

# INSTALLATION INSTRUCTIONS

## CH35 Series Coils

INDOOR COILS  
507656-01  
11/2021

**NOTE** – Not available in all areas. Contact your nearest Lennox Sales Office for details.

**THIS MANUAL MUST BE LEFT WITH THE HOMEOWNER 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, service agency, or the gas supplier.

### **⚠ 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.

**IMPORTANT:** Special procedures are required for cleaning the aluminum coil in this unit. See page 7 in this instruction for information.

### **Shipping and Packing List**

Package 1 of 1 contains:

1 – Evaporator coil

Check the components for shipping damage; if found, immediately contact the last carrier.

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### **General Information**

CH35 **all-aluminum coil** horizontal evaporator coils are designed for use with air conditioners and heat pumps and are supplied with a factory-installed HFC-410A check/expansion valve.

The coil drain pan has a maximum service temperature of 500°F. The drain pan must be at least 2" away from a standard gas-fired furnace heat exchanger and at least 4" away from any drum-type or oil-fired furnace heat exchanger. Closer spacing may damage the drain pan and cause a leak.

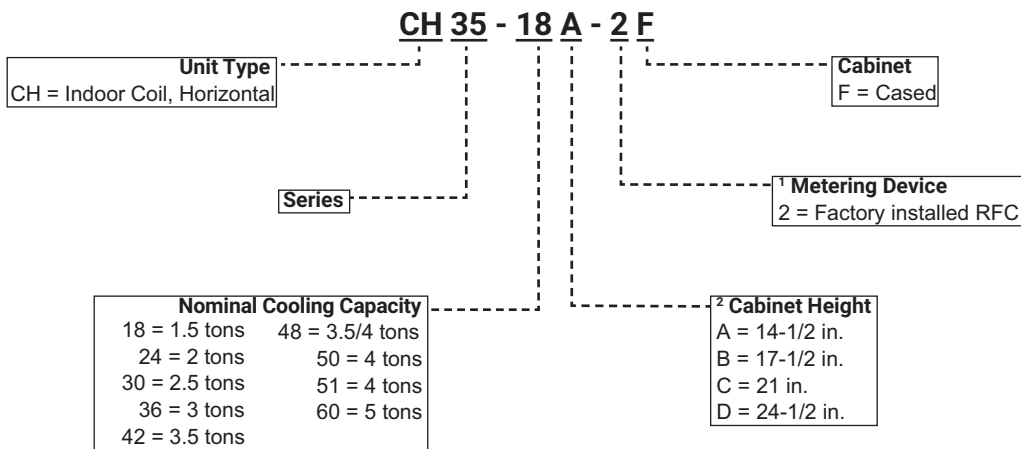
Refer to the Product Specification bulletin (EHB) for the proper use of these coils with specific furnaces, outdoor units and line sets.

These instructions are intended as a general guide and do not supersede local or national codes in any way. Authorities who have jurisdiction should be consulted before installation.



507656-01

## Model Number Identification



## Specifications

		<b>1.5 TO 3 TON</b>						
General Data	Model No.	CH35 -18A-2F	CH35 -24A-2F	CH35 -24B-2F	CH35 -30A-2F	CH35 -30B-2F	CH35 -36A-2F	CH35 -36B-2F
		<b>Nominal size - Tons</b>	1.5	2	2	2.5	2.5	3
Line connections in.	Suction o.d. - sweat	7/8	7/8	7/8	7/8	7/8	7/8	7/8
	Liquid o.d. - sweat	3/8	3/8	3/8	3/8	3/8	3/8	3/8
	Condensate drain (fpt)	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4
Indoor Coil	Net face area sq. ft.	3.5	3.5	4.67	4.33	4.67	3.5	4.67
	Tube diameter - in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
	Number of rows	2	3	2	3	3	3	2
	Fins per inch	19	13	19	16	13	13	18
<b>Matching Lennox Furnace - Cabinet Width Designation</b>		A	A	B	A	B	A	B
<b>Coil &amp; Furnace Cabinet Height - in.</b>		14-1/2	14-1/2	17-1/2	14-1/2	17-1/2	14-1/2	17-1/2
<b>Shipping Data - lbs.</b>		43	45	49	55	53	47	48
		<b>3 TO 5 TON</b>						
General Data	Model No.	CH35 -36C-2F	CH35 -42B-2F	CH35 -42C-2F	CH35 -48B-2F	CH35 -48C-2F	CH35 -51C-2F	CH35 -60D-2F
		<b>Nominal size - Tons</b>	3	3.5	3.5	3.5/4	3.5/4	4
Line connections in.	Suction o.d. - sweat	3/4	7/8	7/8	7/8	7/8	7/8	7/8
	Liquid o.d. - sweat	3/8	3/8	3/8	3/8	3/8	3/8	3/8
	Condensate drain (fpt)	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4
Indoor Coil	Net face area sq. ft.	5.83	5.78	5.83	5.78	5.83	7.22	7.94
	Tube diameter - in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
	Number of rows	2	4	3	3	3	3	3
	Fins per inch	18	13	13	13	13	13	13
<b>Matching Lennox Furnace - Cabinet Width Designation</b>		C	B	C	B	C	C	D
<b>Coil &amp; Furnace Cabinet Height - in.</b>		21	17-1/2	21	17-1/2	21	21	24-1/2
<b>Shipping Data - lbs.</b>		55	66	60	60	59	69	78

