

Construction of three loop K9 Ears

By Mat Prentis Feb 2019

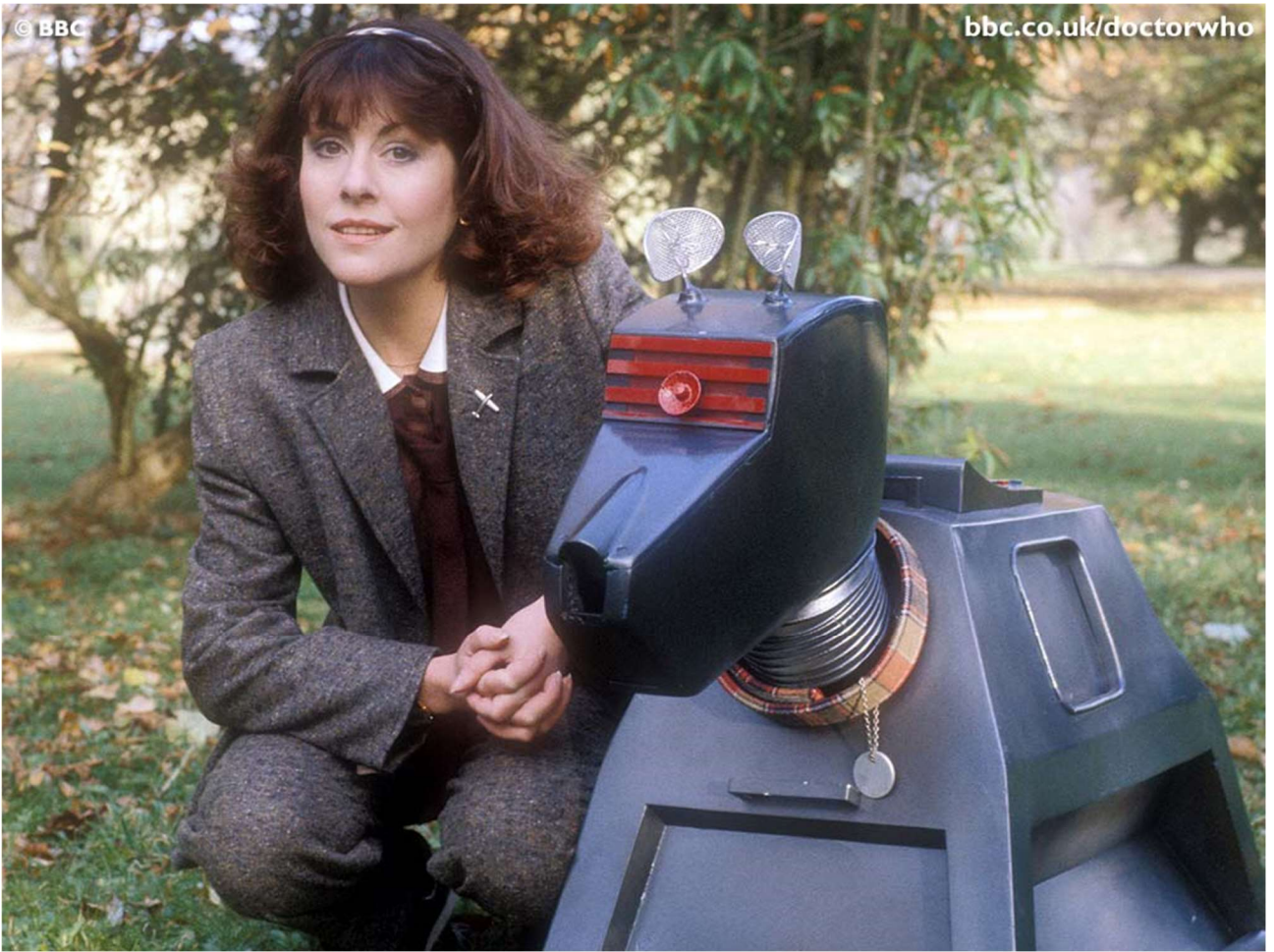
K9 Ears changed between series and sometimes within series for this document will focus on the three loop ears, but the construction techniques could be used for any of the versions

Construction notes have a vertical centre support rod (Step 2) which didn't appear in the 1970's versions of the Ears to the best of my knowledge it first appeared in 2000's, I added this to my build to give it some robustness but it could be deleted from your construction.

