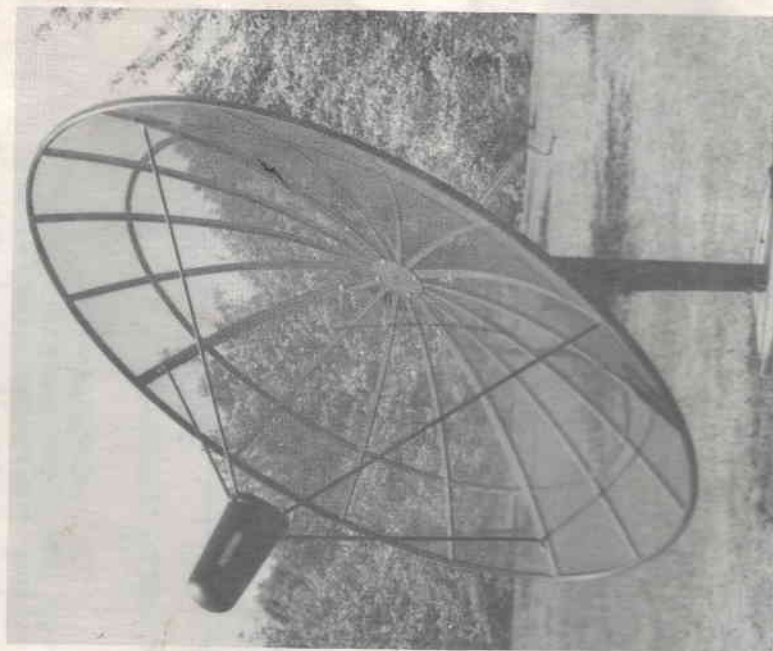


UNIMESHTM

INSTRUCTION & ASSEMBLY MANUAL



ANTENNA MODEL #

7.6-AL
10-PL
10-AL
10-PR
12-XL
12-PR

UNIMESH™

Congratulations! You have picked the most popular TVRO antenna available today. We feel confident that you have bought an antenna which will provide many years of viewing enjoyment.

This instruction manual has been designed to help you in the proper assembly and installation of your new antenna, but does not cover any of the items associated with the TVRO system beyond this product.

Please pay particular attention to the following technical information. By following the instructions in this manual, your antenna can be installed quickly and easily to provide a front row seat for television entertainment.

SECTION 1 SPECIFICATIONS

ITEM	MODEL	MODELS	MODEL
	#7.6-AL	#10-PL #10-AL #10-PR	#12-XL #12-PR
Dish dia.	7.6 feet	10 feet	12 feet
Focal length	35.2 in.	48 in.	57.6 in.
Dish depth	13.75	18.75 in.	22.5 in.
f/d ratio	0.39	0.4	0.4
Feed	prime	prime	prime
Mount	polar/H-H	polar/ H-H	polar/H-H
MOUNTING POLE*			
Dia.	3.5 in.	3.5 in.	4.0 in.
Length	96 in.	96 in.	120 in.
In ground	36 in.	36 in.	48 in.

* Note: UNIMESH™ does not supply mounting pole but recommends at least SCHEDULE 40 PIPE HIGH YIELD STRENGTH STEEL.

SECTION 2 PARTS LIST

Models:

#7.6 AL
#10 PL
#10 AL
#10 PR

Contents:

Four quadrant panels
Four quad legs
Two metal center plates
One environmental cover (LNB cover)
One polar mount

Head Cap Bolt kit containing:

6 - 1/2" x 1" HHCS

Dish Bolts kit containing:

16 - 5/16" x 2 1/2" HHCS
16 - 5/16" Hex Nuts
32 - 5/16" Flat Washers

Center Plate kit containing:

4 - 5/16" x 2" HHCS
4 - 5/16" Hex Nuts
8 - 5/16" Flat Washers

8 Pt Attachment kit containing:

4 - 5/16" x 1" HHCS
4 - 5/16" x 1 3/4" HHCS
8 - 5/16" Hex Nuts
16 - 5/16" Flat Washers

Dish Mount kit containing:

4 - 5/16" x 3" HHCS
4 - 5/16" Hex Nuts
8 - 5/16" Flat Washers

Quad Leg kit containing:

4 - 1/4" x 1 3/4" HHCS
4 - 1/4" x 1" HHCS
8 - 1/4" Hex Nuts
12 - 1/4" Flat Washers

PARTS LIST, Continued

Models:

#12-XL
#12-PB

Contents:

Four quadrant panels
Two metal center plates
Four quad legs
One polar mount
One environmental cover (LNB cover)

Head Cap Bolt kit containing:

6 - 1/2" x 1" HHCS

Dish Bolts kit containing:

28 - 5/16" x 2 1/2" HHCS
28 - 5/16" Hex Nuts
56 - 5/16" Flat Washers

Center Plate kit containing:

4 - 5/16" x 3" HHCS
4 - 5/16" Hex Nuts
8 - 5/16" Flat Washers

12 Pt Attachment kit containing:

8 - 5/16" x 1" HHCS
8 - 5/16" x 1 3/4" HHCS
16 - 5/16" Hex Nuts
32 - 5/16" Flat Washers

Dish Mount kit containing:

4 - 5/16" x 3" HHCS
4 - 5/16" Hex Nuts
8 - 5/16" Flat Washers

Quad Leg kit containing:

4 - 5/16" x 3" HHCS
4 - 5/16" Hex Nuts
8 - 5/16" Flat Washers
4 - 1/4" x 1" HHCS
4 - 1/4" Hex Nuts
4 - 1/4" Flat Washers

TOOLS

REQUIRED

Ratchet
1 - straight edge 36"
1 - angle finder
1 - open/box end wrench 1/2"
1 - compass
1 - phillips screw driver
1 - deep socket 1/2"
1 - socket 7/16"

SECTION 3 SITE CHOICE

FIND AN UNOBSTRUCTED 'VIEW ANGLE'

Before assembling your UNIMESH™ antenna, we recommend a sight survey be done by a qualified person. Certain criteria must be considered when choosing a site for your TVRO antenna to operate properly.

VIEW ANGLE

A necessary consideration is whether the installation site falls within a "view angle" that's clearly visible to the satellites from which you wish to receive signals. This site must be clear of any visual obstructions -- such as trees, buildings, etc.

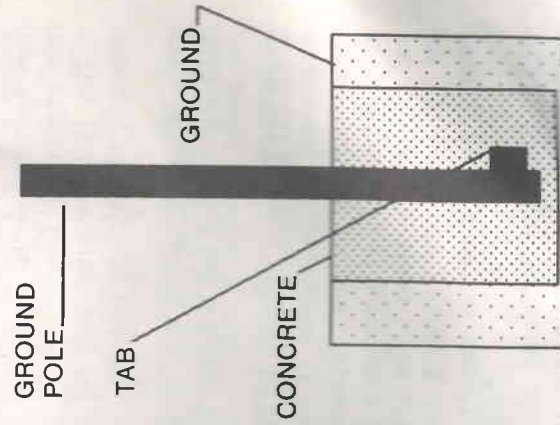
MICROWAVE INTERFERENCE

Interference from nearby land-based microwave relay signal towers may interfere with the reception quality of a TVRO antenna. An on site survey done by a qualified person will find out the presence of microwave signal interference.

LOOK FOR UNDERGROUND OBSTACLES

Before digging any foundation, be certain that no underground power, telephone lines, storm drains or other installations run beneath the chosen installation site.

GROUND POLE INSTALLATION For a *standard ground pole installation, choose a ground pole size and type as specified under SECTION



1 SPECIFICATIONS.

For a ten foot antenna, a 3.5 in. O.D. pole about 96 in. should be used. The part of the pole placed in concrete should have a metal tab welded on it to prevent twisting of the pipe once set. Dig a hole about 30-to-36 in. deep and 24 in. in diameter. Set the pole in the center of the hole and fill the remainder with concrete. Leave about 60 in. of the pole above ground and be certain that the pole is vertically plumb on all sides.

*A standard installation has been described in the preceding text. Local conditions such as frost line depth, soil compaction and composition may require you do different than these instructions say. If you've any doubt check with your distributor or local dealer.

