

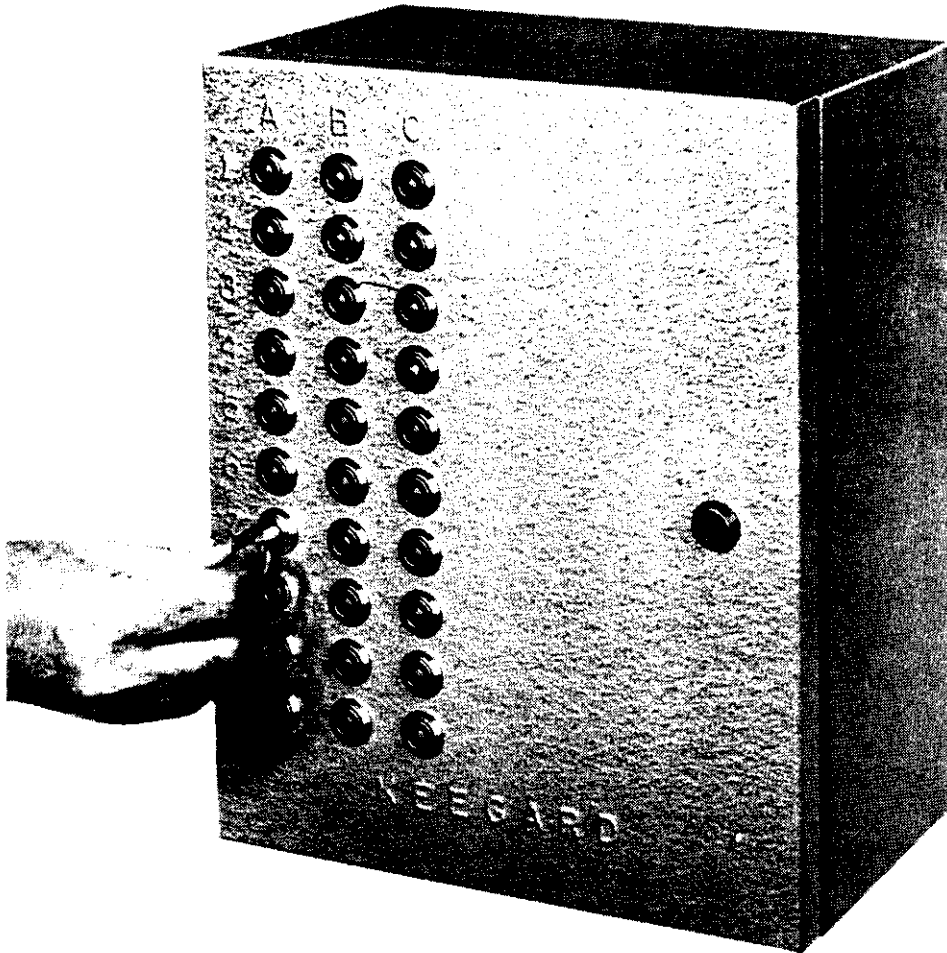


KEEGARD® K-095

Installation Manual



MH 9977
308R



DESCRIPTION

The **Keegard System** is a performance engineered solid state automated fuel control system, providing maximum security and accountability of motor fuel. The solid state construction and plug in modular design make maintenance easy. By means of this system, a fuel dispenser is activated by a high security registered key.

A system consists of three main components. First is a door with high security locks. Second is a power board and amplifier assembly which controls the pump motor and receives the pulses from the pump and transmits them to the counter board. Third is the counter board with high quality, non-resetable, tamperproof counters. This is all that is needed for complete fuel control.

FEATURES

The **Lost Key Lockout** allows any lost or stolen key to be instantly locked out or reinstated by simply pulling off the lockout clip from the back of that particular lock.

The **Two Key Lockout** shuts the pump off if two keys are turned on to activate the same hose outlet when the first 1/10 gallon of fuel is taken.

The **Turn On Delay** delays the starting of the pump after the key is turned on to eliminate "milking" of product. The delay is factory set at 10 seconds, but can be adjusted from 1 to 45 seconds.

The **Missing Pulse Detector [MPD]** shuts the pump off in the event of pulser failure, or if no fuel is dispensed within a preset time after the pump starts. The MPD is factory set at 30 seconds, but is adjustable from 1 to 60 seconds.

