

SEARS

**Owners
Manual**

MODEL NO.

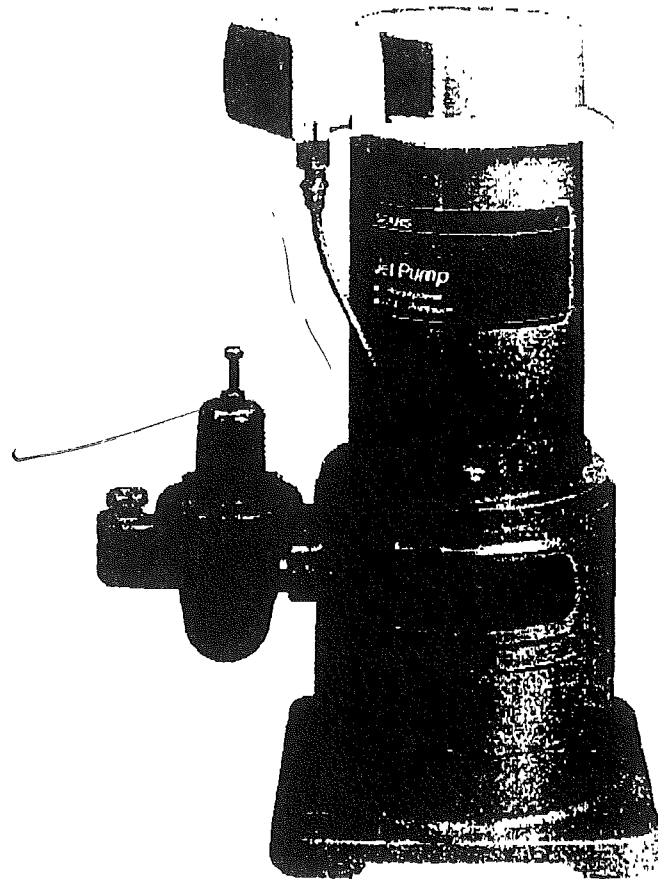
890-253150

890-253250

890-253350

CAUTION:
Read Instructions
Carefully Before Start-
ing the Installation

**See this Manual For
Future Reference**



MULTI-STAGE JET PUMPS

- Installation
- Operation
- Repair Parts

Sears, Roebuck and Co., Chicago, Ill. 60684 U.S.A.

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INTRODUCTION

Please take a few minutes to read our instructions before installing your submersible pump. It will help to assure perfect installation and help you avoid needless service expenses.

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. 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 owners manual.

LIMITATION OF LIABILITY

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. 731CR-W, Sears Tower, Chicago, IL 60684

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!

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

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

⚠ 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 foreign material from falling into well, contaminating the well and possibly damaging the pump.

4. Protect pump and piping system from freezing. Allowing pump or water system to freeze could severely damage pump and voids warranty.

5. To protect system against over-pressure, install a pressure relief valve able to pass full system flow at 75 pounds per square inch pressure (Sears Stock No. 27220). See Figures 1 and 2 for installation.

6. With a new well, test well water for purity before using. Consult your local Health Department for procedure.

⚠ WARNING Hazardous voltage. Can shock, burn, cause death, or start fires.

7. Disconnect electrical power source before installing or working on pump.

8. Ground pump with a ground wire run from grounding lug on motor to a grounded lead in the service panel.

9. Line voltage and frequency of electrical power supply must agree with motor nameplate.

10. Use of fuses or wires smaller than size recommended in owner's manual can cause overheating, possible fires, and will void warranty.

