Instruction Guide:

Internal Auxiliary Heater Installation

WaterFurnace. Smarter from the Ground Up™

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General

The EA series electric auxiliary heater mounts internally in vertical units to provide supplemental and/or emergency heating capability. On horizontal units, the EA series electric auxiliary heater control box mounts internally while the electric resistance coil assembly mounts externally. The auxiliary heater uses a control board which contains the line voltage element control relays. Signals from the main unit control energize the relays in a time-staged sequence.

The auxiliary heat element rack and control box are separate assemblies which are connected with modular "quick-connect" plugs.The auxiliary heater feeds line voltage power to the fan and unit transformer to provide emergency heat capability in the event of an open compressor circuit breaker (caused by a malfunctioning compressor).

Installation Steps

NOTE: Refer to the unit and auxiliary heat electrical diagrams for connector identification.

1) Disconnect power supply to unit.
2) Remove blower and compressor section front access panels.
3) Snip the tie holding the 6-pin connector P10 (red, white, tan, pink, blue and orange wires or black and white wires for the Legend Series) to the cabinet in the blower section.
4) For ECM2 models, unplug ring connections to the blower motor. Re-move the ground screw and wire from the blower housing. Leave motor power connected for PSC and X13 models.
5) For vertical units (see Figure 1):
   a) Remove bolts holding the blower into the cabinet and remove blower assembly from unit.
   b) Install auxiliary heat element rack into the unit in place of the blower assembly and replace bolts.
   c) Install blower assembly into the auxiliary heat element rack using bolts provided.
6) For horizontal units (see Figure 2):
   a) Remove (12) screws holding duct flanges to the cabinet.
   b) Install auxiliary heater element rack on unit in place of duct flanges.
   c) Replace (12) screws.
   d) Knock out the 2" knockout and insert the provided bushing.
   e) Run wires through the bushing to the control box.
   f) Seal the gap between the wires and bushing with cork tape.
   g) Install the cover over the exposed electrical elements.
7) Plug the connector(s) from the element rack into the receptacles (P7 and/or P8) on the back of the control box. Plugs may be located in either receptacle (see Figure 3). **Ensure that connectors are engaged correctly. When properly connected, the locking tab must be squeezed for disconnection. For horizontal units, seal hole between elements and air handler compartment with cork tape.**

Installation Steps cont.

8) Install auxiliary heat control box as seen in Figures 2, 4 and 5.
NOTE: Fuse or terminal block is always located on the side opposite from the air coil as shown in Figure 7.
NOTE: Envision End Discharge, Left hand return control box must be located at bottom of access panel as shown in Figure 2A. Side discharge with Right hand return, heater element will be mounted with junction box on bottom side of unit.

9) **E, Premier, and Envision Series only:**
   - Plug the 6-pin connector P10 (previously detached) into the auxiliary heat control board. This should be routed through the opening in the control box near the receptacle on the board. Position the connector so that the red wire, connected to P2-1 on the electrical heat control board the left-most position), is not attached to any of the pins protruding through the board. (The connector on the board has six positions, but only five pins.) See Figures 8A and 8B.

10) **Legend Series only:**
   - Plug the 6-pin connector P10 (previously detached) into the auxiliary heat control board at connection P2. This should be routed through the opening in the control box near the receptacle on the board. Position the connector so that the black wire is aligned with pin C and the white wire is aligned with pin 1 protruding through the board. (The connector on the board has six positions, but only five pins.) See Figures 8A and 8B.
   - Then connect the white and black wires to the screw terminals on the terminal block (TB) located inside the unit's control box (Figure 6). The white wire connects to the W1 terminal and the black wire connects to the C terminal.

11) **ECM2 motors only:**
   - Plug the existing blower power 5-pin connector (brown, orange and green wires) into receptacle P9 on the auxiliary heat control box. The green ground wire on this connector is no longer used and should be clipped or tied to prevent interference with other components.
   - Plug the 5-pin connector (blue, violet and green wires) hanging from the auxiliary heat control box into the ECM2 motor receptacle P11. Connect the green ground wire to the blower housing using the previously removed screw.
   - Reconnect the 16-pin connector from the main control board to ECM2 motor receptacle P12.

