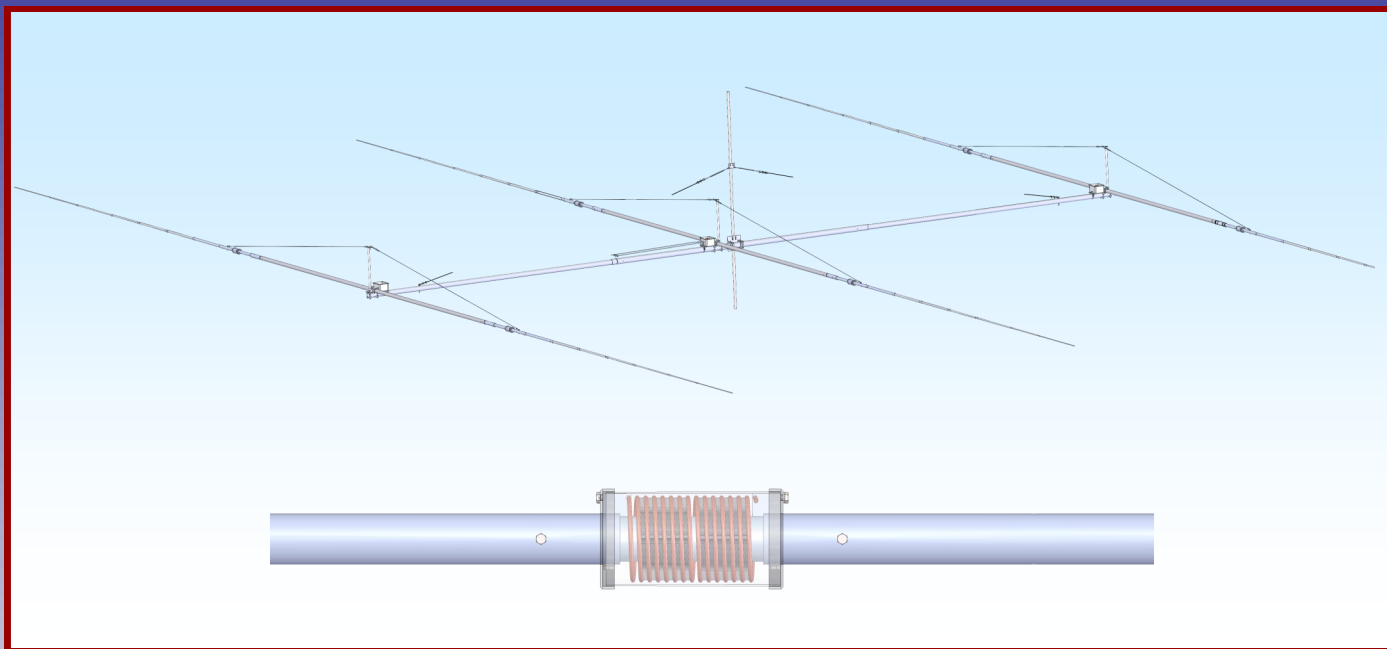




# M2 Antenna Systems, Inc.

## Model No: 80M3C



### SPECIFICATIONS:

|                                 |                         |                            |                            |
|---------------------------------|-------------------------|----------------------------|----------------------------|
| Model .....                     | 80M3C                   | Input Connector .....      | SO-239 Others avl.         |
| Frequency Range switch able ... | 3.50-3.565 & 3.75-3.82  | Power Handling .....       | 5 kW – 10kW                |
| Gain .....                      | 6.5 dBi Free space      | Boom Length / Dia .....    | 58' / 4.5x .230 / 4.0x.125 |
| Gain .....                      | 10.5 dBi over gnd. 105' | Element Length / Dia. .... | 98' Ft / 3" to 1/2"        |
| Front to back.....              | 21 dB                   | Turning Radius: .....      | 60.5" Ft                   |
| Beamwidth .....                 | E=67° H=110°            | Stacking Distance .....    | Call                       |
| Feed type.....                  | Hair pin match          | Mast Size .....            | 2" to 3 " Nom.             |
| Feed Impedance.....             | 50 Ohms Unbalanced      | Wind area / Survival.....  | 32 Sq. Ft. / 100 MPH       |
| Maximum VSWR .....              | 1.1:1 typ. 2:1 @ edges  | Weight / Ship Wt. ....     | 300Lbs. / 489 Lbs.         |

### FEATURES:

The 80M3C Yagi is a computer refined and improved performer, both mechanically and electrically. A low loss hairpin match provides perfect 1:1 match capability. Element halves start with 3" o.d. 1/8" wall tubing and taper through 2" sleeved, 1-3/4", 1-1/2", 1-1/4", 1", 3/4", 1/2" tips. Our elements are shortened using our new covered LOADING COIL ASSEMBLY. A solid 2" O.D. Fiberglass rod, sleeved to fit inside the 3" elements, serves as the center insulator for each element. The center boom section is 4-1/2" O.D. x 20' with nearly 1/4" wall thickness. The two outer boom sections are 4" O.D. x 20' x 1/8" wall.

The new, coil loaded element is supported using Phillystran non-metallic guy wire to reduce element droop. The new, heavy duty 1:1, 5 KW balun, housed inside the phone / CW switch enclosure, provides plenty of power handling margin. The standard phone / CW band switching relays and high Q (over 600) coils are housed in a fiberglass housing. The whole assembly is now field serviceable and small frequency adjustments can be made in the CW part of the band. On the air, you'll find little or no competition for the 80M3C. Upgrade parts are available for older 80M3's.

# 80M3C ASSEMBLY MANUAL

EVEN THOUGH IT IS BIG, THE 80M3C IS FAIRLY SIMPLE. LOOK OVER THE DRAWINGS AND GET FAMILIAR WITH THE IDENTIFYING TERMS AND GENERAL CONSTRUCTION. YOU WILL NEED A FAIR AMOUNT OF ROOM FOR EASY ASSEMBLY. YOU ALSO NEED THE FOLLOWING TOOLS: END WRENCHES AND OR SOCKETS FOR 9/16", 1/2" AND 7/16" NUT DRIVERS FOR 7/16 AND 11/32 WILL ALSO BE VERY HELPFUL. A #2 PHILLIPS HEAD SCREW DRIVER AND MISC. SMALL HAND TOOLS MAY BE REQUIRED. Use a thin coat of Penetrox on all metal to metal contacts and stainless hardware to minimize the chance of galling.

1. Attach a 3" x 4" x 1/4" thick, welded aluminum angle bracket to each 8" x 8" x 1/4" element mounting plate using 1/4-20 x 1" bolts and locknuts. Then loosely install two 1-1/2" U-bolts on each bracket. Locate the three 1-1/2" x 36" welded riser tubes. Insert a riser tube into the U-bolts, align the welded top plate to point away from the bracket and tighten the U-bolts.

