

Assembly of 60cm Dish and S-band Patch Feed

You may have acquired a full kit ready to assemble or, in order to complete a project, only some of the parts. These notes are for guidance in all situations.

If you have a complete kit with pre-drilled dish, skip section 1. Otherwise, follow the sections 1-5 as required.

1. 60cm Dish Drilling

If you have an undrilled 60cm dish, first clean it using warm soapy water. Dish-washing liquid is suitable.

Next you need to drill a number of holes; three holes "A" for the legs, a central hole "A" for drainage, four holes "B" for the mounting clamps and optionally a hole "C" for the cable grommet. It is easiest to mark the hole positions on the back of the dish (convex side). Measure twice, cut once!

2. Patch to 60cm Dish Fixing (Kit B)

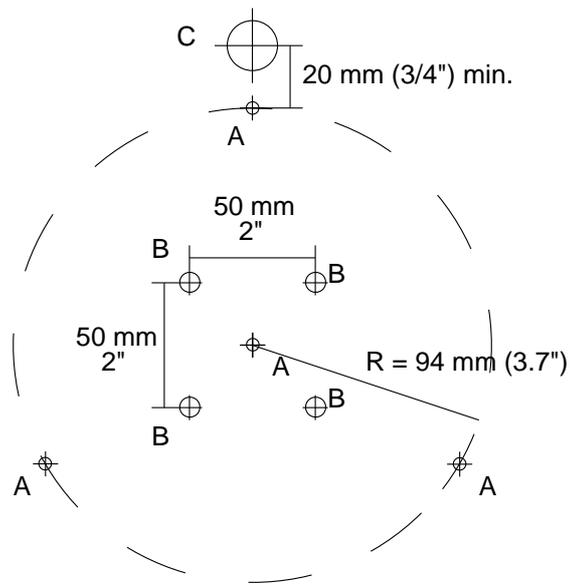
The patch is mounted via 3 legs fitted with M5 screws and washers at each end. The dish is drilled with 5 mm (13/64") holes on a circle of radius 94 mm (3.7"). One hole should be at the uppermost position for proper alignment of the patch. If the dish has a 19mm (3/4") grommet hole, this is adjacent to the uppermost hole.

Fix the legs to the dish by the 'long' ends such that the 'short' bent ends (for the patch) are angled outwards. After careful alignment, tighten the screws at the dish end. Re-check that the legs are correctly oriented. The short ends will be very roughly parallel to the principal axis of the dish.

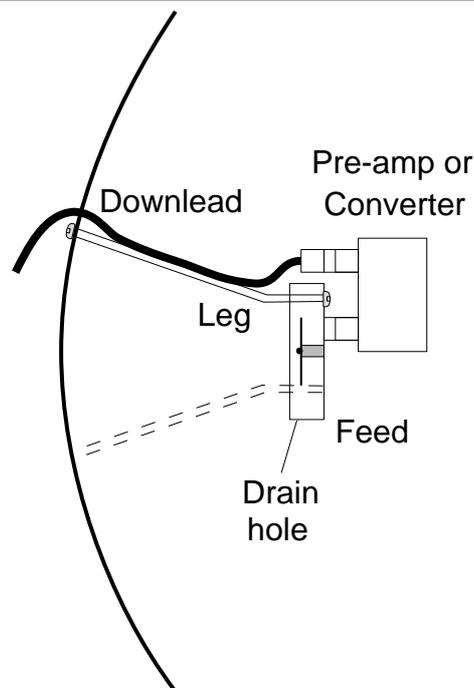
Hold the Patch Feed connector aligned uppermost, guide the three legs through the transparent patch cover and secure through the patch with screws and lock washers.

Note that there is a small drain/ventilation hole in the rim of the patch feed which should face downwards.

- | | | |
|---|-------------------|----------------|
| A | 5 mm dia (13/64") | Legs and drain |
| B | 8 mm dia (5/16") | Clamps |
| C | 19 mm dia (3/4") | Grommet |



60cm Dish Drilling



Patch Mounting

3. 60cm Dish Mounting (Kit A)

The dish is mounted using two standard vehicle exhaust (muffler) clamps. A stiffening disc spreads the load, to reduce the risk of fracturing the dish. The dish is drilled with four 8 mm (5/16") holes to suit the clamp bolts, nominally spaced 50 mm (2").

