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April 21/97

**FIELD AMENDMENT NOTICE**  
**MARK 6 SERIES RAILWAY SWITCH HEATERS**  
1) FLAME ROD WIRING  
and  
2) AIR SWITCH TUBE

Distribution:

All Switch Heater Customers

Over the course of the 96/97 winter we have identified two problems with the MARK 6 Small enclosure railway switch heaters, which have caused nuisance shutdowns.

The details of these problems and the corrective action required, are described on the following field modifications.

These modifications have been made to production heaters manufactured as of March 17/97.

Thank you,

Gregor Harris, P.Eng.,  
Manager of Engineering  
HOVEY INDUSTRIES LTD.

## Flame Rod Wiring Field Modification

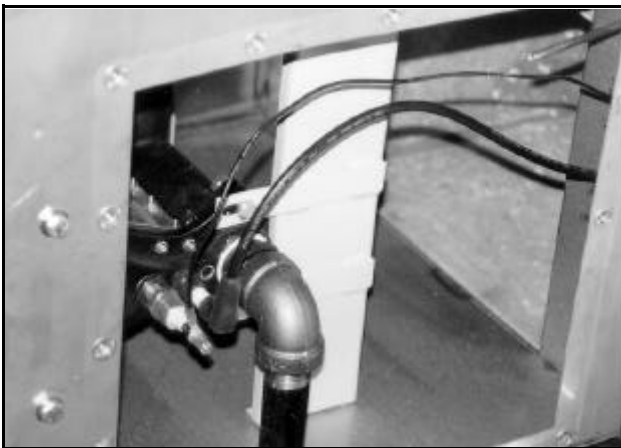
As a result of investigating repeated flame failures ("Lockout 28 pilot flame failure" and "Lockout 19 main flame failure") experienced on some Mark 6 small enclosure switch heaters this winter, we have found that excessive moisture accumulation on the flame rod, grounds the flame signal and simulates a flame failure. Using a silicone spark plug wire connector insulates and prevents grounding of the signal to the cold side of the burner.

To correct this problem, perform the following modification using the parts supplied:

The new flame rod cable is made up of the following: a spark plug connector, high temperature wire butt splice connector and heat shrink tubing. After cutting the old flame rod wire back, strip insulation to expose approximately .25" of bare copper wire and insert wire into open end of butt splice connector, make sure the shrink wrap is on wiring assembly.

After crimping the connector slide the shrink wrap over the butt splice and apply heat to the shrink wrap.

Reconnect the new wiring assembly over the tip of the flame rod.



