

# What's inside the Kathrein antennas for trains and buses

Matthias, DD1US, January 16<sup>th</sup> 2019

Hello,

For quite some time I had some older antennas from Kathrein in my storage area. Now I decided to give them a closer look. I have two antennas, one with the part number 733 707 for the 2m band and one with the part number K 70 20 21 for the 70cm band.

The 2m band antenna has printed the following information on it:

Typ. 733 707                      f/MHz 146-147                      f/MHz 166-172

Return loss in the 2m Ham Radio band is very poor. I tried to retune this antenna but was not successful.



The 70cm band antenna has printed the following information on it:

Typ Nr. K 70 20 21                      f/MHz 410-470 Mhz

This antenna works fine in the 70cm Ham Radio band.



For the 2m antenna 733 707, I found the following data on the internet:

## Train Antenna 146 – 172 MHz 733 707

**KATHREIN**  
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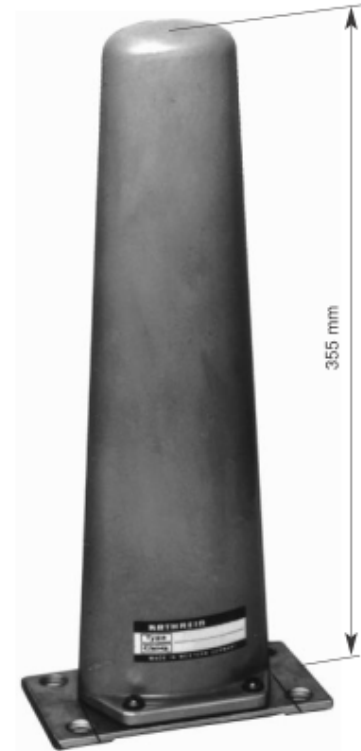
- Aluminum antenna in fiberglass radome.

Type No.	733 707
Input	N female
Frequency range	146 – 172 MHz
VSWR	< 2.0
Gain	0 dB (ref. to the quarter-wave antenna)
Impedance	50 Ω
Polarization	Vertical
Max. power	100 Watt (at 50 °C ambient temperature)
Weight	0.8 kg
Packing size (outside)	151 x 90 x 415 mm

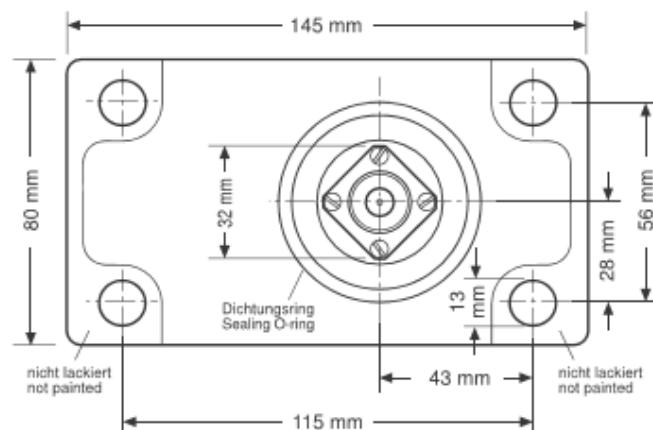
**Material:** Radiator and Flange: Aluminum.  
Radome: Fiberglass, colour: Light grey.  
All screws and nuts: Stainless steel.

**Mounting:** On a conductive surface 200 x 100 cm min.  
with 4 studs M10.

**Grounding and high voltage protection:** This antenna approved by the "Deutsche Bahn AG", is D.C. grounded to protect against lightning and high-tension lines.



Mounting flange:



Mounting hole for the connector: 33 (max. 35) mm diameter.

For the 70cm antenna K 70 20 21, I found the following data on the internet:

## Train Antenna 410 – 470 MHz K 70 20 21

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- Low profile broadband antenna in fiberglass radome.

