

Sears, Roebuck and Co., Hoffman Estates, IL 60179 U.S.A.

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INTRODUCTION

Please take a few minutes to read our instructions before you install and use your pump. This will help you obtain the full benefits from this pump. It will also help you avoid any needless service costs that result from causes we cannot control and cannot cover in our warranty.

FULL ONE YEAR WARRANTY ON PUMPS

For one year from the date of purchase, Sears will repair or replace this pump, free of charge, if defective in material or workmanship.

LIMITED WARRANTY ON SEARS HYDRO-GLASS® PUMPS

After one year and through two years from the date of purchase, Sears will furnish, free of charge, a replacement part for any defective part. You pay for labor,

This warranty does not cover repairs or replacement parts necessary because of abuse or negligence including failure to install, adjust and operate this pump according to the instructions in the owner's manual.

LIMITATION OF WARRANTY.

SEARS WILL NOT BE LIABLE FOR LOSS OR DAMAGE TO PROPERTY OR ANY INCIDENTAL OR CONSEQUENTIAL LOSS OR EXPENSE FROM PROPERTY DAMAGE DUE DIRECTLY OR INDIRECTLY FROM THE USE OF THIS PRODUCT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

WARRANTY SERVICE IS AVAILABLE BY SIMPLY CONTACTING THE NEAREST SEARS SERVICE CENTER/DEPARTMENT IN THE UNITED STATES. This warranty applies only while the product is in use in the United States.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Sears, Roebuck and Co., Dept. 817 WA, Hoffman Estates, IL 60179

RULES FOR SAFE INSTALLATION AND OPERATION!

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

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!

CALCENTION OF A CONTRACT OF A

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

A CAUTION CAUTION warns about hazards that will or can cause minor personal injury or property damage if ignored.

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

1. To avoid risk of serious bodily injury and property damage, read safety instructions carefully before installing pump.

- 2. Follow local and/or national plumbing and electrical codes when installing pump.
- 3. Keep well covered while installing pump to prevent leaves and other debris from falling into well, contaminating well and possibly damaging pump.
- 4. Protect pump and piping system from freezing. Allowing pump or water system to freeze could severely damage pump and voids warranty.

AWARNING Hazardous Voltage. Can shock, burn, cause death, or start fires.

- 5. Disconnect electrical power source before installing or working on pump.
- 6. Ground pump with a ground wire run from grounding lug on motor to a grounded lead in the service panel.
- 7. Line voltage and frequency of electrical power supply must agree with motor nameplate.
- 8. Use of fuses or wire smaller than size recommended in owner's manual can cause overheating, possible fires, and will void warranty.
- 8. Pump water only with this pump.
- 9. Do not run pump dry. To do so will damage seals and can cause leaking and property damage.

Before You Install Your Pump

BASIC TOOLS AND MATERIALS NEEDED

Pipe Wrenches Hacksaw Adjustable Wrench Knife Screwdriver Check Valve Teflon Tape

NOTICE: Well must not be more than 20' depth to water.

- 1. Long runs and many fittings increase friction and reduce flow. Locate pump as close to well as possible: use as few elbows and fittings as possible.
- 2. Be sure well is clear of sand. Sand will plug the pump and void the warranty.
- Protect pump and all piping from freezing. Freezing will split pipe, damage pump and void the warranty. Check locally for frost protection requirements (usually pipe must be 12" below frost line and pump must be insulated).
- 4. Be sure all pipes and foot valve are clean and in good shape.
- 5. No air pockets in suction pipe.
- 6. No leaks in suction pipe. Use Teflon tape or Plasto-Joint Stik to seal pipe joints.
- 7. Unions installed near pump and well will aid in servicing. Leave room to use wrenches.
- 8. AWARNING Pump body may explode if used as a booster pump. DO NOT use in a booster application.



