



Ribbon Replacement Instructions

Tools: Hex Keys of proper size to unscrew face plate
2 pieces of scotch tape

We'd like to suggest you checking the tweeter to be repaired firstly if you need to see how it is assembled.

1. Remove face plate
2. Remove tape which cover the holding blocks, and clean up the surface of two conductive plates. Prepare 2 new pieces of tape whose size is the same as former one (Plain scotch tape is OK).
3. Remove ribbon holding blocks on the two conductive plates, and remember which goes where, they are not interchangeable.
4. Remove the two plastic wedge pieces (this part is used for G2, G3 and G3i-130).
5. Remove old ribbon and clean all areas.
6. Take one end of new ribbon, shiny side facing down, and insert in the groove of conductive plates, so the first ribbon corrugation is hanging in the gap.
7. Carefully center the ribbon in the gap and place the first holding block over it. Apply strong pressure on the block with a finger (double check to insure the ribbon is still centered in the gap), put a piece of scotch tape over the excess ribbon on the conductive plates.
8. Once the ribbon is hold by the tape firmly, with a pencil, punch a hole in the ribbon through the screw hole of the holding block and then screw the block tightly. (The premise is that the ribbon must be still centered in the gap).
9. Stretch the ribbon slowly in the gap lining up the last corrugation with the end piece, center the ribbon, place the second block and apply strong pressure on the block with a finger, put a piece of scotch tape over the excess ribbon on the conductive plates.
10. Punch a hole through the ribbon and screw the holding block tightly. (The premise is that the ribbon must be still centered in the gap).
11. Screw the face plate.

Notes:

- Magnets are extremely strong and will pull any tool through the front grill if you are not careful.
- Don't blow air into the ribbon, it will destroy it.
- Ribbon definitely will not touch the edges of the gap anywhere along the whole length.
- Remember how tight the screws were initially and match when you rebuild it.

10 August 2004

How to replace the ribbon in the Fountek JP3 tweeter



These are the tools needed to replace the ribbon. The slide gauge is not needed; any ordinary ruler will do. A scalpel (+ fresh blade) is great, but if you're good with scissors this will do. The "limstift" (Danish) is a glue stick. The plastic hammer is good but not necessary.



This is the tricky part. Two screw caps, here from some laboratory test tubes. I can't tell you where to get anything similar, but take a look around the supermarket and see if you can source anything similar. These have rounded

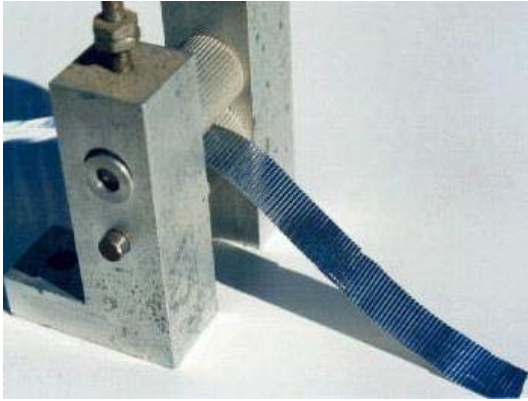
“waves”, which give – to my experience – the best elasticity in the corrugated ribbon. Very sharp bends appear to have less elasticity and we need a ribbon with some elasticity. Aluminium is definitely not a material that is characterised by having high elasticity



Household aluminium foil, 11 μm thickness. Cut some 8 mm wide strips of aluminium foil with the ruler and the scalpel.

