



## Factory Service Bulletin

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p/a WAALHAVEN Z.Z. 48, 3088 H.J. ROTTERDAM, THE NETHERLANDS

SUBJECT: MEMORYMOOGS BELOW S/N 3000  
~~POWER SUPPLY UPDATE~~  
Kit P/N 997-044696-001

BULLETIN: 838A

DATE: November 17, 1983 (Supersedes earlier versions)

SYMPTOMS: Memorymoog "LOCKS UP" - no sound and no controls or switches function. Locks up in preset 88 and "\*\*\*MOOG\*\*" is displayed. "Dumps" from one to 100 presets. Locks in AUTOTUNE with all displays blanked out.

Tuning of all oscillators is flat or sharp by several semitones.

Vibration causes the Memorymoog to edit into potentiometer settings or the Memorymoog continuously edits.

CAUSE: The power supply pass transistor leads are oxidizing and moving relative to the sockets mounted on the circuit board (fretting corrosion of contacts). Excessive stress to the main connector after final assembly.

Flux at digital board ground.

Intermittent short circuit of harness from Left Hand Controller to the power transformer case or the base reinforcing ribs.

SOLUTION: Unplug the four plug-in connectors from the POWER SUPPLY board. Remove the three large phillips head screws which secure the 1/4" coupler plate to the black heat sink. Remove the power supply board and coupler plate by grabbing the power supply board at the top and pulling it forward. NOTE: It is NOT NECESSARY TO REMOVE THE BLACK HEAT SINK. Place the bottom of the coupler plate on a sheet of paper (e.g. legal size envelope).

Remove each pass transistor which is mounted with a small phillips-head screw and unsolder the associated socket. Bend the "ends" of each lead of the transistor as shown and solder it directly to the board. Add the black plastic coupling clamps as shown, Moog part number 964-046113-001. Insure the MICA insulators are correctly repositioned under the pass transistors to avoid short circuits to the heat sink and discard the four shoulder washers. Replace the 4-40 1/4" (6mm) pass transistor mounting screws with 4-40 3/8" (9mm) screws, Moog part number 806-023039-006.

Carefully unsolder and remove the large 15 pin header at the top center of the Power Supply board. Replace it with a 15 pin right angle header, Moog P/N 910-046117-015. Check each of the four pass transistors with an ohm meter for a COLLECTOR (mounting tab or middle lead) to coupler plate short, which indicates a shifted MICA insulator. Clean the male pins of the three 3-pin transformer headers on the power supply board with a pencil eraser. Add additional heat sink compound to the coupler plate (if necessary) and remount the power supply board and coupler plate assembly. Spray the female ends of the four plug-in connectors with contact cleaner (e.g. CRAMOLIN RED) before



MAESTRO



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reconnecting to the power supply board.

The wire harness from the PITCH and MODULATION wheels is tie-wrapped to a nylon clip approximately 9" (228mm) from the wheels. Remove the screw holding the nylon clip in place. Attach the nylon clip to the L.S.C. board mounting stud located near the "ENTER" switch. Inspect this harness for cut or damaged wires and repair as necessary. Reinstall the screw which originally held the nylon clip back into the end cap.

The transformer wires leading to the power supply (two red, two grey and two yellow wires) should be secured together (tie-wrap where necessary) along the first 3" (76mm) of wires exiting the transformer with a large tie-wrap, Moog part number 976-042299-004. A 7-3/4" (197mm) piece of continuous grommet, Moog part number 916-041636-001, should be placed on the right edge of the transformer support bracket underneath these various wires.

The heavy green ground wire from the DMUX to the Digital Board should be checked for any residual flux on the Digital Board and scrapped away if flux is found. On the Digital Board, resistor R14 should be paralleled with a 10K 1/4 5% resistor to reduce any leakage possibilities from the RAM ENABLE line to ground which can cause "lock-up".

