GENERAL DYNAMICS
SATCOM Technologies

4096-672
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ASSEMBLY MANUAL
Revision E

TIER I ANTENNA FEED SYSTEM

General Dynamics SATCOM Technologies
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Conover NC 28613 USA
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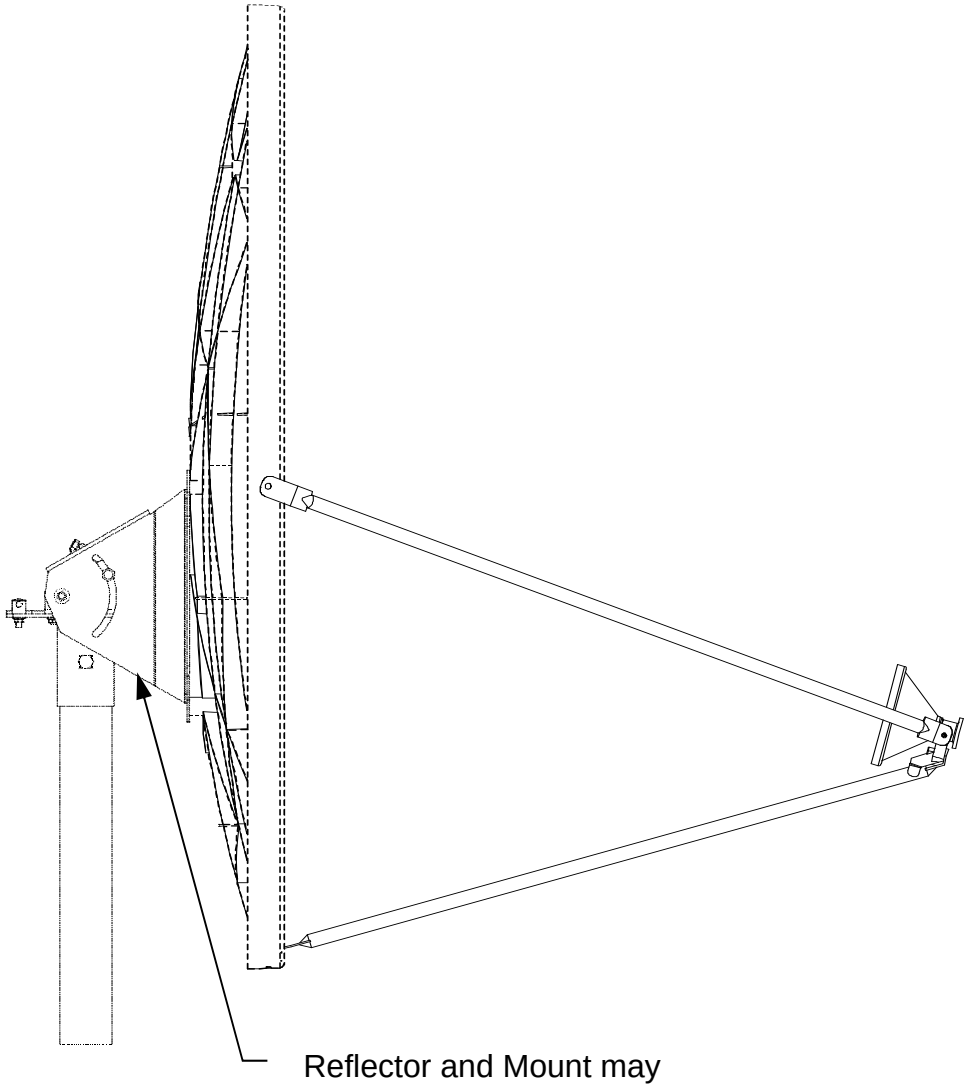
TIER I ANTENNA
FEED SYSTEM

REV.	DESCRIPTION	DATE	APPROVED
E	Add Conover Address	4/26/16	RAH
D	Revise Text	5/11/15	RAH
C	Revised OMT. WG Spacer optional	7/15/08	RAH
B	General Revision	5-4-07	RF
A	REVISED TO APPLY TO ALL TIER I FEED SYSTEMS	11/16/04	CLT
-	ORIGINAL RELEASE	9/13/04	CLT



Reflector and Mount may vary. See instructions included with the antenna system.

