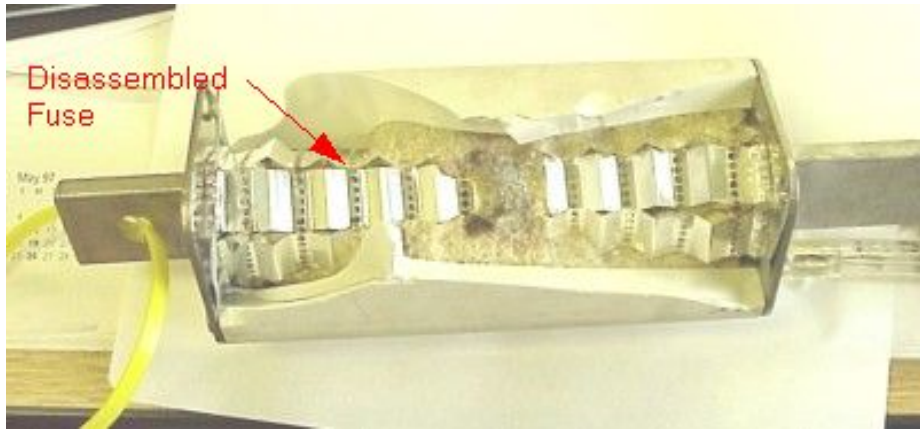


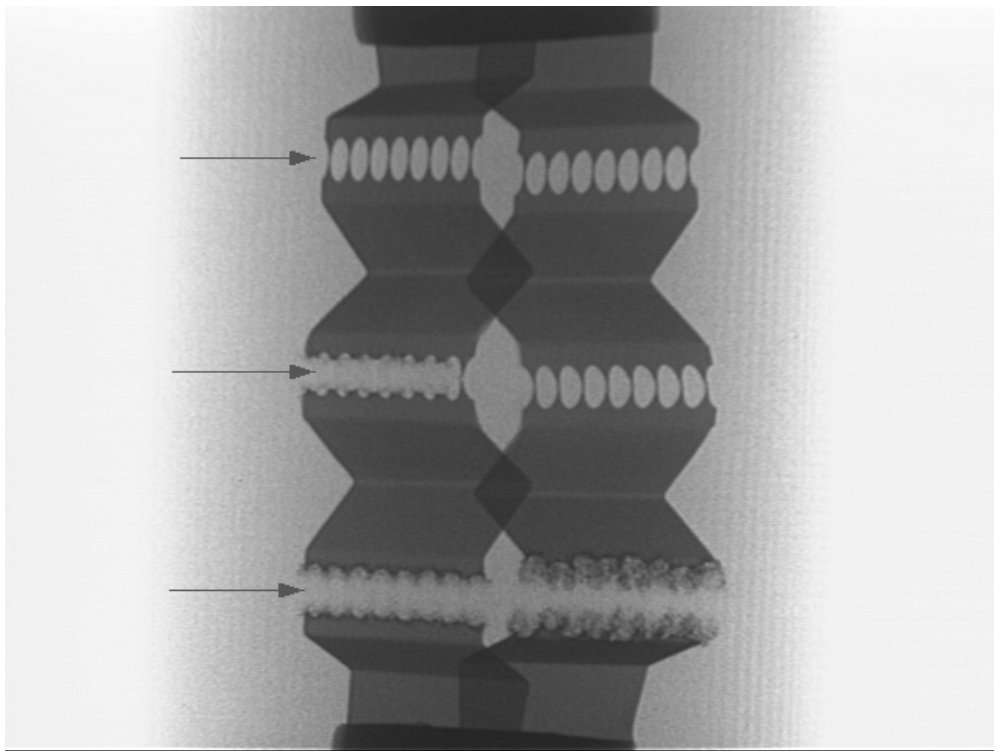
## Troubleshooting Fuse Problems



Nuisance fuse blowing can be hard to find, although sometimes opening or x-raying the blown fuse may lead to the answer.



