

Service Bulletin # CS-51 Sub-1

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Serial Number : All

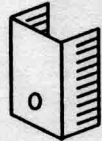
Date: 3rd June 1998

Problem : The regulator IC's tend to overheat, eventually causing defective solder joints.

Solution : Touch up the solder joints and add a bolt-on heatsink to IC Q1 and Q10

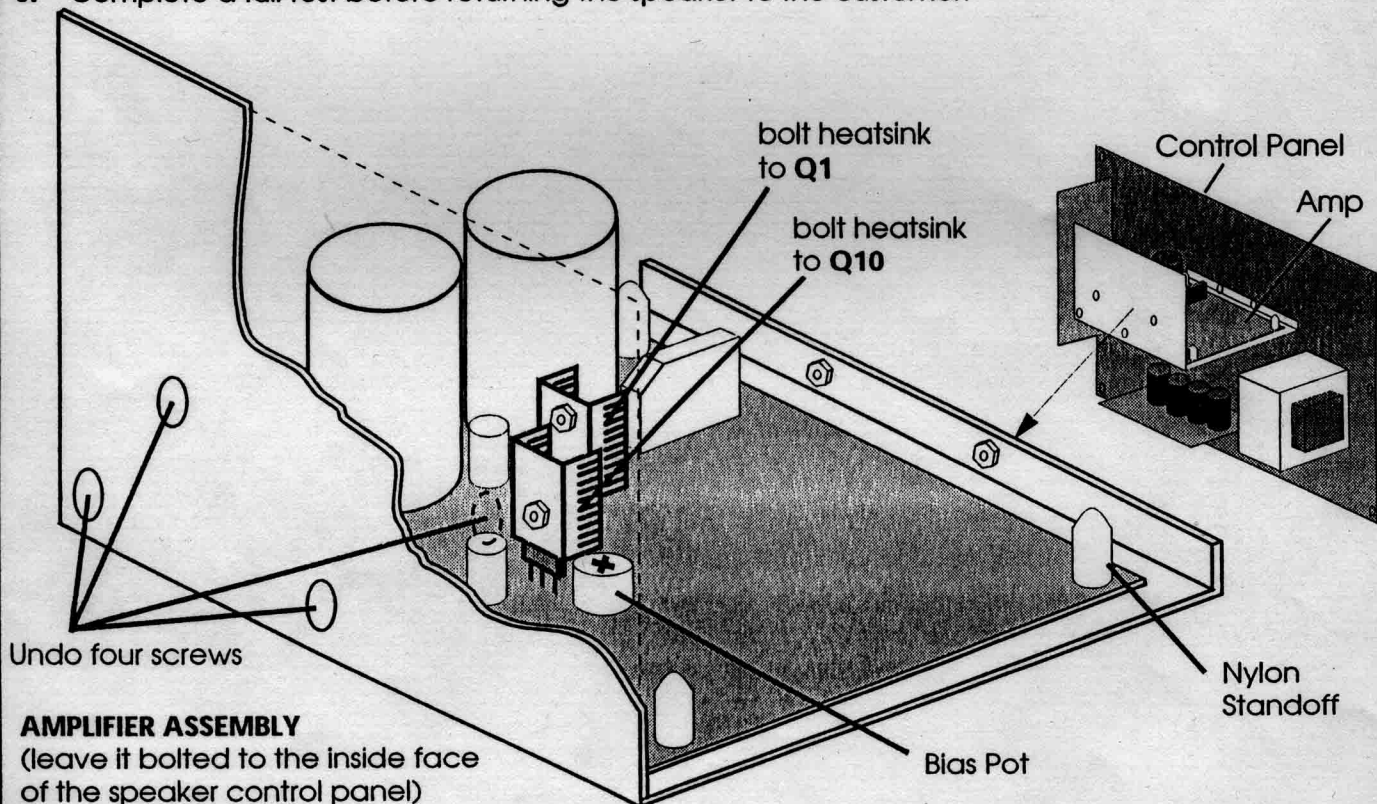
Parts Required :

