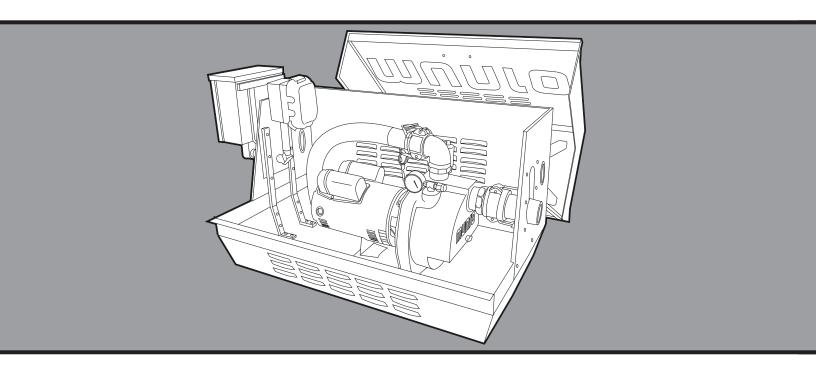


Complete PRO II



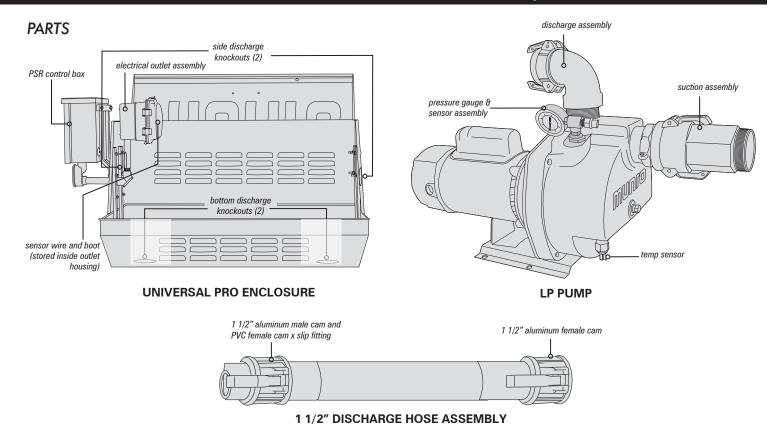
1.800.942.4270 mpi@munropump.com www.munropump.com



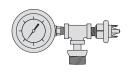
TABLE OF CONTENTS

3	Complete PRO II Assembly Guide
10	Munro LP Series Pump Operation & Maintenance
18	Munro SmartBox Reduced Incoming Amperage
21	Warranty Statement
22	Enclosure Dimensions

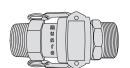
Munro Complete PRO II ASSEMBLY GUIDE







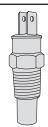
Pressure Gauge & Sensor Assembly



Suction Assembly



Discharge Assembly

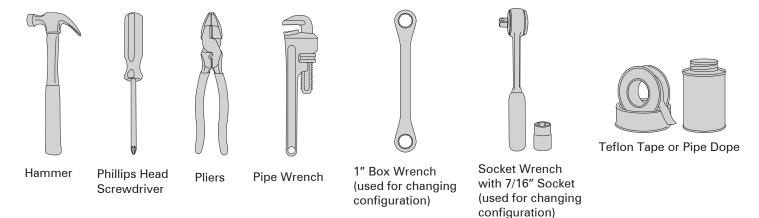


Temp Sensor



Sensor Wire & Boot

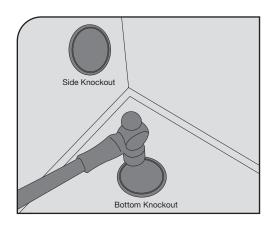
TOOLS RECOMMENDED FOR ASSEMBLY



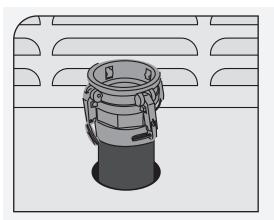
CONSIDERATIONS BEFORE BEGINNING ASSEMBLY

Before beginning assembly, consider how you will want to configure your pump station. The pump station comes configured for a right-facing pump installation. If you need to change the direction of the pump, be sure to begin with the "changing the direction of the pump" instructions (p.4).

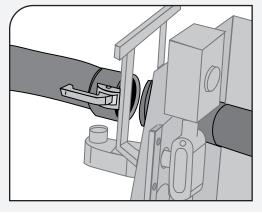
Step 1 - Preparing the enclosure for irrigation system access knockouts



- Using a hammer and pliers, remove the appropriate discharge knockout from the CP unit – concentrating on the two metal tabs.
- 2. Orient the enclosure to match to the irrigation inlet.

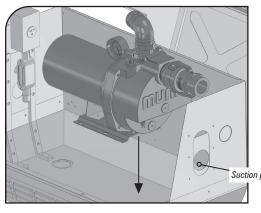


3. a) If using a bottom knockout – place Universal Pro Enclosure so irrigation inlet pipe enters the enclosure through bottom knockout hole. Remove the PVC female cam x slip fitting from the hose assembly and glue the slip fitting to inlet pipe. Hose will pair to irrigation inlet inside the enclosure.



b). If using a side knockout – place Universal Pro Enclosure so irrigation inlet pipe aligns with side knockout. Remove the PVC female cam x slip fitting from the hose assembly and glue the slip fitting to inlet pipe. Hose will feed through the sidewall to pair with irrigation inlet pipe.

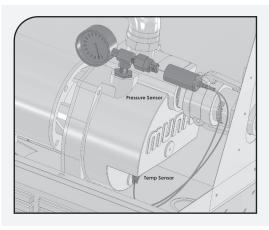
Step 2 - Setting and finalizing the pump



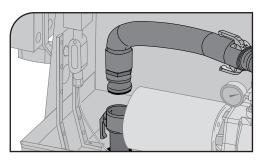
- 1. Remove the packing board from bottom of the pump.
- 2. Set the pump into the pump enclosure with the suction fittings facing the suction pass-through panel
- 3. Push the threaded end of the suction fitting through the suction pass-through panel to connect to water source. We recommend threading this fitting to a valve for isolation purposes.

Suction pass-through panel

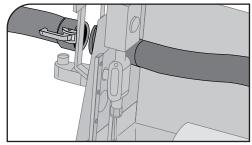
Step 2 - Setting and finalizing the pump (Continued)



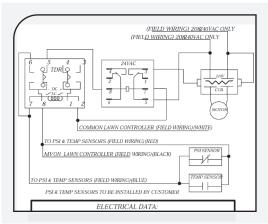
- 4. Locate the sensor wire and boot inside the electrical outlet assembly.
- 5. Connect the quick disconnect fittings, closest to the rubber boot, to the pressure sensor. Cover this connection with the boot by sliding it into place.
- 6. Connect the remaining quick disconnect fittings over the spade terminals of the temperature sensor.



- 7. Attach the female end of the discharge hose assembly to the 90° elbow of the discharge assembly and the male end to the irrigation inlet fitting.
- 8. Plug the electrical cord into the electrical outlet.



Step 3 – Wiring the pump control to the irrigation controller



- 1. The pump control is prewired to the electrical outlet assembly.
- 2. To wire the pump control to your irrigation controller, refer to the wiring diagram inside the control panel.



⚠Wire motor for correct voltage. See "Motor & Electrical" section of this manual and motor nameplate.

A Ground motor before connecting to power supply.

Meet National Electrical Code, Canadian Electrical Code, and local codes for all wiring.

A Follow wiring instructions in this manual when connecting motor to power.

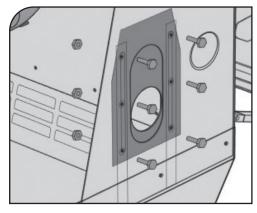
supply.

