

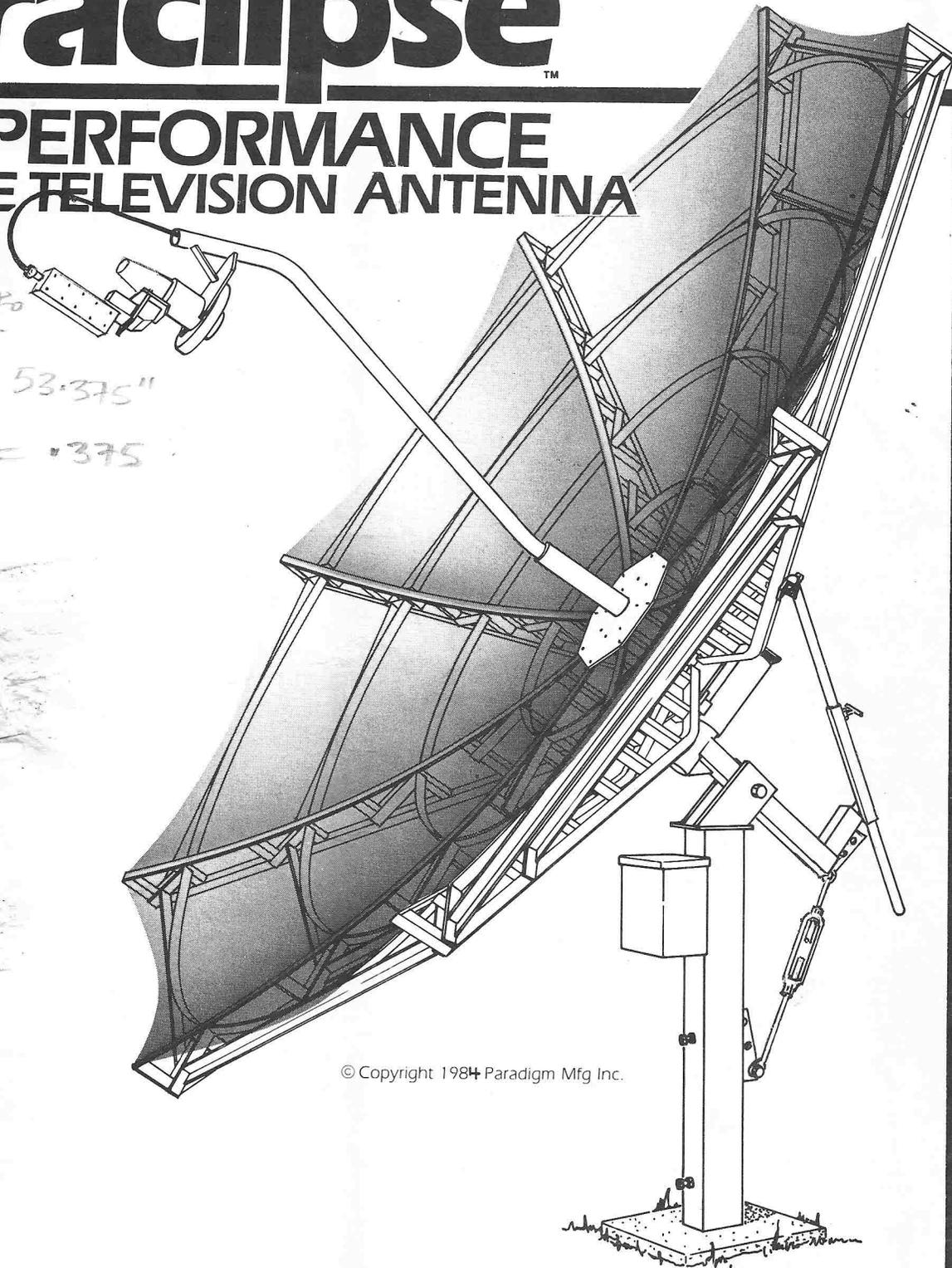
Paraclipse™

HIGH PERFORMANCE SATELLITE TELEVISION ANTENNA

PARACLIPSE INFO

Focal Distance = 53.375"

F/D RATIO = .375



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Antenna Assembly Instructions

PARTS CHECKLIST
9-FOOT ANTENNA

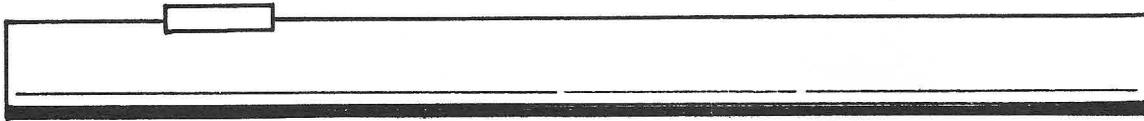
<u>QUANTITY</u>	<u>PART #</u>	<u>DESCRIPTION</u>
<u>Standard Mount:</u>		
1	62060	3" x 63" Mount Pipe
1	63070	4" x 4" Square Mount
1	62169	Turnbuckle
1	62152	Polar 'L' Assembly w/Safety Cable
1	62200	Weatherproof Housing
1	62110	Nylon Shim
<u>Antenna Hub:</u>		
1	63100	Front Hub Plate
1	62080	Back Hub Plate
1	62081	Declination Assembly
<u>Antenna:</u>		
7	63100	Rib
1	63017	Rib w/Azimuth Tube Brkt
8	63030	Ring #1
8	63033	Ring #2
8	63036	Ring #3
8	63039	Ring #4
1	63135	LNA Tube
8	53050	Small Mesh
8	53051	Large Mesh
1	62130	Azimuth Tube
1	62120	Azimuth Adjuster Ass /T-Bolt Hdwr.
4	53210	Silvatrim
95	52150	'U'-Clip
400	52151	'J'-Clip
<u>3171-001 Hardware Package:</u>		
64	52175	1/4" x 1 1/2" Bolt
5	52176	1/4" x 1" Bolt
71	52177	1/4" Nuts
2	52072	5/8" x 1 1/2" Bolt
1	52179	5/8" x 3 1/2" Bolt
3	52185	5/8" Lock Washer
1	52073	5/8" Nut
16	52181	5/16" x 1" Bolt
16	52018	5/16" x 1-3/4" Bolt
18	52019	5/16" Flat Washer
32	52183	5/16" Nut
4	52187	3/8" x 1" Bolt
4	52189	3/8" Lock Washer
4	52188	3/8" Nut
1	52186	U-Bolt
<u>Feedhorn:</u>		
1	(optional)	Polarotor I or II

Hardware Installed in Subassemblies

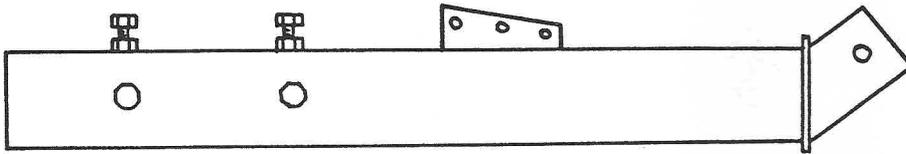
<u>#62017 Azimuth Tube Brkt.</u>	<u>62081 Declination Assy.</u>	<u>62120 Azimuth Adjuster</u>	<u>62070 Mount</u>
(2) 52018 5/16" x 1-3/4" Bolt	(1) 52090 1/2"x1 1/2" Bolt	(1) 52126 1/2" x 3" Bolt	(4) 5/8"x1 1/4" Bolt
(3) 52019 5/16" Flatwasher	(1) 52088 1/2" Flatwasher (USS)	(2) 52213 1/2" Flatwasher (SAE)	
(2) 52020 5/16" Nyloc Nut	(1) 52092 1/2" Lockwasher	(1) 52084 1/2" Nut	
	(2) 52089 1/2" Nut	(1) 62125 T-Bolt Assy.	

PARTS CHECKLIST
12-FOOT ANTENNA

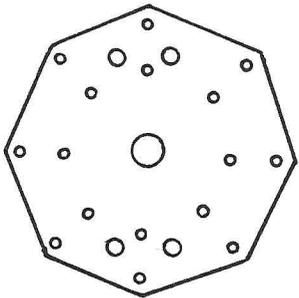
<u>QUANTITY</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
<u>Standard Mount:</u>			
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1	62070	4" x 4" Square Mount	
1	62169	Turnbuckle	
1	62152	Polar 'L' w/Safety Cable	
1	62200	Weatherproof Housing	
1	52110	Nylon Shim	
<u>Antenna Hub:</u>			
1	62100	Front Hub Plate	
1	62080	Back Hub Plate	
1	62081	Declination Assembly	
<u>Antenna:</u>			
7	62001	Rib	
1	62017	Rib w/Azimuth Tube Brkt	
8	62030	Ring #1	
8	62033	Ring #2	
8	62036	Ring #3	
8	62039	Ring #4	
8	62040	Ring #5	
1	62135	LNA Tube	
8	52050	Small Mesh	
8	52051	Large Mesh	
	62130	Azimuth Tube	
	62120	Azimuth Adjuster Assy. w/T-Bolt & Hdwr.	
	52210	Silvatrim	
120	52150	'U' Clip	
500	52151	'J' Clip	
<u>#2171-001 Hardware Package:</u>			
80	52175	1/4" x 1 1/2" Bolt	
5	52176	1/4" x 1" Bolt	
87	52177	1/4" Nut	
2	52072	5/8" x 1 1/4" Bolt	
1	52179	5/8" x 3 1/2" Bolt	
3	52185	5/8" Lock Washer	
1	52073	5/8" Nut	
16	52181	5/16" x 1" Bolt	
16	52018	5/16" x 1-3/4" Bolt	
32	52183	5/16" Nut	
18	52019	5/16" Flat Washer	
4	52187	3/8" x 1" Bolt	
4	52188	3/8" Nut	
4	52189	3/8" Lock Washer	
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<u>Feedhorn:</u>			
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<u>Hardware Installed in Subassemblies</u>			
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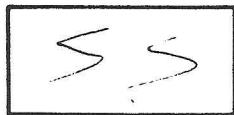
3" PIPE



