RECONE INSTRUCTIONS FOR 2261FF USING CA ADHESIVES

Revised 2/4/2008

WARNING: CYANOACRYLATE (CA) ADHESIVES BOND SKIN INSTANTLY. YOU MUST WEAR SAFETY GLASSES WHEN USING CA ADHESIVES

Introduction

Recent speakers from JBL require stronger adhesives than before to ensure proper performance. This document describes an improved repair process for certain JBL speakers using a widely available CA (Cyanoacrylate) adhesive similar to those used on the original speaker. This recone process is faster and makes a stronger speaker than the previous methods, which used only solvent-based adhesives. The new adhesives are **Loctite Prism 410 and Loctite 7452 Accelerator**. Recone kits for these speakers do not contain the new adhesives. They can be obtained from Loctite and their distributors. See the web site at www.loctite.com and search for the product numbers below.

Loctite 410 – Black CA

	Loctite Product #	Approx Price
3 gm tube	41004	
20 gm tube	?	
1 oz bottle	41045	$15
1 lb bottle	41061	$200
2kg (4.4 lb) bottle	41088	

Loctite 7452 Accelerator

	Loctite Product #	
.7 oz Aerosol Can	18637	
1.75 oz bottle	18490	
1.75 oz Spray	18580	$6
16 oz can	na	
1 quart can	18575	$30
1 gallon can	18576	

The Loctite web site contains important information about availability, storage, safety, and proper usage of the adhesives.

The cones and domes used in these recone kits are water-resistant and don't require any additional treatment after reconing.

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Applicability

This procedure applies to 2261FF. A separate process applies to other CA recone speakers.

TOOLS & SUPPLIES REQUIRED:

AMP 4 pin MATE-N-LOCK wire harness P/N 1-480425-0 or equivalent (4 pin computer power cable harness)
Loctite Prism 410 Adhesive and 7456 Accelerator.
0.105" PIN GAUGE for magnetic gap.
GAP CLEANING (masking) TAPE
UTILITY KNIFE
WIRE CUTTERS
FRAME CLEANER/SCRAPER
Single Edge Razor Blades
CLOTH RAGS
TWEEZERS
WHITE PENCIL
SOLDERING IRON
CARD BOARD DIGGERS
DOME WEIGHT
TEFLON OR ORANGE STICK
AIR GUN
SAFETY GLASSES
LOW FREQ. TEST STATION
MAGNIFYING LIGHT
SPRAYER FOR ACCELERATOR
No. 2 Phillips screwdriver.
Cleaning Solvent (M.E.K. OR ACETONE)

Inspection

Inspect speaker carefully before disassembly. Look for and record the following:

Model number, serial number, date code, customer, and complaint.
Obvious damage or defects.
Rubbing/Buzzing.
DC resistance.
Damaged dust dome.
Damaged cone.
Glue bond, compliance to frame.
Lead dress.
Other defects.

Remove dust dome. Look for and record the following:

Voice coil rubbing in the gap.
Evidence of cone collapse near the voice coil joint.
Broken tinsel leads
Chips in the gap.
Other defects.

Remove the cone assembly, lead assembly, and terminal cup. Look for and record the following:

Coil condition: Overheated, rubbing, chip gouges, voice coil date code.
Coil to cone and spider bond.
Bent or broken frame.
Loose magnet assembly.
Loose frame to magnet assembly.
Foreign material in the gap.

Check gap concentricity with appropriate gap gauge. Be sure to check both upper and lower gaps.

Clean up Speaker

Cover magnet gap with tape. Scrape and sand cone edge land and spider land until clean and flat.
Clean all dust and dirt from speaker. Blow off speaker with compressed air.
Clean cone edge land and spider land with solvent and a clean rag.
Remove tape from gap and blow out magnet gap with compressed air.
Clean top plate area of any debris
Clean magnet gap with solvent and a rag.
Fold piece of masking tap lengthwise around cardboard "digger" with adhesive exposed. Insert in gap and rotate. Make sure you are deep enough to clean both upper and lower gaps. Repeat until tape remains clean when withdrawn. Check gaps with magnifying light.

Install Cone Assembly

Unpack recone kit and inspect for damage. Check coil for roundness.
Place Mylar tube over pole piece.
Write the date and your initials on the back of the cone kit with a white pencil.
Examine the cone assembly and note that there are 2 pairs of wires connecting the clear silicone plug to the voice coil. These should not be twisted. If they get twisted, rotate the plug to untwist the leads.
Apply a 3/16" (4.75 mm) wide bead of CA glue to frame at spider seat.
Apply a 3/16" (4.75 mm) wide bead of CA glue to cone edge land.
Install the cone assembly to the speaker. Weigh down the cone assembly enough to hold the spider and cone edge gently into the adhesive. A 2 or 3 ounce weight should be sufficient. A partial roll of masking tape or similar works well. Press spider into glue with orange stick. Proceed to the next steps quickly before the adhesive at the cone land dries.

Install Trim Ring

Apply a small bead of CA glue to the extreme outside of the ring land on top of the cone edge. Avoid gluing the trim ring to the outside of the edge roll. This would increase distortion. Install the trim ring.
Spray the cone and spider glue beads with accelerator The adhesive will set in a few minutes and dry in a few hours, depending on the relative humidity and size of the glue bead. The more humid the ambient air, the faster the adhesive will cure.
Remove the cone weight when adhesive is dry.

Don't forget to remove the Mylar spacer tube from inside the voice coil!!

You will need to move the silicone plug out far enough to the side to allow the Mylar spacer tube to be removed.

