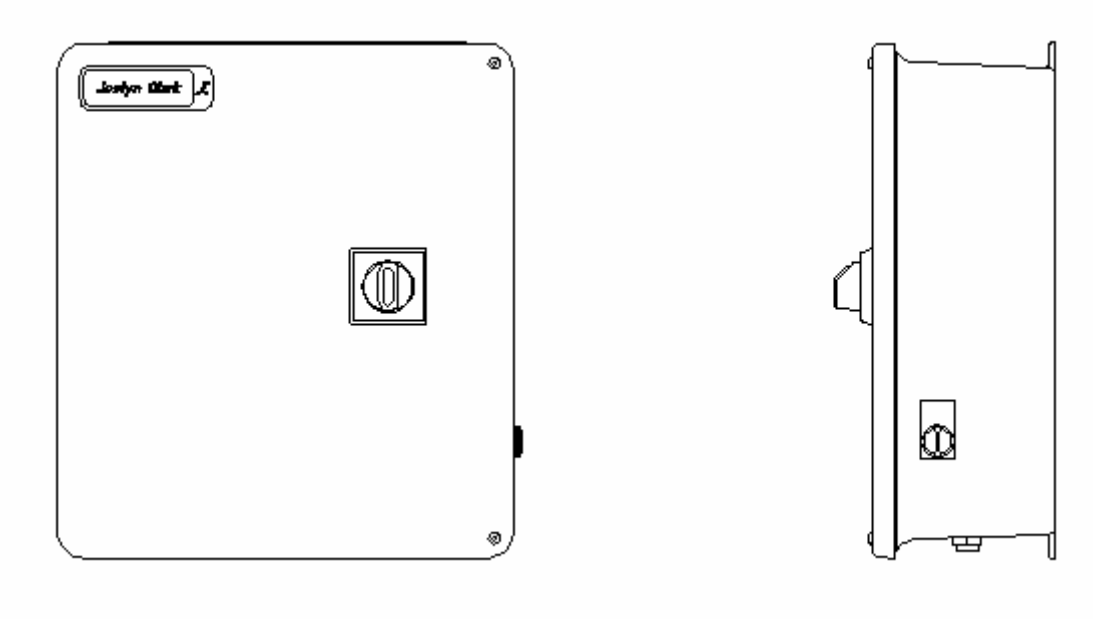
Instruction Bulletin

Jockey Pump Controller

Installation – Start Up – Service



This instruction bulletin is a guide for personnel involved with maintenance, engineering and approval of Fire Pump equipment and associated components. It provides an understanding of the Joslyn Clark Controller operation, to aid in installing and start-up.

Operation installation and test requirements are specified by the National Fire Protection Association, Publications NFPA 20, NFPA 70, NFPA 25 and FM Global.

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INTRODUCTION

Joslyn Clark Jockey Pump Controllers are designed for operating the electric motor driven pressure maintenance pumps that are a part of the fire protection system.

Please read the instructions prior to installing and operating the controller. If there are any questions, please contact the Joslyn Clark Controls Customer Service Department of the area representative.

WARNING

THIS EQUIPMENT OPERATES AT DANGEROUS VOLTAGE LEVELS, PERSONAL INJURY, DEATH OR SERVERE PROPERTY DAMAGE MAY RESULT BY CONTACTING ENERGIZED COMPONENTS. ALL INSTALLATION, TESTING AND MAINTENANCE MUST BE PERFORMED QUALIFIED PERSONNEL. BEFORE PERFORMING ANY SERVICE, TURN THE DISCONNECTING MEANS HANDLE FULLY COUNTERCLOCKWISE TO THE "OFF" POSITION. JOSLYN CLARK CONTROLS IS NOT LIABLE FOR ANY MISAPPLICATIONS OR IMPROPER INSTALLATIONS OR USA AND MAINTENANCE OF ITS PRODUCTS.

