

Please Note: A qualified structural engineer should be consulted prior to mounting an antenna on a tower or support structure.



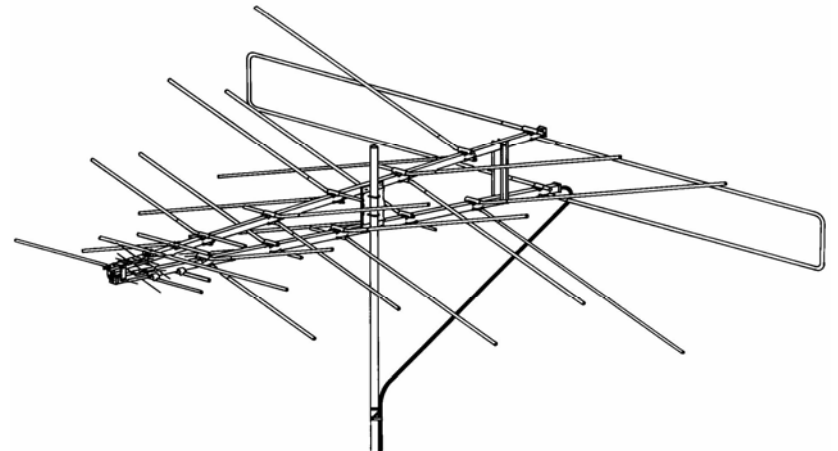
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30332-001 Rev. J

INSTRUCTION BOOKLET

J-283X

RUGGEDIZED VHF-UHF-FM J-SERIES ANTENNA



BY



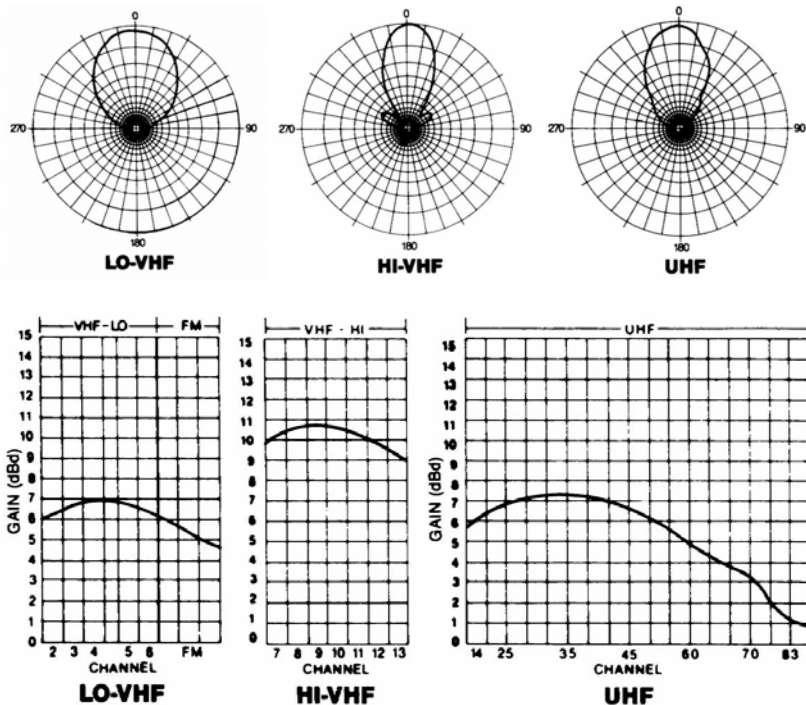
1-GENERAL DESCRIPTION

The TACO Model J-283X VHF-UHF-FM antenna is of rugged design and will operate through the CH2 to CH83 television channels (55-108 MHz and 470-890 MHz). It is of the log periodic design principle and exhibits medium gain across the frequency band.

