

# Lowther Maintenance

Do you have problems with your Lowther driver? Here is how we maintain them.

Make sure that you have a clean work environment. Do not have steel tools or metal dust lying around. Always keep the very large magnetic force in mind. The magnet can pull a tool from your hand and into the cone, or any small metal shavings into the voice coil gap.

The most common problem with Lowther drivers is voice coil rubbing. This can be caused by any of the following:

- The diaphragm assembly does not sit square on the magnet and the coil rubs inside the magnet cap.
- The driver could have been jugged in transport or maybe the coil is not quite round. The air gap width of the magnet is less than 1mm so small misalignments are critical.
- Foreign matter has entered the gap and is causing the cone to rub.
- Your driver may be so old that the foam surround has perished.

The required tools for maintenance are:

- A 5/16mm wrench, it should be as "thin" as possible. Stainless steel is preferred, but not necessary.
- A roll of aluminum foil tape with an acrylic glue on one side. You can also use a business card with tape wrapped around the outside, sticky side out. This is what you need for those iron filings stuck in the air gap.
- 1.5" diameter pipe will be required if the former is not round.
- A test CD or frequency generator for 20-50Hz notes.

Connect the driver to an amplifier which is being fed a 20 hz. note. Raise the volume very slowly until the cone moves about 1/8". There is often a slight clicking noise from the flexible wires connecting the post to the cone, ignore this. If you do not hear any scraping noises the cone is properly centered & the voice coil gap is clean. If there is a scraping noise then continue on. At times something gets caught in the voice coil so that sometimes it rubs, and sometimes it does not. If you have this problem you must go disassemble the driver and clean out the voice coil gap.

If you can see that the voice coil is not properly centered, you probably just need to realign the cone. Place the driver onto a table and connect to your test system. Loosen the bolts holding the cone basket to the magnet. "DX" drivers have four bolts, "A" drivers have 3. You want these mildly tight to prevent easy movement of the cone, but not so tight that you cannot adjust the cone position.

Reconnect the driver to the amp and adjust volume as before. If you hear a chuffing or scratching noise your cones need to be aligned better, gently tap one of the sides of the frame to move it until you don't hear noise. With some care you can usually hear which part of the cone is scraping, and move the cone in the direction to relieve that. This is a time of patience – beginners will often take 15 minutes or more getting to point where the cone is silent, or just the clicking noise is heard.

If you have found a spot where the coil isn't rubbing then you can tighten the bolts completely. Tighten each one a little bit at a time, do not fully tighten just one and then move onto the next. Check after tightening if all is still OK. If you can't find a "silent" spot then you have to disassemble the unit.

Completely remove the bolts between the magnet and the cone. Carefully remove the cone assembly from the magnet. Next, check the magnet for foreign matter. The magnet is very powerful and can "pull" materials like iron filings from seemingly impossible distances. Closely observe the air gap for particles, a flash light shining into the cap helps a lot.

If you see any particles then it is time to put the tape to work. Cut off a ½" piece and peel off the paper, or put tape around a business card sticky side out. The tape can be inserted into the air gap and moved around until the air gap is visually free of any particles.



If you did not find any particles it is possible that the voice coil is out of round. Very carefully insert the pipe over the former and carefully observe the gaps. If the coil is out of round, gently press on the opposite sides to rectify. This operation is time consuming, so patience is of the essence.



Now, re-install the cone onto the magnet. Use the same spacing washers that were provided with the driver, do not add or subtract from these. With new cone assemblies you will receive the proper number of needed paper washers(s).

Take care inserting the bolts, this is another time consuming task. Twist in by hand to start, making sure they are not cross threaded. Once the bolts are in place, do not fully tighten but observe whether the former is sitting square inside the magnet. At this stage you can still move the cone frame within the magnet to align the former. Once this looks OK, tighten the bolts a little bit more making it possible to move the frame with a slight tap. Realign the cone as described above.

Feel free to call or write if you have any questions.