Installation PART-IN-146B

Library	**Service Literature**
Product Section	**Service Products**
Product	**Parts**
Model	**ABSB, ABSC, ABTD, ABTE**
Literature Type	**Installation**
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Installation of Replacement Classic Absorption Pump Motors, MOT09999, MOT10000, MOT10001, MOT10412, MOT10413 and MOT10414

⚠ WARNING!
High Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

⚠ WARNING!
Heavy Objects

Use proper lifting methods when moving heavy components. Failure to properly lift unit may result in death or serious injury.

Since Trane has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice. Only qualified technicians should perform the installation and servicing of equipment referred to in this publication.

Installation

Proper solution pump motor installation procedures and techniques can be found in the Installation and Operator's Manual. For additional reference of proper motor installation, refer to ABS-SG-1 or ABS-SG-2. This document will not cover general motor installation practices. It will cover only issues that change as a result of replacing an original solution pump motor manufactured by Franklin Electric with a new sequence of motor manufactured by Peerless Electric. This document relies heavily on the most current versions of PART-SVB02A-EN and PART-SVB03A-EN (formerly PB-GB-97 and PB-GB-98) for parts selection. A motor replacement should not be attempted without consulting PART-SVB02A-EN or PART-SVB03A-EN.

Note: The most current version of PART-SVB02**A**-EN and PART-SVB03**A**-EN is notated by the letter in bold print. This letter will change with each revision. You can search Eagle for the most up-to-date version by typing in an asterisk (*) in place of the bold letter.

While the replacement motor is a functional substitute, there are several differences in design that mandate changes to the machine during installation. Most of these changes are electrical in nature. The replacement motor has a higher current draw than the original. This change creates a ripple effect than can affect contactors, auxiliary contacts, overloads, current transformers, UCP2 settings, disconnects, and wire sizes. The replacement motors use multi-voltage windings to replace single-voltage windings. This necessitates minor wiring changes at the motor. Uncommon voltages will need to be transformed in order to operate. Additionally, minor physical modifications will be required or recommended for all units. Consult PART-SVB02A-EN or PART-SVB03A-EN to see which changes are needed for the unit in question. Use PART-SVB02A-EN for all units with a UCP2 control panel. Use PART-SVB03A-EN for all units with a pneumatic control panel.

Kill all power to the unit before beginning motor change out.

Check pump seals to verify that the seals do not leak. Correct any pump seal problems before proceeding. Follow the procedures specified in the Owner/Operator's manual, ABS-SG-1 or ABS-SG-2.

Physically replace the motor using the methodology specified in the Owner/Operator's manual, ABS-SG-1 or ABS-SG-2.

Note 1: The motor is symmetrical and can be positioned in 12 different orientations. It is recommended that the motor be mounted with the junction box at the 3:00 position when viewed from the motor lead end. This will allow easy access to the junction box, easy viewing of the motor nameplate, easy installation of the motor cooling line without interfering with the junction box, and will not allow condensate to drip into the junction box.

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Note 2: If the unit is a Model B absorber, do NOT use the original hex head cap screws to secure the motor to the pump. The hex head cap screws cannot be adequately tightened on the new mounting flange. This could result in leaking seals or more significant motor and pump damage. Use the socket head cap screws included with the motor to replace hex head cap screws.

Note 3: The replacement motor shell will run substantially hotter than the original. It is fairly common field practice to insulate the solution pump motor. This should NOT be done to the replacement motor. The original motor housing typically reached a steady-state temperature below the ambient temperature, which could result in condensation. The replacement motor should reach a steady state temperature above the ambient temperature. Therefore, condensation should not be an issue, and insulation simply raises the motor winding temperatures. Therefore, these replacement motors should not be insulated.

