

Technical Data Sheet

HBH850 Series M+

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What is new in series M?

A Stiffener Plate has been added and placed behind the touch pad on the outside of the upper housing. When changing the Touch Pad the Stiffener Plate must also be changed.

Trouble Shooting Guide

- **Symptom:** During a normal cycle the machine stopped.
- **Cause:** The unit has possibly overheated without notice to the warning message indicating to run a cool down cycle. Unplug the machine 15-30 minutes. Plug in the unit and try to operate. If the problem persists proceed to Repair Guide.
- **Symptom:** No jar sensor indicator.
- **Cause:** PC board, membrane switch, ribbon connector or jar sensor has potentially failed.
- **Symptom:** The power switch fails to function.
- **Cause:** Check electrical connections. Ensure the PVC switch cover is present (moisture protection). If problem persists proceed to Repair Guide.
- **Symptom:** Motor runs 3-7 seconds and quits.
- **Cause:** Broken magnet on motor/hall effect sensor, hall effect sensor failure, PC board failure.
- **Symptom:** Blender keeps tripping wall circuit breaker.
- **Cause:** Unit needs a dedicated 15-amp circuit (no additional electrical devices should be operating on this circuit). If problem persists with the unit operating on a dedicated circuit the cause could be a shorted diode bridge on the power board.
- **Symptom:** Unit will not turn on.
- **Cause:** No power at wall outlet. Power switch not turned on. Circuit breaker has tripped. Wire disconnected. PC Board failure.
- **Symptom:** Unit will not power down or the display lights without the unit being turned on.
- **Cause:** Power switch failure. Measure continuity at switch. If the terminals are shorted proceed to Power Switch section of Repair Guide.
- **Symptom:** The unit displays a "Speed Sensor Error". **An audible "click" is evident when the start button is pressed (this is the relay applying power to the motor).**
- **Cause:** Inspect lead wire connections between motor and relay/rectifier board. Inspect The Hall Effect switch and plug. Ensure the Hall Effect magnet is present on the motor shaft. Check continuity through motor field coils. Check motor brushes. Reconnect wires as needed; replace the motor or motor brushes as needed.

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- **Symptom:** The unit displays a "Speed Sensor Error". **No audible "click is evident when the start button is pressed."**
- **Cause:** Inspect lead wire connections between TRIAC board and Transfer Board. Inspect the diode bridge for damage (this will be evident by a burned appearance on the bottom of the PCBA and a dead short that will cause the circuit breaker to open immediately after the start button is pressed). Correct bad connections. Replace transfer board as needed.
- **Symptom:** Display indicates that jar is not in place when jar is present and installed correctly.
- **Cause:** Verify that 4 magnets are present in the bottom of the container. Verify that jar sensor switch in the upper housing is present and functioning. Inspect jar sensor connection on main pc board. Possible touch pad failure.
- **Symptom:** Motor operates at excessive speed.
- **Cause:** TRIAC board failure.
- **Symptom:** USB port will not upload custom program.
- **Cause:** Verify that the correct program is installed in the main directory of the USB drive. Save program hbh850.usb into main directory of USB drive prior to loading into unit. If this does not resolve issue, contact HBB for new file as data may be corrupt. Inspect USB socket to verify that the plug is secured. Check continuity of cable connecting USB PCBA to micro controller / VFD PCBA. Replace cable if there are any open circuits. Check USB PCBA for damage (e.g. evidence of liquid ingress). If there is evidence of damage, replace USB PCBA.
- **Symptom:** Unit functions correctly but display is blank or fragmented.
- **Cause:** VFD Board failure. Proceed to Repair Guide.
- **Symptom:** Pixels will not illuminate on display
- **Cause:** Bad pixels. VFD Board failure. Proceed to Repair Guide.
- **Symptom:** One or more buttons on touch pad will not function correctly.
- **Cause:** Touch pad failure. Proceed to Repair Guide.
- **Symptom:** Excessive noise is evident during operation.
- **Cause:** Male clutch is not concentric. Replace.
- **Symptom:** Display indicates an error #51.
- **Cause:** Thermistor (heat sensor) in motor has lost connection or is not working. Check plug on main PC board, Do continuity test on plug for the sensor. Replace motor if sensor is bad.
- **Symptom:** Display indicates an error #29, #30, #42, #100, or #103.
- **Cause:** Communication malfunction between micro controller and EEPROM. Replace VFD board and display.

