

Peerless Pump Company
PJPC
Jockey Pump Controllers



Installation and
Operation Instructions



Peerless Pump Company
2005 Dr. M. L. King Jr. Street
Indianapolis, IN 46202

WARNING! DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED! DEATH, PERSONAL INJURY, OR SUBSTANTIAL PROPERTY DAMAGE MAY RESULT FROM CONTACT WITH ENERGIZED EQUIPMENT. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING, AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES. JOCKEY PUMP CONTROLLER CIRCUIT BREAKER ON-OFF SWITCH MUST BE IN THE OFF POSITION TO OPEN THE ENCLOSURE DOOR. PEERLESS PUMP COMPANY CANNOT BE LIABLE FOR ANY MISAPPLICATION OR INCORRECT INSTALLATION OF ITS PRODUCTS.

MOUNTING CONTROLLER

NOTE - Consult the appropriate job plans to determine the controller mounting location. Tools and materials (wall mounting) required:

1. Assortment of common hand tools of the type used to service electromechanical equipment.
2. Drill for drilling wall anchor holes.
3. Hand level.
4. Tape Measure.
5. Four anchors with bolts and washers, per enclosure.
6. ¼ end wrench for adjusting pressure switch on-off and differential settings.

MAKING ELECTRICAL CONNECTIONS

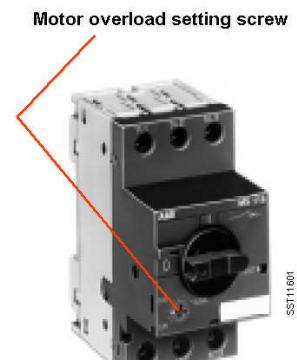
IMPORTANT PRECAUTIONS. Prior to mounting the controller and making any field connections:

1. Verify that the following information is compatible with other related equipment on the project:
 - A. Motor horsepower, voltage, phase and frequency. (See Page 5)
 - B. System pressure
2. The project electrical contractor must supply all necessary wiring for field connections in accordance with the *National Electrical Code, NFPA 70*, the local electrical code and any other authority having jurisdiction.
3. Open the door of the enclosure and inspect the internal components and wiring for any signs of frayed or loose wires or other visible damage.

PROCEDURE

All field connections and AC wiring are brought into the enclosure through the top or bottom conduit entrances as indicated on the dimension drawing (page 6). Refer to the *National Electrical Code, NFPA 70*, the local electrical code or any other authority having jurisdiction for proper conduit entrance location.

1. Use a hole punch, not a torch nor a drill, and punch a hole in the enclosure for the size conduit being used.
2. Install necessary conduit
3. Pull all wires necessary for field connections, AC power and pump motor. Make sure enough excess wire inside the enclosure is available to make up connections to the appropriate line, load and control terminal block points. Be sure to consult the appropriate field connection diagram (see page 7 or 8). For proper wire sizing, refer to the *National Electrical Code, NFPA 70*.
4. **3 Phase only –(Unit is shipped wired for 460 Volt Line voltage)**. There are two wires connected to the primary of the transformer. There will be one on terminal H4 (the furthest on to the right). Do not move the wire connected to H4. The other wire will be connected to one of the other terminals based on the incoming voltage to the panel (from left to right): H1 for 440-480V, H2 for 220-240V, H3 for 200-208V. Note that if the voltage is changed from how the panel was supplied, this affects what horsepower motor the panel can operate. For example, if the panel supplied was a PJPC 269953902- it can operate a 2HP motor at 480V but only a 1/2 HP motor at 208V. Remove transformer warning tag.
5. Confirm that the AC power line voltage level, number of phases and frequency to be used matches the ratings of the panel and the ratings of the motor before connecting the AC power.
6. Motor overload adjustment screw must be set to the rated motor values (see view at right of circuit breaker for location of adjustment screw.)
7. Check to see that all connections are both correctly wired and tight.
8. Close the enclosure door
9. Connect the AC power.
10. Using H-O-A selector switch, briefly jog the jockey pump by quickly moving the switch from the Off position to the Hand position and then back to the Off position in order to check the motor for proper rotation. **Make sure pump has been connected to system and filled with water before attempting this procedure**