Using the supplied clamps, booms up to 42 mm (1 5/8") diameter can be used. Assemble the clamps, dish and stiffening disc as shown in the diagram. Note that the stiffening disc goes inside the dish.

4. Preamplifier/Converter Mounting

For best results mount the preamplifier or converter directly at the patch feed.

You can also mount the electronics somewhere behind the dish. The penalty for this is an increase in noise. The degradation depends on the attenuation of the coaxial cable and the existing system noise level. You are unlikely to be able to use less than 60cm (2') of cable, and with the connectors this will be approximately equivalent to 1m (3').

The performance of three popular cables is shown in the table. Assuming 1m of cable the attenuation in db, and consequent increase in noise in Kelvin is given.

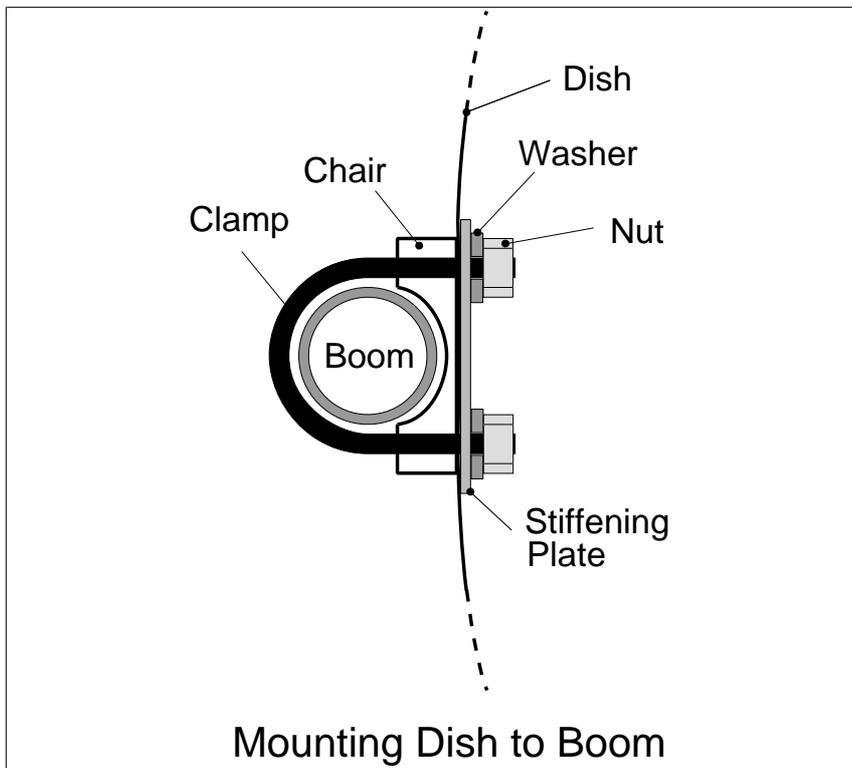
If your preamplifier/converter is state of the art, its noise contribution will be about 40K, whilst sky noise and spillover may add 50K making a total of 90K. You would not want to add significantly to this due to lossy cable. RG-58, for example would increase the system noise from 90K to 178K, which is nearly double the noise, so a 3db reduction in Signal to Noise ratio.

1m of cable	Loss db	Noise K
RG-58	1.14	88
RG-213	0.51	36
9913	0.22	15

Noisier converters, or systems looking at the horizon will suffer less; but the message is clear: if you must mount the preamplifier or converter away from the feed, use the best cable, connectors and practice you can. Do not go "cheap" at S-band!

5. Painting

For cosmetic purposes you can paint the *outside* of the feed. But do not paint either the inside or the transparent cover! You can release the cover by undoing the central domed nut. Do not lose the washer, and do not over-tighten when refitting.



James R Miller, 3 Benny's Way, Coton, Cambridge, CB23 7PS, England

www.jrmiller.demon.co.uk

©2001-2010 J R Miller