introduction

TYPICAL INSTALLATIONS CAPTIVE AIR® PRESSURE TANK INSTALLATION

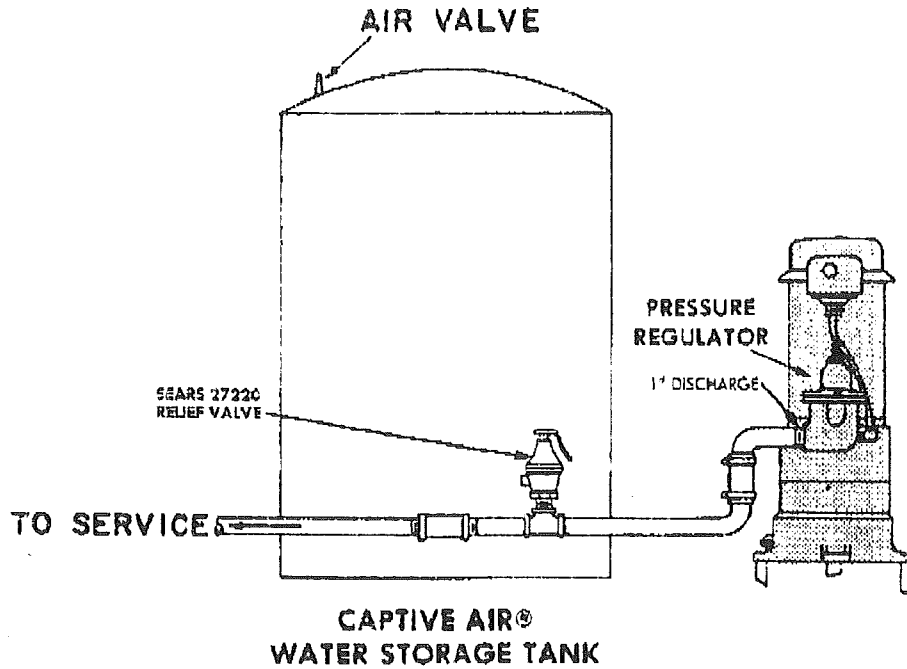


FIGURE 1

STANDARD PRESSURE TANK INSTALLATION

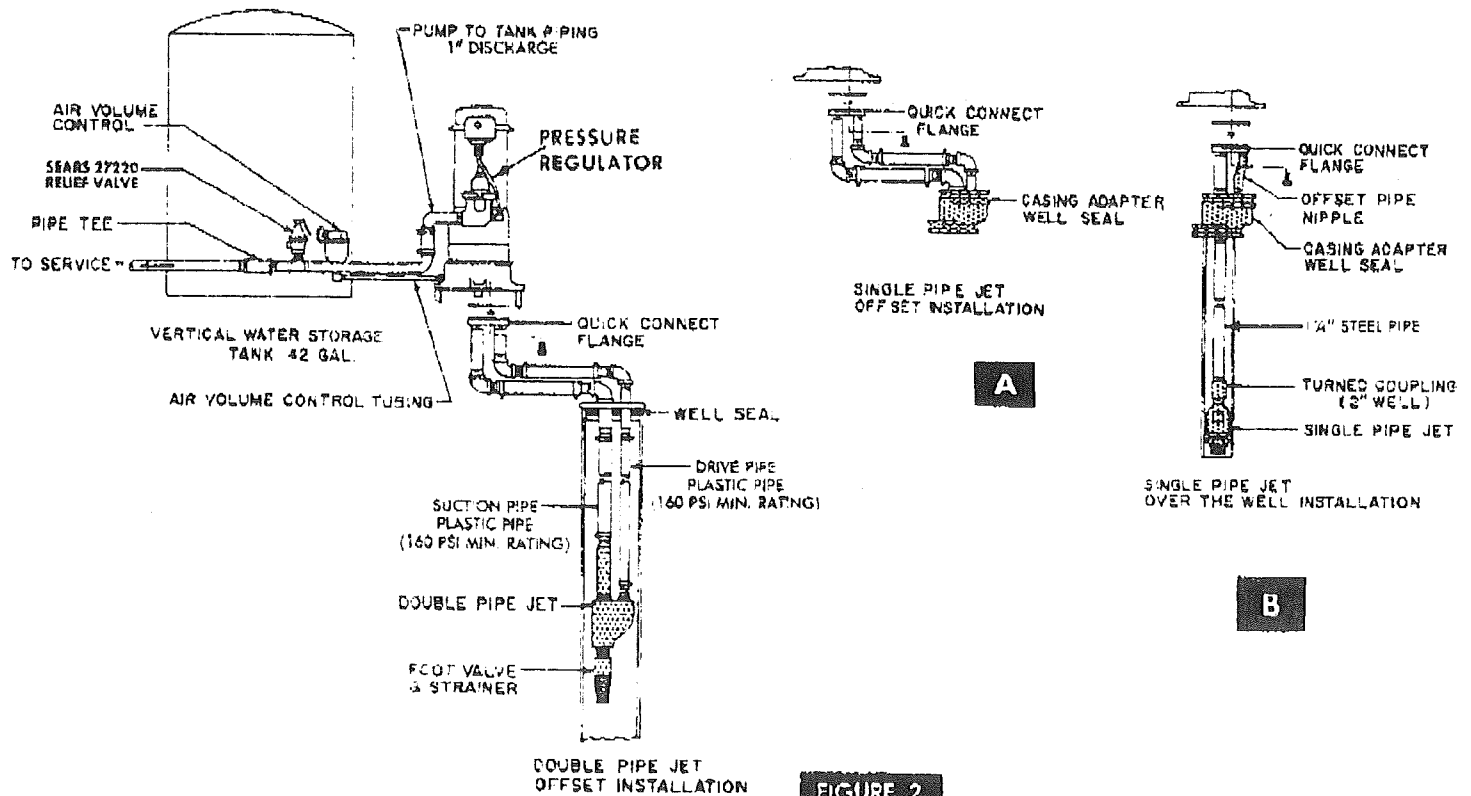


FIGURE 2

introduction

MAJOR COMPONENTS AND WHAT THEY DO

Tank and Air Volume Control

The tank serves two functions. It provides a reservoir of water, some of which can be drawn through the house fixture before the pump must start, and it maintains a cushion of air under pressure.

When SEARS Captive Air® Tanks are used, no air volume control is necessary. This tank contains a permanent precharge of air.

When a SEARS Standard tank is used, an air volume control adds air to the tank when it is needed. See instructions included with Air Volume Control for details on installation and operation.

Pressure Switch

The pressure switch provides for automatic operation. Pump starts when pressure drops to 40 pounds and stops when pressure reaches 60 pounds.

Impeller, Jet, and Pressure Regulator

The multi-stage pump is a deep well jet pump, designed for extra depth and pressure. It has two or three impellers installed in series. As the water passes through each impeller, it gains more pressure before it is delivered to the tank, or returned to operate the jet. This enables the pump to operate from greater depths and at higher pressure than a single stage pump.