TIER I ANTENNA SYSTEM (1.2M Shown)

(Transmitter weight: 6-lbs. max)

TABLE OF CONTENTS

SECTION I INTRODUCTION

1.0 GENERAL INFORMATION

This manual describes the assembly and installation of GENERAL DYNAMICS Tier I Antenna feed support system. These antennas 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
1700 Cable Drive NE
Conover NC 28613 USA
Phone 770-689-2040
www.gdsatcom.com

1.4 MECHANICAL INSTALLATION TOOLS

HARDWARE SIZE	SAE WRENCH SIZE	METRIC WRENCH SIZE	MAX RECOMMENDED TORQUE
5/16” Bolt	1/2”	13 mm	12 ft-lb. (16.3 n-m)
1/4” Bolt	7/16”	N/A	6 ft-lb. (8.1 n-m)

Also recommended for installation: Adjustable Wrench

SECTION II FEED SUPPORT ASSEMBLY

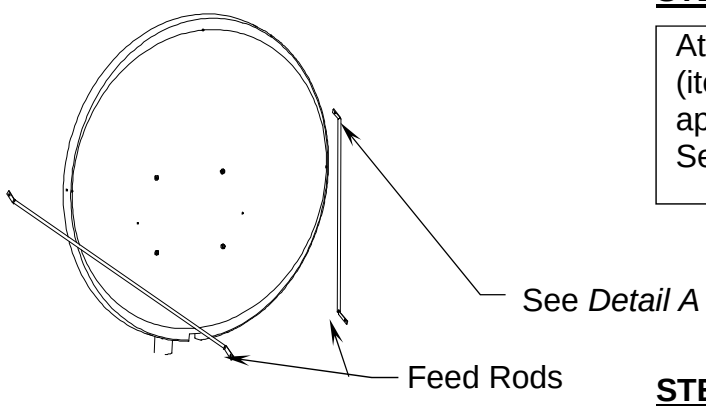
Feed Support Parts List - Table 2.0

Item	Part Number	Description	1.2M SFL*	1.2M LFL*	1.8M LFL*	QTY.
1	VARIES	Center Rod	✓	✓	✓	1
2	VARIES	Side Rod	✓	✓	✓	2
3	4080-194	Feed Bracket Casting	✓	✓	✓	1
Items 4, 5 and 6 are used to attach the feed brackets to the feed rods and are used on all configurations in this manual.						
4	8030-006	1/4-20x.75 Hex Bolt	✓	✓	✓	3
5	8201-040	1/4" Flat Washer	✓	✓	✓	3
6	8202-040	1/4" Lock Washer	✓	✓	✓	3
Items 7-15 are used to attach the feed rods to the various reflectors called out in this table. Although some of the part numbers are duplicated, they are depicted separately in the diagrams on the following pages for clarity.						
7*	8031-008	5/16-18x1.00 Hex Bolt	-	✓	✓	2
7**	8030-008	1/4-20x1.00 Hex Bolt	-	-	-	2
8*	8201-071	5/16" Flat Washer	-	✓	✓	4
8**	8201-040	1/4" Flat Washer	-	-	-	4
9*	8202-041	5/16" Lock Washer	-	✓	✓	2
9**	8202-040	1/4" Lock Washer	-	-	-	2
10*	8101-009	5/16-18 Hex Nut	-	✓	✓	2
10**	8100-007	1/4-20 Hex Nut	-	-	-	2
11*	8031-008	5/16-18x1.00 Hex Bolt	-	✓	✓	1
11**	8030-008	1/4-20x1.00 Hex Bolt	-	-	-	1
12*	8201-071	5/16" Flat Washer	-	✓	✓	2
12**	8201-040	1/4" Flat Washer	-	-	-	2
13*	8202-041	5/16" Lock Washer	-	✓	✓	1
13**	8202-040	1/4" Lock Washer	-	-	-	1
14*	8101-009	5/16-18 Hex Nut	-	✓	✓	1
14**	8100-007	1/4-20 Hex Nut	-	-	-	1
15	8319-004	Hi/Lo Screw	✓	-	-	3

* SFL= Short Focal Length (0.6f/d) LFL = Long Focal Length (0.8 f/d)