Changing the direction of the pump

To meet your installation requirements, you can change the side through which the electrical and suction enter the enclosure.

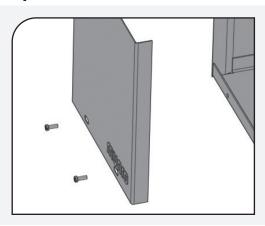
⚠ Use caution. Some edges may be sharp!

Step 1 - Remove the suction pass-through panel

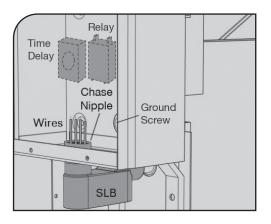


1. Remove the nuts and bolts holding the suction pass-through panel in place and slide the suction pass-through panel up and out of the enclosure. Set the panel aside.

Step 2 - Remove the electrical assembly

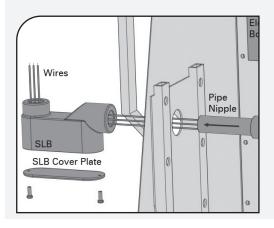


1. Remove the screws on the front of the pump control box to remove the front cover.

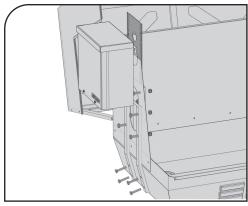


- Remove the time delay device (if supplied) by gently rocking and pulling from the socket.
- 3. Loosen all connected wires from the relay, ground screw and time delay socket.
- 4. Unscrew the chase nipple on the inside bottom of the pump control box and SLB to disconnect the SLB from the box. Use 1" box wrench to loosen the chase nipple.

Step 2 – Remove the electrical assembly (Continued)

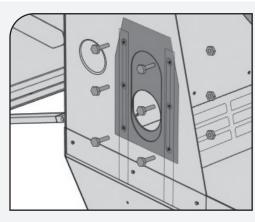


- 5. Using a screwdriver, remove the cover plate from the SLB.
- 6. Out of the bottom, pull the wires from the pump control box through the chase nipple and SLB.
- 7. On the outside of the pump enclosure, unscrew the SLB from the pipe nipple on the electrical outlet assembly. Pliers may be needed.
- 8. Feed the outlet assembly, wires and pipe nipple through the round hole on the electrical pass-through panel, to the inside of the enclosure.



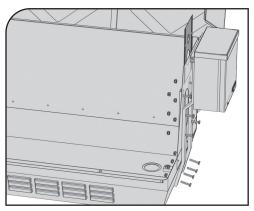
- 9. On the bottom of the enclosure, remove the 4 nuts and bolts holding the control box brace in place.
- 10. Remove the 6 bolts that hold the electrical pass-through panel in place, 4 are shared with the control box brace.
- 11. With the control box still attached, remove the outside braces. Slide the electrical pass-through up and out of the enclosure.

Step 3 – Replacing the suction pass-through panel



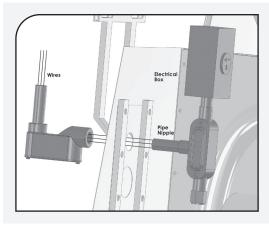
 Slide the suction pass-through panel into place on the opposite side of the enclosure, ensuring that the suction hole is aligned to the pump suction height. Replace the nuts and bolts to secure the suction pass-through panel.

Step 4 - Reconnecting the electrical assembly on the opposite side

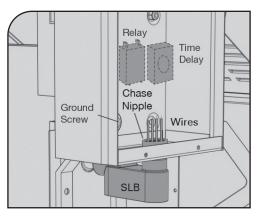


 Holding the pump control box brace, with pump control attached, place on the outside of the enclosure and secure the nuts and bolts into place.

Step 4 - Reconnecting the electrical assembly on the opposite side (Continued)

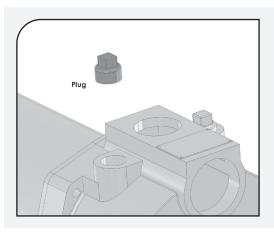


- 2. With the electrical outlet assembly on the inside, feed the outlet assembly wires and pipe nipple through the round hole on the electrical pass-through panel of the enclosure.
- 3. On the outside of the pump enclosure, thread the wiring through the round opening on the end of the SLB. Screw the SLB to the pipe nipple on the electrical outlet assembly. Ensure that the other round opening is facing up, toward the control box, and the uncovered access is facing down.



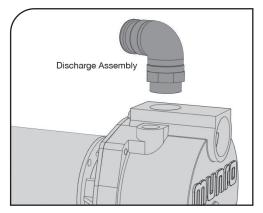
- 4. Screw the chase nipple through the knockout hole on the bottom of the pump control box and into the SLB to secure the SLB to the bottom of the pump control box. Use 1" box wrench to tighten the chase nipple on the SLB.
- 5. Thread the wiring from the SLB into the pump control box, passing through top SLB hole and chase nipple. Replace SLB cover plate.
- 6. Rewire the control panel using the instructions found on the inside of the box lid. Replace time delay device (if supplied).

Step 5 - Changing the pump direction



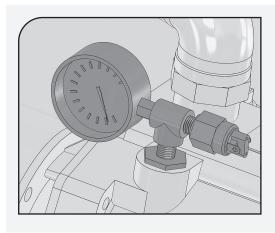
Remove Forward Plug

1. Remove front plug at the top of the pump.



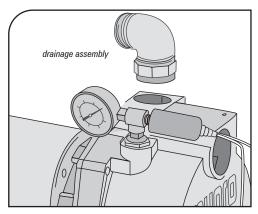
2. Using a pipe wrench, remove top discharge assembly from top of pump.

Step 5 – Changing the Pump Direction (Continued)



Pressure Gauge and Pressure Sensor

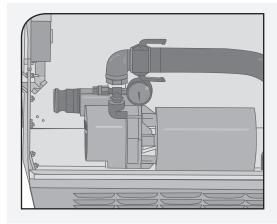
- 3. Use a wrench to remove the pressure gauge and sensor assembly from back-side opening.
- 4. Relocate the gauge and pressure sensor assembly to the opposite (now front facing) side of the pump, ending parallel to pump motor.



Discharge Fittings

- 5. Reinstall the discharge assembly in the top discharge port.
- 6. In most cases, the open end of 90 elbow should be pointing to the back of the pump.

Note: Pipe dope or Teflon tape is needed at each connection point. Fully tighten each connection with a pipe wrench.



Final Appearance

7. The installation of pump fittings should be complete and appear as pictured.

READ AND FOLLOW SAFETY INSTRUCTIONS!

This is the safety alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

A DANGER warns about hazards that WILL cause serious personal injury, death or major property damage if ignored.

AWARNING warns about hazards that **CAN** cause serious personal injury, death or major property damage if ignored.

A CAUTION warns about hazards that **WILL** or **CAN** cause minor personal injury or property damage if ignored.

The label **NOTICE** indicates special instructions which are important but not related to hazards.

MOTOR AND ELECTRICAL:

Carefully read and follow all safety instructions in this manual and on pump.



Electric pump motors can be hazardous if not properly installed. Call a licensed electrician if unsure of any electrical connection.

GENERAL SAFETY - ELECTRICAL

- 1. AWARNING Every time work is to be performed on a pump, the power supply should be terminated at the breaker box.
- AWARNING Follow all local electrical and safety codes, including the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
- 3. **AWARNING** Replace damaged or worn cords immediately.
- 4. Ground motor before connecting to power supply.
- 5. **AWARNING** Use extreme caution around an operating pump and motor it may be hot enough to cause serious burns.

GENERAL OPERATION – ELECTRICAL

- 1. Refer to motor nameplate to verify that supply voltage and motor wiring is the same.
- 2. Verify motor phase against supply power phase.