12) **PSC Motors E, Premier, and Envision Series only:**
   - For PSC motors, remove safety plug from existing blower power 5-pin connector, (leave white and black wires connected to PSC motor) then plug the blower power 5-pin connector into receptacle P9 on the auxiliary heat control box. The green ground wire on this connector is no longer used and should be clipped or tied to prevent interfering with other components.
   - Insert safety plug into the 5-pin connector hanging from the auxiliary heat control box.
   - Tie off any wire that interferes with blower operation.

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Installation Steps cont.

Figure 6

13) **PSC Motors Legend Series only:**
- For PSC motors, connect the orange and brown blower power wires to the power strip (PS) located inside the unit's control box (Figure 6) as shown in the schematic on page 6.
- Remove safety plug from the blower power wires 5-pin connector, (leave white and black wires connected to PSC motor) then plug the blower power 5-pin connector into receptacle P9 on the auxiliary heat control box. The green ground wire on this connector is no longer used and should be clipped or tied to prevent interfering with other components.
- Insert safety plug into the 5-pin connector hanging from the auxiliary heat control box.
- Tie off any wire that interferes with blower operation
- Proceed to steps 15, 17, 20, and 21 to complete install.

13) **X13 ECM Motors Legend Series only:**
- For X13 ECM motors connect the orange and brown blower power wires to the power strip (PS) located inside the unit's control box as shown in the schematic on page 6.
- Remove safety plug from existing blower power 5-pin connector, (leave white and black wires connected to PSC motor) then plug the blower power 5-pin connector into receptacle P9 on the auxiliary heat control box. The green ground wire on this connector is no longer used and should be clipped or tied to prevent interfering with other components.
- Insert safety plug into the 5-pin connector hanging from the auxiliary heat control box.
- Tie off any wire that interferes with blower operation
- Proceed to steps 15, 17, 20, and 21 to complete install.

IMPORTANT: Remove the black/white and gray/white jumper wires routed from the contactor (CC) to the power strip (PS) in the main control box.

15) Check to ensure that the fan high speed setting is above the minimum CFM required for the heater (see Tables). Wire tie all leads away from blower inlet and rough edges. On vertical bottom discharge units, make sure wires are equipped with a drip loop to prevent condensation from running down to motor or element connectors.

16) On Synergy3D units with 15 and 20 kW electric heat option, line jumpers need to be placed on terminal block P1 from 1 to 3 and 2 to 4. The Premier and Envision series allow four stages of electric heat at 5 kW intervals. The Synergy3D series allows only two stages of electric heat. The first stage will have 10 kW of electric heat, and the second stage will produce either 15 kW or 20 kW of electric heat depending on which model of electric heat is installed.

17) Connect power to the auxiliary heat control box (one or two circuits as per Table 8). For two circuit operation, remove the buss lug jumpers from the fuse block lugs. Circuit 1 should be wired to L1-L2 and circuit 2 should be wired to L3-L4. Circuit 1 (L1-L2) should be sized for the larger breaker (see wiring schematic pages 5-6).

18) Set DIP switch SW3-4 to the "On" position on the main control board.

19) Set SW2-5 to "On" for auxiliary heater.

20) Turn on power supplies to the unit and auxiliary heater.

21) Test run the unit in "Emergency Heat" mode and check operation of the auxiliary heater (with access panels removed). Air discharge temperatures should increase with each stage accordingly (each emergency stage should increase every 2 minutes, each auxiliary stage should increase every 5 minutes). **NOTE:** There is no auxiliary heat staging in the Legend units.

Figure 7

Auxiliary heat control box installation in vertical top discharge and bottom discharge units.

Figure 8A

Figure 8B

Single Supply Circuit Diagram

Dual Supply Circuit Diagram

Field Wiring	Note 1 – For dual circuit operation remove the buss lug jumpers from the fuse block lugs. Circuit 1 should be wired to L1-L2 and circuit 2 should be wired to L3-L4. Circuit 1 (L1-L2) should be sized for the larger breaker (see table 6) due to the blower motor load	Note 2- For 15 and 20 kW electric heat operation on Synergy 3D's. Line jumpers need to placed at terminal block P1 from 1 to 3 and 2 to 4. The Premier and Envision series allows four stages of electric heat at 5 kW intervals. The Synergy 3D series allows only two stages of electric heat at 10 kW intervals.

