



Lawn Sprinkler Pump

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Operating Instructions and Parts Manual

WLS Series

SPECIFICATIONS	
POWER SUPPLY REQUIREMENT	120 V or 230 V, 60 Hz (WLS150) 230 V, 60 Hz (WLS200)
MOTOR	Single Phase, Continuous Duty
HORSEPOWER	1 1/2 HP..... (WLS150) 2 HP (WLS200)
CIRCUIT REQUIREMENT	15 A (minimum)
LIQUID TEMPERATURE RANGE	40° F- 120° F

CONSTRUCTION	
MOTOR HOUSING	Coated Steel
MOTOR SHAFT	Carbon Steel
IMPELLER	Thermoplastic
VOLUTE	Cast Iron
PUMP SUCTION	2 in. NPT
PUMP DISCHARGE	1-1/2 in. NPT

PERFORMANCE							
Model	PSI	Discharge Head	5 ft	10 ft	15 ft	20 ft	25 ft
WLS150	15	Gal / hr	4350	4200	3950	3700	3500
	20	Gal / hr	3950	3700	3450	3250	3050
	25	Gal / hr	3400	3200	3000	2800	2500
	30	Gal / hr	2950	2750	2500	2150	1700
WLS200	15	Gal / hr	-	-	5300	5150	4850
	20	Gal / hr	5300	5100	4850	4550	4300
	25	Gal / hr	4800	4500	4250	4000	3750
	30	Gal / hr	4200	3950	3750	3450	3100



Intended for Indoor Use Only

Operating Instructions and Parts Manual

DESCRIPTION

This pump is a high capacity, centrifugal pump suitable for lawn sprinkling or other applications where large quantities of water are required.

UNPACKING

Inspect this unit before it is used. Occasionally, products are damaged during shipment. If the pump or components are damaged, return the unit to the place of purchase for replacement, or call Customer Support (800-237-0987).

SAFETY SIGNAL WORDS

To help recognize this information, observe the following signal words/hazard classifications.

⚠ DANGER Danger indicates an imminently hazardous situation which, if NOT avoided, WILL result in death or serious injury.

⚠ DANGER La mention Danger indique une situation dangereuse imminente qui, si elle n'est pas évitée, ENTRAÎNE la mort ou des blessures graves.

⚠ WARNING Warning indicates a potentially hazardous situation which, if NOT avoided, COULD result in death or serious injury.

⚠ AVERTISSEMENT La mention avertissement indique une situation potentiellement dangereuse qui, si elle n'est pas évitée, risque d'entraîner des lésions corporelles graves ou même la mort.

⚠ CAUTION Caution indicates a potentially hazardous situation which, if NOT avoided, MAY result in minor or moderate injury.

⚠ MISE EN GARDE La mention mise en garde indique une situation potentiellement dangereuse qui, si elle n'est pas évitée, pourrait entraîner des blessures mineures ou modérées.

NOTICE Notice indicates important information, that if NOT followed, MAY cause damage to equipment.

⚠ This is the safety alert symbol. It is used to alert you to potential bodily injury hazards. Obey all safety messages that follow this symbol to avoid possible harm.

NOTE: Information that requires special attention.

GENERAL SAFETY INFORMATION

CALIFORNIA PROPOSITION 65

⚠ WARNING

This product can expose you to chemicals, including DEHP, which is known to the State of California to cause cancer, birth defects and reproductive harm. For more information, go to www.P65Warnings.ca.gov.

⚠ AVERTISSEMENT

Ce produit peut vous exposer à des produits chimiques, notamment du DOP, reconnus par l'État de Californie comme étant cancérigènes et à l'origine d'anomalies congénitales et de problèmes de l'appareil reproductif. Pour plus de renseignements, visiter le site www.P65Warnings.ca.gov.

GENERAL SAFETY

1. Read all manuals included with this product carefully. Be thoroughly familiar with the controls and the proper use of the equipment.



⚠ DANGER Risk of electrical shock. This pump is non-submersible.

⚠ DANGER Risque de choc électrique. Cette pompe n'est pas submersible.

⚠ DANGER Pump only clear water. Do not pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in a flammable and/or explosive atmosphere. Personal injury and/or property damage WILL result.