Type No.	K 70 20 21
Input	N-female
Frequency range	410 – 470 MHz
VSWR	< 1.5
Gain	0 dB (ref. to the quarter-wave antenna)
Impedance	50 Ohm
Polarization	Vertical
Max. power	170 Watt (at 50° C ambient temperature)
Weight	0.5 kg
Packing size	210 x 151 x 87 mm
Height	142 mm

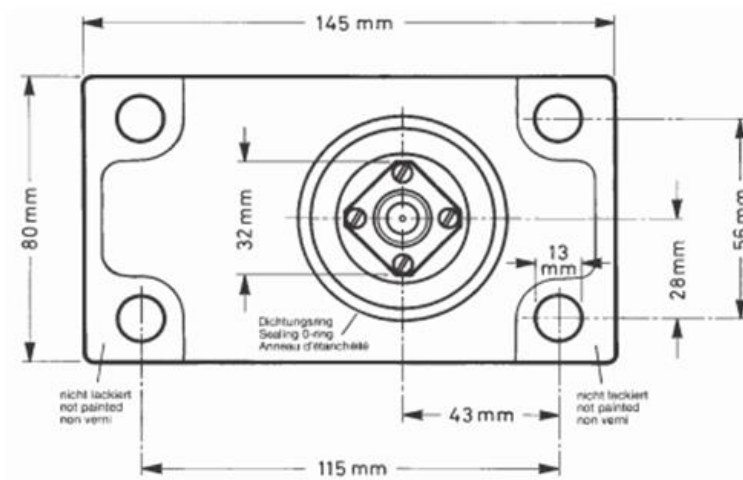


**Material:** Radiator and Flange: Aluminum.  
Radome: Fiberglass, colour: Light grey.  
All screws and nuts: Stainless steel.

