Please read this manual carefully before installation and keep it for future reference.

Installation Manual

MRCOOL®

COMFORT MADE SIMPLE

Signature Series

MCVP* & MCHP* Series Coils

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice. Please visit www.mrcool.com/documentation to ensure you have the latest version of this manual.

Version Date: 05-24-21

MRCOOL®

Signature Series Indoor Coils

INSTALLATION INSTRUCTIONS

This manual must be left with the homeowner for future reference.

⚠

This is a safety alert symbol and should never be ignored. When you see this symbol on labels or in manuals, be alert to the potential for personal injury or death.

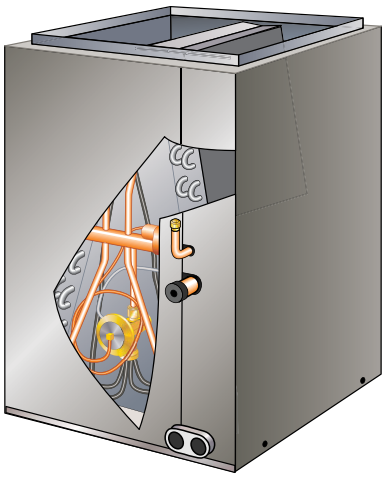


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⚠ IMPORTANT

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 make sure to wear gloves and protective clothing.

Manufactured By:

MRCOOL®, LLC

48 Remington Way

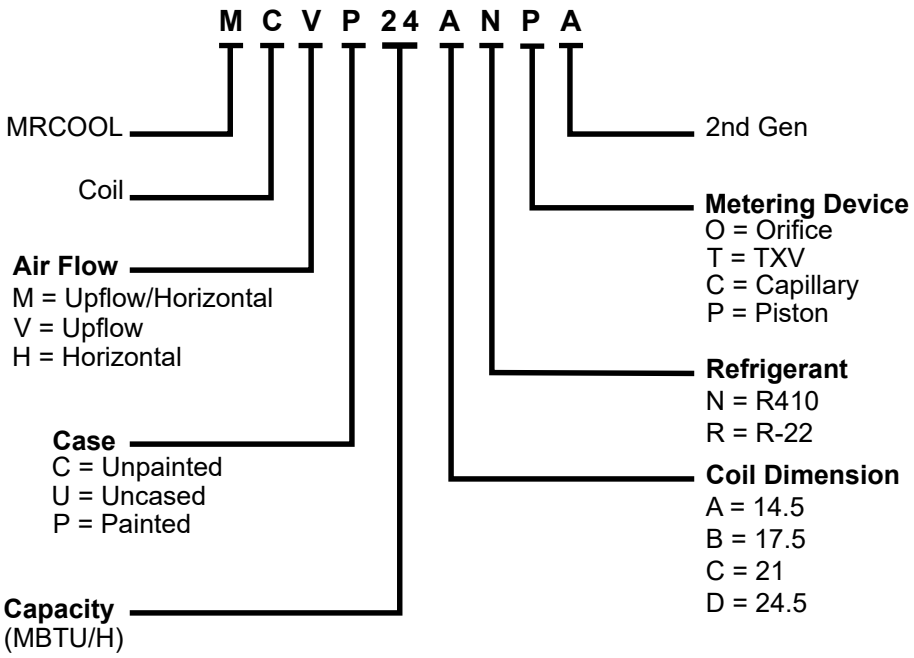
Hickory, KY 42051

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

Model Number Identification



NOTE: *Special procedures are required for cleaning the aluminum coil in this unit. See Page 8 in this instruction for information.*

General

The MCV* & MCH* coils are only available cased and include a factory-installed HFC-410A fixed orifice (RFC) metering device that must be replaced if the system match with the coil requires a field-installed 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"-6” away from any drum-type or oil-fired furnace heat exchanger, depending on furnace model. Closer spacing may damage the drain pan and cause a leak.

