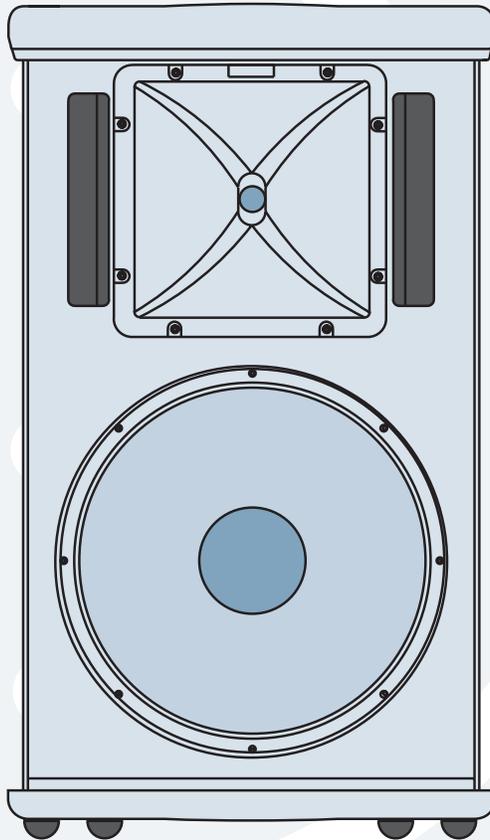




# SA1521 REPAIR MANUAL





These instructions are intended to help restore any ailing SA1521 Active Loudspeaker back to factory working conditions. They show how to remove and replace the drivers and the amplifier assembly.

Please contact Mackie Tech Support (1-800-898-3211) to receive a Service Request Number and Order Number for parts needed for this restoration. They will also help you determine the nature of the problem and what parts will repair the unit.

## Tools needed:

\*\*\*NOTE: not all tools listed below will be needed for your repair\*\*\*

- Phillips head screwdriver.
- 3mm and 4mm allen wrench.
- 10mm open end wrench.
- Solid workbench.
- Non-carpeted work area due to static electricity. If available, an ESD mat (Electro-static discharge) is optimal.

## Parts needed:

\*\*\*NOTE: not all parts listed below will be needed for your repair\*\*\*

- |                         |                   |             |
|-------------------------|-------------------|-------------|
| • Led PCB Assembly      | Part #0007334     | pages 3-4   |
| • 15" Woofer            | Part #0008877-01  | pages 5-6   |
| • High Frequency Driver | Part #0008093     | pages 7-9   |
| • Diaphragm             | Part #coming soon | pages 10-11 |
| • Amplifier Assembly    | Part #0006229     | pages 12-15 |

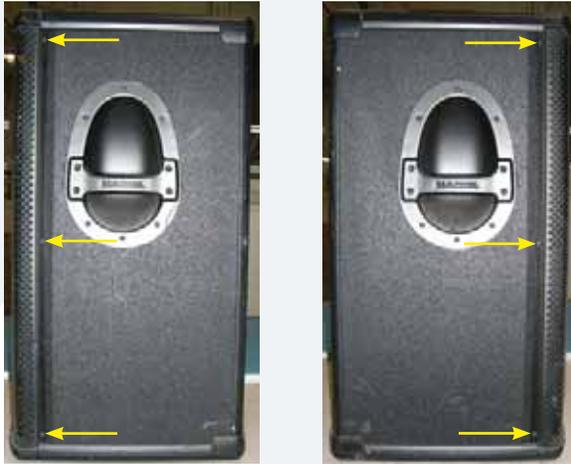
## Safety Warnings:

- Make sure that you turn off the unit and disconnect the power cord (and all other cords) before you begin these procedures.
- Always use safety glasses!
- Please try NOT to touch any of the pcb circuitry, capacitors, resistors, etc.
- Take care to read and follow these instructions. It may help to read the instructions prior to the repair to get an idea of what it entails.
- Before beginning the repair, touch metal to discharge any lingering internal static electricity.





