



## Slim-Jim antenna construction details by R.O.M. 106.5 FM

This is the detailed instruction manual for building a Slim-Jim aerial.  
Note that the indicated dimensions are in mm and calculated for 106.45 MHz.

The construction in brief is a wire wrapped around a 20mm tube with a bottom gap.  
The antenna is fed using a J-match transformation.  
A 32mm or 40mm tube slipped over the 20mm pipe serves as weather protection.

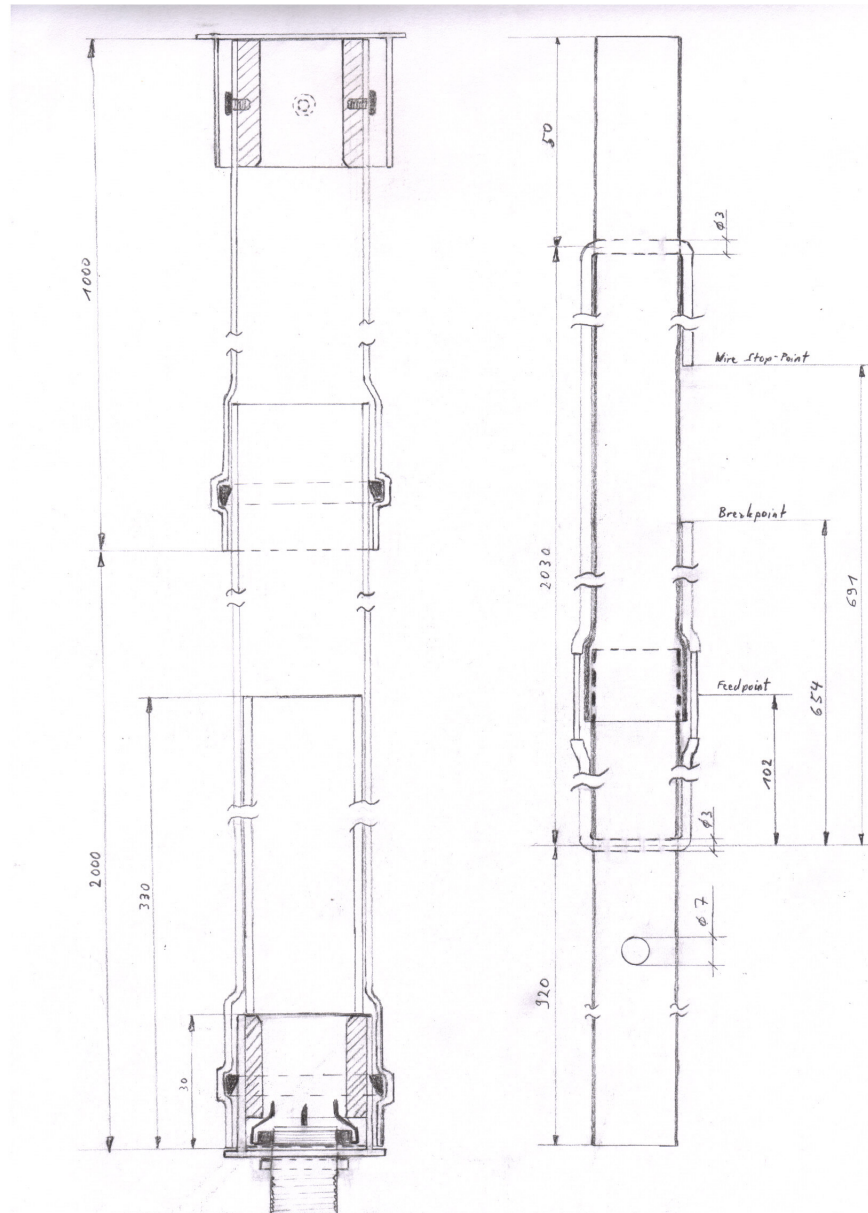


fig. 1



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fig. 2

Here we see the two holders that will hold the inner tube on the top and bottom section of the weather protection tube.