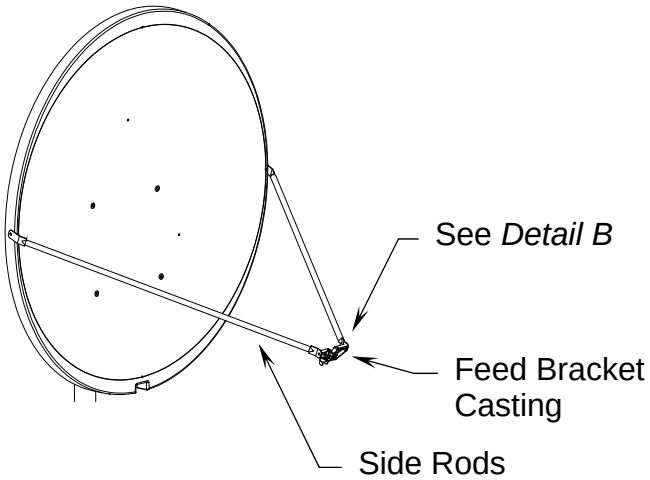
2.1 FEED SUPPORT ASSEMBLY

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.



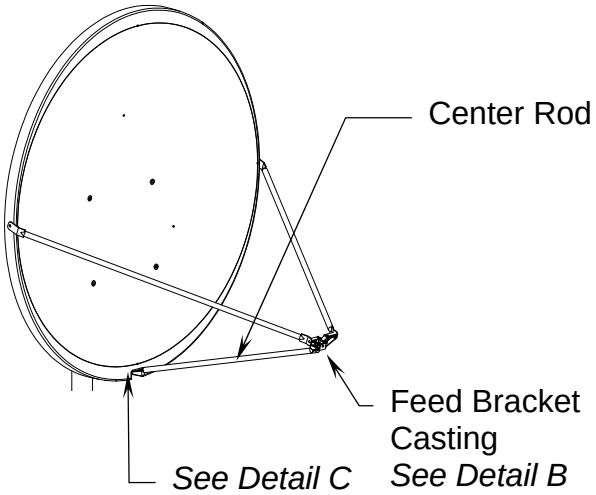
STEP 1.

Attach the long end of the side rods (item 2) to the reflector with appropriate hardware.
See Detail “A” and table 2.0.



STEP 2.

Connect the short ends of the side rods (item 2) to the feed bracket casting (item 3) with 1/4” bolts, washers, and lock washers (items 4, 5, 6).
See Detail “B”.

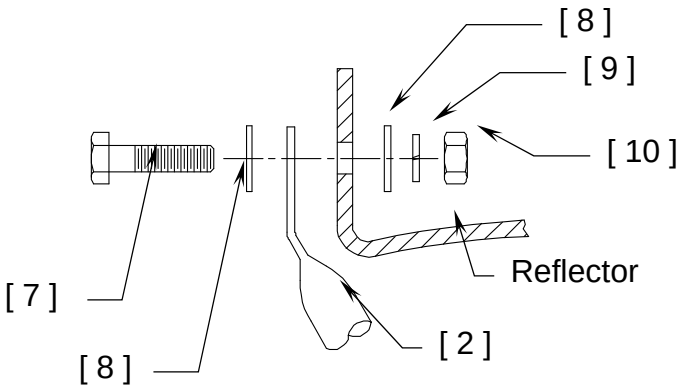


STEP 3.

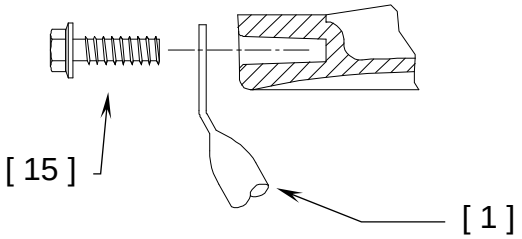
A) Attach the center rod (item 1) to the bottom of the feed bracket casting (item 3) with 1/4” bolt, washer, and lock washer (items 4, 5, 6).
See Detail “B”.

B) Connect the center rod (item 1) to the bottom of the reflector with appropriate hardware.
See Detail “C” and table 2.0.