Legend Series Single Supply Circuit Diagram

Legend Series Dual Supply Circuit Diagram

Field Wiring	Note 1 – For dual circuit operation remove the buss lug jumpers from the fuse block lugs. Circuit 1 should be wired to L1-L2 and circuit 2 should be wired to L3-L4. Circuit 1 (L1-L2) should be sized for the larger breaker (see table 6) due to the blower motor load.

Performance Data PSC Motors

Premier Series

Table 1

Model	Fan Speed	Motor HP	Airflow (CFM) at External Static Pressure (in.wg)														
			0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.5	0.6	0.7	0.8	0.9	1.0
P010*	H	0.10	450	440	420	410	380	360	340	330	310	300	-	-	-	-	-
	MH		410	400	380	370	350	330	310	300	280	270	-	-	-	-	-
	ML		370	360	340	330	310	290	280	270	250	240	-	-	-	-	-
	L		310	300	280	270	250	240	230	220	210	200	-	-	-	-	-
P013*	**H**	0.10	450	440	420	410	390	370	350	340	320	310	-	-	-	-	-
	MH		400	390	380	370	350	340	320	310	290	280	-	-	-	-	-
	ML		370	360	340	330	310	300	290	280	260	250	-	-	-	-	-
	L		330	320	310	300	290	280	260	250	230	220	-	-	-	-	-
P019	**H**	0.17	790	780	775	770	765	760	740	720	690	670	610	-	-	-	-
	M		720	690	685	680	670	660	650	640	620	600	-	-	-	-	-
	L		590	570	560	550	545	540	530	520	510	500	-	-	-	-	-
P022	**H**	0.20	1020	990	960	930	900	870	850	830	800	770	690	-	-	-	-
	M		860	840	820	800	780	760	740	720	690	670	-	-	-	-	-
	L		720	700	680	650	640	620	600	580	570	550	-	-	-	-	-
P028	**H**	0.33	1120	1100	1070	1050	1040	1030	1020	1010	1000	980	830	-	-	-	-
	M		1020	1000	980	960	920	880	860	840	820	790	-	-	-	-	-
	L		860	850	840	830	810	800	780	760	740	710	-	-	-	-	-
P034	**H**	0.50	1360	1340	1300	1270	1230	1200	1170	1150	1120	1090	990	870	-	-	-
	M		1190	1170	1140	1120	1090	1060	1030	1010	970	930	-	-	-	-	-
	L		1010	990	970	950	940	920	900	880	860	840	-	-	-	-	-
P040	**H**	0.50	-	-	1730	1700	1670	1650	1620	1580	1540	1490	1400	1290	-	-	-
	M		1510	1500	1490	1480	1450	1430	1400	1380	1350	1320	-	-	-	-	-
	L		1170	1160	1150	1140	1130	1120	1100	1080	1050	1030	-	-	-	-	-
P046	**H**	0.50	-	-	1870	1820	1780	1750	1720	1680	1630	1580	1450	1330	1190	-	-
	M		1710	1660	1630	1590	1560	1530	1490	1460	1410	1370	-	-	-	-	-
	L		1280	1250	1230	1220	1200	1180	1150	1120	1090	1050	-	-	-	-	-
P056	**H**	0.75	-	-	-	-	2180	2160	2130	2100	2070	2040	1990	1910	1810	1690	-
	M		2030	2010	1990	1970	1950	1930	1910	1880	1850	1830	1780	-	-	-	-
	L		1790	1770	1760	1750	1730	1720	1700	1690	1670	1640	-	-	-	-	-
P066	**H**	1.00	-	-	-	-	2540	2520	2490	2460	2430	2410	2320	2230	2130	1980	1820
	M		2430	2390	2360	2340	2310	2290	2270	2250	2220	2190	2120	2050	-	-	-
	L		2000	1980	1970	1950	1930	1920	1900	1860	1830	1780	-	-	-	-	-

NOTES: * The P013 265V unit is shipped on MH speed and the P010 265V unit is shipped on ML.
Factory settings are indicated by bold print.
Includes allowance for wet coil and clean factory installed filter.