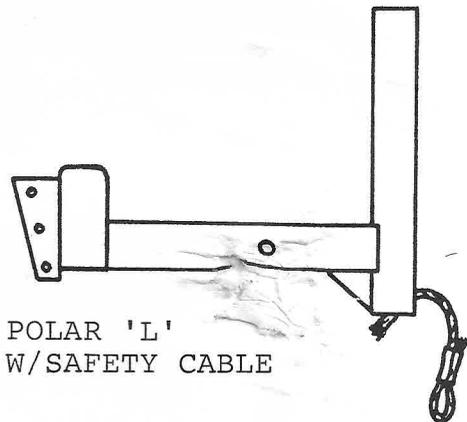
4" SQUARE MOUNT



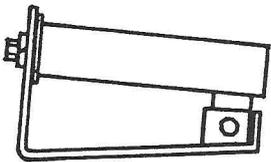
BACK HUB PLATE



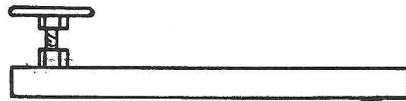
NYLON SHIM



POLAR 'L'
W/SAFETY CABLE



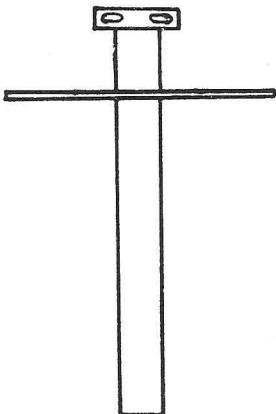
DECLINATION ASSEMBLY



AZIMUTH ADJUSTER
W/T-BOLT & HARDWARE



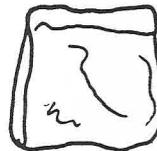
TURNBUCKLE



FRONT HUB PLATE



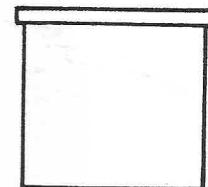
'U' CLIP



HARDWARE PACKAGE



'J' CLIP

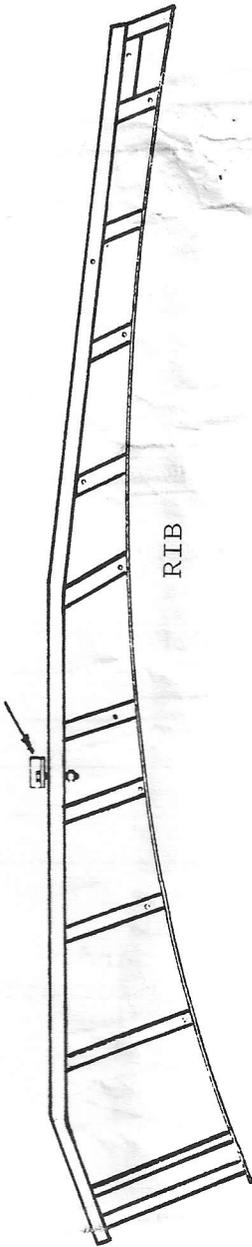


WEATHERPROOF HOUSING



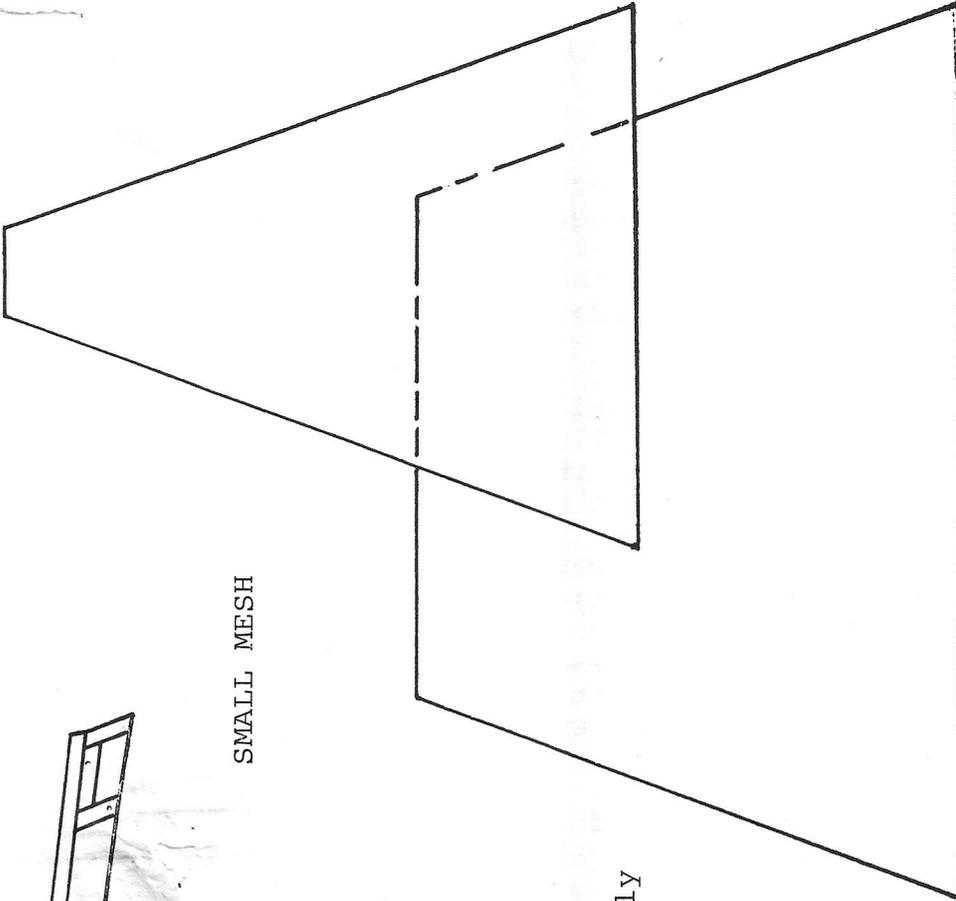
SILVATRIM

AZIMUTH TUBE BRACKET



RIB

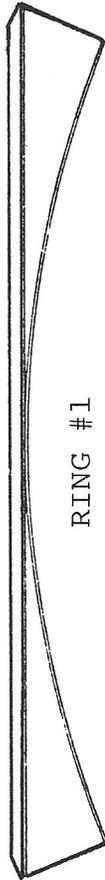
SMALL MESH



LARGE MESH

5

RING #1



RING #2



This ring is not used with 9' antenna. (only four rings total).

RING #3



RING #4 12' (#3 9')



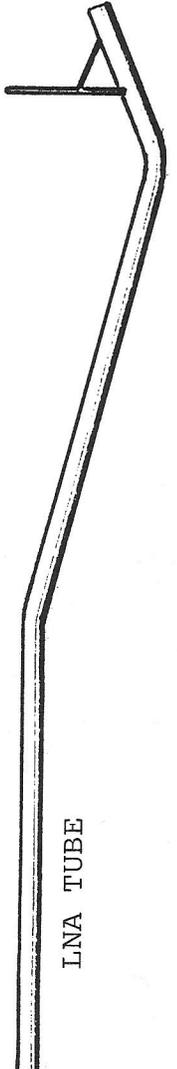
RING #5 12' (#4 9')



AZIMUTH TUBE



LNA TUBE



Page 6

ASSEMBLY INSTRUCTIONS
FOR THE
PARACLIPSE SATELLITE ANTENNA

Inventory the contents of the antenna shipping container with the parts checklist on page 2 or 3.

We recommend that you read these instructions through twice prior to assembly, so you can become familiar with our method of installation.

1. Evaluate your proposed location, keeping in mind:
 - Obstructions to the satellites.
 - How you are going to run the wires.
 - What is underground where the hole is to be dug?

Then evaluate the location with a compass and inclinometer to ensure there are no obstructions between all EXISTING or PROPOSED satellites.

2. The HOLE for the antenna footing should be dug in accordance with the chart below in order to adequately support the antenna during violent weather, hard freeze or muddy conditions. The 3" schedule forty pipe must be mounted in cement, absolutely plumb, and with a minimum of 18" exposed above the cement. (Ref: photo #1)

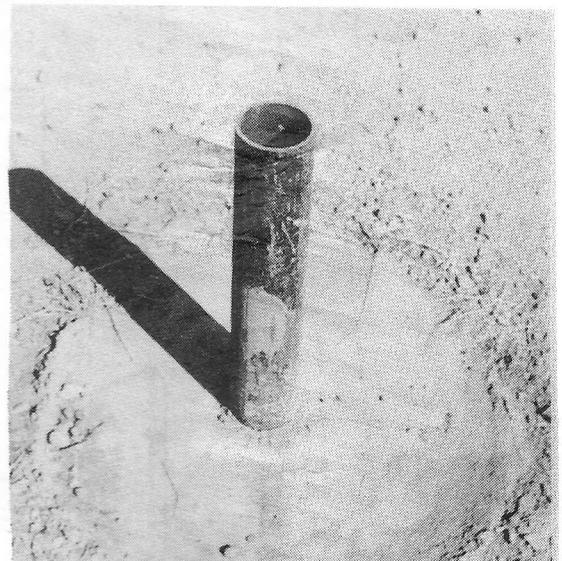


Photo 1

Mix enough cement to completely fill the hole. Generally 5 to 7 bags of pre-mix concrete is adequate. The end of the pipe with the welded piece of angle iron goes into the hole.

