7 Series

700R11

Indoor Split Geothermal Heat Pump

033, 042, 050 Variable Speed

WaterFurnace
Smarter from the Ground Up™

Submittal Data

English Language/IP Units

SD2703SN 08/20

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

7 Series 700R11
033, 042, 050 ton 60Hz

WaterFurnace Smarter from the Ground Up™

Unit Nomenclature (Compressor Section)

1	2	3	4-6	7	8	9	10	11	12	13	14	15	16
N	V	Z	042	*	1	1	0	C	N	N	0	K	N

Model
N – 7 Series

Compressor
V – Variable Speed

Cabinet Configuration
Z – Indoor Split

Unit Capacity[2]
033, 042, 050

Vintage
* – Factory Use Only

Voltage
1 – 208-230/60/1

Hot Water Generation
0 – None
1 – Hot Water Generation with Factory Installed Pump

Future Option
N – None

Controls
K – Aurora Variable Speed Control w/ Full Monitoring
M – Aurora Variable Speed Control w/ Full Monitoring and UPC[1]

Future Options
0 – None

Future Options
N – None

Future Options
N – None

Water Coax Option
C – Copper
N – CuproNickel

Future Option
0 - None

Rev.: 4/2/20

Notes:
[1] UPC is not compatible with Symphony or IntelliZone2
[2]Compressor section must be matched with identical model SVH air handler section. See Compatibility Table.

Unit Nomenclature (Air Handler)

1-3	4-6	7	8-9	10	11	12	13	14	15	16
SVH	042	*	00	2	C	R	1	S	1	1

Model
SVH – Series Air Handler

Unit Capacity[2]
Refrigeration (DX)
033 MBTUH
042 MBTUH
050 MBTUH[1]

Vintage
* = Factory Use Only

Electric Heat
00 – None
10 – 10kW (033 – 050 only) No Breakers
15 – 15kW (042 – 050 only) with Breakers
20 – 20kW (050 only) with Breakers

Expansion Valve
2 – EEV

Controls/ Motor
C – Aurora AHB/ Variable Speed ECM

Air Coil
R – Refrigerant

Voltage
1-208-230/60/1

Options
S – Standard
U – UPC[4]

Position
1 – Multi-position[3]

Build
1 – WF

Rev.: 4/2/20

Notes:
[1]- Air flow on the 050 unit in the horizontal configurations should be limited to 1900 cfm in cooling mode, or condensate blow off may occur.
[2] - Compressor section must be matched with identical model SVH air handler section. See Compatibility Table
[3]- To field convert the SVH to bottomflow air discharge. The SAHBCK kit must be ordered separately.
[4]- UPC is not compatible with Symphony or IntelliZone2.

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

AHRI/ISO 13256-1 Performance Ratings

7 Series Indoor Split Residential Series AHRI Data

ECM Motor

AHRI/ASHRAE/ISO 13256-1

Model	Capacity Modulation	Flow Rate Clg/Htg	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
			Cooling EWT 86°F		Heating EWT 68°F		Cooling EWT 59°F		Heating EWT 50°F		Cooling Full Load 77°F Part Load 68°F		Heating Full Load 32°F Part Load 41°F	
		cfm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
033	Full	1200/1500	31,600	16.8	49,800	5.2	37,000	29.2	40,700	4.5	33,300	20.3	31,700	3.4
	Part	650/800	10,900	20.9	16,800	7.3	12,900	46.0	13,900	5.7	13,700	36.0	12,000	5.2
042	Full	1500/1800	39,500	16.4	66,100	4.9	46,200	28.2	54,100	4.2	41,600	19.7	42,700	3.5
	Part	900/1100	15,600	22.4	23,800	7.5	17,300	52.0	18,800	5.8	17,500	40.8	15,800	5.1
050	Full	1800/2200	46,700	14.4	77,800	4.3	55,200	24.3	64,900	3.8	49,800	17.1	50,800	3.2
	Part	950/1200	19,400	20.9	28,900	7.4	21,200	45.6	22,800	5.8	22,000	35.5	19,800	5.0

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature 3/20/20

Heating capacities based upon 68°F DB, 59°F WB entering air temperature

All ratings based upon 208V operation

Energy Star Compliance Table

Model	Tier 3	
	Ground Water	Ground Loop
033	Yes	Yes
042	Yes	Yes
050	Yes	Yes

10/31/19

Energy Star Rating Criteria

In order for water-source heat pumps to be Energy Star rated they must meet or exceed the minimum efficiency requirements listed below. Tier 3 represents the current minimum efficiency water source heat pumps must have in order to be Energy Start rated.

Tier 3: 1/1/2012 – No Effective End Date Published

	EER	COP
Water-to-Air		
Ground Loop	17.1	3.6
Ground Water	21.1	4.1
Water-to-Water		
Ground Loop	16.1	3.1
Ground Water	20.1	3.5

Contractor: _____ P.O.: _____

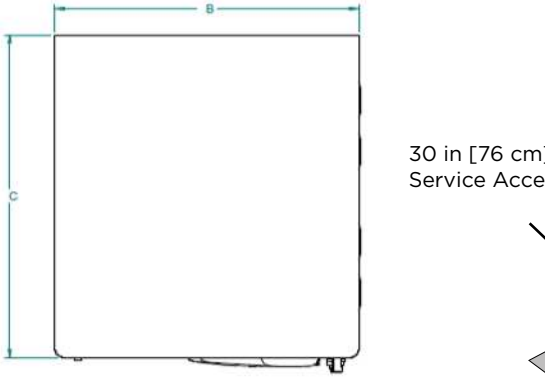
Engineer: _____

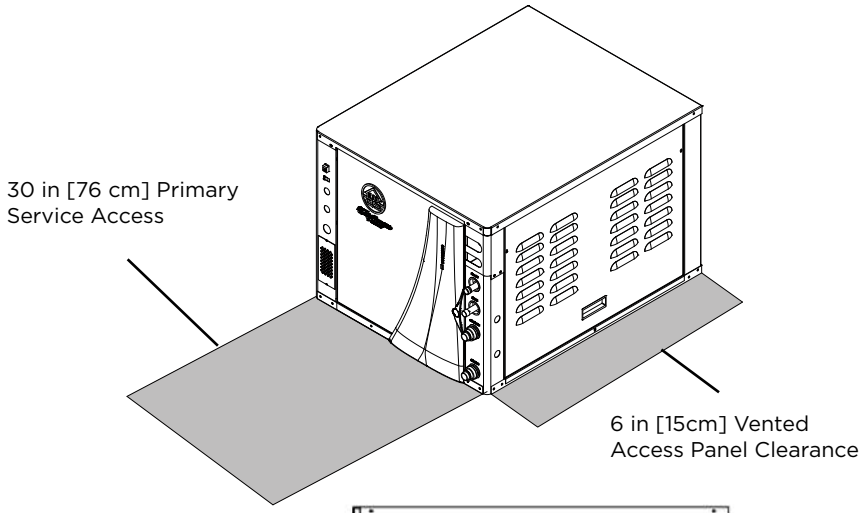
Project Name: _____ Unit Tag: _____

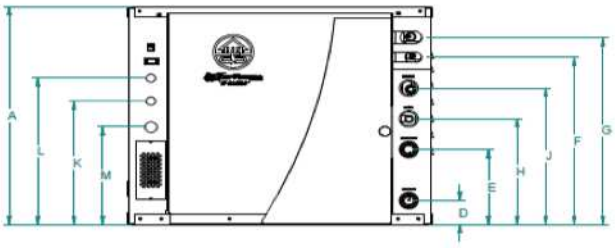
7 Series 700R11
033, 042, 050 ton 60Hz

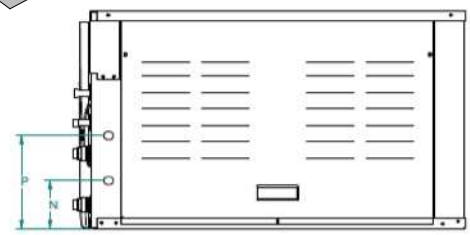
WaterFurnace Smarter from the Ground Up™

Compressor Section Dimensional Data









Models		Height	Width	Depth	Water In	Water Out	Service Valve		HWG In	HWG Out	Low	External	Line	KNOCK OUT	KNOCK OUT
							Liquid	Gas			Voltage	Pump	Voltage		
		A	B	C	D	E	F	G	H	J	K	L	M	N	P
033-050	in.	21.25	25.62	31.60	2.30	7.21	16.40	18.30	10.30	13.30	12.10	14.30	9.50	4.70	9.10
	cm.	54.00	65.10	80.30	5.80	18.50	41.70	46.50	26.20	33.80	30.70	36.30	24.10	11.90	23.10

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

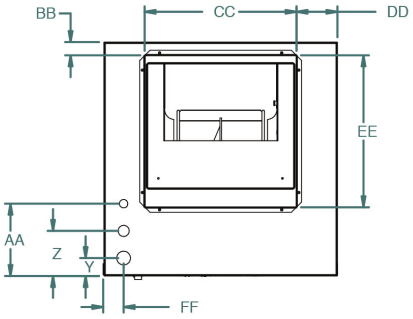
7 Series 700R11
033, 042, 050 ton 60Hz

WaterFurnace Smarter from the Ground Up™

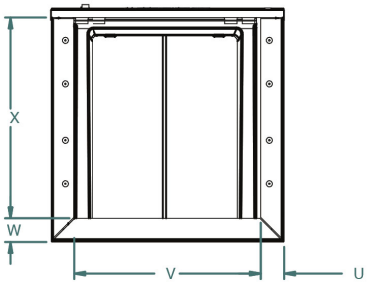
Air Handler Dimensional Data - SVH Air Handler

Top Flow/Horizontal Unit Configuration

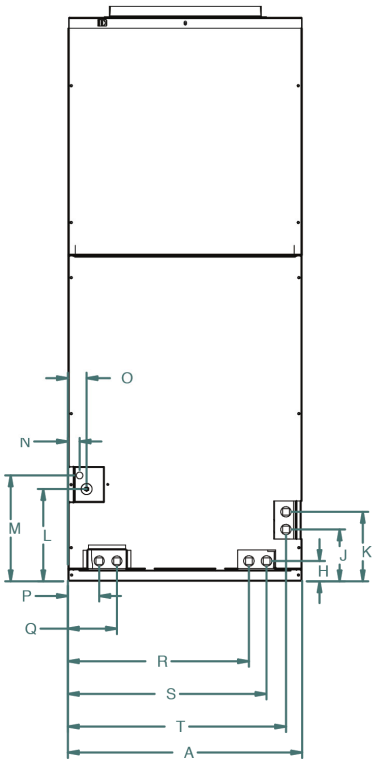
Top View



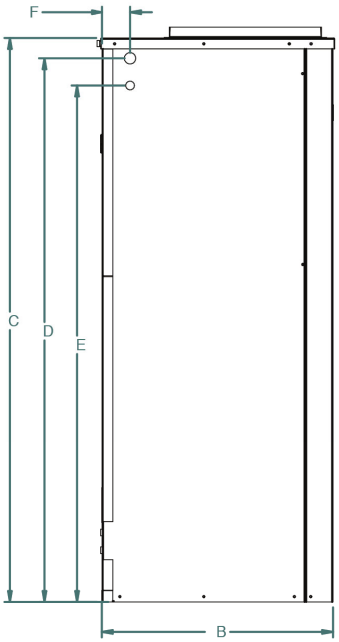
Bottom View



Front View



Right Side View



SVH Air Handler - Topflow/Horizontal

Topflow/ Horizontal Configuration		Overall Cabinet			D	E					Refrigerant Connections																				
		A	B	C	3/4" cond	1/2" cond	F	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF
		Width	Depth	Height	Power Supply	Low Voltage					Suction	Liquid												Power Supply		Low Voltage					
033-050	in.	24.9	21.2	58.0	56.1	53.2	2.6	1.9	4.8	6.4	9.6	10.8	1.1	1.7	2.9	4.5	20.3	21.9	23.5	2.2	20.6	2.2	18.4	1.7	4.2	6.7	1.5	18.0	3.4	18.0	1.8
	cm.	63.2	53.8	147.3	142.5	135.1	6.6	4.8	12.2	16.3	24.4	27.4	2.8	4.3	7.4	11.4	51.6	55.6	59.7	5.6	52.3	5.6	46.7	4.3	10.7	17.0	3.8	45.7	8.6	45.7	4.6

Condensate is plastic 3/4" FPT

Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

NOTE: Clearance for maintenance and servicing access - minimum 30" from front of unit recommended for blower motor/coil replacement. Condensate drain lines routed to clear filter and panel access. Filter removal - minimum 30" recommended.

" Y" IS 1 3/8 KNOCKOUT HIGH VOLTAGE
"Z" IS 1 1/8 KNOCKOUT HIGH VOLTAGE
"AA" IS 7/8 KNOCKOUT LOW VOLTAGE

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

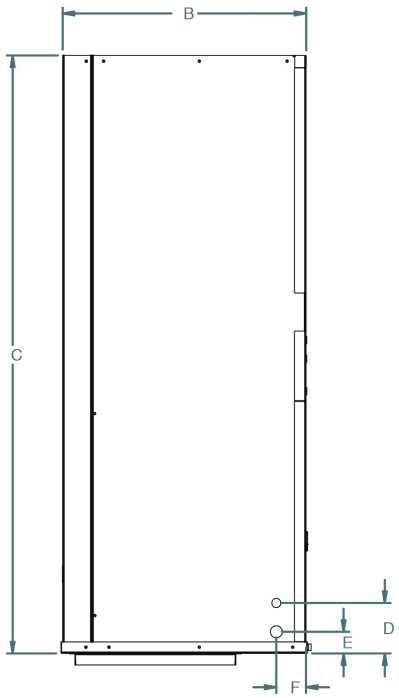
7 Series 700R11
033, 042, 050 ton 60Hz

WaterFurnace
Smarter from the Ground Up™

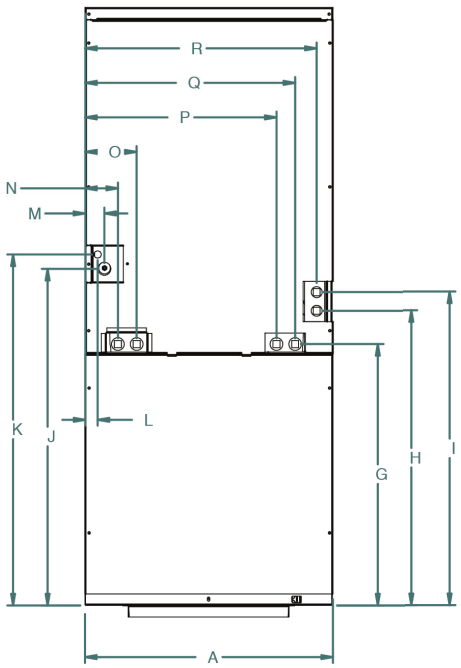
Air Handler Dimensional Data - SVH Air Handler

Bottom Flow Unit Configuration

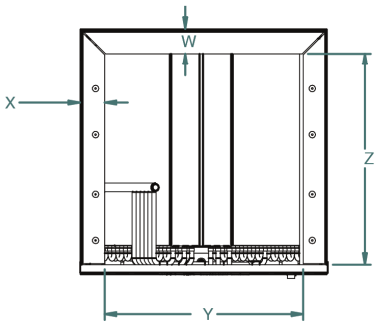
Left Side View



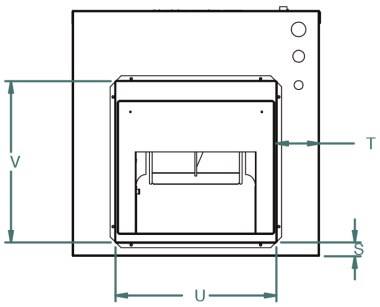
Front View



Top View



Bottom View



SVH Air Handler - Bottom flow

Bottomflow Configuration		Overall Cabinet			D	E	F				Refrigerant Connections																	
		A	B	C	1/2" cond	3/4" cond		G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		Width	Depth	Height	Low Voltage	Power Supply	Power Supply				Suction	Liquid																
033-050	in.	24.9	21.2	58.0	4.4	1.9	2.6	24.0	27.0	28.5	31.3	32.8	1.1	1.7	2.8	4.5	20.2	21.9	23.5	1.2	3.4	18.0	18.0	2.1	2.2	20.5	18.5
	cm.	63.2	53.8	147.3	11.2	4.8	6.6	61.0	68.6	72.4	79.5	83.3	2.8	4.3	7.1	11.4	51.3	55.6	59.7	3.0	8.6	45.7	45.7	5.3	5.6	52.1	47.0

Condensate is plastic 3/4" FPT

Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

NOTE: Clearance for maintenance and servicing access - minimum 30" from front of unit recommended for blower motor/coil replacement. Condensate drain lines routed to clear filter and panel access. Filter removal - minimum 30" recommended.

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Compressor Section Physical Data

Model		NVZ033	NVZ042	NVZ050
Compressor (1 each)		Variable Speed Scroll		
Factory Charge R410a, oz [kg]		68 [1.93]	90 [2.55]	92 [2.61]
Coax and Water Piping				
Water Connections Size - Swivel - in [mm]		1" [25.4]	1" [25.4]	1" [25.4]
HWG Connection Size - Female Sweat I.D. - in [mm]		1/2" [12.7]	1/2" [12.7]	1/2" [12.7]
	Brass Service Valve - Liquid Line - in [mm]	3/8" [9.45]		
	Brass Service Valve - Suction Line - in [mm]	3/4" [19.1]		7/8" [22.23]
Coax & Piping Water Volume - gal [l]		1.3 [4.9]	2.3 [8.7]	2.3 [8.7]
	Weight - Operating, lb [kg]	241 [109]	302 [137]	302 [137]
	Weight - Packaged, lb [kg]	261 [118]	322 [146]	322 [146]

Notes: All units have an EEV and 1/2 in. [12.7mm], and 3/4 in. [19.1] electrical knockouts 03/18/20
Brass services valves are sweat type valves

Air Handler Physical Data

Air Handler Model Number (Refrigerant)		033	042	050
Evaporator Coil	Air Coil Total Face Area, ft2 [m2]	6.81 [0.63]		
	Tube outside diameter - in. [mm]	3/8 [9.52]		
	Number of rows	3		
	Fins per inch	12		
	Suction line connection - in. [mm] sweat	7/8 [22.23]		
	Liquid line connection - in. [mm] sweat	3/8 [9.45]		
Refrigerant		R-410a		
Condensate drain connection - (FPT) in. [mm]		3/4 [19.05]		
Blower Wheel Size (Dia x W), in. [mm]		11 x 10 [279 x 254]		
Blower motor type/speeds		Variable Speed ECM		
Blower motor output - hp [W]		1 [746]		
Filter Standard - 1" [51mm] Field Supplied.		22 X 20 [559 x 508]		
Electrical characteristics (60hz)		208/230 - 1ph		
Shipping weight - lbs. [kg]		206 [93.4]		
Operating weight - lbs. [kg]		188 [85.3]		

04/07/2020

Auxiliary Heat Compatibility

Model	kW	Stages	Min CFM			
				033	042	050
19P659-02	10	2	1300	•	•	•
19P659-03	15	2	1700		•	•
19P659-04	20	2	2000			•

03/12/20

Air Handler Auxiliary Heat Blower Settings

Model	Variable Speed ECM DIP Setting
SVH033	10
SVH042	11
SVH050	11

6/6/2019

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Electrical Data

Variable speed with external loop pump

Model	Rated Voltage	Voltage Min/Max	COMP LRA	COMP MCC	Drive RLA	Drive Internal Fuse	HWG Pump FLA	Ext Loop FLA	Total Unit FLA	Minimum Circuit Amp	Max Fuse HACR Breaker
033	208-230/60/1	187/253	10.2	18.0	22.0	30.0	0.4	5.4	27.8	33.3	35
042	208-230/60/1	187/253	12.0	23.5	28.0	35.0	0.4	5.4	33.8	40.8	45
050	208-230/60/1	187/253	12.0	30.0	33.0	40.0	0.4	5.4	38.8	47.1	50

Rated Voltage of 208/230/60/1 8/21/19
HACR circuit breaker in USA only
All fuses Class RK-5

Air Handler Electrical Data

Model	Electric Heat Capacity		Supply Circuit	Aux. Heat Minimum CFM	Rated Voltage	Voltage Min/Max	Fan Motor FLA	Heater Ampacity		Total Unit FLA		Minimum Circuit Ampacity		Maximum Fuse/HACR	
	KW	BTUH													
	240v	240v						208v	240v	208v	240v	208v	240v	208v	240v
033	0	0	-		208-230/60/1	197/253	7.0	-	-	7.0	7.0	8.8	8.8	15	15
	9.6	32,765	single	1,300			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
042	0	0	-				7.0	-	-	7.0	7.0	8.8	8.8	15	15
	9.6	32,765	single	1,300			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
	14.4	49,147	single	1,700			7.0	52.0	60.0	59.0	67.0	73.8	83.8	80	90
	14.4	49,147	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
			L3/L4				-	17.3	20.0	17.3	20.0	21.6	25.0	25	25
050	0	0	-				7.0	-	-	7.0	7.0	8.8	8.8	15	15
	9.6	32,765	single	1,300			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
	14.4	49,147	single	1,700			7.0	52.0	60.0	59.0	67.0	73.8	83.8	80	90
	14.4	49,147	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
			L3/L4				-	17.3	20.0	17.3	20.0	21.6	25.0	25	25
	19.2	65,530	single	2,000			7.0	69.3	80.0	76.3	87.0	95.4	108.8	100	110
	19.2	65,530	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60
			L3/L4				-	34.7	40.0	34.7	40.0	43.4	50.0	50	50

1/29/20

Rated Voltage of 208/230/60/1
HACR circuit breaker in USA only

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

SVH Blower Performance Data

Variable Speed ECM

Model	Max ESP	Speed 1	Speed 2	Speed 3	Speed 4	Speed 5	Speed 6	Speed 7	Speed 8	Speed 9	Speed 10	Speed 11	Speed 12
033	0.75	**250**	**400 G**	**550 L**	**650**	**750**	**850**	1000	1150	1250 H	1350 Aux	1450	1600
042	0.75	**250**	**450 G**	**650 L**	**800**	**950**	**1050**	1200	1350	1450	1600 H	1750 Aux	1850
050	0.75	**300**	**550 G**	**800 L**	**1000**	**1150**	**1300**	1450	1600	1750	1900 H	2050 Aux	2200
**VS Compressor Speed				1-2	3-4		5-6	7-8		9-10	11-12		

4/15/2020

** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.

Factory settings are at recommended G, L , H and Aux positions

"G" may be located anywhere within the airflow table.