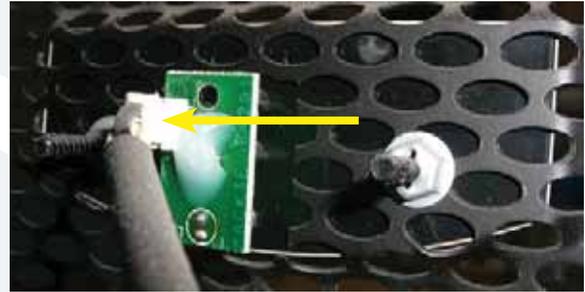
# Led PCB replacement:



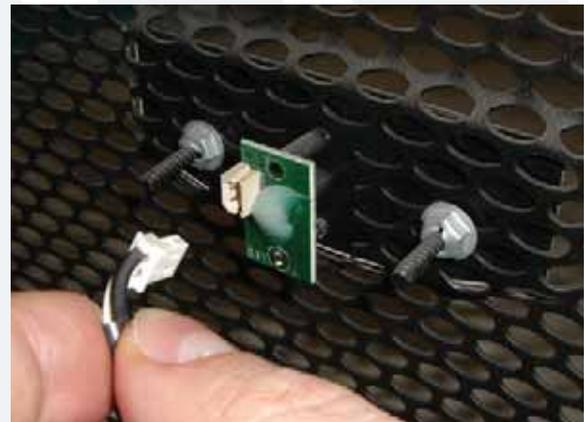
**1** Three screws need to be removed from each side of the grill using the phillips head screwdriver (six screws in all).



**2** Keep the six screws in a safe place.



**3** Carefully begin to remove the grill. Do not fully remove the grill as the cable is still firmly attached to the led PCB assembly.



**4** Carefully remove the cable attached to the led PCB assembly.

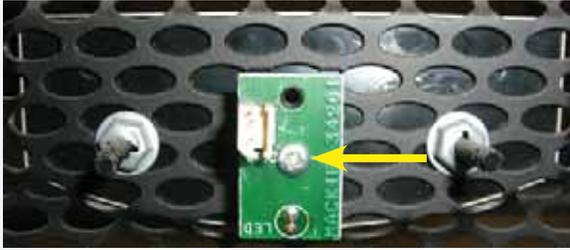


**5** A screw needs to be removed from the led PCB assembly. However, it is covered by a dollop of glue which must be removed first. Needle-nose pliers and wire cutters work well here. The connection is secure and does not need to be covered with glue again.

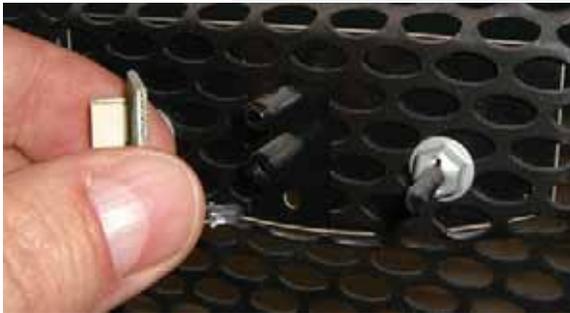




## Led PCB replacement continued:



- 6** Use the phillips head screwdriver to remove one screw near the center of the led PCB assembly.



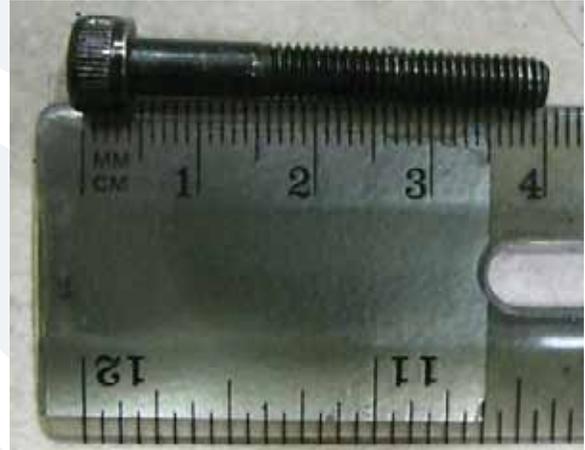
- 7** Carefully remove the led PCB assembly from the back side of the grill.