WIND

FORCE

20PSF (90-95 MPH) WIND FORCE

15 PSF (80-85 MPH) WIND FORCE

SOILS**	SOFT	MED	HARD	ROCK	SOFT	MED	HARD	ROCK
"D"	19"	14"	14"	12"	19"	19"	14"	12"
H(1)	5'6"	5'6"	4'6"	2'0"	4'6"	3'6"	3'6"	2'0"
H(2)	3'6"	3'6"	3'0"	2'0"	3'0"	3'0"	2'6"	2'0"

** SOFT = clayey silts, sandy clays or silty clays.
 MEDIUM = medium dense sand, silty sand or clayey sand.
 HARD = sandy gravel or gravel or dry "Red Bluff formation".
 ROCK = fractured or solid sandstone or better.

"D" = Diameter of hole.
 H(1) = Depth of hole, natural soil.
 H(2) = Depth of hole, paved soil.

The soil type determination shall be made by the satellite installer.

MOUNT ASSEMBLY

The MOUNT assy. consists of a 4" sq. tube, the polar "L", turnbuckle and weatherproof housing. (Ref: photo #2)

1. The polar "L" is inserted between the mounting plates on top of the 4" square tube, and is attached using a 5/8" x 3½" bolt, lockwasher and 5/8" nut.
2. The turnbuckle is attached to the polar "L" and to the plate on the back of the 4" square tube using two 5/8" x 1¼" bolts and lockwashers, with the longer piece of the turnbuckle attached to the plate on the 4" square tube.

THE PROPER HOLE IS THE ONE THAT WILL ALLOW YOU TO OBTAIN THE REQUIRED ELEVATION! (REFERENCE STEP #1 ANTENNA ALIGNMENT PROCEDURE)

3. Attach weatherproof housing to the mounting plate on the 4" square tube using two ¼" x 1" bolts and ¼" nuts.
4. After the concrete has set up, slide the mount assembly over the 3" schedule-forty pipe.
5. FIND TRUE NORTH/SOUTH.

Determine from a civil engineer or airport the MAGNETIC DEVIATION for your area. Using a compass or surveying instrument, adjust the FRONT of the mount to TRUE SOUTH. Tighten the four 5/8" x 1¼" set bolts. (Ref. photo 2)

ANTENNA ASSEMBLY

NOTE: DO NOT TIGHTEN ANY HARDWARE UNTIL THE HUB, RIBS AND RINGS ARE COMPLETELY ASSEMBLED.

1. Attached to one rib is the mounting bracket for the azimuth adjusting tube (Ref: photo 16). This rib should be mounted at a 90° angle to the hole pattern for the declination assembly on the back plate. If you live west of 110° west longitude the rib with the azimuth adjusting tube bracket should be to the left as viewed from the back of the antenna. If you live East of 110° west longitude this rib should be to the right (Ref: photo 3)

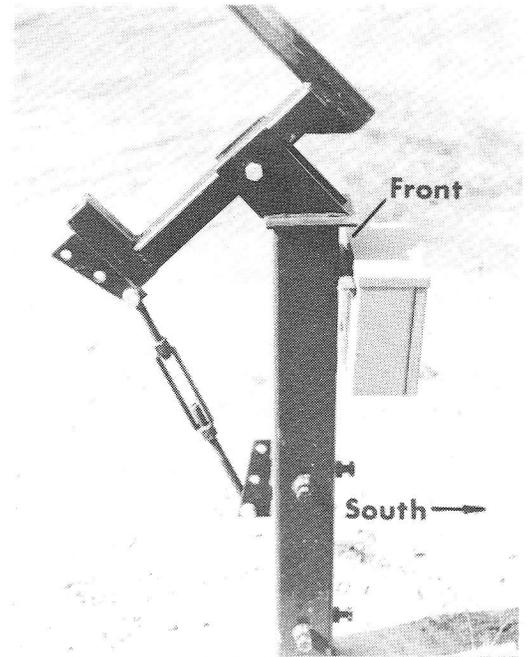


Photo 2

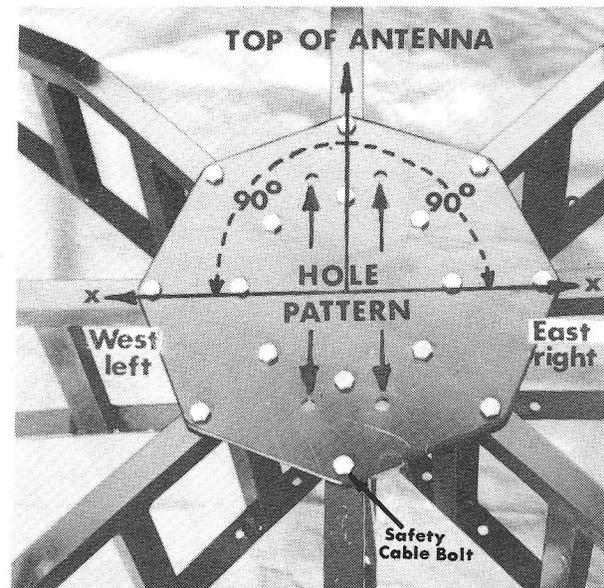


Photo 3

Bolt the eight ribs to the back plate of the hub using sixteen 5/16" x 1-3/4" bolts, sixteen 5/16" flatwashers, and sixteen 5/16" nuts. (Ref: photo 4)

NOTE: It may be necessary to tap the bolts, for the hub plate, through the holes with a hammer. This is due to extra powder-coat in the bolt holes.

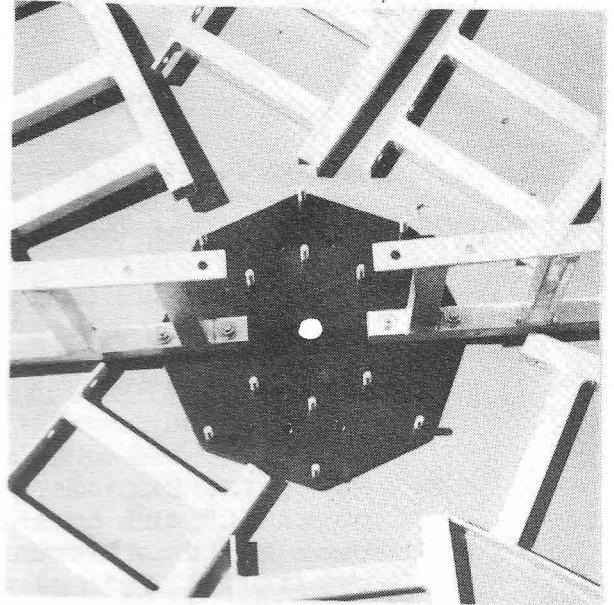


Photo 4

2. Bolt the front plate of the hub to the eight ribs, using sixteen 5/16" x 1" bolts and sixteen 5/16" nuts. (Ref: photo 5)

NOTE: Orientation of plate is not critical.

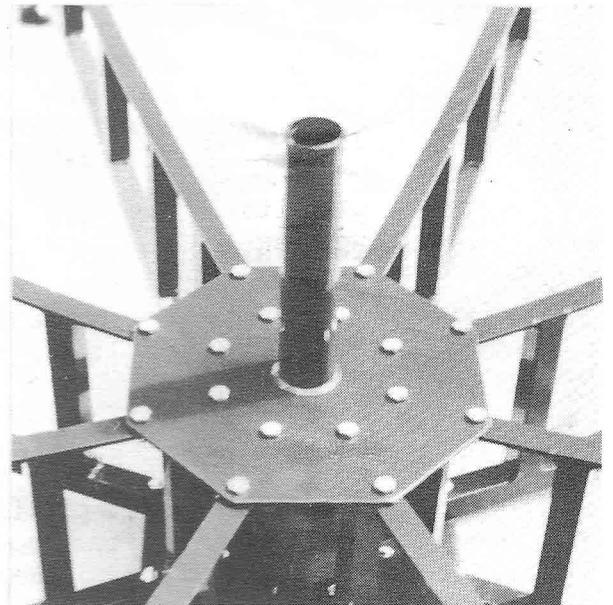


Photo 5

3. The rings are mounted using 1/4" x 1 1/2" bolts and 1/4" nuts. (The 12' antenna requires 80 of each and the 9' antenna requires 64 of each). Mount rings with the flat part of the ring toward the BACK of the antenna. (Ref: photo 6) Attach the rings to the ribs as follows:

- A. The outer-most rings are installed first,
- B. Then the remainder in any order.

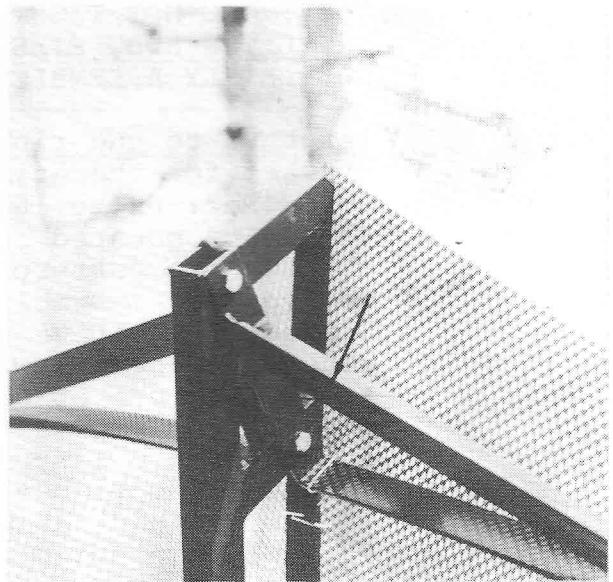


Photo 6

NOTE: WHEN TIGHTENING THE RINGS, THEY SHOULD BE FLUSH WITH THE TOP OF THE RIBS. (Ref: photo 7)

TIGHTEN THE OUTER RING FIRST THEN TIGHTEN ALL REMAINING HUB RIBS & RING BOLTS & NUTS AT THIS TIME.