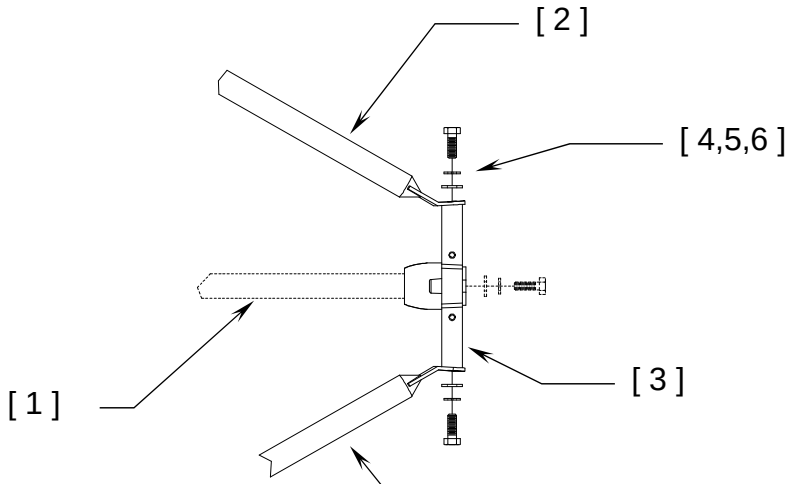
C) Tighten the hardware at the reflector rim snugly. Next, tighten the hardware that connects the rods (items 1, 2) to the feed bracket (item 3).

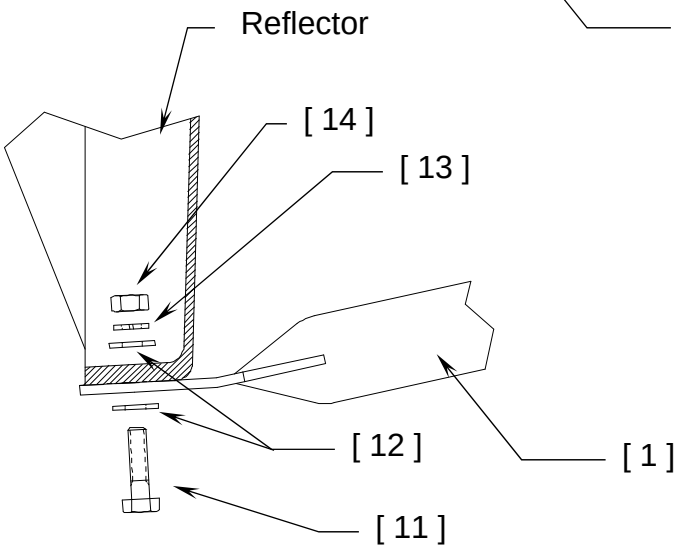


Detail A
1.2M LFL & 1.8M

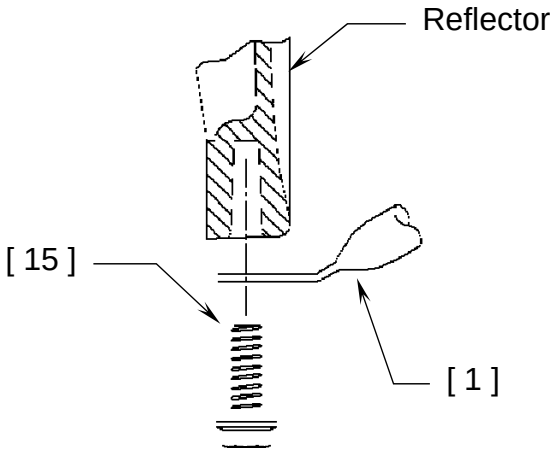


Detail A
(1.2M SFL)





