

# JLST Antenna

## UNPACKING AND PREPARING FOR INSTALLATION

Upon receipt of your antenna system, it is important that you thoroughly inspect all shipping containers for damage. Remove all contents and check the packing lists to verify receipt of the complete antenna, and at the same time, complete a piece-by-piece inspection for any hidden damage. If damage is found, file a claim with the carrier immediately and then advise **JAMPRO ANTENNAS, INC.** **NOTE: HANDLE ANTENNA ELEMENTS BY THE STRONGEST MEMBER SUCH AS THE BASE.** If the installation is not done immediately, store elements, and cables indoors, protected from damage or weather. Avoid installing antenna system during rain/snow to prevent water intrusion into cables and connectors.

This antenna supplied by JAMPRO ANTENNAS, INC. has certain dead and live loads, which are indicated in the catalog. It is the purchaser's responsibility to determine if the supporting structure (tower, mast, pole, etc.) can safely hold this antenna, and the transmission line, in the winds, snow and ice conditions, which may prevail. It is strongly suggested by JAMPRO ANTENNAS, INC. that a structural engineer be used by the customer to determine the overall structural safety of the installation, with the addition of the antenna system.

This antenna system when energized by an RF transmitter, can present potentially lethal high voltage and high intensity RF field in its vicinity. Care should be taken to not touch or otherwise contact the antenna system when energized. It is not advisable to be in the antenna aperture while the antenna system is energized. All maintenance or repairs should be done with the primary voltage to the transmitter disconnected and all transmitter remote controls disabled.

## INSTALLATION PROCEDURES

Installation should not be attempted until these instructions have been read thoroughly and installation sketches checked.

1. Position the elements to the tower with dimensions as referenced on the attached mounting sketch. Its dimensions should be maintained within +/- 1/4". **NOTE: DO NOT OVER TIGHTEN U-BOLTS CAUSING DISTORTION OF THE ELEMENT MOUNTING PLATE.** Verify the bays are plumb. (Feed arm "Down".)
2. Connect the inter-bay cable to the element. Observe color coded tape marking on the inner bay coax cables indicating which cable goes to the top bay, in multi bay

systems. Using temporary hose clamps, secure the feed cables to the back of the structure between the radiating bay and the cable input. Dress excess cable to prevent kinks and rain drip path back to the RF connectors. When a neat cabling job is accomplished, secure with tie wraps, stainless steel hose clamps or stainless steel wraplock every 12 to 18 inches. Do not over-tighten the stainless steel hose clamps. Dress feed point connection and coax for smooth radius turns with out kinks as convenient for the main transmission line connection. Pre trimming of the stainless steel clamp(s) will speed up installation, but do not cut off too much.

**NOTE: IMPROPER CABLE ROUTING AND CONNECTIONS WILL CAUSE DAMAGE AND HIGH VSWR. THE STATION CHIEF ENGINEER WITH FIELD GLASSES MUST VERIFY PROPER CABLING AND SECURING OF THE FEED CABLES. HAVE THE RIGGER REPEAT IF APPLICABLE.**

3. Upon completion of the antenna installation, the antenna may have the transmission line connected. Refer to the installation drawing of this manual for input size.
4. It is mandatory that the transmission input line be secured and weather proof. This must be maintained from the antenna input to the base of the tower.
5. Apply power to the antenna and verify proper VSWR is obtainable. If tuning is required, move the tuning stubs of all bays out ¼ ". Re-test. Keep moving arms until no further improvement is obtained. It may be necessary to shorten the tuning stub lengths according to which way the frequency needs to be adjusted. Minor adjustment of the feed point "wishbone" after tuning stubs adjustment may be necessary.
6. After obtaining a final VSWR match, apply scotch tape and fill supplied in packing to type N cable connectors. **NOTE: PRIOR TO APPLYING SCOTCH COMPOUND AND TAPE, VERIFY VSWR IS ACCEPTABLE.** Tape all type N connections to prevent intrusion of moisture.

