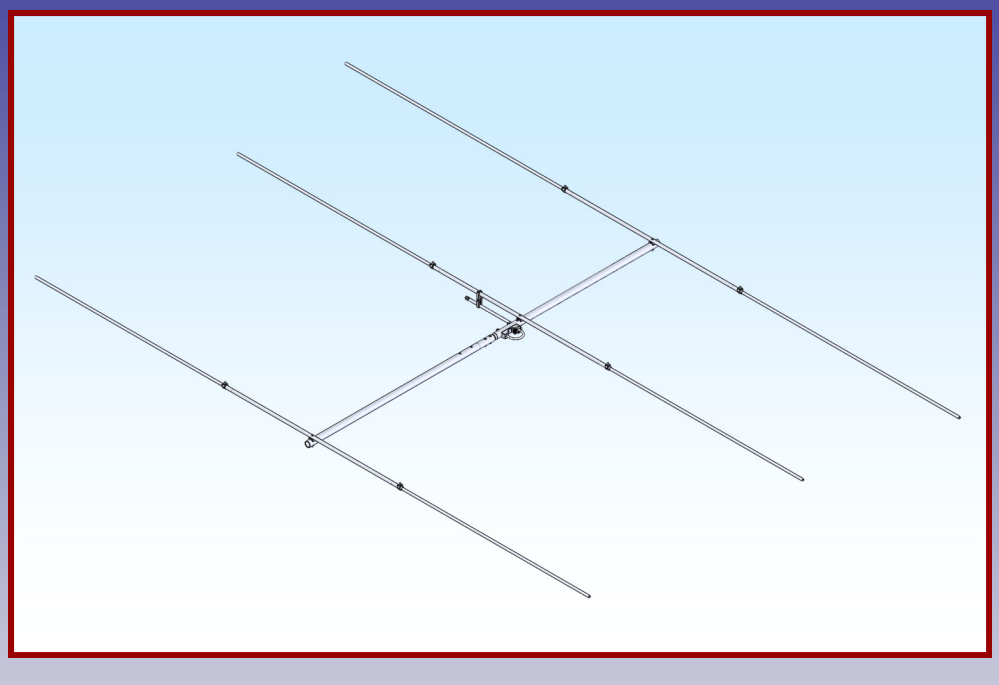
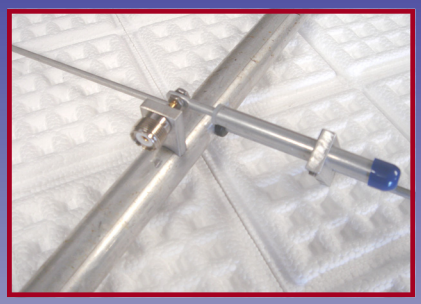
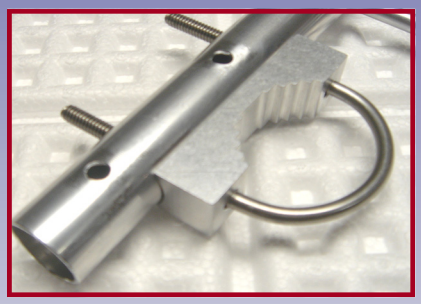
M2 Antenna Systems, Inc.
Model No: 6M-3SS







SPECIFICATIONS:

Model	6M-3SS
Frequency Range	50.0 To 54.0 MHz Tunable
*Gain	8.1 dBi
Front to back	28 dB Typical
Beamwidth	E=64° H=96°
Feed type	Gamma Match
Feed Impedance.	50 Ohms Unbalanced
Maximum VSWR	1.5:1
Input Connector	SO-239

Power Handling	0.5 kW
Boom Length / Dia	5’ 8” / 1”
Maximum Element Length	123”
Turning Radius:	5’ 5”
Stacking Distance	14’ High & 18’ Wide
Mast Size	1-1/2” to 2” Nom.
Wind area / Survival	0.7Sq. Ft. / 75 MPH
Weight / Ship Wt.	6 Lbs. / 7 Lbs.

***Subtract 2.14 from dBi for dBd**

FEATURES:

New licensed Hams will find the **6M-3SS** a low cost, medium performance antenna to be a great choice for a starter antenna without compromising quality. A single heavy duty mounting cradle and stainless steel hardware, give you the confidence of quality construction you have come to expect from **M2**. Built with size and portability in mind, this antenna is great for Field Days, Mountain Topping, Fox Hunts and DXpedition use. The antenna breaks down to no more than 40” long, making it a natural for trips.

