be used. It works miraculously well on the peaks beyond hearing ability from metallic domes, and should be placed as near as possible to the unit, to work at its best.

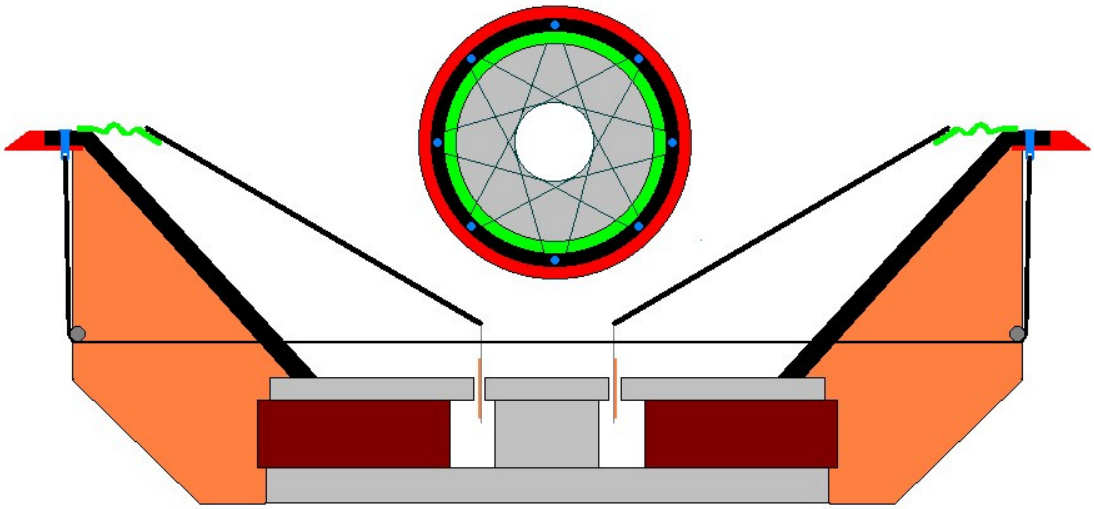
How to soften the rear suspension.
This part of the loudspeaker is often causing dips and peaks on the impedance curve and thereby, when passive filtering is used, also effect the level of the loudspeaker. The suspension should be much softer than normal seen, but serves also as protection, when the loudspeaker is used in bass reflex systems.
Inside the closed cabinets the air acts as a spring and resists the movement of the loudspeaker. Therefore the loudspeaker here should have extremely low resonance frequency in free air, to purify the spring behaviour to be that of the air alone, and in same time achieve the lowest possible resonance frequency and Qt. The spring character of the air is further more to be slightly regulated by incorporating an air flow resistor.

The easy way:
You simply massage it with your thumbs to more softness. You could further burn some holes in it with a solder tip, and let it be with that.

The troublesome but fare the best way:
Don't try this, unless you are a skilled person for handwork and know loudspeaker mechanics by heart.
You must take the unit apart, by use of some solvents and patience. You should end up with following parts.
1. Magnet
2. Basket (if it is possible to take it apart from the magnet)
3. Diaphragm with voicecoil flex-wires and front suspension

From the rear part of the basket you should hacksaw away all parts disturbing the flow of air and unnecessary for the reassembling.
The magnet and modified basket is assembled again, and supporting parts of wood are glued on the sides of the magnet and basket to form support for the basket and for the new suspension.
The mounting holes in the front ring of the basket are used for regulation of the steering wire, so you must cut a new ring for mounting purpose. This gives you possibility to create more space at the backside of the unit. Even small compression here causes problems.
It all are assembled, connections soldered, and a woven nylon wire put into place (see Fig) and glued to the diaphragm or the voicecoil. If for the voicecoil a metallic form is used, you should beware the heat built up playing loud, why you must use glue capable to withstand this heat.
For twisting the wire a screw fitting the hole is shortened down and made flat with a hole for the wire. This part must reach through the material for the basket and the part for fastening the unit to the baffle.
You can in this way regulate the tightness of the wire supporting the voice coils placement in the magnet.

By this method, it is possible to reduce the need of air around the voice coil to as little as one tenth of a millimetre. My stepson has speakers of that accuracy, he plays very loud and has had no problem. ***It works***.



How to find the mechanical filter's components.
This procedure must first take place, when your unit has played for some time, and you are satisfied with its working manner. Even the slightest change will effect the size of the mechanical components.
When the unit is corrected for rise of impedance around resonance frequency, that circuit is part of a system, like that for correction for peaks. Therefore you can calculate the mechanical components from the components of your correctional network.
R = loudspeaker DC-resistance. Rs is the measured impedance at resonance.
You have Rp, Cp and Lp from the correctional network and find the components inside the loudspeaker.
$Cs = Lp * 1000 / R^2$ uF
$Ls = Cp * R^2 / 1000$ mH
For control: Rs = R*Rp/(Rp-R) Ohm.
From this you can write a transfer function - second order high pass.

Method of measuring.
This is misleading and complicated, if you use a normal enclosure and room, as what you think you measure isn't.
Measurement done by the manufacturer is of no use for you, as the difference in basic conditions is so different. One thing you can be sure of, yours will be worse.
The cabinet, in which the loudspeaker is placed, and the room itself serve as reflectors. The reflections mix with the sound from the loudspeaker unit, why the graph can be said to be useless. But there are ways around that
To get an idea of how the unit itself measures, you must place the microphone in the