UNIT INFORMATION

LGT SERIES
3 to 6 ton

100122

Service Literature

LGT036 through 072 With R454B

LGT036 , 048 , 060 , and 072 are high efficiency gas packaged units equipped with a two-speed compressor and a variable speed outdoor fan.

LGT036 units are available in 60,000 to 108,000 Btuh (17.6 to 31 kW) heating inputs. LGT048, and 060 units are available in 60,000 to 150,000 Btuh (17.6 to 43.9 kW) heating inputs. LGT072 units are available in 65,000 to 150,000 Btuh (19 to 43.9 kW) heating inputs. Gas heat sections are designed with aluminized (stainless optional) steel tube heat exchangers. Cooling capacities range from 3 to 6 tons (7 to 21kW).

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

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).

Do not pierce or burn.

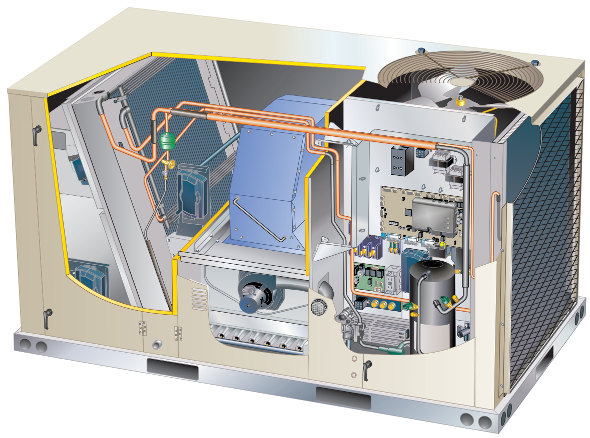
Be aware that refrigerants may not contain an odor.

⚠ WARNING

If this appliance is conditioning a space with an area smaller than TA min or stored in a space with an area smaller than A min as defined by this instruction, then that space must be without continuously operating open flames (e.g. an operating gas appliance) or other potential ignition sources (e.g. an operating electric heater or similar hot surface). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest system.

⚠ WARNING

Auxiliary devices which may be potential ignition sources shall not be installed in the duct work. Examples of potential ignition sources are hot surfaces with a temperature exceeding 700°C and electric switching components.



False ceilings or drop ceiling may be used as a return air plenum only if the unit being installed has a Refrigerant Detection System installed.

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out with work in confined spaces being avoided.

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

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WARNING

To prevent serious injury or death:

1. **Lock-out/tag-out before performing maintenance.**
2. **If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the “OFF” position before performing maintenance.**
3. **Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.**

WARNING

Only Manufacturer approved auxiliary devices are permitted to be installed in this unit.

CAUTION

Any service personnel installing, decommissioning, or performing maintenance on the unit must be properly trained with A2L refrigerants.

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.

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 licensed professional HVAC installer or equivalent, service agency, or the gas supplier.

CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC’s and HCFC’s) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for non-compliance.

WARNING

- **This appliance must be installed in accordance with local and national wiring regulations.**
- **If the appliance is not fitted with an option for full disconnection from power, a means of disconnection must be incorporated in the fixed wiring in accordance with national and local wiring regulations.**

OPTIONS / ACCESSORIES

Item		Order Number	Size 036	048	060	072
COOLING SYSTEM						
Condensate Drain Trap	PVC	**22H54**	X	X	X	X
	Copper	**76W27**	X	X	X	X
Drain Pan Overflow Switch		**21Z07**	OX	OX	OX	OX
HEATING SYSTEM						
Bottom Gas Piping Kit		**19W50**	X	X	X	X
Combustion Air Intake Extensions		**19W51**	X	X	X	X
Gas Heat (Low NOx) Input	Standard Two-Stage - 53/65 kBtuh input	Factory	O	O	O	O
	Medium Two-Stage - 81/108 kBtuh input	Factory	O	O	O	O
	High Two-Stage - 113/150 kBtuh input	Factory		O	O	O
Low Temperature Vestibule Heater	208/230V-1 or 3ph	**21Z17**	X	X	X	X
	460V-3ph	**21Z18**	X	X	X	X
	575V-3ph	**21Z19**	X	X	X	X
LPG/Propane Conversion Kits	For two-stage standard models	**21Z24**	X	X	X	X
	For two-stage medium and high models	**21Z23**	X	X	X	X
Stainless Steel Heat Exchanger		Factory	O	O	O	O
Vertical Vent Extension		**31W62**	X	X	X	X
BLOWER - SUPPLY AIR						
Motors - Standard Static (All voltages)	Direct Drive ECM Blower - 0.50 HP	Factory	O			
	1 HP	Factory		O	O	
Motors - High Static (3 phase only)	DirectPlus™ Direct Drive ECM Blower System - 1.5 HP	Factory	O	O	O	O
CABINET						
Combination Coil/Hail Guards		**13T03**	OX	OX	OX	OX
Corrosion Protection		Factory	O	O	O	O
CONTROLS						
Blower Proving Switch		**21Z10**	OX	OX	OX	OX
Commercial Controls	LonTalk® Module	**54W27**	OX	OX	OX	OX
	Novar® LSE	Factory	O	O	O	O
Dirty Filter Switch		**53W66**	OX	OX	OX	OX
Fresh Air Tempering		**21Z08**	OX	OX	OX	OX
Smoke Detector - Supply or Return (Power board and one sensor)		**21Z11**	OX	OX	OX	OX
Smoke Detector - Supply and Return (Power board and two sensors)		**21Z12**	OX	OX	OX	OX

NOTE - Order Numbers shown are for ordering field installed accessories.
OX - Configure To Order (Factory Installed) or Field Installed
O = Configure To Order (Factory Installed)
X = Field Installed

OPTIONS / ACCESSORIES

Item		Order Number	Size 036	048	060	072
ELECTRICAL						
Voltage	208/230V - 1 phase	Factory	O	O	O	
60 Hz	208/230V - 3 phase	Factory	O	O	O	O
	460V - 3 phase	Factory	O	O	O	O
	575V - 3 phase	Factory	O	O	O	O
HACR Circuit Breakers		Factory	O	O	O	O
[1] Short-Circuit Current Rating (SCCR) of 100kA (includes Phase/Voltage Detection)		Factory	O	O	O	O
Disconnect Switch	80 amp	**22A25**	OX	OX	OX	OX
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only)	**74M70**	OX	OX	OX	OX
	15 amp factory-wired and powered (208/230V, 460V only)	Factory	O	O	O	O
	[2] 20 amp non-powered, field-wired (208/230V, 460V, 575V)	**67E01**	X	X	X	X
	[2] 20 amp non-powered, field-wired (575V)	Factory	O	O	O	O
Weatherproof Cover for GFI		**10C89**	X	X	X	X
Phase/Voltage Detection - 3 Phase Models Only		Factory	O	O	O	O
ECONOMIZER						
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)						
High Performance Economizer - Includes Barometric Relief Dampers and Combination Hood		**20H48**	OX	OX	OX	OX
High Performance Economizer - No Exhaust Option		Factory	O	O	O	O
Economizer Accessories						
Horizontal Economizer Conversion Kit		**17W45**	X	X	X	X
Economizer Controls						
Single Enthalpy (Not for Title 24)		**21Z09**	OX	OX	OX	OX
Differential Enthalpy (Not for Title 24)	Order 2	**21Z09**	OX	OX	OX	OX
Sensible Control	Sensor is Furnished	Factory	O	O	O	O
Outdoor Air CFM Control		**13J76**	X	X	X	X
Global Control	Sensor Field Provided	Factory	O	O	O	O
Building Pressure Control		**13J77**	X	X	X	X
POWER EXHAUST FAN						
Standard Static	208/230V-1 or 3ph	**21Z13**	OX	OX	OX	OX
*NOTE - Factory or Field installed Power Exhaust Fan requires "Barometric Relief Dampers for Power Exhaust Kit (**21Z21**)" for field installation.*	460V-3ph	**21Z14**	OX	OX	OX	OX
	575V-3ph	**21Z15**	OX	OX	OX	OX
BAROMETRIC RELIEF						
[3] Barometric Relief Dampers for Power Exhaust Kit		**21Z21**	X	X	X	X
[4] Horizontal Barometric Relief Dampers With Exhaust Hood		**19F01**	X	X	X	X
OUTDOOR AIR						
Outdoor Air Dampers With Outdoor Air Hood						
Motorized		**15D17**	OX	OX	OX	OX
Manual		**15D18**	X	X	X	X
HUMIDITROL® CONDENSER REHEAT OPTION						
Humiditrol® Dehumidification Option		Factory	O	O	O	O

[1] Disconnect Switch is furnished and factory installed with High SCCR option.
[2] Canada requires a minimum 20 amp circuit. Select 20 amp, non-powered, field wired GFI.
[3] Required when Economizer is factory installed with factory installed Power Exhaust Fan option.
[4] Required when Economizer is configured for horizontal airflow.

NOTE - Order Numbers shown are for ordering field installed accessories.
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OPTIONS / ACCESSORIES

Item		Order Number	Size 036	048	060	072
INDOOR AIR QUALITY						
Air Filters						
Healthy Climate® High Efficiency Air Filters 20 x 20 x 2 in. (Order 4 per unit)	MERV 8	**54W21**	OX	OX	OX	OX
	MERV 13	**52W39**	OX	OX	OX	OX
	MERV 16	**21U40**	X	X	X	X
Replaceable Media Filter With Metal Mesh Frame (includes non-pleated filter media) (order 4 per unit)	20 x 20 x 2 in.	**44N60**	X	X	X	X
Indoor Air Quality (CO_2) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display		**24C58**	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display		**23V86**	X	X	X	X
Sensor - Black plastic case, LCD display, rated for plenum mounting		**87N52**	X	X	X	X
Sensor - Black plastic case, no display, rated for plenum mounting		**23V87**	X	X	X	X
CO_2 Sensor Duct Mounting Kit - for downflow applications		**23Y47**	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO_2 sensors (**24C58**)		**90N43**	X	X	X	X
Needlepoint Bipolar Ionization (NPBI)						
Needlepoint Bipolar Ionization (NPBI) Kit		**22U14**	X	X	X	X
UVC Germicidal Lamps						
[1] Healthy Climate® UVC Light Kit (110/230V-1ph)		**21A92**	X	X	X	X
Step-Down Transformers	460V primary, 230V secondary	**10H20**	X	X	X	X
	575V primary, 230V secondary	**10H21**	X	X	X	X
ROOF CURBS						
Hybrid Roof Curbs, Downflow						
8 in. height		**11F50**	X	X	X	X
14 in. height		**11F51**	X	X	X	X
18 in. height		**11F52**	X	X	X	X
24 in. height		**11F53**	X	X	X	X
Adjustable Pitched Curb						
14 in. height		**43W27**	X	X	X	X
Transition Curb						
Matches Enlight 036-072 Units to existing L Series® Curbs		**31B05**	X	X	X	X
CEILING DIFFUSERS						
Step-Down - Order one	RTD11-95S	**13K61**	X	X	X	X
Flush - Order one	FD11-95S	**13K56**	X	X	X	X
Transitions (Supply and Return) - Order one	T1TRAN20N-1	**17W54**	X	X	X	X

[1] Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).

NOTE - Order Numbers shown are for ordering field installed accessories.
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SPECIFICATIONS

Model		LGT036H5E	LGT048H5E	LGT060H5E	LGT072H5E
Nominal Tonnage		3	4	5	6
Efficiency Type		High	High	High	High
Blower Type		MSAV® ECM Direct Drive	MSAV® ECM Direct Drive	MSAV® ECM Direct Drive	MSAV® ECM Direct Drive
Cooling Performance	Gross Cooling Capacity (Btuh)	36,600	50,100	61,600	72,000
	[1] Net Cooling Capacity (Btuh)	36,000	49,000	60,000	69,000
	[1] AHRI Rated Air Flow (cfm-high/low)	1200/800	1600/1200	1800/1350	2000/1500
	[1] SEER2 (Btuh/Watt)	17.5	17.3	16.4	- - -
	[1] EER2 (Btuh/Watt)	13.5	13.0	12.5	- - -
	[1] IEER (Btuh/Watt)	- - -	- - -	- - -	17.3
	[1] EER (Btuh/Watt)	- - -	- - -	- - -	12.2
	Total Unit Power (kW)	2.7	3.8	4.6	5.6
Sound Rating Number	dBA	75	75	82	82
Refrigerant Charge	Refrigerant Type	R-454B	R-454B	R-454B	R-454B
	Without Reheat Option	4 lbs. 14 oz.	5 lbs. 2 oz.	4 lbs. 14 oz.	4 lbs. 13 oz.
	With Reheat Option	5 lbs. 6 oz.	5 lbs. 4 oz.	4 lbs. 13 oz.	4 lbs. 8 oz.
Gas Heat Available		See page 21			
Compressor Type (Number)		Two-Stage Scroll (1)			
Outdoor Coil	Net face area - ft.^{2}	17.80	17.80	17.80	17.80
	Rows	1	1	1	1
	Fins - in.	20	20	20	20
Outdoor Coil Fan	Motor HP (number and type)	1/3 (1 ECM)	1/3 (1 ECM)	1/3 (1 ECM)	1/3 (1 ECM)
	Rpm	550-830	765-1010	830-1030	830-1030
	Watts	65-175	130-300	170-350	170-350
	Diameter (Number) - in.	(1) 24	(1) 24	(1) 24	(1) 24
	Blades	3	3	3	3
	Total air volume - cfm	2400 - 3795	2700 - 4100	3200 - 4700	3200 - 4700
Indoor Coil	Net face area - ft.^{2}	8.65	8.65	8.65	8.65
	Rows	1	1	1	1
	Fins - in.	20	20	20	20
	Condensate drain size (NPT) - in.	(1) 1	(1) 1	(1) 1	(1) 1
	Expansion device type	Balanced Port Thermostatic Expansion Valve,removable power element			
Indoor Blower	Standard Static (All Voltages) Blower type	Direct Drive ECM			
	Blade type	Forward Curved			
	Nominal motor HP	0.50	1	1	- - -
	Wheel (Number) diameter x width - in.	(1) 10 X 10	(1) 11 X 10	(1) 11 X 10	- - -
	High Static (3ph Only) Blower type	DirectPlus™ Direct Drive ECM			
	Blade type	Backward Curved			
	Nominal motor HP	1.5	1.5	1.5	1.5
	Wheel (Number) diameter x width - in.	(1) 14 X 5	(1) 14 X 5	(1) 14 X 5	(1) 14 X 5
Filters	Type	MERV 4, Disposable			
	Number and size - in.	(4) 20 x 20 x 2			
Line voltage data (Volts-Phase-Hz)		208/230-1-60 208/230-3-60 460-3-60 575-3-60			208/230-3-60 460-3-60 575-3-60

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

[1] AHRI Certified to AHRI Standard 210/240 (3-5 ton) or 340/360 (6 ton): 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

SPECIFICATIONS — LOW NOX GAS HEAT

Model		036, 048, 060	036, 048, 060, 072	036, 048, 060, 072	048, 060, 072
Heat Input Type		**Standard (2 Stage)**		**Medium (2 Stage)**	**High (2 Stage)**
Input Btuh	1st Stage	53,000		81,000	113,000
	2nd Stage	65,000		108,000	150,000
Output Btuh	1st Stage	43,000		66,000	92,000
	2nd Stage	52,000		87,000	121,000
Temperature Rise Range - °F	1st stage	5-35		25 - 55	30 - 60
	2nd Stage	35-65 (0.5 and 1 HP)	15-45 (1.5 HP)	30 - 70	45 - 75
Minimum air volume - cfm		960	1075	1150	1500
[1] AFUE (Single Phase)		81%		81%	81%
[2] Thermal Efficiency (Three Phase)		81%		81%	81%
Gas Supply Connections		1/2 in. NPT			
Recommended Gas Supply Pressure - Nat. / LPG		7 in. w.g. / 11 in. w.g.			
Gas Supply Pressure Range	Min./Max. (Natural)	4.5 - 10.5 in. w.g.			
	Min./Max. (LPG)	10.8 - 13.5 in. w.g.			

[1] Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.
[2] Thermal Efficiency at full input.

HIGH ALTITUDE DERATE

NOTE - Units may be installed at altitudes up to 2000 feet above sea level without any modifications.
At altitudes above 2000 feet units must be derated to match gas manifold pressures shown in table below.
At altitudes above 4500 feet unit must be derated 2% for each 1000 feet above sea level.

NOTE - This is the only permissible derate for these units.

Refer to the Installation Instructions for more detailed information.

Heat Input Type	Altitude Feet	Gas Manifold Pressure in. w.g.		Input Rate (Btuh)
		Natural Gas	LPG/ Propane	
Standard (2 stage)	2001 - 4500	1.7 / 3.0	5.9 / 9.0	51,000 / 62,000
Medium (2 stage)	2001 - 4500	1.7 / 3.0	5.9 / 9.0	78,000 /104,000
High (2 stage)	2001 - 4500	1.7 / 3.0	5.9 / 9.0	108,000 / 144,000

BLOWER DATA 0.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (heat section, economizer, etc.).
2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Minimum Air Volume Required For Different Gas Heat Sizes:
Standard Heat - 960 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 12 for wet coil and options/accessory air resistance data.

DOWNFLOW

External Static Press. in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			40%			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	811	50	415	994	82	473	1177	114	531	1319	154	579	1461	194	626	1564	236	663	1667	278	700	1804	349	753	1878	396	783
0.1	716	47	494	906	81	547	1095	115	599	1243	158	642	1391	200	685	1500	243	718	1608	286	751	1753	361	798	1833	409	824
0.2	631	49	570	827	85	618	1023	121	665	1176	165	704	1329	209	742	1442	254	772	1555	299	802	1708	375	843	1794	425	865
0.3	556	54	644	758	92	687	960	130	729	1118	176	764	1275	222	799	1392	268	825	1509	314	851	1668	392	888	1759	443	907
0.4	489	62	715	696	102	753	903	142	791	1065	189	822	1227	236	853	1347	284	877	1467	331	900	1632	410	932	1726	462	949
0.5	- - -	- - -	- - -	- - -	- - -	- - -	851	155	851	1017	204	879	1183	253	906	1306	301	927	1429	349	948	1597	430	976	1693	481	991
0.6	- - -	- - -	- - -	- - -	- - -	- - -	804	170	909	973	220	933	1141	269	957	1267	318	976	1392	367	994	1562	449	1019	1660	501	1032
0.7	- - -	- - -	- - -	- - -	- - -	- - -	759	184	964	930	235	985	1101	286	1006	1228	336	1023	1355	385	1039	1527	467	1062	1624	519	1074
0.8	- - -	- - -	- - -	- - -	- - -	- - -	716	199	1017	889	251	1036	1061	302	1054	1189	352	1069	1317	402	1083	1489	484	1103	1585	535	1115
0.9	- - -	- - -	- - -	- - -	- - -	- - -	671	211	1067	845	264	1083	1019	316	1099	1148	366	1112	1276	416	1125	1447	499	1144	1540	549	1156
1.0	- - -	- - -	- - -	- - -	- - -	- - -	625	222	1114	800	275	1128	974	327	1142	1102	378	1154	1230	428	1165	1400	510	1183	1489	559	1196
1.1	- - -	- - -	- - -	- - -	- - -	- - -	576	230	1158	751	283	1170	925	336	1182	1052	387	1193	1179	437	1203	1345	518	1221	1430	566	1235
1.2	- - -	- - -	- - -	- - -	- - -	- - -	521	234	1199	695	288	1210	869	341	1220	995	391	1230	1121	441	1240	1283	521	1258	1361	567	1273
1.3	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	806	340	1255	930	390	1265	1054	440	1274	1210	519	1293	1281	562	1311
1.4	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	734	335	1288	856	384	1297	977	433	1306	1126	510	1326	1188	552	1347

HORIZONTAL

External Static Press. in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			40%			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	794	45	388	970	76	454	1146	107	519	1281	149	575	1416	191	630	1522	110	678	1627	293	726	1715	351	768	1802	408	810
0.1	709	44	460	895	78	519	1080	111	577	1223	155	627	1366	199	677	1477	251	721	1588	303	764	1681	362	804	1773	420	843
0.2	630	46	531	855	82	583	1019	117	634	1169	163	679	1318	208	723	1435	262	763	1552	315	803	1648	375	841	1743	434	878
0.3	556	51	602	759	88	646	961	125	690	1117	172	730	1273	219	769	1395	274	805	1516	328	841	1615	388	877	1714	448	912
0.4	486	58	671	696	97	709	906	135	746	1068	184	781	1230	232	815	1356	288	848	1481	343	880	1582	403	914	1683	463	948
0.5	420	66	740	637	107	771	854	147	802	1021	196	831	1188	245	860	1317	301	890	1446	357	919	1549	418	951	1652	478	983
0.6	- - -	- - -	- - -	- - -	- - -	- - -	804	159	856	946	209	881	1147	259	905	1279	316	932	1410	372	958	1514	432	989	1618	492	1019
0.7	- - -	- - -	- - -	- - -	- - -	- - -	756	172	910	932	223	930	1107	273	949	1241	330	973	1374	386	996	1478	446	1026	1582	506	1055
0.8	- - -	- - -	- - -	- - -	- - -	- - -	709	185	962	888	236	978	1066	287	993	1201	344	1014	1336	400	1034	1440	460	1063	1544	519	1091
0.9	- - -	- - -	- - -	- - -	- - -	- - -	663	197	1013	844	249	1025	1025	300	1036	1161	357	1054	1296	413	1072	1399	472	1100	1502	530	1127
1.0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	982	313	1078	1118	369	1094	1254	424	1109	1355	482	1136	1456	540	1163
1.1	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	938	323	1119	1073	379	1133	1208	434	1146	1307	491	1172	1406	548	1198
1.2	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	892	332	1158	1026	387	1170	1159	441	1182	1255	497	1208	1351	553	1233
1.3	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	843	340	1197	975	393	1207	1106	446	1216	1198	501	1242	1290	555	1268
1.4	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	790	344	1234	920	396	1242	1049	448	1250	1137	501	1276	1224	553	1302

BLOWER DATA 1.0 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (heat section, economizer, etc.).
2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Minimum Air Volume Required For Different Gas Heat Sizes:
Standard Heat - 960 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 12 for wet coil and options/accessory air resistance data.

DOWNFLOW

External Static Press. in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			40%			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	1067	112	488	1325	196	573	1583	279	657	1759	381	726	1934	482	794	2046	579	845	2157	676	896	2285	816	956	2358	925	989
0.1	984	97	537	1249	184	616	1513	270	695	1697	376	760	1881	481	825	2002	584	873	2123	686	921	2273	838	978	2352	947	1008
0.2	912	91	587	1183	180	661	1453	268	735	1644	377	796	1835	486	856	1964	593	902	2093	700	947	2264	863	1001	2349	973	1030
0.3	851	92	636	1126	183	706	1400	273	775	1597	385	832	1794	497	889	1931	607	932	2067	717	974	2256	891	1026	2348	1001	1053
0.4	797	100	687	1075	192	751	1353	283	815	1555	397	869	1757	511	922	1901	625	962	2044	738	1002	2248	919	1051	2347	1031	1077
0.5	752	114	737	1032	206	796	1312	298	855	1518	413	905	1724	528	955	1873	644	993	2021	760	1030	2239	948	1078	2345	1061	1102
0.6	712	132	787	994	224	842	1275	316	896	1484	432	942	1692	548	988	1845	666	1024	1998	783	1059	2228	977	1104	---	---	---
0.7	678	155	836	960	246	886	1242	336	936	1452	452	979	1662	568	1021	1818	687	1055	1974	806	1088	2214	1004	1131	---	---	---
0.8	648	180	885	929	269	931	1210	358	976	1421	474	1016	1632	589	1055	1790	709	1086	1948	828	1117	2195	1028	1158	---	---	---
0.9	621	207	933	900	294	974	1179	381	1015	1390	495	1051	1600	609	1087	1760	728	1117	1919	847	1146	2170	1049	1185	---	---	---
1.0	596	235	981	872	319	1017	1148	403	1053	1357	516	1086	1566	628	1119	1725	746	1147	1884	864	1174	2139	1066	1212	---	---	---
1.1	---	---	---	---	---	---	1115	424	1090	1322	534	1120	1528	643	1150	1686	760	1176	1844	876	1201	2100	1078	1238	---	---	---
1.2	---	---	---	---	---	---	1080	443	1126	1283	549	1153	1485	655	1180	1641	770	1204	1797	884	1228	2052	1083	1264	---	---	---
1.3	---	---	---	---	---	---	1040	458	1161	1238	561	1185	1436	663	1209	1589	775	1231	1742	886	1253	1993	1081	1288	---	---	---
1.4	---	---	---	---	---	---	996	469	1194	1189	567	1215	1381	665	1236	1530	773	1257	1678	881	1277	1923	1071	1311	---	---	---

HORIZONTAL

External Static Press. in. w.g.	Percentage of Total Motor Torque																										
	20%			30%			40%			50%			60%			70%			80%			90%			100%		
	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM	Cfm	Watts	RPM
0	1087	111	493	1304	184	579	1520	257	665	1689	368	738	1857	478	810	1972	588	864	2087	698	918	2196	844	975	2283	925	1000
0.1	1021	104	537	1246	180	618	1470	255	699	1646	368	768	1821	480	837	1941	592	888	2061	704	938	2179	852	992	2255	926	1017
0.2	961	102	582	1193	181	658	1425	259	734	1607	373	799	1789	487	864	1914	601	912	2039	714	960	2163	864	1012	2231	932	1034
0.3	906	106	628	1145	186	699	1384	266	769	1572	382	831	1759	498	892	1889	613	938	2018	728	984	2149	879	1033	2209	941	1053
0.4	855	113	674	1101	196	740	1347	278	806	1540	396	864	1732	513	921	1866	629	965	1999	744	1008	2134	896	1054	---	---	---
0.5	808	125	720	1060	209	781	1312	293	842	1509	412	896	1706	530	950	1843	646	992	1980	762	1033	2119	915	1077	---	---	---
0.6	764	139	766	1022	225	823	1279	310	879	1481	430	930	1682	549	980	1821	666	1019	1960	782	1058	2102	935	1101	---	---	---
0.7	722	155	812	985	242	864	1247	328	916	1452	449	964	1657	569	1011	1799	686	1048	1940	803	1084	2084	955	1125	---	---	---
0.8	682	172	858	949	260	906	1216	348	953	1424	469	997	1632	589	1041	1776	706	1076	1919	823	1111	2063	974	1150	---	---	---
0.9	643	191	903	914	279	946	1185	367	989	1396	489	1030	1606	610	1071	1751	727	1104	1895	843	1137	2039	992	1175	---	---	---
1.0	---	---	---	---	---	---	1153	386	1024	1366	508	1062	1579	629	1100	1724	745	1132	1869	861	1163	2011	1008	1201	---	---	---
1.1	---	---	---	---	---	---	1120	404	1059	1334	525	1095	1548	646	1130	1694	761	1160	1839	876	1189	1979	1021	1226	---	---	---
1.2	---	---	---	---	---	---	1085	420	1093	1300	541	1126	1515	661	1158	1660	775	1186	1805	889	1214	1941	1031	1250	---	---	---
1.3	---	---	---	---	---	---	1047	433	1126	1263	553	1156	1478	672	1186	1622	785	1213	1766	898	1239	1897	1037	1275	---	---	---
1.4	---	---	---	---	---	---	1005	442	1158	1221	561	1185	1436	680	1212	1579	792	1238	1721	903	1263	1847	1037	1298	---	---	---

BLOWER DATA — 1.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (heat section, economizer, etc.).
2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Minimum Air Volume Required For Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 12 for wet coil and options/accessory air resistance data.

