



Installation Instructions

Part Numbers 00EFN900003000A, 00EFN900003100A

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

When working on air-conditioning equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses and work gloves. Use care in handling equipment.

⚠ WARNING

Be sure power to equipment is shut off before performing maintenance or service. Lock out and safety-tag all disconnects.

GENERAL

The remote cooler accessory allows for the indoor relocation of the cooler on 30XA080-350 units as another means of freeze protection. When the cooler is located in a heated space, an anti-freeze solution is not needed and the performance degradation associated with antifreeze solution can be avoided. Maximum separation of the 30XA base unit and cooler is limited to 50 lineal ft (15.25 m) or 75 equivalent ft (22 m) of piping. For more information, refer to the Carrier Piping Design manual.

The liquid and economizer lines between the exterior-installed unit and the remote, interior-installed cooler must have pressure relief devices installed in accordance with ASHRAE 15 (American Society of Heating, Refrigeration, and Air Conditioning Engineers) and local codes.

Units to be modified for a remote cooler application must have the following options:

- Factory-installed suction service valve option.
- Condenser coil type:
 - Aluminum fin and copper tube
 - Pre-coat aluminum fin and copper tube
 - E-coat aluminum fin and copper tube
 - Copper fin and copper tube
 - E-coat copper fin and copper tube

NOTE: The microchannel heat exchanger option can NOT use the remote cooler accessory.

The application is limited to the following constraints:

- Operating chilled water temperature is between 40 and 55 F (4.4 and 12.8 C). When the remote cooler is applied, the cooler heaters will not function, so it is critical to maintain the water temperature above the freezing point at all times. If the water temperature falls below the freezing point, the cooler does not have protection to keep the water from freezing.
- The interior space temperature where the cooler will be installed must be maintained at a minimum of 50 F (10 C).
- Underground refrigerant piping is NOT permitted for this application.

See Table 1 for accessory package usage and see Table 2 for accessory package contents. In addition to the parts supplied with each accessory package, the following material must be field-supplied:

- Refrigerant grade liquid and suction line copper piping for 30XA080-120: circuits A and B and 30XA140-160: circuit B (length determined by installation). See Tables 3A and 3B for pipe sizes.
- Schedule 40 steel pipe for 30XA140-160: circuit A and 30XA180-350: circuits A and B (length determined by installation). See Tables 3A and 3B for pipe sizes.
- 350 psig pressure relief valves and fittings (2 per circuit)
- Suction line tubing insulation (length determined by installation)
- Economizer line tubing insulation (length determined by installation)
- 1/2 in. strain relief (2)
- Conduit (length determined by installation)
- ASME (American Society of Mechanical Engineers) B16.9 stub end (4 in. [102 mm]), Schedule 40 Steel (one needed for 30XA140-160, two needed for 30XA180-350)
- ASME B16.5 Class 600 pipe flange (4 in. [102 mm]) with field-modified extra mounting hole (one needed for 30XA260-300, two needed for 325, 350)
- Flange mounting hardware
- Extra flange gaskets (if necessary)

⚠ CAUTION

The 30XA units use R-134a refrigerant. No other refrigerant may be used in this system. Suction tubing design pressure is 220 psig (1517 kPa). Economizer and liquid tubing design pressure is 350 psig (2413 kPa). Failure to use gage set, hoses, and recovery systems designed to handle R-134a refrigerant may result in personal injury and equipment damage. If unsure about equipment, consult the equipment manufacturer.

Table 1 — Accessory Package Usage

30XA UNIT SIZE	PACKAGE REQUIRED
080-200	00EFN900003000A
220-350	00EFN900003100A

Table 2 — Accessory Package Contents

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
00EFN900003000A	1	Economizer shutoff valve - 1 ¹ / ₈ in. (29 mm)	00PPG000023501A	2
	2	Liquid line shutoff valve - 1 ³ / ₈ in. (35 mm)	EP71BA393	2
	3	5 Wire jacketed cable	RM02EJ200	200 ft (61 m)
	4	Cable assembly	32GB404694	5
	5	Junction box	HX30FZ001	2
	6	Junction box cover	HX38ZZ001	2
	7	M6 Screws	00PPN500000302A	8
	8	Cooler pipe flange - 3 ¹ / ₈ in. (79 mm)	00PSN500091400A	2
	10	Flex connector flange - 4 in. (102 mm)	00PSG000213300A	2
	11	Loose pipe flange - 4 in. (102 mm)	00PSG000205100A	2
	12	Cooler flange O-ring	KK71EW256	4
	13	Flex connector flange O-ring	KK71EW250	2
	14	Compressor flange gasket - 3 in. (76 mm)	00PPG000011702A	2
	15	Compressor flange gasket - 4 in. (102 mm)	00PSG000011703A	4
	16	Transducer wiring harness - 100 ft (30.5 m)	00PSN500180500A	2
	00EFN900003100A	1	Economizer shutoff valve - 1 ¹ / ₈ in. (29 mm)	00PPG000023501A
2		Liquid line shutoff valve - 1 ³ / ₈ in. (35 mm)	EP71BA393	2
3		5 Wire jacketed cable	RM02EJ200	200 ft (61 m)
4		Cable assembly	32GB404694	5
5		Junction box	HX30FZ001	2
6		Junction box cover	HX38ZZ001	2
7		M6 Screws	00PPN500000302A	8
8		Flex connector flange O-ring	KK1EW250	2
9		Compressor flange gasket - 4 in. (102 mm)	00PSG000011703A	4
10		Compressor flange gasket - 5 in. (127 mm)	00PPG000011704A	4
11		Loose pipe flange - 5 in. (127 mm)	00PSG000211900A	2
12		Loose pipe flange - 4 in. (102 mm)	00PSG000205100A	2
13		Flex connector flange - 4 in. (102 mm)	00PSG000213300A	2
14		Transducer wire harness - 100 ft (30.5 m)	00PSN500180500A	2

Choose a space that can support the weight of the cooler and economizer with service clearances and area for refrigerant piping. Field-supplied piping must be limited to less than 50 lineal ft (15.25 m) or 75 equivalent ft (22 m) in length. Suction and liquid line risers must be limited to less than 15 ft (4.5 m) vertical riser elevation. Suction lines and economizer lines must be insulated to prevent condensation. Relocating the cooler introduces minimal line losses if correct piping practices are followed. Buried lines are not permitted.

The remote cooler system can be applied in three different configurations. See Fig. 1-3. In Fig. 1, the remote cooler and the outdoor unit are at the same elevation. The suction, liquid, and economizer lines run parallel between the cooler and the outdoor unit. In Fig. 2, the outdoor unit and remote cooler are at the same elevation, but the interconnecting piping has an elevation of up to 15 ft (4.5 m) above the base elevation of the cooler. This could be result of running piping over a wall or through the ceiling in a building. In Fig. 3, the remote cooler is located below the outdoor unit. The interconnecting piping has an elevation of up to 15 ft (4.5 m) above the base elevation of the remote cooler. This could occur if the remote cooler is installed in a basement.

NOTE: Unit 30XA refrigeration piping can be either copper tubing or steel tubing with flanged connections. All units are

factory charged with compressor oil to the required level. However, when the double riser is constructed with U-bends or street elbows, a substantial amount of oil can be trapped in the U-bend during prolonged minimum load operation. If this occurs, additional oil is needed to add to the system to prevent the oil level from dropping below the minimum level in the oil separator. Add 1 gallon of oil to each circuit. Refer to Controls, Start-up, Operation, Service, and Troubleshooting Guide for recommended oil type.