- 8** The hard part is done, the rest is easy! Place the new led PCB assembly (part #0007334) where the old one was. Follow the same steps as above, but backwards 7 to 1. Power up the SA1521 and the led should light up. Congratulations, you just replaced an led PCB assembly...now go play some shows!



# Woofers replacement:

**1** Follow steps 1-4 of the led PCB replacement instructions, as the grill will need to be removed in order to access the woofer.



**3** Keep the eight screws in a safe place.



**2** Eight screws need to be removed from the woofer using the 4mm allen wrench.

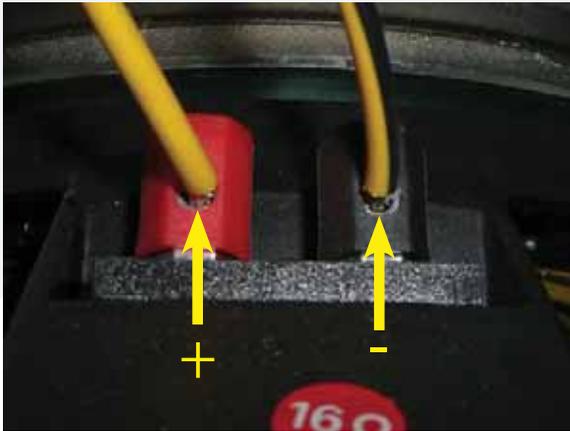
**4** Carefully begin to remove the woofer. This woofer has a tendency to want to "pop out," so please be sure to hold the woofer in place with your free hand while removing the screws with the other hand.

**Caution:** The woofer is approximately 17 pounds.





## Woofers replacement continued:



- 5** The positive (solid yellow) and negative (yellow and black) cables are still attached to the woofer terminals.



- 6** Remove the cables from their terminals simply by pushing down on the terminal and pulling out the cable.



- 7** This is what it looks like with the grill and woofer removed. Place the new woofer (part #0008877-01) where the old one was. Follow the same steps as above, but backwards 6 to 1, making sure to keep the led PCB assembly cable in front of the woofer. Power up the SA1521 and the new woofer should now be pumping out glorious lows. Awesome, you just replaced a 15" woofer!



# High Frequency Driver replacement:

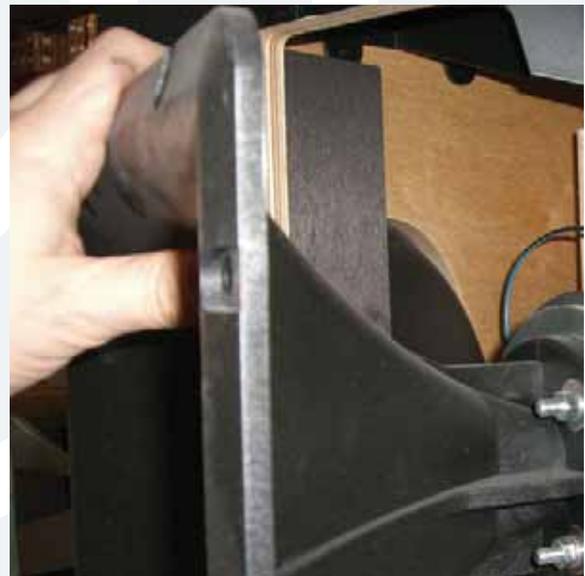
**1** Follow steps 1-4 of the led PCB replacement instructions, as the grill will need to be removed in order to access the high frequency driver.