Refer to the Product Specification for the proper use of these coils with specific furnaces, air handlers, condensers 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.

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.

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 MCVP* and MCHP* coils are shipped with a 10 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 and condensing unit according to the installation instructions provided with the unit.

Position the cased coil on top of the furnace or air handler cabinet and secure it using field-provided screws.

NOTE: *If the coil is to be installed on an oil furnace, it may be necessary to install a field-installed transition between the furnace and the coil to prevent airflow restriction and possible damage to the coil drain pan. See the oil furnace installation instructions for details.*

NOTE: *The coil cabinet has six screw clearance holes which should be aligned with the furnace engagement holes. Secure the coil cabinet to the furnace or air handler using six field-provided #8 X 1" screws.*

Air Leakage

All indoor cabinets **MUST** be taped after installation to seal against any air leaks. System performance and efficiency will be reduced if air leakage exists.

Refrigerant Line Connections

Line Sizes

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

Model Number	Suction	Liquid
18/24 24 30 30/36 36	3/4 Inch	3/8 Inch
48 49 50/60 60	7/8 Inch	

Table 1. Refrigerant Line Connections

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

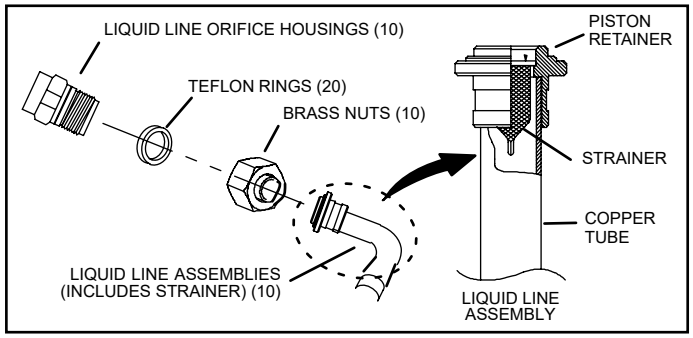


Figure 1. 69J46 Kit Components

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. The heat shield must be in place to prevent heat damage during brazing. See Figure 2.

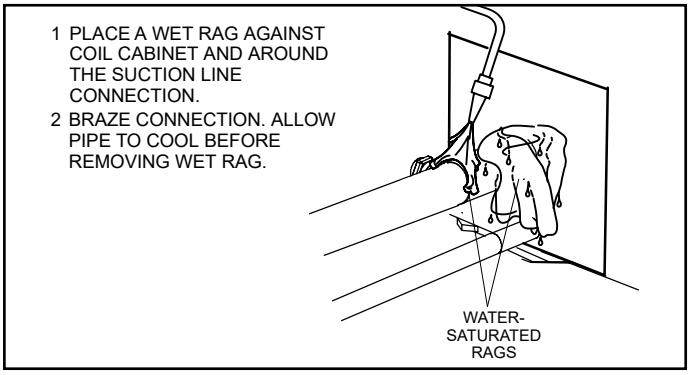


Figure 2. Braze Refrigerant Lines

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.

Suction Line Equalizer Fitting

Remove the copper flare seat bonnet if present from the male equalizer line fitting (Figure 3).

⚠ IMPORTANT

When removing the flare nut, ensure that the copper flare seal bonnet is removed as illustrated in Figure 3.