DOWNFLOW

Total Air cfm	Total Static Pressure - in. w.g.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	- - -	- - -	734	19	823	40	910	60	985	78	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
600	766	28	856	51	944	73	1029	93	1108	111	1180	127	1248	139	1315	149	1383	158	1451	169	- - -	- - -	- - -	- - -	- - -	- - -
800	899	57	989	81	1079	104	1163	125	1242	145	1317	161	1386	174	1454	185	1519	198	1582	214	1643	234	1701	255	1755	281
1000	1084	95	1163	117	1244	139	1323	160	1398	180	1470	196	1538	211	1603	227	1663	245	1721	267	1776	292	1828	320	1876	350
1200	1319	113	1385	138	1451	162	1517	186	1581	209	1644	231	1703	254	1759	278	1812	306	1863	337	1912	367	1960	397	2003	427
1400	1542	146	1596	177	1649	208	1703	239	1757	269	1809	300	1860	331	1909	362	1956	393	2003	425	2050	456	2095	483	2139	508
1600	1721	225	1772	258	1823	291	1873	324	1923	356	1972	388	2019	419	2065	450	2110	480	2156	510	2200	539	2244	565	2287	590
1800	1909	309	1957	341	2006	373	2054	404	2101	435	2146	465	2190	495	2234	526	2277	557	2320	588	2362	620	2404	651	2444	685
2000	2103	385	2148	417	2193	450	2239	483	2283	516	2325	550	2367	584	2408	620	2449	658	2490	696	2529	735	2568	777	2605	822
2200	2299	478	2342	514	2384	552	2426	590	2467	630	2507	671	2547	714	2586	757	2625	800	2663	844	2700	889	2735	935	2770	982
2400	2500	606	2540	647	2580	690	2618	734	2656	779	2694	824	2731	870	2768	915	2804	961	2839	1006	2874	1051	2907	1096	2941	1141
2600	2704	768	2741	810	2778	855	2813	901	2849	947	2884	993	2918	1039	2952	1085	2986	1129	3019	1173	3051	1217	3083	1259	3115	1300
2800	2908	941	2943	985	2976	1030	3010	1076	3042	1121	3075	1166	3107	1210	3139	1253	3170	1296	3200	1338	3231	1379	3261	1419	3290	1456
3000	3110	1111	3142	1156	3173	1201	3205	1245	3236	1289	3267	1332	3296	1373	3325	1414	3354	1455	3382	1496	3412	1536	3439	1573	3465	1609

Total Air cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
800	1805	309	1850	337	1895	366	1940	392	- - -	- - -	- - -	- - -	- - -	- - -
1000	1920	380	1962	410	2005	439	2050	466	2094	492	2138	517	2181	541
1200	2045	456	2087	484	2130	510	2174	537	2217	563	2260	589	2302	615
1400	2182	531	2225	555	2268	581	2310	610	2352	640	2393	671	2433	703
1600	2330	616	2371	645	2412	678	2452	713	2491	750	2530	787	2568	824
1800	2484	723	2523	765	2561	808	2598	849	2636	890	2672	931	2708	971
2000	2641	868	2677	915	2713	961	2749	1003	2784	1044	2819	1084	2853	1124
2200	2804	1028	2839	1072	2873	1114	2907	1155	2940	1194	2973	1234	3006	1272
2400	2974	1184	3006	1225	3039	1266	3071	1305	3103	1344	3134	1382	3166	1420
2600	3146	1340	3177	1379	3207	1417	3238	1456	3269	1494	3299	1532	3329	1569
2800	3319	1493	3347	1530	3376	1567	3406	1605	3435	1643	3465	1681	3495	1718
3000	3491	1644	3517	1680	3543	1716	3572	1754	3602	1792	3631	1830	3661	1867

BLOWER DATA 1.5 HP

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:
1 - Any factory installed options air resistance (heat section, economizer, etc.).
2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Minimum Air Volume Required For Different Gas Heat Sizes:
Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 12 for wet coil and options/accessory air resistance data.

HORIZONTAL

Total Air cfm	Total Static Pressure - in. w.g.																									
	0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0		1.1		1.2		1.3	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
400	708	16	793	37	872	53	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
600	835	46	918	65	1000	82	1077	95	1149	107	1221	109	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
800	981	75	1064	92	1144	109	1221	124	1294	139	1365	148	1434	154	1497	163	1555	179	1607	200	1656	226	1704	254	- - -	- - -
1000	1166	105	1241	124	1315	141	1387	159	1454	176	1520	191	1582	207	1638	227	1689	252	1737	279	1783	308	1829	335	1873	362
1200	1374	142	1440	162	1506	182	1569	203	1630	224	1687	246	1739	271	1787	299	1832	330	1876	361	1920	391	1964	419	2007	444
1400	1591	183	1647	209	1701	235	1755	263	1806	291	1854	320	1899	351	1942	382	1984	412	2026	442	2068	469	2110	496	2153	520
1600	1778	258	1827	290	1876	323	1923	355	1970	386	2015	416	2059	444	2102	470	2144	494	2185	519	2227	545	2268	572	2309	600
1800	1973	352	2018	383	2063	415	2107	445	2151	476	2194	504	2237	531	2279	557	2319	584	2359	613	2397	645	2435	679	2471	713
2000	2182	437	2224	468	2265	499	2306	531	2346	563	2385	596	2424	630	2461	666	2496	705	2530	745	2564	786	2598	826	2631	866
2200	2388	540	2426	576	2464	613	2500	651	2536	691	2571	731	2605	774	2637	819	2668	863	2700	907	2732	949	2764	990	2795	1029
2400	2589	679	2624	719	2658	761	2691	803	2724	846	2756	890	2786	935	2816	980	2846	1025	2876	1068	2907	1109	2937	1149	2967	1188
2600	2787	845	2819	887	2850	930	2881	973	2911	1017	2941	1060	2970	1104	2999	1147	3028	1189	3057	1230	3087	1270	- - -	- - -	- - -	- - -
2800	2983	1021	3013	1063	3042	1106	3070	1149	3099	1191	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

Total Air cfm	Total Static Pressure - in. w.g.													
	1.4		1.5		1.6		1.7		1.8		1.9		2.0	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1000	1916	386	1957	408	1998	428	2037	447	2077	465	- - -	- - -	- - -	- - -
1200	2049	468	2089	490	2128	510	2168	529	2207	549	2246	569	2285	591
1400	2194	543	2235	565	2274	588	2313	611	2350	637	2387	664	2423	694
1600	2349	627	2387	657	2423	688	2457	722	2490	757	2522	793	2554	830
1800	2506	749	2539	787	2571	825	2602	864	2632	903	2662	942	2692	981
2000	2663	906	2694	945	2725	985	2755	1024	2785	1063	2815	1101	2845	1138
2200	2826	1068	2857	1107	2887	1146	2916	1184	2946	1221	2975	1259	3005	1296
2400	2997	1227	3027	1266	3056	1304	3085	1342	- - -	- - -	- - -	- - -	- - -	- - -
2600	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
2800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

BLOWER DATA

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil	Humiditrol® Reheat Coil	Gas Heating			Economizer	Filters		
			Standard Heat	Medium Heat	High Heat		MERV 8	MERV 13	MERV 16
800	0.01	- - -	0.02	0.02	0.02	0.04	0.04	0.05	0.04
1000	0.02	0.00	0.02	0.02	0.02	0.04	0.04	0.07	0.05
1200	0.04	0.00	0.02	0.02	0.02	0.04	0.04	0.07	0.05
1400	0.05	0.01	0.02	0.02	0.03	0.04	0.04	0.07	0.06
1600	0.07	0.02	0.02	0.03	0.04	0.04	0.04	0.07	0.08
1800	0.08	0.02	0.03	0.04	0.05	0.05	0.04	0.07	0.09
2000	0.10	0.02	0.03	0.04	0.06	0.05	0.05	0.08	0.10
2200	0.11	0.04	0.04	0.04	0.07	0.05	0.05	0.08	0.11
2400	0.13	0.04	0.04	0.05	0.08	0.05	0.05	0.08	0.12

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure in. w.g.	Air Volume Exhausted cfm
0.00	2000
0.05	1990
0.10	1924
0.15	1810
0.20	1664
0.25	1507
0.30	1350
0.35	1210

CEILING DIFFUSERS AIR RESISTANCE (in. w.g.)

Air Volume - cfm	RTD11-95S Step-Down Diffuser			FD11-95S Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
1800	0.13	0.11	0.09	0.09
2000	0.15	0.13	0.11	0.10
2200	0.18	0.15	0.12	0.12
2400	0.21	0.18	0.15	0.14
2600	0.24	0.21	0.18	0.17
2800	0.27	0.24	0.21	0.20
3000	0.32	0.29	0.25	0.25

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	[1] Effective Throw - ft.	
	RTD11-95S	FD11-95S
2600	24 - 29	19 - 24
2800	25 - 30	20 - 28
3000	27 - 33	21 - 29

[1] Effective throw based on terminal velocities of 75 ft. per minute.

ELECTRICAL DATA 3 TON

Model		LGT036H5E						
[1] **Voltage - 60Hz**		**208/230V - 1 Ph**	**208/230V - 3 Ph**		**460V - 3 Ph**		**575V - 3 Ph**	
Compressor	Rated Load Amps	14.3	9.1		4.6		3.5	
	Locked Rotor Amps	76	70		39		28.9	
Outdoor Fan Motor	Full Load Amps (1 ECM)	2.8	2.8		1.4		1.1	
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15	15		15		20	
Indoor Blower Motor	HP	0.5	0.5	1.5	0.5	1.5	0.5	1.5
	Full Load Amps	4.3	4.3	4.4	2.2	2.3	1.7	2.3
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	35	25	25	15	15	15	15
	With (1) 0.33 HP Power Exhaust	40	25	30	15	15	15	15
[3] Minimum Circuit Ampacity (MCA	Unit Only	25	19	19	10	10	8	8
	With (1) 0.33 HP Power Exhaust	28	21	21	11	11	9	9

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.
[1] Extremes of operating range are plus and minus 10% of line voltage.
[2] HACR type breaker or fuse.
[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA 4 TON

Model		LGT048H5E						
[1] **Voltage - 60Hz**		**208/230V - 1 Ph**	**208/230V - 3 Ph**		**460V - 3 Ph**		**575V - 3 Ph**	
Compressor	Rated Load Amps	17.2	10.2		6.1		3.7	
	Locked Rotor Amps	121	123		60		41	
Outdoor Fan Motor	Full Load Amps (1 ECM)	2.8	2.8		1.4		1.1	
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15	15		15		20	
Indoor Blower Motor	HP	1	1	1.5	1	1.5	1	1.5
	Full Load Amps	7.4	7.4	4.4	3.7	2.3	3	2.3
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	45	30	30	15	15	15	15
	With (1) 0.33 HP Power Exhaust	50	35	30	20	15	15	15
[3] Minimum Circuit Ampacity (MCA	Unit Only	32	23	20	13	12	9	9
	With (1) 0.33 HP Power Exhaust	35	26	23	15	13	10	10

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.
[1] Extremes of operating range are plus and minus 10% of line voltage.
[2] HACR type breaker or fuse.
[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA — 5 TON

Model		LGT060H5E						
[1] Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	23.7	12.4		6.5		4.8	
	Locked Rotor Amps	123	93		60		41	
Outdoor Fan Motor	Full Load Amps (1 ECM)	2.8	2.8		1.4		1.1	
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15	15		15		20	
Indoor Blower Motor	HP	1	1	1.5	1	1.5	1	1.5
	Full Load Amps	7.4	7.4	4.4	3.7	2.3	3	2.3
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	60	35	35	15	15	15	15
	With (1) 0.33 HP Power Exhaust	60	40	35	20	15	15	15
[3] Minimum Circuit Ampacity (MCA	Unit Only	40	26	23	14	12	11	10
	With (1) 0.33 HP Power Exhaust	43	29	26	15	14	12	11

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.
[1] Extremes of operating range are plus and minus 10% of line voltage.
[2] HACR type breaker or fuse.
[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA — 6 TON

Model		LGT072H5E		
[1] Voltage - 60Hz		208/230V - 3 Ph	460V - 3 Ph	575 - 3Ph
Compressor	Rated Load Amps	19.2	9.1	6.2
	Locked Rotor Amps	162.3	70.8	58.2
Outdoor Fan Motor	Full Load Amps (1 ECM)	2.8	1.4	1.1
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	HP	1.5	1.5	1.5
	Full Load Amps	4.4	2.3	2.3
[2] Maximum Overcurrent Protection (MOCP)	Unit Only	50	20	15
	With (1) 0.33 HP Power Exhaust	50	25	15
[3] Minimum Circuit Ampacity (MCA	Unit Only	32	16	12
	With (1) 0.33 HP Power Exhaust	34	17	13

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.
[1] Extremes of operating range are plus and minus 10% of line voltage.
[2] HACR type breaker or fuse.
[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

MINIMUM R454B SPACE AND CFM REQUIREMENTS

Minimum Airflow[1]		
Unit	Q_{min}(CFM)	Q_{min}(m^3h)
LGT036	84	143
LGT048	136	231
LGT060	128	218
LGT072	127	216
LGT036 W/ Humidtrol	142	241
LGT048 W/ Humidtrol	137	234
LGT060 W/ Humidtrol	126	215
LGT072 W/ Humidtrol	119	203

1 - The minimum airflow is the lowest CFM allowed during venting operation (leak mitigation).

Minimum Room Area of Conditioned Space[2]		
Unit	TA_{min}(ft^2)	TA_{min}(m^2)
LGT036	46.73	4.34
LGT048	75.44	7.01
LGT060	71.19	6.61
LGT072	70.31	6.53
LGT036 W/ Humidtrol	78.52	7.29
LGT048 W/ Humidtrol	76.17	7.08
LGT060 W/ Humidtrol	70.02	6.51
LGT072 W/ Humidtrol	66.07	6.14

2- The minimum room area of conditioned space is the smallest area the unit can service.

Refrigerant Charge R-454B		
Unit	M_c(lbs)	M_c(kg)
LGT036	3.19	1.45
LGT048	5.15	2.34
LGT060	4.86	2.20
LGT072	4.8	2.18
LGT036 W/ Humidtrol	5.36	2.43
LGT048 W/ Humidtrol	5.2	2.36
LGT060 W/ Humidtrol	4.78	2.17
LGT072 W/ Humidtrol	4.51	2.05

Altitude Adjustment Factor[3]									
Halt	0	200	400	600	800	1000	1200	1400	1600
AF	1	1	1	1	1.02	1.05	1.07	1.1	1.12
Halt	1600	1800	2000	2200	2400	2600	2800	3000	3200
AF	1.12	1.15	1.18	1.21	1.25	1.28	1.32	1.36	1.4

3 Use the Altitude Adjustment Factor to adjust the values in the tables above to different altitudes. Find the relevant altitude above sea level in the two “Halt” rows and then multiply the value needed from the tables above by the altitude factor number. Example: For the minimum airflow in CFM for an LCT/LGT036 at 1000 ft. above see level, multiply 84 by 1.05 to get 88.2 CFM as the new Qmin.

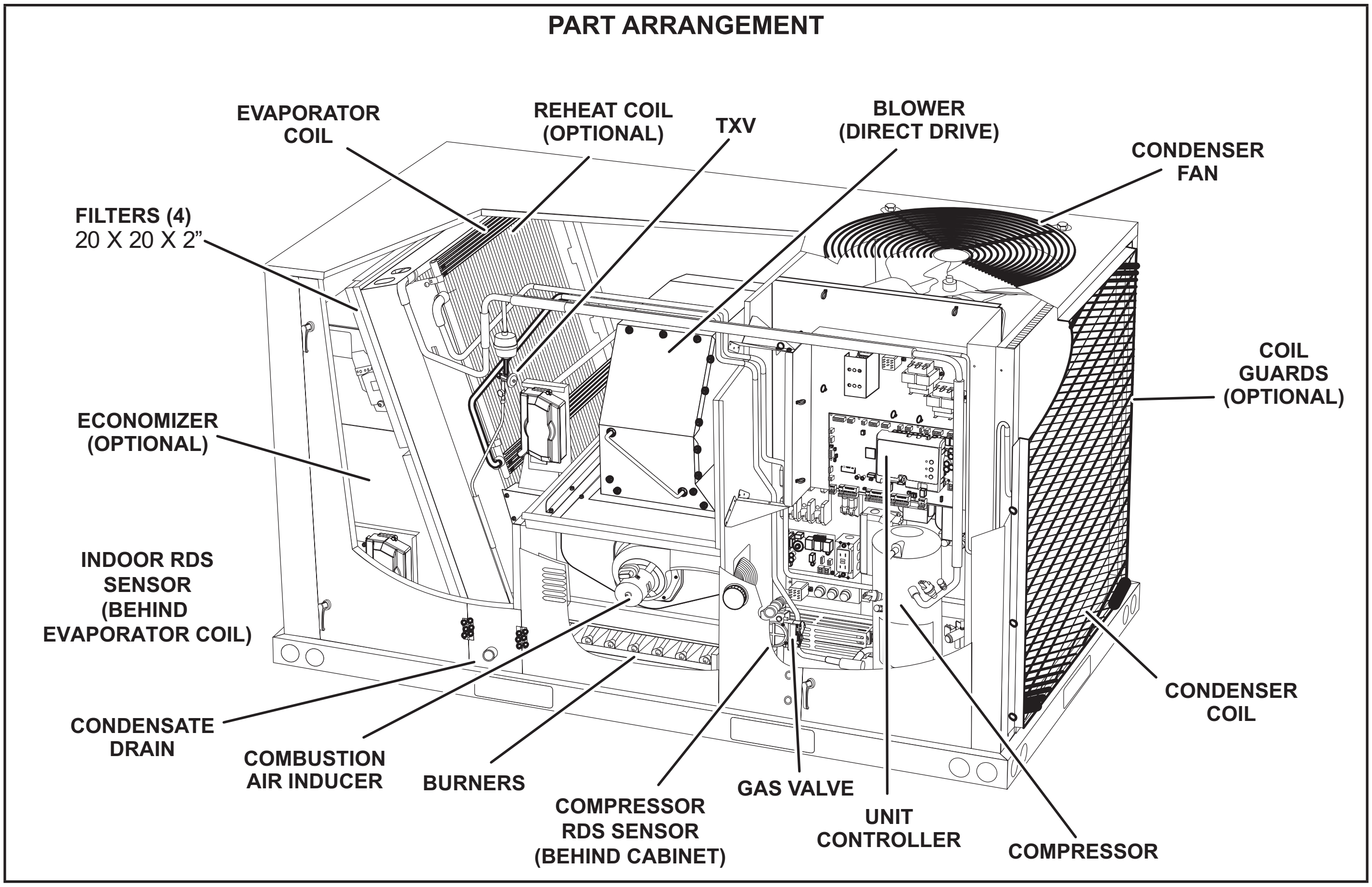


FIGURE 1

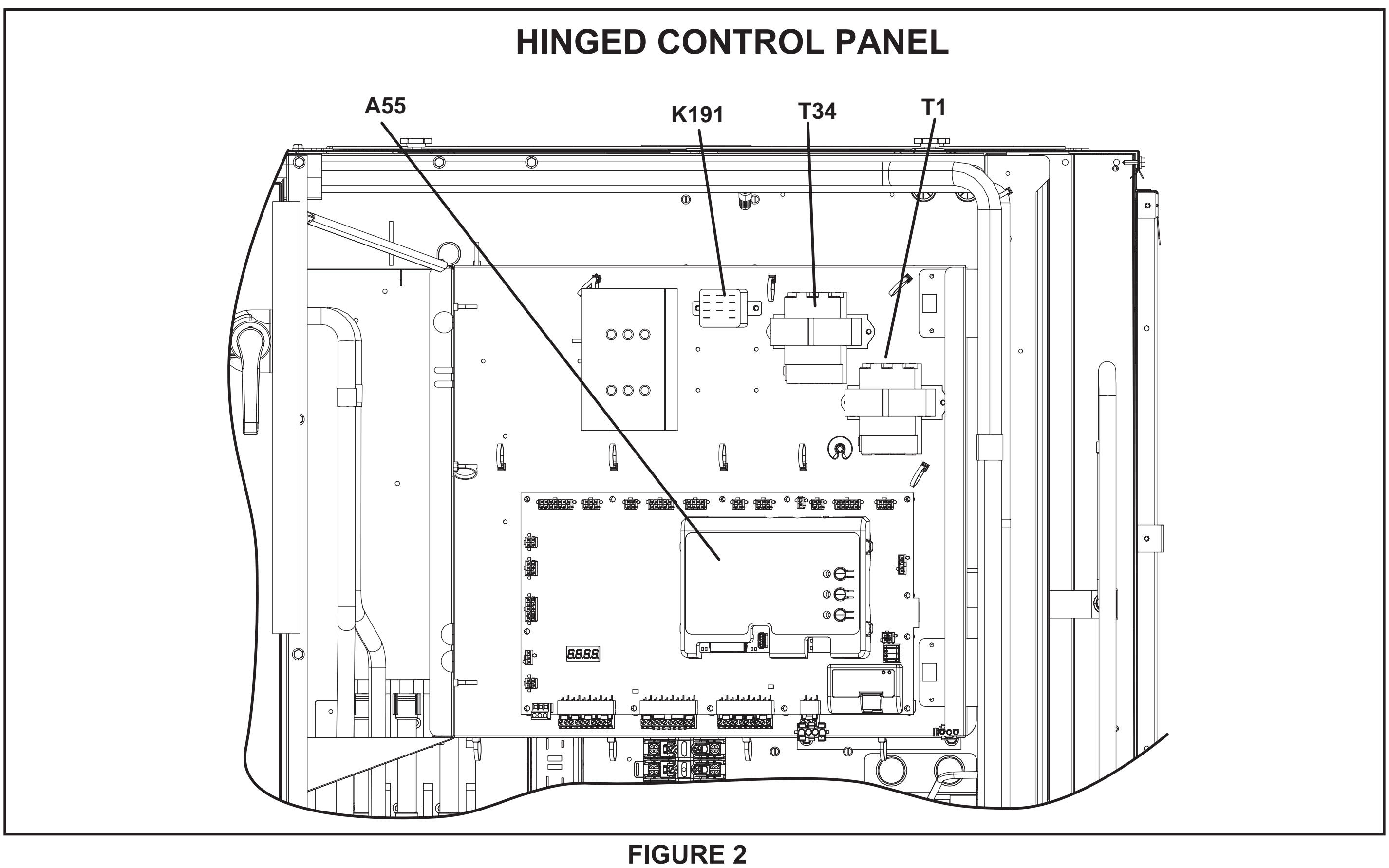


FIGURE 2

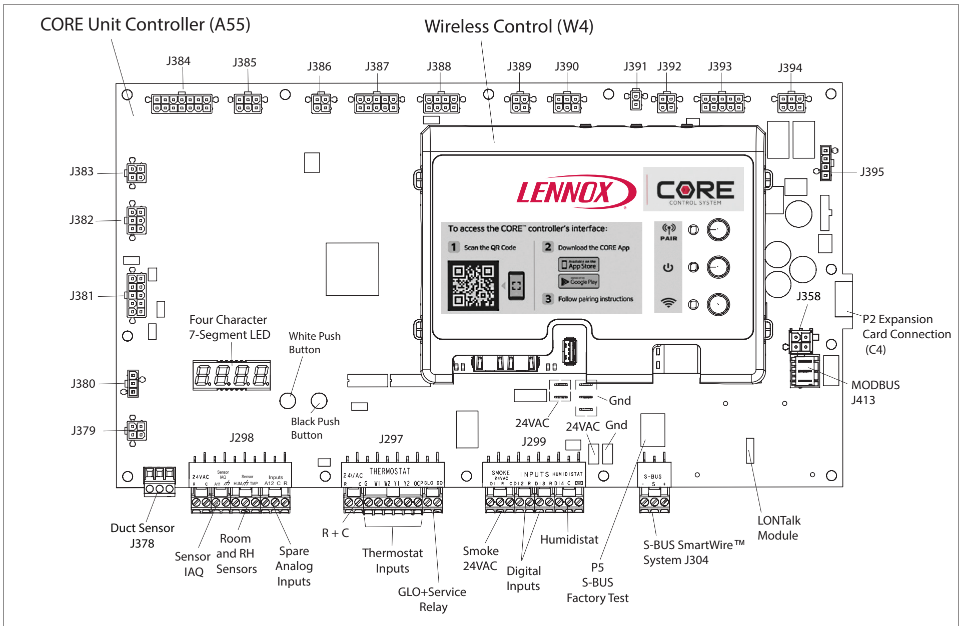


FIGURE 3

I-UNIT COMPONENTS

ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures

⚠ CAUTION

Electrostatic discharge can affect electronic components. Take precautions to neutralize electrostatic charge by touching your hand and tools to metal prior to handling the control.

All 3 through 6 ton (7.5 through 30 kW) units are config-ure to order units (CTO). The LGT unit components are shown in FIGURE 1. All units come standard with hinged unit panels. All L1, L2, and L3 wiring is color coded; L1 is red, L2 is yellow, and L3 is blue.

A-Control Box Components

LGT control box components are shown in FIGURE 2. The control box is located in the upper right portion of thecompressor compartment.

1-Control Transformers T1/T43

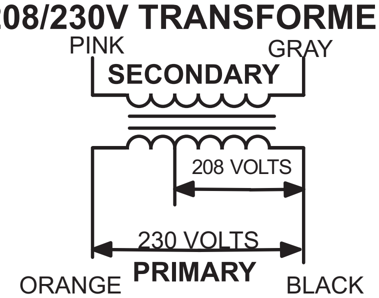


FIGURE 4

All use a single line voltage to 24VAC transformer mount-ed on the hinged control panel. Transformer supplies pow-er to control circuits in the unit. The transformer is rated at 70VA and is protected by a 3.5 amp circuit (CB8). The 208/230 voltage transformers use two primary voltage taps as shown in FIGURE 4, while the 460 (G) voltage transformer use a single primary voltage tap. T43 is used for units with hot gas reheat for additional 24VAC.

2-Transformer T4 (J voltage)

All J volt units are equipped with a line voltage to 460V 3-phase transformer to power the indoor blower motor. T4 is mounted in the back panel of the compressor section above T5.

3-Transformer T5 (G and J voltage)

All units use transformer T5 mounted in the back panel in the compressor section. T5 is a line voltage to 230V transformer to power the combustion air inducer, outdoor fan motor, and optional UVC light ballast.. It is connected to line voltage and is powered at all times.

4-Unit Controller A55 (FIGURE 3)

The Unit Controller provides all unit control functions, unit status information, unit diagnostics, programmable pa-rameters, and USB verification and profile sharing. The unit controller can only be interfaced with via the CORE Service mobile app. Refer to the Unit controller instruc-tions provided for additional details on pairing and app functions.

Attention!

Use this QR code to download the mobile service app. Follow the prompts to pair the app with the unit control system and configure the unit. Refer to the “Download Mobile App” section in this manual and the Setup Guide provided with this unit. The QR code is also available in the unit control area.

The app can be downloaded from the appropriate iOS or Android store. Look for the following

The Unit Controller uses input from a zone/room sensor cooling, a thermostat, or a third-party controller to operate the unit. Zone/room sensor, thermostat, and third-party controller wires are connected to J297 on the Unit Controller.

Many default Unit Controller settings are adjustable. Refer to the unit installation instruction or the Unit Controller manual provided with the unit.

The Unit Controller is configured to identify optional kits and accessories for proper function. Each character in the configuration ID represents a different option. Refer to the unit installation instruction or the Unit Controller manual provided with the unit.

5-Compressor Contactor K1

The Unit Controller closes n.o. K1 contacts to provide power to the inverter control board (A192). The contactor does not energize the compressor in the same manner as a traditional cooling system. Three phase units use three pole double break contactors with a 24 volt coil.

6-Crankcase Heater Relay K191

All units use relay K191 to control crnkcase heater HR1.

7-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 LGT 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 fan B10 is are energized.

B-Cooling Components

All units use a single cooling circuit consisting of a two-speed compressor, all aluminum condenser coil and evaporator coil. See FIGURE 5. All units use one draw-through type condenser fan and a single direct drive blower. The blower draws air across the evaporator during unit operation.

Cooling may be supplemented by a factory- or field-installed economizer. The evaporator coil is slab type and uses a thermostatic expansion valve as the primary refrigerant metering device. The compressor is protected by a high pressure switch (S4) on the discharge line, a high temperature limit switch (S5) on the compressor, and a low pressure switch (S87) on the suction line. See FIGURE 5.

1-High Pressure Switch S4

The high pressure switch is an auto-reset SPST N.C. switch which opens on a pressure rise.

S4 is located in the compressor discharge line and wired to the A55 Unit Controller. When discharge pressure rises to 640 ± 10 psig (4412 ± 69 kPa) (indicating a problem in the system) the switch opens and the compressor inverter is de-energized (the economizer can continue to operate). The switch automatically resets at 475 + 10 psig.

2-Low Pressure Switch S87

The compressor circuit is protected by a loss of charge switch located on the suction line. Switch opens at 40 psig ± 5 psig (276 ± 34 kPa) and automatically resets at 90 psig ± 5 psig (621 kPa ± kPa).

3-High Temperature Limit Switch S5

The variable speed compressor is equipped with a compressor- mounted normally closed temperature switch that prevents compressor damage due to overheating caused by internal friction. The switch is located on top of the compressor casing. This switch senses the compressor casing temperature and opens at 239-257°F to shut-off compressor operation. The auto-reset switch closes when the compressor casing temperature falls to 151-187°F, and the compressor is re-energized. This switch is a single-pole, single-throw (SPST) bi-metallic switch and is wired to the A55 Unit Controller.

PLUMBING AND COMPRESSOR PROTECTION COMPONENTS

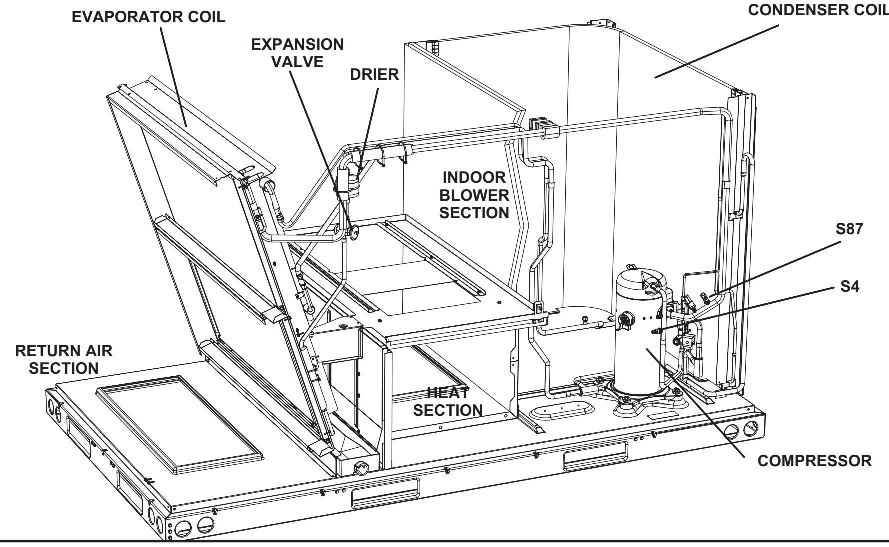


FIGURE 5

4-Thermistors

Units are equipped with two factory-installed thermistors (RT46 and RT48) located on different points on the refrigerant circuit.