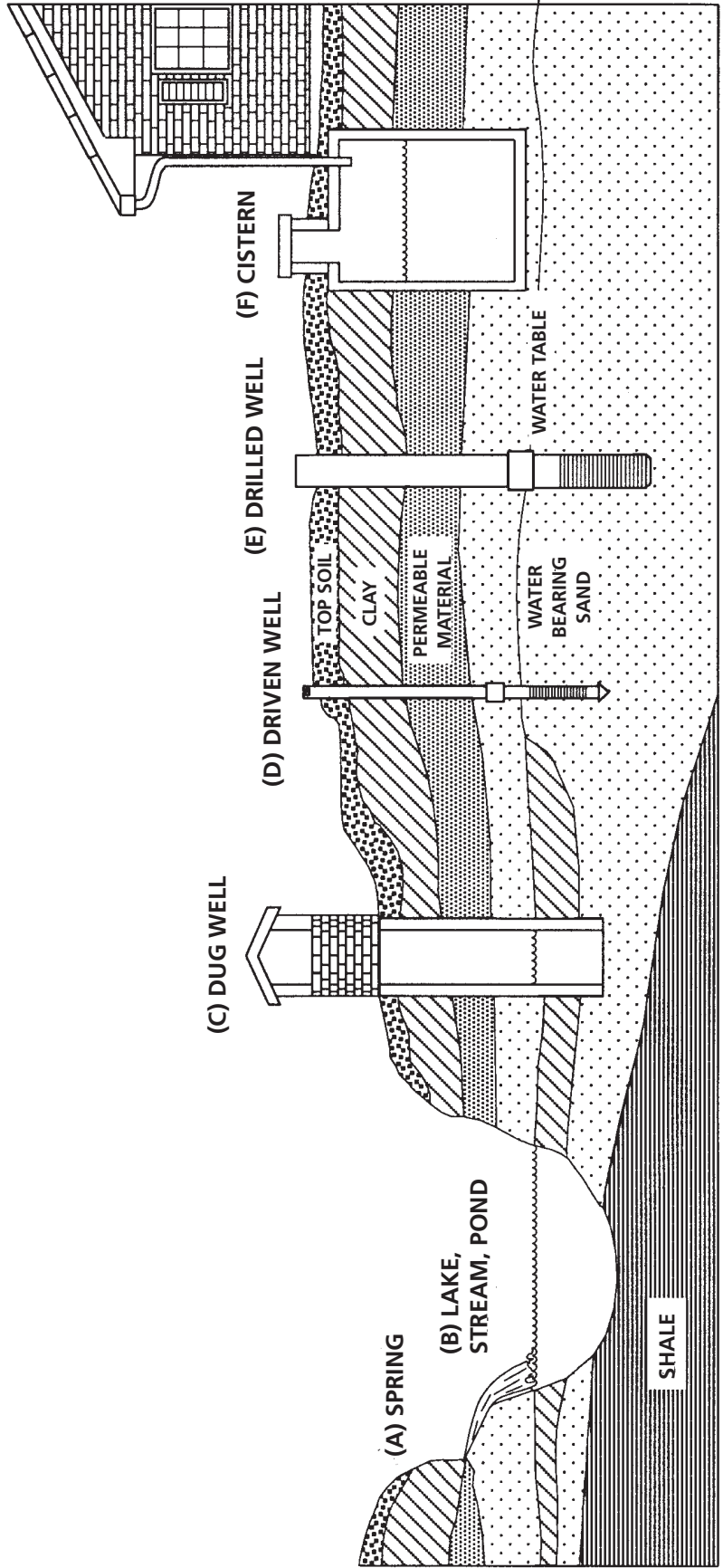


⚠ DANGER Pomper uniquement de l'eau fraîche. Ne pas pomper de liquide inflammable ou explosif tel que l'essence, le mazout, le kérosène, etc. Ne pas utiliser dans un environnement inflammable et/ou explosif. Des blessures corporelles ou des dégâts matériels POURRAIENT en résulter.

NOTICE This pump is not designed to handle salt water, brine, laundry discharge or any other application which may contain caustic chemicals and/or foreign materials. Pump and/or property damage could occur if used in these applications and will void warranty.

REMINDER: Keep your dated proof of purchase for warranty purposes! Attach it to this manual or file it for safekeeping.

Water Sources Diagram



(A) SPRING:
A spring that emerges from the ground. Occurs when water in permeable materials is trapped between impermeable material as rock or clay.

(B) LAKE, STREAM or POND:
Surface water, unless treated, is usually not safe for human consumption. It may be used for purposes such as washing or irrigation.

(C) DUG WELL:
A hole is excavated several feet in diameter to a fairly shallow depth. It is then lined with brick, stone or concrete to prevent cave-in.

(D) DRIVEN WELL:
Pipe with a pointed screen is driven into the ground below the water table. The depth is usually less than 50 feet. Available diameters are 1" through 2".