PJPC Instructions Jockey Pump Controllers

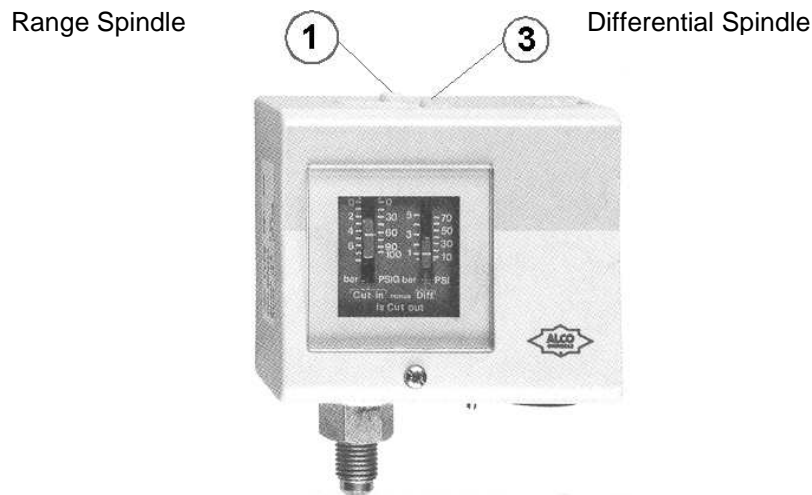
MAKING SYSTEM PRESSURE CONNECTION

The controller requires one (1) system pressure connection from the system piping to the enclosure. The connection fitting, 1/2 inch FNPT, is provided on the bottom, external side of the enclosure for this purpose. Refer to NFPA 20 (or Publication GF100-30) for correct field piping procedure of the sensing line between the pumping system and the controller.

SETTING START AND STOP PRESSURES ALCO pressure switch

The range spindle is on the left and is adjusted clockwise to increase the pressure level at which the pressure switch activates while adjusting it counterclockwise lowers the pressure level. The differential spindle is on the right. Setting the differential will set the pressure level at which the pressure switch deactivates. For example, if the range spindle is set for 100 PSI and the differential spindle is set for 15 PSI, the pressure switch will activate at 100 PSI and deactivate at 115 PSI.

Do not use a screwdriver to adjust the pressure spindles, use an end wrench. The reason is that the transformer in the controller will have electrically live terminals on it and the length of a screwdriver will result in a person's hand being near these live terminals. Refer to the ALCO Pressure switch for additional information in the instruction envelope.



CONTROLLER OPERATION

Each controller has a HAND-OFF-AUTO selector switch mounted on the right-hand side for selection of Manual or Automatic operation. When placed in HAND, the motor starter is energized and the motor will run until the switch is placed in OFF. When the switch is placed in AUTO, the motor starter is energized by the pressure switch. Controllers may be used with provided Running Period Timer which operates in conjunction with the pressure switch.

WITHOUT RUNNING PERIOD TIMER. Controllers without running period timers start and stop automatically as determined directly by the pressure switch settings. No wiring changes are required if timer is not installed as controller is wired to run with or without timer.

WITH RUNNING PERIOD TIMER. Controllers with Running Period Timers start automatically when the system pressure decreases to the pressure switch lower (START) setting and stop only after the timer has completed its timed cycle and the upper (STOP) pressure setting of the pressure switch has been reached.

A running period timer device is included with all controllers but is not installed into the controller. If it is needed, disconnect AC power and then remove the timer from its box. Install the timer into the empty 8-pin socket inside of the controller and set the dial on the timer's front for the desired time interval. If the timer is not used, it is recommended that it be retained for possible future usage if evidence is seen that the jockey pump is short cycling. Short cycling is very detrimental to the life span of the motor that drives the jockey pump as will cause the motor to overheat. (Every time a motor starts it generates heat.) The timer will prevent short cycling by allowing adequate run time for the motor to cool down between on-off cycles. (The motor is cooled when it is allowed to run continuously.)