PSC Motor Performance Data

E Series

Table 2

	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
E024																	
Max 1020	High*	1020	1003	984	961	940	908	882	845	810	772	717	653	-	-	-	-
Rated 700	Med	801	795	784	776	761	742	714	692	672	628	580	-	-	-	-	-
Min 580	Low	713	705	691	694	674	665	645	616	594	-	-	-	-	-	-	-
E030																	
Max 1275	High*	1275	1252	1230	1210	1179	1152	1108	1079	1030	991	955	849	687	-	-	-
Rated 900	Med	1052	1042	1034	1027	1001	993	959	940	908	868	836	744	-	-	-	-
Min 720	Low	847	845	844	846	830	829	805	793	768	739	720	-	-	-	-	-
E035																	
Max 1420	High*	1420	1391	1357	1329	1294	1254	1212	1167	1119	1067	1016	892	-	-	-	-
Rated 1100	Med	1214	1199	1185	1152	1127	1096	1056	1031	1002	956	908	-	-	-	-	-
Min 890	Low	1077	1070	1058	1046	1034	1006	974	953	925	890	-	-	-	-	-	-
E040																	
Max 1610	High*	1610	1588	1568	1536	1498	1469	1427	1388	1360	1293	1229	1128	-	-	-	-
Rated 1300	Med	1397	1374	1360	1344	1302	1298	1269	1237	1189	1162	1105	-	-	-	-	-
Min1040	Low	1100	1092	1081	1066	1055	1040	-	-	-	-	-	-	-	-	-	-
E047																	
Max 1800	High*	-	1800	1760	1725	1690	1632	1584	1523	1474	1399	1308	1194	-	-	-	-
Rated 1500	Med	1571	1547	1518	1486	1456	1414	1388	1331	1281	1236	1168	1080	-	-	-	-
Min 1080	Low	1183	1175	1162	1149	1136	1111	1085	-	-	-	-	-	-	-	-	-
E058																	
Max 2160	High*	-	-	-	-	-	-	2160	2115	2057	2016	1963	1860	1722	-	-	-
Rated 2000	Med	-	-	-	2141	2105	2072	2034	1994	1947	1907	1861	1774	1650	-	-	-
Min 1550	Low	2071	2049	2026	2000	1970	1941	1908	1872	1834	1792	1749	1655	1550	-	-	-
E066																	
Max 2300	High*	-	-	-	-	-	2300	2237	2199	2135	2102	2037	1938	1789	1725	-	-
Rated 2200	Med	2282	2249	2224	2198	2157	2134	2091	2056	1995	1964	1915	1817	1676	-	-	-
Min 1630	Low	2059	2030	2008	1983	1942	1924	1877	1853	1812	1770	1730	1630	-	-	-	-

NOTES: * Indicates factory settings.
All units tested with a wet coil and clean 1-inch filter.
E030 265 volt units are shipped on medium speed.

PSC Motor Performance Data cont.

