

GENERAL DYNAMICS
SATCOM Technologies

4096-682
May 28, 2009

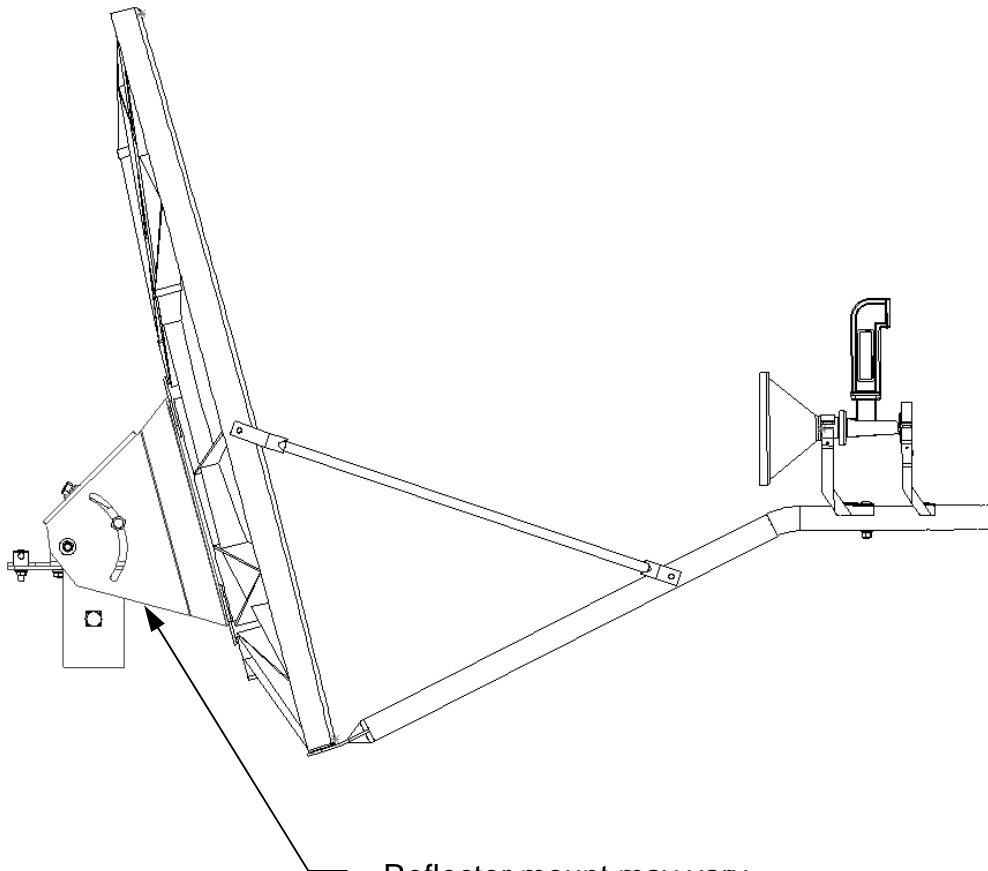
ASSEMBLY MANUAL
Revision A

**.98M Ku-BAND Rx/Tx
SERIES 1985/1984
TIER II FEED SYSTEM**

General Dynamics
SATCOM Technologies
1500 Prodelin Drive
Newton NC 28658

**.98M Ku-BAND Rx/Tx
SERIES 1132
TIER II FEED SYSTEM**

A	Revised Company Name and Logo	05/28/09	RAH
-	ORIGINAL RELEASE	01/27/05	JWL
REV.	DESCRIPTION	DATE	APPROVED



Reflector mount may vary.
See instructions included
with the reflector mount.

.98M TIER II ANTENNA SYSTEM
(Transmitter weight: 12-lbs. max)

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>
I	INTRODUCTION
1.0	GENERAL INFORMATION
1.1	UNPACKING & INSPECTION
1.2	FREIGHT DAMAGE
1.3	MATERIAL MISSING OR DAMAGED
1.4	MECHANICAL INSTALLATION TOOLS
II	FEED SUPPORT INSTALLATION
2.0	FEED SUPPORT ASSY PARTS LIST
2.1	FEED SUPPORT ASSEMBLY
III	FEED INSTALLATION
3.0	FEED ASSY PARTS LIST
3.1	FEED ASSEMBLY
3.2	FEED INSTALLATION PARTS LIST
3.3	FEED INSTALLATION
3.4	FINE ADJUSTMENT
IV	MAINTENANCE
4.0	MAINTENANCE OVERVIEW
4.1	FEED & FEED SUPPORT

SECTION I INTRODUCTION

1.0 GENERAL INFORMATION

This manual describes the assembly and installation of General Dynamics' .98 meter Tier II antennas. The General Dynamics .98 meter will operate in the Ku-Band frequency with high efficiency and at the same time successfully withstand the effects of the environment.

