PRODELIN™
A TriPoint Global Company

4096-480
Revision C
January 2, 2002

ASSEMBLY MANUAL

.98M Ku-BAND Rx/Tx ANTENNA SYSTEM

PRODELIN CORPORATION
1500 Prodelin Drive
Newton NC 28658

.98M Ku-BAND Rx/Tx
ANTENNA SYSTEM

C	Revised Series text		
B	Revised Address	1/2/02	RAH
A	Revise and Update	01/20/98	PGW
-	ORIGINAL RELEASE	06/14/96	R. Frye
REV.	**DESCRIPTION**	**DATE**	**APPROVED**

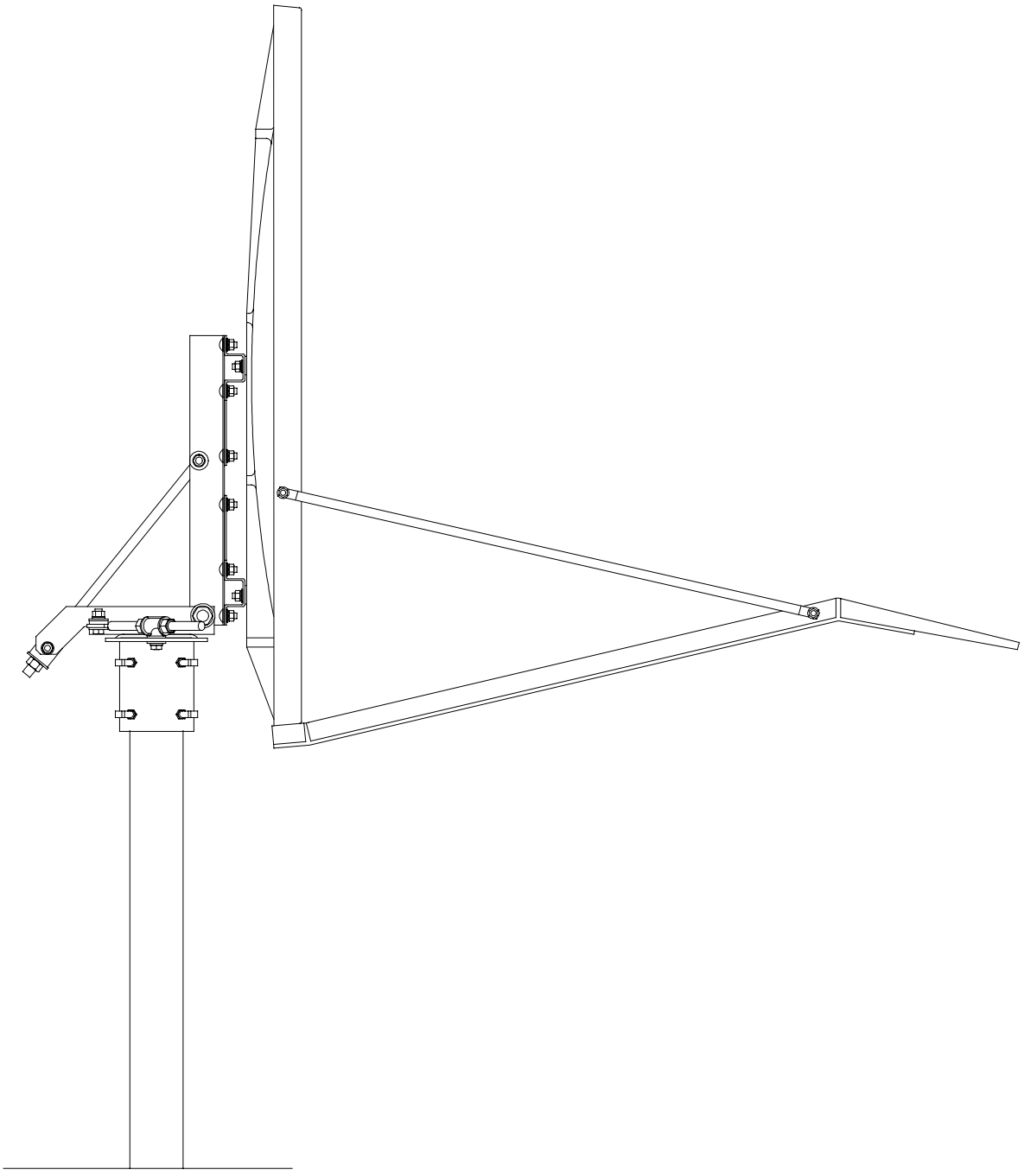


TABLE OF CONTENTS

SECTION I INTRODUCTION

1.0 GENERAL INFORMATION

This manual describes the assembly and installation of Prodelin's .98 meter antenna system. The Prodelin .98 meter is a rugged and reliable mount which will operate in the Ku-Band frequency with high efficiency and at the same time successfully withstand the effects of the environment.