Legend Series

Table 3

Model	Fan Spd	Blower Size	Motor HP	Airflow (cfm) at External Static Pressure (in. wg)															
				0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
024	H	9 x 7	1/5	1065	1045	1030	1005	975	950	925	900	870	835	800	-	-	-	-	-
	M			880	865	850	830	815	795	775	750	725	700	670	-	-	-	-	-
	L			805	790	780	765	745	725	710	685	660	630	600	-	-	-	-	-
030	H	9 x 7	1/3	1120	1100	1070	1050	1040	1030	1020	1010	1000	980	830	-	-	-	-	-
	M			1020	1000	980	960	920	880	860	840	820	790	-	-	-	-	-	-
	L			860	850	840	830	810	800	780	760	740	710	-	-	-	-	-	-
036	H	9 x 7	1/2	1360	1340	1320	1290	1260	1220	1185	1130	1080	1045	1010	910	855	-	-	-
	M			1205	1190	1170	1145	1120	1085	1050	1015	980	940	900	845	-	-	-	-
	L			1070	1060	1050	1035	1020	995	970	940	910	875	840	780	-	-	-	-
042	H	10 x 10	1/2	1705	1685	1665	1645	1625	1595	1565	1530	1500	1450	1405	1260	1140	-	-	-
	M			1485	1475	1465	1445	1430	1410	1390	1350	1315	1260	1210	1110	1010	-	-	-
	L			1180	1165	1150	1135	1120	1090	1060	1030	1000	965	920	855	-	-	-	-
048	**H**	10 x 10	1/2	1930	1910	1885	1860	1830	1790	1750	1710	1665	1620	1580	1280	1235	-	-	-
	M			1580	1565	1550	1535	1525	1505	1485	1445	1410	1310	1215	1130	1030	-	-	-
	L			1180	1170	1160	1140	1120	1100	1080	1050	1020	970	930	875	-	-	-	-
060	H	11 x 10	1	2360	2330	2300	2270	2240	2215	2190	2160	2130	2095	2060	1985	1920	1855	-	-
	M			2165	2130	2095	2070	2050	2030	2010	1985	1965	1930	1900	1850	1775	1700	-	-
	L			1965	1940	1920	1900	1885	1870	1855	1825	1800	1780	1760	1720	1625	1530	-	-
070	**H**	11 x 10	1	2450	2435	2420	2395	2370	2340	2310	2280	2250	2225	2200	2040	2000	1950	-	-
	M			2215	2190	2170	2155	2140	2120	2095	2070	2045	2015	1990	1940	1876	1795	-	-
	L			2005	1990	1975	1960	1950	1940	1925	1910	1890	1865	1845	1780	1710	1565	-	-

11/13/09

Factory settings are in Bold

Air flow values are with dry coil and standard filter

For wet coil performance first calculate the face velocity of the air coil (Face Velocity [fpm] = Airflow [cfm] / Face Area [sq ft]).

Then for velocities of 200 fpm reduce the static capability by 0.03 in. wg, 300 fpm by 0.08 in. wg, 400 fpm by 0.12 in. wg. and 500 fpm by 0.16 in. wg.

