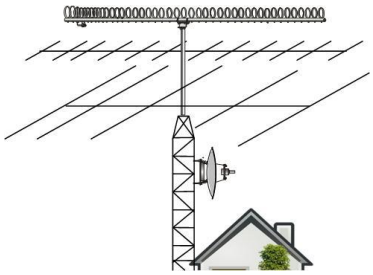

Directive Systems & Engineering

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Haymarket, VA 20169-1628

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703-754-3876

9cm Loop Yagi Kit, Model DSE976LYK (w/sub-boom)

SPECIFICATIONS

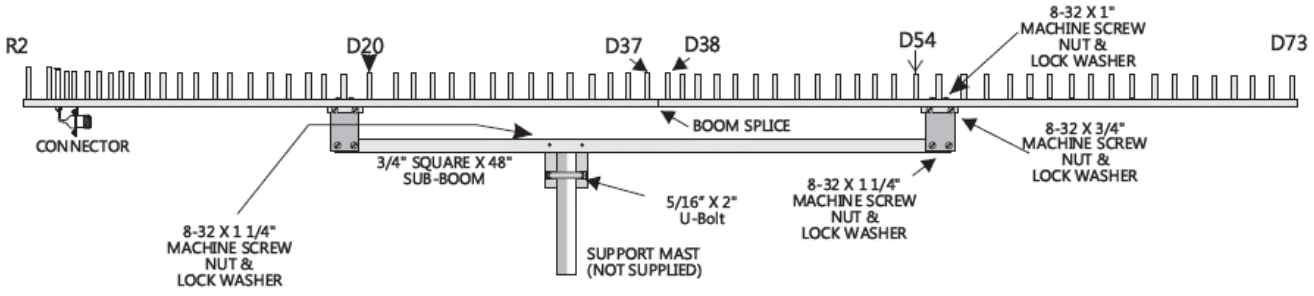
Frequency range:	3.4 to 3.5 GHz	Gain:	≅23.0 dBi
Number of elements:	76	3 dB Beamwidth	
Boom length:	96 inches	(E plane):	≅10.7º
Boom diameter:	0.5 inch	F/B ratio:	≥25 dB
Mast diameter:	2 inches max	Maximum Power:	200 W average
Weight: (assembled)	3.5 pounds assembled	Stacking distance:	16.313 in. vertical
Connector:	Type-N female		17 in. horizontal

PARTS LIST

Note: All hardware is Stainless Steel unless otherwise noted.

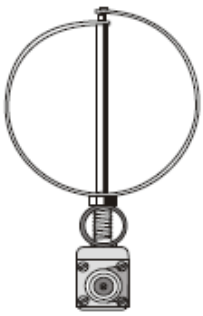
Quantity	Description	Quantity	Description
2	0.5" x 48" drilled boom	75	3-48 x 3/4" machine screw
1	.75" x 48" square sub-boom	75	3-48 x 3/4" split lock washer
2	3 x 4" sub boom plate	75	3-48 x hex nut
2	Small sub boom bracket	4	8-32 x 1/2" machine screw
2	reflectors 1&2	4	8-32 x 1" machine screw
1	driven element	6	8-32 x 1 1/4" machine screw
11	directors 1-11	14	8-32 split lock washer
7	directors 12-18	14	8-32 hex nut
6	directors 19-24	1	3 1/2 x 4" boom to mast plate
12	directors 25-36	1	U-bolt with nuts & saddle
6	directors 37-42	1	Cable assembly w/connector
7	directors 43-49	2	1/2" black end caps
12	directors 50-61	1	Anti-Seize Compound
12	directors 62-73	1	Assembly manual

Anti-Seize Compound - Apply a small amount of the supplied Anti-Seize Compound to the aluminum joints and to the threads of the U-Bolts to prevent galling.



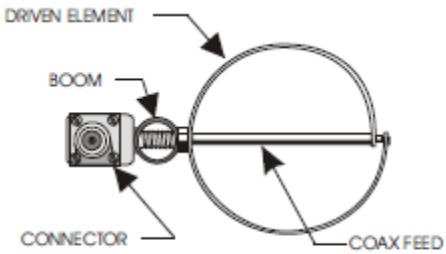
BEFORE INSTALLING YOUR NEW ANTENNA, PLEASE BE SURE TO READ TH ENCLOSED WARNING PAMPHLET.

