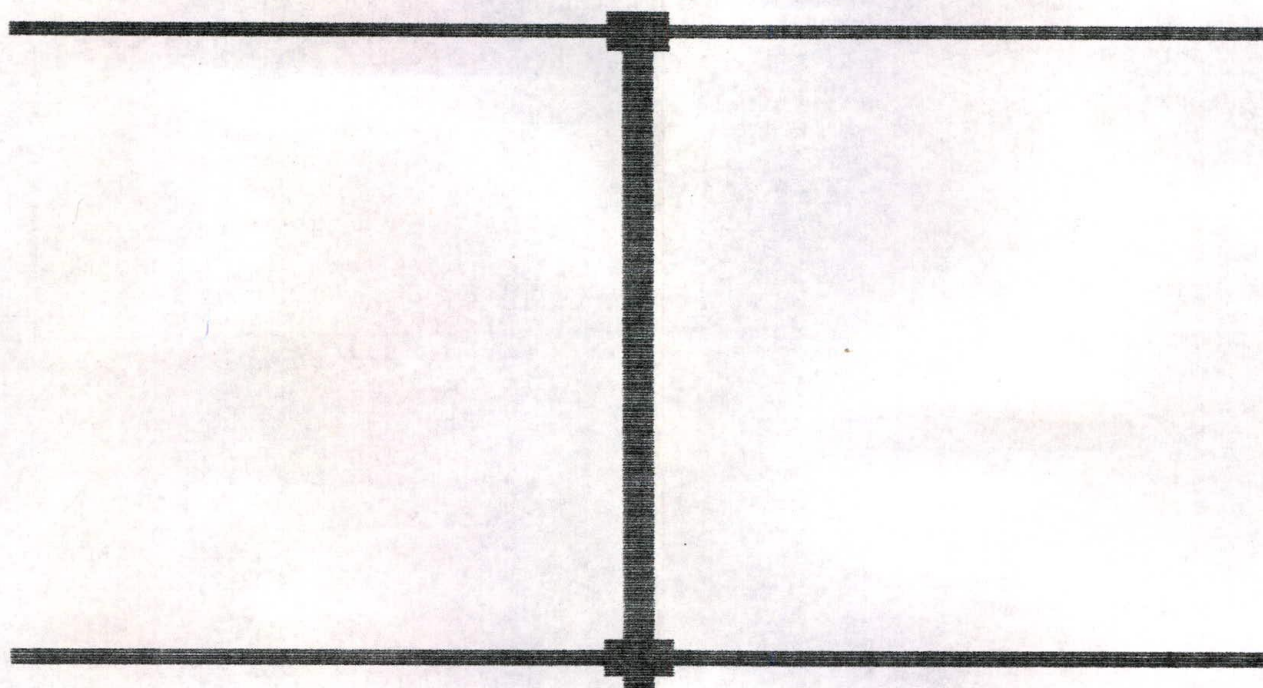


S-402-M

ASSEMBLY INSTRUCTIONS



S-402-M 2 Element 40 Meter Beam

MOSLEY ELECTRONICS, INC
1325 STYLE MASTER DRIVE
UNION, MO 63084

S-402-M

The high performance of your Mosley S-402-M can only be achieved if this beam is assembled in accordance with the instructions in this manual. Substitutions of materials or modification of design will greatly lessen it's performance.

We recommend that you read through the assembly instructions and familiarize yourself with each step before assembling your antenna.

PART NUMBER	QUANTITY	ITEM
1	2	DRIVEN ELEMENT SUPPORT
2	16	A1352 INSULATORS
3	60	#10 LOCKWASHERS
4	32	10/32 X 1-1/2" MACH. SCREWS
5	4	1-3/8"x.058x72"
5A	4	1-1/4"x.058x72"
6	16	10/32 x 2" SS Screw
7	4	Coil Mounting Bracket
8	8	2" U-Bolts 5/16 SS
9	2	#48 Clamping Blocks
10	16	5/16 Lock washers
11	16	5/16 Nuts
12	6	10/32 Hex Nuts
13	4	1-1/8"x.058x72", coded RED
13A	4	1-1/8"x.058x72", coded BLUE
14	16	#8 SS Sheet Metal Screw
15	4	1-1/8" End Caps
16	2	1.768x.125x24", Boom splice
16A	1	1.768x.125x48", Boom Splice
17	4	2" Boom Section Color coded
18	1	Mast Plate
19	6	#47 Clamping Blocks
20	2	2" Boom End Caps
21	4	1-3/8" Inner Element Caps
22	2	Solder Lugs, #1021
23	1	Radiator Coil
24	1	Reflector Coil
25	10	1/4-20 Bolts, SS 2-1/2"
26	10	1/4-20 Lock washers
27	10	1/4-20 Nuts
28	1	WARRANTY CARD
29	1	INSTRUCTION MANUAL
30	2	PENETROX
31	1	DEBURRING NOTICE
32	1	WARNING NOTICE

MOSLEY ELECTRONICS
1332 STYLE MASTER DRIVE
UNION, MO 63096

ASSEMBLY

< > Start by grouping all element sections according to color code.

DEBURRING

< > MAKE SURE that before attempting to sleeve ANY of the pieces of tubing together you check to see that all tubing pieces are DEBURRED!

In building the antenna we have removed the majority of the burrs, however, due to the number of pieces of tubing, the cost of labor and the time consumption some pieces will have burrs.

The tubing Mosley uses is made for us and the sleeving tolerances are very close. If you would try and force a piece of tubing to sleeve, which is not deburred, it will SEIZE. If this would happen you aren't going to get them apart.