## Releasing Air Charge

### **CAUTION**

The coil is shipped from the factory pressurized with dry air. Pierce a hole in the rubber plug that seals the vapor line to relieve the pressure before removing the plugs.

**NOTE** - If there is no pressure released when the vapor line rubber plug is pierced, check the coil for leaks before continuing with the installation.

The CH35 coils are shipped with a  $9 \pm 2$  psi dry air holding charge. Puncture the suction line rubber plug to release the charge. Remove the rubber plug. Ensure that the coil is void of pressure.

## Installation

### **WARNING**

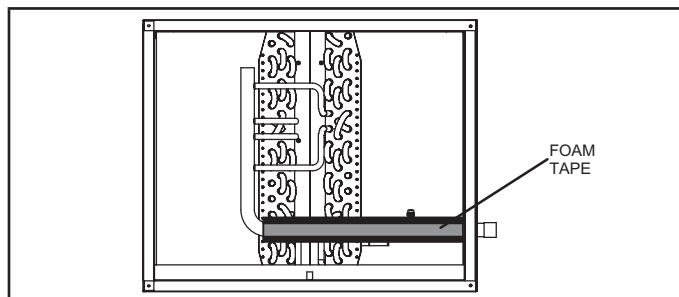
Risk of explosion or fire.

Can cause injury or death.

Recover all refrigerant to relieve pressure before opening the system.

Install the furnace or air handler according to the installation instructions provided with the unit.

**NOTE** - In areas of high humidity, use foam tape to insulate the suction line section in the cabinet as shown in figure 1.



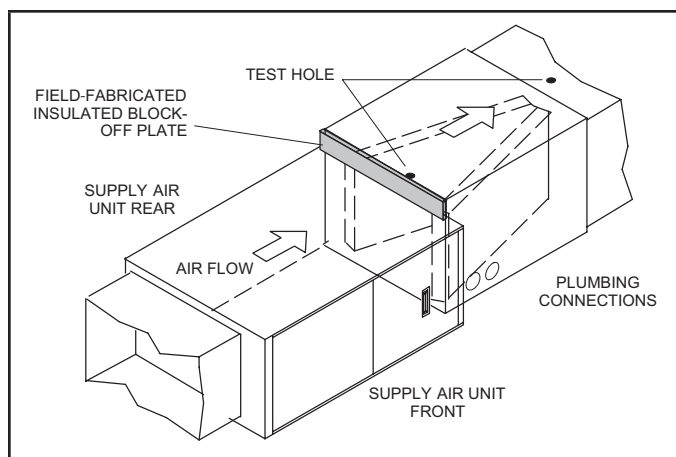
**FIGURE 1. Insulate Suction Line Inside Cabinet**

- 1 - **Left-Hand and Right-Hand Discharge** - The coil must have a 1/2" slope from the rear of the cabinet to the drain. Position the coil adjacent to the furnace cabinet and align the six screw clearance holes in the coil casing with the furnace engagement holes. Use six field-provided #8 X 1" screws to secure the coil casing to the furnace (see figures 3 and 4).