**Mounting:** On a conductive surface with a minimum size of 50 x 50 cm by means of existing M10 studs.

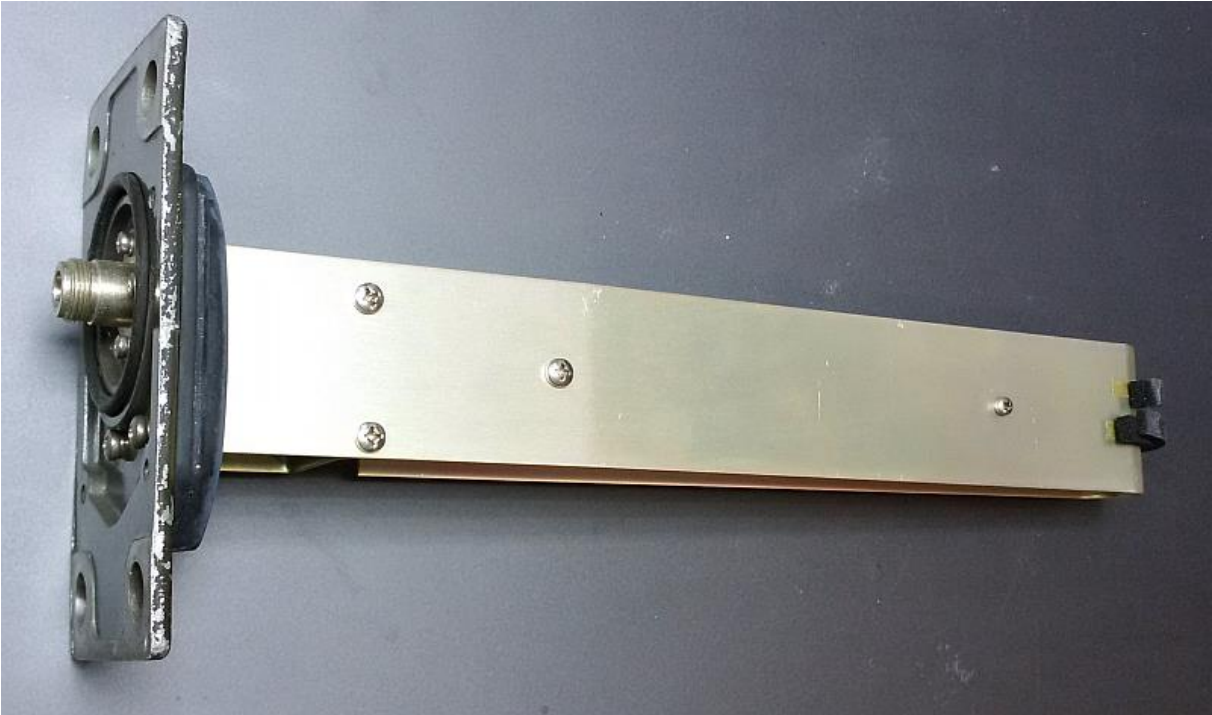
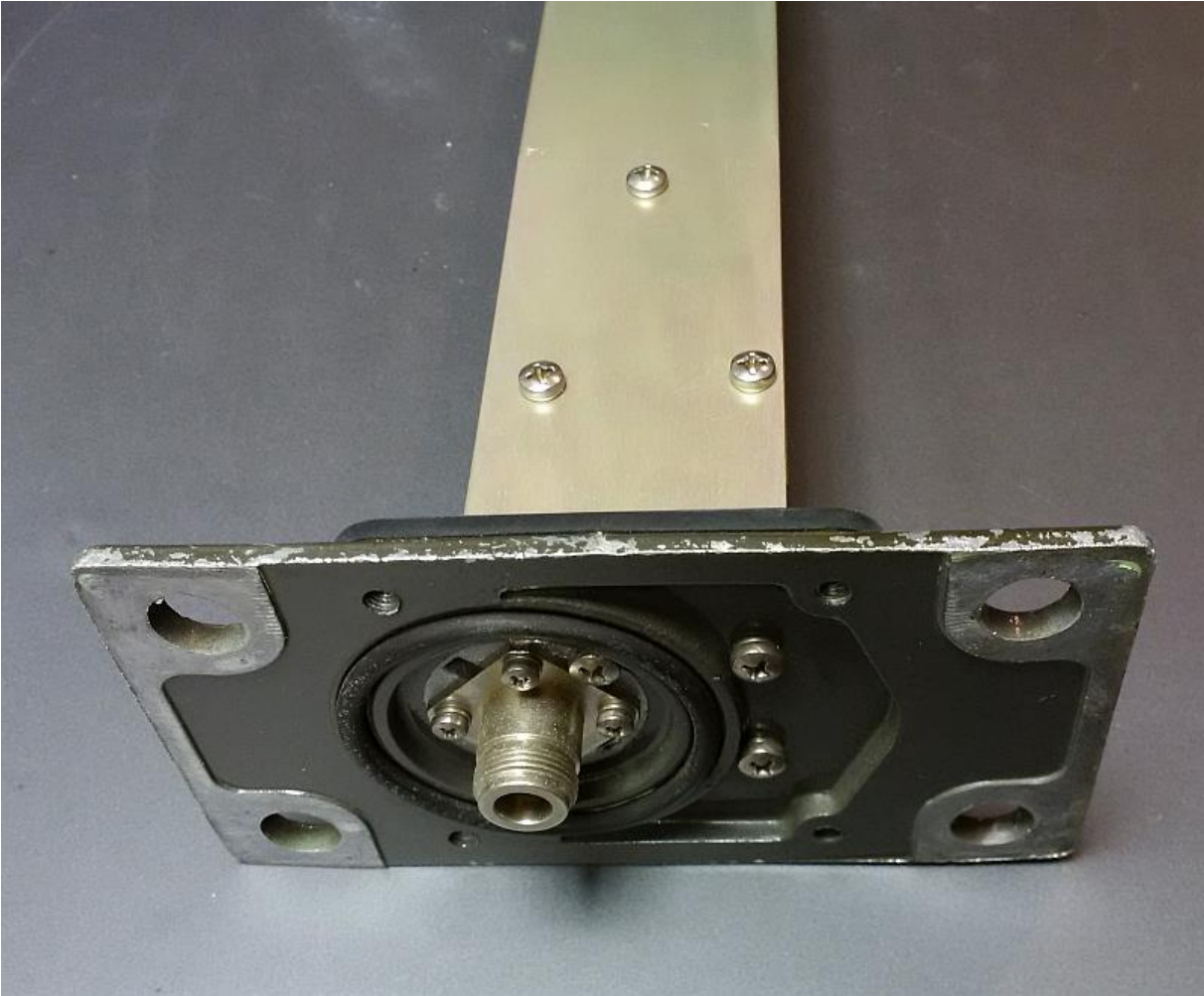
**Grounding and high voltage protection:** This antenna approved by the "Deutsche Bahn AG" is D.C. grounded to protect against lightning and high tension lines.