GENERAL SAFETY – MOTOR

- 1. AWARNING Disconnect the main power before handling the unit for ANY REASON.
- 2. AWARNING An operating motor can run between 250°F and 311°F depending on insulation rating. Never touch a motor without first determining the housing temperature.
- 3. Keep pump motor ventilated to reduce damage due to heat.
- 4. A DANGER Motor is not waterproof and should never be submersed into any liquid.
- Motor is designed to work with up to a 15 degree angle of water impact. Do not allow water to spray directly onto motor. External motor protection should be used to eliminate

- environmental concerns.
- To reduce the risk of electric shock, the motor must be securely and adequately grounded. Refer to National Electric Code (NEC Article 250 – Grounding) for additional information.
- 7. When in doubt, call a licensed electrician. High voltage can shock, burn or cause death.

WIRING CONNECTION:

ROTATION

1. When facing the suction tapping, all Munro pumps run in a Counter-Clockwise (CCW) rotation only. Rotation from the motor end perspective is Clockwise (CW) and is marked as such on the motor nameplate. Tampering with, or reversing, the rotation will damage your pump and void the warranty.

CHECK MOTOR ROTATION – 3 PHASE

- A fractional second application of power should be applied to all 3-phase motors to verify rotation of shaft as described above. This is sometimes referred to as "bumping the motor".
- 2. Improper rotation can cause catastrophic pump failure and voids the warranty.
- 3. Reversing two of the three power wires makes the motor run in the opposite direction.

GENERAL WIRING INFORMATION

 Refer to the connection diagram located on the nameplate of the motor.

GROUNDING

- Grounding the motor can be achieved by securing the motor to a metal raceway system. Alternately a separate grounding wire connected to bare metal on the motor frame, or to the green grounding screw located inside the motor terminal box, or other suitable means is acceptable. (Refer to NEC Article 250 – Grounding for specifics.)
- 2. Verify motor grounding provision on the nameplate before connecting any wires to the motor.

MOTOR PROTECTION

- 1. Fuses and circuit breakers are used as a safety device for the wire circuit. They do NOT offer motor protection.
- Consult local or national electric codes for proper fuse protection based on the motor data located on the motor nameplate.

THERMAL OVERLOAD

- 1. All motors must be thermally protected either within the motor or externally.
- 2. The internal overload is usually automatic and resets itself once the temperature has dropped to a safe point.
- 3. Overload helps protect the motor from burnout from overload of low voltage, high voltage and other causes.
- Frequent tripping of the overload indicates motor or power problems. Immediate professional attention is recommended.
- 5. AWARNING NEVER examine, make wiring changes or touch the motor before disconnecting the electrical supply.

 Thermal overload protectors automatically reset and can close the electrical circuit without warning.
- AWARNING The overload should never be tampered with or removed.

PUMP:

GENERAL SAFETY – PUMP

- 1. AWARNING An operating pump, with a blocked discharge, will heat the water and pump housing. Allow pumps to cool before handling.
- 2. High temperature sensors can help protect plastic plumbing from disfiguring and/or expanding.
- Running a pump without water may cause damage to the seal.

GENERAL OPERATION – PUMP

- 1. Locate the pump as close to the water source as is practical.
- 2. Total suction lift (vertical lift plus any friction loss in suction line) should not exceed 10' for optimal performance. Suc tion lift of 15' is attainable depending on elevation, water temperature, and atmospheric condition. Pump performance is affected when suction lift exceeds 15'.
- Fill the pump case and suction pipe with water to expel as much air as possible prior to start-up. Running a pump dry may cause damage to the seal and void warranty.
- 4. Pump and pipe must be drained if there is any danger of freezing.

PIPE CONNECTION

- Plastic or galvanized steel pipe are most commonly used. Support pipe as needed.
- Keep suction and discharge lines as large as possible. Pipe should not be smaller than the corresponding suction and discharge holes.
- 3. Avoid excess fittings when possible. Use straight runs when possible.
- 4. All joints and connections should have pipe-specific sealing compound applied and be completely tightened.
- 5. Isolation valves or unions on suction and discharge allow for easy pump removal with multi-pump or positive inlet pressure applications.
- 6. Suction pipe should never have a higher elevation than the pump.

OPERATION:

INITIAL PRIMING

- 1. Remove one priming plug from pump housing and fill the pump body and suction line completely with water.
- 2. Normal system start-up will take a few minutes for air to expel from system and water to begin to cycle depending on suction lift. If no water is flowing after a few minutes, turn the pump off and refer to troubleshooting guide (p.8). Do NOT run pump dry for any period of time.
- 3. Unit must be full of liquid before operating. Never run dry. Running a pump dry may cause damage to the seal and void the warranty.
- Do not run against a closed discharge for more than a few minutes.

ROTATION

- 1. Single phase motors are pre-wired for CCW, as viewed from suction tapping, and should never be reversed.
- 2. Three phase motors must be verified at job site.

MAINTENANCE – LUBRICATION

1. No lubrication is required. The ball bearings are permanently lubricated and sealed at the factory.

MAINTENANCE - FREEZING

- 1. Drain the entire system if there is a danger of freezing.
- 2. Drain plugs are provided in both upper and lower pump case chambers.
- 3. Filling the pump with non-toxic Munro Freeze Defeat and

replacing the plugs, will reduce the oxidation in the case over the winter. Before spring start-up, drain the Munro Freeze Defeat from the case.

RECOMMENDED OPTIONAL EQUIPMENT:

- 1. Strainer Use of strainers prevent large debris from entering pump system through suction line.
- Pressure Gauge Use of a pressure gauge helps to troubleshoot and identify a pump or system issue.
- 3. Discharge Valve Use of a gate or ball valve on the discharge side of a pump allows pump isolation for removal.
- 4. Foot Valve Use of a foot valve (or check valve) can aide the priming of a centrifugal pump. If suction lines are kept full, the pump does not have to evacuate the air before pumping water.

ROTARY SEAL ASSEMBLY REPLACEMENT:

▲ CAUTION Make certain the power supply is disconnected before attempting to service the unit!

SEAL REMOVAL

- Remove the case bolts and separate pump case from motor assembly.
- 2. Remove diffuser bolts and diffuser from motor assembly.
- 3. Insert an open-end 9/16" (LP075B, LP100B, LP150B, LP200B, LP300B) or a 5/8" (LP1502B) wrench into the side of the mounting ring, slowly turning the impeller until the wrench seats itself onto the flats of the shaft. Once properly seated, the wrench will keep the shaft from turning. LP3005B model uses keyed shaft and sleeve. Removal of these impellers may require high heat to remove the shaft sleeves.
- 4. Expose the seal assembly by spinning the impeller counter-clockwise to unthread it from the motor shaft.
- 5. The seal spring will release as the impeller is removed.
- 6. Being careful not to damage the motor shaft, remove the seal head, seat and rubber from the seal pocket. The use of a screwdriver or similar tool may be necessary.
- 7. Should the seal be difficult to remove, the mounting ring can be completely removed for easier access by taking out the mount ring bolts.
- 8. Once the seal is removed, clean the pocket removing all debris

A CAUTION The rotary seal assembly must be handled carefully to avoid damaging the precision lapped faces of the sealing components.

SEAL INSTALLATION

NOTICE: It is recommended to only install new seals. Do not install used or dirty seals.

NOTICE: Application of a light coat of multi-purpose chassis grease to the outer diameter of the rubber gasket may make installation easier. Be certain the seat is kept clean and free of dirt and/or grease at all times.

- Insert the seal seat rubber gasket into the recessed area of the mount ring.
- 2. Slip the seal head assembly onto the motor shaft.
- 3. Using uniform pressure, be sure the seal's seat or mounting ring has completely bottomed-out in recessed area.
- 4. After placing the spring, install the impeller and bolt the diffuser onto the motor assembly.
- 5. Replace and bolt the pump body to the motor assembly.

