



# Installation Instructions

Part No: 30RC70000601

## SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

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.

**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.

## GENERAL

**IMPORTANT:** This accessory can only be used on units configured for Exchanger Fluid Type (*Main Menu* → *Configuration Menu* → *Factory Configuration* → *Exchanger Fluid Type* = 1 [Water]). The minimum load control accessory (HGBP) is not allowed on units configured for Exchanger Fluid Type (*Main Menu* → *Configuration Menu* → *Factory Configuration* → *Exchanger Fluid Type* = 3 [Brine]).

This control accessory reduces 30RC chiller capacities below the standard lowest capacity step. This capacity reduction provides more precise control of leaving fluid temperature during light load conditions.

The solenoid valve limits the amount of gas that can be bypassed from the condenser without impacting oil return. Minimum load control is only available on circuit A for all 30RC units.

## INSTALLATION

Examine the package contents for correct part numbers. If any of the components are damaged, file a claim with the shipping company and notify a Carrier representative.

See Table 1 for package contents. See Fig. 1 for dimensional drawings of tubes included in the kit.

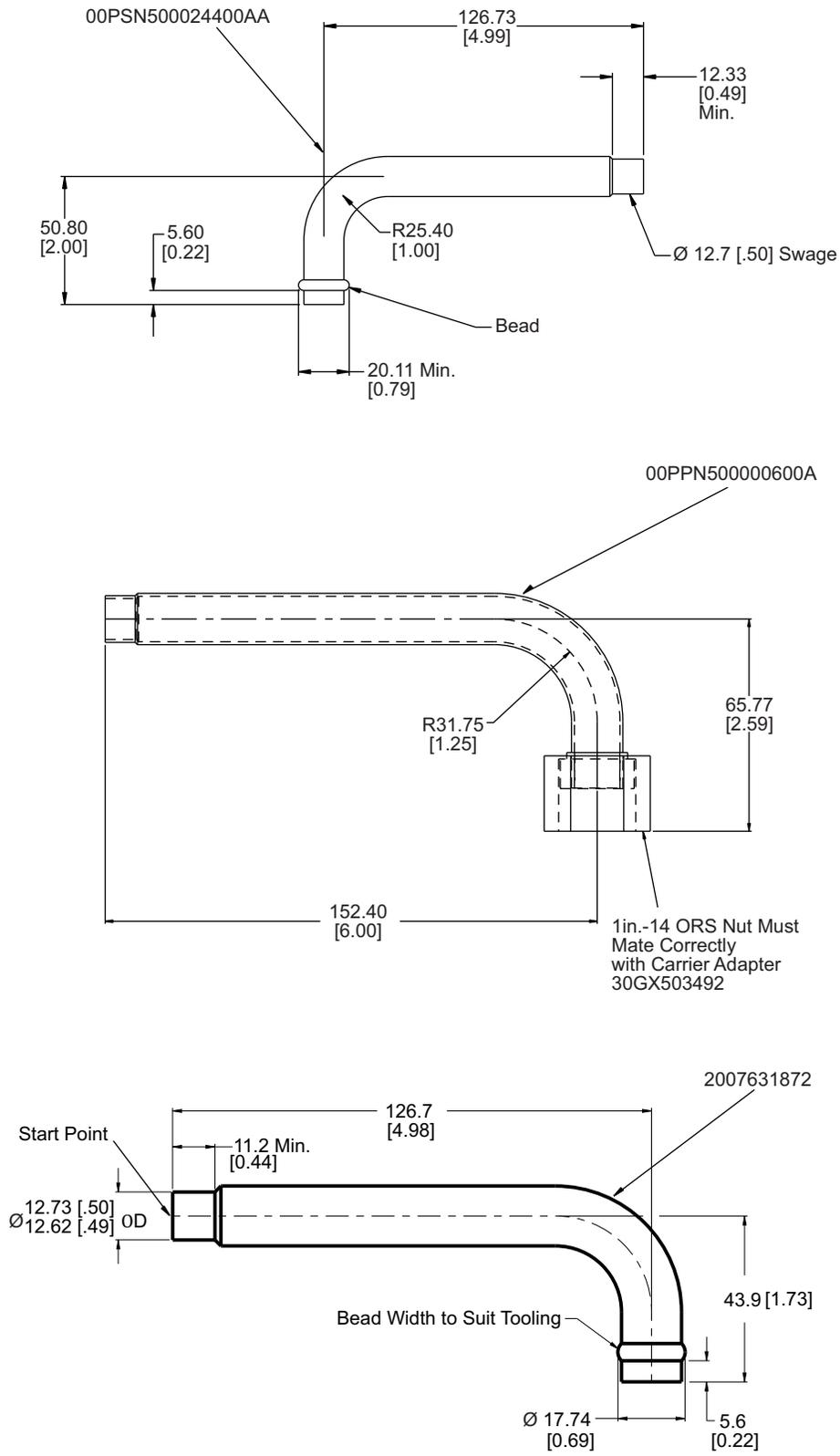
The following material is field supplied:

- 1/2 in. OD copper tubing
- standard 1/2 in. copper tube elbows and couplings as required

**Table 1 – Contents of Accessory Kit**

PART NO.	DESCRIPTION	ITEM	QUANTITY
30GX503492	1 in. — 14 O-ring seal by 1/2 in. NPT adapter	1	1
00PPN500000600A	5/8 in. tube assembly with 90-degree bend and 1 in. — 14 O-ring seal nut	2	1
00PPN500001000A	Solenoid valve with 1/2 in. ODF connections	3	1
2007631872	5/8 in. beaded tube with 1/2 in. swage	4	1
00PSN500024400A	5/8 in. beaded tube with 1/2 in. swage	5	1
EP71BA181	1/2 in. ball valve	6	1
KA66AA062	5/8 in. tube clamp	7	1
00PSN500023600A	Tube support bracket	8	3
00PPN500000302A	M6 Screw	9	6
KA66AA050	1/2 in. tube clamp	10	3
00PPN500000401A	No. 10 screw	11	5
2003810687	Spacer for 2-1/8" Discharge on 232-252T	12	1
30RCHAAAGA-A00	Minimum Load Valve (HGBP) Harness	13	1

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



Note: Dimensions are in mm [in].

**Fig. 1 – Dimensions of Tubes Provided in Accessory Kit**

## Install the Solenoid Valve

### **⚠ WARNING**

Shut off all power to the unit. Lock out and safety-tag all disconnects. Remove refrigerant charge from the circuits using an approved refrigerant recovery device before proceeding with this installation. Follow good piping practices. Severe personal injury could result.

1. Shut off power to the unit.
2. Recover holding charge or refrigerant charge from circuit A using standard refrigeration practices before cutting any refrigerant lines. Refer to unit nameplate or installation instructions for refrigerant quantities.
3. Locate the factory-supplied stub on the discharge line of circuit A. See Fig. 2.
4. For units with BPHE evaporators, locate the factory-supplied stub on liquid line between the EXV and BPHE of circuit A. Use a tubing cutter to cut off end of the stub tube. See Fig. 3. For units with DX cooler evaporators, locate the 1/2 in. NPT pipe plug at the blank end of the cooler and remove it. Use an appropriate thread-sealing compound and install the 1 in. — 14 O-ring seal adapter (Item 1). Lightly lubricate the O-ring and attach the 5/8 in. O-ring seal tube assembly (Item 2) to the adapter. This nut should be torqued to 30 ft-lb (40 Nm). See Fig. 4.
5. Assemble the hot gas bypass line in the following order:
  - a. Remove the discharge stub tube and braze the correct beaded tube in place. The 30RC065-102, 120, and 122

units use Item 5. The 30RC110, 112, and 130-252 units use Item 4.