This is a beautiful beam, we have put a lot of time and pride into it, take a few minutes and check the pieces.

NOTE: Penetrox, an anti-corrosion compound should be applied between coupled sections of tubing to prevent formation of high resistance and seizing of aluminum.

CAUTIONS

< > Deburr tubing and use the enclosed PENETROX.

< > Review the drawings and READ the instructions.

< > Follow all safety procedures in assembly and raising of this beam. When installing the antenna, make sure the tower and all other associated hardware, assembly personnel and components are rated correctly for this antenna!

ASSEMBLY OF BOOM

Figure 1

< > Insert one end of the 48" center boom splice (Part 16A) into one end of the boom section (Part 17) marked #1 in BLACK. Align the holes and secure with screws (Part 25), lockwashers (Part 26) and nuts (Part 27). Insert opposite end of splice into the remaining center section boom marked #1 in BLACK (Part 17), and secure with hardware (Parts 25, 26, 27).

< > The remaining boom sections (Part 17), can now be attached to the center section at either end. Using the smaller splices, align the holes and secure with hardware (Parts 16, 25, 26, 27). Press caplugs (Part 20) on each end of boom.

< > Check that all bolts are tight, and have lockwashers in place.

ASSEMBLY AND PLACEMENT OF MASTPLATE

Figure 2

< > Place the mastplate (Part 18) between the joint at the center of the boom. Place four #47 clamping blocks (Part 19) between the boom and the mastplate and secure with the four 2" U-bolts (Part 8). Secure the U-bolts with lockwashers and nuts (Parts 10, 11).

ASSEMBLY OF DRIVEN ELEMENT

(Figure 3, 4, 5)

< > Loosely install 8 plastic insulators (Part 2) on the rectangle support plate (Part 1) with lockwashers and screws (Parts 3, 4). Place plastic caps (Part 21) on the inboard end of the element sections (Part 5). Place one element section into the "v" on the insulators (Part 2) so that the screw hole on the outboard end is facing DOWN.

< > Insert screw (Part 6) through lockwasher (part 3), the small hole on one end of the coil bracket (Part 7) through the element (Part 5) and into the insulator (Part 2). Insert screw (Part 6) through the lockwasher (Part 3), element (Part 7) and into the insulator (Part 2).
DO NOT OVER TIGHTEN SCREWS INTO INSULATOR BLOCKS....

< > Place the other element section (Part 5) color coded red over the opposite side insulators (Part 2), insert screw (part 6) through lockwasher (Part 3), through the corresponding hole on the coil bracket (Part 7), the element (Part 5) and into the insulator (Part 2).

< > Insert screw (Part 6) through lockwasher (Part 3), element (Part 5) and into the insulator (Part 2). Tighten all screws in the element supports, BUT do not over tighten screws. Tighten enough to set lockwashers.

< > Continue assembly by inserting the color-coded end of the remaining sections into the corresponding end of the next element with the same color-code. (Parts 5A, 13) Secure elements with screw (Part 14).

< > Repeat the above procedure on the REFLECTOR ELEMENT, following the BLUE color code.

PLACING RADIATOR ON BOOM

< > Locate the RED color code for the RADIATOR on boom. Place the assembled RADIATOR over color code and insert #48 clamping block (Part 9) on boom between the RADIATOR and boom. Place U-Bolt (Part 8) around boom, through clamping block and element support. (Part 1).

< > Secure U-bolt with lockwashers and nuts. (Parts 10, 11).

< > Tighten down element to boom, but don't completely tighten until all elements are aligned and are parallel to each other on boom.

< > Place THE REFLECTOR on the boom in the same manner as radiator.

< > Once both elements are aligned, tighten down to boom.

ATTACHING FEED LINE TO RADIATOR COIL

Figure 4, 6

< > Cut insulation on coax back 2-1/2" and form the braid of the coax into a leg of the line.

< > Once the coax is in the form of a "Y", tape junction, (area where the coax stops and the two lines of the "Y" start), with a good 3-M type electrical tape. This will seal coax from the weather.

< > Cut the insulation on the "HOT" or center of the coax line, back 1/4" and solder one of the #1021 solder lugs to the exposed end of the center section of the coax.

< > Before soldering the #1021 solder lug on the braided section, twist braid to ensure you have a good section of line.

< > Solder #1021 solder lug onto the braided line. Be careful not to over heat the braid line to avoid the melting of the insulation covering the center section of the coax.....

PLACEMENT OF COAX TO RADIATOR COIL

Figure 4, 6

- < > Locate the "+" sign on the radiator coil. This side will receive the center or "HOT" section of the coax. This is important.
- < > Secure the #1021 solder lug (Part 22) to the 10/32 screw with lock washers and nuts (Parts 3, 12). CAUTION: When tightening the solder lugs make sure the lug connected to the inside of the coil is not pulled or twisted while tightening the outer lugs.
- < > Repeat the above procedure with the braided side of the coax.

USE OF RF CHOKE

FIGURE 6

- < > You (may) want to insert a R.F. Choke into the coax line to eliminate any RF on the coax line. (This choke is not a requirement.)

To make the choke, coil the feed line (10 turns in a 10" diameter) right after the point where the coax attaches to the radiator coil. Tape the coil in three places to keep the coil in position and then tape the completed coil to the under side of the boom directly under the feed point at the radiator.

RECHECK ALL CONNECTIONS

- < > Make sure all hardware is tight and all color codes were followed.
- < > Make sure the penetrox was used.
- < > Place any remaining end caps or boom caps in place.
- < > Check the coax attachment points.
- < > Review the drawings with end tip and inner dimensions.