"L" setting should be located within the boldface CFM range

"H" setting MUST be located within the shaded CFM range

"Aux" setting MUST be equal to or higher than factory setting shown in the table above

CFM is controlled within 5% up to the maximum ESP

Line Set Sizes

Unit	Air	20 feet		40 feet		60 feet		80 feet		NZ Factory Charge (oz.)	*Charge Amount with SVH Air Handler (oz.)
Size	Handler	Suction	Liquid	Suction	Liquid	Suction	Liquid	Suction	Liquid		
NVZ033	SVH033	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	68	118
NVZ042	SVH042	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	90	142
NVZ050	SVH050	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	7/8" OD	3/8" OD	92	152
CAPACITY MULTIPLIER		1.00		0.985		0.97		0.955			

3/11/2020

Notes: * The "Charge Amount with SVH Air Handler" column is based on the charge amount for a SVH Air Handler + Compressor Section/Split.

Additional charge will need to be added accordingly for line set length.

After charge is added, additional adjustments can be made to get appropriate subcooling and superheat measurements.

Additional charge for R410A is 0.50 oz. per ft. for 3/8" and 1.0 oz. per ft. for 1/2" tube.

NOTE: Manufacturer recommends the total line set length not to exceed 80 ft with no more than 20 ft of vertical separation between the compressor section and air handler.

Operating Limits

Operating Limits	Cooling		Heating	
	(°F)	(°C)	(°F)	(°C)
Air Limits				
Min. Ambient Air	45	7.2	45	7.2
Rated Ambient Air	80	26.7	70	21.1
Max. Ambient Air	100	37.8	85	29.4
Min. Entering Air	50	10.0	40	4.4
Rated Entering Air db/wb	80.6/66.2	27/19	68	20.0
Max. Entering Air db/wb	110/83	43/28.3	80	26.7
Water Limits				
Min. Entering Water	30	-1.1	20	-6.7
Normal Entering Water	50-110	10-43.3	30-70	-1.1
Max. Entering Water	120	48.9	90	32.2

NOTE: Minimum/maximum limits are only for start-up conditions, and are meant for bringing the space up to occupancy temperature. Units are not designed to operate at the minimum/maximum conditions on a regular basis. The operating limits are dependent upon three primary factors: 1) water temperature, 2) return air temperature, and 3) ambient temperature. When any of the factors are at the minimum or maximum levels, the other two factors must be at the normal level for proper and reliable unit operation.

Definitions

Abbreviations and Definitions

cfm = airflow, cubic feet/minute
EWT = entering water temperature, Fahrenheit
gpm = water flow in gallons/minute
WPD = water pressure drop, psi and feet of water
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)
HC = air heating capacity, MBtu/h
TC = total cooling capacity, MBtu/h
SC = sensible cooling capacity, MBtu/h
kW = total power unit input, kilowatts
HR = total heat of rejection, MBtu/h
HE = total heat of extraction, MBtu/h
HWC = hot water generator capacity, MBtu/h

EER = Energy Efficient Ratio
= Btu output/Watt input
COP = Coefficient of Performance
= Btu output/Btu input
LWT = leaving water temperature, °F
LAT = leaving air temperature, °F
TH = total heating capacity, MBtu/h
LC = latent cooling capacity, MBtu/h
S/T = sensible to total cooling ratio

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Compressor Section Pressure Drop

Model	GPM	Pressure Drop (psi)				
		30° F	50° F	70°	90° F	110° F
033	11.5	3.60	3.30	3.10	2.90	2.70
	9.0	2.30	2.10	2.00	1.90	1.70
	7.0	2.10	2.00	1.80	1.80	1.60
	6.0	1.10	1.05	1.00	0.90	0.85
	4.5	0.70	0.66	0.64	0.60	0.55
042	13.5	4.10	3.80	3.60	3.40	3.10
	10.5	1.90	1.80	1.70	1.60	1.50
	7.5	1.70	1.50	1.40	1.30	1.20
	6.0	1.00	0.90	0.80	0..7	0.60
	4.0	0.40	0.38	0.36	0.34	0.30
050	17.0	6.20	5.80	5.40	5.00	4.60
	13.5	3.90	3.70	3.50	3.10	2.90
	9.5	1.90	1.80	1.70	1.60	1.50
	7.5	1.40	1.30	1.20	1.10	0.90
	5.0	0.60	0.55	0.50	0.45	0.40

8/21/2019

Compressor Section Thermistor Resistance

Thermistor Resistance (10k Ohm) for FP1, FP2, HWL, LWT and LLT (EWT with Performance Option)		Thermistor Resistance (1k Ohm) for compressor discharge line, suction line, LAT, compressor ambient and EWT	
Thermistor Temperature (°F)	Thermistor Resistance (Ohms)	Thermistor Temperature (°F)	Thermistor Resistance (Ohms)
5	75757-70117	20	974.4-973.4
14	57392-53234	25	985.4-984.4
23	43865-40771	30	996.1-995.1
32	33809-31487	35	1007.0-1006.0
41	26269-24513	40	1017.8-1016.8
50	20570-19230	45	1028.6-1027.6
59	16226-15196	50	1039.5-1038.5
68	12889-12093	55	1050.2-1049.2
77	10310-9688	60	1061.2-1060.2
86	8300-7812	65	1072.9-1071.9
95	6723-6337	70	1082.7-1081.7
104	5480-5172	75	1093.4-1092.4
113	4490-4246	80	1103.0-1102.0
122	3700-3504	85	1115.5-1114.5
131	3067-2907	90	1126.2-1125.2
140	2554-2424	95	1136.6-1135.6
149	2149-2019	100	1147.2-1146.2
	4/24/12	105	1158.1-1157.1
		110	1168.8-1167.8
		115	1179.4-1178.4
		120	1190.1-1189.1
		125	1200.3-1199.3
		130	1212.2-1211.2

4/24/12

Correction Factor Tables

Air Flow Corrections (Compressor Speeds 1-3)

Airflow		Cooling				Heating		
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.940	0.740	0.967	0.951	0.943	1.106	0.902
275	69	0.950	0.783	0.973	0.959	0.953	1.088	0.918
300	75	0.960	0.827	0.978	0.967	0.962	1.070	0.935
325	81	0.970	0.870	0.984	0.975	0.972	1.053	0.951
350	88	0.980	0.913	0.989	0.984	0.981	1.035	0.967
375	94	0.990	0.957	0.995	0.992	0.991	1.018	0.984
400	**100**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
425	106	1.030	1.022	1.024	1.026	1.009	0.982	1.016
450	113	1.060	1.045	1.048	1.051	1.019	0.965	1.033
475	119	1.091	1.067	1.071	1.077	1.028	0.947	1.049
500	125	1.121	1.089	1.095	1.103	1.038	0.930	1.065
520	130	1.151	1.111	1.110	1.129	1.047	0.912	1.082

6/29/12

Air Flow Corrections (Compressor Speeds 4-12)

Airflow		Cooling				Heating		
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.928	0.747	0.936	0.929	0.961	1.097	0.938
275	69	0.940	0.789	0.946	0.941	0.967	1.081	0.948
300	75	0.952	0.831	0.957	0.953	0.974	1.064	0.959
325	81	0.964	0.873	0.968	0.965	0.980	1.048	0.969
350	88	0.976	0.916	0.979	0.976	0.987	1.032	0.979
375	94	0.988	0.958	0.989	0.988	0.993	1.016	0.990
400	**100**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
425	106	1.020	1.023	1.004	1.018	1.010	0.966	1.018
450	113	1.056	1.042	1.008	1.035	1.020	0.932	1.036
475	119	1.072	1.079	1.011	1.053	1.029	0.898	1.054
500	125	1.087	1.095	1.015	1.070	1.039	0.865	1.071
520	130	1.099	1.113	1.019	1.088	1.049	0.831	1.089

6/14/12

Cooling Capacity Corrections

Entering Air	Total Clg	Sensible Cooling Capacity Multipliers - Entering DB ° F										Power	Heat of
WB ° F	Cap	60	65	70	75	80	80.6	85	90	95	100	Input	Rejection
55	0.898	0.723	0.866	1.048	1.185	*	*	*	*	*	*	0.985	0.913
60	0.912		0.632	0.880	1.078	1.244	1.260	*	*	*	*	0.994	0.927
63	0.945			0.768	0.960	1.150	1.175	*	*	*	*	0.996	0.954
65	0.976			0.694	0.881	1.079	1.085	1.270	*	*	*	0.997	0.972
66.2	0.983			0.655	0.842	1.040	1.060	1.232	*	*	*	0.999	0.986
67	**1.000**			0.616	0.806	1.000	1.023	1.193	1.330	1.480	*	**1.000**	**1.000**
70	1.053				0.693	0.879	0.900	1.075	1.205	1.404	*	1.003	1.044
75	1.168					0.687	0.715	0.875	1.040	1.261	1.476	1.007	1.141

NOTE: *Sensible capacity equals total capacity at conditions shown. 1/5/2017

Heating Capacity Corrections

Ent Air DB °F	Heating Corrections		
	Htg Cap	Power	Heat of Ext
45	1.062	0.739	1.158
50	1.050	0.790	1.130
55	1.037	0.842	1.096
60	1.025	0.893	1.064
65	1.012	0.945	1.030
68	1.005	0.976	1.012
70	**1.000**	**1.000**	**1.000**
75	0.987	1.048	0.970
80	0.975	1.099	0.930

1/5/17

Antifreeze Corrections

Catalog performance can be corrected for antifreeze use. Please use the following table and note the example given.

Antifreeze Type	Antifreeze % by wt	Heating	Cooling	Pressure Drop
EWT - °F [°C]		**30 [-1.1]**	**90 [32.2]**	**30 [-1.1]**
Water	0	1.000	1.000	1.000
Ethylene Glycol	10	0.973	0.991	1.075
	20	0.943	0.979	1.163
	30	0.917	0.965	1.225
	40	0.890	0.955	1.324
	50	0.865	0.943	1.419
Propylene Glycol	10	0.958	0.981	1.130
	20	0.913	0.969	1.270
	30	0.854	0.950	1.433
	40	0.813	0.937	1.614
	50	0.770	0.922	1.816
Ethanol	10	0.927	0.991	1.242
	20	0.887	0.972	1.343
	30	0.856	0.947	1.383
	40	0.815	0.930	1.523
	50	0.779	0.911	1.639
Methanol	10	0.957	0.986	1.127
	20	0.924	0.970	1.197
	30	0.895	0.951	1.235
	40	0.863	0.936	1.323
	50	0.833	0.920	1.399

WARNING: Gray area represents antifreeze concentrations greater than 35% by weight and should be avoided due to the extreme performance penalty they represent.

Antifreeze Correction Example

Antifreeze solution is Propylene Glycol 20% by weight. Determine the corrected heating and cooling performance at 30°F and 90°F respectively as well as pressure drop at 30°F for a 033 operating at 100% capacity.
The corrected cooling capacity at 90°F would be: 30,500 Btu/h x 0.969 = 29,554 Btu/h
The corrected heating capacity at 30°F would be: 34,100 Btu/h x 0.913 = 31,133 Btu/h
The corrected pressure drop at 30°F and 11.5 gpm would be: 7.9 feet of head x 1.270 = 10.03 feet of head

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

7 Series 700R11
033, 042, 050 ton 60Hz

WaterFurnace® Smarter from the Ground Up™

Performance Data

NVZ033 - 50% Part Load

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							EWT °F	Flow gpm	WPD		COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh			PSI	FT	Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	3.0	0.5	1.1	Operation not recommended							20	2.5	0.2	0.5	Operation not recommended							
	4.5	0.7	1.6									3.5	0.5	1.1								
	6.0	1.2	2.7	550	12.4	1.48	7.2	90.6	2.43	2.2		4.5	0.7	1.6								
				750	12.7	1.37	8.0	85.7	2.72	1.9												
30	3.0	0.5	1.1	550	13.1	1.22	8.3	91.0	3.00	2.0	30	2.5	0.2	0.5	500	17.8	12.8	0.72	0.54	18.8	31.6	-
				750	13.6	1.25	8.7	86.1	3.04	1.7					650	18.1	14.0	0.77	0.56	19.2	30.9	-
	4.5	0.7	1.6	550	13.4	1.23	8.6	91.6	3.06	2.1		3.5	0.5	1.1	500	18.0	12.9	0.71	0.51	18.9	33.7	-
				750	14.0	1.26	9.0	86.5	3.11	1.8					650	18.3	14.1	0.77	0.54	19.3	32.5	-
	6.0	1.1	2.6	550	14.6	1.39	9.0	93.1	2.89	2.2		4.5	0.7	1.6	500	18.1	12.9	0.71	0.50	19.0	34.9	-
				750	14.9	1.29	9.8	87.5	3.23	1.9					650	18.6	14.1	0.76	0.52	19.5	34.0	-
40	3.0	0.4	1.0	550	15.6	1.27	11.0	95.8	3.55	2.0	40	2.5	0.2	0.5	500	19.3	13.2	0.68	0.59	20.4	31.1	-
				750	16.2	1.29	11.5	89.6	3.60	1.8					650	19.7	14.5	0.73	0.62	20.9	30.5	-
	4.5	0.7	1.5	550	16.1	1.27	11.5	96.6	3.65	2.1		3.5	0.4	1.0	500	19.6	13.4	0.68	0.56	20.6	33.2	-
				750	16.7	1.29	12.0	90.2	3.71	1.9					650	19.9	14.6	0.73	0.59	21.0	32.2	-
	6.0	1.1	2.5	550	17.0	1.30	12.2	98.1	3.76	2.2		4.5	0.7	1.5	500	19.7	13.4	0.68	0.55	20.6	34.5	-
				750	17.6	1.33	12.7	91.3	3.82	2.0					650	20.2	14.6	0.72	0.57	21.1	33.7	-
50	3.0	0.4	1.0	550	18.2	1.31	13.7	100.6	4.06	2.5	50	2.5	0.2	0.5	500	20.6	13.2	0.64	0.63	21.8	31.2	-
				750	18.8	1.33	14.2	93.2	4.13	2.2					650	21.2	14.7	0.69	0.64	22.4	31.4	-
	4.5	0.6	1.5	550	18.8	1.31	14.4	101.7	4.20	2.5		3.5	0.4	1.0	500	20.8	13.3	0.64	0.61	21.9	32.3	-
				750	19.4	1.33	14.9	94.0	4.28	2.3					650	21.4	14.7	0.69	0.63	22.5	32.6	-
	6.0	1.1	2.5	550	19.7	1.34	15.1	103.2	4.30	2.6		4.5	0.6	1.5	500	21.1	13.7	0.65	0.61	22.2	33.1	-
				750	20.3	1.36	15.7	95.1	4.37	2.4					650	21.7	15.1	0.70	0.62	22.8	33.4	-
60	3.0	0.4	1.0	550	20.7	1.33	16.1	104.8	4.55	2.7	60	2.5	0.2	0.5	500	20.0	13.2	0.66	0.74	21.6	25.6	1.3
				750	21.2	1.34	16.6	96.2	4.63	2.5					650	20.5	14.6	0.71	0.76	22.1	25.9	1.4
	4.5	0.6	1.4	550	21.5	1.33	17.0	106.2	4.74	2.8		3.5	0.4	1.0	500	20.2	13.3	0.66	0.72	21.7	26.6	1.2
				750	22.0	1.34	17.4	97.2	4.83	2.6					650	20.7	14.7	0.71	0.74	22.2	26.8	1.3
	6.0	1.0	2.4	550	22.3	1.36	17.6	107.5	4.80	2.9		4.5	0.6	1.4	500	20.5	13.6	0.66	0.72	22.0	27.2	1.1
				750	22.8	1.37	18.1	98.1	4.88	2.7					650	21.1	15.1	0.72	0.73	22.5	27.5	1.2
70	3.0	0.4	0.9	550	23.1	1.35	18.5	108.9	5.03	3.1	70	2.5	0.2	0.5	500	19.3	13.2	0.68	0.85	21.3	21.6	1.7
				750	23.6	1.32	19.1	99.1	5.24	2.8					650	19.9	14.6	0.73	0.87	21.9	21.7	1.8
	4.5	0.6	1.4	550	24.1	1.34	19.6	110.6	5.27	3.2		3.5	0.4	0.9	500	19.5	13.2	0.68	0.83	21.4	22.3	1.6
				750	24.6	1.34	20.0	100.4	5.37	2.9					650	20.0	14.6	0.73	0.85	22.0	22.5	1.7
	6.0	1.0	2.3	550	24.8	1.37	20.1	111.7	5.29	3.3		4.5	0.6	1.4	500	19.8	13.6	0.68	0.82	21.7	22.9	1.5
				750	25.2	1.37	20.5	101.1	5.39	2.7					650	20.4	15.0	0.74	0.84	22.3	23.1	1.7
80	3.0	0.4	0.9	550	25.4	1.34	20.9	112.8	5.57	3.7	80	2.5	0.2	0.4	500	18.5	12.9	0.70	0.93	20.8	18.8	2.3
				750	25.8	1.33	21.2	101.8	5.68	3.4					650	19.0	14.3	0.75	0.95	21.3	19.0	2.5
	4.5	0.6	1.3	550	26.6	1.33	22.1	114.9	5.87	3.9		3.5	0.4	0.9	500	18.6	13.0	0.69	0.91	20.9	19.5	2.2
				750	27.0	1.32	22.5	103.3	5.99	3.5					650	19.2	14.3	0.75	0.93	21.4	19.7	2.4
	6.0	1.0	2.2	550	27.0	1.36	22.4	115.5	5.84	4.0		4.5	0.6	1.3	500	19.0	13.3	0.70	0.90	21.1	20.0	2.0
				750	27.3	1.35	22.7	103.7	5.95	3.7					650	19.5	14.7	0.75	0.92	21.7	20.2	2.2
90	3.0	0.4	0.9	550	27.7	1.33	23.2	116.7	6.12	4.3	90	2.5	0.2	0.4	500	17.6	12.6	0.71	1.02	20.3	16.5	3.0
				750	27.9	1.31	23.5	104.5	6.25	4.0					650	18.1	13.9	0.77	1.04	20.8	16.7	3.2
	4.5	0.6	1.3	550	29.1	1.32	24.7	119.1	6.49	4.5		3.5	0.4	0.9	500	17.8	12.7	0.71	0.99	20.3	17.1	2.9
				750	29.3	1.30	24.9	106.2	6.63	4.1					650	18.3	14.0	0.77	1.01	20.9	17.3	3.1
	6.0	0.9	2.2	550	29.3	1.34	24.7	119.3	6.40	4.6		4.5	0.6	1.3	500	17.6	12.3	0.70	1.17	20.8	14.4	2.8
				750	29.4	1.32	24.9	106.3	6.53	4.3					650	18.6	14.4	0.77	1.00	21.1	17.7	2.6
100	3.0	0.4	0.8	Operation not recommended							100	2.5	0.2	0.4	500	16.7	12.4	0.74	1.34	20.5	11.9	3.6
															650	17.2	13.7	0.80	1.36	21.0	12.0	3.8
	4.5	0.5	1.2									3.5	0.4	0.8	500	16.9	12.4	0.74	1.30	20.5	12.4	3.3
															650	17.4	13.8	0.79	1.33	21.1	12.5	3.6
	6.0	0.9	2.1									4.5	0.5	1.2	500	17.2	12.8	0.74	1.29	20.7	12.7	3.0
															650	17.6	14.1	0.80	1.32	21.3	12.8	3.4
110	3.0	0.3	0.8								110	2.5	0.2	0.4	500	15.8	12.1	0.77	1.66	20.7	9.1	4.7
															650	16.3	13.4	0.83	1.69	21.3	9.2	5.0
	4.5	0.5	1.2									3.5	0.3	0.8	500	16.0	12.2	0.76	1.61	20.7	9.4	4.4
															650	16.4	13.5	0.82	1.64	21.3	9.5	4.8
	6.0	0.9	2.0									4.5	0.5	1.2	500	16.2	12.5	0.77	1.60	20.9	9.7	4.1
															650	16.7	13.9	0.83	1.63	21.5	9.8	4.6
120	3.0	0.3	0.8								120	2.5	0.2	0.4	500	13.2	12.1	0.92	1.95	19.2	6.4	6.2
															650	13.5	13.2	0.98	2.00	19.6	6.4	6.0
	4.5	0.5	1.2									3.5	0.3	0.8	500	13.4	12.2	0.91	1.84	19.0	6.9	5.5
															650	13.6	13.2	0.97	1.89	19.4	6.8	5.9
	6.0	0.8	1.9									4.5	0.5	1.2	500	13.5	12.2	0.90	1.78	18.9	7.2	5.0
															650	13.8	13.2	0.96	1.84	19.4	7.1	5.6

Performance capacities shown in thousands of Btuh. 3/27/2020

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Performance Data cont.