SECTION 4 ANTENNA ASSEMBLY

All UNIMESH™ antennas are composed of four equal-size quadrants which must be bolted at each straight rib/seam to form the parabolic antenna.

STEP ONE: For convenience, this antenna may be assembled anywhere there's adequate space available. Ideally, choose a level area about 15 ft. square, then cover the ground with cardboard, carpeting, or plastic sheeting to protect the antenna's finish.

STEP TWO: Place the four separate antenna quadrants on a flat surface with ribs forming radial arms and the curve of ea. quadrant forming the outer rim of the antenna.

STEP THREE: Link any two (2) quadrants together using *three (3) 5/16 x 2-1/2" bolts, matching three (3) 1/2" nuts, and six (6) 3/8" matching washers (see illustration next page). Find the two pre-drilled holes positioned along ea. straight radial arm of quadrant, then insert bolt through washer, then through rib, then through another washer before adding nut (see illustration). It's wise to only finger tighten ea. nut until all quadrants are assembled. The first hole from the center should be left open for the Cradle Mount Bracket attachment. If you are using a 10XL mount you should leave the second hole from the center empty. A 5/16x2-3/4" bolt should be used for this attachment later.

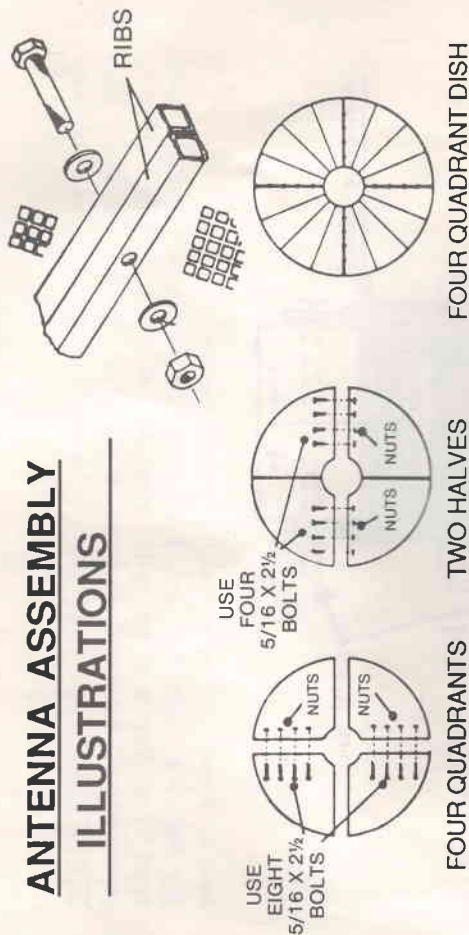
* The 12-ft. reflector calls for seven bolts at ea. seam. Plus seven nuts and 14 matching washers.

STEP FOUR: Now join the remaining two quadrants together as was done with the first two in STEP THREE.

STEP FIVE: Upon finishing STEP FOUR, you'd have two semi-circles assembled, the two halves of the antennas. Now align the two halves together so the longest rib/seam of one semicircle touches the other to form the diam. of a complete circle. Align the two halves by finding the four (4) pre-drilled holes along ea. of the semi-circles' flat diam. rib. Follow STEP THREE for proper order of bolt, washer, rib, washer, nut assembly at ea. of the four holes.

STEP SIX: After tightening all nuts finger tight and checking to be sure all four quadrants are joined firmly, use a 1/2" wrench to tighten ea. nut. Apply no more than eight lbs. of force to tighten ea. nut. **USE CARE: ANY OVER TIGHTENING OF BOLT MAY CRUSH RIB AND CAUSE STRUCTURAL DAMAGE.** If you followed these six steps properly, you now should have the four quadrants of your antenna assembled.