2-THEORY OF OPERATION

The antenna is comprised of 8 VHF and 7 UHF elements connected to a parallel pair of 1¼" aluminum crossarms that form the antenna transmission line. To accomplish end fire log periodic operation, the elements are tapered from the front of the antenna to the back and successive dipole halves are transposed along the antenna transmission line. An internal cable must be fed through the lower aluminum crossarm which functions as a balun which converts the balanced 75 ohms input at the front of the antenna to a 75 ohm unbalanced coaxial "F" fitting. This internal "balun" effectively chokes off the surface currents normally associated with a balanced feed and eliminates line radiation.

3-ELECTRICAL CHARACTERISTICS (TYPICAL)



6-ANTENNA MOUNTING

Assemble the mast clamp plate and U-bolts to the insulated crossarm separator as shown in Figure 4. U-bolts will accommodate masts up to 2" in diameter. Slip the U-bolts over the mast, orient antenna towards desired stations and tighten U-bolts securely.

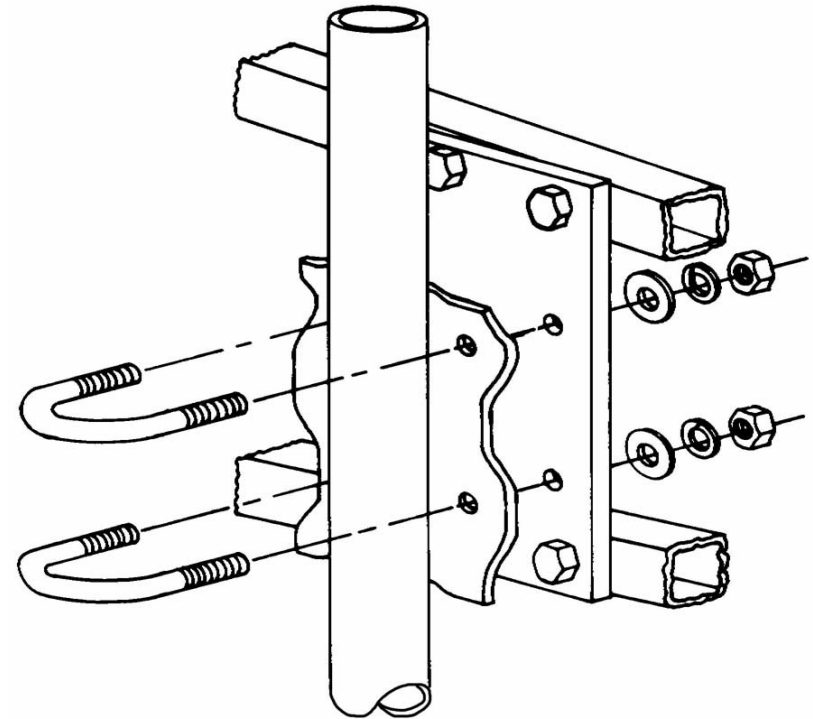


FIGURE 4
(Mast Clamp and U-Bolt Assembly)

7-CABLE ROUTING

Connect cable at rear of bottom crossarm. Bring cable back to the mast at an angle so that it is kept away from the crossarm. Leave enough slack to remove strain from the cable and secure to the mast.

