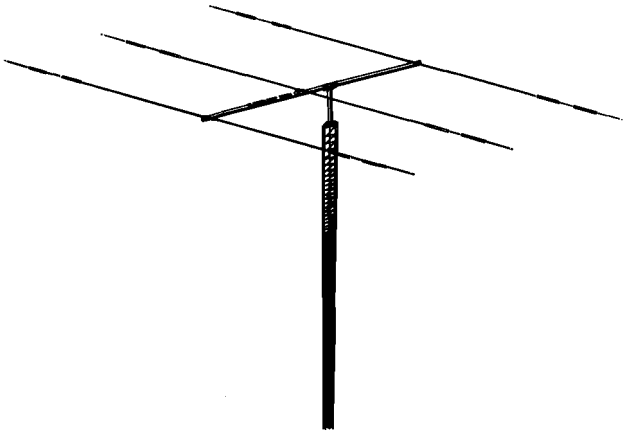
ASSEMBLY AND OPERATION OF THE

MODEL TH3JR (221) THUNDERBIRD JUNIOR



hy-gain ANTENNA PRODUCTS

N.E. Highway 6 at Stevens Creek • Lincoln, Nebraska, U.S.A.

GENERAL DESCRIPTION

The TH-3jr antenna was designed for the Ham with severe space limitations but still wants top performance on 10, 15 and 20 meters. The TH-3jr is constructed of durable, lightweight taper-swaged aluminum tubing offering very low wind resistance and making it possible to be rotated with a heavy duty TV rotator. Since it is light in weight it is ideal for rooftop or light-weight tower installations. The antenna features an all new trap design, hardware that is iridite treated to Mil Specs and molded high-impact insulators.

SPECIFICATIONS

ELECTRICAL

Forward Gain	up to 8 db
Front to Back Ratio	25 db
VSWR at Resonance	less than 1.5:1
Nominal Impedance	50 ohms
Power Capability	600 W P.E.P. 300 W AM

MECHANICAL

Net Weight	26 lbs.
Boom Length	12 ft.
Longest Element	26 ft.
Turning Radius	14'9"
Wind (Survival)	80 mph

WARRANTY

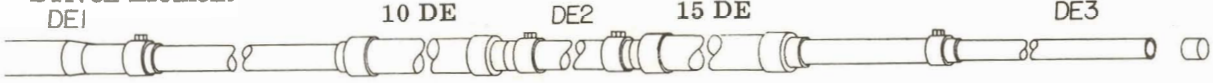
Hy-Gain Antenna Products guarantees for a period of 90 days from date of purchase, each new product manufactured to be free from defects in workmanship and/or materials. Any part or accessory, shall be replaced free of charge providing the defect is in our opinion due to faulty workmanship and/or material, and not caused by tampering, abuse, normal wear or poor installation. No further guarantee or warranty is implied and in accepting delivery the purchaser assumes full responsibility for proper installation and service arrangements.

This warranty is valid only if the Owner's Warranty Card has been filled out by the purchaser and mailed to Hy-Gain at time of original purchase.

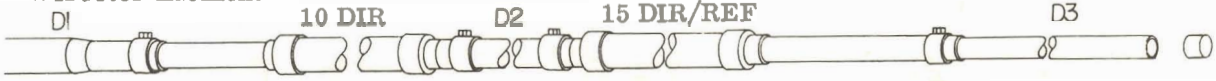
Hy-Gain Antenna Products reserves the right to make changes in current production models without being obligated to incorporate such changes in earlier production models.