CAUTION: Be careful not to over-tighten the ring bolts. DO NOT EXCEED TORQUE OF 10 FT. LBS.

NOTE: The following operations require two persons for assembly. One person working inside the antenna, and one working outside the antenna.

NOTE: The "J" clips are used to attach the mesh to the rings, and the "U" clips are used to tie the sections of mesh together AND to the ribs.

4. Position the large mesh, centered, on each rib with the outside edge as flush as possible with the tips of the ribs. (Ref: photo 8) Place a J-clip through the mesh, where it will not bend or bind but will hold the mesh securely to the ring.

NOTE: DO NOT OVERLAP MESH SECTION

Bend the J-Clip tightly around the ring. (Ref: Photo #9 and Diagram below)

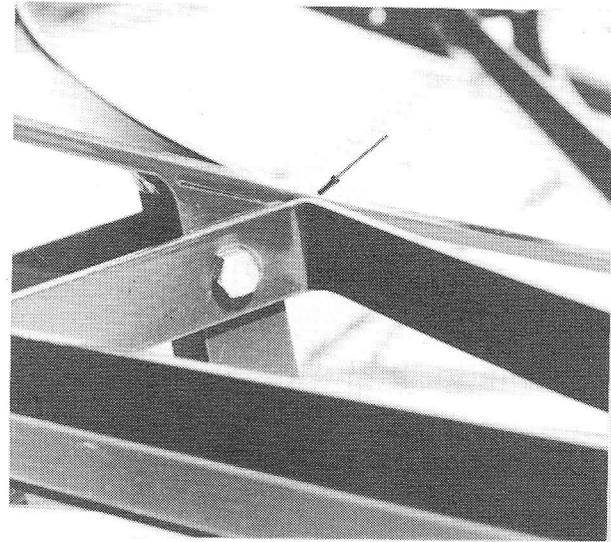
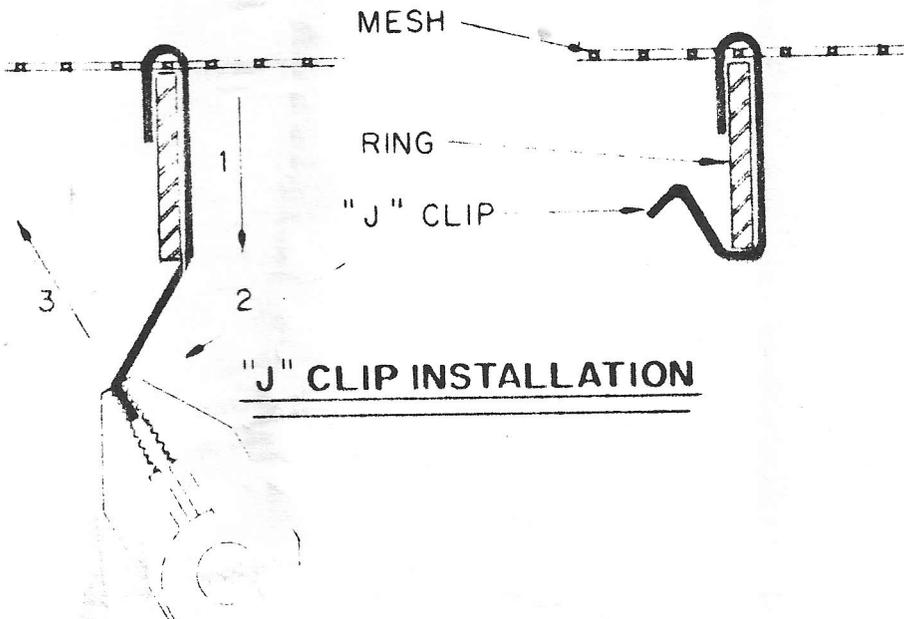


Photo 7

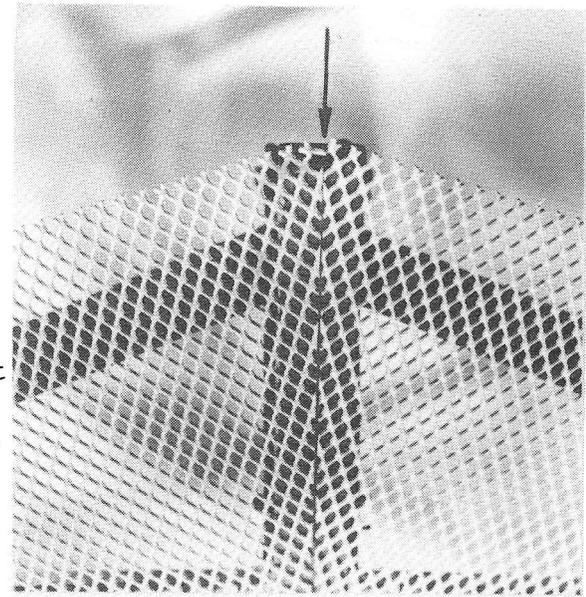


Photo 8

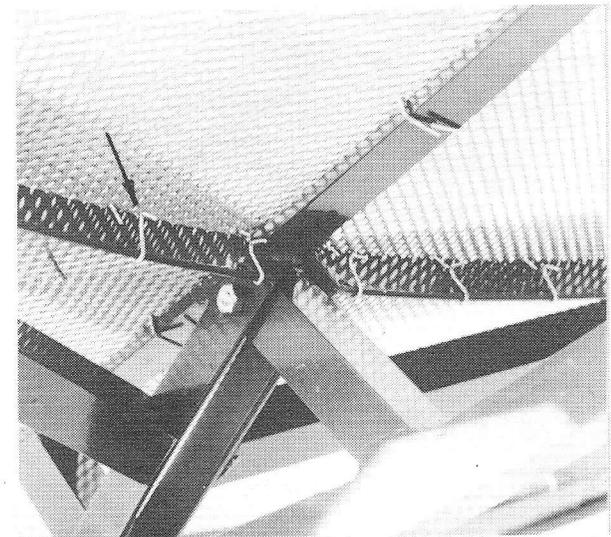
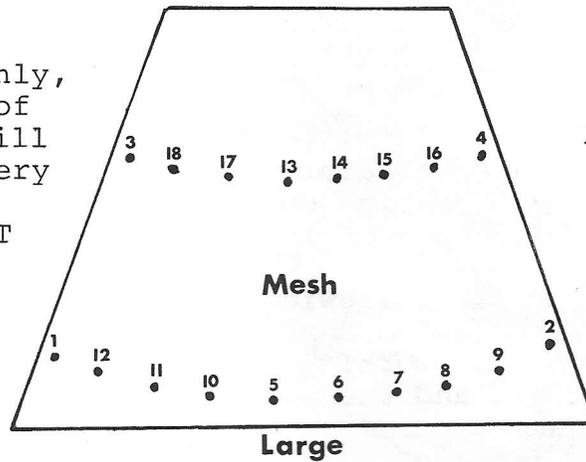
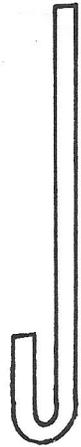


Photo 9

NOTE: The diagram is for reference only, the actual number of J-clips required will vary. One clip every 3 or 4 inches is typical. Mesh MUST be held firmly to ribs and rings.



"J"
CLIP
ACTUAL
SIZE



NOTE: The bottom of the large mesh (edge near center of antenna) will have a tendency to wrinkle as the clips are installed. This is normal, and the wrinkles will be eliminated as the small mesh is attached over the bottom edge of the large mesh.

Complete all eight large sections first.

5. Position the small mesh, centered, on each rib so that it is flush to the hub. (Ref: photo 10) It is easier to install SEVEN sections at this time, leaving out the eighth small piece of mesh until step #9. (Leave out this panel in the lower half of the antenna)

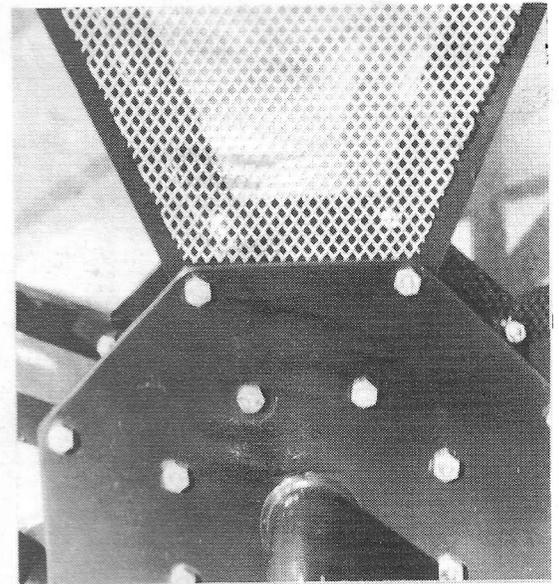
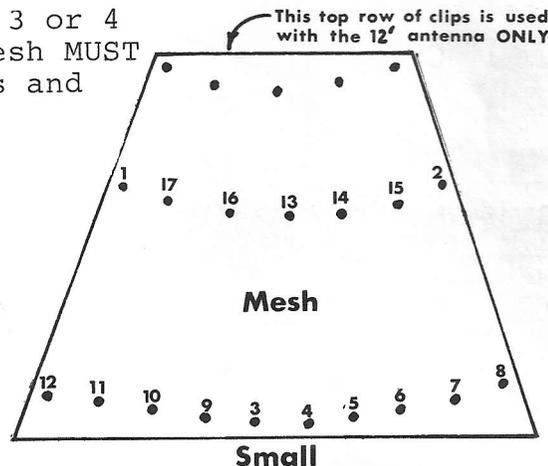


Photo 10

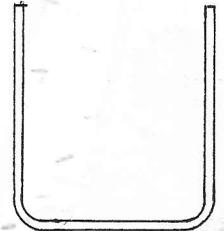
NOTE: The diagram is for reference only, the actual number of J-clips required will vary. One clip every 3 or 4 inches is typical. Mesh MUST be held firmly to ribs and rings.



