

DESIGN: A.W. BAKER	02/09/04
TESTED: A.W. BAKER	04/18/04

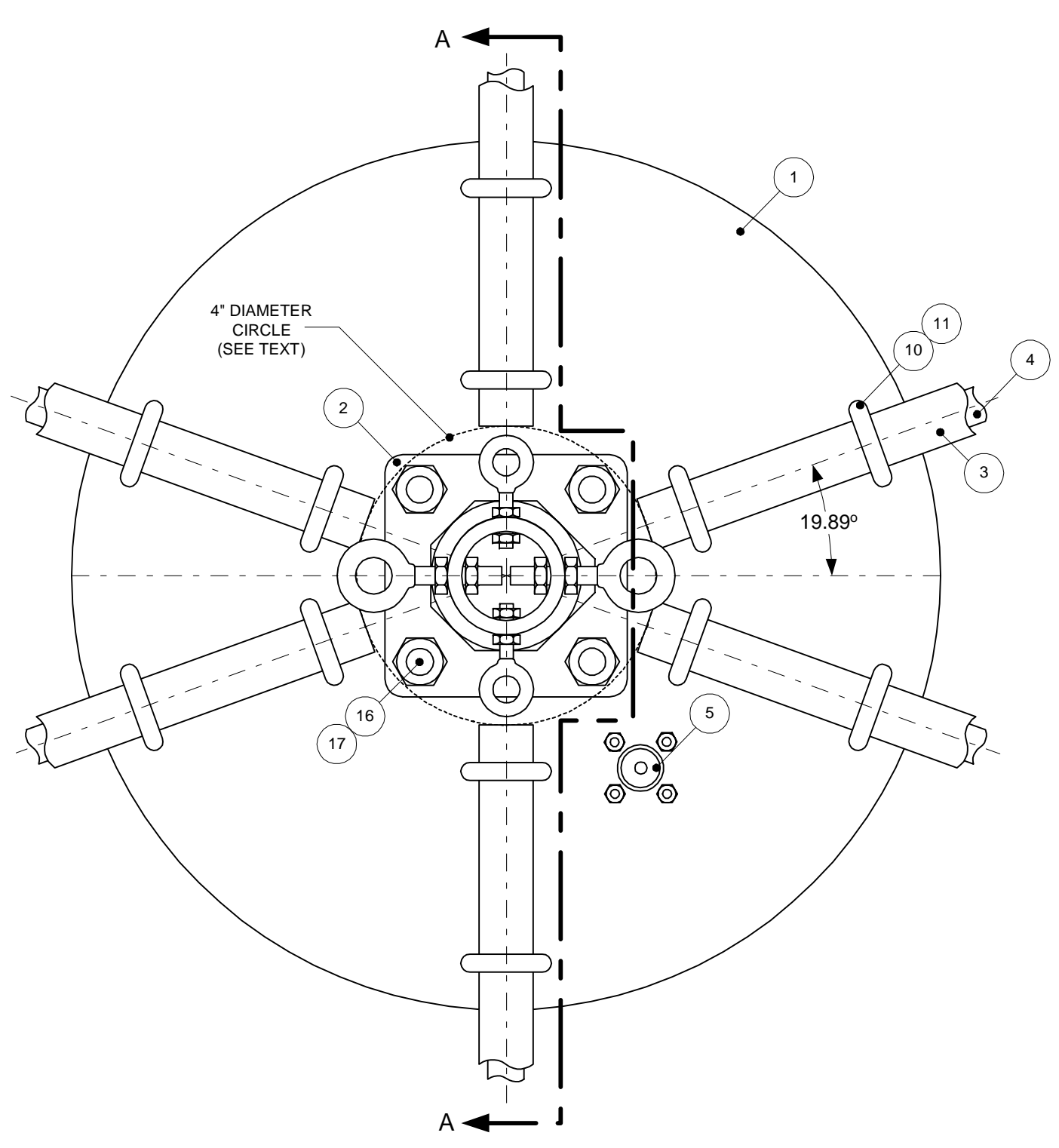
KG4JJH

DUAL-BAND WIRE BEAM