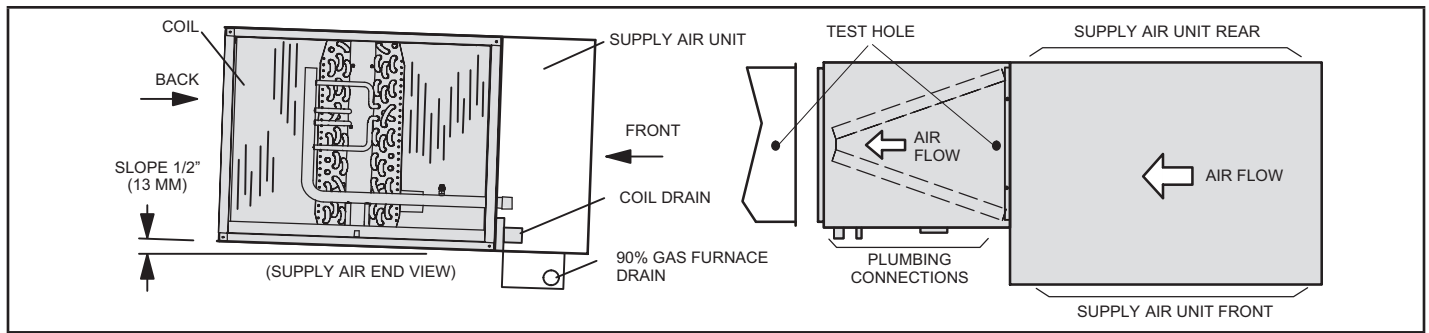
- 2 - **Right-Hand Air Discharge with Field-Provided Spacer** - The coil must have a 1/2" slope from the rear of the cabinet to the drain. Position the coil in the left-to-right configuration on the service access side of the furnace. Insert a field-provided spacer between the furnace and the coil. Use field-provided screws to secure the coil casing, spacer and the furnace together. The spacer should be long enough to allow room for proper installation (approximately 6 inches minimum). See figure 5.

**NOTE** - When the coil is connected directly with a condensing furnace, the coil must be level from return end to supply end. The front (access side) of the furnace may be pitched downward up to 1 inch to accommodate a 1/2-inch pitched coil.

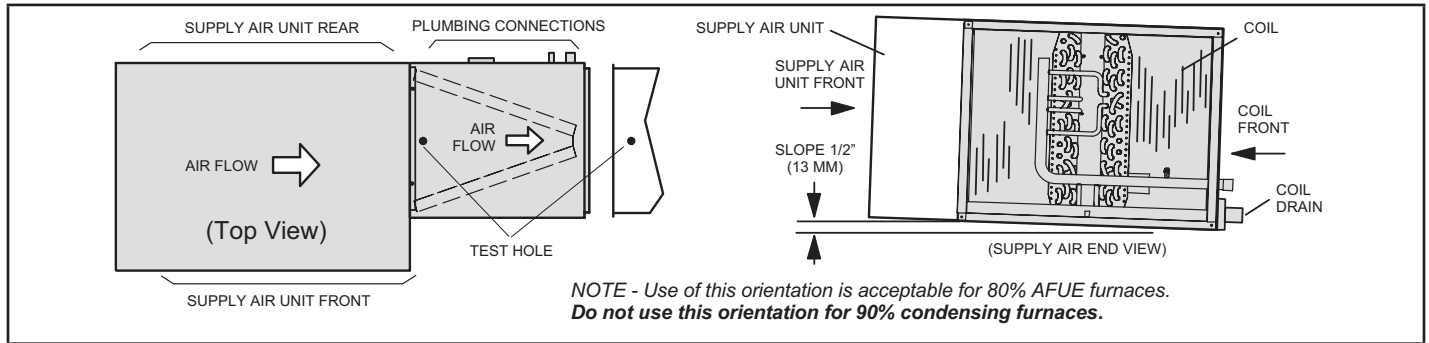
- 3 - Secure the supply duct to the coil cabinet.
- 4 - Refer to the instructions provided with the condensing unit for leak testing, evacuating and charging procedures. **Always check the entire system for leaks before charging.**
- 5 - **Applications using CH35-60 D-width unit with C-width furnace** - Figure 2 shows an application that includes a D-width coil and a C-width furnace. This application requires construction of an insulated, field-supplied block-off plate to cover the open space on the coil housing