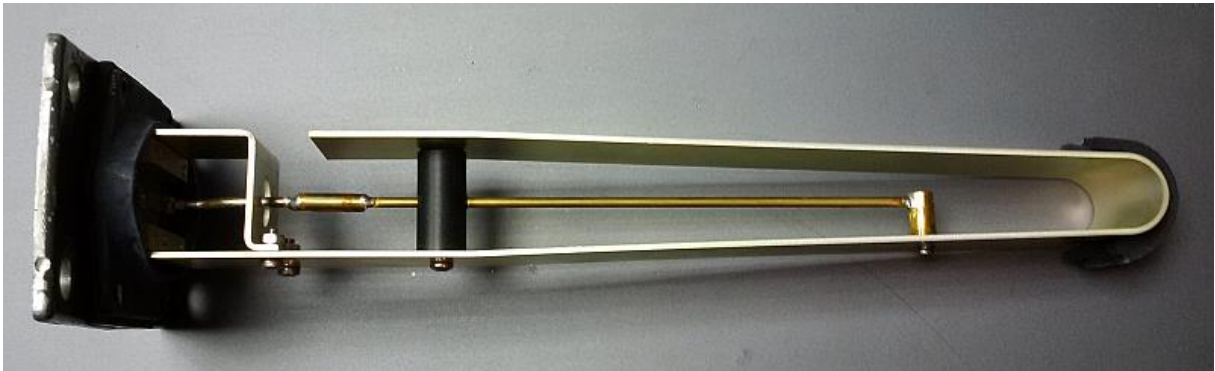
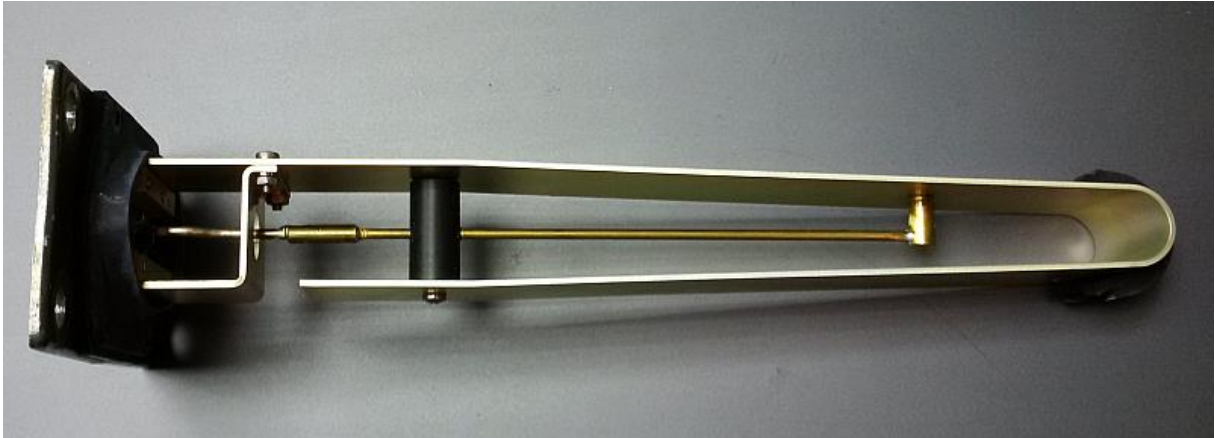
Mounting flange:

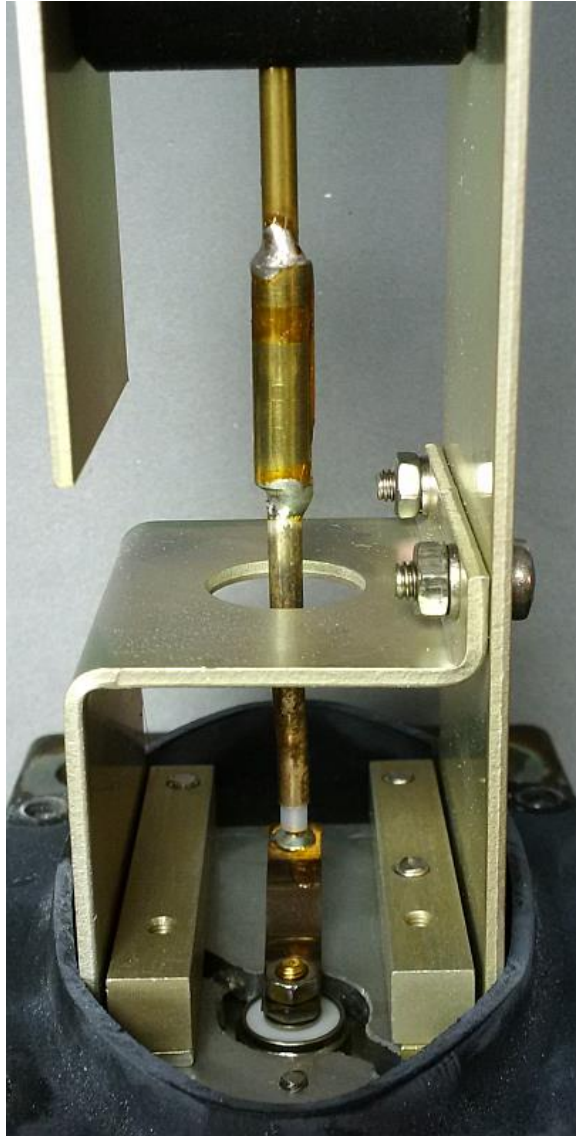
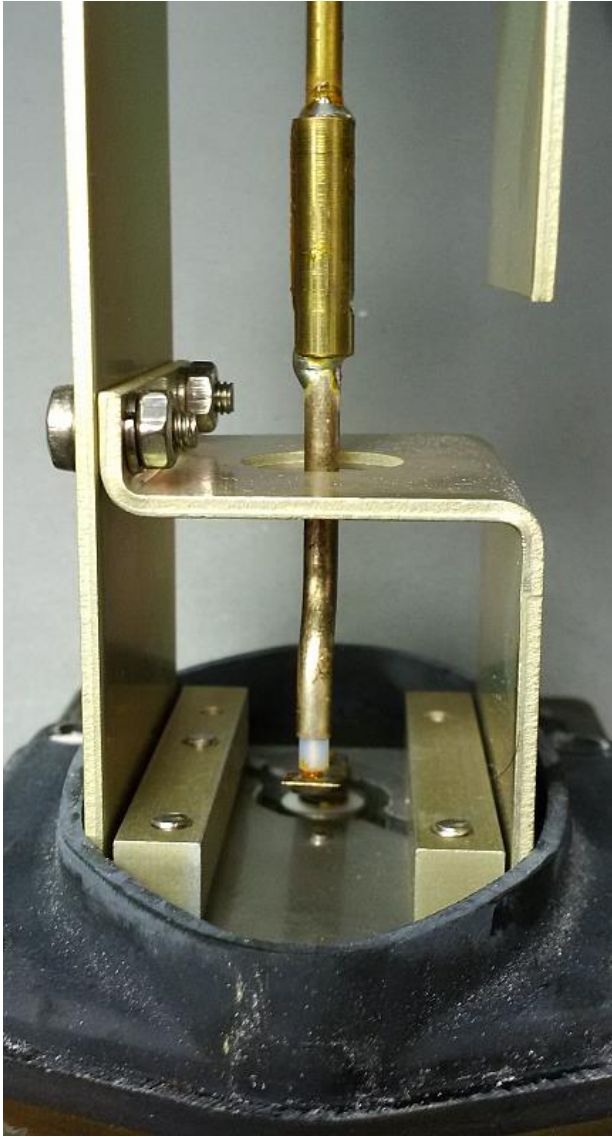


