Refrigeration Preventative Maintenance

Best Practice Guide

DDR Valve Setting

Defrost Differential Regulating Valve (DDR) is designed to create a differential pressure between its inlet on the discharge line and the receiver pressure.

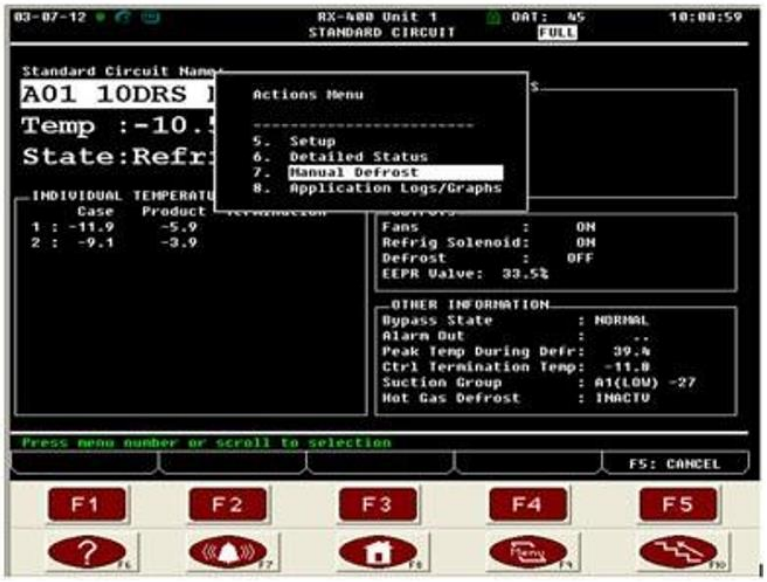
The solenoid coil should be energized when no differential is needed and de-energized when a circuit is in defrost and a differential is needed to allow the hot gas to flow back through the evaporator coil and through the liquid line to the liquid header.

The valve should be set with no gas flowing through any circuits.

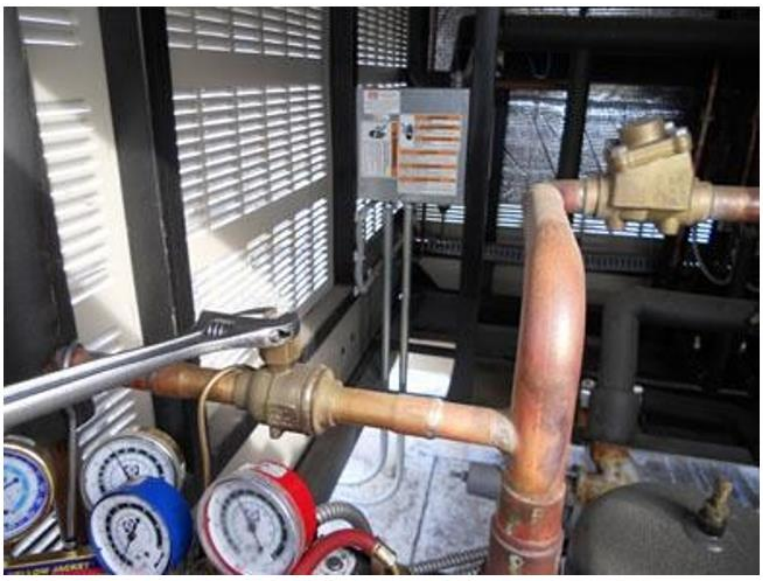
When setting the valve first hook up two high side gauges before and after the valve.

This is an example of a DDR valve on a RTCR, and can be found on the discharge line after the oil separator on a Super Target in the PUC.

Before a differential is created zero out the gauges against each other.