Here are a few examples of the three-loop type.

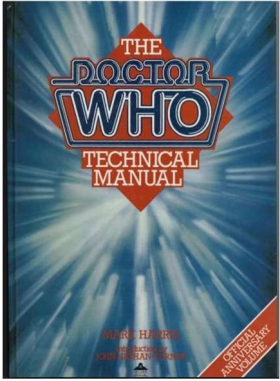


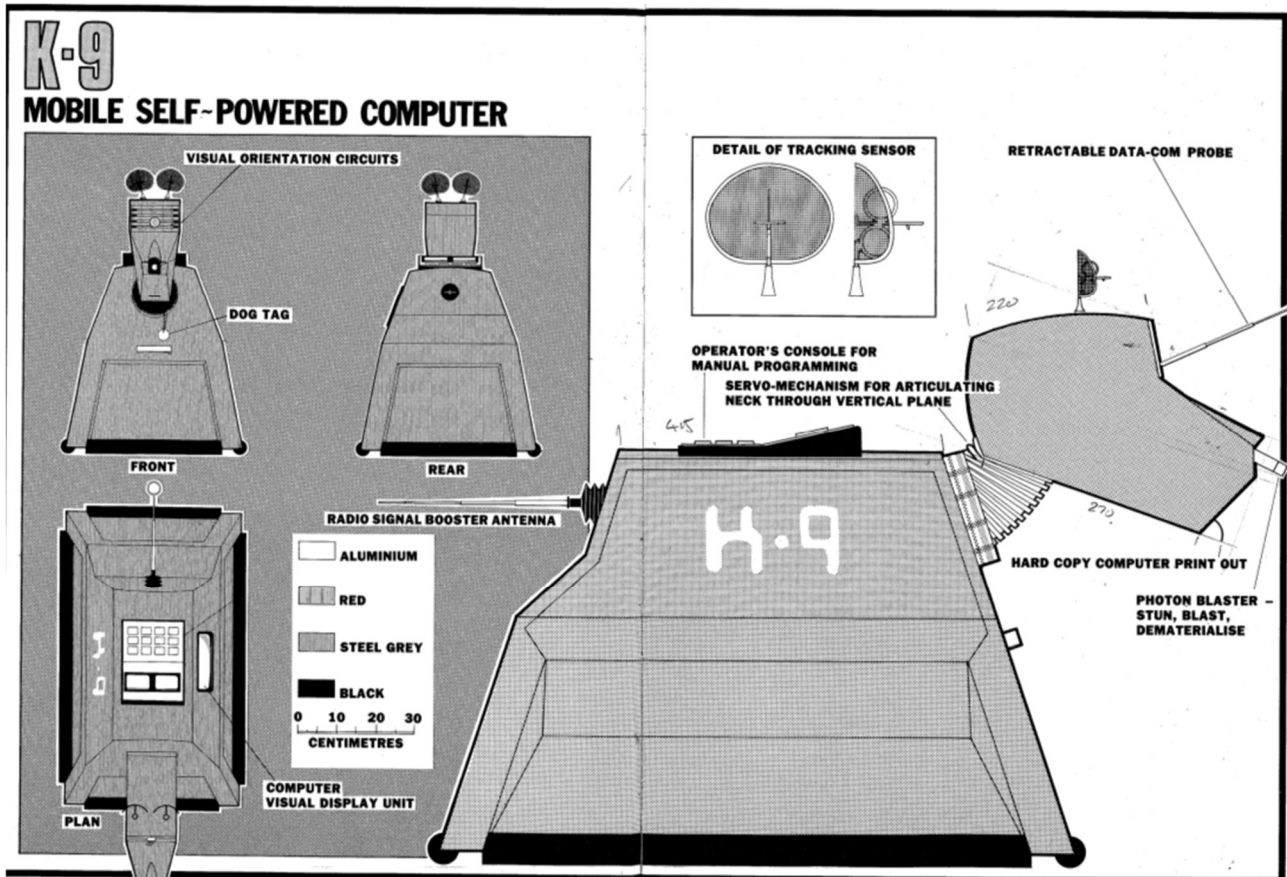




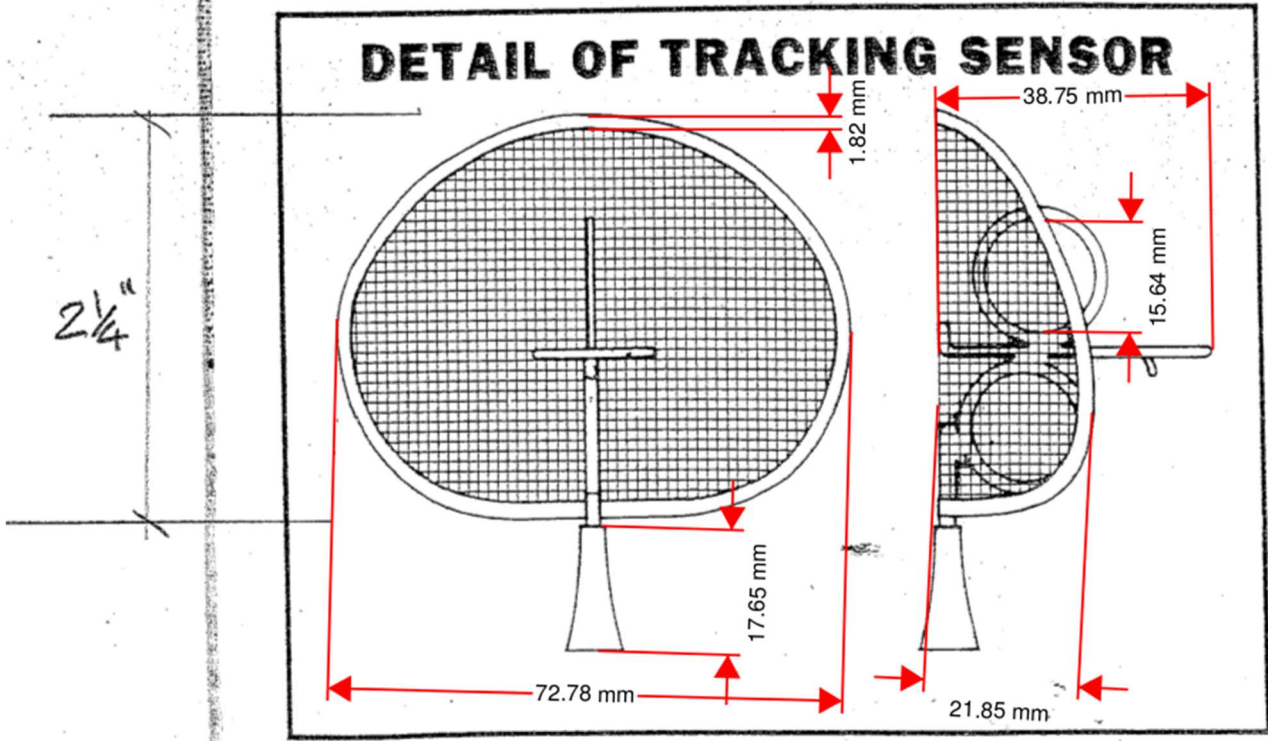


Starting with a drawing from “The Doctor Who Technical Manual” published 1983





The ears were scaled to Dave Everett styrene head size to get these initial measurements

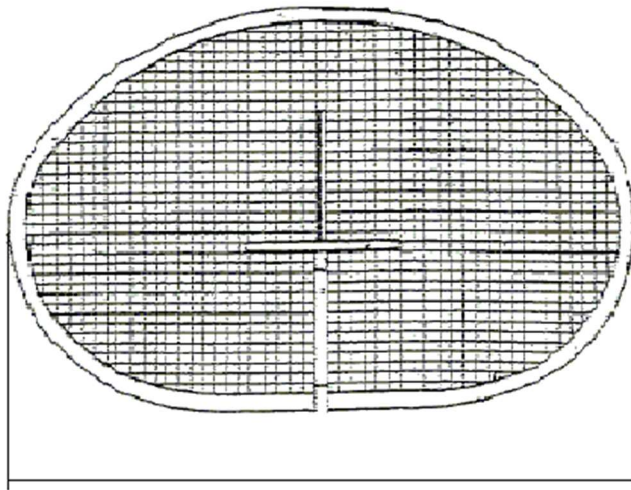


Say initial as this is a 2 dimensional drawing of a 3 dimensional object. Width of 72.78mm is the ears width after bending.

A flat panel measurement is required to make the ears mesh section, this needs to be wider so after bending the width is 72.28mm.

