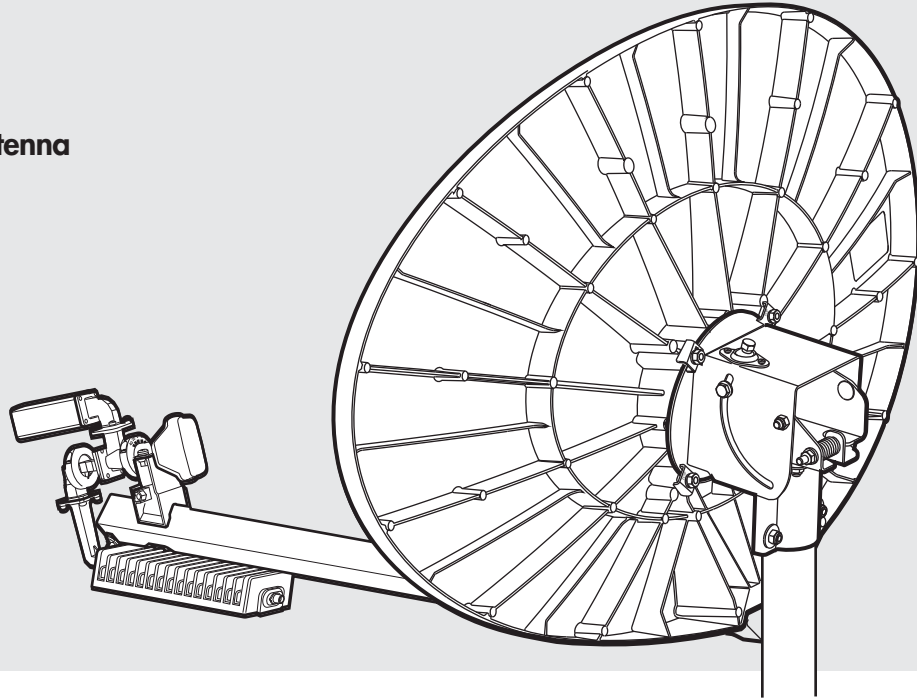
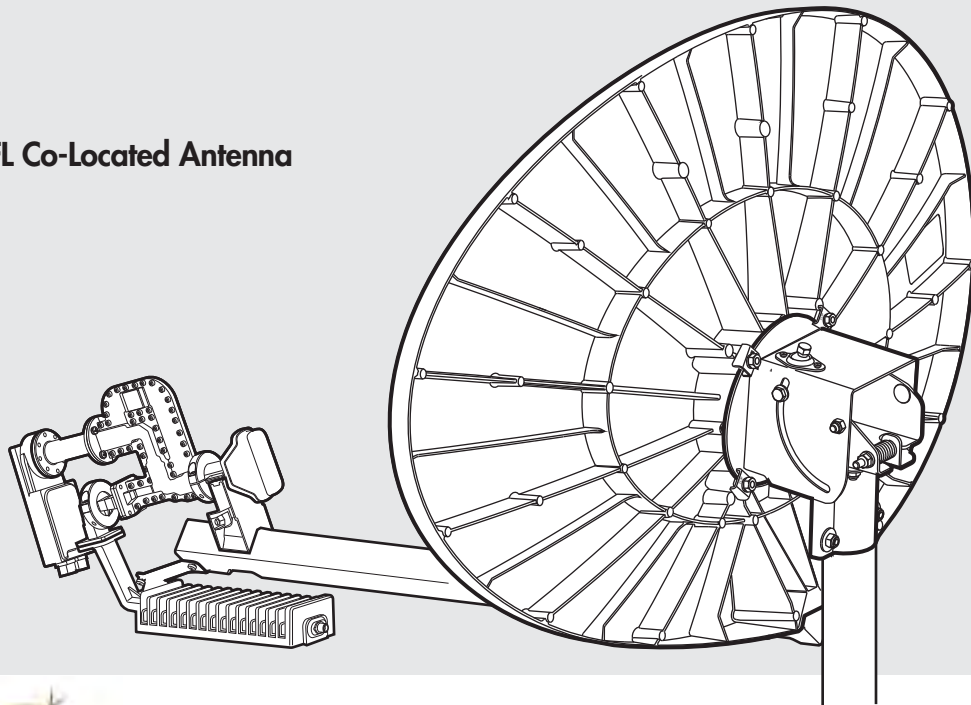


75E LFL RxTx Antenna and 75E LFL Co-Located Antenna Systems

75E LFL Antenna



75E LFL Co-Located Antenna



MANUAL REVISION HISTORY

DATE	DESCRIPTION	REVISION
10/05	ECN 9000000	Release
1/06	ECN 9007225	Rev A
8/06	ECN 9007327	Rev B
2/07	ECN 5065321	Rev C
08/08	ECN 5079334	Rev D
6/10	ECN 794	Rev E

WARRANTY

Skyware Global VERY SMALL APERTURE TERMINAL (VSAT) PRODUCTS TWELVE (12) MONTH LIMITED WARRANTY

Seller warrants that all Skyware Global manufactured VSAT products are transferred rightfully and with good title; that they are free from any lawful security interest or other lien or encumbrance unknown to Buyer. Seller also warrants that for a period of twelve (12) months from the date of shipment from Seller's factory, all its VSAT products shall be free from defects in material and workmanship which arise under proper and normal use and service. Buyer's exclusive remedy hereunder is limited to Seller's correction (either at its plant or at such other place as may be agreed upon between Seller and Buyer) of any such defects by repair or replacement at no cost to Buyer, except for the costs of any transportation in connection with the return of the defective VSAT products to be replaced or repaired, and the costs to remove and/or reinstall the products, which shall be borne by Buyer. The limited warranty period shall not be extended beyond its original term with respect to any part or parts repaired or replaced by seller hereunder.

This warranty shall not apply to VSAT products which (i) have been repaired or altered in any way so as to affect stability or durability, (ii) have been subject to misuse, negligence or accident, (iii) have been damaged by severe weather conditions such as excessive wind, ice, storms, lightning, or other natural occurrences beyond Seller's control; (iv) have presented damages, defects or nonconformances caused by improper shipping, handling or storage, and (v) have not been installed, operated or maintained in accordance with Seller's instructions.

Buyer shall present any claims along with the defective VSAT product(s) to Seller immediately upon failure. Non-compliance with any part of this warranty procedure may invalidate this warranty in whole or in part.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, OTHER THAN AS SPECIFICALLY STATED ABOVE. EXPRESSLY EXCLUDED ARE ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE FOREGOING SHALL CONSTITUTE ALL OF SELLER'S LIABILITY (EXCEPT AS TO PATENT INFRINGEMENT) WITH RESPECT TO THE VSAT PRODUCTS. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY LOSS OF PROFITS OR REVENUE, LOSS OF USE, INTERRUPTION OF BUSINESS, OR INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND AS A RESULT OF THE USE OF THE PRODUCTS MANUFACTURED BY SELLER, WHETHER USED IN ACCORDANCE WITH THE INSTRUCTIONS OR NOT. UNDER NO CIRCUMSTANCES SHALL SELLER'S LIABILITY TO BUYER EXCEED THE ACTUAL SALES PRICE OF THE VSAT PRODUCTS HEREUNDER.