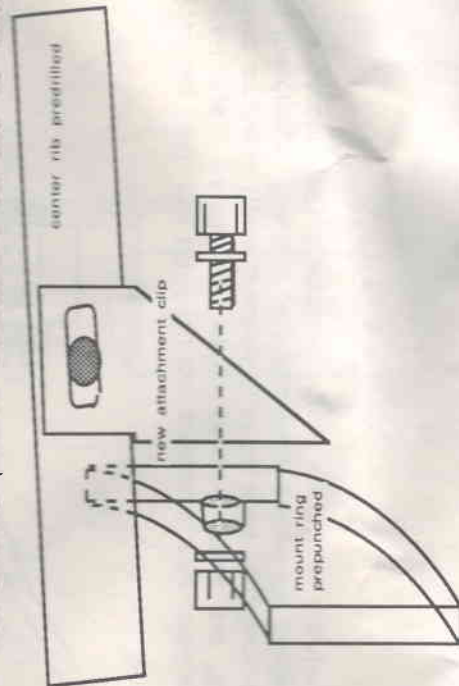
ANTENNA ASSEMBLY ILLUSTRATIONS



SECTION 5 MOUNT ASSEMBLY

STEP ONE: Place polar mount with mount ring on top of ground pole by lifting it into place and sliding down over pole. Secure mount with the four (4) 1/2 x 1" bolts found in the mount hdw. kit.

STEP TWO: Using a minimum of two people, lift the reflector and place it against the mount ring. Position the reflector on the mount ring so the four (4) holes in the reflector align with the four (4) Cradle Mount Brackets on the mount ring. Use the four (4) 5/16 x 3" bolts, 3/8" washers, 5/16" nuts (using the bolt, washer, clip, rib, rib, clip, washer, nut sequence) Apply no more than eight (8) lbs. of pressure when tightening the nut to prevent crushing ribs or clips. The middle rib clips can be installed at this time using the four 5/16 x 1-3/4" and 5/16 x 1" bolts making a total of eight attachment points for the 10' foot antenna (twelve attachment on the 12' antenna).



STEP THREE: Assemble center name plate so the name appears horizontal, or reads slightly uphill to the right. Be sure to attach both steel center plates to the dish. Use four (4) 5/16 x 2" bolts, eight (8) 3/8 washers, and four (4) 5/16" nuts for assembly using a bolt, washer, plate, rib, plate, washer, nut sequence.