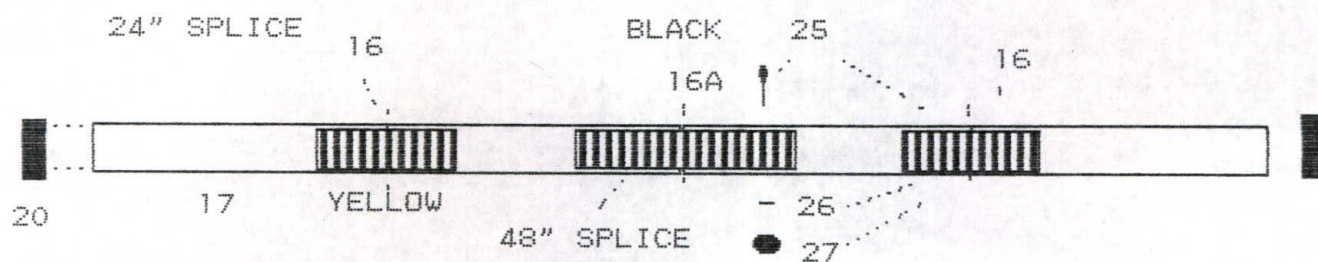
SUGGESTIONS

Before hauling your antenna all the way up a tower, check it at least 10 to 12 feet off the ground. In checking the antenna, DO NOT put the reflector on the ground and point the antenna up in the air. Place the antenna on a ladder, temporary pole, or to the side of your tower in the horizontal plane. This will enable you to get an over view of the antenna. That is, if you're showing 10:1 everywhere, you have a problem. However, if you are seeing the antenna trying to dip, but not going completely flat and/or the frequency is 50 to 80 kcs. lower in the band; the antenna is correctly assembled. Remember at this low height you are coupling with ground. That can be both real ground and artificial ground. Doing this simple check before final installation can save you and your crew a lot of frustration. If you think you have a problem or something is going on you don't understand, please call us, we will be glad to help. We want you to be as happy as we are you chose MOSLEY!

FIGURE 1

IMAST

BOOM



MATCH UP COLOR CODES AND NUMBERS OF BOOM SECTIONS AND SPLICES.
CONNECT WITH 1/4-20 BOLTS, LOCKWASHERS AND NUTS.

