

WINEGARD®

10' (3 METER) PINNACLE™ TVRO ANTENNA* AND MOUNT

INSTRUCTIONS

**NOTICE: THIS ANTENNA HAS AN F/D OF .278. FOR
BEST PERFORMANCE, USE A FEEDHORN DESIGNED
TO ILLUMINATE AN ANTENNA WITH AN F/D OF .278.**

*U.S. Patent No. 4,860,222, 4,766,443, 4,568,945, D285,685;
D285,074, D285,792

**Winegard Company
3000 Kirkwood St., Burlington, IA 52601**

Printed in U.S.A. 2451899 Rev. 6-90
© WINEGARD COMPANY, 1990.

INSTRUCTIONS

Inspect for damage and make sure all parts are accounted for.

PARTS LIST

Package 1 (BK-0726)

- 1 Dish Support Assembly (Back-up Structure)

Package 2 (MT-0746)

- 1 Pivot Beam/Latitude Head Assembly
- 1 Mount Base
- 4 Dish Support Brackets

Hardware Package 2762297

- 1 Elevation Adj. Block 2590407
- 10 Cap Screw 3/8"-24x1.0" 2160242
- 2 Cap Screw 3/8"-24x4.0" 2160256
- 3 Cap Screw 1/2"-13x1.5" 2160314
- 4 Cap Screw 1/2"-13x3.0" 2160262
- 7 Hex Nut 1/2"-13 Nylok 2160292
- 2 Hex Nut 7/16"-16 Jam 2160296
- 8 Hex Nut 3/8"-24 Nylok 2160297
- 4 Washer 3/8" Int. Lock 2160028
- 8 Washer Flat 3/8" 2160029
- 11 Washer 1/2" Flat 2160034
- 2 Washer 7/16" Int. Lock 2160036
- 8 Washer 1/4" Split Lock 2160031
- 8 Cap Screw, 1/4"-20x7/8" 2160240
- 8 Hex Nut, 1/4"-20 2160221

Package 3 (CK-1090)

- 8 Reflector Segments
- 1 Feed Housing
- 1 Feed Housing Insert

**Package 4 (QF-1090)
(Quad Leg Feed Support Option)**

- 4 Quad Feed Support Legs
- 1 Center Support Plate
- 1 Clamp Plate

Hardware Package 2762315

- 1 Plastic Center Plug 2200071
- 36 Bolts 1/4"-20x7/8" 2160240
- 46 Hex Nuts 1/4"-20 2160221
- 38 Lock Washer 1/4" 2160031
- 8 Flat Washer 1/4" 7800245
- 4 Washers #10 Aluminum 1140302
- 12 #10x1/2" Thread Cutting Screws 2160194
- 1 4oz. Can Smoked Chrome Paint 2680002

Package 5 (BF-1090 and BF-1091)

- 1 Buttonhook
- 1 Clamp Plate
- 1 Buttonhook Support Plate

Hardware Package 2762282

- 36 Bolts 1/4"-20x7/8" 2160240
- 42 Hex Nuts 1/4"-20 2160221
- 42 Lock Washers 1/4" 2160031
- 4 Washers Flat 1/4" 7800245
- 4 Washer Flat Aluminum #10 1140302
- 4 Screw #10x1/2" Thread Cutting 2160194
- 1 4oz. Can of Smoked Chrome Paint 2680002
- 1 Buttonhook Clamp Assembly 2162020

WINEGARD MOUNT DISCLAIMER:
NOTE: To insure maximum safety, Winegard recommends no roof or wall installation be attempted without a professional engineer's structural analysis. Local zoning and/or building codes and insurance companies may require architect or structural engineer approval prior to installation. It is the purchaser's responsibility to verify that the above steps are taken.

Antenna Specifications

- Reflector Diameter: 10' (3 Meters)
- Surface Tolerance: +.030"
- Hole Size: .078", 36% open
- Frequency Range:
 - C-Band: 3.7-4.2GHz
 - Ku-Band: 10.9-12.7GHz
- Gain:
 - C-Band: -40.4dB
 - Ku-Band: 11.2GHz-48.5dB
 - 11.9GHz-49.0dB
 - 12.7GHz-49.6dB
- Half-power Beamwidth: 16°
- F/D ratio: 0.278
- Cross Polarization: -25dB down
- Side Lobes: 20dB down
- Feed Type: Prime Focus
- Depth: 27" Focal Length: 33-5/16"
- Gauge: .040 perforated aluminum
- Operating Temperature: -40°F to +140°F
- Wind Survival: 90mph
- Finish: Smoked chrome powder coat
- Shipping Weight: 130.5 lbs. (Reflector)
- Carton Size: 84" L x 56" W x 15" D

SITE SELECTION

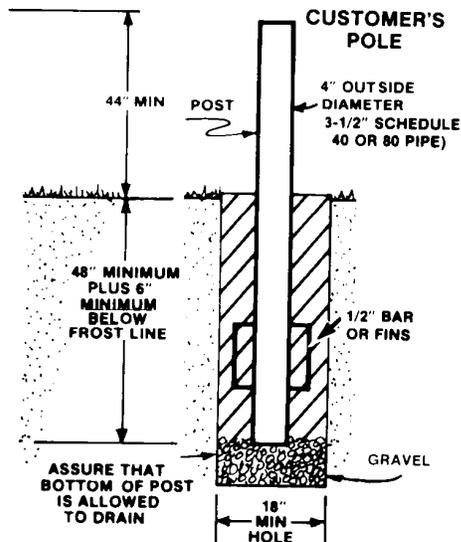
Your Winegard EARTH STATION ANTENNA is designed to capture the very weak signals being transmitted by geostationary satellites over 22,000 miles away. The large surface of the dish must precisely reflect and focus the radio waves to the feedhorn and LNB. Because the microwave signal is extremely weak, the antenna system must be as efficient as possible. Proper site selection and installation are essential to the proper operation and enjoyment of your Earth Station.

Any obstructions between your antenna and the satellite will degrade the signal level and, subsequently, your picture quality. Objects such as trees, buildings, utility poles, bushes, etc. will interfere with the microwave signal if they are in a direct line between the reflecting surface of the dish and the satellite.

A site for the antenna should be selected that offers an unrestricted view of the entire satellite belt. Take into account future tree growth and future use of the area immediately in front of the anticipated dish position.

SITE PREPARATION

Because of the large surface area of the reflector, the load transmitted to the base can be very great in moderate to severe winds. The local area around the antenna site will determine the type of support structure necessary. In a heavily treed area or low area with hills surrounding, the wind will not usually be as severe as that in an open area, hilltop location or top-of-building site.

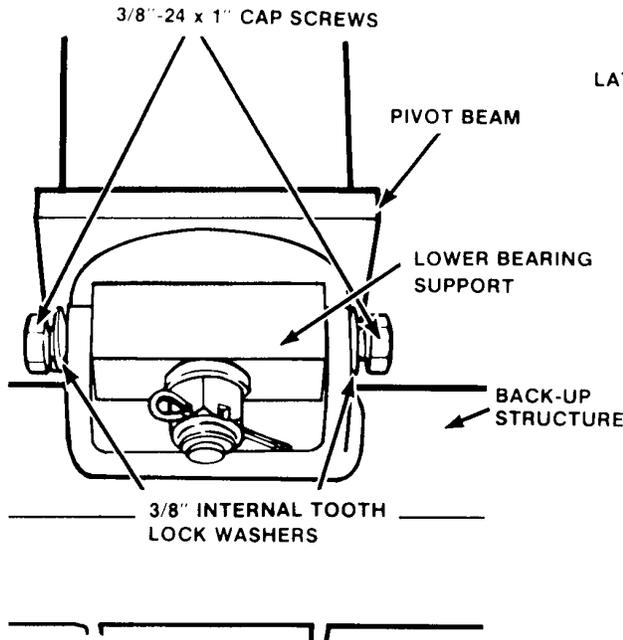


CAUTION: The installation shown here is adequate in some areas. However, the Winegard Company recommends that a registered professional engineer be consulted to secure a soil analysis at the antenna site to determine the bearing strength of the soil.