The impeller of the pump rotates with the motor shaft, causing the water to fly out from its rim by centrifugal force. The rotation of the impeller creates a vacuum which "pulls" in more water. Part of the water is diverted back to the jet where it again passes through the nozzle and venturi — creating additional vacuum to draw in more water and delivering it at high pressure to the impeller.

Adjustment of the pressure regulator causes the right amount of water to be diverted back to the jet for the most efficient operation.

FLANGED CONNECTIONS

The SEARS multi-stage jet pump is equipped with an adapter flange, facilitating installation of the pump, as well as removal of the pump for service.

On installations, as shown in Fig. 2 (A) (B), Page 3, the flange is assembled to the piping and the pump is attached with gasket and hardware provided.

MOUNTING THE PUMP

The pump base has four equally spaced ¾" NPT pipe tapings into which lengths of ¾" pipe can be assembled. These function as supports or legs to hold the pump off the floor a sufficient distance to allow the offset piping from the well to be made. In the case of a single pipe installation, the pump can be placed directly over the well, using the offset nipple furnished with the casing adapter for alignment.

PUMP TO TANK PIPING

The Sears deep well jet pump can be side mounted on either the SEARS glass-lined tank, or a standard SEARS vertical tank, using the pump to tank mounting kit #2788, available as an accessory. Figure 2, Page 3, shows a typical installation using this method. To prevent overpressure, install a Sears Stock No. 27220 safety pressure relief valve as close to the tank as possible.

