MODEL URS-1: FACTORY RETROFIT PROGRAM — UP TO SERIAL NO. 05-30086.

The URS-1 unit has gone through extensive testing in order to attain maximum performance.
It has been determined that in order to set the unit for all weather operation, a factory authorized retrofit is required. This retrofit service must be done by a qualified refrigeration mechanic or service technician in order to guarantee product performance. This retrofit service involves the following steps:

1. Refrigerant recovery.
2. Expansion valve orifice replacement (if needed)
3. Expansion valve superheat adjustment.
4. System evacuation.
5. System re-charging.
6. Controller re-programming.

SERVICE PROCEDURE >>>DISCONNECT ALL POWER BEFORE PROCEEDING <<<

STEP 1: Refrigerant Recovery

The refrigerant in the URS-1 system needs to be extracted (recovered) out of the system in order to begin the retrofit service to the unit. To begin, start by removing the URS-1 rear access cover.
Lift the back cover straight up to remove and locate the pressure ports as shown on Figure-1. :

Figure -1

Using a recovery tank or evacuation equipment remove the refrigerant out of the system using any of the high side (liquid side or process tube) ports as shown on Figure –2:

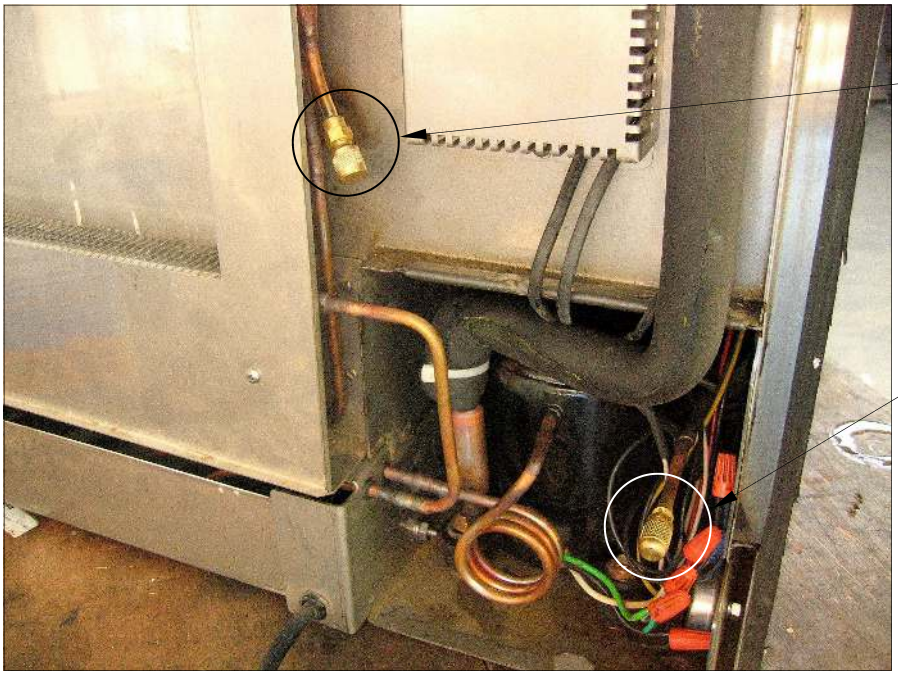


Figure –2

STEP 2: Expansion Valve Orifice Replacement.

The expansion valve in the URS-1 is a Danfoss brand TUA - type. This type of expansion valve allows the exchange and repair of the internal orifice (needle assembly) as well as it permits the size to be changed to allow for more capacity in refrigeration of the system.

Starting in June 2005 the expansion valve orifice was changed from size “0” to size “1”. All models with serial number 05-30060 or higher will have orifice “1” already installed.