Table 3A — Refrigeration Piping and Connections Material (English)

PIPE SIZE (in.)	MATERIAL
5/8, 7/8, 1 ¹ / ₈ , 1 ³ / ₈ , 1 ⁵ / ₈ , 2 ¹ / ₈ , 2 ³ / ₈ , 3 ¹ / ₈	Refrigeration copper
2, 2 ¹ / ₂ , 3, 3 ¹ / ₂ , 4	Schedule 40 Steel

Table 3B — Refrigeration Piping and Connections Material (SI)

PIPE SIZE (mm)	MATERIAL
16, 22, 29, 35, 41, 54, 67, 79	Refrigeration copper
51, 64, 76, 89, 102	Schedule 40 Steel

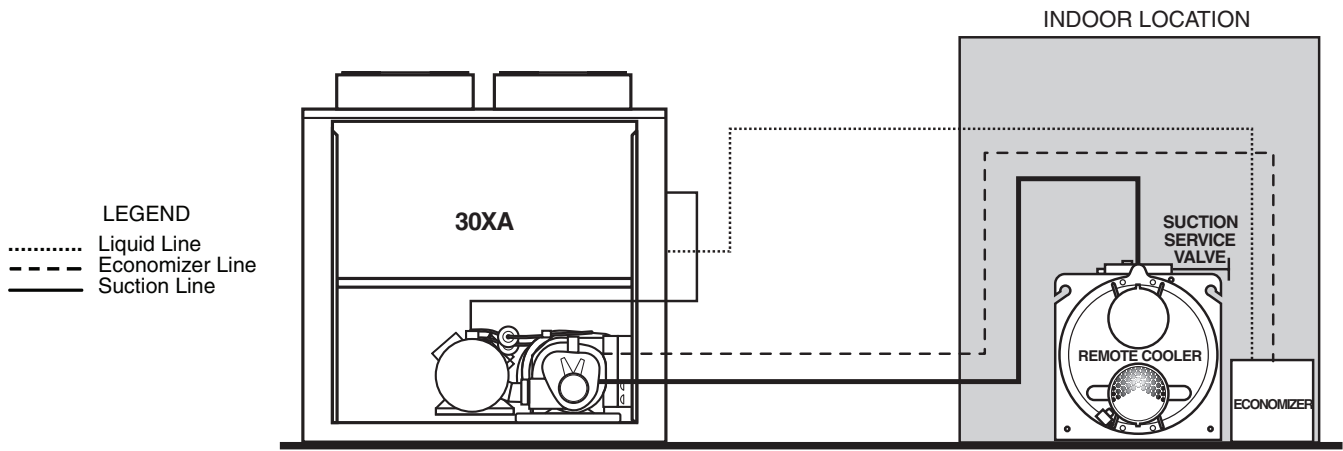


Fig. 1 — 30XA Unit and Cooler Level, Piping Parallel (Single Circuit Shown)

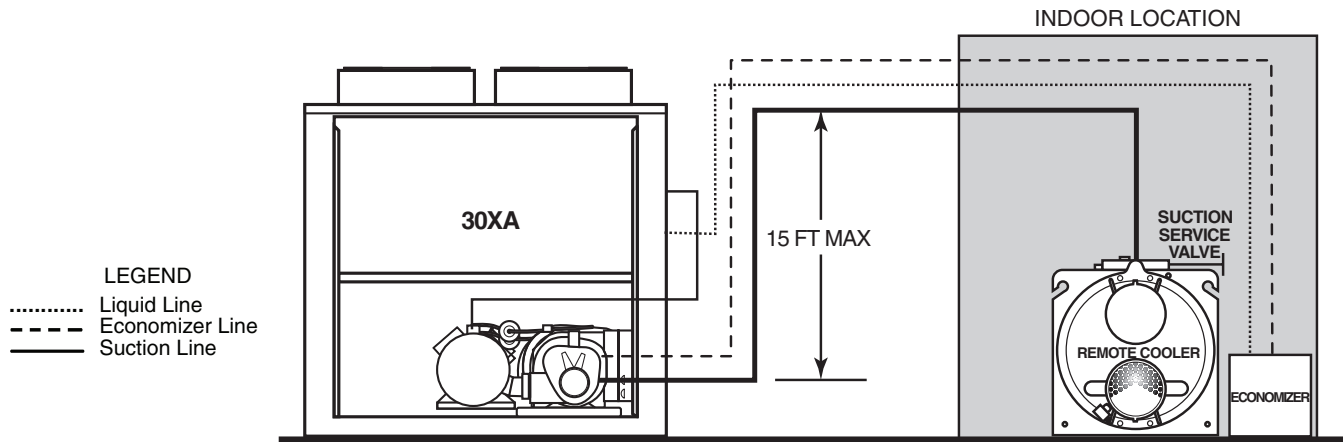


Fig. 2 — 30XA Unit and Cooler Level, Piping Elevated (Single Circuit Shown)

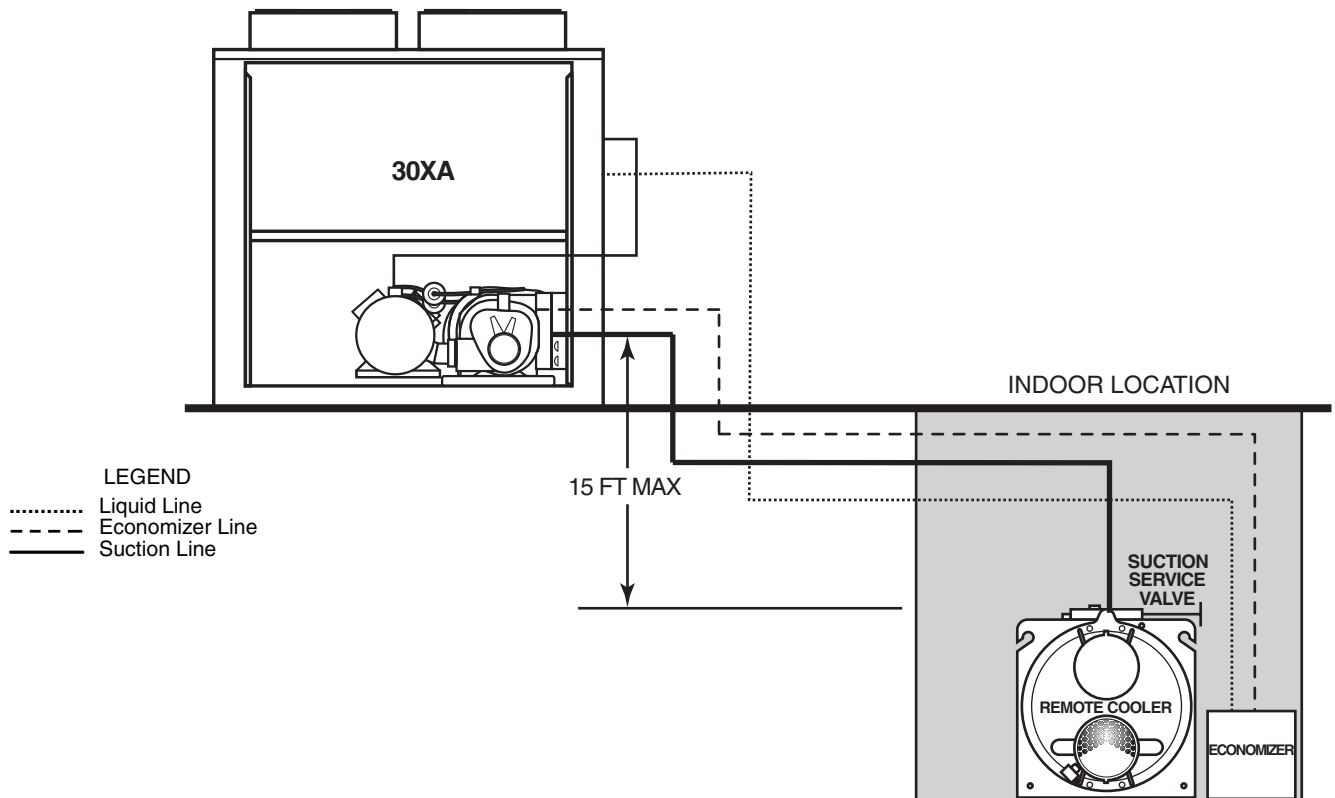


Fig. 3 — 30XA Unit with Cooler Located Below Unit (Single Circuit Shown)

INSTALLATION

⚠ WARNING

Shut off all power to this equipment prior to installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed. Failure to disconnect power from equipment prior to installation could result in serious personal injury or death.

1. Inspect package contents for missing or damaged parts. File a claim with the shipping agency if parts are damaged and notify your local Carrier representative if any item is missing.
2. Determine the new location for the cooler. Ensure that the new location supports the cooler and economizers weights and that there is enough room for service access and tube removal. See Tables 4A and 4B to determine refrigeration line sizes. See Table 5 for cooler and economizers weights. See Fig. 4A-5B for cooler and economizers dimensions, tube removal clearances, and service areas.
3. Open and tag all electrical disconnects.

Cooler and Economizer Removal — The cooler and economizers are accessible from the cooler side of the unit. To remove the cooler and economizers from the unit, complete the following steps:

1. Remove refrigerant from all circuits using standard refrigeration practices. Refer to unit nameplate or installation instructions for refrigerant quantities.
2. Disconnect the cooler heater wiring, and conduit if equipped.
3. Remove entering and leaving chilled water temperature thermistors. Make sure to label thermistors as they are removed. See Fig. 6.
4. Disconnect and label the chilled water flow switch cable from the chilled water flow switch located on the leaving water nozzle. See Fig. 6.
5. Disconnect the suction pressure transducer cables from the transducers. Make sure to label cables as they are removed. See Fig. 6.