Call Munro technical support for any questions relating to start-up or operation of this pump.

Toll Free: 1.800.942.4270

Munro LP Series Pump OPERATION & MAINTENANCE

PUMP PERFORMANCE

LP Series 3/4 HP - 3 HP

НР	20	25	20	Disch	arge Pres	J.S. Gallons sure (PSI) a	at 5' Suctio	on Lift	CO	CF.	70	Shut Off Pressure PSI	Suction Pipe Tap	Discharge Pipe Tap	Max ▲ Suction Lift
	20	25	30	35	40	45	50	55	60	65	70				
3/4	63	53	43	33	25							45	2"	1-1/2"	15 Ft.
1	73	65	57	47	35	18						47	2"	1-1/2"	15 Ft.
1-1/2	75	70	68	60	48	35						49	2"	1-1/2"	15 Ft.
2	102	98	92	82	74	61	52	40				60	2"	1-1/2"	15 Ft.
3	115	114	112	105	100	88	72	56	30			61	2"	1-1/2"	15 Ft.

▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.

MAXIMUM CASE PRESSURE --- 150 PSI

LP1502

НР				acity - U.S. G ge Pressure (Shut Off Pressure PSI	Suction Pipe Tap	Discharge Pipe Tap	Max ▲ Suction Lift			
	20	30	40	50	60	90						
2.5			75	67	56	38	0	0	80	2"	1-1/2"	15 Ft.

▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.

MAXIMUM CASE PRESSURE --- 100 PSI

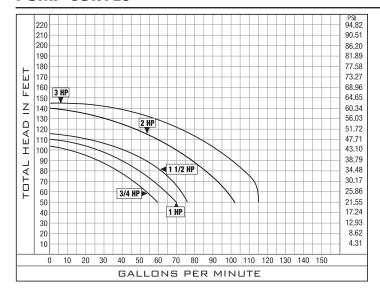
LP3005

НР					pacity - U rge Press							Shut Off Pressure PSI	Suction Pipe Tap	Discharge Pipe Tap	Max ▲ Suction Lift	Model Number
	20	25	30	35	40	45	50	55	60	65	70	131	тар	тар	Liit	
5			145	137	132	123	110	98	85	67	47	75	3"	3"	15 Ft.	LP3005B
5						120	110	98	85	67	47	75	3"	3"	15 Ft.	LP3005B3
5		160	154	145	135	130	116	107	95	84	63	78	3"	3"	15 Ft.	LP3005B3B

▲ Suction lift varies, depending upon elevation (altitude) and water temperatures.

MAXIMUM CASE PRESSURE --- 100 PSI

PUMP CURVES





PUMP SPECIFICATIONS

LP Series 3/4 HP - 3 HP

					Motor Voltage		Sc	ervice Facto	r Motor Am	ps		Max
HP	Туре	Volts/Amps	Hz	RPM	(Factory)	;	Single Phas	e		Three Phase)	Liquid
					Connected	115V	208V	230V	208V	230V	460V	Temperature
3/4						11.6	5.8	5.8				
1	0: 1	115/208-230				16.6	8.5	8.3				
1-1/2	Single Phase		60	3450	230V	23	12.5	11.5				180°F
2	Filase	200, 220					13	12				
3		208-230					18	17				
3/4									2.6	2.8	1.4	
1										3.6	1.8	
1-1/2	Three	208-230/460	60	3450	230V				5.4	5.2	2.6	180°F
2	Phase								6.8	6.6	3.3	
3										9.2	4.6	

Motor info subject to change without notice, please consult motor nameplate.

LP1502

					Motor Voltage		Se	rvice Facto	r Motor Am	ps		Max
HP	Туре	Volts/Amps	Hz	RPM	(Factory)	;	Single Phase)		Three Phase		Liquid
					Connected	115V	208V	230V	208V	230V	460V	Temperature
2.5	Single Phase	230	60	3450	208/230V		15.7	16				180°F
2.5	Three Phase		60	3450	230/460					8.75	4.35	180°F
		,	Mo	tor info subiec	t to change withou	it notice, ple	ase consult m	otor namepla	ate.			

LP3005

					Motor Voltage		Sc	ervice Facto	r Motor Am	os		Max
HP	Туре	Volts/Amps	Hz	RPM	(Factory)		Single Phas	е		Three Phase		Liquid
					Connected	115V	208V	230V	208V	230V	460V	Temperature
5	Single Phase	230	60	3450	230V		27	24.5	-			180°F
5	Three Phase	208-230/460	60	3450	230V					14	7	180°F
*5	Three Phase	230/460	60	3450	230/460V					17.2	8.6	180°F
		Motor i	nfo subiect t	o change with	out notice, please	consult mot	or nameplate	. * Phase Con	version Com	patible		

WIRING SIZE CHART

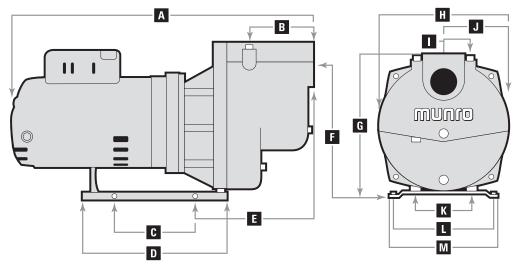
	Motor Rating		Circuit	Fuse	Full Load			Co	pper Wire Si	ze		
Volts	HP	Phase	Size	Size	Amps	KW	12	10	8	6	4	2
	1/4	1	20	10	5.8	0.186	291	464	692	1171	1863	2350
	1/3	1	20	10	7.2	0.246	230	365	546	924	1471	2338
120	1/2	1	20	15	9.8	0.373	171	272	407	689	1096	1742
(1ø)	3/4	1	20	15	13.8	0.559	130	207	310	524	834	1326
,	1	1	20	20	16	0.746	99	157	236	399	635	1009
	1-1/2	1	30	25	20	1.12		128	192	325	515	822
	1/4	1	20	5	2.9	0.186	1166	1853	2769	4685	7453	11850
	1/3	1	20	5	3.6	0.246	920	1462	2186	3699	5884	9355
	1/2	1	20	8	4.9	0.373	685	1090	1629	2756	4384	6970
	3/4	1	20	8	6.9	0.559	522	829	1240	2098	3337	5305
240	1	1	20	10	8	0.746	397	631	944	1597	2540	4039
(1ø)	1-1/2	1	20	15	10	1.12	269	427	639	1081	1720	2734
, ,	2	1	20	20	12	1.49	259	411	615	1041	1656	2633
	2-1/2	1	30	20	11.6	1.9	220	344	522	885	1407	2238
	3	1	30	25	17	2.24	184	292	437	739	1176	1871
	5	1	40	30	28	3.73		198	296	502	798	1269

	Motor Rating		Circuit	Fuse	Full Load			Co	opper Wire Si	ize		
Volts	HP	Phase	Size	Size	Amps	KW	12	10	8	6	4	2
	1-1/2	3	20	10	6.6	1.12	530	843	1340	2131	3389	5385
208	2	3	20	15	7.5	1.49	407	648	1031	1639	2607	4145
	2-1/2	3	20	15	9.0	1.9	346	551	876	1393	2216	3523
(3ø)	3	3	20	15	10.6	2.24	289	459	731	1162	1849	2939
	5	3	30	25	16.7	3.73	181	289	459	730	1162	1847
	1-1/2	3	20	10	6	1.12	641	1019	1522	2576	4098	6516
240	2	3	20	10	6.8	1.49	492	783	1170	1979	3148	5006
	2-1/2	3	20	15	8.2	1.9	418	666	995	1682	2676	4255
(3ø)	3	3	20	15	9.6	2.24	354	563	841	1423	2264	3600
	5	3	30	20	15.2	3.73	243	386	577	977	1555	2472
	1-1/2	3	20	5	3	1.12	2693	4280	6396			
480	2	3	20	5	3.4	1.49	2019	3210	4797	8116		
	2-1/2	3	20	10	4.0	1.9	1716	2729	4077	6899		
(3ø)	3	3	20	10	4.8	2.24	1615	2568	3837	6492	10328	
l	5	3	20	10	7.6	3.73	973	1547	2311	3911	6221	9891

Values are for estimating purposes only and may not meet NEC code. Design should be verified.

