

COMPRESSOR REPLACEMENT KIT

INSTALLATION INSTRUCTION FOR COMPRESSOR REPLACEMENT KIT (LB-98547A; 26M02) USED ON LHA180 & 240H UNITS

Shipping and Packing List

Package 1 of 1 contains:

All Applications:

- 3- 7/8" Street elbows
- 1- 7/8" Elbow
- 1- 1-3/8" Street elbow (large radius)
- 1- 1-3/8" Elbow (large radius)

180 Only Applications:

- 1- 1-1/8" Suction line 14" in length
- 1- 1-1/8" Suction line 4-7/8" in length
- 1- 7/8" Discharge line 15-1/8" in length
- 1- 1-3/8" X 1-1/8" Reducing elbow
- 1- 1-1/8" 45° Elbow

240 Only Applications:

- 1- 1-3/8" Suction line 12-7/8" in length
- 1- 1-3/8" Suction line 6" in length
- 1- 7/8" Discharge line 17-1/4" in length
- 1- 1-3/8" Elbow
- 1- 1-3/8" 45° Elbow
- 1- Bag assembly containing:
 - 5- Valve cores
 - 5- Seal caps
 - 4-Wire ties
 - 1-Wire nuts
 - 1-Wiring diagram
 - 1-Discharge thermostat S5 or S8

IMPORTANT - This kit does not include compressors.

NOTE - Some tubing parts may need to be cut to length for proper fit-up.

Application

This kit is used when replacing a Tecumseh SF with a Copeland ZR compressor in LHA180 & 240 units.

Requirements

⚠ 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 qualified installer, service agency or the gas supplier

⚠ CAUTION

Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

⚠ WARNING



Electric shock hazard and danger of explosion. Can cause injury, death or product or property damage. Turn off gas and electrical power to unit before performing any maintenance or servicing operations on the unit. Follow lighting instructions attached to unit when putting unit back into operation and after service or maintenance.

Before replacing a compressor, perform checkout procedures outlined below to make sure compressor is inoperative. A replacement charge will be made on returned compressors which, in the opinion of the manufacturer, are in satisfactory working condition.

Compressors can be safely replaced at low ambient conditions provided good refrigeration practices are observed (i.e. Prevent water from entering system; purge system and lines with dry nitrogen; and evacuate properly).

Compressor Failure Check

Compressor failures fall into two general classifications: electrical or mechanical. Use the following steps to determine the type of failure:

A-Electrical Check

- 1- Check thermostat for a cooling demand and make sure compressor contactor is energized. If not energized check all fuses. If fuses ok, check safety circuit components. Each safety circuit component should be closed. If a control is open, determine if inoperative and replace if necessary. If contactor is energized proceed to step 2.
- 2- Check for correct voltage on both line and load side of compressor contactor.

WARNING

Danger of personal injury. Do not apply voltage to the contactor and the compressor when the terminal cover is removed.

- 3- Check for correct voltage at compressor terminals.
- 4- Check for open or shorted compressor motor windings and/or open motor protector contact. Shut off main disconnect. Remove power wiring from compressor terminals. Using an ohmmeter set on 10K ohm scale, check compressor motor windings as illustrated in figure 1.
- 5- Reconnect power wiring to compressor.

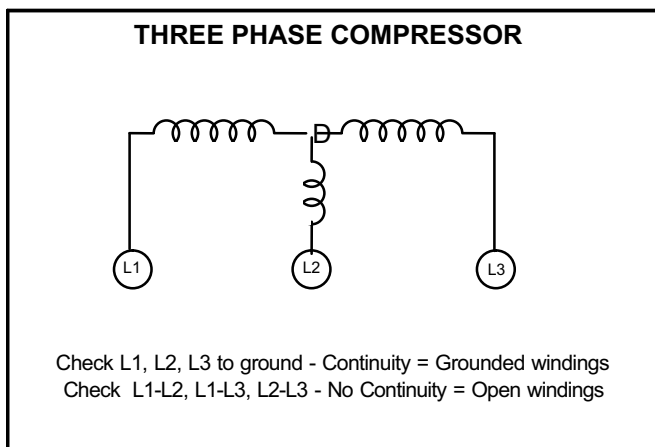


FIGURE 1

B-Mechanical Check

Mechanical failures are generally signalled by one of the following: compressor is frozen or stuck; compressor will not pump; or compressor is noisy.

Removal of Inoperative Compressor

IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC's and HCFC's) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for non-compliance.

CAUTION - Contaminated refrigerant and oil could contain heavy concentrations of hydrochloric and hydrofluoric acid. Avoid contact with skin or clothing. Do not breath any of the gases being discharged.

