Installation, Start-Up and Service Instructions

Part Numbers 50XCA900-900A00 through 50XCA900-905A00, 50XCR900-900A00 through 50XCR900-905A00, 50XCW900-900A00 through 50XCW900-905A00

CONTENTS

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 mechanics should install, start-up, and service this equipment.
- When working on the 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. Keep quenching cloth and fire extinguisher nearby when brazing.
- Use care in handling, rigging, and setting bulky equipment.

⚠ WARNING

To avoid the possibility of electrical shock, open and tag all disconnects before installing this equipment.

Wear hard hat and safety shoes when working in an area where there is danger of falling objects. Wear safety glasses to protect your eyes. When welding, brazing or cutting wear gloves and goggles for personal protection. Follow safe rigging practices when handling larger coils. Refer to ANSI (American National Standards Institute) Z49.1 (latest edition) for American Welding Society Standards of safe welding and flame cutting practices.

All field piping must conform to local codes.

INTRODUCTION

The steam coil accessory provides draw-thru heat sources for Omnizone™ 50XC 5 ton to 20 ton packaged units. The coils are mounted directly in the return air and upstream of the cooling coil external to the unit. This steam coil accessory is not recommended for units with the air economizer or water economizer option, but mount on the inlet side of the cooling coil. They may be used with any discharge arrangement. The 50XC coils mount external to the unit where the filter track is attached on the unit return air connection. See Table 1 for accessory package contents and usage. See Fig. 1 for an illustration of the steam coil accessory with dimensions and weights.