The thermistors provide the Unit Controller with constant temperature readings of two specific locations on the refrigeration circuit. These temperatures are used as feedback in certain modes of unit operation. In addition, the Unit Controller uses these temperatures to initiate alarms such as loss of condenser or evaporator airflow and loss of charge.

Each thermistor must be specifically placed for proper unit operation and to initiate valid alarms. See TABLE 1 for proper locations.

TABLE 1
THERMISTOR LOCATION

Unit	Sensor Yellow	Figure
LGT036, 048, 060, 072	RT46	FIGURE 6
LGT036, 048, 060, 072	RT48	FIGURE 7

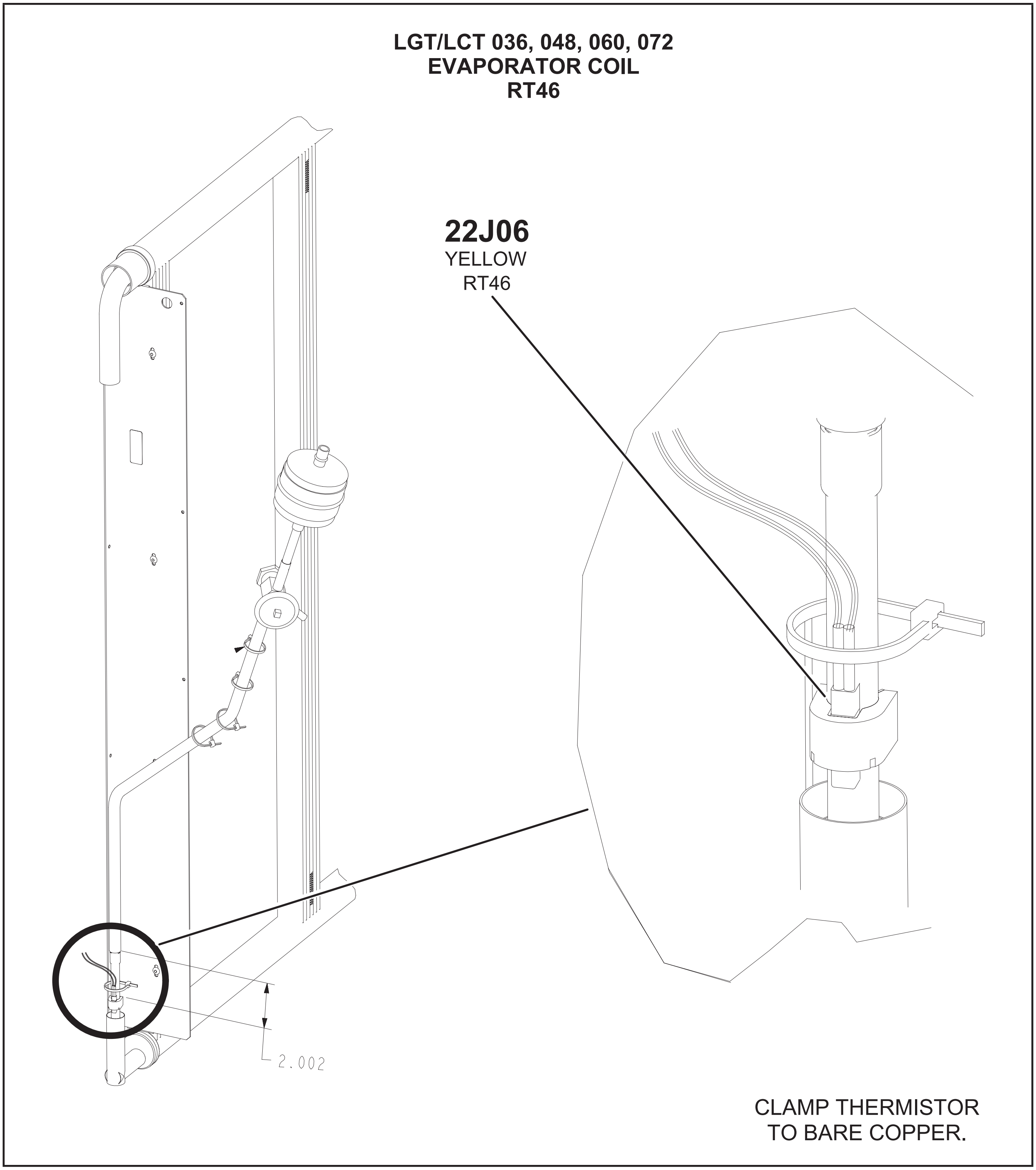

LGT/LCT 036, 048, 060, 072
EVAPORATOR COIL
RT46
22J06
YELLOW
RT46
2.002
CLAMP THERMISTOR
TO BARE COPPER.

FIGURE 6

LGT/LCT036, 048, 060, 072
CONDENSER COIL
RT48

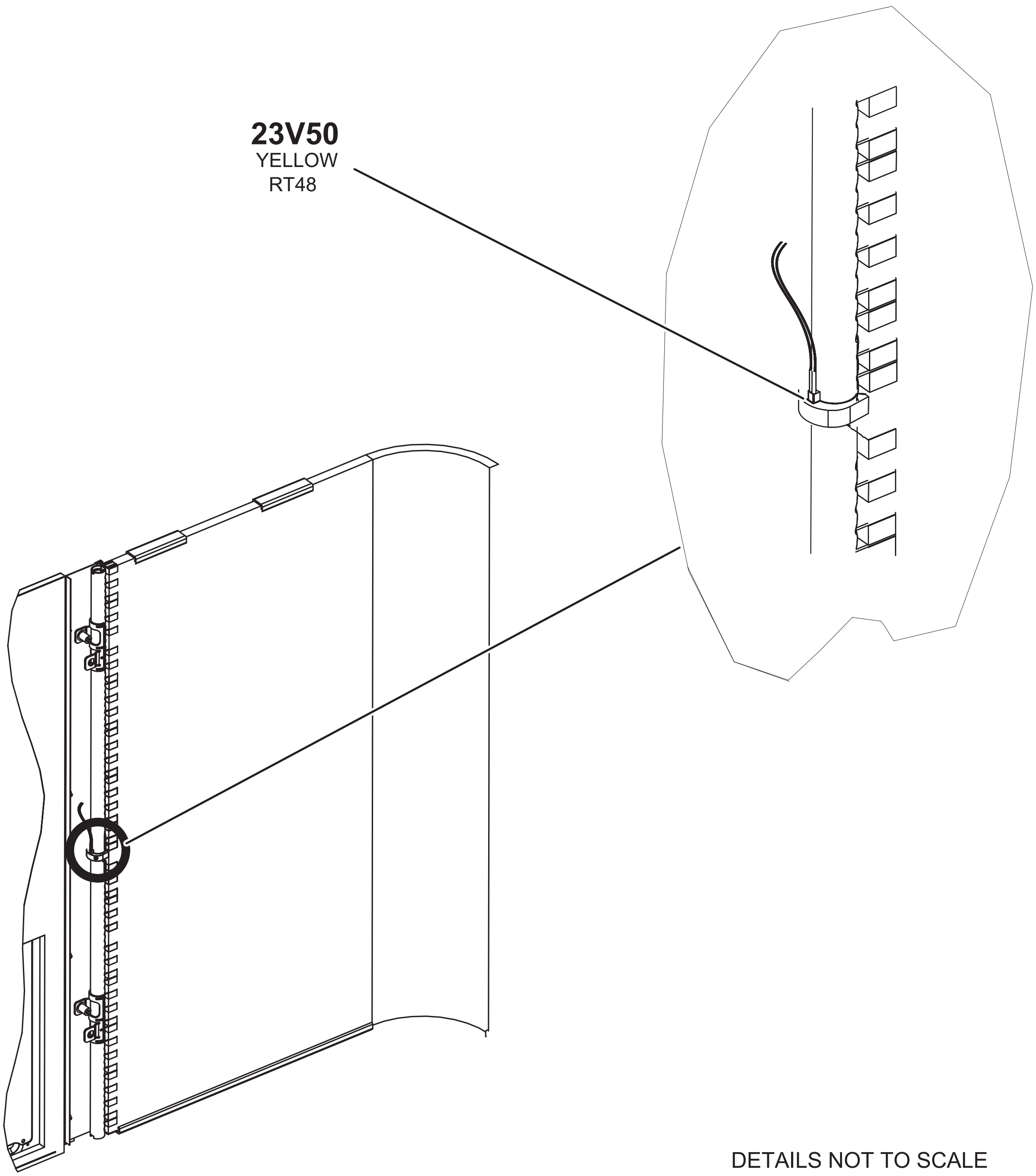


FIGURE 7

5 - RDS Sensors

Units are equipped with factory-installed RDS Sensors located on different points on the unit. The RDS sensors provide the Unit Controller with continuous readings for leaked refrigerant concentration levels and sensor health status (Good or Fault). These readings are used to modify unit operation to disperse the leaked refrigerant and to remove possible ignition sources. In addition, the Unit Controller uses these readings to initiate alarms to alert the operator of a refrigerant leak or faulty sensor(s).

Each sensor must be specifically placed for proper unit operation and to initiate valid alarms. To identify sensor locations see TABLE 2.

TABLE 2

RDS Sensor Figures

Model	Qty.	Type	Figure
LGT036-072	2 sensors	ID SENSOR	FIGURE 8
		COMPRESSOR SENSOR	FIGURE 9

The RDS Sensors and Controller shall only be replaced with parts specified by the appliance manufacturer.

INDOOR COIL RDS SENSOR LOCATION

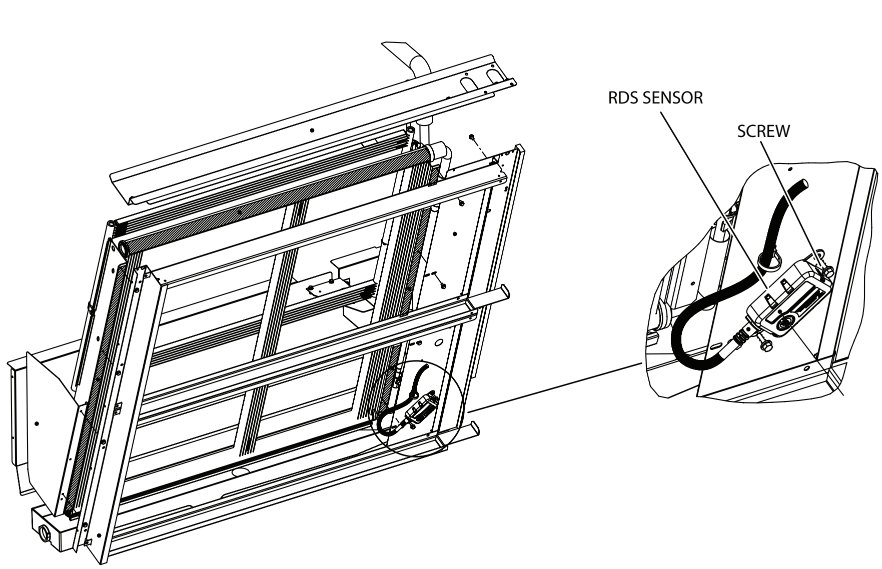


FIGURE 8

COMPRESSOR RDS SENSOR LOCATION

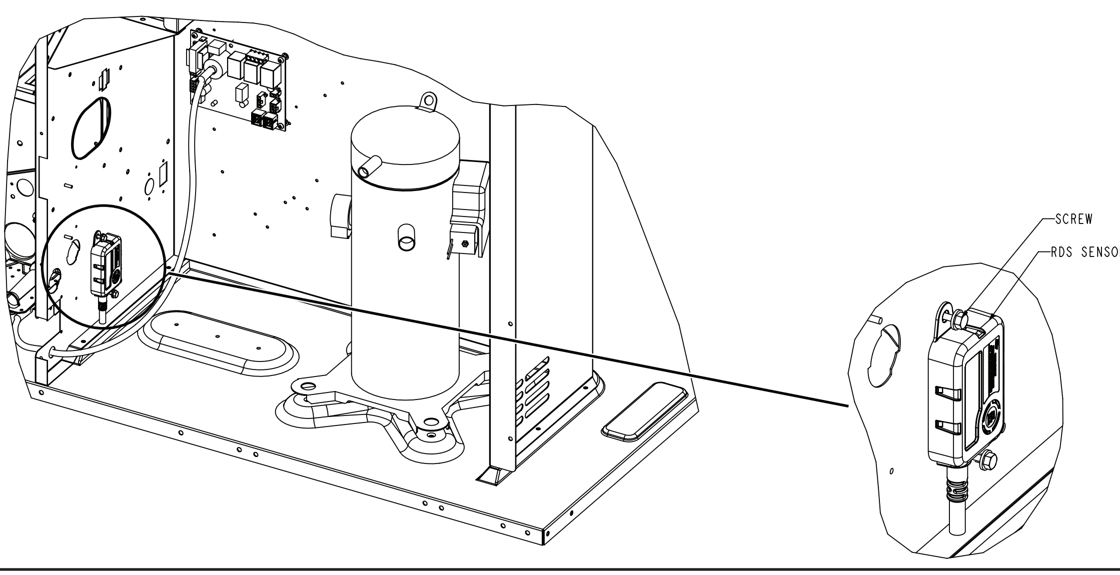


FIGURE 9

⚠ 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.

6-Two-Speed Compressor B1

All units use one two-speed scroll compressor. See “SPECIFICATIONS” and “ELECTRICAL DATA” (table of contents) or compressor nameplate for compressor specifications.

C-GAS HEAT COMPONENTS

LGT units are available with two stages of gas heat. See SPECIFICATION - GAS HEAT

IGNITION CONTROL A3

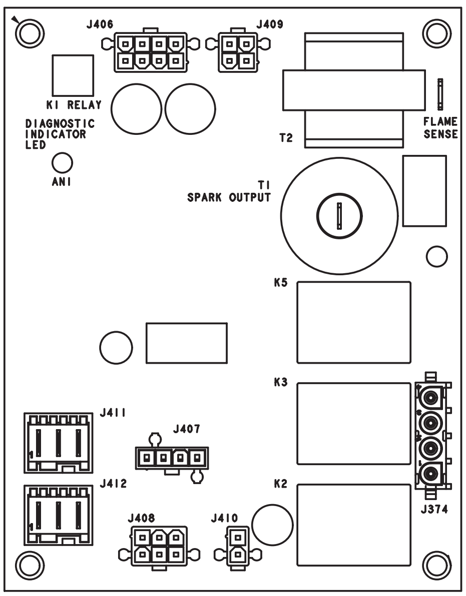


FIGURE 10

1-Ignition Control A3

The ignition control provides three main functions: gas valve control, ignition, and flame sensing. The control has a red LED to show control status (TABLE 3).

TABLE 3

LED Flashes	Indicates
Steady Off	No power or control hardware fault.
Steady On	Power applied. Control OK.
3 Flashes	Ignition lockout from too many trials.
4 Flashes	Ignition lockout from too many flame losses within single call for heat.
5 Flashes	Control hardware fault detected.

Flame rectification sensing is used on all LGT 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.

⚠ 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.

Operation

On a heating demand, the ignition control checks for a closed limit switch. Once this check is complete and conditions are correct, the ignition control then allows 30 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 closes 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 gas valve(s), the spark electrode and the flame sensing electrode. At the start of the ignition sequence, the adjustable 40 second (default) indoor blower delay period begins. Sparking stops immediately after flame is sensed or at the end of the 8 second trial for ignition. If flame is not sensed, A3 or A12 will wait 5 minutes before attempting ignition again. If the third trial fails, A3 or A12 will lock-out for one hour. The A55 counts this as a first strike. After the first lock-out hour elapses, A3 or A12 will attempt ignition three more times. If flame is still not sensed, A3 or A12 will lock-out for the second hour. A55 counts this as the second strike. After the second lockout hour, A3 or A12 will attempt ignition three more times. If ignition fails, A55 considers this the third strike and will lockout unit operation. Service relay contacts close and alarm 59 or 69 is displayed. The unit will remain in lock-out until:

1-A55 is reset

or

2-The alarm condition is cleared AND the alarm status is read through the SBUS command.

Once the flame is sensed, the ignition control then proceeds to “steady state” mode where all inputs are monitored to ensure the limit switch, roll-out switch and prove switch are closed as well as flame is present. When the heat call is satisfied the gas valve and combustion air inducer are de-energized. An adjustable 120-second (default) blower off delay begins.

2-Primary High Temperature Limits S10

S10 is a SPST N.C. high temperature primary limit for gas heat. Limits are located in the control box area next to the discharge air sensor (FIGURE 11) or on the vestibule panel for units with an ECM Blower.

Limits are wired to the A3 ignition control. N.C. contacts open to de-energize the ignition control when excessive temperature is reached in the blower compartment.

S10 PRIMARY LIMIT LOCATION

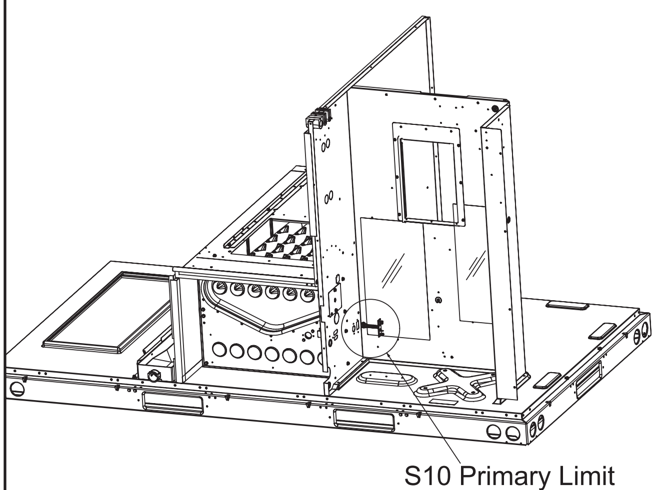


FIGURE 11

3-Heat Exchanger (FIGURE 12)

The LGT units use aluminized steel inshot burners with tubular aluminized (stainless is optional) steel heat exchangers and redundant gas valve. 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 inducer, 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 blower forces air across the tubes to extract the heat of combustion. The shape of the tubes ensures maximum heat exchange.

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

HEAT EXCHANGER ASSEMBLY

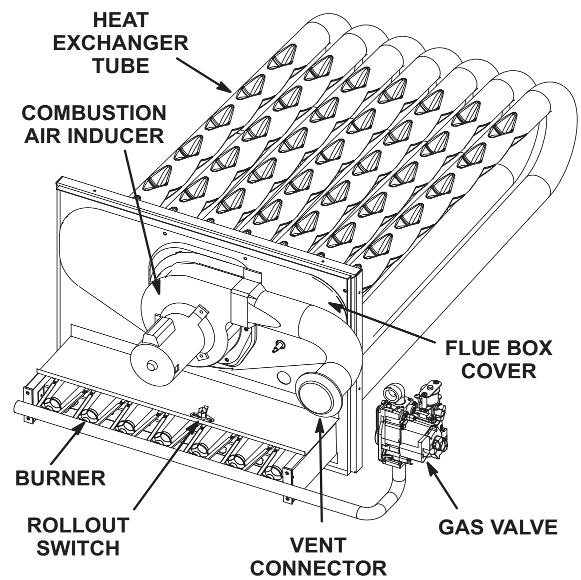


FIGURE 12

4-Burner Box Assembly (FIGURE 13)

The burner assembly consists of a spark electrode, flame sensing electrode and gas valve. Ignition board A3 and A12 control all functions of the assembly.

Burners

All units use inshot burners. 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 on older units. On newer units, burners are connected and the entire assembly can be removed. Burner maintenance and service is detailed in the SERVICE CHECKS section of this manual. See FIGURE 13 for burner removal. See FIGURE 14 for number of burners.

Orifice

Each burner uses an orifice which is matched to the burner input. The orifice is threaded into the burner manifold. The burner is supported by the orifice and will easily slide off for service once the mounting screws are removed from the burners.

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

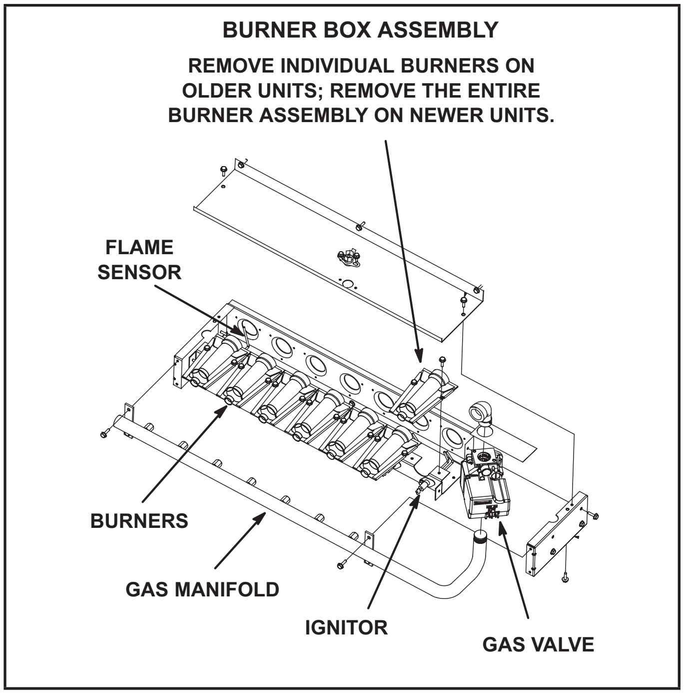


FIGURE 13

5-Flame Roll-out Limit Switch S47

The flame roll-out limit switch is a SPST N.C. high temperature limit located just above the burner air intake opening in the burner enclosures. The switch is wired to the A3 ignition controller. When the limit switch senses flame roll-out (indicating a blockage in the combustion air passages), the flame roll-out limit trips, and the Unit Controller immediately closes the gas valve.

Limit is factory preset to open at 340F $\pm$ 16F on a temperature rise on all units. All flame roll-out limits are manual reset.

6-Combustion Air Motor Capacitor C3

The combustion air inducer motors in all LGT units require run capacitors. Capacitor C3 is connected to combustion air inducer B6. Ratings will be on side of capacitor or combustion air motor nameplate.

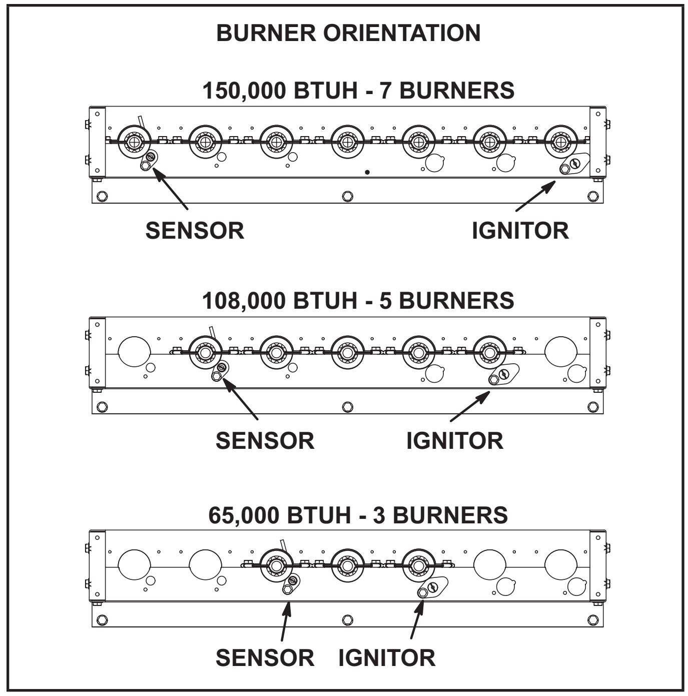


FIGURE 14

7-Combustion Air Prove Switch S18

Prove switch S18 is a SPST N.O. switch located to the right of the induced draft assembly. See FIGURE 15. S18 monitors combustion air inducer operation. Switch S18 is wired to A3 ignition controller which checks its status upon a call for heating. The switch closes at negative 0.10"W.C. + 0.05" (24.8 Pa $\pm$ 12.4 Pa) on 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.

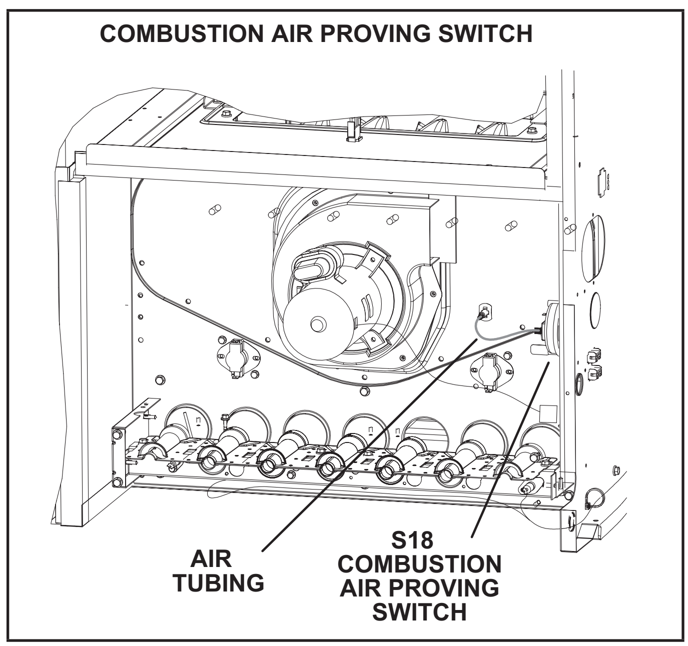


FIGURE 15

8-Combustion Air Inducer B6

Combustion air inducers provide air to the corresponding burners while clearing the combustion chamber of exhaust gases. The inducer begins operating immediately upon receiving a thermostat demand and is de-energized when thermostat demand is satisfied.

The inducer uses a 208/230V single-phase PSC motor and a 5.24 in. x .96in. blower wheel. All motors operate at 3300RPM and are equipped with auto-reset overload protection. Two-speed units have reduced RPM for low speed. Inducers are supplied by various manufacturers. Ratings may vary by manufacturer. Specific inducer electrical ratings can be found on the unit rating plate.

The ignition control board energizes an internal relay to route power to the combustion air blower motor. A3 then allows 30 to 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 closes, proving that the combustion air inducer is operating before allowing the ignition sequence to continue. When the combustion air prove switch is closed and the delay is over, the A3 ignition control activates the appropriate stage operator of the gas valve, the spark and the flame sensing electrode. Sparking stops immediately after flame is sensed or at the end of the eight second trial for ignition.

On two-stage natural gas units, the inducer will operate on low speed for first stage heat (W1) and ramp up to high speed for second stage heat (W2). All combustion air inducer motors are sealed and cannot be oiled. The inducer cannot be adjusted but can be removed from the heat section for cleaning.

9-Gas Valves GV1

Units are equipped with a two-stage gas valve. When a heating demand is present, the valve is energized in low fire by the ignition control at the same time as the spark electrode.

If the heating demand increases, the high fire signal is provided by the ignition controller. Both the low fire and high fire signals are required for the gas valve to operate in high fire.

A shut-off knob/switch is provided on the valve for manual shut-off. The shut-off knob/switch will immediately close both stages without delay.

Both low fire and high fire (if applicable) valve outputs are adjustable. FIGURE 19 shows gas valve components. The gas manifold pressure should be adjusted when the unit is installed at altitudes higher than 2000 feet. See HIGH ALTITUDE table in SPECIFICATIONS - GAS HEAT.

10-Spark Electrode (Ignitor) FIGURE 16

An electrode assembly is used for ignition spark. The electrode is inserted through holes in the burner support. See FIGURE 13. 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 and ignites the appropriate burner depending on the heating stage. 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 both ends of the wire.

NOTE - *If electrode wire must be replaced, wire and suppression must be same type cable.*

The spark electrode assembly can be removed for inspection by removing the screw 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" $\pm$ 0.015" (3.2 mm $\pm$ .4 mm). See FIGURE 16.

IMPORTANT

In order to maximize spark energy to electrode, high voltage wire should touch unit cabinet as little as possible.

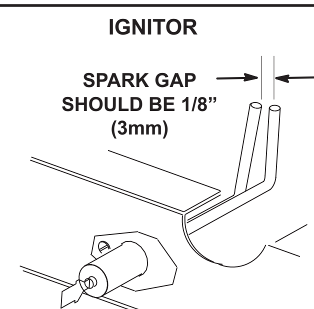


FIGURE 16

11-Flame Sensor (FIGURE 17)

The flame sensor is mounted through a hole in the burner support and the tip protrudes into the flame envelope of the appropriate burner. See FIGURE 14 for location. 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 or after the eight second trial for ignition. 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.