IMPORTANT - Be extremely careful when determining if refrigerant is salvageable. In cases where salvaging is questionable, the risk of future compressor failure may be lessened if contaminated refrigerant is removed from service.

Several kits are available to check acid content of refrigerant to determine severity of burnout.

Recover all refrigerant from system and do not reuse.

- 1- Disconnect all power to unit.
- 2- Mark and disconnect wiring at compressor.
- 3- Remove pressure switch(es) from tubing to be replaced.
- 4- Cut or unsweat plumbing as shown in figure 2.
- 5- Remove Tecumseh SF compressor and accumulator from unit.

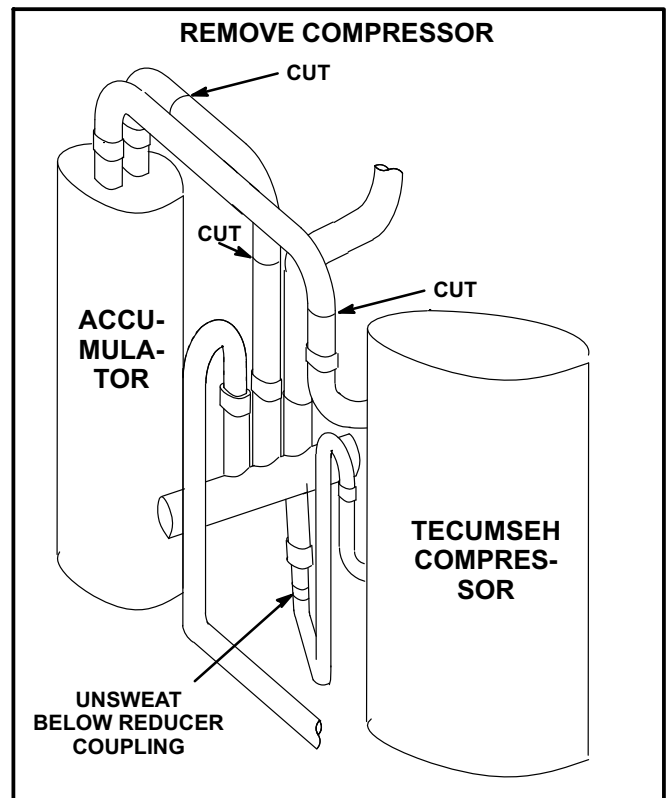


FIGURE 2

Installation

- 1- Position replacement compressor in unit with discharge stub facing left. See figure 3.
- 2- Use holes from previous compressor and hardware provided with the new compressor to secure new compressor in place. Tighten compressor mounting bolts to 36 ft. lbs.
- 3- Install plumbing as shown in figure 3 without brazing. Make any tubing length adjustments required for fit-up. Braze all joints.
- 4- Re-install pressure switches and valve cores.
- 5- Install discharge thermostat (S5 for compressor 1

and S8 for compressor 2) within 6 inches of the compressor. Wire in series with appropriate S4 or S7 high pressure switch. See wiring diagram provided in this kit and figure 4.

WARNING



Danger of explosion. Can cause injury, death or equipment damage.
When using dry nitrogen, use a pressure-reducing regulator set at 150 psig (1034 kPa) or less to prevent excessive pressure.

- 6- Replace any liquid line driers with a new field-provided drier. Size drier to field replacement criteria (approximately twice the size of OEM driers).

PLUMB COPELAND COMPRESSOR

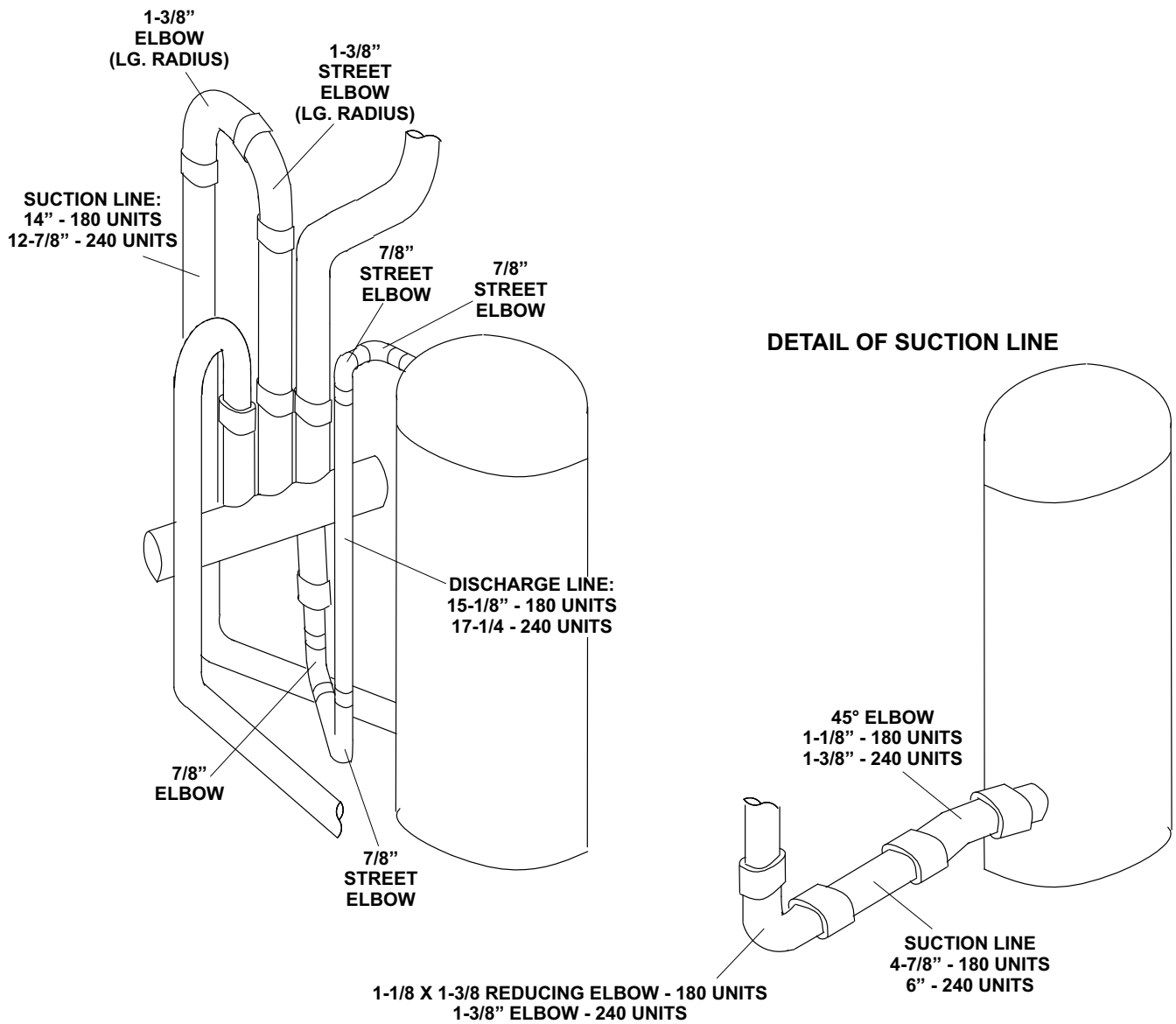


FIGURE 3

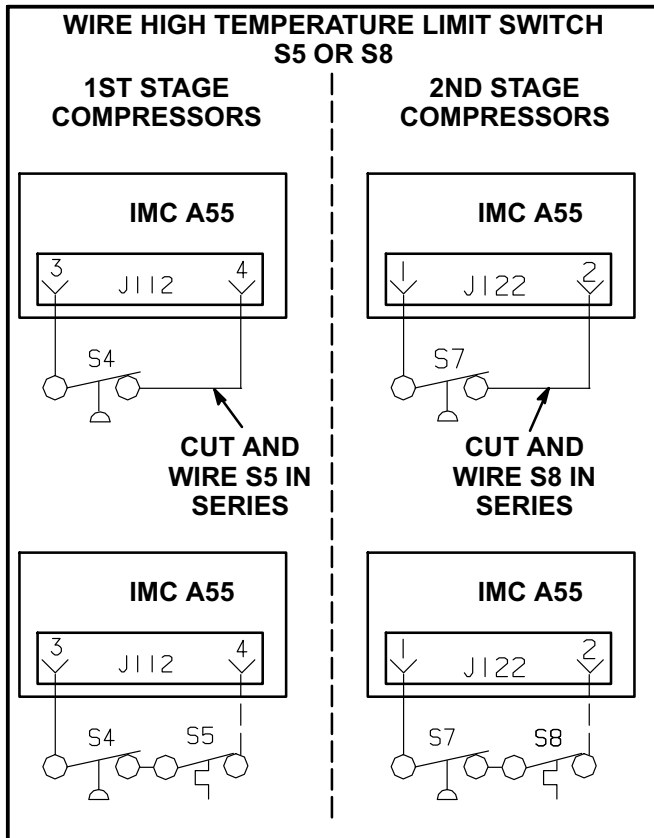


FIGURE 4

- 1- Evacuate system to an absolute pressure of .92 inches of mercury, 23mm of mercury, or 23,000 microns.
- 2- After system has been evacuated to absolute pressure described above, close manifold valve to center port.
- 3- Stop vacuum pump and disconnect from gauge manifold. Attach a drum of dry nitrogen to center port of gauge manifold, open drum valve slightly to purge line, then break vacuum in system to 3 psig (20.7 kPa) pressure by opening manifold high pressure valve to center port.
- 4- Close nitrogen drum valve, disconnect drum from manifold center port and release nitrogen pressure from system.
- 5- Reconnect vacuum pump to manifold center port hose. Evacuate system to an absolute pressure less than .197 inches of mercury, 5mm of mercury, or 5,000 microns, then turn off vacuum pump. If absolute pressure rises above .197 inches of mercury, 5mm of mercury, or 5,000 microns within a 20-minute period after stopping vacuum pump, check for leaks and repeat evacuation. If not, evacuation is complete. If excessive moisture is present, evacuation process may be required more than once.
- 6- After evacuation has been completed, close gauge manifold service valves. Disconnect vacuum pump from manifold center port and connect refrigerant drum. Pressurize system slightly with refrigerant to break vacuum.

Leak Test

Pressurize system to 150 psig using dry nitrogen. Check lines and connections for leaks.

NOTE - If electronic leak detector is used, add a trace of refrigerant to nitrogen for detection by leak detector.

⚠ WARNING



Danger of explosion. Can cause injury, death or equipment damage.

Do not use oxygen to pressurize the refrigerant system. Oxygen and oil can combine to cause an explosion.

Evacuation And Dehydration

⚠ CAUTION

Danger of equipment damage.

Avoid deep vacuum operation. Do not use compressors to evacuate a system. Extremely low vacuums can cause internal arcing and compressor failure.

Damage caused by deep vacuum operation will void the warranty.

Wiring

Perform the following wiring for all units. Refer to wiring sticker in this kit.

- 1- Reconnect compressor wires to compressor terminals. Install terminal cover.
- 2- Reconnect wires from pressure switch(s), if removed.
- 3- Secure all wiring away from discharge line and compressor with wire ties furnished in kit.