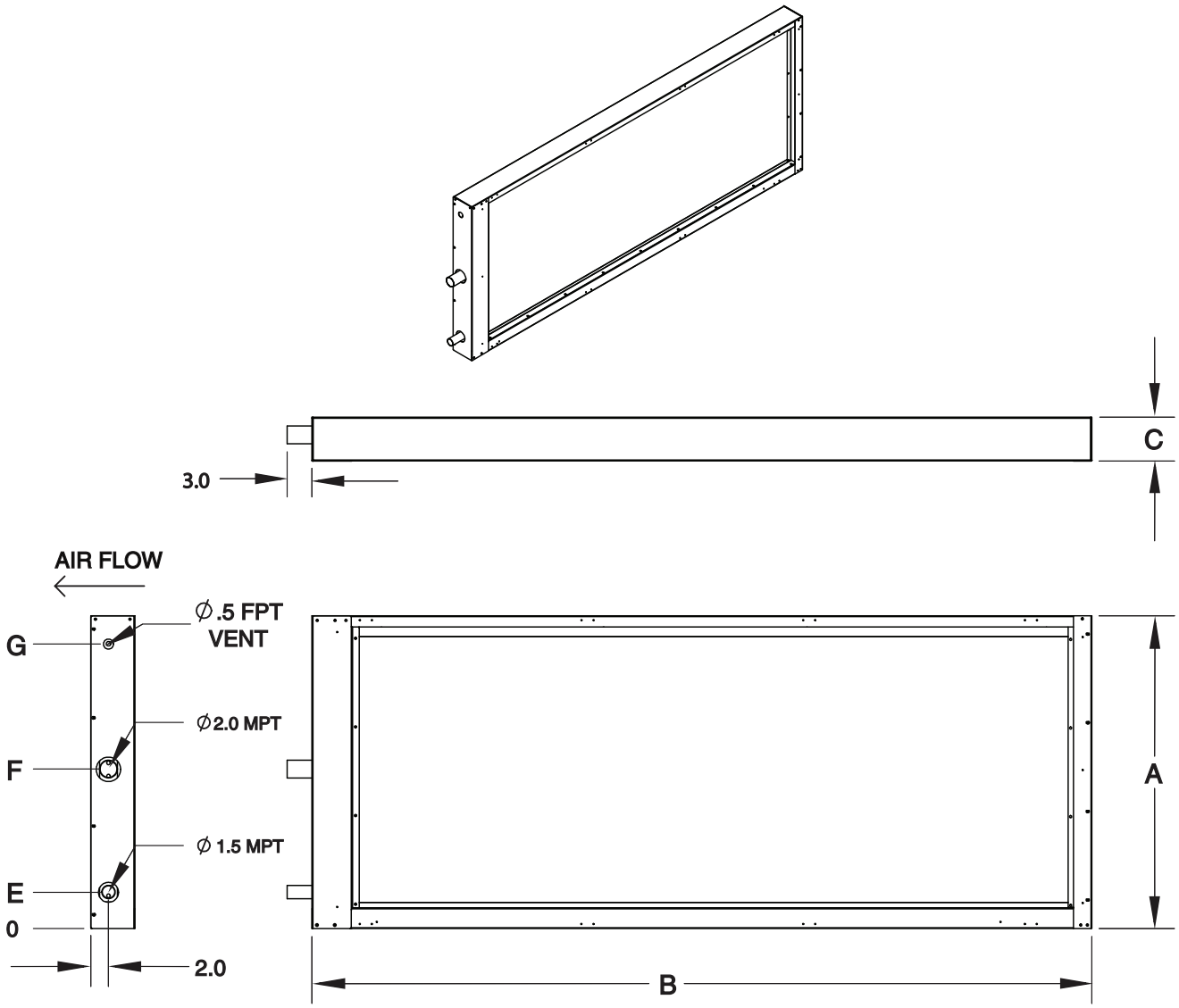
Table 1 — Package Contents and Usage

UNIT	ACCESSORY PART NUMBER	KIT CONTENTS
50XCA06	50XCA900-900A00	Complete Coil Assembly
50XCA08	50XCA900-901A00	
50XCA12	50XCA900-902A00	
50XCA14	50XCA900-903A00	
50XCA16	50XCA900-904A00	
50XCA24	50XCA900-905A00	
50XCR06	50XCR900-900A00	
50XCR08	50XCR900-901A00	
50XCR12	50XCR900-902A00	
50XCR14	50XCR900-903A00	
50XCR16	50XCR900-904A00	
50XCR24	50XCR900-905A00	
50XCW06	50XCW900-900A00	
50XCW08	50XCW900-901A00	
50XCW12	50XCW900-902A00	
50XCW14	50XCW900-903A00	
50XCW16	50XCW900-904A00	
50XCW24	50XCW900-905A00	

PRE-INSTALLATION

Complete Pre-Installation Checks — Remove accessory packaging and inspect shipment for damage. File claim with shipping company if accessory is damaged or incomplete.

Check Unit Clearance — Provide sufficient space for airflow clearance and servicing accessory after it is mounted in unit. The base unit minimum clearances for front, sides and rear of unit also apply to the steam coils. Coils may need to be installed before the unit is moved into final position. Check job clearances and install coils before final placement if necessary.



PART NUMBER	UNIT SIZE	A	B	C	E	F	G	APRROX WEIGHT (lb)
50XC*900-900A00	**06**	30.8	53.1	5.0	3.8	16.0	27.5	92
50XC*900-901A00	**08**	30.8	53.1	5.0	3.8	16.0	27.5	92
50XC*900-902A00	**12**	35.3	68.0	5.0	3.9	18.0	31.9	108
50XCR900-903A00	**14**	35.3	68.0	5.0	3.9	18.0	31.9	108
50XCW900-903A00		35.3	68.0	5.0	3.9	18.0	31.9	108
50XCA900-903A00		35.5	88.0	5.0	3.9	18.0	31.9	130
50XC*900-904A00	**16**	35.5	88.0	5.0	3.9	18.0	31.9	130
50XC*900-905A00	**24**	39.3	88.0	5.0	4.2	20.0	35.3	137

* Applies to 50XCA/50XCR/50XCW models.

NOTE: Dimensions are in inches.