These instructions are listed by sections that cover all areas of assembly and installation. Additional sections are included in the manual to provide information on antenna alignment to the satellite and maintenance.

1.1 UNPACKING AND INSPECTION

The system containers should be unpacked and inspected at the earliest date to insure that all material has been received and is in good condition. A complete packing list for each major component is supplied.

1.2 FREIGHT DAMAGE

Any damage to materials while in transit should be immediately directed to the freight carrier. He will instruct you on matters regarding any freight damage claims.

1.3 MATERIAL – MISSING OR DAMAGED

Any questions regarding missing or damaged materials that are not due to the freight carrier should be directed to Prodelin's Customer Service Department at:

PRODELIN CORPORATION
1500 Prodelin Drive
Newton NC 28658
USA
(828) 464-4141

1.4 MECHANICAL INSTALLATION TOOLS

The hardware supplied with this antenna system is U.S. SAE standard size. However, the sizes have been chosen to allow use with compatibly sized metric wrenches as shown in the table below**.**

HARDWARE SIZE	SAE WRENCH SIZE	METRIC WRENCH SIZE	MAXIMUM REC. TORQUE
5/16” Bolt	1/2”	13 mm	12 ft-lbs (1.66 kg-m)
3/8” Bolt	9/16”	N/A	20 ft-lb (2.8 kg-m)
1/4” Bolt	7/16”	11 mm	6 ft-lb (.83 kg-m)
5/8” Bolt	15/16”	24 mm	85 ft-lbs (11.7 kg-m)

Also recommended for installation:

Inclinometer - graduated to .5°
Compass - graduated to .5°
Adjustable Wrench

1.5 FOUNDATION INTERFACE

The required interface from the foundation to the mount is 2-1/2" schedule 40 pipe (2.88" O.D.). A suggested in-ground foundation is shown in Figure 1.

Also available from Prodelin, as options, are a kingpost pedestal mount and a non penetrating mast mount.

SUGGESTED IN-GROUND FOUNDATION

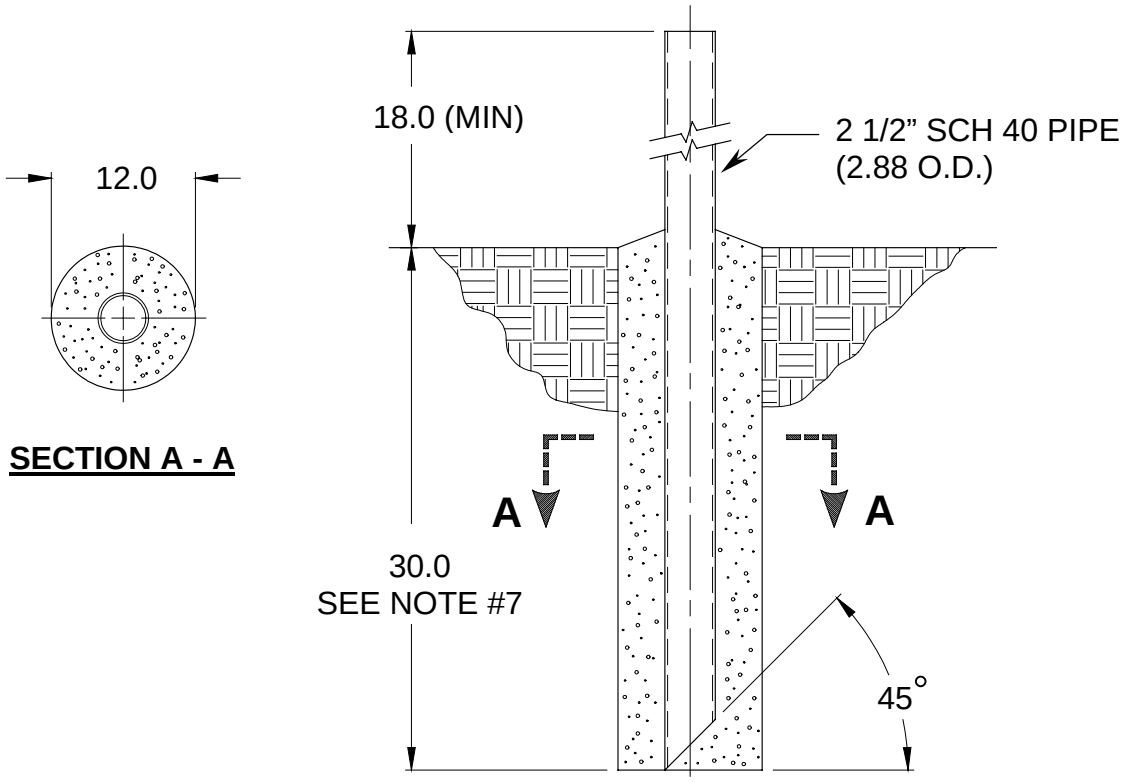


FIGURE 1.

