

# Installation Instructions

Uncased Downflow  
Direct Expansion Coil  
For Manufactured Housing  
Sizes 024—048


CM5A  
CM5B

**NOTE:** Read the entire instruction manual before starting the installation.

## SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warning or cautions attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements.

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, and CAUTION. 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 **would** result in minor personal injury or product and property damage.

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 **WARNING:** Before installing or servicing system, always turn off main power to system. There may be more than 1 disconnect switch. Turn off accessory heater power if applicable. Electrical shock can cause personal injury or death.

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## INTRODUCTION

The CM5A and CM5B Uncased Evaporator Coils are for installation within gas or electric downflow furnaces designed for manufactured housing applications. The CM5A has mechanical refrigerant connections. The CM5B has sweat refrigerant connections.

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 **WARNING:** Never install these coils on the inlet of a fuel burning appliance nor in upflow applications.

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## INSTALLATION

Refer to Fig. 1 and 2 for basic unit dimensions.

### PROCEDURE 1—INSPECT EQUIPMENT

File claim with shipper if shipment is damaged or incomplete.


Inspect caulking on interior and exterior of coil assembly. Repair any caulking which may have become damaged during shipment with a high-temperature, SILICONE-based sealant.

### PROCEDURE 2—INSTALL COIL

#### A. Installation with Downflow Electric Furnace

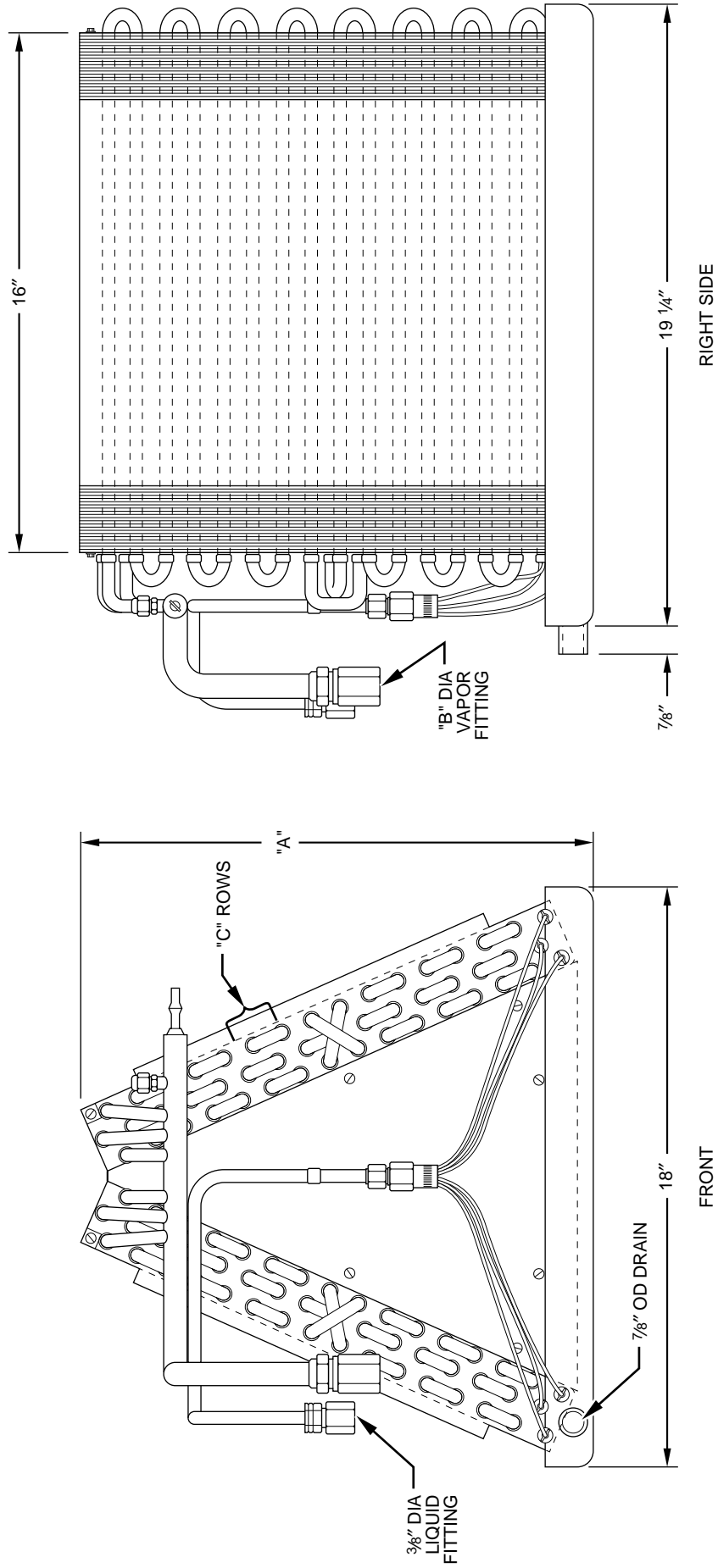
1. Disconnect electrical power to furnace.