MOUNT ASSEMBLY

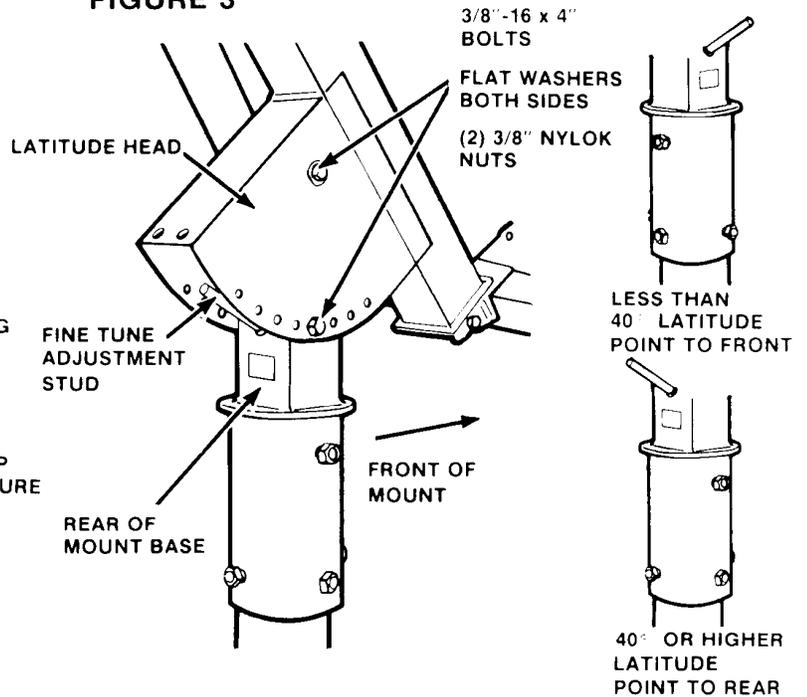
STEP 1. Attach lower bearing support to back-up structure with (2) 3/8"-24 x 1" screws. See figure 1.

FIGURE 1



STEP 3. Attach mount base to latitude head on pivot beam/back-up structure assembly. Use 3/8"-16 x 4" bolts with flat washers both sides and secure with 3/8" nylok nuts. See figure 3.

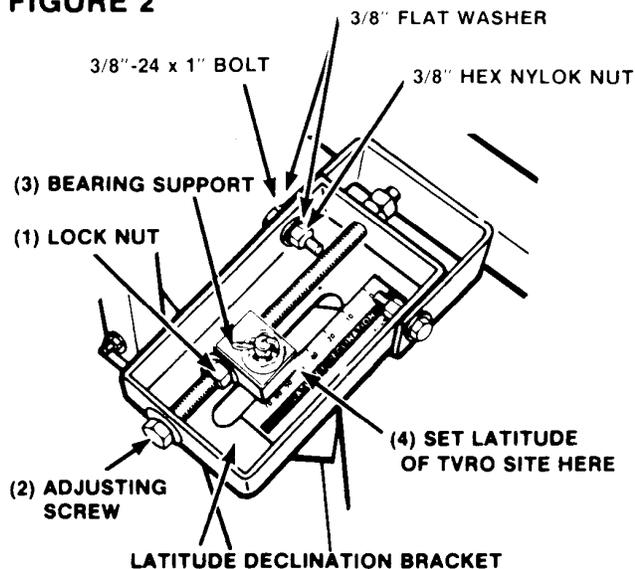
FIGURE 3



NOTE: Where latitude of antenna site is less than 40° rotate mount base 180° so fine tune adjust is on front side of mount.

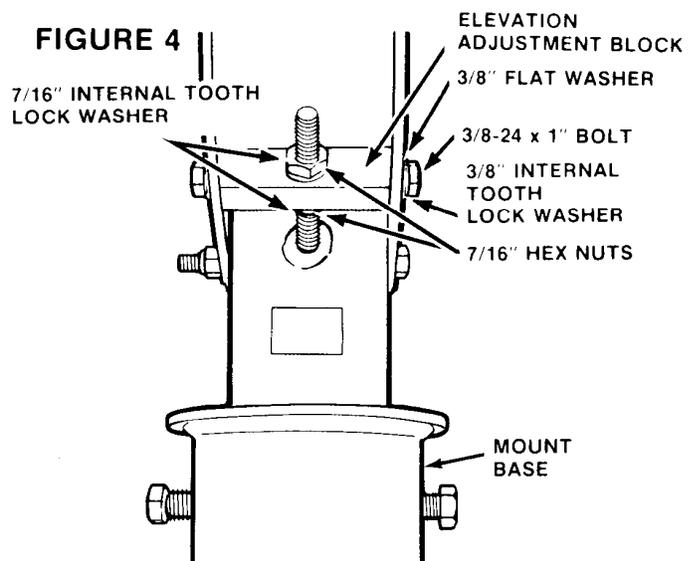
STEP 2. Attach upper bearing support and declination bracket to back-up structure with two 3/8"-24 x 1" bolts. Use (2) flat washers and nylok nut on each bolt.

FIGURE 2



STEP 4. Assemble fine tune adjustment hardware on fine tune stud between latitude head side plates. See figure 4. Place 7/16" internal tooth lock washer and 7/16" hex nuts on each side of adjustment block. See figure 4. Slide mount base over mount pipe and adjust locking bolts so pivot beam is plumb left to right.

FIGURE 4



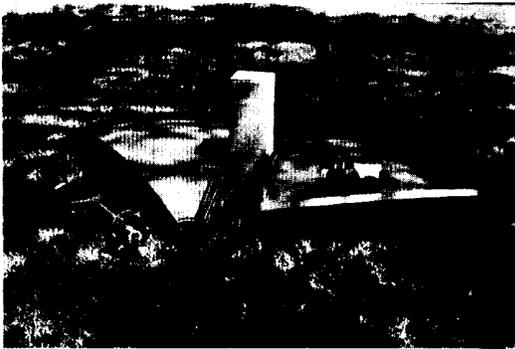
REFLECTOR ASSEMBLY

INSTRUCTIONS

NOTE: Reflector assembly requires one person and the tools listed.

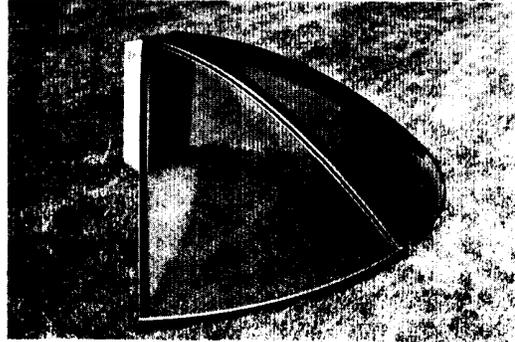
- 1 Tapered alignment pin 1/8" to 3/8", 6" long
- 1 Small vice grip pliers with tape on jaws to protect paint on ribs
- 2 7/16" open or box end wrenches
- 1 1/2" open end wrench
- 1 Box or cardboard tube about 27" high to support center of reflector

STEP 1. A level surface about 12' square is required for assembly of reflector. Lay down protective covering if necessary to prevent damage to painted surface of reflector.

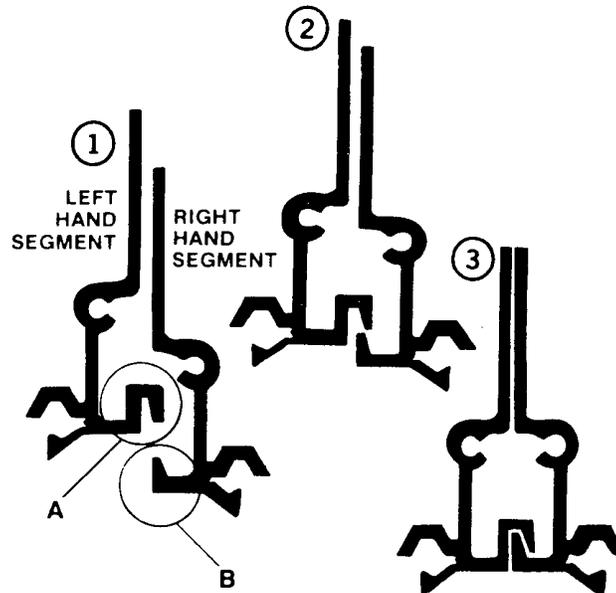
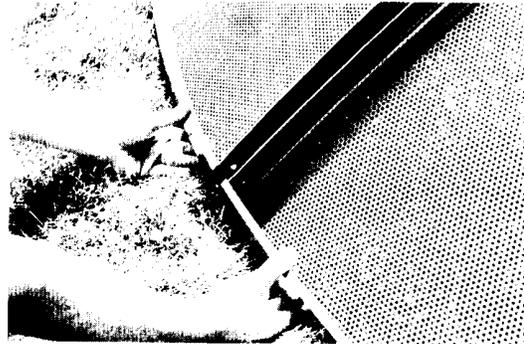


STEP 2. Place 27" support in center of area and two segments of reflector next to each other with center hubs on support.