DEEP WELL PUMP INSTALLATION

In a deep well installation, a jet assembly is submerged in the well because the vertical distance to the water level exceeds the suction lift of the pump. A single pipe system must be used in 2" and 3" wells. A double pipe system must be used in 4" or larger wells.

Follow instructions packed with jet package for proper nozzle and venturi combination for your pumping depth.

DOUBLE PIPE JET

When a double pipe jet is selected, 2 pipes are used in the well. One is the suction pipe, and the other, the pressure pipe.

Due to the well depths and higher pressures associated with multi-stage jet pumps, the piping in the well should be as follows:

Model 390.253150 — 1¼" x 1" Deep Well Plastic Pipe
 Model 390.253250 — 1¼" x 1¼" Deep Well Plastic Pipe
 Model 390.253350 — 1¼" x 1¼" Deep Well Plastic Pipe

NOTICE: Depths over 220', use Galvanized Steel Pipe

installation

For Model 390.253150, use 1 1/4" for the suction pipe, and 1" for the drive pipe. Because a 4" jet and the adapter flange (included with the pump) are both tapped 1 1/4" x 1", no additional fittings are required.

Model 390.253250 and Model 390.253350 require 1 1/4" piping for both drive and suction lines. A 1" nipple, a 1 1/4" x 1" facing bushing and a 1 1/4" coupling are included in the jet package and must be used with the jet, as shown in Figure 3, Page 5.

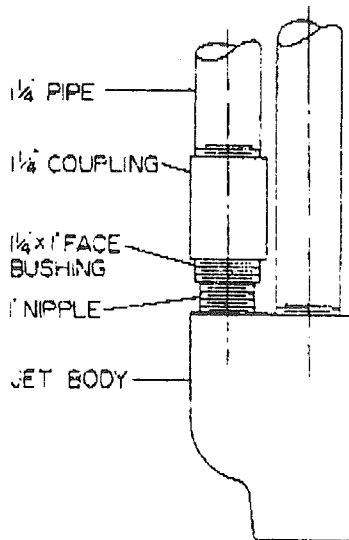


FIGURE 3

TO INSTALL 4" DOUBLE PIPE JET

First, inspect jet to make sure no foreign matter has entered the openings.

Be certain no foreign matter enters pipe openings while installing the unit.

Plastic Pipe Installations

1. Attach the foot valve to the jet with a short nipple.
2. Before installing, be certain foot valve operates freely.
3. A special plastic pipe adapter is included with the jet which screws into the 1 1/4" suction tapping over the venturi.
4. On Model 390.253150, assemble a plastic pipe adapter (not furnished) into the 1" tapping in the jet body.
- 4(a). On Models 390.253250 and 390.253350, assemble a plastic pipe adapter (not furnished) into the 1 1/4" tapping in the coupling as shown in Figure No. 3, Page 5. As previously stated, DO NOT use plastic pipe for depths greater than 220'.

5. Use sufficient length of plastic pipe to place the jet 10-15 feet below the lowest drawdown water level. This is the level to which the water in the well will drop while being pumped continuously.
6. Tighten all hose clamps securely. A sanitary well seal is required on top of the well casing. Use steel nipples and elbows or special galvanized steel elbows (available from SEARS) to go through the well seal. Use plastic pipe adapters where special elbows are not used.

STEEL PIPING INSTALLATIONS

To assist in lowering piping in the well, a tripod as shown in Figure 4, Page 5 can be made from 2 x 4 lumber. It may also be necessary to make a pipe clamp from 2 x 4 lumber as shown in Figure 5, Page 6. Use two 1/2" diameter machine bolts to hold clamp together.

During the process of lowering pipe into the well, always install coupling on top end and above clamp as shown in Figure 4, Page 5. This will prevent accidental dropping of pipe into well.