Illustration #1

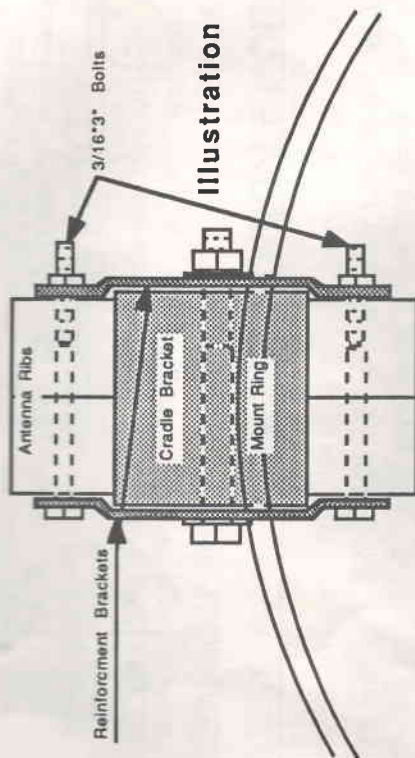
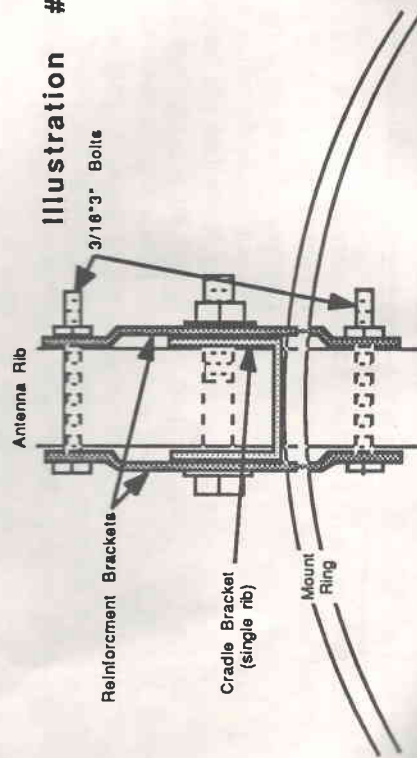
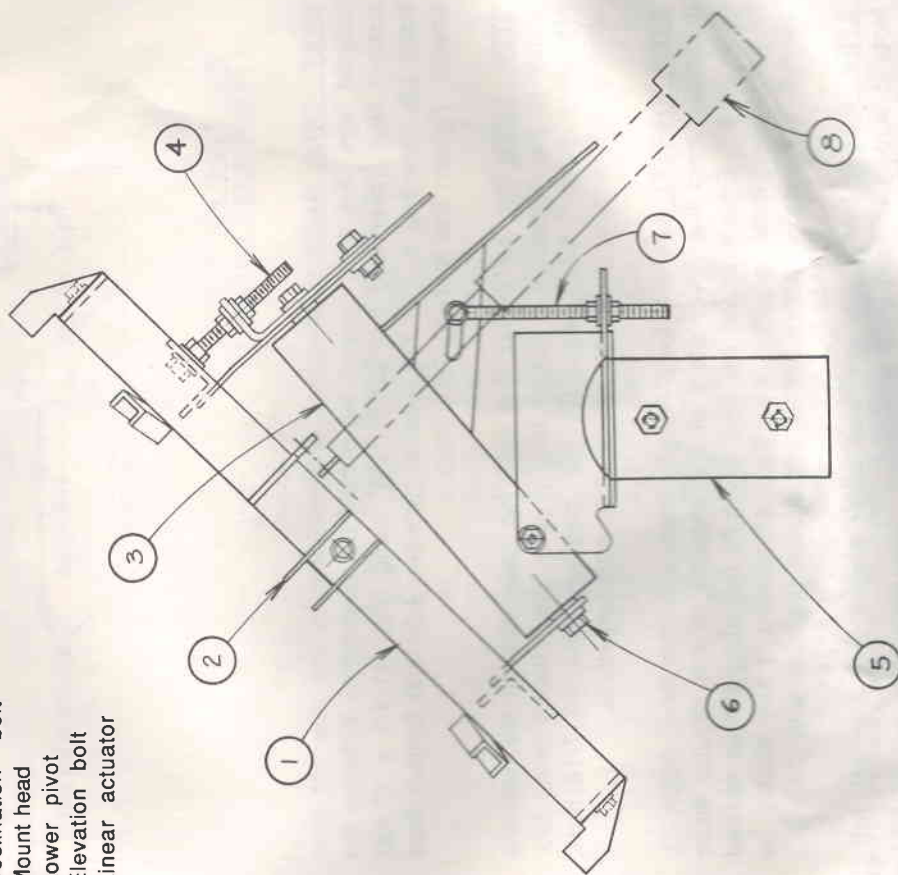


Illustration #2

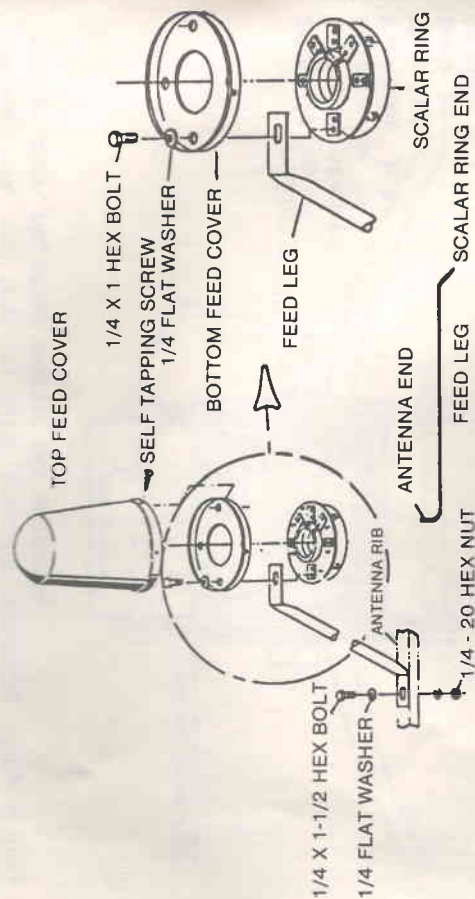


All model number 10AL and 10PR (10 foot antennas), now come with a 36" ring, X-Large Polar Mount, which accommodates our "NEW" reinforcement brackets. These brackets must be used to maximize the stability of the design. The first (#1) illustration shows the double rib location, the second (#2) illustration shows the single (center) rib location.