(E) DRILLED WELL:
A hole bored into the earth with machinery and lined with pipe. Depths range from a few feet to over 1000 feet. Common well diameters are 2", 3", 4" and 6" for domestic water wells.

(F) CISTERN:
An underground tank built to collect rain water from rooftops. The water is not fit for human consumption.

Operating Instructions and Parts Manual

GENERAL SAFETY INFORMATION (CONT'D)

⚠ WARNING All wiring must be performed by a qualified electrician. The pump must be installed in compliance with all local and national codes.

⚠ AVERTISSEMENT L'ensemble du câblage doit être effectué par un électricien qualifié. La pompe doit être installée en conformité avec toutes les lois locales et le Code national de l'électricité.



2. Connect this product to a grounded circuit equipped with a ground fault circuit interruptor (GFCI) device.
3. Before installing this product, have the electrical circuit checked by an electrician to ensure proper grounding.
4. Be certain the pump power source is disconnected before installing, servicing, or maintaining the pump.
5. Check motor voltage setting on motor end plate and make sure the line voltage of the electrical current supply is correct (see figure 5 on page 7).
6. Be sure the water source and piping is clear of sand, dirt and scale. Debris will clog pump and will void warranty.
7. Failure to protect pump and piping from freezing could cause severe pump and/or property damage and will void the warranty.
8. Do not run pump dry. Follow priming instructions (see Page 8).



⚠ WARNING Pump motor is equipped with an automatic resetting thermal protector and may restart unexpectedly. Protector tripping is an indication of motor overheating because of operating pump at low heads (low discharge restriction), excessively high or low voltage, inadequate wiring, incorrect motor connections, excessive surrounding air temperature (greater than 100° F), inadequate ventilation, and/or defective motor or pump.

⚠ AVERTISSEMENT Le moteur de la pompe est doté d'un protecteur thermique à réinitialisation automatique et pourrait redémarrer de manière imprévue. Le déclenchement du protecteur est une indication de surchauffe du moteur à cause d'une utilisation de la pompe à faible hauteur de chute (restriction de faible décharge), d'une tension excessivement haute ou basse, d'un câblage inadéquat, d'un branchement incorrect du moteur, d'une température ambiante excessive (supérieure à 100° F - 38° C), d'une ventilation inadéquate ou d'une pompe ou d'un moteur défectueux.

INSTALLATION

NOTICE Protect pump from the elements by installing in a basement, garage, tool shed or pump house. Install the pump so the center of the pump is as close as possible to the water level. Keep installation area clear to provide access for service and maintenance. Protect the pump against flooding and excess moisture. Failure to do so will void warranty.

Water Sources (See Diagram on Page 3)

Drilled Well, Driven Well, Dug Well, Cistern, Lake and Springs.

PUMP PIPING INSTALLATION

Use new pipe for best results. Galvanized metal or solid plastic must be used. When using galvanized pipe, provide independent supports for both suction and discharge piping near the pump to avoid strain on the pump. Minimize use of elbows and fittings to reduce friction loss. Refer to the friction loss chart (below) for specific information.

Increase diameter of suction or discharge piping if length is over 50 feet.

SUCTION PIPING

⚠ WARNING Install foot valve or strainer screen over intake of suction piping.

⚠ AVERTISSEMENT Installer un clapet de pied ou un tamis sur l'entrée de la tuyauterie d'aspiration.

Never use pipe smaller than 2" in diameter for suction piping. The suction pipe must be kept free of air leaks. For horizontal runs, lay pipe from the water source so the upward slope is at least 1/4" per foot. This eliminates trapped air. The threaded inlet of the pump is 2" NPT.

⚠ DANGER Do not install suction piping near swimming areas.

⚠ DANGER Ne pas installer la tuyauterie d'aspiration près des zones de baignade.

DISCHARGE PIPING

Install a 1-1/2" pipe tee in the pump discharge to allow easy priming. Plug the end of the tee opposite the pump to allow the branch piping to go to the spray nozzles (See Figure 1). Remove the pipe plug to fill the pump with water for priming (See Priming Instructions on Page 6).