PUMP DIMENSIONS

LP Series 3/4 HP - 3 HP

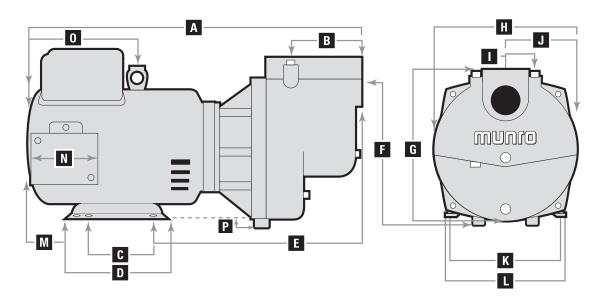


HP	Discharge	Suction	Α	В	С	D	E	F	G	Н	- 1	J	K	L	М
3/4	1 1/2"	2"	19 3/4"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
1	1 1/2"	2"	19 3/4"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
1 1/2	1 1/2"	2"	19 3/4"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
2	1 1/2"	2"	21 3/8"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"
3	1 1/2"	2"	20"	3 5/8"	4 1/4"	8 1/2"	7 1/2"	9 1/2"	10 7/8"	9 1/2"	2 3/8"	4 3/4"	2 5/8"	5 1/4"	6"

1502

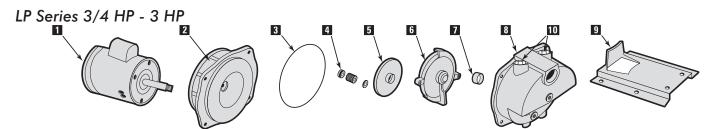
HP	Discharge	Suction	Α	В	С	D	Е	F	G	Н	I	J	K	L	M
2.5	1 1/2"	2"	20 7/8"	4 1/4"	7.95"	14"	9 1/4"	11 1/4"	13 1/2"	11 1/2"	3"	5 3/4"	4"	7"	8"

LP3005



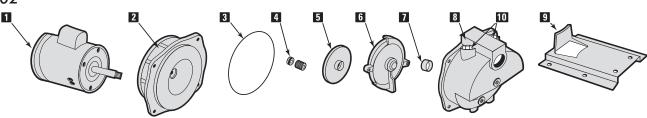
HP	Discharge	Suction	Α	В	С	D	E	F	G	Н	1	J	K	L	M	N	0	P
5	3″	3"	21 3/4"	4"	4 1/2"	6 1/2"	13 1/2"	9 1/2"	12 5/8"	11"	3 1/8"	5 5/8"	7 1/2"	8 1/2"	2 1/2"	4 1/4"	7 1/2"	1 1/2"

PARTS BREAKDOWN



SINGLE	HORSEPOWER	3/4	1	1 1/2	2	3
РНА5Е	MODEL NO.	LP075B	LP100B	LP150B	LP200B	LP300B
DESCRIPTION	PART NO.					
Motor, Nema J - 1 Phase Motor Access Cover Screw, Access Cover		MLP119370	MLP119399	MLP119219	MLP26452	MLP26453
Mounting Ring Hex hd. cap screws 3/8 x 3/4" Square Cut Gasket Seal, Rotary w/Spring	MLP1300 MLPB909 MLPG001 SCC800	1 4 1	1 4 1 1	1 4 1	1 4 1	1 4 1 1
Impeller, Brass "B" Models Diffuser Hex HD. Cap Screws 1/4 x 1 1/4" Rubber Diffuser Gasket	MLP1201 MLPB903 MLPG002	MLP1407 1 2 1	MLP1410 1 2 1	MLP1415 1 2 1	MLP1420 1 2 1	MLP1430 1 2 1
Pump Body Hex HD. Cap Screws 7/16 x 1"	MLP1100 MLPB912	1 4	1 4	1 4	1 4	1 4
Base - 48 Y-Frame Motor Base - 56 J-Frame Motor Hex HD. Cap Screws 3/8 x 1/2" Drain Valve 1/4" NPT 3/4" Priming Plug 1/4" Sensor Port	MLP1548 MLP1556 MLPB907 MLP913	1 2 2 2 2 1	1 2 2 2 2	1 2 2 2 1	1 2 2 2 2	 1 1 2 2 1
ì	DESCRIPTION Motor, Nema J - 1 Phase Motor Access Cover Screw, Access Cover Mounting Ring Hex hd. cap screws 3/8 x 3/4" Square Cut Gasket Seal, Rotary w/Spring Impeller, Brass "B" Models Diffuser Hex HD. Cap Screws 1/4 x 1 1/4" Rubber Diffuser Gasket Pump Body Hex HD. Cap Screws 7/16 x 1"	PHASE MODEL NO. DESCRIPTION PART NO. Motor, Nema J - 1 Phase Motor Access Cover Screw, Access Cover Mounting Ring Hex hd. cap screws 3/8 x 3/4" Square Cut Gasket Seal, Rotary w/Spring MLP1300 MLPB909 MLPG001 SCC800 Impeller, Brass "B" Models Diffuser Hex HD. Cap Screws 1/4 x 1 1/4" Rubber Diffuser Gasket MLP1201 MLPB903 MLPG002 Pump Body Hex HD. Cap Screws 7/16 x 1" MLP1100 MLPB912	PHASE MODEL NO. LP075B DESCRIPTION PART NO. Motor, Nema J - 1 Phase Motor Access Cover MLP1300 MLP1300 1 Mounting Ring Hex hd. cap screws 3/8 x 3/4" MLP300 1 4 SQuare Cut Gasket MLPG001 1 1 SCC800 1 MLPG001 1 SCC800 1 MLP1407 Diffuser MLP1201 1 MLP1407 Diffuser MLP1201 1 MLPB903 2 MLPG002 1 Pump Body Hex HD. Cap Screws 7/16 x 1" MLP1100 1 MLP1100 1 MLPB912 4	MODEL NO. LP075B LP100B	Model No. LP075B LP100B LP150B	MODEL NO. LP075B LP100B LP150B LP200B



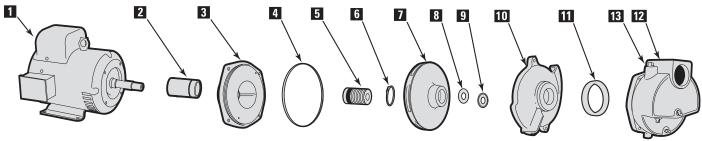


Items	SINGLE PHASE	HORSEPOWER	2	
		MODEL NO.	LP1502B	
	DESCRIPTION	PART NO.		
1	Motor, Nema J - 1 Phase Motor Access Cover Screw, Access Cover	MLP33344	1	
2 3 4 5	Mounting Ring Hex HD. Cap Screws 3/8 x 3/4" Gasket, Square Cut Seal, Rotary W/Spring Impeller, Brass "B" Models	MLP2300 MLPB909 MLPG003 PACSC309 MLP2402	1 4 1 1	
6 A 7 8	Diffuser Hex HD. Cap Screws 1/4 x 1 1/4" Diffuser Gasket Pump Body	MLP2200 MLPB903 MLPG004 MLP2100	1 2 1 1	
9	Hex HD. Cap Screws 7/16 x 1" Base	MLPB912 MLP2500	4 1	
10	Hex HD. Cap Screws 3/8 x 1/2" Drain Valve 1/4" NPT 3/4" Priming Plug 1/4" Sensor Port	MLPB907 MLP913 •	2 2 2 2 1	
(•) Standard hardware Item (▲) Not Shown				