General Information Typical Pressure Sensing Line Connection Fire Pump Controllers & Jockey Pump Controllers

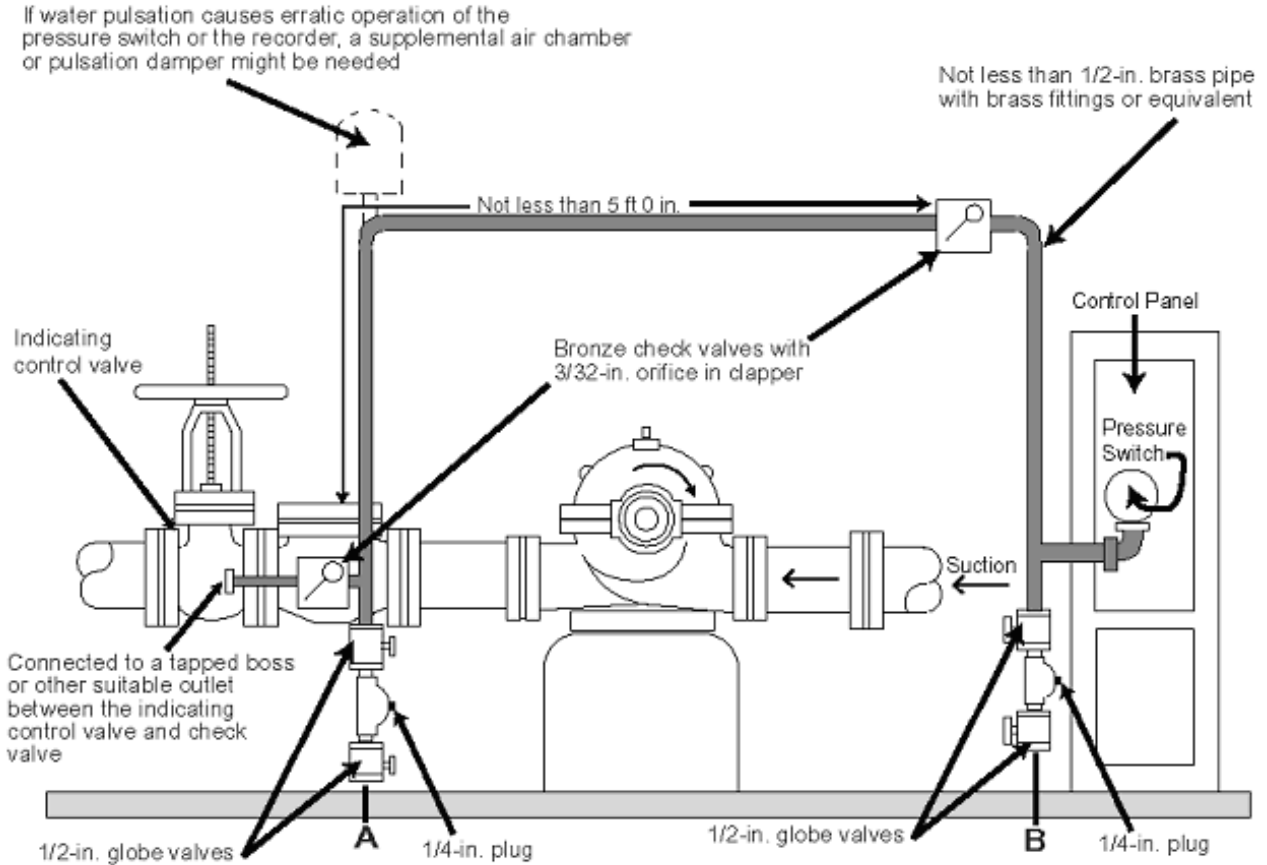


Figure A-10-5.2.1(a) Piping connection for each automatic pressure switch (for fire pump and jockey pumps).

If water is clean, ground-face unions with non-corrosive diaphragms drilled for 3/32-in. orifices can be used in place of the check valves.

Note: Solenoid drain valve used for engine-driven fire pumps can be at A, B, or inside of controller enclosure. Test connection at A or B