SIDE VIEW SENSOR

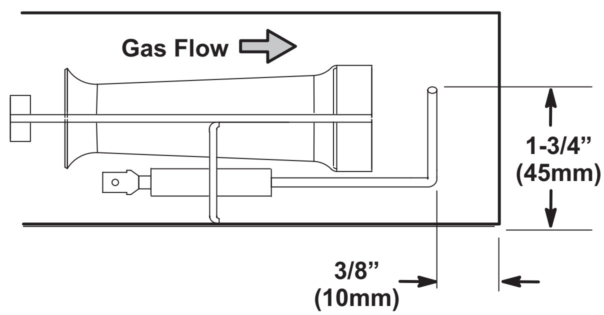


FIGURE 17

D-BLOWER COMPARTMENT

⚠ IMPORTANT

Three phase scroll compressors must be phased sequentially for correct compressor and blower rotation. Follow "COOLING START-UP" section of installation instructions to ensure proper compressor and blower operation.

1-Blower Operation

Refer to the Unit Controller Setup Guide to energize blower. Use the mobile service app menu; see RTU MENU > COMPONENT TEST > BLOWER > START TEST.

Direct-drive motor may not immediately stop when power is interrupted to the Unit Controller. Disconnect unit power before opening the blower compartment. The Controller's digital inputs must be used to shut down the blower. See Unit Controller manual for operation sequences.

⚠ WARNING

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

2-Inspect all electrical wiring, both field- and factoryinstalled, for loose connections. Tighten as required.

3-Check to ensure that refrigerant lines do not rub against the cabinet or against other refrigerant lines.

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

5-Make sure filters are new and in place before start-up.

2-Determining Unit CFM

1 - The following measurements must be made with air filters in place.

2 - With all access panels in place, measure static pressure external to unit (from supply to return). Blower performance data is based on static pressure readings taken in locations shown in FIGURE 18.

Note - *Static pressure readings can vary if not taken where shown.*

3 - Measure the indoor blower wheel RPM.

4 - Referring to the Blower Data tables, use static pressure and RPM readings to determine unit CFM. Use the Accessory Air Resistance tables when installing units with any of the options or accessories listed.

3-Adjusting Unit CFM

The supply CFM can be adjusted by changing Unit Controller settings. Refer to TABLE 4 for menu paths and default settings. Record any CFM changes on the parameter settings label located on the inside of the compressor access panel.

IMPORTANT - *The default value for Cooling Low CFM is lower than a traditional singe- or two-speed blower. If operating the unit with a 2- or 3-stage controller (2- or 3-stage thermostat, DDC controller, etc.), it is recommended to increase the Cooling Low CFM default value to a suitable level for part load cooling (typically 60% of full load CFM).*

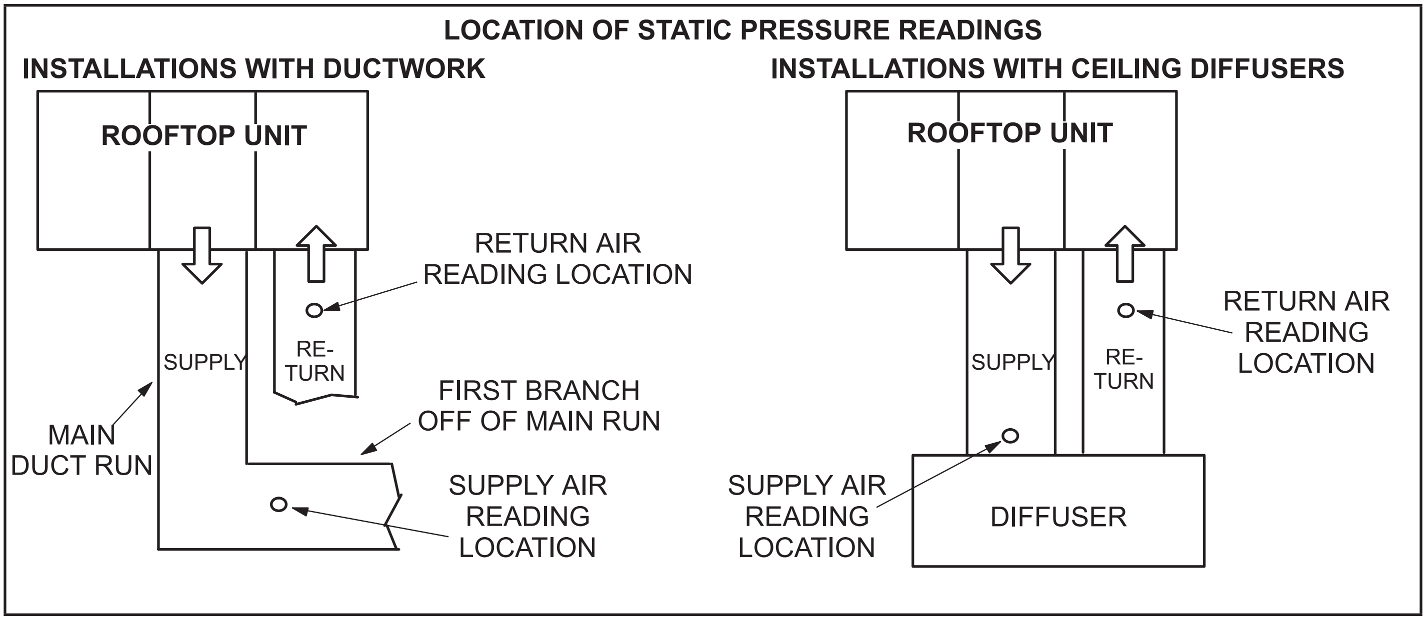


FIGURE 18

TABLE 4

BLOWER PARAMETER SETTINGS - 581102-01

Parameter	Field Setting	Description
Note: Any changes to Smoke CFM setting must be adjusted before the other CFM settings. Use SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 12 for EBM, 6 for ECM		
BLOWER SMOKE CFM	%	Percentage of torque for blower smoke speed.
SETUP > TEST & BALANCE > BLOWER		
BLOWER HEATING HIGH CFM	%	Percentage of torque for blower heating high speed.
BLOWER HEATING LOW CFM	%	Percentage of torque for blower heating low speed (P volt gas heat only).
BLOWER COOLING HIGH CFM	%	Percentage of torque for blower cooling high speed.
BLOWER COOLING LOW CFM	%	Percentage of torque for blower cooling low speed and vent speed for standard static blowers.
BLOWER VENTILATION CFM	%	Percentage of torque for high static blower ventilation speed.
SETUP > TEST & BALANCE > DAMPER		
BLOWER HIGH CFM DAMPER POS %	%	Minimum damper position for high speed blower operation. Default 0%.
BLOWER LOW CFM DAMPER POS %	%	Minimum damper position for low speed blower operation. Default 0%.
POWER EXHAUST DAMPER POS %	%	Minimum damper position for low power exhaust operation. Default 50%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 216		
POWER EXHAUST DEADBAND %	%	Deadband % for power exhaust operation. Default 10%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 10 (Applies to Thermostat Mode ONLY)		
FREE COOLING STAGE-UP DELAY	sec	Number of seconds to hold blower at low speed before switching to blower at high speed. Default 300 seconds.

Installer: Record any parameter changes under “Field Setting” column. Settings need to be recorded by installer for use when Unit Controller is replaced or reprogrammed.

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 (T1CURB-AN or C1CURB-AN).

III-START UP - OPERATION

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 compressor access panel.

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

4 - Sealed electrical components shall be replaced, not repaired.

5 - Intrinsically safe components must be replaced, not repaired.

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

7 - 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.

B-Heating Start up

FOR YOUR SAFETY READ BEFORE LIGHTING

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. No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed

WARNING

Electric shock hazard. Can cause injury or death. Do not use this unit if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control which has been under water.

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.

CAUTION

SMOKE POTENTIAL

The heat exchanger in this unit could be a source of smoke on initial firing. Take precautions with respect to building occupants and property. Vent initial supply air outside when possible.

The gas valve may be equipped with either a gas control lever or gas control knob. Use only your hand to push the lever or turn the gas control knob. Never use tools. If the the lever will not move or 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.

WARNING

Danger of explosion. Can cause injury or death. Do not attempt to light manually. Unit has a direct spark ignition system.

This unit is equipped with an automatic spark ignition system. There is no pilot. In case of a safety shutdown, move thermostat switch to OFF and return the thermostat switch to **HEAT** to reset ignition control.

Placing Unit In Operation

WARNING

Danger of explosion and fire. Can cause injury or product or property damage. You must follow these instructions exactly.

Gas Valve Operation (FIGURE 19)

1 - Set thermostat to lowest setting.

2 - Turn off all electrical power to appliance.

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

4 - Open or remove the heat section access panel.

5 - Move gas valve switch(es) to OFF. See FIGURE 19.

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

7 - Move gas valve switch(es) to **ON**. See FIGURE 19.

8 - Close or replace the control access panel.

9 - Turn on all electrical power to appliance.

10 - Set thermostat to desired setting.

***NOTE -** When unit is initially started, steps 1 through 9 may need to be repeated to purge air from gas line.*

11 - The ignition sequence will start.

12 - If the furnace 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 Unit

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

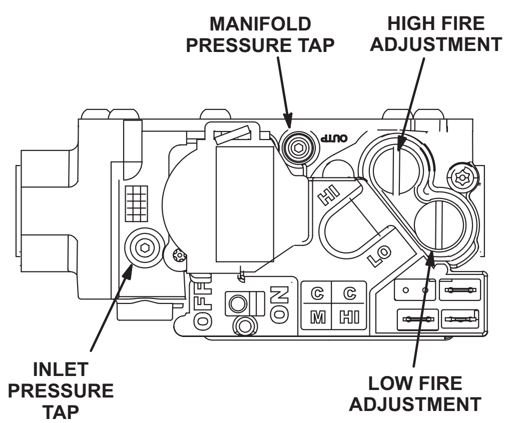
2 - Before performing any service, turn off all electrical power to the appliance.

3 - Open or remove the control access panel.

4 - Move gas valve switch(es) to **OFF.**

5 - Close or replace the control access panel.

WHITE RODGERS 36J54 GAS VALVE
Two-Stage



Gas valve switch is shown in **OFF** position.

FIGURE 19

C-Cooling Start up

1-Operation

1 - Initiate full load cooling operation using the following mobile service app menu path:

RTU>COMPONENT TEST> COOLING>COOLING STAGE 2

2 - Units contain one refrigerant circuit or stage.

3 - Unit is charged with R-454B refrigerant. See unit rating plate for correct amount of charge.

4 - Refer to charging section method to check refrigerant charge.

D-Safety or Emergency Shutdown

Turn off power to unit. Close manual and main gas valves. No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed

E-Refrigerant Leak Detection System

The Refrigerant Leak Detection System can be tested by using the following mobile service app menu path:

RTU MENU > COMPONENT TEST > LEAK DETECTION > START TEST

Ensure that the indoor blower, outdoor fan, and combustion air blower (LGT Only) are energized.

IV-CHARGING

A-Refrigerant Charge and Check - All-Aluminum Coil

WARNING-*Do not exceed nameplate charge under any condition.*

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

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed and, since flammability is a consideration, the following procedure shall be adhered to:

- Safely remove refrigerant following local and national regulations,
- Evacuate the circuit,
- Purge the circuit with inert gas,
- Evacuate,
- Purge with inert gas,
- Open the circuit

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. Refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating unit is earthed prior to charging the system with refrigerant.
  - Label the system when charging is complete (if not already).
  - Extreme care shall be taken not to overfill the refrigerating unit.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure- relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants includ-ing, when applicable, flammable refrigerants. In ad-dition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manu-facturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site

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

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

1 - Make sure outdoor coil is clean. Attach gauge manifolds and operate unit at full CFM in cooling mode with economizer disabled until system stabilizes (approximately five minutes). Make sure all outdoor air dampers are closed.

2 - Compare the normal operating pressures to the pressures obtained from the gauges. Check unit components if there are significant differences.

3 - Measure the outdoor ambient temperature and the suction pressure. Refer to the charging curve to determine a target liquid temperature.

Note - *Pressures are listed for sea level applications.*

4 - Use the same thermometer to accurately measure the liquid temperature (in the outdoor section).

- If measured liquid temperature is higher than the target liquid temperature, add refrigerant to the system.
- If measured liquid temperature is lower than the target liquid temperature, recover some refrigerant from the system.

- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

TABLE 5

Refrigerant Charge R-454B		
Unit	M_c(lbs)	M_c(kg)
LCT/LGT036	3.19	1.45
LCT/LGT048	5.15	2.34
LCT/LGT060	4.86	2.20
LCT/LGT072	4.8	2.18
LCT/LGT036 W/ Humidtrol	5.36	2.43
LCT/LGT048 W/ Humidtrol	5.2	2.36
LCT/LGT060 W/ Humidtrol	4.78	2.17
LCT/LGT072 W/ Humidtrol	4.51	2.05

- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

5 - Add or remove charge in increments. Allow the system to stabilize each time refrigerant is added or removed.

6 - Continue the process until measured liquid temperature agrees with the target liquid temperature. Do not go below the target liquid temperature when adjusting charge. Note that suction pressure can change as charge is adjusted.

7 - Example: At 95°F outdoor ambient and a measured suction pressure of 130psig, the target liquid temperature is 97°F. For a measured liquid temperature of 106°F, add charge in increments until measured liquidtemperature agrees with the target liquid temperature.

TABLE 6

036 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581061-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
112	214	114	251	115	290	116	331	118	374	119	419
121	217	123	254	124	293	126	334	127	377	129	422
139	222	141	259	143	299	145	340	147	384	149	429
159	228	162	265	164	305	166	346	169	390	171	436

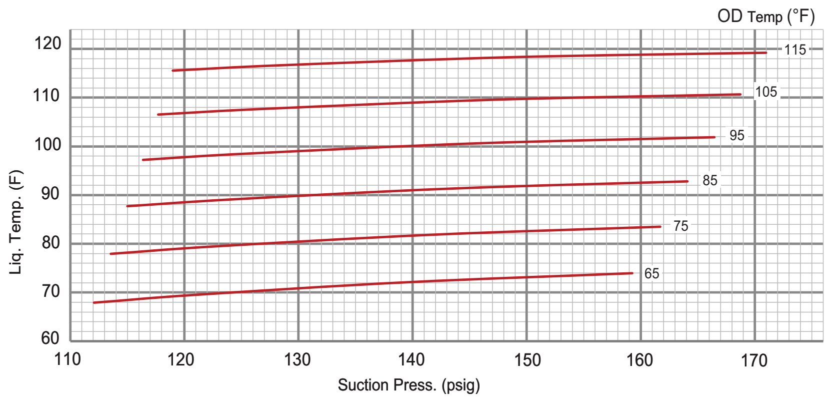


TABLE 7

048 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581062-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	222	113	258	115	298	116	342	117	391	117	445
119	225	121	260	124	301	125	345	127	395	128	449
134	230	138	267	141	307	144	352	146	402	148	457
149	237	154	274	159	315	163	360	166	411	169	466

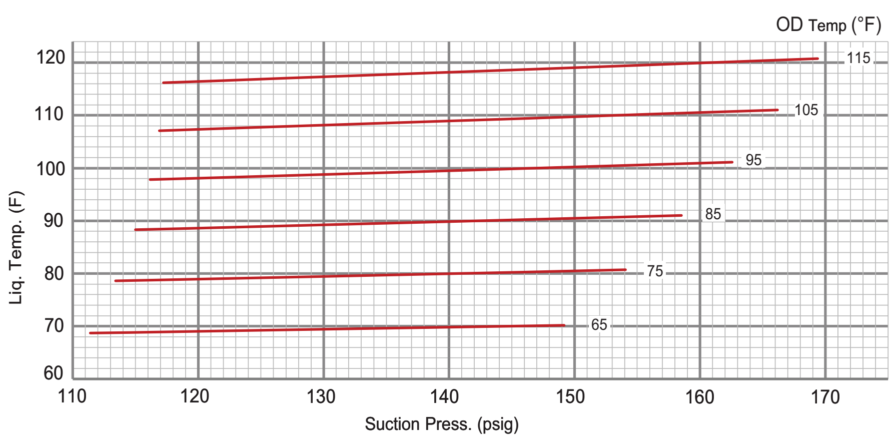


TABLE 8

060 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581063-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	233	108	270	109	311	110	358	112	409	113	464
115	236	116	273	118	315	119	362	121	413	123	468
133	244	135	281	137	323	138	370	140	421	142	477
153	253	155	291	157	333	159	380	162	432	164	488

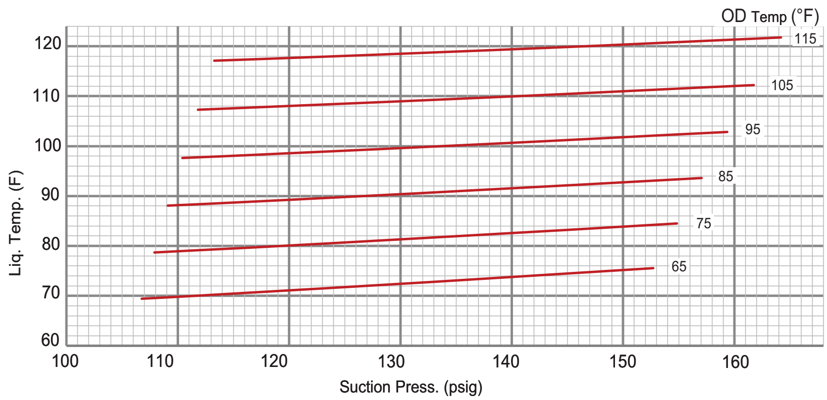


TABLE 9

072 NORMAL OPERATING PRESSURES - NO REHEAT - ALL-ALUMINUM COIL - 581064-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	242	109	279	111	320	112	365	112	414	112	467
114	245	117	283	119	325	121	371	122	420	122	474
128	253	133	292	136	335	139	382	142	433	144	488
143	262	148	302	153	346	158	394	162	446	165	502

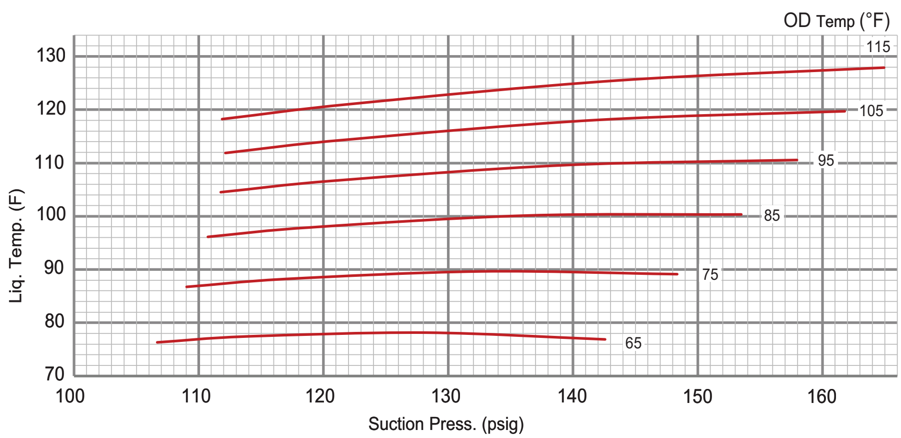


TABLE 10

036 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581108-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	225	113	262	114	303	116	346	117	392	119	441
120	229	121	266	123	307	124	350	126	396	128	445
138	237	140	274	142	314	144	356	146	402	148	451
160	245	162	281	164	321	166	363	168	408	170	456

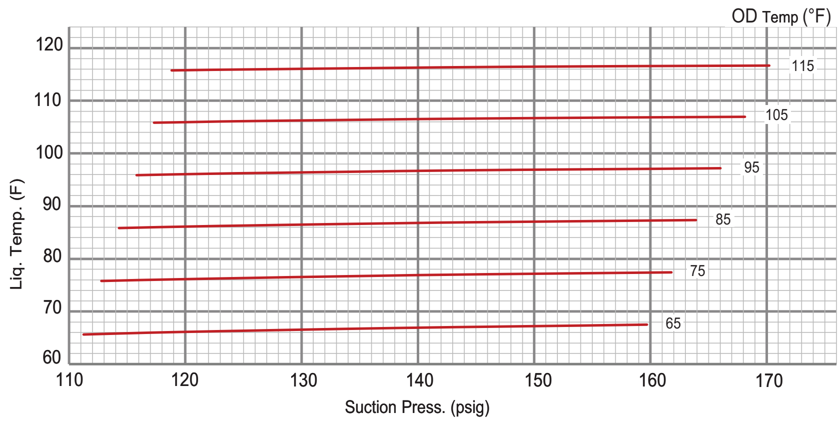


TABLE 11

048 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581109-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
111	226	113	261	115	301	116	345	117	393	118	446
118	228	121	264	123	304	125	348	127	396	128	449
134	235	138	271	141	311	144	356	146	404	149	457
151	245	155	281	159	321	163	366	167	415	170	468

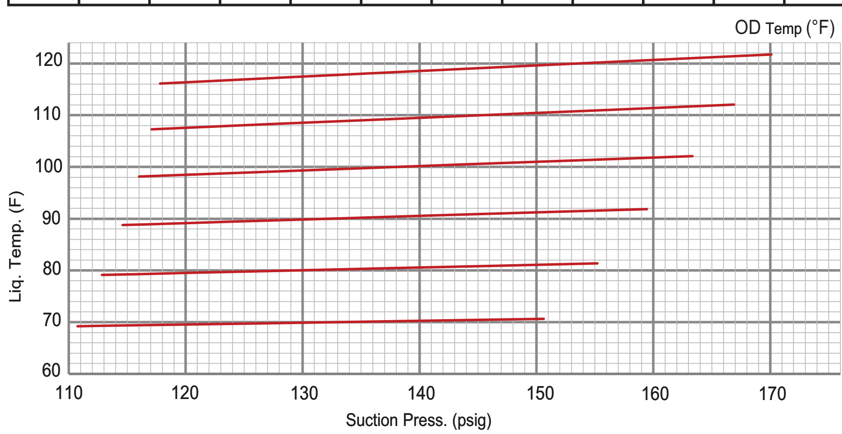


TABLE 12

060 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581110-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
106	242	107	278	109	318	110	363	112	413	113	467
114	246	116	282	118	323	119	368	121	418	122	472
133	258	135	294	137	335	139	380	141	430	143	484
153	272	155	308	158	349	160	394	162	444	165	499

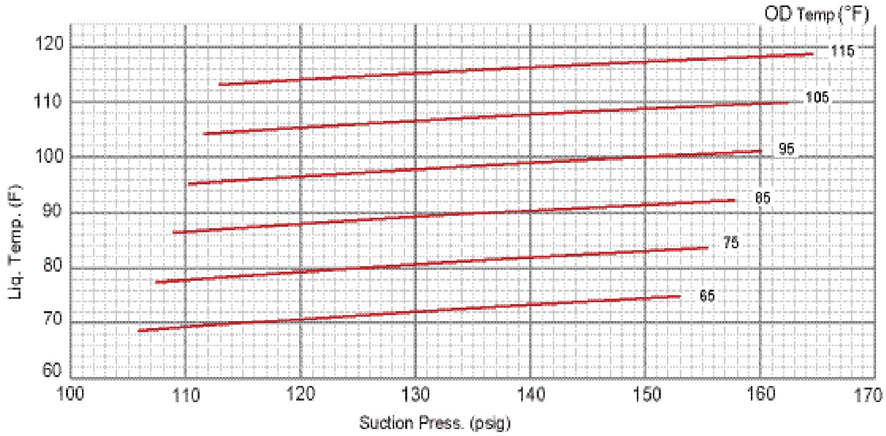
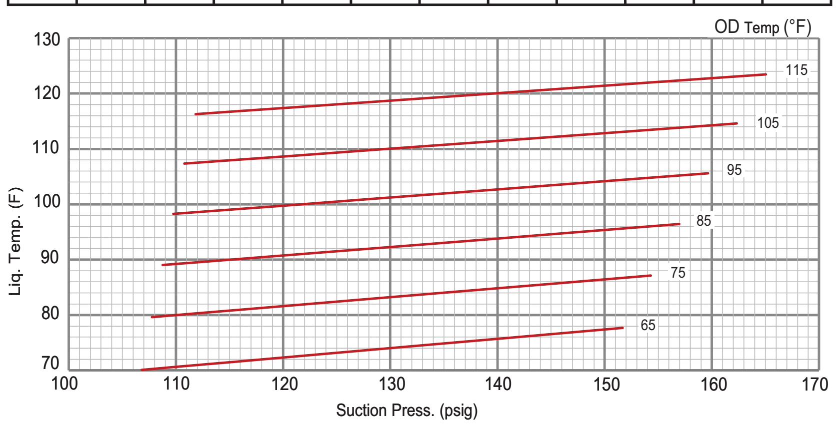


TABLE 13

072 NORMAL OPERATING PRESSURES - REHEAT - ALL-ALUMINUM COIL - 581111-02

Normal Operating Pressures											
Outdoor Coil Entering Air Temperature											
65°F		75°F		85°F		95°F		105°F		115°F	
Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)	Suct (psig)	Disc (psig)
107	257	108	294	109	336	110	384	111	436	112	494
115	263	117	300	118	343	119	390	121	443	122	501
133	274	135	312	137	355	139	403	141	456	143	514
152	284	154	323	157	366	160	415	162	468	165	527



V- SYSTEMS SERVICE CHECKS

A-Heating System Service Checks

Prior to beginning work on systems containing refrigerant, checking that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects, taking into account the effects of aging or continual vibration from sources such as compressors or fans.

Servicing shall be performed only as recommended by the manufacturer and a warning that ducts connected to an appliance shall not contain a potential ignition source.

All LGT units are C.S.A. design certified without modification.

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

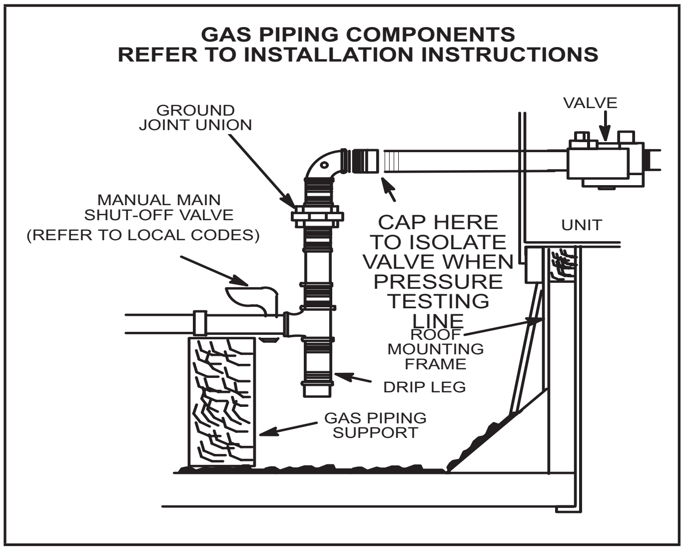


FIGURE 20

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 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 20.

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.

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

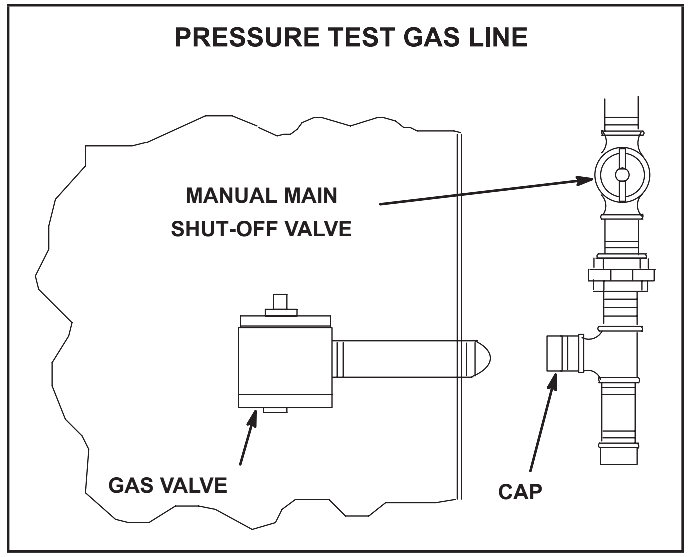


FIGURE 21

3-Testing Gas Supply Pressure

When testing gas supply pressure, connect test gauge to the inlet pressure tap located on unit gas valve GV1. 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 "under fire." High pressure can result in permanent damage to the gas valve or "over fire." For natural gas units, operating pressure at the unit gas connection must be between 4.5"W.C. and 10.5"W.C. For L.P. gas units, operating pressure at the unit gas connection must be between 10.5"W.C. and 13.0"W.C.

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. See FIGURE 19 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 19 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/switch 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 14. On two-stage units, check low fire, make adjustments, and recheck high fire before recording values.

TABLE 14

Operating Manifold Pressure			
Natural		LP	
Low	High	Low	High
2.0 + 0.3" W.C.	3.5 + 0.3" W.C.	5.9" + 0.3" W.C	10.5" + 0.5" W.C.

Combustion gases

Flue products must be analyzed and compared to the unit specifications. Problems detected during the inspection may make it necessary to temporarily shut down the furnace until the items can be repaired or replaced.

5-Proper Gas Flow

Furnace should operate at least 5 minutes before checking gas flow. Determine time in seconds for two revolutions of gas through the meter. (Two revolutions assures a more accurate time.) Divide by two and compare to time in table 13. Seconds in TABLE 15 are based on a 1 ft.3. dial and gas value of 1000 Btu/ft3 for natural and 2500 Btu/ft3' for LP. Adjust manifold pressure on gas valve to match time needed.

