

UNIT INFORMATION

LDT SERIES
3 to 6 ton

100124
09/2026

Service Literature

High Efficiency LDT036 through 072 with R454B

LDT036, 048, 060, and 072 are high efficiency packaged units equipped with variable speed direct drive blowers, a two-speed compressor, and a variable speed outdoor fan.

LDT036 are available in 65,000 to 108,000 Btuh (19 to 31 kW). LDT048 and 060 units are available in 65,000 to 150,000 Btuh (19 to 43.9 kW) heating inputs. LDT072 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 (10 to 21kW).

In addition to standard heating and cooling, hot gas reheat units provide a dehumidifying mode of operation. Refer to Reheat Operation section.

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.

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.

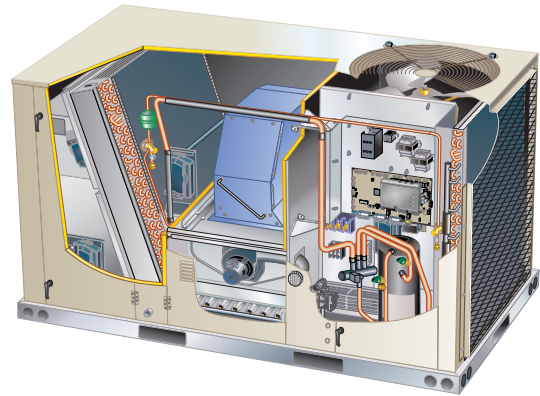


TABLE OF CONTENTS

Options / Accessories	3
Specifications	6
Cooling	6
Low Nox Gas Heat	7
High Altitude Derate	7
Blower Data	8
Electrical Data	16
I. Unit Components	21
A. Control Box Components	21
B. Cooling Components	22
C. Gas Heat Components	30
D. Blower Compartment	45
II. Placement And Installation	47
III. Start-Up - Operation	47
IV. Charging	49
V. Systems Service Checks	52
VI. Maintenance	54
VII. Accessories	58
VIII. Decommissioning	66
IX. Wiring Diagrams And Sequence Of Operation	68

⚠ 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.

⚠ 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

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.

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.

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.

CAUTION

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction

CAUTION

Children should be supervised not to play with the appliance.

CAUTION

Servicing shall be performed only as recommended by the manufacturer.

CAUTION

Leak Detection System installed. Unit must be powered except for service.

WARNING

Ducts connected to an appliance shall not contain a potential ignition source.

IMPORTANT

Pipe work, including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

IMPORTANT

Refrigerant sensors for refrigerant detection systems shall only be replaced with sensors specified by the appliance manufacture.

CAUTION

This unit is equipped with electrically powered safety measures. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.

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	
1 Modulating Gas Heat		Factory	O	O	O	O	
Gas Heat Input (Low NOx)	Standard - 53,000-65,000 Btuh input	Factory	O	O	O	O	
	Medium - 81,000-108,000 Btuh input	Factory	O	O	O	O	
	High - 113,000-150,000 Btuh input	Factory		O	O	O	
LPG/Propane Conversion Kits	Two-Stage Standard	21Z24	X	X	X	X	
	Two-Stage Medium and High	21Z23	X	X	X	X	
NOTE - Combination Two-Stage and Modulating Kits will not be available until 11/16/2026	Two-Stage and Modulating Standard Heat	39H79	X	X	X	X	
	Two-Stage and Modulating Medium and High Heat	39H78	X	X	X	X	
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	
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				
	1.0 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							
Burglar Bars		Y1037	X	X	X	X	
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	Field	X	X	X	X	
Dirty Filter Switch		53W66	OX	OX	OX	OX	
1 Remote Discharge Air Temperature Sensor		21Z08	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	

¹ Modulating Gas Heat for Horizontal Applications requires a Remote Discharge Air Temperature Sensor (21Z08). Sensor is shipped with the unit for field installation if unit is configured at the factory. Sensor must be ordered separately for field installation if unit is not factory configured.

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	
² Short-Circuit Current Rating (SCCR) of 100kA (includes Phase/Voltage Detection)		Factory	O	O	O	O	
Disconnect Switch 80 amp		22A25	O	O	O	O	
GFI Service	15 amp non-powered, field-wired (208/230V, 460V only)	74M70	OX	OX	OX	OX	
Outlets	15 amp factory-wired and powered (208/230V, 460V only)	Factory	O	O	O	O	
	³ 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	
CANFAB ECONOMIZER							
Horizontal Economizer with Outdoor Air Hood (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)							
Includes Outdoor Air Hood		39Q15	X	X	X	X	
Economizer Controls (Not for Title 24)							
Differential Enthalpy	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	
Single Enthalpy		21Z09	OX	OX	OX	OX	
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							
⁴ Barometric Relief Dampers for Power Exhaust Kit		21Z21	X	X	X	X	
⁵ Horizontal Barometric Relief Dampers With Outdoor Air and 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	
Humidity Sensor Kit, Remote mounted		17M50	X	X	X	X	

² Disconnect Switch is furnished and factory installed with High SCCR option.

³ Canada requires a minimum 20 amp circuit. Select 20 amp, non-powered, field wired GFI.

⁴ Required when Economizer is factory installed with factory installed Power Exhaust Fan option.

⁵ Required when Economizer is configured for horizontal airflow.

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	
INDOOR AIR QUALITY						
Air Filters						
Healthy Climate® High Efficiency Air Filters 20 x 20 x 2 in.	MERV 8 (Order 4)	54W21	OX	OX	OX	OX
	MERV 13 (Order 4)	52W39	OX	OX	OX	OX
	MERV 16 (Order 4)	21U40	X	X	X	X
Replaceable Media Filter With Metal Mesh Frame (includes non-pleated filter media)	20 x 20 x 2 in. (Order 4)	44N60	X	X	X	X
Indoor Air Quality (CO ₂) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display	77N39	X	X	X	X	
Sensor - Wall-mount, off-white plastic cover, no display	87N53	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	87N54	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 (77N39)	90N43	X	X	X	X	
Needlepoint Bipolar Ionization (NPBI)						
Needlepoint Bipolar Ionization (NPBI) Kit	22U14	X	X	X	X	
UVC Germicidal Lamps						
⁶ 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	RTD9-65S	13K60	X	X	X	
	RTD11-95S	13K61				X
Flush - Order one	FD9-65S	13K55	X	X	X	
	FD11-95S	13K56				X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	17W53	X	X	X	
	T1TRAN20N-1	17W54				X

⁶ 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.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed

SPECIFICATIONS						
Model		LDT036H5E	LDT048H5E	LDT060H5E	LDT072H5E	
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)	38,000	46,800	60,000	70,000	
	¹ Net Cooling Capacity (Btuh)	35,600	44,600	57,000	66,000	
	¹ AHRI Rated Air Flow (cfm-high/low)	1400/935	1400/1100	1800/1300	2100/1500	
	¹ SEER2 (Btuh/Watt)	16.0	15.6	15.2	---	
	¹ EER2 (Btuh/Watt)	12.2	12.0	11.8	---	
	¹ IEER (Btuh/Watt)	---	---	---	15.5	
	¹ EER (Btuh/Watt)	---	---	---	11.0	
	Total Unit Power (kW)	2.9	3.7	4.7	5.9	
Heating Performance	¹ Total High Heating Capacity (Btuh)	34,000	44,000	57,000	66,000	
	¹ AHRI Rated Air Flow (cfm)	1400	1600	1900	2100	
	¹ HSPF2 (Region IV)	7.2	7.2	7.2	---	
	HSPF2 (Region V)	5.7	5.9	5.8	---	
	¹ COP	3.5	3.5	3.5	3.5	
	Total Unit Power (kW)	2.8	3.7	4.8	5.5	
	¹ Total Low Heating Capacity (Btuh)	19,000	25,000	33,000	35,500	
	¹ COP	2.1	2.1	2.2	2.25	
	Total Unit Power (kW)	2.7	3.3	4.2	4.6	
	Sound Rating Number	dBA	75	75	82	82
Refrigerant Charge	Refrigerant Type	R-454B	R-454B	R-454B	R-454B	
	Without Reheat Option	13 lbs. 9 oz.	13 lbs. 15 oz.	16 lbs. 2 oz.	13 lbs. 10 oz.	
	With Reheat Option	15 lbs. 2 oz.	13 lbs. 12 oz.	15 lbs. 8 oz.	15 lbs. 4 oz.	
Gas Heat Available		See page 7				
Compressor Type (Number)		Two-Stage Scroll (1)				
Outdoor Coil	Net face area - ft. ²	19.3	19.3	19.3	19.3	
	Tube Diameter - in.	3/8	3/8	3/8	3/8	
	Rows	2	2	3	3	
	Fins - in.	20	20	20	20	
Outdoor Fan	Motor HP (number and type)	1/3 (1 ECM)	1/3 (1 ECM)	1/3 (1 ECM)	1/3 (1 ECM)	
	Rpm	850/575	850/700	945/725	945/725	
	Watts	70-240	140-240	140-310	140-310	
	Diameter (Number) - in.	(1) 24	(1) 24	(1) 24	(1) 24	
	Blades	3	3	3	3	
	Total air volume - cfm	4060/2740	4060/3330	4400/3550	4400/3550	
Indoor Coil	Net face area - ft. ²	9.7	9.7	9.7	9.7	
	Tube Diameter - in.	3/8	3/8	3/8	3/8	
	Rows	3	3	4	4	
	Fins - in.	14	14	14	14	
	Condensate drain size (NPT) - in.	(1) 1	(1) 1	(1) 1	(1) 1	
	Expansion device type	Balanced Port Thermostatic Expansion Valve				
Indoor Blower	Standard	Direct Drive ECM			---	
	Static	Forward Curved			---	
	(All Voltages)	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	DirectPlus™ Direct Drive ECM				
	Static	Backward Curved				
	(3ph Only)	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):

Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.

High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.

Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

SPECIFICATIONS

LOW NOX GAS HEAT

Model		036, 048, 060	072	036, 048, 060, 072	048, 060, 072
Gas Heat Input - Two-Stage or Modulating		Standard		Medium	High
Input Btuh	Minimum	53,000		81,000	113,000
	Maximum	65,000		108,000	150,000
Output Btuh	Minimum	43,000		66,000	92,000
	Maximum	52,000		87,000	121,000
Temperature Rise Range - °F	Minimum	5-35		25 - 55	30 - 60
	Maximum	15-45 (0.5, 1 and 1.5 HP)	10-40 (1.5 HP)	30 - 70	45 - 75
Minimum air volume - cfm		960 (0.5 and 1 HP) 1075 (1.5 HP)	1075 (1.5 HP)	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.			

NOTE - Modulating Gas Heat operates between the minimum and maximum gas heat inputs shown.

NOTE - Air volume may modulate below minimum volume if heat input is below maximum.

² Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

³ 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	2001 - 4500	1.7 / 3.0	5.1 / 9.0	49,000 - 60,000
Medium	2001 - 4500	1.7 / 3.0	5.1 / 9.0	75,000 - 100,000
High	2001 - 4500	1.7 / 3.0	5.1 / 9.0	104,000 - 139,000

BLOWER DATA**0.5 HP | 3 ROW (036)****BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.**

FOR ALL UNITS ADD:

Minimum Air Volume Required For Different Gas Heat Sizes:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 15 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	819	47	403	1006	79	463	1192	111	523	1335	152	573	1477	193	622	1580	236	661	1682	279	699	1812	353	753	1876	400	783
0.1	723	48	485	919	82	539	1114	116	593	1264	159	637	1414	202	681	1522	246	715	1629	290	749	1767	365	797	1835	414	824
0.2	636	51	565	840	88	613	1044	124	660	1201	169	699	1357	213	738	1470	258	769	1582	303	799	1726	380	841	1797	429	865
0.3	557	57	641	769	96	683	981	134	725	1144	180	760	1306	226	794	1423	273	821	1540	319	848	1689	397	885	1761	446	906
0.4	485	65	713	704	106	750	923	146	787	1091	194	818	1259	241	848	1380	289	872	1500	336	895	1653	415	929	1725	463	948
0.5	418	73	783	644	116	815	870	158	846	1043	207	873	1215	256	900	1339	305	921	1462	353	942	1618	433	973	1689	481	991
0.6	355	82	849	587	127	876	819	171	903	996	222	927	1173	272	950	1299	321	969	1425	370	987	1582	451	1016	1651	499	1034
0.7	---	---	---	---	---	---	769	184	957	950	236	978	1131	287	998	1259	337	1015	1387	387	1032	1544	468	1058	1610	516	1077
0.8	---	---	---	---	---	---	720	195	1008	904	248	1026	1088	301	1044	1218	352	1060	1347	403	1075	1503	484	1101	1565	531	1121
0.9	---	---	---	---	---	---	670	206	1057	857	260	1073	1043	314	1088	1173	366	1102	1303	417	1116	1458	498	1142	---	---	---
1.0	---	---	---	---	---	---	617	214	1102	806	269	1116	994	324	1130	1125	376	1144	1255	428	1157	1406	510	1184	---	---	---
1.1	---	---	---	---	---	---	561	219	1145	751	276	1157	941	332	1169	1071	384	1183	1200	436	1196	1347	518	1225	---	---	---
1.2	---	---	---	---	---	---	500	221	1185	691	278	1196	881	335	1207	1010	388	1221	1139	441	1234	1280	522	1265	---	---	---
1.3	---	---	---	---	---	---	---	---	---	---	---	---	814	335	1242	942	388	1256	1069	441	1270	---	---	---	---	---	---
1.4	---	---	---	---	---	---	---	---	---	---	---	---	738	330	1276	864	384	1291	989	437	1305	---	---	---	---	---	---

HORIZONTAL

External Static Press. in. w.g.	Percentage of Total Motor Torque																										
	20%		30%		40%		50%		60%		70%		80%		90%		100%										
	Cfm	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 | 3 ROW (048)****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 15 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	1115	124	488	1344	200	572	1573	276	655	1747	377	724	1920	477	792	2041	581	844	2161	684	896	2304	852	964	2354	936	992
0.1	1012	101	536	1253	181	614	1493	261	691	1677	366	755	1860	471	819	1990	578	868	2119	685	916	2277	860	980	2339	951	1006
0.2	926	88	584	1177	172	656	1427	256	728	1619	365	788	1811	473	848	1949	583	894	2086	693	939	2256	873	999	2328	969	1024
0.3	854	86	634	1113	173	701	1372	260	767	1572	371	823	1772	482	878	1916	595	921	2059	707	963	2240	891	1019	2319	991	1043
0.4	794	91	684	1061	181	746	1328	270	807	1535	383	859	1741	496	910	1890	611	950	2038	725	989	2226	913	1042	2311	1014	1065
0.5	745	104	734	1019	195	791	1292	286	847	1504	401	895	1715	515	942	1868	631	979	2020	747	1016	2214	936	1066	2301	1039	1089
0.6	704	122	785	983	215	837	1262	307	888	1478	423	932	1693	538	976	1849	654	1011	2004	770	1045	2201	960	1092	2288	1063	1114
0.7	671	145	836	954	238	883	1237	331	929	1456	447	969	1674	562	1009	1831	678	1041	1988	794	1073	2185	983	1118	2270	1085	1140
0.8	643	171	886	929	264	928	1215	357	969	1435	472	1006	1655	587	1043	1813	703	1073	1970	818	1103	2164	1005	1145	2246	1104	1168
0.9	619	199	935	907	291	973	1194	383	1010	1415	498	1043	1635	612	1076	1792	726	1104	1948	840	1132	2138	1024	1173	2212	1119	1196
1.0	596	228	983	884	319	1016	1172	410	1049	1392	523	1079	1612	635	1109	1766	747	1135	1920	859	1161	2104	1038	1200	---	---	---
1.1	---	---	---	---	---	---	1148	434	1087	1366	545	1115	1583	655	1142	1734	765	1166	1885	874	1189	2060	1047	1227	---	---	---
1.2	---	---	---	---	---	---	1120	456	1124	1334	564	1149	1548	671	1173	1695	777	1195	1841	883	1217	2004	1050	1254	---	---	---
1.3	---	---	---	---	---	---	1085	474	1159	1295	578	1181	1505	681	1202	1646	784	1223	1786	886	1244	1935	1044	1280	---	---	---
1.4	---	---	---	---	---	---	1043	486	1192	1247	586	1211	1451	685	1230	1585	783	1250	1718	881	1269	1851	1029	1305	---	---	---

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			
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**1.0 HP | 4 ROW (060)****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 15 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	1101	120	494	1328	196	578	1555	272	662	1728	374	731	1901	475	800	2023	580	852	2145	684	903	2292	854	970	2348	942	998
0.1	1002	99	541	1241	180	620	1479	260	698	1662	366	763	1845	471	827	1976	579	876	2106	687	924	2268	865	987	2334	958	1013
0.2	918	88	589	1167	173	663	1416	257	736	1608	366	796	1800	475	856	1938	586	902	2076	697	947	2249	880	1006	2324	978	1031
0.3	848	86	638	1106	174	706	1364	261	774	1564	373	830	1763	485	886	1907	599	929	2051	712	972	2234	899	1028	2316	1000	1052
0.4	790	92	688	1056	183	751	1321	273	814	1527	387	866	1733	501	918	1882	617	958	2031	732	998	2221	921	1051	2307	1024	1074
0.5	742	105	738	1015	197	796	1287	289	854	1498	405	902	1709	520	950	1862	637	988	2014	754	1025	2208	944	1076	2296	1048	1099
0.6	703	124	788	981	217	841	1258	310	894	1473	427	939	1688	543	984	1843	660	1019	1998	777	1053	2194	968	1101	2281	1071	1124
0.7	670	146	838	952	240	887	1233	334	935	1451	451	976	1669	568	1017	1826	685	1050	1982	801	1082	2177	991	1128	2260	1092	1151
0.8	642	172	888	927	266	932	1211	360	975	1431	477	1013	1650	593	1051	1807	709	1081	1963	825	1111	2155	1012	1155	2233	1109	1178
0.9	618	200	937	904	294	976	1190	387	1015	1410	502	1050	1629	617	1084	1785	732	1112	1940	846	1140	2127	1029	1182	---	---	---
1.0	595	229	985	882	321	1020	1168	413	1054	1387	526	1086	1605	639	1117	1758	752	1143	1911	864	1169	2090	1042	1209	---	---	---
1.1	---	---	---	---	---	---	1144	437	1092	1360	548	1120	1576	659	1148	1725	769	1173	1874	878	1197	2043	1049	1236	---	---	---
1.2	---	---	---	---	---	---	1115	458	1129	1328	566	1154	1540	674	1179	1685	780	1202	1829	886	1225	1985	1049	1262	---	---	---
1.3	---	---	---	---	---	---	1080	475	1163	1288	579	1186	1496	683	1208	1634	785	1230	1772	887	1251	1913	1042	1288	---	---	---
1.4	---	---	---	---	---	---	1037	487	1196	1239	587	1216	1441	686	1236	1572	783	1256	1703	880	1275	1826	1024	1312	---	---	---

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			
0	1077	113	502	1282	175	585	1486	237	668	1670	363	746	1854	489	823	1993	623	884	2131	757	944	2216	882	995	2268	926	1009
0.1	1016	109	546	1227	172	624	1437	234	701	1626	361	775	1814	488	848	1956	623	906	2098	757	964	2194	887	1011	2242	928	1026
0.2	962	111	591	1177	174	663	1392	236	735	1585	364	805	1777	492	874	1923	627	930	2069	762	985	2175	895	1029	2218	935	1044
0.3	913	118	636	1133	181	703	1352	244	770	1548	372	836	1744	500	902	1893	636	955	2042	772	1007	2157	907	1048	2196	945	1063
0.4	868	130	682	1092	193	744	1315	256	806	1515	384	868	1714	512	930	1866	648	980	2018	784	1030	2139	922	1069	---	---	---
0.5	827	146	728	1054	209	785	1281	271	842	1484	399	901	1687	526	959	1841	663	1007	1995	799	1054	2121	938	1090	---	---	---
0.6	789	165	775	1019	227	827	1249	288	879	1455	416	934	1660	543	988	1816	679	1034	1972	815	1079	2102	955	1113	---	---	---
0.7	752	185	821	986	247	869	1219	308	916	1427	435	967	1634	562	1018	1792	698	1061	1949	833	1104	2081	972	1136	---	---	---
0.8	718	208	867	954	268	910	1189	328	953	1399	455	1000	1608	581	1047	1767	716	1088	1925	851	1129	2058	989	1160	---	---	---
0.9	684	231	913	922	290	951	1160	349	989	1371	475	1033	1581	600	1077	1741	734	1116	1900	868	1154	2031	1004	1185	---	---	---
1.0	---	---	---	---	---	---	1129	369	1025	1341	494	1066	1553	618	1106	1713	751	1143	1872	884	1179	2001	1017	1209	---	---	---
1.1	---	---	---	---	---	---	1097	388	1060	1310	511	1098	1522	634	1135	1682	766	1170	1841	898	1204	1966	1028	1233	---	---	---
1.2	---	---	---	---	---	---	1063	405	1095	1276	527	1129	1488	648	1163	1647	779	1196	1806	909	1228	1925	1034	1257	---	---	---
1.3	---	---	---	---	---	---	1026	420	1128	1239	540	1159	1451	659	1190	1609	788	1221	1767	917	1252	1879	1036	1281	---	---	---
1.4	---	---	---	---	---	---	985	431	1160	1197	548	1188	1409	665	1216	1566	793	1245	1723	920	1274	1825	1033	1304	---	---	---

BLOWER DATA **1.5 HP | 3 ROW (036, 048)**

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 15 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	718	19	803	41	878	60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
600	845	50	929	72	1008	92	1080	111	1149	127	1226	129	1307	126	1386	124	---	---	---	---	---	---	---	---	---	---	---
800	971	79	1057	101	1138	123	1214	143	1286	160	1362	168	1439	173	1510	181	1574	197	1630	220	1681	250	1731	279	1779	307	307
1000	1136	113	1215	135	1293	157	1367	177	1438	196	1510	209	1579	222	1642	239	1697	263	1747	293	1796	324	1844	353	1890	379	379
1200	1335	151	1406	172	1476	193	1544	213	1611	232	1675	250	1735	272	1788	299	1834	332	1878	368	1923	400	1970	428	2015	454	454
1400	1560	177	1617	204	1675	231	1732	257	1788	283	1841	310	1891	339	1936	371	1978	405	2019	439	2063	469	2108	496	2152	522	522
1600	1742	245	1792	278	1842	311	1892	344	1940	376	1988	406	2035	434	2080	461	2125	486	2169	513	2213	541	2256	570	2297	601	601
1800	1922	330	1970	363	2017	395	2064	426	2110	457	2155	485	2200	512	2244	539	2287	568	2328	600	2369	634	2408	671	2447	708	708
2000	2112	405	2158	438	2202	471	2246	503	2289	536	2331	568	2373	602	2413	640	2452	681	2490	723	2527	766	2564	809	2599	851	851
2200	2305	493	2347	531	2389	569	2429	608	2469	648	2508	691	2546	737	2582	784	2619	832	2654	878	2690	923	2724	965	2758	1007	1007
2400	2499	617	2539	660	2578	704	2615	748	2652	794	2688	841	2722	890	2757	939	2791	986	2825	1031	2858	1075	2891	1117	2923	1158	1158
2600	2697	773	2733	818	2769	864	2803	911	2837	957	2871	1005	2903	1052	2936	1099	2968	1143	3000	1186	3031	1228	3062	1270	3092	1311	1311
2800	2896	944	2929	990	2962	1036	2993	1082	3025	1128	3056	1173	3087	1216	3118	1259	3147	1300	3177	1341	3206	1382	3236	1423	3264	1463	1463
3000	3093	1115	3124	1160	3154	1205	3184	1249	3214	1293	3243	1335	3272	1376	3300	1416	3327	1456	3355	1495	3383	1536	3410	1576	3437	1615	1615

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	1826	333	---	---	---	---	---	---	---	---	---	---	---	---
1000	1935	403	1979	424	2021	444	2064	464	2106	485	2149	509	2191	533
1200	2058	476	2100	498	2142	518	2184	541	2226	565	2267	592	2308	619
1400	2194	548	2235	574	2275	601	2316	629	2356	658	2395	689	2433	720
1600	2337	632	2377	665	2415	698	2453	733	2490	768	2527	803	2563	839
1800	2484	746	2521	785	2557	824	2592	863	2627	902	2661	942	2695	981
2000	2634	894	2668	935	2701	977	2735	1018	2768	1058	2802	1099	2834	1139
2200	2790	1049	2823	1090	2855	1130	2887	1170	2919	1210	2952	1250	2984	1289
2400	2954	1200	2986	1240	3017	1280	3048	1320	3080	1360	3111	1399	3142	1437
2600	3123	1351	3153	1391	3184	1431	3215	1470	3245	1509	3276	1548	3306	1586
2800	3294	1502	3323	1542	3352	1580	3382	1619	3412	1658	3442	1696	3472	1734
3000	3464	1653	3492	1691	3520	1729	3549	1767	3578	1805	3608	1844	3638	1882

BLOWER DATA**1.5 HP | 3 ROW (036, 048)****BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.**

FOR ALL UNITS ADD:

Minimum Air Volume Required For Different Gas Heat Sizes:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 15 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	
	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
1000	1166	105	1241	124	1315	141	1387	159	1454	176	1520	191	1582	207	1638	227	1689	252
1200	1374	142	1440	162	1506	182	1569	203	1630	224	1687	246	1739	271	1787	299	1832	330
1400	1591	183	1647	209	1701	235	1755	263	1806	291	1854	320	1899	351	1942	382	1984	412
1600	1778	258	1827	290	1876	323	1923	355	1970	386	2015	416	2059	444	2102	470	2144	494
1800	1973	352	2018	383	2063	415	2107	445	2151	476	2194	504	2237	531	2279	557	2319	584
2000	2182	437	2224	468	2265	499	2306	531	2346	563	2385	596	2424	630	2461	666	2496	705
2200	2388	540	2426	576	2464	613	2500	651	2536	691	2571	731	2605	774	2637	819	2668	863
2400	2589	679	2624	719	2658	761	2691	803	2724	846	2756	890	2786	935	2816	980	2846	1025
2600	2787	845	2819	887	2850	930	2881	973	2911	1017	2941	1060	2970	1104	2999	1147	3028	1189
2800	2983	1021	3013	1063	3042	1106	3070	1149	3099	1191	---	---	---	---	---	---	---	---

Total Static Pressure - in. w.g.

Total Air cfm	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

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

1.5 HP | 4 ROW (060 | 072)

FOR ALL UNITS ADD:

Minimum Air Volume Required For Different Gas Heat Sizes:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm

See page 15 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	720	20	805	41	880	60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
600	849	51	933	73	1011	93	1083	112	1152	128	1229	130	1310	126	1389	125	---	---	---	---	---	---	---	---	---	---			
800	978	81	1064	103	1145	124	1220	144	1291	162	1367	170	1443	175	1514	183	1578	198	1634	222	1684	252	1734	281	1783	309			
1000	1147	116	1225	138	1302	159	1376	179	1446	198	1517	211	1586	224	1648	242	1703	266	1753	296	1801	327	1849	356	1896	382			
1200	1347	154	1418	175	1487	196	1555	216	1620	235	1684	253	1743	275	1795	302	1841	336	1884	373	1930	405	1976	433	2021	458			
1400	1571	182	1629	209	1686	236	1742	262	1798	288	1850	315	1899	346	1943	380	1984	417	2025	453	2068	485	2113	512	2156	537			
1600	1753	252	1803	286	1853	318	1902	351	1951	383	1998	415	2043	447	2087	478	2130	508	2173	539	2216	568	2259	595	2302	621			
1800	1935	339	1983	371	2030	403	2076	434	2122	465	2167	495	2210	524	2253	554	2295	586	2337	618	2378	650	2418	682	2458	714			
2000	2127	415	2172	448	2217	481	2260	513	2303	546	2345	579	2385	614	2425	653	2464	693	2503	734	2541	774	2578	814	2614	855			
2200	2321	507	2363	545	2404	583	2444	623	2484	664	2522	707	2560	753	2596	801	2632	848	2667	895	2703	939	2737	981	2770	1023			
2400	2516	635	2556	679	2594	723	2631	767	2668	813	2703	861	2737	909	2772	958	2805	1005	2839	1050	2872	1093	2905	1135	2936	1176			
2600	2715	796	2751	841	2786	887	2820	933	2854	980	2887	1027	2919	1074	2952	1120	2983	1164	3015	1207	3046	1249	3077	1290	3107	1330			
2800	2915	970	2947	1016	2979	1062	3011	1107	3042	1152	3073	1197	3104	1240	3134	1282	3164	1323	3193	1364	3222	1404	3251	1445	3280	1485			
3000	3112	1142	3142	1187	3172	1232	3202	1276	3232	1319	3261	1361	3289	1401	3317	1441	3344	1480	3371	1520	3399	1560	3426	1600	3453	1638			
Total Air cfm	Total Static Pressure - in. w.g.																												
	1.4		1.5		1.6		1.7		1.8		1.9		2.0		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	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	
800	1830	335	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
1000	1940	405	1983	426	2026	446	2068	466	2111	488	2154	512	2196	536	536	1940	405	1983	426	2026	446	2068	466	2111	488	2154	512	2196	536
1200	2064	480	2106	501	2148	522	2190	544	2232	569	2273	595	2314	623	623	2064	480	2106	501	2148	522	2190	544	2232	569	2273	595	2314	623
1400	2199	560	2241	584	2282	608	2323	634	2363	664	2402	694	2440	726	726	2199	560	2241	584	2282	608	2323	634	2363	664	2402	694	2440	726
1600	2344	647	2384	675	2424	706	2462	740	2498	776	2535	811	2571	848	848	2344	647	2384	675	2424	706	2462	740	2498	776	2535	811	2571	848
1800	2497	749	2533	788	2568	829	2602	872	2636	914	2671	953	2705	992	992	2497	749	2533	788	2568	829	2602	872	2636	914	2671	953	2705	992
2000	2648	898	2681	941	2714	986	2746	1030	2779	1072	2812	1112	2845	1152	1152	2648	898	2681	941	2714	986	2746	1030	2779	1072	2812	1112	2845	1152
2200	2803	1064	2835	1105	2867	1145	2899	1186	2931	1225	2964	1265	2995	1303	1303	2803	1064	2835	1105	2867	1145	2899	1186	2931	1225	2964	1265	2995	1303
2400	2968	1217	2999	1258	3031	1298	3062	1337	3093	1377	3124	1415	3156	1454	1454	2968	1217	2999	1258	3031	1298	3062	1337	3093	1377	3124	1415	3156	1454
2600	3138	1371	3168	1411	3199	1450	3229	1489	3260	1528	3290	1566	3321	1604	1604	3138	1371	3168	1411	3199	1450	3229	1489	3260	1528	3290	1566	3321	1604
2800	3309	1524	3338	1563	3368	1602	3398	1640	3428	1678	3458	1717	3488	1755	1755	3309	1524	3338	1563	3368	1602	3398	1640	3428	1678	3458	1717	3488	1755
3000	3481	1677	3508	1715	3537	1752	3566	1790	3595	1828	3625	1866	3655	1904	1904	3481	1677	3508	1715	3537	1752	3566	1790	3595	1828	3625	1866	3655	1904

BLOWER DATA1.5 HP | 4 ROW (060 | 072)

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

FOR ALL UNITS ADD: Minimum Air Volume Required For Different Gas Heat Sizes:
1 - Any factory installed options air resistance (heat section, economizer, etc.). Standard Heat - 1075 cfm; Medium Heat - 1150 cfm; High Heat - 1500 cfm
2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 15 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	711	16	796	38	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
600	840	47	924	66	1006	83	1083	96	1154	107	1226	109	1372	148	1530	194	1646	231	1696	255	1744	283	1790	312	1836	340	1880	365
800	990	76	1072	94	1153	111	1230	126	1301	140	1464	178	1530	194	1646	231	1696	255	1744	283	1790	312	1836	340	1880	365		
1000	1179	108	1253	126	1326	144	1397	161	1464	178	1530	194	1646	231	1696	255	1744	283	1790	312	1836	340	1880	365				
1200	1388	146	1454	166	1519	186	1582	207	1641	228	1697	251	1749	276	1797	305	1842	336	1885	367	1929	397	1973	424	2016	450		
1400	1606	189	1661	216	1715	242	1768	270	1818	298	1866	328	1911	358	1953	390	1995	420	2037	449	2079	476	2121	503	2163	527		
1600	1794	268	1842	301	1890	333	1938	364	1984	396	2029	426	2073	453	2115	479	2157	503	2199	528	2240	553	2281	581	2321	609		
1800	1991	364	2035	395	2079	426	2123	456	2167	486	2210	515	2252	541	2294	568	2334	596	2374	625	2412	657	2448	692	2484	727		
2000	2202	451	2242	482	2283	513	2323	545	2363	577	2402	611	2440	646	2477	683	2512	722	2546	763	2579	804	2613	844	2645	884		
2200	2408	559	2446	596	2483	633	2520	672	2555	712	2590	753	2623	796	2655	841	2686	885	2717	928	2748	970	2780	1010	2812	1050		
2400	2609	703	2644	744	2678	786	2711	829	2744	872	2776	916	2806	961	2835	1006	2865	1050	2895	1092	2925	1133	2955	1172	2985	1212		
2600	2808	874	2840	916	2871	959	2902	1003	2932	1046	2961	1090	2990	1133	3019	1176	3048	1217	3077	1257	3106	1297	3135	1336	3164	1374		
2800	3006	1054	3035	1096	3064	1139	3092	1181	3121	1223	3149	1265	3177	1305	3205	1344	3234	1383	3262	1421	3290	1460	3317	1498	3345	1536		
3000	3202	1228	3229	1270	3257	1312	3284	1353	3312	1394	3339	1433	3366	1472	3393	1509	1547	3419	3446	1584	3472	1622	3499	1660	3525	1698		
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	1923	389	1964	411	2004	431	2043	450	2083	468	---	---	---	---														
1200	2057	473	2097	494	2136	514	2176	534	2215	553	2254	574	2293	596														
1400	2205	549	2245	571	2284	594	2322	618	2360	644	2396	672	2432	702														
1600	2360	637	2398	667	2434	699	2468	733	2501	768	2532	805	2563	842														
1800	2519	763	2552	801	2583	840	2614	879	2644	918	2674	957	2704	995														
2000	2677	924	2708	963	2739	1003	2769	1041	2799	1080	2829	1118	2859	1155														
2200	2842	1089	2873	1127	2902	1166	2932	1203	2962	1241	2991	1278	3021	1315														
2400	3015	1250	3044	1289	3074	1327	3103	1364	3132	1402	3162	1439	3192	1476														
2600	3192	1412	3221	1450	3250	1488	3279	1525	3308	1562	3337	1599	3367	1635														
2800	3372	1574	3400	1611	3428	1648	3456	1685	3485	1721	3514	1758	3543	1794														
3000	3552	1735	3578	1772	3605	1808	3633	1844	3660	1880	3689	1916	3717	1952														

BLOWER DATA

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

Air Volume cfm	Wet Indoor Coil		Reheat Coil	Gas Heating			Economizer	CanFab Horizontal Economizer	Filters		
	036, 048	060, 072		Standard Heat	Medium Heat	High Heat			MERV 8	MERV 13	MERV 16
800	0.01	---	0.00	0.02	0.02	0.02	0.04	0.04	0.04	0.05	0.04
1000	0.02	0.02	0.00	0.02	0.02	0.02	0.04	0.05	0.04	0.07	0.05
1200	0.03	0.04	0.01	0.02	0.02	0.02	0.04	0.07	0.04	0.07	0.05
1400	0.04	0.05	0.02	0.02	0.02	0.03	0.04	0.08	0.04	0.07	0.06
1600	0.05	0.07	0.03	0.02	0.03	0.04	0.04	0.09	0.04	0.07	0.08
1800	0.06	0.08	0.04	0.03	0.04	0.05	0.05	0.11	0.04	0.07	0.09
2000	0.08	0.10	0.04	0.03	0.04	0.06	0.05	0.13	0.05	0.08	0.10
2200	---	0.11	0.04	0.04	0.04	0.07	0.05	0.16	0.05	0.08	0.11
2400	---	0.13	0.04	0.04	0.05	0.08	0.05	0.21	0.05	0.08	0.12

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

Air Volume cfm	RTD9-65S Step-Down Diffuser			FD9-65S Flush Diffuser	RTD11-95S Step-Down Diffuser			FD11-95S Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open		2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
800	0.15	0.13	0.11	0.11	---	---	---	---
1000	0.19	0.16	0.14	0.14	---	---	---	---
1200	0.25	0.20	0.17	0.17	---	---	---	---
1400	0.33	0.26	0.20	0.20	---	---	---	---
1600	0.43	0.32	0.20	0.24	---	---	---	---
1800	0.56	0.40	0.30	0.30	0.13	0.11	0.09	0.09
2000	0.73	0.50	0.36	0.36	0.15	0.13	0.11	0.10
2200	0.95	0.63	0.44	0.44	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

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 DIFFUSER AIR THROW DATA

Air Volume - cfm	1 Effective Throw - ft.	
	RTD9-65S	FD9-65S
800	10 - 17	14 - 18
1000	10 - 17	15 - 20
1200	11 - 18	16 - 22
1400	12 - 19	17 - 24
1600	12 - 20	18 - 25
1800	13 - 21	20 - 28
2000	14 - 23	21 - 29
2200	16 - 25	22 - 30
Model	RTD11-95S	FD11-95S
2600	24 - 29	19 - 24
2800	25 - 30	20 - 28
3000	27 - 33	21 - 29

⁴ Effective throw based on terminal velocities of 75 ft. per minute.