12/17 METER NESTED MOXON
ASSEMBLY

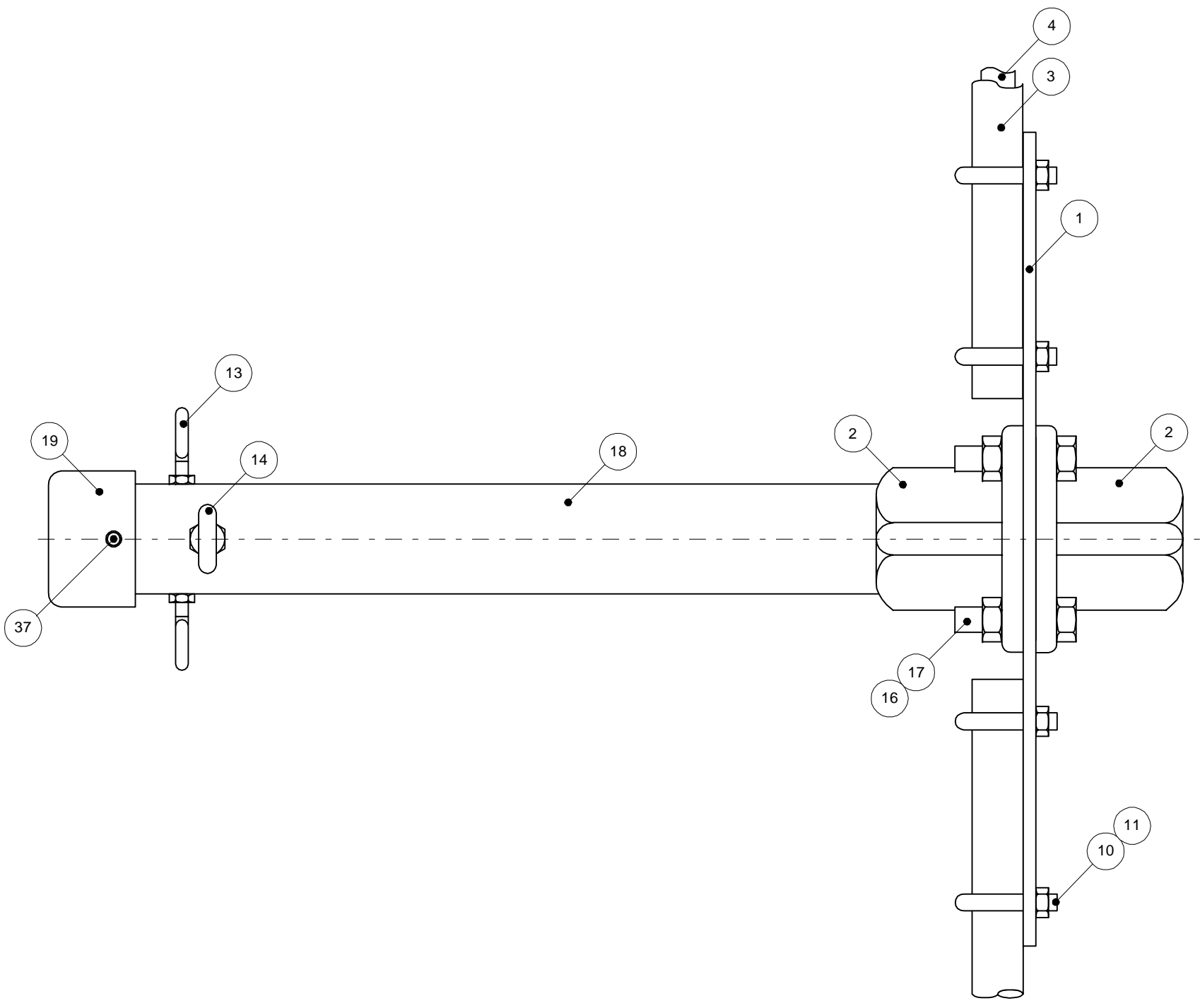
SCALE: 0.05:1

SHEET 1 OF 5


REV. 0