These instructions, listed by sections, cover all areas of assembly and installation. Additional sections are included in the manual to provide information on antenna peaking 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. They 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 General Dynamics' Customer Service Department at:

**General Dynamics SATCOM Technologies
1500 Prodelin Drive
Newton NC 28658
USA
(828) 464-4141**

1.4 MECHANICAL INSTALLATION TOOLS

HARDWARE SIZE	SAE WRENCH SIZE	METRIC WRENCH SIZE	MAX RECOMMENDED TORQUE
1/4" Bolt	7/16"	N/A	6 ft-lb. (8.1 n-m)
#6 SHCS	7/64" Allen	N/A	15 in-lb. (1.7 n-m)

NOTE: The Minimum Torque applied should not be less than 10% of maximum recommended torque.

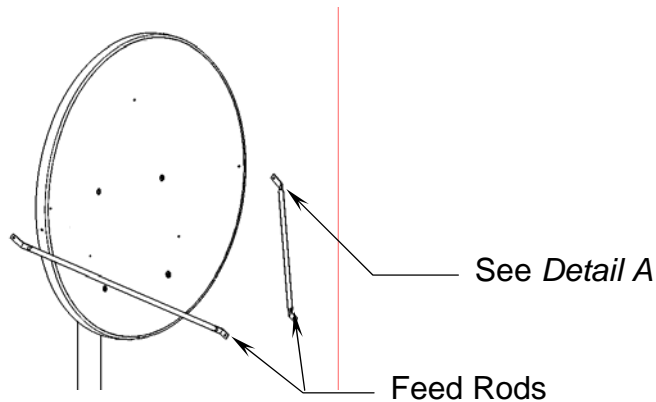
Also recommended for installation:
-Adjustable Wrench

SECTION II FEED SUPPORT ASSEMBLY

FEED SUPPORT PART LIST - TABLE 2.0			
ITEM	PART NO.	DESCRIPTION	QTY
1	0176-324	.98m Feed Rod	2
2	0250-873	.98M Feed Support Tube	1
3	8030-008	1/4" x 1.00 Hex Bolt	3
4	8030-016	1/4" x 2.00 Hex Bolt	1
5	8201-040	1/4" Flatwasher	8
6	8202-040	1/4" Lockwasher	4
7	8100-007	1/4" Hex Nut	4

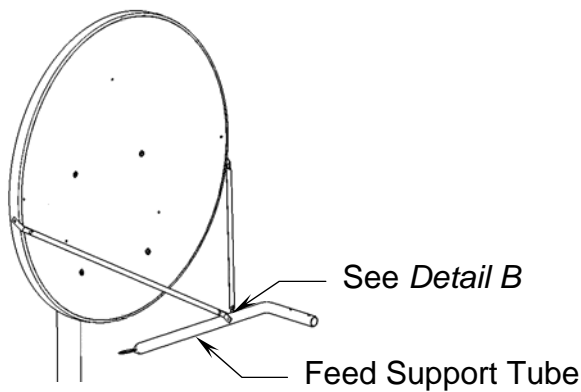
2.1 FEED SUPPORT ASSEMBLY

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.



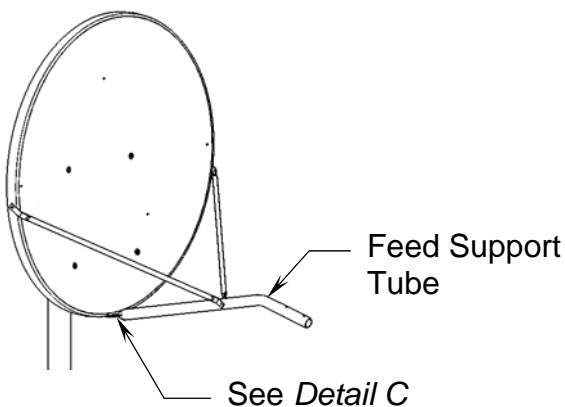
STEP 1.

