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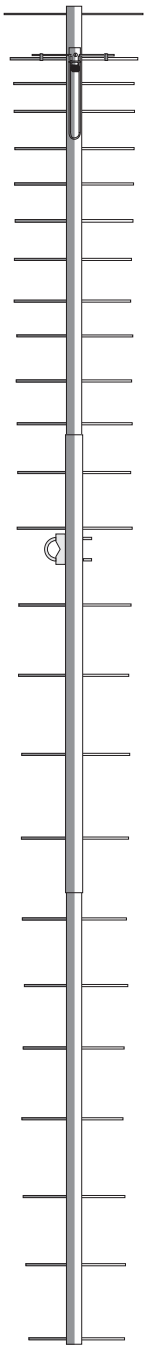

DSFOATV-25

25 ELEMENT 7.4 wl. K1FO STYLE YAGI

ELECTRICAL SPECIFICATIONS

Frequency range: MHz.....	422-440
Gain: dBd.....	16.2-16.5
Impedance:hms.....	50
Connector type	Type N (F) UG-58/U
Front -to- back ratio: dB.....	24
SWR: Typical at resonance.....	≅ 1.2:1
Beamwidth: degrees	
E- Plane.....	22
H- Plane	23
Sidelobe level: degrees	
E- Plane	-17
H- Plane	-16
Power rating, Continuous: Watts	750
Stacking Distance: Ft (m)	
E- Plane	5' 10" (1.778)
H- Plane	5' 6" (1.676)

MECHANICAL SPECIFICATIONS

Boom length: Ft (m.)	17'3" (5.26)
Turning radius: Ft. (M.)	9' 6" (2.90)
Weight Assembled: Lbs (kg.)	8.5 (3.86)
Max mast size: In. (Cm.)	2 (5.08)
Wind surface area: Ft (m.)	1.4 (.13)
Wind Survival: Mph (km/hr)	100 (160)

PARTS LIST

Boom	
1 1/4" OD x 0.058 x 71"	1
" w. coax/ balun assy. attached	1
1 3/8" OD x 0.058 x 70"	1
Element bundle	
25 elements w. 2 T-match rods	1
BAG #1	
Hose clamps, stainless steel	2
8-32 x 1 3/4" machine screws	2
8-32 s.s. hex nuts	2
#8 split s.s.lock washers	2
Brass T match bars	2
BAG #2	
Insulators, element, Delrin®	52
Keepers, s.s. 3/16"	56
BAG #3	
U- bolt, s.s. 5/16-18 x 2"	2
U- bolt, s.s. 1/4-20 x 1 1/2"	2
Nut, hex, s.s. 5/16-18	4
Nut, hex, s.s. 1/4-20	4
Lock washer, split s.s. 5/16"	4
Lock washer, split, s.s. 1/4"	4
Boom- to Mast Plate	1
Assembly instructions	1

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Antenna components should be removed from the shipping carton, and the individual parts should be compared with the parts list on page one of this instruction sheet.

The boom consists of three aluminum tubing sections. The rear boom section already has the balun & driven element connector attached and is a 1 1/4" diameter tube. The mid boom is 1 3/8" diameter and 70" long. Assemble the three boom pieces and fasten with the 8-32 x 1 3/4" machine screws, hardware & s.s. Worm clamps supplied. Align each boom section to the alignment marks.

The element bundle contains all of the elements needed for assembly. They are arranged in order and placed on a sticky tape backing. Take time to inventory each one and check off each dimension with Table 1. Some elements vary by one millimeter, so extreme care in measuring is required here. Arrange elements in order of descending size and mark each element with a scribe, or sharp tool to properly locate the first keeper position. The scribe dimensions are listed in Table 1 as the " Keeper half length". The keepers are the stainless steel fasteners that slide over the 3/16" dia. Aluminum elements. Note that the reflector element is the longest followed by the brass driven element, and then director #1. Director #23 is the shortest element. Once you have marked each element, and using the hollow assembly tool, push the keeper onto the element until it almost meets the scribed line. See the figure 6 for proper keeper orientation prior to attaching the keepers. Be careful as the keeper cannot reverse direction if you overshoot the line. You must push the keeper all the way to the end and start over. A good trick is to install the element in a bench vise (if available) with the scribed line flush with the edge of the vise jaws. Push the keeper until it is against the edge of the jaws. This way, it is impossible to overshoot the scribed line. Be aware that the keepers are designed to go a certain way. Now attach one keeper to every element as advised in Table 1, and shown below.