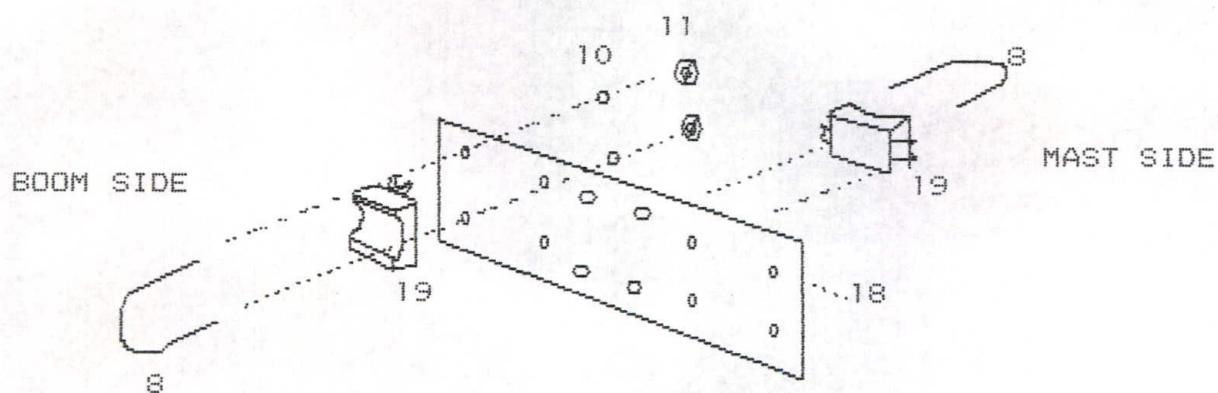


FIGURE 2

Figure 3

Radiator/Reflector Common Element

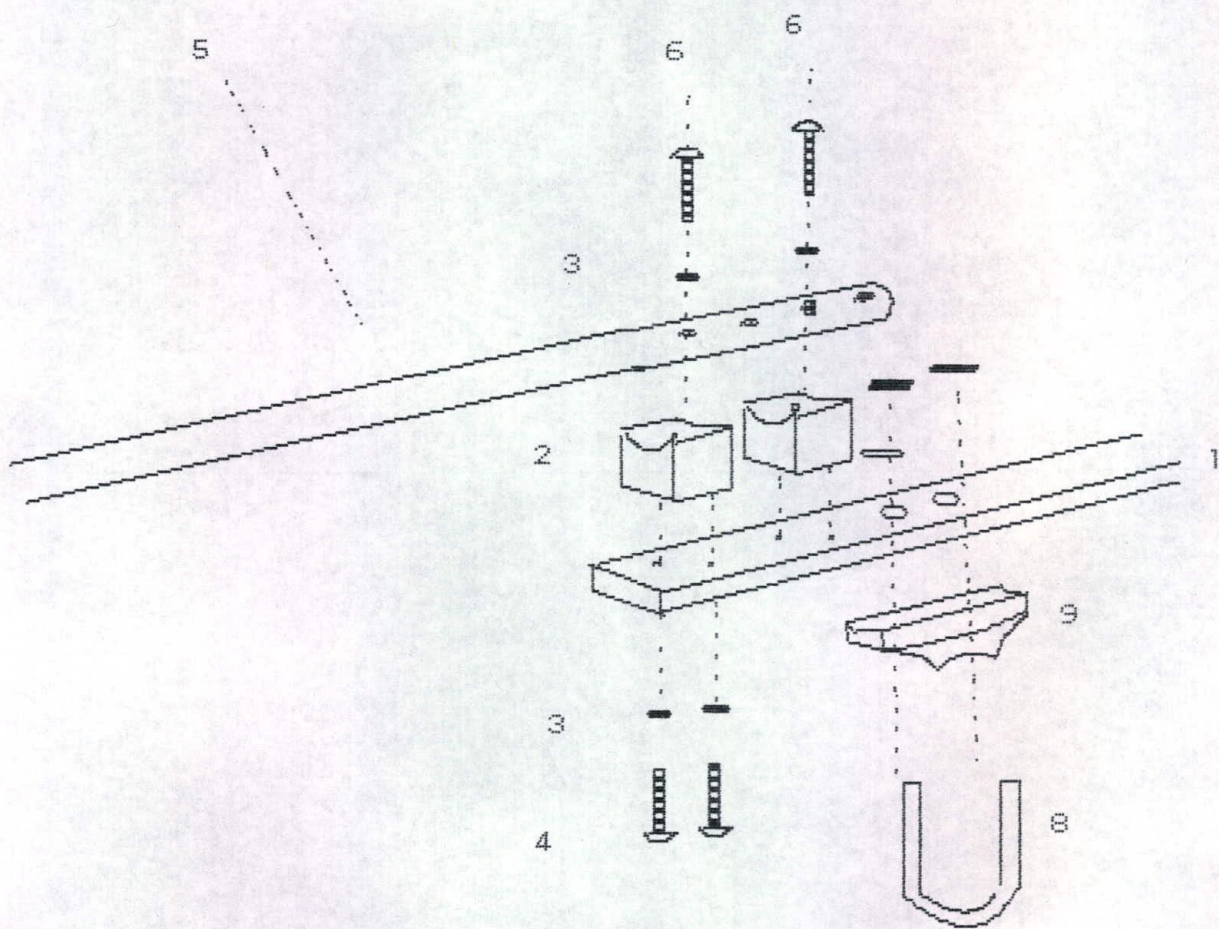
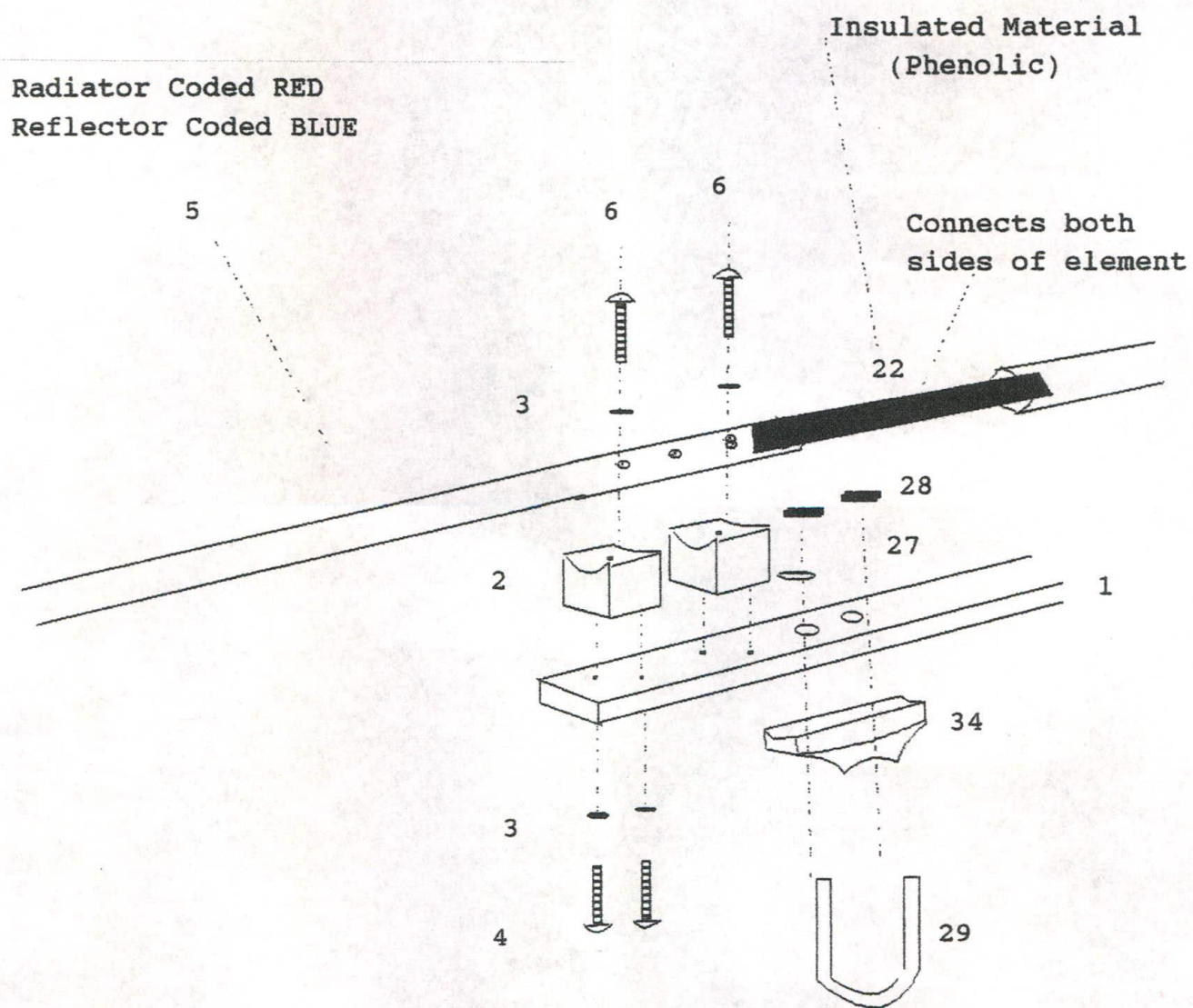