NVZ033 - 100% Full Load

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							EWT °F	Flow gpm	WPD		COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh			PSI	FT	Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	6.0	1.5	3.5	Operation not recommended							20	4.5	0.7	1.6	Operation not recommended							
	9.0	2.3	5.4									6.5	1.5	3.5								
	12.0	4.1	9.5	1150	27.6	2.94	17.6	92.2	2.75	3.0		9.0	2.3	5.4								
				1500	28.7	2.80	19.1	87.7	3.00	2.7												
30	6.0	1.5	3.4	1150	31.7	2.70	22.5	95.5	3.44	3.1	30	4.5	0.7	1.6	1000	34.6	22.1	0.64	1.14	38.5	30.4	-
				1500	32.6	2.79	23.1	90.1	3.42	2.8					1200	35.2	24.3	0.69	1.18	39.3	29.8	-
	9.0	2.3	5.3	1150	32.5	2.74	23.1	96.2	3.48	3.2		6.5	1.5	3.4	1000	35.1	22.3	0.64	1.08	38.7	32.5	-
				1500	33.4	2.82	23.8	90.6	3.47	2.9					1200	35.6	24.4	0.68	1.14	39.5	31.3	-
	12.0	4.0	9.2	1150	32.8	2.99	22.6	96.4	3.22	3.2		9.0	2.3	5.3	1000	35.2	22.3	0.63	1.05	38.8	33.6	-
				1500	34.1	2.85	24.4	91.0	3.51	2.9					1200	36.1	24.4	0.68	1.10	39.9	32.8	-
40	6.0	1.4	3.3	1150	35.4	2.84	25.7	98.5	3.66	3.3	40	4.5	0.7	1.5	1000	35.4	23.6	0.67	1.31	39.9	27.1	-
				1500	36.5	2.91	26.5	92.5	3.67	3.1					1200	36.1	25.9	0.72	1.36	40.7	26.5	-
	9.0	2.2	5.1	1150	36.5	2.89	26.7	99.4	3.70	3.4		6.5	1.4	3.3	1000	35.8	23.9	0.67	1.24	40.1	28.8	-
				1500	37.7	2.96	27.6	93.2	3.73	3.1					1200	36.5	26.1	0.71	1.30	40.9	28.0	-
	12.0	3.9	8.9	1150	37.3	2.92	27.3	100.0	3.74	3.5		9.0	2.2	5.1	1000	36.1	23.9	0.66	1.20	40.2	30.0	-
				1500	38.5	2.99	28.3	93.7	3.78	3.2					1200	36.9	26.1	0.71	1.26	41.2	29.3	-
50	6.0	1.4	3.2	1150	39.2	2.98	29.0	101.5	3.85	3.7	50	4.5	0.6	1.5	1000	34.7	23.1	0.66	1.47	39.7	23.6	-
				1500	40.3	3.02	30.0	94.9	3.91	3.4					1200	36.5	25.7	0.70	1.55	41.8	23.6	-
	9.0	2.1	4.9	1150	40.6	3.05	30.2	102.7	3.90	3.8		6.5	1.4	3.2	1000	35.5	23.4	0.66	1.39	40.2	25.6	-
				1500	41.9	3.09	31.3	95.9	3.97	3.5					1200	37.3	25.9	0.70	1.45	42.2	25.6	-
	12.0	3.7	8.6	1150	41.5	3.08	31.0	103.4	3.95	3.9		9.0	2.1	4.9	1000	35.8	24.9	0.70	1.35	40.4	26.5	-
				1500	42.8	3.12	32.2	96.4	4.02	3.6					1200	37.7	27.7	0.73	1.42	42.5	26.5	-
60	6.0	1.3	3.1	1150	43.4	3.03	33.1	105.0	4.20	4.1	60	4.5	0.6	1.4	1000	32.9	23.4	0.71	1.68	38.6	19.6	1.9
				1500	44.8	3.05	34.4	97.7	4.31	3.8					1200	34.5	26.0	0.75	1.75	40.4	19.7	2.1
	9.0	2.1	4.8	1150	45.4	3.11	34.7	106.5	4.27	4.3		6.5	1.3	3.1	1000	33.6	23.7	0.70	1.59	39.1	21.1	1.8
				1500	46.8	3.13	36.1	98.9	4.38	3.9					1200	35.2	26.2	0.74	1.66	40.9	21.2	2.0
	12.0	3.6	8.4	1150	46.5	3.15	35.7	107.4	4.33	4.4		9.0	2.1	4.8	1000	34.0	24.9	0.73	1.55	39.3	21.9	1.7
				1500	48.0	3.16	37.2	99.6	4.45	4.0					1200	35.7	27.7	0.78	1.63	41.2	21.9	1.9
70	6.0	1.3	3.0	1150	47.7	3.07	37.2	108.4	4.55	4.6	70	4.5	0.6	1.4	1000	31.0	23.7	0.76	1.92	37.6	16.2	2.4
				1500	49.1	3.15	38.4	100.3	4.57	4.3					1200	32.1	25.4	0.79	1.98	38.9	16.2	2.5
	9.0	2.0	4.6	1150	50.2	3.17	39.3	110.4	4.63	4.8		6.5	1.3	3.0	1000	31.8	24.0	0.75	1.80	38.0	17.7	2.2
				1500	51.8	3.17	41.0	102.0	4.78	4.4					1200	33.2	26.5	0.80	1.87	39.6	17.8	2.4
	12.0	3.5	8.1	1150	51.4	3.21	40.5	111.4	4.69	4.9		9.0	2.0	4.6	1000	32.2	24.9	0.77	1.76	38.2	18.3	2.0
				1500	53.2	3.20	42.3	102.8	4.87	4.5					1200	33.6	27.6	0.82	1.83	39.8	18.4	2.3
80	6.0	1.3	2.9	1150	51.0	3.18	40.1	111.1	4.70	5.2	80	4.5	0.6	1.3	1000	29.6	23.5	0.79	2.14	36.9	13.8	2.9
				1500	52.8	3.16	42.0	102.6	4.90	4.9					1200	30.8	26.2	0.85	2.21	38.4	14.0	3.1
	9.0	1.9	4.5	1150	53.9	3.31	42.7	113.4	4.78	5.4		6.5	1.3	2.9	1000	30.5	23.8	0.78	2.07	37.5	14.7	2.7
				1500	55.8	3.27	44.6	104.4	4.99	5.0					1200	31.7	26.4	0.83	2.13	38.9	14.9	3.0
	12.0	3.4	7.8	1150	55.5	3.35	44.1	114.7	4.86	5.6		9.0	1.9	4.5	1000	30.8	24.4	0.79	2.02	37.7	15.2	2.5
				1500	57.4	3.30	46.1	105.4	5.10	5.1					1200	32.1	27.1	0.84	2.09	39.2	15.4	2.8
90	6.0	1.2	2.8	1150	54.3	3.29	43.1	113.7	4.84	5.9	90	4.5	0.6	1.3	1000	28.3	23.4	0.83	2.40	36.4	11.8	3.7
				1500	56.2	3.24	45.2	104.7	5.09	5.5					1200	29.3	26.0	0.89	2.46	37.6	11.9	3.9
	9.0	1.9	4.3	1150	57.7	3.44	46.0	116.5	4.92	6.1		6.5	1.2	2.8	1000	29.1	23.7	0.82	2.33	37.0	12.5	3.4
				1500	59.8	3.38	48.3	106.9	5.19	5.7					1200	30.2	26.3	0.87	2.39	38.3	12.6	3.7
	12.0	3.3	7.5	1150	59.6	3.49	47.7	117.9	5.01	6.3		9.0	1.9	4.3	1000	29.8	24.0	0.81	2.33	37.7	12.8	3.2
				1500	61.6	3.40	50.0	108.0	5.31	5.8					1200	30.5	26.5	0.87	2.34	38.5	13.0	4.1
100	6.0	1.2	2.7	Operation not recommended							100	4.5	0.5	1.2	1000	26.8	23.2	0.87	2.73	36.1	9.8	4.4
															1200	27.6	25.7	0.93	2.78	37.1	9.9	4.8
	9.0	1.8	4.2									6.5	1.2	2.7	1000	27.7	23.5	0.85	2.68	36.8	10.3	4.1
															1200	28.6	26.1	0.91	2.72	37.9	10.5	4.5
	12.0	3.1	7.3									9.0	1.8	4.2	1000	28.0	23.4	0.84	2.63	37.0	10.6	3.8
															1200	28.9	25.9	0.90	2.68	38.0	10.8	4.3
110	6.0	1.1	2.6								110	4.5	0.5	1.2	1000	25.3	23.0	0.91	3.06	35.8	8.3	5.6
															1200	26.0	25.5	0.98	3.10	36.6	8.4	5.9
	9.0	1.7	4.0	Operation not recommended								6.5	1.1	2.6	1000	26.3	23.2	0.88	3.03	36.7	8.7	5.2
															1200	27.0	25.8	0.96	3.05	37.4	8.9	5.6
	12.0	3.0	7.0									9.0	1.7	4.0	1000	26.6	22.9	0.86	2.98	36.7	8.9	4.8
															1200	27.3	25.3	0.93	3.01	37.6	9.1	5.3
120	6.0	1.1	2.5								120	4.5	0.5	1.2	1000	24.4	22.1	0.90	3.60	36.7	6.8	6.7
															1200	25.0	24.1	0.97	3.69	37.5	6.8	7.1
	9.0	1.7	3.8									6.5	1.1	2.5	1000	24.7	22.3	0.90	3.41	36.4	7.3	6.2
															1200	25.2	24.2	0.96	3.49	37.1	7.2	6.7
	12.0	2.9	6.7									9.0	1.7	3.8	1000	25.0	22.3	0.89	3.30	36.2	7.6	6.4
															1200	25.5	24.2	0.95	3.40	37.1	7.5	7.1

Performance capacities shown in thousands of Btuh.

3/27/2020

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Performance Data cont.

NVZ042 - 50% Part Load

EWT °F	Flow gpm	WPD PSI	WPD FT	HEATING - EAT 70°F Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh	EWT °F	Flow gpm	WPD PSI	WPD FT	COOLING - EAT 80/67 °F Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	3.7	0.4	0.8	Operation not recommended							20	3.0	0.2	0.5	Operation not recommended							
	5.2	0.7	1.6									4.4	0.6	1.4								
	6.7	1.2	2.7	700	16.6	1.73	10.7	91.9	2.81	2.7		5.8	0.9	2.2								
				900	16.9	1.66	11.2	87.4	2.98	2.3												
30	3.7	0.3	0.8	700	17.1	1.56	11.8	92.6	3.20	2.6	30	3.0	0.2	0.5	650	23.3	15.7	0.67	0.59	24.2	37.8	-
				900	17.7	1.59	12.2	88.2	3.26	2.2					750	23.8	17.2	0.73	0.61	24.7	36.9	-
	5.2	0.7	1.6	700	18.5	1.63	12.9	94.4	3.31	2.7		4.4	0.6	1.3	650	23.7	15.9	0.67	0.56	24.4	40.3	-
				900	19.0	1.65	13.4	89.6	3.39	2.3					750	24.0	17.3	0.72	0.59	24.9	38.8	-
	6.7	1.1	2.6	700	19.2	1.74	13.3	95.4	3.23	2.8		5.8	0.9	2.1	650	23.8	15.9	0.67	0.54	24.5	41.7	-
				900	19.6	1.67	13.9	90.2	3.44	2.4					750	24.4	17.3	0.71	0.57	25.1	40.7	-
40	3.7	0.3	0.8	700	19.9	1.60	14.4	96.3	3.64	2.8	40	3.0	0.2	0.5	650	24.4	16.1	0.66	0.67	25.5	34.4	-
				900	20.5	1.61	15.0	91.1	3.73	2.4					750	24.9	17.6	0.71	0.70	26.1	33.7	-
	5.2	0.7	1.5	700	21.4	1.66	15.8	98.4	3.78	2.9		4.4	0.6	1.3	650	24.7	16.2	0.66	0.64	25.7	36.7	-
				900	22.2	1.66	16.5	92.8	3.91	2.5					750	25.1	17.7	0.70	0.67	26.2	35.6	-
	6.7	1.1	2.5	700	22.1	1.67	16.4	99.3	3.88	3.0		5.8	0.9	2.0	650	24.9	16.2	0.65	0.62	25.8	38.1	-
				900	22.9	1.69	17.2	93.6	3.98	2.6					750	25.4	17.7	0.70	0.65	26.4	37.2	-
50	3.7	0.3	0.7	700	22.7	1.64	17.1	100.0	4.06	3.1	50	3.0	0.2	0.5	650	25.0	15.3	0.61	0.85	26.7	27.9	-
				900	23.4	1.64	17.8	94.1	4.19	2.8					750	25.8	18.0	0.70	0.89	27.6	27.6	-
	5.2	0.6	1.5	700	24.4	1.69	18.7	102.3	4.24	3.3		4.4	0.5	1.2	650	25.5	15.3	0.60	0.74	26.8	33.0	-
				900	25.4	1.68	19.6	96.1	4.43	2.9					750	26.3	18.1	0.69	0.77	27.7	32.4	-
	6.7	1.1	2.5	700	25.4	1.70	19.6	103.6	4.37	3.4		5.8	0.9	2.0	650	25.7	15.3	0.60	0.69	26.8	35.2	-
				900	26.2	1.70	20.4	97.0	4.52	3.0					750	26.5	18.1	0.68	0.73	27.7	34.5	-
60	3.7	0.3	0.7	700	25.2	1.68	19.4	103.3	4.39	2.9	60	3.0	0.2	0.5	650	23.6	15.0	0.64	0.99	25.9	22.8	1.3
				900	26.1	1.67	20.4	96.8	4.58	2.5					750	24.4	17.7	0.73	1.03	26.7	22.5	1.5
	5.2	0.6	1.4	700	27.2	1.72	21.4	106.0	4.64	3.0		4.4	0.5	1.2	650	24.0	15.1	0.63	0.88	25.9	26.1	1.2
				900	28.3	1.70	22.5	99.1	4.88	2.6					750	24.8	17.8	0.72	0.92	26.7	25.7	1.4
	6.7	1.0	2.4	700	28.4	1.74	22.5	107.6	4.79	3.2		5.8	0.8	1.9	650	24.3	15.2	0.62	0.83	26.0	27.8	1.1
				900	29.4	1.72	23.5	100.2	5.02	2.7					750	25.0	17.9	0.71	0.87	26.8	27.4	1.3
70	3.7	0.3	0.7	700	27.7	1.72	21.8	106.6	4.72	3.4	70	3.0	0.2	0.5	650	22.3	14.8	0.66	1.12	25.1	18.9	2.2
				900	30.5	1.72	24.6	101.4	5.20	3.0					750	22.9	16.5	0.72	1.18	25.8	18.5	2.3
	5.2	0.6	1.4	700	30.0	1.75	24.1	109.7	5.03	3.6		4.4	0.5	1.2	650	22.5	14.9	0.66	1.02	24.9	21.1	2.0
				900	31.2	1.72	25.4	102.1	5.32	3.2					750	23.2	17.6	0.76	1.06	25.8	20.8	2.2
	6.7	1.0	2.3	700	31.4	1.77	25.4	111.6	5.20	3.8		5.8	0.8	1.8	650	22.9	15.0	0.66	0.97	25.1	22.5	1.8
				900	32.6	1.73	26.7	103.5	5.52	3.5					750	23.6	17.6	0.75	1.01	25.9	22.3	2.0
80	3.7	0.3	0.7	700	29.7	1.77	23.6	109.2	4.91	4.2	80	3.0	0.2	0.4	650	20.8	13.7	0.66	1.30	24.2	15.3	2.3
				900	30.8	1.74	24.9	101.7	5.19	3.7					750	21.5	16.1	0.75	1.35	25.1	15.1	2.6
	5.2	0.6	1.3	700	32.2	1.79	26.1	112.6	5.27	4.4		4.4	0.5	1.1	650	20.9	13.9	0.66	1.20	24.0	16.6	2.0
				900	33.5	1.74	27.6	104.5	5.63	3.9					750	21.5	16.3	0.76	1.25	24.8	16.4	2.4
	6.7	1.0	2.2	700	33.8	1.81	27.7	114.8	5.48	4.6		5.8	0.8	1.8	650	21.4	14.0	0.65	1.15	24.3	17.7	1.8
				900	35.2	1.76	29.2	106.2	5.86	4.1					750	22.1	16.4	0.75	1.20	25.1	17.5	2.2
90	3.7	0.3	0.6	700	31.6	1.82	25.4	111.8	5.09	5.1	90	3.0	0.2	0.4	650	19.3	12.7	0.66	1.47	23.4	12.6	3.7
				900	32.9	1.78	26.8	103.8	5.41	4.6					750	19.9	14.9	0.75	1.52	24.2	12.5	4.0
	5.2	0.6	1.3	700	34.4	1.83	28.1	115.5	5.51	5.4		4.4	0.5	1.1	650	19.3	12.8	0.66	1.39	23.1	13.2	3.3
				900	35.8	1.77	29.8	106.8	5.93	4.8					750	19.9	15.1	0.76	1.44	23.8	13.1	3.8
	6.7	0.9	2.2	700	36.3	1.85	30.0	118.0	5.75	5.6		5.8	0.7	1.7	650	19.8	14.1	0.71	1.37	23.6	13.8	3.0
				900	37.8	1.79	31.7	108.9	6.19	5.0					750	20.5	15.2	0.74	1.39	24.2	14.0	3.5
100	3.7	0.3	0.6	Operation not recommended							100	3.0	0.2	0.4	650	17.8	12.0	0.67	1.68	22.7	10.1	5.1
															750	18.4	14.1	0.77	1.75	23.5	10.0	5.7
	5.2	0.5	1.2									4.4	0.4	1.0	650	17.7	12.2	0.69	1.64	22.4	10.3	4.7
															750	18.2	14.3	0.78	1.70	23.2	10.2	5.3
	6.7	0.9	2.1									5.8	0.7	1.7	650	18.4	12.3	0.67	1.58	22.9	11.1	4.3
															750	18.9	14.5	0.77	1.65	23.6	10.9	4.9
110	3.7	0.3	0.6								110	3.0	0.2	0.4	650	16.3	11.4	0.70	1.89	22.0	8.2	7.3
															750	16.8	13.3	0.79	1.97	22.7	8.1	7.8
	5.2	0.5	1.2									4.4	0.4	1.0	650	16.1	11.5	0.72	1.88	21.7	8.1	6.8
															750	16.6	13.5	0.81	1.96	22.5	8.1	7.5
	6.7	0.9	2.0									5.8	0.7	1.6	650	16.9	11.7	0.70	1.82	22.3	8.8	6.2
															750	17.3	13.8	0.79	1.90	23.0	8.7	7.0
120	3.7	0.2	0.6								120	3.0	0.2	0.4	650	14.2	12.3	0.86	2.32	21.4	5.8	10.4
															750	14.5	13.4	0.92	2.38	21.9	5.8	10.9
	5.2	0.5	1.2									4.4	0.4	1.0	650	14.4	12.4	0.86	2.19	21.2	6.2	9.3
															750	14.6	13.4	0.92	2.25	21.6	6.2	10.0
	6.7	0.8	1.9									5.8	0.7	1.5	650	14.5	12.4	0.85	2.12	21.1	6.5	8.0
															750	14.8	13.4	0.91	2.19	21.6	6.4	9.1

Performance capacities shown in thousands of Btuh.

3/27/2020

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Performance Data cont.

