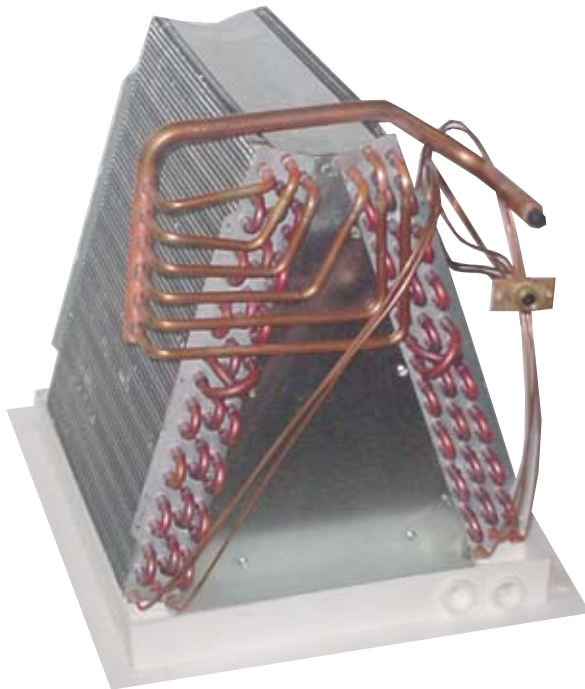


# INSTALLATION & OPERATING INSTRUCTIONS FOR UPFLOW/DOWNFLOW COILS



All information contained herein is subject to change without notice.

IO-236E

Made in the USA by:  
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[www.goodmanmfg.com](http://www.goodmanmfg.com) or [amana-hac.com](http://amana-hac.com)  
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## INTRODUCTION

### Checking Product Received

Upon receiving the product, inspect it for damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the product to determine if it is correct. In the event an incorrect product is shipped, it must be returned to the supplier and must NOT be installed. The manufacturer assumes no responsibility for installation of incorrectly shipped products.

### Before Beginning Installation

Carefully read all instructions for the installation prior to installing product. Make sure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally. Make sure everything needed to install the product is on hand before starting.

## REPLACEMENT PARTS

### Ordering Parts




When reporting shortages or damages, or ordering repair parts, give the complete product model and serial numbers as stamped on the product. Replacement parts for this product are available through your contractor or local distributor. For the location of your nearest distributor consult the white business pages, the yellow page section of the local telephone book or contact:

SERVICE PARTS DEPARTMENT  
GOODMAN MANUFACTURING COMPANY, L.P.  
2550 NORTH LOOP WEST, SUITE 400  
HOUSTON, TEXAS 77092  
(713) 861 – 2500

## IMPORTANT SAFETY INSTRUCTIONS

### Recognize Safety Symbols, Words, and Labels

The following symbols and labels are used throughout this manual to indicate immediate or potential hazards. It is the owner's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of serious personal injury or death, property damage and/or product damage.

 <b>DANGER</b> IMMEDIATE HAZARDS WHICH <b>WILL</b> RESULT IN PROPERTY DAMAGE, PRODUCT DAMAGE, SEVERE PERSONAL INJURY OR DEATH.
 <b>WARNING</b> HAZARDS OR UNSAFE PRACTICES <b>COULD</b> RESULT IN PROPERTY DAMAGE, PRODUCT DAMAGE, SEVERE PERSONAL INJURY OR DEATH.
 <b>CAUTION</b> HAZARDS OR UNSAFE PRACTICES WHICH <b>MAY</b> RESULT IN PROPERTY DAMAGE, PRODUCT DAMAGE, PERSONAL INJURY OR DEATH.

## CODES AND REGULATIONS

### IMPORTANT

"The United States Environmental Protection Agency ("EPA") has issued various regulations regarding the introduction and disposal of refrigerants in this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. A certified technician must perform the installation and service of this product. Should questions arise, contact your local EPA office.

This product is designed and manufactured to permit installation in accordance with national codes. It is the installer's responsibility to install this unit in accordance with national codes and/or prevailing local codes and regulations.

## APPLICATION INFORMATION

1. Coil must be installed upstream (discharge air) of the furnace.
2. Condensate Drain Piping - In all cooling applications, a secondary drain pan should be provided by the installer and placed under the entire unit with a separate drain line properly sloped and terminated in an area visible to the owner. This secondary drain pan can provide extra protection to the area under the unit should the primary drain plug up and overflow. As expressed in our product warranty, Goodman will not be liable for any damages, structural or otherwise due to the failure to follow this installation requirement.

Condensate drain connections are located in the drain pan at the bottom of the coil/enclosure assembly. The threaded fitting protrudes outside of the enclosure for connecting externally.