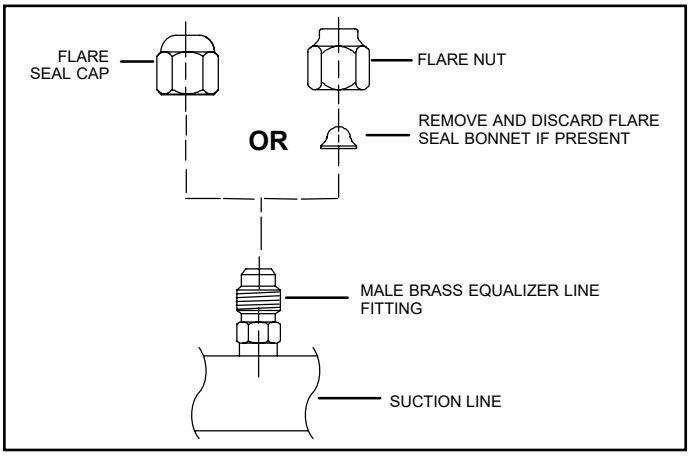


Figure 3. Suction Line Male Equalizer Line Fitting Modifications

Liquid Line Connection

NOTE: *The coils are shipped with a factory-installed HFC-410A fixed orifice (RFC) metering device. Some system matches with this coil require use of a check/ expansion valve.*

NOTE: If the system match requires an HFC-410A check/expansion valve on the liquid line connection, **the fixed orifice device must be removed BEFORE a check/expansion valve is installed.**

Fixed Orifice Removal (if necessary)

1. Remove the coil access and plumbing panels.
2. Remove any shipping clamps that secure the liquid line and distributor assembly.
3. Using two wrenches, disconnect the liquid line stub from the orifice housing. Take care not to twist or damage the distributor tubes during this process.
4. Remove and discard the existing orifice, valve stem assembly (if present) and Teflon ring as illustrated in Figure 4.
5. Retain brass nut to be used later with the liquid line assembly.

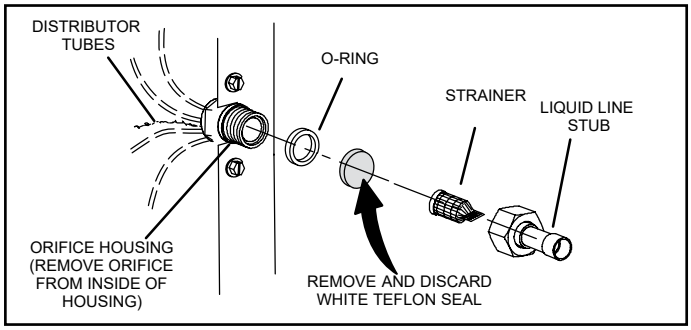


Figure 4. Typical Fixed Orifice Removal

Expansion Valve / Liquid Line Installation

Some system matches for the MCVP* and MCHP* coil require a check/expansion valve. The expansion valve must be installed external to the indoor coil cabinet. Refer to the instructions provided with the expansion valve kit for proper installation of the valve and sensing bulb.

See the MCVP* and MCHP* product specifications for approved expansion valve match-ups and application information.

1. After the expansion valve, equalizer line and sensing bulb have been installed per the kit instructions, braze the properly sized refrigerant piping into place. Carefully follow brazing guidelines and use wet rags to prevent heat damage.
2. Do not remove the water-saturated rags from the cabinet and piping until the piping has cooled completely.

NOTE: *To prevent any possibility of water damage, properly insulate all parts of the expansion valve assembly that may sweat due to temperature differences between the valve and its surrounding ambient temperatures.*

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

⚠ WARNING

There must be an airtight seal between the bottom of the furnace 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 the air handler or any gas-fueled appliance (i.e., water heater), or carbon monoxide-producing device (i.e., wood fireplace) is installed.

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

Condensate Drain Connections

Main Drain

Connect the main drain and route drain tubing downward to drain line or sump. Do not connect drain to a closed waste system. See Figure 6 for typical drain trap configuration.

Overflow Drain

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

⚠ 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.

Condensate Drain Recommendations

The following practices are recommended to ensure better condensate removal:

- Main and overflow drain lines should **NOT** be smaller than both 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.