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02/27/15
Rev.05

6M-3SS ASSEMBLY MANUAL

Congratulations on your purchase of the 6M-3SS, You have chosen a versatile 6M antenna, it can be tuned for all modes of communication in the 6M band. This versatile antenna can break down into a small package so you can use it for field days or DXpeditions, making this antenna a good choice. We have offered (4) tuning choices, 50.150 MHZ used primarily on Horizontal polarity on SSB, 51.00 MHZ, 52.00 MHZ, and 53.00 MHZ used primarily on Vertical polarity on FM.

MOUNTING AND TUNING YOUR ANTENNA:

Normally M2 dose not condone mounting yagi antennas on vertical metal masts in front of the reflector in the same plain as the elements. Mounting in this manor can cause VSWR changes, pattern changes, and gain loss. It is a technical no no. Normally M2 would suggest a non metallic mast and routing your feed line off the rear of your antenna. This may not be practical. So M2 has tuned the antenna on 51, 52 and 53 MHz on **TOP** of a metal mast and with the feed line routed down the mast. Keep in mind we have mounted the mast on the opposite side of the boom to allow the most amount of offset available so the mast and feed lines are not exactly in the same plain as the elements. If you must run the metal mast up through and past the top of the element, some further retuning may be required.

When mounting Vertically it is important to point the Gamma Match tube up with the vinyl cap in place. This will give you your best results for wet and rainy conditions. You will also notice in the **TUNING CHART** that the driven element tips may be set to different lengths, This helps compensate for the metal masts and feed line in the same plain as the elements.

If you choose to mount on a non metallic mast and route your feed line off the rear of the antenna, or mount your antenna vertically on a horizontal cross boom, balancing the driven elements tips may be required. Use the “B” dimension for the “C” dimension as a starting point.

When mounting your antenna Horizontally you will probably be using it on SSB. So you would be setting for 50.150 MHZ. Mounting your antenna with the element mount blocks on top of the boom and the Gamma Match hanging below the boom, This allows the feed line to come off the boom cleanly.

Standard waterproofing techniques apply, although M2 suggests not to seal up both ends of the gamma tube. If you get water in the tube it can cause VSWR changes and if you seal it at both ends, water will have a more difficult time drying or getting back out. Keeping one end open, allows rapid drying.

M2 recommends Times LMR-400 type 50 Ohm coax or equivalent. If you are thinking of stacking two or more 6M-3SS yagis’, contact the factory for phasing and matching information.

TUNING CHART

DIMENSION DESCRIPTION		50.150 MHZ	51.00 MHZ	52.00 MHZ	53.00 MHZ
REFLECTOR EXPOSED TIP LENGTH	**A**	41 3/8”	40 3/8”	39 1/4”	38 3/16”
DRIVEN ELEMENT EXPOSED TIP LENGTH GAMMA SIDE	**B**	38 1/2”	37 3/4”	36 1/4”	35”
DRIVEN ELEMENT EXPOSED TIP LENGTH NON GAMMA SIDE	**C**	38 1/2”	39 1/4”	37 1/2”	36”
DIRECTOR # 1 EXPOSED TIP LENGTH	**D**	35 3/8”	34 1/2”	33 7/16”	32 7/16”
GAMMA TUBE TO GAMMA FEED BLOCK	**E**	1/8”	3/8”	3/8”	3/8”
GAMMA FEED BLOCK TO SHORTING BARS	**F**	7 5/8”	7 7/8”	7 7/8”	7 7/8”

6M-3SS ASSEMBLY MANUAL

Tools handy for assembly process: Phillips head screwdriver,11/32" nut driver or socket, 7/16" end wrenches / sockets, measuring tape. *We have supplied a small container of zinc paste with the hardware. It is best to apply a small amount of this zinc paste to each aluminum to aluminum connection to help slow down the oxidation process and for the best electrical connection. The zinc paste can also be used on the threads of the stainless steel hardware to minimize thread galling.

1. This antenna uses a two-piece boom which has two U-Bolt patterns that allows the antenna to be mounted either Horizontal or Vertical.

2. Layout the boom sections as shown on the **DIMENSION** sheet, ***Note*** the rear boom is 36" long and has a Swedged end to fit the front boom. Assemble with 8-32 x 1 1/4" screws and lock nuts. Tighten the nuts securely.

3. To install the center element sections, layout the following parts: (3) center element sections 1/2" x 36", (3) element mounting blocks and the (3) 8-32 x 2" screws and lock nuts.