Reflector Element

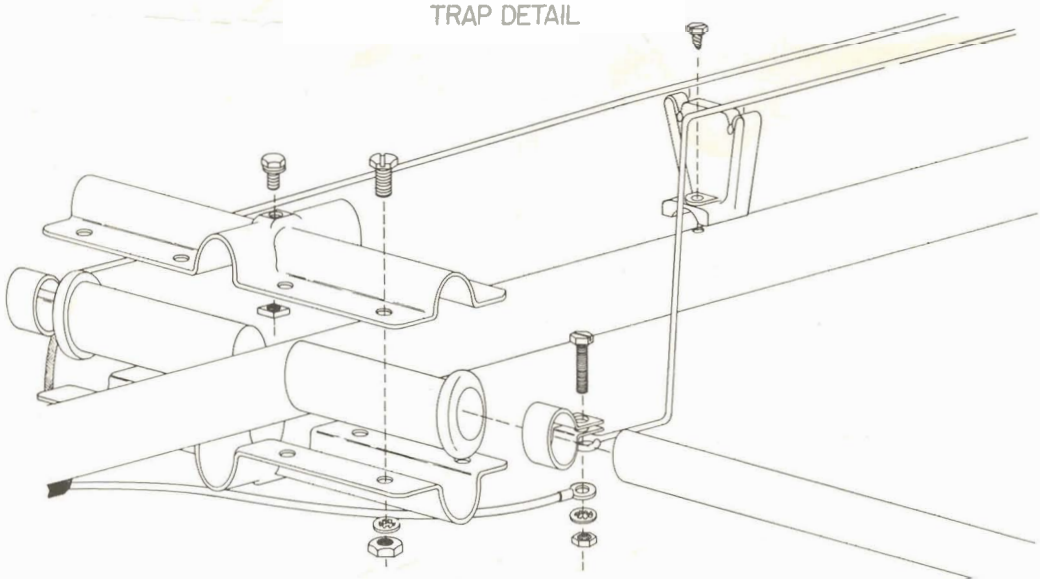
Driven Element



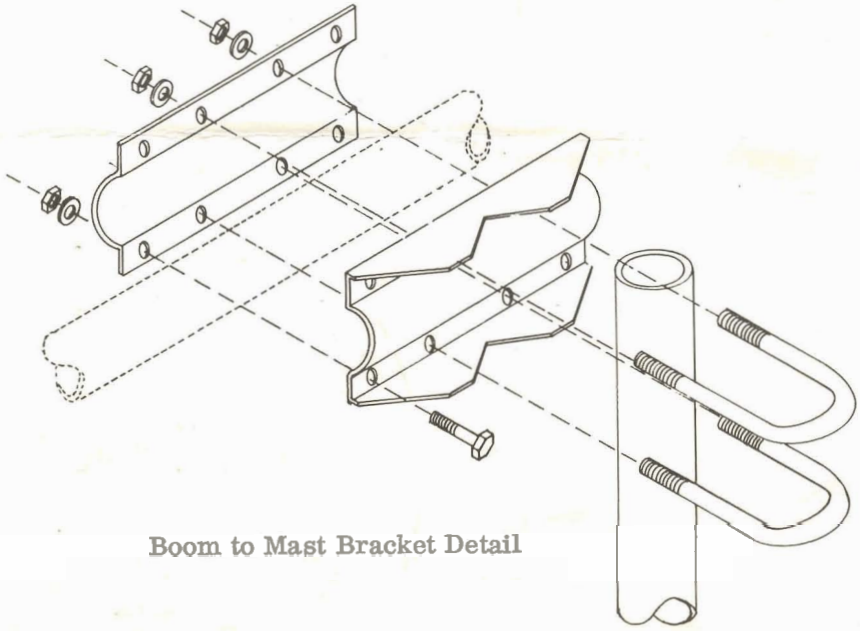
Director Element



TRAP DETAIL



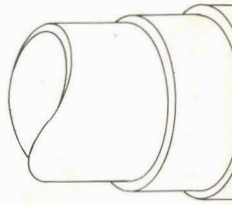
Beta Match/Feedline Attachment



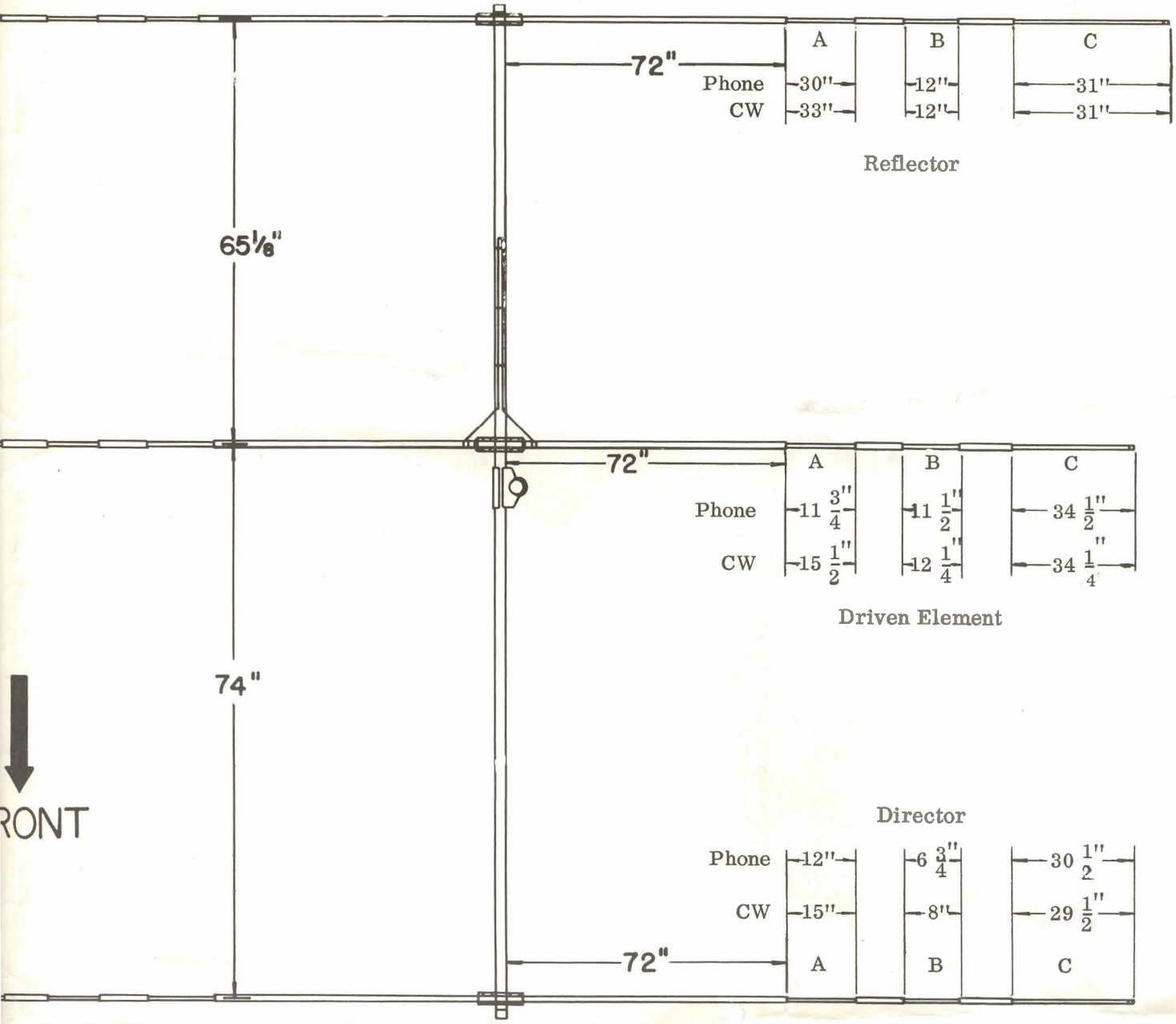
Boom to Mast Bracket Detail

FRO

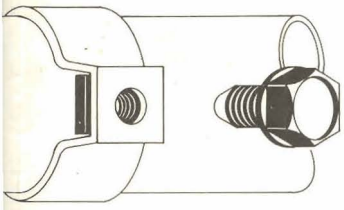
TH3 JR



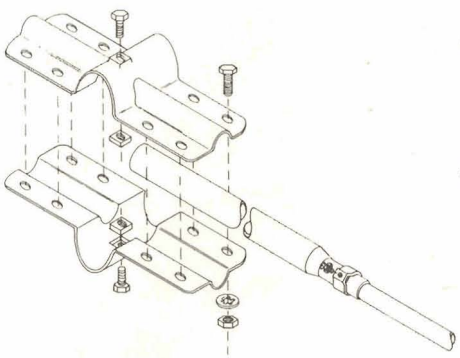
Tubing C



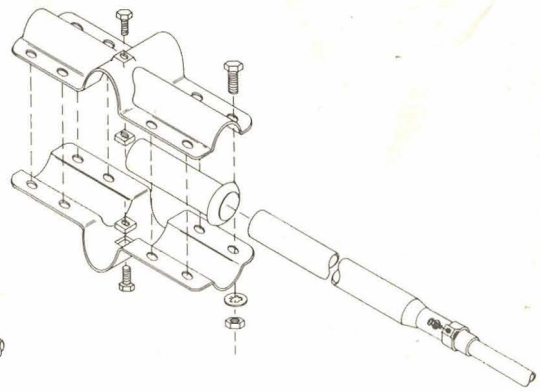
JR



ing Clamp Detail



"REFLECTOR AND DIRECTOR" DETAIL



"DRIVEN ELEMENT" DETAIL

ASSEMBLY INSTRUCTIONS:

Select the two boom sections (1 1/4 x 058 x 72") and the boom to mast bracket.

NOTE--The Reflector portion of the boom has holes drilled in it for the beta match. Make sure they are on top when you tighten the boom to mast bracket, see illustration.

Put the two halfs of the boom to mast bracket together by placing the 1/4-20 x 3/4" screws in the four outside holes as shown in the drawings. Do not tighten at this time.

Slip the unmarked ends of the boom sections into the boom to mast bracket until they meet in the middle. Make sure the drilled holes are on top and then tighten the bolts securely.

Place the two U-bolts into the boom to mast bracket and start the 5/16" nuts and lockwashers on to hold in place, do not tighten at this time.

Start at the reflector end (the boom section that has the holes drilled in it) and measure 2 7/8" from the end of the boom and install the element to boom bracket as shown in the drawings. Be sure to start the anchor screws in the center hole with the square nut inside, do not tighten this screw until a later step.