## RF COUPLING TO MOUNTING STRUCTURE

Side mounted FM antennas, directional or omni-directional, strongly interact with the mounting structure. This RF interaction is especially stronger in the area in the extended aperture (physical aperture with 5 ft. extension in top and bottom.) Strong RF coupling results in high potential spots throughout this extended aperture. These high potential spots, if in close proximity, are potential arcing points. To prevent occurrence of such arcing it is important all lines, including transmission lines, conduits, waveguides, and or any floating vertical metallic runs (with or without insulation) be grounded to the tower along the line at approximately three feet intervals. Non-compliance may result in RF burns and other damages in the lines. It is the responsibility of the customer to take appropriate actions leading to compliance with this matter.

Field Tuning:

Stub Length vs. Frequency of Operation

Frequency MHz	75 ohm cable length	Stub length Inches	Approximate Wishbone Setting
88.0	7 feet 1 inch	18.5	
89.0	7 feet 1 inch	18.25	12-3/4"
90.0	7 feet 1 inch	17.75	
91.0	7 feet 1 inch	17.5	12-3/8"
92.0	7 feet 1 inch	17.25	
93.0	7 feet 1 inch	17.0	12"
94.0	7 feet 1 inch	16.75	
95.0	7 feet 1 inch	16.25	11-5/8"
96.0	7 feet 1 inch	16.0	
97.0 (see note *)	7 feet 1 inch	15.75	11-1/4"
98.0	6 feet 8 inch	15.25	
99.0	6 feet 8 inch	15.0	11"
100.0	6 feet 8 inch	14.75	
101.0	6 feet 8 inch	14.5	10-3/4"
102.0	6 feet 8 inch	14.25	
103.0	6 feet 8 inch	14.0	10-5/8"
104.0	6 feet 8 inch	13.75	
105.0	6 feet 8 inch	13.5	10-1/2"
106.0	6 feet 8 inch	13.25	
107.0	6 feet 8 inch	13.0	10-3/8"
108.0	6 feet 8 inch	12.75	10-1/4"

- Note: For frequency ranges from 88 to 97 MHz add 4" jumper and type N barrel to 6' 8" cable.
- Single bay antennas have a 20" RG11 pigtail used as a transformer. Be sure to include it as indicated in the drawing.



6340 Sky Creek Drive, Sacramento, California 95828  
P.O. Box 292880, Sacramento, California 95829-2880

(916)383-1177 FAX (916)383-1182

(2ea.) 3/8 x 2-3/8"  
U-Bolts, LW, and Nuts.

RG-11 CABLE  
20-3/4" LG

RG-214 CABLE  
79.5" LG

RG-11 CABLE  
19.5" LG

CABLES TYPICAL ON  
EITHER SIDE OF "T"

TYPE N INPUT  
50 OHM (F)  
4" LONG CABLE

(2ea) 3/4" Nut, LW,  
And FW.  
2 Places

Wood Pole

2" Pipe x 13' Long  
Pipe Must Be Plumb.

17-5/8"

12"

SECURE  
CABLES TO  
LEG USING  
TIE WRAPS

120-5/8"

12"

17-5/8"

JLST-2 (12148)

