



Installation Instructions

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location.

This 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. Children shall be supervised not to play with the appliance.

Only trained, qualified installers and service mechanics should install, start up, and service this equipment.

Untrained personnel can perform basic maintenance functions, such as cleaning coils. All other operations should be performed by trained service personnel. Qualified installers and service technicians are required to have been trained on the following topics when installing and servicing air-conditioning equipment with A2L refrigerant such as R-32:

1. Explosive potential of A2L refrigerants
2. Potential ignition sources
3. Safety measures for unventilated and ventilated rooms or enclosures
4. Refrigerant detectors
5. Concept of sealed components and sealed enclosures according to IEC 60079-15:2010
6. Correct work procedures for the following:
 - a. Commissioning
 - b. Maintenance
 - c. Repair
 - d. Decommissioning
 - e. Disposal

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

1. Follow all safety codes.
2. Keep quenching cloth and fire extinguisher nearby when brazing.
3. Wear safety glasses and work gloves.
4. Use care in handling, rigging, and setting bulky equipment.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

NOTE: Take notice of the following symbols, which are required for A2L refrigerants and can be found on the unit:

SYMBOL	CODE	MEANING
	IEC 60417-5032 (2002-10)	Alternating current
	IEC 60417-5019 (2006-8)	Protective earth
	IEC 60417-5018 (2006-10)	Functional earthing
	ISO 7000-0434A (2004-01)	Caution
	ISO 7000-0790 (2004-01)	Read operator's manual
	IEC 60417-5036 (2002-10)	Dangerous voltage
	GHS02: Flammable	Flammable gas
	ISO 7010-W021 (2011-05)	Warning: flammable materials
	ISO 7000-1659 (2004-01)	Service indicator: read technical manual
	ISO 7000-1701 (2004-01)	Pressure
	ISO 7000-1641 (2004-01)	Operator's manual: operating instructions

WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

DANGER

Separate power sources (main and control power circuits) are used for these units. Be sure both main and control power circuits are disconnected before servicing. Failure to do so could result in personal injury from electric shock.

WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

IMPORTANT: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause radio interference. It has been tested and found to comply with the limits of a Class A computing device pursuant to International Standard in North America EN 61000-2/3, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

CAUTION

This system uses an A2L refrigerant (R-32) which have higher pressures than R-22 and other refrigerants. No other refrigerant can be used in this system. Failure to use gauge set, hoses, and recovery systems designed to handle refrigerant R-32 may result in equipment damage or personal injury. Refer to section "Safety Procedures for Flammable Refrigerants" on page 34 for guidelines on proper A2L refrigerant handling and equipment used for A2L refrigerant. If unsure about equipment, consult the equipment manufacturer.

WARNING

DO NOT USE TORCH to remove any component. System contains oil and refrigerant under pressure.

To remove a component, wear protective gloves and goggles and proceed as follows:

- Shut off electrical power to unit.
- Recover refrigerant to relieve all pressure from system using both high-pressure and low pressure ports.
- Traces of vapor should be displaced with nitrogen and the work area should be well ventilated. Refrigerant in contact with an open flame produces toxic gases.
- Cut component connection tubing with tubing cutter and remove component from unit. Use a pan to catch any oil that may come out of the lines and as a gauge for how much oil to add to the system.
- Carefully unsweat remaining tubing stubs when necessary. Oil can ignite when exposed to torch flame.

Failure to follow these procedures may result in personal injury or death.

CAUTION

DO NOT re-use compressor oil or any oil that has been exposed to the atmosphere. Dispose of oil per local codes and regulations. **DO NOT** leave refrigerant system open to air any longer than the actual time required to service the equipment. Seal circuits being serviced and charge with dry nitrogen to prevent oil contamination when timely repairs cannot be completed. Failure to follow these procedures may result in damage to equipment.

WARNING

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

If unit is to be stored, it shall be stored in an area or room without continuously operating open flames (for example, an operating gas appliance) or other potential ignition sources, such as operating electric heaters or hot surfaces.

Do not pierce or burn.

Be aware that refrigerants may not contain an odor.

WARNING

Open all remote disconnects before servicing this equipment. Failure to do so could result in personal injury from electric shock.

CAUTION

The 38RC model is a Partial Unit air conditioner, complying with Partial Unit requirements of UL 60335-2-40/CSA C22.2 No. 60335-2-40, and must only be connected to other units that have been confirmed as complying to corresponding Partial Unit requirements of the same standard.

The definition of Partial Units per UL 60335-2-40 is as follows:

Partial Unit - Condensing unit, evaporating unit, condenser unit, or evaporator unit which are part of a total assembly of a heat pump, air-conditioner, or sanitary hot water heat pump where not all assemblies to create the complete refrigeration system are specified by the manufacturer.

Note 1 to entry: Partial Units are evaluated for safety as a stand-alone.

WARNING

UNIT OPERATION AND SAFETY HAZARD

Failure to follow this warning could cause personal injury, death and/or equipment damage.

R-32 refrigerant systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on R-32 refrigerant equipment.

CAUTION

Verify the evaporator system use with this unit has a design pressure greater than or equal to this condensing unit. Design pressure is listed on the nameplate of the unit.

STORAGE RECOMMENDATIONS

The 38RC condensing units are designed for outdoor installations. At times, a delay in construction or other factors require that a unit be stored for a period of time prior to installation. The following guidelines should be used for unit storage.

Provide Machine Protection

Place and store the unit in an area that will protect it from vandalism, accidental contact with vehicles, falling debris or construction waste. Ideally, do not remove the shipping protection such as the coil protectors. This will provide additional protection for the unit. The unit can be stored outdoors.

Inspection During Storage

To ensure faster installation when the time comes, the following inspection schedule is recommended:

EVERY 3 MONTHS

The 38RC units are shipped with a nitrogen holding charge. Check each refrigerant circuit to be sure that there is positive pressure, at least 5 psig (34.5 kPa) in the circuit. If a circuit is found to be without pressure, contact a qualified refrigeration mechanic. The system should be pressurized to find the leak. It should be repaired, dehydrated and recharged with nitrogen. If a positive circuit pressure was not found, the compressor oil should be changed or at least sampled to determine if moisture is present. If moisture is found in the compressor oil, the oil should be changed.

EVERY 6 MONTHS

Check the unit for damage from any source. Check the unit for nests from rodents, birds, or insects. Depending on location, these organisms can cause deterioration of components which may result in failure. Consider an exterminator if necessary. If damage is found that will interfere with the installation, consider repairing the damage before installation.

Check the unit control box for signs of moisture. If moisture is found, determine the entry path and seal the leak.

INSTALLATION

Step 1 — Inspect Shipment

Inspect unit for damage upon arrival. If damage is found, immediately file a claim with the shipping company. Verify proper unit delivery by checking unit nameplate data and the model number nomenclature shown in Fig. 1. See Tables 1-6 for unit physical data.

	38RC	D	025	6	4	A	1	0	0	2	0	
38RC – Split System Condensing Unit Refrigeration Circuit Options^a D – Dual Refrigeration Circuit S – Single Refrigeration Circuit Unit Size 025 060 100 027 070 120 030 080 130 040 090 150 050 Power Supply 1 – 575-3-60 2 – 380-3-60 5 – 280/230-3-60 6 – 460-3-60 9 – 380/415-3-50 Condenser Coil/Low Sound Options 0 – Aluminum Fin / Copper Tube, No Sound Treatment 3 – Aluminum E-Coat Fin / Copper Tube, No Sound Treatment 4 – Micro Channel (MCHX), No Sound Treatment 5 – E-coat Micro Channel (MCHX), No Sound Treatment G – Aluminum Fin / Copper Tube, Compressor Blankets H – Micro Channel (MCHX), Compressor Blankets J – E-coat Micro Channel (MCHX), Compressor Blankets M – Aluminum E-Coat Fin / Copper Tube, Compressor Blankets Revision Level A Line Length Options 1 – Standard Line Length, MCHX 2 – Long Line Length Check valves, MCHX 3 – Standard Line Length, RTPF 4 – Long Line Length Check valves, RTPF												
Packaging/Security Options 0 – Std Packaging 1 – Coil Header Covers 2 – Coil Header Covers and Grille 3 – Coil Header Covers, Grille, and Hail Guard 4 – Security Grilles/Hail Guards 8 – Std Packaging, Bottom Skid D – Bottom Skid, Hail Guards J – Bottom Skid and Bag N – Bottom Skid, Bag and Hail Guards Controls/Communications Options 0 – PIC6 (Standard) 1 – PIC6 and EMM 2 – PIC6, EMM, and Remote Connectivity 3 – PIC6, GFI, and Remote Connectivity 8 – PIC6 and BACnet 9 – PIC6, EMM, and BACnet B – PIC6, GFI, EMM, Remote Connectivity, and BACnet C – PIC6, GFI, Remote Connectivity, and BACnet F – PIC6, EMM, Remote Connectivity, and BACnet L – PIC6, GFI, EMM, Remote Connectivity, BACnet, and LONworks P – PIC6, EMM, Remote Connectivity, BACnet, and LONworks Electrical Options 0 – Single Point Power, XL, Terminal Block 1 – Single Point Power, XL, Non-Fused Disconnect 2 – Dual Point Power, XL, Terminal Block^b Ambient/Capacity Control/High SCCR Options^c 0 – Std Ambient, Std Compressor 2 – Std Ambient, Digital Compressor 3 – Std Ambient, Std Compressor, High SCCR 5 – Std Ambient, Digital Compressor, High SCCR D – GreenSpeed[®], Std Compressor G – GreenSpeed[®], Digital Compressor H – GreenSpeed[®], Std Compressor, High Interrupt K – GreenSpeed[®], Digital Compressor, High Interrupt												

LEGEND

EMM	—	Energy Management Module
MCHX	—	Microchannel Heat Exchanger
RTPF	—	Round Tube, Plate Fin (Condenser Coil)
SCCR	—	Short Circuit Current Rating

NOTE(S):

- 38RCS units available in sizes 025-050 only.
- Dual point power option only available on sizes 110, 130, and 150.
- Digital compressor not available on size 065.

Fig. 1 — Model Number Nomenclature

Table 1 — 38RC025-030 Unit Physical Data — English

38RC UNIT SIZE	025		027		030	
Nominal Capacity (tons)	25		27		30	
Circuit	Dual	Single	Dual	Single	Dual	Single
Operating Weights (lb)						
MCHX	1223	1223	1338	1338	1372	1372
Cu-Al RTPF	1295	1295	1428	1428	1461	1461
REFRIGERANT CHARGE (lb)						
Total MCHX ^a	30	27.5	32	29.5	33	33.9
Circuit A/Circuit B MCHX	15/15	27.5	16/16	29.5	16.5/16.5	33.9
Total RTPF ^a	48	44.5	54.6	51	55.6	56.4
Circuit A/Circuit B RTPF	24/24	44.5	27.3/27.3	51	27.8/27.8	56.4
NITROGEN SHIPPING CHARGE	15 psig					
COMPRESSOR hp (Qty) (CKT A/CKT B)	10 (1) / 10(1)	10 (2)	13 (1) / 13 (1)	13 (2)	15 (1) / 15 (1)	15 (2)
CAPACITY STEPS						
Standard	2	2	2	2	2	2
Digital Option	22	22	22	22	22	22
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)					
CONDENSER FANS						
Low Noise	Plastic Type, Axial, Vertical Discharge					
Quantity	2	2	2	2	2	2
rpm	850 (60 Hz)					
Diameter (in.)	30					
Total Watts (60 Hz)	2750	2750	2750	2750	2750	2750
Total Airflow (60 Hz) (cfm)	17500		19400		19400	
CONDENSER COIL						
No. Coils per Circuit	1	1	1	1	1	1
sq ft	27.1	27.1	33.9	33.9	33.9	33.9
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 210°F					
CONNECTIONS (in.) ODF (CKT A/CKT B)						
Suction Line	1-3/8 / 1-3/8	1-5/8	1-3/8 / 1-3/8	1-5/8	1-3/8 / 1-3/8	1-5/8
Liquid Line	5/8 / 5/8	5/8	5/8 / 5/8	5/8	5/8 / 5/8	7/8
MAXIMUM HEIGHT FOR 3°F SUBCOOLING (ft) ^b	75	75	75	75	75	75
Capacity Per Circuit (%) (CKT A/CKT B)	50/50	100	50/50	100	50/50	100
MINIMUM UNIT CAPACITY (%) ^c						
Standard Compressor	50	50	50	50	50	50
Digital Compressor	17	17	17	17	17	17

NOTE(S):

- Typical operating charge with 25 ft of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit. If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

CKT — Circuit
MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female
RTPF — Round Tube Plate Fin

Table 2 — 38RC025-030 Unit Physical Data — SI

38RC UNIT SIZE	025		027		030	
Nominal Capacity (kW)	88		95		106	
Circuit	Dual	Single	Dual	Single	Dual	Single
Operating Weights (kg)						
MCHX	555	555	607	607	622	622
Cu-Al RTPF	587	587	648	648	663	663
REFRIGERANT CHARGE (kg)						
Total MCHX ^a	13.6	12.5	14.6	13.4	15	15.4
Circuit A/Circuit B MCHX	6.8/6.8	12.5	7.3/7.3	13.4	7.5/7.5	15.4
Total RTPF^a	21.8	20.2	24.8	23.1	25.2	25.6
Circuit A/Circuit B RTPF	10.9/10.9	20.2	12.4/12.4	23.1	12.6/12.6	25.6
NITROGEN SHIPPING CHARGE	103 kPa					
Compressor hp (Qty) (CKT A/CKT B)	10 (1) / 10 (1)	10 (2)	13 (1) / 13 (1)	13 (2)	15 (1) / 15 (1)	15 (2)
CAPACITY STEPS						
Standard	2	2	2	2	2	2
Digital Option	22	22	22	22	22	22
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)					
CONDENSER FANS						
Low Noise	Plastic Type, Axial, Vertical Discharge					
Quantity	2	2	2	2	2	2
rpm	850 (60 Hz)					
Diameter (mm)	762					
Total Watts (60 Hz)	2750	2750	2750	2750	2750	2750
Total Airflow (60 Hz) (cu m/s)	29733		32961		32961	
CONDENSER COIL	MCHX Type					
No. Coils per Circuit	1	1	1	1	1	1
sq m	2.52	2.52	3.15	3.15	3.15	3.15
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 99°C					
CONNECTIONS (in.) ODF (CKT A/CKT B)						
Suction Line	1-3/8 / 1-3/8	1-5/8	1-3/8 / 1-3/8	1-5/8	1-3/8 / 1-3/8	1-5/8
Liquid Line	5/8 / 5/8	5/8	5/8 / 5/8	5/8	5/8 / 5/8	7/8
MAXIMUM HEIGHT FOR 1.8°C SUBCOOLING (m) ^b	22.9	22.9	22.9	22.9	22.9	22.9
Capacity Per Circuit (%) (CKT A/CKT B)	50/50	100	50/50	100	50/50	100
MINIMUM UNIT CAPACITY (%)^c						
Standard Compressor	50	50	50	50	50	50
Digital Compressor	17	17	17	17	17	17

NOTE(S):

- Typical operating charge with 7.62 m of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit. If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

- CKT** — Circuit
MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female
RTPF — Round Tube Plate Fin

Table 3 — 38RC040-060 Unit Physical Data — English

38RC UNIT SIZE	040		050		060
Nominal Capacity (tons)	40		50		60
Circuit	Dual	Single	Dual	Single	Dual
Operating Weights (lb)					
MCHX	2149	2023	2223	2080	2325
Cu-Al RTPF	2294	2168	2402	2259	2403
REFRIGERANT CHARGE (lb)					
Total MCHX ^a	43.1	43.9	55.7	53.1	66.2
Circuit A/Circuit B MCHX	23.6/19.5	43.9	24.6/31.1	53.1	32.1/34.1
Total RTPF ^a	88.1	88.8	100.7	98	111.1
Circuit A/Circuit B RTPF	46.1/42	88.8	47.1/53.6	98	54.6/56.5
NITROGEN SHIPPING CHARGE			15 psig		
Compressor hp (Qty) (CKT A/CKT B)	10 (2) / 9 (2)	13 (3)	11 (2) / 13 (2)	15 (3)	13 (2) / 15 (2)
CAPACITY STEPS					
Standard	4	3	4	3	4
Digital Option	36	27	36	27	36
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)				
CONDENSER FANS					
Low Noise	Plastic Type, Axial, Vertical Discharge				
Quantity	3	3	3	3	4
rpm	850 (60 Hz)				
Diameter (in.)	30				
Total Watts (60 Hz)	3500	3500	3500	3500	5200
Total Airflow (60 Hz) (cfm)	30501		30501		38800
CONDENSER COIL					
No. Coils per Circuit	1	2	1	2	1
sq ft	67.8	67.8	67.8	67.8	67.8
TEMPERATURE RELIEF	Fusible Plug on Liquid Lines of Each Circuit - 210°F				
CONNECTIONS (in.) ODF (CKT A/CKT B)					
Suction Line	1-5/8 1-5/8	2-1/8	1-5/8 / 1-5/8	2-1/8	1-5/8 / 1-5/8
Liquid Line	5/8 / 5/8	7/8	5/8 / 5/8	7/8	5/8 / 5/8
MAXIMUM HEIGHT FOR 3°F SUBCOOLING (ft) ^b	75	75	75	75	75
Capacity Per Circuit (%) (CKT A/CKT B)	54/46	100	48/52	100	46/54
MINIMUM UNIT CAPACITY (%)^c					
Standard Compressor	27	33	23	33	23
Digital Compressor	13	16	11	16	11

NOTE(S):

- Typical operating charge with 25 ft of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

- CKT** — Circuit
MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female
RTPF — Round Tube Plate Fin

Table 4 — 38RC040-060 Unit Physical Data — SI

38RC UNIT SIZE	040		050		060
Nominal Capacity (kW)	141		176		211
Circuit	Dual	Single	Dual	Single	Dual
Operating Weights (kg)					
MCHX	975	918	1008	943	1055
Cu-Al RTPF	1041	983	1090	1025	1090
REFRIGERANT CHARGE (kg)					
Total MCHX ^a	19.5	19.9	25.3	24.1	29.9
Circuit A/Circuit B MCHX	10.7/8.8	19.9	11.2/14.1	24.1	14.5/15.4
Total RTPF ^a	40	40.3	45.7	44.4	50.4
Circuit A/Circuit B RTPF	20.9/19.1	40.3	21.4/24.3	44.4	24.7/25.7
NITROGEN SHIPPING CHARGE	103 kPa				
Compressor hp (Qty) (CKT A/CKT B)	10 (2) / 9 (2)	13 (3)	11 (2) / 13 (2)	15 (3)	13 (2) / 15 (2)
CAPACITY STEPS					
Standard	4	3	4	3	4
Digital Option	36	27	36	27	36
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)				
CONDENSER FANS					
Low Noise	Plastic Type, Axial, Vertical Discharge				
Quantity	3	3	3	3	4
rpm	850 (60 Hz)				
Diameter (mm)	762				
Total Watts (60 Hz)	3500	3500	3500	3500	5200
Total Airflow (60 Hz) (cu m/s)	51821		51821		65921
CONDENSER COIL	MCHX Type				
No. Coils per Circuit	1	2	1	2	1
sq m	6.30	6.30	6.30	6.30	6.30
TEMPERATURE RELIEF CONNECTIONS (in.) ODF (CKT A/CKT B)	Fusible Plug on Liquid Lines of Each Circuit - 99°C				
Suction Line	1-5/8 1-5/8	2-1/8	1-5/8 / 1-5/8	2-1/8	1-5/8 / 1-5/8
Liquid Line	5/8 / 5/8	7/8	5/8 / 5/8	7/8	5/8 / 5/8
MAXIMUM HEIGHT FOR 1.8°C SUBCOOLING (m) ^b	22.9	22.9	22.9	22.9	22.9
Capacity Per Circuit (%) (CKT A/CKT B)	54/46	100	48/52	100	46/54
MINIMUM UNIT CAPACITY (%) ^c					
Standard Compressor	27	33	23	33	23
Digital Compressor	13	16	11	16	11

NOTE(S):

- Typical operating charge with 7.62 m of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

- CKT** — Circuit
MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female
RTPF — Round Tube Plate Fin

Table 5 — 38RC070-150 Unit Physical Data — English

38RC UNIT SIZE	070	080	090	100	110	130	150
Nominal Capacity (tons)	70	80	90	100	110	130	150
Circuit	Dual	Dual	Dual	Dual	Dual	Dual	Dual
Operating Weights (lb)							
MCHX	3345	4358	4549	4557	5599	5818	5824
Cu-Al RTPF	3665	4795	5029	5037	6197	6457	6464
REFRIGERANT CHARGE (lb)							
Total MCHX^a	57.1	68.2	76.1	84.3	95.1	103.7	104.8
Circuit A/Circuit B MCHX	28.4/29.7	28.4/39.8	34.1/42.0	42.1/42.2	43.1/52.0	51.7/52.0	52.0/52.8
Total RTPF^a	116.4	142.4	150.2	173.4	199.0	222.4	223.5
Circuit A/Circuit B RTPF	58.0/58.4	58.0/84.4	63.8/86.4	86.7/86.7	87.7/111.3	111.0/111.4	111.3/112.2
NITROGEN SHIPPING CHARGE	15 psi						
Compressor hp (Qty) (CKT A/CKT B)	15 (2)/15 (2)	15 (2)/15 (3)	13 (3)/15 (3)	15 (3)/15 (3)	15 (3)/20 (3)	20 (3)/20 (3)	25 (3)/25 (3)
CAPACITY STEPS							
Standard	4	5	6	6	6	6	6
Digital Option	36	45	54	54	54	NA	NA
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)						
CONDENSER FANS							
Quantity	4	5	5	6	7	8	8
No. Blades...Diameter (in.)	9...30						
Motor HP (per fan)	1.25						
Fan Speed (rpm) Standard 8 Pole	850 (60 Hz)						
Airflow (cfm) Al-Cu coil	40575	50719	50719	60863	71007	81151	81151
Airflow (cfm) MCHX Coil	41906	52383	52383	62860	73336	83813	83813
Motor HP (per fan)	3.00						
Fan Speed (rpm) Standard 6 Pole	1140						
Airflow (cfm) AL-CU coil	55877	69847	69847	83816	97785	111755	111755
Airflow (cfm) MCHX Coil	57633	72041	72041	86449	100857	115266	115266
CONDENSER COIL							
No. Coils per Circuit	2	2 / 3	2 / 3	3	3 / 4	4	4
sq ft	107.8	107.8 / 161.7	107.8 / 161.7	161.7	161.7 / 215.6	215.6	215.6
TEMPERATURE RELIEF Connections (in.) ODF (CKT A/CKT B)							
Suction Line	1-5/8 / 1-5/8	1-5/8 / 2-1/8	2-1/8 / 2-1/8	2-1/8 / 2-1/8	2-1/8 / 2-5/8	2-5/8 / 2-5/8	2-5/8 / 2-5/8
Liquid Line	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8
MAXIMUM HEIGHT FOR 3°F SUBCOOLING (ft)^b	75	75	75	75	75	75	75
Capacity Per Circuit (%) (CKT A/CKT B)	50/50	40/60	46/54	50/50	43/57	50/50	50/50
MINIMUM UNIT CAPACITY (%)^c							
Standard Compressor	25	20	15	17	14	17	17
Digital Compressor	19	9	7	8	7	NA	NA

NOTE(S):

- Typical operating charge with 25 ft of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

- cfm** — Cubic Feet per Minute
- CKT** — Circuit
- MCHX** — Microchannel Heat Exchanger
- ODF** — Outside Diameter, Female
- RTPF** — Round Tube Plate Fin

Table 6 — 38RC070-150 Unit Physical Data — SI

38RC UNIT SIZE	070	080	090	100	110	130	150
Nominal Capacity (kW)	246	281	317	352	387	457	528
Circuit	Dual	Dual	Dual	Dual	Dual	Dual	Dual
Operating Weights (kg)							
MCHX	1517	1977	2063	2067	2540	2639	2641
Cu-Al RTPF	1662	2175	2281	2285	2811	2929	2932
REFRIGERANT CHARGE (kg)							
Total MCHX^a	25.9	30.9	34.5	38.2	43.1	47.0	47.5
Circuit A/Circuit B MCHX	12.9/13.5	12.9/18.1	15.4/19.1	19.1/19.1	19.6/23.5	23.5/23.5	23.6/23.9
Total RTPF^a	52.8	64.6	68.1	78.7	90.3	100.9	101.4
Circuit A/Circuit B RTPF	26.3/26.5	26.3/38.3	28.9/39.2	39.3/39.4	39.8/50.5	50.4/50.5	50.5/50.9
NITROGEN SHIPPING CHARGE	103 kPa						
Compressor hp (Qty) (CKT A/CKT B)	15 (2)/15 (2)	15 (2)/15 (3)	13 (3)/15 (3)	15 (3)/15 (3)	15 (3)/20 (3)	20 (3)/20 (3)	25 (3)/25 (3)
CAPACITY STEPS							
Standard	4	5	6	6	6	6	6
Digital Option	36	45	54	54	54	NA	NA
CRANKCASE HEATER (W) (each compressor)	90 (60 Hz)						
CONDENSER FANS							
Quantity	4	5	5	6	7	8	8
No. of Blades...Diameter (mm)	9...762						
Motor kW (per fan)	0.93						
Fan Speed (rpm) Standard 8 Pole	850 (60 Hz)						
Airflow (cu m/s) Al-Cu Coil	68937	86172	86172	103406	120641	137876	137876
Airflow (cu m/s) MCHX Coil	71198	88999	88999	106799	124598	142398	142398
Motor kW (per fan)	2.24						
Fan Speed (rpm) Standard 6 Pole	1140						
Airflow (cu m/s) Al-Cu Coil	94935	118670	118670	142403	166137	189872	189872
Airflow (cu m/s) MCHX Coil	97918	122398	122398	146877	171356	195837	195837
CONDENSER COIL							
No. Coils per Circuit	2	2 / 3	2 / 3	3	3 / 4	4	4
sq m	10.01	10.01 / 12.52	10.01 / 12.52	15.02	15.02 / 20.03	20.03	20.03
TEMPERATURE RELIEF CONNECTIONS (in.) ODF (CKT A/CKT B)							
Suction Line	1-5/8 / 1-5/8	1-5/8 / 2-1/8	2-1/8 / 2-1/8	2-1/8 / 2-1/8	2-1/8 / 2-5/8	2-5/8 / 2-5/8	2-5/8 / 2-5/8
Liquid Line	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8	7/8 / 7/8
MAXIMUM HEIGHT FOR 1.8°C SUBCOOLING (m)^b	22.9	22.9	22.9	22.9	22.9	22.9	22.9
Capacity Per Circuit (%) (CKT A/CKT B)	50/50	40/60	46/54	50/50	43/57	50/50	50/50
MINIMUM UNIT CAPACITY (%)^c							
Standard Compressor	25	20	15	17	14	17	17
Digital Compressor	19	9	7	8	7	NA	NA

NOTE(S):

- Typical operating charge with 7.62 m of interconnecting piping. Operating charge is approximate for maximum system capacity. Unit is factory supplied with nitrogen holding charge. Refrigerant charge for dual circuit units is the total for both circuits.
- Maximum vertical separation between evaporator coil and condensing unit. If condensing unit is below the evaporator.
- Refer to Loading Sequences tables in Application Data.

LEGEND

- cfm** — Cubic Feet per Minute
CKT — Circuit
MCHX — Microchannel Heat Exchanger
ODF — Outside Diameter, Female
RTPF — Round Tube Plate Fin

Rig and Place Unit

The maximum altitude intended for this appliance is 10,000 ft (3048 m). For operation above this consult with Carrier Service.

All units are designed for overhead rigging, and it is *important that this method be used*. Lifting holes are provided in the frame base rails. It is recommended to use shackles in the lifting holes (see rigging label on the unit and Fig. 2 and 3 for rigging weights and center of gravity). All panels must be in place when rigging.

IMPORTANT: To maintain unit stability while lifting, use 4 cables, chains or straps of equal length. Attach one end of each cable to shackle attachment point and the other end of each cable to the overhead rigging point.

Use spreader bars or frame to keep the cables, chains, and straps clear of the unit sides. Leave standard coil protection packaging in place during rigging to provide protection to coils. Remove and discard all coil protection after rigging cables are detached.

⚠ CAUTION

All panels must be in place when rigging. Failure to comply could result in equipment damage.

⚠ CAUTION

For unit sizes 025 to 060 when handling with a forklift, handle only through fork pocket holes. Failure to follow this caution could result in equipment damage or personal injury.

For unit sizes 070 to 150, do not forklift the unit unless unit is attached to a skid designed for forklifting. Failure to follow this caution could result in equipment damage or personal injury.

DOMESTIC UNITS

Standard 38RC unit packaging consists of coil protection only. *Skids are not provided.* If overhead rigging is not available at the job site, place the unit on a skid or pad before dragging or rolling. When rolling, use a minimum of 3 rollers. When dragging, pull the pad or skid. *Do not apply force to the unit.* When in final position, raise from above to lift unit off the pad or skid.

EXPORT UNITS

All export units are mounted on skids with vertical coil protection. Leave the unit on the skid until it is in final position. *While on the skid, the unit can be rolled or skidded. Apply force to the skid, not to the unit.* Use a minimum of 3 rollers when rolling. When in final position, raise from above to remove the skid.

PLACING UNITS

⚠ WARNING

UNIT MUST NOT BE ACCESSIBLE TO THE GENERAL PUBLIC.

When considering location of the unit, be sure to consult National Electrical Code (NEC, U.S.A.) and local code requirements. Allow sufficient space for airflow, wiring, piping, and service. The placement area must be level and strong enough to support the operating weight of the unit. See Table 7 and Fig. 4. When unit is in proper location, use of mounting holes in base rails is recommended for securing unit to supporting structure. For mounting units 38RC025-060 on vibration isolators, 4 x 24 in. perimeter support ASTM "C" channels between unit and the isolators are recommended with a minimum of 4 channels per unit. Fasteners for mounting unit are field supplied. See Fig. 5.

38RC070-150 MOUNTING

The unit may be mounted on a level pad directly on the base rails, on rails along the long axis of the machine, or on vibration isolation springs; see Fig. 6. For all units, ensure placement area is strong enough to support unit operating weight; see Table 7 and Fig. 4. Mounting holes are provided for securing the unit to the pad, mounting rail, or vibration isolation springs. The base rail is made from steel; see Fig. 7 for base rail shape. See Fig. 9-14 for locations of mounting points. At the mounting points, a U-shaped channel is welded into the base rail to provide a flat plate for mounting. See Fig. 8 for mounting plate dimensions. The 1.46 in. (37 mm) dimension shown is from the outside edge of the rail to the mounting hole.

NOTE: The 1.46 in. (37 mm) dimension in Fig. 8 is not the same dimension as the 1.48 in. (37.5 mm) flange that is turned under the base rail in Fig. 7.

Bolt the unit securely to pad or rails. If vibration isolators (field-supplied, see Fig. 6) are required for a particular installation, see unit weight distribution in Fig. 4 to aid in the proper selection of isolators. Once installed, the unit must be level to within 1/8 in. per ft (1 cm per meter) along the long axis of the unit. This is required for oil return to the compressor(s). For more details about physical data, see Tables 1-6.

NOTE: For units that are point loaded, such as those using rubber and shear isolators, the mounting pocket in the base rail must be supported. If the isolator includes a plate that spans across the mounting pocket, no further support is needed. If the isolator is point loaded, add a backup plate to the mounting plate 1/4 in. thick x 6 in. wide x 8 in. long, centered on the unit mounting plate.

Refer to Fig. 9-14 for airflow clearances. Recommended minimum clearances are 6 ft (1829 mm) for unrestricted airflow and service on sides of unit, 4 ft (1219 mm) on ends, and unrestricted clear air space above the unit. Provide ample space to connect liquid and suction lines to indoor unit. For multiple units, allow 10 ft (3048 mm) separation between airflow surfaces. If walls surround the unit, wall height should not exceed the top of the unit fan discharge. Installation in a pit is not recommended.

IMPORTANT: Be sure to mount unit level to within 1/8 in. per ft (10.4 mm per m) to ensure proper oil equalization between compressors.

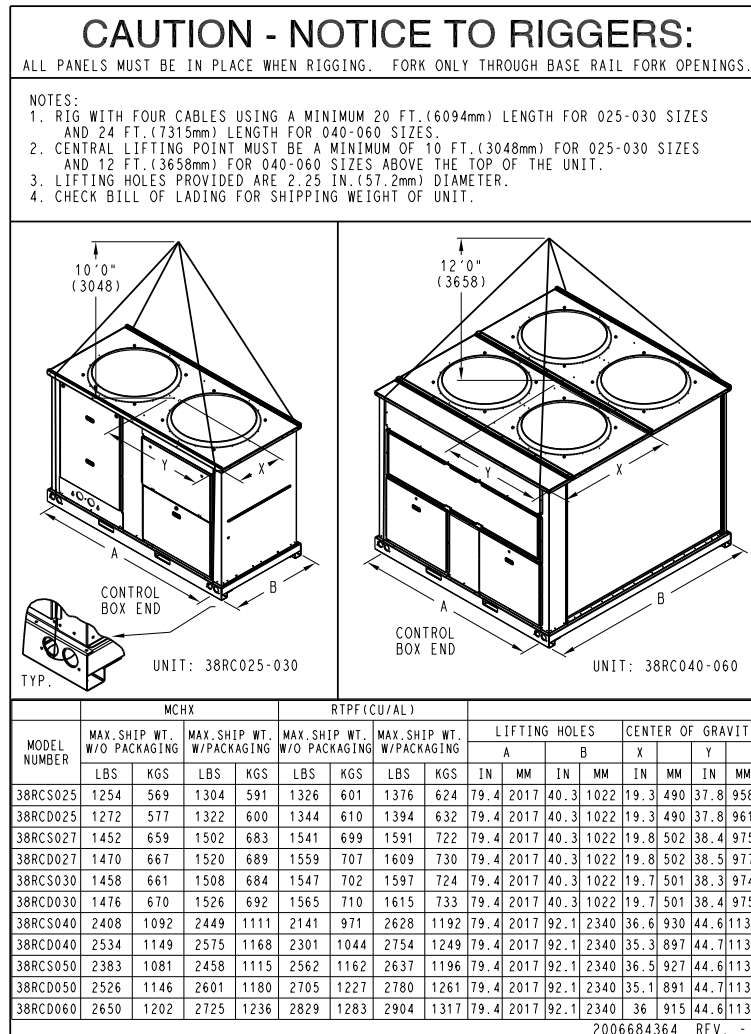
Refer to Fig. 15 for outdoor fan and compressor layout. Refer to Fig. 16 and 17 for unit piping installation. See Table 8 for refrigerant specialties part numbers. See Tables 9 and 10 for liquid line valve requirements.

Operating Limits

- Maximum outdoor ambient:
 - Full capacity 122°F (50°C)
 - Unloaded 125°F (51.6°C) 100% outdoor air application; return air temperature maximum 95°F (35°C)
- Minimum operating outdoor air temperature with installed high-efficiency variable condenser fans and wind baffles -20°F (-28.8°C):
 - Minimum return air temperature 55°F (-12.8°C)
 - Maximum return air temperature 95°F (35°C)
- Range of acceptable saturation suction temperature 35 to 55°F (1.7 to 12.8°C)

- Maximum discharge temperature 268°F (131°C)
- Minimum suction superheat 12° F (6.7°C)
- Maximum vertical liquid lift separation 75 ft (22.8 m) 60 Hz

Check valves required with all units with Microchannel (MCHX) condenser coils. Check valves required for all units with linear line length more than 100 ft (30.5 m). Check valves required for any 38RC025-030 dual circuit units where evaporator is located higher than the condensing unit and the linear line length is more than 55 ft (16.8 m). Maximum linear separation between condensing unit and air handling unit 200 ft (61 m).