Attach the long end of 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".



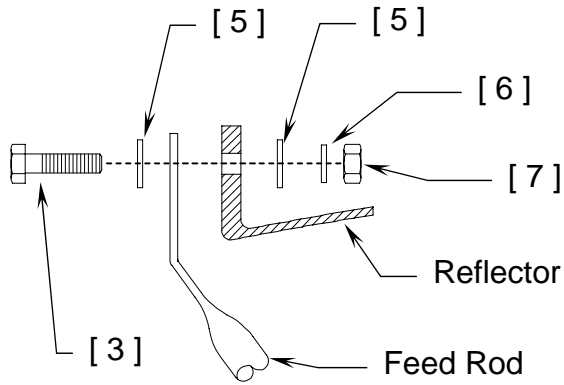
STEP 2.

Connect the short ends of the feed rods to the feed support tube with 1/4" x 2.00 bolt (item 4) and secure with hardware (items 5, 6, 7). See Detail "B".

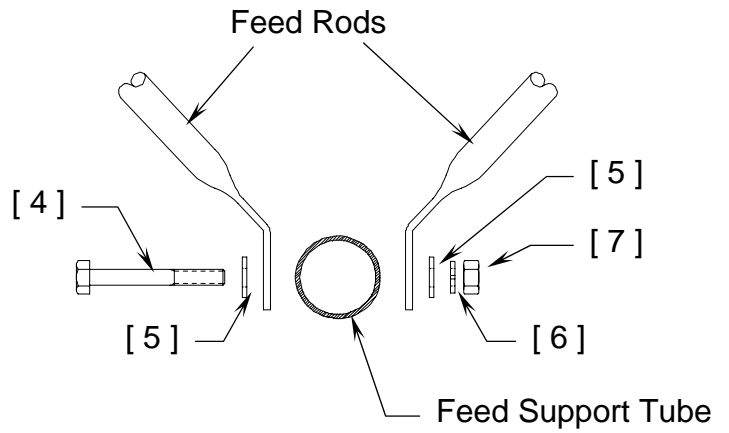


STEP 3.

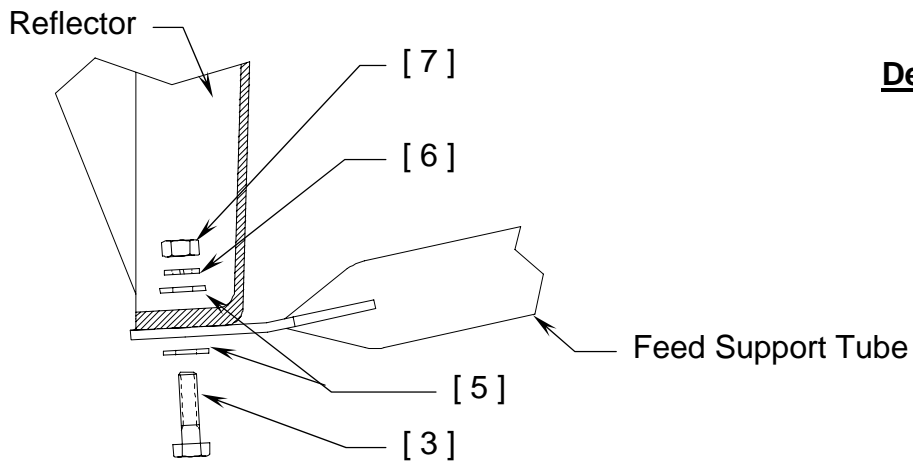
- A) Attach feed support tube to the bottom of the reflector with 1/4" x 1.00 bolt (item 3) and secure with hardware (items 5, 6, 7).
- B) Tighten the 1/4" hardware at the reflector rim snugly. Next, tighten the hardware that connects the feed rods to the feed support tube.
- C) Refer to Section III instructions for the specific feed/ODU assembly to the feed support.



