



INSTALLATION INSTRUCTIONS

ELXC Series 6 – 20 Ton

AIR CONDITIONERS
6 - 20 TONS
508322-01
10/2022

THIS MANUAL MUST BE LEFT WITH THE BUILDING OWNER FOR FUTURE REFERENCE

⚠ WARNING

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

⚠ IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFCs, HCFCs and HFCs) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for noncompliance.

⚠ CAUTION

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

⚠ WARNING

To prevent serious injury or death:

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

Table of Contents

Model Number Identification	2
Unit Dimensions, Corner Weights and Centers of Gravity	3
Unit Plumbing Parts Arrangement	6
Unit Control Box Components Arrangement	12
Rigging the Unit for Lifting	13
Installation Clearances	14
Line Set	14
Electrical Connections	15
Refrigerant Charge	21
System Operation	21
Maintenance	22

Shipping and Packing List

Check the unit for shipping damage. If damaged or parts are missing, immediately contact the last shipping carrier.

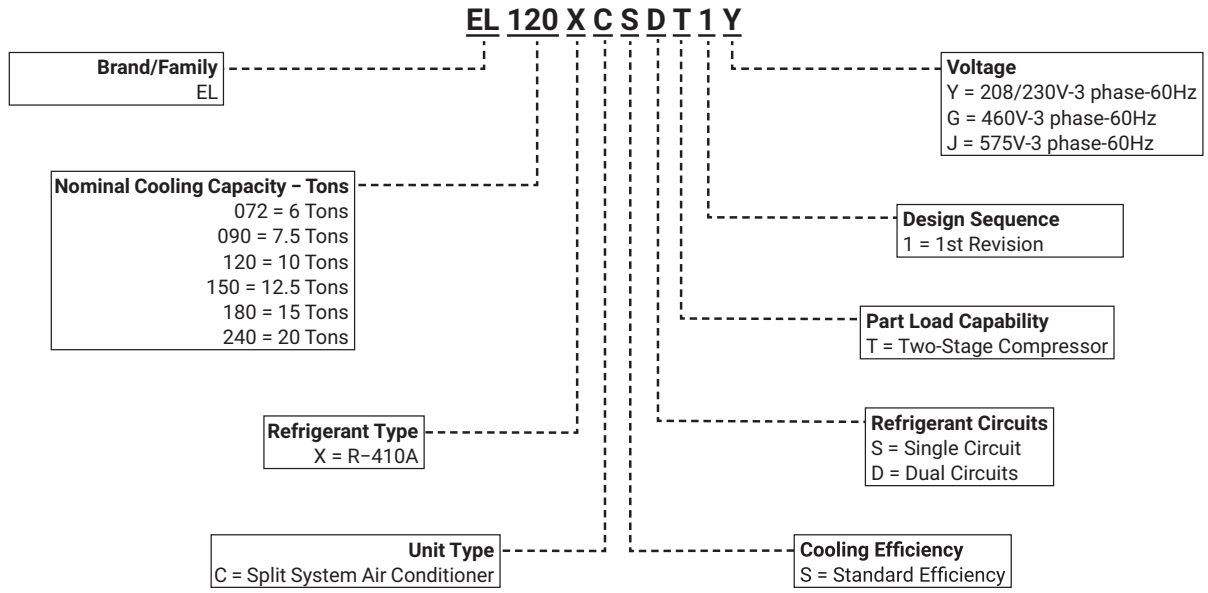
- 1 - Assembled outdoor unit
- 1 - Installation instructions

Outdoor Unit

ELXC air conditioners, which will also be referred to in this instruction as the outdoor unit, use HFC-410A refrigerant. This outdoor unit must be installed with a matching indoor unit and line set as outlined in the ELXC Engineering Handbook.

This outdoor unit is designed for use in thermal expansion valve (TXV) systems only.

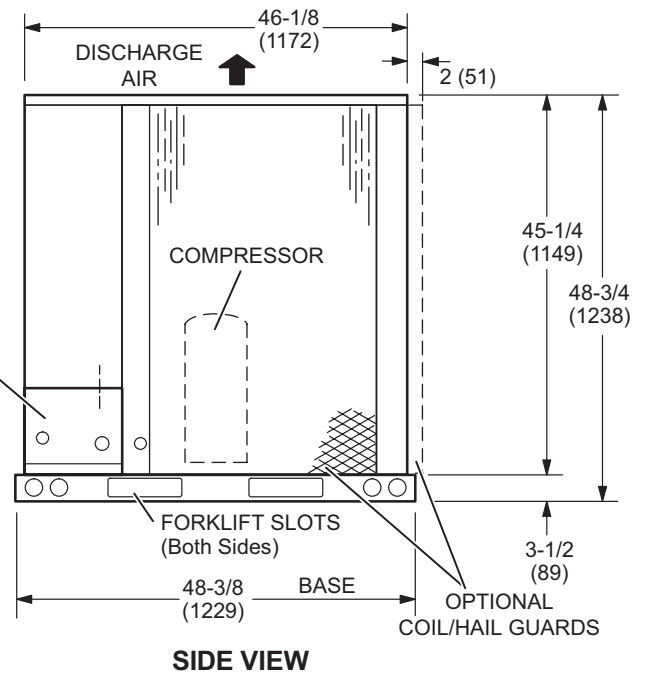
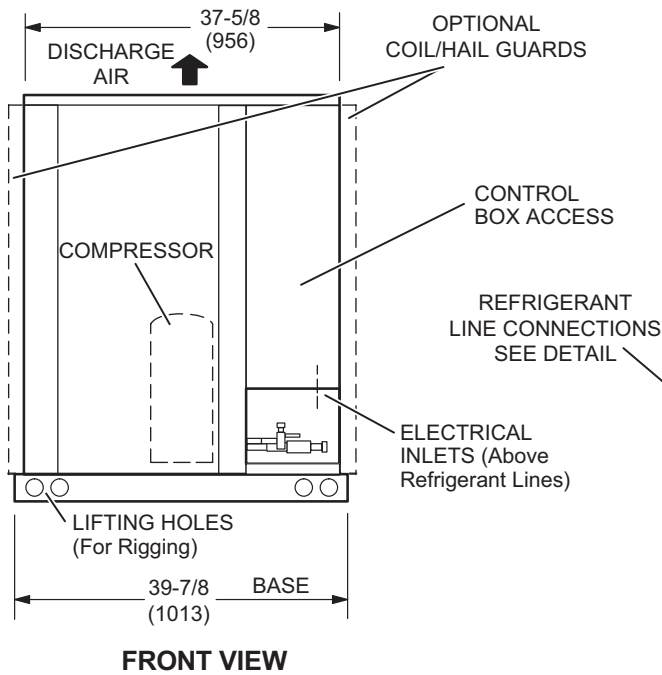
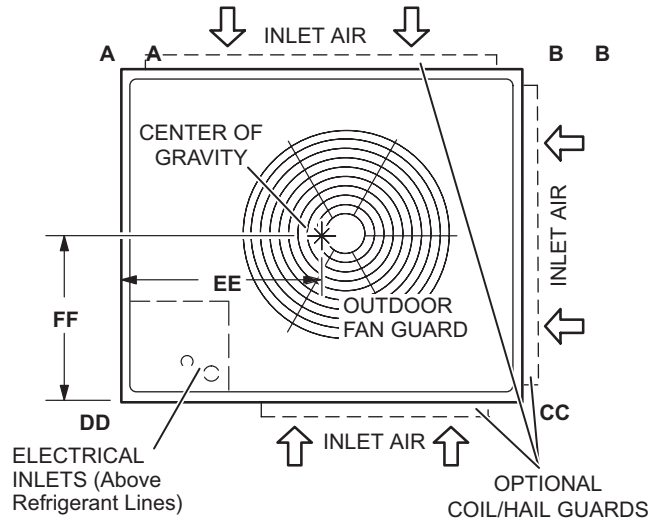
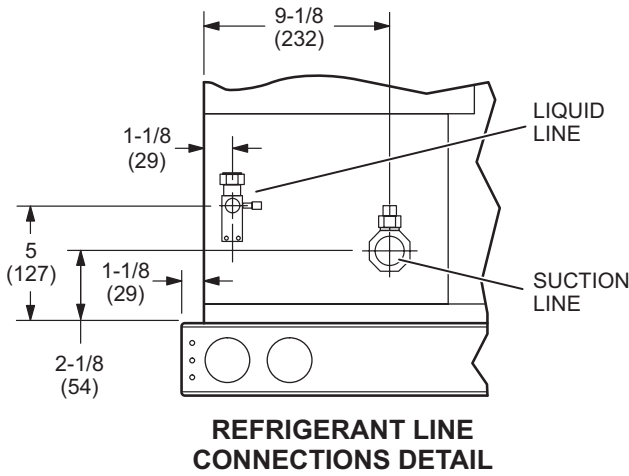
Model Number Identification



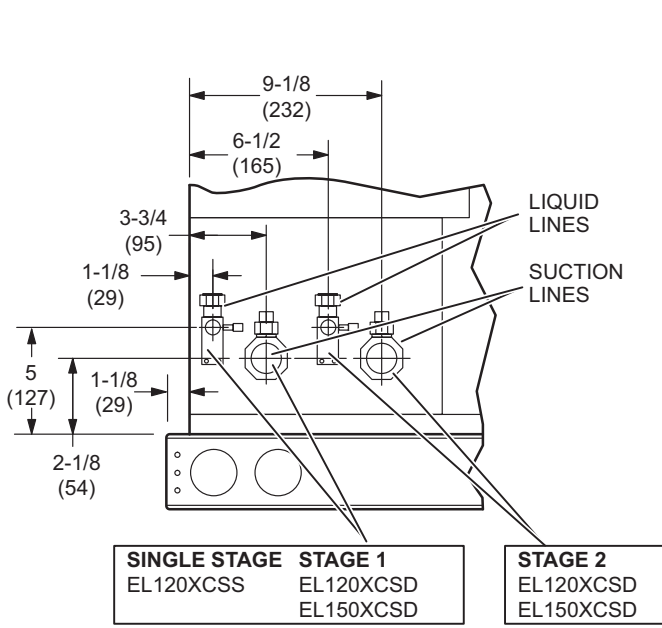
Unit Dimensions, Corner Weights and Centers of Gravity

EL072XC | EL090XC

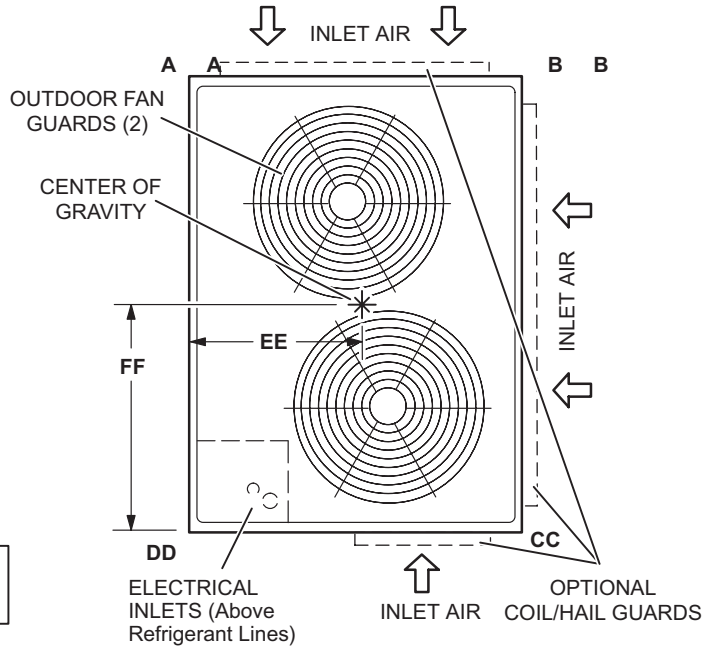
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
EL072XCSS	66	30	73	33	97	44	82	37	23-1/4	591	19-1/4	489
EL090XCSS	75	34	89	40	112	51	88	40	25	635	20-1/4	514



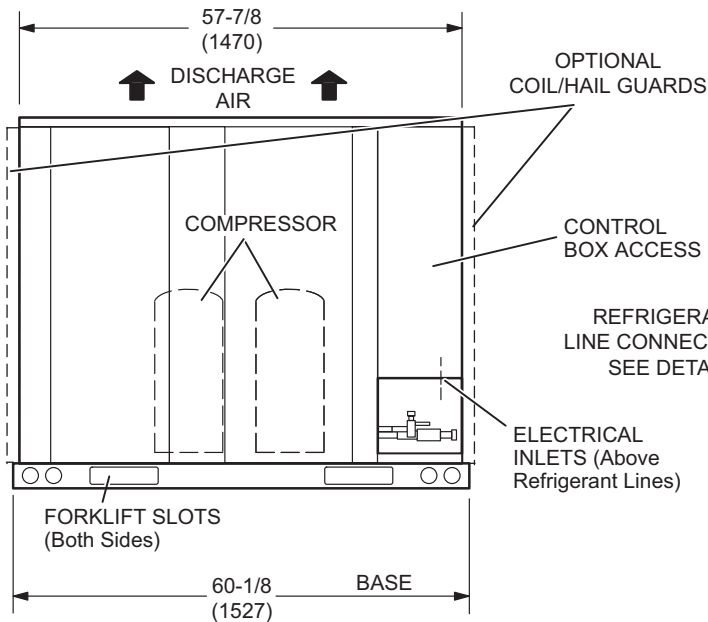
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
EL120XCSS	130	59	124	56	107	49	111	50	20-1/2	521	33-1/2	851
EL120XCSD	122	55	119	54	127	58	131	59	21	533	28-1/2	724
EL150XCSD	144	66	132	60	133	60	145	66	19	483	30	762