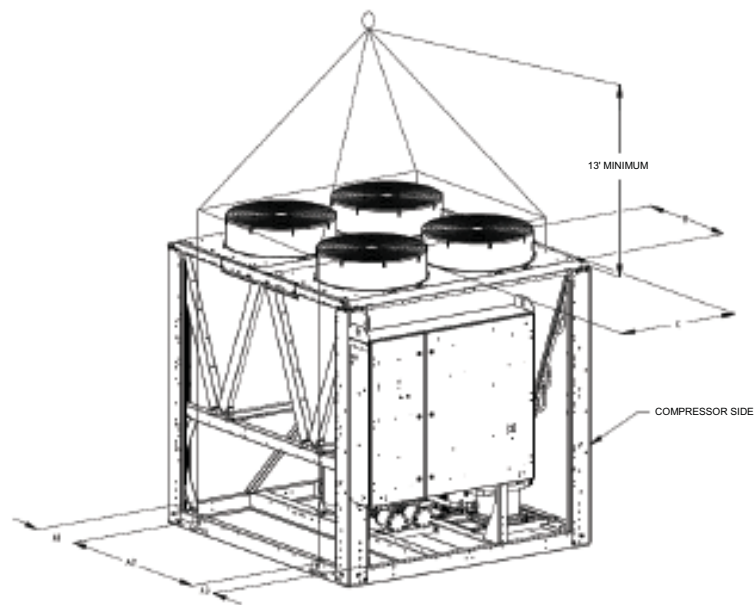


LEGEND

- MCHX** — Microchannel Heat Exchanger
- RTPF** — Round Tube, Plate Fin (Condenser Coil)

Fig. 2 — Rigging Label, 38RC025-060

CAUTION - NOTICE TO RIGGERS: ALL PANELS MUST BE IN PLACE WHEN RIGGING. DO NOT FORK THESE UNITS IF NO SKID IS SUPPLIED.	
ATTENTION - AVIS AUX MONTEURS: TOUS LES PANNEAUX DOIVENT ÊTRE EN PLACE LORS DU GRÉEMENT. NE PAS TRANSFÉRER CES UNITÉS PAR CHARIOT-FOURCHE. SI AUCUN CHÂSSIS OU SUPPORT N'EST FOURNI.	
NOTE: 1.50 dia (38.1mm) lifting holes provided for field supplied clevis. - Rig with a minimum of 25 ft (7620mm) length chain or cables. - If central lifting point is used, it must be minimum of 13 ft (3962mm) above the top of the unit. - Spreader bars made from steel or double nailed, and notched 2x6's approximately 8 ft (2438mm) long, must be placed just above the top of the unit and coils. - If overhead rigging is not available, the unit can be moved on roller or dragged. When unit is moved on roller, the unit steel skid, if equipped, must be removed. To lift the unit, use jacks at rigging points. Use a minimum of one roller every 6 ft (1829 mm) to distribute the load. If the unit is to be dragged, lift the unit as described above, and place unit on a pad. Apply moving force to the pad, not the unit. When in its final location, raise the unit and remove the pad. - Check the unit model number, position 10 to determine the unit weight as per condenser option. - Check the bill of the lading to determine shipping weight of the unit.	REMARQUE: - Des trous de soulèvement mesurant 1,50 (38,1 mm) de diamètre, sont prévus pour la chape fournie avec l'unité. - Installer avec une chaîne ou des câbles d'une longueur minimale de 25 pieds (7620 mm) pour le gréement. - Dans le cas où un point de soulèvement central est employé, celui-ci doit être situé à un minimum de 3962 mm au-dessus de la surface supérieure de l'unité. - Des écarteurs en acier ou en 2x6, cloués et entaillés, d'environ 2438 mm de long doivent être affixés juste au-dessus du haut de l'unité et des bobines ventilatrices. - Si aucun système de gréement n'est disponible, l'unité peut être déplacée sur un rouleau ou traînée. Pour déplacer l'unité sur un rouleau, les patins en acier du support de l'unité, si équipée, doivent être retirés. Pour élever l'unité, utiliser des crics aux points d'ancrage. Pour faire répartir la charge, utiliser au moins un patin à tous les 6 pieds (1829 mm). Si l'unité doit être traînée, celle-ci doit être soulevée comme décrit ci-dessus et apposée sur une plaque de soutien. Appliquer la force de déplacement sur la plaque de soutien, et non sur l'unité. Une fois l'unité à son emplacement définitif, la lever et retirer la plaque de soutien. - Vérifier le numéro de modèle de l'unité, la position 10 pour déterminer le poids de l'unité en fonction de l'option condenseur. - Consulter la fiche de livraison pour déterminer le poids de l'appareil à l'expédition.



LEGEND

MCHX — Microchannel Heat Exchanger
RTPF — Round Tube, Plate Fin (Condenser Coil)

Model Number	Max Shipping Wt w/o Packaging		Max Shipping Wt with Packaging		Max Shipping Wt w/o Packaging		Max Shipping Wt with Packaging		Lifting Holes						Center of Gravity							
	Model Number Position 10 = 4, 5, H, J		Model Number Position 10 = 4, 5, H, J		Model Number Position 10 = 0, 3, G, M		Model Number Position 10 = 0, 3, G, M								B				C			
	MCHX		MCHX		RTPF		RTPF		A1		A2		A3		MCHX		RTPF		MCHX		RTPF	
	lb	kg	lb	kg	lb	kg	lb	kg	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
38RCD070	2992	1358	3345	1518	3312	1503	3665	1663	16.1	409	62.0	1575	16.1	409	35.5	902.5	36.6	930.7	42.0	1066.7	42.3	1073.2
38RCD080	3850	1747	4358	1977	4288	1946	4795	2176	16.1	409	109.0	2769	16.1	409	61.3	1556.8	62.2	1580.4	42.0	1066.8	42.4	1077.0
38RCD090	4042	1834	4549	2064	4522	2052	5029	2282	16.1	409	109.0	2769	16.1	409	62.6	1590.2	63.4	1611.6	40.6	1030.7	41.0	1041.6
38RCD100	4050	1837	4557	2068	4529	2055	5037	2285	16.1	409	109.0	2769	16.1	409	62.6	1591.1	63.5	1612.3	40.5	1029.5	41.0	1040.6
38RCD110	4939	2241	5599	2541	5536	2512	6197	2812	16.1	409	156.0	3963	16.1	409	83.7	2125.2	84.9	2156.9	41.0	1042.4	41.6	1055.8
38RCD130	5157	2340	5818	2640	5796	2630	6457	2930	16.1	409	156.0	3963	16.1	409	83.5	2121.5	84.7	2150.9	39.7	1009.5	40.3	1023.2
38RCD150	5163	2343	5824	2642	5803	2633	6464	2933	16.1	409	156.0	3963	16.1	409	83.5	2122.0	84.7	2151.3	39.7	1008.7	40.3	1022.5

Fig. 3 — Rigging Label, 38RC070-150

Table 7 — Maximum Operational Corner Weights

38RCS MCHX Unit^{a,b}

38RCS UNIT SIZE	TOTAL WEIGHT (lb)	OPERATIONAL CORNER WEIGHT (lb)				TOTAL WEIGHT (kg)	OPERATIONAL CORNER WEIGHT (kg)			
		A	B	C	D		A	B	C	D
025	1223	410	283	216	314	555	186	129	98	142
027	1338	432	310	249	346	607	196	141	113	157
030	1372	444	318	254	356	622	202	144	115	161
040	2023	639	621	376	387	918	290	282	171	176
050	2080	659	640	386	396	943	299	290	175	180

NOTE(S):

- a. Weights include refrigerant charge.
b. For support points, see Fig. 4.

38RCD MCHX Unit^{a,b}

38RCD UNIT SIZE	TOTAL WEIGHT (lb)	OPERATIONAL CORNER WEIGHT (lb)						TOTAL WEIGHT (kg)	OPERATIONAL CORNER WEIGHT (kg)					
		A	B	C	D	E	F		A	B	C	D	E	F
025	1223	410	283	216	314	—	—	555	186	129	98	142	—	—
027	1338	432	310	249	346	—	—	607	196	141	113	157	—	—
030	1372	444	318	254	356	—	—	622	202	144	115	161	—	—
040	2149	692	676	385	395	—	—	975	314	307	175	179	—	—
050	2223	719	704	397	405	—	—	1008	326	319	180	184	—	—
060	2325	749	721	419	436	—	—	1055	340	327	190	198	—	—
070	3345	1145	1081	521	598	—	—	1517	519	490	236	271	—	—
080	4358	1294	1210	877	977	—	—	1976	587	549	398	443	—	—
090	4549	1387	1232	879	1051	—	—	2063	629	559	399	477	—	—
100	4557	1388	1231	882	1056	—	—	2067	629	558	400	479	—	—
115	5599	924	772	990	1143	864	905	2539	419	350	449	518	392	411
130	5818	984	772	1007	1219	872	964	2639	446	350	457	553	396	437
150	5824	985	773	1008	1220	873	965	2641	447	351	457	553	396	437

NOTE(S):

- a. Weights include refrigerant charge.
b. For support points, see Fig. 4.

38RCS Cu-AI RTPF Unit^{a,b}

38RCS UNIT SIZE	TOTAL WEIGHT (lb)	OPERATIONAL CORNER WEIGHT (lb)				TOTAL WEIGHT (kg)	OPERATIONAL CORNER WEIGHT (kg)			
		A	B	C	D		A	B	C	D
025	1295	408	287	248	352	587	185	130	113	160
027	1428	431	316	288	393	648	195	143	131	178
030	1461	442	323	295	402	663	200	146	134	182
040	2168	673	656	414	426	983	305	298	188	193
050	2259	702	685	430	442	1025	319	311	195	200

NOTE(S):

- a. Weights include refrigerant charge.
b. For support points, see Fig. 4.

38RCD Cu-AI RTPF Unit^{a,b}

38RCD UNIT SIZE	TOTAL WEIGHT (lb)	OPERATIONAL CORNER WEIGHT (lb)						TOTAL WEIGHT (kg)	OPERATIONAL CORNER WEIGHT (kg)					
		A	B	C	D	E	F		A	B	C	D	E	F
025	1295	408	287	248	352	—	—	587	185	130	113	160	—	—
027	1428	431	316	288	393	—	—	648	195	143	131	178	—	—
030	1461	442	323	295	402	—	—	663	200	146	134	182	—	—
040	2294	727	711	424	433	—	—	1041	330	322	192	196	—	—
050	2402	763	748	441	450	—	—	1090	346	339	200	204	—	—
060	2504	794	766	464	484	—	—	1136	360	348	210	220	—	—
070	3665	1224	1162	602	677	—	—	1662	555	527	273	307	—	—
080	4795	1407	1316	980	1092	—	—	2175	638	597	444	495	—	—
090	5029	1502	1353	1002	1172	—	—	2281	681	614	454	532	—	—
100	5037	1505	1353	1003	1176	—	—	2284	683	614	455	533	—	—
115	6197	1004	851	1121	1273	967	980	2810	455	386	508	578	439	445
130	6457	1074	856	1141	1359	979	1048	2928	487	388	517	616	444	476
150	6464	1075	855	1142	1363	979	1050	2932	488	388	518	618	444	476

NOTE(S):

- a. Weights include refrigerant charge.
b. For support points, see Fig. 4.

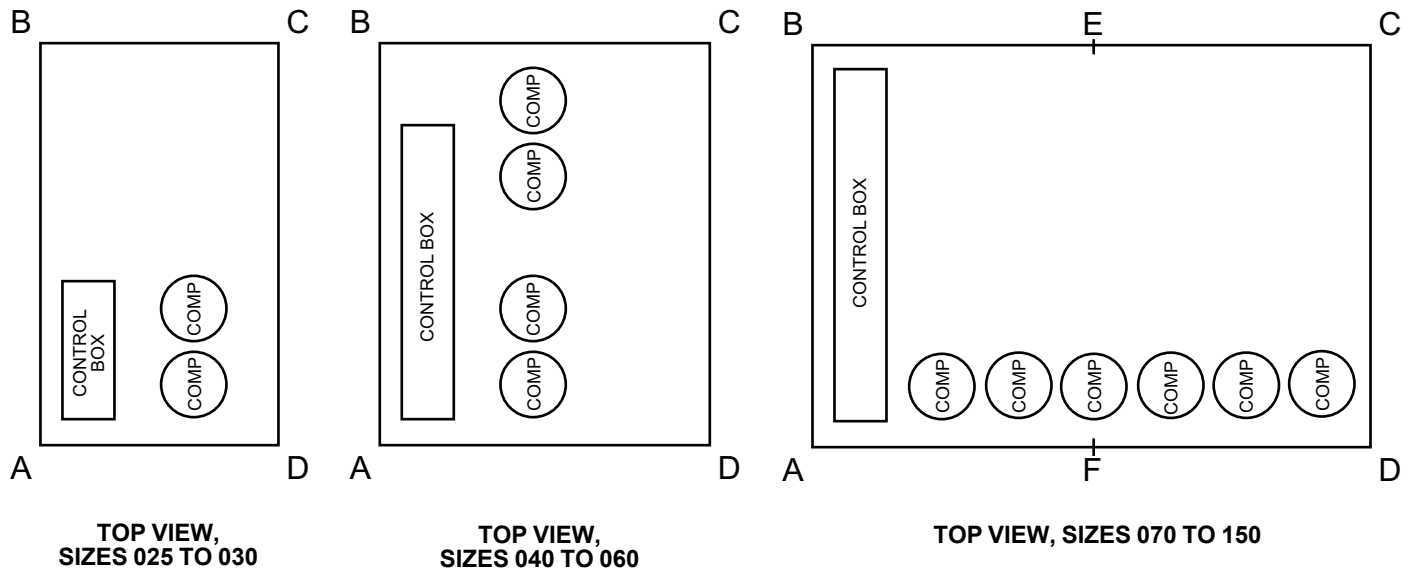


Fig. 4 — Compressor Locations and Support Points

LEGEND

ASTM — American Society for Testing and Materials

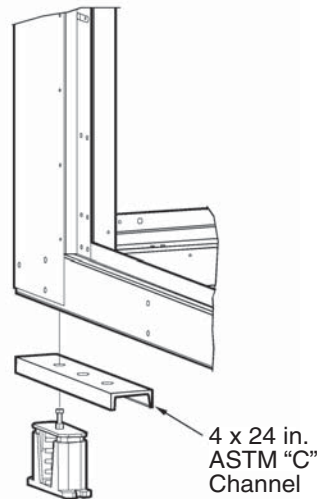


Fig. 5 — Perimeter Support Channel



Fig. 6 — Isolation Springs

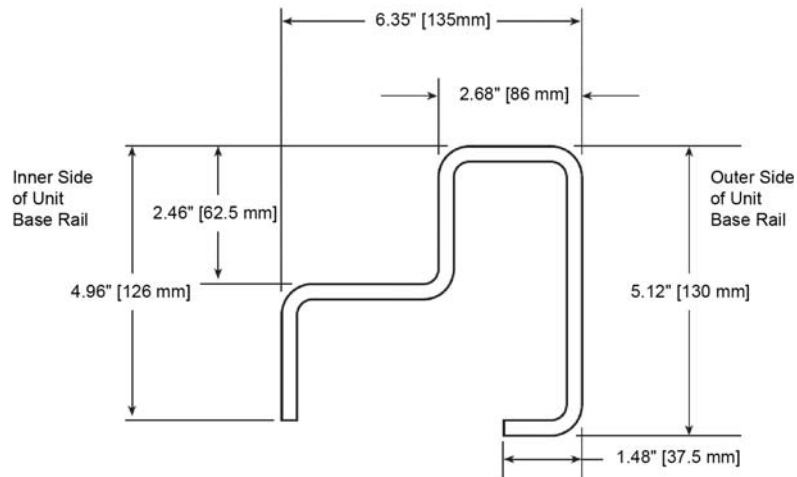


Fig. 7 — 38RC070-150 Base Rail Cross Section

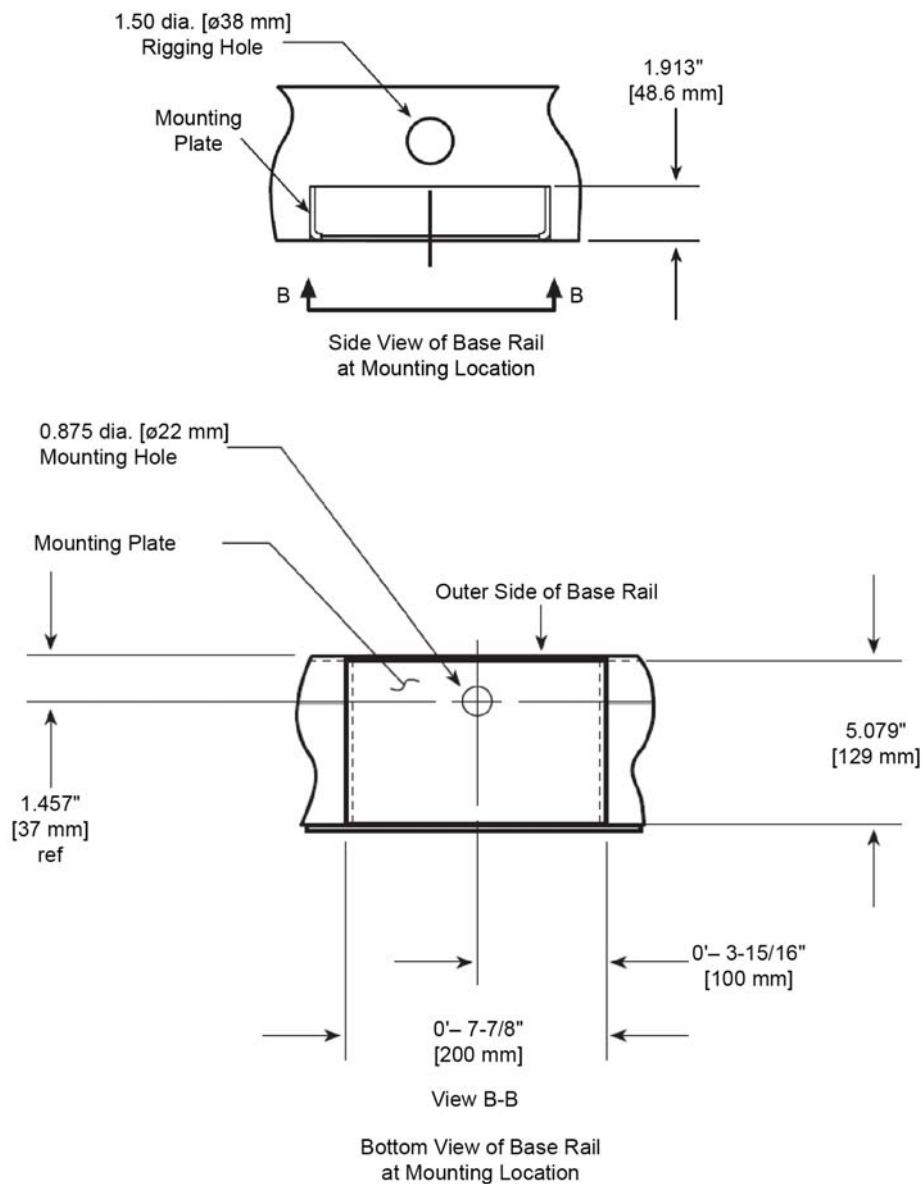


Fig. 8 — 38RC070-150 Mounting Plates

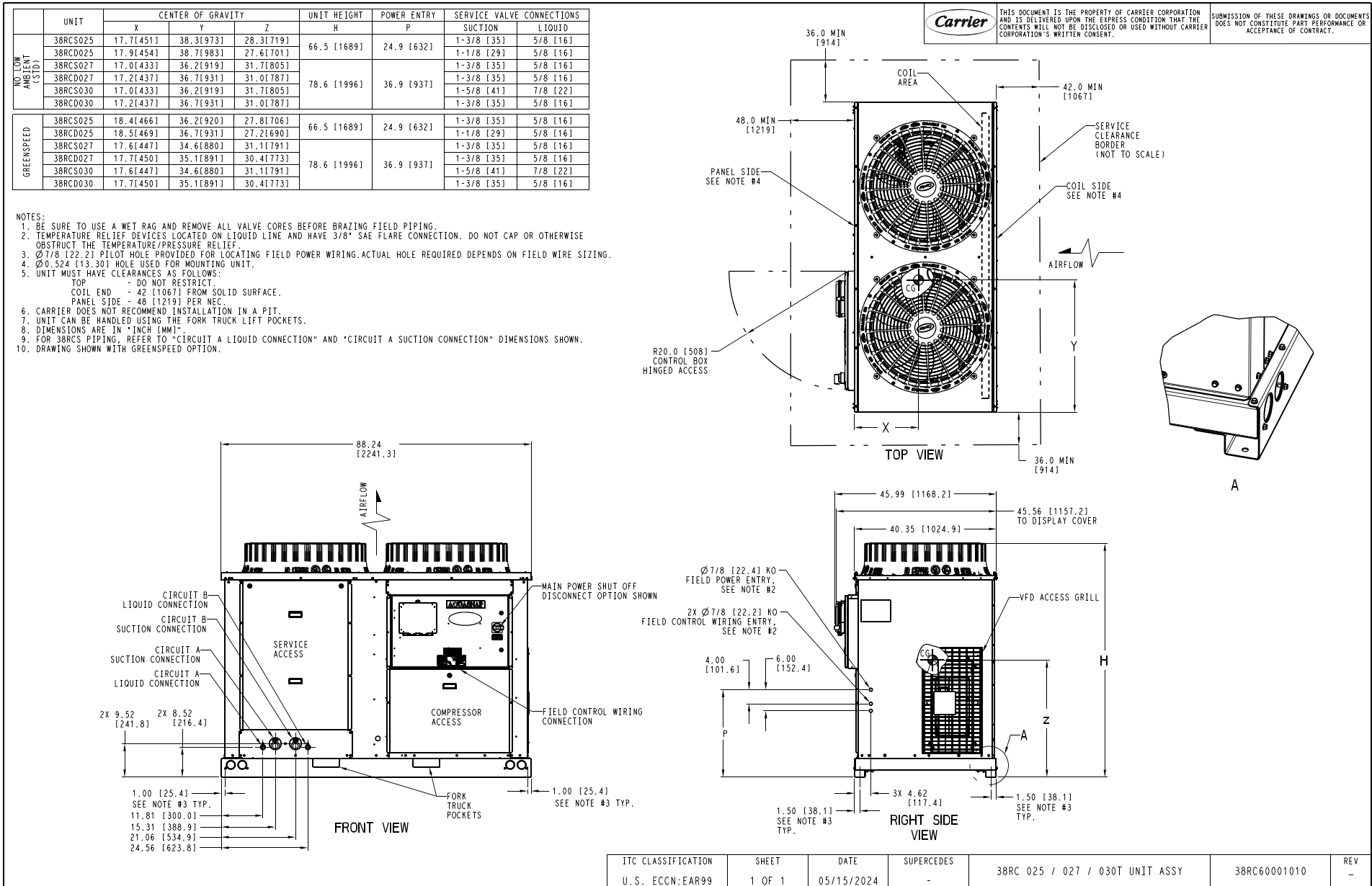
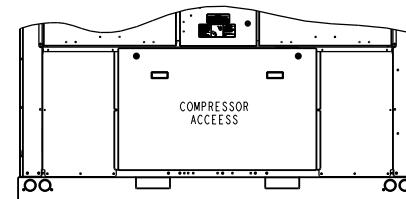
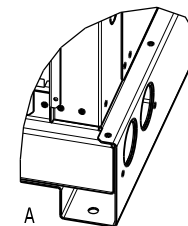
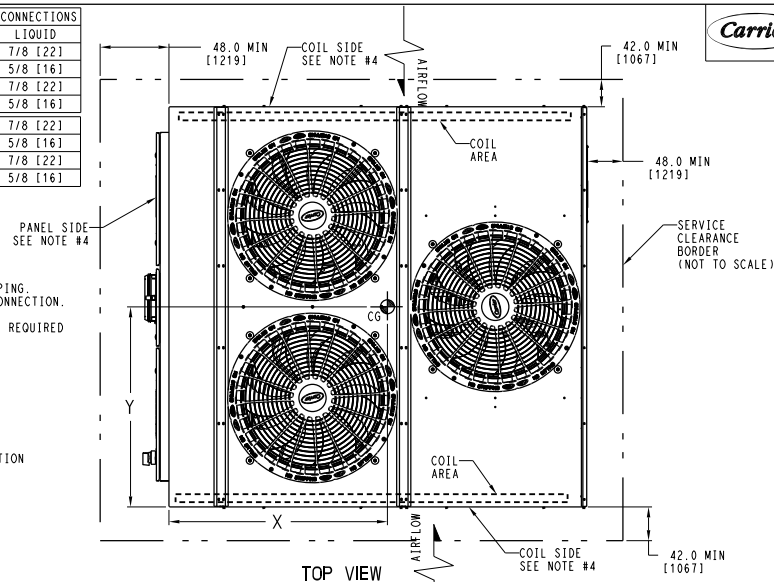
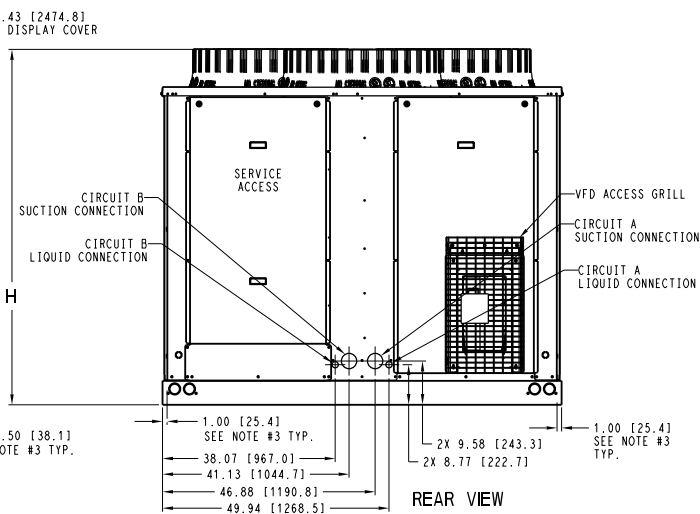
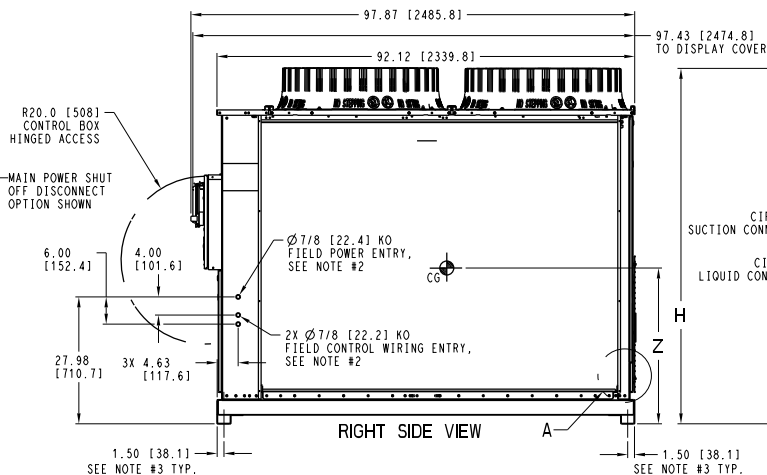
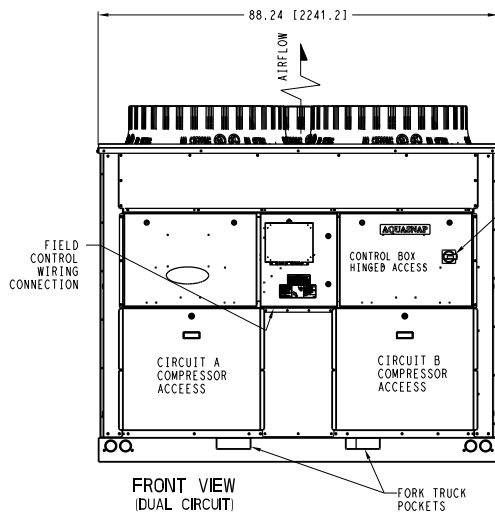


Fig. 9 — 38RC Unit Dimensions, Sizes 025-030

1. BE SURE TO USE A WET RAG AND REMOVE ALL VALVE CORES BEFORE BRAZING FLUID PIPING.
2. TEMPERATURE RELIEF DEVICES LOCATED ON LIQUID LINE AND HAVE 3/8" SAE FLARE CONNECTION. DO NOT CAP OR PLUG OFF THE TEMPERATURE/PRESSURE RELIEF.
3. Ø 7/8 (22.2) PILOT HOLE PROVIDED FOR LOCATING FIELD POWER WIRING. ACTUAL HOLE REQUIRED DEPENDS ON FIELD WIRE SIZING.
4. Ø 0.524 (13.30) HOLE USED FOR MOUNTING UNIT.
5. UNIT MUST HAVE CLEARANCES AS FOLLOWS:
 - TOP - DO NOT RESTRICT
 - COIL END - 48 (1067) FROM SOLID SURFACE.
 - PANEL SIDE - 48 (1219) PER NEC
6. CARRIER DOES NOT RECOMMEND INSTALLATION IN A PIT.
7. UNIT CAN BE HANDLED USING THE FORK TRUCK LIFT POCKETS.
8. DIMENSIONS ARE IN "INCH [MM]".
9. FOR 38RCS PIPING, REFER TO "CIRCUIT A LIQUID CONNECTION" AND "CIRCUIT A SUCTION CONNECTION" DIMENSIONS SHOWN.
10. DRAWING SHOWN WITH GREENSPEED OPTION.



FRONT VIEW
(SINGLE CIRCUIT)



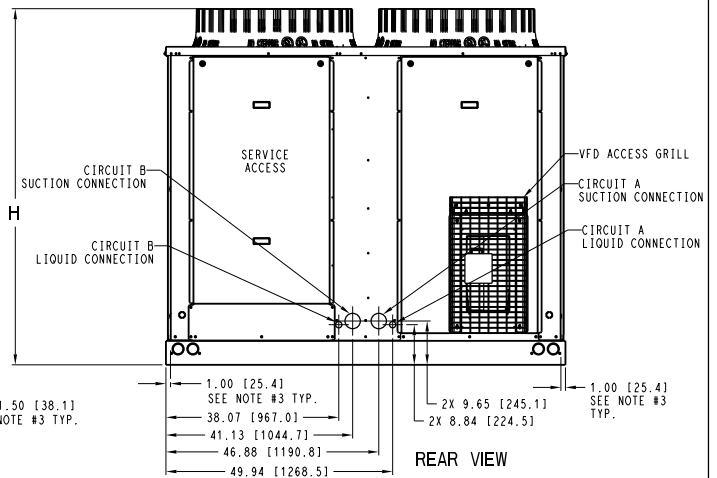
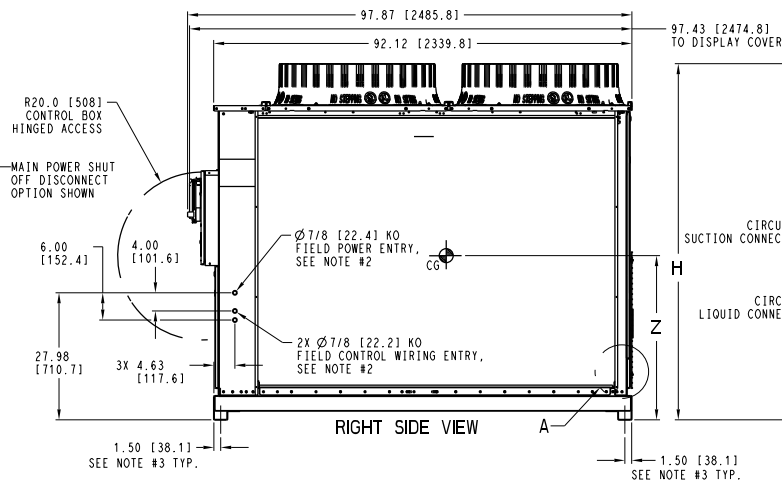
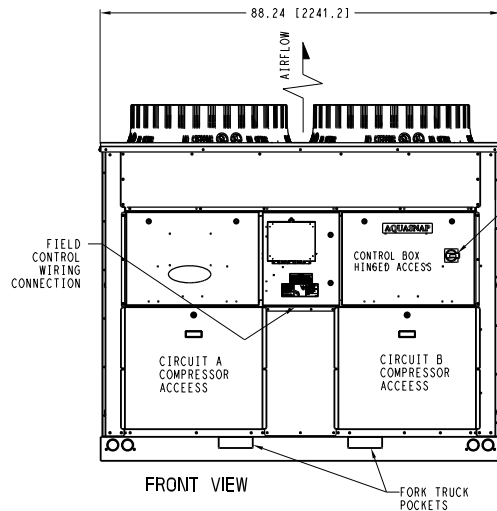
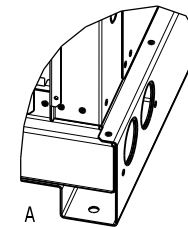
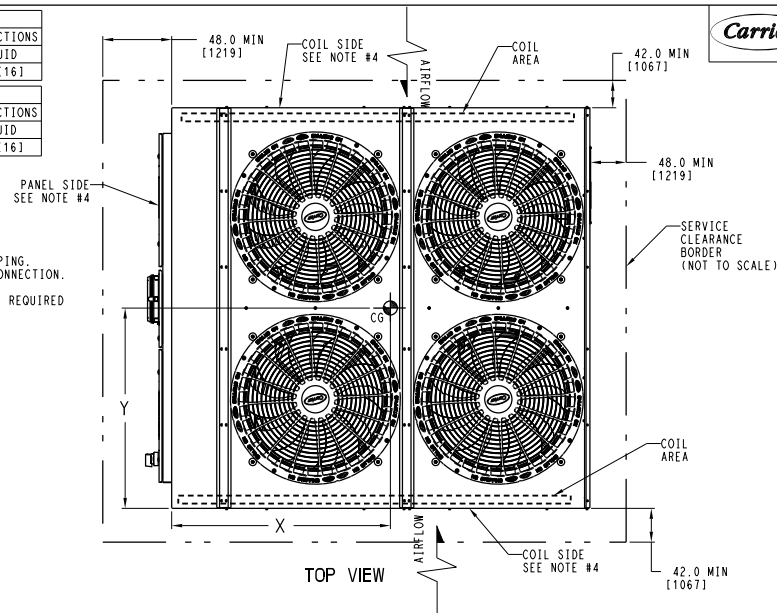
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 040 / 050T UNIT ASSY	38RC60001020	REV
U.S. ECCN:EAR99	1 OF 1	05/15/2024	-			-

Fig. 10 — 38RC Unit Dimensions, Sizes 040-050

NO LOW AMBIENT (STD)					
UNIT	CENTER OF GRAVITY			UNIT HEIGHT	SERVICE VALVE CONNECTIONS
	X	Y	Z		
38APD060	33.7[857]	43.4[1102]	29.8[758]	78.5 [1994]	1-5/8 [41] 5/8 [16]

GREENSPEED					
UNIT	CENTER OF GRAVITY			UNIT HEIGHT	SERVICE VALVE CONNECTIONS
	X	Y	Z		
38APD060	35.2[893]	44.2[1122]	29.6[752]	78.5 [1994]	1-5/8 [41] 5/8 [16]

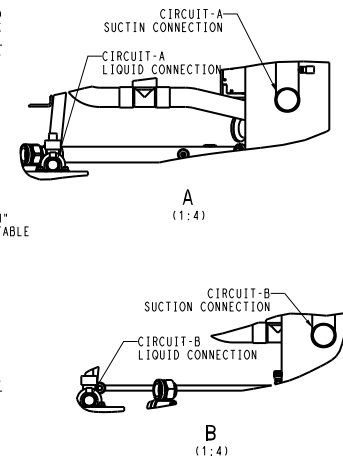
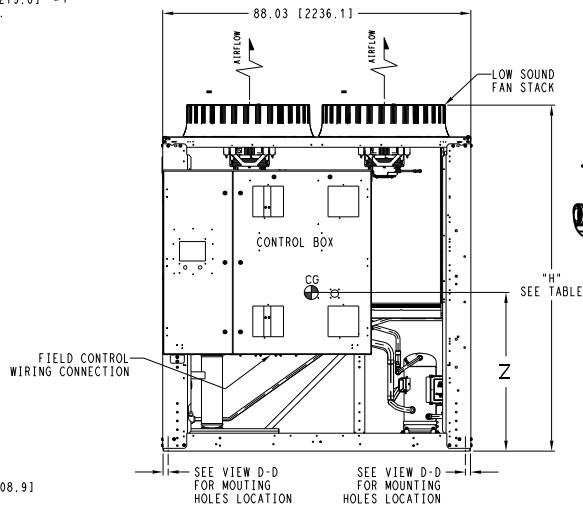
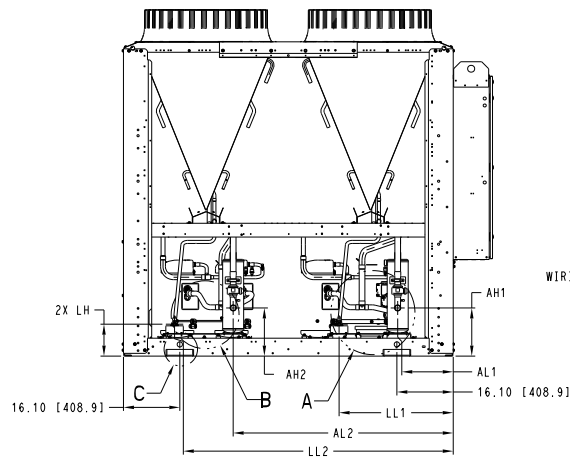
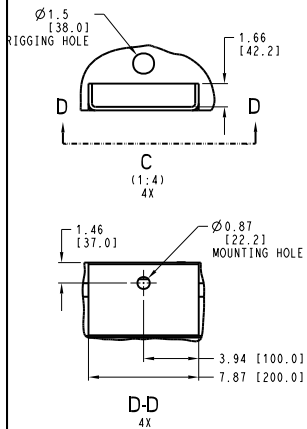
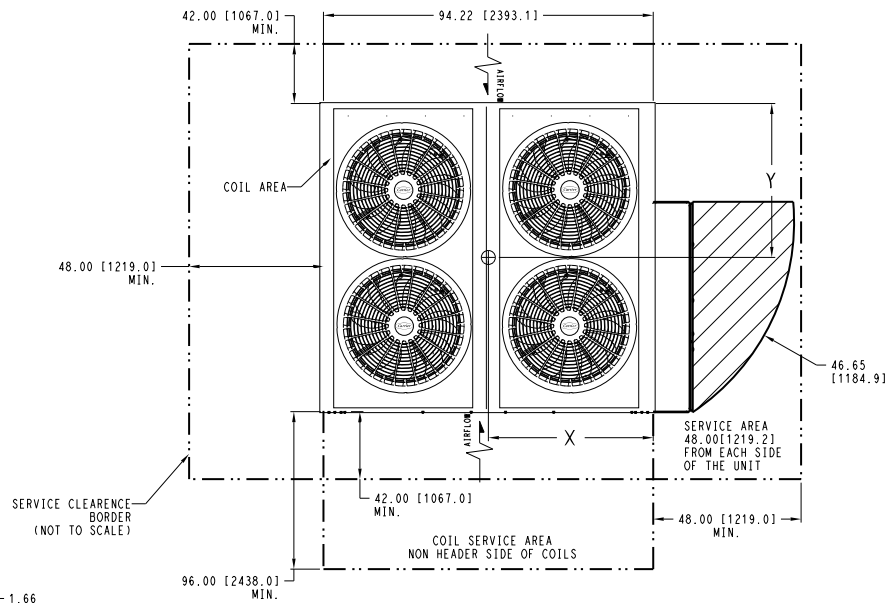
- NOTES:
1. BE SURE TO USE A WET RAG AND REMOVE ALL VALVE CORES BEFORE BRAZING FIELD PIPING.
 2. TEMPERATURE RELIEF DEVICES LOCATED ON LIQUID LINE AND HAVE 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT THE TEMPERATURE/PRESSURE RELIEF.
 3. Ø7/8 [22.2] PILOT HOLE PROVIDED FOR LOCATING FIELD POWER WIRING. ACTUAL HOLE REQUIRED DEPENDS ON FIELD WIRE SIZING.
 4. Ø0.524 [13.30] HOLE USED FOR MOUNTING UNIT.
 5. UNIT MUST HAVE CLEARANCES AS FOLLOWS:
 - TOP - DO NOT RESTRICT.
 - COIL END - 42 [1067] FROM SOLID SURFACE.
 - PANEL SIDE - 48 [1219] PER NEC.
 6. CARRIER DOES NOT RECOMMEND INSTALLATION IN A PIT.
 7. UNIT CAN BE HANDLED USING THE FORK TRUCK LIFT POCKETS.
 8. DIMENSIONS ARE IN "INCH [MM]".
 9. DRAWING SHOWN WITH GREENSPEED OPTION.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 060T UNIT ASSY	38RC60001030	REV
U.S. ECCN:EAR99	1 OF 1	05/15/2024	-			-

Fig. 11 — 38RC Unit Dimensions, Size 060

NO LOW AMBIENT						
UNIT	CENTER OF GRAVITY			UNIT HEIGHT	SERVICE VALVE CONNECTIONS	
	X	Y	Z		SUCTION	LIQUID DUAL CIRCUIT
					CIR-A	
38RC070	35.55 [903]	42.01 [1067]	45.28 [1150]	2513 [63830.20]	1 5/8	7/8



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SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.