ELECTRICAL DATA

3 TON

Model		LDT036H5						
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor (Non-Inverter)	Rated Load Amps	14.6	9.9		4.8		3.5	
	Locked Rotor Amps	90	82		44.3		28.7	
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	30	30	15	15	15	15
³ Minimum Circuit Ampacity MCA)	Unit Only	26	20	20	10	10	8	8
	With (1) 0.33 HP Power Exhaust	28	22	22	11	12	9	9

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

⁵ Extremes of operating range are plus and minus 10% of line voltage.

⁶ HACR type breaker or fuse.

⁷ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA

4 TON

Model		LDT048H5						
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor (Non-Inverter)	Rated Load Amps	18.3	11.9		6.8		4.8	
	Locked Rotor Amps	138	112		61.8		39	
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	50	35	30	20	15	15	15
	With (1) 0.33 HP Power Exhaust	50	35	35	20	20	15	15
³ Minimum Circuit Ampacity MCA)	Unit Only	34	26	23	14	13	11	11
	With (1) 0.33 HP Power Exhaust	36	28	25	15	14	11	12

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

⁸ Extremes of operating range are plus and minus 10% of line voltage.

⁹ HACR type breaker or fuse.

¹⁰ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA

5 TON

Model		LDT060H5						
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor (Non-Inverter)	Rated Load Amps	25.2	13.8		6.9		5.8	
	Locked Rotor Amps	147.3	150		58		47.8	
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	40	35	20	15	15	15
	With (1) 0.33 HP Power Exhaust	60	40	40	20	20	15	15
³ Minimum Circuit Ampacity (MCA)	Unit Only	42	28	25	14	13	12	11
	With (1) 0.33 HP Power Exhaust	45	30	27	16	14	13	12

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

¹¹ Extremes of operating range are plus and minus 10% of line voltage.

¹² HACR type breaker or fuse.

¹³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRICAL DATA

6 TON

Model		LDT072H5		
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.

¹⁴ Extremes of operating range are plus and minus 10% of line voltage.

¹⁵ HACR type breaker or fuse.

¹⁶ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

FIELD WIRING NOTES

- For use with copper wiring only
- Field wiring not furnished
- All wiring must conform to NEC or CEC and local electrical codes
- For specific wiring information, please refer to the installation instructions

MINIMUM R454B SPACE AND CFM REQUIREMENTS

Minimum Airflow ¹		
Unit	Q _{min} (CFM)	Q _{min} (m³/h)
LDT/LHT036	360	610
LDT/LHT048	369	626
LDT/LHT060	427	725
LDT/LHT072	361	612
LDT/LHT036 w/ Humiditrol	399	678
LDT/LHT048 w/ Humiditrol	363	616
LDT/LHT060 w/ Humiditrol	410	697
LDT/LHT072 w/ Humiditrol	402	684

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

Refrigerant Charge R-454B		
Unit	M _c (lbs)	M _c (kg)
LDT/LHT036	13.56	6.15
LDT/LHT048	13.94	6.32
LDT/LHT060	16.13	7.31
LDT/LHT072	13.63	6.18
LDT/LHT036 w/ Humiditrol	15.10	6.85
LDT/LHT048 w/ Humiditrol	13.72	6.22
LDT/LHT060 w/ Humiditrol	15.52	7.04
LDT/LHT072 w/ Humiditrol	15.22	6.90

Minimum Room Area of Conditioned Space ²		
Unit	TA _{min} (ft²)	TA _{min} (m²)
LDT/LHT036	198.68	18.46
LDT/LHT048	204.17	18.97
LDT/LHT060	236.21	21.94
LDT/LHT072	199.59	18.54
LDT/LHT036 w/ Humiditrol	222.00	20.50
LDT/LHT048 w/ Humiditrol	201.00	18.70
LDT/LHT060 w/ Humiditrol	228.00	21.10
LDT/LHT072 w/ Humiditrol	223.00	20.70

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

Altitude Adjustment Factor ³									
Halt	0	200	400	600	800	1000	1200	1400	1600
AF	1	1	1	1	1.02	1.05	1.04	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

NOTE - 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 LGM036 at 1000 ft. above sea level, multiply 500 by 1.05 to get 525 CFM as the new Q_{min}.

PARTS ARRANGEMENT

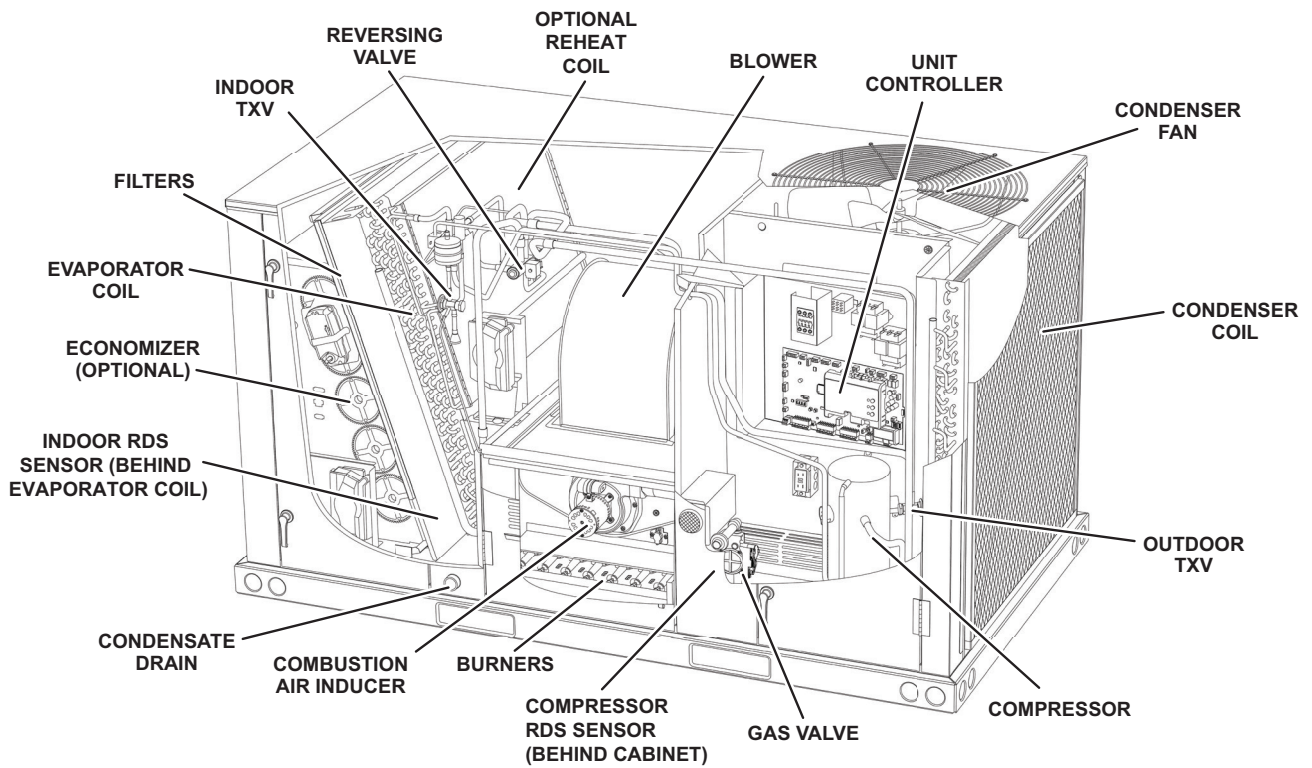


Figure 1

HINGED CONTROL PANEL

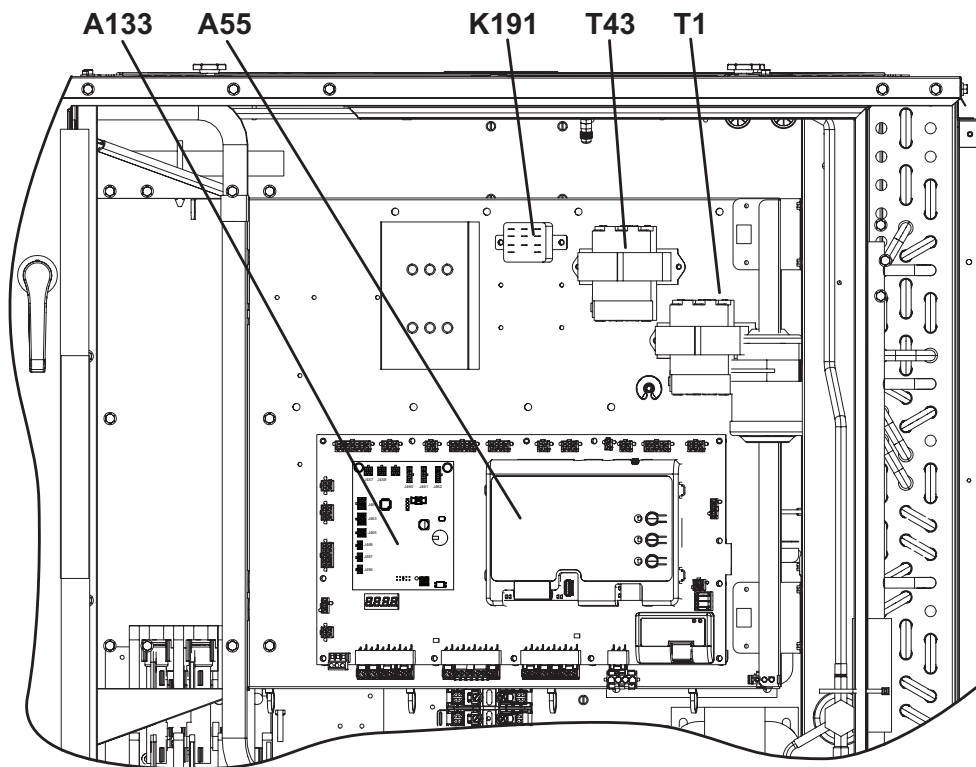


Figure 2

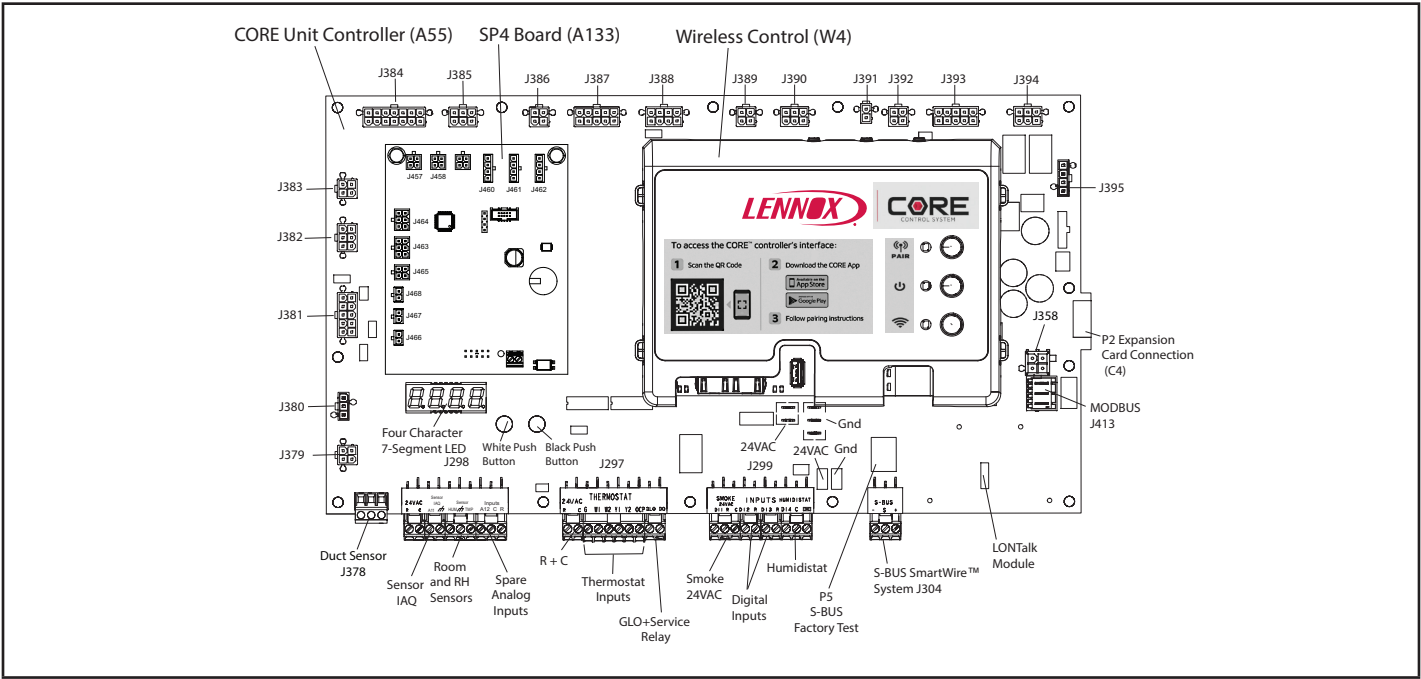


Figure 3

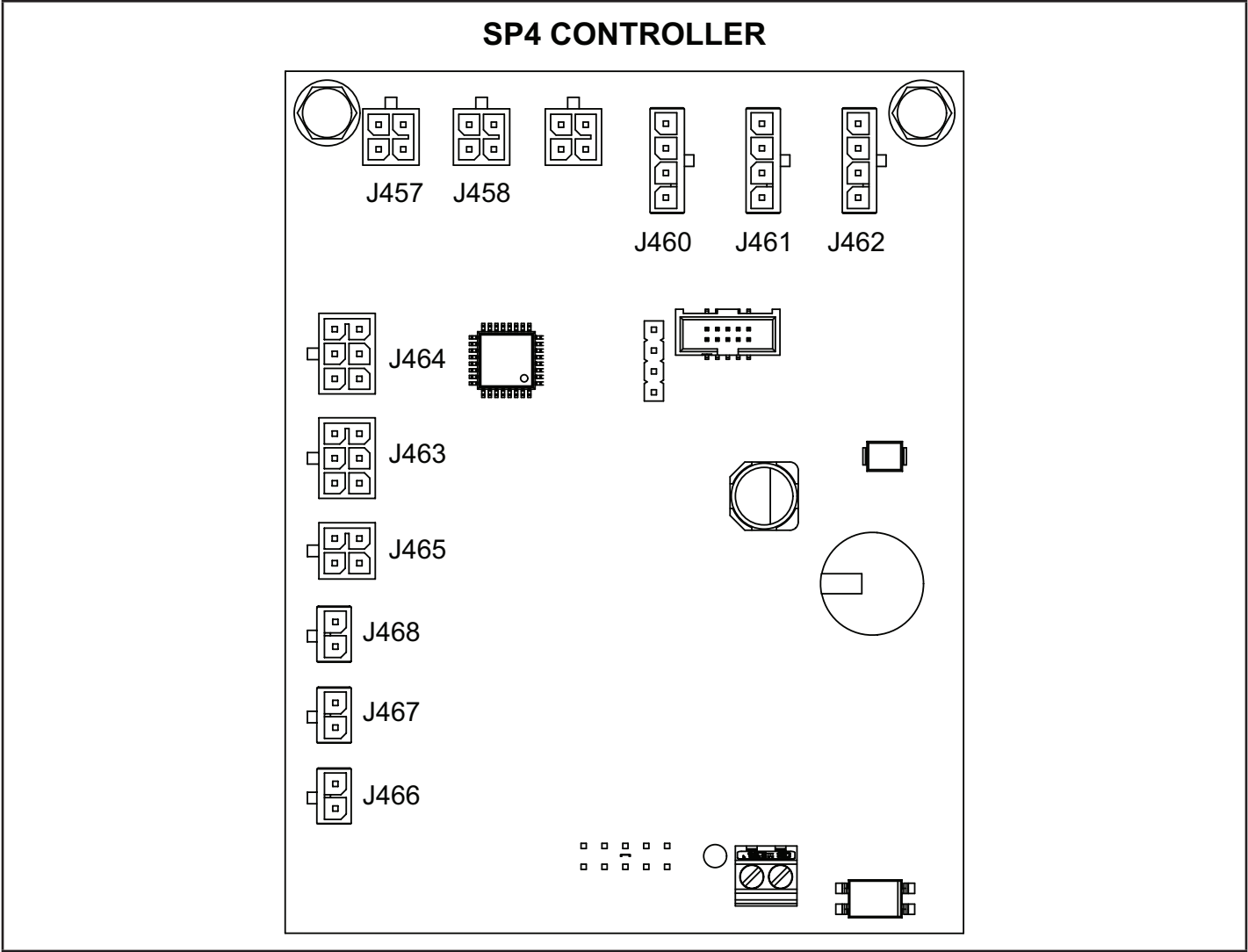


Figure 4

I. UNIT COMPONENTS

⚠ 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 (10 through 21 kW) units are configured to order units (CTO). The LDT 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

LDT control box components are shown in Figure 2. The control box is located in the upper right portion of the compressor compartment.

1. Control Transformers T1 / T43

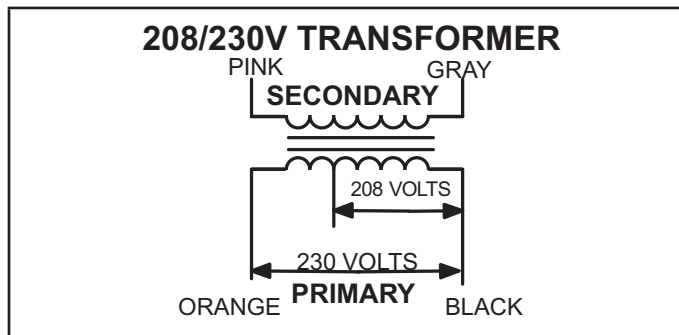


Figure 5

All use a single line voltage to 24VAC transformer mounted on the hinged control panel. Transformer supplies power to control circuits in the unit. The transformer T1 is rated at 92VA and is protected by a 6 amp circuit (CB8). The transformer T43 is rated at 70VA and is protected by a 3.5 amp circuit (CB31). The 208/230 voltage transformers use two primary voltage taps as shown in Figure 5, while the 460 (G) voltage transformer use a single primary voltage tap. All reheat units, heat pump units and units with phase detection components are equipped with transformer T43 located in the control box.

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 parameters, 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 instructions 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 icon.



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

K1 energizes compressors B1 in response to thermostat demand. Three phase units use three pole double break contactors with a 24 volt coil. Single phase units use single pole double break contactors with a 24 volt coil.

6. Crankcase Heater Relay K191

All units use relay K191 to control crankcase heater HR1.

7. Power Exhaust Relay K65 (PED)

Power exhaust relay K65 is a N.O. DPDT relay with a 24VAC coil. K65 is used in all LDT 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 energized.

8. SP4 Board

This board provides connections for the Mixed Air Temperature Sensor (RT15) and Modulating Gas Valve (GV4) in Modulating Gas Heat units.

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 6 and Figure 7. 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 6 and Figure 7.

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. Reversing Valve

A refrigerant reversing valve with a 24 volt solenoid coil is used to reverse refrigerant flow during unit operation in all LDT units. The reversing valve is connected in the vapor line of the refrigerant circuit. The reversing valve coil is energized during cooling demand and during defrost. Reversing valve L1 is controlled by the A55 Control board in response to cooling demand or by defrost.

PLUMBING AND COMPRESSOR PROTECTION COMPONENTS NON-REHEAT UNITS

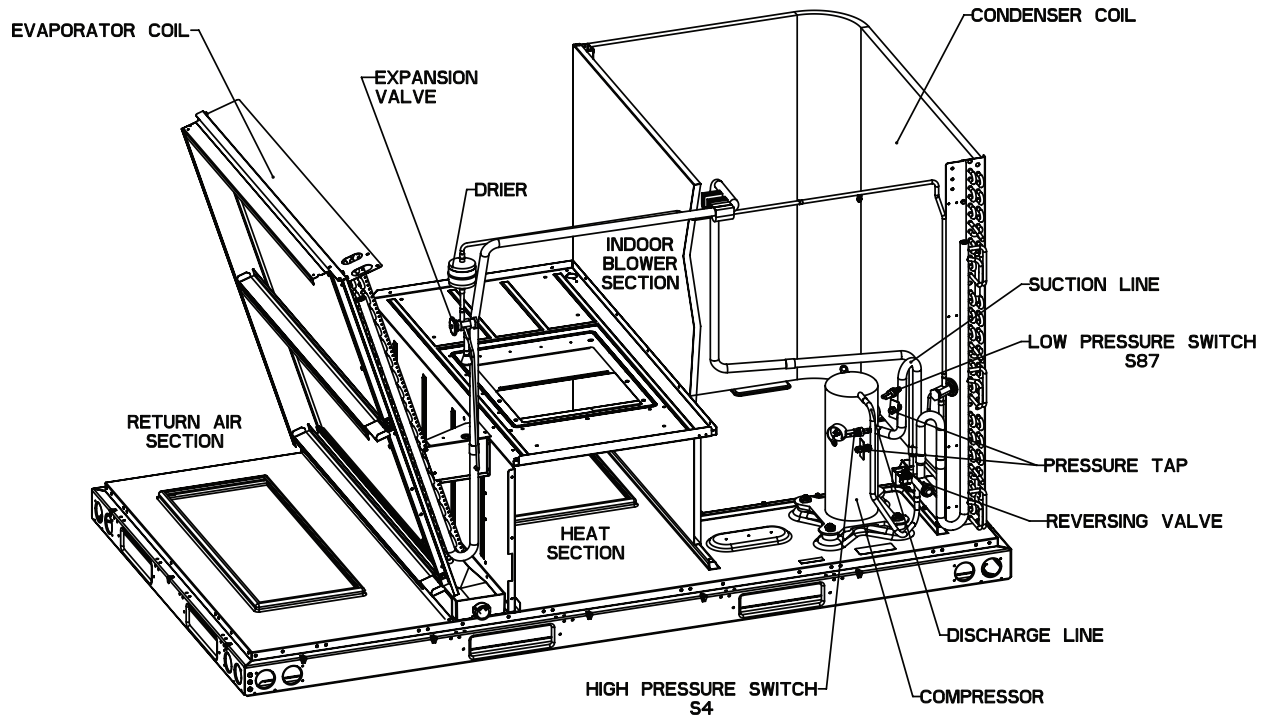


Figure 6

PLUMBING AND COMPRESSOR PROTECTION COMPONENTS REHEAT UNITS

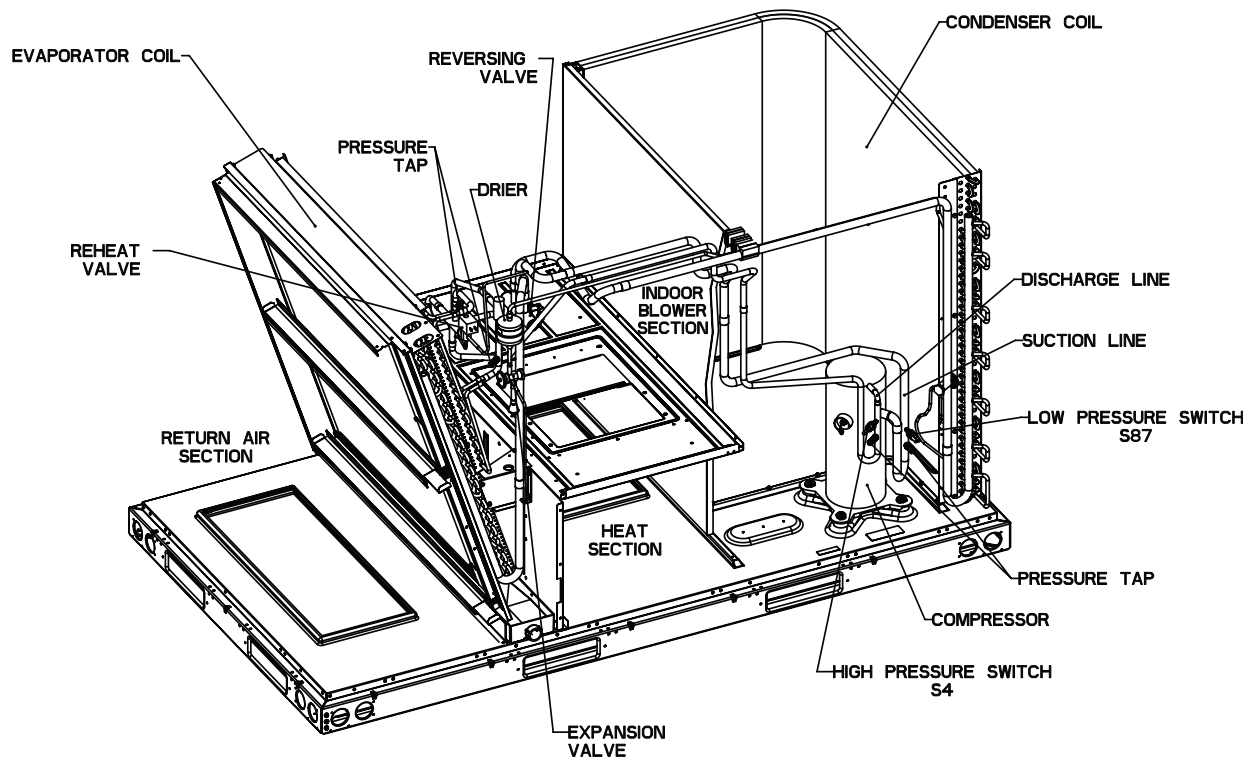


Figure 7

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.

Thermistor RT46 monitors the temperature on the return bend of the indoor coil. If the temperature is measured below $32^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($0^{\circ}\text{C} \pm 1.7^{\circ}\text{C}$) for more than 3 minutes, the M4 control board will display a alarm, and will shut down compressor operation until coil warms sufficiently to melt any accumulated frost. At $58^{\circ}\text{F} \pm 4^{\circ}\text{F}$ ($14.4^{\circ}\text{C} \pm 2.2^{\circ}\text{C}$), the M4 control board will energize compressor. If compressor is frequently turning off due to coil icing, check the airflow, filters, and unit charge before allowing unit back in operation. Make sure to eliminate conditions which promote indoor coil ice buildup.

Table 1
THERMISTOR LOCATION

Unit	Sensor Yellow	Figure
036, 048, 060, 072 Indoor Coil	RT46	Figure 8
048 Outdoor Coil	RT48	Figure 9
060, 072 Outdoor Coil	RT48	Figure 10

5. Low Ambient Operation

When Outdoor Air Temperature (OAT) drops below 62°F (16.6°C) while in cooling operation, the Unit will modulate OD fan in order to maintain coil temperature observed on RT48. Once OAT exceeds 65°F (18.3°C), unit will resume normal operation. The intermittent fan operation results in higher evaporating temperature allowing the system to operate without icing the evaporator coil and losing capacity.

6. Defrost Control

The defrost control ensures that the heat pump outdoor coil does not ice excessively during the heating mode. The defrost control uses input from the coil and ambient sensor to uses demand defrost cycles from the M4 board. If system fails to do calibration or obtain readings for demand defrost, it will run timed defrost at customer setting. If electric heat is installed, it is energized during defrost cycle.

**LDT036, 048, 060, 072
EVAPORATOR COIL
RT46**

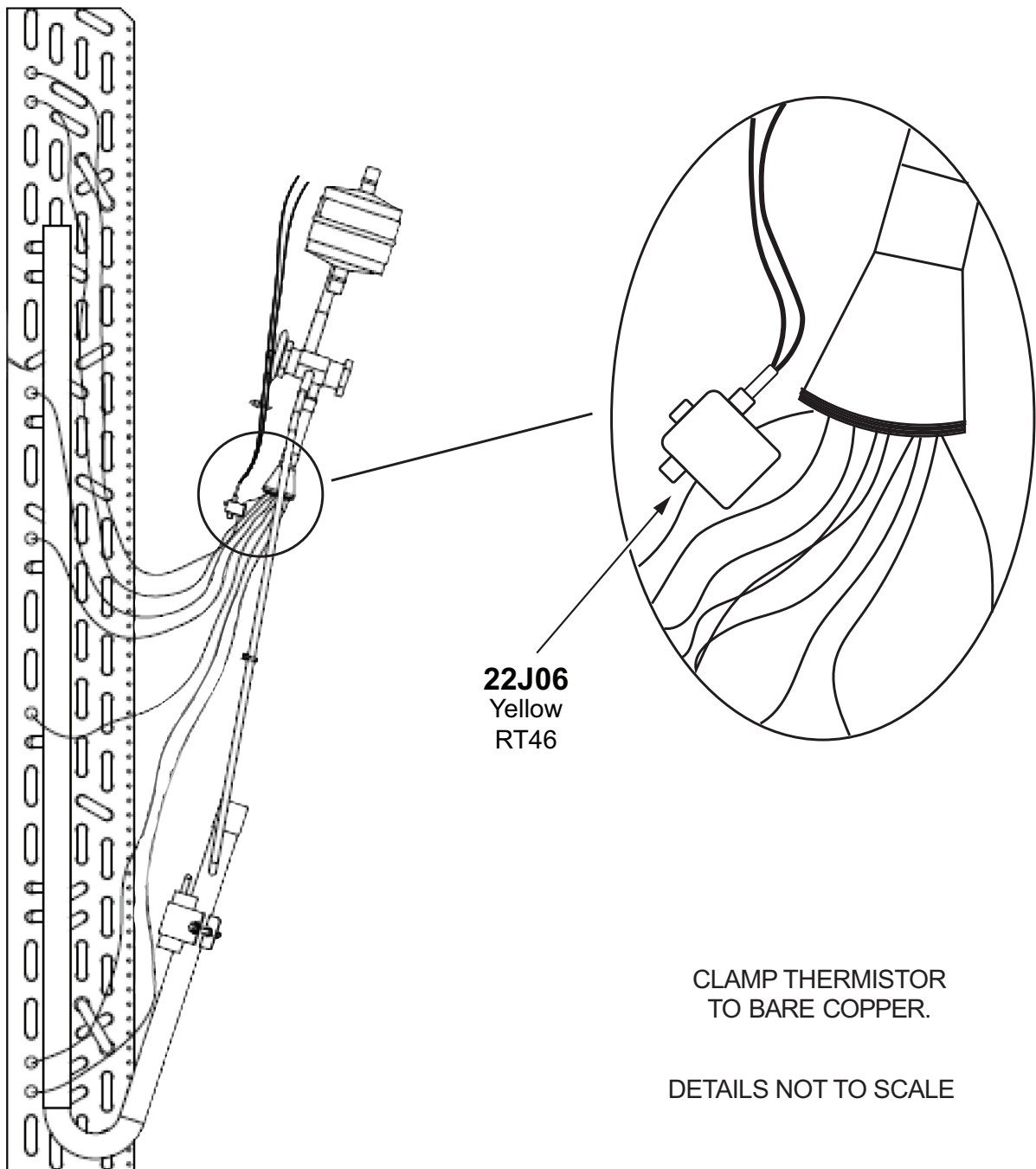


Figure 8

**LDT036, 048
OUTDOOR COIL
RT48**

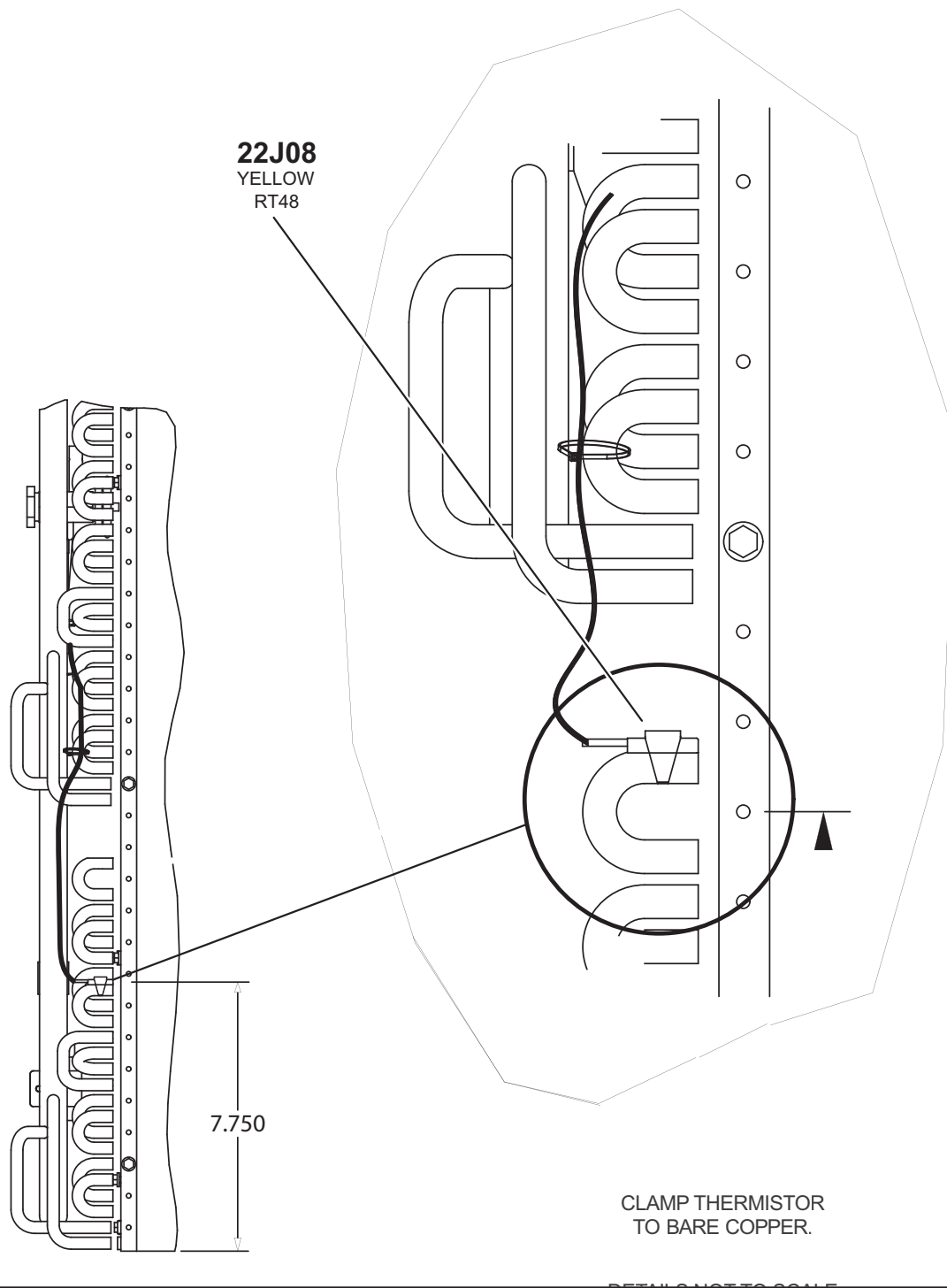


Figure 9

**LDT060, 072
OUTDOOR COIL
RT48**

22J08
YELLOW
RT48

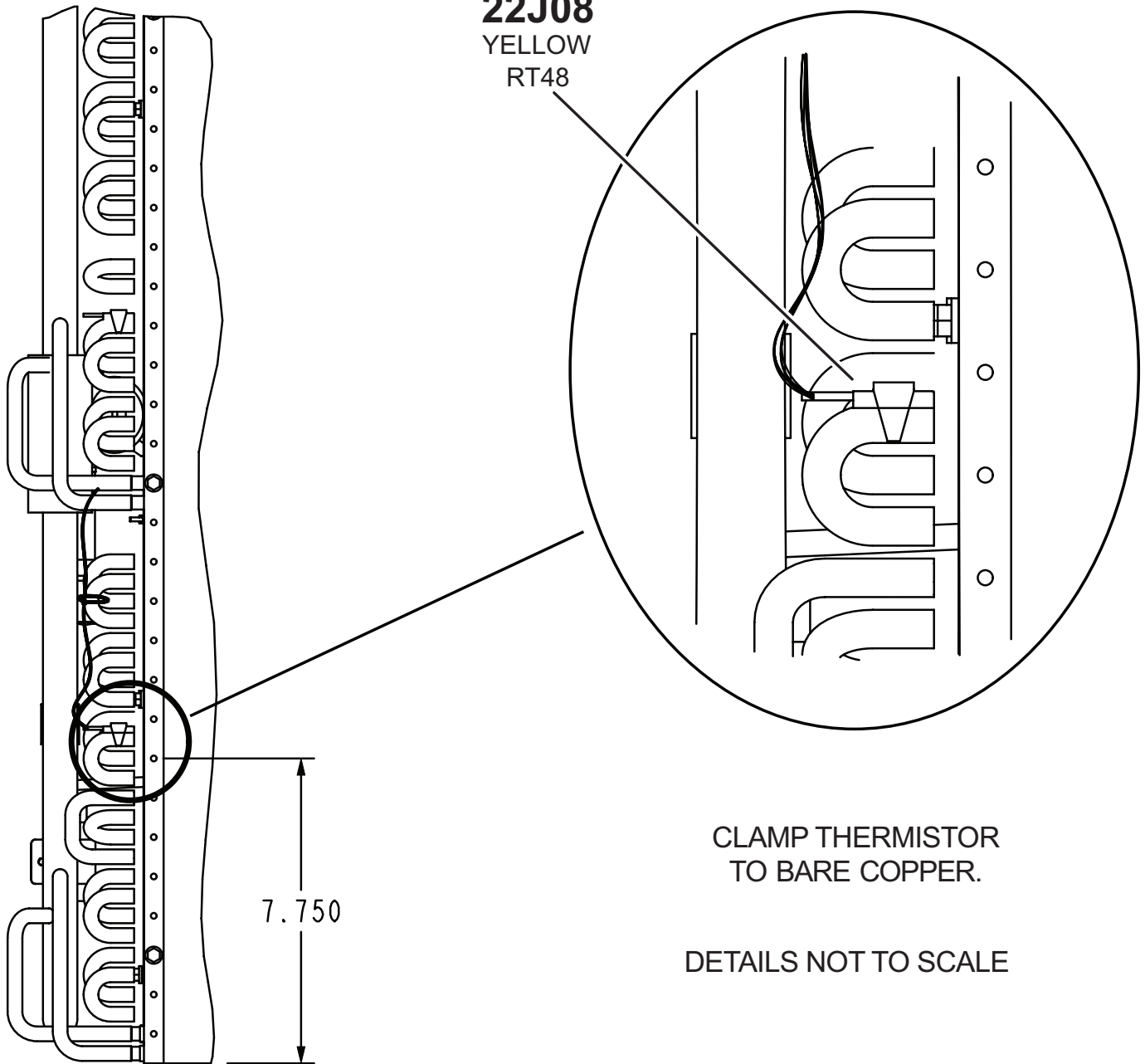


Figure 10

7. 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. For a list of sensor alarms see Table 3.

