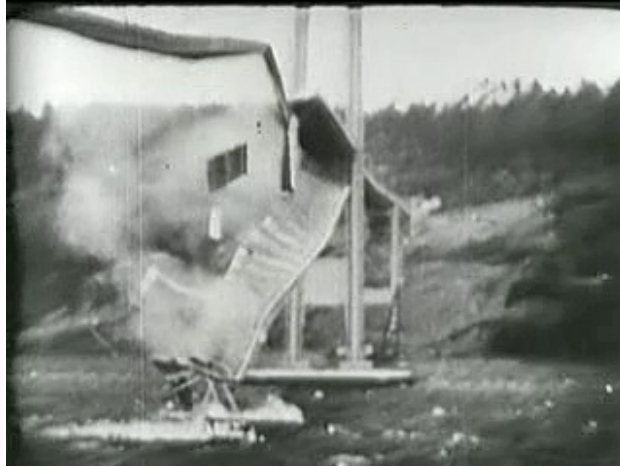


## Technical Errata: NAE-ER-001



### At a Flash Summary

<b><i>Affected Product</i></b>	<b><i>LoonBoard</i></b>
<b><i>Affected Revision</i></b>	<b><i>2.4</i></b>
<b><i>Severity</i></b>	<b><i>Medium</i></b>
<b><i>Fix?</i></b>	<b><i>No</i></b>
<b><i>Work-Around?</i></b>	<b><i>Yes</i></b>
<b><i>Summary</i></b>	<b><i>Switching regulator may oscillate or not start reliably</i></b>

## **Description of Problem**

The switching regulator on the LoonBoard has a fairly high inrush current requirement. However the input to the LoonBoard is protected by a resettable fuse, which has between 0.9 to 4.9 ohms of resistance. This limits the current to levels which mean the regulator is unable to start up, and instead oscillates. This will result in an audible sound, insufficient voltage on the 3.3 volt line, and excessive ripple current in the capacitors.

The condition is dangerous as there is improper power being applied to the board. As well there is high frequency ripple currents in the input capacitor that could result in damage if left to run. The LoonBoard should never be allowed to run in this condition to avoid problems.

Note that the problem may not exist at certain conditions, which could lead to an intermediate failure. Input voltage and ambient temperature will both affect this condition.

## **Fixes**

A perfect fix is not possible in hardware yet, see the work around.

## **Work Around(s)**

The input fuse can be shorted out to create reliable start-ups. In most affected revisions this will already be performed by jumpering the fuse with a bare wire. A higher current limit could also be used, as this would have a lower series resistance.

If the linear regulator is enabled there will be no problems with this, as it only affects the switching regulator.

You should always have a stiff power supply for the LoonBoard to avoid the problem. You can use the /shutdown input to stop the switching regulator from starting up until the power is at a safe level if your system has a slow ramp up speed.

## ***Document Revision History***

January 9, 2006:

- Added Tacoma Narrows picture, removed table from first page that had document revision information

November 8, 2005:

- Initial document release

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