Trouble shooting Heat Surge Fireplace Inserts

Quick Note: There are increasingly more retrofit units out now so identifying the MPCB is important to ensure proper diagnosis and repair. Use wiring schematics from part change-out Matrix on essco.net to help identify MPCB or call technical support at **330-244-8161** for help. Also see Matrix for part numbers and model fitment.

Symptom	Possible Cause	Test	Fix or Replace
No Power (Does not Beep when plugged in. Does not respond to buttons on touch key pad or remote)	Bad outlet or circuit	verify outlet/circuit has power, test by plugging in another electrical device.	Use another working outlet/circuit which has no other electrical device plugged into it. Restart
	Bad cord	verify cord and plug are not damaged. Check for 110-120vac at cord connections to MPCB and reset button.	Replace cord if bad. Restart
	Bad 15amp reset button	Push reset button in if out. Bypass reset and tip switch. Connect cord directly to MPCB.	If MPCB powers up, replace reset button and any discolored wires. Restart
	faulty tip switch and/or bad tip switch wires	Bypass tip switch. Connect from reset button to MPCB.	If MPCB powers up, replace tip switch and/or tip switch wires if bad or loose. Restart.
	Bad MPCB	Connect MPCB directly to cord. MPCB should beep once when connected to outlet and beep each time a button is pressed on the touch key pad.	If MPCB does not beep, replace MPCB and use wiring schematic or call technical support for assistance.
Quick Note: If insert is off due to a previous Beep Shutdown, insert must be unplugged and allowed to cool down 7-10 minutes to reset fusible link before plugging it back in for retesting. Ensure all connections to outlet, cord, tip switch, reset button, and MPCB are good.			
Beep Shut Down (unit beeps 10-15 times, must be unplugged and cool down 7-10 minutes before retesting)	Slow or sticking fan, dust clogged intake louvers and/or exit plenum screen and vent.	Air flow is low or severely blocked, slow moving or sticking fan. Heat builds up, element overheats, fusible link opens up to cut power, a small spark is seen, unit shuts off and MPCB beeps 10-15 times.	Clean louvers and plenum of obstructions. Clean and lube fan bushings with light oil or replace fan. Unplug insert for 7-10 minutes for cool down and fusible link reset before plugging back in and restarting.
	Weak/worn or open fusible link on heater	Fan is spinning freely, adaquate air flow. Unit sometimes works on low, but overheats on high. (Turn thermostat all the way to the right) Bridge fusible link on top of heater with small wire or at MPCB. Retest. If heat stays on for a long period, fusible link is bad.	Replace fusible link by replacing heater. Restart.
	Bad fan relay on MPCB	Fan runs intermittently or doesn't start up immediately when low or high heat is turned on. To test fan, power fan with 110vac. If it spins like normal, fan is good, MPCB is bad.	Replace MPCB and use wiring schematic or call technical support for assistance. Uplug, allow to cool and Retest.
	M-Series and Y10 only. Darkened, broken or loose connectors on heater leads, fusible link leads or neutral lead to MPCB, or broken heater coil wires.	Fan comes on for 20-30 seconds when unit is plugged in. Press "POWER ON" button, immediately a beep shut down occurs. Units with bad heater circuits will not turn on. Examine all wiring on heater circuit. Check for continuity in heater coils (no breaks in any coil wire).	Replace heater or any heater circuit wire(s) found to be defective. Uplug, allow to cool and Retest.
