Supplemental Instructions

Models:

W3SACD W4SACD W5SACD

This model provides a unique dehumidification circuit for periods of low outdoor ambient temperature and high indoor humidity conditions.

Refer to Specification Sheet S3598 for the standard features of the base units and this manual for electrical data.

Dehumidification Circuit

The dehumidification circuit incorporates an independent heat exchanger coil in the supply air stream. This coil reheats the supply air after it passes over the cooling coil without requiring the electric resistance heater to be used for reheat purposes. This results in very high mechanical dehumidification capability from the air conditioner on demand without using electric resistance reheat.

The dehumidification refrigerant reheat circuit is controlled by a dehumidification valve directing the refrigerant gas to the normal condenser during periods when standard air conditioning is required. During periods of high indoor humidity, a humidistat senses the need for mechanical dehumidification. It then energizes both the compressor circuit and the dehumidification valve, thus directing the hot refrigerant discharge gas into a separate desuperheating condenser circuit, which reheats the conditioned air before it is delivered to the room. The refrigerant gas is then routed from the desuperheating condenser to the system condenser for further heat transfer. When the humidistat is satisfied, the system automatically switches back to normal A/C mode and either continues to operate or turns off based on the signal from the wall thermostat. The result is separate humidity control at minimum operating cost.

Dehumidification Sequence of Operation

Dehumidification is controlled through the thermostat (if capable) or through a separate humidistat. On a call for dehumidification mode of operation, the compressor and dehumidification valve of the unit are energized through circuit R - D to provide dehumidification. Dehumidification will continue until the humidistat is satisfied.

A cooling call takes precedence over a dehumidification call as long as the cooling call is present. A heating call takes precedence over a dehumidification call as long as the heating call is present.

NOTE: *When using dehumidification with a DDC control system, make sure that the D terminal is continually energized as long as humidity levels are above the desired setpoint. The unit controls will ensure that an additional call for cooling or heating will take precedence over a call for dehumidification when needed. If the D terminal is de-energized during the call for cooling or heating, a time delay will occur before unit operation will continue when the D terminal is re-energized after the cooling or heating call is satisfied.*

Refer to the table on page 9 for a full list of outputs that can be expected for different input combinations.

Balanced Climate™ Mode

It is recommended to enable Balanced Climate mode and utilize a 3-stage thermostat to enhance the dehumidification performance and comfort. To activate this mode, the jumper between Y2 and Y3 on the low

Bard® SINCE 1914
Climate Control Solutions

Bard Manufacturing Company, Inc.
Bryan, Ohio 43506

www.bardhvac.com

Manual: 7960-869D
Supersedes: 7960-869C
Date: 4-8-22

voltage terminal strip needs to be removed. Refer to the unit wiring diagram for clarity.

This mode will allow the indoor blower to run at a reduced airflow on the second stage of cooling. A 3-stage thermostat connected to Y3 will then allow the airflow to return to normal rated speed if the call for dehumidification or cooling is not satisfied within the allotted time frame specified by the thermostat. See latest revision of unit installation instructions 2100-720 for more information regarding the Balanced Climate operation.

Application Considerations

To operate in low outdoor temperatures, a low ambient control (LAC) will need to be installed on the unit. This helps maintain system pressures during both cooling and dehumidification operation. It is also important to keep the evaporator drain line in a space that will keep it from freezing. Often the drain is run through the back of the unit and into the indoor space where it can be collected.

Heavy moisture applications will require frequent air filter changes. Be sure to check filters on a regular basis and start a routine filter change process.

Electronic Expansion Valve

Operation

This model employs an electronic expansion valve (EEV) which meters the refrigerant to the evaporator. The EEV is made of a stepper motor that is controlled with a step output from the controller. The valve is capable of 480 steps which drives a needle valve that in turn regulates the flow of refrigerant. The EEV allows for tighter control and better capacity management in varying operating conditions than a standard TXV. The EEV system consists of the electronic valve and stator, control board, relay, suction temperature sensor and suction pressure transducer. The pressure transducer and temperature sensor monitor the suction line to provide real time data to the control board so that a real time superheat can be calculated. This then determines the EEV position. The controller is sent to maintain around 13° superheat. The relay is used to activate the EEV system's controller anytime that the compressor is energized.

WARNING/AVERTISSEMENT

- Exposure to high pressure refrigerant hazard.
- This unit is equipped with an electronic expansion valve. In order to fully recover refrigerant or evacuate the system during repairs, be sure to use service tool 2151-021 to manually open the electronic expansion valve or be sure to recover and evacuate from all service ports; suction, liquid, and discharge.
- Failure to do so could result in eye injuries and/or refrigerant burns.

- Exposition à un risque de réfrigérant à haute pression.
- Cet appareil est équipé d'un détendeur électronique. Afini de récupérer complètement le réfrigérant ou d'évacuer le système pendant les réparations, assurez-vous d'utiliser l'outil de service 2151-021 pour ouvrir manuellement le détendeur électronique ou assurrez-vous de récupérer et d'évacuer de tous les ports de service: aspiration, liquide et refoulement.
- Ne pas le faire pourrait entraîner des blessures auz yeux et / ou des brûlures de réfrigérant.

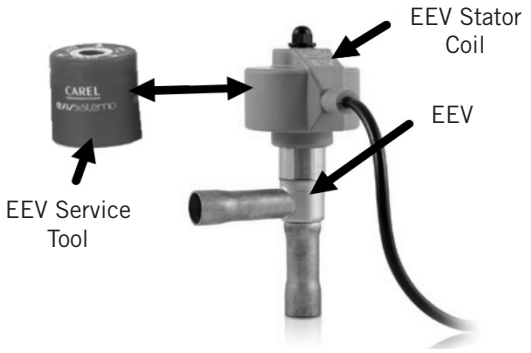
7961-953

EEV Instructions for Vacuuming, Reclaiming and Charging Unit

The electronic expansion valve moves to a closed position when there is no call to control. In order to pull a complete vacuum, fully reclaim the system or charge the unit, connections to both the suction and discharge service ports need to be utilized or the valve needs to be manually opened first. The valve can be opened manually using the magnetic EEV service tool (Bard Part # 2151-021) shown in Figure 1. To do this, remove the EEV stator coil (red color with retaining nut on top), slide the magnetic tool over the shaft where the stator was removed and turn in a clockwise direction to open the valve to the full open position (directional arrows are provided on the tool).

Reapply the EEV stator coil and retaining nut once complete. Upon powering the unit back up, the control board will automatically drive the EEV back to the fully shut position. Once the compressor starts, the control board will again modulate the EEV position to control the system superheat.

FIGURE 1
Electronic Expansion Valve (EEV) and Service Tool



Troubleshooting the Electronic Expansion Valve

The control board has two status LEDs.

- The green LED should be lit anytime that the board has power and the control is functioning.
- The red LED is to show that an alarm is present.

See Table 1 for a guide to know where to start troubleshooting the EEV. Refer to the appropriate unit replacement parts manual for any parts that are needed.

Control Board

Check that the controller is getting 24VAC signal (GO 24VAC Hot and G 24VAC common). Reference unit wiring diagram for proper connections. If 24V is present but the green LED is not lit, replace the controller. If the green LED is now lit but the superheat is still not being maintained, troubleshoot the relay to check that the DI is connected to G; refer to ***Relay in EEV Control Box*** on page 3.