4. Slide the 8-32 x 2" screw through the hole in the center of the element section, be sure to have the two end holes pointing down. Now slide the element and screw through an element mounting block. Take this whole assembly and attach it to the first element mounting hole on the top of the rear boom section. Secure the element into place with an 8-32 locking nut. Repeat the same assembly for the driven element and the director element.

5. Preassemble the 1/2" element compression clamps by installing a 8-32 hex nut into the inner flat surface of the clamp. While holding the 8-32 hex nut in place with your fingers, insert a 8-32 x 1/2" screw through the hole and tighten until the screw is flush with the bottom of the hex nut.

6. Slide a 1/2" compression clamp assembly onto each tip of the 1/2" x 36" element sections. Align the screw with the hole on the bottom of the 1/2" tube and thread the screw into the hole enough to hold the compression clamp in place.

7. Layout the 3/8" element tips on a table or work bench. Starting from the rear of the antenna, insert the (2) longest elements into either side of the 1/2" center element sections. Using the **TUNING CHART** for proper frequency setting, slide the 3/8" elements in or out until you have the desired **EXPOSED** tip length. At this point, tighten the 1/2" element compression clamps until the 3/8" elements do not spin or move. Continue with the (2) next longest elements for the driven element section and finally the (2) shortest elements for the director. It's always best to double check that all of the 1/2" element compression clamps are completely tightened at this point.

8. Mount the Gamma connector block assembly just forward of the element mount block on the bottom side of the boom using a single 8-32 X 1-1/4" screw . Orient the block with the SO-239 feed connector facing towards the center of the antenna.

9. Slide the Gamma Insulator onto the Gamma Rod making sure that the insulator hangs off the end of the Gamma Rod 1/8".

10. Slide a #6 flat washer over the Gamma Connector Stud. Now install the flat surface of the Gamma Rod over the stud followed by a #6 lock washer and 6-32 nut. ***Note*** The connector stud can spin freely. Use a pair of needle nose pliers or a small wrench to hold the flat surface when tightening.

11. Now slide the Gamma Tube over the Gamma Insulator and refer to the **TUNING CHART** for proper placement.

6M-3SS ASSEMBLY MANUAL

12. Install the two halves of the Shorting Bar onto the Gamma Tube and the driven element below. Refer to the **TUNING CHART** for proper location of the shorting bar. Tighten the shorting bar in place using a single 8-32 x 7/8" screw and lock nut.

13. Now Slide the 3/8" x 3/8" Vinyl cap over the Gamma Tube until it is flush with the end of the Gamma Tube.

14. At this point it is important to determine whether your antenna will be mounted horizontally **(SSB/ CW)** or Vertically **(FM).** Locate the two sets of holes at the rear or center of the boom assembly.

15. Insert the 2" u-bolt into the uni-cradle and slide this assembly into one of the two sets of holes at the center of the boom assembly. Finish the assembly by installing (2) 1/4" lock washers and 1/4 -20 nuts.

Stacking or Phasing ? Call us and let us help you DO IT RIGHT.

THIS COMPLETES THE ANTENNA ASSEMBLY.

CAREFULLY DESIGNED AND MANUFACTURED BY:

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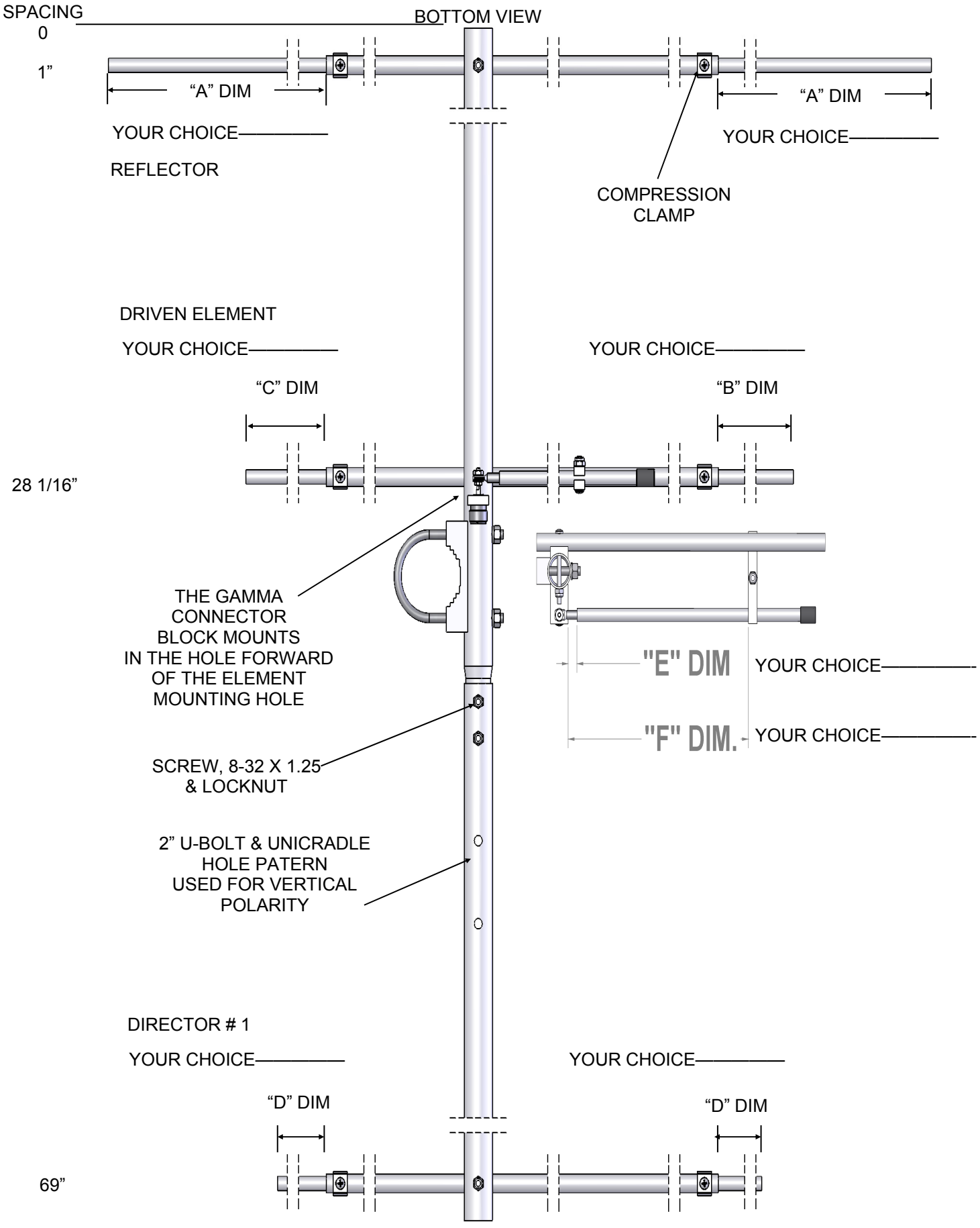
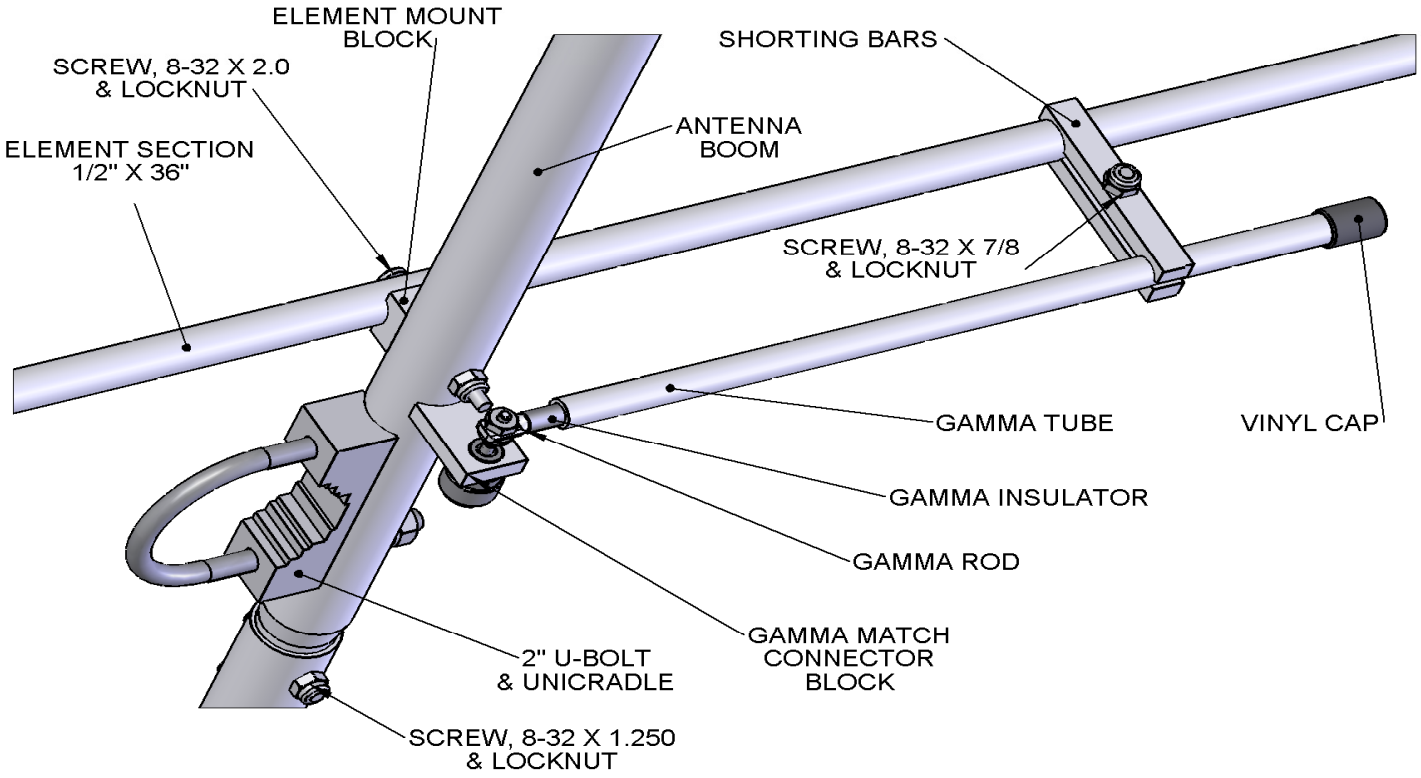
6M-3SS DIMENSION SHEET