1. Ensure drain pan hole is NOT obstructed.
2. To prevent potential sweating and dripping on to finished space, it may be necessary to insulate the condensate drain line located inside the building. Use Armaflex® or similar material.

A Secondary Condensate Drain Connection, now called for by many building codes, has been provided. The drain line is to be pitched 1/4" per foot to provide free drainage. A condensate trap should be installed to insure proper drainage.

## **CAUTION**

IF SECONDARY DRAIN IS NOT INSTALLED, THE SECONDARY ACCESS MUST BE PLUGGED.

## REFRIGERANT LINES

### **WARNING**

TO PROTECT THE UNIT WHEN WELDING CLOSE TO THE PAINTED SURFACES, THE USE OF A QUENCHING CLOTH IS STRONGLY ADVISED TO PREVENT SCORCHING OR MARRING OF THE EQUIPMENT FINISH. SOLDER WITH A MINIMUM OF 5% SILVER IS RECOMMENDED.

### Tube Preparation

All cut ends are to be round, burr free, and cleaned. Failure to follow this practice increases the chances for refrigerant leaks. The suction line is spun closed and requires a pipe cutter to remove the closed end.

### Post Brazing

Quench all welded joints with water or a wet rag.

### Piping Size

For the correct tubing size, follow the specification for the condenser/heat pump.

### **WARNING**

THIS COIL IS SHIPPED UNDER PRESSURE. FOLLOW THESE INSTRUCTIONS TO PREVENT INJURY (SEE FIGURES 1 AND 2).

1. Loosen the 13/16 nut **1 TURN ONLY**. No pressure loss indicates possible leak.
2. Remove the nut and discard the black or brass cap.
3. Remove the check piston to verify it is correct and then replace the piston. See piston kit chart in instructions.
4. Use a tube cutter to remove the spin closure on the suction line.
5. Remove the tailpiece clamped to the exterior.
6. Slide the 13/16 nut into position on the tailpiece. Braze tailpiece to the liquid tube.
7. Insert the suction line into the connection, slide the insulation and the rubber grommet at least 18" away from the braze joint. Braze suction line.
8. AFTER THE TAILPIECE HAS COOLED, confirm position of the white Teflon seal and hand tighten the nut.
9. Torque the 13/16 nut to 20-30 ft-lbs. [2.77-4.15 meter kg].
10. Replace suction line grommet and insulation.

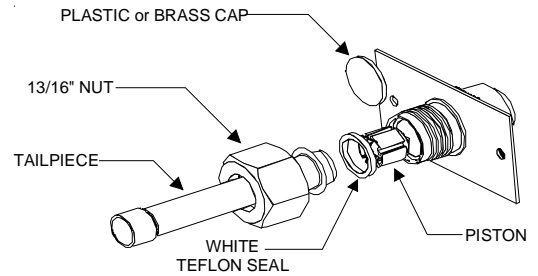


Figure 1

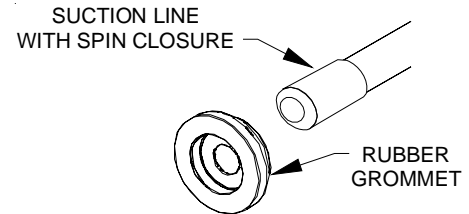


Figure 2

## EVAPORATOR COIL METERING DEVICE

The CAUF, CACF and CAPF models are equipped with a check style flowrater for refrigerant management. For most installations no change to the flowrater orifice is required. In mix-matched applications (condenser/heat pump is a different tonnage than the coil) a different flowrater orifice may be required. See the Goodman piston kit chart PKC-00\*. Consult your local distributor for the details regarding mix-matched orifice sizing.

## FILLER PLATES

Filler plates are supplied on all 17.5, 21, & 24.5 inch chassis to be used for adapting the unit to a furnace one size smaller. Should the plenum and furnace openings be the same size, the filler plates should be removed.

