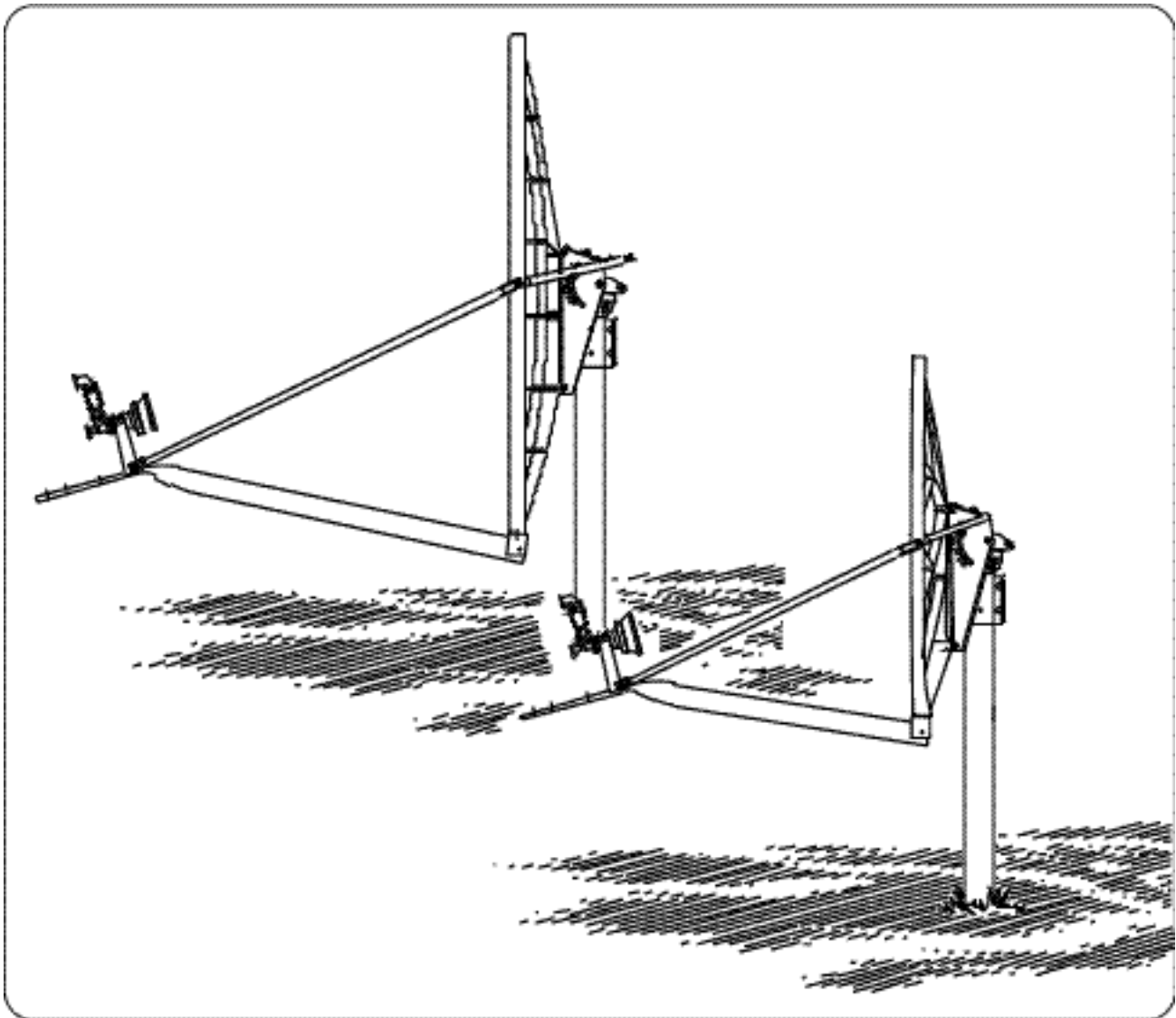


**Type 960 Class I & II .96m Antenna System**  
**Type 123 Class I & II 1.2m LFL Antenna System**  
**Factory Assembled Az/EI Cap Mount**



| DATE | DESCRIPTION | REV. |
|------|-------------|------|
| 7/01 | ECN 9000000 | Rel. |
|      |             |      |
|      |             |      |
|      |             |      |

**VSAT ANTENNA/MOUNT/LNB  
LIMITED TWELVE (12) MONTH WARRANTY**

This CHANNEL MASTER® equipment is warranted to be free from defects in material and workmanship under normal use and service. CHANNEL MASTER shall repair or replace defective equipment, at no charge, or at its option, refund the purchase price, if the equipment is returned to CHANNEL MASTER not more than twelve (12) months after shipment. Removal or reinstallation of equipment and its transportation shall not be at the cost of CHANNEL MASTER except CHANNEL MASTER shall return repaired or replaced equipment freight prepaid.

This Warranty shall not apply to equipment which has been repaired or altered in any way so as to affect its stability or durability, or which has been subject to misuse, negligence or accident. This Warranty does not cover equipment which has been impaired by severe weather conditions such as excessive wind, ice, storms, lightning, or other natural occurrences over which CHANNEL MASTER has no control, and this Warranty shall not apply to equipment which has been operated or installed other than in accordance with the instructions furnished by CHANNEL MASTER.

Claimants under this Warranty shall present their claims along with the defective equipment to CHANNEL MASTER immediately upon failure. Non-compliance with any part of this claim procedure may invalidate this warranty in whole or in part.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER AGREEMENTS AND WARRANTIES, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. CHANNEL MASTER DOES NOT AUTHORIZE ANY PERSON TO ASSUME FOR IT THE OBLIGATIONS CONTAINED IN THIS WARRANTY AND CHANNEL MASTER NEITHER ASSUMES NOR AUTHORIZES ANY REPRESENTATIVE OR OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE EQUIPMENT DELIVERED OR PROVIDED.

IN NO EVENT SHALL CHANNEL MASTER BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INTERRUPTION OF BUSINESS, OR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

In no event shall CHANNEL MASTER be liable for damages in an amount greater than the purchase price of the equipment.

Some states do not allow limitations on how long an implied warranty lasts, or allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

### **IMPORTANT!!!**

INSTALLATION OF THIS PRODUCT SHOULD BE PERFORMED ONLY BY A PROFESSIONAL INSTALLER AND IS NOT RECOMMENDED FOR CONSUMER D.I.Y. (DO-IT-YOURSELF) INSTALLATIONS.

### **DANGER!!!**

**WATCH FOR WIRES!** Installation of this product near power lines is dangerous. For your own safety, follow these important safety rules.

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.  
We recommend you stay a minimum of 6 meters (20 feet) from all power lines.
3. Do not use metal ladders.
4. Do not install antenna or mast assembly on a windy day.
5. If you start to drop antenna or mast assembly, get away from it and let it fall.
6. If any part of the antenna or mast assembly comes in contact with a power line, call your local power company.  
**DONOT TRY TO REMOVE IT YOURSELF!** They will remove it safely.
7. Make sure that the mast assembly is properly grounded.

### **WARNING!!!**

Assembling dish antennas on windy days can be dangerous. Because of the antenna surface, even slight winds create strong forces. For example, a 1.0m antenna facing a wind of 32 km/h (20 mph) can undergo forces of 269 N (60 lbs). Be prepared to safely handle these forces at unexpected moments. Do not attempt to assemble, move or mount a dish on windy days or serious, even fatal accidents may occur. Channel Master® is not responsible or liable for damage or injury resulting from antenna installations.

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 & ice) and properly sealed against leaks. Channel Master will not accept liability for any damage caused by a satellite system due to the many unknown variable applications.

### **ASSEMBLY TOOLS REQUIRED**

1 - Compass  
1 - Clinometer  
1 - Ratchet Wrench (3/8" Drive)

1 - 10mm Nut Driver  
1 - 10mm Socket (3/8" Drive)  
1 - Phillips Screwdriver (#1 or #2)  
1 - Torque Wrench

1 - 13mm Deep Socket (3/8" Drive)  
1 - 9" Magnetic Level  
1 - 13mm Combination Wrench  
1 - 10mm Combination Wrench

### **PREINSTALLATION MATERIALS CHECKLIST**

Grounding Rod Clamp & Grounding Block - As Required by National Electric Code or local codes.

Ground Wire - #10 solid copper as or required by National Electric Code or local codes (length required).

Concrete - (See Ground Pole section for quantity and grade).

#3 Rebar - (See Ground Pole section for quantity). Deformed steel per ASTM A615, grade 40 or 60.

