19XRV Service Updates

Chee Nee Bong

October 2012

19XRV SERVICE UPDATES

Service Engineers by Location

Carrier
Turn to the Experts

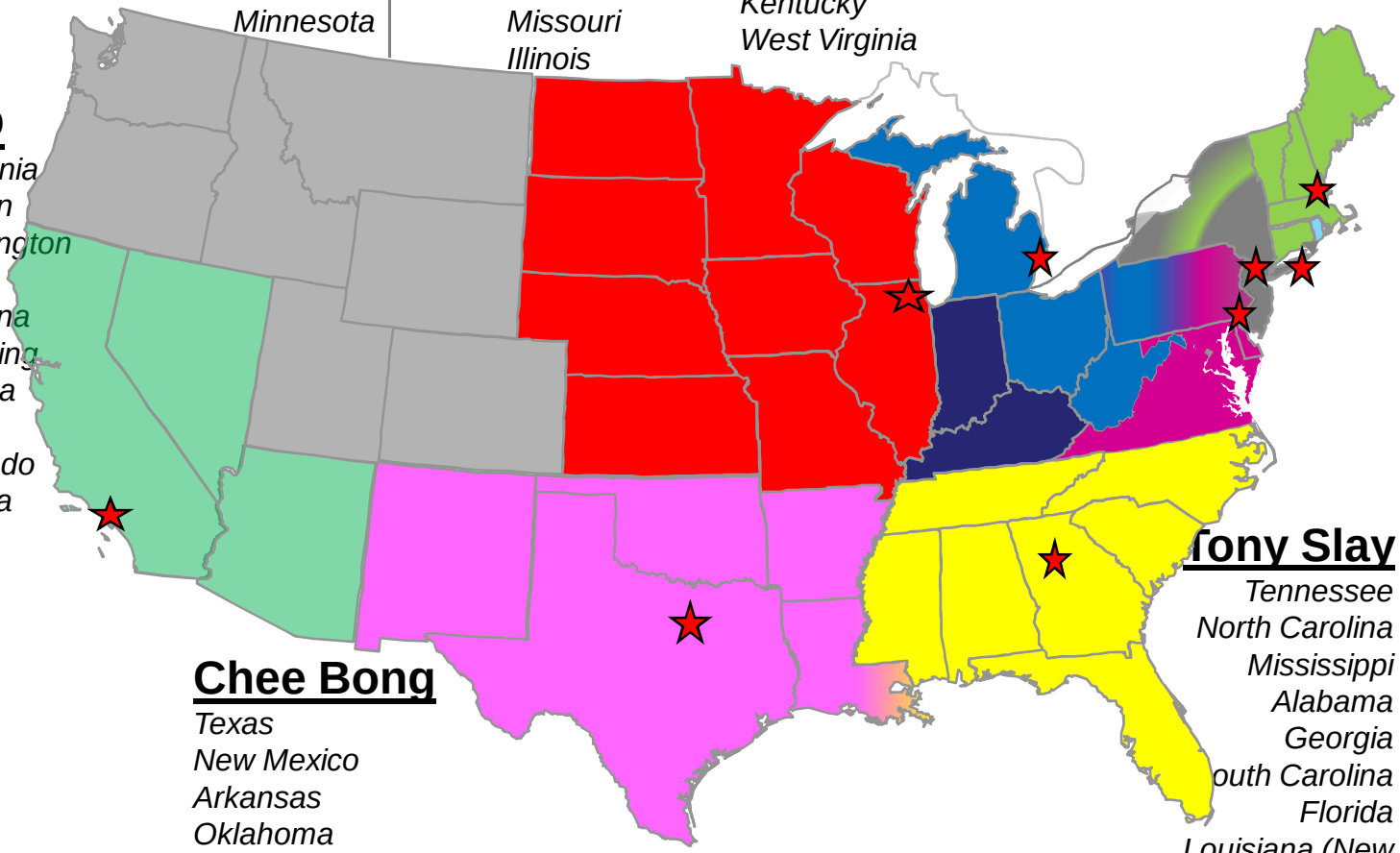
Gene Ericson
North Dakota
South Dakota
Minnesota
Nebraska
Kansas
Iowa
Missouri
Illinois

Ray Ryerson
Pittsburg, PA
Michigan
Indiana (Indianapolis)
Ohio (Cleveland)
Kentucky
West Virginia

Ed Doran
Maryland
Delaware
Philadelphia, PA
Virginia

Bill Deschenes
Maine
Vermont
New Hampshire
Massachusetts
Rhode Island
Connecticut
Upstate NY (Albany & West)

TBD
California
Oregon
Washington
Idaho
Montana
Wyoming
Nevada
Utah
Colorado
Arizona



Tony Brancato
New York City
Southern New York

Rich Cooper
New Jersey
Harrisburg, PA
Upstate New York (Syracuse, NY)
Southern New York

Tony Slay
Tennessee
North Carolina
Mississippi
Alabama
Georgia
outh Carolina
Florida
Louisiana (New Orleans)

Chee Bong
Texas
New Mexico
Arkansas
Oklahoma
Louisiana (Shreveport)

19XRV SERVICE UPDATES

CarrierROLE (Remote online Expert)

Turn to the Experts

National Field Engineering support

- Equipment & system troubleshooting
- Reselections
- Project technical supervision
- Warranty Support
- Customer & internal technical training
- Start-up Support