Munro LP Series Pump OPERATION & MAINTENANCE

PARTS BREAKDOWN

LP3005



ITEM	SINGLE PHASE	HORSEPOWER	5
		MODEL NO.	LP3005B
	DESCRIPTION	PART NO.	
1	Motor, NEMAJ - 1 Phase	MLP131641	1
2 3 4 5 6	Slinger, Washer Shaft Sleeve Mount Ring Hex HD Cap Screws 3/8" x 3/4" Gasket, Square Cut Seal, Rotary W/Spring Retaining Clip	MLPG005 MLP60010 MLP3300 MLPB909 MLPG003 PACSC185 MLP30001	1 1 1 4 1 1 1
7 8 9 10	Impeller, Brass "B" model Flat Impeller Washer Beveled Impeller Washer Impeller Bolt - Hex HD Cap Screw 1/4" x 1" Diffuser Diffuser Bolt - Hex HD Cap Screws 5/16" x 1 1/2"	MLP3405 MLP3WASH MLP3CONE MLP8906 MLP3200 MLPB910	1 Part Retired, 2018 1 1 1 2
11 12 13	Gasket, Diffuser Pump Body 1/4" Drain Valve 3/4" Priming Plug 1/4" Sensor Port Plug	MLPG004 MLP3100 MLP913	1 1 2 2 2 1
	(•) Standard hardware Item	(A) Not Shown (*)3 Phase Only	

Munro LP Series Pump OPERATION & MAINTENANCE

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Little or no discharge	1. Casing not initially filled with water to prime pump 2. Total head too high 3. Suction lift too high, or too long 4. Impeller plugged 5. Hole or air leak in suction line 6. Foot valve too small 7. Impeller damaged 8. Foot valve or suction line not submerged deep enough in water 9. Insufficient inlet pressure or suction head 10. Suction piping too small 11. Motor wired incorrectly 12. Casing gasket leaking 13. Suction or discharge line valves closed	1. Fill pump casing 2. Shorten suction lift and/or change head 3. Lower suction lift, install foot valve and prime or shorten length of suction line 4. Clean impeller 5. Repair or replace suction line, use pipe sealing compound. 6. Match foot valve to piping or install one size larger foot valve 7. Replace impeller 8. Submerge lower in water 9. Increase inlet pressure by adding more water to tank or increasing back pressure 10. Increase to pump inlet size or one size larger 11. Check wiring diagram for correct wiring 12. Replace Gasket 13. Open suction and/or discharge lines
Pump will not deliver water or develop pressure	1. No priming water in casing 2. Mechanical seal is leaking 3. Leak in suction line 4. Discharge line is closed and priming air has no where to go 5. Suction line (or valve) is closed 6. Poor pump performance 7. Foot valve is leaking 8. Suction screen is clogged	1. Fill pump casing 2. Replace seal (See Rotary Seal Replacement on p.2) 3. Repair or replace 4. Open discharge line 5. Open suction line or valve 6. Replace worn parts 7. Replace foot valve 8. Clean or replace screen
Loss of suction	Air leak in suction line Suction lift is too high Insufficient inlet pressure or suction head in booster system Clogged foot valve or strainer	Repair or replace suction line Lower suction lift, install foot valve and prime Increase inlet pressure by adding more water to tank or increasing back pressure Unclog
Pump vibrates and/or makes excessive noise	Mounting plate or foundation not rigid enough Foreign material in pump Impeller damaged Worn motor bearings Suction lift too high	Reinforce Disassemble pump and clean Replace impeller Replace bearings Lower suction lift, install foot valve and prime
Pump will not start or run	Improper wiring Blown fuse or open circuit breaker Loose or broken wiring Stone or foreign object lodged in impeller Motor shorted out Thermal overload has opened circuit	Check wiring diagram on motor Replace fuse or close circuit breaker Tighten connections, replace broken wiring Disassemble pump and remove foreign object Replace motor Allow unit to cool, restart after reason for over load has been determined
Pump leaks at shaft	1. Worn mechanical shaft seal	Replace rotary seal (See Rotary Seal Replacement on p.2)

Typical SmartBox Installation

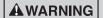
NOTE:

Refer to specific wiring diagram located on inside cover of enclosure

Step 1

Turn Breaker "OFF"

· Never work with electrical wiring on a live circuit.



tep Z

Plumb for Sensors

- Pressure Sensor 1/4" NPT
 - Install on discharge side of the pump, as close to the pump as is practical, making sure the sensor is installed before a check valve.
- High Temperature Sensor 1/4" NPT
 - Install directly on pump case or within 12" of the pump.

tep ປ

Wire Sensor(s)

- Wire sensor(s) to RED & BLUE leads in the SmartBox, secure with wire nuts.
- *Temperature sensor is wired in parallel with pressure sensor.

NOTE - RED & BLUE lead wires can be placed on either terminal of the pressure sensor and high temperature sensor.

Step 4

Wire Lawn Controller

- Locate the Master Valve (MV) and Common (COM) inside Lawn Controller.
 - Wire MV to BLACK wire lead in SmartBox, secure with wire nuts.
 - Wire COM to WHITE wire lead in SmartBox, secure with wire nuts.

ep 5

Wire Contactor to Pump

- Refer to wiring diagram on motor plate for proper voltage and wire placement.
- Refer to NEC wire cable chart for proper size of wire. Undersized wire can affect pump performance.

W

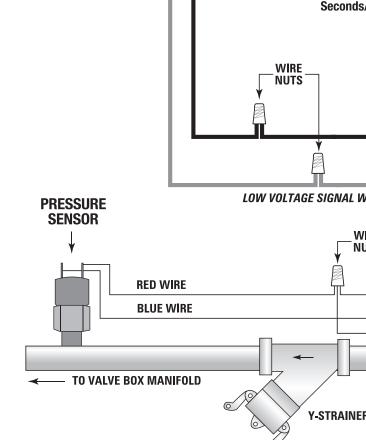
Wire Power Supply

- Run power supply wires from breaker box (110 v or 220 v).
 - · Attach GREEN grounding wire to grounding screw.
 - Attach BLACK HOT to L2 on contactor.
 - Attach WHITE Neutral (110 v) / second HOT (220 v) to L1 on contactor.

tep 7

Step

Turn Breaker "On"



