

Radio Astronomy Supplies  
APPLICATION NOTE 1  
MOUNTING OF FEEDHORN and CHOKE ASSEMBLY

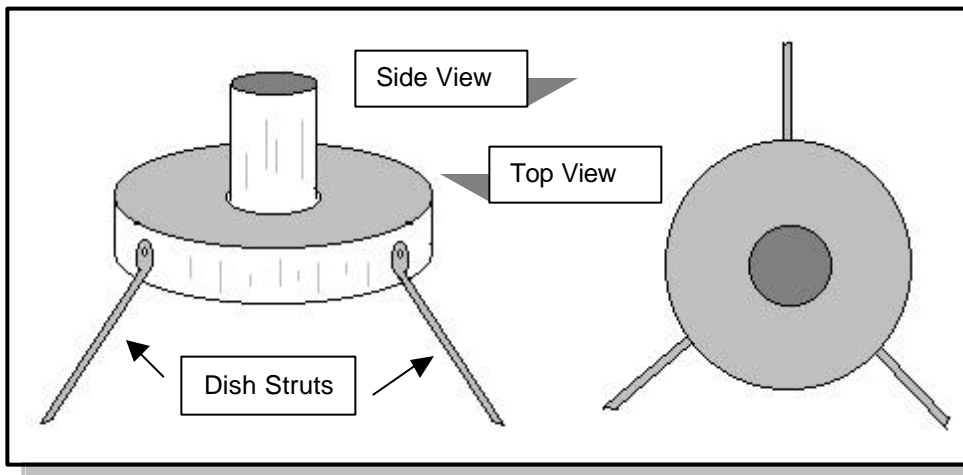
Mounting Scenario 1



Feedhorn secured within a split, six inch PVC pipe. Fabricated aluminum brackets have been attached to the PVC pipe by adjustable ring clamps. Feedhorn supports are connected via  $\frac{1}{4}$  inch bolts. Notice the additional holes for fine adjustment.

(Courtesy of the Pisgah Astronomical Research Center)

Mounting Scenario 2



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Mounting Scenario 3

Mounting Procedures

Insert feed horn to the desired point (referring to the chart).

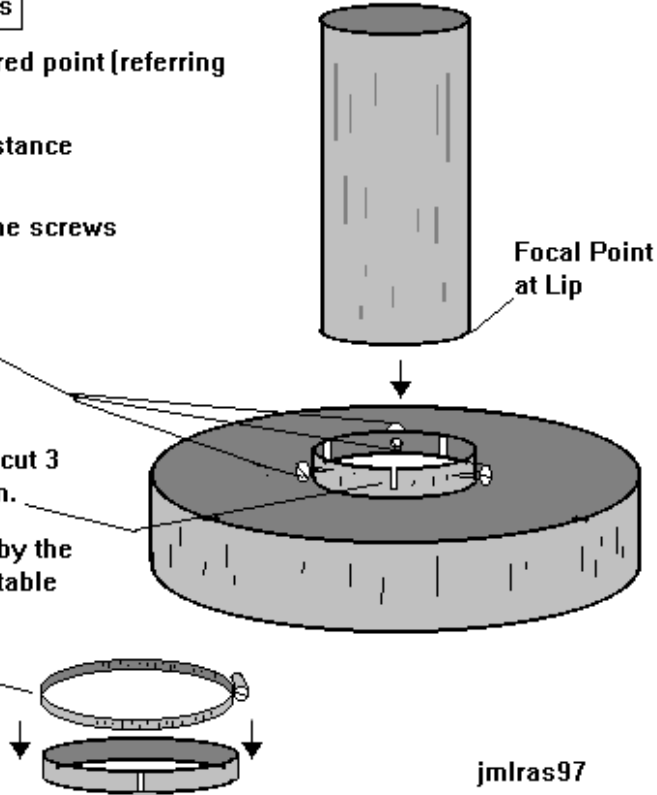
Drill 3 small holes equal distance around the collar.

Insert 3 self tapping machine screws and tighten.

OR

With metal cutting shears, cut 3 or 4 slits in collar as shown.

Secure choke to feed horn by the use of a screwdriver adjustable clamp.



The chief deterrent of illumination taper for scalar-ring feedhorns is the placement of the choke ring along the waveguide feedhorn. The choke ring must be designed so as to slide back and forth on the waveguide horn, in order to optimize the illumination pattern of the feed for noise vs. gain, as well as the particular focal length to diameter ratio (F/D) of the dish being used. Here are the critical dimensions for the distance between the front of the horn and the back of the choke ring. They are shown for dishes of various F/D ratios, for both lowest antenna noise temperature (the preferred condition for SETI) and greatest antenna gain (which you would choose for a transmit antenna). All dimensions are in cm (inches):

<b>F/D =</b>	<b>0.50</b>	<b>0.45</b>	<b>0.40</b>	<b>0.35</b>	<b>0.30</b>	<b>0.25</b>
<b>LoNoise</b>	8.52 (3.35)	9.08 (3.57)	10.6 (4.17)	11.36 (4.47)	12.4 (4.88)	12.8 (5.04)
<b>HiGain</b>	10.08 (3.97)	10.6 (4.17)	11.6 (4.57)	12.4 (4.88)	13.2 (5.20)	n/a

Courtesy of SETI League for text and chart. Artwork by Radio Astronomy Supplies

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Mounting Scenario 4