CarrierROLE# 1-800-574-9267

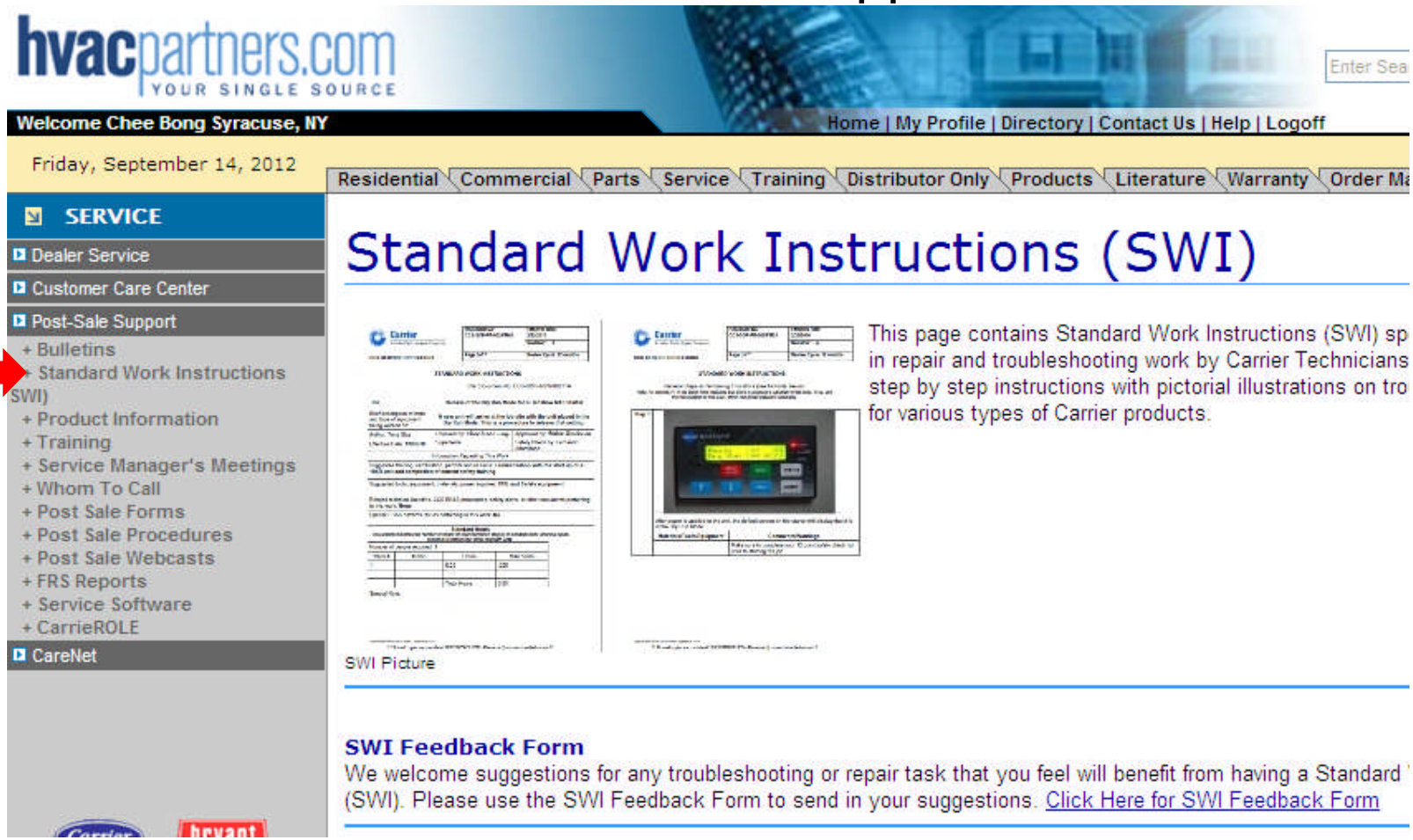
This number is for internal use only

19XRV SERVICE UPDATES

Standard Work Instructions

www.hvacpartners.com

Go to Service tab → Post sale support -- SWI



19XRV SERVICE UPDATES

Carrier
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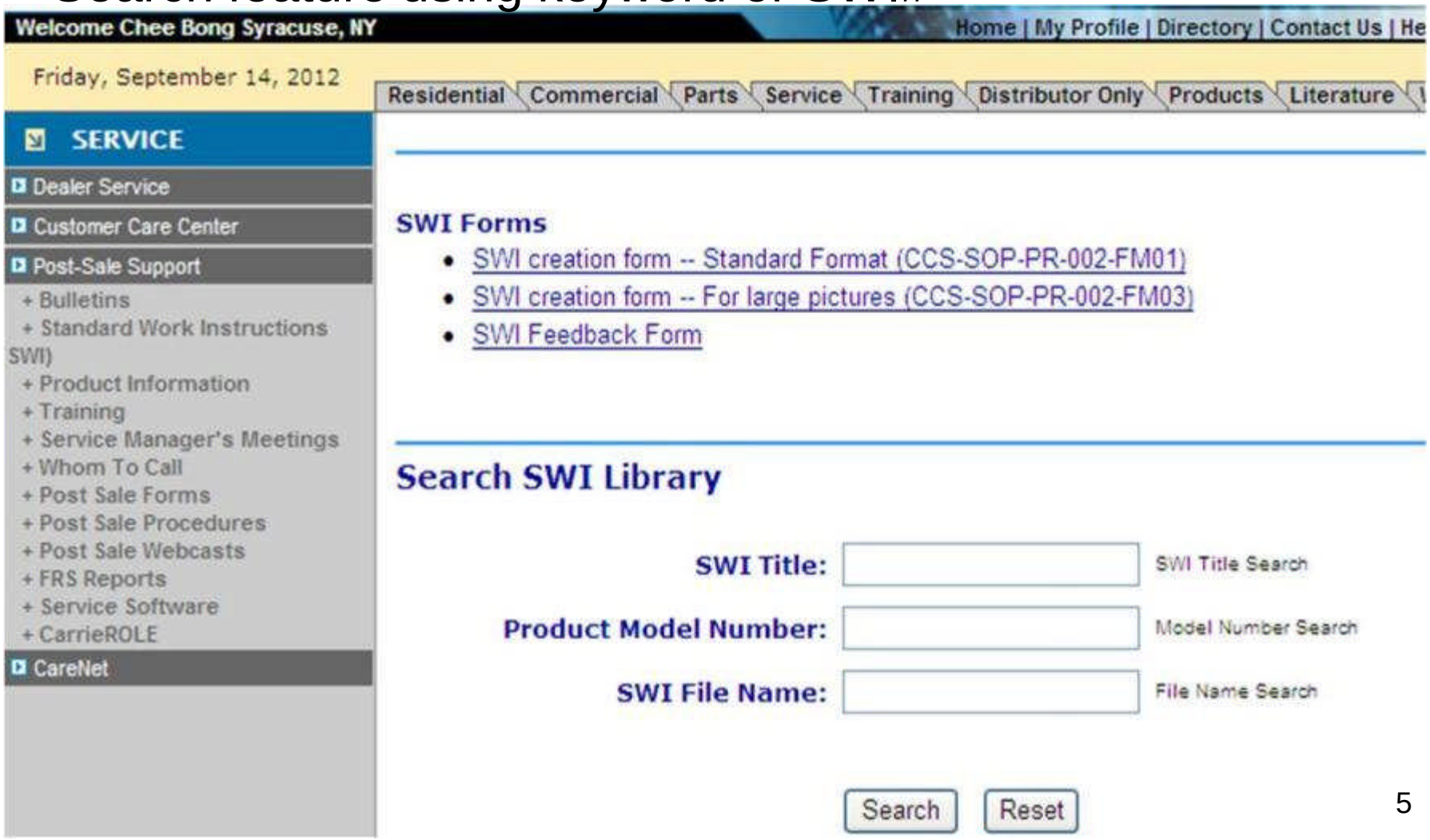
Standard Work Instructions

Search feature using keyword or SWI#



19XRV SERVICE UPDATES

Product Updates

19XRV SERVICE UPDATES

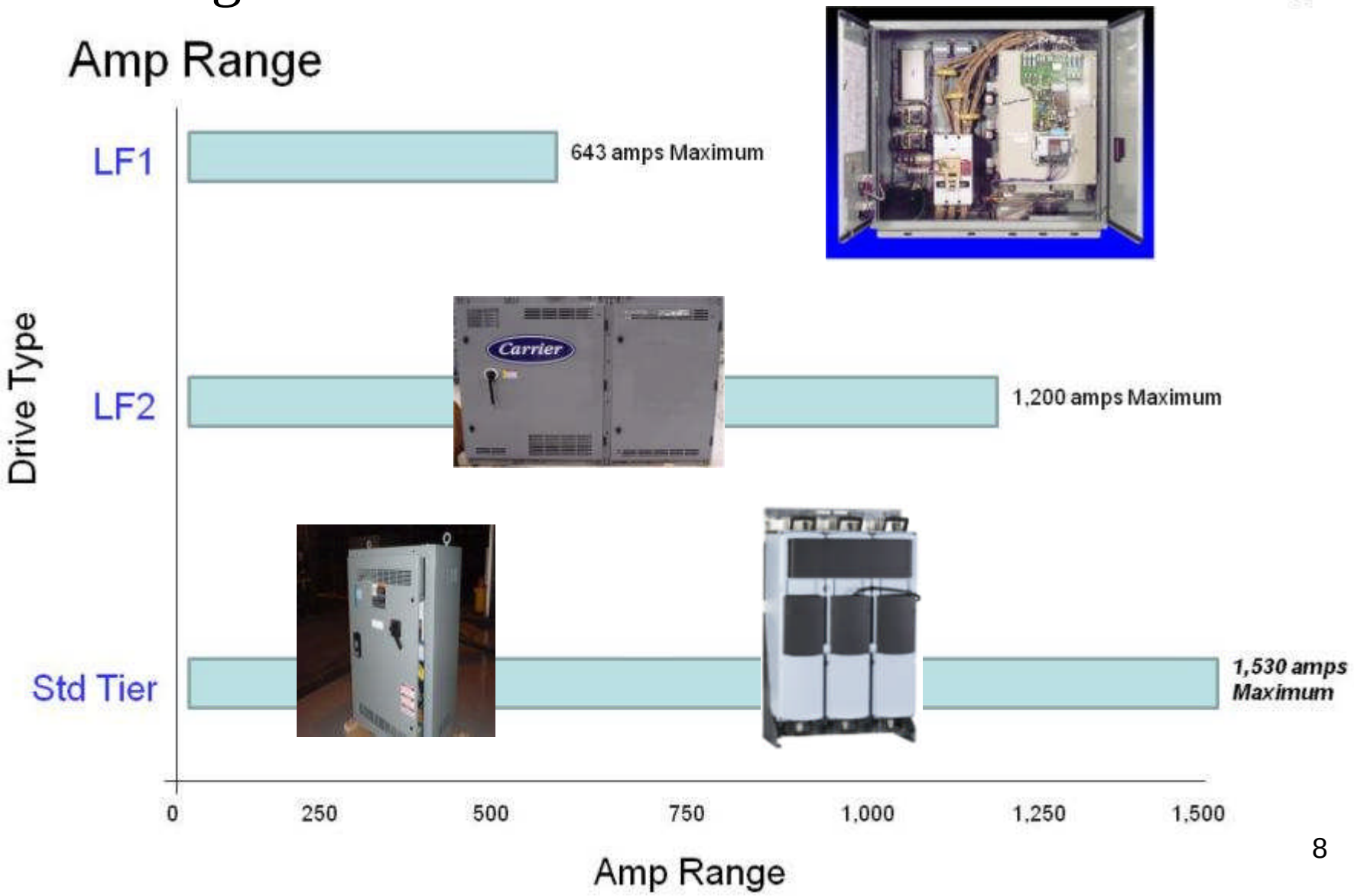
Latest Manuals

Manual Name	Type	Form #
19XR, XRV HFC 134a	Product Data	19XR-7PD
19XR, XRV PIC II Controls HFC-134a	Installation Instructions	19XR-7SI
19XR, XRV with PIC II Controls and HFC 134a	Startup, Operation, Maintenance	19XR-6SS
19XR, XRV PIC III Controls HFC-134a	Installation Instructions	19XRV-2SI
19XR, XRV with PIC III Controls and HFC 134a	Startup, Operation, Maintenance	19XRV-5SS
19XRV, 23XRV PIC III Controls Rockwell PowerFlex 755 VFD	Startup and Service Instructions (Supplement)	19/23-2SS
19XRV with PIC III Controls Eaton LCX9000 VFD Option	Startup and Service Instructions (Supplement)	19XRV-4SS
EVERVU Touch Screen Display for 19XRV, 23XRV PIC II or PIC III Controls	Installation and Startup Instructions (Supplement)	19/23-2SI

19XRV SERVICE UPDATES

VFD range

Turn to the Experts



19XRV SERVICE UPDATES

1” Tubes design

Factory has started building 1” tubes in the coolers

This option is available for frame 5-8 size coolers

Benefits

- Cost reduction (lower tube count). Example, frame 70 cooler design may have ¾” 644 tube counts, 1” tube design may have equivalent of 303 tube count
- Efficiency (on some coolers)
- Lower pressure drop

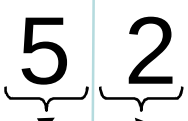
19XRV SERVICE UPDATES

1” Tubes design

	Original ¾” Selections				New 1” Selections					
Capacity (Tons)	Model	Efficiency kW/Ton	Evap. Press. Drop	$/Ton	Model	Efficiency kW/Ton	Evap. Press. Drop	$/Ton	Pressure Drop Gain (%)	Cost Gain (%)
550	19XRV5 050	0.571	20.5	$ 239.50	19XRV5 R51	0.575	13.6	$ 236.50	34%	1%
650	19XRV5 050	0.576	27.8	$ 213.4	19XRV5 Z55	0.576	20.3	$ 217.40	27%	2%
750	19XRV5 656	0.562	33.4	$ 204.00	19XRV6 X65	0.574	21.4	$ 204.30	36%	0%
850	19XRV7 070	0.561	23.3	$ 232.30	19XRV7 P71	0.576	18.5	$ 223.50	21%	4%
900	19XRV7 070	0.56	25.9	$ 223.60	19XRV7 R70	0.575	14.9	$ 218.00	42%	3%
1,100	19XRV7 171	0.571	30.7	$ 241.70	19XRV7 Y76	0.574	27.5	$ 238.90	10%	1%
1,350	19XRV8 686	0.554	33.7	$ 226.30	19XRV8 R81	0.576	19	$ 208.40	44%	8%
1,450	19XRV8 787	0.554	33.8	$ 216.80	19XRV8 Q83	0.576	24.6	$ 197.00	27%	9%

19XRV SERVICE UPDATES

1” Tubes design



Cooler/Condenser Frame Size

1 = Frame Size 1
2 = Frame Size 2
3 = Frame Size 3
4 = Frame Size 4
5 = Frame Size 5
6 = Frame Size 6
7 = Frame Size 7
8 = Frame Size 8

Cooler/Condenser Frame Size

Please see next (3) slides for heat exchanger frame sizes.

19XRV SERVICE UPDATES

1” Tube Design

19XR 52 51 473 DG H 64 -

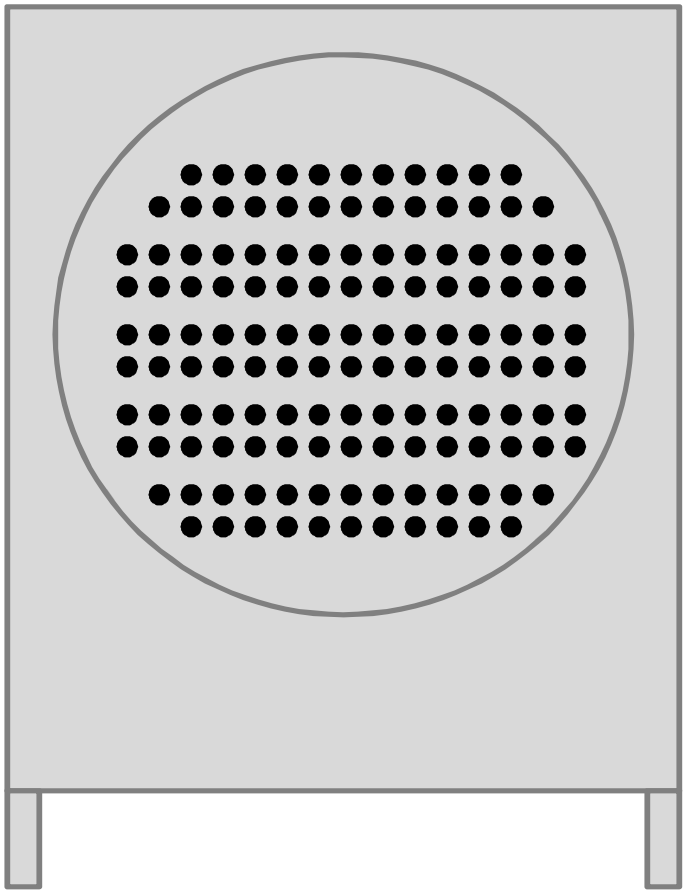
Frame Size	Standard Tube Quantity Arrangement	Equivalent 1” Tube (*2 Pass*) Tube Arrangement	Equivalent 1” Tube (*3 Pass*) Tube Arrangement	Description
5, 6, 7 & 8	0	P	K	Short Minimum Amount of Tubes
	1	Q	L	Short Median Amount of Tubes
	2	R	M	Short Maximum Amount of Tubes
	5	X	T	Long Minimum Amount of Tubes
	6	Y	U	Long Median Amount of Tubes
	7	Z	V	Long Maximum Amount of Tubes

Available in Frames 5-8.