NOTES:

- Unit must have clearances as follows:
Top – do not restrict. Sides and end - 6 ft from solid surface. For coil non-header sided – 8 ft for coil service area. If multiple units are installed at the same site, a minimum separation of 10 ft (3 m) between the sides of the machines is required to maintain proper airflow.
- Factory wiring is in accordance with UL 60335-2-40 standards. Field modifications or additions must be in compliance with all applicable codes.
- Wiring for main field supply must be rated 75°C minimum. Use copper for all units.
- Temperature relief devices are located on liquid lines. These devices have 3/8 in. SAE flare connection. Do not cap or otherwise obstruct temperature relief devices.
- Carrier does not recommend installation in a pit.
- Dimensions in [] are in millimeters.

UNIT	SUCTION & LIQUID PIPES OUTLET LOCATION					
	ACCUMULATOR			LIQUID CONNECTION		
	AL1	AL2	AH1	AH2	LL1	LL2
38RC070	15.86 [403.0]	62.87 [1597.0]	13.76 [349.4]	32.61 [828.2]	79.61 [2022.2]	9.12 [231.6]

AL - ACCUMULATOR OUTLET LOCATION ALONG X (AL1-CIR A & AL2-CIR B)
AH - ACCUMULATOR OUTLET LOCATION ALONG Z (AH1-CIR A & AH2-CIR B)
LL - LIQUID CONNECTION OUTLET LOCATION ALONG X (LL1-CIR A & LL2-CIR B)
LH - LIQUID CONNECTION OUTLET LOCATION ALONG Z.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 70T UNIT ASSY	38RC60001050	REV
U.S. ECCN:EAR99	1 OF 1	2025-01-08	-			-

Fig. 12 — 38RC Unit Dimensions, Size 070

NO LOW AMBIENT							
UNIT	CENTER OF GRAVITY			UNIT HEIGHT	SERVICE VALVE CONNECTIONS		
	X	Y	Z		SUCTION		LIQUID DUAL CIRCUIT
					CIR-A	CIR-B	
38RC080	61.3 [1557]	42.01 [1067]	47.24 [1200]	98.94 2513	1 5/8	2 1/8	
38RC090	62.6 [1590]	40.59 [1031]	46.1 [1171]				
38RC100	62.64 [1591]	40.51 [1029]	48.15 [1223]		2 1/8	7/8	



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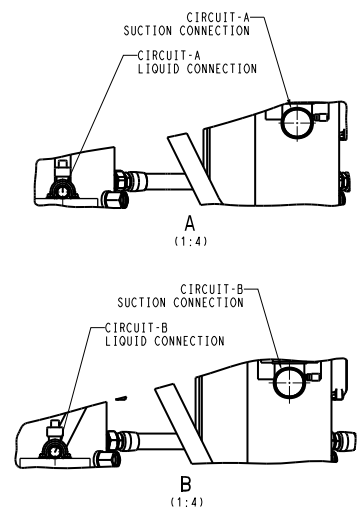
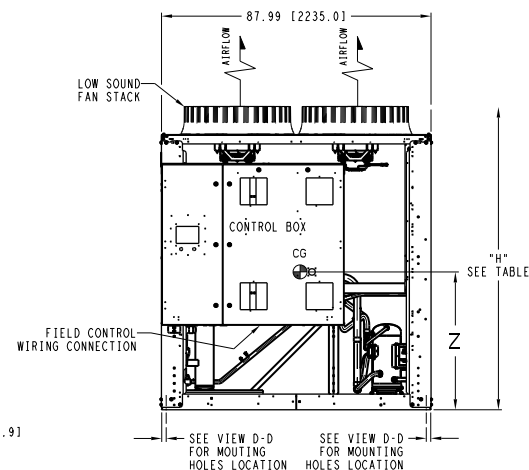
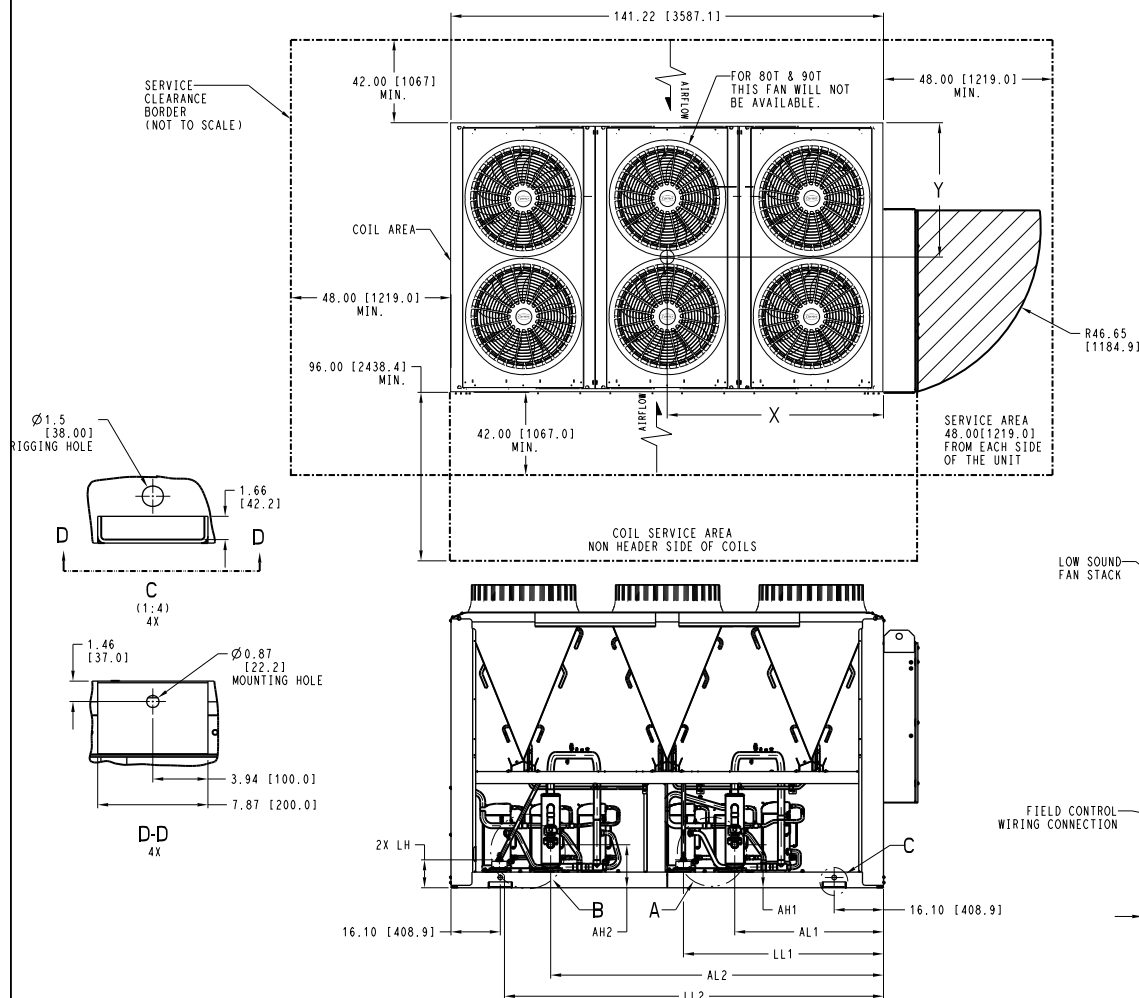
SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.

NOTES:

- Unit must have clearances as follows:
Top – do not restrict. Sides and end - 6 ft from solid surface. For coil non-header sided – 8 ft for coil service area. If multiple units are installed at the same site, a minimum separation of 10 ft (3 m) between the sides of the machines is required to maintain proper airflow.
- Factory wiring is in accordance with UL 60335-2-40 standards. Field modifications or additions must be in compliance with all applicable codes.
- Wiring for main field supply must be rated 75°C minimum. Use copper for all units.
- Temperature relief devices are located on liquid lines. These devices have 3/8 in. SAE flare connection. Do not cap or otherwise obstruct temperature relief devices.
- Carrier does not recommend installation in a pit.
- Dimensions in [] are in millimeters.
- In this drawing sheet, 100T is shown, which consists of 6 fans. The 80T and 90T consists of 5 fans.

UNIT	SUCTION & LIQUID PIPES OUTLET LOCATION				LIQUID CONNECTION		
	ACCUMULATOR				LL1	LL2	LH
	AL1	AL2	AH1	AH2			
38RC110	44.97 [1169.6]		14.04 [356.7]	10.45 [265.4]	62.81 [1595.3]	156.78 [3982.1]	9.12 [231.6]
38RC130	44.97 [1169.6]	138.99 [3530.4]		10.45 [265.4]			
38RC150							

AL - ACCUMULATOR OUTLET LOCATION ALONG X. (AL1-CIR A & AL2-CIR B)
AH - ACCUMULATOR OUTLET LOCATION ALONG Z. (AH1-CIR A & AH2-CIR B)
LL - LIQUID CONNECTION OUTLET LOCATION ALONG X. (LL1-CIR A & LL2-CIR B)
LH - LIQUID CONNECTION OUTLET LOCATION ALONG Z.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 100T UNIT ASSY	38RC60001060	REV
U.S. FCCN: FAR99	1 OF 1	2025-01-08	-			-

Fig. 13 — 38RC Unit Dimensions, Sizes 080-100

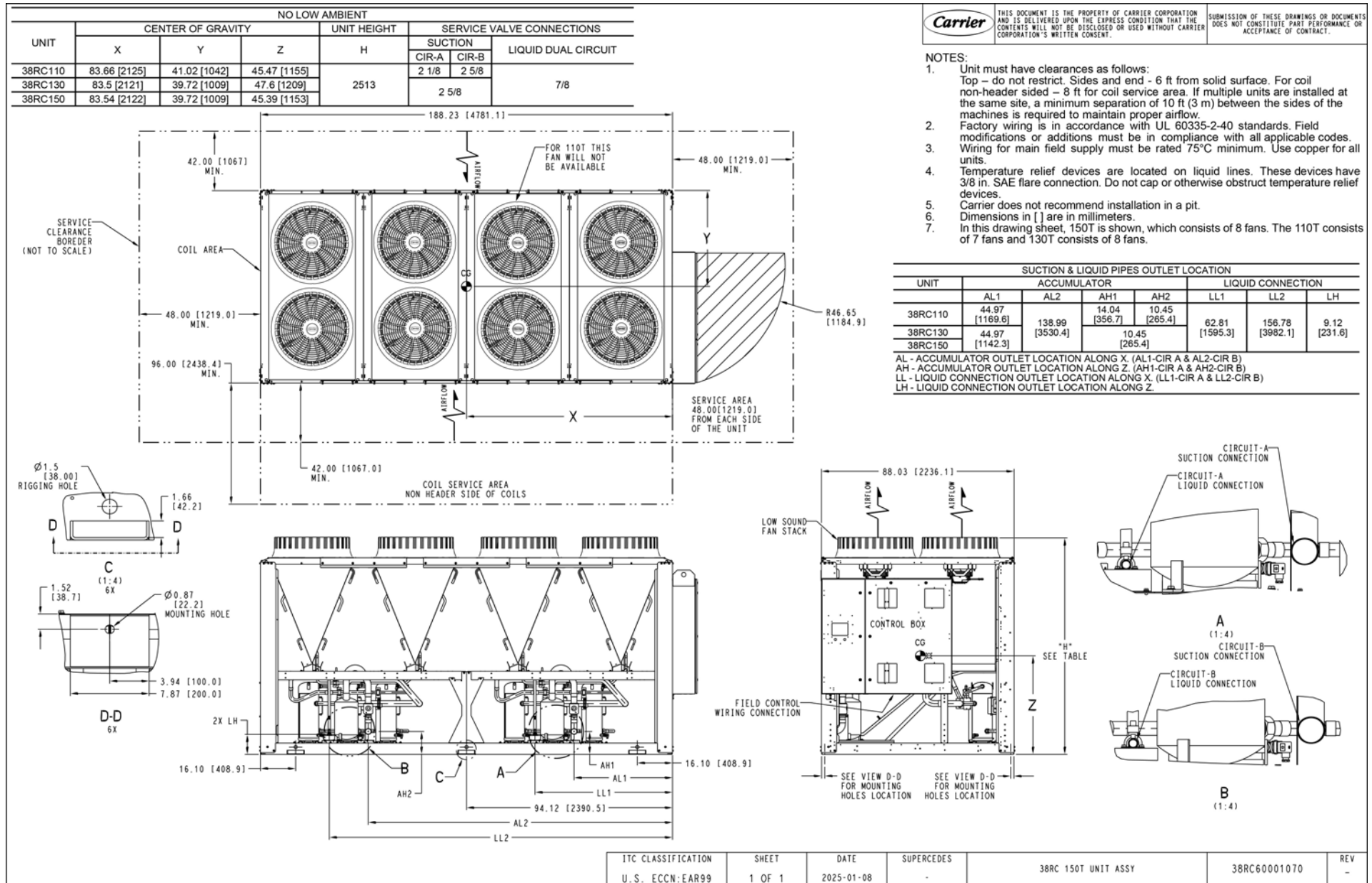
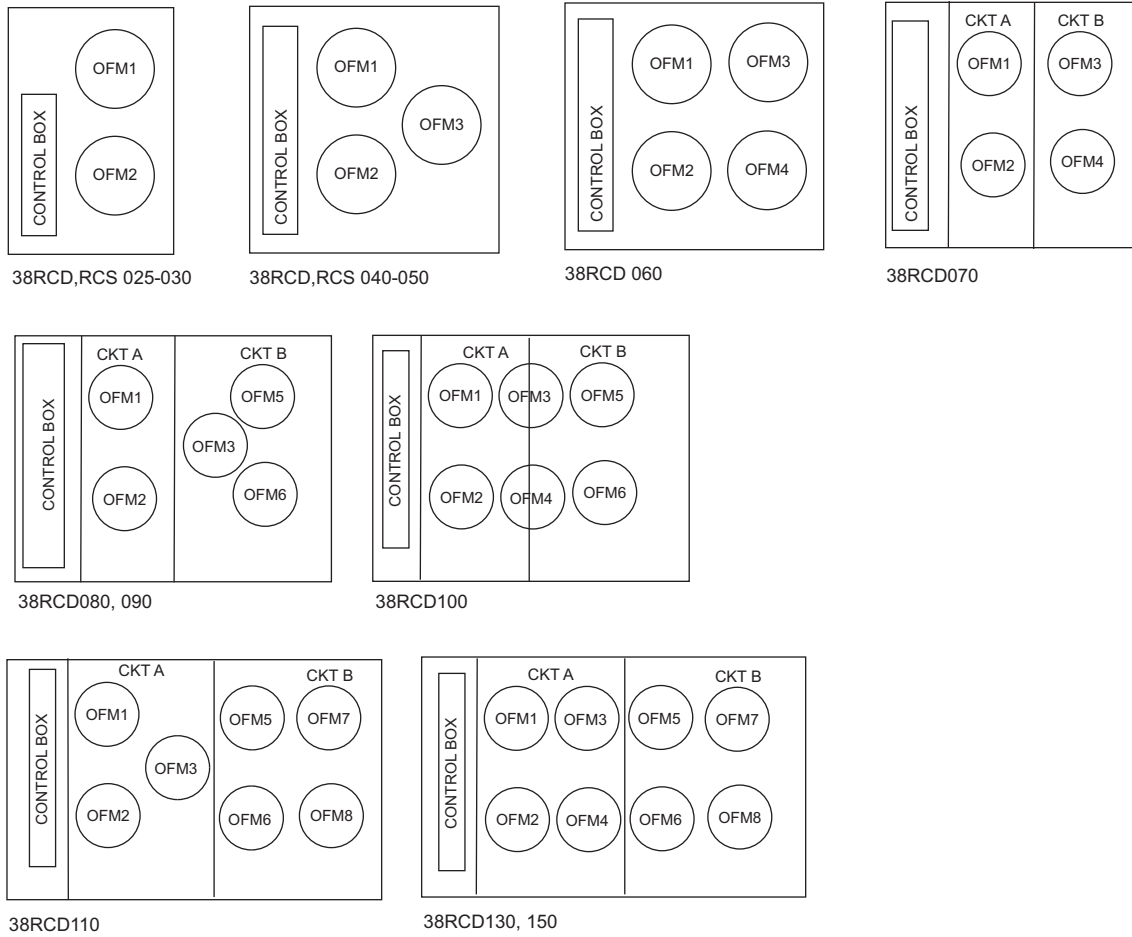
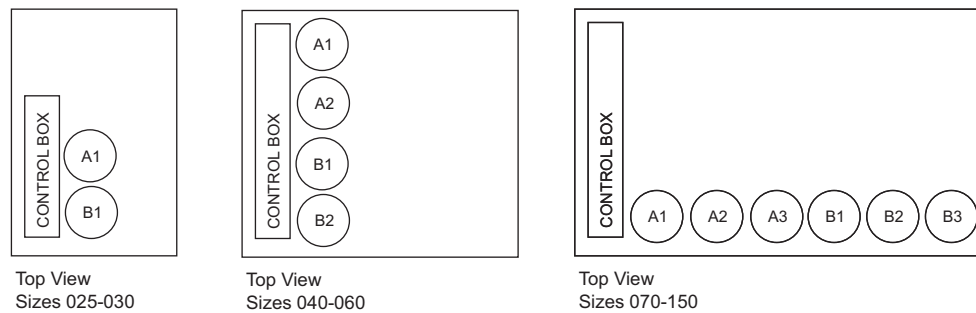


Fig. 14 — 38RC Unit Dimensions, Sizes 110, 130, 150

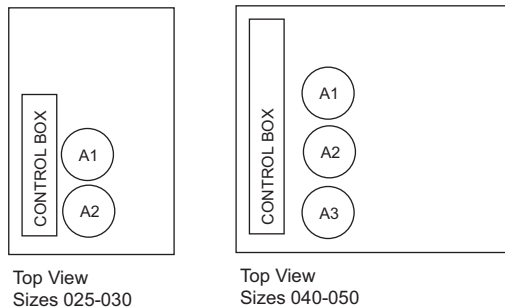
Outdoor Fan Layout (Top View)



Compressor Layout Dual Circuit, 38RCD



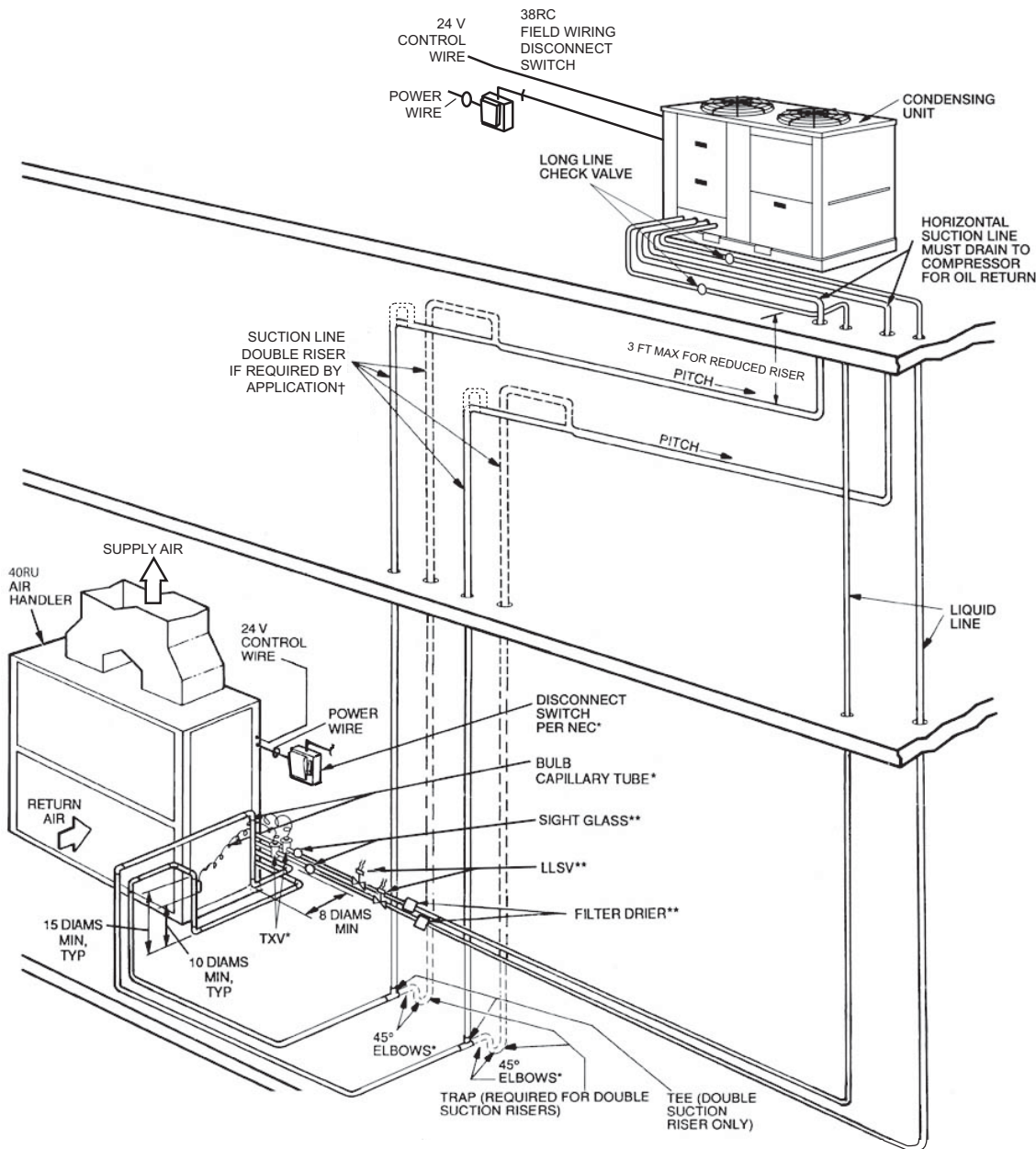
Compressor Layout Single Circuit, 38RCS



LEGEND

- A** — Circuit 1 Compressor
- B** — Circuit 2 Compressor
- OFM** — Outdoor Fan

Fig. 15 — Outdoor Fan and Compressor Layout



LEGEND

LLSV	— Liquid Line Solenoid Valve
NEC	— National Electrical Code
OAT	— Outside Air Temperature
SST	— Saturated Suction Temperature
TXV	— Thermostatic Expansion Valve
	Piping
	Double Riser Piping (if required)

* Field supplied.

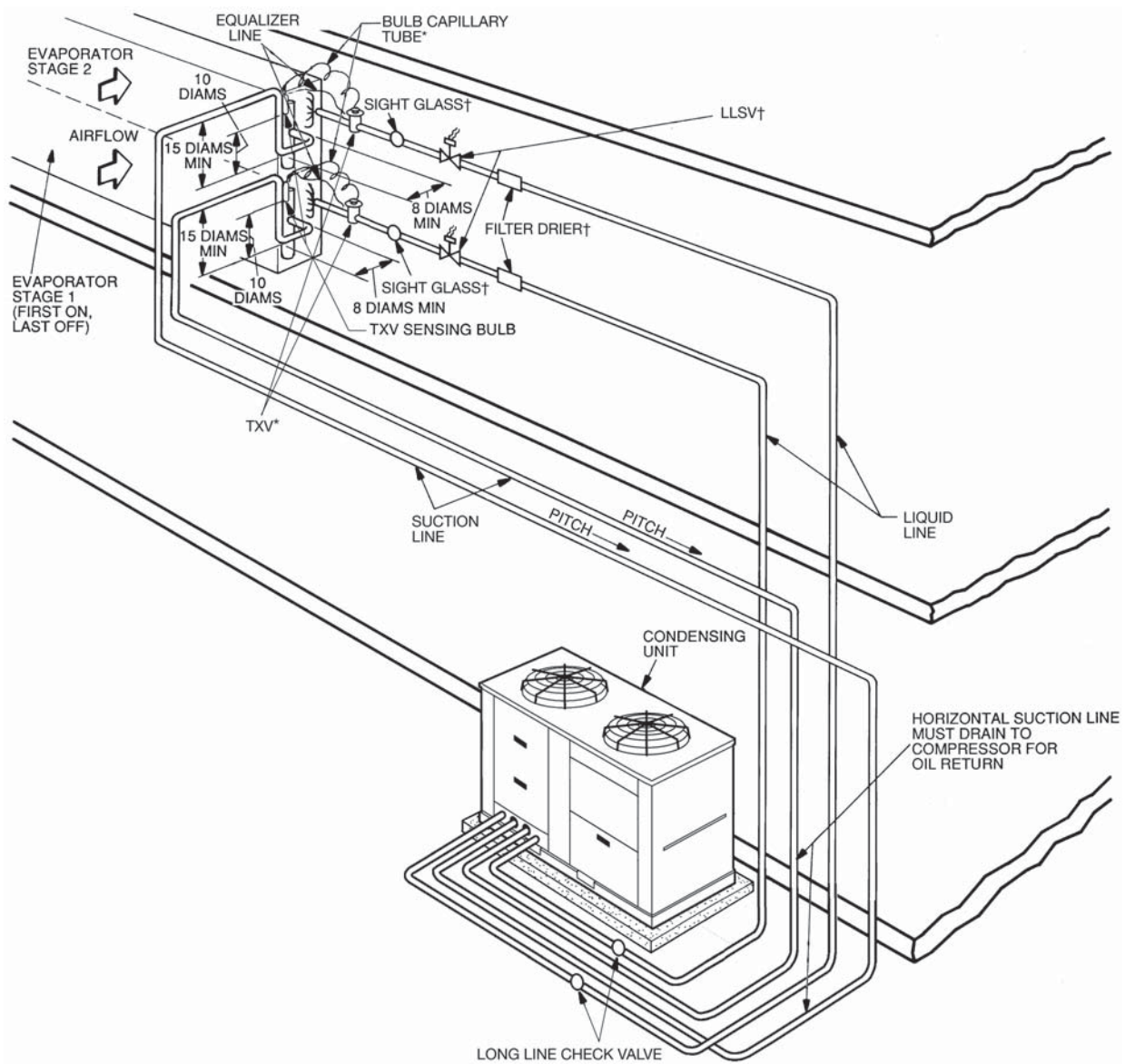
† If double suction riser is required for piping system, size reduced riser (3 ft [0.9 m] maximum) according to Fig. 18.

** Field supplied. See Table 8 for refrigerant specialties part numbers.

NOTES:

1. All piping must follow standard refrigerant piping techniques.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Install field-supplied disconnect switch in accordance with all local and national electrical codes.
5. Liquid line solenoid valves may be required for charge management depending on unit size and evaporator size. Valves open with temperature differential, when OAT is less than SST.
6. Factory-supplied accumulator not shown.
7. Dual-circuit piping shown. Single-circuit piping is similar but would only have one suction line and one liquid line.
8. Inverted trap on single suction riser not required if suction line is pitched in direction of refrigerant flow. Inverted trap is required on all double suction risers.
9. A field-supplied (min. 5% up to 15%) bleed port TXV is required for every application.
10. Sight glass, LLSV, and filter drier are field supplied.
11. Long line length check valves are required for liquid line installation on all linear line length applications of more than 100 ft (30.5 m). When MCHX condenser is selected and evaporator is located higher than the condensing unit, a check valve is required for linear line length above 30 ft, for 040, 050 single-circuit and 025-060 size dual-circuit units, and above 50 ft for 025-030 single-circuit and 070-150 size dual-circuit unit.
12. Do not use soft solder.

Fig. 16 — 38RC Dual-Circuit Unit Rooftop Installation



LEGEND

LLSV	— Liquid Line Solenoid Valve
NEC	— National Electrical Code
OAT	— Outside Air Temperature
SST	— Saturated Suction Temperature
TXV	— Thermostatic Expansion Valve
	Piping

* Field supplied.

† Field supplied. See Table 8 for refrigerant specialties part numbers.

NOTES:

1. All piping must follow standard refrigerant piping techniques.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Install field-supplied disconnect switch in accordance with all local and national electrical codes.
5. Liquid line solenoid valves may be required for charge management depending on unit size and evaporator size. Valves open with temperature differential, when OAT is less than SST.
6. Factory-supplied accumulator not shown.
7. Dual-circuit piping shown. Single-circuit piping is similar but would only have one suction line and one liquid line.
8. A field-supplied (min. 5% up to 15%) bleed port TXV is required for every application.
9. Sight glass, LLSV, and filter drier are field supplied.
10. Long line length check valves are required for liquid line installation on all linear line length applications of more than 100 ft (30.5 m). When MCHX condenser is selected and evaporator is located higher than the condensing unit, a check valve is required for linear line length above 30 ft, for 040, 050 single-circuit and 025-060 size dual-circuit units, and above 50 ft for 025-030 single-circuit and 070-150 size dual-circuit unit.
11. Do not use soft solder.

Fig. 17 — 38RC Dual-Circuit Unit Ground Level Installation

Table 8 — Refrigerant Specialties Part Numbers

38RCS UNIT SIZE ^a	CIRCUIT A						
	Tons	LL Size (in.) ^b	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier ^c	Filter Drier Core
025	24.0	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
027	26.7	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
030	31.1	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
040	39.8	5/8	EF680028	EF680032	KM680005	KH680003 ^d	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
050	48.1	7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008

38RCD UNIT SIZE ^a	CIRCUIT A							CIRCUIT B						
	Tons	LL Size (in.) ^b	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier ^c	Filter Drier Core	Tons	LL Size (in.)	LLSV	LLSV Coil 24-v, 50/60 Hz	Sight Glass	Filter Drier ^c	Filter Drier Core
025	12.0	1/2	EF680031	EF680032	KM680004	KH680001	—	12.0	1/2	EF680031	EF680032	KM680004	KH680001	—
		5/8	EF680028	EF680032	KM680005	KH680002	KH680008		5/8	EF680028	EF680032	KM680005	KH680002	KH680008
027	13.3	1/2	EF680031	EF680032	KM680004	KH680001	—	13.3	1/2	EF680031	EF680032	KM680004	KH680001	—
		5/8	EF680028	EF680032	KM680005	KH680002	KH680008		5/8	EF680028	EF680032	KM680005	KH680002	KH680008
030	15.6	1/2	EF680031	EF680032	KM680004	KH680001	—	15.6	1/2	EF680031	EF680032	KM680004	KH680001	—
		5/8	EF680028	EF680032	KM680005	KH680002	KH680008		5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
040	21.0	—	—	—	—	—	—	18.2	1/2	EF680028	EF680032	KM680004	KH680001	—
		5/8	EF680028	EF680032	KM680005	KH680002	KH680008		5/8	EF680029	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
050	23.8	5/8	EF680028	EF680032	KM680005	KH680002	KH680008	26.3	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
060	26.8	5/8	EF680028	EF680032	KM680005	KH680002	KH680008	31.5	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		—	—	—	—	—	—		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
070	32	5/8	EF680028	EF680032	KM680005	KH680002	KH680008	32	5/8	EF680028	EF680032	KM680005	KH680002	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
080	32	5/8	EF680028	EF680032	KM680005	KH680002	KH680008	48	5/8	EF680028	EF680032	KM680005	KH680003 ^d	KH680008
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
090	39.8	5/8	EF680028	EF680032	KM680005	KH680003 ^d	KH680008	48	—	—	—	—	—	—
		7/8	EF680029	EF680032	KM680006	KH680003	KH680008		7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
100	48.0	7/8	EF680029	EF680032	KM680006	KH680003	KH680008	48.0	7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
		—	—	—	—	—	—		—	—	—	—	—	—
110	48.0	7/8	EF680029	EF680032	KM680006	KH680003	KH680008	62.4	7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
		—	—	—	—	—	—		1-3/8	EF680038	EF680032	KM680007 ^d	KH680012	KH680008
130	62.4	7/8	EF680029	EF680032	KM680006	KH680003	KH680008	62.4	7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
		—	—	—	—	—	—		1-3/8	EF680038	EF680032	KM680007 ^d	KH680012	KH680008
150	77.1	7/8	EF680029	EF680032	KM680006	KH680003	KH680008	77.1	7/8	EF680029	EF680032	KM680006	KH680003	KH680008
		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008		1-1/8	EF680030	EF680032	KM680007	KH680004	KH680008
		—	—	—	—	—	—		1-3/8	EF680038	EF680032	KM680007 ^d	KH680012	KH680008

NOTE(S):

a. Thermostatic expansion valve (TXV) is provided with all 40RL fan coil units. Contact your Carrier representative for appropriate TXV size.

b. All pipe sizes are OD inches. Equivalent sizes in millimeters follow:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1-1/8	28.6
1-3/8	34.9

c. Filter driers have been sized based upon 1 to 2 psig pressure drop in accordance with AHRI (Air-Conditioning, Heating and Refrigeration Institute) Standard 710.

d. Bushing required to fit 5/8 in. line.

