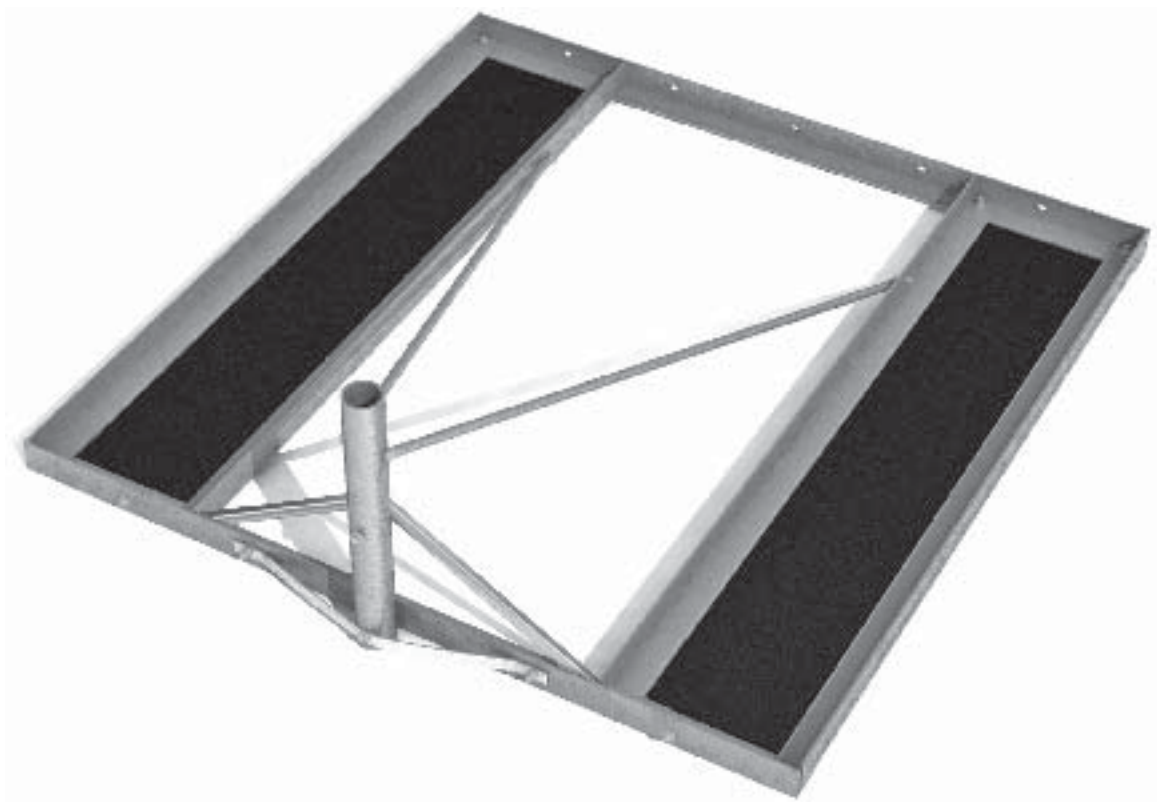


## Model 6110063-04

### 1.6 m x 1.6 m NPRM with Roof Pads

For 96 cm, 1.0 m and 1.2 m Antenna Systems

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## MANUAL REVISION HISTORY

DATE	DESCRIPTION	REVISION
08/08	5079188	Rev A
11/09	641	Rev B
04/11	EC-01063	Rev C

## 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, the 1.2 meter antenna facing a wind of 32 km/h (20 mph) can undergo forces of 269 N (60 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.

## PRE INSTALLATION CONSIDERATIONS

### TOOLS REQUIRED:

Compass with Degree Scale  
Inclinometer or Protractor  
9" Magnetic Level  
#1 or #2 Phillips Screwdriver  
Torque Wrench

Ratchet Wrench (3/8 in Drive)  
13 mm Deep Socket (3/8 in Drive)  
10 mm Nut Driver  
7 mm Wrench

### ADDITIONAL INSTALLATION MATERIALS (Not Supplied)

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).  
RG-6 Coaxial Cables from antenna to indoor unit(s).  
Concrete Blocks: 3.6" x 7.6" x 15.6" - Cored or solid (see Ballast requirements).  
Cable Clamps - 6 Minimum (see Ballast requirements).  
Cable - 5/32" diameter stainless or galvanized 7 x 7 or 7 x 19 Strand Core 2100 lb. breaking strength - length as required (see Ballast requirements).

## 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 satellite. A site with a clear, unobstructed view is preferred. Your antenna site must be selected in advance so that you will be able to receive the strongest signal available.

The roof section must be flat and of sufficient area for the base of the roof mount (see Ballast requirement and location chart for base size).