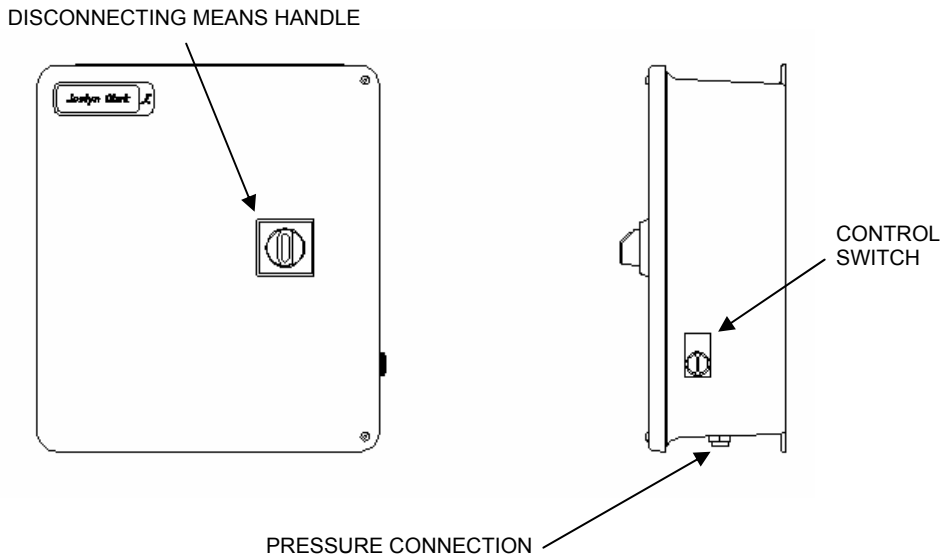

Figure 1
Typical Jockey Pump Controller

DISCONNECTING MEANS HANDLE – Operates the disconnecting means to turn the jockey pump controller on or off. Also used to reset the controller if the over current protection has operated.

CONTROL SWITCH – A three position switch for selecting the mode of operation. In the Hand position, the controller will run the pump continuously. Placing the switch in the Off position will stop the pump and keep it from running. The Auto position is the normal setting and the controller will start and stop the pump depending on system pressure.

PRESSURE CONNECTION – ¼ FNPT fitting for connecting to the piping system, refer to section A.10.5 of NFPA 20 for proper piping procedures.

INSTALLATION

The installation must meet the requirements of the National Fire Protection Association publications NFPA 20 and NFPA 70 and any local codes that may apply. Refer to the Outline Diagram for overall controller dimensions, mounting and anchoring details and conduit entry area.

MOUNTING THE CONTROLLER

The controller must be mounted “within sight” of the pump motor but so located that it will be away from water escaping from the pump or connections.

The controller is intended to be mounted to a wall or a welded structure that is part of the pump package. Refer to the Outline Diagram for mounting hole sizes and locations. If the controller is wall mounted, drill appropriate sized holes and insert wall anchors. If the controller is mounted to a welded structure, drill and tap the mounting holes.

Loosely install the mounting bolts, lock washers and flat washers through the holes in the controller. Before tightening the hardware, install shims as necessary to provide an even mounting surface for the controller. After all the hardware is in place, tighten evenly, verify the controller is level and that the door operated freely, add shims as required.

ELECTRICAL CONNECTIONS

Before making any connections, check the controller rating plate to assure the controller voltage, frequency and motor horsepower ratings are the same as the service voltage and pump motor used. The space available for the entry of electrical conduits is detailed on the Outline Drawing. It is the responsibility of the installing electrical contractor to supply all necessary wiring and install it in accordance with all applicable national and local electrical codes. Refer to the Field Connection diagram for further wiring information.

Rotate the Disconnecting Means handle to the Off position. Loosen the two screws securing the door, the screws are captive and will not fall out, swing open the door. Determine the best locations for the incoming power and motor leads. Using a hole saw or punch, cut the holes in the enclosure for the size of the conduit used and install the conduit.

Pull the cables through the conduit, connect the incoming lines to the top of the disconnect switch, for three phase controllers, connect to terminal L1, L2 and L3, for single phase controllers, connect to terminals L1 and L3.