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- **Symptom:** Display indicates an error #60 or #62.
- **Cause:** EEPROM is defective or has corrupt data. Replace VFD board and display.

Repair Guide

Housing Disassembly

- Turn switch to the “off” position and unplug the machine.
- Remove the jar pad.
- Remove the four screws under jar pad feet.
- Carefully lift the cover from unit; wires will limit your movement.
- Disconnect the two leads to the circuit breaker/on off switch. Position the upper housing to the front of the machine. (See Fig. 1)

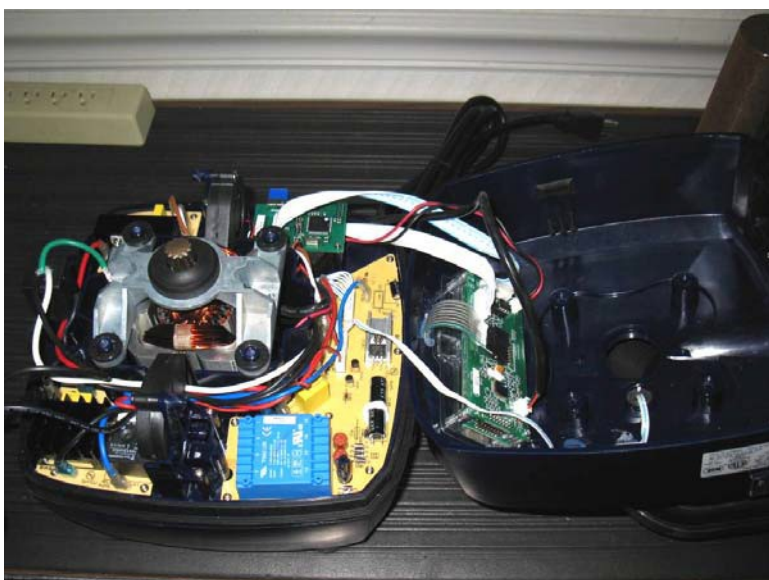


Figure 1. Unit with circuit breaker/on off switch leads disconnected and upper housing positioned to the front of the machine.

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Wiring Detail

Transfer Board Wire Routing and Current Readings (Left Rear) See figure 2.

- J302 - line current to motor.
- J301 - line current to motor.
- B102 - line current from TRIAC Board A102.
- A103 - .5V to main board. B103 (motor must be running to measure this position).
- A104 - 5V to main board B104.
- A105 - 5V to main board B105.
- Left fan to main board J106.

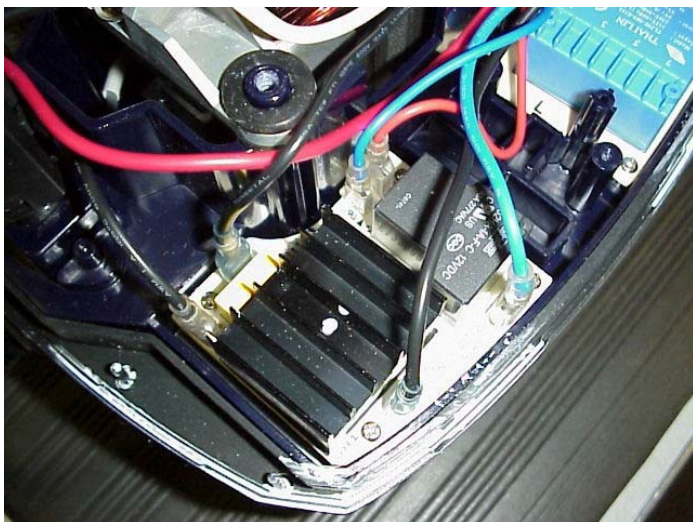


Figure 2. Transfer Board

TRIAC Board Wire Routing and Current Readings (Right Rear) See figure 3.

- A101 - line current to main board B101.
- A102 - line current to transfer board B102.
- A106 - line current to main board B106.
- A107 - line current to main board B107.
- Right fan to main board J107.