**BATTERY:**

For Memorymoogs prior to serial number 1440, the battery mounting must be checked and modified if necessary. Depending on mechanical tolerances, the bolt head which secures the LEFT SIDE CONTROL board regulator U11 may press against the battery ultimately fracturing the solder connection or lead of the negative side. To prevent this, the regular screw should be replaced with a pop rivet. In addition, the battery should be secured in place with a tie wrap as shown and the battery leads paralleled with the flexible red and black wire provided.

**REINFORCEMENT  
PLATE:**

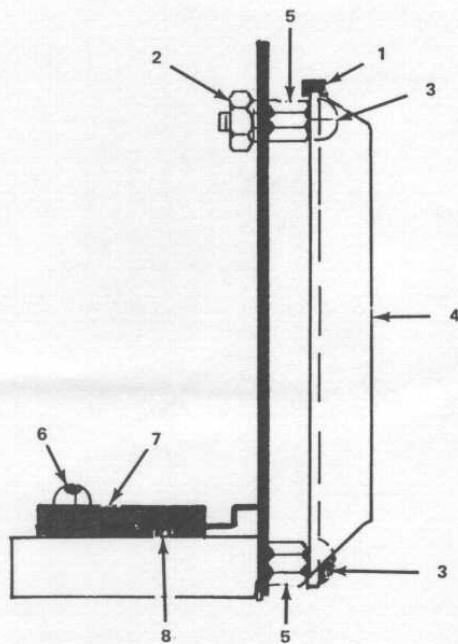
To absolutely guarantee that the power supply board will not flex during use, troubleshooting or assembly/dis-assembly, the following procedure describes how to install a reinforcement plate. This modification is recommended for Memorymoogs below approximately serial number 3000. Remove the three (3) black phillips-head screws holding the Power Supply board to the coupler plate and save for later use. Replace these screws with the three (3) 1/4" brass colored standoffs supplied. Tighten using a 1/4" nut driver or wrench taking care not to damage printed circuit board or snap off the standoff. Add an additional two (2) brass standoffs to the upper part of the printed circuit board and secure in place with two (2) of the #6 keps nuts supplied. Install the reinforcement plate to the standoffs using five (5) black phillips-head screws. Install the 3-1/2" (89mm) plastic extrusion (continuous grommet) to the top edge of the reinforcement plate.

**LABOR:**

This modification is estimated to take 60 minutes, should be performed on ALL units returned for service and will be reimbursed by Moog at a flat rate of \$20.00. This modification should be performed in warranty regardless of the warranty expiration date to the original owner.

**EMERGENCY  
METHOD:**

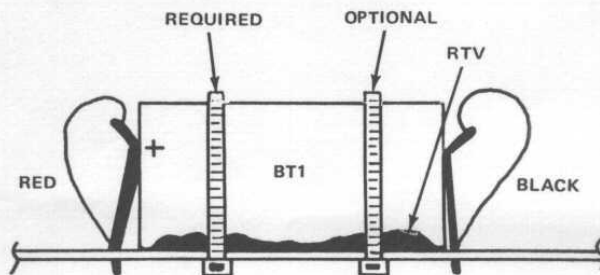
If any customer requires an immediate repair and there is no time to obtain the power supply kit, perform the above procedures using locally available parts. The power supply pass transistors may be turned 90 degrees and wired to the printed circuit board using suitable flexible insulated stranded wire.

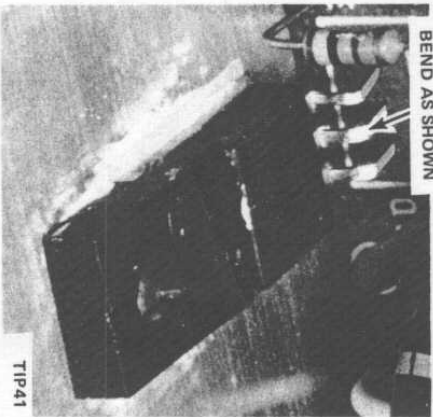


- 1) 4-1/2" Plastic Extrusion  
916-041636-001
- 2) 6-32 Keps Nuts  
802-045332-000
- 3) 6-32 x 5/8" Machine Screws  
806-045039-010
- 4) Reinforcement plate  
967-046114-001
- 5) 6-32 x 1/4" Hex Spacer  
973-040517-001
- 6) 4-40 x 3/8 Machine Screws  
806-023039-006
- 7) Black Plastic Couplers  
964-046113-001
- 8) Mica Insulators  
908-042674-001

**CAUTION:**  
Bend metal tangs ABOVE spot welds on the battery at a 45 degree angle and solder wires as shown. Make sure ALL power and audio cords are disconnected from the Memorymoog before soldering to battery, otherwise memory loss could result due to an earth ground loop to the positive terminal.