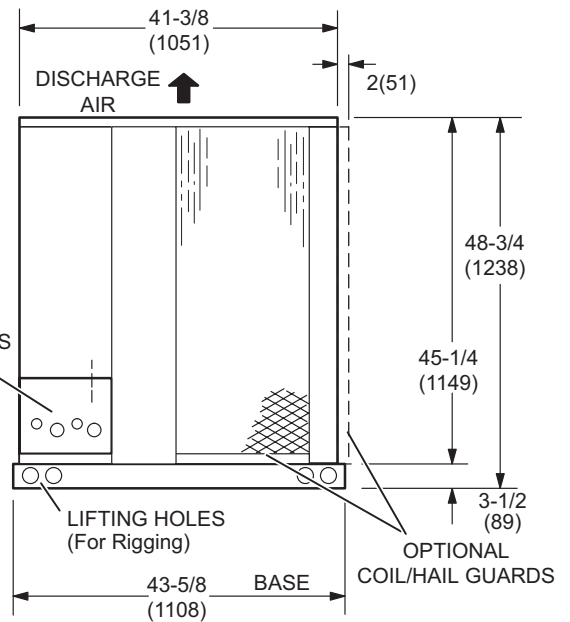
REFRIGERANT LINE CONNECTIONS DETAIL



TOP VIEW

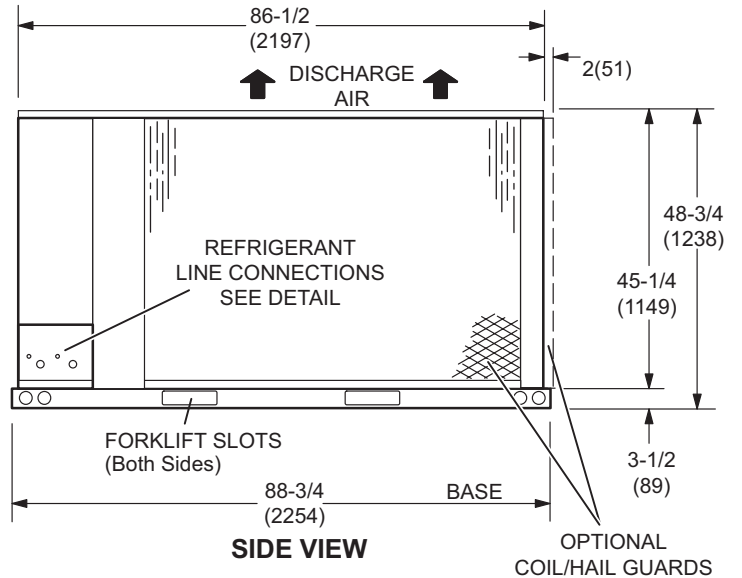
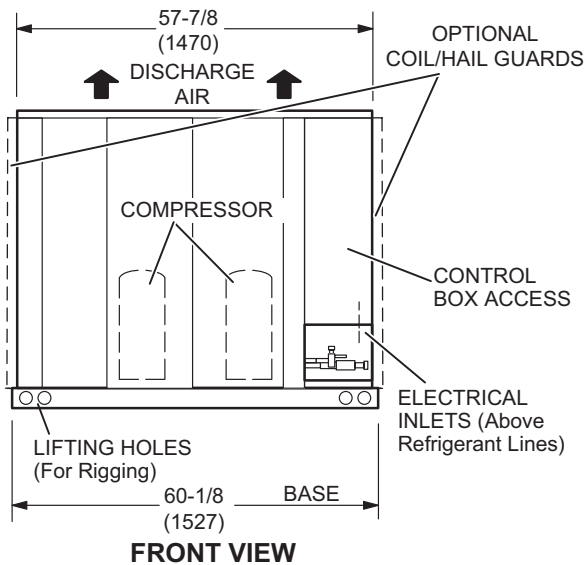
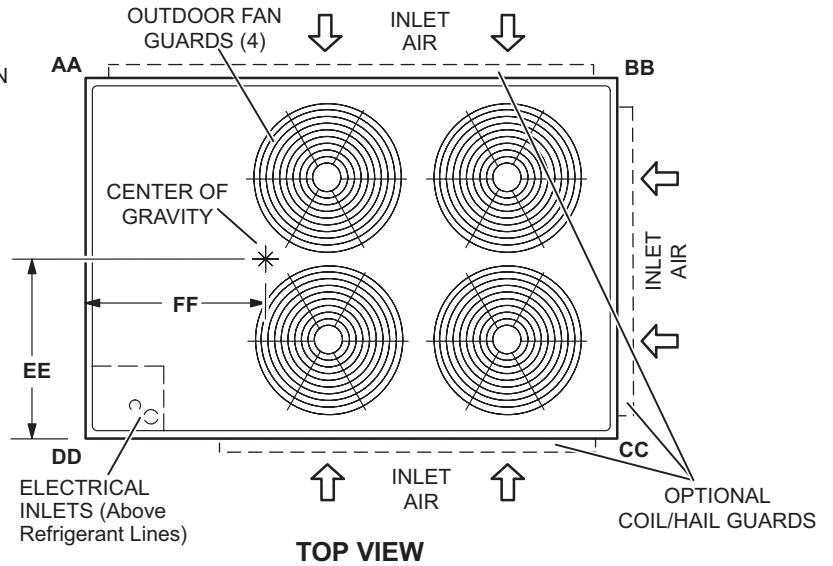
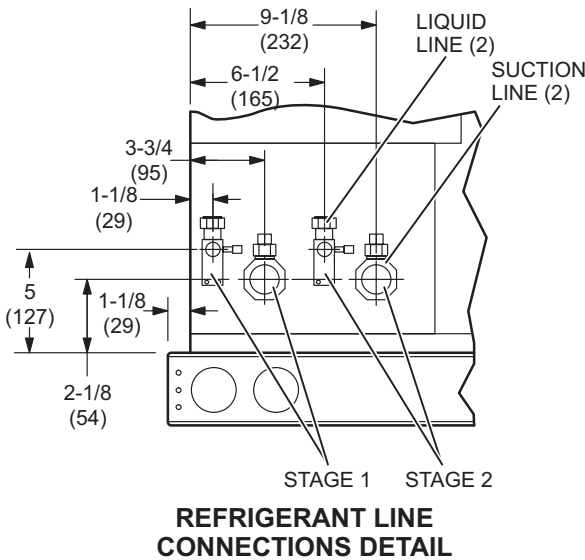


FRONT VIEW



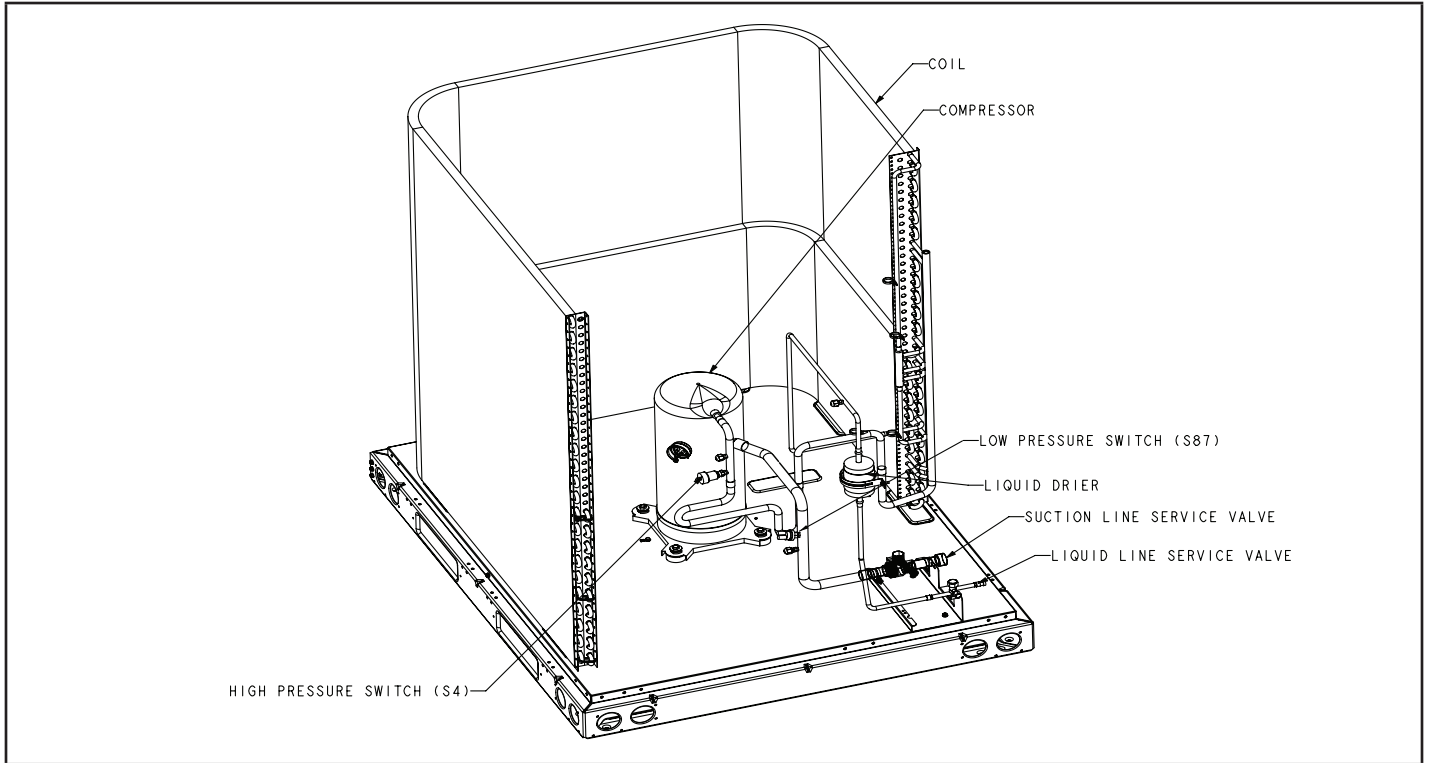
SIDE VIEW

Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
EL180XCSD	181	82	177	81	215	98	221	100	29	737	38	965
EL240XCSD	192	87	189	86	232	105	238	108	29	737	37-1/2	953