PSI Friction Loss in 100 Feet of Pipe

Pipe Size (inches)	US Gallons per Hour								
	1200	1500	1800	2400	3000	3600	4800	6000	7200
1.25	2.6	3.9	5.5	9.4	14.1	22.0			
1.5	1.2	1.9	2.6	4.4	6.7	9.4	17.5		
2.0		0.6	0.8	1.3	2.0	2.8	4.7	7.1	10.0
2.5				0.6	0.8	1.2	2.0	3.1	4.3

CONNECTION TO WATER SOURCE

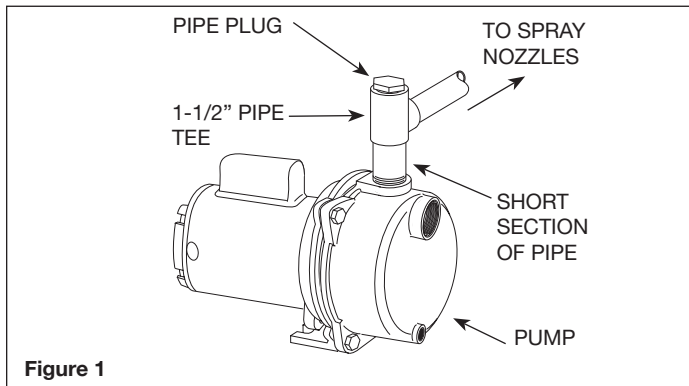


Figure 1

The maximum vertical suction lift of the pump from the water level is 25 feet.

DRILLED WELL INSTALLATION

1. Install a foot valve on the first section of pipe (see Figure 2).
2. Lower the pipe into the well.
3. Add pipe until the foot valve is 10 feet below the lowest anticipated water level.

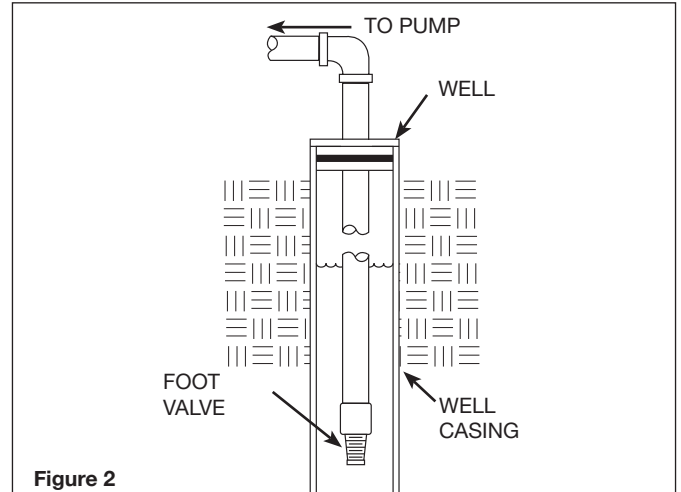


Figure 2

NOTICE

Leaking joints or couplings will allow air to leak into the pipe and cause poor pump operation or difficulty priming. Make sure to use pipe joint compound or plumber's seal tape on all threaded pipe connections.

CAUTION

Locate foot valve no closer than 2 feet from the bottom of the well so sand or sediment is not drawn into the system.

MISE EN GARDE

Placer le clapet de pied à moins de 60 cm du fond du puits pour éviter que du sable ou des sédiments ne soient aspirés dans le système.

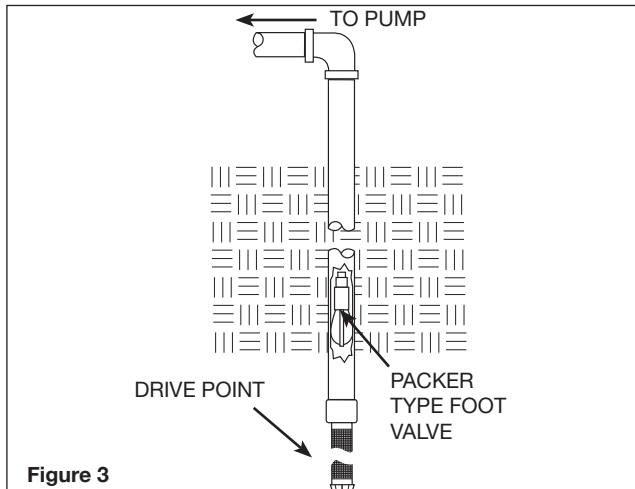
4. After the proper depth is reached, install a well seal or pitless adapter to support the pipe.
5. Slope the horizontal pipe upward toward the pump to eliminate trapping air.
6. When using a foot valve, a priming tee and plug above the well seal is recommended.