NOTE: The suction pressure transducers (SPT) do not necessarily need to be removed. However, use care in protecting the

SPTs throughout the removal and remote installation processes, as the SPTs are an important part of the remote installation.

6. Disconnect the electronic expansion valve (EXV) cables from the EXVs at each economizer. Make sure to label cables as they are removed. See Fig. 6.

NOTE: The 30XA080 units do not utilize an economizer. In this case, only the EXVs are present.

7. Unbolt the cooler suction flanges from the cooler. Temporary supports may be needed to support the suction pipes. See Fig 6.
8. At each circuit's economizer, cut the liquid lines going to the economizer assembly before the manual shutoff valve (see Fig. 6, cut 1, circuits A and B). Cut the cooler liquid lines between the manual shutoff valve and the cooler (see Fig. 6, cut 2, circuits A and B). Cut the economizer lines between the manual shutoff valve and the sensors (see Fig. 6, cut 3, circuits A and B).
9. Remove the screws from the feet of each economizer. Save all of the screws. Remove the economizers by carefully sliding them out the cooler side of the unit.
10. Remove the screws from the cooler feet. Save all of the screws. Slide the cooler slightly to the left to clear the refrigerant tubing.
11. Remove the cooler by carefully sliding the cooler out the cooler side of the unit.

⚠ CAUTION

Because 30XA systems use polyolester oil, which can absorb moisture, it is important to minimize the amount of time that the refrigeration system is left exposed to the atmosphere. Minimizing the exposure time will reduce the amount of moisture that could possibly damage the unit. The removal instructions minimize the exposure time to prevent this type of damage. The remote installation instructions outline a dehydration process to counteract any exposure that might have occurred.

⚠ CAUTION

Before installation of the field-supplied piping, the piping must be thoroughly cleaned and free of dirt, debris, oil, and welding residue. Presence of these objects will cause severe damage to the compressors or other components of the refrigeration system.

Table 4A — Refrigeration Line Sizes (English)

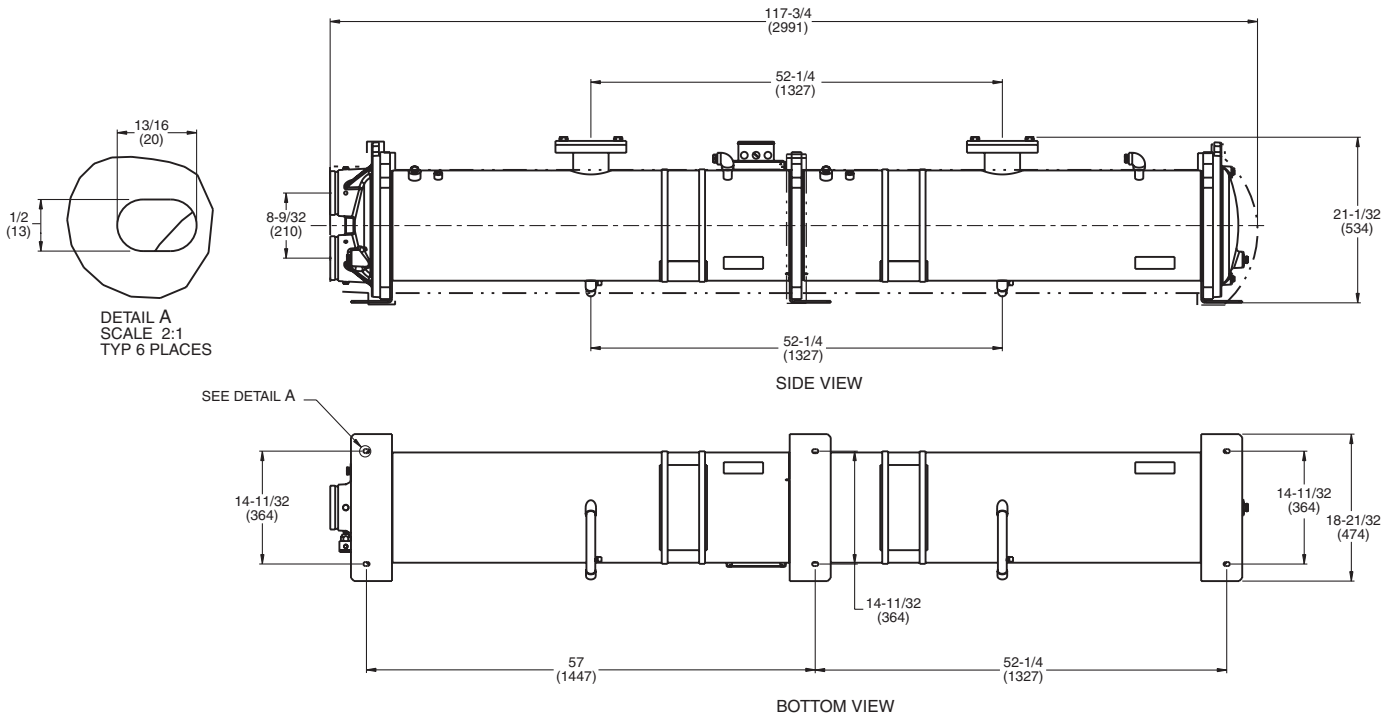
30XA UNIT SIZE	SUCTION LINE		DOUBLE SUCTION RISERS				COOLER LIQUID LINE		CONDENSER LIQUID LINE		ECONOMIZER LINE	
			Circuit A		Circuit B							
	Circuit A (in.)	Circuit B (in.)	Riser A (in.)	Riser B (in.)	Riser A (in.)	Riser B (in.)	Circuit A (in.)	Circuit B (in.)	Circuit A (in.)	Circuit B (in.)	Circuit A (in.)	Circuit B (in.)
080	3 ¹ / ₈	3 ¹ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	—	—
090	3 ¹ / ₈	3 ¹ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8	7/8
100	3 ¹ / ₈	3 ¹ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8	7/8
110	3 ¹ / ₈	3 ¹ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8	7/8
120	3 ¹ / ₈	3 ¹ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ⁵ / ₈	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8	7/8
140	4	3 ¹ / ₈	2	3 ¹ / ₂	1 ⁵ / ₈	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8
160	4	3 ¹ / ₈	2	3 ¹ / ₂	1 ⁵ / ₈	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈	7/8
180	4	4	2	3 ¹ / ₂	2	3 ¹ / ₂	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
200	4	4	2	3 ¹ / ₂	2	3 ¹ / ₂	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
220	4	4	2	3 ¹ / ₂	2	3 ¹ / ₂	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
240	4	4	2	3 ¹ / ₂	2	3 ¹ / ₂	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
260	4	4	2 ¹ / ₂	3	2	3 ¹ / ₂	1 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
280	4	4	2 ¹ / ₂	3	2	3 ¹ / ₂	1 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
300	4	4	2 ¹ / ₂	3	2	3 ¹ / ₂	1 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈
325	4	4	2 ¹ / ₂	3	2 ¹ / ₂	3	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈
350	4	4	2 ¹ / ₂	3	2 ¹ / ₂	3	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₈

Table 4B — Refrigeration Line Sizes (SI)

30XA UNIT SIZE	SUCTION LINE		DOUBLE SUCTION RISERS				COOLER LIQUID LINE		CONDENSER LIQUID LINE		ECONOMIZER LINE	
			Circuit A		Circuit B							
	Circuit A (mm)	Circuit B (mm)	Riser A (mm)	Riser B (mm)	Riser A (mm)	Riser B (mm)	Circuit A (mm)	Circuit B (mm)	Circuit A (mm)	Circuit B (mm)	Circuit A (mm)	Circuit B (mm)
080	79	79	41	67	41	67	29	29	29	29	—	—
090	79	79	41	67	41	67	29	29	29	29	22	22
100	79	79	41	67	41	67	29	29	29	29	22	22
110	79	79	41	67	41	67	29	29	29	29	22	22
120	79	79	41	67	41	67	29	29	29	29	22	22
140	102	79	51	89	41	67	35	29	35	29	29	22
160	102	79	51	89	41	67	35	29	35	29	29	22
180	102	102	51	89	51	89	35	35	35	35	29	29
200	102	102	51	89	51	89	35	35	35	35	29	29
220	102	102	51	89	51	89	35	35	35	35	29	29
240	102	102	51	89	51	89	35	35	35	35	29	29
260	102	102	64	76	51	89	41	35	41	35	29	29
280	102	102	64	76	51	89	41	35	41	35	29	29
300	102	102	64	76	51	89	41	35	41	35	29	29
325	102	102	64	76	64	76	41	41	41	41	29	29
350	102	102	64	76	64	76	41	41	41	41	29	29