- 1 24" Mount ring
- 2 1" Antenna attachment
- 3 Elevation bar
- 4 Declination bolt
- 5 Mount head
- 6 Lower pivot
- 7 Elevation bolt
- 8 Linear actuator



SECTION 6 QUAD FEED ASSEMBLY



STEP ONE: Attach scalar ring of feed horn to the four (4) feed support legs. Ea. feed support leg should be sandwiched between the bottom feed cover and the scalar ring, using four (4) 1/4 x 1" hex bolts (d), inserting a 1/4" flat washer between bolt and bottom feed cover. Tighten the four (4) 7/16 nuts.

STEP TWO: Set the scalar ring feed leg assembly on the antenna shown in the illustration. Fasten feed legs to the antenna using four (4) 1/4 x 1-3/4" bolts, eight (8) 3/8" washers, four (4) 7/16 nuts, using a bolt, washer, feed leg, rib, washer, nut, sequence.

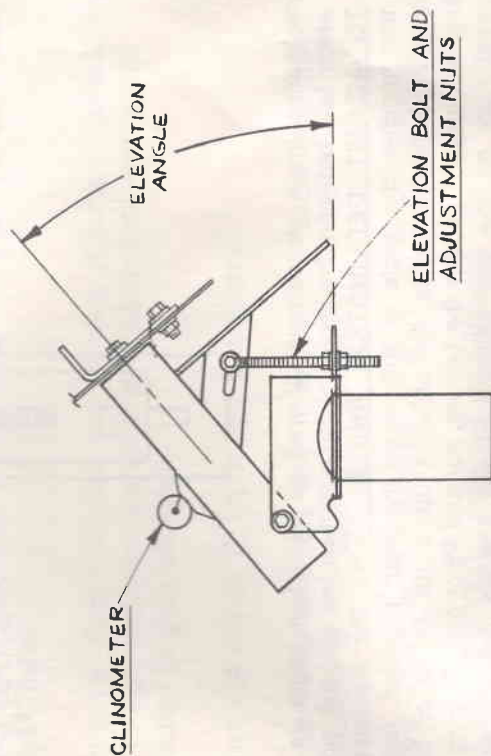
STEP THREE: Set the focal length (see specifications, page 3), measured from the cover plate of the antenna to the circular wave guide face. Equally adjust ea. feed leg in its mounting slot as needed to get proper focal length. Very little adjustment if any should be needed. There's less than 3/4" of adjustment available with the slot.

STEP FOUR: Install the top feed cover shown with four (4) self-tapping screws or twist clips supplied.

SECTION-7 LATITUDE ADJUSTMENT

Aligning the assembled antenna requires adjustments for degree of latitude or elevation and declination, using an angle finder or clinometer. Latitude angle for your antenna site may be obtained from an airport map or road atlas, or from your distributor. Before beginning adjustments, rotate the antenna up to its Zenith or most southerly look angle.

TO ADJUST FOR LATITUDE: Convert your degree of latitude to a "elevation angle" on the chart provided. By turning the elevation adjustment nuts on the spade bolt read the "angle" on the clinometer.