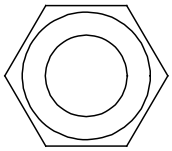
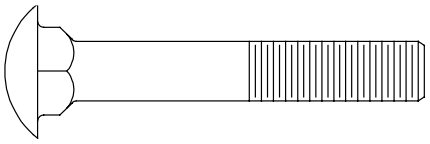
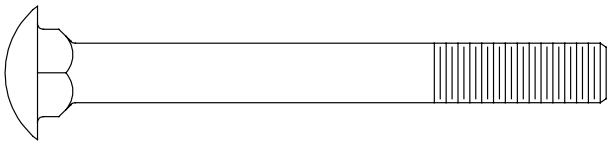
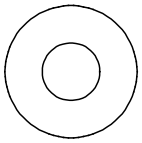
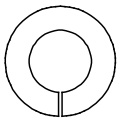
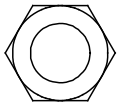
NOTES:

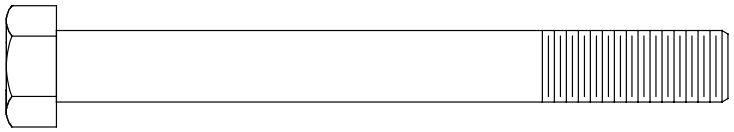
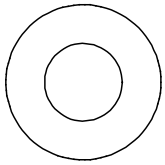
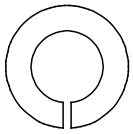
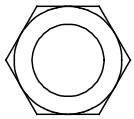
1. **2 1/2" schedule 40 pipe should conform with ASTM A53.**
2. **All concrete should conform to building code standards and have a minimum compressive strength of 3000 PSI at 28 days. (Per ACI-318-77)**
3. **Soil bearing capacity should be no less than 2000 PSF.**
4. **Concrete should be poured against undisturbed soil.**
5. **Allow concrete 24 hours set time before installation of antenna.**
6. **The antenna should be properly grounded to meet applicable local codes.**
7. **Minimum depth as shown or extend to local frost line.**
8. **Foundation meets the design requirements as set forth by the uniform building code. (1982 edition)**

(PRODELIN CORPORATION DOES NOT REPRESENT OR WARRANT THAT ANY PARTICULAR DESIGN OR SIZE OF FOUNDATION IS APPROPRIATE FOR ANY LOCALITY OR EARTH STATION INSTALLATION.)

SECTION II REFLECTOR AND SUPPORT ASSEMBLY

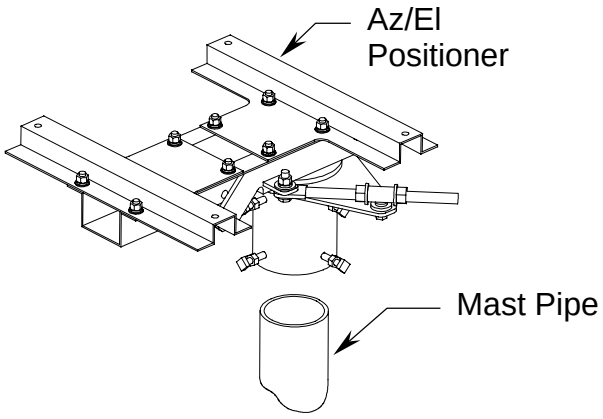
REFLECTOR AND SUPPORT ASSEMBLY PART LIST- TABLE 2.0

ITEM	PART NO.	DESCRIPTION	QTY
1	VARIES	.98M Reflector	1
2	0181-913	Az/El Positioner Assembly	1
3	0490-605	Elevation Rod	1
4	8104-007	1/2” Hex Nut 	2
5	8038-012	5/16” x 2.00 Carriage Bolt 	2
6	8038-024	5/16” x 3.00 Carriage Bolt 	2
7	8201-041	5/16” Flatwasher 	4
8	8202-041	5/16” Lockwasher 	4
9	8101-009	5/16” Hex Nut 	4

PART LIST- CONTINUED			
ITEM	**PART NO.**	**DESCRIPTION**	**QTY**
10	8032-028	3/8” x 3.50 Bolt 	1
11	8201-042	3/8” Flatwasher 	2
12	8202-042	3/8” Lockwasher 	1
13	8102-007	3/8” Hex Nut 	1