6. After each small section is installed, tie the two sections together by inserting the "U" clips through the mesh and bend them around the ribs. (Ref: photo 11) Also use these clips to tie the large mesh together and to the ribs.

"U"
CLIP

ACTUAL
SIZE



The silvatrim should be installed at this time. Slip a length of trim over the outer edge of a large mesh panel. Cut off excess. Continue until the antenna edge is trimmed all around. (Add a drop of adhesive, such as silicone rubber at various points along trim edge to attach it permanently to the mesh panels (or use J clips).

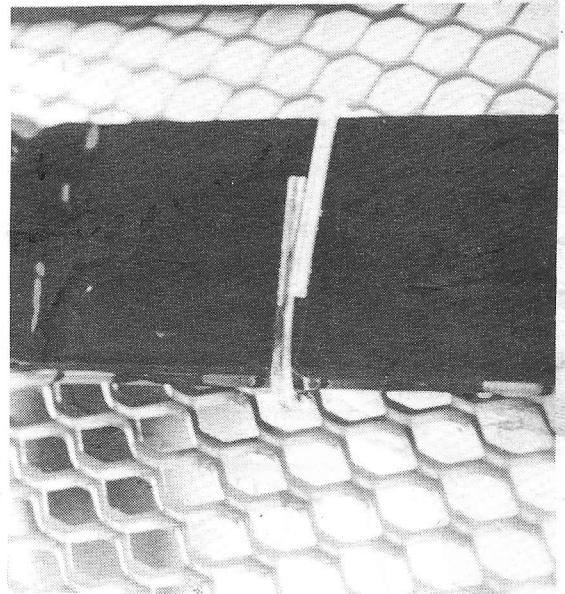


Photo 11

NOTE: You may find it easier to set declination at this time. Refer to "Antenna Alignment Procedure" Step 1B.

NOTE: The declination assembly can be installed two ways. Ensure that the top of the declination assembly, (end with declination adjustment nut), is toward the top of the antenna.

7. Bolt the declination assembly to the back hub plate using four 3/8" x 1" bolts, 3/8" lockwashers and four 3/8" nuts. (Ref: photo 12.)
8. Find the nylon shim in the antenna package and lubricate with petroleum jelly or equivalent. Form the shim and insert it in the declination assembly tube leaving approximately two inches protruding from the tube. Slide antenna onto the polar 'L', being careful not to damage the nylon shim.
9. Rotate antenna until it rests on the ground.

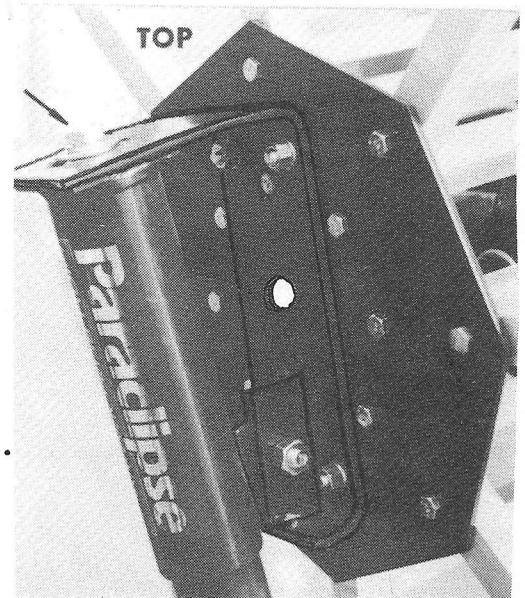


Photo 12

NOTE: AT THIS TIME THE REMAINING SMALL SECTION OF MESH CAN BE INSTALLED.

10. Assemble the polarotor/feedhorn according to the instructions provided with the unit. Add 12' of wire to extend polarotor leads down LNA tube and to reach weatherproof housing. Next, assemble the LNA (or LNC), to the feedhorn and attach to the mounting bracket on the LNA tube. Connect LNA cable (and power cable if required), to the LNA run all wires down the inside of the LNA tube (Ref: photo 13) Check feedhorn alignment per fig. 1 & 2 and adjust if necessary.

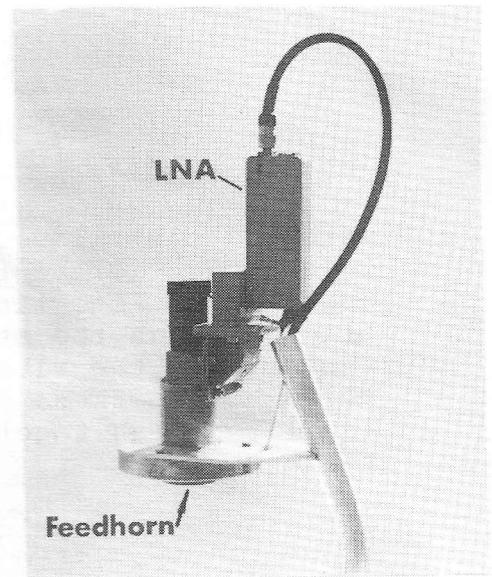


Photo 13

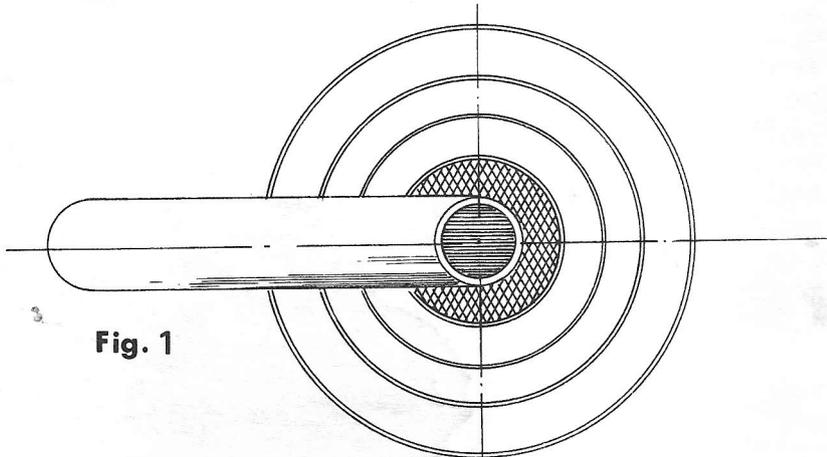


Fig. 1

LNA tube must look as if it went directly into the center of the feedhorn opening perfectly centered.

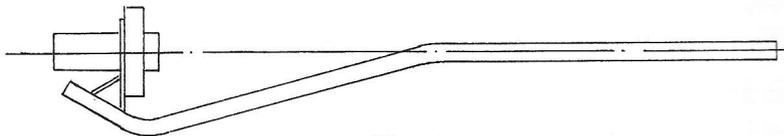


Fig. 2

LNA must look precisely down center of LNA tube.

11. Slide the LNA tube through the front plate until it is seated into hole of back plate.

NOTE: The LNA and polarotor, etc., wires will go through the one inch hole in the declination assembly bracket. Secure the LNA tube with the "U" clamp and two $\frac{1}{4}$ " nuts. The bracket for the "U" clamp is located on the back side of the front plate. (Ref: photo 14 & 15) With the LNA tube seated into the back plate, your feed system is at the correct focal length and no adjustment is necessary when using our feed.

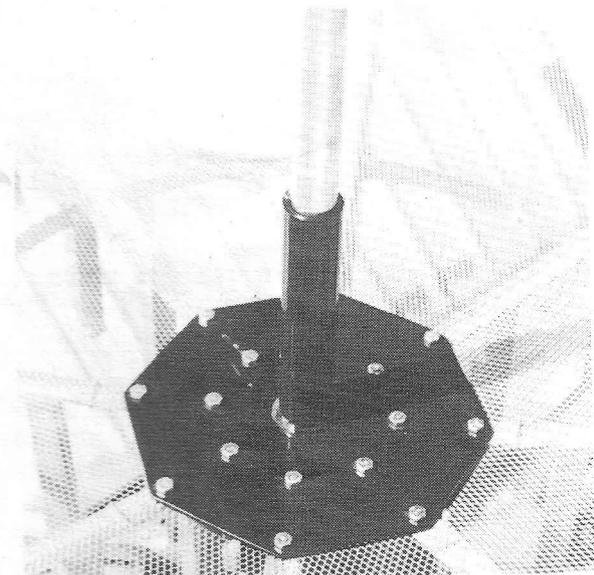


Photo 14

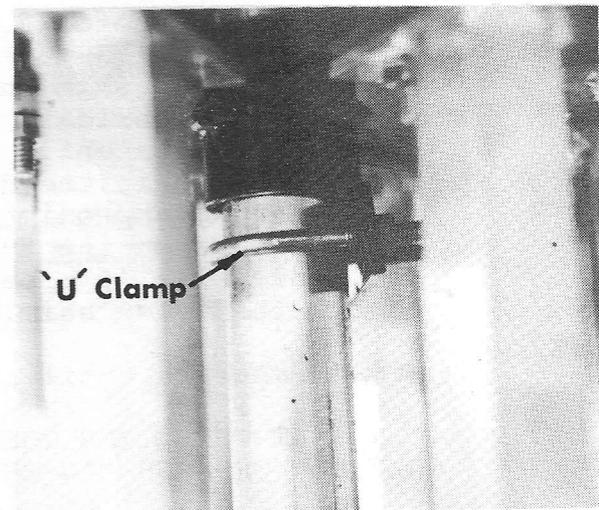


Photo 15

12. Attach the azimuth adjusting tube to the bracket on the rib using a 5/16" x 1-3/4" bolt, three 5/16" flatwashers and a 5/16" lock nut (included on bracket) (Ref: photo 16).
13. Slide the azimuth tube inside the azimuth adjuster and attach the adjuster to the polar "L", using the hardware supplied. Tighten the bolt until it is snug, then tighten the nut to the polar "L" so as to lock the bolt into the polar "L". This will prevent the bolt from backing out. (Ref: photo 17 & 18)
14. Attach the end of the safety cable, with the "eye", to the outside bolt holding the lower rib to the back plate. (Ref: Fig. 3) This is accomplished by removing the nut and bolt from the rib and adding a 5/16" washer over the bolt. Insert bolt through the eye of the cable and one more 5/16" washer, and install as before. (be sure to reinstall the original washer next to the nut). Retighten the nut and bolt.