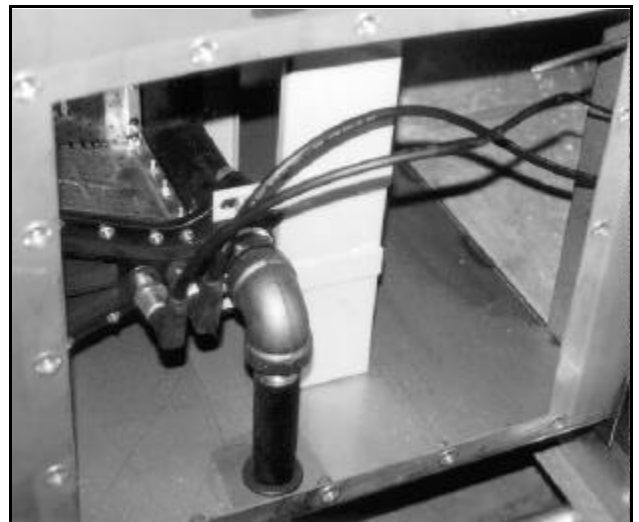
**Figure 2** Present wiring



**Figure 3** Cut old wire and replace with new connector



**Figure 4** Crimp wires together



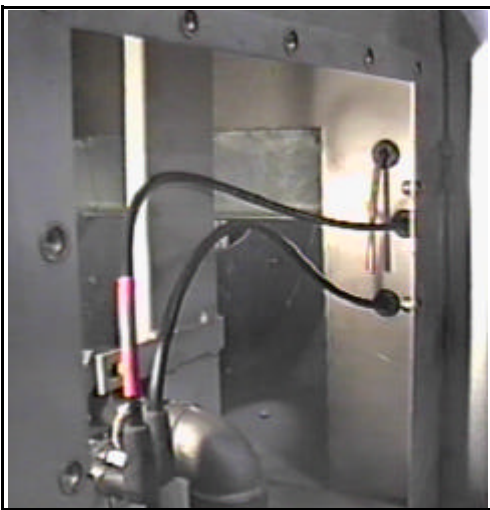
**Figure 5** Slide heat shrink tube over splice and heat

## Air Switch Field Modification

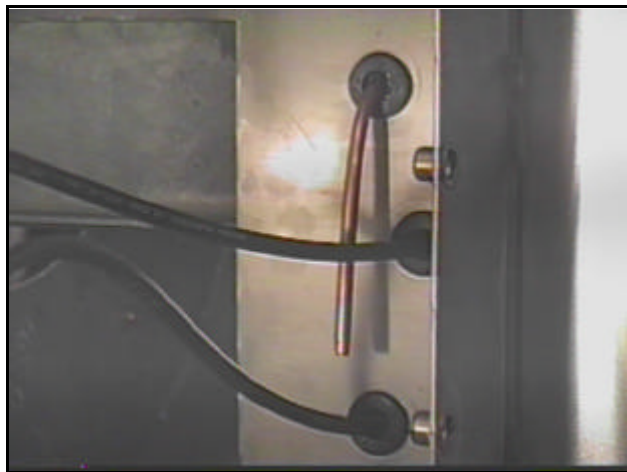
1) We have received reports, that heaters have been found shutdown and locked out on "air switch failure" with **ice blocking the air switch tube**.

Heaters built prior to February '97 have the copper tube which runs from the air switch, bent down at 90 degrees once it enters the combustion chamber. This is done to ensure that it does not easily pull out of the combustion chamber. Any condensation forming on the tube will drip to the open end, and when the air temperature drops below freezing, the drop of water turns to ice and plugs the tube, causing the heater to shutdown and lockout on alarm.

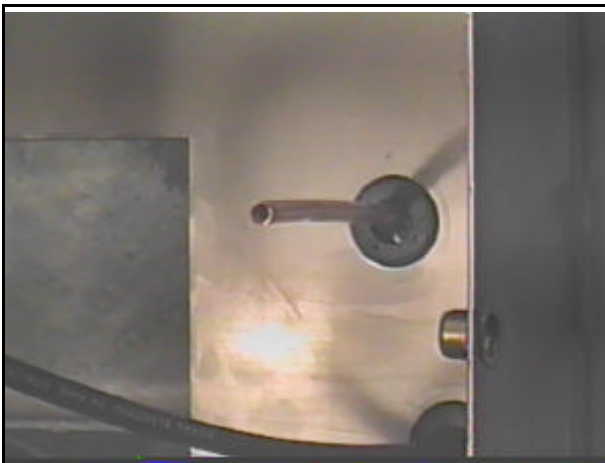
To fix this, bend the tube up until it is horizontal. This prevents condensation from accumulating at the end of the tube. Strap the tube to the plywood on the inside of the enclosure at the point where it passes through the wall.



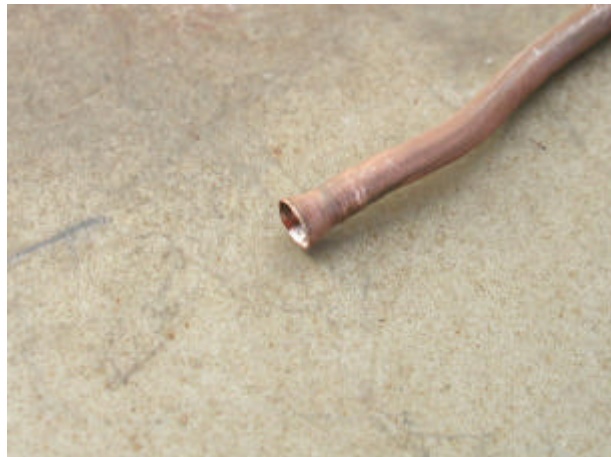
Remove combustion chamber access panel.



