Installation Instructions

Liquid-Line Solenoid Valve

KAALS KHALS

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

This symbol → indicates a change since the last issue.

SAFETY AND CONSIDERATIONS

Installing and servicing air conditioning equipment can be hazardous due to system pressures and electrical components. Only trained personnel should install or service air conditioning equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils, or cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on air conditioning equipment, observe precautions in the literature, on tags, and on labels attached to the unit.

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.

Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available.

⚠ WARNING: Before beginning any installation or modification, be sure the main electrical disconnect switch is in the OFF position. TAG THE DISCONNECT SWITCH WITH A SUITABLE WARNING LABEL. Electrical shock can cause personal injury or death.

INTRODUCTION

This instruction covers the installation of liquid-line solenoid valve kit Part No. KAALS0101LLS and KAALS0201LLS on air conditioners and Part No. KHALS0101LLS and KHALS0401LLS on heat pumps. Kit Part No. KAALS0201LLS and KHALS0401LLS are specifically designed to operate with R-410A refrigerant. **Do not use kit Part No. KAALS0101LLS or KHALS0101LLS with R-410A refrigerant.** However, kit Part No. KHALS0401LLS may be used for both R-22 and R-410A heat pump (only) applications.

→ **Table 1—Liquid Line Solenoid Kit Usage**

	AIR CONDITIONER	HEAT PUMP
R-22	*KAALS0101LLS	*KHALS0101LLS or KHALS0401LLS
R410a	*KAALS0201LLS	KHALS0401LLS

* Used on single-speed units only

The single-flow solenoid valve is for air conditioner applications. The bi-flow solenoid valve is for heat pump applications. **Do not use the air conditioner solenoid valve on heat pumps.**

→ **NOTE:** The installation of some units requires the use of a hard shut-off TXV. In these applications, a solenoid valve may or may not be necessary. Refer to the equipment Installation Instructions and the Application Guideline and Service Manual, or consult your distributor for location and flow arrow direction.

DESCRIPTION AND USAGE

The liquid-line solenoid valve closes when the thermostat demand is satisfied to prevent liquid refrigerant migration. This device is for use in long-line applications.

NOTE: Refer to condensing unit or heat pump Installation Instructions for detailed control wiring.

→ **NOTE:** For single-speed units, an accessory start capacitor and relay is required when using the liquid-line solenoid valve with single-phase single speed compressors. Two-speed units contain a start capacitor and relay as standard components.

INSTALLATION

NOTE: For use in long-line applications, refer to the Long-Line Application Guideline for locations and flow arrow direction. The Long-Line Application Guidelines are found in the Application Guideline and Service Manual.

⚠ CAUTION: A field-supplied 60-va control power source may be necessary when adding the solenoid valve. Determine transformer loading prior to installation. Wiring must comply with local and National Electrical Code (NEC) requirements.

Form: AG-AALS-05 Cancels: AG-AALS-04 Printed in U.S.A. 5-01 Catalog No. 63AA-LS1

PROCEDURE 1—AIR CONDITIONING APPLICATION OR HEAT PUMP COOLING ENHANCEMENT

1. Remove clip holding solenoid coil on valve assembly and slide coil off valve stem.
2. Wrap solenoid valve body with wet cloth to prevent distortion from heat.
3. Remove and discard solenoid valve end caps. Braze solenoid valve in liquid line within 2 ft of indoor coil. Solenoid valve flow arrow must point toward indoor coil.
4. Reinstall solenoid coil and retainer clip. Solenoid valve must be mounted with coil above valve body. (See Fig. 1.)

PROCEDURE 2—HEAT PUMP APPLICATION HEATING ENHANCEMENT OR HEAT PUMP LONG LINE APPLICATION

1. Cut liquid line within 2 ft of outdoor unit (depending on application).
2. Place 3/8-in. flare nuts on cut ends of liquid line and flare both ends.
3. Remove and discard solenoid valve end caps, then connect flare nuts to solenoid valve assembly. Solenoid valve must be mounted with coil above valve body. (See Fig. 2.) Also, arrow on valve body must point toward outdoor unit.

NOTE: When solenoid valve is de-energized (closed), refrigerant flow will be stopped only in the direction of the flow arrow on the valve body.