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

TABLE 15

Unit Input Rate	Seconds for Natural	Seconds for Propane
65,000	55	138
105,000	34	86
150,000	24	60

⚠ IMPORTANT

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

6-Heat Exchanger

To Access or Remove Heat Exchanger From Unit:

1 - Turn off gas and electric power.

2 - 2- Remove access panel(s) and unit center mullion.

3 - 3- Remove gas valve, manifold assembly and burners.

4 - Remove combustion air inducer. 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.

7-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, microamp reading should be 0.5 to 1.0. Do not bend electrodes. *Drop out signal is .09 or less.*

5 - Disconnect power to unit before disconnecting meter. Make sure sensor wire is securely reconnected before reconnecting power to unit.

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

B-Cooling System Service Checks

LGT 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 IV- CHARGING.

NOTE-*When unit is properly charged discharge line pressures should approximate those in Table 6 through table 13.*

VI-MAINTENANCE

The unit should be inspected once a year by a qualified service technician.

⚠ 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.

⚠ WARNING

Any service personnel installing, decommissioning, or performing maintenance on the unit must be properly trained with A2L refrigerants

Prior to beginning work on systems containing refigerant to ensure the risk of ignition is minimized:

- All work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i. e. non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, the appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work.

A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

- Where electrical components are being changed, service technicians shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance. The following checks shall be applied to installations using flameable refrigerants as applicable:

1 - The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.

2 - The ventilation machinery and outlets are operating adequately and are not obstructed.

3 - If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.

4 - Markings on the equipment should be visible and legible. Markings and signs that are illegible shall be corrected.

5 - Refrigerating pipes or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

- For systems containing refigerant all repair and maintenance to electrical components shall include initial safety checks and component inspection procedures such as that capacitors are discharged in a safe manner to avoid possibility of sparking, that no live electrical components and wiring are exposed while charging, recovering, or purging the system, and that there is continuity of earth bonding. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used that is reported to the owner of the equipment, so all parties are advised.

NOTE - *Sealed electrical components shall be replaced, not repaired.*

NOTE - *Intrinsically safe components must be replaced, not repaired.*

- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:
  a. Safely remove refrigerant following local and national regulations,
  b. Evacuate the circuit,
  c. Purge the circuit with inert gas,
  d. Evacuate,
  e. Purge with inert gas,
  f. Open the circuit.
- The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. Refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

⚠ IMPORTANT

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

A-Filters

Units are equipped with temporary filters which must be replaced prior to building occupation. See FIGURE 22. All units have 20 X 20 X 2 in. (508 X 508 X 51mm) filters. Refer to local codes or appropriate jurisdiction for approved filters.

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

B-Lubrication

All motors are lubricated at the factory. No further lubrication is required

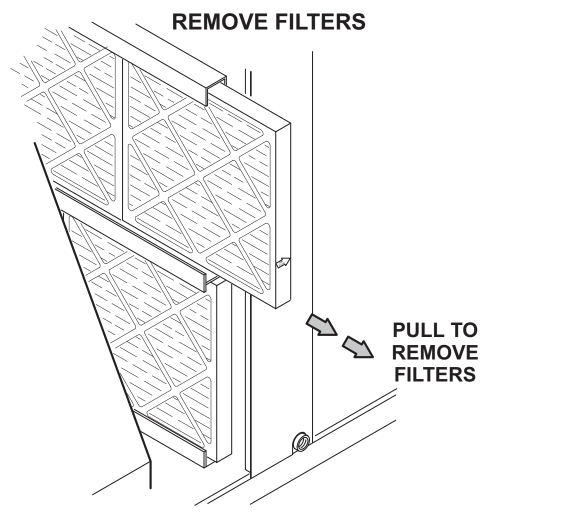


FIGURE 22

C-Burners

Periodically examine burner flames for proper appearance during the heating season. Before each heating season examine the burners for any deposits or blockage which may have occurred.

Clean burners as follows:

1 - Turn off both electrical power and gas supply to unit.
2 - Remove burner compartment access panel.
3 - Remove top burner box panel.
4 - Remove two screws securing burners to burner support and lift the burners from the orifices. See FIGURE 13. Clean as necessary.

⚠ WARNING

Danger of explosion. Can cause injury or death. Do not overtighten main burner mounting screws. Snug tighten only.

D-Combustion Air Inducer

A combustion air proving switch checks combustion air inducer operation before allowing power to the gas controller.

Gas controller will not operate if inducer is obstructed. Under normal operating conditions, the combustion air inducer wheel should be checked and cleaned prior to the heating season. However, it should be examined periodically during the heating season to establish an ideal cleaning schedule.

Clean combustion air inducer as follows:

1 - Shut off power supply and gas to unit.

2 - Remove the mullion on the right side of the heat section.

3 - Disconnect pressure switch air tubing from combustion air inducer port.

4 - Remove and retain screws securing combustion air inducer to flue box. Remove vent connector. See FIGURE 15.

5 - Clean inducer wheel blades with a small brush and wipe off any dust from housing. Take care not to damage exposed fan blades. Clean accumulated dust from front of flue box cover.

6 - Return combustion air inducer motor and vent connector to original location and secure with retained screws. It is recommended that gaskets be replaced during reassembly.

7 - Replace mullion.

8 - Clean combustion air inlet louvers on heat access panel using a small brush.

E-Flue Passageway and Flue Box

Remove flue box cover only when necessary for equipment repair. Clean inside of flue box cover and heat exchanger tubes with a wire brush when flue box cover has to be removed. Install a new flue box cover gasket and replace cover. Make sure edges around flue box cover are tightly sealed.

F-Evaporator Coil

Inspect and clean coil at beginning of each cooling season. Clean the all-aluminum coil by spraying the coil steadily and uniformly from top to bottom. Do not exceed 900 psi or a 45° angle; nozzle must be at least 12 inches from the coil face. Take care not to fracture the braze between fins and refrigerant tubes. Reduce pressure and work cautiously to prevent damage. Flush condensate drain with water, taking care not to get insulation, filters, and return air ducts wet through entire cleaning process.

G-Condenser Coil

Clean condenser coil annually with water and inspect monthly during the cooling season. Clean the all-aluminum coil by spraying the coil steadily and uniformly from top to bottom. Do not exceed 900 psi or a 45° angle; nozzle must be at least 12 inches from the coil face. Take care not to fracture the braze between the fins and refrigerant tubes. Reduce pressure and work cautiously to prevent damage.

H-Supply 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.

VII-ACCESSORIES

The accessories section describes the application of most of the optional accessories which can be factory- or fieldinstalled to the LGT units.

A-C1/T1CURB

When installing the LGT units on a combustible surface for downflow discharge applications, the C1/T1CURB 8 inch, 14-inch, 18 inch or 24-inch height roof mounting frame is used. The roof mounting frames are recommended in all other applications but not required. If the LGT 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 mounting frame is shown in FIGURE 23. 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 24. Refer to the roof mounting frame installation instructions for proper plenum construction and attachment.

B-Transitions

Optional supply/return transitions are available for use with the LGT 3, 4, 5, and 6 ton units (refer to EHB for appropriate transition model). Transition must be installed in the C1/T1CURB mounting frame before mounting the unit to the frame. Refer to the manufacturer's instructions included with the transition for detailed installation procedures.

C-Outdoor Air Dampers

Optional outdoor air dampers are available for use with the LGT 3, 4, 5, and 6 ton units in both manually operated and motorized options (refer to EHB for appropriate transition model). Both sets include the outdoor air hood. The manual damper is set at a fixed point to bring outside air into the building anytime the blower is operating. The motorized damper opens when the blower is operating and the thermostat is sending an occupied signal to the Unit Controller. If the thermostat signal is unoccupied, the motorized damper will not open. 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 re-installation. Filter Handicoater is R.P. Products coating no. 418 and is available as Part No. P-8-5069.

ASSEMBLED ROOF MOUNTING FRAME

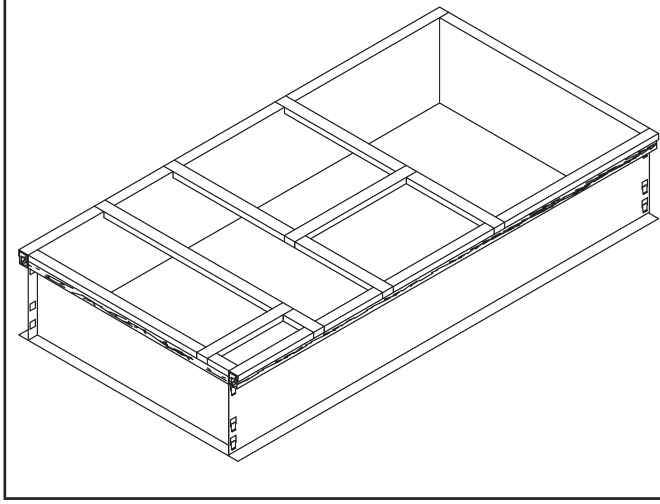


FIGURE 23

TYPICAL FLASHING DETAIL

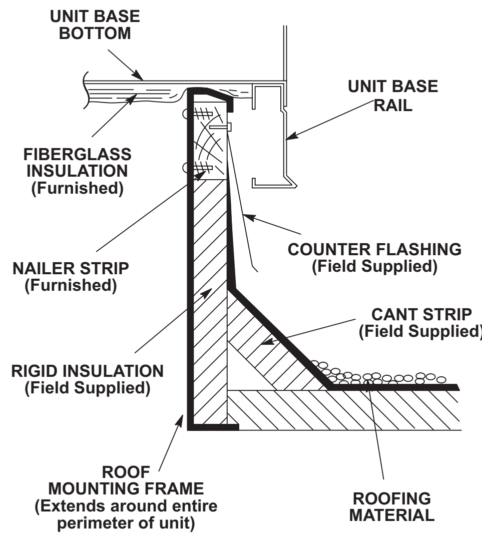


FIGURE 24

MANUAL OUTDOOR AIR DAMPER

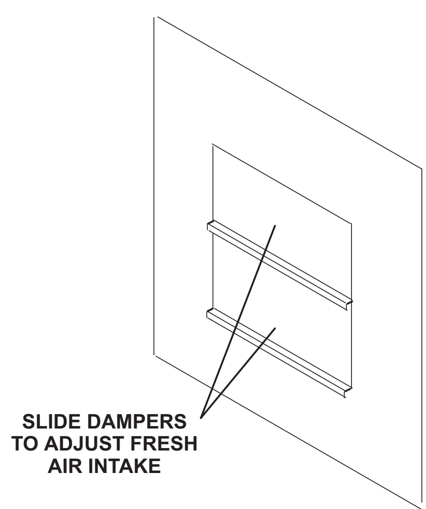


FIGURE 25

MOTORIZED OUTDOOR AIR DAMPER

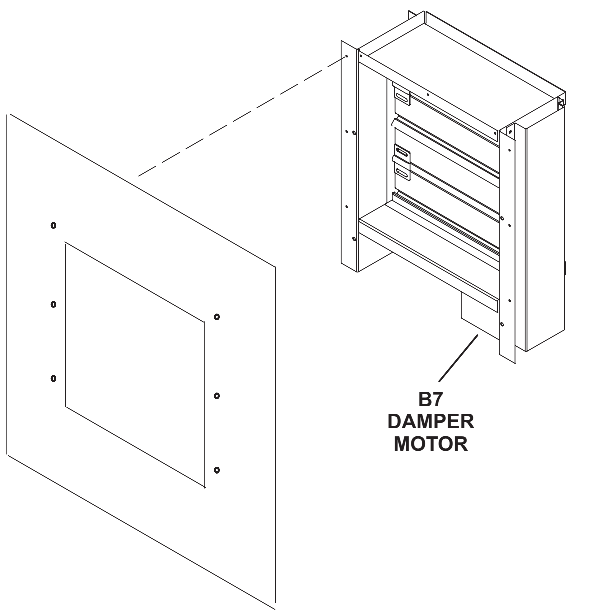


FIGURE 26

D-Supply and Return Diffusers

Optional flush mount diffuser/return FD9-65 and FD11-95 and extended mount diffuser/return RTD9-65 and RTD11-95 are available for use with all LGT units. Refer to manufacturer's instructions included with transition for detailed installation procedures.

E-Economizer

(Optional Field- or Factory-Installed)

The economizer uses outdoor air for free cooling when temperature is suitable. See FIGURE 27.

When outdoor air is suitable, the Unit Controller will modulate the economizer dampers to maintain 55°F discharge air (RT6). Refer to unit controller manual for menu paths to adjust economizer setpoints.

Sensors

Units are equipped with the following factory-installed, CEC Title 24 approved sensors:

RT17 - Outside Air Temperature

RT16 - Return Air Temperature

RT6 - Discharge Air Temperature

See figure 26 for sensor location.

Optional field-provided sensors may be used instead of unit sensors to determine whether outdoor air is suitable for free cooling. Refer to TABLE 16. TEMP OFFSET is the default mode.

NOTE - *Sealed electrical components shall be replaced, not repaired.*

NOTE - *Intrinsically safe components must be replaced, not repaired.*

NOTE - *Network OAS signal and California Title 24 Compliance options use either TEMPERATURE OFFSET or TEMPERATURE SETPT mode.*

Minimum Position

The Unit Controller will move the dampers to minimum position during the following:

Ventilation mode (G demand only)

Outdoor air is NOT suitable for free cooling

The damper position will vary linearly with blower speed based on the damper position settings for high and low CFM. Damper calibration must be initiated in the mobile service app to set high and low damper positions.

GED (Gravity Exhaust / Barometric Relief Dampers) Field-Installed Option

The GED is located in the economizer except in downflow applications or when a PEF (power exhaust fan) is NOT installed. In horizontal airflow applications or when a PEF is installed, the GED is located in the exhaust air hood.

Horizontal Air Discharge Economizers

The economizer is located in the unit the same as downflow applications but note the position of the return air duct. The duct attaches to a duct transition and duct inlet on the end of the unit. An optional GED is located in the duct transition. See FIGURE 29.

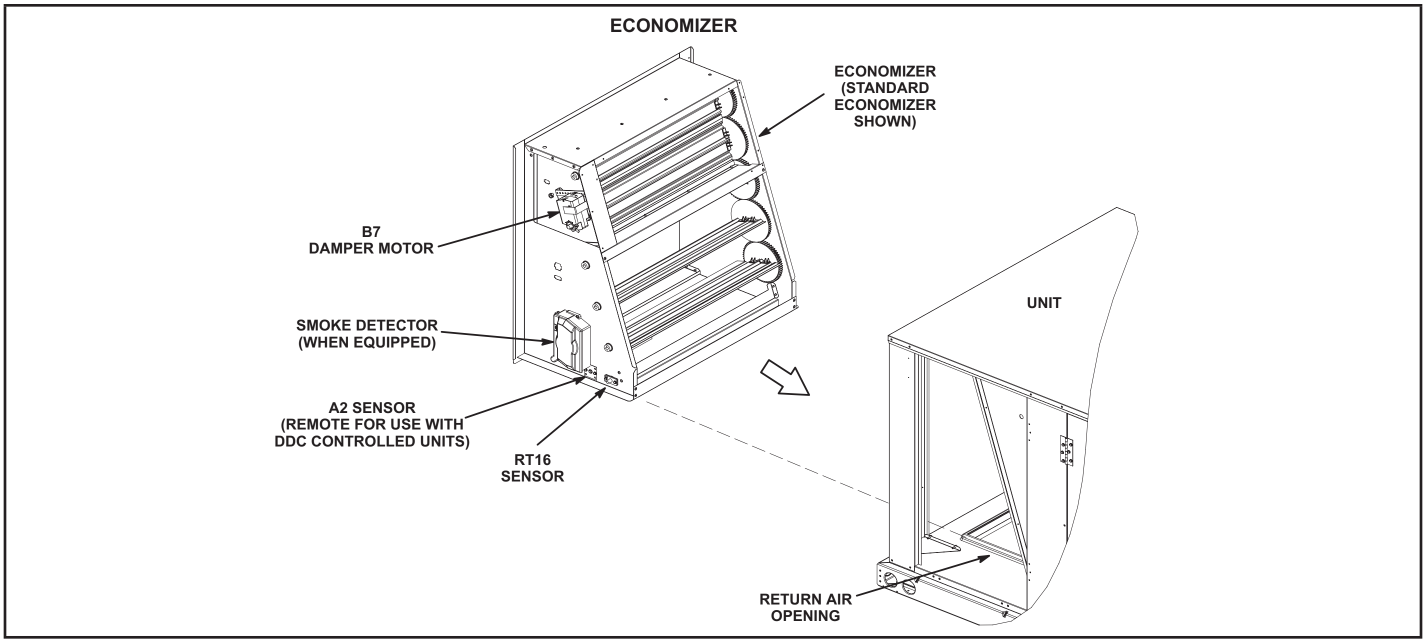


FIGURE 27

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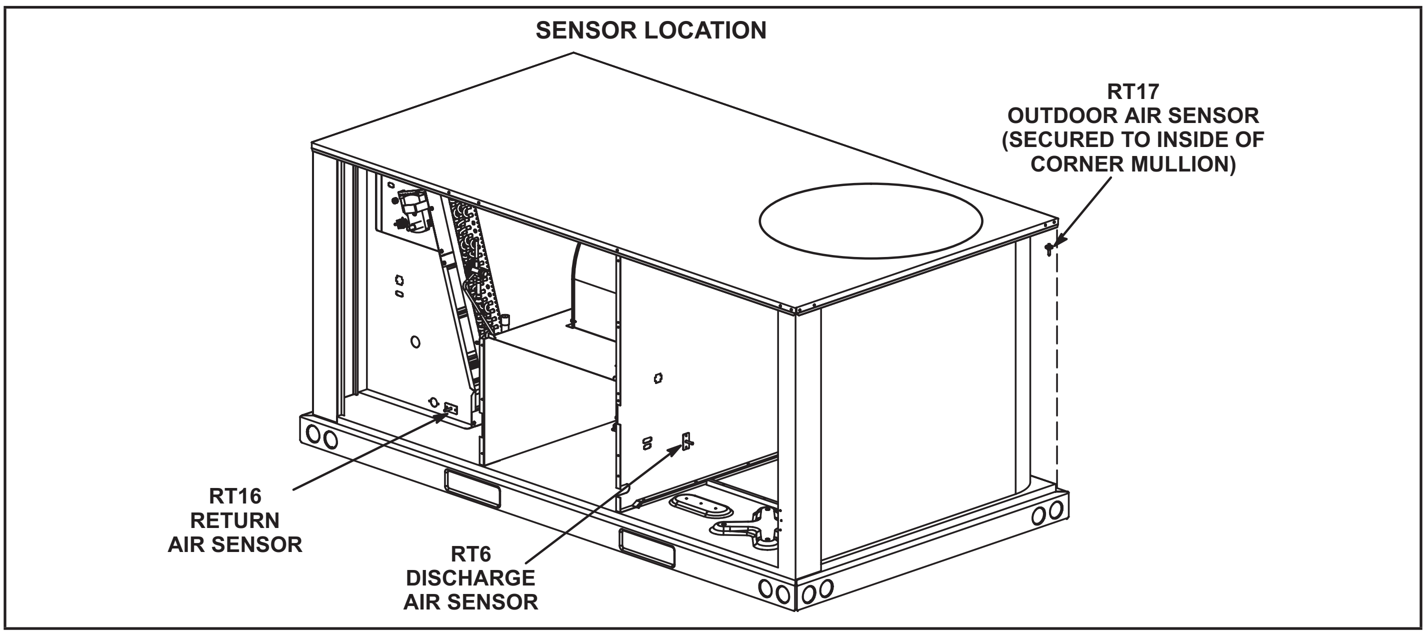


FIGURE 28

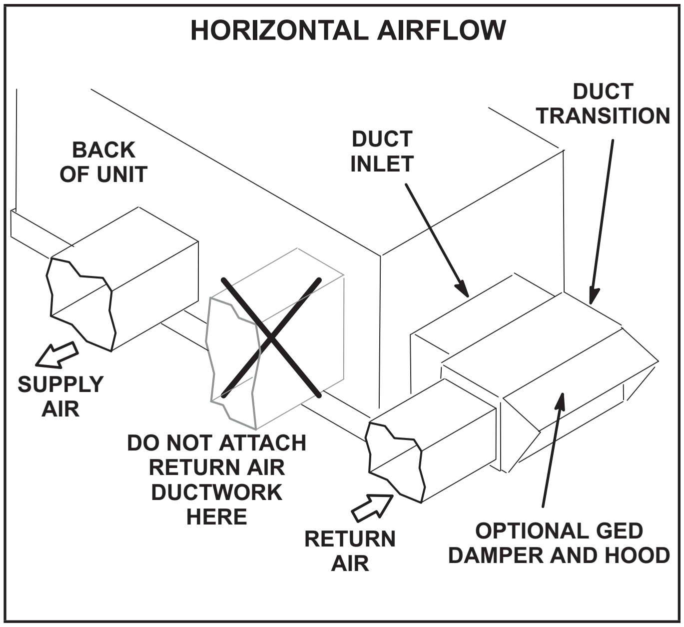


FIGURE 29

TABLE 16
ECONOMIZER MODES AND SETPOINT

Free| Cooling Mode	Free Cooling Setpoint	Field-Provide Sensors	**Dampers will modulate to 55°F discharge air (RT6) when outdoor air is suitable:**	Permitted Inputs
TEMP	OFFSET	None Needed	Outdoor air temperature (RT17) is less than return air temperature (RT16) by at least the OFFSET value.	0-40°F
TEMP	OAT STPT	None Needed	Outdoor air temperature (RT17) is less than the OAT STPT value.	41-75°F
Remote	Remote	Eneergy Management System**	Either of the TEMP modes can be used when a network OAS signal is provided by an energy management or building control system, via BACnet, LonTalk, or L Connection. The network can command OAS, NOT OAS, or AUTO. AUTO returns to local control of OAS, which is the selected TEMP mode.	NA
ENTH	DIFF OFFSET	(Two) C7400	Outdoor air enthalpy* (A7) is less than return air enthalpy (A62) by at least the OFFSET value.	0mA-4mA
ENTH	ODE STPT	C7400	Outdoor air enthalpy (A7) is less than free cooling setpoint.	12-19mA
GLOBAL	GLOBAL	24VAC Input Signal	Global input is energized by (P297-9). This setting is also used for outdoor air damper applications. Global input also brings on the blower. (This mode is NOT used when OAS signal is provided via network connection. GLO is only used when a 24VAC signal is used to energize the P297-9 GLO input.)	NA

Outdoor Air Damper and Economizer Operation

DIRECT DRIVE DRIVE SYSTEM OPERATION:

Note: *Direct drive units feature ECM condenser fans that are staged to match the compressor's capacity. The condenser fans speed linearly follows the compressor speed.*

Modulating Outdoor Air Damper:

Damper minimum positions #1 and 2 are adjusted during unit setup to provide minimum fresh air requirements at the indicated supply fan speeds per ASHRAE 62.1.

-Supply fan is off and the outdoor air damper is closed

-Supply fan is on low speed and the outdoor air damper is at minimum position 1

-Supply fan is on high speed and the outdoor air damper is at minimum position 2

[1]Outdoor Air is Suitable

Note: *When outdoor air is not suitable during the occupied time period, damper modulates to minimum position. When outdoor air is not suitable during the unoccupied time period, damper modulates closed.*

1-Economizer With Outdoor Air Suitable

Low Cooling Demand -

Compressor Off

Blower Low

Dampers Modulate

High Cooling Demand -

Compressor Low

Blower High

Dampers Full Open

Note - *Compressor is energized after damper has been at full open for three minutes.*

Note - *Free cooling is locked out when a dehumidification demand is received. The unit operates in dehumidification mode as if the outdoor air is not suitable.*

2-No Economizer or Outdoor Air Not Suitable

Low Demand -

Compressor Low

Blower Low

Damper Minimum Position

High Cooling Demand -

Compressor High

Blower High

Damper Minimum Position

F-Power Exhaust Relay K6 (power exhaust units)

Power exhaust relay K65 is a DPDT relay with a 24VAC coil. K65 is used in all LGT units equipped with the optional power exhaust dampers. K65 is energized by the Unit Controller after the economizer dampers reach 50% open (adjustable). When K65 closes, exhaust fan B10 is energized.

G-Power Exhaust Fans

Optional power exhaust fans are available for use with the LGT 3, 4, 5, and 6 ton units to provide exhaust air pressure relief (refer to EHB for appropriate transition model). See FIGURE 30 and installation instructions for more detail.

POWER EXHAUST FAN

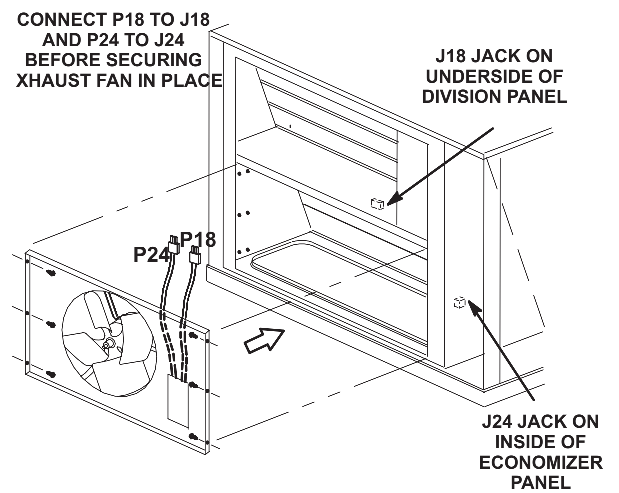


FIGURE 30

H-Optional UVC Lights

The germicidal light emits ultraviolet (UVC) energy that has been proven effective in reducing microbial life forms (viruses, bacteria, yeasts, and molds) in the air.

UVC germicidal lamps greatly reduce the growth and proliferation of mold and other bio-aerosols (bacteria and viruses) on illuminated surfaces.

Germicidal lamps are NOT intended to be used for removal of active mold growth. Existing mold growth must be appropriately removed PRIOR to installation of the germicidal lamp.

Refer closely to UVC light installation instruction warnings when servicing units.

I-Needlepoint Bipolar Ionizer (Optional)

The optional, brush-type ionizer produces positive and negative ions to clean air and reduce airborne contaminants. The ionizer was designed to be low maintenance. The device should be checked semi-annually to confirm the brushes are clean for maximum output. The ionizer is located behind on the blower deck to the left of the blower.

See FIGURE 32.

1 - On the back side of the unit, remove the screw securing the back of the ionizer bracket. See FIGURE 31. Retain the screw to secure the back side of the ionizer bracket.

2 - Remove two screws securing the front side of the ionizer bracket and pull out of unit and clean brushes.

3 - Replace ionizer in the reverse order it was removed.