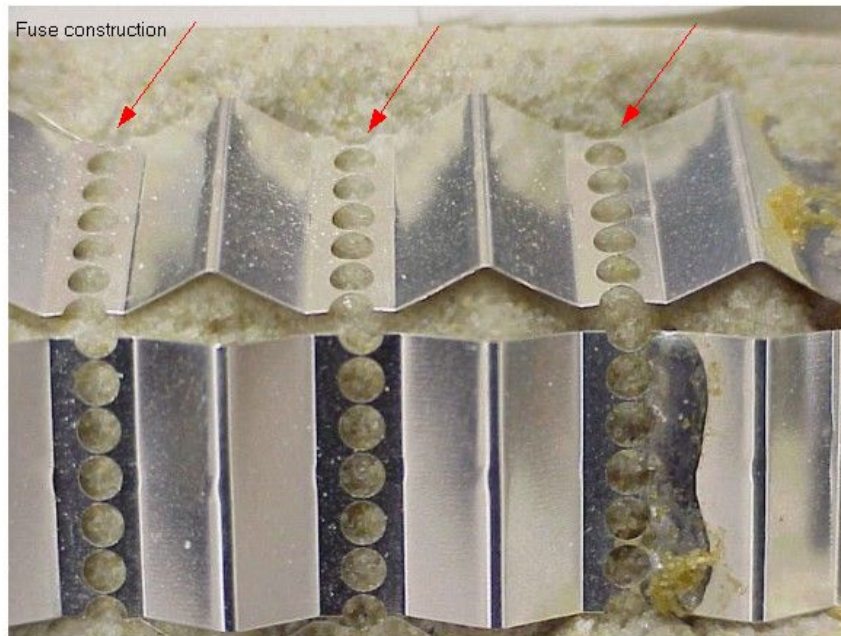
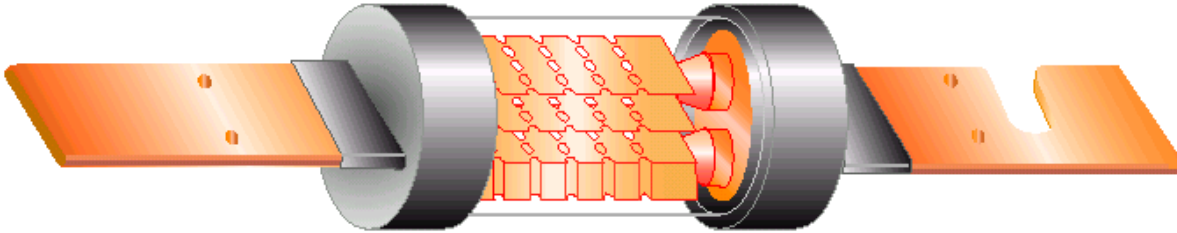
Caution: Wear Safety glasses when opening and inspecting fuses!



## Troubleshooting Fuse Problems



Semiconductor fuses are made with thin silver layers that have several areas necked down to allow opening in case of a severe overload.



These strips are packed in silica sand that will melt and form glass to quench the arc as the link blows open.



## Troubleshooting Fuse Problems

When examining the fuse, look for the following:

1. If only the center links are open, the fuse probably failed from fatigue. Either the fuse was too hot, or was operated at a partial overload for a long time. Check ambient temperature and fuse sizing.
2. If only the links at one end are open, the fuse probably failed due to a loose connection at that end, and the fuse holder terminal got too hot. Check for loose connections at fuse ends.
3. If all links are blown, there was a short circuit.

Things to look for if all links blew.

One open fuse is almost always a short to ground.

Two open fuses is a short from phase to phase.

Intermittent opening of all links usually is a short to ground, which does not weld the short in place. Semiconductor fuses open fast enough that the short can go away after the heater cools. To locate the defective heater requires a destructive test. Using a hi-pot tester may find the short, but if voltage arcs across the insulator, it will leave a carbon trail and the heater is no longer usable.

By removing the power control, semiconductor fuses, and running the heaters directly with slow blow fuses, the element will weld itself to the sheath when the heater shorts and then can be located with an ohm meter once the heater cools.