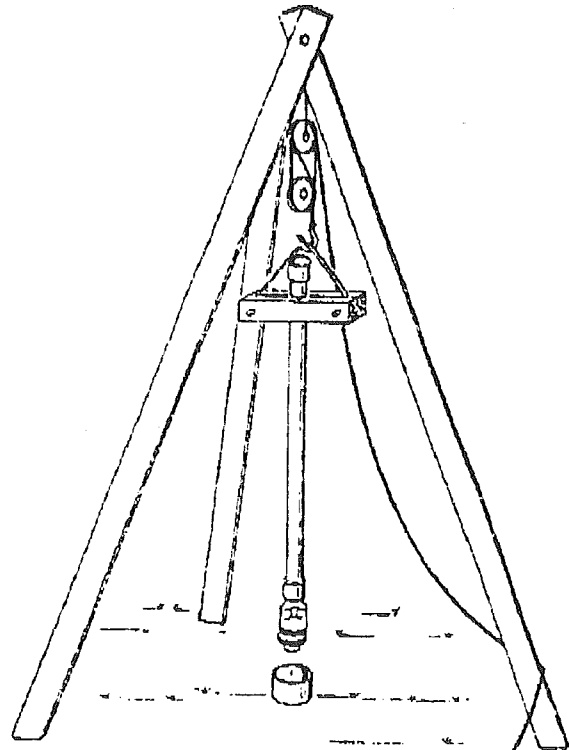


FIGURE 4

When steel pipe is used to install the jet, be sure all pipes are clean and the ends are reamed.

On Model 390.253150, screw both the 1 1/4" NPT suction pipe and the 1" NPT drive pipe directly into the jet body.

On Models 390.253250 and 390.253350, screw the 1 1/4" NPT drive pipe connection is to be made in accordance with Figure 3, Page 5.

installation

The special adapter nipple furnished with the jet is not used on steel pipe installations, and should be discarded. Add sufficient piping, using pipe thread compound on the joints until proper depth is reached.

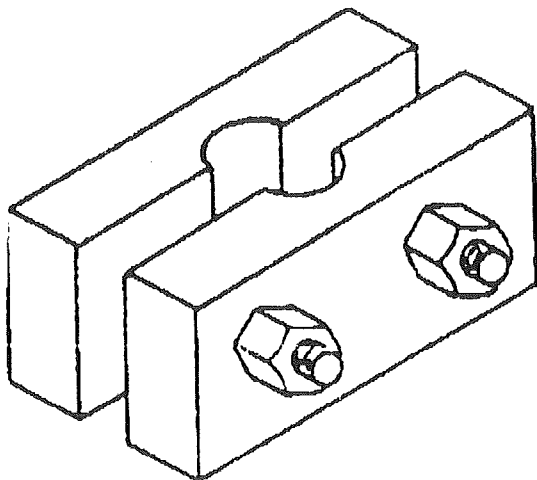


FIGURE 5

SINGLE PIPE JETS — 2" or 3" Wells

Before installing jet in well, it is necessary to soften jet leathers by soaking in water for a minimum of one hour.

Single pipe jets must be installed with steel suction piping in the well. Make sure all pipes are clean and ends are reamed before lowering any piping into the well. Look through pipe to make certain there are no obstructions.

During the process of lowering pipe into the well, always install coupling on top end and above clamp as shown in Figure 4, Page 5. This will prevent accidental dropping of pipe into well.

Attach the jet to the first length of suction pipe 1¼" (NPT). Use turned couplings (furnished) on 2" wells. Standard couplings may be used for suction piping on 3" wells. Use pipe compound on male threads only. Fasten a strong rope or chain around the pipe and use a block and tackle to lower the pipe and jet assembly into the well.

Tighten each length of pipe as it is lowered into the well. Lower it to proper depth which is 10-15 feet below the draw-down water level. This is the level to which the water will drop while the well is being pumped continuously.

PRIMING PIPE (OR PIPES) IN WELL

Fill piping in well with water as each length is added, or after piping is complete in well. This serves to double check for leaks in piping and foot valve, and simplifies final priming of pump.