TABLE 1
Electronic Expansion Valve Troubleshooting

Problem	Probable Cause	Troubleshoot
The green LED is not lit.	Controller not receiving 24VAC signal.	Control Board
The green LED is lit, but superheat is not being maintained.	The relay is not closing the controller's DI connection to ground.	Relay
The red LED is flashing and EEV is not controlling superheat properly (13° superheat). One of the following is likely the fault:		
1. Low superheat is detected and the controller is taking steps to protect the system by closing the valve.	Stator is broken or connected incorrectly.	Stator
	Valve is stuck open.	EEV Valve
2. Suction temperature sensor error.	Poor connection of sensor or faulty sensor.	Thermistor
3. Suction pressure transducer error.	Pressure transducer wiring incorrect or faulty transducer.	Transducer
The red LED is on steady.	The operating parameters have been damaged.	Replace Control Board

Electronic Expansion Valve

Check to see if valve can be moved by manually moving the stepper motor using the EEV service tool shown in Figure 1 (Bard Part # 2151-021). If valve still does not control, check the transducer and thermistor sensors as described on page 4. If sensors are good, replace the valve.

Relay in EEV Control Box

Contacts NO to DI and COM to G must be closed for EEV control to start controlling superheat. Check that the relay is getting 24VAC. Reference unit wiring diagram for proper connections. If 24V is present, measure the resistance between COM and NO; it should be 0 ohms when the relay is getting 24V. If the resistance is out of range, replace the relay.

Stator Coil

Disconnect the stator from the valve and the control and measure the resistance of the windings using an electrical tester. The resistance of both windings should be around 40 ohms +/– 10%. The four wire sets that will have resistance between them are: White and red, green and red, yellow and purple, blue and purple. If the resistance falls outside these values, replace the stator.

Transducer Sensor

1. Check continuity of all three wires from transducer plug to controller plug. Replace wires if poor connection in any wire.
2. Check to ensure wires are correctly connected as follows:

   Blue wire = pin 1 of controller plug to pin C on transducer plug

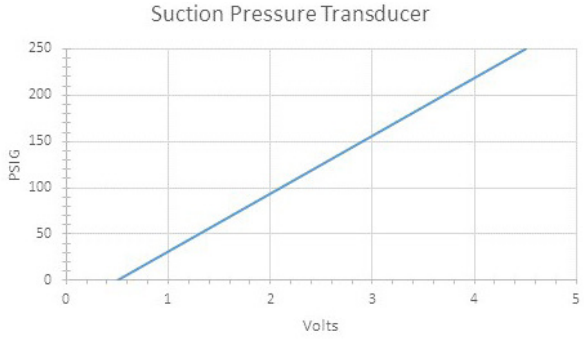
   Red wire = pin 2 of controller plug to pin B on transducer plug

   Black wire = pin 3 of controller plug to pin A on transducer plug
3. Check that there is 5VDC Nominal between the red and black wires going to the transducer.
4. Check the signal voltage between the blue and black wires (0.5-4.5VDC Actual). The following formula and Figure 2 can be used to determine if the transducer's voltage to pressure ratio is within range. Replace transducer if out of range.

Formula for Tech:

(Measured Pressure x .016) + 0.5 =
Expected Transducer Signal Voltage (see Figure 2).

FIGURE 2
Voltage to Pressure: Suction Pressure Transducer



Thermistor Sensor

1. Make a visual check for broken wire insulation, broken wires or cracked epoxy material.
2. Disconnect 10k ohm NTC thermistor from the EEV control box.
3. Use an ohmmeter to measure the resistance between the two connectors. Also use ohmmeter to check for short or open.
4. Compare the resistance reading to Table 2. Use sensor ambient temperature. (Tolerance of part is ±10 %.)
5. If sensor is out of tolerance, shorted, open or reads very low ohms, it should be replaced.

TABLE 2
10K Ohm NTC Sensor: Temperature/Resistance

Temperature		Resistance	Temperature		Resistance	Temperature		Resistance	Temperature		Resistance
F	C	Ω	F	C	Ω	F	C	Ω	F	C	Ω
-40	-40	188,500	28.4	-2	29,730	96.8	36	6,700	165.2	74	1,980
-38.2	-39	178,500	30.2	-1	28,480	98.6	37	6,470	167	75	1,920
-36.4	-38	169,000	32	0	27,280	100.4	38	6,250	168.8	76	1,870
-34.6	-37	160,200	33.8	1	26,130	102.2	39	6,030	170.6	77	1,820
-32.8	-36	151,900	35.6	2	25,030	104	40	5,830	172.4	78	1,770
-31	-35	144,100	37.4	3	23,990	105.8	41	5,630	174.2	79	1,920
-29.2	-34	136,700	39.2	4	23,000	107.6	42	5,440	176	80	1,670
-27.4	-33	129,800	41	5	22,050	109.4	43	5,260	177.8	81	1,620
-25.6	-32	123,300	42.8	6	21,150	111.2	44	5,080	179.6	82	1,580
-23.8	-31	117,100	44.6	7	20,300	113	45	4,910	181.4	83	1,530
-22	-30	111,300	46.4	8	19,480	114.8	46	4,750	183.2	84	1,490
-20.2	-29	105,700	48.2	9	18,700	116.6	47	4,590	185	85	1,450
-18.4	-28	100,500	50	10	17,960	118.4	48	4,440	186.8	86	1,441
-16.6	-27	95,520	51.8	11	17,240	120.2	49	4,300	188.6	87	1,370
-14.8	-26	90,840	53.6	12	16,560	122	50	4,160	190.4	88	1,340
-13	-25	86,430	55.4	13	15,900	123.8	51	4,030	192.2	89	1,300
-11.2	-24	82,260	57.2	14	15,280	125.6	52	3,900	194	90	1,270
-9.4	-23	78,330	59	15	14,690	127.4	53	3,770	195.8	91	1,230
-7.6	-22	74,610	60.8	16	14,120	129.2	54	3,650	197.6	92	1,200
-5.8	-21	71,100	62.6	17	13,580	131	55	3,540	199.4	93	1,170
-4	-20	67,770	64.4	18	13,060	132.8	56	3,430	201.2	94	1,140
-2.2	-19	64,570	66.2	19	12,560	134.6	57	3,320	203	95	1,110
-0.4	-18	61,540	68	20	12,090	136.4	58	3,220	204.8	96	1,080
1.4	-17	58,680	69.8	21	11,630	138.2	59	3,120	206.6	97	1,050
3.2	-16	55,970	71.6	22	11,200	140	60	3,020	208.4	98	1,020
5	-15	53,410	73.4	23	10,780	141.8	61	2,930	210.2	99	1,000
6.8	-14	50,980	75.2	24	10,380	143.6	62	2,840	212	100	970
8.6	-13	48,680	77	25	10,000	145.4	63	2,750			
10.4	-12	46,500	78.8	26	9,630	147.2	64	2,670			
12.2	-11	44,430	80.6	27	9,280	149	65	2,590			
14	-10	42,470	82.4	28	8,940	150.8	66	2,510			
15.8	-9	40,570	84.2	29	8,620	152.6	67	2,440			
17.6	-8	38,770	86	30	8,310	154.4	68	2,360			
19.4	-7	37,060	87.8	31	8,010	156.2	69	2,300			
21.2	-6	35,440	89.6	32	7,730	158	70	2,230			
23	-5	33,900	91.4	33	7,450	159.8	71	2,160			
24.8	-4	32,440	93.2	34	7,190	161.6	72	2,100			
26.6	-3	31,050	95	35	6,940	163.4	73	2,040			