Fig. 1 — 50XC Steam Coil Assembly

Tools Needed

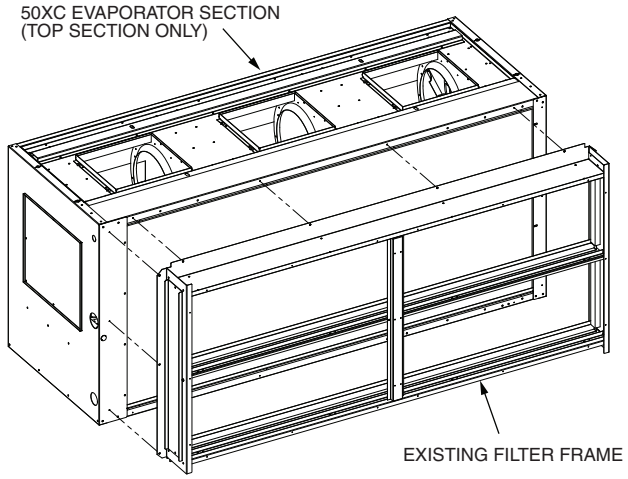
- $^5/_{16}$ in. nut driver
- Self-tapping screws (no. 10 x $^3/_4$ in.)
- Adequate lifting device
- Safety glasses
- Work gloves

INSTALLATION

⚠ WARNING

Lock-out and tag-out all power supplies to equipment and controls prior to servicing unit. Follow all safety codes. Failure to follow these requirements could result in serious personal injury or death.

1. Using a $^5/_{16}$ in. nut driver, remove and retain screws from filter frame and detach filter frame from evaporator cabinet of 50XC unit. Place filter frame in a safe location. See Fig. 2.



NOTES:
1. 50XC condenser section not shown for clarity.
2. Evaporator fan position shown in vertical orientation for reference only.