This change was not due to lack of capacity on the size “0” orifice but rather the side port diameter. Size “0” orifice has a very small side port that might become clogged by internal debris in the system (debris not picked up by the filter in the liquid line), that might hinder the valve’s correct operation. Orifice size”1” on the other hand, has a much larger side port that will not get clogged by system debris if any. Once the system’s refrigerant has been recovered as shown on STEP 1, you can begin to replace the expansion valve orifice.
Locate the evaporator cooling coil inside the refrigerator product area. (See Figure 3)

Figure –3

Remove the side wall pilaster support screws (shoulder hex screw) and the evaporator cover by removing the two top screws of the assembly. You should be able to see two fans, the evaporator coil, TXV bulb and expansion valve. (see figure –4)

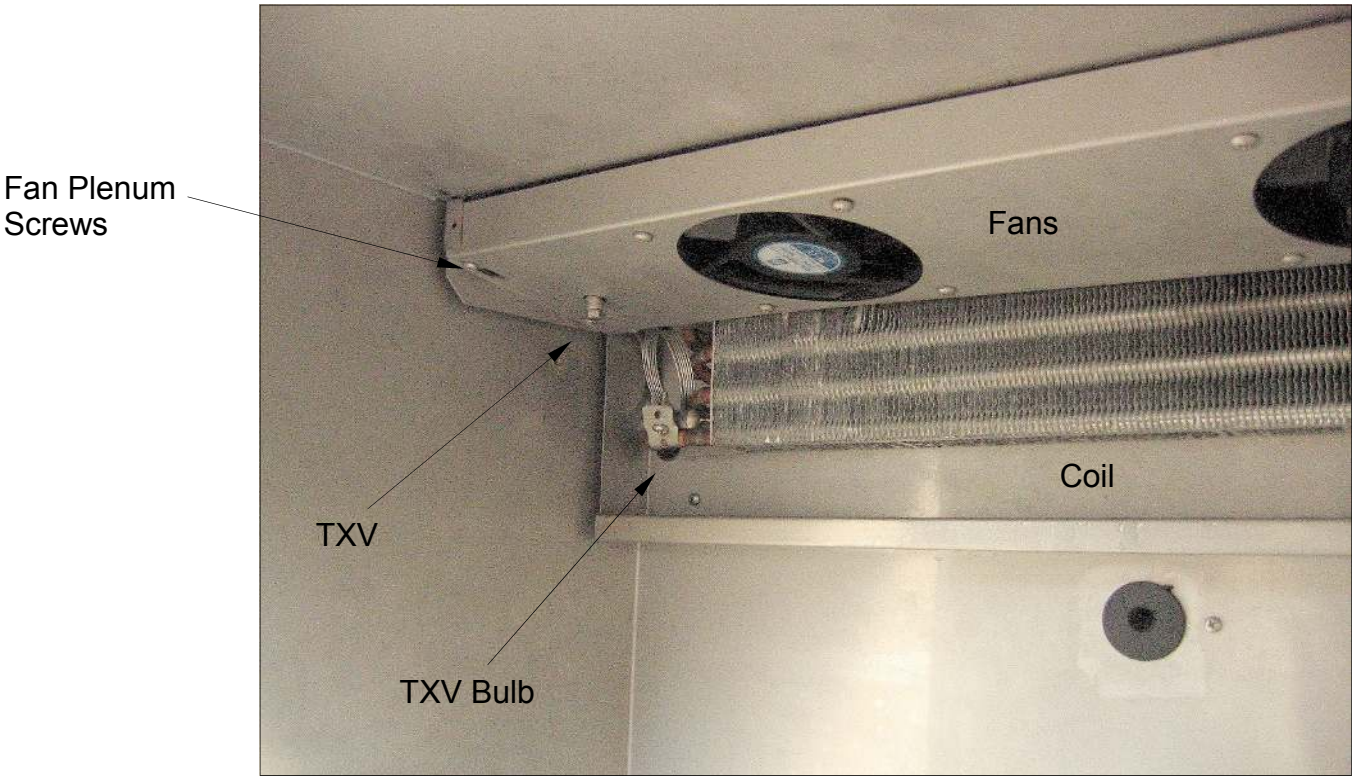


Figure -4

Remove the fan plenum screws in order to reach the expansion valve. (see figure—5)