LAWN CONTROLLER /

CLOCK

COM MV

TIME

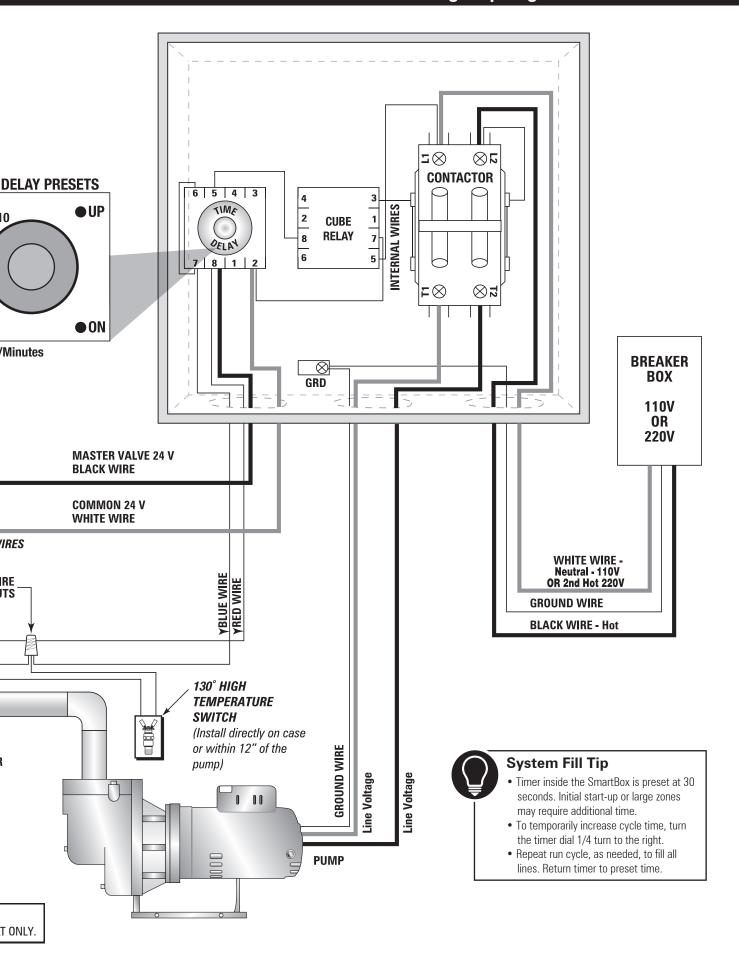
1 1/

M



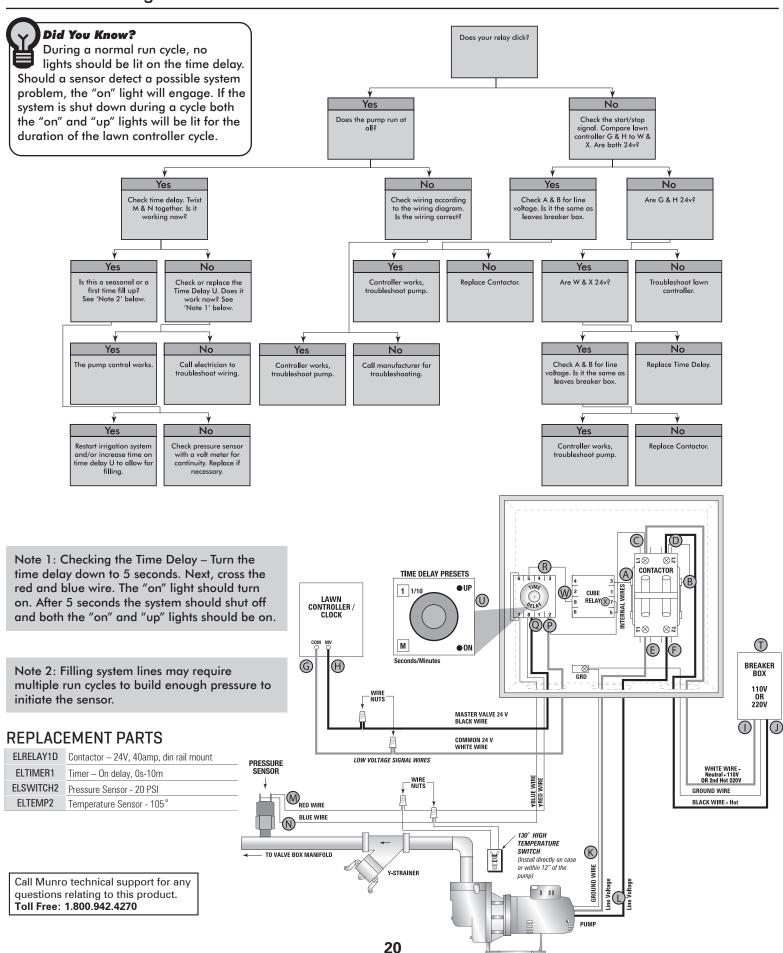
DO NOT ATTEMPT TO REWIRE OR ALTER WIRING IN THE SMARTBOX OR WARRANTY WILL BE VOIDED.

DO NOT WIRE POWER DIRECTLY TO THE PRESSURE OR TEMPERATURE SENSOR. PRESSURE SENSOR WILL WORK WITH 24 VOL



Munro SmartBox Reduced Incoming Amperage OPERATION & MAINTENANCE

Troubleshooting Guide - SmartBox



GOVERNING LAW & LIMITED WARRANTY FOR PACKAGED PUMPING STATIONS

GOVERNING LAW: It is understood and agreed that these Terms and Conditions of Sale (this "Agreement") shall be interpreted under and pursuant to the laws of the State of Colorado; you agree that any action at law or suit which is related to any contact of sale brought against us shall be filed in a federal or state court located in the State of Colorado.

LIMITED WARRANTY: Munro, Inc. (the "Company") hereby warrants, in accordance with and subject to the provisions herein contained, your unit against defects in materials and workmanship under normal use and service when properly installed, following provided installation instructions for a period of 24 months or 2000 hours of operation (whichever occurs first), from the date of sale. In the event of a breakdown or failure of your unit or part thereof, within the period of 24 months or 2000 hours of operation, which prevents normal function, and is found to be the result of a defect in materials or workmanship, the Company will repair the breakdown or failure and/or replace any defective part or the whole unit at the Company's discretion. Freight charges will be the customer or ultimate consumer's responsibility.

If the packaged pump station is designed, by the Company, to be integrated with a Baseline, Inc., 3200 Controller and if the Baseline, Inc. components are installed in the pump station by the Company, and if the Baseline, Inc., components are in use and operating per design parameters at the time of a breakdown or failure of your unit or part thereof, the warranty period is hereby extended to 60 months or 5000 hours of operation (whichever occurs first), from the date of commissioning. The Company does not warrant the whole or any parts of the Baseline 3200 irrigation controller nor any Baseline components.

If the packaged pump station is originally specified and sold to be incorporated with a 100% Hunter project, and is identified as such in the Company's sale documents at the time of sale, and is commissioned as such, the warranty is hereby extended to 60 months or 5000 hours of operation (whichever occurs first), from the date of commissioning. The company does not warrant the whole or any part of the Hunter irrigation controller nor any Hunter irrigation companents.

not warrant the whole or any part of the Hunter irrigation controller nor any Hunter irrigation components.

Further, we warrant to our immediate customer and to the ultimate consumer (the "Customer") that the products of our manufacture will be free of defects in material and workmanship under normal use and service, when installed and maintained in accordance with our instructions, for a period of twenty four (24) months from the date of commissioning or thirty (30) months from the date of shipment to the Munro distributor, whichever occurs first. When a packaged pump station is designed, by the Company, to be integrated with a Baseline, Inc., 3200 Controller and when the Baseline, Inc. communication components are installed in the pump station by the Company, and when the Baseline, Inc., components are installed in the pump station by the Company, and when the Baseline, Inc., components are installed in the pump station, by the Company, and when the Baseline, Inc., components are installed in the pump station, by the Company, and when the Baseline, Inc., components are installed in the pump station, by the Company, and when the Baseline, Inc., components are installed in the pump station, by the Company, and when the Baseline, Inc., components are installed in the pump station, the warranty period, when the pump station is installed and maintained in accordance with our instructions, the warranty period is extended to a period of sixty (60) months from the date of commissioning or sixty six (66) months from the date of shipment to the Munro distributor, whichever occurs first. As used herein, the "Ultimate Consumer" is defined as the purchaser who first uses the product after its initial installation or, in the case of product designed for nonpermanent installation, the first owner who used the product. It is our immediate customer's obligation to make known to the Ultimate Consumer the terms and conditions of this warranty. This warranty provides limited specific legal rights, and there may also be other ri

RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSIS AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.