LEGEND

LL — Liquid Line
LLSV — Liquid Line Solenoid Valve

Table 9 — Liquid Line Valve Requirements by Evaporator Surface Area (sq ft)

38RC UNIT SIZE	MAXIMUM ALLOWABLE EVAPORATOR SURFACE AREA WITHOUT LIQUID LINE SOLENOID VALVE									
	Circuit A					Circuit B				
	3 Row, 3/8"	4 Row, 3/8"	4 Row, 1/2"	6 Row, 1/2"	8 Row, 1/2"	3 Row, 3/8"	4 Row, 3/8"	4 Row, 1/2"	6 Row, 1/2"	8 Row, 1/2"
D025	14.1	10.5	7.4	4.9	3.7	14.1	10.5	7.4	4.9	3.7
D027	17.9	13.4	9.4	6.2	4.7	17.9	13.4	9.4	6.2	4.7
D030	17.9	13.4	9.4	6.2	4.7	17.9	13.4	9.4	6.2	4.7
D040	—	—	18.4	12.2	9.2	—	—	18.4	12.2	9.2
D050	—	—	18.4	12.2	9.2	—	—	18.4	12.2	9.2
D060	—	—	18.4	12.2	9.2	—	—	18.4	12.2	9.2
D070	—	—	28.9	19.3	14.5	—	—	28.9	19.3	14.5
D080	—	—	28.9	19.3	14.5	—	—	41.2	27.5	20.6
D090	—	—	28.9	19.3	14.5	—	—	41.2	27.5	20.6
D100	—	—	41.2	27.5	20.6	—	—	41.2	27.5	20.6
D110	—	—	41.2	27.5	20.6	—	—	58.0	38.7	29.0
D130	—	—	58.0	38.7	29.0	—	—	58.0	38.7	29.0
D150	—	—	58.0	38.7	29.0	—	—	58.0	38.7	29.0
S025	28.1	21.1	14.7	—	—	—	—	—	—	—
S027	35.7	26.8	18.7	—	—	—	—	—	—	—
S030	35.7	26.8	18.7	—	—	—	—	—	—	—
S040	—	—	36.7	—	—	—	—	—	—	—
S050	—	—	36.7	—	—	—	—	—	—	—

Table 10 — Liquid Line Valve Requirements by Evaporator Surface Area (sq m)

38RC UNIT SIZE	MAXIMUM ALLOWABLE EVAPORATOR SURFACE AREA WITHOUT LIQUID LINE SOLENOID VALVE									
	Circuit A					Circuit B				
	3 Row, 3/8"	4 Row, 3/8"	4 Row, 1/2"	6 Row, 1/2"	8 Row, 1/2"	3 Row, 3/8"	4 Row, 3/8"	4 Row, 1/2"	6 Row, 1/2"	8 Row, 1/2"
D025	1.3	1.0	0.7	0.5	0.3	1.3	1.0	0.7	0.5	0.3
D027	1.7	1.2	0.9	0.6	0.4	1.7	1.2	0.9	0.6	0.4
D030	1.7	1.2	0.9	0.6	0.4	1.7	1.2	0.9	0.6	0.4
D040	—	—	1.7	1.1	0.9	—	—	1.7	1.1	0.9
D050	—	—	1.7	1.1	0.9	—	—	1.7	1.1	0.9
D060	—	—	1.7	1.1	0.9	—	—	1.7	1.1	0.9
D070	—	—	2.7	1.8	1.3	—	—	2.7	1.8	1.3
D080	—	—	2.7	1.8	1.3	—	—	3.8	2.6	1.9
D090	—	—	2.7	1.8	1.3	—	—	3.8	2.6	1.9
D100	—	—	3.8	2.6	1.9	—	—	3.8	2.6	1.9
D110	—	—	3.8	2.6	1.9	—	—	5.4	3.6	2.7
D130	—	—	5.4	3.6	2.7	—	—	5.4	3.6	2.7
D150	—	—	5.4	3.6	2.7	—	—	5.4	3.6	2.7
S025	2.6	2.0	1.4	—	—	—	—	—	—	—
S027	3.3	2.5	1.7	—	—	—	—	—	—	—
S030	3.3	2.5	1.7	—	—	—	—	—	—	—
S040	—	—	3.4	—	—	—	—	—	—	—
S050	—	—	3.4	—	—	—	—	—	—	—

Step 2 — Make Refrigerant Piping Connections

⚠ CAUTION

Do NOT bury refrigerant piping underground. Failure to comply could result in equipment damage.

Evaporator used with this equipment must be certified to UL 60335-2-40 for use with A2L refrigerant, R-32. This standard will require the AHU contain a refrigerant leak detector with a normally closed contact wired to the RLA input at TB5-19 and 21 of the condensing unit. If using Control Type 8 with two AHUs, the AHU connected to circuit B shall use RLB at TB6-19 and 21. This input will allow the compressors to be shut down in case of a refrigerant leak. See AHU installation and controls manuals for complete requirements.

The units have large suction lines to minimize friction losses. The units also have the ability to operate at low capacity. Because of these capabilities, use special care with suction piping and suction risers to ensure proper compressor oil return under all operating conditions. If the evaporator is above the condensing unit, the maximum allowable vertical separation between the condensing unit and the evaporator is 75 ft (22.9 m) for all units. Size suction lines in accordance with Table 11 (60 Hz) or Table 12 (50 Hz), and Fig. 18.

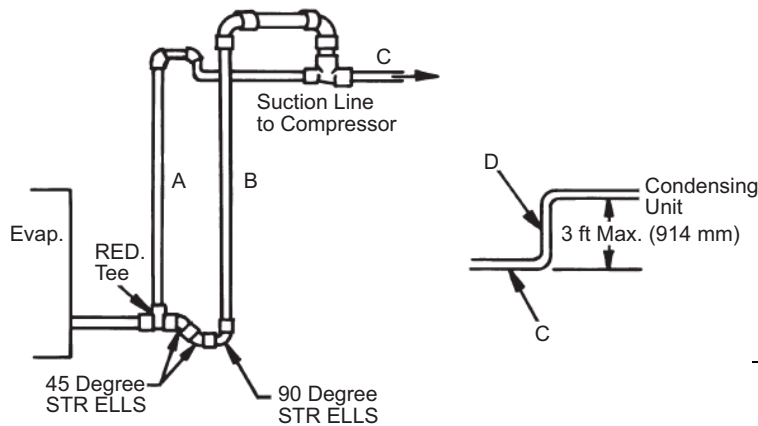
PIPING BEST PRACTICE

Follow these precautions for refrigerant piping between condensing unit and air handling unit.

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. All field joints shall be accessible for inspection prior to being covered or enclosed.

Installation of pipe-work shall be kept to a minimum.

Mechanical connections shall be accessible for maintenance purposes.



LEGEND

- A** — Pipe A, Suction Riser, without Trap
- B** — Pipe B, Suction Riser with Trap
- C** — Suction Line to Condensing Unit
- D** — Pipe D, Suction Riser Short Lift
- RED.** — Reducer
- STR** — Street

NOTES:

1. Short riser, pipe D, is used when routing suction line to condensing unit connection. See table at right.
2. See Tables 11 and 12 for values of A, B, and C.

Provision shall be made for expansion and contraction of long runs of piping.

Protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.

Piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system.

Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.

Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces, and they should be checked for mechanical damage annually.

Precautions shall be taken to avoid excessive vibration or pulsation.

SIZE REFRIGERANT LINES

Consider the length of piping required between the condensing unit and indoor unit (evaporator), the amount of liquid lift, and compressor oil return. Suction and liquid lines should be sized in accordance with Table 11 (60 Hz) or Table 12 (50 Hz). *Double suction risers may be required* if condensing unit is located above the evaporator to assure proper oil return at minimum load operating conditions. See Fig. 18. Note the indoor unit installation instructions for additional information.

⚠ CAUTION

The field-supplied liquid line solenoid valve *must* be installed at the evaporator to avoid possible compressor damage during unit operation if the maximum allowable evaporator size is exceeded per Tables 13 and 14. See Fig. 19 (for 38RCD025-130 dual-circuit units), or Fig. 20 (for 38RCS025-060 single-circuit units).

38RC UNIT SIZE	D PIPE DIAMETER					
	DUAL CIRCUIT				SINGLE CIRCUIT	
	CIRCUIT A		CIRCUIT B			
	in.	mm	in.	mm	in.	mm
025	1-1/8	29	1-1/8	29	1-3/8	35
027	1-1/8	29	1-1/8	29	1-3/8	35
030	1-1/8	29	1-1/8	29	1-3/8	35
040	1-3/8	35	1-1/8	29	1-5/8	41
050	1-3/8	35	1-3/8	35	1-5/8	41
060	1-3/8	35	1-5/8	41	—	—
070	1-5/8	41	1-5/8	41	—	—
080	1-5/8	41	1-5/8	41	—	—
090	1-5/8	41	1-5/8	41	—	—
100	1-5/8	41	1-5/8	41	—	—
110	1-5/8	41	2-1/8	54	—	—
130	2-1/8	54	2-1/8	54	—	—
150	2-1/8	54	2-1/8	54	—	—

Fig. 18 — Double Suction Riser Construction

Table 11 — 60 Hz Refrigerant Piping Requirements

38RCS025-050 Single-Circuit Units (60 Hz)^{a,b,c}

38RCS UNIT SIZE	CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
		0-25		26-50		51-75		76-100		101-125		126-150		151-175		176-200	
		(0-7.6)		(7.9-15.2)		(15.5-22.9)		(23.1-30.5)		(30.8-38.1)		(38.4-45.7)		(46.0-53.3)		(53.6-61.0)	
		EQUIVALENT LENGTH, ft (m) ^d															
		0-37		38-75		76-112		113-150		151-187		188-225		226-262		263-300	
		(0-11.3)		(11.6-22.8)		(23.2-34.1)		(34.4-45.7)		(46.0-57.0)		(57.3-68.6)		(68.9-79.9)		(80.1-91.5)	
		L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	1-5/8, 5/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
027	1-5/8, 5/8	5/8	1-3/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
030	1-5/8, 7/8	7/8	1-3/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8
040	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8
050	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8

38RCD025-150 Dual-Circuit Units (60 Hz)^{a,b,c}

38RCD UNIT SIZE		CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
			0-25		26-50		51-75		76-100		101-125		126-150		151-175		176-200	
			(0-7.6)		(7.9-15.2)		(15.5-22.9)		(23.1-30.5)		(30.8-38.1)		(38.4-45.7)		(46.0-53.3)		(53.6-61.0)	
			EQUIVALENT LENGTH, ft (m) ^d															
			0-37		38-75		76-112		113-150		151-187		188-225		226-262		263-300	
			(0-11.3)		(11.6-22.8)		(23.2-34.1)		(34.4-45.7)		(46.0-57.0)		(57.3-68.6)		(68.9-79.9)		(80.1-91.5)	
		L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S	
025	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8
027	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8
030	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8
040	Ckt A	1-5/8, 5/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8
050	Ckt A	1-5/8, 5/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	5/8	1-3/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
060	Ckt A	1-5/8, 5/8	5/8	1-3/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	7/8	1-3/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8
070	Ckt A	1-5/8, 7/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 7/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
080	Ckt A	1-5/8, 7/8	7/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8
	Ckt B	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
090	Ckt A	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
100	Ckt A	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
110	Ckt A	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
130	Ckt A	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
150	Ckt A	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	3-1/8	1-3/8	3-1/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	3-1/8	1-3/8	3-1/8

NOTE(S):

- Shading indicates double suction riser or reduced riser is required on circuit where suction gas flow is up.
- Suction and liquid line sizing is based on pressure drop equivalent to 2°F (1.1°C) at nominal rating conditions.
- All pipe sizes are OD inches. Equivalent sizes in millimeters:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1-1/8	28.6
1-3/8	34.9
1-5/8	41.3
2-1/8	54.0
2-5/8	66.7
3-1/8	79.4
- Equivalent Length shown is based on the Total Linear Length plus an additional 50% for fittings and valves. If application requires more than 50% additional losses for fittings and valves, calculate the equivalent length and find pipe size using the Equivalent Length columns.

LEGEND

- L** — Liquid Line
S — Suction Line

Table 11 — 60 Hz Refrigerant Piping Requirements (cont)
38RCS025-050 Single-Circuit Units Double Suction Riser (60 Hz)^{a,b,c}

38RCS UNIT SIZE	CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																								
		0-25			26-50			51-75			76-100			101-125			126-150			151-175			176-200			
		(0-7.6)			(7.9-15.2)			(15.5-22.9)			(23.1-30.5)			(30.8-38.1)			(38.4-45.7)			(46.0-53.3)			(53.6-61.0)			
		EQUIVALENT LENGTH, ft (m) ^d																								
		0-37			38-75			76-112			113-150			151-187			188-225			226-262			263-300			
		(0-11.3)			(11.6-22.8)			(23.2-34.1)			(34.4-45.7)			(46.0-57.0)			(57.3-68.6)			(68.9-79.9)			(80.1-91.5)			
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
025	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
027	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
030	1-5/8, 7/8	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	
040	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	
050	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	

38RCD025-150 Dual-Circuit Units Double Suction Riser (60 Hz)^{a,b,c}

38RCD UNIT SIZE		CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
			0-25			26-50			51-75			76-100			101-125			126-150			151-175			176-200		
			(0-7.6)			(7.9-15.2)			(15.5-22.9)			(23.1-30.5)			(30.8-38.1)			(38.4-45.7)			(46.0-53.3)			(53.6-61.0)		
			EQUIVALENT LENGTH, ft (m) ^d																							
			0-37			38-75			76-112			113-150			151-187			188-225			226-262			263-300		
(0-11.3)			(11.6-22.8)			(23.2-34.1)			(34.4-45.7)			(46.0-57.0)			(57.3-68.6)			(68.9-79.9)			(80.1-91.5)					
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
025	Ckt A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
027	Ckt A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	Ckt A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ckt B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	Ckt A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8
	Ckt B	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8
050	Ckt A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
	Ckt B	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
060	Ckt A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
	Ckt B	1-5/8, 5/8	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8
070	Ckt A	1-5/8, 7/8	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8
	Ckt B	1-5/8, 7/8	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	2-5/8
080	Ckt A	1-5/8, 7/8	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	2-1/8
	Ckt B	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
090	Ckt A	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
	Ckt B	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
100	Ckt A	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
	Ckt B	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
110	Ckt A	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
	Ckt B	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
130	Ckt A	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
	Ckt B	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8
150	Ckt A	2-5/8, 7/8	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-5/8	3-1/8	1-5/8	2-5/8	3-1/8	2-5/8
	Ckt B	2-5/8, 7/8	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-5/8	3-1/8	1-5/8	2-5/8	3-1/8	2-5/8

NOTE(S):

- Refer to Fig. 18 for suction line piping locations
- Suction and liquid line sizing is based on pressure drop equivalent to 2°F (1.1°C) at nominal rating conditions.
- All pipe sizes are OD inches. Equivalent sizes in millimeters:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1-1/8	28.6
1-3/8	34.9
1-5/8	41.3
2-1/8	54.0
2-5/8	66.7
3-1/8	79.4
- Equivalent Length shown is based on the Total Linear Length plus an additional 50% for fittings and valves. If application requires more than 50% additional losses for fittings and valves, calculate the equivalent length and find pipe size using the Equivalent Length columns.

LEGEND

- Not Required
Pipe A — Suction Riser without Trap
Pipe B — Suction Riser with Trap
Pipe C — Suction Line to Condensing Unit

Table 12 — 50 Hz Refrigerant Piping Requirements

38RCS025-050 Single-Circuit Units (50 Hz)^{a,b,c}

38RCS UNIT SIZE	CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
		0-25 (0-7.6)		26-50 (7.9-15.2)		51-75 (15.5-22.9)		76-100 (23.1-30.5)		101-125 (30.8-38.1)		126-150 (38.4-45.7)		151-175 (46.0-53.3)		176-200 (53.6-61.0)	
		EQUIVALENT LENGTH, ft (m) ^d															
		0-37 (0-11.3)		38-75 (11.6-22.8)		76-112 (23.2-34.1)		113-150 (34.4-45.7)		151-187 (46.0-57.0)		188-225 (57.3-68.6)		226-262 (68.9-79.9)		263-300 (80.1-91.5)	
		L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	1-5/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
027	1-5/8, 5/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
030	1-5/8, 7/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
040	2-1/8, 7/8	7/8	1-3/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
050	2-1/8, 7/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8

38RCD025-150 Dual-Circuit Units (50 Hz)^{a,b,c}

38RCD UNIT SIZE		CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)															
			0-25		26-50		51-75		76-100		101-125		126-150		151-175		176-200	
			(0-7.6)		(7.9-15.2)		(15.5-22.9)		(23.1-30.5)		(30.8-38.1)		(38.4-45.7)		(46.0-53.3)		(53.6-61.0)	
			EQUIVALENT LENGTH, ft (m) ^d															
			0-37		38-75		76-112		113-150		151-187		188-225		226-262		263-300	
			(0-11.3)		(11.6-22.8)		(23.2-34.1)		(34.4-45.7)		(46.0-57.0)		(57.3-68.6)		(68.9-79.9)		(80.1-91.5)	
			L	S	L	S	L	S	L	S	L	S	L	S	L	S	L	S
025	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8
027	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8
030	Ckt A	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8
	Ckt B	1-3/8, 5/8	5/8	1-1/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8
040	Ckt A	1-5/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	5/8	1-1/8	5/8	1-3/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8
050	Ckt A	1-5/8, 5/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
060	Ckt A	1-5/8, 5/8	5/8	1-3/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 5/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
070	Ckt A	1-5/8, 7/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	1-5/8, 7/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
080	Ckt A	1-5/8, 7/8	5/8	1-3/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	2-1/8, 7/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8
090	Ckt A	2-1/8, 7/8	5/8	1-5/8	7/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8
	Ckt B	2-1/8, 7/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8
100	Ckt A	2-1/8, 7/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-1/8, 7/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8
110	Ckt A	2-1/8, 7/8	5/8	1-5/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
130	Ckt A	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	7/8	2-1/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
150	Ckt A	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8
	Ckt B	2-5/8, 7/8	7/8	2-1/8	7/8	2-1/8	7/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8	1-1/8	2-5/8

NOTE(S):

- Shading indicates double suction riser or reduced riser is required on circuit where suction gas flow is up.
- Suction and liquid line sizing is based on pressure drop equivalent to 2°F (1.1°C) at nominal rating conditions.
- All pipe sizes are OD inches. Equivalent sizes in millimeters:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1-1/8	28.6
1-3/8	34.9
1-5/8	41.3
2-1/8	54.0
2-5/8	66.7
3-1/8	79.4
- Equivalent Length shown is based on the Total Linear Length plus an additional 50% for fittings and valves. If application requires more than 50% additional losses for fittings and valves, calculate the equivalent length and find pipe size using the Equivalent Length columns.

LEGEND

- L** — Liquid Line
S — Suction Line

Table 12 — 50 Hz Refrigerant Piping Requirements (cont)

38RCS025-050 Single-Circuit Units Double Suction Riser (50 Hz)

38RCS UNIT SIZE	CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m) ^{a,b,c}																							
		0-25 (0-7.6)			26-50 (7.9-15.2)			51-75 (15.5-22.9)			76-100 (23.1-30.5)			101-125 (30.8-38.1)			126-150 (38.4-45.7)			151-175 (46.0-53.3)			176-200 (53.6-61.0)		
		EQUIVALENT LENGTH, ft (m) ^d																							
		0-37 (0-11.3)			38-75 (11.6-22.8)			76-112 (22.2-34.1)			113-150 (34.4-45.7)			151-187 (46.0-57.0)			188-225 (57.3-68.6)			226-262 (68.9-79.9)			263-300 (80.1-91.5)		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C		
025	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	
027	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	
030	1-5/8, 7/8	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	
040	2-1/8, 7/8	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8		
050	2-1/8, 7/8	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	

38RCD025-150 Dual-Circuit Units Double Suction Riser (50 Hz)^{a,b,c}

38RCD UNIT SIZE		CONN S,L (in.)	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE, ft (m)																							
			0-25 (0-7.6)			26-50 (7.9-15.2)			51-75 (15.5-22.9)			76-100 (23.1-30.5)			101-125 (30.8-38.1)			126-150 (38.4-45.7)			151-175 (46.0-53.3)			176-200 (53.6-61.0)		
			EQUIVALENT LENGTH, ft (m) ^d																							
			0-37 (0-11.3)			38-75 (11.6-22.8)			76-112 (22.2-34.1)			113-150 (34.4-45.7)			151-187 (46.0-57.0)			188-225 (57.3-68.6)			226-262 (68.9-79.9)			263-300 (80.1-91.5)		
	Ckt		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
025	A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
027	A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
030	A	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	B	1-3/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
040	A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8		
	B	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	7/8	1-3/8	1-5/8	7/8	1-3/8	1-5/8	7/8	1-3/8	1-5/8	7/8	1-3/8	1-5/8		
050	A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8		
	B	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8		
060	A	1-5/8, 5/8	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8		
	B	1-5/8, 5/8	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8		
070	A	1-5/8, 7/8	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8		
	B	1-5/8, 7/8	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8		
080	A	1-5/8, 7/8	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8		
	B	2-1/8, 7/8	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
090	A	2-1/8, 7/8	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8		
	B	2-1/8, 7/8	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
100	A	2-1/8, 7/8	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
	B	2-1/8, 7/8	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
115	A	2-1/8, 7/8	—	—	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
	B	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	—	—	1-3/8	1-5/8	2-1/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
130	A	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
	B	2-5/8, 7/8	—	—	—	—	—	—	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
150	A	2-5/8, 7/8	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		
	B	2-5/8, 7/8	—	—	—	—	—	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8	2-5/8	1-5/8	2-1/8		

NOTE(S):

- Refer to Fig. 18 for suction line piping locations.
- Suction and liquid line sizing is based on pressure drop equivalent to 2°F (1.1°C) at nominal rating conditions.
- All pipe sizes are OD inches. Equivalent sizes in millimeters:

in.	mm
1/2	12.7
5/8	15.9
7/8	22.2
1-1/8	28.6
1-3/8	34.9
1-5/8	41.3
2-1/8	54.0
2-5/8	66.7
3-1/8	79.4
- Equivalent Length shown is based on the Total Linear Length plus an additional 50% for fittings and valves. If application requires more than 50% additional losses for fittings and valves, calculate the equivalent length and find pipe size using the Equivalent Length columns.

LEGEND

- — Not Required
- Pipe A** — Suction Riser without Trap
- Pipe B** — Suction Riser with Trap
- Pipe C** — Suction Line to Condensing Unit

LIQUID LINE SOLENOID VALVE

Field-supplied liquid line solenoid valve(s) are used for refrigerant charge management and in some cases oil return. Generally, one solenoid valve for each refrigeration circuit is recommended and must be installed at the evaporator if coil surface area is exceeded per Tables 13 and 14 or 38RC condensers are equipped with RTPF coils. In some cases, evaporator coil tons/circuit is too low to properly entrain oil while the circuit is operating at less than full load. In these cases, additional solenoids may be required. Contact the evaporator coil manufacturer/supplier for information on circuit loading and the need for additional solenoids.

Install liquid line solenoid valve just ahead of the TXVs (thermostatic expansion valves) which will be mounted at the evaporator. See Fig. 19 (for 38RCD025-150 dual-circuit units), or Fig. 20 (for 38RCS025-050 single-circuit units). Refer to Table 8.

EVAPORATOR SUCTION HEADER PIPING

To ensure proper oil return, individual suction line connections at the evaporator coil must be sized properly. See manufacturer's recommendations.

THERMOSTATIC EXPANSION VALVES

All 38RC units must be installed with 5% up to 15% bleed port TXVs to ensure proper unit operation.

To achieve good mixing of the refrigerant leaving the evaporator suction header for proper sensing by the TXV bulb:

1. Install a minimum of two 90-degree elbows upstream of the TXV bulb location. See Fig. 19 for dual-circuit units and Fig. 20 for single-circuit units.
2. Locate the TXV bulb on a vertical riser, where possible. If a horizontal location is necessary, secure the bulb at approximately the 4 o'clock position.
3. Insulate TXV bulb to minimize external ambient effects.

If an oil return connection is located at the bottom of evaporator suction header, tee-in this connection ahead of first mixing elbow. See Fig. 21 for dual-circuit units with face split coils, Fig. 22 for single-circuit units with face split coils, Fig. 23 for dual circuit units with row split coils, or Fig. 24 for single circuit units with row split coils. When compressor is below evaporator, riser at the evaporator should extend to the top of the evaporator section. After the riser is installed, the suction line can elbow down immediately. Refer to the evaporator product data for sizing information.

LIQUID LINE FILTER DRIER

Installation of a field-supplied filter drier and sight glasses in each refrigerant circuit is required. Select the filter drier for maximum unit capacity and minimum pressure drop. Figure 19 (for dual-circuit units) or Fig. 20 (for single-circuit units) shows required location of solenoid valves and recommended locations for the filter driers and sight glasses. Complete the refrigerant piping from the evaporator to the condenser before opening the liquid and suction lines at the condenser. Refer to Table 8.

⚠ CAUTION

For all units with liquid lines of 100 ft (30.5 m) or more or any 025-030 size dual-circuit unit application where evaporator is located higher than the condensing unit and liquid lines exceed 55 ft (16.8 m), a long line option kit must be installed to prevent compressor failure. The long line option kit must be mounted in the liquid line near the condensing unit. See Fig. 25.

LONG LINE APPLICATIONS

A long line option kit must be installed for:

1. Any 025-030 size dual-circuit unit where the evaporator is located higher than the condensing unit and the linear line length exceeds 55 ft (16.8 m).
2. Any size dual or single-circuit unit with linear line length of 100 ft (30.5 m) or more.

The kit consists of a liquid line check valve and a bypass check valve to prevent charge migration to compressor. The long line option kit must be mounted in the liquid line near the condensing unit. The kit may be mounted in any orientation, horizontally or vertically. See Fig. 25 for orientation and Fig. 16 for location. If a long line check valve assembly is used, a refrigerant access port downstream of the assembly must be provided to facilitate evacuation.

HOT GAS BYPASS

Hot gas bypass is not recommended. If hot gas bypass is used, it should be introduced before the evaporator.

FINAL CONNECTION AND LEAK TEST

⚠ CAUTION

The 38RC unit is shipped with a nitrogen holding charge. Use caution when relieving unit pressure to avoid possible equipment damage or personal injury.

Relieve the pressure caused by the nitrogen holding charge. Connect liquid line and suction line to field piping. Refer to Fig. 9-14 for circuit orientation.

IMPORTANT: Protect the liquid and suction service valves from the heat of brazing. Schrader valve cores must be removed from the liquid and suction service valves before brazing in field connection piping to avoid damage. Reinsert cores after brazing is completed.

The refrigerant system must not be opened and exposed to atmosphere for longer than 15 minutes. Connection and pumpdown should be made as soon as possible to avoid acids forming in the compressor POE (polyolester) oils, which could damage the compressors.

Leak test the entire system by using soap bubbles and nitrogen or R-32 and an electronic leak detector.

Purge nitrogen or recover R-32 from system after completion of leak-checking procedure. Repair leak if one is found. When finished, evacuate and dehydrate system using the following method.

EVACUATION AND DEHYDRATION

Because the 38RC systems use polyolester oil, which can absorb moisture, it is important to minimize the amount of time that the system interior is left exposed to the atmosphere. Minimizing the exposure time of the oil to the atmosphere will minimize the amount of moisture that needs to be removed during evacuation.

Once all of the piping connections are complete, leak test the unit and then pull a deep dehydration vacuum. Connect the vacuum pump to the charging valve in the suction line and to the liquid line service valve. If a unit is installed with the long line check valve assembly, evacuation must be completed on both sides of the check valve to ensure proper evacuation. For best results, it is recommended that a vacuum of at least 500 microns (0.5 mm Hg) be obtained. Afterwards, to ensure that no moisture is present in the system, perform a standing vacuum-rise test.

With the unit in deep vacuum (500 microns or less), isolate the vacuum pump from the system. Observe the rate-of-rise of the vacuum in the system. If the vacuum rises by more than 50 microns in a 30-minute time period, then continue the dehydration process. Maintain a vacuum on the system until the standing vacuum requirement is met. This will ensure a dry system.

By following these evacuation and dehydration procedures, the amount of moisture present in the system will be minimized. It is required that liquid line filter driers be installed between the condenser(s) and the expansion devices to capture any foreign debris and provide additional moisture removal capacity. Be sure to consider the pressure drop of the filter drier when determining piping requirements.

SAFETY PROCEDURES FOR FLAMMABLE REFRIGERANTS

Detection of Flammable Refrigerants

When working with the refrigerant side of the system follow these precautions. 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.

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.

Removal and Evacuation

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

- Safely remove refrigerant following local and national regulations.
- Evacuate.
- Continuously flush or purge with inert gas when using flame to open circuit.
- Open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. 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. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Charging Procedures

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

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

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.

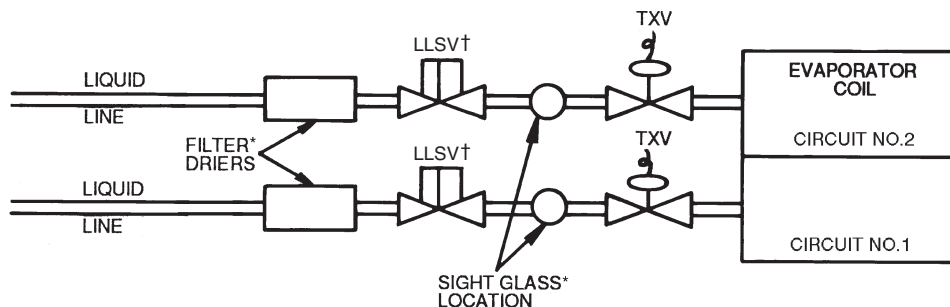
Recovery

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 occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.



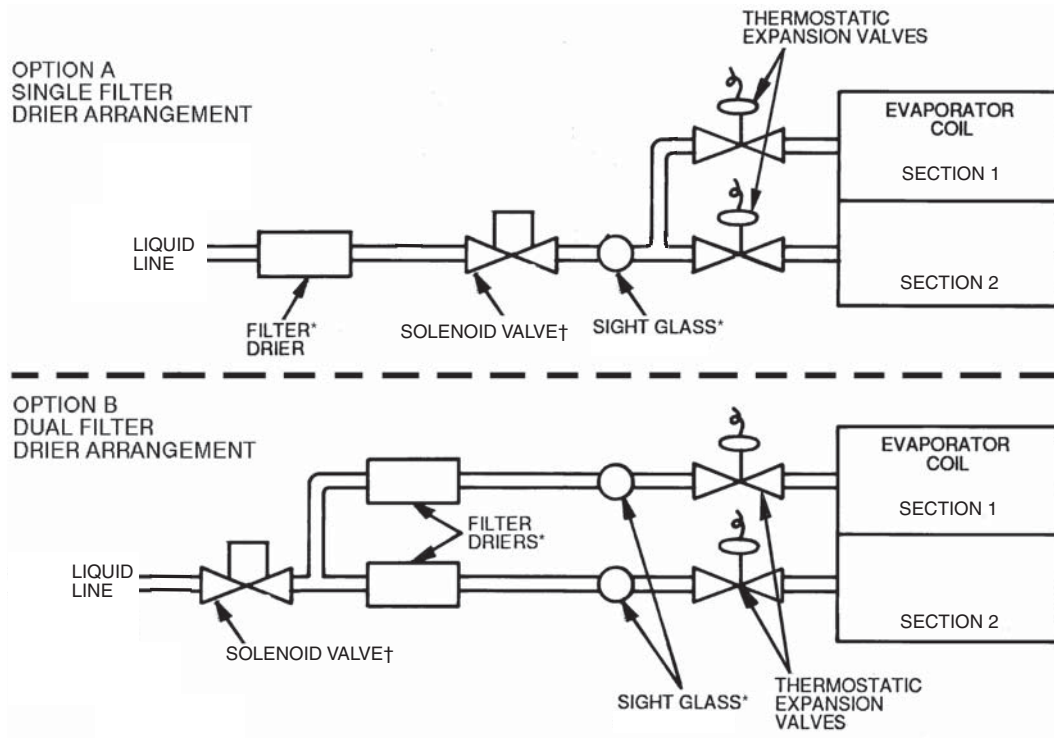
LEGEND

- LLSV — Liquid Line Solenoid Valve
TXV — Thermostatic Expansion Valve

*Field-supplied.

†Field-supplied when required. See Tables 13 and 14.

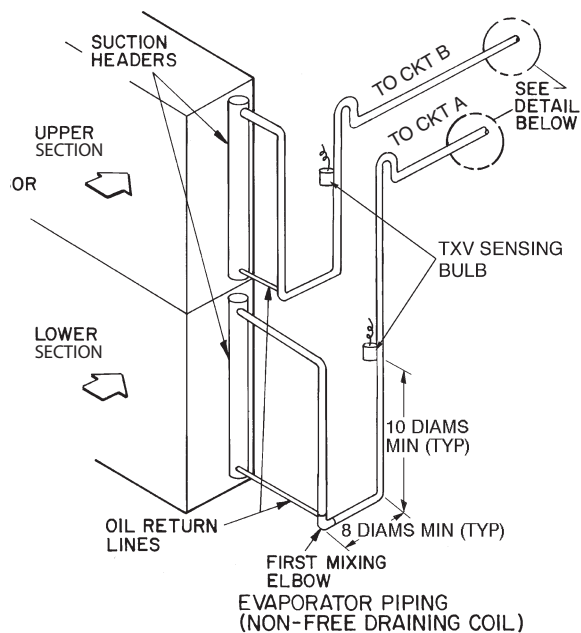
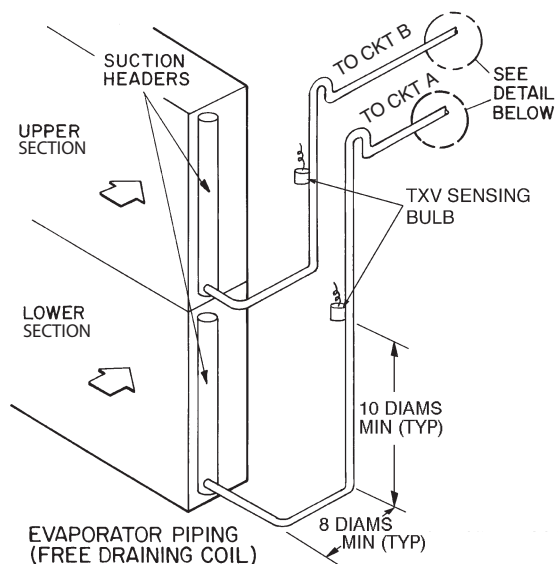
Fig. 19 — Required Location of Solenoid Valves and Recommended Filter Drier and Sight Glass Locations for 38RCD025-150 Dual-Circuit Units



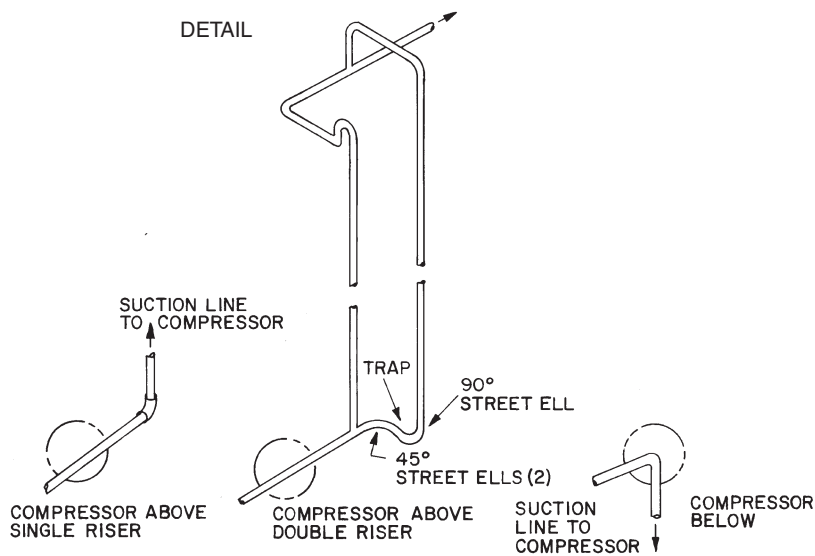
*Field-supplied.

†Field-supplied when required. See Tables 13 and 14.