W3SACD Cooling and Dehumidification Application Data[1]

DB/WB[2]	OD Temp.	65°F[3]		70°F		75°F		80°F		85°F		90°F		95°F		100°F		105°F	
	Mode	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum
75/62.5 (50% RH)	Total Cooling Btuh	40,200	20,400	39,200	17,900	38,100	15,100	37,000	12,600	35,700	9,700	34,400	6,800	33,000	3,700	31,600	600	30,000	
	Sensible Btuh	29,500	5,300	29,000	3,300	28,500	1,500	28,000	(800)	27,400	(2,800)	26,800	(4,900)	26,200	(7,000)	25,600	(9,200)	24,900	(11,300)
	S/T	0.734	0.260	0.740	0.184	0.748	0.099	0.757	0	0.768	0	0.779	0	0.794	0	0.810	0	0.830	0
	Latent Btuh	10,700	15,100	10,200	14,600	9,600	13,600	9,000	13,400	8,300	12,500	7,600	11,700	6,800	10,700	6,000	9,800	5,100	8,600
	Lbs. H20/hr.	10.1	14.2	9.6	13.8	9.1	12.8	8.5	12.6	7.8	11.8	7.2	11.0	6.4	10.1	5.7	9.2	4.8	8.1
	Supply Air DB	51.4	64.9	51.8	67.2	51.9	69.4	52.7	71.8	53.2	74.2	53.7	76.6	54.2	79.0	54.7	81.4	55.2	83.9
	Supply Air WB	50.2	54.0	50.6	55.2	50.6	56.2	51.4	57.6	51.8	58.8	52.3	60.0	52.7	61.2	53.1	62.4	53.6	63.6
	Suction PSIG4	123	114	124	115	125	117	126	119	128	120	129	122	130	124	131	127	133	129
	Discharge PSIG4	258	234	278	248	298	263	319	278	341	294	365	312	389	329	415	348	442	367
75/64.1 (55% RH)	Total Cooling Btuh	41,200	21,600	40,200	19,200	39,100	16,500	37,900	13,800	36,700	11,000	35,300	8,100	34,000	5,000	32,500	1,800	30,900	
	Sensible Btuh	27,800	7,900	27,300	5,900	26,800	3,900	26,300	1,900	25,700	(200)	25,100	(2,300)	24,500	(4,400)	23,900	(6,600)	23,200	(8,700)
	S/T	0.675	0.37	0.679	0.31	0.685	0.24	0.694	0.14	0.700	0	0.711	0	0.721	0	0.735	0	0.751	0
	Latent Btuh	13,400	13,700	12,900	13,300	12,300	12,600	11,600	11,900	11,000	11,200	10,200	10,400	9,500	9,400	8,600	8,400	7,700	7,200
	Lbs. H20/hr.	12.6	12.9	12.2	12.5	11.6	11.9	10.9	11.2	10.4	10.6	9.6	9.8	9.0	8.9	8.1	7.9	7.3	6.8
	Supply Air DB	52.7	65.9	53.1	68.2	53.6	70.5	54.0	72.9	54.5	75.2	55.0	77.6	55.5	80.0	56.0	82.5	56.5	85.0
	Supply Air WB	51.6	55.0	52.0	56.3	52.4	57.5	52.8	58.7	53.3	59.9	53.7	61.1	54.1	62.3	54.6	63.4	55.0	64.6
	Suction PSIG4	126	117	127	118	128	120	129	121	130	123	132	125	133	127	134	129	135	132
	Discharge PSIG4	260	236	279	250	299	265	321	281	343	297	367	314	391	332	417	350	443	370
75/65.5 (60% RH)	Total Cooling Btuh	42,100	22,900	41,100	20,400	40,000	17,700	38,800	15,100	37,600	12,300	36,300	9,300	34,900	6,200	33,400	3,100	31,900	
	Sensible Btuh	26,100	10,500	25,700	8,500	25,100	6,700	24,600	4,500	24,000	2,400	23,400	300	22,800	(1,800)	22,200	(3,900)	21,500	(6,100)
	S/T	0.620	0.459	0.625	0.417	0.628	0.379	0.634	0.298	0.638	0.195	0.645	0.032	0.653	0	0.665	0	0.674	0
	Latent Btuh	16,000	12,400	15,400	11,900	14,900	11,000	14,200	10,600	13,600	9,900	12,900	9,000	12,100	8,000	11,200	7,000	10,400	5,900
	Lbs. H20/hr.	15.1	11.7	14.5	11.2	14.1	10.4	13.4	10.0	12.8	9.3	12.2	8.5	11.4	7.5	10.6	6.6	9.8	5.6
	Supply Air DB	54.0	67.0	54.4	69.3	54.5	71.4	55.3	73.9	55.8	76.3	56.3	78.7	56.8	81.1	57.3	83.5	57.8	86.0
	Supply Air WB	53.1	56.1	53.5	57.3	53.5	58.3	54.3	59.7	54.7	60.9	55.1	62.1	55.6	63.3	56.0	64.5	56.5	65.7
	Suction PSIG4	128	120	130	121	130	123	132	124	133	126	134	128	136	130	137	132	138	134
	Discharge PSIG4	262	239	281	253	301	268	322	283	345	299	368	317	393	334	418	353	445	372
75/66.7 (65% RH)	Total Cooling Btuh	43,000	24,100	42,000	21,700	40,900	18,900	39,800	16,300	38,500	13,500	37,200	10,600	35,800	7,500	34,300	4,300	32,800	1,000
	Sensible Btuh	24,500	13,200	24,000	11,200	23,500	9,300	22,900	7,100	22,300	5,000	21,800	2,900	21,100	800	20,500	(1,300)	19,900	(3,500)
	S/T	0.570	0.55	0.571	0.52	0.575	0.49	0.575	0.44	0.579	0.37	0.586	0.27	0.589	0.11	0.598	0	0.607	0
	Latent Btuh	18,500	10,900	18,000	10,500	17,400	9,600	16,900	9,200	16,200	8,500	15,400	7,700	14,700	6,700	13,800	5,600	12,900	4,500
	Lbs. H20/hr.	17.5	10.3	17.0	9.9	16.4	9.1	15.9	8.7	15.3	8.0	14.5	7.3	13.9	6.3	13.0	5.3	12.2	4.2
	Supply Air DB	55.3	68.0	55.8	70.3	55.9	72.5	56.7	74.9	57.1	77.3	57.6	79.7	58.1	82.1	58.6	84.6	59.1	87.0
	Supply Air WB	54.5	57.1	54.9	58.4	54.9	59.3	55.7	60.8	56.1	62.0	56.6	63.2	57.0	64.4	57.5	65.5	57.9	66.7
	Suction PSIG4	131	122	132	124	133	125	135	127	136	129	137	131	138	133	140	135	141	137
	Discharge PSIG4	263	241	282	255	303	270	324	286	346	302	370	319	394	337	420	355	447	375
75/68 (70% RH)	Total Cooling Btuh	44,000	25,400	43,000	22,900	41,800	20,200	40,700	17,600	39,500	14,800	38,100	11,800	36,700	8,800	35,300	5,600	33,700	2,300
	Sensible Btuh	22,800	15,800	22,300	13,800	21,800	12,000	21,200	9,700	20,600	7,700	20,100	5,600	19,500	3,400	18,800	1,300	18,200	(900)
	S/T	0.518	0.622	0.519	0.603	0.522	0.594	0.521	0.551	0.522	0.520	0.528	0.475	0.531	0.386	0.533	0.232	0.540	0
	Latent Btuh	21,200	9,600	20,700	9,100	20,000	8,200	19,500	7,900	18,900	7,100	18,000	6,200	17,200	5,400	16,500	4,300	15,500	3,200
	Lbs. H20/hr.	20.0	9.1	19.5	8.6	18.9	7.7	18.4	7.5	17.8	6.7	17.0	5.8	16.2	5.1	15.6	4.1	14.6	3.0
	Supply Air DB	56.6	69.1	57.1	71.3	57.2	73.5	58.0	76.0	58.5	78.3	58.9	80.7	59.4	83.2	59.9	85.6	60.4	88.1
	Supply Air WB	55.9	58.2	56.3	59.4	56.4	60.4	57.2	61.8	57.6	63.0	58.0	64.2	58.5	65.4	58.9	66.6	59.3	67.7
	Suction PSIG4	134	125	135	127	136	128	138	130	139	132	140	134	141	136	143	138	144	140
	Discharge PSIG4	265	244	284	258	304	273	325	288	348	304	371	322	396	339	421	358	448	377
80/68.3 (55% RH)	Total Cooling Btuh	59,000	26,200	58,000	23,700	56,800	21,000	55,700	18,400	54,500	15,600	53,200	12,600	51,800	9,600	50,300	6,400	48,800	3,100
	Sensible Btuh	28,400	2,800	27,900	800	27,400	(1,000)	26,800	(3,200)	26,300	(5,300)	25,700	(7,400)	25,100	(9,500)	24,400	(11,600)	23,800	(13,800)
	S/T	0.481	0.11	0.481	0.03	0.482	0	0.481	0	0.483	0	0.483	0	0.485	0	0.485	0	0.488	0
	Latent Btuh	30,600	23,400	30,100	22,900	29,400	22,000	28,900	21,600	28,200	20,900	27,500	20,000	26,700	19,100	25,900	18,000	25,000	16,900
	Lbs. H20/hr.	28.9	22.1	28.4	21.6	27.7	20.8	27.3	20.4	26.6	19.7	25.9	18.9	25.2	18.0	24.4	17.0	23.6	15.9
	Supply Air DB	55.3	69.6	55.7	71.9	55.8	74.0	56.6	76.5	57.1	78.9	57.6	81.3	58.1	83.7	58.6	86.1	59.1	88.6
	Supply Air WB	55.0	58.2	55.4	59.4	55.5	60.4	56.3	61.8	56.7	63.0	57.1	64.2	57.5	65.4	58.0	66.6	58.4	67.7
	Suction PSIG4	134	126	136	127	136	129	138	130	139	132	140	134	142	136	143	138	144	141
	Discharge PSIG4	264	243	283	257	304	272	325	288	347	304	370	321	395	339	421	357	447	377