Detail A



Detail B



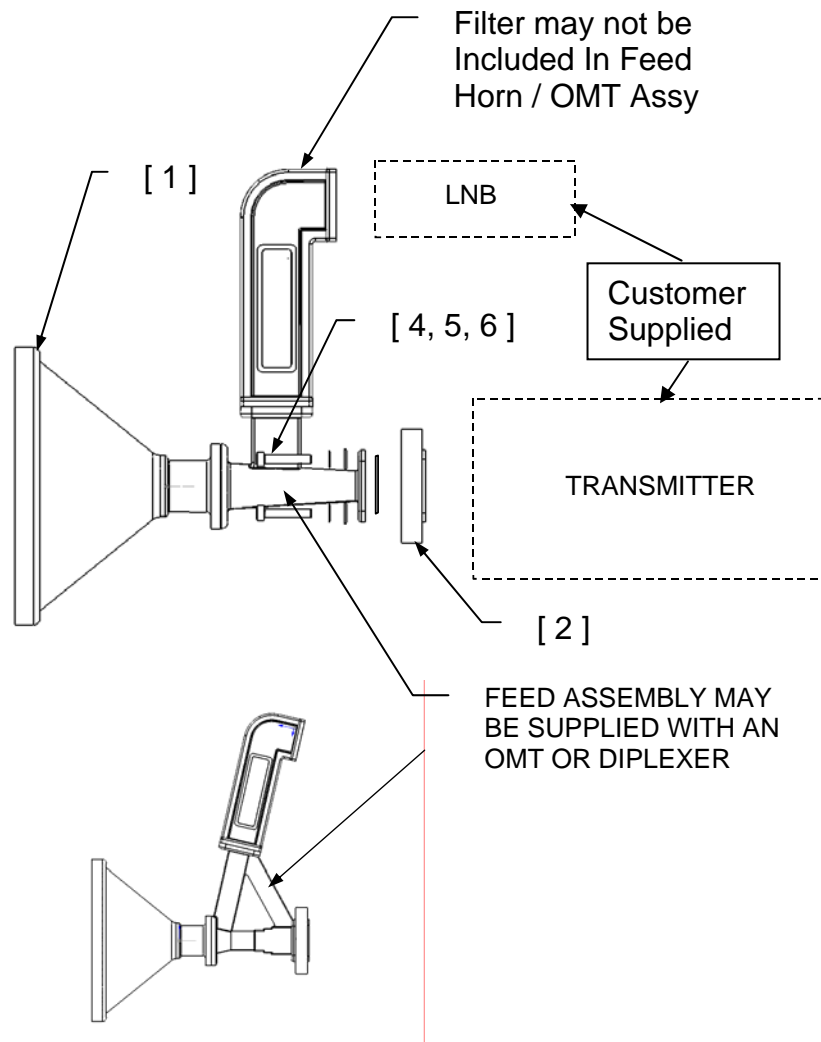
Detail C


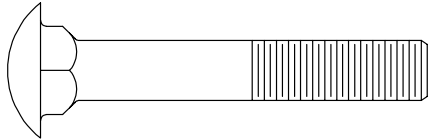
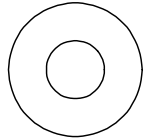
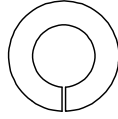
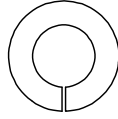
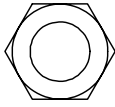
SECTION III

FEED ASSEMBLY PARTS LIST- TABLE 3.0			
ITEM	PART NO.	DESCRIPTION	QTY
1	VARIES	39° Feed Horn Assy	1
2	4080-050	Waveguide Spacer	1
3	0198-121	1.176 I.D. x .070 O-ring	1
4	8308-026	M4 x 7.25 SHMS	4
5	8201-064	M4 Flatwasher	4
6	8202-059	M4 Internal Tooth Lockwasher	4
7	0268-004	3mm Allen Wrench	1
8	0432-036	Grease Pill	1

