



**PRODELIN**  
CORPORATION

**4096-387**

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**ASSEMBLY MANUAL**

**1.2M Ku-BAND Rx/Tx  
SERIES 1123  
ANTENNA SYSTEM**

**PRODELIN CORPORATION  
1700 NE CABLE DRIVE  
CONOVER, NC 28613-0368**

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SERIES 1123  
ANTENNA SYSTEM**

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## SECTION I INTRODUCTION

### 1.0 GENERAL INFORMATION

This manual describes the assembly and installation of Prodelin's 1.2 meter antenna system. The Prodelin 1.2 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 is not due to the freight carrier should be directed to Prodelin's Customer Service Department at:

PRODELIN CORPORATION  
1700 NE CABLE DRIVE  
P.O. BOX 368  
CONOVER, NORTH CAROLINA 28613  
(704) 464-4141

#### 1.4 MECHANICAL INSTALLATION TOOLS

The following tools are suggested for the antenna installation.

1 ratchet

1 socket - 7/16"

1 socket - 1/2"

1 socket - 9/16"

1 socket - 3/4"

1 wrench combination - 3/8"

1 wrench combination - 7/16"

1 wrench combination - 1/2"

1 wrench combination - 9/16"

1 wrench combination - 15/16"

1 screwdriver, standard blade

1 compass - for alignment to satellite

1 inclinometer - for alignment to satellite

#### 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 1.5-1.

**SUGGESTED IN-GROUND FOUNDATION**

## FIGURE 1.5-1

SECTION II 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 figures.

2.0 ANTENNA ASSEMBLY

Step 1: Remove azimuth rotation hardware and set aside until step #6.

Place the canister assembly onto the mast with the canister plate oriented approximately toward the center of the satellite orbital arc as shown in figure 1. The canister must be oriented correctly in order for the adjustment to cover the entire arc.

Step 2: Securely tighten the six canister screws and then tighten the lock nuts against the canister.

Step 3: Thread a 1/2" hex nut well up onto the azimuth adjustment rod. (Figure 1). At this time remove azimuth tube from the mount assembly and place it onto the azimuth rod (Figure 1). Set azimuth tube hardware aside until step #6. Thread a 1/2" hex nut onto the azimuth rod to hold azimuth tube in place.

Step 4: Locate the mount assembly. Thread a 1/2" hex nut approximately 6" onto the elevation rod (Figure 2). Run the elevation rod through the hole in the elevation channel, thread the 1/2" coupling nut onto the elevation rod. Snug the hardware on the mount assembly at this time.

Step 5: Place the 1.2 meter reflector face down on a flat surface (Figure 3). Place the mount assembly onto the back of the reflector. Attach the mount assembly to the reflector with (4) 27/64-13 x 1 3/8" hi-lo screws.

TIGHTEN SECURELY BUT DO NOT OVER-TIGHTEN AS THIS MAY DAMAGE THE REFLECTOR.

**Step 6:** Place the reflector mount assembly (Figure 4) onto the canister assembly. Replace the azimuth rotation hardware and the azimuth tube hardware at this time (Figure 4).

**Note:** When elevations below 20° are required, lower the elevation rod and bracket to the next set of holes. (Figure 4)

**Step 7:** Attach the elevation marking plate (Figure 4) to mount assembly with (2) 10-24 x 3/4 screws, flatwasher, lockwasher and nuts. Attach the elevation pointer with (2) 10-24 x 1/2" screws, flatwashers and lockwashers.