The **Weatherproof Enclosure** is constructed of 16 gauge steel, finished with a high quality paint, and designed to be dust and weather proof, meeting NEMA specifications. All enclosures have knockouts in the bottom to make installation easy.

The **High Security Lock** is a pick proof type lock, supplied with two keys, with registered combinations available only to **Petro Vend, Inc.** Duplicate keys are available upon request.

The **Manual Bypass Switch** is utilized in the event the pump must be used without a key, as in an emergency situation or due to equipment malfunction. The Keegard may be bypassed to allow the pump to be used as normal.

INSTALLATION

A fueling dispenser is a hazardous area as defined in the National Electrical Code. Installation in all cases must be in accordance with the national code (NFPA No. 70) and the flammable and combustible liquids code (NFPA No. 30).

The following steps are intended as a guide for a typical installation.

Box Mounting (See figure 1)

Select a convenient location, at least 18 inches from the nearest pump. Using the 3/16" knockouts on the bottom of the boxes and the hardware provided, mount the master box and the slave box, if applicable, in close proximity to each other.

Piping (See figures 1 and 2)

Using the knockouts provided, install 1/2" rigid conduit between the master box and slave box, if applicable. Three low voltage wires from the slave box will be pulled through to the master box. A second 1/2" rigid conduit should be installed from the master box to the pump junction box; all control and pulser wires will be pulled through this conduit.

Wiring (See figures 2, 3 and 4)

(**Note:** Whenever high and low voltage wires are in the same conduit, all wires should have a rating at least as high as the highest voltage present.)

1.) The low voltage connection is made between the master box and the slave box by extending the colored pigtail on the counter boards.

2.) The high voltage wiring runs from the pump junction box to the master box. First, connect the 110VAC supply wires to terminals 4 & 5 on the PV28 board; terminal 4 is AC hot, terminal 5 is AC neutral. Terminal 3 is the motor control hot, and terminals 6 & 7, which are optional, are used to control separate solenoid valves where applicable. Connect the pulser wires to terminals 1 & 2. This completes the field wiring.

CHECKOUT AND ADJUSTMENTS

Note: Double check all wiring before turning on power or serious damage could result.

The **Keegard K-095** must be carefully checked out before power is supplied. The only adjustments are the "turn on delay" (factory set at 10 seconds), and the "missing pulse detector" (factory set at 30 seconds).

The **Turn On Delay**, located on the PV44 board, delays the start of the pump after the key is turned on. To change the delay time, adjust the potentiometer directly below the "key" light; turn clockwise to decrease, minimum 1 second, counter-clockwise to increase, maximum 45 seconds.

The **Missing Pulse Detector (MPD)** monitors the operation of the pulser and shuts off the pump in the event of a pulser failure. To change the time, adjust the potentiometer below "pulse" light, turn clockwise to decrease, minimum 1 second, counter-clockwise to increase, maximum 60 seconds.

(**Note:** Check voltage input supply with accurate tester. Voltage range should be between 105-125 maximum. Double check all wiring before applying power. Improper voltage or wiring will cause serious damage to unit.)

OPERATION

When power is applied the **Keegard** is ready for use.

- 1.) Test pumps for proper operation by switching manual by-pass down into the manual mode. After satisfactory test, put switch into **Keegard** mode.
- 2.) Insert key and turn to the right, after a small delay the power relay will close in the master box. Use pump as normal. For every 1/10 of a gallon, the associated counter will count once.
- 3.) When more than one key is turned on at the same time while fueling, the system will "two key lockout" and drop out the power relay, stopping the pump and preventing the fuel from being counted on more than one counter. To reset, simply remove the keys and reinsert one.
- 4.) To lock out a key, remove the spring clip attached to the door cable and cover clip with a small piece of tape to prevent shorting.
- 5.) Manual by-pass should be up for **Keegard** mode and down for manual operation.

TROUBLESHOOTING

The **Keegard K-095** is a solid state, modular designed control system. The modular design makes servicing easy. The following is a guide to typical problems and answers.