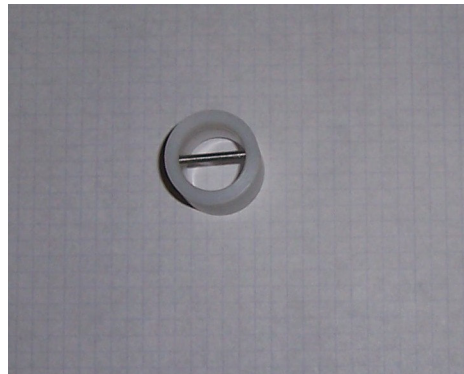


fig. 3

The top holder with the lock that prevents the inner tube from pushing off the top hood when inserted into the protection tube.



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fig. 4

Here we see the top holder glued into the top protection cover.



fig. 5

and the top hood mounted with sealant.



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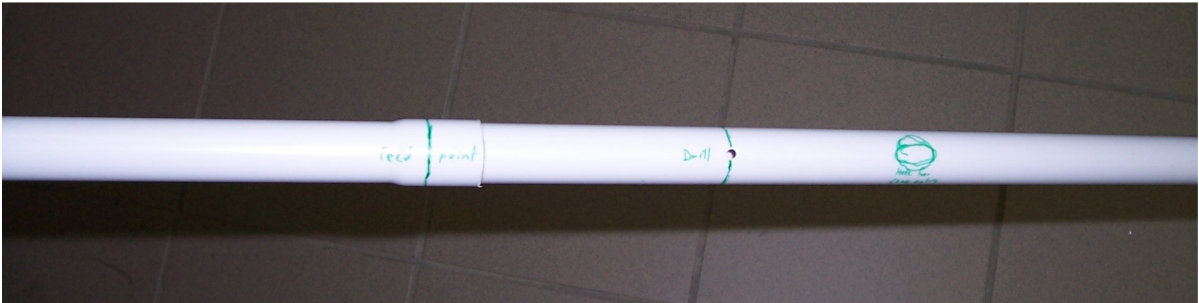


fig. 6



fig. 7

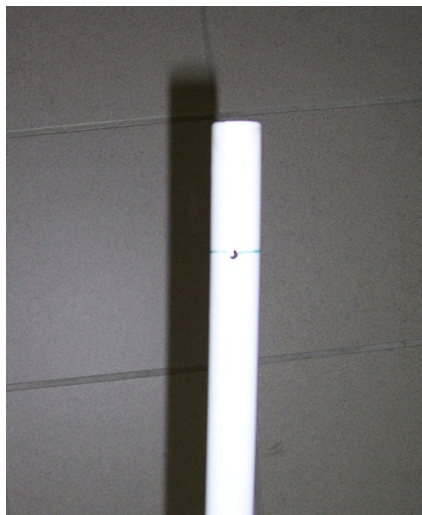


fig. 8

figure 6 shows the feed-section of the inner 20mm tube, figure 7 the gap-section and figure 8 the top-section with the drilled hole for threading the wire through.



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fig. 9



fig. 10



fig. 11

figure 9 shows the top-section, figure 10 the gap-section and figure 11 the feed-section.



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fig. 12

here we see the tiewraps secured with hotmelt glue. This will avoid from moving the tiewraps when the assembly is slipped into the slender weather protection tube.

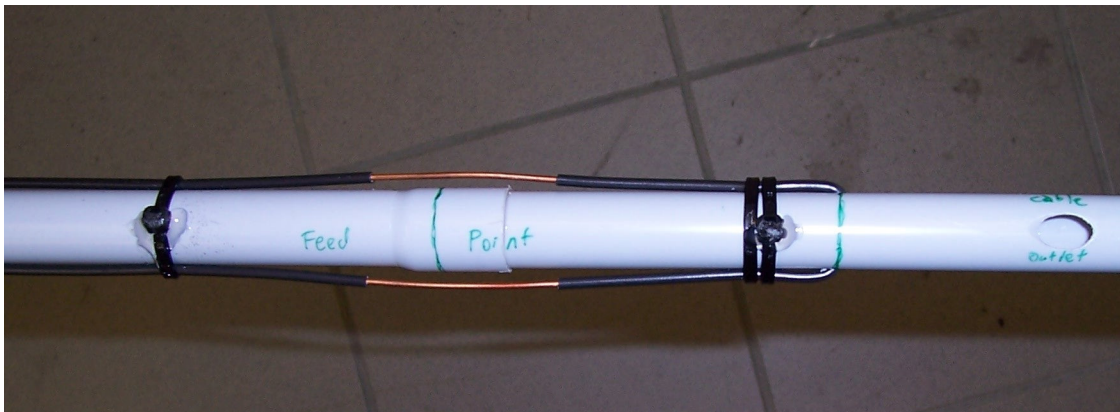


fig. 13

...the feedpoint, ready for the cable. At the right, the pass-through for the feedcable.