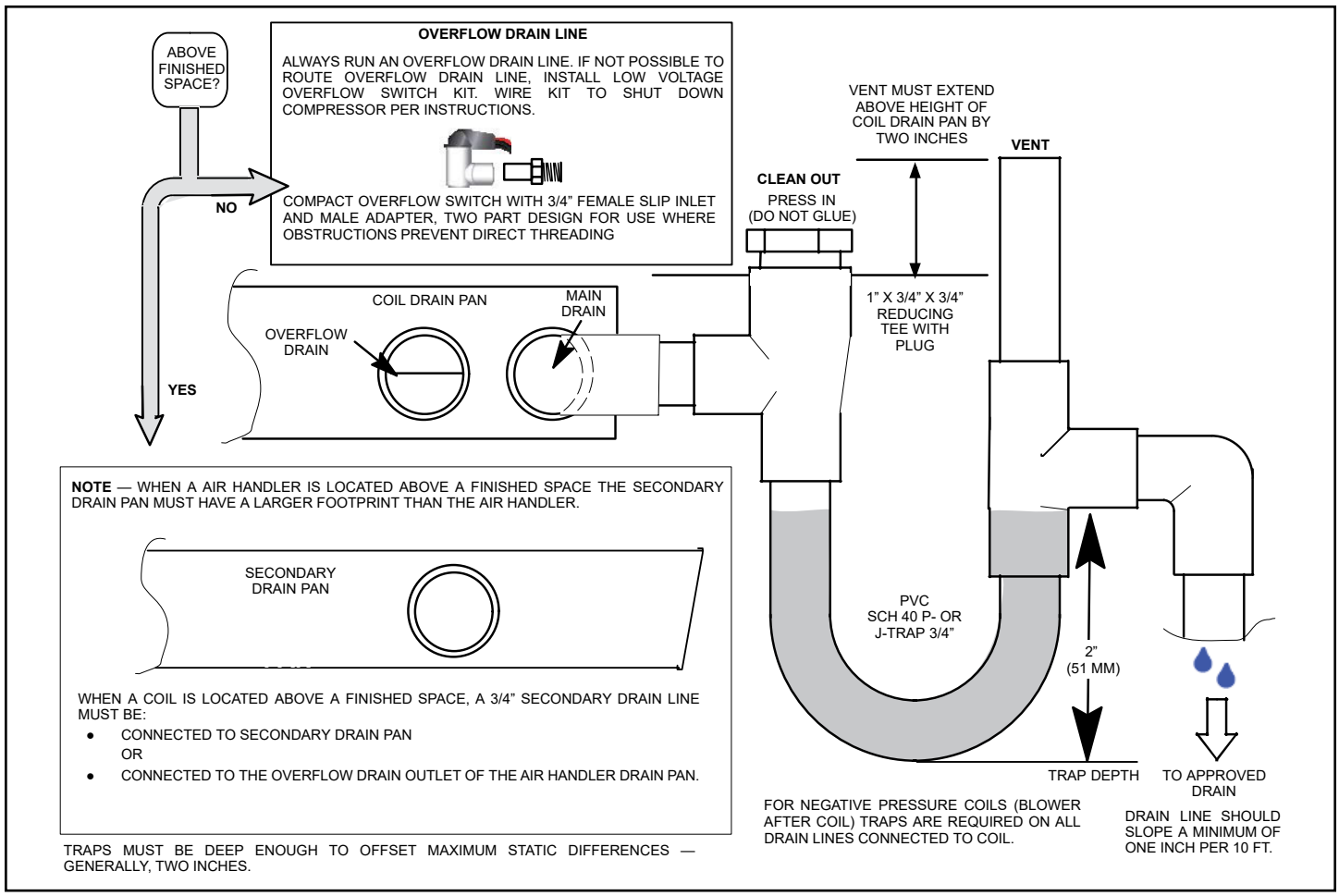


Figure 6. Typical Main and Overflow Drain Installations

Blower Speed Selection

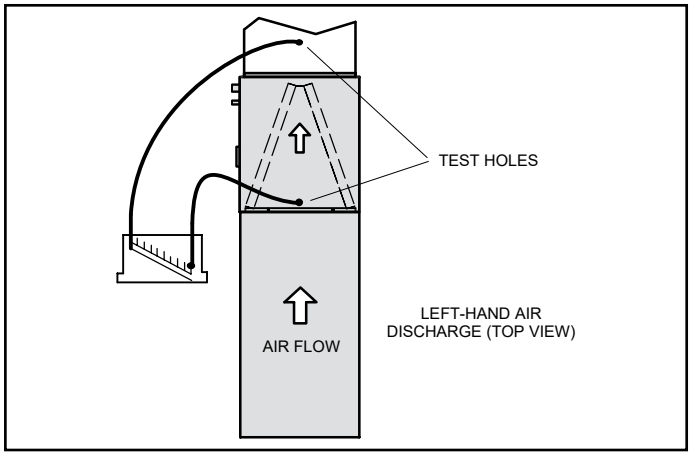


Figure 7. Static Pressure Test

Cabinet		Vol: CFM	Drop: in. w.g.	
Model	Width in.		Dry	Wet
18/24ANPA	14.5	600	.11	.17
	14.5	800	.18	.25
18/24BNPA	17.5	600	.11	.17
	17.5	800	.18	.25
24ANPA	14.5	800	.16	.18
24BNPA	17.5	800	.16	.18
30ANPA	14.5	1000	.18	.20
30BNPA	17.5	1000	.18	.20
30/36ANPA	14.5	1000	.19	.21
	14.5	1200	.27	.30
30/36BNPA	17.5	1000	.13	.16
	17.5	1200	.17	.21
30/36CNPA	21	1000	.13	.16
	21	1200	.17	.21
36ANPA	14.5	1200	.27	.30
36BNPA	17.5	1200	.17	.21
48BNPA	17.5	1400	.23	.24
	17.5	1600	.30	.31
48CNPA	21	1400	.13	.16
	21	1600	.16	.20
49CNPA	21	1600	.17	.22
50/60CNPA	21	1600	.23	.29
60CNPA	21	2000	.29	.34
60DNPA	24.5	2000	.21	.27

Table 2. Air Volume / Static Pressure Drop Across Coil

⚠ 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.

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 Btu/h of cooling capacity (wet coil). A static pressure reading must be taken to see if the pressure drop falls within the proper range. See Table 2.

To ensure accuracy, air must be read from below the coil and above the coil. See Figure 7 for an example to obtain an accurate reading.

1. Drill one 5/16” air test hole into the delta plate between the coil slabs.
2. Drill one 5/16” air test hole into the duct above the top of the coil.
3. Connect the **instrument for static pressure measurement hoses** to the air entering side of coil. Insert the hoses so that 1/4” extends inside the duct or end seal. Seal around holes with sealant.
4. Turn on electrical power to the furnace and set the thermostat to initiate a cooling demand.
5. Table 2 lists air volumes and equivalent static pressure readings for these units. Observe the static pressure 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 static pressure readings are obtained, remove the test hose lines and insert snap hole plugs into test holes.

Maintenance

NOTE

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 50 psi). If the coil cannot be cleaned using water alone, AAE recommends use of a coil cleaner with a pH in the range of 5 to 9. The coil must be rinsed thoroughly after cleaning.

In coastal areas, the coil should be cleaned with potable water several times per year to avoid corrosive buildup (salt).

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 cleaned.

Do not use hydrofluoric acid, alkaline, or similar chemicals on coils. These chemicals are not necessary to dissolve salt, and may damage the fin coating. Acid washes are used to dissolve oils and greases, which generally are not present on most installations.

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 household liquid detergent to soften deposits. Do not leave the detergent on the coil for more than 10 minutes. Flush the coil thoroughly with potable water.

   NOTE: *For units in coastal regions, fresh water will dissolve away any salt deposits. (Wash coils with fresh water at least every six months.)*
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 and base pan. 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.

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