Fig. 2 — Remove Existing Filter Frame from 50XC Unit

2. Using $^5/_{16}$ in. nut driver, remove top, left, and right panels from external heating cabinet. See Fig. 3.

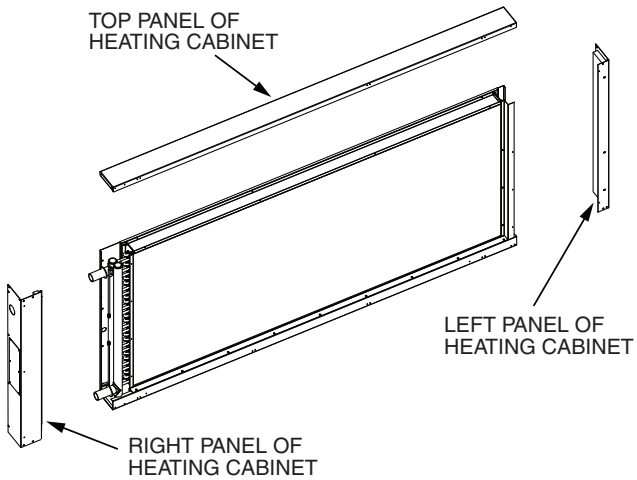


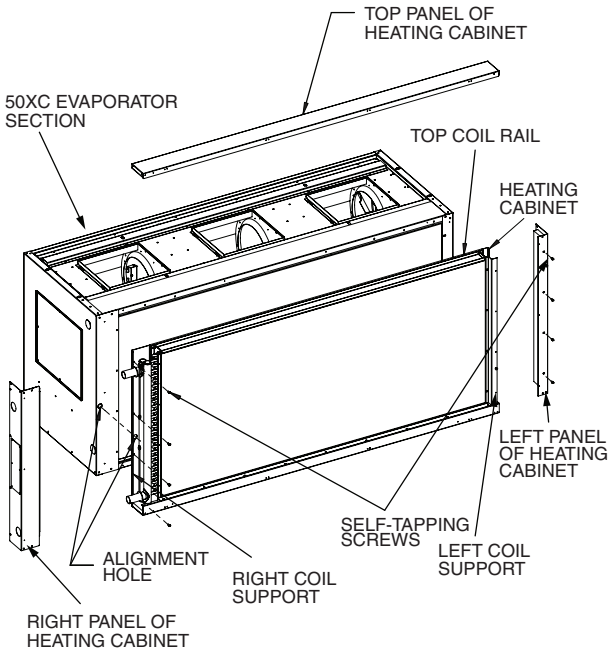
Fig. 3 — Remove Heating Cabinet Panels

3. Align heating accessory cabinet with evaporator cabinet by using the alignment holes shown in Fig. 4. Ensure heating cabinet is parallel with top of 50XC unit.

⚠ CAUTION

Ensure holes align correctly to prevent damaging evaporator coil. Use maximum of $^3/_4$ in. long screws.

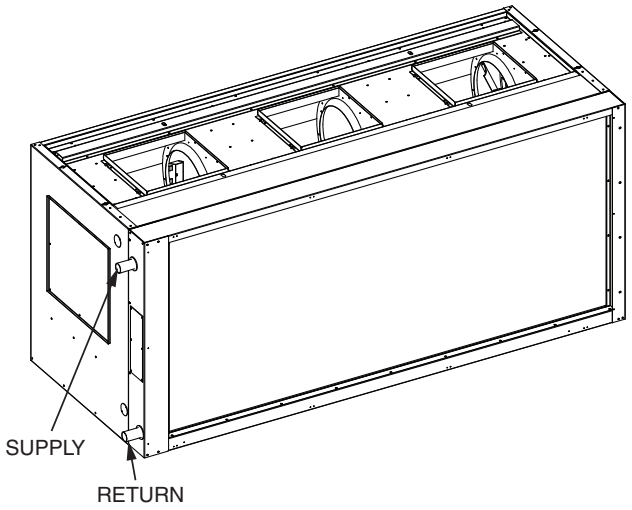
4. Screw top coil rail, left and right coil supports to 50XC unit using self-tapping screws in all provided screw holes as shown in Fig. 4.



NOTES:
1. 50XC condenser section not shown for clarity.
2. Evaporator fan position shown in vertical orientation for reference only.

Fig. 4 — Align and Attach Heating Cabinet to Evaporator

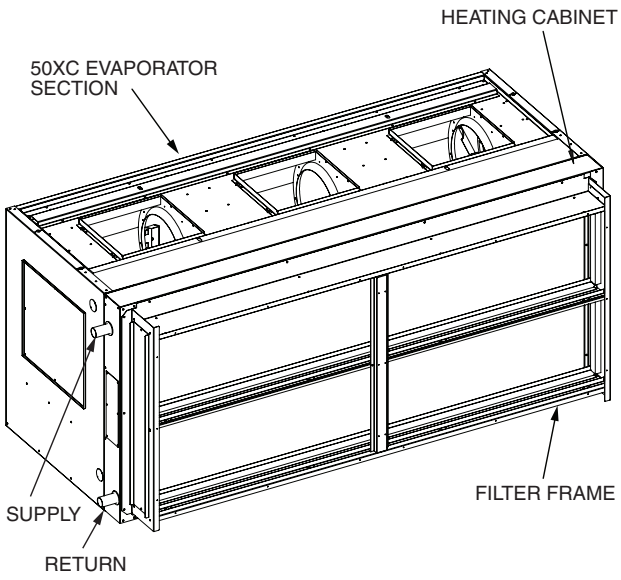
5. Replace top, left, and right panels onto heating cabinet. See Fig. 5.



NOTES:
1. 50XC condenser section not shown for clarity.
2. Evaporator fan position shown in vertical orientation for reference only.

Fig. 5 — Replace Heating Cabinet Panels

6. Attach existing filter frame to heating cabinet as shown in Fig. 6. Fasten with no. 10 screws in all provided screw holes using screws removed in Step 1.