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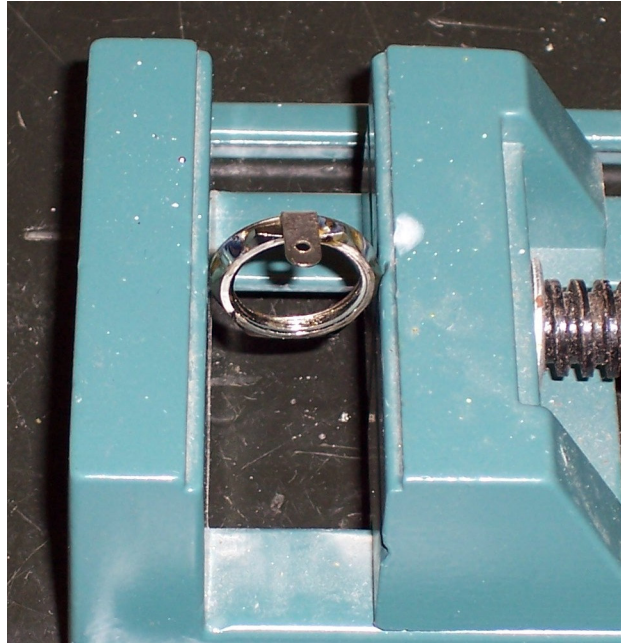


fig. 14

this is the washer of the N-connector soldered to the nut.

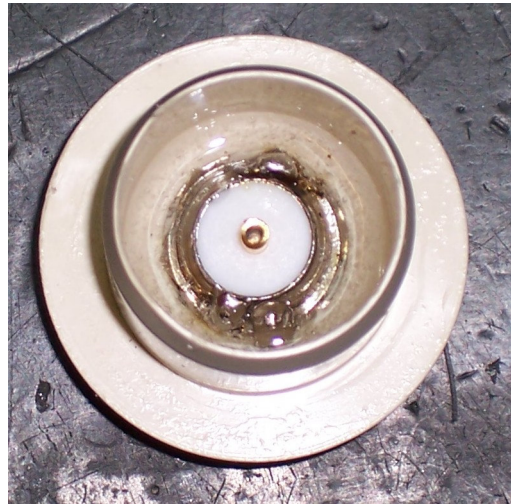


fig. 15

The bottom hood with the mounted N-connector and sealed with 2 components epoxy.



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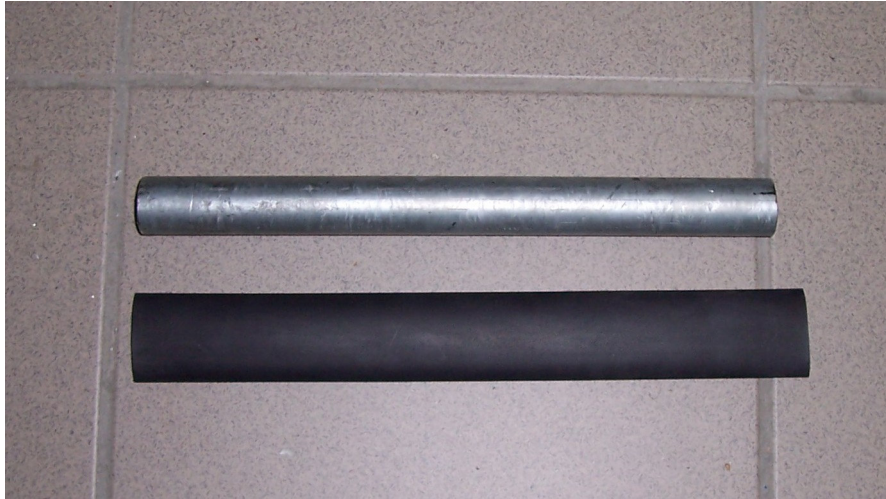


fig. 16

the reinforcement pipe with its sleeve for the mounting section. It will prevent the tubes from being crushed by the mounting brackets.



fig. 17

both parts together. The  $\frac{3}{4}$  " (27mm) galvanized water pipe and the shrinking sleeve.