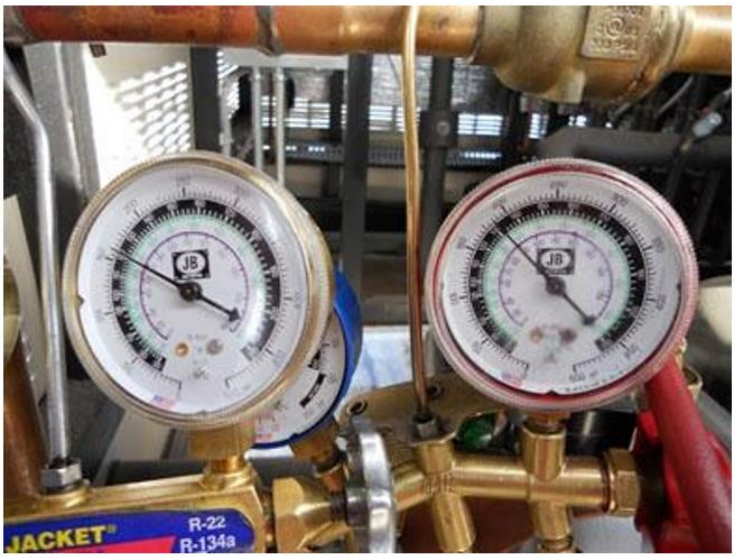


The valve can be activated by overriding a circuit in defrost.



When overriding a circuit you must close off the hot gas line to prevent flow through the circuit. Remember valve needs to be set with no gas flow!

Adjust valve until Target's 20-25 pound differential setting is achieved. Watch gauges for 5 to 10 min to ensure valve is holding differential. After valve is set document on valve the pressure setting with a paint marker. Once you are completed make sure ball valve for hot gas line is opened back up!!



WELL DONE!

OLDR Valve Setting

Open Liquid Line Differential Regulating valve (OLDR) is designed to create a differential pressure between the receiver and the liquid header. The "Open" is referred the fully open position when the valve is de-energized.

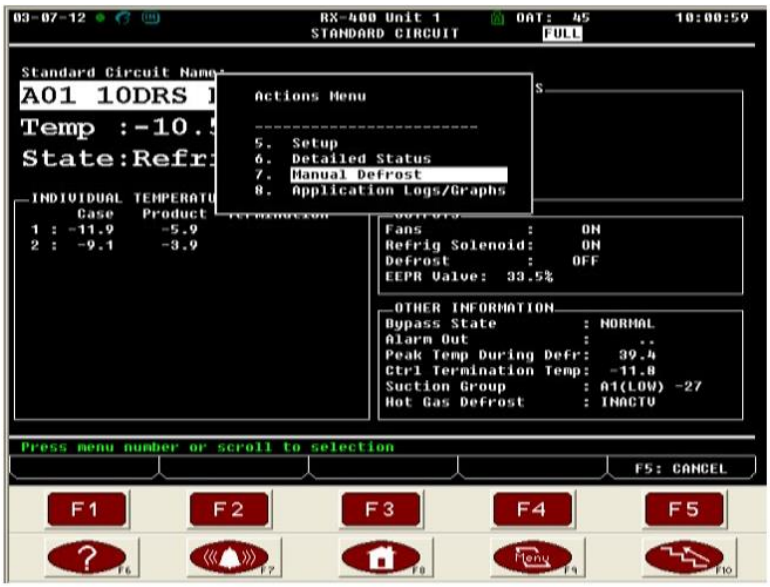
The solenoid coil should be de-energized when no differential is needed and energized when a circuit is in defrost and a differential is needed to allow the hot gas to flow back through the evaporator coil and through the liquid line to the liquid header.

The valve should be set with no gas flowing through any circuits!

This is an example of an OLDR valve in a Super Target inside the PUC. The valve can be found on the liquid line after the sub-cooler.

When setting the valve first hook up two high side gauges before and after the valve.

Before a differential is created zero out the gauges against each other.



The valve can be activated by overriding a circuit in defrost.