Outgoing motor wiring connects to the bottom of the motor starter, uses terminals T1, T2 and T3 for three phase motors or terminal T1 and T2 for single phase controllers.

Install the neutral or grounded service conductors or the grounding conductors in accordance with all applicable national and local electrical codes for non-metallic enclosures. Refer to Article 250 of the National Electrical Code, NFPA 70.

ELECTRICAL MAKE READY

Every controller is thoroughly tested and inspected before it leaves the factory, however components and wiring connections can work loose during shipping and installation. Verify the components are securely mounted and that all electrical connections are tight. Clean out any debris that may have gathered during the installation process.

Verify the overload setting (see Figure 2) matches the full load current of the motor. If the full load current is not known, set the pointer to the value shown on the recommended setting chart located on the inside of the controller door.

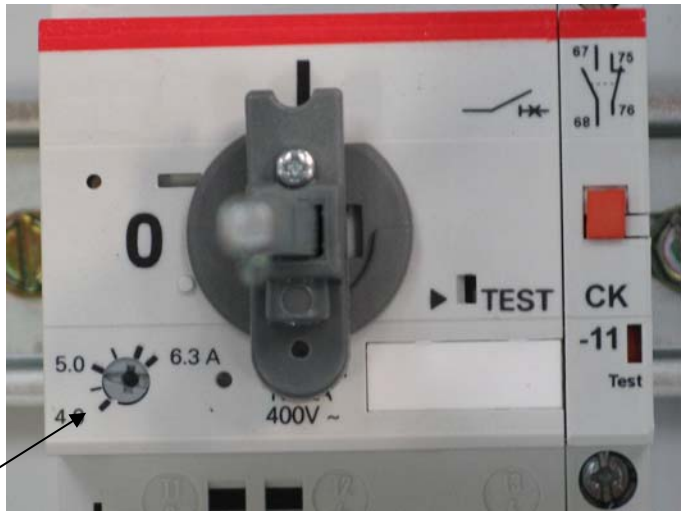

Figure 2
Overload Setting

PIPING

The pressure connection is located in the bottom of the controller, refer to the Outline Diagram. A ¼" FNPT fitting is supplied for connection to the sprinkler system. When tightening the piping, hold the hex part of the pressure fitting with a wrench to avoid spinning the fitting and putting undo strain on the pressure switch. Refer to figure 3 for typical piping arrangement.

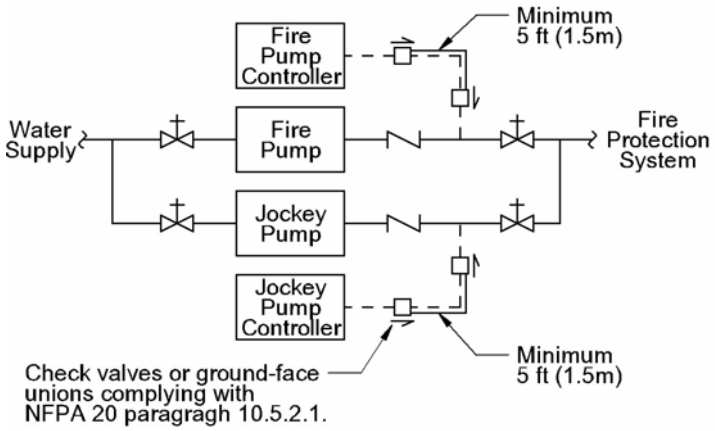

Figure 3
Pressure Sensing Line Arrangement

SETTING THE PRESSURE

The pressure is set using the adjustment screws located on top of the pressure switch and scale on the face of the unit, see figure 4. Set the cut out pressure first using the left hand adjustment screw, turning the screw counterclockwise increase the cut out pressure. The cut out pressure must be less than the churn pressure of the jockey pump otherwise the pump will not stop. The cut in pressure is the difference between the cut out pressure and the differential setting, for example, if the cut out pressure is set at 175 PSI and the differential is set at 15 PSI then cut in pressure is 175 – 15 or 160 PSI. The setting is made using the right hand adjustment screw, turning the adjustment screw clockwise increases the differential. All settings should be verified to a pressure gauge.