NOTES:
1. 50XC condenser section not shown for clarity.
2. Evaporator fan position shown in vertical orientation for reference only.

Fig. 6 — Attach Filter Frame to 50XC Unit

PIPING

Recommendations for Steam Coils — See Fig. 7 and 8.

1. Be sure to provide adequate support for the piping and design the lines for expansion and vibration.
2. Do not reduce the pipe size on the coil return connection. Keep the same size through the dirt loop and make any reduction in the branch to the trap.
3. A vacuum breaker is recommended to prevent condensate from being held up in the coil. Generally the vacuum break is connected between the coil inlet and the return main. If the system has a flooded return main the vacuum breaker should be open to atmosphere and the trap design should allow for venting large quantities of air.
4. Do not let steam flow drip through the coil and do not attempt to have condensate lift when using a two-position or modulating valve.
5. Size traps in accordance with the manufacturer's recommendations. Be sure that the required pressure differential is available. Do not undersize traps.
6. Float and thermostatic or bucket traps are recommended for low pressure steam. On high pressure use bucket traps. Thermostatic traps should only be used for air venting. Bucket traps are recommended for use with ON/OFF control.
7. Locate the trap at least 12 inches below the coil return.
8. If a modulating control valve is used be sure to size the valve properly and do not oversize.

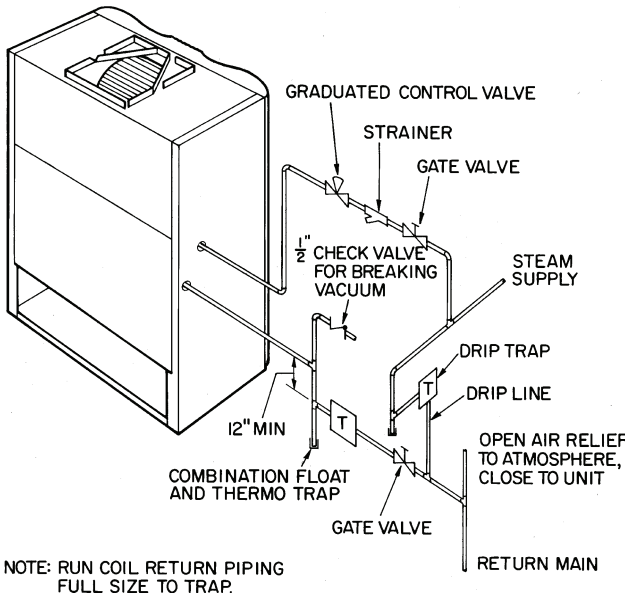


Fig. 7 — Typical Steam Distributing Coil Piping for Open Gravity Systems with Steam Pressure Below 10 Psig

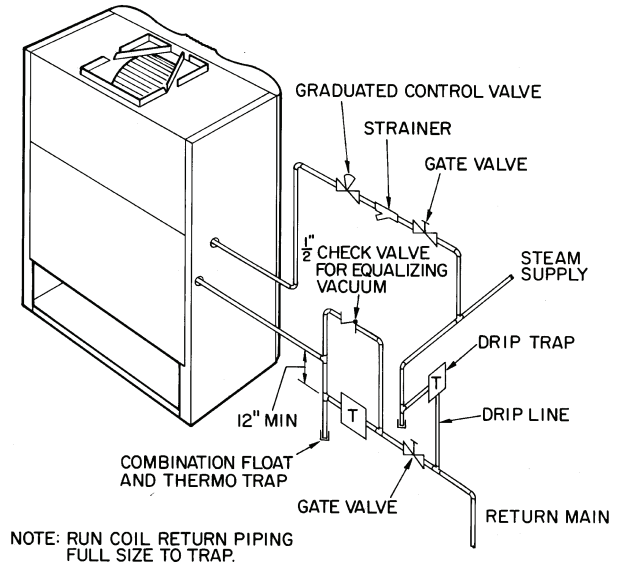


Fig. 8 — Typical Steam Distributing Coil Piping for Vacuum-Return Systems with Steam Pressure Below 10 Psig

CONTROLS

Several methods of control are possible depending on the heating medium to be used, location and type of thermostatic control and whether or not modulating or ON-OFF type control is used. Figure 9 shows a typical control scheme for ON/OFF steam coil in a 50XC Series unit.