Figure 3



S-402-M Coil

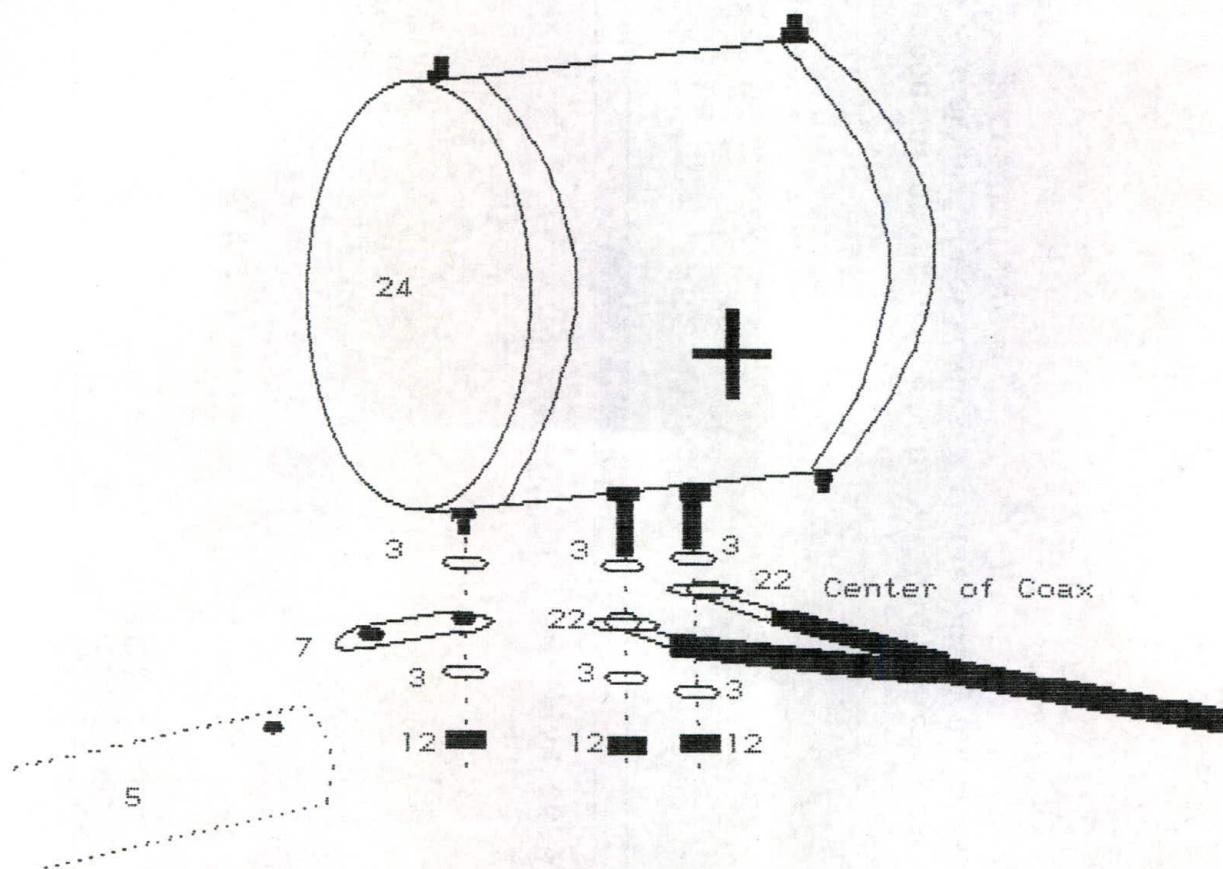
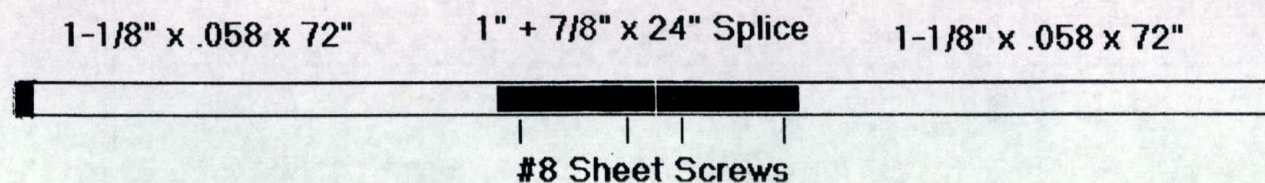


Figure 4

End Tip Modification on the S-402-M



Join the two sections of the element with the 24" one inch slice and secure with the #8 x 1/2" stainless sheet screws. Use the Mosley anticorrision compound on the pieces that sleeve.