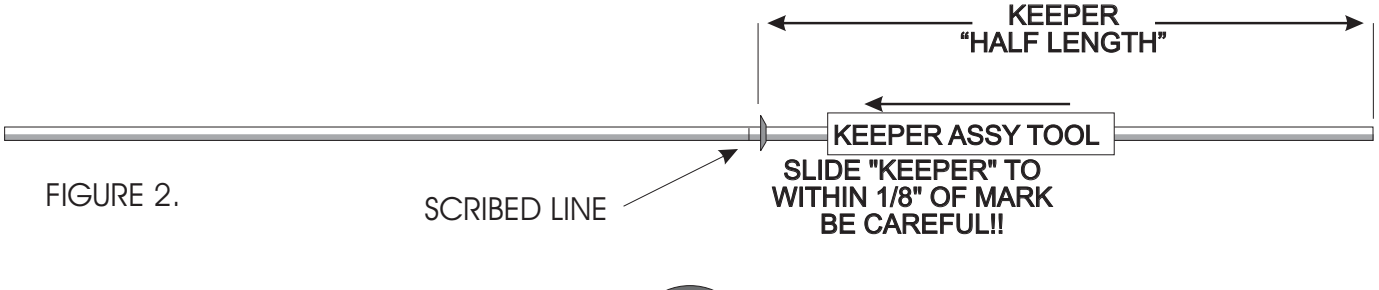


FIGURE 2.

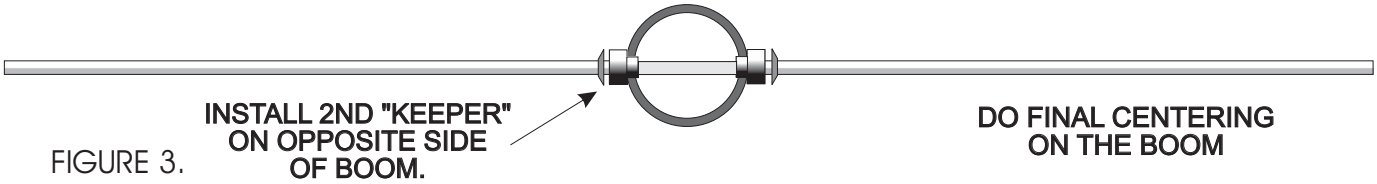


FIGURE 3.

You are now ready to install the elements onto the boom. Start at the rear of the antenna, Install a pair of black Delrin insulators in the large 5/16" hole on each side of the boom . They may fit tightly and may have to be tapped into position with a small hammer. Now slide the correct element (Refl) through the two insulators. Press a second keeper onto the opposite end of the element from the first keeper and push until the element is snugly captured on the insulators. Check that the element is centered on the boom. Equal lengths should extend on either side of the boom. Proceed with each succeeding element until all 15 elements are attached to the boom as shown above. Note that the driven element is brass rod, but is installed as the other elements.

The driven element T-Match assembly is constructed as shown in Figures 4 & 5. Locate the two lengths of #12 copper wire T-match pieces. Both are preformed. One is straight with a flattened end, while the other is bent and flattened on one end. Locate also the brass T-Match bars, and position them on the brass driven element as shown in figure 4.