Quick Note: A Beep Shut down is a safety feature which guards against overheating. Most common causes are: restricted air flow at the intake louvers or at heat output vent. A dirty, slow turning or sticking fan. A worn fusible link. On M-series and Y10 only, any bad connections on heater leads, neutral lead, fusible link leads or a break in heating coils will cause beep shutdown. Less often a broken fan relay on MPCB will prevent fan from turning on and cause beep shutdown.			
Non-Beep Shut Down (Unit shuts off after a time but does not beep. More often on high heat rather than low heat)	Bad 15 amp reset button and/or tip switch	Bypass reset button and/or tip switch. Connect cord directly to tip switch or MPCB. Check wire insulators for discolor, loose or corroded connections.	When MPCB powers up, test unit on high heat. If run time exceeds previous tests, replace reset. Bypass test will work for tip switch too. Retest.
	Darkened, loose or discolored tip switch wires	Replace tip switch wires if found to be darkened, loose or corroded at connections.	Replace tip switch and any wires. Restart
	Bad cord to MPCB connections	Clean and secure connections where power comes into MPCB from cord and tip switch (No separate tip switch on M7 and Y10). Check MPCB for any cracks, breaks, darkened, damaged connectors.	Replace MPCB, cord, or wires
Quick Note: Non-Beep Shut down cuts power before it reaches MPCB. That's why there is no beep from MPCB. 15 amp reset button or faulty tip swich is usually the problem (M7 and Y10 have tip switch built into MPCB so a bad reset can still cause non-beep shut down). Darkened or discolored connectors on any wire indicates problem with component. Replace component and any bad connecting wires.			
No Heat (Fan comes on but heat does not, then fan turns off)	Bad Potentiometer thermostat	Pull out thermocouple, unit should have both low and high heat continuously.	Replace potentiometer thermostat. Turn knob left and right to see if heat will shut off. Operating range is 65 -100 degrees. Restart.
	Bad heater wires	Check for Burnt, loose or discolored heater wires, retest	Replace heater wires. Restart.
	Bad heater	Check continuity (no breaks) on both low and high coils.	Replace heater. Restart.
	Bad MPCB	Check for 110-120Vac at low and high teminals on MPCB, discolored, damaged or loose terminals.	Replace MPCB. Restart.
Quick Note: Pull out thermocouple from MPCB to test heater. With thermocouple disconnected, unit should have both low and high heat without limitations. The potentiometer is usually the defective part. Rarely is the thermocouple bad but if a new thermostat doesn't work then replace thermocouple too.			
Flame Issues (No light or moving flame, jumpy or backward flame. Lights stay on when unit is off)	40W lights or LED not lighting	Check bulbs. Check 110-120vac at socket and on MPCB. Check 12vdc at 2-pin LED connector on MPCB	If power out from MPCB is okay, change light bulbs or LED. If no power out from MPCB replace MPBC.
	Syncro motor not turning or disconnected from flame rod/tube	Check 110-120vac at syncro motor and on MPCB. Check syncro to flame rod/tube coupling.	Replace syncro motor if power out of MPCB is okay. Replace MPCB if no power out on MPCB
	Syncro motor turning backward	Flames are going down into logs instead of up from logs.	Replace syncro motor.
	Bad MPCB will keep 40w lights on when unit is off but still plugged into outlet.	Check for 110-120vac at light connections on MPCB when unit is off.	Replace MPCB
Quick Note: Grinding, banging, squeaks, and case vibration are usually caused by motors. Heater fans, syncro motors and flame tub/rod rotation are most likely to produce noise and vibration complaints. Look to snycro motor and rotating flame rod/tube to cause noise when heat is off. The cross flow fan and motor are most like to cause noise during heat cycles. Fan and blower noise seems louder on Accent models bcause plenum design is different than that of Roll-n-glow models.			