Figure 1 – No Dirt Or Scale In Suction Pipe



741 0993

Figure 2 – Foot Valve Must Work Freely



Figure 3 – No Air Pockets In Suction



Use Teflon Tape

Figure 4 – Suction Pipe Must Not Leak

Well Pipe Installation

NOTICE: Use the installation method below which matches your well type.

CASED WELL INSTALLATION

- Inspect foot valve to be sure it works freely. Inspect strainer to be sure it is clean.
- 2. Connect foot valve and strainer to the first length of suction pipe and lower pipe into well. Add sections of pipe as needed, using Teflon tape on male threads. Be sure that all suction pipe is leakproof or pump will lose prime and fail to pump. Install foot valve 10 to 20 feet below the lowest level to which water will drop while pump is operating (pumping water level). Your well driller can furnish this information.
- 3. To prevent sand and sediment from entering the pumping system, the foot valve/strainer should be at least 5 feet above the bottom of the well.
- 4. When the proper depth is reached, install a sanitary well seal over the pipe and in the well casing. Tighten the bolts to seal the casing.
- 5. When using a foot valve, a priming tee and plug as shown in Figure 5 are recommended.



Figure 5 – Cased/Dug Well Installation

DUG WELL INSTALLATION

1. Same as cased well installation.

DRIVEN POINT INSTALLATION

 Connect the suction pipe to the drive point as illustrated in Figure 6. Keep horizontal pipe run as short as possible. use Teflon tape on male pipe threads. Multiple well points may be necessary to provide sufficient water to pump.



Figure 6 – Driven Point Installation



Figure 7 – Multiple Discharge

2. Install a check valve in horizontal pipe. Flow arrow on check valve must point toward pump.

HORIZONTAL PIPING FROM WELL TO PUMP

- 1. Never install a suction pipe that is smaller than the suction port of the pump.
- 2. To aid priming on well point installations, install a line check valve as shown in Figure 6. Be sure check valve flow arrow point toward pump.

DISCHARGE PIPE SIZES

1. If increasing discharge pipe size, install reducer in pump discharge port. Do not increase pipe size by stages.

- 2. When the pump is set away from the points of water use, the discharge pipe size should be increased to reduce pressure losses caused by friction.
 - Up to 100' run: Same size as pump discharge port.
 - 100' to 300' run: Increase one pipe size
 - 300' to 600' run: Increase two pipe sizes.

LAWN SPRINKLING APPLICATION

This pump is designed for lawn sprinkling. It is designed to deliver plenty of water at full sprinkler pressure. It can pump from a pond, cistern or well points.

Pump discharge can be divided to supply two (2) or more sprinkler systems. A suggested multiple discharge to service is shown in Figure 7, Page 4.

Do not use in a pressure tank or booster pump application.

Pump/Piping Installation

PUMP INSTALLATION

NOTICE: Use Teflon tape supplied with the pump for making all threaded connections to the pump itself. **Do not use pipe joint compounds on the pump:** they can react with the plastic in the pump components.

- 1. Bolt pump to solid, level foundation.
- 2. Support all piping connected to the pump.
- 3. Wrap 1-1/2 to two layers of Teflon tape clockwise (as you face end of pipe) on all male threads being attached to pump.
- 4. Tighten joints hand tight plus 1-1/2 turns. Do not overtighten.

NOTICE: Install pump as close to well head as possible. Long piping runs and many fittings create friction and reduce flow.

NOTICE: For long horizontal pipe runs, install a priming tee between check valve and well head as shown in Figure 5, Page 4. For driven point installations, install a check valve as shown in Figure 6, Page 4. Be sure check valve flow arrow points toward pump.

Use schedule 80 or iron pipe. See "Well Pipe Installation" for more information.



Figure 8 – Bolt Pump Down



Figure 9– Independently Support All Piping Attached To Pump



Use Teflon Tape









Figure 11 - Don't Overtighten

Electrical

AWARNING Disconnect power at service panel before connecting pressure switch.