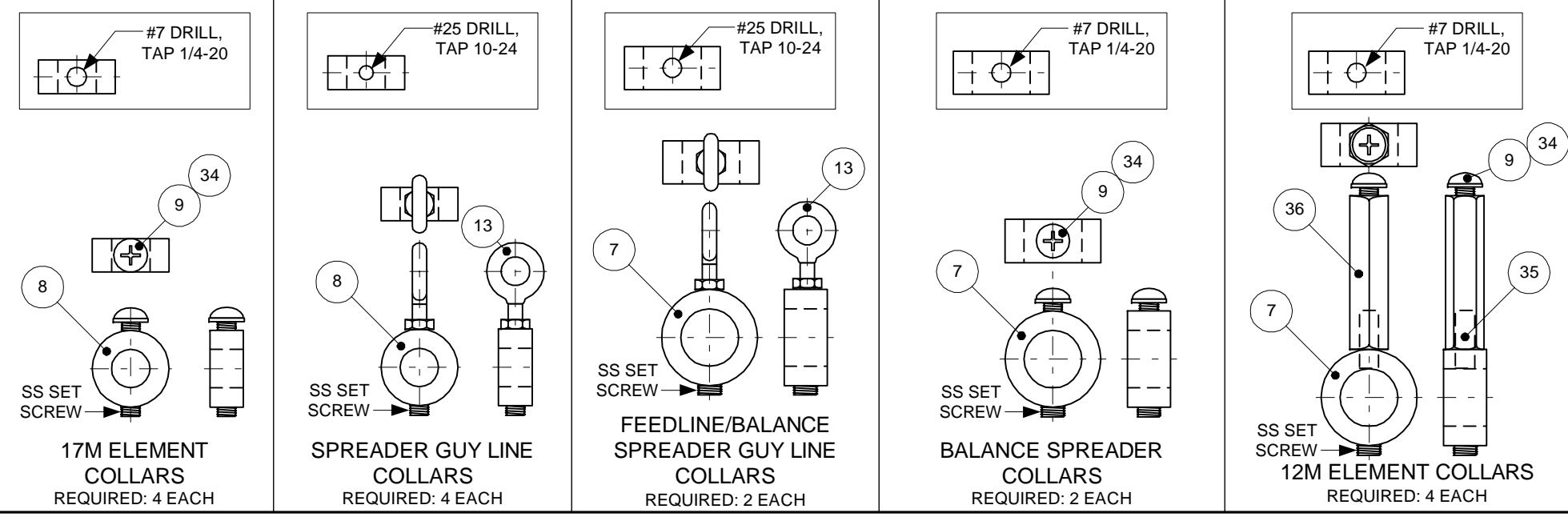
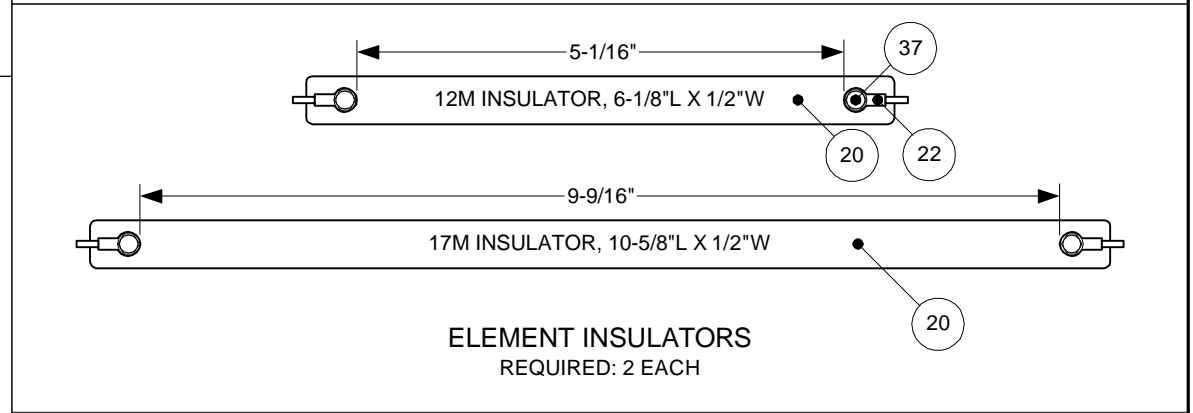
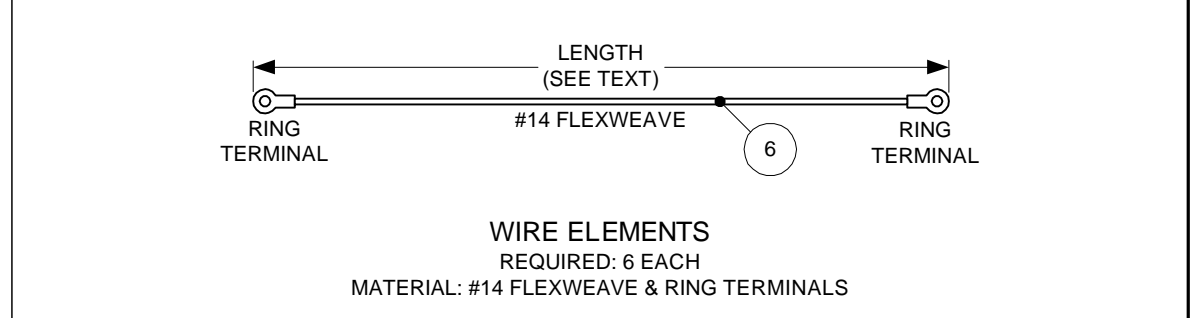