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Heat Surge Fireplace Helpful Tips Prior to Diagnosis

1) Have your unit (insert) in house, top off and ready to give us details (symptoms) of your trouble shooting so we can help you evaluate the problem.

2) Have the Model and Year of the insert ready to help us to determine what parts will be needed.

3) Be sure you check on a Warranty Claim Number to verify warranty before working on units.

4) Fill out Warranty Claim Forms properly to eliminate delays in processing.

5) Be aware of the Heat Surge Insert Component change out Matrix Chart. This chart details models, schematics, parts and retrofit combinations.

6) Have old board out and new board mounted and ready for re-wire (hook-up) when calling us. This will save on delays.

7) The two most common mistakes on the new board X5C hook-up are the fan and flame. Most people are reversing these two because they look at the old board and get confused and carry that over to the new board.

8) On the 2008 Model, please remove the thermocouple when replacing the main circuit board. Not needed per the Matrix Chart.

9) On the X5A/X5B series when replacing the board, you must replace with a 20 ohm thermocouple and a 50k potentiometer (RETRO). See the Matrix chart .

10) Selling parts to consumers is not recommended. Consumers may create more of a problem to themselves when installing parts improperly and not getting the right parts to really fix their problems. Most important issue with consumers making the repairs themselves is the liability.

11) Heat Surge is here to answer your questions, please try to call when it is the most convenient for you and at a time where you can dedicate the necessary time to walk us through your questions from start to finish. Please keep in mind that if you put us on hold for any reason during the diagnosis, it prolongs and delays our trouble shooting time we have other customers waiting to be helped and phone calls to be returned. Put yourself in my shoes when I can't get back to you in a timely manner.

12) When in doubt, please call Heat Surge!!! Walt 330-244-8161

Heat Surge Fireplace Insert Troubleshooting

NO POWER

When the fireplace insert is plugged into a 120vac, 60HZ power source, an audible **BEEP** shall emit from the Main Printed Circuit Board. M-Series model fans will come on for 10-12 seconds then shut off.

If **NO BEEP**, check following:

- Verify **OUTLET/CIRCUIT** is **ON** and in good operating condition.
- Verify **CORD & PLUG** are not damaged or broken.

- Check & Press **15AMP RESET SWITCH.**

- Tip unit back & forth and side to side to ensure **TIP SWITCH** pendulum is hanging straight down and free.

- **M7** and **M8** models have tip switch integrated into **MPCB**. **ADL 2000 MX** from ’07 and ’08 do not have tip switches or reset buttons.

NOTE: If **INSERT** is **OFF** due to a previous **BEEP SHUTDOWN**, **INSERT** must remain unplugged and allowed to **COOL DOWN** to reset **FUSIBLE LINK** for **7 to 10 MINUTES**.

If still **NO BEEP**, remove **INSERT** from Mantle and remove **TOP ACCESS PANEL** to reveal electronic components for testing.

To remove **INSERT** on newer models from Mantle, place unit face down, remove **4 SCREWS** holding insert to **TOP & BOTTOM BRACKETS** on the back. Lift Mantle straight up and off. **INSERT** will come out through the front. Older models have **4 SCREWS** and **4 TABS** holding unit to inside front of Mantle. Remove **4 SCREWS** from wood, bend **4 TABS** back away from wood front towards the side of **INSERT**. Lift Mantle straight up and off. **INSERT** will come out through the front.

Check all internal connections from **CORD** to **MAIN PRINTED CIRCUIT BOARD (MPCB)**. Individually or together test continuity of **CORD**, **15AMP RESET SWITCH** and **TIP SWITCH**. Test power at **15AMP RESET SWITCH** and **TIP SWITCH**. Replace if no power present. If no power present on **MPCB**, replace **MPCB**.

Side note: Malfunctioning **MOTOR** will cause heat to shut **OFF** or complete **SHUTDOWN** of **INSERT**.

NO MOVING FLAME or (LIGHTS)

NOTE: **FLAME (LIGHT SOURCE)** and **FLAME MOVEMENT (FLAME TUBE** and **SYNCRO MOTOR)** are instantly and always operating when the **INSERT** is turned **ON** whether the heater is being used or not.

When the **INSERT** is turned on via the **TOUCH KEYPAD** or **HAND HELD REMOTE**, an auditable **BEEP** shall emit from the **MPCB**, the flame **BULBS** or **LEDS** turn on at its last selected intensity and the **SYNCRO MOTOR** will come on instantly.

NO FLAME is a result of:

- Dim lights may be due to settings from **TOUCH KEYPAD** or **HAND HELD REMOTE**.
- Loose or burned out bulb(s).
- No power to **LIGHT SOCKET(S) & HARNESS**. Check **SOCKETS**, **HARNESS**, **HOT & NEUTRAL** light spade terminals at **MPCB** for 120vac. No power at **MPCB**, replace **MPCB**.
- LED lights are 12 volt and plug into **MPCB** with a two prong connector.