2. Using four machined 2" saddles, attach the 2" diameter center insulator to the 8" x 8" x 1/4" element to boom plate. Use the 3/8-16 x 3-1/2" stainless bolts and locknuts to fasten. Center the insulator and rotate it so the holes are perpendicular to the plate. Tighten the 3/8" hardware. Repeat for all 3 elements.

3. Refer to the ELEMENT HARDWARE DETAIL pages. Now begin installing the 3" x 180 inner element sections. Each center insulator 2" rod has 4 bushings or coupling rings and each rod will be labeled to match two 3" x 180" inner element sections. Slip on the butt sections and secure each INNER side with a 1/4-20 x 3-3/4" bolt and plain nut, up from the bottom. Use 1/4-20 x 3-1/2" bolts and LOCKNUTS through the outer set of holes. NOTE: The longer inner bolts now form studs where the CW LOADING/SWITCHING assembly is attached later in the assembly. Add the 3.0" x .125 x 21" SOE section to the 180" section and secure using 1/4-20 x 3-1/2 bolts and locknuts. Complete assembly of the outer element sections following the 80M3C ELEMENT DETAIL page.

8. The 15 turn coil assembly w/ covers, are preassembled at the factory and should be interchangeable with all the 3" x 21" sections. Slide the end of the assembly with the coupling rings into the 3" x 21" sections and rotate the coil assembly so the bolts holding the coil end caps are in the up position. Secure with 1/4-20 x 3-1/2" bolts and locknuts. Install the 3" forged eye bolts into the hole just past the coil on the coil assembly and secure with a 1/4-20 nut and lock washer.

9. It would be a good idea to put the element assemblies on the ground for this next step while adding the element overhead support. Disassemble the right hand threaded eye from the turnbuckle and add a 1/4-20 jam nut to the turnbuckle eye and reassemble. Add the 5/16" turnbuckles to the vertical support tube with the hooks up through the holes in the top plate of the vertical support tube. Extend the turnbuckles to where 1/4 of an inch of thread is still showing inside the turnbuckle. Loop the 1200 Phillystran through the eye of the turnbuckle and add a thimble and (2) wire nuts. Be sure the wire nuts are pushed up close to the thimble so the thimble can not come loose over time. Pull the support cable just taut and assemble the thimbles and wire nuts in the same manor as the turnbuckles at the eye bolt end near the coil assembly.

10. Now, begin tensioning the support cable using the turnbuckles. Adjust tension until each element is flat and not bowed up. Re-adjust the wire nuts as needed and tighten the jam nuts on the turnbuckles locking the turnbuckles for final installation.

Once the three center assemblies are complete, **MARK THEM** one as "**REFLECTOR**", one as "**DRIVEN**" and one as "**DIRECTOR**". THIS IS IMPORTANT SINCE THE ELEMENT TIPS ARE ALSO DIFFERENT LENGTHS!!!

## BOOM ASSEMBLY

11. Assemble the boom. Note the middle section is heavy wall and is marked at each end for the appropriately marked tip section. Slip in the tip section, align the mark and the holes, add the 3/8" x 5" bolts, lock washers and nuts and tighten. Repeat for the other end.

# 80M3C ASSEMBLY MANUAL

12. Install the guy cable and forged eyebolt assembly to each end of the boom. Route the support cables to the center of the boom. Attach the 12" x 12" x 3/8" BOOM TO MAST PLATE about 351" FROM TO REAR OF THE BOOM using the 4-1/2" cradles and 3/8" bolts and locknuts. NOTE: THE TOP OF THE PLATE HAS ONLY ONE SET OF U-BOLT HOLES. DO NOT TIGHTEN THE PLATE IN PLACE YET. Install a temporary 8 foot mast to the plate with two Heavy Duty 2" U-bolts (3/8-16 hdw). Mount the large turnbuckle plate on the mast using the standard 2" x 5/16" U-bolts. Open the turnbuckles fully and attach them to the plate. Raise the turnbuckle plate until cables are tensioned and boom is straight. Then adjust the BOOM TO MAST plate position so cables remain the same tension and the mast is perpendicular to the boom. NOW TIGHTEN THE BOOM TO MAST PLATE IN POSITION.

**NOTE:** The temporary mast may be left in position as a support and stabilizing member while lifting the completed antenna into position on the tower. Another option which may help while installing the antenna is to leave the DRIVEN element off until the antenna is up and in position. This reduces the weight of the antenna considerably as well as keeping the center area clear of interference to guy wires etc. The DRIVEN element is mounted just off center, so it can be installed after the antenna is in its final location.

13. Consult the DIMENSION SHEET, note the position of elements with respect to the boom to mast plate: The DRIVEN ELEMENT AND DIRECTOR are on one side and the REFLECTOR is on the other. Position the REFLECTOR and DIRECTOR so the outer 4" saddle clamp set is at least 1/4" from the end of the boom. Adjust elements so they are at a right angle to the forged eyebolts and the boom to mast plate, and are aligned with each other. Tighten the saddle clamps securely.

14. Mount the DRIVEN element now, at least temporarily, using the 4-1/2" cradles and align with other elements.

REVIEW THE "HARDWARE ARRANGEMENT" DRAWING FOR THE FOLLOWING STEPS.

15. Locate the two relay / coil housings with no RF connector. These units are for the REFLECTOR and the DIRECTOR. Open the unit and inspect it for loose connections to the relay or any other possible shipping damage. We suggest you apply 12 volts DC to the two small terminals and watch the relay close and open. Also note there is a small 1/8" dia. Hole in the left hand front corner of the housing. This is a pressure equalization or vent hole and of course should water some how get into the box, it can drain out. This visual inspection will also educate you as to the function of the assembly. Now close the housing and install the right angle aluminum jumpers on the 1/4" studs using 1/4-20 locknuts. The units mount just inside the reflector and director elements using 4" U-bolts lock washers and nuts. NOTE: each box has a U-bolt and a machined cradle set for securing the box to the boom. Slip the jumpers over the inner 1/4 x 3-3/4" studs nearest the butts of the 3" element sections and secure with 1/4" locknuts and flat washers.

16. Install the DRIVEN ELEMENT RELAY / COIL / BALUN assembly in the same way but use a 4-1/2" U-bolt. Install the two right angle aluminum jumpers and secure with 1/4-20 locknuts. Slip the jumpers over the studs at the element butts and again secure with 1/4-20 locknuts and flat washers. Now add two 1/4-20 set screws in each HAIRPIN CONNECTOR.

17. Insert the 3/8 x 72" HAIRPIN tubes into the hairpin connectors, align the tubes to 6" APART and tighten the set screws with an 1/8" Allen wrench. Find the (2) identical shorting bar half's and install (4) 1/4-20 x 1" bolts and locknuts at both ends of the shorting bars and slide the bar onto the ends of the tubes. Set the shorting bar assembly to the recommended dimension and tighten the bolts. Place a 1/4-20 x 4-1/2" bolt through the stainless BAND CLAMP and attach the clamp assembly around the

# 80M3C ASSEMBLY MANUAL

boom under the Shorting Bar. Run a 1/4-20 nut onto the bolt and slide the shorting bar over the stud. Align the assembly and tighten the band clamp. Add a locknut to the stud and tighten the shorting bar in position. THIS DC GROUNDS THE DRIVEN ELEMENT ASSEMBLY. Final adjustment of the hairpin match and driven element linear loading jumper positions may be done (if required) after final installation is complete.