FIGURE 12 – 115/230 volt motor wiring connections through typical pressure switch.

Dual voltage motors come factory wired for 230 volt operation. Inset shows 115 Volt conversion.

Do not alter wiring in single voltage motors.

Match motor voltage to power supply voltage.

A WARNING

Risk of serious or fatal electrical shock.

Connect motor ground wire before connecting power supply wires.

Do not ground to a gas supply line.

Turn off power before working on pump or motor.

Match motor voltage and power supply voltage. Supply voltage must be within $\pm 10\%$ of motor nameplate voltage. Incorrect voltage can cause fire or seriously damage motor and voids warranty. If in doubt, consult a licensed electrician.

Use wire size specified in wiring chart. If possible, connect pump to a separate branch circuit with no other appliances on it.

- 1. Install, ground, wire and maintain pump in accordance with your local electrical code and all other codes/ordinances that apply. Consult your local building inspector for code information.
- 2. Connect ground wire first as shown at left. Ground wire must be a solid copper wire at least as large as power supply wires.
 - Connect ground wire to grounded lead in service panel, metal underground water pipe, well casing at least 10' (3M) long, or to ground electrode provided by power company.
- 3. Connect power supply wires as shown at left.

						DISTANCE IN FEET FROM MOTOR TO METER						
Pump			Max. Load	Branch Fuse* Rating*	Min. Wire	0' TO 50'	51' TO 100'	101' TO 200'	201' TO 300'	301' TO 400'	401′ TO 500′	
Model	HP					WIRE SIZE						
390.262451	1	115 230	14.8 7.4	20 15	12 14	12 14	12 14	8 14	6 12	6 12	4 10	
390.262551	1-1/2	115 230	19.2 9.6	30 15	10 14	10 14	10 14	8 14	6 12	4 1.0	2 10	
390.262651	2	230	12.0	15	14	14	14	12	12	10	8	

WIRING CHART Recommended Wire and Fuse Sizes

*Dual element or Fusetron time delay fuses recommended for all motor circuits.

Operation

PRIMING THE PUMP

NOTICE: 'Priming' refers to the pump expelling all air in the system and beginning to move water from its source out into the system. It does not refer *only* to pouring water into the pump (although pouring water in is usually the first step).

NOTICE: NEVER run pump dry. Running pump without water in it will damage seals and can melt impeller and diffuser. To prevent damage, fill pump with water before starting.

- 1. Remove priming plug (Figure 13).
- 2. Make sure suction and discharge valves and any hoses on discharge side of pump are open.
- 3. Fill pump and suction pipe with water.
- 4. Replace priming plug, using Teflon tape on thread; tighten plug.

NOTICE: If a priming tee and plug have been provided for a long horizontal run, be sure to fill suction pipe through this tee and replace plug. (Don't forget to Teflon tape the plug.)

5. Start pump: water should be produced in 10 minutes or less, the time depending on depth to water (not



Figure 13 – Remove Priming Plug



Figure 14 – Fill Pump Before Starting

more than 20') and length of horizontal run (10' of horizontal suction pipe = 1' of vertical lift due to friction losses in the pipe).

If no water is produced within 10 minutes, stop pump, release all pressure, remove priming plug, refill and try again.

AWARNING Hazardous pressure and risk of explosion and scalding. If pump is run continuously at no flow (that is, with discharge shut off or without priming), water may boil in pump and piping system. Under steam pressure, pipes may rupture, blow off of fittings or blow out of pump ports and scald anyone near.

To prevent explosion, do the following:

- A. Be sure discharge (valve, pistol grip hose nozzle, etc.) is open whenever pump is running.
- B. If pump fails to produce water when attempting to prime, release all pressure, drain pump and refill with cold water after every two attempts.
- C. When priming, monitor pump and piping temperature. If pump or piping begin to feel warm to the touch, shut off pump and allow system to cool off. Release all pressure in system and refill pump and piping with cold water.