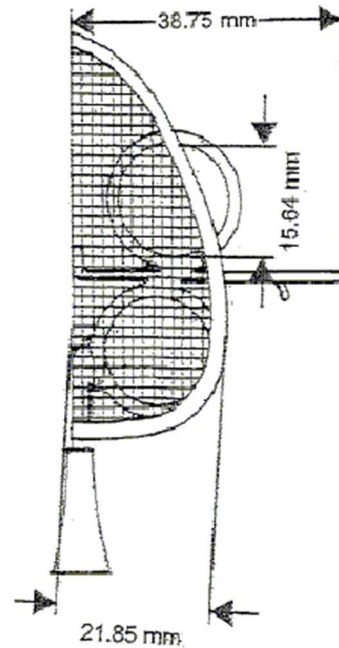
This took a bit of trial and error, but eventually settled on 88mm.
Image below is simply the original enlarged horizontally in "Paint"

DETAIL OF TRACKING SENSOR



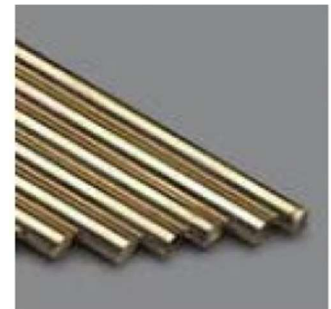
88 mm

Cut mesh to this size then shape around 90 mm diameter pipe to get 72 mm width.



Construction

Ear are made from 2mm and 3mm Brass rod.



Mesh is from a cheap Stainless-Steel Splatter Guard For Pans And Griddles

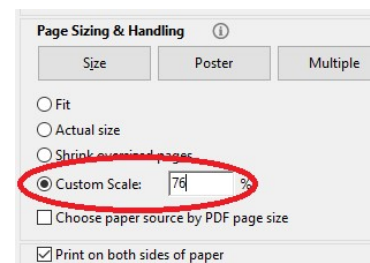
The Stainless was bit tricky to solder onto the Brass, think Brass mesh would have been better to use.

As it turns out "Fine Brass Mesh Woven" is reasonably priced.

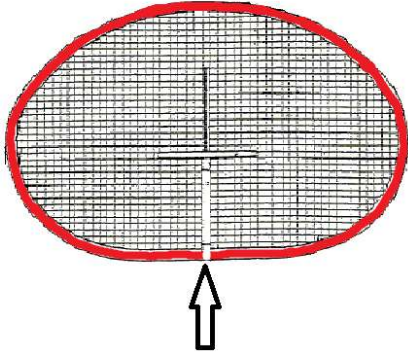


The above picture was printed to the correct size eg 88mm wide.
This was done by using Custom Scale. % will depend on your printer settings.

Once printed the 2mm Brass rod was bend around the Ear shape starting at the bottom middle.

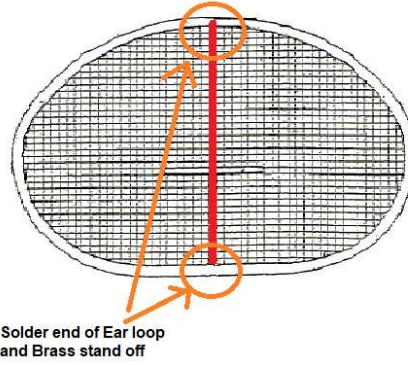


Step 1 Cut piece 2mm Brass rod and bend Ear loop

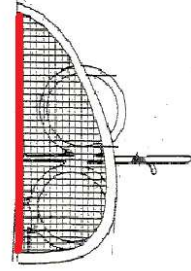


Start and finish bending Brass rod

Step 2 Cut piece of 2mm Brass rod and solder to Ear loop



Solder end of Ear loop and Brass stand off



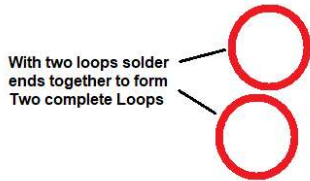
Note: Shows Ear loop bent but this not done till Step 4

Step 3 Cut Mesh to approximate size and solder to Ear loops
Trim mesh to outside of Ear loops

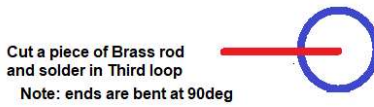
Step 4 Bend Ear loops around 90mm diameter pipe.