18. Wire up the RELAY/COIL assemblies using #20 AWG or larger twisted pair, shielded wire, OR RG-58AU. Each relay is simply in parallel with the others and CW is activated when 12 VDC is applied to the leads. For the optional 3 band segment relay box, a two wire shielded cable is required. Refer to the 80M3C SWITCHING DETAIL page. There is no polarity requirements on the relay hookup but the three shields should be tied together at the DRIVEN element. The shield of the main lead should be grounded at the SHACK end. The shield should eliminate RF from getting into the shack. DO NOT SWITCH FROM PHONE TO CW WHILE TRANSMITTING AS RELAY DAMAGE MAY OCCUR.

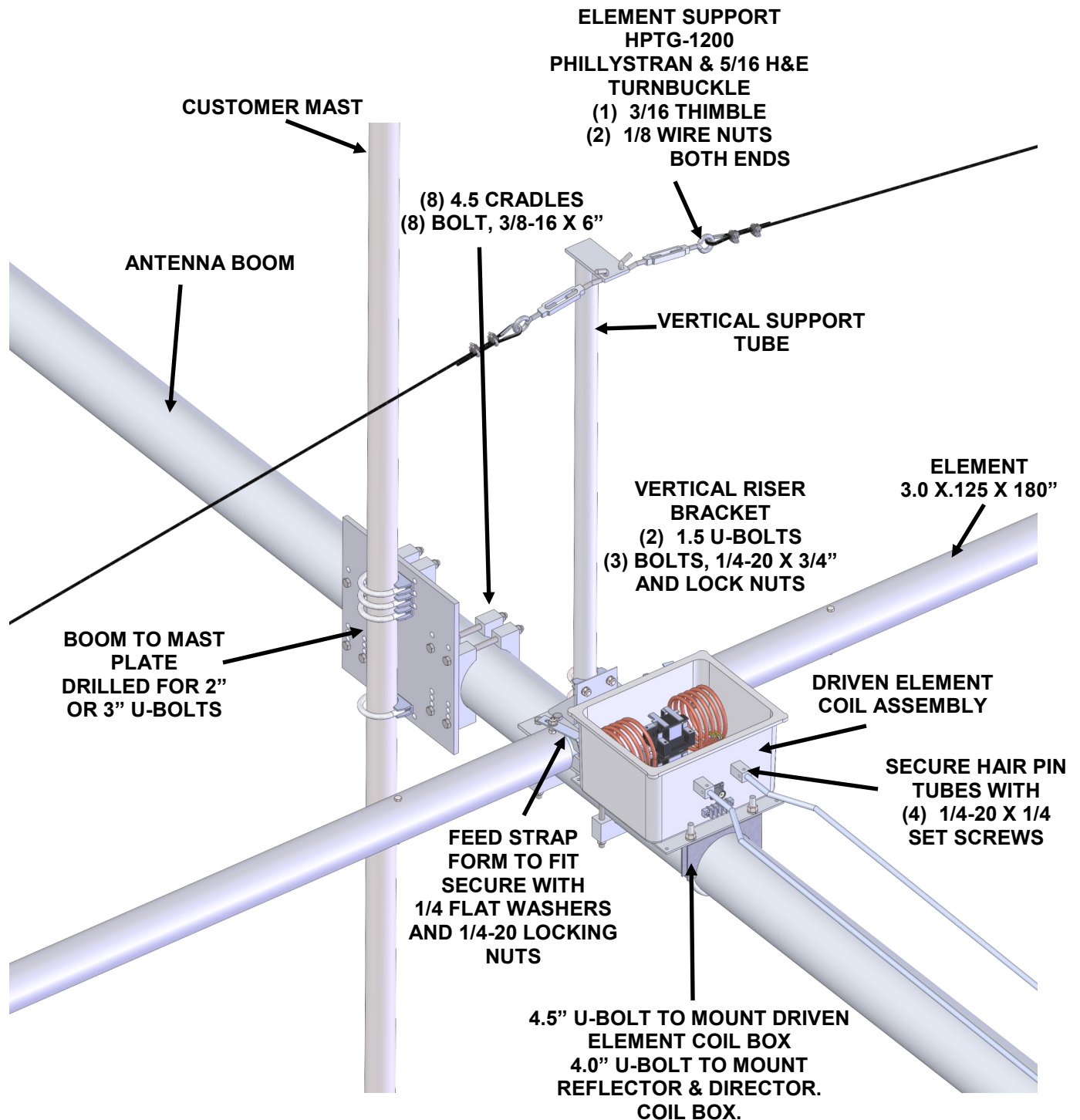
19. Assemble and install all the outer element sections to the inner element assemblies already installed on the boom. See Dimension Sheet for section size, length, and hardware. Add the appropriate 1/2 tip to the elements.

20. Equalize element support by final adjusting the 5/16" turnbuckles. Use the jam nuts to lock the turnbuckles in the final position. All elements should droop equally. Do not attempt to "gull wing" elements. They are more stable in the wind if 3" inner sections STAY LEVEL or are allowed to droop 1 to 2". Outer section tips will tend to droop about 3'-4'; which is normal.

**NOTE:** This balun will handle 5000 watts of continuous RF energy. However there may be situations where higher power handling is advantageous. **CONTACT M<sup>2</sup> FOR RECOMMENDATIONS AND AVAILABILITY OF OPTIONAL HIGHER POWER VERSIONS.**

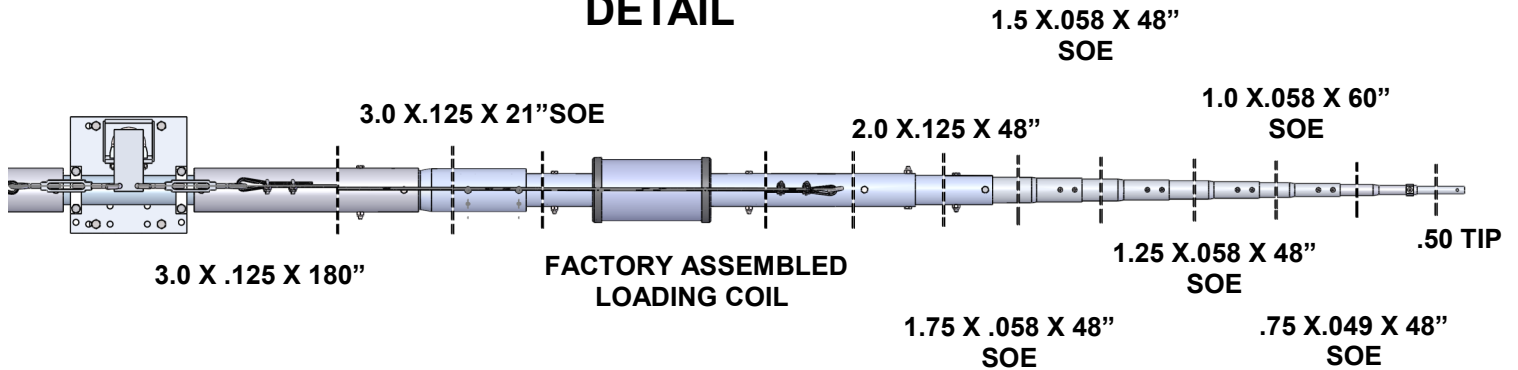
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# 80M3C ELEMENT HARDWARE DETAIL