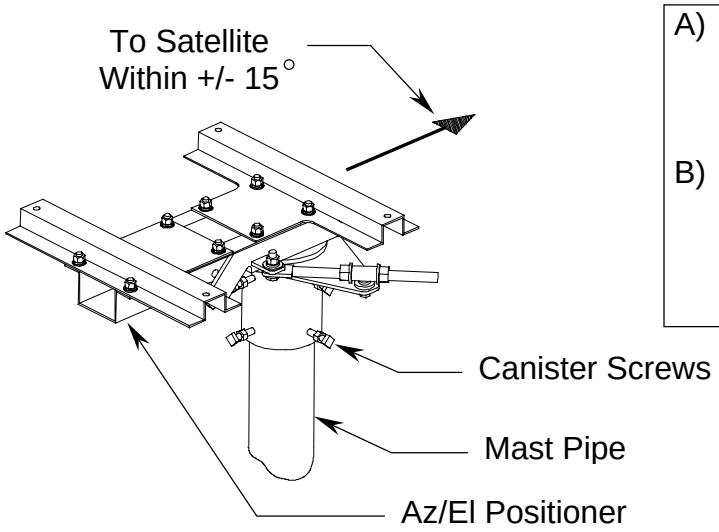
2.1 ANTENNA ASSEMBLY

CAUTION: During the assembly procedure, the sequence of instructions must be followed. ***Do Not Tighten Any Hardware Until Instructed***.
Refer to the parts list table and the referenced steps**.**



STEP 1.

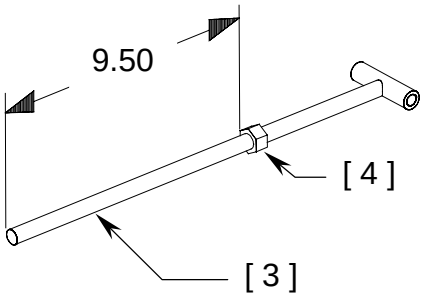
Slip the Az/El Positioner (item 2) onto the mast pipe as shown.



STEP 2.

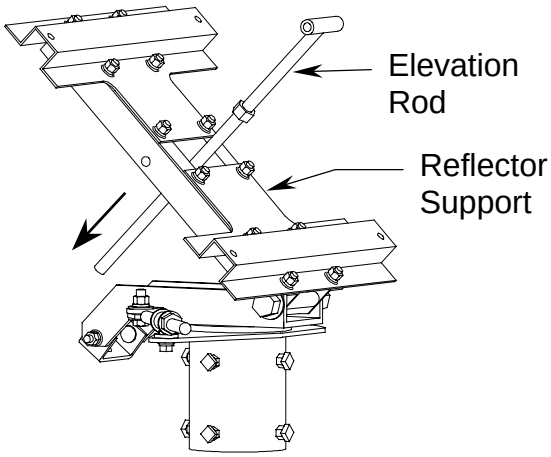
A) Orient the positioner approximately toward the satellite orbital arc as shown.

B) Securely tighten the eight canister screws to lock the positioner in place. Next tighten the eight locknuts against the canister.



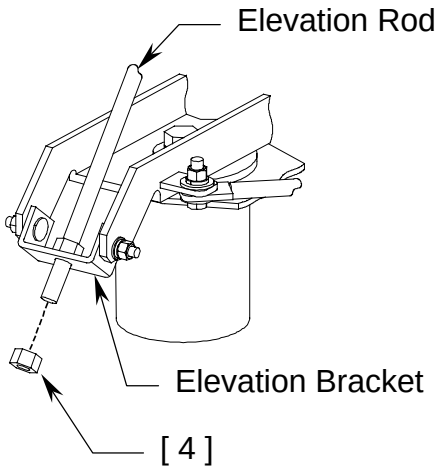
STEP 3.

Thread a 1/2” hex nut (item 4) 9.5” on to the elevation rod (item 3) as shown.



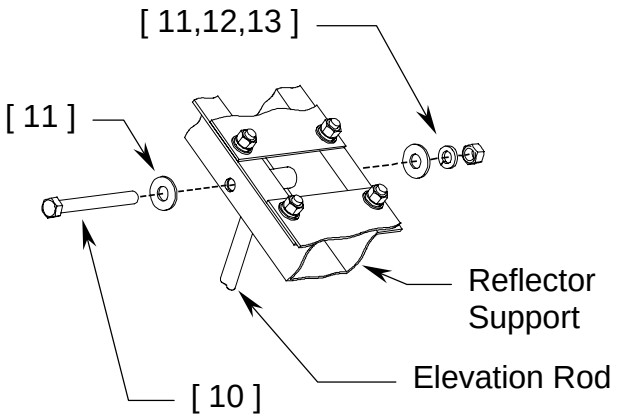
STEP 4.

Raise the reflector support and insert the elevation rod thru the rectangular openings as shown.



STEP 5.