Table 2

RDS Sensor Figures			
Model	Qty.	Type	Figure
LDT036-072	2 sensors	ID SENSOR	Figure 11
		COMPRESSOR SENSOR	Figure 12

Table 3

Alarm	Alarm description	RDS Sensor Location
257	Refrigerant leak sensor fault in the Indoor section (sensor #1)	Indoor compartment
258	Refrigerant leak sensor fault in the control panel/compressor section (sensor #2)	"Control/Compressor or Compressor compartment"

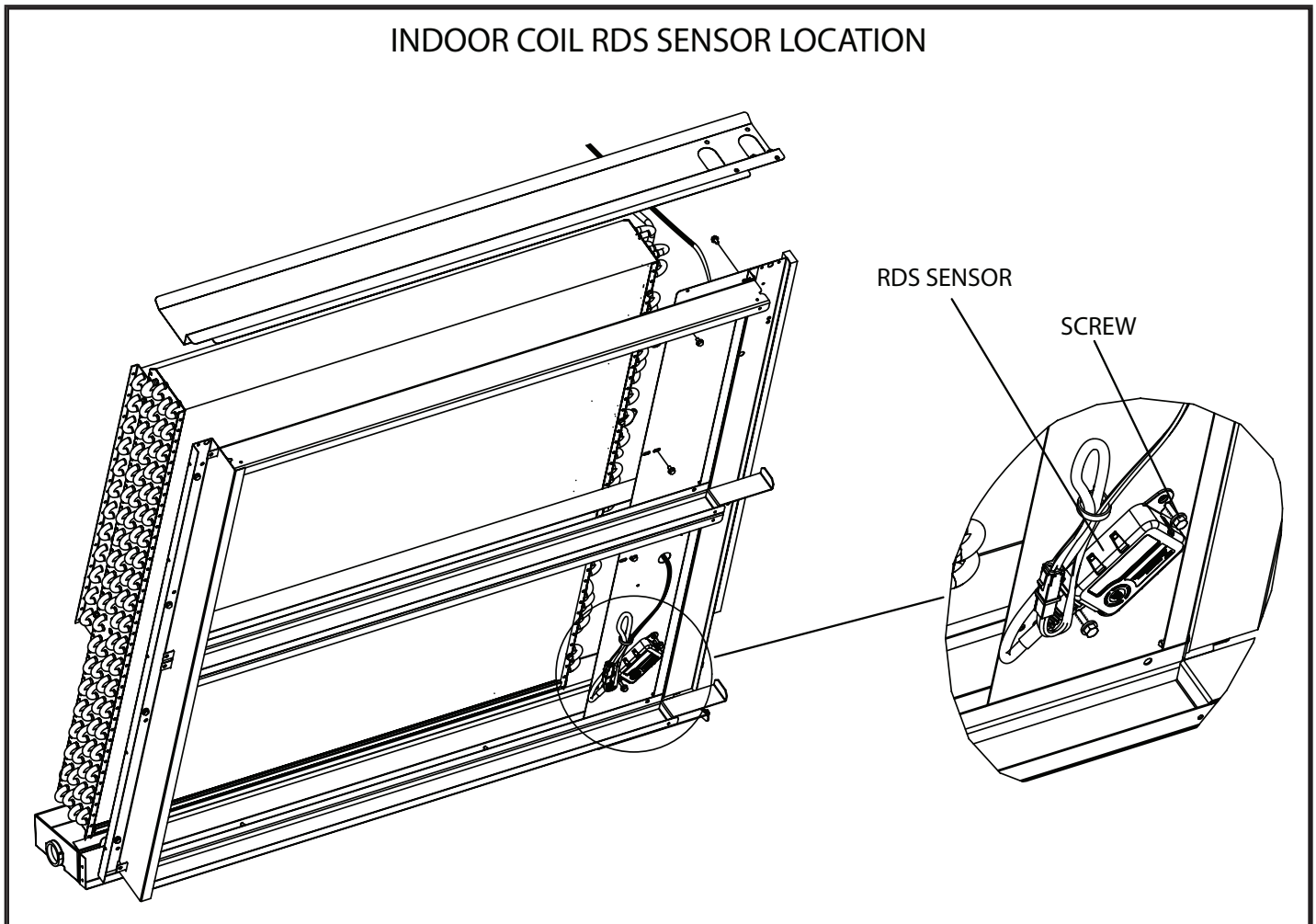


Figure 11

COMPRESSOR RDS SENSOR LOCATION

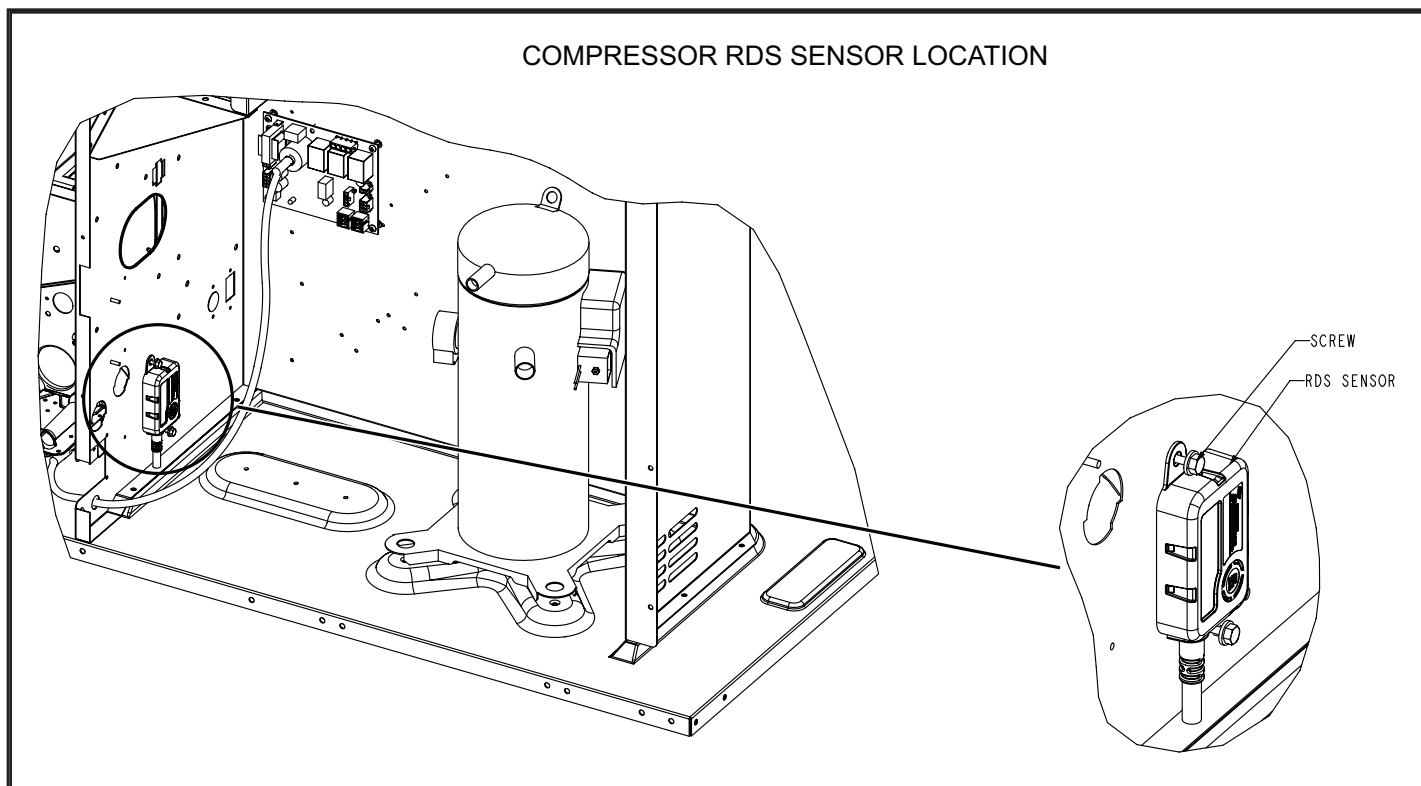


Figure 12

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.

8. 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.

9. Compressor Crankcase Heater (HR1)

Crankcase heater must be energized at all times to prevent compressor damage due to refrigerant migration. Energize crankcase heater 24 hours before unit start-up by setting thermostat so that there is no cooling demand (to prevent compressor from cycling) and apply power to unit.

C. Gas Heat Components

LDT units are available with either two stages of gas heat or modulating gas heat. See SPECIFICATION - LOW NOX GAS HEAT

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.

1. Direct Spark Ignition Control

The Direct Spark Ignition (DSI) control performs or manages several key functions during gas heating demand cycle. Several of the key functions are ignition sequence, gas valve operation (GV1, GV4), Combustion Air Inducer operation (B6), monitoring and responding to safety switches (S10, S18, S47), and heating sequence extinguishment.

The DSI control's red light (LED) is provided as a visual communication of the current operational status or active errors (refer to Table 4 for LED Codes).

Additionally, the DSI control communicates information to the CORE control using MODBUS.

Operation - Normal

On activation of W1 heating demand to A3 Direct Spark Ignition (DSI) control, a check for proper switch contact positions: S10 Limit (closed); S47 Rollout (closed); S18 Pressure switch (open) is performed. Once this check is complete and conditions are correct, the DSI control activates B6 Combustion Air Inducer in Low Speed and waits for the S18 Pressure switch contacts to change from open to closed. After S18 contact have closed (CAI operation proven), DSI control starts a 30 second Pre-Purge Period. The **Pre-Purge** period enables the combustion air inducer to vent exhaust gases present in the burners, heat exchanger tubes, and collector box. With S18 Pressure switch contacts closed and expiration of Pre-Purge period, the DSI control starts the Trial for Ignition sequence.

A **Trial for Ignition** starts with DSI control simultaneously activating 2-stage gas valve GV1 (Low Fire) OR modulating gas valve GV4 (min. position) and the E1 Spark Electrode. DSI control deactivates the E1 Spark Electrode immediately when EITHER a flame is sensed at FS1 Flame Sense Electrode OR expiration of the 10 second Trial for Ignition Period.

NOTE – The blower operation is managed by the CORE Controller. At the start of the Trial for Ignition Period, the CORE Controller initiates the Blower On Delay timer.

Once the flame is established (sensed), the ignition control then proceeds to "steady state" mode where all inputs are monitored to ensure the S10 limit switch, S47 roll-out switch and S18 prove switch are closed as well as flame remains present (sensed via FS1).

NOTE – For units equipped with modulating gas valve GV4 option, after flame establishment, GV4 gas valve starts modulating based upon the CORE provided position signal. Also, with the modulating option, CORE controller manages the B6 CAI speed by adding or removing a W2 demand signal to DSI controller based upon the calculated gas valve position.

If additional heating demand W2 is applied to the DSI control, the DSI control switches B6 Combustion Air Inducer from Low to High Speed and switches the 2-stage gas valve GV1 from Low to High Fire.

When heating demand is removed from the DSI control, gas valve (GV1 or GV4) is de-energized. DSI control continues Combustion Air Inducer operation for a 45 second Post-Purge Period, then deactivates the B6 Combustion Air Inducer.

NOTE – CORE controller starts Blower Off Delay timer when heating demand is removed (satisfied).

Operation - Abnormal

If flame is not sensed during the **Trial for Ignition**, A3 DSI control will deactivate the gas valve and B6 CAI continues operating for a 30 second **Inter-Purge Period**. The Inter-Purge period enables combustion air inducer to vent built-up gas, such as unburned fuel-air mixture or exhaust products, from the burners, heat exchanger tubes, and collector box. After expiration of the Inter-Purge Period, DSI control simultaneously activates 2-stage gas valve GV1 (Low Fire) OR modulating gas valve GV4 (min. position) and the E1 Spark Electrode. DSI control deactivates the E1 Spark Electrode immediately when EITHER a flame is sensed at FS1 Flame Sense Electrode OR expiration of the 10 second Trial for Ignition Period. The DSI will attempt, up to 2 more times, a Trial for Ignition, to establish a flame during the same heating demand.

If flame is established, then lost during "steady state" mode, A3 DSI control will deactivate the gas valve and B6 CAI continues operating for a 30 second **Inter-Purge Period**. The Inter-Purge period enables combustion air inducer to vent exhaust gases from the burners, heat exchanger tubes, and collector box. After expiration of the Inter-Purge Period, DSI control simultaneously activates 2-stage gas valve GV1 (Low Fire) OR modulating gas valve GV4 (min. position) and the E1 Spark Electrode. DSI control deactivates the E1 Spark Electrode immediately when EITHER a flame is sensed at FS1 Flame Sense Electrode OR expiration of the 10 second Trial for Ignition Period. The DSI will attempt, up to 4 more times, an Ignition Recycle to re-establish a flame during the same heating demand. Refer to Table 4 for A3 DSI control status codes and definitions.

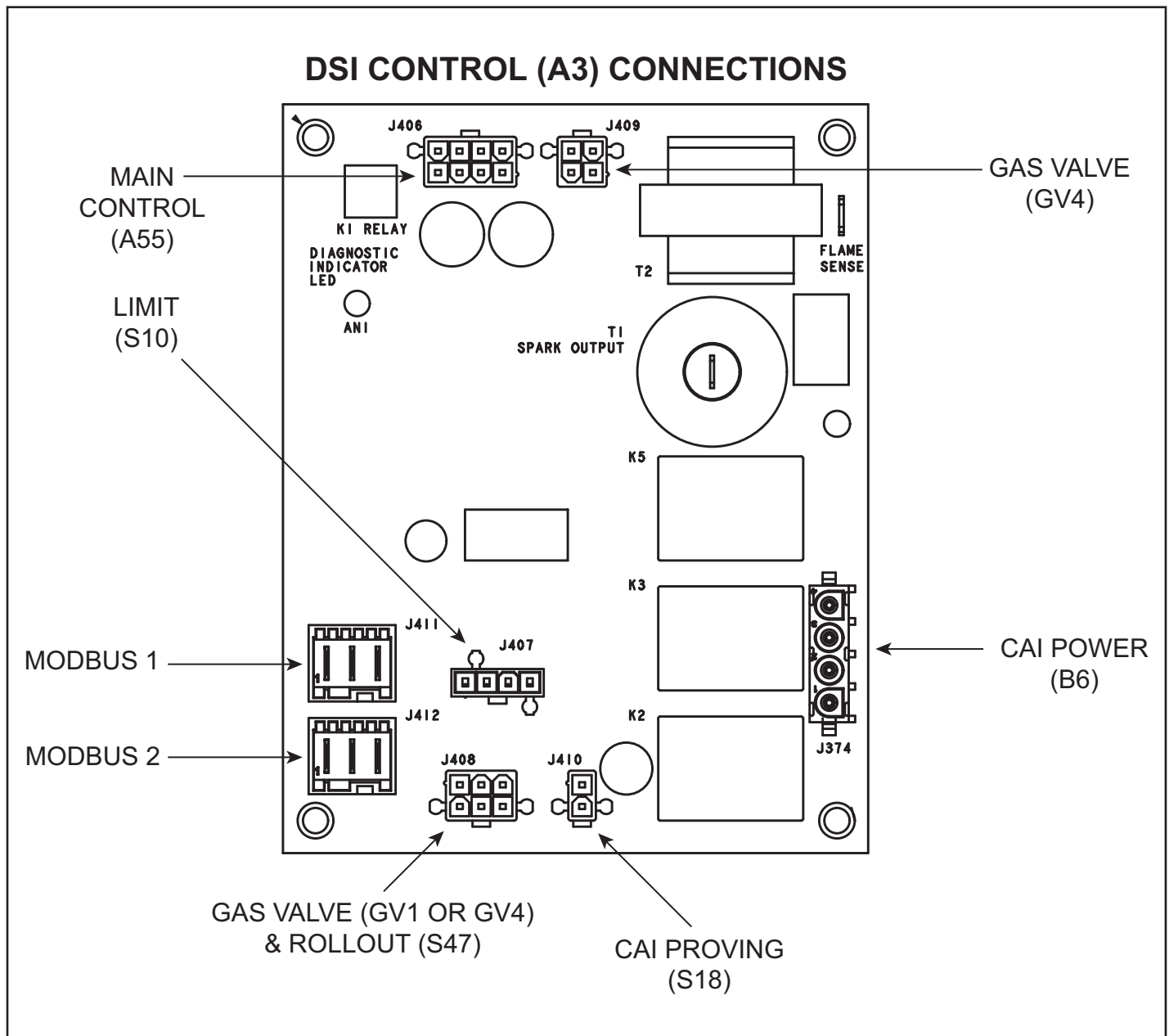


Figure 13

Table 4
A3 DIRECT SPARK IGNITION CONTROL (DSI) – DIAGNOSTIC CODES AND DETAILS

Diagnostic Indicator	Status	Description	Potential Remedy Actions
Slow Flash	Normal Operation	No Heating demand at DSI control.	None
Fast Flash	Normal Operation	Heating demand at DSI control	None
Steady Off	Internal Control Fault OR No Power	DSI control is OFF (no 24VAC power) or has an internal fault.	Determine status of 24VAC power supplied to DSI (refer to Unit Wiring Diagram). - If DSI control is ON (24VAC present), replace DSI control. - If DSI control is OFF (no 24VAC present), correct issues and restore 24VAC to DSI control.
Steady On	Control Internal Failure	Internal DSI control board hardware fault. - DSI internal hardware fault detected, indicator activated, DSI function locked out. - DSI automatically removes lockout if hardware fault clears.	- Power cycle DSI control to clear fault. - If fault remains, replace DSI control.
1 Flash	S47 Rollout Open	DSI detects open Rollout contacts (N.C.) during W1 demand. - When contacts open, DSI closes Gas Valve, runs Combustion Air Inducer (CAI) high speed, activates indicator flash. DSI function locked out. - If Rollout manually reset (contacts close), DSI continues CAI operation for post purge period, then turns CAI off, indicator flash continues. DSI remains locked out.	- DSI Lockout cleared by a manual reset of Rollout switch before power cycling DSI. - Investigate / correct possible issues leading to Rollout contacts opening (e.g., CAI off or failed, blocked tubes, blocked flue, etc.). - Verify correct Rollout operation (see section, 5. <i>Flame Roll-out Limit Switch S47</i>).
2 Flashes	S10 Limit Open or Opened multiple times during one heating demand	DSI detects open Limit contacts (N.C.) during W1 demand. - When contacts open, DSI closes Gas Valve, runs CAI high speed, activates indicator flashes. - When contacts re-close & W1 demand present, DSI restarts ignition sequence, deactivates indicator flashes. - When contacts re-close & no W1 demand present, DSI runs CAI for post purge period, then turns CAI off, deactivates LED flashes. NOTE - for 3rd occurrence of open contacts during same W1 demand, DSI activates indicator flashes, DSI function is locked out.	- DSI Lockout cleared by Limit contacts re-close AND 1 of the following occurs: expiration of a 1-hour timer; removing W1 demand for 5 - 10 seconds from DSI; or power cycling DSI. - Investigate / correct possible issues leading to Limit contacts opening (e.g., low blower airflow, duct restrictions, high gas pressure, etc.). - Verify correct Limit operation (see section, 2. <i>Primary High Temperature Limits S10</i>).
3 Flashes	S18 Pressure Switch open with CAI ON	DSI detects Pressure switch contacts (N.O.) did not close when CAI activated. DSI activates CAI, if Pressure switch contact closure is not detected in 300 seconds, DSI turns off CAI for 300 seconds, then repeats sequence until Pressure switch contacts close or W1 demand removed.	- Confirm CAI is ON. - Verify Pressure switch tubing integrity (e.g., no obstructions, kinks, cracks, or splits). - Verify Pressure switch proper contact operation (see section, 7-Combustion Air Prove Switch S18).

4 Flashes	Control lockout – failed to detect or sustain flame	DSI does not sense flame during initial trial for ignition. When flame not sensed during ignition period, DSI closes Gas Valve, deenergizes ignitor, runs CAI for inter-purge period, activates LED Flashes. After CAI inter-purge period, DSI reenergizes ignitor, opens Gas Valve, deactivates indicator flashes. NOTE - on the 3rd failure to detect flame during the same W1 demand, DSI runs CAI for inter-purge period, turns off CAI, and activates indicator flashes. DSI function locked out. Flame established during initial trial for ignition, then lost afterwards. When flame is lost, DSI closes Gas Valve, runs CAI for inter-purge period, activates indicator flashes. After inter-purge period, DSI maintains CAI operation, opens Gas Valve, energizes spark and attempts to re-establish flame. NOTE - on the 5th loss of established flame during the same W1 demand, DSI closes Gas Valve, runs CAI for post-purge period, turns off CAI, activates indicator flash. DSI function locked out.	• DSI Lockout cleared when one of the following occurs: expiration of a 1-hour timer; removing W1 demand for 5 - 10 seconds from DSI; or power cycling DSI. • Confirm FS1 flame sensor operation (see section, 11-Flame Sensor). • Confirm E1 ignitor operation (see section, 10-Spark Electrode (Ignitor)). • Confirm adequate Gas Valve flow during trial for ignition.
5 Flashes	Flame present with gas off	DSI detects flame signal for more than 4 seconds when Gas Valve is closed. • While flame is sensed, DSI turns on and runs CAI, activates indicator flashes. • When flame is no longer sensed, DSI runs CAI for post-purge period, then turns CAI off, LED remains Flashing, DSI function locked out.	• DSI Lockout cleared when one of the following occurs: expiration of a 1-hour timer; removing W1 demand for 5 - 10 seconds from DSI; or power cycling DSI. • Confirm FS1 flame sensor operation (see section, 11-Flame Sensor).
6 Flashes	Pressure Switch closed with CAI OFF	DSI detects closed Pressure Switch contacts (N.O.) when CAI is off. • DSI control finds Pressure Switch contacts closed prior to pre-purge ignition step. DSI activates indicator flashes and waits indefinitely for contacts to open before turning on CAI.	• Confirm CAI is OFF. • Verify Pressure Switch proper operation (see section, 7-Combustion Air Prove Switch S18).
7 Flashes	Not used	Not Applicable	Not Applicable
8 Flashes	Pressure switch opened repeatedly during heating demand	DSI detects Pressure Switch contacts (N.O.) change from Closed to Open 3 times during same W1 demand. NOTE - On 3rd contact opening during same W1 demand, DSI closes Gas Valve, runs CAI for post-purge period, then turns CAI off, activates indicator flashes, DSI function locked out.	• DSI Lockout cleared when one of the following occurs: expiration of a 1-hour timer; removing W1 demand for 5 - 10 seconds from DSI; or power cycling DSI. • Verify Pressure switch tubing integrity (e.g., no obstructions, kinks, cracks, or splits). • Verify Pressure Switch proper contact operation (see section, 7-Combustion Air Prove Switch S18).

Table 5
S10 LIMIT TEMPERATURE VALUES

Indoor Blower Type	Heating Input (BTU)	Limit Actuation (Open on Temp. Rise)	Limit Auto-Reset (Close on Temp. Fall)
DirectPlus™ Direct Drive ECM Blower System	65,000	145°F ± 5°F	105°F ± 8°F
	108,000	150°F ± 5°F	110°F ± 8°F
	150,000	160°F ± 6°F	120°F ± 9°F
Variable-Speed ECM Direct Drive Motor	65,000	220°F ± 6°F	180°F ± 8°F
	108,000	175°F ± 3°F	135°F ± 7°F
	150,000	200°F ± 3°F	160°F ± 7°F

2. Primary Heat Temperature S10

S10 is a SPST N.C., auto-reset, high temperature primary limit for gas heat. S10 limit contact Actuation (change from closed to open) occurs when the switch temperature rises to the setting. Limit contacts will Auto-Reset (automatically re-close) when the switch temperature cools to the setting. Refer to Table 5 for Actuation and Auto-Reset temperatures.

S10 Limits are wired directly to the A3 Direct Spark Ignition control. Limit contact open signals the DSI control when excessive temperature is reached in the heat exchanger compartment. Refer to Table 4 for DSI response to open contacts.

The S10 limit location depends upon the indoor blower assembly installed. S10 limit for the Direct Plus Blowers are located on the left wall in the control box area (Figure 14). This S10 limit style is a closed faced switch mounted on a 3 inch stilt. S10 limit for the ECM blowers are located on the vestibule panel in the heat access compartment (Figure 15). This S10 limit style is an open-faced button switch mounted through a 1" diameter hole.

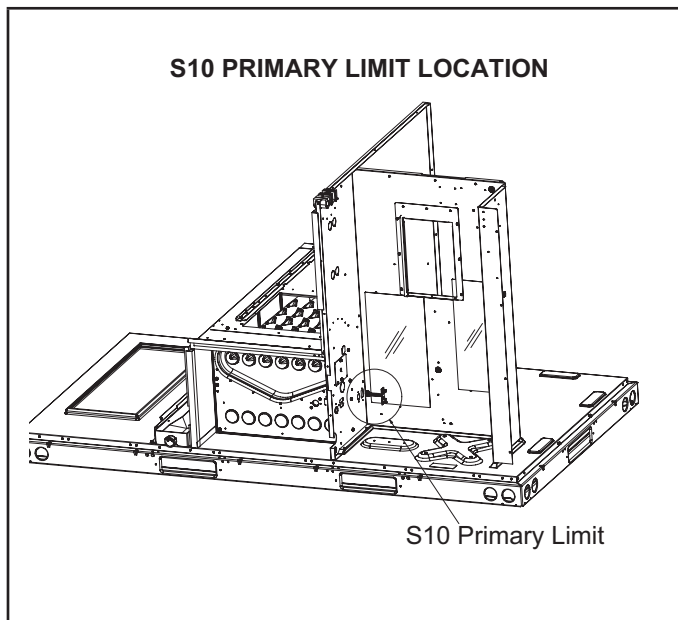


Figure 14

3. Heat Exchanger (Figure 15)

The LDT 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.

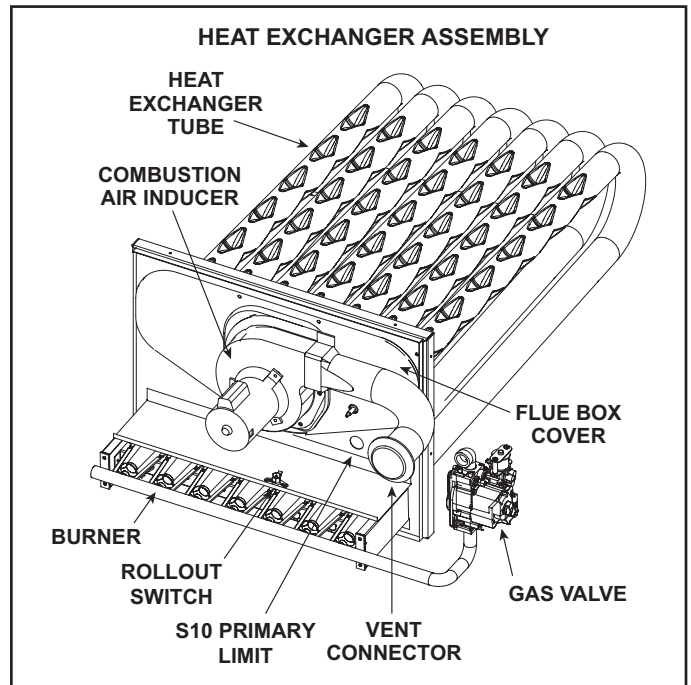


Figure 15

4. Burner Box Assembly (Figure 16)

The burner box assembly contains the following components: Burners, manifolds, orifices, E1 igniter, FS1 flame sensor, S47 roll-out switch, and surrounding sheet metal enclosure. For E1, FS1, and S47 details, see separate sections for each component.

Burners

All units use inshot style 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.

The 3, 5, or 7 burners are made into a single assembly and can only be removed as a single assembly from the burner box. Burner maintenance and service is detailed in the SERVICE CHECKS section of this manual. See Figure 16 for burner removal. See Figure 17 for number of burners.

Manifold and Orifices

For each burner assembly, the unit has a corresponding manifold assembly. The manifold assembly is a formed, painted, 1/2" diameter, black iron pipe with 3, 5, or 7 brass orifices installed. The manifold assembly secures to the burner box (See Figure 16) using sheet metal screws. A manifold is correctly installed when the each orifice falls inside the small inlet ring at each burner's inlet.

Orifices are machined from 7/16" Hex Brass Stock with male 1/8-27 NPT on one end, a small hole (orifice) on opposite end-face, and orifice size permanently stamped into brass. When installing orifices into the manifold, tighten to 70 +/- 20 IN-LBS.