PROCEDURE 3—WIRING

→ Solenoid coil must be wired into 24-v control circuit so coil is energized (open) with outdoor unit. For single-speed units, wire solenoid coil between Y (contactor) and C (common) terminals. (See Fig. 3.) For two-speed units, two single-pole, single throw relays are required to be wired per Fig. 4. The liquid line solenoid valve must be wired between relay contacts and C (common) terminals. (See Fig. 4.)

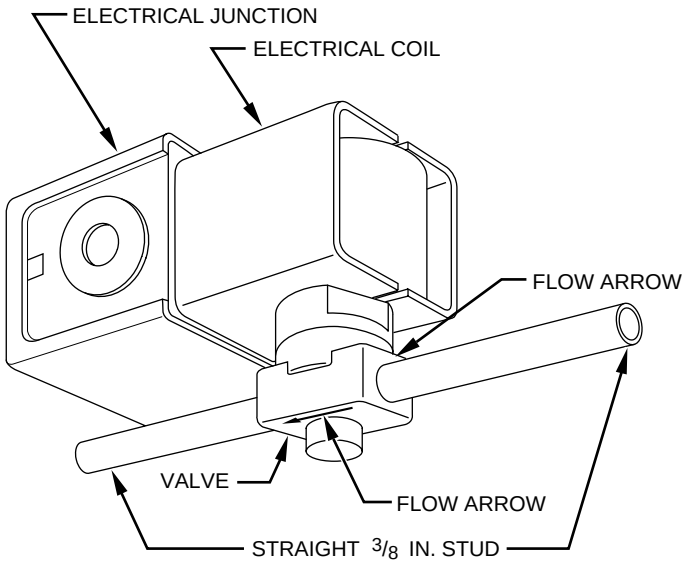

Fig. 1—Air Conditioner Solenoid Valve

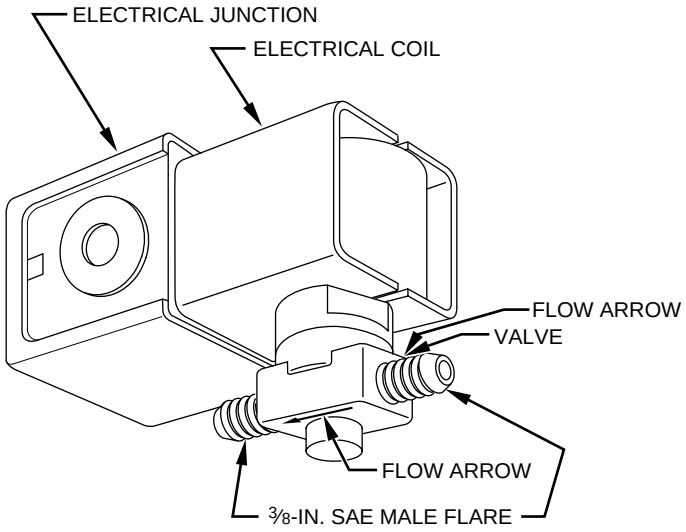

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Fig. 2—Heat Pump Solenoid Valve