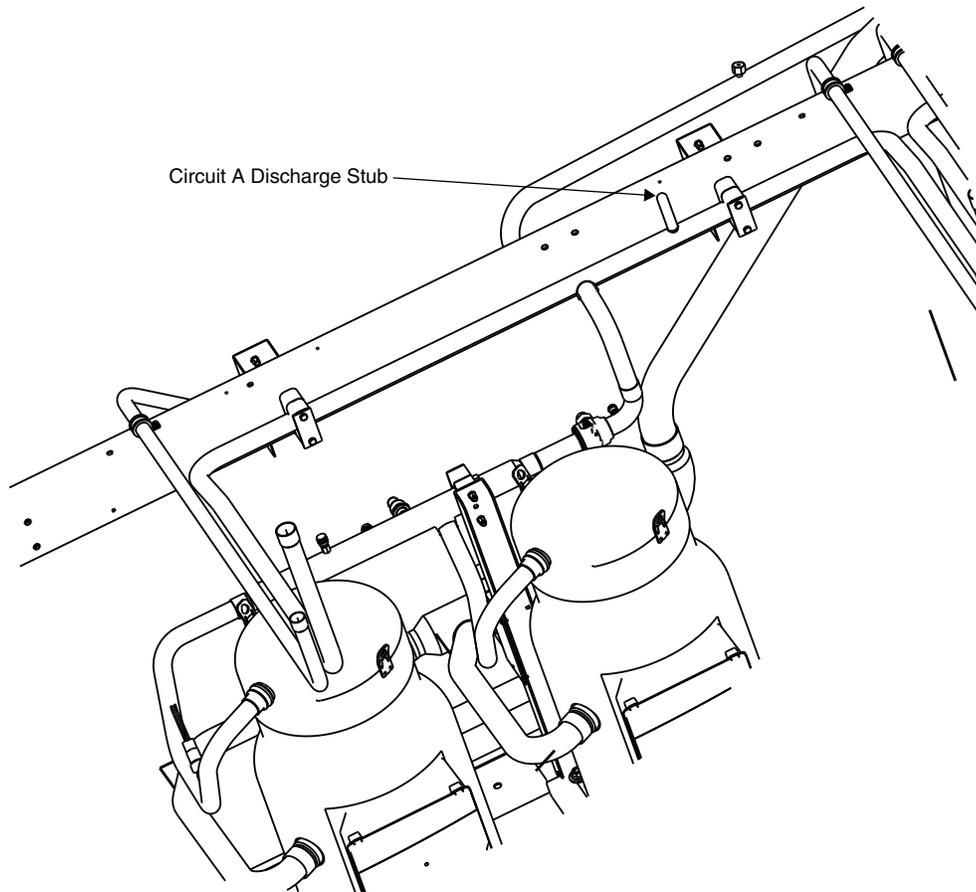
- b. Braze the ball valve (Item 6) to the beaded tube. See Fig. 5.
- c. Braze the solenoid valve (Item 3) into the line.
- d. Using field-supplied tubing, connect the solenoid valve (Item 3) to the low side connection, either the DX cooler or the stub located on the liquid line immediately before the BPHE liquid connection.
- e. Clamp the 5/8 in. tube (Item 4 or 5) to the rail using the 5/8 in. tube clamp (Item 7) provided in the kit. See Fig. 6 and 7. The 30RC232 and 252 units will require a spacer (Item 12) placed between the rail and the 5/8 in. tube (Item 4). Use screws (Item 11) to attach to the rail.

Use field-supplied 1/2 in. OD copper tubing and fittings (as required) to plumb from the solenoid valve outlet to either the adapter tube in the DX cooler or stub tube in the liquid line depending on evaporator type. Tube support brackets (Item 8) and 1/2 in. tubing clamps (Item 10) are provided with the kit. Install brackets (Item 8) to the bottom of the coil bases using screws (Item 9) to support tubing. See Fig. 6 and 7.