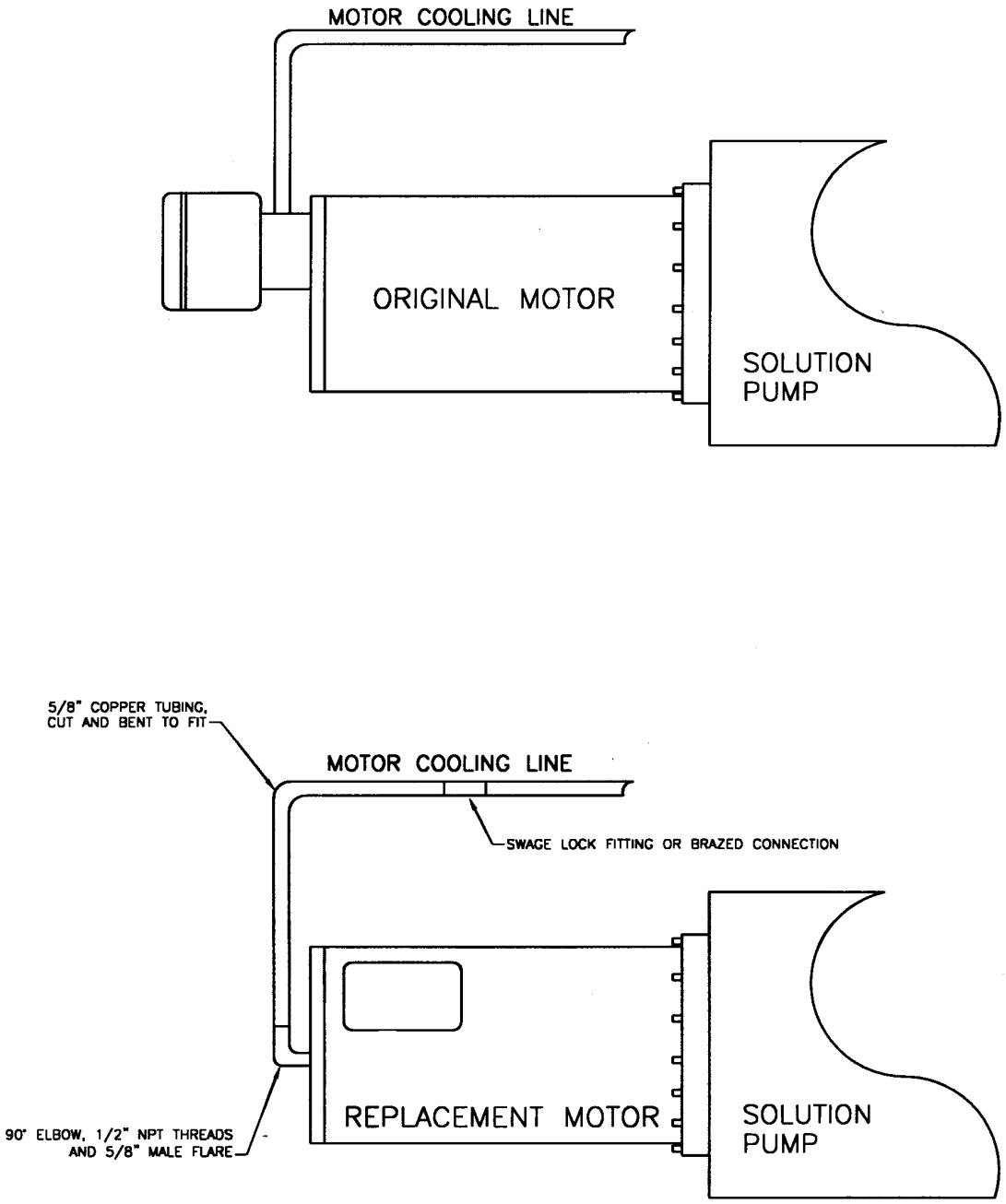
Installation

Cooling System Modification

The location of the motor cooling line changes on the motor. It was originally located on the side of the motor rear endbell with a vertical orientation. It is now located in the middle of the rear endbell in the horizontal orientation.

