# Micro Control Systems

APPLICATION NOTE
APP-028

# A/D SCR LATCH UP

## Revision History

| Date | Author | Description |
|---|---|---|
| 5/10/00 | Brian Walterick | created |

This Application Note outlines the A/D SCR LATCH UP troubleshooting solution.

## Description

- ***80C196 chip has two power supplies, one 5 VDC @ ____ amps for digital functions and one 5 VDC @ 0.5 ma for analog to digital converter. When the sensors are not reading correctly (either reading higher than actual (about 20% - 30%) or reading –99.9 the A/D is trying to draw 80 ma to 90 ma. The regulator feeding the A/D is only capable of 20 ma so the 5 VDS drops to about 3.5 VDC, which is not enough.***

## Action to be taken

1) Eliminate ground loops
   a) TI-2ACE amp sensor ground pin to MCS-8 or MCS-I/O sensor input ground pin

2) Eliminate noise caused when induction loads are tuned on/off
   a) Add snubber capacitors across any load being switched by an MCS-8 relay that also is switched by an external contact (i.e. TI-2ACE, AUX contact and contactors overload AUX contacts)

3) Tie ground planes on MCS-8 and MCS-I/O at CPU chip
   a) MCS-8 has two ground planes, one for digital chips and one for analog chips. These two planes are tied at a point about a ½" from the CPU chip. Remove this connection and jumper pins 12 and 14 on the CPU chip.

4) Remove the filter capacitor on the sensor inputs.