SUPPORT CENTER ABOUT 27" OFF FLOOR



At outside rim area (not center), lift up left hand segment about 1/2". Begin to interlock ribs together.

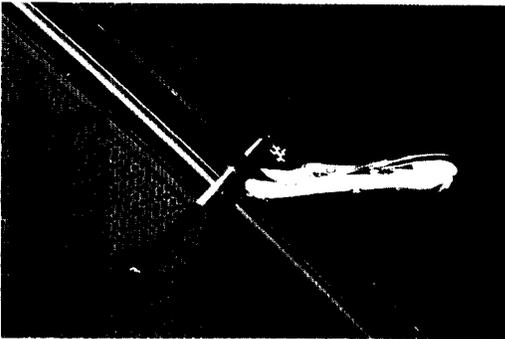


Interlocking section (A) on left-hand segment goes inside Interlocking section (B) of right-hand segment. Ribs must start to interlock before alignment pin can be inserted.

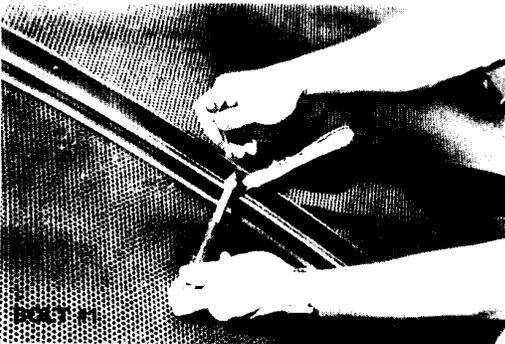
STEP 3. In second hole from outside rim, insert alignment pin and pinch ribs together at same time. Alignment pin will interlock ribs, as it is inserted, if they are aligned as in Step 2.



Make sure pin is in as far as it will go, so bolt hole is perfectly aligned. **Clamp ribs together close to pin with vice grip pliers.**

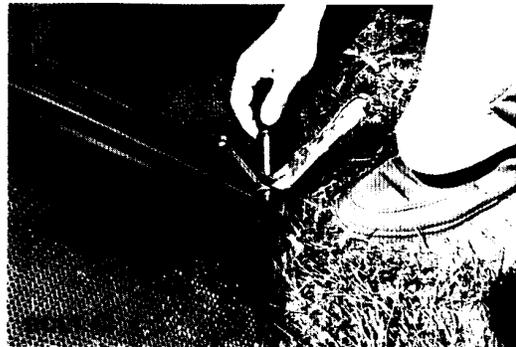
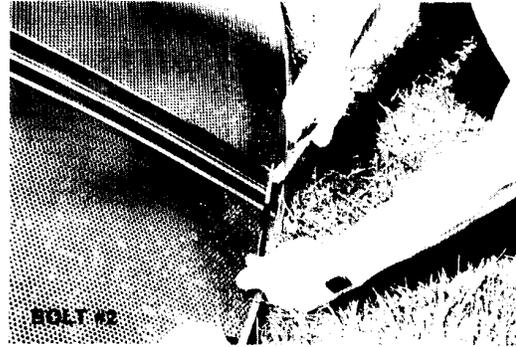


Remove alignment pin, insert 1/4"-20x7/8" bolt, add lockwasher, nut and **tighten**. Remove vice grip pliers.

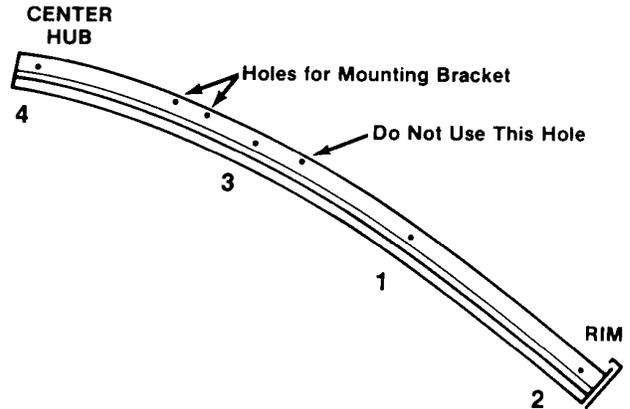


NOTE: Each hole is aligned in same way: insert pin, clamp, remove pin, install bolt and tighten.

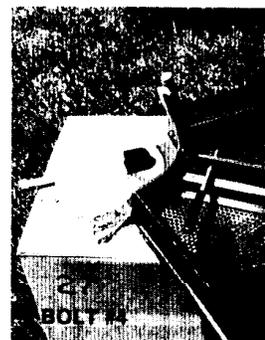
STEP 4. Insert alignment pin in hole next to rim (#2), clamp - remove pin - install bolt and tighten.



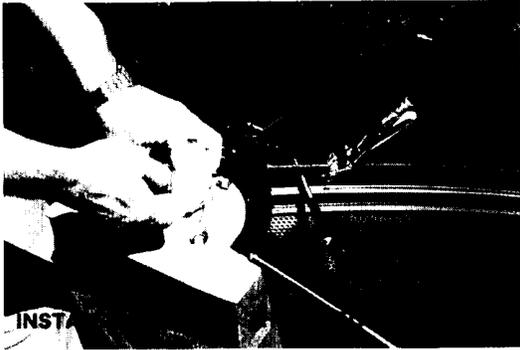
INSTALL BOLTS IN THIS ORDER



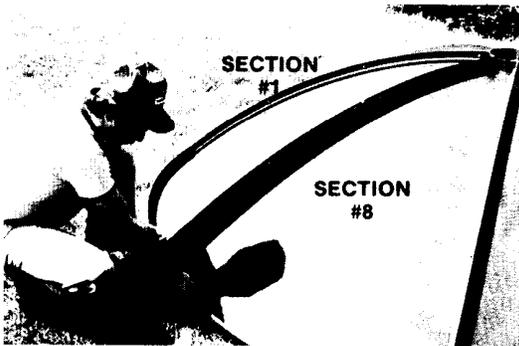
Install two more bolts in same way in holes 3 and 4.



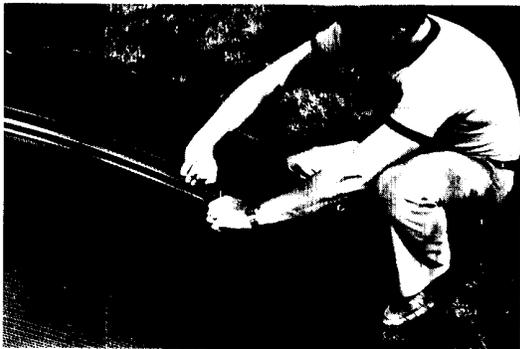
STEP 5. Add third segment at left side of first two (clockwise) and connect as described in Steps 3 and 4. Repeat with remaining sections.



STEP 6. Attach final rib of last section #8 to #1. Lift #1 segment at outer edge until ribs at hub start to interlock.



Insert pin in second hole from rim while pinching ribs together, clamp with vice grip pliers and install bolt. Finish connecting rib as in Step 4.

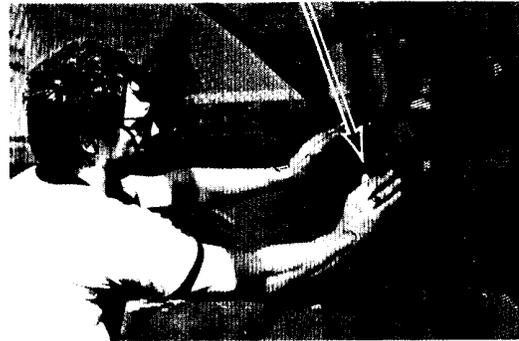


NOTE: We recommend that the center support plate or buttonhook support be installed in the center hub after the reflector is attached to the mount.

Reflector mounting brackets and hardware are included with the mount package. Refer to Steps 4 and 5 of mount instructions for details of attaching reflector to mount.