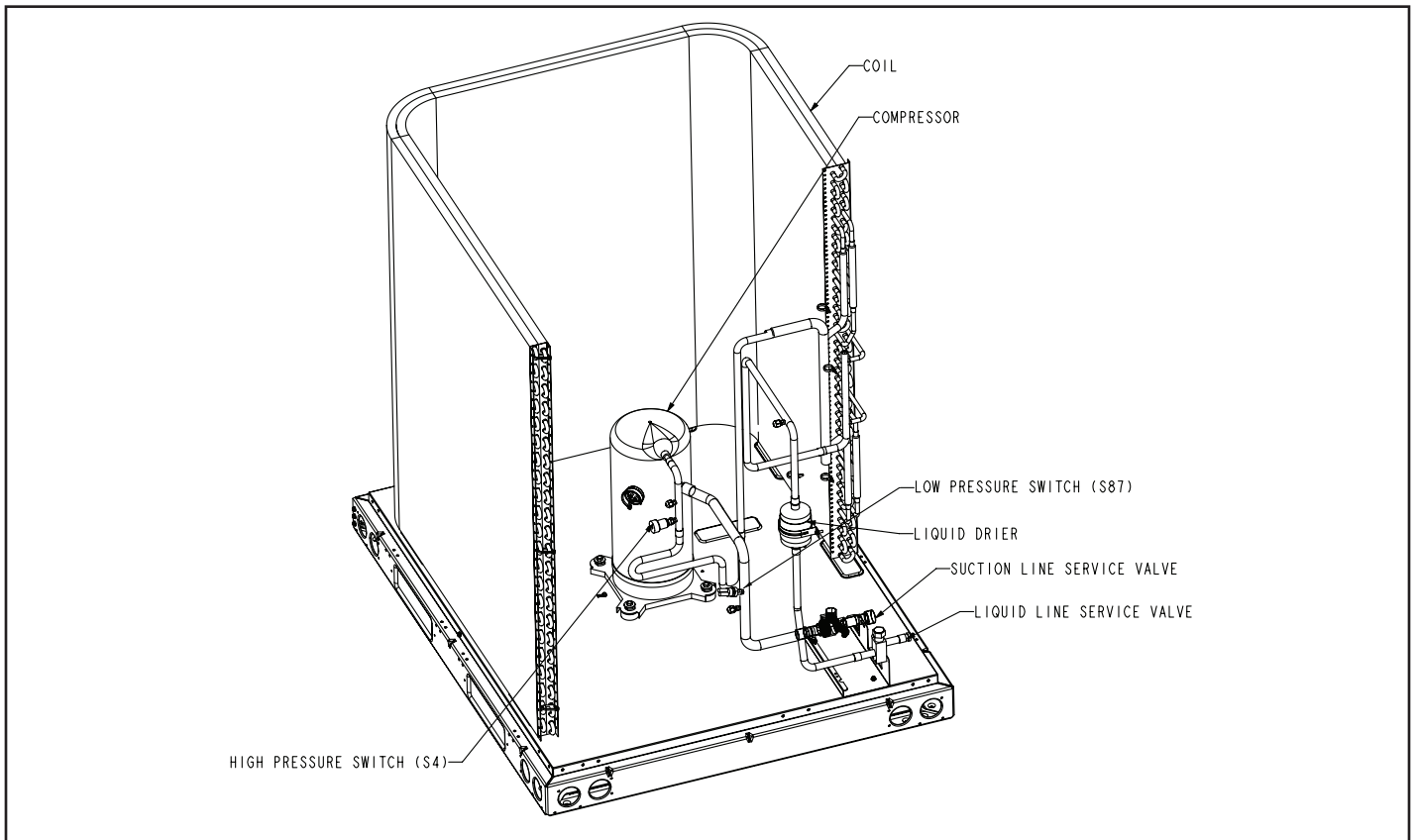


Unit Plumbing Parts Arrangement

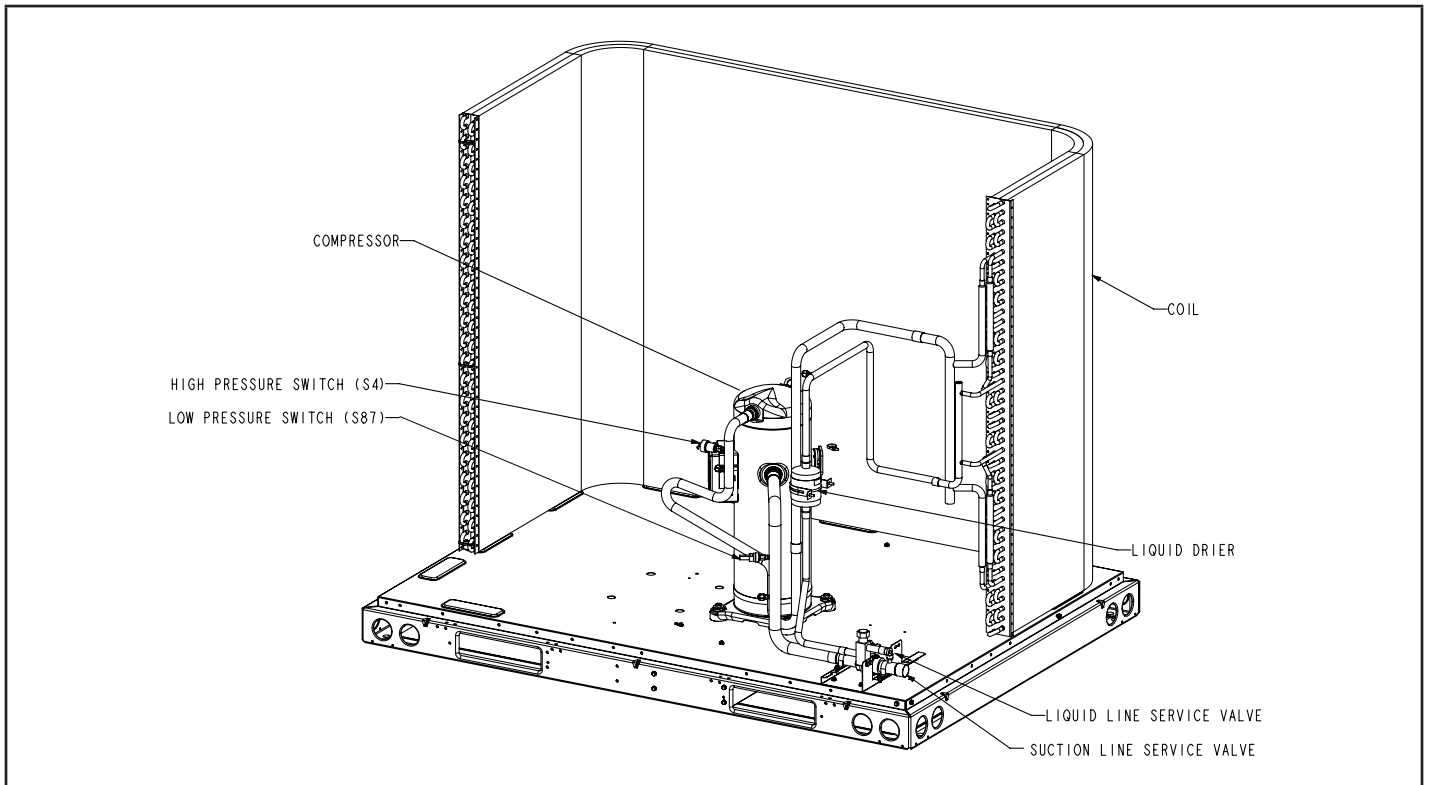
EL072XCSS



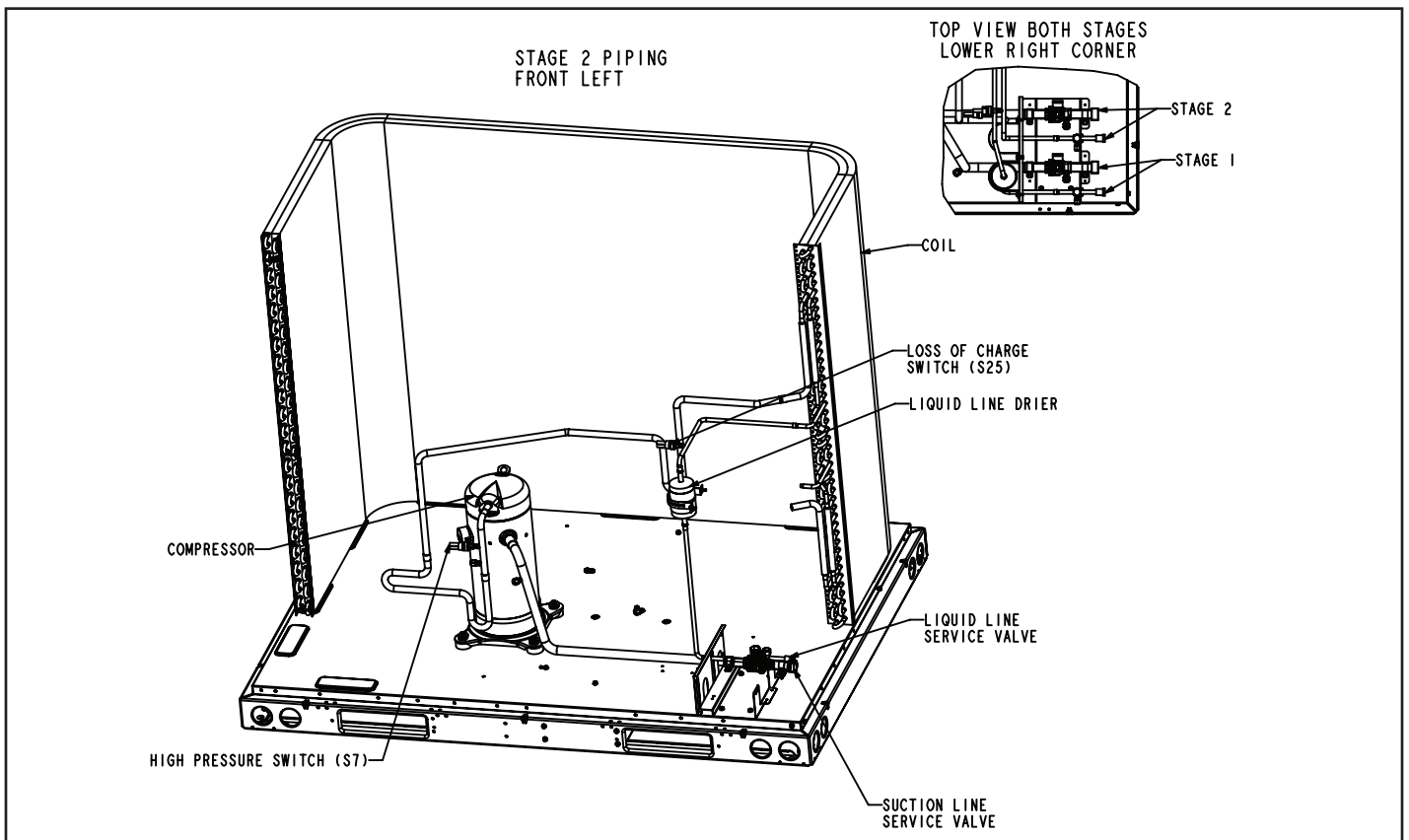
EL090XCSS



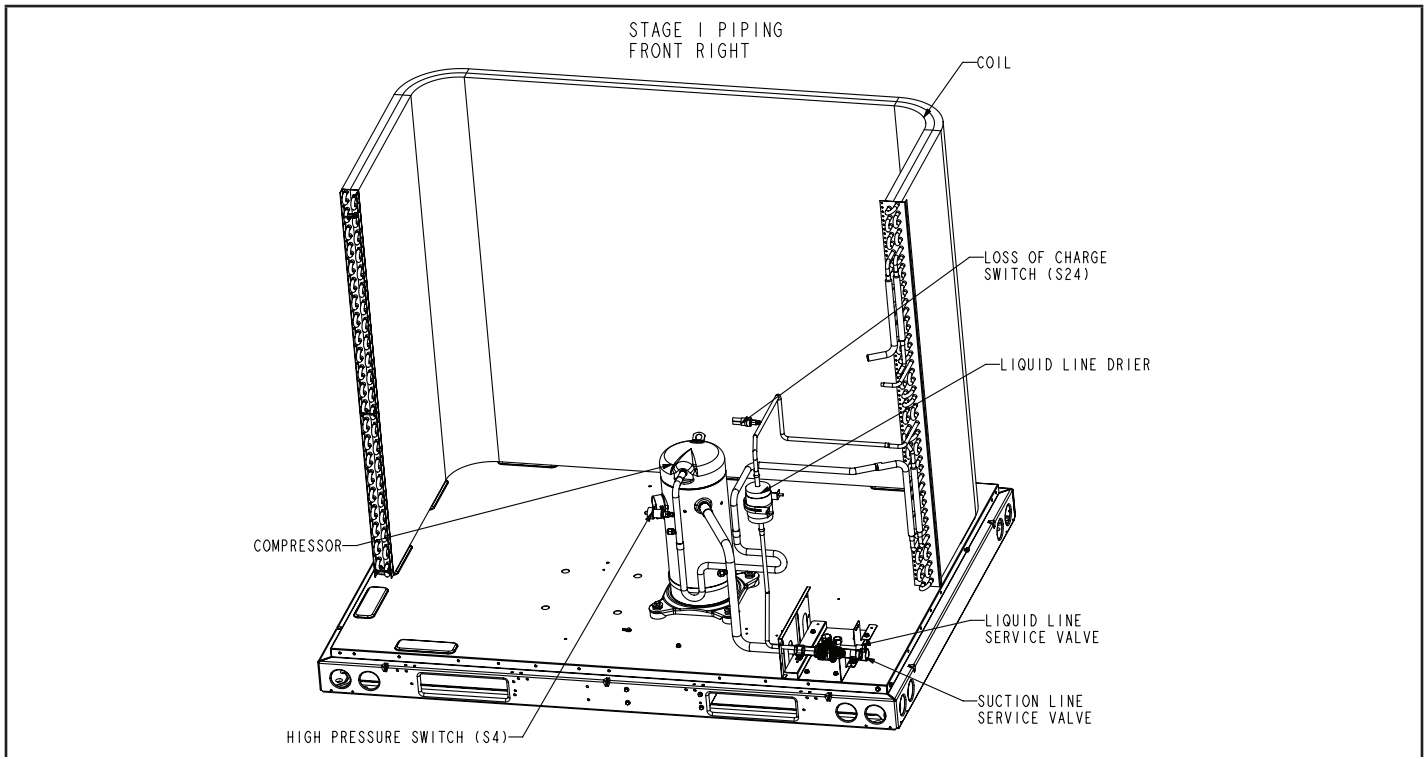
EL120XCSS



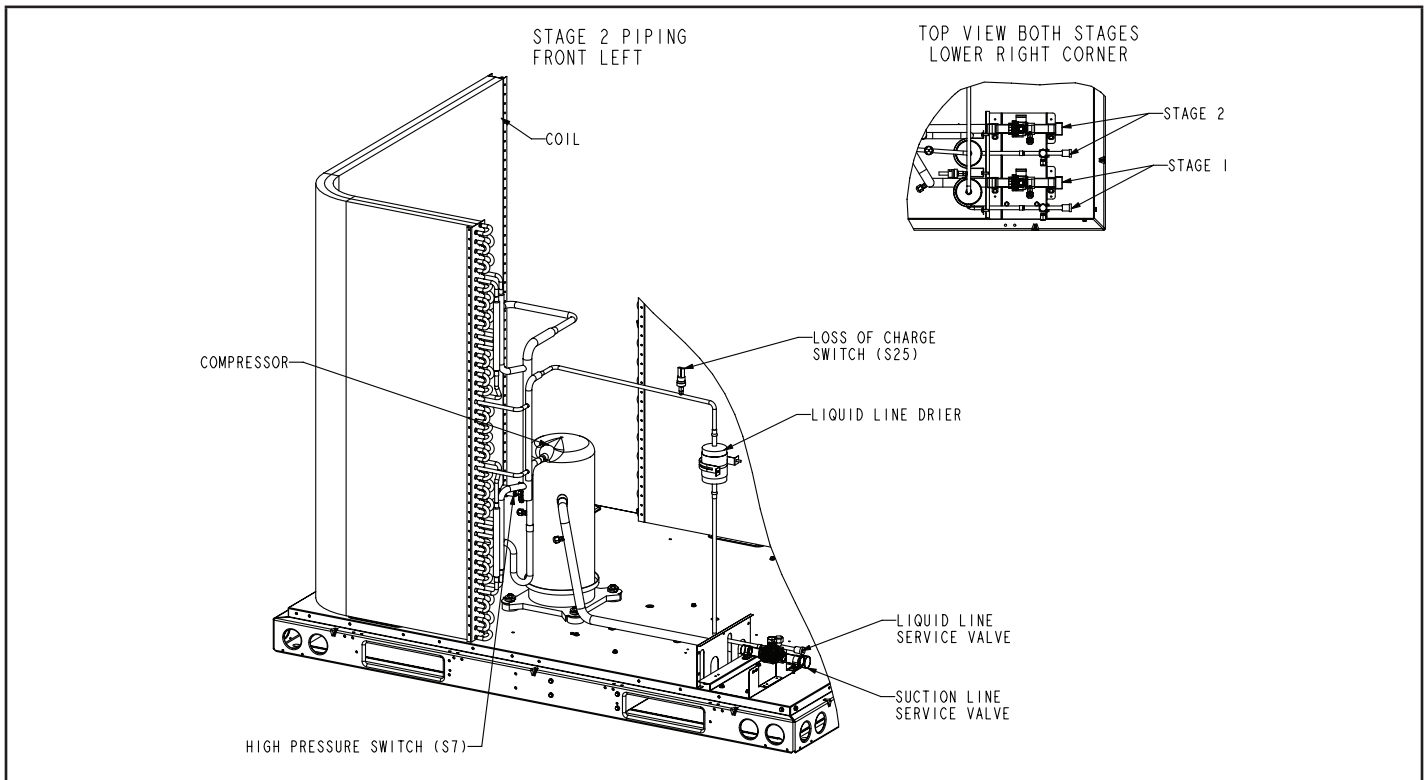
EL120XCSD – STAGE 2



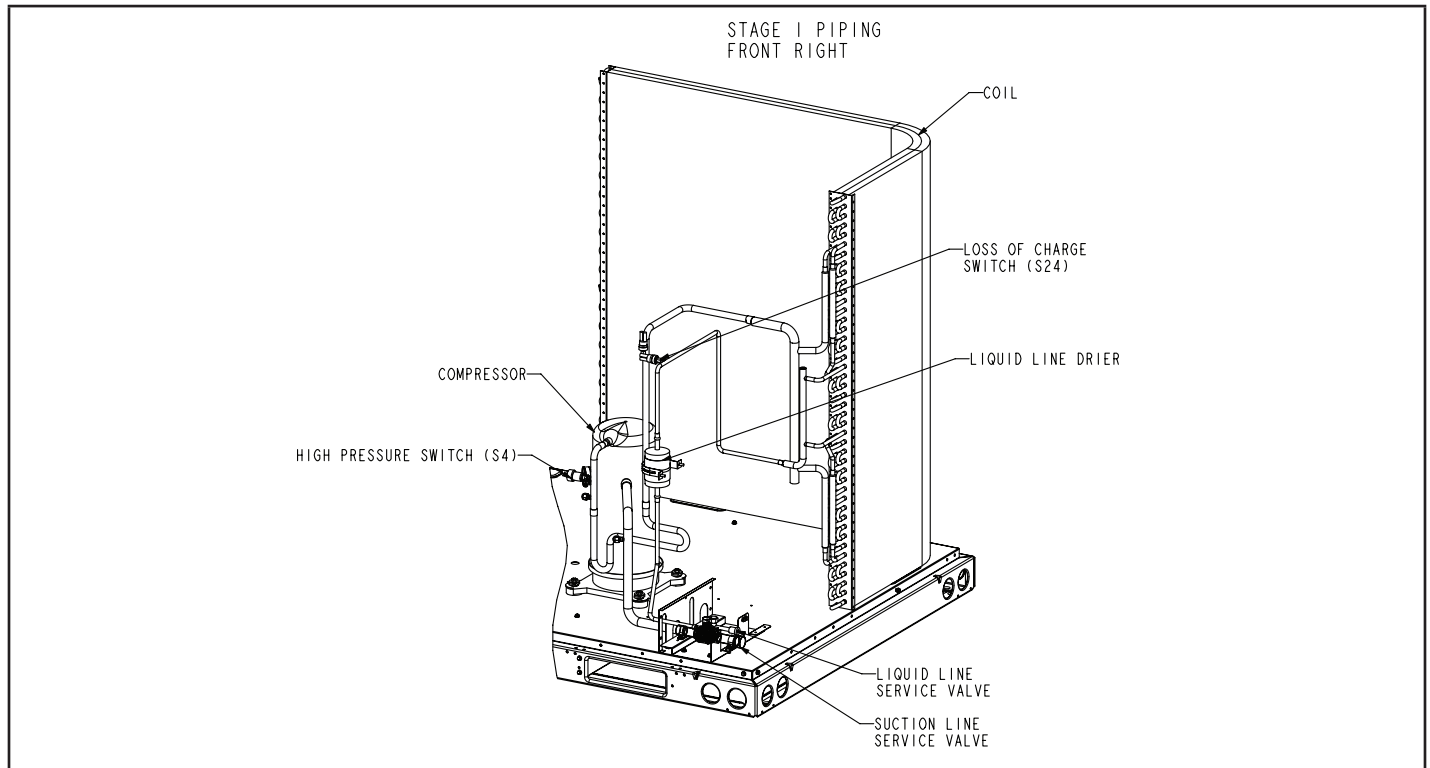
EL120XCSD – STAGE 1



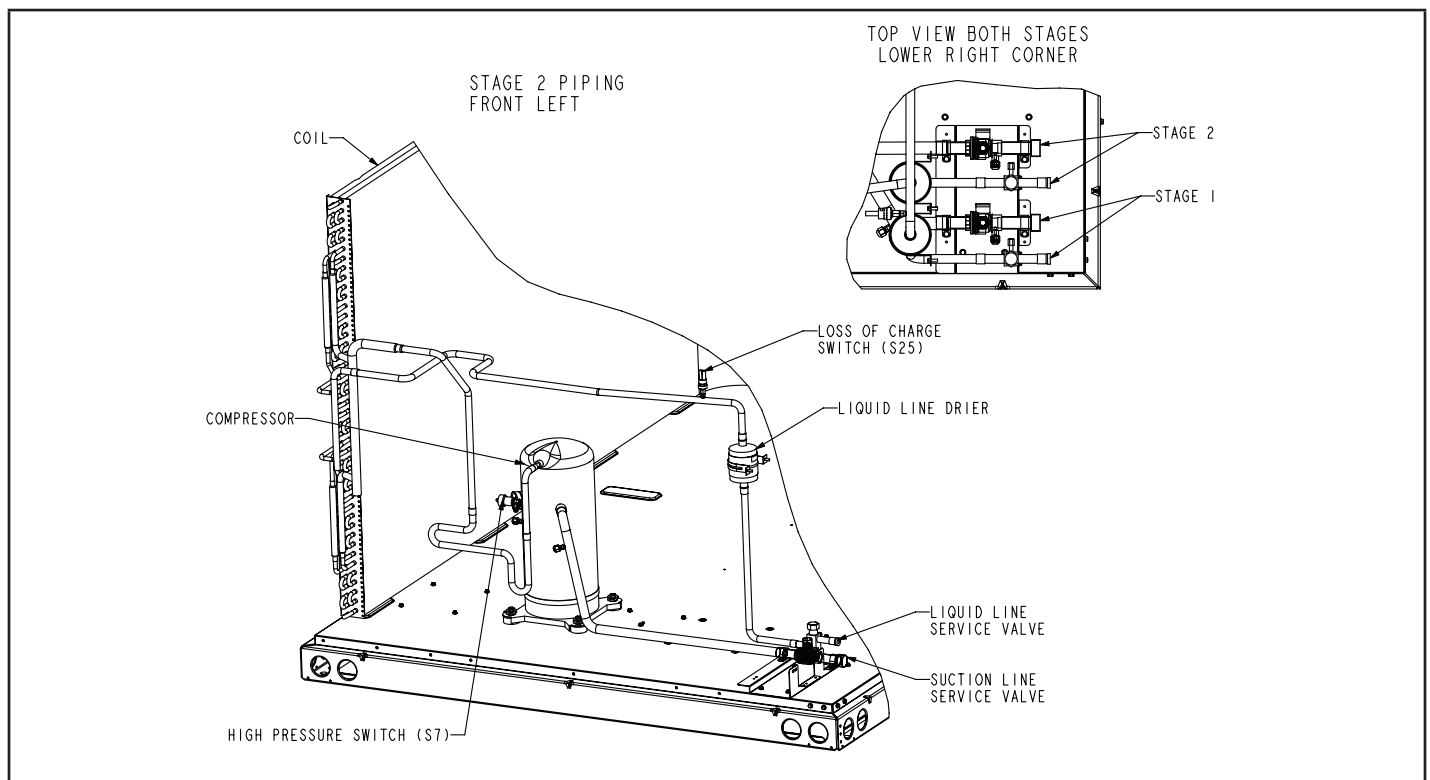
EL150XCSD – STAGE 2



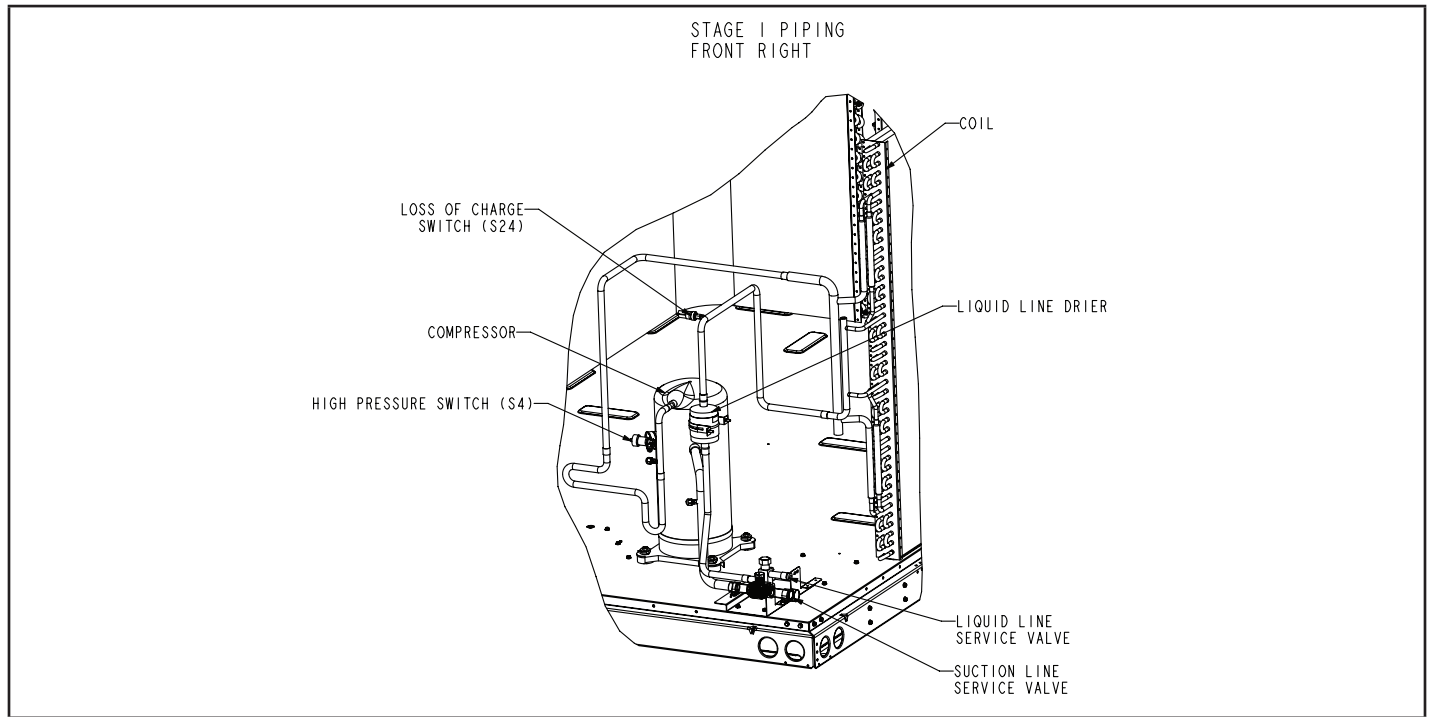
EL150XCSD – STAGE 1



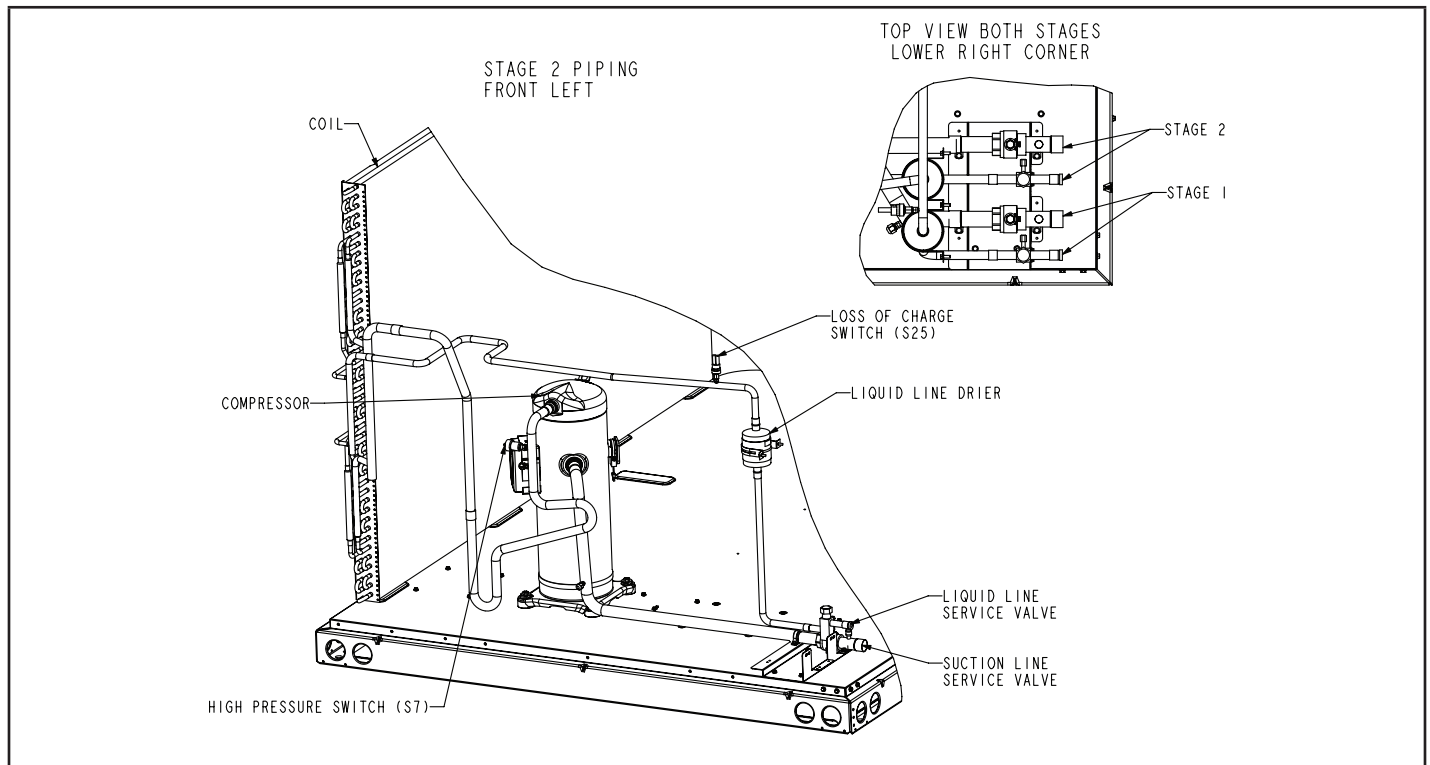
EL180XCSD – STAGE 2



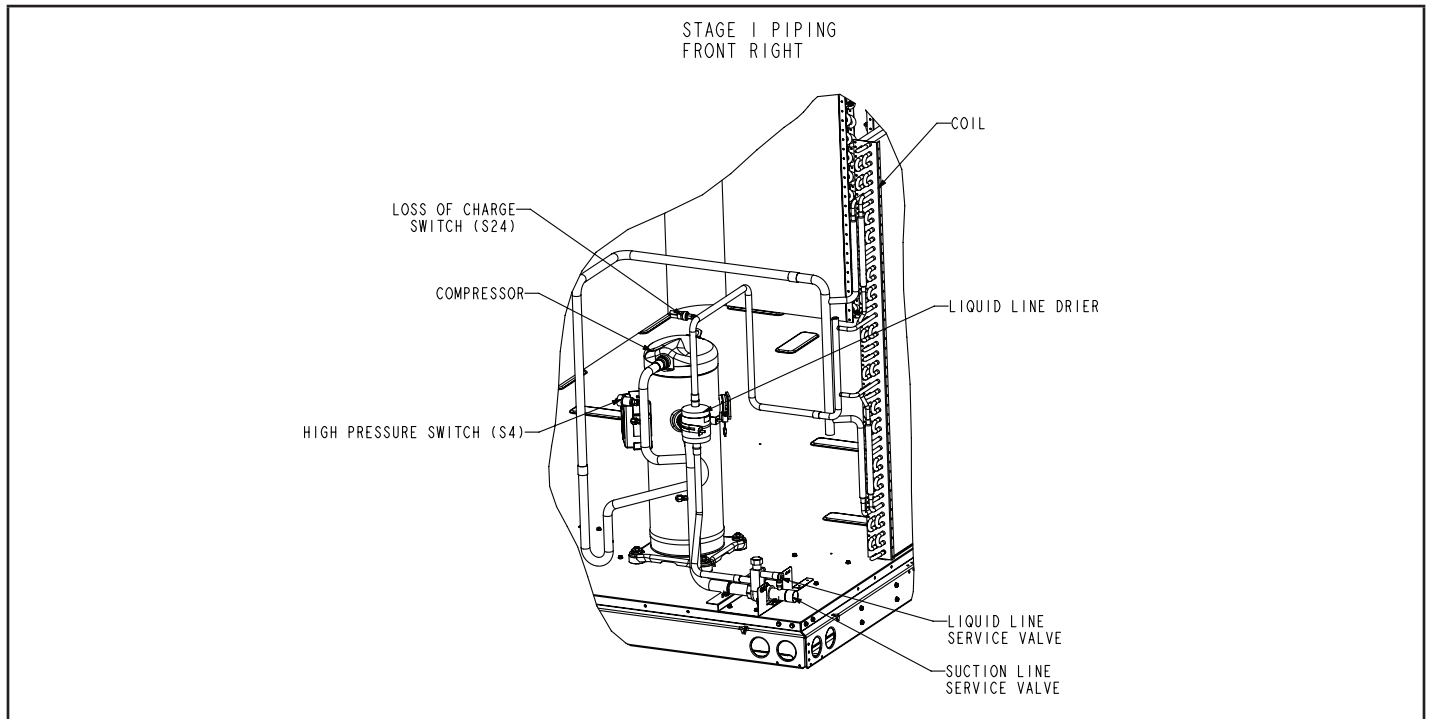
EL180XCSD – STAGE 1