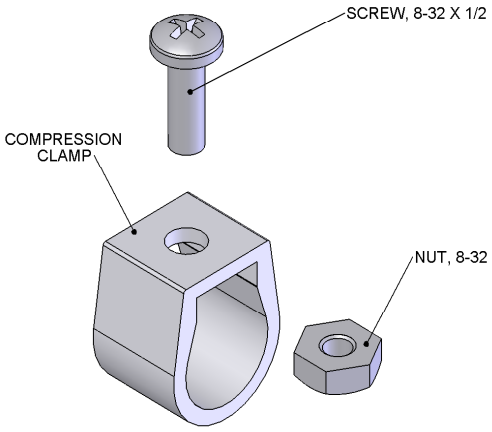


6M-3SS ASSEMBLY DETAILS

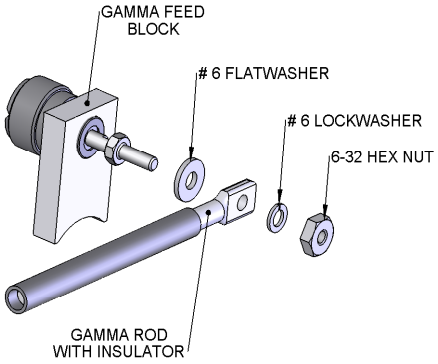
GAMMA MATCH ASSEMBLY DETAIL



COMMPRESSION CLAMP DETAIL



GAMMA MATCH DETAIL



6M-3SS PARTS & HARDWARE

DESCRIPTION	QTY
BOOM SECTION, 1 X .058 X 36” SOE	1
BOOM SECTION, 1 X .058 X 37”	1
ELEMENT SECTION, 1/2 X .049 X 36”	3
ELEMENTS, 3/8 X .049 X SEE DIM SHEET	6
GAMMA CONNECTOR BLOCK ASSEMBLY	1
GAMMA ROD, 3/16 X 5.00 ALUM ROD	1
GAMMA TUBE, 3/8 X .058 X 10.00 ALUM TUBE	1
GAMMA INSULATOR, .1/4 X .031 X 4.750 TEFLON TUBE	1
VINYL CAP, 3/8 X 1/2	1
UNI CRADLE	1
U-BOLT, 2” SS	1
ASSEMBLY MANUAL	1
ZINC PASTE 1/2 OZ.	1

HARDWARE BAG:

SHORTING BAR, 1/4 X 3/8 X 2.60	2
ELEMENT MOUNT BLOCK, .375 X .750 X .750	3
COMPRESSION CLAMP, 1/2”	6
SCREW, 8-32 X 2.0 SS	3
SCREW, 8-32 X 1.25 SS	3
SCREW, 8-32 X .875 SS	1
SCREW, 8-32 X 1/2 SS	6
NUT, 8-32 SS	6
LOCKNUT, 8-32 SS	7
FLATWASHER, #6 SS	1
LOCKWASHER, #6 SS	1
NUT, 6-32 SS	1
LOCKWASHER, 1/4 SS	2
NUT, 1/4-20 SS	2
NYLON TIE, 7 3/4	3

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