

J-SERIES VHF AND FM MATV ANTENNAS

INSTRUCTION SHEET
30012 - 002

MODELS: J55-
J105-

DESCRIPTION

The J-Series are heavy-duty 75-ohm antennas, specifically designed for master antenna (MATV) distribution systems. Models J55-° cut-to-channel antennas have five elements and are available for VHF TV channels 2 thru 6 and the f-m band; a broadband, VHF-low log-periodic configuration is also available. Models J105-° cut-to-channel antennas have ten elements and are available for VHF TV channels 7 thru 13; a broadband, VHF-high log-periodic configuration is also available.

Cut-to-channel models are Yagis, gamma-matched for optimum signal transfer. Each antenna employs a threaded 75-ohm Jerrold Model F-81 output connector.

SPECIFICATIONS

	Model (suffix indicates channel)	Gain (dB)*	Impedance	Front-to-Back Ratio	Wind Load**		Turning Radius (inches)	Average Shipping Weight (pounds)	
					¼" Ice	No Ice			
Cut-to-Channel Yagis:	J55-2	7.5	75-ohms	18	69	106	70	10½	
	J55-3				61	96	60		
	J55-4				53	88	54		
	J55-5				48	80	51		
	J55-6				43	72	45		
	J55-FM	6 to 7		20	43	72	45		
	J105-7				47	73	46		
	J105-8				45	70	45		
	J105-9				42	67	46		
	J105-10				40	65	43		
	J105-11				10	38	62		42
	J105-12				37	59	40		
J105-13	35		56		39				
Broad-band	J55-LO	6	75-ohms	22	85.5	170	45	14	
	J105-HI	8.5		22	42	84	59		

*Relative to a tuned half-wave dipole.

**Pounds, for 100 mph wind based on 40 lb./ft.²

INSTALLATION

Materials and Tools Required

It is assumed that a sturdy, properly grounded mast of up to two inches in diameter is already in place.

1. Sufficient 75-ohm coaxial cable, such as RG-59/U or Jerrold CAC or CAD, for preparing a down-lead.
2. Two Jerrold Model F-659 universal fittings and a Jerrold Model WB-59 weatherboot.

NOTE: Consult Jerrold Instruction Sheet 435-650 for tools required to install fittings on the down-lead.

3. A 7/16" nut-driver.
4. A ½" nut-driver or wrench.
5. A common screwdriver.
6. A 7/16" open-end wrench.

Assembly and Mounting of Cut-to-Channel Models

1. Consult Figures 1 and 2 and Tables 1 and 2, then assemble the elements onto the crossarm in their proper positions as denoted by their length and element number. DO NOT over-tighten the hex-bolts securing the elements.

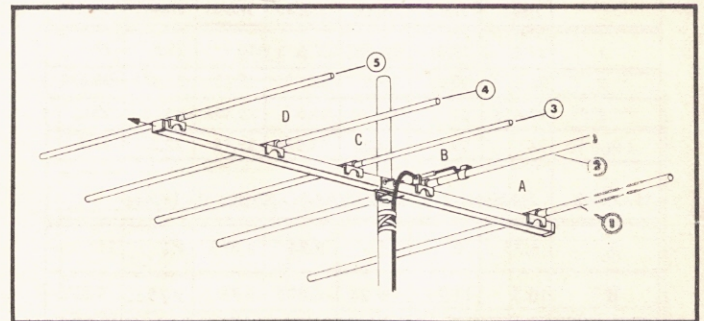


FIGURE 1 TYPICAL MOUNTING OF MODEL J55 - *

TABLE 1—MODEL J55-* ELEMENTS (See Fig. 1)

Element Number	VHF-Low Cut-to-Channel Element Lengths (in inches)					
	J55-2	J55-3	J55-4	J55-5	J55-6	J55-FM
1	110	100.5	89	77	70	65
2	100.5	91	81.5	70.5	65.5	58.5
3	92	85	76.5	66.5	62	50
4 and 5	85	81	73	63	60	48.5
SPACING	ELEMENT SPACING REAR-TO-FRONT (In Inches)					
A	25.25	24.5	28	24	21.25	21.5
B	15.75	15.25	16	12	12	16.5
C	11.5	9	8.5	8	7	7
D	39.5	30	25.5	26	20.75	24

2. Loosely assemble the dual "U" bolt mounting bracket onto the crossarm as shown in Figure 3.
3. Lift the antenna into position, hold it upright and slide its "U" bolt assembly onto the mast.
4. Orient the antenna in the desired direction, then tighten the hex-nuts on the "U" bolts sufficiently for supporting the antenna.