INSTALLING CASING ADAPTER

Slide adapter on to well casing as far as it will go. Tighten three bolts to seal the adapter to the casing. Place a 1" nipple of proper length in the drive pipe opening in the casing adapter, and tighten top nuts. This will seal the glands on to both suction and drive piping. Add elbows and flexible pipe adapters for horizontal installations.

OVER-THE-WELL INSTALLATION

It may be desirable to install the pump over the well, especially if space is limited. Screw the suction tapping (center) of the pump flange on to the suction piping. Assemble the offset nipple to the remaining tapping in the flange, and align the nipple to enter the drive pipe opening of the casing adapter. Lower the piping into the adapter, by loosening the top gland nuts. Be sure offset nipple is all the way down in the casing adapter. Tighten the gland nuts, and bolt pump to flange.

Horizontal Piping from Well to Pump

When the pump is offset more than 25 feet from the well, horizontal piping should be increased in size to reduce friction losses. In no case should the offset piping be smaller than the tappings of the pump.

Horizontal Offset Pipe Sizes

PUMP MODEL	Up to 25'		25' to 100'		100' to 300'	
	Suct.	Drive	Suct.	Drive	Suct.	Drive
390.253150	1¼"	1"	1½"	1¼"	2"	2"
390.253250	1¼"	1¼"	1½"	1¼"	2"	2"
390.253350	1¼"	1¼"	1½"	1¼"	2"	2"

installation

Discharge Pipe Sizes

When the pump is set a distance from the house, barns, or other points of water use, the discharge pipe size should be increased to reduce pressure losses.

1"	1 1/4"	1 1/2"
Up to 100 ft.	100 to 300 ft.	300 to 600 ft.

PUMP INSTALLATION

SEARS jet pumps can be used with either standard vertical tanks or with SEARS Captive Air™ Tanks. See figure 1 and Figure 2, Page 3.

SEARS Captive Air™ Tanks are precharged with air at the factory. Check operating instructions with tank to determine if air charge needs adjustment. Your pump requires an air charge of 40 pounds for proper operation.

WIRING INSTRUCTIONS

⚠WARNING Hazardous voltage. Be sure power is off to the pump when working on electrical connections.

Check your motor nameplate for voltage. If nameplate reads 115 volts only, no internal motor terminal board wiring changes are necessary. Motor will operate only on 115 volt power supply.

If motor nameplate reads 115/230 volt, it may be necessary to change internal motor terminal board connections to correspond with your power supply. Remove motor canopy and check connections against diagram on motor nameplate and make any necessary changes.

GROUNDING THE MOTOR

⚠WARNING Hazardous voltage. Can shock, burn, or cause death. Disconnect power to pump before servicing.

WIRING TO THIS PUMP MUST BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR YOUR LOCAL ELECTRIC CODE. IF MORE INFORMATION IS NEEDED, CALL YOUR LOCAL LICENSED ELECTRICIAN OR YOUR POWER COMPANY.

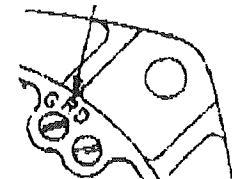
Permanently ground the motor in accordance with the National Electrical Code Article 250 or applicable local codes and ordinances. It is recommended that a permanent ground connection be made to the unit using a conductor of appropriate size from a metal underground water pipe or a grounded lead in the service panel.* Do not ground to a gas supply line. **NOTE: DO NOT CONNECT TO ELECTRIC POWER SUPPLY UNTIL UNIT IS PERMANENTLY GROUNDED. CONNECT THE GROUND WIRE TO THE APPROVED GROUND AND THEN CONNECT TO THE TERMINAL PROVIDED.**

*A metal underground water pipe or well casing at least 10 ft. long makes the best ground electrode. If plastic pipe or insulated fittings are used, run ground wire directly to the metal well casing or use ground electrode furnished by the power company.

There is only one proper ground connection on the motor. It is located under the motor canopy and is painted green and identified as GRD. Ground connection must be made to this terminal. See wiring diagram below.