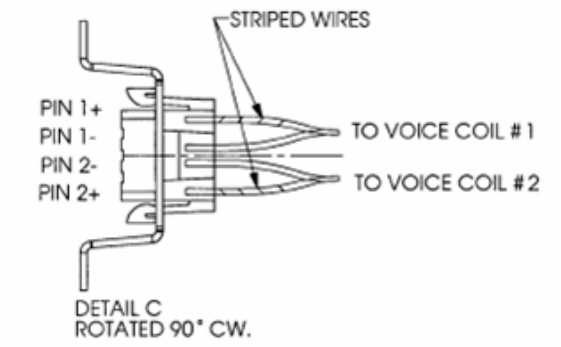
Install the Silicone Plug

Moisten the silicon tinsel assembly shaft where it slides through the hole in the center of the motor. Windex glass cleaner works well as a lubricant to help insert the silicon plug since it dries without leaving any slippery residue - this is important since the plug relies on friction, not glue, to hold it in place. Feed all four contacts and lead wires through the center of the magnet assembly and seat the silicone plug fully into the magnet assembly. Make sure the tinsel leads are not twisted. To ensure that the silicone plug is fully seated, it helps to push down on it with one hand, while GENTLY pulling on the leads from the rear of the speaker. Do not pull the tinsel leads too hard – you want to avoid having the black wires slide within the clear plug. When fully seated, you should not be able to rock the silicone plug side to side, and the outer edge of the plug will be flush with the step in the magnet assembly. If you are unable to seat the plug fully, you can pull it out again and try lubricating the shaft to try again.

Confirm the amount of slack in the tinsel lead wires appears as in **PHOTO#1** on the next page – the wires should exit the inside of the voice coil horizontally, and make a gentle transition to the silicone plug.

Install the Terminal Cup

A new terminal cup and 2 new screws are included with the recone kit. This driver has 4 wires – one pair for each of the voice coils. Note that the contacts on the end of the leads are NOT keyed. Take extra care to insert each of the 4 wires into the correct slot in the housing. Study the diagram below carefully before proceeding! Once the contacts are inserted, it is difficult to remove them without a specialized tool.



Select one of the 2 wire pairs coming from the shaft of the silicone plug. Take the white striped wire from that pair and insert it into one of the 2 outermost positions in the plastic housing. Next take it's corresponding black wire and insert it in the slot adjacent to the one you just installed. Repeat for the other set of wires, installing the white striped wire in the outermost position, and the black wire from that pair in the slot next to it. **The pairs must remain together!** It does not matter which of the two wire pairs are in the upper position, as long as the white stripes are on the outside, and the corresponding black wire from that pair is next to it.
Slide the contact into the correct slot on the terminal cup until it clicks into place fully. Tug on each wire to make sure it will not come out.

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INSTALL THE TERMINAL CUP

Note that there is a JBL logo on the terminal and one on the frame. Align the terminal so that both logos appear upright.
Attach the terminal cup to the speaker with the 2 new screws provided.

Photo #1. Correct Tinsel lead installation. Notice the tinsel leads are not twisted, and the clear silicone plug is fully seated in the magnet assembly.	
Photo #2. Correctly installed wires / terminal cup assy. Notice the wire pairs remain together, and the white striped wires are towards the outside of the housing. Ensure the contacts are fully inserted into the housing until they click into place. Tug on each wire after inserting to make sure each is positively locked into position.	
Photo #3. Fasten the terminal cup with the 2 screws provided. Make sure the JBL logo on the cup is in the same orientation as the logo in the frame.	

Install Dust Dome

Carefully center the dust dome on speaker and place dome weight on dust dome.

Apply a neat bead of black CA glue on dust dome/cone joint. A small gage tip extension on the glue bottle will give a neat appearance.

Accelerator HINTS for best dome glue appearance:
Spray sparingly and indirectly. Avoid directly wetting the CA bead with accelerator. The fumes will cure the adhesive.
Be patient. Indirect spray will take a little longer. Dome bead should skin over in a few minutes.
After the bead skins over, spray it directly to help cure the inside of the glue bead.
JBL recommends "air brush" sprayers, which generate a very fine mist and give the best appearance of the dome glue bead.

Drying The Adhesives

Speaker must stay in a cool, well-ventilated area until CA glue is completely dry to minimize frosting. Speaker should never be placed in a carton until adhesive is completely dry. Complete drying times will vary depending on ambient humidity. CA Adhesives dry slower in a dry room and faster in a humid room. When using accelerator, 4 hours drying time will usually be sufficient to minimize frosting.

Test and Pack

Because there is a possibility of getting the polarity backwards during re-coning, it is important to test these speakers for correct polarity using a battery. First apply voltage to pins 1+ and 1-. Make sure the positive voltage is connected to 1+. The cone must move forward, away from the magnet structure, per EIA standard polarity. Do the same with pins 2+ and 2-. Again positive voltage to 2+ should cause the cone to move in the same direction as before, away from the magnet.

To rub and buzz the driver, connect a 4 pin harness to the back of the driver which has been prepared so that pins 1- to 2+ are shorted together (this will put both voice coils in series and give an overall DC resistance of 2.0 to 3.0 ohms). This is a standard 4 pin wire harness which is commonly used as a power connector inside personal computers. It can be found at any electronics store or computer parts retailer. Hook up the test leads to pins 1+ and 2-. Sweep the driver at 7 Vrms from 10Hz to 1kHz. Careful! The driver is loud!

Example of 4 pin harness used to rub and buzz driver

Inspect, clean, and touch up speaker. Confirm that adhesives are completely dry before repackaging.