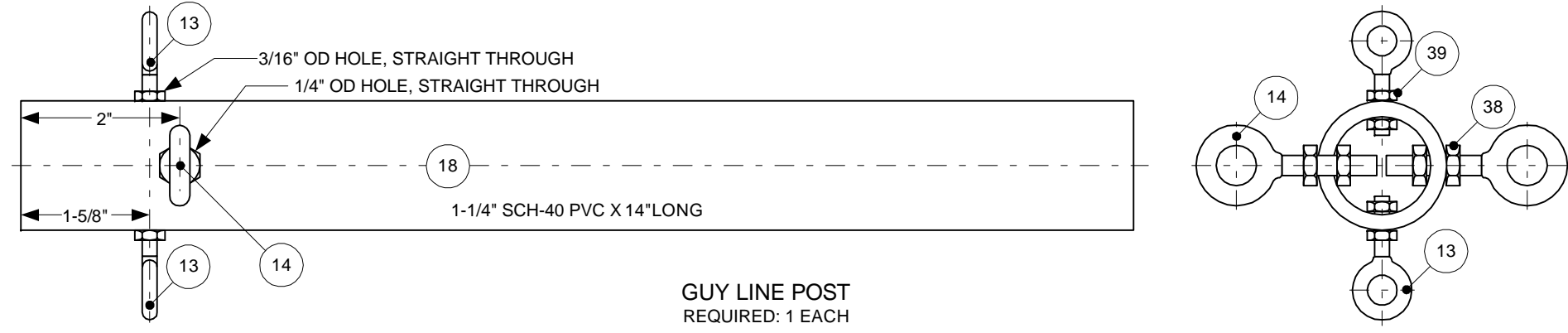
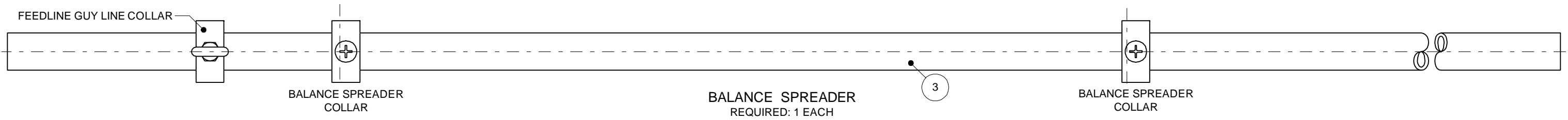
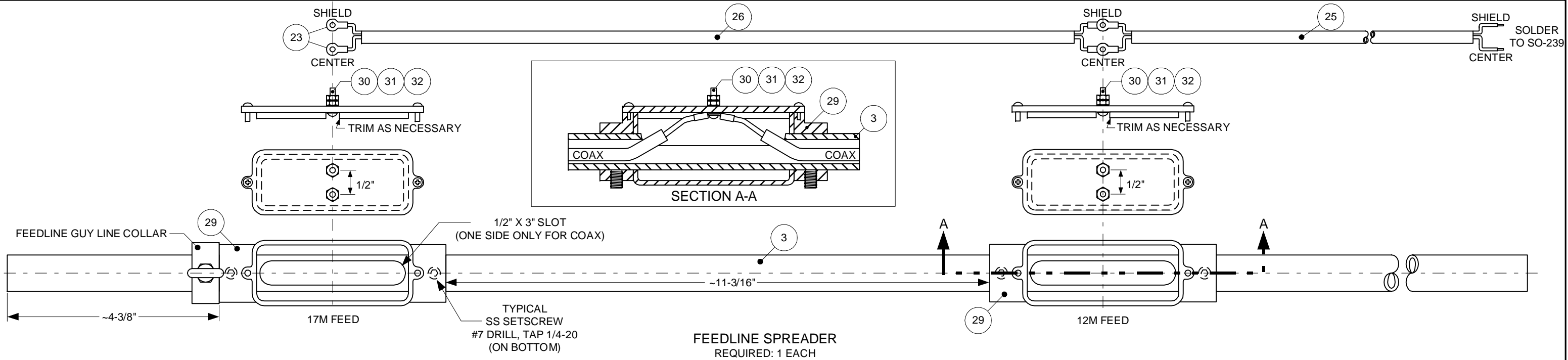