19XRV SERVICE UPDATES

1” Tubes Design

19XR 52 51 473 DG H 64 -



Short	Long	Tube Quantity
4	9	Maximum Amount of Tubes
3	8	2nd Largest Amount of Tubes
2	7	Median Amount of Tubes
1	6	2nd Smallest Amount of Tubes
0	5	Minimum Amount of Tubes

19XRV SERVICE UPDATES

1” Tubes Design

19XR 52 51 473 DG H 64 -

Heat Exchanger Frame Size	Available Heat Exchanger Tube Arrangements	
	Short	Long
1	0, 1, 2	5, 6, 7
2	0, 1, 2	
3	0, 1, 2	5, 6, 7
4	0, 1, 2	5, 6, 7
5	0, 1, 2, 3, 4 A, B, C	5, 6, 7, 8, 9 F, G, H
6	0, 1, 2, 3, 4	5, 6, 7, 8, 9
7	0, 1, 2, 3, 4	5, 6, 7, 8, 9
8	0, 1, 2, 3, 4	5, 6, 7, 8, 9

19XRV SERVICE UPDATES

1” Tube Design

Significant Pressure Drop Savings
Efficiency improvements
Cost improvements
Check Selections for 1” tubes

Standard ¾” Evaporator Tubes with LF2				
Model Number	Capacity (Tons)	Efficiency (kW/Ton)	Evaporator PD (ft. wg.)	$/Ton
19XRV878758EMEH64	1,400	0.567	31.7	$228.10
New 1” Evaporator Tubes with Std Tier VFD				
Model Number	Capacity (Tons)	Efficiency (kW/Ton)	Evaporator PD (ft. wg.)	$/Ton
19XRV8Y87594MEH64	1,400	0.563	25.5	$210.60
Comparison Totals:		**0.7%**	**19.5%**	**8%**

19XRV SERVICE UPDATES

19XR Frame 4 &5 Rolling Element High Speed Bearing

Bulletin SB-C1103

High speed shaft radial and thrust journal style bearings replaced with cylindrical and ball style bearings

Not retrofitable into older units, need new casting

<u>Models affected:</u>

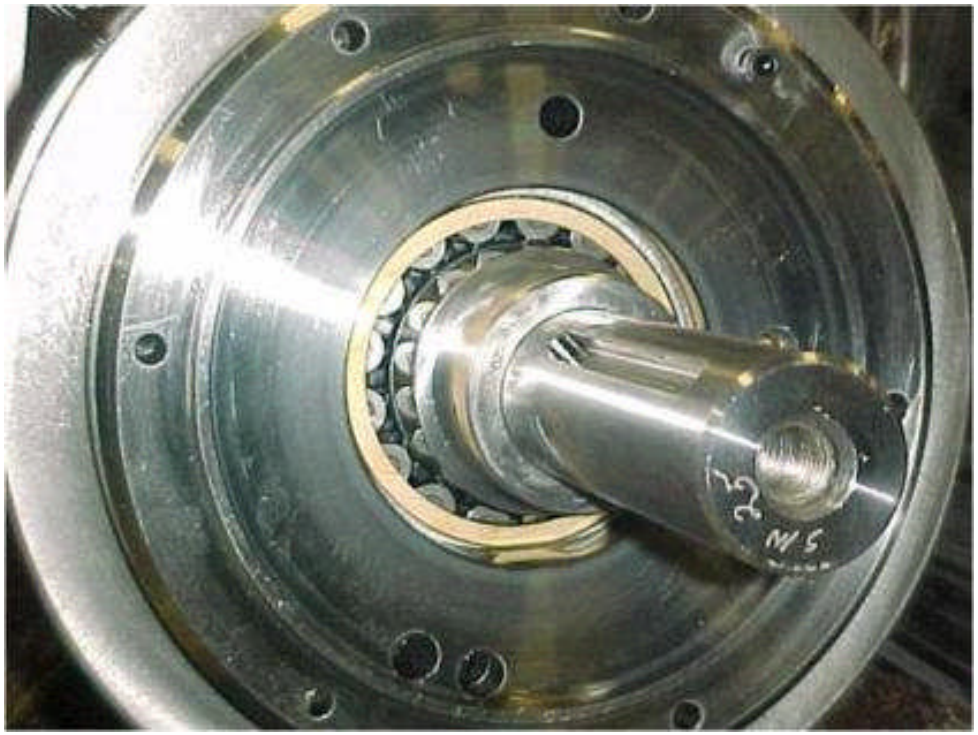
Frame 5 with serial # beginning 0111Qnnnn

Frame 4 with serial # beginning 2511Qnnnn

Bulletin includes disassembly procedure

19XRV SERVICE UPDATES

19XR Frame 4 &5 Rolling Element High Speed Bearing



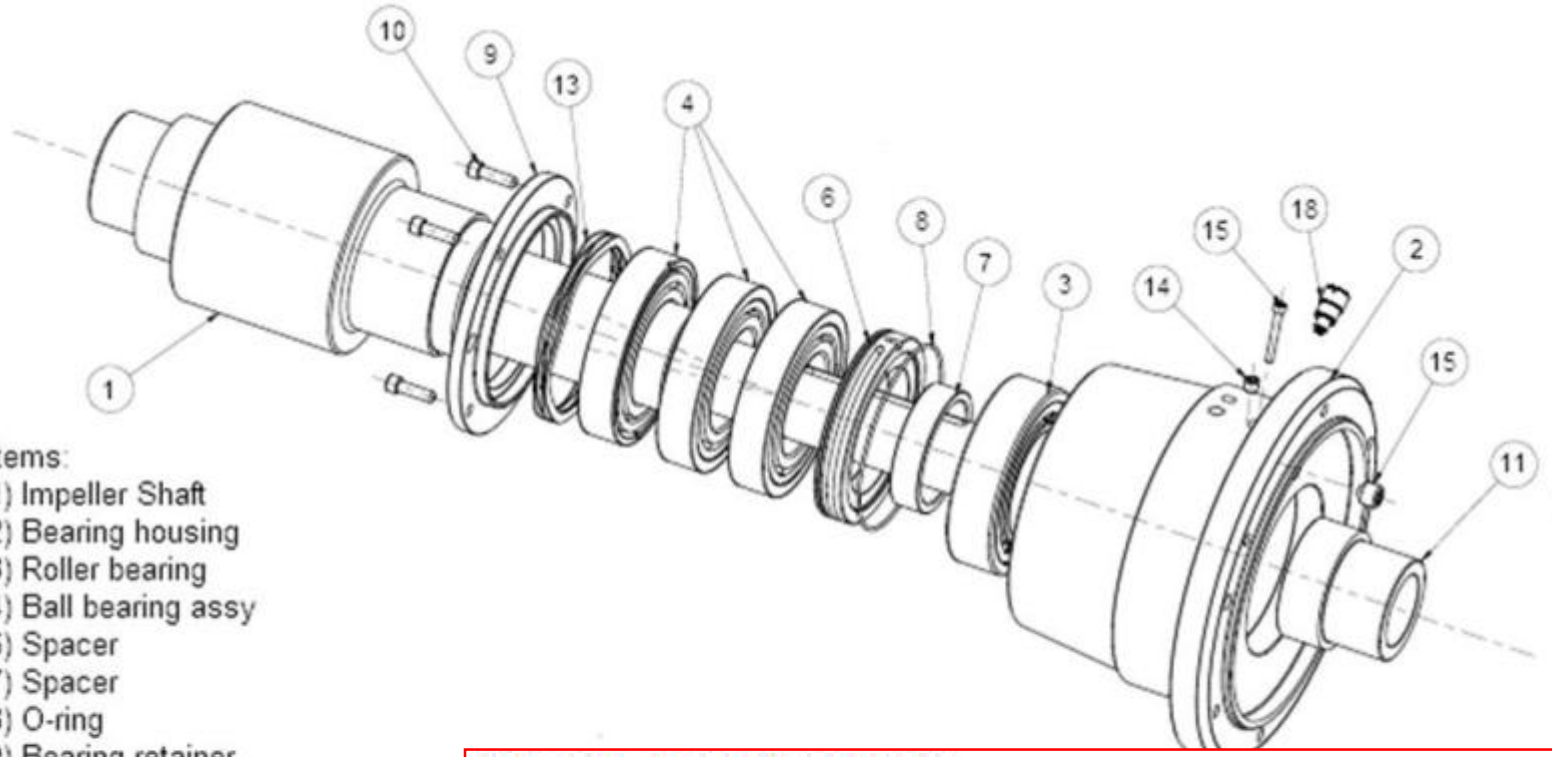
Vibration analysis should be added to annual maintenance