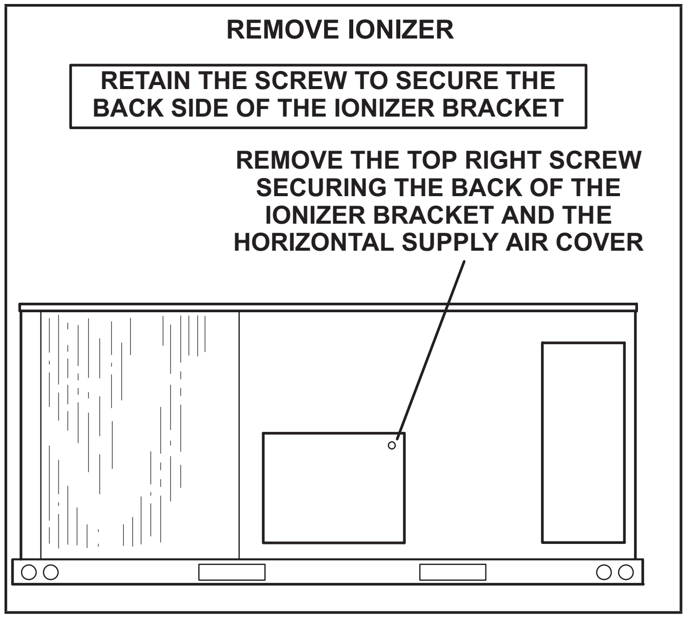


FIGURE 31

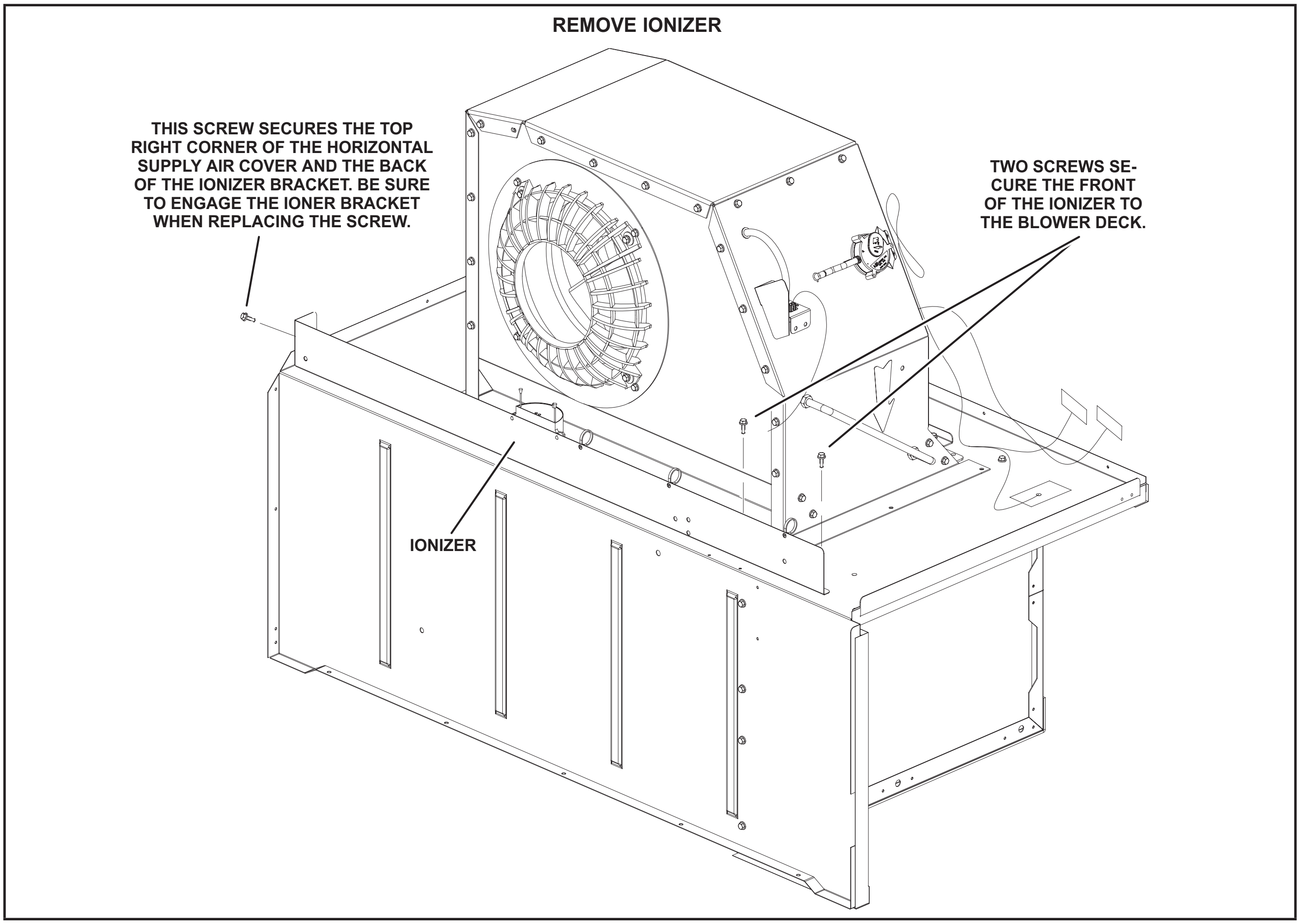


FIGURE 32

J-Optional Cold Weather Kit

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

The kit includes the following parts:

1 - The strip heater (HR6) is located as close as possible to the gas valve. The strip heater is rated at 500 Watts

2 - A thermostat mounting box is installed on the wall of the compressor 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. 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. 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 70° F (21° C).

K-Smoke Detectors A171 and A172

Photoelectric smoke detectors are a factory- or field-installed option. The smoke detectors can be installed in the supply air duct (A172), return air section (A171), or in both the supply duct and return air section.

L-Indoor Air Quality (CO2) Sensor A63

The indoor air quality sensor monitors CO2 levels and reports the levels to the Unit Controller. The Unit Controller adjusts the economizer dampers according to the CO2 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.

M-LP / Propane Kit

All units operated on LP/Propane require a natural to LP propane kit. The kit for single-stage units include one LP spring, seven burner orifices, and three stickers. Two-stage kits include the same but has a prove switch used to lock out first stage on the combustion air inducer. Four-stage units require (2) two-stage kits. For more detail refer to the natural to LP gas changeover kit installation instructions.

N-Drain Pan Overflow Switch S149 (optional)

The overflow switch is used to interrupt cooling operation when excessive condensate collects in the drain pan. The N.O. overflow switch is controlled by K220 and DL46 relays, located in the unit control panel. When the overflow switch closes, 24VAC power is interrupted and after a fivesecond delay unit compressors are de-energized. Once the condensate level drops below the set level, the switch will open. After a five-minute delay the compressor will be energized.

O-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 in the supply air section on the evaporator coil seal.

P-Hot Gas Reheat

Hot gas reheat 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 33 for reheat refrigerant routing and FIGURE 34 for standard cooling refrigerant routing.

L14 Reheat Coil Solenoid Valve

When Unit Controller input (Unit Controller J298-5 or J299-8) indicates room conditions require dehumidification, L14 reheat valve is energized (Unit Controller P269-3) and refrigerant is routed to the reheat coil.

Reheat Setpoint

Reheat is factory-set to energize when indoor relative humidity rises above 60% (default). The reheat setpoint can be adjusted by changing mobile service app *Settings - Control* menu. 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 at *Settings - Control* menu.

Check-Out

Test reheat operation using the following procedure.

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

2 - Make sure unit is in local thermostat mode.

3 - Use mobile service app menu path to select RTU Menu > *Component* > *Test* > *Dehumidification*.

The blower, compressor, and reheat valve should be energized. Pressure can be checked on the reheat line pressure tap. Pressure on the reheat line should match discharge pressure closely in reheat mode.

Default Reheat Operation

During reheat mode free cooling is locked out.

No Y1 demand but a call for dehumidification:

Compressor is operating low, blower is on low, and the reheat valve is energized.

Y1 demand:

Compressor is operating on low, blower is on low, and the reheat valve is de-energized..

Y2 demand:

Compressor is operating high, blower is on high, and the reheat valve is de-energized.

VIII-Decomissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available befor the task is commenced.

Steps to ensure this are:

- Become familiar with the equipment and its operation,
- Isolate the system electrically,
- Ensure that before attempting the procedure that mechanical handling equipment is available, if required, for handling refrigerant cylinders, and that all personal protective equipment is available and being used correctly while the recovery process is supervised at all times by a competent person and that the recovery equipment and cylinders conform to the appropriate standards.

Additionally, pump down refrigerant system, if possible, and if a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system. Make sure that cylinders are situated on the scales before recovery takes place. Start the recovery machine and operate in accordance with instructions. Do not overfill cylinders (no more than 80 % volume liquid charge). Do not exceed the maximum working pressure of the cylinder, even temporarily. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- Safely remove refrigerant following local and national regulations,
- Evacuate the circuit,
- Purge the circuit with inert gas,
- Evacuate,
- Purge with inert gas,
- Open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. Refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

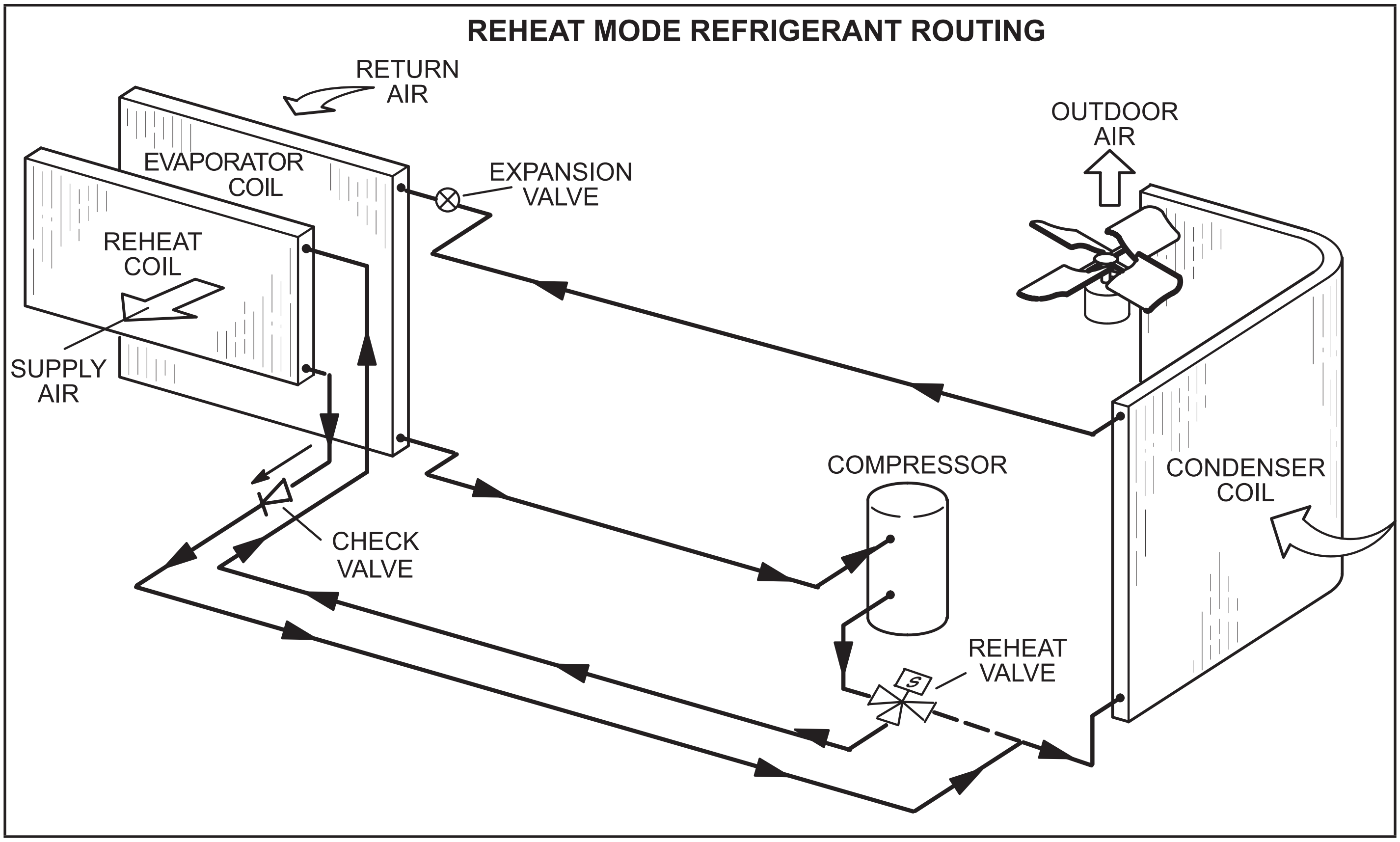


FIGURE 33

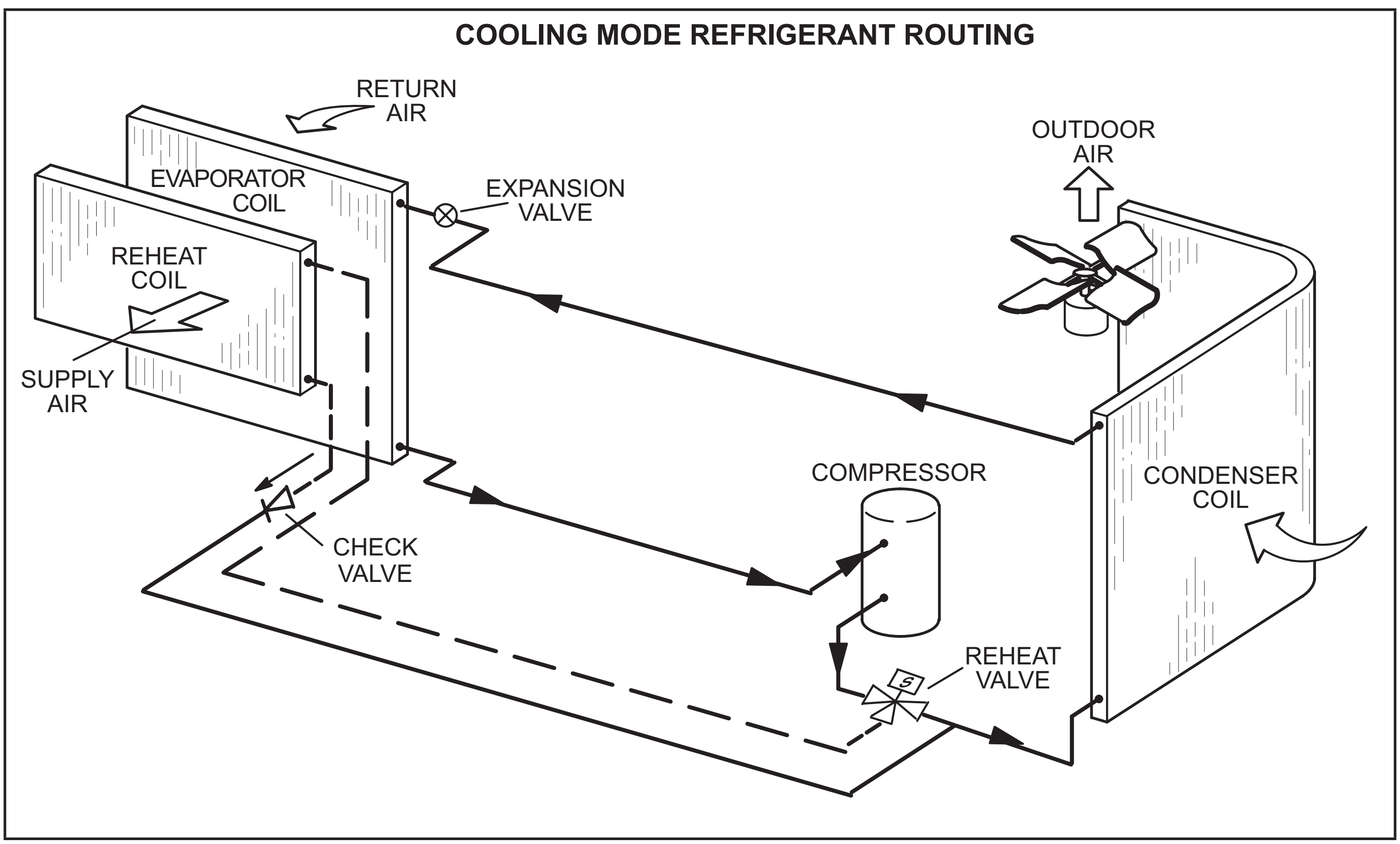
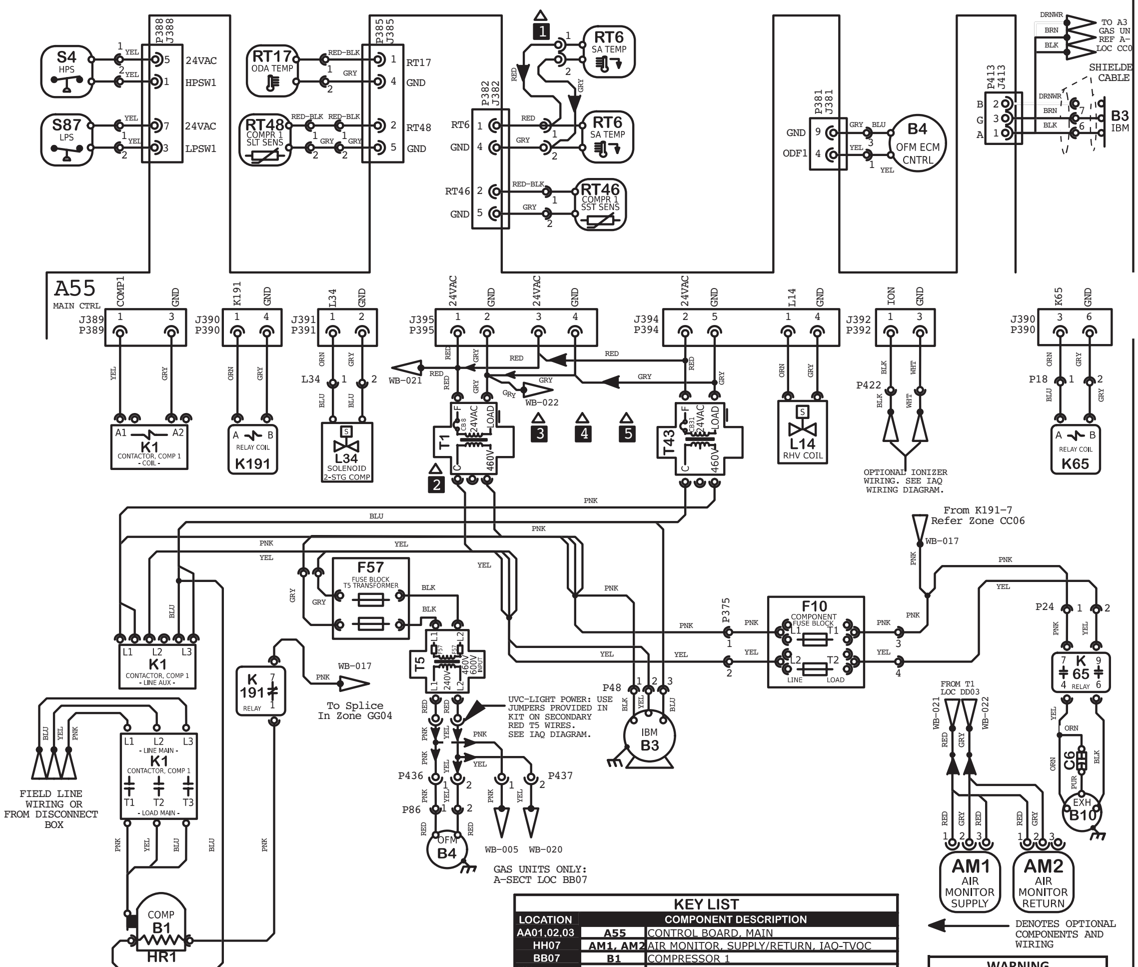


FIGURE 34

036H / 072H G VOLT WITH SCCR



KEY LIST		
LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,EE06	B3	MOTOR, BLOWER
GG02,DD07	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
FF05	F10	FUSE, COMPONENT
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
DD05	T5	TRANSFORMER, MOTOR
EE04	T43	TRANSFORMER, REHEAT

△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

WARNING

DISCONNECT ALL POWER BEFORE SERVICING.

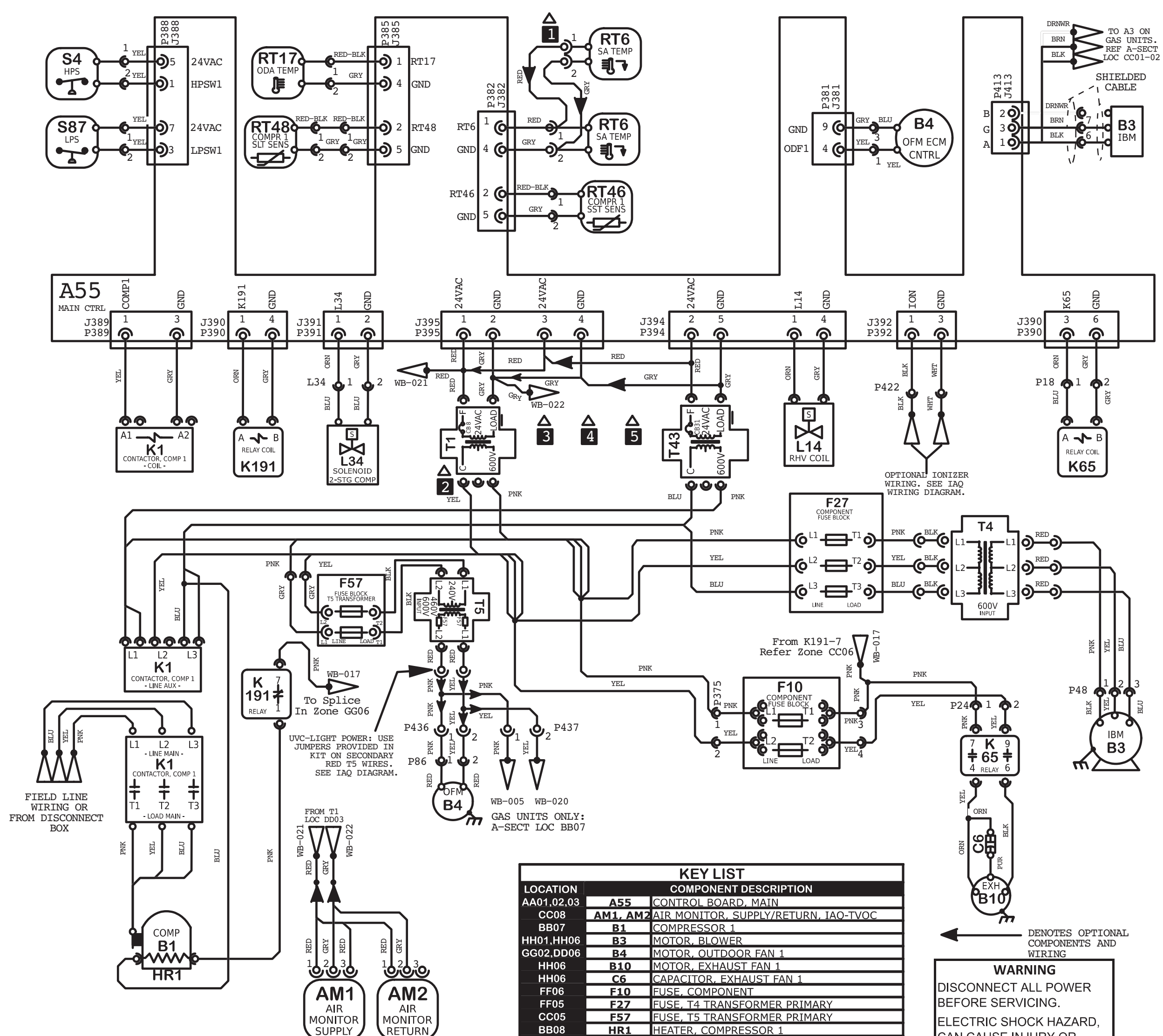
ELECTRIC SHOCK HAZARD, CAN CAUSE INJURY OR DEATH. UNIT MUST BE GROUNDED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES.

FOR USE WITH COPPER CONDUCTORS ONLY. REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE.

IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS.

Model: LGT, LCT 036H – 072H G VOLT
COOLING – EBM BLOWER WITH HIGHER SCCR
Voltage: 460V/3~/60Hz (G)
Supersedes: N/A Form No: 538191–01 Rev: 0

036H / 072H J VOLT WITH SCCR



KEY LIST

LOCATION		COMPONENT DESCRIPTION
AA01,02,03	A55	CONTROL BOARD, MAIN
CC08	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,HH06	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
FF06	F10	FUSE, COMPONENT
FF05	F27	FUSE, T4 TRANSFORMER PRIMARY
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB08	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,06	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT, SUCT TEMP,, COMP 1
CC02	RT48	SENSOR, SAT, LIQUID TEMP,, COMP 1
AA01	S4	LIMIT, HI PRESS, SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS,, COMP 1
DD04	T1	TRANSFORMER, CONTROL
HH05	T4	TRANSFORMER, BLOWER
DD05	T5	TRANSFORMER, OUTDOOR FAN 1
EE04	T43	TRANSFORMER, REHEAT

△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

WARNING

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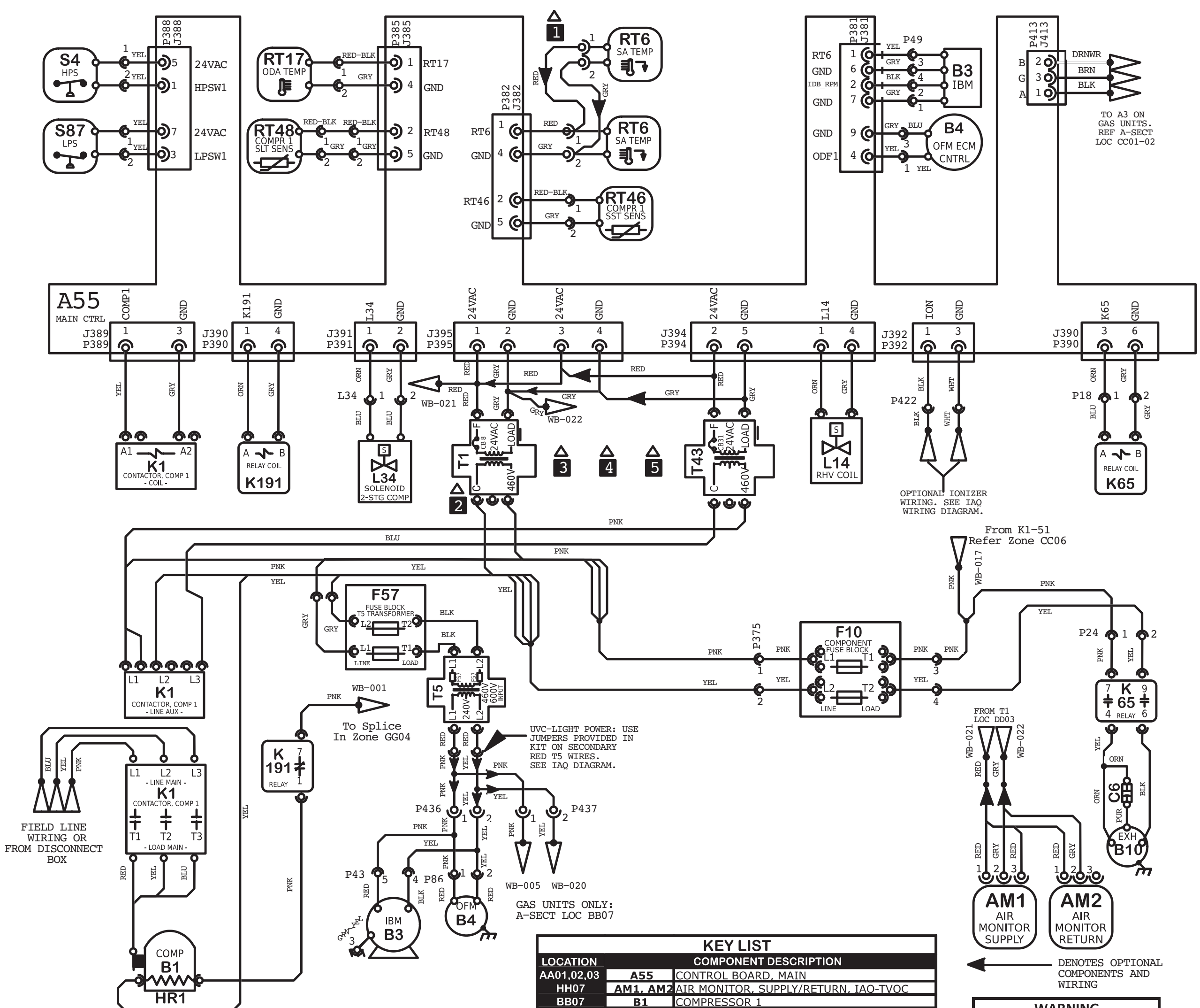
IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS.

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H J VOLT
COOLING - EBM BLOWER WITH HIGHER SCCR
Voltage: 575V/3~/60Hz (J)
Supersedes: N/A Form No: 538193-01 Rev: 0

036H / 072H G, J VOLT WITH SCCR



	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

KEY LIST

LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
GG01,CC07	B3	MOTOR, BLOWER
GG02,DD07	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
FF05	F10	FUSE, COMPONENT
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
DD05	T5	TRANSFORMER, MOTOR
EE04	T43	TRANSFORMER, REHEAT

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

WARNING

DISCONNECT ALL POWER BEFORE SERVICING.

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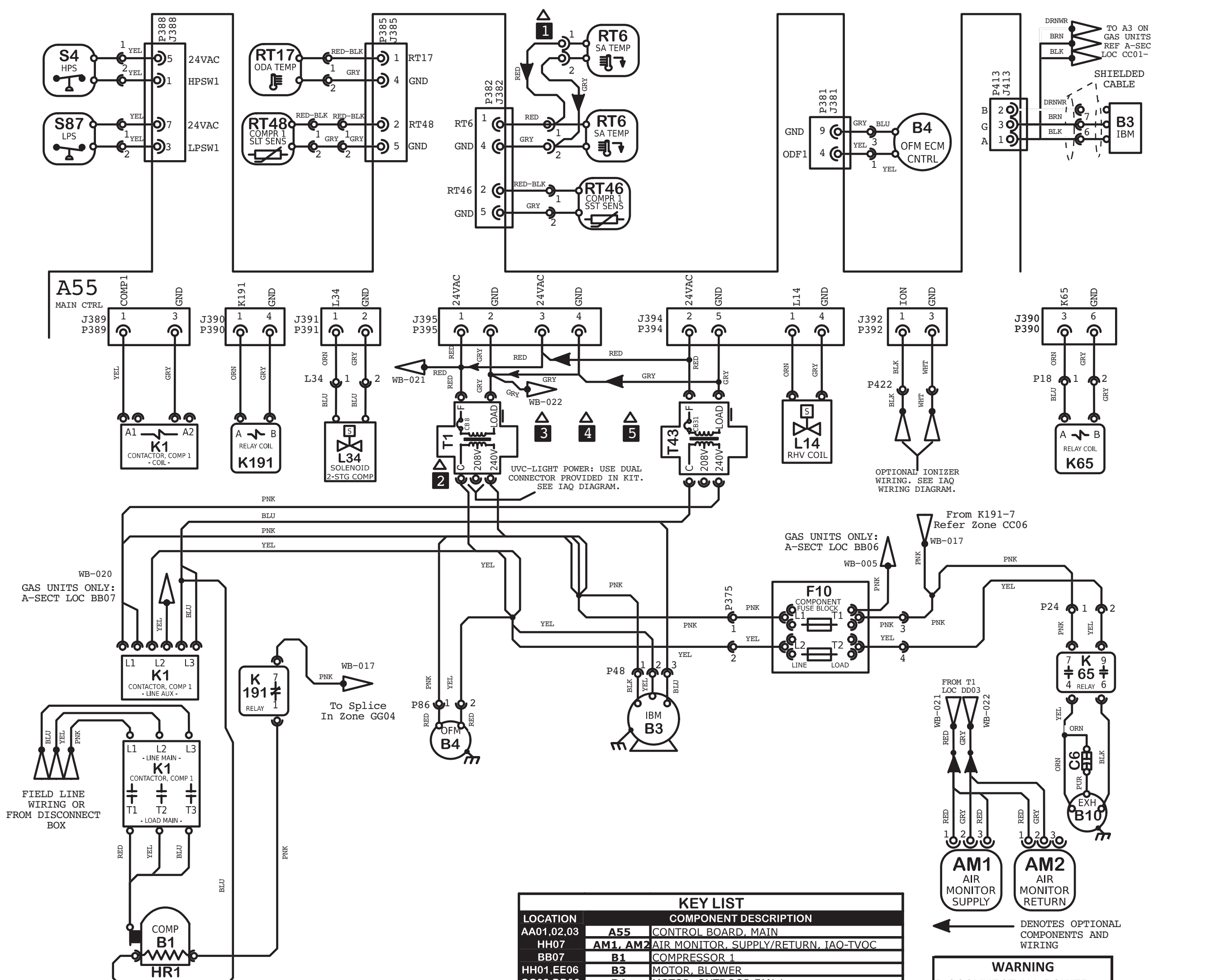
IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS.