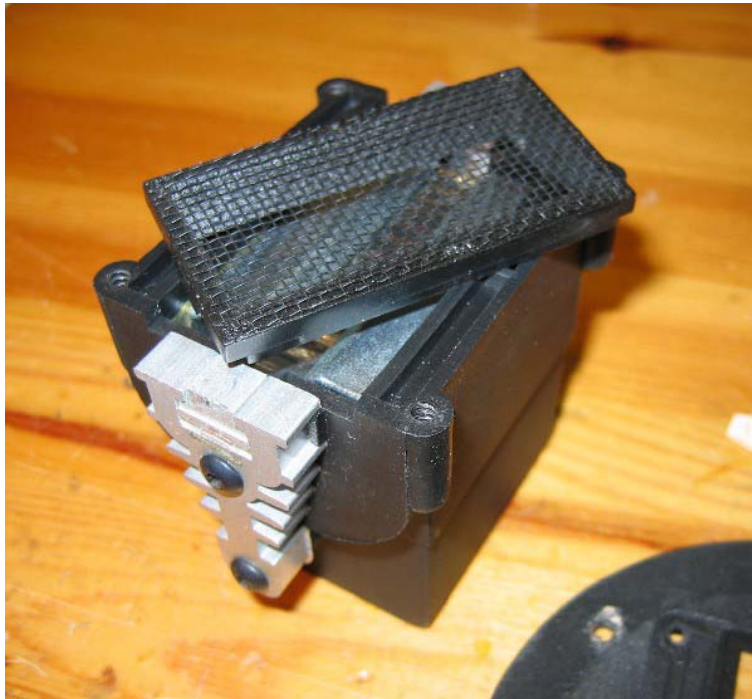


Corrugate the alu foil between the two screw caps as seen here. This takes some practice and people have produced all sorts of nice machinery for this, but we only have to corrugate 10 cm of foil, so this can all be done by hand as seen here.

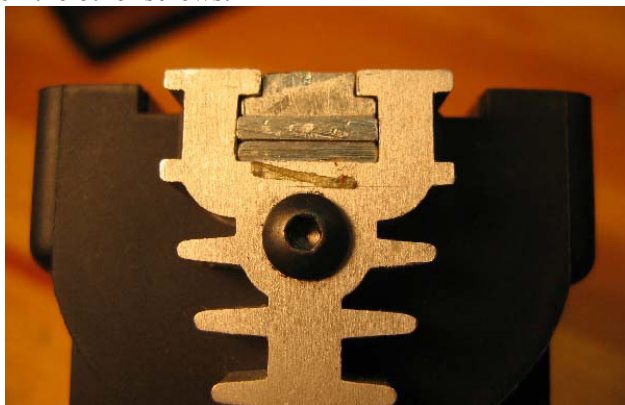


Here's a nice one somewhere from the web.

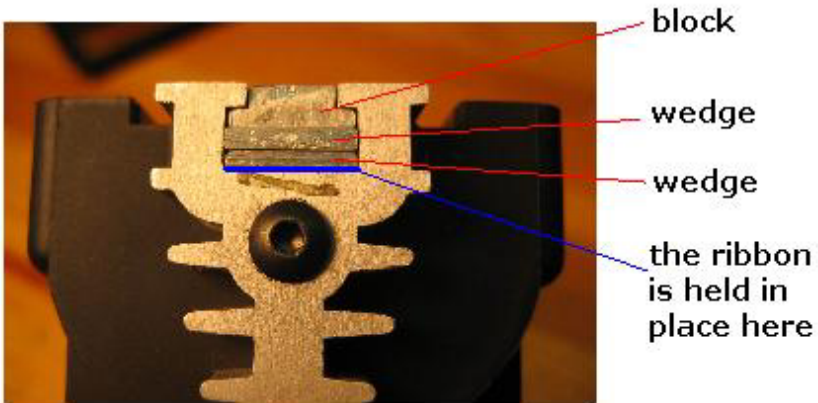
Believe me, the most ugly ribbons I have made have measured just as fine as the perfect ones. What is important is that you are able to gently stretch out the ribbon between the magnets without the ribbon touching them. There has to be just enough space between the ribbon and the magnets – on average something like max. 0.5 millimetre.



Dismantle the driver by removing the four screws that hold the faceplate. DON'T touch the other screws.