PROBLEM	PROBABLE CAUSE	ANSWER
1. Keys will not energize the relay	<ul style="list-style-type: none"> A. No input power B. No 24VAC/bad transformer C. No "Key" light on PV44 D. Door cable not plugged in properly 	<ul style="list-style-type: none"> A. Check terminals 4&5 for 105-125VAC B. Replace PV28 C. Replace PV44 D. Colored stripe on cable edge should face hinge side of box
2. One key will not energize the relay	<ul style="list-style-type: none"> A. Lost key lockout clip, disconnected or wire from clip is broken B. Door cable not plugged in properly C. Key lock switch not working D. Diode malfunction on PV29 	<ul style="list-style-type: none"> A. Reconnect lockout clip or solder wire B. Pull door cable out, check pins and reseal C. Replace key lock switch D. Replace diode on PV29
3. All keys will energize the relay but not the pump	<ul style="list-style-type: none"> A. Test output on Terminal 3 B. Pump not working 	<ul style="list-style-type: none"> A. Output should be 105-125 VAC, if not check relay contacts B. Service pump
4. No count	<ul style="list-style-type: none"> A. Check pulser B. Check "pulse" light on PV44 	<ul style="list-style-type: none"> A. Replace pulser B. Replace PV44
5. Not all counters count	<ul style="list-style-type: none"> A. Check voltage B. Bad counter or diode on PV29 C. Weak PV44 	<ul style="list-style-type: none"> A. Voltage must be 105-125VAC B. Replace counter and associated diode on PV29 C. Replace PV44
6. Counter half count	<ul style="list-style-type: none"> A. Bad PV44 	<ul style="list-style-type: none"> A. Replace PV44
7. System locks out after 1/10	<ul style="list-style-type: none"> A. Two Key lockout B. Bad PV44 	<ul style="list-style-type: none"> A. Check to see if more than one key is energized or loose lockout clips are touching ground B. Replace PV44
8. System does not energize as soon as key is turned/pump motor stops shortly after delivery	<ul style="list-style-type: none"> A. Normal operation for PV44 with turn on delay/Adjust Missing Pulse Detector as necessary. (Note: use "Key" and "Pulse" lights to help with adjustment.) 	<ul style="list-style-type: none"> A. Normal operation
9. System shuts off while dispensing fuel	<ul style="list-style-type: none"> A. Pulser malfunction B. Defective MPD 	<ul style="list-style-type: none"> A. Check pulser with Ohm meter/replace pulser B. Replace PV44
10. System will not restart after MPD timeout unless power is turned off and on	<ul style="list-style-type: none"> A. Defective PV44 	<ul style="list-style-type: none"> A. Replace PV44

SPECIFICATIONS

Master:	one per system, 5-30 keys maximum
Size:	Width-12", height-15", depth-6"
Type:	Weather tight, exceeds NEMA 4 specifications
Weight:	30 lbs.
Maximum number of connections:	7
Power Requirements:	
Voltage:	105 to 125VAC 50/60 Hz.
Maximum Wattage:	40 watts
Pump motor circuit:	1/2Hp. 125VAC maximum 3/4Hp. 250VAC maximum
Pulser circuit:	.013 Amp 10VDC minimum
Slave:	
Maximum number per system:	2 boxes/120 keys
Size:	Width-12", height-15", depth-6"
Type:	Weather tight, exceeds NEMA 4 specifications
Weight:	40 lbs./60 keys
Maximum number of connections:	5
Power Requirements:	None
Counters:	60 per box max., non-reset type, 99,999.9 Capacity at 1000 pulses per minute or 100 gallons per minute maximum.

OPTIONS

Inventory Totalizer: A resetable counter used to keep track of all fuel dispensed through the hose outlet, either in manual or Keegard mode. Can be field installed.