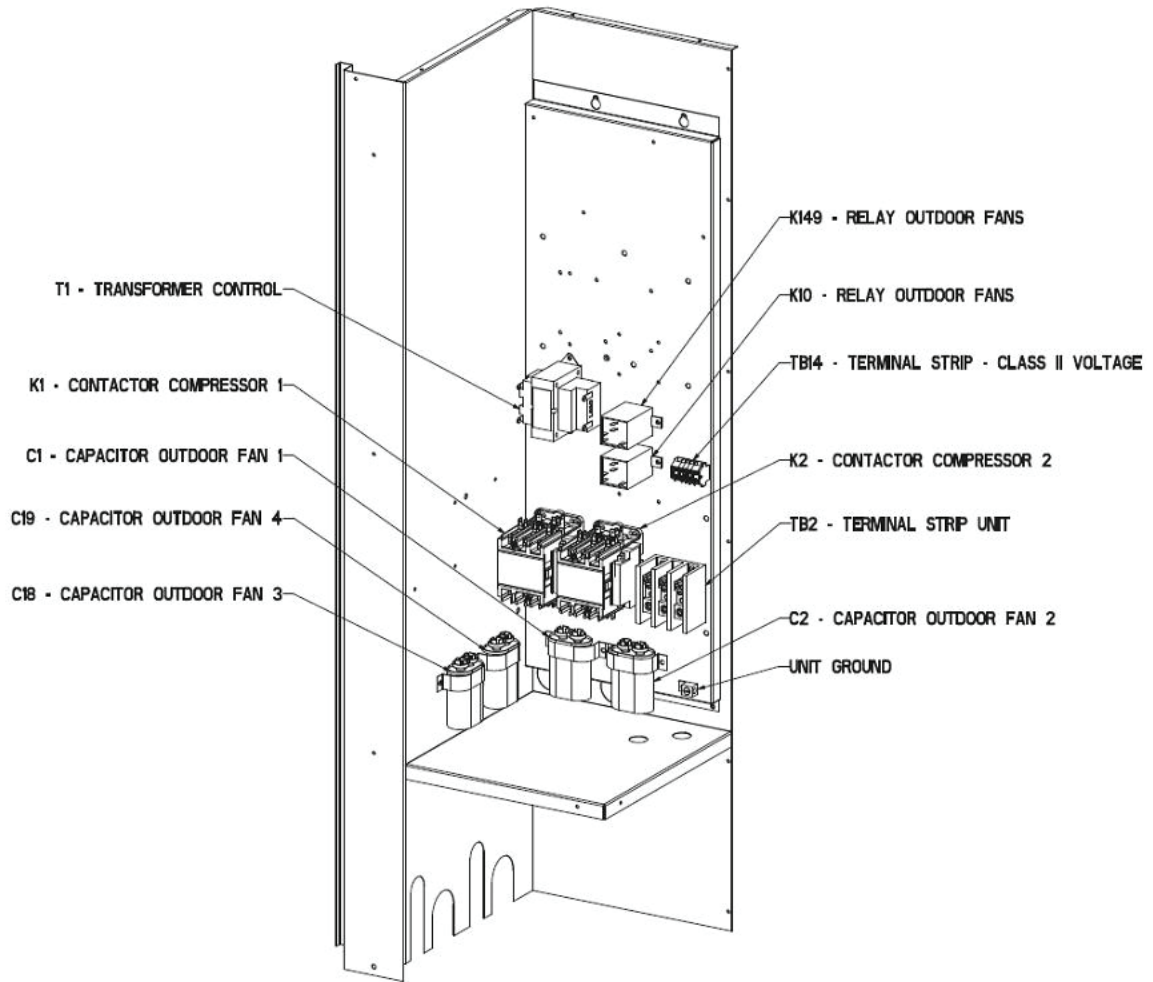
EL240XCSD – STAGE 2



EL240XCSD – STAGE 1



TYPICAL CONTROL BOX PARTS ARRANGEMENT



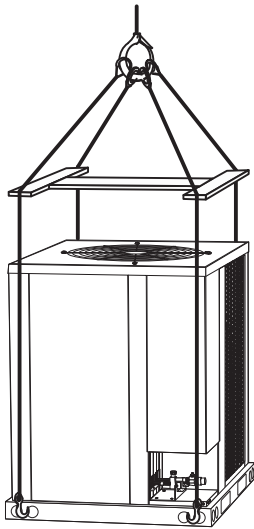
Rigging the Unit for Lifting

Rig the unit for lifting by attaching four cables to the holes in the base rail of the unit. See figures 1 through 3.

- 1 - Remove protective packaging before rigging the unit for lifting.
- 2 - Connect the rigging to the holes in each corner of the unit's base.
- 3 - All panels must be in place for rigging.
- 4 - Place a field-provided H-style frame just above the top edge of the unit. The frame must be of adequate strength and length. (An H-style frame will prevent the top of the unit from being damaged.)

