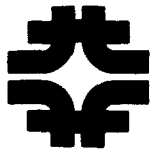

Fermilab

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DUPONT AUTO PROTECTION AND ELECTRONIC PROTECTION UPGRADE

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DuPont Auto Protection and Electronic Protection Upgrade

The Auto Protection circuitry is provided to close the throttle valve when an over pressure is sensed. The operator must close the throttle valve before the leak detector's vacuum system recovers or the valve will reopen and continue to reopen until the vacuum in leak detector cannot recover. This problem, if left unchecked, requires a major overhaul of vacuum system and diatron. The upgrade will close the throttle valve until operator returns to the leak detector. The operator then can close throttle valve, turn leak detector "on" and check for the problem in test object to resume leak detecting.

The Electronic Protection upgrade is a metal oxide varistor (MOV) that suppresses line surgess.

The parts for both upgrades can be purchased from an electronics store i.e. Newark, Ohm, etc.

The Electronic Protection upgrade protects the amplifier and emission power supply from line surgess that may blow out diodes. A MOV connected on electronics main circuit board accomplishes enough protection for transient line spikes from motors turning on, etc.

Installation

Metal oxide varistor
GE No. V130LA10A

1. Disconnect all power to leak detector.
2. Connect MOV across pins 10 and 11.
3. Connect MOV across pins 15 and 16.
4. Resume normal operation.

Auto Protection Upgrade Theory of Operation

The filament will come "on" and the throttle valve will open when K102 has power to energize. The auto protection upgrade provides a momentary switch to power K102 and a power loop is accomplished when K102 contacts one and three closes. The loop is broken in three situations. The first is when power is lost to the leak detector. The second is when an over pressure is sensed and K101 is energized opening contacts two and three. The third case is when S-103 is switched to reset energizing FJ101 opening contacts one and four. If an external warning is require a light can be provided using the accessory test port. When light is on ok, off, manually close throttle valve and switch on to resume leak detecting.

Installation

(FJ 101) Relay:
(1) Potter & Brumfield KAP11AY 120 vac
(1) Potter & Brumfield socket eight pins type 27E122
(2) Capacitors .05 mfd 600V or equivalent
(2) Screw w/nut & washer

1. Disconnect all power to leak detector.
2. A convienent location for the relay is above K-102 in electronics bay. Remove electronics bay stop, prop open bay. Locate holes for socket. CAUTION: Do not drill into TB102 or wires on opposite side. Install capacitors on socket pins one to four, pins seven to two. Install socket.

(S103) Switch:

1. Rotate switch so momentary side is to "on".
2. Exchange wires on top and bottom. The middle wires remain the same.

16 AWG Wires:

1. S103 (bottom) momentary to K102-3
2. S103 (top) reset to FJ 101-7
3. K101-2 to K102-1
4. Remove wire from K101-3 to K102-7
5. K101-3 to FJ101-4
6. K102-7 to FJ101-1
7. K102-2 to FJ101-2

Relay: Install relay, ready for operation

AUTO PROTECTION UPGRADE
CIRCUIT CHANGES FOR RELAY KAP11AY 120VAC