Fig. 20 — Required Location of Solenoid Valves and Recommended Filter Drier and Sight Glass Locations for 38RCS025-050 Single-Circuit Units



AIRFLOW



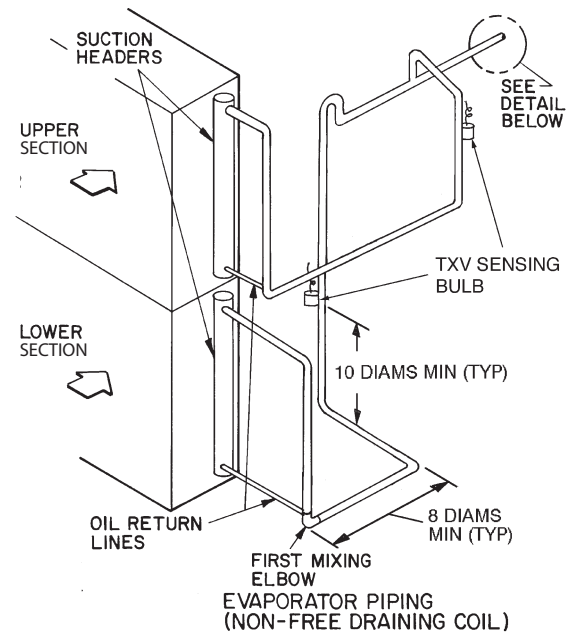
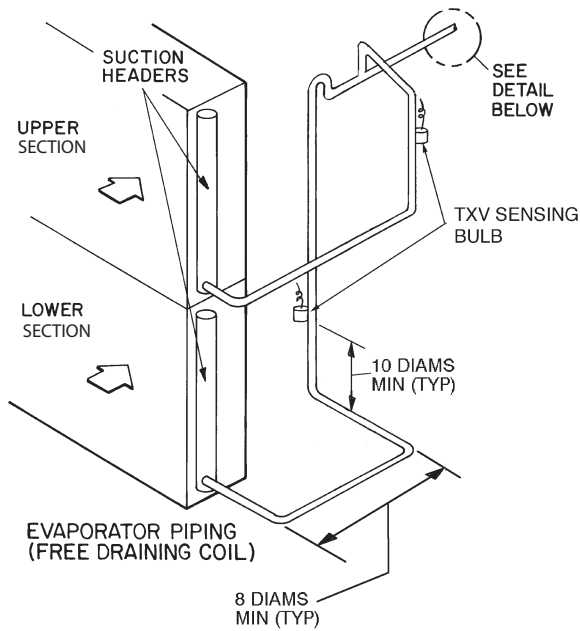
LEGEND

TXV — Thermostatic Expansion Valve
TYP — Typical

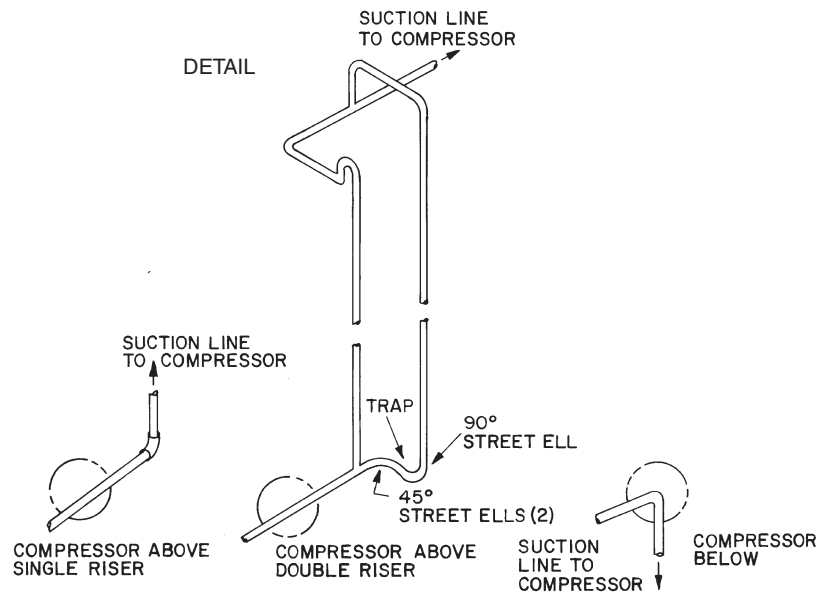
NOTES:

1. For units with single condensate pan, lower coil section is first on, last off.
2. To ensure oil return, individual suction line risers should be the same as the evaporator connection size, provided they do not exceed the 0-25 ft (0-7.5 m) piping recommendation.

Fig. 21 — Typical Piping Connections for Face Split Coils for 38RCD025-060 Dual-Circuit Units



AIRFLOW



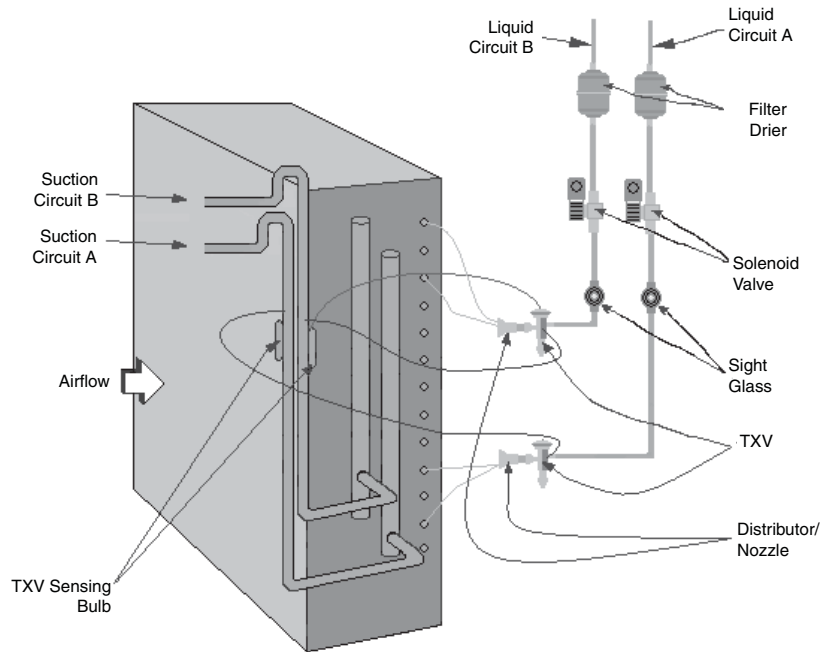
LEGEND

TXV — Thermostatic Expansion Valve
TYP — Typical

NOTES:

1. For units with single condensate pan, lower coil section is first on, last off.
2. To ensure oil return, individual suction line risers should be the same as the evaporator connection size, provided they do not exceed the 0-25 ft (0-7.5 m) piping recommendation.

Fig. 22 — Typical Piping Connections for Face Split Coils for 38RCS025-050 Single-Circuit Units

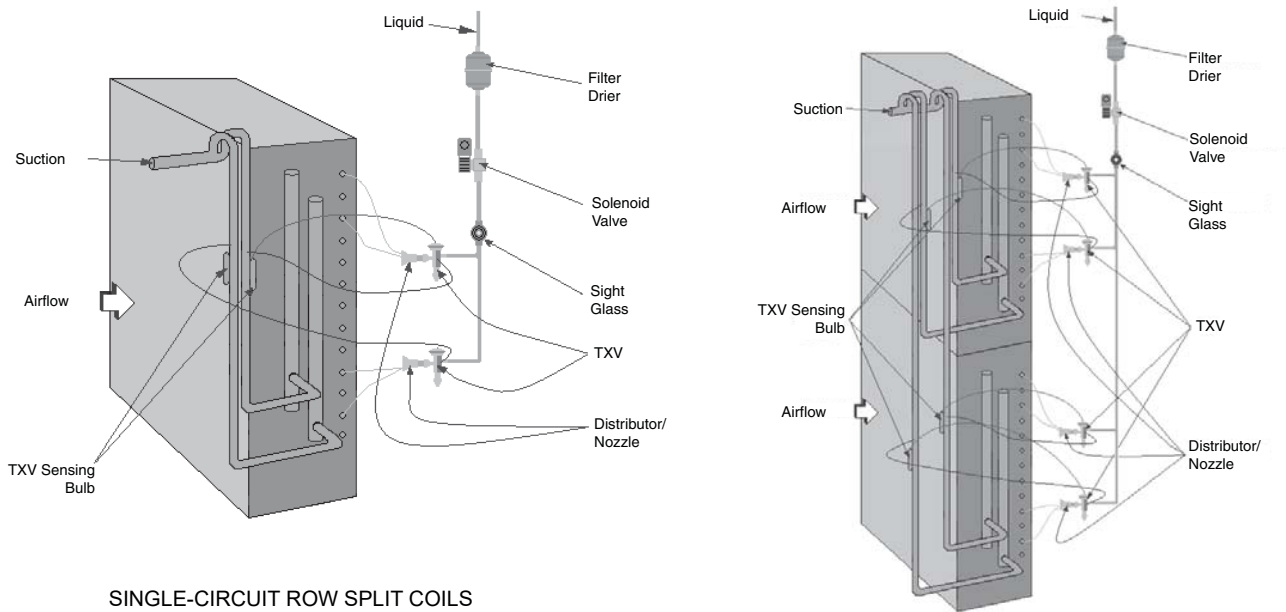


LEGEND

TXV — Thermostatic Expansion Valve

NOTE: Not all feeder tubes connected for clarity.

Fig. 23 — Typical Piping Connections for Row Split Coils for 38RCD025-150 Dual-Circuit Units



SINGLE-CIRCUIT ROW SPLIT COILS

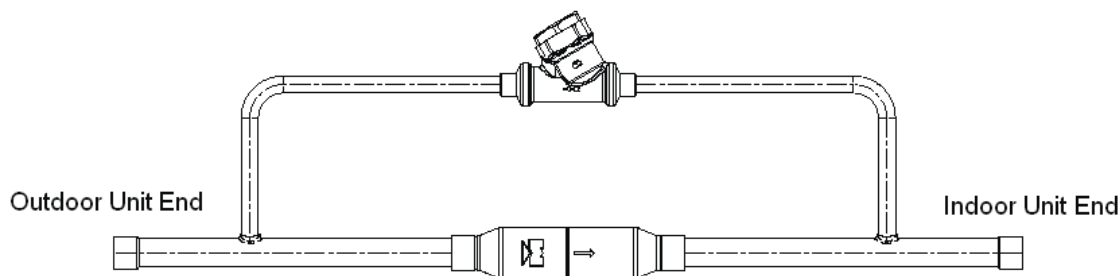
SINGLE-CIRCUIT ROW SPLIT COILS, 4 TXV

LEGEND

TXV — Thermostatic Expansion Valve

NOTE: Not all feeder tubes connected for clarity.

Fig. 24 — Typical Piping Connections for Row Split Coils for 38RCS025-050 Single-Circuit Units



NOTE: Locate long line kit as close to the condensing unit as possible.

Fig. 25 — Long Line Option Kit Installation

Step 3 — Make Electrical Connections

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

IMPORTANT: When starting up this equipment for operation, be sure to check tightness of all electrical terminal connections, clamps, screws, etc., as they may have become loose during shipment. It is also advisable to re-tighten all electrical connections after equipment has been in operation and components have reacted to operating temperature.

POWER SUPPLY

The electrical characteristics of the available power supply must agree with the unit nameplate rating. Supply voltage must be within the limits shown in Tables 13-23. See Table 24 for incoming power options.

IMPORTANT: Operating unit on improper supply voltage or with excessive phase imbalance constitutes abuse and may adversely affect Carrier warranty.

⚠ CAUTION

Proper rotation of condenser fan(s) **MUST** be verified before compressors are started. Consult the Controls, Start-Up, Operation, Service and Troubleshooting guide provided with the 38RC units for correct procedure. Failure to comply could result in possible equipment damage.

CABLING

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

POWER WIRING

All power wiring must comply with applicable local and national codes. Install field-supplied branch circuit fused disconnect per NEC (National Electrical Code, U.S.A.) of a type that can be locked OFF or OPEN. Disconnect must be within sight and readily accessible from the unit in compliance with NEC Article 440-14.

General Wiring Notes:

1. The control circuit does NOT require a separate power source. Control circuit power is obtained by a step-down transformer from the main three-phase power supply. Be sure that the appropriate connection tap is connected on all transformers for the supply voltage.
2. A low-voltage terminal strip (TB-5 and TB-6 for EMM option) is provided for field-wired control devices.

NOTE: The field-supplied disconnect should never be off except when unit is being serviced or is to be down for a prolonged period.

3. Power entry is at one end only.
4. All field power enters the unit through a hole located in the corner post of the unit or the bottom of the control box shelf. Refer to Fig. 26 for field power wiring details. Refer to Fig. 9-14 for exact location of field power entry. Be sure to seal entering power wire conduit per NEC requirements.
5. Terminals for field power supply are suitable only for copper conductors. Insulation must be rated 75°C minimum.
6. Units with high short circuit ratings and terminal block option require that specific fuses be applied to achieve this rating. Refer to Tables 15 and 16.

CONTROL POWER

Control power is obtained from the main power supply and does NOT require a separate source. A toggle switch (marked Emergency On-Off on the unit label diagram and by the switch) allows the control circuit to be manually disconnected when necessary. Crankcase heaters are in an operable state when this switch is in the Off position. All field control wiring must comply with applicable local and national codes.

IMPORTANT: For 208-v systems, the connection tap for all transformers must be changed. The factory default setting is for 230-v. Failure to connect to the proper tap may result in unreliable operation.

FIELD CONTROL WIRING

The standard unit control is microprocessor based, and supports multiple control configurations. See Fig. 27 for MAT/RAT (mixed air temperature/return air temperature sensor) and SAT (supply air temperature sensor) layout.

Figures 28-34 show wiring for specific control options.

Figures 35-43 show specific control field wiring schemes, depending on unit configuration and desired control requirements. See Controls, Start-Up, Operation, Service, and Troubleshooting guide for specific control method requirements.

If the installer is extending sensor cables, plenum-rated, 18 or 20 AWG (American Wire Gauge), twisted pair cable should be used. For a space temperature sensor with set point adjustment, use plenum-rated, 20 AWG, three-conductor, twisted, shielded cable. The standard CCN (Carrier Comfort Network®) communication cable is acceptable for this purpose. The wire is suitable for distances of up to 500 ft.

IMPORTANT: Do not run sensor or relay wires in the same conduit or raceway with Class 1 AC service wiring.

Do not abrade, cut, or nick the outer jacket of the cable. Do not pull or draw cable with a force that may harm the physical or electrical properties. Avoid splices in any control wiring. Refer to Controls, Start-Up, Operation, Service, and Troubleshooting guide for additional information.

Control options include the following:

Variable Air Volume (VAV) (C.TYP = 1)

This configuration is the standard VAV option. With this control type, the Carrier Controller capacity control routine stages compressor capacity to attempt to meet the current Control Point. This option requires a supply air sensor and a mixed air/return air sensor (Part No. 33ZCSENSAT). See Fig. 35.

Two-Stage Thermostat, Multi-Step Control (C.TYP=3)

This configuration allows the Carrier Controller to monitor the thermostat inputs to make a determination of supply air temperature. Unlike traditional 2-stage thermostat control, the unit is allowed to perform VAV-style operation using multiple stages of cooling capacity to attempt to meet the current Control Point. This control type also requires a supply air temperature sensor and return air temperature sensor (Part No. 33ZCSENSAT), as well as the 2-stage thermostat (Part No. 33CS2PP2S-01). See Fig. 41.

Two-Stage Thermostat (C.TYP = 4)

With this constant-volume option, the Carrier controller monitors the thermostat inputs to make capacity stage decisions. If Y1 input is closed, no more than 50% of the circuit capacity will be energized. If Y2 is closed, 100% of the circuit capacity will be energized for that circuit and air handler. Y1 closure is not required for 100% capacity. This control scheme cannot be used with digital compressors. See Fig. 37.

Space Sensor Control (C.TYP=5)

This option will allow the Carrier controller to monitor the space temperature sensor and compare it to the Space Temperature Set Point to make a capacity determination. The unit is allowed to use multiple stages of cooling control and perform VAV-style operation in an attempt to meet the current Control Point. The control

requires installation of supply air temperature sensor and mixed air/return air temperature sensor (Part No. 33ZCSENSAT), and one of the following space temperature sensors:

- Space temperature sensor with occupancy override button (Part No. 33ZCT55SPT)
- Space temperature sensor with occupancy override button and set point adjustment sidebar (Part No. 33ZCT56SPT)
- Space temperature sensor with occupancy override button, set point adjustment sidebar, and LCD (liquid crystal display) display (Part No. 33ZCT59SPT)

See Fig. 42.

Percent Capacity (C.TYP=7)

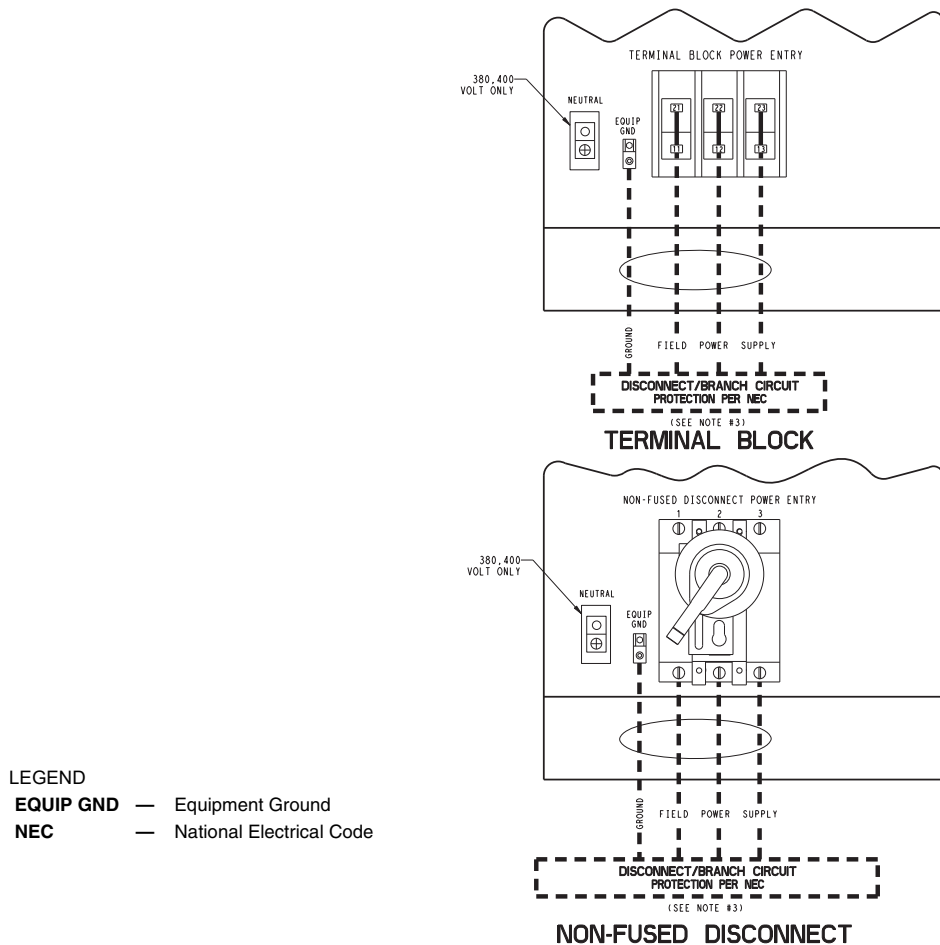
This configuration allows the Carrier controller to monitor the 4 to 20 mA cooling demand signal input to the energy management module and translate this into desired percent capacity for the unit. It is compatible with both standard and digital compressors, and is intended for direct capacity control by a third-party control system. An energy management module and 4 to 20 mA generator are required. See Fig. 39.

Dual Thermostat (C.TYP=8)

This configuration allows for the connection and control of a single 38RCD unit to two separate air handlers. The configuration allows the Carrier controller to monitor the thermostat inputs from each of two supply and return air thermistors to make a determination of mode and capacity for each circuit of the 38RCD unit. The controller monitors two separate SAT setpoints, set in the controller, one for Y1 and one for Y2 for circuit A control. Y3 and Y4 have separate SAT setpoints for circuit B. This control option cannot be used with units with digital compressors or 38RCS units. It requires an energy management option, two 2-stage thermostats (one for each air handler), and 4 SPST relays for thermostat input. See Fig. 40.

Variable Air Volume Setpoint (C.TYP=9)

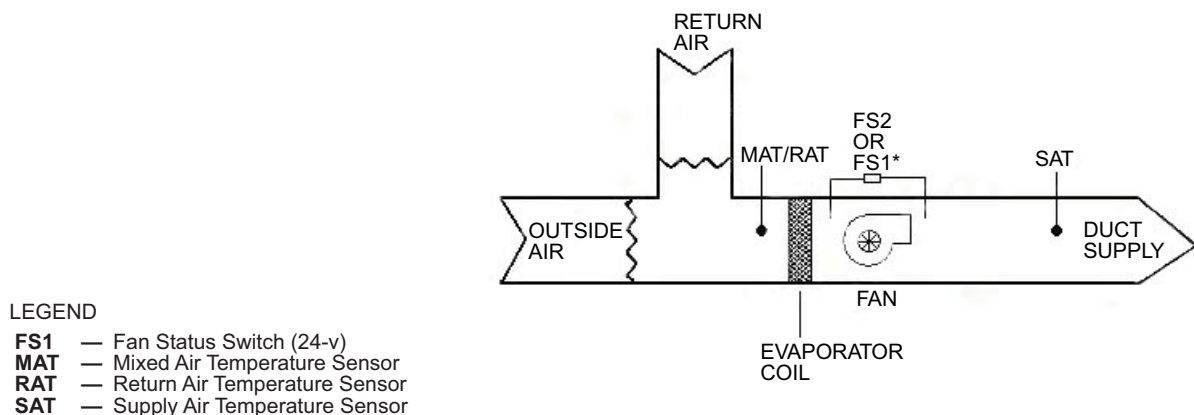
With this configuration, the 38RC unit operates as a VAV unit and controls unit capacity in an attempt to meet a field-supplied 4 to 20 mA supply air temperature request, by staging compressors to attempt to meet the current Control Point. A field-supplied 4 to 20 mA signal determines the Active Setpoint. The Control Point is the Active Setpoint adjusted for any temperature reset that is applied. This control type requires the energy management module, a 4 to 20 mA generator, supply air sensor, and mixed air/return air sensor. It is compatible with both standard and digital compressors, and is used when variable supply air set points are required and determined by a third-party Building Management System. See Fig. 38.



NOTES:

1. Factory wiring is in accordance with UL 60335-40-2 standards. Field modifications or additions must be in compliance with all applicable codes.
2. All units or modules have single point primary power connection. Main power must be supplied from a field or factory-supplied disconnect. Unit sizes 110, 130 and 150 have an option for dual point power.
3. Wiring for main field supply must be rated 75°C. Use copper conductors only.
 - a. Incoming wire size range for terminal block with MCA (minimum circuit amps) up to 175 amps is 14 AWG (American Wire Gauge) to 2/0.
 - b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
 - c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
 - d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amps to 200 amps is 6 AWG to 350 kcmil.
 - e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amps to 450 amps is 3/0 to 500 kcmil.
6. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
7. All discrete inputs are 24 vac.

Fig. 26 — Field Power Wiring



*FS1 can be pressure differential switch (shown), motor current detection, or sail switch.

Fig. 27 — Mixed Air Temperature (MAT)/Return Air Temperature (RAT), Supply Air Temperature (SAT) and Fan Status Switch Sensor Layout

- NOTES:
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
 2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
 3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

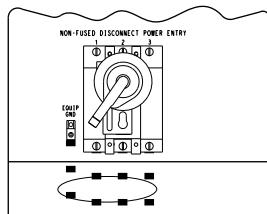


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CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCOR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil	1	-
		2/0 AWG TO 250kcmil	2	-

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4. REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
8. ENERGY MANAGEMENT OPTION IS REQUIRED FOR 4-20 mA DEMAND LIMIT, SINGLE OR TWO-STEP DEMAND LIMIT.
9. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED METHOD.

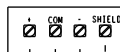


LEGEND:

- AMG - AMERICAN WIRE GAUGE
- ALM R - ALARM RELAY
- EMM - ENERGY MANAGEMENT MODULE
- FS1 - FAN STATUS
- LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
- LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
- LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
- LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
- RLA - REFRIGERANT LEAK ALARM
- RAT - RETURN AIR THERMISTOR
- SAT - SUPPLY AIR TEMPERATURE
- SPT - SPACE TEMPERATURE
- TOB - TIMED OVERRIDE BUTTON
- VAV - VARIABLE AIR VOLUME

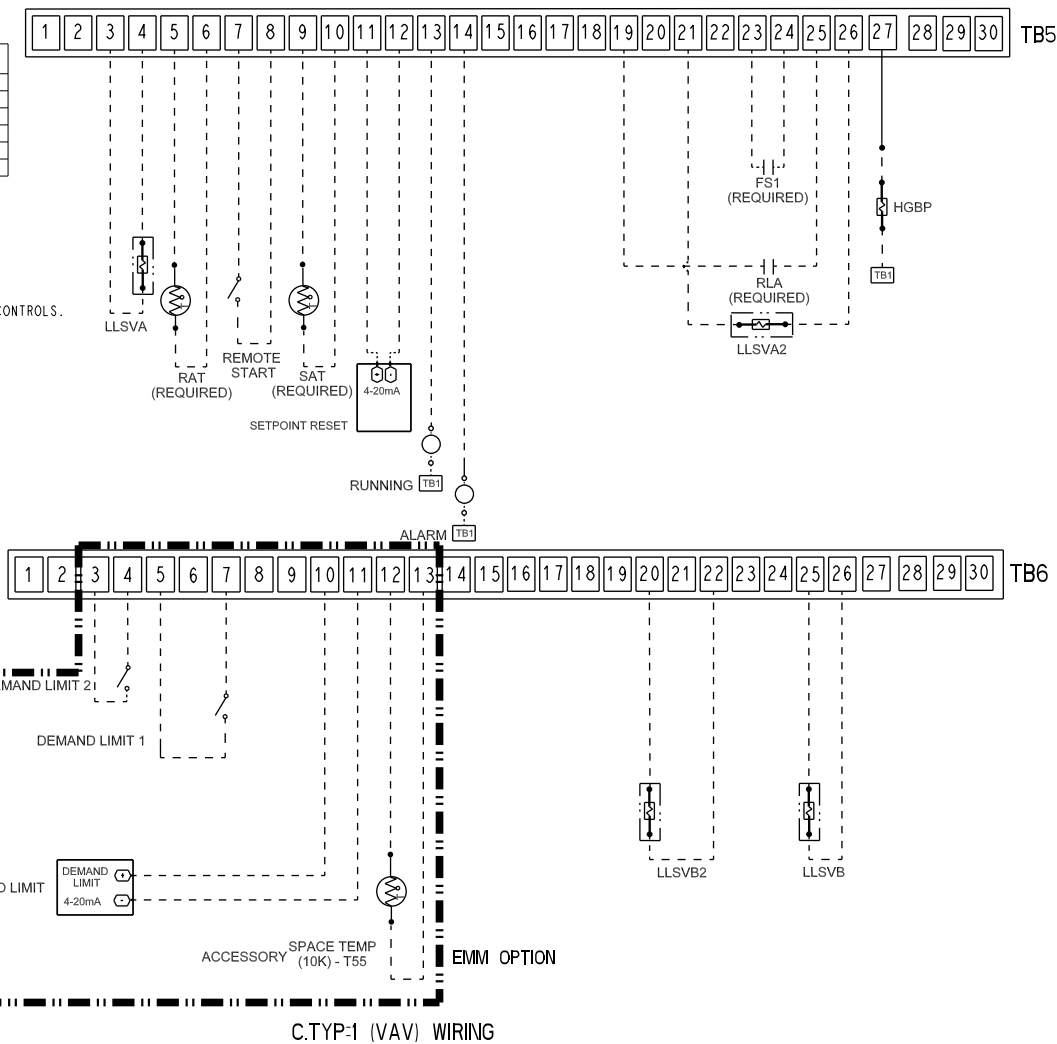
COM WIRING

TB3 CCN



- FIELD POWER WIRING
- FIELD CONTROL WIRING
- FACTORY INSTALLED WIRING
- [] FACTORY INSTALL OPTION

CCN DATA COM PORT



TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	2 OF 8	01/13/25	-			-

Fig. 28 — C.TYP=1 (VAV) Wiring

- NOTES:
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
 2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
 3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

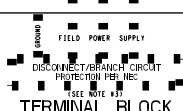
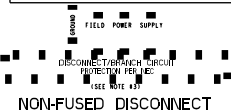
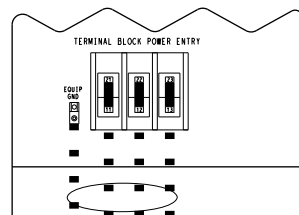
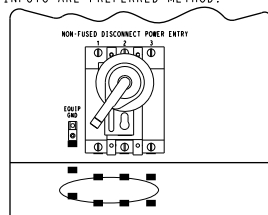


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CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCCR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil 2/0 AWG TO 250kcmil	1 2	- -

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4; REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
8. ENERGY MANAGEMENT OPTION IS REQUIRED FOR 4-20 mA DEMAND LIMIT, SINGLE OR TWO-STEP DEMAND LIMIT.
9. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED METHOD.

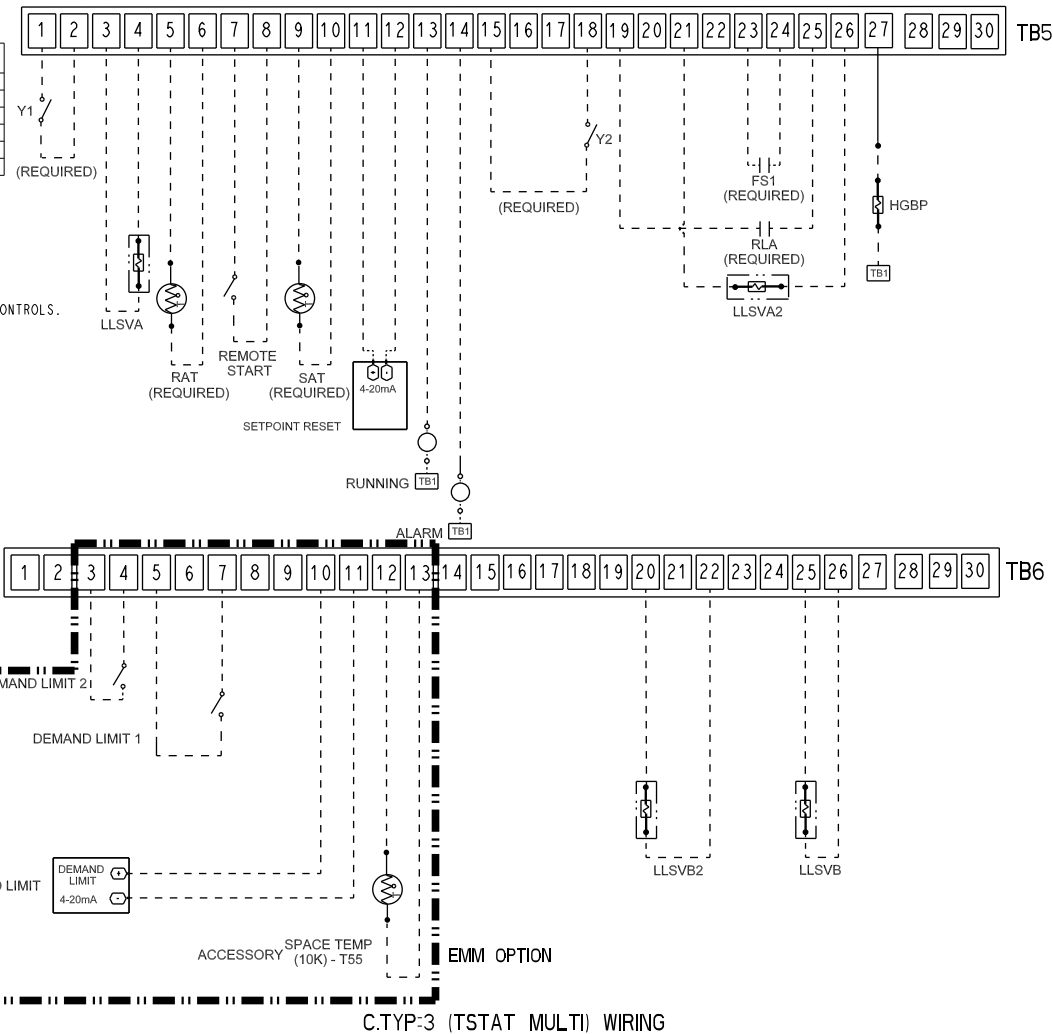
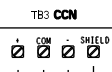


LEGEND:

- AMG - AMERICAN WIRE GAUGE
- ALM R - ALARM RELAY
- EMM - ENERGY MANAGEMENT MODULE
- FS1 - FAN STATUS
- LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
- LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
- LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
- LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
- RLA - REFRIGERANT LEAK ALARM
- RAT - RETURN AIR THERMISTOR
- SAT - SUPPLY AIR TEMPERATURE
- SPT - SPACE TEMPERATURE
- VAV - VARIABLE AIR VOLUME
- Y1 - STAGE 1 COOLING
- Y2 - STAGE 2 COOLING

- Field Power Wiring
- Field Control Wiring
- Factory Installed Wiring
- Factory Install Option

COM WIRING



TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	3 OF 8	01/13/25	-			-

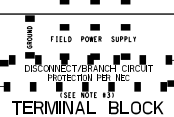
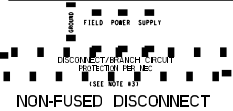
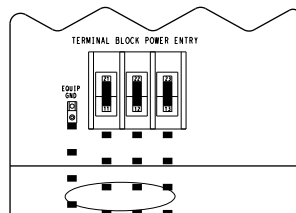
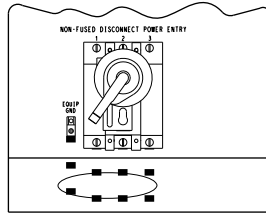
Fig. 29 — C.TYP=3 (TSTAT MULTI) Wiring

NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCOR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil 2/0 AWG TO 250kcmil	1 2	- -

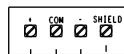
4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4, REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
8. ENERGY MANAGEMENT OPTION IS REQUIRED FOR 4-20 mA DEMAND LIMIT, SINGLE OR TWO-STEP DEMAND LIMIT.
9. THIS CONTROL SCHEME DOES NOT SUPPORT DIGITAL COMPRESSOR OR MINIMUM LOAD CONTROL OPERATION.
10. THIS CONTROL SCHEME IS NOT RECOMMENDED FOR 38RCD040-150 AND 38RCS040-060 UNITS SINCE THERE ARE MORE THAN 2 STAGES OF CAPACITY AVAILABLE.
11. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE ARE NOT REQUIRED FOR THIS CONTROL SCHEME. ALTHOUGH NOT REQUIRED MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED OVER COMMUNICATION



- LEGEND:
- AWG - AMERICAN WIRE GAUGE
 - ALM R - ALARM RELAY
 - EMM - ENERGY MANAGEMENT MODULE
 - FS1 - FAN STATUS
 - LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
 - LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
 - LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
 - LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
 - RLA - REFRIGERANT LEAK ALARM
 - RAT - RETURN AIR THERMISTOR
 - SAT - SUPPLY AIR TEMPERATURE
 - SPT - SPACE TEMPERATURE
 - Y1 - STAGE 1 COOLING
 - Y2 - STAGE 2 COOLING

COM WIRING

TB3 CCN



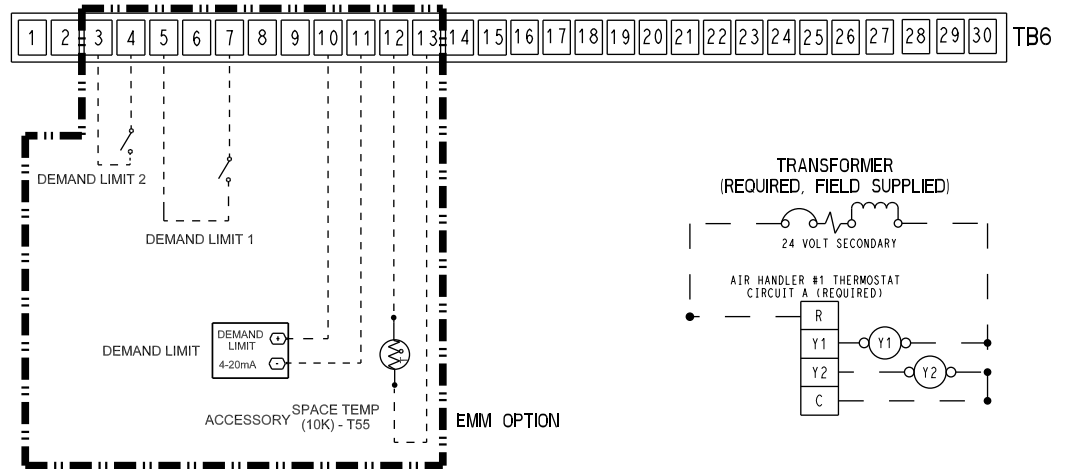
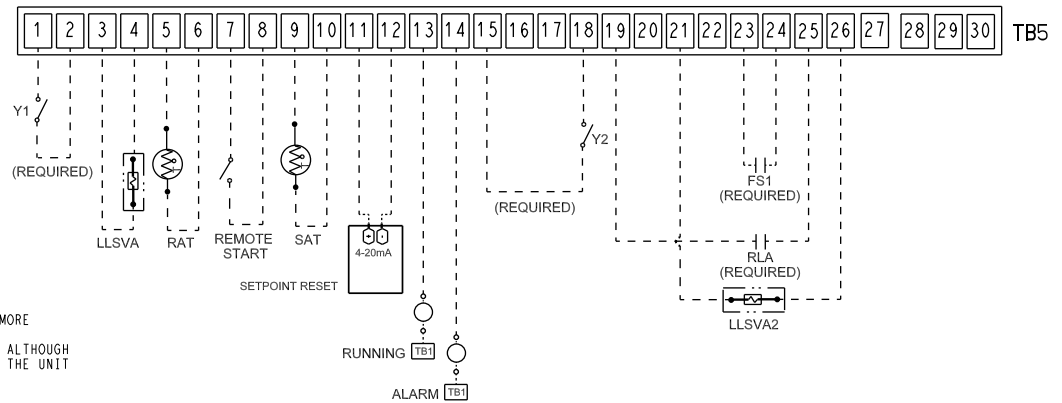
CCN DATA COM PORT

- FIELD POWER WIRING
- FIELD CONTROL WIRING
- FACTORY INSTALLED WIRING
- FACTORY INSTALL OPTION



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C.TYP=4 (TSTAT 2STG) WIRING

TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	4 OF 8	01/13/25	-	-	-	-

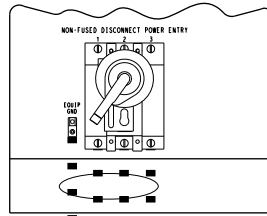
Fig. 30 — C.TYP=4 (TSTAT 2STG) Wiring

NOTES:

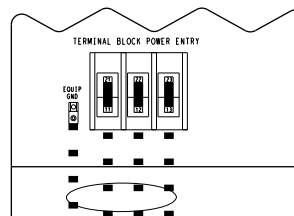
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCOR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil 2/0 AWG TO 250kcmil	1 2	- -

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4, REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. ALL DISCRETE INPUTS, REMOTE ON-OFF, FAN STATUS SWITCH (FS1), AND DEMAND LIMIT SWITCH 1 AND 2 MUST BE RATED FOR DRY CIRCUIT APPLICATIONS, 24 VAC LOAD UP TO 50 mA.
8. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
9. ENERGY MANAGEMENT OPTION IS REQUIRED FOR 4-20 mA DEMAND LIMIT, SINGLE OR TWO-STEP DEMAND LIMIT.
10. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED METHOD.