### **SITE SELECTION**

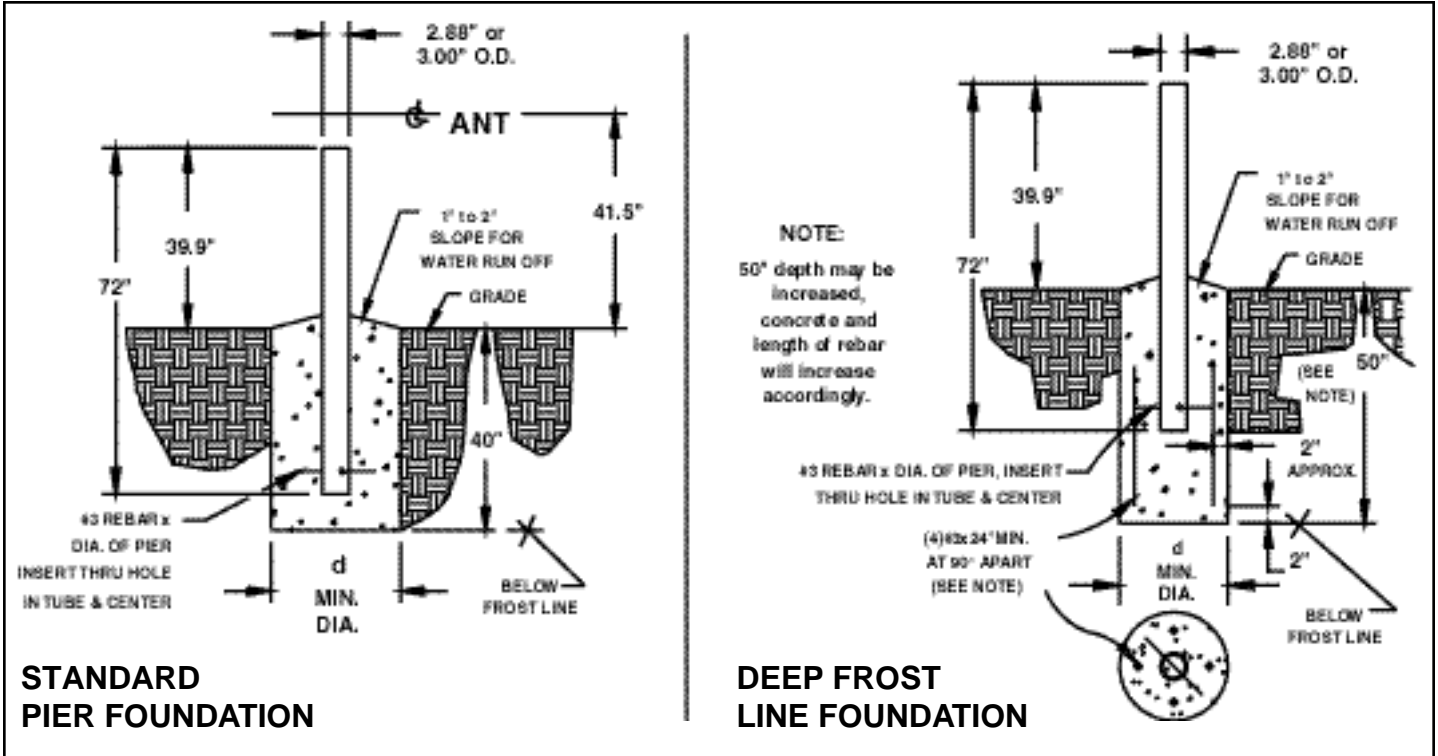
The first and most important consideration when choosing a prospective antenna site is whether or not the area can provide an acceptable "look angle" at the satellites. A site with a clear, unobstructed view is preferred. Also consider obstruction that may occur in the future such as the growth of trees. Your antenna site must be selected in advance so that you will be able to receive the strongest signal available. To avoid microwave interference, obstructions, etc. conduct an on-site survey with a portable antenna.

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.

Before any digging 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.

Because soils vary widely in composition and load capacity, consult a local professional engineer to determine the appropriate foundation design and installation procedure. A suggested foundation design with conditions noted is included in this manual for reference purposes only.

# GROUND POLE INSTALLATION (96cm System)



| PIER FOUNDATIONS |           |              |           |              |           | DEEP FROST LINE FOUNDATIONS |           |              |           | GROUND POLE |
|------------------|-----------|--------------|-----------|--------------|-----------|-----------------------------|-----------|--------------|-----------|-------------|
|                  |           | Exposure "B" |           | Exposure "C" |           | Exposure "B"                |           | Exposure "C" |           |             |
| ANT              | WIND VEL. | DIM "d"      | CONC VOL. | DIM "d"      | CONC VOL. | DIM "d"                     | CONC VOL. | DIM "d"      | CONC VOL. |             |
| 96cm             | 80 MPH    | 7"           | 0.9       | 10"          | 1.8       | 7"                          | 1.2       | 7"           | 1.2       | "A"         |
|                  | 90 MPH    | 8"           | 1.2       | 13"          | 3.0       | 7"                          | 1.2       | 8"           | 1.5       | "A" or "B"  |
|                  | 100 MPH   | 10"          | 1.8       | 15"          | 4.0       | 7"                          | 1.2       | 10"          | 2.4       |             |
|                  | 110 MPH   | 11"          | 2.2       | 17"          | 5.2       | 7"                          | 1.2       | 11"          | 2.9       |             |
|                  | 125 MPH   | 14"          | 3.5       | 20"          | 7.2       | 9"                          | 1.9       | 14"          | 4.7       | "B" Only    |

### POLE SPECIFICATIONS:

Ground Pole "A" = 3.00 O.D. x 10 G.A. x 72" Steel

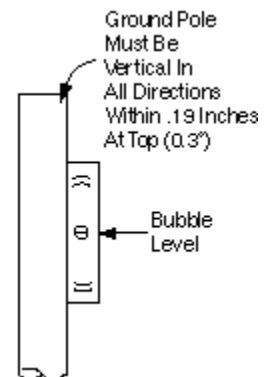
Ground Pole "B" = 2 7/8 O.D. x .203 Wall x 72" Steel ASTM 120 Mech Tubing (2 1/2 Sch. 40)

### NOTE:

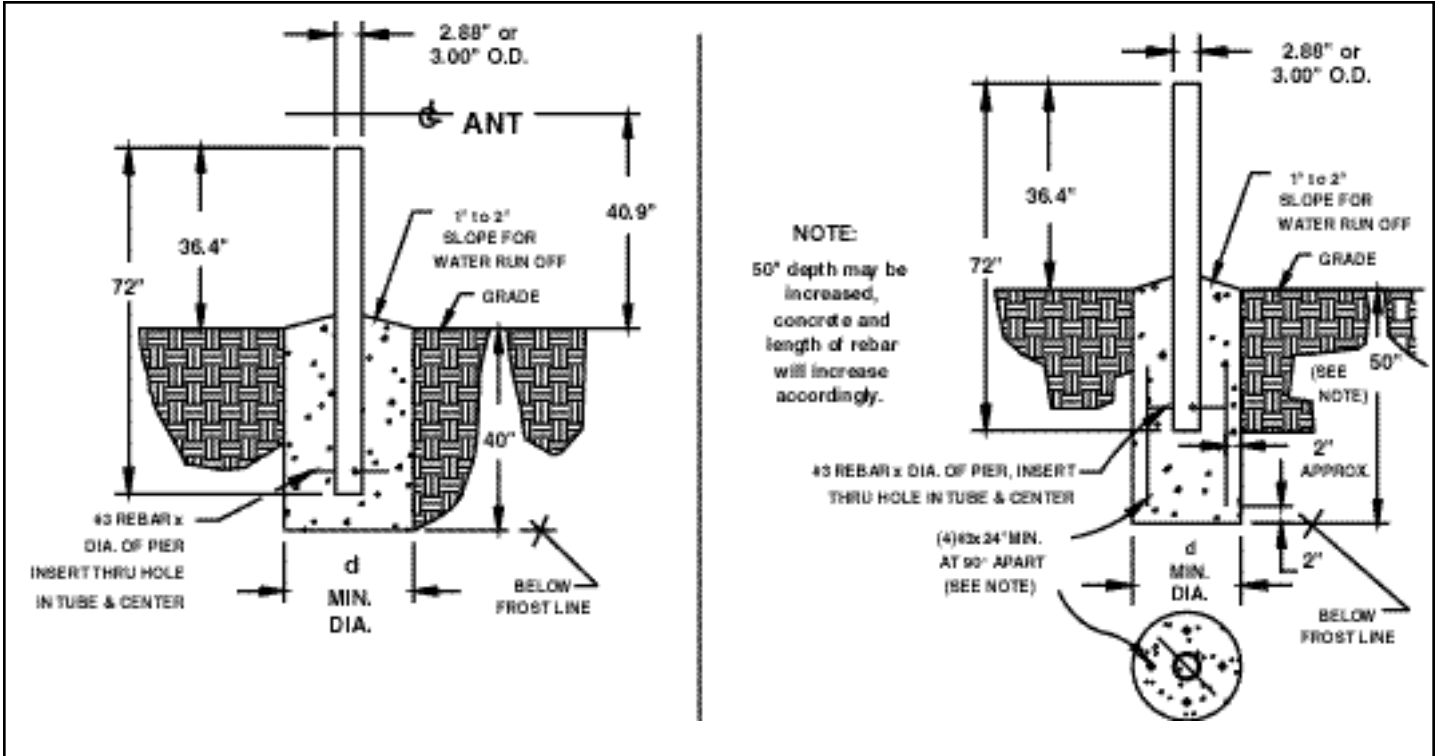
Pole not supplied and must be field drilled 5/8" dia. for #3 rebar and drilled .218 for 1/4-20 self tapping grounding screw (see Page 7) and galvanized or painted for protection.

- 1 - Pole and foundation design based on the following criteria:
  - a) Uniform building code exposure B or C and 1.5 stability factor.
  - b) Vertical soil pressure of 2000 pounds per square foot.
  - c) Lateral soil pressure of 400 pounds per square foot.
  - d) Concrete compressive strength of 2500 pounds per square inch in 28 days.

- 2 - **CAUTION** - The foundation design shown does not represent an appropriate design for any specific locality since soil conditions vary and may not meet design criteria given in Note 1. You should consult a local professional engineer to determine your soil conditions and appropriate foundation.