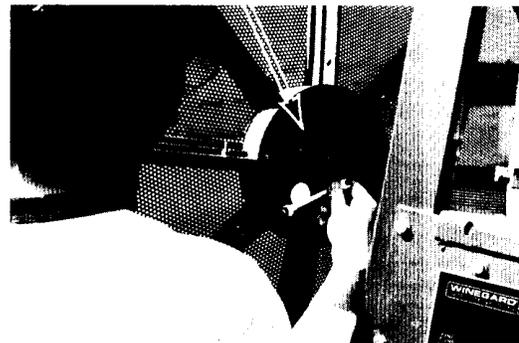
STEP 7. Place buttonhook support or center support plate in center hub of reflector and center.

BUTTONHOOK SUPPORT



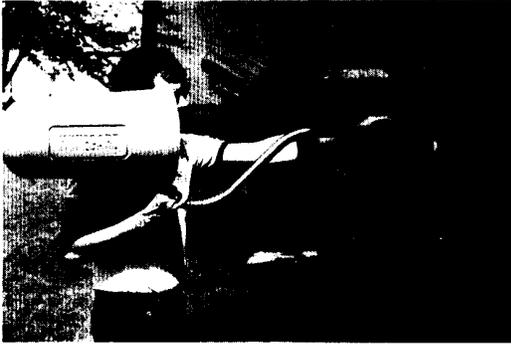
Have second person install clamp plate on reverse side; add lock washers and nuts and tighten. Tighten nuts evenly in diagonal pattern - #1-4-2-5-3-6.

CLAMP PLATE



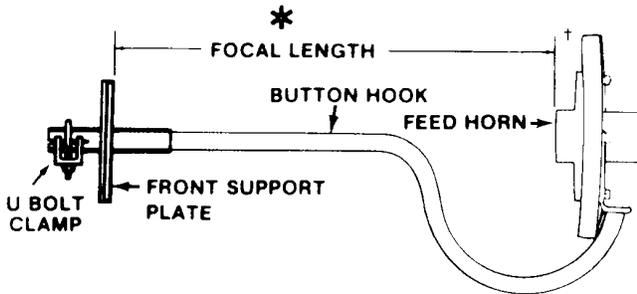
BUTTONHOOK FEED SUPPORT ASSEMBLY

STEP 1. Assemble feedhorn and LNB on buttonhook, complete wiring and place assembly in buttonhook support. Make polarization adjustment as per feedhorn instructions. Adjust focal length and centering as described below.



FOCAL LENGTH: The focal length of this antenna is 33-5/16". This distance should be set between the focal point reference of the feedhorn and the front surface of the clamp plate of the buttonhook. Focal length adjustment is accomplished by loosening the U bolt holding the buttonhook assembly in the center hub and sliding it in or out as required.

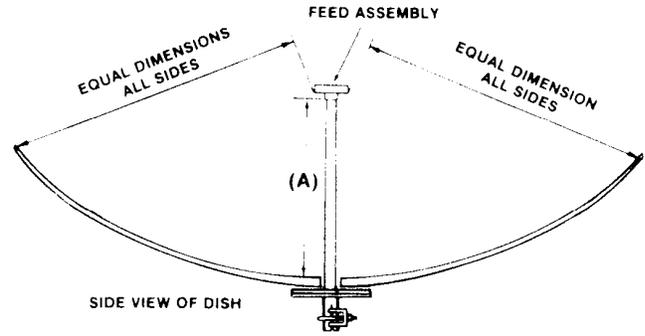
NOTE: These distances are approximate. Each installation should be optimized by adjusting the focal length in or out for best picture.



See chart below for focal lengths.

* FOCAL LENGTH

FEED HORN	* DISTANCE
Polarotor™	33-1/16"
Polarotor I with Gold Ring	33-1/16"
Other Feeds - See Manufacturer's Instr. †	33-5/16"

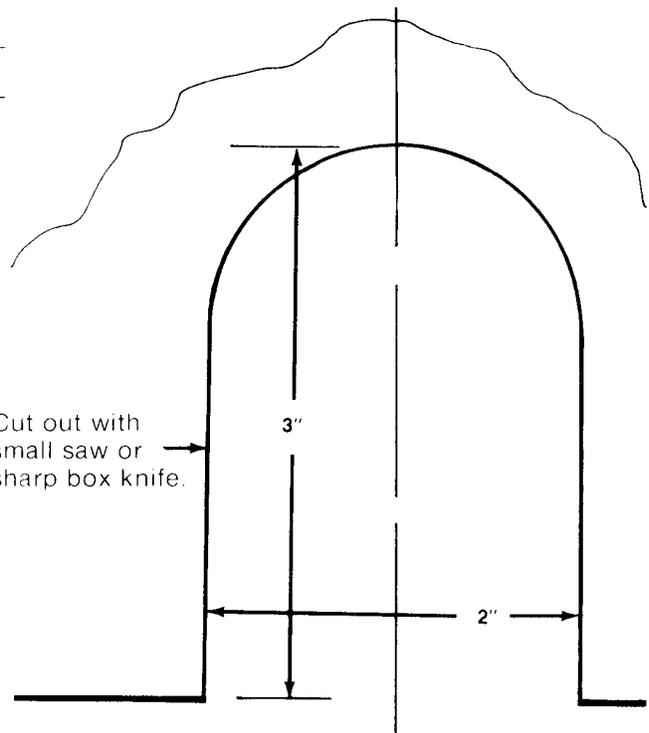


STEP 2. With antenna completely assembled, installed on mount and aimed in the approximate direction of the satellite belt, check the alignment of the feed assembly to the center of the reflector, see figure. All distances must be equal or bore sight of antenna will not match measurements made on mount.

To center feed assembly, loosen 6 nuts on clamp plate and move buttonhook feed support until feed assembly is in center. Hold feed assembly in center and tighten nuts.

NOTE: Order optional WK-0010, Wind Stabilizing Kit, where high winds may move the feed assembly from the center of the reflector.

Cut-Out Template for Feed Support Cover When Using Buttonhook Feed Support.



Center seam bottom of cover. Make sure printing on side of cover is right side-up.

QUAD FEED SUPPORT ASSEMBLY

STEP 1. Attach support legs to feedhorn. Ends with single slotted holes attach to feedhorn. See figure 1.

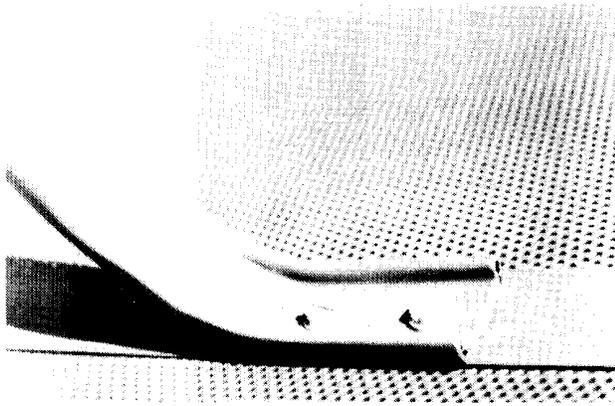
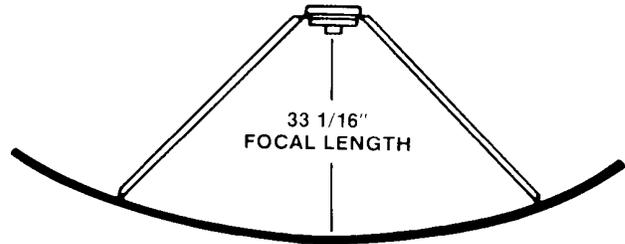


FIGURE 1

STEP 2. Assemble feedhorn and LNB as per instructions with that equipment. Use template or other means provided to determine orientation of feed assembly. Dress wiring down lower leg of feed support leg and attach with tape or wire ties.

STEP 3. Attach four feed support legs to ribs of reflector as shown in figure 1. Use (2) #10 self tapping screws provided. Two people may be required for these steps.

STEP 4. Adjust focal length centering see figure 2.