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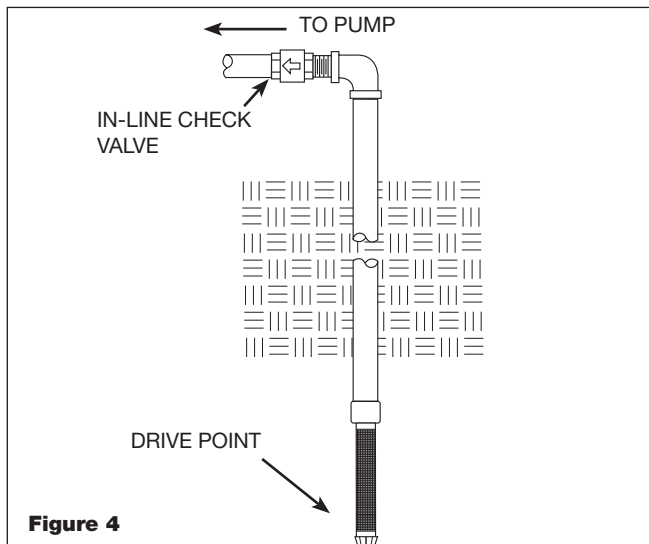
DRIVEN WELL INSTALLATION

- Drive the point several feet below the water table.

NOTE: A packer-type foot valve can be installed in the well (See Figure 3). This type of foot valve allows the well pipe to be filled with water when priming and makes the inlet pipe much easier to test for leaks. Follow the manufacturer's instructions when installing the packer-type foot valve.



As an alternative, an in-line check valve can be used with a driven well (See Figure 4).



It may be necessary to supply the pump with multiple well points to maintain the high flow capability of this pump. Consult with a plumbing professional for appropriate materials and installation instructions.

DUG WELL, CISTERN, LAKE AND SPRING INSTALLATION

- Install a foot valve on the inlet pipe and lower into the water.

⚠ CAUTION *Locate foot valve no closer than 2 feet from the bottom of the well so sand or sediment is not drawn into the system.*

⚠ MISE EN GARDE *Placer le clapet de pied à moins de 60 cm du fond du puits pour éviter que du sable ou des sédiments ne soient aspirés dans le système.*

NOTE: When a lake is used for the water supply, make sure the suction pipe is deep enough to be submerged at all times. Slope the pipe upward toward the pump to eliminate trapping air. The pipe must be removed during winter months or protected against freezing.

⚠ DANGER *Protect the pipe from damage by swimmers and boaters. Install a screen around the inlet pipe to prevent the entrapment of swimmers, wildlife and debris.*

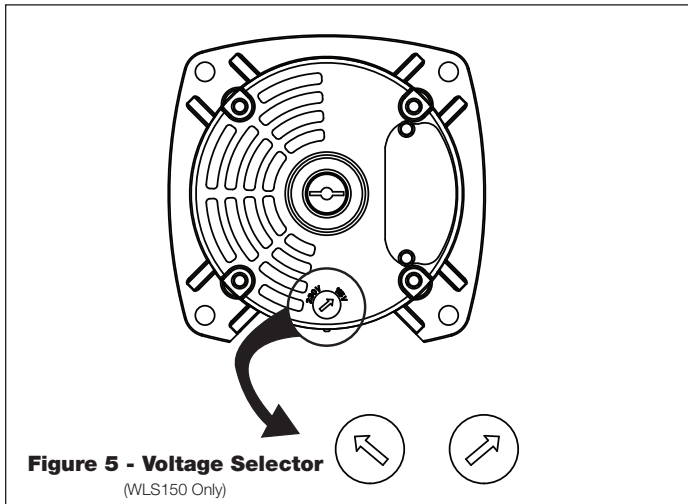
⚠ DANGER *Protéger le tuyau contre les dommages causés par les nageurs et les plaisanciers. Installer un écran autour du tuyau d'entrée pour éviter de piéger des nageurs, des animaux et des débris.*

ELECTRICAL CONNECTIONS

Connect the pump to a separate electrical circuit with a dedicated circuit breaker. Refer to Chart 1 for the electrical specifications in wiring for recommended fuse and wire size.

The motor must be grounded by connecting a copper conductor to the grounding screw provided within the wiring compartment.

The voltage of power supply must match the voltage of the pump. The WLS150 has a dual voltage motor preset at the factory to 230 volts. The motor can be converted to 115 volts by changing the voltage selector to the desired voltage (See Figure 5). Use a needle nose pliers to pull the selector out approximately 1/4", rotate and then reinsert in correct position. **NOTE: The WLS200 cannot be converted; the motor is 230 volts only.**



CONNECTING WIRES

⚠ WARNING Terminal cover must be in place for safe operation. Ground in accordance with local and national electrical codes. Keep fingers and objects away from openings and rotating parts. Disconnect power sources before touching internal parts. See Figure 6 for appropriate wiring locations.