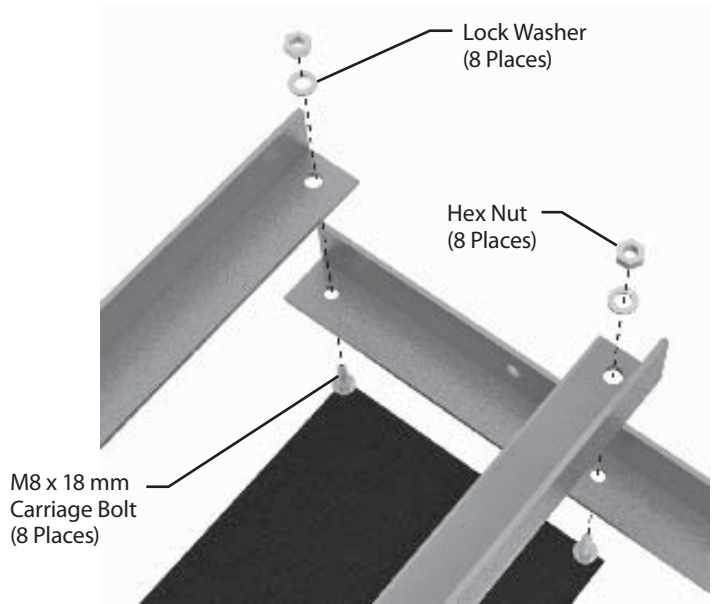
The roof section must also be able to withstand the weight of ballast, antenna and mount assembly.

Distributed loads (lb/sq. ft) and total dead load are shown on charts, pages 8 and 9, for your consideration. It is the customer's responsibility to make sure distributed loads of this product do not exceed roof design load. If you do not know your roof design loads, consult a professional engineer.

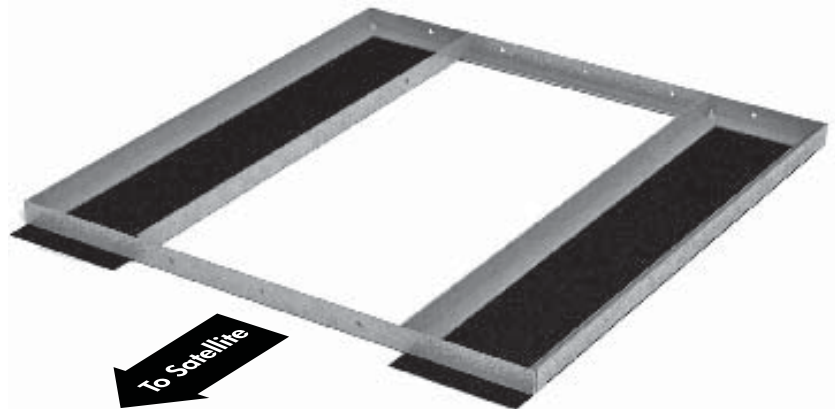
## ASSEMBLY INSTRUCTIONS

Clear roof of all debris, gravel or other loose materials. If supplied, place rubber mats approximately 28.5 inches apart. Assemble frame with rubber pad as shown on right, using eight M8 x 18 mm carriage bolts, lock washers and hex nuts. (Note: Do not tighten bolts in frame assembly until all parts have been attached).

Note: Frame is assembled with eight M8 x 18 mm carriage bolts, eight lock washers and eight hex nuts.

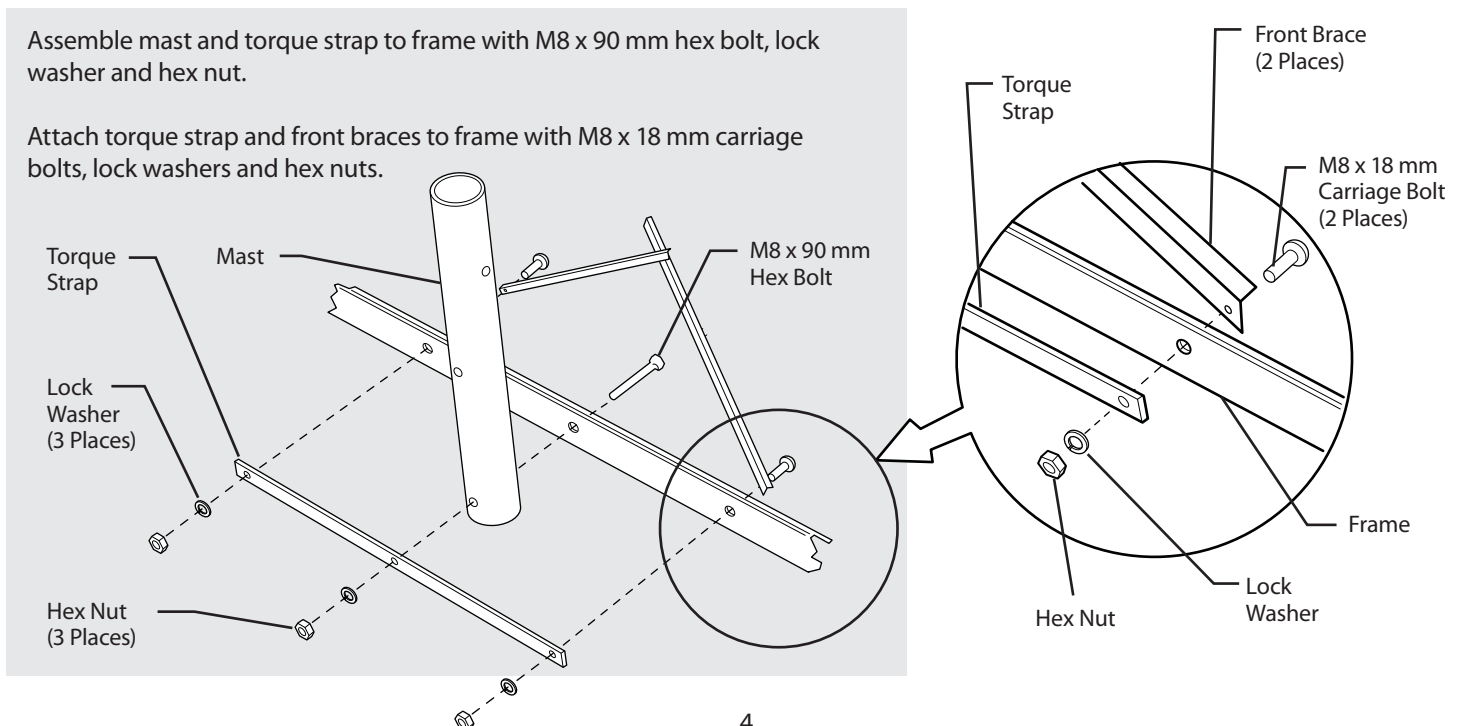


Once frame is assembled, place on rubber mats (if supplied) and orient so mast will point to satellite.