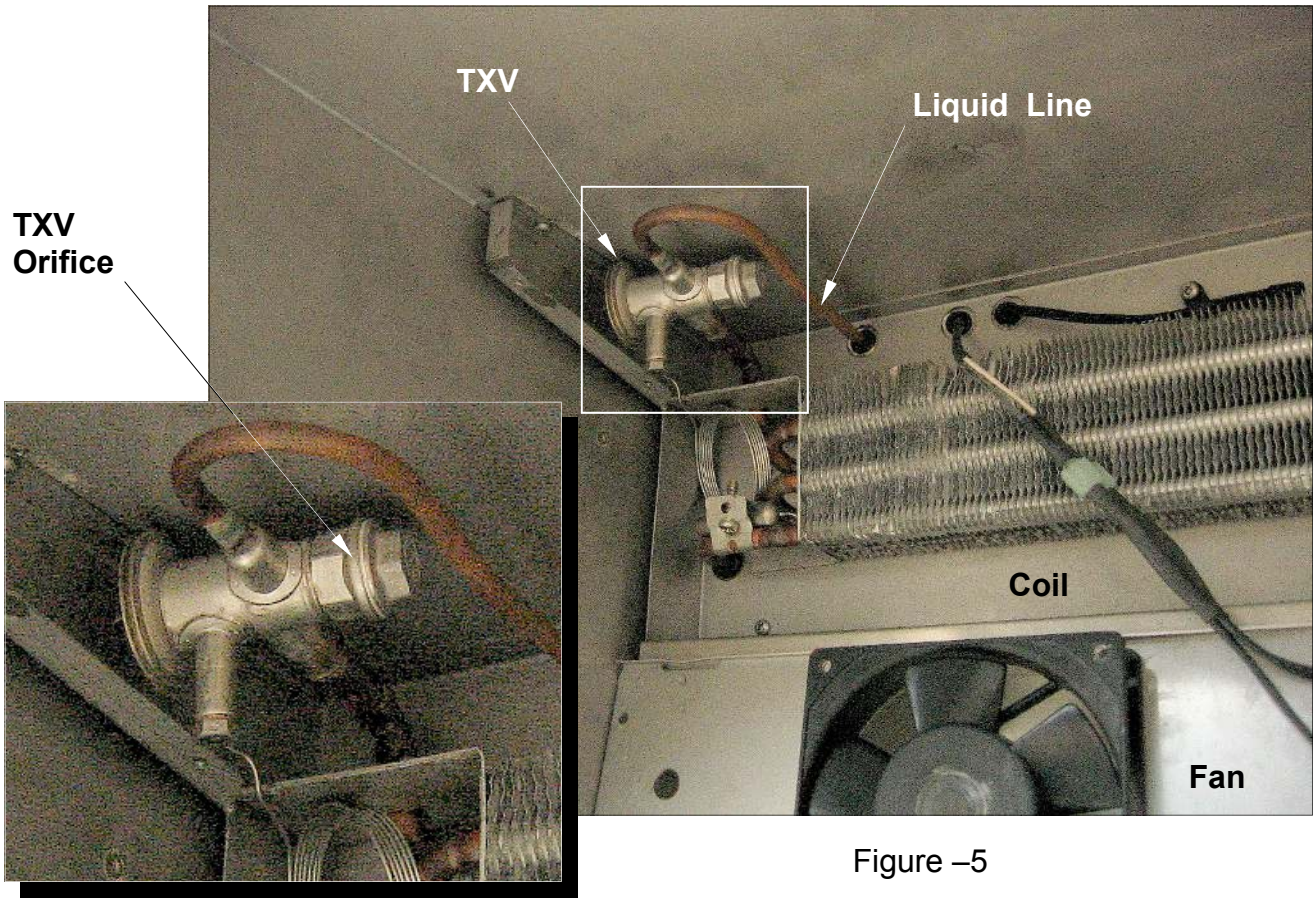


Figure –5

Locate the Danfoss TUA Orifice # 1 cartridge (Included in your Retrofit Kit - Figure 6) and verify that the orifice already installed in the expansion valve is “TU 0” (Figure 5 - detail).

- Should the existing orifice be “TU 0”, replace with “TU 1”
- If the existing orifice is “TU 1” , DO NOT REPLACE—DO NOT REMOVE.