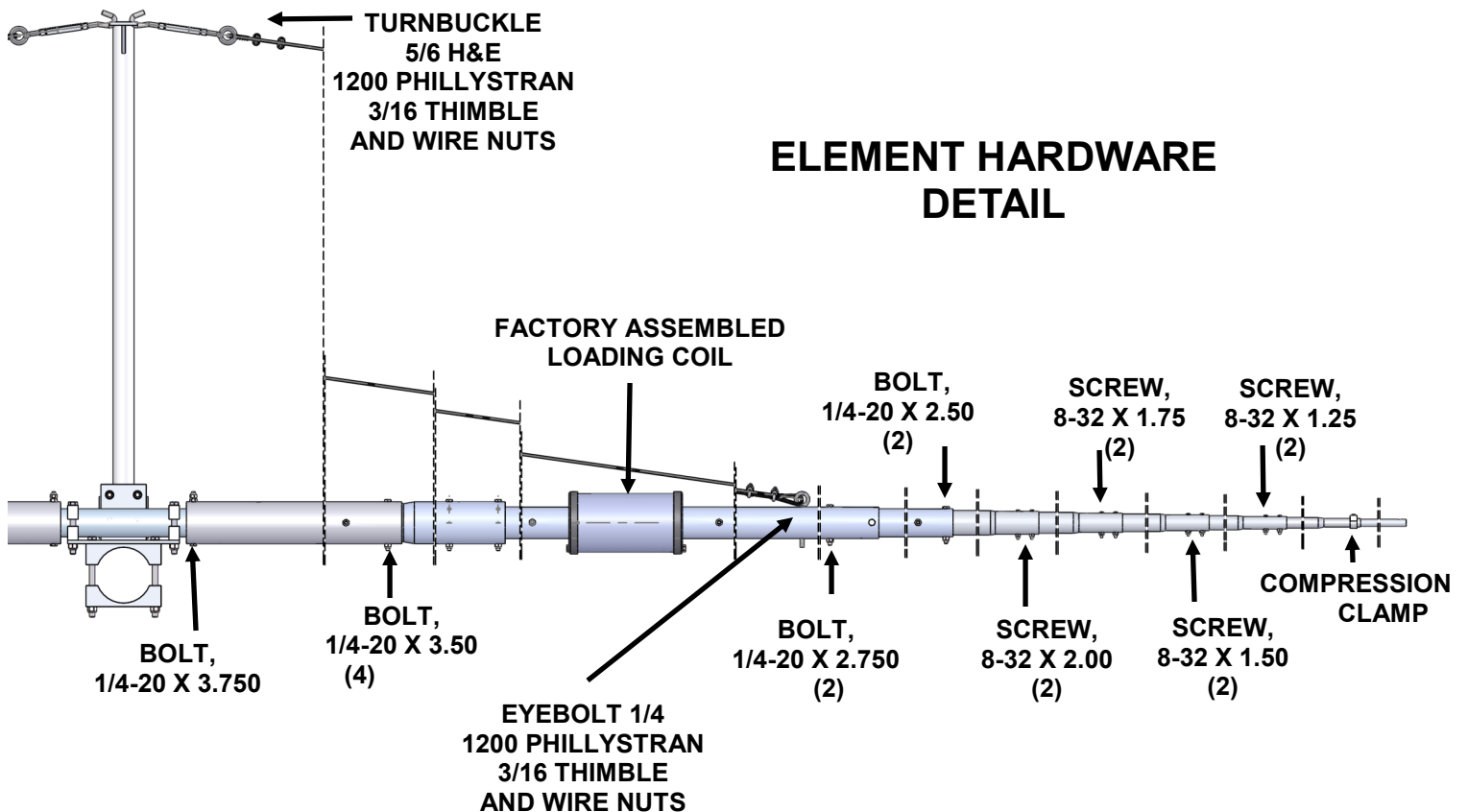


# 80M3C ELEMENT DETAIL

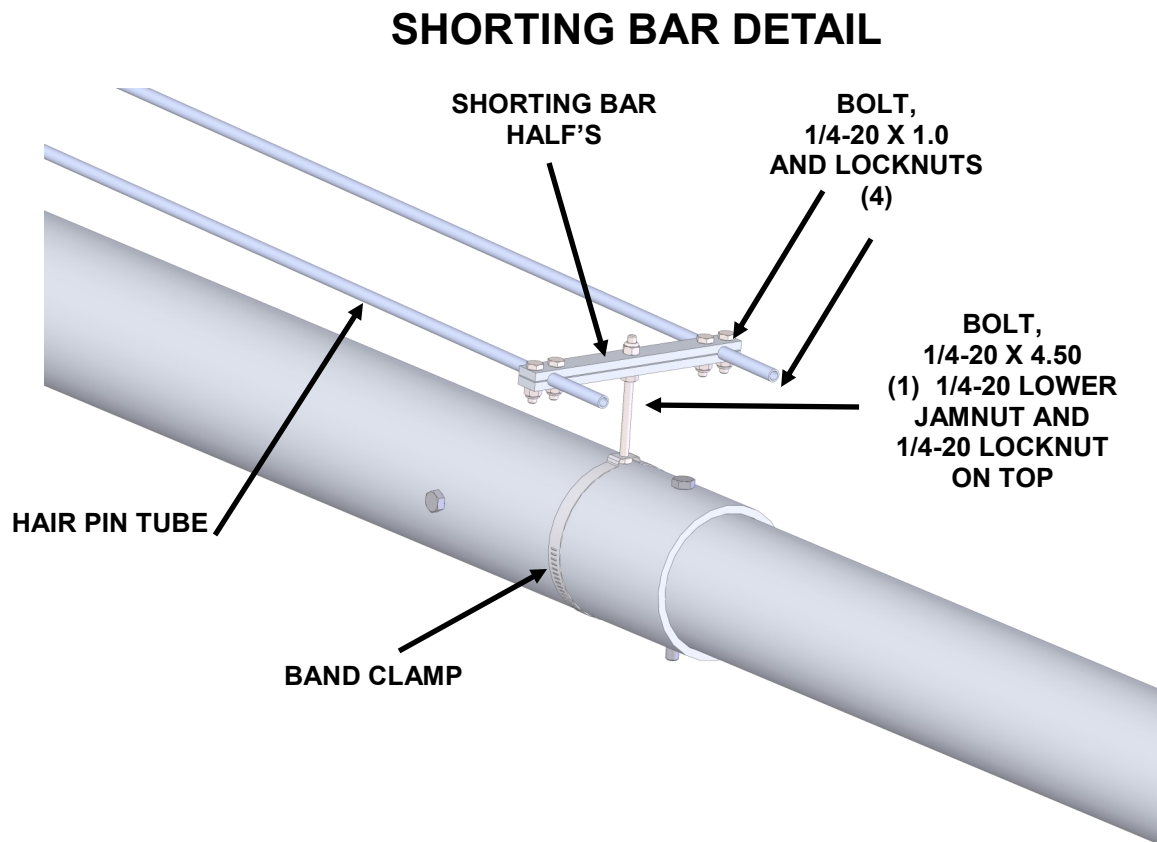
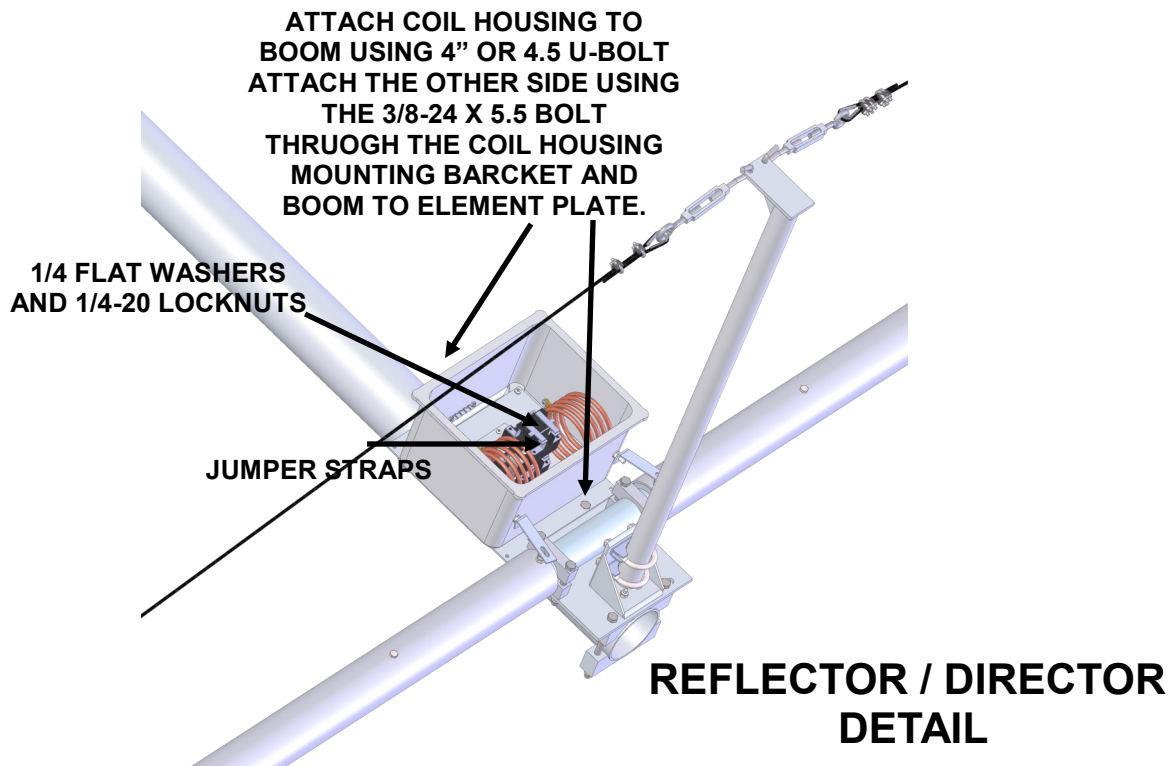
## ELEMENT TUBE DETAIL