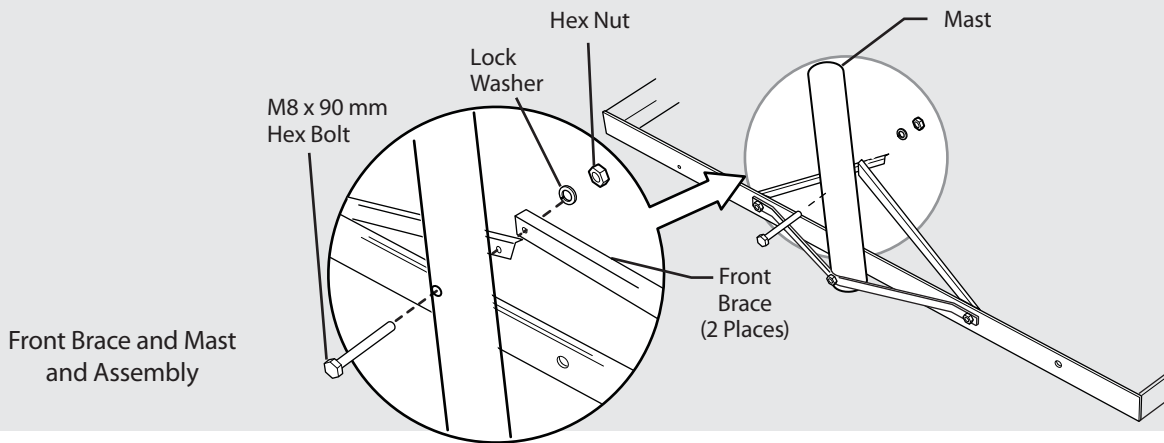
Assemble mast and torque strap to frame with M8 x 90 mm hex bolt, lock washer and hex nut.

Attach torque strap and front braces to frame with M8 x 18 mm carriage bolts, lock washers and hex nuts.