**Step 8:** Snug all hardware at this time and install feed supports and feed/ODE.

<b>PARTS LIST TABLE</b>			
<b>ITEM NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
<b>1</b>	<b>0181-522</b>	<b>Canister Assembly</b>	<b>1</b>
<b>2</b>	<b>0181-399</b>	<b>Mount Assembly</b>	<b>1</b>
<b>3</b>	<b>VARIES</b>	<b>1.2M Reflector</b>	<b>1</b>
<b>4</b>	<b>0156-572</b>	<b>Elevation Marking Plate</b>	<b>1</b>
<b>5</b>	<b>0211-552</b>	<b>Elevation Indicator</b>	<b>1</b>
<b>6</b>	<b>8104-007</b>	<b>½-13 Hex Nut</b>	<b>3</b>
<b>7</b>	<b>8115-003</b>	<b>½-13 Coupling Nut</b>	<b>1</b>
<b>8</b>	<b>8302-006</b>	<b>#10-24 x ½ Screw</b>	<b>2</b>
<b>9</b>	<b>8302-004</b>	<b>#10-24 x ¾ Screw</b>	<b>2</b>
<b>10</b>	<b>8201-037</b>	<b>#10 Flatwasher</b>	<b>6</b>
<b>11</b>	<b>8202-032</b>	<b>#10 Lockwasher</b>	<b>4</b>
<b>12</b>	<b>8111-005</b>	<b>#10-24 Hex Nut</b>	<b>2</b>
<b>13</b>	<b>8319-006</b>	<b>Hi-Lo Screw</b>	<b>4</b>



**Figure 1**

**Figure 2**

**Figure 3**

**Figure 4**

## 2.1 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 figure 5.

STEP 1: Attach the [2] feed rods to the reflector using [2] 11/32-14 x 7/8" hi-lo thread screws as shown in detail "A".

STEP 2: Mount the feed support between the feed support brackets with [2] 1/4-20 x 1.00" bolts, [4] flatwashers, [2] lockwashers, and [2] hex nuts. See detail "C".

STEP 3: Connect the feed rods to the feed support tube with [1] 5/16-18 x 3.25" bolt, [2] flatwashers, [1] lockwasher & [1] hex nut See detail "B".

STEP 4: Attach the feed support to the reflector with [1] 11/32-14 x 7/8" Hi-Lo thread screw as shown in detail "C".

STEP 5: Tighten the [3] 11/32-14 x 7/8" screws snugly, DO NOT OVER TIGHTEN AS THIS MAY DAMAGE THE REFLECTOR. Tighten the 5/16" hardware next, then the 1/4" hardware last.

STEP 6: Attach Feed/ODE assembly to Feed Support.

1.2M FEED SUPPORT PARTS LIST			
ITEM NO.	PART NO.	DESCRIPTION	QTY
1	0176-213	FEED ROD	2
2	VARIES	FEED SUPPORT TUBE	1
3	8319-004	SCREW, 11/32-14 X 7/8" Hi-Lo THREAD	3
4	8031-026	BOLT, 5/16-18 X 3.25"	1
5	8201-041	FLATWASHER, 5/16"	2
6	8202-041	LOCKWASHER, 5/16"	1
7	8101-009	NUT, HEX, 5/16-18	1
8	8030-008	BOLT, 1/4-20 X 1.00"	2
9	8201-040	FLATWASHER, 1/4"	4
10	8202-040	LOCKWASHER, 1/4"	2
11	8100-007	NUT, HEX, 1/4"	2

Figure 5

## SECTION III ANTENNA POINTING

3.0 INITIAL POINTING

The 1.2 meter reflector contains a 22.6° elevation offset look angle. Therefore, when the reflector aperture is perpendicular to the ground, the antenna is actually looking 22.6° in elevation. Refer to Figure 6.

Step 1: Place an inclinometer on the reflector support angle as shown in Figure 6.

Step 2: Adjust the reflector up or down in elevation by turning the two ½" hex nuts at the elevation channel until the desired elevation is read on the (inclinometer reading plus 22.6° = elevation angle). Note: Be sure that the elevation pivot hardware (5 places) 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.

Step 6: Scribe a line next to the Azimuth and Elevation indicators to mark the satellite location as shown in Figure 7.

Step 7: If desired, locate a secondary satellite by repeating steps 1 through 5. Mark this satellite location as described in step 6 and then return to the primary satellite by returning azimuth and elevation to the first set of scribe lines made.

### 3.1 REPOINTING

The quick repoint features of the antenna system make future repointing to another satellite quick and easy to do with a minimum of tools and little or no training.

Loosen the elevation hardware just enough to allow adjustment and raise or lower the antenna until the elevation indicator aligns with the scribe line for the secondary satellite. Tighten the hardware.

Loosen the azimuth hardware and rotate the antenna until the azimuth indicator aligns with the scribe line for the secondary satellite. Tighten the bolt and the repoint is complete.

Figure 6

Figure 7

## 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.

### 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.