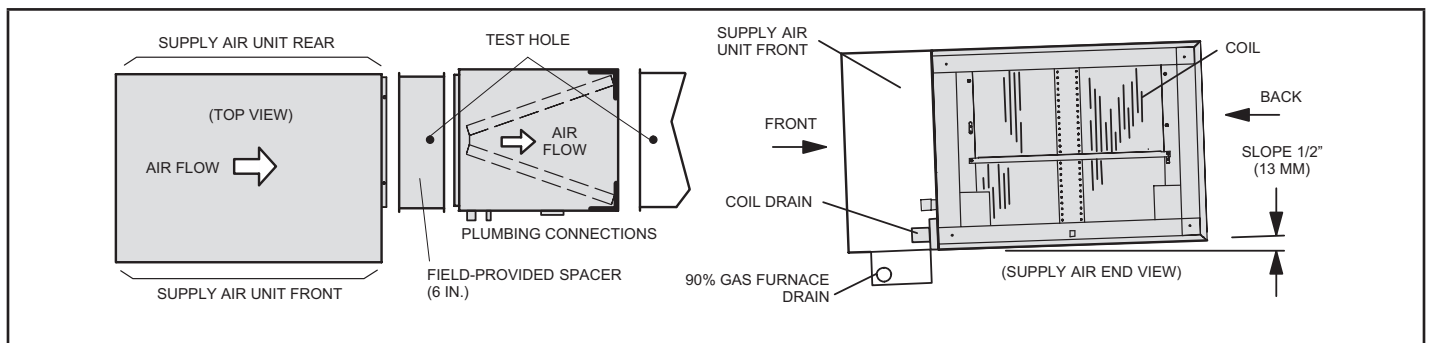
**FIGURE 2. D-Width Coil with C-Width Furnace**



**FIGURE 3. Left-Hand Air Discharge**



**FIGURE 4. Right-Hand Air Discharge**



**FIGURE 5. Right-Hand Air Discharge with Spacer**

**Refrigerant Line Connections**

**LINE SIZES**

The refrigerant line sets should be sized according to the recommendations given in the air conditioner or heat pump unit installation instructions. Use table 1 to determine correct braze connection sizes. A field-provided adapter may be required to match line set connections.

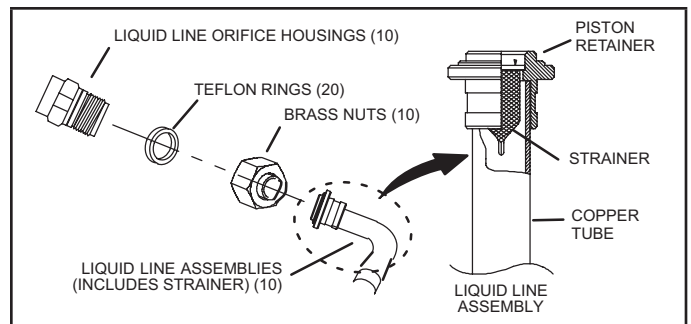
**TABLE 1 Refrigerant Line Connections – Model CH35**

Model Number	Suction	Liquid
18-2F	7/8 Inch	3/8 Inch
24-2F		
30-2F		
36-2F		
42-2F		
48-2F		
51-2F		
60-2F		

**REPLACEMENT PARTS**

If replacement parts are necessary, order kit 69J46. The kit includes:

- 10 – Brass nuts for liquid line assemblies
- 20 – Teflon rings
- 10 – Liquid line orifice housings
- 10 – Liquid line assemblies

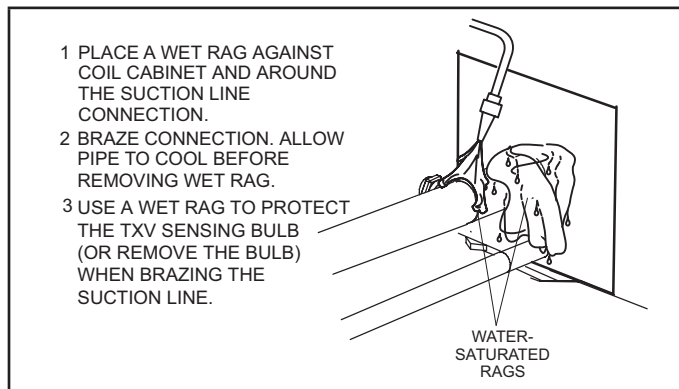


**FIGURE 6. 69J46 Kit Components**

## BRAZING GUIDELINES

Use a silver alloy brazing rod (5 or 6 percent silver alloy for copper-to-copper connections or 45 percent silver alloy for copper-to-brass or copper-to-steel connections).