This warranty shall not apply when damage is caused by (a) improper installation, mechanical or electrical, (b) improper power (i.e., voltage, etc.) (c) lightning (d) freezing (e) flooding or other acts of God (f) sand or other abrasive material (g) scale or corrosion build-up due to excessive chemical content. This warranty does not extend to or cover the unit or any part of it which, in the opinion of the Company, has worn by wear and tear, abraded or corroded by fluid pumped or environmental conditions, run in a dry condition, operated at high temperatures or outside the technical specifications of the unit. Mechanical seal failure is not warranted outside of initial start up. Any modification of the original equipment will also void this warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts, nor charges incurred by others without our prior written approval. This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the intended application and use of the product.

UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST INCOME, LABOR CHARGES, SERVICE OR REPAIR EQUIPMENT CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, REGARDLESS OF WHETHER SUCH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSITY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.

If any litigation is commenced between the parties hereto for the enforcement of any rights hereunder, the successful party in subject litigation shall be entitled to receive from the

unsuccessful party all costs incurred in connection therewith, including a reasonable amount for attorney's fees.

TERMS OF SALE

1. All pump station proposals are based on customer-supplied information. The Company does not verify site conditions, measurements, performance requirements or other variables.

2. Customer is responsible for all electrical wiring and other requirements to meet National Electrical Code (NEC) requirements.

3. Customer is responsible for all required grounding and bonding.

3. Customer is responsible for all required grounding and bonding.
4. Customer is responsible for clarifying electrical supply to be utilized to power the pump station. If order is placed and the electrical supply requirements on site are different than those identified in the proposal and the submittal package (all changes must be identified within these documents - no other communication will supersede these documents and any changes must be reflected in these documents), the customer will be responsible for the cost of parts, labor and U.L. listing of the control panel for changes necessary.
5. Customer is responsible for all mechanical connections not included in the proposal and/or drawings and not previously assembled by the Company.
6. Customer is responsible for signing proposal agreement and project drawings (if provided), before construction beains.

drawings and not previously assembled by the Company.

6. Customer is responsible for signing proposal agreement and project drawings (if provided), before construction begins.

7. For custom products, expected delivery is 6-8 weeks after 1) receipt of written purchase order and subsequently 2) customer written/emailed approval of proposal and any applicable drawings (unless otherwise noted).

8. A 50% down payment is required before construction begins, and additional progress payments may also be required on larger projects, unless prior arrangements have been made. All down payments and progress payments will be presented during quoting and agreed to in writing by an authorized representative of Munro, Inc.

9. Munro will supply start up assistance. Depending on the complexity of the pump station, at Munro's discretion, customer may have the option of start-up assistance by phone (no additional cost) or start-up assistance in person (additional cost). If on-site start up is selected or required, Munro will supply start up assistance for the time needed to commission the pump station, up to one day including travel to and from the job site (unless otherwise noted). In the event that more than one day is needed, a charge of \$150.00 per hour, shop to shop, plus mileage or other travel expenses incurred will be applied. Start up assistance indicates only work to commission the pump station. A start up authorizing document will be supplied customer is responsible for completing and returning. A minimum of two weeks advance notice is required.

10. A printed copy of operation, installation and maintenance manuals will be supplied at additional expense.

11. Customer is responsible for offloading pump station and related equipment at the jobsite or other specified shipping location.

12. A monthly charge of \$250.00 will be applied to all pump stations stored at the Company's Grand Junction, CO production facility longer than 30 days.

PRICING - All prices provided are in US dollars and are guaranteed for 30 days from the date of written quote, unless otherwise noted. Unless noted, prices do not include applicable taxes or freight costs. Prices are otherwise subject to change without notice. Customer is responsible for payment of all applicable state and local taxes, or for providing a valid sales tax exemption certificate. The Company reserves the right to reject any order.

PAYMENT TERMS – The Company accepts cash, checks, money orders, direct deposit, Visa, MasterCard, Discover and American Express. Credit card payments made on the date of invoice or within 10 business days of invoice date will not incur a fee. Credit card payments made 11 or more business days after the date of invoice will incur a 3% service charge. For Customers with established credit, terms are net, due 30 days following the date of invoice. A finance charge is computed on a periodic rate of 2% per month, which is an annual rate of 24%, on any previous balance not paid within 30 days (minimum service charge of 50¢). Customer agrees to pay all costs of collection and all attorney's fees if the account becomes delinquent and is referred for collection.

FREIGHT & SHIPPING – Freight terms are FOB Munro, Inc. dock, unless otherwise noted. Unless other arrangements are made, the Company will ship to the address provided by Customer, by the most efficient means we find. Shipping and handling charges will be added to invoices. The Company is not liable for any delays in shipping or issues related to arrival times and does not guarantee delivery dates.

RETURN POLICY

1. 30-days, new condition – Upon the Company's verification that the product is in new condition, the Company will provide a refund for the price paid less a 15% restocking fee, for all stock items returned in new condition within 30 days of purchase and sent freight prepaid to our factory or the nearest authorized service facility. Any returned product that is damaged through misuse, is missing parts, or is in unsellable condition due to Customer tampering will result in the Customer being charged a higher restocking fee based on the condition of the result in the Customer being charged a higher restocking the based on the container of the product.

2. Custom orders – All custom items are non-refundable. All custom order cancellations must

2. Custom orders – All custom items are non-refundable. All custom order cancellations must be approved and may be denied or subject to restocking fees and other charges.

3. Damaged in shipping – Great care is taken in filling, checking and packing your order. Should your order be damaged or lost in transit, note condition on the delivery receipt before signing. If a truck shipment is damaged, please obtain an inspection report from the truck line immediately. The Company will help to resolve the situation to the best of our ability.

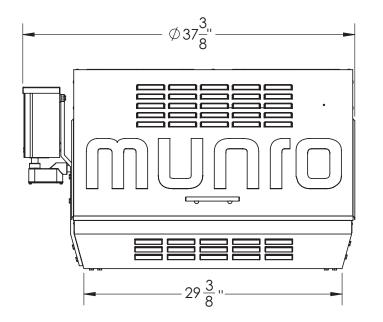
4. Warranty claim – Please note that products must not be returned to our factory or the nearest authorized service facility for warranty consideration without the Munro distributor first contacting Munro to initiate a Return Merchandise Authorization (RMA).

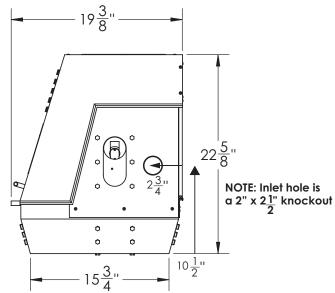
5. Freight – Freight charges to inspect a Munro product will be the user's responsibility until warranty eligibility is determined. If product is warranted, Munro will cover all freight costs. Munro's Packaging Guidelines must be adhered to. Lowest cost shipping option must be used. Pre-authorization from Munro is required for expedited shipping.

6. For complete warranty procedures and packaging guidelines, please visit: www.munropump.com/Company-Information/Warranty-statements

ENTIRE AGREEMENT – No employee or agent of Munro, Inc. has been authorized to make any promises, representations or warranties binding Munro Inc., or its parent company, Munro Companies, Inc., or its owners or management, other than those contained here or those which have been reduced to writing and signed by an officer of Munro Companies, Inc. Any verbal or written statements made by an employee or agent which are contrary to the provisions of this Agreement shall be deemed mere expressions of opinion and not binding. This Agreement constitutes the entire agreement between Munro, Inc. and the Customer with respect to the purchase of equipment, superseding all other agreements, whether oral or written.

YOUR ACCEPTANCE OF ANY GOODS SUPPLIED BY US, OR ON OUR BEHALF, SHALL, WITHOUT LIMITATION CONSTITUTE ACCEPTANCE OF ALL TERMS, AND CONDITIONS STATED ABOVE.





N	O	T	ES
N	O	Τ	ES