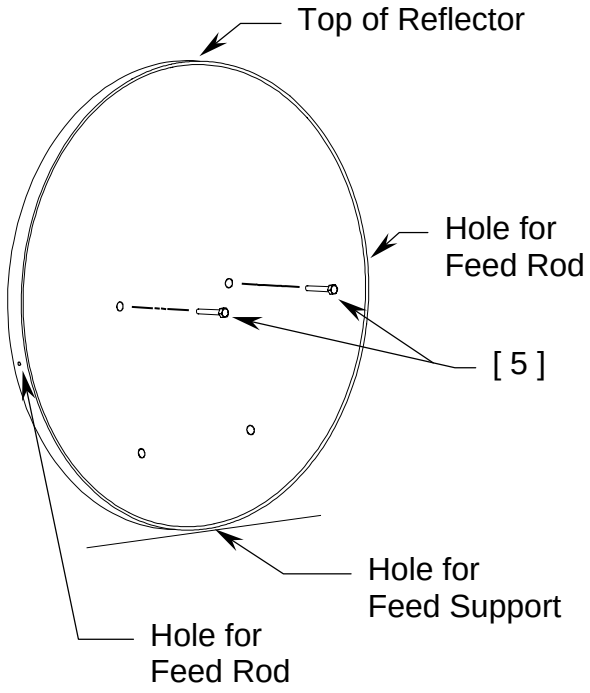
Continue elevation rod placement by inserting the rod thru the hole in the elevation bracket. Thread 1/2” hex nut (item 4) onto the end of the rod.



STEP 6.

A) Adjust the reflector support until the holes in the support are aligned with the hole in the elevation rod.

B) Insert 3/8” bolt (item 10) thru the holes and secure with 3/8” hardware (items 11, 12, 13).



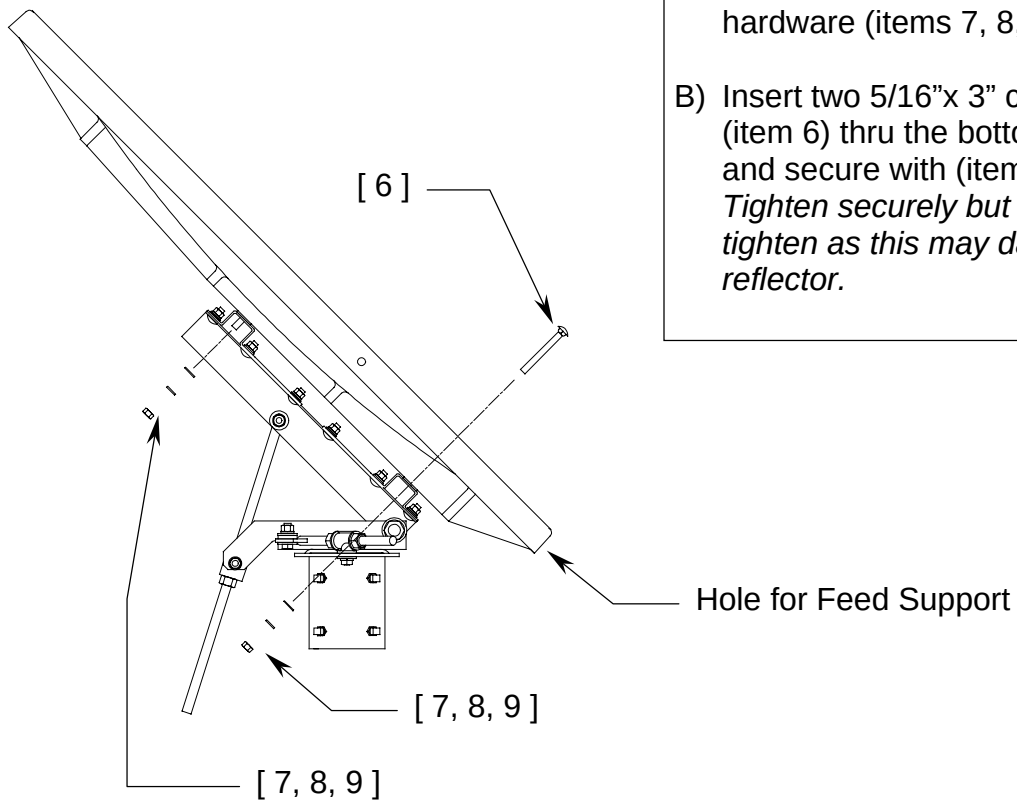
STEP 7.

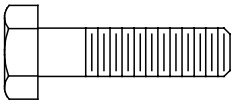
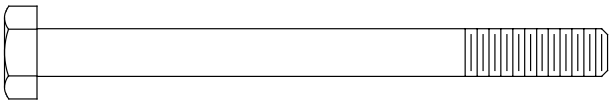
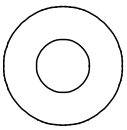
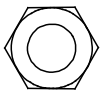
Stand the reflector on its bottom edge and insert two 5/16”x 2” carriage bolts (item 5) thru the top two holes as shown.

STEP 8.

A) With the top two bolts in place, lift the reflector to the reflector support so that the top two bolts pass thru the two holes in the upper crossarm. Secure the two bolts with 5/16" hardware (items 7, 8, 9).