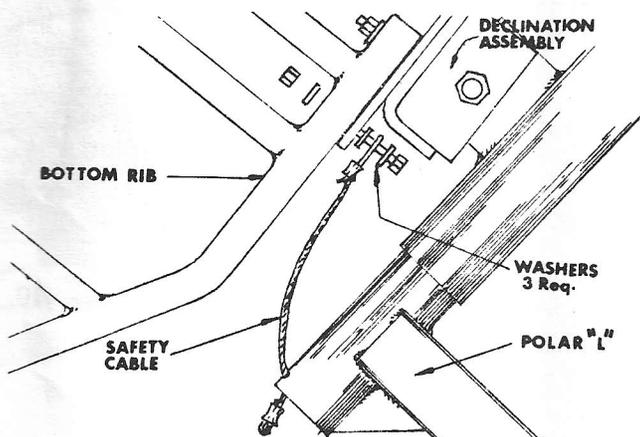


Fig. 3

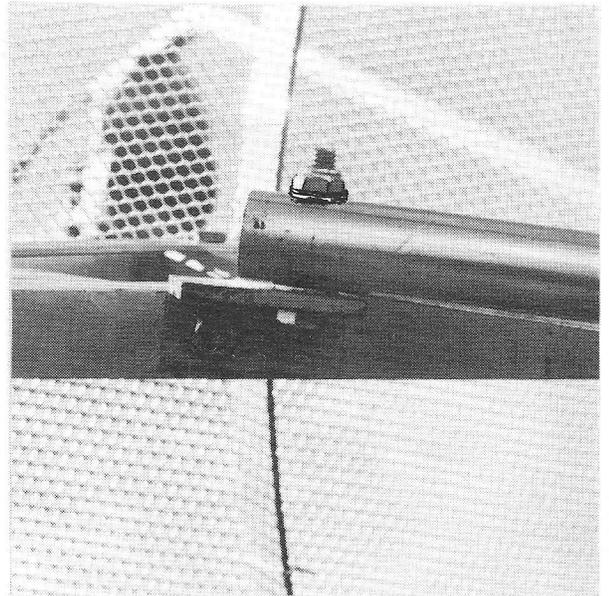


Photo 16

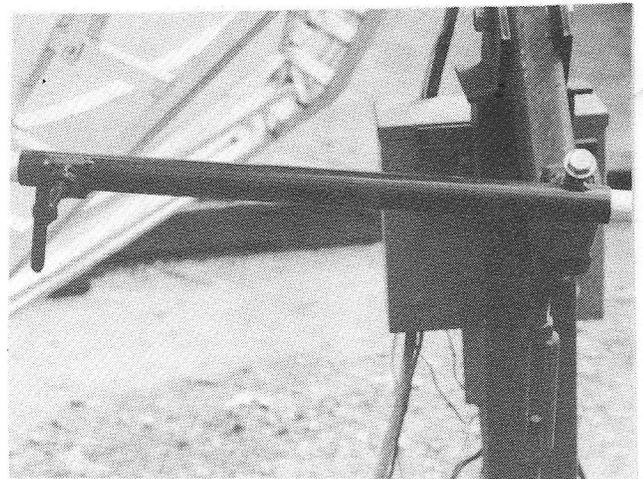


Photo 17

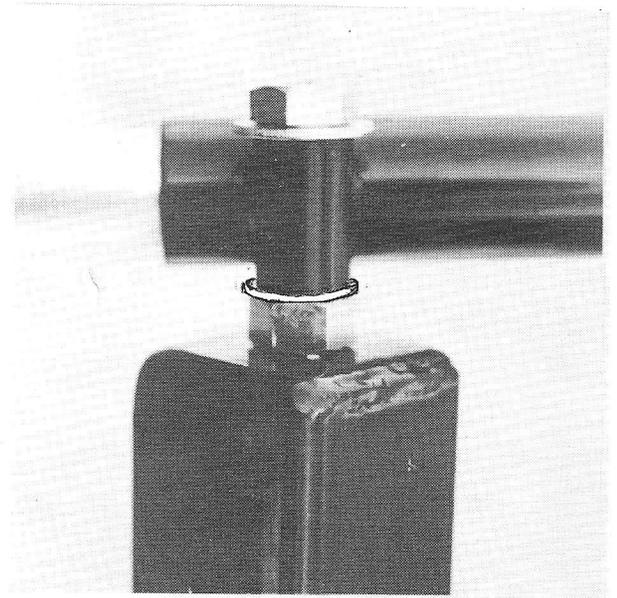


Photo 18

ANTENNA ALIGNMENT PROCEDURE

1. Set antenna elevation and declination. Elevation and declination will vary with the latitude of your location.

The following chart can be used as a guideline for setting up your antenna.

<u>LATITUDE</u>	<u>POLAR "L" ELEVATION</u>	<u>DECLINATION</u>
10°	79.5°	1.5°
15°	75.3°	2.3°
20°	69.9°	2.9°
25°	64.7°	3.7°
30°	59.3°	4.3°
35°	54.0°	5.0°
40°	49.6°	5.6°
45°	44.1°	6.1°
50°	39.6°	6.6°
55°	35.1°	7.1°

- A. Measure the elevation by placing the inclinometer on the polar "L" and adjust turnbuckle to the desired elevation. (Ref: photo 19)

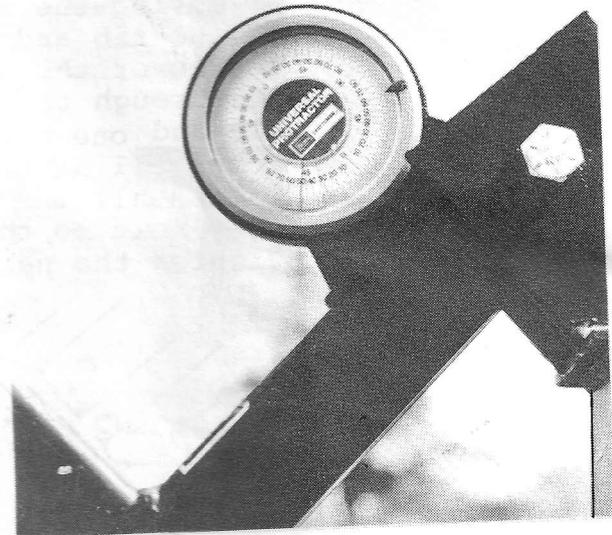
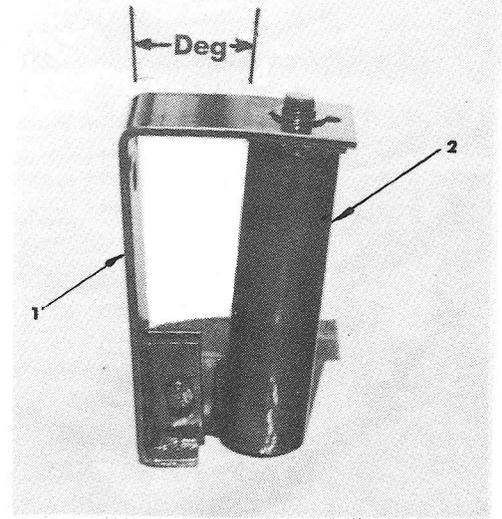


Photo 19

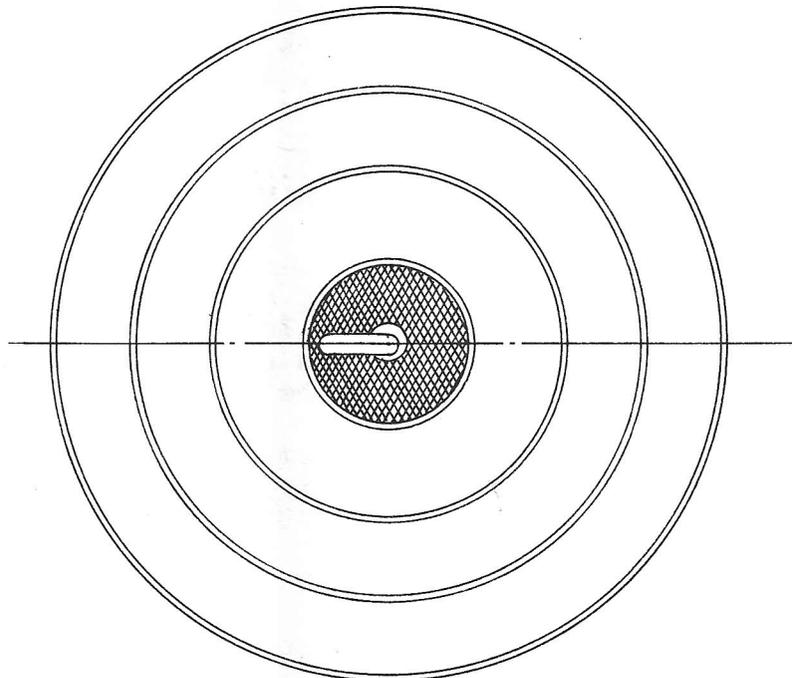
- B. Declination is the angular displacement between the back plate (1) and the mounting tube (2) portion of the declination assembly. (Ref. photo 20)

Look up the declination angle for your antenna location latitude using the ELEVATION AND DECLINATION GUIDE. Set angle with an inclinometer or protractor.