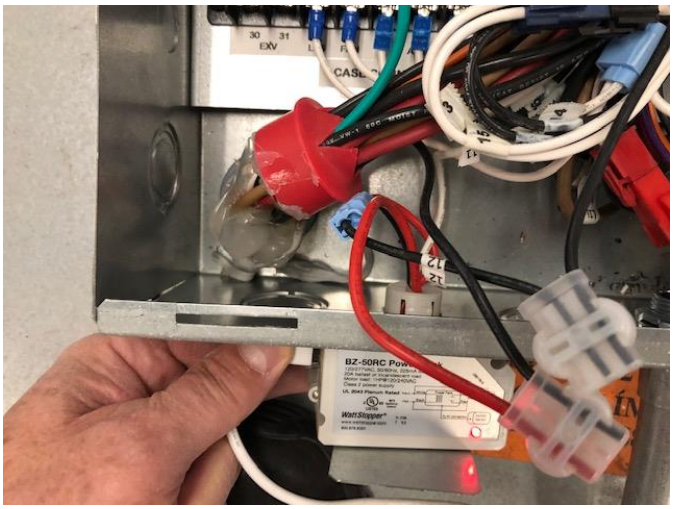
When overriding a circuit you must close off the hot or cool gas line to prevent flow through the circuit. Remember valve needs to be set with no gas flow!

Adjust valve until Target's 20-25 pound differential setting is achieved. Watch gauges for 5 to 10 min to ensure valve is holding differential. After valve is set document on valve the pressure setting with a paint marker. Once you are completed make sure ball or king valve is opened for hot or cool gas line!!

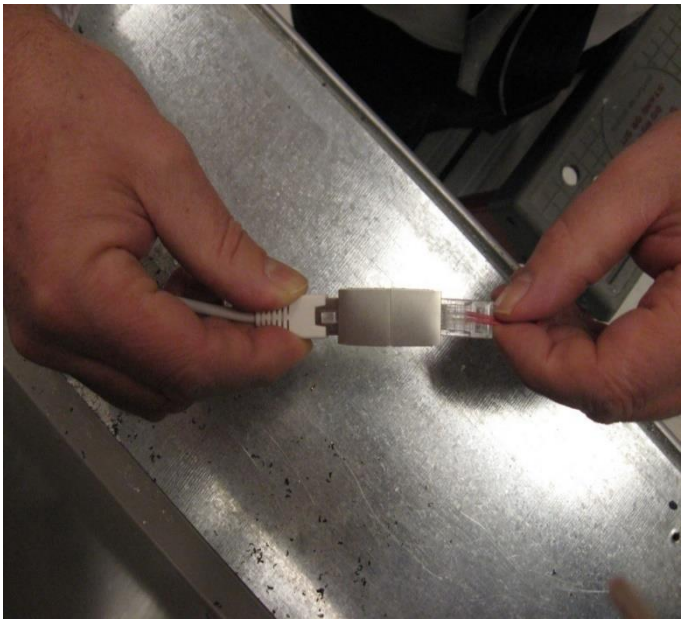
WattStopper Override

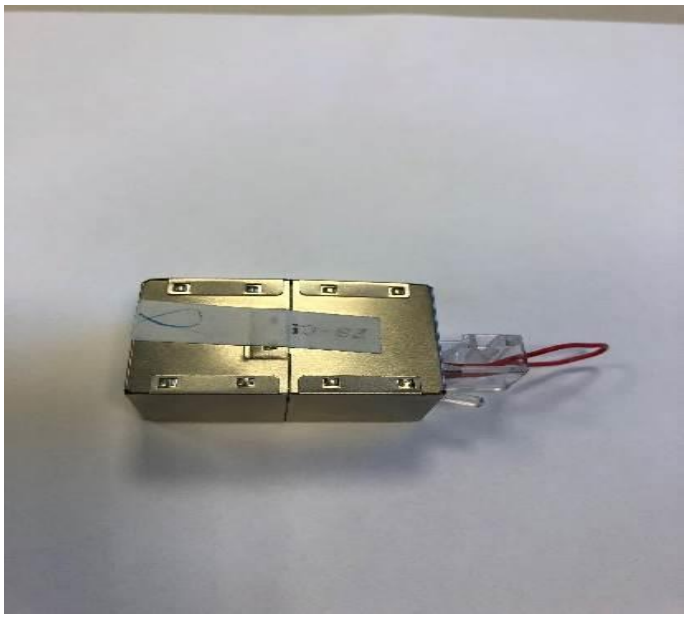
The purpose of this override is to eliminate glass door LED motion sensor. This will require hardwiring around the power pack contacts (see picture below).