1 Values listed are with ventilation package disabled
2 Return air temperature °F @ Default airflow (1150 CFM) for AC tests and Balanced Climate airflow (805 CFM) for dehumidification tests
3 Below 50°F, unit requires a factory or field installed low ambient control.
4 Suction pressure +/- 4 psi, Discharge pressure +/- 10 psi

W4SACD Cooling and Dehumidification Application Data[1]

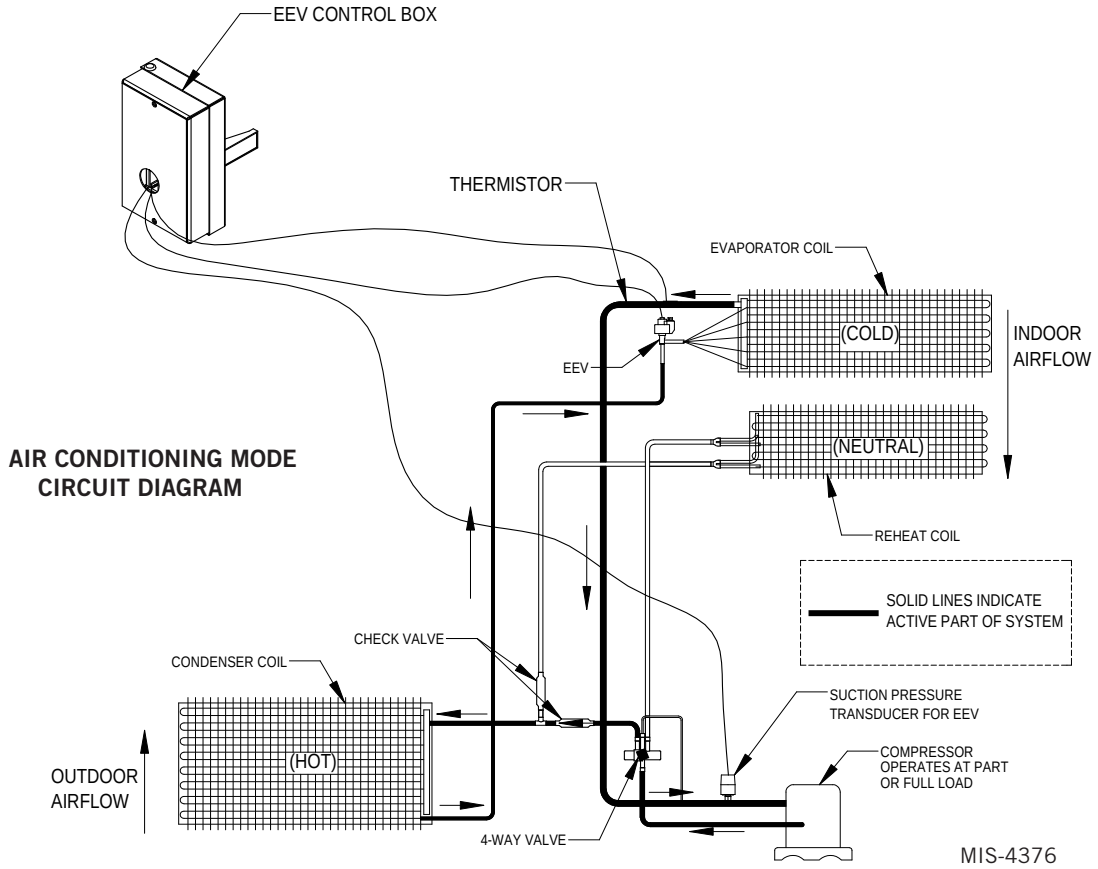
DB/WB[2]	OD Temp.	65°F[3]		70°F		75°F		80°F		85°F		90°F		95°F		100°F		105°F	
	Mode	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum
75/62.5 (50% RH)	Total Cooling Btuh	52,500	25,400	51,000	22,900	49,500	19,500	48,000	17,000	46,500	13,700	44,900	10,100	43,400	6,300	41,900	2,200	40,300	
	Sensible Btuh	39,600	11,000	39,000	8,900	38,300	6,700	37,600	4,400	36,900	2,000	36,200	(400)	35,500	(3,000)	34,800	(5,600)	34,100	(8,200)
	S/T	0.754	0.433	0.765	0.389	0.774	0.344	0.783	0.259	0.794	0.146	0.806	0	0.818	0	0.831	0	0.846	0
	Latent Btuh	12,900	14,400	12,000	14,000	11,200	12,800	10,400	12,600	9,600	11,700	8,700	10,500	7,900	9,300	7,100	7,800	6,200	6,100
	Lbs. H20/hr.	12.2	13.6	11.3	13.2	10.6	12.1	9.8	11.9	9.1	11.0	8.2	9.9	7.5	8.8	6.7	7.4	5.8	5.8
	Supply Air DB	52.2	65.5	52.6	67.5	52.9	69.4	53.5	71.5	53.9	73.6	54.4	75.7	54.8	77.9	55.2	80.2	55.6	82.6
	Supply Air WB	51.0	54.3	51.4	55.3	51.6	56.3	52.2	57.3	52.6	58.4	52.9	59.5	53.3	60.7	53.6	62.0	54.0	63.3
	Suction PSIG[4]	125	114	126	115	127	116	128	118	129	119	130	121	131	124	133	126	134	129
	Discharge PSIG[4]	284	253	304	266	324	280	346	296	369	312	393	329	418	346	443	364	470	383
75/64.1 (55% RH)	Total Cooling Btuh	53,700	26,900	52,200	24,400	50,700	21,600	49,200	18,500	47,600	15,200	46,100	11,600	44,600	7,800	43,000	3,700	41,500	
	Sensible Btuh	37,500	9,900	36,800	7,800	36,100	5,500	35,400	3,200	34,700	900	34,000	(1,600)	33,300	(4,100)	32,600	(6,700)	31,900	(9,400)
	S/T	0.698	0.37	0.705	0.32	0.712	0.25	0.720	0.17	0.729	0.06	0.738	0	0.747	0	0.758	0	0.769	0
	Latent Btuh	16,200	17,000	15,400	16,600	14,600	16,100	13,800	15,300	12,900	14,300	12,100	13,200	11,300	11,900	10,400	10,400	9,600	8,800
	Lbs. H20/hr.	15.3	16.0	14.5	15.7	13.8	15.2	13.0	14.4	12.2	13.5	11.4	12.5	10.7	11.2	9.8	9.8	9.1	8.3
	Supply Air DB	53.5	66.6	53.9	68.5	54.3	70.5	54.8	72.5	55.2	74.6	55.6	76.8	56.0	79.0	56.4	81.3	56.8	83.6
	Supply Air WB	52.4	55.4	52.8	56.4	53.2	57.4	53.6	58.4	54.0	59.5	54.3	60.6	54.7	61.8	55.1	63.1	55.4	64.4
	Suction PSIG[4]	128	117	129	118	130	119	131	121	132	122	133	124	134	127	136	129	137	132
	Discharge PSIG[4]	286	256	306	269	327	284	349	299	371	315	395	332	420	349	445	367	472	386
75/65.5 (60% RH)	Total Cooling Btuh	54,800	28,400	53,400	25,900	51,900	22,500	50,300	20,000	48,800	16,700	47,300	13,100	45,800	9,300	44,200	5,200	42,700	900
	Sensible Btuh	35,300	8,800	34,600	6,600	34,000	4,500	33,300	2,100	32,600	(300)	31,900	(2,700)	31,200	(5,200)	30,500	(7,800)	29,800	(10,500)
	S/T	0.644	0.310	0.648	0.255	0.655	0.200	0.662	0.105	0.668	0	0.674	0	0.681	0	0.690	0	0.698	0
	Latent Btuh	19,500	19,600	18,800	19,300	17,900	18,000	17,000	17,900	16,200	17,000	15,400	15,800	14,600	14,500	13,700	13,000	12,900	11,400
	Lbs. H20/hr.	18.4	18.5	17.7	18.2	16.9	17.0	16.0	16.9	15.3	16.0	14.5	14.9	13.8	13.7	12.9	12.3	12.2	10.8
	Supply Air DB	54.7	67.7	55.2	69.6	55.4	71.5	56.0	73.6	56.5	75.7	56.9	77.9	57.3	80.1	57.7	82.4	58.1	84.7