NVZ042 - 100% Full Load

EWT °F	Flow gpm	WPD PSI	WPD FT	HEATING - EAT 70°F Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh	EWT °F	Flow gpm	WPD PSI	WPD FT	COOLING - EAT 80/67 °F Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	9.0	1.9	4.3	Operation not recommended							20	6.0	0.9	2.2	Operation not recommended							
	12.0	3.5	8.1									8.5	1.6	3.8								
	15.0	5.0	11.6	1600	36.8	3.84	23.7	91.3	2.81	3.5		11.0	2.5	5.7								
				1800	37.4	3.84	24.3	89.2	2.85	3.1												
30	9.0	1.8	4.2	1600	37.8	3.68	25.3	91.9	3.01	3.5	30	6.0	0.9	2.1	1200	38.7	24.1	0.62	1.40	43.5	27.6	-
				1800	39.1	3.74	26.4	90.1	3.07	3.2					1400	39.4	26.5	0.67	1.46	44.4	27.0	-
	12.0	3.4	7.9	1600	40.9	3.85	27.7	93.7	3.11	3.7		8.5	1.6	3.7	1200	39.2	24.3	0.62	1.34	43.8	29.4	-
				1800	42.1	3.88	28.9	91.7	3.19	3.2					1400	39.9	26.6	0.67	1.41	44.7	28.3	-
	15.0	4.9	11.3	1600	42.7	3.93	29.3	94.7	3.18	3.9		11.0	2.4	5.5	1200	39.4	24.3	0.62	1.30	43.9	30.4	-
				1800	43.4	3.93	30.0	92.3	3.24	3.4					1400	40.4	26.6	0.66	1.36	45.0	29.7	-
40	9.0	1.8	4.1	1600	43.0	3.81	30.0	94.9	3.31	3.8	40	6.0	0.9	2.0	1200	42.3	28.0	0.66	1.61	47.8	26.2	-
				1800	44.4	3.84	31.3	92.8	3.39	3.5					1400	43.1	30.6	0.71	1.68	48.9	25.7	-
	12.0	3.3	7.6	1600	46.4	3.96	32.9	96.8	3.44	4.2		8.5	1.5	3.6	1200	42.8	28.3	0.66	1.53	48.0	27.9	-
				1800	48.0	3.96	34.5	94.7	3.56	3.7					1400	43.6	30.9	0.71	1.61	49.1	27.1	-
	15.0	4.7	11.0	1600	47.9	3.98	34.3	97.7	3.53	4.4		11.0	2.3	5.3	1200	43.1	28.3	0.66	1.49	48.2	29.0	-
				1800	49.6	4.01	35.9	95.5	3.62	3.9					1400	44.1	30.9	0.70	1.56	49.4	28.4	-
50	9.0	1.7	3.9	1600	48.2	3.94	34.8	97.9	3.59	4.4	50	6.0	0.9	2.0	1200	45.1	29.6	0.66	2.04	52.1	22.1	-
				1800	49.7	3.94	36.3	95.6	3.70	4.0					1400	46.5	35.0	0.75	2.13	53.8	21.9	-
	12.0	3.2	7.4	1600	51.9	4.06	38.1	100.1	3.75	4.8		8.5	1.5	3.5	1200	46.1	29.8	0.65	1.77	52.1	26.1	-
				1800	53.9	4.04	40.2	97.7	3.91	4.4					1400	47.5	35.1	0.74	1.85	53.8	25.6	-
	15.0	4.6	10.6	1600	53.9	4.09	40.0	101.2	3.86	5.1		11.0	2.2	5.2	1200	46.4	29.8	0.64	1.66	52.1	27.9	-
				1800	55.7	4.09	41.7	98.7	3.99	4.6					1400	47.8	35.1	0.73	1.75	53.8	27.3	-
60	9.0	1.7	3.8	1600	53.3	4.09	39.4	100.8	3.82	5.2	60	6.0	0.8	1.9	1200	43.4	28.8	0.66	2.25	51.1	19.3	2.6
				1800	55.2	4.06	41.4	98.4	3.98	4.7					1400	44.7	34.0	0.76	2.35	52.8	19.0	2.7
	12.0	3.1	7.2	1600	57.7	4.19	43.4	103.4	4.04	5.6		8.5	1.4	3.3	1200	44.1	29.0	0.66	2.00	50.9	22.1	2.4
				1800	59.9	4.14	45.8	100.8	4.24	5.1					1400	45.5	34.2	0.75	2.09	52.6	21.8	2.6
	15.0	4.4	10.3	1600	60.1	4.23	45.7	104.8	4.17	6.0		11.0	2.2	5.0	1200	44.6	29.1	0.65	1.90	51.1	23.5	2.2
				1800	62.3	4.18	48.0	102.0	4.37	5.4					1400	46.0	34.3	0.75	1.98	52.7	23.2	2.4
70	9.0	1.6	3.7	1600	58.4	4.24	44.0	103.8	4.04	6.0	70	6.0	0.8	1.8	1200	41.6	28.0	0.67	2.46	50.0	16.9	3.4
				1800	65.4	4.20	51.1	103.6	4.56	5.5					1400	44.0	33.1	0.75	2.42	52.3	18.2	3.6
	12.0	3.0	6.9	1600	63.4	4.31	48.7	106.7	4.31	6.5		8.5	1.4	3.2	1200	42.1	28.3	0.67	2.23	49.7	18.9	3.1
				1800	65.9	4.24	51.4	103.9	4.56	6.0					1400	43.4	33.3	0.77	2.33	51.3	18.7	3.4
	15.0	4.3	9.9	1600	63.7	4.28	49.1	106.9	4.36	6.9		11.0	2.5	4.9	1200	42.8	28.4	0.66	2.13	50.0	20.1	2.8
				1800	68.8	4.26	54.3	105.4	4.73	7.2					1400	44.1	33.4	0.76	2.21	51.6	20.0	3.2
80	9.0	1.5	3.6	1600	61.8	4.38	46.8	105.8	4.13	7.1	80	6.0	0.8	1.8	1200	38.4	27.1	0.70	2.73	47.7	14.1	4.5
				1800	64.2	4.31	49.5	103.0	4.37	6.5					1400	39.6	31.8	0.80	2.85	49.3	13.9	4.8
	12.0	2.9	6.7	1600	67.1	4.43	52.0	108.8	4.44	7.6		8.5	1.4	3.1	1200	38.6	27.4	0.71	2.53	47.3	15.2	4.1
				1800	69.8	4.32	55.1	105.9	4.73	7.0					1400	39.8	32.2	0.81	2.63	48.8	15.1	4.4
	15.0	4.2	9.6	1600	70.5	4.48	55.2	110.8	4.61	8.1		11.0	2.0	4.7	1200	39.5	27.6	0.70	2.42	47.8	16.3	3.8
				1800	73.4	4.36	58.5	107.7	4.93	7.5					1400	40.7	32.4	0.80	2.53	49.3	16.1	4.2
90	9.0	1.5	3.4	1600	65.2	4.53	49.7	107.7	4.21	8.4	90	6.0	0.7	1.7	1200	35.2	26.1	0.74	2.99	45.4	11.8	6.0
				1800	67.7	4.44	52.6	104.8	4.48	7.7					1400	36.3	30.7	0.84	3.12	46.9	11.7	6.3
	12.0	2.8	6.5	1600	70.9	4.56	55.3	111.0	4.55	8.9		8.5	1.3	3.0	1200	35.2	26.4	0.75	2.84	44.9	12.4	5.3
				1800	73.8	4.41	58.7	108.0	4.90	8.2					1400	36.2	31.1	0.86	2.94	46.2	12.3	5.8
	15.0	4.0	9.3	1600	74.8	4.61	59.0	113.3	4.75	9.5		11.0	2.0	4.5	1200	36.1	29.2	0.81	2.79	45.6	12.9	5.0
				1800	77.9	4.46	62.7	110.1	5.12	8.7					1400	37.3	31.4	0.84	2.84	47.0	13.1	6.3
100	9.0	1.4	3.3	Operation not recommended							100	6.0	0.7	1.7	1200	32.6	24.4	0.75	3.32	43.9	9.8	7.0
															1400	33.6	28.7	0.85	3.46	45.4	9.7	7.5
	12.0	2.7	6.2									8.5	1.3	2.9	1200	32.4	24.7	0.76	3.23	43.4	10.0	6.7
															1400	33.4	29.1	0.87	3.36	44.8	9.9	7.3
	15.0	3.9	8.9									11.0	1.9	4.4	1200	33.6	25.1	0.75	3.11	44.2	10.8	6.3
															1400	34.6	29.5	0.85	3.25	45.6	10.6	7.1
110	9.0	1.4	3.2								110	6.0	0.7	1.6	1200	30.0	22.7	0.76	3.64	42.4	8.2	9.0
															1400	30.8	26.7	0.87	3.79	43.7	8.1	9.8
	12.0	2.6	6.0									8.5	1.2	2.8	1200	29.5	23.0	0.78	3.62	41.9	8.2	8.6
															1400	30.5	27.1	0.89	3.77	43.4	8.1	9.4
	15.0	3.7	8.6									11.0	1.8	4.2	1200	30.9	23.4	0.76	3.51	42.9	8.8	8.2
															1400	31.8	27.5	0.86	3.66	44.3	8.7	9.2
120	9.0	1.3	3.1								120	6.0	0.7	1.5	1200	26.7	23.9	0.90	4.35	41.5	6.1	11.9
															1400	27.2	26.1	0.96	4.45	42.4	6.1	12.4
	12.0	2.5	5.8									8.5	1.2	2.7	1200	27.0	24.1	0.89	4.11	41.0	6.6	11.1
															1400	27.5	26.2	0.95	4.21	41.9	6.5	12.0
	15.0	3.6	8.2									11.0	1.7	4.0	1200	27.2	24.1	0.89	3.97	40.8	6.8	10.2
															1400	27.8	26.2	0.94	4.10	41.8	6.8	11.4

Performance capacities shown in thousands of Btuh. 3/27/2020

Performance Data cont.

NVZ050 - 50% Part Load

EWT °F	Flow gpm	WPD PSI	WPD FT	HEATING - EAT 70°F Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh	EWT °F	Flow gpm	WPD PSI	WPD FT	COOLING - EAT 80/67 °F Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	3.7	0.1	0.3	Operation not recommended							20	3.2	0.1	0.3	Operation not recommended							
	5.1	0.6	1.4									4.6	0.5	1.1								
	7.5	1.2	2.7	850	21.5	2.29	14.0	93.7	2.78	3.9		6.0	0.8	1.9								
				980	21.6	2.20	14.1	90.4	2.88	3.7												
30	3.7	0.1	0.3	850	23.8	2.32	15.0	95.0	2.90	4.0	30	3.2	0.1	0.3	750	23.2	15.5	0.67	0.64	24.3	34.6	-
				980	24.7	2.35	15.7	92.4	2.96	3.6					850	23.7	17.0	0.72	0.67	24.8	33.8	-
	5.1	0.6	1.3	850	23.7	2.35	14.8	94.8	2.84	4.1		4.6	0.5	1.1	750	23.6	15.7	0.66	0.61	24.5	36.8	-
				980	24.6	2.38	15.5	92.3	2.90	3.7					850	23.9	17.1	0.72	0.64	25.0	35.5	-
	7.5	1.1	2.6	850	25.3	2.48	16.1	96.8	2.91	4.1		6.0	0.8	1.8	750	23.7	15.7	0.66	0.59	24.6	38.2	-
				980	25.4	2.38	16.3	93.1	3.00	3.5					850	24.3	17.1	0.71	0.62	25.2	37.3	-
40	3.7	0.1	0.3	850	28.2	2.39	19.1	99.7	3.35	4.2	40	3.2	0.1	0.3	750	27.0	18.4	0.68	0.86	28.6	30.0	-
				980	29.1	2.40	19.9	96.5	3.43	3.8					850	27.5	20.1	0.73	0.89	29.3	29.4	-
	5.1	0.6	1.3	850	28.4	2.42	19.2	99.9	3.32	4.3		4.6	0.4	1.0	750	27.3	18.6	0.68	0.81	28.8	32.0	-
				980	29.2	2.43	19.9	96.7	3.40	3.9					850	27.8	20.3	0.73	0.85	29.4	31.1	-
	7.5	1.1	2.5	850	29.4	2.43	20.0	100.9	3.41	4.4		6.0	0.8	1.8	750	27.5	18.6	0.67	0.79	28.9	33.2	-
				980	30.2	2.44	20.8	97.5	3.50	4.0					850	28.1	20.3	0.72	0.83	29.6	32.5	-
50	3.7	0.1	0.2	850	32.6	2.45	23.2	104.4	3.77	4.5	50	3.2	0.1	0.2	750	31.0	20.5	0.66	1.04	33.0	28.4	-
				980	33.5	2.45	24.1	100.7	3.88	4.2					850	31.9	23.2	0.73	1.10	34.1	27.7	-
	5.1	0.5	1.2	850	33.1	2.50	23.6	105.0	3.76	4.7		4.6	0.4	1.0	750	31.0	20.6	0.67	1.00	33.0	29.5	-
				980	33.9	2.48	24.3	101.0	3.87	4.3					850	31.9	23.4	0.73	1.05	34.0	29.0	-
	7.5	1.1	2.5	850	34.1	2.52	24.5	106.0	3.85	4.8		6.0	0.7	1.7	750	31.1	20.6	0.66	0.98	33.0	30.2	-
				980	34.9	2.50	25.3	101.9	3.96	4.4					850	32.0	23.4	0.73	1.03	34.0	29.6	-
60	3.7	0.1	0.2	850	36.4	2.53	26.6	108.4	4.08	4.3	60	3.2	0.1	0.2	750	30.0	20.0	0.67	1.26	32.9	22.7	2.4
				980	37.2	2.51	27.5	104.0	4.21	3.9					850	30.9	22.6	0.73	1.32	34.0	22.3	2.6
	5.1	0.5	1.2	850	37.5	2.57	27.6	109.6	4.14	4.4		4.6	0.4	1.0	750	30.2	20.2	0.67	1.22	32.9	23.5	2.3
				980	38.1	2.54	28.3	104.9	4.27	4.0					850	31.1	22.8	0.73	1.27	33.9	23.2	2.5
	7.5	1.0	2.4	850	38.4	2.60	28.4	110.5	4.20	4.6		6.0	0.7	1.7	750	30.3	20.2	0.67	1.20	32.9	24.1	2.2
				980	39.0	2.56	29.1	105.7	4.33	4.1					850	31.2	22.8	0.73	1.25	34.0	23.8	2.4
70	3.7	0.1	0.2	850	40.1	2.61	30.0	112.4	4.38	4.8	70	3.2	0.1	0.2	750	29.1	19.5	0.67	1.48	32.8	18.7	3.3
				980	39.4	2.57	29.3	106.0	4.34	4.4					850	29.6	22.1	0.74	1.66	33.9	17.0	3.4
	5.1	0.5	1.2	850	41.8	2.65	31.5	114.2	4.49	5.0		4.6	0.4	0.9	750	29.3	19.7	0.67	1.44	32.8	19.4	3.1
				980	42.3	2.59	32.2	108.8	4.64	4.6					850	30.2	22.2	0.74	1.50	33.9	19.1	3.3
	7.5	1.0	2.3	850	42.6	2.68	32.2	115.1	4.53	5.2		6.0	0.7	1.6	750	29.4	19.8	0.67	1.41	32.8	19.9	2.9
				980	43.1	2.62	32.9	109.5	4.68	4.8					850	30.3	22.3	0.73	1.47	33.9	19.7	3.1
80	3.7	0.1	0.2	850	43.5	2.68	30.1	112.7	4.29	5.7	80	3.2	0.1	0.2	750	27.2	19.5	0.68	1.75	31.9	14.8	3.4
				980	43.9	2.62	30.6	107.4	4.43	5.2					850	28.0	21.7	0.74	1.81	32.9	14.7	3.7
	5.1	0.5	1.1	850	46.0	2.72	32.2	115.2	4.46	5.9		4.6	0.4	0.9	750	27.5	19.7	0.68	1.71	32.0	15.3	3.1
				980	46.2	2.64	32.6	109.4	4.62	5.4					850	28.3	22.0	0.74	1.77	33.0	15.2	3.5
	7.5	1.0	2.2	850	46.5	2.76	32.5	115.7	4.45	6.1		6.0	0.7	1.6	750	27.6	19.8	0.68	1.68	32.1	15.7	2.9
				980	46.7	2.68	33.0	109.8	4.60	5.6					850	28.5	22.2	0.74	1.74	33.1	15.6	3.3
90	3.7	0.1	0.2	850	46.9	2.75	30.2	113.1	4.21	6.6	90	3.2	0.1	0.2	750	25.4	19.4	0.69	2.02	31.0	11.9	4.8
				980	47.0	2.68	30.5	107.5	4.33	6.1					850	26.1	21.6	0.74	2.08	32.0	12.0	5.1
	5.1	0.5	1.1	850	50.1	2.80	32.7	116.0	4.42	6.9		4.6	0.4	0.9	750	25.6	19.6	0.69	1.98	31.2	12.4	4.4
				980	50.1	2.70	33.0	109.9	4.59	6.3					850	26.4	21.9	0.75	2.04	32.1	12.3	4.9
	7.5	0.9	2.2	850	50.4	2.84	32.8	116.3	4.38	7.1		6.0	0.7	1.5	750	25.9	19.7	0.76	1.97	31.4	12.5	4.1
				980	50.3	2.74	33.1	110.1	4.54	6.5					850	26.7	22.1	0.74	2.01	32.3	12.6	4.6
100	3.7	0.1	0.2	Operation not recommended							100	3.2	0.1	0.2	750	24.1	18.5	0.73	2.32	30.9	9.9	6.2
															850	24.8	20.4	0.78	2.38	31.7	9.9	6.8
	5.1	0.4	1.0									4.6	0.4	0.8	750	24.4	18.7	0.72	2.29	31.0	10.2	5.8
															850	25.1	20.7	0.78	2.35	31.9	10.2	6.4
	7.5	0.9	2.1									6.0	0.6	1.5	750	24.6	18.9	0.73	2.26	31.1	10.4	5.4
															850	25.4	20.9	0.78	2.31	32.1	10.5	6.0
110	3.7	0.1	0.2								110	3.2	0.1	0.2	750	22.8	17.5	0.77	2.62	30.7	8.3	8.4
															850	23.5	19.3	0.82	2.67	31.5	8.4	8.9
	5.1	0.4	1.0									4.6	0.3	0.8	750	23.1	17.7	0.77	2.60	30.9	8.5	7.9
															850	23.8	19.5	0.82	2.65	31.7	8.6	8.6
	7.5	0.9	2.0									6.0	0.6	1.4	750	23.4	18.0	0.77	2.56	31.0	8.7	7.3
															850	24.2	19.7	0.82	2.61	31.9	8.8	8.1
120	3.7	0.1	0.2								120	3.2	0.1	0.2	750	21.4	17.4	0.81	3.18	31.3	6.4	11.5
															850	21.9	18.9	0.87	3.25	32.0	6.4	12.0
	5.1	0.4	1.0									4.6	0.3	0.8	750	21.7	17.5	0.81	3.01	30.9	6.9	10.4
															850	22.1	19.0	0.86	3.08	31.6	6.8	11.1
	7.5	0.8	1.9									6.0	0.6	1.3	750	21.9	17.5	0.80	2.91	30.8	7.2	9.1
															850	22.4	19.0	0.85	3.00	31.5	7.1	10.2

Performance capacities shown in thousands of Btuh.

3/27/2020

Performance Data cont.

NVZ050 - 100% Full Load

EWT °F	Flow gpm	WPD PSI	WPD FT	HEATING - EAT 70°F Airflow cfm	HC MBtuh	Power kW	HE MBtuh	LAT °F	COP	HWC MBtuh
20	9.0	2.0	4.6	Operation not recommended						
	13.5	4.6	10.5							
	18.0	7.2	16.7	1800	47.3	5.16	29.6	94.3	2.68	5.5
				2200	49.6	5.21	31.8	90.9	2.79	5.0
30	9.0	1.9	4.5	1800	51.5	4.97	34.5	96.5	3.03	5.6
				2200	52.7	5.23	34.8	92.2	2.95	5.0
	13.5	4.4	10.2	1800	55.1	5.02	38.0	98.3	3.22	5.7
				2200	56.6	5.34	38.4	93.8	3.11	5.2
	18.0	7.0	16.2	1800	54.5	5.34	36.3	98.0	2.99	5.9
				2200	57.2	5.39	38.8	94.1	3.11	5.3
40	9.0	1.9	4.3	1800	58.7	5.23	40.8	100.2	3.29	6.0
				2200	60.0	5.44	41.4	95.2	3.23	5.6
	13.5	4.3	9.9	1800	62.4	5.31	44.2	102.1	3.44	6.3
				2200	63.8	5.54	44.9	96.8	3.38	5.8
	18.0	6.8	15.7	1800	63.3	5.40	44.9	102.6	3.44	6.5
				2200	64.8	5.59	45.7	97.3	3.39	5.9
50	9.0	1.8	4.2	1800	65.8	5.48	47.1	103.9	3.52	6.8
				2200	67.2	5.65	47.9	98.3	3.48	6.3
	13.5	4.2	9.6	1800	69.6	5.59	50.6	105.8	3.65	7.0
				2200	71.0	5.73	51.5	99.9	3.63	6.4
	18.0	6.6	15.2	1800	70.8	5.65	51.5	106.4	3.67	7.2
				2200	72.3	5.79	52.5	100.4	3.66	6.6
60	9.0	1.8	4.1	1800	74.2	5.77	54.5	108.2	3.76	7.6
				2200	75.8	5.87	55.8	101.9	3.78	7.0
	13.5	4.0	9.3	1800	77.6	5.87	57.6	109.9	3.87	7.8
				2200	79.3	5.95	59.0	103.4	3.91	7.2
	18.0	6.4	14.7	1800	79.3	5.94	59.0	110.8	3.91	8.1
				2200	81.1	6.01	60.6	104.1	3.96	7.4
70	9.0	1.7	3.9	1800	82.5	6.06	61.9	112.5	3.99	8.5
				2200	83.4	6.10	62.6	105.1	4.01	7.9
	13.5	3.9	9.0	1800	85.6	6.15	64.6	114.0	4.08	8.8
				2200	87.5	6.16	66.5	106.8	4.16	8.1
	18.0	6.2	14.3	1800	87.7	6.22	66.5	115.1	4.13	9.1
				2200	89.8	6.22	68.6	107.8	4.23	8.3
80	9.0	1.6	3.8	1800	88.0	6.19	66.9	115.3	4.17	9.6
				2200	90.0	6.15	69.0	107.9	4.29	8.9
	13.5	3.8	8.7	1800	90.1	6.27	68.7	116.3	4.21	9.9
				2200	92.2	6.20	71.1	108.8	4.36	9.1
	18.0	6.0	13.8	1800	92.8	6.34	71.2	117.8	4.29	10.2
				2200	95.2	6.27	73.8	110.0	4.45	9.4
90	9.0	1.6	3.7	1800	93.4	6.31	71.9	118.1	4.34	10.7
				2200	95.7	6.22	74.5	110.3	4.51	9.9
	13.5	3.6	8.4	1800	94.7	6.38	72.9	118.7	4.35	11.1
				2200	97.0	6.24	75.7	110.8	4.55	10.2
	18.0	5.7	13.3	1800	97.9	6.46	75.9	120.4	4.44	11.4
				2200	100.5	6.31	79.0	112.3	4.67	10.6
100	9.0	1.5	3.5							
	13.5	3.5	8.1							
	18.0	5.5	12.8							
110	9.0	1.5	3.4	Operation not recommended						
	13.5	3.4	7.8							
	18.0	5.3	12.3							
120	9.0	1.4	3.3							
	13.5	3.2	7.5							
	18.0	5.1	11.8							

