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Recone Instructions

These instructions are generic to most brands. Some recone kits come with the voice coil already attached to spider. Some come as a voice coil/spider/cone assembly. In addition, you may need to modify parts as required for specific driver models and brands.
It is important to read the complete instructions before starting your repair.

Remove speaker parts:
Use a utility knife and cut the cone and spider (slicing through the pigtails- also known as lead wire or braided wire) near the speaker frame. Remove the recone kit assembly. **Immediately cover the voice coil gap with masking tape.** Use the utility knife to clean the remaining spider from the frame. Remove the gasket; it can be reused if a new matching gasket is not available. Clean the remaining glue, surround, and gasket debris from the frame. De-solder the pigtail leads and clean the terminal. (See "How To Clean A Speaker" instructions under Reconing FAQ) There are also videos for cleaning and reconing in that section.

*** Dry fit all the parts together in the frame to insure they fit before using any adhesives! ***

Installing the Voice-Coil Assembly:
Clean all the debris from inside the speaker frame and magnet. Use compressed air (if available) to blow debris from the speaker and eventually from the voice coil gap. Add another layer of masking tape over the first to trap any remaining debris. Keeping both layers of the masking tape together, remove from the voice coil gap. Inspect the voice-coil gap. Clean the gap thoroughly by folding masking tape over a shim so the sticky side is exposed on both sides (sticky side facing out- see picture #2). Insert into the gap and circle. Repeat with new tape continually until the tape remains clean. If the original voice coil was burnt, check for loose windings in the gap.

Install the voice coil into the gap combining different color shims on the inside of the voice coil until you get a tight fit and the coil won't move easily. The shims should not overlap one another (they shouldn't be more than 360*). You must check to make sure there is clearance on the outside of the voice coil by inserting a thin shim into the gap between the outside of the voice coil windings and the magnet. The shim should easily move around the outside of the voice coil without any obstruction. Inspect to see that the voice coil is set evenly by viewing it from the side. You should be able to see an even amount of the windings from all sides. The height of the coil is determined by the travel of the cone and length of former and windings. Inspect the original parts for a guideline. A general rule of thumb is to set the coil so that the distance from the bottom of the shims matches the length of the windings. Ideally, the top two windings of the voice coil wind should be visible above the top plate of the magnet. * **This is not true for all speakers.** * Holding the voice coil and shims with your thumb and forefinger on each side of the voice coil, pull the shim(s) and voice coil out so you can compare the space on the shims to the bottom of the magnet (see the picture #6 below). There should be the same distance of the wind width between the bottom of the voice coil and the bottom of the magnet. For example, if the voice coil windings are .500" then you would want about .500" between the bottom of the voice coil and the bottom of the magnet. If the recone kit has a large travel cone (foam or butyl surround), then set the voice coil slightly higher. Remember that if you set the voice coil too low, the coil will "bottom-out". If you set it too high, the coil may come out of the magnet's gap and can be

damaged or bent. Install the voice coil leads so they align with the terminal on the frame. Gently place the leads over top of shim so they will not be in the way when you install the spider and cone.

Install the spider:
Taking care not to move the voice coil leads, dry fit the spider over the voice coil and lower it on to the frame. Turn the spider gently to insure it is sitting evenly. Remove the spider and apply a bead of contact glue to the landing on the speaker's frame. Install the spider on the frame and gently turn it to insure proper seating. If it is a flat spider press the spider to the frame at the landing in a full circle to insure the glue attaches to the outside of the spider fully. If it is a cup spider a small amount of contact glue can be applied around the point where the spider meets the frame to insure the spider attaches properly.

Install the cone:
Taking care not to move the voice coil leads, dry fit the cone over the voice coil. If the opening is slightly too small, gently open it with the back of your thumb nail or a pen. If it is much too small, then use the voice coil as a template, outline the correct size on the cone, and open the cone with a straight edge razor blade. Then smooth it with your thumb nail.

Check if the cone throat opening reaches the spider. If the cone reaches the spider, then remove the cone and apply contact glue to the landing where the cone attaches to the frame. Press the cone's edge into the glue on the frame. Use contact glue to install the gasket. Use small pieces of masking tape to hold the gasket in place. Apply a bead of epoxy to attach the cone to the coil making sure that epoxy reaches the spider completely. You may need to slightly lift and lower the cone so the epoxy forms a bead where the spider attaches to the voice coil but take care to keep the epoxy off the shims. If needed, you can smooth the epoxy where it meets the voice coil with a solder poker tool or another thin tool.

If the cone does not reach the spider, epoxy the spider to the voice coil and <u>then</u> install the cone and gasket. Add a separate bead of epoxy to the cone where it meets the voice coil. There will be no need to move the cone up and down. If needed, you can smooth the epoxy where it meets the voice coil with a solder poker tool or another thin tool.