# GROUND POLE INSTALLATION (1.2m System)



|             | PIER FOUNDATIONS |         |              |         |           | DEEP FROST LINE FOUNDATIONS |           |              |           |            | GROUND POLE |
|-------------|------------------|---------|--------------|---------|-----------|-----------------------------|-----------|--------------|-----------|------------|-------------|
|             | Exposure "B"     |         | Exposure "C" |         |           | Exposure "B"                |           | Exposure "C" |           |            |             |
| ANT         | WIND VEL.        | DIM "d" | CONC VOL.    | DIM "d" | CONC VOL. | DIM "d"                     | CONC VOL. | DIM "d"      | CONC VOL. |            |             |
| 1.2M<br>LFL | 80 MPH           | 8"      | 1.3          | 13"     | 3.4       | 8"                          | 1.6       | 10"          | 2.5       | "A" or "B" |             |
|             | 90 MPH           | 10"     | 2.0          | 16"     | 5.1       | 8"                          | 1.6       | 12"          | 3.6       |            |             |
|             | 100 MPH          | 12"     | 2.9          | 18"     | 6.5       | 8"                          | 1.6       | 13"          | 4.2       | "B" or "C" |             |
|             | 110 MPH          | 14"     | 3.9          | 21"     | 8.8       | 10"                         | 2.5       | 16"          | 6.4       |            |             |
|             | 125 MPH          | 17"     | 5.8          | 24"     | 11.5      | 12"                         | 3.6       | 19"          | 9.0       | "D"        |             |

## POLE SPECIFICATIONS:

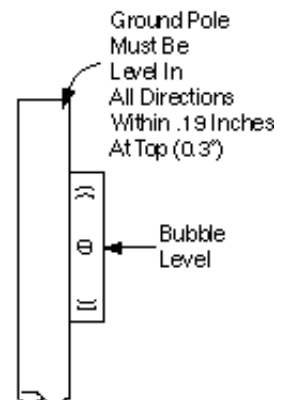
- Ground Pole "A" = 2.88 O.D. x .154 Wall (Sch 40) x 72" ASTM A53 or A501 Pipe
- Ground Pole "B" = 3.00 O.D. x 9 Ga. (.148 Wall) x 72" Steel - CM PN 611685101
- Ground Pole "C" = 2.88 O.D. x 2.88 O.D. x .276 Wall (Sch 80) x 72" Steel ASTM A53 or A501 Pipe
- Ground Pole "D" = 3.00 O.D. x .250 Wall x 72" Steel ASTM 120 Mech Tubing

## NOTE:

Pole "B" is supplied from factory powder painted and with hole for #3 rebar and grounding screw. Poles "A", "C" and "D" are not supplied and must be field drilled 5/8" dia. for #3 rebar and drilled .218 for 1/4-20 self tapping grounding screw and galvanized or painted for protection.

- 1 - Pole and foundation design based on the following criteria:
  - a) Uniform building code exposure B or C and 1.5 stability factor.
  - b) Vertical soil pressure of 2000 pounds per square foot.
  - c) Lateral soil pressure of 400 pounds per square foot.
  - d) Concrete compressive strength of 2500 pounds per square inch in 28 days.

2 - **CAUTION** - The foundation design shown does not represent an appropriate design for any specific locality since soil conditions vary and may not meet design criteria given in Note 1. You should consult a local professional engineer to determine your soil conditions and appropriate foundation.



## ASSEMBLY AND INSTALLATION

### INSTALLING AZ/EL CAP MOUNT ONTO POLE

The AZ/EL Cap is factory preassembled, therefore, no assembly is required. Before installing AZ/EL Cap onto ground pole, a concrete foundation should be in place and cured.

#### MODEL 611612001 (Fine Tune Option)

Loosen (8) Carriage Bolts and nuts securing the "U" Bracket to the Top Bracket and "U" Bracket to (2) half clamps and swivel nut, hex nut (for optional fine tune feature). (Ref. Fig. 1.0). Install AZ/EL Cap Mount onto Ground Pole. Equally tighten (4) Clamp Bolts so that Cap is held stationary on Ground Pole, but can be swiveled with slight pressure (approximately 2 ft-lbs (2.7 N-m)). Retighten and torque (4) Carriage Bolts and nuts securing "U" bracket to half clamps to 18 ft-lbs (24.4 N-m). Leave loose (4) Carriage Bolts and Swivel Nut, Hex Nuts, for fine tune option.

#### MODEL 611612002 (w/o Fine Tune Option)

**Make sure (4) carriage bolts and nuts securing the (2) Half Clamps to top bracket are loose.** (Ref. Fig. 1.1) Place AZ/EL Cap onto Ground Pole and tighten (4) Half Clamp Bolts to approximately 2 ft-lbs (2.7 N-m) (just enough to allow AZ Clamp to turn on pole with slight pressure). Tighten and torque (4) Carriage Bolts and Nuts in Top Bracket to 18 ft-lbs (24.4 N-m) (loosened above).

### ASSEMBLING REFLECTOR ONTO AZ/EL CAP MOUNT

#### 96cm System

Install two M8 x 2.21 (56.1mm) Plow Bolts into holes in Reflector Face and two 3.58 (90.9mm) into bottom holes. Lift Reflector and insert exposed portion of bolt into holes into Antenna Bracket Flange. Install 4 Lock Washers and Hex Nuts on bolts. (Ref. Fig. 1.2)

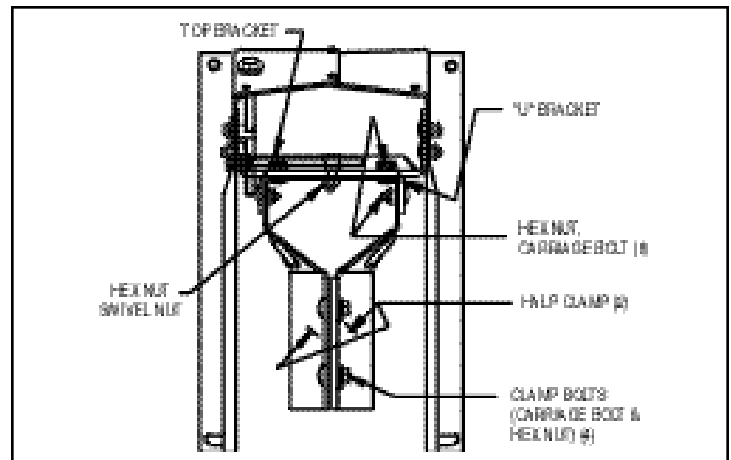
#### 1.2m System

Install four M8 x 3.58 (90.9mm) Plow Bolts into top holes in Reflector Face. Lift Reflector and insert exposed portion of bolt to holes in Antenna Bracket Flange. Install 4 Lock Washers and Hex Nuts on bolts. (Ref. Fig. 1.2)

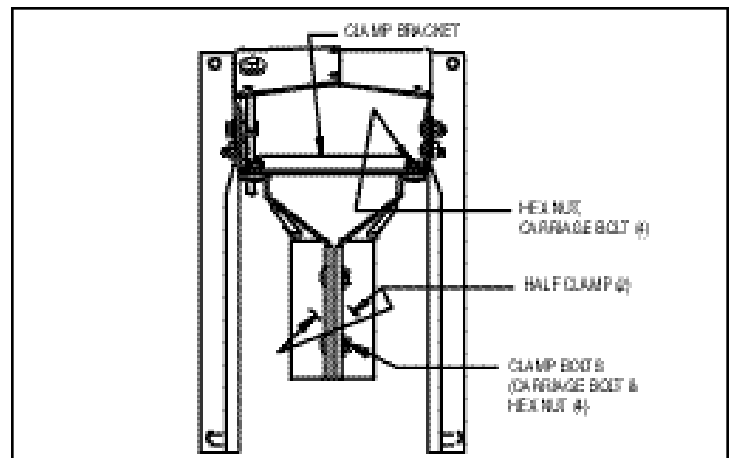
Assemble Extension Plate to AZ/EL Housing using two M6 x 22mm Round Head Square Neck Bolts, Lock Washers, and Hex Nuts. (Ref. Fig. 1.3) Tighten and torque to 6 ft-lbs (8 N-m).

Tighten and torque Reflector bolts to 11 ft-lbs (15 N-m).

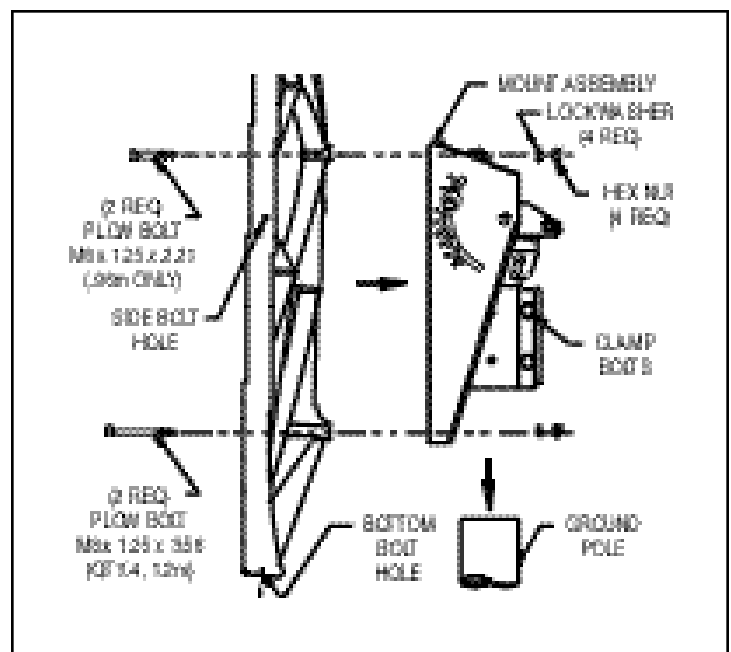
**IMPORTANT:** Note orientation of bolt holes in Reflector Flange. Holes should be located on each side and bottom of the Reflector as shown in Figure 1.2.