Table 5 — Cooler and Economizer Weights

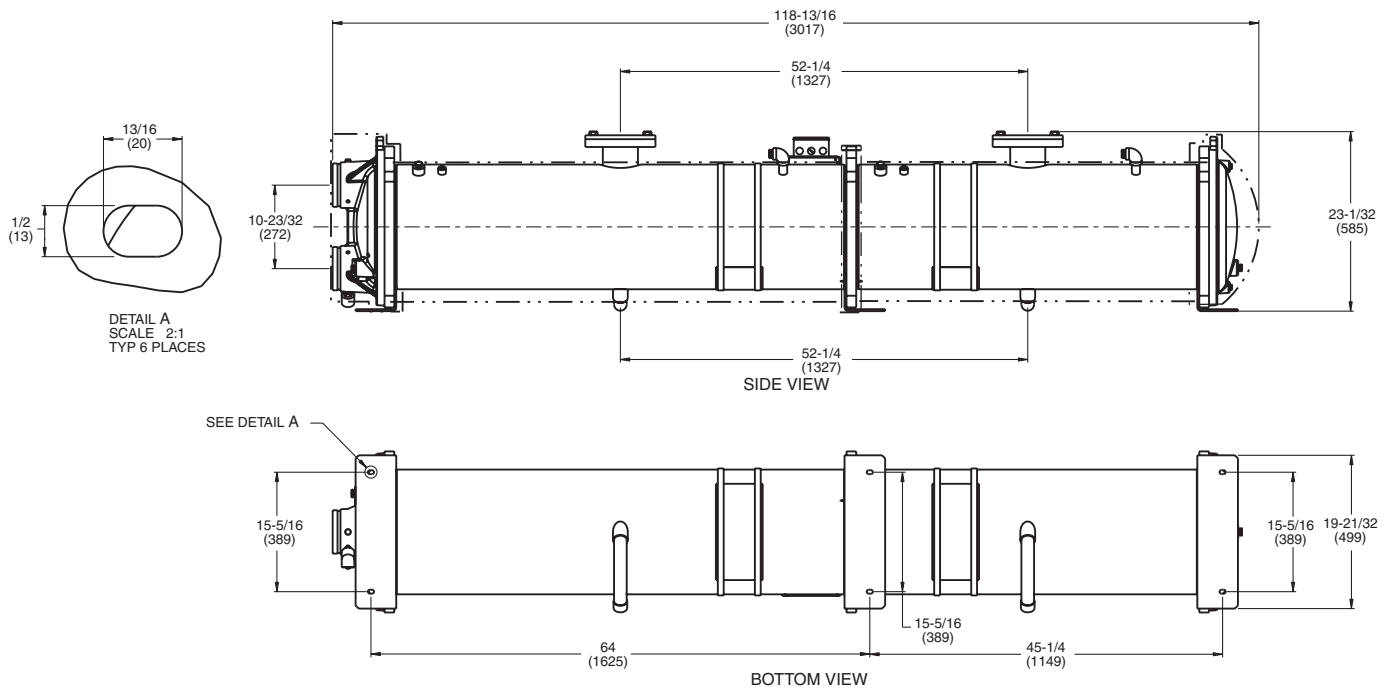
30XA UNIT SIZE	COOLER OPERATING WEIGHT		ECONOMIZER WEIGHT			
			Circuit A		Circuit B	
	lb	kg	lb	kg	lb	kg
080	1277	580	—	—	—	—
090	1323	601	45	20	45	20
100	1323	601	45	20	45	20
110	1357	617	45	20	45	20
120	1396	634	45	20	45	20
140	1622	737	45	20	55	25
160	1665	757	45	20	55	25
180	1860	845	55	25	55	25
200	1920	872	55	25	55	25
220	1980	900	55	25	60	27
240	2031	923	60	27	60	27
260	2261	1027	55	25	70	32
280	2321	1055	60	27	70	32
300	2411	1095	60	27	75	34
325	2458	1117	70	32	70	32
350	2523	1146	70	32	75	34



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) is 109 in. (2769 mm).

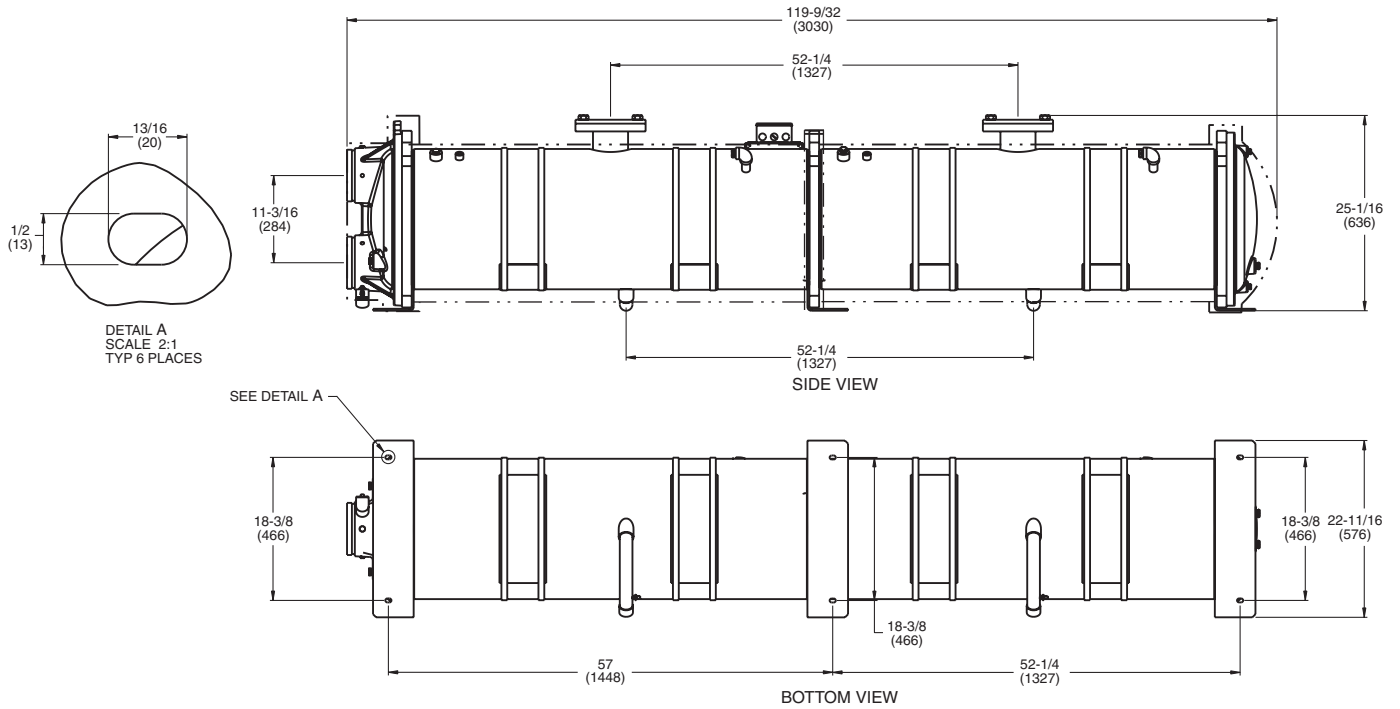
Fig. 4A — 30XA080-120 Cooler Dimensions



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) is 109 in. (2769 mm).