SIDE VIEW OF DISH

FIGURE 2

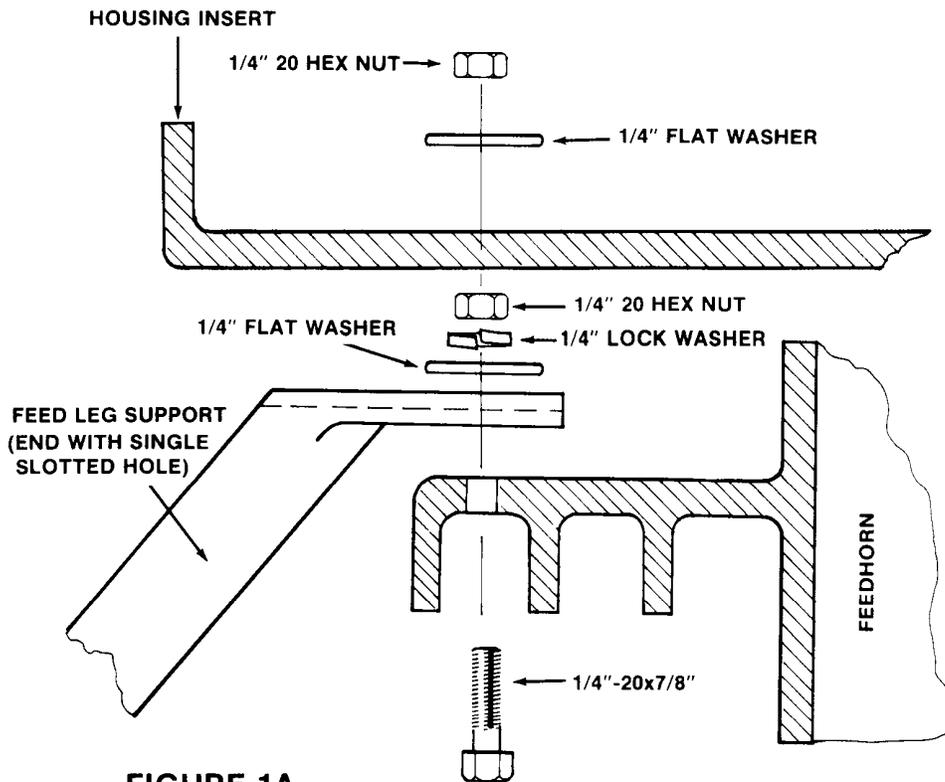


FIGURE 1A

SUGGESTED BUTTONHOOK ASSEMBLY

The following illustrations show the Chaparral Polarotor® I and dual feedhorn attached to Winegard's new buttonhook.

STEP 1. Attach the front portion of the feed housing to the feedhorn as shown in Figure 1 with (2) 1/4"-20x7/8" bolts. Where a wind kit is required, place the angle brackets between the housing and the feedhorn. Tighten both bolts. See figure 2.

WE RECOMMEND A WK-0010 (WIND KIT) BE USED WITH KU-BAND FEED ASSEMBLIES ON THIS REFLECTOR.

(4) #10x1/2" THREAD CUTTING SCREWS

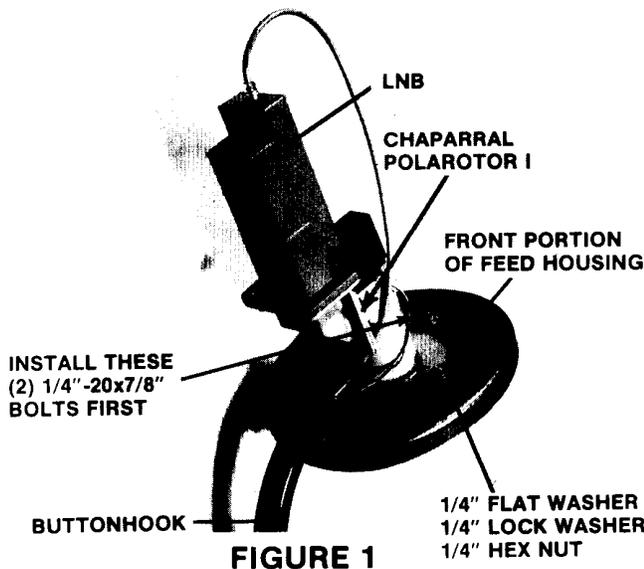
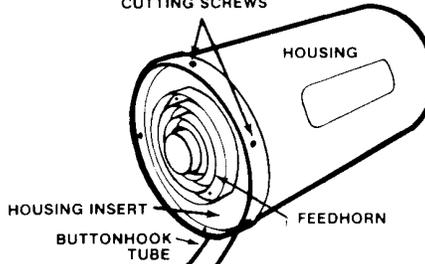


FIGURE 1



FIGURE 2

STEP 2. Attach the buttonhook to the feedhorn as shown in figure 3 with (2) 1/4"-20x7/8" bolts and tighten securely.

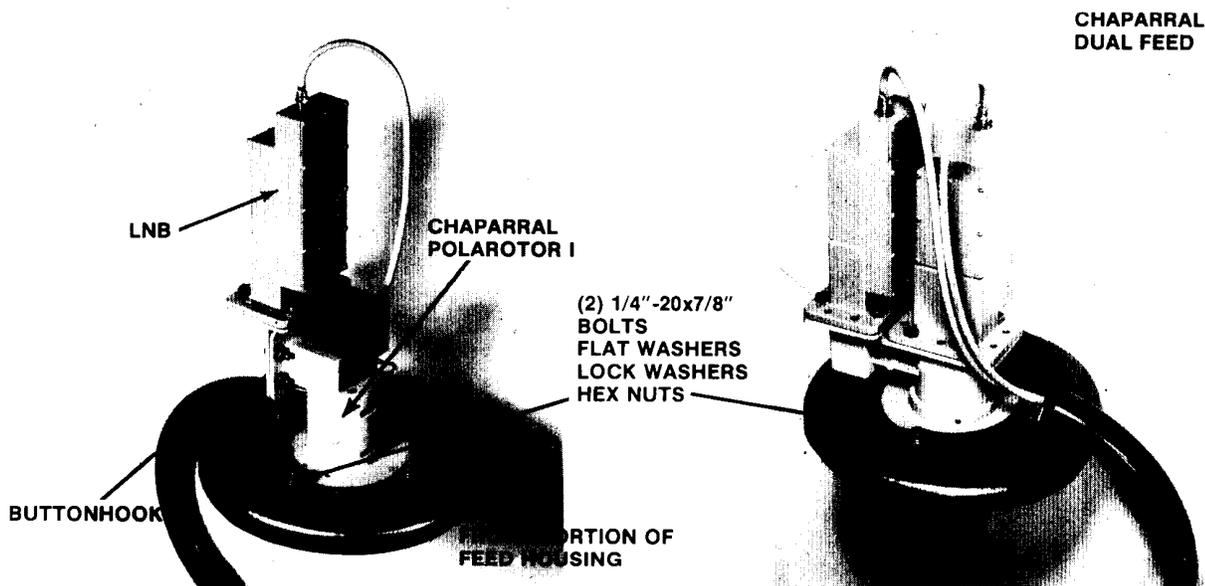


FIGURE 3

Installing Seavey Model ESR-124H-X Coaxial Ku/C Band Feed Assembly on the Buttonhook

STEP 1. Cut four notches in front portion of feed cover with sharp knife. See figure 1.

STEP 2. Slide front portion of feed cover over rear of feed assembly and position flat on back of sealer rings. Attach with one 1/4"-20 x 1/2" bolt, flat washer and lock washer.

STEP 3. Attach buttonhook to feed assembly with (3) 1/4"-20 x 1" bolts using 1/2" spacers between the buttonhook and the back side of scaler rings. See figure 2.

We recommend a feed stabilization kit (wind kit) be used with Ku band feed assemblies on this reflector.