	Supply Air WB	53.8	56.5	54.2	57.5	54.4	58.4	55.0	59.5	55.4	60.6	55.7	61.7	56.1	62.9	56.5	64.2	56.8	65.4
	Suction PSIG[4]	131	120	132	121	133	122	134	123	135	125	136	127	137	130	139	132	140	135
	Discharge PSIG[4]	288	259	308	272	329	286	351	302	373	318	397	335	422	352	447	370	474	389
75/66.7 (65% RH)	Total Cooling Btuh	56,000	29,900	54,500	27,400	53,000	24,000	51,500	21,500	50,000	18,200	48,500	14,600	46,900	10,800	45,400	6,700	43,800	2,400
	Sensible Btuh	33,200	7,600	32,500	5,500	31,800	3,400	31,100	1,000	30,400	(1,400)	29,700	(3,800)	29,000	(6,400)	28,300	(9,000)	27,600	(11,600)
	S/T	0.593	0.25	0.596	0.20	0.600	0.14	0.604	0.05	0.608	0	0.612	0	0.618	0	0.623	0	0.630	0
	Latent Btuh	22,800	22,300	22,000	21,900	21,200	20,600	20,400	20,500	19,600	19,600	18,800	18,400	17,900	17,200	17,100	15,700	16,200	14,000
	Lbs. H20/hr.	21.5	21.0	20.8	20.7	20.0	19.4	19.2	19.3	18.5	18.5	17.7	17.4	16.9	16.2	16.1	14.8	15.3	13.2
	Supply Air DB	56.0	68.8	56.4	70.7	56.7	72.6	57.3	74.7	57.7	76.8	58.1	78.9	58.6	81.2	59.0	83.4	59.3	85.8
	Supply Air WB	55.2	57.6	55.6	58.5	55.8	59.5	56.4	60.6	56.8	61.7	57.2	62.8	57.5	64.0	57.9	65.2	58.2	66.5
	Suction PSIG[4]	134	123	135	124	136	125	137	126	138	128	139	130	140	133	142	135	144	138
	Discharge PSIG[4]	290	262	310	275	331	289	353	305	375	321	399	337	424	355	449	373	476	392
75/68 (70% RH)	Total Cooling Btuh	57,200	31,400	55,700	28,900	54,200	25,500	52,700	23,000	51,200	19,700	49,600	16,100	48,100	12,300	46,600	8,200	45,000	3,900
	Sensible Btuh	31,000	6,500	30,300	4,400	29,700	2,200	29,000	(100)	28,300	(2,500)	27,600	(5,000)	26,900	(7,500)	26,200	(10,100)	25,500	(12,800)
	S/T	0.542	0.207	0.544	0.152	0.548	0.086	0.550	0	0.553	0	0.556	0	0.559	0	0.562	0	0.567	0
	Latent Btuh	26,200	24,900	25,400	24,500	24,500	23,300	23,700	23,100	22,900	22,200	22,000	21,100	21,200	19,800	20,400	18,300	19,500	16,700
	Lbs. H20/hr.	24.7	23.5	24.0	23.1	23.1	22.0	22.4	21.8	21.6	20.9	20.8	19.9	20.0	18.7	19.2	17.3	18.4	15.8
	Supply Air DB	57.2	69.8	57.7	71.8	58.0	73.7	58.6	75.8	59.0	77.9	59.4	80.0	59.8	82.2	60.2	84.5	60.6	86.9
	Supply Air WB	56.7	58.7	57.0	59.6	57.2	60.6	57.8	61.6	58.2	62.7	58.6	63.9	58.9	65.1	59.3	66.3	59.6	67.6
	Suction PSIG[4]	137	126	138	127	139	128	140	129	141	131	142	133	143	136	145	138	147	141
	Discharge PSIG[4]	293	265	312	278	333	292	355	308	377	324	401	340	426	358	452	376	478	395
80/68.3 (55% RH)	Total Cooling Btuh	77,100	32,400	75,600	29,800	74,100	26,500	72,600	24,000	71,100	20,600	69,500	17,100	68,000	13,300	66,500	9,200	64,900	4,900
	Sensible Btuh	38,200	12,100	37,500	9,900	36,800	7,800	36,100	5,400	35,400	3,100	34,700	600	34,000	(1,900)	33,300	(4,500)	32,600	(7,200)
	S/T	0.495	0.37	0.496	0.33	0.497	0.29	0.497	0.23	0.498	0.15	0.499	0.04	0.500	0	0.501	0	0.502	0
	Latent Btuh	38,900	20,300	38,100	19,900	37,300	18,700	36,500	18,600	35,700	17,500	34,800	16,500	34,000	15,200	33,200	13,700	32,300	12,100
	Lbs. H20/hr.	36.7	19.2	35.9	18.8	35.2	17.6	34.4	17.5	33.7	16.5	32.8	15.6	32.1	14.3	31.3	12.9	30.5	11.4
	Supply Air DB	56.4	70.4	56.8	72.3	57.1	74.2	57.7	76.3	58.1	78.4	58.6	80.5	59.0	82.8	59.4	85.1	59.8	87.4
	Supply Air WB	56.0	58.7	56.4	59.6	56.6	60.6	57.2	61.6	57.6	62.7	57.9	63.9	58.3	65.1	58.6	66.3	59.0	67.6
	Suction PSIG[4]	138	126	139	127	139	129	140	130	141	132	143	134	144	136	145	139	147	142
	Discharge PSIG[4]	291	264	311	278	332	292	354	307	376	323	400	340	425	357	450	376	477	395