Lifting point should be directly above the center of gravity.

Caution - do not walk on unit.

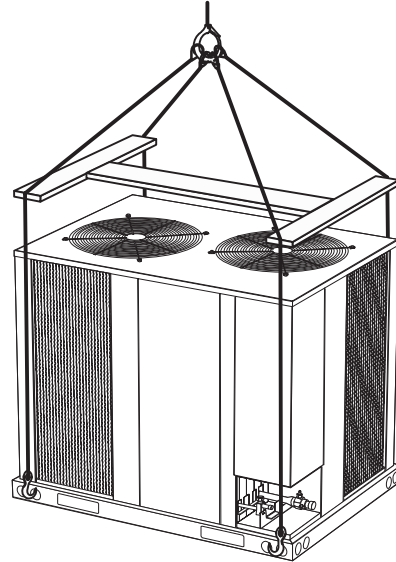


Important - all panels must be in place for rigging.

FIGURE 1. ELXC AIR CONDITIONERS (ONE FAN)

Lifting point should be directly above the center of gravity.

Caution - do not walk on unit.

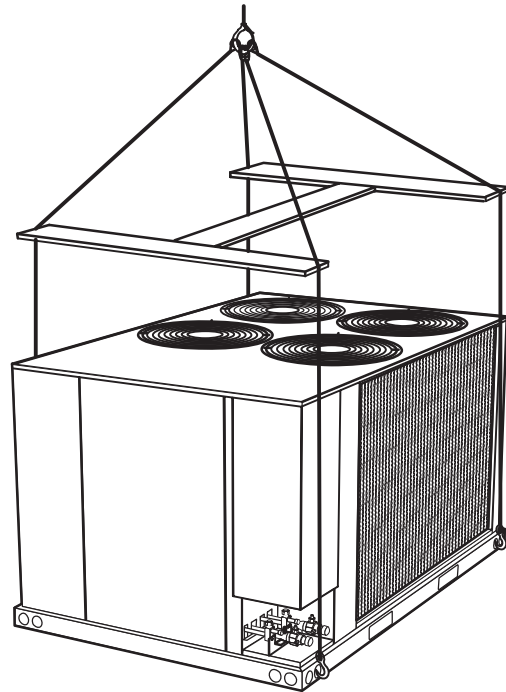


Important - all panels must be in place for rigging.

FIGURE 2. ELXC AIR CONDITIONERS (TWO FANS)

Lifting point should be directly above the center of gravity.

