

MI-11 Stochastic Cooling Lightpipe Vacuum Upgrade

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Prior to this upgrade the recycler stochastic cooling lightpipe vacuum control was done strictly from the manual disconnect wall breaker located in the MI-11 peanut. The upgrade to the system now allows for local manual control, ACNET remote control or fully automatic control.

There are now two front panel switches mounted on the wall mounted manual disconnect labeled 'Pump Control' and 'Vacuum Valve Control'. These are 3 position switches labeled Hand, Off, Auto.

The operating procedures for the various modes are as follows:

LOCAL MANUAL CONTROL (in the MI-11 peanut)

Switch the 'Pump Control' and 'Vacuum Valve Control' to 'Off'. The system is normally operating in the 'Auto' mode so one needs to switch out of that mode.

For local control the switches are placed in the 'Hand' position. Pump first then the vacuum valve. The pump and vacuum valve are interlocked so that the vacuum valve will not open unless the pump is running and the pump will not shut off until the vacuum valve is shut.

R:11PUMP	MI-11 VACUUM PUMP	.L... (pump on in local)
R:11VACV	MI-11 VACUUM VALVE	OL... (valve open in local)

The above pump parameters display the status of the pump and vacuum valve when in local manual control.

REMOTE CONTROL (from a parameter page)

For remote operation the switches are placed in the 'Auto' position and the pump and vacuum valve are then controlled from an ACNET parameter page. The ACNET parameters are: R:REAU, R:11PUMP and R:11VACV.

R:REAU has two positions: R(remote) and A(automatic). For acnet remote operation 'R' is selected. R:11PUMP can then be turned on followed by opening the vacuum valve R:11VACV.

R:REAU	MI-11 REMOTE AUTO	R (acnet remote mode)
R:11PUMP	MI-11 VACUUM PUMP	.A... (pump on in auto)

R:11VACV MI-11 VACUUM VALVE O A . . (valve open in auto)

The above pump parameters display the status of the pump and vacuum valve when in remote control. It should be noted that the 'L' and 'A' indicate the position of the wall breaker front panel switches.

AUTOMATIC MODE

In the Automatic mode the pump and vacuum valve will operate automatically depending upon the vacuum set points (140 mTorr rising and 85 mTorr falling). For this mode of operation the front panel switches on the manual disconnect must be in the AUTO position and the parameter R:REAU must be toggled to the 'A' position.

R:REAU MI-11 REMOTE AUTO A (automatic mode)
R:11PUMP MI-11 VACUUM PUMP . A . . (pump on in auto)
R:11VACV MI-11 VACUUM VALVE O A . . (valve open in auto)

If the pump temperature rises too high (152 deg. F) the vacuum valve will shut and the pump will shut off until the pump cools. Once the pump has cooled to (85 deg. F) the pump will restart and the vacuum valve will open.

FAULT CONDITIONS

The following are fault condition indications which will inhibit operation of either the pump or the vacuum valve.

R:11PUMP MI-11 VACUUM PUMP . A F . (pump fail to start)
R:11PUMP MI-11 VACUUM PUMP * A . H (pump fault on high temp)
R:11VACV MI-11 VACUUM VALVE O A R . (valve open request)
R:11VACV MI-11 VACUUM VALVE * A . T (shut due to open pump thermocouple)

ADDITIONAL USEFUL PLOTTABLE PARAMETERS

R:11VACU is the foreline vacuum
R:11VACD is the MI-11 lightpipe vacuum
R:M21VAC is the MI-21 lightpipe vacuum
R:11PMPT is the MI-11 vacuum pump temperature

Drawing number 8130-EC-356164

DATABASE DEFINITIONS

- R:REAU Selects whether the vacuum system is in automatic or remote mode.
- R:11PMP Pump ON/OFF control when in remote mode.
- R:11VACV Vacuum valve OPEN/SHUT control when in remote mode.
- R:11PMPT Vacuum pump temperature readback. Pump operates between 85 degrees F and 152 degrees F.
- R:11VACU MI-11 foreline vacuum readback.
- R:11VACD Lightpipe vacuum readback at MI-11.
- R:21VAC Lightpipe vacuum readback at MI-21.