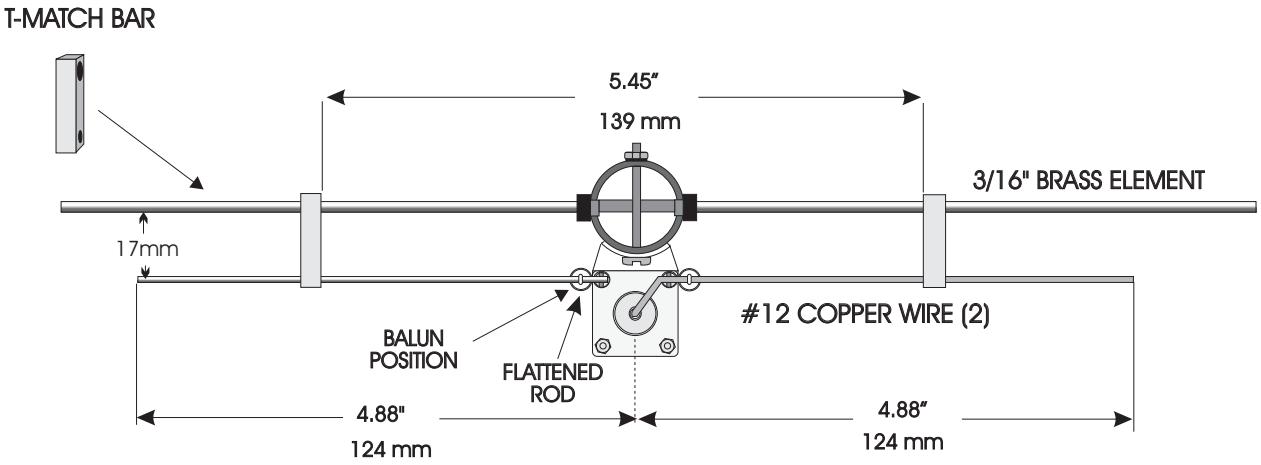


FIGURE 4. T Match Settings: 430- 440 MHZ FOR ADDITIONAL SETTINGS, SEE TEXT.

Install the two copper "T"-match wires and "T" match bars on the driven element as shown in the diagram (Figure 4) above. Note that the formed end of the bent "T"- Match wire is inserted into the solder cup of the Type N connector and routed through the pre-assembled blue standoff insulator. Solder the "T" match #12 copper wires to the connector center pin and the two blue standoffs. I**f you are installing multiple antennas, please be sure that you install each antenna with the same T match rod orientation. In the above drawing, the center pin goes to the right hand side of the antenna as viewed from the back of the connector. Make sure both antennas do the same! Proper phase relationship is very important here!** Align the "T"-match bars parallel with the edge of the connector bracket, and slide them into position as shown in Figure 4. Be careful and do not apply excessive force to the blue standoff insulators. They are easily broken with rough handling. You may have to bend the connector bracket slightly to achieve the listed dimensions in Figure 5.

Carefully bend the balun center conductor leads around the T match wires at the blue standoffs, as shown in Figure 5, and solder them both. The DSFOATV-25 covers a wide range, but can be adjusted to favor either end of the band depending on ATV activity in your area. Adjust the T Match length to the dimensions shown in Figure 4 for best performance at 439 MHz. For best results near 422 MHz leave the T match wires set at 5 1/8" and adjust the T match bars to 6 3/4" overall dimension between the bars. The T match bars may be adjusted for best match at your specific frequency, if you have good VSWR measuring equipment. See also our website (www.directivesystems.com/TMATCH.htm) for T match adjusting techniques. The settings in Figure 4 are for optimum performance at the high end of the ATV band. Curves for both settings are published on our website, and are worth viewing. Gain variation across the band is minimal.

Once the #12 wires and brass bars are set, you can solder the T Match bars as well. Soldering is best accomplished with a 40 watt iron or larger. The brass driven element absorbs considerable heat. This will complete the assembly of your DSFOATV-25.

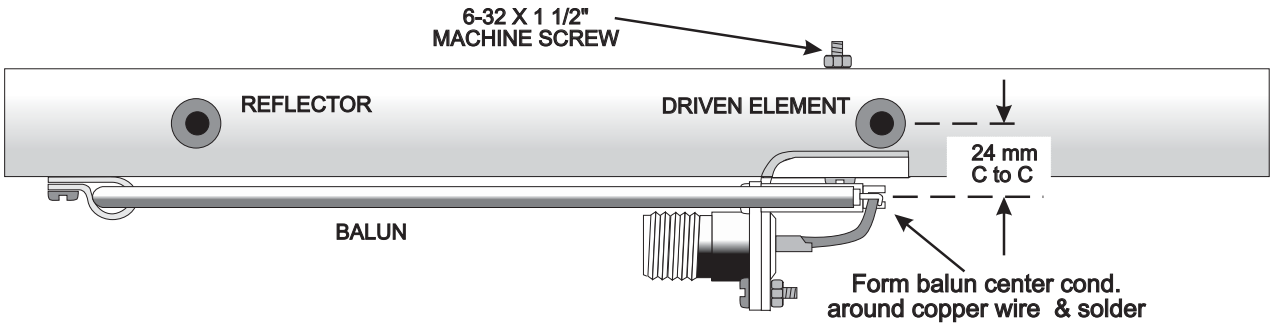
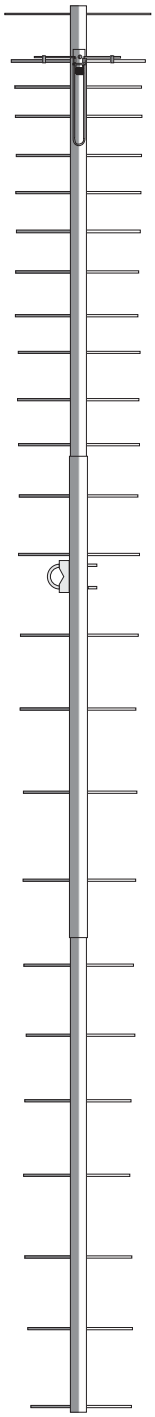