Caution - do not walk on unit.



Important - all panels must be in place for rigging.

FIGURE 3. ELXC AIR CONDITIONERS (FOUR FANS)

Installation Clearances

See Unit Dimensions on page 2 for sizing mounting slab, platforms or supports. Refer to figures 4 through 6 for mandatory installation clearance requirements.

NOTES:

- Clearance to one of the remaining two sides may be 12 in. (305 mm) and the final side may be 6 in. (152 mm).
- A clearance of 24 in. (610 mm) must be maintained between two units.
- 48 in. (1219 mm) clearance required on top of unit.

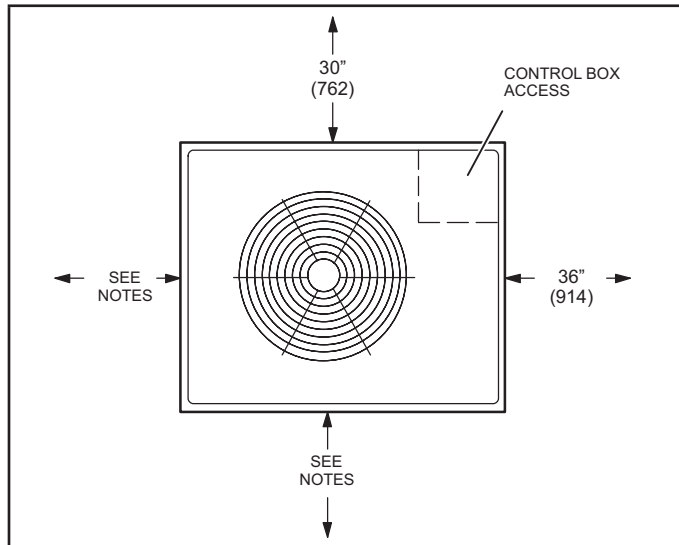


FIGURE 4. ELXC AIR CONDITIONERS (One Fan) Installation Clearances

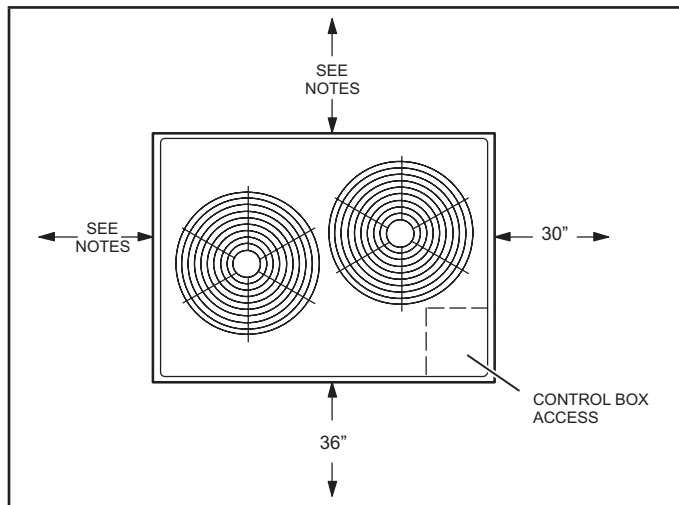


FIGURE 5. ELXC AIR CONDITIONERS (Two Fans) Installation Clearances

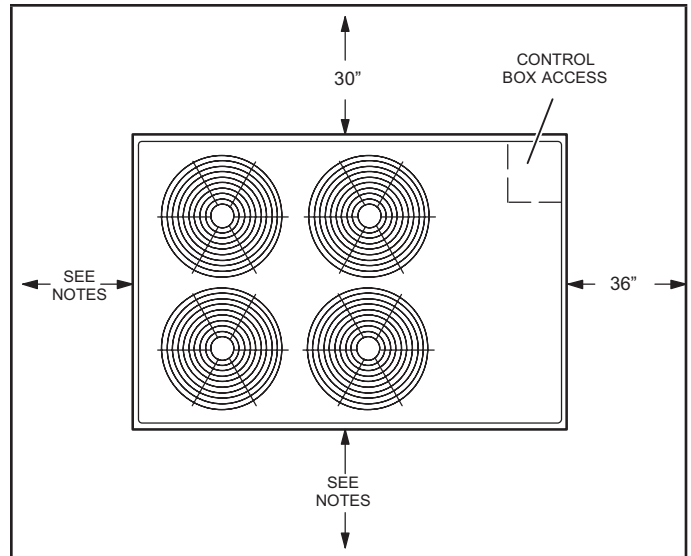


FIGURE 6. ELXC AIR CONDITIONERS (Four Fans) Installation Clearances

Line Set

Field refrigerant piping consists of liquid and suction lines connecting the condensing unit and the indoor unit. Liquid and suction service valves are located in a compartment at the corner of the unit below the control box.

Piping can be routed directly from the service valves or field supplied elbows can be added to divert the piping as required.

Refer to table 1 for field-fabricated refrigerant line sizes for runs up to 50 linear feet (15 m).

TABLE 1. Refrigerant Line Sizes for Runs Up to 50 Linear Feet

Unit	Liquid Line	Suction Line
EL072XCSS	3/8" (10mm)	1-1/8" (29mm)
EL090XCSS	5/8" (16mm)	1-1/8" (29mm)
EL120XCSS	5/8" (16mm)	1-1/8" (29mm)
EL120XCSD	3/8" (10mm)	1-1/8" (29mm)
EL150XCSD	3/8" (10mm)	1-1/8" (29mm)
EL180XCSD	5/8" (16mm)	1-1/8" (29mm)
EL240XCSD	5/8" (16mm)	1-1/8" (29mm)

Refrigerant Line Limitations

You may install the unit in applications that have line set lengths of up to 50 linear feet (15 m) with refrigerant line sizes as outlined in table 1 (excluding equivalent length of fittings). Size refrigerant lines greater than 50 linear feet (15m or greater) according to the Refrigerant Piping Design and Fabrication Guidelines (Corp. 9351-L9) or latest version.

Electrical Connections

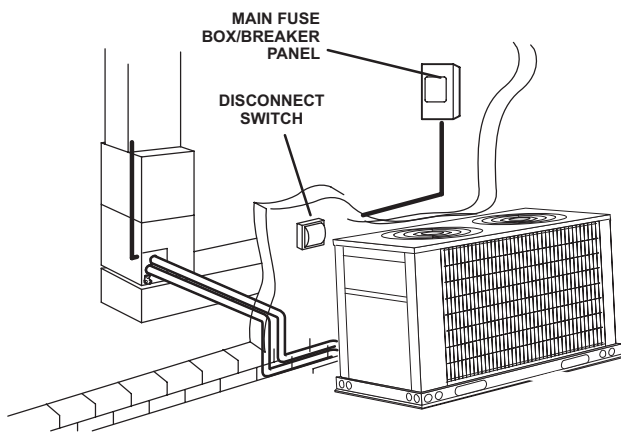
In the United States, wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

TRANSFORMER – 24V

Use the transformer provided with the air conditioning unit for low-voltage control power (24V, 90VA)

NOTE – The addition of accessories to the system could exceed the 90VA power requirement of the factory-provided transformer. Measure the system's current and voltage after installation is complete to determine transformer loading. If loading exceeds the factory-provided transformer capacity, a larger field-provided transformer will need to be installed in the system.

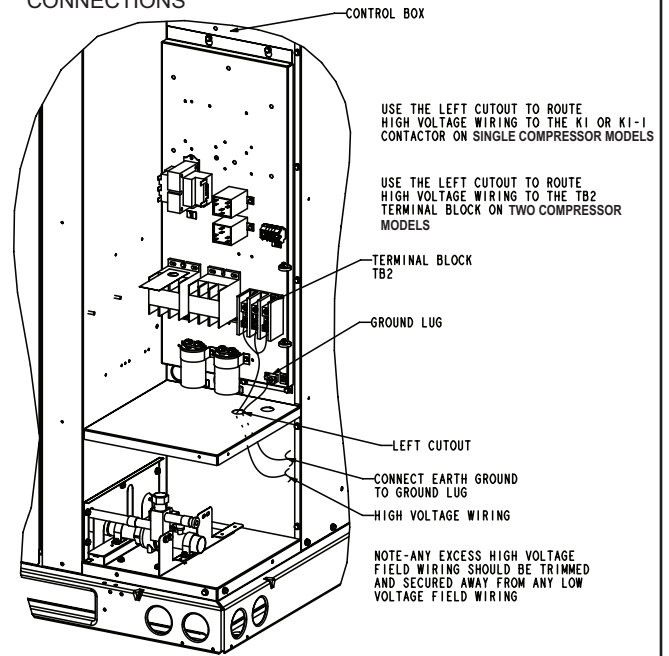
1 CIRCUIT SIZING AND DISCONNECT SWITCH



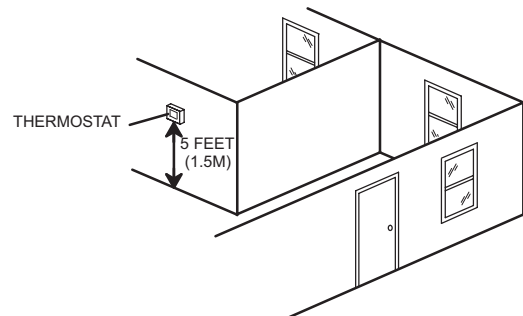
Refer to the unit nameplate for minimum circuit ampacity, amperage minimum, and maximum fuse or circuit breaker fusible (HACR per NEC). Install power wiring and properly sized disconnect switch.

NOTE — UNITS ARE APPROVED FOR USE ONLY WITH COPPER CONDUCTORS. GROUND UNIT AT DISCONNECT SWITCH OR TO AN EARTH GROUND.

2 TYPICAL HIGH VOLTAGE POWER SUPPLY CONNECTIONS



3 INSTALL THERMOSTAT



Install room thermostat (ordered separately) on an inside wall approximately in the center of the conditioned area and 5 feet (1.5m) from the floor. It should not be installed on an outside wall or where it can be affected by sunlight, drafts or vibrations.

⚠ WARNING



Electric Shock Hazard. Can cause injury or death. Unit must be properly grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