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 **CAUTION:** Furnace may be connected to more than 1 supply circuit. Check voltage at furnace to ensure power is off.

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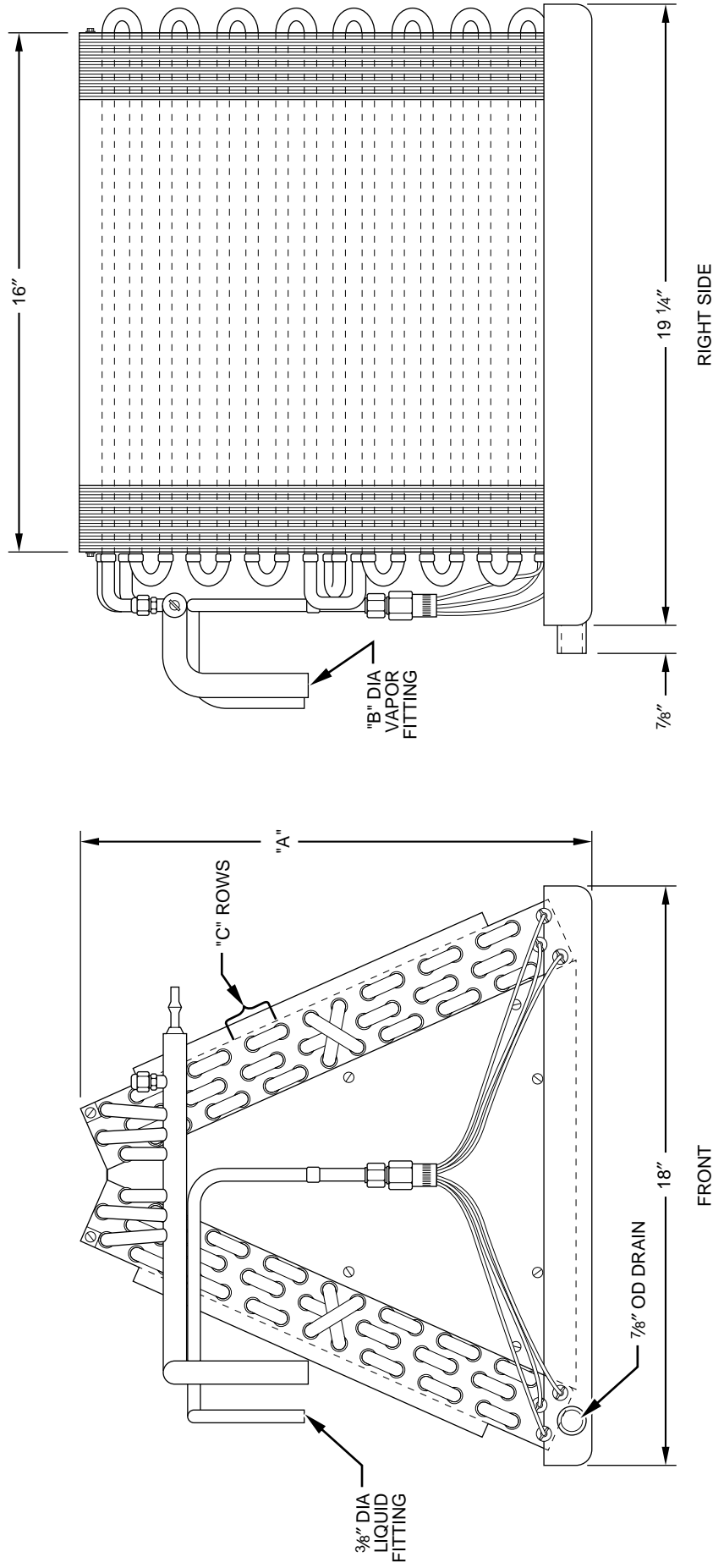
2. Remove furnace front access door.
3. Remove filter.
4. Remove refrigerant line knockouts within furnace.
5. Install insulation in furnace if needed.
6. Install coil support bracket if needed.