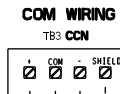
NON-FUSED DISCONNECT



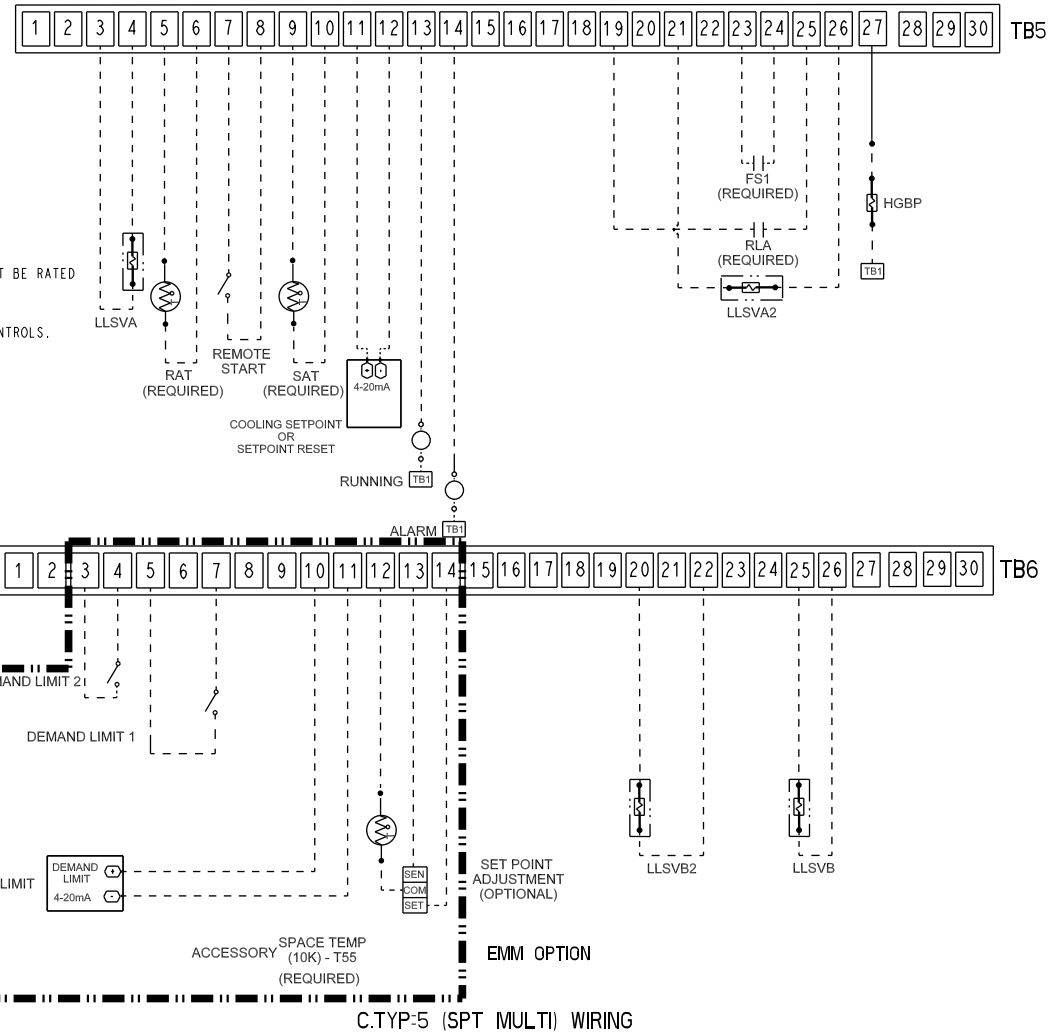
TERMINAL BLOCK

- LEGEND:
- AMG - AMERICAN WIRE GAUGE
 - ALM R - ALARM RELAY
 - EMM - ENERGY MANAGEMENT MODULE
 - FS1 - FAN STATUS
 - LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
 - LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
 - LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
 - LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
 - RLA - REFRIGERANT LEAK ALARM
 - RAT - RETURN AIR THERMISTOR
 - SAT - SUPPLY AIR TEMPERATURE
 - SPT - SPACE TEMPERATURE
 - SET - SET POINT ADJUSTMENT
 - COM - COMMON
 - SEN - SENSOR

- FIELD POWER WIRING
- FIELD CONTROL WIRING
- FACTORY INSTALLED WIRING
- [] FACTORY INSTALL OPTION



CCN DATA COM PORT



TYPICAL MAIN POWER & CONTROL CONNECTIONS

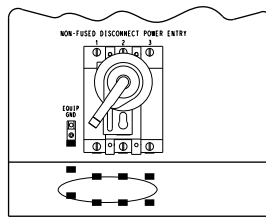
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	5 OF 8	01/13/25	-			-

Fig. 31 — C.TYP=5 (SPT MULTI) Wiring

- NOTES:
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
 2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
 3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

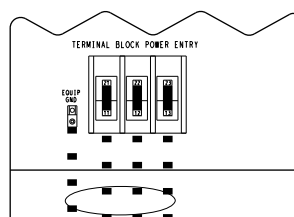
CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCCR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil	1	-
		2/0 AWG TO 250kcmil	2	-

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4. REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
8. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED METHOD.



NON-FUSED DISCONNECT

DISCONNECT/BRANCH CIRCUIT PROTECTION (SEE NOTE #4)

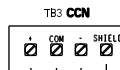


TERMINAL BLOCK

DISCONNECT/BRANCH CIRCUIT PROTECTION (SEE NOTE #4)

- LEGEND:
- AWG - AMERICAN WIRE GAUGE
 - ALM R - ALARM RELAY
 - EMM - ENERGY MANAGEMENT MODULE
 - FS1 - FAN STATUS
 - LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
 - LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
 - LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
 - LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
 - RLA - REFRIGERANT LEAK ALARM
 - RAT - RETURN AIR THERMISTOR
 - SAT - SUPPLY AIR TEMPERATURE
 - SPT - SPACE TEMPERATURE

COM WIRING

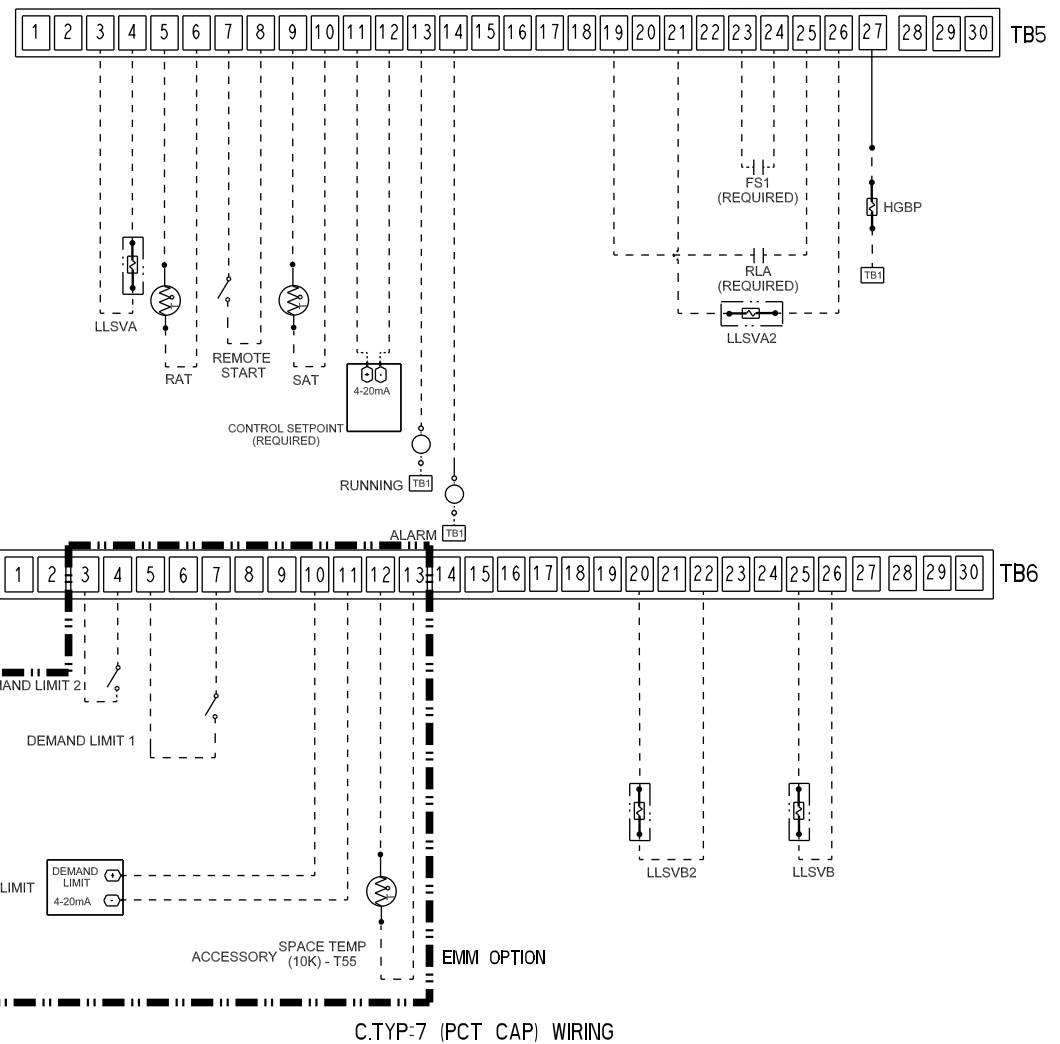


CCN DATA COM PORT



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SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.



TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	6 OF 8	01/13/25	-			-

Fig. 32 — C.TYP=7 (Pct Cap) Wiring

NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

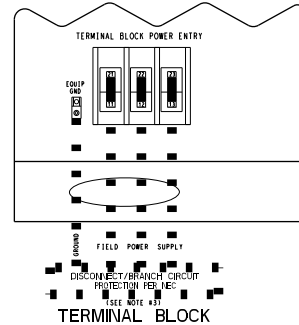
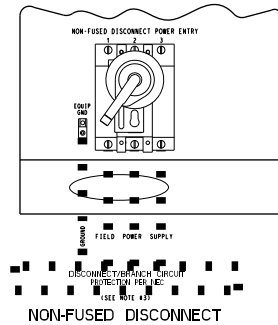
CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCOR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil	1	-
		2/0 AWG TO 250kcmil	2	-

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4, REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCHES (FS1 AND FS2) ARE REQUIRED.
8. ENERGY MANAGEMENT OPTION REQUIRED DEMAND LIMIT SWITCHES.
9. THIS CONTROL SCHEME IS NOT ALLOWED FOR SINGLE CIRCUIT UNITS, 38RCS025-060.



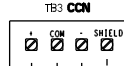
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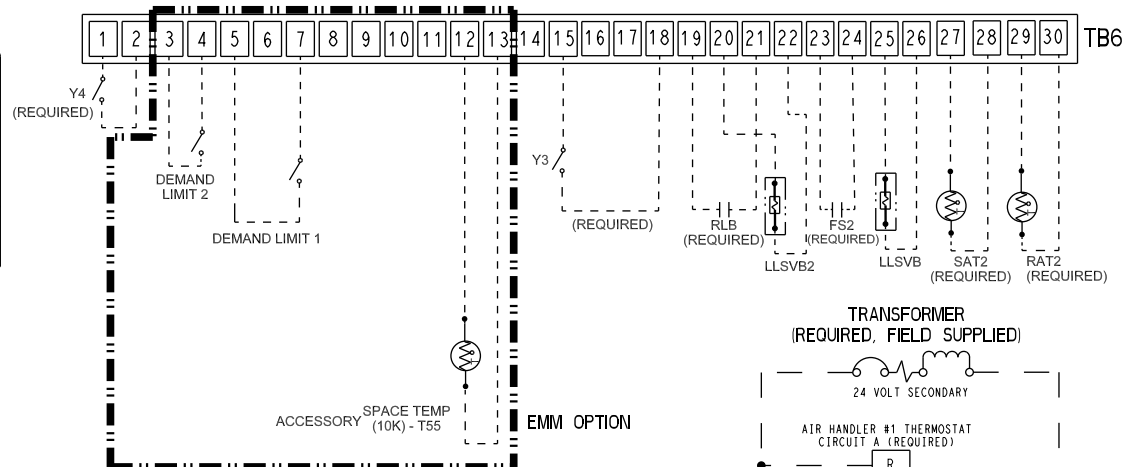
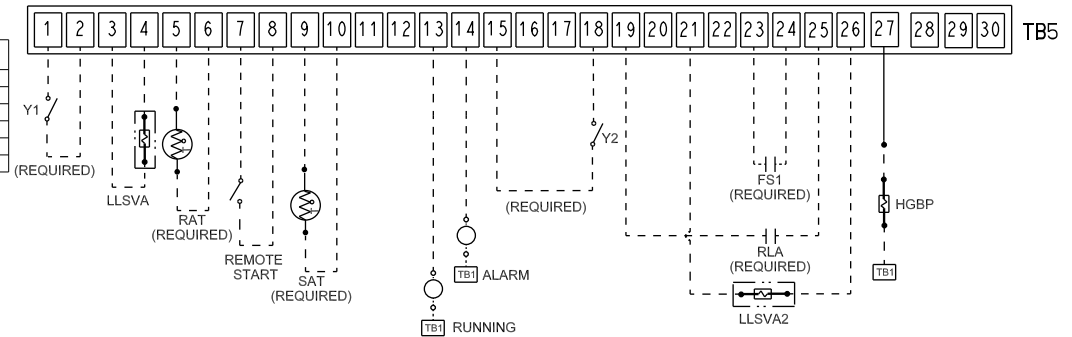
- LEGEND:
- AWG - AMERICAN WIRE GAUGE
 - ALM R - ALARM RELAY
 - EMM - ENERGY MANAGEMENT MODULE
 - FS1 - FAN STATUS
 - LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
 - LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
 - LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
 - LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
 - RLA - REFRIGERANT LEAK ALARM
 - RAT - RETURN AIR THERMISTOR
 - SAT - SUPPLY AIR TEMPERATURE
 - SPT - SPACE TEMPERATURE
 - VAV - VARIABLE AIR VOLUME
 - Y1 - STAGE 1 COOLING
 - Y2 - STAGE 2 COOLING
 - Y3 - STAGE 3 COOLING (STAGE 1 FOR DUAL AHU)
 - Y4 - STAGE 4 COOLING (STAGE 2 FOR DUAL AHU)

COM WIRING



CCN DATA COM PORT

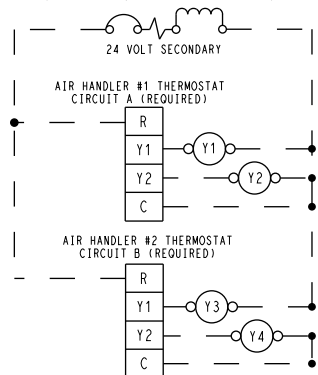
- ■ ■ FIELD POWER WIRING
- — — FIELD CONTROL WIRING
- — — FACTORY INSTALLED WIRING
- [] FACTORY INSTALL OPTION



C.TYP=8 (DUAL AHU/TSTAT) WIRING
(DUAL CIRCUIT UNITS ONLY)

TYPICAL MAIN POWER & CONTROL CONNECTIONS

TRANSFORMER
(REQUIRED, FIELD SUPPLIED)



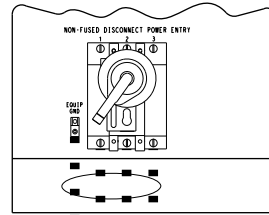
ITC CLASSIFICATION U.S. ECCN:EAR99	SHEET 7 OF 8	DATE 01/13/25	SUPERCEDES -	38RC 025T-150T ELECTRICAL	38RC60001040	REV -
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Fig. 33 — C.TYP=8 (Dual Tstat) Wiring

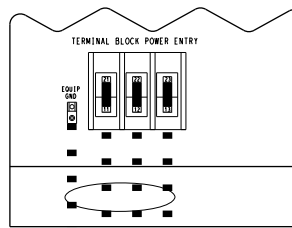
- NOTES:
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
 2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
 3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCOR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil 2/0 AWG TO 250kcmil	1 2	- -

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. OUTPUTS FOR ALARM, RUNNING, LLSV, HGBP HAVE A MAXIMUM LOAD FOR THE ALARM RELAY OF 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE Y1-Y4. REMOTE START, RL, FS OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 mA.
7. INSTALLATION OF FAN STATUS SWITCH (FS1) IS REQUIRED.
8. ENERGY MANAGEMENT OPTION IS REQUIRED FOR 4-20 mA SETPOINT, 4-20 mA DEMAND LIMIT, SINGLE OR TWO-STEP DEMAND LIMIT.
9. MIXED AIR/RETURN AIR, SUPPLY AIR AND SPACE TEMPERATURE INPUTS CAN BE COMMUNICATED TO THE UNIT CONTROLS. THERMISTOR INPUTS ARE PREFERRED METHOD.



NON-FUSED DISCONNECT



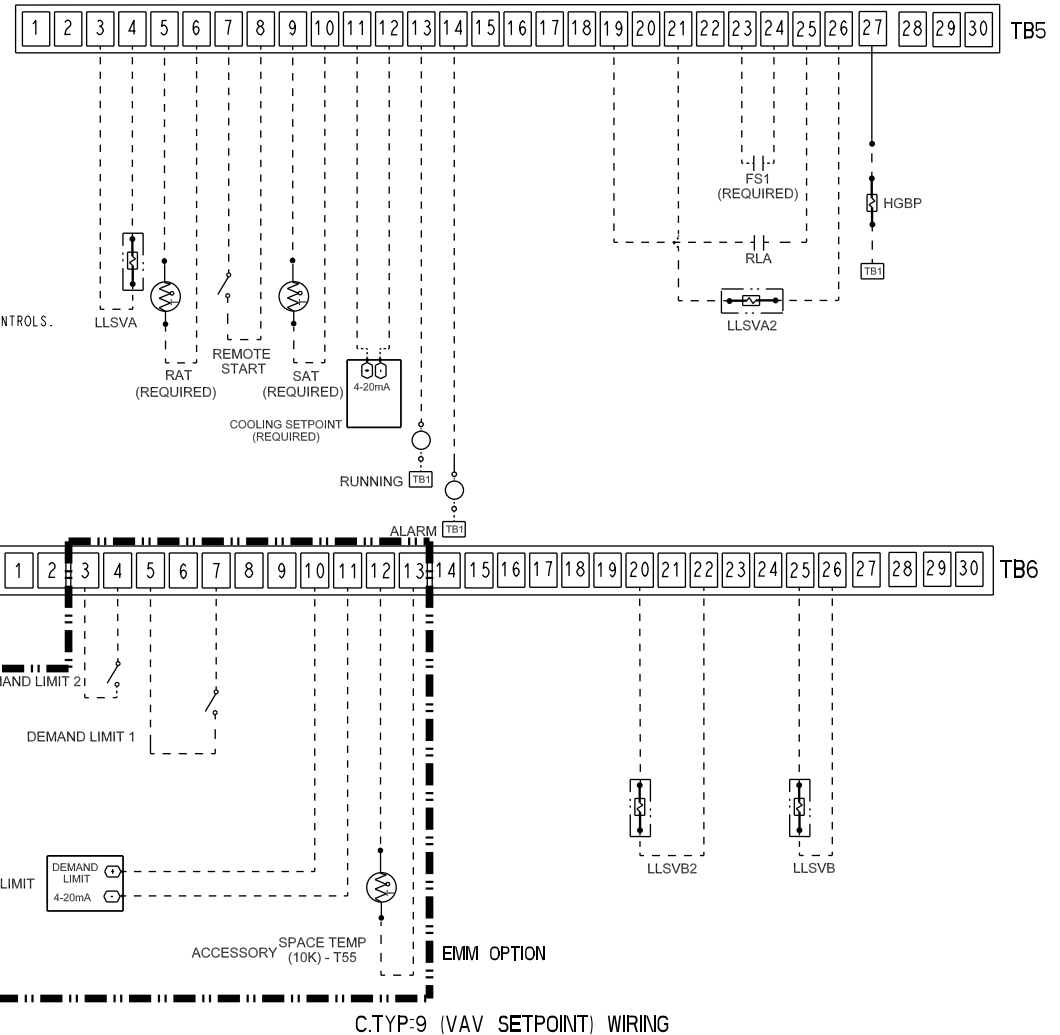
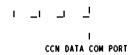
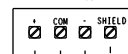
TERMINAL BLOCK

LEGEND:

- AMG - AMERICAN WIRE GAUGE
- ALM R - ALARM RELAY
- EMM - ENERGY MANAGEMENT MODULE
- FS1 - FAN STATUS
- LLSV-A - LIQUID LINE SOLENOID VALVE, CIRCUIT A, FIRST STAGE
- LLSV-A2 - LIQUID LINE SOLENOID VALVE, CIRCUIT A, SECOND STAGE
- LLSV-B - LIQUID LINE SOLENOID VALVE, CIRCUIT B, FIRST STAGE
- LLSV-B2 - LIQUID LINE SOLENOID VALVE, CIRCUIT B, SECOND STAGE
- RLA - REFRIGERANT LEAK ALARM
- RAT - RETURN AIR THERMISTOR
- SAT - SUPPLY AIR TEMPERATURE
- SPT - SPACE TEMPERATURE
- VAV - VARIABLE AIR VOLUME
- Y1 - STAGE 1 COOLING
- Y2 - STAGE 2 COOLING

- FIELD POWER WIRING
- FIELD CONTROL WIRING
- FACTORY INSTALLED WIRING
- [] FACTORY INSTALL OPTION

COM WIRING



TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	38RC 025T-150T ELECTRICAL	38RC60001040	REV
U.S. ECCN:EAR99	8 OF 8	01/13/25	-			-

Fig. 34 — C.TYP=9 (VAV Setpoint) Wiring

38RC025-060 POWER SCHEMATIC

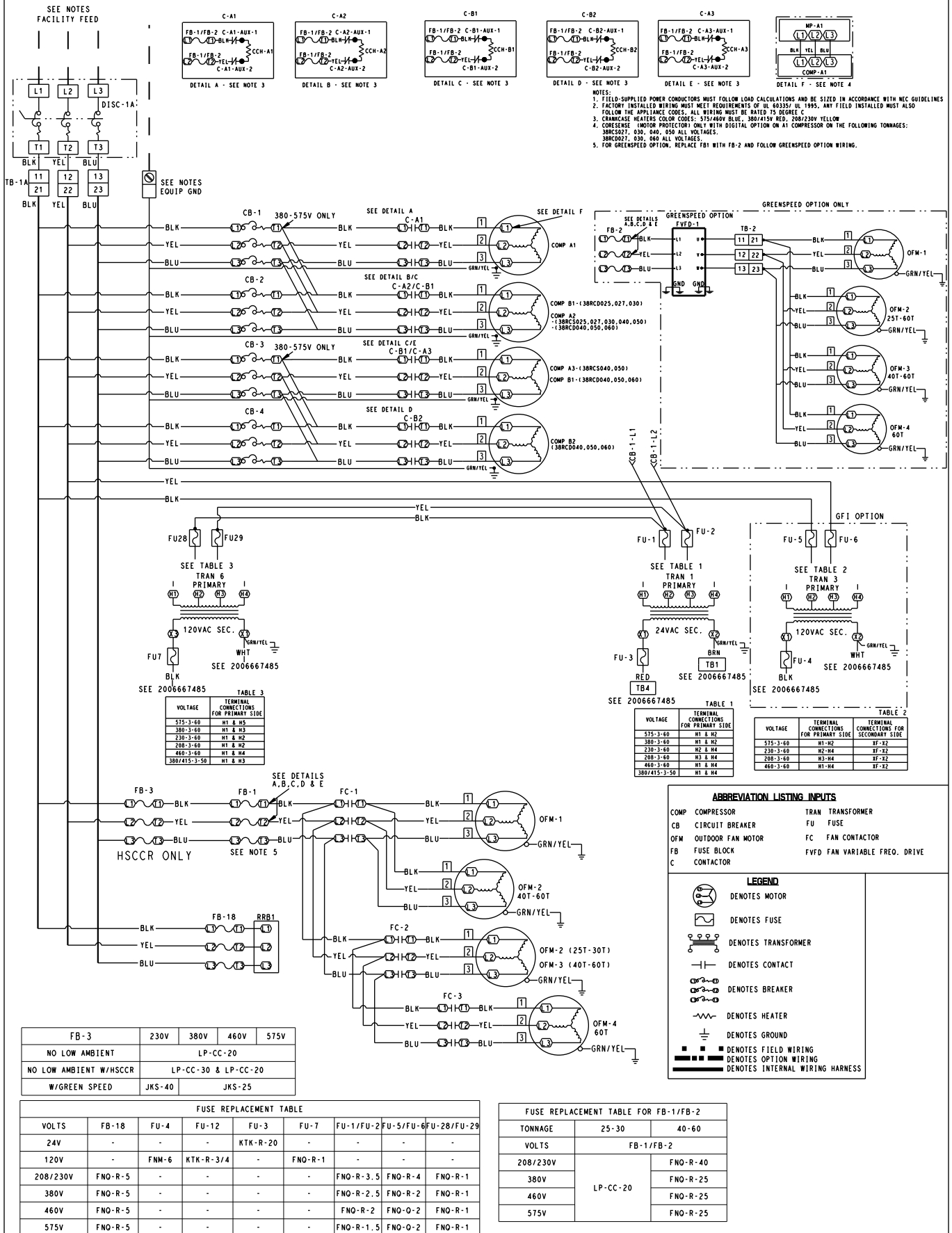


Fig. 35 — 38RC020-060 Power Schematic

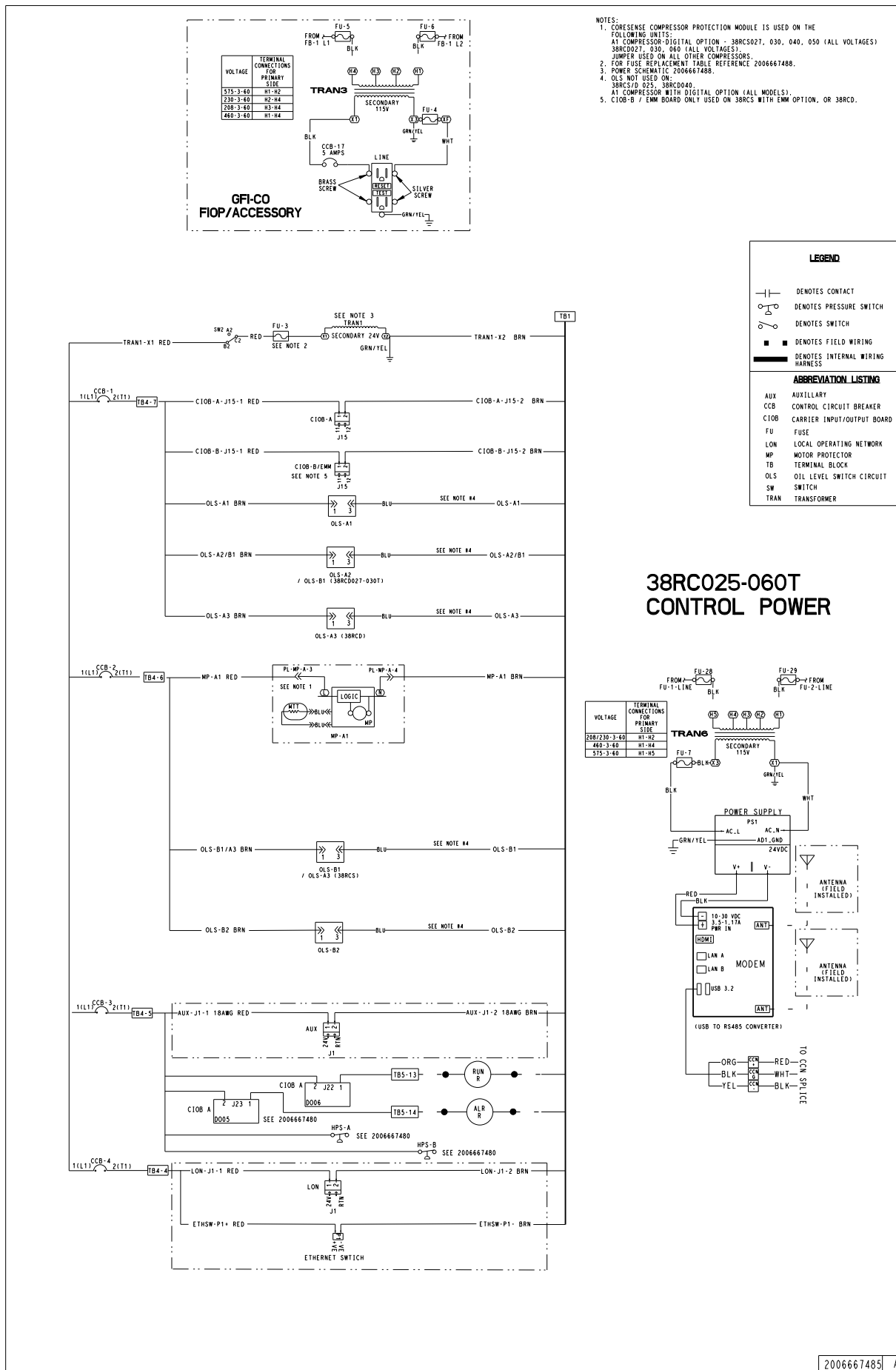


Fig. 36 — 38RC025-060 Control Power

NOTES:

1. FIELD-SUPPLIED CONTROL CONDUCTORS TO BE AT LEAST 18AWG (AMERICAN WIRE GAGE) OR LARGER. THE CONTROL CABINET SHOULD ONLY BE USED FOR LOW VOLTAGE FIELD WIRING (50-V MAXIMUM.)
2. EACH DIGITAL OUTPUT LOOP SHALL BE LIMITED TO A MAXIMUM OF 1A AC RMS STEADY-STATE @ 24VAC. LIGHT LOAD RELAY IS RECOMMENDED AND THE COIL VOLTAGE OF RELAY IS 24VAC. POWER SUPPLY SHALL BE PROVIDED BY CUSTOMER FUSED TRANSFORMER.
3. EACH DISCRETE INPUT LOOP IS POWERED BY INTERNAL 24VAC POWER SUPPLY. FIELD OPTIONAL CONTACTS OR SWITCH MUST HAVE 24VAC RATING, MAX CURRENT IS 60MA. NOMINAL CURRENT IS 10MA. SWITCHES WITH GOLD PLATED BIFURCATED CONTACTS ARE RECOMMENDED.
4. THE ANALOG INPUTS SUPPORT 5K/10K NTC THERMISTORS, 0/4-20MA SENSORS AND 5VDC SENSORS. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
5. EACH ANALOG OUTPUT LOOP SUPPORTS 0/4-20MA OR 0/2-10VDC VOLTAGE OUTPUT. THE ANALOG OUTPUT LOOP IS POWERED BY IOB BOARD. DO NOT SUPPLY EXTERNAL POWER. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
6. DRY TYPE CONTACT, RATED SWITCHING LOAD 230VAC/5A OR 24VDC/5A.
7. GROUND SHIELDS AT SIGNAL GENERATING DEVICES
8. ALL FIELD INTERLOCK CONTACTS MUST HAVE A MINIMAL RATING OF 240VAC SEALED.
9. IF MP IS USED REMOVE JUMPER FROM ASSOCIATED TERMINAL BLOCKS
10. FACTORY INSTALLED WIRING MUST MEET REQUIREMENTS OF UL 60335-40-2. ANY FIELD INSTALLED MUST ALSO FOLLOW THE APPLIANCE CODES. ALL WIRING MUST BE RATED 75 DEGREE C

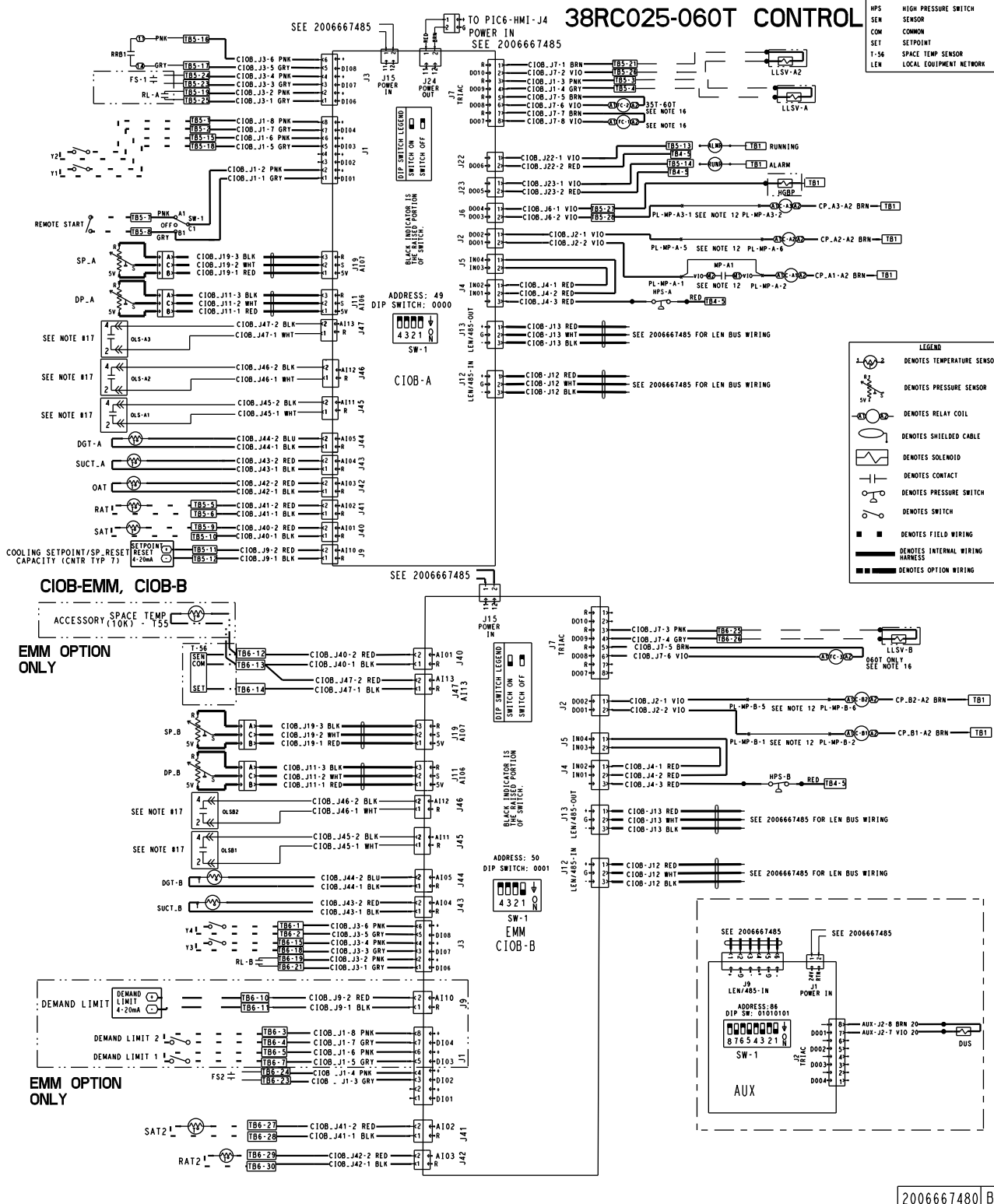
11. COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED - THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASE CONDITIONS
12. CORESENSE COMPRESSOR PROTECTION MODULE IS USED ON THE FOLLOWING UNITS:
A1 COMPRESSOR-DIGITAL OPTION - 38RC027, 030, 040, 050 - (ALL VOLTAGES)
38RC027, 030, 060 - (ALL VOLTAGES)
JUMPER USED ON ALL OTHER COMPRESSOR MP PLUGS.
13. CRANKCASE HEATERS COLOR CODES: 575/460V BLUE, 380/415V RED, 208/230V YELLOW
14. FOR FUSE REPLACEMENT TABLE REFERENCE 2006667488.
15. POWER SCHEMATIC 2006667488.
16. NOT USED WITH VARIABLE SPEED OPTION.
17. QLR NOT USED ON:
38RC027, 025, 38RC040.
AT COMPRESSOR WITH DIGITAL OPTION (ALL MODELS).