Figure 15 - Run Ten Minutes Or Less



Figure 16 –Do Not Run Pump With Discharge Shut Off

Maintenance

Pump and piping need not be disconnected to repair or replace motor or seal (see Figure 18). If motor is replaced, replace the shaft seal (Key No. 6, Page 11). Keep one on hand for future use.

Be sure to prime pump before starting.

NOTICE: Check motor label for lubrication instructions. The mechanical shaft seal in the pump is water lubricated and self-adjusting.

NOTICE: Drain pump when disconnecting from service or when it might freeze.

PUMP DISASSEMBLY

- 1. Disconnect power to motor.
- NOTICE: Mark wires for correct assembly.
- 2. Remove clamp (see Figure 18).
- 3. Remove pump base mounting bolts. Motor assembly and back half of pump can now be pulled away from pump front half (Figure 18). CAREFULLY remove O-Ring.

CLEANING/REPLACING IMPELLER

NOTICE: First, follow instructions under "Pump Disassembly".

- 1. Remove four screws fastening diffuser to seal plate; remove diffuser (see Figure 19). Exposed impeller can now be cleaned.
- 2. If impeller must be replaced, loosen two machine screws and remove motor canopy (see Figure 20).
- 3. **A WARNING** Capacitor voltage may be hazardous. To discharge capacitor, hold insulated handle screwdriver BY THE HANDLE and short capacitor terminals together (see Figure 20). Do not touch metal screwdriver blade or capacitor terminals. If in doubt, consult a qualified electrician.
- 4. Unscrew capacitor clamp and remove capacitor. Do not disconnect capacitor wires to motor.
- 5. Slide 7/16" open end wrench in behind spring loaded



Figure 17 – Disconnect Power



Figure 18 – Slide Motor Back

switch on motor end of shaft; hold motor shaft with wrench on shaft flats and unscrew impeller by turning counterclockwise when looking into eye of impeller.

- 6. To reinstall, reverse steps 1 through 5.
- 7. See directions under "Pump Reassembly," Page 9.

REMOVING OLD SEAL

- 1. Follow instructions under "Pump Disassembly".
- 2. Follow steps 2 through 5 under "Cleaning/Řeplacing Impeller.
- 3. Unscrew four nuts holding pump back half to motor. Remove rotating half of seal by placing two screwdrivers under back half of pump body and carefully prying up (Figure 21). Back half of pump body will slide off shaft, bringing seal with it.

NOTICE: Be sure you do not scratch or mar shaft; if shaft is marred, it must be dressed smooth with fine emery or crocus cloth before installing new seal. DO NOT reduce shaft diameter!

4. Place pump body half face down on flat surface and tap out stationary half of seal (see Figure 22).

INSTALLING NEW SEAL

- 1. Wet outer edge of Rubber Cup on ceramic seat with liquid soap. Be sparing!
- 2. Put clean cardboard washer on seal face. With thumb pressure, press ceramic seal half firmly and squarely into seal cavity in seal plate (see Figure 23). Polished face of ceramic seat is up. If seal will not seat correctly, remove, placing seal **face up** on bench. Reclean cavity. Seal should now seat correctly.
- 3. If seal does not seat correctly after recleaning cavity, place cardboard washer over polished seal face and **carefully** press into place using a piece of standard 3/4" pipe as a press.



Figure 19– Remove Diffuser



Figure 20 - Hold Shaft

Maintenance (Continued)

NOTICE: Be sure you do not scratch seal face.

- Dispose of cardboard washer and recheck seal face to be sure it is free of dirt, foreign particles, scratches and grease.
- 5. Inspect shaft to be sure it is free of nicks and scratches.
- 6. Reassemble pump body half to motor flange. **BE SURE** it is right side up.
- 7. Apply liquid soap sparingly (one drop is sufficient) to inside diameter of rotating seal member.
- 8. Slide rotating seal member (carbon face first) onto shaft until rubber drive ring hits shaft shoulder.