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UNIT SIZE	SERIES	UNIT DIMENSIONS (IN.)		NUMBER OF ROWS	SHIPPING WEIGHT (LB)
		A	B		
024	A	14	5/8	3	30
036	A	16	3/4	3	32
042	A	18	3/4	3	35
048	A	18	3/4	4	37

Fig. 1—CM5A Dimensional Drawing

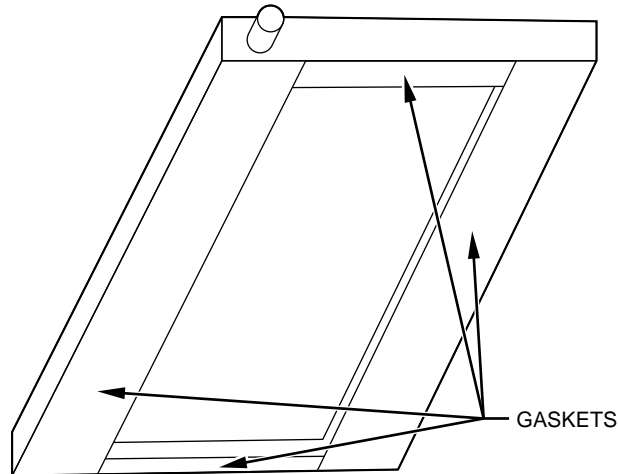


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UNIT SIZE	SERIES	UNIT DIMENSIONS (IN.)			NUMBER OF ROWS	SHIPPING WEIGHT (LB)
		A	B	C		
024	A	14	5/8	3	30	
036	A	16	3/4	3	32	
042	A	18	7/8	3	35	
048	A	18	7/8	4	37	

Fig. 2—CM5B Dimensional Drawing

7. Ensure evaporator piston is correct size for application. Change piston in liquid distributor with piston supplied with outdoor unit. Refer to Refrigerant Flow-Control Device section for details.
8. Attach drain pan gaskets supplied with coil to underside of drain pan. (See Fig. 3.)



**Fig. 3—Drain Pan Gaskets**

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9. Center coil/drain pan assembly over furnace opening.
10. Form flexible condensate drain tube into shape of a condensate trap. Secure trap with duct tape. Refer to Installing Condensate Drain section for details on constructing condensate trap. Connect drain trap to pan drain connection and secure with clamp. Connect trap outlet to condensate drain line.
11. Connect interconnecting refrigerant tubing to coil connections. Refer to Connecting Refrigerant Tubing section for details.
12. Seal around opening of furnace to prevent air leakage or bypass.
13. Replace filter (if using internal filter).
14. Turn on electrical supply to furnace.
15. Check unit operation.
16. Replace furnace front access door.

#### **B. Installation with Downflow Gas Furnace**

1. Disconnect electrical power to furnace.

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**⚠ CAUTION: Furnace may be connected to more than 1 supply circuit. Check voltage at furnace to ensure power is off.**

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2. Turn off gas supply to furnace.
3. Remove lower front access door.
4. Reroute any gas piping blocking access to coil compartment.
5. Remove furnace inner coil shield.
6. Remove refrigerant line knockouts within furnace.
7. Ensure evaporator piston is correct size for application. Change piston in liquid distributor with piston supplied with outdoor unit. Refer to Refrigerant Flow-Control Device section for details.
8. Attach drain pan gaskets supplied with coil to underside of drain pan. (See Fig. 3.)
9. Center coil/drain pan assembly in furnace coil cavity.
10. Form flexible condensate drain tube into shape of a condensate trap. Secure trap with duct tape. Refer to Installing Condensate Drain section for details on constructing condensate trap. Connect drain trap to pan drain connection and secure with clamp. Connect trap outlet to condensate drain line.
11. Remove knockout from furnace inner coil shield. Cut insulation covering knockout and reinstall shield.
12. Install 2 notched cover plates over refrigerant lines using rubber grommets to seal around lines. Screw together using 2 screws. Fasten combined plates to furnace inner coil shield. On coils with less than 18 tubes high, use the third plate to cover opening above notched plates.