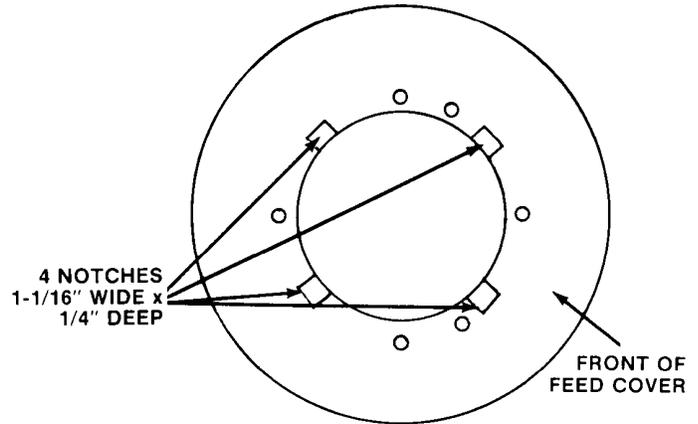


FIGURE 1

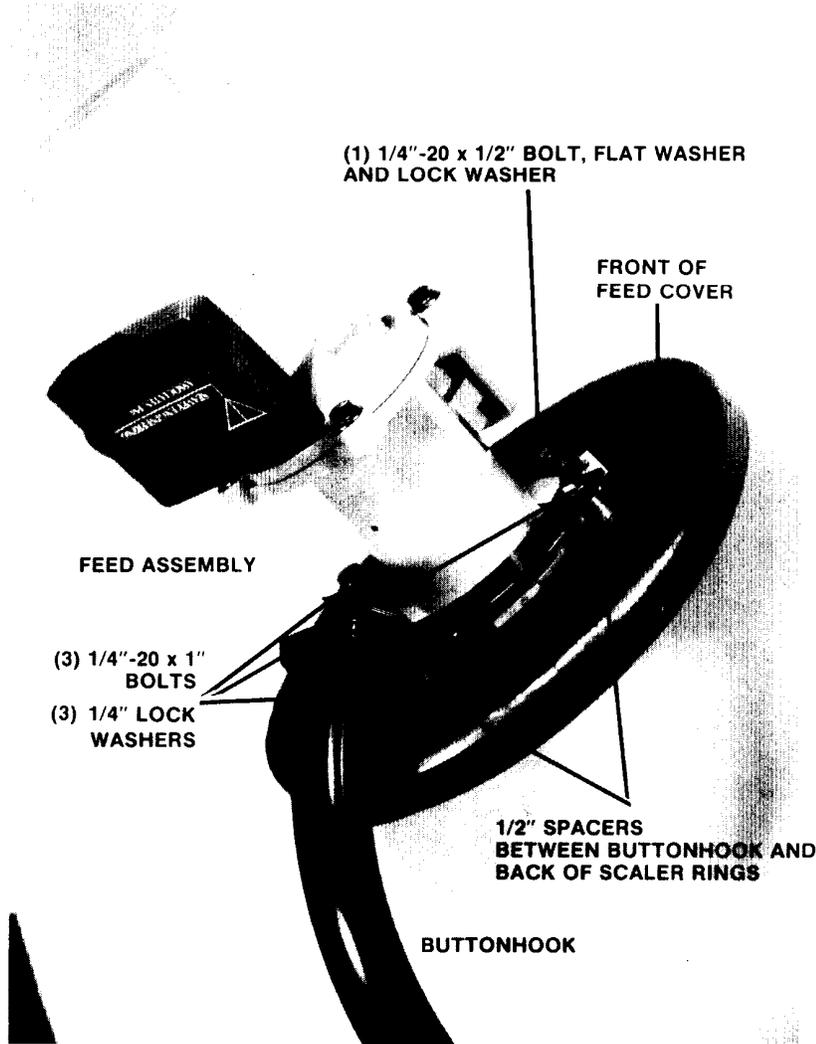


FIGURE 2

ATTACHING REFLECTOR TO MOUNT

STEP 5. Attach (4) reflector mounting brackets to ribs of reflector, use 1/4"-20 x 1" bolts, lock washers and hex nuts. Make sure brackets are mounted on same side of each rib. Leave these bolts loose enough so brackets can align when (4) 1/2" bolts on back-up structure are tightened.

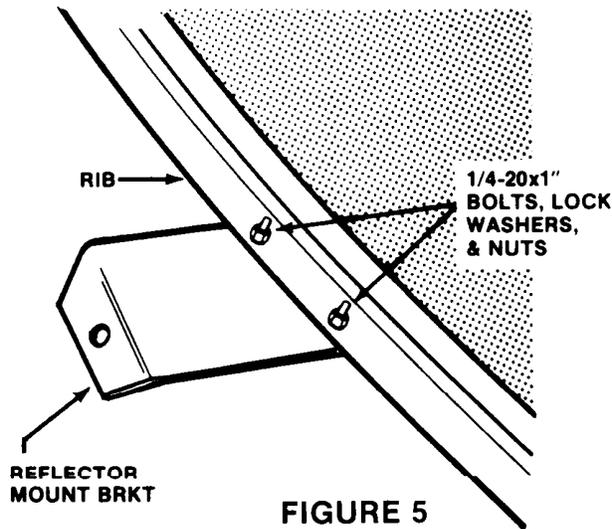


FIGURE 5

STEP 6. Stand reflector assembly up against mount and back-up structure. Align holes in mounting brackets with those in back-up structure and attach with (4) 1/2"-13 x 3" bolts, flat washers and hex locking nuts.

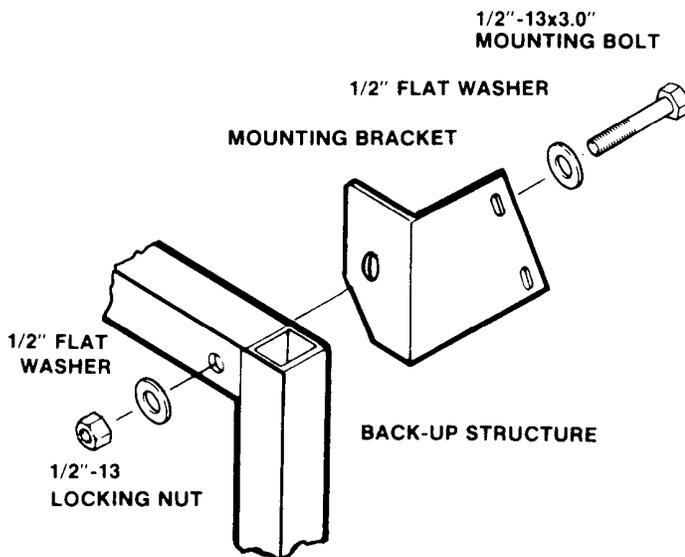


FIGURE 6

STEP 7. Assemble rod end bracket on side tube of back-up structure. Use (4) 3/8" x 1" bolts and Nylok nuts. Note that rod end bracket is slightly asymmetrical so that turning the bracket over will provide an additional drive angle. See figure 7.

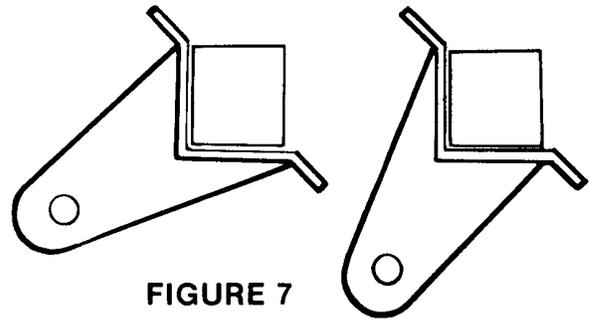


FIGURE 7

Both the rod end bracket and the actuator bracket may be attached to either side of the mount. Final position of the drive unit should be determined after the mount is adjusted to track the arc and the exact limits of azimuth travel are known. The actuator and rod end brackets should be positioned so the drive unit operates in a straight line and does not bind at either end of the azimuth travel. This position should be optimized to give the highest count on the receiver roadout for each degree of satellite arc the antenna rotates thru.

STEP 8. Attach the actuator bracket in one of the positions shown in figure 8. Use 1/2"-13x1-1/2" bolts, locking nuts with flat washers under the heads of the bolts.

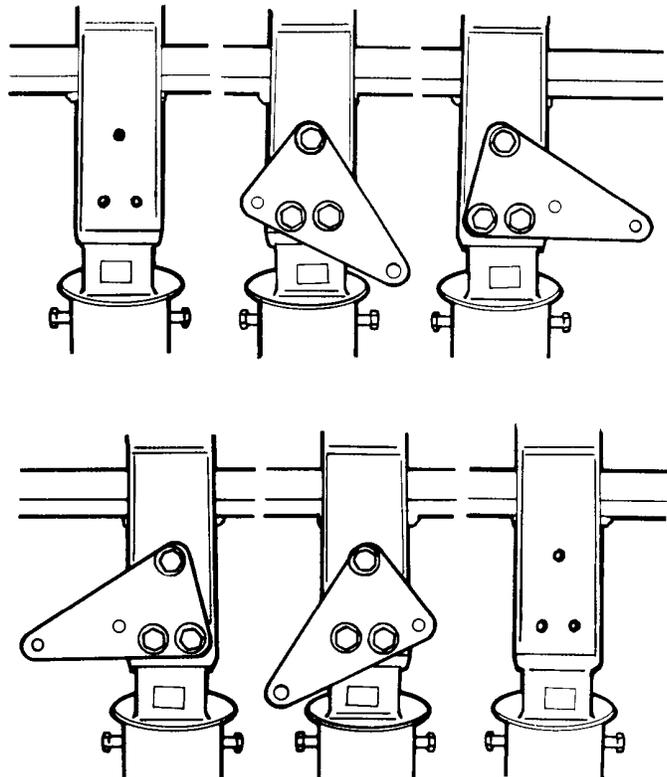


FIGURE 8

MOUNT ADJUSTMENT

STEP 1. Place Protractor (1) squarely on Pivot Beam (2) as shown in Figure 9 and set Polar Axis Angle as described below.