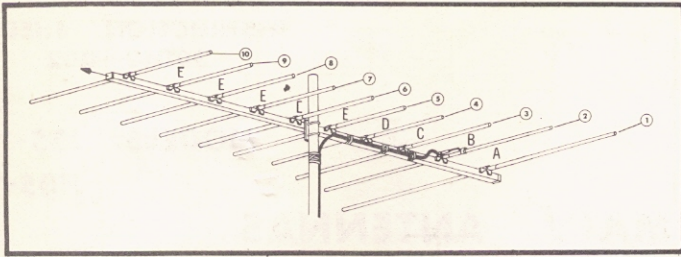


FIGURE 2 TYPICAL MOUNTING OF MODEL J105 - *

TABLE 2—MODEL J105-* ELEMENTS (See Fig. 2)

Element Number	VHF-High Cut-to-Channel Element Lengths (in inches)						
	J105-7	J105-8	J105-9	J105-10	J105-11	J105-12	J105-13
1	33.5	32.5	31.25	30.5	30	28.5	27
2	30.5	28.75	29.5	28	27.25	26.375	25.375
3	27.625	27	26	25.5	25.375	23.25	23
4 thru 10	26	24.5	24.25	23.875	22.75	22.25	21.5
SPACING	ELEMENT SPACING REAR-TO-FRONT (In Inches)						
A	8.75	9	11	9.25	8.875	9.5	11
B	10.5	11.75	9.25	6.875	9.75	9.75	9.375
C	7.5	6.75	7	7.5	7.125	5.625	6.5
D	8.5	8.25	10.5	10	9.625	9.75	8
E	11	10.5	10.5	10	9.625	8.5	8

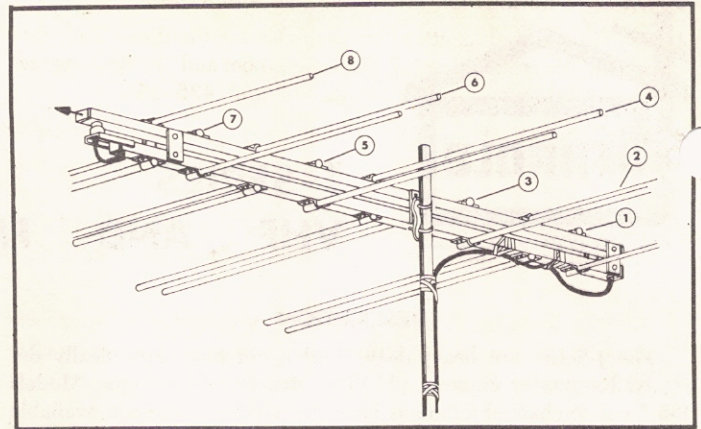


FIGURE 4 TYPICAL MOUNTING OF MODEL J55 - LO

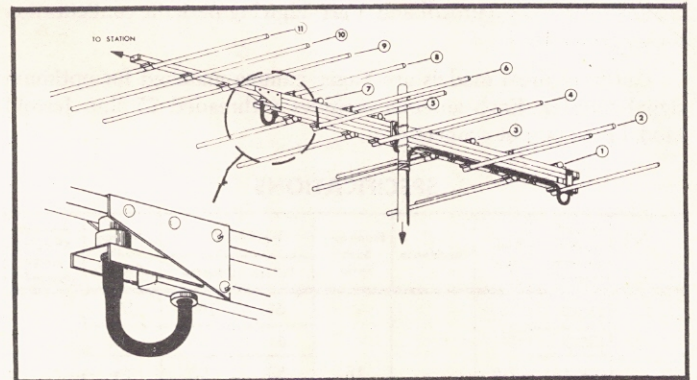


FIGURE 5 TYPICAL MOUNTING OF MODEL J105 - HI

TABLE 3—BROADBAND MODEL ELEMENTS (See Figs. 4 and 5)

Element Number	Lengths (in inches)	
	J105-HI	J55-LO
1	17.5	53.5
2	16.75	48.875
3	15	43.25
4	14.25	38
5	13.25	34.75
6	12.5	31
7	11.75	28
8	11	25.5
9	24.5	—
10	24.5	—
11	22.25	—

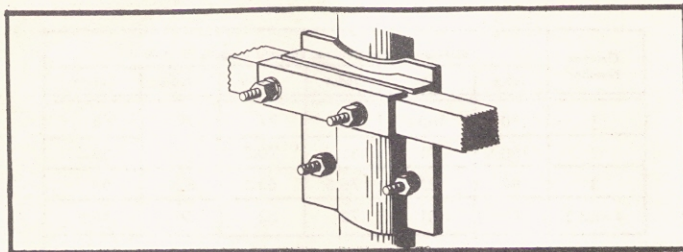


FIG 3 TYPICAL U-BOLT MOUNTING OF MODEL J55 AND J105

Assembly and Mounting of Broadband Models

1. Consult Figures 4 and 5 and Table 3, then on Model J105-HI, swing the front of the crossarm into position and secure it to the main upper crossarm with the machine-screw, lock-washer and hex-nut supplied; wrench tighten both securing hex-nuts.
2. Assemble the elements onto the crossarms in their proper positions, as denoted by their length and element number. Note the relationship of the elements to the upper and lower crossarms; the elements must be positioned as shown in Figure 4 or 5. DO NOT over-tighten the hex-bolts securing the elements.

NOTE: If desired, the down-lead cable may be run through the lower crossarm and connected at this time; consult DOWN-LEAD CONNECTION FOR BROADBAND MODELS below.