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**⚠ CAUTION: DO NOT penetrate coil tubes with screws.**

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13. Connect interconnecting refrigerant tubing to coil connections. Refer to Connecting Refrigerant Tubing section for details.

14. Reconnect any gas pipe and seal any gas line penetration openings at furnace.
15. Seal around all air openings to prevent air leakage or bypass.
16. Turn on gas and electrical supplies to furnace.
17. Check for gas leaks.

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**⚠ WARNING: Never use matches, candles, flame, or other sources of ignition to check for gas leakage. Use a soap-and-water solution. Failure to follow this warning could result in a fire, personal injury, or death.**

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18. Check unit operation.
19. Replace furnace front access door.

### PROCEDURE 3—REFRIGERANT FLOW-CONTROL DEVICE

#### A. Piston

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**⚠ WARNING: Coil is pressurized with a nitrogen holding charge. Relieve pressure before installing piston by depressing valve on coil vapor header.**

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Replace piston if required. Check piston size in coil to see if it matches required piston shown on outdoor unit rating plate. If it does not match, replace indoor piston with piston shipped with outdoor unit. The piston shipped with outdoor unit is correct for any approved indoor coil combination. (See Fig. 4.)

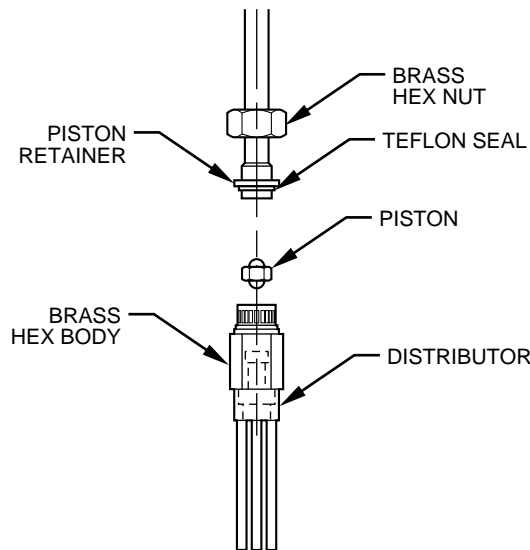


Fig. 4—Refrigerant Flow-Control Device

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#### B. TXV

Factory-authorized TXV kits are available.

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**⚠ WARNING: Coil is pressurized with a nitrogen holding charge. Relieve pressure before installing TXV by depressing valve on coil vapor header.**

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To install TXV:

1. Remove piston from distributor and replace with TXV. The TXV connections match liquid line hex nut and distributor connections.
2. Extend TXV equalizer tube and screw onto pressure port located on coil vapor header.
3. Screw equalizer flare nut onto pressure port so that valve depressor engages valve body.
4. Strap TXV bulb to vapor header of coil.

Refer to TXV kit Installation Instructions for additional installation details.

If using hard shutoff TXV, check outdoor unit requirements for addition of hard start kit.

## PROCEDURE 4—INSTALL CONDENSATE DRAIN

The coil is designed to dispose of accumulated water through condensate drain tubing. Installation of condensate trap provided is essential.

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**⚠ CAUTION: Failure to install trap can result in condensate flowing out of coil pan and into furnace. Install trap inside furnace or outside furnace under floor. Trap must not be higher than bottom of condensate drain opening.**

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To shape condensate trap, refer to Fig. 5 and proceed as follows:

1. Expand flexible drain hose to desired length.
2. Form flexible hose into "S" shaped condensate trap.
3. Place duct tape around trap to keep shape.