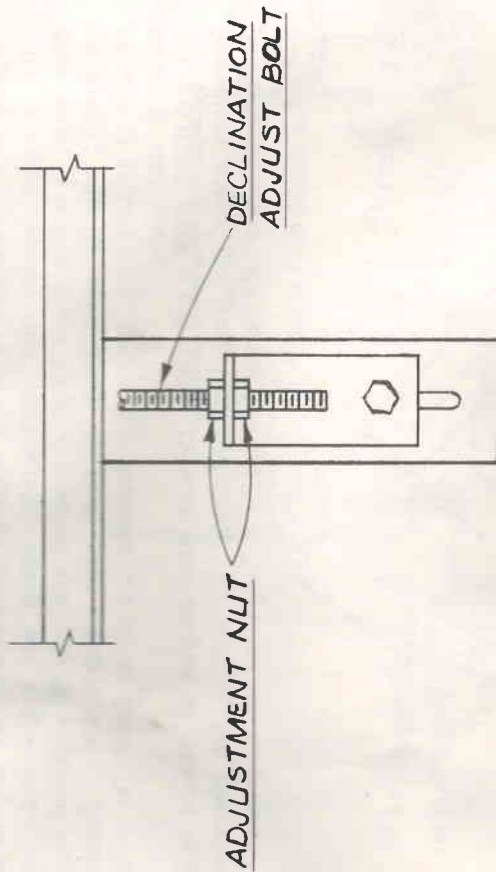


Latitude and Declination Chart

Latitude	Elevation	Declination	Zenith (El.+Dec.)
20	20.47	2.98	23.45
25	25.57	3.66	29.23
27	27.59	3.94	31.53
29	29.62	4.20	33.82
31	31.64	4.47	36.11
33	33.67	4.71	38.38
35	35.68	4.97	40.65
37	37.69	5.21	42.90
39	39.70	5.45	45.15
41	41.71	5.67	47.38
43	43.72	5.89	49.61
45	45.71	6.11	51.82
47	47.70	6.32	54.02
49	49.70	6.51	56.21
51	51.69	6.70	58.39
53	53.67	6.89	60.56
55	55.66	7.06	62.72
57	57.64	7.22	64.86

These figures are courtesy of Jim Roberts at Gourmet Entertaining makers of Arc Set and Sat Set Antenna Alignment tools. 213-866 2728

SECTION-8 DECLINATION ADJUSTMENT



The declination angle, sometimes referred as the offset angle, is the angle which falls between the space of the elevation bar and the mount ring. **TO ADJUST DECLINATION ANGLE:** Find the declination angle that matches the angle of latitude on the chart provided. Before beginning adjustments, rotate the antenna up to its Zenith or most southerly look angle. Loosen the Locking nut and Pivot nut. Turning the adjustment nuts on the declination bolt will change the degree of declination which can be read at the bottom of the locking plate. Tighten the locking nut and pivot nut. The degree of declination (zenith on the chart) can also be read by attaching a clinometer on the ring or on a straight edge across the back of the mount ring.

ALIGNING THE DISH TO NORTH: The elevation bar of the mount should be pointed to the north. Loosen the four (4) mount cap bolts on the mount and turn the antenna, letting it pivot on the ground pole. Rotate the dish to the west on the mount pivots until it's about 15 to 20 degrees above the horizon. By pivoting the antenna on the ground pole within a 10 degree limit and alternately rotating the antenna back to the east a low satellite can be found. The lower the satellite the better. Using the linear actuator to pivot the antenna and rotating the antenna on the ground pole should be the only two adjustments for aligning the antenna on that low satellite. Once the low satellite is perfect the elevation bar should now be pointing at true north. Tighten the six (6) mount cap bolts. Your antenna installation will be tracking the arc.

SECTION-9 UNIMOUNT™ INFORMATION

Unimount 10...10XL...12XL Information

(All UNIMESH™ Horizon to Horizon mounts are manufactured by Ajak Industries and are based on the Ajak 180 Mount. All UNIMESH™ mounts are aligned similar)

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

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

Motor -24 /36 D. C. input at 2.5 amperes.

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

Speed -Traverse 150 degrees of arc in 70 to 80 seconds.

Pole -For 3.5" O.D. pipe use no. 901205.
For 4" O.D. pipe use # 213572 clamp.
For 4.5" O.D. pipe use # 213584 clamp.
(Hardware remains the same in all cases.)