ABBREVIATION LISTING

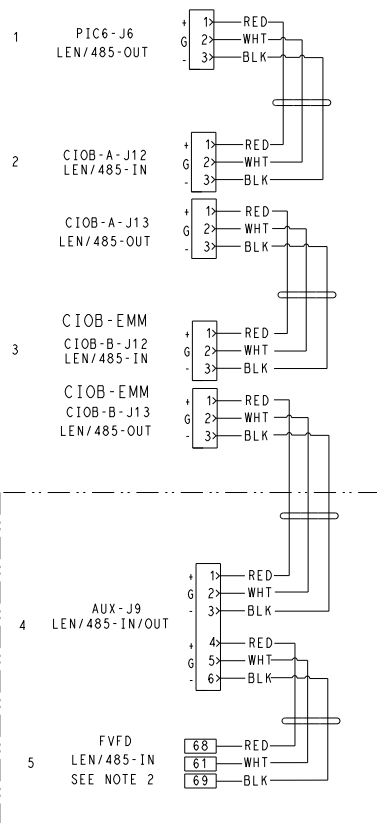
ALRM	ALARM RELAY
RUNR	RUNNING RELAY
LLSV	LIQUID LINE SOLENOID VALVE
FS	FAN STATUS
RL	REFRIGERANT LEAK
OLS	OIL LEVEL SENSOR
SAT	SUPPLY AIR TEMPERATURE
RAT	RETURN AIR TEMPERATURE
Y1	STAGE 1 COOLING
Y2	STAGE 2 COOLING
Y3	STAGE 3 COOLING
Y4	STAGE 4 COOLING

ABBREVIATION LISTING

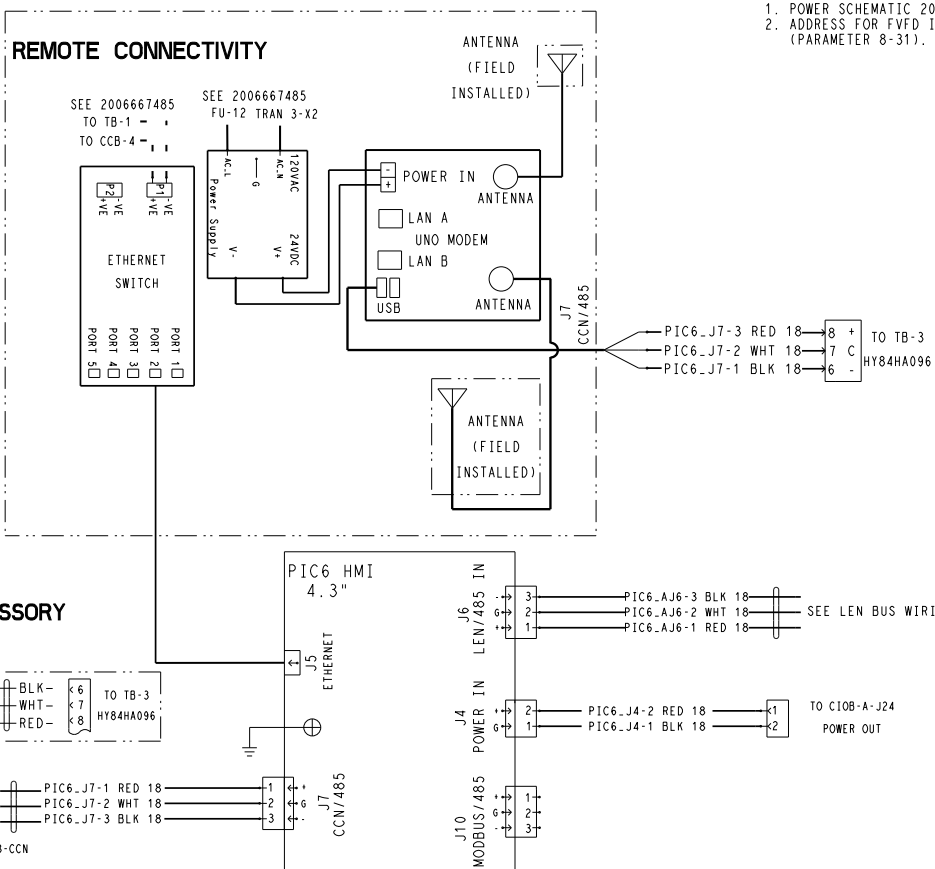
HGBP	HOT GAS BYPASS
FC	FAN CONTACTOR
EVN	ELECTRONIC EXPANSION VALVE
HPS	HIGH PRESSURE SWITCH
RRB1	REVERSE ROTATION RELAY/BOARD
MP	MOTOR PROTECTOR
T-STAT	THERMOSTAT
CIOB	CARRIER INPUT/OUTPUT BOARD
SP	SUCTION PRESSURE
DP	DISCHARGE PRESSURE
SUCT	SUCTION TEMPERATURE
OAT	OUTDOOR AIR TEMPERATURE
SP_RESET	SET POINT RESET
DGT	DISCHARGE GAS TEMPERATURE
DUS	DIGITAL UNLOAD SOLENOID
AUX	AUXILIARY
HPS	HIGH PRESSURE SWITCH
SEN	SENSOR
COM	COMMON
SET	SETPOINT
T-56	SPACE TEMP SENSOR
LEN	LOCAL EQUIPMENT NETWORK



IF THE COMPONENT ISN'T PRESENT GO TO THE NEXT



REMOTE CONNECTIVITY



LON ACCESSORY

38RC COMMUNICATION

NOTES:
1. POWER SCHEMATIC 2006667488.
2. ADDRESS FOR FVFD IS 184
(PARAMETER 8-31).

LEGEND

 DENOTES SHIELDED CABLE
 DENOTES FIELD WIRING
 DENOTES INTERNAL WIRING HARNESS

ABBREVIATION LISTING

AUX	AUXILIARY
CCB	CONTROL CIRCUIT BREAKER
CIOB	CARRIER INPUT/OUTPUT BOARD
FVFD	FAN VARIABLE FREQUENCY DRIVE
FU	FUSE
HMI	HUMAN MACHINE INTERFACE
LON	LOCAL OPERATING NETWORK
MP	MOTOR PROTECTOR
LEN	LOCAL EQUIPMENT NETWORK
TRAN	TRANSFORMER

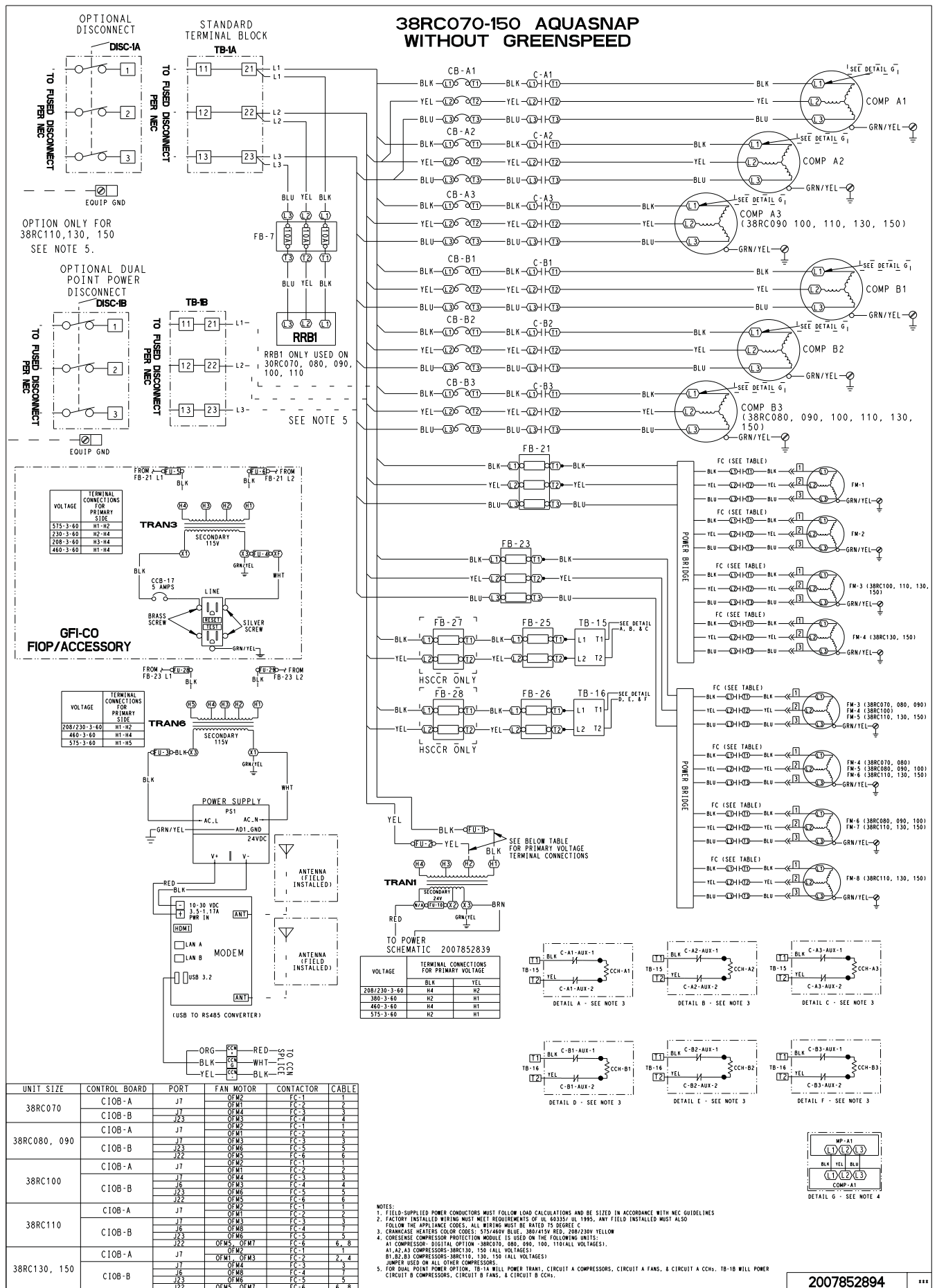
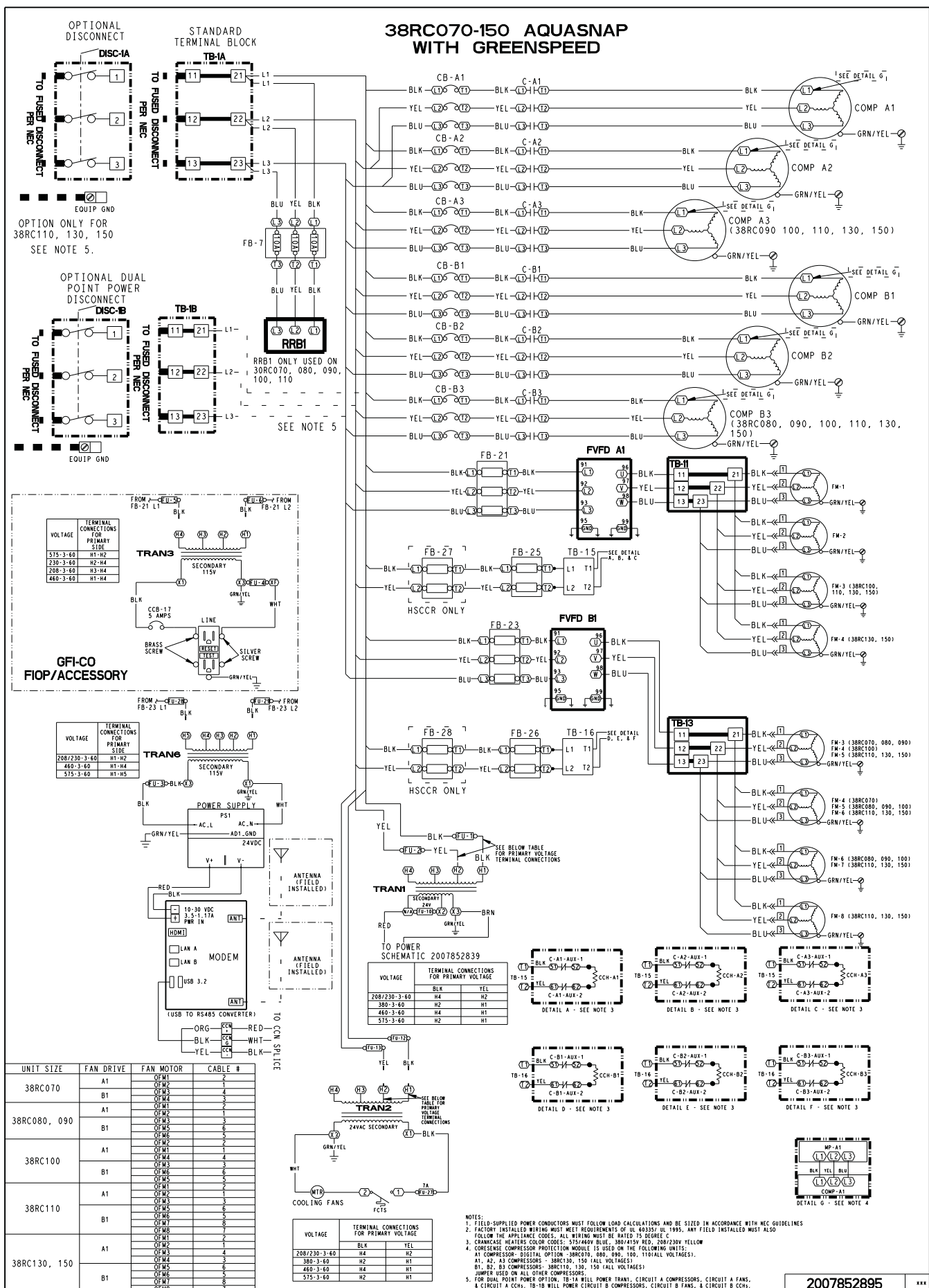
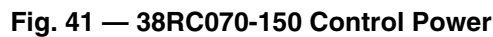


Fig. 39 — 38RC070-150 Aquasnap without Greenspeed





- NOTES:
1. FIELD-SUPPLIED CONTROL CONDUCTORS TO BE AT LEAST 18AWG (AMERICAN WIRE GAGE) OR LARGER. THE CONTROL CABINET SHOULD ONLY BE USED FOR LOW VOLTAGE FIELD WIRING (50-V MAXIMUM.)
 2. EACH DIGITAL OUTPUT LOOP SHALL BE LIMITED TO A MAXIMUM OF 1A AC RMS STEADY-STATE @ 24VAC. LIGHT LOAD RELAY IS RECOMMENDED AND THE COIL VOLTAGE OF RELAY IS 24VAC. POWER SUPPLY SHALL BE PROVIDED BY CUSTOMER FUSED TRANSFORMER.
 3. EACH DISCRETE INPUT LOOP IS POWERED BY INTERNAL 24VAC POWER SUPPLY. FIELD OPTIONAL CONTACTS OR SWITCHES MUST HAVE 24VAC RATING, MAX CURRENT IS 60MA. NOMINAL CURRENT IS 10M
 4. SWITCHES WITH GOLD PLATED BIFURCATED CONTACTS ARE RECOMMENDED.
 5. THE ANALOG INPUTS SUPPORT 5K/10K NTC THERMISTORS, 0/4-20MA SENSORS AND 5VDC SENSORS.
 6. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
 7. GROUND SHIELDS AT SIGNAL GENERATING DEVICES
 8. ALL FIELD INTERLOCK CONTACTS MUST HAVE A MINIMAL RATING OF 2A@24VAC SEALED.
 9. IF MP IS USED REMOVE JUMPER FROM ASSOCIATED TERMINAL BLOCKS

10. FACTORY INSTALLED WIRING MUST MEET REQUIREMENTS OF UL 60335-40-2. ANY FIELD INSTALLED MUST ALSO FOLLOW THE APPLIANCE CODES.
11. ALL WIRING MUST BE RATED 75 DEGREE C COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED - THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASE CONDITIONS
12. CORESENSE COMPRESSOR PROTECTION MODULE IS USED ON THE FOLLOWING COMPRESSORS:
A1 COMPRESSOR-DIGITAL OPTION - 38RC070, 080, 090, 100, 110 (ALL VOLTAGES)
A1, A2, A3 COMPRESSORS-38RC130, 150 (ALL VOLTAGES)
B1, B2, B3 COMPRESSORS-38RC110, 130, 150 (ALL VOLTAGES)
JUMPER USED ON ALL OTHER COMPRESSORS
13. CRANKCASE HEATERS COLOR CODES: 575/460V BLUE, 380/415V RED, 208/230V YELLOW
14. FOR FUSE REPLACEMENT TABLE REFERENCE 2008501678.
15. CONTROL POWER SCHEMATIC 2007852839.
16. NOT USED WITH VARIABLE SPEED OPTION
17. JUMPER TBS-16 AND TBS-17 IF PHASE MONITOR, RRB-1, NOT USED.
18. OLS NOT USED ON A1 COMPRESSOR WHEN DIGITAL OPTION IS SELECTED
19. RRB-1 IS TO BE USED ON THE FOLLOWING UNITS: 38RC070, 080,090, 100,110 (ALL VOLTAGES)

ABBREVIATION LISTING	
ALRM	ALARM RELAY
LLSV	LIQUID LINE SOLENOID VALVE
FS	FAN STATUS
RL	REFRIGERANT LEAK
OLS	OVER LEVEL SWITCH
SAT	RETURN AIR TEMPERATURE
RUN	RUNNING RELAY
B1	STAGE 1 COOLING
B2	STAGE 2 COOLING
B3	STAGE 3 COOLING
B4	STAGE 4 COOLING

ABBREVIATION LISTING	
HGBP	HOT GAS BYPASS
FC	FAN CONTACTOR
EXV	EXPANSION VALVE
HPS	HIGH PRESSURE SWITCH
CP	COMPRESSOR
RRB1	REVERSE ROTATION RELAY/BOARD
MP	MOTOR PROTECTOR
T-STAT	THERMOSTAT
CIOB	CARRIER INPUT/OUTPUT BOARD
SP	SUCTION PRESSURE
DP	DISCHARGE PRESSURE
SUCT	SUCTION TEMPERATURE
OAT	OUTDOOR AIR TEMPERATURE
SP,RESET	SET POINT RESET
DGT	DISCHARGE GAS TEMPERATURE
DUG	DIGITAL UNLOAD SOLENOID
AUX	AUXILIARY
HPS	HIGH PRESSURE SWITCH
LEN	LOCAL EQUIPMENT NETWORK
T-56	SPACE TEMP SENSOR
SEN	SENSOR
COM	COMMON

38RC070-150 CONTROL

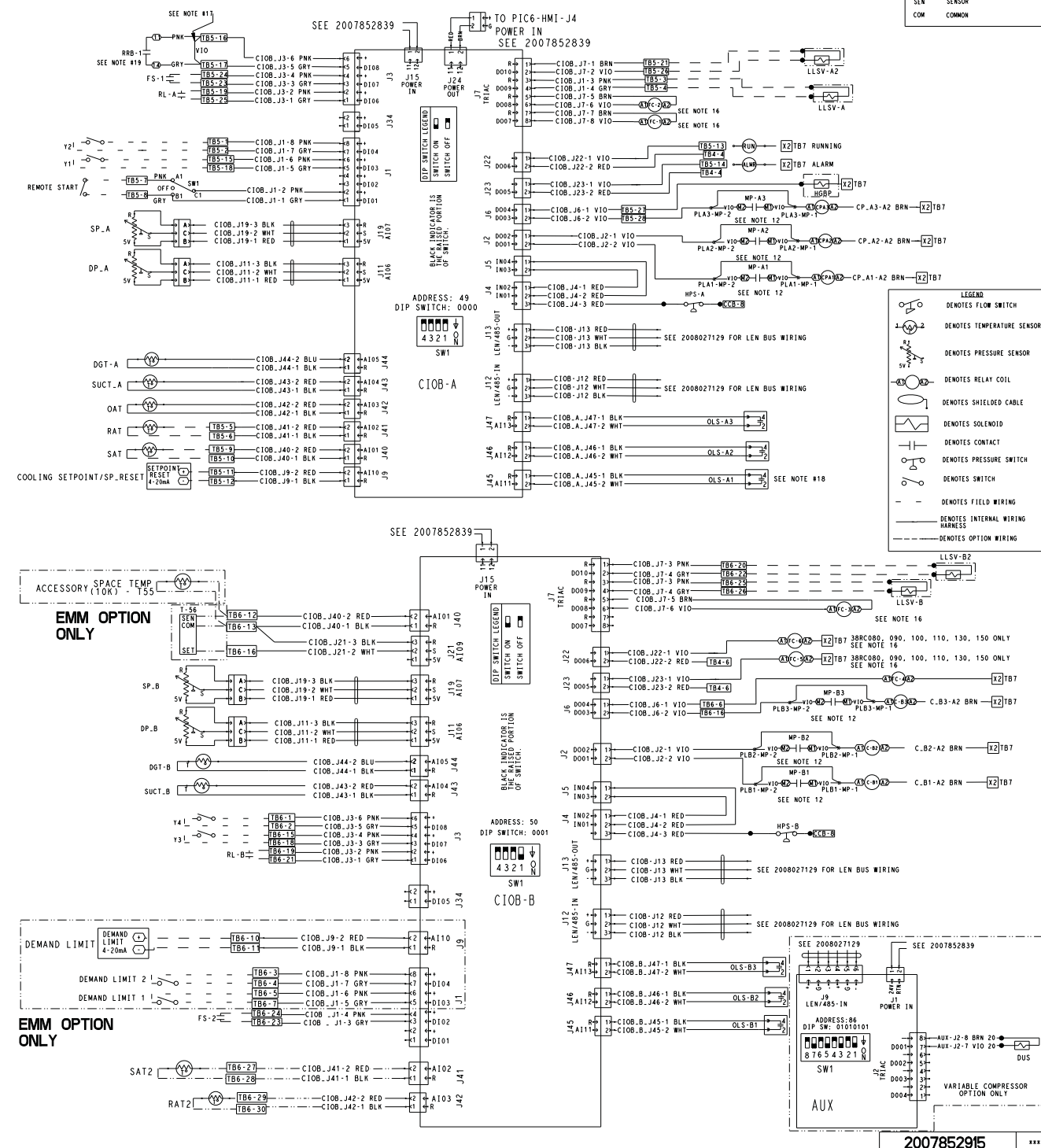


Fig. 42 — 38RC070-150 Control Schematic

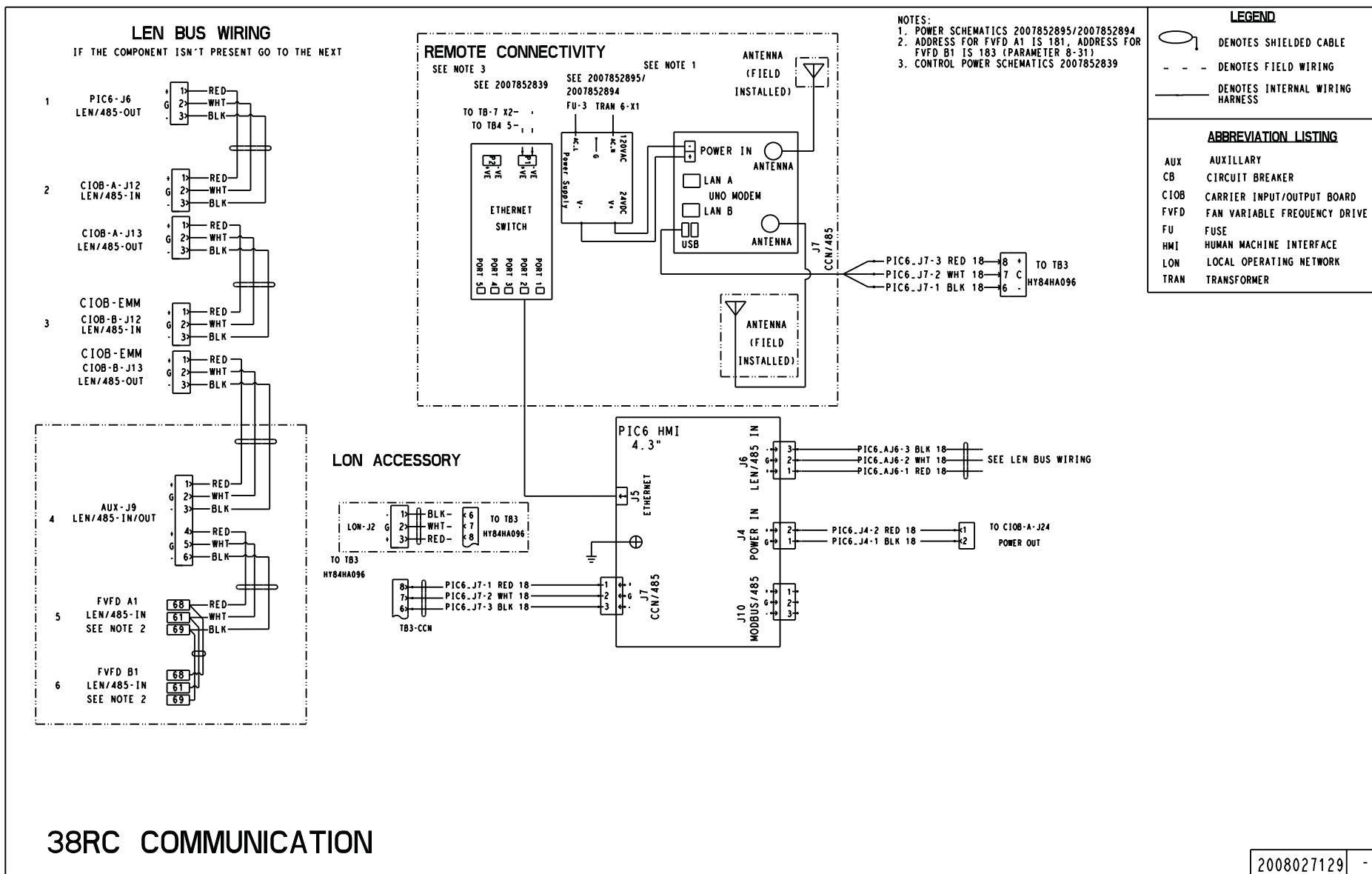


Fig. 43 — 38RC070-150 Communication Schematics

ADDITIONAL NOTES FOR FIG. 35-43

1. Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. All units or modules except sizes 115 and 130 have single point primary power connection. Main power must be supplied from a field or factory-supplied disconnect. Unit sizes 115 and 130 have an option for dual point power.
3. Wiring for main field supply must be rated 75°C. Use copper conductors only.
 - a. Incoming wire size range for terminal block with MCA (minimum circuit amps) up to 175 amps is 14 AWG (American Wire Gage) to 2/0.
 - b. Incoming wire size range for terminal block with MCA from 175.1 amps to 420 amps is 2 AWG to 600 kcmil.
 - c. Incoming wire size range for non-fused disconnect with MCA up to 100 amps is 14 AWG to 1/0.
 - d. Incoming wire size range for non-fused disconnect with MCA from 100.1 amps to 200 amps is 6 AWG to 350 kcmil.
 - e. Incoming wire size range for non-fused disconnect with MCA from 200.1 amps to 450 amps is 3/0 to 500 kcmil.
4. Terminal TB5-14 is for the alarm relay. The maximum load allowed for the alarm relay is 5 va sealed and 10 va inrush at 24 v. Field power supply is not required.
5. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
6. Terminals 3, 4 and 21, 26 on TB5 and 25, 26 on TB6 are for control of the field-supplied LLSV. The maximum load allowed for each LLSV is 40 va at 24 v. Field power supply is not required.
7. All discrete inputs are 24 vac.
8. LLSV (24-v) should be 40 va maximum per valve as required.
9. Installation of fan status switch (FS1) is recommended.
10. The contacts for remote ON/OFF, fan status, and demand limit options must be rated for dry circuit application capable of handling a 24-vac load up to 50 mA.

Table 13 — 38RC 025-060 Single Point Power — Standard Compressor Electrical Data

UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	RATINGS			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
25	208/230	60	187	253	2	92.6	125	314	110
	380	60	342	418	2	52.2	70	201	60
	380	50	342	418	2	44.6	60	164	50
	460	60	414	506	2	43.4	60	163	50
	575	60	518	633	2	32.8	45	125	40
27	208/230	60	187	253	2	128.4	175	400	150
	380	60	342	418	2	68.7	90	205	80
	380	50	342	418	2	58.7	80	172	70
	460	60	414	506	2	56.7	70	170	70
	575	60	518	633	2	45.3	60	136	50
30	208/230	60	187	253	2	135.4	175	432	150
	380	60	342	418	2	78.7	110	266	90
	380	50	342	418	2	67.2	90	221	80
	460	60	414	506	2	65.2	90	215	80
	575	60	518	633	2	51.6	70	172	60
40 Dual	208/230	60	187	253	3	161.5	175	383	175
	380	60	342	418	3	96.6	110	245	110
	380	50	342	418	3	77.8	90	197	90
	460	60	414	506	3	75.6	90	195	80
	575	60	518	633	3	58.5	70	151	70
40 Single	208/230	60	187	253	3	186.1	225	458	200
	380	60	342	418	3	99.6	125	236	110
	380	50	342	418	3	85.2	100	199	100
	460	60	414	506	3	82.2	100	196	90
	575	60	518	633	3	65.7	80	157	80
50 Dual	208/230	60	187	253	3	222.0	250	494	250
	380	60	342	418	3	125.2	150	269	150
	380	50	342	418	3	106.4	125	226	125
	460	60	414	506	3	103.4	125	223	110
	575	60	518	633	3	82.8	100	179	90
50 Single	208/230	60	187	253	3	196.3	250	493	225
	380	60	342	418	3	114.1	125	301	125
	380	50	342	418	3	97.5	110	251	110
	460	60	414	506	3	94.5	110	244	110
	575	60	518	633	3	74.9	90	195	90
60 Dual	208/230	60	187	253	4	250.9	300	548	300
	380	60	342	418	4	140.6	150	328	150
	380	50	342	418	4	120.2	125	274	125
	460	60	414	506	4	116.2	125	266	125
	575	60	518	633	4	92.5	110	213	100

Table 14 — 38RC 025-060 Single Point Power — Digital Compressor Electrical Data

UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	RATINGS			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
25	208/230	60	187	253	2	90.6	125	310.8	100
	380	60	342	418	2	52.9	70	200.3	60
	380	50	342	418	2	45.7	60	163.2	60
	460	60	414	506	2	44.3	60	162.5	50
	575	60	518	633	2	33.9	45	124.9	40
27	208/230	60	187	253	2	126.4	175	397.3	150
	380	60	342	418	2	69.5	90	204.1	80
	380	50	342	418	2	60.6	80	171.4	70
	460	60	414	506	2	58.8	80	178.4	70
	575	60	518	633	2	47.3	60	135.6	60
30	208/230	60	187	253	2	143.5	200	430.9	175
	380	60	342	418	2	77.3	100	263.9	90
	380	50	342	418	2	67.5	90	220.2	80
	460	60	414	506	2	65.5	90	214.2	80
	575	60	518	633	2	55.6	70	171.2	70
40 Dual	208/230	60	187	253	3	159.5	175	379.7	175
	380	60	342	418	3	97.2	110	244.6	110
	380	50	342	418	3	79.0	90	196.4	90
	460	60	414	506	3	76.5	90	194.7	90
	575	60	518	633	3	59.6	70	150.6	70
40 Single	208/230	60	187	253	3	184.2	225	455.0	200
	380	60	342	418	3	100.5	125	235.0	110
	380	50	342	418	3	87.1	110	197.9	100
	460	60	414	506	3	84.3	100	203.9	100
	575	60	518	633	3	67.7	80	156.0	80
50 Dual	208/230	60	187	253	3	226.5	250	497.4	250
	380	60	342	418	3	121.8	125	264.3	125
	380	50	342	418	3	105.1	125	223.8	125
	460	60	414	506	3	102.1	110	220.8	110
	575	60	518	633	3	80.7	90	175.8	90
50 Single	208/230	60	187	253	3	204.4	250	491.7	225
	380	60	342	418	3	112.7	125	299.3	125
	380	50	342	418	3	97.8	110	250.5	110
	460	60	414	506	3	94.8	110	243.5	110
	575	60	518	633	3	78.8	100	194.4	90
60 Dual	208/230	60	187	253	4	249.0	300	544.4	300
	380	60	342	418	4	141.3	150	327.9	150
	380	50	342	418	4	121.8	125	274.8	125
	460	60	414	506	4	117.9	125	266.9	125
	575	60	518	633	4	94.1	110	213.6	100