FREQ. 97.9 MHz.  
REV "-" 8/11/04  
12148SID.DWG



6340 Sky Creek Drive, Sacramento, California 95828  
P.O. Box 292880, Sacramento, California 95829-2880

(916)383-1177 FAX (916)383-1182

(4 EA) 3/8" X 1-1/4" BOLT  
LW, FW AND NUT

2" OD Pole

(2ea) 3/8 X 2"  
U-BOLTS

TIE WRAPS

20" RG11 Pigtail

Type "N" Input  
Connection

Type "N"  
Connection

SIDE VIEW

99.9 MHz.  
JLST-1, (11887)

REV "-" 12/03/03  
11887SID.DWG



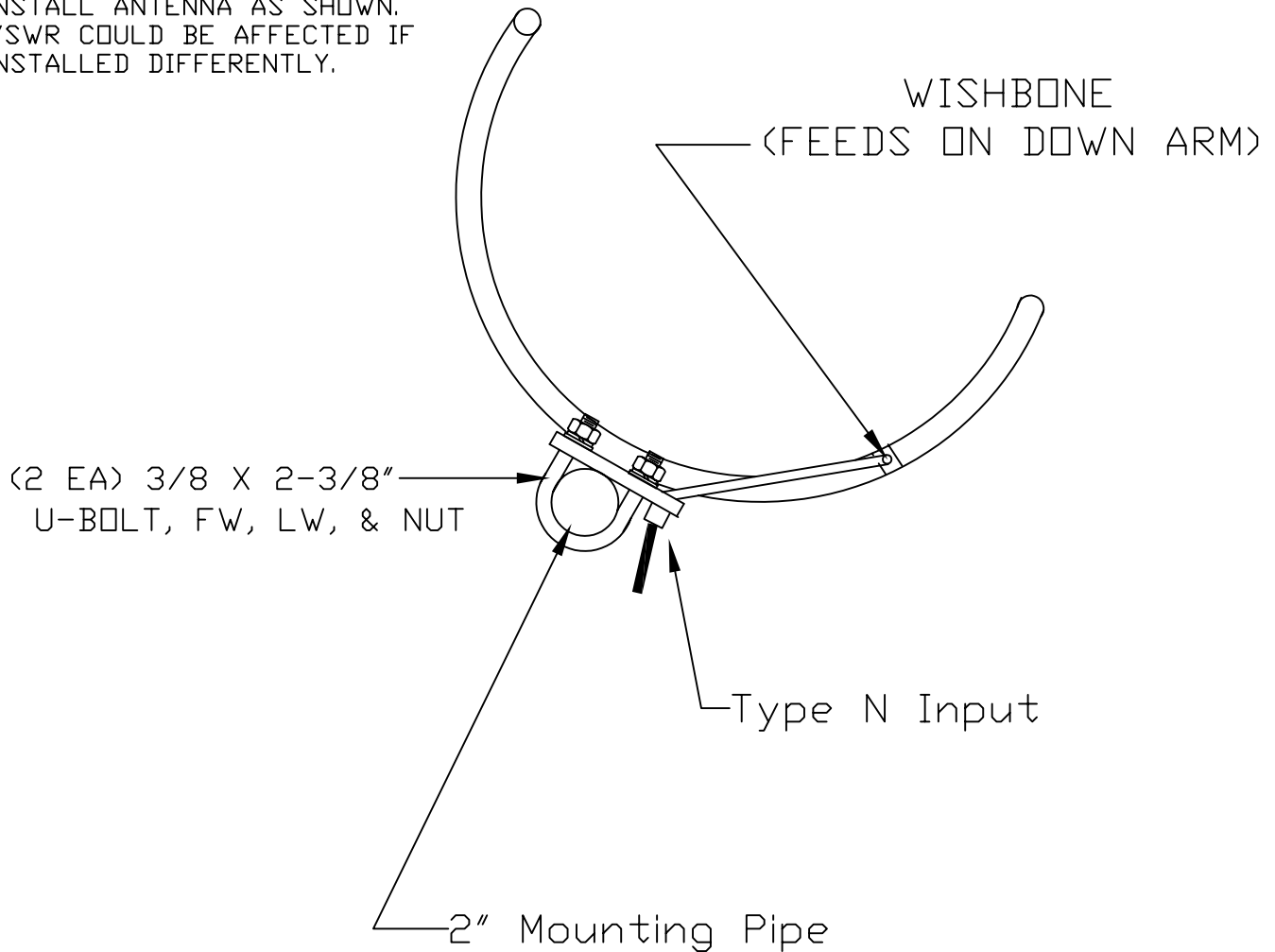
6340 Sky Creek Drive, Sacramento, California 95828  
P.O. Box 292880, Sacramento, California 95829-2880

(916)383-1177 FAX (916)383-1182

NOTES

STATION CHIEF ENGINEER TO  
DETERMINE ON WHICH LEG TO  
MOUNT ANTENNA.

INSTALL ANTENNA AS SHOWN.  
VSWR COULD BE AFFECTED IF  
INSTALLED DIFFERENTLY.



JLST-2 (12148)

FREQ. 97.9 MHz.  
REV "-" 8/11/04  
12148SID.DWG