[1] Values listed are with ventilation package disabled
[2] Return air temperature °F @ Default airflow (1550 CFM) for AC tests and Balanced Climate airflow (1090 CFM) for dehumidification tests
[3] Below 50°F, unit requires a factory or field installed low ambient control.
[4] Suction pressure +/- 4 psi, Discharge pressure +/- 10 psi

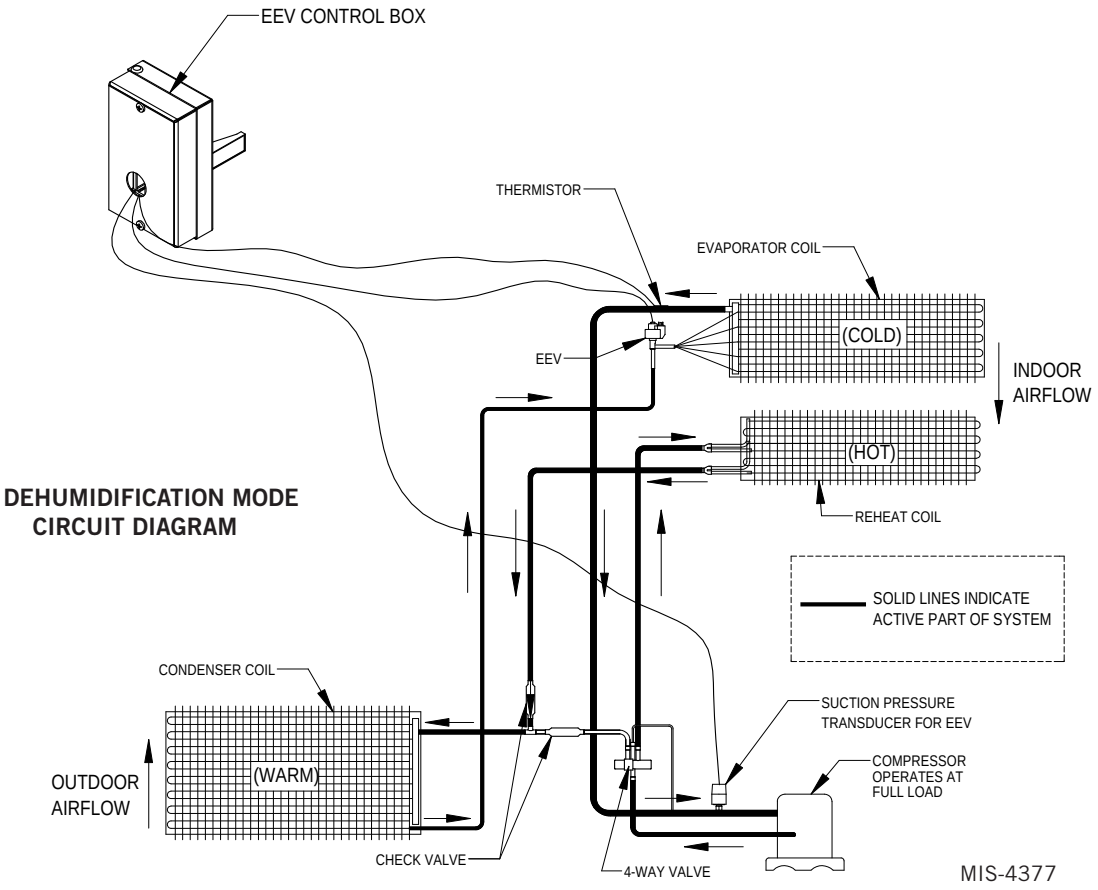
W5SACD Cooling and Dehumidification Application Data[1]