Quantity	Description	Carver Part #
2	Heatsink, TO-220, Vertical, 5W	107-00107-01 or Digikey part HS105ND
2	Machine Screw, 4-40 x 1/4"	151-20001-00
2	Keypnut, 4-40	152-10001-00



Repair procedure :

1. Remove the Control Panel from the speaker and locate the amplifier circuit board.
2. Remove the amplifier circuit board by first undoing the four screws and then gently releasing it from the grip of the three nylon standoffs. Undo any wires if this will help you.
3. Touch up the solder joints on Q1 and Q10
4. Add a small heatsink to Q1 and Q10, using a lock-nut and screw. The heatsink for Q10 can be fitted upside down so it does not touch the Bias adjustment pot next to it.
5. **Make sure the heatsinks do not touch adjacent parts, especially the capacitors.**
6. Replace the amplifier board and tighten the four screws, making sure the main transistors Q7 and Q8 are secured to the main heatsink with their clips. Reconnect all wiring.
7. Verify that the speaker is working correctly and that no other problem is found.
8. Refit the control panel to the speaker box, making sure all mounting screws are tight.
9. Complete a full test before returning the speaker to the customer.



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Date

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you may need to trim the heatsink fins to clear existing parts. This can be done with a wire cutter.

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Problem: Voltage Regulator Transistors Q1, Q10 overheat. They or their solder joints eventually fail. Output Transistors Q7, Q8 run too hot.

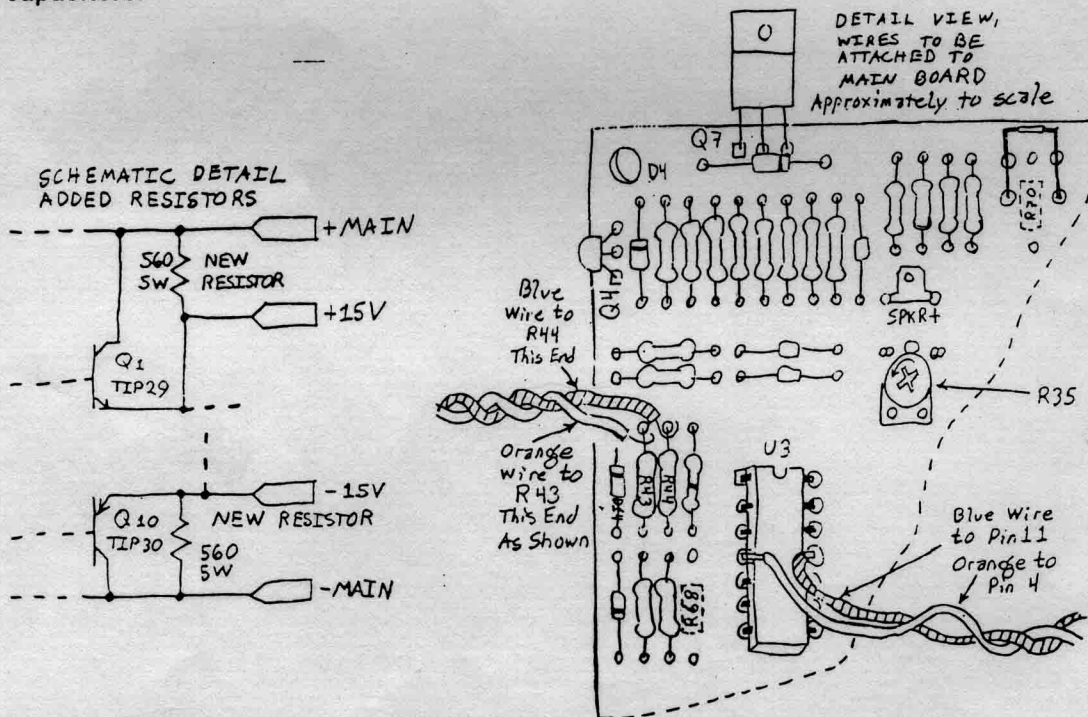
Solution: Touch up the solder joints and add current-shunting resistors to Q1, Q10, and a larger Heat Sink.