Install heating thermostat or connect to the heating side of an available heating/cooling thermostat so that the unit operates the fan in the desired operation, either continuous or cycling with the steam coil. The thermostat should provide the required connection to activate the fan and the cooling and heating should not be able to be activated simultaneously.

Figure 9 shows typical wiring. The low limit thermostat (LLT) and the heating relay (HR1) are field-supplied and installed. Refer to the product data for typical thermostat wiring.

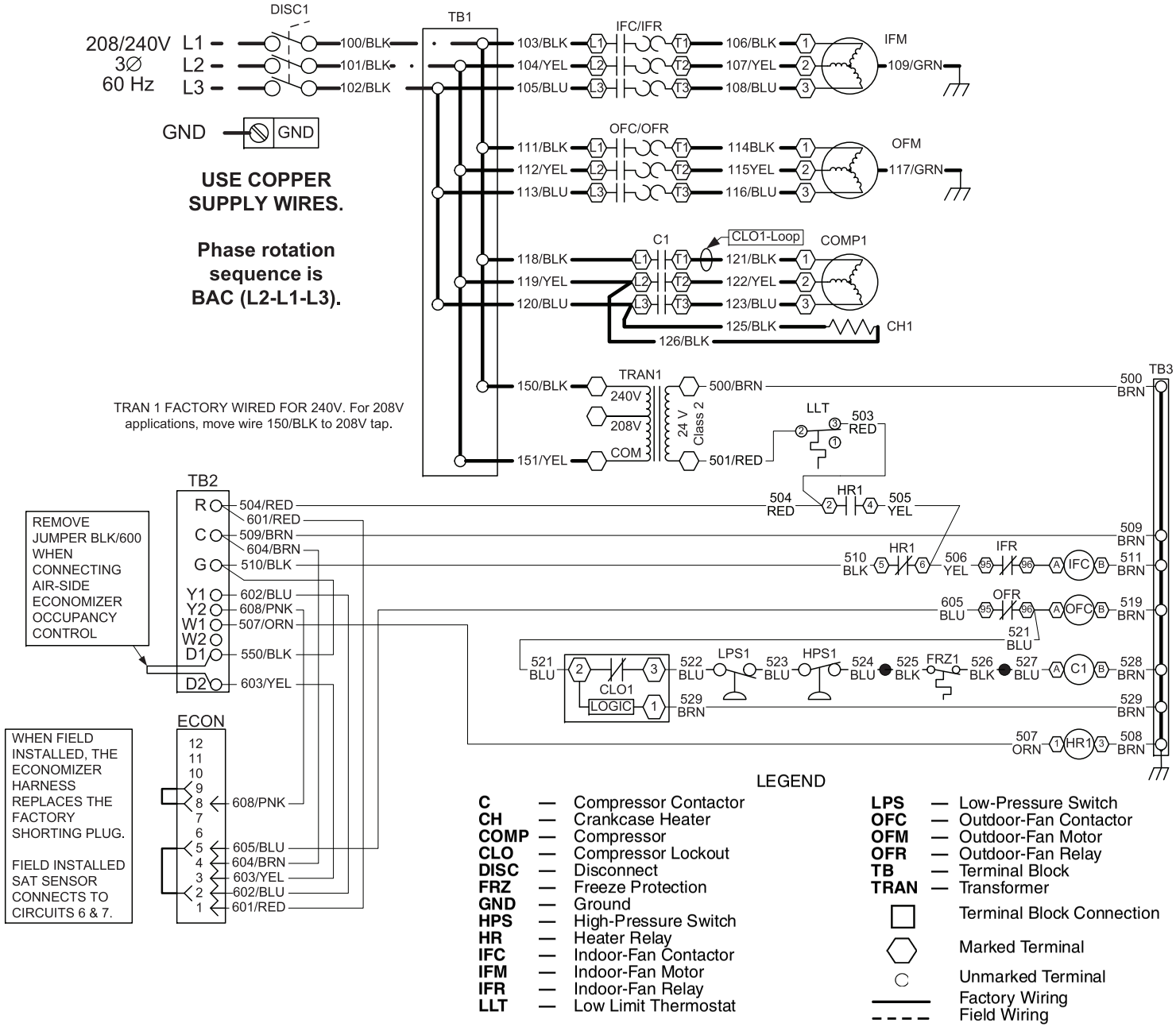


Fig. 9 — Typical Steam Coil Control Wiring

START-UP

1. Leak check coil assembly after piping connections are brazed.
2. Turn on power to the unit.
3. Set thermostat to ON position to energize evaporator fan.
4. Turn on water supply to the unit.
5. Set the thermostat to call for heating.
6. Remove middle access panel located on the right panel of the heating cabinet. Remove the cover. Purge any air in the coil with factory-provided Schrader fittings.
7. Check for heating effect at the air outlet.
8. Place thermostat in desired control setting.

SERVICE

⚠ CAUTION

Do not use high-pressure water or air; damage to fins may result.

Cleaning Steam Coils — If proper filtration is maintained in the unit it should not be necessary to clean steam coils. However, if the coils become dirty or greasy film forms on the fins, proper cleaning can restore the coil heating performance.