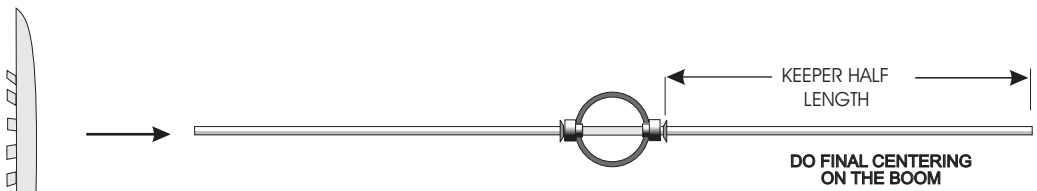
FIGURE 5. DRIVEN ELEMENT SIDE VIEW

You are now ready to install your antenna. Install the 3 x 5" boom to mast bracket between Directors 12 &13 . The small 1 3/8" u-bolts connect the yagi boom to the mast bracket. The large u-bolts attach the bracket to your support mast. Once you have the U-bolts installed and the antenna mounted on your support mast and tightened, you can route your feedline along the mast and over to the driven element and connector. Dress the coax against the antenna boom and tighten the connector. Seal the connector body with several layers of good grade vinyl tape. Then apply a layer of butyl rubber antenna sealer or RTV over the tape. This will provide a good vapor barrier and ensure years of trouble free performance. It is also a good idea to spray the driven element and connector assembly with a clear spray such as Rustoleum Clearseal or Krylon clear spray. This will enhance the vapor barrier, preventing any water vapor from entering the connector, and prevent oxidation of the brass components. This insulated element design will provide very long service life in harsh environments with no degradation over many years.

TABLE 1

ELEMENT DESCRIPTION	ELEMENT LENGTH In.	mm.	KEEPER ½ LENGTH In.	mm.
REFLECTOR	13.346	339	5.893	149.7
DRIVEN ELEMENT	13.110	333	5.775	146.7
DIRECTOR #1	12.441	316	5.440	147
DIRECTOR #2	12.008	305	5.223	142.5
DIRECTOR #3	11.771	299	5.105	137.5
DIRECTOR #4	11.614	295	5.027	135
DIRECTOR #5	11.457	291	4.948	132
DIRECTOR #6	11.378	289	4.908	130
DIRECTOR #7	11.299	287	4.869	129
DIRECTOR #8	11.220	285	4.830	127
DIRECTOR #9	11.142	283	4.790	126
DIRECTOR #10	11.063	281	4.751	124.5
DIRECTOR #11	11.024	280	4.669	124
DIRECTOR #12	10.984	279	4.649	124
DIRECTOR #13	10.945	278	4.630	123.5
DIRECTOR #14	10.905	277	4.610	123
DIRECTOR #15	10.866	276	4.590	116.6
DIRECTOR #16	10.827	275	4.571	116.1
DIRECTOR #17	10.748	273	4.594	116.7
DIRECTOR #18	10.708	272	4.574	116.2
DIRECTOR #19	10.669	271	4.555	115.7
DIRECTOR #20	10.630	270	4.535	115.2
DIRECTOR #21	10.590	269	4.515	114.7
DIRECTOR #22	10.551	268	4.495	114.2
DIRECTOR #23	10.512	267	4.476	113.7





Elements should be centered to within less than 1/16th of an inch (1 mm max)

FIGURE 6.
KEEPER DETAIL Note direction of correct keeper travel!