NOTICE: Be sure not to nick or scratch carbon face of seal when passing it over threaded shaft end or shaft shoulder. The carbon surface must remain clean or short seal life will result.

- Hold motor shaft with 7/16" open end wrench on shaft flats and screw impeller onto shaft. Be sure you do not touch capacitor terminals with body or any metal object. Tightening impeller will automatically locate seal in correct position.
- 10. Remount diffuser on pump body half with five screws.



Figure 21– Remove Seal plate



Figure 22 - Tap Out Seal



Figure 23 – Press in New Seal



Figure 24 – Protect Seal Faces

PUMP REASSEMBLY

- 1. Clean O-Ring and O-Ring groove.
- 2. Put O-Ring in groove on face of flange; put pump halves together (see Figure 25).
- 3. **BE SURE** inside of clamp is clean. Place clamp on pump halves; snug up. Alternately tighten screw and tap clamp with mallet to seat O-Ring (see Figure 26).
- 4. Replace base mounting bolts.
- 5. Replace motor wiring; close draincock.
- 6. Prime pump according to instructions. See "Operation."
- 7. Check for leaks.



Figure 25 – Assemble Pump



Figure 26 - Tap Clamp While Tightening

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	2. Replace fuse
	3. Starting switch is defective	3. Replace starting switch
	4. Wires at motor are loose,	4. Refer to instructions on wiring. Check and tighten all wiring.
	disconnected, or wired incorrectly	AWARNING Capacitor voltage may be hazardous. To discharge capacitor, hold insulated handle screwdriver BY THE HANDLE and short capacitor terminals together. Do not touch metal screwdriver blade or capacitor terminals. If in doubt, consult a qualified electrician.
Motor runs hot and	1. Motor is wired incorrectly	1. Refer to instructions on wiring
overload kicks off	2. Voltage is too low	2. Check with power company. Install heavier wiring if wire size is too small (See Electrical, Page 6)
	*1. Pump in new installation did	1. In new installation:
water is delivered *(Note: Check	not pick up prime through: a. Improper priming b. Air leaks c. Leaking foot valve	 a. Re-prime according to instructions b. Check all connections on suction line c. Replace foot valve
prime before looking for other causes. Unscrew priming plug and	 *2. Pump has lost prime through: a. Air leaks b. Water level below suction of pump 	 2. In installation already in use: a. Check all connections on suction line and shaft seal b. Lower suction line into water and re-prime. If receding water level in well exceeds suction lift, a deep well pump is needed
see if there is water	3. Impeller is plugged	3. Clean impeller; see Maintenance
in priming hole.)	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 pipes below frost line. Heat pit or pump house.
	 Foot valve and/or strainer are buried in sand or mud 	6. Raise foot valve and/or strainer above well bottom
Pump does not deliver water to full	1. Water level in well is lower than estimated	1 A deep well jet pump may be needed (over 20 ft to water)
capacity (Also check point 3	2. Steel piping (if used) is corroded or limed, causing excess friction	2. Replace with plastic pipe where possible, otherwise with new steel pipe
immediately above)	3. Offset piping is too small in size	3. Use larger offset piping

TABLE II										
PERFORMANCE CH	IART (IN	GALLONS	PER MINUTE)							

		-				* F & \$27 KHL #						
DISCHARGE		390.2 1 F	62451 I.P.		390.262551 1-1/2 H.P.				390.262651 2 H.P.			
PRESSURE	DISTANCE ABOVE TO WATER											
PSI	5'	10'	15'	20'	5'	10′	15'	20'	5'	10'	15'	20'
10	55	49	48	45	67	61	56	46	69	67	65	62
15	51	46	45	44	66	58	55	45	65	63	60	58
20	45	42	39	37	61	56	54	44	59	56	54	52
25	38	35	32	29	55	52	51	43	52	50	48	45
30	31	28	24	20	48	45	44	37	47	45	42	40
35	23	19	16	11	39	37	34	28	42	38	35	32
40	17	13	8	-	33	27	20	11	34	30	27	23
45	-	-		_	18	14	8	_	25	18	13	10
50	-		-	-	_		_	_	14	7	-	-
DISCHARGE PIPE TAPPING	1-1/2″ NPT			1-1/2″ NPT			2″ NPT					
SUCTION PIPE TAPPING	1-1/2″ NPT				1-1/2′	' NPT			2″ ٢	NPT		