X13 ECM Motor Performance Data

Legend Series

Table 4

Model	Motor Spd	Motor Tap	Blower Size	Motor HP	Airflow (cfm) at External Static Pressure (in. wg)															
					0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
024	High	5	9 x 7	1/2	980	960	940	930	920	905	890	875	860	840	820	800	745	-	-	-
	Med High	4			890	878	865	845	825	813	800	785	770	753	735	710	665	-	-	-
	Med	3			830	815	800	788	775	755	735	723	710	690	670	640	600	-	-	-
	Med Low	2			780	760	740	703	665	653	640	620	600	585	570	-	-	-	-	-
	Low	1			625	593	560	535	510	495	480	455	430	410	390	-	-	-	-	-
030	High	5	9 x 7	1/2	1340	1310	1280	1240	1200	1170	1140	1095	1050	1015	980	900	800	-	-	-
	Med High	4			1130	1115	1100	1085	1070	1057	1044	1022	1000	970	940	870	780	-	-	-
	Med	3			1030	1005	980	965	950	935	920	900	880	870	860	830	750	-	-	-
	Med Low	2			960	945	930	915	900	885	870	855	840	825	810	790	740	-	-	-
	Low	1			790	765	740	725	710	690	670	660	650	630	610	580	500	-	-	-
036	High	5	9 x 7	1/2	1370	1345	1320	1285	1250	1220	1190	1158	1125	1085	1045	960	-	-	-	-
	Med High	4			1265	1253	1240	1220	1200	1175	1150	1120	1090	1053	1015	-	-	-	-	-
	Med	3			1160	1143	1125	1113	1100	1085	1070	1055	1040	1020	1000	-	-	-	-	-
	Med Low	2			1110	1095	1080	1065	1050	1038	1025	1008	990	980	970	-	-	-	-	-
	Low	1			825	803	780	770	760	740	720	705	690	670	650	-	-	-	-	-
042	High	5	11 x 10	1	1840	1825	1810	1790	1770	1745	1720	1700	1680	1660	1640	1600	1570	1530	1480	-
	Med High	4			1730	1713	1695	1670	1645	1623	1600	1575	1550	1535	1520	1480	1440	1390	1350	-
	Med	3			1630	1610	1590	1563	1535	1513	1490	1470	1450	1425	1400	1370	1330	1290	-	-
	Med Low	2			1550	1520	1490	1465	1440	1415	1390	1370	1350	1330	1310	1260	1220	1180	-	-
	Low	1			1380	1340	1300	1275	1250	1225	1200	1175	1150	1125	1100	1030	980	820	-	-
048	High	5	11 x 10	1	2060	2045	2030	2015	2000	1970	1940	1925	1910	1890	1870	1830	1800	1750	1740	-
	Med High	4			1880	1860	1840	1825	1810	1785	1760	1740	1720	1705	1690	1640	1610	1570	1535	-
	Med	3			1790	1770	1750	1730	1710	1685	1660	1640	1620	1600	1580	1550	1510	1460	-	-
	Med Low	2			1670	1650	1630	1605	1580	1555	1530	1510	1490	1470	1450	1410	1370	1340	-	-
	Low	1			1430	1405	1380	1353	1325	1303	1280	1255	1230	1210	1190	1130	1070	925	-	-
060	High	5	11 x 10	1	2400	2360	2330	2315	2300	2290	2285	2275	2265	2250	2230	2200	2165	2110	2080	2030
	Med High	4			2180	2160	2140	2130	2120	2105	2090	2075	2060	2045	2030	2000	1960	1930	1890	1850
	Med	3			2080	2050	2020	2010	2000	1985	1970	1955	1940	1925	1910	1870	1840	1800	1760	1720
	Med Low	2			1930	1920	1910	1893	1875	1863	1850	1833	1815	1798	1780	1740	1700	1660	1620	1590
	Low	1			1750	1735	1720	1698	1675	1658	1640	1620	1600	1583	1565	1525	1490	1450	1410	1350
070	High	5	11 x 10	1	2400	2360	2330	2315	2300	2290	2285	2275	2265	2250	2230	2200	2165	2110	2080	2030
	Med High	4			2180	2160	2140	2130	2120	2105	2090	2075	2060	2045	2030	2000	1960	1930	1890	1850
	Med	3			2080	2050	2020	2010	2000	1985	1970	1955	1940	1925	1910	1870	1840	1800	1760	1720
	Med Low	2			1930	1920	1910	1893	1875	1863	1850	1833	1815	1798	1780	1740	1700	1660	1620	1590
	Low	1			1750	1735	1720	1698	1675	1658	1640	1620	1600	1583	1565	1525	1490	1450	1410	1350

Factory settings are in Bold

Air flow values are with dry coil and standard filter

11/13/09

For wet coil performance first calculate the face velocity of the air coil (Face Velocity [fpm] = Airflow [cfm] / Face Area [sq ft]).
Then for velocities of 200 fpm reduce the static capability by 0.03 in. wg, 300 fpm by 0.08 in. wg, 400 fpm by 0.12 in. wg. and 500 fpm by 0.16 in. wg.
ISO/AHRI rating point on the LS*070 will require moving the red wire on the motor to high speed (tap 5) and disconnecting the tan wire from tap 5.

ECM2 Fan Motor Performance Data

Premier Series
Table 5

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
P019	0.50	300	400 L	500 M	600 H	700	800	–	–	–	–	–	–
P022	0.50	–	400	500 L	600 M	700 H	800	900	–	–	–	–	–
P028	0.50	–	400	500 L	600	700 M	800	900 H	1000	1100	–	–	–
P034	0.50	–	–	–	600	700 L	800	900 M	1000	1100 H	1150	1225	1300
P040	0.50	650	750	850 L	950	1050 M	1150	1250	1325 H	1375	1475	–	–
P046	0.50	650	750	850	950	1050 L	1150	1250 M	1325	1375	1475	1550 H	1600
P040 w/1HP*	0.75	800 L	1000 M	1100	1300 H	1500	–	–	–	–	–	–	–
P046 w/1HP*	0.75	800	1000 L	1100 M	1300	1500 H	1600	1800	–	–	–	–	–
P056	0.75	750	900	1000	1200 L	1400 M	1600	1700	1850 H	2000	2200	2300	2400
P066	0.75	750	900	1000	1200	1400 L	1600	1700 M	1850	2000	2200 H	2300	2400

NOTES: * With optional 1HP fan motor.
Factory settings are recommended L-M-H DIP switch locations.
Factory L setting is minimum allowed for cooling.
M-H settings must be located within the shaded CFM range.
CFM is controlled within 5% up to the maximum ESP.
Max ESP includes allowance for wet coil and standard filter.