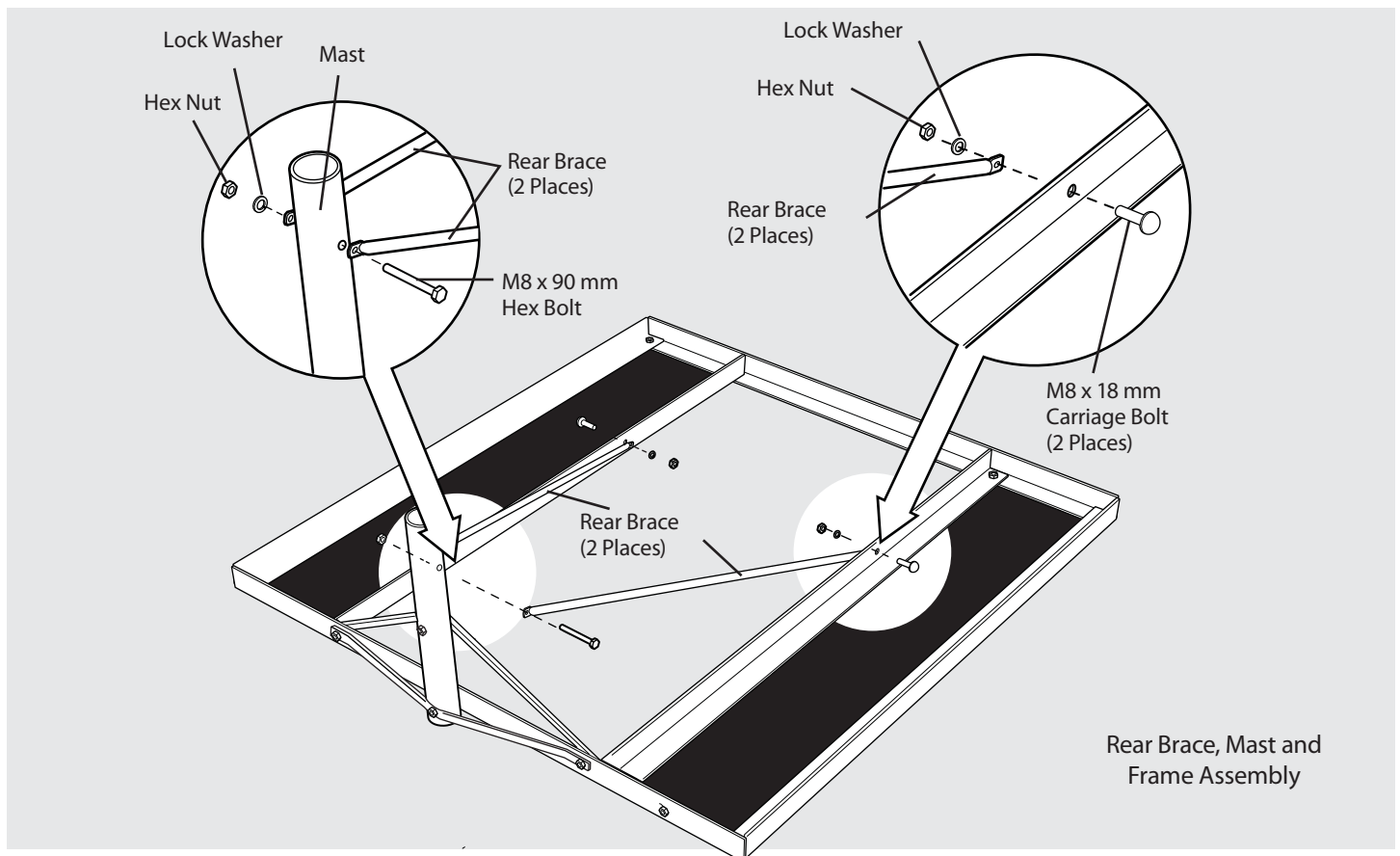


## ASSEMBLY INSTRUCTIONS

Attach front braces to mast with M8 x 90 mm hex bolt, lock washer and hex nut.



Attach rear braces to mast with M8 x 90 mm hex bolt, lock washer and hex nut. Attach rear braces to frame with M8 x 18 mm carriage bolts, lock washers and hex nuts as shown. Then tighten all hardware to 16 N-m (12 ft-lb) of torque.



### Antenna, Antenna Mount and Mast Assembly

Assemble and install antenna, antenna mount and feed assembly per instructions supplied with those products.

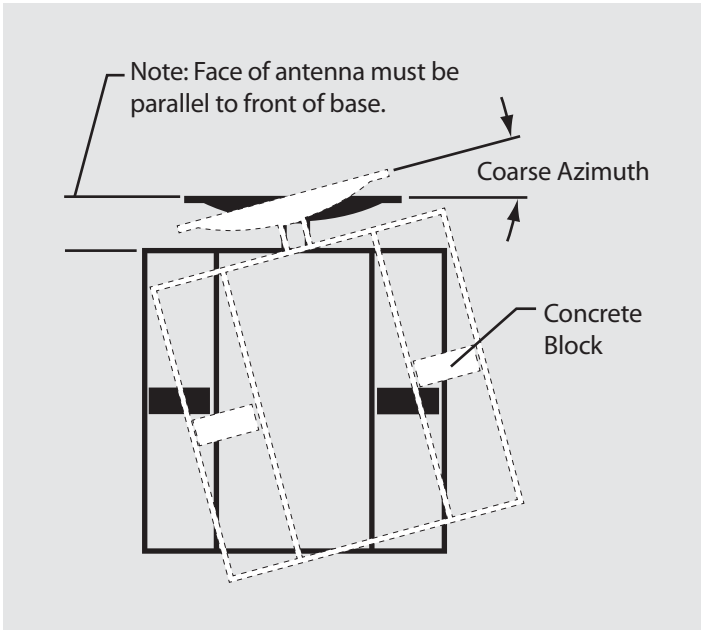
### Alignment Procedure

Obtain azimuth for your satellite from azimuth alignment chart found in instructions provided with antenna. Rotate antenna and base frame assembly, pointing it to the approximate compass heading taken from azimuth alignment chart.

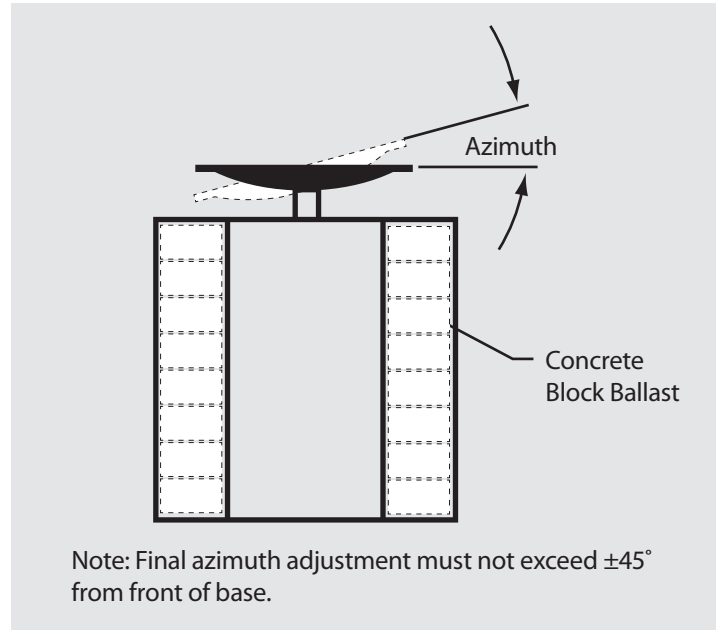
# ASSEMBLY INSTRUCTIONS

## Fine Tuning

Refer to Antenna, Antenna Mount Assembly and Installation Manual and Alignment Charts for fine tuning.