HUB ASSEMBLY
TOP VIEW

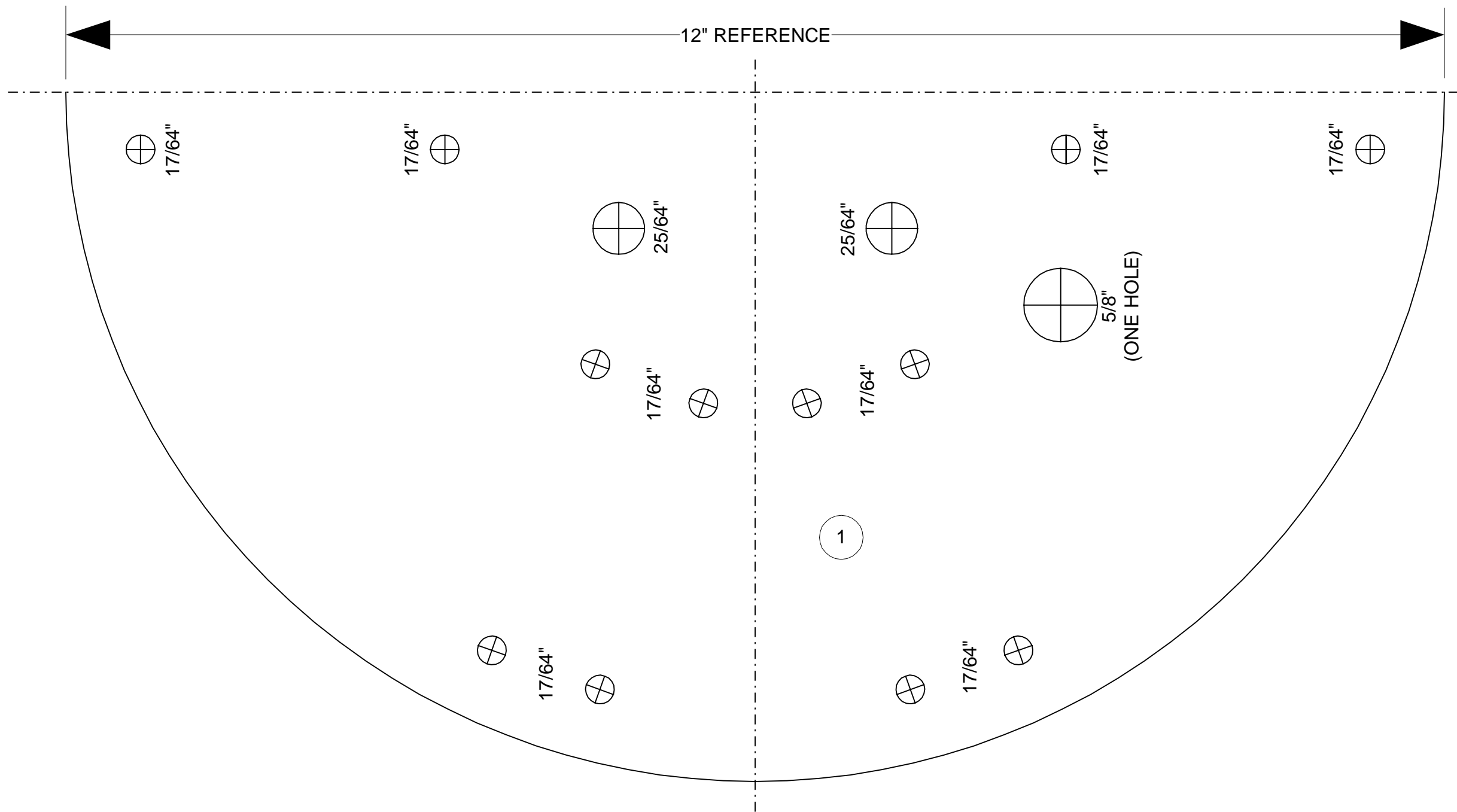


VIEW A-A

DESIGN: A.W. BAKER	02/12/04	 KG4JJH
TESTED: A.W. BAKER	04/18/04	
DUAL BAND WIRE BEAM 12/17 METER MOXON HUB ASSEMBLY		
SCALE: 1/2:1	SHEET 2 OF 5	REV. 0



DESIGN: A.W. BAKER	02/12/04	
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DUAL BAND WIRE BEAM 12/17 METER MOXON MISC. DETAILS		
