16" open end wrench (2 required)
adjustable crescent wrench
compass
inclinometer - (optional)
tape measure
3/4" open end wrench
3/4" socket and ratchet
flat blade screwdriver
phillips screwdriver
drill with 3/8" bit - (optional)

It is possible to complete the installation without all of the above tools, but using the proper tools will help make the installation easier, safer, quicker and give you a truly professional result.

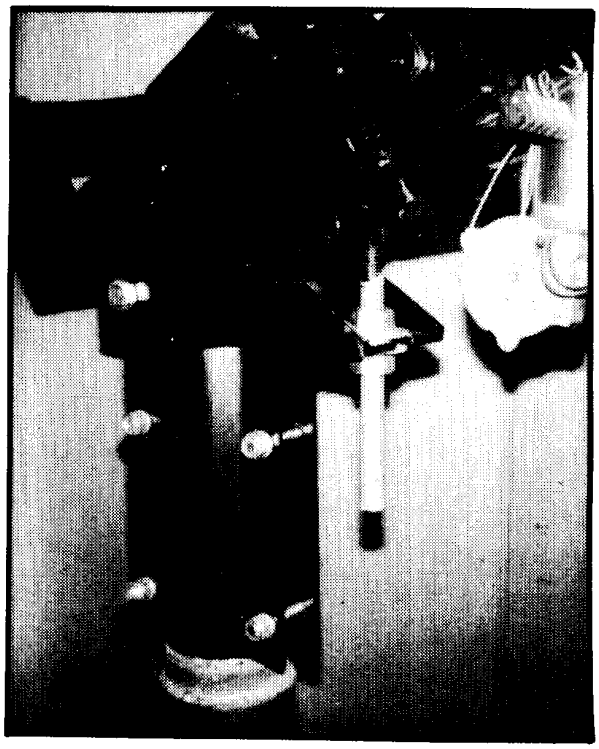
4. Assembly . . .

A. Place clamp assembly on pole, insert four 1/2" x 2¾" bolts, nuts and lockwashers.

NOTE:
Use No. 213569 clamp for 3½" pole
Use No. 213572 clamp for 4" pole
Use No. 213584 clamp for 4½" pole

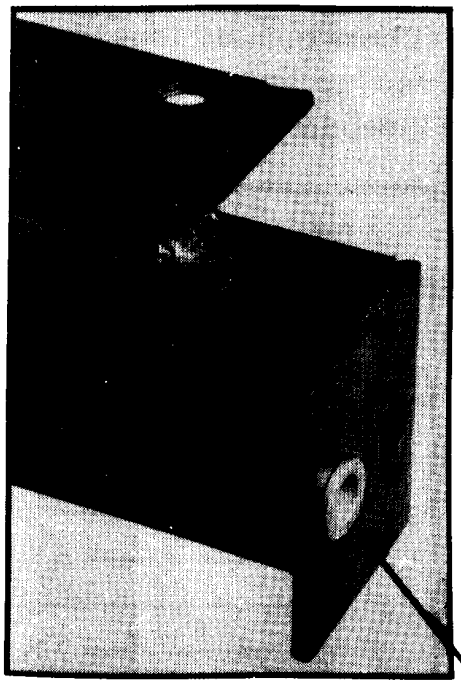


B. Attach motor assembly to clamp with 5/8" x 5½" bolt, and lock nut. Lift motor assembly upward, to allow threaded elevation rod to engage collar, then insert threaded end into slot on clamp assembly. Use two 3/4" nuts and four flat washers.



Note: Later steps will be easier if the motor assembly is now adjusted to the lowest position.

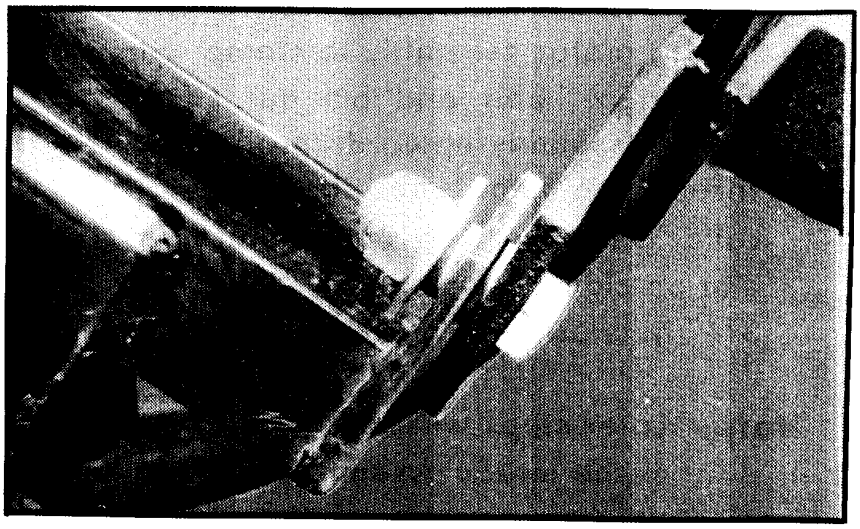
C. Remove left weather cover and connect a temporary voltage source (preferrably an "east-west" control box) to terminals one and two. Run motor to the top (arc-zenith) position.