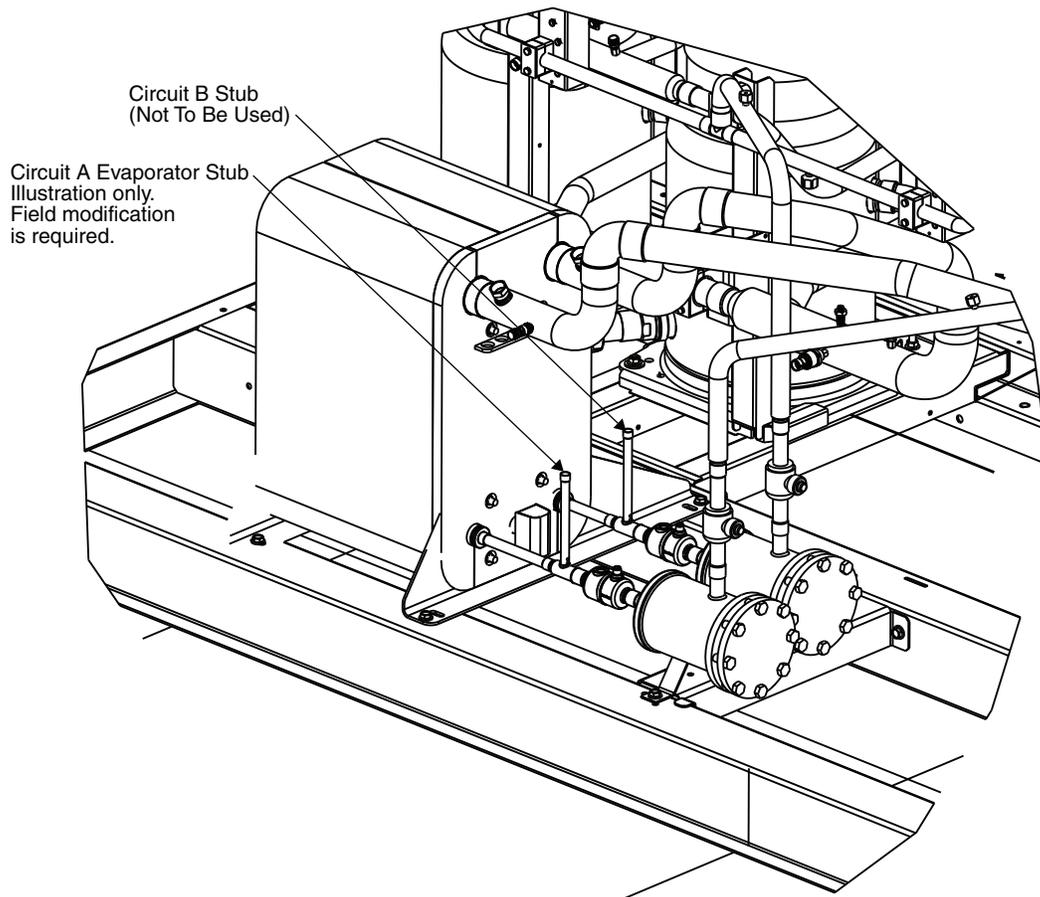
**IMPORTANT:** The valve is direction specific and must have the arrow pointing toward the evaporator. The solenoid valve will not properly seat if installed backwards.

6. Dehydrate and recharge each circuit.
7. Restore power to the unit.

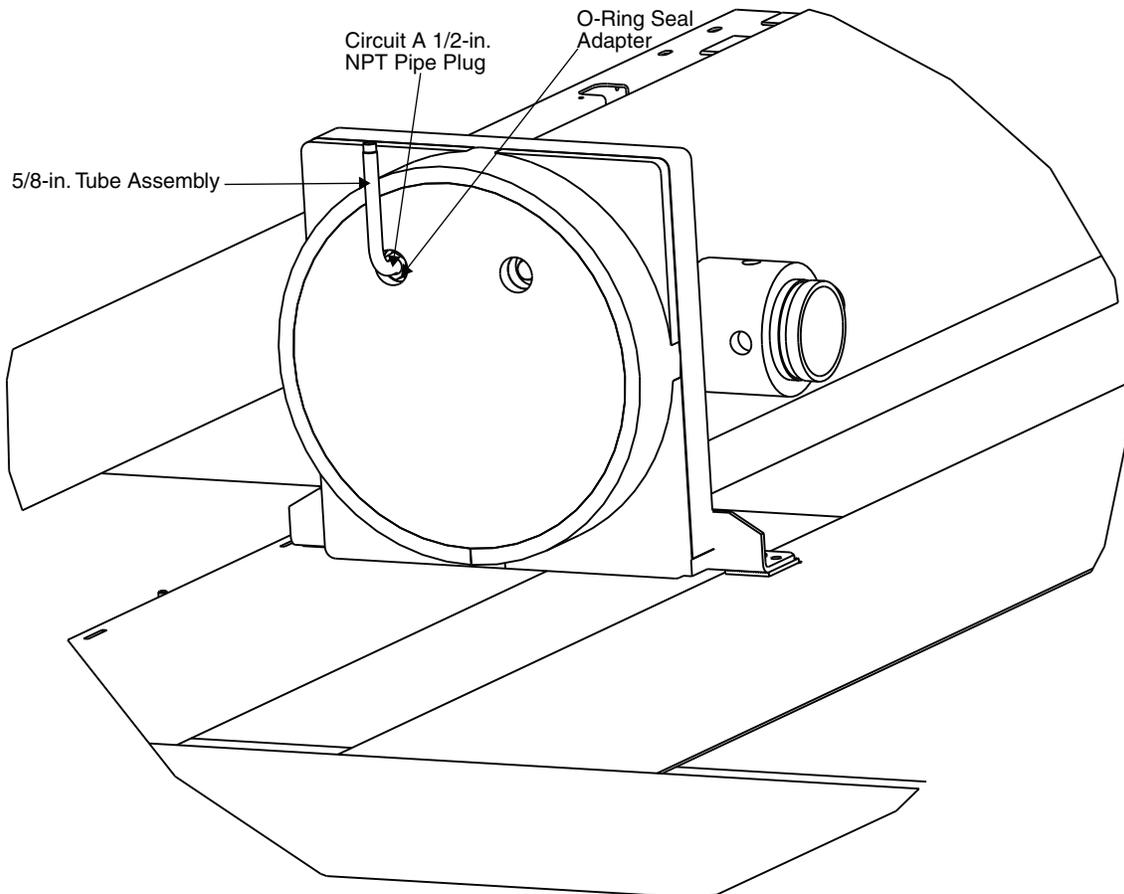
**NOTE:** When piping is completed, leak test the assembly. Then evacuate, dehydrate, and recharge the circuit using approved refrigeration practices. Be sure to use the correct type and amount of refrigerant listed in the nameplate data and base unit documentation.