SCALE: 1/2:1	SHEET 3 OF 5	REV. 0



HUB DRILLING TEMPLATE
 (MAKE TWO COPIES AND TAPE TOGETHER AT CENTERLINE)

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**DUAL BAND WIRE BEAM
 12/17 METER MOXON
 HUB DRILLING TEMPLATE**

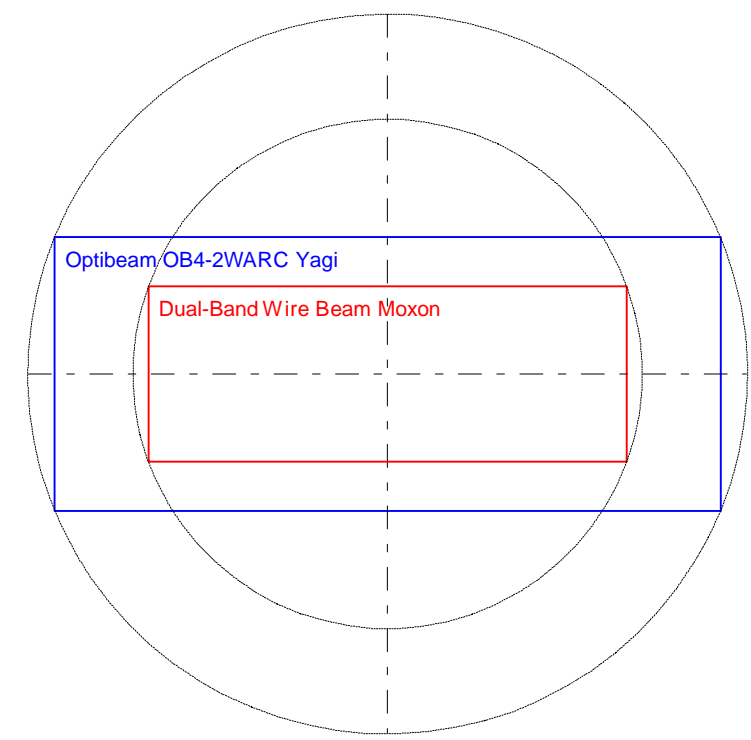
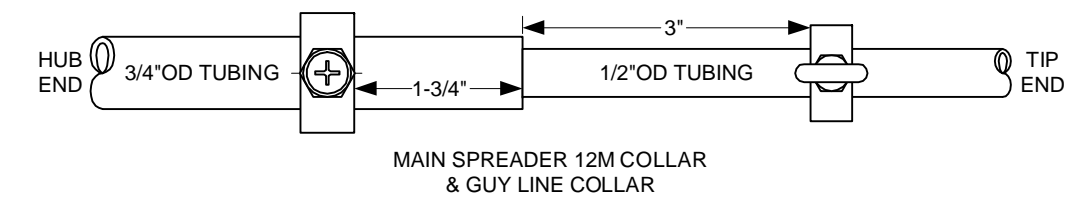
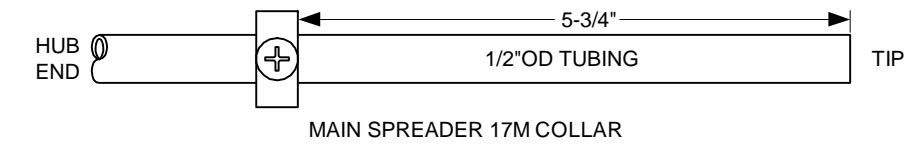
SCALE: 1:1