Parasitic Coils

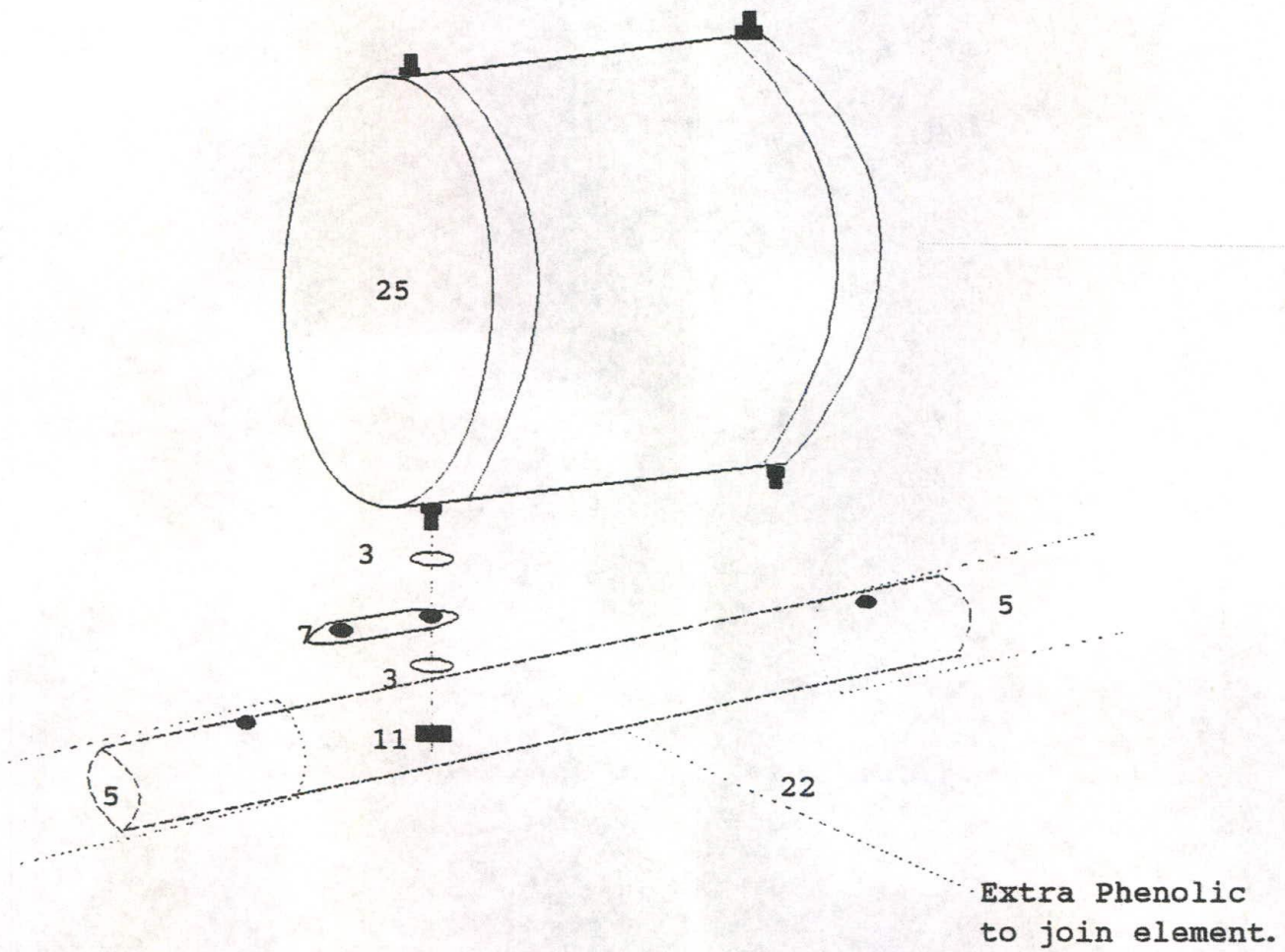
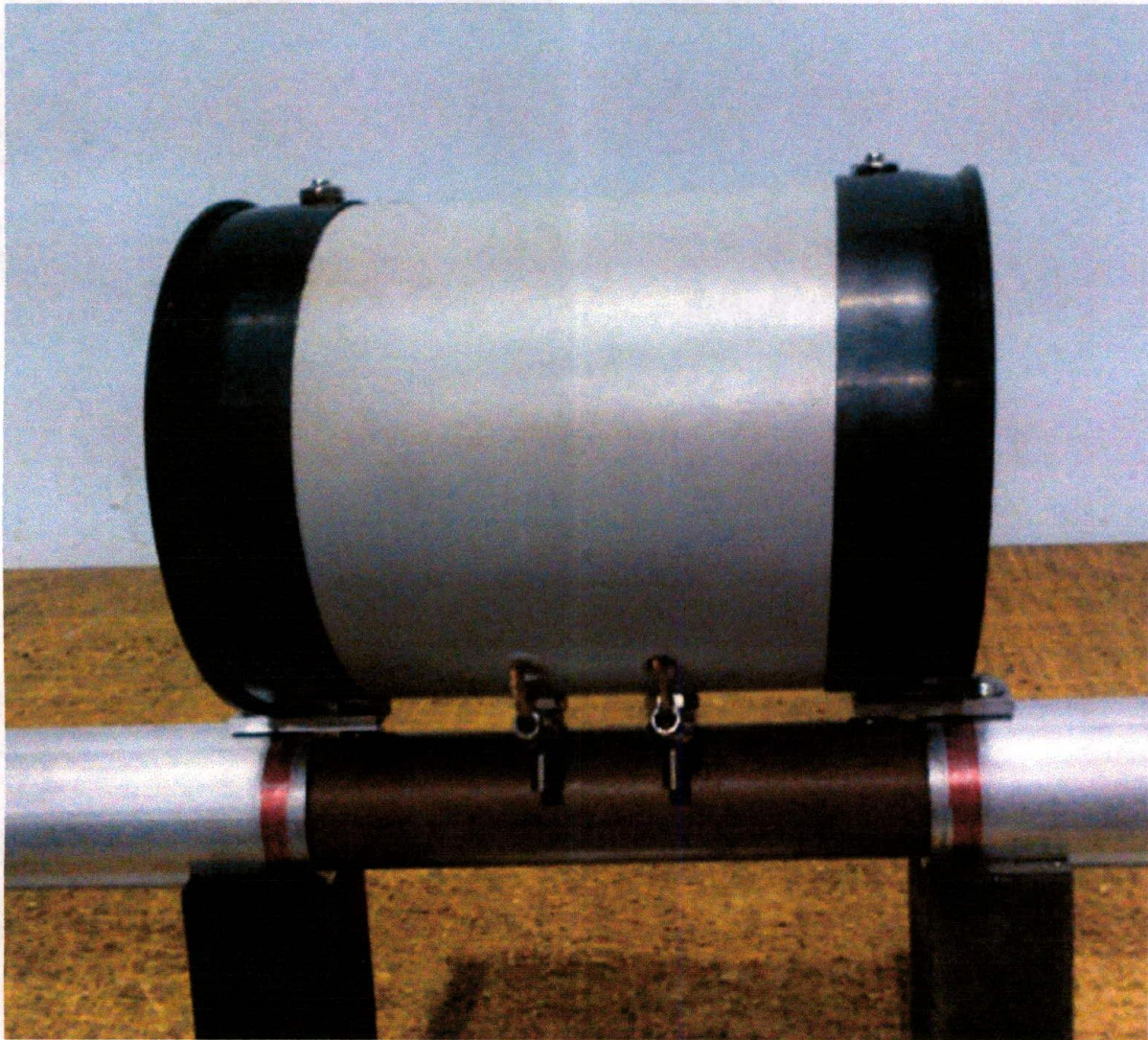