If the orifice is loosened or removed it requires a new aluminum washer. The sealing washer is a one-time-use component or failure to seal properly will lead to refrigerant loss and system discharge. (See figure 7, 8 and 9)

Figure 6

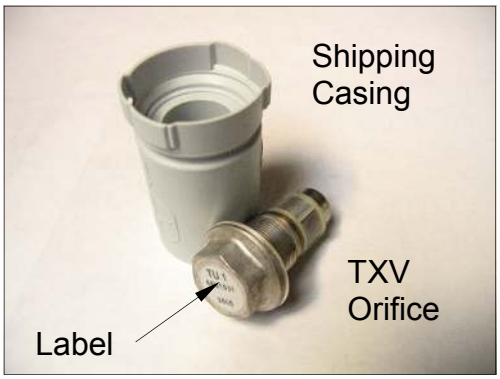


Figure 7

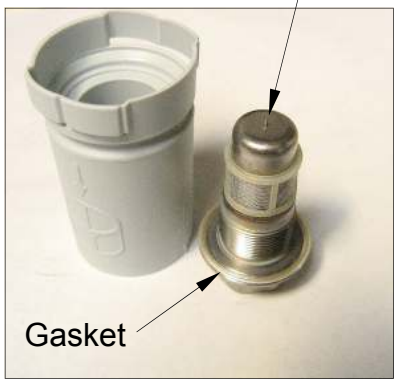
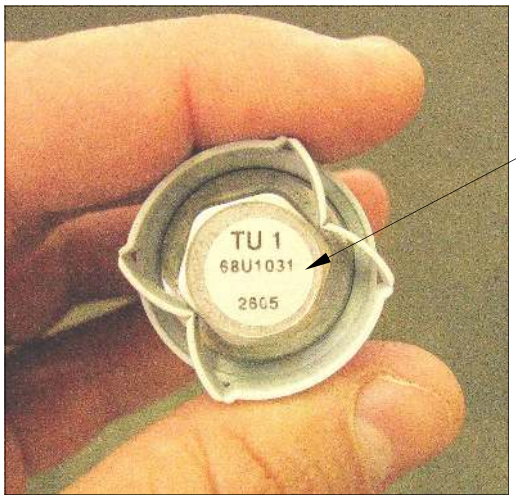


Figure 8



Label:
TU 1
68U1031 (Danfoss Part #)
xxxx (lot #)

Figure 9

Once the orifice has been replaced, re-install the fan plenum as shown on figure 4.

STEP 3 : Expansion Valve Superheat Adjustment

In order to adjust the system to operate correctly, the static superheat on the valve MUST be adjusted. The URS-1 Unit performs best at a static superheat of 3° to 7° degrees.

In order to adjust the static superheat, locate the expansion valve adjustment stem (see figure 10). It should be clearly visible through the fan plenum.

Open the adjustment port with a 3/16” hexagonal key or wrench. Locate the adjustment stem under the adjustment port cap.