Babbit bearings contains 80% tin, REB contains 0% tin

Cleanliness is important in REB repair

19XRV SERVICE UPDATES

19XR Frame 4 &5 Rolling Element High Speed Bearing

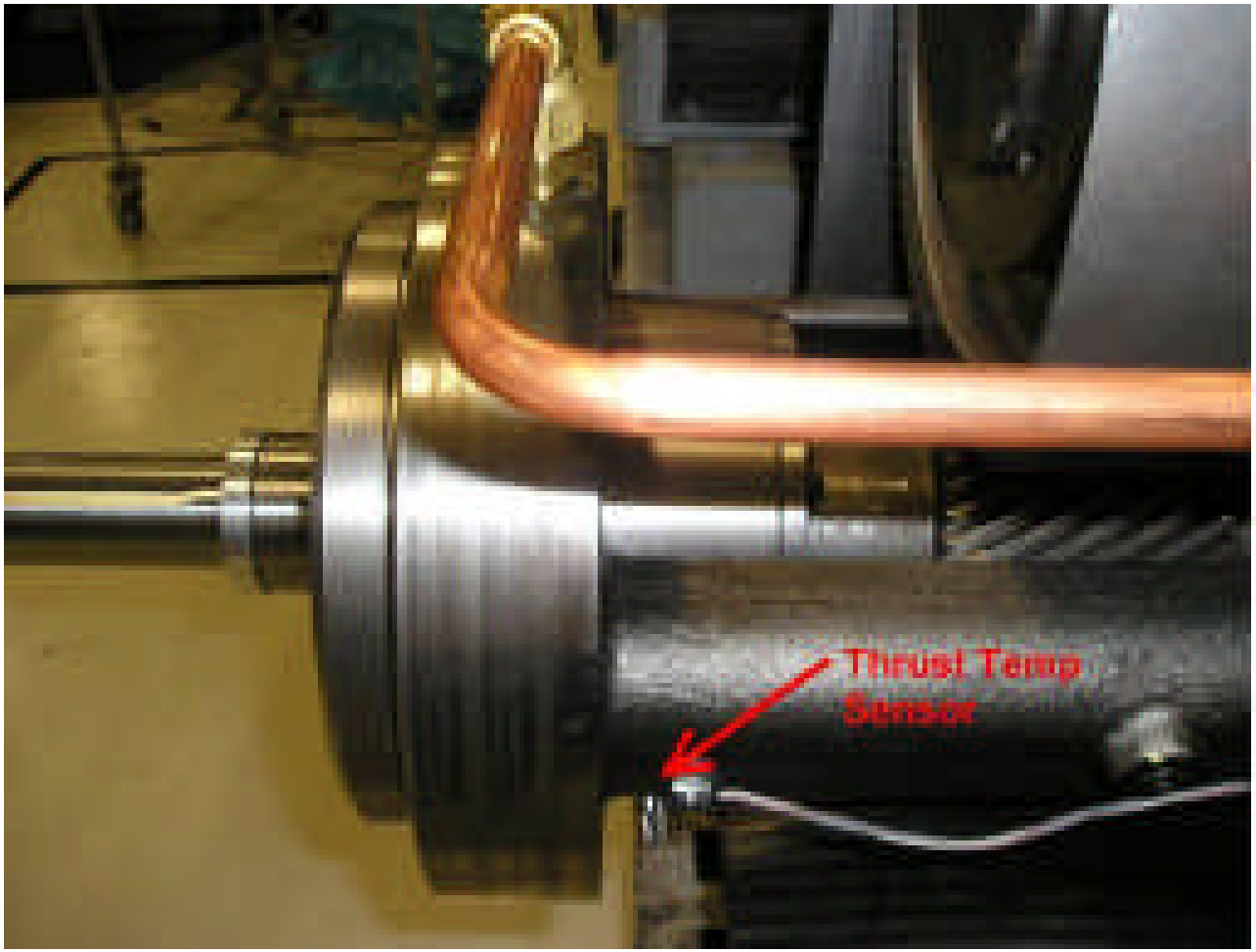


Items:
1) Impeller Shaft
2) Bearing housing
3) Roller bearing
4) Ball bearing assy
6) Spacer
7) Spacer
8) O-ring
9) Bearing retainer
10) Screw
11) Spacer
13) Wave spring
14) Screw
15) Screw
18) Temp sensor pin

High speed shaft assembly		
Part number -	Frame 5 units -	02XR54016701 (60 Hz)
		02XR54016702 (50 Hz)
	Frame 4 units -	02XR44018301 (60 Hz)
		02XR44018302 (50 Hz)

19XRV SERVICE UPDATES

19XR Frame 4 &5 Rolling Element High Speed Bearing



Thrust Temperature Sensor – spring loaded dual element thermistor screwed into transmission casting

High speed shaft assembly can be removed through impeller end of compressor

19XRV SERVICE UPDATES

19XR Wheel Clearance

Wheel clearances being reduced to increase efficiency.

Changed to fixed wheel shim – peelable shims not used in factory anymore

Factory change started 8/09

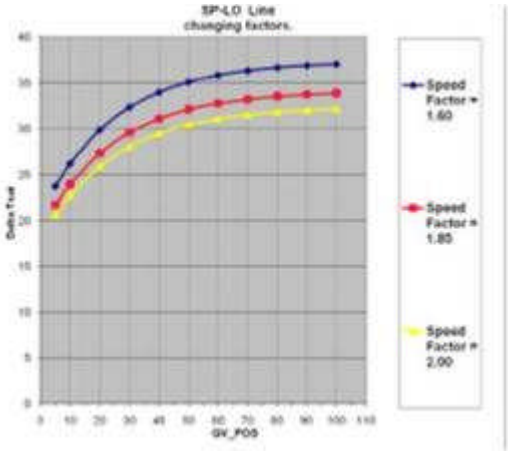
Clearances reduced as noted:

XR2	.016	was .018
XR3	.016	was .021
XR4	.012	was .024
XR5	.020	was .041

Peelable shims will still be used at the field

19XRV SERVICE UPDATES

Variable Primary Flow Software



Bulletin SB-C1102

<u>Models affected:</u>

- 19XRV Chillers PIC II (version 9)
- PIC III with LF2 (Version 4)
- PIC III with Standard Tier Drive (Version 1)

Surge points change to Tsmin, Tsmax, Gvmin, Gvmax. Old style T1, P1…..T4, P4

Flow rate change should be no more than 30% design flow rate per min

19XRV SERVICE UPDATES

Variable Primary Flow Software

Surge line too conservative

If LCWT set point is not met
GV < Travel limit
Surge prevention Active = Yes
% line current < 100%

Make sure that chiller is not run limited

If GV < 30%, Increase Tsmin in steps of 2ºF until chiller is not run limited
If GV > 60%, Increase Tsmax in steps of 2ºF until chiller is not run limited and capacity is reached
If 30%< GV <60%, Increase both Tsmin and Tsmax in steps of 2ºF until chiller is not run limited

See other control points adjustments in bulletins. Most of the time, shape factory from design data is accurate and does not need to be changed

19XRV SERVICE UPDATES

19XR PIC II Ver 10 VDO Software

Bulletin SB-C1105: 19XR PIC II Version 10 Variable Diffuser Optimization (VDO) Software

Mainly for 19XR Frame 4 & 5 compressors with variable diffuser. Helps Improve efficiency

Does not improve performance of units with VFD. Disable VDO function if VFD is used

ICVC Hardware version 03 or higher

New design data sheets should be obtained from service engineer

19XRV SERVICE UPDATES

19XR PIC II Ver 10 VDO Software

Control Parameters			
Surge/HGBP GVmin	5%		
Surge/HGBP Delta Tsmin	51.70 °F		
Surge Line Shape Factor	-0.06		
Surge/HGBP GVmax	100%		
Surge/HGBP Delta Tsmax	70.02 °F		
GV1_25 (%)	5.5		
GV1_50 (%)	16.5		
GV1_75 (%)	32.1		
SRD1_25 (%)	68.9		
SRD1_50 (%)	41		
SRD1_75 (%)	27		
LF1_25 (Delta T)	57.27 °F		
LF1_100 (Delta T)	71.73 °F		
LF2_25 (Delta T)	23.96 °F		
Cooler Min DP	2.9 psi		
Condenser Min DP	2.0 psi		
Inverter PWM Frequency	2 kHz	2 kHz	2 kH

Additional Lift values

LF1_25 – Lift valuve at 25% load for high lift load line

LF1_100 – Lift value at 100% load for high lift load line

LF2_25 – Lift value at 25% load for low lift load line

Off_sel – SRD IGV curve offset should be set to 3 as default

Pro_sel – Profile selection for low lift load line should be set to 3 as default

19XRV SERVICE UPDATES

19XR PIC II Ver 10 VDO Software

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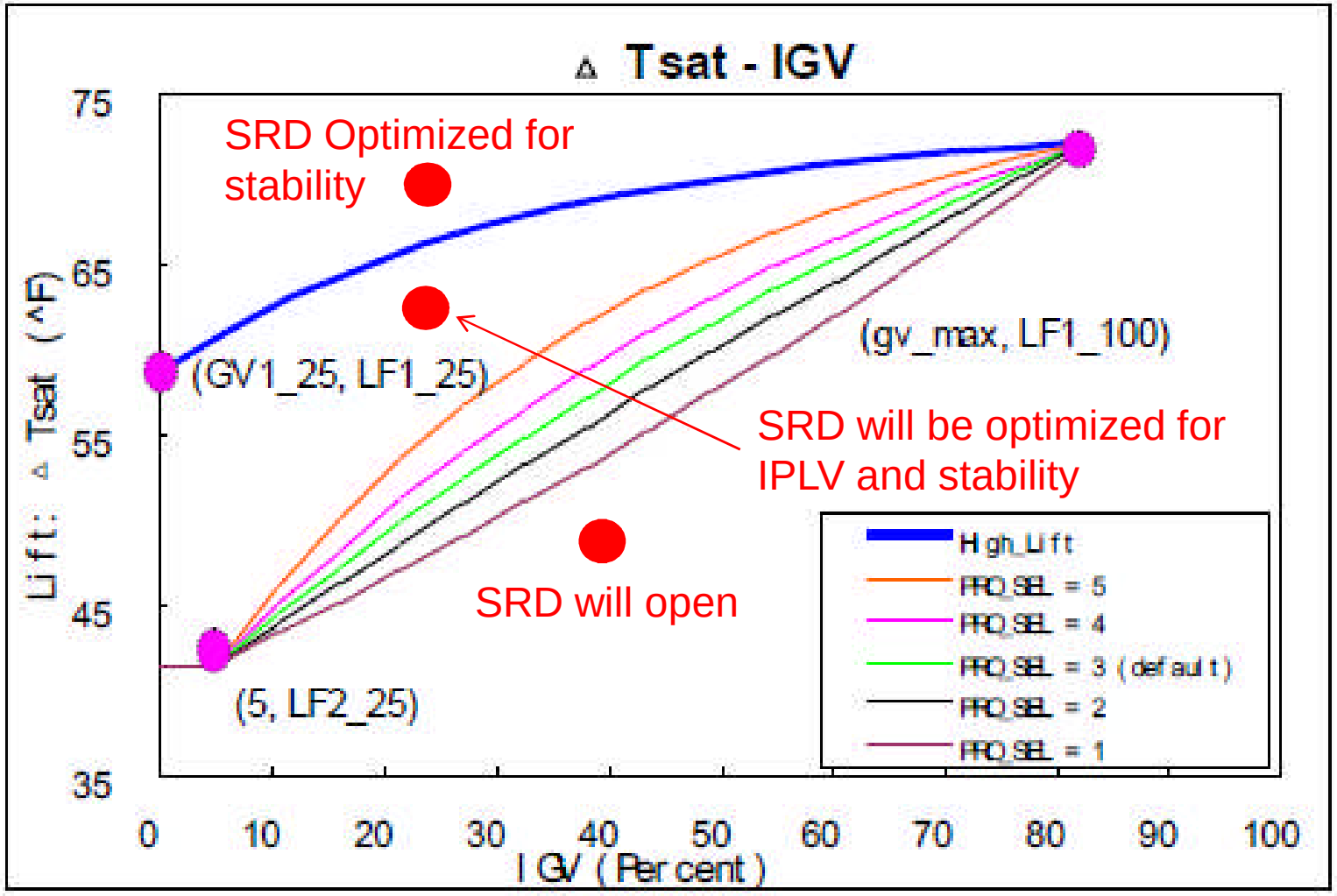