**FIG. 1.0 - Model 611612001 AZ/EL w/Fine Tune Option**



**FIG. 1.1 - Model 611612002 AZ/EL w/o Fine Tune Option**



**FIG. 1.2 - Assembling Reflector to AZ/EL Mount and Ground Pole (96cm Shown)**

## ASSEMBLY AND INSTALLATION

### FEED AND FEED LEG INSTALLATION

**NOTE:** Long formed end of Side Feed Leg attaches to the Reflector rim, short formed to side of Feed Support Terminal.

Assemble Bottom Feed Leg to bottom of Reflector rim. From the inside of Reflector rim, insert M6 x 16mm Hex Bolt thru hole in rim and attach Bottom Feed Leg. Secure with Lock Washer and Hex Nut.

**NOTE:** Bottom Feed Leg is the one with slight bend, with lance, on one end, and is shorter than the Side Feed Legs.

Leave all hardware loose. Insert Bottom Feed Leg end with lance into socket hole in center of Feed Support Terminal. Twist to engage lances. Attach left and right Feed Support Legs to Feed Support Terminal, securing with M6 x 16mm Hex Bolts and Lock Washers. Refer to Instruction for Feed Assembly to assemble Feed Assembly and ODU to Terminal Block. Tighten and torque all hardware to Terminal Block and Reflector to 4 ft-lbs (5.4 N-m). Tighten two screws in Terminal Block socket equally.

### FEED AND FEED SUPPORT TUBE INSTALLATION

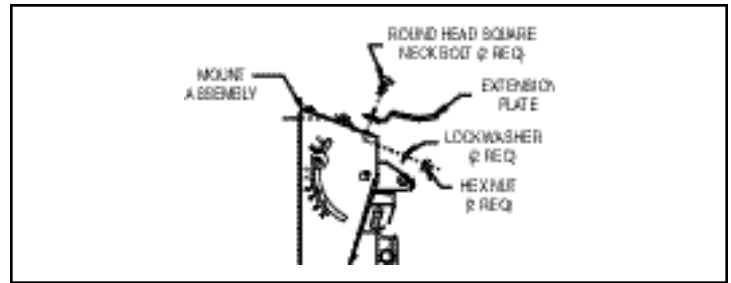
#### MEDIUM DUTY

Assemble "U" Clip to bottom of Reflector using M6 x 22mm Round Head Square Neck Bolt, Lock Washer and Hex Nut. Insert bottom Feed Support Tube into "U" Clip and secure with M6 x 55mm Round Head Square Neck Bolt and elastic Lock Nut. (Ref. Fig. 1.5 & 1.6) Assemble Feed Support Block (supplied with Feed package) to Feed Support Tube, using two M6 x 16mm Hex Bolts and Lock Washers.

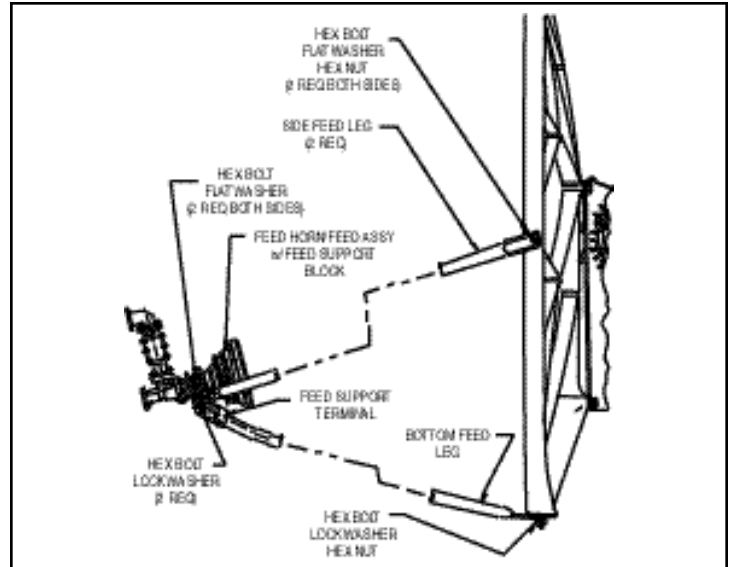
#### 96cm System (Ref. Fig. 1.5)

Attach Side Feed Legs and Braces to left and right sides of Reflector using M6 x 20mm Hex Bolts, Lock Washers and Hex Nuts. (NOTE: Long formed end of Feed Leg attaches to Reflector. Short formed end of Brace attaches to inside of Reflector rim.) Attach flatten end of Brace to top of Mount Housing using M6 x 22mm Round Head Square Neck Bolts, Tooth Lock Washers, Flat Washers and Hex Nuts. Round Head Square Bolt fits on the underside of Mount Housing top, flatten end of Brace on top side of Mount Housing, Tooth Lock Washer on top of flatten end of Brace, then Flat Washer and Hex Nut.

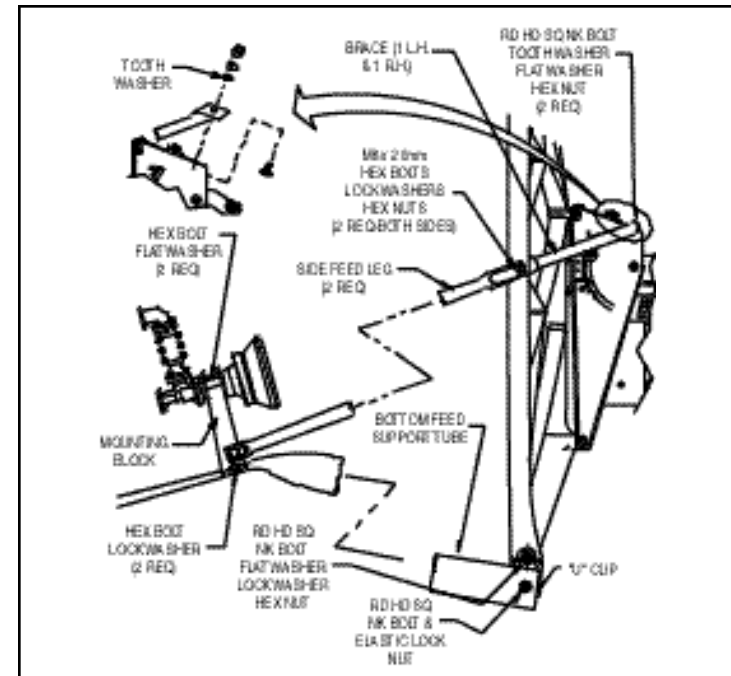
Attach Side Feed Legs to support Block using M6 x 20mm Hex Nuts and Lock Washers. Leave all hardware loose.



**FIG. 1.3 - Installation of Extension Plate to AZ/EL Housing (1.2m medium Duty Only)**



**FIG. 1.4 - Installation of Feed/Feed Support Legs to Antenna (Light Duty, 96cm Shown)**



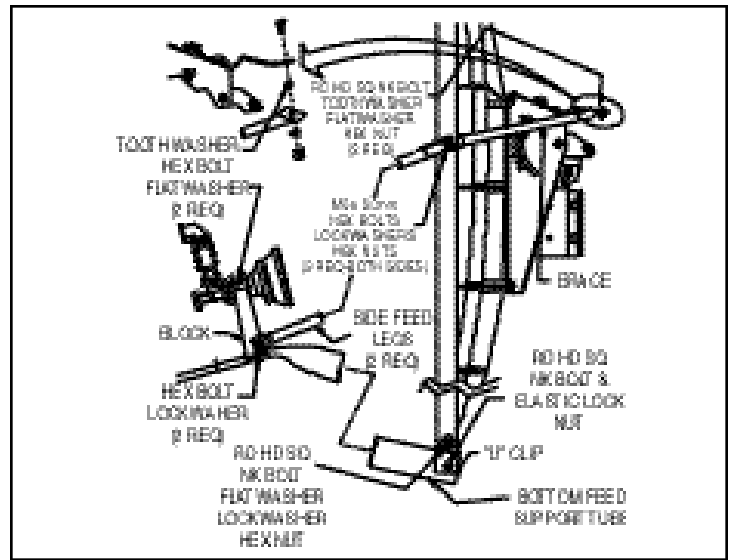
**FIG. 1.5 - Installation of Feed/Feed Support Legs to Antenna (96cm Medium Duty)**

## ASSEMBLY AND INSTALLATION

### 1.2m System (Ref. Fig. 1.6)

Attach Side Feed Legs and Braces to left and right sides of Reflector using M6 x 20mm Hex Bolts, Lock Washers and Hex Nuts. (NOTE: Long formed end of Feed Leg attaches to Reflector. Short formed end of Brace attaches to inside of Reflector rim.) Attach flatten end of Brace to Extension Plate, using M6 x 22mm Round Head, Square Neck Bolts, Tooth Lock Washers, Flat Washers and Hex Nuts. Round Head Square Bolt Fits on the top of Extension Plate. Tooth Lock Washer fits between the flatten end of Brace and Extension Plate, then Flat Washer and Hex Nut. Attach Side Feed Legs to Support Block using M6 x 20mm Hex Nuts and Lock Washers. Leave all hardware loose.