**2** Eight screws need to be removed from the horn using the phillips head screwdriver. The horn assembly lines up nicely with the cabinet no matter which way it is put back together. You get to choose if you would prefer vertical disperement (as shown above) or horizontal disperement (rotate horn assembly 90 degrees left or right).



**3** Keep the eight screws in a safe place. Note: There are two different screws that connect the horn assembly to the cabinet.



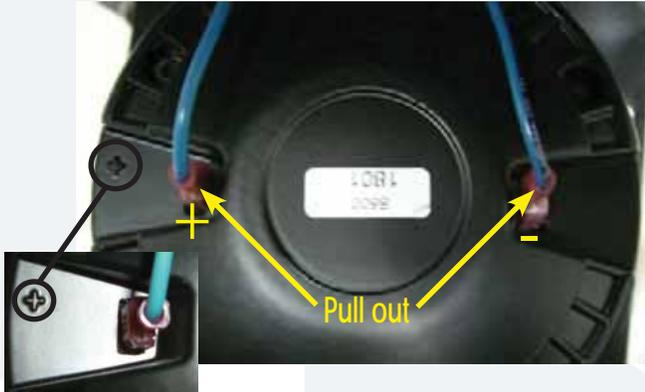
**4** Carefully begin to remove the entire horn assembly (with the high frequency driver still attached).

**Caution:** The horn weighs approximately 8 pounds.





### High Frequency Driver replacement continued:



**5** The positive (solid blue) and negative (blue and black) cables are still attached to the high frequency driver terminals. Notice the positive (+) mark embossed on the cover plate (circled above). Do not force cable removal or connection, although needle-nose pliers may aid in loosening the crimped cables.



**6** Four nuts and eight washers may be removed from the driver using the 10mm open end wrench. Turn counter-clockwise to loosen and remove, clockwise to tighten. Notice that the flat washer is on the bottom, followed by the locking washer, and finally the nut on top.

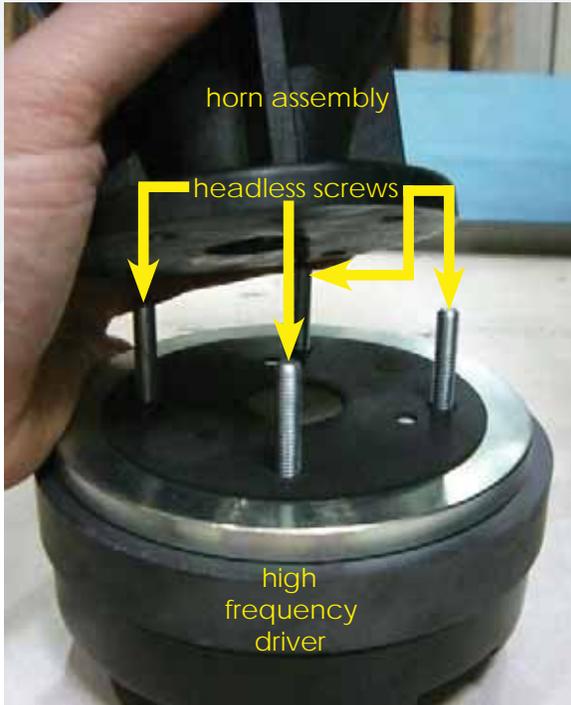


**7** Keep the four nuts, four locking washers, and four flat washers in a safe place.





High Frequency Driver replacement continued:



8 The horn assembly should easily lift right off of the high frequency driver. Once the horn is removed, the four headless screws need to be liberated from the high frequency driver. Pliers may aid in the headless screw liberation.



10 This is what it looks like with the grill and horn assembly removed. Attach the new high frequency driver (part #0008093) to the horn assembly by following the same steps as above, but backwards 9 to 1. Power up the SA1521 and the new driver should now be pumping out those highs again. Fantastic, you just replaced a high frequency driver!