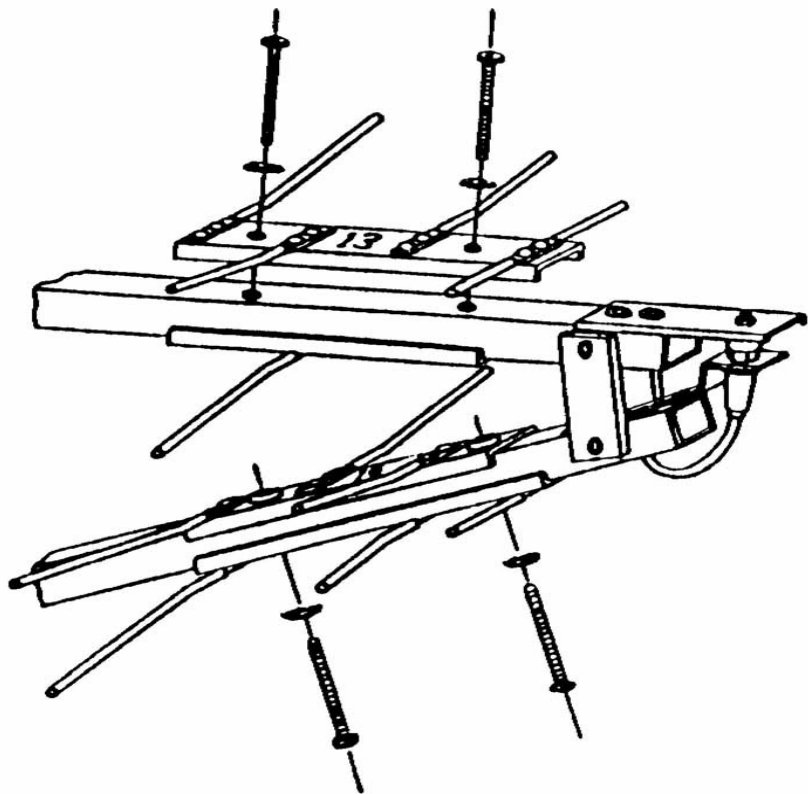
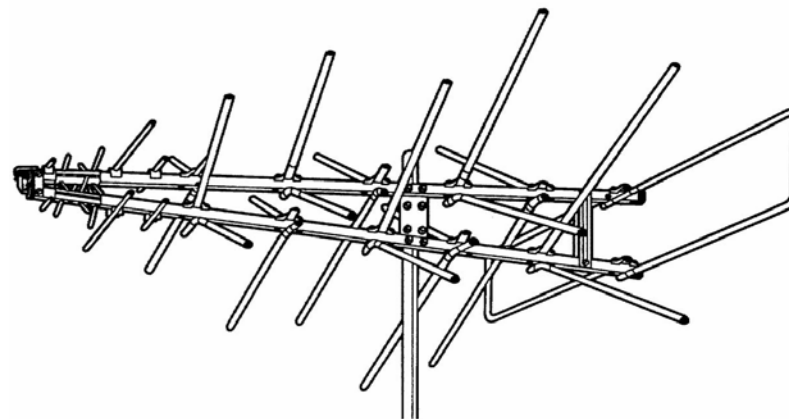


FIGURE 3
(UHF Driver Section Assembly)

4-SPECIFICATIONS

ELECTRICAL		
GAIN (dBic)*	See Gain Curves	
IMPEDANCE	75 ohm, 1.5:1 VSWR	
FRONT-TO-BACK RATIO	VHF: 18 dB; UHF: 20 dB	
BEAMWIDTH (degrees)	VHF: (Lo) 70°, (Hi) 45°; UHF: 55°	
ELEMENTS	8 VHF, 7 UHF	
TERMINAL: Type	"F"	
TERMINAL: Impedance	75-ohms	
MECHANICAL		
BOOM LENGTH	90.50 in. (229.87 cm)	
WEIGHT	20 lbs (9.09 kg)	
MOUNT (Mast diameter)	1.5 in. (3.81 cm) to 2.5 in. (6.35 cm)	
WINDLOAD	Thrust	
	No Ice	1/4" Ice
85 mph	90 lbs	152 lbs
100 mph	122 lbs	208 lbs



5-ASSEMBLY

Machine screws and hex nuts are provided for bolting on the double sections of the "X" elements and the shorter straight elements. Lock washers should be used with a spintite or wrench. Do not over tighten. Over tightening to the point of element or crossarm distortion will weaken the antenna assembly.