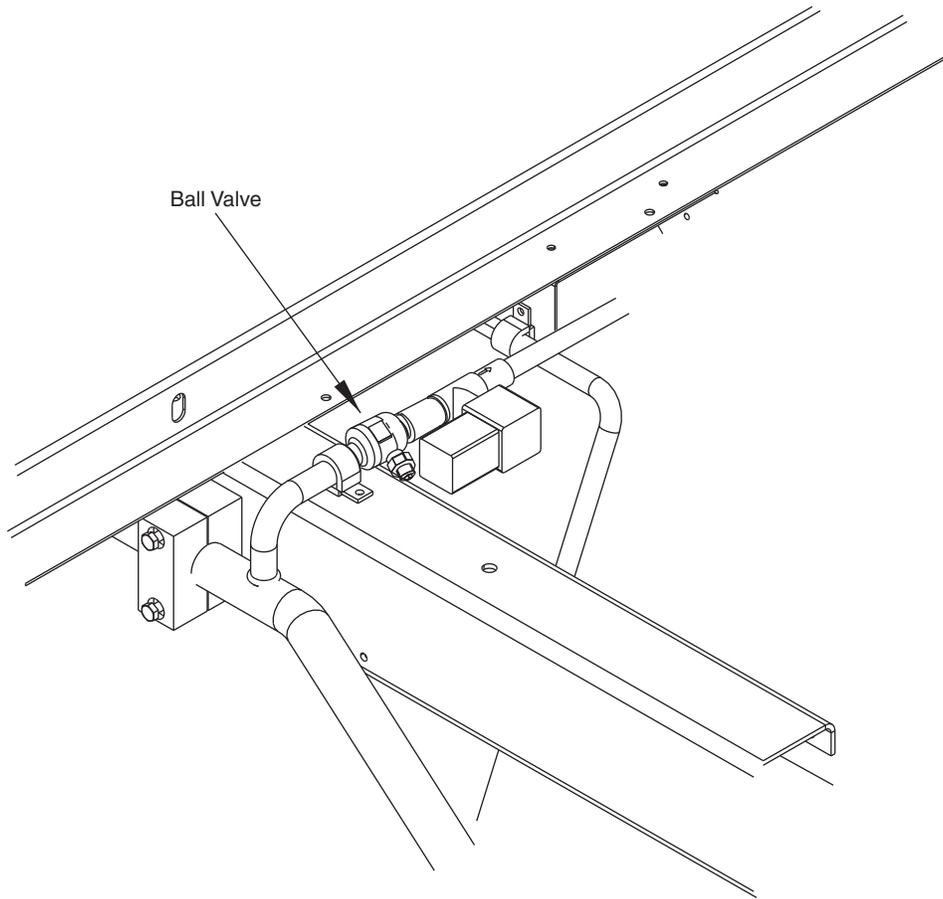
**Fig. 2 — Typical Discharge Stub Tube View**



