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CONDENSER COIL REPLACEMENT KIT

INSTALLATION INSTRUCTIONS FOR CONDENSER COIL REPLACEMENT KIT (54M51) FOR HS21-410, -036, -510, -048 AND INSTRUCTIONS FOR CONDENSER COIL REPLACEMENT KIT (54M52) FOR HS21-650, -060 SERIES UNITS

Shipping & Packing List

Package 1 of 1 contains

- 1- Condenser coil
- 1- Liquid Line Adapter

Requirements

Verify that the coil has holding charge. Remove the cap from the liquid line and press the valve core. The coil should have approximately 10 psi dry air holding charge. If there is no charge, repressurize the coil and check for leaks.

Verify that the liquid and discharge manifold is straight and that the tubing is not displaced. Be extremely careful with the stub for the common liquid line. Do not twist or bend it.

▲ IMPORTANT

The stub of the coil must be secured if any adjustments to the liquid line are needed. Do not allow it to move.

Installation

- 1 - Disconnect the power from the unit.
- 2 - Reclaim refrigerant from the unit.
- 3 - Remove the coil guard, the top panel with the fan assembly, and the side mullion panels. Remove the screws that attach the control box and the compressor enclosure to the coil endplate.
- 4 - Sweat off the discharge line below the muffler and liquid line at the coupling that is closest to the coil.
- 5 - Remove the condenser coil assembly from the unit.
- 6 - Install the replacement coil assembly.

NOTE - The coil has factory-installed filler plates that attach to the control box and the compressor enclosure. The filler plate has pilot holes for attachment.

NOTE: Remove the plate before you install the coil in a -036, -048, or -060 series unit.

- 7 - Position liquid line adapter to maintain adequate clearance between all copper parts. Remove valve core. Sweat in liquid line to adapter and adapter to coil stickout. Sweat in a discharge line that has a muffler. After lines have cooled, replace the valve core and pressure switch.

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- 8 - Replace the mullion panels, top the cap fan assembly and coil guard.
- 9 - Refer to the unit instructions for leak testing, evacuation, and start-up procedures.
- 10 - **-410, -510, and -650 Units** - Charge according to the charging steps included in this instruction.
-036, -048, and -060 Units - Refer to unit nameplate or installation instruction for charging information.
- 11 - Once you have installed the replacement coil, start the compressor and observe the discharge line. Verify that there is minimal vibration between the shock loop and the manifolding on the outdoor coil's discharge line.
- 12 - If there is visible motion after the shock loop, apply weight kit number 38K46 to the discharge line. The best location is on the horizontal run after the shock loop, but other mounting areas may achieve acceptable results. Rotating weight kit on the tubing can also change vibration characteristics.

NOTE - This motion could result in a future failure of the replacement coil.

Charging the Unit 5/16" Coil Replacement

The 5/16" O.D. diameter tube coil has a lower internal volume than the 3/8" O. D. diameter tube coil that it is replacing. See table 1 for the new nameplate values.

The table 1 charge is based on a matching indoor coil and outdoor coil with a 20 ft. (6096 mm) line set. For varying lengths of line set, refer to table 2 for the refrigerant charge adjustment. A blank space is provided on the rating plate to list the actual field charge.

**Table 1
New Nameplate Charge**

New Nameplate	Charge
HS21-411, -413	10 lbs., 13 oz.
HS21-511, -513	11 lbs., 13 oz.
HS21-651, -653	12 lbs., 7 oz.

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**Table 2
Refrigerant Charge Adjustment**

Liquid Line Set Diameter	Oz. per 5 ft. (g per mm) adjust from 20 ft. (6096 mm) line set*
3/8 in. (10 mm)	3 ounces per 5 ft. (85 g per 1524 mm)

**If the line length is greater than 20 feet (6096 mm), add this amount. If line length is less than 20 feet (6096 mm), subtract this amount.*

Charging for TXV Systems

**Weighing in the Charge Method
TXV Systems, < 65°F (18° C) Outdoor Temp.**

If the system is void of refrigerant, or if the outdoor ambient temperature is cool, the refrigerant charge should be weighed into the unit. Do this after any leaks have been repaired.

- 1 - Recover the refrigerant from the unit.
- 2 - Conduct a leak check, then evacuate as previously outlined.
- 3 - Weigh in the unit nameplate charge.

If weighing facilities are not available or if you are charging the unit during warm weather, follow one of the other procedures outlined below.

**The Approach Method
Expansion Valve Systems, ≥ 65°F (18° C)
Outdoor Temp.**

The following procedure is intended as a general guide and

is for use on expansion valve systems only. For best results, indoor temperature should be 70°F (21°C) to 80°F (26°C). Monitor system pressures while charging.

- 1 - Record outdoor ambient temperature using a digital thermometer.
- 2 - Attach high pressure gauge set and operate unit for several minutes to allow system pressures to stabilize.
- 3 - Outdoor temperature should be 65°F (18°C) or above. Use the same digital thermometer used to check outdoor ambient temperature to check liquid line temperature. Verify the unit charge using the approach method. The difference between the ambient and liquid temperatures should match values given in table 3. Refrigerant must be added to lower approach temperature and removed to increase approach temperature. Loss of charge results in low capacity and efficiency.
- 4 - If the values don't agree with the those in table 3, add refrigerant to lower the approach temperature or recover refrigerant from the system to increase the approach temperature.

**TABLE 3
Approach Method**

Model Number	Approach Temperature* Liquid Line °F - Outdoor Ambient °F
HS21-411, -413	7 ± 1
HS21-511, -513	7 ± 1
HS21-651, -653	8 ± 1

*NOTE - For best results, use the same thermometer to check both outdoor ambient and liquid temperatures. *Measure approach temperature when the unit is operating on high speed.*