Fig. 3: Lift vs. IGV curve

19XRV SERVICE UPDATES

19XR PIC II Ver 10 VDO Software

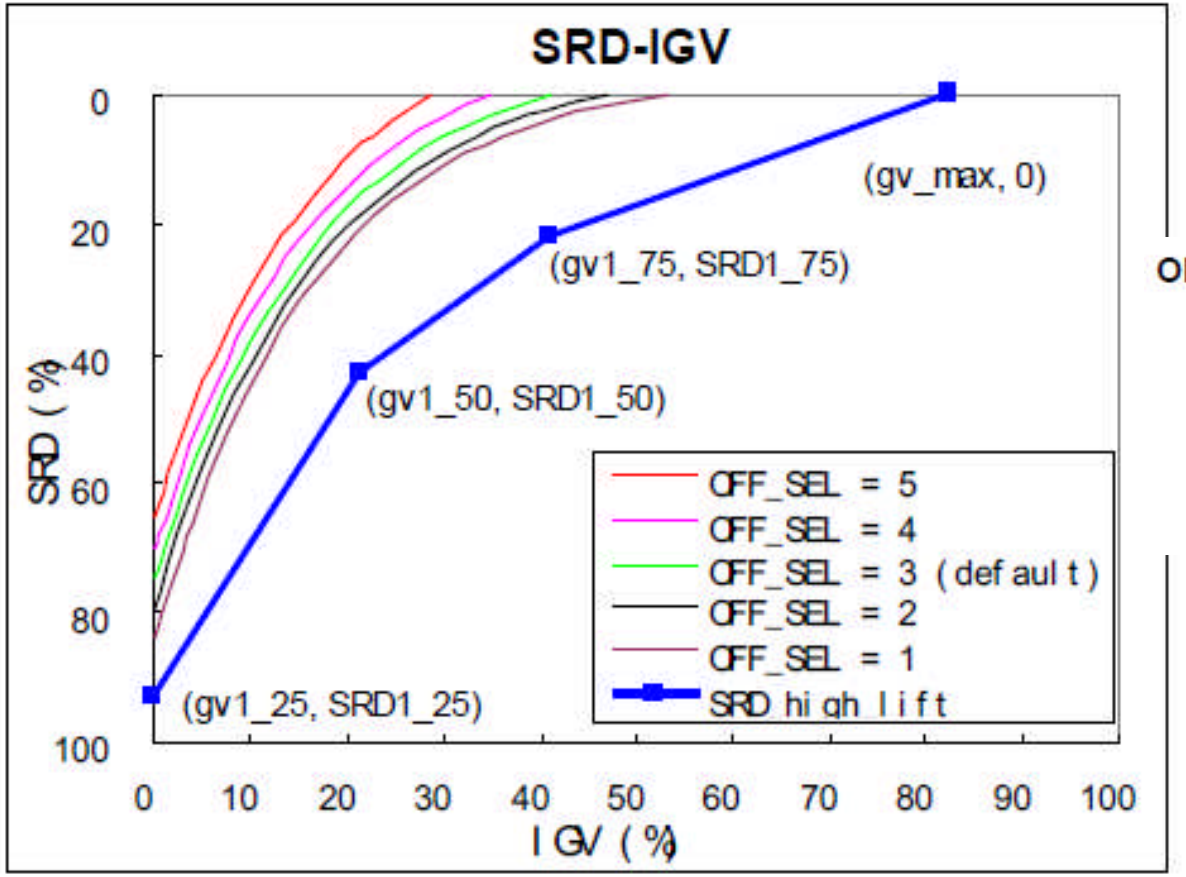


Fig. 4: SRD vs. IGV curve

SRD IGV curve offset changes the shape of the curve

OFF_SEL	SRD IGV Offset
5	SRD IGV open maximum
4	SRD IGV open more
3	SRD IGV normal ARI
2	SRD IGV closed more
1	SRD IGV closed maximum

19XRV SERVICE UPDATES

Service Updates

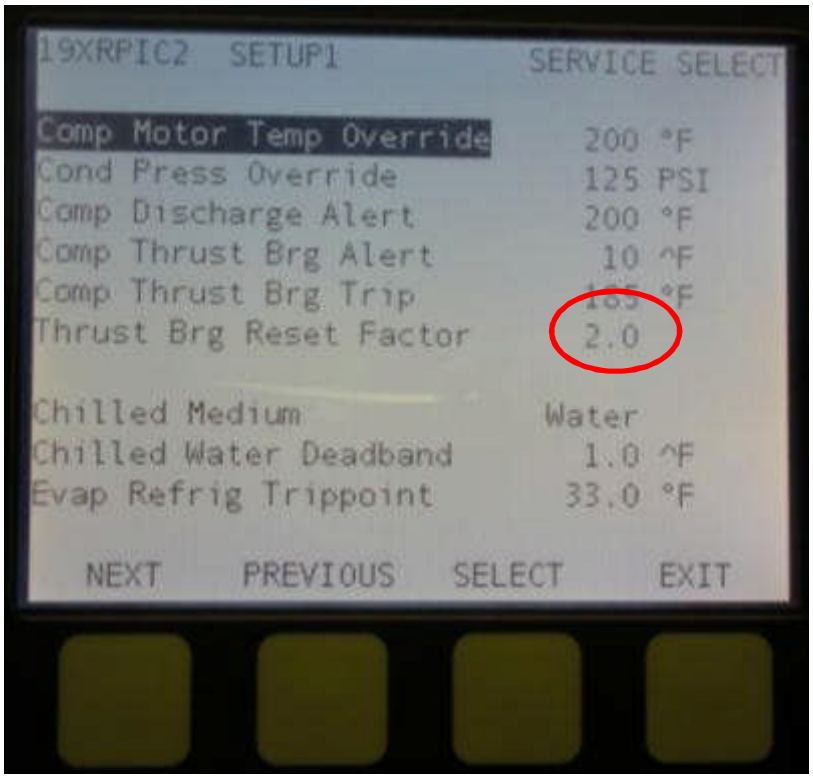
19XRV SERVICE UPDATES

Nuisance High Bearing Temp

Issue: Thrust bearing Reset Factor set wrong from factory

Solution:

1. Go to Service→ Equipment Service→ Setup1
2. Check “Thrust Brg Reset Factor, should be set to **1.2 to 1.4**”



19XRV SERVICE UPDATES

Gerotor Pump

Bulletin C0905

Models affected:

19XR Chillers 3209Qnnnnn subsequent

Starting above date, Gerotor pump replaced the vane pump

Gerotor pump is rotary pump

Quieter design

Less vibration on oil supply lines

Distinguished by external regulator

19XRV SERVICE UPDATES

Loss of Communication Alarm

Bulletin SB-C1207

Models affected:

19XRV PIC II software version 10

19XRV PIC III software version 4

Data on ICVC locks up due to too high communication rate from Universal Protocol Card (UPC) to ICVC

UPC Should not poll or communicate with ICVC more than once per minute

19XRV SERVICE UPDATES

Nuisance Diffuser Position Fault Alarm

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Diffuser Position Fault

Charlotte Issue Resolution Process (19XRV)

D1 D2 D3 D4 D5 D6 D7 D8

IRP Issue Description : 19XRV chillers trip on nuisance Rotating Stall alarm because of noise in transducer. If the diffuser pressure fluctuation is more than 76 PSI for 4 or more in 1 second, that will be a trip out by "Diffuser Position Fault". This logic is integrated in CCM board software and it is very difficult to modify.

Root Cause Findings: (Probable) EMI from motor and VFD

Containment: Replacement, re-routing, snubber, shielded cable

Corrective Action Plan: Measure noise and tune filter

Issues/Risks: Corrective action is unproven; Root-cause not found yet

Project Team:

Asia: Shufu, Chaoqun

CLT: Tats, Heather, Ken, Don

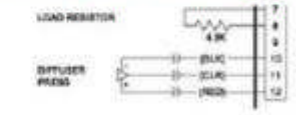
Project Paused for 2 months

IRP PROJECT MILESTONES (8D)	PLAN	FCT	ACTUAL
Problem Assigned (D1)	5/1/11	5/1/11	5/1/11
Problem Described (D2)	5/1/11	5/1/11	5/1/11
Problem Contained (D3)	5/15/11	5/15/11	5/15/11
Root Cause Determined (D4)	11/30/2011	9/30/2012	
Corrective Action Chosen (D5)	3/31/2012	10/30/2012	
Corrective Action Implemented (D6)	8/30/2012	12/30/2012	
Reoccurrence Prevented (D7)	12/31/2012	6/31/2012	
Team Congratulated! (D8)			

Example Problem Sites

Data collection in progress.

Active Tasks	Owner	Plan	Complete
Collect field and Production problem data	Tony	6/30/11	6/30/11
Request S/W change for pulsation monitoring	Tats	6/30/11	6/30/11
Define measurement standard for noisy channel	Tats	6/30/2011	6/30/11
Rent equipment	Tats	6/30/2012	
Test Baseline (BOB) chiller	Marty/Tats	7/30/2012	
Job site visit (4)	Tony	8/30/2012	
Data analysis and D4	Tats	9/30/2012	



Equipment is rented.

Previous measurements are not reliable. Re-doing BOB chiller measurement.