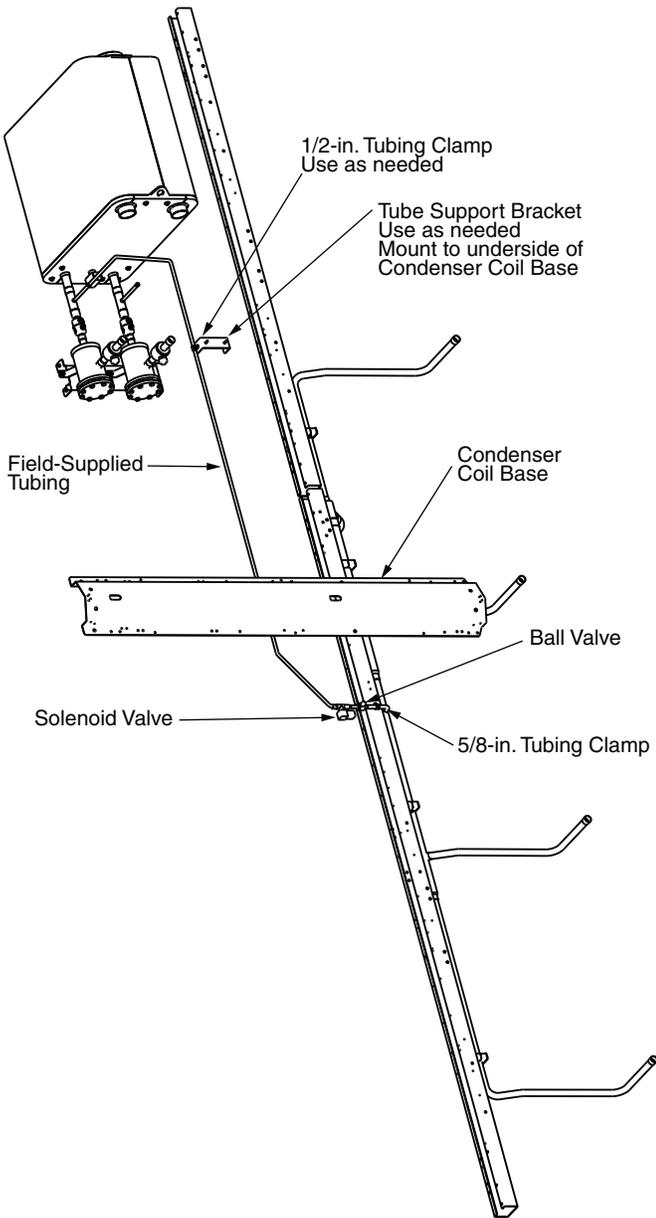
**Fig. 3 – BPHE Stub Tube Location**



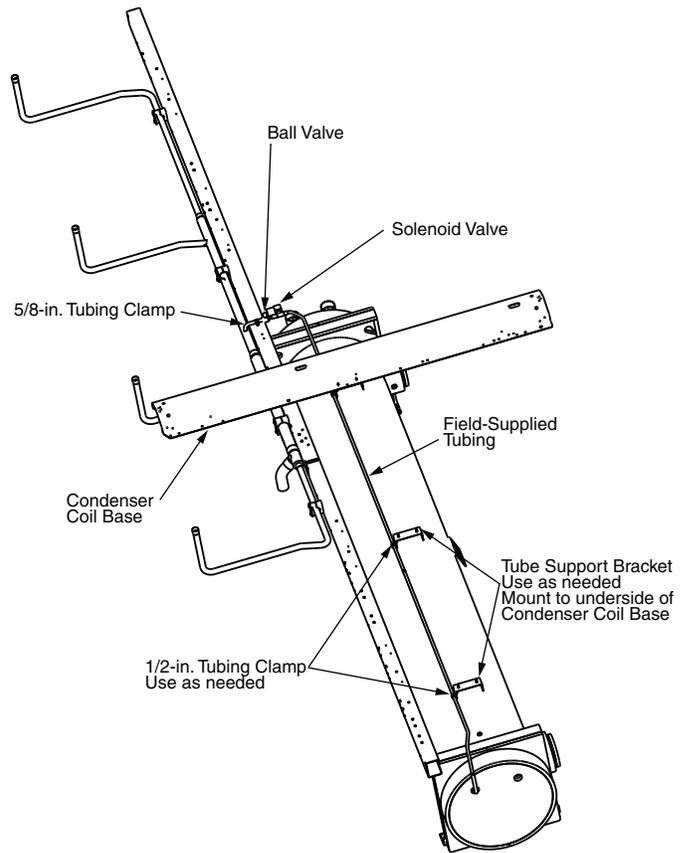
**Fig. 4 – DX Cooler Pipe Plug Location**