## ELEMENT HARDWARE DETAIL

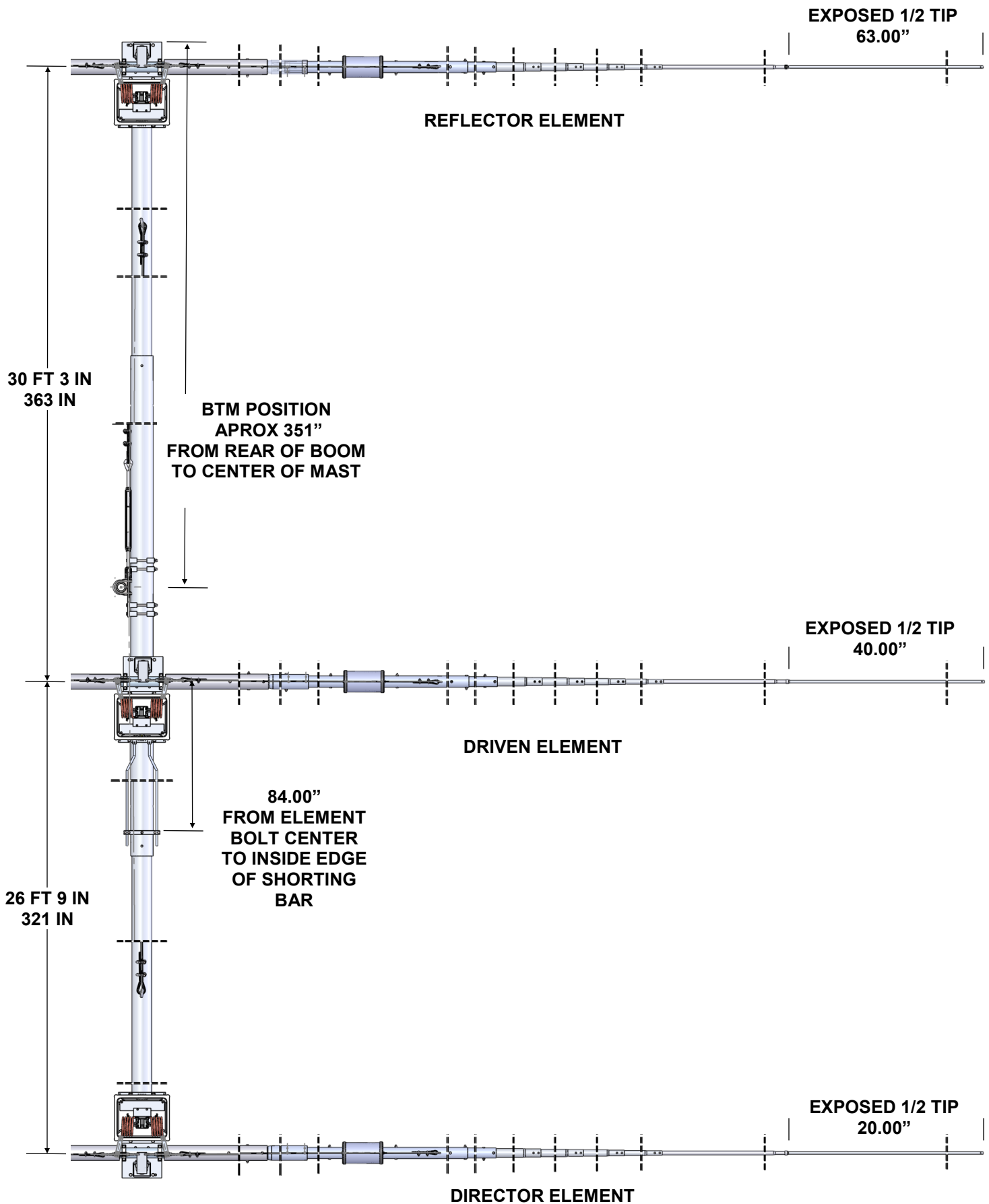


# 80M3C ASSEMBLY DETAIL





# 80M3C DIMENSION SHEET





# 80M3C SWITCHING DETAIL

## OPTION #1

RELAY SHOWN IN  
UN-ENERGIZED  
PHONE POSITION

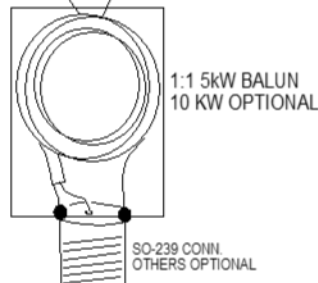
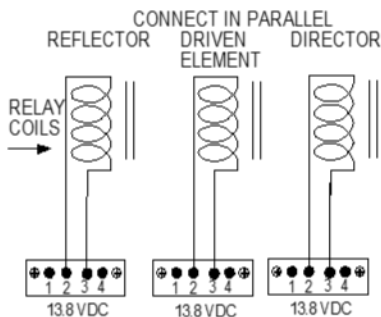
ELEMENT HALF

ELEMENT HALF

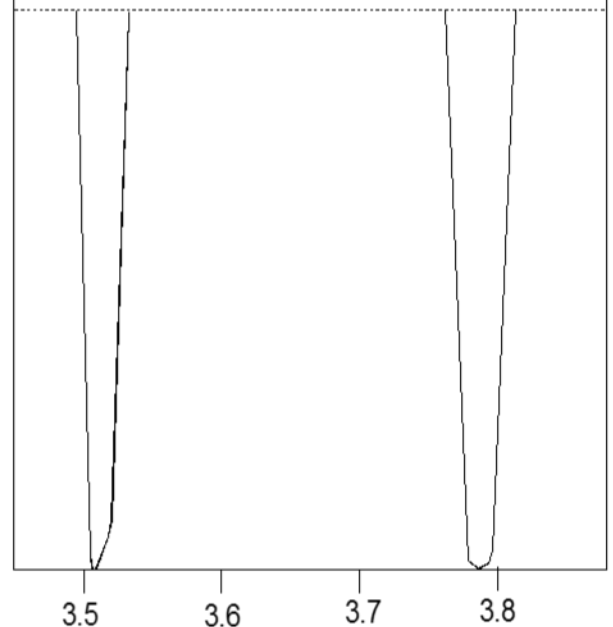
5-1/4 TURNS OF 1/4  
COPPER TUBE ON  
3-1/2" O.D. COIL FORM

REFL. AND DIRECTOR  
GET THE JUMPER

BALUN CONNECTED  
ON DRIVEN ELEMENT.



TYPICAL VSWR CURVES 80M2  
80M3 APPROX 2 TIMES WIDER