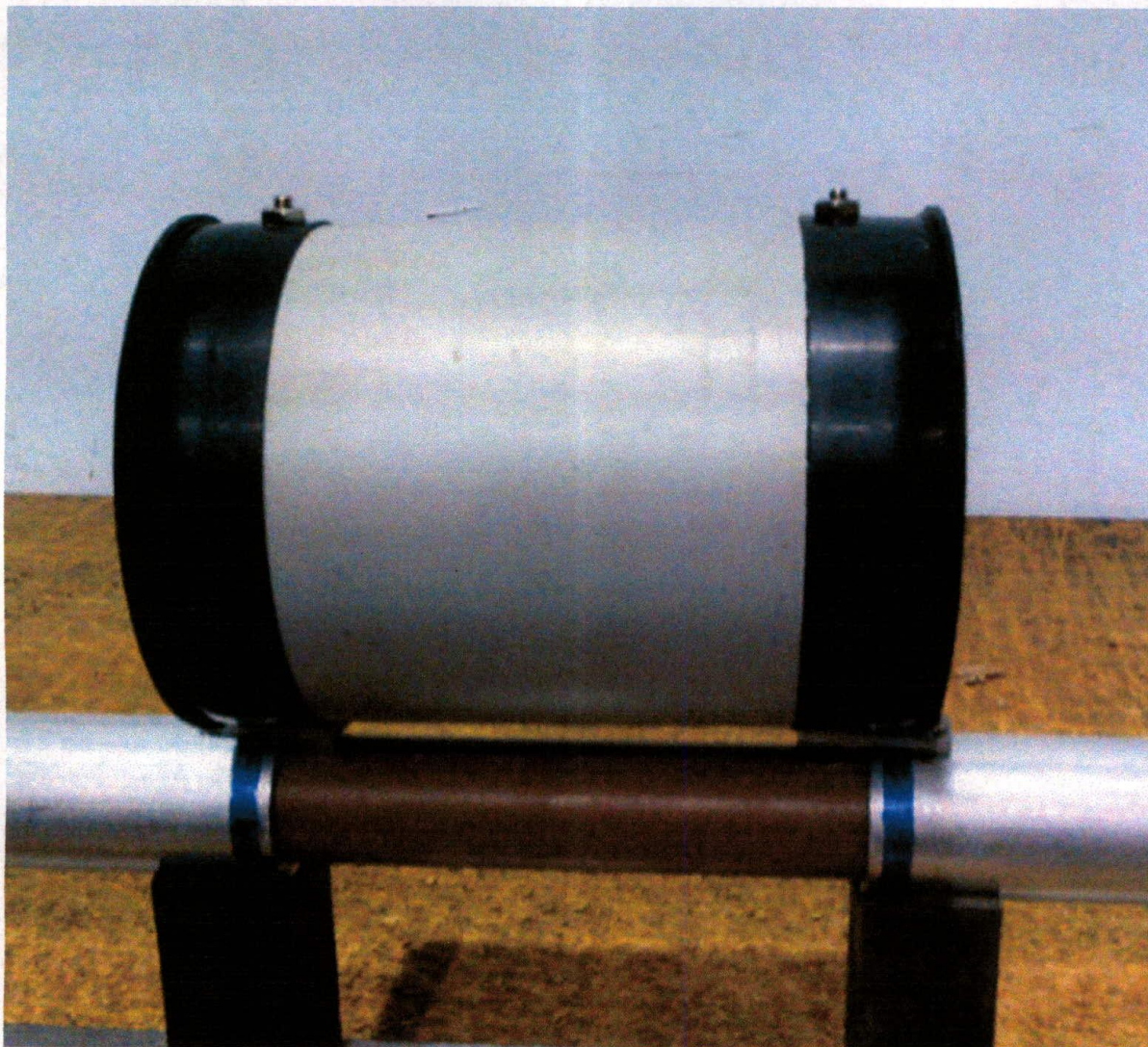
Figure 4A



Radiator stress tube assembled.

