OBJECTIVE

Explains what a ***'snubber'*** is and why they are required on some blowdown valves to prevent controller resets and controller power relay failures.

Phone Aquatrac @ 1-800-909-9283 if you have any questions or operating concerns.

TECHNICAL EXPLANATION

Solenoids and motorized valves are inductors. The inductive coil windings store energy when power is applied. When power is switched OFF, a voltage spike occurs as stored energy is returned from the inductive coil. The energy in the inductive spike may reset or lock-up the controller and in time may weld the controller relay contacts ON.

As solenoids and valves age, the current required to operate them increases and the energy in the switching spike rises, causing controller operating problems.

Steam rated solenoids seem most susceptible to generating inductive spikes. Generally the shorter the cable between controller and solenoid, the bigger the switching spike.

Snubbers dissipate the energy caused by switching a solenoid or motorized valve, suppressing the switching spike and preventing controller resets. A **Snubber** is a resistor and capacitor in one package: the capacitor limits the spike voltage and the resistor dissipate the spike energy.

PARTS & SOURCING

Snubbers may be purchased from **Aquatrac** as part **# SNUBBERS** which contains four snubbers or from **Newark Electronics** (800-463-9275) as their part**# 16F3701**

Snubber : Mallory, Type: 104M06QC47, 600VDC, 250VAC, 0.10uF, 47ohms.
0.4" thick, 0.82" long x 0.7" high,

INSTALLATION

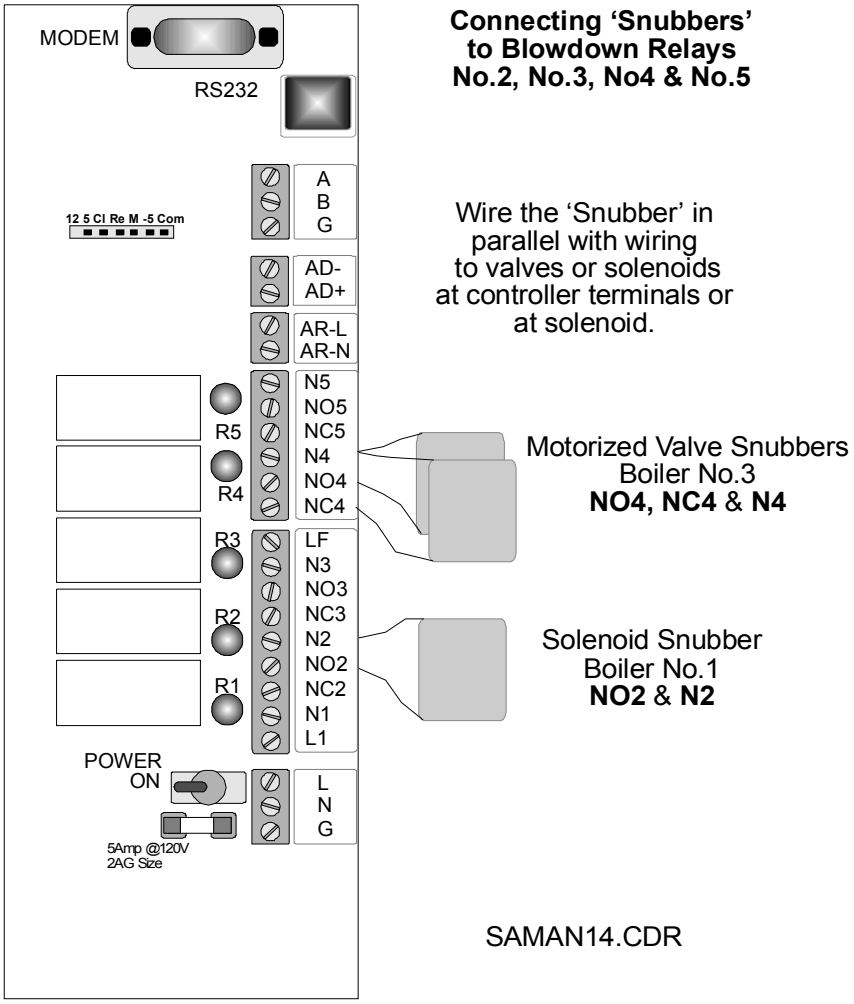
1. Turn OFF controller AC power and unplug the controller. If hardwired and powered from a panel breaker, switch OFF the breaker & tag-out at the panel. Then verify that the power is OFF at the controller.

2. Refer to the following graphics for snubber installation. Note that each solenoid requires one snubber while each motorized valve requires two snubbers.

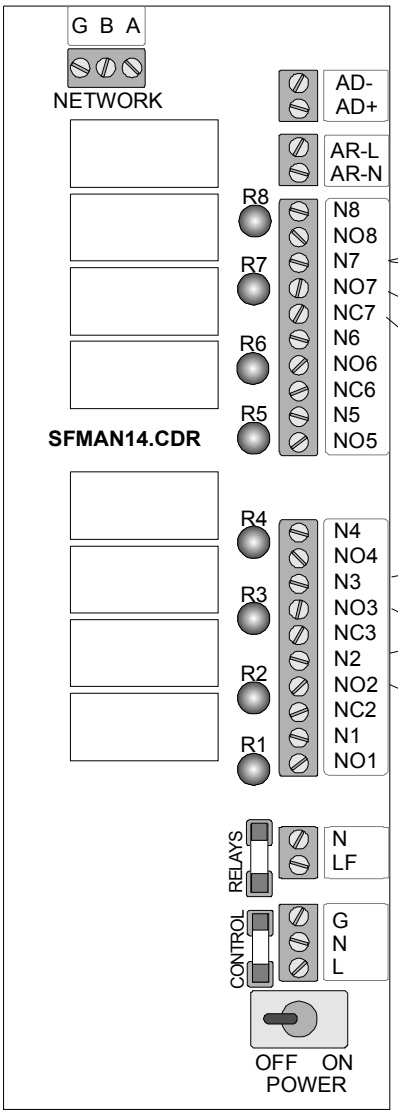
3. Snubbers may also be installed at the solenoid or valve without any difference in operation or effectiveness. Multiple snubbers are more easily installed at the valve or solenoid connections.
   SOLENOIDS: Install between Line & Neutral.
   MOTORIZED VALVES: Install one between Neutral & Power Open & another between Neutral & Power Closed.

4. Turn AC power to the controller ON at the end of the snubber installation and **Clear Alarms**, verifying that each valve or solenoid turns ON them OFF.

'AS' Series Controllers



'Flex' Series Controllers



Connecting 'Snubbers'
to dual tower
bleed solenoids
No.2 & No.6

Motorized Valve Snubbers
Boiler No.4
NO7, NC7 & **N7**

Connecting 'Snubbers'
to Blowdown Relays
No.2, No.3, No.6 & No.7

Solenoid Snubber
Boiler No.2
NO3 & **N3**

Solenoid Snubber
Boiler No.1
NO2 & **N2**

Wire the 'Snubber' in
parallel with wiring
to valves or solenoids
at controller terminals or
at solenoid.