## OPTION #2 BAND SEGMENT OPTION

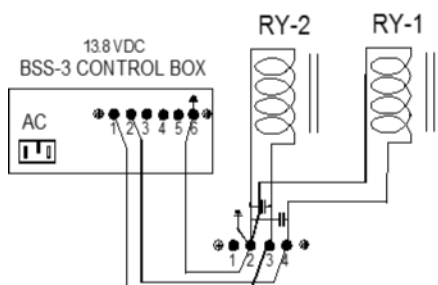
ELEMENT HALF

ELEMENT HALF

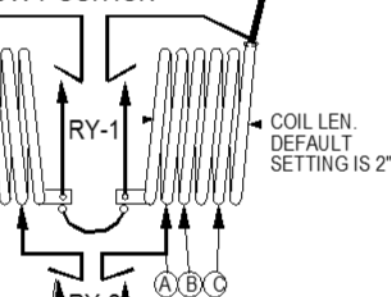
5-1/4 TURNS OF 1/4  
COPPER TUBE ON  
3-1/2" O.D. COIL FORM

REFL. AND DIRECTOR  
GET THE JUMPER

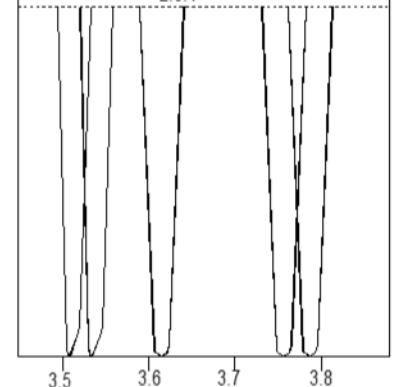
BALUN CONNECTED  
ON DRIVEN ELEMENT.



RELAY SHOWN IN  
UN-ENERGIZED  
CW POSITION



TYPICAL VSWR CURVES  
2.0:1



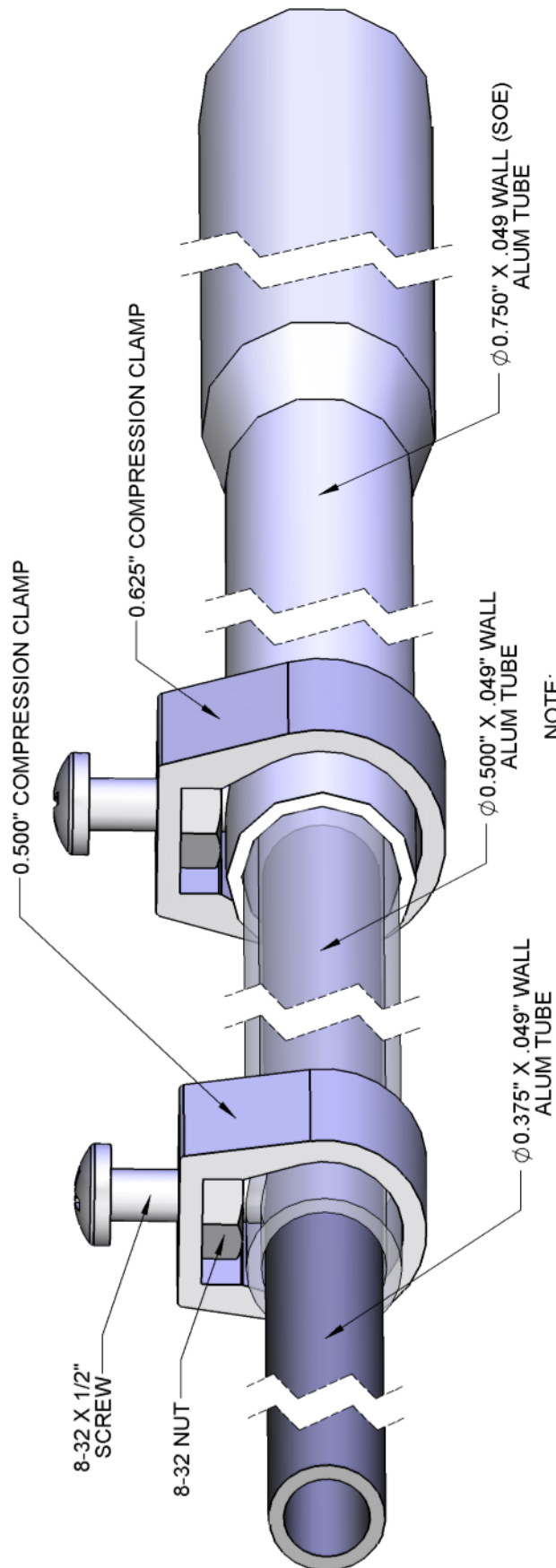
BY ADJUSTING THE RY-2 COIL TAP POINTS, EXTRA  
CW OR PHONE BANDWIDTH CAN BE GAINED OR  
A 3RD INDEPENDENT BAND POSITION CAN BE ACHIEVED.

