

# Micro Control Systems

APPLICATION NOTE

APP-027

## Snubber Capacitor Testing

### Revision History

Date	Author	Description
3/21/00	M Singer	Testing the Snubber Capacitors.

## Theory

The Snubber capacitor is a protection device that helps to eliminate spikes coming back into the board when a relay is turned off. This device works very well when it is intact. However, if a large enough spike is introduced, it can damage the Snubber Capacitors. These devices must be working for continued protection against spikes. They are found on the MCS-8, MCS-I/O, and the RO8 boards.

## Purpose

The purpose of this application note is to show how to check the Snubber capacitors for damage.

If a job site is having problems with resets or odd occurrences when a relay point is turning off, this may be the problem.

**NOTE:** Make sure that control power to the MCS-8 and all relays is disconnected before starting these tests. Also note that if you do not get a proper reading, swap your test leads and try the test again.

Step 1.) While all control power is off, and all relay output connectors are removed, read the capacitance with a meter that is capable of measuring capacitance. Remember to set the dial to the capacitance setting. Now measure between "common (COM)" and "Normally Open (NO)" on the board, and you should read a capacitance between  $.08\mu\text{F}$  and  $.120\mu\text{F}$  on the meter. Do this for each of the Relay Outputs. If any of these Snubber Capacitors are defective by being outside of the range specified above, the board must be replaced.

Step 2.) If you need to check the "Normally Closed (NC)" section, this becomes a bit more involved. First, you must turn off all control power and remove the board from the panel. On a test bench, apply input power only to the board's power terminal. Power the board up and turn each of the relays on Manually, then read the capacitance again, only this time measure between "Common (COM)" and "Normally Closed (NC) on the board, where once again you should read between  $.08\mu\text{F}$  and  $.120\mu\text{F}$  on the meter. Note that when testing the RO8 board, you will also need an MCS-8 connected through the I/O terminals to control the relays on the RO8 board.

External Snubber Capacitors can be checked by turning the power off, removing the Snubber capacitor from the circuit, and measuring the capacitance across the 2 leads of the Snubber capacitor. Again, the measurement should read as stated above.