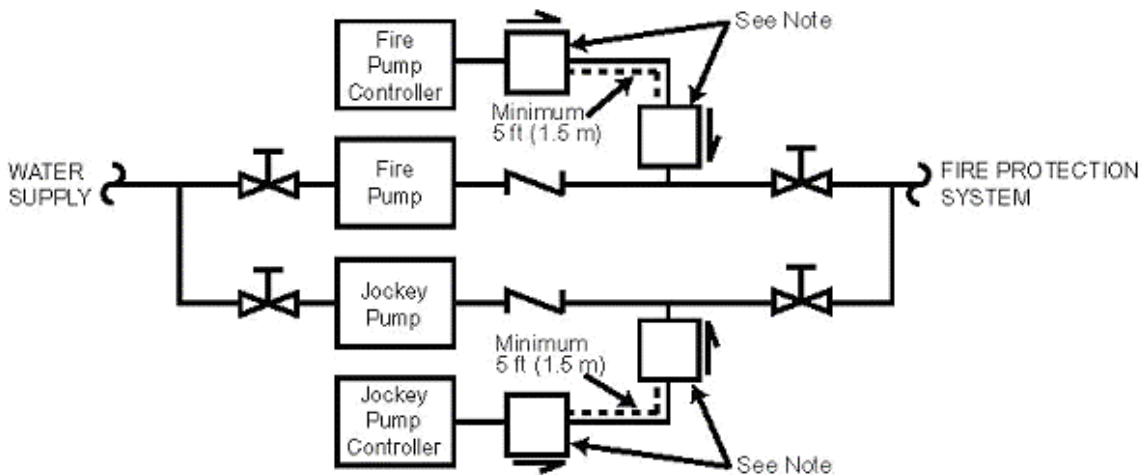


Figure A-10-5.2.1(b) Piping connection for pressure-sensing line.
Note: Check valves or ground-face unions complying with 7-5.2.1.

PJPC Instructions Jockey Pump Controllers

NFPA 20

A-10-5.2.1 Water Pressure Control. There shall be provided a pressure-actuated switch having independent high and low calibrated adjustments in the controller circuit. There shall be no pressure snubber or restrictive orifice employed within the pressure switch. This switch shall be responsive to water pressure in the fire protection system. The pressure sensing element of the switch shall be capable of withstanding a momentary surge pressure of 400 psi (27.6 bar) without losing its accuracy. Suitable provision shall be made for relieving pressure to the pressure-actuated switch to allow testing of the operation of the controller and the pumping unit. [See Figures A-10-5.2.1(a) and (b).]

Water pressure control shall be as follows.

- (a) For all pump installations, including jockey pumps, each controller shall have its own individual pressure sensing line.
- (b) The pressure sensing line connection for each pump, including jockey pumps, shall be made between that pump's discharge check valve and □ discharge control valve. This line shall be brass, copper, or series 300 stainless steel pipe or tube, and the fittings shall be of 1/2 inch (12.7 mm) □ nominal size. There shall be two check valves installed in the pressure sensing line at least 5 ft. (1.5 m) apart with a 3/32 inch (2.4 mm) hole □ drilled in the clapper to serve as dampening. [See figures A-10-5.2.1(a) and (b).]

Exception No. 1: If water is clean, ground-face unions with non-corrosive diaphragms drilled with 3/32-in. (2.4-mm) orifices shall be permitted in place of the check valves.

Exception No. 2: In a non-pressure-actuated controller, the pressure-actuated switch shall not be required.

- (c) There shall be no shutoff valve in the pressure-sensing line
- (d) Pressure switch actuation at the low adjustment setting shall initiate pump starting sequence (if pump is not already in operation).

A-10-5.2.1 Installation of the pressure-sensing line in between the discharge check valve and the control valve is necessary to facilitate isolation of the jockey pump controller (and sensing line) for maintenance without having to drain the entire system. [See Figures A-10-5.2.1(a) and (b)]

Configurations—The PJPC controllers are available only in the following configurations:

PJPC 269953901

3/4-1 HP	440-480v/3Ph/60 Hz
1/3 HP	200-208-230/3/60
1/2 HP	230/3/60

PJPC 269953902

1/2 HP	200-208-/3/60
3/4 HP	200-208/3/60
3/4 HP	220-240/3/60
1.5 - 2 HP	440-480/3/60

PJPC 269953903

1 HP	200-208/3/60
1 - 1.5 HP	220-240/3/60
3 HP	440-480/3/60

PJPC 269953904

1.5 - 2 HP	200-208/3/60
2 HP	220-240/3/60
5 HP	440-480/3/60

PJPC 269953905

3/4 -1 HP	380-415/3/50-60
-----------	-----------------

PJPC 269953906

1.5 HP	380-415/3/50-60
--------	-----------------

PJPC 269953907

2 HP	380-415/3/50-60
------	-----------------

PJPC 269953908

1/3- 1/2HP	120/1/60
------------	----------

PJPC 269953909

3/4 HP	120/1/60
--------	----------

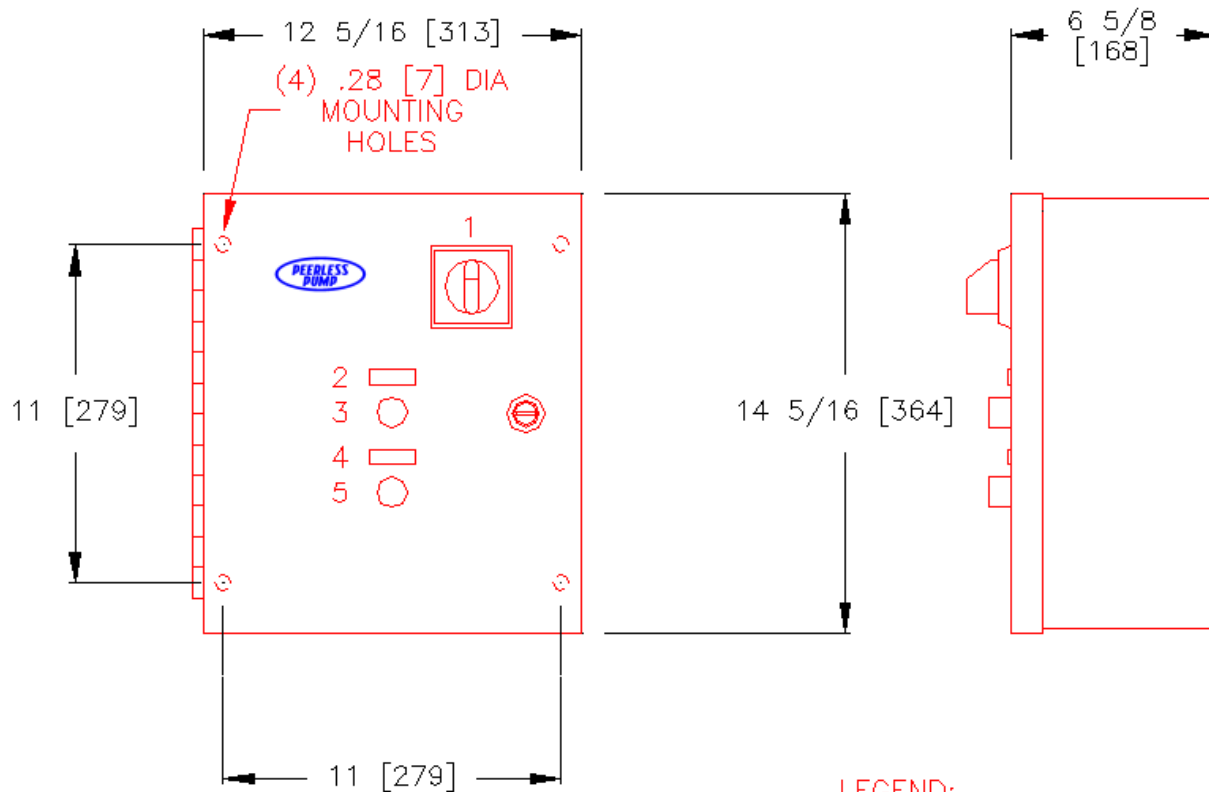
PJPC 269953910

1/3, 1/2 HP	460/3/60
-------------	----------

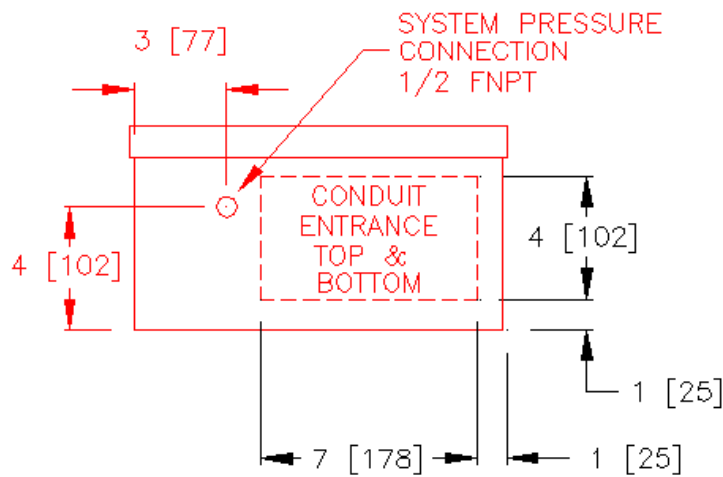
PJPC 269953911

1/3, 1/2 HP	380-415/3/50
-------------	--------------

PJPC Instructions Jockey Pump Controllers

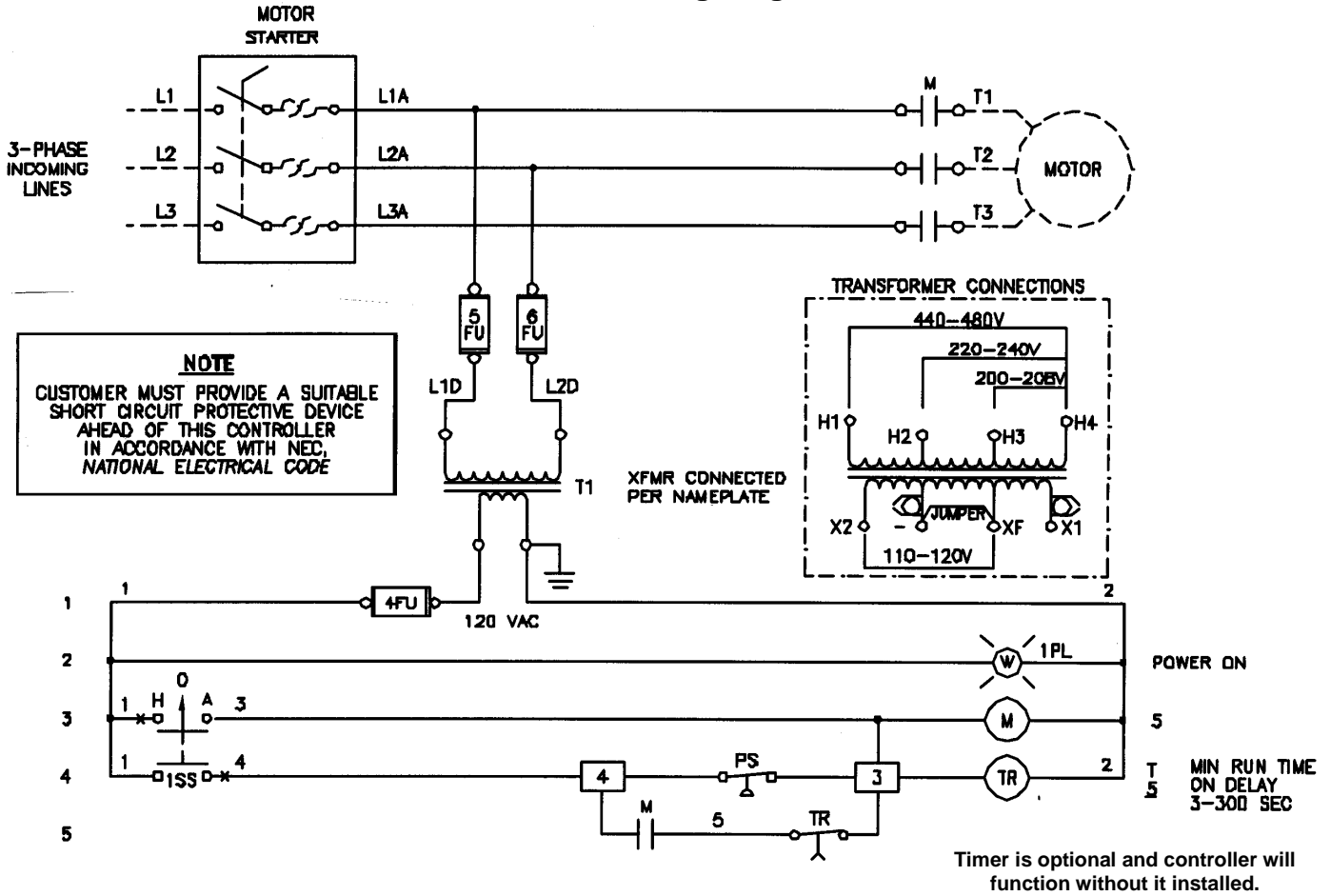


- LEGEND:**
1. DISCONNECT SWITCH HANDLE
 2. LABEL "POWER ON"
 3. POWER ON PILOT LIGHT
 4. LABEL "HAND OFF AUTO"
 5. H-O-A SELECTOR SWITCH