CAUTION: ***While we strive to remove all burrs from all machined parts, there is always the possibility of sharp edges. We strongly suggest checking the edges and use a fine file, or 400 grit sandpaper, to remove any burrs that may have been left.***



HORIZONTAL POLARIZATION

(Can be up or down)



VERTICAL POLARIZATION

(Can be left or right)

ASSEMBLY INSTRUCTIONS

1) Put the boom pieces together using the alignment marks on the booms. The splice is between elements D37 & D38 and is secured by the loop mounting screws of D38 thru 40. Attach loops to the boom with 3-48 x 3/4" screws, lock washers and nuts in proper sequence. Loops go on the side of the boom marked with an "X". When tightening the nuts on the parasitic elements, be careful not to torque them too tightly. Snug down the nuts, align the elements and use a screwdriver for the final tightening. A 3/16" nut driver is almost mandatory for this job! Attach the driven element with the 1/4-20 stainless steel nut. If only a single antenna is being built, it does not matter which way the loop is oriented. If antennas are to be stacked, see "Instructions for Stacking Loop Yagis."

2) Attach the two small angle brackets to the 1/2” boom with 8-32 hardware near Directors 20 and 54. Use 1" screws to attach to the 1/2" boom and 1/2" screws for attaching the two 3” x 4” flat plates to the sub-boom. Attach the 3/4" square sub-boom to the two plates using 8-32 x 1 1/4" hardware. Align the center mounting holes on the sub boom toward the rear of the antenna so that the holes are at the antenna balance point. Install the remaining 3 1/2” x 4" bracket with U bolt holes and U bolt at the balance point of the antenna. Use 8-32 x 1 1/4" hardware to secure it to the sub boom.

3) Install the cable assembly through the hole in the driven element mounting bolt. Make sure the connector bracket is correctly oriented, the bend should be forward for center mount antennas and rear facing for rear mount antennas. Solder the outer shield to the driven loop first making sure there is no shield sticking above the large hole in the driven loop. After the shield is soldered, pass the center conductor through the small hole in the driven loop and bend the center conductor over and solder (See Assembly Tips below).

We have created a You Tube video, the link of which can be found on our website, documenting the following steps:

https://youtu.be/ojXbsDv5cvU

At this point the connector assembly is facing down, connect a piece of coax and your SWR bridge or VNA. Pull down on the connector (which will flatten the loop) until you reach the lowest SWR. If it's less than 1.5:1 you can stop and make sure the loop doesn't try to pop back up, sometimes you have to squeeze the loop with your fingers to make sure it stays in the shape that gave the best SWR. If you want to further lower the SWR, from the rear of the antenna, place both your thumbs on the driven loop on either side and gently push it forward towards D1, you only need to tilt it maybe 3/16" to ¼" and that should drop the SWR to 1.1:1 or less.

Now, GENTLY bend the UT-141 coax after it exits the boom towards the front or rear, depending on the mounting. You do not want to bend it so tightly that it crushes where it extends through the bolt. The connector bracket should line up with either D1 or D2 (or the hole with the circle around it on rear mount antennas), remove that nut and place the connector bracket on the screw and re-attach the nut. If the bracket doesn't line up, sometimes you have to flip the bracket. Loosen the ¾" nut by holding the connector body with a 9/16" open end wrench. Remove the connector bracket and flip it.


Connector doesn't fit


Front Mount Connector


Rear Mount Connector

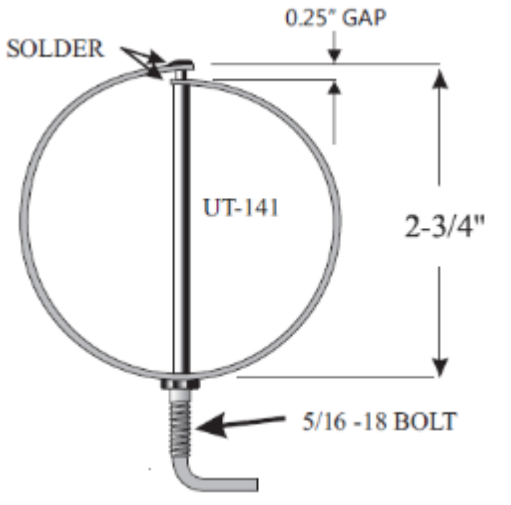
4) Attach the feedline and tape it to the sub-boom. You can route the coax along the sub boom. Seal all connections with silicone RTV or equivalent.

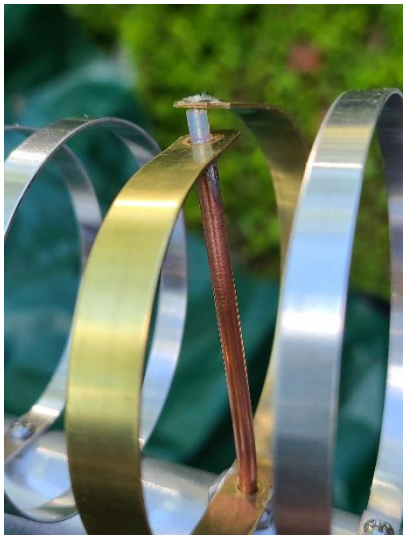
5) Attach the two black end caps and this will complete the assembly of your DSE976LYK.