ECM2 Only

A 12-position DIP switch package on the control allows the airflow levels to be set for Low, Medium and High speeds when using the ECM2 blower motor. Only three of the DIP switches can be in the "On" postion. The lowest position number determines the "Low Speed Fan" setting. The second "On" switch determines the "Medium Speed Fan" setting and the third "On" switch determines the "High Speed Fan" setting.

The example at the right shows SW1 on the control board configured for the following P028 airflow settings:

Low Speed Fan: 500 CFM
Medium Speed Fan: 700 CFM
High Speed Fan: 900 CFM

ECM2 Fan Motor Performance Data cont.

E Series
Table 6

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
Single Speed													
E024	0.50		300	400	500 L	600 M	700 H	800					
E030	0.50		300	400	500 L	600	700 M	800	900 H	1000			
E035	0.50				500	600	700 L	800	900 M	1000	1100 H	1175	1250
E040	0.50	650	750	850 L	950	1050 M	1150	1250	1325 H	1375	1475		
E047	0.50	650	750	850	950	1050 L	1150	1250 M	1325	1375	1475	1550 H	1600
E040 w/1hp	0.75	800 L	1000 M	1100	1300 H	1500							
E047 w/1hp	0.75	800	1000 L	1100	1300 M	1500 H	1600	1800					
E058	0.75	750	900	1000	1200 L	1400 M	1600	1700	1850 H	2000	2200	2300	2400
E066	0.75	750	900	1000	1200	1400 L	1600	1700 M	1850	2000	2200 H	2300	2400
Dual Capacity													
E036	0.50	600 L	700	800 M	900	1000	1100	1200 H	1300	1400	1500	1550	1600
E048	0.50	600 L	700	800	900	1000 M	1100	1200	1300	1400	1500 H	1550	1600
E048*	0.75	750 L	900	1000 M	1200	1400	1600 H	1700	1850	2000	2200	2300	2400
E060	0.75	750 L	900	1000	1200 M	1400	1600	1700	1850	2000 H	2200	2300	2400
E072	0.75	750 L	900	1000	1200	1400 M	1600	1700	1850	2000	2200 H	2300	2400

NOTES: * With optional 1HP fan motor.
Factory settings are recommended L-M-H DIP switch locations.
M-H settings must be located within the shaded CFM range.
CFM is controlled within +/-5% up to the maximum ESP.
Max ESP includes allowance for wet coil and standard filter.
Lowest and highest dip switch settings are assumed to be L and H speed respectively.

ECM2 Fan Motor Performance Data cont.

Envision Series Single Speed

Table 7a

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
022	0.50		400	500 L	600 M	700	800 H	900	1000	1100	1200		
030	0.50		400	500 L	600	700 M	800	900 H	1000	1100	1200		
036	0.50	650	750	850 L	1000	1100 M	1200	1300 H	1400	1500			
036 w/1hp*	0.75	800	1000 L	1100 M	1300 H	1500	1600	1800					
042	0.50	650	800	900 L	1050	1150 M	1250	1350	1450 H	1550			
042 w/1hp*	0.75	800	900 L	1000	1200 M	1400 H	1600	1700	1850	2000	2200	2300	2400
048	0.50	650	800	900	1050 L	1150	1250	1350 M	1450	1550 H			
048 w/1hp*	0.75	800	900	1000 L	1200	1400 M	1600 H	1700	1850	2000	2200	2300	2400
060	0.75	800	950	1100 L	1300	1500 M	1750	1950 H	2100	2300			
070	0.75	800	950	1100 L	1300	1500	1750 M	1950	2100 H	2300			

5/30/06

NOTES: * With optional 1HP fan motor. Factory settings are recommended L-M-H DIP switch locations. M-H settings must be located within the shaded CFM range. CFM is controlled within +/-5% up to the maximum ESP. Max ESP includes allowance for wet coil and standard filter. Lowest and highest dip switch settings are assumed to be L and H speed respectively.

Envision Series Dual Capacity

Table 7b

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
026	0.50		400	500 L	600	700 M	800	900 H	1000	1100	1200		
038	0.50	650	750 L	850	1000	1100 M	1200	1300 H	1400	1500			
038 w/1hp*	0.75	800 L	1000	1100 M	1300 H	1500	1600	1800					
049	0.50	650	800 L	900	1050	1150	1250	1350 M	1450	1550 H			
049 w/1hp*	0.75	800 L	900	1000	1200	1400 M	1600 H	1700	1850	2000	2200	2300	2400
064	0.75	800	950 L	1100	1300	1500 M	1750	1950 H	2100	2300			
072	0.75	800	950	1100 L	1300	1500	1750 M	1950	2100 H	2300			

5/30/06

NOTES: * With optional 1HP fan motor. Factory settings are recommended L-M-H DIP switch locations. M-H settings must be located within the shaded CFM range. CFM is controlled within +/-5% up to the maximum ESP. Max ESP includes allowance for wet coil and standardfi lter. Lowest and highest dip switch settings are assumed to be L and H speed respectively.

Auxiliary Heat Ratings

Table 8

MODEL	KW		STAGES	BTU/HR		MIN CFM	PREMIER UNIT COMPATABILITY										E SERIES COMPATIBILITY											
	208V	240V		208V	240V		10	13	19	22	28	34	40	46	56	66	24	30	35	40	47	58	66	36	48	60	72
EAS(H)4	2.9	3.8	1	9,700	12,900	250	•	•																			
EAM(H)5	3.6	4.8	1	12,300	16,300	450			•	•	•	•					•	•	•								
EAM(H)8	5.7	7.6	2	19,400	25,900	550			•	•	•	•					•	•	•								
EAM(H)10	7.2	9.6	2	24,600	32,700	650				•	•	•						•	•								
EAL(H)10	7.2	9.6	2	24,600	32,700	1100							•	•	•	•				•	•	•	•	•	•	•	•
EAL(H)15	10.8	14.4	3	36,900	49,100	1250							•	•	•	•				•	•	•	•		•	•	•
EAL(H)15-3	10.8	14.4	3	36,900	49,100	1250							•	•	•	•				•	•	•	•		•	•	•
EAL(H)20	14.4	19.2	4	49,200	65,500	1500								•	•	•						•	•		•	•	•

NOTES: High fan tap setting must be above the minimum CFM for the heater selected.
Model numbers indicate horizontal and vertical units.
Example: EAS4=vertical unit; EASH4=horizontal unit.

Table 9

MODEL	KW		STAGES	BTU/HR		MIN CFM	ENVISION SERIES COMPATIBILITY				LEGEND SERIES COMPATIBILITY		
	208V	230V		208V	230V		022	026 - 030	036 - 049	060 - 072	024 - 035	042	048 - 070
EAM(H)5	3.6	4.8	1	12,300	16,300	450	•	•			•		
EAM(H)8	5.7	7.6	2	19,400	25,900	550	•	•			•		
EAM(H)10	7.2	9.6	2	24,600	32,700	650		•			•		
EAL(H)10	7.2	9.6	2	24,600	32,700	1100			•	•		•	•
EAL(H)15	10.8	14.4	3	36,900	49,100	1250			•	•		•	•
EAL(H)20	14.4	19.2	4	49,200	65,500	1500				•			•

NOTES: High fan tap setting must be above the minimum CFM for the heater selected.
Model numbers indicate horizontal and vertical units.
Example: EAS4=vertical unit; EASH4=horizontal unit.

11/23/06

Auxiliary Heat Electrical Data

Table 10

MODEL	KW		STAGES	BTU/HR		MIN CFM	SYNERGY3D COMPATIBILITY			
	208V	230V		208V	230V		038	049	064	072
EAL(H)10	7.2	9.6	2	24,600	32,700	1100	•	•	•	•
EAL(H)15	10.8	14.4	3	36,900	49,100	1250	•	•	•	•
EAL(H)20	14.4	19.2	4	49,200	65,500	1500			•	•

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