19XRV SERVICE UPDATES

Nuisance Diffuser Position Fault Alarm

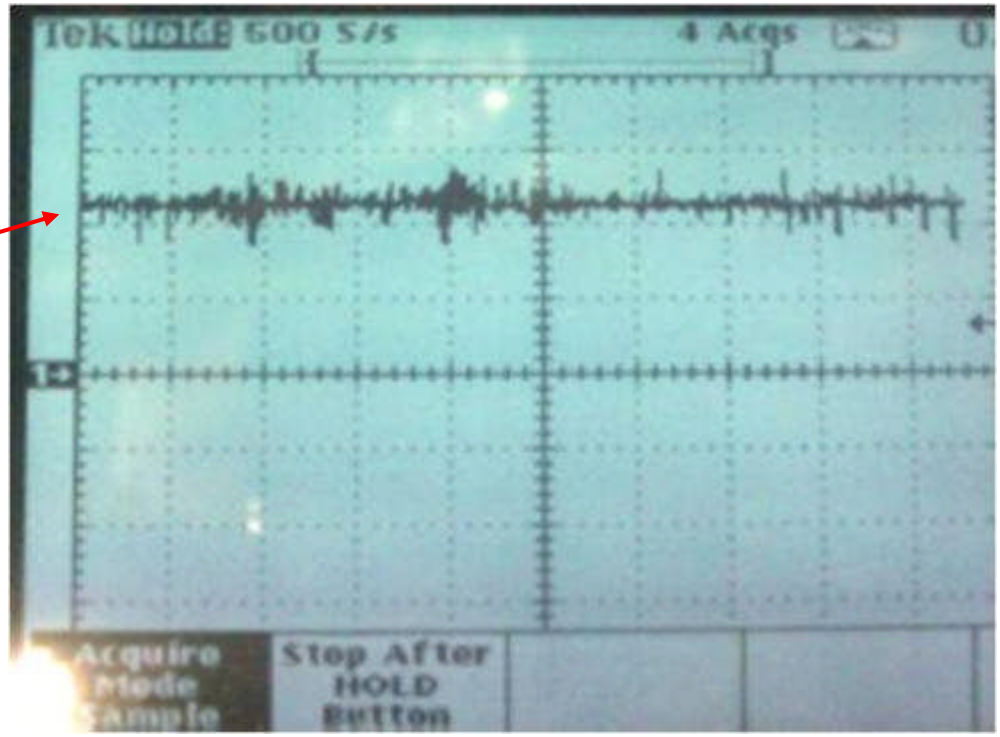
Diffuser pressure fluctuates for more than 76 psi for 4 or more times in 1 sec

Transducer is used to detect rotating stall

Rotating stall can cause breaking of blades as gas may flow in some blades and not others

Can be electrical interference problems with other wiring in the same wire tray

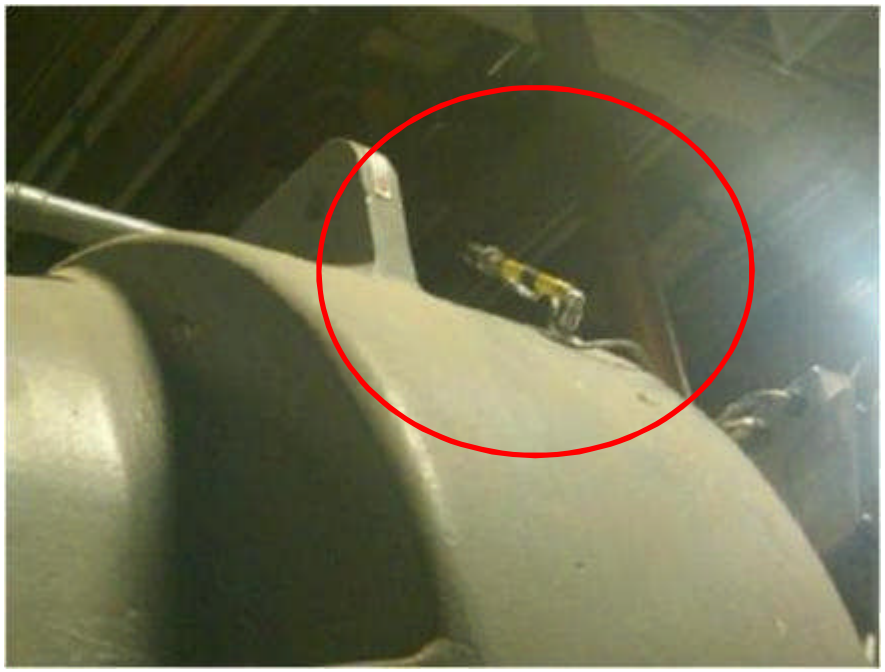
Sample reading with a scope



19XRV SERVICE UPDATES

Nuisance Diffuser Position Fault Alarm

Temporary fix – install rubber hose adaptor



19XRV SERVICE UPDATES

Nuisance Diffuser Position Fault Alarm

Permanent Fix – reroute transducer wire

19XRV SERVICE UPDATES

Low discharge superheat alarm

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Project Name
Charlotte Issue Resolution Process (19XRV)

D1 D2 D3 D4 D5 D6 D7 D8

IRP Issue Description : Low discharge super heat shutdown

Root Cause Findings: Software algorithm requires 6 degree superheat or the unit will take precautionary actions which ultimately ends up in unit shutdown.

Containment: Field can add resistor to off-set measurement if required.

Corrective Action Plan: Software adjustment for VFD units such that 6 degree superheat is required for 100% speed, but linearly reduce the superheat requirement between 6 and 2 degrees based on actual VFD speed between 100% and 65%.

Issues/Risks:

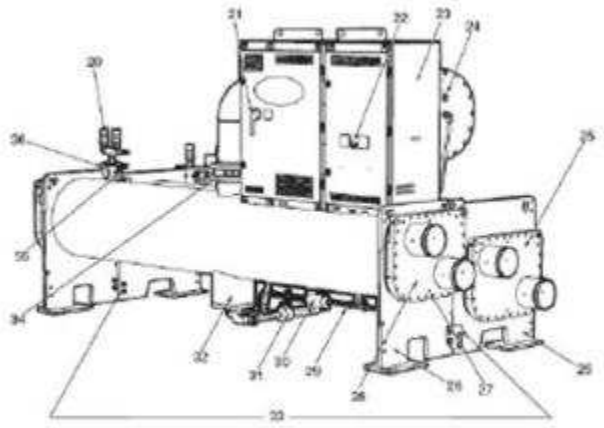
Project Team: Don Berdan, Steven Palermo, Kasper Nielsen

IRP PROJECT MILESTONES (8D)	PLAN	FCT	ACTUAL
Problem Assigned (D1)	3/2011		
Problem Described (D2)	4/2011		
Problem Contained (D3)	5/2011		
Root Cause Determined (D4)	5/2011		
Corrective Action Chosen (D5)	6/2011		
Corrective Action Implemented (D6)		2/2012	
Reoccurrence Prevented (D7)			
Team Congratulated! (D8)			

Example Problem Sites

Field engineers can add in needed.

Active Tasks	Owner	Plan	Complete
Give CE visibility to requested change	K. Nielsen	4/2011	
Make software change	S. Palermo	7/2011	
Implement software in factory and try to hit low superheat condition with VFD	K. Nielsen	9/15/11	
Field trial on trouble site	D. Berdan	12/15/11	12/15/11
Report of no field issues	T. Slay	2/14/12	2/14/12
Pending software QRB (grouped with BACNet/19XR Freeze up fix)	T. De/ S. Palermo	3/30/12	



19XRV SERVICE UPDATES

Hot Gas Bypass Tube Rupture

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19XR Hot Gas Bypass Tube Rupture

Charlotte Corrective Action Team (19/23/17 Series)

D1 Assign → D2 Describe → D3 Contain → D4 RRCA → D5 Choose CA → D6 Implement CA → D7 Prevent Reoccur → D8 Celebrate

CAT Issue Description: Ruptured tubing in HGBP piping.

Root Cause Findings: Trapped refrigerant in HGBP line can cause pressure increase leading to ruptured tubing.

Corrective Action Plan (Field): Eliminate HGBP isolation valve. Valve has been found to be redundant in current configuration.

Corrective Action Plan (Factory): Short term – Position HGBP isolation valve in open position before shipment. Long term - Eliminate HGBP isolation valve. Valve has been found to be redundant in current configuration.

Issues/Risks:

Project Team Leader: Ajay Iyengar

CAT PROJECT MILESTONES (8D)	PLAN	FCT	ACTUAL
Problem Assigned (D1)	7/30/10	7/30/10	7/30/10
Problem Described (D2)	7/30/10	7/30/10	7/30/10
Problem Contained (D3)	n/a	n/a	n/a
Root Cause Determined (D4)	7/30/10	7/30/10	7/30/10
Corrective Action Chosen (D5)	7/30/10	7/30/10	7/30/10
Corrective Action Implemented (D6)	8/30/10		
Reoccurrence Prevented (D7)	8/30/10		
Team Congratulated! (D8)	8/30/10		

Example Problem Sites
ARAMCO

Active Tasks	Owner	Plan	Complete	Next 30 days	Next 60 days
Remove HGBP isolation valve via ECR/ECN	Iyengar	8/30/10			

19XRV SERVICE UPDATES

Fixed Shims Wheel Clearance

Wheel clearances being reduced to increase efficiency.

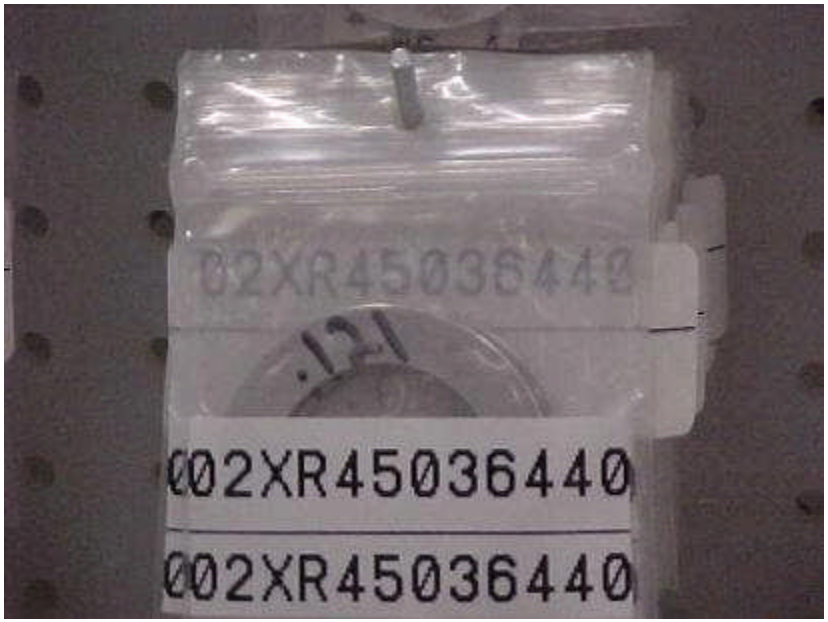
Changed to fixed wheel shim – peelable shims not used in factory anymore.

Peelable shims will still be used in field

Factory change started 8/09

Clearances reduced as noted:

XR2	.016	was .018
XR3	.016	was .021
XR4	.012	was .024
XR5	.020	was .041



19XRV SERVICE UPDATES

19XR Low Voltage Motor Terminal Leaks

Bulletin SB-C1209

Models affected:

19XRV Frame 4 & Frame 5 compressors (< 600Volts) before 2410Qnnnnn.

