
KNIGHT

IDEX

IDEX CORPORATION



UPL-1100 &1200 Series Instruction Manual

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CAUTION: The dispenser has high voltage connected to the transformer. Always disconnect main power when servicing the unit.

THEORY OF OPERATION

The UPL-1100 & 1200 Series Probeless warewash dispenser was designed to dispense liquid warewashing chemical to door and conveyor type dishwashing machines by using a simple timer control to meter precise amounts of detergent to the dishwasher.

A single electronic circuit board controls two injection amounts of product that are delivered to the washtank via a peristaltic pump. The injection amounts are set by two easy-to-adjust potentiometers.

- The “charge” injection of detergent achieves working concentration in the washtank upon initial use of the dishwasher.
- The “recharge” injection maintains concentration in the washtank throughout the continued operation of the dishwasher.

For installations that require automatic charge and recharge, two signals must be connected from the dishwasher. Normally, initial charge is triggered by the power-on switch, heater switch, or heater contactor — recharge is triggered by the final rinse valve, or any other device that is activated during the dishwasher rinse cycle.

A manual “charge” can be achieved by use of an (optional) momentary prime switch located on the side of the dispenser cabinet.

OPERATION

When the dispenser is powered up, the initial charge amount will automatically be injected. The initial charge can be manually triggered by the push button on the outside of the dispenser, or by cycling power to the dispenser off/on.

Manually triggering the initial charge is the easiest way to prime the pump. Repeat as needed until the pickup tubing and discharge tubing are completely full of chemical.

During the dishwasher operation, the recharge amount will be injected whenever the recharge signal is applied (from the rinse solenoid, contactor, etc).

The recharge signal must end in order for the next recharge signal to inject chemical. This is normal for door-type machines, however most conveyor machines send the signal continuously when racks are washed back-to-back.

INSTALLATION

CAUTION: Mounting the dispenser on the side, on the back, or on the vents of the dishwasher may cause thermal overload, or damage, to the dispenser. Do not mount the dispenser in the direct path of steam. This can short circuit and permanently damage the dispenser.

- CAUTION: Application of incorrect voltage can permanently damage the dispenser and is not covered under warranty.
- CAUTION: Rigid or Flexible conduit, should be installed in accordance with local electrical codes, should be used to ensure safety and reliable operation.

NOTE: An optional mounting bracket is available for mounting the dispenser on top of the dishwasher, if desired.

- (1) Mount the unit on a wall in a convenient location near the dishwasher and not more than three feet from the final rinse line.
- (2) Use a meter to check the dishwasher for a power source that will be used as the main power connection to the dispenser — make sure that it matches an available input voltage of the dispenser (see wiring diagram).

Use a power source that is “on” when the dishwasher is powered up, such as the contactor that controls main power, or the contactor that controls the booster heater.

- (3) Use a meter to check the dishwasher for a power source that will be used as the recharge signal to the dispenser — make sure that it matches the acceptable signal input voltage range (see wiring diagram).

Use a power source that is “on” during the final rinse cycle of the dishwasher, such as the rinse solenoid valve, or contactor.

Remove power from the dishwasher before continuing on to the next step.

- (4) Connect main power leads from the dishwasher to the proper terminals on the wiring barrier inside the dispenser.
- (5) Connect recharge signal leads from the dishwasher to the proper terminals on the circuit board inside the dispenser.

DETERGENT FEED CONNECTION

NOTE: A 7/8” hole is required for installing the detergent injection fitting on the wall of the washtank, preferably above the water line. If the dishwasher does not already have a hole (may have a knock-out plug) create one using a 7/8” punch or hole saw.

If the dishwasher already has a suitable detergent injection fitting (that will accept the poly tubing provided with the dispenser) then a 7/8” hole is not needed and step 1 can be skipped.

- (1) Install the detergent injection fitting on the wall of the washtank. Use the provided gaskets to seal the connection.
- (2) Install discharge tubing between the discharge (right) side of the peristaltic chemical pump and the detergent injection fitting.
- (3) Install suction tubing between suction (left) side of the peristaltic chemical pump and the pickup tube provided. Be sure to draw tubing through the end of the pickup tube.