The most direct means of reconnecting the cooling line is as shown in the following diagram:

Figure 1 — Reconnection of the Cooling Line



Installation

Electrical System Changes

Contactor

The motor contactor may be inadequately sized for the new motor. The contactor rating must be equal to or greater than the Full Load Current (FLA) listed on the nameplate of the motor. This information is provided in PART-SVB02A-EN or PART-SVB03A-EN. If the contactor rating is less than the motor FLA, the contactor must be replaced with a larger contactor. If a voltage transformer is being used with the motor, see the section entitled 'Voltage Transformer' before proceeding.

The contactor should be wired to the motor for clockwise rotation viewed from the lead end with the following phase sequence 1-A, 2-C, 3-B. If the pump cavitates substantially at startup, the pump is likely running backwards and 2 leads should be reversed.

Auxiliary Contacts

The contactor may have been equipped with an auxiliary contact. This auxiliary may not be compatible with a new contactor, and may need to be replaced. Refer to PART-SVB02A-EN or PART-SVB03A-EN for appropriate auxiliary, if any, and replace as necessary.

Voltage Transformer

The vast majority of units will not require a voltage transformer. A voltage transformer will be required for rare voltage and frequency combinations called out in the "Special Case" selection of PART-SVB02A-EN and PART-SVB03A-EN. The transformer should be installed *upstream* of the contactor. Installation of the transformer downstream of the contactor will shorten contactor life and could cause the contactor selected in PART-SVB02A-EN or PART-SVB03A-EN to be inadequately sized.

Disconnects, Circuit Breakers, and Fuses

The unit will have a fused disconnect, non-fused disconnect, or a circuit breaker. This component may have to be replaced. If the component is a fused disconnect, replace all 3 fuses as necessary. Trane recommended component parts selection is only valid for factory installed units or units with no additional load on the disconnect, circuit breakers or fuses.

Power Line Sizing

The power line sizing may be inadequately sized. If it is not sized correctly, replace all wiring, from the power supply to the motor, with the wire size as called out in PART-SVB02A-EN or PART-SVB03A-EN. The wire must have insulation rated at 75° C or higher.