Table 15 — 38RC 025-060 Compressor and Fan Data

UNIT 38RC	V(3 Ph)	Hz	Single Point	Fixed Speed Condenser Fans FLA	Greenspeed Condenser Fans FLA	COMPRESSORS																			
			A1			A2			A3				B1				B2								
			Size, Tons			RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	
25	208/230	60	2	6.0	6.0	10	35.8	265.0	52.3	10	35.8	265.0	52.3	—	—	—	—	—	—	—	—	—	—	—	—
	380	60	2	3.9	3.9	10	19.7	172.8	28.8	10	19.7	172.8	28.8	—	—	—	—	—	—	—	—	—	—	—	
	380	50	2	3.9	3.9	10	16.4	139.0	23.9	10	16.4	139.0	23.9	—	—	—	—	—	—	—	—	—	—	—	
	460	60	2	2.9	2.9	10	16.7	140.0	24.4	10	16.7	140.0	24.4	—	—	—	—	—	—	—	—	—	—	—	
	575	60	2	2.4	2.4	10	12.5	107.6	18.2	10	12.5	107.6	18.2	—	—	—	—	—	—	—	—	—	—	—	
27	208/230	60	2	6.0	6.0	13	51.7	335.5	75.5	13	51.7	335.5	75.5	—	—	—	—	—	—	—	—	—	—	—	—
	380	60	2	3.9	3.9	13	27.1	169.2	39.5	13	27.1	169.2	39.5	—	—	—	—	—	—	—	—	—	—	—	
	380	50	2	3.9	3.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	—	—	—	—	—	—	—	
	460	60	2	2.9	2.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	—	—	—	—	—	—	—	
	575	60	2	2.4	2.4	13	18.0	112.8	26.3	13	18.0	112.8	26.3	—	—	—	—	—	—	—	—	—	—	—	
30	208/230	60	2	6.0	6.0	15	54.9	364.0	80.1	15	54.9	364.0	80.1	—	—	—	—	—	—	—	—	—	—	—	—
	380	60	2	3.9	3.9	15	31.5	226.0	46.0	15	31.5	226.0	46.0	—	—	—	—	—	—	—	—	—	—	—	
	380	50	2	3.9	3.9	15	26.4	186.0	38.0	15	26.4	186.0	38.0	—	—	—	—	—	—	—	—	—	—	—	
	460	60	2	2.9	2.9	15	26.4	182.0	38.0	15	26.4	182.0	38.0	—	—	—	—	—	—	—	—	—	—	—	
	575	60	2	2.4	2.4	15	20.8	145.6	30.4	15	20.8	145.6	30.4	—	—	—	—	—	—	—	—	—	—	—	
40 Dual	208/230	60	3	6.0	6.0	10	35.8	265.0	52.3	10	35.8	265.0	52.3	—	—	—	—	9	31.4	265.0	45.9	9	31.4	265.0	45.9
	380	60	3	3.9	3.9	10	19.7	172.8	28.8	10	19.7	172.8	28.8	—	—	—	—	9	20.2	172.8	29.5	9	20.2	172.8	29.5
	380	50	3	3.9	3.9	10	16.4	139.0	23.9	10	16.4	139.0	23.9	—	—	—	—	9	14.7	128.0	21.4	9	14.7	128.0	21.4
	460	60	3	2.9	2.9	10	16.7	140.0	24.4	10	16.7	140.0	24.4	—	—	—	—	9	14.7	130.0	21.4	9	14.7	130.0	21.4
	575	60	3	2.4	2.4	10	12.5	107.6	18.2	10	12.5	107.6	18.2	—	—	—	—	9	11.6	93.7	17.0	9	11.6	93.7	17.0
40 Single	208/230	60	3	6.0	6.0	13	51.7	335.5	75.5	13	51.7	335.5	75.5	13.0	51.7	335.5	75.5	—	—	—	—	—	—	—	—
	380	60	3	3.9	3.9	13	27.1	169.2	39.5	13	27.1	169.2	39.5	13.0	27.1	169.2	39.5	—	—	—	—	—	—	—	—
	380	50	3	3.9	3.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	13.0	22.6	141.0	32.9	—	—	—	—	—	—	—	—
	460	60	3	2.9	2.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	13.0	22.6	141.0	32.9	—	—	—	—	—	—	—	—
	575	60	3	2.4	2.4	13	18.0	112.8	26.3	13	18.0	112.8	26.3	13.0	18.0	112.8	26.3	—	—	—	—	—	—	—	—
50 Dual	208/230	60	3	6.0	6.0	11	43.8	294.0	64.0	11	43.8	294.0	64.0	—	—	—	—	13	51.7	335.5	75.5	13	51.7	335.5	75.5
	380	60	3	3.9	3.9	11	26.3	176.4	38.4	11	26.3	176.4	38.4	—	—	—	—	13	27.1	169.2	39.5	13	27.1	169.2	39.5
	380	50	3	3.9	3.9	11	21.9	147.0	32.0	11	21.9	147.0	32.0	—	—	—	—	13	22.6	141.0	32.9	13	22.6	141.0	32.9
	460	60	3	2.9	2.9	11	21.9	147.0	32.0	11	21.9	147.0	32.0	—	—	—	—	13	22.6	141.0	32.9	13	22.6	141.0	32.9
	575	60	3	2.4	2.4	11	17.5	117.6	25.6	11	17.5	117.6	25.6	—	—	—	—	13	18.0	112.8	26.3	13	18.0	112.8	26.3
50 Single	208/230	60	3	6.0	6.0	15	54.9	364.0	80.1	15	54.9	364.0	80.1	15.0	54.9	364.0	80.1	—	—	—	—	—	—	—	—
	380	60	3	3.9	3.9	15	31.5	226.0	46.0	15	31.5	226.0	46.0	15.0	31.5	226.0	46.0	—	—	—	—	—	—	—	—
	380	50	3	3.9	3.9	15	26.4	186.0	38.0	15	26.4	186.0	38.0	15.0	26.4	186.0	38.0	—	—	—	—	—	—	—	—
	460	60	3	2.9	2.9	15	26.4	182.0	38.0	15	26.4	182.0	38.0	15.0	26.4	182.0	38.0	—	—	—	—	—	—	—	—
	575	60	3	2.4	2.4	15	20.8	145.6	30.4	15	20.8	145.6	30.4	15.0	20.8	145.6	30.4	—	—	—	—	—	—	—	—
60 Dual	208/230	60	4	6.0	6.0	13	51.7	335.5	75.5	13	51.7	335.5	75.5	—	—	—	—	15	54.9	364.0	80.1	15	54.9	364.0	80.1
	380	60	4	3.9	3.9	13	27.1	169.2	39.5	13	27.1	169.2	39.5	—	—	—	—	15	31.5	226.0	46.0	15	31.5	226.0	46.0
	380	50	4	3.9	3.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	15	26.4	186.0	38.0	15	26.4	186.0	38.0
	460	60	4	2.9	2.9	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	15	26.4	182.0	38.0	15	26.4	182.0	38.0
	575	60	4	2.4	2.4	13	18.0	112.8	26.3	13	18.0	112.8	26.3	—	—	—	—	15	20.8	145.6	30.4	15	20.8	145.6	30.4

Table 16 — 38RC 025-060 Compressor and Fan Data — Digital

UNIT 38RC	V(3 Ph)	Hz	Single Point	Fixed Speed Condenser Fans FLA	Greenspeed Condenser Fans FLA	COMPRESSORS																			
			A1				A2				A3				B1				B2						
			Size, Tons			RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	Size, Tons	RLA	LRA	MOC/ MCC	
25	208/230	60	2	6.0	6.0	11	33.8	240.0	49.4	10	35.8	265.0	52.3	—	—	—	—	—	—	—	—	—	—	—	—
	380	60	2	3.9	3.9	11	20.3	152.0	29.6	10	19.7	172.8	28.8	—	—	—	—	—	—	—	—	—	—	—	
	380	50	2	3.9	3.9	11	17.3	139.0	25.2	10	16.4	139.0	23.9	—	—	—	—	—	—	—	—	—	—		
	460	60	2	2.9	2.9	11	17.4	140.0	25.4	10	16.7	140.0	24.4	—	—	—	—	—	—	—	—	—	—		
	575	60	2	2.4	2.4	11	13.3	107.6	19.4	10	12.5	107.6	18.2	—	—	—	—	—	—	—	—	—	—		
27	208/230	60	2	6.0	6.0	14	49.8	300.0	72.0	13	51.7	335.5	75.5	—	—	—	—	—	—	—	—	—	—	—	
	380	60	2	3.9	3.9	14	27.7	139.0	40.5	13	27.1	169.2	39.5	—	—	—	—	—	—	—	—	—	—		
	380	50	2	3.9	3.9	14	24.2	140.0	35.3	13	22.6	141.0	32.9	—	—	—	—	—	—	—	—	—	—		
	460	60	2	2.9	2.9	14	24.3	150.0	35.5	13	22.6	141.0	32.9	—	—	—	—	—	—	—	—	—	—		
	575	60	2	2.4	2.4	14	19.6	109.0	28.6	13	18.0	112.8	26.3	—	—	—	—	—	—	—	—	—	—		
30	208/230	60	2	6.0	6.0	16	61.3	340.0	89.5	15	54.9	364.0	80.1	—	—	—	—	—	—	—	—	—	—	—	
	380	60	2	3.9	3.9	16	30.1	196.0	44.0	15	31.5	226.0	46.0	—	—	—	—	—	—	—	—	—	—		
	380	50	2	3.9	3.9	16	26.6	173.0	38.9	15	26.4	186.0	38.0	—	—	—	—	—	—	—	—	—	—		
	460	60	2	2.9	2.9	16	26.6	173.0	38.9	15	26.4	182.0	38.0	—	—	—	—	—	—	—	—	—	—		
	575	60	2	2.4	2.4	16	24.0	132.0	35.0	15	20.8	145.6	30.4	—	—	—	—	—	—	—	—	—	—		
40 Dual	208/230	60	3	6.0	6.0	11	33.8	240.0	49.4	10	35.8	265.0	52.3	—	—	—	—	9.0	31.4	265.0	45.9	9.0	31.4	265.0	45.9
	380	60	3	3.9	3.9	11	20.3	152.0	29.6	10	19.7	172.8	28.8	—	—	—	—	9.0	20.2	172.8	29.5	9.0	20.2	172.8	29.5
	380	50	3	3.9	3.9	11	17.3	139.0	25.2	10	16.4	139.0	23.9	—	—	—	—	9.0	14.7	128.0	21.4	9.0	14.7	128.0	21.4
	460	60	3	2.9	2.9	11	17.4	140.0	25.4	10	16.7	140.0	24.4	—	—	—	—	9.0	14.7	130.0	21.4	9.0	14.7	130.0	21.4
	575	60	3	2.4	2.4	11	13.3	107.6	19.4	10	12.5	107.6	18.2	—	—	—	—	9.0	11.6	93.7	17.0	9.0	11.6	93.7	17.0
40 Single	208/230	60	3	6.0	6.0	14	49.8	300.0	72.0	13	51.7	335.5	75.5	13	51.7	335.5	75.5	—	—	—	—	—	—	—	
	380	60	3	3.9	3.9	14	27.7	139.0	40.5	13	27.1	169.2	39.5	13	27.1	169.2	39.5	—	—	—	—	—	—	—	
	380	50	3	3.9	3.9	14	24.2	140.0	35.3	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	—	—	—	
	460	60	3	2.9	2.9	14	24.3	150.0	35.5	13	22.6	141.0	32.9	13	22.6	141.0	32.9	—	—	—	—	—	—	—	
	575	60	3	2.4	2.4	14	19.6	109.0	28.6	13	18.0	112.8	26.3	13	18.0	112.8	26.3	—	—	—	—	—	—	—	
50 Dual	208/230	60	3	6.0	6.0	12	48.4	245.0	70.6	11	43.8	294.0	64.0	—	—	—	—	13.0	51.7	335.5	75.5	13.0	51.7	335.5	75.5
	380	60	3	3.9	3.9	12	22.9	145.0	33.4	11	26.3	176.4	38.4	—	—	—	—	13.0	27.1	169.2	39.5	13.0	27.1	169.2	39.5
	380	50	3	3.9	3.9	12	20.6	118.0	30.1	11	21.9	147.0	32.0	—	—	—	—	13.0	22.6	141.0	32.9	13.0	22.6	141.0	32.9
	460	60	3	2.9	2.9	12	20.6	125.0	30.1	11	21.9	147.0	32.0	—	—	—	—	13.0	22.6	141.0	32.9	13.0	22.6	141.0	32.9
	575	60	3	2.4	2.4	12	15.5	100.0	22.6	11	17.5	117.6	25.6	—	—	—	—	13.0	18.0	112.8	26.3	13.0	18.0	112.8	26.3
50 Single	208/230	60	3	6.0	6.0	16	61.3	340.0	89.5	15	54.9	364.0	80.1	15	54.9	364.0	80.1	—	—	—	—	—	—	—	
	380	60	3	3.9	3.9	16	30.1	196.0	44.0	15	31.5	226.0	46.0	15	31.5	226.0	46.0	—	—	—	—	—	—	—	
	380	50	3	3.9	3.9	16	26.6	173.0	38.9	15	26.4	186.0	38.0	15	26.4	186.0	38.0	—	—	—	—	—	—	—	
	460	60	3	2.9	2.9	16	26.6	173.0	38.9	15	26.4	182.0	38.0	15	26.4	182.0	38.0	—	—	—	—	—	—	—	
	575	60	3	2.4	2.4	16	24.0	132.0	35.0	15	20.8	145.6	30.4	15	20.8	145.6	30.4	—	—	—	—	—	—	—	
60 Dual	208/230	60	4	6.0	6.0	14	49.8	300.0	72.0	13	51.7	335.5	75.5	—	—	—	—	15.0	54.9	364.0	80.1	15.0	54.9	364.0	80.1
	380	60	4	3.9	3.9	14	27.7	139.0	40.5	13	27.1	169.2	39.5	—	—	—	—	15.0	31.5	226.0	46.0	15.0	31.5	226.0	46.0
	380	50	4	3.9	3.9	14	24.2	140.0	35.3	13	22.6	141.0	32.9	—	—	—	—	15.0	26.4	186.0	38.0	15.0	26.4	186.0	38.0
	460	60	4	2.9	2.9	14	24.3	150.0	35.5	13	22.6	141.0	32.9	—	—	—	—	15.0	26.4	182.0	38.0	15.0	26.4	182.0	38.0
	575	60	4	2.4	2.4	14	19.6	109.0	28.6	13	18.0	112.8	26.3	—	—	—	—	15.0	20.8	145.6	30.4	15.0	20.8	145.6	30.4

Table 17 — 38RC 070-150 Single Point Power Fixed Speed 8-Pole Fan Motors

UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	NO HYDRONIC PACKAGE			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
70	208/230	60	187	253	4	255.2	300	551	300
	380	60	342	418	4	146.3	175	333	175
	460	60	414	506	4	121.0	125	274	125
	575	60	518	633	4	119.0	125	272	125
	380/415	50	342	440	4	121.0	125	274	125
80	208/230	60	187	253	5	315.5	350	611	350
	380	60	342	418	5	180.9	200	368	200
	460	60	414	506	5	149.6	175	303	175
	575	60	518	633	5	147.1	150	301	150
	380/415	50	342	440	5	149.6	175	303	175
90	208/230	60	187	253	5	350.7	400	622	400
	380	60	342	418	5	184.6	200	320	200
	460	60	414	506	5	153.8	175	267	175
	575	60	518	633	5	151.3	175	264	175
	380/415	50	342	440	5	153.8	175	267	175
100	208/230	60	187	253	6	375.9	400	671	400
	380	60	342	418	6	215.5	225	402	225
	460	60	414	506	6	178.3	200	332	200
	575	60	518	633	6	175.3	200	329	200
	380/415	50	342	440	6	178.3	200	332	200
110	208/230	60	187	253	7	381.4	400	677	400
	380	60	342	418	7	218.6	250	405	250
	460	60	414	506	7	180.9	200	334	200
	575	60	518	633	7	177.4	200	331	200
	380/415	50	342	440	7	180.9	200	334	200
130	208/230	60	187	253	8	466.2	500	382	500
	380	60	342	418	8	255.9	300	210	300
	460	60	414	506	8	200.6	225	384	225
	575	60	518	633	8	196.6	225	380	225
	380/415	50	342	440	8	200.6	225	384	225
150	208/230	60	187	253	8	555.2	600	453	600
	380	60	342	418	8	304.6	350	249	350
	460	60	414	506	8	252.0	300	486	300
	575	60	518	633	8	201.7	225	165	225
	380/415	50	342	440	8	300.6	350	245	350

Table 18 — 38RC 070-150 Single Point Power Fixed Speed 8-Pole Fan Motors, Digital

SINGLE POINT POWER - FIXED SPEED FANS									
UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	NO HYDRONIC PACKAGE			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
70	208/230	60	187	253	4	263.2	300	551	300
	380	60	342	418	4	144.9	175	332	175
	460	60	414	506	4	121.8	125	274	125
	575	60	518	633	4	117.0	125	270	125
	380/415	50	342	440	4	126.2	150	284	150
80	208/230	60	187	253	5	323.6	350	611	350
	380	60	342	418	5	179.5	200	366	200
	460	60	414	506	5	150.4	175	303	175
	575	60	518	633	5	145.1	150	299	150
	380/415	50	342	440	5	154.8	175	313	175
90	208/230	60	187	253	5	348.3	400	619	400
	380	60	342	418	5	185.4	200	320	200
	460	60	414	506	5	155.9	175	267	175
	575	60	518	633	5	153.4	175	264	175
	380/415	50	342	440	5	155.9	175	267	175
100	208/230	60	187	253	6	383.9	400	671	400
	380	60	342	418	6	214.1	225	401	225
	460	60	414	506	6	179.0	200	332	200
	575	60	518	633	6	173.2	175	327	175
	380/415	50	342	440	6	183.4	200	342	200
110	208/230	60	187	253	7	389.4	450	677	450
	380	60	342	418	7	217.2	225	404	225
	460	60	414	506	7	181.6	200	334	200
	575	60	518	633	7	175.3	200	329	200
	380/415	50	342	440	7	186.0	200	344	200

Table 19 — 38RC 070-150 Single Point Power GreenSpeed 6-Pole Fan Motors

SINGLE POINT POWER - GREENSPEED FANS									
UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	NO HYDRONIC PACKAGE			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
70	208/230	60	187	253	4	275.6	300	571	300
	380	60	342	418	4	157.1	175	344	175
	460	60	414	506	4	129.8	150	283	150
	575	60	518	633	4	125.8	150	279	150
	380/415	50	342	440	4	129.8	150	283	150
80	208/230	60	187	253	5	341.0	350	636	350
	380	60	342	418	5	194.4	225	381	225
	460	60	414	506	5	160.6	175	314	175
	575	60	518	633	5	155.6	175	309	175
	380/415	50	342	440	5	160.6	175	314	175
90	208/230	60	187	253	5	376.2	400	647	400
	380	60	342	418	5	198.1	225	333	225
	460	60	414	506	5	164.8	175	278	175
	575	60	518	633	5	159.8	175	273	175
	380/415	50	342	440	5	164.8	175	278	175
100	208/230	60	187	253	6	406.5	450	702	450
	380	60	342	418	6	231.7	250	418	250
	460	60	414	506	6	191.5	200	345	200
	575	60	518	633	6	185.5	200	339	200
	380/415	50	342	440	6	191.5	200	345	200
110	208/230	60	187	253	7	417.1	450	713	450
	380	60	342	418	7	237.5	250	424	250
	460	60	414	506	7	196.3	200	350	200
	575	60	518	633	7	189.3	200	343	200
	380/415	50	342	440	7	196.3	200	350	200
130	208/230	60	187	253	8	507.0	600	423	600
	380	60	342	418	8	277.5	300	231	300
	460	60	414	506	8	218.2	225	401	225
	575	60	518	633	8	210.2	225	393	225
	380/415	50	342	440	8	218.2	225	401	225
150	208/230	60	187	253	8	596.0	600	494	600
	380	60	342	418	8	326.2	350	270	350
	460	60	414	506	8	269.6	300	504	300
	575	60	518	633	8	215.3	225	178	225
	380/415	50	342	440	8	318.2	350	262	350

Table 20 — 38RC 070-150 Single Point Power GreenSpeed 6-Pole Fan Motors, Digital

UNIT 38RC	UNIT VOLTAGE				NUMBER OF COND FANS	NO HYDRONIC PACKAGE			
	V(3 Ph)	Hz	Supplied			MCA	MOCP	ICF	REC FUSE SIZE
			Min	Max					
70	208/230	60	187	253	4	275.6	300	571	300
	380	60	342	418	4	157.1	175	344	175
	460	60	414	506	4	129.8	150	283	150
	575	60	518	633	4	125.8	150	279	150
	380/415	50	342	440	4	129.8	150	283	150
80	208/230	60	187	253	5	341.0	350	636	350
	380	60	342	418	5	194.4	225	381	225
	460	60	414	506	5	160.6	175	314	175
	575	60	518	633	5	155.6	175	309	175
	380/415	50	342	440	5	160.6	175	314	175
90	208/230	60	187	253	5	376.2	400	647	400
	380	60	342	418	5	198.1	225	333	225
	460	60	414	506	5	164.8	175	278	175
	575	60	518	633	5	159.8	175	273	175
	380/415	50	342	440	5	164.8	175	278	175
100	208/230	60	187	253	6	406.5	450	702	450
	380	60	342	418	6	231.7	250	418	250
	460	60	414	506	6	191.5	200	345	200
	575	60	518	633	6	185.5	200	339	200
	380/415	50	342	440	6	191.5	200	345	200
110	208/230	60	187	253	7	417.1	450	713	450
	380	60	342	418	7	237.5	250	424	250
	460	60	414	506	7	196.3	200	350	200
	575	60	518	633	7	189.3	200	343	200
	380/415	50	342	440	7	196.3	200	350	200

Table 21 — 38RC 070-150 Condenser Fan Electrical Data

UNIT 38RC	V(3 Ph)	Hz	Single Point	Fixed Speed Condenser Fans FLA	Greenspeed Condenser Fans FLA
70	208/230	60	4	5.5	10.6
	380	60	4	3.1	5.8
	460	60	4	2.6	4.8
	575	60	4	2.1	3.8
	380/415	50	4	2.6	4.8
80	208/230	60	5	5.5	10.6
	380	60	5	3.1	5.8
	460	60	5	2.6	4.8
	575	60	5	2.1	3.8
	380/415	50	5	2.6	4.8
90	208/230	60	5	5.5	10.6
	380	60	5	3.1	5.8
	460	60	5	2.6	4.8
	575	60	5	2.1	3.8
	380/415	50	5	2.6	4.8
100	208/230	60	6	5.5	10.6
	380	60	6	3.1	5.8
	460	60	6	2.6	4.8
	575	60	6	2.1	3.8
	380/415	50	6	2.6	4.8
110	208/230	60	7	5.5	10.6
	380	60	7	3.1	5.8
	460	60	7	2.6	4.8
	575	60	7	2.1	3.8
	380/415	50	7	2.6	4.8
130	208/230	60	8	5.5	10.6
	380	60	8	3.1	5.8
	460	60	8	2.6	4.8
	575	60	8	2.1	3.8
	380/415	50	8	2.6	4.8
150	208/230	60	8	5.5	10.6
	380	60	8	3.1	5.8
	460	60	8	2.6	4.8
	575	60	8	2.1	3.8
	380/415	50	8	2.6	4.8

Table 22 — 38RC 070-150 Compressor Electrical Data

UNIT 38RC	V(3 Ph)	Hz	Compressors																	
			A1			A2			A3			B1			B2			B3		
			TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA
70	208/230	60	15	54.9	364	15	54.9	364	—	—	—	15	54.9	364	15	54.9	364	—	—	—
	380	60	15	31.5	226	15	31.5	226	—	—	—	15	31.5	226	15	31.5	226	—	—	—
	460	60	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
	575	60	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
	380/415	50	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
80	208/230	60	15	54.9	364	15	54.9	364	—	—	—	15	54.9	364	15	54.9	364	15	54.9	364
	380	60	15	31.5	226	15	31.5	226	—	—	—	15	31.5	226	15	31.5	226	15	31.5	226
	460	60	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
	575	60	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
	380/415	50	15	26.0	186	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
90	208/230	60	13	51.7	336	13	51.7	336	13	52	336	15	51.7	336	15	51.7	336	15	51.7	336
	380	60	13	27.1	169	13	27.1	169	13	27	169	15	27.1	169	15	27.1	169	15	27.1	169
	460	60	13	22.5	141	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
	575	60	13	22.5	141	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
	380/415	50	13	22.5	141	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
100	208/230	60	15	54.9	364	15	54.9	364	15	55	364	15	54.9	364	15	54.9	364	15	54.9	364
	380	60	15	31.5	226	15	31.5	226	15	32	226	15	31.5	226	15	31.5	226	15	31.5	226
	460	60	15	26.0	186	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
	575	60	15	26.0	186	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
	380/415	50	15	26.0	186	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
110	208/230	60	15	54.9	364	15	54.9	364	15	55	364	20	54.9	364	20	54.9	364	20	54.9	364
	380	60	15	31.5	226	15	31.5	226	15	32	226	20	31.5	226	20	31.5	226	20	31.5	226
	460	60	15	26.0	186	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186
	575	60	15	26.0	186	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186
	380/415	50	15	26.0	186	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186
130	208/230	60	20	67.6	0	20	67.6	0	20	68	0	20	67.6	0	20	67.6	0	20	67.6	0
	380	60	20	37.0	0	20	37.0	0	20	37	0	20	37.0	0	20	37.0	0	20	37.0	0
	460	60	20	28.8	219	20	28.8	219	20	29	219	20	28.8	219	20	28.8	219	20	28.8	219
	575	60	20	28.8	219	20	28.8	219	20	29	219	20	28.8	219	20	28.8	219	20	28.8	219
	380/415	50	20	28.8	219	20	28.8	219	20	29	219	20	28.8	219	20	28.8	219	20	28.8	219
150	208/230	60	25	81.8	0	25	81.8	0	25	82	0	25	81.8	0	25	81.8	0	25	81.8	0
	380	60	25	44.8	0	25	44.8	0	25	45	0	25	44.8	0	25	44.8	0	25	44.8	0
	460	60	25	37.0	281	25	37.0	281	25	37	281	25	37.0	281	25	37.0	281	25	37.0	281
	575	60	25	29.6	0	25	29.6	0	25	30	0	25	29.6	0	25	29.6	0	25	29.6	0
	380/415	50	25	44.8	0	25	44.8	0	25	45	0	25	44.8	0	25	44.8	0	25	44.8	0

Table 23 — 38RC 070-150 Compressor Electrical Data, Digital

UNIT 38RC	V(3 Ph)	Hz	Compressors																	
			A1			A2			A3			B1			B2			B3		
			TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA	TONS	RLA	LRA
70	208/230	60	16	61.3	340	15	54.9	364	—	—	—	15	54.9	364	15	54.9	364	—	—	—
	380	60	16	30.1	196	15	31.5	226	—	—	—	15	31.5	226	15	31.5	226	—	—	—
	460	60	16	26.6	173	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
	575	60	16	24.0	132	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
	380/415	50	16	30.1	196	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	—	—	—
80	208/230	60	16	61.3	340	15	54.9	364	—	—	—	15	54.9	364	15	54.9	364	15	54.9	364
	380	60	16	30.1	196	15	31.5	226	—	—	—	15	31.5	226	15	31.5	226	15	31.5	226
	460	60	16	26.6	173	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
	575	60	16	24.0	132	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
	380/415	50	16	30.1	196	15	26.0	186	—	—	—	15	26.0	186	15	26.0	186	15	26.0	186
90	208/230	60	14	49.3	300	13	51.7	336	13	52	336	15	51.7	336	15	51.7	336	15	51.7	336
	380	60	14	27.7	139	13	27.1	169	13	27	169	15	27.1	169	15	27.1	169	15	27.1	169
	460	60	14	24.2	140	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
	575	60	14	24.2	140	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
	380/415	50	14	24.2	140	13	22.5	141	13	23	141	15	22.5	141	15	22.5	141	15	22.5	141
100	208/230	60	16	61.3	340	15	54.9	364	15	55	364	15	54.9	364	15	54.9	364	15	54.9	364
	380	60	16	30.1	196	15	31.5	226	15	32	226	15	31.5	226	15	31.5	226	15	31.5	226
	460	60	16	26.6	173	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
	575	60	16	24.0	132	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
	380/415	50	16	30.1	196	15	26.0	186	15	26	186	15	26.0	186	15	26.0	186	15	26.0	186
110	208/230	60	16	61.3	340	15	54.9	364	15	55	364	20	54.9	364	20	54.9	364	20	54.9	364
	380	60	16	30.1	196	15	31.5	226	15	32	226	20	31.5	226	20	31.5	226	20	31.5	226
	460	60	16	26.6	173	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186
	575	60	16	24.0	132	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186
	380/415	50	16	30.1	196	15	26.0	186	15	26	186	20	26.0	186	20	26.0	186	20	26.0	186

Table 24 — Unit Incoming Power Options^a

MOCP VALUE	UNIT INCOMING POWER OPTION			
	STANDARD TERMINAL BLOCK OPTION		STANDARD AND HIGH SCCR DISCONNECT OPTION ^b	
	MAX WIRE SIZE	MIN WIRE SIZE	MAX WIRE SIZE	MIN WIRE SIZE
100 A OR LESS	2/0	#14 AWG	3/0	#14 AWG
GREATER THAN 100 A AND LESS THAN OR EQUAL TO 200 A	2/0	#14 AWG	4/0 AWG	#4 AWG
GREATER THAN 200	600 kcmil	#2	500 kcmil (1) 250 kcmil (2)	2/0

NOTE(S):

- a. Time delay fuse type required.
b. High SCCR disconnect option units can use either approved fuse or circuit breaker for incoming power protection.

LEGEND

- AWG** — American Wire Gauge
kcmil — Thousand Circular Mills
MOCP — Maximum Overcurrent Protection
SCCR — Short Circuit Current Rating

Step 4 — Install Accessories

LOW-AMBIENT OPERATION

If operating temperatures below those found in Table 25 are expected, VFD fan motor control is recommended.

**Table 25 — 38RC Unit Low Ambient Limitations
Single Circuit**

38RCS UNIT SIZE	MINIMUM LOW AMBIENT ^{a,b} (Standard Unit)	MINIMUM LOW AMBIENT VFD FAN CONTROL (Factory-Installed Option)
025-050	45°F (7.2°C)	-20°F (-28.9°C)

Dual Circuit		
38RCD UNIT SIZE	MINIMUM LOW AMBIENT ^{a,b} (Standard Unit)	MINIMUM LOW AMBIENT VFD FAN CONTROL (Factory-Installed Option)
025-040	32°F (0°C)	-20°F (-28.9°C)
050-060	25°F (-3.9°C)	-20°F (-28.9°C)
070-150	32°F (0°C)	-20°F (-28.9°C)

NOTE(S):

- Temperatures calculated with the minimum number of fans operating per circuit.
- Minimum outdoor-air operating temperature is based on 32°C (90°F) saturated condensing temperature and 100% capacity.

MISCELLANEOUS ACCESSORIES

Energy management module, LON (local operating network) translator control, and long line accessory kit are available for special applications.

CARRIER COMFORT NETWORK® (CCN) COMMUNICATION BUS WIRING

The communication bus wiring is a shielded, 3-conductor cable with drain wire and is field supplied and installed in the field.

The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system elements on either side of it. This is also required for the negative and signal ground pins of each system element. Wiring connections for CCN should be made at TB 3 (terminal block). Consult the CCN Contractor's Manual for further information. (See Fig. 45.)

NOTE: Conductors and drain wire must be 20 AWG minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon^{®1}, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of -4°F (-20°C) to 140°F (60°C) is required. Refer to Table 26 for a list of manufacturers that produce CCN bus wiring that meets these requirements.

Table 26 — CCN Communication Bus Wiring

MANUFACTURER	PART NUMBER	
	Regular Wiring	Plenum Wiring
Alpha	1895	—
American	A21451	A48301
Belden	8205	884421
Columbia	D6451	—
Manhattan	M13402	M64430
Quabik	6130	—

It is important when connecting to a CCN communication bus that a color coding scheme be used for the entire network to simplify the installation. It is recommended that red be used for the signal

positive, black for the signal negative, and white for the signal ground. Use a similar scheme for cables containing different colored wires. At each system element, the shields of its communication bus cables must be tied together. If the communication bus is entirely within one building, the resulting continuous shield must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network:

- Turn off power to the control box.
- Cut the CCN wire and strip the ends of the red (+), white (ground), and black (-) conductors. Substitute appropriate colors for different colored cables.
- Connect the red wire to the (+) terminal on TB3 of the plug, the white wire to the COM terminal, and the black wire to the (-) terminal.
- The RJ14 CCN connector on TB3 can also be used but is only intended for temporary connection (for example, a laptop computer running Service Tool).

IMPORTANT: A shorted CCN bus cable will prevent some routines from running and may prevent the unit from starting. If abnormal conditions occur, disconnect the machine from the CCN network. If conditions return to normal, check the CCN connector and cable. Run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

BACNET IP, MSTP OR ETHERNET COMMUNICATION

The 38RC units come standard with BACnet^{®1} IP and Ethernet communications. The cabling for this is standard CAT 5 (minimum) with RJ45 connector. This connector is attached to port J5 on the bottom of the Carrier Controller; see Fig. 44.

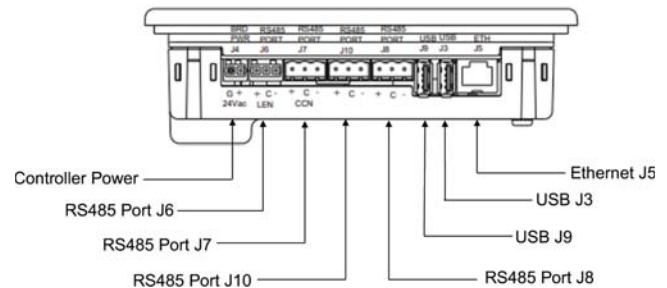


Fig. 44 — Carrier Controller Display Connectors

NON-CCN COMMUNICATION WIRING

The 38RC units offer several non-CCN translators. Refer to the separate installation instructions for additional wiring steps.

MS/TP WIRING RECOMMENDATIONS

Recommendations are shown in Tables 27 and 28. The wire jacket and UL (Underwriters Laboratories) temperature rating specifications list 2 acceptable alternatives. The Halar^{®1} specification has a higher temperature rating and a tougher outer jacket than the SmokeGard^{™1} specification, and it is appropriate for use in applications where the user is concerned about abrasion. The Halar jacket is also less likely to crack in extremely low temperatures.

NOTE: Use the specified type of wire and cable for maximum signal integrity.

1. Third-party trademarks and logos are property of their respective owners.

Table 27 — MS/TP Wiring Recommendations

SPECIFICATION	RECOMMENDATION
Cable	Single twisted pair, low capacitance, CL2P, 22 AWG (7x30), TC foam FEP, plenum rated cable
Conductor	22 or 24 AWG stranded copper (tin plated)
Insulation	Foamed FEP 0.015 in. (0.381 mm) wall 0.060 in. (1.524 mm) OD
Color Code	Black/White
Twist Lay	2 in. (50.8 mm) lay on pair 6 twists/foot (20 twists/meter) nominal
Shielding	Aluminum/Mylar shield with 24 AWG TC drain wire
Jacket	SmokeGard Jacket (SmokeGard PVC) 0.021 in. (0.5334 mm) wall 0.175 in. (4.445 mm) OD Halar Jacket (E-CTFE) 0.010 in. (0.254 mm) wall 0.144 in. (3.6576 mm) OD
DC Resistance	15.2 Ohms/1000 ft (50 Ohms/km) nominal
Capacitance	12.5 pF/ft (41 pF/meter) nominal conductor to conductor
Characteristic Impedance	100 Ohms nominal
Weight	12 lb/1000 ft (17.9 kg/km)
UL Temperature Rating	SmokeGard 167°F (75°C), Halar -40 to 302°F (-40 to 150°C)
Voltage	300 vac, power limited
Listing	UL: NEC CL2P or better

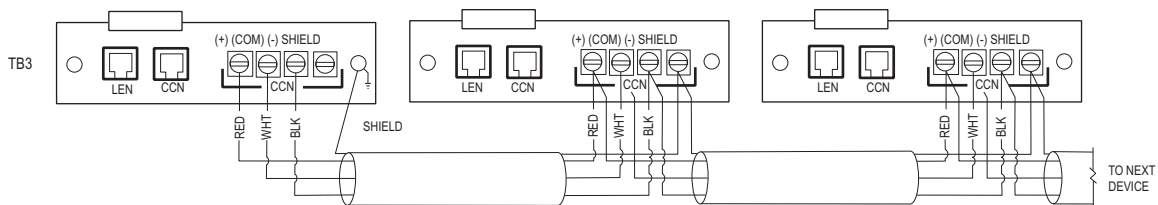
See legend below Table 28.

Table 28 — Open System Wiring Specifications and Recommended Vendors

WIRING SPECIFICATIONS		RECOMMENDED VENDORS AND PART NUMBERS			
WIRE TYPE	DESCRIPTION	CONNECT AIR INTERNATIONAL	BELDEN	RMCORP	CONTRACTORS WIRE AND CABLE
MS/TP Network (RS-485)	22 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W221P-22227	—	25160PV	CLP0520LC
	24 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W241P-2000F	82841	25120-OR	—
Rnet	4 conductor, unshielded, CMP, 18 AWG, plenum rated.	W184C-2099BLB	6302UE	21450	CLP0442

LEGEND

AWG — American Wire Gauge
CL2P — Class 2 Plenum Cable
CMP — Communications Plenum Rated
DC — Direct Current
FEP — Fluorinated Ethylene Polymer
NEC — National Electrical Code
O.D. — Outside Diameter
TC — Tinned Copper
UL — Underwriters Laboratories



LEGEND

CCN — Carrier Comfort Network
LEN — Local Equipment Network

Fig. 45 — TB-3 — CCN Wiring