Power pack location may vary. Check on top of case or electrical raceway.



If case has motion detection sensor jumper (see pictures below), remove jumper and override power pack as described above





Remove and discard all motion sensors after power pack has been overridden

Superheat and Expansion Valve Adjustment

1. Setting expansion valves is critical to the performance of a refrigeration system. Refrigeration Technician shall be prepared to execute the following steps in a slow, thorough and measured manner.
2. Superheat shall only be measured with all evaporator covers, case bottom pans and cooler/freezer doors closed as applicable to case or evaporator coil under adjustment and evaluation.
3. Top off receiver refrigerant level to 40% as required. Monitor receiver refrigerant level as the TXV adjustment progresses (additional refrigerant may be required to maintain the 40% level).
4. Set ALL Evaporator Pressure Regulator (EPR) valves or Electronic Evaporator Pressure Regulators (EEPR) on the compressor rack or remote header to the FULL OPEN position.
5. Elevate the suction manifold pressure to within ± 5º of the design saturated suction temperature (SST) of the warmest evaporator temperature circuit / group on the rack by manually toggling a combination of compressor horsepower off. THIS PROCEDURE PREVENTS COMPRESSOR CYCLING during the thermostatic expansion valve adjustment.
6. Set all expansion valves of the warmest circuit / group first then lower the rack pressure slightly and set EPR's for that group.
7. Set all expansion valves on the next coldest circuit / group second, lower rack pressure, set EPR's and so on until the coldest group / circuit on the rack is completed. When adjusting the coldest SST group or circuit, be sure the compressors are above the cutout point to prevent cycling.
8. Set each low temperature evaporator superheat 6 to 8 degrees at the center of valve swing. Set each medium temperature evaporator superheat 8 to 10 degrees at the center of the valve swing. It is important that the refrigerant charge be monitored continuously and topped off as required.

Setpoint Information for Target Subcooler Controller

Controller Screen Display	Meaning	Target Specified Setpoint
ESC	Escape	
LoSP	Liquid Outlet Temperatue Control Setpoint	40 F
r9hL	Return Gas High Limit	120 F*
SboF	Subcooler Off Temperature Differential	10 F
SHSP	Superheat Setpoint	10 F
rEFr	Refrigerant	R-404A

HiCP	Maximum Stepper % Open	100%*
LP	Liquid Proportional Gain Coefficient	1*
Li	Liquid Integral Gain Coefficient	60*
Ld	Liquid Derivative Gain Coefficient	0*
SP	Superheat Proportional Gain Coefficient	10*
Si	Superheat Integral Gain Coefficient	120*
Sd	Superheat Derivative Gain Coefficient	0*
LSH i	Low Superheat Integral Gain Coefficient	10*
CYct	Cycle Time	1*
StEP	Stepper Type - Number of steps for valve	1596
SPoS	Manual Stepper Position	0*
Addr	MODBUS Network Address	1*
bAud	Network Baud Rate	96*
nPAr	Network Parity Mode	EvEn*
Un_P	Units of Pressure	Psi*
Un_t	Units of Temperature	FAHr*
tt4P	Temperature Sensor Type	tYP2*
Pt4P	Pressure Sensor Type	gAUg*
Prn9	Pressure Sensor Range	300*
CALP	Pressure Calibration Offset	0*
CLt 1	T1 Temperature Calibration Offset	0*
CLt2	T2 Temperature Calibration Offset	0*
CLt3	T3 Temperature Calibration Offset	0*
CLt4	T4 Temperature Calibration Offset	0*
Cadr	Controller Address on Display Network	0*

*Controller default setting