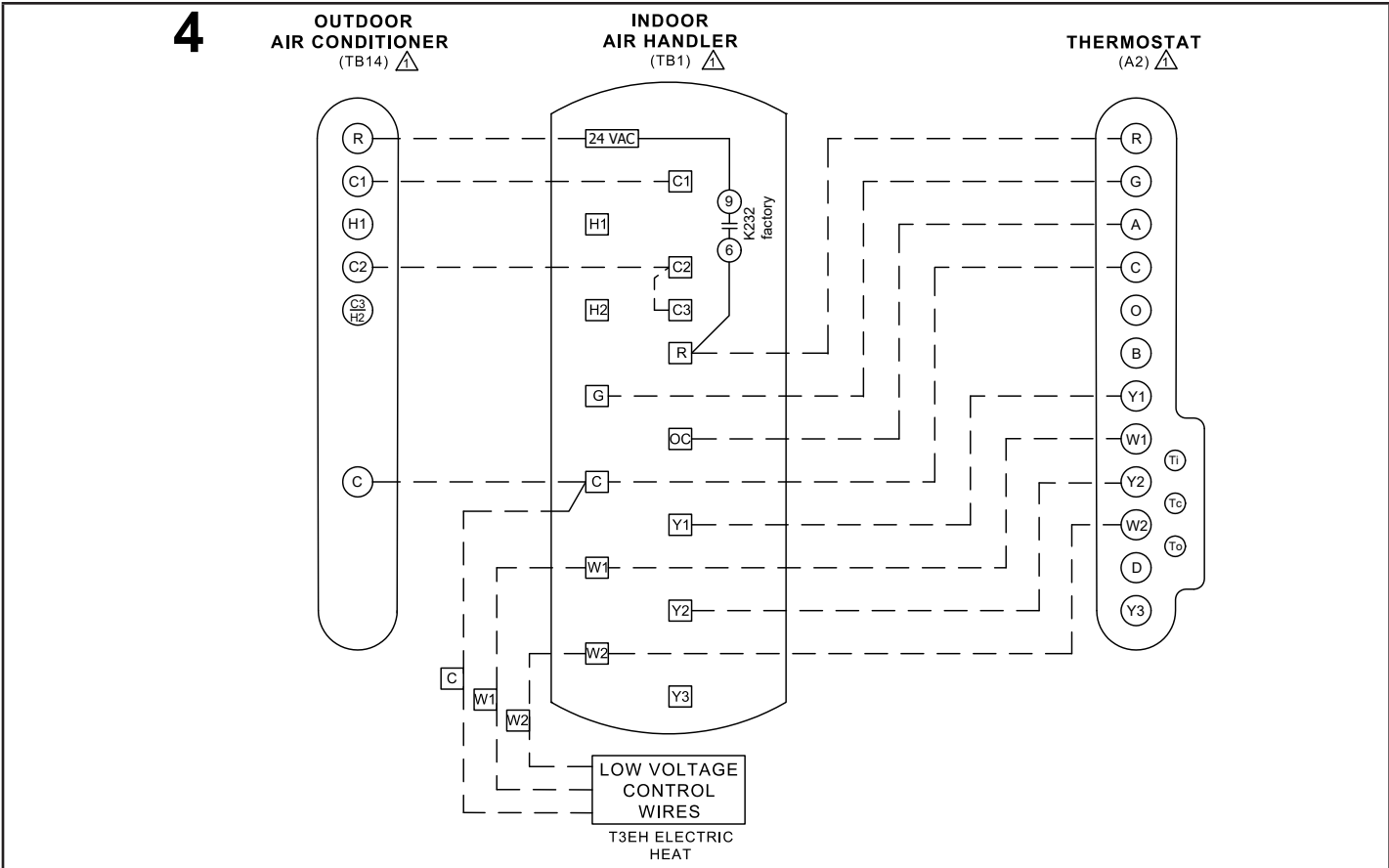


FIGURE 7. Typical Field Wiring – Single Compressor

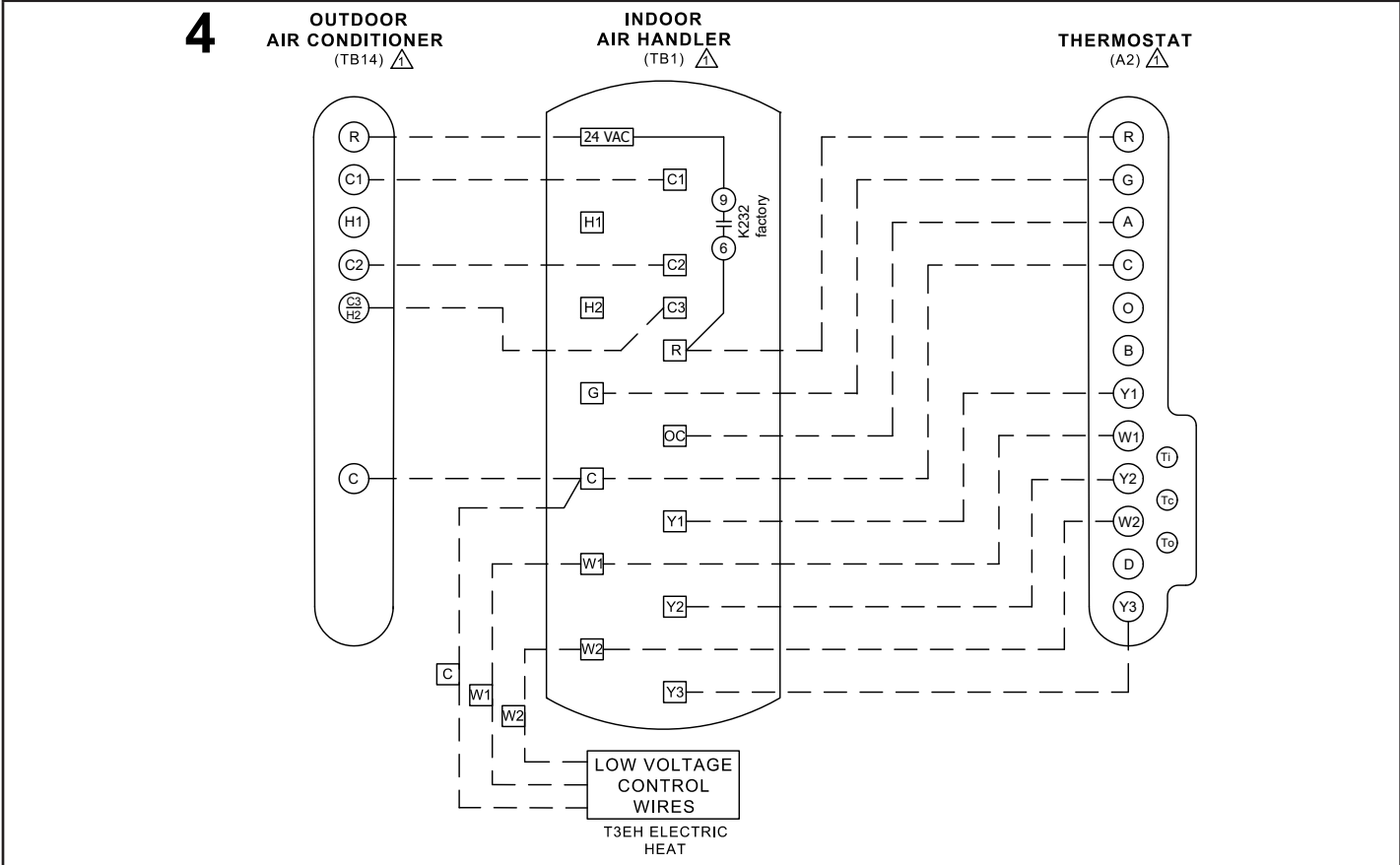
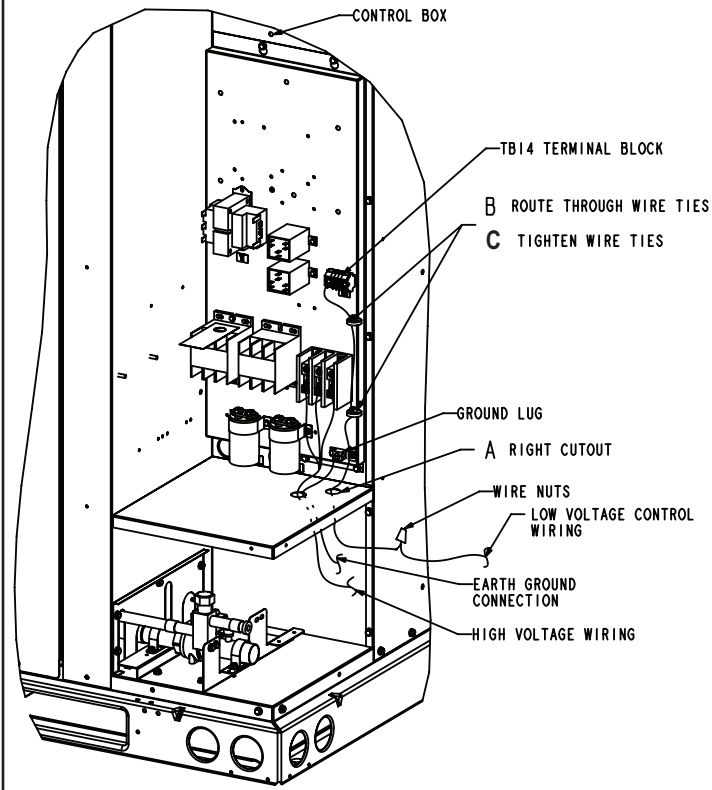


FIGURE 8. Typical Field Wiring – Two Compressors

5 TYPICAL UNIT CONTROL WIRE CONNECTIONS



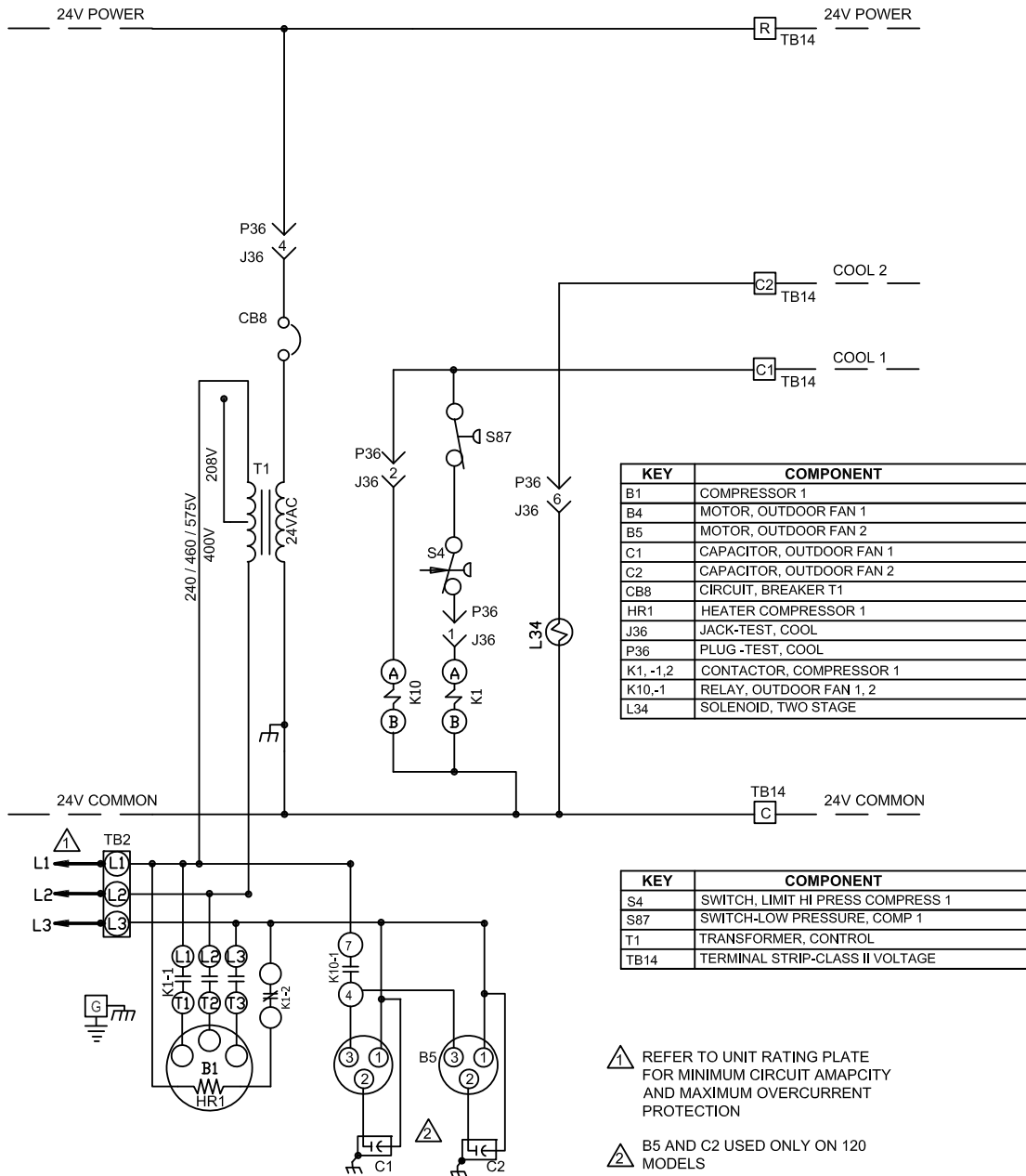
WIRE RUN LENGTH	AWG#	INSULATION TYPE
LESS THAN 100' (30M)	18	TEMPERATURE RATING
MORE THAN 100' (30M)	16	35°C MINIMUM

- A RUN CONTROL WIRES THROUGH RIGHT CUTOUT.
- B RUN CONTROL WIRES THROUGH WIRE TIES.
- C TIGHTEN WIRE TIE TO SECURE 24VDC CONTROL WIRING.

NOTE - FOR PROPER VOLTAGES, SELECT THERMOSTAT WIRE (CONTROL WIRING) GAUGE PER TABLE ABOVE.

NOTE - WIRE TIE PROVIDES LOW VOLTAGE WIRE STRAIN RELIEF AND MAINTAINS SEPARATION OF FIELD INSTALLED LOW AND HIGH VOLTAGE CIRCUITS.

NOTE - DO NOT BUNDLE ANY EXCESS 24VAC CONTROL WIRES INSIDE CONTROL BOX.



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

FOR USE WITH COPPER CONDUCTORS ONLY

DISCONNECT ALL POWER BEFORE SERVICING

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

← DENOTES OPTIONAL COMPONENTS
 — LINE VOLTAGE FIELD INSTALLED
 - - - CLASS II FIELD WIRING

⚠ REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION

⚠ B5 AND C2 USED ONLY ON 120 MODELS


2022/03		WIRING DIAGRAM	03/22
		537903-05	
DUAL SPEED COMPRESSOR			
EL072-120XCSST - G,J,Y			
SECTION A 2			REV. 0
Supersedes	New Form No.		
537903-04	537903-05		