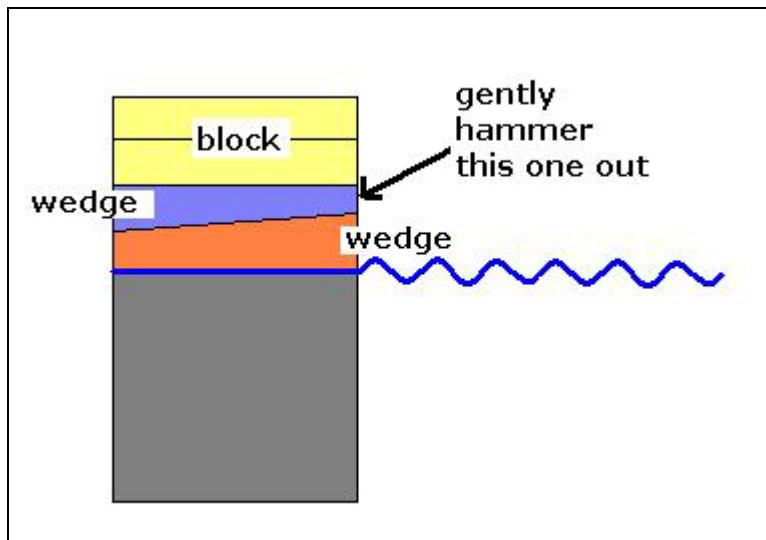


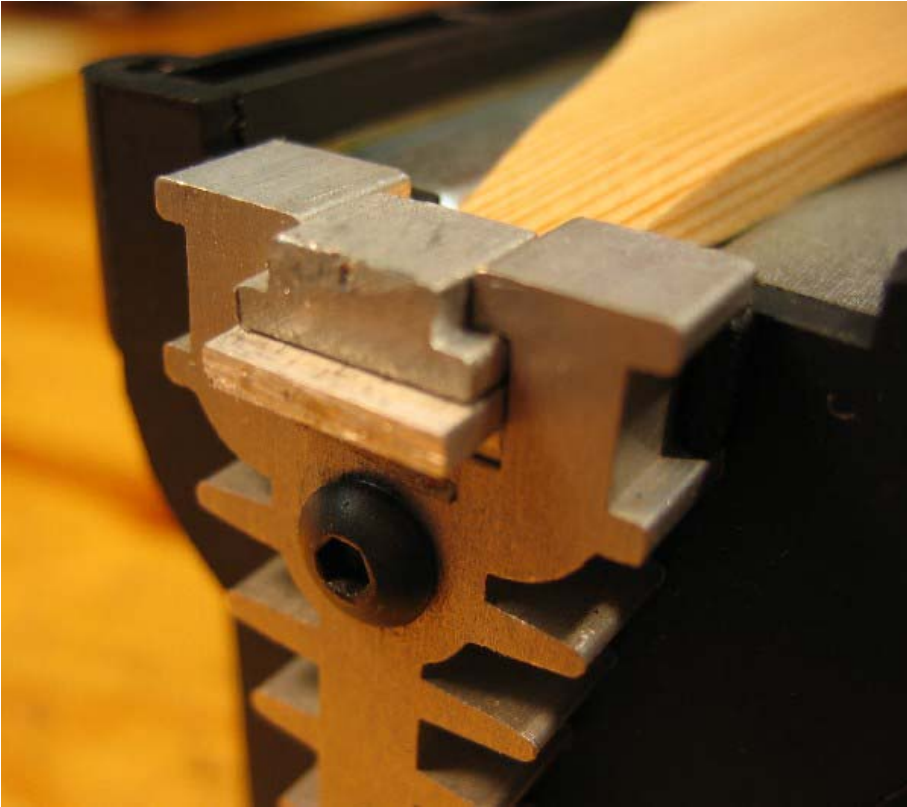
This is how the ribbon is held in place. Three small pieces of aluminium, where two really are wedges. Hard to see before they are free.



These neodymium magnets are killers! Any metal that can be magnetized will be sucked in, so use a wooden spatula to gently hammer out the wedge in the middle.

The aluminium block and wedges are oriented like this:

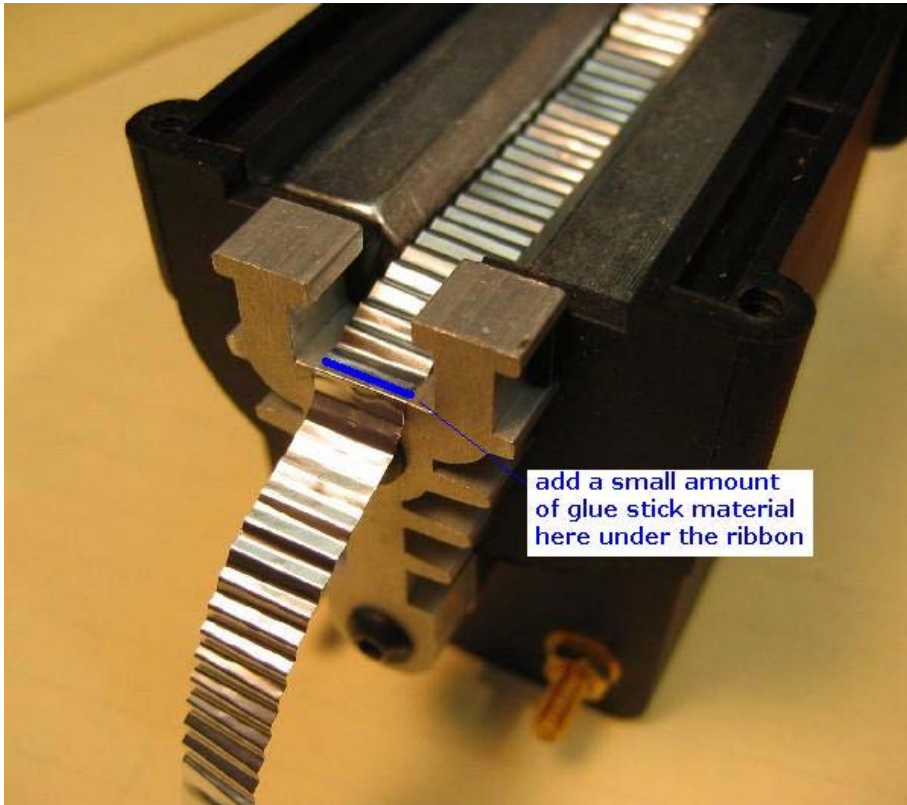




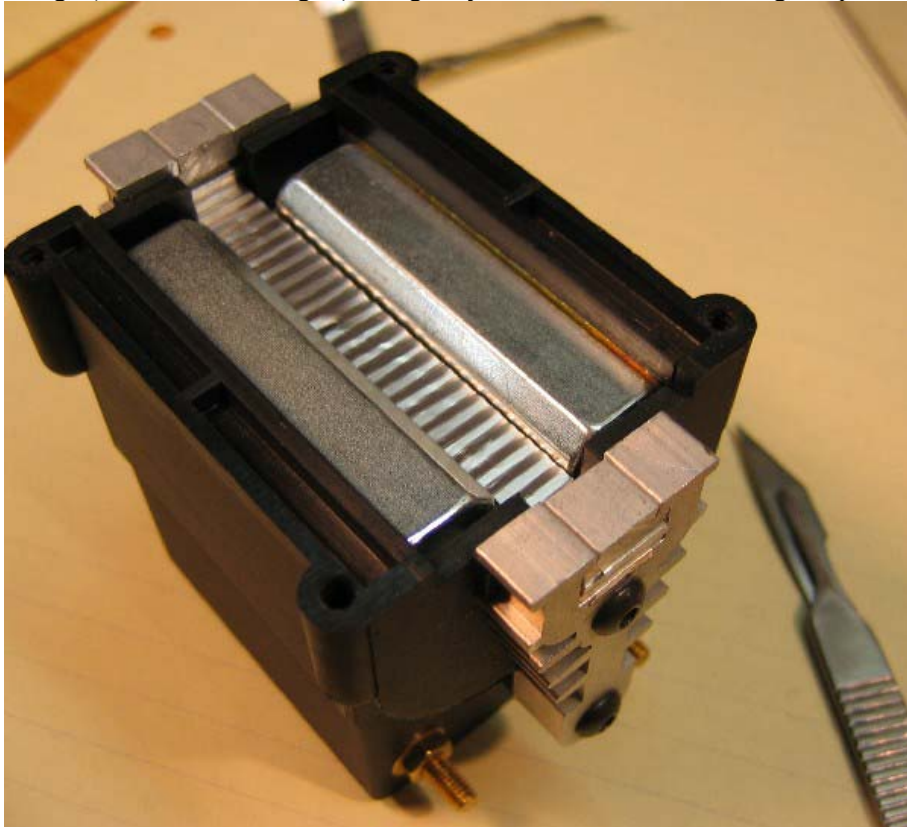
Here you see the upper wedge and aluminium block moving out.



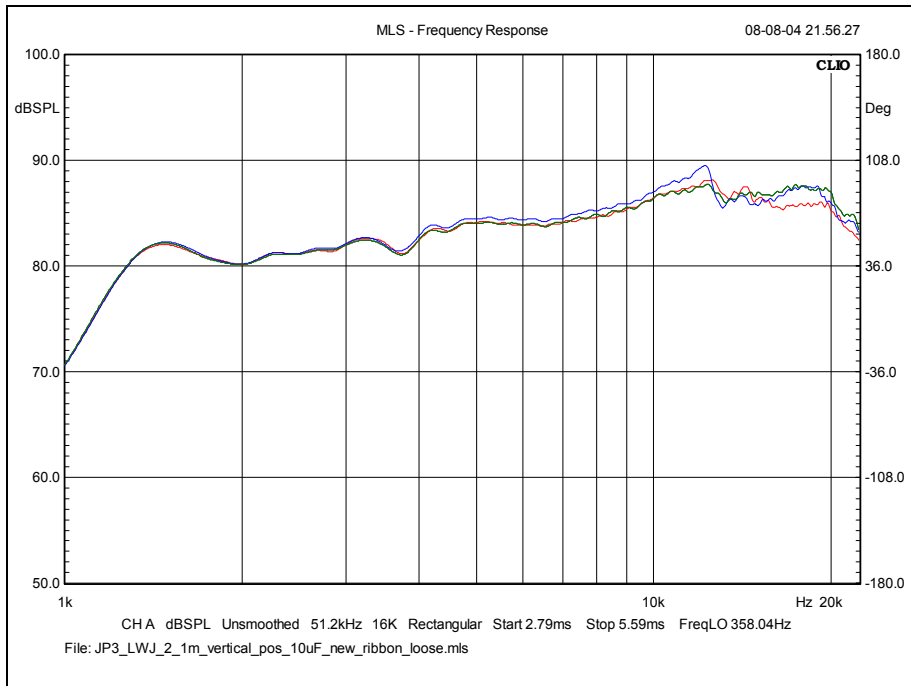
Remove the old ribbon.