⚠ AVERTISSEMENT Le couvercle de bornes doit être en place et fermé pour un fonctionnement sûr. Mettre à la terre conformément aux codes électriques locaux et nationaux. Garder les doigts et les objets à l'écart des ouvertures et des pièces rotatives. Débrancher les sources d'alimentation avant de toucher les pièces internes. Voir la Figure 6 pour les emplacements de câblage appropriés.

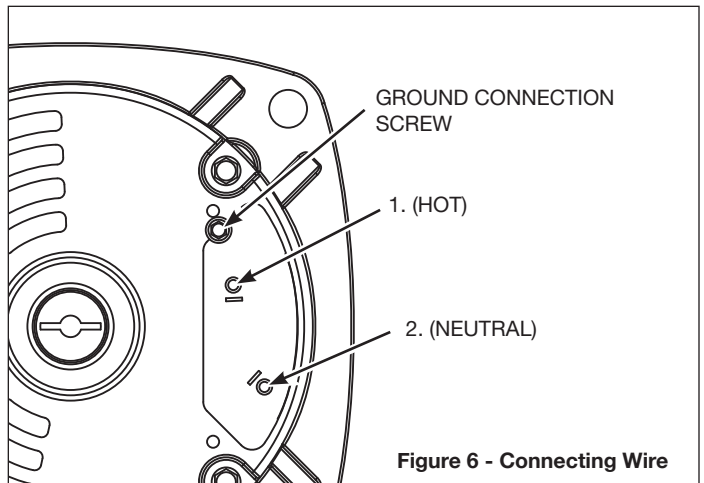


CHART 1 - RECOMMENDED FUSING & WIRING DATA - 60 HZ MOTORS

HP	VOLT	Dual Element Fuse 250V	Distance in Feet From Meter to Motor		
			0 to 50	51 to 100	101 to 200
			Wire Size		
1 1/2	115	20	14	12	10
	230	10	14	14	14
2	230	10	14	14	14

* above is the suggested size only. Check with local or state code for proper sizing.

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OPERATION

▲ CAUTION *Never run the pump dry. Running pump without water may cause seal damage. Fill the pump with water before starting.*

▲ MISE EN GARDE *Ne jamais faire fonctionner la pompe à sec. La faire fonctionner sans eau risque d'endommager le joint. Remplir la pompe avec de l'eau avant de commencer.*

PRIMING THE PUMP

After pump installation is complete, the pump must be primed. Remove the pipe plug in the discharge piping and fill the pump and suction pipe with clean water. Turn power to pump on. If the pump does not pump water in 10 minutes, turn off the pump and refill with clean water.

If the pump does not operate after repeated attempts, check the following:

1. Vertical distance of pump to water level must not be over 25 feet.
2. If sucking air, suction piping must be air tight.
3. Be sure valve(s) are open if used in discharge or suction piping.

▲ CAUTION *Never run the pump with a closed or clogged discharge. The water inside the pump could boil and damage the pump.*

▲ MISE EN GARDE *Ne jamais faire fonctionner la pompe si la décharge est fermée ou obstruée. L'eau à l'intérieur de la pompe pourrait bouillir et l'endommager.*

MAINTENANCE

NOTICE *Maintain adequate ventilation for the pump motor. The motor bearings are permanently lubricated at the factory. Additional lubrication is not required.*

DRAINING FOR WINTER

Always protect pump and piping against freezing temperatures. If there is any danger of freezing, drain the system. To drain the system:

1. Remove the pipe plug from the discharge tee.
2. Remove the 1/4" plug from the lower front face of the pump.
3. Drain all piping below the frost line.

LAWN SPRINKLER REBUILD KIT (SEE PAGE 10)

1. Disconnect all power from the pump
2. Drain the pump and disconnect any plumbing.
3. Remove the four bolts holding the volute to the seal plate.
4. Remove the volute from the seal plate, you may need to use a screwdriver to help separate the parts.