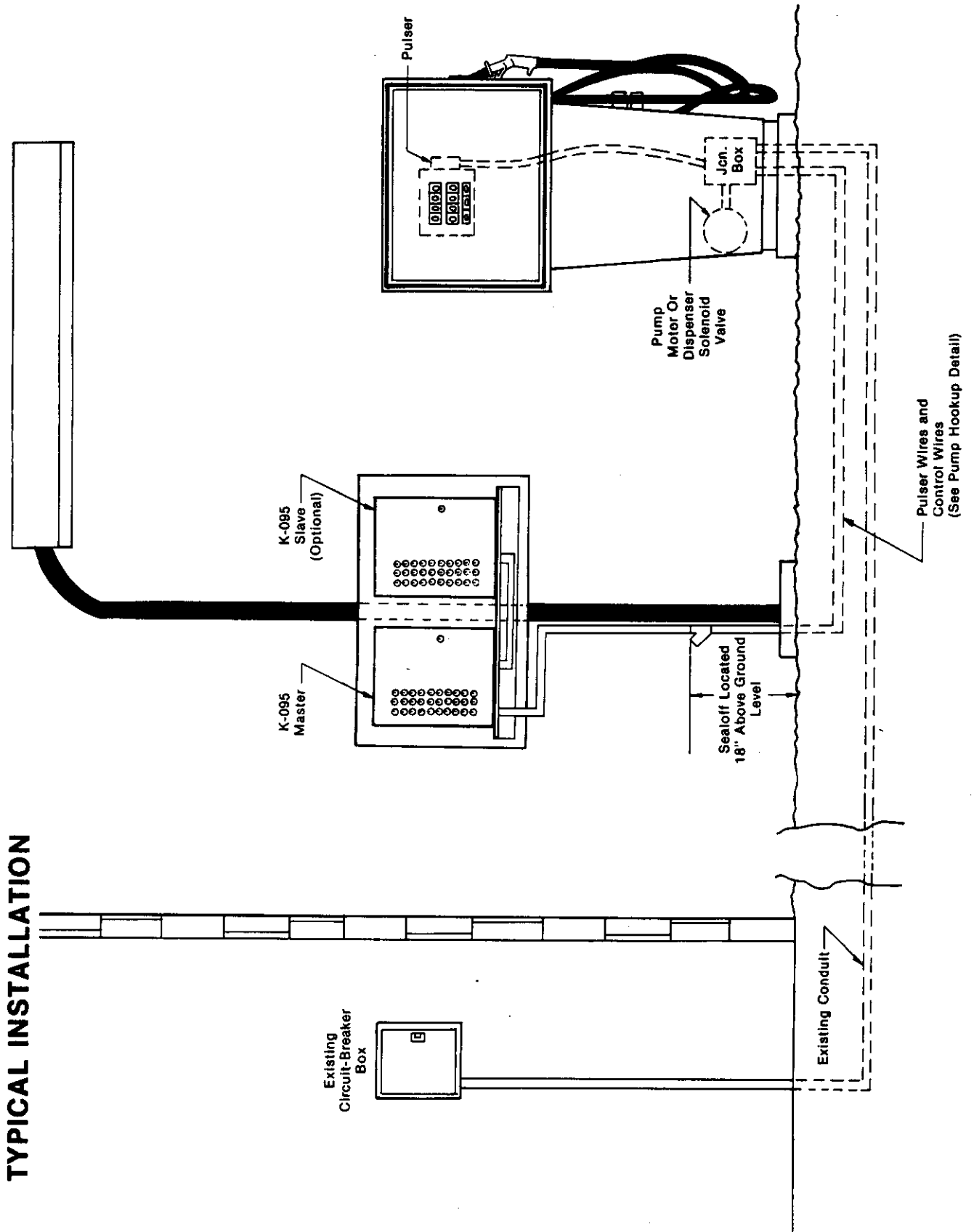
Visible Counters: A visibility panel of clear, aircraft LEXAN, which is extremely impact resistant. It allows the user to verify his gallonage. Factory installed only.

Heater: A U.L. approved heater used to keep humidity and moisture out of the counters and locks. It is manually controlled and should be used when temperatures stay below freezing. Factory installed only.

Weathershield: A metal cover which is attached to the door to protect the locks from ice and water build-up. Can be field installed.

Buzzer System: A warning buzzer designed to alert the keyholder that he has left his key in the unit after he has finished fueling.

