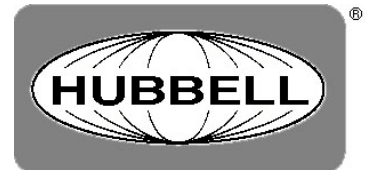


**Hubbell Industrial Controls, Inc.**

*A subsidiary of Hubbell Incorporated*

4301 Cheyenne Dr.

Archdale, NC 27263



Telephone (336) 434-2800

FAX (336) 434-2803

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**Instruction Manual**

**Pressure Makeup  
Jockey Pump Controller**

**Model LX-600**

Publication No. 194

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## Model LX-600 Jockey Pump Controller

### A. Receiving, Handling, and Storage

1. Immediately upon receipt, the Controller should be carefully unpacked and inspected for damage that may have occurred during shipment. If damage or rough handling is evident, file a damage claim with the transportation carrier.
2. If the Controller must be stored, cover it and place in a clean, dry location. Avoid unheated locations where condensation can result in damage to the insulation or corrosion of metal parts.

### B. Inspection and Installation Instructions

Note: See Figure 1 on page 4 to open the LX-600 cabinet.

1. Consult the motor nameplate to determine voltage, current, and horsepower rating and compare with the Controller nameplate for matching data.
2. Exercise all relays, switches, and contactors without power to see that they operate freely.
3. Check panel wiring and component mountings for loose fasteners resulting from vibration during shipping.
4. Inspect the control power transformer primary connections for agreement with the line voltage of the incoming power.
5. Mount the Controller securely to a firm or solid, non-combustible surface so that the Controller is not subject to much vibration. Excessive vibration may cause erratic operation of the pressure switch.
6. **Warning: Isolate power source before connecting power leads to prevent shock or accident hazard.**
7. Connect the incoming power wires to the top, line side, of the fused disconnect switch to terminals marked L1, L2, and L3. Connect the motor primary leads to the thermal overload terminals marked T1, T2, and T3.
8. Connect the water pressure sensing line to the pressure switch fitting on the bottom of the Controller cabinet. Refer to NFPA 20 for information on installation of the sensing line.

### C. Preliminary Test and Adjustments

1. Check incoming power for correct voltages on all phases before closing the safety disconnect. Power fuses must be installed unless purchased as a factory option.
2. Adjust the pressure switch set points to meet water system requirements.

To adjust ALCO pressure switch settings facing the scale, turn the LEFT (range) screw on top of the switch to adjust the pointer to desired (HIGH EVENT SETTING) cutout pressure setting. Turn the RIGHT (differential) screw on top of the switch to adjust the desired differential (LOW EVENT) pressure setting. (HIGH EVENT- DIFFERENTIAL=LOW EVENT).

\*Adjustment of the left range screw changes both high & low events.

\*Adjustment of the right differential screw changes the low event only.

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The scale values on the pressure switch is only for orientation purposes only. During testing of the Controller, verify the pressure switch settings by referring to the system pressure gage. Readjust settings as necessary to obtain desired STOP and START settings.

If a minimum run timer is installed, check for proper time setting. Approximately one minute for each ten horsepower is appropriate.

3. Verify that the adjustable current setting of the thermal overload is the same as the rated current of the motor.
4. The thermal overload is set for automatic reset of break contacts 95-96 and make contacts 97-98 at the factory. To test, turn the Reset pointer to Man and press the small bar in the TEST direction to trip. The red contact position indicator indicates the relay has tripped. Press the blue manual Reset button to reset. Note that the R/RO arrow on the Reset button is set to the RO position to prevent break contacts 95-96 from closing until the blue manual Reset button is released. Turn the Reset pointer back to Aut.
5. Check the motor for proper rotation as follows:
  - a) Close and latch the cabinet door.
  - b) Move the toggle switch to the OFF position.
  - c) Turn the fused disconnect switch to ON.
  - d) Move the toggle switch to MAN. Observe the motor rotation and move the switch to OFF.
  - e) If the motor does not start, open the fused disconnect and recheck power and control connections. If motor rotation is incorrect, reverse motor leads T1 and T2.
6. The Controller may now be placed in the AUTO mode.

## D. Sequence of Operation

Closing the safety disconnect energizes the control circuit transformer and supplies 120 VAC to the control ladder. The Controller is now ready for operation in either MAN or AUTO mode.

### Manual Start Operation

Placing the toggle switch in the MAN position directly energizes the starter contactor. The associated pump motor starts and runs until the toggle switch is return to the OFF position.

### Automatic Operation

Placing the toggle switch in AUTO causes the Controller to sequence according to the logic determined by the control circuit devices: pressure switch with differential adjustment, optional run period timers, or customer supplied remote control contacts.

When the system water pressure drops below the START pressure setting of the pressure switch the switch closes to energize the contactor and optional run timer(s). The contactor contacts close to start the motor across-the-line.

When water pressure rises above the STOP pressure setting of the pressure switch, the contactor opens the motor circuit. If a minimum run time relay is installed, the contactor remains energized until the

## Model LX-600 Jockey Pump Controller

time on that relay has elapsed, even if the pressure switch opens first. Moving the toggle switch to the OFF position de-energizes the contactor, overriding the run time relay.