If the airswitch tube is bent down, as shown



Then bend it out horizontal.



Flare the end of the tube

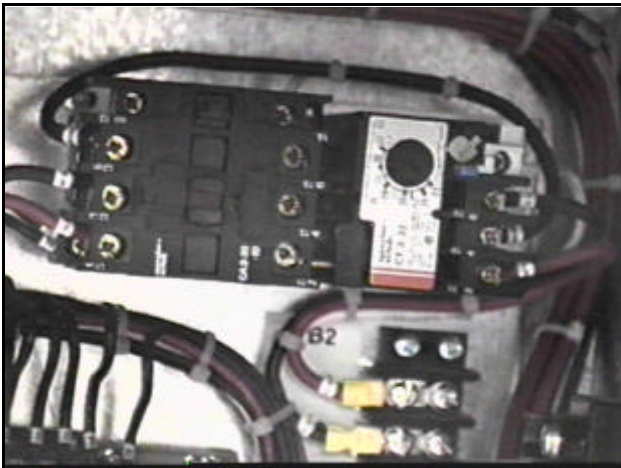
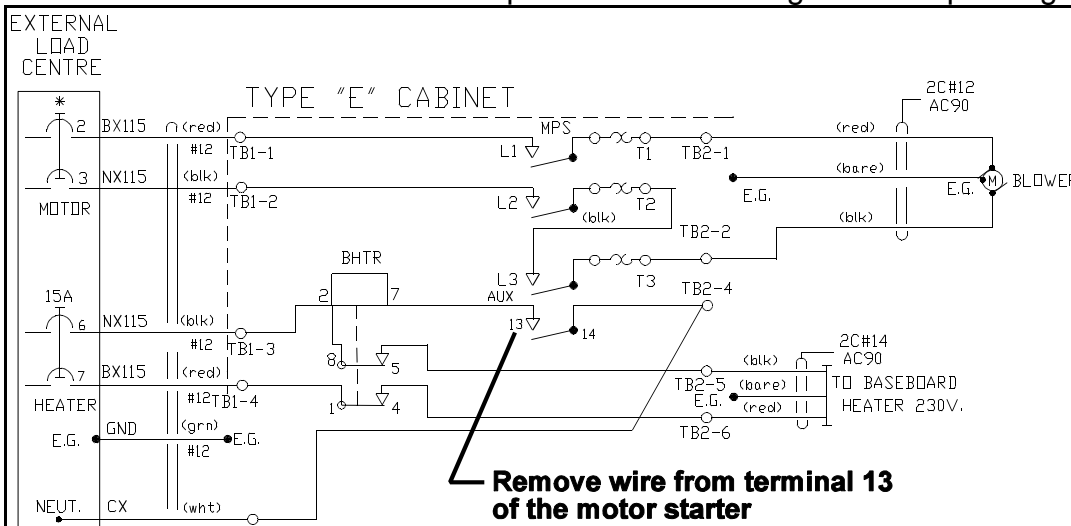
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2) We have received occasional reports, that heaters have been found shutdown and locked out on "air switch failure" with **ice in the body of the air switch**.

The normal practice has been to disconnect the baseboard heater while the switch heater is running to reduce power demand. However, by doing this the control enclosure is unheated and after running for a period of time gets cold. Any moisture in the body of the airswitch condenses out and freezes. If there has been enough accumulation of water, the ice formed keeps the airswitch from closing.

We suggest that the following modification be made to keep the power connected to the baseboard heater. The baseboard heater is equipped with a thermostat and will regulate itself.

Remove the wire from the auxiliary contact, terminal 13, on the motor starter, and insulate the end with either a wire nut or electrical tape. See the following marked up wiring diagram.



Motor starter