In some jurisdictions, Buyer may have other rights under certain statutes that may imply non-excludable warranties. No representative is authorized to assume for Seller any other liability in connection with the VSAT products.



DO NOT DISCARD CONTENTS

The product in this packaging was placed in the market after August 13, 2005. Its components must not be discarded with normal municipal or household waste.

Contact your local waste disposal agency for recovery, recycling, or disposal instructions.

WARNINGS

LAW: Installation and installer must meet local codes and ordinances regarding safety! Installation of this product should be performed only by a professional installer and is not recommended for consumer Do-It-Yourself installations.

DANGER: WATCH FOR WIRES! Installation of this product near power lines is extremely dangerous and must never be attempted. Installation of this product near power lines can result in death or serious injury!

For your own safety, you must follow these important safety rules. Failure to follow these rules could result in death or serious injury!

1. Perform as many functions as possible on the ground
2. Watch out for overhead power lines. Check the distance to the power lines before starting installation. Stay at least 6 meters (20 feet) away from all power lines.
3. Do not install antenna or mast assembly on a windy day.
4. If you start to drop antenna or mast assembly, move away from it and let it fall.
5. If any part of the antenna or mast assembly comes in contact with a power line, call your local power company. **DO NOT TRY TO REMOVE IT YOURSELF!** They will remove it safely.
6. Make sure that the mast assembly is properly grounded.

WARNING: Assembling dish antennas on windy days is extremely dangerous and must never be attempted. Due to the surface area of the reflector, even slight winds create strong forces. For example, this antenna facing a wind of 56 km/h (35 mph) can undergo forces of 169 N (38 lb). **BE PREPARED TO SAFELY HANDLE THESE FORCES AT UNEXPECTED MOMENTS. ATTEMPTING TO ASSEMBLE, MOVE OR MOUNT A DISH ON WINDY DAYS COULD RESULT IN DEATH OR SERIOUS INJURY.** Skyware Global is not responsible or liable for damage or injury resulting from antenna installations.

WARNING: Antennas improperly installed or installed to an inadequate structure are very susceptible to wind damage. This damage can be very serious or even life threatening. The owner and installer assumes full responsibility that the installation is structurally sound to support all loads (weight, wind and ice) and properly sealed against leaks. Skyware Global will not accept liability for any damage caused by a satellite system due to the many unknown variable applications.

PREINSTALLATION CONSIDERATIONS

DESCRIPTION:

The 75 cm Elliptical Rx-Tx Antenna System is designed for two-way satellite communications, and is suitable for commercial or consumer use.

CARTON CONTENTS:

Contents listed on parts list documentation.
Save parts list for future reference.

TOOLS REQUIRED:

Compass
9" Magnetic Level
10 mm/13 mm Open End Wrench
Inclinometer
Screwdriver (#1 and #2 Phillips)
3/32 in Allen Wrench (Included)

RECOMMENDED ADDITIONAL TOOLS:

10 mm Nut Driver
Ratchet Wrench (3/8" Drive)
10 mm Socket (3/8" Drive)
Torque Wrench
13 mm Socket (3/8" Drive)
Signal Strength Meter

ADDITIONAL INSTALLATION MATERIALS *(Not Included with Antenna)*

Grounding Rod, Clamp & Grounding Block - As required by National Electric Code or local codes.
Ground Wire - #10 solid copper or #8 aluminum as required by National Electric Code or local codes (length required).
Grounding Lug and Hardware
RG-6 Coaxial Cables from antenna to indoor unit(s).
Installation Mount (as required by site survey)

SITE SELECTION

The main objective in conducting a site survey utilizing a compass and inclinometer is to choose a mounting location that will give you the greatest amount of swing for azimuth and elevation for present as well as future use. A thorough preinstallation site survey is strongly recommended because it can alert you to any "look angle", soil, wind or other problems.

The first and most important consideration when choosing a prospective antenna site is whether or not the area can provide an acceptable "look angle" to the satellite. Your antenna site must be selected in advance so that you will be able to receive the strongest signal available. Also consider obstructions that may occur in the future such as the growth of trees.

Prior to beginning the site survey, the site location and satellite look angles must be determined. Determine your site latitude and longitude and enter the values here:

LATITUDE	° N	LONGITUDE	° W
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Based on your site location and the satellite to be used, determine the correct azimuth, elevation, and skew settings for your installation. Using the charts (beginning on Page 9), obtain these values and enter them here for easy reference. Enter the values here:

AZIMUTH	°	ELEVATION	°	SKEW	°
---------	---	-----------	---	------	---

It is important to conduct an on-site survey with a portable antenna or with a compass and inclinometer to avoid interference, obstructions, etc. When selecting "look angle," (Elevation/Azimuth) be sure to observe and take readings approximately 25 degrees to the left and right, above and below your selected "look angle". Once you have chosen a site, select a location and determine the type of installation mount to be used. The satellite antenna can be installed on a ground pole, wall/roof mount, or non-penetrating roof mount with 60 mm (2-3/8") outside diameter mast. The chosen mount type should be assembled and in place before installing the antenna. Refer to instructions packed with mount for its proper installation. **The mast pipe must be vertical and plumb to insure ease of alignment.**

Before any digging or trenching for Interfacility Link (IFL) cables is done, information regarding the possibility of underground telephone lines, power lines, storm drains, etc., in the excavation area should be obtained from the appropriate agency. As with any other type of construction, a local building permit may be required before installing an antenna. It is the property owner's responsibility to obtain any and all permits.

HARDWARE



M6 x 60 mm Hex Head Bolt



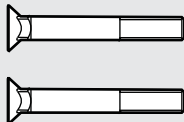
M6 Flat Washer



M6 Lock Washer



M6 Hex Nut



M8 x 56 mm Plow Bolt



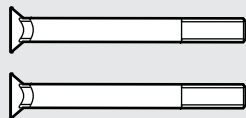
M4 X 16 mm Phillips Head Screw



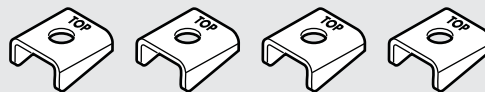
M4 Lock Washer



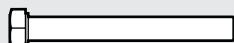
8-32 x 1/4 Slotted Hex Head Washer Screw