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fig. 18

The reinforcement pipe glued onto the 20mm tube.



fig. 19

The top cover slipped over the inlay.



fig. 20

An overview of the disassembled antenna.



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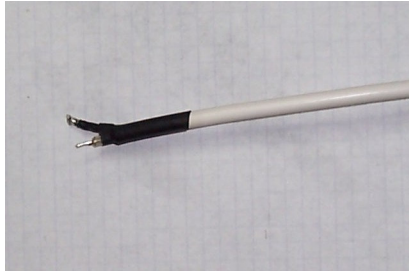


fig. 21

Now it's time to prepare the feed cable. This is the tail that connects to the N-connector.

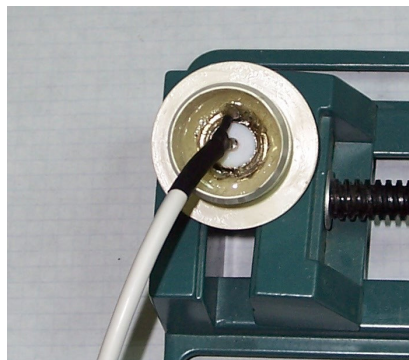


fig. 22

...and the tail soldered to the connector

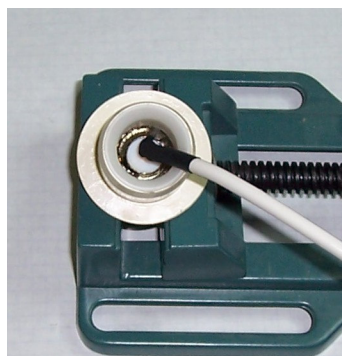


fig. 23

... and the bottom holder for the 20mm tube, glued into the bottom hood.



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fig. 24

The bottom hood glued to the 20mm tube and of course the feedcable threaded through to the feed section.

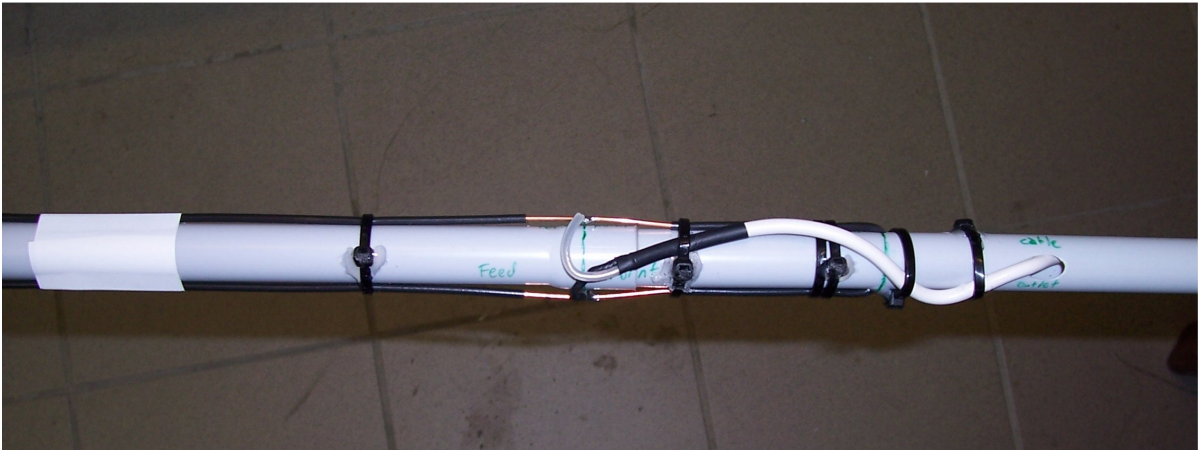


fig. 25

The connected feed-section.