Notes:

- Mount coil-mounting tabs to coil assembly first.
- Make sure mounting tabs are secure to coil.
- Insert stress tube into radiator section with large holes facing up.
- Use the 2-1/4" machine screw in this assembly.

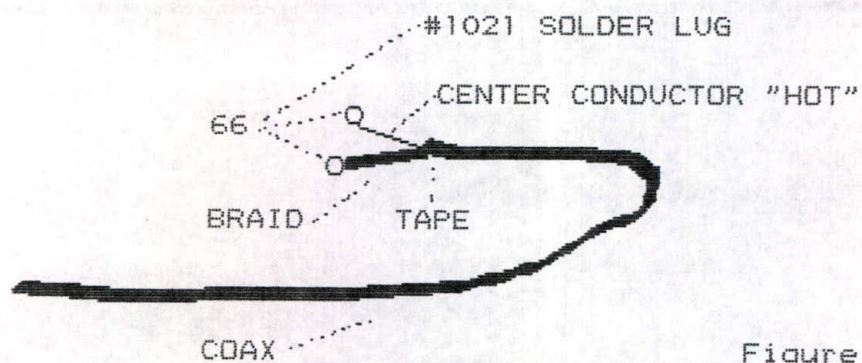


Reflector stress tube assembled.

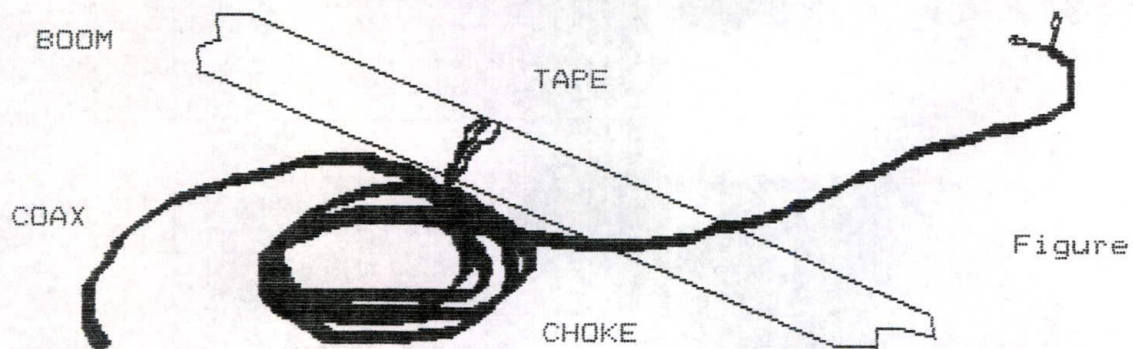
Repeat assembly notes above.

S-402-M

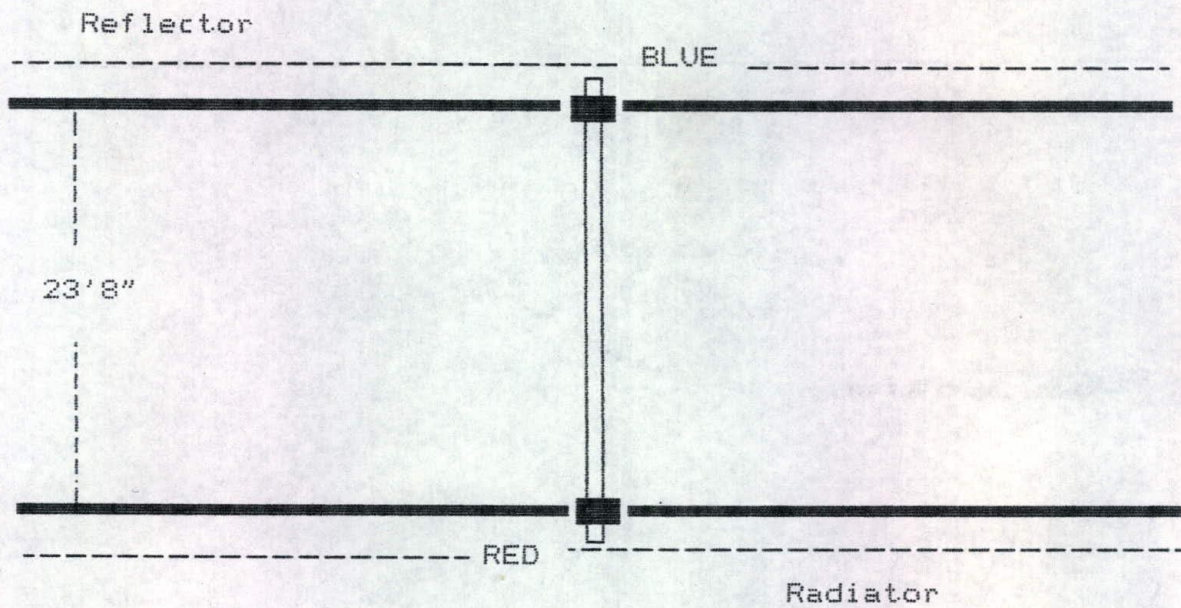
Figure 6



Figure



S-402-M



FREQUENCY CHART			
	CODE	LENGTH	FREQUENCY
Radiator RED	I	43'5-3/8"	7.050 MHZ
	II	42'7-3/8"	7.150 MHZ
	III	41'5-3/8"	7.250 MHZ
Reflector BLUE	I	44'5-3/8"	7.050 MHZ
	II	43'7-3/8"	7.150 MHZ
	III	42'5-3/8"	7.250 MHZ

Figure 5