Select the Reflector Bundle of tubing and slip one of the R1 sections in each side of the bracket and tighten the bracket securely with the exception of the two anchor screws -- DO NOT TIGHTEN THESE AT THIS TIME.

Measure 65 1/8" from the center of the Reflector element to boom bracket and install the Driven Element to boom bracket. Select the Driven Element Bundle and slip the Driven Element insulators on the DE1 sections before slipping them into the Driven Element Bracket and tighten securely. See Illustration in the manual for proper installation. DO NOT TIGHTEN THE ANCHOR SCREWS AT THIS TIME,

Measure 74" from the center of the Driven Element boom to element bracket and install the Director element to boom bracket. Select the Director Bundle of tubing and install the two D1 sections by slipping them into the brackets and tighten securely. DO NOT TIGHTEN THE ANCHOR SCREWS AT THIS TIME.

Now re-check the measurements and make sure all the elements are aligned evenly. Then TIGHTEN THE ANCHOR SCREWS on each element to boom bracket securely.

NOTE -- The remaining pieces of tubing and trap assemblies to be assembled are marked with two strips "RED" and "BLACK". Red is for Phone and Black is for CW. Choose the color that favors your portion of the band and use it throughout the rest of the assembly.

Select the 10 meter trap assemblies from the Reflector bundle (marked "10 Ref") and a 3/4" tubing clamp from the parts package. Install the tubing clamp using it's associated nut, lockwasher and screw and slip it on the end of each R1 section about one inch from the end. Slip the tubing end of the 10 meter trap assembly into the R1 section until the mark (red or black) is at the edge of the R1 section, tighten the tubing clamp SLIGHTLY! Select R2 and slip it onto the 10 meter trap assembly to the mark. Slip two tubing clamps on R2 and place one an inch from each end of R2, tighten slightly. Select the 15 meter trap assembly (marked 15 Dir/Ref) and slip the non-swedged end into the R2 section to the black mark and tighten the tubing clamp slightly. Select the R3 section and slip into the 15 meter trap assembly until the mark (red or black) is at the edge of the 15 meter trap assembly. Slip on a 7/16" tubing clamp and slid it onto the 15 meter trap assembly about one inch then tighten slightly. Now re-check all the measurements, make sure the drain holes in the traps are orientated so they are down and then tighten the tubing clamps securely. Place a 7/16" caplug on the end of the element.

NOTE -- All other elements will be installed in the same manner as above with the exception of using the traps designated for that particular element. The traps are marked as follows:

	10 meter traps	15 meter traps
	Director -- 10DIR	Director -- 15DIR/REF
	Driven Element -- 10DE	Driven Element -- 15DE
	Reflector -- 10REF	Reflector -- 15DIR/REF

Select the parts from the Driven Element bundle and install as above.

Select the parts from the Director bundle and install as above.

Install the 2" caplugs on the ends of the boom.

Select the beta match and the tombstone insulators. Install as shown in the drawings.

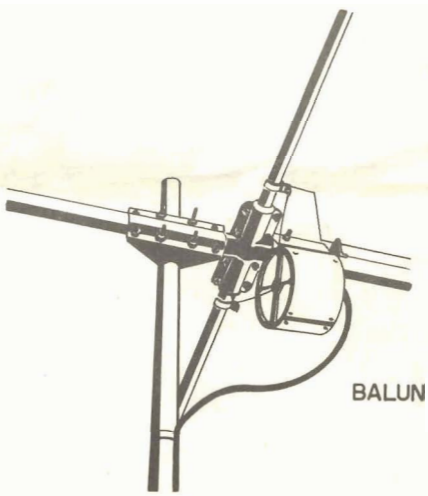
Now wind yourself an RF choke by winding 12 turns of coax in a coil of approximately 5" in diameter. Tape securely to the TH3JR boom near the boom to mast bracket - attach the center conductor and braid to the beta clamps as shown in the drawing.

NOTE -- For optimum performance of any beam antenna a balun is highly recommended. Hy-Gain's Model BN-12 is available at your local distributor. If you use the BN-12 on your TH3JR and want maximum front-to-back ratio change the "A" dimension on the Driven Element to 10" for Phone and 13 1/2" for CW.

Check all dimensions and make sure all connections are tight. Weatherproof your coax connections using neoprene, krylon or some simular substance.

Slip the boom to mast clamp over your mast and tighten securely.

CAUTION -- Before connecting your coax to the antenna it is a good practice to check the feedline even though it may be new. Place a dummy load on the antenna end and load your transmitter up on all bands checking the SWR across the entire band. Good coax should have an SWR of less than 1.05:1. This check should be made anytime you have SWR problems so that you can isolate the problem. Be sure to keep a record of the SWR curves you got on the coax as well as on the antenna for reference if any trouble should arise on a later date.



TH3JR

BALUN CONNECTING DETAIL