- Malfunctioning **LED PANEL** or **LED** 2-pin connector at **MPCB**. No power/broken at **LED**, replace **LED**. No power at **MPCB**, replace **MPCB**.

NO MOVING or **JUMPY FLAME** is a result of **FLAME TUBE** and **SYNCRO MOTOR**.

- **FLAME TUBE** bent, broken, binding, or missing from bracket and/or not connected to **SYNCRO MOTOR**. Replace or fix **FLAME TUBE**.


- **SYNCRO MOTOR** not turning due to: No power at **MPCB** spade terminals (replace **MPCB**), broken, seized or bad **SYNCRO MOTOR**, replace **SYNCRO MOTOR**.
- Newly delivered or stored **INSERTS** exposed to cold temperatures must warm to room temperature for proper operation of **SYNCRO MOTOR**.

- Moving fireplace while in operation can cause **TIP SWITCH** movement interrupting current flow and causing flickering of flame effect.

HEAT ISSUES

Basic operation of Low or High heat functionality shall be selected by either the **TOUCH KEYPAD** or **HAND HELD REMOTE**.

No heat, low or intermittent heat, or shutdown can be a malfunction of:

- **MAIN PRINTED CIRCUIT BOARD (MPCB)**.

- **CROSS FLOW FAN & MOTOR**.

- **INFRARED (IR) HEATER ASSEMBLY/FUSIBLE LINK**.

- **THERMOSTAT POTENTIOMETER/THERMOCOUPLE**.
- Blocked front **EXIT VENT, REAR INTAKE,** or **CLOGGED AYR FILTER**.
- Inadequate house outlet/circuit tripping **15AMP RESET SWITCH**.

When the heater low mode button is selected on the **TOUCH KEYPAD**, an audible **BEEP** will emit from the **MPCB** and a low heat **LED** indicator on the **KEYPAD** will go on steady. The **CROSS FLOW FAN & MOTOR** will turn on instantly. The low heat relay will energize after a **(5) SECOND TIME DELAY** turning on the single heating element. Pressed a second time the relay drops out turning off the heater and then the blower fan 20 seconds after. If both low and high heat relays are energized, pressing the low heat button will de-energize the high heat relay leaving only the low heat relay energized.

When the heater high mode button is selected on the **TOUCH KEYPAD**, an audible **BEEP** will emit from the **MPCB** and both low and high heat **LED** indicators on the **KEYPAD** will go on steady. This button shall energize the high heat relay after a **(5) SECOND TIME DELAY** turning on a second heating element. Pressed a second time the relay drops out and de-energizes both low and high heat relays turning off the heater and then 20 seconds later the blower fan.

NOTE: **CROSS FLOW FAN & MOTOR** is instantly **ON** and always operating when either the low or high heat setting is **ON**. This fan is critical to maintaining an adequate air flow to properly dissipate and distribute heat generated by **IR HEATER ASSEMBLY** with **FUSIBLE LINK**. Malfunctioning **CROSS FLOW FAN & MOTOR** will cause heat to shut **OFF** or complete **SHUTDOWN** of **INSERT**.

NO HEAT, LIMITED HEAT OR SHUTTING DOWN

If the **INSERT** has a **THERMOSTAT POTENTIOMETER** and **THERMOCOUPLE**:

- Turn **THERMOSTAT** all the way to the right (high setting).
- If still no heat, check power from **MCPB** for both **HOT 750W** spade terminals (high and low) and (1) neutral spade terminal. If no voltage when on, change **MCPB**. NOTE: If **THERMOCOUPLE** is disconnected, insert will heat continuously and will not be controlled by the **POTENTIOMETER**. If heat stops when the **THERMOCOUPLE** is plugged back in, replace **POTENTIOMETER**. **208 MPCB needs 20K OHM THERMOCOUPLE 30000214**.