Tighten and torque hardware securing Braces, Side Legs, and "U" Clip to Reflector and Support Block to 4 ft-lbs (5.4 N-m). Tighten and torque M6 x 55mm "U" Bolt to 18-22 in-lbs (2-2.5 N-m).



**FIG. 1.6 - Installation of Feed/Feed Support Legs to Antenna (1.2m Medium Duty)**

## GROUNDING

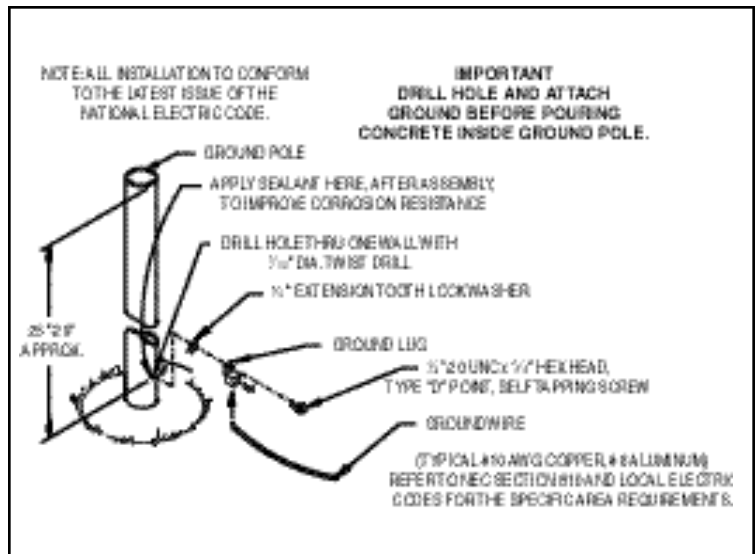
**NOTE:** All installations to conform to latest issue of National Electrical Code.

Ground antenna mount assembly and feed cables in accordance with current National Electrical Code and local electrical codes. Figure 2.0 and 2.1 illustrates typical grounding methods for the ground pole and feed cables.

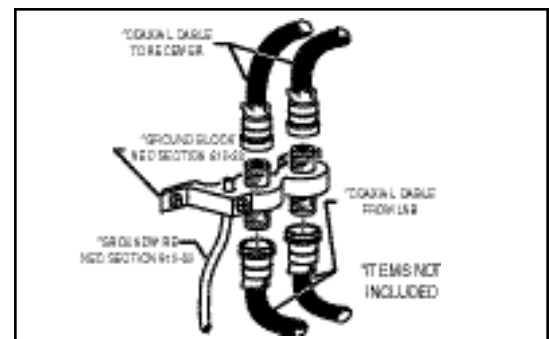
Clamps that provide a solid connection between ground wire and ground source should be used.

Tighten and torque all hardware.

**IMPORTANT:** Sealing RF Coaxial Connector: The copper-plated center conductor in the RF coaxial cable, which connects receiver to LNB, can experience electrolysis corrosion at the LNB connector. Moisture and DC current causes this type of corrosion. To prevent corrosion, apply a moderate coat of silicon grease to the center conductor and wrap the entire connection with **COAX-SEAL**® tape to seal.



**FIG. 2.0 - Typical Electrical Grounding for Antenna Ground Pole**



**FIG. 2.1 - Grounding Feed Cables**



## ANTENNA ALIGNMENT PROCEDURE

Alignment with the satellite is obtained by setting polarization, elevation and azimuth. Charts 1, 2 & 3 are to determine these values for your earth station antenna site. "L" is the difference between the earth station antenna site longitude and the satellite longitude. Use "L" and your earth station latitude to obtain polarization, elevation or azimuth setting.

### **POLARIZATION OF THE FEED**

Loosen Feed Horn Clamp Bolts and turn Feed clockwise or counterclockwise, depending on being east or west of the satellite as shown on Chart 1. For course setting, align marks on the Horn Scale (Ref. Fig. 3.0). Polarization chart assumes antenna system polarization is Tx vertical and satellite vertical Pol is perpendicular to plane of geostationary arc. For horizontal Tx of antenna, Feed must be rotated 90° from values shown. (Starting point for polarization adjustment is 0°, as shown in Figure 3.0.) Use a signal strength measuring device for final polarization setting and tighten horn clamp bolts to 4 ft-lbs (5.4 N-m).

### **ELEVATION**

Use Chart 2 and determine your elevation setting. Loosen Elevation Pivot Bolts and Bolts in curved slots (both sides) of AZ/EL housing approximately ½ turn (Ref. Fig. 3.1). Turn Elevation Adjustment Bolt clockwise to decrease elevation and counterclockwise to increase elevation. Align the edge of the Clamp with appropriate mark on housing at the desired elevation reading. This will be an approximate setting. Optimum setting achieved when fine tuning.

**NOTE:** Degree values shown on Elevation Scale are Beam; there is no need to compensate for any offset angle. (See Appendix A, Outline Drawing). If clinometer is used, you must compensate for offset angle.

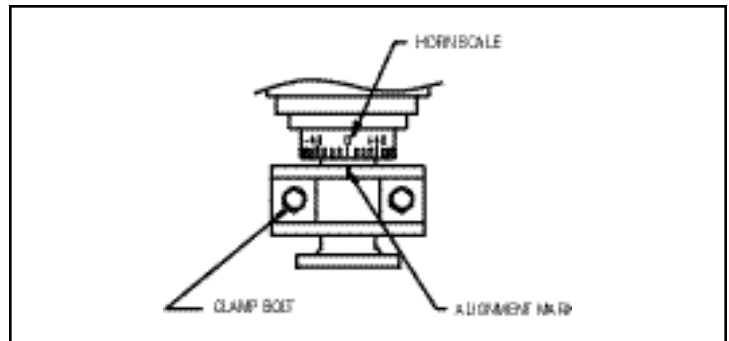
### **AZIMUTH**

Use Chart 3 and determine your azimuth setting. Values in chart must be adjusted for magnetic deviation for your location for correct compass reading. Rotate Reflector and Mount pointing it to the correct compass reading. Slowly sweep the antenna in azimuth until signal is found. If the desired signal is not found, increase or decrease elevation setting and repeat the azimuth sweep (Ref. Fig.3.2). Tighten Half Clamp Bolts .

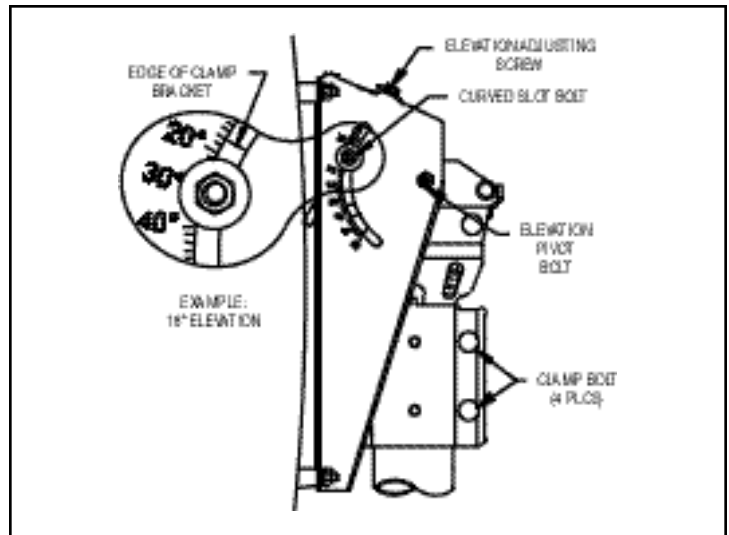
### **FINE TUNING**

Use Signal Tuning Device for final adjustments to obtain maximum antenna performance. Alternate between elevation and azimuth fine tuning to reach maximum signal strength, until no improvement can be detected. Certain models utilize the optional azimuth fine tune feature (refer to Figure 3.2). This allows the azimuth to be fine tuned by loosening the (4) Carriage Head Bolts and Swivel Nut which allows adjusting the Azimuth Fine Tune Adjusting Bolt for the peak signal. When fine tuning is complete, tighten and torque all AZ/EL hardware to 12 ft-lbs (16.3 N-m). Do not exceed 12 ft-lbs (16.3 N-m). Torque Half Clamp Hardware to 18 ft-lbs (24.4 N-m) in alternating sequence.