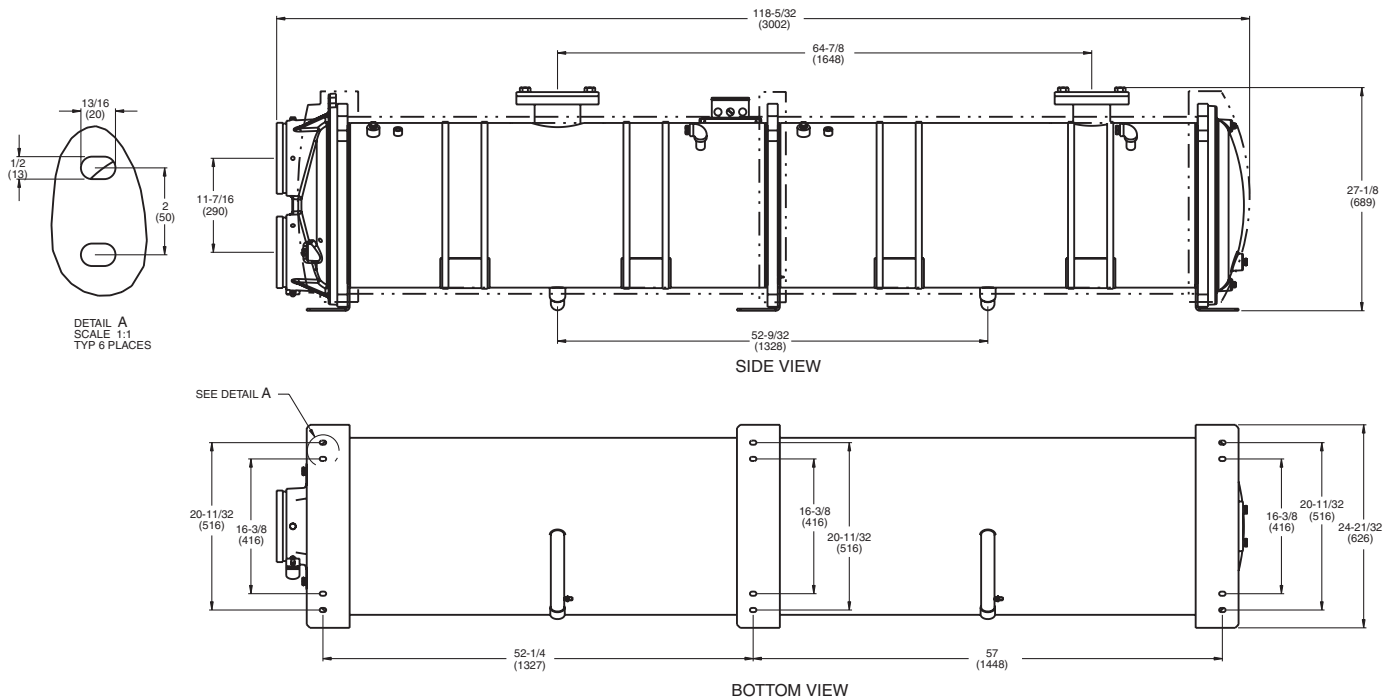
Fig. 4B — 30XA140, 160 Cooler Dimensions



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) for 30XA180, 200 is 109³/₈ in. (2779 mm).
4. Recommended cooler tube removal area (either end) for 30XA220, 240 is 108⁵/₈ in. (2758 mm).

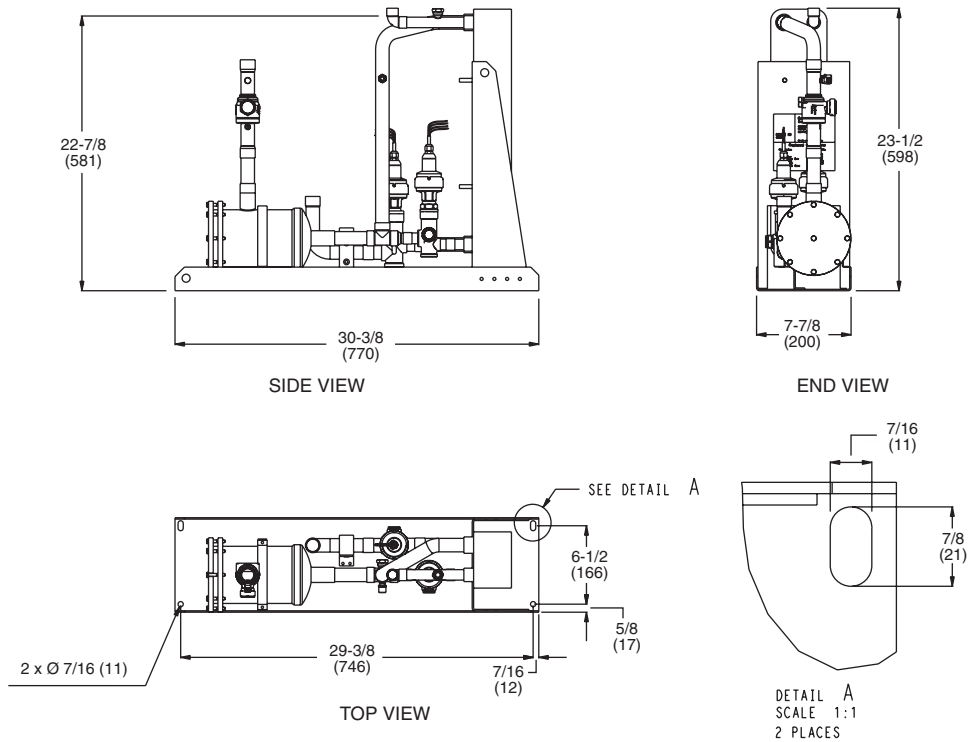
Fig. 4C — 30XA180-240 Cooler Dimensions



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) for 30XA260-300 is 188³/₈ in. (4784 mm).
4. Recommended cooler tube removal area (either end) for 30XA325, 350 is 232²/₃₂ in. (5910 mm).

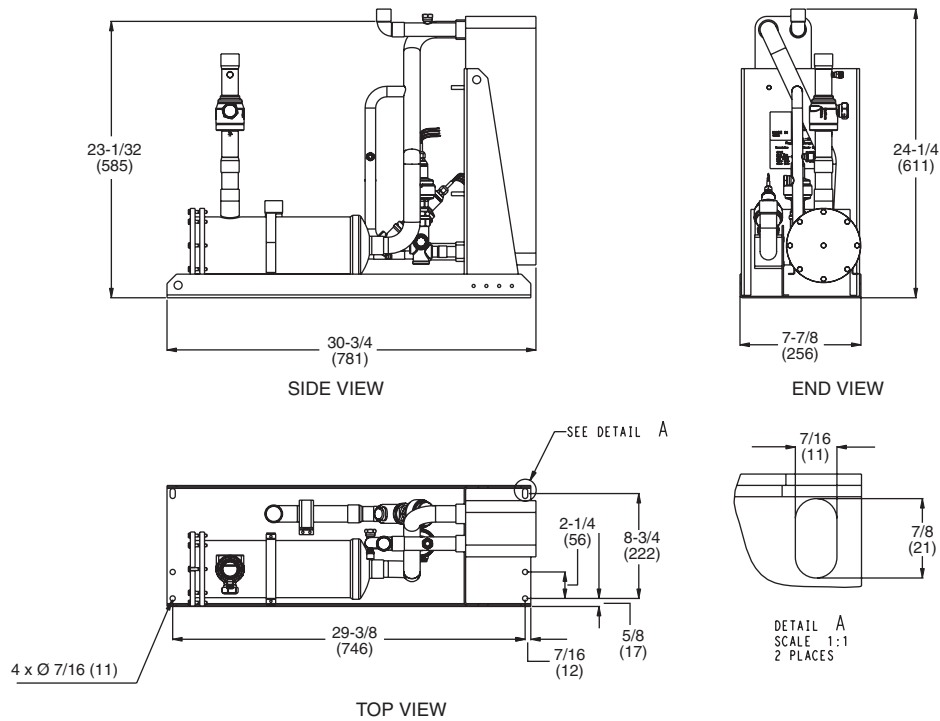
Fig. 4D — 30XA260-350 Cooler Dimensions



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the economizer is 36 in. (914 mm).

Fig. 5A — 30XA090-160 Economizer Dimensions



NOTES:

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the economizer is 36 in. (914 mm).

Fig. 5B — 30XA180-350 Economizer Dimensions

Remote Cooler and Economizers Installation — Install the cooler and economizers in a remote location by following this procedure:

NOTE: Throughout the Remote Cooler and Economizers Installation steps, the two accessory package part no. (00EFN900003000A, 00EFN900003100A) have been shortened to 3000A and 3100A. When a specific part is referred to in each accessory's package, the package no. is mentioned followed by the item no. For item no. identification and accessory package contents, refer to Table 2.

1. After removing the cooler from the base unit, strip back the insulation on the cooler tube sheets (if required) and use the two large holes in the top corners for lifting.
2. Transport the cooler and economizer assemblies to the new location and secure them into position. Keep the economizer assemblies as close to the cooler as possible. Also, ensure there is sufficient room to install and remove cooler tubes from either end of the cooler. See Fig. 4A-4D for tube removal clearances.

NOTE: The 30XA080 units do not utilize an economizer. In this case, keep the EXV as close to the cooler as possible.

3. Install the accessory-supplied economizer shutoff valves (3000A or 3100A: Item 1) and liquid line shutoff valves (3000A or 3100A: Item 2) on the two economizer lines and liquid lines at circuits A and B on the 30XA base unit. See Fig. 7.
4. At the new cooler location, connect the field-supplied cooler liquid line piping between the factory-installed manual shutoff valve at the two economizer assemblies and at the cooler. See Fig. 7.
5. Following good piping practices, install additional field-supplied liquid and economizer line piping in the required length to reconnect the two economizer assemblies to the 30XA base unit. See Fig. 8 for double suction riser construction detail.