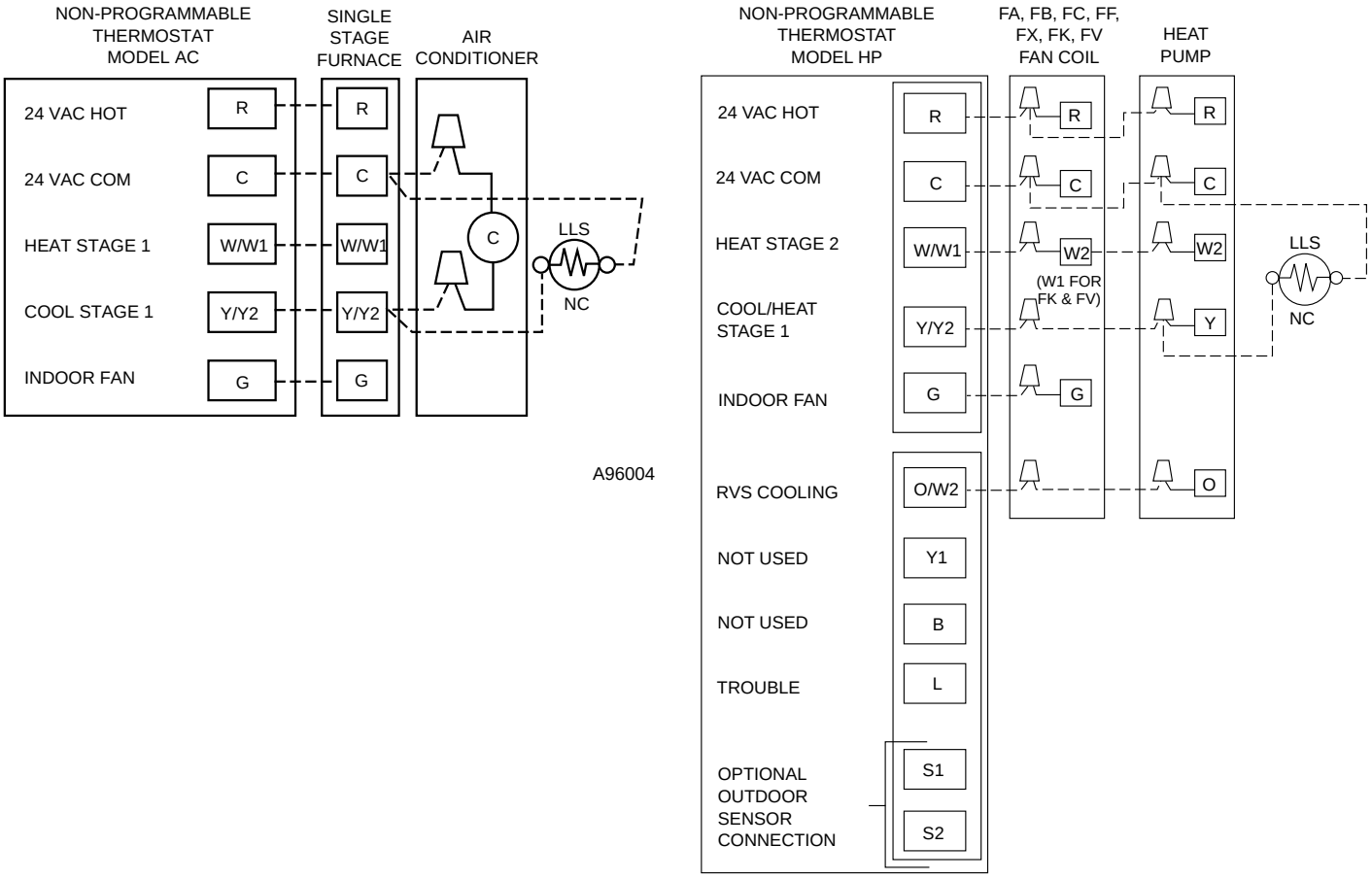

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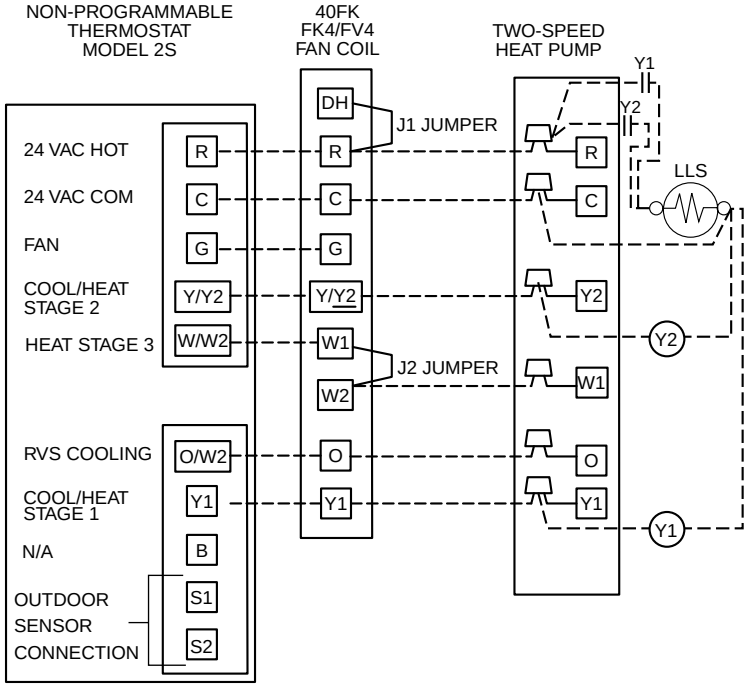
Fig. 3—Typical Solenoid Valve Wiring



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→ **Fig. 4—Typical Solenoid Valve Wiring (Two-Speed Units)**