FIGURE 9. Typical Wiring Diagram – ELXC Air Conditioners

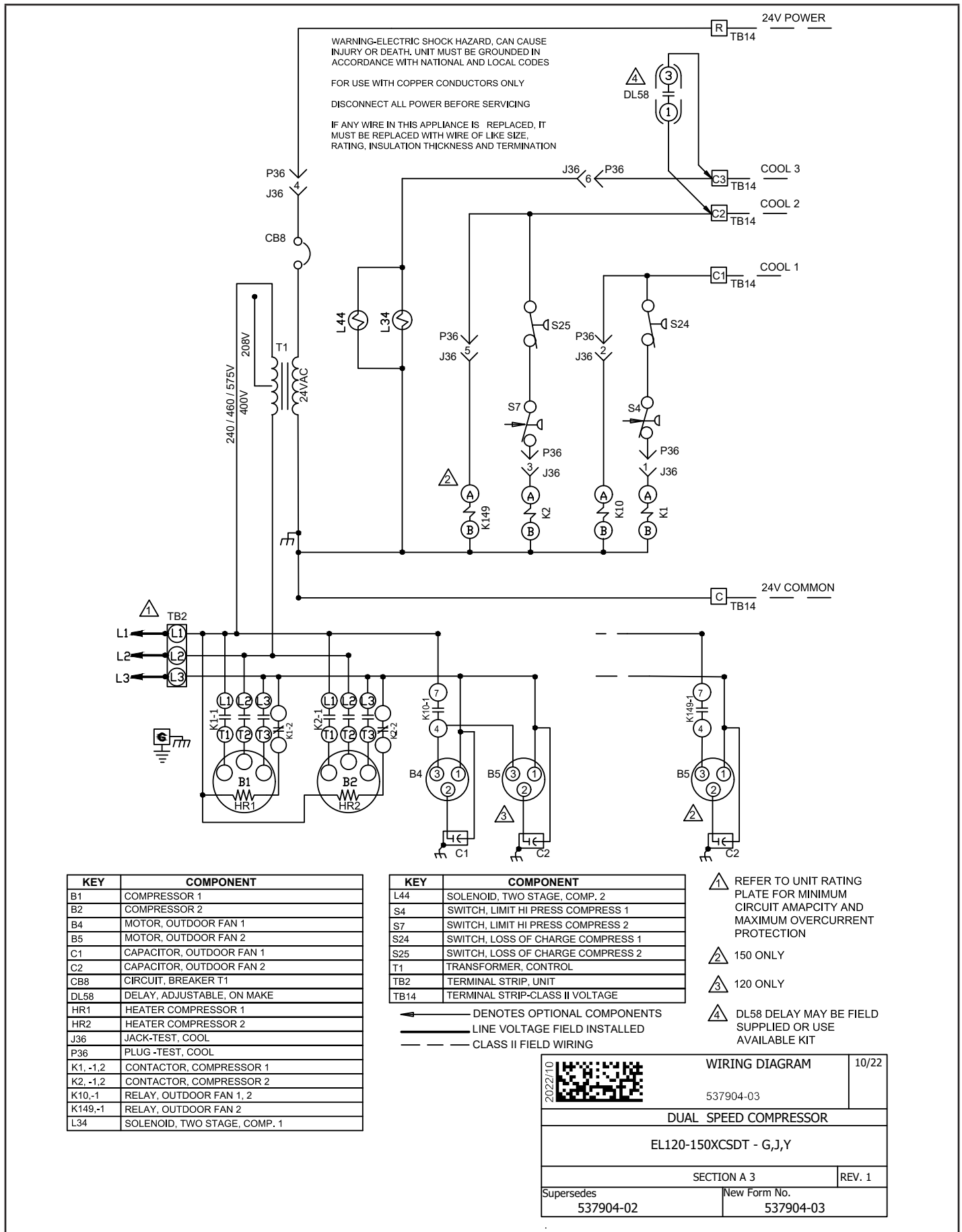


FIGURE 10. Typical Wiring Diagram – ELXC Air Conditioners

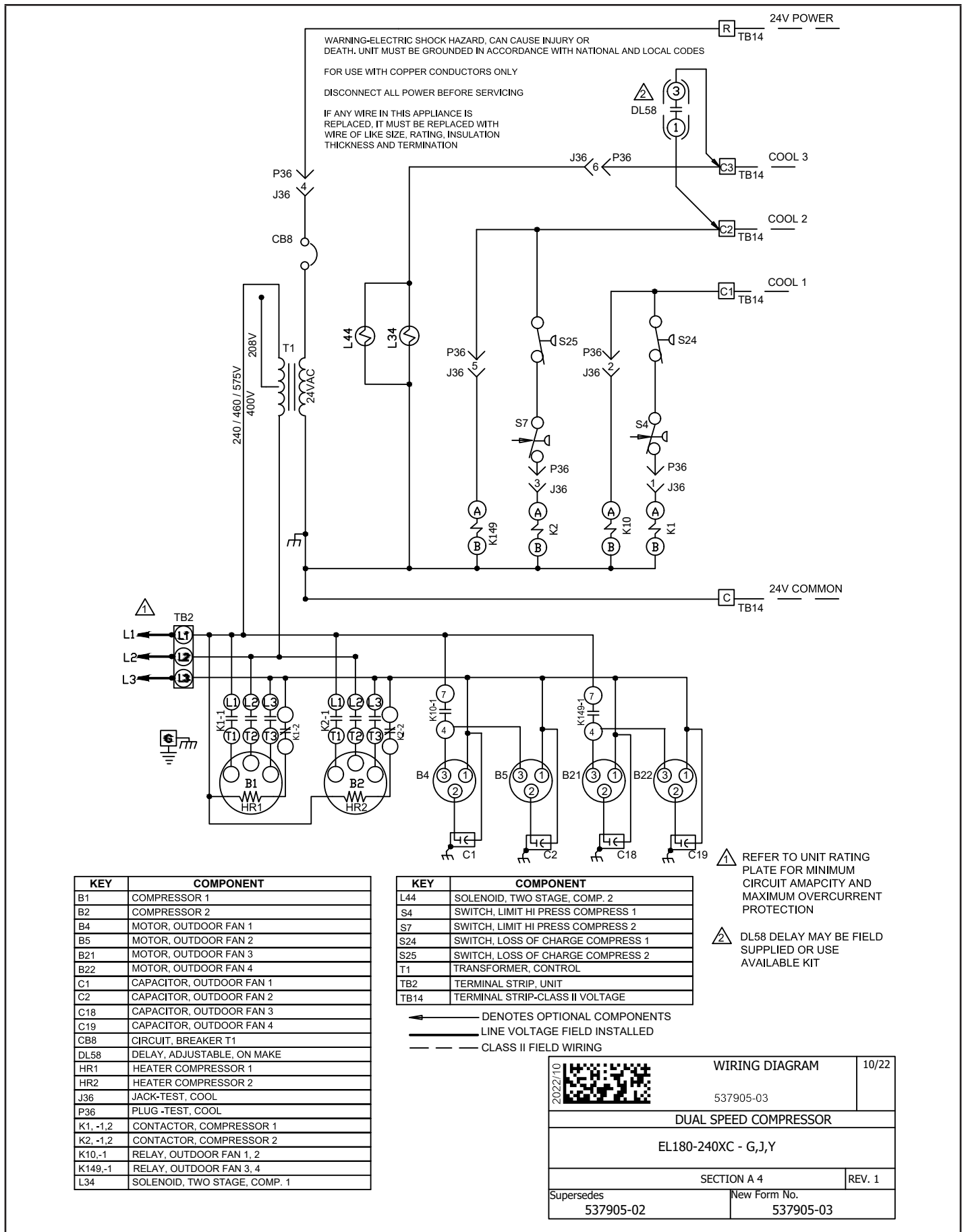


FIGURE 11. Typical Wiring Diagram – ELXC Air Conditioners

Refrigerant Charge

The ELXC units have a factory holding charge of 2 pounds of HFC-410A in each circuit. Additional refrigerant will need to be added during installation. Charge using the HFC-410A charging information label provided in the unit. The HFC-410A charging information label in the unit applies to Indoor and Outdoor unit with same full load capacity, see table below. For all other unit matches, please contact Commercial Application department for Charging Procedure Information (form # 508349-01).

Split System Matches		
Cooling Unit	Air Handler	Air Handler SCFM
EL072XC	EL072XA	2600
EL090XC	EL090XA	2630
EL120XCSS	EL120XA	3770
EL120XCSD	EL120XA	4000
EL150XC	EL150XA	4425
EL180XC	EL180XA	5275
EL240XC	EL240XA	7120

System Operation

The outdoor unit and indoor unit cycle on demand from the room thermostat. Refer to interconnect diagram (figures 7 and 8) for demand signals passed from the indoor unit to the outdoor unit.

For details on the outdoor unit component operation based on thermostat demand, refer to tables below.

EL072XC, EL090XC

Thermostat Demand	Input Signals at Terminal Strip ²	Compressor Output	Fan
(Key Number ¹)	(TB14)	(B1)	(B4)
STANDBY	R	OFF	OFF
COOLING 1	C1	LOW	ON
COOLING 2	C1+C2	HIGH	ON

Footnotes:

1. Refer to Component Label or Wiring Diagram for key numbers.
2. 24V input signals measured between one TB14 connection listed and TB14-C connection.

EL120XCSS					
Thermostat Demand	Input Signals at Terminal Strip ²	Compressor Output		Fans	
(Key Number ¹)	(TB14)	(B1)	(B2)	(B4)	(B5)
STANDBY	R	OFF	OFF	OFF	OFF
COOLING 1	C1	LOW	OFF	ON	ON
COOLING 2	C1+C2	HIGH	HIGH	ON	ON

Footnotes:

1. Refer to Component Label or Wiring Diagram for key numbers.
2. 24V input signals measured between one TB14 connection listed and TB14-C connection.

EL120XCSD					
Thermostat Demand	Input Signals at Terminal Strip ²	Compressor Output		Fans	
(Key Number ¹)	(TB14)	(B1)	(B2)	(B4)	(B5)
STANDBY	R	OFF	OFF	OFF	OFF
COOLING 1	C1	LOW	OFF	ON	ON
COOLING 2	C1+C2	LOW	LOW	ON	ON
COOLING 3	C1+C2+C3	HIGH	HIGH	ON	ON

Footnotes:

1. Refer to Component Label or Wiring Diagram for key numbers.
2. 24V input signals measured between one TB14 connection listed and TB14-C connection.

EL150XC					
Thermostat Demand	Input Signals at Terminal Strip ²	Compressor Output		Fans	
(Key Number ¹)	(TB14)	(B1)	(B2)	(B4)	(B5)
STANDBY	R	OFF	OFF	OFF	OFF
COOLING 1	C1	LOW	OFF	ON	OFF
COOLING 2	C1+C2	LOW	LOW	ON	ON
COOLING 3	C1+C2+C3	HIGH	HIGH	ON	ON

Footnotes:

1. Refer to Component Label or Wiring Diagram for key numbers.
2. 24V input signals measured between one TB14 connection listed and TB14-C connection.

EL180XC, EL240XC							
Thermostat Demand	Input Signals at Terminal Strip ²	Compressor Output		Fans			
(Key Number1)	(TB14)	(B1)	(B2)	(B4)	(B5)	(B21)	(B22)
STANDBY	R	OFF	OFF	OFF	OFF	OFF	OFF
COOLING 1	C1	LOW	OFF	ON	ON	OFF	OFF
COOLING 2	C1+C2	LOW	LOW	ON	ON	ON	ON
COOLING 3	C1+C2+C3	HIGH	HIGH	ON	ON	ON	ON

Footnotes:
1. Refer to Component Label or Wiring Diagram for key numbers.
2. 24V input signals measured between one TB14 connection listed and TB14-C connection.

HIGH PRESSURE SWITCHES (S4 AND S7)

These units are equipped with a manual reset high pressure switch (single-pole, single-throw) which is located on the discharge line. The switch shuts off the compressor when discharge pressure rises above the factory setting. High Pressure (auto reset) – trip at 640 psig; reset at 512 psig.

LOSS OF CHARGE SWITCHES (S24 AND S25)

NOTE – Used on units with two two-stage compressors.

These units are equipped with a loss-of-charge switch that is located in the liquid line. The switch is a SPST, auto-reset switch that is normally closed. The switch opens at 40 psi and closes at 90 psi.

LOW PRESSURE SWITCH (S87)

NOTE – Used on units with one two-stage compressor.

These units are equipped with a loss-of-charge switch that is located in the liquid line. The switch is a SPST, auto-reset switch that is normally closed. The switch opens at 40 psi and closes at 90 psi.

Maintenance

At the beginning of each cooling season, the system should be checked as follows:

OUTDOOR UNIT

- 1 - Clean and inspect the condenser coil. You can flush the coil with a water hose.
- 2 - The outdoor fan motor is prelubricated and sealed. No further lubrication is necessary.
- 3 - Visually inspect connecting lines and coils for evidence of oil leaks.
- 4 - Check wiring for loose connections.

5 - Check for correct voltage at the unit while the unit is operating and while it is off.

6 - Check amp-draw of the outdoor fan motor(s).

Unit nameplate _____ **Actual** _____

7 - Check amp-draw of the compressor(s).

Unit nameplate _____

Compressor #1 _____

Compressor #2 _____

NOTE – If the owner complains of insufficient cooling, gauge the unit and check the refrigerant charge. Refer to section on refrigerant charging in this instruction.

INDOOR UNIT

- 1 - If necessary, clean the coil.
 - 2 - Check connecting lines and coils for evidence of oil leaks.
 - 3 - If necessary, check the condensate line and clean it.
 - 4 - Clean or change filters.
 - 5 - Adjust the blower speed for cooling. Measure the pressure drop over the coil to determine the correct blower CFM. Refer to the unit information service manual for pressure drop tables and procedure.
 - 6 - On belt drive blowers, check the belt for wear and proper tension.
 - 7 - Check all wiring for loose connections.
 - 8 - Check for correct voltage at the unit (blower operating).
 - 9 - Check amp-draw on blower motor.
- Unit nameplate** _____ **Actual** _____

Start-Up and Performance Checklist

Job Name _____ Job no. _____ Date _____

Job Location _____ City _____ State _____

Installer _____ City _____ State _____

Unit Model No. _____ Serial No. _____ Service Technician _____

Nameplate Voltage _____

Rated Load Ampacity _____ Compressor Amperage: _____

Maximum Fuse or Circuit Breaker _____

Electrical Connections Tight? Indoor Filter clean? Supply Voltage (Unit Off) _____

Indoor Blower RPM _____ S.P. Drop Over Indoor (Dry) _____ Outdoor Coil Entering Air Temp. _____

Vapor Pressure; _____

Refrigerant Lines: - Leak Checked? Properly Insulated? Outdoor Fan Checked?

Service Valves: --- Fully Opened? Caps Tight? Voltage With Compressor Operating _____

SEQUENCE OF OPERATION

Heating Correct? Cooling Correct?

THERMOSTAT

Calibrated? Properly Set? Level?