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

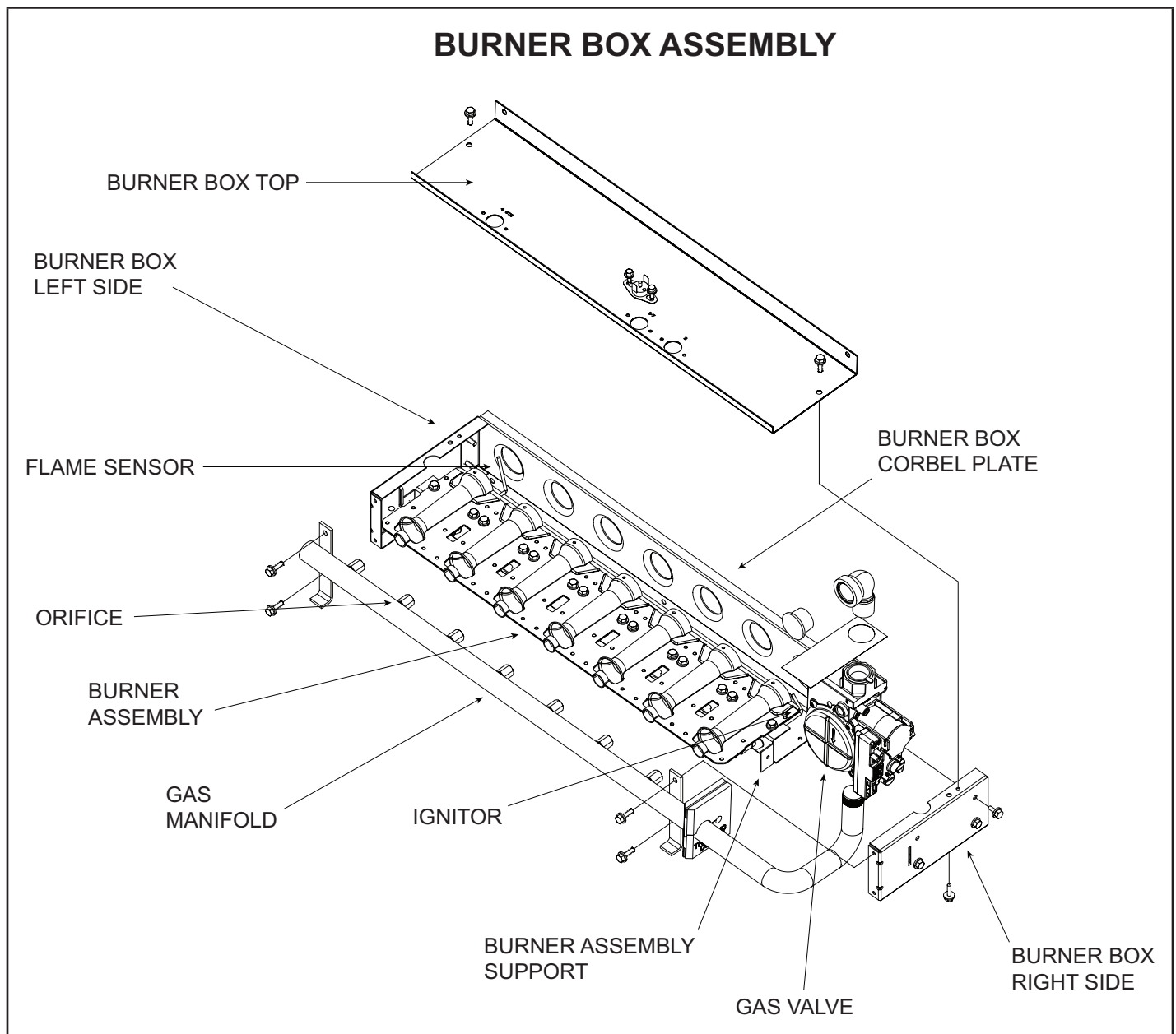


Figure 16

5. Flame Roll-out Limit Switch S47

The flame roll-out limit switch is a SPST N.C., manually reset, 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 A3 DSI control immediately closes the gas valve.

Limit is factory preset to open at $340F \pm 16F$ on a temperature rise on all units. The flame roll-out switch is not manually resettable until it cools down below $190F$. Once cooled down, reset by carefully depressing button on top of the switch until a distinct "click" is heard. If distinct "click" is not heard, verify contact closure by a continuity check between switch's 1/4" electrical connections after unplugging unit wiring from switch. If continuity is confirmed, switch contacts have closed.

6. Combustion Air Motor Capacitor C3

The combustion air inducer motors in all LDT units require run capacitors. The C3 Capacitor is supplied as an integrated part of the B6 Combustion Air Inducer Assembly. The C3 capacitor is mounted and wired to the B6 assembly by the motor manufacturer. Ratings will be on side of capacitor or combustion air motor nameplate.

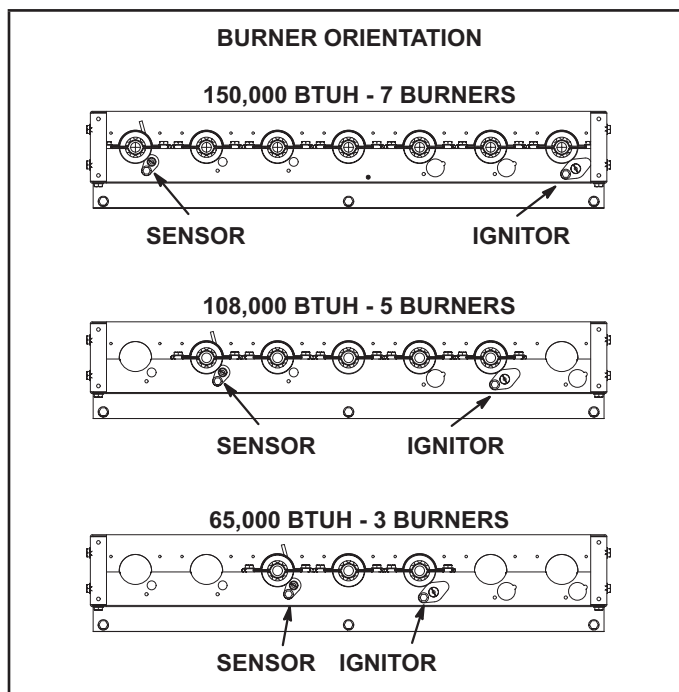


Figure 17

7. Combustion Air Prove Switch S18

The S18 Pressure switch is a SPST N.O. switch located to the right of the B6 Combustion Air Inducer in the heating compartment (See Figure 18). S18 Pressure switch is wired directly to the A3 DSI control enabling switch contact position comparison to CAI operating status. Pressure switch is designed for the contacts to change from open when CAI off to closed when the CAI is activated proving that the CAI is operating. A 3/16" I.D. silicone rubber tubing connects pressure switch port to vestibule panel port (near CAI).

The S18 switch closes at negative 0.10" w.c. +/- 0.05" w.c. on pressure fall (larger negative number). This pressure switch is factory set and not adjustable. Verify pressure switch operation by performing a continuity test between the switch's 1/4" electrical connections after unplugging unit wiring from switch. When CAI is OFF (not running), no continuity (open contacts) should be measured. When the CAI is ON (running), continuity (closed contacts) should be measured.

NOTE – An obstruction or leak in silicone tubing or metal vestibule port can prevent the pressure switch contacts from changing upon CAI activation (turned ON). DO NOT Exhale (blow) into the pressure switch port as any pressure above 3" w. c. (0.1 psi) can damage the switch diaphragm.

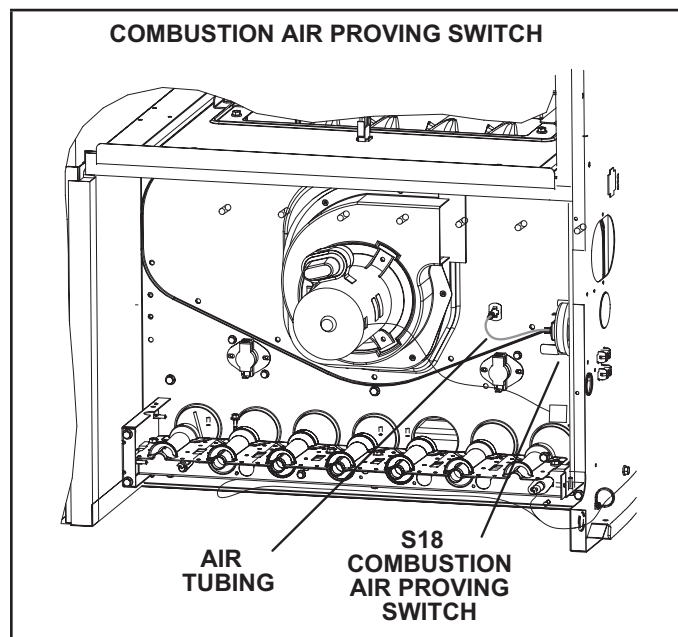


Figure 18

8. Combustion Air Inducer B6

The Combustion Air Inducer (CAI) Assembly draws fresh outside air (for combustion) into the burners through the heat exchanger, and expels the hot combustion products out the flue pipe (outside).

The LDT units Combustion Air Inducer B6 (CAI) assembly consists of a blower wheel, sheet metal wheel enclosure, and a motor secured to enclosure driving the wheel. The motor is a 208/230V, single phase, PSC motor with 2 speed (rpm) taps. The motor has auto-resetting internal overload protection. Inducers are supplied by various manufacturers. Ratings may vary by manufacturer. Specific motor electrical ratings can be found on the unit rating plate. All Combustion Air inducer motors are sealed and cannot be oiled. The CAI cannot be adjusted, but can be removed from the heating section and cleaned.

For LDT models with main power not 208/230V, a T5 transformer is installed upstream of DSI control adjusting power to CAI back to 208/230V power. Refer to unit wiring diagram for details.

9. Gas Valves

Units are equipped with one of 2 types of gas valves based upon the unit configuration. The unit will have either a Copeland 36J54 series two-stage gas valve GV1 or a Copeland 36J27 modulating gas valve GV4.

9a. Two-Stage Gas Valve (GV1)

The Copeland 36J54 series two stage gas valve features are indicated in Figure 31. When a W1 heating demand is present as input to DSI control, the valve is energized in low fire by the ignition control at the same time as the spark electrode. If the heating demand increases (W1 and W2 demands inputs to DSI control), high fire signal is provided by the ignition controller. Both the low fire and high fire signals are required for the gas valve GV1 to operate in high fire.

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

Both low fire and high fire valve outputs are adjustable. The gas manifold pressure requires adjustment when the unit is installed at altitudes higher than 2000 feet. Refer to section, “**V. SYSTEMS SERVICE CHECKS**”, *A. Heating System Service Checks*, for procedure to adjust manifold.

9b. Modulating Gas Valve GV4

The Copeland 36J27 series modulating gas valve has 7 features highlighted in Table 6. Refer to Figure 19 for the location of each feature.

Table 6
MGV PHYSICAL FEATURES

Figure #	Description	Features
1	Inlet Side Wrenching Surface	Outside dimension across hex flats = 1.25"; wrenching surface depth = 0.5" minimum.
2 ¹	Outlet Pressure Port	To open port, rotate hex screw 1 complete turn counterclockwise. To close port, rotate hex screw clockwise until securely closed. Tools required: 3/32" hex wrench (Allen), 5/16" ID tubing, 5/16" ID to 1/4" ID tubing connector (or Lennox # 69M1701).
3	Outlet Pressure Adjustment Cap	Manifold pressure adjustment screw under removable, translucent cap. Turn to increase (+) or decrease (-) manifold pressure. Adjustment range about ± 1.0 " w.c. (at min. & max.) Tool required: 1/8" flat blade screwdriver
4	Fuel Label	Label, "NAT. GAS", will be removed for LP conversion. See kit for details.
5	Main Solenoid Power Switch	On/Off switch for main valve open/close solenoid.
6	Electrical Connection	Valve has one 5 pin electrical plug. See section, Electrical Connections, for details.
7 ¹	Inlet Pressure Post	To open port, rotate hex screw 1 complete turn counterclockwise. To close port, rotate hex screw clockwise until securely closed. Tools required: 3/32" hex wrench (Allen), 5/16" ID tubing, 5/16" ID to 1/4" ID tubing connector (or Lennox # 69M1701).

¹ The hex screws SHOULD NOT be completely removed from the Pressure Port due to their very small size.

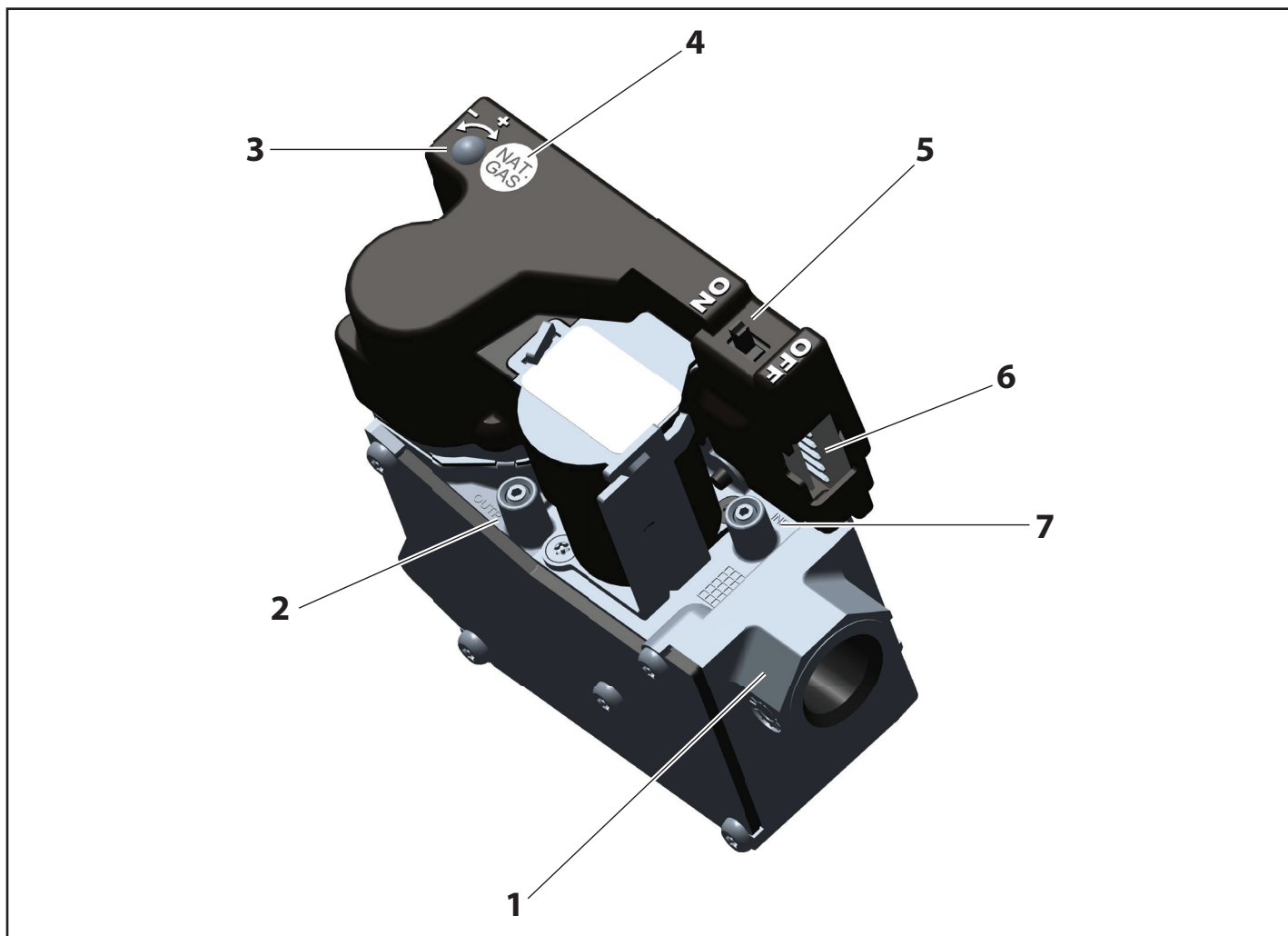


Figure 19

Modulating Gas Valve (MGV) Electrical Connections

The 36J27 modulating gas valve electrical connections are all contained in one JST style 5-pin connector (S5P-VH). Table 7 details the 5 Pins.

Table 7
MGV CONNECTOR FUNCTION BY PIN NUMBER

Pin #	Control Board Stenciling ¹	Description
1	TH	Constant 24VAC input power; supplies control board and stepper motor; Pin 1 is on bottom or farthest pin from On/Off switch.
2	VOL/RXD	Communication, Input. Stepper motor position signal; 0VDC - 10VDC.
3	TXD	Communication, Feedback. NOT USED.
4	TR	Ground, reference.
5	MV TH	Main Valve 24VAC; power applied to Pin 5 opens main valve. Pin 5 is on top or closest pin to On/Off switch.

¹ White stencil lettering on green PCB at 5-pin jack connection; visible when unit harness plug disconnected.

Modulating Gas Valve – Turn Power On, Home Function initiates

MGV control board does not save the stepper motor position when powered off. When 24VAC power is applied to Pin #1, MGV initiates a stepper motor “Home” function that can take 10 - 15 seconds to complete. After the Home function is complete, MGV sends the stepper motor to the position per VDC signal on Pin #2.

NOTE – 24VAC power to MGV (Pin #1) is supplied from the DSI (Direct spark ignition) control.

MGV Manifold Pressure Adjustments – Use CORE Component Test Mode

During heating operation, the CORE is continually recalculating and adjusting the signal to the MGV (0 - 10 VDC to Pin #2) changing the manifold pressure. CORE Component Test mode is the only means of adjusting the manifold pressure settings (minimum or maximum). In Component Test mode, the CORE does not vary the signal to the MGV. The CORE sends a preset VDC signal of either 0 VDC (minimum) or 10 VDC (maximum) depending upon the user’s selection.

The 36J27 valve has software that must recognize a user is making a change to a setpoint and then respond. When adjusting either minimum or maximum setpoints (in CORE Component Test mode), rotate the adjustment screw slowly until the software recognizes a change and starts adjusting the manifold pressure. The recommended rotation rate is ¼ turn (90°) in 4 - 5 seconds.

NOTE – starting a setpoint change by rapidly rotating the adjustment screw may result in the software not detecting the request.

MGV Manifold Pressure Adjustments – Valve Software Restrictions

The valve’s software requires a minimum number of motor steps between the minimum setting (input = 0 VDC) and maximum setting (input = 10 VDC). When decreasing the maximum or increasing the minimum setpoints, the valve will stop adjusting the manifold pressure when the setpoints are closer than 0.75” w.c. (Natural Gas) or 3.0” w.c. (LP/Propane). In Figure 20, the 0.75” w.c. separation concept is illustrated so valve software behavior can be understood. To avoid this software restriction when making large adjustments (i.e., high altitude derate), decrease the minimum first, then adjust the maximum.

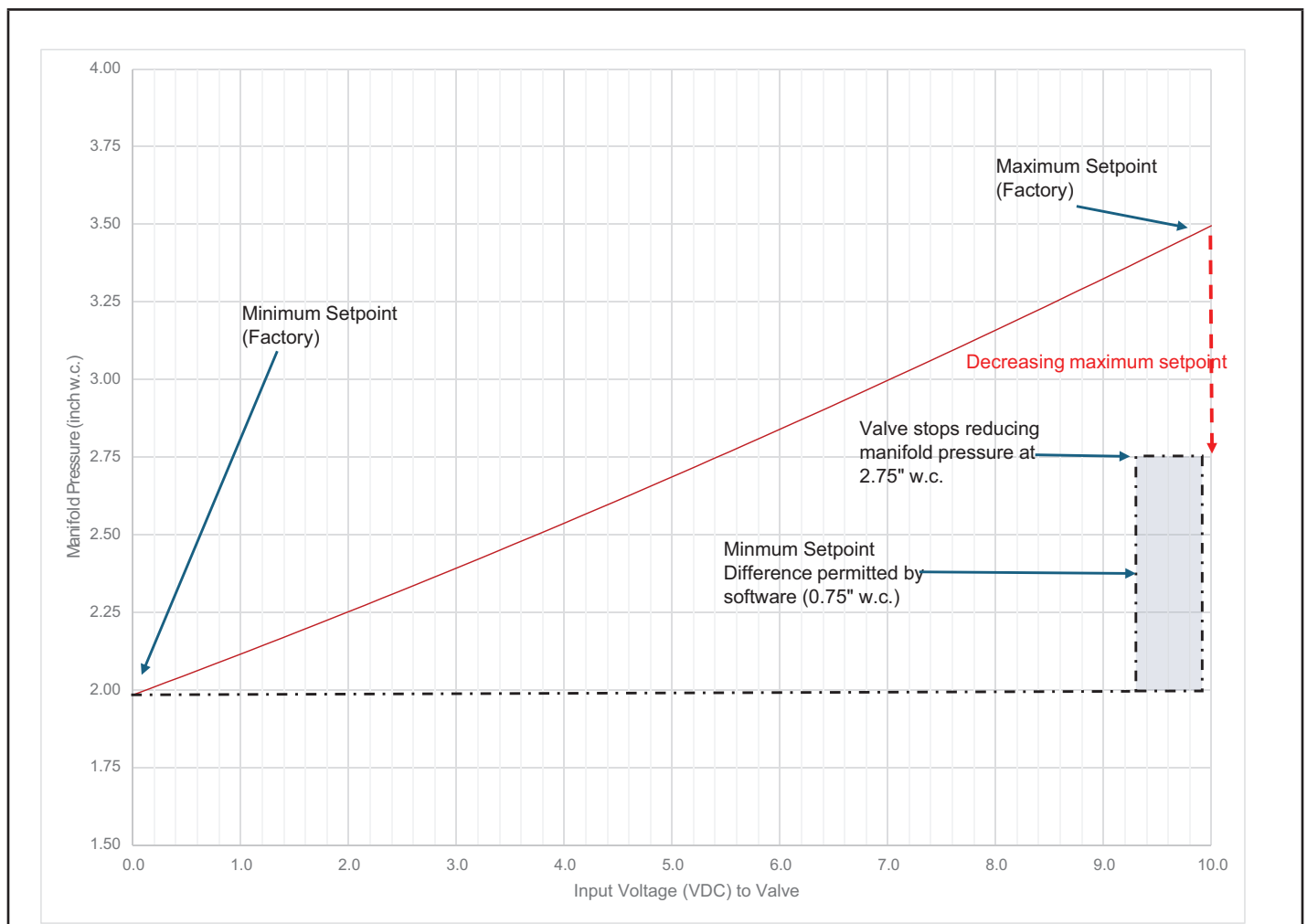


Figure 20

Input Voltage (VDC) vs. MGV Manifold Pressure – What happens when manifold pressure is changed?

The Modulating Gas Valve's minimum and maximum manifold pressure setpoints are adjusted individually. The manifold pressure adjustment options are minimum only, maximum only, and both minimum and maximum. When an adjustment is made, the manifold pressure output for each input VDC is recalculated accordingly. To illustrate, two graphs have been provided. Both graphs have a red line showing the factory settings.

The first graph (Figure 21) illustrates how the intermediate manifold pressures change (for same input VDC) when the maximum manifold setpoint is increased or decreased. The manifold pressure at each input VDC either increases or decreases when compared to the original setpoint. A similar change occurs when adjusting only the minimum manifold setpoint.

The second graph (Figure 22) illustrates how the intermediate manifold pressure settings change when both the minimum and maximum manifold pressure settings are increased or decreased the same amount.

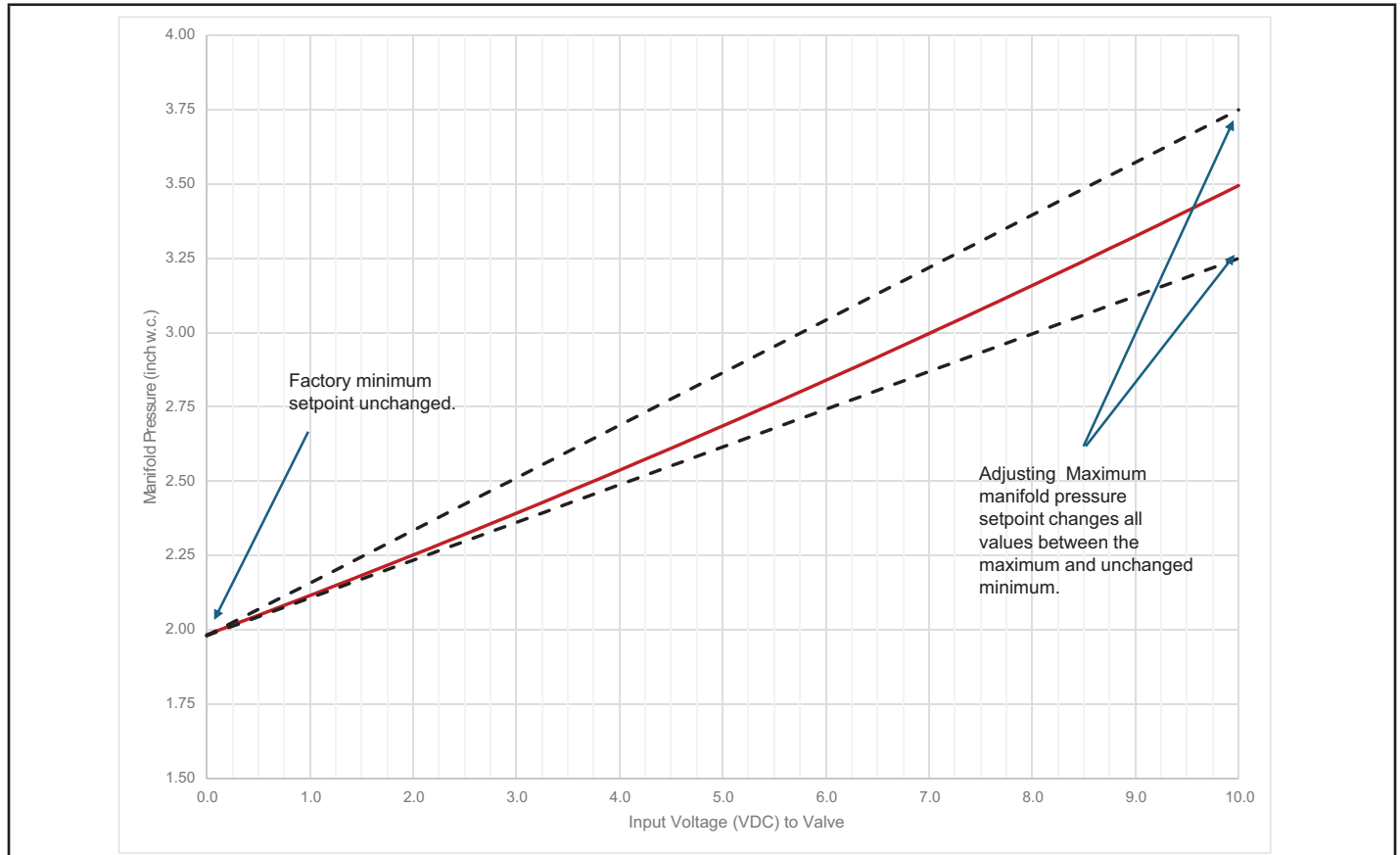


Figure 21

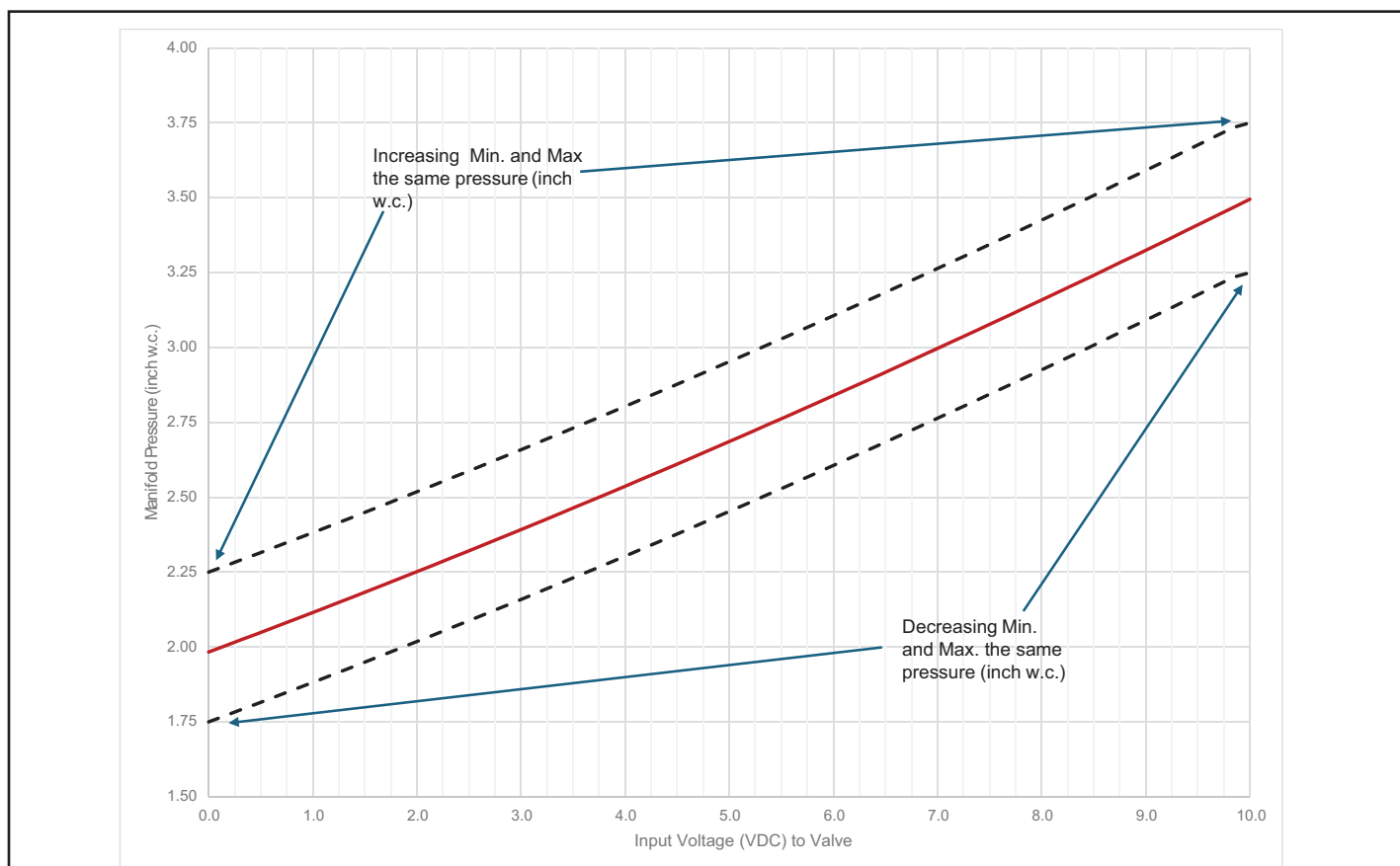


Figure 22

2. Spark Electrode 1 (Ignitor)

An electrode assembly is used for ignition spark. The electrode is inserted through holes in the burner support. See Figure 23. 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, DSI control generates spark energy which is transmitted through an insulated noise suppression cable into E1 electrode assembly at male 1/4" quick connect. Spark energy continues through electrode's center rod, arcs (sparks) across gap between rods at opposite electrode end, then ignites the fuel-air mixture at the burner. Flame travels from burner to burner until all are lit.

The noise suppression cable is 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 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" ± 0.015" (3.2 mm ± .4 mm).

! IMPORTANT

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

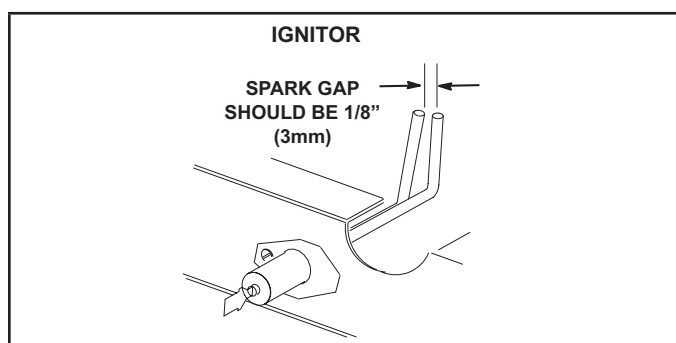


Figure 23

3. Flame Sensor Electrode FS1

Flame rectification sensing is used on all LDT units. When a flame is present, a small electric current (micro amps) flows out of the DSI control's FS terminal through the flame to ground. Conversely, when the flame is not present, current should not flow. The designed electrical pathway for current flow is DSI control to wire harness to FS1 electrode to FLAME to ground (via either burner assembly or E1 ground rod).

The flame sensor electrode is mounted through a hole in the burner support, electrode tip protrudes into the flame envelope of the appropriate burner, and the electrode assembly is secured with a screw to burner support. The electrode assembly can be removed for service without removing any part of the burners. Figure 17 shows the burner support mounting location by heater size. A side view of the FS electrode can be seen in Figure 24. The FS electrode is designed so the tips are at least 1/2" (12.7 mm) inside the flame envelope. FS electrode is not field adjustable. Do not bend or alter the electrode as this may create a hazardous condition that can cause property damage or personal injury.

To measure flame current, follow the procedure:

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. Drop out signal is .09 or less.
5. Remove heating demand and disconnect power to unit before disconnecting meter.
6. Make sure sensor wire is securely reconnected before reconnecting power to unit.

NOTE – If the meter scale reads 0, the leads are reversed. Adjust thermostat to remove heating demand, disconnect power, and reconnect leads for proper polarity.

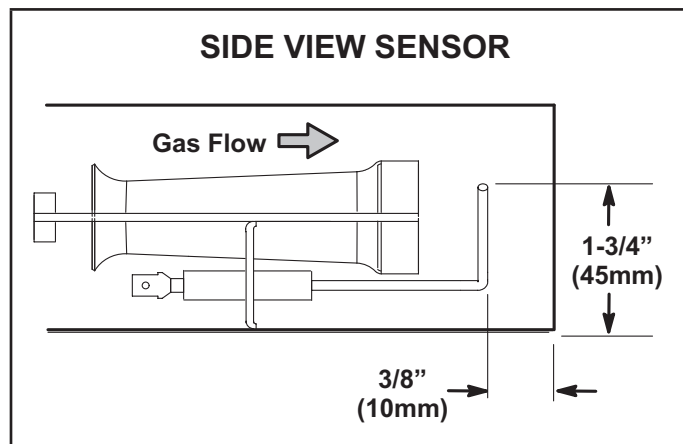


Figure 24

7. Mixed Air Temperature Sensor RT15

On units with the modulating gas heat option, an additional indoor air temperature sensor, Mixed Air Temperature RT15, is installed in the blower compartment. The sensor measures the temperature of indoor air downstream of the indoor coil and prior to entering the blower intake. The Mixed Air Temperature Sensor is a 2-wire, 10k thermistor that snaps into a 9/16" diameter hole. Refer to Figure 25 and Figure 26 for installed location by blower type.

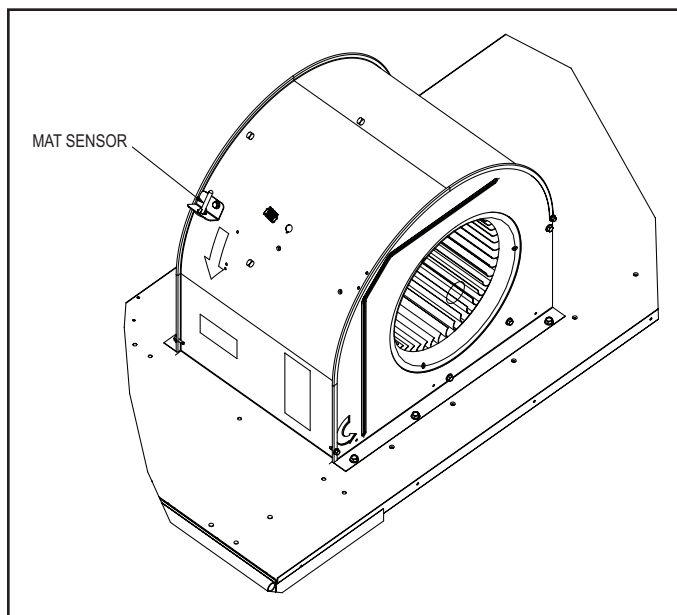


Figure 25

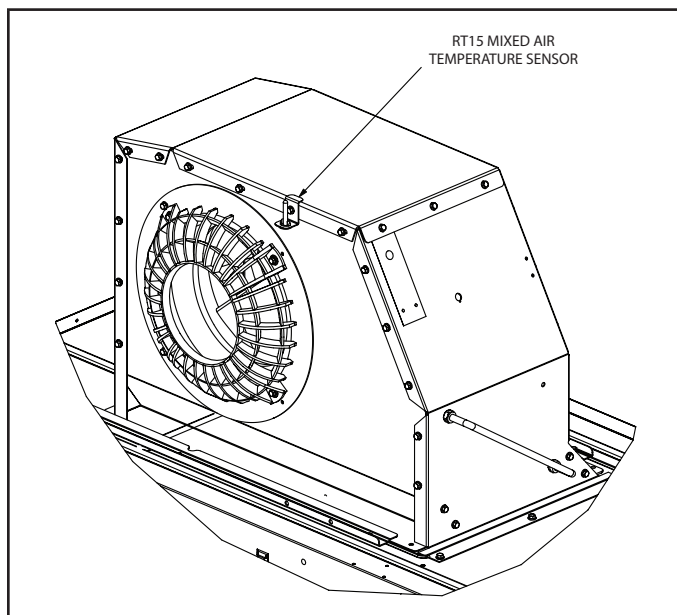


Figure 26

8. Discharge Air Temperature

All units are equipped with a Discharge Air Temperature Sensor RT6 (DAT). The RT6 Sensor is a 2-wire 10K thermistor whose location varies based upon unit options. The DAT (RT6) sensor has 3 possible factory locations. The most common, or standard, location is in the control compartment along the left rear wall as illustrated in Figure 27. The DAT (RT6) location changes with either of the following options: Remote RT6 or Modulating Gas Heat.