Dimensions are in inches [mm]

Three Phase Wiring Diagram



LINE TERMINALS—WIRE CAPACITY AND QUANTITY (CU)

MAXIMUM MOTOR HORSEPOWER				WIRE SIZE (CU) PER PHASE
200-208V	220-240V	380-415V	440-480V	
2	2	2	5	(2) #14 AWG—#12 AWG (2) 2.5 MM ² —4 MM ²

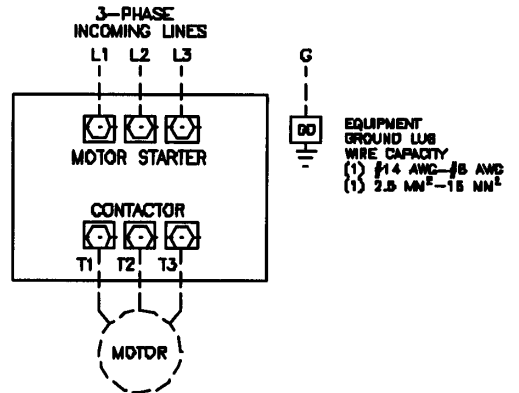
MOTOR TERMINALS—WIRE CAPACITY AND QUANTITY (CU)

MAXIMUM MOTOR HORSEPOWER				WIRE SIZE (CU) PER PHASE
200-208V	220-240V	380-415V	440-480V	
2	2	2	5	(2) #14 AWG—#10 AWG (2) 2.5 MM ² —6 MM ²

FOR CORRECT WIRE SIZING, REFER TO NATIONAL ELECTRICAL CODE, NFPA 70.

NOTE: CONTROL AND ALARM TERMINALS FOR CUSTOMER CONNECTIONS REQUIRE 3.5MM SLOTTED SCREW DRIVER

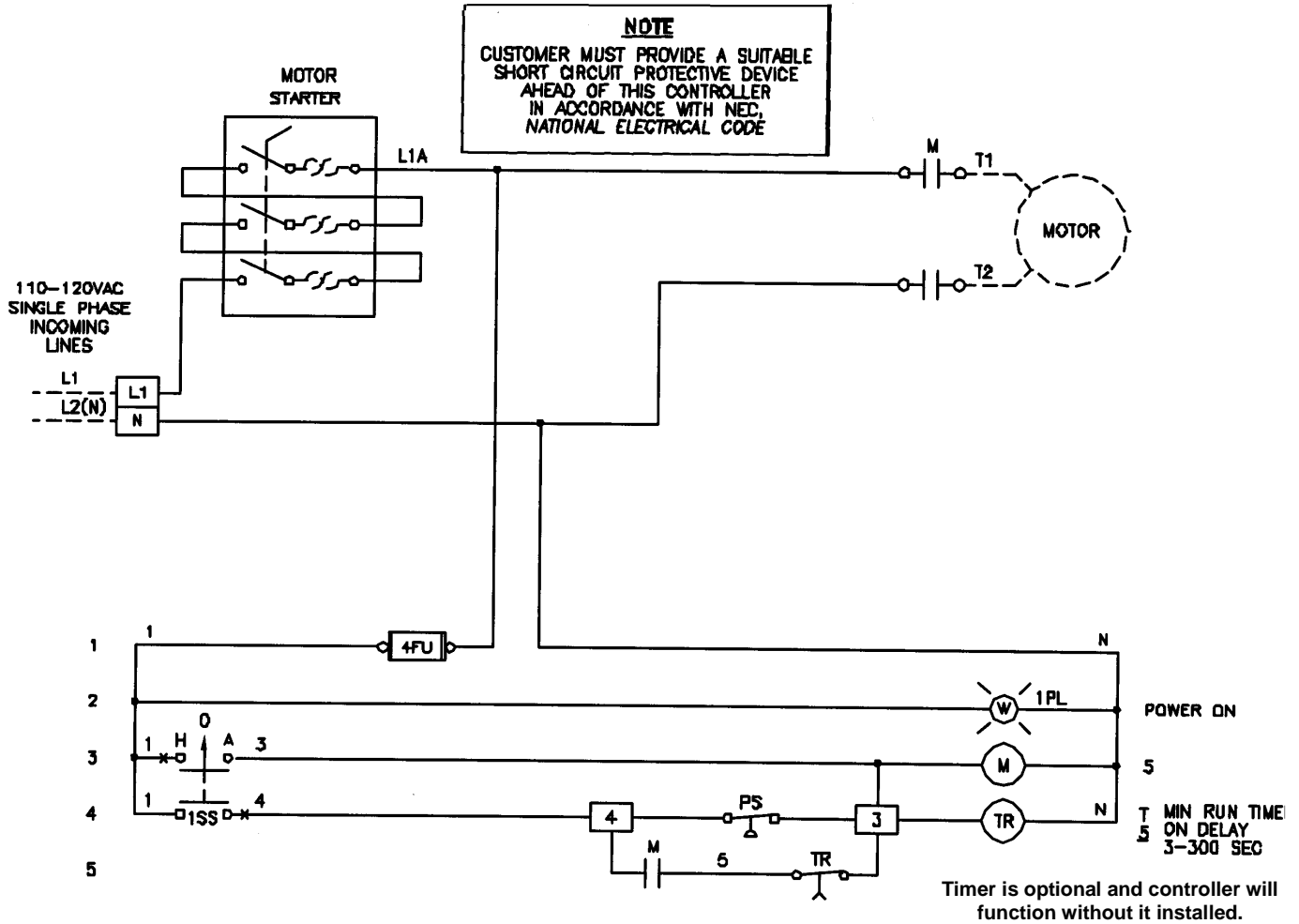
TERMINAL TIGHTENING TORQUE		
TERMINAL TYPE	WIRE SIZE	TIGHTENING TORQUE
CONTROL AND ALARM TERMINALS	#14-12 AWG [2.5-4 MM ²]	7.1 lb-in [.8 Nm]