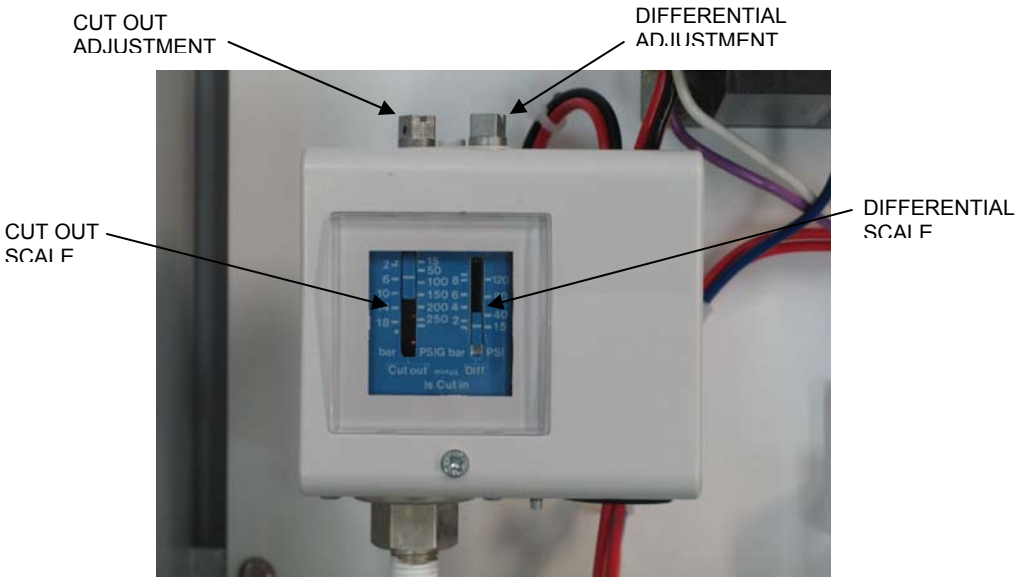

Figure 4
Pressure Switch

ENERGIZING THE CONTROLLER

Before closing and securing the controller door, motor rotation and pressure settings should be checked. **WARNING:** Energizing the controller with the door open exposes personnel to dangerous voltages levels; only qualified personnel shall perform the following.

INITIAL POWER UP

1. Verify all necessary valves are in their proper positions and water is available to the suction side of the jockey pump.
2. Verify the Hand-Off-Auto switch is in the Off position.
3. Rotate the disconnecting means clockwise to the On position.
4. Momentarily place the Hand-Off-Auto switch in the Hand position to check the pump rotation. If the rotation is incorrect, rotate the disconnecting means to the Off position, reverse any two of the motor leads on the bottom of the starter.
5. Rotate the disconnecting means clockwise to the On position and repeat.
6. Place the Hand-Off-Auto switch is in the Auto position to check the pressure switch settings to a test pressure gauge.
7. The pump should start when pressure is less than the cut in setting and continue to operate until the pressure exceeds the cut out setting.
8. Adjust the pressure switch as necessary.
9. Place the Hand-Off-Auto switch is in the Off position.
10. Rotate the disconnecting means to the Off position.
11. Close and secure the controller door.

CONTROLLER OPERATION

The jockey pump controller has a Hand-Off-Auto selector switch on the right hand side of the controller. Placing the switch in the Hand position will energize the motor starter and the motor will run continuously until the switch is placed in the Off position. When the switch is in the Auto position, the controller will operate the jockey pump as demanded by the system pressure. If the controller is equipped with the running period timer option, the pump will stop after the pressure is satisfied and the running period time has elapsed. If the switch is in the Off position, the jockey pump will not start regardless of system pressure.