DB/WB[2]	OD Temp.	65°F[3]		70°F		75°F		80°F		85°F		90°F		95°F		100°F		105°F	
	Mode	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum	A/C	Dehum
75/62.5 (50% RH)	Total Cooling Btuh	64,700	33,600	62,800	30,600	61,200	27,300	59,100	24,200	57,200	20,700	55,400	17,100	53,600	13,300	51,800	9,400	50,000	5,300
	Sensible Btuh	47,700	15,800	46,900	13,600	46,200	11,300	45,300	8,900	44,400	6,400	43,600	3,900	42,800	1,300	41,900	(1,400)	41,100	(4,200)
	S/T	0.737	0.470	0.747	0.444	0.755	0.414	0.766	0.368	0.776	0.309	0.787	0.228	0.799	0	0.809	0	0.822	0
	Latent Btuh	17,000	17,800	15,900	17,000	15,000	16,000	13,800	15,300	12,800	14,300	11,800	13,200	10,800	12,000	9,900	10,800	8,900	9,500
	Lbs. H20/hr.	16.0	16.8	15.0	16.0	14.2	15.1	13.0	14.4	12.1	13.5	11.1	12.5	10.2	11.3	9.3	10.2	8.4	9.0
	Supply Air DB	50.8	63.7	51.3	65.3	51.7	67.0	52.2	68.8	52.6	70.6	53.1	72.5	53.5	74.4	53.9	76.3	54.3	78.3
	Supply Air WB	50.0	53.5	50.4	54.4	50.8	55.3	51.2	56.3	51.7	57.3	52.1	58.2	52.4	59.2	52.8	60.3	53.2	61.3
	Suction PSIG4	125	115	127	116	128	117	129	119	130	120	131	121	132	122	133	124	134	125
	Discharge PSIG4	291	269	311	283	332	297	354	312	378	328	402	345	427	362	453	380	480	398
75/64.1 (55% RH)	Total Cooling Btuh	66,200	35,200	64,300	32,200	62,400	29,100	60,500	25,800	58,700	22,400	56,800	18,700	55,000	15,000	53,200	11,000	51,400	6,900
	Sensible Btuh	45,100	14,300	44,300	12,000	43,500	9,700	42,700	7,300	41,900	4,900	41,000	2,300	40,200	(300)	39,300	(3,000)	38,500	(5,700)
	S/T	0.681	0.41	0.689	0.37	0.697	0.33	0.706	0.28	0.714	0.22	0.722	0.12	0.731	0	0.739	0	0.749	0
	Latent Btuh	21,100	20,900	20,000	20,200	18,900	19,400	17,800	18,500	16,800	17,500	15,800	16,400	14,800	15,300	13,900	14,000	12,900	12,600
	Lbs. H20/hr.	19.9	19.7	18.9	19.1	17.8	18.3	16.8	17.5	15.8	16.5	14.9	15.5	14.0	14.4	13.1	13.2	12.2	11.9
	Supply Air DB	52.2	64.9	52.6	66.6	53.1	68.3	53.5	70.0	54.0	71.8	54.4	73.7	54.8	75.6	55.2	77.5	55.7	79.5
	Supply Air WB	51.4	54.6	51.8	55.5	52.3	56.5	52.7	57.4	53.1	58.4	53.5	59.4	53.9	60.4	54.3	61.4	54.6	62.5
	Suction PSIG4	129	118	130	119	131	121	132	122	133	123	134	124	135	125	136	127	137	128
	Discharge PSIG4	293	272	313	286	335	301	357	316	380	332	404	348	429	365	455	383	483	402
75/65.5 (60% RH)	Total Cooling Btuh	67,600	36,900	65,700	33,900	64,100	30,600	61,900	27,500	60,100	24,000	58,200	20,400	56,400	16,600	54,600	12,700	52,900	8,600
	Sensible Btuh	42,500	12,700	41,700	10,500	41,100	8,200	40,100	5,800	39,300	3,300	38,500	800	37,600	(1,800)	36,800	(4,500)	35,900	(7,300)
	S/T	0.629	0.344	0.635	0.310	0.641	0.268	0.648	0.211	0.654	0.138	0.662	0.039	0.667	0	0.674	0	0.679	0
	Latent Btuh	25,100	24,200	24,000	23,400	23,000	22,400	21,800	21,700	20,800	20,700	19,700	19,600	18,800	18,400	17,800	17,200	17,000	15,900
	Lbs. H20/hr.	23.7	22.8	22.6	22.1	21.7	21.1	20.6	20.5	19.6	19.5	18.6	18.5	17.7	17.4	16.8	16.2	16.0	15.0
	Supply Air DB	53.5	66.1	54.0	67.8	54.4	69.5	54.9	71.2	55.3	73.0	55.7	74.9	56.2	76.8	56.6	78.7	57.0	80.8
	Supply Air WB	52.8	55.8	53.3	56.7	53.6	57.6	54.1	58.6	54.5	59.5	54.9	60.5	55.3	61.5	55.7	62.6	56.0	63.6
	Suction PSIG4	132	122	133	123	134	123	135	125	136	126	137	127	138	129	139	130	140	131
	Discharge PSIG4	296	276	316	290	337	304	359	320	382	335	406	352	432	369	458	387	485	406
75/66.7 (65% RH)	Total Cooling Btuh	69,000	38,500	67,100	35,600	65,500	32,300	63,300	29,100	61,500	25,700	59,700	22,100	57,900	18,300	56,100	14,300	54,300	10,200
	Sensible Btuh	40,000	11,200	39,200	9,000	38,500	6,700	37,600	4,300	36,700	1,800	35,900	(800)	35,100	(3,400)	34,200	(6,100)	33,400	(8,800)
	S/T	0.580	0.29	0.584	0.25	0.588	0.21	0.594	0.15	0.597	0.07	0.601	0	0.606	0	0.610	0	0.615	0
	Latent Btuh	29,000	27,300	27,900	26,600	27,000	25,600	25,700	24,800	24,800	23,900	23,800	22,900	22,800	21,700	21,900	20,400	20,900	19,000
	Lbs. H20/hr.	27.4	25.8	26.3	25.1	25.5	24.2	24.2	23.4	23.4	22.5	22.5	21.6	21.5	20.5	20.7	19.2	19.7	17.9
	Supply Air DB	54.8	67.3	55.3	69.0	55.7	70.7	56.2	72.4	56.6	74.2	57.1	76.1	57.5	78.0	57.9	80.0	58.3	82.0
	Supply Air WB	54.3	56.9	54.7	57.8	55.1	58.7	55.6	59.7	56.0	60.7	56.4	61.7	56.7	62.7	57.1	63.7	57.5	64.8
	Suction PSIG4	135	125	136	126	137	127	138	128	139	129	140	130	141	132	142	133	143	134
	Discharge PSIG4	298	280	318	294	339	308	361	323	385	339	409	356	434	373	460	391	487	409
75/68 (70% RH)	Total Cooling Btuh	70,400	40,200	68,500	37,200	66,900	34,000	64,800	30,800	62,900	27,300	61,100	23,700	59,300	19,900	57,500	16,000	55,700	11,900
	Sensible Btuh	37,400	9,600	36,600	7,400	35,900	5,100	35,000	2,700	34,200	200	33,300	(2,300)	32,500	(4,900)	31,700	(7,600)	30,800	(10,400)
	S/T	0.531	0.239	0.534	0.199	0.537	0.150	0.540	0.088	0.544	0.007	0.545	0	0.548	0	0.551	0	0.553	0
	Latent Btuh	33,000	30,600	31,900	29,800	31,000	28,900	29,800	28,100	28,700	27,100	27,800	26,000	26,800	24,800	25,800	23,600	24,900	22,300
	Lbs. H20/hr.	31.1	28.9	30.1	28.1	29.2	27.3	28.1	26.5	27.1	25.6	26.2	24.5	25.3	23.4	24.3	22.3	23.5	21.0
	Supply Air DB	56.2	68.5	56.6	70.2	57.0	71.9	57.5	73.6	58.0	75.4	58.4	77.3	58.9	79.2	59.3	81.2	59.7	83.2
	Supply Air WB	55.7	58.1	56.1	59.0	56.5	59.9	57.0	60.9	57.4	61.8	57.8	62.8	58.2	63.8	58.6	64.9	58.9	65.9
	Suction PSIG4	138	128	139	129	140	130	142	131	143	132	144	133	145	135	146	136	146	138
	Discharge PSIG4	300	283	321	297	342	311	364	327	387	343	411	359	436	376	462	394	490	413
80/68.3 (55% RH)	Total Cooling Btuh	93,400	41,300	91,500	38,300	89,800	35,000	87,700	31,900	85,900	28,400	84,000	24,800	82,200	21,000	80,400	17,100	78,600	13,000
	Sensible Btuh	45,900	17,300	45,100	15,100	44,400	12,800	43,500	10,400	42,700	7,900	41,800	5,400	41,000	2,700	40,200	-	39,300	(2,700)
	S/T	0.491	0.42	0.493	0.39	0.494	0.37	0.496	0.33	0.497	0.28	0.498	0.22	0.499	0.13	0.500	0.00	0.500	0
	Latent Btuh	47,500	24,000	46,400	23,200	45,400	22,200	44,200	21,500	43,200	20,500	42,200	19,400	41,200	18,300	40,200	17,100	39,300	15,700
	Lbs. H20/hr.	44.8	22.6	43.8	21.9	42.8	20.9	41.7	20.3	40.8	19.3	39.8	18.3	38.9	17.3	37.9	16.1	37.1	14.8
	Supply Air DB	54.8	69.1	55.3	70.8	55.7	72.5	56.2	74.3	56.6	76.1	57.0	77.9	57.5	79.8	57.9	81.8	58.3	83.8
	Supply Air WB	54.8	58.1	55.2	59.0	55.6	59.9	56.1	60.9	56.5	61.8	56.9	62.8	57.3	63.8	57.6	64.9	58.0	65.9
	Suction PSIG4	138	128	140	129	141	130	142	131	143	133	144	134	145	135	146	137	147	138
	Discharge PSIG4	299	283	319	296	340	311	363	326	386	342	410	358	435	376	461	394	488	412