Before making brazed connections, place a field-provided heat shield, such as a wet rag, against the unit cabinet and around the piping stubs, expansion valve and sensing bulb (or remove the sensing bulb temporarily). The heat shield must be in place to prevent heat damage during brazing. See figure 7.



**FIGURE 7. Braze Refrigerant Lines**

### SUCTION LINE CONNECTION

Use the following procedure to connect the suction line to the indoor coil:

- 1 - Remove rubber plug from the stubbed connection.
- 2 - Position the properly sized refrigerant piping and make the brazed connection following the brazing guidelines.
- 3 - Do not remove the water-saturated rags from the cabinet and piping until the piping has cooled completely.

### LIQUID LINE CONNECTION

Use the following procedure to connect the liquid line to the indoor coil:

- 1 - Remove rubber plug from the stubbed connection.
- 2 - Position the properly sized refrigerant piping and make the brazed connection following the brazing guidelines.
- 3 - Do not remove the water-saturated rags from the cabinet and piping until the piping has cooled completely.

## Leak Testing, Evacuating and Charging

Refer to the outdoor unit instruction for leak testing, evacuating and charging procedures. Always leak check entire system before charging.

## Sealing Ducts

Ensure the duct is secured and all joints are properly sealed to the coil cabinet flanges.

## ⚠ WARNING

There must be an airtight seal between the bottom of the air handler and the return air plenum. Use fiberglass sealing strips, caulking, or equivalent sealing method between the plenum and the air handler cabinet to ensure a tight seal. Return air must not be drawn from a room where this air handler or any gas-fueled appliance (i.e., water heater), or carbon monoxide-producing device (i.e., wood fireplace) is installed.

## ⚠ IMPORTANT

**DUCT SYSTEM SIZING** - The duct system should be properly sized and installed according to the ASHRAE Standard Manual D. The supply and return air duct systems should be designed for the cfm and static requirements of the job. Consult the blower performance chart in the unit installation instructions to verify that the blower meets the application requirements.

## Condensate Drain Connections

## ⚠ IMPORTANT

After removal of drain pan plug(s), check drain hole(s) to verify that drain opening is fully open and free of any debris. Also check to make sure that no debris has fallen into the drain pan during installation that may plug up the drain opening.

### MAIN DRAIN

Connect the main drain and route downward to drain line or sump. Do not connect drain to a closed waste system. See figure 9 for typical drain trap configuration.