EWT °F	Flow gpm	WPD PSI	WPD FT	COOLING - EAT 80/67 °F Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
20	9.0	0.8	1.9	Operation not recommended							
	11.5	2.0	4.6								
	14.0	3.2	7.3								
30	9.0	0.8	1.8	1400	46.9	29.7	0.63	1.88	53.4	25.0	-
				1600	47.8	32.5	0.68	1.96	54.5	24.4	-
	11.5	1.9	4.5	1400	47.6	29.9	0.63	1.79	53.7	26.6	-
				1600	48.4	32.7	0.68	1.88	54.8	25.7	-
	14.0	3.1	7.1	1400	47.8	29.9	0.63	1.73	53.7	27.6	-
				1600	49.0	32.7	0.67	1.82	55.2	26.9	-
40	9.0	0.8	1.8	1400	51.0	33.0	0.65	2.15	58.4	23.8	-
				1600	52.0	36.1	0.69	2.24	59.7	23.3	-
	11.5	1.9	4.3	1400	51.6	33.3	0.65	2.04	58.6	25.3	-
				1600	52.6	36.4	0.69	2.14	59.9	24.6	-
	14.0	3.0	6.9	1400	52.0	33.3	0.64	1.98	58.8	26.3	-
				1600	53.2	36.4	0.68	2.07	60.3	25.7	-
50	9.0	0.7	1.7	1400	55.2	36.2	0.66	2.27	62.9	24.3	-
				1600	56.3	39.4	0.70	2.41	64.5	23.3	-
	11.5	1.8	4.2	1400	55.7	36.5	0.66	2.22	63.3	25.1	-
				1600	56.8	39.8	0.70	2.36	64.9	24.1	-
	14.0	2.9	6.7	1400	56.3	36.9	0.66	2.18	63.7	25.8	1.7
				1600	57.4	40.1	0.70	2.32	65.3	24.7	1.9
60	9.0	0.7	1.7	1400	52.7	35.4	0.67	2.54	61.3	20.8	3.0
				1600	54.0	38.5	0.71	2.70	63.2	20.0	3.1
	11.5	1.8	4.1	1400	53.2	35.7	0.67	2.49	61.7	21.4	2.8
				1600	54.6	38.8	0.71	2.64	63.6	20.7	3.0
	14.0	2.8	6.5	1400	53.7	36.1	0.67	2.44	62.1	22.0	2.6
				1600	55.1	39.2	0.71	2.60	64.0	21.2	2.8
70	9.0	1.6	1.6	1400	50.2	34.6	0.69	2.81	59.8	17.9	3.8
				1600	52.3	38.2	0.73	3.08	62.8	17.0	4.0
	11.5	2.6	3.9	1400	50.7	34.9	0.69	2.75	60.1	18.4	3.5
				1600	52.3	37.9	0.72	2.93	62.3	17.9	3.8
	14.0	3.6	6.2	1400	51.2	35.2	0.69	2.71	60.4	18.9	3.2
				1600	52.8	38.3	0.73	2.88	62.6	18.3	3.6
80	9.0	0.7	1.6	1400	47.2	33.7	0.71	3.22	58.2	14.7	4.9
				1600	48.9	36.6	0.75	3.43	60.7	14.3	5.2
	11.5	1.6	3.8	1400	47.7	34.0	0.71	3.16	58.5	15.1	4.5
				1600	49.4	37.0	0.75	3.36	60.9	14.7	4.8
	14.0	2.6	6.0	1400	48.2	34.4	0.71	3.10	58.7	15.5	4.2
				1600	50.0	37.4	0.75	3.31	61.2	15.1	4.6
90	9.0	0.7	1.5	1400	44.2	32.9	0.74	3.63	56.6	12.2	6.4
				1600	46.2	35.7	0.77	3.87	59.4	11.9	6.7
	11.5	1.6	3.7	1400	44.7	33.1	0.74	3.56	56.9	12.6	5.7
				1600	46.6	36.1	0.77	3.79	59.5	12.3	6.2
	14.0	2.5	5.8	1400	45.7	34.1	0.75	3.65	58.2	12.5	5.4
				1600	47.1	36.4	0.77	3.73	59.8	12.6	6.5
100	9.0	0.6	1.5	1400	41.3	31.9	0.77	4.13	55.4	10.0	8.1
				1600	43.3	34.7	0.80	4.40	58.3	9.8	8.6
	11.5	1.5	3.5	1400	41.7	32.2	0.77	4.05	55.5	10.3	7.8
				1600	43.7	35.0	0.80	4.31	58.4	10.1	8.4
	14.0	2.4	5.6	1400	42.1	32.6	0.77	3.97	55.7	10.6	7.4
				1600	44.2	35.4	0.80	4.24	58.6	10.4	8.2
110	9.0	0.6	1.4	1400	38.3	30.9	0.81	4.63	54.1	8.3	10.1
				1600	40.4	33.6	0.83	4.93	57.2	8.2	10.9
	11.5	1.5	3.4	1400	38.8	31.2	0.81	4.53	54.2	8.6	9.7
				1600	40.8	33.9	0.83	4.83	57.3	8.5	10.5
	14.0	2.3	5.4	1400	39.1	31.6	0.81	4.45	54.3	8.8	9.3
				1600	41.2	34.3	0.83	4.75	57.4	8.7	10.3
120	9.0	0.6	1.3	1400	33.6	30.0	0.90	5.65	52.8	5.9	13.0
				1600	34.3	32.8	0.96	5.78	54.0	5.9	13.5
	11.5	1.4	3.3	1400	34.0	30.3	0.89	5.34	52.2	6.4	12.2
				1600	34.6	32.9	0.95	5.48	53.3	6.3	13.1
	14.0	2.2	5.2	1400	34.3	30.3	0.88	5.17	51.9	6.6	11.3
				1600	35.0	32.9	0.94	5.33	53.2	6.6	12.5

Performance capacities shown in thousands of Btuh.

3/27/2020

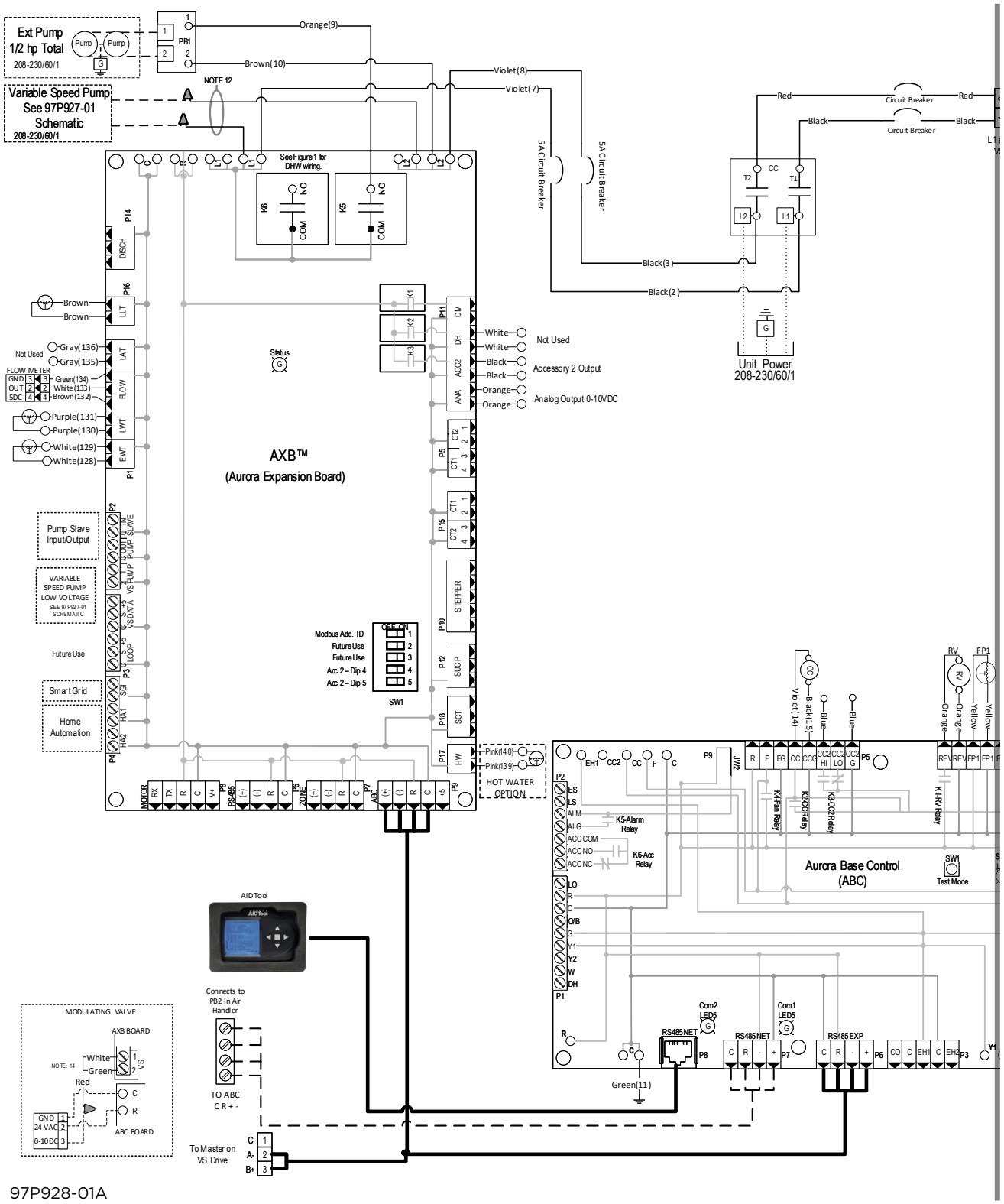
Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Compressor Section Wiring Schematics

Aurora Variable Speed Indoor Split



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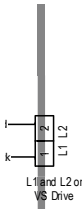
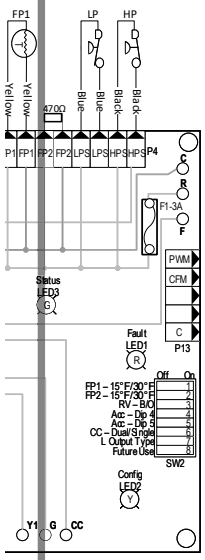
Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split



Legend

	Factory Low voltage wiring		Thermistor
	Factory Line voltage wiring	G	Light emitting diode - Green
	Field low voltage wiring		Relay coil
	Field line voltage wiring		Capacitor w/ bleed resistor
	Optional block		Switch - Condensate overflow
	DC Voltage PCB traces		Switch - High pressure
	Junction		Switch - Low pressure
	Quick connect terminal	2 3 1 P	Polarized connector
	Wire nut		Current Transducer (CT)
L1	Field wire lug	Blue	Color identification tape on wire.
	Ground		
	Relay Contacts- N.O., N.C.		
	Fuse		
CC -	Compressor Contactor	PB1, PB2 -	Power blocks
CO -	Condensate overflow sensor	PS -	Power strip
K6 -	DHW pump relay	RV -	Reversing Valve coil
K5 -	Loop pump relay	SW1 -	DIP package 5 position AXB
CR3 -	PSC Fan Speed Relay	SW1 -	TEST MODE ABC Board
CR4 -	PSC Fan Power Relay	SW2 -	DIP package 8 position ABC Board
CS -	Compressor Solenoid	TS -	Thermal limit switch
F1 and F2 -	Fuses	HWL -	Hot water limit sensor
HE -	Heater element	SC -	Start Contactor
HP -	High pressure switch	SR -	Start Relay
ER1 to ER4 -	Aux heat stage relays	WCL -	Water Coil Limit Sensor
LP -	Low pressure switch		



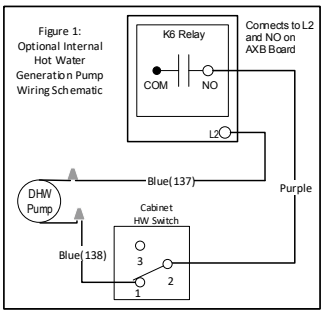


Figure 1: Optional Internal Hot Water Generation Pump Wiring Schematic

Notes

4 – Variable speed pump low voltage harness provided with Variable Speed Flow Center.
5 – Low voltage wiring CLASS 2.
7 - EEV board JUMPER must be removed.
10 – Communication cable routed through Ferrite Toroid four times.
11 – Compressor power cable routed through Ferrite Toroid three times.
12 – Variable speed pump power wires to connect the pump to L1 and L2 on the AXB board are provided with Variable Speed Flow Center.
14 - Wiring harness supplied with valve.

Contractor: _____ P.O.: _____

Engineer: _____

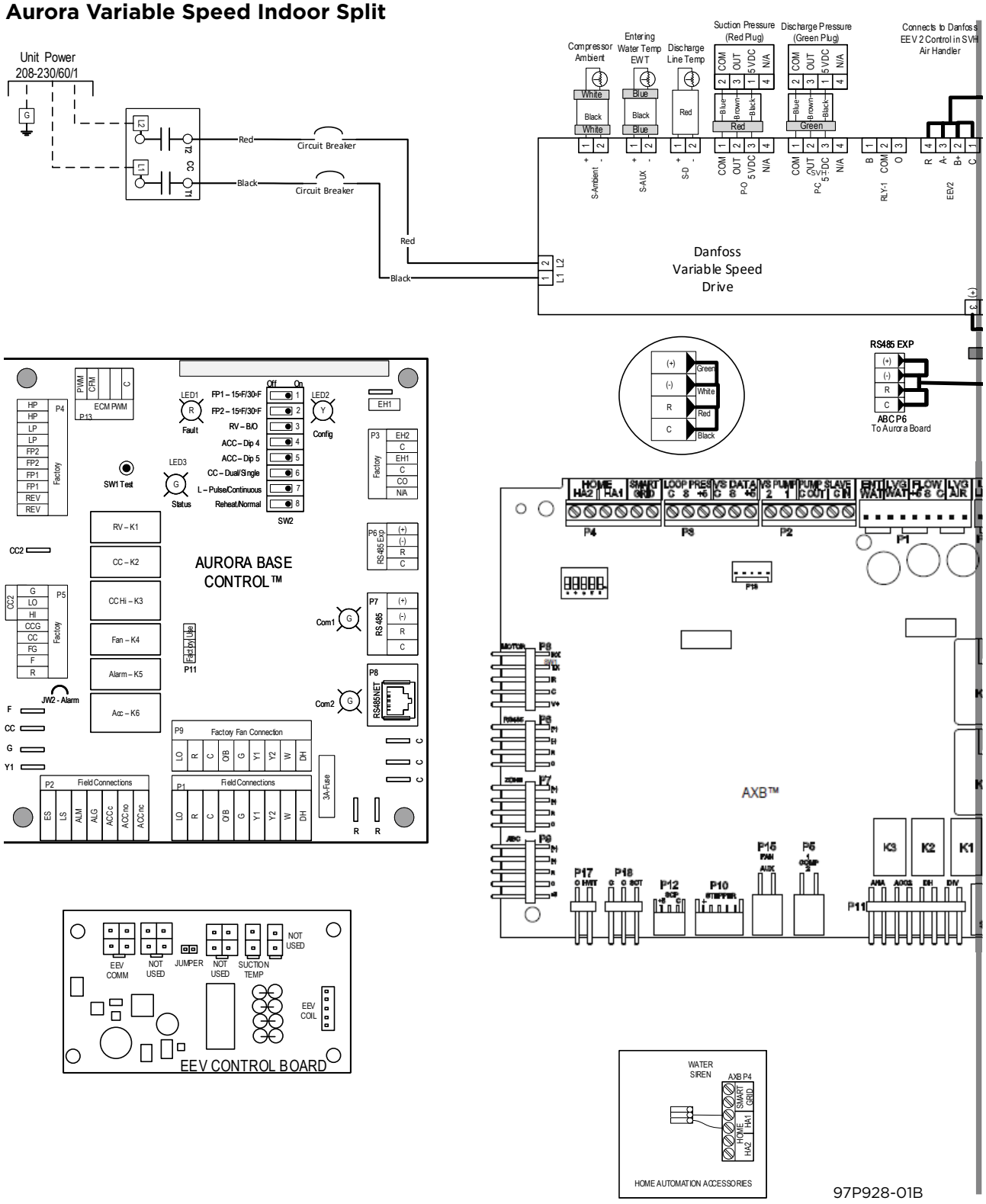
Project Name: _____ Unit Tag: _____

7 Series 700R11
033, 042, 050 ton 60Hz

WaterFurnace
Smarter from the Ground Up™

Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split



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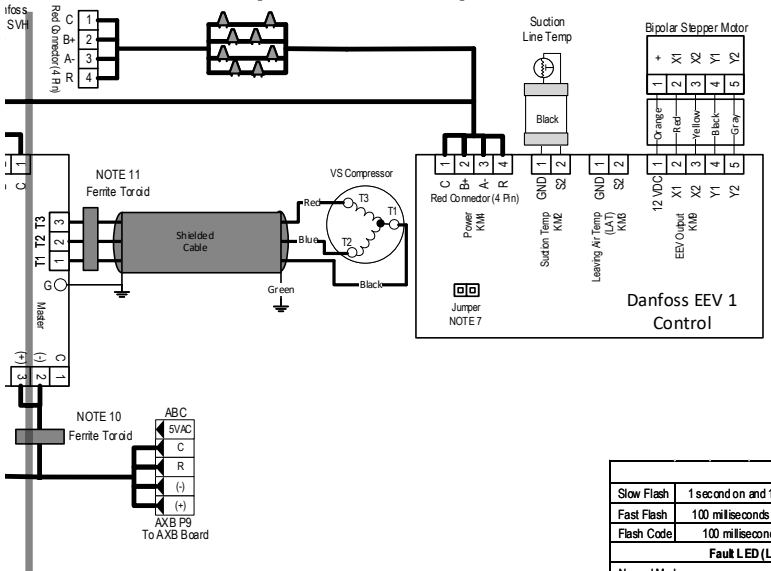
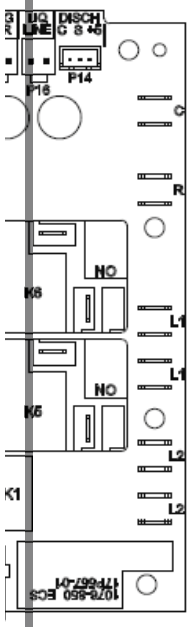
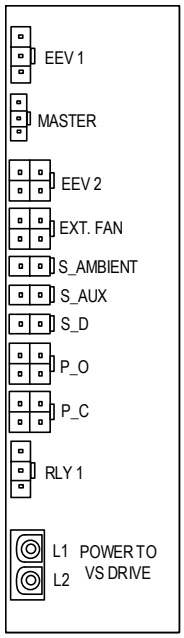
Compressor Section Wiring Schematics cont.