1. Assemble the two halves of the square reflector to the rear of the crossarm. (Marked "1") (See Figure 1)
2. Assemble the longest "X" element thirteen inches ahead of the square reflector. Arrows on the crossarm indicate the polarity of the long portion of the elements. (Marked "2") (See Figure 1 & Figure 2)
3. Assemble the remaining "X" elements using progressively shorter elements towards the front of the antenna. Be sure to observe element polarity as indicated by the arrows. Element halves with stub extensions should be mounted on outside of crossarms. (Marked "3" through "9") (See Figure 1)
4. Use screws to assemble the two 14" UHF reflectors six inches in front of the forward "X" element. (Marked "11") (See Figure 1)
5. Assemble the two straight 36-1/2" VHF elements five inches ahead of the UHF reflectors. Arrows indicate polarity of long portion of the element. (Marked "12") (See figure 1)
6. Connect the four UHF driver sections to the matching holes on the crossarms. The sections with threaded nit inserts mount on the inner sides of the crossarms. Shortest elements face towards the front. Inner and outer sections on each crossarm should match with inner and outer elements forming half of the "X" elements. (Marked "13" & "14") (See figure 3)

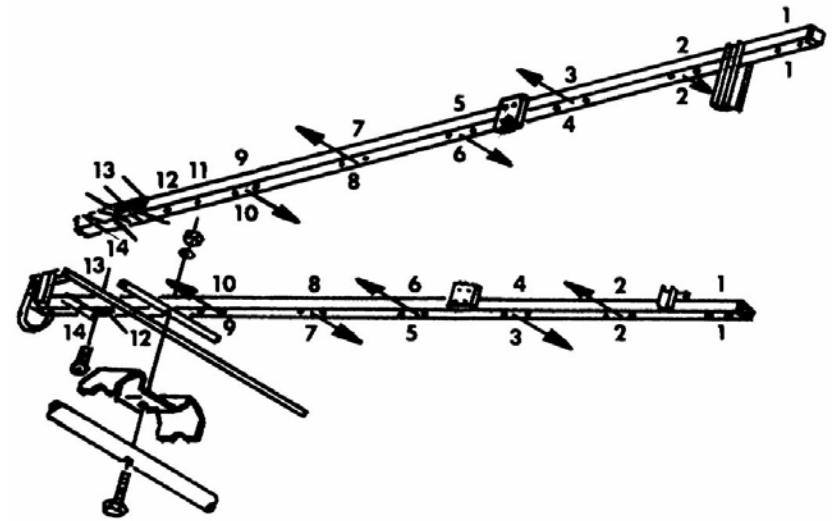


FIGURE 1
(Element Assembly Detail)

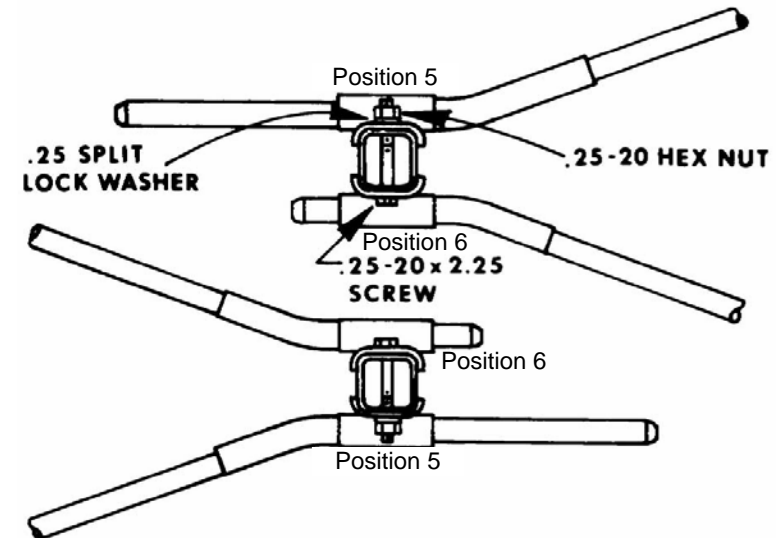


FIGURE 2
(Typical "X" Element Assembly)