Parts List

One fully assembled motor/gearbox drive unit, # 901205.
One pipe mast clap assembly (see above)
One threaded elevation adjusting rod, # 213717.
One frame assembly; varies according to model.
Models Unimount10XL and 12XL...36" ring
Model Unimount10.....24" ring
One bolt kit, # 212397, containing:
one (1) 5/8" washer, # 800059
two(2) 5/8" hex nuts, # 220027
one (1) 5/8" x 5 1/2" bolt, # 700688
one (1) 3/8" dia lock pin, #160018

SECTION-9 UNIMOUNT™ INFO, CONT'D

- four(4) 1/2" hex nuts, # 220003
- four(4) 1/2" x 2.75" hex bolts, # 700574
- six (6) 1/2 lock washers #800008
- four(4) 3/4" washers #800086
- two(2) 1/2" fine thread nuts, #220285
- two(2) 1/2x1.5" fine thread bolts, # 701012
- one (1) flange bushing, # 230079
- two (2) 3/4" hex nuts, # 2200
- one (1) 5/8" x 2" bolt, # 700805
- one (1) locking L plate (included with ring)
- one (1) brass bushing / spacer (included with ring)

Assembly

- A** Place clamp assembly (head cap) on pole, insert four 1/2" x 2 3/4" bolts, nuts and lock washers.
Note;
use # 213569 clamp for 3.5" poles
use # 213572 clamp for 4" poles
use # 213584 clamp for 4.5" poles
- B** Attach motor gearbox drive unit to clamp assembly (head cap) with 5/8" x 5.5" bolt, and lock nut. Push motor unit upward, to allow threaded elevation rod (non threaded end) to slip into the collar (small pipe welded on the back of drive unit), then insert threaded end into slot on clamp assembly. Use two 3/4" nuts and four flat washers. (mount -side view Illustration)
- C** Remove left weather cover and connect a temporary voltage source (preferably an "east-west" control box) to terminals one and two. Run motor to the to (arc - zenith) position.
- D** Install flange bearing in top hole on the "south" end of the drive unit, with flange to the outside. Install dish support ring (36" ring for 12' AL & PR /10' AL & PR, 24" ring for 10' PL and 7.6' AL) slipping the slot in the ring support over the pivot bolt on the "north" end of the motor section. Position the locking L plate over the 1/2" fine pivot bolt. Install the 1/2" fine locking bolt in the top hole.(there should be a bushing

SECTION-9 UNIMOUNT™ INFO, CONT'D

in the locking bolt hole) When both the pivot bolt and locking bolt are tightened the declination setting wont change.

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 desire stopping point. (One limit may be increased to get best snow dumping position)
- C** Drill 3/8" 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.

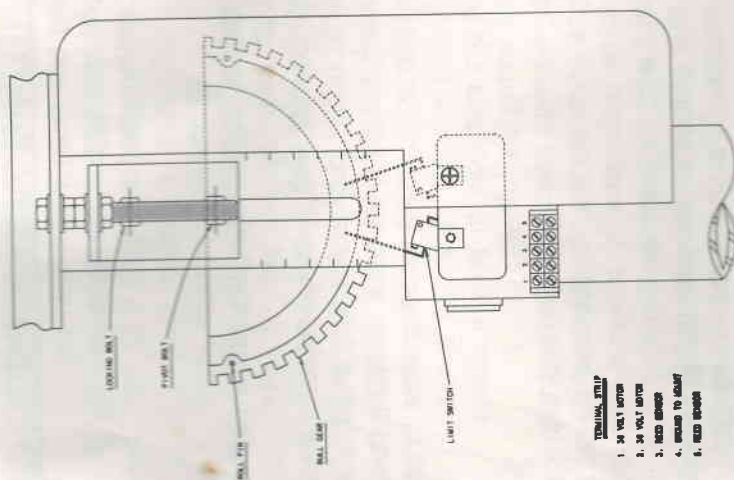
Note This means that ground on receiver is not connected to "ground" on mount. (It is connected to one side of reed sensor)

- E** Install weather covers

Periodic Maintenance

The main gear teeth and the chain should be greased annually with automotive wheel bearing grease. An additional grease fitting is included on the top of the motor section, it should be lubricated annually.

**NORTH END VIEW
APPROX HALF SCALE**



- TERMINAL STRIP**
1. 24 VOLT SWITCH
 2. 24 VOLT SWITCH
 3. RED BATTERY
 4. WIRING TO MOUNT
 5. RED BATTERY

MOUNT - SIDE VIEW

