

RADIATOR CALCULATION

RADIATOR 1/2 WAVE
1/2" NOMINAL COPPER
PIPE = 0.625" DIA.

$$\frac{492}{146 \text{ MHz}} \times 12 = 40.4"$$

TUNING & REACTANCE AS A
FUNCTION OF LENGTH & DIA.

$$\frac{L}{d} = \frac{40.4}{0.625} = 64$$

FROM TABLE "VHF UHF
MANUAL" Pg. 8.5*

$$64 \approx -9\%$$

$$40.4" - 9\% = 36.8" \text{ 37" NOM.}$$

COUPLING

**MATCHING SECTION
CALCULATION**

$$200 \Omega Z_0 \quad Z_0 = 276 \log \frac{2b}{a}$$

b = 1.65"
CENTER TO CENTER DISTANCE

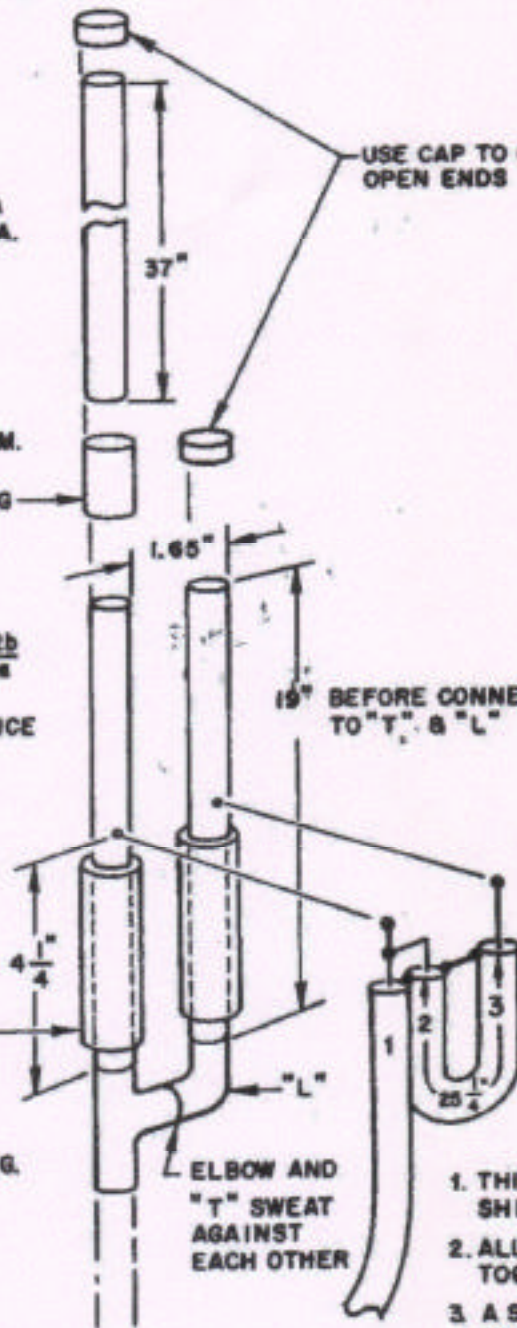
a = 0.625"
OUTSIDE DIAMETER

$$Z_0 = 276 \log \frac{3.3}{0.625}$$

$$Z_0 = 199 \Omega$$

≈ 3 3/4" x 3/4" PVC TUBING

TO HOLD COAX FROM
TRANSMISSION LINE.
USE TIE WRAPS TO HOLD
COAX BALUN TO PVC TUBING.



USE CAP TO COVER
OPEN ENDS

19" BEFORE CONNECT
TO "T" & "L"

1 TO 4 COAX BALUN
1/2 WAVELENGTH AT
146MHz MINUS
VELOCITY FACTOR
≈ 25 1/4" NOT CRITICAL

ELBOW AND
"T" SWEAT
AGAINST
EACH OTHER

1. THIS MEASUREMENT IS FROM SHIELD TO SHIELD
2. ALL SHIELDS ARE CONNECTED TOGETHER
3. A SMALL WIRE CAN BRIDGE FROM SHIELD OF (2) TO SHIELD OF (3)
4. # 1 IS THE ANTENNA FEEDLINE
5. DO NOT LET THE SHIELDS TOUCH THE COPPER MATCHING SECTION

* PUBLISHED BY RADIO SOCIETY OF GREAT BRITAIN,
BY G. R. JESSOP, CEng, MIERE, G6JP (1985)