Installation

Overloads

UCP2 Units

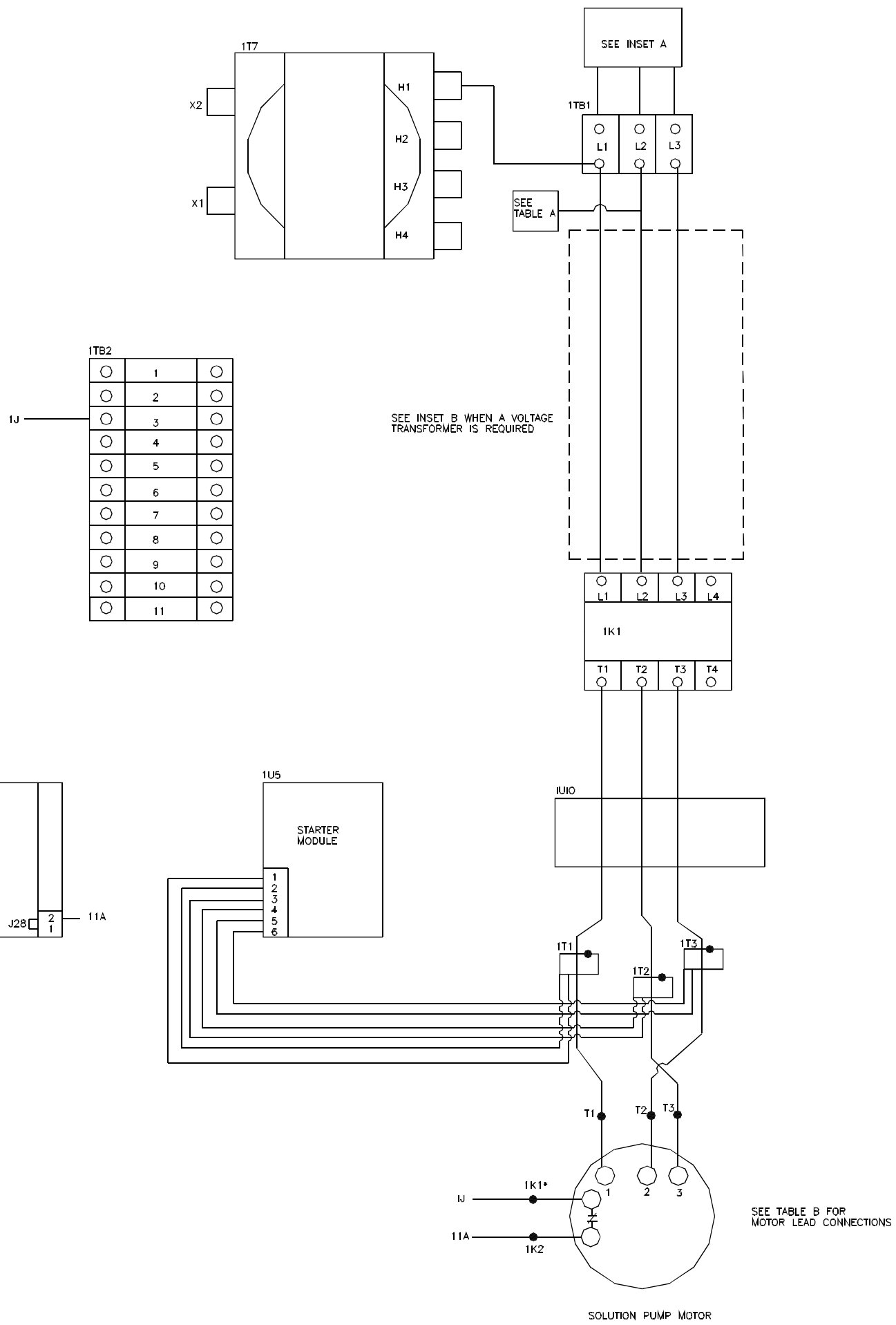
Units with factory-installed or field-converted UCP2's may require changes to the current transformers, the number of turns through the transformer, or the motor overload settings. Replace the current transformers as necessary as called out in PART-SVB02A-EN. Be certain to maintain the same polarity as the original current transformers and use the number of turns called out in PART-SVB02A-EN. Reprogram Current Transformer Overload Settings #1 and #2 with the values specified in PART-SVB02A-EN. Failure to make these changes could result in inadequate motor protection, serious motor damage, or nuisance trips.

PRE UCP2 UNITS

Units without UCP2 control panels will require changes to the motor overload. The original motor overload was an overload relay with overload heaters. Due to changes in the motor and variations between units, it is difficult to select an appropriate overload heater. Therefore, the overload relay and heater should be replaced with the adjustable solid-state overload relay called out in PART-SVB03A-EN. To set this relay, adjust the dial to the full load amp rating (FLA) stamped on the motor nameplate or as called out in PART-SVB03A-EN. This overload is internally compensated to cut out at 125% of rated nameplate amps. It will be common for new motors to draw current in the service factor range, up to 15% above rated FLA. Do not adjust the overload setting above the FLA rating. Adjusting the overload to the actual current draw above full load current could cause the motor to be inadequately protected and violate national and local electric codes