3.1 FEED ASSEMBLY

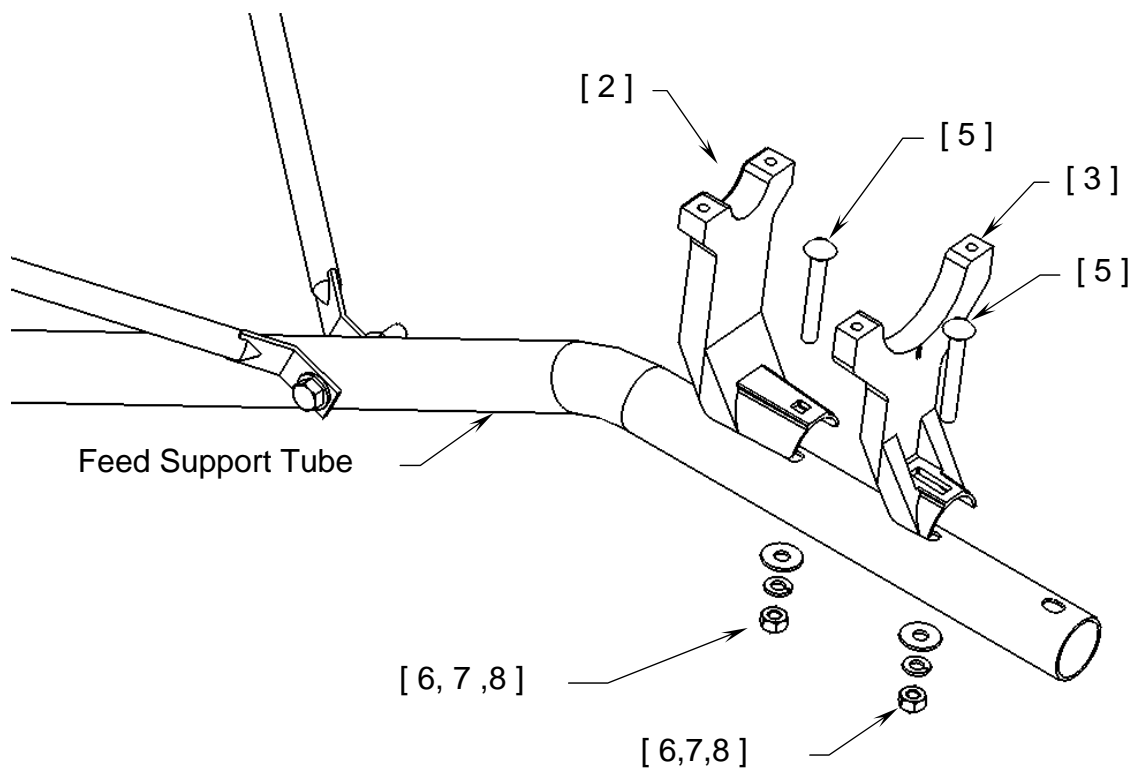
Apply Silicone grease (item 8) to the entire o-ring (item 3) and place the o-ring in the o-ring groove of the Waveguide Spacer (item 2). Place the Waveguide Spacer (item 2) between the Feed Horn Assy (item 1) and the transmitter (supplied by the customer) and secure using the M4 hardware provided (items 4, 5, 6).



FEED INSTALLATION PARTS LIST- TABLE 3.2			
ITEM	PART NO.	DESCRIPTION	QTY
1	N/A	Feed / OMT Assembly (from section 3.2)	1
2	4080-203	Tube Mount Feed Cradle	1
3	4080-190	Tube Mount Rear Support	1
4	8303-008	1/4" x 1.00 Bolt 	4
5	8044-016	1/4" x 2.00 Carriage Bolt 	2
6	8201-040	1/4" Flatwasher 	2
7A	8202-040	1/4" Lockwasher 	2
7B	8200-018	1/4" Internal Tooth Lockwasher 	4
8	8101-007	1/4" Hex Nut 	2
9	0211-400	Bracket, Feed Horn Clamp	1
10	0188-156	Collar, Rear Support	1