RINSE FEED CONNECTION

- (1) Install rinse power leads from the dishwasher to the appropriate terminal on the wiring barrier (see installation diagram) Use a rinse solenoid or other appropriate connection point which is “on” during the rinse cycle.
- (2) Install 1/4” tube X 1/8” NPT rinse injection fitting into the side or bottom of dishwasher rinse line between the rinse solenoid valves and the rinse jets. Drill a 11/32” hole and tape to 1/8” NPT. Use of a saddle clamp may be desired on copper rinse line for better support. Saddle clamps can be used if required.
- (3) Install 1/4” O.D. poly tubing between the discharge (right) tube side of the peristaltic rinse pump and the injection fitting using 1/4” poly compression nuts.
- (4) Install 1/4 O.D. ply tubing between the section (left) tube side and the rinse pickup tube provide. Be sure to draw tubing through the end of the pickup tube.

SETTING THE CHARGE AMOUNT

The charge injection, also called "initial charge", is used to bring a fresh washtank of water up to working concentration.

- (1) The amount of product dispensed is controlled by how long the pump runs.
- (2) Set the charge injection amount by adjusting the CHARGE potentiometer on the circuit board. Turn clockwise to increase, counter-clockwise to decrease the pump run-time.
- (3) Test the charge amount by applying main power to the dispenser, or pressing the manual charge button, and checking the volume dispensed.
- (4) Adjust as needed and re-check.

- Max Charge Time: 120 second
- Min Charge Time: 1 second

SETTING THE RECHARGE AMOUNT

The recharge injection is used to maintain working concentration in the washtank throughout continued operation of the dishwasher.

- (1) The amount of product dispensed is controlled by how long the pump runs.
- (2) Set the recharge injection amount by adjusting the RECHARGE potentiometer on the circuit board. Turn clockwise to increase, counter-clockwise to decrease the pump run-time.
- (3) Test the recharge amount by applying the recharge signal, and checking the volume dispensed.
- (4) Adjust as needed and re-check.

- Max Recharge Time: 30 seconds
- Min Recharge Time: 1 second

SETTING THE RECHARGE TIME

(CONVEYOR version only)

Set the recharge amount and the time between injections by adjusting the RECHARGE AMT and RECHARGE TIME adjustment on the detergent control board.

Example: If the machine washes one rack every 45 seconds, adjust the RECHARGE TIME adjustment to 45 seconds and set the RECHARGE AMT adjustment for the amount of detergent required for recharge.

NOTE: The settings in the above are on only when the rinse solenoid or other rinse signal is active.

Example: Assume the machine washes one rack every 45 seconds. When the rinse signal is activated, the recharge amount is fed into the machine. If the rinse signal is continuously active (meaning that racks are "back to back" inside the machine), the next recharge amount will be fed in 45 seconds.

RINSE SECTION

(If so equipped)

The rinse section of the unit activates when a pressure switch closes or when an electrical signal is received from a rinse signal source on the dishwasher.

The RINSE POWER light is on continuously when power is present on the Rinse circuit. The RINSE FEED light will blink when the pump is feeding chemical. To adjust the speed of the desired pump, turn the speed control clockwise to increase speed and counterclockwise to decrease speed. The speed of the pump should be adjusted so that the best sheeting action is obtained.

The Rinse circuit board is configured with a momentary prime switch to prime the rinse pump. When the prime switch is pressed and held, the pump will run at its maximum speed. When the switch is released the pump will stop running. Press the switch long enough to draw chemical into the line. Power must be present at the Rinse board for the prime switch to operate.

TROUBLESHOOTING

Rinse pump runs but the detergent pump won't.

- Check signal voltage to the dispenser 14 to 240 volts.
- Check for loose signal wires at the detergent board.

No power light on the dispenser.

- Check the outgoing voltage for 24VAC on the secondary side of the main transformer.
- Ensure the voltage from the washer is occurring during the correct cycle operation.

Loss of pump prime or not drawing product.

- Check pickup line for any holes or air leaks.
- Check squeeze tubing for cracks and flexibility.
- Possible bad roller block in pump.
- Pump body could be worn and not allowing rollers to pinch the squeeze tube.

Pumps turn slowly.

- Check roller block for binding.
- Check for proper input voltage.

Rinse pump will not activate

- Check speed adjustment for proper setting
- Verify signal voltage to the signal input.
- Verify voltage from the secondary side of the transformer to the main 24 VAC to board input.
- Verify 24VDC across motor leads.