CONTROLLER TESTS

Individual components may be tested to confirm proper operation of each. Because of the risk of electrical shock, these tests must be performed by qualified personnel. To do any of the following tests, first turn the disconnecting means to the Off position, undo the two screws holding the controller door closed and open the door.

DISCONNECTING MEANS

The disconnecting means provides motor overload and short circuit protection; each function can be individually tested to confirm its operation. Because either condition will cause the disconnecting means to turn off, a small flag indicator will extend if a short circuit condition was detected. A small screwdriver or probe shall be inserted into the appropriate slot on the face of the disconnecting means, see figure 5.

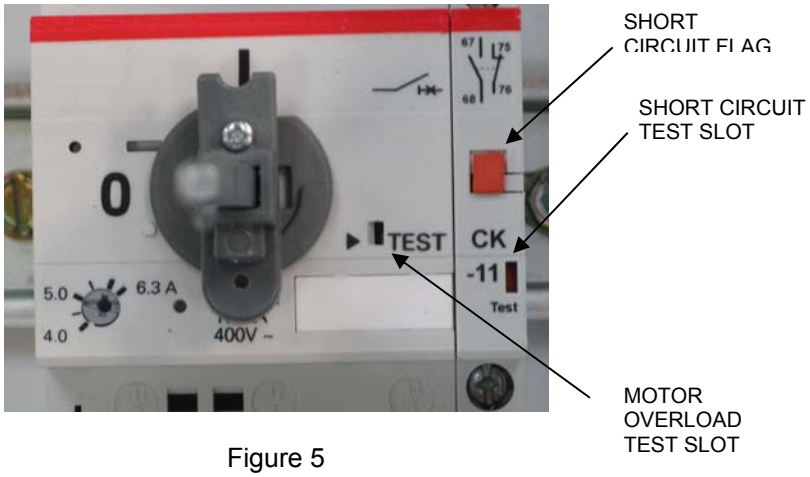

Figure 5
Disconnecting Means Test Slots

To test motor overload protection:

1. Rotate the disconnecting means to the On position.
2. Insert a screwdriver or probe into the TEST slot.
3. The disconnecting means handle should immediately snap to the Off position removing power from the controller.

To test the short circuit indicator:

1. Insert a screwdriver or probe into the CK slot.
2. The short circuit flag should extend, see figure 6.
3. Push the flag back to the normal position.
4. After the tests are completed, close and secure the controller door and turn the disconnecting means to the On position.

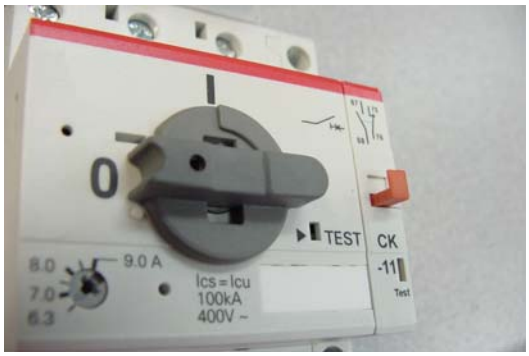

Figure 6
Short Circuit Flag

PRESSURE SWITCH

The pressure switch can be manually tested without having to lower or raise the system pressure. To test the pressure switch:

1. Loosen the cover screw on the face of the pressure switch.
2. Pull the cover forward slightly then up to remove the cover.
3. The test lever can be operated with a screwdriver, see figure 7, push down to start the pump, up to stop.
4. Replace the cover and secure.