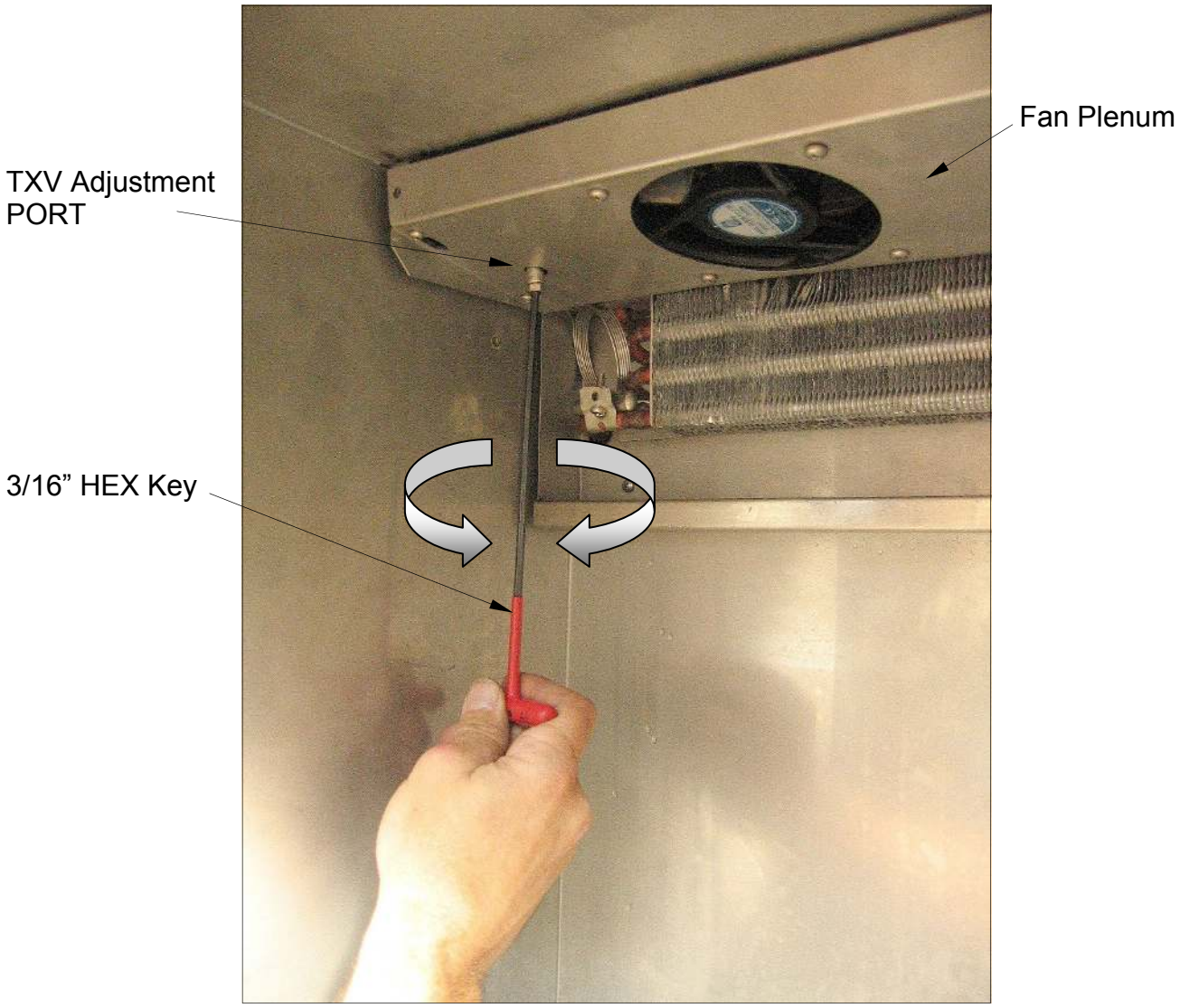


Figure 10

TO ADJUST:

- Rotate the adjustment screw ***COUNTER-CLOCKWISE*** until it **stops**.
- Rotate the adjustment screw ***CLOCKWISE*** for 4 and 1/2 turns. (4½ only!)

The superheat should now be adjusted to approximately 7 degrees.

Replace the sealing cap and install the evaporator’s front cover to seal the enclosure. (Figure 3)

STEP 4: System Evacuation.

Utilizing the suction line port, evacuate the system to no less than 30 in Hg using a refrigeration suction pump and a dual manifold gauge system. (See Figure 11)