## PLASTIC DRAIN PAN APPLICATION

### **CAUTION**

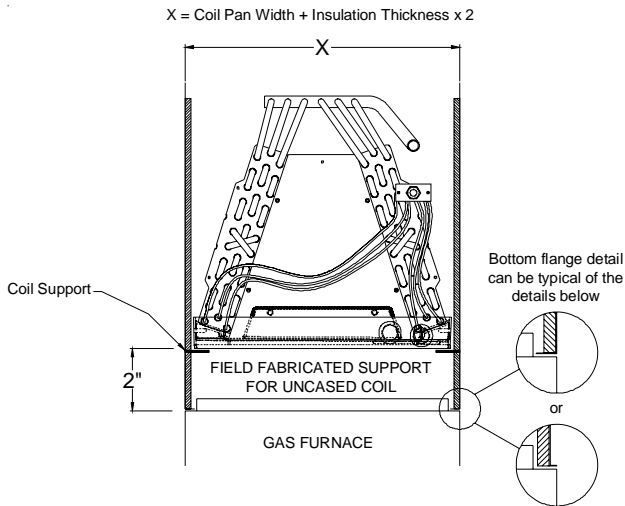
DO NOT USE THE COIL PAN THAT SHIPPED WITH THE UNIT ON AN OIL FURNACE OR ANY APPLICATION WHERE THE TEMPERATURE OF THE DRAIN PAN MAY EXCEED 300°F. A HIGH TEMPERATURE DRAIN PAN (KIT NUMBERS HTP-A, -B, -C AND -D FOR NOMINAL WIDTHS OF 14, 17.5, 21 AND 24.5-INCHES RESPECTIVELY) SHOULD BE USED FOR THIS TYPE OF APPLICATION. A FIELD FABRICATED METAL DRAIN PAN CAN ALSO BE USED.

If you install your uncased coil on top of a gas furnace the following is required:

Allow enough space between the top to the furnace and the bottom of the plastic coil drain pan to have a free flow of air.

**NOTE:** The cased coil **MUST** be installed with the line set and drain opening to the **FRONT** of the furnace.

There should be a minimum of 2.0" distance from the top of the furnace and the bottom of the coil pan. See figure 3.

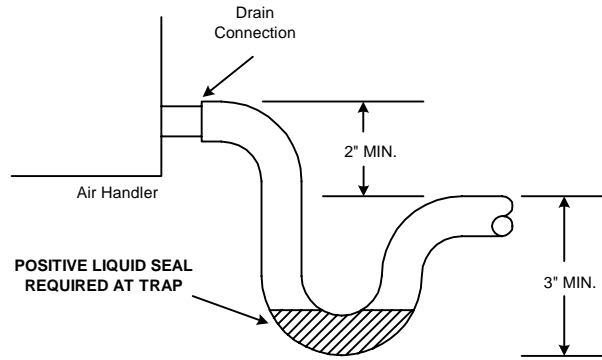


**FIGURE 3**

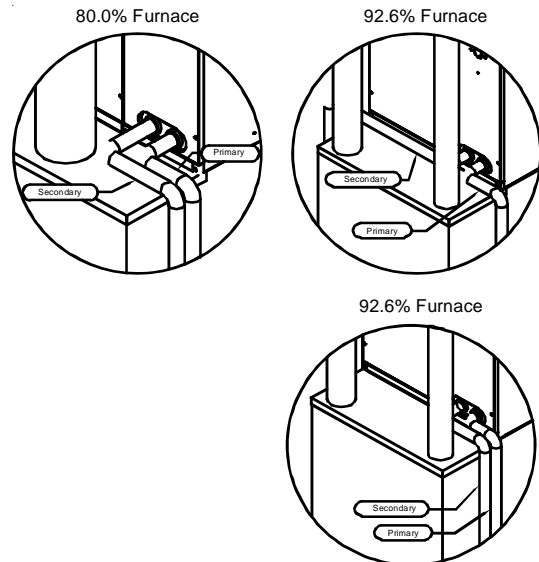
The drain pan has a primary and an optional secondary drain with 3/4" NPT female connections. The connectors required can be 3/4" NPT male PVC pipe or metal and should be hand tightened to a torque of approximately 37 in-lbs to prevent damage to the drain pan connection. An insertion depth between .355 to .485 inches (3-5 turns) should be expected at this torque. If secondary drain line is required it must be run separately from the primary drain and should end where it is easily seen. Water coming from this line means the coil primary drain is plugged and needs clearing.

A trap must be installed in the drain line below the bottom of the drain pan. If a copper drain line is used, solder a short piece of pipe to connector before installing a drain fitting. Again, do not over torque the 3/4" copper connector to the plastic drain connection. Use a wet rag or heat sink material on the short piece to protect plastic drain pan, when completing drain line. Refer to Figure 4.

Typical drain pipe routings can be seen in Figure 5 to avoid interference with vent piping.



**FIGURE 4**



**FIGURE 5**

**NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE**

**Quality Makes the Difference!**

All of our systems are designed and manufactured with the same high quality standards regardless of size or efficiency. We have designed these units to significantly reduce the most frequent causes of product failure. They are simple to service and forgiving to operate. We use quality materials and components. Finally, every unit is run tested before it leaves the factory. That's why we know. . . **There's No Better Quality.**

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