NOTE: The Polar Axis Angle is approximately one degree more than the latitude at the antenna site. The latitude may be obtained from any road atlas.

STEP 2. Make Course Adjustment (3) of Polar Axis Angle. Remove Bolt (4) and tilt Pivot Beam (2) to hole in Latitude Head (5) that will put Fine Adjustment in range of Polar Axis Angle. (Fine Adjustment will provide plus or minus 7° of angle.) Do not fully tighten Bolt (4) or nuts (5).

STEP 3. Set exact Polar Axis Angle of antenna site on Protractor (1). Adjust locking nuts (5) on fine tune adjust stud (7), tighten bolt (4) and cap screws (6). Fully tighten locking nuts (5).

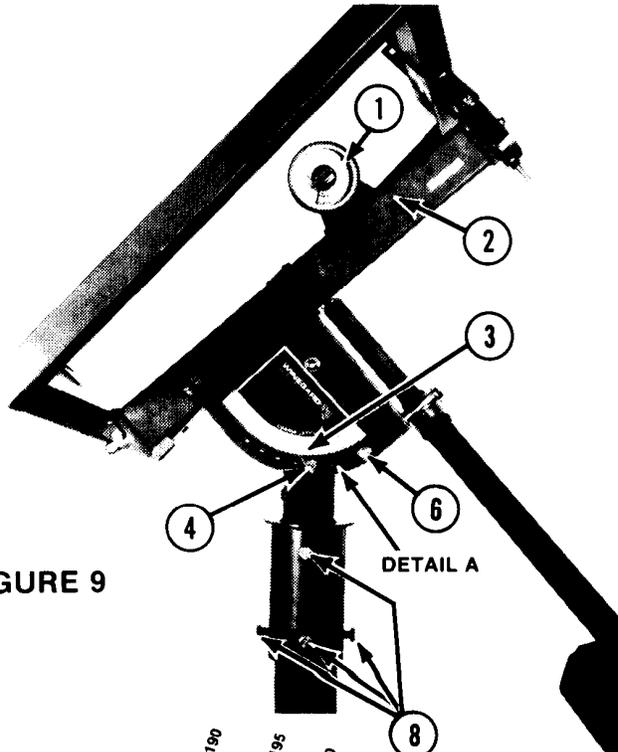
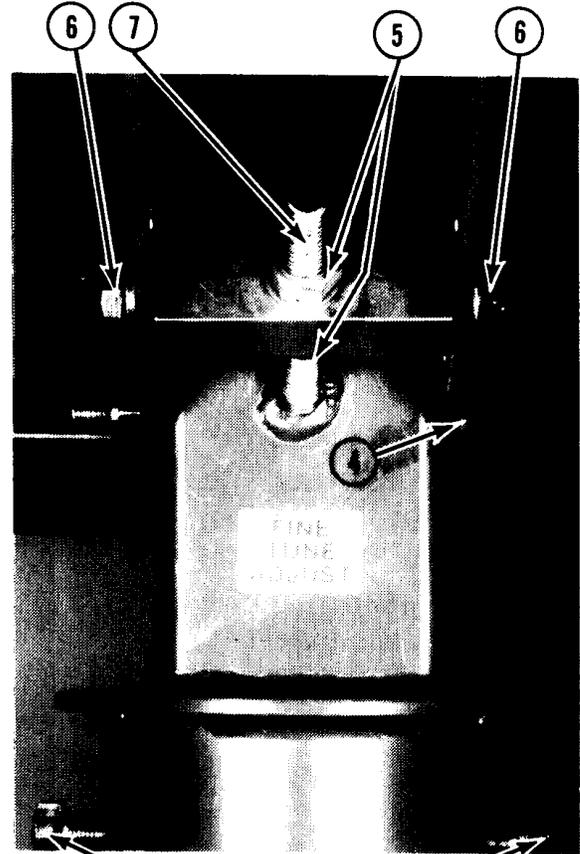


FIGURE 9



DETAIL A

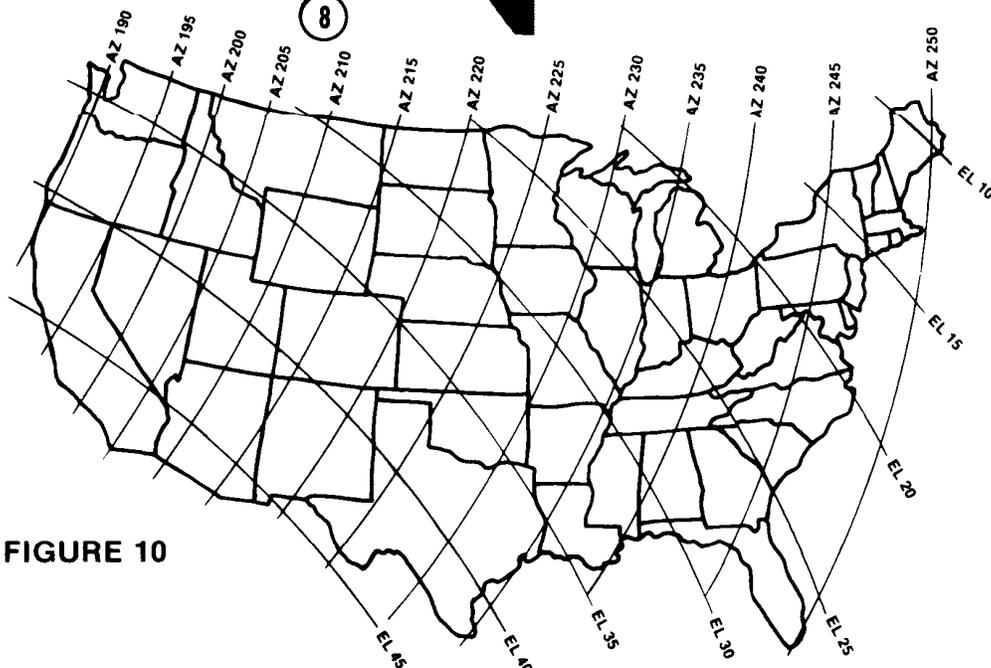


FIGURE 10

STEP 4. Move Protractor to straight portion of Buttonhook tube and adjust Polar Drive unit until you obtain elevation angle of Satcom F3.

NOTE: Elevation angles are given for Satcom F3 in Figure 10. Try to estimate angle to nearest degree. Exact Print-outs of elevation angles of all satellite for your area are available on request from the Winegard Company.

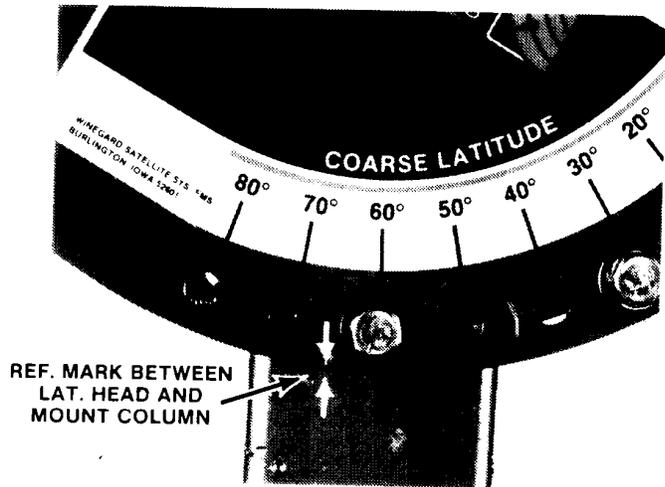
Finding the Satellite

STEP 5. Loosen azimuth locking bolts (8) (Figure 9) enough to allow antenna to rotate. Rotate antenna and mount slowly so Pivot Beam passes thru a line with true North. Receiver should be in SCAN mode. When picture flashes on TV screen, remove receiver from scan mode and rotate antenna for best picture. **Tighten azimuth locking bolts to 40 Ft./Lbs.**

