

## Technical Service Bulletin:

# Internal Circulator Pumps – How to Diagnose and Free a Stuck Impeller

Models: SSB800SA, SSB1000SA, and SSB1000TL Boilers



# BOSCH



Please read this entire document prior to proceeding with any work.



### WARNING:

- ▶ This bulletin is intended to provide technical guidance to a professional who is qualified to work on gas boiler products and 110vac electrical components. If you are not qualified to work on such equipment, please obtain the services of such a professional.

If you have any questions regarding the information provided in this document, please contact the Bosch Technical Support Department by phone at 1-800-283-3787, or via email at [ldy.asa@us.bosch.com](mailto:ldy.asa@us.bosch.com).

## Background

The SSB models listed at the top of this document all contain two identical water pumps. As with any pump, there is a small chance that the internal impeller could be stuck after the boiler has been unused for a period of time. This bulletin describes how to diagnose a stuck impeller, and how to resolve the issue.

## Symptoms

What Symptoms Could Indicate A Stuck Pump Impeller?

If a call for heat is made but the pump fails to operate correctly and move water, you could potentially see any of the following symptoms:

- ▶ A “LOW EX FLOW PROTECTION” on the control display
- ▶ An “HIGH\_TEMP\_ERROR” on the control display
- ▶ The pump overheating (it will be hot to the touch)

## Diagnosis and Resolution

1. To check that you are receiving power to the pump, remove the cover from the black plastic wiring connection box that is mounted on top of the pump (box with cover in place shown in Fig.1).



Figure 1

2. Initiate a call for heat, and then use a multimeter to check that you see approx. 110vac across the black and white wires inside the pump's connection box (see Fig.2).

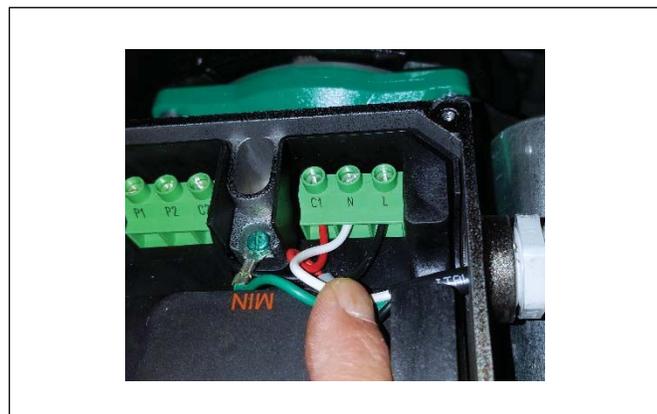


Figure 2

3. If you are getting the correct voltage but the pump is not operating, then it is possible that the pump has seized. To continue the diagnosis, please turn the boiler's power off (see Fig.3).

**WARNING: ELECTRICAL SHOCK**

- Ensure the boiler's power is off prior to commencing any work.



Figure 3

4. Shut off the water supply to the module. Remove the drain plug to drain the residual water from the pump that you are troubleshooting. Approximately a half gallon of water should drain from this point, so please have a suitable container ready to catch the water (see Fig.4).

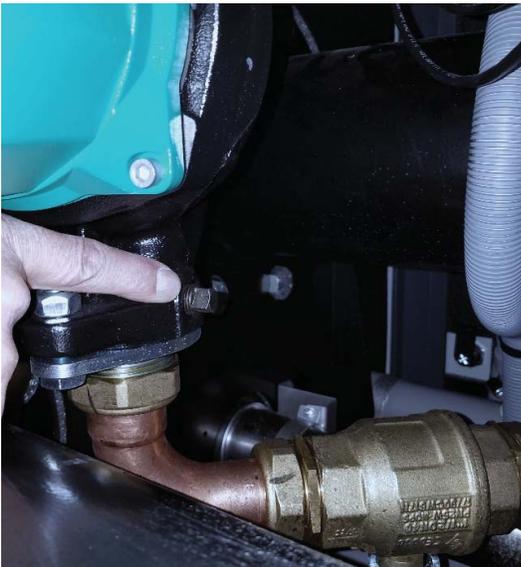


Figure 4

5. Separate the green pump body from the black volute by removing the four 5mm allen bolts\* (see Fig.5).

\* Please note that one of the bolts also holds the pump's silver cylindrical capacitor in place.



Figure 5

6. Inspect the white pump impeller (see Fig.6) and carefully remove any debris that may be present. If the impeller seems stuck, spin it by hand until it spins freely.



Figure 6

7. If the impeller is now spinning freely by hand:
  - a. Reattach the green pump body to the black volute using the four 5mm bolts that were removed in Step 5 (remember to reattach the cylindrical capacitor too).
  - b. Replace the cover to the black plastic connection box.
  - c. Follow the boiler refilling procedure that is outlined at the end of this document.
  - d. Place the boiler back into operation to check that the pump is now operating correctly on a call for heat.
  
8. If the impeller could not be spun by hand and remains firmly stuck, it will need to be replaced with a new pump assembly (part# 7738006281).

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### Boiler Refill Procedure

To fill the heating system, proceed as follows:

1. Open air bleed valve at top of pump that was worked on.
2. Open return valve slowly until air is purged from the pump.
3. Close air bleed valve at top of pump.
4. Open all valves that were closed to isolate the pump.
5. Check for leaks, and resolve if found.
6. Check the pressure gauge during the purging process. If the pressure has dropped, re-open the fill valve to bring the pressure back to the correct designed system pressure value.
7. Run system to ensure that the pump is operating and proper flow is established.
8. If problems persist, please contact our technical support team at 1-800 283 3787 or [ldy.asa@us.bosch.com](mailto:ldy.asa@us.bosch.com).



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