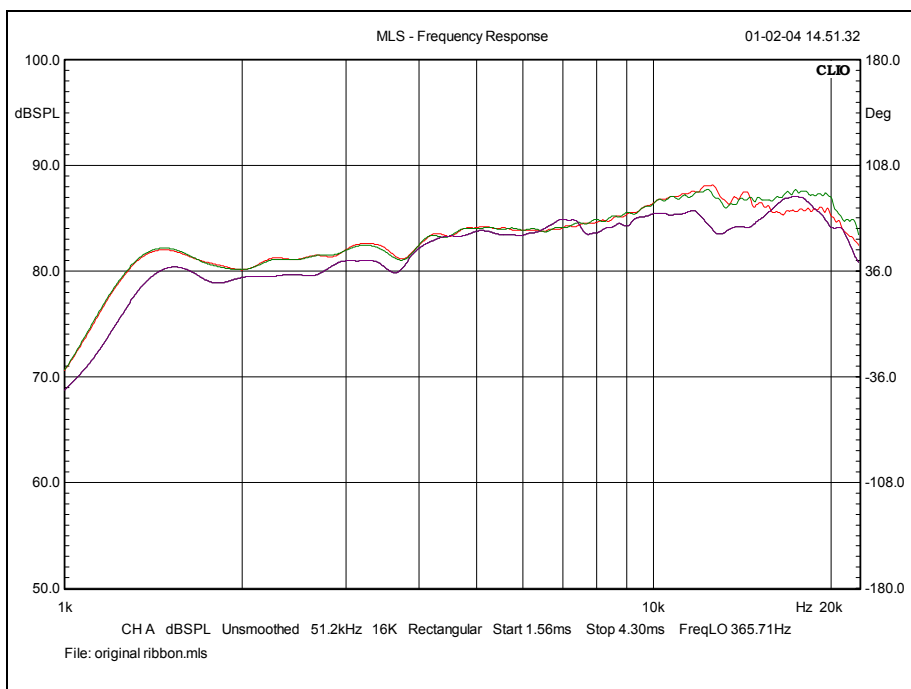
Insert ribbon between magnets and gently press the aluminium ribbon against the sticky glue at one end. Gently stretch the ribbon and attach at the other end. Make sure the ribbon does not touch the magnets. It can be close in some places, but it must not touch or it will buzz. Gently insert the lower wedge with the narrow end facing out. Insert upper T-block and middle wedge (narrow end facing in) and gently hammer the middle wedge in place.



If you stretch the ribbon too tight it will produce a peak at 13–14 kHz. Touch the ribbon gently at the middle and test it for elasticity. It must be able to bend slightly and retract to its former position but it must not droop in the magnet gap.



Blue curve is when the ribbon is too tight.
Red and green = response from two newly replaced ribbons.



Purple = original ribbon response (taken some months ago. Don't pay attention to different sensitivity here). Actually the homemade ribbons perform better than the original ribbons.

Ordinary thin household aluminium foil is 11 micrometers thick on these shores. Check yours. The original aluminium ribbon is only 9 μm giving approx. 1 dB higher sensitivity. This is no problem here as the sensitivity of the JP3 is some 95 dB. If you are using 5R6 for the series resistor in the Acapella, replace by 4R7. If you use 4R7, replace by 3R9 or 3R3.



Waste!

Fiddling around with 11 μm aluminium foil requires some practice. Fortunately the raw material comes for (almost) free and it only takes practice. Good luck!

Further tests:

1. If you have test equipment, insert 10 μF in series with the JP3 before performing the measurement. With the CLIO I'm using an output setting of -25dB to the power amp driving the tweeter.
2. If you want to check the polarity of the JP3 tweeter do like this:



Only connect the battery for less than a second and observe the ribbon movement. When the ribbon is moving OUT, the terminal applied POSITIVE voltage is the PLUS terminal.

The terminal with the red wire clip is NOT the plus terminal on the JP3 tweeter.

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