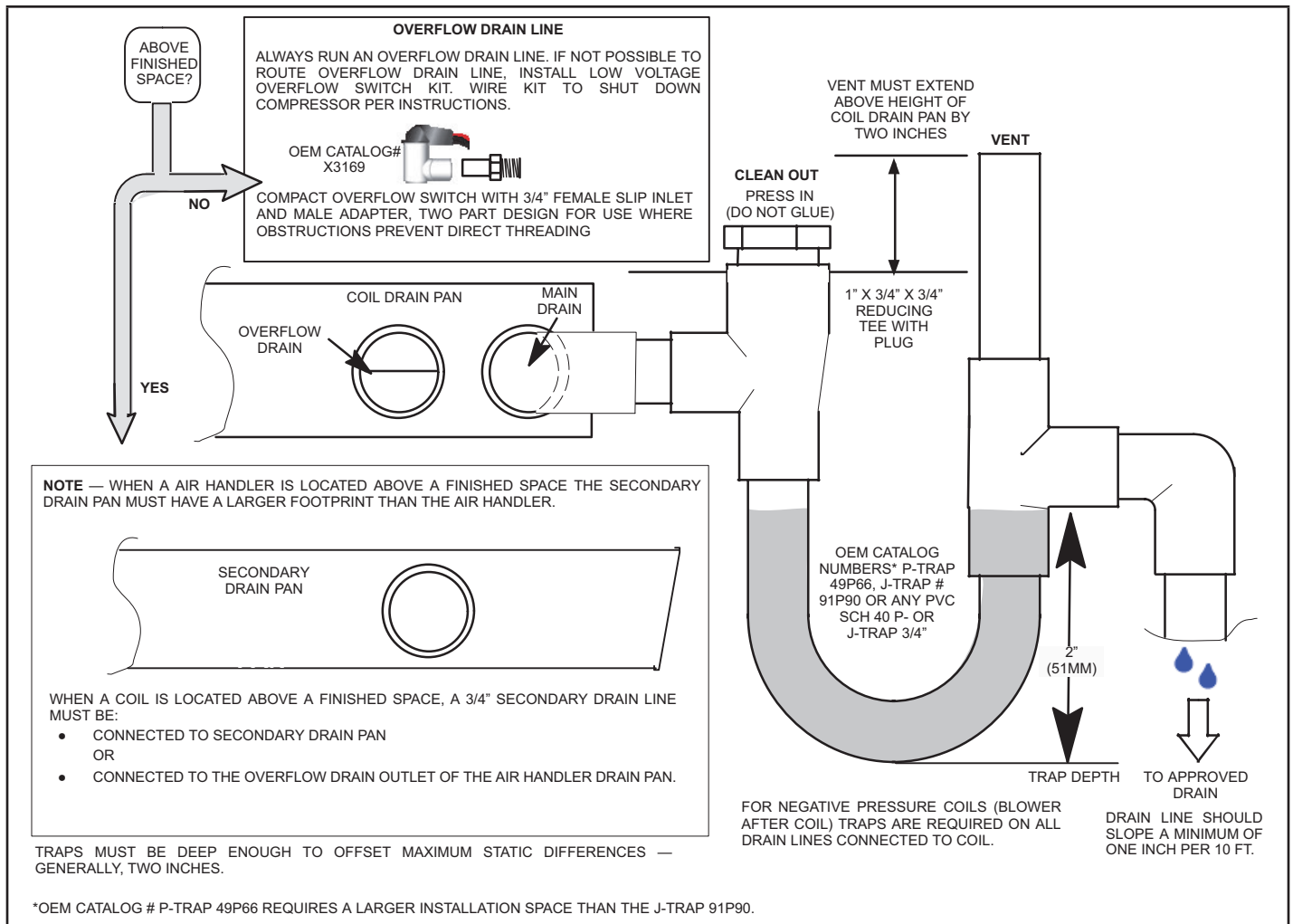
### OVERFLOW DRAIN

It is recommended that the overflow drain is connected to a overflow drain line for all units. If overflow drain is not connected, it must be plugged with provided cap.

### BEST PRACTICES

The following practices are recommended to ensure better condensate removal:

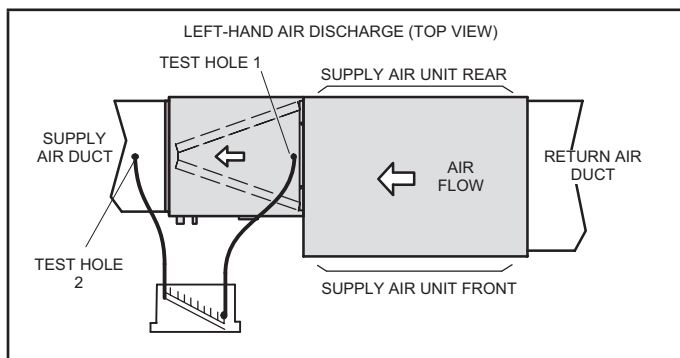
- Main and overflow drain lines should NOT be smaller than drain connections at drain pan.
- Overflow drain line should run to an area where homeowner will notice drainage.
- It is recommended that the overflow drain line be vented and a trap installed. Refer to local codes.



### Blower Speed Selection

Proper air volume must be provided over the evaporator coil. Select a blower motor speed tap that will provide 400 ± 50 CFM per 12,000 Btuh of cooling capacity (wet coil). A static pressure reading must be taken to see if the pressure drop falls within the proper range.