6) The SWR should be 1.5:1 or better. Additional tweaking can be accomplished by adjusting the distance between the driven element and R1 or by adjusting the shape of the driven element.

ASSEMBLY TIPS:

The boom diameter is 0.5 inch, and it is drilled for 3-48 hardware (no. 39 drill bit). The driven element hole is enlarged to 1/4 inch. All elements are 0.020-inch-thick and 0.200 inch wide. Note that the element spacing from D7 on is 1.335 inches. The driven element is soldered to the mounting bolt as shown. The feed coaxial cable (0.141-inch semi rigid) goes through the mounting bolt and is soldered to the open ends of the element. For best match, the driven element should be approximately 1 1/8 inch high. This shape can be adjusted for best match. Maintain a .250" gap between dipole ends where they solder to the copper coax. This improves performance in wet weather. When tune-up is complete, solder .141" coax to brass bolt. (75 w+ iron) This antenna has been designed by Directive Systems to provide superb performance that rivals 24" parabolic dishes without the wind load.





Soldered Driven Element

DO NOT, UNDER ANY CIRCUMSTANCES, APPLY ANY TYPE OF SEALANT OR COATING TO THE DRIVEN ELEMENT, T-ARMS OR CONNECTOR ASSEMBLY, OTHER THAN KRYLON®
CLEAR COAT. ANY OTHER COATING WILL ADVERSELY AFFECT THE SWR AND VOID YOUR WARRANTY.

"THE BLOWTORCH"

DIMENSIONS OF 3456 MHz LOOP YAGI, MODEL 976LY(K)

Element	Spacing from end of boom	Circumference	Element	Spacing from end of boom	Circumference	Element	Spacing from end of boom	Circumference
R2	1.000	3.747	D23	28.615	2.945	D48	61.990	2.825
R1	2.050	3.747	D24	29.950	2.945	D49	63.325	2.825
DE	2.518	3.575	D25	31.285	2.907	D50	64.660	2.792
D1	2.938	3.133	D26	32.620	2.907	D51	65.995	2.792
D2	3.250	3.133	D27	33.955	2.907	D52	67.330	2.792
D3	3.917	3.133	D28	35.290	2.907	D53	68.665	2.792
D4	4.584	3.133	D29	36.625	2.907	D54	70.000	2.792
D5	5.053	3.133	D30	37.960	2.907	D55	71.335	2.792
D6	5.920	3.133	D31	39.295	2.907	D56	72.670	2.792
D7	7.255	3.133	D32	40.630	2.907	D57	74.005	2.792
D8	8.590	3.133	D33	41.965	2.907	D58	75.340	2.792
D9	9.925	3.133	D34	43.300	2.907	D59	76.675	2.792
D10	11.260	3.133	D35	44.635	2.907	D60	78.010	2.792
D11	12.595	3.133	D36	45.970	2.907	D61	79.345	2.792
D12	13.930	3.038	D37	47.305	2.865	D62	80.680	2.760
D13	15.265	3.038	D38	48.640	2.865	D63	82.015	2.760
D14	16.600	3.038	D39	49.975	2.865	D64	83.350	2.760
D15	17.935	3.038	D40	51.310	2.865	D65	84.685	2.760
D16	19.270	3.038	D41	52.645	2.865	D66	86.020	2.760
D17	20.605	3.038	D42	53.980	2.865	D67	87.355	2.760
D18	21.940	3.038	D43	55.315	2.825	D68	88.690	2.760
D19	23.275	2.945	D44	56.650	2.825	D69	90.025	2.760
D20	24.610	2.945	D45	57.985	2.825	D70	91.360	2.760
D21	25.945	2.945	D46	59.320	2.825	D71	92.695	2.760
D22	27.280	2.945	D47	60.655	2.825	D72	94.030	2.760
						D73	95.365	2.760

Note: All dimensions are in inches

Directive Systems Warranty Policy

All Directive Systems antennas are built with the finest materials available. We take great pride in building a quality product that will give years of good service and performance. If there is a defect in materials or workmanship within 90 days of purchase, Directive Systems will repair or replace the defective part, free of charge, to the original purchaser. **DO NOT RETURN ANYTHING WITHOUT PRIOR AUTHORIZATION FROM DIRECTIVE SYSTEMS**. Please contact us either by phone or email describing the problem and we will work to resolve it.

If, after examining a new antenna you received, you are not satisfied, contact us immediately for return authorization and refund. **ANY ANTENNA THAT HAS BEEN MODIFIED WILL BE SUBJECT TO A RESTOCKING CHARGE. IF AN ANTENNA IS SO MODIFIED AS TO MAKE IT UNUSABLE, DIRECTIVE SYSTEMS RESERVES THE RIGHT TO REFUSE TO ACCEPT THE ANTENNA FOR RETURN.**