WIRING DIAGRAM

10-32 GROUND SCREW (BINDING HEAD)



The motor grounding conductor need not be larger than the circuit conductors supplying the motor providing circuit conductors conform to the wiring data provided in this manual.

Fusing and Wiring

The correct fusing of the motor of your SEARS pump is essential. See Table 1 to determine the correct fuse and wire size to use.

Pressure switch connections must be in accordance with Fig. 6.

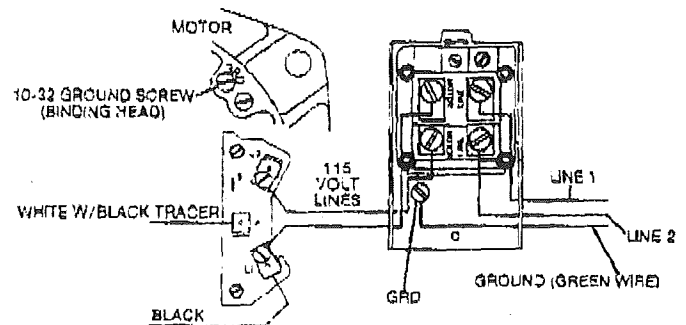


Figure 6A—115 Volt Wiring Diagram

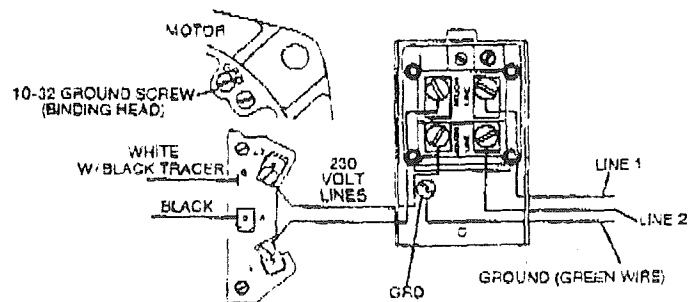


Figure 6B—230 Volt Wiring Diagram

installation

OPERATION

CAUTION NEVER run pump dry. Running pump without water may overheat unit, damaging seals and possibly burning persons handling pump.

WARNING NEVER run pump against closed discharge. To do so can boil water inside pump, causing hazardous pressure in unit and possible scalding to persons handling pump.

Priming the Deep Well Pump

TO PREVENT DAMAGE TO INTERNAL PARTS, DO NOT START MOTOR UNTIL PUMP HAS BEEN FILLED WITH WATER.

NOTE: FOR LOCATION OF PRESSURE REGULATOR, SEE INSTALLATION DIAGRAMS ON PAGE 3.

1. Open several faucets in the house or near the tank to prevent pressure build-up in tank.
2. Close pressure regulator by turning regulator screw all the way down (CLOCKWISE).
3. Remove pressure gauge and bushing located in pressure regulator.
4. Pour clean water into opening until filled and replace gauge and bushing.
5. Start pump momentarily to allow air to escape from pump impeller.
6. Repeat steps three (3) through five (5) as many times as necessary to eliminate all the air.
7. When all the air is eliminated, steady pressure in excess of fifty (50) pounds will register on the gauge.
8. With pump running, loosen locknut and turn pressure regulator adjusting screw COUNTER-CLOCKWISE until gauge needle begins to flutter and loose pressure rapidly.
9. Quickly turn pressure regulator screw CLOCKWISE until gauge pressure steadies. This is the most efficient point at which your pump will operate.

10. At this point close faucets and allow tank to be pressurized.
11. To insure pump is operating properly, alternately open and close faucets in system. With faucets open, pressure will drop until pressure switch starts pump, and with faucets closed, pressure will build up until pressure switch shuts off.