B) Insert two 5/16"x 3" carriage bolts (item 6) thru the bottom two holes and secure with (items 7, 8, 9). *Tighten securely but do not over tighten as this may damage the reflector.*

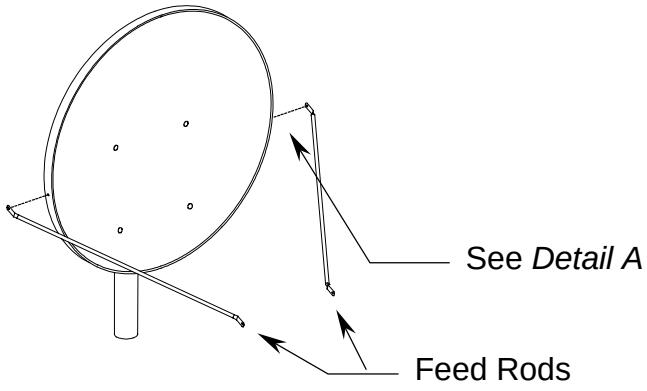


FEED SUPPORT PART LIST - TABLE 2.2			
ITEM	**PART NO.**	**DESCRIPTION**	**QTY**
1	VARIES	Feed Rod	2
2	VARIES	Feed Support Tube	1
3	8030-008	1/4” x 1.00 Hex Bolt 	3
4	8030-022	1/4” x 3.00 Hex Bolt 	1
5	8201-040	1/4” Flatwasher 	7
6	8202-040	1/4” Lockwasher 	4
7	8100-007	1/4” Hex Nut 	4

2.3 FEED SUPPORT ASSEMBLY

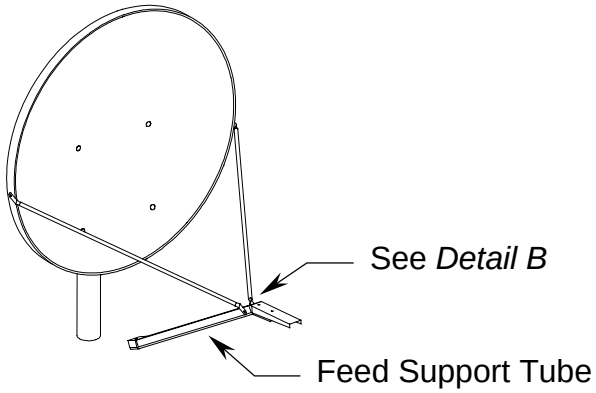
These instructions are intended as a general reference for feed support assembly. If your antenna system has specific feed support installation instructions, then refer to them at this time.

CAUTION: During the assembly procedure, the sequence of instructions must be followed. DO NOT TIGHTEN ANY HARDWARE UNTIL INSTRUCTED. Refer to the feed support parts list and steps.



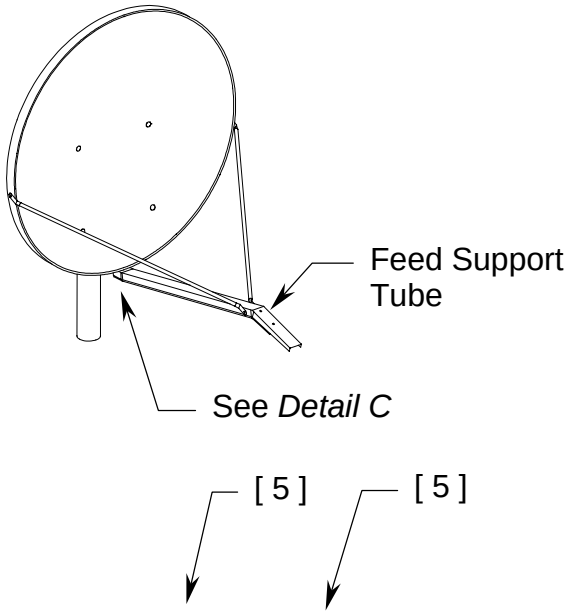
STEP 1.

Attach the feed rods to the reflector with 1/4” x 1.00 bolt (item 3) and secure with 1/4” hardware (items 5, 6, 7). See Detail “A”.



STEP 2.

Connect the ends of the feed rods to the feed support tube with 1/4” x 3.00 bolt (item 4) and secure with hardware (items 5, 6, 7). See Detail “B”.

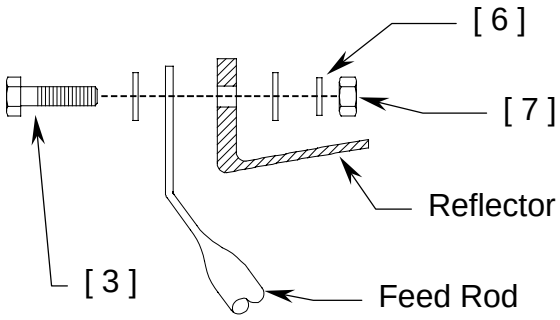


STEP 3.