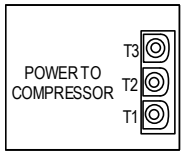
Aurora Variable Speed Indoor Split







VARIABLE SPEED DRIVE END VIEWS



Aurora LED Flash Codes			
Slow Flash	1 second on and 1 second off		
Fast Flash	100 milliseconds on and 100 milliseconds off		
Flash Code	100 milliseconds on and 400 milliseconds off with a 2 second pause before repeating		
Fault LED (LED 1, Red)		**Random Start Delay (Alternating Colors)**	
Normal Mode	OFF	Status LED (LED1, Green)	Fast Flash
Input Fault Lockout	Flash Code 1	Configuration LED (LED 2, Yellow)	Fast Flash
High Pressure Lockout	Flash Code 2	Fault LED (LED 3, Red)	Fast Flash
Low Pressure Lockout	Flash Code 3	**Configuration LED (LED 2, Yellow)**	
Freeze Detection- FP2	Flash Code 4	No Software Overide	OFF
Freeze Detection - FP1	Flash Code 5	DIP Switch Overide	Slow Flash
Reserved	Flash Code 6	**Status LED (LED 3, Green)**	
Condensate Overflow Lockout	Flash Code 7	Normal Mode	ON
Over/Under Voltage Shutdown	Flash Code 8	Control is Non - Functional	OFF
Future Use	Flash Code 9	Test Mode	Slow Flash
		Lockout Active	Fast Flash
Fault- FP1 and FP2 Sensor Error	Flash Code 11	Dehumidification Mode	Flash Code 2
Future Use	Flash Code 12	Future Use	Flash Code 3
Non-Critical AXB Sensor Error	Flash Code 13	Future Use	Flash Code 4
Critical AXB Sensor Error	Flash Code 14	Load Shed	Flash Code 5
Alarm - Hot Water	Flash Code 15	ESD	Flash Code 6
Fault Variable Speed Pump	Flash Code 16	Future Use	Flash Code 7
Future Use	Flash Code 17	**Fault LED (LED 1, Red) Cont.**	
Non-Critical Communication Error	Flash Code 18	Safe Mode - Ambient Temp Sensor	Flash Code 49
Fault - Critical Communication Error	Flash Code 19	Fault - Discharge Temperature Sensor	Flash Code 51
Alarm - Low Loop Pressure	Flash Code 21	Fault - Suction Pressure Sensor	Flash Code 52
Fault - Communication ECM Fan Motor Error	Flash Code 22	Fault - Condensing Pressure Sensor	Flash Code 53
Alarm - Home Automation 1	Flash Code 23	Fault - Low Supply Voltage	Flash Code 54
Alarm - Home Automation 2	Flash Code 24	Fault - Compressor Out of Envelope	Flash Code 55
Fault - EEV Error	Flash Code 25	Fault - Over Current	Flash Code 56
Derate - Drive Temperature	Flash Code 41	Fault - Over/Under Voltage	Flash Code 57
Derate - High Discharge Temperature	Flash Code 42	Fault - High Drive Temperature	Flash Code 58
Derate - Low Suction Temperature	Flash Code 43	Fault - Drive Internal Error MOC/AOC	Flash Code 59
Derate - Low Condensing Pressure	Flash Code 44	Fault - Multiple Safe Modes	Flash Code 61
Derate - High Condensing Pressure	Flash Code 45	EEV2 Fault - Loss of Charge	Flash Code 71
Derate - Outer Power Limit	Flash Code 46	EEV2 Safe Mode - Suc Temp Sensor	Flash Code 72
Safe Mode - EEV (Indoor) Communication	Flash Code 47	EEV2 Safe Mode - LAT Temp Sensor	Flash Code 73
Safe Mode - EEV (Outdoor) Communication	Flash Code 48	EEV2 Safe Mode - Max Op Pressure	Flash Code 74
		EEV1 Fault - Loss of Charge	Flash Code 75
		EEV1Safe Mode - Suction Temp Sensor	Flash Code 76
		EEV1Safe Mode - LAT Temp Sensor	Flash Code 77
		EEV1 Safe Mode - Max Op Pressure	Flash Code 78

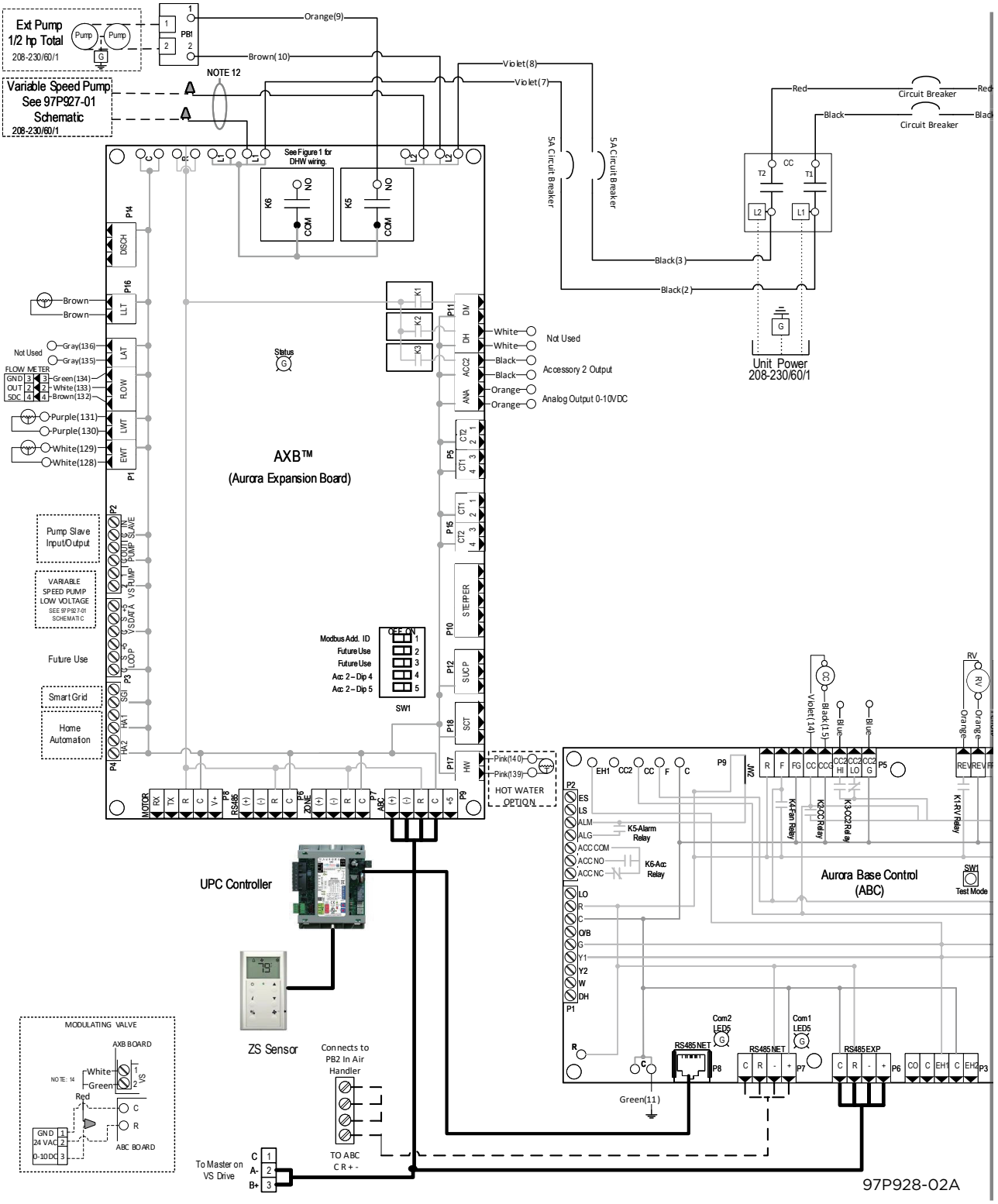
AXB Accessory 2 DIP Settings		
SW1-4	**SW1-5**	**DESCRIPTION**
ON	ON	Cycles with Blower
OFF	ON	Cycles with CC first stage compressor or compressor spd 1-12
ON	OFF	Cycles with CC2 second stage of compressor or comp spd 7-12
OFF	OFF	Cycles with DH from ABC board

ABC SW2 Accessory Relay		
DESCRIPTION	**SW2-4**	**SW2-5**
Cycle with Blower	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Cycle with Comm. T-stat Hum Cmd	OFF	ON

97P928-01B

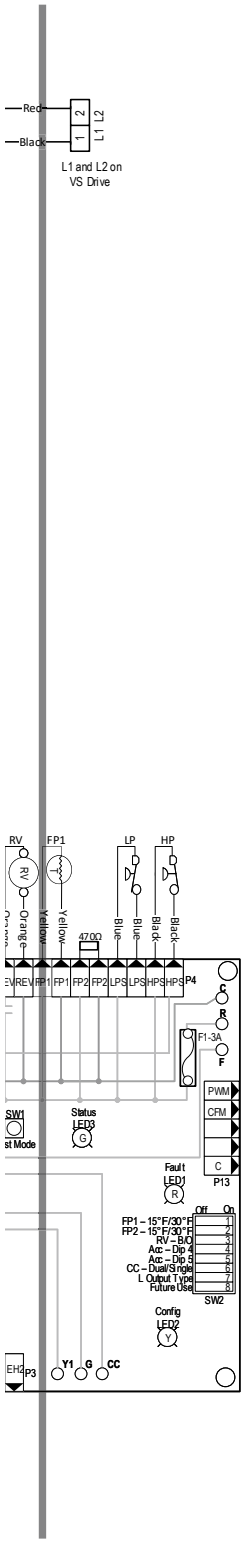
Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split with UPC



Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split with UPC



Legend

	Factory Low voltage wiring	T	Thermistor
	Factory Line voltage wiring	G	Light emitting diode - Green
	Field low voltage wiring		Relay coil
	Field line voltage wiring		Capacitor w/ bleed resistor
	Optional block		Switch - Condensate overflow
	DC Voltage PCB traces		Switch - High pressure
	Junction		Switch - Low pressure
	Quick connect terminal	2 3 1 P	Polarized connector
L1	Wire nut / Field wire lug		Current Transducer (CT)
	Ground	Blue	Color identification tape on wire.
	Relay Contacts- N.O., N.C.		
	Fuse		

CC -	Compressor Contactor	PB1, PB2 -	Power blocks
CO -	Condensate overflow sensor	PS -	Power strip
K6 -	DHW pump relay	RV -	Reversing Valve coil
K5 -	Loop pump relay	SW1 -	DIP package 5 position AXB
CR3 -	PSC Fan Speed Relay	SW1 -	TEST MODE ABC Board
CR4 -	PSC Fan Power Relay	SW2 -	DIP package 8 position ABC Board
CS -	Compressor Solenoid	TS -	Thermal limit switch
F1 and F2 -	Fuses	HWL -	Hot water limit sensor
HE -	Heater element	SC -	Start Contactor
HP -	High pressure switch	SR -	Start Relay
ER1 to ER4 -	Aux heat stage relays	WCL -	Water Coil Limit Sensor
LP -	Low pressure switch		

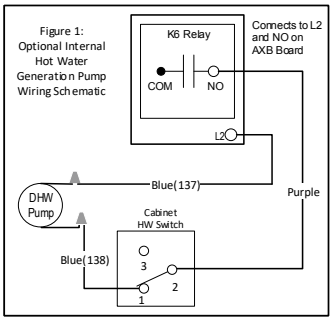


Figure 1: Optional Internal Hot Water Generation Pump Wiring Schematic

Notes

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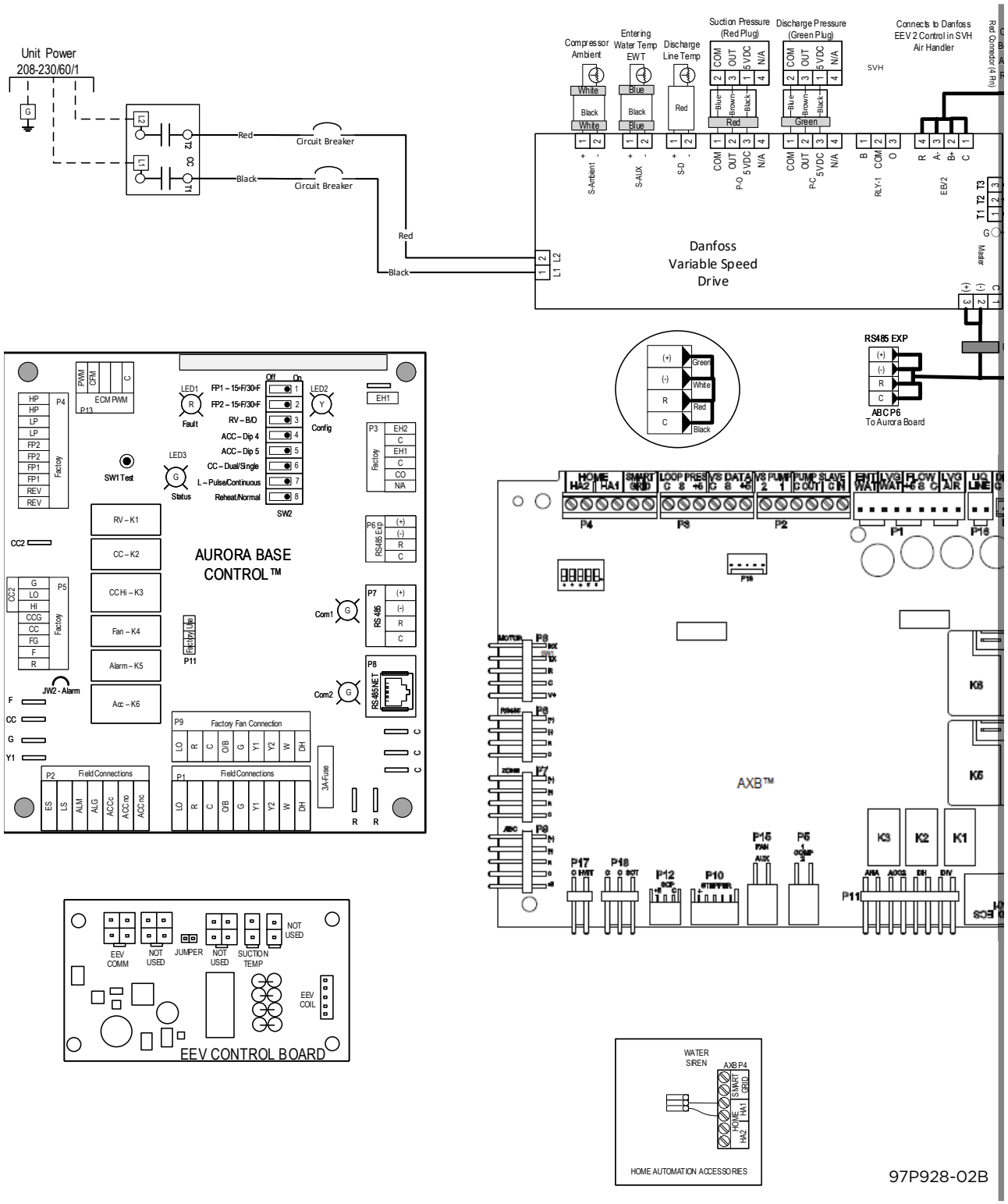
7 - EEV board JUMPER must be removed.
10 – Communication cable routed through Ferrite Toroid four times.
11 – Compressor power cable routed through Ferrite Toroid three times.
12 – Variable speed pump power wires to connect the pump to L1 and L2 on the AXB board are provided with Variable Speed Flow Center.
14 - Wiring harness supplied with valve.

97P928-02A

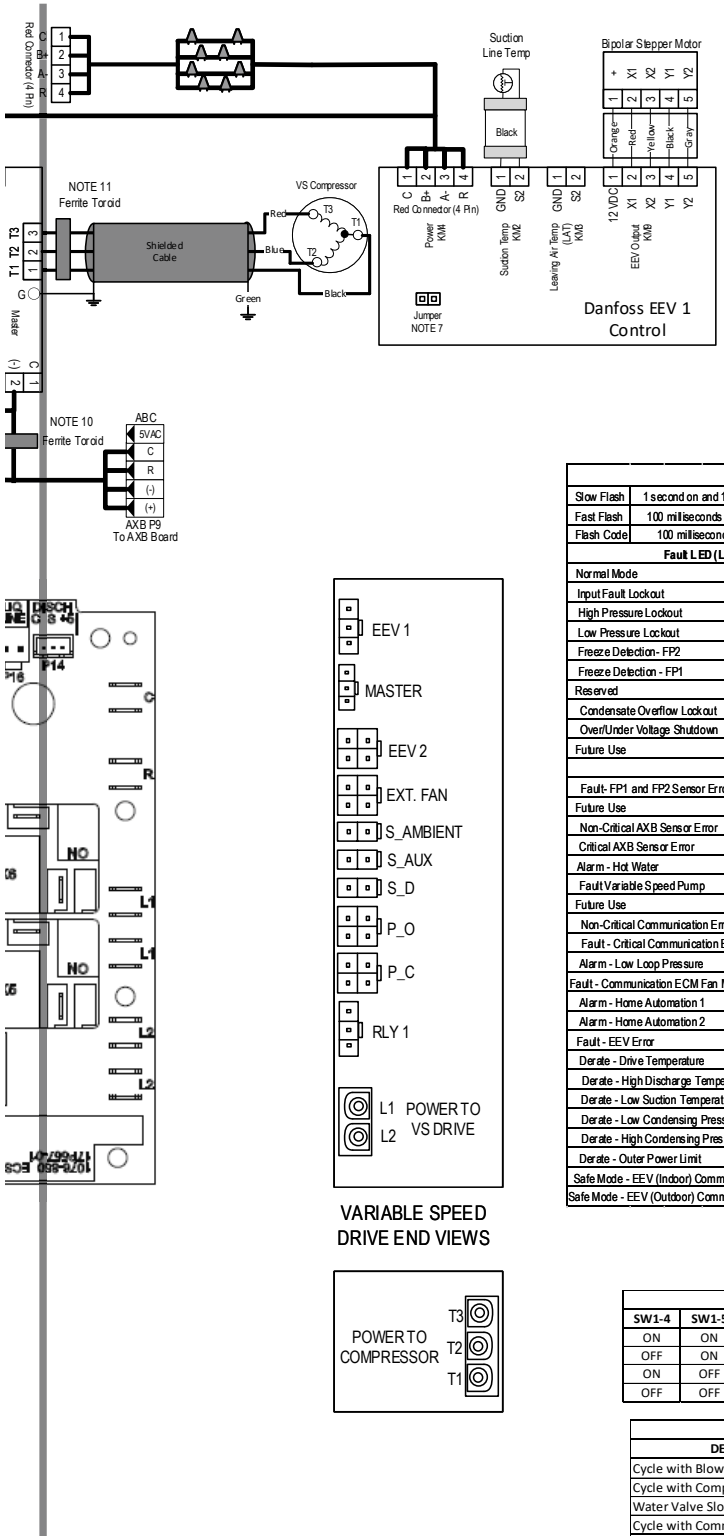
Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split



Compressor Section Wiring Schematics cont.

Aurora Variable Speed Indoor Split



Aurora LED Flash Codes			
Slow Flash	1 second on and 1 second off		
Fast Flash	100 milliseconds on and 100 milliseconds off		
Flash Code	100 milliseconds on and 400 milliseconds off with a 2 second pause before repeating		
Fault LED (LED 1, Red)		**Random Start Delay (Alternating Colors)**	
Normal Mode	OFF	Status LED (LED1, Green)	Fast Flash
Input Fault Lockout	Flash Code 1	Configuration LED (LED2, Yellow)	Fast Flash
High Pressure Lockout	Flash Code 2	Fault LED (LED 3, Red)	Fast Flash
Low Pressure Lockout	Flash Code 3	**Configuration LED (LED 2, Yellow)**	
Freeze Detection- FP2	Flash Code 4	No Software Overide	OFF
Freeze Detection - FP1	Flash Code 5	DIP Switch Overide	Slow Flash
Reserved	Flash Code 6	**Status LED (LED 3, Green)**	
Condensate Overflow Lockout	Flash Code 7	Normal Mode	ON
Over/Under Voltage Shutdown	Flash Code 8	Control is Non - Functional	OFF
Future Use	Flash Code 9	Test Mode	Slow Flash
		Lockout Active	Fast Flash
Fault- FP1 and FP2 Sensor Error	Flash Code 11	Dehumidification Mode	Flash Code 2
Future Use	Flash Code 12	Future Use	Flash Code 3
Non-Critical AXB Sensor Error	Flash Code 13	Future Use	Flash Code 4
Critical AXB Sensor Error	Flash Code 14	Load Shed	Flash Code 5
Alarm - Hot Water	Flash Code 15	ESD	Flash Code 6
Fault Variable Speed Pump	Flash Code 16	Future Use	Flash Code 7
Future Use	Flash Code 17	**Fault LED (LED 1, Red) Cont.**	
Non-Critical Communication Error	Flash Code 18	Safe Mode - Ambient Temp Sensor	Flash Code 49
Fault - Critical Communication Error	Flash Code 19	Fault - Discharge Temperature Sensor	Flash Code 51
Alarm - Low Loop Pressure	Flash Code 21	Fault - Suction Pressure Sensor	Flash Code 52
Fault - Communication ECM Fan Motor Error	Flash Code 22	Fault - Condensing Pressure Sensor	Flash Code 53
Alarm - Home Automation 1	Flash Code 23	Fault - Low Supply Voltage	Flash Code 54
Alarm - Home Automation 2	Flash Code 24	Fault - Compressor Out of Envelope	Flash Code 55
Fault - EEV Error	Flash Code 25	Fault - Over Current	Flash Code 56
Derate - Drive Temperature	Flash Code 41	Fault - Over/Under Voltage	Flash Code 57
Derate - High Discharge Temperature	Flash Code 42	Fault - High Drive Temperature	Flash Code 58
Derate - Low Suction Temperature	Flash Code 43	Fault - Drive Internal Error MOC/AOC	Flash Code 59
Derate - Low Condensing Pressure	Flash Code 44	Fault - Multiple Safe Modes	Flash Code 61
Derate - High Condensing Pressure	Flash Code 45	EEV2 Fault - Loss of Charge	Flash Code 71
Derate - Outer Power Limit	Flash Code 46	EEV2 Safe Mode - Suc Temp Sensor	Flash Code 72
Safe Mode - EEV (Indoor) Communication	Flash Code 47	EEV2 Safe Mode - LAT Temp Sensor	Flash Code 73
Safe Mode - EEV (Outdoor) Communication	Flash Code 48	EEV2 Safe Mode - Max Op Pressure	Flash Code 74
		EEV1 Fault - Loss of Charge	Flash Code 75
		EEV1Safe Mode - Suction Temp Sensor	Flash Code 76
		EEV1Safe Mode - LAT Temp Sensor	Flash Code 77
		EEV1 Safe Mode - Max Op Pressure	Flash Code 78