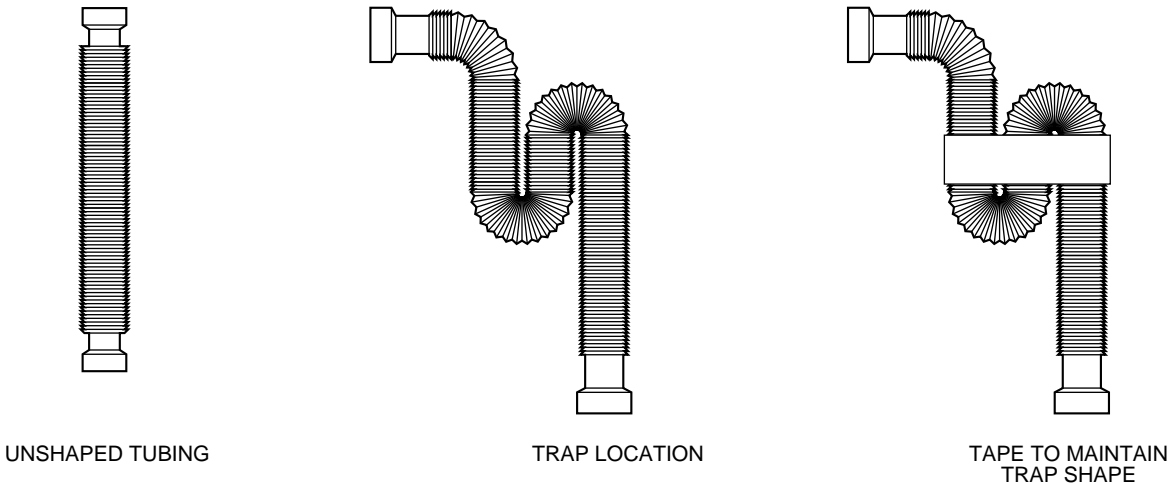


Fig. 5—Condensate Trap

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## PROCEDURE 5—CONNECTING REFRIGERANT TUBING

See Fig. 1 or 2 for coil connection sizes and location. Outdoor units may be connected to indoor sections using field-supplied tubing of refrigerant grade, correct size, and good condition. Always evacuate tubing and reclaim refrigerant when making connections or flaring tubing. Leak check connections before insulating entire suction line.

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**⚠ CAUTION: If undersized, damaged, or elliptically shaped tubing is used when making connections, leaks may result.**

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Entire suction tube **MUST** be insulated to prevent condensate damage within furnace cabinet.

For mix-matched systems, use suction tube sizes recommended in outdoor unit Installation Instructions.

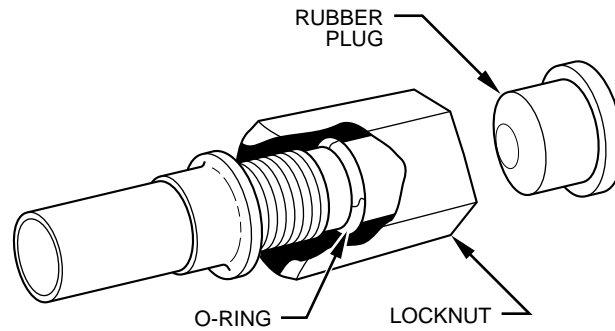
Refrigerant piping must be configured per local building codes. Lay out piping in relation to specifications and job site requirements.

### A. Mechanical Connection

1. Loosen lock nut on compatible fitting 1 turn. Do not remove. (See Fig. 6.)
2. Remove plug and be sure rubber O-ring is in groove inside compatible fitting.
3. Cut interconnecting tubing to correct length. Insert tube into compatible fitting until it bottoms.
4. While keeping compatible fitting bottomed, tighten lock nut using backup wrench until nut contacts back of coupling flange.

### B. Sweat Connections

1. Cut interconnecting tubing to correct length and bell end.
2. Cut end of suction and liquid tubes on coil.
3. Braze interconnecting tubing to coil.



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**Fig. 6—Compatible Fitting**

**START-UP**

**PROCEDURE 1—GENERAL**

Refer to outdoor unit Installation Instructions for system start-up and refrigerant charging details.

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**⚠ CAUTION:** Never operate unit without a filter. Damage to blower motor or coil may result. For those applications where access to an internal filter is impractical, a field-supplied filter must be installed in return-air duct system or in furnace filter grille.

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**⚠ WARNING:** Excessive airflow through indoor coil may cause condensate blowoff resulting in a potential shock hazard.

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If problems exist, reduce airflow by adjusting motor speed tap.

**PROCEDURE 2—MODIFICATION LABEL**

Complete data on Furnace Modification label provided. Use permanent marker. List all model numbers and certification authorities. Install label inside furnace near rating information.

**SERVICE**

Clean and inspect coil, condensate pan, and drain before each cooling season.

# SERVICE TRAINING

**Packaged Service Training** programs are an excellent way to increase your knowledge of the equipment discussed in this manual, including:

- Unit Familiarization
- Maintenance
- Installation Overview
- Operating Sequence

A large selection of product, theory, and skills programs is available, using popular video-based formats and materials. All include video and/or slides, plus companion book.

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