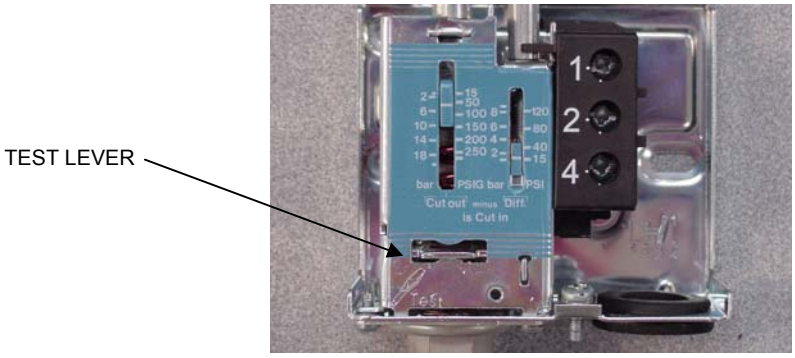

Figure 7
Pressure Switch Test Lever

RENEWAL PARTS

When ordering renewal or spare parts, the following information is required:

1. Controller Catalog Number.
2. Controller Serial Number.
3. Description of the part(s) required.

Description	Joslyn Clark Part Number	Recommended Quantity	
		Continental USA	Outside USA
Motor Protector –			
☐ 0.10-0.16 Amp	A10-466330-1		
☐ 0.16-0.25 Amp	A10-466330-2		
☐ 0.25-0.40 Amp	A10-466330-3		
☐ 0.40-0.63 Amp	A10-466330-4		
☐ 0.63-1.00 Amp	A10-466330-5		
☐ 1.00-1.50 Amp	A10-466330-6		
☐ 1.60-2.50 Amp	A10-466330-7	- - -	1
☐ 2.50-4.00 Amp	A10-466330-8		
☐ 4.00-6.30 Amp	A10-466330-9		
☐ 6.30-9.00 Amp	A10-466330-10		
☐ 9.00-12.5 Amp	A10-466330-11		
☐ 12.5-16.0 Amp	A10-466330-12		
☐ 16.0-20.0 Amp	A10-466330-13		
☐ 20.0-25.0 Amp	A10-466330-14		
Motor Contactor, 24 VAC Coil			
☐ 9 Amp	A10-466334-1		
☐ 11 Amp	A10-466467-1	- - -	1
☐ 17 Amp	A10-466468-1		
☐ 28 Amp	A10-466739-1		
Control Transformers – TR1			
☐ 120/24 VAC	A10-466337		
☐ 200/24 VAC	A10-466337		
☐ 230/24 VAC	A10-466337	- - -	1
☐ 380/24 VAC	A10-466469		
☐ 400/24 VAC	A10-469469		
☐ 460/24 VAC	A10-466337		
☐ 575/24 VAC	A10-466469		
Pressure Switch - PS			
☐ 15-290 PSI	A10-466335-1	- - -	- - -
☐ 90-450 PSI	A10-466335-2		
☐ Special Range	Consult Factory		
Running Period Timer – RPT	A10-466340-5	- - -	- - -
Stop Delay Timer – Opt D1	A10-466843-4		
Start Delay Timer - ST	A10-466341-5	- - -	- - -
Power Loss Relay – PA1	A10-466342-1	- - -	- - -
Power Loss Relay – PA			
☐ 120 Volt	JMRA022AT-J		
☐ 200 Volt	JMRA022AT-M		
☐ 230 Volt	JMRA022AT-N	- - -	- - -
☐ 400 Volt	JMRA022AT-U		
☐ 460 Volt	JMRA022AT-W		
☐ 575 Volt	JMRA022AT-Y		

Description	Joslyn Clark Part Number	Recommended Quantity	
		Continental USA	Outside USA
Hand-Off-Auto Switch Operator – SS1	N5CSMZ0N	- - -	- - -
Normally Open Contact Block – SS1	N5B10VN	- - -	- - -
Green Lens and Block – PL1	N5CLVD	- - -	- - -
Red Lens and Block – PL2	N5CLRD	- - -	- - -
Socket with Lamp – PL1, PL2	N5PDNVD	- - -	- - -
Lamp Only, 24 Volt – PL1, PL2	A22-351305-3	2	4
Disconnecting Means Handle ☐ Type 3R/12 ☐ Type 4/4X	 A10-459183 A10-456271-2	- - -	- - -
Line Terminal Block	A10-466332	- - -	- - -
Contactor Coupler (9-16 Amp) Contactor Coupler (28 Amp)	A10-466333 A10-466740	- - -	- - -