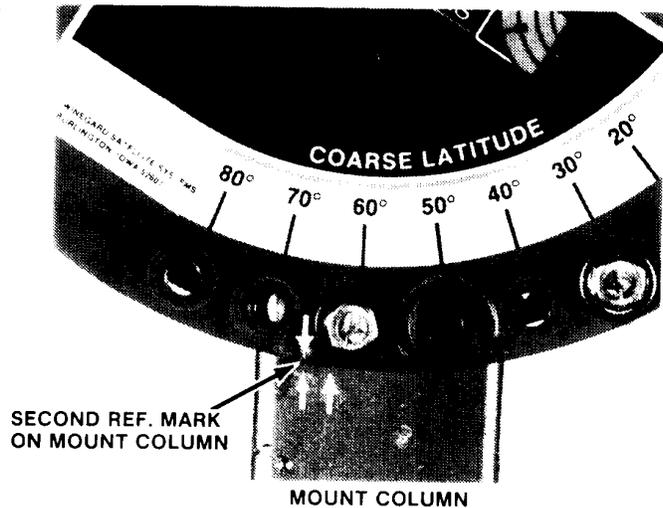
FINE TUNING

Once you have pinpointed a satellite signal the final polar arc adjustments must be made. Now refer to your Satellite Antenna Bearing Data* and find the (most Westward) and the (most Eastward) satellite you wish to receive.

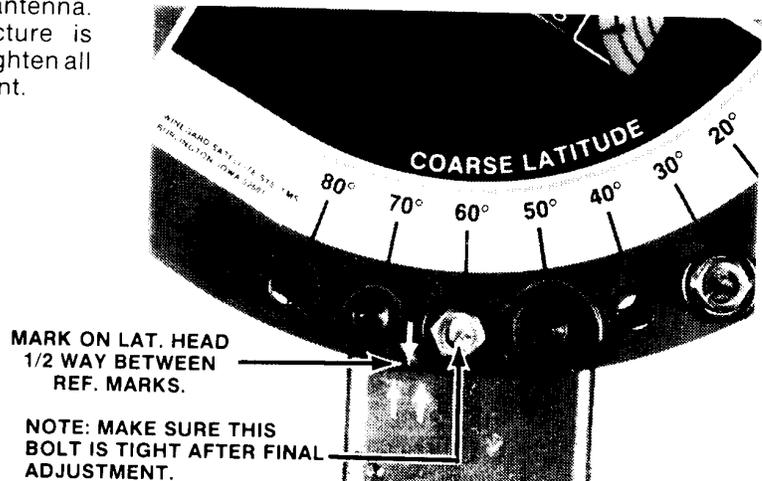
If you make an adjustment to the Polar Axis Angle fine adjustment when moving between the Eastern and Western satellite, the pivot beam is not aligned with true North. To correct this situation, aim the antenna at the most Western satellite and adjust both the polar jack and the fine adjustment for the Polar Axis Angle for best picture and highest meter reading on receiver. Make a reference mark between the latitude head and the mount column (Detail A) (Figure 11). Turn the antenna to the most Eastern satellite and again adjust for best picture. Make another reference mark on the mount column opposite the previous one on latitude head (Detail B). Move the Polar Axis Angle fine adjustment until the mark on latitude head is half-way between the two reference marks on the mount column (Detail C). **Tighten bolt (4) (see Figure 9) going thru fine adjust, latitude head and mount column.** Loosen azimuth locking bolts enough to rotate antenna. Carefully rotate antenna until best picture is restored on TV and tighten locking bolts. Tighten all bolts securely and check tracking alignment.



DETAIL A FIGURE 11



DETAIL B



DETAIL C

FINAL ADJUSTMENTS

Once you have achieved true tracking on the polar arc, you should make the final adjustments to optimize your antenna. The adjustments will be made to the focal distance and LNB polarity.

The focal distance is approximate and must be optimized for each installation. The focal distance may be fine tuned by loosening the clamp holding the button hook assembly to the hub in center of antenna. Tune the receiver to a relatively weak transponder and observe a picture while sliding the button hook assembly towards and away from the reflector. Be sure to maintain polarity while adjusting. Tighten clamp when best signal is received.

MOPPING UP

At this point, you should have a fully operative Earth Station. By adjustment of only the polar jack, you should be able to change from satellite to satellite. If you have purchased an antenna actuator, you should install it now, per the manufacturer's instructions.

Once all adjustments have been made, re-check all hardware to ascertain that all connections are tightened properly. Route all cable and secure it in a manner to prevent any strain on the connectors and connections. Route all connecting cable between dish and receiver in a safe and secure manner. Burial of the cable is suggested for the most secure installation. Use 2" PVC or conduit.

TO LOCK BASE TO GROUND PIPE

Remove two of the 1/2" locking bolts opposite each other and use these holes as a pilot hole to drill a 1/2" hole in the standpipe (post). Install a 1/2" x 5-1/2" bolt to securely lock mount in position.

HELPFUL HINTS

ICE AND SNOW are reflective at microwave frequencies and will effectively alter the front reflective surface of the dish. They also add weight to the reflector and will usually degrade the picture quality. It is suggested the ice and snow be removed as soon as practical and not be allowed to accumulate to any great degree.

FEEDHORN AND LNB - The feedhorn and LNB opening must remain clear. Many types of insects (wasps, spiders, etc.) look at the feedhorn and LNB wave guide as the ultimate in modern housing. Remember that any obstruction to the microwave energy will degrade the picture, and if picture degradation is noticed, do not fail to check the LNB.

WINEGARD®

SATELLITE (TVRO) DEVICES - FIVE YEAR LIMITED WARRANTY

WINEGARD COMPANY warrants this satellite antenna and mount to be free of defects in material and workmanship for a period of five (5) years from the date of purchase.

This warranty is effective only if the satellite antenna and mount is returned, "prepaid" to Winegard Company in Burlington, Iowa and proof of the date of purchase is supplied with the return of the product. The product must be returned under a "Return Authorization" number obtained by calling 319-754-0600. All returned products must have a "Return Authorization" number attached to each component.

This limited warranty does not apply if the satellite antenna is damaged, deteriorates or fails because of: Improper or inadequate installation or failure of supporting hardware not supplied by the manufacturer; Neglect, accident or misuse; Modifications of the product as originally manufactured; Installation of the satellite antenna on a mount other than that manufactured by Winegard Company, or use of the mount with an antenna not manufactured by Winegard Company; Any act of nature, including, but not limited to, damage from winds in excess of hurricane force.

This limited warranty does not apply to the labor necessary to install, package, prepare and ship said satellite antenna and/or mount or freight to and from Winegard Company, and is applicable only to the original purchaser. The manufacturer, at its option, reserves the right to either repair or replace a satellite antenna or mount which it deems to be defective.

The repair or replacement of the satellite antenna and/or mount, at the option of the manufacturer, is your exclusive remedy under this limited warranty. WINEGARD COMPANY will not be liable for incidental or consequential damages, so the above limitations or exclusions may not apply to you. Further, this warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

WINEGARD COMPANY WILL NOT ASSUME ANY LIABILITIES FOR ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, MADE BY ANY OTHER PERSON.

WARRANTY SERVICE PROCEDURE

FOR ANTENNA AND MOUNT WARRANTIES AND FOR CLAIM OR SERVICE INFORMATION CONTACT YOUR WINEGARD DISTRIBUTOR.

NOTICE TO CUSTOMER

THE COMMUNICATIONS POLICY ACT OF 1984 PERMITS THE USE OF THIS DEVICE BY AN INDIVIDUAL TO PRIVATELY VIEW SATELLITE PROGRAMMING WHICH IS NOT ENCRYPTED, PROVIDING EITHER A MARKETING SYSTEM TO AUTHORIZE THE VIEWING HAS NOT BEEN ESTABLISHED, OR SUCH A SYSTEM HAS BEEN ESTABLISHED AND THE INDIVIDUAL RECEIVING SUCH PROGRAMMING HAS OBTAINED AUTHORIZATION FOR VIEWING.

INDIVIDUALS SHOULD CONTACT THEIR LOCAL ZONING BOARD OR OTHER MUNICIPAL AUTHORITIES TO ENSURE COMPLIANCE WITH LOCAL AND STATE LAWS AND REGULATIONS GOVERNING CONSTRUCTION, PLACEMENT AND/OR USE OF HOME SATELLITE TV RECEPTION SYSTEMS.



WINEGARD®

Clearly the World's Best®