5. Remove the square cut gasket from the seal plate and discard.
6. Remove the three screws from the diffuser assembly, and then remove the diffuser from the seal plate. The intake on the diffuser has an O-Ring seal and is covered with a lubricant, remove the O-Ring and discard.
7. Remove the black end cap from the back of the motor, exposing the motor shaft end (on the WLS200 you will have to remove the plastic cover from the end of the motor).
8. Use a large flat blade screw driver to hold the motor shaft while unscrewing the impeller.
9. Remove the bellows portion of the shaft seal, making sure the metal sleeve comes off as well, all you should see on the back of the impeller is the brass colored threaded insert.
10. Remove the ceramic seal and rubber boot from the seal plate, it is easier to remove the seal by unbolting the seal plate from the motor flange. If you remove the seal plate from the motor flange make sure you torque the four bolts to 140 ±40 inch pounds when reassembling it.
11. Wipe down all the parts to remove any debris or loose rust.
12. Reassemble the pump with new parts in reverse order.
13. Push the ceramic seat of the shaft seal into the seal plate using the cardboard ring provided to keep the ceramic face clean. You can use a little water or dish soap to lubricate the seal pocket to make assembly easier.
14. Push the bellows side of the shaft seal over the impeller hub, you can use a little water or dish soap to lubricate the impeller hub to make assembly easier.
15. Holding the motor shaft with a flat blade screw driver, thread the impeller onto the motor shaft, hand tighten.
16. Replace the end cap (or plastic cover on the WLS200) over the motor shaft end.
17. Put a new O-Ring on the diffuser and lubricate (with petroleum jelly the intake/O-Ring area of the diffuser with the same lubricant used on the impeller.
18. Replace the diffuser, rotating the diffuser until the screw holes line up with the ones in the seal plate. The diffuser only goes on one way. Torque the screws to 27±7 inch pounds.
19. Slide the square cut gasket over the flange on the seal plate, make sure not to let the gasket twist.
20. Reassemble the volute to the pump being careful not to damage the O-Ring on the diffuser. Torque the four bolts to 240 ±40 inch pounds.
21. Reattach plumbing connection, reconnect the power and prime the pump (See section on priming the pump). After reassembling the pump, check for leaks. If a leak is detected, repair before using the pump.

TROUBLESHOOTING CHART

Symptom	Possible Cause(s)	Corrective Action
Motor will not run	1. Disconnect switch is off	1. Be sure switch is on
	2. Fuse is blown or circuit breaker tripped	2. Replace fuse
	3. Wires at motor are loose, disconnected or wired incorrectly	3. Refer to wiring instructions. Check and tighten all wiring
	<p>⚠ DANGER Capacitor voltage MAY be hazardous. To discharge capacitor, touch short capacitor terminals with an insulated screwdriver. BE SURE to hold handle of screwdriver while making contact with capacitor terminals.</p> <p>⚠ DANGER La tension du condensateur PEUT être dangereuse. Pour décharger le condensateur, toucher les bornes courtes du condensateur à l'aide d'un tournevis isolé. VEILLER à bien tenir la poignée du tournevis en faisant cette manœuvre.</p>	
	4. Defective Motor	4. Replace motor
	5. Voltage selector switch not properly set.	5. Disconnect power, set voltage selector switch (Figure 5) to match line voltage. (See electrical connections page 7).
Motor runs hot and overload kicks off	6. Low supply voltage	6. Contact an electrician
	1. Motor is wired incorrectly	1. Refer to wiring instructions
	2. Low supply voltage	2. Contact an electrician
Motor runs but no water is delivered NOTE: Check to make sure the pump is properly primed before looking for other causes. Unscrew priming plug and see if water is in priming hole.	3. Pump house not properly vented	3. Be sure pump has sufficient ventilation to cool the motor
	1. Pump in new installation did not pick up prime through:	1. New installation:
	a. Improper priming	a. Re-prime according to instructions
	b. Air leaks	b. Check all connections on suction line
	c. Leaking foot valve	c. Replace foot valve
	2. Pump has lost prime through:	2. Existing installations:
	a. air leaks	a. Check all connections on suction line and shaft seal
b. water level below suction of pump	b. Lower suction line into water and re-prime. If receding water level exceeds suction lift, reposition the pump to ensure less than 25 ft. of lift.	
3. Impeller obstructed	3. Clean impeller	
4. Check valve or foot valve is stuck in closed position	4. Replace check valve or foot valve	
5. Pipes are frozen	5. Thaw pipes. Bury pipe below frost line. Heat pit or pump house	
6. Foot valve and/or strainer are buried in sand or mud	6. Raise foot valve and/or stainer above well bottom	
7. Low supply voltage	7. Contact an electrician	
Pump does not deliver water to full capacity	1. Water level in well is lower than estimated	1. Reposition pump to minimize lift (25ft max lift)
	2. Steel piping (if used) is corroded or limed, causing excess friction	2. Replace with plastic pipe where possible, otherwise with new steel pipe
	3. Piping is too small in size	3. Use larger piping
	4. Low supply voltage	4. Contact an electrician
Air Suction	1. Loose fittings	1. Tighten fittings