9 Keep the four headless screws in a safe place.



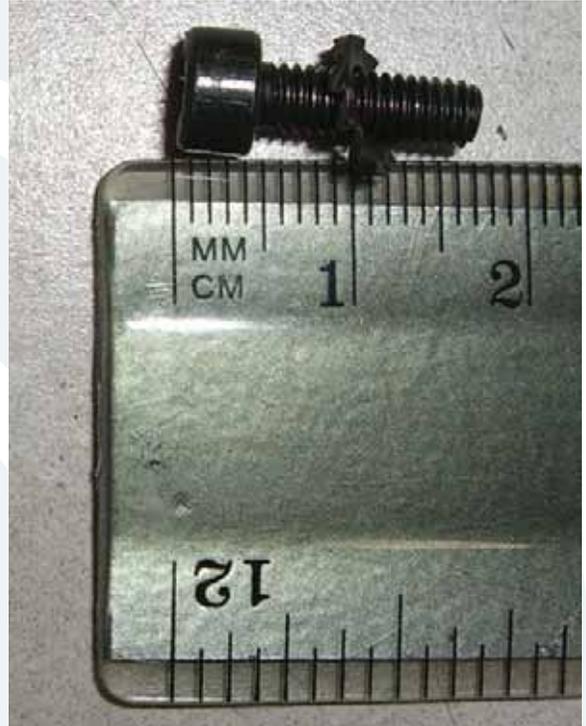


# Diaphragm replacement:

- 1** At the present time (December 2006), diaphragms are not currently available, so you will have to replace the complete driver following the previous section (pages 7-9). If you have received a diaphragm, please follow the steps below.
- 2** Follow steps 1-5 of the high frequency driver replacement instructions, as the horn will need to be removed in order to access the diaphragm.



- 3** The horn is shown above with the high frequency driver circled. Three screws need to be removed from the driver using the 3mm allen wrench.



- 4** Keep the three screws in a safe place.



- 5** The plate adapter is easily removed from the horn assembly. However, the diaphragm still patiently awaits to be removed.





Diaphragm replacement continued:



6 Once the plate adapter is put aside, the diaphragm may be easily removed from the horn assembly.



7 This is what the back side of the diaphragm looks like. Notice where the positive (+) terminal is located when reattaching the cables. Place the new diaphragm (part # coming soon) where the old one was. Follow the same steps as above, but backwards 6 to 1. Power up the SA1521 and the new diaphragm should now be pumping out those highs again. Sweet, you just replaced a diaphragm!





# Amplifier Assembly replacement:



**1** Fourteen screws need to be removed from the amplifier assembly using the phillips head screwdriver. The amplifier assembly is capped by two cover plates as outlined above.



**2** Keep the 14 screws in a safe place.



**3** The covers may be worked loose by wedging a flat head screwdriver in between the cabinet and the cover, as well as the amplifier assembly and cover. Make sure to get around the entire cover plate in order to be able to remove them.

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## Amplifier assembly replacement continued:

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- 4 Once the two cover plates are removed, two more screws need to be taken out in order to separate the amplifier assembly from the cabinet. Keep the two screws in a safe place.



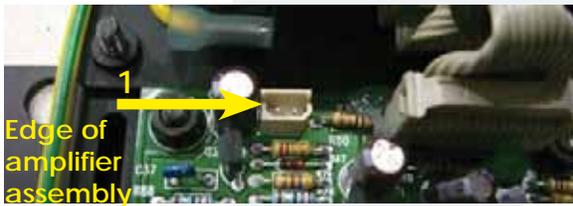
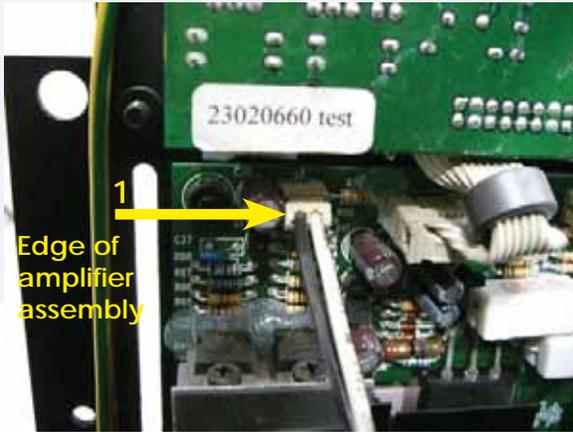
- 5 The amplifier assembly is now ready to be separated from the cabinet. Do not completely take the amplifier assembly off yet, as some cables need to be removed first. The led PCB cable (1) is towards the top of the amplifier assembly. The other four cables are paired off. The first pair (A) is the horn connection: blue and black (2) and solid blue (3). The second pair (B) is the woofer connection: yellow and black (4) and solid yellow (5). Closeups of all cables and connectors are shown on the following page.