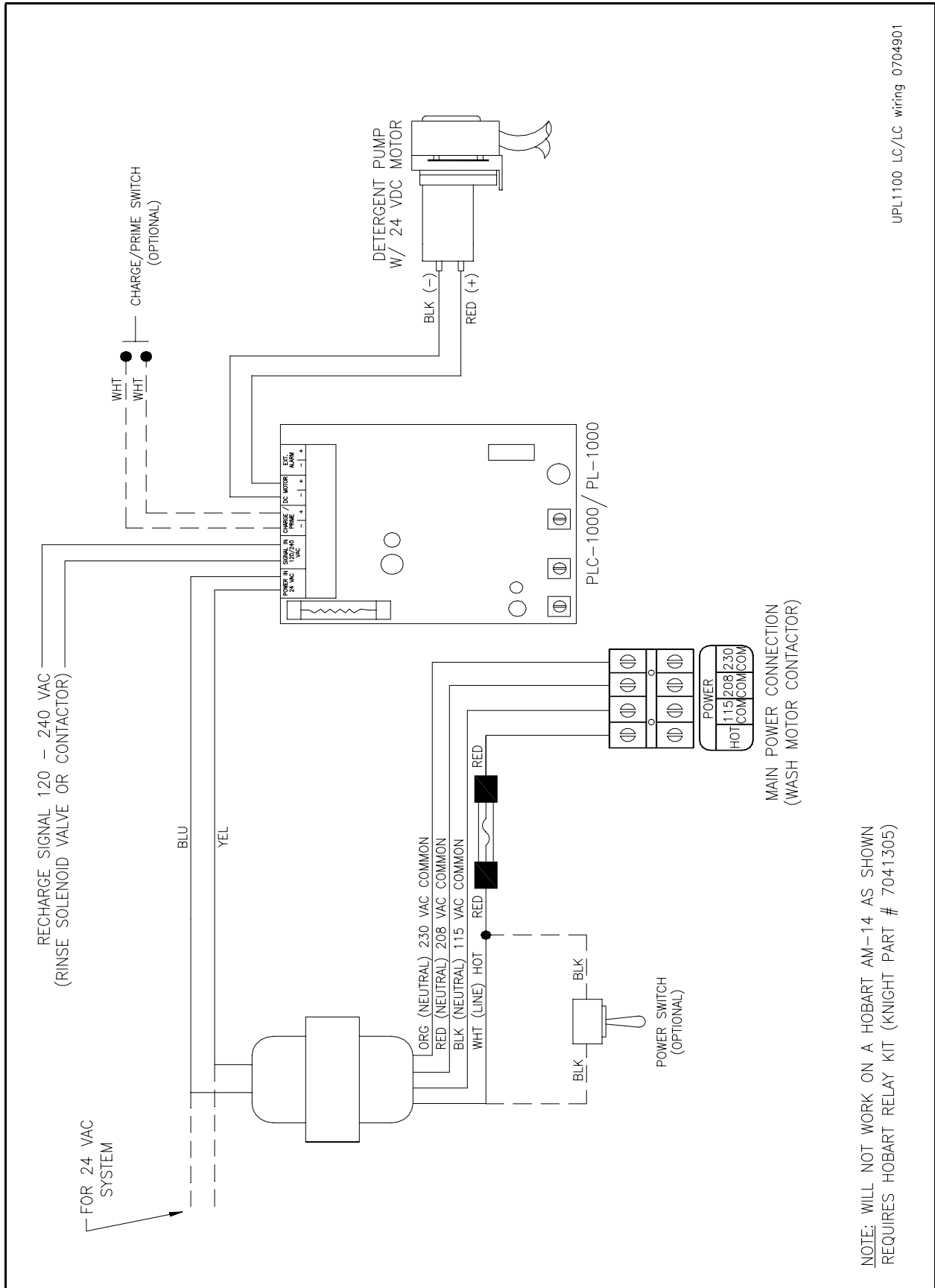
Initial Charge going in every cycle

- Check for loose power wires to the PL /PLC-1000 detergent board.
- Use a different main power source (one that does not turn on/off each cycle)

Keeps blowing fuses.

- Check wiring to main transformer for proper incoming voltage.
- Check transformer secondary side for proper 24VAC output to board.
- Check motors and wires for a dead short from motor.