For units with a Factory Remote RT6 option, DAT (RT6) is field installed and shipped as a Bag Assembly with instructions in the control compartment. Refer to Figure 28 for the Bag Assembly shipping location.

For the units with the Modulating Gas Heat option, the DAT (RT6) is a multi-part assembly. The assembly consists of the RT6 sensor, a sensor positioning bracket, a short tube, and long tube. The assembly is designed for air to be drawn into the long tube air holes (in the heating compartment) and exit at the short tube's open end (in the blower compartment). RT6 sensor has been factory positioned just inside the short tube's open end and along the tube's centerline (not touching the tube sides). Refer to Figure 29 for the details regarding the installed location DAT (RT6) assembly.

NOTE – For units with Modulating Gas Option AND configured for Horizontal Ductwork (Side Discharge and Return air flow), the Remote RT6 Option MUST be used.

Modulating Gas Heat CORE Parameters:

User has the ability to adjust the following parameters for modulating gas heat discharge air temperature setpoint (Parameter 647) and sensor fine tune adjustment (Parameter 648).

In the CORE mobile app, use the user interface to change parameters as needed:

**Go to SETTINGS > RTU OPTIONS >
EDIT PARAMETER**

Refer to LENNOX® CORE CONTROL SYSTEM (UNIT CONTROLLER, LOW GWP) APPLICATION GUIDE for more details.

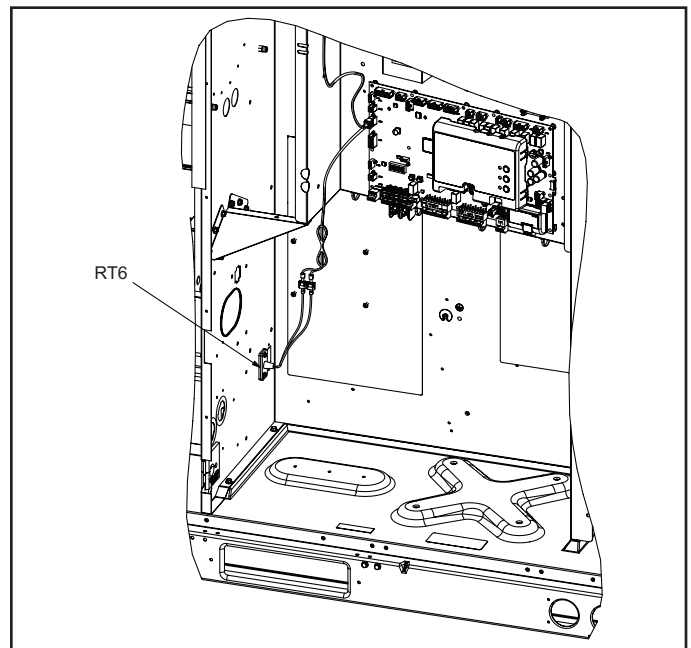


Figure 27

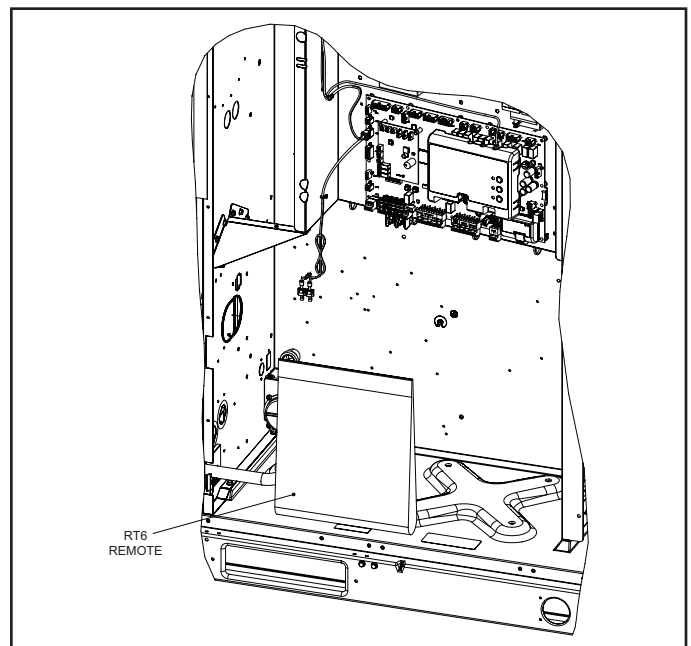


Figure 28

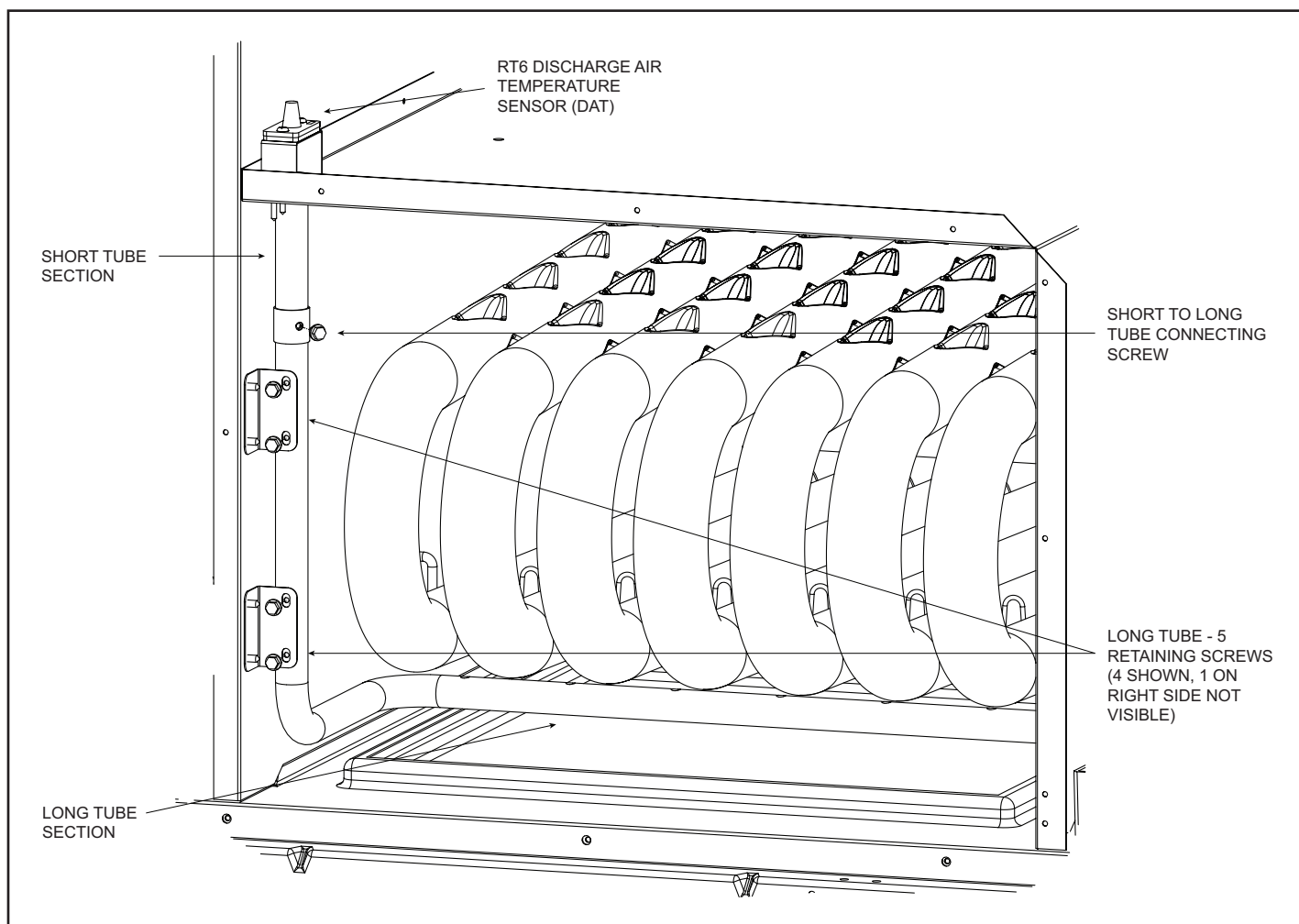


Figure 29

TO REPLACE SHORT TUBE

(refer to figure above)

1. Remove Horizontal discharge cover (at rear of unit).
2. Remove and retain screw connecting short tube to long tube.
3. Open Blower Access Panel and remove blower assembly to gain access to DAT (RT6) Assembly.
4. Remove and retain 2 screws securing the RT6 positioning bracket to blower deck. If preferred, RT6 sensor can be removed from positioning bracket by removing 2 the screws (see note).
5. Slip Sensor & positioning bracket (assembled) from inside short tube and set aside.
6. Remove and retain 2 screws securing short mounting tube plate to blower deck.
7. Lift short tube up and into blower compartment.
8. Reverse steps to install new short tube using retained parts.

NOTE – When the RT6 Sensor has been removed from its positioning bracket. To re-install the sensor, first, resecure positioning bracket to blower deck. Second, slip sensor through bracket into short tube opening and torque each screw to 15 - 17 IN-LBS). Visually check sensor does not touch sides of short tube.

TO REPLACE LONG TUBE

(refer to figure above)

1. Remove Horizontal discharge cover (at rear of unit).
2. Remove and retain 6 screws securing long tube into unit (2 screws on the 2 brackets, 1 screw connecting short to long tube, and 1 on right wall not shown).
3. Slide left end of long tube downward and off short tube.
4. Rotate right end of tube toward the inside of the unit while moving whole tube toward inside of unit to clear left support brackets.
5. Slip tube out the side discharge opening.
6. Reverse steps to install new tube using retained screws.

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.

Units are equipped with a variable speed, direct drive blower. The installer is able to enter the design-specified supply air CFM into the Unit Controller for optimal efficiency. The Unit Controller calibrates the supply air volume which eliminates the need to manually take duct static measurements.

Indoor Blower Motor B3

All direct drive blower motors are electronically commutated, brushless, DC motors. CFM adjustments are made by changing Unit Controller parameters via the service app. Motors are equipped with sealed ball bearings. All motor specifications are listed in the SPECIFICATIONS (table of contents) in the front of this manual. Motors come with premounted aluminum impellers.

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**

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 factory-installed, 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.

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.

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 30.

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. Refer to Table 8 for minimum airflow when electric heat is installed.
5. From the mobile service app, use TEST & BALANCE > BLOWER menu to modify the following blower parameters:

- **HEATING HIGH CFM**

This is the percentage of torque for blower heating speed.

- **HEATING LOW CFM**

This is the percentage of torque for blower heating low speed on single phase gas heating units only.

- **COOLING HIGH CFM**

This is the percentage of torque for blower cooling high speed.

- **COOLING LOW CFM**

This is the percentage of torque for blower cooling low speed (036, 048, and 060 units only) and vent speed for standard static blowers (all units).

- **VENTILATION CFM**

This is the percentage of torque for high static blower ventilation speed.

Table 8
ELECTRIC HEAT MINIMUM AIRFLOW

kW	CFM	
	Direct Drive	Direct Drive (Impeller-Style)
5	600	n/a
7.5	600	1200
10	600	n/a
15	1100	1500
22.5	1600	2000

6. Adjusting Unit CFM

The supply CFM can be adjusted by changing Unit Controller settings. Refer to Table 9 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 single- 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).

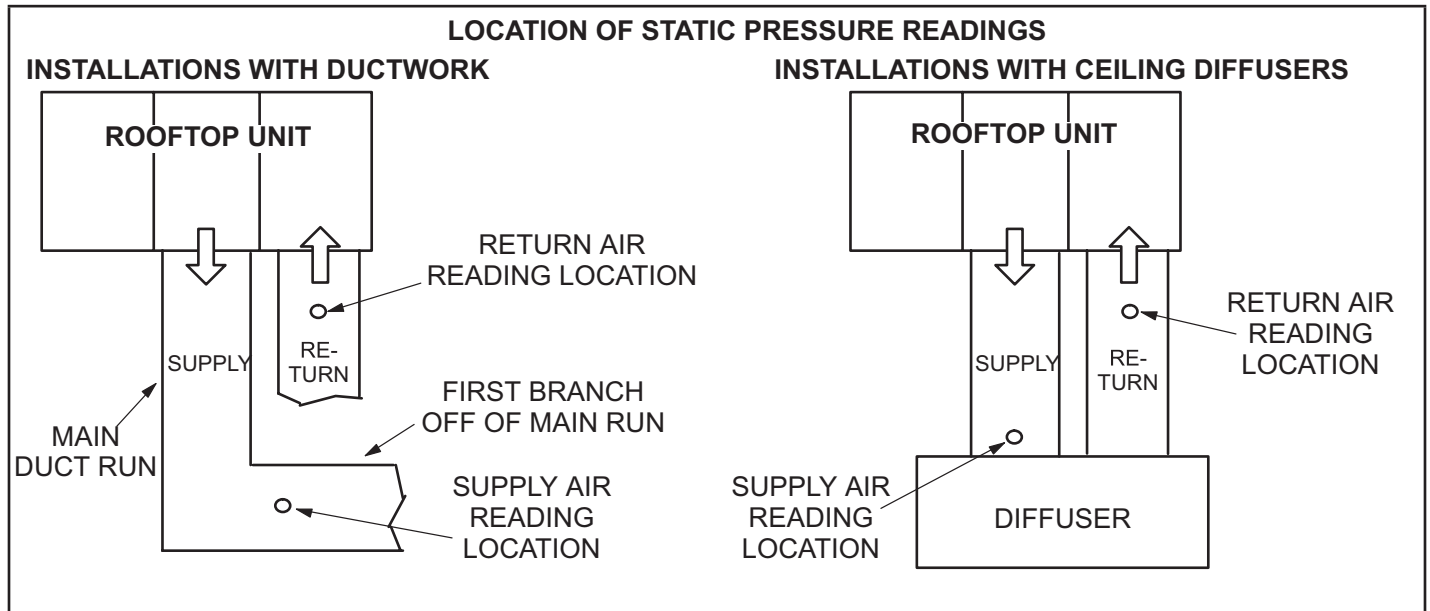


Figure 30

Table 9
LG/LC/LH/LD 036-072 PARAMETER SETTINGS

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. (Applies to: Units with Heat Code = P, K, R OR P Volt + Heat Code = B, Q, X)
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%.
BLOWER EXHAUST CFM DAMPER POS %	%	Minimum damper position for exhaust speed blower operation. Default 0%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 216		
POWER EXHAUST DEADBAND	%	Deadband % for power exhaust operation. Default 0%.
SETTINGS > RTU OPTIONS > EDIT PARAMETERS = 10 (Applies to Thermostat Mode ONLY)		
FREE COOLING STAGE-UP DELAY	%	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. 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.

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

B. Mechanical Heating Start-Up

Heat Pump

NOTE – L1 reversing valve is de-energized in the heating mode.

1. Set thermostat or temperature control device to initiate a first-stage heating demand.
2. Outdoor Temperature **ABOVE** Balance Point Setpoint (35F default):

A first-stage heating demand (W1) will energize compressor **heat pump heating**, the outdoor fan, and the blower.

A second-stage heating demand (W2) will de-energize compressor heat pump heating through K27. **High gas heat** will be energized.

3. Outdoor Temperature **BELOW** Balance Point Setpoint (35F default):

Mechanical Heating is locked out (disabled).

Thermostat W1 and W2 demands operate gas heating based upon option installed (2-stage or modulating). Refer to Gas Heat Sequence of Operations for Details.

C. Gas 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 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.

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

Turning On Gas To Unit

1. Set thermostat to lowest setting.
2. Turn off all electrical power to appliance.
3. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
4. Open or remove the control access panel.
5. Move gas valve switch to **OFF**. See Figure 31 and Figure 32.
6. Wait five (5) minutes to clear out any gas. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas, go to the next step.
7. Move gas valve switch to **ON**. See Figure 31 and Figure 32.
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 10 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 to OFF.
5. Close or replace the control access panel.

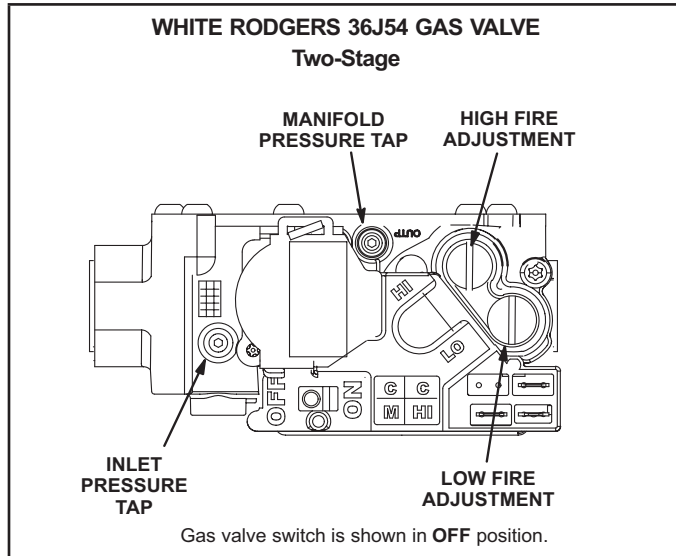


Figure 31

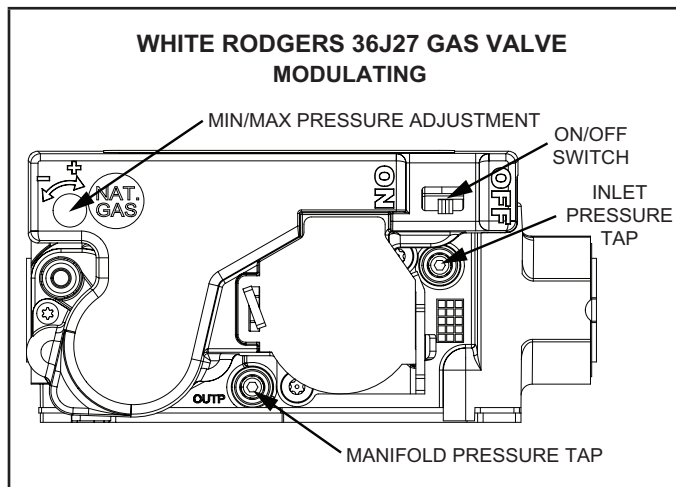


Figure 32

C. Cooling Start-Up

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-410A 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.

IV. CHARGING

A. Refrigerant Charge and Check

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.

Refrigerant Charge R-454B		
Unit	M _c (lbs)	M _c (kg)
LDT/LHT036	13.56	6.15
LDT/LHT048	13.94	6.32
LDT/LHT060	16.13	7.31
LDT/LHT072	13.63	6.18
LHT/LDT036 W/ Humidrol	15.10	6.85
LHT/LDT048 W/ Humidrol	13.72	6.22
LHT/LDT060 W/ Humidrol	15.52	7.04
LHT/LDT072 W/ Humidrol	15.22	6.90

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:

1. Safely remove refrigerant following local and national regulations
2. Evacuate the circuit
3. Purge the circuit with inert gas
4. Evacuate
5. Purge with inert gas
6. 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 the 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 unit is earth grounded 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 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 labeled 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.
- 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.
- 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

- 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.

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

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

1. 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.
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: For the 036 non-reheat model at 95°F outdoor ambient and a measured suction pressure of 130psig, the target liquid temperature is 96°F. For a measured liquid temperature of 106°F, add charge in increments until measured liquid temperature agrees with the target liquid temperature.

Charge Verification - Approach Method - AHRI Testing

1. Using the same thermometer, compare liquid temperature to outdoor ambient temperature.

Approach Temperature = Liquid temperature (at condenser outlet) minus ambient temperature.

2. Approach temperature should be $3.8\text{oF} + 1$ ($2.1\text{oC} + 0.5$). An approach temperature greater than this value indicates an under-charge. An approach temperature less than this value indicates an overcharge.
3. The approach method is not valid for grossly over or undercharged systems. Use Table 10 through Table 17 as a guide for typical operating pressures and subcooling temperatures.

Table 10 581066-02 036 NORMAL OPERATING PRESSURES				
Outdoor Coil Entering Air Temp	Discharge + 10 psig	Suction + 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	226	137	4.3	10.7
75°F	261	139	4.0	9.6
85°F	302	141	4.3	8.9
95°F	349	143	4.4	8.5
100°F	395	145	4.3	7.5
115°F	460	148	6.2	6.5

Table 11 581067-02 048 NORMAL OPERATING PRESSURES				
Outdoor Coil Entering Air Temp	Discharge ± 10 psig	Suction ± 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	235	126	6.8	9.8
75°F	272	127	6.4	9.2
85°F	314	129	6.5	8.9
95°F	359	130	6.4	8.4
100°F	401	132	5.1	7.2
115°F	456	135	5.3	6.2

Table 12 581068-02 060 NORMAL OPERATING PRESSURES				
Outdoor Coil Entering Air Temp	Discharge ± 10 psig	Suction ± 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	244	124	6.1	11.1
75°F	287	132	8.0	10.3
85°F	330	135	8.8	9.8
95°F	377	137	9.0	9.6
100°F	430	140	10.4	8.4
115°F	491	143	12.0	7.6

Table 13 581240-01 072 NORMAL OPERATING PRESSURES				
Outdoor Coil Entering Air Temp	Discharge ± 10 psig	Suction ± 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	258	125	11.0	8.6
75°F	299	128	12.3	7.7
85°F	342	130	12.4	7.5
95°F	387	133	12.5	6.8
100°F	444	135	14.6	5.6
115°F	498	137	14.3	5.6

Table 14 581427-01 036 NORMAL OPERATING PRESSURES - REHEAT				
Outdoor Coil Entering Air Temp	Disch. +/- 10 psig	Suct +/- 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	231	140	5.4	10.4
75°F	266	141	5.6	9.8
85°F	306	143	5.8	9.6
95°F	351	142	6.3	9.6
100°F	395	144	6.6	8.4
115°F	448	146	7.3	7.8

Table 15 581428-01 048 NORMAL OPERATING PRESSURES - REHEAT				
Outdoor Coil Entering Air Temp	Disch. +/- 10 psig	Suct +/- 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	239	129	7.6	9.3
75°F	274	132	8.1	8.3
85°F	314	135	9.0	7.2
95°F	358	134	9.2	7.0
100°F	400	135	9.1	5.7
115°F	452	138	9.7	4.9

Table 16 581429-01 060 NORMAL OPERATING PRESSURES - REHEAT				
Outdoor Coil Entering Air Temp	Disch. +/- 10 psig	Suct +/- 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	249	128	5.0	12.7
75°F	287	130	5.0	12.0
85°F	329	132	6.0	11.6
95°F	375	135	7.0	10.9
100°F	426	136	8.0	10.3
115°F	484	140	9.0	9.4

Table 17 581430-01 072 NORMAL OPERATING PRESSURES - REHEAT				
Outdoor Coil Entering Air Temp	Disch. +/- 10 psig	Suct +/- 5 psig	Appr. Temp +/-1F	SubCooling Temp
65°F	255	125	7.0	10.9
75°F	294	128	7.8	10.2
85°F	336	131	8.4	9.7
95°F	383	133	9.0	9.2
100°F	441	136	10.4	9.2
115°F	498	139	11.1	8.5

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 LDT units are C.S.A. design certified without modification.

1. Gas Piping

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

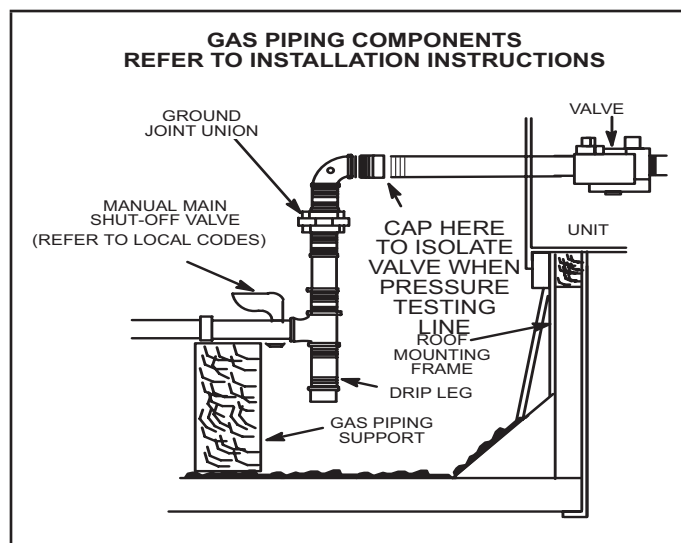


Figure 33

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.

Table 18
OPERATING PRESSURE AT GAS CONNECTON
"W.C.

	Natural Gas		LP/Propane Gas	
	Min.	Max.	Min.	Max.
036-072	4.5	10.5	11	13

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.

ATTENTION!

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 34.

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.

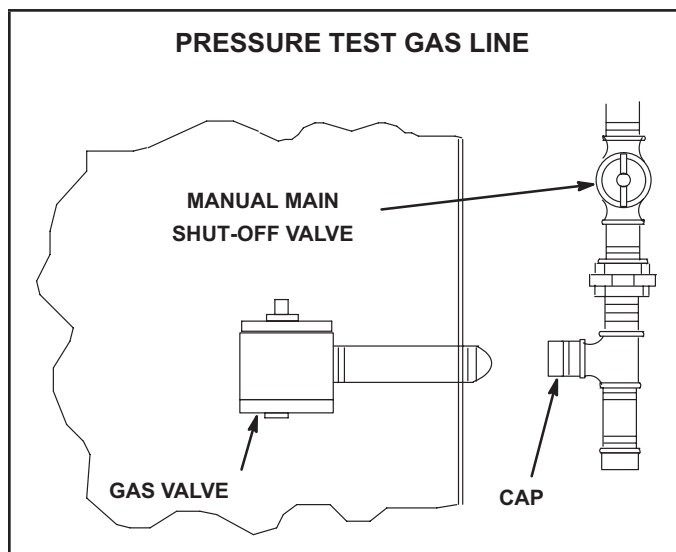


Figure 34

3. Gas Flow

To check for proper gas flow, determine the Btu input from the unit rating plate. Divide this input rating by the Btu per cubic feet of available gas. Result is the required number of cubic feet per hour. Determine the flow of gas through the gas meter for two minutes and multiply by 30 to get the hourly flow of gas.

4. Supply Gas Pressure

Supply pressure should be checked with unit firing at maximum rate. For Natural Gas, supply pressure should be maintained in accordance with the specified minimum and maximum supply pressures on the unit rating plate.

For LP/propane, a natural gas to LP/propane gas changeover kit is required to convert the unit in the field. Refer to installation instructions provided with changeover kit for conversion procedure along with propane minimum and maximum supply pressures.

NOTE – On multiple unit installations, each unit should be checked separately, with and without other units operating. Supply pressures on both single and multiple unit installations must fall within range listed on the rating plate.

5. Supply Gas Measurement

1. Shut off the manual main supply valve (field furnished) when installing or removing the measuring device (Steps 2 and 6).
2. Connect the measuring device based upon type of gas valve.
3. For White Rodgers 36J54 valve (Figure 31), supply pressure is accessed by removing 1/8" hex screw. Remove the 1/8" hex screw and install a 1/8" fitting with hose barb. Connect tubing from the barbed fitting and route to measuring device to measure supply pressure.
4. For White Rodgers 36J27 valve (Figure 32), locate the 5/16" inlet pressure post on top of the valve. Using a 3/32" hex wrench, rotate pressure tap screw one rotation counter-clockwise. Connect a piece of 5/16" I.D. tubing over the post and route to measuring device.
5. Open manual main supply valve.
6. Ignite unit and let run for 5 minutes to allow for steady state conditions.
7. After allowing unit to stabilize for 5 minutes, record supply pressure.
8. Shut unit off and remove measuring device, tubing, or fittings as soon as an accurate reading has been obtained.
9. For White Rodgers 36J54 valve (Figure 31), remove supply pressure barbed fitting and reinstall the 1/8" hex screw.
10. For White Rodgers 36J27 valve (Figure 32), remove tubing from the post. Then using 3/32" hex wrench, rotate the inlet pressure tap screw clockwise to seal the pressure port.

11. Manifold Pressure Measurement and Adjustment

1. Shut off the manual main supply valve (field furnished) when installing or removing the measuring device (Steps 2 and 7).
2. Connect the measuring device based upon the type of gas valve.

For White Rodgers 36J54 valve (Figure 31) manifold pressure, remove the 1/8" hex screw, install 1/8" fitting with hose barb, connect hose from barb to "+" side of measuring device.

For White Rodgers 36J27 valve (Figure 32) manifold pressure, locate the 5/16" manifold pressure post on top of the valve. Using a 3/32" hex wrench, rotate the outlet pressure tap screw one rotation counter-clockwise. Place 5/16" I.D. tubing over post and route to measuring device.
3. Ignite unit and let run for 5 minutes to allow for steady state conditions. If unit has 2 heating inputs, start on higher input. After allowing unit to stabilize for 5 minutes, record manifold pressure. Compare measurement to the unit nameplate values.
4. After allowing unit to stabilize for 5 minutes, record manifold pressure. Compare measurement to the unit nameplate values.

NOTE – For elevations higher than 2001 feet above sea level, see *High Altitude Adjustment* section for details.

5. If necessary, adjust manifold pressure. Figure 31 and Figure 32 show adjustment screw(s) locations.
6. Repeat steps 3, 4 and 5 on lower input.
7. Shut unit off and remove measuring device as soon as accurate reading has been obtained.
For White Rodgers 36J54 valve (Figure 31), remove 1/8" fitting with hose barb and reinstall 1/8" hex screw.
For White Rodgers 36J27 valve (Figure 32), remove tubing from the post. Then using 3/32" hex wrench, rotate the manifold pressure tap screw clockwise to seal the pressure port.
8. Start unit and perform leak check. Seal leaks if found.

NOTE – White Rodgers offers a *Pressure Check Kit (69M1701)* which includes 5/16" ID tubing, 3/32" hex wrench, and 1/4" to 5/16" tubing connector.

9. High Altitude Adjustments

Units in Canada and US may be fired at full input up to 2000 feet (610m) above sea level. Above 2000 feet (610m), manifold pressures must be adjusted.

In Canada, certification for installation at altitudes over 4500 feet (1372m) above sea level is the jurisdiction of local authorities. Lennox recommends reducing input (de-rate) by two percent for each additional 1000 feet above 4,500 feet. Refer to Table 19 for guidance.

In US, the heating input shall be reduced (de-rated) by two percent per 1000 feet above sea level. Refer to Table 20 for guidance.

Once any high-altitude adjustments have been completed, locate the high-altitude conversion sticker in the unit literature bag. Fill out the conversion sticker and affix next to the unit nameplate.

NOTE – For heating values above 1000 Btu/cu. ft., Lennox recommends verifying the reduced input rate using local heating values and gas flow rate as detailed in section A-Gas Flow.

Table 19

CANADA – NATURAL GAS MANIFOLD PRESSURES
[inch w.c. (kPa)]

Altitude in Feet (Meters)	Low (Minimum) Input Rate	High (Maximum) Input Rate
2001 – 4500 (610 – 1372)	See unit nameplate	
4501-5500 (1372–1676)	1.6 (0.40)	2.8 (0.70)
5501-6500 (1677–1981)	1.5 (0.37)	2.7 (0.67)
6501-7500 (1981–2286)	1.4 (0.35)	2.6 (0.65)
Fuel heating value = 1000 btu/cu ft		

Table 20

US – NATURAL GAS MANIFOLD PRESSURES
[inch w.c. (kPa)]

Altitude in Feet (Meters)	Low (Minimum) Input Rate	High (Maximum) Input Rate
2001 – 4500 (610 – 1372)	See unit nameplate	
4501-5000 (1372–1524)	1.7 (0.42)	3.0 (0.75)
5001-6000 (1524–1829)	1.6 (0.40)	2.8 (0.70)
6001-7000 (1829–2134)	1.5 (0.37)	2.7 (0.67)
7001–8000 (2134–2438)	1.4 (0.35)	2.6 (0.65)
Fuel heating value = 1000 btu/cu ft		

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.

IMPORTANT

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

10. Heat Exchanger

To Access or Remove Heat Exchanger From Unit:

1. Turn off gas and electric power.
2. Remove access panel(s) and right hand mullion (between heating and control compartments). If needed, remove the left hand mullion (between heating and filter compartments).
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.

B. Cooling System Service Checks

LGM 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 10 through Table 17.

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.

IMPORTANT

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

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 refrigerant 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 refrigerant 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.

Sealed electrical components shall be replaced, not repaired.

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.

A. Filters

Units are equipped with temporary filters which must be replaced prior to building occupation. See Figure 35. 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.

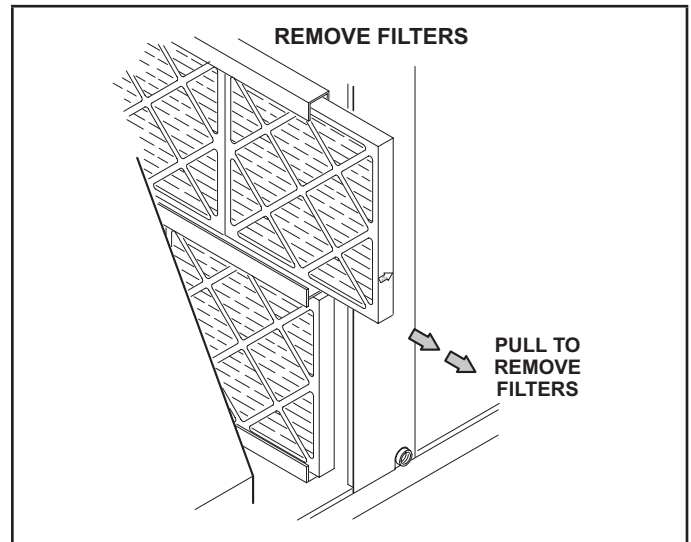


Figure 35

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 16. 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 Inducers

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 using mild detergent or commercial coil cleanser.

Flush coil and condensate drain with water taking care not to get insulation, filters and return air ducts wet.

G. Condenser Coil

Clean condenser coil annually with detergent or commercial coil cleaner and inspect monthly during the cooling season.

Condenser coils are made of single and two formed slabs. On units with two slabs, dirt and debris may become trapped between the slabs. To clean between slabs, carefully separate coil slabs and wash them thoroughly. See Figure 36. Flush coils with water following cleaning.

NOTE – Remove all screws and gaskets prior to cleaning procedure and replace upon completion.

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.