- If voltage is present at **MCPB** for both **HOT 750W** (high and low) and neutral spade terminals, check voltage or continuity across **FUSIBLE LINK**. If **FUSIBLE LINK** is bad, replace **IR HEATER**.

- If heat comes on for a short time and stops with **THERMOSTAT** turned to high (all the way to the right) replace **THERMOSTAT**. Discolored heater wire insulators at heater and/or **MPCB** indicate heat damage and wires should be replaced.

- If heat comes on for a while, **INSERT** shuts down completely and **MPCB BEEPS** 15 times, replace **IR HEATER**, or check **CROSS FLOW FAN & MOTOR** to ensure it is spinning freely. If not operating smoothly or producing enough air flow, replace **CROSS FLOW FAN & MOTOR**.

- Clear items such as curtains from blocking air inlet vents.
- Verify installed filter, if any, is clean and not blocked.

MOTOR/MOTION NOISE

Inserts have 2 motors: **SYNCRO MOTOR** and **CROSS FLOW FAN & MOTOR**. Each can produce noise and or vibration.

- Any motor/motion noise, vibration, or clunking when Heat is **OFF**, but **INSERT** is **ON**, will be coming from the **SYNCRO MOTOR** turning the **FLAME TUBE**. Inspect **SYNCRO MOTOR**, **FLAME TUBE** and connecting points and brackets. Replace **SYNCRO MOTOR** if motion is jerky, spins backwards, loud, not turning or vibrating. **FLAME TUBE** may also cause irregular movement. Inspect and replace broken or unserviceable **FLAME TUBE**.


- Any motor/motion noise, vibration, rattling, etc. when heat is **ON** will be coming from the **CROSS FLOW FAN & MOTOR**.

POWER CORD IS GETTING WARM OR HOT

- Heaters are considered high draw appliances and some amount of cord warming is normal and acceptable.
- If your cord seems hot to the touch, unplug the cord and try it in another outlet. Worn outlets will cause high resistance and heat.
- If problem persists after repairs are made, advise the customer to contact an electrician to check customer's outlets and circuits.
- Make sure plug fits snuggly into outlet.

HOUSE BREAKERS ARE TRIPPING

- Verify no other appliances are plugged into the same circuit.
- Do not use power strips, surge protectors, No-ground plug adaptors, or under-sized extension cords.
- Try a different circuit.

ODOR DURING INTIAL USE

- In the process of manufacturing, certain non-harmful lubricants are used which burn off at the initial use of your fireplace.
- These fumes will not occur after continued use of your fireplace.
- Inserts that have been in storage or unused for long periods of time, may also have an odor upon first start up due to accumulated dust or dirt inside insert.

TECHNICAL SUPPORT

- Technical support is available weekdays **7:30 to 5:00 EST** by calling: **330-244-8161**. If the line is busy, leave your name and number, we'll call you back.
- There are also technical manuals available at **www.essco.net.** Login using your dealer identification and pass word. Go to Resource Center, Heat Surge to get the following technical documents (and more added throughout the season).
  - Parts Listing With Images(.pdf)
  - Heat Surge Insert Troubleshooting guide & FAQ's (.pdf)
  - Warranty Service Center Agreement (.pdf)
  - Heat Surge Start-Up Kit (.pdf)
  - Heat Surge Warranty Form (.pdf)
  - Circuit Board Replacement For Andong ADL 2000M 2007 fireplace insert (.pdf)
  - Circuit Board Replacement For Andong ADL 2000M 2008 fireplace insert (.pdf)
  - Circuit Board Replacement For Andong ADL 2000M 2009 fireplace insert (.pdf)
  - Heat Surge Model X5C Fireplace Insert Service Manual (.pdf)
  - Heat Surge Insert Identifier Chart (.pdf)
  - Heat Surge Service Matrix (Please be patient while this file loads)
  - Heat Surge Tech Support Contact Information (.pdf)
  - 23 short "Remove and Replace videos" listed by part.