"A" IS APPROX. 3/4 TURN FROM INSIDE END.  
"B" IS APPROX 2 TURNS FROM INSIDE END.  
"C" IS APPROX 1 TURN FROM OUTER END.

SET THE RY2 COIL TAP POSITIONS THE SAME ON EACH  
ELEMENT.

SMALL FREQUENCY ADJUSTMENTS TO THE CW BAND  
MAY BE DONE BY SQUEEZING OR SPREADING THE COIL  
TURNS SLIGHTLY. THE DEFAULT COIL LENGTH 2"

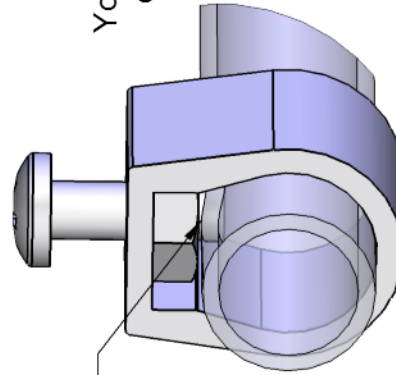
# GENERIC COMPRESSION CLAMP DETAIL



NOTE:  
TUBES SHOWN TRANSPARENT  
TO SHOW MORE DETAIL

## NOTE:

Generic layout to show  
how compression clamps work.  
Your antenna may have one or the other  
or may even have both compression  
clamp sizes.



NOTE: INSIDE TUBE NOT SHOWN FOR CLARITY

# 80M3C PARTS & HARDWARE

| DESCRIPTION .....  | QTY   |
|--|-------|
| Boom, center, 4-1/2 X .230 X 240" ALUM. TUBE.....                          | 1     |
| Boom, end, 4 X .125 X 240" ALUM. TUBE.....                                 | 2     |
| Element butt, 3 X .125 X 180" ALUM TUBE (M2AEP80MC-1).....                 | 6     |
| Element butt, 3 X .125 X 21" ALUM TUBE SOE (M2AEP80MC-2).....              | 6     |
| Element section, 2 X .125 X 48" ALUM. TUBE (M2AEP80MC-5).....              | 6     |
| Element section, 1-3/4 X .058 X 48" SOE (M2AEP80MC-6) .....                | 6     |
| Element section, 1-1/2 x .058 x 48" SOE (M2AEP80MC-7) .....                | 6     |
| Element section, 1-1/4 x .058 x 48" SOE (M2AEP80MC-8) .....                | 6     |
| Element section, 1 x .058 x 60" SOE (M2AEP80MC-9).....                     | 6     |
| Element section, 3/4 x .049 x 48" SOE (M2AEP80MC-10)..                     | 6     |
| Element section, 1/2 x .049 x 67" .....                                    | 2     |
| Element section, 1/2 x .049 x 50" .....                                    | 2     |
| Element section, 1/2 x .049 x 30" .....                                    | 2     |
| Tubes, hairpin, 3/8 x 84" formed (M2ADP0261) .....                         | 2     |
| Vertical support tube, 1-1/2 x .125 x 36" (M2AVR0027) .....                | 3     |
| Center support insulator, 2" x 36" FG, w/rings, (SABS0080) .....           | 3     |
| <br>Coil assembly, 15 T w/ covers (SACA1600).....                          | <br>6 |
| <br>HF shorting bar, 1/4 x 1 x 7.5 alum. (M2ASB0254) .....                 | <br>2 |
| Band clamp, #72, modified 5", stainless.....                               | 1     |
| Boom support, wire rope, EB, TB assy, 278" x 3/16" (SABM80M3CGUY) .        | 2     |
| Boom to mast plate, 12 x 12 x .375 alum (M2APT0250). .....                 | 1     |
| Main turnbuckle plate, 4 x 6 x .25 alum (M2APT0130) .....                  | 1     |
| Element mounting plate, 8 x 8 x .25 alum (M2APT0075) .....                 | 3     |
| Vertical riser bracket, 3 x 4 x 1/4 angle, alum, welded. (M2AVR0067) ..... | 3     |
| Turnbuckle, 5/16 hook and eye .....  | 6     |
| Thimbles, (cable eyes) 3/16" .....   | 12    |
| Cable clips, 1/8" .....  | 16    |
| Cable, HPTG-1200x 21' .....  | 6     |
| Eye bolt, 1/4 x 3 forged, galv.....  | 6     |
| Compression Clamp, 5/8" (M2AMC0145) .....                                  | 6     |
| <b>HARDWARE BOX:</b>   |       |
| Saddle clamp, 4-1/2" (M2AMC0139).....                                      | 12    |
| Saddle clamp, 4" (M2AMC0138).....  | 8     |
| Cradle 2" HD (M2AMC0131).....  | 12    |
| <b>HARDWARE BAGS</b>   |       |
| U-bolt, 3" .....   | 6     |
| U-bolt, 2" heavy duty, 3/8".....   | 4     |
| U-bolt, 2" standard (standard 5/16").....                                  | 2     |
| U-bolt, 1-1/2" .....   | 6     |