Rotating Antenna and Base for Coarse Azimuth Setting

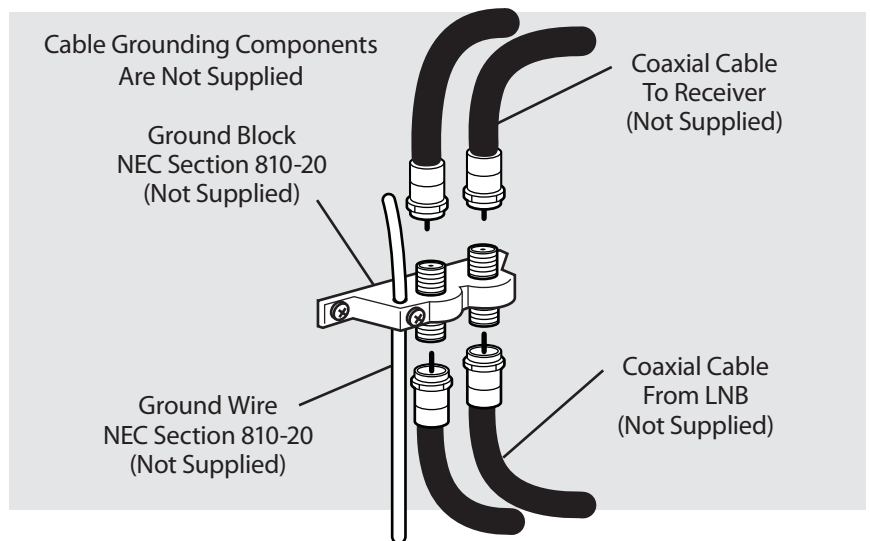
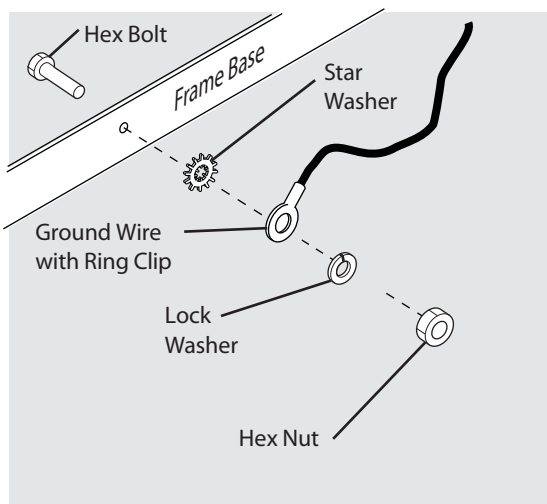


Fine Tuning Azimuth Setting Using Cap Mount

## 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 codes.

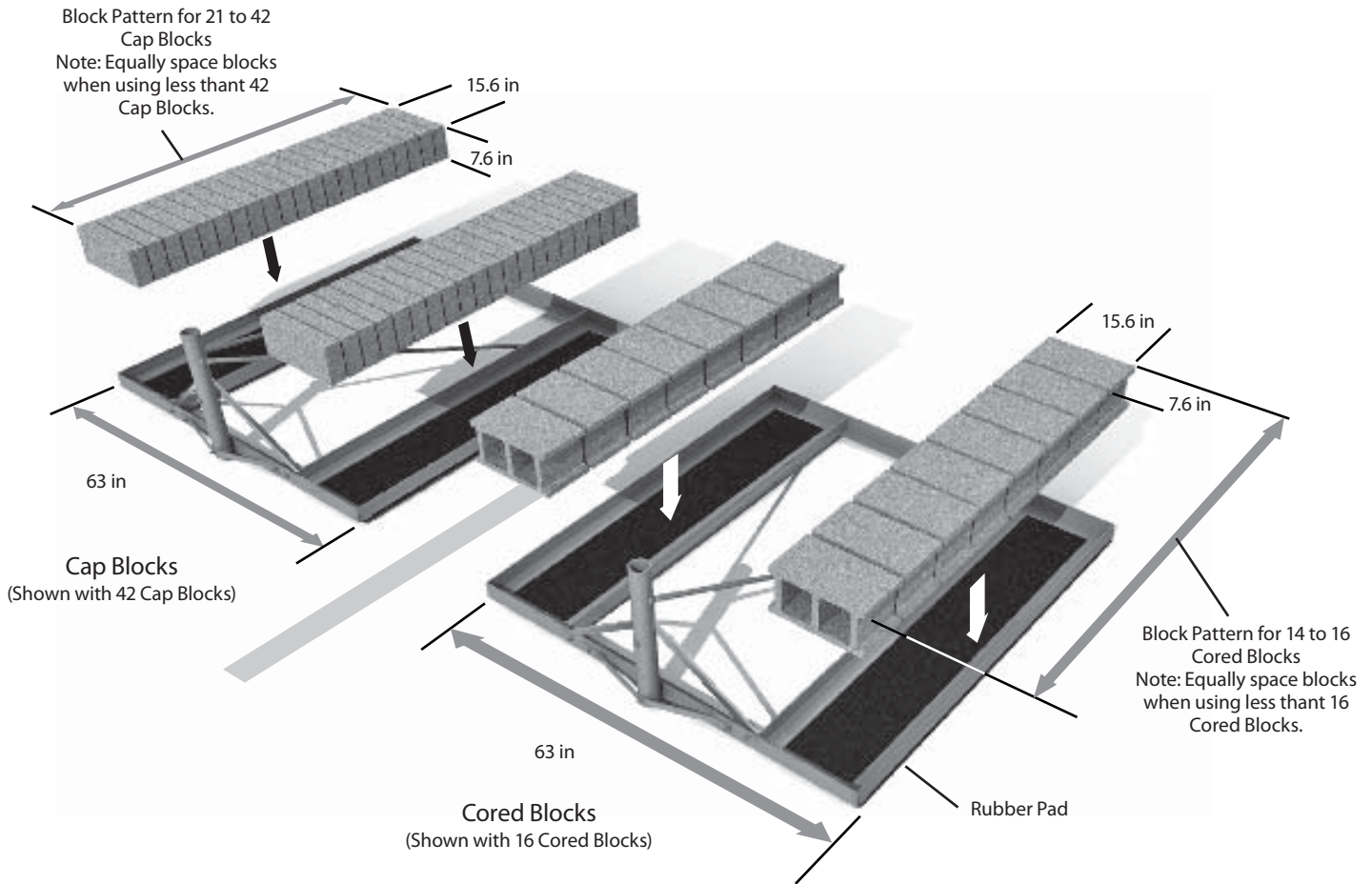
These illustrations depict typical grounding methods for the ground pole and feed cables. Clamps that provide a solid connection between ground wire and ground source should be used. Tighten and torque all hardware.