Mounting hole for the connector: 33 (max. 35) mm diameter.

Here are some pictures of the 2m band antenna:

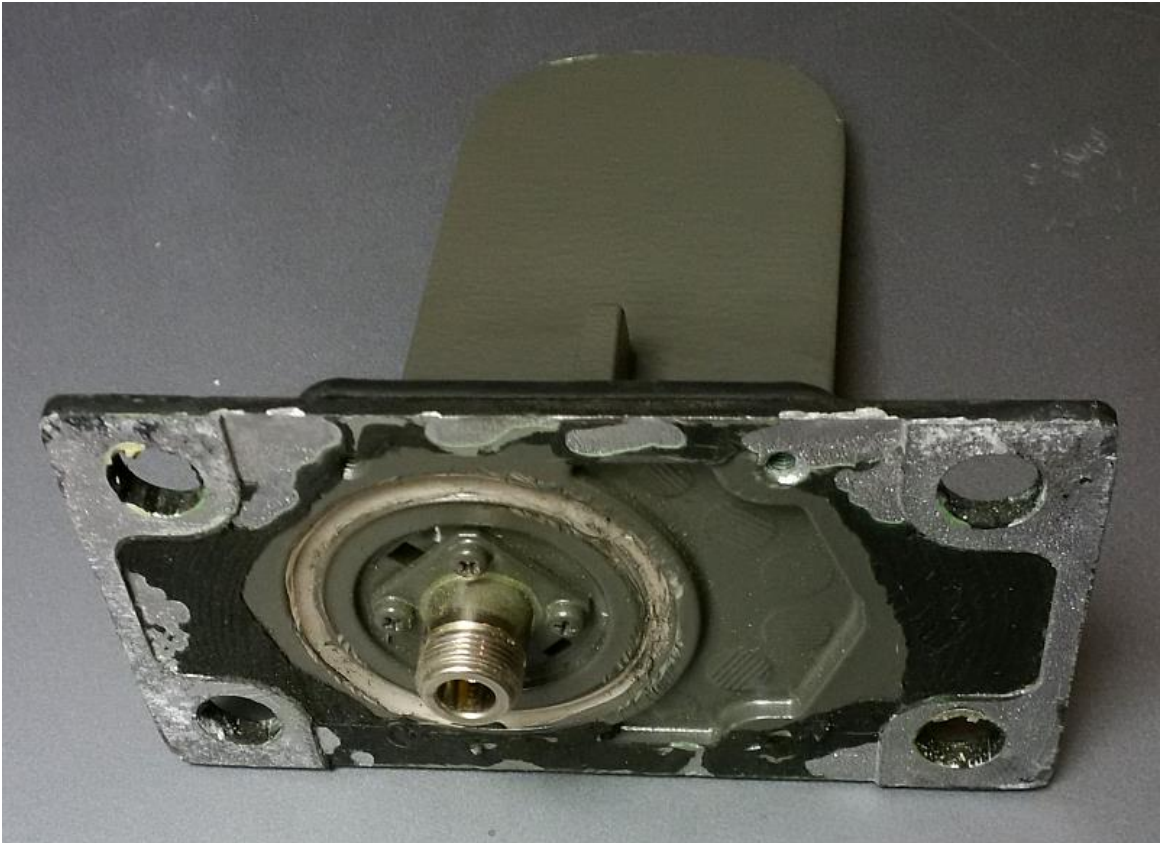




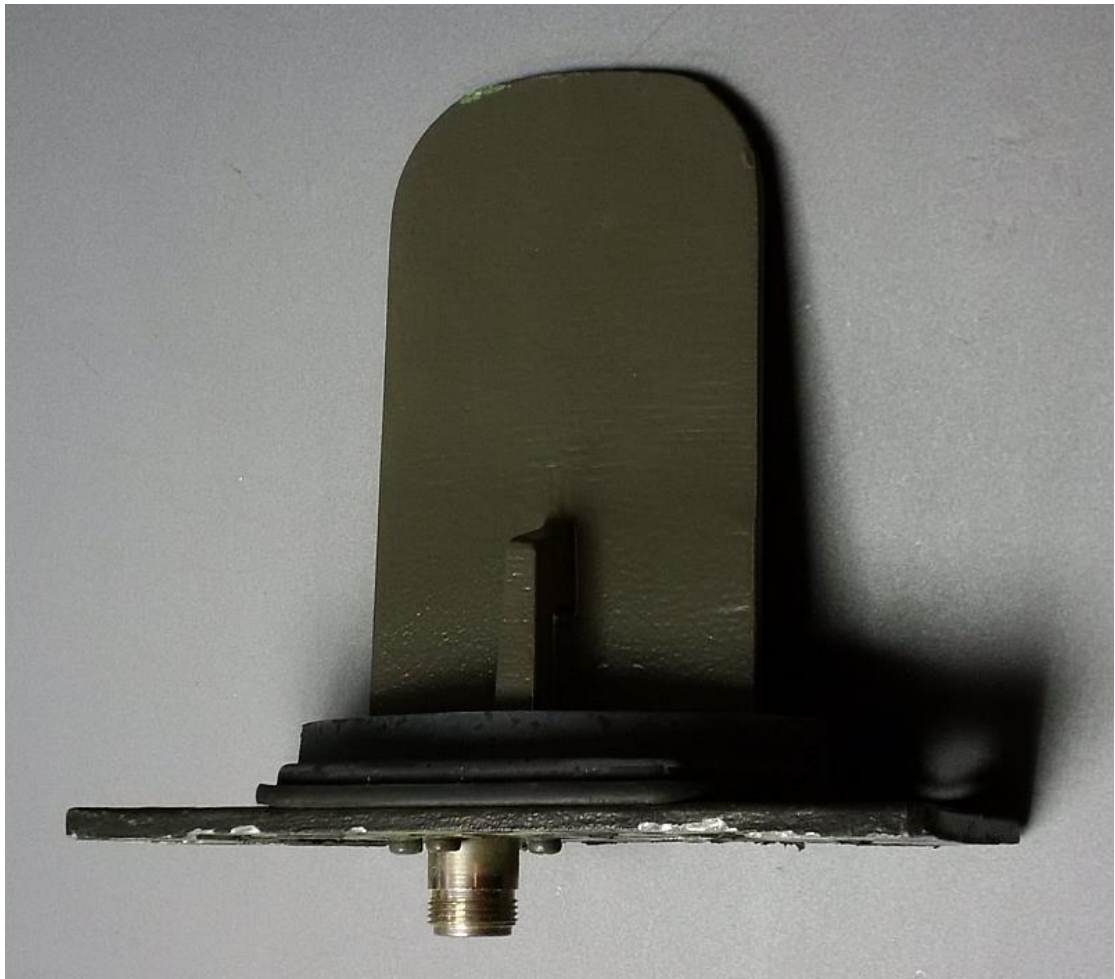