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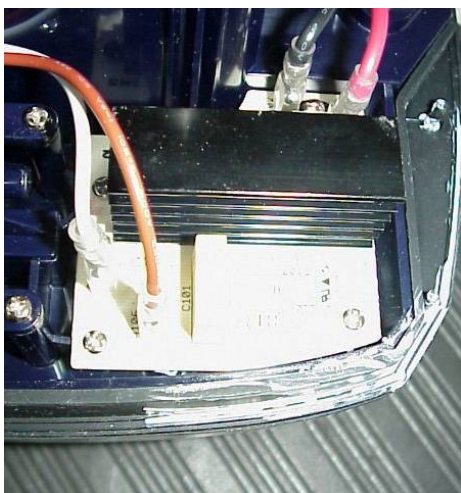


Figure 3a. TRIAC Board side view.

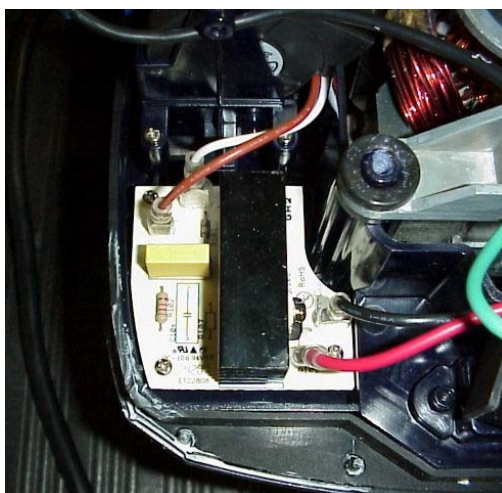


Figure 3b. TRIAC Board rear view.

Cord Connections

- Green to motor ground.
- White to main board J101.
- Black to circuit breaker terminal/on off switch toward top of machine in one of the two positions toward the front of the unit.
- Back terminal on the circuit breaker/on off switch is empty.

Main Board See figure 4.

- J102 - line current to remaining terminal on the front of the circuit breaker/on off switch.
- B101 - line current from TRIAC board A101.
- B103 - .5V from transfer board A103 (motor must be running to measure this position).
- J101 - line current from cord set white lead.
- B107 - line current from TRIAC board A107.
- B106 - line current from TRIAC board A106.
- B104 - 5V from transfer board A104.
- B105 - 5V from transfer board A105.
- 37 - 3 conductor cable connects to the jar sensor.
- J17 - Empty or has a small jumper between right hole and center hole.
- J2 - 8 conductor cable connects to the bottom edge of the VFD board.

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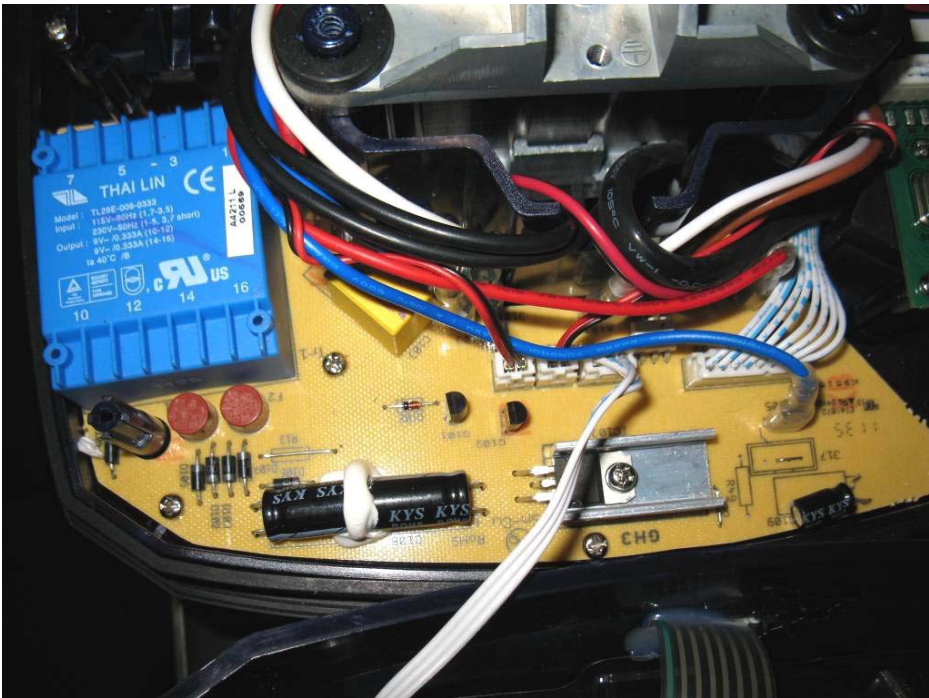


Figure 4. Main Board

VFD Board See Figure 5

- USB 8 conductor cable to the USB Board.
- 36 – 2 conductor cable to the heat sensor in the motor.
- 8 conductor cable to main board J2.
- 3 conductor cable to Hall Effect sensor on motor.