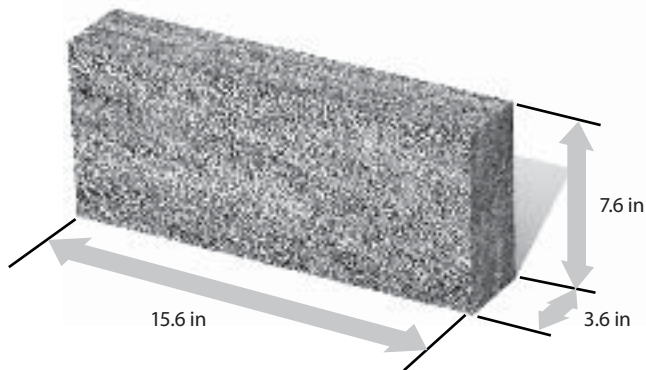
# BALLAST INSTRUCTIONS

## Ballast

Referring to ballast requirements and location chart, add the number of concrete blocks for ballast to base frame. Take care not to move base frame when adding blocks.

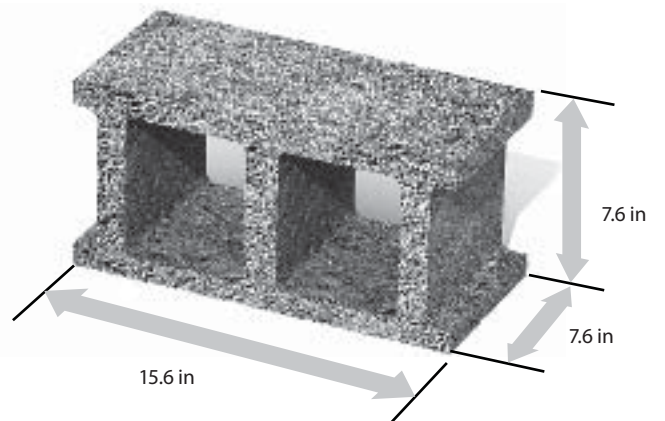


Detail 1: Cap Blocks



Weight: 32 lb

Detail 2: Cored Blocks



Weight: 39 lb



# BALLAST REQUIREMENTS AND LOCATIONS (1.6 m x 1.6 m Non Penetrating Mount with Type 960, Type 961 and Type 100 Antennas)

Table 1: Wind Speed Tethered Per Note 5

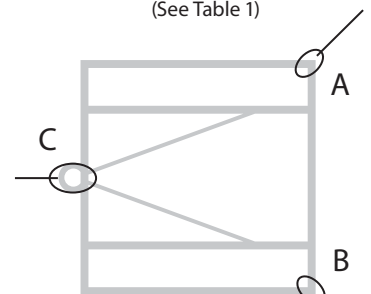
Number of Blocks		Ballast and Antenna System Weight (lb)	Distributed Load (lb/Sq ft)	Exposure	Allowable Wind Speed (mph) When Height from Ground to Center of Antenna Is:		
Cored Blocks	Solid Cap Blocks				15 ft	30 ft	60 ft
-	10	401	14.6	B	107	97	86
				C	82	76	70
-	12	465	16.9	B	115	104	93
				C	88	81	75
-	14	529	19.2	B	122	110	98
				C	92	86	80
-	16	593	21.5	B	129	116	104
				C	98	91	84
16	-	705	25.6	B	-	126	113
				C	107	99	92
-	18	657	23.8	B	-	122	109
				C	103	95	89
-	20	721	26.2	B	-	-	114
				C	108	100	93
-	24	849	30.8	B	-	-	123
				C	117	108	100

Table 2: Wind Speed Untethered Per Note 6

Number of Blocks		Ballast and Antenna (lb)	Distributed Load System Weight (lb/Sq ft)	Exposure	Allowable Wind Speed (mph) When Height from Ground to Center of Antenna Is:		
Cored Blocks	Solid Cap Blocks				15 ft	30 ft	60 ft
-	14	529	19.2	B	91	83	74
				C	70	65	60
-	16	593	21.5	B	97	87	78
				C	74	69	64
16	-	705	25.6	B	106	95	85
				C	81	75	70
-	18	657	23.8	B	102	92	82
				C	78	72	67
-	20	721	26.2	B	107	96	86
				C	82	76	70
-	24	849	30.8	B	116	105	94
				C	89	82	76

## Tether Detail

(See Table 1)



Cable Clamps (3 Places)

To secure against sliding, attach three cables as shown to fixed objects capable of supporting 800 lb. Cable must be 5/32" diameter minimum stainless or galvanized steel, 7 x 7 or 7 x 19, 2100 lb minimum breaking strength.