Model: LGT, LCT 036H - 072H G, J VOLT
COOLING - ECM BLOWER WITH HIGHER SCCR
Voltage: 460V/3~/60Hz (G), 575V/3~/60Hz (J)
Supersedes: N/A Form No: 538187-01 Rev: 0

036H / 072H Y VOLT WITH SCCR



KEY LIST

LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,EE06	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
FF05	F10	FUSE, COMPONENT
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT, SUCT TEMP,, COMP 1
CC02	RT48	SENSOR, SAT, LIQUID TEMP,, COMP 1
AA01	S4	LIMIT, HI PRESS, SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
EE04	T43	TRANSFORMER, REHEAT

DENOTES OPTIONAL COMPONENTS AND WIRING

NOTES

△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

WARNING

DISCONNECT ALL POWER BEFORE SERVICING.

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FOR USE WITH COPPER CONDUCTORS ONLY. REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE.

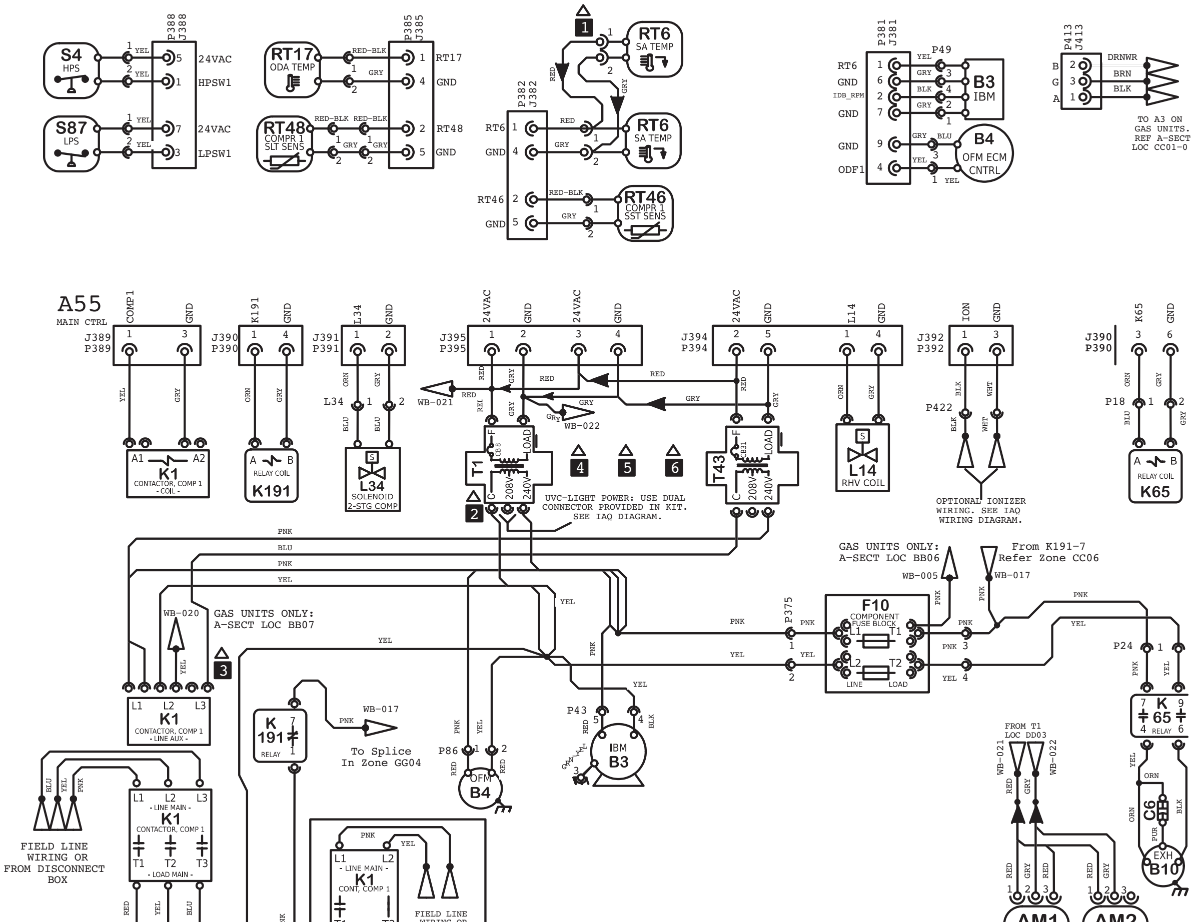
IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS.

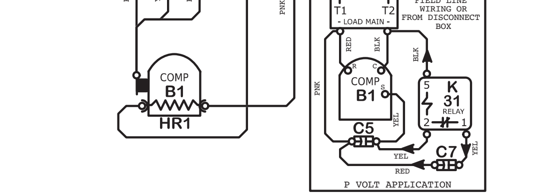
HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H Y VOLT
COOLING - EBM BLOWER WITH HIGHER SCCR
Voltage: 208-240V/3~/60Hz (Y)
Supersedes:N/A Form No:538189-01 Rev:0

036H / 072H P, Y VOLT WITH SCCR





△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	P-VOLT UNITS - CONNECT T43-C TO K1-L2
4	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
5	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
6	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

KEY LIST

LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07,CC07	B1	COMPRESSOR 1
GG01,EE06	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
CC08	C5	CAPACITOR, COMPRESSOR
HH06	C6	CAPACITOR, EXHAUST FAN 1
CC08	C7	CAPACITOR, COMPRESSOR HARD START
FF05	F10	FUSE, COMPONENT
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
DD08	K31	RELAY, HARD START KIT
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
EE04	T43	TRANSFORMER, REHEAT

DENOTES OPTION COMPONENTS AND WIRING

WARNING

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HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

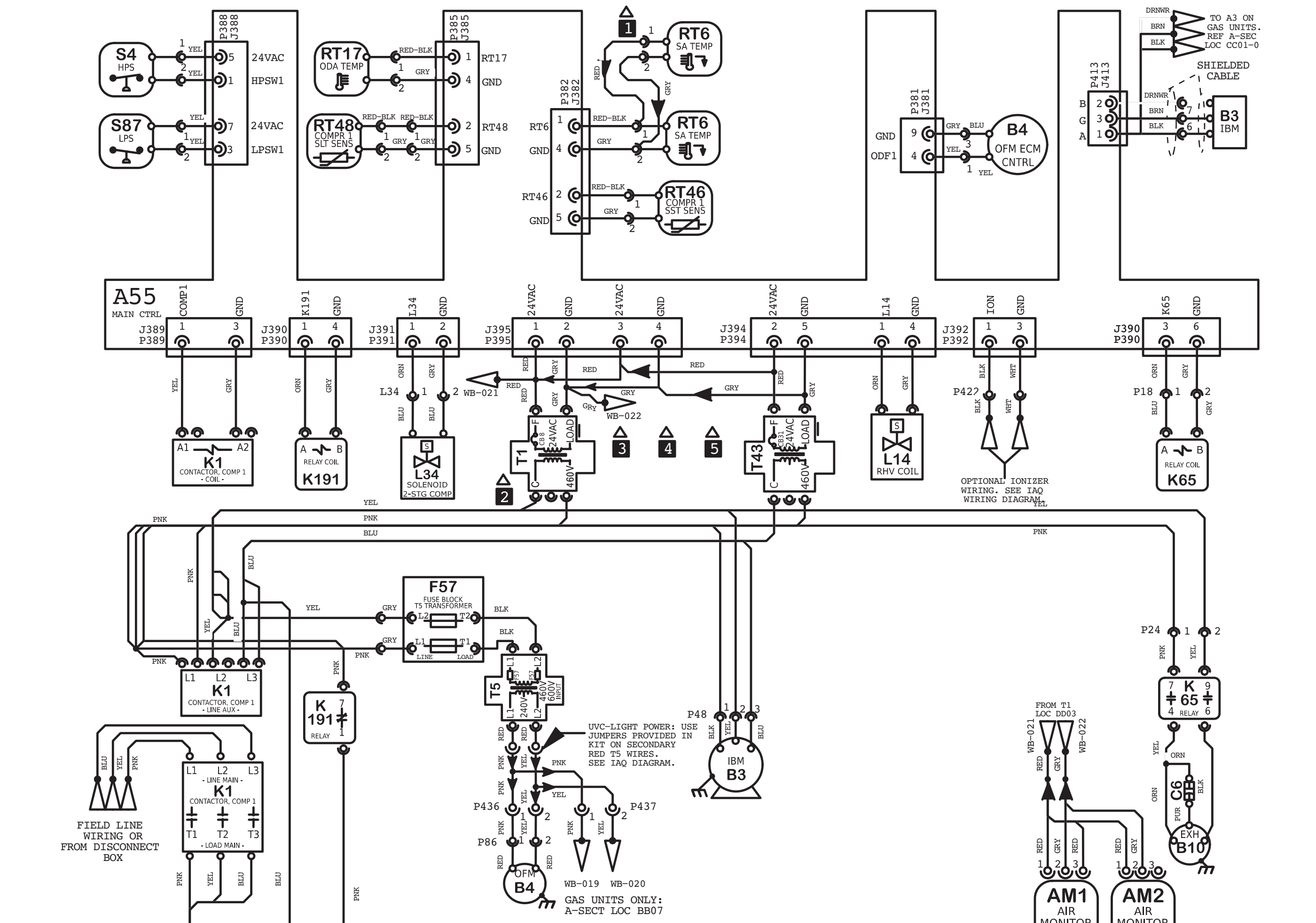
WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H P, Y VOLT
COOLING - ECM BLOWER WITH HIGHER SCCR

Voltage: 208-240V/1~/60Hz(P), 208-240V/3~/60Hz(Y)

Supersedes: N/A Form No: 538185-01 Rev: 0

036H / 072H G VOLT WITHOUT SCCR



	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2, T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

KEY LIST

LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,EE06	B3	MOTOR, BLOWER
GG02,DD07	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT, SUCT TEMP,, COMP 1
CC02	RT48	SENSOR, SAT, LIQUID TEMP,, COMP 1
AA01	S4	LIMIT, HI PRESS, SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS,, COMP 1
DD04	T1	TRANSFORMER, CONTROL
DD05	T5	TRANSFORMER, MOTOR
EE04	T43	TRANSFORMER, REHEAT

DENOTES OPTIONAL COMPONENTS AND WIRING

WARNING

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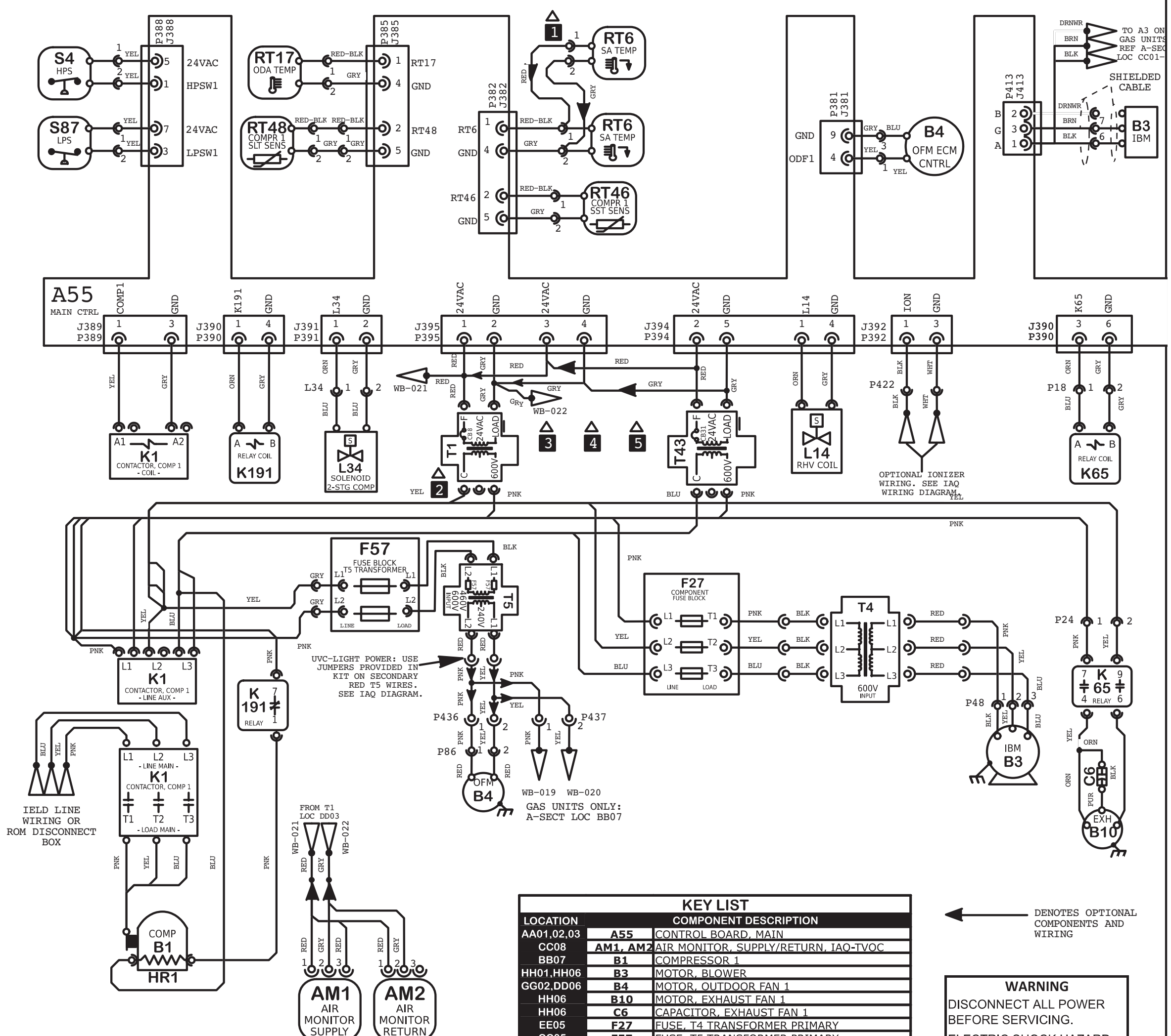
HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H G VOLT
COOLING - EBM BLOWER WITHOUT HIGHER SCCR
Voltage: 460V/3~/60Hz (G)
Supersedes: N/A Form No: 538190-01 Rev: 0

036H / 072H J VOLT WITHOUT SCCR



DENOTES OPTIONAL COMPONENTS AND WIRING

KEY LIST		
LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
CC08	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,HH06	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
EE05	F27	FUSE, T4 TRANSFORMER PRIMARY
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
GG05	T4	TRANSFORMER, BLOWER
DD05	T5	TRANSFORMER, OUTDOOR FAN 1
EE04	T43	TRANSFORMER, REHEAT

△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

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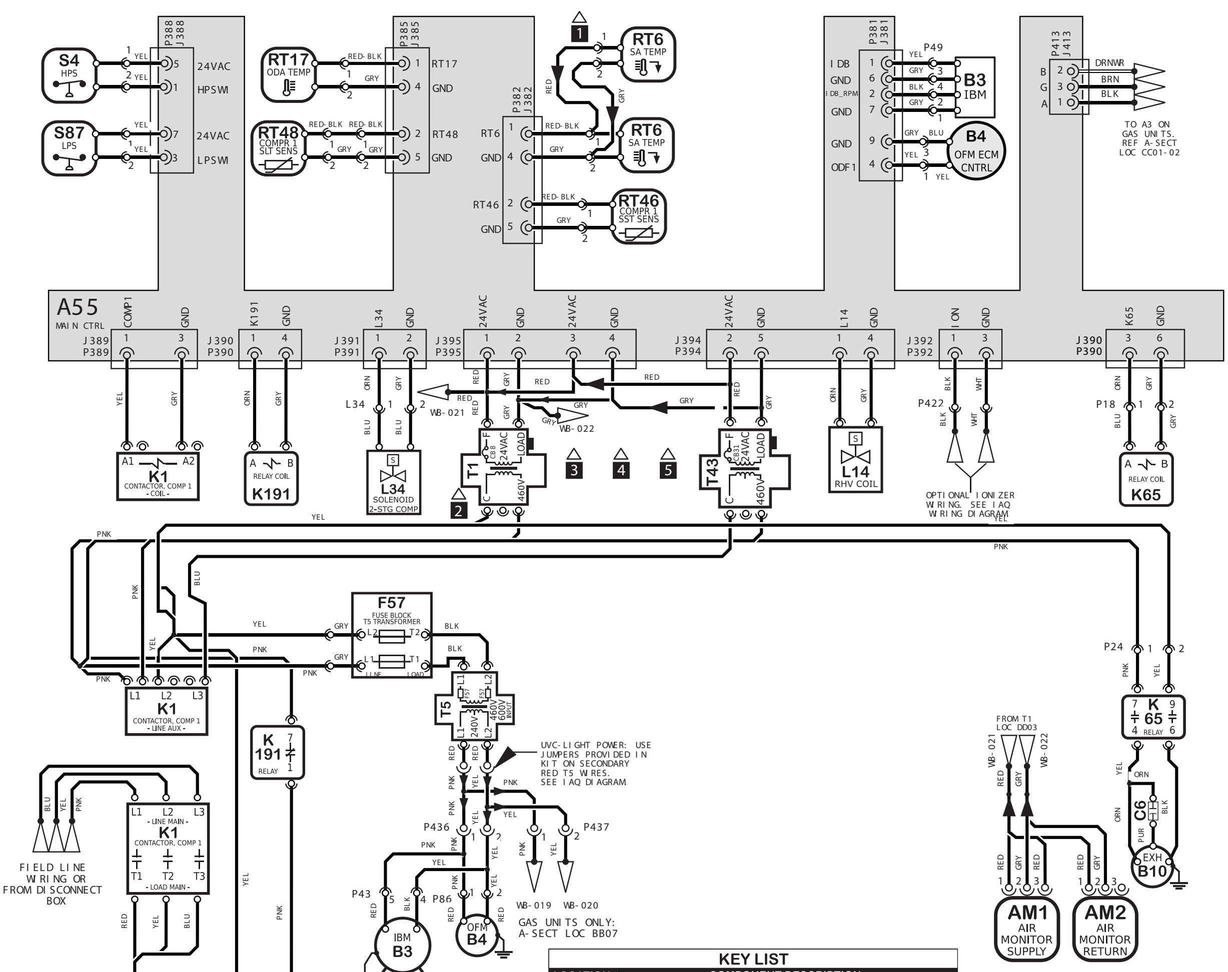
odel: LGT, LCT 036H - 072H J VOLT
COOLING - EBM BLOWER WITHOUT HIGHER SCCR
oltage: 575V/3~/60Hz (J)
upersedes:N/A Form No:538192-01 Rev:0

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

036H / 072H G VOLT WITHOUT SCCR



DENOTES OPTIONAL COMPONENTS AND WIRING

KEY LIST

LOCATION		COMPONENT DESCRIPTION
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB08	B1	COMPRESSOR 1
GG01,CC07	B3	MOTOR, BLOWER
GG02,DD07	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
CC05	F57	FUSE, T5 TRANSFORMER PRIMARY
BB08	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
DD05	T5	TRANSFORMER, MOTOR
EE04	T43	TRANSFORMER, REHEAT

NOTES

	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

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HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

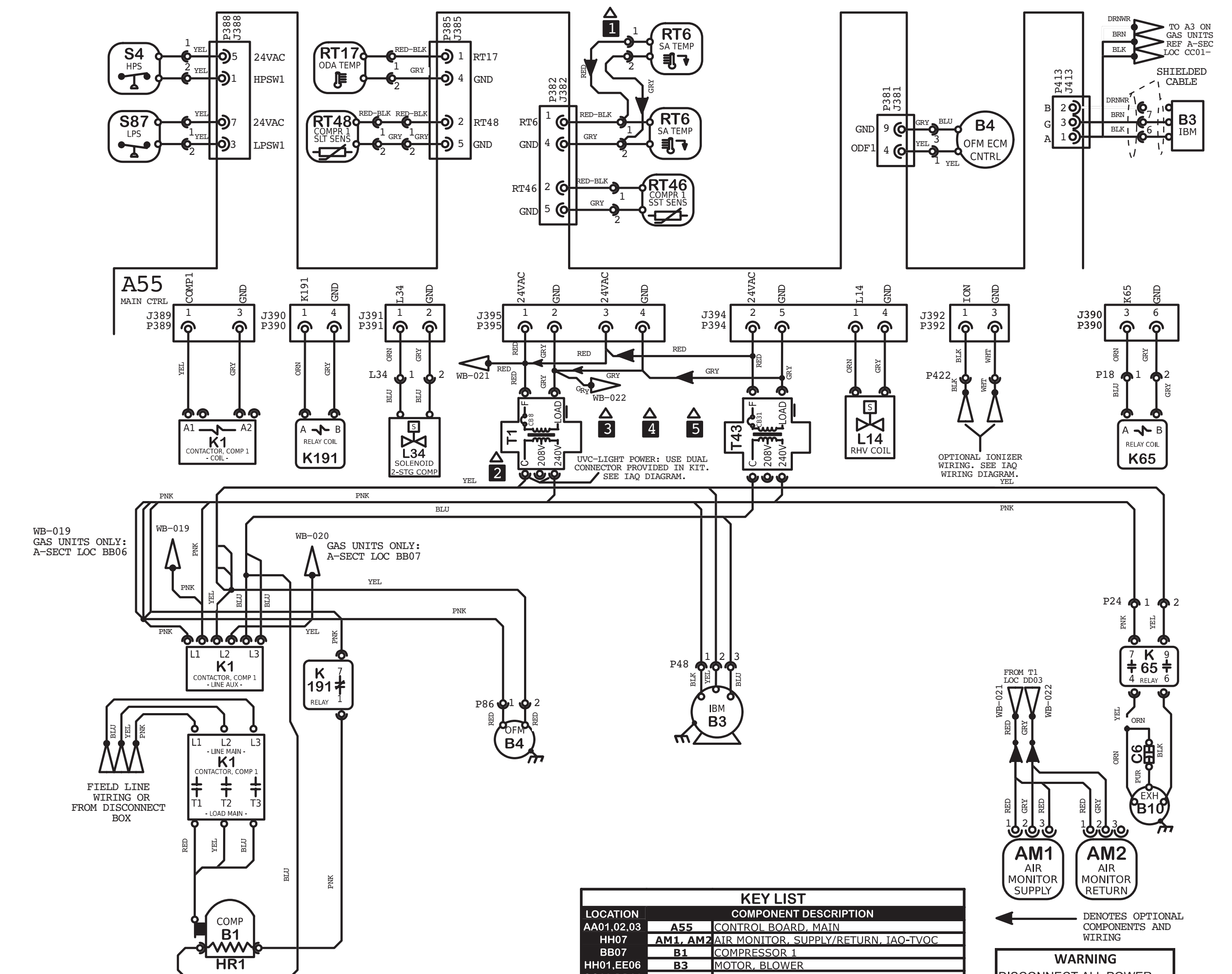
WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H G, J VOLT
COOLING - ECM BLOWER WITHOUT HIGHER SCCR

Voltage: 460V/3~/60Hz (G), 575V/3~/60Hz (J)

Supersedes: N/A Form No: 538186-01 Rev: 1

036H / 072H Y VOLT WITHOUT SCCR



KEY LIST

LOCATION	COMPONENT	DESCRIPTION
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07	B1	COMPRESSOR 1
HH01,EE06	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
HH06	C6	CAPACITOR, EXHAUST FAN 1
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,06	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT, SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT, LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
EE04	T43	TRANSFORMER, REHEAT

△	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
4	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
5	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

WARNING

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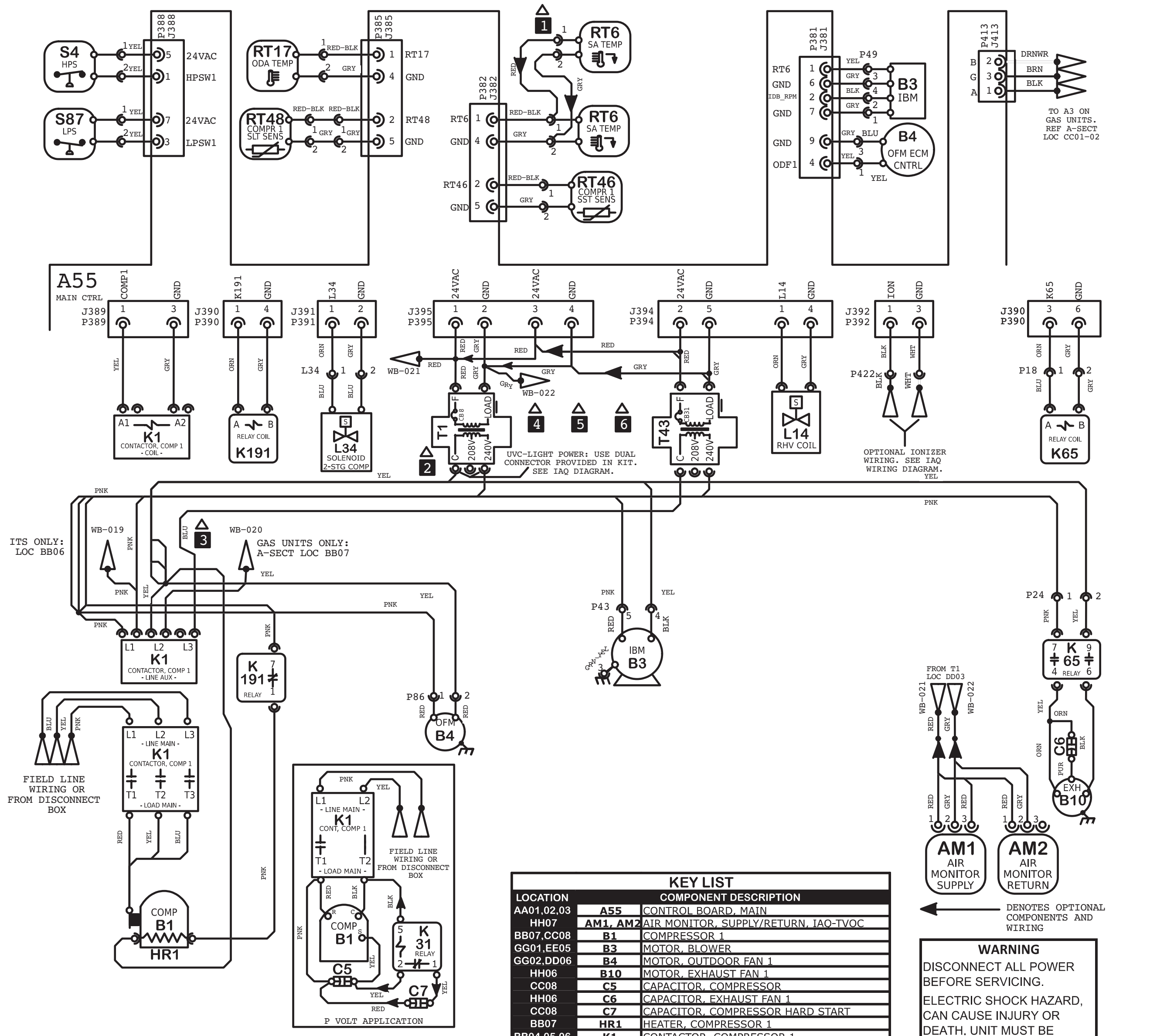
HEATING SECTION A	COOLING SECTION B	COOLING SECTION B3	ACCS SECTION C	ACCS SECTION D

WIRING DIAGRAM FLOW

Model: LGT, LCT 036H - 072H Y VOLT COOLING - EBM BLOWER WITHOUT HIGHER SCCR
Voltage: 208-240V/3~/60Hz (Y)
Supersedes: N/A Form No: 538188-01 Rev: 0

036H / 072H P, Y VOLT WITHOUT SCCR



KEY LIST		
LOCATION	COMPONENT DESCRIPTION	
AA01,02,03	A55	CONTROL BOARD, MAIN
HH07	AM1, AM2	AIR MONITOR, SUPPLY/RETURN, IAQ-TVOC
BB07,CC08	B1	COMPRESSOR 1
GG01,EE05	B3	MOTOR, BLOWER
GG02,DD06	B4	MOTOR, OUTDOOR FAN 1
HH06	B10	MOTOR, EXHAUST FAN 1
CC08	C5	CAPACITOR, COMPRESSOR
HH06	C6	CAPACITOR, EXHAUST FAN 1
CC08	C7	CAPACITOR, COMPRESSOR HARD START
BB07	HR1	HEATER, COMPRESSOR 1
BB04,05,06	K1	CONTACTOR, COMPRESSOR 1
DD08	K31	RELAY, HARD START KIT
HH04,05	K65	RELAY, EXHAUST FAN 1
BB04,05	K191	RELAY, CRANKCASE HEATER 1
FF04	L14	VALVE, SOLENOID, REHEAT COIL 1
CC04	L34	VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6	SENSOR, A55 DISCHARGE (IMC)
CC01	RT17	SENSOR, OUTSIDE AIR TEMP
EE02	RT46	SENSOR, SAT. SUCT TEMP., COMP 1
CC02	RT48	SENSOR, SAT. LIQUID TEMP., COMP 1
AA01	S4	LIMIT, HI PRESS. SWITCH, COMP 1
AA01	S87	SWITCH, LOW PRESS., COMP 1
DD04	T1	TRANSFORMER, CONTROL
EE04	T43	TRANSFORMER, REHEAT

	NOTES
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	P-VOLT UNITS - CONNECT T43-C TO K1-L2
4	W/O HUMIDITROL, W/O PHASE DETECTION - T1 CONNECTED TO J/P395-1,2,3,4
5	PHASE DETECTION - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED J/P395-3,4
6	HUMIDITROL - T1 CONNECTED TO J/P395-1,2. T43 CONNECTED TO J/P395-3,4 & J/P394-2,5. L14 CONNECTED TO J/P394-1,4

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Model: LGT, LCT 036H - 072H P, Y VOLT
COOLING - ECM BLOWER WITHOUT HIGHER SCCR
Voltage: 208-240V/1~/60Hz(P), 208-240V/3~/60Hz(Y)
Supersedes: N/A Form No: 538184-01 Rev: 0

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Cooling Sequence of Operation

Power:

1 - Line voltage energizes transformer T1. T1 provides 24VAC power to the A55 Unit Controller. A55 provides 24VAC to the unit cooling, heating and blower controls.