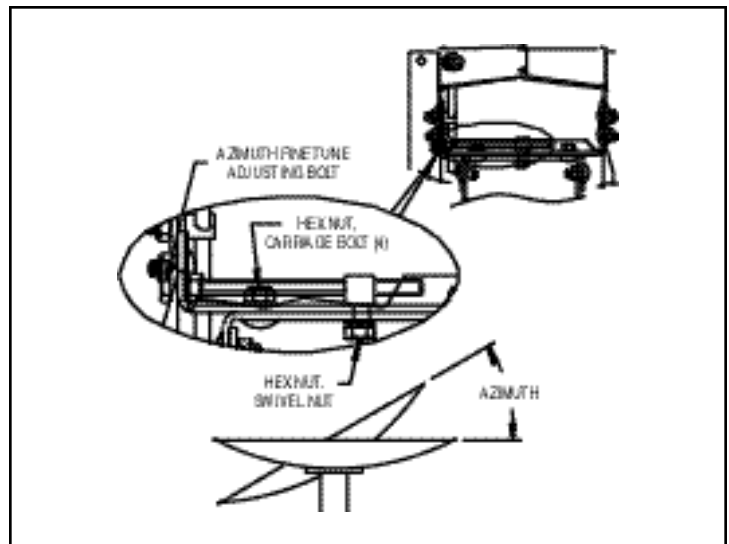
**IMPORTANT: Recheck and repeat torque on all Half Clamp Bolts, in alternating sequence, until all Bolts are equally torqued.**



**FIG. 3.0 - Polarization of the Feed**



**FIG. 3.1 - Setting the Elevation**



**FIG. 3.2 - Rotating Antenna for Azimuth**

## POLARIZATION CHART

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

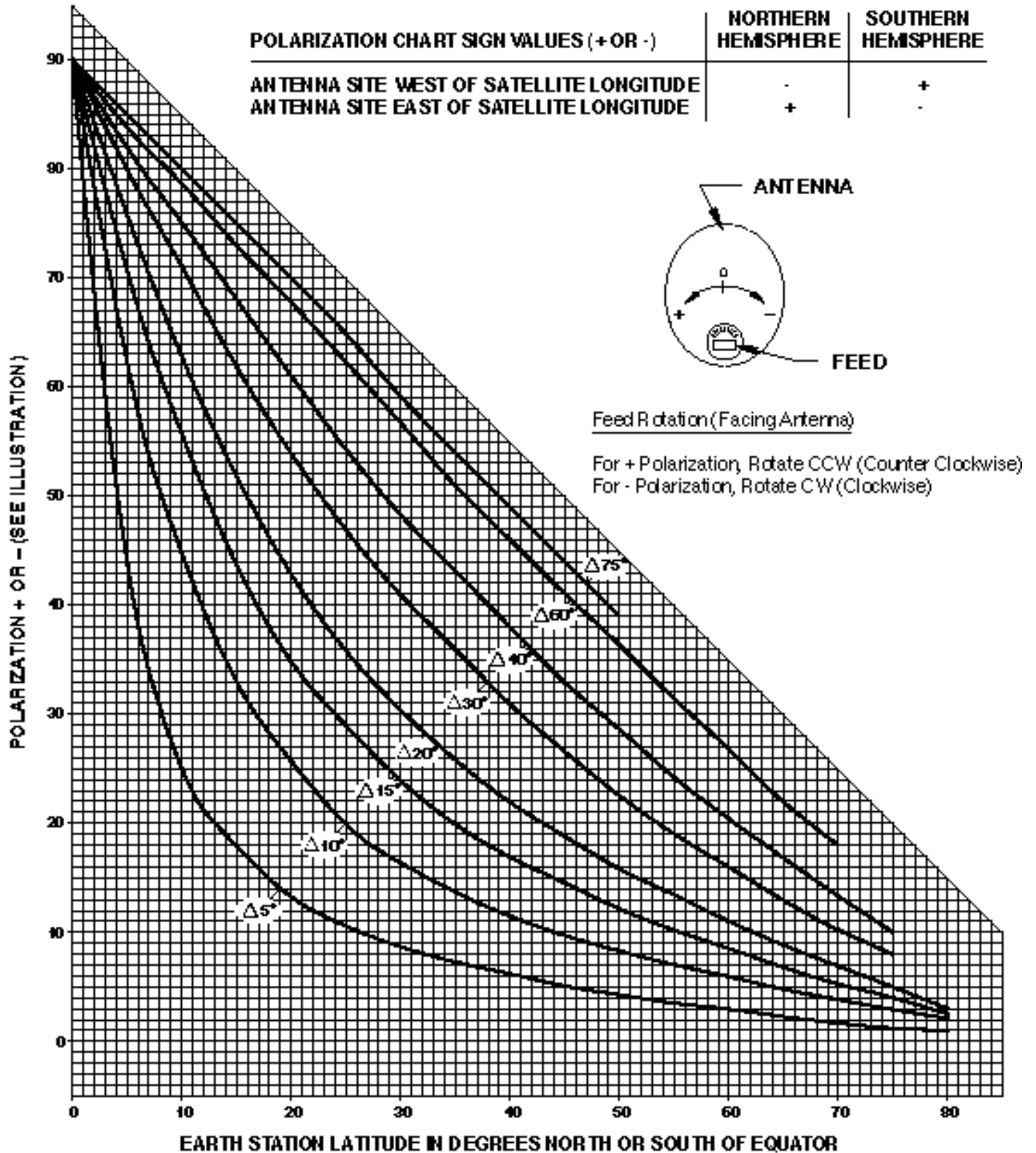
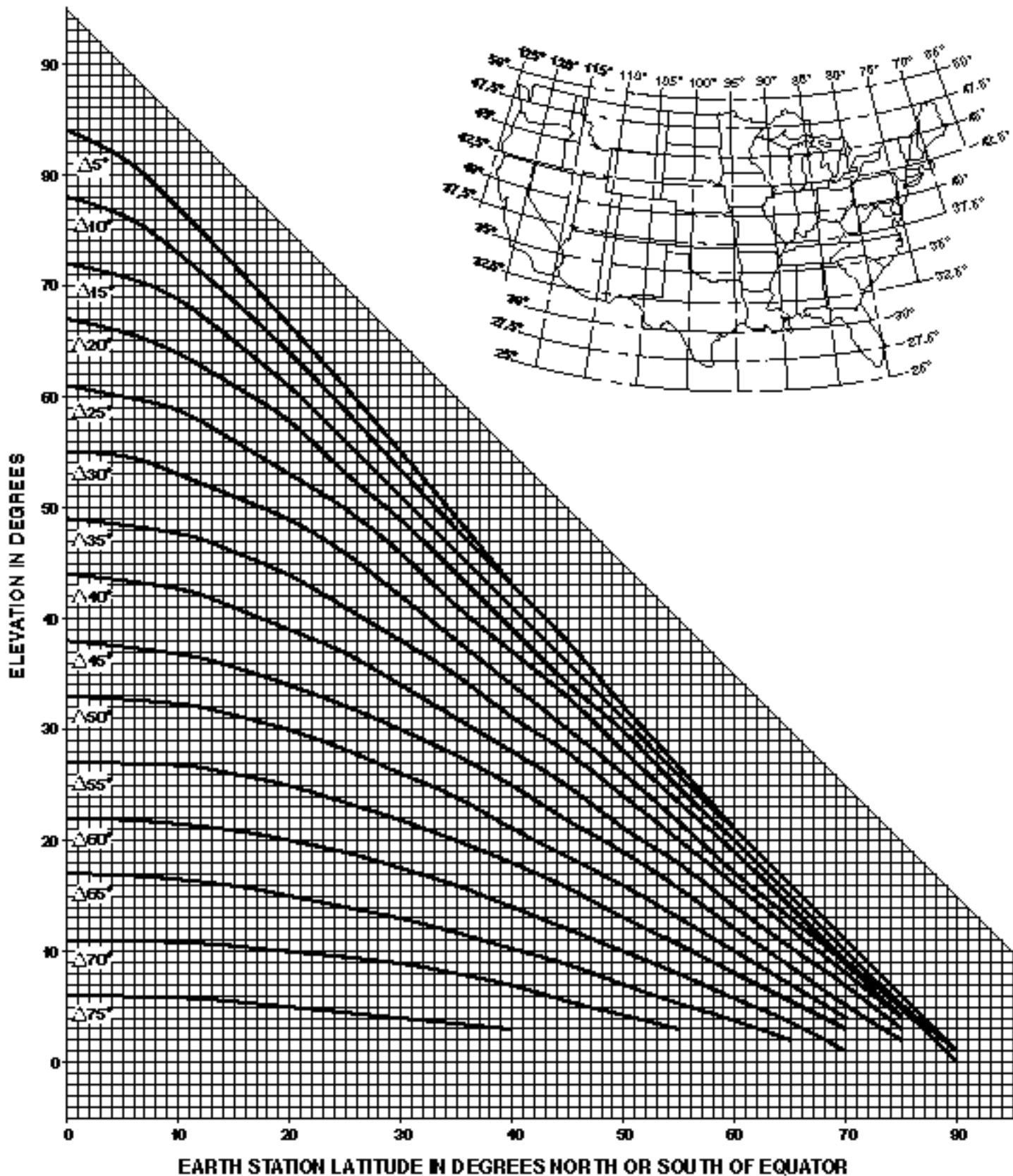


CHART 1

# ELEVATION CHART

" $\Delta L$ " IS THE DIFFERENCE BETWEEN THE EARTH STATION ANTENNA SITE LONGITUDE AND THE SATELLITE LONGITUDE



AZIMUTH CHART

" $\Delta L$ " IS THE DIFFERENCE BETWEEN THE EARTH STATION ANTENNA SITE LONGITUDE AND THE SATELLITE LONGITUDE

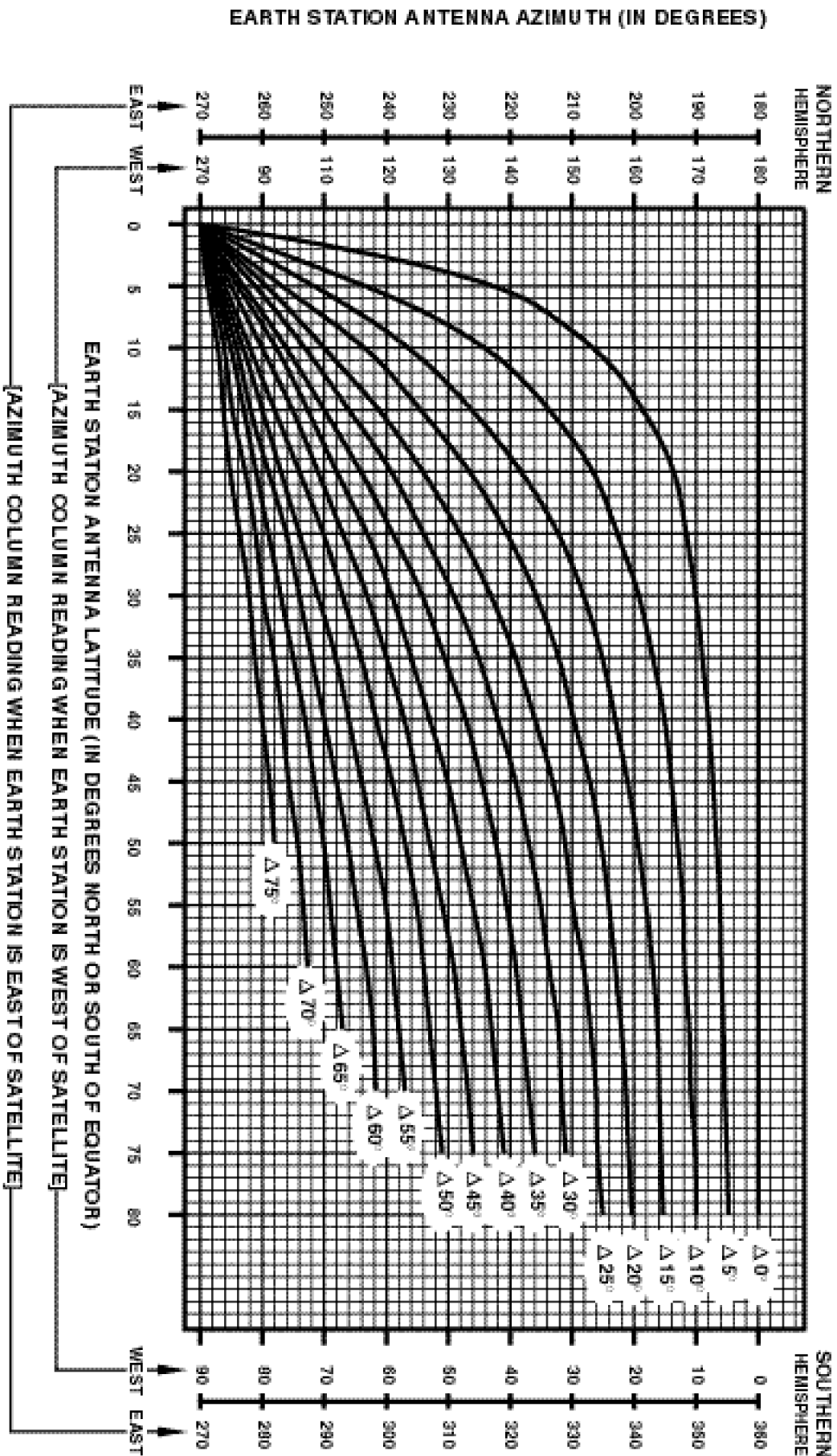
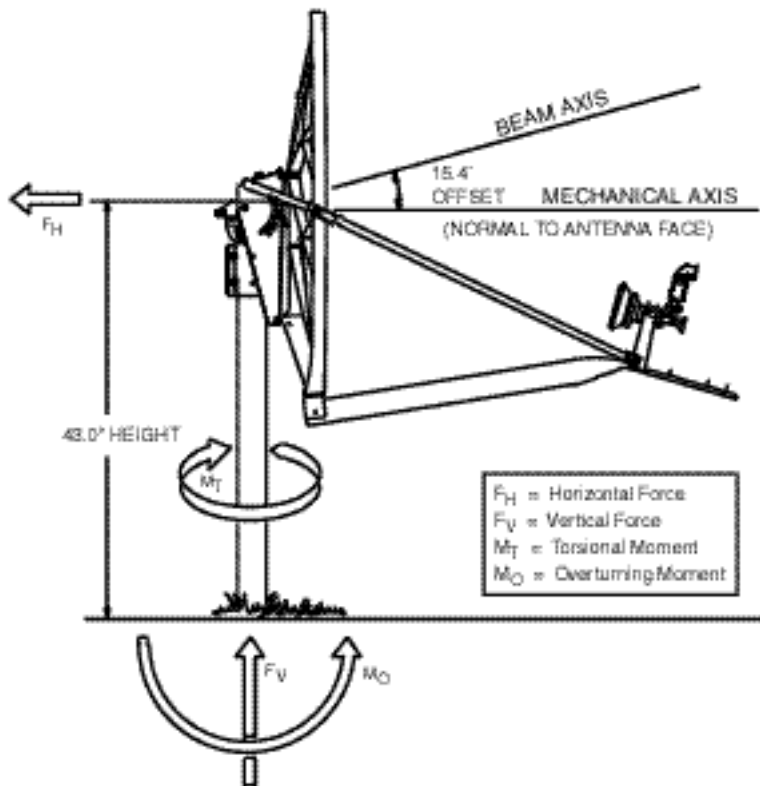


CHART 3

## APPENDIX A

### 96cm Antenna Survival Windloads at 125 MPH Velocity



$M_O$  Based on 43" from Mounting Surface of Center Line of Antenna

| ELEVATION DEGREES |      |
|-------------------|------|
| MECHANICAL        | BEAM |
| 0                 | 15   |
| 10                | 25   |
| 20                | 35   |
| 30                | 45   |
| 40                | 55   |
| 50                | 65   |
| 60                | 75   |
| 70                | 85   |

| FORCE (POUNDS) |       |
|----------------|-------|
| $F_H$          | $F_V$ |
| 747            | -20   |
| 707            | -150  |
| 687            | -289  |
| 622            | -413  |
| 548            | -498  |
| 478            | -548  |
| 398            | -573  |
| 299            | -443  |

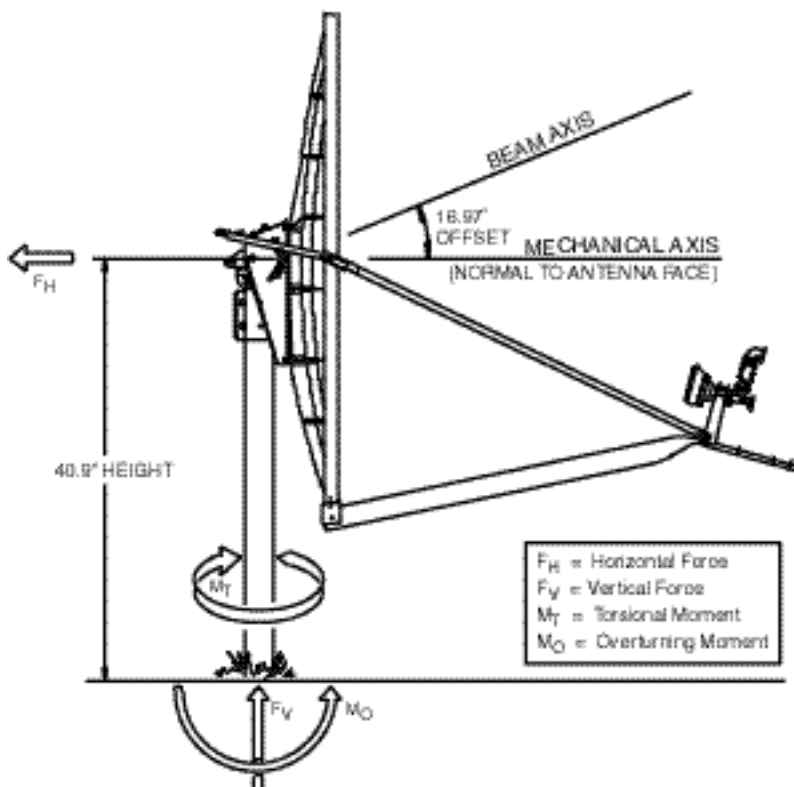
Values shown represent maximum forces for any wind direction and include  $1.5 F_S$ .

| MOMENTS (FT-LBS/N-m) |       |
|----------------------|-------|
| $M_T$                | $M_O$ |
| 150                  | 2584  |
| 147                  | 2445  |
| 139                  | 2375  |
| 126                  | 2151  |
| 107                  | 1898  |
| 90                   | 1653  |
| 70                   | 1377  |
| 54                   | 1034  |

Height and exposure factors from uniform building code are NOT included.