SEARS "HYDRO-GLASS"[®] SPRINKLER PUMPS MODELS 390.262451, 390.262551 and 390.262651



12 408 0454

Key No.	Part Description	390.262451 115/230V 60 Cy/1 Ph 1 HP	390.262551 115/230V 60 Cy/1 Ph 1-1/2 HP	390.262651 230V 60 Cy/1 Ph 2 HP
1	Motor	J218-955C	J218-956C	J218-957C
2	Slinger	C69-2	C69-2	C69-2
3	Priming Plug 1/2" NPT	WC78-39T	WC78-39T	WC78-39T
4	Tank Body Back Half Complete	L176-47P1	L176-47P1	-
4A	Tank Body Back Half	-		C103-189P
4B	Seal Plate Insert	***		13-2
5	O-Ring	U9-399	U9-399	U9-228A
6	Shaft Seal for 5/8" Shaft	2784	2784	2784
7	Impeller	C105-92PVB	C105-92PBBB	C105-214PFA
•	Impeller Screw	_	-	C30-51SS
8	Diffuser	C1-258PCA	C1-258PCA	-
8A	Diffuser	_	-	C1-274P
9	Screw - #8 - 32 RH	U30-869SS	U30-869SS	U30-542SS
	(1 and 1-1/2 HP – 4 Reg'd; 2 HP – 2 Reg'd.)			
10	"V" Clamp	C19-5455	C19-545S	C19-37A
11	Tank Body Front Half (Incl. No. 12)	C176-53P	C176-53P	
11A	Tank Body Front Half Complete (Incl. Nos. 3 and 12)	_	_	C176-62P
12	Drain Plug - 1/4 NPT	WC78-40T	WC78-40T	WC78-40T
13	O-Ring	U9-226	U9-226	U9-393
14	Base	C4-42P	C4-42P	C4-42P
15	Flat Washer 5/16 (2 Req'd.)	U43-61ZP	U43-61ZP	
16	Nut - 5/16 - 18 (4 Req'd.)	U36-37ZP	U36-37ZP	
17	Rubber Pad	C35-11	C35-11	C35-11
18	Lock Washer - 5/16 (2 Req'd)	U43-11ZP	U43-11ZP	-
19	Capscrew (2 Req'd)		_	U30-7755
20	Flat Washer 5/16 (2 Req'd)		_	U43-4255
21	Capscrew (2 Req'd)	-		U30-74SS
	Owner's Manual	F642-2092	F642-2092	F642-2092

Not illustrated



"HYDRO-GLASS" HIGH PRESSURE SPRINKLER PUMP

Now that you have purchased your Sprinkler Pump, should a need ever exist for repair parts or service, simply contact any Sears Service Center. Be sure to provide all pertinent facts when you call or visit.

The **Model Number** of your Sprinkler Pump will be found on a plate attached to the side of the pump body.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- PART NUMBER
 PART DESCRIPTION
- MODEL NUMBER
 NAME OF ITEM

All parts listed may be ordered from any Sears Service Center.

If the parts you need are not stocked locally, your order will be electronically transmitted to a Sears Repair Parts Distribution Center for handling.

When Sears arranges the installation, you can be sure the job is done right. We will arrange for professional workmanship...and we'll take care of the entire project. What's more, during installation you get insured protection...against property damage and also against accidents to workmen. All you have to do is talk to your Sears salesperson or call your nearest store today for detailed information.