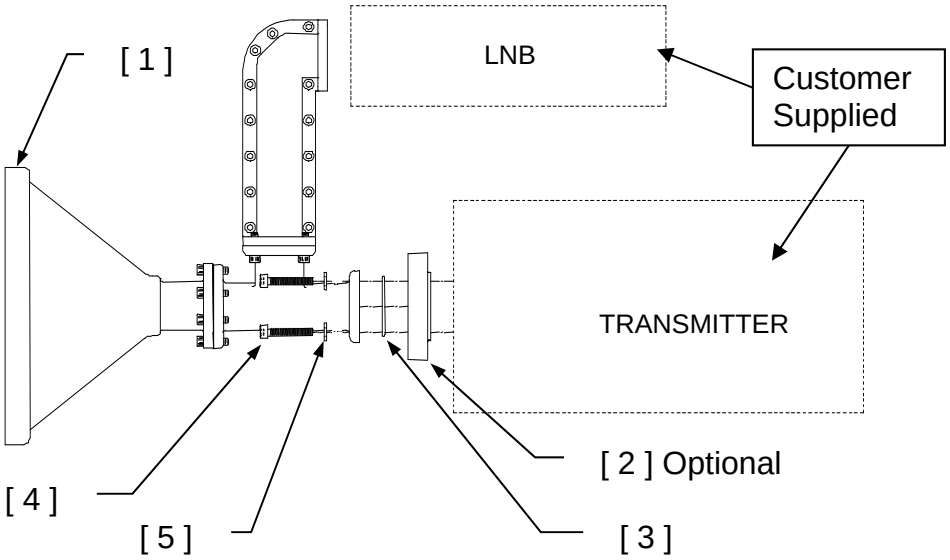
Detail C
1.2M LFL & 1.8M



Detail C
(1.2M SFL)

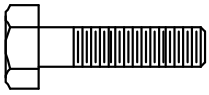
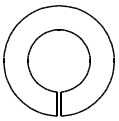
FEED /OMT ASSEMBLY PARTS LIST- TABLE 3.0			
ITEM	**PART NO.**	**DESCRIPTION**	**QTY**
1	Varies	Feed Assy.	1
2	4080-050	Waveguide Spacer(Optional)	1
3	0198-121	1.176 I.D. x .070 O-ring	1
4	8300-022	M4 x 10mm SHMS	4
5	8202-059	M4 Internal Tooth Lockwasher	4
6	0268-004	Allen Wrench 3 mm	1
7	0432-036	Grease Pill	1

3.1 FEED / OMT ASSEMBLY



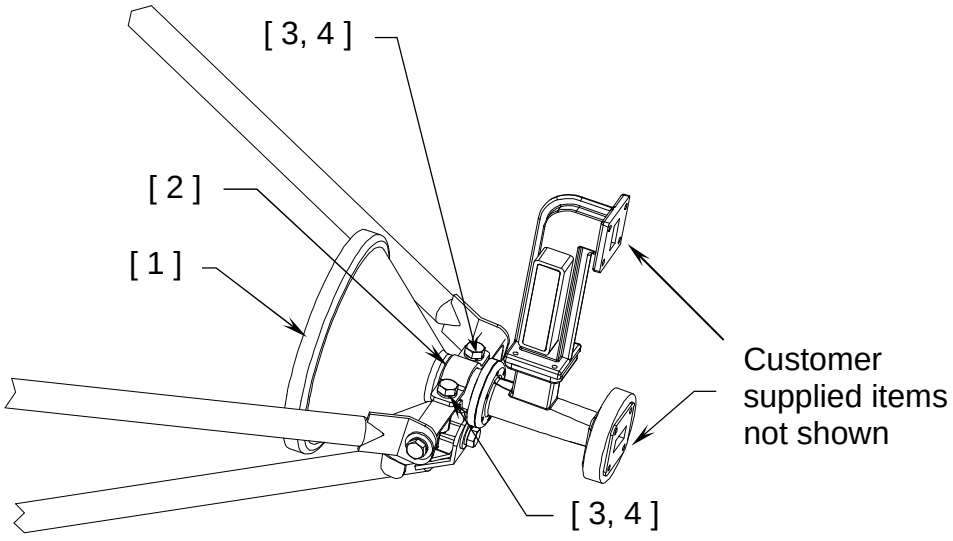
STEP 1.

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

FEED INSTALLATION PARTS LIST- TABLE 3.2			
ITEM	**PART NO.**	**DESCRIPTION**	**QTY**
1	N/A	Feed / OMT Assembly (from section 3.1)	1
2	0211-400	Top Clamp Bracket	1
3	8030-008	1/4” x 1.00 Bolt 	2
4	8202-040	1/4” Lockwasher 	2

3.4 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.

Hold the feed assembly (item 1) in the feed bracket casting. Place the top clamp (item 2) over the feed assembly (item 1) and install the 1/4” hardware (item 3, 4) provided.

With the 1/4” hardware slightly loose, set the feed polarity for the application by rotating the feed.

Snug the 1/4” hardware (item 3).

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. 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 a fine adjustment for polarization.

NOTE: Refer to FEED INSTALLATION PARTS LIST- TABLE 3.2

STEP 1: If the top clamp has been tightened, loosen the 1/4" Screws (item 3) just enough to allow the feed assembly to rotate.

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.