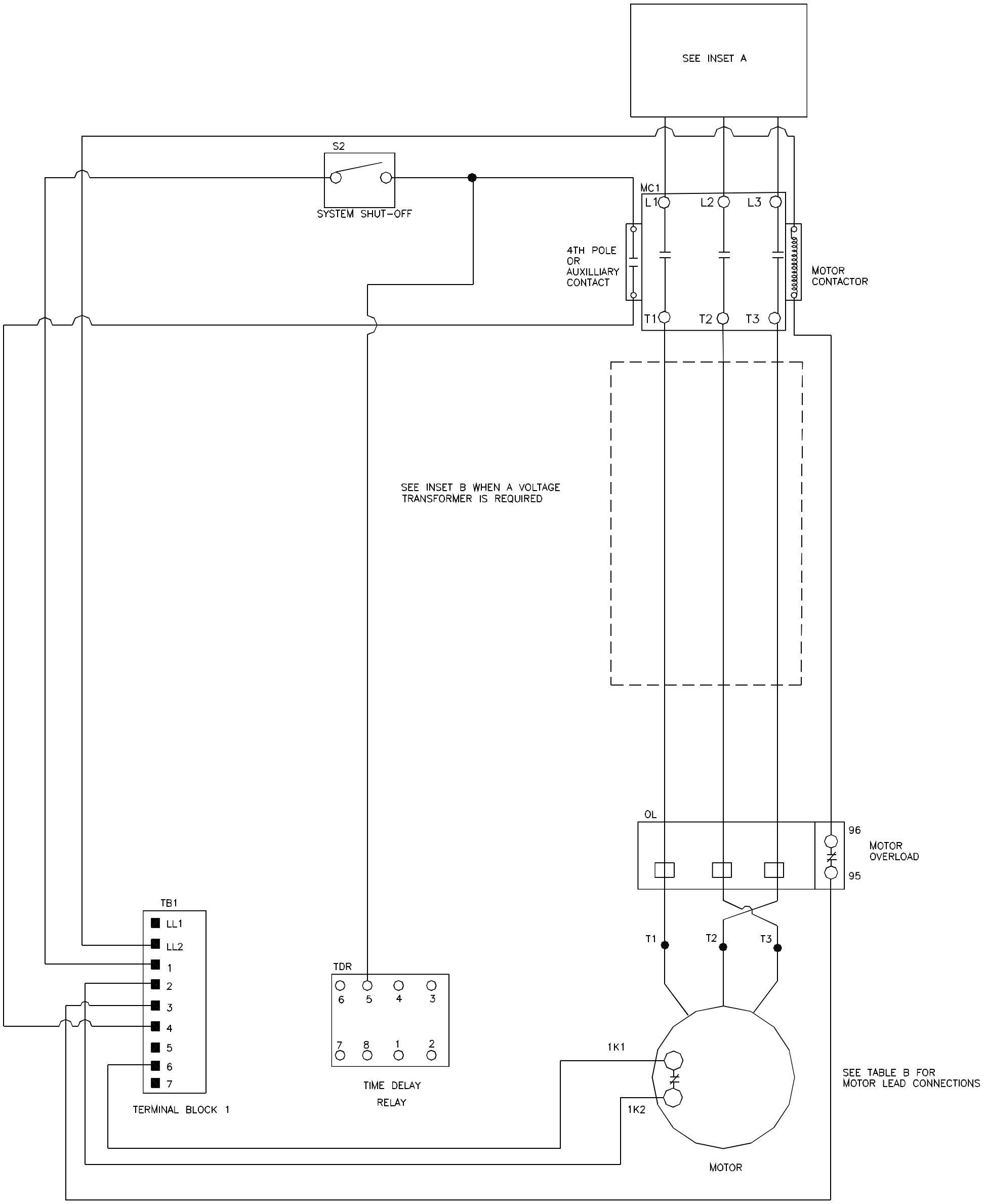
NOTE: FLOOD THE MOTOR CAVITY WITH AN EXTERNAL WATER SUPPLY BEFORE STARTING THE MOTOR. STARTING THE MOTOR IN THE DRY STATE CAN CAUSE EXCESSIVE BEARING DAMAGE AND WEAR.