M8 x 80 mm Plow Bolt



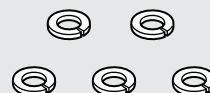
Skew Clip



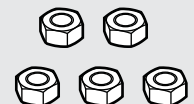
M8 x 70 mm Hex Head Bolt



M8 Flat Washer

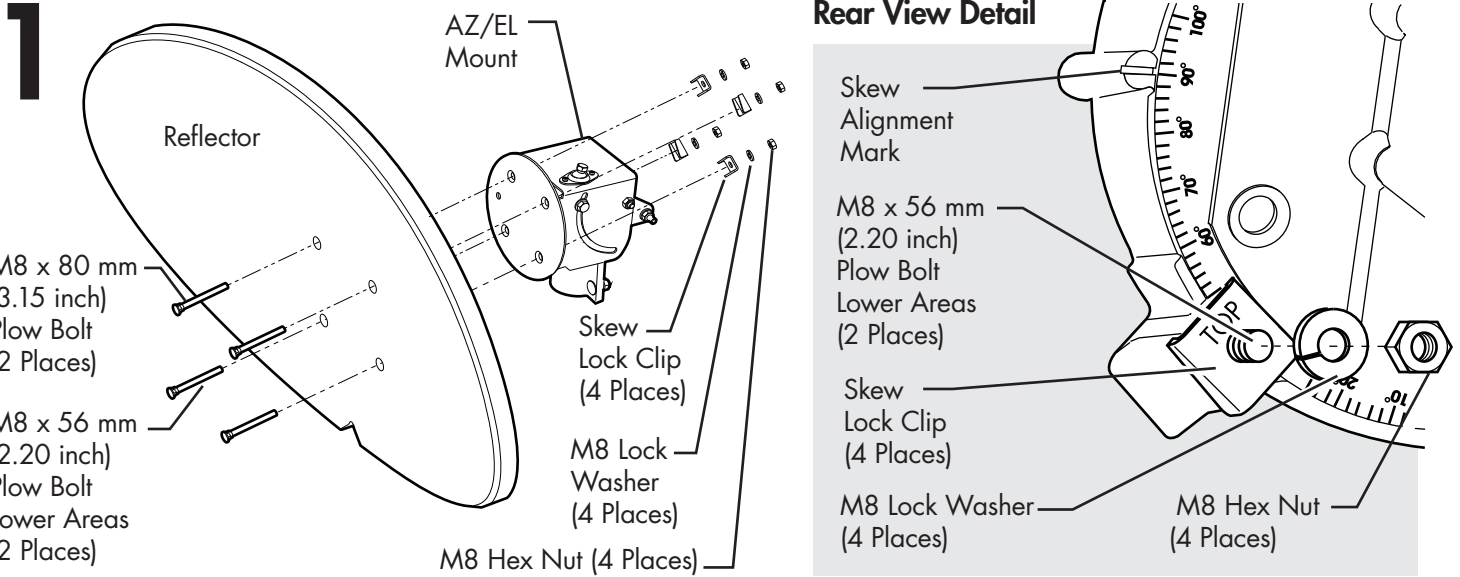


M8 Lock Washer



M8 Hex Nut

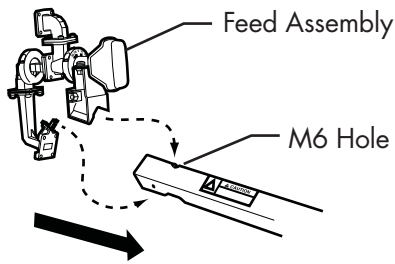
ASSEMBLY AND INSTALLATION



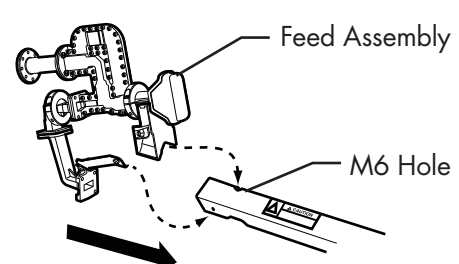
Place reflector on flat surface or table. Attach AZ/EL mount to reflector using (2) M8 x 80 mm (3.15 inch) and (2) M8 x 56 mm (2.20 inch) plow bolts, (4) skew lock clips, (4) lock washers and (4) M8 hex nuts. The 80 mm (3.15 inch) plow bolts are inserted through the top two holes of the reflector and the 56 mm (2.20 inch) plow bolts are inserted through the lower two holes. The AZ/EL mount is secured to the reflector with (4) skew lock clips as illustrated in the rear view detail above. Loosely tighten nuts.

2 **IMPORTANT:** Steps 2 through 6 must be completed on table or ground level **BEFORE** attempting final mounting assembly of reflector. Place preassembled feed assembly over small (M6) hole as shown below. **NOTE:** Location of small hole (M6) is on top side of support arm.(away from reflector) large hole (M8) is on top toward reflector.

75E RxTx Feed Assembly



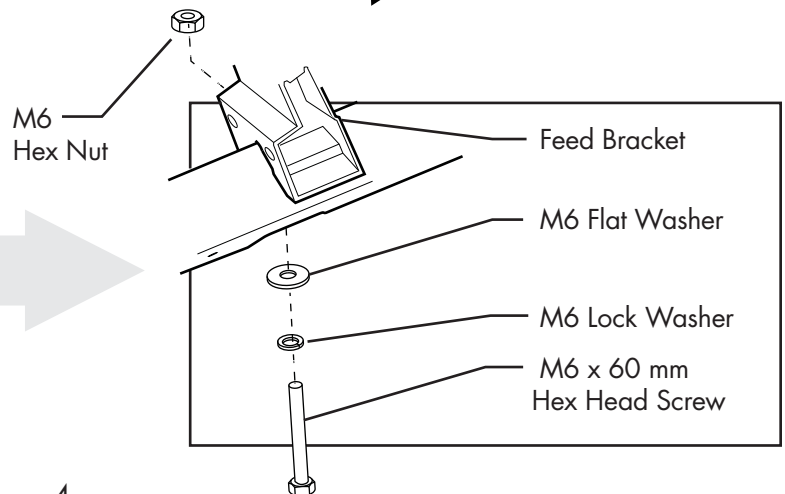
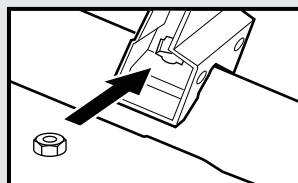
75E Co-Located Feed Assembly



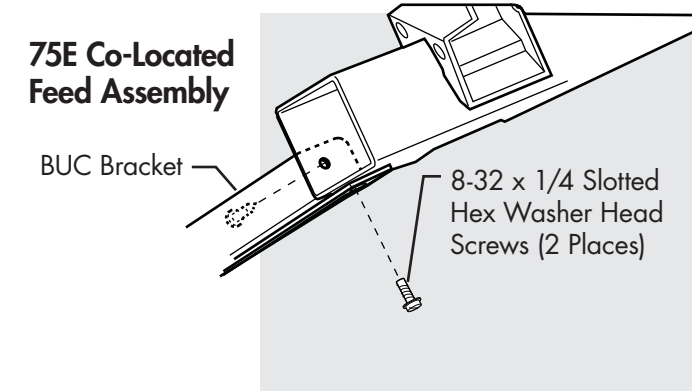
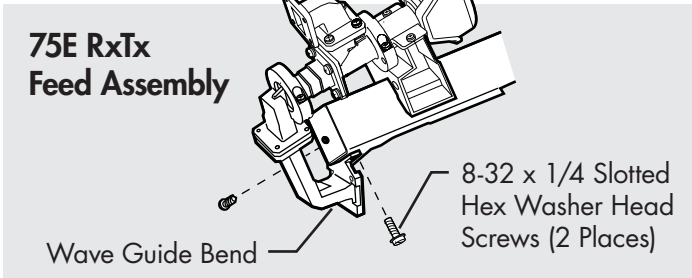
Detail View

Attach feed bracket to support arm with M6 x 60 mm hex head screw, lock washer, flat washer and M6 hex nut. Tighten hardware securely.

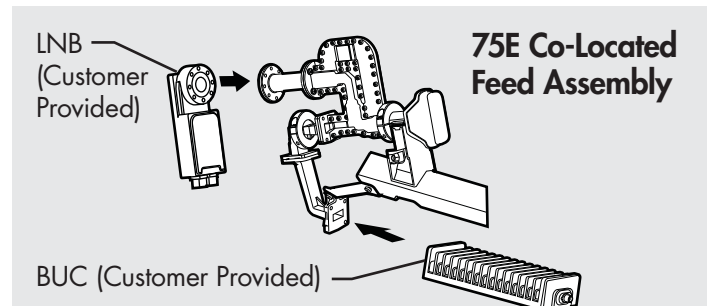
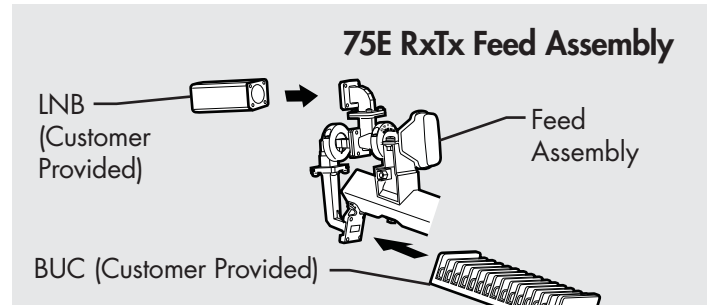
NOTE: M6 hex nut inserts in preformed slot in feed bracket..



3 Fasten wave guide bend to feed support arm with two 8-32 x 1/4 slotted hex washer head screws.

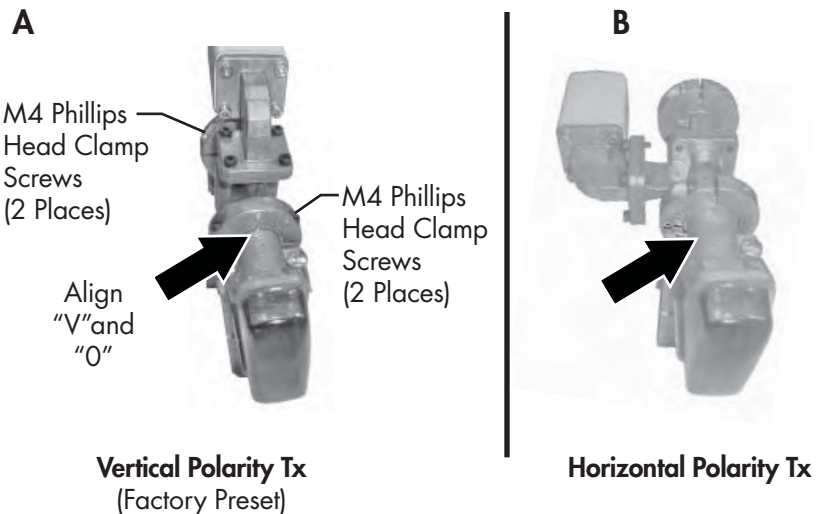


4 Attach LNB and BUC to feed assembly as shown. LNB and BUC are provided by customer.

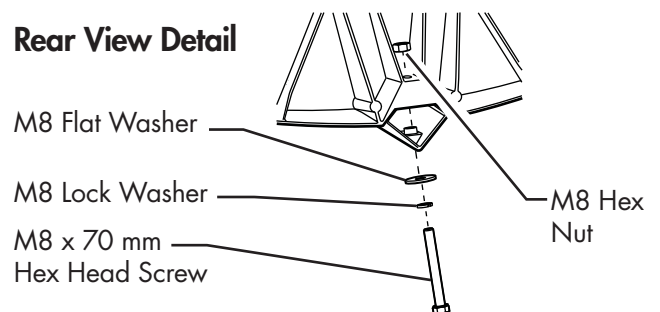
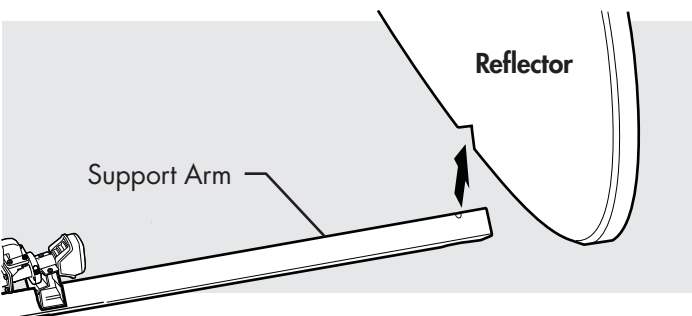


NOTE: Assure that o-rings are in place for BUC and LNB installations. Screws are provided for BUC assembly.

5 The feed polarization will need to be set according to the site requirements. The feed is factory pre-assembled for vertical transmit as shown in figure **A**. If the site requires horizontal transmit, then the initial setting should be as shown in figure **B**, with the "H" aligned with "0". To change the polarization settings, loosen the four M4 Phillips head clamp screws one turn and rotate until the "0" mark on the clamp half is aligned with the corresponding polarity mark on the horn neck. Alternately tighten between the four M4 clamp bolts and torque to 12-16 in-lb. **DO NOT OVERTIGHTEN!**



6 Insert support arm into notch located on bottom of reflector. Attach support arm to reflector with M8 x 70 mm hex head screw, lock washers, flat washer and M8 hex head nut. Tighten nut to a torque of 13.5 N-m (10 ft-lb).



ANTENNA ALIGNMENT

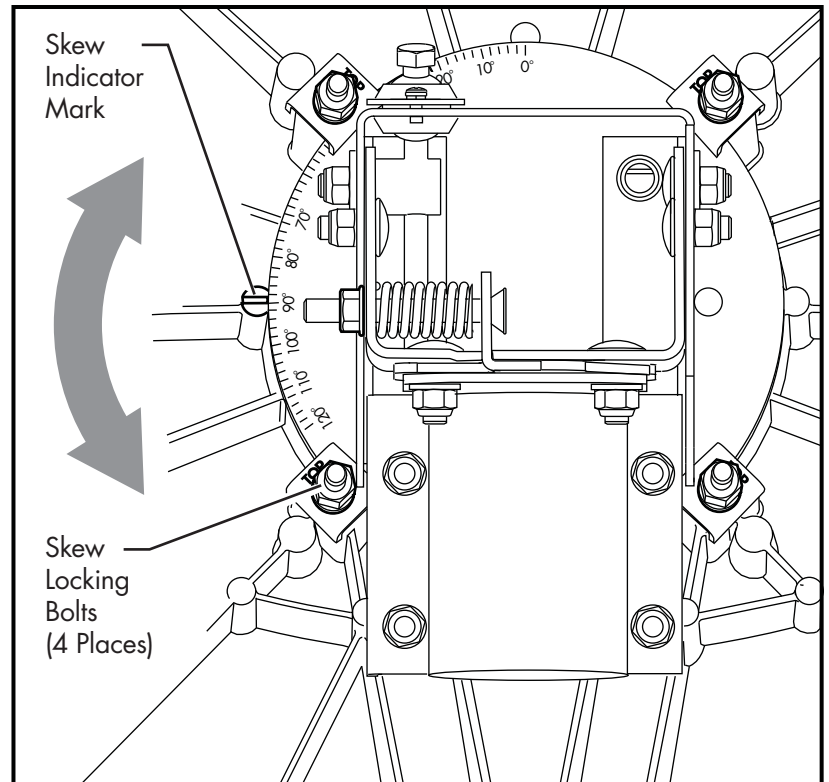
7 Skew Alignment

Set the SKEW on AZ/EL skew mount prior to placement of reflector on mount tube. Refer to the skew value determined on page 2.

Loosen the (four) skew locking bolts until they are just finger tight and rotate the AZ/EL skew mount to align the skew indicator mark with correct number on skew scale, as shown. Scale is in 2° increments.

Tighten skew locking bolts to a torque of 11 N-m (8ft-lb).

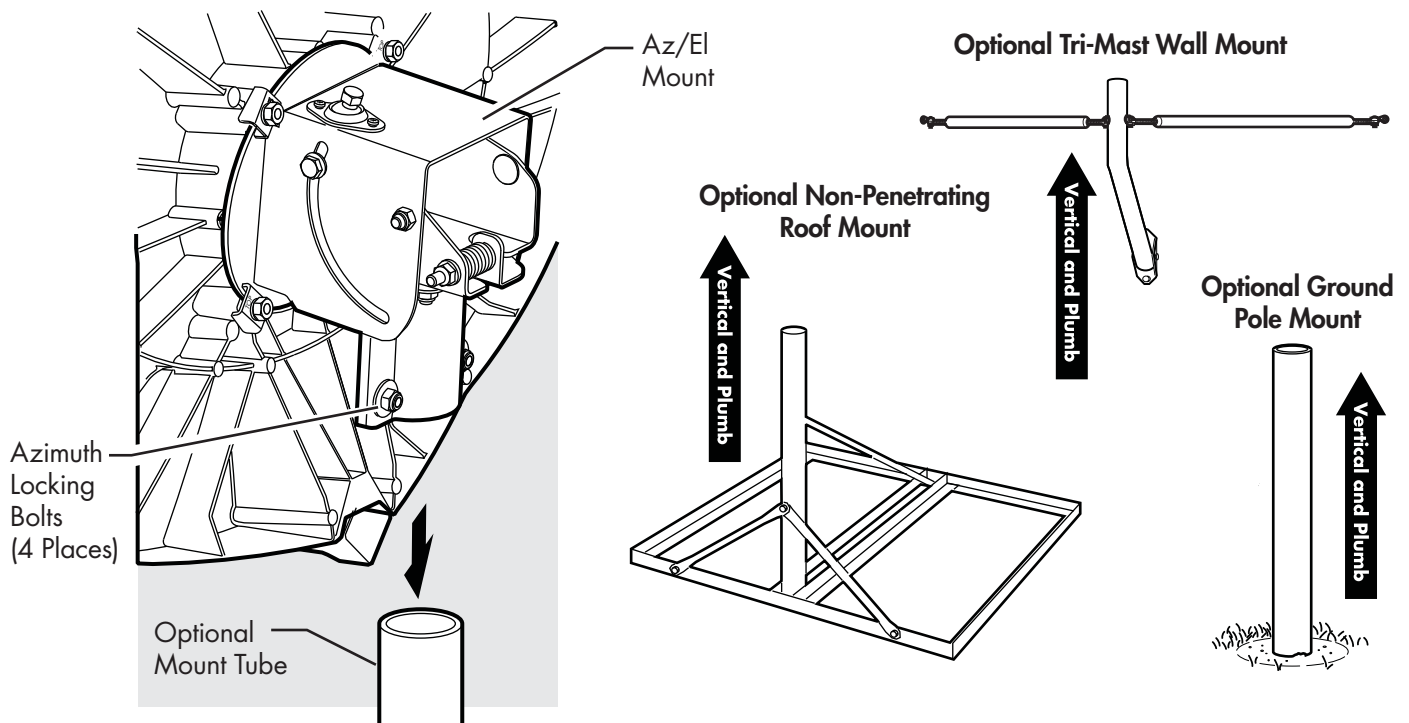
Skew Setting



8

Refer to installation mount instructions.

A plumb and vertical mount tube is essential for a quick and accurate antenna alignment. After verifying a plumb mount tube, loosen (4) azimuth locking bolts located on AZ/EL mount and slide AZ/EL mount over mount tube. Mount tube options may include the Tri-Mast wall mount, ground pole mount, or non-penetrating roof mount. Loosely fasten (4) azimuth locking bolts. Do not tighten securely until azimuth alignment is determined and set.



ANTENNA ALIGNMENT

9

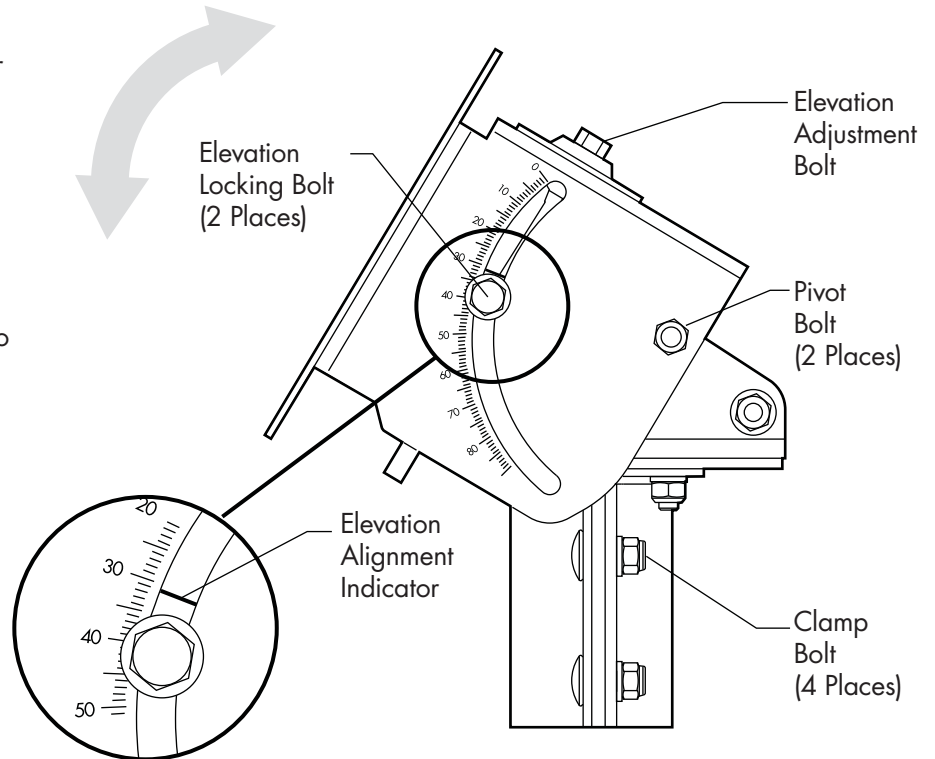
Elevation Alignment

To obtain elevation value for your satellite, refer to the elevation value written on Page 2.

IMPORTANT: Loosen elevation locking bolts, located in curved slots, on both sides. Loosen pivot bolts 1/2 turn on both sides of Az/EL skew mount.

Turn elevation adjustment bolt clockwise to decrease elevation and counterclockwise to increase elevation. Position the elevation alignment indicator with the appropriate mark on the housing at the desired elevation reading. Scale is in 1 degree increments.

This will be an approximate setting. optimum setting is achieved when fine tuning.



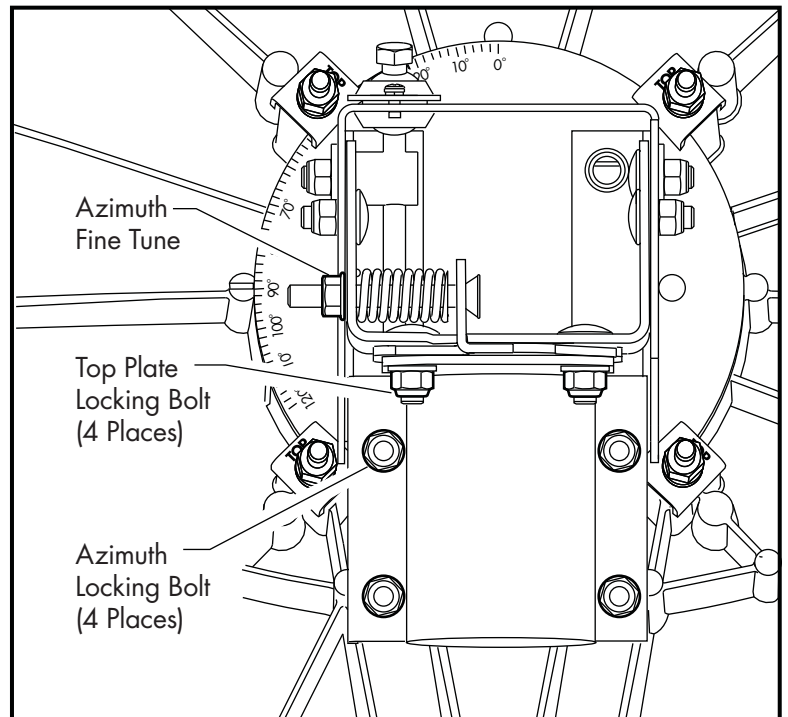
Elevation Example Set at 31°

10

Azimuth Alignment

Refer to the azimuth value determined on page 2.

Values in chart must be adjusted for magnetic deviation for your location for correct compass reading. Equally tighten the four azimuth locking bolts until snug, and loosen 1/8 turn. This will allow azimuth rotation with slight resistance and prevent the AZ/EL from tilting on pole. Rotate the reflector and Az/El mount, pointing it to the compass reading for your location and satellite. If desired signal is not located, increase or decrease elevation setting and repeat the azimuth sweep. Tighten progressively (1/8 turn each) all four azimuth locking bolts. Repeat until 11 Nm (8 ft-lb) torque is reached.



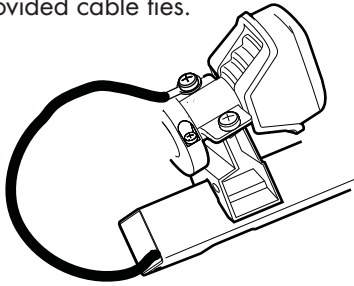
Fine Tuning

Snug tighten (4) top plate locking bolts. Turn the azimuth fine tune nut clockwise or counterclockwise for azimuth fine tuning. Use a signal strength measuring device to obtain the most accurate alignment and maximum antenna performance. Alternate between elevation and azimuth fine tuning to reach maximum signal strength, until no improvement can be detected. Tighten and torque all hardware.