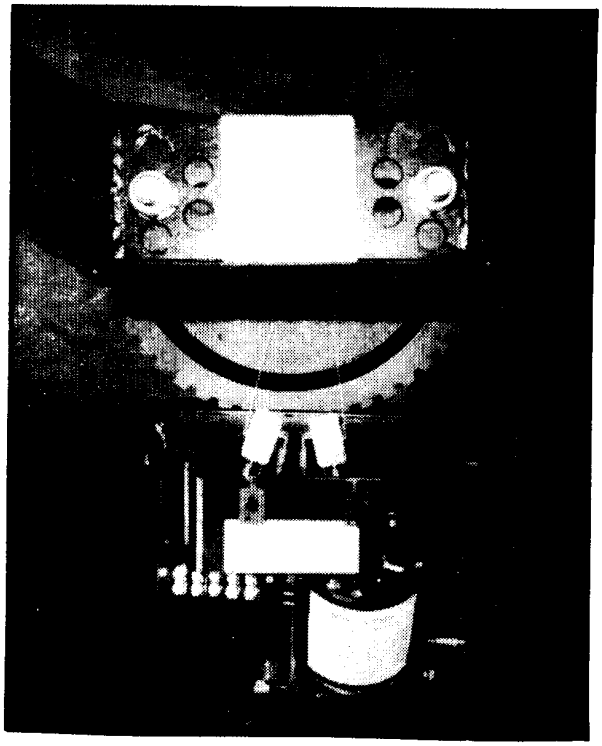


D. Install flanged bearing in top hole, with flange on this side. (May be necessary to tap bearing in with hammer).

HORIZON 180

E. With bushing in place, install dish support frame with 5/8" x 2" bolt, flat washer, and lock nut. (Tighten fully, so that bushing turns with bolt.)





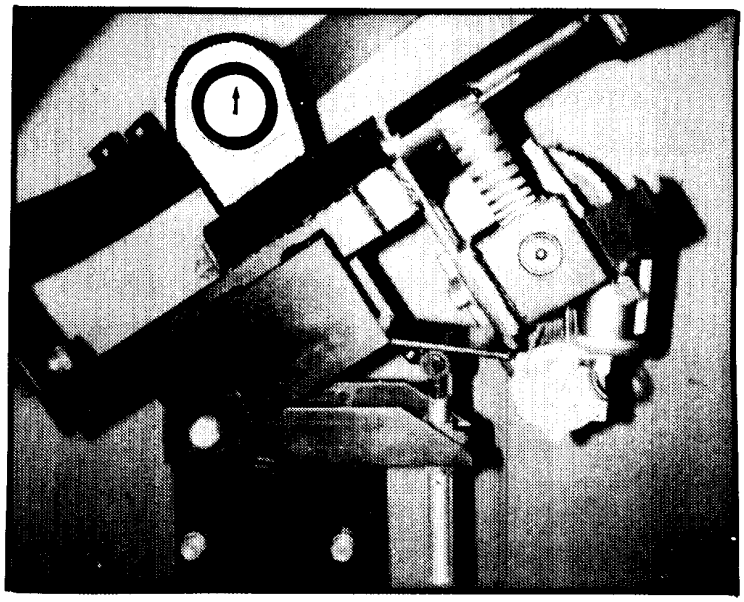
F. Install top side of support frame to motor drive with two fine-thread 1/2" x1½" bolts, nuts, and lockwashers. Set declination per tag on frame crossmember. (Chart below gives declination versus site latitude.)

LATITUDE	DECLINATION
28°	4°
32°	4½°
36°	5°
40°	5½°
44°	6°
49°	6½°
55°	7°
61°	7½°

SET ELEVATION AT LATITUDE PLUS ½ DEGREE.

5. Adjusting the Horizon 180 . . .

A. Using the clamp assembly as a compass sighting reference, rotate mount on pole to obtain a true north-south orientation. Tighten clamp bolts only moderately.



B. Place inclinometer on polar axis as shown, and adjust elevation rod to give a reading of site latitude plus one-half degree.

Example:

Denver, Colorado, Latitude — 40 degrees

1. Set elevation angle at 40 plus ½ = 40½ degrees.
2. From chart, declination angle for 40 degrees latitude is 5½ degrees.
3. Combined angle (zenith angle) is 40½ plus 5½ = 46 degrees.
4. Therefore, if the declination has been set correctly in step 4-F, the inclinometer should read 46 degrees when placed on support frame, or any surface that is parallel to the reflector face.

C. Now track the satellite arc, using the method preferred by the installer.

6. Final Steps . . .

A. Tighten all mount bolts thoroughly, while observing signal strength meter.

B. Run antenna to each limit switch, and bend limit switch blade to obtain desired stopping point. (One limit may be increased to get best snow-dumping position.)

C. Drill 3/8" dia. hole in pole, using existing hole in clamp for guide. Drive 3/8" in. pin into hole to secure clamp.

D. Connect final wiring as follows:

Motor wires to terminals one and two.
"Sensor" or "Pulse" wire to terminal three.
"Shield " or "Drain" wire to terminal four.
"Ground" wire to terminal five.

Note:

This means that "ground" on receiver <u>is not</u> connected to "ground" on mount. (It is connected to one side of reed sensor.)

E. Check cable routing to prevent binding or pinching as antenna moves across arc.

F. Install weather covers, and seal overlapping edges with RTV silicone.

G. Complete indoor work and programming.

7. Periodic Maintenance . . .

The main gear teeth and the chain should be greased annually with automotive wheel-bearing grease. No other maintenance is required.