PRESSURE SYSTEM CONNECTION
1/4" FNPT

PJPC Instructions Jockey Pump Controllers

Single Phase Wiring Diagram



LINE TERMINALS—WIRE CAPACITY AND QUANTITY (CU) (1)

MAXIMUM MOTOR HORSEPOWER	WIRE SIZE (CU) PER PHASE
110-120V	
3/4	(1) #14 AWG—#8 AWG (1) 2.5 MM ² —10 MM ²

MOTOR TERMINALS—WIRE CAPACITY AND QUANTITY (CU) (1)

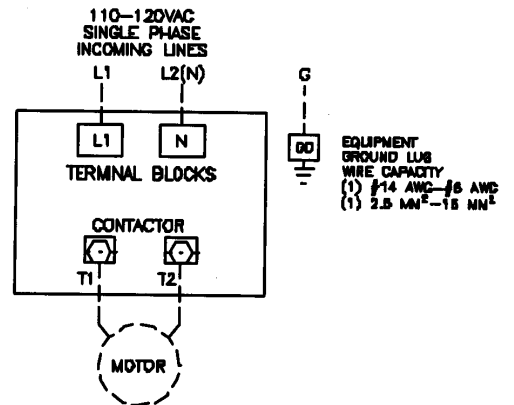
MAXIMUM MOTOR HORSEPOWER	WIRE SIZE (CU) PER PHASE
110-120V	
3/4	(2) #14 AWG—#10 AWG (2) 2.5 MM ² —8 MM ²

(1) FOR CORRECT WIRE SIZING, REFER TO NATIONAL ELECTRICAL CODE, NFPA 70.

NOTE: CONTROL AND ALARM TERMINALS FOR CUSTOMER CONNECTIONS REQUIRE 3.5MM SLOTTED SCREW DRIVER

TERMINAL TIGHTENING TORQUE

TERMINAL TYPE	WIRE SIZE	TIGHTENING TORQUE
POWER TERMINALS 45 AMP (L1, N)	#14-8 AWG [2.5-10 MM ²]	14.2 lb-in [1.8 Nm]
CONTROL AND ALARM TERMINALS	#14-12 AWG [2.5-4 MM ²]	7.1 lb-in [.8 Nm]



PRESSURE SYSTEM CONNECTION
1/4" FNPT