2. Assemble all electronics at the antenna. Connect and TRIPLE CHECK all wires, cables and connectors to all equipment, per the manufacturers instructions.
3. Turn on all equipment.
4. SET POLAROTOR TO HORIZONTAL POLARIZATION. (probe in feedhorn horizontal to receive even transponders, i.e., 2, 4, 6 etc.). (Ref: Fig. 4)

Fig. 4



5. It is necessary to search for the first satellite. Refer to "Satellite Location Guide" (found on pg 18). First, locate your area on the map - Next, determine the most southerly satellite from your location. Start with antenna balanced, or centered, on mount. To begin searching, turn on SCAN TUNE. If your receiver is NOT so equipped, have someone slowly tune the receiver through the transponders. Now, turn antenna, using the azimuth tube, slightly left or right from mid-position in the direction of "your" satellite.

Systematically search for a satellite by making one-turn-at-a-time adjustments of the ELEVATION TURNBUCKLE. With each adjustment of elevation SLOWLY swing the antenna from east to west, using the AZIMUTH ADJUSTMENT, while looking for a signal on your TV.

IF NO SIGNAL IS TO BE FOUND:

- A. Re-check all wires, cables and connections.
- B. Check TV Tuner for proper channel.
- C. Check NORTH/SOUTH ALIGNMENT of mount.
- D. Check elevation setting.

6. WHEN YOU FIND YOUR FIRST SATELLITE:

- A. Turn off scan tune and adjust to an active transponder.
- B. Carefully adjust elevation and azimuth to MAXIMUM SIGNAL STRENGTH using SIGNAL STRENGTH METER on receiver. Or if available, use a digital or analog Volt-Ohm meter (VOM). You may also adjust visually by observing the TV for best picture.

Make a temporary mark on the azimuth tube, with a marking pen or such, indicating each satellite found.

- C. Turn on SCAN TUNE and swing antenna LOOKING FOR OTHER SATELLITES. IF NO OTHER SATELLITES ARE VISIBLE, THE MOUNT IS NOT ALIGNED TO TRUE NORTH/SOUTH. To correct this situation,
 - A. Systematically make SMALL adjustments to NORTH/SOUTH alignment. With each NORTH/SOUTH adjustment, an adjustment of ELEVATION and AZIMUTH must be made.
 - B. Continue systematic adjustment until ALL satellites are visible with only EAST-WEST (AZIMUTH) ADJUSTMENT REQUIRED.

7. FINE-TUNING OF ANTENNA MOUNT.

- A. Swing antenna to the most westerly satellite.
- B. Adjust azimuth and elevation for ABSOLUTE MAXIMUM SIGNAL.
- C. Swing antenna to most EASTERLY satellite.

- D. If ANY elevation adjustment is required to peak signal on this satellite, NORTH/SOUTH ALIGNMENT still needs minor error correction.
- E. If the elevation adjustment (turnbuckle) on the easterly satellite involves RAISING the antenna to improve the picture, rotate mount SLIGHTLY (JUST A FRACTION OF AN INCH!) - COUNTERCLOCKWISE.

NOTE: If elevation adjustment is done using westerly satellite: Up = clockwise and Down = counterclockwise, in above procedure.

- 8. Repeat step 7 until there is no adjustment needed from most westerly to most easterly satellite.
- 9. Adjust antenna to the satellite CLOSEST to the center of the arc.

If ELEVATION ADJUSTMENT is required to peak signal on this satellite, ADJUST DECLINATION and ELEVATION until most WESTERLY, the MIDDLE and the most EASTERLY satellites require NO ELEVATION ADJUSTMENT TO PEAK SIGNAL.

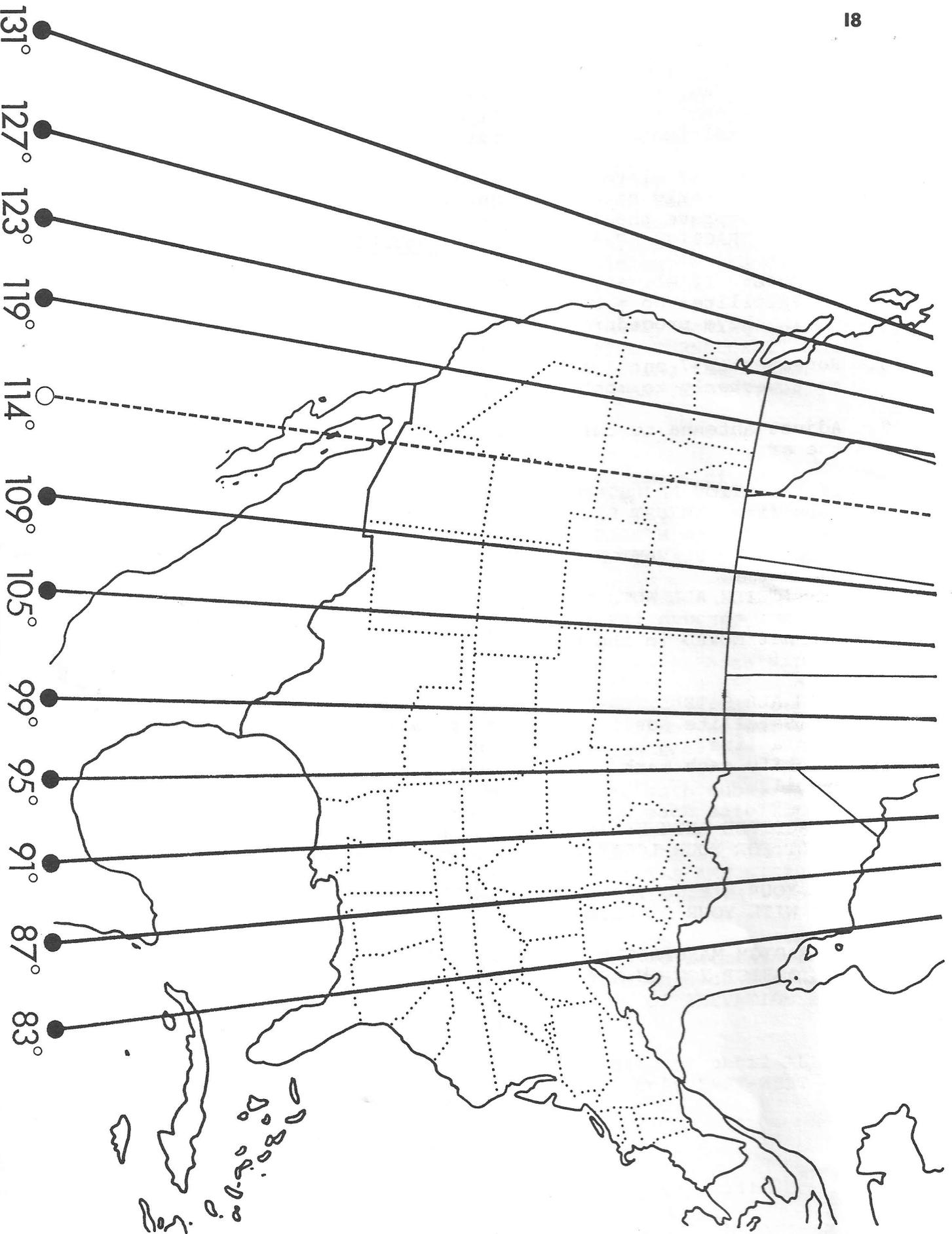
- 10. RE-TIGHTEN ALL NUTS AND BOLTS ON MOUNT FIRMLY. Run antenna through its paces one more time to be SURE mount was not MOVED in the process of tightening the nuts and bolts!
- 11. WHEN ALL SATELLITES ARE PEAKED-IN AT THEIR MAXIMUM, mark all Satellite positions on the azimuth adjustment tube with a line. A hack-saw works well for this operation. Identify each mark with a Dremel Mototool or vibrating pencil.

YOUR PARACLIPSE ANTENNA IS NOW ALIGNED TO TRACK THE CLARKE ORBIT BELT FOR YOUR LOCATION.

COMPLETE YOUR WIRING TO THE TV VIEWING LOCATION, PER INSTRUCTIONS PROVIDED WITH YOUR RECEIVER.

WE AT PARADIGM MANUFACTURING, INC., ARE PROUD OF OUR PRODUCT, AND WILL ASSIST YOU IN ANY WAY WE CAN.

SATELLITE LOCATION GUIDE



31104 - PARACLIPSE MOTOR DRIVE INSTALLATION

NOTE: This procedure is written for an 18" throw actuator

1. Install the rib bracket on the same rib that held the azimuth tube bracket. The bracket is positioned approximately 15" from the edge of the back hub plate to the center of the bracket. (Ref: Fig. 1) Drill three 5/16" holes through the rib and rib brace, using the bracket holes as a guide. Bolt the bracket to the rib and brace using (3) 5/16" x 2" bolts. Secure the bracket, using three 5/16" flatwashers and three 5/16" nyloc nuts.
2. Mount the actuator clamp to the main body of the actuator using two 5/16" x 2" U bolts, four 5/16" flatwashers and four 5/16" nyloc nuts. Temporarily tighten to body of actuator near the motor. (Ref: Fig. 2)

NOTE: Motor should be installed in an upward position.