FIGURE 1



TYPICAL INSTALLATION

FIGURE 2

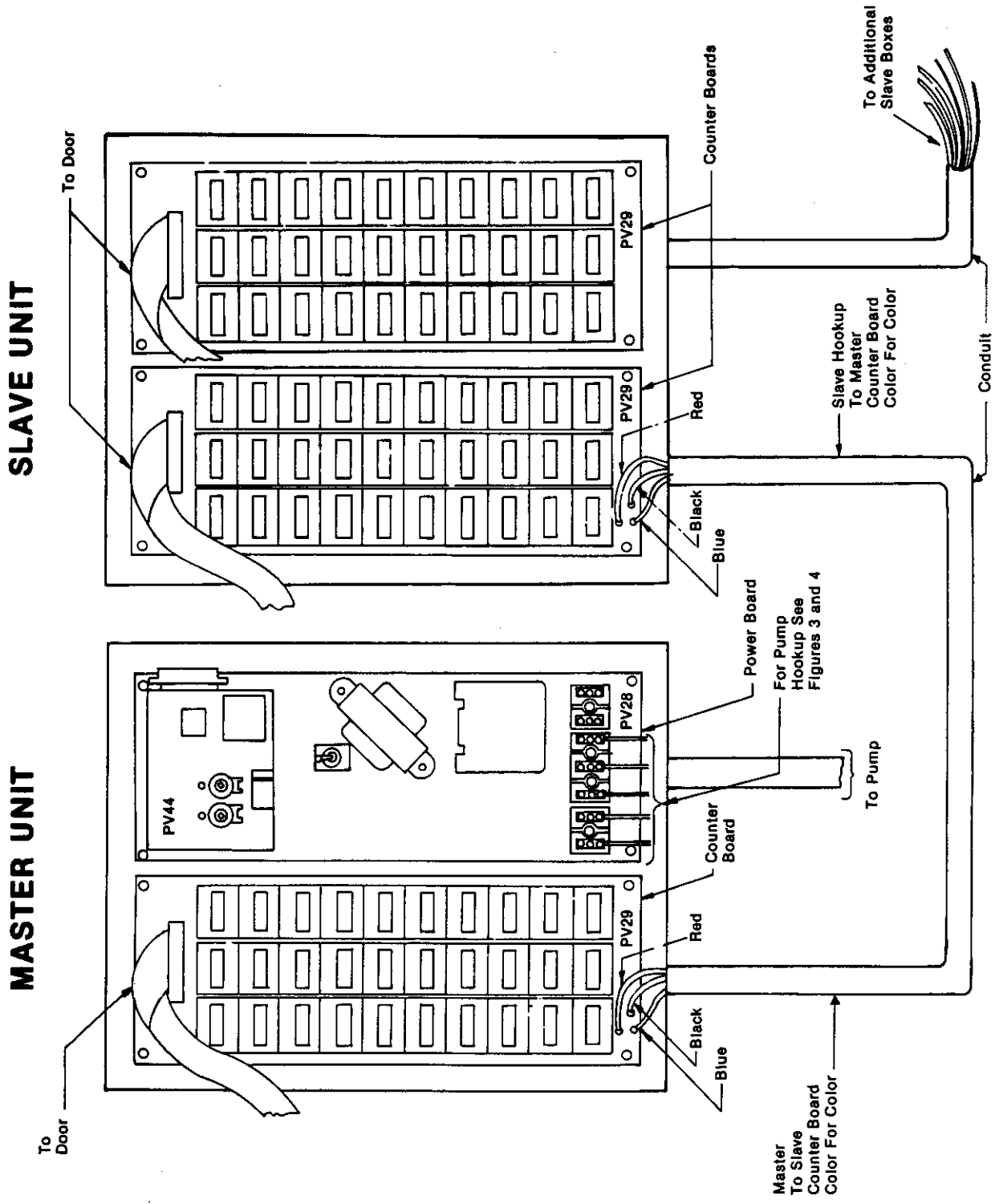
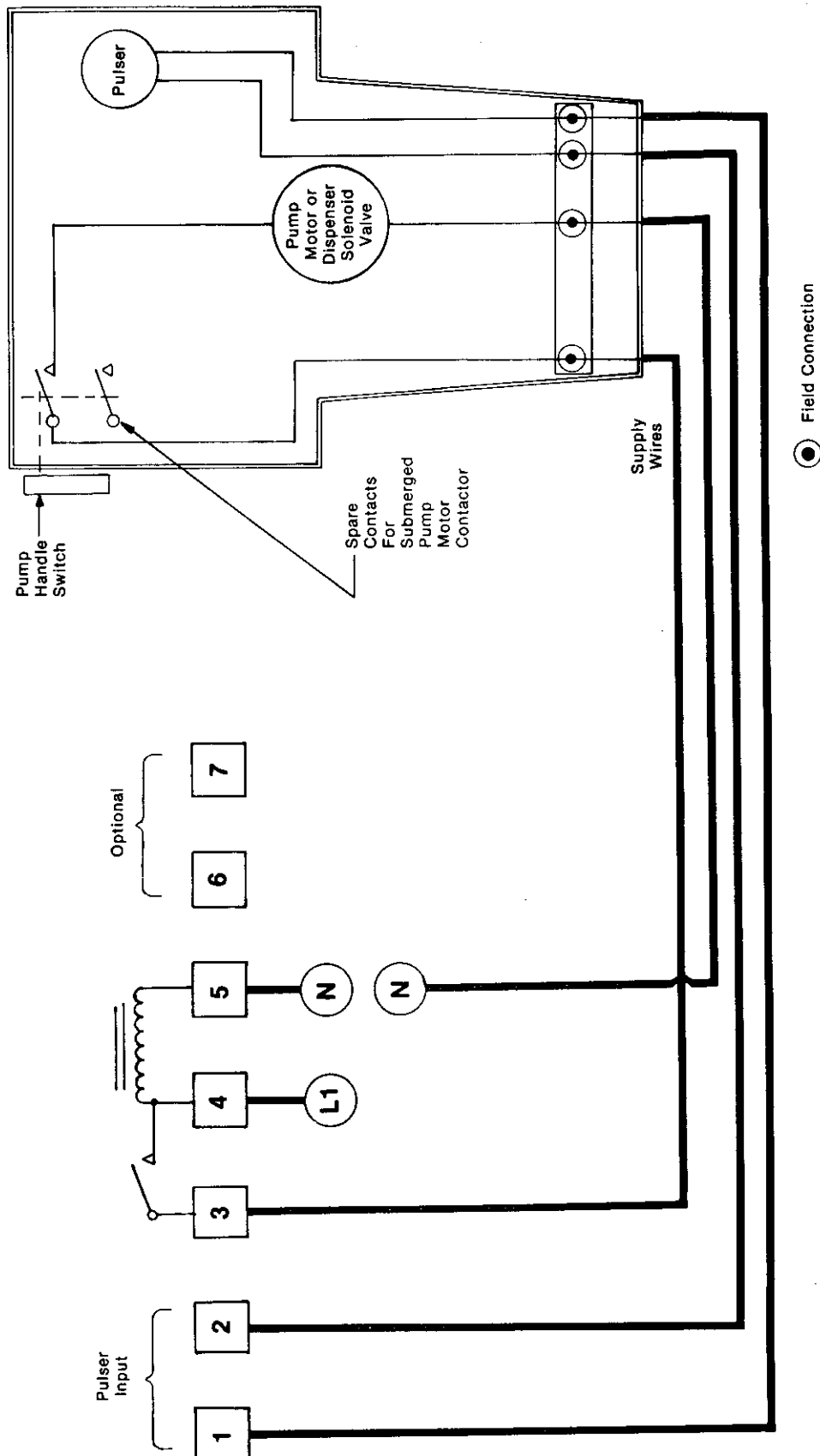