SHEET 4 OF 5

REV. 0

MATERIALS LIST

ITEM	QTY	DESCRIPTION	MFR & PART NUMBER	PRICE EACH	SOURCE
1	1 SQ FT.	6061-T6 ALUMINUM PLATE, 0.190" X12" X 12"	METALS DEPOT #P3316T6	\$27.28	https://www.metalsdepot.com/index.phtml
2	2	4-HOLE SQUARE FLANGE, DIE-CAST ALUMINUM	KEE-LITE #L152-7	\$8.00	http://shop.store.yahoo.com/hawkmat/keelitalfit.html
3	5	FIBERGLASS, ROUND TUBE, 1/8" WALL, 3/4"OD X 8FT.	MAX-GAIN SYSTEMS	\$9.00	http://www.mgs4u.com/fiberg.htm
4	3	FIBERGLASS, ROUND TUBE, 1/8" WALL, 1/2"OD X 8FT.	MAX-GAIN SYSTEMS	\$6.50	http://www.mgs4u.com/fiberg.htm
5	1	CONNECTOR, CHASSIS MOUNT, SO-239	RADIOSHACK #278-201	\$2.99	http://www.radioshack.com
6	100 FT.	WIRE, 14 AWG, STRANDED, BARE COPPER	FLEXWEAVE #542	\$14.00	http://thewireman.com/antennap.html#2
7	8	COLLAR, NYLON, STAINLESS STEEL SET SCREW, 3/4" BORE	MCMaster-CARR #60475K74	\$2.58	http://www.mcmaster.com
8	8	COLLAR, NYLON, STAINLESS STEEL SET SCREW, 1/2" BORE	MCMaster-CARR #60475K72	\$2.34	http://www.mcmaster.com
9	14	PAN HEAD MACHINE SCREW, NYLON, 1/4-20 X 1/4"	MCMaster-CARR #91766A533	\$6.81/100	http://www.mcmaster.com
10	12	U-BOLT & NUT, STAINLESS STEEL, 1/4-20 X 5/8"L THREAD, 3/4" BETWEEN LEGS	MCMaster-CARR #8896T101	\$1.84	http://www.mcmaster.com
11	24	LOCKWASHER, SPRING, STAINLESS STEEL, 1/4"			ACE HARDWARE
12	6	TURNBUCKLE, HOOK AND EYE, ALUM. BODY, STAINLESS STEEL SCREW	IVES 1/4 X 5-1/4"	\$6.29	ACE HARDWARE
13	6	EYEBOLT, STAINLESS STEEL, WITH NUT, 3/16" X 1-1/2"	NATIONAL N197-277	\$1.43	ACE HARDWARE
14	2	EYEBOLT, STAINLESS STEEL, WITH NUT, 1/4" X 2"	NATIONAL N197-293	\$1.92	ACE HARDWARE
15	1	THREAD, KEVLAR 346, 0.038" DIAMETER, 66 YARD SPOOL	MCMaster-CARR #8800K43	\$10.38	http://www.mcmaster.com
16	4	HEX BOLT, STAINLESS STEEL, 3/8-16 X 1-1/2"			ACE HARDWARE
17	4	HEX STOP NUT, STAINLESS STEEL, 3/8-16			ACE HARDWARE
18	1	PIPE, PVC, 1-1/4", SCHEDULE 40, 14" LONG			HOME DEPOT
19	1	CAP, PVC, 1-1/4", SCHEDULE 40			HOME DEPOT
20	1	SCREEN BASE, VINYL, 3-1/2" WIDE	SCREEN TIGHT		HOME DEPOT
21	4	STANDOFF, HEX, NYLON, 2" LONG, 1/4-20 THREAD	MCMaster-CARR #92319A778	\$4.47	http://www.mcmaster.com