Rev. 1/12/84



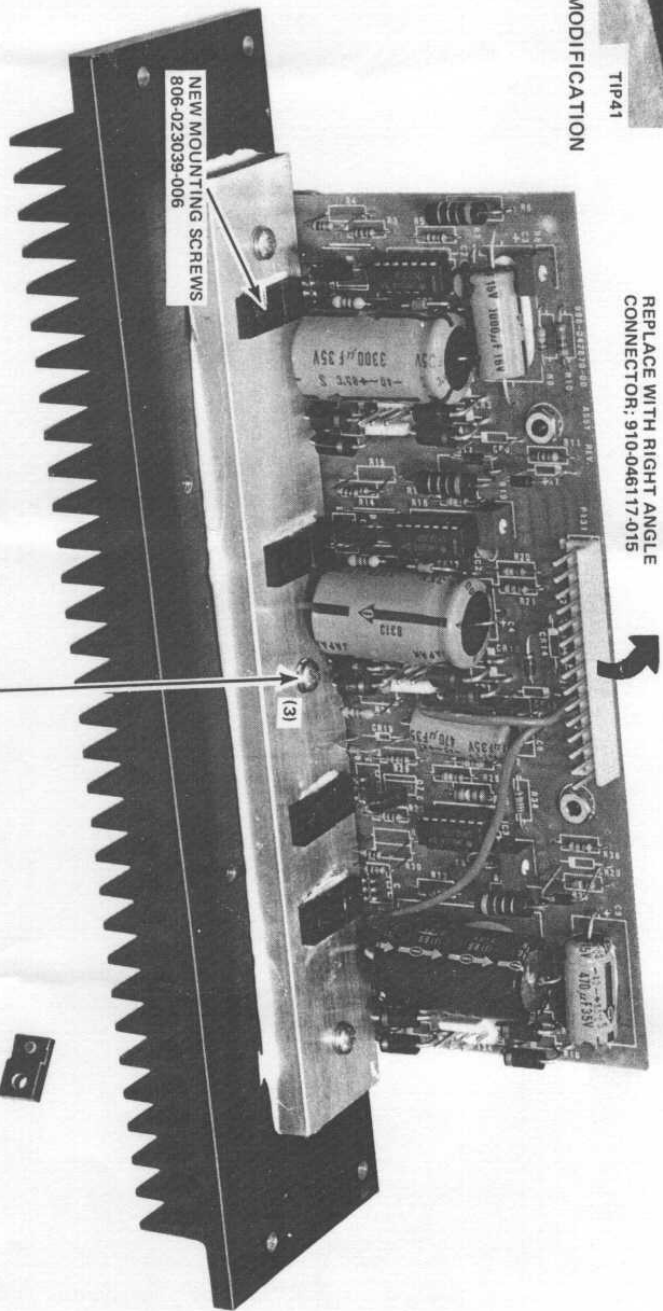


BEND AS SHOWN

POWER SUPPLY TRANSISTOR MODIFICATION

TIP 41

REPLACE WITH RIGHT ANGLE CONNECTOR: 910-04617-015



NEW MOUNTING SCREWS  
806-023039-006

(3)

TO DISASSEMBLE COUPLER PLATE, REMOVE 3 SCREWS  
TAPE TO AN ENVELOPE AND PERFORM UPDATES  
REFORM TRANSISTOR LEADS AND SOLDER TO BOARD  
REPOSITION MICA INSULATOR; ADD COMPOUND

NEW BLACK PLASTIC  
COUPLER: 964-046113-001