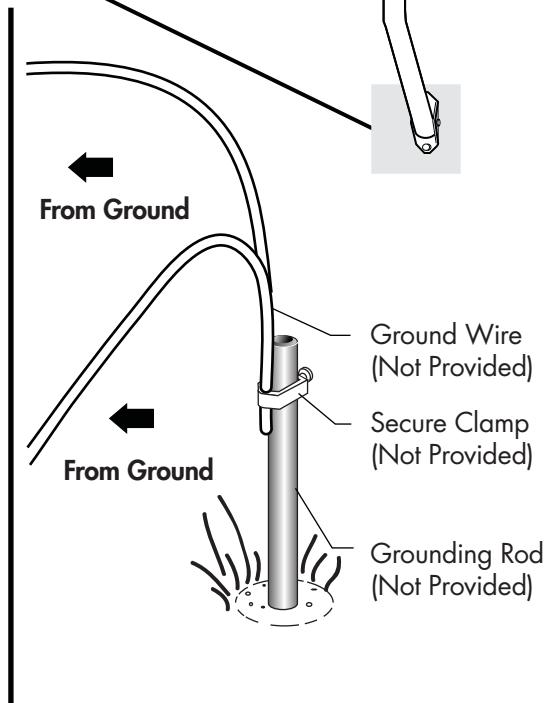
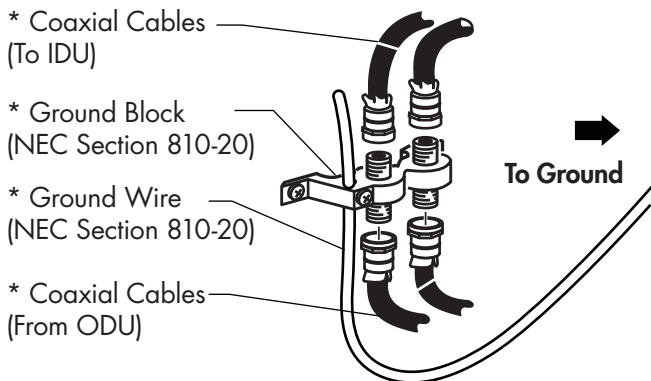
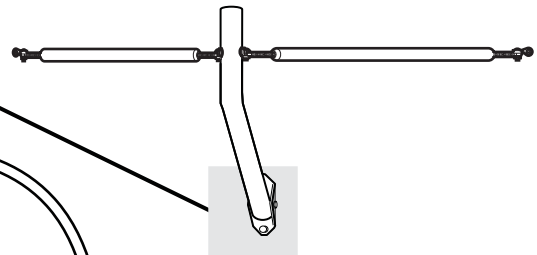
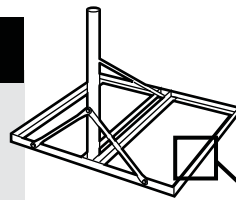
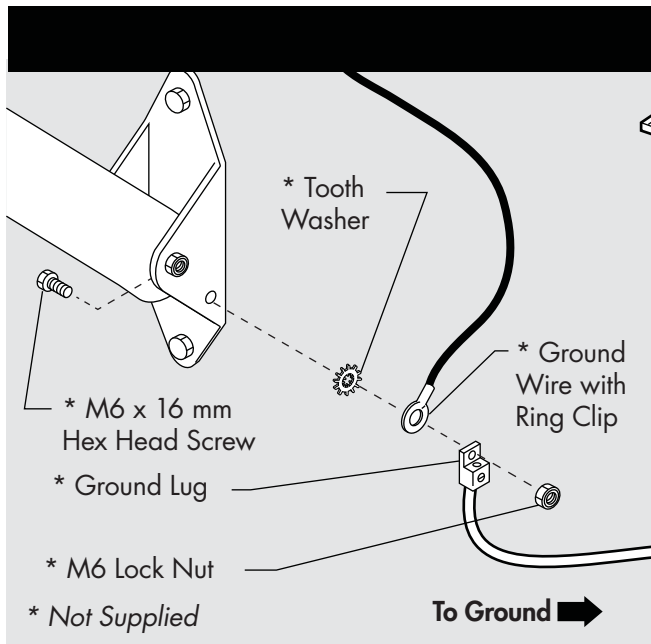
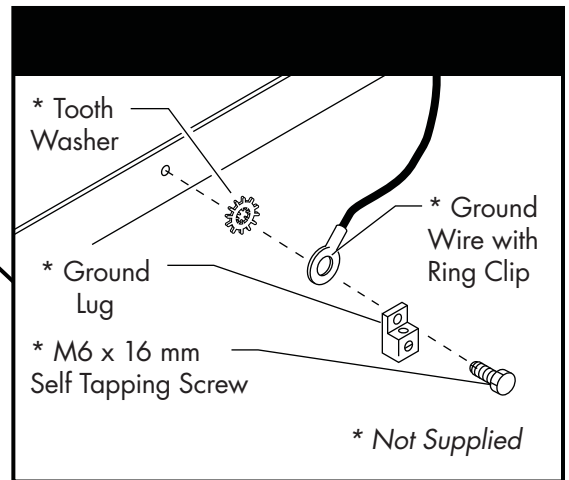
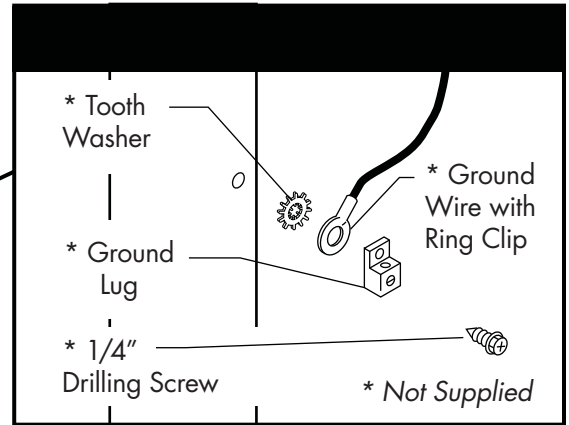
ANTENNA ALIGNMENT

11

Assure that ground wire is routed through support arm and down mount tube. Secure ground wire to mount tube with provided cable ties.



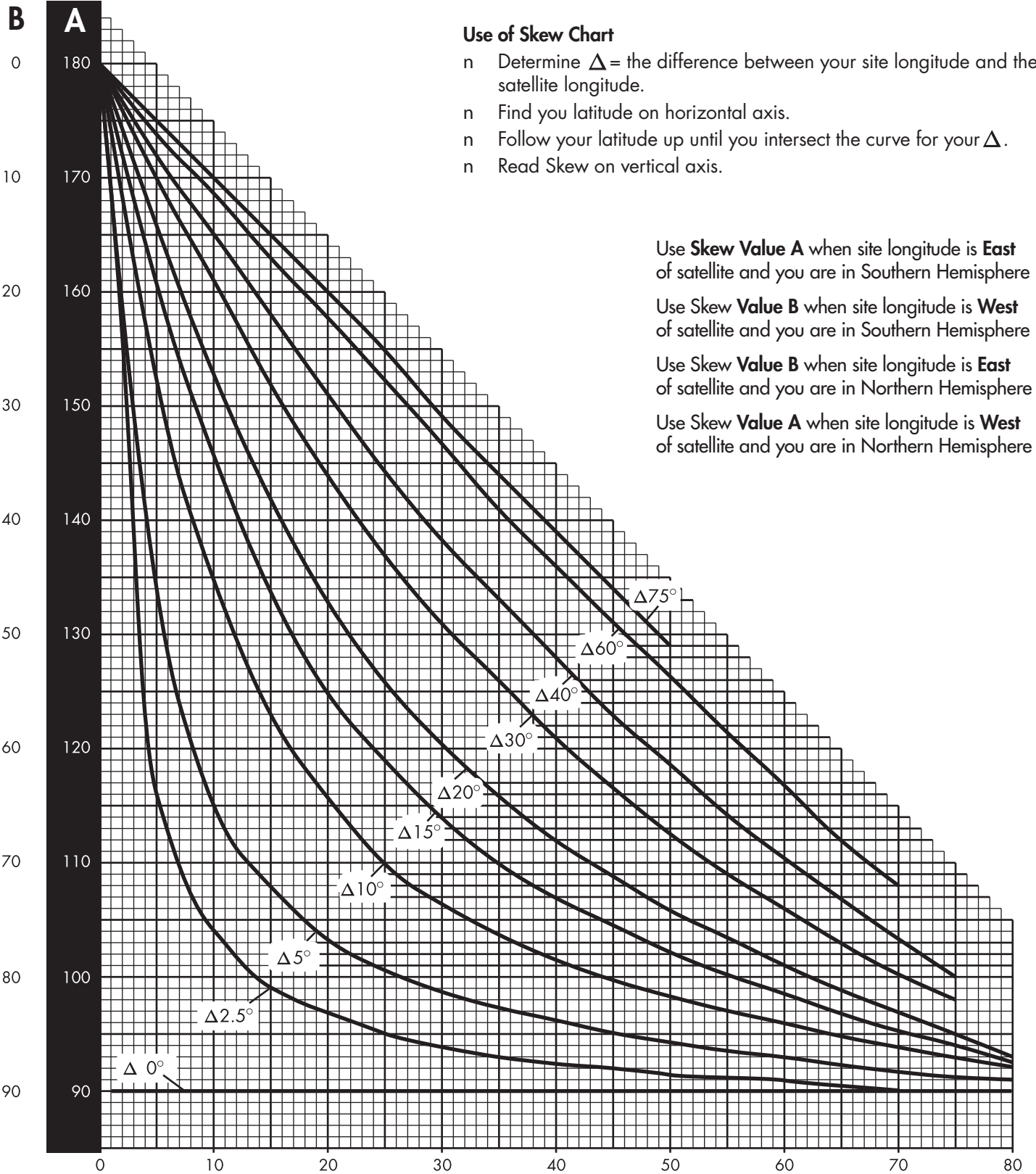
IMPORTANT: All Antenna Systems must be properly grounded. Refer to NEC (National Electric Code) Article 810, 820 and local building codes for specific requirements. Typical grounding methods are shown as examples. Tighten all hardware securely to assure good continuity.