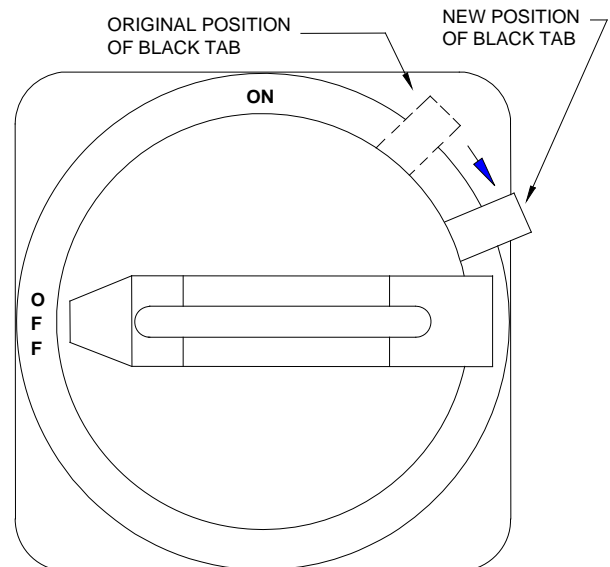
### E. Maintenance and Servicing

**Warning: To prevent shock or accident hazard isolate power circuits. Only trained personnel should be authorized to perform maintenance inside cabinet.**

1. A routine planned maintenance schedule should be established to inspect and clean the Controller.
2. Observe proper safety precautions when performing maintenance on the Controller. For inspections, open the safety disconnect switch to restrict all power to the L1, L2, and L3 terminals.
3. Visually inspect all devices for loose mounting or assembly fasteners. Inspect all wiring for loose terminal fasteners.
4. Inspect electrical power connections for evidence of overheating. If connections are tight, check the Controller and motor loads for proper ratings.
5. If operation problems occur, review the operation description and note at which stage the Controller malfunctions. This may identify the faulty component.
6. Placing the toggle switch in the MAN position bypasses most control circuits and permits the power circuits to be tested more easily. If the motor runs in the MAN mode but not in AUTO, check the components and the control circuits with an ohmmeter.
7. If the motor does not run in the MAN position, check the fuses, the fused disconnect switch, contactor, and thermal overload with an ohmmeter.

**Figure 1 Disconnect Switch**

To open the cabinet, turn the switch handle counterclockwise to the OFF position. While holding the handle in place, push the tab from the two o'clock position to the three o'clock position. Hold tab and handle while lifting cabinet door open to release handle from fused disconnect operating shaft.



## Model LX-600 Jockey Pump Controller

### Replacement Parts List

Description	Voltage	HP	Size	Part No.
Fused	200-240	1/3-5	30 A	650181
	440-600	1/3-15		
Disconnect	200-240	7 1/2-15	60 A	622351
	440-600	20-25		
Control Transformer	208/230 380/460		50 VA	57511-354
	380/575			57511-311
	208/230 380/460		100 VA	57511-355
	380/575			57511-312
Control Transformer Fuse		Bussman #MDL-1		57361-726

Description			Part No.
Pressure Switch (only)	ALCO	15-290 PSI	57501-050
Toggle Switch MAN/OFF/AUTO			SW3531
Run Period Timer	(option)		31658-111
Running Light (socket)	(option)		402066520
Running Light (lens)	(option)		402067520
Lamp only	(for above)		80324-905

## Model LX-600 Jockey Pump Controller

### Replacement Parts List (Continued)

Description	Voltage	HP	Size	Part No.
Contactor	200-240	1/3-2	9 A	57300-871
	380-415	1/3-3		
	440-480	1/3-5		
	575-600	1/3-7 1/2		
	200-208	3-5	23 A	57300-711
	380-415	5-10		
	220-240	3-7 1/2		
	440-480	7 1/2-15		
	575-600	10-20		
	200/208	10	43 A	57300-721
	380-415	15-20		
	220-240	10-15		
	440-480	20-25		
	575-600	25		

Motor Starter Overload Relay						
Horse Power @					Size	Part No.
200/208 V	220/240 V	380/415 V	440/480 V	575/600 V	(Amp)	
				1/3	0.45-0.63	57300-883
		1/3	1/3		0.55-0.80	57300-884
				1/2	0.75-1.00	57300-885
			1/2	3/4	0.90-1.30	57300-886
1/3	1/3	1/2		1	1.10-1.60	57300-887
		3/4	3/4		1.40-2.00	57300-888
1/2	1/2	1	1	1 1/2	1.80-2.50	57300-889
				2	2.30-3.20	57300-866
3/4	3/4	1 1/2	2	3	2.90-4.00	57300-890
1	1	2			3.50-4.80	57300-891
	1 1/2		3		4.50-6.30	57300-892
1 1/2	2	3		5	5.50-7.50	57300-893
2			5	7 1/2	7.20-10.00	57300-894
	3	5			6.00-10.00	57300-803
3	5	7 1/2	7.5-10		10.00-16.00	57300-804
5	7 1/2	10	15		16-24	57300-805
7 1/2	10	15	20		18-30	57300-806
	15	20			30-45	57300-807

## Model LX-600 Jockey Pump Controller

### Replacement Parts List (Continued)

<b>Class “J” Time Delay Fuses – Disconnect</b>						
Horse Power @					Size (Amp)	Part No.
200/208 V	220-240 V	380-415 V	440-480 V	575-600 V		
			1/3		1.25	57361-652
		1/3	1/2	1/2	2	57361-654
	1/3	1/2		3/4	2.5	57361-655
1/3			3/4	1	3	57361-656
	1/2	3/4	1	1 1/2	4	57361-657
1/2		1		2	5	57361-658
3/4	3/4	1 1/2	1 1/2–2		6	57361-659
	1	2		3	8	57361-660
1			3		10	57361-661
1 1/2	1 1/2	3		5	12	57361-662
2	2		5	7 1/2	15	57361-663
	3				17.5	57361-664
3		5–7 1/2	7 1/2	10	20	57361-665
			10		25	57361-666
5	5–7 1/2	10	15	15–20	30	57361-667
7 1/2					45	57361-670
10	10	15	20	25	50	57361-671
	15	20	25		60	57361-672