3. Install 1/2" x 7/16" spacer bushing in the clamp mounting hole, then bolt the actuator clamp to the "Polar L" using 1/2 x 1 1/2" bolt, lockwasher, and flatwasher. (Ref: Fig. 2)

NOTE: The actuator must be fitted with a heim bearing welded to its end to interface with the rib bracket.

4. Install the 1/2" x 1 1/4" spacer bushing in the heim bearing at the screw jack end of the actuator, then mount the actuator to the rib bracket using one 1/2" x 2-3/4" bolt, lockwasher, and nut. (Ref: Fig. 1)

NOTE: The actuator should be delivered from factory with 1/4" hole in gear housing and jack to gear housing sealed. If not refer to step 5.

5. Drill 1/4" hole in gear housing and seal jack to gear housing with silicone sealant or equivalent (Ref: Fig. 2).
6. The actuator must finally be adjusted to permit full coverage of the existing satellites, and ensure that the actuator can operate over its full range without damaging the antenna or actuator. The effective length of the actuator is set by the position of the actuator in the clamp.

#65094 - Actuator Rib Bracket
& Hardware Kit

#65093 - Actuator Clamp
& Hardware Kit

Part #

Part #

650955 - Actuator rib bracket	(1)	65099 - Actuator Clamp	(1) - E
55061 - 5/16" x 2" bolt	(3)	52090 - 1/2" x 1 1/2" bolt	(1) - A
55062 - 5/16" flatwasher	(3)	52092 - 1/2" lockwasher	(1) - B
55020 - 5/16" nyloc nuts	(3)	52088 - 1/2" flatwasher	(1) - C
55110 - 1/2" 2-3/4" bolt	(1)	52098 - 1/2" x 7/16" spacer	(1) - D
52092 - 1/2" lockwasher	(1)	55111 - 5/16" x 2" u-bolts	(2)
52089 - 1/2" nut	(1)	55062 - 5/16" flatwashers	(4)
65097 - 1/2" x 1 1/4" spacer	(1)	52020 - 5/16" nyloc nuts	(4)
		54031 - Heim bearing	(1) (optional)

Over

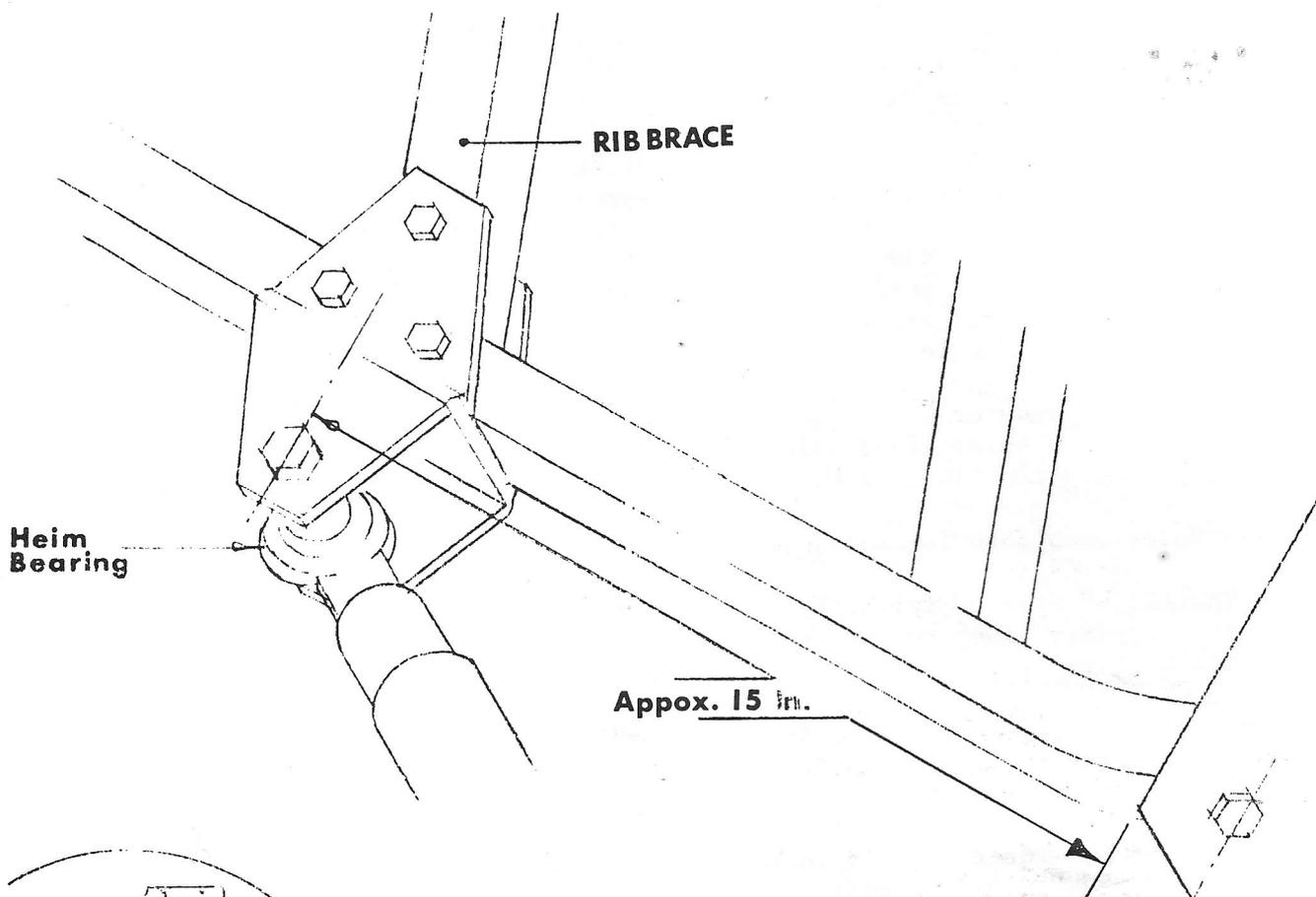


FIG. 1

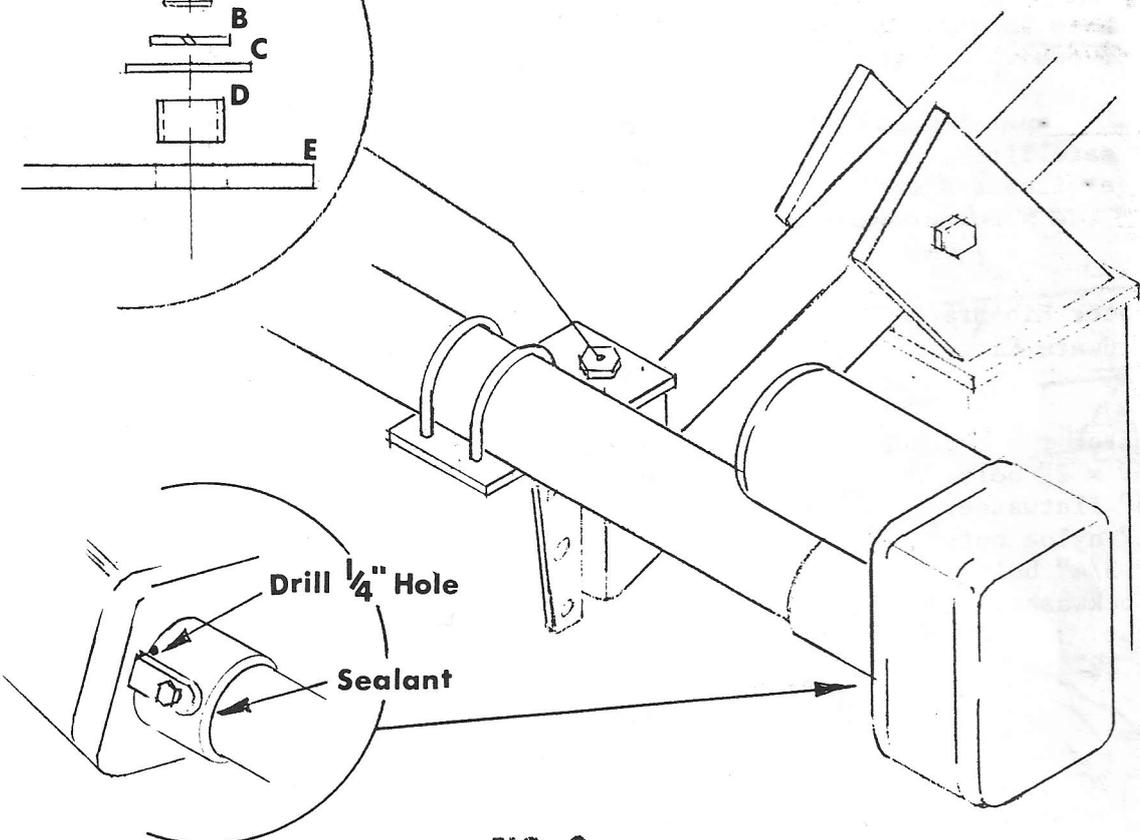
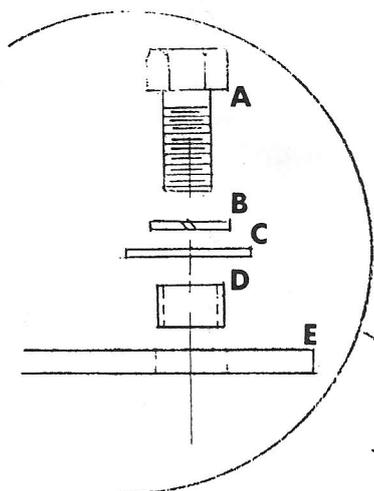


FIG. 2