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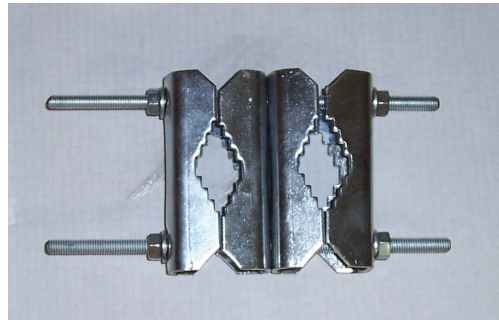


fig. 26

The mounting brackets.

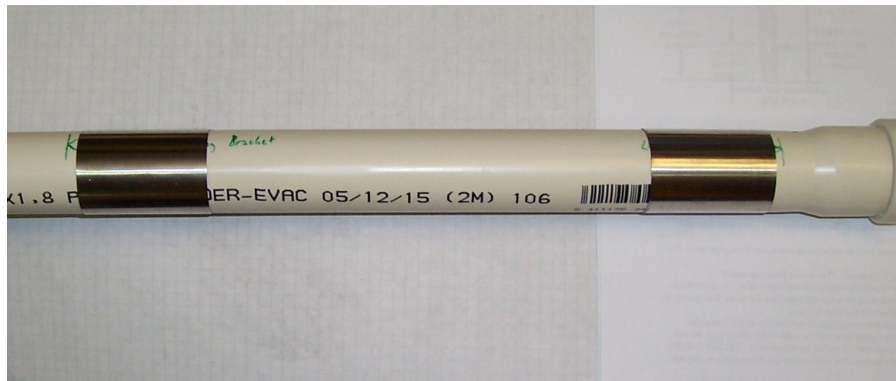


fig. 27

We need to protect the outer tube from being crushed or perforated by the teeth of the mounting bracket. So we wrap a 0,1mm stainless steel sheet around the tube with the help of double-sided adhesive tape.



fig. 28

Finally a few turns of white tape makes it look nicer.



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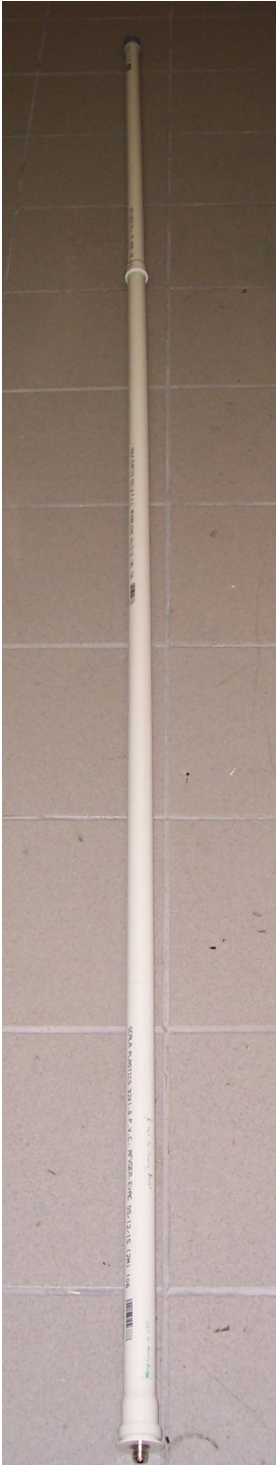


fig. 29

This is the finally assembled antenna.  
A protection hood for the connector finalizes the concept.



fig. 30



fig. 31

The hood is formed to fit by means of a hot-air-gun.  
When ready installed, we fill up the gap between the white tube and the protection cover with silicone-sealant.

In order to calculate the antenna for your frequency, take the dimensions for the overall-length, feedpoint-distance and breakpoint-distance. Divide those by your frequency and multiply by 106,45.

Tuning is done by moving up or down the feedpoint and reading the VSWR for best result.

This aerial has a typical SWR of 1,5:1

Note that my construction gave best results for a feedpoint of approximately 116 mm.

Measurements gave a Dip at 104,8MHz and measurements with the antennascope confirmed the feedpoint at 116 mm.



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fig. 32

The test setup on a 2m temporary pole on a sunny Saturday's morning. Enjoy!