⚠ CAUTION

Do NOT close both manual shutoff valves in one liquid line. Pressure can build up in the trapped area. To avoid the possibility of personal injury or property damage, the new liquid lines between the manual shutoff valves must each have field-supplied and installed pressure relief valves.

6. For 30XA080-120: all circuits and 30XA140-160: circuit B, cut the suction pipe (copper) at the 30XA base unit and discard (see Fig. 6, cut 4, circuit B). Following good piping practices, install field-supplied copper suction line piping from the 30XA base unit to the cooler. Use the accessory-supplied cooler pipe flange (3000A: Item 8), cooler flange O-ring (3000A: Item 12), and loose pipe flange (3000A: Item 11) to connect the field-supplied copper suction line piping at the cooler. See Fig. 9.

NOTE: The original flanges on the cooler and cut from the 30XA base unit may still be usable. However, Carrier recommends and has provided in the accessory kit, parts necessary to replace both the cooler pipe flange and the suction flange. When the extended piping is installed, these flanges should be replaced.

7. For 30XA140-160: circuit A and 30XA180-350: all circuits, unbolt (DO NOT CUT) the portion of the steel suction pipes that connected the flex connector flanges to the cooler at the 30XA base unit and discard. See Fig. 10. Refer to Table 6 for parts required (field-supplied or accessory-supplied) to make new connections at the

cooler and the 30XA base unit with the field-supplied steel suction line. See Fig 11. Follow good piping practices to install field-supplied steel suction line piping between the cooler and the flex connector at the 30XA base unit.

When field-supplied flanges and gaskets are used, an extra M16 mounting hole must be drilled and tapped to connect a mounting bracket at the 30XA base unit. See Fig. 10 and 11 for mounting bracket placement. See Fig. 12 for mounting hole locations.

If additional gaskets are needed for installation, they must be $\frac{1}{16}$ in. non-asbestos fiber with synthetic rubber binder compressed gasket sheet. An extra mounting hole also needs to be field modified for any additional gaskets. See Fig. 12 for mounting hole locations. Field-supplied mounting nuts and bolts are also needed for field-supplied gaskets.

8. All of the piping connections are now complete. Leak test the unit and then pull a deep dehydration vacuum. Connect the vacuum pump to the high-flow access fitting at the bottom of the cooler, the liquid line service valves, and the economizer line service valves. For best results, it is recommended that a vacuum of at least 500 microns (0.5 mm Hg) be obtained. To perform a standing vacuum rise test, 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 until the standing vacuum requirement is met. This will ensure a dry system.

By following this dehydration procedure, the amount of moisture present in the system will be minimized, and the factory-supplied filter driers will provide adequate moisture protection. It is highly recommended that the filter drier cores be replaced after 24 hours of operation. This is to ensure that any foreign debris that is captured during start-up is removed from the system. Additional moisture removal capacity is also provided.

9. After setup is leak tested and deep dehydration vacuum is completed, install field-supplied suction and economizer line insulation between the economizer and the unit. If necessary, reinstall the insulation on the cooler head.
10. To reconnect the EXV cables, use the accessory-supplied cable assemblies (3000A or 3100A: Item 4). Two cables are needed for the 30XA080 unit, and four cables are needed for 30XA090-350 units. Take one cable assembly, and label both ends with "EXV-A" for the circuit A main EXV. Then label another three cable assemblies the same way with "EXV-B", "ECEXV-A", "ECEXV-B" for the circuit B main EXV, circuit A economizer EXV, and circuit B economizer EXV, respectively (economizer EXV does not apply to 30XA080 units).

Plug one side of the electrical connectors of the EXV labeled cables into their corresponding EXV plugs. Run the cables to the 30XA base unit, and plug the other side of the cable connectors into their corresponding EXV leads. Coil excess cables and wire tie in a convenient location.

11. To reconnect the flow switch cable, use the accessory-supplied cable assembly (3000A or 3100A: Item 4). Take one cable assembly and label both ends with "CWFS." Plug one side of the electrical connector of the labeled cable into the flow switch plug. Run the cable to the base unit, and plug the other side of the cable connector into the flow switch lead. Coil excess cables and wire tie in a convenient location.

12. Using the accessory-supplied M6 screws (3000A or 3100A: Item 6), install the accessory-supplied junction box (3000A or 3100A: Item 5) at the desired location where the entering and leaving water thermistor cables can be conveniently spliced. One or two knockouts can be used. Follow all local codes. Remove one knockout from the junction box and install the field-supplied strain relief at the knockout hole. If using field-supplied conduit to provide mechanical protection to the thermistor wires between the cooler and the 30XA base unit, remove another knockout.
13. To reconnect the thermistors, locate the entering water thermistor and leaving water thermistor and cut both leads where they can be spliced in the installed junction box. Cut, strip, and label both sides of the entering water thermistor lead "EWT." Cut, strip, and label the leaving water thermistor lead the same way, with "LWT" on both sides. See Fig. 13.
14. Run the labeled thermistor leads connected to the unit into the installed junction box and tighten the field-supplied strain relief. Strip back the lead jackets to expose the two wires in each lead.
15. Take one of the accessory-supplied 5-wire jacketed cables (3000A or 3100A: Item 3) to connect the thermistor leads in the installed junction box to the cooler location. Each wire in the jacketed cable is a different color. Cut the cable into two pieces so that each has a maximum length of 100 ft (30.5 m).
16. Select one jacketed cable and strip back the jacket on both ends to expose the five wires. Pick any two wires and label both ends of each wire "EWT." Pick another pair of wires and label both ends "LWT." The fifth wire is not used. See Fig. 14.
17. Run one end of the accessory-supplied 5-wire jacketed cable into the installed junction box and splice the identically labeled thermistor leads. Solder the splices and insulate them to prevent shorting. Tighten the field-supplied strain relief for the cables.
18. Run the other end of the accessory-supplied 5-wire jacketed cables back to the cooler. Splice the labeled jacketed cable wires to the matching thermistors. If a second junction box is necessary at the cooler location, use the second accessory-supplied junction box (3000A or 3100A: Item 5).
19. Reinstall the thermistors in the correct cooler wells.
20. To reconnect the suction pressure transducers (SPT), locate the SPT plugs for circuits A and B, and cut the leads where they can be conveniently spliced in the installed junction box at the 30XA base unit. Label the leads "SPTA" for the circuit A lead, and "SPTB" for the circuit B lead.
21. Take the two pieces of accessory-supplied transducer wire harness (3000A: Item 16 or 3100A: Item 14). One side of the harness is a plug and the other side is three wires in red, black, and green. Label both sides of one harness "SPTA," and label the other harness "SPTB." Remove one knockout from an installed junction box and install a field-supplied strain relief valve at the knockout hole. If using field-supplied conduit to provide mechanical protection to the transducer wires between the cooler and the 30XA base unit, remove another knockout.
22. Run the labeled transducer leads connected to the unit into the installed junction box at the 30XA base unit and tighten the field-supplied strain relief. Strip back the lead jackets to expose the three wires, black, red, and white.
23. Run the lead end of accessory-supplied transducer wire harnesses into the junction box and splice the identically labeled leads. The red wire should go with red wire, the black wire with the black wire, and the white wire with the green wire. Solder the splices and insulate them to prevent shorting. Tighten the field-supplied strain relief for the cables and secure the accessory-supplied junction box cover (3000A or 3100A: Item 6) with accessory-supplied M6 screws.
24. Run the plug end of the accessory-supplied transducer wire harness back to the cooler. Connect the "SPTA" plug into the circuit A transducer. Connect the "SPTB" plug into the circuit B transducer. See Fig. 13.
25. Charge the unit to the amount of refrigerant as specified on the 30XA base unit nameplate. Because of longer field-installed liquid, economizer, and suction lines, additional charge is needed. Refer to Table 7 to calculate the additional charge for each circuit and then add it to the nameplate charge. Additional charge for the economizer line is NOT required.
26. Perform all pre-start-up and start-up procedures specified in the unit operation instructions. Follow the checklist provided with the unit operation instructions.
27. Verify unit operation.

Table 6 — Materials Required for Steel Piping Flange Connections

UNIT SIZE	COOLER PIPE FLANGE CONNECTION		FLEX CONNECTOR FLANGE CONNECTION	
	Circuit A	Circuit B	Circuit A	Circuit B
140	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	N/A*	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)	N/A*
160	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	N/A*	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)	N/A*
180	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)
200	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3000A: Item 15), Loose Pipe Flange (3000A: Item 11)	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)	Accessory supplied: Flex Connector Flange (3000A: Item 10), Flex Connector Flange O-ring (3000A: Item 13)
220	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 12)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)
240	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)
260	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 12)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)

LEGEND

3000A — Accessory Package Part No. 00EFN900003000A (30XA080-200)

3100A — Accessory Package Part No. 00EFN900003100A (30XA220-350)

Item — Item No. (See Table 2)

*Copper connection.