For best results wash coils from discharge side and wash back toward the fan or unit return filters. Clean coils with a vacuum cleaner, fresh water, compressed air, or a bristle brush (not wire). Backflush coil to remove debris. Commercial coil cleaners may also be used to help remove grease and dirt. Steam cleaning is NOT recommended. Units installed in corrosive environments should be cleaned as part of a planned maintenance schedule. In this type of application, all accumulations of dirt should be cleaned off the coil.

Use a fin comb with teeth of the correct fin spacing when straightening bent or mashed fins.

During heating operation, the vacuum-return system is recommended since it helps eliminate any residual condensate from the coil.

The steam distribution coils have a significantly reduced possibility of freeze-ups. They are still susceptible to freezing, however, if a minimum steam quantity is not maintained where air over the coil approaches 32 F, or if they are not properly pitched, drained, trapped and controlled.

The following points should also be considered for freeze protection of steam distributing coils.

1. In cases where outside air is admitted to the unit, it should be sufficiently mixed with return air before reaching the coil in order to avoid cold spots on the coil. It is important that a minimum steam quantity be maintained when heat is called for to prevent water remaining in the tubes and possibly freezing. The ON-OFF type of steam control is preferred over modulating control where air temperature over the coil approaches 32 F. Make sure that closed outside air dampers are sufficiently sealed to prevent air leakage. Low leak style dampers are recommended.
2. Make sure that the coil is properly pitched, drained, and trapped so that condensate drains out of the coil whenever the control valve shuts off the steam supply.

Heating Capacity — The heating capacity table for steam coils is provided for reference in Table 2.