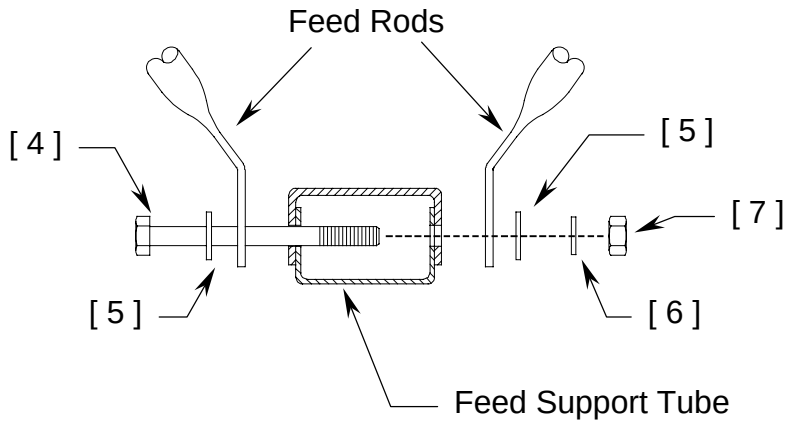
A) Attach feed support tube to the bottom of the reflector with 1/4” x 1.00 bolt (item 3) and secure with hardware (items 5, 6, 7).

B) Tighten the 1/4” hardware at the reflector rim snugly. Next, tighten the hardware that connects the feed rods to the feed support tube.

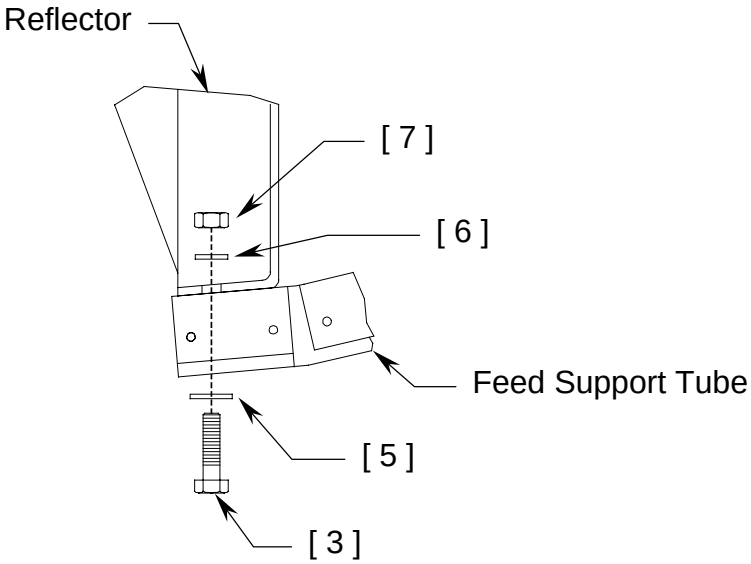
C) Refer to separate instructions for the specific feed/ODU assembly to the feed support.



Detail A



Detail B



Detail C

SECTION III ANTENNA POINTING

3.0 ANTENNA POINTING

The .98 meter reflector contains a 17.35° elevation offset look angle. Therefore, when the reflector aperture is perpendicular to the ground, the antenna is actually looking 17.35° in elevation. Refer to Figure 2.

Note: The following alignment procedure is intended only as a general reference guide for this antenna. For proper antenna performance, accurate alignment is critical. Therefore, it is recommended that your own detailed procedure be used or contact Prodelin's Technical Support Department for additional recommendations.

STEP 1: Place an inclinometer on the reflector support angle as shown in Figure 2.

STEP 2: Adjust the reflector up or down in elevation by turning the two ½" hex nuts at the elevation bracket until the desired elevation is read on the (inclinometer reading plus 17.35° = elevation angle). Note: Be sure that the elevation pivot hardware is loose enough to allow adjustment without damaging (bending) the elevation rod. Snug the hardware.

STEP 3: Azimuth Adjustment: With the electronics set to acquire the satellite, rotate the antenna in azimuth until the satellite is found. Snug the azimuth adjustment hardware.

STEP 4: Peak the antenna signal by fine adjustments made in both azimuth and elevation until the optimum signal is achieved.

STEP 5: Tighten all hardware used for adjustment.