Table 6 — Materials Required for Steel Piping Flange Connections (cont)

UNIT SIZE	COOLER PIPE FLANGE CONNECTION		FLEX CONNECTOR FLANGE CONNECTION	
	Circuit A	Circuit B	Circuit A	Circuit B
280	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)
300	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)	Accessory supplied: Flex Connector Flange (3100A: Item 13), Flex Connector Flange O-ring (3100A: Item 8)
325	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)
350	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.9 Stub End 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100A: Item 9), Loose Pipe Flange (3100A: Item 11)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)	Field supplied: ASME B16.5 Class 600 Flange 4 in. (102 mm) Accessory supplied: Compressor Flange Gasket (3100: Item 10)

LEGEND

3000A — Accessory Package Part No. 00EFN900003000A (30XA080-200)

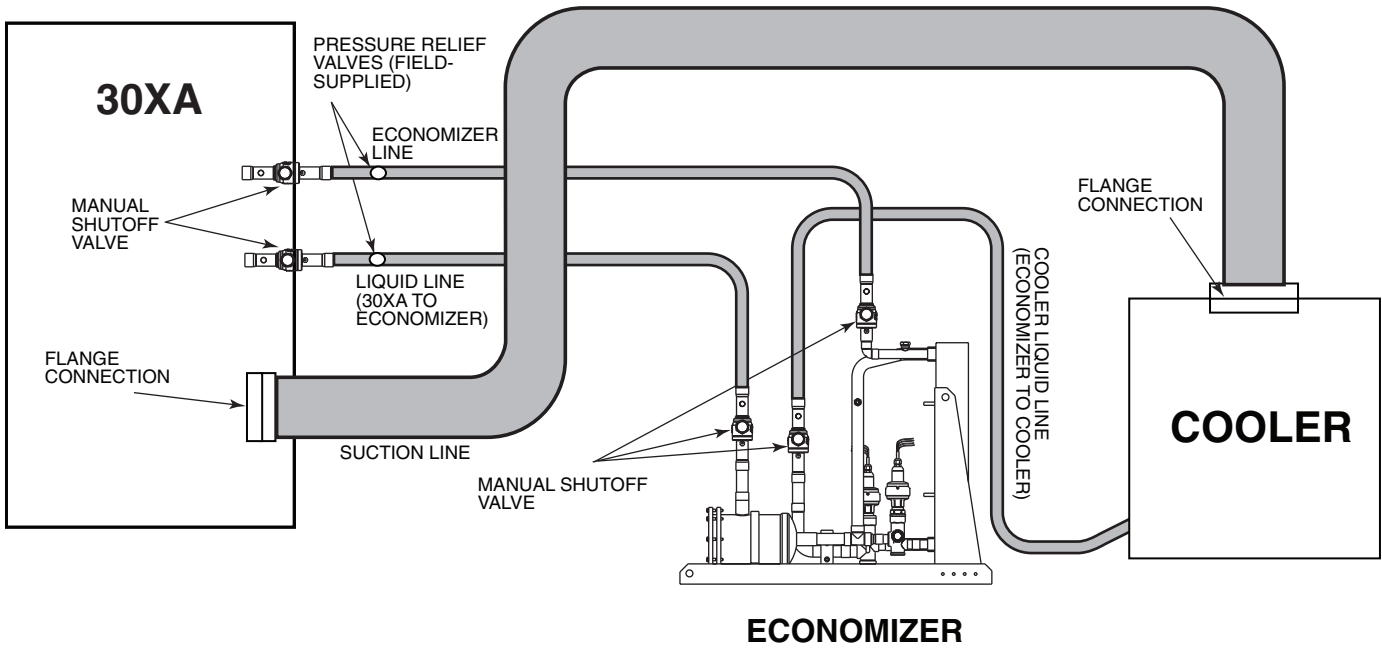
3100A — Accessory Package Part No. 00EFN900003100A (30XA220-350)

Item — Item No. (See Table 2)

*Copper connection.

Table 7 — Additional Refrigerant Charges Required

LINE SIZE		LIQUID LINE		SUCTION LINE	
		lb (kg) OF R-134a REFRIGERANT PER FOOT (305 mm)		lb (kg) OF R-134a REFRIGERANT PER FOOT (305 mm)	
in.	mm	lb	kg	lb	kg
1 1/8	29	0.41	0.186	—	—
1 3/8	35	0.64	0.2903	—	—
1 5/8	41	0.89	0.4037	—	—
3 1/8	79	—	—	0.05	0.0227
4	102	—	—	0.09	0.0408



NOTE: All shaded piping is field supplied and installed.

Fig. 7 — Line Piping and Connections (1 Circuit Shown)