Figure 2 — UCP2 Wiring Layout



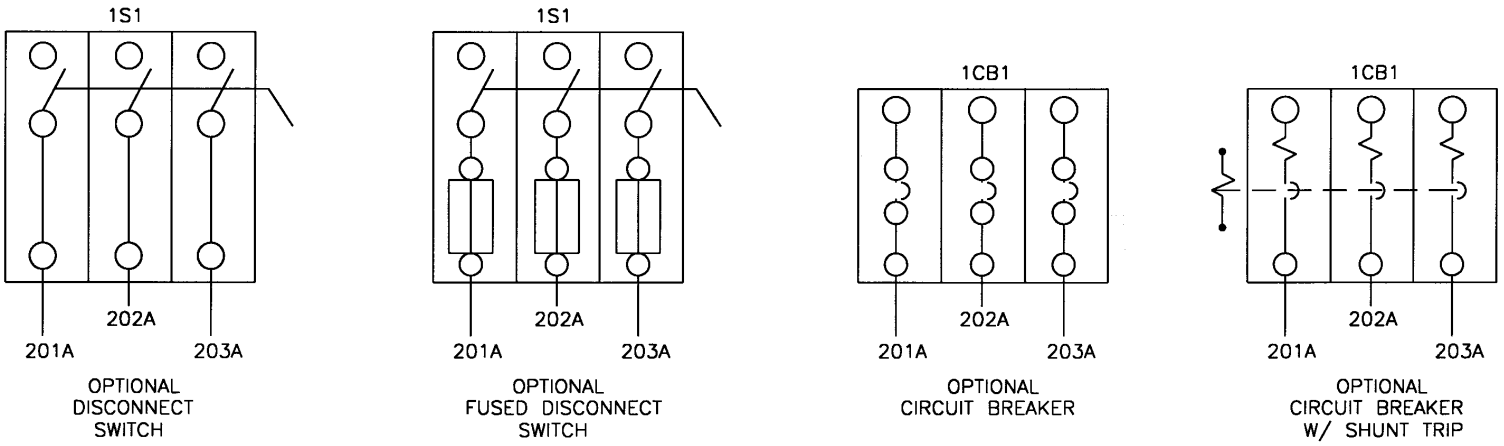
*** Note:** The motor contactor and one of the motor temperature protector leads are both designated as 1K1. This is due to a manufacturing change and could cause confusion. The 1K1 motor protector lead should be connected to terminal block 1TB2.

Figure 3 — Pre UCP2 Wiring Layout



Installation

Inset A



Inset B

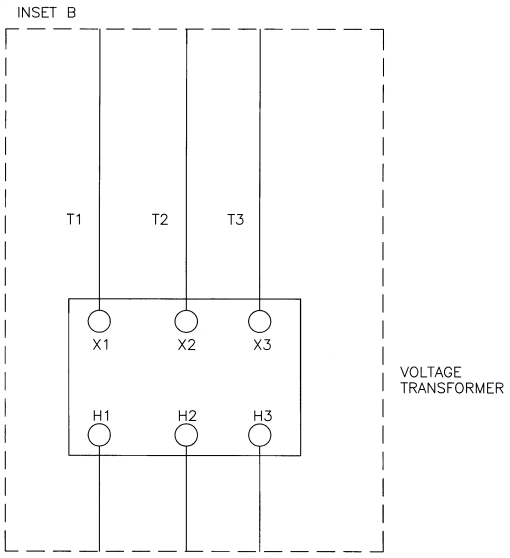


Table A

Line Voltage	Connection
200 - 60 Hz	H1 and H2
230 - 60 Hz	H1 and H3
460 - 60 Hz	H1 and H4
575 - 60 Hz	H1 and H2
190 - 50 Hz	H1 and H2
220 - 50 Hz	H1 and H2
380 - 50 Hz	H1 and H3
415 - 50 Hz	H1 and H4

Table B

Motor Operating Voltage	Motor Lead Connections
190, 200, 220, 230	(1,7) (2,8) (3,9) (4,5,6)
380, 415, 460, 480	(4,7) (5,8) (6,9)