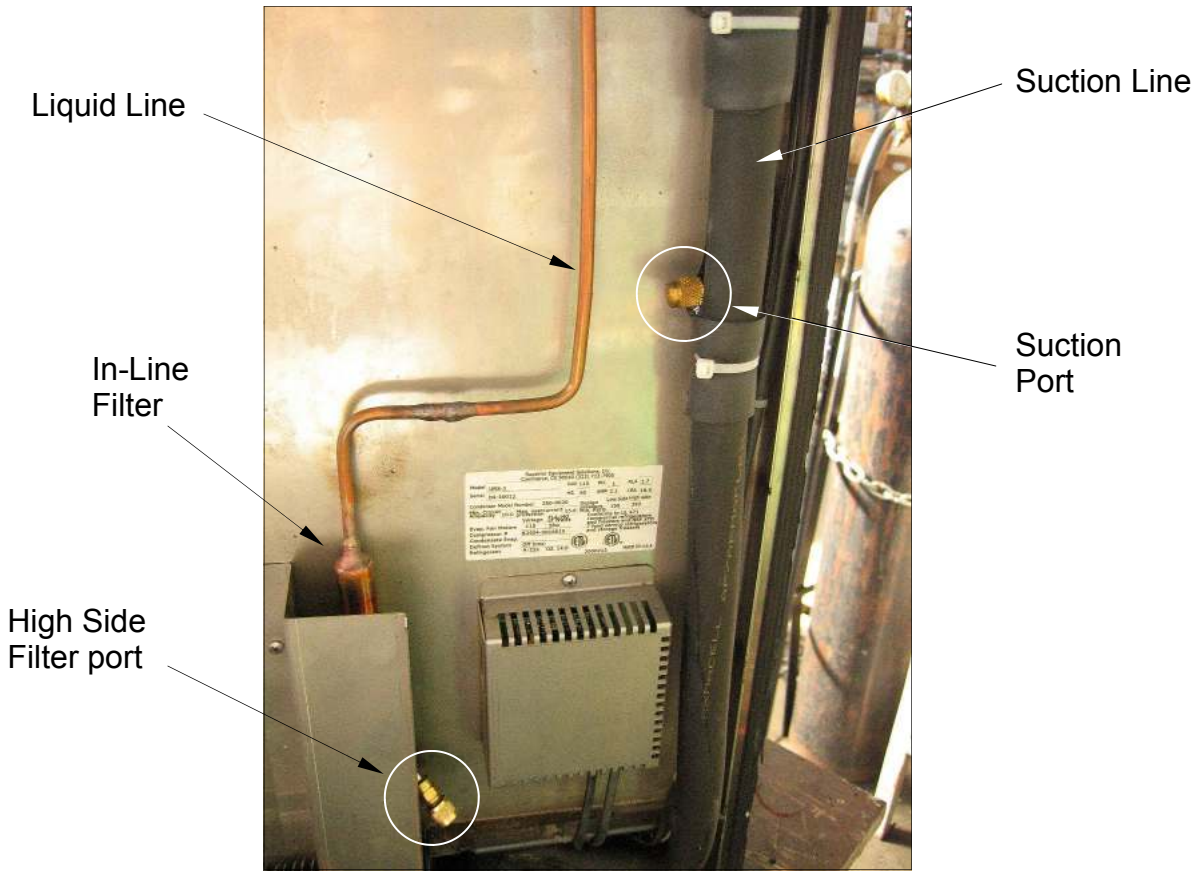


Figure 11

STEP 5: System Re-Charging

Using a refrigerant scale, slowly charge **9 ounces or R-22** refrigerant into the system. Preferably charge the system through the low side (suction side) without flooding the compressor.
If the system will not accept the 9 ounces readily, plug the URS-1 unit into an electrical outlet, turn the refrigeration system on and continue charging until 9 ounces have been filled.

DO NOT overcharge the system, failure to follow the correct amount of refrigerant will lead to a unit that will not perform correctly under severe hot weather.

STEP 6: Controller Re-Programming

The Refrigeration Controller unit that manages all the refrigerator operations and performance is a Sporlan Electronic Controller. The refrigeration control has been preset at the factory for normal, everyday operation under normal conditions.

In order for the unit to operate better in severe and hot weather conditions, it has been determined that the following re-programming is necessary:

(Refer to figures 12 and figure 13)

Figure 12

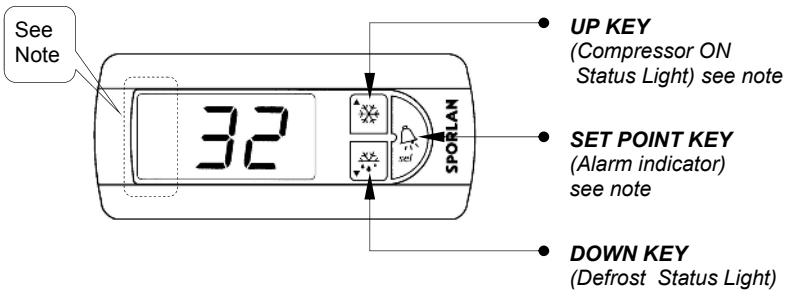


Figure 13

Begin by changing the temperature set point of operation by doing the following:

1. Press the "SET🔔" button for 1 second to display the set point temperature.
2. Hold the "SET🔔" key until the set point starts flashing.
3. Use the ▲❄ key to increase the temperature or ▼❄ key decrease the temperature until the set point of **21°F** has been reached.
4. Press the "SET🔔" button once more to confirm the value.

NOTE: Depending on the controller ***revision model***, it will either have indicator lights on the buttons themselves (see figure 13) or (newer models) will have indicator symbols on the left side of the display. If so, these 3 status symbols will indicate the following:

- Shows when the compressor is ON
- Shows that there is an ALARM
- Shows the unit is on DEFROST

OPERATIONAL PARAMETERS

Introduction:

There are two sets of parameters that can be access on this controller. Some require a password, other do not.