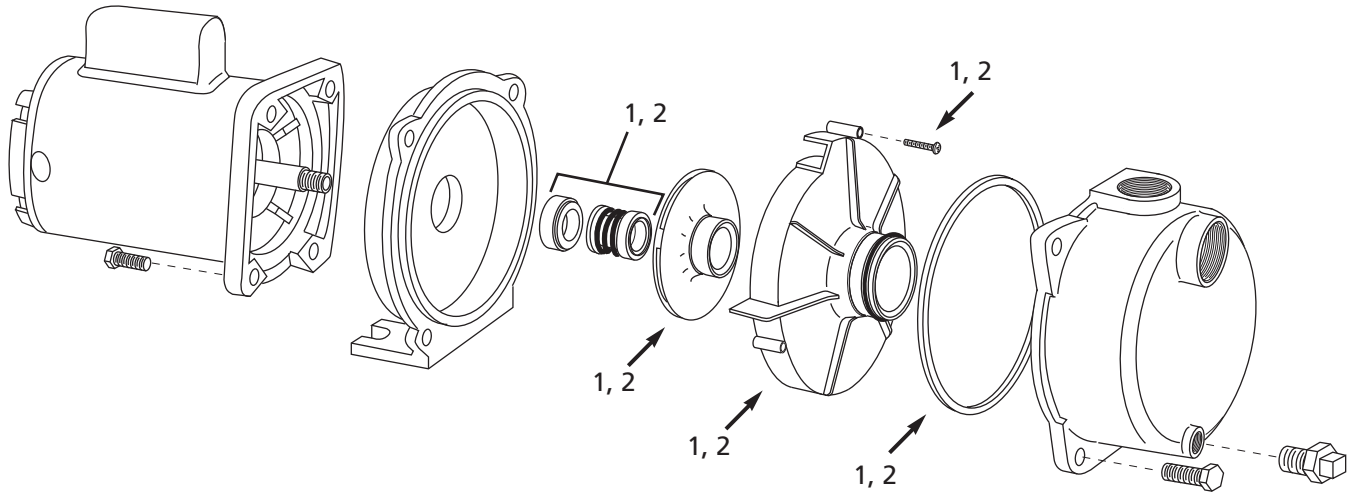
For Replacement Parts or Customer Support Call, 1-800-237-0987

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Wayne Water Systems
 101 Production Drive
 Harrison, OH 45030 U.S.A.



REPLACEMENT PARTS LIST

Ref. No.	Description	Part Number	Qty.
1	WLS200, 2 HP Kit - Square Ring, Impeller, Diffuser, Screws, Shaft Seal Assembly	62063-WYN1	1
2	WLS150, 1.5 HP Kit - Square Ring, Impeller, Diffuser, Screws, Shaft Seal Assembly	62064-WYN1	1

LIMITED WARRANTY

For one year for WLS Series models from the date of purchase, from an authorized dealer, Wayne Water Systems will repair or replace, at its option for the original purchaser, any part or parts of its Lawn Pumps or Water Pumps ("Product") found upon examination by Wayne Water Systems to be defective in materials or workmanship. Please call Wayne Water Systems (800-237-0987) for warranty instructions. Be prepared to provide the model number and the serial number when exercising this warranty. All transportation charges on Products or parts submitted for repair or replacement must be paid by purchaser.

This Limited Warranty does not cover Products which have been damaged as a result of accident, abuse, misuse, neglect, improper installation, improper maintenance, or failure to operate in accordance with Wayne Water Systems' written instructions.

THIS WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, OBLIGATIONS OR AGREEMENTS, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND ANY RIGHTS OR REMEDIES AGAINST ANY PERSON OR ENTITY UNDER THE UNIFORM COMMERCIAL CODE OR OTHERWISE WITH RESPECT TO THE SALE OF THE PRODUCT. THE REMEDIES AND OBLIGATIONS STATED IN THIS WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES OF AND OBLIGATIONS TO THE OWNER FOR ANY AND ALL MATTERS ARISING WITH RESPECT TO OR IN ANY WAY CONNECTED WITH THE PRODUCT, REGARDLESS OF THE SOURCE OR PROVIDER OF SUCH GOODS. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, SHALL WAYNE WATER SYSTEMS OR ANY AFFILIATE BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

You **MUST** retain your purchase receipt along with this form. In the event you need to exercise a warranty claim, you **MUST** send a **copy** of the purchase receipt along with the material or correspondence. Please call Wayne Water Systems (800-237-0987) for return authorization and instructions.

DO NOT MAIL THIS FORM TO Wayne Water Systems. Use this form only to maintain your records.

MODEL NO. _____ SERIAL NO. _____ INSTALLATION DATE _____

ATTACH YOUR RECEIPT HERE