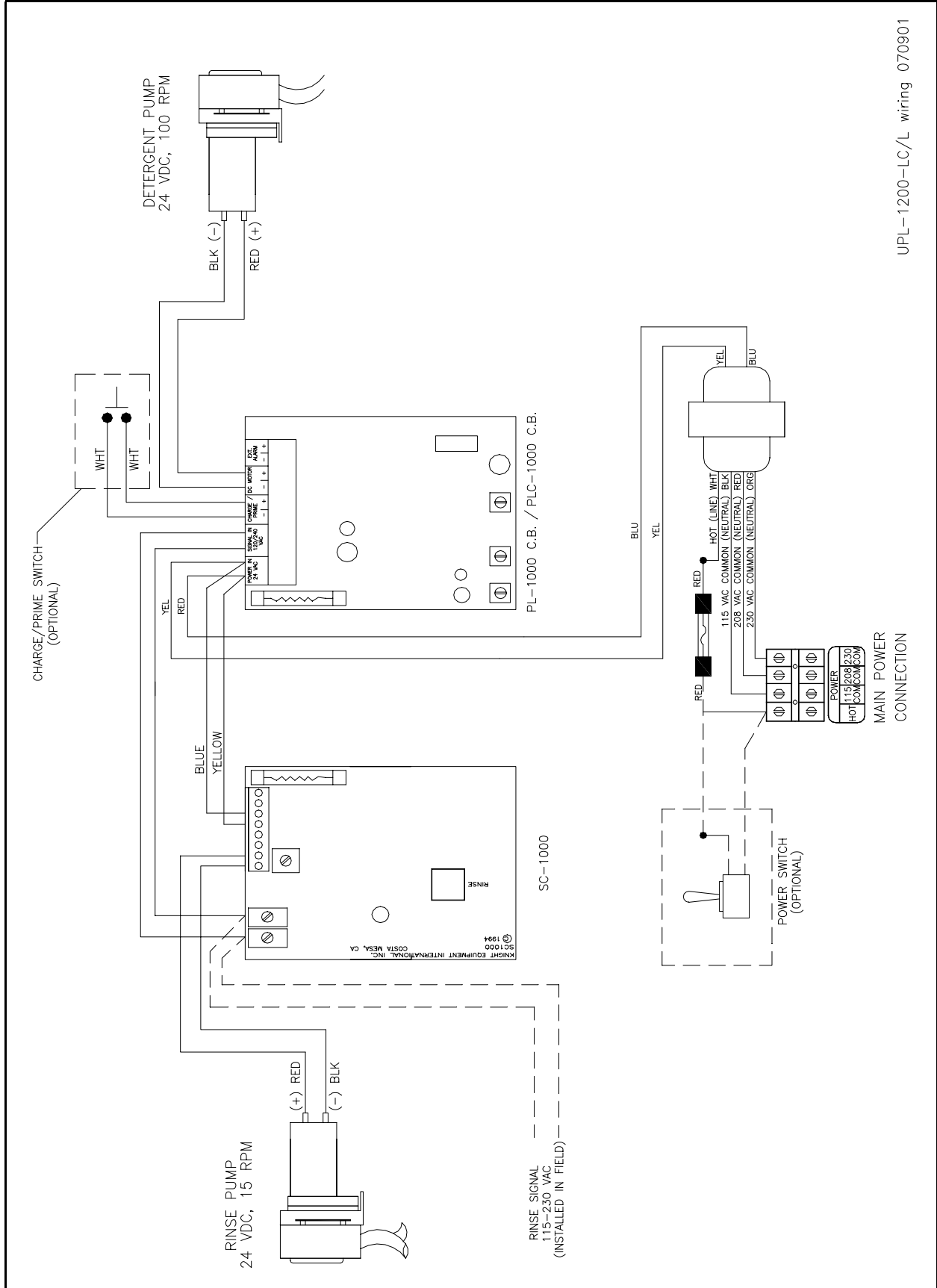
WIRING DIAGRAM UPL-1100-L / LC



UPL1100 LC/LC wiring 0704901