* Not Supplied

Attach ground wires to grounding rod with secure clamp.

SKEW CHART



Use of Skew Chart

- n Determine Δ = the difference between your site longitude and the satellite longitude.
- n Find your latitude on horizontal axis.
- n Follow your latitude up until you intersect the curve for your Δ .
- n Read Skew on vertical axis.

Use **Skew Value A** when site longitude is **East** of satellite and you are in Southern Hemisphere

Use **Skew Value B** when site longitude is **West** of satellite and you are in Southern Hemisphere

Use **Skew Value B** when site longitude is **East** of satellite and you are in Northern Hemisphere

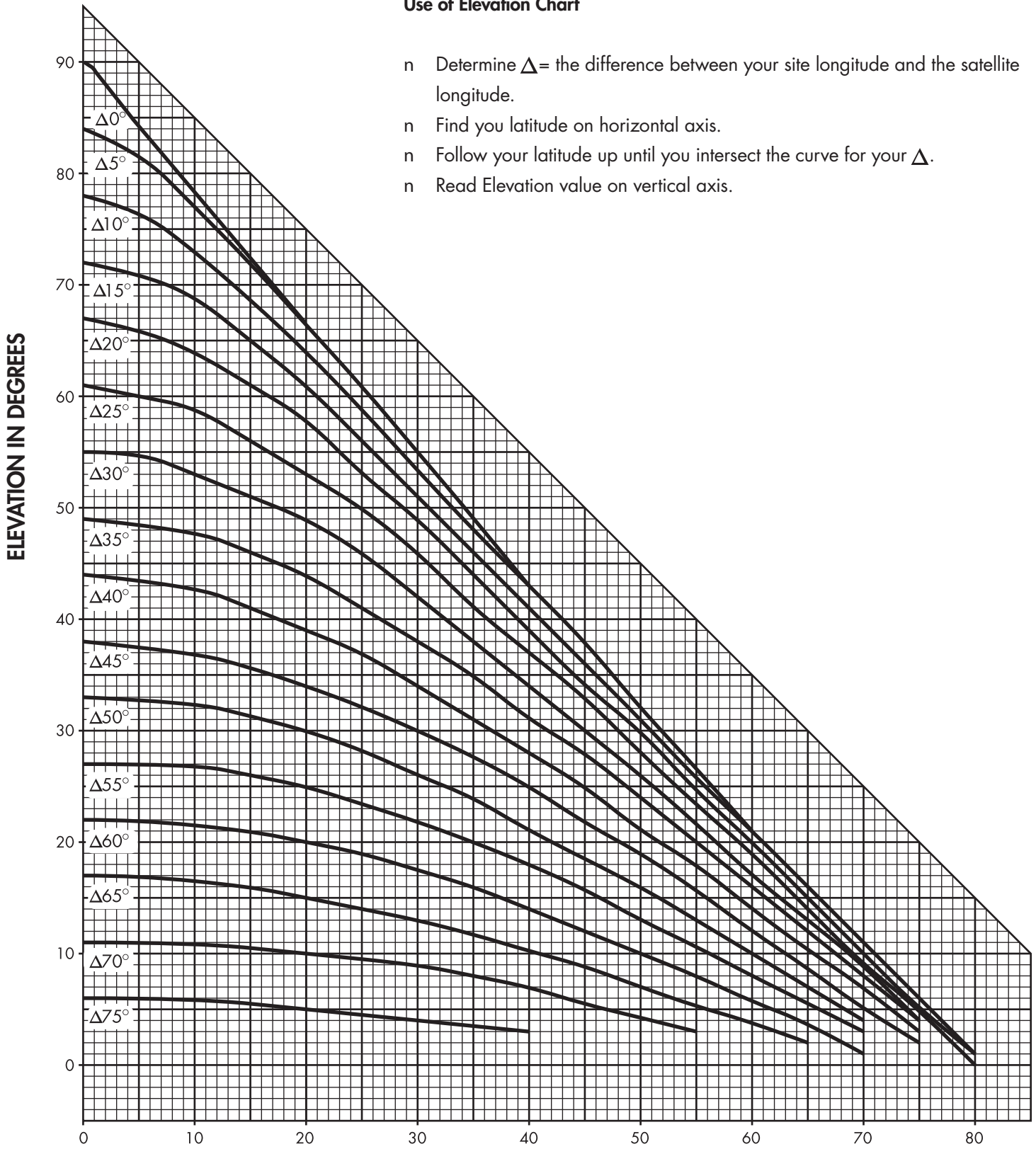
Use **Skew Value A** when site longitude is **West** of satellite and you are in Northern Hemisphere

EARTH STATION LATITUDE IN DEGREES NORTH OR SOUTH OF EQUATOR

ELEVATION CHART

Use of Elevation Chart

- n Determine Δ = the difference between your site longitude and the satellite longitude.
- n Find your latitude on horizontal axis.
- n Follow your latitude up until you intersect the curve for your Δ .
- n Read Elevation value on vertical axis.



EARTH STATION LATITUDE IN DEGREES NORTH OR SOUTH OF EQUATOR

AZIMUTH CHART

" Δ " IS THE DIFFERENCE BETWEEN THE EARTH STATION ANTENNA SITE LONGITUDE AND THE SATELLITE LONGITUDE