3. Complete the procedure of steps 2, 3, and 4 in ASSEMBLY AND MOUNTING OF CUT-TO-CHANNEL MODELS above. See Figure 6.

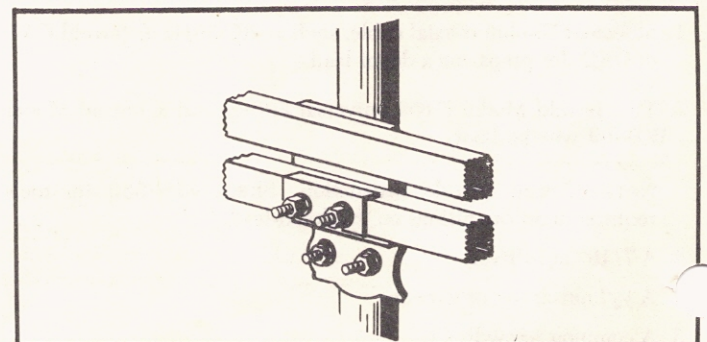


FIGURE 6 TYPICAL U-BOLT MOUNTING FOR J55-LO & J105-HI

Down-Lead Connection for Cut-to-Channel Models

1. Cut the required length of coaxial cable for the down-lead, then prepare the ends and install the weatherboot and "F" type connectors according to Jerrold Instruction Sheet 435-650.
2. Install the cable fitting onto the antenna connector; hand-tighten, then wrench-tighten the fitting no more than 1/6 of a turn.
3. Apply a liberal coating of Silicone weather-proofing compound to the connection, then slide the weatherboot fully over it.
4. Run the down-lead to the "head-end" or distribution equipment according to standard practice, using tape and appropriate insulated staples as required.

Down-Lead Connection for Broadband Models

1. Cut the required length of coaxial cable for the down-lead, then insert one end into the rear grommet of the lower crossarm, feed the cable through the crossarm and out of the front grommet as shown in Figure 4 or 5.

NOTE: Pull enough cable through to permit preparing and connecting the end.

2. Prepare the cable ends and install the weatherboot and "F" type connector according to Jerrold Instruction Sheet 435-650.
3. Complete the procedure of steps 2 and 3 in DOWN-LEAD CONNECTION FOR CUT-TO-CHANNEL MODELS above.
4. Carefully pull any excess cable back through the lower crossarm but leave a drip-loop large enough so that the weatherboot holds its seal.
5. Run the down-lead to the "head-end" or distribution equipment according to standard practice, using tape and appropriate insulated staples as required.

Final Orientation

Rotate the antenna until maximum signal strength is received, then fully tighten the hex-nuts on the "U" bolt assembly.

Arrays of Cut-to-Channel Models

J-Series antennas may be "stacked" both vertically and horizontally for greater gain and directivity. It is essential that the spacings given below in Figure 7 and Table 4 be strictly adhered to for best possible results.

The gamma feeds of all antennas within the array must face in the same direction for proper polarity. Note that the feeds shown in Figure 7 all face right as viewed from the front of the antennas. For broadband models, all antennas within an array must be assembled as shown in Figure 4 for lowband or Figure 5 for highband and all downleads must exit from the bottom of the crossarms, in order to maintain proper phasing and polarity.

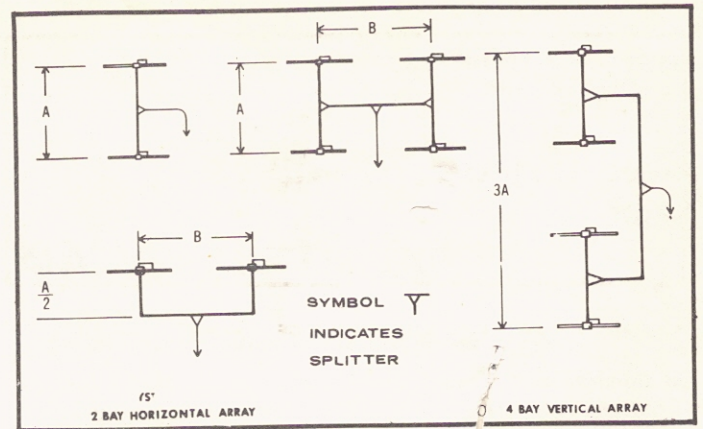


FIG. 7 ARRAY SPACING OF "J SERIES" CUT-TO-CHANNEL YAGIS

TABLE 4—ARRAY SPACING

Model (suffix indicates channel)	Dimension "A" (in inches)	Dimension "B" (in inches)
J55-2	140	208
J55-3	127	188
J55-4	116	172
J55-5	102	150
J55-6	94	140
J55-FM	80	120
J105-7	54	74
J105-8	52	72
J105-9	50	70
J105-10	48	67
J105-11	46	65
J105-12	45	63
J105-13	44	61

Splitting harnesses may be made from any good quality 75-ohm coaxial cable such as RG-59/U and Jerrold Model F-659 universal coaxial connectors. Each leg of the harness should be as short and directly routed as practical with no sharp bends; length is not critical. However, the pairs of input cables for each splitter or pair of splitters should be of equal length for satisfactory results.

Jerrold Model 1592 two-way VHF splitters are recommended. Instructions for use are supplied with each splitter. Consult your Jerrold dealer.



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