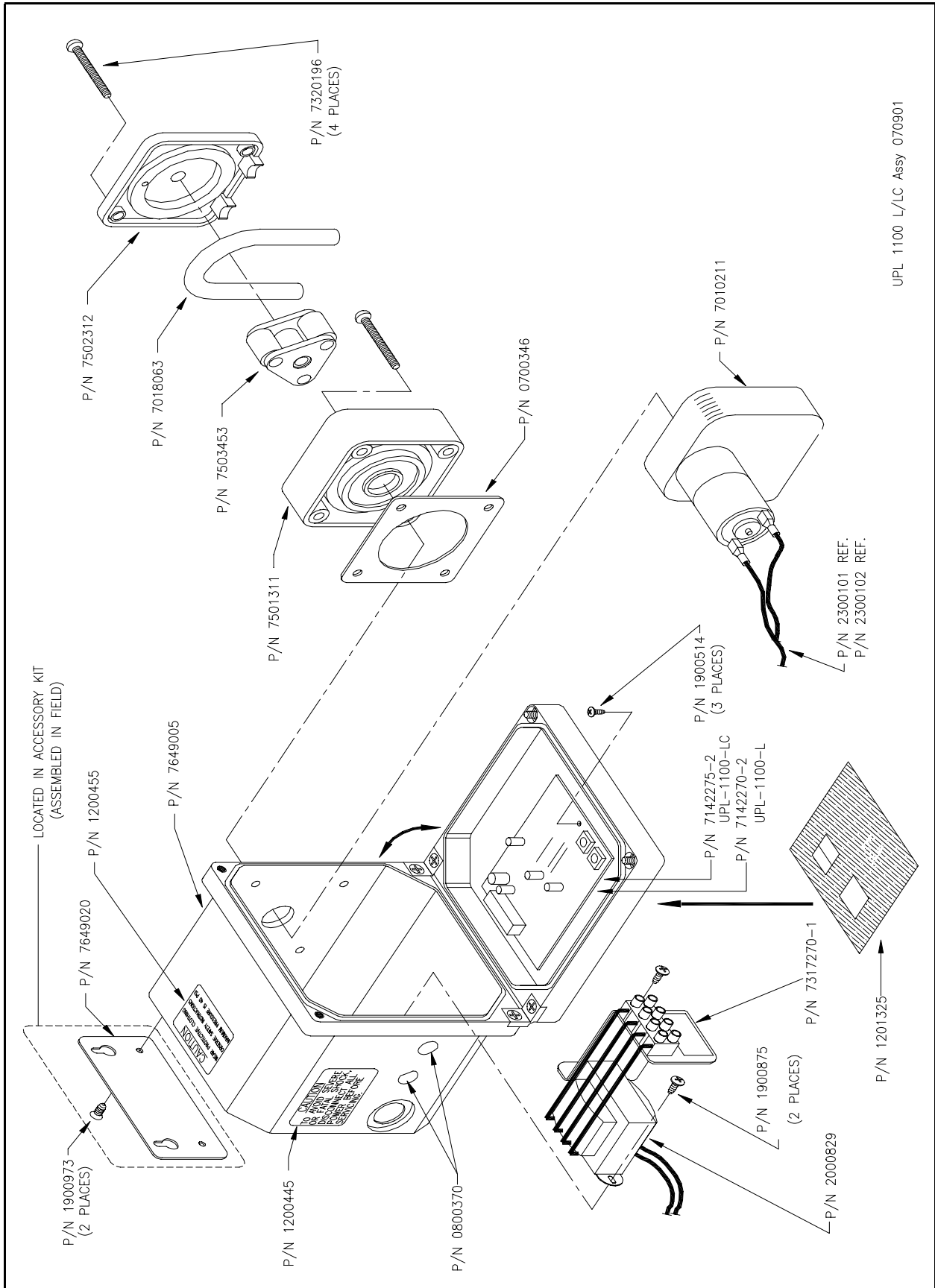
NOTE: WILL NOT WORK ON A HOBART AM-14 AS SHOWN
REQUIRES HOBART RELAY KIT (KNIGHT PART # 7041305)