2 - Line voltage provides voltage to compressor crankcase heater relay K191-1 N.C. contacts, compressor contactor K1, blower motor B3, and outdoor fan motor B4 (on G volt units line voltage is supplied to two fuses F27, transformer T4, blower motor B3, and outdoor fan motor B4).

Blower Operation:

3 - The A55 Unit Controller receives a demand from thermostat terminal G. A55 energizes blower motor B3 via programmed motor settings. Motor settings are field-adjustable.

First Stage Cooling

4 - A55 Unit Controller receives Y1 and G cooling demand.

5 - After A55 proves n.c. low pressure switch S87, n.c. SST, and n.c. high pressure switch S4, reversing valve (L1), compressor contactor K1 and Blower B3 are energized.

6 - N.O. contacts K1-1 close energizing the compressor B1.

7 - SLT prove below 62°F. A55 energized outdoor fan motor B4 to modulate. If above 65°F, outdoor fan motor B4 will be set to low speed.

Second Stage Cooling

8 - A55 received a Y2 and G cooling demand and energizes blower B3 on high speed.

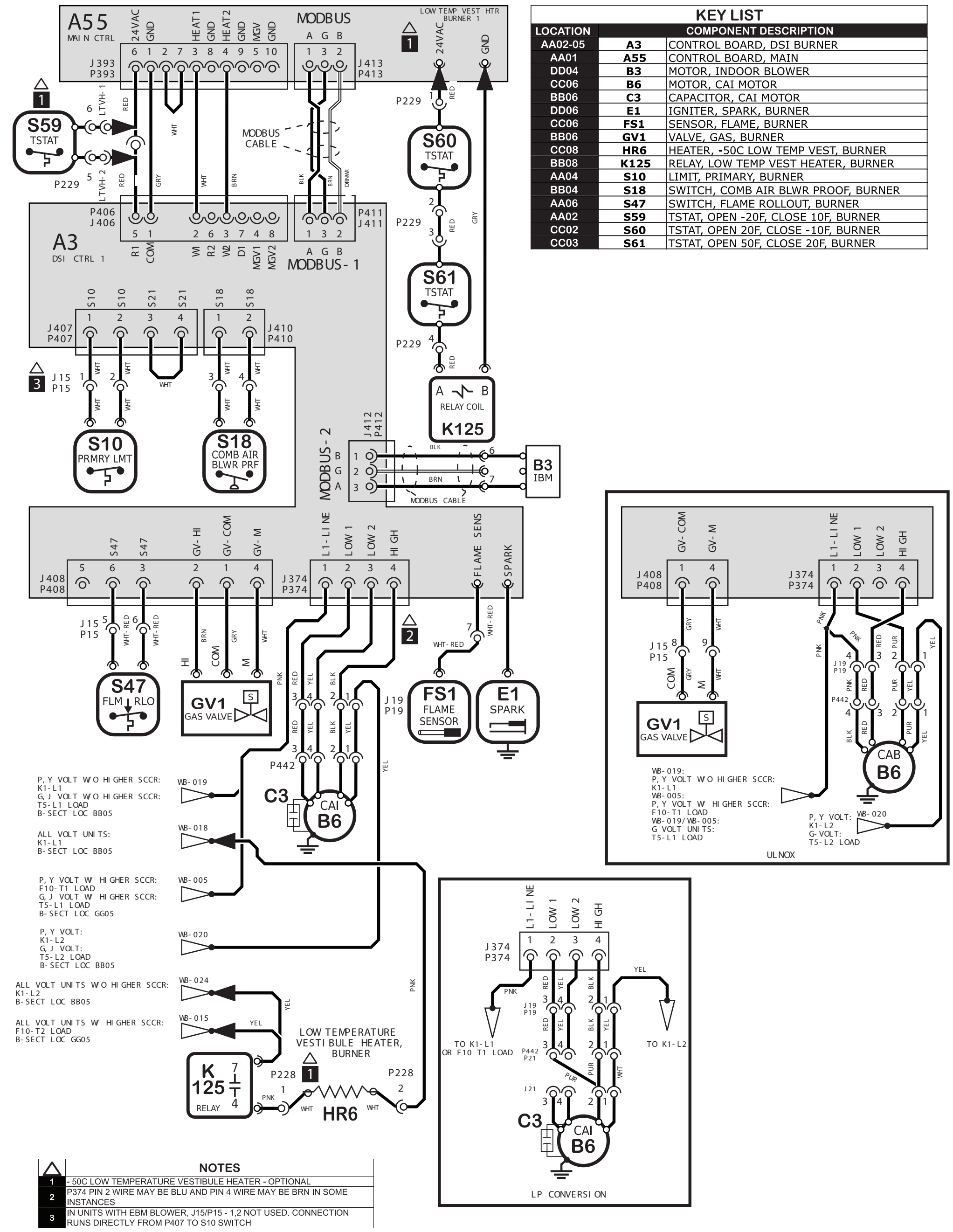
9 - A55 Energizes compressor solenoid L34, switching compressor to high speed.

Power Exhaust Fan Operation

10 - A55 receives a position feedback signal from the economizer damper motor and energizes exhaust fan relay K65 with 24VAC at 50% outside air damper open (adjustable).

11 - N.O. contact K65-1 & 2 close, energizing exhaust fan motor B10.

Two-Stage Gas Heat



KEY LIST		
LOCATION	COMPONENT DESCRIPTION	
AA02-05	A3	CONTROL BOARD, DSI BURNER
AA01	A55	CONTROL BOARD, MAIN
DD04	B3	MOTOR, INDOOR BLOWER
CC06	B6	MOTOR, CAI MOTOR
BB06	C3	CAPACITOR, CAI MOTOR
DD06	E1	IGNITER, SPARK, BURNER
CC06	FS1	SENSOR, FLAME, BURNER
BB06	GV1	VALVE, GAS, BURNER
CC08	HR6	HEATER, -50C LOW TEMP VEST, BURNER
BB08	K125	RELAY, LOW TEMP VEST HEATER, BURNER
AA04	S10	LIMIT, PRIMARY, BURNER
BB04	S18	SWITCH, COMB AIR BLWR PROOF, BURNER
AA06	S47	SWITCH, FLAME ROLLOUT, BURNER
AA02	S59	TSTAT, OPEN -20F, CLOSE 10F, BURNER
CC02	S60	TSTAT, OPEN 20F, CLOSE -10F, BURNER
CC03	S61	TSTAT, OPEN 50F, CLOSE 20F, BURNER

	NOTES
1	-50C LOW TEMPERATURE VESTIBULE HEATER - OPTIONAL
2	P374 PIN 2 WIRE MAY BE BLU AND PIN 4 WIRE MAY BE BRN IN SOME INSTANCES
3	IN UNITS WITH EBM BLOWER, J15/P15 - 1,2 NOT USED. CONNECTION RUNS DIRECTLY FROM P407 TO S10 SWITCH

← DENOTES OPTIONAL COMPONENTS AND WIRING

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Model: LG, LDT SERIES RTU - GAS HEAT
Input Heat Capacity 60k - 150k Btuh

Voltage: 208-240/1/60(P),208-240/3/60(Y),460/3/60(G), 575/3/60(J)

Supersedes: N/A Form No: 538237-02 Rev: 0

TWO-STAGE GAS HEAT SEQUENCE OF OPERATION

First Stage Heat:

1 - The thermostat initiates W1 heating demand.

2 - 24VAC is routed to controller A3. A3 proves N.C. primary limit S10..

3 - Control board A3 energizes combustion air inducer B6. After B6 has reached full speed, the combustion air blower proving switch S18 contacts close.

4 - After a 30 second delay A3 energizes the ignitor and gas valve GV1 on first stage.

Second Stage Heat:

5 - With first stage heat operating, an additional heating demand from the thermostat initiates W2.

6 - A second stage heating demand is received by A55.

7 - A3 energizes HI terminal (high fire) of gas valve.

8 - A3 energizes combustion air inducer B6 on high speed.

End of Second Stage Heat:

9 - Heating demand is satisfied. Terminal HI (second stage) is de-energized.

10 - Second stage heat is de-energized on GV1.

11 - Combustion air inducer B6 is now on low speed.

End of First Stage Heat:

12 - Heating demand is satisfied. Terminal W1 (first stage) is de-energized.

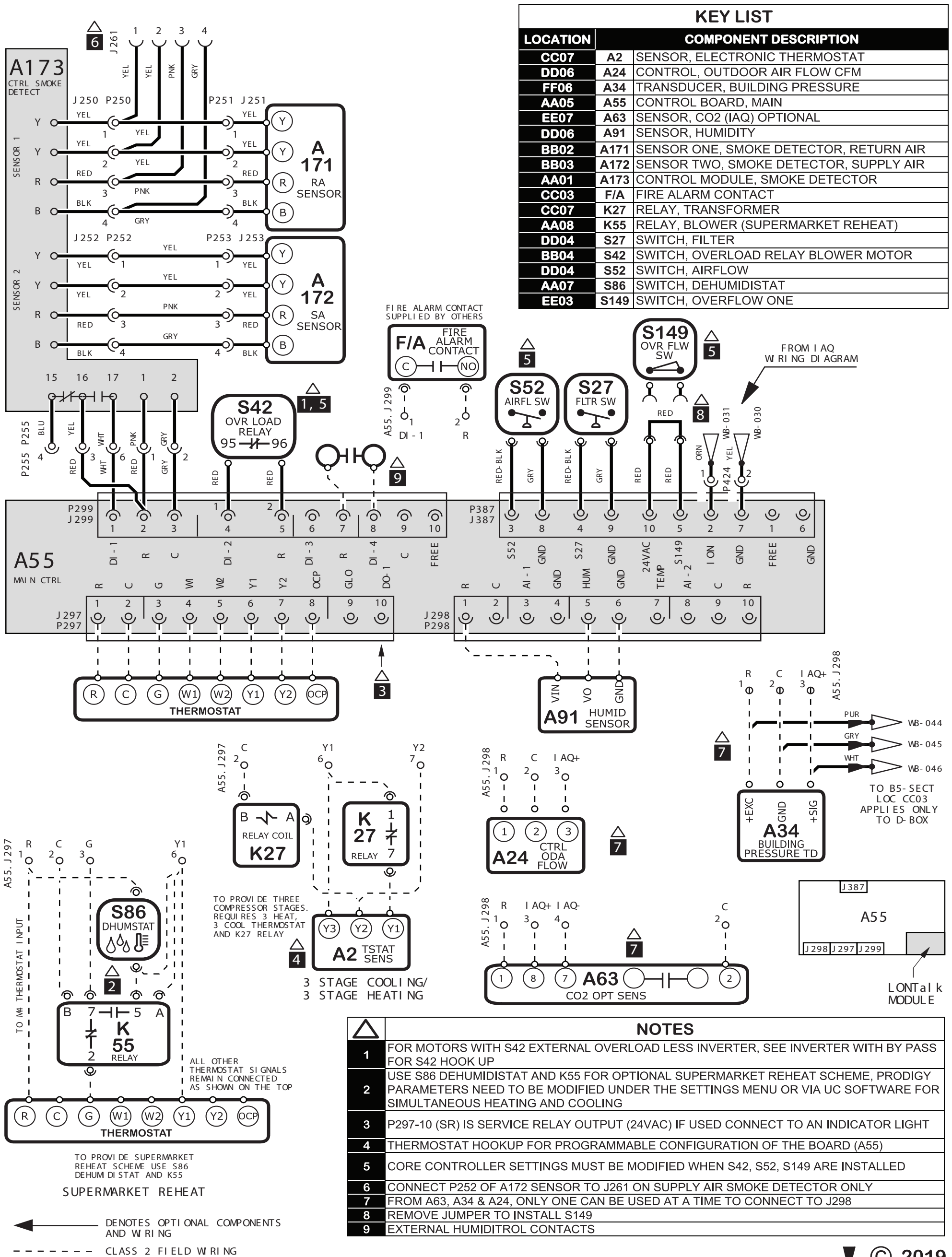
13 - Ignition A3 is de-energized in turn de-energizing gas valve GV1 and combustion air inducer B6.

Optional Low Ambient Kit:

(C.S.A. -50° C Low Ambient Kit)

14 - Line voltage is routed through the N.C. low ambient kit thermostats S60 and S61, to energize low ambient kit heater HR6.

THERMOSTAT



KEY LIST

LOCATION		COMPONENT DESCRIPTION
CC07	A2	SENSOR, ELECTRONIC THERMOSTAT
DD06	A24	CONTROL, OUTDOOR AIR FLOW CFM
FF06	A34	TRANSDUCER, BUILDING PRESSURE
AA05	A55	CONTROL BOARD, MAIN
EE07	A63	SENSOR, CO2 (IAQ) OPTIONAL
DD06	A91	SENSOR, HUMIDITY
BB02	A171	SENSOR ONE, SMOKE DETECTOR, RETURN AIR
BB03	A172	SENSOR TWO, SMOKE DETECTOR, SUPPLY AIR
AA01	A173	CONTROL MODULE, SMOKE DETECTOR
CC03	F/A	FIRE ALARM CONTACT
CC07	K27	RELAY, TRANSFORMER
AA08	K55	RELAY, BLOWER (SUPERMARKET REHEAT)
DD04	S27	SWITCH, FILTER
BB04	S42	SWITCH, OVERLOAD RELAY BLOWER MOTOR
DD04	S52	SWITCH, AIRFLOW
AA07	S86	SWITCH, DEHUMIDISTAT
EE03	S149	SWITCH, OVERFLOW ONE

NOTES

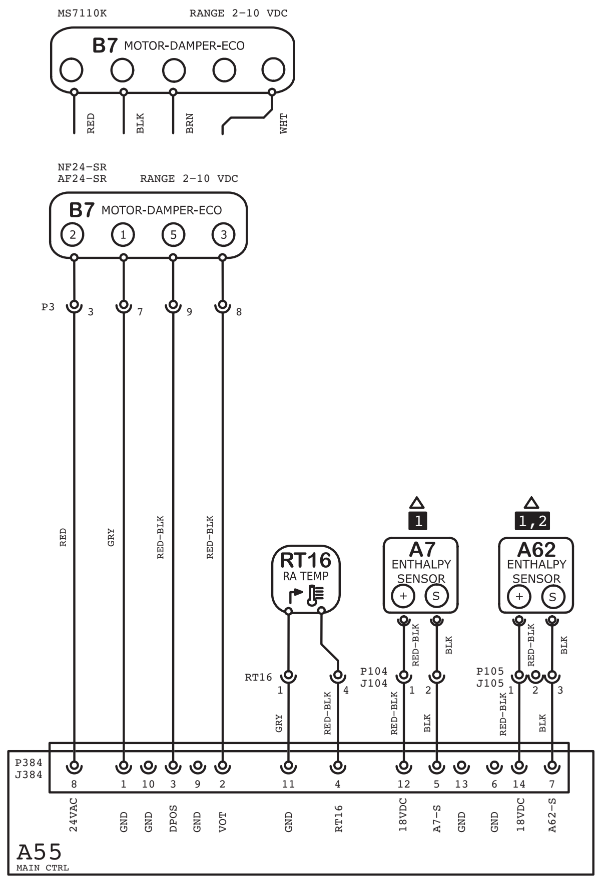
1	FOR MOTORS WITH S42 EXTERNAL OVERLOAD LESS INVERTER, SEE INVERTER WITH BY PASS FOR S42 HOOK UP
2	USE S86 DEHUMIDISTAT AND K55 FOR OPTIONAL SUPERMARKET REHEAT SCHEME, PRODIGY PARAMETERS NEED TO BE MODIFIED UNDER THE SETTINGS MENU OR VIA UC SOFTWARE FOR SIMULTANEOUS HEATING AND COOLING
3	P297-10 (SR) IS SERVICE RELAY OUTPUT (24VAC) IF USED CONNECT TO AN INDICATOR LIGHT
4	THERMOSTAT HOOKUP FOR PROGRAMMABLE CONFIGURATION OF THE BOARD (A55)
5	CORE CONTROLLER SETTINGS MUST BE MODIFIED WHEN S42, S52, S149 ARE INSTALLED
6	CONNECT P252 OF A172 SENSOR TO J261 ON SUPPLY AIR SMOKE DETECTOR ONLY
7	FROM A63, A34 & A24, ONLY ONE CAN BE USED AT A TIME TO CONNECT TO J298
8	REMOVE JUMPER TO INSTALL S149
9	EXTERNAL HUMIDITROL CONTACTS

HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3/5	SECTION C	SECTION D

WIRING DIAGRAM FLOW

Model: LC, LG, LH, LD Series RTU Thermostat
Voltage: All Voltages
Supersedes: 538078-01 Form No: 538078-02 Rev: 0

ECONOMIZER



△	NOTES
1	A7 AND A62 NOT USED FOR SENSIBLE TEMPERATURE CONTROL
2	FOR UNIT DIFFERENTIAL ENTHALPY CONTROL, ADD A62 RETURN AIR ENTHALPY SENSOR

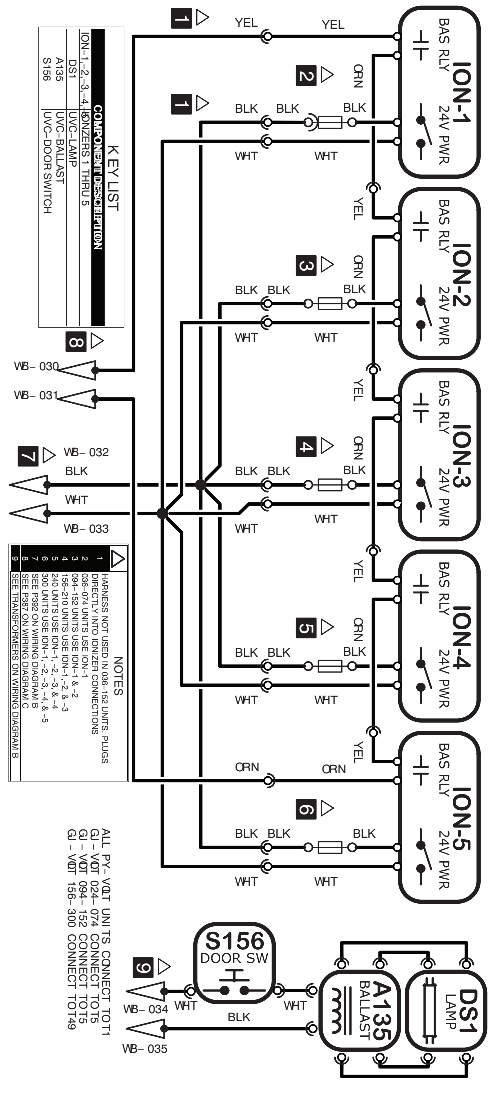
KEY LIST

LOCATION	COMPONENT DESCRIPTION	
CC05	A7	SENSOR, SOLID STATE ENTHALPY
AA06	A55	CONTROL BOARD, MAIN
DD05	A62	SENSOR, ENTHALPY INDOOR
BB02	B7	MOTOR, DAMPER ECONOMIZER
CC05	RT16	SENSOR, RETURN AIR TEMP

HTG SEC A	CLG SEC B	CLG SEC B3	ACCS SEC C	ACCS SEC D

WIRING DIAGRAM FLOW

Model: LC, LG, LH, LD Series RTU
Economizer & Motorized OAD
Voltage: All Voltages
Supersedes: N/A Form No: 538072-01 Rev: 1



MDL: IAQ WIRING DIAGRAM
IONIZERS & UVC

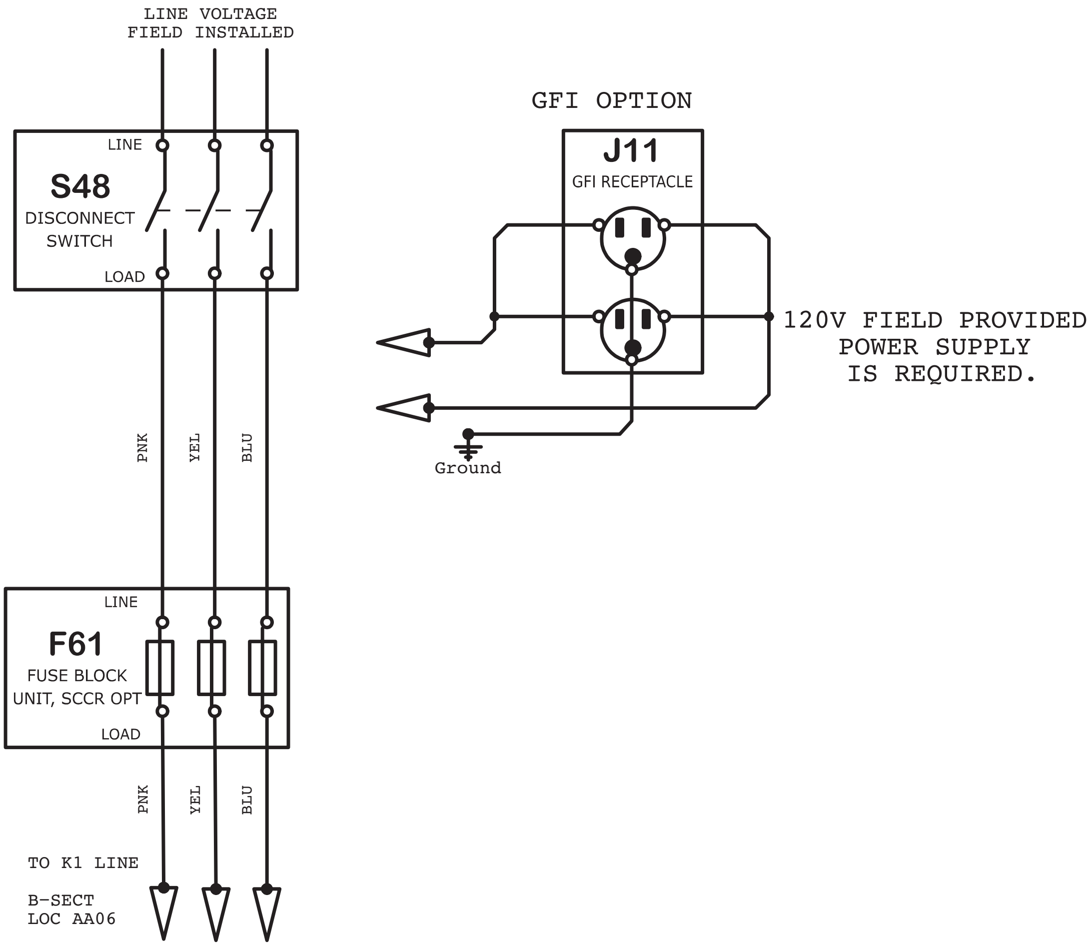
VOLT: Y, G, J VOLT Rev: 0

SUPSDS: N/A NO: 538151- 03

Rev 0

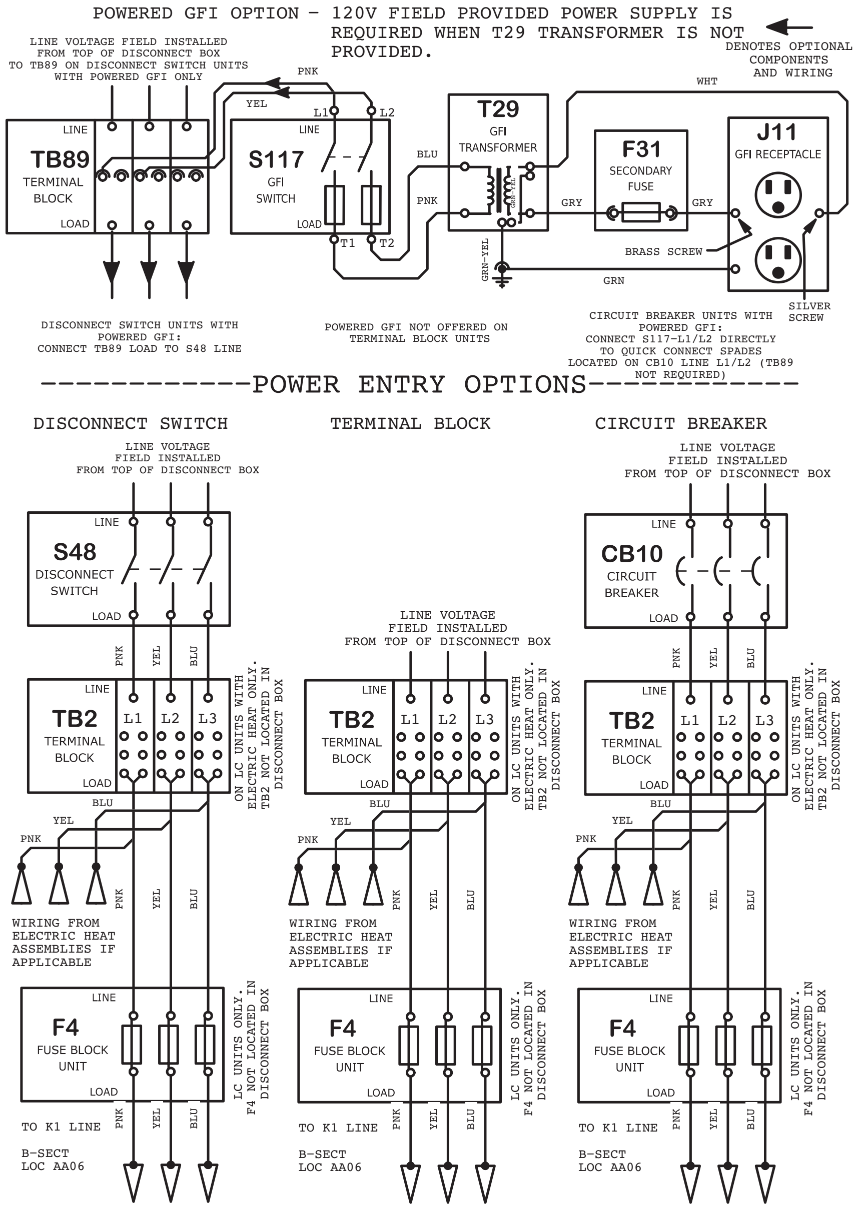
538151-03

POWER ENTRY WITH SCCR



Model: LG, LD Series RTU WITH SCCR
Power Entry Options 024 - 074
Voltage: All Voltages
Supersedes: N/A Form No: 538113-01 Rev: 1

POWER ENTRY NON-SCCR



Model: LCT, LGT, LHT, LDT Series RTU
Power Entry Options 024-074
Voltage: All Voltages
Supersedes: XXXXXX-XX Form No: 538234-01 Rev: 0