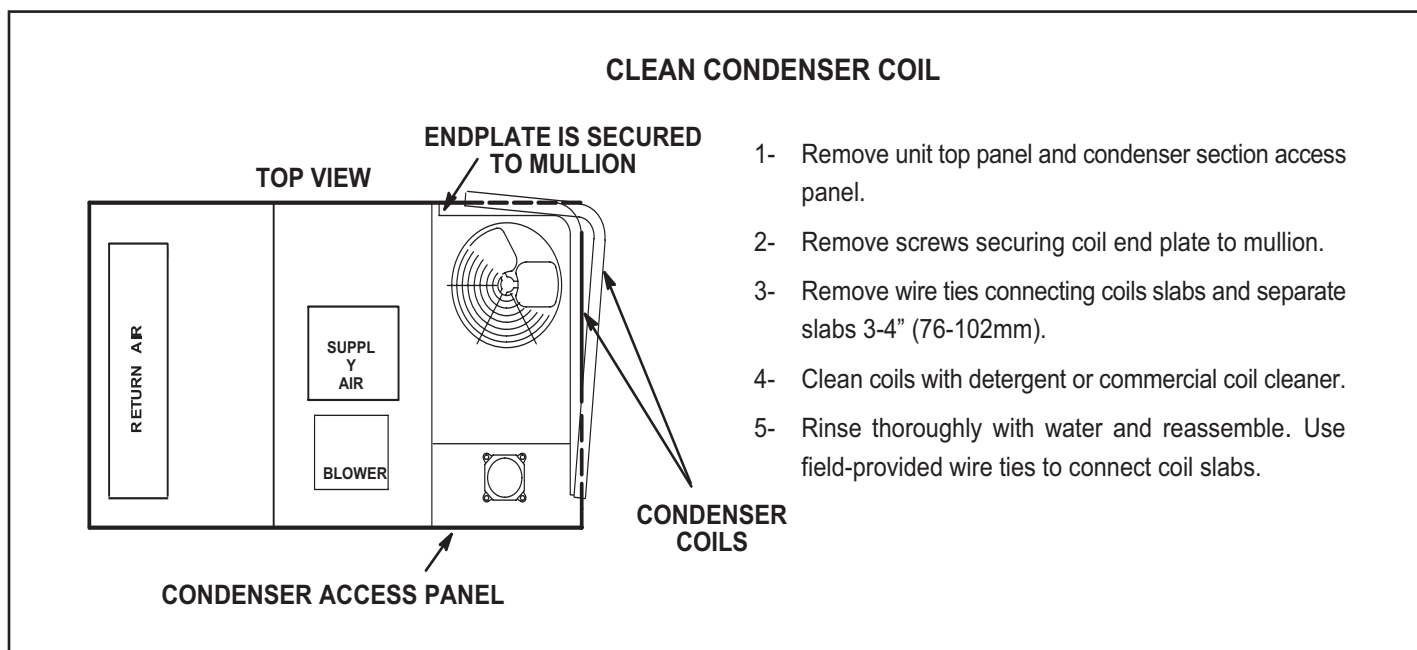


Figure 36

VII. ACCESSORIES

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

A. C1 / T1CURB

When installing the LDT 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 LDT 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 37. 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 38. 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 LDT 2, 3, 4 and 5 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 LDT 2, 3, 4 and 5 ton units in both manually operated (Figure 39) and motorized (Figure 40) 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.

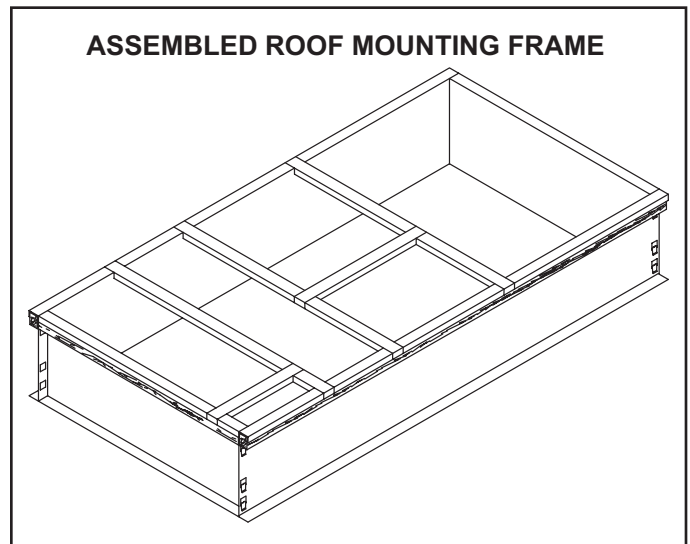


Figure 37

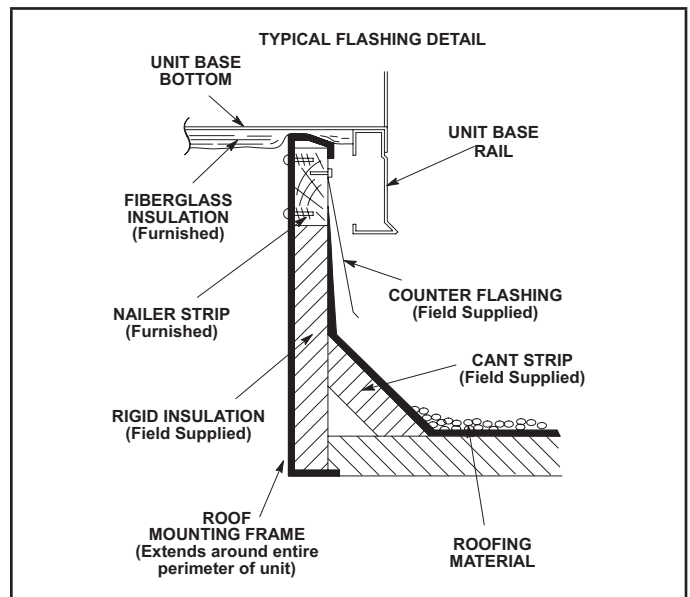


Figure 38

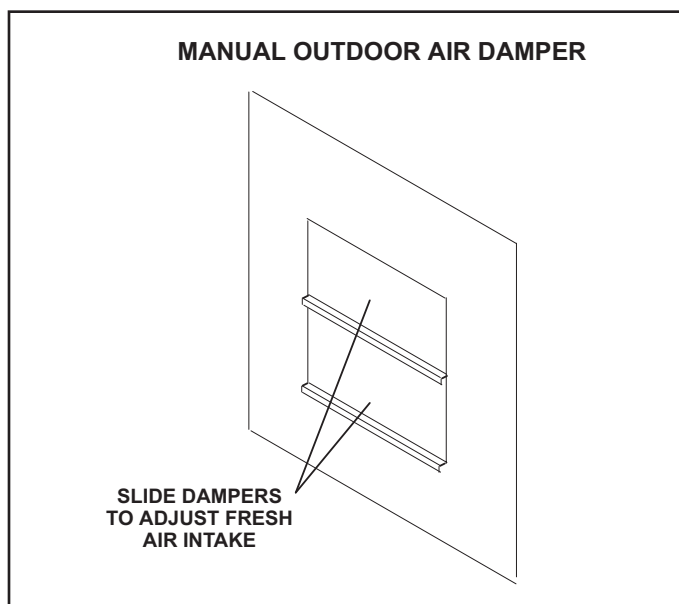


Figure 39

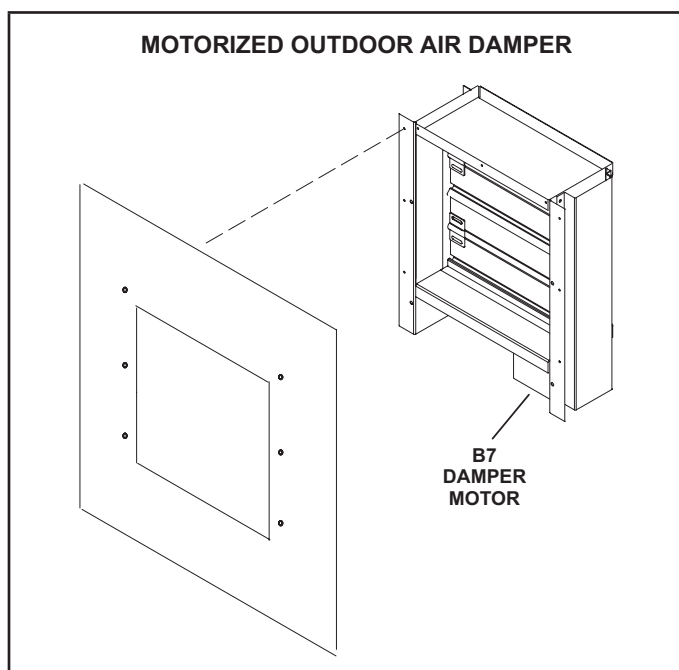


Figure 40

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 LDT 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 41.

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 42 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 21. TEMP OFFSET is the default mode.

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 43.

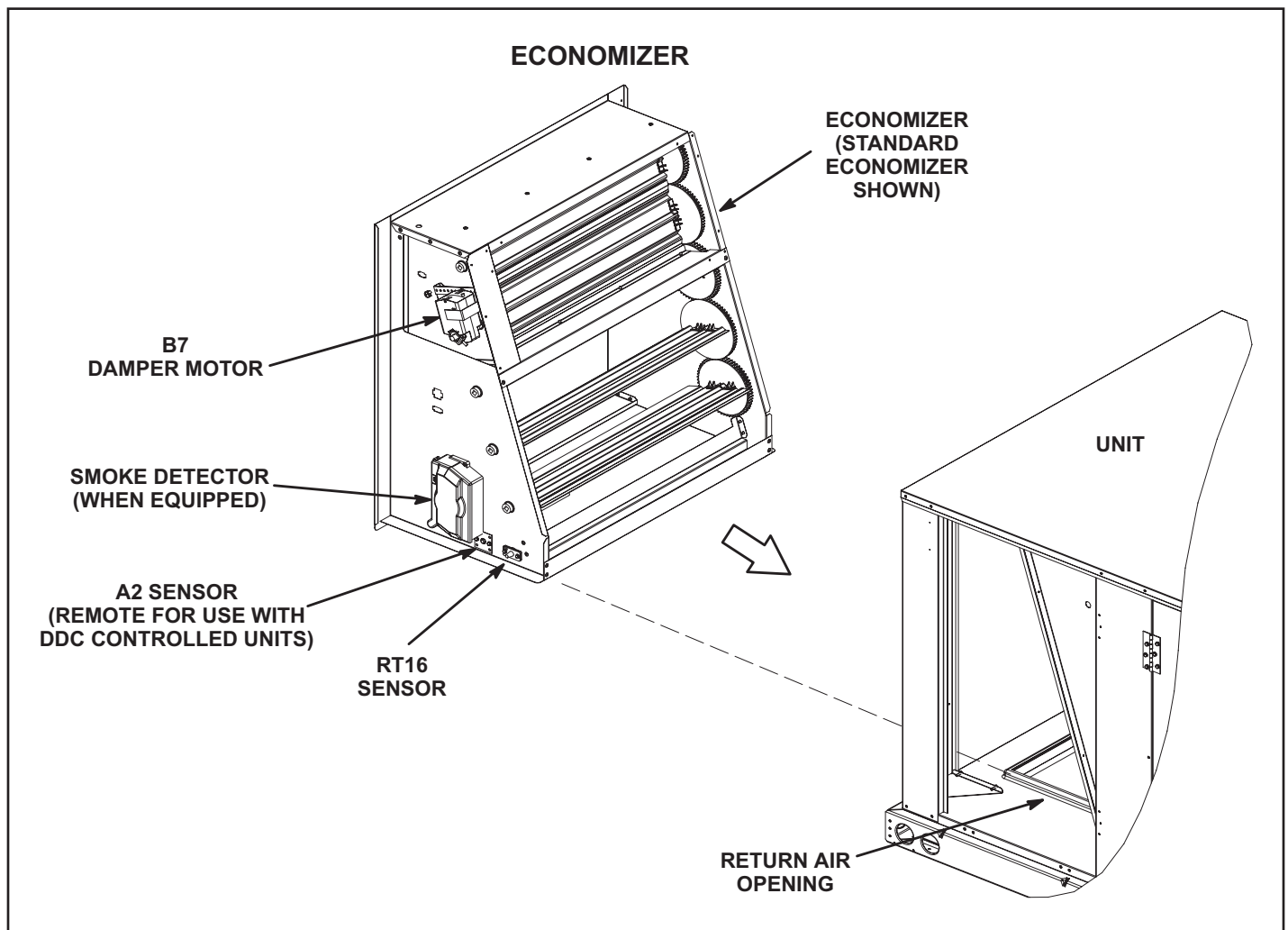


Figure 41

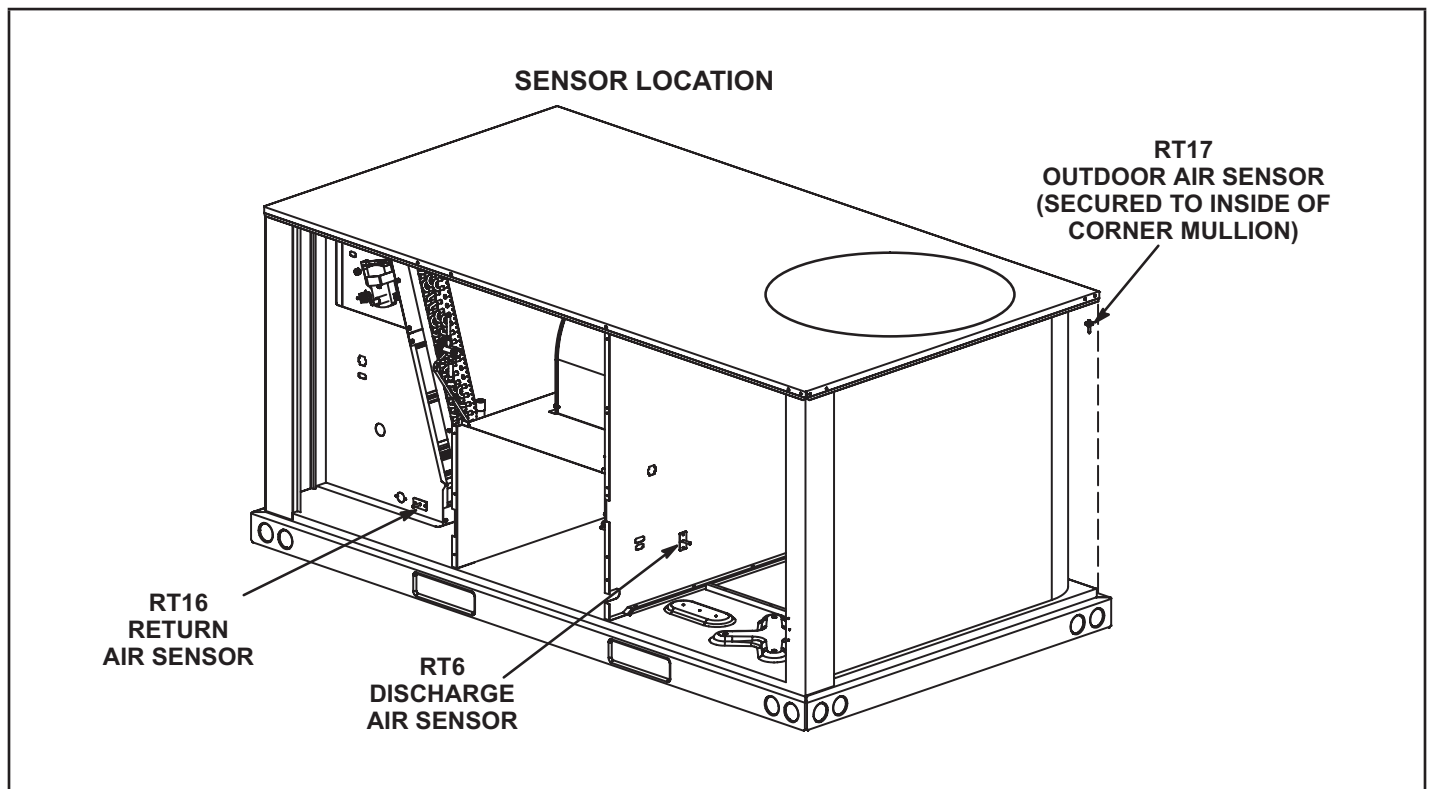


Figure 42

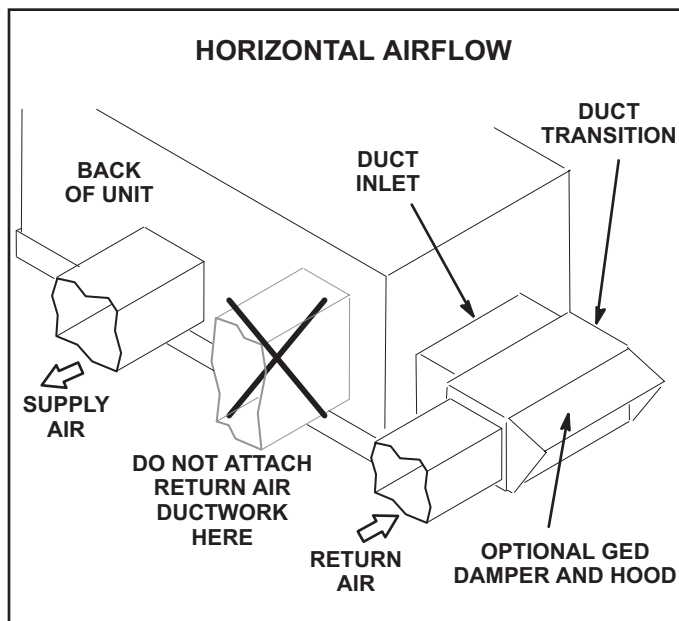


Figure 43

Table 21
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	Energy 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

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

'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 LDT 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 LDT 2, 3, 4 and 5 ton units to provide exhaust air pressure relief (refer to EHB for appropriate transition model). See Figure 44 and installation instructions for more detail.

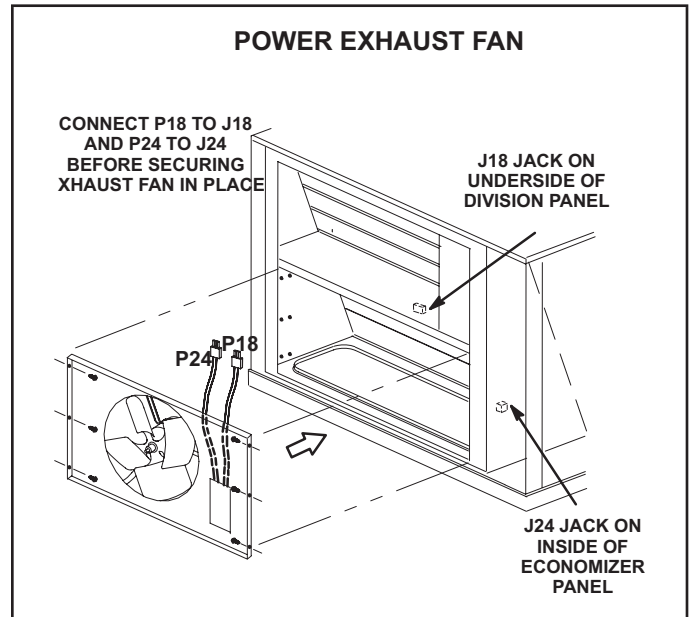


Figure 44

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.

J. 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 46.

1. On the back side of the unit, remove the screw securing the back of the ionizer bracket. See Figure 45. 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.

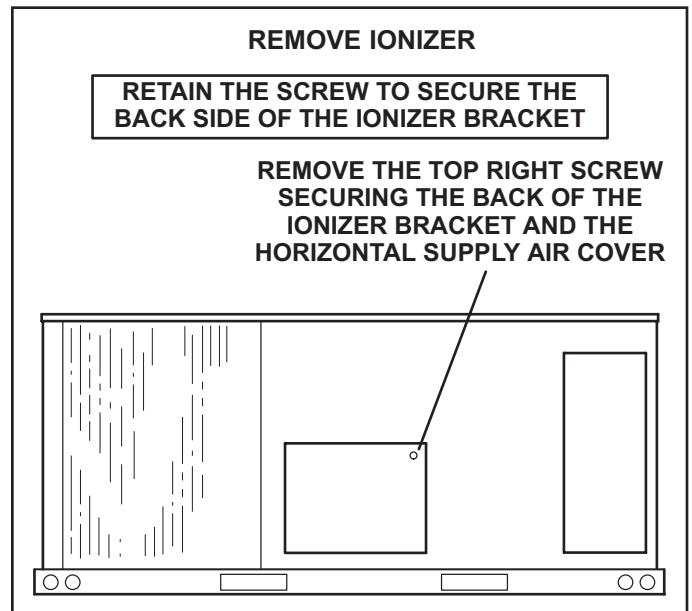


Figure 45

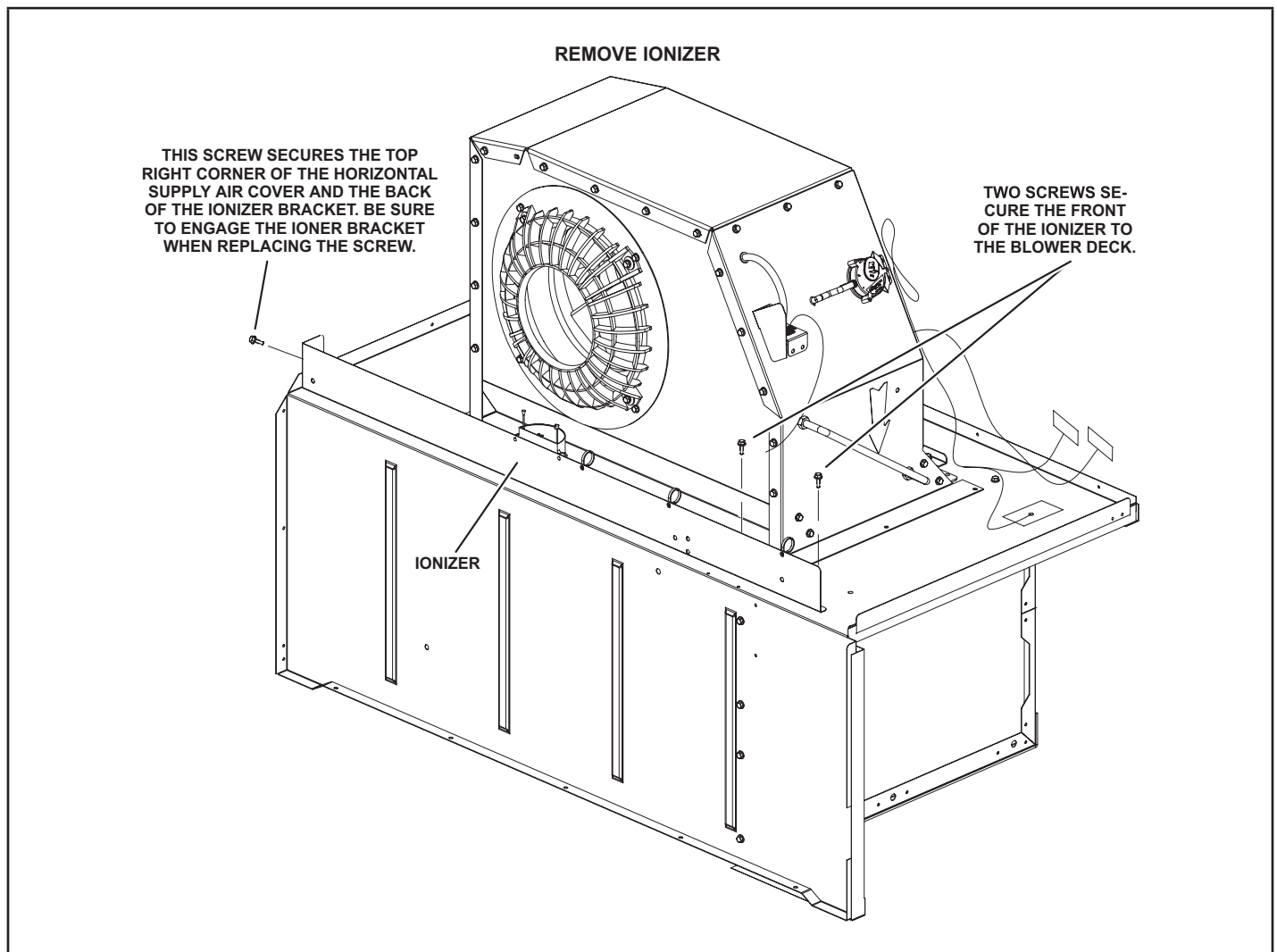


Figure 46

I. 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).

J. 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.

K. 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.

L-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.

M. Drain Pan Overflow Switch S149 (optional)

M-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 five second 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.

N. 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.

J. Hot Gas Reheat (Factory-Installed)

General

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 47 for cooling refrigerant routing, Figure 48 for heating refrigerant routing and Figure 49 for reheat 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 (SP4 board P466) 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.

COOLING REFRIGERANT SCHEMATIC

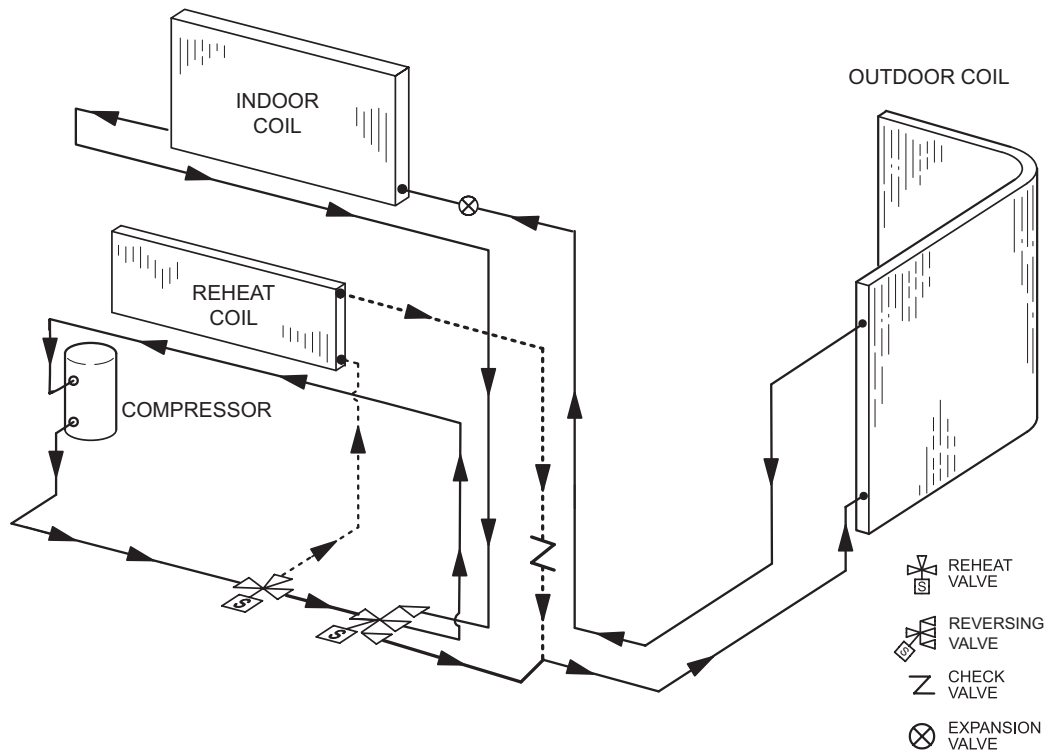


Figure 47

HEATING REFRIGERANT SCHEMATIC

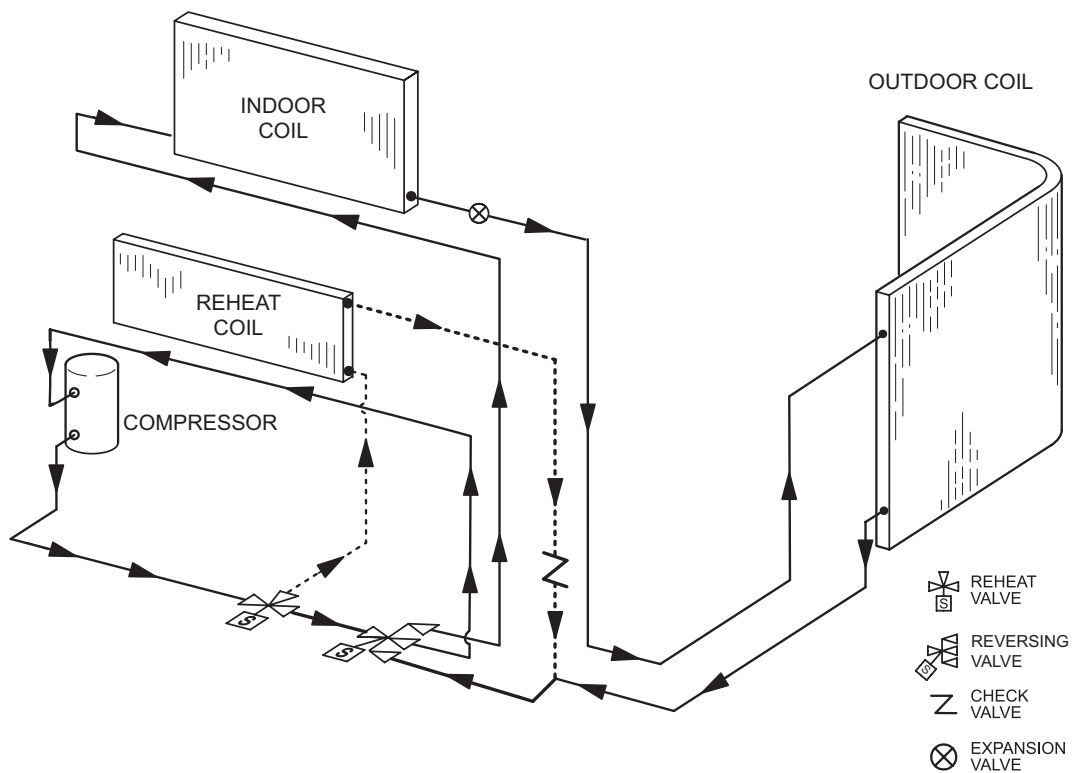
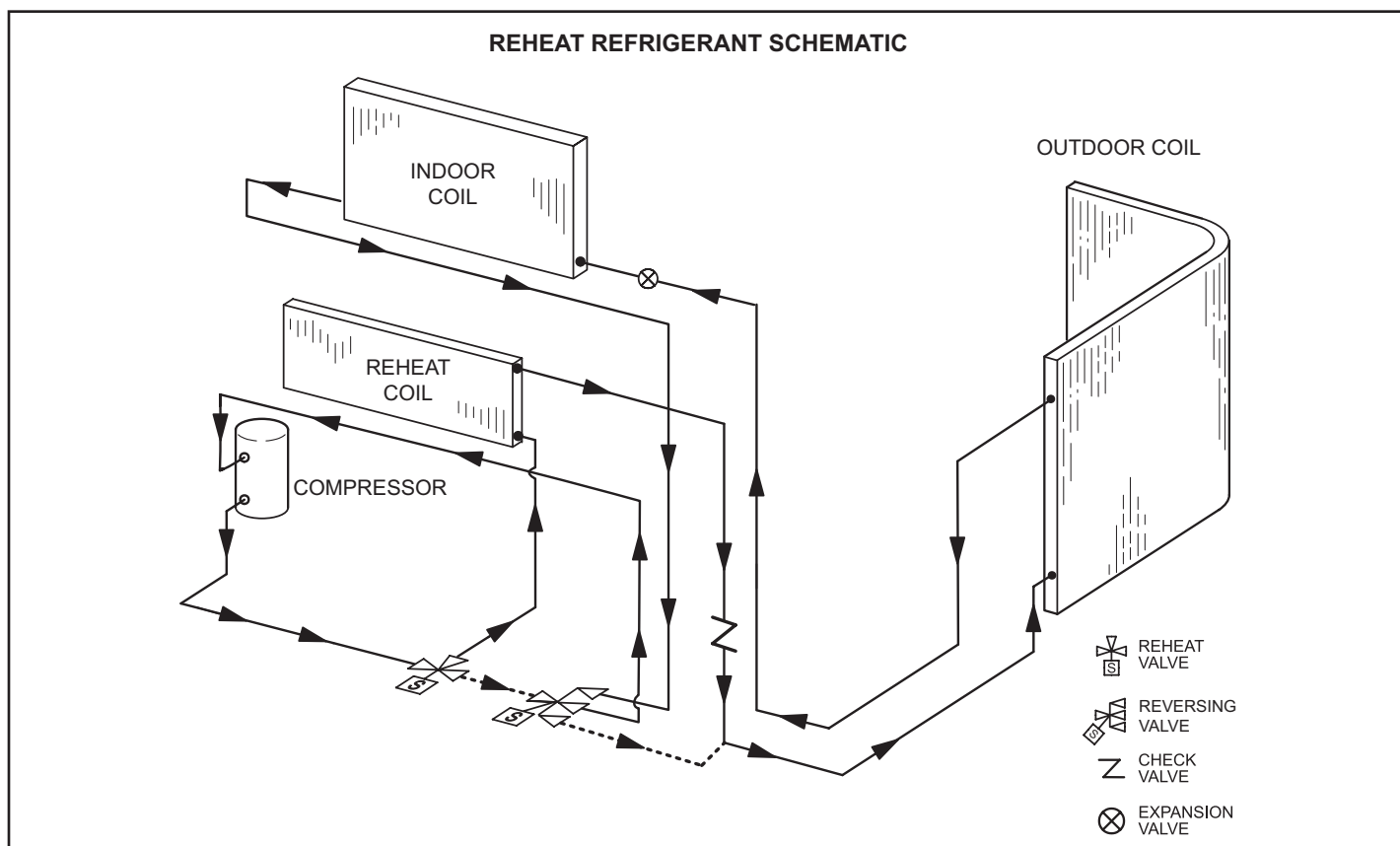


Figure 48



VIII. DECOMMISSIONING

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 before 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.