# 80M3C PARTS & HARDWARE

## HARDWARE BAGS

|  |        |
|--|--------|
| Bolt, 3/8-24 x 6" hex head zinc .....              | 12     |
| Bolt, 3/8-24 x 5-1/2" hex head zinc .....          | 12     |
| Bolt, 3/8-16 x 5" hex head stainless .....         | 4      |
| Bolt, 3/8-16 x 3-1/2 hex head stainless .....      | 12     |
| Nut, 3/8-16 stainless .....                        | 12     |
| Lock washer, 3/8 split ring stainless .....        | 12     |
| Nut, locking, 3/8-16 stainless .....               | 16     |
| Nut, locking, 3/8-24 zinc .....                    | 24     |
| <br>Nut, 5/16-18 stainless .....                   | <br>28 |
| Lock washer, 5/16 split ring stainless .....       | 16     |
| <br>Bolt, 1/4-20 x 4-1/2" hex head stainless ..... | <br>1  |
| Bolt, 1/4-20 x 3-3/4" hex head stainless .....     | 6      |
| Bolt, 1/4-20 x 3-1/2" hex head stainless .....     | 54     |
| Bolt, 1/4-20 x 2-3/4" hex head stainless .....     | 12     |
| Bolt, 1/4-20 x 2-1/2" hex head stainless .....     | 12     |
| Bolt, 1/4-20 x 1" hex head stainless .....         | 14     |
| Set screw, 1/4-20 x 1/4" stainless .....           | 4      |
| Nut, 1/4-20 locknut stainless .....                | 100    |
| Nut, 1/4-20 stainless .....                        | 22     |
| Lock washer, 1/4" split ring stainless .....       | 18     |
| Flat washer, 1/4" stainless .....                  | 12     |
| <br>Screw, 8-32 x 2" pan head stainless .....      | <br>12 |
| Screw, 8-32 x 1-3/4" pan head stainless .....      | 12     |
| Screw, 8-32 x 1-1/2" pan head stainless .....      | 12     |
| Screw, 8-32 x 1-1/4" pan head stainless .....      | 12     |
| Screw, 8-32 x 1/2" pan head stainless .....        | 6      |
| Nut, 8-32 locknut stainless .....                  | 48     |
| Nut, 8-32 stainless .....                          | 6      |
| Allen wrench, 1/8" .....                           | 1      |
| Zinc paste (Penetrox) cup .....                    | 2      |

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# 80M3C RELAY & COIL PARTS

THE FOLLOWING IS LIST OF PART CAN BE OMMITED WHEN THE PHONE-CW RELAYS ARE NOT ORDERED.

## PARTS FOR RELAY AND COIL HOUSING INSTALLATION

|  |   |
|--|---|
| Relay/coil assembly DE version has SO-239 conn.....            | 1 |
| Relay/coil assembly REFL.-DIR. has 2 terminals only.....       | 2 |
| U-bolt and saddle, 4-1/2" (for driven element).....            | 1 |
| U-bolt and saddle, 4" (for refl and dir.).....                 | 2 |
| Mounting plate, 2 x .125 x 10" alum. (M2ADP8009).....          | 6 |
| Jumper straps, (LEFT), 3/4" wide, angle alum (M2ADP8013 .....  | 3 |
| Jumper straps, (RIGHT) 3/4" wide, angle alum (M2ADP8014) ..... | 3 |
| Nut, 3/8-16, ss.....   | 6 |
| Lock washer, 3/8", split ring, ss .....                        | 6 |

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# EVALUATION & TUNE UP TIPS

By: Mike Staal (K6MYC), Designer, M2 Antenna Systems, Inc.

In different locations, height above ground can have a significant effect on any 80m Yagi's match/VSWR. I have found that the match is affected much more than the F/B or overall pattern of the Yagi. After checking the SWR, the first thing to test when your new 80M3C is installed is the F/B in the RX pass band. With the 80m Yagi connected, most receivers will show a background noise level on the S meter at night. My S meter runs S3 without the pre-amp and S7 with the pre-amp on. Use the high reading and tune quickly across the 75/80m band and watch the meter; it should show the highest reading where the antenna has the most gain. You should show a subtle noise peak between 3.700 & 3.9 MHz. Outside these extremes, the S meter should fall back a bit. F/B maximum will be much sharper. Peak on a known noise source or signal around 3.775-3.8MHz, Then rotate 180 deg. and note the rejection or F/B. If you use a broadband noise source, you should see a well defined 50-75kHz region here the noise is minimum off the back of the Yagi.

This should be done to confirm the Yagi pattern is correct. A poor VSWR will not have much affect on the above tests. Adjust the match if necessary by making small (2" Max) changes to hairpin and Driven Element tip settings. These settings interact and sometimes do the exact opposite of what you expect. Let's assume your best apparent 50 OHm match is low in frequency. Some times lengthening the D.E. tips slightly will improve the match @ 3.790! Feel free to do whatever works but do not adjust the reflector or director setting until you consult the factory. Hopefully no match adjustment will be needed in your installation.

# ADJUSTING & CUSTOMIZING

By: Mike Staal (K6MYC), Designer, M2 Antenna Systems, Inc.

WE RECENTLY RE-DESIGNED THE PHONE –CW RELAY AND COIL HOUSING AND GENERAL ASSEMBLY. This was done to make manufacture easier and to allow customer modification and maintenance. We now use a fiberglass enclosure that can be opened for inspection, repair or modification.

Looking inside the housing you will see that we have provided two holes in the coil leg that attaches to the relay. Generally the easiest way to move the frequency of the element when the coil is engaged, is to change the inductance by squeezing or spreading the coils. Quite a wide range of inductance can be achieved by lengthening or shortening the coils. They are set to be just under 2.5 uHy from the factory. By shifting to the other holes in the coil legs, the inductance can be dropped to about 2.3 uHy. This will shift operation up the band about 50 kHz. You may also have to physically open the coil since it is springy and make sure all the turns are evenly spaced. Larger movement in frequency can be achieved by removing turns, however you should do some calculations first or contact the factory to avoid seriously degrading the bandwidth, or performance of the antenna. The antenna has been modeled in Brian Beezley's AO "PRO", version 6.5. Using NEC based programs show almost identical results when modeling coil loaded antennas.

The "center element coil loading" mentioned above is totally compatible with the new 80M3C. As always, we like to make changes in such a way that owners of earlier LINEAR LOADED designs can upgrade. WE NOW OFFER A COIL CONVERSION KIT that brings even KLM linear loaded antennas up to the current specs of the new 80M3C. We will continue to review customers desires and at some point, if some want a longer boom, we will make what our customers request.

We can also offer, due to more accurate modeling, some interesting trade-offs in gain versus front to back. The new 80M3L can be easily setup for 7.3 dBi gain and 20+ db front to back or 6.9 dBi gain and 25 dB front to back. Depending on your location this can be very useful. On the West coast we don't usually have a front to back problem going to short path or long path Europe but in the mid West or on the East coast, the West coast stations can be a real pain when you are working short path to Europe or Africa.

We don't want you to be misled by a few random, uncontrolled on the air tests that show one antenna to be better than the other. So many parameters are at play that it is easy to come to the wrong conclusion. Height above ground, local terrain, location in the world or in the United States, feedline loss and of course, the RF power delivered to the antenna all can have massive effects on test comparisons. Enjoy your 80M3C and call me if you have questions or concerns.

73, Mike Staal, K6MYC