## APPENDIX B

### 1.2m Antenna Survival Windloads at 125 MPH Velocity



$M_O$  Based on 40.9" from Mounting Surface of Center Line of Antenna

| ELEVATION DEGREES |      |
|-------------------|------|
| MECHANICAL        | BEAM |
| 0                 | 17   |
| 10                | 27   |
| 20                | 37   |
| 30                | 47   |
| 40                | 57   |
| 50                | 67   |
| 60                | 77   |
| 70                | 87   |

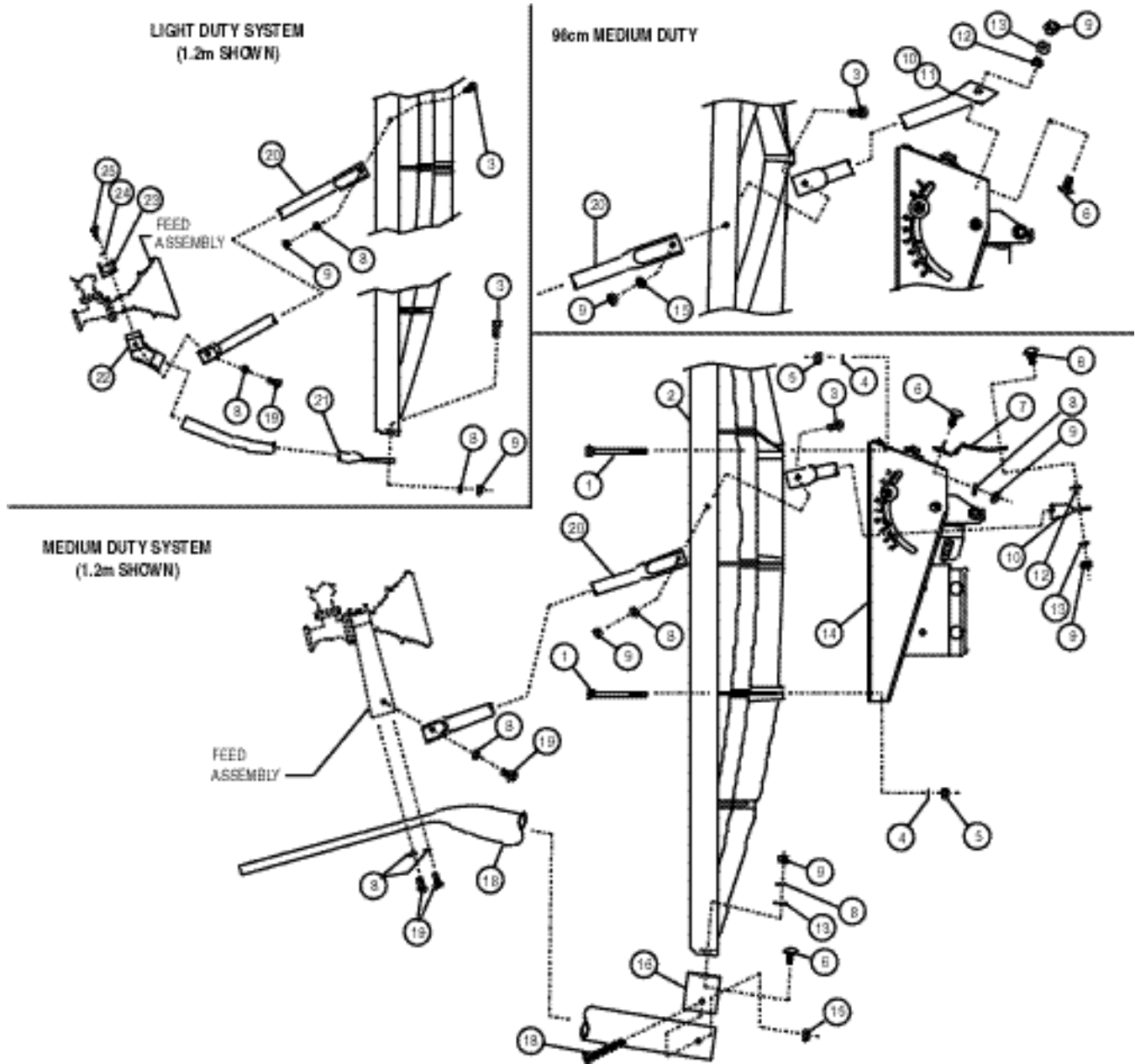
| FORCE (POUNDS) |       |
|----------------|-------|
| $F_H$          | $F_V$ |
| 1285           | -35   |
| 1217           | -257  |
| 1182           | -497  |
| 1071           | -711  |
| 943            | -857  |
| 822            | -943  |
| 686            | -985  |
| 515            | -762  |

Values shown represent maximum forces for any wind direction and include  $1.5 F_S$ .

| MOMENTS (FT-LBS/N-m) |       |
|----------------------|-------|
| $M_T$                | $M_O$ |
| 500                  | 4,380 |
| 488                  | 4,148 |
| 484                  | 4,029 |
| 421                  | 3,650 |
| 357                  | 3,214 |
| 299                  | 2,802 |
| 232                  | 2,338 |
| 178                  | 2,098 |

Height and exposure factors from uniform building code are NOT included.

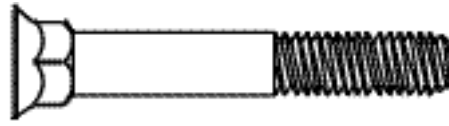
# PARTS LIST



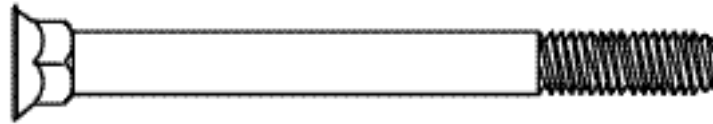
| NO. | DESCRIPTION                           | QTY. |      |
|-----|---------------------------------------|------|------|
|     |                                       | 96cm | 1.2m |
| 1   | BOLT, PLOW, SPECIAL, M8 x 1.25 x 2.21 | 2    | -    |
|     | BOLT, PLOW, SPECIAL, M8 x 1.25 x 3.56 | 2    | 4    |
| 2   | REFLECTOR, .96m                       | 1    | 1    |
|     | REFLECTOR, 1.2m LFL                   | 1    | 1    |
| 3   | BOLT, HEX HD, SS, M6 x 1.0 x 20mm     | 4    | 4    |
| 4   | WASHER, LOCK, SS, 5/16                | 4    | 4    |
| 5   | NUT, HEX HD M8 x 1.25                 | 4    | 4    |
| 6   | BOLT, RD HD SQ NK M6 x 1.0 x 22mm     | 1    | 5    |
| 7   | PLATE, EXTENSION                      | -    | 1    |
| 8   | WASHER, LOCK, SS 1/4 (Light Duty)     | 5    | 5    |
|     | WASHER, LOCK, SS 1/4 (Medium Duty)    | 7    | 9    |
| 9   | NUT, HEX HD, M6 x 1.0 (Light Duty)    | 3    | 3    |
|     | NUT, HEX HD, M6 x 1.0 (Medium Duty)   | 5    | 7    |
| 10  | BRACE, R.H..96m AZ/EL MT              | 1    | -    |
|     | BRACE, 1.2m LFL AZ/EL (Medium Duty)   | -    | 2    |
| 11  | BRACE, L.H..96m AZ/EL MT              | 1    | -    |
| 12  | WASHER, EXT TOOTH LOCK, 1/4           | 2    | 2    |

| NO. | DESCRIPTION                                     | QTY. |      |
|-----|---|------|------|
|     |   | 96cm | 1.2m |
| 13  | WASHER, FLAT, SS, 1/4 (Medium Duty)             | 3    | 3    |
| 14  | MOUNT ASSEMBLY, 1.2m LFL (Light Duty)           | 1    | 1    |
| 15  | NUT, M6 x 1.0, ESNA                             | 1    | 1    |
| 16  | "U" CUP, BOOM                                   | -    | 1    |
| 17  | BOLT, RD HD SQ NK, M6 x 1.0 x 55mm              | 1    | 1    |
| 18  | FEED SUPPORT (Medium Duty)                      | 1    | -    |
|     | FEED SUPPORT (Medium Duty)                      | -    | 1    |
| 19  | BOLT, HEX HD, SS, M6 x 1.0 x 16mm (Light Duty)  | 3    | 3    |
|     | BOLT, HEX HD, SS, M6 x 1.0 x 16mm (Medium Duty) | 4    | 4    |
| 20  | SIDE FEED LEG, .96m ANTENNA                     | 2    | -    |
|     | SIDEFEEDLEG, 1.2m, ANTENNA                      | -    | 2    |
| 21  | BOTTOM FEED LEG (.96m Light Duty)               | 1    | -    |
|     | BOTTOM FEED LEG (1.2m Light Duty)               | -    | 1    |
| 22  | TERMINAL, FEED SUPPORT (Light Duty)             | 1    | 1    |
| 23  | CLAMP, MTG BLOCK (Light Duty)                   | 1    | 1    |
| 24  | WASHER, FLAT M6 (Light Duty)                    | 2    | 2    |
| 25  | BOLT, HEX HD, M6 x 1.0 x 30mm                   | 2    | 2    |

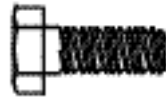
# HARDWARE SORTER



BOLT, PLOW, SPECIAL M8 x 1.25 x 2.21  
ITEM 1



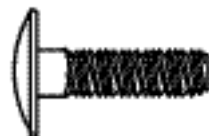
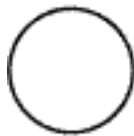
BOLT, PLOW, SPECIAL M8 x 1.25 x 3.58  
ITEM 1



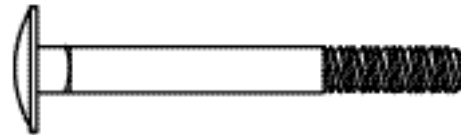
BOLT, HEX HEAD M6 x 16  
ITEM 19



BOLT, HEX HEAD M6 x 20  
ITEM 3



BOLT, RD, HD, SQ NK M6 x 22  
ITEM 6



BOLT, RD, HD, SQ NK M6 x 55  
ITEM 18