Possibility of leakage at the o-ring seal on motor terminal

Reason caused by

Stator housing machining had burrs

Sealing surface is not properly sanded

Inconsistent torque

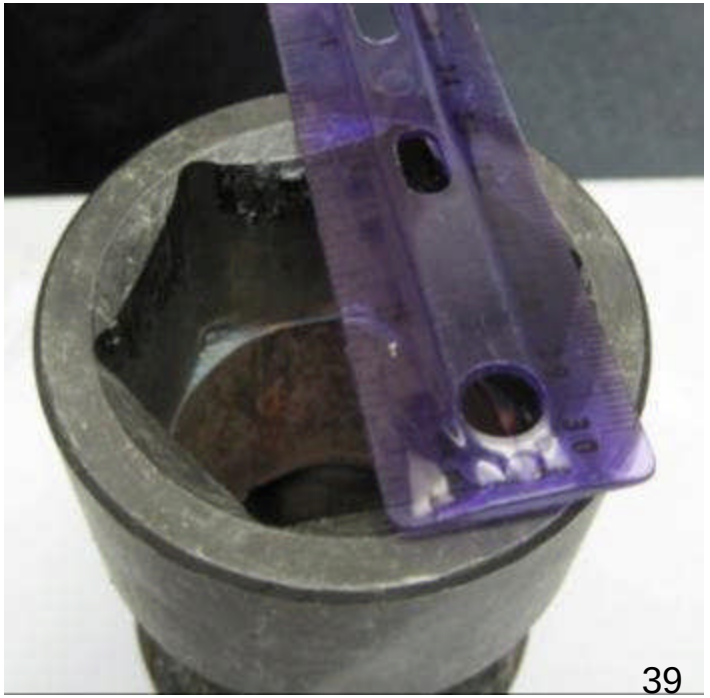
Terminal pins did not meet specification

19XRV SERVICE UPDATES

19XR Low Voltage Motor Terminal Leaks

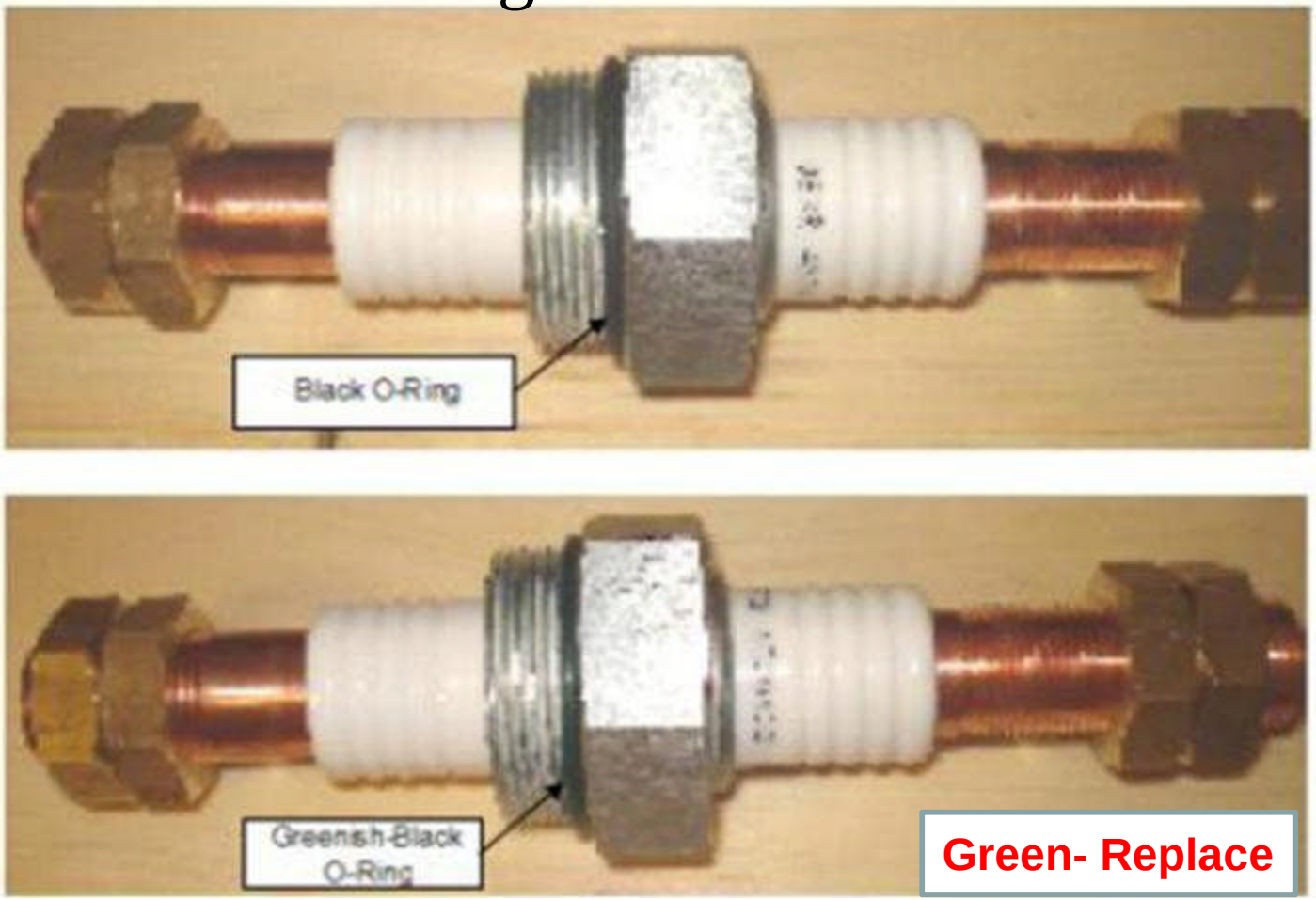
If there is leak, check the following

1. Torque for 19XR frame 4 & 5 compressors – 50~75 ft-lbs
2. If torque is correct, transfer refrigerant and remove terminal



19XRV SERVICE UPDATES

19XR Low Voltage Motor Terminal Leaks



3. Inspect O-ring color, replace if green

New O-ring part # 02XR45004301

19XRV SERVICE UPDATES

19XR Low Voltage Motor Terminal Leaks

If Groove <1.752 inches, replace terminal

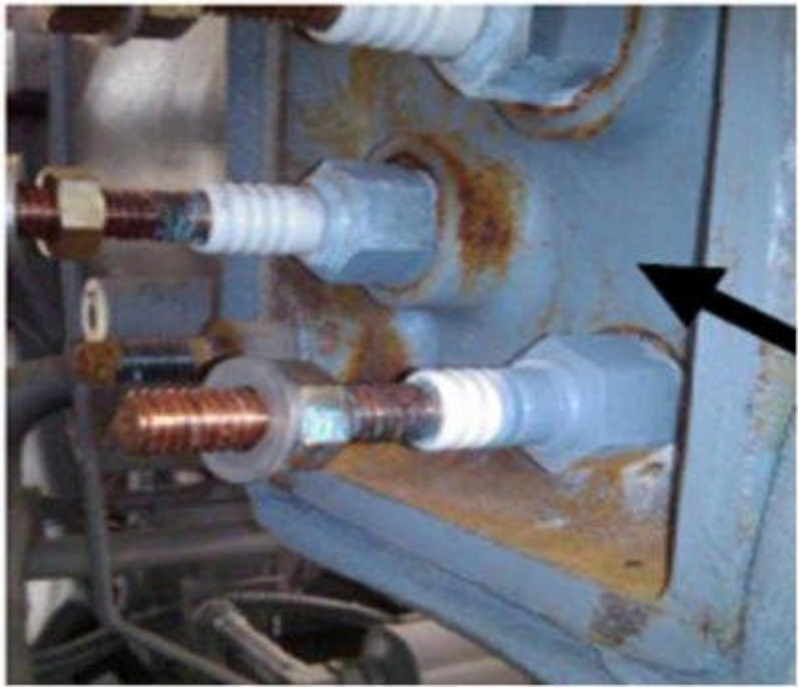
4. Check Groove diameter, repalce if <1.752 inches

New O-ring part # 02XR45004301

19XRV SERVICE UPDATES

Motor Terminals Moisture Problem

Improper insulation over motor terminals
Moisture collects and surround terminal with water
Low mega-ohm readings phase to phase and phase to ground on motor terminals
Can possibly cause VFD failure