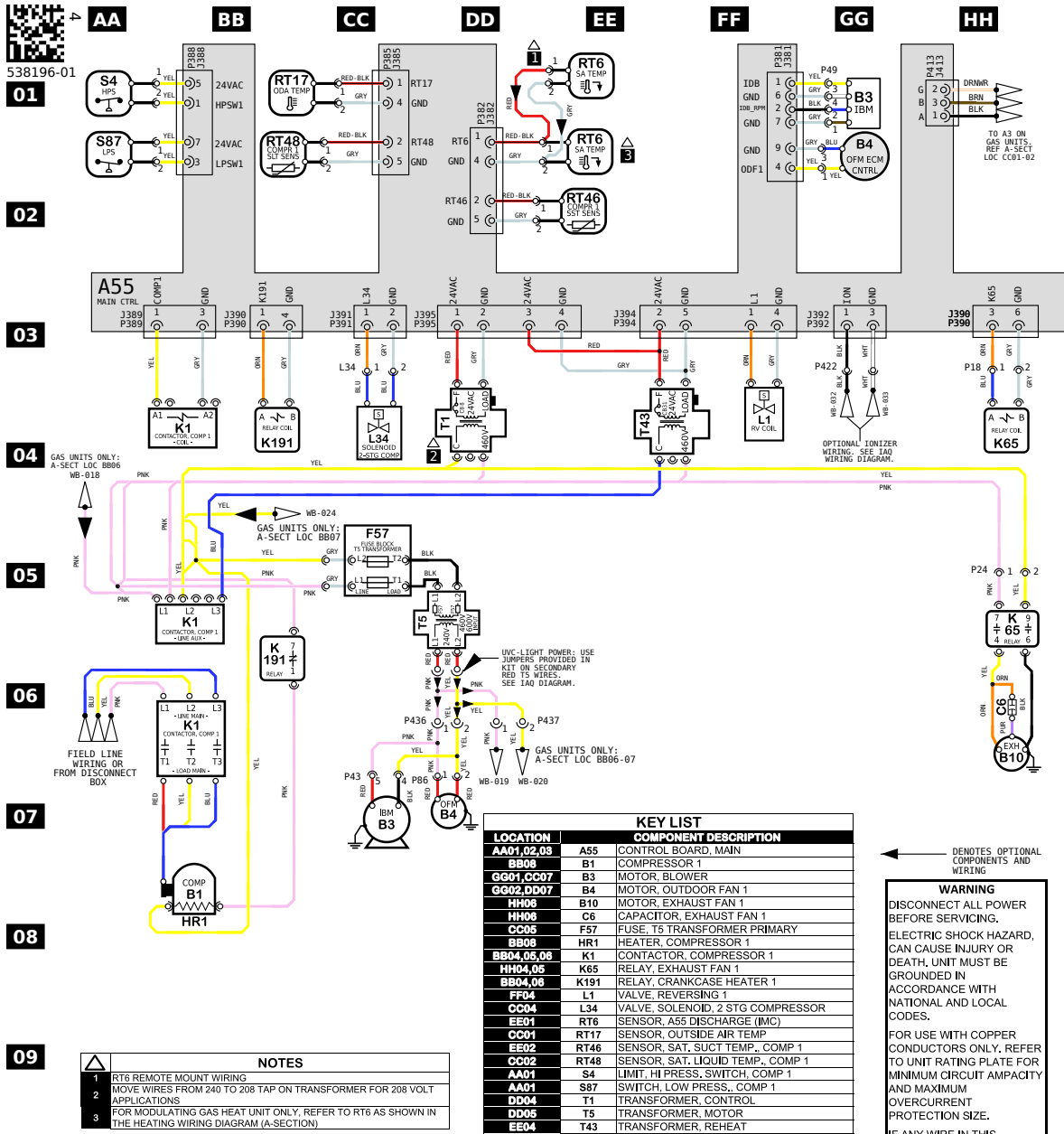
When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

1. Safely remove refrigerant following local and national regulations
2. Evacuate the circuit
3. Purge the circuit with inert gas
4. Evacuate
5. Purge with inert gas
6. 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.

IX. WIRING DIAGRAMS AND SEQUENCE OF OPERATION

LHT036 / 060 G, J Volt



10 Model: LDT, LHT 036H - 060H G, J VOLT
HEATPUMP - ECM BLOWER WITHOUT HIGHER SCCR
Voltage: 460V/3~/60Hz (G), 575V/3~/60Hz (J)
Supersedes: N/A Form No: 538196-01 Rev: 4

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

WIRING DIAGRAM FLOW

← DENOTES OPTIONAL COMPONENTS AND WIRING

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.

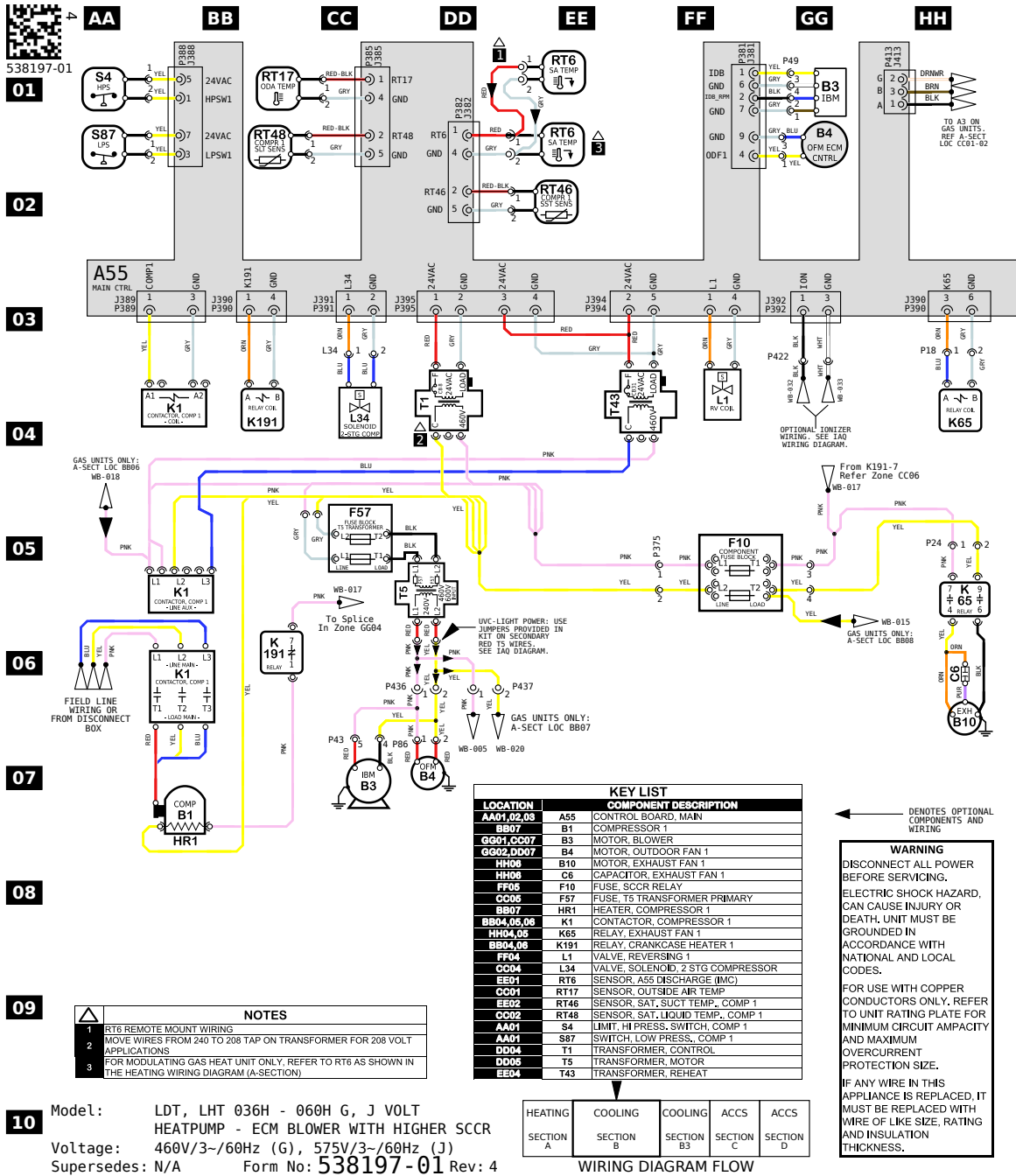
FOR USE WITH COPPER
CONDUCTORS ONLY. REFER
TO UNIT RATING PLATE FOR
MINIMUM CIRCUIT AMPACITY
AND MAXIMUM
OVERCURRENT
PROTECTION SIZE.

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

8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AHL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

LDT036 / 060 G, J Volt



8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AHL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

AA
BB
CC
DD
EE
FF
GG
HH

01 538200-01

02

03

04 GAS UNITS ONLY: A-SECT LOC BB06

05

06

07

08

09

10

KEY LIST

LOCATION	COMPONENT DESCRIPTION
AA01,02,03	A55 CONTROL BOARD, MAIN
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	L1 VALVE, REVERSING 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, H/PPRESS, SWITCH, COMP 1
AA01	S87 SWITCH, LOW PRESS, COMP 1
DD04	T1 TRANSFORMER, MOTOR
DD05	T5 TRANSFORMER, MOTOR
EE04	T43 TRANSFORMER, REHEAT

Model: LDT, LHT 036H - 072H G VOLT

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

Supersedes: N/A

Form No: 538200-01 Rev: 4

HEATING SECTION A

COOLING SECTION B

COOLING SECTION B3

ACC5 SECTION C

ACC5 SECTION D

NOTES

- RT6 REMOTE MOUNT WIRING
- MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
- FOR MODULATING GAS HEAT UNIT ONLY, REFER TO RT6 AS SHOWN IN THE HEATING WIRING DIAGRAM (A-SECTION)

WARNING

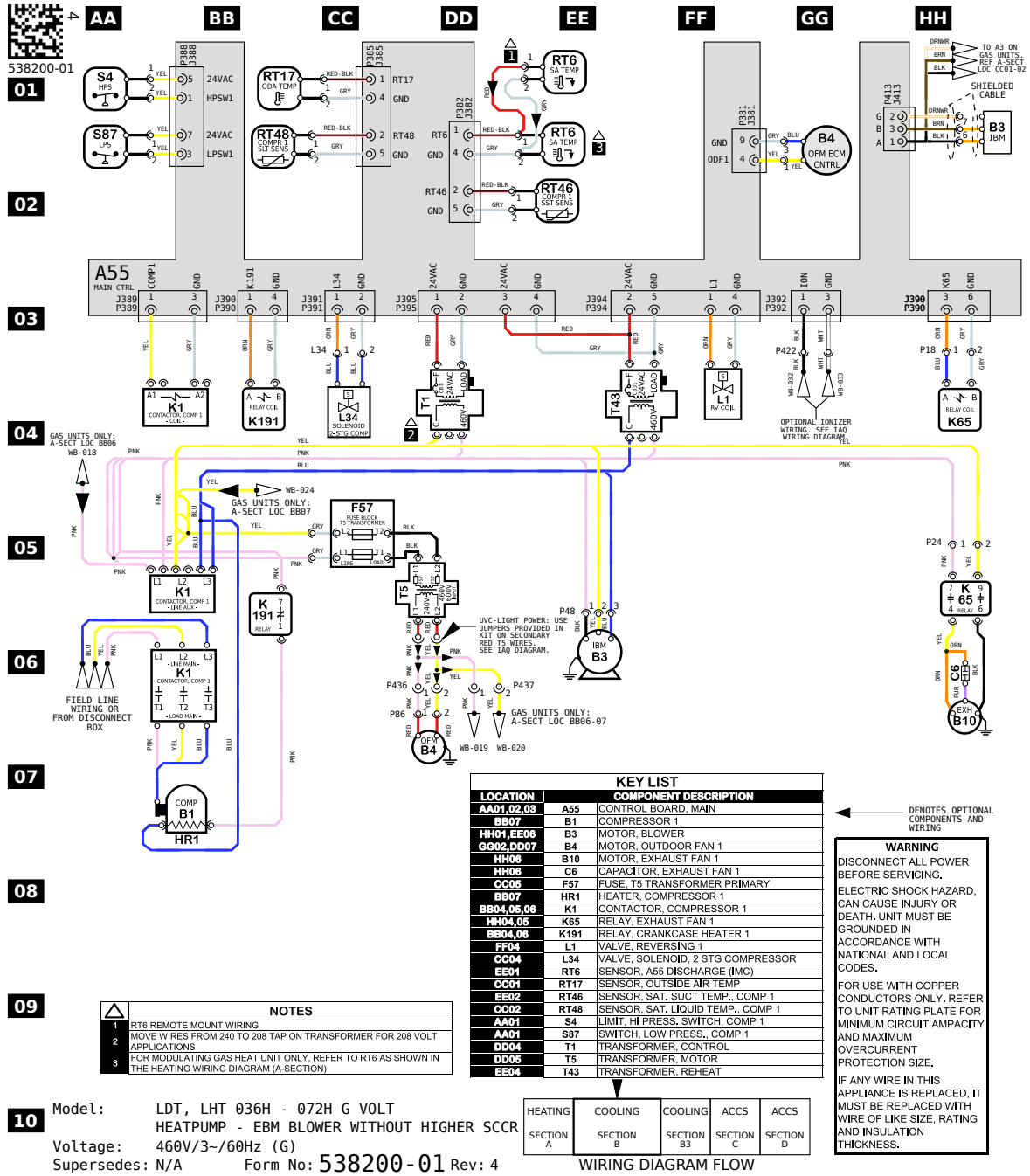
DISCONNECT ALL POWER BEFORE SERVICING.

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.

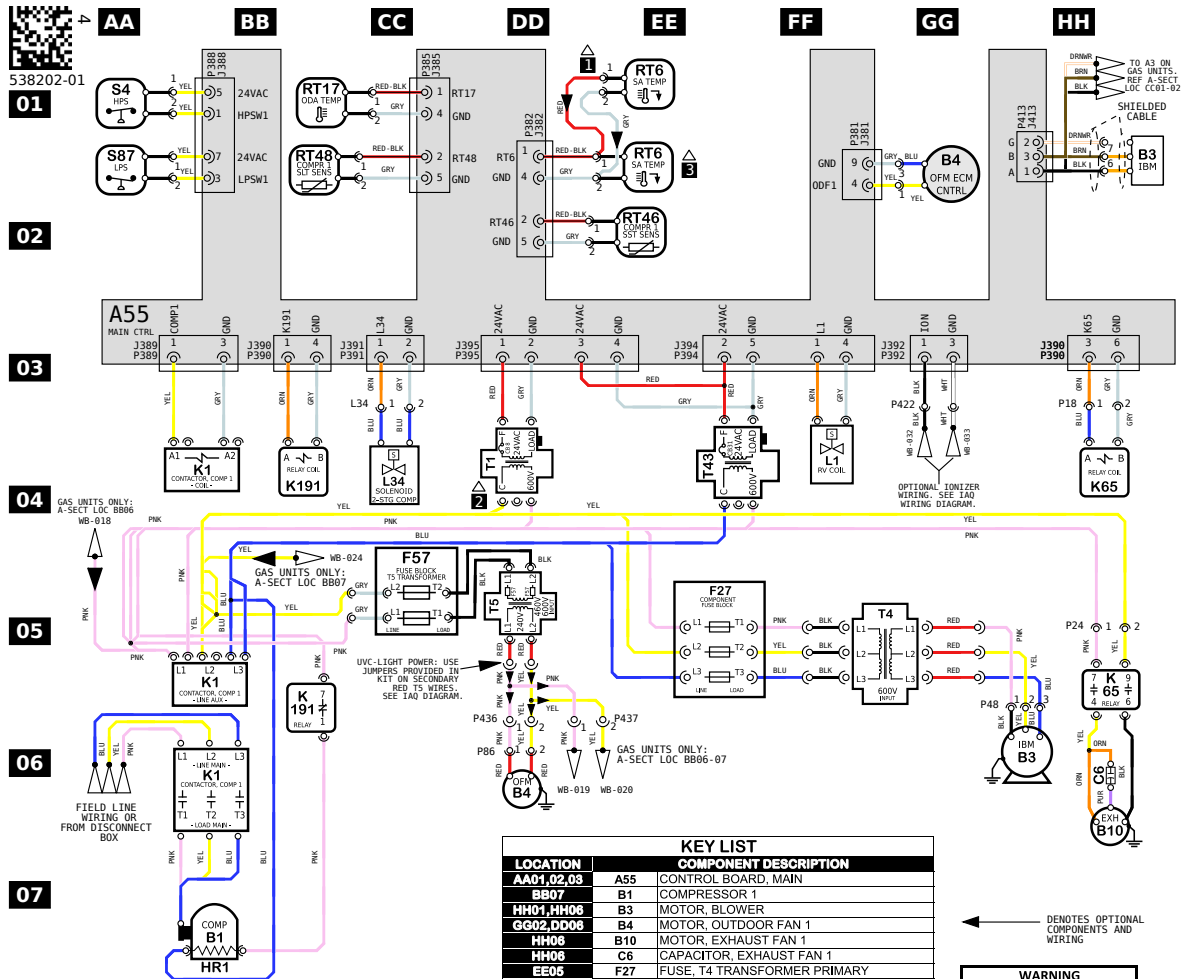
LDT036 / 072 G Volt



8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

LDT036 / 072 J Volt



KEY LIST	
LOCATION	COMPONENT DESCRIPTION
AA01,02,03	A55 CONTROL BOARD, MAIN
BB07	B1 COMPRESSOR 1
HH01,HH08	B3 MOTOR, BLOWER
GG02,DD08	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	L1 VALVE, REVERSING 1
CC04	L34 VALVE, SOLENOID, 2 STG COMPRESSOR
EE01	RT6 SENSOR, A55 DISCHARGE (IMC)
EE02	RT17 SENSOR, OUTSIDE AIR TEMP
CC02	RT48 SENSOR, SAT. SUCT 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, MOTOR
EE04	T43 TRANSFORMER, REHEAT

DEMOTES OPTIONAL COMPONENTS AND WIRING

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.

NOTES	
1	RT6 REMOTE MOUNT WIRING
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS
3	FOR MODULATING GAS HEAT UNIT ONLY, REFER TO RT6 AS SHOWN IN THE HEATING WIRING DIAGRAM (A-SECTION)

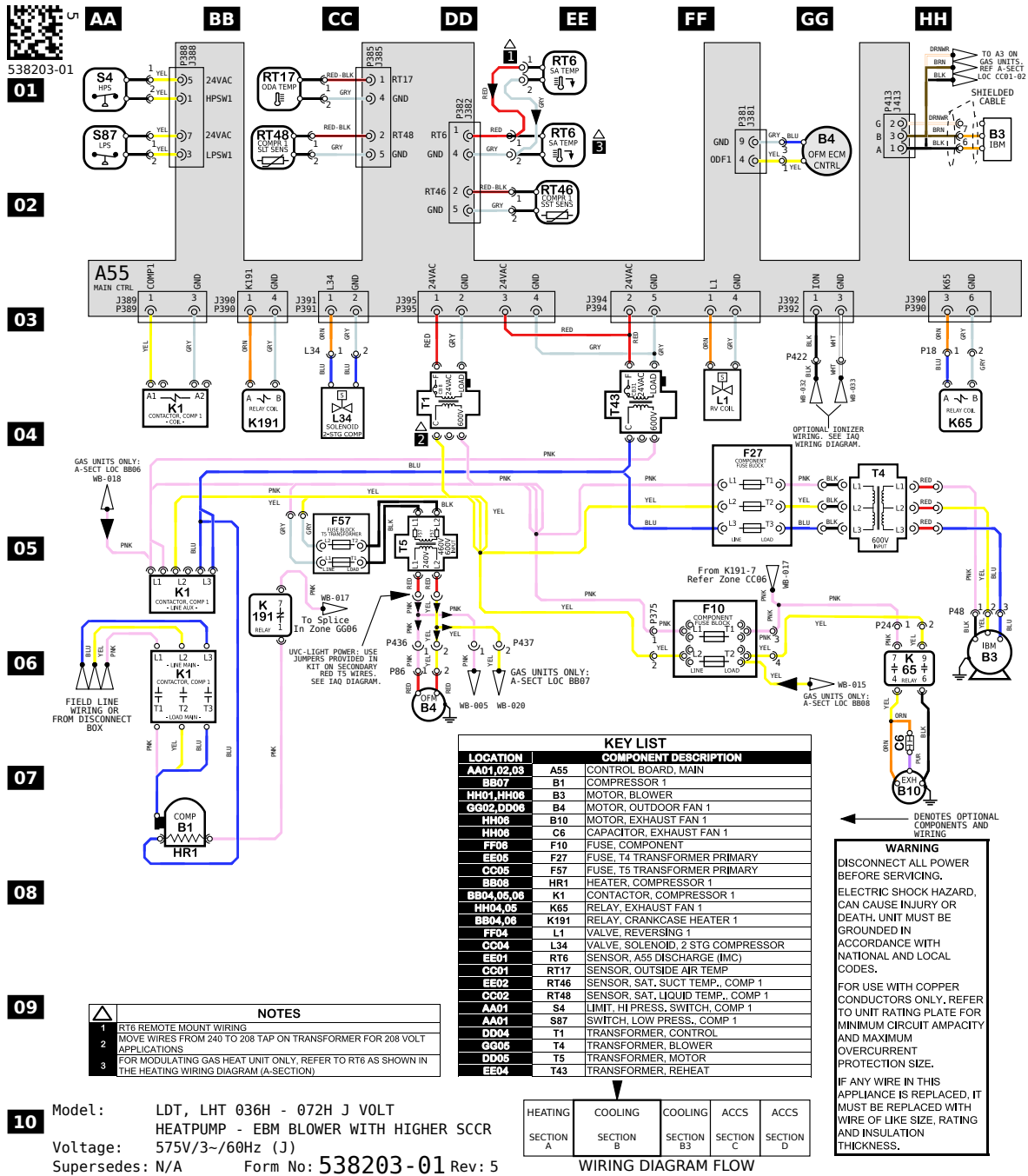
HEATING	COOLING	COOLING	ACCS	ACCS
SECTION A	SECTION B	SECTION B3	SECTION C	SECTION D

WIRING DIAGRAM FLOW

8.5 x 10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AMH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

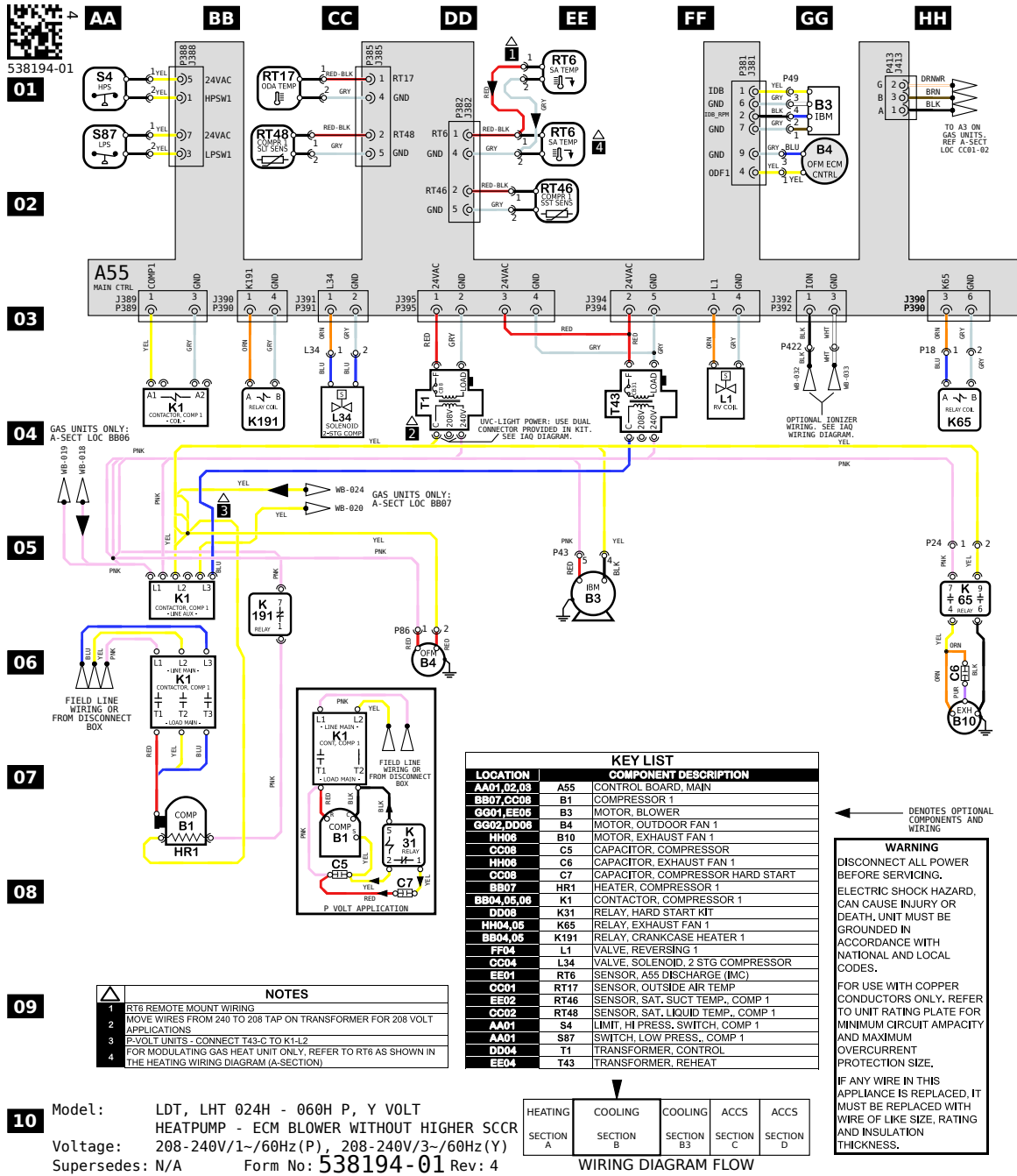
LDT036 / 072 J Volt



8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
004	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
005	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

LDT036 / 060 P, Y Volt

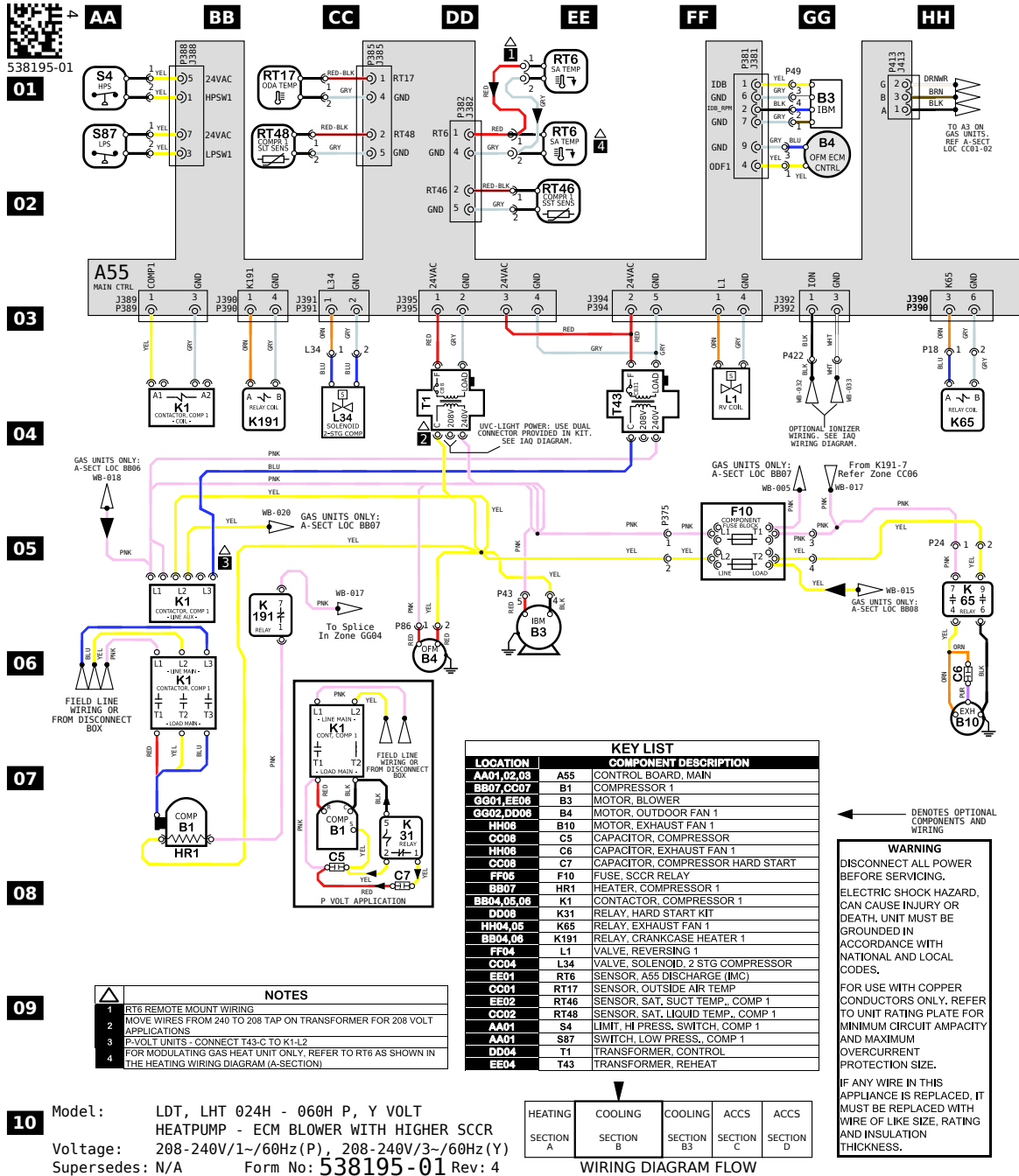


10 Model: LDT, LHT 024H - 060H P, Y VOLT
 HEATPUMP - ECM BLOWER WITHOUT HIGHER SCCR
 Voltage: 208-240V/1-/60Hz(P), 208-240V/3-/60Hz(Y)
 Supersedes: N/A Form No: 538194-01 Rev: 4

8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AAH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 4 FOR MODULATING GAS HEAT

LDT036 / 060 P, Y Volt

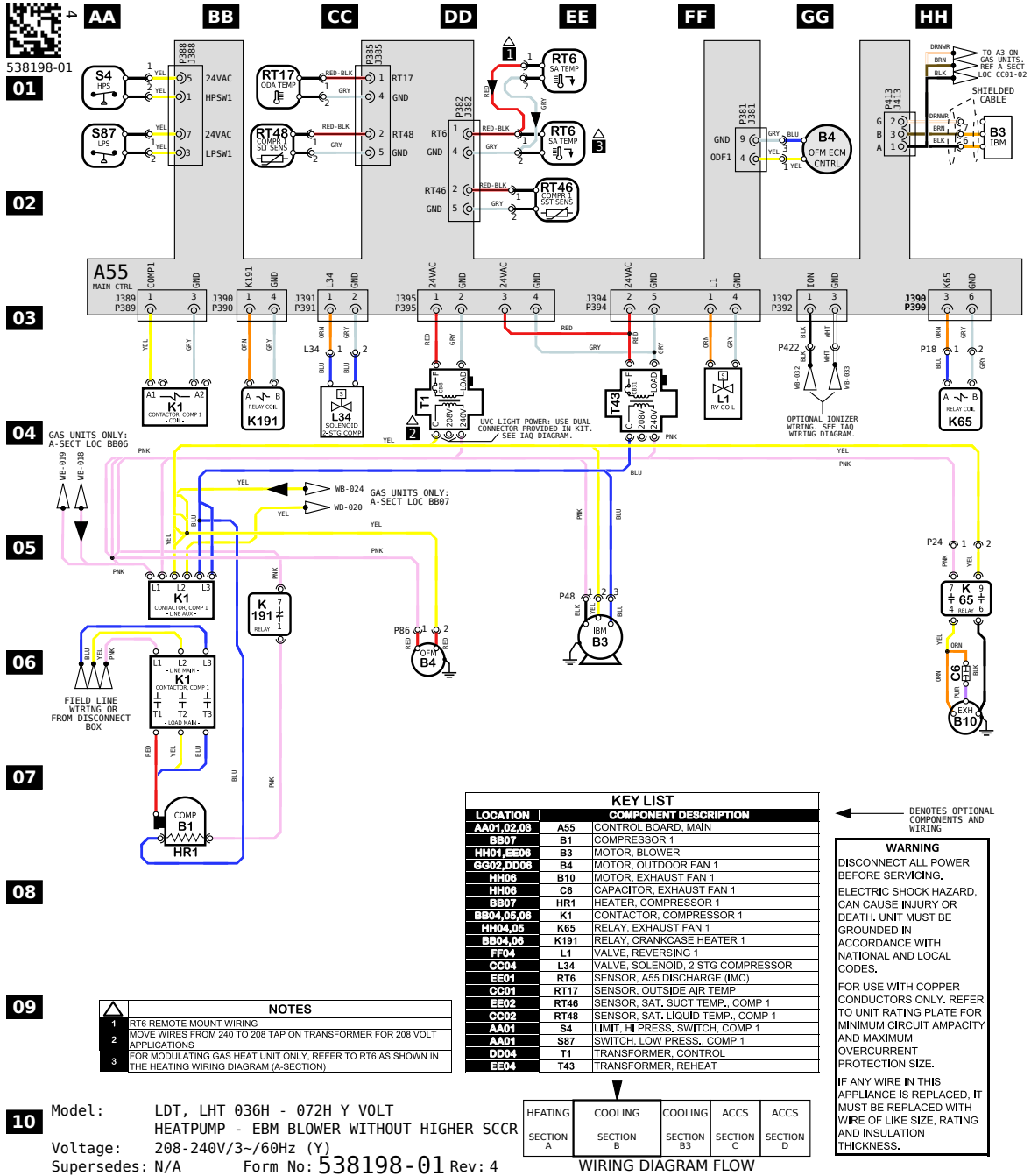


10 Model: LDT, LHT 024H - 060H P, Y VOLT
HEATPUMP - ECM BLOWER WITH HIGHER SCCR
Voltage: 208-240V/1~/60Hz(P), 208-240V/3~/60Hz(Y)
Supersedes: N/A Form No: 538195-01 Rev: 4

8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 4 FOR MODULATING GAS HEAT

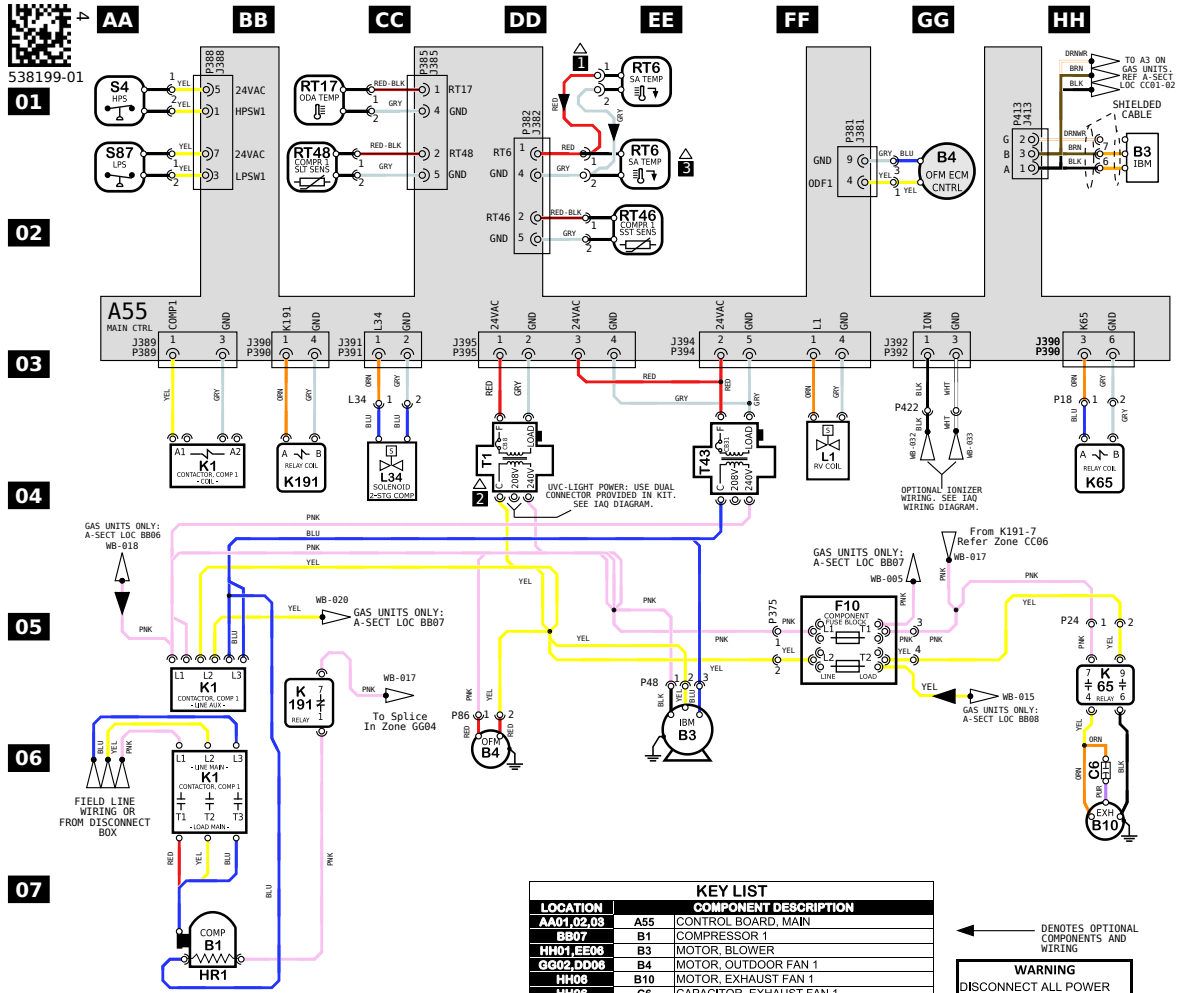
LDT036 / 072 Y Volt



8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

LDT036 / 072 Y Volt



NOTES		
1	RT6 REMOTE MOUNT WIRING	
2	MOVE WIRES FROM 240 TO 208 TAP ON TRANSFORMER FOR 208 VOLT APPLICATIONS	
3	FOR MODULATING GAS HEAT UNIT ONLY, REFER TO RT6 AS SHOWN IN THE HEATING WIRING DIAGRAM (A-SECTION)	

Model: LDT, LHT 036H - 072H Y VOLT
HEATPUMP - EBM BLOWER WITH HIGHER SCCR
Voltage: 208-240V/3~/60Hz (Y)
Supersedes: N/A Form No: 538199-01 Rev: 4

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

WIRING DIAGRAM FLOW

8.5
x
10
CUT SIZE

REV	EC NO.	DATE	BY	APVD	REVISION NOTE
--	CN-008852	06/01/2022	AXL	AAH	ORIGINATED AT PD&R CARROLLTON, TX
003	CN-014014F	1/6/2026	ZN	AWH	A) CLEANED UP WIRES TO GAS SECTION (A-SECT)
004	CN-013731A	3/3/2026	ZN	HMT	A) ADDED NOTE 3 FOR MODULATING GAS HEAT

HUMIDITROL



538645-01

AA

BB

CC

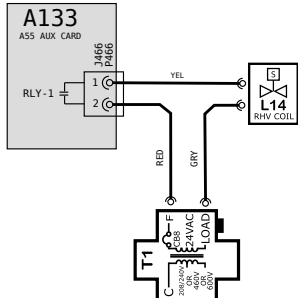
DD

01

ON/OFF REHEAT
LH, LD UNITS ONLY

CONNECTIONS SHOWN BELOW ARE FOR
UNITS WITH OPT. ON/OFF REHEAT ONLY.
REVERSING VALVE CONNECTIONS FOR
HEAT PUMP OPERATION ARE SHOWN
ON COOLING DIAGRAM, LOCATION FF04.