To insure that the epoxy does not drip into the voice coil gap, turn the speaker upside down on a flat surface (careful to not shift the gaskets). Let it dry for 18 to 24 hours. If the cone has a foam or rubber surround and the surround is higher than the gasket, you must use a spacer under the speaker gasket so the surround is not crushed and the entire assembly is not pushed upward when the speaker is turned upside down. The next day, gently move the voice coil's leads out of the way and remove the shim(s).

Wiring and installing the dust cap:
Dry fit the dust cap to the cone. The voice coil should not touch the dustcap. If the voice coil former is too tall it needs to be trimmed. If this is necessary, <u>gently</u> cut the paper on either side of the voice coil leads on the former. <u>Gently</u> pull the paper slits down and then <u>gently</u> pull down the leads. Using a straight edge or clippers, you can now trim the top of the voice coil to the desired height so the dust cap will fit without touching the former. This procedure is only necessary if the dust cap is too tall for the dust cap to fit correctly.
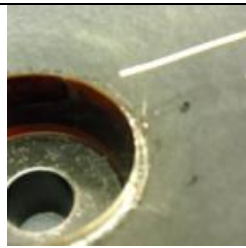
Install the pigtails through the eyelets on the cone. If no eyelets exist, use a screw to poke holes in the cone for the pigtails. Bend the voice coil leads down the former and up the cone. It should lay flat on both surfaces. Wrap the voice coil leads around the pigtails a few times and solder them together then trim the excess pigtail. Solder the other end of the pigtails to the terminals or lugs on the frame leaving "arches" that allow the cone to have full range of excursion (be careful not to make the arch too long or too short). Make sure the leads face away (outward) from one another so they cannot short each other out. Clip the excess pigtail from the outside of the terminals. Using contact glue, adhere the voice coil lead wires to the cone and let dry. When dry, hold the speaker facing downward

(so debris cannot fall into the voice coil gap) and test the speaker. If it's noisy, try to clean inside the voice coil gap by gently inserting masking tape in between the voice coil and the center pole piece with the sticky side of the tape facing inward, circle and remove any excess debris. Install the dust cap. If the dust cap has a lip on it apply glue to the lip and place it on cone. If there is no lip, install the dust cap and add a bead of glue to where the cap meets the cone. A light weight can be put on the dust cap to hold in place as it dries. Apply the cone edge dampening agent if needed.
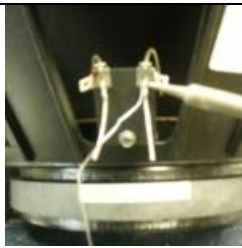
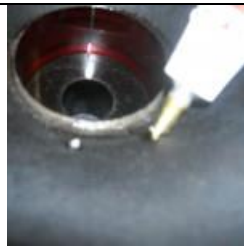|				
Cleaned basket ready for repair	Clean voice coil gap	Put shims in gap	Put voice coil over shims in gap	VC should fit snugly in gap w a few windings showing
Usually winding width is a close match to bottom of former width	Dry fit spider onto voice coil. Turn to level.	Apply glue to spider or frame where spider lip sits	Press down evenly	Dry fit cone
Gently open mouth of cone if hard to fit over voice coil	Apply glue to frame where cone will sit	Use side of glue tip to spread glue evenly	Install cone	Press down evenly on all sides
Apply glue to gasket. use side of tube to spread	Install gaskets and masking tape in place	Dispense two part epoxy onto dry surface.	Mix with poker or toothpick	Spread epoxy where voice coil and cone meet
Spread epoxy evenly where spider meets cone	Turn upside down and let rest overnight	When dry, remove shims	Make holes for pigtails if needed	Holes in cone should be approx 1" above vc leads
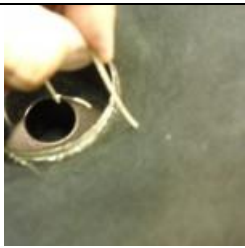
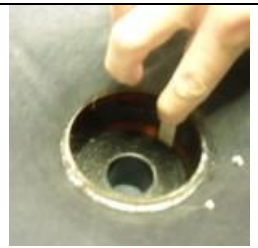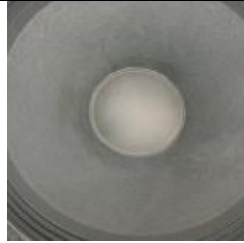|				
Install pigtail leads	Press into curve and up cone. Wrap at pigtail	Leave an arch, solder and cut lead	Glue leads to cone	Clean inside gap w tape if buzzing
Spread glue on dustcap	Center cap on cone	Apply latex if cloth is untreated. Let dry.	Congrats. You're done	