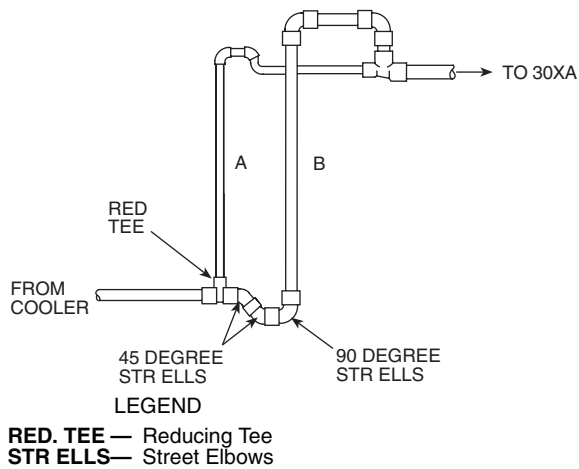


Fig. 8 — Double Suction Riser Construction Detail

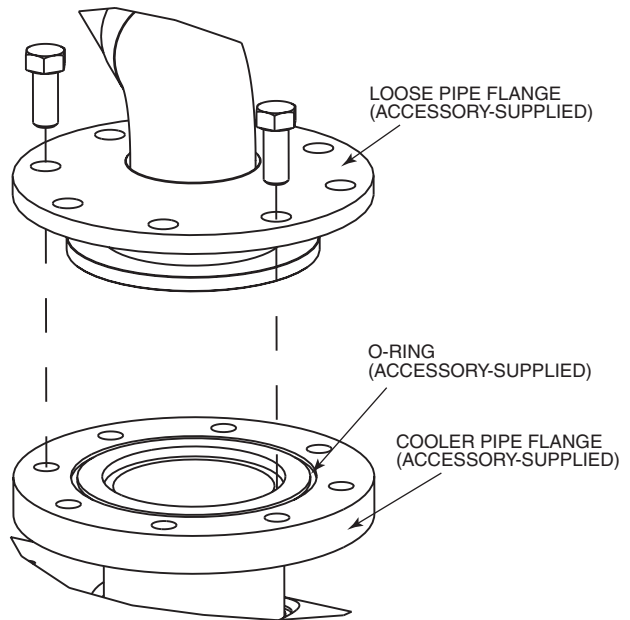
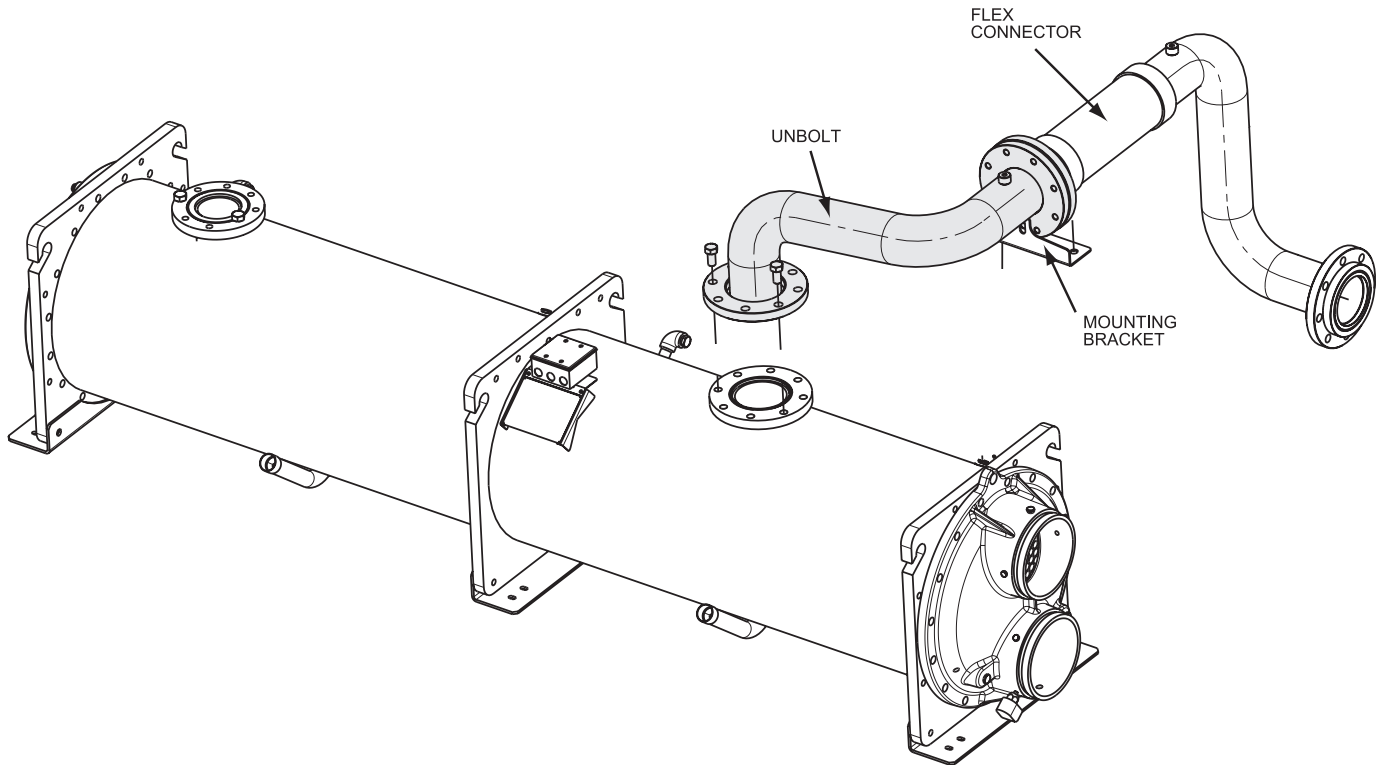
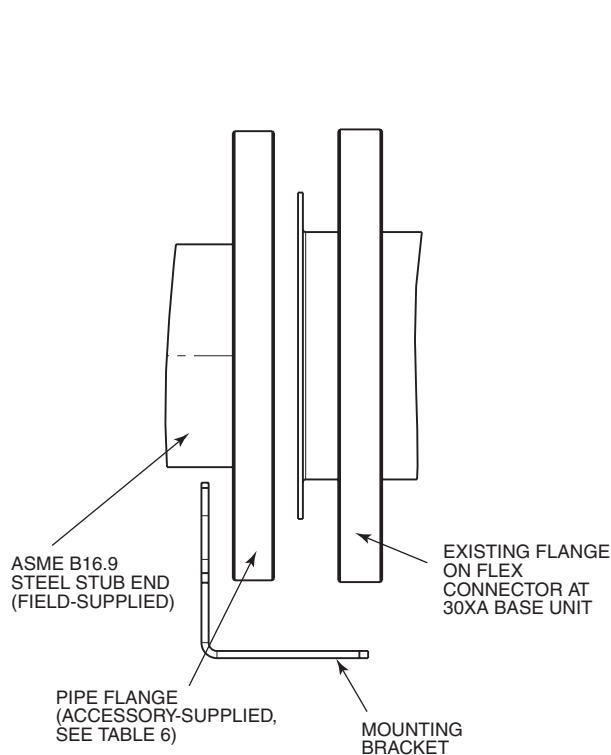


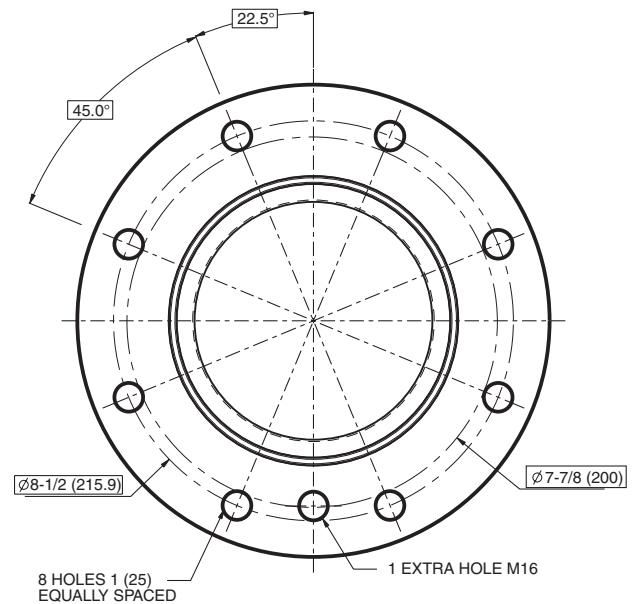
Fig. 9 — Connect Copper Suction Line at the Cooler (30XA080-120: All Circuits and 30XA140-160: Circuit B)



**Fig. 10 — Unbolt Portion Between Flex Connector and Cooler
(30XA140, 160: Circuit A and 30XA180-350: All Circuits)**



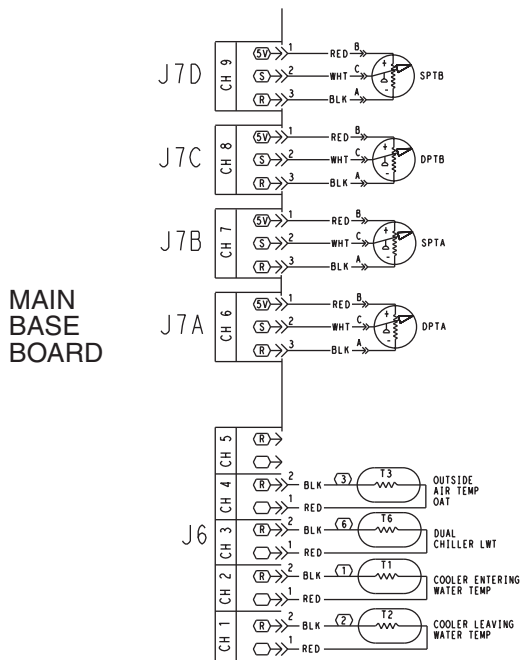
**Fig. 11 — Connect Steel Suction Line at the 30XA Base Unit (Shown) and Cooler
(30XA140, 160: Circuit A and 30XA180-350: All Circuits)**



NOTES:

1. Measurements are shown in inches (millimeters).
2. Accessory-supplied flanges and gaskets connecting to the flex connector: extra hole has been factory-drilled and tapped. See Table 2 (3000A: Item 10, 14, 15 and 3100A: Item 9, 10, 13).
3. Field-supplied flanges and gaskets connecting to the flex connector: extra hole must be field-drilled and tapped (M16).
4. The extra hole allows a bolt to slide through and mount the flanges and gaskets of the suction line on a mounting bracket at the 30XA base unit. See Fig. 10 and 11.

Fig. 12 — Flange and Gasket Mounting Locations



LEGEND

- DPT** — Discharge Pressure Transducer
- LWT** — Leaving Water Temperature
- OAT** — Outdoor Air Temperature
- SPT** — Suction Pressure Transducer

Fig. 13 — Thermistor Connections

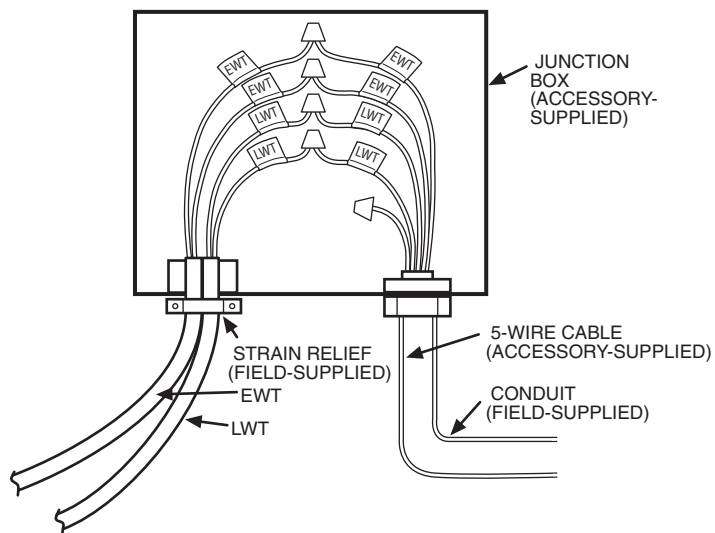


Fig. 14 — Typical Junction Box Connections (EWT and LWT Thermistors Shown)

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