Table 2 — 50XCA,XCR,XCW Heating Capacity — Steam Coils

UNIT SIZE	STEAM PRESSURE (psig)	CFM	40 F EAT		50 F EAT		60 F EAT		70 F EAT	
			TC	LDB	TC	LDB	TC	LDB	TC	LDB
06	2	1500	86	92.1	81	99.2	76	106.3	72	113.4
		2000	103	86.7	97	94.1	91	101.5	86	108.9
		2500	118	82.8	111	90.4	104	98.0	98	105.6
	5	1500	90	94.5	85	101.6	80	108.7	76	115.8
		2000	108	88.9	102	96.3	96	103.6	90	111.0
		2500	123	84.7	116	92.3	110	99.9	103	107.5
	10	1500	96	97.9	91	105.0	86	112.1	81	119.2
		2000	114	92.0	109	99.3	103	106.7	97	114.1
		2500	131	87.5	124	95.1	118	102.8	111	110.4
08	2	2250	124	90.1	117	97.3	110	104.5	103	111.7
		3000	148	84.8	140	92.3	132	99.8	123	107.3
		3750	169	80.9	159	88.6	150	96.4	141	104.1
	5	2250	130	92.4	123	99.6	116	106.8	109	114.0
		3000	155	86.9	147	94.4	138	101.9	130	109.4
		3750	177	82.8	167	90.5	158	98.2	148	105.9
	10	2250	138	95.7	131	102.9	124	110.1	117	117.3
		3000	165	89.8	156	97.4	148	104.8	140	112.4
		3750	188	85.5	178	93.2	169	100.9	159	108.7
12	2	3000	174	92.8	164	99.8	155	106.9	145	113.9
		4000	209	87.4	197	94.8	185	102.1	174	109.5
		5000	238	83.4	225	90.9	212	98.5	199	106.1
	5	3000	182	95.2	173	102.3	163	109.3	153	116.4
		4000	218	89.6	207	96.9	195	104.3	183	111.6
		5000	249	85.3	236	92.9	223	100.5	209	108.1
	10	3000	194	98.7	184	105.7	174	112.8	164	119.8
		4000	232	92.7	220	100.0	209	107.4	197	114.8
		5000	265	88.2	252	95.8	239	103.4	225	110.9
14	2	3750	200	88.6	189	95.9	178	103.2	167	110.4
		5000	239	83.4	225	91.0	212	98.5	199	106.1
		6250	272	79.5	257	87.3	241	95.1	226	102.9
	5	3750	210	90.8	198	98.1	187	105.4	176	112.7
		5000	250	85.4	236	92.9	223	100.5	210	108.1
		6250	284	81.4	269	89.1	254	96.9	239	104.7
	10	3750	223	94.0	212	101.3	200	108.6	189	115.6
		5000	265	88.2	252	95.8	239	103.4	225	111.0
		6250	302	84.0	287	91.8	272	99.5	257	107.3
16	2	4500	250	90.6	236	97.7	222	104.9	208	112.1
		6000	299	85.3	282	92.7	265	100.2	249	107.7
		7500	341	81.3	322	89.0	303	96.7	284	104.4
	5	4500	262	92.9	248	100.1	234	107.2	220	114.4
		6000	312	87.3	296	94.8	279	102.3	262	109.8
		7500	357	83.2	338	90.9	319	98.6	300	106.3
	10	4500	278	96.2	264	103.4	250	110.6	236	117.8
		6000	332	90.3	315	97.8	299	105.3	282	112.7
		7500	379	86.0	360	93.6	341	101.4	322	109.0
24	2	6000	310	87.0	293	94.4	276	101.7	258	109.1
		8000	368	81.9	348	89.5	327	97.2	307	104.9
		10000	419	78.1	395	85.9	372	93.8	349	101.7
	5	6000	324	89.2	307	96.5	290	103.9	272	111.3
		8000	385	83.8	365	91.4	344	99.1	324	106.8
		10000	438	79.8	415	87.7	391	95.6	368	103.4
	10	6000	345	92.2	328	99.6	310	107.0	293	114.4
		8000	410	86.5	389	94.2	368	101.9	348	109.5
		10000	466	82.3	442	90.2	419	98.1	396	106.0

LEGEND

CFM — Cubic Feet per Minute
EAT — Entering Air Temperature
LDB — Leaving Dry-Bulb (F)
TC — Total Capacity (thousands of Btu per hour)

NOTES:

1. Elevation is sea level.
2. Operating at discharge temperatures above 104 F (40 C) is not recommended due to the shortened service life of the electrical components.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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