22	4	RING TERMINAL, NONINSULATED, FOR 14-16 AWG WIRE, #6 RING (0.138" STUD)	MCMaster-CARR #7113K815	\$1.48/10	http://www.mcmaster.com
23	1	RING TERMINAL, NONINSULATED, FOR 14-16 AWG WIRE, #8 RING (0.164" STUD)	MCMaster-CARR #7113K816	\$1.16/10	http://www.mcmaster.com
24	1	RING TERMINAL, NONINSULATED, FOR 14-16 AWG WIRE, 1/4" RING (0.25" STUD)	MCMaster-CARR #7113K818	\$1.52/10	http://www.mcmaster.com
25	~5 FT.	COAX, 50 OHM, 1/4" OD, STRANDED CENTER CONDUCTOR, RG-8X	THE WIREMAN#118	\$0.30/FT.	http://thewireman.com/coaxp.html
26	~2 FT.	COAX, 75 OHM, VF = 0.8, STRANDED CENTER CONDUCTOR, RG-59U	BELDEN #1505F, #8241F, #9221	#0.40/FT.	http://www.newark.com
27	4	PAN HEAD MACHINE SCREW, STAINLESS STEEL, 6-32 X 1/2"			ACE HARDWARE
28	4	HEX STOP NUT, STAINLESS STEEL, 6-32			ACE HARDWARE
29	2	CONDUIT BODY, PVC, THROUGH WIRE, 1/2"	MCMaster #7905K11	\$3.67	http://www.mcmaster.com
30	8	HEX NUT, STAINLESS STEEL, 8-32			ACE HARDWARE
31	4	PAN HEAD MACHINE SCREW, STAINLESS STEEL, 8-32 X 1-1/2"			ACE HARDWARE
32	8	LOCKWASHER, STAINLESS STEEL, #8			ACE HARDWARE
33	12	SNAP SWIVEL, BRASS, SIZE 1	LAKER 5S121		WALMART
34	8	WASHER, NYLON, 1/4"		\$0.11	ACE HARDWARE
35	4	STUD, FULLY THREADED, STAINLESS STEEL, 1/4-20 X 3/4"	MCMaster #90575A540	\$0.53	http://www.mcmaster.com
36	4	STANDOFF, FEMALE THREADED HEX, NYLON, 1/4-20 X 2"	MCMaster #92319A778	\$4.47	http://www.mcmaster.com
37	9	SCREW, SELF TAPPING, STAINLESS STEEL, #6, 1/2" LONG			
38	2	HEX NUT, STAINLESS STEEL, 1/4-20			
39	2	HEX NUT, STAINLESS STEEL, 10-24			
40					



Antenna	Optibeam OB4-2WARC (Published Specifications)		Dual-Band Wire Beam (Modeled Specifications)	
	17m (18.118 MHz)	12m (24.94 MHz)	17m (18.118 MHz)	12m (24.94 MHz)
Elevation (Feet)	65.5			
Gain (dBi)	11.9	12.5	11.5	11.5
F/B Ratio (dBi)	15	22	24	26.6
VSWR	< 1.1:1	< 1.1:1	1.2:1	1.3:1
Max. El. Length (Feet)	27.95		20.1 (28% smaller)	
Boom Length (Feet)	11.48		7.37 (36% smaller)	
Area (Square Feet)	321		148 (54% smaller)	
Turning Radius (Feet)	15.06		10.7 (29% smaller)	
Weight (Pounds)	26.4		15 (43% less)	

DESIGN: A.W. BAKER 02/12/04
 TESTED: A.W. BAKER 04/18/04



**DUAL BAND WIRE BEAM
 12/17 METER MOXON
 MISC DETAILS & MATERIALS LIST**

SCALE: NONE SHEET 5 OF 5 REV. 0