**Fig. 5 — Typical View of 5/8 in. Swage Tube, 5/8 in. Clamp and Solenoid Valve Installed**



**Fig. 6 — Typical Piping Brackets —  
BPHE Evaporators**



**Fig. 7 — Typical Piping Brackets —  
DX Cooler Evaporators**

## Install Control Wiring

For details, see Fig. 8.

1. The control wire harness (Item 13) is supplied with the kit. Secure the DIN connector end on the solenoid valve coil with the screw in the connector. Verify the square rubber gasket is in place to ensure connection remains watertight.
2. Route the other end of the cable to the main control panel (where the display is located). For the circuit A solenoid, connect leads to TB5-7 and TB5-6. In all cases, the blue wire from the solenoid must be connected to TB5-7 to ensure correct polarity. Incorrect polarity will damage the control boards.

## Configure Unit for Minimum Load Control

The control must be configured for the minimum load control operation. Use the Carrier Controller display to configure the system.

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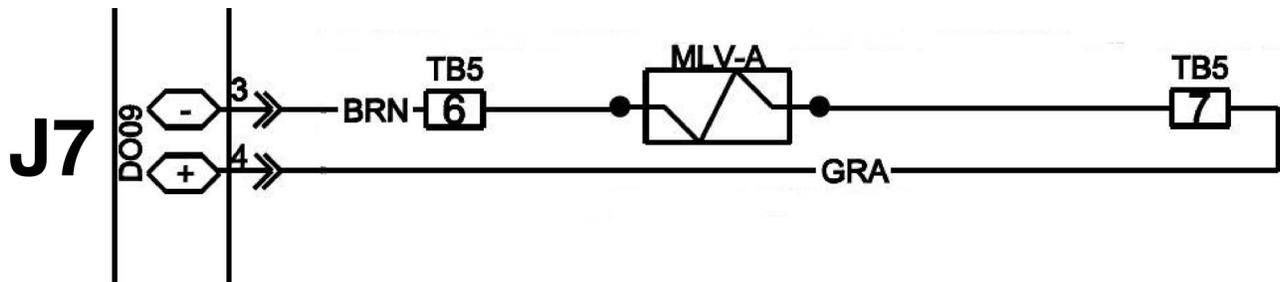
1. Factory level access is required in order to configure minimum load control from the Carrier Controller display. Reference the Carrier Controller Login and Display Setup section in the Controls, Start-Up, Operation, Service and Troubleshooting Manual for gaining Factory level access.
2. With Factory level access granted, enable minimum load control by setting Hot Gas Bypass selection (*Main Menu* → *Configuration Menu* → *Factory Configuration* → *Hot Gas Bypass Selection*) to Yes.
3. Select the Save button  in the bottom left corner of the display. The Carrier Controller display will reboot.

The chiller is now configured for minimum load valve control.

## Test Minimum Load Relay Output

Verify proper operation of the solenoid by testing the output in Quick Test mode. Refer to the Controls, Start-Up, Operation, Service and Troubleshooting manual to enable Quick Test mode from the Carrier Controller display. To access Quick Test mode, Service level access is required. To test the solenoid valve output, enable Quick Test mode and set Hot Gas Bypass Valve A (*Main Menu* → *Quick Test#2* → *Hot Gas Bypass Valve A*) to On.

Once the output has been tested, the installation is complete.



### LEGEND

MLV — Minimum Load Valve  
TB — Terminal Block

Fig. 8 — SIOB-A Wiring for Circuit A Minimum Load Valve