Parts Required:

Quantity	Part Number	Description
2		560Ω, 5W Resistor
1		Cable Tie for mounting Resistors (6")
As Required		RTV for mounting Resistors
2		Wire assembly pairs for resistors. (22AWG, Orn, Blu, 6")
1		Heatsink Plate, drilled
As Required		Heatsink Thermal Grease
3	502-012-00	#6-32 Pan-Head Screws, Black, 3/8"
1	521-001-00	#6-32 Kep Nut

Repair Procedure:

1. Remove the Control Panel from the speaker and locate the amplifier circuit board.
2. Remove the amplifier circuit board by first undoing the four screws and then gently releasing it from the grip of the three nylon standoffs. Undo any wires if this will help you.
3. Touch up the solder joints on Q1 and Q10. Do not remove any heat sinks previously added to them.
4. Solder the wire assembly pairs to the appropriate locations on the circuit board as follows:
 Pair 1: Orange to U3 pin 4, Blue to U3 pin 11.
 Pair 2: Orange to R43's pin towards the main heatsink (which is next to D14's Cathode),
 Blue to R44's pin towards the heatsink (next to R43).
SEE DIAGRAM BELOW
5. Adjust the R35 Pot fully counter-clockwise.
6. Replace the amplifier board onto the nylon standoffs. Do not replace all four screws yet, but just those two to make sure the main transistors Q7 and Q8 are secured to the main heatsink with their clips.
7. Make sure the heatsinks on Q1, Q10, if installed, do not touch adjacent parts, especially the capacitors.



This Service Bulletin Supersedes Bulletin CS-51 Sub-1.

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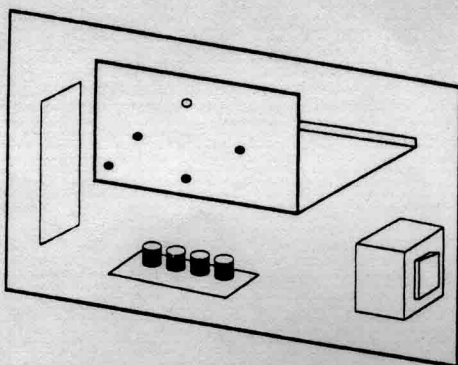
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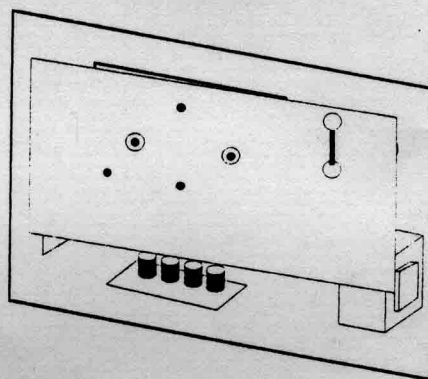
Repair Procedure:

8. Apply a film of the Heatsink Thermal Grease to the existing heatsink's back surface. Attach the new Heatsink Plate with three #6-32 screws, the upper one using the Kep Nut, the lower two replacing the existing mounting screws.
SEE DIAGRAM BELOW
9. If not already attached, solder the wire pairs to the new power resistors: the two Orange wires (one from each pair) go to the two terminals of one resistor, and the two Blue wires go to the other resistor.
10. If the resistors are not already attached, apply RTV to them and to the new Heatsink Plate and tie-wrap the resistors to the appropriate location. Reconnect all wiring except the driver's. The RTV will secure the resistors after it dries.
SEE DIAGRAM BELOW
11. Power-up the circuit and check that the regulated +15V and -15V power supply rails each measure between 14 and 17 Volts in magnitude to GND (SPKR-). The supply rails are available on the leads of the new resistors that are attached to U3. Power OFF.
12. Finish reassembly and verify that the speaker is working correctly and that no other problem is found.
13. Refit the control panel to the speaker box, making sure all mounting screws are tight.
14. Complete a full test before returning the speaker to the customer.

Before new Heatsink Plate:



After new Heatsink Plate:



Resistor Mounting Detail:

