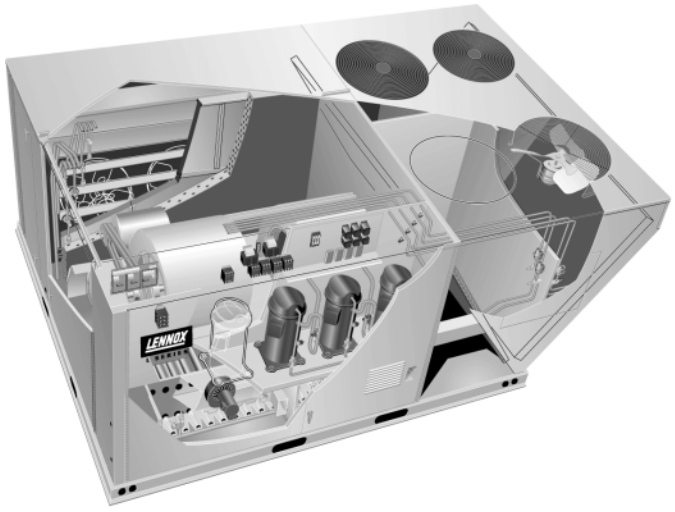
LENNOX Service Literature™

UNIT INFORMATION
Corp. 0224-L7
Revised 01-2009

LGC SERIES
7.5 to 25 ton
26.3 to 88 kW

LGC090S through 300S

The LGC090S, 102S, 120S, 150S, 150H, 156H, 180S, 180H, 210S, 210H, 240S, and 300S (LGC090S/300S) units are configure to order units (CTO) with a wide selection of factory installed options. LGC090S, 102S, 120S and 150S units are available in 130,000, 180,000 Btuh or 240,000 Btuh (38.1, 52.7 or 68.9 kW) heating inputs. LGC180S, 180H, 210S, 210H, 240S and 300S units are available in 260,000, 360,000 or 470,00 Btuh (76.2, 105.5 or 137.7 kW) heating inputs.The LGC180S, 180H, 210S and 210H also has an optional single stage heat in 169,000 Btuh (49.5 kW). LGC156H is available in 260,000 Btuh or 360,000 Btuh (76.2 or 105.5 kW) and has the option for single stage heat in 169,000 Btuh (49.5 kW). Gas heat sections are designed with Lennox' aluminized steel tube heat exchangers with stainless steel as an option.



⚠WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

Cooling capacities range from 7.5 to 25 tons (26.3 to 88 kW). LGC090S, 102S,120S and 150H utilizes two compressors, while the LGC156H, 180S and 180H utilizes three compressors and LGC210S, 210H, 240S and 300S utilizes four compressors.

Units are also designed for R410A refrigerant. See unit nameplate. Operating pressures and pressure switch settings are significantly higher than R22 charged units. Service equipment must be rated for R410A.

All LGC units are designed to accept any of several different energy management thermostat control systems with minimum field wiring. Factory or field provided control options connect to the unit with jack plugs. When "plugged in" the controls become an integral part of the unit wiring.

Information contained in this manual is intended for use by qualified service technicians only. All specifications are subject to change. Procedures outlined in this manual are presented as a recommendation only and do not supersede or replace local or state codes.

If the unit must be lifted for service, rig unit by attaching four cables to the holes located in the unit base rail (two holes at each corner). Refer to the installation instructions for the proper rigging technique.

⚠WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

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SPECIFICATIONS LGC090S/102S

General Data			7.5 Ton			8.5 Ton		
	Nominal Tonnage		7.5 Ton			8.5 Ton		
	Model No.		LGC090S2B			LGC102S2B		
	Efficiency Type		Standard			Standard		
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		96,000 (28.1)			106,000 (31.1)		
	[1] Net Cooling Capacity - Btuh (kW)		93,000 (27.3)			102,000 (29.9)		
	ARI Rated Air Flow - cfm (L/s)		3000 (1415)			3400 (1605)		
	[3] Sound Rating Number (dB)		88			88		
	Total Unit Power (kW)		9.0			9.9		
	[1] EER (Btuh/Watt)		10.3			10.3		
	[2] Integrated Part Load Value (Btuh/Watt)		10.8			10.4		
	Refrigerant Charge Furnished R-22	Circuit 1	6 lbs. 0 oz. (2.72 kg)			6 lbs. 0 oz. (2.72 kg)		
		Circuit 2	6 lbs. 0 oz. (2.72 kg)			6 lbs. 0 oz. (2.72 kg)		
	Refrigerant Charge Furnished R-410A	Circuit 1	Not Available			Not Available		
		Circuit 2	Not Available			Not Available		
	Refrigerant Charge Furnished R-22 w/ Humiditrol Option	Circuit 1	Not Available			Not Available		
		Circuit 2	Not Available			Not Available		
Gas Heating Performance	Two-Stage Heat Input Type		**Standard**	**Medium**	**High**	**Standard**	**Medium**	**High**
	Input - Btuh (kW)	First Stage	84,500 (24.8)	117,000 (34.3)	156,000 (45.7)	84,500 (24.8)	117,000 (34.3)	156,000 (45.7)
		Second Stage	130,000 (38.1)	180,000 (52.7)	240,000 (70.3)	130,000 (38.1)	180,000 (52.7)	240,000 (70.3)
	Output - Btuh (kW)	Second Stage	104,000 (30.5)	144,000 (42.2)	192,000 (56.3)	104,000 (30.5)	144,000 (42.2)	192,000 (56.3)
	CSA Thermal Efficiency		80.0%			80.0%		
	Gas Supply Connections		3/4 in. npt			3/4 in. npt		
	Recommended Gas Supply Pressure - Natural		7 in. w.c. (1.7 kPa)			7 in. w.c. (1.7 kPa)		
	LPG/Propane		11 in. w.c. (2.7 kPa)			11 in. w.c. (2.7 kPa)		
Compressor Type (No.)			Scroll (2)			Scroll (2)		
Condenser Coil	Net face area - sq. ft. (m^2)		29.3 (2.72) total			29.3 (2.72) total		
	Tube diameter - in. (mm)		3/8 (9.5)			3/8 (9.5)		
	Number of rows		1			1		
	Fins per inch (m)		20 (787)			20 (787)		
Condenser Fans	Motor horsepower (W)		(2) 1/3 (249)			(2) 1/3 (249)		
	Motor rpm		1075			1075		
	Total Motor watts		700			700		
	Diameter - in. (mm) - no. of blades		(2) - 24 (610) - 3			(2) 24 (610) - 3		
	Total air volume - cfm (L/s)		8,000 (3775)			8,000 (3775)		
Evaporator Coil	Net face area - sq. ft. (m^2)		10.5 (0.98) total			10.5 (0.98) total		
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 3			3/8 (9.5) - 3		
	Fins per inch (m)		14 (551)			14 (551)		
	Drain connection - no. & size		(1) 1 in. NPT coupling			(1) 1 in. NPT coupling		
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head					
[4] Indoor Blower and Drive Selection	Nominal motor output		2 hp (1.5 kW), 3 hp (2.2 kW), 5 hp (3.7 kW)					
	Maximum usable motor output		2.3 hp (1.7 kW), 3.45 hp (2.6 kW), 5.75 hp (4.3 kW)					
	Motor - Drive kit		2 hp kit #1 - 680 - 925 rpm kit #3 - 895 - 1120 rpm 3 hp kit #1 - 680 - 925 rpm kit #2 - 680 - 925 rpm kit #3 - 895 - 1120 rpm kit #4 - 895 - 1120 rpm kit #5 - 1110 - 1395 rpm kit #6 - 1110 - 1395 rpm 5 hp kit #4 - 895 - 1120 rpm kit #6 - 1110 - 1395 rpm			2 hp kit #1 - 680 - 925 rpm kit #3 - 895 - 1120 rpm 3 hp kit #1 - 680 - 925 rpm kit #2 - 680 - 925 rpm kit #3 - 895 - 1120 rpm kit #4 - 895 - 1120 rpm kit #5 - 1110 - 1395 rpm kit #6 - 1110 - 1395 rpm 5 hp kit #4 - 895 - 1120 rpm kit #6 - 1110 - 1395 rpm		
	Wheel nominal diameter x width - in. (mm)		(1) 15 x 15 (381 x 381)			(1) 15 x 15 (381 x 381)		
Filters	Type of filter		Disposable					
	Number and size - in. (mm)		(4) 18 x 24 x 2 (457 x 610 x 51)					
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase					

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360, 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

[2] Integrated Part Load Value rated at 80°F (27°C) outdoor air temperature.

[3] Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

[4] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS LGC120/150

General Data	Nominal Tonnage		**10 Ton**			**12.5 ton**			
	Model No.		**120S2B R-22 - *120S4B R410A***			**150S2B R22 - *150S4B R410A***			
	Efficiency Type		**Standard**			**Standard**			
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		126,000 (36.6) - *127,000 (37.2)*			145,000 (42.5) - *150,000 (43.9)*			
	[1] Net Cooling Capacity - Btuh (kW)		120,000 (35.2) -*122,000 (35.7)*			138,000 (40.4) - *140,000 (41.0)*			
	ARI Rated Air Flow - cfm (L/s)		3800 (1795) *3600 - (1700)*			4250 (2005)			
	[3] Sound Rating Number (dB)		88			88			
	Total Unit Power (kW)		11.6 - *11.8*			14.5 - *14.4*			
	[1] EER (Btuh/Watt)		10.3			9.5 - *9.7*			
	[2] Integrated Part Load Value (Btuh/Watt)		10.5 - *11.3*			9.2 - *10.2*			
	Refrigerant Charge Furnished R-22 *R410A*	Circuit 1	10 lbs. 0 oz. (4.53 kg) - *11 lbs 12 oz (5.33 kg)*			14 lbs. 0 oz. (6.35 kg) - *13 lbs 0 oz 5.90 kg)*			
		Circuit 2	10 lbs. 0 oz. (4.53 kg) - *11 lbs 12 oz (5.33 kg)*			14 lbs. 0 oz. (6.35 kg) - *11 lbs 8 oz (5.22 kg)*			
	Refrigerant Charge Furnished R-22 *R410A* w/ Humiditrol Option	Circuit 1	Not Available - *13 lbs 8 oz (6.12 kg)*			14 lbs. 8 oz. (6.58 kg) - *13 lbs 0 oz (5.90 kg)*			
		Circuit 2	Not Available - *11 lbs. 8 oz. (5.22 kg*)			14 lbs. 0 oz. (6.35 kg) - *11 lbs. 8 oz. (5.22 kg)*			
Gas Heat Performance	Two-Stage Heat Input Type		**Standard**	**Medium**	**High**	**Standard**	**Medium**	**High**	
	Input - Btuh (kW)	First Stage	84,500 (24.8)	117,000 (34.3)	156,000 (45.7)	84,500 (24.8)	117,000 (34.3)	156,000 (45.7)	
		Second Stage	130,000 (38.1)	180,000 (52.7)	240,000 (70.3)	130,000 (38.1)	180,000 (52.7)	240,000 (70.3)	
	Output - Btuh (kW)	Second Stage	104,000 (30.5)	144,000 (42.2)	192,000 (56.3)	104,000 (30.5)	144,000 (42.2)	192,000 (56.3)	
	CSA Thermal Efficiency		80.0%			80.0%			
	Gas Supply Connections		3/4 in. NPT			3/4 in. NPT			
	Recommended Gas Supply Pressure - Natural		7 in. w.c. (1.7 kPa)			7 in. w.c. (1.7 kPa)			
	LPG/Propane		11 in. w.c. (2.7 kPa)			11 in. w.c. (2.7 kPa)			
Compressor Type (No.)			Scroll (2)			Scroll (2)			
Condenser Coil	Net face area - sq. ft. (m^2)		29.3 (2.72) total			26.6 (2.47) total			
	Tube diameter - in. (mm)		3/8 (9.5)			3/8 (9.5)			
	Number of rows		2			3			
	Fins per inch (m)		20 (787)			20 (787)			
Condenser Fans	Motor horsepower (W)		(2) 1/3 (249)			(2) 1/2 (372)			
	Motor rpm		1075			1075			
	Total Motor watts		700			1150			
	Diameter - in. (mm) - no. of blades		(2) - 24 (610) - 3			(2) 24 (610) - 3			
	Total air volume - cfm (L/s)		8,000 (3775)			9,000 (4245)			
Evaporator Coil	Net face area - sq. ft. (m^2)		10.5 (0.98) total			10.5 (0.98) total			
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 4			3/8 (9.5) - 4			
	Fins per inch (m)		14 (551)			14 (551)			
	Drain connection - no. & size		(1) 1 in. NPT coupling			(1) 1 in. NPT coupling			
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head						
[4] Indoor Blower and Drive Selection	Nominal motor output		2 hp (1.5 kW), 3 hp (2.2 kW), 5 hp (3.7 kW)						
	Maximum usable motor output		2.3 hp (1.7 kW), 3.45 hp (2.6 kW), 5.75 hp (4.3 kW)						
	Motor - Drive kit		2 hp kit #1 - 680 - 925 rpm kit #3 - 895 - 1120 rpm 3 hp kit #1 - 680 - 925 rpm kit #2 - 680 - 925 rpm kit #3 - 895 - 1120 rpm kit #4 - 895 - 1120 rpm kit #5 - 1110 - 1395 rpm kit #6 - 1110 - 1395 rpm 5 hp kit #4 - 895 - 1120 rpm kit #6 - 1110 - 1395 rpm			2 hp kit #1 - 680 - 925 rpm kit #3 - 895 - 1120 rpm 3 hp kit #1 - 680 - 925 rpm kit #2 - 680 - 925 rpm kit #3 - 895 - 1120 rpm kit #4 - 895 - 1120 rpm kit #5 - 1110 - 1395 rpm kit #6 - 1110 - 1395 rpm 5 hp kit #4 - 895 - 1120 rpm kit #6 - 1110 - 1395 rpm		
	Wheel nominal diameter x width - in. (mm)		(1) 15 x 15 (381 x 381)			(1) 15 x 15 (381 x 381)			
Filters	Type of filter		Disposable						
	Number and size - in. (mm)		(4) 18 x 24 x 2 (457 x 610 x 51)			(4) 18 x 24 x 2 (457 x 610 x 51)			
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase						

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360, 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

[2] Integrated Part Load Value rated at 80°F (27°C) outdoor air temperature.

[3] Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

[4] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS LGC156H

General Data	Nominal Tonnage		**13 Ton**		
	Model No.		**156H2B R22 - *156H4B R410A***		
	Efficiency Type		**High**		
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		160,000 (46.8) - *159,000 (46.6)*		
	[1] Net Cooling Capacity - Btuh (kW)		156,000 (45.7) - *154,000 (45.1)*		
	ARI Rated Air Flow - cfm (L/s)		5100 (2405) - *5200 (2455)*		
	Total Unit Power (kW)		12.8 - *12 - 8*		
	[1] EER (Btuh/Watt)		12.2 - *12.0*		
	[2] Integrated Part Load Value (Btuh/Watt)		13.6 - *13.3*		
	Refrigerant Charge Furnished R-22 - *R410A*	Circuit 1	11 lbs. 0 oz. (4.99 kg) - *13 lbs. 0 oz (5.9 kg)*		
		Circuit 2	11 lbs. 0 oz. (4.99 kg) - *13 lbs. 0 oz. (5.9 kg)*		
		Circuit 3	11 lbs. 0 oz. (4.99 kg) - *13 lbs 0 oz. (5.9 kg)*		
	Refrigerant Charge Furnished R-22 - *R410A* with Humiditrol Option	Circuit 1	13 lbs. 8 oz. (6.12 kg) - *13 lbs. 0 oz (5.9 kg)*		
		Circuit 2	13 lbs. 8 oz. (6.12 kg) - *13 lbs. 0 oz (5.9 kg)*		
		Circuit 3	11 lbs. 0 oz. (4.99 kg) - *13 lbs. 0 oz. (5.9 kg)*		
Gas Heating Performance	Heat Input Type		**Low 1 Stage**	**Standard 2 Stage**	**Medium 2 Stage**
	Input - Btuh (kW)	First Stage	169,000 (49.5)	169,000 (49.5)	234,000 (68.6)
		Second Stage	- - -	260,000 (76.2)	360,000 (105.5)
	Output - Btuh (kW)	First Stage	135,000 (39.6)	- - -	- - -
		Second Stage	- - -	208,000 (60.9)	288,000 (84.4)
	CSA Thermal Efficiency		80.0%		
	Gas Supply Connections		1 in.		
	Recommended Gas Supply Pressure	Natural	7 in. w.g. (1.7 kPa)		
		LPG/Propane	11 in. w.g. (2.7 kPa)		
Compressor Type (no.)			Scroll (3)		
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)		
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 2		
	Fins per inch (m)		20 (787)		
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)		
	Motor rpm		1075		
	Total Motor watts		1395		
	Diameter - in. (mm) - No. of blades		(4) 24 (610) - 3		
	Total Air volume - cfm (L/s)		15,450 (7290)		
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)		
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 3		
	Fins per inch (m)		14 (551)		
	Condensate Drain - number and size		(1) 1 in. NPT coupling		
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head		
[3] **Indoor Blower and Drive Selection**	Nominal motor output		2 hp (1.5 kW) 3 hp (2.2 kW) 5 hp (3.7 kW)		
	Maximum usable motor output (US Only)		2.3 hp (1.7 kW) 3.45 hp (2.6 kW) 5.75 hp (4.3 kW)		
	Motor - Drive kit number		2 hp kit #A - 535 - 725 rpm 3 hp kit #A - 535 - 725 rpm kit #1 - 685 - 865 rpm [4] kit #2 - 685 - 865 rpm 5 hp kit #2 - 685 - 865 rpm kit #3 - 850 - 1045 rpm kit #4 - 945 - 1185 rpm		
	Blower wheel nom. dia. x width - in. (mm)		(2) 15 x 15 (381 x 381)		
Filters	Type of filter		Disposable		
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)		
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase		

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

1 Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

2 Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

3 Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

4 Kit #2 is used with high efficiency 3 HP motor only.

SPECIFICATIONS LGC180H

General Data	Nominal Tonnage		**15 Ton**			
	Model No.		**180H2B R22 - *180H4B R410A *180H4B-3 Units***			
	Efficiency Type		**High**			
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		188,000 (55.1) - *190,000 (55.7) *186,000 (54.4)*			
	[1] Net Cooling Capacity - Btuh (kW)		182,000 (53.3) - *184,000 (53.9) *182,000 (53.3)*			
	ARI Rated Air Flow - cfm (L/s)		5700 (2690)			
	Total Unit Power (kW)		15.4 - *16.1 *15.4*			
	[1] EER (Btuh/Watt)		11.8 - *11.4 *11.8*			
	[2] Integrated Part Load Value (Btuh/Watt)		13.3 - *12.8 *13.3*			
	Refrigerant Charge Furnished R22 - *R410A*	Circuit 1	11 lbs. 8 oz. (5.22 kg) - *12 lbs 0 oz (5.67 kg)* *11 lbs 8 oz (5.22 kg)			
		Circuit 2	11 lbs. 8 oz. (5.22 kg) - *12 lbs 0 oz (5.67 kg) *11 lbs 8 oz (5.22 kg)*			
		Circuit 3	11 lbs. 8 oz. (5.22 kg) - *12 lbs 0 oz (5.67 kg) *11.8 oz (5.22 kg)*			
		Circuit 4	- - -			
	Refrigerant Charge Furnished R22 - *R410A* with Humiditrol Option	Circuit 1	14 lbs. 0 oz. (6.35 kg) - *12 lbs 0 oz (5.67 kg) *11 lbs 8 oz (5.22 kg)*			
		Circuit 2	14 lbs. 0 oz. (6.35 kg) - *12 lbs 0 o z (5.67 kg) *11 lbs 8 oz (5.22 kg)*			
		Circuit 3	11 lbs. 8 oz. (5.22 kg) - *12 lbs 0 oz (5.67 kg) *11 lbs 8 oz (5.22 kg)*			
		Circuit 4	- - -			
Gas Heating Performance	Heat Input Type		**Low 1 Stage**	**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**
	Input - Btuh (kW)	First Stage	169,000 (49.5)	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)
		Second Stage	- - -	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)
	Output - Btuh (kW)	First Stage	135,000 (39.6)	- - -	- - -	- - -
		Second Stage	- - -	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)
	CSA Thermal Efficiency		80.0%			
	Gas Supply Connections		1 in.			
	Recommended Gas Supply Pressure	Natural	7 in. w.g. (1.7 kPa)			
		LPG/Propane	11 in. w.g. (2.7 kPa)			
Compressor Type (no.)			Scroll (3)			
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)			
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 2			
	Fins per inch (m)		20 (787)			
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)			
	Motor rpm		1075			
	Total Motor watts		1395			
	Diameter - in. (mm) - No. of blades		(4) 24 (610) - 3			
	Total Air volume - cfm (L/s)		15,450 (7290)			
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)			
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 3			
	Fins per inch (m)		14 (551)			
	Condensate Drain - number and size		(1) 1 in. NPT coupling			
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head			
[3] Indoor Blower and Drive Selection	Nominal motor output		3 hp (2.2 kW) 5 hp (3.7 kW) 7.5 hp (5.6 kW)			
	Maximum usable motor output (US Only)		3.45 hp (2.6 kW) 5.75 hp (4.3 kW) 8.63 hp (6.4 kW)			
	Motor - Drive kit number		3 hp kit #A - 535 - 725 rpm kit #1 - 685 - 865 rpm kit #2 - 685 - 865 rpm 5 hp [4] kit #2 - 685 - 865 rpm kit #3 - 850 - 1045 rpm kit #4 - 945 - 1185 rpm 7.5 hp kit# 5 - 945 - 1185 rpm kit# 6 - 1045 - 1285 rpm kit# 7 - 850 - 1045 rpm			
	Blower wheel nom. dia. x width - in. (mm)		(2) 15 x 15 (381 x 381)			
Filters	Type of filter		Disposable			
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)			
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

1 Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

2 Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

3 Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

4 Kit #2 is used with high efficiency 3 HP motor only.

SPECIFICATIONS LGC180S

General Data	Nominal Tonnage		**15 Ton**			
	Model No.		**LGC180S2B**			
	Efficiency Type		**Standard**			
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		186,000 (54.5)			
	[1] Net Cooling Capacity - Btuh (kW)		180,000 (52.7)			
	ARI Rated Air Flow - cfm (L/s)		6000 (2830)			
	Total Unit Power (kW)		18.0			
	[1] EER (Btuh/Watt)		10.0			
	[2] Integrated Part Load Value (Btuh/Watt)		10.6			
	Refrigerant Charge Furnished (R-22)	Circuit 1	9 lbs. 0 oz. (4.08 kg)			
		Circuit 2	9 lbs. 0 oz. (4.08 kg)			
		Circuit 3	9 lbs. 0 oz. (4.08 kg)			
		Circuit 4	- - -			
Gas Heating Performance	Heat Input Type		**Low 1 Stage**	**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**
	Input - Btuh (KW)	First Stage	169,000 (49.5)	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)
		Second Stage	- - -	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)
	Output - Btuh (kW)	First Stage	135,000 (39.6)	- - -	- - -	- - -
		Second Stage	- - -	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)
	CSA Thermal Efficiency		80.0%			
	Gas Supply Connections		1 in.			
	Recommended Gas Supply Pressure - Natural		7 in. w.g. (1.7 kPa)			
	LPG/Propane		11 in. w.g. (2.7 kPa)			
Compressor Type (no.)			Scroll (3)			
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)			
	Tube diameter - in. (mm)		3/8 (9.5)			
	Number of rows		1			
	Fins per inch (m)		20 (787)			
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)			
	Motor rpm		1075			
	Total Motor watts		1370			
	Diameter - in. (mm)		(4) 24 (610)			
	No. of blades		3			
	Total Air volume - cfm (L/s)		15,850 (7480)			
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)			
	Tube diameter - in. (mm)		3/8 (9.5)			
	No. of rows		3			
	Fins per inch (m)		14 (551)			
	Drain connection - number and size		(1) 1 in. NPT coupling			
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head			
[3] Indoor Blower and Drive Selection	Nominal motor output		3 hp (2.2 kW) 5 hp (3.7 kW) 7.5 hp (5.6 kW)			
	Maximum usable motor output (US Only)		3.45 hp (2.6 kW) 5.75 hp (4.3 kW) 8.63 hp (6.4 kW)			
	Motor - Drive kit		3 hp kit #A - 535 - 725 rpm kit #1 - 685 - 865 rpm kit #2 - 685 - 865 rpm 5 hp [4] kit #2 - 685 - 865 rpm kit #3 - 850 - 1045 rpm kit #4 - 945 - 1185 rpm 7.5 hp kit# 5 - 945 - 1185 rpm kit# 6 - 1045 - 1285 rpm kit# 7 - 850 - 1045 rpm			
	Blower wheel nominal diameter x width		(2) 15 x 15 in. (381 x 381 mm)			
Filters	Type of filter		Disposable			
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)			
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

1 Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

2 Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

3 Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

4 Kit #2 is used with high efficiency 3 HP motor only.

SPECIFICATIONS LGC210H

General Data	Nominal Tonnage		**17.5 Ton**			
	Model No.		**210H2B R22 - *210H4B***			
	Efficiency Type		**High**			
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		218,000 (63.9) - *212,000 962.1)*			
	[1] Net Cooling Capacity - Btuh (kW)		210,000 (61.5) - *204,000 (59.7)*			
	ARI Rated Air Flow - cfm (L/s)		6600 (3115)			
	Total Unit Power (kW)		18.3 - *17.8*			
	[1] EER (Btuh/Watt)		11.5 - *11.5*			
	[2] Integrated Part Load Value (Btuh/Watt)		12.3 - *12.3*			
	Refrigerant Charge Furnished R-22 - *R410A*	Circuit 1	11 lbs. 0 oz. (4.99 kg) - *12 lbs. 8 oz. (5.67 kg)*			
		Circuit 2	11 lbs. 0 oz. (4.99 kg) - *12 lbs. 8 oz. (5.67 kg)*			
		Circuit 3	11 lbs. 0 oz. (4.99 kg) - *12 lbs. 0 oz. (5.44 kg*			
		Circuit 4	11 lbs. 0 oz. (4.99 kg) - *12 lbs. 0 oz. (5.44 kg*			
Cooling Performance	Refrigerant Charge Furnished R-22 - *R410A* with Humiditrol Option	Circuit 1	13 lbs. 0 oz. (5.90 kg) - *12 lbs. 8 oz.)5.67 kg)*			
		Circuit 2	13 lbs. 0 oz. (5.90 kg) - *12 lbs. 8 oz. (5.67 kg)*			
		Circuit 3	11 lbs. 0 oz. (4.99 kg) - *12 lbs 0 oz. (5.44 kg)*			
		Circuit 4	11 lbs. 0 oz. (4.99 kg) - *12 lbs 0 oz. (5.44 kg)*			
Gas Heating Performance	Heat Input Type		**Low 1 Stage**	**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**
	Input - Btuh (kW)	First Stage	169,000 (49.5)	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)
		Second Stage	- - -	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)
	Output - Btuh (kW)	First Stage	135,000 (39.6)	- - -	- - -	- - -
		Second Stage	- - -	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)
	CSA Thermal Efficiency		80.0%			
	Gas Supply Connections		1 in.			
	Recommended Gas Supply Pressure	Natural	7 in. w.g. (1.7 kPa)			
		LPG/Propane	11 in. w.g. (2.7 kPa)			
Compressor Type (no.)			Scroll (4)			
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)			
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 2			
	Fins per inch (m)		20 (787)			
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)			
	Motor rpm		1075			
	Total Motor watts		1395			
	Diameter - in. (mm) - No. of blades		(4) 24 (610) - 3			
	Total Air volume - cfm (L/s)		15,450 (7290)			
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)			
	Tube diameter - in. (mm) - No. of rows		3/8 (9.5) - 4			
	Fins per inch (m)		14 (551)			
	Condensate Drain - number and size		(1) 1 in. NPT coupling			
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head			
[3] Indoor Blower and Drive Selection	Nominal motor output		3 hp (2.2 kW) 5 hp (3.7 kW) 7.5 hp (5.6 kW)			
	Maximum usable motor output (US Only)		3.45 hp (2.6 kW) 5.75 hp (4.3 kW) 8.63 hp (6.4 kW)			
	Motor - Drive kit number		3 hp kit #A - 535 - 725 rpm kit #1 - 685 - 1045 rpm [4]kit #2 - 685 - 1045 rpm 5 hp kit #2 - 685 - 865 rpm kit #3 - 850 - 865 rpm kit #4 - 945 - 1185 rpm 7.5 hp kit# 5 - 945 - 1185 rpm kit# 6 - 1045 - 1285 rpm kit# 7 - 850 - 1045 rpm			
	Blower wheel nom. dia. x width - in. (mm)		(2) 15 x 15 (381 x 381)			
Filters	Type of filter		Disposable			
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)			
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

[2] Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

[3] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

[4] Kit #2 is used with high efficiency 3 HP motor only.

SPECIFICATIONS LGC210S

General Data	Nominal Tonnage		**17.5 Ton**			
	Model No.		**LGC210S2B**			
	Efficiency Type		**Standard**			
Cooling Performance	Gross Cooling Capacity - Btuh (kW)		212,000 (62.1)			
	[1] Net Cooling Capacity - Btuh (kW)		204,000 (59.8)			
	ARI Rated Air Flow - cfm (L/s)		6800 (3210)			
	Total Unit Power (kW)		20.4			
	[1] EER (Btuh/Watt)		10.0			
	[2] Integrated Part Load Value (Btuh/Watt)		10.5			
	Refrigerant Charge Furnished (R-22)	Circuit 1	7 lbs. 0 oz. (3.18 kg)			
		Circuit 2	7 lbs. 0 oz. (3.18 kg)			
		Circuit 3	7 lbs. 0 oz. (3.18 kg)			
		Circuit 4	7 lbs. 0 oz. (3.18 kg)			
Gas Heating Performance	Heat Input Type		**Low 1 Stage**	**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**
	Input - Btuh (KW)	First Stage	169,000 (49.5)	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)
		Second Stage	- - -	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)
	Output - Btuh (kW)	First Stage	135,000 (39.6)	- - -	- - -	- - -
		Second Stage	- - -	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)
	CSA Thermal Efficiency		80.0%			
	Gas Supply Connections		1 in.			
	Recommended Gas Supply Pressure - Natural		7 in. w.g. (1.7 kPa)			
	LPG/Propane		11 in. w.g. (2.7 kPa)			
Compressor Type (no.)			Scroll (4)			
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)			
	Tube diameter - in. (mm)		3/8 (9.5)			
	Number of rows		1			
	Fins per inch (m)		20 (787)			
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)			
	Motor rpm		1075			
	Total Motor watts		1370			
	Diameter - in. (mm)		(4) 24 (610)			
	No. of blades		3			
	Total Air volume - cfm (L/s)		15,850 (7480)			
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)			
	Tube diameter - in. (mm)		3/8 (9.5)			
	No. of rows		3			
	Fins per inch (m)		14 (551)			
	Drain connection - number and size		(1) 1 in. NPT coupling			
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head			
[3] Indoor Blower and Drive Selection	Nominal motor output		3 hp (2.2 kW) 5 hp (3.7 kW) 7.5 hp (5.6 kW)			
	Maximum usable motor output (US Only)		3.45 hp (2.6 kW) 5.75 hp (4.3 kW) 8.63 hp (6.4 kW)			
	Motor - Drive kit		3 hp kit #A - 535 - 725 rpm kit #1 - 685 - 1045 rpm kit #2 - 685 - 1045 rpm 5 hp [4]kit #2 - 685 - 865 rpm kit #3 - 850 - 865 rpm kit #4 - 945 - 1185 rpm 7.5 hp kit# 5 - 945 - 1185 rpm kit# 6 - 1045 - 1285 rpm kit# 7 - 850 - 1045 rpm			
	Blower wheel nominal diameter x width		(2) 15 x 15 in. (381 x 381 mm)			
Filters	Type of filter		Disposable			
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)			
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase			

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

1 Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

2 Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

3 Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

4 Kit #2 is used with high efficiency 3 HP motor only.

SPECIFICATIONS LGC240S & LGC300S

General Data			20 Ton LGC240S2B Standard			25 Ton 300S2B R22 - *300S4B* Standard		
Cooling Performance	Nominal Tonnage							
	Model No.							
	Efficiency Type							
	Gross Cooling Capacity - Btuh (kW)		243,000 (71.2)			302,000 (88.4) - *294,000 (86.1)*		
	Net Cooling Capacity - Btuh (kW)		[1] 232,000 (67.9)			[2] 286,000 (83.7) - *274,000*		
	Total Unit Power (kW)		24.4			30.1 - *28.8*		
	ARI Rated Air Flow - cfm (L/s)		8000 (3775)			9000 (4250)		
	EER (Btuh/Watt)		[1] 9.5			[2] 9.5 - *9.5*		
	[3] Integrated Part Load Value (Btuh/Watt)		9.8			9.7 - *9.7*		
	Refrigerant Charge Furnished R-22 - *R410A*	Circuit 1	11 lbs. 0 oz. (4.99 kg)			11 lbs. 4 oz. (5.10 kg) - *11lbs 4oz (5.10 kg)*		
		Circuit 2	11 lbs. 0 oz. (4.99 kg)			11 lbs. 4 oz. (5.10 kg) - *11 lbs 4 oz (5.10 kg)*		
		Circuit 3	11 lbs. 0 oz. (4.99 kg)			11 lbs. 4 oz. (5.10 kg) - *11 lbs 4 oz (5.10 kg)*		
		Circuit 4	11 lbs. 0 oz. (4.99 kg)			11 lbs. 4 oz. (5.10 kg) *11 lbs 4 oz (5.10 kg)*		
	Refrigerant Charge Furnished R-22 - *R410A* with Humiditrol Option	Circuit 1	Not Available			12 lbs. 4 oz. (5.56 kg) - *11 lbs 4 oz (5.10kg)*		
		Circuit 2	Not Available			12 lbs. 4 oz. (5.56 kg) - *11 lbs 4 oz (5.10kg)*		
		Circuit 3	Not Available			11 lbs. 4 oz. (5.10 kg) *11 lbs 4 oz (5.10kg)*		
		Circuit 4	Not Available			11 lbs. 4 oz. (5.10 kg) - *11 lbs 4 oz (5.10kg)*		
Gas Heating Performance	Heat Input Type		**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**	**Standard 2 Stage**	**Medium 2 Stage**	**High 2 Stage**
	Input - Btuh (kW)	First Stage	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)	169,000 (49.5)	234,000 (68.6)	312,000 (91.4)
		Second Stage	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)	260,000 (76.2)	360,000 (105.5)	480,000 (140.6)
	Output - Btuh (kW)	Second Stage	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)	208,000 (60.9)	288,000 (84.4)	384,000 (112.5)
	CSA Thermal Efficiency		80.0%			80.0%		
	Gas Supply Connections		1 in.			1 in.		
	Recommended Gas Supply Pressure	Natural	7 in. w.g. (1.7 kPa)			7 in. w.g. (1.7 kPa)		
		LPG/Propane	11 in. w.g. (2.7 kPa)			11 in. w.g. (2.7 kPa)		
Compressor Type (no.)			Scroll (4)			Scroll (4)		
Condenser Coils	Net face area - sq. ft. (m^2) total		56.5 (5.25)			56.5 (5.25)		
	Tube diameter - in. (mm)		3/8 (9.5)			3/8 (9.5)		
	Number of rows		2			2		
	Fins per inch (m)		20 (787)			20 (787)		
Condenser Fans	Motor horsepower (W)		(4) 1/3 (249)			(4) 1/2 (373)		
	Motor rpm		1075			1075		
	Total Motor watts		1395			1800		
	Diameter - in. (mm)		(4) 24 (610)			(4) 24 (610)		
	No. of blades		3			3		
	Total Air volume - cfm (L/s)		15,450 (7290)			16,000 (7550)		
Evaporator Coils	Net face area - sq. ft. (m^2) total		22.3 (2.07)			22.3 (2.07)		
	Tube diameter - in. (mm)		3/8 (9.5)			3/8 (9.5)		
	No. of rows		3			4		
	Fins per inch (m)		14 (551)			14 (551)		
	Drain connection - number and size		(1) 1 in. NPT coupling			(1) 1 in. NPT coupling		
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head					
[4] Indoor Blower and Drive Selection	Nominal motor output		5 hp (3.7 kW) 7.5 hp (5.6 kW) 10 hp (7.5 kW)			5 hp (3.7 kW) 7.5 hp (5.6 kW) 10 hp (7.5 kW)		
	Maximum usable motor output (US Only)		5.75 hp (4.3 kW) 8.63 hp (6.4 kW) 11.5 hp (8.6 kW)			5.75 hp (4.3 kW) 8.63 hp (6.4 kW) 11.5 hp (8.6 kW)		
	Motor - Drive kit		5 hp kit #2 - 685 - 865 rpm kit #3 - 850 - 1045 rpm kit #4 945 - 1185 rpm 7.5 hp kit #5 - 945 - 1185 rpm kit #6 - 1045 - 1285 rpm kit #7 - 850 - 1045 rpm 10 hp kit #6 - 1045-1285 rpm kit #8 - 1135-1365 rpm			5 hp kit #2 - 685 - 865 rpm kit #3 - 850 - 1045 rpm kit #4 - 945-1185 rpm 7.5 hp kit #5 - 945 - 1185 rpm kit#6 - 1045-1285 rpm kit #7 - 850 - 1045 rpm 10 hp kit #6 - 1045 - 1285 rpm kit #8 - 1135-1365 rpm		
	Blower wheel nominal diameter x width		(2) 15 x 15 in. (381 x 381 mm)			(2) 15 x 15 in. (381 x 381 mm)		
Filters	Type of filter		Disposable					
	No. and size - in. (mm)		(6) 24 x 24 x 2 (610 x 610 x 51)					
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase					

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

[2] Tested at conditions included in with ARI Standard 340/360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

[3] Integrated Part Load Value tested at 80°F (27°C) outdoor air temperature.

[4] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

OPTIONAL ACCESSORIES LGC090/150

The catalog and part numbers that appear here are for ordering field installed accessories only.							
Item		**Factory**	**Field**	**090**	**102**	**120**	**150**
Cabinet Accessories	Coil Guards		⇒	**88K51**			
	Grille Guards		⇒	**86K29**			
	Hail Guards		⇒	**88K24**			
	Horizontal Conversion Kit		⇒	**56K53**			
Ceiling Diffusers	Step-Down - Net Weight		⇒	RTD11-95 88 lbs. (40 kg)	RTD11-135 205 lbs. (93 kg)		RTD11-185 392 lbs. (178 kg)
	Flush - Net Weight		⇒	FD11-95 75 lbs. (34 kg)	FD11-135 174 lbs. (79 kg)		FD11-185 289 lbs. (131 kg)
	Transitions (Supply and Return) - Net Weight		⇒	LASRT08/10 30 lbs (14 kg)	LASRT10/12 32 lbs (15 kg)		LASRT15 36 lbs. (16 kg)
Controls	Blower Proving Switch	•	⇒	**18L89**			
	Commercial Controls	•	⇒	See Engineering Handbook			
	Dirty Filter Switch	•	⇒	**30K48**			
	Economizer Enthalpy Control - Differential	•	⇒	**16K97**			
	Economizer Enthalpy Control - Outdoor	•	⇒	**16K96**			
	Economizer Control - Global (sensor must be field provided)	•		See Engineering Handbook			
	Economizer Control - Sensible	•		See Engineering Handbook			
	Humidity Sensor Kit, Remote Mounted		⇒	**17M50**			
	Unit Controller PC Software		⇒	**96L80**			
	Smoke Detector - Supply	•	⇒	**16M24**			
	Smoke Detector - Return	•	⇒	**16M23**			
Cooling Accessories	PVC Condensate Drain Trap	•	⇒	**37K70**			
	Copper Condensate Drain Trap	•	⇒	**48K14**			
	Service Valves	•		Factory installed option			
Corrosion Protection		•		Factory installed option			
Economizer/ Outdoor Air Exhaust/ Power Exhaust Options	Economizer - Net Weight	•	⇒	LAREMD10/15 - 47 lbs. (21 kg)			
	Down-Flow Barometric Relief Dampers - Net Weight	•	⇒	LAGED10/15 - 8 lbs. (4 kg)			
	Horizontal Barometric Relief Dampers - Net Weight		⇒	LAGEDH03/15 - 8 lbs. (4 kg)			
	Hood for Down-Flow LAGED		⇒	LAGEH09/15			
	Power Exhaust Fan - Net Weight	•	⇒	LAPEF10/15 0 28 lbs. (13 kg)			
	Outdoor Air Hood - Net Weight Number and Size of Filters	•	⇒	LAOAH10/15 - 11 lbs. (5 kg) (2) 16 x 25 x 1 in. (406 x 635 x 25 mm)			
Electrical Accessories	HACR Circuit Breaker	•		Factory installed option			
	Disconnect Switch	•	⇒	**30M38**			
	GFI Service Outlets	•	⇒	**31M78**			
Filters	MERV 11 High Efficiency	•	⇒	**97L86** (18 x 24 x 2 order four per unit)			
Gas Heating Accessories	Combustion Air Intake Extensions		⇒	**89L97**			
	Fresh Air Tempering Kit	•	⇒	**45L78**			
	LPG/Propane Kits		⇒	**23M91** - Standard heat, **98L35** - High Heat			
	Stainless Steel Heat Exchanger	•		Factory installed option			
	Vertical Vent Extension Kit		⇒	**27M58**			
Humiditrol® Condenser Reheat Option 090H, 102H, 120H and 150S		•		Factory installed option			
	Humidity Sensor Kit, Remote Mounted (required)		⇒	**17M50**			
Indoor Air Quality (CO_2) Sensors	CO_2 Sensor Duct Mounting Kit		⇒	**85L43**			
	Sensor - white case CO_2 display		⇒	**77N39**			
	Sensor - white case no display		⇒	**87N53**			
	Sensor - black case CO_2 display		⇒	**87N52**			
	Sensor - duct mount, black, no display		⇒	**87N54**			
	Aspiration Box for duct mounting		⇒	**90N43**			
	Handheld CO_2 Monitor		⇒	**70N93**			
Outdoor Air Dampers	Damper Section (down-flow) - Automatic - Net Weight	•	⇒	LAOADM10/15 - 31 lbs. (14 kg)			
	Damper Section (down-flow) - Manual - Net Weight	•	⇒	LAOAD10/15 - 26 lbs. (12 kg)			
	Outdoor Air Hood (down-flow) Net Weight - Number and Size of Filters	•	⇒	LAOAH10/15 - 11 lbs. (5 kg) (2) 16 x 25 x 1 in. (406 x 635 x 25 mm)			
Down-Flow Roof Curbs	14 in. (356 mm) height - Net Weight		⇒	LARMF10/15-14 - 126 lbs. (57 kg)			
	24 in. (610 m) height - Net Weight		⇒	LARMF10/15-24 - 174 lbs. (79 kg)			

OPTIONAL ACCESSORIES LGC156/300

OPTIONs / ACCESSORIES

Item		Catalog No.	156	180	210	240	300S
COOLING SYSTEM							
Condensate Drain Trap	PVC - LTACDKP09/36	**76M18**	⊗	⊗	⊗	⊗	⊗
	Copper - LTACDKC09/36	**76M19**	⊗	⊗	⊗	⊗	⊗
Corrosion Protection		Factory	○	○	○	○	○
Efficiency	Standard	Factory		○	○	○	○
	High	Factory	○	○	○	○	
Refrigerant Type	R-22	Factory	○	○	○	○	○
	R-410A	Factory	○	○	○	○	○
Service Valves (not for Humiditrol Units)		Factory	○	○	○	○	○
Stainless Steel Condensate Drain Pan		Factory	○	○	○	○	○
HEATING SYSTEM							
Combustion Air Intake Extensions	LTACAIK10/15	**89L97**	[1]**x**	[1]**x**	[1]**x**	[1]**x**	[1]**x**
Gas Heat Input	Low - 169 kBtuh input	Factory	○	○	○		
	Standard - 260 kBtuh input	Factory	○	○	○	○	○
	Medium - 360 kBtuh input	Factory	○	○	○	○	○
	High - 480 kBtuh input	Factory		○	○	○	○
Low Temperature Vestibule Heater		Factory	○	○	○	○	○
LPG/Propane Conversion Kits	169 kBtuh input (order 1 kit) **-** LTALPGK-130	**72M94**	[1]**x**	[1]**x**	[1]**x**		
	260 kBtuh input (order 2 kits) **-** LTALPGK-130	**72M94**	[1]**x**	[1]**x**	[1]**x**	[1]**x**	[1]**x**
	360 kBtuh input (order 2 kits) **-** LTALPGK-180	**72M95**	[1]**x**	[1]**x**	[1]**x**	[1]**x**	[1]**x**
	480 kBtuh input (order 2 kits) **-** LTALPGK-240	**72M96**		[1]**x**	[1]**x**	[1]**x**	[1]**x**
Side Gas Piping Kit	C1GPKT01C-	**85M31**	**x**	**x**	**x**	**x**	**x**
Stainless Steel Heat Exchanger		Factory	○	○	○	○	○
Vertical Vent Extension	LTAWEK10/15	**73M72**	[1]**x**	[1]**x**	[1]**x**	[1]**x**	[1]**x**
Blower – SUPPLY AIR							
Constant Air Volume	2 hp Standard or High Efficiency	Factory	○				
	3 hp Standard or High Efficiency	Factory	○	○	○		
	5 hp Standard or High Efficiency	Factory	○	○	○	○	○
	7.5 hp Standard or High Efficiency	Factory		○	○	○	○
	10 hp Standard or High Efficiency	Factory				○	○
CABINET							
Coil Guards		**88K52**	**x**	**x**	**x**	**x**	**x**
Grille Guards		**72K78**	**x**	**x**	**x**	**x**	**x**
Hail Guards		**88K25**	**x**	**x**	**x**	**x**	**x**
Horizontal Return Air Panel Kit		**87M00**	**x**	**x**	**x**	**x**	**x**
CONTROLS							
Blower Proving Switch	C0SWCH01AE1-	**30K49**	⊗	⊗	⊗	⊗	⊗
Commercial Controls	L Connection® Building Automation System	**- - -**	⊗	⊗	⊗	⊗	⊗
	Novar® ETM-2051 Unit Controller	**71M58**	⊗	⊗	⊗	⊗	⊗
	Sectra™ Zoning System with Bypass Control - C0CTRL04BD1L	**34M42**	⊗	⊗	⊗	⊗	⊗
	Sectra™ Zoning System Single Zone Control - C0CTRL03BD1L	**71M59**	⊗	⊗	⊗	⊗	⊗
Dirty Filter Switch	C0SWCH00AE1-	**30K48**	⊗	⊗	⊗	⊗	⊗
Fresh Air Tempering	C0SNDC03AE1-	**45L78**	⊗	⊗	⊗	⊗	⊗
Smoke Detector - Supply	LTSASDK10/36	**70K87**	⊗	⊗	⊗	⊗	⊗
Smoke Detector - Return	LTARSDK10/30	**70K86**	⊗	⊗	⊗	⊗	⊗

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
⊗ - Field Installed or Configure to Order (factory installed)
○ - Configure to Order (Factory Installed)
X - Field Installed.
[1] Order two each.

OPTIONs / ACCESSORIES

Item		Catalog No.	156	180	210	240	300S
INDOOR AIR QUALITY							
Air Filters							
Healthy Climate® High Efficiency Air Filters 24 x 24 x 2 - order 6 per unit	MERV 11 - C1FLTR20C-1-	**97L87**	⊗	⊗	⊗	⊗	⊗
	MERV 15 - C1FLTR50C-1-	**28W05**	x	x	x	x	x
Replaceable Media Filter With Metal Mesh Frame (includes non-pleated filter media)	C1FLTR30C 24 x 24 x 2 order 6 per unit	**44N61**	x	x	x	x	x
Germicidal Lamps							
Healthy Climate® UVC Germicidal Lamps	208/230V - C1UVCL10C	**X7521**	x	x	x	x	x
	460V - C1UVCL10C	**X7526**	x	x	x	x	x
	575V - C1UVCL10C	**X7531**	x	x	x	x	x
Indoor Air Quality Sensors							
CO_2 Sensor - white case w/ display	C0SNSR50AE1L	**77N39**	x	x	x	x	x
CO_2 Sensor - white case, no display	C0SNSR52AE1L	**87N53**	x	x	x	x	x
CO_2 Sensor - black case w/ display	C0SNSR51AE1L	**87N52**	x	x	x	x	x
CO_2 Sensor - black case, no display	C0SNSR53AE1L	**87N54**	x	x	x	x	x
CO_2 Sensor Duct Mounting Kit	C0MISC19AE1-	**85L43**	x	x	x	x	x
Aspiration Box for duct mounting Sensor	C0MISC16AE1-	**90N43**	x	x	x	x	x
Handheld CO_2 Monitor	LTAIAQSHM03/36	**70N93**	x	x	x	x	x
ELECTRICAL							
Voltage 60 hz	208/230V - 3 phase	Factory	○	○	○	○	○
	460V - 3 phase	Factory	○	○	○	○	○
	575V - 3 phase	Factory	○	○	○	○	○
HACR Circuit Breakers		Factory	○	○	○	○	○
Disconnect Switch - See Electrical / Electric Heat Tables for selection	80 Amp	**84M13**	⊗	⊗	⊗	⊗	⊗
	150 Amp	**84M14**	⊗	⊗	⊗	⊗	⊗
	250 Amp	**84M15**	⊗	⊗	⊗	⊗	⊗
GFI Service Outlets	LTAGFIK10/15	**74M70**	⊗	⊗	⊗	⊗	⊗
Phase Monitor		Factory	○	○	○	○	○
ECONOMIZER							
Economizer - Order Hood Separately	LAREMD18/24	**16K95**	⊗	⊗	⊗	⊗	⊗
Outdoor Air Hood (down-flow) Number of Filters - 16 x 25 x 1 in.	C1HOOD10C-1 (3)	**85M25**	⊗	⊗	⊗	⊗	⊗
Economizer Controls							
Differential Enthalpy	C1SNSR07AE1	**86M33**	⊗	⊗	⊗	⊗	⊗
Single Enthalpy	C1SNSR06AE1	**86M32**	⊗	⊗	⊗	⊗	⊗
Global, Enthalpy	Sensor Field Provided	Factory	○	○	○	○	○
Differential Sensible	Furnished	Factory	○	○	○	○	○
Barometric Relief							
Down-Flow Barometric Relief Dampers - Order Hood Separately	LAGED18/24	**16K98**	⊗	⊗	⊗	⊗	⊗
Hood for Down-Flow LAGED	C1HOOD20C-1	**85M26**	⊗	⊗	⊗	⊗	⊗
Horizontal Barometric Relief Dampers - Hood Furnished	LAGEDH18/24	**16K99**	⊗	⊗	⊗	⊗	⊗

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X - Field Installed.

OPTIONs / ACCESSORIES

Item		Catalog No.	156	180	210	240	300S
HUMIDITROL® CONDENSER REHEAT OPTION							
Humiditrol		Factory	H	H	H	H	S
Humidity Sensor Kit, Remote Mounted (required)	C0SNSR31AE-1	**17M50**	x	x	x	x	x
Remote Sensor Wall Seal Plate	C0MISC18AE-1	**58L33**	x	x	x	x	x
OUTDOOR AIR							
Outdoor Air Dampers							
Damper Section (down-flow) - Order Hood Separately	Motorized - LAOADM18/24	**16K94**	⊗	⊗	⊗	⊗	⊗
	Manual - LAOAD18/24	**16K93**	⊗	⊗	⊗	⊗	⊗
Outdoor Air Hood (down-flow) - Number of Filters - 16 x 25 x 1 in.	C1HOOD10C (3)	**85M25**	⊗	⊗	⊗	⊗	⊗
Power Exhaust							
Standard Static	208/230V - C1PWRE20C-1Y	**85M37**	⊗	⊗	⊗	⊗	⊗
	460V - C1PWRE20C-1G	**85M38**	⊗	⊗	⊗	⊗	⊗
	575V - C1PWRE20C-1J	**85M39**	⊗	⊗	⊗	⊗	⊗
ROOF CURBS – CLIPLOCK 1000							
Down-Flow							
8 in. height	C1CURB40CD1	**26W32**	x	x	x	x	x
14 in. height	LARMF18/30S-14	**33K44**	x	x	x	x	x
18 in. height	LARMF18/30S-18	**33K45**	x	x	x	x	x
24 in. height	LARMF18/30S-24	**33K46**	x	x	x	x	x
Horizontal - Canada Only							
26 in. height	LARMFH18/24S-26	**33K47**	x	x	x	x	x
37 in. height	LARMFH18/24S-37	**45K70**	x	x	x	x	x
ROOF CURBS – STANDARD							
Down-Flow							
14 in. height	LARMF18/36-14	**16K87**	x	x	x	x	x
24 in. height	LARMF18/36-24	**16K88**	x	x	x	x	x
Horizontal							
26 in. height - Rooftop Applications	LARMFH18/24-26	**97J33**	x	x	x	x	x
37 in. height - Slab Applications	LARMFH18/24-37	**38K53**	x	x	x	x	x
30 in. height - Rooftop applications	LARMFH30/36-30	**33K79**					x
41 in. height - Slab applications	LARMFH30/36-41	**38K54**					x
Horizontal Air Panel Kit	C1HAP10C-1	**87M00**	x	x	x	x	x
Insulation Kits							
for LARMFH18/24-26	C1INSU11C-1	**73K32**	x	x	x	x	x
for LARMFH18/24-37	C1INSU13C-1	**73K34**	x	x	x	x	x
for LARMFH30/36-30		**73K33**					x
for LARMFH30/36-41		**73K35**					x
CEILING DIFFUSERS							
Step-Down - Order one	RTD11-185	**29G06**	x	x			
	(Canada Only) RTD11-150/180S	**13K63**	x	x			
	RTD11-275-R	**29G07**			x	x	x
	(Canada Only) RTD11-275S	**13K64**			x	x	x
Flush - Order one	FD11-185	**29G10**	x	x			
	(Canada Only) FD11-150/180S	**13K58**	x	x			
	FD11-275-R	**29G11**			x	x	x
	(Canada Only) FD11-275S	**13K59**			x	x	x
Transitions (Supply and Return) - Order one	LASRT18	**19K01**	x	x			
	(Canada Only) LASRT18S	**33K48**	x	x			
	LASRT21/24	**19K02**			x	x	x
	(Canada Only) LASRT21/24S	**33K49**			x	x	x

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
⊗ - Field Installed or Configure to Order (factory installed)
X - Field Installed.
S - Configure to Order (Factory Installed) Standard Efficiency Models Only
H - Configure to Order (Factory Installed) High Efficiency Models Only

ELECTRICAL DATA LGC090/120

Model No.		LGC090S								
Line voltage data - 60 Hz - 3 phase		208/230V			460V			575V		
Compressors (2)	Rated load amps - each (total)	12.8 (25.6)			6.4 (12.8)			5.1 (10.2)		
	Locked rotor amps - each (total)	91 (182)			46 (92)			37 (74)		
Condenser Fan Motor	Number of motors	2			2			2		
	Full load amps - each (total)	2.4 (4.8)			1.3 (2.6)			1.0 (2.0)		
	Locked rotor amps - each (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Evaporator Blower Motor	Motor Output - hp	2	3	5	2	3	5	2	3	5
	kW	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7
	Full load amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] Maximum Overcurrent Protection (amps)	With Exhaust Fan	50	50	70	25	25	30	20	20	25
	Less Exhaust Fan	50	50	60	25	25	30	20	20	25
[2] Minimum Circuit Ampacity	With Exhaust Fan	44	47	53	22	24	26	18	19	21
	Less Exhaust Fan	42	45	51	21	22	25	17	18	20
Optional Power Exhaust Fan	(Number) Horsepower (W)	(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)		
	Full load amps	2.4			1.3			1.0		
	Locked rotor amps	4.7			2.4			1.9		
Service Outlet (2) 115 volt GFCI (amp rating)		15			15			15		

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.
1 HACR type breaker or fuse.
2 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

Model No.		LGC102S								
Line voltage data - 60 Hz - 3 phase		208/230V			460V			575V		
Compressor	Rated load amps -	14.7 each			7.1 each			5.8 each		
	Locked rotor amps	91 each			50 each			37 each		
Condenser Fan Motor	Full load amps	2.4 each			1.3 each			1.0 each		
	Locked rotor amps	4.7 each			2.4 each			1.9 each		
Evaporator Blower Motor	Motor Output - hp	2	3	5	2	3	5	2	3	5
	- kW	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7
	Full load amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
Recommended maximum fuse size (amps)	With Exhaust Fan	60	60	70	30	30	35	20	25	25
	Less Exhaust Fan	60	60	70	25	30	30	20	20	25
***Minimum Circuit Ampacity**	With Exhaust Fan	48	51	57	24	25	28	19	20	23
	Less Exhaust Fan	46	49	55	22	27	27	18	19	22
Optional Power Exhaust Fan	(Number) Horsepower (W)	(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)		
	Full load amps	2.4			1.3			1.0		
	Locked rotor amps	4.7			2.4			1.9		
Service Outlet 115 volt GFCI (amp rating)		15			15			15		

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10 % of line voltage.

Model No.		LGC120S (R-22)									LGC120S (R-410A)								
Line voltage data - 60 Hz - 3 phase		208/230V			460V			575V			208/230V			460V			575V		
Compressors (2)	Rated load amps - each (total)	15.4 (30.8)			7.4 (14.8)			5.9 (11.8)			20.5 (41)			9.6 (19.2)			7.6 (15.2)		
	Locked rotor amps - each (total)	124 (248)			59.6 (119.2)			49.4 (98.8)			155 (310)			75 (150)			54 (108)		
Condenser Fan Motors (2)	Full load amps - each (total)	2.4 (4.8)			1.3 (2.6)			1.0 (2.0)			2.4 (4.8)			1.3 (2.6)			1.0 (2.0)		
	Locked rotor amps - each (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)			4.9 (9.4)			2.4 (4.8)			1.9 (3.8)		
Evaporator Blower Motor	Motor Output - hp	2	3	5	2	3	5	2	3	5	2	3	5	2	3	5	2	3	5
	kW	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7
	Full load amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] Maximum Overcurrent Protection (amps)	With Exhaust Fan	60	60	70	30	30	35	20	25	25	80	80	90	35	35	40	30	30	30
	Less Exhaust Fan	60	60	70	30	30	30	20	25	25	70	80	80	35	35	40	25	30	30
[2] Minimum Circuit Ampacity	With Exhaust Fan	50	53	59	24	26	29	19	21	23	61	64	71	29	31	34	23	24	27
	Less Exhaust Fan	47	51	57	23	25	27	18	20	22	59	62	68	28	29	32	22	23	26
Optional Power Exhaust Fan	(Number) Horsepower (W)	(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)		
	Full load amps	2.4			1.3			1.0			2.4			1.3			1.0		
	Locked rotor amps	4.7			2.4			1.9			4.7			2.4			1.9		
Service Outlet (2) 115 volt GFCI (amp rating)		15			15			15			15			15			15		

NOTE - Extremes of operating range are plus and minus 10 % of line voltage.
1 HACR type breaker or fuse.
2 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA LGC150

Model No.		LGC150S								
Line voltage data - 60 Hz - 3 phase		208/230V			460V			575V		
Compressors (2)	Rated load amps - each (total)	18.6 (37.2)			9 (18)			7.4 (14.8)		
	Locked rotor amps - each (total)	156.0 (312)			75.0 (150)			54.0 (108)		
Condenser Fan Motors (2)	Full load amps - each (total)	3.0 (6.0)			1.5 (3.0)			1.2 (2.4)		
	Locked rotor amps - each (total)	6.0 (12.0)			3.0 (6.0)			2.9 (5.8)		
Evaporator Blower Motor	Motor Output - hp	2	3	5	2	3	5	2	3	5
	- kW	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7
	Full load amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked rotor amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
Maximum Overcurrent Protection (HACR type breaker or fuse)	With Exhaust Fan	70	70	80	35	35	40	30	30	30
	Less Exhaust Fan	70	70	80	35	35	35	25	30	30
***Minimum Circuit Ampacity**	With Exhaust Fan	58	61	67	28	30	33	23	24	27
	Less Exhaust Fan	56	59	65	27	29	31	22	23	26
Optional Power Exhaust Fan	(Number) Horsepower (W)	(1) 1/3 (249)			(1) 1/3 (249)			(1) 1/3 (249)		
	Full load amps	2.4			1.3			1.0		
	Locked rotor amps	4.7			2.4			1.9		
Service Outlet (2) 115 volt GFCI (amp rating)		15			15			15		

[8]Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10% of line voltage.

ELECTRICAL DATA LGC156

ELECTRICAL DATA — 13 TON

13 TON HIGH EFFICIENCY (R-22) — **LGC156H2**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (3)	Rated Load Amps (total)	14.7 (44.1)			7.1 (21.3)			5.1 (15.3)		
	Locked Rotor Amps (total)	91 (273)			50 (150)			37 (111)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**2**	**3**	**5**	**2**	**3**	**5**	**2**	**3**	**5**
	Rated Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked Rotor Amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] Maximum Overcurrent Protection	Unit only	70	80	90	35	40	40	25	25	30
	with power exhaust	80	80	90	40	40	45	30	30	35
[2] Minimum Circuit Ampacity	Unit only	65	68	75	32	34	36	24	25	27
	with power exhaust	70	73	79	35	36	39	26	27	29
Disconnect		**84M13**		**84M14**	**84M13**			**84M13**		

13 TON HIGH EFFICIENCY (R-410A) — **LGC156H4**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (3)	Rated Load Amps (total)	17.9 (53.7)			7.9 (23.7)			6.2 (18.6)		
	Locked Rotor Amps (total)	91 (273)			46 (138)			37 (111)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**2**	**3**	**5**	**2**	**3**	**5**	**2**	**3**	**5**
	Rated Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
	Locked Rotor Amps	46.9	66	105	20.4	26.8	45.6	16.2	23.4	36.6
[1] Maximum Overcurrent Protection	Unit only	90	90	100	40	40	45	30	30	35
	with power exhaust	90	100	100	40	45	45	35	35	35
[2] Minimum Circuit Ampacity	Unit only	76	79	85	35	36	39	27	29	31
	with power exhaust	81	84	90	37	39	42	29	31	33
Disconnect		**84M13**		**84M14**	**84M13**			**84M13**		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA LGC180

ELECTRICAL DATA — 15 TON

15 TON STANDARD EFFICIENCY (R-22)										LGC180S2
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (3)	Rated Load Amps (total)	15.4 (46.2)			7.4 (22.2)			5.9 (17.7)		
	Locked Rotor Amps (total)	124 (372)			59.6 (178.8)			49.4 (148.2)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	80	90	110	40	40	50	30	35	40
	with power exhaust	90	90	110	40	45	50	35	35	40
[2] Minimum Circuit Ampacity	Unit only	71	77	84	35	37	41	28	30	33
	with power exhaust	76	82	89	37	40	43	30	32	35
Disconnect		**84M14**			**84M13**			**84M13**		

15 TON HIGH EFFICIENCY (R-22)										LGC180H2
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (3)	Rated Load Amps (total)	17.3 (51.9)			9 (27)			7.1 (21.3)		
	Locked Rotor Amps (total)	123 (369)			62 (186)			50 (150)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	90	90	110	45	50	50	35	40	45
	with power exhaust	90	100	110	50	50	50	40	40	45
[2] Minimum Circuit Ampacity	Unit only	77	83	91	40	43	46	31	34	37
	with power exhaust	82	88	95	42	45	49	33	36	39
Disconnect		**84M14**			**84M13**			**84M13**		

15 TON HIGH EFFICIENCY (R-410A)										LGC180H4
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (3)	Rated Load Amps (total)	15.6 (46.8)			7.8 (23.4)			5.8 (17.4)		
	Locked Rotor Amps (total)	110 (330)			52 (156)			38.9 (116.7)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	80	90	110	40	45	50	30	35	40
	with power exhaust	90	90	110	45	45	50	30	35	40
[2] Minimum Circuit Ampacity	Unit only	71	77	85	36	39	42	27	29	32
	with power exhaust	76	82	90	38	41	45	29	31	34
Disconnect		**84M14**			**84M13**			**84M13**		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA LGC210

ELECTRICAL DATA — 17.5 TON

17.5 TON STANDARD EFFICIENCY (R-22) — **LGC210S2**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	14.7 (58.8)			7.1 (28.4)			5.8 (23.2)		
	Locked Rotor Amps (total)	91 (364)			50 (200)			37 (148)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	90	100	110	45	50	50	35	40	45
	with power exhaust	100	110	125	45	50	60	40	40	45
[2] Minimum Circuit Ampacity	Unit only	83	89	97	41	43	47	33	35	38
	with power exhaust	88	94	102	43	46	49	35	37	40
Disconnect		**84M14**			**84M13**			**84M13**		

17.5 TON HIGH EFFICIENCY (R-22) — **LGC210H2**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	14.7 (58.8)			7.1 (28.4)			5.1 (20.4)		
	Locked Rotor Amps (total)	91 (364)			50 (200)			37 (148)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	90	100	110	45	50	50	30	35	40
	with power exhaust	100	110	125	45	50	60	35	40	45
[2] Minimum Circuit Ampacity	Unit only	83	89	97	41	43	47	30	32	35
	with power exhaust	88	94	102	43	46	49	32	34	37
Disconnect		**84M14**			**84M13**			**84M13**		

17.5 TON HIGH EFFICIENCY (R-410A) — **LGC210H4**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	17.9 (71.6)			7.9 (31.6)			6.2 (24.8)		
	Locked Rotor Amps (total)	91 (364)			46 (184)			37 (148)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**3**	**5**	**7.5**	**3**	**5**	**7.5**	**3**	**5**	**7.5**
	Rated Load Amps	10.6	16.7	24.2	4.8	7.6	11	3.9	6.1	9
	Locked Rotor Amps	66	105	152	26.8	45.6	66	23.4	36.6	54
[1] Maximum Overcurrent Protection	Unit only	110	110	125	50	50	60	40	40	45
	with power exhaust	110	125	125	50	50	60	40	40	50
[2] Minimum Circuit Ampacity	Unit only	97	103	110	44	47	50	35	37	40
	with power exhaust	102	108	115	47	49	53	37	39	42
Disconnect		**84M14**			**84M13**			**84M13**		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

1 HACR type breaker or fuse.

2 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA LGC240

ELECTRICAL DATA — 20 TON

20 TON STANDARD EFFICIENCY (R-22)										LGC240S2
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	15.4 (61.6)			7.4 (29.6)			5.9 (23.6)		
	Locked Rotor Amps (total)	124 (469)			59.6 (238.4)			49.4 (197.6)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**5**	**7.5**	**10**	**5**	**7.5**	**10**	**5**	**7.5**	**10**
	Rated Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
	Locked Rotor Amps	105	152	193	45.6	66	84	36.6	54	66
[2] Maximum Overcurrent Protection	Unit only	100	125	125	50	50	60	40	45	50
	with power exhaust	110	125	125	50	60	60	40	45	50
[1] Minimum Circuit Ampacity	Unit only	92	100	106	45	48	51	36	39	41
	with power exhaust	97	105	111	47	51	54	38	41	43
Disconnect		**84M14**			**84M13**			**84M13**		

20 TON HIGH EFFICIENCY (R-22)										LGA240H2
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	17.3 (69.2)			9 (36)			7.1 (28.4)		
	Locked Rotor Amps (total)	123 (492)			62 (248)			50 (200)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**5**	**7.5**	**10**	**5**	**7.5**	**10**	**5**	**7.5**	**10**
	Rated Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
	Locked Rotor Amps	105	152	193	45.6	66	84	36.6	54	66
[2] Maximum Overcurrent Protection	Unit only	110	125	125	60	60	70	45	50	50
	with power exhaust	110	125	150	60	60	70	45	50	50
[1] Minimum Circuit Ampacity	Unit only	100	108	114	52	55	58	41	44	46
	with power exhaust	105	113	119	54	58	61	43	46	48
Disconnect		**84M14**			**84M13**			**84M13**		

20 TON HIGH EFFICIENCY (R-410A)										LGA240H4
Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	16 (64)			7.8 (31.2)			5.7 (22.8)		
	Locked Rotor Amps (total)	110 (440)			52 (208)			38.9 (155.6)		
Outdoor Fan Motors (4)	Full Load Amps (total)	2.4 (9.6)			1.3 (5.2)			1 (4)		
	Locked Rotor Amps (total)	4.7 (18.8)			2.4 (9.6)			1.9 (7.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**5**	**7.5**	**10**	**5**	**7.5**	**10**	**5**	**7.5**	**10**
	Rated Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
	Locked Rotor Amps	105	152	193	45.6	66	84	36.6	54	66
[2] Maximum Overcurrent Protection	Unit only	110	125	125	50	60	60	40	45	50
	with power exhaust	110	125	125	50	60	70	40	45	50
[1] Minimum Circuit Ampacity	Unit only	95	102	109	46	50	53	35	38	40
	with power exhaust	100	107	114	49	52	55	37	40	42
Disconnect		**84M14**			**84M13**			**84M13**		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] HACR type breaker or fuse.

[2] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA LGC300

ELECTRICAL DATA — 25 TON

25 TON STANDARD EFFICIENCY (R-22) — **LGC300S2**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	18.6 (74.4)			9 (36)			7.4 (29.6)		
	Locked Rotor Amps (total)	156 (624)			75 (300)			54 (216)		
Outdoor Fan Motors (4)	Full Load Amps (total)	3 (12)			1.5 (6)			1.2 (4.8)		
	Locked Rotor Amps (total)	6 (24)			3 (12)			2.9 (11.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**5**	**7.5**	**10**	**5**	**7.5**	**10**	**5**	**7.5**	**10**
	Rated Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
	Locked Rotor Amps	105	152	193	45.6	66	84	36.6	54	66
[1] Maximum Overcurrent Protection	Unit only	125	125	150	60	60	70	45	50	50
	with power exhaust	125	125	150	60	60	70	50	50	60
[2] Minimum Circuit Ampacity	Unit only	108	116	122	52	56	59	43	46	48
	with power exhaust	113	121	127	55	58	61	45	48	50
Disconnect		**84M14**			**84M13**			**84M13**		

25 TON STANDARD EFFICIENCY (R-410A) — **LGC300S4**

Voltage - 60hz - 3 phase		**208/230V**			**460V**			**575V**		
Compressors (4)	Rated Load Amps (total)	22.4 (89.6)			10.6 (42.4)			7.7 (30.8)		
	Locked Rotor Amps (total)	149 (596)			75 (300)			54 (216)		
Outdoor Fan Motors (4)	Full Load Amps (total)	3 (12)			1.5 (6)			1.2 (4.8)		
	Locked Rotor Amps (total)	6 (24)			3 (12)			2.9 (11.6)		
Standard Power Exhaust Fans (2)	Horsepower (W)	1/3 (249)			1/3 (249)			1/3 (249)		
	Full Load Amps(total)	2.4 (4.8)			1.3 (2.6)			1 (2)		
	Locked Rotor Amps (total)	4.7 (9.4)			2.4 (4.8)			1.9 (3.8)		
Service Outlet 115V GFI		15 Amps			15 Amps			15 Amps		
Indoor Blower Motor	Horsepower	**5**	**7.5**	**10**	**5**	**7.5**	**10**	**5**	**7.5**	**10**
	Rated Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
	Locked Rotor Amps	105	152	193	45.6	66	84	36.6	54	66
[1] Maximum Overcurrent Protection	Unit only	125	150	150	60	70	70	50	50	60
	with power exhaust	150	150	175	70	70	80	50	50	60
[2] Minimum Circuit Ampacity	Unit only	124	132	138	59	63	66	44	47	49
	with power exhaust	129	137	143	62	65	68	46	49	51
Disconnect		**84M14**	**84M15**		**84M13**			**84M13**		

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

1 HACR type breaker or fuse.

2 Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

BLOWER DATA LGC090/150

BELT DRIVE BLOWER - BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:

1 - Wet indoor coil air resistance of selected unit.
2 - Any factory installed options air resistance (heat section, economizer, etc.)
3 - Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.

See below for blower motors and drives. See page Page 22 for wet coil and option/accessory air resistance data.

BOLD INDICATES FIELD FURNISHED DRIVE.

Air Volume cfm (L/s)	Total Static Pressure - in. w.g. (Pa)																			
	.20 (50)		.40 (100)		.60 (150)		.80 (200)		1.00 (250)		1.20 (300)		1.40 (350)		1.60 (400)		1.80 (450)		2.00 (495)		2.20 (545)		2.40 (595)		2.60 (645)	
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)
2250 (1060)	**455**	**0.30 (0.22)**	*555*	*0.45 (0.34)*	**640**	**0.60 (0.45)**	720	0.80 (0.60)	790	1.00 (0.75)	855	1.20 (0.90)	915	1.40 (1.04)	975	1.60 (1.19)	1030	1.85 (1.38)	1080	2.05 (1.53)	1130	2.30 (1.72)	1175	2.55 (1.90)	1220	2.80 (2.09)
2500 (1180)	**475**	**0.40 (0.30)**	*575*	*0.55 (0.41)*	**660**	**0.70 (0.52)**	735	0.90 (0.67)	805	1.10 (0.82)	870	1.30 (0.97)	930	1.55 (1.16)	985	1.75 (1.31)	1040	2.00 (1.49)	1090	2.25 (1.68)	1140	2.50 (1.87)	1185	2.75 (2.05)	1230	3.00 (2.24)
2750 (1300)	**495**	**0.45 (0.34)**	*595*	*0.65 (0.48)*	**675**	**0.85 (0.63)**	750	1.05 (0.78)	820	1.25 (0.93)	885	1.45 (1.08)	940	1.70 (1.27)	995	1.90 (1.42)	1050	2.20 (1.64)	1100	2.45 (1.83)	1145	2.65 (1.98)	1195	2.95 (2.20)	1240	3.25 (2.42)
3000 (1415)	**525**	**0.55 (0.41)**	*615*	*0.75 (0.56)*	695	0.95 (0.71)	770	1.20 (0.90)	835	1.40 (1.04)	895	1.60 (1.19)	955	1.85 (1.38)	1010	2.10 (1.57)	1060	2.35 (1.75)	1110	2.65 (1.98)	1160	2.90 (2.16)	1205	3.20 (2.39)	1250	3.45 (2.57)
3250 (1535)	**550**	**0.65 (0.48)**	*640*	*0.90 (0.67)*	715	1.10 (0.82)	790	1.35 (1.01)	855	1.60 (1.19)	915	1.80 (1.34)	970	2.05 (1.53)	1025	2.35 (1.75)	1075	2.60 (1.94)	1125	2.85 (2.13)	1170	3.15 (2.35)	1215	3.40 (2.54)	1260	3.70 (2.76)
3500 (1650)	**580**	**0.80 (0.60)**	*665*	*1.05 (0.78)*	740	1.25 (0.93)	810	1.50 (1.12)	870	1.75 (1.31)	930	2.00 (1.49)	985	2.25 (1.68)	1040	2.55 (1.90)	1090	2.85 (2.13)	1135	3.10 (2.31)	1185	3.40 (2.54)	1230	3.70 (2.76)	1270	4.00 (2.98)
3750 (1770)	**605**	**0.95 (0.71)**	690	1.20 (0.90)	760	1.45 (1.08)	830	1.70 (1.27)	890	1.95 (1.45)	950	2.25 (1.68)	1005	2.50 (1.87)	1055	2.80 (2.09)	1105	3.10 (2.31)	1150	3.35 (2.50)	1195	3.65 (2.72)	1240	3.95 (2.95)	1285	4.30 (3.21)
4000 (1890)	**635**	**1.10 (0.82)**	715	1.40 (1.04)	785	1.65 (1.23)	850	1.90 (1.42)	910	2.20 (1.64)	965	2.45 (1.83)	1020	2.75 (2.05)	1070	3.05 (2.28)	1120	3.35 (2.50)	1165	3.65 (2.72)	1210	3.95 (2.95)	1255	4.30 (3.21)	1295	4.60 (3.43)
4250 (2005)	**665**	**1.30 (0.97)**	740	1.60 (1.19)	810	1.85 (1.38)	870	2.15 (1.60)	930	2.45 (1.83)	985	2.75 (2.05)	1040	3.05 (2.28)	1090	3.35 (2.50)	1135	3.65 (2.72)	1185	4.00 (2.98)	1225	4.30 (3.21)	1270	4.65 (3.47)	1310	4.95 (3.69)
4500 (2125)	695	1.50 (1.12)	770	1.80 (1.34)	835	2.10 (1.57)	895	2.40 (1.79)	955	2.70 (2.01)	1005	3.00 (2.24)	1060	3.35 (2.50)	1105	3.65 (2.72)	1155	4.00 (2.98)	1200	4.30 (3.21)	1245	4.65 (3.47)	1285	5.00 (3.73)	1325	5.30 (3.95)
4750 (2240)	725	1.75 (1.31)	795	2.05 (1.53)	860	2.40 (1.79)	920	2.70 (2.01)	975	3.00 (2.24)	1030	3.35 (2.50)	1080	3.65 (2.72)	1125	3.95 (2.95)	1175	4.35 (3.25)	1215	4.65 (3.47)	1260	5.00 (3.73)	1300	5.35 (3.99)	1340	5.70 (4.25)
5000 (2360)	760	2.05 (1.53)	825	2.35 (1.75)	885	2.65 (1.98)	945	3.00 (2.24)	1000	3.35 (2.50)	1050	3.65 (2.72)	1100	4.00 (2.98)	1145	4.35 (3.25)	1190	4.70 (3.51)	1235	5.05 (3.77)	1280	5.45 (4.07)	- - -		- - -	
5250 (2475)	790	2.30 (1.72)	855	2.65 (1.98)	910	2.95 (2.20)	970	3.35 (2.50)	1020	3.65 (2.72)	1070	4.00 (2.98)	1120	4.35 (3.25)	1165	4.70 (3.51)	1210	5.10 (3.80)	1255	5.45 (4.07)	- - -		- - -		- - -	
5500 (2595)	820	2.60 (1.94)	880	2.95 (2.20)	940	3.30 (2.46)	995	3.70 (2.76)	1045	4.05 (3.02)	1095	4.40 (3.28)	1145	4.80 (3.58)	1190	5.15 (3.84)	1230	5.50 (4.10)	- - -		- - -		- - -		- - -	
5750 (2715)	850	2.95 (2.20)	910	3.30 (2.46)	965	3.70 (2.76)	1020	4.05 (3.02)	1070	4.45 (3.32)	1120	4.80 (3.58)	1165	5.20 (3.88)	1210	5.60 (4.18)	- - -		- - -		- - -		- - -		- - -	
6000 (2830)	885	3.35 (2.50)	940	3.70 (2.76)	995	4.10 (3.06)	1045	4.45 (3.32)	1095	4.85 (3.62)	1145	5.25 (3.92)	1190	5.65 (4.21)	- - -		- - -		- - -		- - -		- - -		- - -	

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Motor Efficiency	Motor Outputs				RPM Range					
	Nominal		Maximum		Drive 1	Drive 2	Drive 3	Drive 4	Drive 5	Drive 6
	hp	kW	hp	kW						
Standard or High	2	1.5	2.3	1.7	680 - 925	- - -	895 - 1120	- - -	- - -	- - -
Standard	3	2.2	3.45	2.6	680 - 925	- - -	895 - 1120	- - -	1110 - 1395	- - -
High	3	2.2	3.45	2.6	- - -	680 - 925	- - -	895 - 1120	- - -	1110 - 1395
Standard or High	5	3.7	5.75	4.3	- - -	- - -	- - -	895 - 1120	- - -	1110 - 1395

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil				Humiditrol Condenser Reheat Coil		Gas Heat Exchanger						Economizer		Filters			
		090, 102		120,150				Standard Heat		Medium Heat		High Heat				MERV 11		MERV 15	
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa
2250	1060	0.06	15	0.10	25	0.02	5	0.05	12	0.07	17	0.09	22	0.035	9	0.01	2	0.04	10
2500	1180	0.08	20	0.12	30	0.03	7	0.05	12	0.09	22	0.11	27	0.04	10	0.01	2	0.05	12
2750	1325	0.09	22	0.14	35	0.03	7	0.06	15	0.10	25	0.13	32	0.045	11	0.02	5	0.05	12
3000	1420	0.10	25	0.16	40	0.03	7	0.07	17	0.12	30	0.16	40	0.05	12	0.02	5	0.06	15
3250	1535	0.11	27	0.19	47	0.04	10	0.08	20	0.15	37	0.19	47	0.06	15	0.02	5	0.06	15
3500	1650	0.13	32	0.21	52	0.04	10	0.09	22	0.17	42	0.22	55	0.07	17	0.03	7	0.07	17
3750	1770	0.14	35	0.23	57	0.05	12	0.10	25	0.20	50	0.26	65	0.075	19	0.03	7	0.08	20
4000	1890	0.16	40	0.26	65	0.05	12	0.11	27	0.22	55	0.30	75	0.08	20	0.04	10	0.08	20
4250	2005	0.17	42	0.28	70	0.06	15	0.12	30	0.25	62	0.34	85	0.09	22	0.04	10	0.09	22
4500	2125	0.18	45	0.31	77	0.07	17	0.13	32	0.28	70	0.38	94	0.10	25	0.04	10	0.09	22
4750	2240	0.20	50	0.33	82	0.07	17	0.14	35	0.31	77	0.42	104	0.11	27	0.05	12	0.10	25
5000	2360	0.22	55	0.36	90	0.08	20	0.16	40	0.35	87	0.47	117	0.12	30	0.06	15	0.10	25
5250	2475	0.24	60	0.39	97	0.08	20	0.18	45	0.38	94	0.52	129	0.13	32	0.06	15	0.11	27
5500	2595	0.26	65	0.42	104	0.09	22	0.20	50	0.42	104	0.57	142	0.14	35	0.07	17	0.12	30
5750	2715	0.28	70	0.45	112	0.10	25	0.22	55	0.46	114	0.62	154	0.15	37	0.07	17	0.12	30
6000	2830	0.30	75	0.48	119	0.10	25	0.24	60	0.50	124	0.68	169	0.16	40	0.08	20	0.13	32

AIR RESISTANCE - CEILING DIFFUSERS

Unit Size	Air Volume		RTD11 Step-Down Diffuser						FD11 Flush Diffuser	
			2 Ends Open		1 Side, 2 Ends Open		All Ends & Sides Open			
	cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa
090 Models	2400	1135	0.21	52	0.18	45	0.15	37	0.14	35
	2600	1225	0.24	60	0.21	52	0.18	45	0.17	42
	2800	1320	0.27	67	0.24	60	0.21	52	0.20	50
	3000	1415	0.32	80	0.29	72	0.25	62	0.25	62
	3200	1510	0.41	102	0.37	92	0.32	80	0.31	77
	3400	1605	0.50	124	0.45	112	0.39	97	0.37	92
	3600	1700	0.61	152	0.54	134	0.48	119	0.44	109
	3800	1795	0.73	182	0.63	157	0.57	142	0.51	127
102 & 120 Models	3600	1700	0.36	90	0.28	70	0.23	57	0.15	37
	3800	1795	0.40	99	0.32	80	0.26	65	0.18	45
	4000	1890	0.44	109	0.36	90	0.29	72	0.21	52
	4200	1980	0.49	122	0.40	99	0.33	82	0.24	60
	4400	2075	0.54	134	0.44	109	0.37	92	0.27	67
	4600	2170	0.60	149	0.49	122	0.42	104	0.31	77
	4800	2265	0.65	162	0.53	132	0.46	114	0.35	87
	5000	2360	0.69	172	0.58	144	0.50	124	0.39	97
	5200	2455	0.75	186	0.62	154	0.54	134	0.43	107
150 Models	4200	1980	0.22	55	0.19	47	0.16	40	0.10	25
	4400	2075	0.28	70	0.24	60	0.20	50	0.12	30
	4600	2170	0.34	85	0.29	72	0.24	60	0.15	37
	4800	2265	0.40	99	0.34	85	0.29	72	0.19	47
	5000	2360	0.46	114	0.39	97	0.34	85	0.23	57
	5200	2455	0.52	129	0.44	109	0.39	97	0.27	67
	5400	2550	0.58	144	0.49	122	0.43	107	0.31	77
	5600	2645	0.64	159	0.54	134	0.47	117	0.35	87
	5800	2735	0.70	174	0.59	147	0.51	127	0.39	97

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		[1]Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	cfm	L/s	ft.	m	ft.	m
090	2600	1225	24 - 29	7 - 9	19 - 24	6 - 7
	2800	1320	25 - 30	8 - 9	20 - 28	6 - 9
	3000	1415	27 - 33	8 - 10	21 - 29	6 - 9
	3200	1510	28 - 35	9 - 11	22 - 29	7 - 9
	3400	1605	30 - 37	9 - 11	22 - 30	7 - 9
102 120	3600	1700	25 - 33	8 - 10	22 - 29	7 - 9
	3800	1795	27 - 35	8 - 11	22 - 30	7 - 9
	4000	1885	29- 37	9 - 11	24 - 33	7 - 10
	4200	1980	32 - 40	10 - 12	26 - 35	8 - 11
	4400	2075	34 - 42	10 - 13	28 - 37	9 - 11
150	5600	2645	39 - 49	12 - 15	28 - 37	9 - 11
	5800	2740	42 - 51	13 - 16	29 - 38	9 - 12
	6000	2830	44 - 54	13 - 17	40 - 50	12 - 15
	6200	2925	45 - 55	14 - 17	42 - 51	13 - 16
	6400	3020	46 - 55	14 - 17	43 - 52	13 - 16
	6600	3115	47 - 56	14 - 17	45 - 56	14 - 17

[1] Throw is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. (15 m) per minute. Four sides open.

POWER EXHAUST FANS PERFORMANCE

Return Air System Static Pressure		Air Volume Exhausted	
in. w.g.	Pa	cfm	L/s
0	0	4200	1980
0.05	12	3970	1875
0.10	25	3750	1770
0.15	37	3520	1660
0.20	50	3300	1560
0.25	62	3080	1455
0.30	75	2860	1350
0.35	87	2640	1245

BLOWER DATA 13 TON

0.30 to 1.40 in. w.g. **LGC156**

Air Volume cfm	External Static (in. w.g.)																							
	0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00		1.10		1.20		1.30		1.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – 2 HP								Standard Static – 3 HP										Standard Static – 5 HP					
4160	551	0.90	596	1.04	641	1.18	681	1.33	720	1.48	755	1.64	790	1.80	822	1.95	855	2.11	885	2.26	915	2.41	942	2.57
4400	561	0.97	606	1.14	651	1.30	689	1.45	727	1.60	762	1.77	797	1.94	830	2.11	862	2.28	892	2.43	922	2.58	950	2.75
4800	577	1.13	620	1.31	662	1.48	702	1.66	742	1.83	777	2.01	811	2.18	842	2.36	872	2.54	902	2.72	932	2.89	960	3.07
5200	593	1.33	636	1.51	678	1.68	716	1.88	754	2.07	789	2.27	823	2.46	856	2.66	888	2.86	916	3.04	944	3.21	972	3.41
5600	609	1.51	652	1.71	694	1.91	732	2.12	769	2.33	803	2.53	837	2.73	868	2.93	899	3.13	928	3.33	957	3.53	985	3.74
6000	630	1.75	670	1.95	710	2.15	748	238	785	2.60	818	2.83	850	3.05	880	3.25	910	3.45	940	3.68	970	3.90	998	4.13
6240	640	1.89	680	2.12	720	2.34	757	2.57	795	2.79	827	3.02	860	3.24	890	3.47	920	3.69	947	3.92	975	4.14	1002	4.37

1.50 to 2.50 in. w.g. **LGC156**

Air Volume cfm	External Static (in. w.g.)																					
	1.50		1.60		1.70		1.80		1.90		2.00		2.10		2.20		2.30		2.40		2.50	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	High Static – 5 HP																		Field Furnished			
4160	970	2.73	997	2.88	1023	3.03	1048	3.20	1073	3.38	1097	3.54	1120	3.71	1142	3.86	1165	4.01	1187	4.17	1208	4.33
4400	977	2.92	1003	3.07	1028	3.22	1053	3.40	1078	3.57	1103	3.76	1127	3.95	1150	4.10	1172	4.25	1193	4.42	1213	4.59
4800	987	3.24	1014	3.42	1041	3.60	1064	3.78	1087	3.95	1112	4.13	1136	4.30	1159	4.50	1181	4.70	1204	4.88	1226	5.06
5200	999	3.60	1024	3.78	1049	3.96	1074	4.16	1099	4.35	1124	4.55	1148	4.74	1171	4.94	1193	5.14	1214	5.34	1234	5.54
5600	1012	3.95	1037	4.15	1062	4.35	1087	4.57	1112	4.80	1135	5.00	1157	5.2	1180	5.41	1202	5.62	1223	5.83	1244	6.04
6000	1025	4.35	1050	4.58	1075	4.80	1098	5.00	1120	5.20	1145	5.43	1170	5.65	1193	5.88	1215	6.10	1235	6.33	1255	6.55
6240	1030	4.59	1055	4.82	1080	5.04	1105	5.26	1130	5.49	1152	5.71	1175	5.94	1197	6.19	1220	6.44	1242	6.66	1265	6.89

AIR RESISTANCE (in. w.g.) - Factory Installed Options

Air Volume - cfm	Gas Heat Exchanger		Economizer	Horizontal Roof Curb	Filters	
	Med. Heat	High Heat			MERV 11	MERV 15
4160	0.02	- - -	- - -	0.07	0.01	0.02
4400	0.02	0.04	- - -	0.07	0.01	0.02
4800	0.03	0.05	- - -	0.08	0.01	0.02
5000	0.04	0.06	- - -	0.08	0.01	0.02
5600	0.04	0.07	- - -	0.10	0.02	0.02
6000	0.05	0.08	- - -	0.11	0.02	0.03
6240	0.05	0.09	0.01	0.12	0.02	0.03

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT WITH STANDARD GAS HEAT, WET INDOOR COIL & AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (high gas heat, economizer, etc.). See table below

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.). See page Page 30

Then determine from table the blower motor output and drive required.

0.30 to 1.40 in. w.g. **LGC180**

Air Volume cfm	External Static (in. w.g.)																							
	0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00		1.10		1.20		1.30		1.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – 3 HP								Standard Static – 3 HP								Standard Static – 5 HP							
4800	577	1.13	620	1.31	662	1.48	702	1.66	742	1.83	777	2.01	811	2.18	842	2.36	872	2.54	902	2.72	932	2.89	960	3.07
5000	585	1.25	628	1.43	670	1.60	710	1.78	750	1.95	783	2.13	815	2.30	848	2.50	880	2.70	910	2.88	940	3.05	968	3.23
5500	605	1.45	648	1.65	690	1.85	728	2.05	765	2.25	800	2.45	835	2.65	865	2.85	895	3.05	925	3.25	955	3.45	983	3.65
6000	630	1.75	670	1.95	710	2.15	748	2.38	785	2.60	818	2.83	850	3.05	880	3.25	910	3.45	940	3.68	970	3.90	998	4.13
6500	650	2.05	690	2.28	730	2.50	768	2.75	805	3.00	838	3.23	870	3.45	900	3.70	930	3.95	958	4.18	985	4.40	1013	4.63
7000	675	2.35	715	2.63	755	2.90	790	3.15	825	3.40	858	3.68	890	3.95	920	4.20	950	4.45	978	4.70	1005	4.95	1030	5.18
7200	687	2.55	725	2.81	763	3.06	798	3.33	833	3.60	866	3.86	898	4.11	926	4.36	954	4.61	984	4.90	1013	5.19	1038	5.44

1.50 to 2.50 in. w.g. **LGC180**

Air Volume cfm	External Static (in. w.g.)																							
	1.50		1.60		1.70		1.80		1.90		2.00		2.10		2.20		2.30		2.40		2.50			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	High Static – 5 HP																		High Static – 7.5 HP					
4800	987	3.24	1014	3.42	1041	3.60	1064	3.78	1087	3.95	1112	4.13	1136	4.30	1159	4.50	1181	4.70	1204	4.88	1226	5.06		
5000	995	3.40	1020	3.60	1045	3.80	1070	3.98	1095	4.15	1118	4.33	1140	4.50	1163	4.70	1185	4.90	1208	5.10	1230	5.30		
5500	1010	3.85	1035	4.05	1060	4.25	1085	4.48	1110	4.70	1133	4.90	1155	5.10	1178	5.30	1200	5.50	1220	5.70	1240	5.90		
6000	1025	4.35	1050	4.58	1075	4.80	1098	5.00	1120	5.20	1145	5.43	1170	5.65	1193	5.88	1215	6.10	1235	6.33	1255	6.55		
6500	1040	4.85	1065	5.10	1090	5.35	1115	5.60	1140	5.85	1163	6.08	1185	6.30	1205	6.53	1225	6.75	1248	7.00	1270	7.25		
7000	1055	5.40	1080	5.68	1105	5.95	1130	6.20	1155	6.45	1178	6.70	1200	6.95	1220	7.20	1240	7.45	1263	7.73	1285	8.00		
7200	1063	5.68	1088	5.94	1113	6.19	1136	6.44	1159	6.69	1182	6.96	1204	7.23	1226	7.50	1248	7.77	1269	8.03	*1289*	*8.28*		

NOTE - *italics* - field furnished.

AIR RESISTANCE (in. w.g.) - Factory Installed Options

Air Volume - cfm	Gas Heat Exchanger		Economizer	Horizontal Roof Curb	Filters	
	Med. Heat	High Heat			MERV 11	MERV 15
4800	0.03	0.05	- - -	0.08	0.01	0.02
5000	0.04	0.06	- - -	0.08	0.01	0.02
5500	0.04	0.07	- - -	0.10	0.02	0.02
6000	0.05	0.08	- - -	0.11	0.02	0.03
6500	0.05	0.09	0.02	0.13	0.02	0.03
7000	0.06	0.10	0.04	0.15	0.03	0.03
7200	0.07	0.11	0.05	0.16	0.03	0.03

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT WITH STANDARD GAS HEAT, WET INDOOR COIL & AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (high gas heat, economizer, etc.). See table below

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.). See page Page 30

Then determine from table the blower motor output and drive required.

0.20 to 1.20 in. w.g. **LGC210**

Air Volume cfm	External Static (in. w.g.)																					
	0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00		1.10		1.20	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – 3 HP														Standard Static – 5 HP							
5600	609	1.51	652	1.71	694	1.91	732	2.12	769	2.33	803	2.53	837	2.73	868	2.93	899	3.13	928	3.33	957	3.53
6000	630	1.75	670	1.95	710	2.15	748	2.38	785	2.60	818	2.83	850	3.05	880	3.25	910	3.45	940	3.68	970	3.90
6500	650	2.05	690	2.28	730	2.50	768	2.75	805	3.00	838	3.23	870	3.45	900	3.70	930	3.95	958	4.18	985	4.40
7000	675	2.35	715	2.63	755	2.90	790	3.15	825	3.40	858	3.68	890	3.95	920	4.20	950	4.45	978	4.70	1005	4.95
7500	700	2.75	738	3.03	775	3.30	810	3.58	845	3.85	878	4.15	910	4.45	938	4.70	965	4.95	993	5.23	1020	5.50
8000	725	3.20	763	3.50	800	3.80	833	4.08	865	4.35	898	4.65	930	4.95	958	5.23	985	5.50	1013	5.80	1040	6.10
8400	746	3.55	783	3.87	819	4.18	853	4.49	886	4.80	916	5.12	946	5.43	974	5.73	1001	6.03	1029	6.35	1056	6.66

1.30 to 2.40 in. w.g. **LGC210**

Air Volume cfm	External Static (in. w.g.)																					
	1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		2.10		2.20		2.30		2.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard Static – 5 HP								High Static – 7.5 HP															
5600	985	3.74	1012	3.95	1037	4.15	1062	4.35	1087	4.58	1112	4.80	1135	5.00	1157	5.20	1180	5.41	1202	5.62	1223	5.83	1244	6.04
6000	998	4.13	1025	4.35	1050	4.58	1075	4.80	1098	5.00	1120	5.20	1145	5.43	1170	5.65	1193	5.88	1215	6.10	1235	6.33	1255	6.55
6500	1013	4.63	1040	4.85	1065	5.10	1090	5.35	1115	5.60	1140	5.85	1163	6.08	1185	6.30	1205	6.53	1225	6.75	1248	7.00	1270	7.25
7000	1030	5.18	1055	5.40	1080	5.68	1105	5.95	1130	6.20	1155	6.45	1178	6.70	1200	6.95	1220	7.20	1240	7.45	1263	7.73	1285	8.00
7500	1048	5.78	1075	6.05	1100	6.33	1125	6.60	1148	6.88	1170	7.15	1193	7.40	1215	7.65	1238	7.95	1260	8.25	1280	8.50	*1300*	*8.75*
8000	1065	6.40	1090	6.70	1115	6.98	1140	7.25	1163	7.55	1185	7.85	1208	8.13	1230	8.40	*1253*	*8.70*	*1275*	*9.00*	*1295*	*9.30*	*1315*	*9.60*
8400	1081	6.96	1106	7.26	1131	7.58	1156	7.89	1179	8.19	1201	8.49	*1224*	*8.79*	*1246*	*9.09*	*1266*	*9.38*	*1286*	*9.67*	*1307*	*9.98*	*1328*	*10.29*

NOTE - *italics* - field furnished.

AIR RESISTANCE (in. w.g.) - Factory or Field Installed Options

Air Volume - cfm	Gas Heat Exchanger		Economizer	Horizontal Roof Curb	Filters	
	Med. Heat	High Heat			MERV 11	MERV 15
5600	0.04	0.07	- - -	0.10	0.02	0.02
6000	0.05	0.08	- - -	0.11	0.02	0.03
6500	0.05	0.09	0.02	0.13	0.02	0.03
7000	0.06	0.10	0.04	0.15	0.03	0.03
7500	0.07	0.11	0.06	0.17	0.03	0.03
8000	0.08	0.13	0.09	0.19	0.04	0.03
8400	0.08	0.14	0.11	0.21	0.04	0.03

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT WITH STANDARD GAS HEAT, WET INDOOR COIL & AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (high gas heat, economizer, etc.). See table below

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.). See page Page 30

Then determine from table the blower motor output and drive required.

0.20 to 1.20 in. w.g. **LGA/LGC240**

Air Volume cfm	External Static (in. w.g.)																					
	.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00		1.10		1.20	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field		Low Static – 5 HP										Standard Static – 7.5 HP									
6400	*648*	*1.99*	688	2.22	727	2.46	764	2.69	801	2.92	834	3.15	866	3.39	896	3.62	926	3.85	954	4.08	981	4.30
7000	*675*	*2.35*	715	2.63	755	2.90	790	3.15	825	3.40	858	3.68	890	3.95	920	4.20	950	4.45	978	4.70	1005	4.95
7500	700	2.75	738	3.03	775	3.30	810	3.58	845	3.85	878	4.15	910	4.45	938	4.70	965	4.95	993	5.23	1020	5.50
8000	725	3.20	763	3.50	800	3.80	833	4.08	865	4.35	898	4.65	930	4.95	958	5.23	985	5.50	1013	5.80	1040	6.10
8500	750	3.65	788	3.98	825	4.30	858	4.60	890	4.90	920	5.23	950	5.55	978	5.85	1005	6.15	1033	6.48	1060	6.80
9000	780	4.20	815	4.53	850	4.85	880	5.18	910	5.50	940	5.83	970	6.15	998	6.48	1025	6.80	1053	7.15	1080	7.50
9600	811	4.87	845	5.22	879	5.57	910	5.94	941	6.31	970	6.67	999	7.02	1027	7.38	1054	7.74	1079	8.08	1104	8.41

NOTE - *italics* - field furnished.

1.30 to 2.40 in. w.g. **LGA/LGC240**

Air Volume cfm	External Static (in. w.g.)																					
	1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		2.10		2.20		2.30		2.40	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Std. Static – 7.5 HP				High Static – 10 HP																			
6400	1008	4.53	1035	4.75	1060	4.98	1085	5.22	1110	5.45	1135	5.68	1157	5.91	1180	6.15	1202	6.40	1225	6.65	1246	6.88	1268	7.11
7000	1030	5.18	1055	5.40	1080	5.68	1105	5.95	1130	6.20	1155	6.45	1178	6.70	1200	6.95	1220	7.20	1240	7.45	1263	7.73	1285	8.00
7500	1048	5.78	1075	6.05	1100	6.33	1125	6.60	1148	6.88	1170	7.15	1193	7.40	1215	7.65	1238	7.95	1260	8.25	1280	8.50	1300	8.75
8000	1065	6.40	1090	6.70	1115	6.98	1140	7.25	1163	7.55	1185	7.85	1208	8.13	1230	8.40	1253	8.70	1275	9.00	1295	9.30	1315	9.60
8500	1085	7.10	1110	7.40	1135	7.73	1160	8.05	1183	8.35	1205	8.65	1228	8.95	1250	9.25	1270	9.55	1290	9.85	1310	10.15	1330	10.45
9000	1105	7.83	1130	8.15	1153	8.45	1175	8.75	1198	9.08	1220	9.40	1243	9.75	1265	10.10	1288	10.45	1310	10.80	1330	11.10	1350	11.40
9600	1129	8.77	1154	9.13	1177	9.46	1199	9.78	1222	10.14	1244	10.50	1267	10.87	1289	11.23	- - -		- - -		- - -		- - -	

AIR RESISTANCE (in. w.g.) - Factory or Field Installed Options

Air Volume - cfm	Gas Heat Exchanger		Economizer	Horizontal Roof Curb	Filters	
	Med. Heat	High Heat			MERV 11	MERV 15
6400	0.05	0.09	0.02	0.13	0.02	0.03
7000	0.06	0.10	0.04	0.15	0.03	0.03
7500	0.07	0.11	0.06	0.17	0.03	0.03
8000	0.08	0.13	0.09	0.19	0.04	0.03
8500	0.08	0.14	0.11	0.21	0.04	0.03
9000	0.10	0.16	0.14	0.24	0.04	0.04
9600	0.11	0.18	0.16	0.26	0.05	0.04

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT WITH STANDARD GAS HEAT, WET INDOOR COIL & AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (high gas heat, economizer, etc.). See table below

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.). See page Page 30

Then determine from table the blower motor output and drive required.

0.00 to 1.00 in. w.g. **LGC300S**

Air Volume cfm	External Static (in. w.g.)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static – 5 HP								Low Static – 7.5 HP													
8000	725	3.20	763	3.50	800	3.80	833	4.08	865	4.35	898	4.65	930	4.95	958	5.23	985	5.50	1013	5.80	1040	6.10
8500	750	3.65	788	3.98	825	4.30	858	4.60	890	4.90	920	5.23	950	5.55	978	5.85	1005	6.15	1033	6.48	1060	6.80
9250	790	4.45	825	4.80	860	5.15	893	5.50	925	5.85	955	6.20	985	6.55	1013	6.88	1040	7.20	1065	7.53	1090	7.85
10000	835	5.40	868	5.78	900	6.15	930	6.50	960	6.85	988	7.23	1015	7.60	1043	7.98	1070	8.35	1095	8.70	1120	9.05
10750	875	6.40	908	6.83	940	7.25	970	7.65	1000	8.05	1028	8.45	1055	8.85	1080	9.25	1105	9.65	1130	10.05	1155	10.45
11500	915	7.40	948	7.88	980	8.35	*1010*	*8.80*	*1040*	*9.25*	1068	9.68	1095	10.10	1118	10.53	1140	10.95	1165	11.40	*1190*	*11.85*

NOTE - *italics* - field furnished.

1.10 to 2.20 in. w.g. **LGC300S**

Air Volume cfm	External Static (in. w.g.)																			
	1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		2.10		2.20	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard Static – 10 HP																							
8000	1065	6.40	1090	6.70	1115	6.98	1140	7.25	1163	7.55	1185	7.85	1208	8.13	1230	8.40	1253	8.70	1275	9.00	1295	9.30	1315	9.60
8500	1085	7.10	1110	7.40	1135	7.73	1160	8.05	1183	8.35	1205	8.65	1228	8.95	1250	9.25	1270	9.55	1290	9.85	1310	10.15	1330	10.45
9250	1115	8.20	1140	8.55	1163	8.88	1185	9.20	1208	9.53	1230	9.85	1253	10.20	1275	10.55	1295	10.88	1315	11.20	---	---	---	---
10000	1145	9.43	1170	9.80	1193	10.15	1215	10.50	1238	10.88	1260	11.25	*1283*	*11.62*	---	---	---	---	---	---	---	---	---	---
10750	1178	10.83	1200	11.20	*1222*	*11.57*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
11500	*1210*	*12.23*	*1230*	*12.60*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTE - *italics* - field furnished.

AIR RESISTANCE (in. w.g.) - Factory or Field Installed Options

Air Volume - cfm	Gas Heat Exchanger		Economizer	Horizontal Roof Curb	Filters	
	Med. Heat	High Heat			MERV 11	MERV 15
8000	0.08	0.13	0.09	0.13	0.04	0.03
8500	0.08	0.14	0.11	0.15	0.04	0.03
9250	0.11	0.17	0.15	0.18	0.05	0.03
10,000	0.11	0.19	0.19	0.21	0.06	0.04

CEILING DIFFUSER AIR RESISTANCE

Air Volume		Step-Down Diffuser												Flush Diffuser			
		RTD11-185						RTD11-275									
		2 Ends Open		1 Side/2 Ends Open		All Ends & Sides Open		2 Ends Open		1 Side/2 Ends Open		All Ends & Sides Open		FD11-185		FD11-275	
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa
5000	2360	.51	127	.44	109	.39	97	- - -	- - -	- - -	- - -	- - -	- - -	.27	67	- - -	- - -
5200	2455	.56	139	.48	119	.42	104	- - -	- - -	- - -	- - -	- - -	- - -	.30	75	- - -	- - -
5400	2550	.61	152	.52	129	.45	112	- - -	- - -	- - -	- - -	- - -	- - -	.33	82	- - -	- - -
5600	2645	.66	164	.56	139	.48	119	- - -	- - -	- - -	- - -	- - -	- - -	.36	90	- - -	- - -
5800	2735	.71	177	.59	147	.51	127	- - -	- - -	- - -	- - -	- - -	- - -	.39	97	- - -	- - -
6000	2830	.76	189	.63	157	.55	137	.36	90	.31	77	.27	67	.42	104	.29	72
6200	2925	.80	199	.68	169	.59	147	- - -	- - -	- - -	- - -	- - -	- - -	.46	114	- - -	- - -
6400	3020	.86	214	.72	179	.63	157	- - -	- - -	- - -	- - -	- - -	- - -	.50	124	- - -	- - -
6500	3065	- - -	- - -	- - -	- - -	- - -	- - -	.42	104	.36	90	.31	77	- - -	- - -	.34	85
6600	3115	.92	229	.77	191	.67	167	- - -	- - -	- - -	- - -	- - -	- - -	.54	134	- - -	- - -
6800	3210	.99	246	.83	206	.72	174	- - -	- - -	- - -	- - -	- - -	- - -	.58	144	- - -	- - -
7000	3305	1.03	256	.87	216	.76	189	.49	122	.41	102	.36	90	.62	154	.40	99
7200	3400	1.09	271	.92	229	.80	199	- - -	- - -	- - -	- - -	- - -	- - -	.66	164	- - -	- - -
7400	3490	1.15	286	.97	241	.84	209	- - -	- - -	- - -	- - -	- - -	- - -	.70	174	- - -	- - -
7500	3540	- - -	- - -	- - -	- - -	- - -	- - -	.51	127	.46	114	.41	102	- - -	- - -	.45	112
7600	3585	1.20	301	1.02	254	.88	219	- - -	- - -	- - -	- - -	- - -	- - -	.74	184	- - -	- - -
8000	3775	- - -	- - -	- - -	- - -	- - -	- - -	.59	147	.49	122	.43	107	- - -	- - -	.50	124
8500	4010	- - -	- - -	- - -	- - -	- - -	- - -	.69	172	.58	144	.50	124	- - -	- - -	.57	142
9000	4245	- - -	- - -	- - -	- - -	- - -	- - -	.79	196	.67	167	.58	144	- - -	- - -	.66	164
9500	4485	- - -	- - -	- - -	- - -	- - -	- - -	.89	221	.75	186	.65	162	- - -	- - -	.74	184
10,000	4720	- - -	- - -	- - -	- - -	- - -	- - -	1.00	249	.84	209	.73	182	- - -	- - -	.81	201
10,500	4955	- - -	- - -	- - -	- - -	- - -	- - -	1.10	273	.92	229	.80	199	- - -	- - -	.89	221
11,000	5190	- - -	- - -	- - -	- - -	- - -	- - -	1.21	301	1.01	251	.88	219	- - -	- - -	.96	239

POWER EXHAUST FANS

STANDARD STATIC OPERATION

Return Duct Negative Static Pressure		Air Volume	
in. w.g.	Pa	cfm	L/s
0	0	8630	4070
0.05	12	8210	3875
0.10	25	7725	3645
0.15	37	7110	3355
0.20	50	6470	3055
0.25	62	5790	2730
0.30	75	5060	2390
0.35	87	4300	2030
0.40	100	3510	1655
0.45	112	2690	1270
0.50	125	1840	870

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		[1] Effective Throw Range			
			Step-Down		Flush	
	cfm	L/s	ft.	m	ft.	m
	Diffuser Model		RTD11-185		FD11-185	
156H 180	5600	2645	39 - 49	12 - 15	28 - 37	9 - 11
	5800	2740	42 - 51	13 - 16	29 - 38	9 - 12
	6000	2830	44 - 54	13 - 17	40 - 50	12 - 15
	6200	2925	45 - 55	14 - 17	42 - 51	13 - 16
	6400	3020	46 - 55	14 - 17	53 - 52	13 - 16
	6600	3115	57 - 56	14 - 17	45 - 56	14 - 17
	Diffuser Model		RTD11-275		FD11-275	
210 240 300S	7200	3400	33 - 38	10 - 12	26 - 35	8 - 11
	7400	3490	35 - 40	11 - 12	28 - 37	9 - 11
	7600	3585	36 - 41	11 - 13	29 - 38	9 - 12
	7800	3680	38 - 43	11 - 13	40 - 50	12 - 15
	8000	3775	39 - 44	12 - 13	42 - 51	13 - 16
	8200	3870	41 - 46	12 - 14	43 - 52	13 - 16
	8400	3965	43 - 49	13 - 15	44 - 54	13 - 17
	8600	4060	44 - 50	13 - 15	46 - 57	14 - 17
	8800	4155	47 - 55	14 - 17	48 - 59	15 - 18

[1] Throw is the horizontal or vertical distance an airstream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. (15 m) per minute. Four sides open.

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Model No.	Motor Efficiency	Nominal hp	Maximum hp	Nominal kW	Maximum kW	Drive Kit Number	RPM Range
156H	Standard or High	2 hp	2.3	1.5	1.7	A	535 - 725
156H thru 210	Standard	3 hp	3.45	2.2	2.6	A 1	535 - 725 685 - 865
	High	3 hp	3.45	2.2	2.6	2	685 - 865
156H thru 300S	Standard or High	5 hp	5.75	3.7	4.3	2 3 4	685 - 865 850 - 1045 945 - 1185
180 thru 300S	Standard or High	7.5 hp	8.63	5.6	6.4	5 6 7	945 - 1185 1045 - 1285 850 - 1045
240 thru 300S	Standard or High	10 hp	11.5	7.5	8.6	6 8	1045 - 1285 1135 - 1365

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT WITH STANDARD GAS HEAT, WET INDOOR COIL & AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (high gas heat, economizer, etc.). See table below

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.). See page Page 30

Then determine from table the blower motor output and drive required.

MANUFACTURER'S NUMBERS

		DRIVE COMPONENTS									
		RPM		ADJUSTABLE SHEAVE		FIXED SHEAVE		BELTS		SPLIT BUSHING	
Drive No.	**H.P.**	Min	Max	Supplier No.	OEM Part No.	Supplier No.	OEM Part No.	Supplier No.	OEM Part No.	Supplier No.	OEM Part No.
A	2 & 3	535	725	1VP40x7/8	79J0301	BK95 x 1-7/16	80K1601	BX59	59A5001	N/A	N/A
1	3	710	965	1VP40x7/8	79J0301	BK72 x 1-7/16	100244-13	BX56	100245-11	N/A	N/A
2	3 & 5 High	685	865	1VP50x1-1/8	P-8-1977	BK100 x 1-7/16	39L1301	BX62	57A7701	N/A	N/A
3	5	850	1045	1VP65x1-1/8	100239-03	BK110H	100788-06	BX66	97J5901	H-1-7/16	49M6201
4	5	945	1185	1VP60x1-1/8	41C1301	BK90H x 1-7/16	100788-04	BX62	57A7701	H-1-7/16	49M6201
5	7.5	945	1185	1VP60x1-3/8	78L5501	BK90H x 1-7/16	100788-04	BX63	97J5501	H-1-7/16	49M6201
6	7.5	1045	1285	1VP65x1-3/8	78M7101	BK90H x 1-7/16	100788-04	BX64	97J5801	H-1-7/16	49M6201
6*	10	1045	1285	2VP65x1-3/8	97J5601	2BK90H x 1-7/16	49K3201	BX64	97J5801	H-1-7/16	49M6201
7	7.5	850	1045	1VP65x1-3/8	78M7101	BK110H	100788-06	BX66	97J5901	H-1-7/16	49M6201
8	10	1135	1365	1VP62x1-3/8	78M7001	BK80H	100788-03	BX62	57A7701	H-1-7/16	49M6201

* Two belts required per unit.

LGC PARTS ARRANGEMENT
7.5 to 12.5 ton

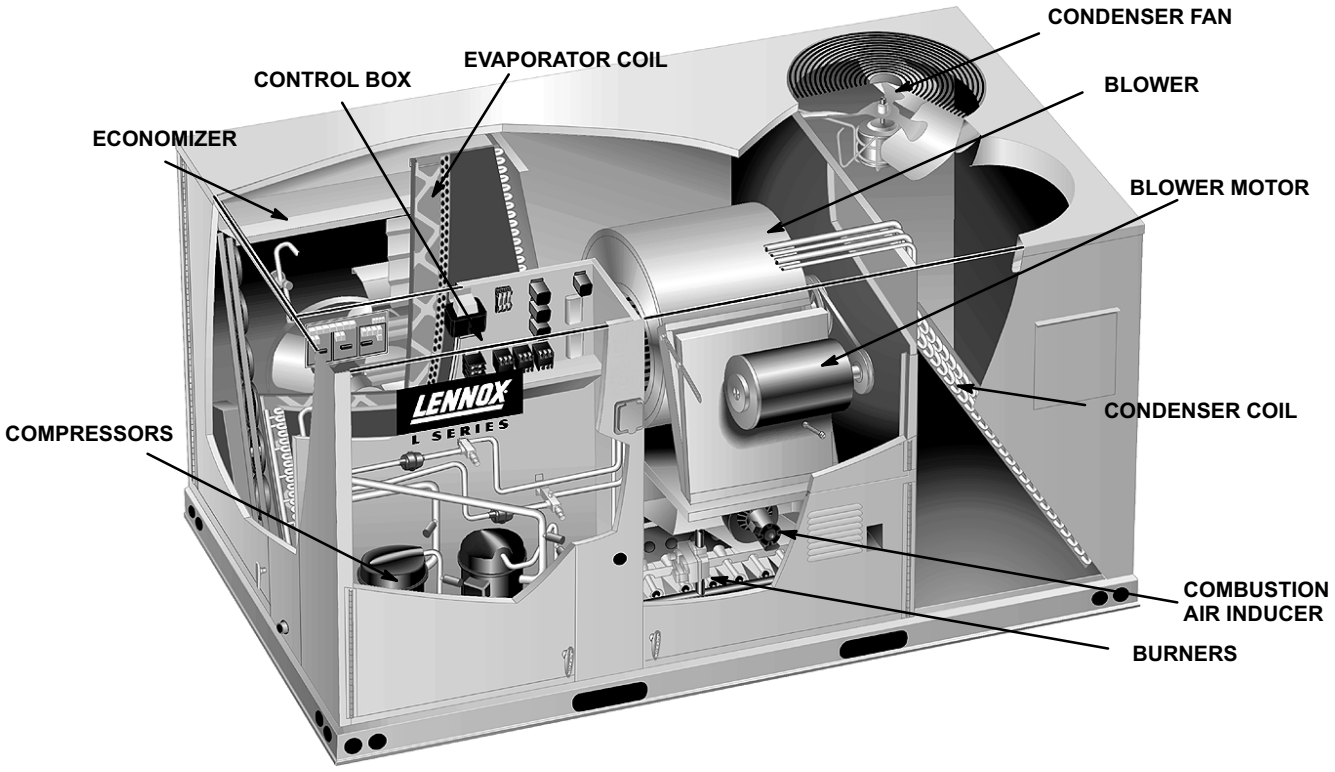


FIGURE 1

LGC PARTS ARRANGEMENT
13 to 25 ton

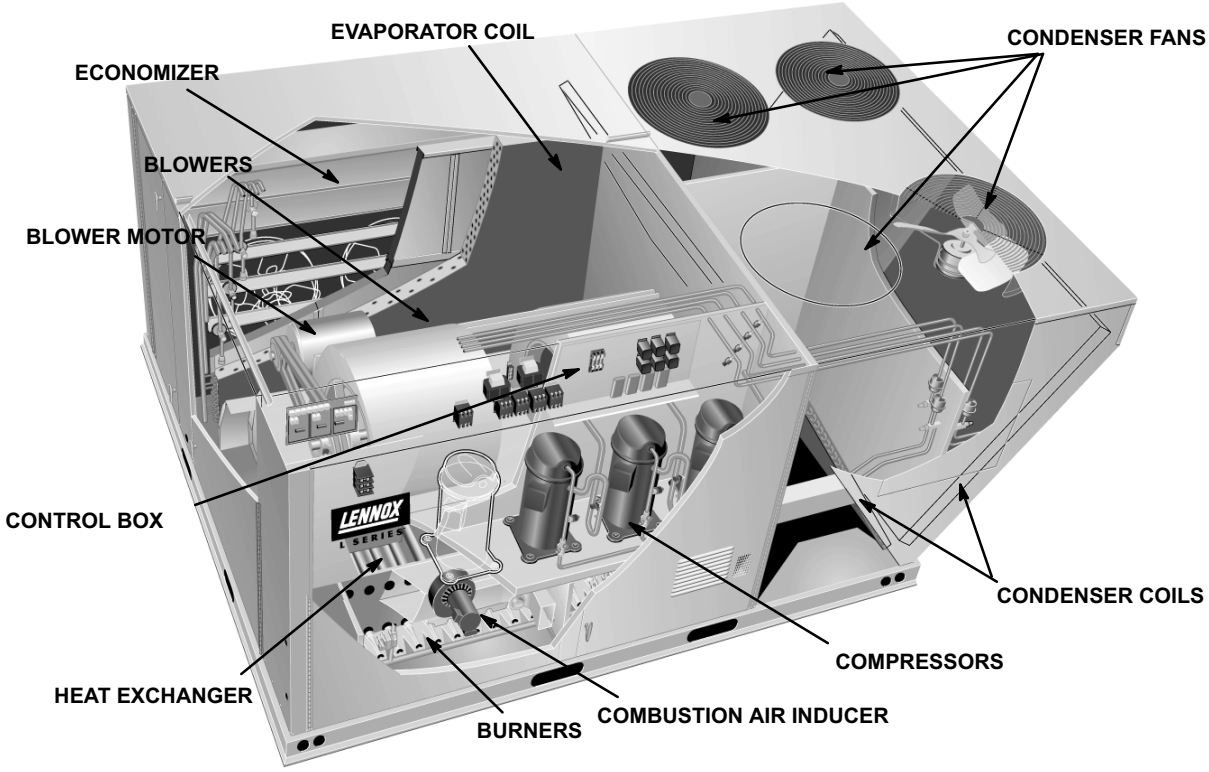


FIGURE 2

LGC090, 102, 120, 150 CONTROL BOX PARTS ARRANGEMENT

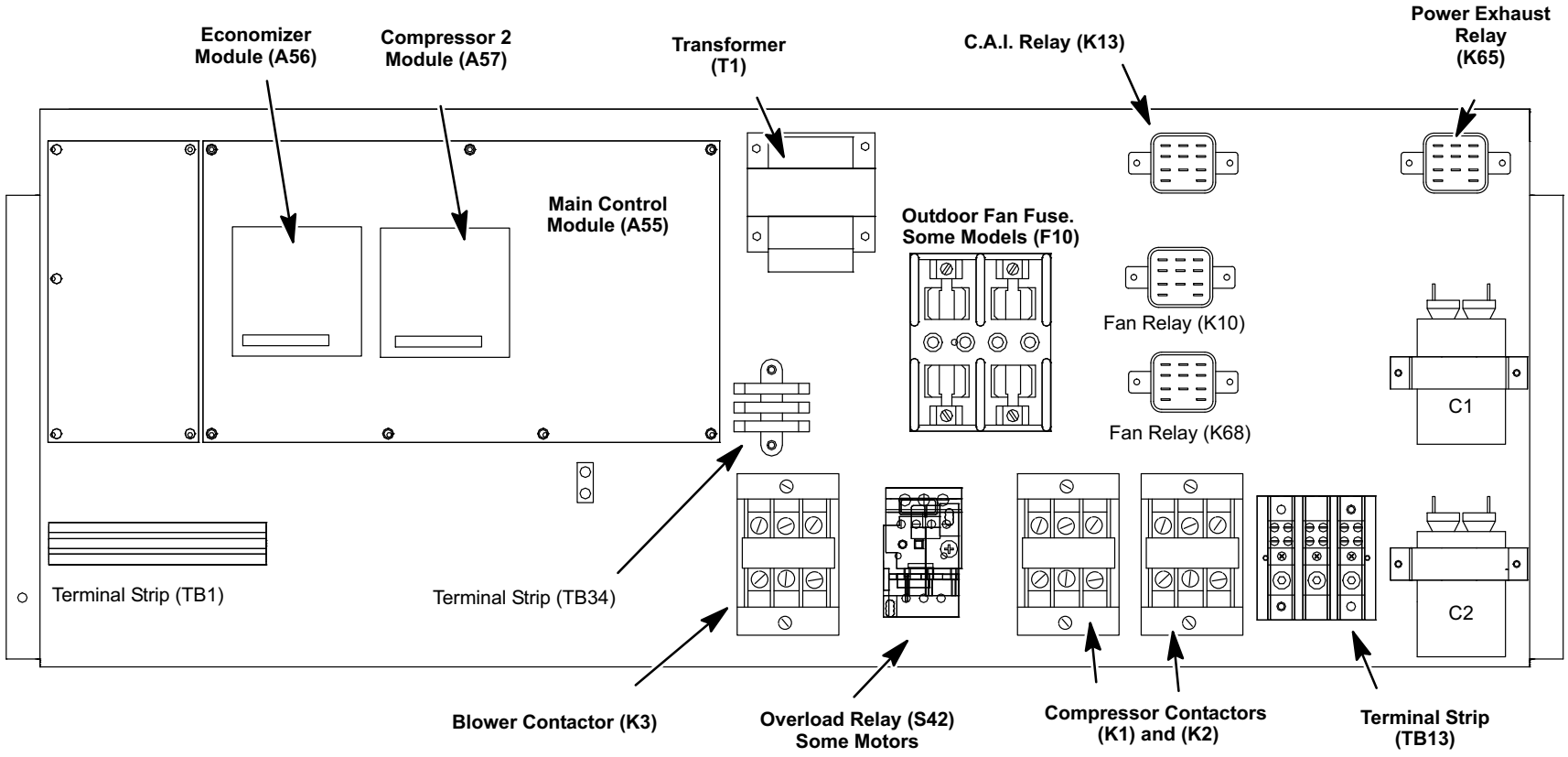


FIGURE 3

LGC156, 180, 210, 240, 300 CONTROL BOX PARTS ARRANGEMENT

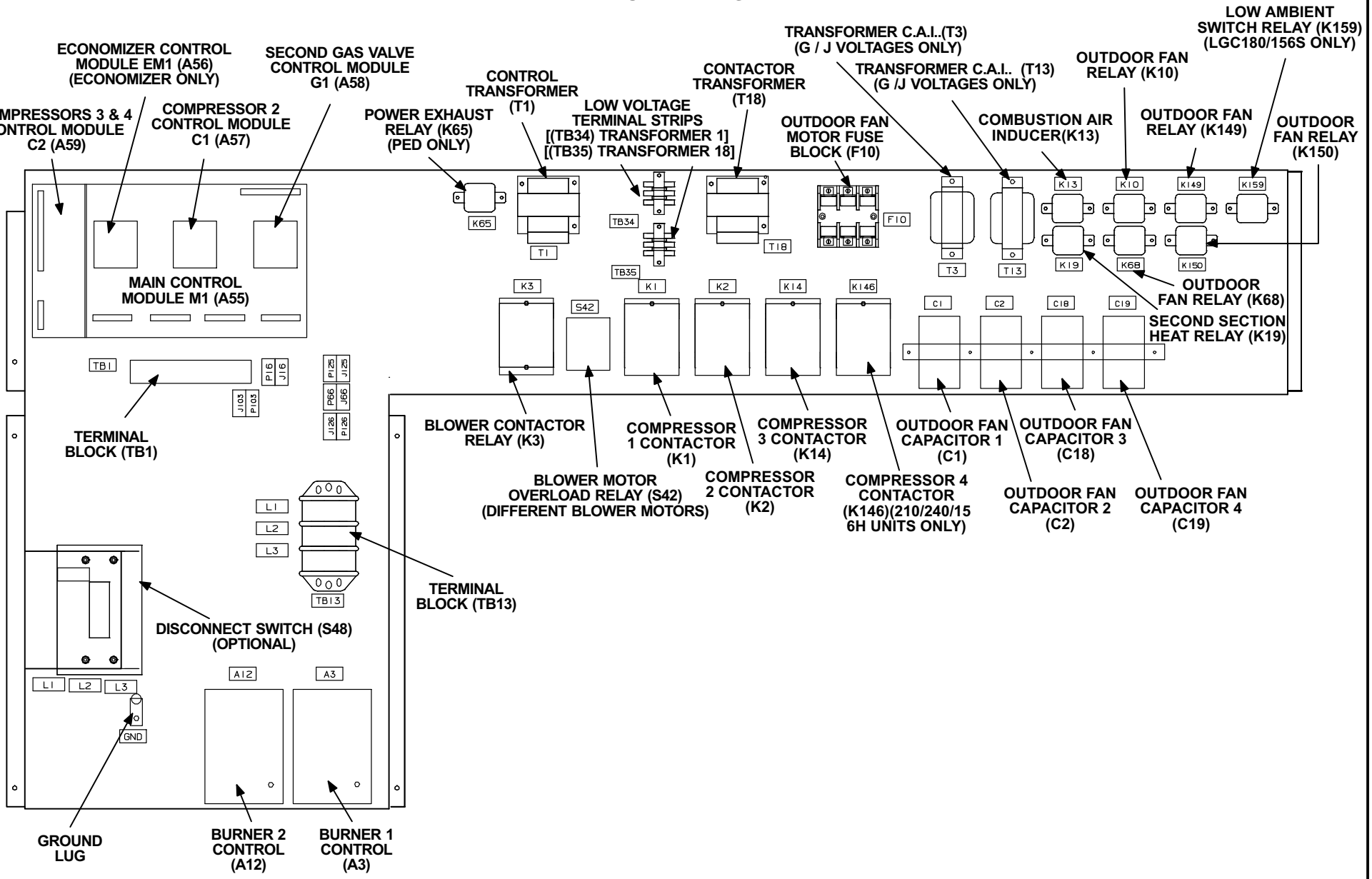


FIGURE 4

I-UNIT COMPONENTS

All 7.5 through 25 ton (29.8 through 88 kW) units are configure to order units (CTO). The LGC unit components are shown in figures 1 and 2. All units come standard with hinged unit panels. The unit panels may be held open with the door rod located inside the unit. All L1, L2, and L3 wiring is color coded; L1 is red, L2 is yellow, and L3 is blue.

A-Control Box Components

ELECTROSTATIC DISCHARGE (ESD)
Precautions and Procedures

⚠ CAUTION

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface, such as the gas valve or blower deck, before performing any service procedure.

LGC control box components are shown in figures 3 and 4 The control box is located in the upper left portion of the compressor compartment.

1-Disconnect Switch S48 (Optional all units)

All units may be equipped with an optional disconnect switch S48. Other factory or field installed optional circuit breakers may be used, such as CB10. S48 and CB10 are toggle switches, which can be used by the service technician to disconnect power to the unit.

2-Control Transformer T1 (all units)

All use a single line voltage to 24VAC transformer mounted in the control box. Transformer supplies power to control circuits in the unit. The transformer is rated at 70VA and is protected by a 3.5 amp circuit breaker (CB8). The 208/230 (Y) voltage transformers use two primary voltage taps as shown in figure 5, while 460 (G) and 575 (J) voltage transformers use a single primary voltage tap.

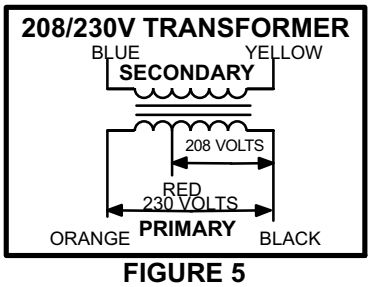


FIGURE 5

3-Contactor Transformer T18 (LGC156/300 units)

T18 is a single line voltage to 24VAC transformer used in all LGC 13 to 25 ton units. Transformer T18 is protected by a 3.5 amp circuit breaker (CB18). T18 is identical to transformer T1. The transformer supplies 24VAC power to the contactors.

4-C. A. I. Transformers T3 all 460V &575V units & T13 460V & 575V 156/300 units only

All LGC 460 (G) and 575 (J) voltage units use transformer T3. In addition, LGC156/300 units use transformer T13. The auto voltage to 230VAC transformers are mounted in the control box. The transformers have an output rating of 0.5A. T3 transformer supplies 230 VAC power to combustion air blower motor (B6), while T13 transformer supplies power to combustion air blower motor (B15) in LGC156/300 units.

5-Terminal Strips TB1, TB13, TB34 (all units) and TB35 (LGC156/300)

TB1 terminal strip distributes 24V power and common from the thermostat to the control box components. TB13 terminal strip distributes line voltage power to the line voltage items in the unit. TB34 terminal strip distributes 24V power from T1 to the control box components. LGC156/300 units only, TB35 terminal strip distributes 24V power from T18 to the contactors in the control box.

6-Outdoor Fan Motor Fuse Block & Fuses F10 (LGC156/300)

Three line voltage fuses F10 provide overcurrent protection to all condenser fans (and optional power exhaust fans) in all units. The fuses are rated at 30A in 208/230V units and 15A in all others.

7-Outdoor Fan Capacitors C1 & C2 (all units) C18, & C19 (LGC156/300))

Fan capacitors C1, C2, C18, C19 are 370V / 10 MFD capacitors used to assist in the start up of condenser fans B4, B5, B21, B22 respectively.

8-Compressor Contactor K1 & K2 (all units), K14 (LGC156/300 & K146 (LGC210/300 units)

All compressor contactors are three-pole-double-break contactors with 24VAC coils. In all LGC units, K1 (energized by A55) and K2 (energized by A57) energize compressors B1 and B2 in response to thermostat demand. In the LGC156/300, K1 (energized by A55), K2 (energized by A57) and K14 (energized by A59) energize compressors B1, B2 and B13 in response to first or second stage cool demand. In the LGC210/300, K1 (energized by A55), K2 (energized by A57), K14 and K146 (energized by A59) energize compressors B1, B2, B13 and B20 in response to first or second stage cool demand.

9-Blower Contactor K3 (all units)

Blower contactor K3, used in all units, is a three-pole-double-break contactor with a 24VAC coil used to energize the indoor blower motor B3 in response to blower demand. K3 is energized by main control panel (A55).

10-Outdoor Fan Relay K10, K68 (all units) K149 & K150 (LGC156/300)

Outdoor fan relays K10, K68, K149, and K150, are DPDT relays with a 24VAC coil. In all LGC units K10 and K68 energizes condenser fans B4 and B5. In addition to K10 and K68 the LGC156/300 is equipped with K149 and K150 which energizes condenser fans B21 and B22.

11-Combustion Air Inducer Relay K13

Combustion air inducer relay K13, used in all LGC units, is a DPDT relay with a 24VAC coil. K13 is energized by the main control module A55 after a first stage heating demand from the thermostat. K13 remains energized throughout the heating demand. When energized, K13 N.O. contacts close to energize combustion air blower and begin a heating sequence. Pressure switch S18, located in the compressor compartment, closes as combustion air static pressure falls to “prove” combustion air inducer operation. When S18 closes, the ignition controls and gas valves are energized to begin a heating sequence.

12-Combustion Air Inducer Relay K19 (LGC156/300 - second burner section)

Combustion air inducer relay K19, used in all LGC156/300 units, is a DPDT relay with a 24 VAC coil. K19 is energized by the gas valve control module A58 after a first stage heating demand from the thermostat. K19 remains energized throughout the first stage heating demand. When energized, K19 N.O. contacts close to energize the second heat section combustion air blower and begin second section heating sequence. Prove switch S45, located in the compressor compartment, closes as combustion air static pressure falls to “prove” combustion air blower operation. When S45 closes, the second section of the ignition control and gas valve are energized to begin the second section heating sequence.

13-Low Ambient Switch Relay K159 (LGC156/180)

Low ambient switch relay K159, used in all LGC156/180 units, is a DPDT relay with a 24VAC coil. When one of the N.O. low pressure low ambient switches S11, S84, or S85 close (due to a pressure rise), K159 is energized. When K159-1 closes, A55 energizes K10 which in turn energizes outdoor fan motor B4. When K159-2 closes, A59 energizes K149 which in turn energizes outdoor fan motor B21. When the pressure lowers due to the outdoor fan motors cycling on, the pressure switch(es) will open and K159 will be de-energized.

14-Burner Controls A3 & A12 (LGC156/300)

LGC156/300 units have two burner controls. A3 controls gas heat section one, while A12 controls gas heat section two. The first gas heat section and the second gas heat section burner controls are identical. Both burner controls are factory set and are not adjustable. The control makes three attempts at ignition and then locks out the system if ignition is not obtained after the third trial. Reset after lockout requires only breaking and remaking thermostat demand. The control shuts off gas flow immediately in the event of a gas or power failure. Upon restoration of gas and power, the control will restart the ignition sequence and continue until flame is established or system locks out. For a more detailed description see the Gas Heat Components section.

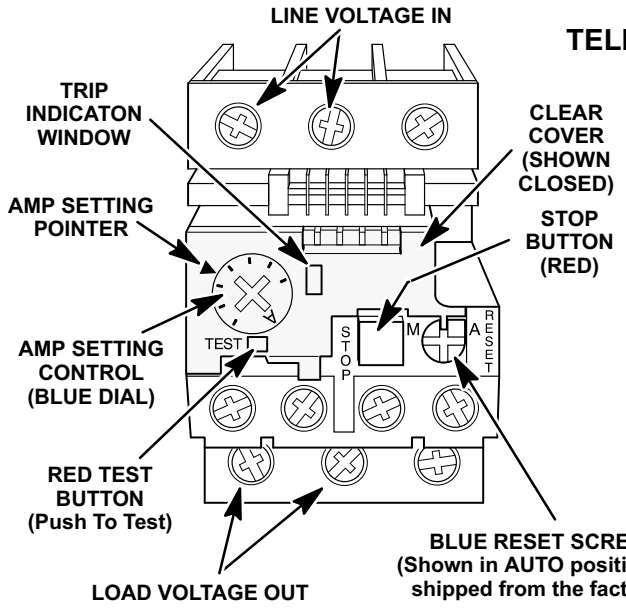
15-Power Exhaust Relay K65 (PED units)

Power exhaust relay K65 is a N.O. DPDT relay with a 24VAC coil. K65 is used in all LGC units equipped with the optional power exhaust dampers. K65 is energized by the economizer control panel (A56), after the economizer dampers reach 50% open (adjustable in ECTO). When K65 closes, the exhaust fans B10 and B11 are energized.

16-Blower Motor Overload Relay S42 (units with high efficiency motors & standard efficiency motors of 7.5 HP and above)

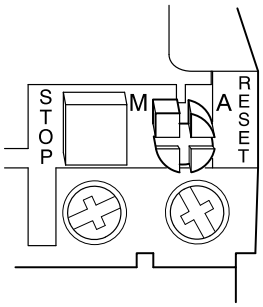
The blower motor overload relay is used in all L series units equipped with high efficiency motors, as well as units with standard efficiency motors 7.5 HP and higher. The relay (S42) is connected in line with the blower motor to monitor the current flow to the motor. When the relay senses an overload condition, a set of normally closed contacts open to de-energize pin #9 in plug 110 of the A55 main control module. A55 de-energizes all outputs. Units will be equipped with a relay manufactured by Telemecanique figure 6 or Siemens figure 7.

TELEMECANIQUE OVERLOAD RELAY



DETAIL SHOWING RESET BUTTON ADJUSTED TO MANUAL POSITION

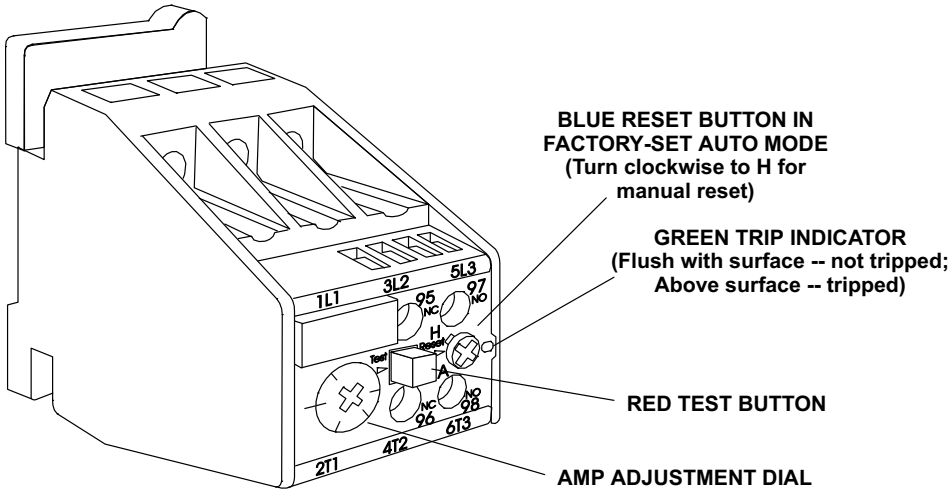
Lift clear cover and turn adjustment screw counterclockwise. Reset screw will pop out when pointer is in M (manual position). Close cover to lock reset screw into position.



Lift clear cover to adjust relay amp setting according to value given on the blower motor nameplate. Proper relay amp setting equals motor nameplate FLA X service factor of 1.15 X .95.
Cover must also be lifted to adjust control mode from automatic reset to manual reset (see detail above) and to test the control.
Control must be in the manual reset mode to perform a test. Use a pointed object to press the small red test button. A yellow marker should appear in the trip indication window to the right of the amp setting control. Press the blue reset screw to reset the relay.
The red STOP button opens the normally closed contacts which power the blower motor. This button stops blower motor operation as long as it is pressed in.

FIGURE 6

SIEMENS OVERLOAD RELAY



Adjust relay amp setting according to value given on the blower motor nameplate. Proper relay amp setting equals motor nameplate FLA X service factor of 1.15 X .95.
Use small slotted screwdriver to adjust control mode from automatic reset (A) to manual reset (H).
Control must be in the manual reset mode (H) to perform a test. Press the red test button. Green trip indicator should pop out. Press the blue reset screw to reset the relay.

FIGURE 7

INTEGRATED MODULAR CONTROL BOARDS

The Integrated Modular Control (IMC) is a series of control boards which integrates most control functions required for the LGC units. The control boards are located in the upper left hand corner of the control box. The control includes complete unit diagnostics with permanent code storage, field programmable control parameters and control options, on-site testing, and serial communications. Several different printed circuit boards (see figure 8 for LGC090/150 and figure 9 for LGC156/300) make-up the modular configurations for the LGC 7.5 to 30 ton units. For further information refer to Integrated Modular Control Guide sent with each unit.

17-Main Control Module A55 (all units)

The main control module A55 is the heart of the system. It controls one compressor, one two-stage gas valve, one bank of electric heat, one outdoor fan, and one blower. A55 includes the thermostat inputs, serial communications ports, diagnostic code display, control pushbutton, system configuration dip switches, and four expansion ports. A diagnostic code list is located on the back side of the left access panel.

18-Compressor 2 Control Module A57

The compressor 2 control module A57 controls one additional compressor stage for the LGC units. A57 includes all inputs and outputs required for compressor and fan control, compressor stages diagnostics, and low ambient control.

19-Compressor 3 & 4 Control Module A59 (LGC156/300)

The compressor 3 & 4 control module A59 controls two additional compressor stage for the LGC156/300 units. A59 includes all inputs and outputs required for compressor and fan control, compressor stage diagnostics, and low ambient control.

20-Gas Valve Control Module A58 (LGC156/300)

The gas valve control module A58 controls an additional burner with a two-stage gas valve. A58 includes all inputs and outputs required for control and diagnostics of one two-stage gas valve burner.

21-Economizer Control Module A56 (Economizer only)

The economizer control module A56 controls the economizer. A56 has four different cooling modes, sensible temperature, outdoor enthalpy, differential enthalpy, and global control.

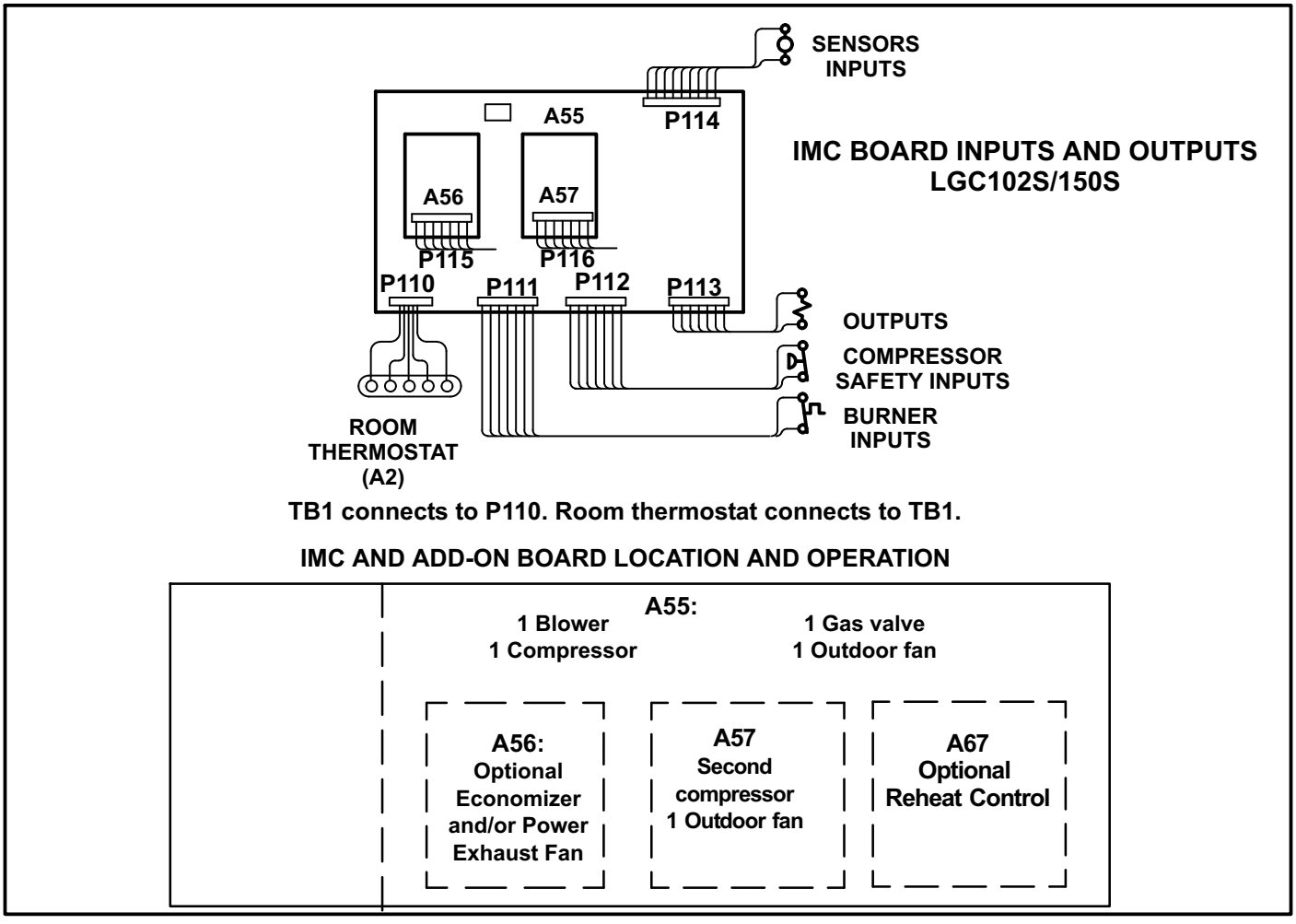
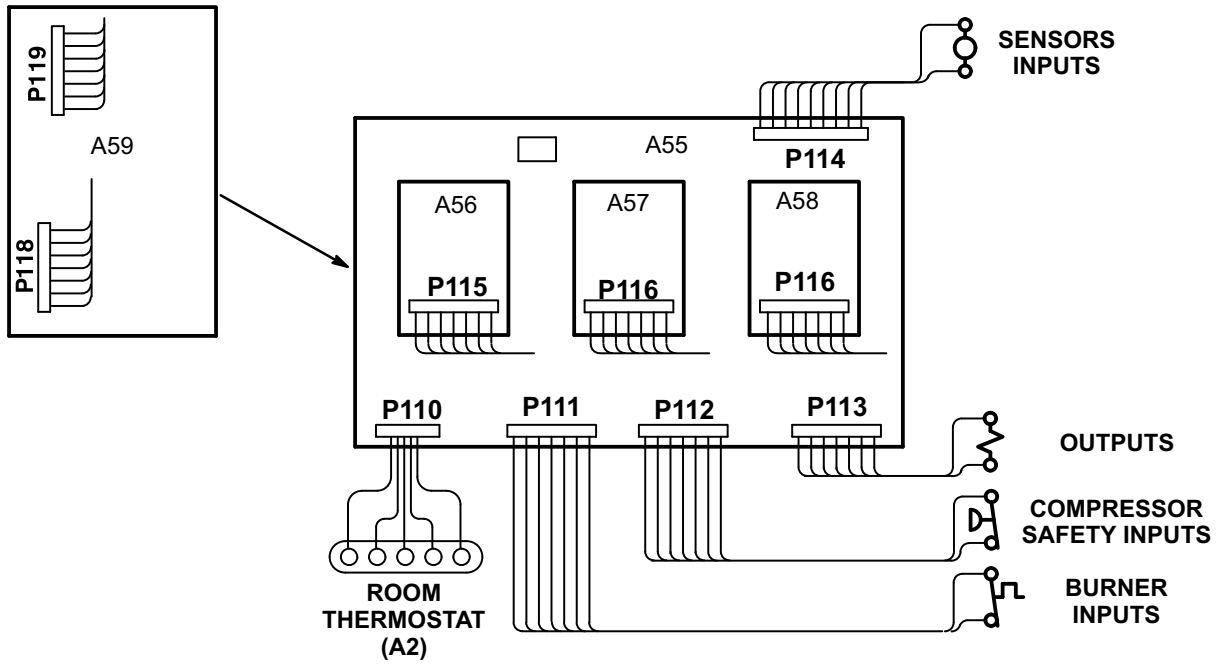


FIGURE 8

IMC BOARD INPUTS AND OUTPUTS
LGC156H/300S



TB1 connects to P110. Room thermostat connects to TB1. See section C2 in the wiring diagram section P.65

IMC AND ADD-ON BOARD LOCATION AND OPERATION

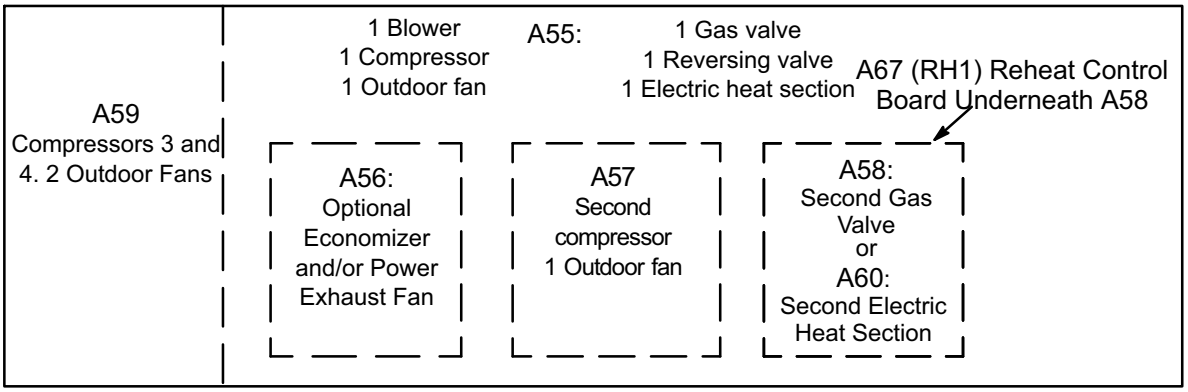
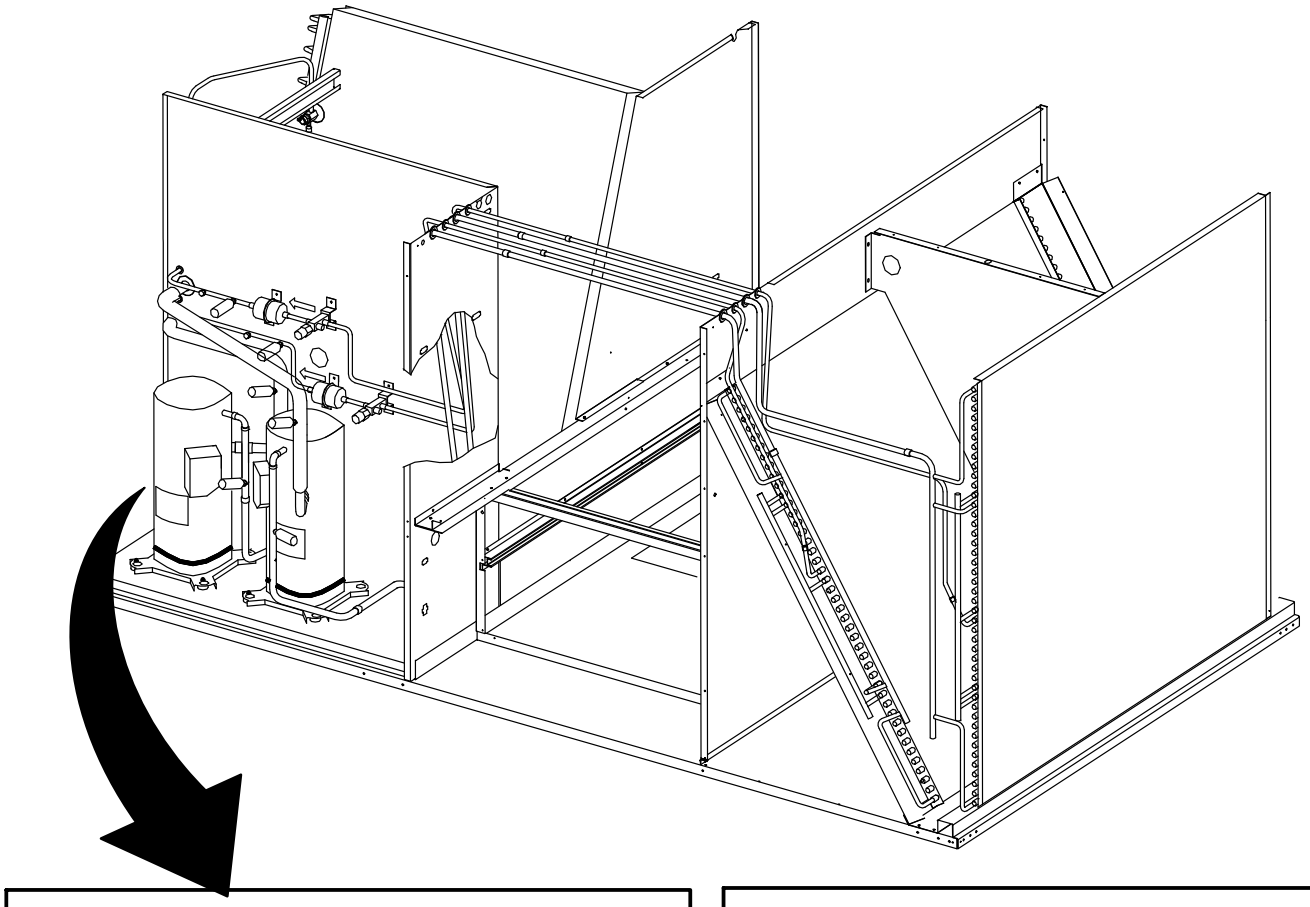
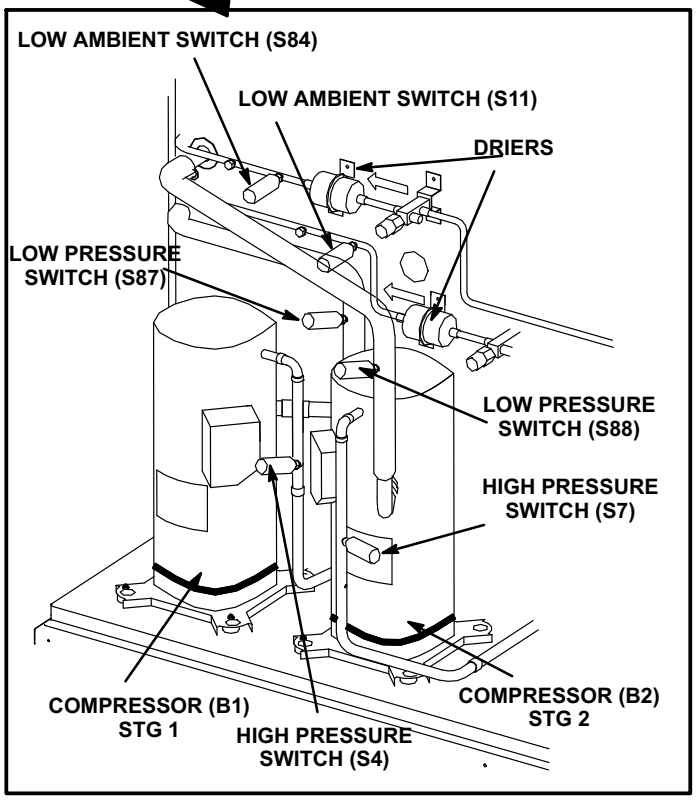


FIGURE 9

LGC090,102, 120, 150 PLUMBING, COMPRESSOR AND REFRIGERANT CIRCUITS DETAIL





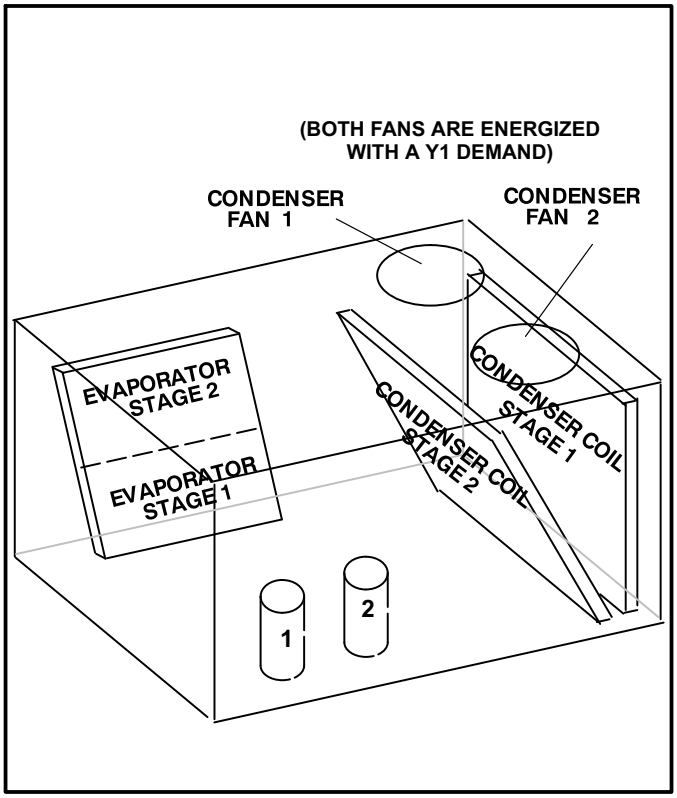


FIGURE 10

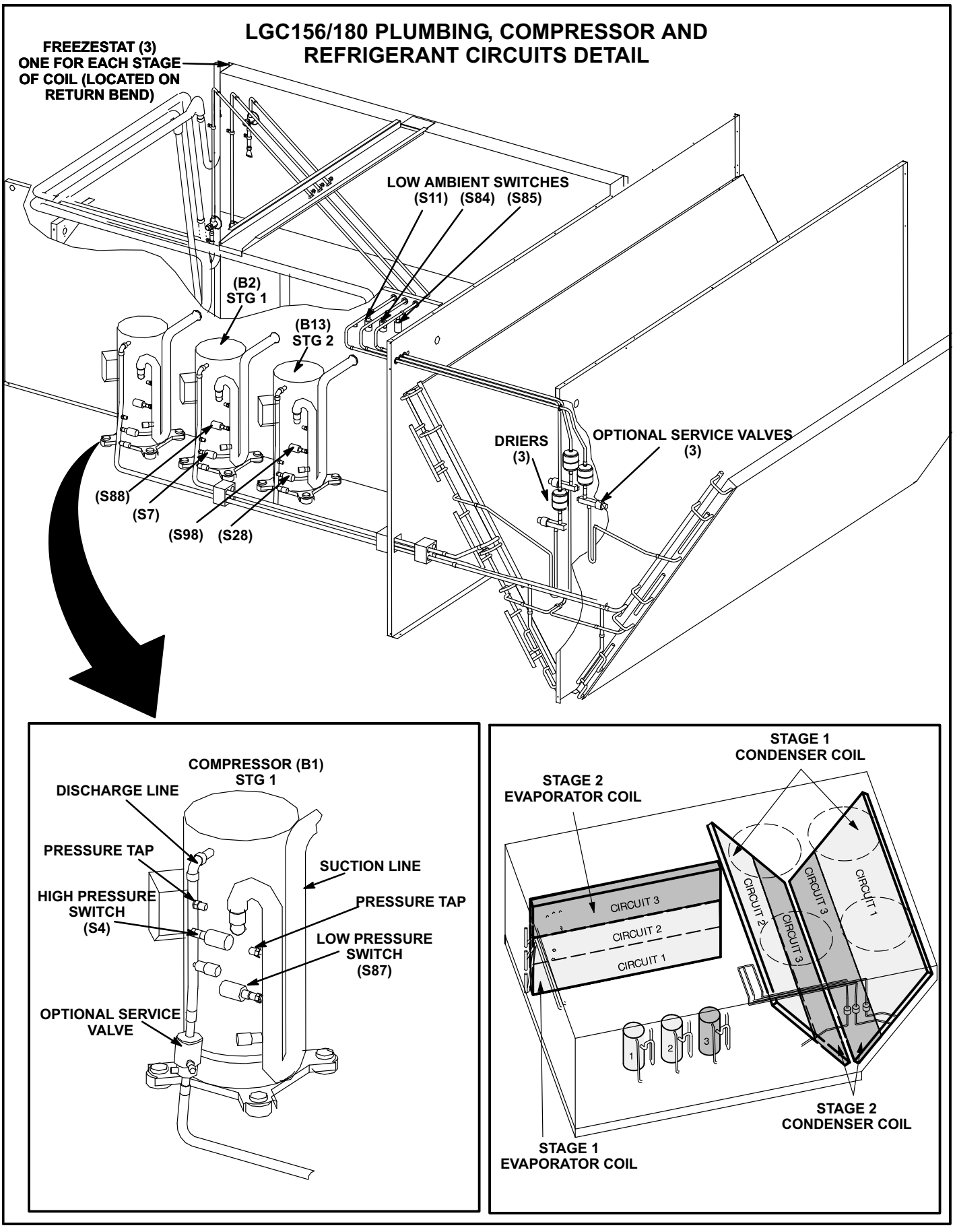

LGC156/180 PLUMBING, COMPRESSOR AND REFRIGERANT CIRCUITS DETAIL
FREEZESTAT (3) ONE FOR EACH STAGE OF COIL (LOCATED ON RETURN BEND)
LOW AMBIENT SWITCHES (S11) (S84) (S85)
(B2) STG 1
(B13) STG 2
DRIERS (3)
OPTIONAL SERVICE VALVES (3)
(S88)
(S7)
(S98)
(S28)
COMPRESSOR (B1) STG 1
DISCHARGE LINE
PRESSURE TAP
SUCTION LINE
HIGH PRESSURE SWITCH (S4)
PRESSURE TAP
LOW PRESSURE SWITCH (S87)
OPTIONAL SERVICE VALVE
STAGE 1 CONDENSER COIL
STAGE 2 EVAPORATOR COIL
CIRCUIT 3
CIRCUIT 2
CIRCUIT 1
CIRCUIT 3
CIRCUIT 2
CIRCUIT 3
CIRCUIT 1
1
2
3
STAGE 2 CONDENSER COIL
STAGE 1 EVAPORATOR COIL

FIGURE 11

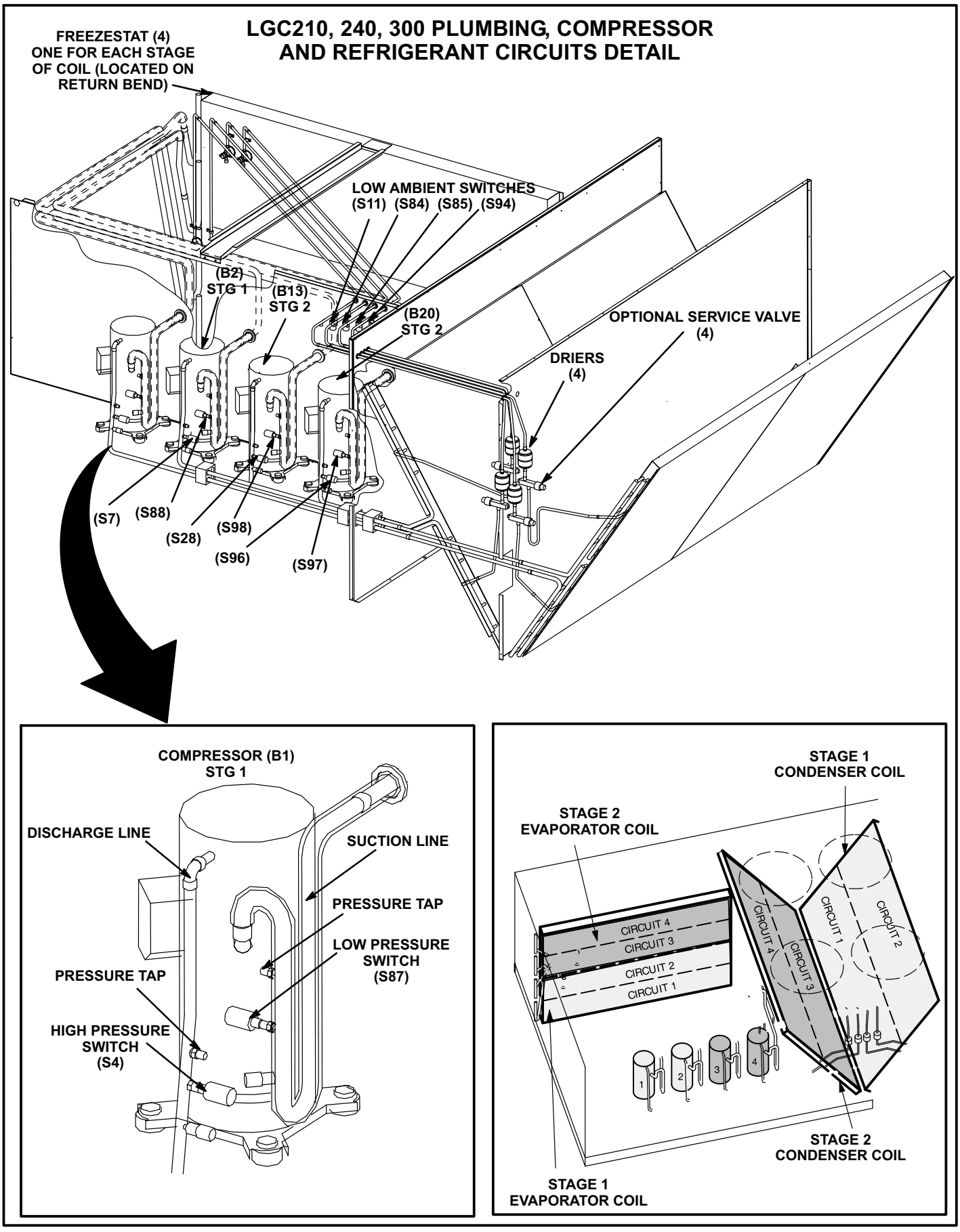

LGC210, 240, 300 PLUMBING, COMPRESSOR AND REFRIGERANT CIRCUITS DETAIL
FREEZESTAT (4) ONE FOR EACH STAGE OF COIL (LOCATED ON RETURN BEND)
LOW AMBIENT SWITCHES (S11) (S84) (S85) (S94)
(B2) STG 1
(B13) STG 2
(B20) STG 2
OPTIONAL SERVICE VALVE (4)
DRIERS (4)
(S7)
(S88)
(S28)
(S98)
(S96)
(S97)
COMPRESSOR (B1) STG 1
DISCHARGE LINE
SUCTION LINE
PRESSURE TAP
LOW PRESSURE SWITCH (S87)
PRESSURE TAP
HIGH PRESSURE SWITCH (S4)
STAGE 1 CONDENSER COIL
STAGE 2 EVAPORATOR COIL
CIRCUIT 4
CIRCUIT 3
CIRCUIT 2
CIRCUIT 1
STAGE 2 CONDENSER COIL
STAGE 1 EVAPORATOR COIL

FIGURE 12

B-Cooling Components

All units use independent cooling circuits consisting of separate compressors, condenser coils and evaporator coils. See figures 10, 11 and 12. Four draw-through type condenser fans are used in LGC156/300 units and two are used on LGC090/150. All units are equipped with belt-drive blowers which draw air across the evaporator during unit operation.

Cooling may be supplemented by a factory- or field-installed economizer. The evaporators are slab type and are stacked. Each evaporator uses a thermostatic expansion valve as the primary expansion device. Each evaporator is also equipped with enhanced fins and rifled tubing. In all units each compressor is protected by a crankcase heater, high pressure switch and low pressure switch. Additional protection is provided by low ambient switches and freezestats (on each evaporator).

1-Compressors B1 and B2 (all units) B13 (LGC156/240) B20 (LGC210/300)

All LGC090/300 units use scroll compressors. LGC090/150 units use two compressors, LGC156 and 180 use 3 compressors and LGC210/300 use four compressors. All compressors are equipped with independent cooling circuits. Compressor capacity may vary from stage to stage. In all cases, the capacity of each compressor is added to reach the total capacity of the unit. See “SPECIFICATIONS” and “ELECTRICAL DATA” (table of contents) or compressor nameplate for compressor specifications.

⚠ WARNING

Electrical shock hazard. Compressor must be grounded. Do not operate without protective cover over terminals. Disconnect power before removing protective cover. Discharge capacitors before servicing unit. Failure to follow these precautions could cause electrical shock resulting in injury or death.

Each compressor is energized by a corresponding compressor contactor.

NOTE-Refer to the wiring diagram section for specific unit operation.

2-Crankcase Heaters HR1 and HR2 (all units) HR5 (LGC156/300) HR11 (LGC210/300)

All LGC units use insertion type heaters. Heater HR1 is installed around compressor B1, heater HR2 compressor B2, HR5 compressor B13, and HR11 compressor B20. Crankcase heater wattage varies by compressor manufacturer.

NOTE - Pressure switch settings (S4, S7, S11, S84, S87 and S88) will be significantly higher on R410A charged units than R22 charged units.

3-High Pressure Switches S4 and S7 (all units) S28 (LGC156/300) S96 (LGC210/300)

The high pressure switches is an auto-reset SPST N.C. switch which opens on a pressure rise. All units are equipped with this switch. The switch is located in the compressor discharge line and is wired in series with the compressor contactor coil.

S4 (first circuit), S7 (second circuit), S28 (third circuit), and S96 (fourth circuit) are wired in series with the respective compressor contactor coils.

Units charged with R22

When discharge pressure rises to 450 ± 10 psig (3103 ± 69 kPa) (indicating a problem in the system) the switch opens and the respective compressor is de-energized (the economizer can continue to operate). When discharge pressure drops to 300 ± 20 psig (2068 ± 138 kPa) the pressure switch will close.

Units charged with R410A

When discharge pressure rises to 650 ± 10 psig (4413 ± 69 kPa) (indicating a problem in the system) the switch opens and the respective compressor is de-energized (the economizer can continue to operate). When discharge pressure drops to 475 ± 20 psig (3275 ± 138 kPa) the pressure switch will close.

Main control A55 has a three-strike counter before locking out. This means the control allows three high pressure trips per one thermostat demand. The control can be reset by breaking and remaking the thermostat demand or manually resetting the control.

4-Low Ambient Switches S11 & S84(all units) S85 (156H/300S) S94 (210/300S)

The low ambient switch is an auto-reset SPST N.O. pressure switch which allows for mechanical cooling operation at low outdoor temperatures. All units are equipped with this switch. In all models a switch is located in each liquid line prior to the indoor coil section.

In the LGC090/150, S11 and S84 wired in parallel are wired in series with outdoor fan relay K10 (compressor one). Compressor two is under control of the IMC board. In the LGC156/180 units , S11 (compressor one), S84 (compressor two) and S85 (compressor three) are wired in parallel to the low ambient switch relay K159. In the LGC 210/240/300 units, S11 and S84 are in parallel wired to outdoor fan relay K10, while S85 and S94 (compressor four) are in parallel wired to third outdoor fan relay K149.

Units charged with R22

When liquid pressure rises to 275 ± 10 psig (1896 ± 69 kPa), the switch closes and the condenser fan is energized. When discharge pressure in one refrigerant circuit drops to 150 ± 10 psig (1034 ± 69 kPa), the switch opens and the condenser fan in that refrigerant circuit is de-energized. This intermittent fan operation results in higher evaporating temperature allowing the system to operate without icing the evaporator coil and losing capacity.

Units charged with R410A

When liquid pressure rises to 450 ± 10 psig (3102 ± 69 kPa), the switch closes and the condenser fan is energized. When discharge pressure in one refrigerant circuit drops to 240 ± 10 psig (1655 ± 69 kPa), the switch opens and the condenser fan in that refrigerant circuit is de-energized. This intermittent fan operation results in higher evaporating temperature allowing the system to operate without icing the evaporator coil and losing capacity.

5-Low Pressure Switches S87 & S88(all units) S98 (LGC156/300) S97 (LGC210/300)

The low pressure switch is an auto-reset SPST N.O. switch (held N.C. by refrigerant pressure) which opens on a pressure drop. All units are equipped with this switch. The switch is located in the compressor suction line.

S87 (compressor one), S88 (compressor two), S98 (compressor three), and S97 (compressor four) are wired in series with the main control module A55.

The main control module A55 governs the low pressure switches by shunting the switches during start up until pressure is stabilized. After the shunt period, the control has a three-strike counter, during first thermostat demand, before the compressor is locked out. The control is reset by breaking and remaking the thermostat demand or manually resetting the control.

Units charged with R22

When suction pressure drops to 25 $\pm$ 5 psig (172 ± 34 kPa) (indicating low pressure), the switch opens and the compressor is de-energized. The switch automatically resets when pressure in the suction line rises to 55 $\pm$ 5 psig (379 ± 34 kPa), due to many causes such as refrigerant being added.

Units charged with R410A

When suction pressure drops to 40 $\pm$ 5 psig (276 ± 34 kPa), (indicating low pressure), the switch opens and the compressor is de-energized. The switch automatically resets when pressure in the suction line rises to 90 $\pm$ 5 psig (620 ± 34 kPa) due to many causes such as refrigerant being added.

6-Service Valve (optional)

LGC units may be equipped with service valves located in the discharge and liquid lines. The service valves are manually operated valves used for service operation.

7-Filter Drier (all units)

LGC units have a filter drier located in the liquid line of each refrigerant circuit at the exit of each condenser coil. The drier removes contaminants and moisture from the system.

8-Freezestats S49 and S50 (all units) S53(LGC156/300) and S95 (LGC210/300)

Each unit is equipped with a low temperature switch (freezestat) located on the return bend of each evaporator coil. S49 (first circuit), S50 (second circuit), S53 (third circuit), and S95 (fourth circuit) are located on the corresponding evaporator coils.

Each freezestat is wired to the main control module A55. Each freezestat is a SPST N.C. auto-reset switch which opens at 29°F $\pm$ 3°F (-1.7°C $\pm$ 1.7°C) on a temperature drop and closes at 58°F $\pm$ 4°F (14.4°C $\pm$ 2.2°C) on a temperature rise. To prevent coil icing, freezestats open during compressor operation to temporarily disable the respective compressor until the coil warms sufficiently to melt any accumulated frost.

If the freezestats are tripping frequently due to coil icing, check the unit charge, airflow and filters before allowing unit back in operation. Make sure to eliminate conditions which might promote evaporator ice buildup.

9-Condenser Fans B4, B5, B21, and B22

See SPECIFICATIONS tables at the front of this manual for specifications of condenser fans used in all units. All condenser fans used have single-phase motors. The fan assembly may be removed for servicing and cleaning.

C-Blower Compartment

The blower compartment in all LGC090/150S units is located between the evaporator coil and the condenser coil section. The blower assembly is accessed by disconnecting the blower motor and all other plugs and removing the screws in front of the blower housing. The blower pulls out as shown in figure 13.

The blower compartment in LGC156/300 units is located between the evaporator coil and the compressor / control section on the opposite side of the condenser coil. The blower assembly is accessed by disconnecting the blower motor jack plug J98/P98 (and all other plugs) and removing the screws on either side of the sliding base. The base pulls out as shown in figure 14.

1-Blower Wheels

All LGC090/150 units have one 15 in. x 15 in. (381 mm x 381 mm) blower wheel.

All LGC156/300 units have two 15 in. x 15 in. (381 mm x 381 mm) blower wheels. Both wheels are driven by one motor.

2-Indoor Blower Motor B3

All units use three-phase single-speed blower motors. CFM adjustments are made by adjusting the motor pulley (sheave). Motors are equipped with sealed ball bearings. All motor specifications are listed in the SPECIFICATIONS (table of contents) in the front of this manual. Units may be equipped with motors manufactured by various manufacturers, therefore electrical FLA and LRA specifications will vary. See unit rating plate for information specific to your unit.

OPERATION / ADJUSTMENT

Blower Operation

NOTE-The following is a generalized procedure and does not apply to all thermostat control systems.

1- Blower operation is dependent on the thermostat control system option that has been installed in the units. Refer to operation sequence of the control system installed for detailed descriptions of blower operation.

2- Generally, blower operation is set at the thermostat fan switch. With the fan switch in "ON" position and the **OCP** input is **"ON"**, the blower operates continuously. With the fan switch in "AUTO" position, the blower cycles with demand.

3- In most cases, the blower and entire unit will be off when the system switch is in the "OFF" position. The only exception is immediately after a heating demand when the blower control keeps the blower on until all heat is extracted from the heat exchanger.

Determining Unit Air Volume

1- The following measurements must be made with a dry indoor coil. Run blower without cooling demand. Air filters must be in place when measurements are taken.

2- With all access panels in place, measure static pressure external to unit (from supply to return).

3- Measure the indoor blower wheel RPM.

4- Refer to blower tables in BLOWER DATA (table of contents) in the front of this manual. Use static pressure and RPM readings to determine unit air volume.

5- The RPM can be adjusted at the motor pulley. Loosen Allen screw and turn adjustable pulley clockwise to increase RPM. Turn counterclockwise to decrease RPM. See figure 13 for LGC090/150 units and figure 14 for LGC156/300 units.

Blower Belt Adjustment

Proper pulley alignment and belt tension must be maintained for maximum belt life.

NOTE-Tension new belt after 24-48 hours of operation. This will allow belts to stretch and seat in grooves.

1- Loosen four screws securing blower motor to sliding base. See figures 13 and 14.

2- *To increase belt tension -*
Turn belt tension adjusting screw to the left, or counterclockwise, to tighten the belt. This increases the distance between the blower motor and the blower housing.
To loosen belt tension -
Turn the adjusting screw to the right, or clockwise to loosen belt tension.

3- Tighten four screws securing blower motor to sliding base once adjustments have been made.

BLOWER ASSEMBLY
LGC090/150

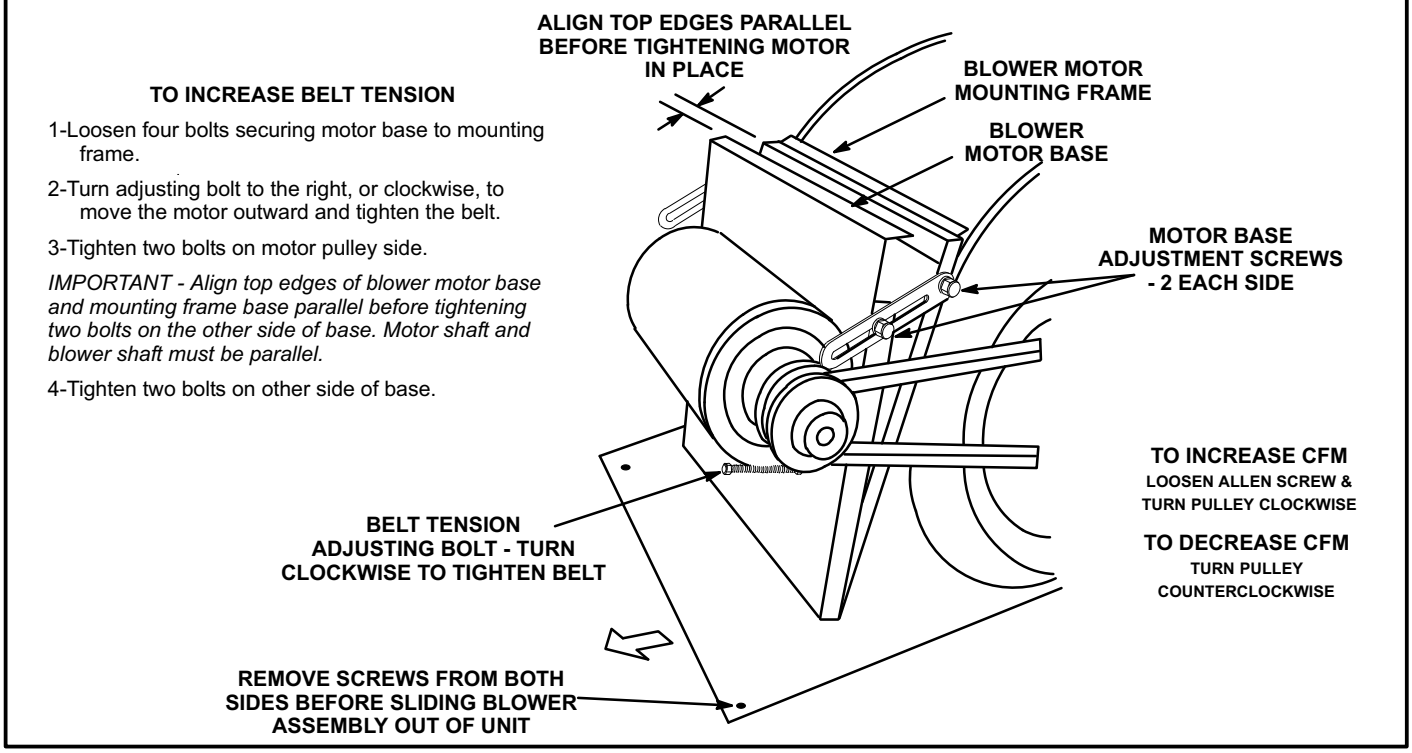


FIGURE 13

BLOWER ASSEMBLY
LGC156/300

BLOWER MAY NEED TO BE REMOVED TO INSPECT HEAT EXCHANGER, REAR BLOWER BEARINGS, ETC.

TO INCREASE BELT TENSION

1-Loosen four screws securing blower motor to sliding base.

2-Turn adjusting screw to the left, or counterclockwise, to move the motor downward and tighten the belt.

3-Tighten four screws.

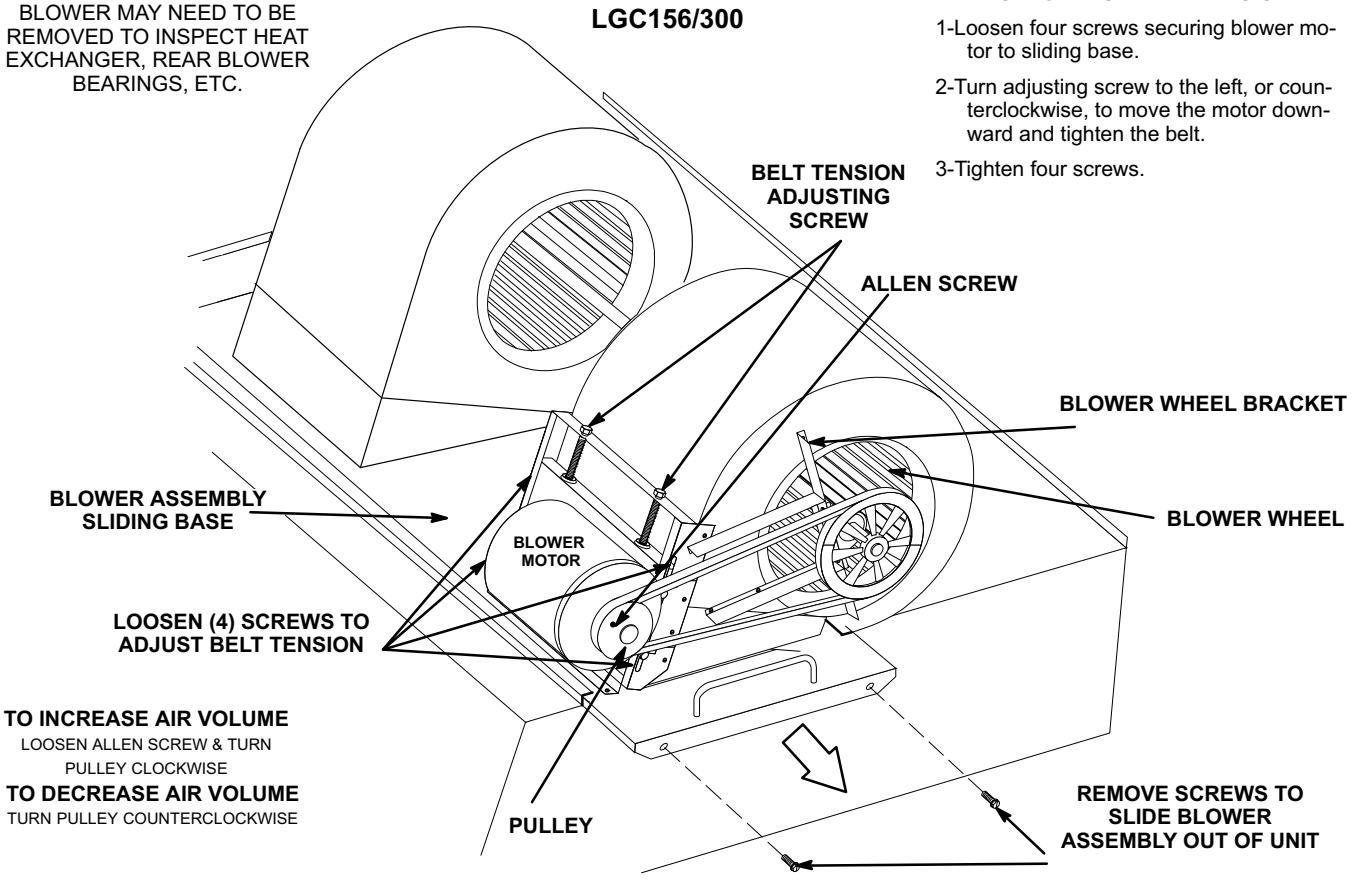


FIGURE 14

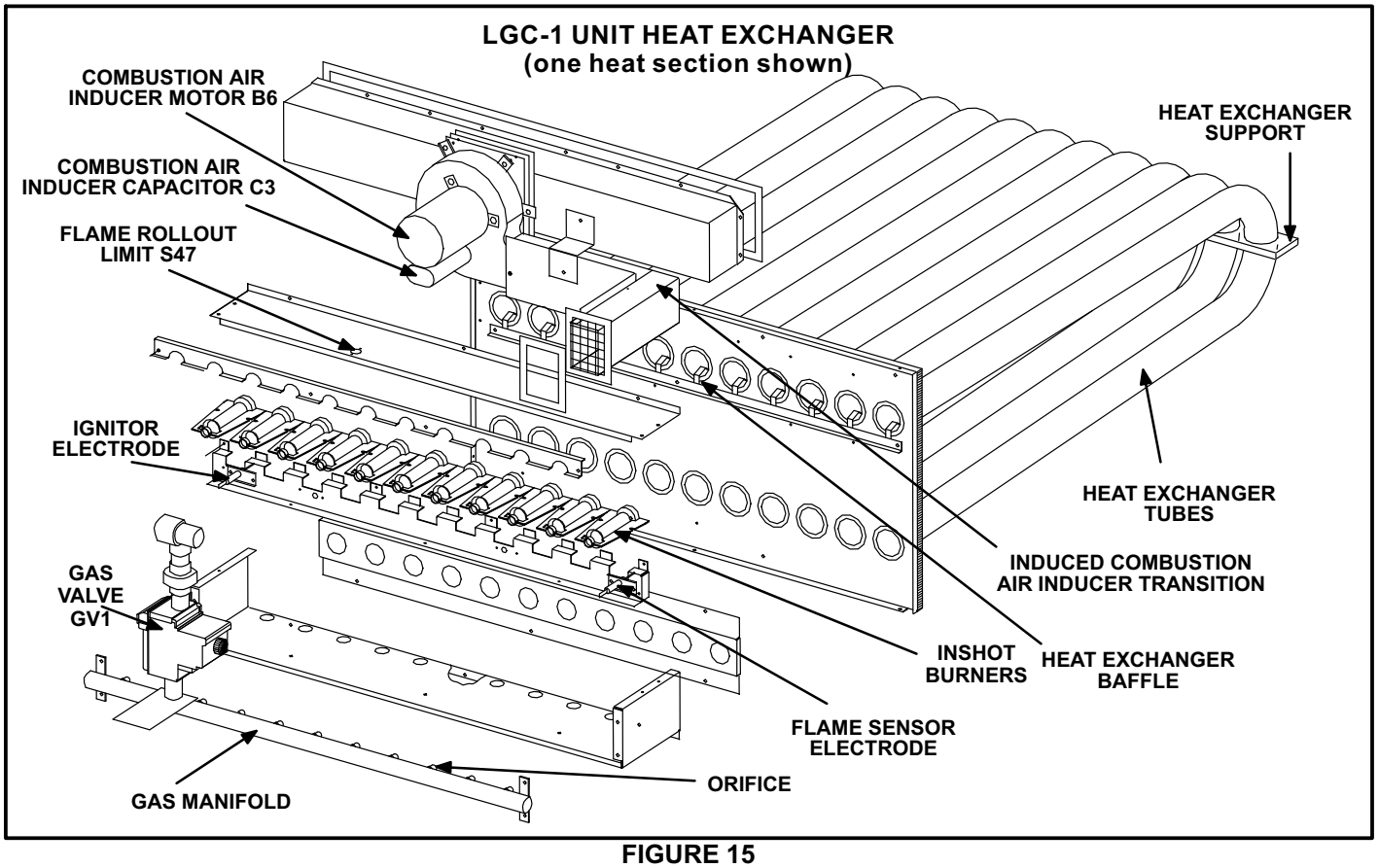


FIGURE 15

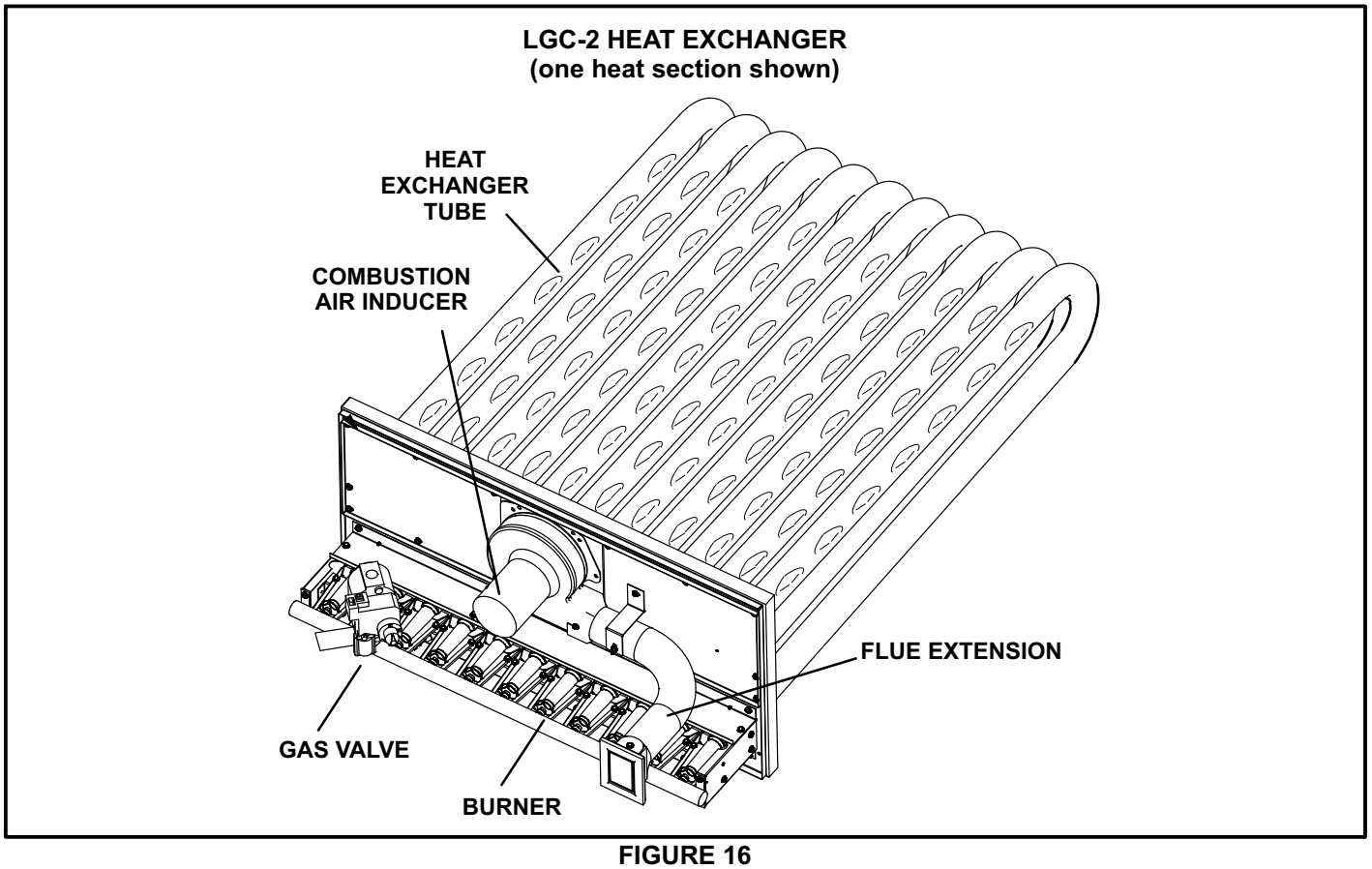


FIGURE 16

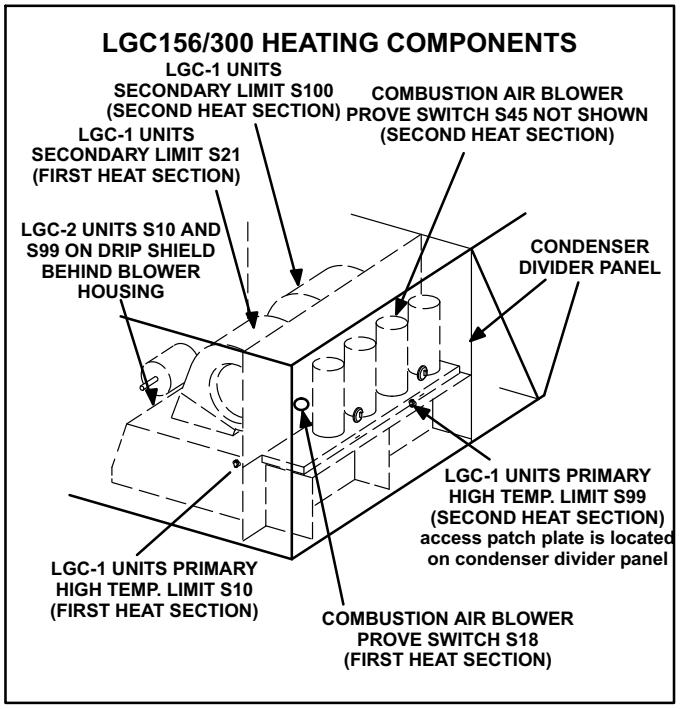


FIGURE 17

D-GAS HEAT COMPONENTS

See unit nameplate for all -1 model unit Btuh capacities. See SPECIFICATIONS tables or unit namelplate for Btuh capacities in -2 model units. LGC090/150 units have one heat section while LGC156/300 units are equipped with two identical gas heat sections (gas heat section one and gas heat section two). Flexible pipe will feed supply gas to both sections. If for service the flexible connection must broken, hand tighten then turn additional 1/4" with a wrench for metal to metal seal (do not overtighten).

NOTE - Do not use thread sealing compound on flex pipe flare connections.

1-Control Box Components A3, A12, A55, A58, T3, T13, K13 and K19

⚠WARNING

Shock hazard. Spark related components contain high voltage which can cause personal injury or death. Disconnect power before servicing. Control is not field repairable. Unsafe operation will result. If control is inoperable, simply replace the entire control.

The main control box (see figure 4) houses the burner controls A3 and A12, main control module A55, gas valve (burner) control module A58, combustion air blower transformers T3 and T13, combustion air blower relay K13, and second heat section relay K19. For a description of the components see section I-A. A more detailed description of burner controls A3 and A12 is given below.

Burner Ignition Control A3 (all units) and A12 (LGC156/300)

The ignition controls are located in the control box and are manufactured by Johnson Controls. See table 1 for LED codes.

The ignition control provides three main functions: gas valve control, ignition, and flame sensing. The unit will usually ignite on the first attempt; however, the ignition attempt sequence provides three trials for ignition before locking out. The lockout time for the Johnson control is 5 minutes. After lockout, the ignition control automatically resets and provides three more attempts at ignition. Manual reset after lockout requires breaking and remaking power to the ignition control. See figure 18 for a normal ignition sequence and figure 19 for the ignition attempt sequence with retrials (nominal timings given for simplicity). Specific timings for the ignition controls are shown in figure 20.

TABLE 1

Manufacturer	LED Code	Description
Johnson	Steady "ON"	Normal
	.5 sec on / 2.5 sec off	Reset Mode
	"OFF"	No Power or Detected Failure

Flame rectification sensing is used on all LGC units. Loss of flame during a heating cycle is indicated by an absence of flame signal (0 microamps). If this happens, the control will immediately restart the ignition sequence and then lock out if ignition is not gained after the third trial. See System Service Checks section for flame current measurement.

The control shuts off gas flow immediately in the event of a power failure. Upon restoration of gas and power, the control will restart the ignition sequence and continue until flame is established or system locks out.

On a heating demand, the ignition control is energized by the main control module A55. The ignition control then allows 30 to 40 seconds for the combustion air blower to vent exhaust gases from the burners. When the combustion air blower is purging the exhaust gases, the combustion air prove switch is closing proving that the combustion air blower is operating before allowing the ignition control to energize. When the combustion air prove switch is closed and the delay is over, the ignition control activates gas valve, the spark electrode and the flame sensing electrode. Sparking stops immediately after flame is sensed. The combustion air blower continues to operate throughout the heating demand. If the flame fails or if the burners do not ignite, the ignition control will attempt to ignite the burners up to two more times. If ignition cannot be obtained after the third attempt, the control will lock out. The ignition control is not adjustable.

2-Heat Exchanger (Figures 15 and 16)

The LGC units use aluminized steel inshot burners with matching tubular aluminized (stainless steel is an option) steel heat exchangers and two-stage redundant gas valves. LGC090/150 uses one eleven tube/burner for high heat and one six tube/burner for standard heat. LGC156/300 use two eleven tube/burners for high heat and two six tube/burners for standard or low heat. LGC156/300-2 units use two nine tube/burners for medium heat. Burners in all units use a burner venturi to mix gas and air for proper combustion. Combustion takes place at each tube entrance. As hot combustion gases are drawn upward through each tube by the combustion air blower, exhaust gases are drawn out the top and fresh air/gas mixture is drawn in at the bottom. Heat is transferred to the air stream from all surfaces of the heat exchanger tubes. The supply air blowers, controlled by the main control panel A55, force air across all surfaces of the tubes to extract the heat of combustion. The shape of the tubes ensures maximum heat exchange.

The gas valves accomplish staging by allowing more or less gas to the burners as called for by heating demand.

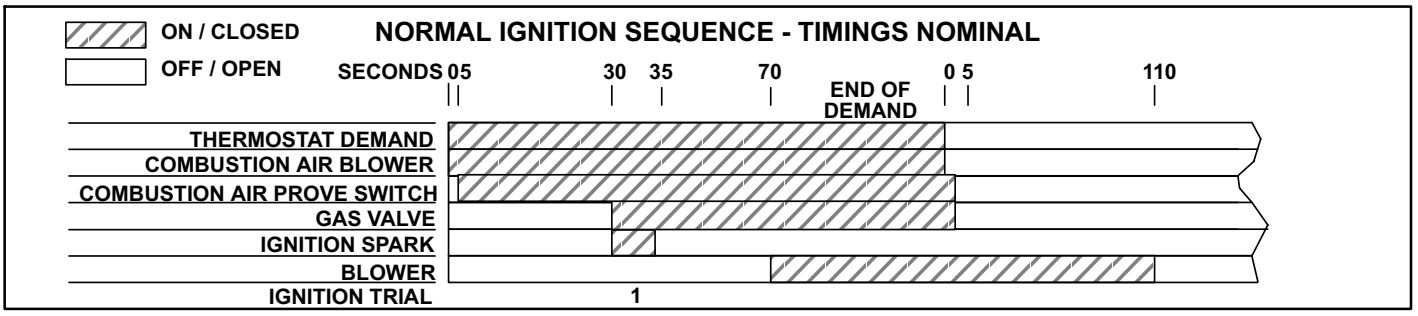


FIGURE 18

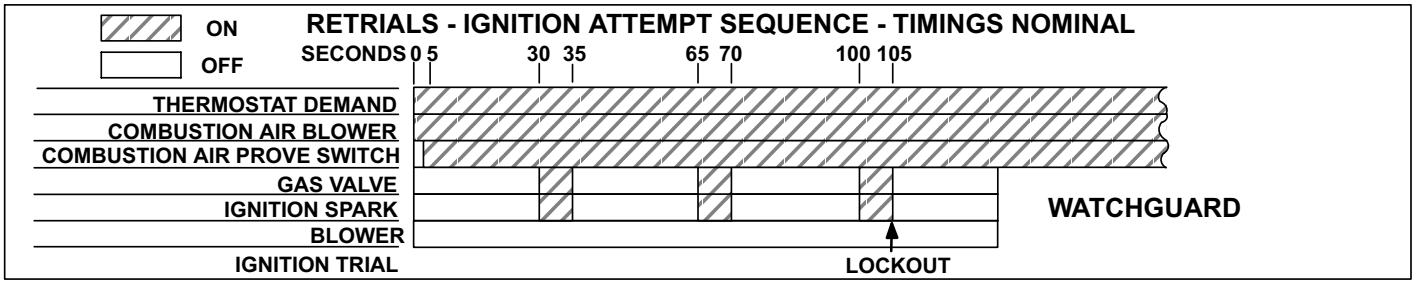


FIGURE 19

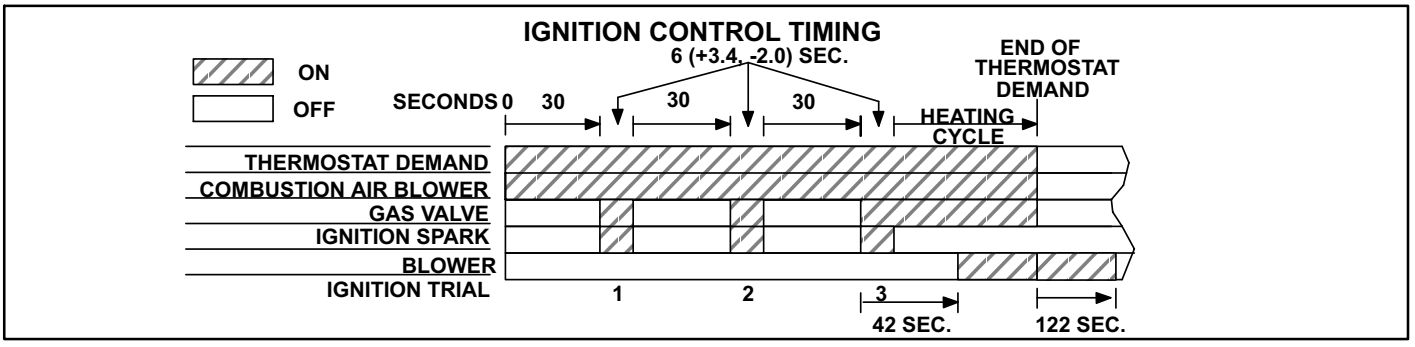


FIGURE 20

3-Burner Assembly (Figure 21)

The burners are controlled by the spark electrode, flame sensing electrode, gas valve and combustion air blower. The spark electrode, flame sensing electrode and gas valve are directly controlled by ignition control. Ignition control and combustion air blower is controlled by main control panel A55.

Burners

All units use inshot burners (see figures 21 and 22). Burners are factory set and do not require adjustment. A peep hole with cover is furnished in the heating access panel for flame viewing. Always operate the unit with the access panel in place.

Burners can be removed individually for service. Burner maintenance and service is detailed in the SERVICE CHECKS section of this manual.

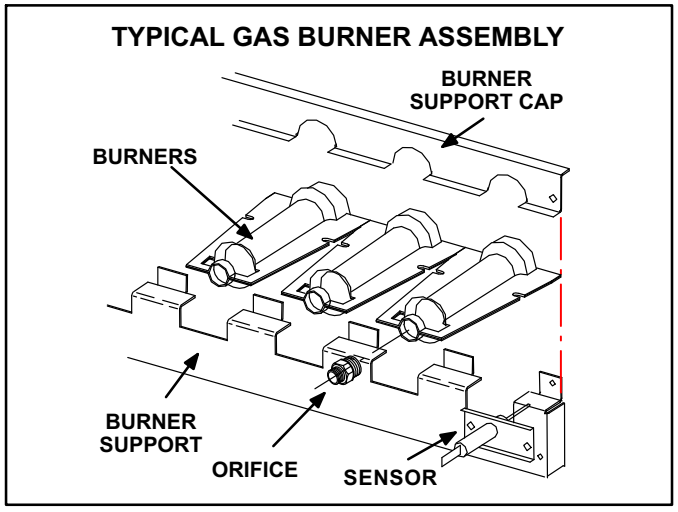


FIGURE 21

Orifice

Each burner uses an orifice (two types figure 22) which is precisely matched to the burner input. **Install only the orifices with the same threads.**The orifice is threaded into the burner manifold. The burner is supported by the orifice and will easily slide off for service.

NOTE-Do not use thread sealing compound on the orifices. Using thread sealing compound may plug the orifices.

Each orifice and burner are sized specifically to the unit. Refer to Lennox Repair Parts Listing for correct sizing information.

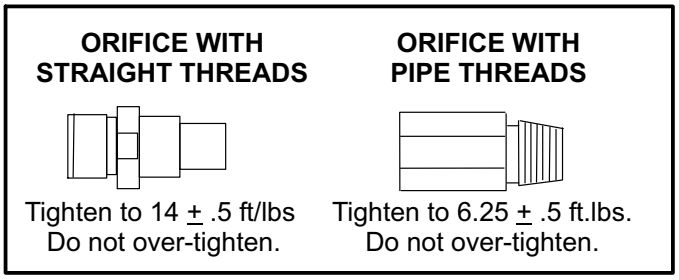


FIGURE 22

NOTE- LGC156/300 ONLY - In primary and secondary high temperature limits S10, S99, S21, and S100 the ignition circuits in both gas heat sections one and two are immediately de-energized when terminals 1-3 open and the indoor blower motor is immediately energized when terminals 1-2 close. This is the primary and secondary safety shut-down function of the unit.

4-Primary High Temperature Limits S10 (all units) & S99 (LGC156/300)

S10 is the primary high temperature limit for gas heat in LGC090/150 units and for section one in LGC156/300 units, while S99 is the primary high temperature limit for gas heat section two for LGC156/300. On LGC090/150, S10 is located on the blower deck behind the blower. On LGC156/300-1 units, S10 is located in the blower compartment and is mounted on the end of the blower support panel which divides the blower compartment from the heating compartment (see figure 17). S99 is located on the blower support panel which separates the second gas heat section from the outdoor condenser section (see figure 17). S99 is accessed through a patch plate on the condenser divider panel.

In LGC156/300-2 units, S10 and S99 are located on the drip shield behind the blower housing. In this location S10 and S99 also serve as secondary limits.

Primary limit S10 is wired to the main control panel A55 which energizes burner 1 control (A3), while primary limit S99 is wired to the gas 2 panel A58 which energizes burner 2 control (A12). Its N.C. contacts open to de-energize the ignition control when excessive temperature is reached in the blower compartment. At the same time, the N.O. contacts of S10 and S99 close energizing the blower relay coil K3 through control A55. If either limit trips the blower will be energized. Limts settings are factory set and cannot be adjusted. If limit must be replaced same type and set point must be used. See Lennox Repair Parts Handbook.

5-Secondary High Temperature Limits S21 (all LGC102/150 units & LGC156/300-1 units) & S100 (LGC156/300-1 units)

S21 is the secondary high temperature limit for heat section one, while S100 is the secondary high temperature limit for heat section two. Like the primary limits, the secondary limits are located in the blower compartment. S21 and S100 are mounted on top of the blowers (see figure 17).

Secondary limit S21 is also wired to the main control panel A55, while secondary limit S100 is wired to the gas 2 panel A58. The secondary limits function in the same manner as the primary limits, but are factory set to actuate at different temperatures. The N.O. contacts of both S21 and S100 are connected to the blower relay coil K3 through control A55. If either limit trips the blower will be energized. All limits used are SPDT N.C. auto-reset limits.

Limts settings are factory set and cannot be adjusted. If limit must be replaced, same type and set point must be used. See Lennox Repair Parts Handbook.

6-Flame Rollout Limits S47 (all units) & S69 (LGC156/300)

Flame rollout limits S47 on LGC100S/150S and first heat section on LGC156/300 and S69 on second heat section on LGC156/300 ,are SPST N.C. high temperature limits located just above the burner air intake opening in the burner enclosures (see figures 15 and 16). S47 is wired to the main control panel A55, while S69 is wired to the gas 2 panel A58. When S47 or S69 senses flame rollout (indicating a blockage in the combustion air passages), the corresponding flame rollout limit trips, and the ignition control immediately closes the gas valve.

Limit S47 and S69 in standard heat units are factory preset to open at 250°F ± 12°F (121.1°C ± 6.7°C) on a temperature rise, while on high heat units both limits open at 270°F ± 12°F (132.2°C ± 6.7°C) on a temperature rise. All flame rollout limits are manual reset.

7-Combustion Air Prove Switches S18 (all units) & S45 (LGC156/300)

Prove switch S18 is located in the vestibule area on LGC090/150 units. On LGC156/300 units S18 (first heat section) and S45 (second heat section) switches are located in the compressor compartment. Both are SPST N.O. switches, are identical and monitor combustion air inducer operation. Switch S18 is wired to the main control panel A55, while S45 is wired to the gas 2 panel A58.

The switch closes on a *negative* pressure fall. This negative pressure fall and switch actuation allows the ignition sequence to continue (proves, by closing, that the combustion air inducer is operating before allowing the gas valve to open.) The combustion air prove switch is factory set and not adjustable. The switch will automatically open on a pressure rise (less negative pressure). Table 2 shows prove switch settings for unit production dates before and after February 2009.

TABLE 2
S18 & S45 Prove Switch Settings

Unit Production Date	Close" wc (Pa)	Open " wc (Pa)
Feb 2009 & Later	0.25 ± 5 (62.3±12.4)	0.10±5 (24.8±12.4)
Prior to Feb 2009	0.46±5 (114±12.4)	0.31±5 (77.2±12.4)

8-Combustion Air Inducers B6 (all units) & B15 (LGC156/300)

Combustion air blowers B6 on LGC090/150 and LGC156/300 first heat section and B15 LGC156/300 second heat section, are identical blowers which provide fresh air to the corresponding burners while clearing the combustion chamber of exhaust gases. The blowers begin operating immediately upon receiving a thermostat demand and are de-energized immediately when thermostat demand is satisfied.

Both combustion air blowers use a 208/230V single-phase PSC motor and a 4.81in. x 1.25in. (122mm x 32mm) blower wheel. All motors operate at 3200RPM and are equipped with auto-reset overload protection. Blowers are supplied by various manufacturers. Ratings may vary by manufacturer. Specific blower electrical ratings can be found on the unit rating plate.

All combustion air blower motors are sealed and cannot be oiled. The blower cannot be adjusted but can be disassembled for cleaning.

9-Combustion Air Motor Capacitors C3 (all units) & C11 (LGC156H/300S)

The combustion air blower motors in all LGC units require run capacitors. Capacitor C3 is connected to combustion air blower B6 and C11 is connected to combustion air blower B15. Both capacitors are rated at 3 MFD and 370VAC.

10-Gas Valves GV1(all units) & GV3 (LGC156/300)

Gas valves GV1 and GV3 are identical. The gas valves are two-stage redundant valves. Units are equipped with valves manufactured by White-Rodgers or Honeywell. On both valves first stage (low fire) is quick opening (on and off in less than 3 seconds). On the White-Rodgers valve second stage is slow opening (on to high fire pressure in 40 seconds and off to low fire pressure in 30 seconds). On the Honeywell second stage is quick opening. On a call for first stage heat (low fire), the valve is energized by the ignition control simultaneously with the spark electrode. On a call for second stage heat (high fire), the second stage operator is energized directly from A55 (GV1) and A58 (GV3). The White-Rodgers valve is adjustable for high fire only. Low fire is not adjustable. The Honeywell valve is adjustable for both low fire and high fire. A manual

shut-off knob is provided on the valve for shut-off. Manual shut-off knob immediately closes both stages without delay. Figure 23 shows gas valve components. Table 3 shows factory gas valve regulation for LGC series units. Optional factory installed gas valves for single stage heat only, are available for the LGC156, 180 and 210. Gas valves are wired without W2 eliminating two stage heat.

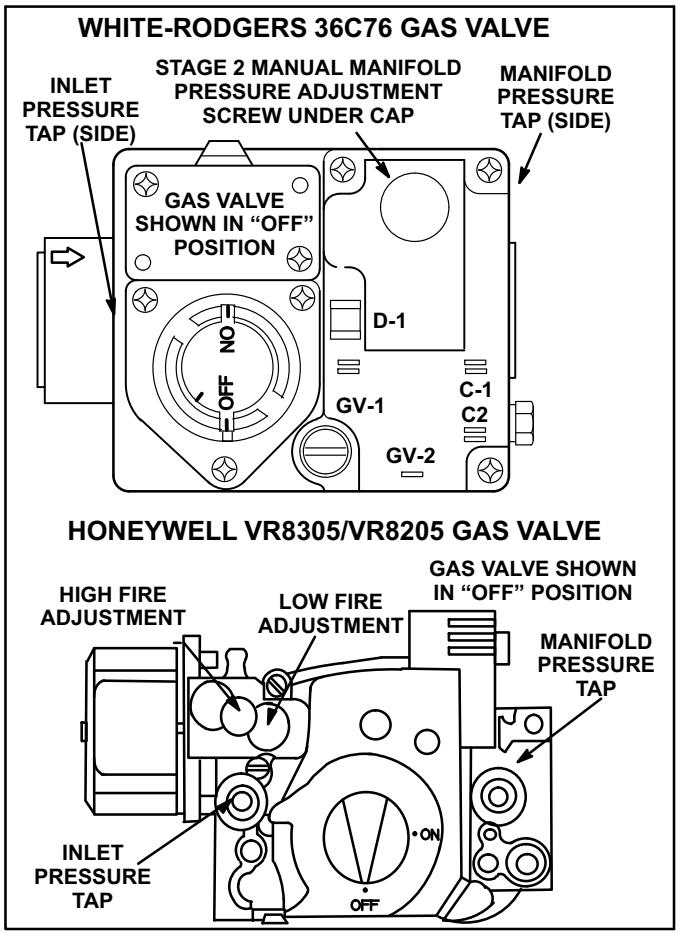


FIGURE 23

TABLE 3

GAS VALVE REGULATION FOR LGA UNITS				
Maximum Inlet Pressure	Operating Pressure (outlet) Factory Setting			
	Natural		L.P	
	Low	High	Low	High
13.0"W.C. 3232Pa	1.6±0.2"W.C. 398±50Pa	3.7±0.3"W.C. 920±75Pa	5.5±0.3"W.C. 1368±75Pa	10.5±0.5"W.C. 2611±7124Pa

11-Spark Electrodes

An electrode assembly is used for ignition spark. Two identical electrodes are used (one for each gas heat section). The electrode is mounted through holes on the left-most end of the burner support. The electrode tip protrudes into the flame envelope of the adjacent burner. The electrode assembly is fastened to burner supports and can be removed for service without removing any part of the burners.

During ignition, spark travels through the spark electrode (figure 24) and ignites the left burner. Flame travels from burner to burner until all are lit.

The spark electrode is connected to the ignition control by a 8 mm silicone-insulated stranded high voltage wire. The wire uses 1/4" (6.35 mm)female quick connect on the electrode end and female spark plug-type terminal on the ignition control end.

NOTE-IN ORDER TO MAXIMIZE SPARK ENERGY TO ELECTRODE, HIGH VOLTAGE WIRE SHOULD TOUCH UNIT CABINET AS LITTLE AS POSSIBLE.

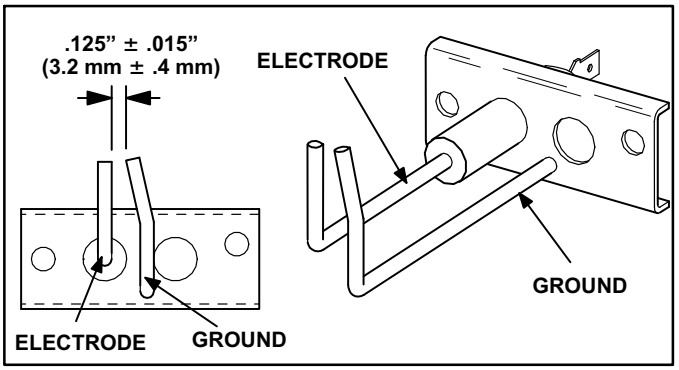


FIGURE 24

12-Flame Sensors

A flame sensor is located on the right side of each burner support. The sensor is mounted through a hole in the burner support and the tip protrudes into the flame envelope of the right most burner. The sensor assembly is fastened to burner supports and can be removed for service without removing any part of the burners.

When flame is sensed by the flame sensor (indicated by microamp signal through the flame) sparking stops immediately. During operation, flame is sensed by current passed along the ground electrode (located on the spark electrode), through the flame and into the sensing electrode. The ignition control allows the gas valve to stay open as long as a flame signal (current passed through the flame) is sensed.

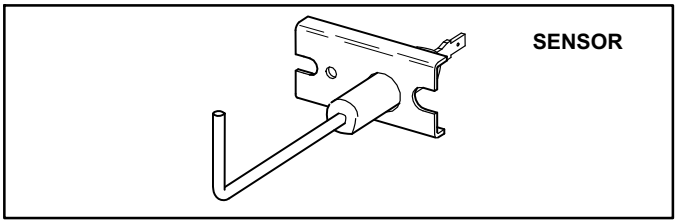


FIGURE 25

II-PLACEMENT AND INSTALLATION

Make sure the unit is installed in accordance with the installation instructions and all applicable codes. See accessories section for conditions requiring use of the optional roof mounting frame (LARMF18/36 or LARMFH18/24).

III-CHARGING

⚠ WARNING

Refrigerant can be harmful if it is inhaled. Refrigerant must be used and recovered responsibly.

Failure to follow this warning may result in personal injury or death.

⚠ IMPORTANT

Units equipped with Humiditrol system MUST be charged in standard cooling mode.

A-Refrigerant Charge and Check

WARNING-Do not exceed nameplate charge under any condition.

This unit is factory charged and should require no further adjustment. If the system requires charge, *reclaim the charge, evacuate the system,* and *add required nameplate charge.*

*NOTE - System charging is not recommended below 60°F (15°C). In temperatures below 60°F (15°C) , the charge **must** be weighed into the system.*

If weighing facilities are not available, or to check the charge, use the following procedure:

1- Attach gauge manifolds and operate unit in cooling mode until system stabilizes (approximately five minutes). Make sure all outdoor air dampers are closed.

2- Check each system separately with all stages operating.

3- Use a thermometer to accurately measure the outdoor ambient temperature.

4- Apply the outdoor temperature to tables 4 through 27 and to determine normal operating pressures.

5- Compare the normal operating pressures to the pressures obtained from the gauges. Minor variations in these pressures may be expected due to differences in installations. Significant differences could mean that the system is not properly charged or that a problem exists with some component in the system. **Correct any system problems before proceeding.**

6- If discharge pressure is high, remove refrigerant from the system. If discharge pressure is low, add refrigerant to the system.
   - Add or remove charge in increments.
   - Allow the system to stabilize each time refrigerant is added or removed.

7- Use the following approach method along with the normal operating pressures to confirm readings.

LGC Units Charged With R-22

TABLE 4
LGC090

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dis-charge ±10 psig	Suction ±5 psig	Dis-charge ±10 psig	Suction ±5 psig
65°F	179	76	183	74
75°F	204	78	209	76
85°F	233	79	237	77
95°F	265	81	270	79
105°F	299	83	304	81
115°F	335	84	342	83

TABLE 5
LGC102S

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	181	78	197	79
75°F	205	79	223	80
85°F	232	79	252	81
95°F	261	80	283	82
105°F	294	82	318	85
115°F	327	83	354	86

TABLE 6
LGC120

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	180	77	189	76
75°F	206	78	217	77
85°F	234	80	246	80
95°F	265	82	279	82
105°F	297	83	312	83
115°F	334	84	349	85

TABLE 7
LGC150S

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	176	65	185	69
75°F	200	66	209	71
85°F	229	68	236	72
95°F	260	71	265	73
105°F	293	73	297	75
115°F	330	75	332	76

TABLE 8
LGC150S with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	187	65	185	69
75°F	205	66	209	71
85°F	234	68	236	72
95°F	264	71	265	73
105°F	301	73	297	75
115°F	344	75	332	76

TABLE 9
LGC156H

Outdoor Coil Entering Air Temp.	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis.± 10 psig	Suct. ± 5 psig	Dis.± 10 psig	Suct. ± 5 psig	Dis.± 10 psig	Suct. ± 5 psig
65°F		OUTDOOR FAN CYCLES				
75°F	171	77	168	81	180	82
85°F	196	78	194	82	206	83
95°F	228	79	227	84	237	84
105°F	262	80	260	85	272	85
115°F	301	82	299	86	309	86

TABLE 10
LGC156H with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	Outdoor Fan Cycles					
75°F	184	77	183	81	180	82
85°F	212	78	210	82	206	83
95°F	240	79	238	84	237	84
105°F	273	80	271	85	272	85
115°F	309	82	305	86	309	86

TABLE 11
LGC180S

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dls. ±10 psig	Suc. ±5 psig
65°F	183	75	180	78	185	75
75°F	212	76	209	78	214	77
85°F	245	77	242	80	245	79
95°F	276	79	269	81	278	80
105°F	312	81	307	83	313	83
115°F	352	82	345	84	354	84

TABLE 12
LGC180H

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	160	75	160	77	161	73
75°F	182	77	183	79	187	77
85°F	209	78	211	80	214	78
95°F	240	80	242	81	243	79
105°F	274	82	279	83	278	80
115°F	309	85	319	85	312	81

TABLE 13
LGC180H with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	163	75	164	77	161	73
75°F	187	77	186	79	187	77
85°F	214	78	213	80	214	78
95°F	245	80	244	81	243	79
105°F	277	82	280	83	278	80
115°F	310	85	321	85	312	81

TABLE 14
LGC210S

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dls ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig	Dls ±10 psig	Suc ±5 psig	Dls ±10 psig	Suc ±5 psig
65°F	187	70	187	77	193	78	194	72
75°F	216	72	214	78	221	79	222	74
85°F	246	74	245	79	254	79	256	76
95°F	279	76	276	81	282	80	281	76
105°F	318	77	315	82	331	81	331	78
115°F	357	80	355	83	377	82	377	79

TABLE 15
LGC210H

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	167	76	167	79	171	80	169	80
75°F	193	77	193	80	199	82	196	81
85°F	222	79	222	81	229	83	227	82
95°F	254	80	253	82	263	84	261	83
105°F	289	80	289	84	301	85	298	85
115°F	331	82	332	85	348	87	344	87

TABLE 16
LGC210H with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	174	80	169	82	168	82	165	80
75°F	203	82	195	83	192	83	190	81
85°F	234	83	224	85	222	84	220	83
95°F	265	85	255	86	257	85	254	85
105°F	299	86	290	88	290	87	290	86
115°F	336	88	334	89	334	88	330	88

TABLE 17
LGC240S

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig
65°F	181	67	189	75	194	76	184	70
75°F	206	68	217	76	221	77	219	72
85°F	237	71	246	77	252	78	250	73
95°F	271	73	281	78	286	79	283	74
105°F	306	74	316	80	322	80	320	75
115°F	343	77	355	81	360	81	358	76

TABLE 18
LGC300S

Outdoor Coil Entering Air Temp.	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis.± 10 psig	Suct .± 5 psig	Dis. ± 10 psig	Suct .± 5 psig	Dis. ± 10 psig	Suct .± 5 psig	Dis. ± 10 psig	Suct .± 5 psig
65°F	184	74	183	76	191	77	188	76
75°F	213	76	210	77	220	77	216	77
85°F	244	78	242	79	252	79	247	79
95°F	282	79	285	80	295	80	278	80
105°F	313	80	317	82	324	81	325	82
115°F	357	82	361	83	368	83	372	84

TABLE 19
LGC300S with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig	Dis ±10 psig	Suc ±5 psig
65°F	202	74	197	76	191	77	188	76
75°F	221	76	216	77	220	77	216	77
85°F	252	78	247	79	252	79	247	79
95°F	289	79	285	80	295	80	278	80
105°F	322	80	318	82	324	81	325	82
115°F	367	82	365	83	368	83	372	84

LGC Units Charged With R-410A

TABLE 20
LGC120S R410A

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls-charge ±10 psig	Suction ±5 psig	Dls-charge ±10 psig	Suction ±5 psig
65°F	283	128	289	130
75°F	323	131	330	133
85°F	370	134	375	136
95°F	417	136	421	138
105°F	470	139	473	140
115°F	526	141	529	142

TABLE 21
LGC120S R410A Humiditrol®

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	273	129	277	131
75°F	314	131	317	134
85°F	361	134	361	136
95°F	409	137	410	139
105°F	455	140	461	142
115°F	525	144	519	145

TABLE 22
LGC150H R410A Std. & Humiditrol®

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2	
	Dls. ±10 psig	Suct. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	290	129	287	129
75°F	330	131	325	131
85°F	373	134	367	133
95°F	419	136	412	136
105°F	469	139	461	139
115°F	521	143	513	143

TABLE 23
LGC156H R410A Std. & Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	239	134	243	140	246	138
75°F	276	137	279	143	283	141
85°F	316	140	319	145	324	143
95°F	361	143	364	147	369	146
105°F	411	146	414	150	418	149
115°F	464	150	468	152	472	152

TABLE 24
LGC180H R410A Std. and with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	255	125	261	132	264	132
75°F	293	129	299	136	303	135
85°F	336	131	341	138	343	137
95°F	382	135	386	141	388	139
105°F	431	138	437	143	435	142
115°F	484	141	488	143	488	143

TABLE 25
LGC180H-3 R410A Std. and with Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	251	127	259	137	264	132
75°F	289	132	298	136	303	135
85°F	333	134	342	138	343	137
95°F	380	137	390	141	388	139
105°F	433	140	441	143	435	142
115°F	488	144	496	143	488	143

TABLE 26
LGC210H R410A Std. & Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	281	134	273	141	278	141	274	141
75°F	322	135	313	141	319	141	314	142
85°F	368	138	358	143	364	143	360	144
95°F	417	141	408	145	413	145	410	146
105°F	470	145	462	148	467	148	466	150
115°F	527	150	522	152	524	153	526	154

TABLE 27
LGC300S4 R410A Std. & Humiditrol

Outdoor Coil Entering Air Temp	CIRCUIT 1		CIRCUIT 2		CIRCUIT 3		CIRCUIT 4	
	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig	Dis. ±10 psig	Suc. ±5 psig
65°F	309	127	301	130	292	130	288	130
75°F	338	130	330	131	337	131	330	131
85°F	386	133	378	135	386	135	378	135
95°F	442	135	436	136	451	136	425	136
105°F	493	136	487	13	496	137	497	138
115°F	562	139	558	139	563	139	569	140

B-Charge Verification - Approach Method

8- Using the same thermometer, compare liquid temperature to outdoor ambient temperature.Approach Temperature = Liquid temperature minus ambient temperature.

9- Approach temperature should match values in tables 28 or 29. An approach temperature greater than value shown indicates an undercharge. An approach temperature less than value shown indicates an overcharge.

10-Do not use the approach method if system pressures do not match pressures in tables 5 through 18. The approach method is not valid for grossly over or undercharged systems.

IV-STARTUP - OPERATION

Refer to startup directions and to the unit wiring diagram when servicing. See unit nameplate for minimum circuit ampacity and maximum fuse size.

A-Preliminary and Seasonal Checks

1- Make sure the unit is installed in accordance with the installation instructions and applicable codes.

2- Inspect all electrical wiring, both field and factory installed for loose connections. Tighten as required. Refer to unit diagram located on inside of unit control box cover.

3- Check to ensure that refrigerant lines are in good condition and do not rub against the cabinet or other refrigerant lines.

4- Check voltage. Voltage must be within the range listed on the nameplate. If not, consult power company and have the voltage corrected before starting the unit.

TABLE 28
APPROACH TEMPERATURES

L Series Unit	R22 Liquid Temp. Minus Ambient Temp.			
	1st Stage	2nd Stage	3rd Stage	4th Stage
156H	8°F ± 1 (4.4°C ±0.5)	8°F ± 1 (4.4°C ±0.5)	9°F ± 1 (5°C ± 0.5)	NA
180S	7°F ± 1 (3.9°C ±0.5)	7°F ± 1 (3.9°C ±0.5)	8°F ± 1 (4.4°C ±0.5)	NA
180H	6°F ± 1 (3.3°C ±0.5)	8°F ± 1 (4.4°C ±0.5)	9°F ± 1 (5.5°C ±0.5)	NA
210S	8°F ± 1 (4.4°C ±0.5)	8°F ± 1 (4.4°C ±0.5)	7°F ± 1 (3.9°C ±0.5)	9°F ± 1 (5°C ± 0.5)
210H	7°F ± 1 (3.9°C ±0.5)	5°F ± 1 (2.8°C ±0.5)	7°F ± 1 (3.9°C ±0.5)	8°F ± 1 (4.4°C±0.5)
240S	9°F ± 1 (5°C ± 0.5)	12°F ± 1 (6.7°C ±0.5)	11°F ± 1 (6.1°C ±0.5)	10°F ± 1 (5.6°C±0.5)
240H	10°F ± 1 (5.6°C ±0.5)	9°F ± 1 (5°C ± 0.5)	10°F ± 1 (5.6°C ±0.5)	11°F ± 1 (6.1°C ±0.5)
300S	11°F ± 1 (6.1°C ±0.5)	11°F ± 1 (6.1°C ±0.5)	11°F ± 1 (6.1°C ±0.5)	11°F ± 1 (6.1°C±0.5)
156H Humiditrol	4°F±1 (2.2°C±0.5)	7°F±1 (3.9°C±0.5)	9°F±1 (5°C±0.5)	NA
180H Humiditrol	5°F±1 (2.8°C±0.5)	4°F±1 (2.2°C±0.5)	8°F±1 (4.4°C±0.5)	NA
210H Humiditrol	6°F±1 (3.3°C±0.5)	5°F±1 (2.8°C±0.5)	6°F±1 (3.3°C±0.5)	8°F±1 (4.4°C±0.5)
240H Humiditrol	5°F±1 (2.8°C±0.5)	4°F±1 (2.2°C±0.5)	10°F±1 (5.6°C±0.5)	11°F±1 (6.1°C±0.5
300S Humiditrol	9°F±1 (5°C±0.5)	8°F±1 (4.4°C±0.5)	11°F±1 (6.1°C±0.5	11°F±1 (6.1°C±0.5
	R410A			
156 Std. & Humiditrol	4°F ± 1 (2.2°C ±0.5)	4°F ± 1 (2.2°C ±0.5)	5°F ± 1 (2.8°C ±0.5)	NA
180 Std. & Humiditrol	7°F ± 1 (3.9°C ±0.5)	9°F ± 1 (5.0°C ±0.5)	8°F ± 1 (4.4°C ±0.5)	NA
210 Std. & Humiditrol	6°F ± 1 (3.3°C ±0.5)	7°F ± 1 (3.9°C ±0.5)	9°F ± 1 (5.0°C ±0.5)	10°F ± 1 (5.6°C ±0.5)
300S Std. & Humiditrol	9°F ± 1 (5.0°C ±0.5)	8°F ± 1 (5.0°C ±0.5)	11°F ± 1 (6.1°C ±0.5)	11°F ± 1 (6.1°C ±0.5)

TABLE 29
APPROACH TEMPERATURE

R22		
Unit	**Liquid Temp. Minus Ambient Temp.**	
Unit	**1st Stage**	**2nd Stage**
090S	12°F ± 1 (6.7°C ± 0.5)	15°F ± 1 (8.3°C ± 0.5)
102S	9°F ± 1 (5°C ± 0.5)	14°F ± 1 (7.7°C ± 0.5)
120S	9°F ± 1 (5°C ± 0.5)	13°F ± 1 (7.1°C ± 0.5)
150S	9°F ± 1 (5.0°C ± 0.5)	9°F ± 1 (5.0°C ± 0.5)
150S Humiditrol	8°F±1 (4.4°C±0.5)	7°F±1 (3.8°C±0.5)
R410A		
120 Std	9°F ± 1 (5°C ± 0.5)	10°F ± 1 (5.6°C ± 0.5)
120 Humiditrol	7°F ± 1 (3.9°C ± 0.5)	7°F ± 1 (3.9°C ± 0.5)
150 Std. & Humiditrol	7°F ± 1 (3.9°C ± 0.5)	7°F ± 1 (3.9°C ± 0.5)

5- Recheck voltage and amp draw with unit running. If voltage is not within range listed on unit nameplate, stop unit and consult power company. Refer to unit nameplate for maximum rated load amps.

6- Inspect and adjust blower belt (see section on Blower Compartment - Blower Belt Adjustment).

B-Cooling Startup See figure 26 for circuits

NOTE-Crankcase heaters must be energized 24 hours before attempting to start compressor. Set thermostat so that there is no demand to prevent compressor from cycling. Apply power to unit.

LGC090/150

1- Initiate first and second stage cooling demands according to instructions provided with thermostat.

2- First-stage thermostat demand will energize compressor 1. Second-stage thermostat demand will energize compressor 2.

3- Units contain two refrigerant circuits or stages.

4- Each refrigerant circuit is separately charged with refrigerant. See unit rating plate for correct amount of charge.

LGC156/300

1- Initiate first and second stage cooling demands according to instructions provided with thermostat.

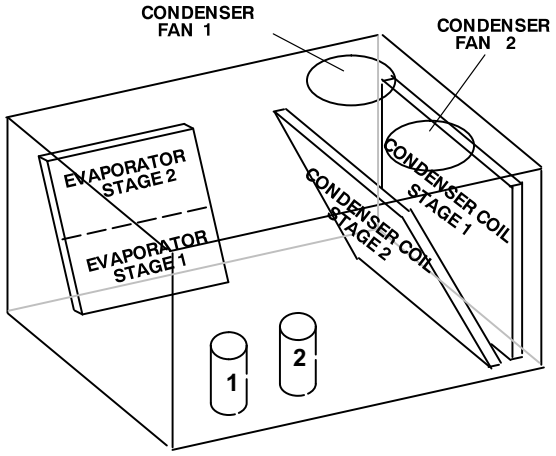
2- First-stage thermostat demand will energize compressors 1 and 2 on all units. Second-stage thermostat demand will energize compressor 3 on all units and compressor 4 on LGC210/300.

3- Units contain two refrigerant circuits or stages.

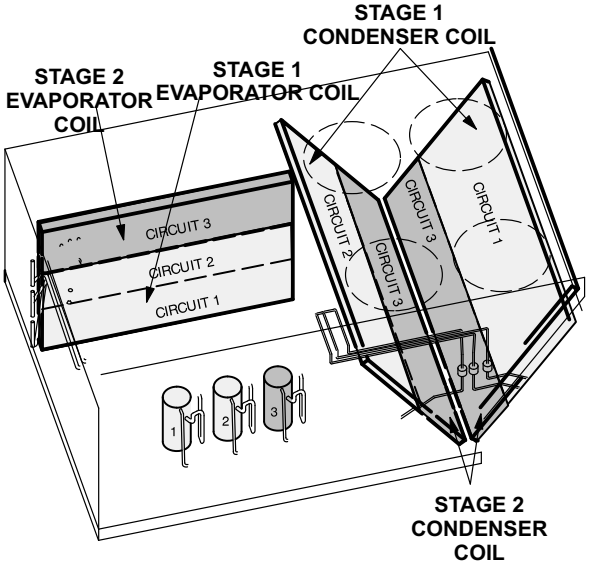
4- Each refrigerant circuit is separately charged with refrigerant. See unit rating plate for correct amount of charge.

NOTE - Refer to III-CHARGING for proper method to check refrigerant charge.

REFRIGERANT CIRCUITS
090/150
(BOTH FANS ARE ENERGIZED WITH A Y1 DEMAND)



REFRIGERANT CIRCUITS
156/180



REFRIGERANT CIRCUITS
210/240/300S

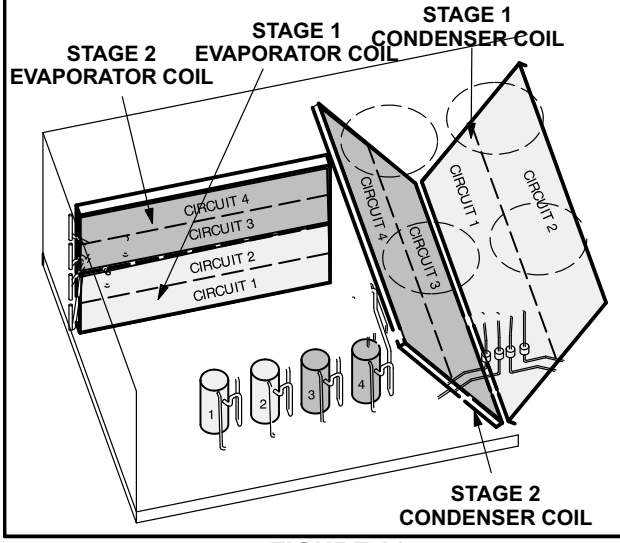


FIGURE 26

C-Heating Startup

FOR YOUR SAFETY READ BEFORE LIGHTING

⚠ WARNING

Danger of explosion. Can cause injury or product or property damage. If overheating occurs or if gas supply fails to shut off, shut off the manual gas valve to the appliance before shutting off electrical supply.

⚠ WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, do not try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

⚠ IMPORTANT

This unit is equipped with an automatic spark ignition system. Do not attempt to light manually.

In case of a safety shutdown, move thermostat switch to **OFF** and return the thermostat switch to **HEAT** to reset ignition control.

1-Placing Furnace In Operation

Gas Valve Operation for White Rodgers 36C and Honeywell VR8205Q/VR8305Q (figure 27)

1- Set thermostat to lowest setting.

2- Turn off all electrical power to appliance.

3- This appliance is equipped with an ignition device which automatically lights the burner. Do **not** try to light the burner by hand.

4- Open or remove the heat section access panel.

5- Turn the knob on the gas valve clockwise ↷ to **"OFF"**. Depress 36C knob slightly. Do not force.

6- Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas, go to the next step.

7- Turn the knob on the gas valve counterclockwise ↶ to **"ON"**. Do not force.

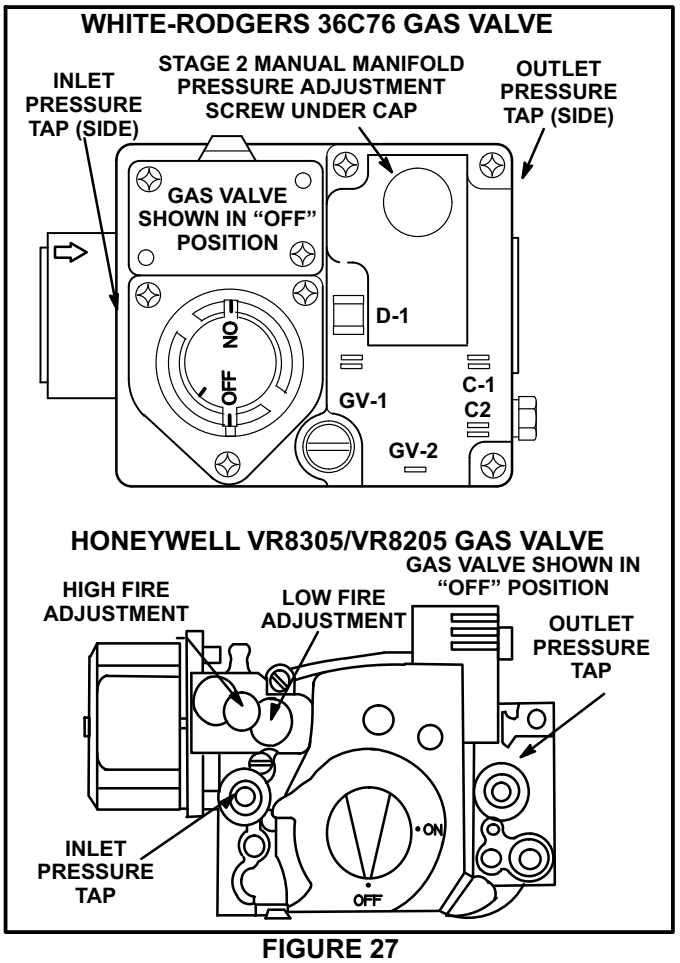


FIGURE 27

8- Close or replace the heat section access panel.

9- Turn on all electrical power to appliance.

10- Set thermostat to desired setting.

11- The combustion air inducer will start. The burners will light within 40 seconds.

12- If the appliance does not light the first time (gas line not fully purged), it will attempt up to two more ignitions before locking out.

13- If lockout occurs, repeat steps 1 through 10.

14- If the appliance will not operate, follow the instructions "Turning Off Gas to Appliance" and call your service technician or gas supplier.

Turning Off Gas to Appliance

1- If using an electromechanical thermostat, set to the lowest setting.

2- Before performing any service, turn off all electrical power to the appliance.

3- Open or remove the heat section access panel.

4- Turn the knob on the gas valve clockwise ↷ to **"OFF"**. Depress 36C knob slightly. Do not force.

D-Safety or Emergency Shutdown

Turn off power to the unit.

V- SYSTEMS SERVICE CHECKS

A-Heating System Service Checks

All LGC units are A.G.A and C.G.A. design certified without modification.

Before checking piping, check with gas company or authorities having jurisdiction for local code requirements. Refer to the LGC Installation, Operation and Maintenance instruction for more information.

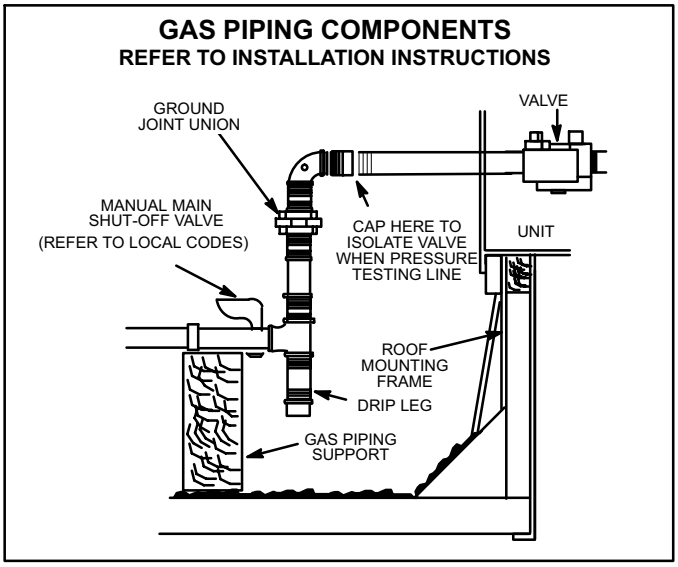


FIGURE 28

1-Gas Piping

Gas supply piping must not allow more than 0.5"W.C. (124.3 Pa) drop in pressure between the gas meter and the unit. Supply gas pipe must not be smaller than the unit gas connection. Refer to installation instructions for details.

2-Testing Gas Piping

NOTE-In case emergency shutdown is required, turn off the main manual shut-off valve and disconnect the main power to the unit. These controls should be properly labeled by the installer.

When pressure testing gas lines, the gas valve must be disconnected and isolated. **Gas valves can be damaged if subjected to more than 0.5 psig [14"W.C. (3481 Pa)]**. See figure 28.

When checking piping connection for gas leaks, use the preferred means. Common kitchen detergents can cause harmful corrosion on various metals used in gas piping. The use of specialty Gas Leak Detector is strongly recommended. It is available through Lennox under part number 31B2001. See CORP 8411-L10, for further details.

Do not use matches, candles, flame or any other source of ignition to check for gas leaks.

3-Testing Gas Supply Pressure

When testing gas supply pressure, connect test gauge to the inlet pressure tap located on unit gas valve GV1 and or GV3. Test supply gas pressure with unit firing at maximum rate (both stages energized). Make sure the reading falls within the range of the following values. Low pressure may result in erratic operation or "underfire." High pressure can result in permanent damage to the gas valve or "overfire." For natural gas units, operating pressure at the unit gas connection must be between 4.7"W.C. and 10.5"W.C. (1168 Pa and 2610 Pa). For L.P. gas units, operating pressure at the unit gas connection must be between 10.8"W.C. and 13.5"W.C. (2685.3 Pa and 3356.7 Pa).

On multiple unit installations, each unit should be checked separately while operating at maximum rate, beginning with the one closest to the supply gas main and progressing to the one furthest from the main. Multiple units should also be tested with and without the other units operating. Supply pressure must fall within the range listed in the previous paragraph.

4-Check and Adjust Manifold Pressure

After line pressure has been checked and adjusted, check manifold pressure. Move test gauge to the outlet pressure tap located on unit gas valve GV1 and or GV3. See figure 27 for location of pressure tap on the gas valve.

The manifold pressure is factory set and should not require adjustment. If manifold pressure is incorrect and no other source of improper manifold pressure can be found, the valve must be replaced. See figure 27 for location of gas valve (manifold pressure) adjustment screw.

All gas valves are factory regulated. The gas valve should completely and immediately cycle off in the event of gas or power failure. The manual shut-off knob can be used to immediately shut off gas supply.

⚠ CAUTION

For safety, connect a shut-off valve between the manometer and the gas tap to permit shut off of gas pressure to the manometer.

Manifold Adjustment Procedure

1- Connect test gauge to the outlet pressure tap on the gas valve. Start the unit (call for second stage heat) and allow five minutes for the unit to reach steady state.

2- While waiting for the unit to stabilize, notice the flame. The flame should be stable without flashback and should not lift from the burner heads. Natural gas should burn basically blue with some clear streaks. L.P. gas should burn mostly blue with some clear yellow streaks.

3- After allowing the unit to stabilize for five minutes, record the manifold pressure and compare to the values given in table 3.

⚠ CAUTION

Disconnect heating demand as soon as an accurate reading has been obtained.

5-Proper Gas Flow

To check for proper gas flow to burners, determine Btuh input from unit rating plate or the gas heating capacity in the SPECIFICATIONS tables. Divide this input rating by the Btuh per cubic foot of available gas. Result is the number of cubic feet per hour required. Determine the flow of gas through gas meter for two minutes and multiply by 30 to get hourly flow of gas to the burners.

NOTE - To obtain accurate reading, shut off all other gas appliances connected to meter.

6-Inshot Burner

Burners are factory set for maximum air and cannot be adjusted. Always operate unit with access panel in place. A peep hole is furnished in the heating access panel for flame viewing. Natural gas should burn basically blue with some clear streaks. L.P. gas should burn mostly blue with some clear yellow streaks.

Figure 29 shows how to remove burner assembly.

1- Turn off power to unit and shut off gas supply.
2- Remove screws holding the burner support cap.
3- Slide each burner off its orifice.
4- Clean and reassemble (reverse steps 1-3).
5- Be sure to secure all wires and check plumbing.
6- Turn on power to unit. Follow lighting instructions attached to unit and operate unit in heating mode. Check burner flames. They should be blue with yellow streaks.

7-Spark Electrode Gap

The spark electrode assembly can be removed for inspection by removing two screws securing the electrode assembly and sliding it out of unit.

For proper unit operation, electrodes must be positioned and gapped correctly.

Spark gap may be checked with appropriately sized twist drills or feeler gauges. Disconnect power to the unit and remove electrode assembly. The gap should be between 0.125" ± 0.015" (3.2 mm ± .4 mm). See figure 24.

TYPICAL GAS BURNER ASSEMBLY

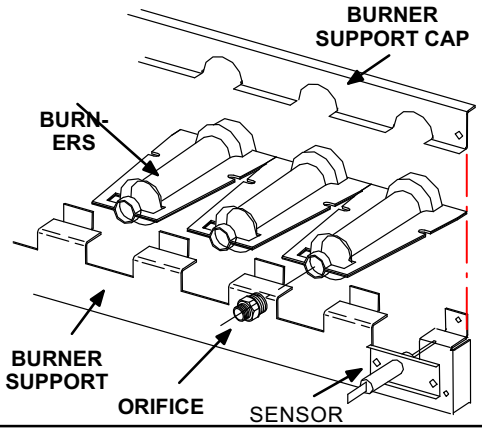


FIGURE 29

8-Heat Exchanger

To Access or Remove Heat Exchanger From Unit:

1- Turn off gas and electric power.
2- Remove access panel(s) and unit center mullion.
3- Remove gas valve, manifold assembly and burners.
4- Remove combustion air inducer and flue box. Pay careful attention to the order in which gaskets and orifice are removed.
5- Support heat exchanger (to prevent it from falling when final screws are removed.)
6- Remove screws supporting heat exchanger.
7- To install heat exchanger, reverse procedure. Be sure to secure all wires and check plumbing and burner plate for airtight seal. Screws must be torqued to 35 in.-lbs. to ensure proper operation.

9-Flame Sensing

Flame current is an electrical current which passes from the ignition control through the sensor electrode during unit operation. The current passes from the sensor through the flame to the ground electrode (located on the flame electrode) to complete a safety circuit. The electrodes should be located so the tips are at least 1/2" (12.7 mm) inside the flame envelope. Do not bend electrodes. To measure flame current, follow the procedure on the following page:

NOTE-Electrodes are not field adjustable. Any alterations to the electrode may create a hazardous condition that can cause property or personal injury.

1- Disconnect power to unit.
2- Remove lead from sensing electrode and install a 0-50DC microamp meter in series between the sensing electrode and the sensing lead.
3- Reconnect power and adjust thermostat for heating demand.
4- When flame is established, compare reading to table 30. Do not bend electrodes.
5- Disconnect power to unit before disconnecting meter. Make sure sensor wire is securely reconnected before reconnecting power to unit.

TABLE 30

Manufacturer	Nominal Signal Microamps	Drop Out
JOHNSON	0.5 - 1.0	.09

NOTE-If the meter scale reads 0, the leads are reversed. Disconnect power and reconnect leads for proper polarity.

10-Combustion Air Inducer

The combustion air inducer is factory set and is not field adjustable. However, operation should be monitored to ensure proper operation. The combustion air inducer is used to draw fresh air into the combustion chamber while simultaneously expelling exhaust gases. The inducer operates throughout the heating cycle.

On a heating demand, the ignition control is energized by the main control module A55. The ignition control then allows 30 to 40 seconds for the combustion air inducer to vent exhaust gases from the burners. When the combustion air inducer is purging the exhaust gases, the combustion air prove switch is closing proving that the combustion air inducer is operating before allowing the ignition control to energize. When the combustion air prove switch is closed and the delay is over, the ignition control activates the first stage operator of the gas valve (low fire), the spark and the flame sensing electrode. Sparking stops immediately after flame is sensed.

11-High Altitude

Units may be installed at altitudes up to 2000 feet (610 m) above sea level without any modification. At altitudes above 2000 feet (610 m), units must be derated to match gas manifold pressures shown in table below.
NOTE — This is the only permissible derate for these units.

Altitude - ft. (m)	Natural Gas		LPG/Propane	
	in. w.g.	kPa	in. w.g.	kPa
2001 - 3000 (610 - 915)	3.6	0.90	10.2	2.54
3001 - 4000 (915 - 1220)	3.5	0.87	9.9	2.46
4001 - 5000 (1220 - 1525)	3.4	0.85	9.6	2.39
5001 - 6000 (1525 - 1830)	3.3	0.82	9.4	2.34
6001 - 7000 (1830 - 2135)	3.2	0.80	9.1	2.26

B-Cooling System Service Checks

LGC units are factory charged and require no further adjustment; however, charge should be checked periodically using the approach method. The approach method compares actual liquid temperature with the outdoor ambient temperature. See section III- CHARGING.

NOTE-When unit is properly charged discharge line pressures should approximate those in tables 4 through 27.

VI-MAINTENANCE

⚠ WARNING

Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

A-Filters

LGC units use pleated throw-away type filters. See table below for number used and size. Filters may be accessed through the economizer / filter access door. Filters should be checked monthly (or more frequently in severe use) and cleaned or replaced regularly. Take note of the “AIR FLOW DIRECTION” marking on the filter frame when re-installing.

TABLE 31

LGC FILTERS		
UNIT	SIZE IN. (MM)	QTY
090, 102, 120 150	18 x 24 x 2 (457 x 610 x 51)	4
156/300	24 x 24 x 2 (610 x 610 x 51)	6

NOTE-Filters must be U.L.C. certified or equivalent for use in Canada.

B-Lubrication

All motors and blower wheels used in LGC units are prelubricated; no further lubrication is required.

C-Supply Air Blower Wheel

Annually inspect supply air blower wheel for accumulated dirt or dust. Turn off power before attempting to remove access panel or to clean blower wheel.

D-Evaporator Coil

Inspect and clean coil at beginning of each season. Clean using mild detergent or commercial coil cleanser. Check condensate drain pan and line, if necessary. Flush coil and condensate drain with water taking care not to get insulation, filters and return air ducts wet. Check connecting lines and coil for evidence of oil and refrigerant leaks.

E-Condenser Coil

Clean condenser coil annually with detergent or commercial coil cleaner and inspect monthly during the cooling season. Check connecting lines and coil for evidence of oil and refrigerant leaks.

NOTE-If owner complains of insufficient cooling, the unit should be gauged and refrigerant charge checked. Refer to Gauge Manifold Attachment and Charging sections in this manual.

F-Electrical

1- Check all wiring for loose connections.
2- Check for correct voltage at unit (unit operating).
3- Check amp-draw on both condenser fan motor and blower motor.
Fan Motor Rating Plate ____ Actual _____
Indoor Blower Motor Rating Plate____ Actual____

VII-ACCESSORIES

The accessories section describes the application of most of the optional accessories which can be factory or field installed to the LGC units.

A-LARMF and LARMFH Mounting Frames

LGC090/150

When installing either the LGC units on a combustible surface for downflow discharge applications, the Lennox LARMF10/15 14-inch or 24-inch (356 mm or 610mm) height roof mounting frame is used. The roof mounting frames are recommended in all other applications but not required. If the LGC units are not mounted on a flat (roof) surface, they MUST be supported under all edges and under the middle of the unit to prevent sagging. The units MUST be mounted level within 1/16" per linear foot or 5mm per meter in any direction.

The assembled LARMF mounting frame is shown in figure 30. Refer to the roof mounting frame installation instructions for details of proper assembly and mounting. The roof mounting frame MUST be squared to the roof and level before mounting. Plenum system MUST be installed before the unit is set on the mounting frame. Typical roof curbing and flashing is shown in figure 32. Refer to the roof mounting frame installation instructions for proper plenum construction and attachment.

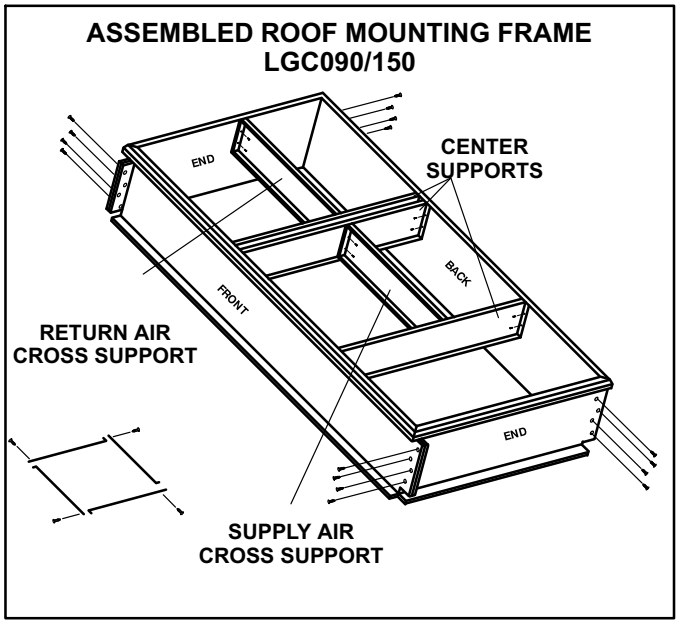


FIGURE 30

LGC156/300

When installing either the LGC units on a combustible surface for downflow discharge applications, the Lennox LARMF18/36 14-inch or 24-inch (356 mm or 610mm) height roof mounting frame is used. For horizontal discharge applications, use LARMFH18/24 26-inch or 37-inch (660mm or 940mm) height roof mounting frame. This frame converts unit from down-flow to horizontal air flow. The 37 inch (940mm) horizontal frame meets National Roofing Code requirements. The roof mounting frames are recommended in all other applications but not required. If the LGC units are not mounted on a flat (roof) surface, they MUST be supported under all edges and under the middle of the unit to prevent sagging. The units MUST be mounted level within 1/16" per linear foot or 5mm per meter in any direction.

The assembled LARMF18/36 mounting frame is shown in figure 31. Refer to the roof mounting frame installation instructions for details of proper assembly and mounting. The roof mounting frame MUST be squared to the roof and level before mounting. Plenum system MUST be installed before the unit is set on the mounting frame. Typical roof curbing and flashing is shown in figure 32. Refer to the roof mounting frame installation instructions for proper plenum construction and attachment.

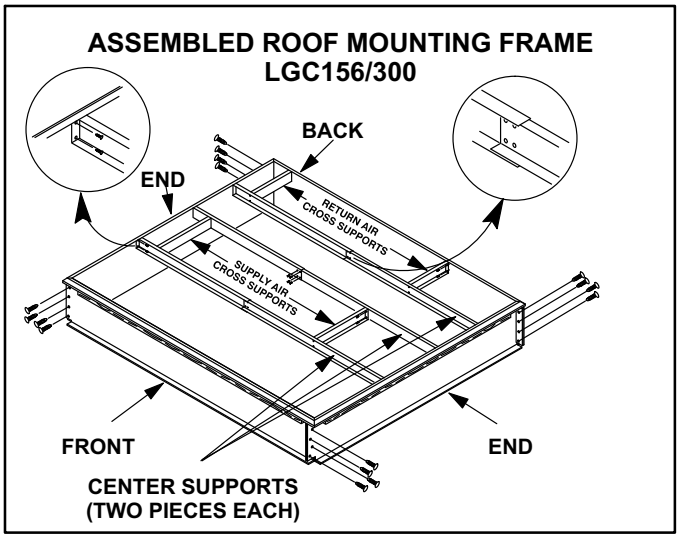


FIGURE 31

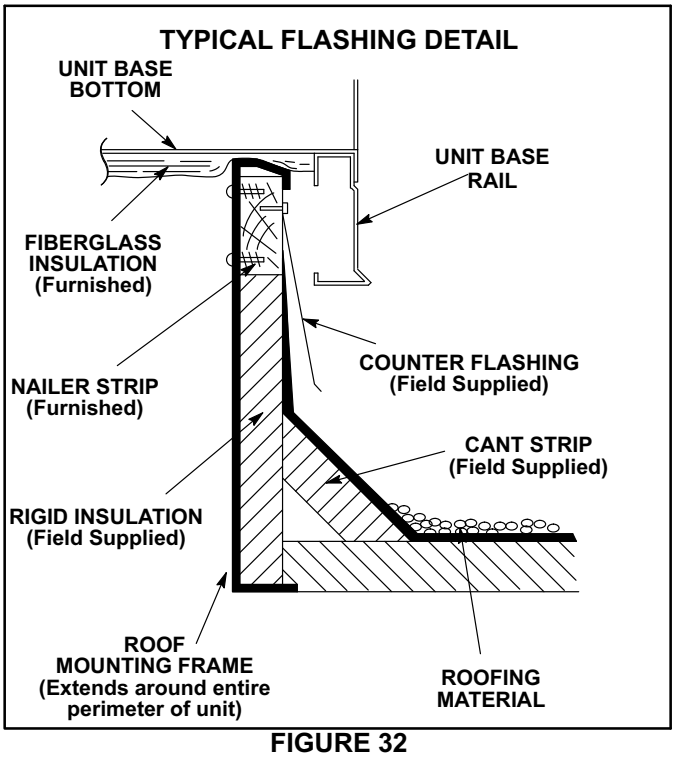


FIGURE 32

B-Transitions

LGC090/150

Optional supply/return transitions LASRT08/10 is available for use with the LGC 7.5 ton units and LASRT10/12 is available for the 8.5 and 10 ton units, utilizing optional LARMF10/15 roof mounting frames. LGC 12.5 ton units will use LASRT15 with LARMF10/15 roof mounting frame. Transition must be installed in the LARMF mounting frame before mounting the unit to the frame. Refer to the manufacturer's instructions included with the transition for detailed installation procedures.

LGC156/300

Optional supply/return transitions LASRT18/24 are available for use with LGC series units utilizing optional LARMF18/36 roof mounting frame. Transition must be installed in the LARMF18/36 mounting frame before mounting the unit to the frame. Refer to the manufacturer's instructions included with the transition for detailed installation procedures.

C-LAOAD(M) Outdoor Air Dampers (all units)

LAOAD(M)10/15 used on LGC090S/150S and LAOAD(M)18/24 (figure 33) used on LGC156H/300S units consists of a set of dampers which may be manually or motor (M) operated to allow up to 25 percent outside air into the system at all times (see figure 33). Either air damper can be installed in LGC units. Washable filter supplied with the outdoor air dampers can be cleaned with water and a mild detergent. It should be sprayed with Filter Handicoater when dry prior to reinstallation. Filter Handicoater is R.P. Products coating no. 418 and is available as Lennox Part No. P-8-5069.

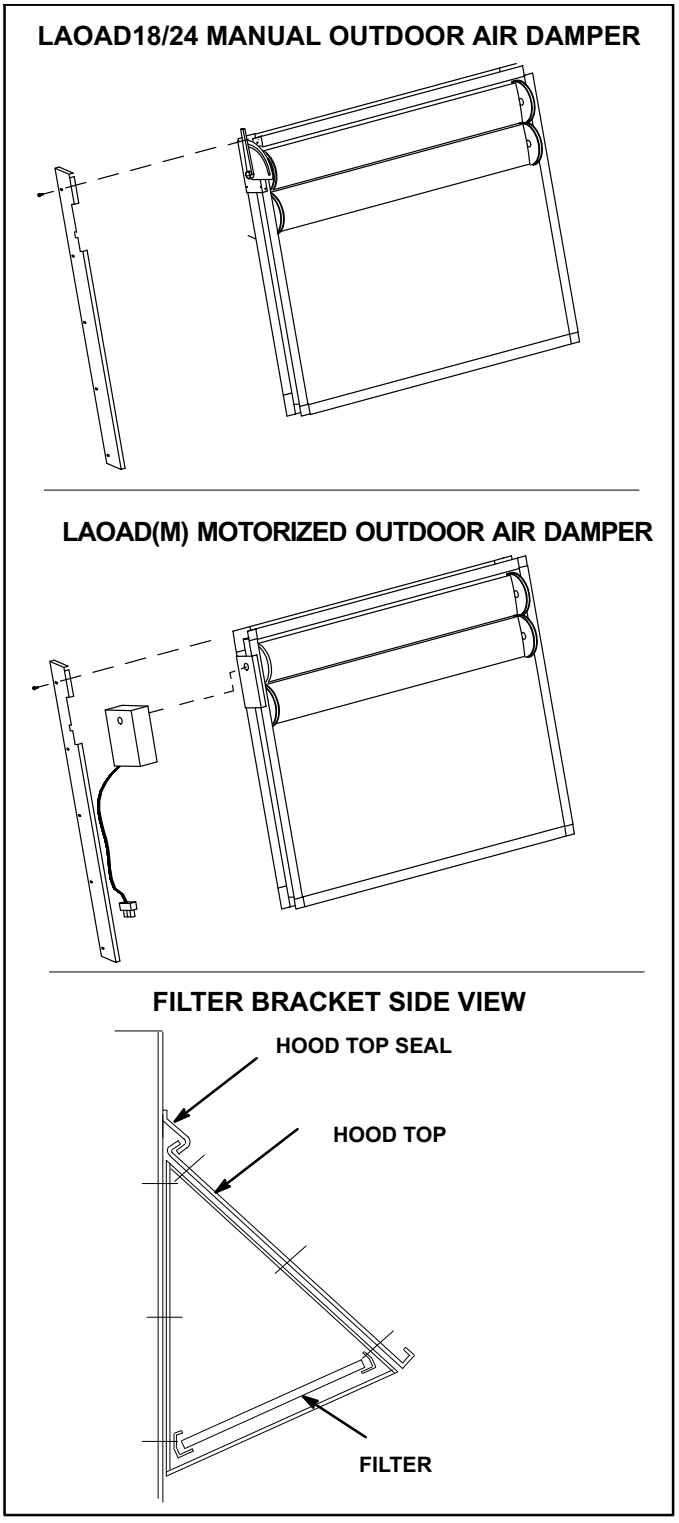


FIGURE 33

D-Supply and Return Diffusers (all units)

Optional flush mount diffuser/return FD11 and extended mount diffuser/return RTD11 are available for use with all LGC units. Refer to manufacturer's instructions included with transition for detailed installation procedures.

E-LAREMD Economizer (all units)

(Field or Factory Installed)

The optional LAREMD18/24 economizer used on LGC156H/300S units and LAREMD10/15 used on LGC090S/150S units can be used with downflow and horizontal air discharge applications. The LAREMD18 / 24 economizer uses outdoor air for free cooling when temperature and/or humidity is suitable. An economizer hood is required and must be ordered separately.

NOTE - Gravity exhaust dampers are required with power exhaust.

The economizer is controlled by the economizer control module A56 which connects to the main control module A55. Both boards are part of the Integrated Modular Control (IMC) which controls "L" series unit operation.

The economizer will operate in one of four modes. Each mode requires a different EM1 economizer DIP switch setting. Each mode also requires different sensors.

1-"TMP" MODE (SENSIBLE TEMPERATURE)

In the "TMP" mode, the IMC uses input from the factory installed RT6 Supply Air Sensor, RT16 Return Air Sensor, and RT17 Outdoor Air Sensor to determine suitability of outside air and economizer damper operation. When outdoor sensible temperature is less than return air sensible temperature, outdoor air is used for cooling. This may be supplemented by mechanical cooling to meet comfort demands. This application does not require additional optional sensors.

2-"ODE" MODE (OUTDOOR ENTHALPY)

The "ODE" or outdoor enthalpy mode requires a field-provided and -installed Honeywell C7400 enthalpy sensor (16K96). The sensor monitors outdoor air temperature and humidity (enthalpy). When outdoor air enthalpy is below the enthalpy control setpoint, the economizer modulates to allow outdoor air for free cooling.

3-"DIF" MODE (DIFFERENTIAL ENTHALPY)

The "DIF" or differential enthalpy mode requires two field-provided and -installed Honeywell C7400 enthalpy sensors (16K97). One sensor is installed in the outside air opening and the other sensor is installed in the return air opening. When the outdoor air enthalpy is below the return air enthalpy, the economizer opens to bring in outdoor air for free cooling.

4-"GLO" MODE (GLOBAL)

Global Mode - The "GLO" or global mode is used with an energy management system which includes a global control feature. Global control is used when multiple units (in one location) respond to a single outdoor air sensor. Each energy management system uses a specific type of outdoor sensor which is installed and wired by the controls contractor.

Motorized Outdoor Air Damper - The "GLO" mode is also used when a motorized outdoor air damper is installed in the system.

NOTE - All economizer modes of operation will modulate dampers to 55° F (13° C) supply air.

F-LAGED(H) Gravity Exhaust Dampers (all units)

LAGED(H)10/15 dampers (figure 34) available for LGC090S/150S and LAGED(H)18/24 dampers (figure 35) available for LGC156H/300S units, are used in downflow and LAGEDH are used in horizontal air discharge applications. LAGED(H) gravity exhaust dampers are installed in the return air plenum . The dampers must be used any time an economizer or power exhaust fans are applied to LGC series units.

Gravity exhaust dampers allow exhaust air to be discharged from the system when an economizer and/or power exhaust is operating. Gravity exhaust dampers also prevent outdoor air infiltration during unit off cycle. See installation instructions for more detail.

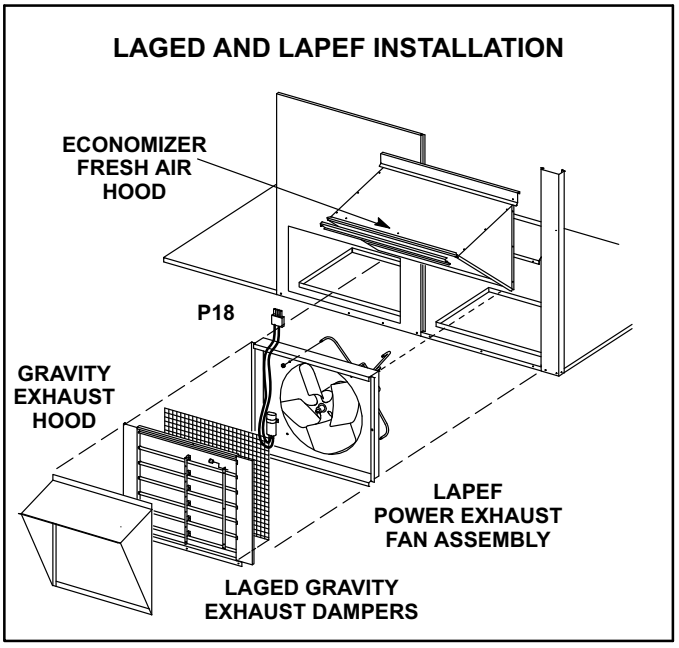


FIGURE 34

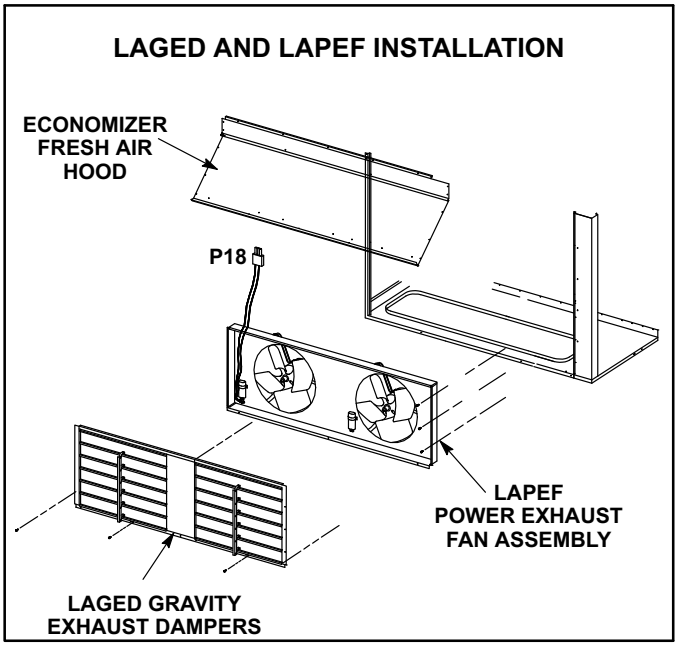


FIGURE 35

G-LAPEF Power Exhaust Fans (all units)

LAPEF10/15 available for LGC090S/150S units and LAPEF 18/24 available for LGC156/300 units are power exhaust fans used in downflow applications only. LAPEF fans requires optional down-flow gravity exhaust dampers and LAREMD economizers. Power exhaust fans provide exhaust air pressure relief and also run when return air dampers are closed and supply air blowers are operating. Figures 34 and 35 show location of the LAPEF. See installation instructions for more detail.

H-Optional Cold Weather Kit (Canada only)

Electric heater is available to automatically control the minimum temperature in the gas burner compartment. Heater is C.G.A. certified to allow cold weather operation of unit down to -60°F (-50°C).

The kit includes the following parts:

1- Transformer (T20) is a 600V to 120/240V stepdown transformer mounted in the blower compartment.

2- T20 has two in line fuses (F20), one on each leg of the transformer. Both are rated at 15 amps.

3- The strip heater (HR6) is located as close as possible to the gas valve. It is wired in series with T20. The strip heater is rated at 500 Watts

4- A thermostat mounting box is installed on the vestibule of the heating compartment. Included in the box are the following thermostat switches:

a - Thermostat switch (S59) is an auto-reset SPST N.C. switch which opens on a temperature drop. The switch is wired in series with 24v power and the combustion air blower switch. When the temperature drops below -30°F (-35°C) the switch opens and the gas heat section is de-energized. The switch automatically resets when the heating compartment temperature reaches -10°F (-12°C).

b - Thermostat switch (S60) is an auto-reset SPST N.C. switch which opens on a temperature rise. The switch is wired in series with HR6 and T20. When the temperature rises above 20°F (-7°C) the switch opens and the electric heater is de-energized. The switch automatically resets when the heating compartment temperature reaches -10°F (23.3°C).

c -Thermostat switch (S61) is an auto-reset SPST N.O. switch which closes on a temperature drop. The switch is wired in series with HR6 and T20. When temperature drops below 20°F (-7°C) the switch closes and electric heater is energized. The switch automatically opens when heating compartment temperature reaches 76°F (24°C).

I-Control Systems

Three different types of control systems may be used with the LGC series units. All thermostat wiring is connected to terminal block TB1 located in the control box of the unit. Each thermostat has additional control options available. See thermostat installation instructions for more detail.

1- Electro-mechanical thermostat (13F06)

   The electro-mechanical thermostat is a two stage heat / two stage cool thermostat with dual temperature levers. A non-switching or manual system switch subbase may be used.

2- Electronic thermostat (see price book)

   Any two stage heat / two stage cool electronic thermostat may be used.

3- Honeywell T7300 thermostat (81G59)

   The Honeywell T7300 thermostat is a programmable, internal or optional remote temperature sensing thermostat. The T7300 provides occupied and unoccupied changeover control.

J-Smoke Detectors A17 and A64

Photoelectric smoke detectors are a factory installed option. The smoke detectors can be installed in the supply air section (A64), return air section (A17), or in both the supply and return air section. Wiring for the smoke detectors are shown on the temperature control section (C2) wiring diagram in back of this manual.

K-Blower Proving Switch S52

The blower proving switch monitors blower operation and locks out the unit in case of blower failure. The switch is N.O. and closes at .14" W.C. (34.9 Pa) The switch is mounted on the upper left hand corner of the blower deck. Wiring for the blower proving switch is shown on the temperature control section (C2) wiring diagram in back of this manual.

L-Dirty Filter Switch S27

The dirty filter switch senses static pressure increase indicating a dirty filter condition. The switch is N.O. and closes at 1" W.C. (248.6 Pa) The switch is mounted on the top filter channel corner. Wiring for the dirty filter switch is shown on the temperature control section (C2) wiring diagram in back of this manual.

M-Indoor Air Quality (CO_2) Sensor A63

The indoor air quality sensor monitors CO_2 levels and reports the levels to the main control module A55. The board adjusts the economizer dampers according to the CO_2 levels. The sensor is mounted next to the indoor thermostat or in the return air duct. Refer to the indoor air quality sensor installation instructions for proper adjustment. Wiring for the indoor air quality switch is shown on the temperature control section (C2) wiring diagram in back of this manual.

N-LP / Propane Kit

LGC090/150 units require one natural to LP /propane kit while LGC156/300 units require two (one for each gas heat section). The kit includes one gas valve, eleven burner orifices, and three stickers. For more detail refer to the natural to LP gas changeover kit installation instructions.

O-Factory Installed Humiditrol® LGC120S, 150S

Humiditrol units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valve, L14, routes hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air. See figure 36 for reheat refrigerant routing and figure 37 for standard cooling refrigerant routing.

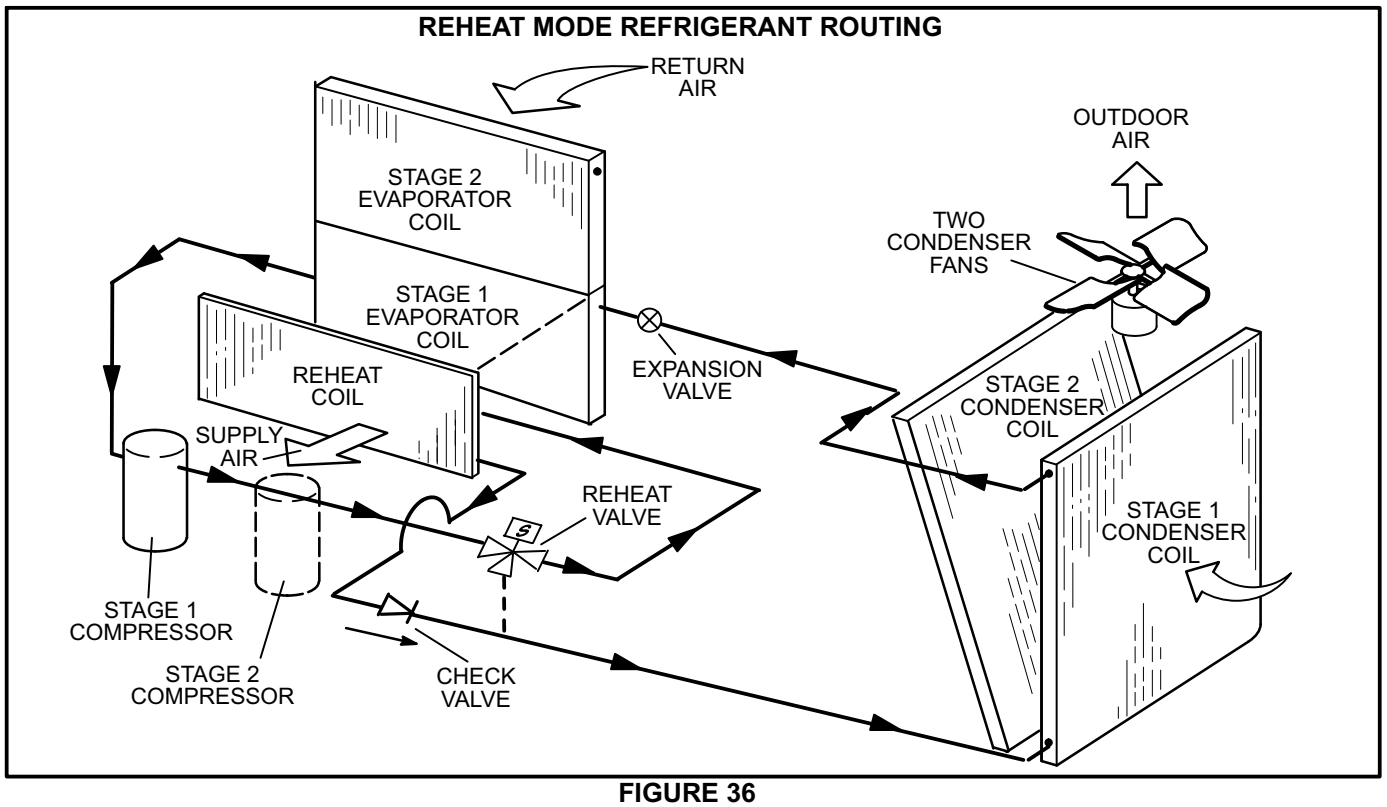


FIGURE 36

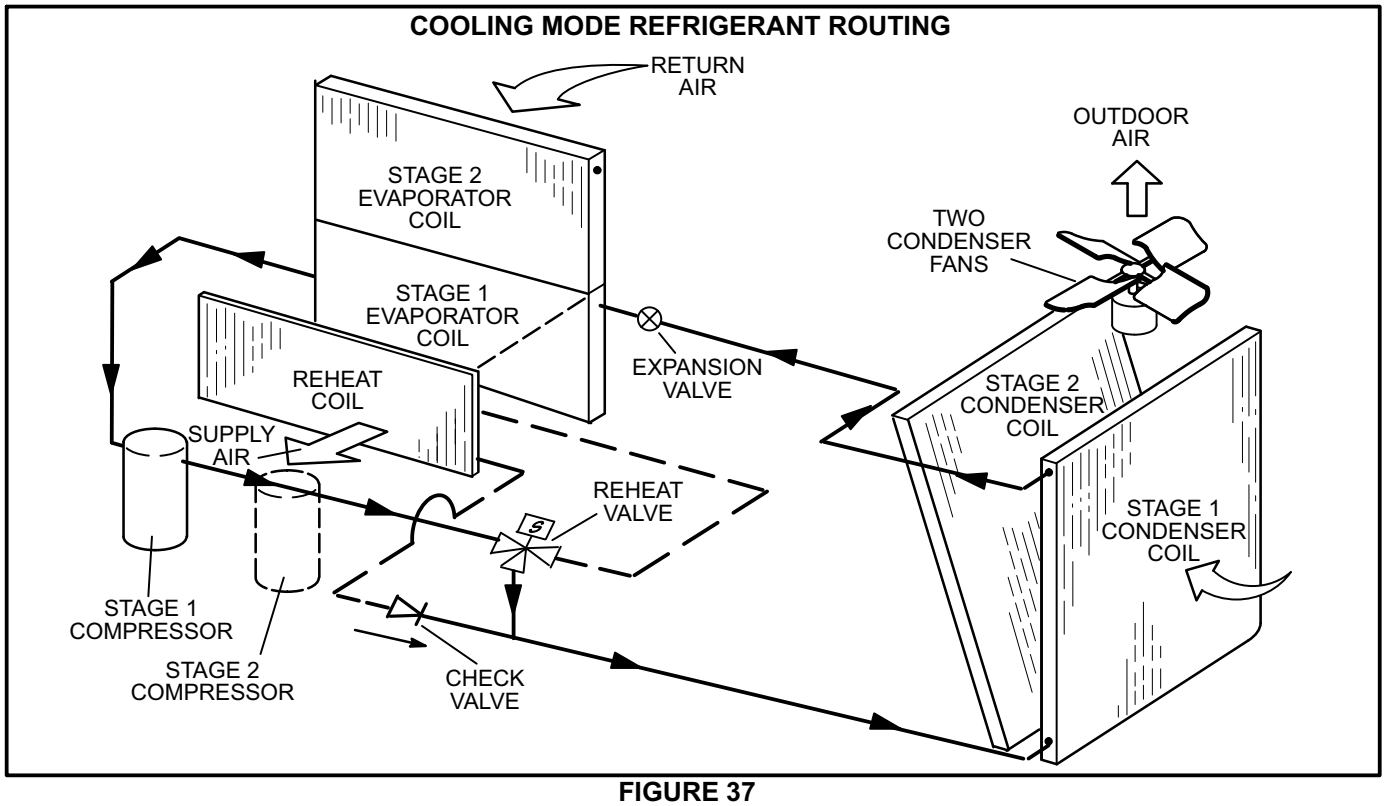


FIGURE 37

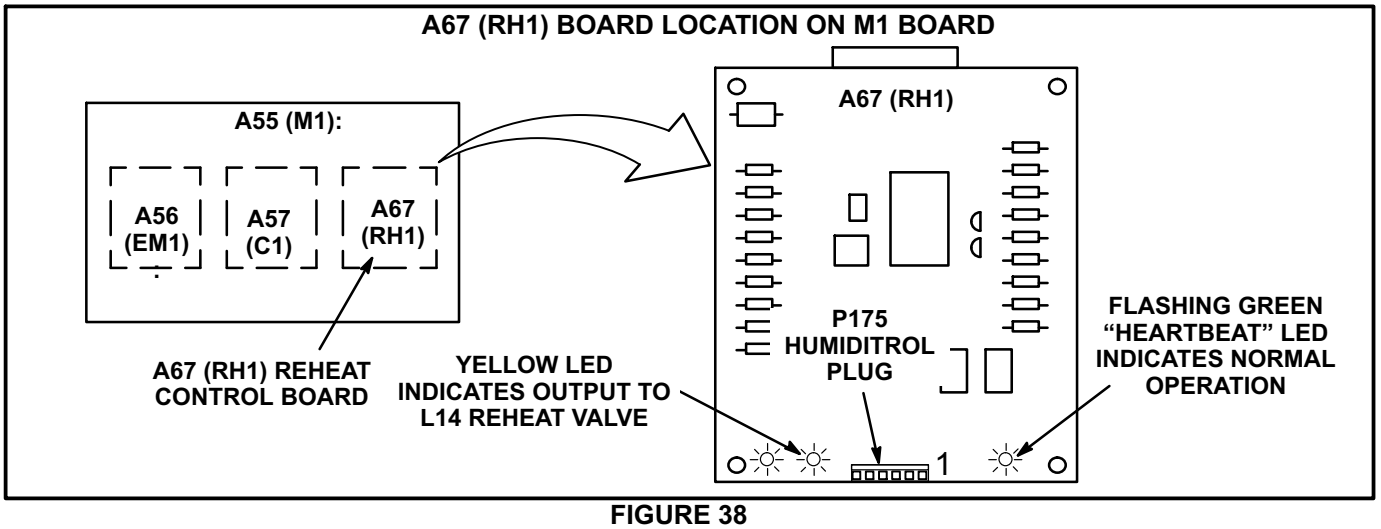


FIGURE 38

L14 Reheat Coil Solenoid Valve

When IMC board input (P114-10) indicates room conditions require dehumidification, L14 reheat valve is energized (RH1 board P175-3) and refrigerant is routed to the reheat coil.

RH1 Humiditrol Board

The RH1 add-on board is factory-installed in all Humiditrol units. RH1 is located on the M1 board as shown in figure 38.

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above 60% (default). The reheat setpoint can be adjusted by changing ECTO 4.25. A setting of 100% will operate reheat from an energy management system digital output. The reheat setpoint can also be adjusted using an optional Network Control Panel (NCP).

Reheat will terminate when the indoor relative humidity falls 3% (57% default) or the digital output de-energizes. The reheat deadband can be adjusted 1-10% RH by changing ECTO 4.26.

A91 Humidity Sensor

Install humidity sensor in the conditioned space according to instructions provided with sensor.

Relative humidity should correspond to the sensor (A91) output voltage listed in table 34. For example: if indoor air relative humidity is 80% ± 3%, the humidity sensor output should read 8.00VDC.

Check the sensor output annually for accuracy. Keep the air intake openings on the sensor clean and free of obstructions and debris.

Read Relative Humidity At IMC

Turn MODE DIP "TEMP" "ON". Display will alternately flash from readout to output. A single push on the pushbutton will toggle advance to different sensor readings. A double push will toggle the readout the opposite direction. Once readout "rH" is displayed alternately with the output, use table 32 to determine the percent relative humidity.

Check-Out

Test Humiditrol operation using the following procedure.

1- Make sure reheat is wired as shown in wiring section.

2- Set IMC ECTO system mode parameter 6.01 to option 0 (default local thermostat mode)

3- For RH sensors, set IMC ECTO reheat setpoint parameter 4.25 to 0% relative humidity. For digital input, set IMC ECTO reheat setpoint parameter 4.25 to 100% relative humidity.

4- Jumper the following TB1 terminals:
8 & 9 (occupied mode)
6 & 3 (blower demand G)
24 & 6 (digital input applications only)

The blower, compressor 1, and compressor 2 (reheat) should be operating. L14 and L30 LED's on the A67 board should also be ON, indicating the reheat valves are energized.

TABLE 32

Relative Humidity (%RH ± 3%)	Sensor Output (VDC)
20	2.00
30	3.00
40	4.00
50	5.00
60	6.00
70	7.00
80	8.00
90	9.00

5- Press the IMC pushbutton to by-pass the compressor minimum run delay.

6- For RH sensors, disconnect the jumper between TB1 terminals 8 & 9 (occupied mode). For digital input, remove the jumper between TB1-6 & 24.

Compressor 1 and 2 (reheat) should de-energize, L14 and L30 LED's should go OFF, blower should still be energized.

8- When check-out is complete, remove all jumpers, set ECTO 4.25 back to the proper humidity set-point, and set ECTO 6.01 to the proper setting.

Default Reheat Operation

Humiditrol unit reheat control parameter 4.24 is factory-set to option 6. Reheat will operate as shown in table 35 once three conditions are met:

1- Blower must be operating.
2- System must be in occupied mode.
3- System must NOT be operating in heating mode.

IMPORTANT - Free cooling does not operate during reheat. Free cooling will operate as shown in the IMC manual.

Reheat Control Options

Reheat control parameter 4.24 can be set to other reheat control operating conditions as follows (see IMC manual):

ECTO 4.24 option 3 -

1- Blower must be operating.
2- System must be in occupied mode.
3- System must NOT be operating in heating mode.
4- One cooling demand is required if the unit has been in heating mode, the IMC has been reset, or at initial unit start-up.

ECTO 4.24 option 5 -

3- System must NOT be operating in heating mode.
4- One cooling demand is required if the unit has been in heating mode, the IMC has been reset, or at initial unit start-up.

ECTO 4.24 option 7 -

3- System must NOT be operating in heating mode.

Once the corresponding conditions are met in each mode, reheat will operate as shown in table 33.

TABLE 33
Reheat Operation - Two Cooling Stages - Default

T'stat and Humidity Demands	Operation
Reheat Only	Compressor 1 Reheat
Reheat & Y1	Compressor 1 Reheat & Compressor 2 Cooling*
Reheat & Y1 & Y2	Compressor 1 Cooling & Compressor 2 Cooling**

*If there is no reheat demand and outdoor air is suitable, free cooling will operate.
**If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 will operate.

Additional Cooling Stages

Units are shipped from the factory to provide two stages of cooling. (ECTO 5.04 option 2 and 6.01 option 0).

Three stages of cooling is available in zone sensor mode (ECTO 6.01 set to option 1, 2, or 3). Three stages of cooling is also available by installing a transfer relay and a three-stage thermostat; ECTO 5.04 must be set to option 3.

Humiditrol units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valve, L14, routes hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air. See figure 36 for reheat refrigerant routing and figure 37 for standard cooling refrigerant routing.

P-Factory Installed Humiditrol LGC156H, 180H, 210H & 300S

General

Humiditrol units provide a dehumidifying mode of operation. These units contain a reheat coil adjacent to and downstream of the evaporator coil. Reheat coil solenoid valves, L14 and L30, route hot discharge gas from the compressor to the reheat coil. Return air pulled across the evaporator coil is cooled and dehumidified; the reheat coil adds heat to supply air.

See figure 39 for RH1 reheat control board, figure 40 for 156H and 180H reheat refrigerant routing, figure 41 for 156H and 180H standard cooling refrigerant routing, figure 42 for 210H and 300S reheat refrigerant routing, and figure 43 for 210H and 300S standard cooling refrigerant routing.

L14 and L30 Reheat Coil Solenoid Valves

When IMC board input (P114-10) indicates room conditions require dehumidification, L14 and L30 reheat valves are energized (RH1 board P175-3 and -4) and refrigerant is routed to the reheat coil.

RH1 Humiditrol Board (A67)

The RH1 add-on board is factory-installed in all Humiditrol units. RH1 is located on the M1 board underneath either the A58 (G1) or A60 (E1) board.

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above 60% (default). Reheat will terminate when the indoor relative humidity falls 3% below setpoint, or 57% (default). The reheat setpoint can be adjusted by changing ECTO 4.25 . A setting of 100% will disable reheat. The reheat setpoint can also be adjusted using an optional Network Control Panel (NCP).

A91 Humidity Sensor

Relative humidity should correspond to the sensor (A91) output voltage listed in table 34. For example: if indoor air relative humidity is 80% ± 3%, the humidity sensor output should read 8.00VDC.

Check the sensor output annually for accuracy. Keep the air intake openings on the sensor clean and free of obstructions and debris.

Read Relative Humidity At IMC

Turn MODE DIP “TEMP” switch #4 “ON”. Display will alternately flash from readout to output. A single push on the pushbutton will toggle the readout upward from .0 to .7 incrementally. A double push will toggle the readout downward from .7 to .0 incrementally. Readout .7 indicates percent relative humidity.

TABLE 34

Relative Humidity (%RH ± 3%)	Sensor Output (VDC)
20	2.00
30	3.00
40	4.00
50	5.00
60	6.00
70	7.00
80	8.00
90	9.00

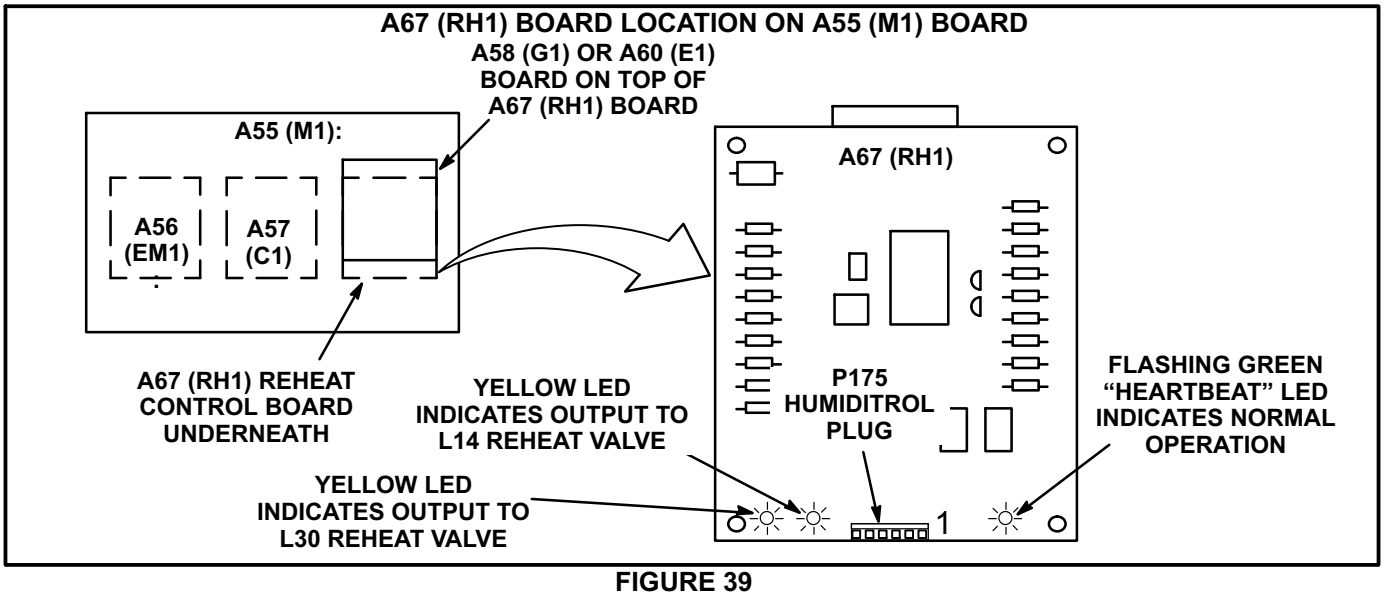


FIGURE 39

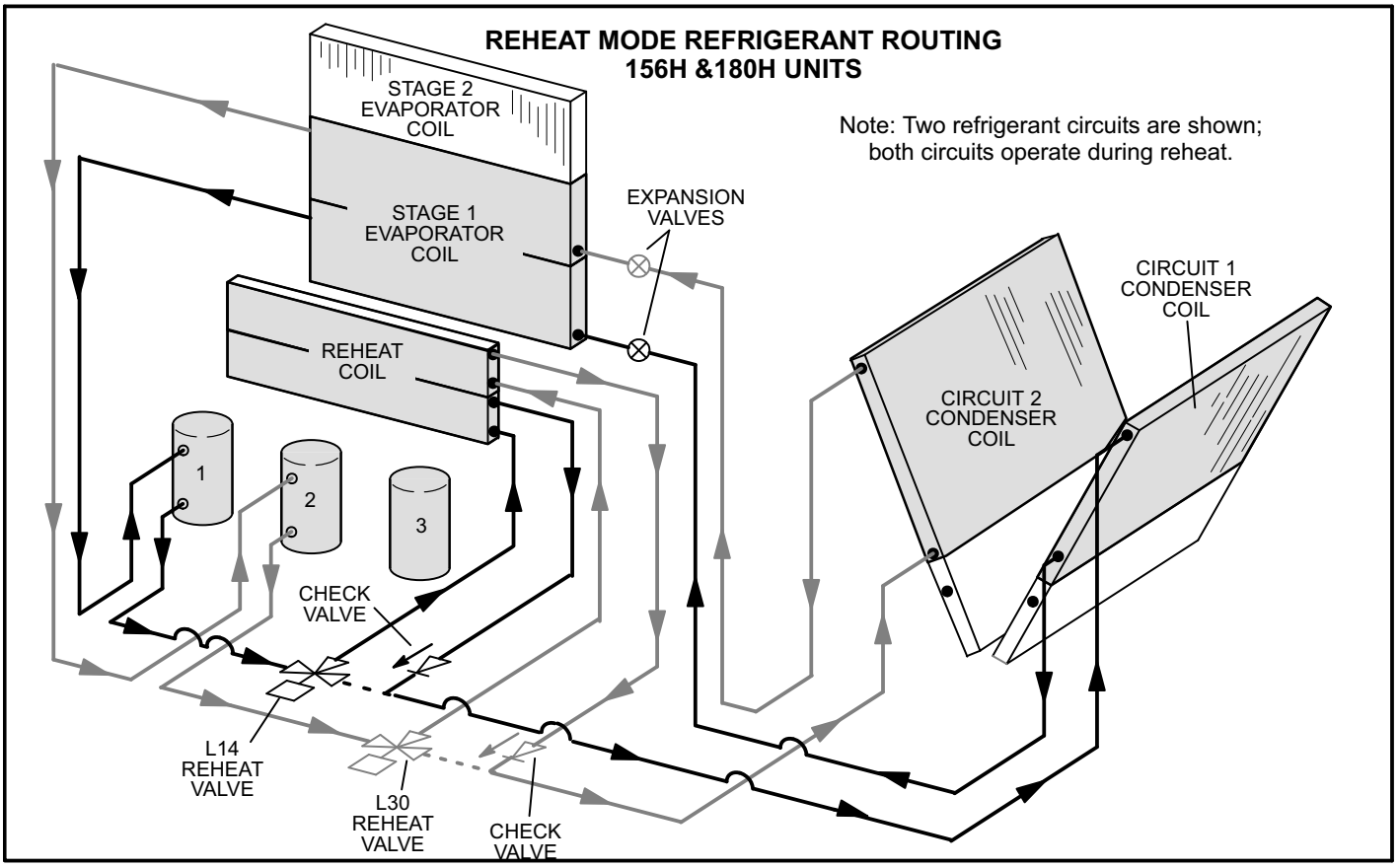


FIGURE 40

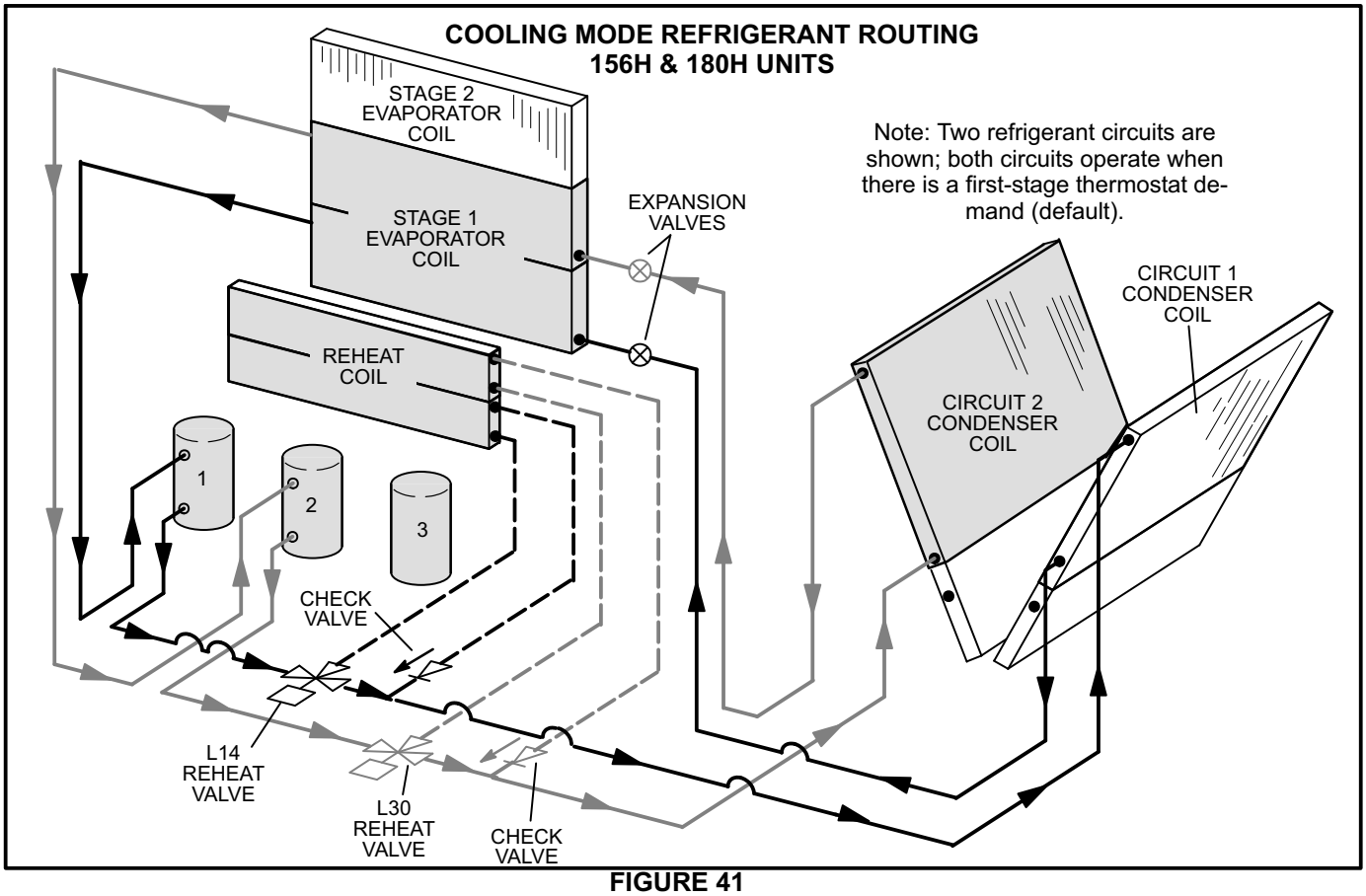


FIGURE 41

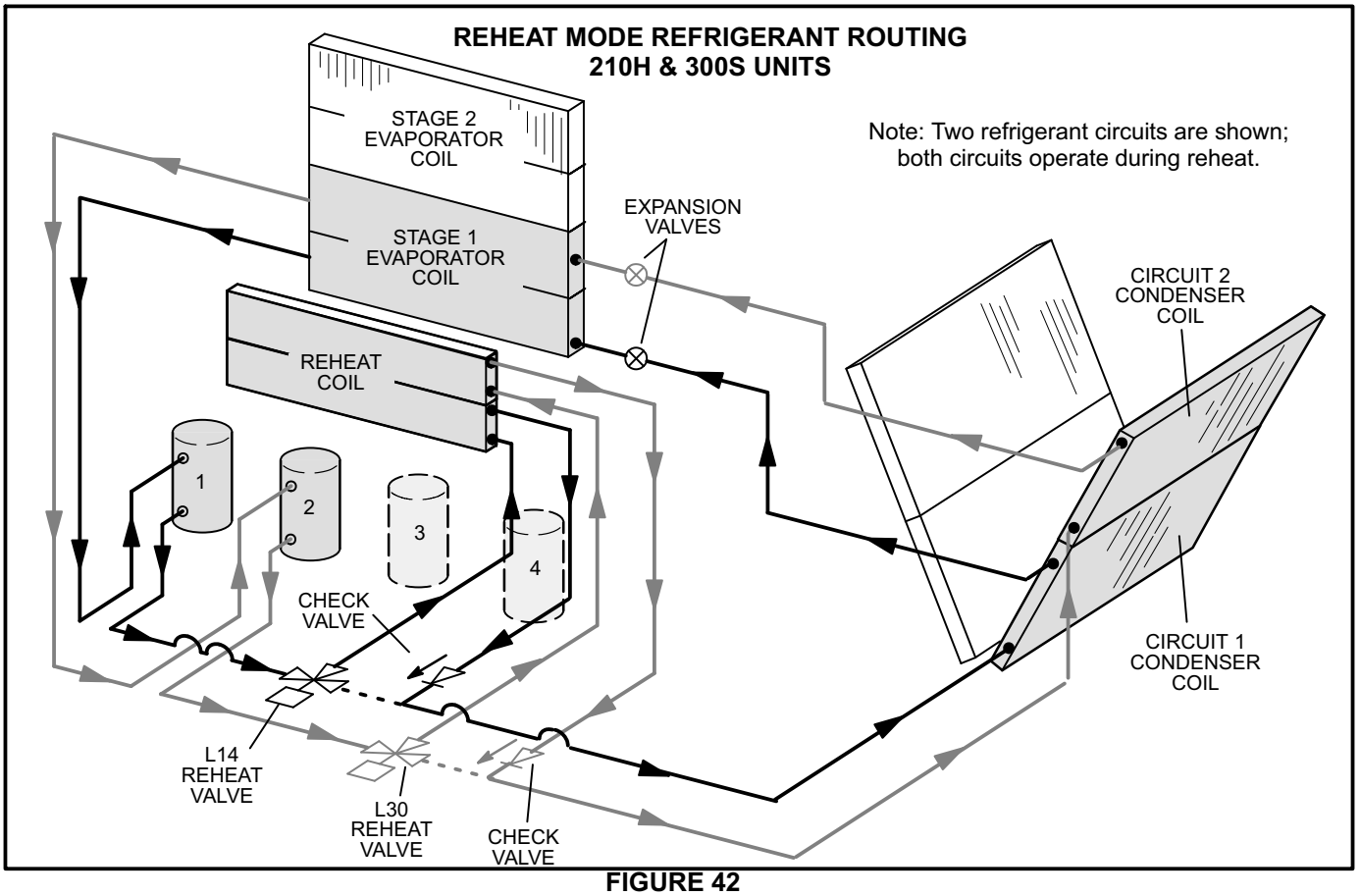


FIGURE 42

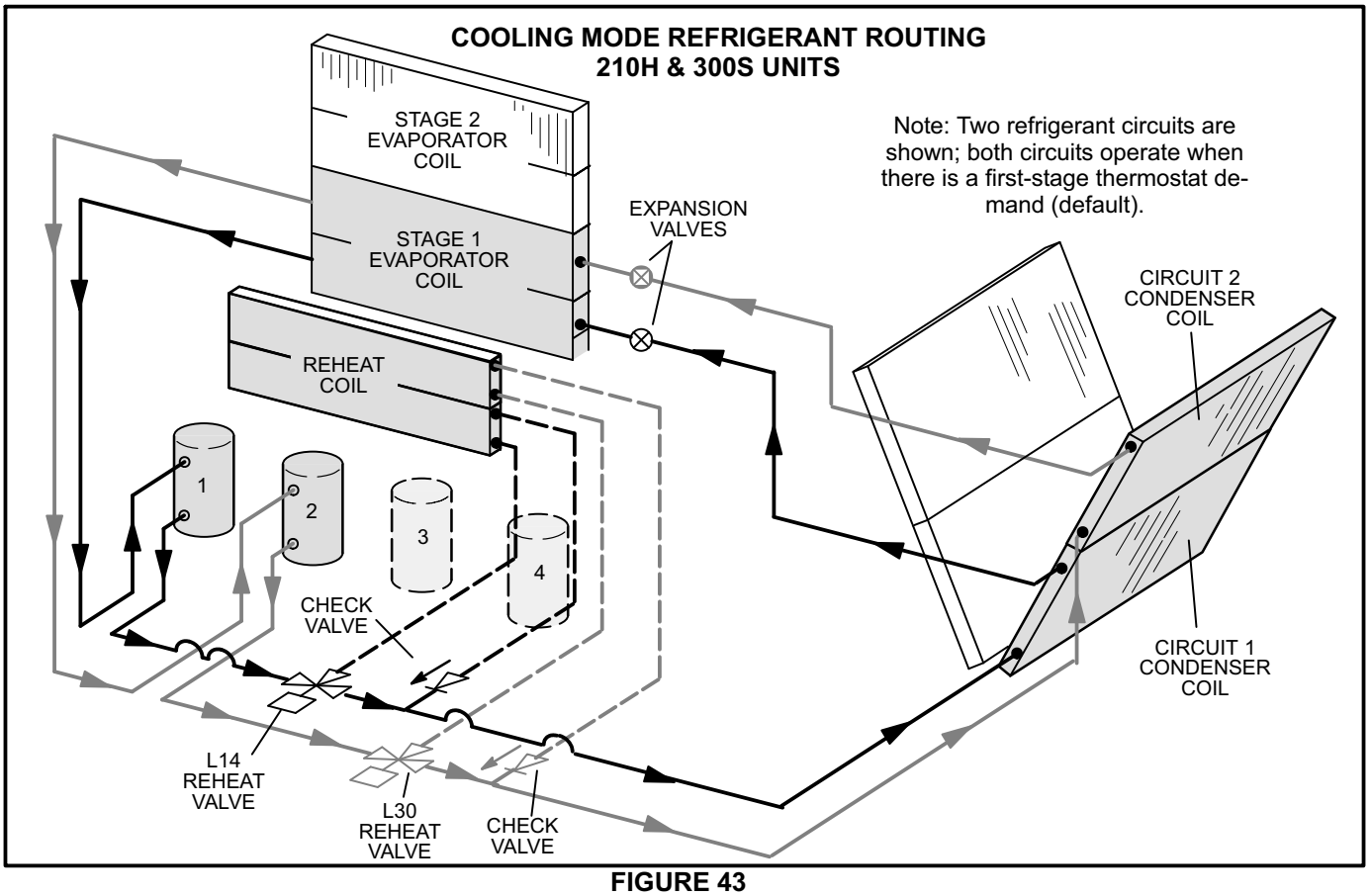


FIGURE 43

Check-Out

Test Humiditrol operation using the following procedure.

1- Make sure RH sensor is wired as shown in figure 44 or 45.

2- Set IMC ECTO system mode parameter 6.01 to option 0 (default local thermostat mode).

3- Set IMC ECTO reheat setpoint parameter 4.25 to option 0 (% relative humidity).

4- Jumper the following TB1 terminals:
7 & 8 (occupied mode)
6 & 3 (blower demand G)
6 & 18 (Y1 cooling demand)

On 156 and 180 units, the blower, compressor 1 and compressor 2 (reheat), and compressor 3 (cooling) should be operating. On 210, 240, and 300S units, the blower, compressor 1 and compressor 2 (reheat), and compressor 3 and 4 (cooling) should be operating. L14 and L30 LED's on the A67 board should also be ON, indicating the reheat valves are energized.

5- Disconnect the jumper between TB1 terminals 6 & 18 (Y1) to end the cooling demand.

6- Press the IMC pushbutton to by-pass the compressor minimum run delay.

156 and 180 Units -
Compressor 3 (cooling) should de-energize, compressor 1 and 2 (reheat) should continue to operate, and L14 and L30 LED's should still be ON.
210, 240, and 300S Units -
Compressor 3 and 4 (cooling) should de-energize, compressor 1 and 2 (reheat) should continue to operate, and L14 and L30 LED's should still be ON.

7- Disconnect the jumper between TB1 terminals 7&8 (occupied mode).

Compressor 1 and 2 (reheat) should de-energize, L14 and L30 LED's should go OFF, blower should still be energized.

8- When check-out is complete, remove all jumpers, set ECTO 4.25 back to the proper humidity setpoint, and set ECTO 6.01 to the proper setting.

Default Reheat Operation

Humiditrol unit reheat control parameter 4.24 is factory-set to option 6. Reheat will operate as shown in table 13 once three conditions are met:

1- Blower must be operating.

2- System must be in occupied mode.

3- System must NOT be operating in heating mode.

IMPORTANT - Free cooling does not operate during reheat. Free cooling will operate as shown in the IMC manual.

Reheat Control Options

Reheat control parameter 4.24 can be set to other reheat control operating conditions as follows (see IMC manual):

ECTO 4.24 option 3 -

1- Blower must be operating.

2- System must be in occupied mode.

3- System must NOT be operating in heating mode.

4- One cooling demand is required if the unit has been in heating mode, the IMC has been reset, or at initial unit start-up.

ECTO 4.24 option 5 -

3- System must NOT be operating in heating mode.

4- One cooling demand is required if the unit has been in heating mode, the IMC has been reset, or at initial unit start-up.

ECTO 4.24 option 7 -

3- System must NOT be operating in heating mode.

Once the corresponding conditions are met in each mode, reheat will operate as shown in table 13.

Additional Cooling Stages

Units are shipped from the factory to provide two stages of cooling. (ECTO 5.04 option 2 and 6.01 option 0).

Three stages of cooling is available in zone sensor mode (ECTO 6.01 set to option 1, 2, or 3). Three stages of cooling is also available by installing a transfer relay and a three-stage thermostat; ECTO 5.04 must be set to option 3. Refer to the Main Control Operation section in the IMC manual when using the transfer relay.

Four stages of cooling is available in zone sensor mode (ECTO 6.01 set to option 1, 2, or 3) on units with four compressors (C210, 240, 300S).

Compressors are not de-energized when unit operation changes from cooling to reheat or from reheat to cooling. Instead, L14 and L30 reheat valves are energized (reheat) or de-energized (cooling).

NOTE - Another thermostat staging option is available which allows both compressors to be energized during free cooling. See ECTO 5.04 option 1 in IMC manual.

24 VOLT FIELD WIRING WITH IMC SET IN LOCAL THERMOSTAT MODE (ECTO 6.01 OPTION 0)

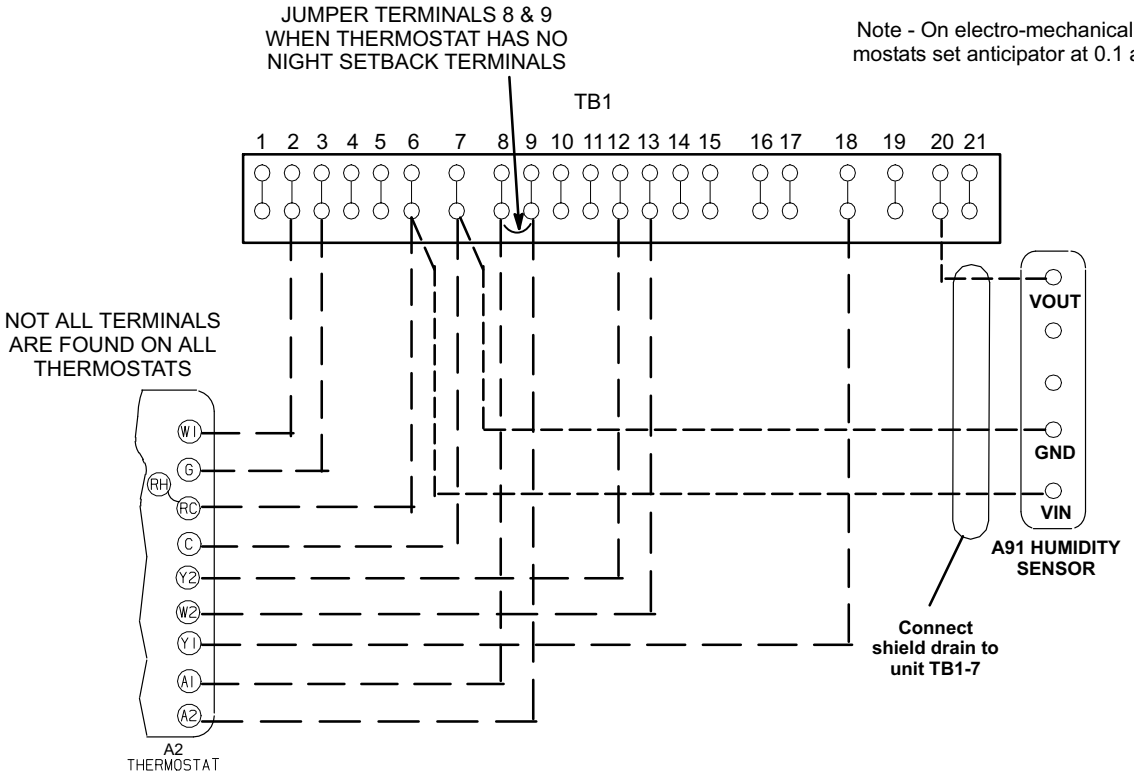
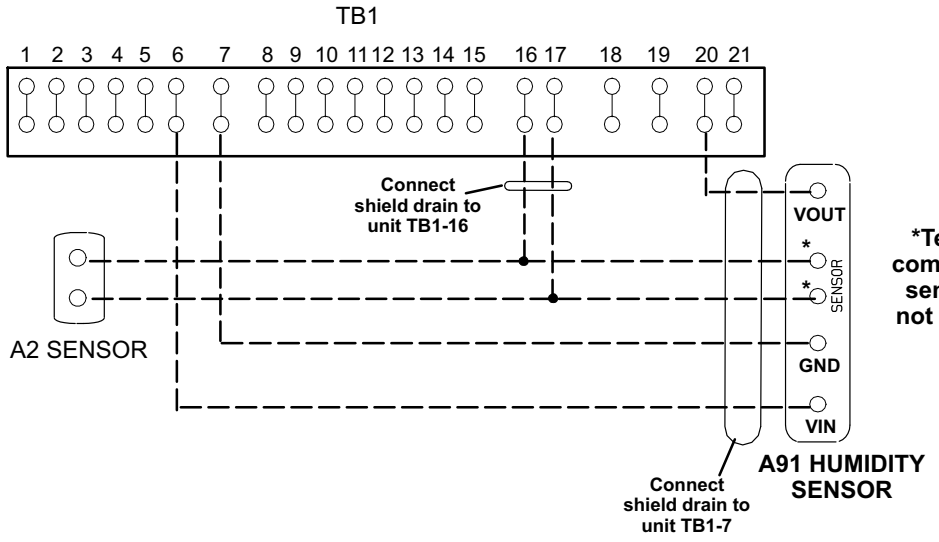


FIGURE 44

24 VOLT FIELD WIRING IN ZONE SENSOR MODE (ECTO 6.01 OPTION 1, 2, OR 3)



***Terminals are located on combination RH/temperature sensors only. A2 sensor is not required when combination sensor is used.**

FIGURE 45

TABLE 35
REHEAT OPERATION

Two-Stage Thermostat - Default		
T'stat and Humidity Demands	Operation	
	156H & 180H (3-Compressors)	210H & 300S (4-Compressors)
Reheat Only	Compressor 1 & 2 Reheat	Compressor 1 & 2 Reheat
Reheat & Y1	Compressor 1 & 2 Reheat and Compressor 3 Cooling[1]	Compressor 1 & 2 Reheat and Compressor 3 & 4 Cooling[1]
Reheat &Y1 & Y2	Compressor 1, 2, & 3 Cooling[3]	Compressor 1, 2, 3 & 4 Cooling[3]
Three-Stage Thermostat (Transfer relay required)		
T'stat and Humidity Demands	Operation	
	156H & 180H (3-Compressors)	210H & 300S (4-Compressors)
Reheat Only	Compressor 1 & 2 Reheat	Compressor 1 & 2 Reheat
Reheat & Y1	Compressor 1 & 2 Reheat and Compressor 3 Cooling[1]	Compressor 1 & 2 Reheat and Compressor 3 Cooling[1]
Reheat Y1 & Y2	Compressor 1, & 2, Cooling[2]	Compressor 1 & 2 Reheat and Compressor 3, & 4 Cooling[3]
Reheat Y1 & Y2 & Y3	Compressor 1, 2, & 3 Cooling[3]	Compressor 1, 2, 3, & 4 Cooling[4]
Four-Stage Zone Sensor Mode		
Cooling* and Humidity** Demands	Operation	
	156H & 180H (3-Compressors)	210H & 300S (4-Compressors)
Reheat Only	Compressor 1 & 2 Reheat	Compressor 1 & 2 Reheat
Reheat & Y1	Compressor 1 & 2 Reheat and Compressor 3 Cooling[1]	Compressor 1 & 2 Reheat and Compressor 3 Cooling[1]
Reheat & Y1 & Y2	Compressor 1, & 2, Cooling[2]	Compressor 1 & 2 Reheat and Compressor 3 & 4 Cooling[2]
Reheat & Y1 & Y2 & Y3	Compressor 1, 2, & 3 Cooling[3]	Compressor 1, 2, & 3 Cooling[3]
Reheat & Y1 & Y2 & Y3 & Y4	Compressor 1, 2, & 3 Cooling[4]	Compressor 1, 2, 3, & 4 Cooling[5]

*Cooling stage is initiated when zone temperature is higher than the cooling setpoint plus the appropriate stage differential (ECTO 6.10, 6.12, 6.13, 6.14).

**Reheat demand is initiated when relative humidity is higher than relative humidity setpoint.

[1]If there is no reheat demand and outdoor air is suitable, free cooling will operate.

[2]If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 will operate.

[3]If there is no reheat demand and outdoor air is suitable, free cooling and compressor 1 and 2 will operate.

[4]If there is no reheat demand and outdoor air is suitable, free cooling, compressor 1, 2, and 3 will operate.

[5]If there is no reheat demand and outdoor air is suitable, free cooling, compressor 1, 2, 3, and 4 will operate.

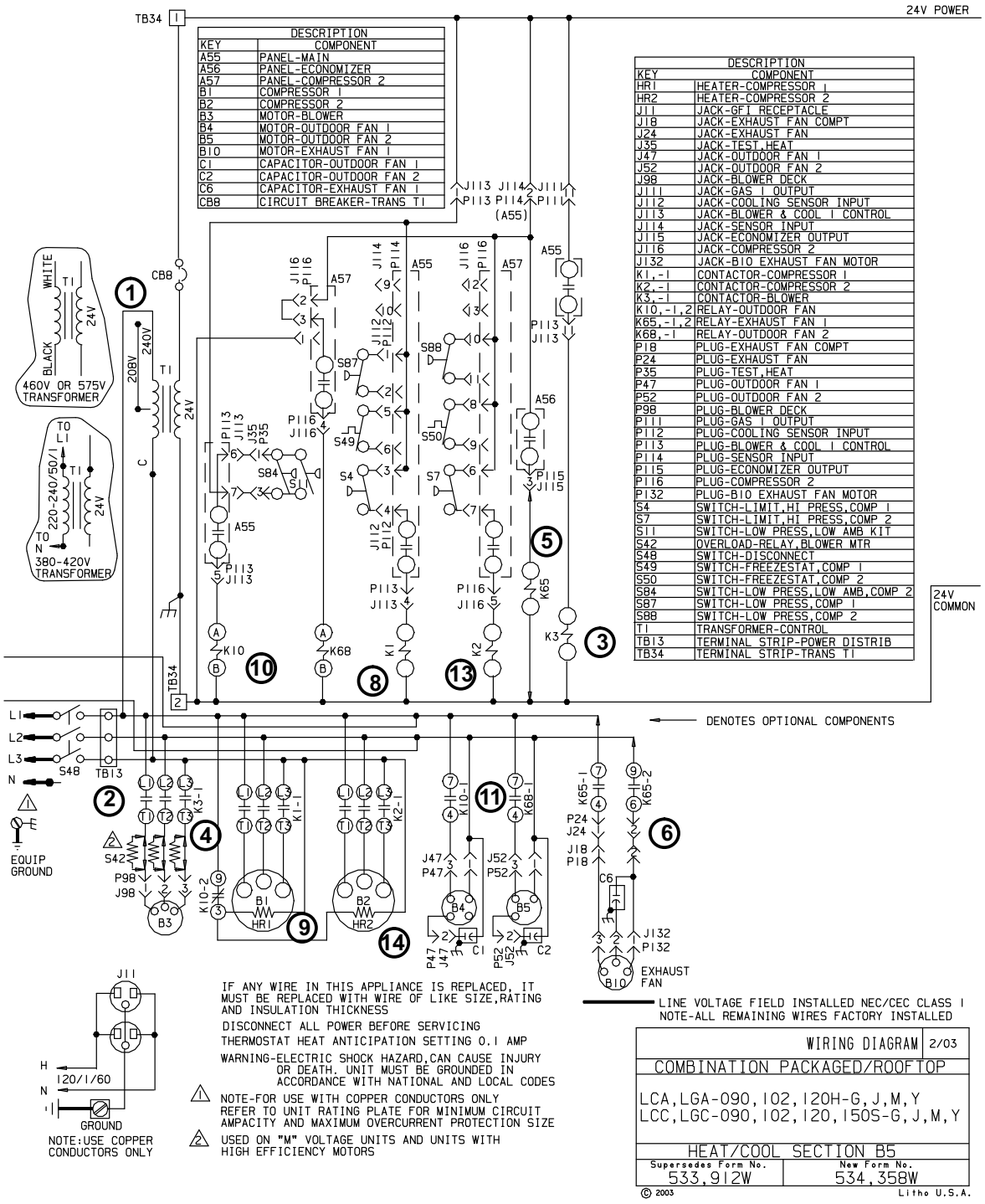
The following conditions must be met before reheat will be energized:
(default ECTO 4.24 option 6; see previous page)

1- Blower must be operating.

2- System must be in occupied mode.

3- System must NOT be operating in heating mode.

LGC090/150 UNIT DIAGRAM



LGC090/150 SEQUENCE OF OPERATION

Power:

1. Line voltage from unit disconnect energizes transformer T1. T1 provides 24VAC power to terminal strip TB34. TB34 provides 24VAC to the unit cooling, heating and blower controls.
2. TB13 is also energized when unit disconnect switch closes. TB13 provides line voltage to compressors crankcase heaters, compressor contactors, the blower motor contactor and condenser fan relay.

Blower Operation:

3. The main control module receives a demand from thermostat terminal G. A55 energizes blower contactor K3 with 24VAC.
4. N.O. K3-1 closes, energizing blower B3.

Economizer Operation:

5. The economizer control module A56 receives a demand and energizes exhaust fan relay K65 with 24VAC at 50% outside air damper open (adjustable).
6. N.O. K65-1 and N.O. K65-2 both close, energizing exhaust fan motor B10.

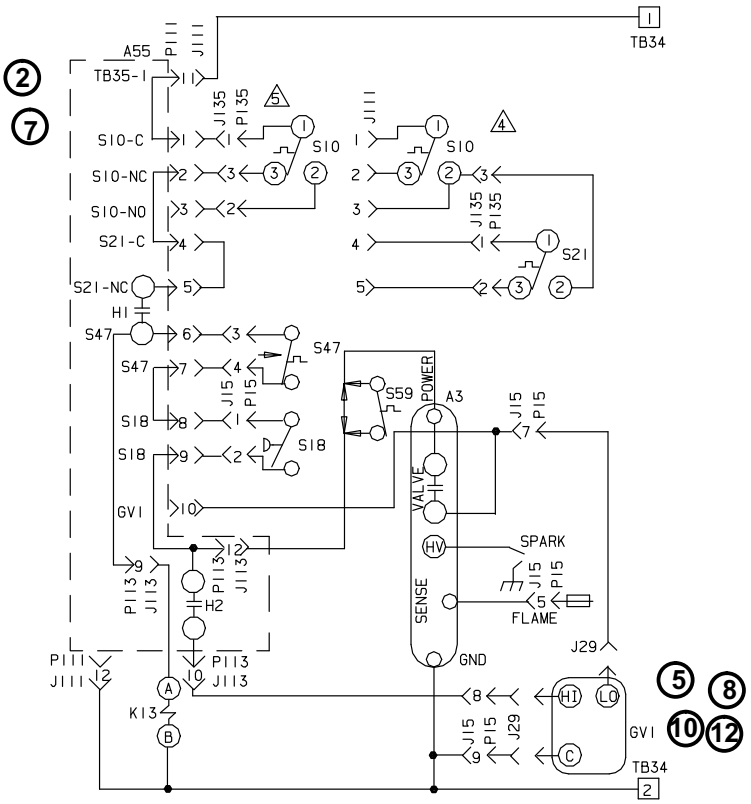
1st Stage Cooling (compressor B1)

7. First stage cooling demand energizes Y1 and G in the thermostat. G energizes blower.
8. 24VAC is routed through TB34 to the main control module A55. After A55 proves N.C.low pressure switch S87, N.C. freezestat S49 and N.C. high pressure switch S4, compressor contactor K1 is energized.
9. N.O. contacts K1-1 close energizing compressor B1.
10. N.O. low ambient switch S11 closes to energize condenser fan relay K10. A57 energizes condenser fan relay K68.
11. N.O. contacts K10-1 close energizing condenser fan B4 and N.C. contacts K10-2 open, de-energizing compressor crankcase heaters HR1 and HR2. N.O. contacts K68-1 close energizing condenser fan B5.

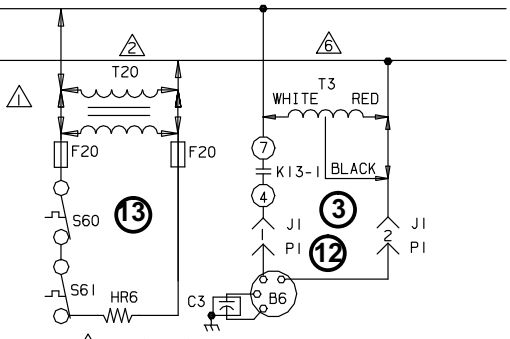
2nd Stage Cooling (compressor B2 is energized)

12. Second stage cooling demand energizes Y2.
13. 24VAC is routed through TB34 to compressor 2 module A57. After A57 proves N.C. low pressure switch S88, N.C. freezestat S50 and N.C. high pressure switch S7, compressor contactor K2 is energized.
14. N.O. contacts K2-1 close energizing compressor B2.

GAS HEAT FOR LGC090/150 UNITS



DENOTES OPTIONAL COMPONENTS



KEY	DESCRIPTION COMPONENT
A3	CONTROL-BURNER I
A55	PANEL-MAIN
B6	MOTOR-COMBUSTION AIR BLOWER I
C3	CAPACITOR-COMB AIR BLOWER,MOTOR I
F20	FUSE,-50C LOW AMBIENT KIT
GV1	VALVE-GAS I
HR6	HEATER,-50C LOW AMBIENT KIT
J1	JACK-GAS LIMIT
J15	JACK-GAS
J29	JACK-GAS I
J111	JACK-GAS I,OUTPUT
J113	JACK-BLOWER & COOL I CONTROL
J135	JACK
K13,-1	RELAY-COMBUSTION AIR BLOWER
P1	PLUG-GAS LIMIT
P15	PLUG-GAS
P111	PLUG-GAS I,OUTPUT
P113	PLUG-BLOWER & COOL I CONTROL
P135	PLUG
S10	SWITCH-LIMIT, PRIMARY GAS
S18	SWITCH-COMB AIR BLOWER, PROVE
S21	SWITCH-LIMIT,SECONDARY GAS HEAT
S47	SWITCH-FLAME ROLLOUT, BURNER I
S59	THERMOSTAT,-35 C OPEN,-50 C
S60	THERMOSTAT,-23C CL,-7C OP,-50C LOW AMB KIT
S61	THERMOSTAT,+24C OPEN,-50C LOW AMB KIT
T3	TRANSFORMER-COMB AIR BLOWER I
T20	TRANSFORMER,-50C LOW AMBIENT KIT
TB34	TERMINAL STRIP-TRANSFORMER TI
TB35	TERMINAL STRIP-TRANSFORMER TI8

1. CGA(-50C)LOW AMBIENT KIT (OPTIONAL)
2. T20 USED ON 460V AND 575V UNITS ONLY
3. USED ON 6 TON AND SMALLER UNITS
4. S10,S21 HOOKUP FOR 036 TO 072 UNITS
5. S10 HOOKUP FOR 090 TO 150 UNITS
6. T3 USED ON 575V UNITS ONLY

WIRING DIAGRAM	4/03
COMBINATION UNIT-ROOFTOP	
GAS HEAT FOR "L" SERIES,75 THRU 235 UNITS (B BOX)	
HEATING SECTION-A1	
Supersedes Form No. 533,904W	New Form No. 534,441W

SEQUENCE OF OPERATION LGC090/150

First Stage Heat:

1. Heating demand initiates at W1 in the thermostat.
2. 24VAC is routed through TB34 to the main control module A55. After A55 proves N.C. primary limit S21, the combustion air blower relay K13 is energized.
3. N.O. K13-1 contacts close allowing line voltage to energize combustion air blower B6.
4. After the combustion air blower B6 has reached full speed, the combustion air proving switch S18 contacts close. The A55 routes 24VAC through N.C. burner flame rollout switch S47 and the closed contacts of combustion air proving switch S18 to energize the ignition module A3.
5. After a 30 second delay A3 energizes the ignitor and LO terminal (low fire) of gas valve GV1.

Second Stage Heat:

6. With first stage heat operating, an additional heating demand initiates W2 in the thermostat.
7. A second stage heating demand is received by A55 control module.
8. A55 energizes HI terminal (high fire) of gas valve GV1.

End of Second Stage Heat:

9. Heating demand is satisfied. Terminal W2 (high fire) is de-energized.
10. Terminal HI of GV1 is de-energized by A55 control module.

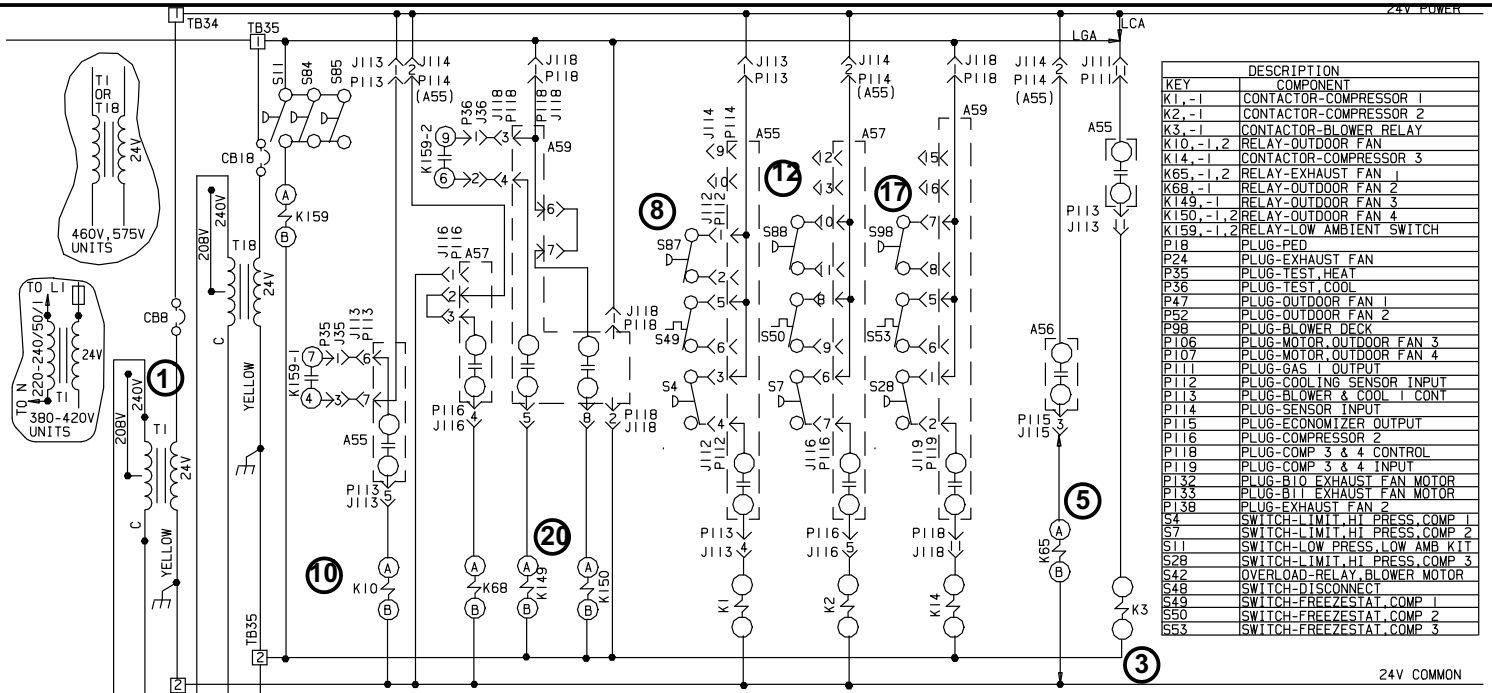
End of First Stage Heat:

11. Heating demand is satisfied. Terminal W1 (low fire) is de-energized.
12. Ignition A3 is de-energized by control module A55 in turn de-energizing terminal LO of GV1. Combustion air blower relay K13 is also de-energized.

Optional Low Ambient Kit:
(C.G.A. -50°C Low Ambient Kit)

13. Line voltage (or transformer T20 in 460V and 575V only) is routed through the low ambient kit fuses F20 and N.C. low ambient kit thermostats S60 and S61,to energize low ambient kit heater HR6.

LGC156 & 180 UNIT DIAGRAM



DESCRIPTION	
KEY	COMPONENT
K1,-1	CONTACTOR-COMPRESSOR 1
K2,-1	CONTACTOR-COMPRESSOR 2
K3,-1	CONTACTOR-BLOWER RELAY
K10,-1,2	RELAY-OUTDOOR FAN
K14,-1	CONTACTOR-COMPRESSOR 3
K65,-1,2	RELAY-EXHAUST FAN 1
K68,-1	RELAY-OUTDOOR FAN 2
K149,-1	RELAY-OUTDOOR FAN 3
K150,-1,2	RELAY-OUTDOOR FAN 4
K159,-1,2	RELAY-LOW AMBIENT SWITCH
P18	PLUG-PED
P24	PLUG-EXHAUST FAN
P35	PLUG-TEST,HEAT
P36	PLUG-TEST,COOL
P47	PLUG-OUTDOOR FAN 1
P52	PLUG-OUTDOOR FAN 2
P98	PLUG-BLOWER DECK
P106	PLUG-MOTOR,OUTDOOR FAN 3
P107	PLUG-MOTOR,OUTDOOR FAN 4
P111	PLUG-GAS 1 OUTPUT
P112	PLUG-COOLING SENSOR INPUT
P113	PLUG-BLOWER & COOL 1 CONT
P114	PLUG-SENSOR INPUT
P115	PLUG-ECONOMIZER OUTPUT
P116	PLUG-COMPRESSOR 2
P118	PLUG-COMP 3 & 4 CONTROL
P119	PLUG-COMP 3 & 4 INPUT
P132	PLUG-B10 EXHAUST FAN MOTOR
P133	PLUG-B11 EXHAUST FAN MOTOR
P138	PLUG-EXHAUST FAN 2
S4	SWITCH-LIMIT,HI PRESS,COMP 1
S7	SWITCH-LIMIT,HI PRESS,COMP 2
S11	SWITCH-LOW PRESS,LOW AMB KIT
S28	SWITCH-LIMIT,HI PRESS,COMP 3
S42	OVERLOAD-RELAY,BLOWER MOTOR
S48	SWITCH-DISCONNECT
S49	SWITCH-FREEZESTAT,COMP 1
S50	SWITCH-FREEZESTAT,COMP 2
S53	SWITCH-FREEZESTAT,COMP 3

DESCRIPTION	
KEY	COMPONENT
S84	SWITCH-LOW PRESS,LOW AMB COMP 2
S85	SWITCH-LOW PRESS,LOW AMB,COMP 3
S87	SWITCH-LOW PRESS,COMP 1
S88	SWITCH-LOW PRESS,COMP 2
S98	SWITCH-LOW PRESS,COMP 3
S117	SWITCH-GFI
T1	TRANSFORMER-CONTROL
T18	TRANSFORMER-CONTACTOR
T29	TRANSFORMER-GFI
TB13	TERMINAL STRIP-POWER DISTRIB
TB34	TERMINAL STRIP-TRANS T1
TB35	TERMINAL STRIP-TRANS T18

⚠1 S42 USED ON "M" VOLTAGE UNITS AND UNITS WITH HIGH EFFICIENCY MOTORS

⚠2 F6 AND F10 FUSES ARE USED ON Y VOLTAGE UNITS ONLY

LINE VOLTAGE FIELD INSTALLED NEC/CEC CLASS 1
NOTE-ALL REMAINING WIRES FACTORY INSTALLED

DENOTES OPTIONAL COMPONENTS

DESCRIPTION	
KEY	COMPONENT
A55	PANEL-MAIN
A56	PANEL-ECONOMIZER
A57	PANEL-COMPRESSOR 2
A59	PANEL-COMPRESSOR 3 & 4
B1	COMPRESSOR 1
B2	COMPRESSOR 2
B3	MOTOR-BLOWER
B4	MOTOR-OUTDOOR FAN 1
B5	MOTOR-OUTDOOR FAN 2
B10	MOTOR-EXHAUST FAN 1
B11	MOTOR-EXHAUST FAN 2
B13	COMPRESSOR 3
B21	MOTOR-OUTDOOR FAN 3
B22	MOTOR-OUTDOOR FAN 4
C1	CAPACITOR-OUTDOOR FAN 1
C2	CAPACITOR-OUTDOOR FAN 2
C6	CAPACITOR-EXHAUST FAN 1
C8	CAPACITOR-OUTDOOR FAN 2
C18	CAPACITOR-OUTDOOR FAN 3

DESCRIPTION	
KEY	COMPONENT
C19	CAPACITOR-OUTDOOR FAN 4
CB8	CIRCUIT BREAKER-TRANS T1
CB18	CIRCUIT BREAKER-TRANS T18
F6	FUSE-EXHAUST FAN
F10	FUSE-OUTDOOR FAN MOTOR
F30	FUSE-TRANS,T29,PRIMARY
F31	FUSE-TRANS,T29,SECONDARY
HR1	HEATER-COMPRESSOR 1
HR2	HEATER-COMPRESSOR 2
HR5	HEATER-COMPRESSOR 3
J11	JACK-GFI RECEPTACLE
J18	JACK-PED
J24	JACK-EXHAUST FAN
J35	JACK-TEST,HEAT
J36	JACK-TEST,COOL
J47	JACK-OUTDOOR FAN 1
J52	JACK-OUTDOOR FAN 2
J98	JACK-BLOWER DECK
J106	JACK-MOTOR,OUTDOOR FAN 3

DESCRIPTION	
KEY	COMPONENT
J107	JACK-MOTOR,OUTDOOR FAN 4
J111	JACK-GAS 1 OUTPUT
J112	JACK-COOLING SENSOR,INPUT
J113	JACK-BLOWER & COOL 1 CONT
J114	JACK-SENSOR INPUT
J115	JACK-ECONOMIZER OUTPUT
J116	JACK-COMPRESSOR 2
J118	JACK-COMP 3 & 4 CONTROL
J119	JACK-COMP 3 & 4 INPUT
J132	JACK-BLOWER,EXHAUST FAN MTR
J133	JACK-B11 EXHAUST FAN MOTOR
J138	JACK-EXHAUST FAN 2
J139	JACK-EXHAUST FAN 3

WIRING DIAGRAM 2/03

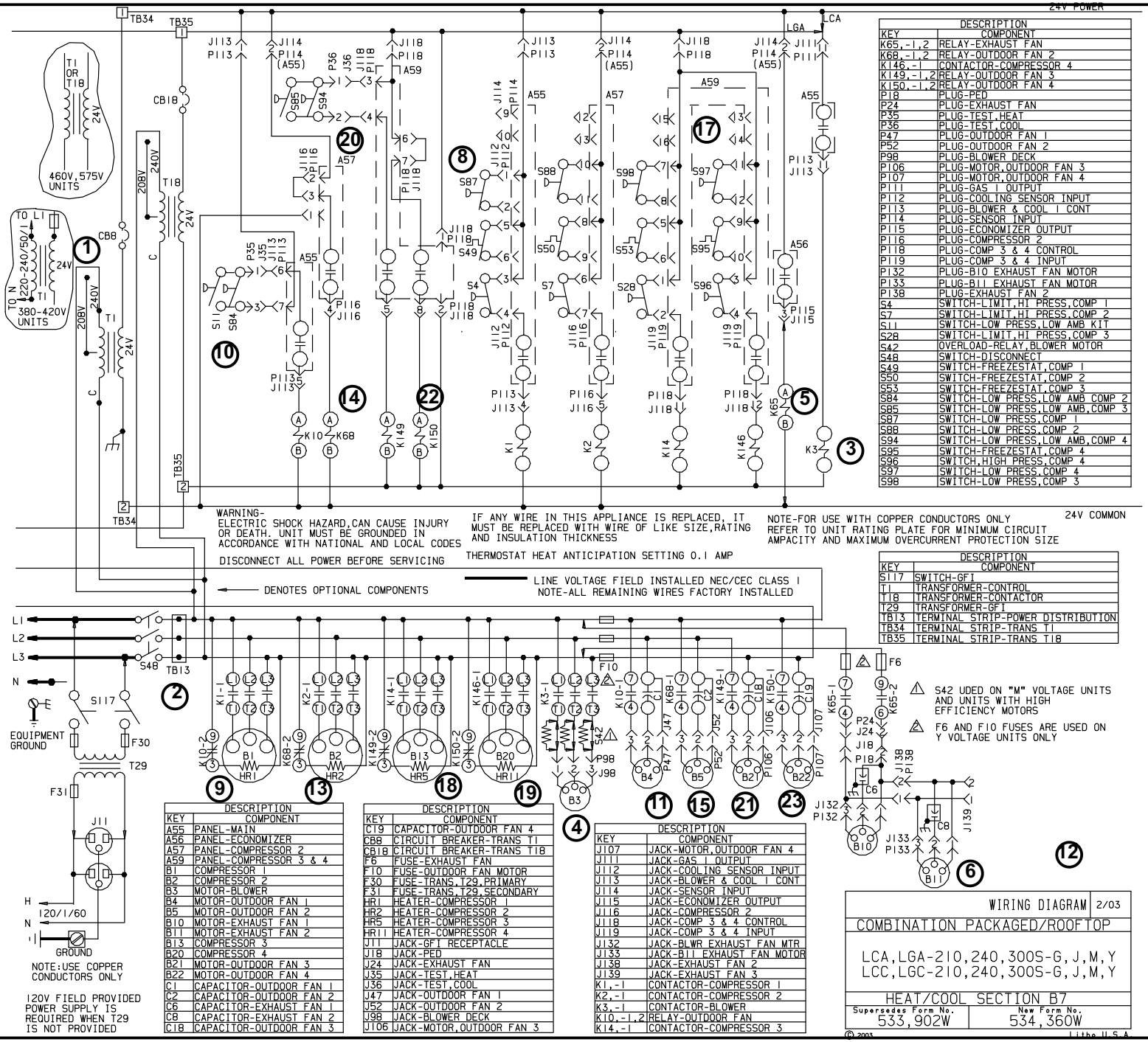
COMBINATION PACKAGED/ROOFTOP

LCA,LGA-156,180-G,J,M,Y
LCC,LGC-156,180-G,J,M,Y

HEAT/COOL SECTION B6

Supersedes Form No.	New Form No.
533,903W	534,359W

Litho U.S.A.



DESCRIPTION	
KEY	COMPONENT
K65,-1,2	RELAY-EXHAUST FAN
K68,-1,2	RELAY-OUTDOOR FAN 2
K146,-1	CONTACTOR-COMPRESSOR 4
K149,-1,2	RELAY-OUTDOOR FAN 3
K150,-1,2	RELAY-OUTDOOR FAN 4
P18	PLUG-PED
P24	PLUG-EXHAUST FAN
P35	PLUG-TEST,HEAT
P36	PLUG-TEST,COOL
P47	PLUG-OUTDOOR FAN 1
P52	PLUG-OUTDOOR FAN 2
P98	PLUG-BLOWER DECK
P106	PLUG-MOTOR,OUTDOOR FAN 3
P107	PLUG-MOTOR,OUTDOOR FAN 4
P111	PLUG-GAS 1 OUTPUT
P112	PLUG-COOLING SENSOR INPUT
P113	PLUG-BLOWER & COOL 1 CONT
P114	PLUG-SENSOR INPUT
P115	PLUG-ECONOMIZER OUTPUT
P116	PLUG-COMPRESSOR 2
P118	PLUG-COMP 3 & 4 CONTROL
P119	PLUG-COMP 3 & 4 INPUT
P132	PLUG-B10 EXHAUST FAN MOTOR
P133	PLUG-B11 EXHAUST FAN MOTOR
P138	PLUG-EXHAUST FAN 2
S4	SWITCH-LIMIT,HI PRESS,COMP 1
S7	SWITCH-LIMIT,HI PRESS,COMP 2
S11	SWITCH-LOW PRESS,LOW AMB KIT
S28	SWITCH-LIMIT,HI PRESS,COMP 3
S42	OVERLOAD-RELAY,BLOWER MOTOR
S48	SWITCH-DISCONNECT
S49	SWITCH-FREEZESTAT,COMP 1
S50	SWITCH-FREEZESTAT,COMP 2
S53	SWITCH-FREEZESTAT,COMP 3
S84	SWITCH-LOW PRESS,LOW AMB COMP 2
S85	SWITCH-LOW PRESS,LOW AMB,COMP 3
S87	SWITCH-LOW PRESS,COMP 1
S88	SWITCH-LOW PRESS,COMP 2
S94	SWITCH-LOW PRESS,LOW AMB,COMP 4
S95	SWITCH-FREEZESTAT,COMP 4
S96	SWITCH,HIGH PRESS,COMP 4
S97	SWITCH-LOW PRESS,COMP 4
S98	SWITCH-LOW PRESS,COMP 3

DESCRIPTION	
KEY	COMPONENT
S117	SWITCH-GFI
T1	TRANSFORMER-CONTROL
T18	TRANSFORMER-CONTACTOR
T29	TRANSFORMER-GFI
TB13	TERMINAL STRIP-POWER DISTRIBUTION
TB34	TERMINAL STRIP-TRANS T1
TB35	TERMINAL STRIP-TRANS T18

DESCRIPTION	
KEY	COMPONENT
A55	PANEL-MAIN
A56	PANEL-ECONOMIZER
A57	PANEL-COMPRESSOR 2
A59	PANEL-COMPRESSOR 3 & 4
B1	COMPRESSOR 1
B2	COMPRESSOR 2
B3	MOTOR-BLOWER
B4	MOTOR-OUTDOOR FAN 1
B5	MOTOR-OUTDOOR FAN 2
B10	MOTOR-EXHAUST FAN 1
B11	MOTOR-EXHAUST FAN 2
B13	COMPRESSOR 3
B20	COMPRESSOR 4
B21	MOTOR-OUTDOOR FAN 3
B22	MOTOR-OUTDOOR FAN 4
C1	CAPACITOR-OUTDOOR FAN 1
C2	CAPACITOR-OUTDOOR FAN 2
C6	CAPACITOR-EXHAUST FAN 1
C8	CAPACITOR-EXHAUST FAN 2
C18	CAPACITOR-OUTDOOR FAN 3

DESCRIPTION	
KEY	COMPONENT
C19	CAPACITOR-OUTDOOR FAN 4
CB8	CIRCUIT BREAKER-TRANS T1
CB18	CIRCUIT BREAKER-TRANS T18
F6	FUSE-EXHAUST FAN
F10	FUSE-OUTDOOR FAN MOTOR
F30	FUSE-TRANS,T29,PRIMARY
F31	FUSE-TRANS,T29,SECONDARY
HR1	HEATER-COMPRESSOR 1
HR2	HEATER-COMPRESSOR 2
HR5	HEATER-COMPRESSOR 3
HR11	HEATER-COMPRESSOR 4
J11	JACK-GFI RECEPTACLE
J18	JACK-PED
J24	JACK-EXHAUST FAN
J35	JACK-TEST,HEAT
J36	JACK-TEST,COOL
J47	JACK-OUTDOOR FAN 1
J52	JACK-OUTDOOR FAN 2
J98	JACK-BLOWER DECK
J106	JACK-MOTOR,OUTDOOR FAN 3

DESCRIPTION	
KEY	COMPONENT
J107	JACK-MOTOR,OUTDOOR FAN 4
J111	JACK-GAS 1 OUTPUT
J112	JACK-COOLING SENSOR INPUT
J113	JACK-BLOWER & COOL 1 CONT
J114	JACK-SENSOR INPUT
J115	JACK-ECONOMIZER OUTPUT
J116	JACK-COMPRESSOR 2
J118	JACK-COMP 3 & 4 CONTROL
J119	JACK-COMP 3 & 4 INPUT
J132	JACK-BLWR EXHAUST FAN MTR
J133	JACK-B11 EXHAUST FAN MOTOR
J138	JACK-EXHAUST FAN 2
J139	JACK-EXHAUST FAN 3
K1,-1	CONTACTOR-COMPRESSOR 1
K2,-1	CONTACTOR-COMPRESSOR 2
K3,-1	CONTACTOR-BLOWER
K10,-1,2	RELAY-OUTDOOR FAN
K14,-1	CONTACTOR-COMPRESSOR 3

Sequence of Operation
LGC156/300

Power:

1. Line voltage from TB2, unit disconnect S48, or other factory or field installed optional power disconnects, such as CB10, energizes transformer T1 and T18. Transformer T1 provides 24VAC power to terminal strip TB34 and T18 provides 24VAC power to terminal strip TB35. The two terminal strips provide 24VAC power to the unit cooling, heating and blower controls and thermostat.
2. Terminal strip TB13 is also energized when the unit disconnect closes. TB13 supplies line voltage to compressor crankcase heaters, compressors, blower motors, and fan motors.

Blower Operation (OCP input must be on):

3. The main control module A55 receives a demand from thermostat terminal G. A55 energizes blower contactor K3 with 24VAC.
4. N.O. K3-1 closes, energizing blower B3.

Economizer Operation:

5. The economizer control module A56 receives a demand and energizes exhaust fan relay K65 with 24VAC at 50% (travel) outside air damper open (adjustable).
6. N.O. K65-1 and K65-2 both close, energizing exhaust fan motors B10 and B11.

1st Stage Cooling (both compressors B1 and B2 are energized):

7. First stage cooling demand energizes Y1 and G in the thermostat. G energizes blower, if blower is not already running (see step 3).
8. 24VAC is routed through TB34 to the main control module A55. After A55 proves N.C. low pressure switch S87, N.C. freezestat S49, and N.C. high pressure switch S4, compressor contactor K1 is energized.
9. N.O. contacts K1-1 close energizing compressor B1.
10. N.O. low ambient switch S11 and S84 close to energize condenser fan contactor K10.

NOTE: In the LGC156 and 180 units, K10 is energized after K159-1 closes. K159 is energized by TB35 after one of the N.O. low ambient pressure switches S11, S84, and S85 closes.

11. N.O. contacts K10-1 close energizing condenser fan B4 and N.C. contacts K10-2 open de-energizing compressor 1 crankcase heater HR1.
12. Simultaneous with step 8, 24VAC is routed through the compressor 2 control module A57. After A57 proves N.C. low pressure switch S88, N.C. freezestat S50, and N.C. high pressure switch S7, compressor contactor K2 is energized.
13. N.O. contacts K2-1 close energizing compressor B2.
14. Compressor 2 control module A57 energizes condenser fan 2 relay K68.
15. N.O. contacts K68-1 close energizing condenser fan B5 and N.C. contacts K68-2 open de-energizing compressor 2 crankcase heater HR2.

2nd Stage Cooling (B13 in 15 ton (52.8 kW)and both B13 and B20 in 17.5 and 20 ton [61.5 and 70.3 kW] are energized):

16. Second stage cooling demand energizes Y2.
17. 24VAC is routed through TB35 to compressor 3 and 4 module A59. After A59 proves N.C. low pressure switches S98 and S97, N.C. freezestats S53 and S95, and N.C. high pressure switches S28 and S96, compressor contactors K14 and K146 are energized.

NOTE:LGC156 and 180 units will be equipped with S98, S53, S28 and K14 only.

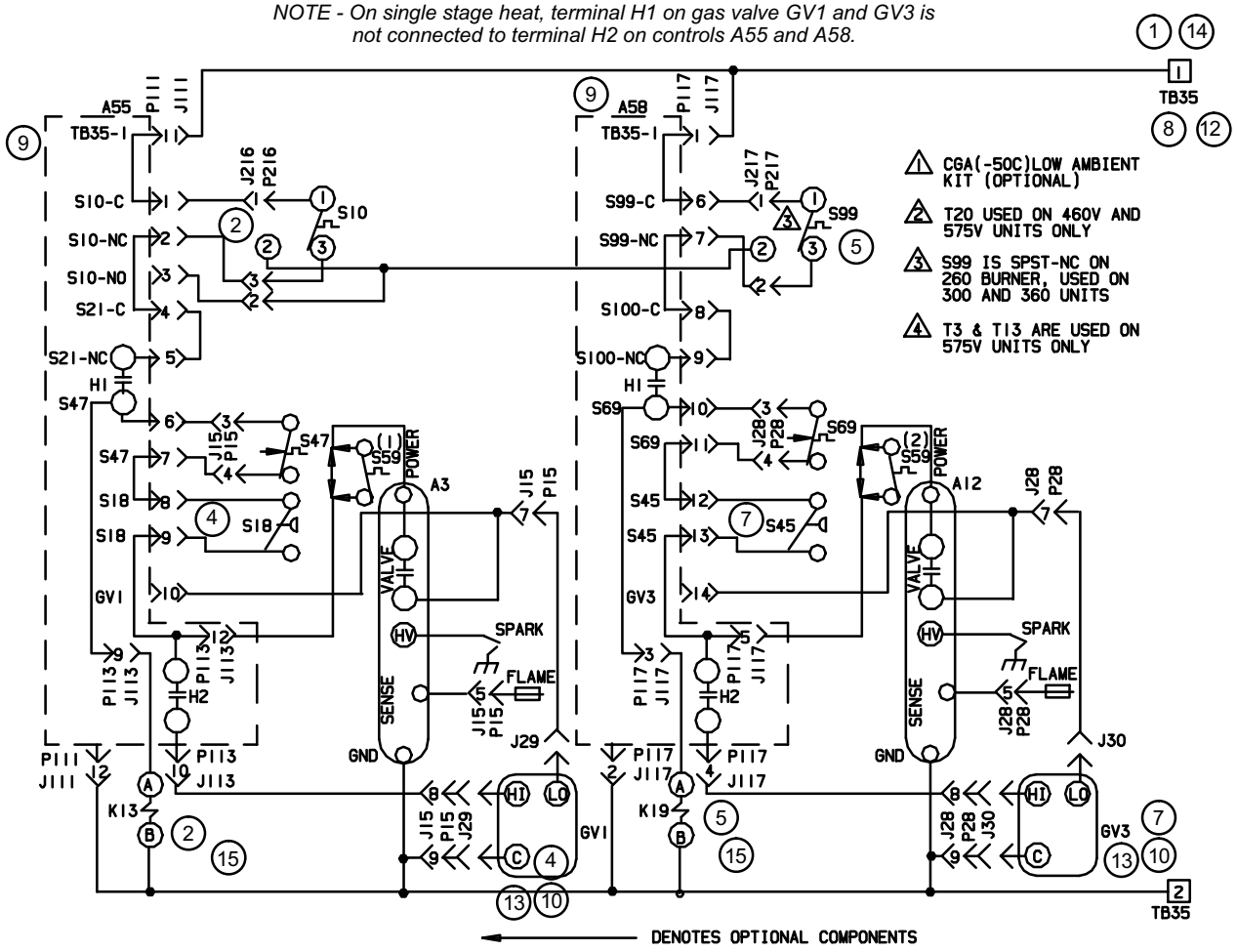
18. N.O. contacts K14-1 close energizing compressor B13.
19. N.O. contacts K146-1 close energizing compressor B20 (LGC210/300 only).
20. N.O. low ambient pressure switches S85 and S94 close to energize condenser fan relay K149.

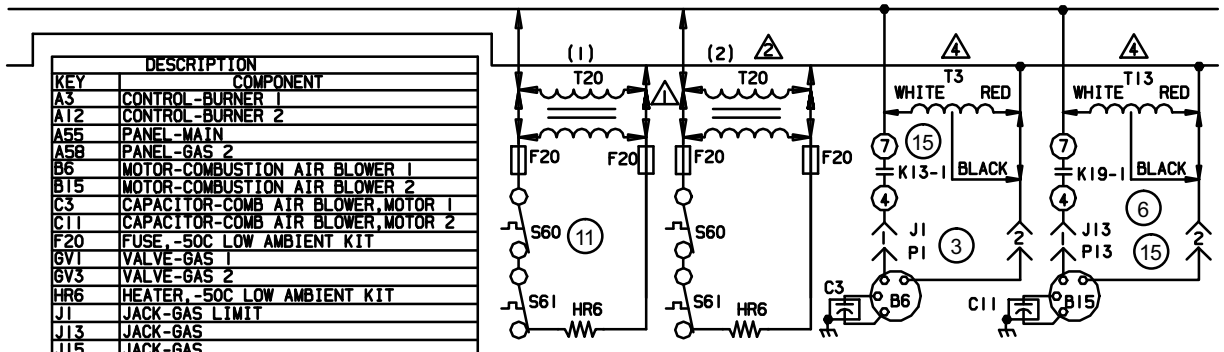
NOTE: In the LGC156 and 180 units, K149 is energized after K159-2 closes. K159 is energized by TB35 after one of the N.O. low ambient pressure switches S11, S84, and S85 closes.

21. N.O. contacts K149-1 close energizing condenser fan B21 and N.C. contacts K149-2 open de-energizing compressor 3 crankcase heater HR5.
22. Compressor 3 and 4 module A59 energizes condenser fan relay K150.
23. N.O. contacts K150-1 close energizing condenser fan B22 and N.C. contacts K150-2 open de-energizing compressor 4 crankcase heater HR11.

GAS HEAT FOR LGA156/300

NOTE - On single stage heat, terminal H1 on gas valve GV1 and GV3 is not connected to terminal H2 on controls A55 and A58.





KEY	DESCRIPTION COMPONENT
A3	CONTROL-BURNER 1
A12	CONTROL-BURNER 2
A55	PANEL-MAIN
A58	PANEL-GAS 2
B6	MOTOR-COMBUSTION AIR BLOWER 1
B15	MOTOR-COMBUSTION AIR BLOWER 2
C3	CAPACITOR-COMB AIR BLOWER,MOTOR 1
C11	CAPACITOR-COMB AIR BLOWER,MOTOR 2
F20	FUSE,-50C LOW AMBIENT KIT
GV1	VALVE-GAS 1
GV3	VALVE-GAS 2
HR6	HEATER,-50C LOW AMBIENT KIT
J1	JACK-GAS LIMIT
J13	JACK-GAS
J15	JACK-GAS
J28	JACK-ECONOMIZER PROGRAM
J29	JACK-GAS 1
J30	JACK-GAS 2
J111	JACK-GAS 1,OUTPUT
J113	JACK-BLOWER & COOL 1 CONTROL
J117	JACK-GAS 2 CONTROL
J216	JACK-PRIMARY LIMIT 1
J217	JACK-PRIMARY LIMIT 2
K13,-1	RELAY-COMBUSTION AIR BLOWER
K19,-1	RELAY-STAGE 2, HEAT
P1	PLUG-GAS LIMIT
P13	PLUG-GAS
P15	PLUG-GAS
P28	PLUG-ECONOMIZER PROGRAM
P111	PLUG-GAS 1,OUTPUT
P113	PLUG-BLOWER & COOL 1 CONTROL
P117	PLUG-GAS 2 CONTROL
P216	PLUG-PRIMARY LIMIT 1
P217	PLUG-PRIMARY LIMIT 2
S10	SWITCH-LIMIT, PRIMARY GAS
S18	SWITCH-COMB AIR BLOWER, PROVE
S45	SWITCH-LIMIT,COMB AIR BWR,PROVE 2
S47	SWITCH-FLAME ROLLOUT, BURNER 1

KEY	DESCRIPTION COMPONENT
S59	THERMOSTAT,-35 C OPEN,-50 C
S60	THERMOSTAT,-23C CL,-7C OP,-50C LOW AMB KIT
S61	THERMOSTAT,+24C OPEN,-50C LOW AMB KIT
S69	SWITCH-FLAME ROLLOUT 2
S99	SWITCH-LIMIT,PRIMARY BURNER 2
T3	TRANSFORMER-COMB AIR BLOWER 1
T13	TRANSFORMER-COMB AIR BLOWER 2
T20	TRANSFORMER,-50C LOW AMBIENT KIT
TB35	TERMINAL STRIP-TRANS T1

WIRING DIAGRAM	4/04
COMBINATION UNIT-ROOFTOP GAS HEAT FOR "L" SERIES,260,360 AND 480 UNITS (C & D BOX)	
HEATING SECTION-A2	
Supersedes Form No. 534,443W	New Form No. 534,658W

SEQUENCE OF OPERATION
GAS HEAT FOR LGC156/300 470 UNITS

FIRST STAGE HEAT:

1. Heating demand initiates at W1 in thermostat.
2. 24VAC is routed through TB35 to the main control module A55. After A55 proves N.C. primary limit S10 and N.C. secondary limit S21 the combustion air blower relay K13 is energized.
3. N.O. K13-1 contacts close allowing line voltage (or transformer T3 in 460V and 575V only) to energize combustion air blower B6.
4. After the combustion air blower B6 has reached full speed, the combustion air proving switch (S18) contacts close. The A55 routes 24VAC through N.C. burner 1 flame rollout switch S47 and the closed contacts of the combustion air proving switch (S18) to energize the ignition module A3. After a 30 second delay A3 energizes the gas valve GV1 on low fire.
5. As steps 2, 3 and 4 occur, 24VAC is also routed to the gas valve control module A58. After A58 proves N.C. primary gas heat limit S99 and N.C. secondary limit S100 the combustion air blower relay K19 is energized.
6. N.O. K19-1 contacts close allowing line voltage (or transformer T13 in 460V and 575V only) to energize combustion air blower B15.
7. After the combustion air blower B15 has reached full speed, the combustion air proving switch (S45) contacts close. The A58 routes 24VAC through N.C. burner 2 flame rollout switch S69 and the closed contacts of the combustion air proving switch (S45) to energize the ignition module A12. After a 30 second delay A12 energizes gas valve GV3 on low fire.

SECOND STAGE HEAT:

8. With first stage heat operating, an additional heating demand initiates W2 in the thermostat.
9. A second stage heating demand is received by both A55 and A58 modules.
10. Each module will energize the correspondinggas valves GV1 and GV3 on high fire.

OPTIONAL LOW AMBIENT KIT (C.G.A. -50°C LOW AMBIENT KIT):

11. Line voltage (or transformer T20 in 460V and 575V only) is routed through the low ambient kit fuses F20 and N.C. low ambient kit thermostats S60 and S61 to energize low ambient kit heater HR6.

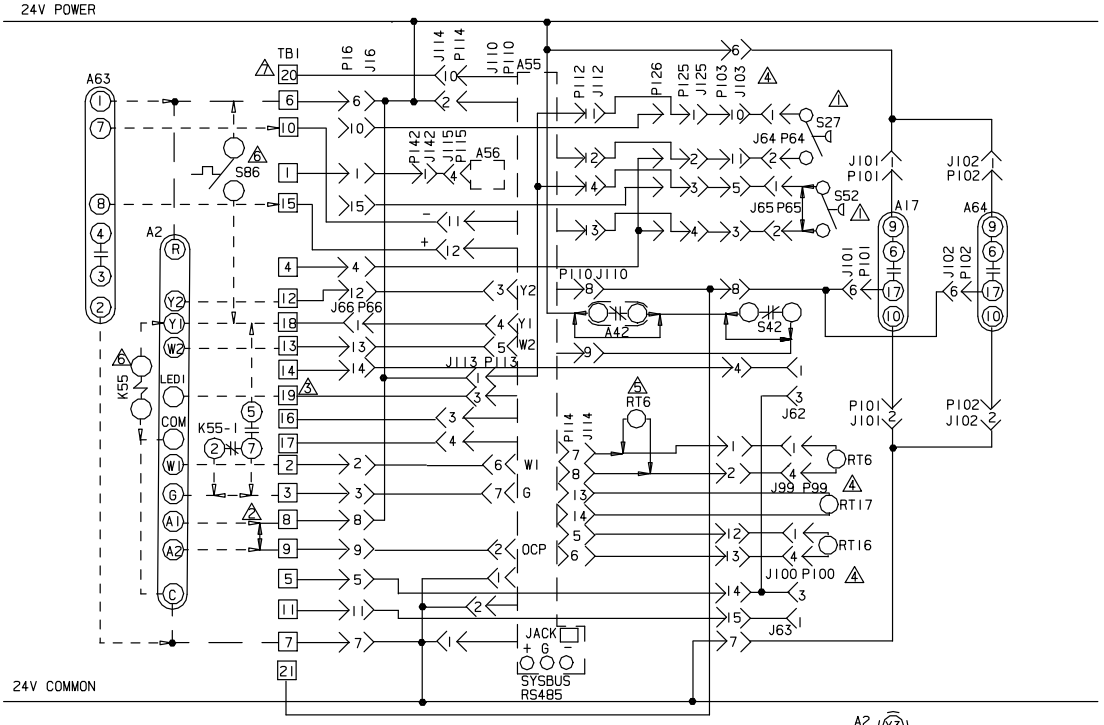
END OF SECOND STAGE HEAT:

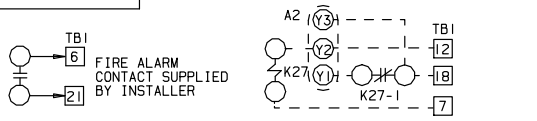
12. Heating demand is satisfied. Terminal W2 is de-energized.
13. High fire on GV1 and GV3 are de-energized by the A55 and A58 Module.

END OF FIRST STAGE HEAT:

14. Heating demand is satisfied. Terminal W1 is de-energized.
15. Ignition module A3 is de-energized by A55 in turn de-energizing GV1. Combustion blower relay K13 is also de-energized. At the same instant, ignition module A12 is de-energized by A58 module in turn de-energizing GV3. K19 combustion air blower relay is also de-energized.

ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT





DESCRIPTION	
KEY	COMPONENT
A2	SENSOR-ELECTRONIC
A17	DETECTOR-SMOKE
A42	MONITOR-PHASE PROTECTION
A55	PANEL-MAIN
A56	PANEL-ECONOMIZER
A63	SENSOR-CO2(IAQ)
A64	DETECTOR-SMOKE,SUPPLY AIR
J16	JACK-UNIT
J62	JACK-A2 RETURN AIR SENSOR
J63	JACK-RTI DISCH. AIR SENSOR
J64	JACK-S27 FILTER SWITCH
J65	JACK-S52 FAN SWITCH
J66	JACK-COOL 1 INTERFACE
J99	JACK-DISCHARGE TEMP SENSOR
J100	JACK-RETURN TEMP SENSOR
J101	JACK-SMOKE DETECTOR,RETURN AIR
J102	JACK-SMOKE DETECTOR,SUPPLY AIR
J103	JACK-SENSORS,CONTROL
J110	JACK-THERMOSTAT INPUT
J112	JACK-COOLING SENSOR INPUT
J113	JACK-BLOWER & COOL 1 CONTROL
J114	JACK-SENSOR INPUT
J115	JACK-ECONOMIZER OUTPUT
J125	JACK-BLOWER PROVING
J126	JACK-JUMPER,BLOWER PROVING
J142	JACK-ECONOMIZER HARNESS
K27,-1	RELAY-TRANSFER 2
K55,-1	RELAY-BLOWER
P16	PLUG-UNIT
P64	PLUG-S27 FILTER SWITCH
P65	PLUG-S50 FAN SWITCH
P66	PLUG-COOL ONE
P99	PLUG-DISCHARGE TEMP SENSOR
P100	PLUG-RETURN TEMP SENSOR
P101	PLUG-SMOKE DETECTOR,RETURN AIR
P102	PLUG-SMOKE DETECTOR,SUPPLY AIR

DESCRIPTION	
KEY	COMPONENT
P103	PLUG-SENSORS,CONTROL
P110	PLUG-THERMOSTAT INPUT
P112	PLUG-COOLING SENSOR INPUT
P113	PLUG-BLOWER & COOL 1 CONTROL
P114	PLUG-SENSOR INPUT
P115	PLUG-ECONOMIZER OUTPUT
P125	PLUG-BLOWER PROVING
P126	PLUG-JUMPER,BLOWER PROVING
P142	PLUG-ECONOMIZER HARNESS
RT6	SENSOR-A55 DISCHARGE (IMC)
RT16	SENSOR-RETURN AIR TEMP
RT17	SENSOR-OUTSIDE AIR TEMP
S27	SWITCH-FILTER
S42	OVERLOAD-RELAY,BLOWER MOTOR
S52	SWITCH-AIR FLOW
S86	SWITCH-DEHUMIDISTAT 65F8601
TB1	TERMINAL STRIP-24V CLASS II

THERMOSTAT HOOKUP FOR SELECTABLE OPTION #3, ECTO 5.04 ON MI-5 OR BETTER IMC BOARD (A55)

TO PROVIDE THREE COMPRESSOR STAGES. REQUIRES 3 HEAT,3 COOL THERMOSTAT AND K27 RELAY

1. S27 AND S52 ARE OPTIONAL
2. REMOVE JUMPER WHEN OCCUPIED-UNOCCUPIED OPERATION IS DESIRED. UNIT REMAINS IN OCCUPIED OPERATION WITH JUMPER
3. TB1-19 IS SERVICE RELAY OUTPUT (24VAC). IF USED CONNECT TO A INDICATOR LIGHT OR RELAY COIL (MAX 4VA)
4. J99/P99,J100/P100 AND J103/P103 ARE NOT USED ON-036,042,048,060,072,088 AND 100 UNITS
5. ALTERNATE REMOTE LOCATION OF RT6
6. USE S86 DEHUMIDISTAT AND K55 RELAY FOR OPTIONAL REHEAT SCHEME, SET PARAMETER 4.24 TO CONTROL VALVE 1 FOR SIMULTANEOUS HEATING AND COOLING
7. TB1-20 FOR DEHUMIDIFICATION CONTROL

DESIGNATES OPTIONAL WIRING
CLASS II FIELD WIRING

WIRING DIAGRAM	3/03
ACCESSORIES	
ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT FOR "L" SERIES UNITS	
TEMPERATURE CONTROL SECTION C2	
Supersedes Form No. 533,629W	New Form No. 534,390W

 Litho U.S.A.

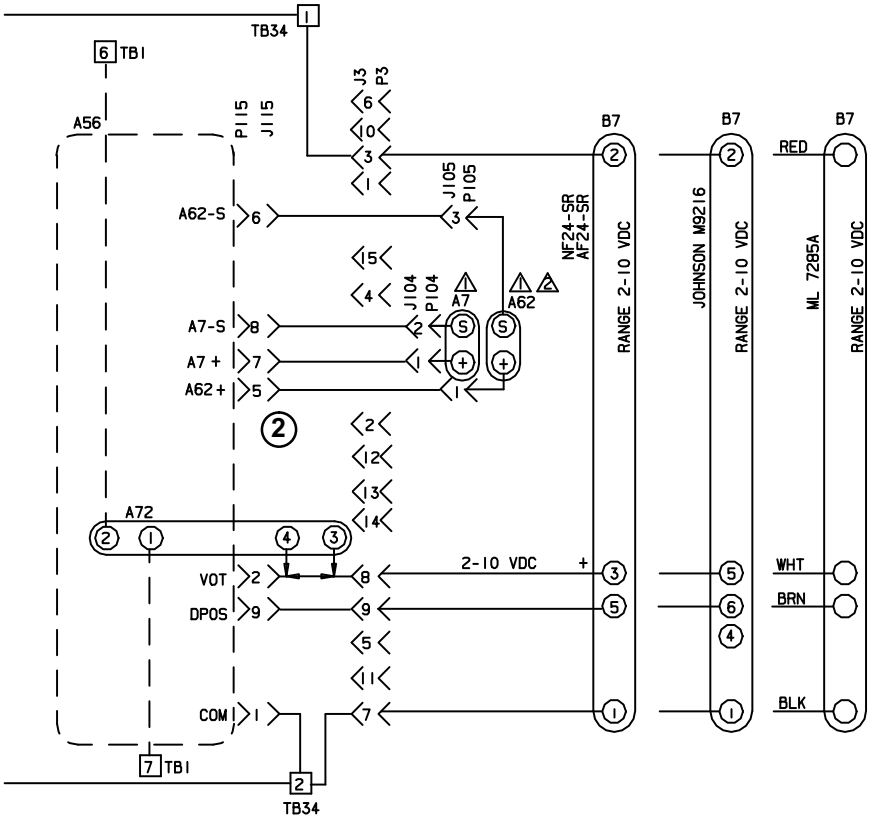
POWER:

1. Terminal strip TB34 energizes the thermostat components with 24VAC via TB1.

OPERATION:

2. The main control module A55 proves the optional N.O. filter switch S27(indicates dirty filter when closed), optional N.O. air flow switch S52(indicates no air [i.e. broken belt] system shuts down), and optional C.G.A. -50°C low ambient kit thermostat S59 (used in C.G.A. units only).
3. The main control module A55 receives data from the supply and return smoke detectors A17 and A64, optional phase protection monitor A42, blower motor overload relay S42, discharge sensor RT6, return air sensor RT16, and the outdoor air sensor RT17.
4. The main control module A55 receives data from the electronic thermostat A2 (Y1, Y2, W1, W2, G, OCP) and the CO_2 sensor (if economizer is used) via terminal strip TB1. A55 energizes the appropriate components.

"L" SERIES ECONOMIZER



⚠1 DELETE A7 AND A62 (IF USED) FOR EITHER GLOBAL ENTHALPY OR SENSIBLE TEMPERATURE CONTROL

⚠2 FOR UNIT DIFFERENTIAL ENTHALPY CONTROL, ADD A62 RETURN AIR ENTHALPY SENSOR

NOTE: THIS DIAGRAM USED ONLY WHEN ECONOMIZER OR MOTORIZED OUTDOOR AIR DAMPERS ARE INSTALLED

WIRING DIAGRAM	8/97
ACCESSORIES	
"L" SERIES ECONOMIZER AND MOTORIZED OUTSIDE AIR DAMPER	
ECONOMIZER-SECTION DI	
Supersedes Form No. 531,713W	New Form No. 531,770W

Litho U.S.A.

DESCRIPTION	
KEY	COMPONENT
A7	SENSOR-SOLID STATE ENTHALPY
A56	PANEL-ECONOMIZER
A62	SENSOR-ENTHALPY,INDOOR
A72	CONTROL-REMOTE,MIN POS(OPT)
B7	MOTOR-DAMPER
J3	JACK-UNIT ECONOMIZER
J104	JACK-SENSOR,OUTDOOR ENTHALPY
J105	JACK-SENSOR,RETURN AIR ENTHALPY
J115	JACK-ECONOMIZER,OUTPUT
P3	PLUG-UNIT ECONOMIZER
P104	PLUG-SENSOR,OUTDOOR ENTHALPY
P105	PLUG-SENSOR,RETURN AIR ENTHALPY
P115	PLUG-ECONOMIZER,OUTPUT
TBI	TERMINAL STRIP-CLASS II VOLTAGE
TB34	TERMINAL STRIP-TRANSFORMER TI

SEQUENCE OF OPERATION
L" SERIES ECONOMIZER

POWER:

1. Terminal strip TB34 energizes the economizer components with 24VAC.

OPERATION:

2. The main control module A55 along with outdoor enthalpy sensor A7 and indoor enthalpy sensor A62 (if differential enthalpy is used) communicates to the economizer control module A56 when to power the damper motor B7.
3. The economizer control module A56 supplies B7 with 0 - 10 VDC to control the positioning of economizer.
4. The damper actuator provides 2 to 10 VDC position feedback.