3.3 FEED INSTALLATION

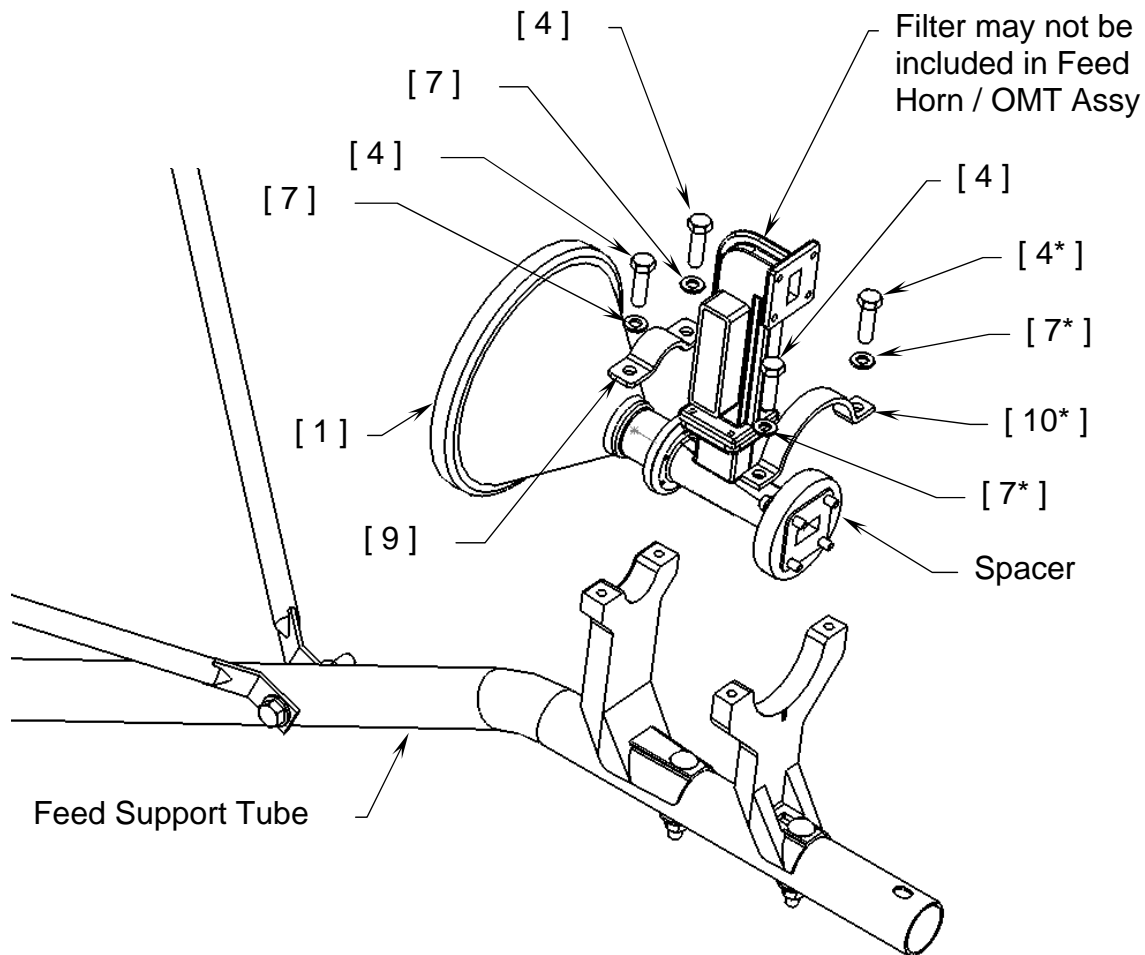
CAUTION: During the assembly procedure, the sequence of instructions must be followed. **Do Not Tighten Any Hardware Until Instructed.** Refer to the parts list table and the referenced steps.



STEP 1.

Attach the Feed Cradle (item 2) to the Feed Support Tube using the 1/4-20 hardware provided (items 5, 6, 7, 8). Tighten to recommended torque.

Attach the Rear Support (item 3) to the Feed Support Tube using the 1/4-20 hardware provided (items 5, 6, 7, 8). Leave this hardware loose.



STEP 2.

Insert the feed horn (item 1) into the feed cradle. Place the clamp (item 9) over the feed horn and insert the two 1/4" bolts (item 4) with lockwashers (item 7) as shown.

After installing the feed horn (item 1), position the rear support (item 3) under the spacer. Place the rear clamp (item 10) over the spacer and attach using the provided 1/4" hardware (item 4 and 7).

Leave the 1/4" hardware loose until instructed to tighten.

3.4 FINE ADJUSTMENT

This section describes the procedure for fine adjustment of polarization.

NOTE: Before proceeding with this section, the antenna should be peaked, using the az/el, in azimuth, elevation, and polarization. Refer to Antenna Installation manual for details on this procedure.

After the antenna is peaked using the az/el, the feed can be adjusted to give the installer additional fine adjustment for polarization.

NOTE: Refer to FEED INSTALLATION PARTS LIST- TABLE 3.3

- STEP 1:** If the clamp and or collar have been tightened, loosen the 1/4" Screws (item 4).
- STEP 2:** Rotate the feed left or right until the optimum signal is achieved.
- STEP 3:** Tighten all hardware used for adjustment.

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 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.