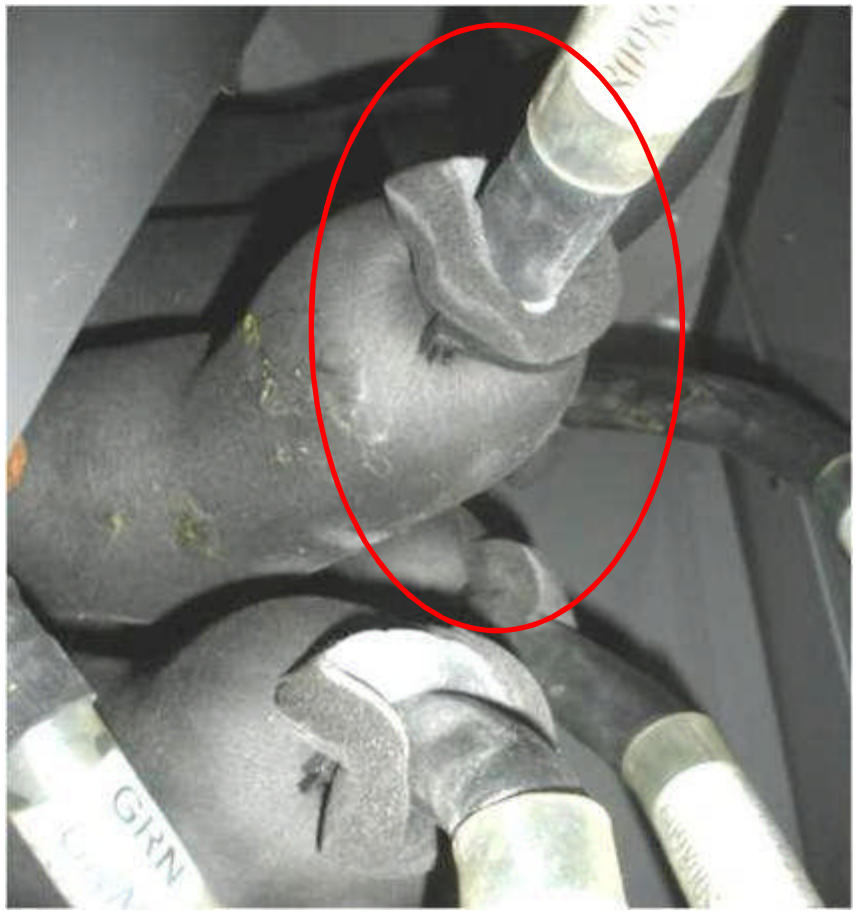
19XRV SERVICE UPDATES

Motor Terminals Moisture Problem

Fill void area with additional insulation

19XRV SERVICE UPDATES

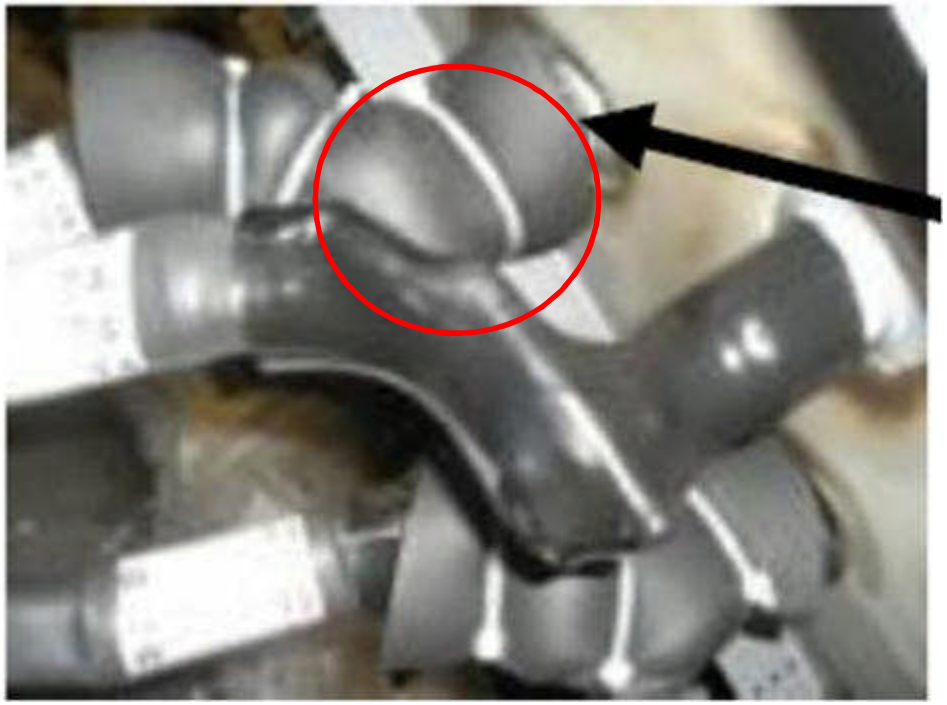
Motor Terminals Moisture Problem



Correct

19XRV SERVICE UPDATES

Motor Terminals Moisture Problem



Terminal end should be properly glued

Correct

19XRV SERVICE UPDATES

Benshaw MX3 starters

Bulletin SB-C1208

Models affected:

19XRV with Benshaw MX3 starters (Wye delta and solid state)

Wiring label on starter does not give specifics on how to wire spare safety, ice build contact, remote start contact or head pressure reference

Refer to bulletin on these wiring details

19XRV SERVICE UPDATES

Carrier
Turn to the Experts.

PIC III VFD configuration conflicts

Bulletin SB-C1109

Models affected:

19XRV & 23XRV with PIC III software

When chiller start is attempted, VFD configuration Conflict alarm will appear after pre-lube

Problem is due to different settings in ICVC and VFD config

Conflicts seen in

- Skip frequency
- Min compressor Speed
- Motor Amps, KW, RLA

Refer to bulletin Page 2 on how to resolve VFD config conflicts issue

19XRV SERVICE UPDATES

Carrier®
Turn to the Experts.

PIC III VFD configuration conflicts

GENERAL INFORMATION:

Here is a procedure using the Select & Zoom **what the VFD settings are in the drive and compare it with what is configured in the ICVC**

1. Disconnect the main power to the chiller until the capacitors in the power module have drained down, then power up the chiller.
2. Clear all faults and wait for VFD Config Conflict to come back to confirm that there is a problem.
3. Go to the VFD_CONF screen
4. Write down all values in the VFD_CONF screen: This is the data contained in the ICVC
   a. If "Rated" or "Nameplate" motor amps are below 100 Amps, re-enter correct motor Amps. (motor amps for these drives are always above 100 amps). Continue to step 4b if amps need adjustment, continue to step 5 if values are good.
   b. Press EXIT, then press SAVE.
   c. Continue back into the VFD_CONF screen, and write down values.
5. EXIT VFD Config sceen : Do not press SAVE soft-key; Press CANCEL
6. Re-enter the VFD_CONF screen
7. Note down all values on ICVC: This is data contained in the VFD, read by ICVC
8. Compare data from Step (4) and Step (7)
9. Record any discrepancies
10. If there is a difference repeat the procedure and first –
    a. Change the data in the ICVC (step 4) to match the data contained and recorded in the VFD (step 7)
    b. Press SAVE soft-key when exiting.
    c. Reset alarm
    d. Continue back into the VFD_CONF screen and change the data to what is required, minding the limits noted above that the VFD will allow.
    e. Press SAVE soft-key when exiting
11. Repeat steps 1 through 8 to confirm the settings are now the same.

19XRV SERVICE UPDATES

Inverter overtemp

Bulletin SB-C1203

Models affected:

19XRV & 23XRV with Standard Tier VFD (Rockwell & Eaton)

Inverter overtemp due to VFD firing speed

The PWM settings

Rockwell PF755 – 2 kHz

Set VFD Encl Temp correction = -2.5

19XRV SERVICE UPDATES

Guide Vane Closure Rate

Turn to the Experts

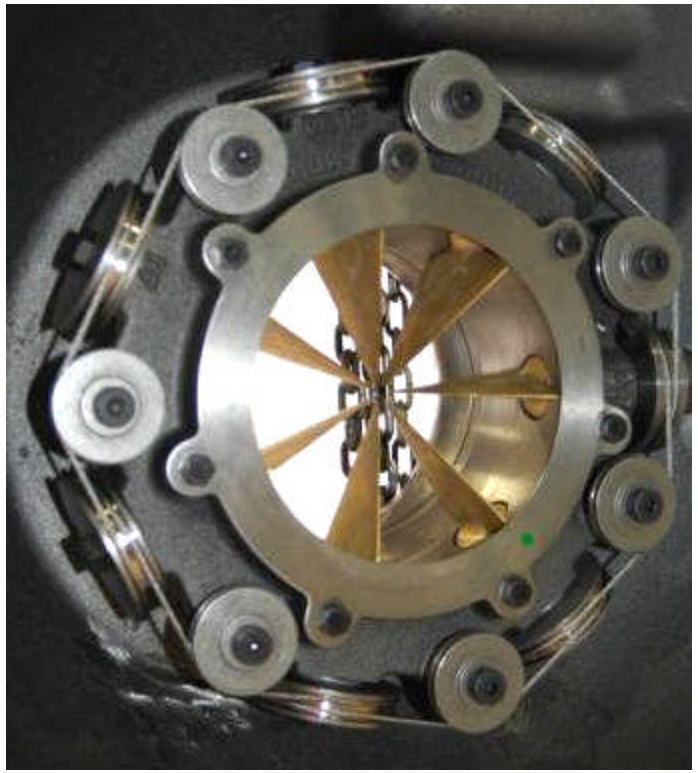
Issues

Some GV/SRD schedules require SRD to move as much as 6.0 times faster than GV

Actual diffuser position will lag behind the schedule when required rate exceeds capability.

When decreasing GV and SRD positions, this lag can result in rotating stall and impeller damage.

Detection of rotating stall requires manual reset of alarm condition.



19XRV SERVICE UPDATES

Guide Vane Closure Rate

Previous Behavior (with Split Ring Diffuser Option Enabled):

SRD changes position as a function of GV target and SRD schedule.

SRD actuator has capability to change 1.63 times faster than GV actuator.

GV actuator change rate is halved below 50% load point *for capacity changes only.*

Full rate guide vane decreases occurred when Soft stop occurs, forcing GV position, and to prevent an overcurrent situation

Change

GV closure rate is reduced to 1/3 of maximum rate for the following cases (only):

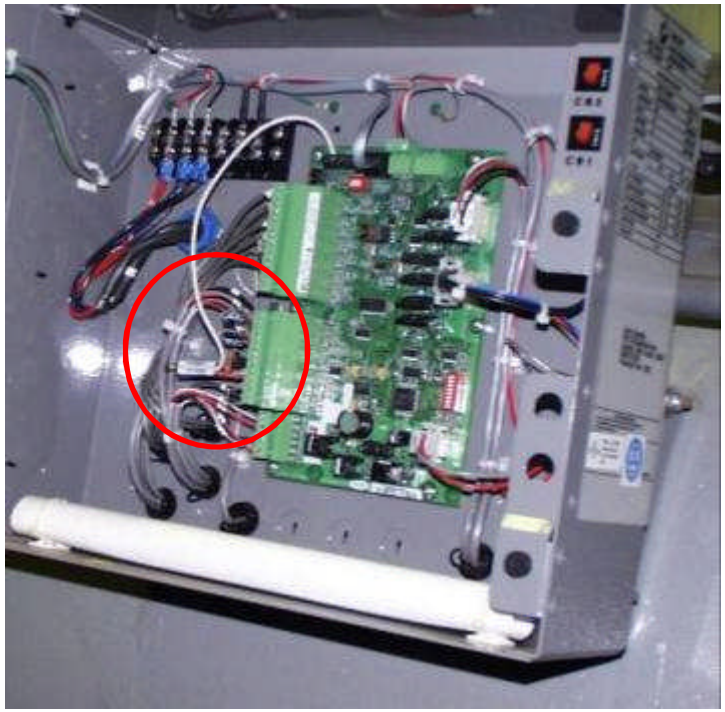
- Soft stop
- Forcing GV position

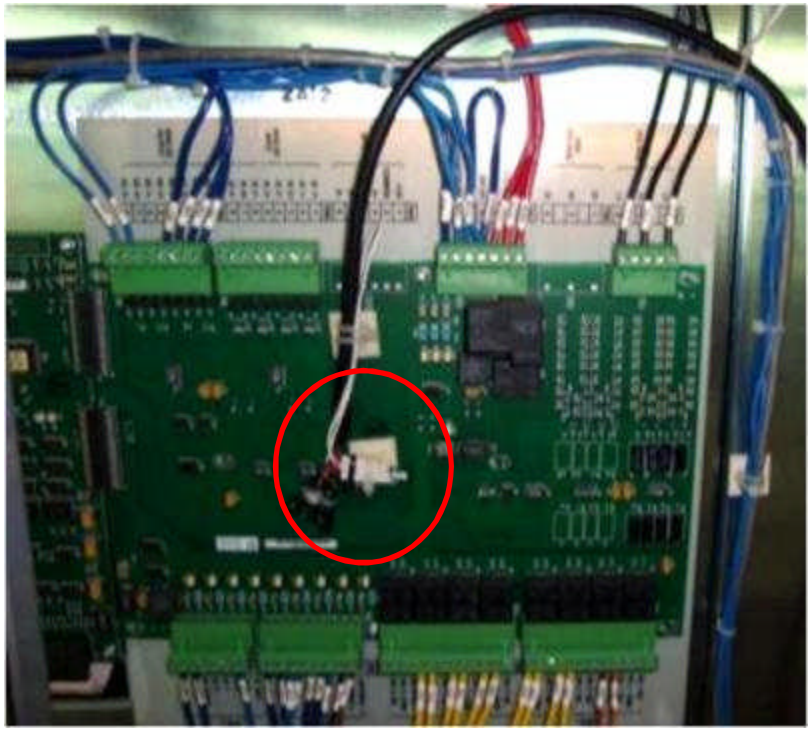
This is a compromise, so some builds may still experience some SRD lag

19XRV SERVICE UPDATES

ICVC Alarm 255: VFD Dew Prevention

Nuisance inverter, rectifier overheating issues





Move humidity sensor from ICVC Panel to VFD Enclosure
Right picture shows humidity sensor mounted on Power board