02

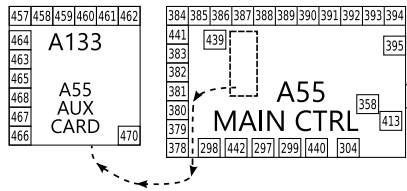


03

04

T1, B-SECT LOC DD04

05



06

07

KEY LIST	
LOCATION	COMPONENT DESCRIPTION
AA02	A133 CONTROL BOARD, AUX
BB02	L14 VALVE, SOLENOID, REHEAT COIL
BB03	T1 TRANSFORMER, CONTROL

08

09

10

Model: HUMIDITROL OPTION - ON/OFF
LHT, LDT 036H-072H
Voltage: All Voltages
Supersedes: XXXXXX-XX Form No: 538645-01 Rev: 1

HTG SEC A	CLG SEC B	CLG SEC B3/5	ACCS SEC C	ACCS SEC D
WIRING DIAGRAM FLOW				



REV	EC NO.	DATE	BY	APVD	REVISION NOTE
---	CN-014063	1/6/2026	ZN	VXC	ORIGINATED AT PD&R CARROLLTON, TX
001	CN-014063D	5/7/2026	ZN	VXC	UPDATED WIRING DIAGRAM TO REFLECT CHANGES TO HARNESS 108902-01

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

1. 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

1. A55 Unit Controller receives Y1 and G cooling demand.
2. 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.
3. N.O. contacts K1-1 close energizing the compressor B1
4. 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.

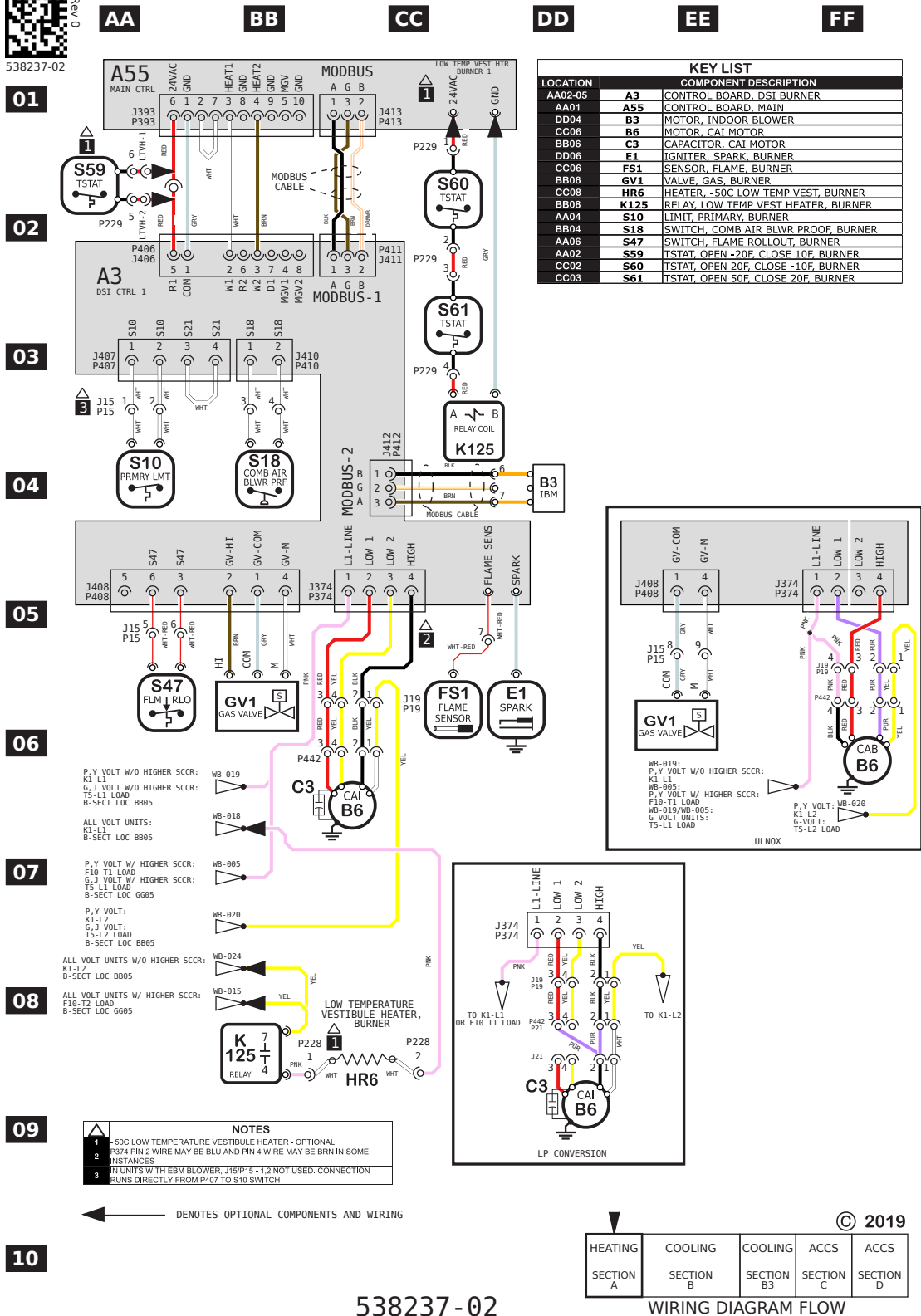
SECOND STAGE COOLING

1. A55 received a Y2 and G cooling demand and energizes blower B3 on high speed.
2. A55 Energizes compressor solenoid L34, switching compressor to high speed

POWER EXHAUST FAN OPERATION

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

TWO-STAGE GAS HEAT



538237-02

HEATING SEQUENCE OF OPERATION

HEATING TYPE DETERMINATION

1. If outdoor air temperature above Balance Point Set point (35°F Default), proceed to HEAT PUMP HEATING.
2. If outdoor air temperature below Balance Point Set Point, proceed to **FIRST STAGE GAS HEAT DEMAND (INCLUDING IGNITION SEQUENCE)**.

HEAT PUMP HEATING

1. The thermostat initiates W1 heating demand.
2. A55 Unit Controller receives W1 and G heating demand.
3. A55 verifies (proves) low pressure switch S87 (N.C.) and high pressure switch S4 (N.C.) correct contact position.
4. If switches are proven, A55 energizes K1 contactor activating B1 compressor, B3 indoor blower, B4 outdoor fan, and de-energizes HR1 crankcase heater.

FIRST STAGE GAS HEAT DEMAND (INCLUDING IGNITION SEQUENCE)

1. Thermostat initiates heating demand (W1) to A55.
2. A55 Main Control board activates HEAT1 demand signal to W1 on A3 Direct Spark Ignition control.
3. A3 control verifies S10 and S47 contacts are closed, then A3 activates B6 Combustion Air Inducer at low speed by energizing LOW 1.
4. A3 waits until S18 Pressure switch contacts change from open to closed proving B6 operation.
5. After a pre-purge period (30 seconds), A3 control energizes the E1 spark electrode and opens gas valve (Low Fire) by energizing GV-M.
6. The E1 spark electrode ignites the gas, and flame is verified by FS1 flame sensor. When flame is sensed, A55 starts the B3 Blower On Delay time.
7. After Blower On Delay expires, A55 starts B3 indoor blower operation. A55 operates B3 indoor blower at the Blower Heating High CFM Setpoint (refer to Table 9).

NOTE – For units with 12th character “P” (208/230V-1phase), the B3 indoor blower operates at Blower Heating Low CFM Set point during a W1 demand and at Blower Heating High CFM Set point during a W2 demand.

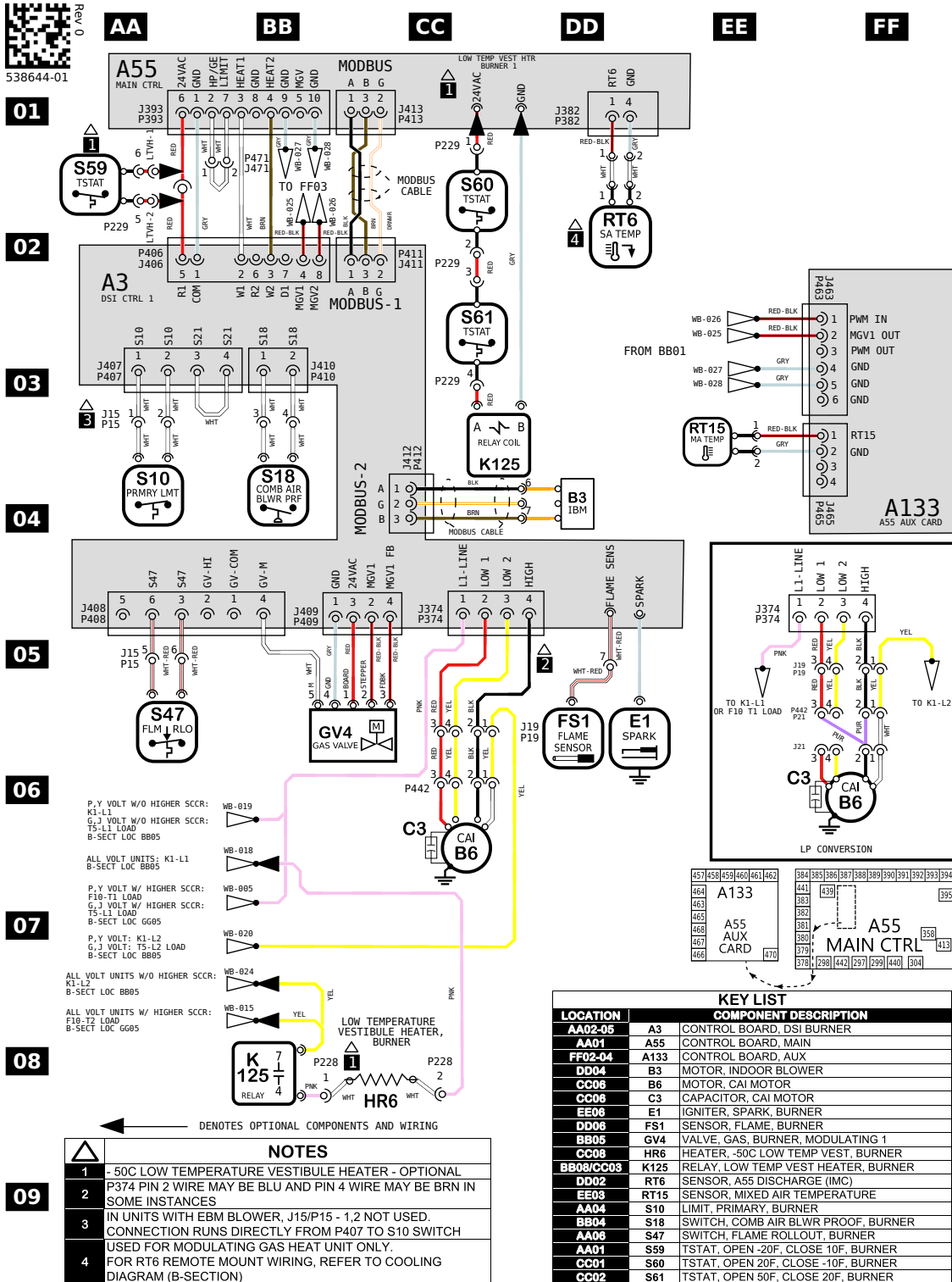
SECOND STAGE GAS HEAT DEMAND

1. With 1st stage heating (W1) operating, the thermostat initiates W2 demand to A55.
2. A55 activates HEAT2 demand signal to W2 on A3 control.
3. A3 changes B6 speed from low to high by energizing HIGH, then opens gas valve to next setting (High Fire) by energizing GV-HI.

FIRST AND SECOND STAGE GAS HEATING DEMAND TERMINATION

1. When thermostat demand is satisfied, heating demands (W1, W2) are removed from A55.
2. A55 removes any active demand signals (HEAT1, HEAT2) to A3 control.
3. A3 de-activates any active signals to the GV1 (GV-M, GV-HI) which closes the valve.
4. A3 maintains B6 operation for post purge period (45 seconds), then A3 removes the active signals (LOW 1, HIGH) shutting off B6.
5. A55 maintains B3 operation until Gas Blower Off Delay expires, then A55 shuts off the B3 indoor blower.

MODULATING GAS HEAT



538644-01

MODULATING GAS HEAT SEQUENCE OF OPERATION

HEATING TYPE DETERMINATION

1. If outdoor air temperature above Balance Point Set point (35°F Default), proceed to HEAT PUMP HEATING.
2. If outdoor air temperature below Balance Point Set Point, proceed to MODULATING GAS HEAT IGNITION SEQUENCE.

HEAT PUMP HEATING

1. The thermostat initiates W1 heating demand.
2. A55 Unit Controller receives W1 and G heating demand.
3. A55 verifies (proves) low pressure switch S87 (N.C.) and high pressure switch S4 (N.C.) correct contact position.
4. If switches are proven, A55 energizes K1 contactor activating B1 compressor, B3 indoor blower, B4 outdoor fan, and de-energizes HR1 crankcase heater.

MODULATING GAS HEAT IGNITION SEQUENCE

1. Thermostat initiates heating demand (W1) to A55.
2. A55 Main Control board activates HEAT1 demand signal to W1 on A3 Direct Spark Ignition control.
3. A3 control verifies S10 and S47 contacts are closed, then A3 activates B6 Combustion Air Inducer at low speed by energizing LOW 1.
4. A3 waits until S18 Pressure switch contacts change from open to closed proving B6 operation.
5. After a pre-purge period (30 seconds), A3 control energizes the E1 spark electrode and opens GV4 by energizing GV-M.
6. A133 transmits MGV1 OUT (0VDC) signal to A3 MGV1. Signal passes through A3 and out MGV1 to GV4 (pin 2).
7. The E1 spark electrode ignites the gas, and flame is verified by FS1 flame sensor. When flame is sensed, A55 starts the B3 Blower On Delay time.
8. After Blower On Delay expires, A55 starts B3 indoor blower operation at the Blower Heating Low CFM Setpoint (refer to Table 9) and A133 MGV1 OUT start varying based upon CORE internal algorithm results (0VDC - 10VDC).
9. When Thermostat adds a W2 heating signal to A55, A55 changes B3 indoor blower operation to Blower Heating High CFM Setpoint (refer to Table 9).

MODULATING GAS HEATING DEMAND – GAS VALVE POSITIONS

1. CORE monitors RT6 (Discharge Air Temperature), compares RT6 value to the user setpoint, and calculates new value for the gas valve position (A133 MGV1 OUT).
2. A133 updates the MGV1 OUT to the GV4 (valve position signal).
3. GV4 receives the new signal from A3 MGV1 output and adjusts accordingly.

NOTE – During modulating heating demand, A133 monitors RT15. CORE calculates the Rise Range (difference between RT15 and RT6) and maintains operation below maximum rise.

4. Steps 1 thru 3 are repeated until heating demand has been satisfied.

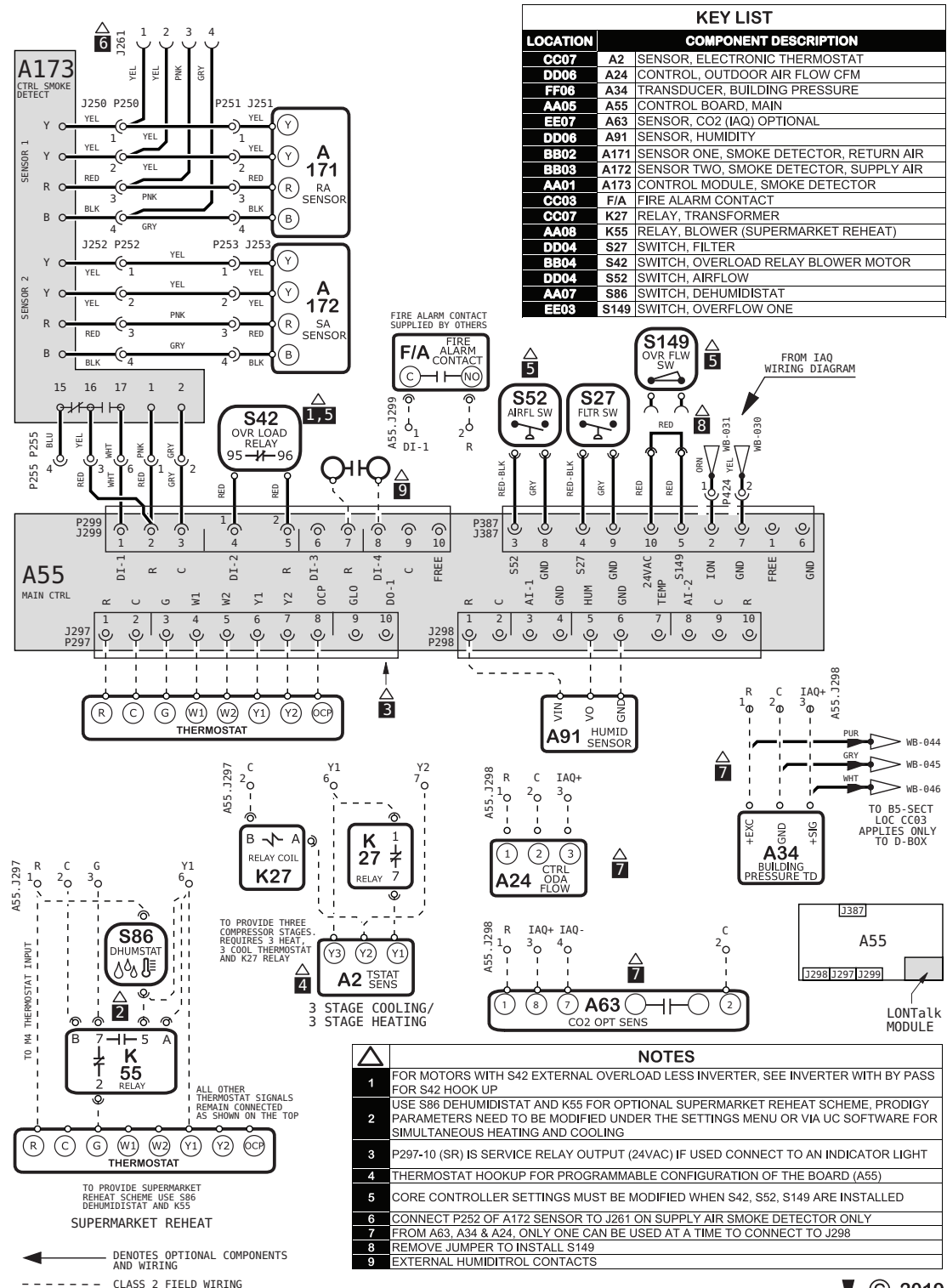
MODULATING GAS HEATING DEMAND – CAB SPEEDS

1. When CORE increases the MGV Position (A133 MGV1 OUT) above a programmed value, CORE outputs HEAT2 signal to W1 input on A3. A3 changes B6 speed by de-activation LOW 1 and activating HIGH.
2. When CORE decreases MGV Position (A133 MGV1 OUT) to minimum and holds A133 MGV1 OUT signal at minimum position for preset time, CORE removes HEAT2 signal to A3. A3 changes B6 speed by deactivating HIGH and activating LOW 1.

MODULATING GAS HEATING DEMAND TERMINATION

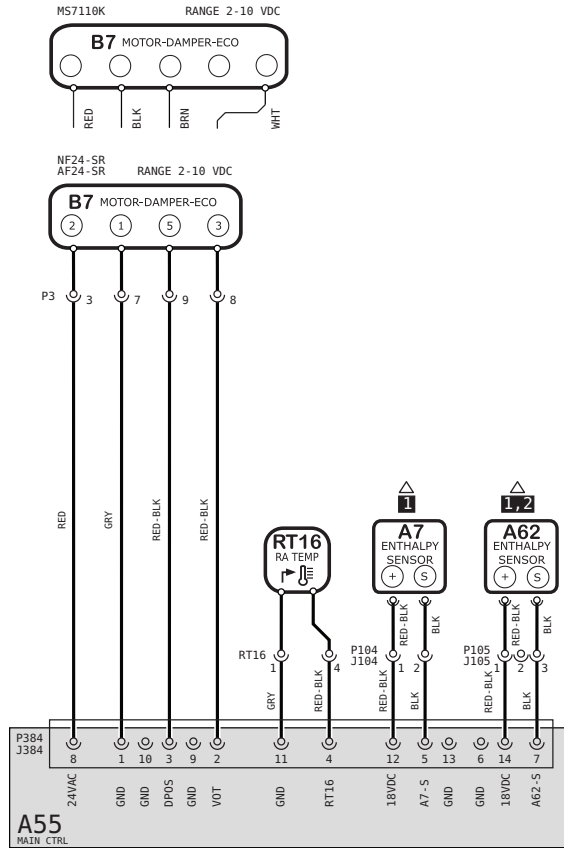
1. When thermostat demand is satisfied, heating demands (W1, W2) are removed from A55.
2. A55 removes any active demand signals (HEAT1, HEAT2) to A3 control. A133 removes the MGV1 OUT signal.
3. A3 control closes GV4 by deactivating GV-M signal.
4. A3 control maintains B6 operation for post purge period (45 seconds), then shuts off B6 by removing active signal (LOW 1, HIGH).
5. A55 maintains B3 indoor blower operation until Gas Blower Off Delay expires, then A55 shuts off the indoor blower.

THERMOSTAT



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

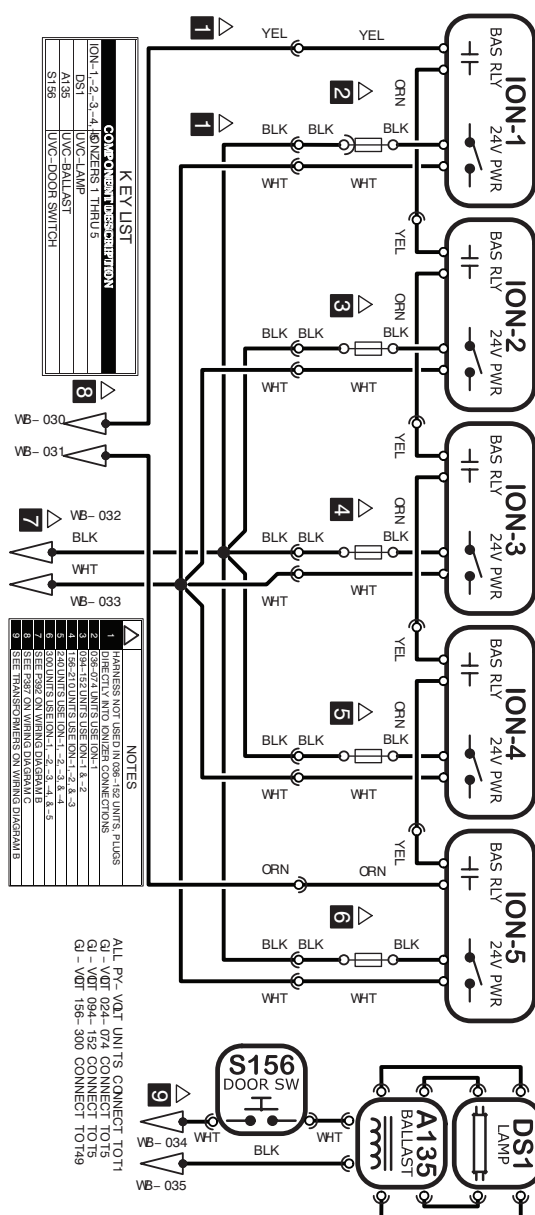
Model: LC, LG, LH, LD, SC, SG Series
Economizer & Motorized OAD
Voltage: All Voltages
Supersedes: N/A

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

WIRING DIAGRAM FLOW

Form No: 538072-01 Rev: 2

IAQ

MDL: IAQ WIRING DIAGRAM
IONIZERS & UVC

VOLT: Y, G, J VOLT Rev: 0

SUPSDS: N/A

Rev: 0

NO: 538151-03



Rev 0

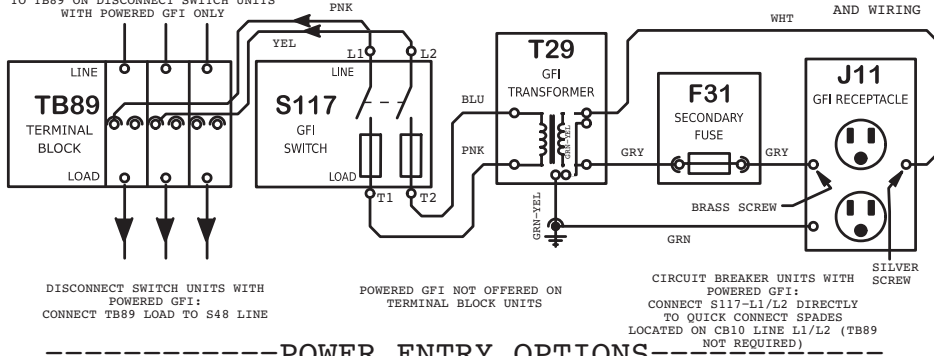
538151-03

POWER ENTRY NON-SCCR

POWERED GFI OPTION - 120V FIELD PROVIDED POWER SUPPLY IS REQUIRED WHEN T29 TRANSFORMER IS NOT PROVIDED.

LINE VOLTAGE FIELD INSTALLED
FROM TOP OF DISCONNECT BOX
TO TB89 ON DISCONNECT SWITCH UNITS
WITH POWERED GFI ONLY

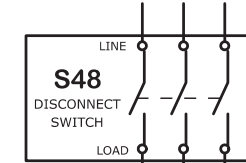
NOTES OPTIONAL COMPONENTS AND WIRING



-POWER ENTRY OPTIONS

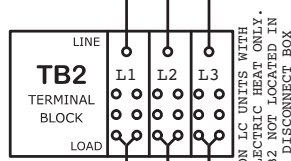
DISCONNECT SWITCH

LINE VOLTAGE
FIELD INSTALLED
FROM TOP OF DISCONNECT BOX



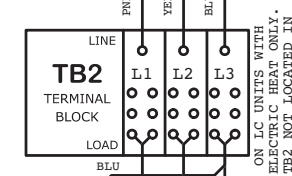
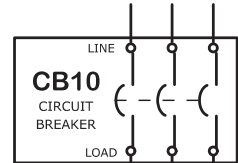
TERMINAL BLOCK

LINE VOLTAGE
FIELD INSTALLED
FROM TOP OF DISCONNECT BOX



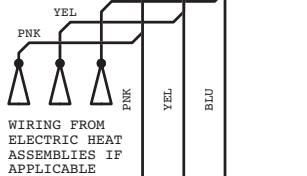
CIRCUIT BREAKER

LINE VOLTAGE
FIELD INSTALLED
FROM TOP OF DISCONNECT BOX



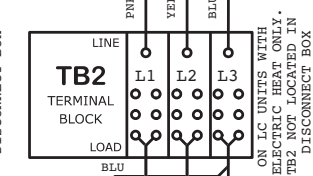
**ON LC UNITS WITH
ELECTRIC HEAT ONLY.
TB2 NOT LOCATED IN
DISCONNECT BOX**

WIRING FROM
ELECTRIC HEAT
ASSEMBLIES IF
APPLICABLE



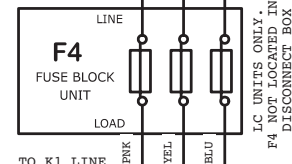
ON LC UNITS WITH
ELECTRIC HEAT ONLY.
TB2 NOT LOCATED IN
DISCONNECT BOX

WIRING FROM
ELECTRIC HEAT
ASSEMBLIES IF
APPLICABLE



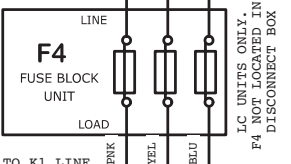
ON LC UNITS WITH
ELECTRIC HEAT ONLY.
TB2 NOT LOCATED IN
DISCONNECT BOX

WIRING FROM
ELECTRIC HEAT
ASSEMBLIES IF
APPLICABLE



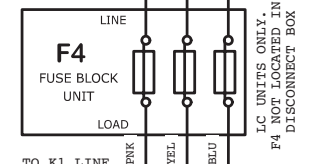
LC UNITS ONLY.
F4 NOT LOCATED IN
DISCONNECT BOX

B-SECT
LOC AA06



LC UNITS ONLY.
F4 NOT LOCATED IN
DISCONNECT BOX

B-SECT
LOC AA06



LC UNITS ONLY.
F4 NOT LOCATED IN
DISCONNECT BOX

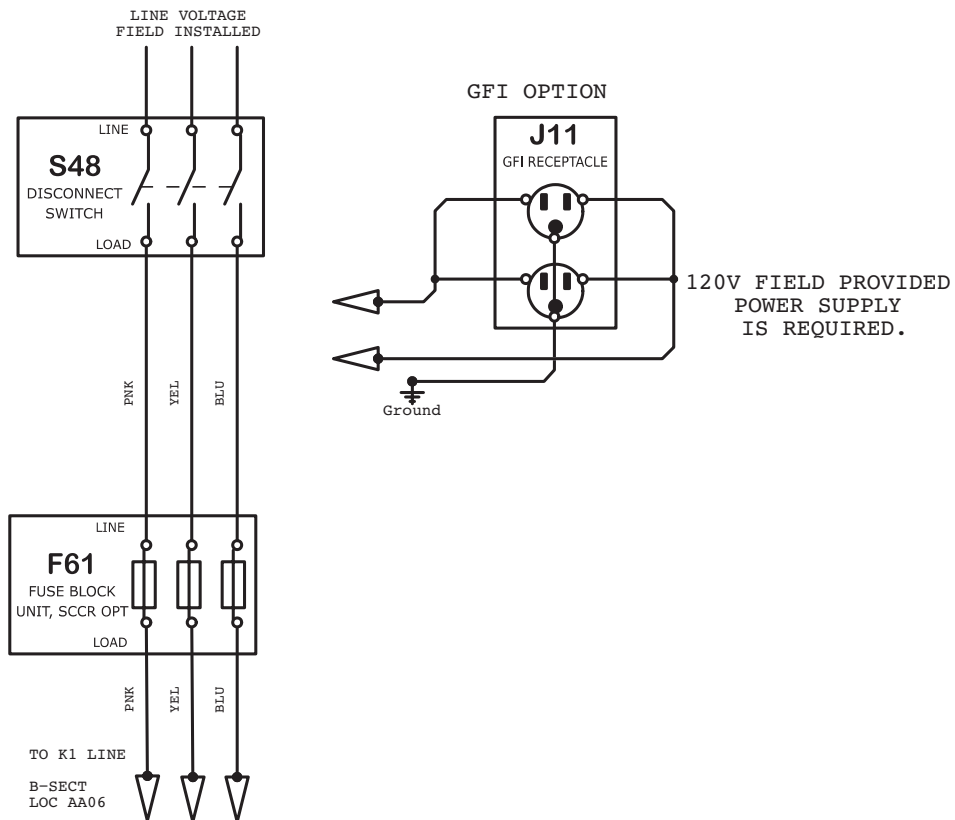
B-SECT
LOC AA06

Model: LCT, LGT, LHT, LDT Series RTU
Power Entry Options 024-074

Voltage: All Voltages

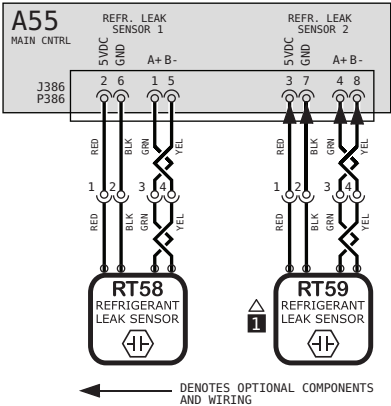
Supersedes: XXXXXX-XX Form No: 538234-01 Rev: 0

POWER ENTRY WITH SCCR



Model: LG, LD Series RTU WITH SCCR
 Power Entry Options 024 - 074
 Voltage: All Voltages
 Supersedes: N/A Form No: 538113-0 Rev: 1

RDS SENSOR



KEY LIST	
COMPONENT DESCRIPTION	
A55	CONTROL BOARD, MAIN
RT58	SENSOR 1, REFR. LEAK DETECTION
RT59	SENSOR 2, REFR. LEAK DETECTION

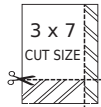
NOTES	
1	REFRIGERANT LEAK SENSOR 2 (RT59), MAY NOT BE PRESENT IN ALL UNITS.

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: Units w/CORE Contr.
Refr. Leak Detection
VOLT: All
SUPSDS: N/A NO: 538440-01



Rev 0



REV	EC NO.	DATE	BY	APVD	REVISION NOTE
---	CN-012295C	04-03-2024	MXR6	MXT5	ORIGINATED AT PD&R CARROLLTON, TX