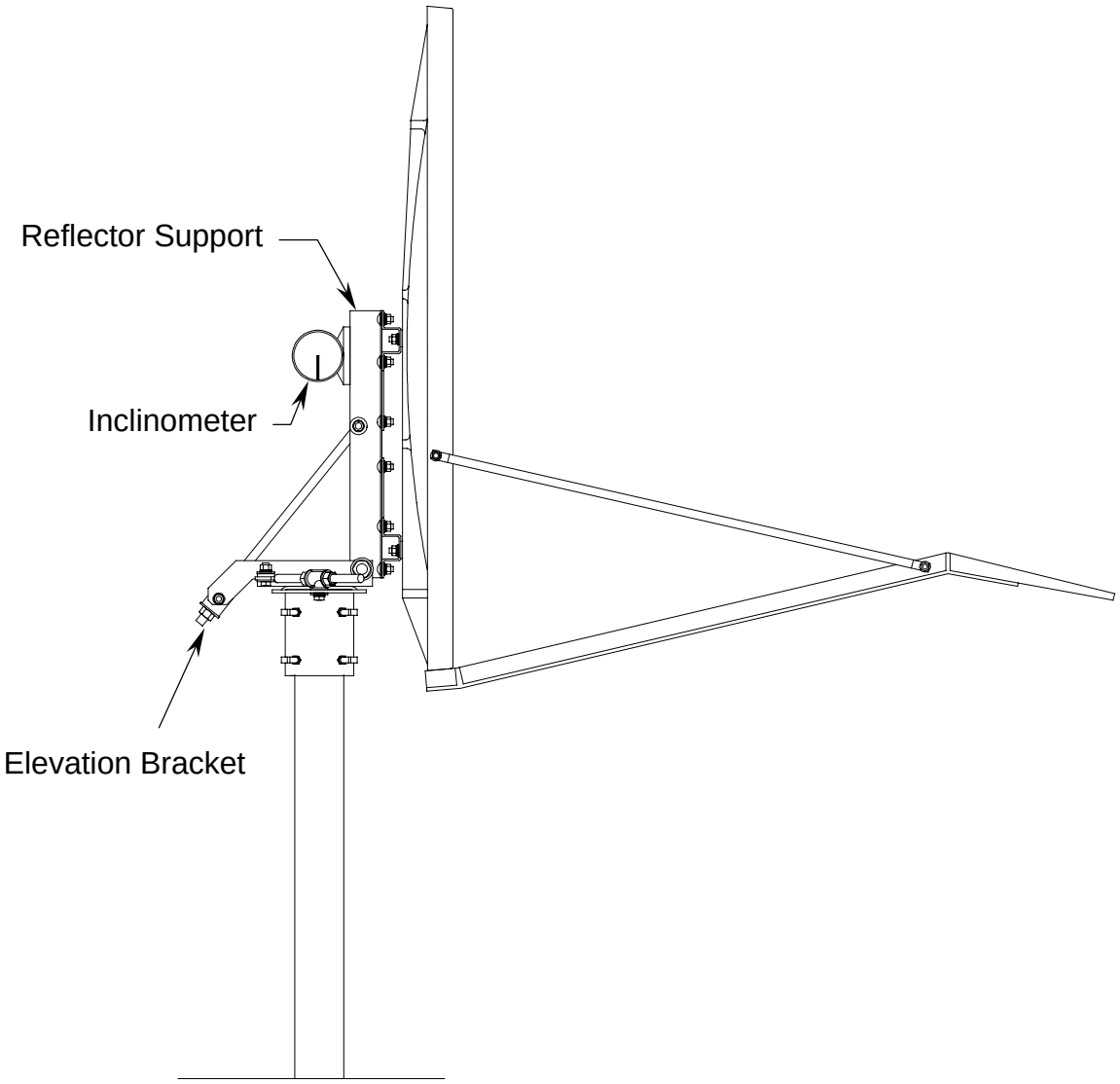


FIGURE 2.

SECTION IV MAINTENANCE

4.0 MAINTENANCE OVERVIEW

After installation, the antenna requires only periodic inspection. It is anticipated that maintenance, if required, will be minimal and easily handled by a local or in-house maintenance staff.

4.1 REFLECTOR

Prodelin's reflector does not require any maintenance. The composite construction of the reflector is virtually impervious to any damages that could be caused by weather or atmospheric conditions. It is only necessary to inspect for any physical damage done by vandalism or very severe weather conditions.

Should any damage be detected to a portion of the reflector, contact the Customer Service Department at Prodelin for recommendations involving reflector repair**.**

4.2 MOUNT AND REFLECTOR SUPPORT STRUCTURE

The mount and reflector support structure supplied with this antenna is of steel construction and has a galvanized finish.
If there are any signs of structural failure, the mount members that are damaged should be repaired or replaced.

CORROSION: Any corrosion on steel members may be repaired with a cold, zinc-rich galvanizing paint.

Note: Rust on the edges of stamped metal parts is normal and will not adversely affect the structural integrity of the antenna system.

4.3 FEED AND FEED SUPPORT

The feed support and feed rods should be inspected to insure that all hardware is secure. The feed/radio mounting bolts should be tight.

The feed horn window should be inspected to insure that it is intact so that no moisture can collect inside the feed horn.