- 4- Wire crankcase heaters as shown in wiring diagram provided in kit.
- 5- Affix wiring diagram sticker to unit panel near existing wiring diagrams.

Compressor Phasing

Three Phase Scroll Compressor Voltage Phasing

Three phase scroll compressors must be phased sequentially to ensure correct compressor and blower rotation and operation. Compressor and blower are wired in phase at the factory. Power wires are color-coded as follows: line 1-red, line 2-yellow, line 3-blue.

- 1- Observe suction and discharge pressures and blower rotation on unit start-up.
- 2- Suction pressure must drop, discharge pressure must rise, and blower rotation must match rotation marking.

If pressure differential is not observed or blower rotation is not correct:

- 3- Disconnect all remote electrical power supplies.
- 4- Reverse any two field-installed wires connected to the line side of S48 disconnect or TB13 terminal strip. Do not reverse wires at blower contactor.
- 5- Make sure the connections are tight.

Discharge and suction pressures should operate at their normal start-up ranges.

Charging

Charge system according to charging procedure sticker on unit.

Start-Up And Run-Check

- 1- Before starting new compressor, check contacts on starter or contactor and replace, if needed.

IMPORTANT

Crankcase heater should be energized 24 hours before unit start-up to prevent compressor damage as a result of slugging.

- 2- Set thermostat for a cooling demand.
- 3- Check that compressor amps and volts match values listed on compressor nameplate.
- 4- **In applications where a major burn-out has occurred or where a replaceable filter/drier element has been installed in clean-up kit:**
Check pressure drop across filter/drier in clean-up kit. The initial pressure drop should be approximately 2 to 3 psi. If pressure drop increases to between 9 and 10 psi, replace filter/drier cartridge. Repeat until pressure drop remains steady at 2 to 3 psi.
After approximately 48 hours of run-time, an oil sample should be taken and an acid test made. If oil proves acid-free and clean, pump system down, remove filter/drier element from shell of clean-up kit, and replace with fresh filter/drier element. If acid is still present in oil sample, replace liquid and suction line filter/driers. Repeat until system is contaminant-free.
- 5- Install seal caps on unused pressure tap fittings.
- 6- Complete return goods tag. Be sure to include model number and serial number.