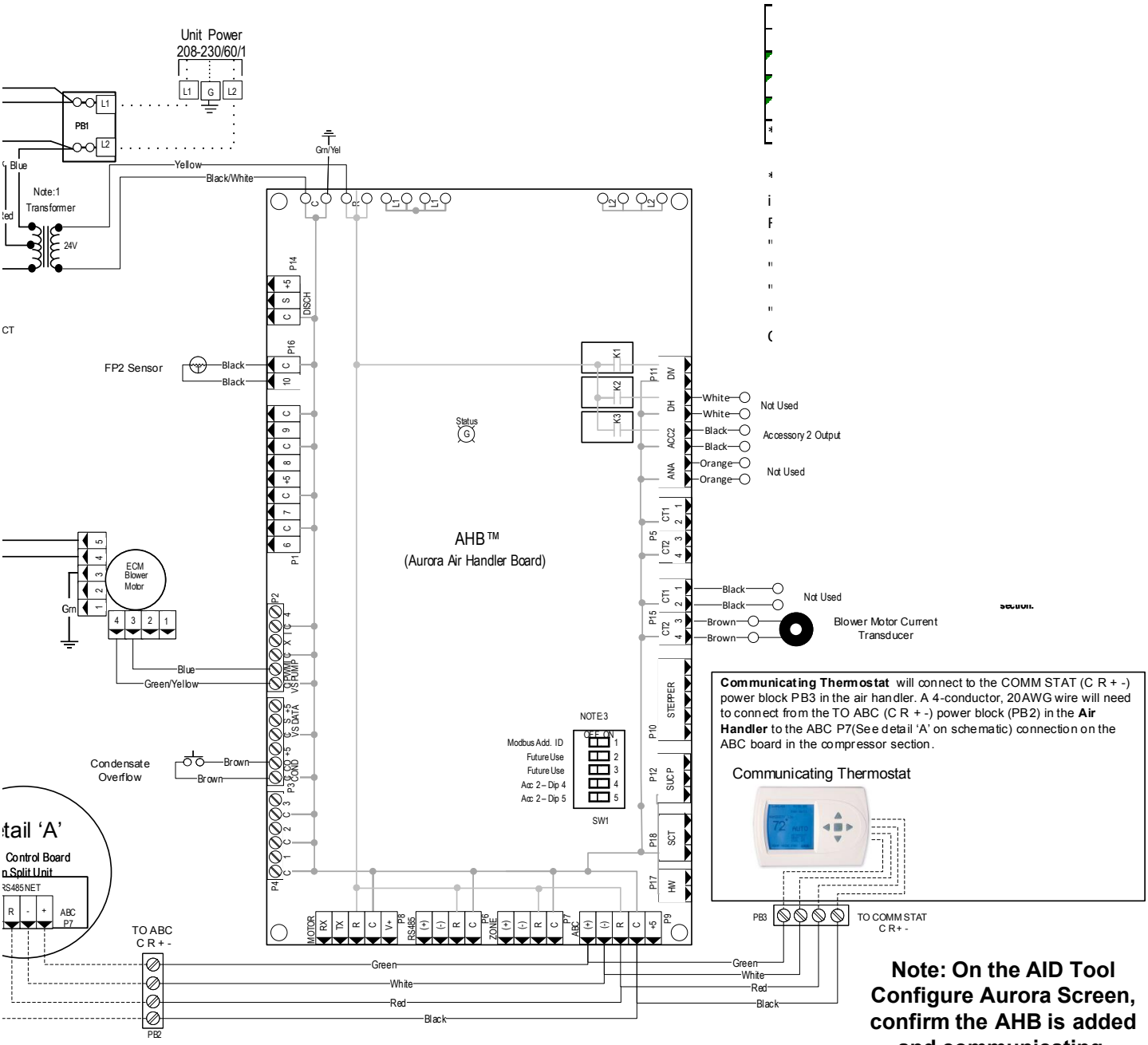
AXB Accessory 2 DIP Settings		
SW1-4	**SW1-5**	**DESCRIPTION**
ON	ON	Cycles with Blower
OFF	ON	Cycles with CC first stage compressor or compressor spd 1-12
ON	OFF	Cycles with CC2 second stage of compressor or comp spd 7-12
OFF	OFF	Cycles with DH from ABC board

ABC SW2 Accessory Relay		
DESCRIPTION	**SW2-4**	**SW2-5**
Cycle with Blower	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Cycle with Comm. T-stat Hum Cmd	OFF	ON

97P928-02B

Air Handler Wiring Schematics

SVH Air Handler: No Electric Heat



Note: On the AID Tool Configure Aurora Screen, confirm the AHB is added and communicating.

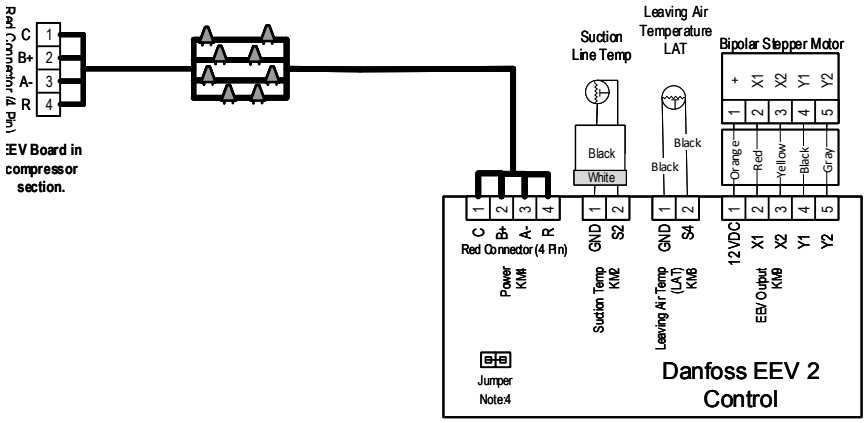
Air Handler Wiring Schematics cont.

97P929-01 1/28/2020

7 SeriesAir Handler Air Flow													
Model	**Max ESP**	**Speed 1**	**Speed 2**	**Speed 3**	**Speed 4**	**Speed 5**	**Speed 6**	**Speed 7**	**Speed 8**	**Speed 9**	**Speed 10**	**Speed 11**	**Speed 12**
033	0.75	**250**	**400 G**	**550 L**	**650**	**750**	**850**	1000	1150	1250 H	1350 Aux	1450	1600
042	0.75	**250**	**450 G**	**650 L**	**800**	**950**	**1050**	1200	1350	1450	1600 H	1750 Aux	1850
050	0.75	**300**	**550 G**	**800 L**	**1000**	**1150**	**1300**	1450	1600	1750	1900 H	2050 Aux	2200
**VS Compressor Speed				1-2	3-4		5-6	7-8		9-10	11-12		

11/29/2018

** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.
Factory settings are at recommended G, L , H and Aux positions
"G" may be located anywhere within the airflow table.
"L" setting should be located within the boldface CFM range
"H" setting MUST be located within the shaded CFM range
"Aux" setting MUST be equal to or greater than "H" setting
CFM is controlled within 5% up to the maximum ESP



Notes:

1 – To operate in 208V mode replace the blue transformer wire connected to PB1-L2 with red transformer wire.

2 – Low voltage wiring CLASS 2.

3 – DIP switch 1 on SW1 must be set in the OFF position.

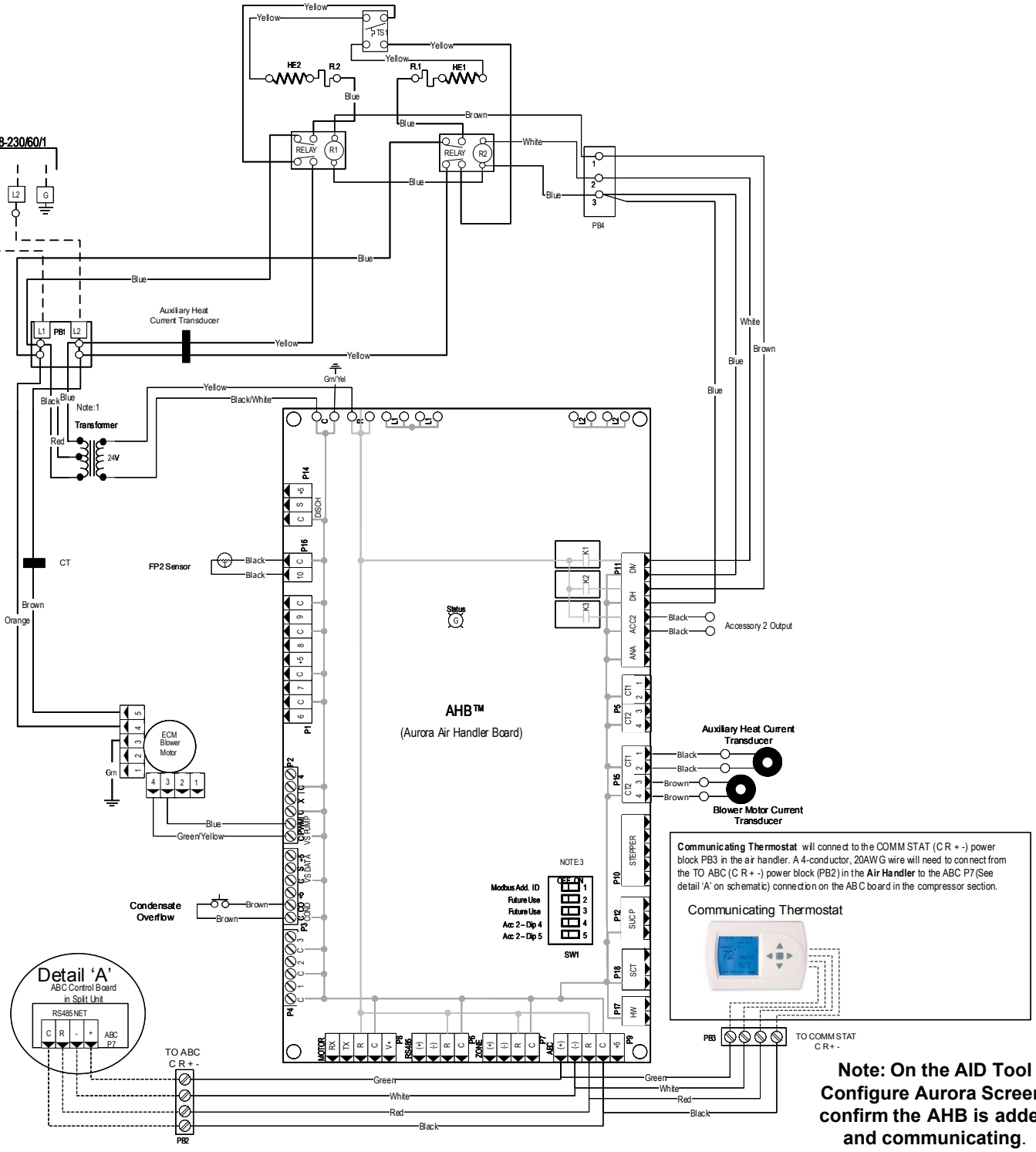
4 – Jumper must be in place on Air Handler EEV. DO NOT REMOVE.

Legend

———	Factory Low voltage wiring	G	Light emitting diode - Gr
———	Factory Line voltage wiring	FL	Fused Limit
- - - - -	Field low voltage wiring		Breaker
— — —	Field line voltage wiring	P 1 2 3	Polarized connector
- - - - -	Optional block	PB -	Power block
———	DC Voltage PCB traces	SW1 -	DIP package 4 position
●	Internal junction	HE -	Heater element
○	Quick connect terminal		Current Transducer
TS	Thermal Limit Switch		
L1	Field wire lug		
⏚	Ground		
	N.O., N.C.		

Air Handler Wiring Schematics cont.

SVH Air Handler: 10kW Electric Heat



Note: On the AID Tool Configure Aurora Screen, confirm the AHB is added and communicating.

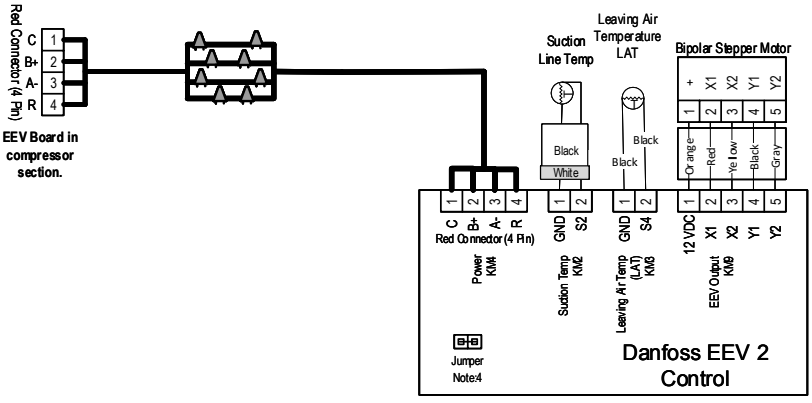
Air Handler Wiring Schematics cont.

97P929-02 1/28/2020

7 SeriesAir Handler Air Flow													
Model	**Max ESP**	**Speed 1**	**Speed 2**	**Speed 3**	**Speed 4**	**Speed 5**	**Speed 6**	**Speed 7**	**Speed 8**	**Speed 9**	**Speed 10**	**Speed 11**	**Speed 12**
033	0.75	**250**	**400 G**	**550 L**	**650**	**750**	**850**	1000	1150	1250 H	1350 Aux	1450	1600
042	0.75	**250**	**450 G**	**650 L**	**800**	**950**	**1050**	1200	1350	1450	1600 H	1750 Aux	1850
050	0.75	**300**	**550 G**	**800 L**	**1000**	**1150**	**1300**	1450	1600	1750	1900 H	2050 Aux	2200
**VS Compressor Speed				1-2	3-4		5-6	7-8		9-10	11-12		

11/29/2018

** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.
Factory settings are at recommended G, L , H and Aux positions
"G" may be located anywhere within the airflow table.
"L" setting should be located within the boldface CFM range
"H" setting MUST be located within the shaded CFM range
"Aux" setting MUST be equal to or greater than "H" setting
CFM is controlled within 5% up to the maximum ESP



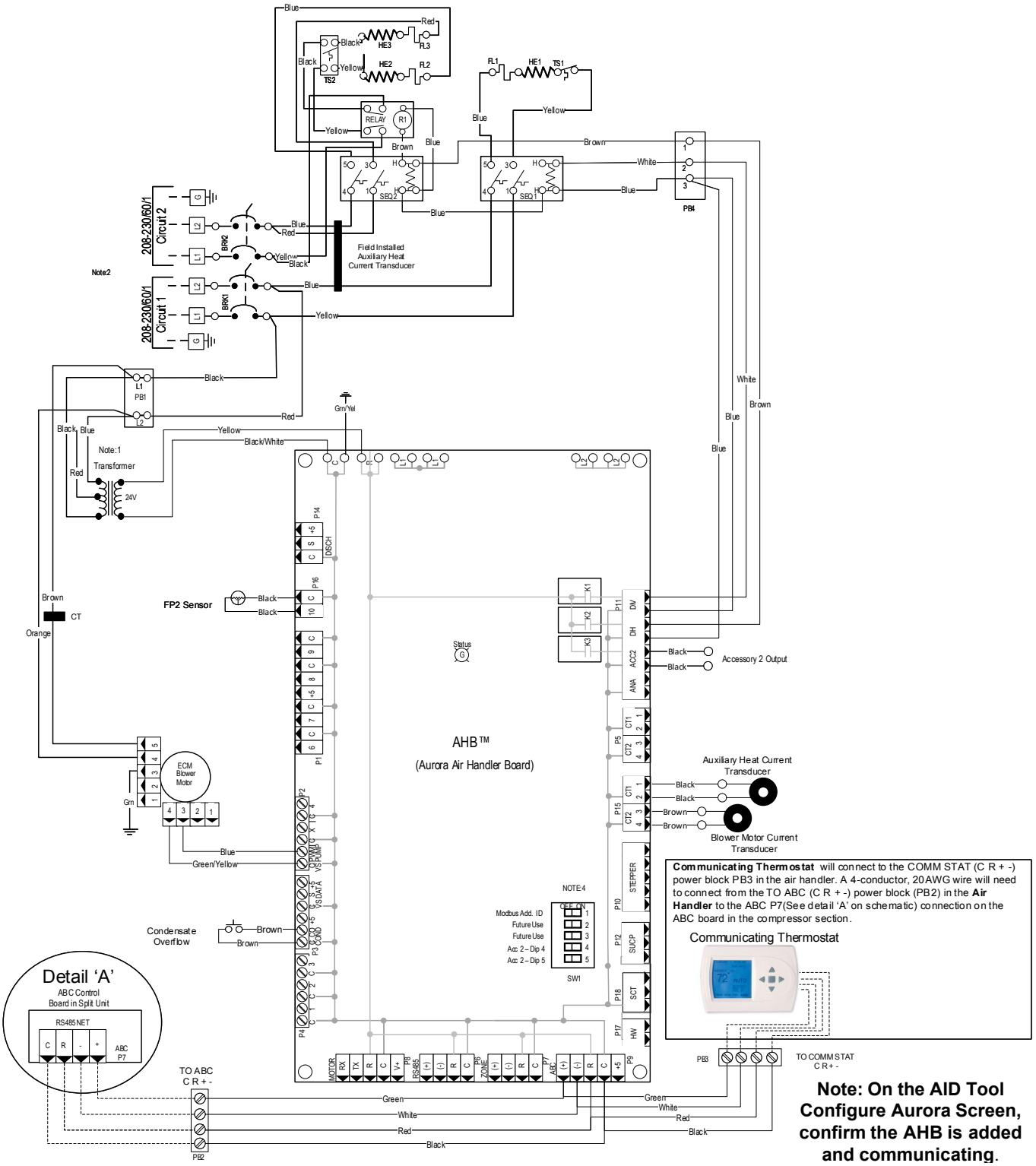
Notes:
1 – To operate in 208V mode replace the blue transformer wire connected to PB1-L2 with red transformer wire.
2 – Low voltage wiring CLASS 2.
3 – DIP switch 1 on SW1 must be set in the OFF position.
4 – Jumper must be in place on Air Handler EEV. DO NOT REMOVE.

Legend

———	Factory Low voltage wiring	G	Light emitting diode - Green
———	Factory Line voltage wiring		
- - - - -	Field low voltage wiring	FL	Fused Limit
— — —	Field line voltage wiring		
-·-·-·-	Optional block		
———	DC Voltage PCB traces		Breaker
●	Internal junction	P 1 2 3	Polarized connector
○	Quick connect terminal		
TS	Thermal Limit Switch	PB -	Power block
L1	Field wire lug	SW1 -	DIP package 4 position
⏚	Ground	HE -	Heater element
	N.O., N.C.	■	Current Transducer

Air Handler Wiring Schematics cont.

SVH Air Handler: 15kW Electric Heat



Communicating Thermostat will connect to the COMM STAT (C R + -) power block PB3 in the air handler. A 4-conductor, 20AWG wire will need to connect from the TO ABC (C R + -) power block (PB2) in the **Air Handler** to the ABC P7(See detail 'A' on schematic) connection on the ABC board in the compressor section.

Note: On the AID Tool Configure Aurora Screen, confirm the AHB is added and communicating.

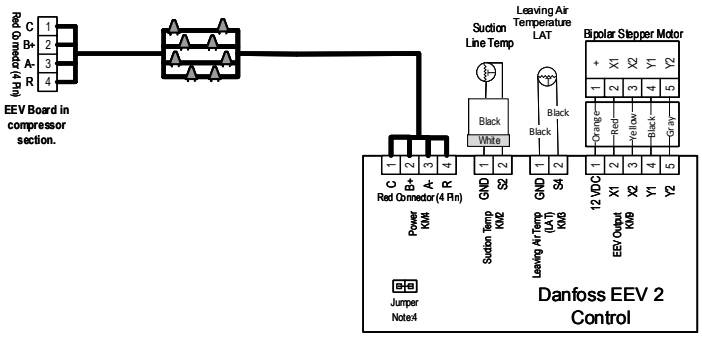
Air Handler Wiring Schematics cont.