To ensure accuracy, static pressure must be read from the air entry side of the coil to the air exit side of the coil. See figure 9 for an example to obtain an accurate reading.



### ⚠ CAUTION

Take care when drilling test holes into the furnace flange and the duct. Drill holes away from refrigerant piping. Test holes should be drilled where specified in order to avoid unit damage.

- 1 - Drill a 5/16" test hole in the coil case 1" from the furnace flange (test hole 1, figure 9).
- 2 - Drill a 5/16" test hole into the supply air duct (test hole 2, figure 9).
- 3 - Connect the zero end of the draft gauge scale to the furnace end of the coil. Insert the hoses so that 1/4" extends inside the duct or end seal. Seal around holes with Permagum.
- 4 - Turn on electrical power to the furnace and set the thermostat to initiate a cooling demand.
- 5 - Table 2 lists the range of air volumes and equivalent draft gauge readings for this unit. Observe the draft gauge reading. If the reading is below the required air volume, increase the blower speed; if the reading is above the required air volume, decrease the blower speed. Refer to the furnace wiring diagram for blower speed settings.

- 6 - When the required draft gauge readings are obtained, remove the draft gauge lines and insert snaphole plugs into the test holes.

**TABLE 2. Air Volume / Static Pressure Drop Across Coil**

Cabinet		Vol: CFM	Drop: in. w.g.	
CH35 Model	Width in.		Dry	Wet
-18A-2F	14-1/2	600	.09	.11
-24A-2F	14-1/2	800	.15	.19
-24B-2F	17-1/2	800	.09	.11
-30A-2F	14-1/2	1000	.24	.27
-30B-2F	17-1/2	1000	.14	.16
-36A-2F	14-1/2	1200	.30	.39
-36B-2F	17-1/2	1200	.16	.21
-36C-2F	21	1200	.15	.18
-42B-2F	17-1/2	1400	.26	.31
-42C-2F	21	1400	.18	.21
-48B-2F	17-1/2	1400	.25	.29
-48C-2F	21	1600	.27	.30
-51C-2F	21	1600	.25	.29
-60D-2F	24-1/2	2000	.24	.30

**Maintenance**

**NOTICE !**

**Failure to follow instructions will cause damage to the unit.**

**This unit is equipped with an aluminum coil. Aluminum coils may be damaged by exposure to solutions with a pH below 5 or above 9. The aluminum coil should be cleaned using potable water at a moderate pressure (less than 50psi). If the coil cannot be cleaned using water alone, Lennox recommends use of a coil cleaner with a pH in the range of 5 to 9. The coil must be rinsed thoroughly after cleaning.**

A trained technician or service agency must perform maintenance and service on equipment. At the beginning of each heating or cooling season, indoor coils should be inspected to determine whether the coil requires cleaning.

**CLEANING THE COIL**

- 1 - Remove the coil from the cabinet or plenum, and take the coil to an appropriate place to clean it.
- 2 - Vacuum or brush the coil to remove matted and surface debris from the fins. Use vacuum attachments and/or brushes that are non-destructive to fins.
- 3 - If oil deposits are present, spray the coil with a mild coil cleaner with a pH in the range of 5 to 9 to soften deposits. Do not leave the coil cleaner on the coil for more than 10 minutes. Flush the coil thoroughly with potable water.
- 4 - Spray the coil at a vertical angle of 30 to 45 degrees with a constant stream of water at moderate pressure. A pressure washer with a fan nozzle will work best. Do not spray the coil from a horizontal direction.
- 5 - Direct the spray so that any debris is washed out of the coil. For most residential units, hot water is not necessary.

**NOTE - Attempting to back flush from the inside of the coil will require removing parts from the unit, and it may be very difficult to flush the whole coil surface. Attempting to blow water through a coil will slow the water stream and reduce the flushing action of the outer fin surface.**

- 6 - Replace the coil into the cabinet or plenum. Ensure that you have followed the proper procedure for routing and securing the refrigerant tubing.

** IMPORTANT**

**Ensure that the distributor lines are not rubbing together or kinked. All tubes must have enough clearance from other metal parts. Use wire ties to secure tubes to prevent movement that could cause the refrigerant tubing to fail.**