[1] Values listed are with ventilation package disabled
[2] Return air temperature °F @ Default airflow (1750 CFM) for AC tests and Balanced Climate airflow (1180 CFM) for dehumidification tests
[3] Below 50°F, unit requires a factory or field installed low ambient control.
[4] Suction pressure +/- 4 psi, Discharge pressure +/- 10 psi



AIR CONDITIONING MODE CIRCUIT DIAGRAM



DEHUMIDIFICATION MODE CIRCUIT DIAGRAM

TABLE 3
Dehumidification Relay Logic Board

Energize on Unit Terminal Strip	Mode	Occupied/ Unoccupied	Inputs to the Board				Outputs from the Board	
			Y	W2	A1	D	TWV	YO
Y1, G ①	Cooling	Unoccupied	X					X
Y1, G, A ①	Cooling	Occupied	X		X			X
Y1, G, A, D ①	Cooling w/Dehum ②	Occupied	X		X	X		X
Y1, G, D ①	Cooling w/Dehum ②	Unoccupied	X			X		X
G, B/W1	1st Stage Electric Heat	Unoccupied		X				
G, B/W1, A	1st Stage Electric Heat	Occupied		X	X			
G, B/W1, A, D	1st Stage Electric Heat w/Dehum ③	Occupied		X	X			
G, B/W1, D	1st Stage Electric Heat w/Dehum ③	Unoccupied		X				
G, B/W1, W2	2nd Stage Electric Heat	Unoccupied		X				
G, B/W1, W2, A	2nd Stage Electric Heat	Occupied		X	X			
G, B/W1, W2, A, D	2nd Stage Electric Heat and Dehum ③	Occupied		X	X			
G, B/W1, W2, D	2nd Stage Electric Heat and Dehum ③	Unoccupied		X				
D	Dehum	Unoccupied				X	X ④	X ④
D, A	Dehum	Occupied			X	X	X	X

① The same dehumidification inputs and outputs exist when there is a 2nd stage cooling call as well (Y2).

② Cooling takes precedence over dehumidification. A cooling call cancels dehumidification.

③ The dehumidification input "D" is not received by the board because of an isolation relay that is energized by the call for heating (B/W1). Thus, the heating call (B/W1) always takes precedence over dehumidification.

④ The relay logic board has a jumper (J1) on it to choose between "any-time dehumidification" and "occupied dehumidification". The factory default is P1-P2. With the jumper in the P1-P2 position, dehumidification is available any time there is a "D" input to the relay logic board. With the jumper in the P2-P3 position, dehumidification is available when there is an occupancy signal to the "A1" terminal, "D" would also need to be energized to dehumidify.

Refer to sequence of operation. In most cases cooling and heating modes take priority over dehumidification.

TABLE 4
Electrical Specifications

Model	Rated Volts & Phase	No. Field Power Circuits	Single Circuit				Dual Circuit							
			① Minimum Circuit Ampacity	② Maximum External Fuse or Ckt. Brkr.	③ Field Power Wire Size	③ Ground Wire	① Minimum Circuit Ampacity		② Maximum External Fuse or Ckt. Breaker		③ Field Power Wire Size		③ Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
W3SACDA00, A0Z	230/208-1	1	24	35	8	10								
A05		1	31	35	8	10								
A10		1	57	60	6	10								
A15		1 or 2	83	90	4	8	57	26	60	30	6	10	10	10
A20		1 or 2	109	125	2	6	57	52	60	60	6	6	10	10
W3SACD00, B0Z	230/208-3	1	18	25	10	10								
B06		1	23	25	10	10								
B09		1	32	35	8	10								
B15		1	50	60	8	10								
W3SACD00, C0Z	460-3	1	10	15	14	14								
C06		1	12	15	14	14								
C09		1	17	20	12	12								
C15		1	26	30	10	10								
W4SACD00, A0Z	230/208-1	1	34	50	8	10								
A05		1	34	50	8	10								
A10		1	59	60	6	10								
A15		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10
W4SACD00, B0Z	230/208-3	1	25	35	8	10								
B05		1	25	35	8	10								
B09		1	34	40	8	10								
B18		1	60	60	6	10								
W4SACD00, C0Z	460-3	1	12	15	14	14								
C05		1	12	15	14	14								
C09		1	18	20	12	12								
W5SACD00, A0Z	230/208-1	1	39	50	8	10								
A05		1	39	50	8	10								
A10		1	60	60	6	10								
W5SACD00, B0Z	230/208-3	1	28	40	8	10								
B09		1	35	40	8	10								
B15		1	53	60	6	10								
W5SACD00, C0Z	460-3	1	15	20	12	12								
C09		1	18	20	12	12								
C15		1	27	30	10	10								

① These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electrical code (latest version), Article 310 for power conductor sizing. ***CAUTION:*** *When more than one field power circuit is run through one conduit, the conductors must be derated. Pay special attention to note 8 of Table 310 regarding Ampacity Adjustment Factors when more than three (3) current carrying conductors are in a raceway.*

② Maximum size of the time delay fuse or circuit breaker for protection of field wiring conductors.

③ Based on 75°copper wire. All wiring must conform to the National Electrical Code and all local codes.

NOTE: *The Maximum Overcurrent Protection (MOCP) value listed is the maximum value as per UL 1995 calculations for MOCP (branch-circuit conductor sizes in this chart are based on this MOCP). The actual factory-installed overcurrent protective device (circuit breaker) in this model may be lower than the maximum UL 1995 allowable MOCP value, but still above the UL 1995 minimum calculated value or Minimum Circuit Ampacity (MCA) listed.*

IMPORTANT: *While this electrical data is presented as a guide, it is important to electrically connect properly sized fuses and conductor wires in accordance with the National Electrical Code and all local codes.*