Figure 5. VFD Board (Vacuum Fluorescent Display)

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Motor Removal and Replacement

- Remove the ground screw that secures the green ground wire from the cord.
- Remove at least one of the DC fans. Most easily done by removing the 2 screws that hold the mounting bracket in place.
- No wires need to be disconnected to inspect the motor. You will need to disconnect the wires when you change the motor.
- Inspect the motor windings, fan and hall effect magnet. Replace motor as needed.
- Re-assemble in reverse order and ensure to replace wire ties you have removed.

Circuit Breaker/On Off switch Removal and Replacement

- Remove the upper housing (see Housing Disassembly above).
- Disconnect the cables from the cord and main board.
- Remove the neoprene cover over the switch.
- Pinch the two ends of the switch toward center and push out through the hole in the upper housing.
- Re-assemble in reverse order.

VFD Board Removal and Replacement

- Disconnect all electrical leads.
- Remove the 4 screws securing the top board and remove the board.
- Remove the 4 screws securing the display and remove the display.
- We recommend that you replace the touch pad and stiffener plate when making this repair.
- Carefully peel touch pad and stiffener plate from the front of the upper housing ensuring that no residue remains on the housing.
- Feed ribbon cable through slot and affix new Stiffener Plate and Touch Pad.
- Seal the slot the ribbon cable comes through.
- Install new display and VFD board.

Main PC Board – Testing and Replacement

- Remove the screws that hold the PC Board in place. Roll the PC Board back toward the motor. Use a multi-meter to check voltage between test points 101 and 102. Reading should be +5VDC. **See figure 6.**
- If voltage at test pad is not correct, replace Main PC Board.

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Figure 6. Rear of Main PC Board

Getting Cycle Count

- Turn on the machine.
- Touch the more button.
- Use the up or down arrow keys to change the screen to;
"Cycles into Warranty
- Start to Select"
- Touch the start button.
- The cycle count is displayed.

Receiving a Program and Installing it via USB

- Copy the file containing the new program from your email to a USB memory card. You can use a used USB card, the machine will search for the correct program to go with the HBF800-CD.
- Turn off the unit and unplug it.
- Remove the USB cover.
- Insert the USB card into the unit.
- Plug in and turn the machine on.
- The program will self-extract.
- The display will show a confirmation message.
- Turn off and unplug the unit.
- Remove the USB memory card.
- Install the USB cover.
- Plug the machine in.
- Operate the unit.

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Touch Pad/Stiffener Pad Removal and Replacement

- Remove the upper housing following the instructions in **Housing Disassembly** above.
- Position a magnet between the jar pad and the upper housing centered between the two left posts on the upper housing. This will trick the machine into thinking there is a jar on the unit.
- Before proceeding, plug the new touch pad into the VFD board and test the new touch pad. With the old touch pad unplugged and the new touch pad plugged into the PC board. Verify the function of the new touch pad. If acceptable continue with touch pad removal and replacement.
- Identify and disconnect all leads connecting the upper housing to the lower housing.
- The silicone sealant will need to be removed where the ribbon cable comes through the housing. Score down each side of the ribbon cable with a sharp edge and remove the silicone.
- Peel the touch pad and stiffener plate off the front of the housing and pull the ribbon cable through the slot.
- It is important to remove the sticky residue that remains on the housing before installing the new touch pad and stiffener plate. It is equally important to ensure that the surface is free of all contaminants that may interfere with the proper adhesion of the replacement touch pad and stiffener plate.
- Once the housing is clean reverse the process to reassemble the housing.
- Be careful after removing the paper back from the new touch pad and stiffener plate to locate them in the correct spot the first time. The ribbon will try to push the touch pad up. You will find it easier to pull the ribbon through the slot and position the edge of the touch pad closest to the ribbon cable first.
- Re-apply silicone to the inside of the housing where the ribbon cable comes through the housing.

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