WIRING DIAGRAM UPL-1200-L / LC



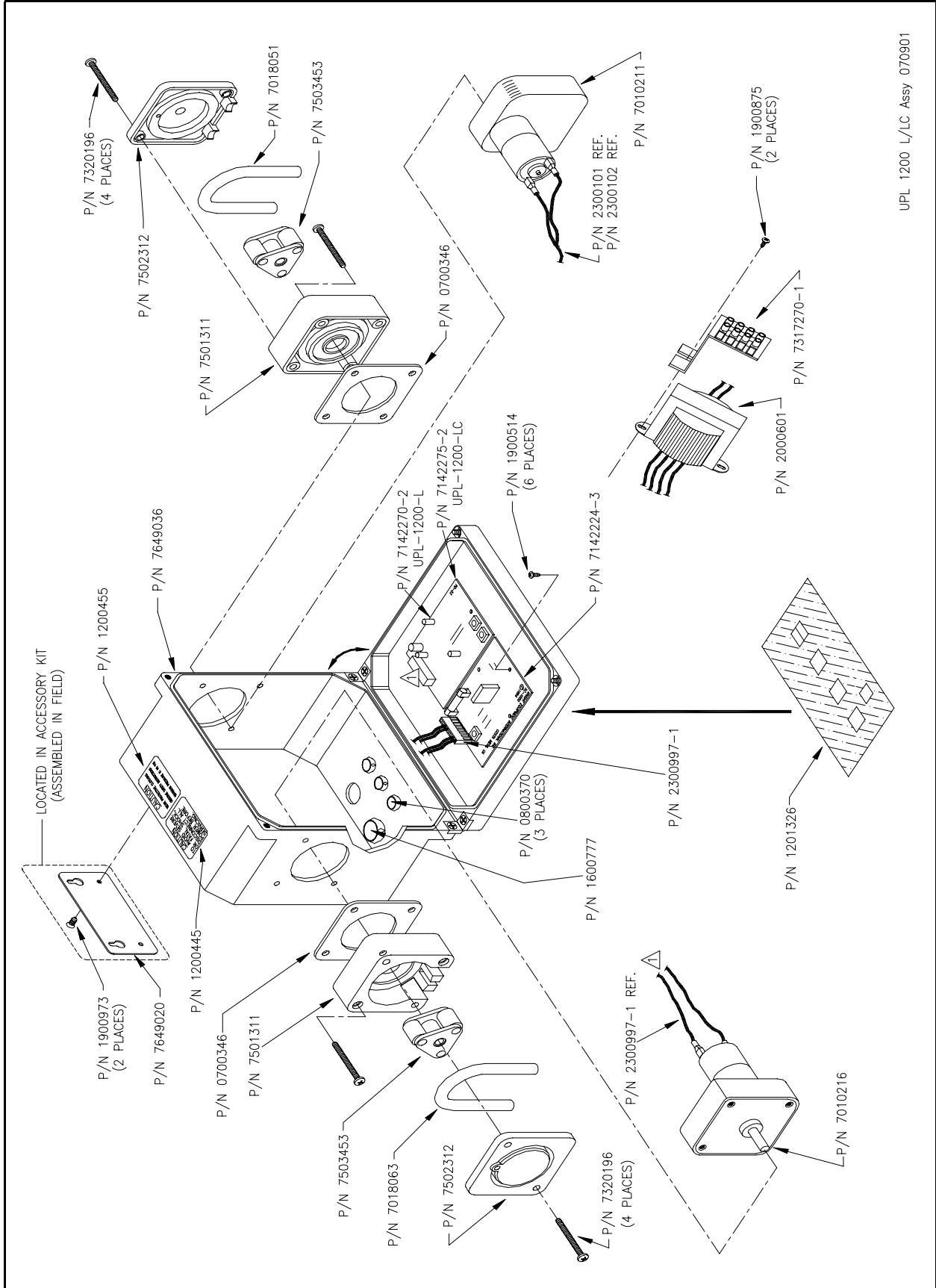
UPL-1200-LC/L wiring 070901

ASSEMBLY DIAGRAM UPL-1100-L/LC



UPL 1100 L/LC Assy 070901

ASSEMBLY DIAGRAM UPL-1200-L/LC



UPL 1200 L/LC Assy 070901

NOTE

DISCLAIMER

Knight Inc. does not accept responsibility for the mishandling, misuse, or non-performance of the described items when used for purposes other than those specified in the instructions. For hazardous materials information consult label, MSDS, or Knight Inc.

WARRANTY

All Knight controls and pump systems are warranted against defects in material and workmanship for a period of ONE year. All electronic control boards have a TWO year warranty. Warranty applies only to the replacement or repair of such parts when returned to factory with a Knight Return Authorization (KRA) number, freight prepaid, and found to be defective upon factory authorized inspection. Bearings and pump seals or rubber and synthetic rubber parts such as "O" rings, diaphragms, squeeze tubing, and gaskets are considered expendable and are not covered under warranty. Warranty does not cover liability resulting from performance of this equipment nor the labor to replace this equipment. Product abuse or misuse voids warranty.

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