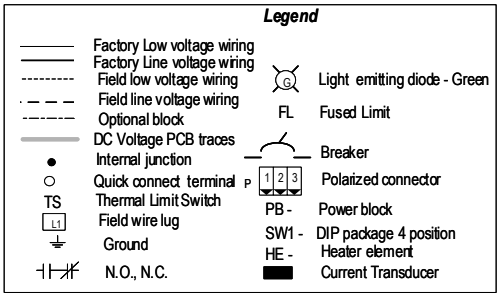
97P929-03 1/28/2020

7 SeriesAir Handler Air Flow													
Model	**Max ESP**	**Speed 1**	**Speed 2**	**Speed 3**	**Speed 4**	**Speed 5**	**Speed 6**	**Speed 7**	**Speed 8**	**Speed 9**	**Speed 10**	**Speed 11**	**Speed 12**
033	0.75	**250**	**400 G**	**550 L**	**650**	**750**	**850**	1000	1150	1250 H	1350 Aux	1450	1600
042	0.75	**250**	**450 G**	**650 L**	**800**	**950**	**1050**	1200	1350	1450	1600 H	1750 Aux	1850
050	0.75	**300**	**550 G**	**800 L**	**1000**	**1150**	**1300**	1450	1600	1750	1900 H	2050 Aux	2200
**VS Compressor Speed				1-2	3-4		5-6	7-8		9-10	11-12		

11/29/2018

** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.
Factory settings are at recommended G, L , H and Aux positions
"G" may be located anywhere within the airflow table.
"L" setting should be located within the boldface CFM range
"H" setting MUST be located within the shaded CFM range
"Aux" setting MUST be equal to or greater than "H" setting
CFM is controlled within 5% up to the maximum ESP





nect to the COMM STAT (C R + -)
conductor, 20 AWG wire will need

Notes:

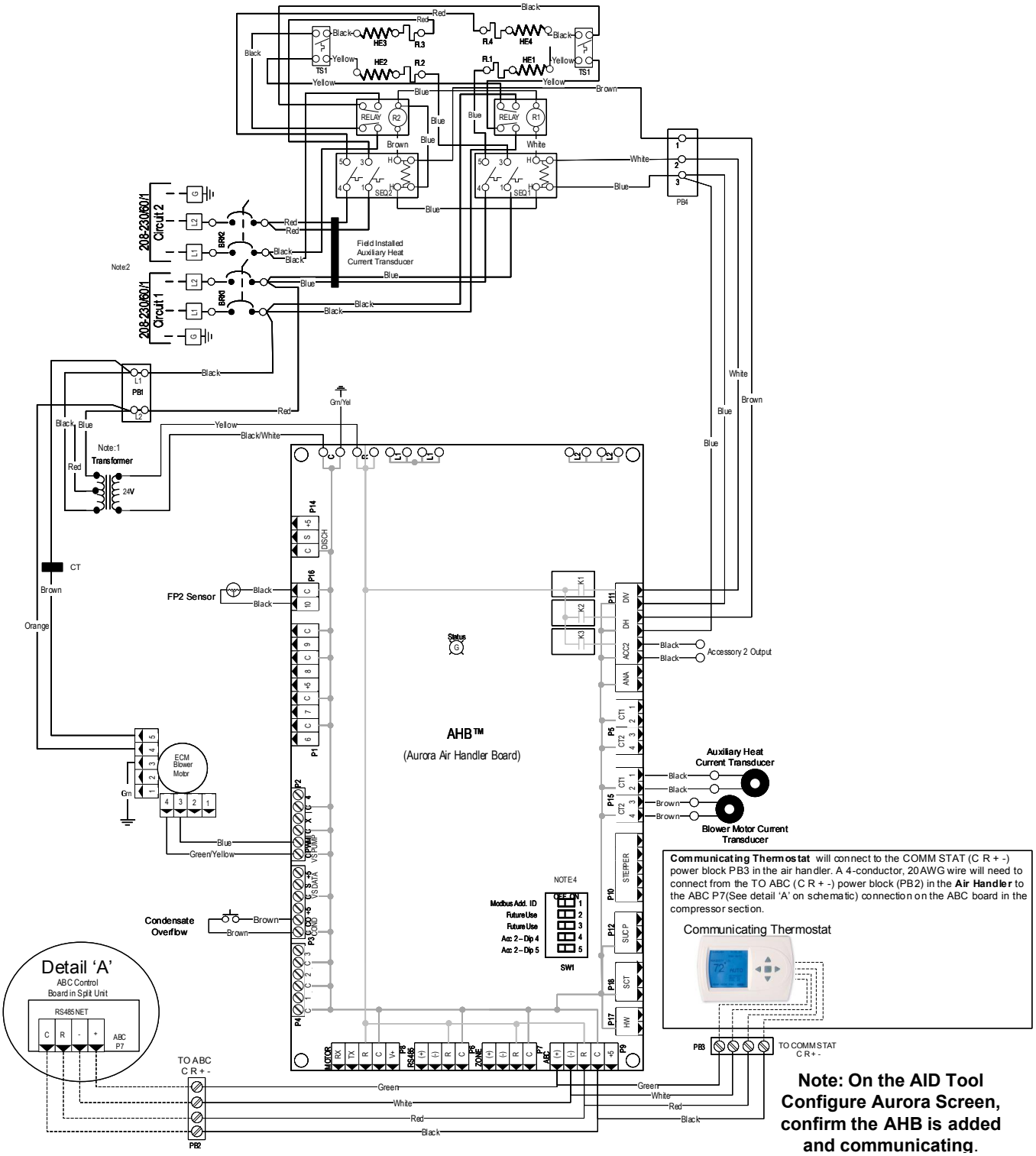
1 – To operate in 208V mode replace the blue transformer wire connected to PB1-L2 with red transformer wire.
2 – Use manufacturer's part number 19P592-01 (jumper bar assembly) when single source power is required.
3 – DIP switch 1 on SW1 must be set in the OFF position.
4 – Jumper must be in place on Air Handler EEV. DO NOT REMOVE.
5 – Low voltage wiring CLASS 2.

Dual Power Supply Connections

If two separate circuits are used to supply power to the auxiliary heat kit, the Installer will need to verify that each leg of the auxiliary heat circuit breakers are wired from the power supply correctly in order for the electric heat kit to operate properly. This can be done by measuring the supply side voltage of the auxiliary heat circuit breakers. Put a voltmeter on the L2 side of Circuit Breaker One and on the L2 side of Circuit Breaker Two. The voltmeter should read approximately 0 volts. If the meter reads high voltage, the auxiliary heat breakers need to be rewired so that breakers in the auxiliary heat kit match the wiring of the Disconnect Panel breakers. Meaning, L1 and L2 from one breaker in the disconnect panel must connect to L1 and L2 at one of the auxiliary heat circuit breakers and L1 and L2 from the other breaker in the disconnect panel must connect to L1 and L2 of the other auxiliary heat circuit breaker, making sure that the L1 and L2 from each disconnect breaker matches the L1 and L2 at each of the auxiliary heat breakers.

Air Handler Wiring Schematics cont.

SVH Air Handler: 20kW Electric Heat



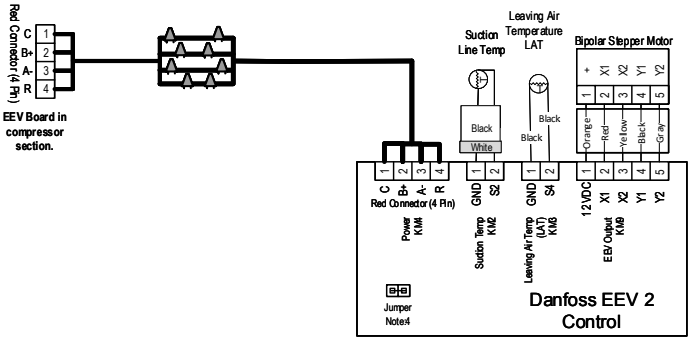
Air Handler Wiring Schematics cont.

97P929-04 1/28/2020

7 SeriesAir Handler Air Flow													
Model	**Max ESP**	**Speed 1**	**Speed 2**	**Speed 3**	**Speed 4**	**Speed 5**	**Speed 6**	**Speed 7**	**Speed 8**	**Speed 9**	**Speed 10**	**Speed 11**	**Speed 12**
033	0.75	**250**	**400 G**	**550 L**	**650**	**750**	**850**	1000	1150	1250 H	1350 Aux	1450	1600
042	0.75	**250**	**450 G**	**650 L**	**800**	**950**	**1050**	1200	1350	1450	1600 H	1750 Aux	1850
050	0.75	**300**	**550 G**	**800 L**	**1000**	**1150**	**1300**	1450	1600	1750	1900 H	2050 Aux	2200
**VS Compressor Speed				1-2	3-4		5-6	7-8		9-10	11-12		

11/29/2018

** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.
Factory settings are at recommended G, L , H and Aux positions
"G" may be located anywhere within the airflow table.
"L" setting should be located within the boldface CFM range
"H" setting MUST be located within the shaded CFM range
"Aux" setting MUST be equal to or greater than "H" setting
CFM is controlled within 5% up to the maximum ESP



Notes:

1 – To operate in 208V mode replace the blue transformer wire connected to PB1-L2 with red transformer wire.
2 – Use manufacturer's part number 19P592-01 (jumper bar assembly) when single source power is required.
3 – DIP switch 1 on SW1 must be set in the OFF position.
4 – Jumper must be in place on Air Handler EEV. DO NOT REMOVE.
5 – Low voltage wiring CLASS 2.

Dual Power Supply Connections

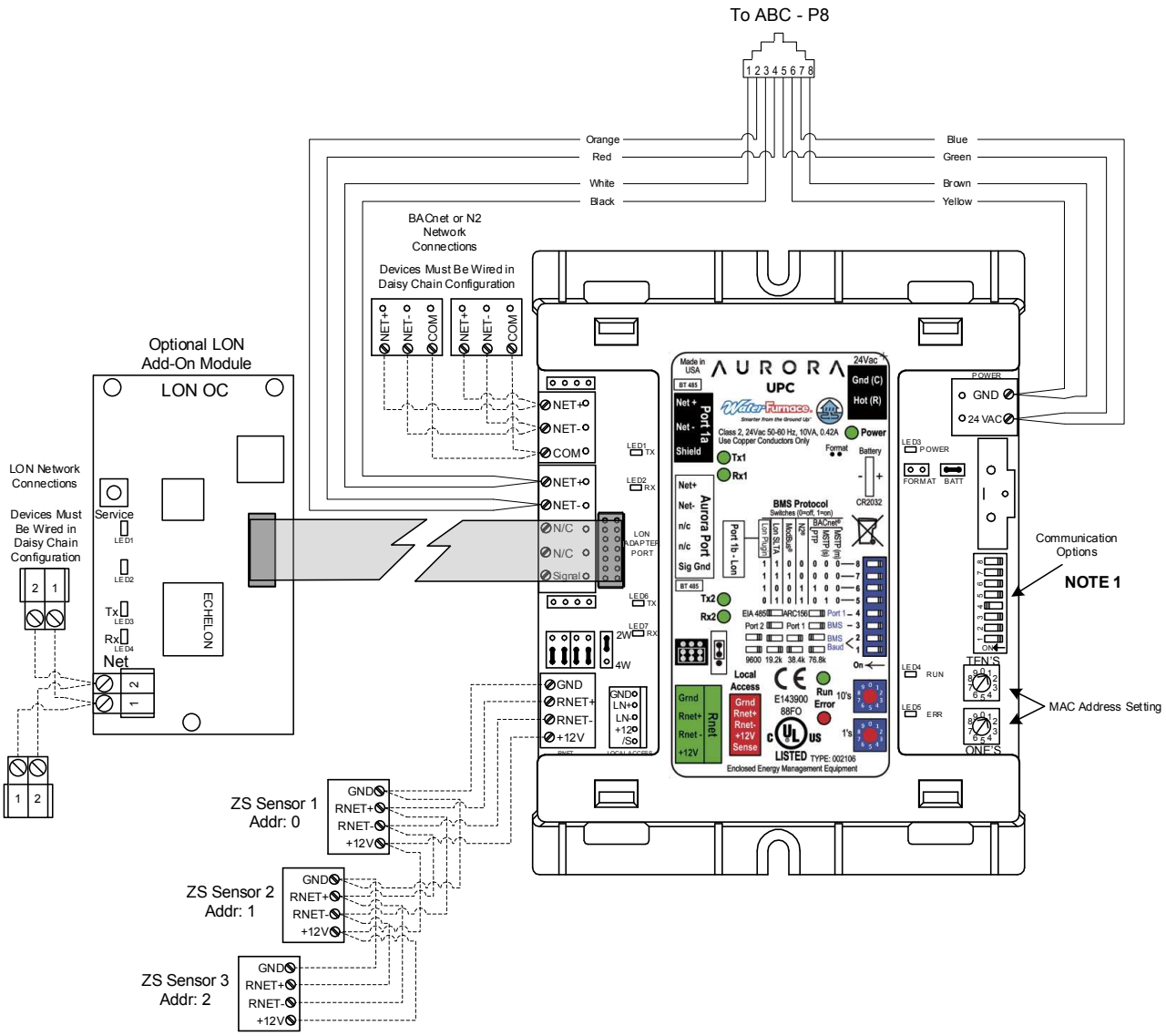
If two separate circuits are used to supply power to the auxiliary heat kit, the Installer will need to verify that each leg of the auxiliary heat circuit breakers are wired from the power supply correctly in order for the electric heat kit to operate properly. This can be done by measuring the supply side voltage of the auxiliary heat circuit breakers. Put a voltmeter on the L2 side of Circuit Breaker One and on the L2 side of Circuit Breaker Two. The voltmeter should read approximately 0 volts. If the meter reads high voltage, the auxiliary heat breakers need to be rewired so that breakers in the auxiliary heat kit match the wiring of the Disconnect Panel breakers. Meaning, L1 and L2 from one breaker in the disconnect panel must connect to L1 and L2 at one of the auxiliary heat circuit breakers and L1 and L2 from the other breaker in the disconnect panel must connect to L1 and L2 of the other auxiliary heat circuit breaker, making sure that the L1 and L2 from each disconnect breaker matches the L1 and L2 at each of the auxiliary heat breakers.

Legend

- Factory Low voltage wiring
- Factory Line voltage wiring
- Field low voltage wiring
- Field line voltage wiring
- Optional block
- DC Voltage PCB traces
- Internal junction
- Quick connect terminal
- TS Thermal Limit Switch
- L1 Field wire lug
- Ground
- N.O., N.C.
- G Light emitting diode - Green
- FL Fused Limit
- Breaker
- P 1 2 3 Polarized connector
- PB - Power block
- SW1 - DIP package 4 position
- HE - Heater element
- Current Transducer

Compressor Section Wiring Schematics cont.

Aurora UPC



ZS Sensor Information

Zone Sensors can be wired in daisy chain as show or in a star or hybrid configuration. Maximum of 5 sensors per UPC. Maximum allowable load 210mA. See the UPC install manual for possible sensor combinations.

DIP Switch Value

Each ZS sensor must have a unique address, but the addresses do not need to be sequential. Use the DIP switches on the back of the ZS sensor to set an address from 0 to 4. (0 is the factory default.) Each DIP switch has the value shown in the figure to the left. Turn on as many DIP switches as you need so that their total value equals the address.

Notes

1. Use DIP Switches 5 – 8 to change communication protocol and DIP switches 1 – 2 to change BACnet baud rate

Legend

Factory Low Voltage Wiring

Field Low Voltage Wiring

RJ45 Connector

Engineering Guide Specifications

General

Furnish and install WaterFurnace Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow. The reverse cycle heating/cooling units shall be either suspended type with horizontal air inlet and discharge or floor mounted type with horizontal air inlet and vertical upflow, or downflow air discharge. Units shall be AHRI/ISO 13256-1 certified and listed by a nationally recognized safety-testing laboratory or agency, such as ETL Testing Laboratory. Each unit shall be computer run-tested at the factory with conditioned water and operation verified to catalog data. Each unit shall be mounted on a pallet and shipped in a corrugated box or stretch-wrapped. The units shall be designed to operate with entering liquid temperature between 20°F and 120°F [-6.7°C and 48.9°C].

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and finished with corrosion-resistant powder coating. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. The interior shall be insulated with 1/2-inch thick, multi-density, cleanable aluminum foil coated glass fiber with edges sealed or tucked under flanges to prevent the introduction of glass fibers into the discharge air. Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL- 181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. Unit insulation must meet these stringent requirements or unit(s) will not be accepted.

Three compressor compartment access panels shall be 'lift-out' removable. The front access panel shall be lift-out to provide easy access to the electrical/compressor section. The control box shall be hinged and removable to allow easy access to the compressor. The internal component layout shall provide for service access from the front side for restricted installations.

The air handler shall be provided with two large access panels and shall be removable with supply and return ductwork in place. The internal components layout shall provide for major service with the unit in-place for restricted access installations. The blower assembly access shall be slide-out serviceable via a 'works-in-a-drawer' design. The cabinet shall be convertible to horizontal or downflow applications by reconfiguring the cabinet using only a nut driver. The unit shall be 'zero clearance' approved on any of its external surfaces. A duct collar shall be provided for field installation on the supply air opening. The air handler shall be supplied with an integral return air filter rack (air filter is field supplied).

Refrigerant Circuit

All units shall contain a sealed refrigerant circuit including a hermetic motor-compressor, oil seperator, electronic expansion valve, reversing valve, coaxial tube water-to-refrigerant heat exchanger, optional hot water generator coil, and service ports. Compressors shall be high-efficiency variable speed scroll type designed for heat pump duty and mounted on double vibration isolators. Compressor motors shall be permanent magnet type. All air handlers shall provide an electronic expansion valve, enhanced fin and tube air-to-refrigerant heat exchanger of the "A" coil design. The finned tube coil shall be sized for low-face velocity and constructed of lanced aluminum fins bonded to aluminum tubes in a staggered pattern. The coil shall include a composite drain pan.

Both electronic expansion valves shall provide proper superheat over the entire liquid temperature range with minimal "hunting."

Refrigerant to air heat exchangers shall utilize aluminum tube construction rated to withstand 600 psig (4135 kPa) refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper (cupronickel optional) inner water tube and steel refrigerant outer tube design, rated to withstand 600 psig (4135 kPa) working refrigerant pressure and 450 psig (3101 kPa) working water pressure.

All units shall have the source coaxial tube refrigerant-to water heat exchanger and the optional hot water generator coil coated with ThermaShield insulation. Refrigerant suction lines shall be insulated to prevent condensation at low liquid temperatures.

Blower Motor and Assembly

The blower shall be an oversized direct drive centrifugal type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low outlet velocity operation and of galvanized or galvalume steel construction. Tight blower housing geometry shall not be permitted. The blower housing shall be removable from the cabinet without disconnecting the supply air ductwork for servicing of the blower motor through a 'works-in-a-drawer' design. The high efficiency blower motor shall be a variable speed ECM type. The blower motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated ball bearings and have thermal overload protection.

Electrical

A control box shall be located within the compressor and air handler compartments (air handler shall contain a 100VA transformer) and the compressor compartment shall contain a 24 Volt activated, 2 pole compressor contactor, circuit breakers for protecting loop pumps and compressor drive, removable terminal block for thermostat wiring, variable speed compressor drive and solid-state controller for complete unit operation. Electromechanical operation WILL NOT be accepted. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be communicating type and provide heating or cooling as required by the remote thermostat/sensor. An Aurora Advanced VS Control, a microprocessor based controller, interfaces with a digital communicating thermostat to monitor and control unit operation shall be provided. The control shall provide operational sequencing, blower speed

Engineering Guide Specifications cont.

control, blower failure, high and low pressure switch monitoring, freeze detection, hot water limit thermistor sensing, condensate overflow sensing, auxiliary heat staging, lockout mode control, hot water and loop pump control, LED status and fault indicators, fault memory, field selectable options, compressor envelope management, energy consumption measurement, and accessory output. The fault signals shall be plain English text and displayed on the thermostat. The Aurora Advanced VS Control shall also feature an On Peak input signal for utility controlled demand programs, intelligent hot water generation with user adjustable temperature limit, loop pump linking for multiple units driving a common flow center and up to two optional home automation inputs to drive dedicated alarms for sump pump, security system, and smoke/CO2 or dirty air filter sensors. As standard, the energy, performance and refrigerant monitoring kits will provide real time data including total power consumption, entering and leaving water temperature, flow rate and heat of extraction/rejection capacity data, refrigerant superheat and subcooling. The capability for communicating to advanced zoning packages with up to six zones shall also be provided with complete fault and information display on the zoning MasterStat.

A detachable terminal block with screw terminals will be provided for field control wiring. All units shall have knockouts for entrance of low and line voltage wiring. The blower motor and control box shall be harness plug wired for easy removal.

The air handler shall contain integral circuit breakers on all units employing 15 kW or 20 kW electric heat. The 100VA transformer shall be protected by internal circuit breaker.

An Aurora Interface Diagnostic (AID) Tool shall communicate with the Aurora control allowing quick and easy access to setup, monitoring, and troubleshooting of any Aurora control. The device shall include the features of ECM airflow setup, VS pump and modulating water valve setup, fault description and history, manual operation capability, sensor readings, timings, and other diagnostic tools.

Option: An Aurora Unitary Protocol Converter (UPC) shall be included that communicates directly with the Aurora Heat Pump Control and allows access/control of a variety of internal Aurora heat pump operations such as sensors, relay operation, faults and other information. In turn, the UPC shall convert the internal Aurora Modbus protocol to BACnet MS/TP protocol for communication over a HAS system. Additional individual unit configuration items such as ECM fan speeds or freeze detection settings shall be directly available over the HAS without the need for access to the actual heat pump.

Piping

Supply and return water connections shall be 1 in. [25.4 mm] FPT brass swivel fittings, which provide a union and eliminate the need for pipe wrenches and sealants when making field connections. The optional hot water generator shall have sweat type connections. All source water piping shall be insulated to prevent condensation at low liquid temperatures. Refrigeration connections shall be made using sweat copper joints. The air handler condensate connections shall be a 3/4 in. NPT.

Options and Accessories

Cupronickel Heat Exchanger

An optional cupronickel water-to-refrigerant heat exchanger shall be provided.

Hot Water Generator

An optional ThermaShield coated heat reclaiming hot water generator coil of vented double-wall copper construction suitable for potable water shall be provided. The coil and hot water circulating pump shall be factory mounted inside the unit with integral electronic high limit temperature monitoring and external on/off switch. Hot water set point is selectable through the AID Tool.

Thermostat (field-installed)

A communicating auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer variable speed heating and cooling staging with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO-INTERMITTENT blower switch, and indicating display shall be provided. The thermostat shall display in °F or °C. The thermostat shall provide real time energy consumption data of the unit.

Color Touchscreen Thermostat (field-installed)

A color touchscreen communicating auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer variable speed heating and cooling staging with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO-INTERMITTENT blower switch, and indicating display shall be provided. The thermostat shall display in °F or °C. The thermostat shall provide real time and historical energy consumption data of the unit.

Earth Loop Flow Center (field-installed)

A self-contained module shall provide all liquid flow, fill and connection requirements for ground source closed loop systems up to 20 gpm. The pumps shall be wired to a power block located in the nearest unit. The heat pump units shall contain low voltage pump linking control so that two units may share one flow center.

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Revision Guide

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