### NOTES:

- 1 Antenna and mount survival wind velocity is 125 mph.
- 2 Select ballast from table 1 or 2 based on wind velocity, UBC exposure "B" or "C" and height above ground.
- 3 Ballast consists of:
  - 1) 16" x 8" x 8" nominal cored concrete blocks with weight of 39 lb each plus 81 lb for weight of antenna and mount. (See Detail 2)
  - 2) 16" x 8" x 4" nominal cored concrete cap blocks with weight of 32 lb each plus 81 lb for weight of antenna and mount. (See Detail 1)
- 4 Ballast calculated to meet uniform building code exposure "B" or "C" (See tables) and 1.5 stability.
- 5 Table 1 ballast based on overturning requirements with 1.5 stability, to ensure against sliding tether as shown in tether detail.
- 6 1/8" rubber pads approximately 18" x 64" provided. This will protect the roof from puncture and provide 1.5 sliding stability.
- 7 Clear roof of all debris, gravel or other loose materials.
- 8 Mount is fabricated galvanized steel, and antenna is SMC thermoset-molded material.
- 9 Roof structure must be sufficient to support weight shown in table.

# BALLAST REQUIREMENTS AND LOCATIONS (1.6 m x 1.6 m Non Penetrating Mount with 1.2 m Type 120, Type 123 and Type 125 Antennas)

**Table 3: Wind Speed Tethered Per Note**

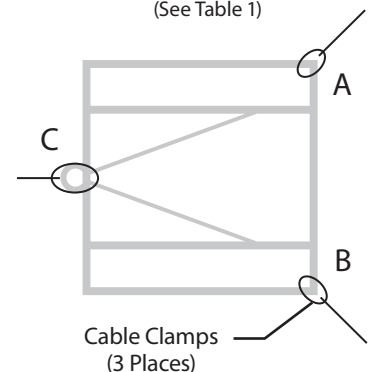
Number of Blocks		Ballast and Antenna System Weight (lb)	Distributed Load (lb/Sq ft)	Exposure	Allowable Wind Speed (mph) When Height from Ground to Center of Antenna Is:		
Cored Blocks	Solid Cap Blocks				15 ft	30 ft	60 ft
-	12	485	17.7	B	95	87	76
				C	72	67	62
-	14	549	20.0	B	101	91	81
				C	77	71	66
-	16	613	22.3	B	106	95	85
				C	81	75	69
16	-	725	26.4	B	115	103	92
				C	87	81	75
-	18	677	24.7	B	111	100	89
				C	85	78	73
-	20	741	26.6	B	116	104	93
				C	88	82	76
-	24	869	31.3	B	125	113	101
				C	95	88	82

**Table 4: Wind Speed Untethered Per Note 6**

Number of Blocks		Ballast and Antenna (lb)	Distributed Load System Weight (lb/Sq ft)	Exposure	Allowable Wind Speed (mph) When Height from Ground to Center of Antenna Is:		
Cored Blocks	Solid Cap Blocks				15 ft	30 ft	60 ft
-	14	549	20.0	B	77	70	62
				C	59	55	51
-	16	613	22.3	B	81	74	66
				C	62	58	54
16	-	725	26.4	B	88	80	71
				C	68	63	58
-	18	677	24.7	B	85	77	69
				C	65	61	56
-	20	741	26.6	B	89	81	72
				C	68	63	59
-	24	869	31.3	B	97	87	78
				C	74	69	64

### Tether Detail

(See Table 1)