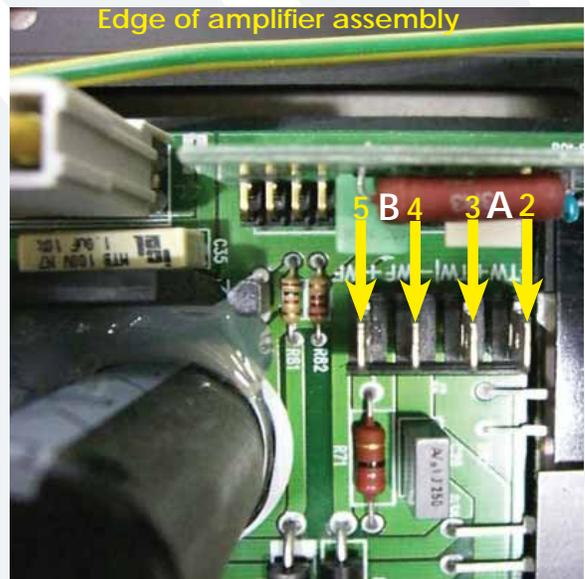
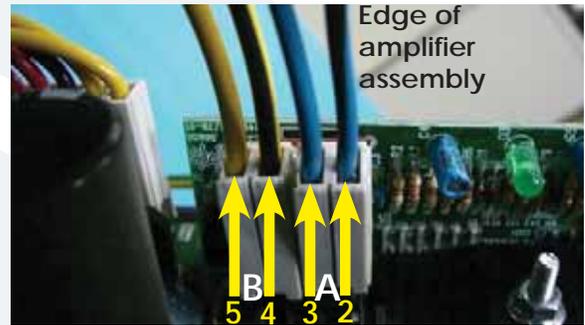
**Caution:** The amplifier assembly is approximately 15 pounds, so please make sure to grasp it firmly.



Amplifier assembly replacement continued:



6 Closeups of the led PCB cable and connector are shown above. The black wire of the cable is closest to the edge of the amplifier assembly. The cable only fits in one way.



7 Now for the closeups of the woofer and driver terminals. Make sure the cables are reconnected to the same terminals they were removed from (but on the new amplifier assembly). Once again, they connect as follows: The led PCB cable (1) is towards the top of the amplifier assembly. The other four cables are paired off. The first pair (A) is the horn connection: blue and black (2) and solid blue (3). The second pair (B) is the woofer connection: yellow and black (4) and solid yellow (5).





## Amplifier assembly replacement continued:



**8** Place the new amplifier assembly (part #0006229) where the old one was. Follow the same steps as above, but backwards 7 to 1. Remove the serial number from the faulty amplifier assembly (as shown in picture above) and place on the new amplifier assembly. Power up the SA1521 and relish in the fact that you just replaced an amplifier assembly. Hats off to you for a job well done!

**9 Important:** The faulty amplifier assembly must be returned to LOUD Technologies. The address should be on the return shipping label that was provided with the new amplifier assembly. If not, the return address is at the top of this page. Also, please write the order number and service request number (ex: 1046256-1203935) in big, black, bold numbers on the outside of the box. This helps expedite the return.