Step 5 Bend 3 loop around 16mm pipe.
With two of the loops solder the loop together

Step 6 Solder brass rod of third loop to other two loops

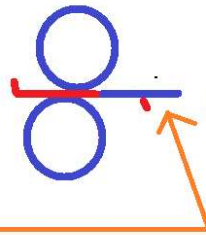


With two loops solder ends together to form Two complete Loops



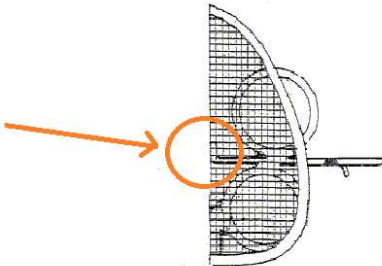
Cut a piece of Brass rod and solder in Third loop
Note: ends are bent at 90deg

Top view of third loop which is Horizontal

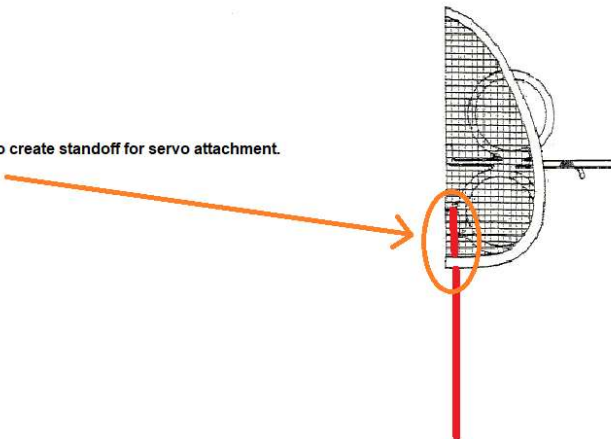


Third loop in horizontal position

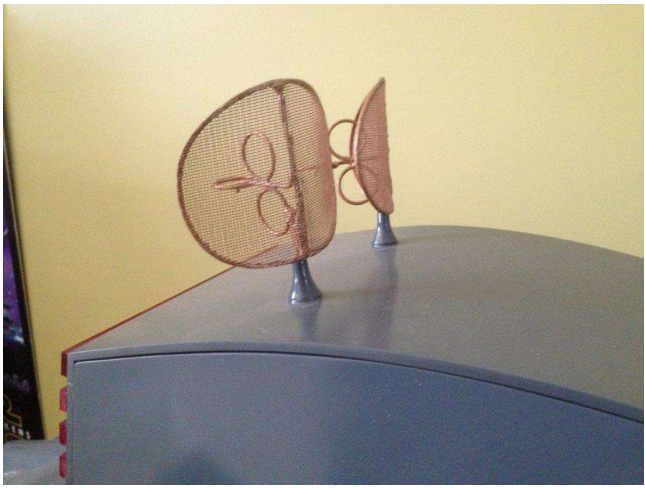
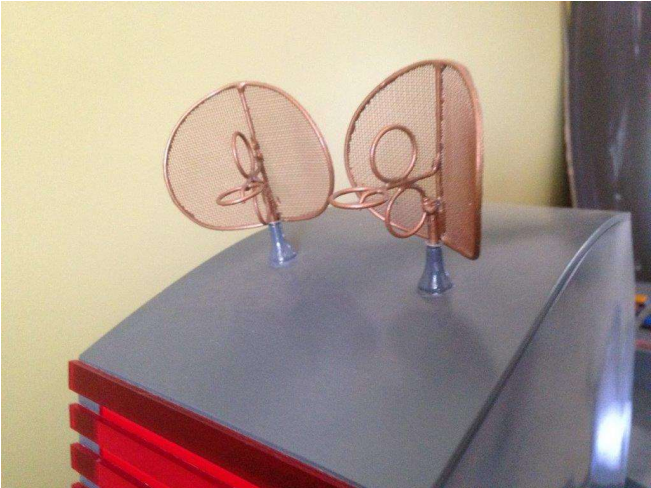
Step 7 Solder extension piece of third loop to rod created in Step 2



Step 8 Cut piece of 3mm brass rod to create standoff for servo attachment.
Solder standoff to lower loop



Quick coat of spray paint and the Ears are finished.



The head stand-offs are golf tee's drilled to fit Brass rod.

Servo Drive