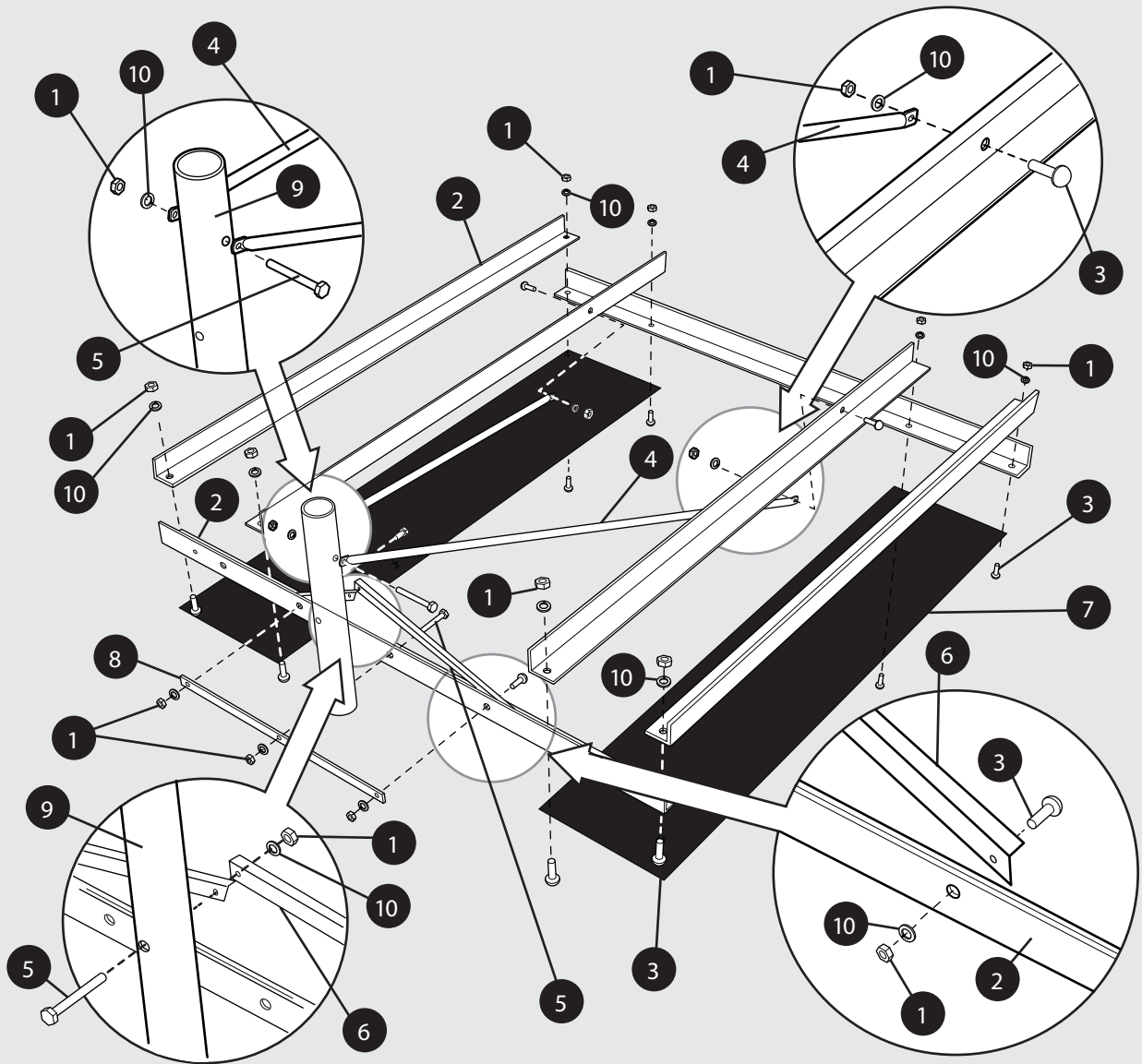
Cable Clamps (3 Places)

To secure against sliding, attach three cables as shown to fixed objects capable of supporting 800 lb. Cable must be 5/32" diameter minimum stainless or galvanized steel, 7 x 7 or 7 x 19, 2100 lb minimum breaking strength.

**NOTES:**

- 1 Antenna and mount survival wind velocity is 125 mph.
- 2 Select ballast from table 1 or 2 based on wind velocity, UBC exposure "B" or "C" and height above ground.
- 3 Ballast consists of:
  - 1) 16" x 8" x 8" nominal cored concrete blocks with weight of 39 lb each plus 101 lb for weight of antenna and mount. (See Detail 2)
  - 2) 16" x 8" x 4" nominal cored concrete cap blocks with weight of 32 lb each plus 101 lb for weight of antenna and mount. (See Detail 1)
- 4 Ballast calculated to meet uniform building code exposure "B" or "C" (See tables) and 1.5 stability.
- 5 Table 1 ballast based on overturning requirements with 1.5 stability, to ensure against sliding tether as shown in tether detail.
- 6 1/8" rubber pads approximately 18" x 64" provided. This will protect the roof from puncture and provide 1.5 sliding stability.
- 7 Clear roof of all debris, gravel or other loose materials.
- 8 Mount is fabricated galvanized steel, and antenna is SMC thermoset-molded material.
- 9 Roof structure must be sufficient to support weight shown in table.

# PARTS LIST



Item	Description	Qty
1	M8 x 1.25 Hex Nut	16
2	Frame Rail	6
3	M8 x 1.25 x 18 mm Carriage Bolt	12
4	Rear Brace	2
5	M8 x 1.25 x 90 mm Hex Head Bolt	3
6	Front Brace	2
7	Large Rubber Pad	2
8	Torque Strap	1
9	Non-Penetrating Mount Mast	1
10	Lock Washer	15

## PERIODIC INSPECTION & MAINTENANCE

To ensure peak performance of the antenna system and to maintain validity of the warranty, the user should perform a periodic inspection every 6 months or following any severe weather event, As a minimum the following items should be inspected.

### 1. Installation Mount

Check for loose hardware - tighten if necessary.

Check integrity of anchor bolts or hardware securing mount to the building or foundations

Check ballast of Non-Penetrating Roof Mounts - cracked or broken blocks must be replaced.

Check hardware and structural members for signs of corrosion - repair or replace as needed

### 2. Antenna Back Structure or Az/El Mount

Check for loose hardware - tighten if necessary.

Check for signs of structural damage such as bending or cracking

Check hardware and structural members for signs of corrosion - repair or replace as needed

### 3. Reflector

Check integrity of bolts securing reflector to back structure or az/el mount. Tighten any loose hardware.

Check for signs of damage such as cracking. Inspect reflector face for impact damage.

Check hardware for signs of corrosion - repair or replace as needed.

### 4. Feed Support Structure

Check for loose hardware - tighten if necessary.

Check for signs of structural damage such as bending. Check hardware and structural members for signs of corrosion - repair or replace as needed

### 5. Feed & RF Components

Check for loose hardware - tighten if necessary.

Check hardware for signs of corrosion - repair or replace as needed.

Check feed lens or window for damage or signs of leaking.

Check waveguide connections between feed and RF electronics

### 6. Electrical

Check for loose cables and connectors - tighten if necessary

Check for tight grounding connections

Check cables for weathering or cracks