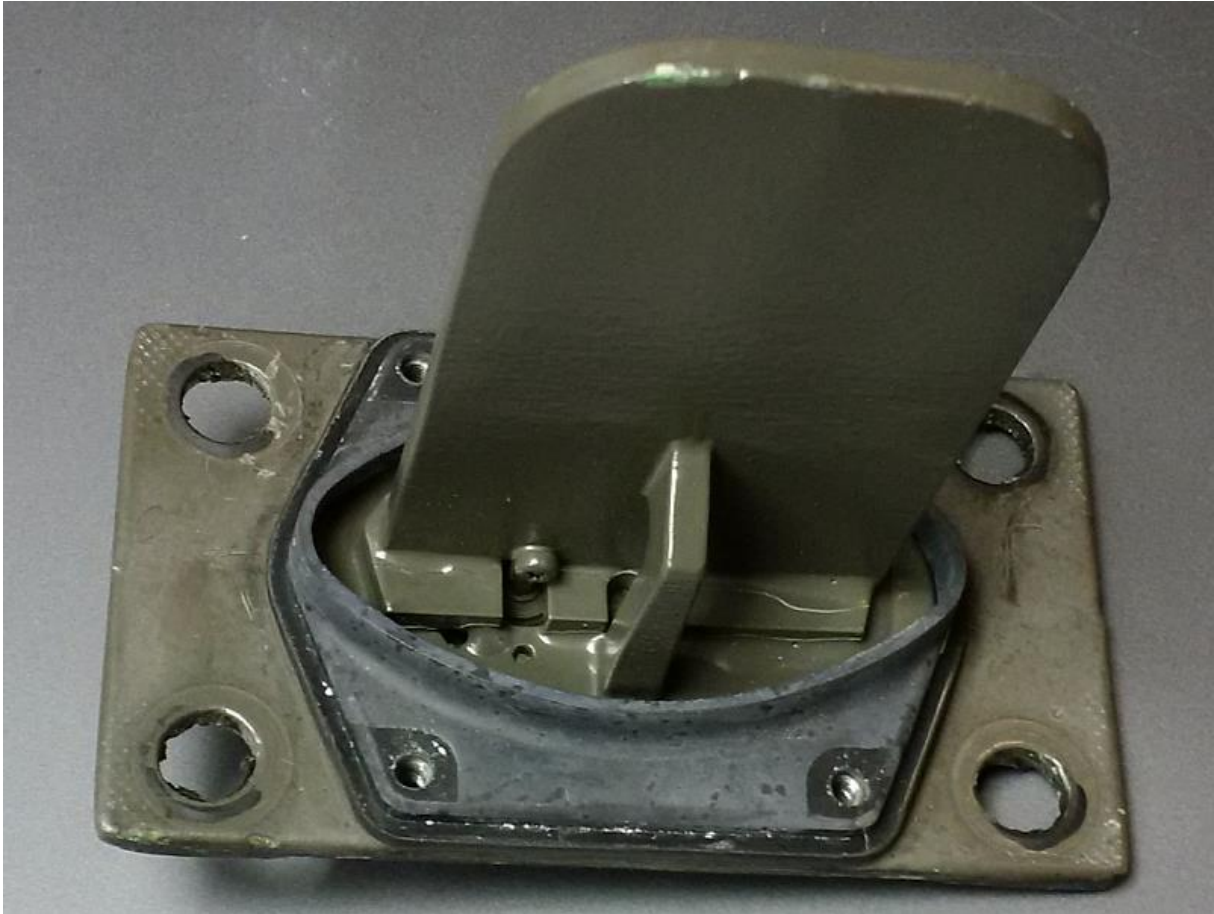
Here are some pictures of the 70m band antenna:











If you have additional information about these antennas, especially with respect to retuning the VHF model 733 707 to the 2m Ham Radio band, I appreciate your feedback.

Please send it to the Email address given below.

Best regards

Matthias DD1US

Email: [dd1us@amsat.org](mailto:dd1us@amsat.org)

Homepage: [www.dd1us.de](http://www.dd1us.de)