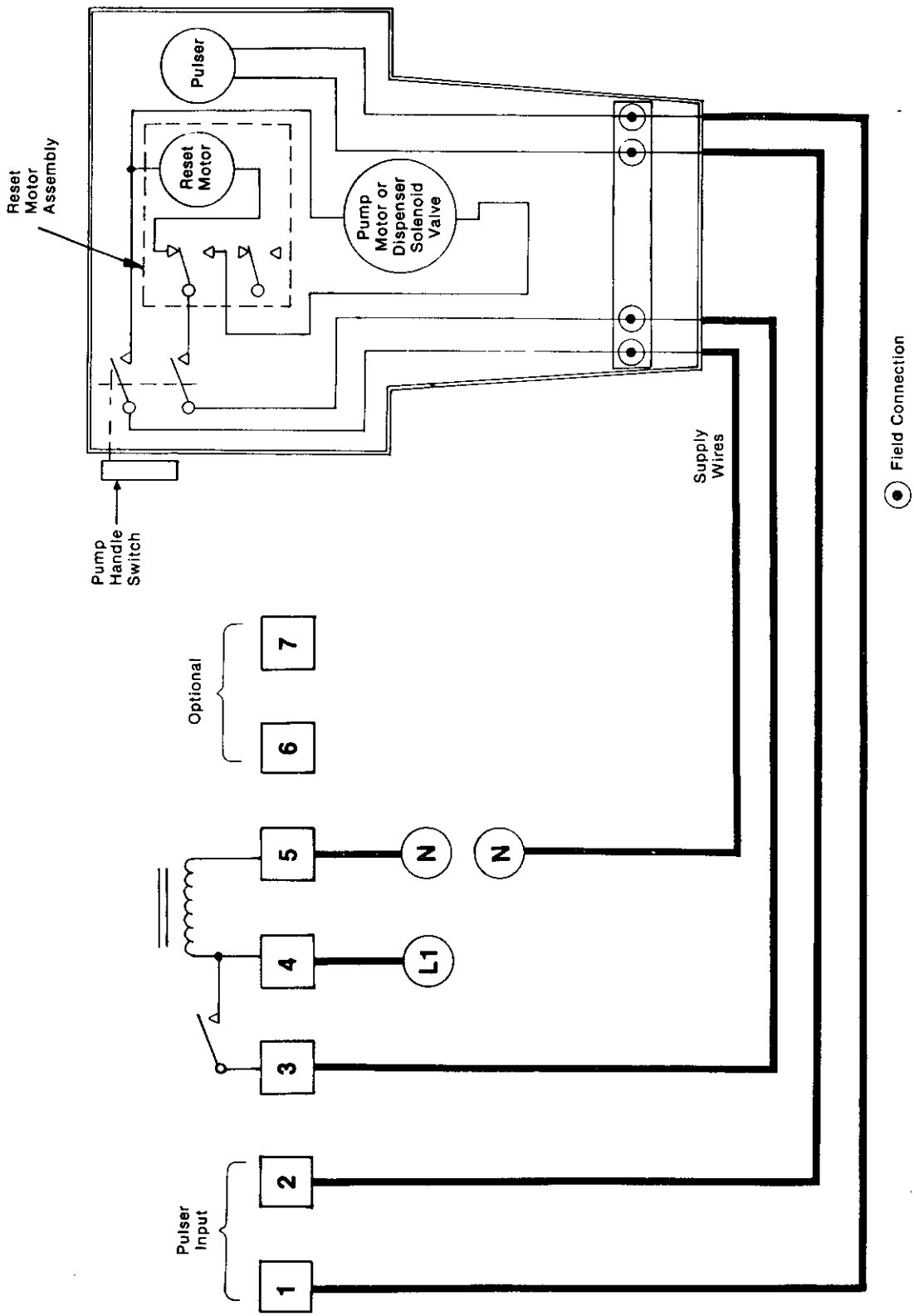
FIGURE 3

K-095 TYPICAL HOOKUP WITHOUT POWER RESET

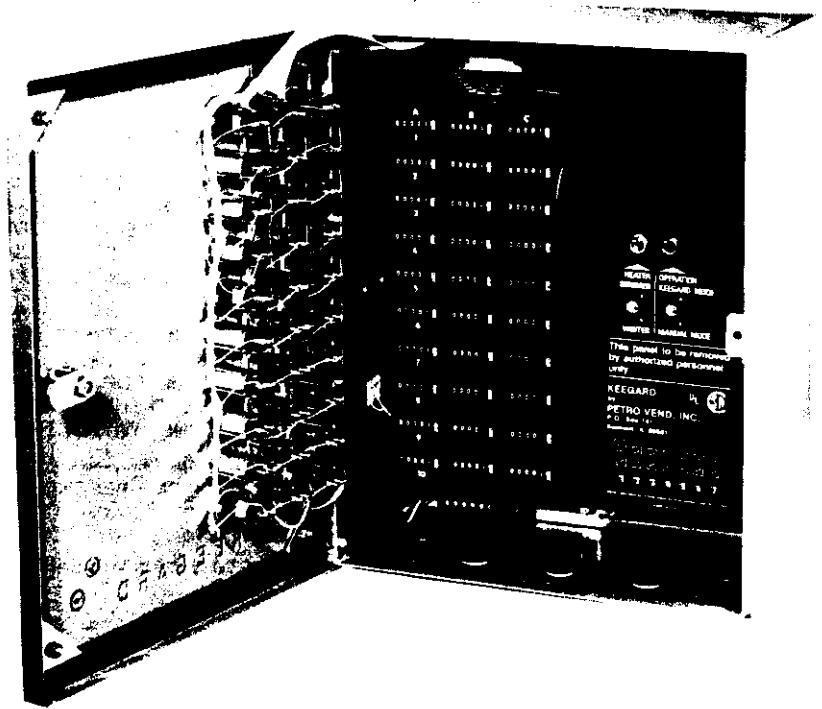


K-095 TYPICAL HOOKUP WITH POWER RESET

FIGURE 4



Master Box



Slave Box