1. Press the "SET🔔" button for **1 second** to display the set point temperature (**21°F**) default.
2. Hold the "SET🔔" key for at least **5 seconds once more** (the set point starts flashing and after 5 seconds the letters PS will appear on the screen). PS = PASSWORD
3. Release the "SET🔔" key.
4. At this point, press the "SET🔔" once more and use the ▲❄ or ▼❄ keys to reach the number 22 on the screen (this is your password).
5. Press the "SET🔔" key once more to return the display to "PS".
6. Use the ▲❄ or ▼❄ keys to cycle through the different programming parameters.
7. ALWAYS Press the "SET🔔" button for at lest **5 seconds** to exit the programming mode.

Review:

MENU ITEM: (example: PS)	→	PROGRAM: PRESS "SET🔔" KEY	→	CHANGE ITEM: ▲ ▼ KEYS TO CHANGE	→	CONFIRM: PRESS "SET🔔" KEY	→	MENU ITEM: (example: PS)

Continue now and program all operational variables according to the list on the following page. The URS-1 unit retrofit is now complete.

Sporlan™ OMNI-Stat® Controller Settings

◄ Values to be changed from default

Model: 952892 - 120 VAC

Code:	Parameter:	Value	Default	UOM	Access	
					W/O PS	With PS
PASSWORD						
PS	Password	22	22	#	✓	
PROBE PARAMETERS						
/c	Ambient probe calibration	**10**	0	°F	✓	
/2	Measurement Stability	**15**	4	~		✓
/4	Probe to display (0=ambient / 1=product)	0	0	~		✓
/5	Unit of Measure (0=°C / 1= °F)	**1**	0	~		✓
REGULATION PARAMETERS						
rd	Regulating Differential	**19**	2	°F	✓	
r1	Minimum Allowed Temperature setting	**15**	-50	°F		✓
r2	Maximum Allowed Temperature setting	**40**	60	°F		✓
r3	Enable Def. alarm when max def. time reached	0	0	~		✓
r4	Automatic variation of set point - **NOT USED**	3	3	~		✓
COMPRESSOR PARAMETERS						
c0	Delay compressor after power on	0	0	Minutes		✓
c1	Minimum time between 2 compressor runs	0	0	Minutes		✓
c2	Compressor shut down minimum time	**5**	0	Minutes		✓
c3	Compressor Operation minimum time	0	0	Minutes		✓
c4	Compressor Safety (0=OFF / 100=ON)	**100**	0	~		✓
cc	Continuous Cycle Duration	4	4	Hours		✓
c6	Alarm Delay after continuous cycle	2	2	Hours		✓
DEFROST PARAMETERS						
d0	Defrost type (0=heater / 1=Hot Gas / 2=timed heater /	2	3	~		✓
dI	Defrost interval	**6**	8	Hours	✓	
dt	Defrost Ends Temperature	**50**	4	°F	✓	
dP	Max. Defrost Duration	**20**	30	Minutes	✓	
d4	Defrost after power on (0= NO / 1= YES)	0	0	~		✓
d5	Defrost delay after power on	0	0	Minutes		✓
d6	Block Display during Defrost (0= NO / 1= YES)	1	1	~		✓
dd	Dripping time after defrost	2	2	Minutes	✓	
d8	Alarm delay after defrost	1	1	Hours	✓	
d9	Defrost priority over minimum compressor time (0= NO / 1= YES)	0	0	~		✓
d/	Defrost probe - display temperature	~	~	~	✓	
dc	Time base for dI and dP (0= hrs / 1= minutes)	0	0	~		✓
ALARM PARAMETERS						
A0	Alarm and Fans Differential Temp	0	0	°F		✓
AL	Low temperature alarm (0= OFF)	0	0	°F	✓	
AH	Hight temperature alarm (0=OFF)	0	0	°F	✓	
Ad	Alarm Temperature delay	0	0	Minutes		✓
A7	Alarm imput detection delay	0	0	Minutes		✓
OTHER PARAMETERS						
H0	Serial Address (communications)	1	1	~		✓
H1	Alarm Relay Operation (0=Alarm w/relay ON -	1	1	~		✓
H2	0= Disable Buttons / 1=Enable Buttons	1	1	~		✓
H5	Identification for Programming	0	0	~	✓	
T	External Programming	~	~	~	✓	