First Alternate to 8 and 9

As an alternate to steps eight (8) and nine (9), a predetermined pressure can be set with your regulator for satisfactory pump operation. To do this you must use the recommended pump-jet combination. Pressure settings are as follows:

Pump Model	Regulator Pressure Setting
390.253150	40 PSI
390.253250	60 PSI
390.253350	85 PSI

Second Alternate to 8 and 9

If a vacuum gauge is available, screw it into the 1/2" tapping in the base of the pump (this is the A.V.C. fitting tapping). Adjust regulator until 15" of vacuum registers on the gauge. Tighten lock nut on regulator, replace A.V.C. fitting (or pipe plug, if A.V.C. is not used). This method of checking for maximum performance setting of the regulator is also useful if the water level in the well drops, requiring readjustment of the regulator.

**TABLE I
RECOMMENDED FUSE AND WIRE SIZES FOR SEARS MULTI-STAGE JET PUMPS**

Model No.	H.P.	Voltage	Max. Lead Amperes	Branch Time Delayed Fuse* Rating Amps	Distance in Feet from Motor to Meter					
					0-50	51-100	101-200	201-300	301-400	401-500
					Wire Size					
390.253150	3/4	115	14.8	20	14	12	8	6	6	4
		230	7.4	9	14	12	12	12	12	10
390.253250	1	115	19.2	30	10	10	8	6	4	2
		230	9.6	12	14	14	12	12	10	8
390.253350	1-1/2	230	12.0	12	14	14	12	10	8	8

*Time delayed fuses are recommended instead of fuses in any motor circuit.

service

MAINTENANCE

Lubrication

It is not necessary to lubricate the pump or its motor. The motor has two ball bearings lubricated for life. The mechanical shaft seal in the pump is water lubricated and self-adjusting.

Draining for Winter

When the pump is to be disconnected from service, or is in danger of freezing, it should be drained. The pump has a drain plug which must be removed. Remove the priming plug to vent the pump. Drain the pressure tank. Drain all piping to a point below the freeze line.

To drain an air volume control, remove AVC tubing, and turn (loosen) it 180° on the 1/4" pipe fitting to the tank. This will permit any water remaining in the air volume control to drain back into the tank.

To drain pressure tanks, remove plug, piping or hose at lowest point in tank.

The pump is designed for ease in servicing. Should repair or replacement of the motor or seal be needed, the pump and piping do not need to be disconnected or disturbed.

If it is necessary to repair or replace the motor, it is a good idea to replace the shaft seal and the seal plate gaskets. Therefore, we suggest that you order these items to have on hand for future use.

REMOVAL OF OLD SEAL

1. Disassemble pump, following instructions carefully.
 - (a) Disconnect power lines from pressure switch.
 - (b) Disconnect pump from the base and regulator flanges. Place pump on a bench upside down, resting on the motor canopy.
 - (c) Loosen switch tube nuts and remove switch tube.

NOTICE: It would be advisable before disassembling the pump for repair, to order shaft seal, Part No. U9-99, gaskets, Part No. J20-11, Part No. J20-17 and Part No. J20-12.
 - (d) Remove the four capscrews from the base. With a mallet, tap upward on the base to loosen, then lift off base volute.
 - (e) Insert a screwdriver into one of the vanes of the impeller to hold it from turning, and with a wrench remove the hex impeller nut.
 - (f) With two screwdrivers placed on opposite sides, pry the impeller straight up. This is a keyed impeller, and **DOES NOT UNSCREW.** It can only be removed by being lifted straight off the shaft.

- (g) Tap the intermediate volute to loosen, and lift off.
 - (h) Remove impeller spacer, Key No. 13, Page 16.
 - (i) Remove 2nd impeller as in (f) above. **NOTICE:** If pump has (3) stages, repeat steps (g), (h) and (i).
2. The Woodruff keys on the shaft need not be removed to replace the seal. Turn the spring retainer cup to line up notch with the Woodruff Key. This will allow you to slide the retainer up off the shaft. The spring can now be removed.
 3. With two screwdrivers, pry the pump adapter away from the motor. This will pull the seal off the motor shaft, Figure 7. The stationary part of the seal can now be pushed out of the adapter from the opposite side.

INSTALLATION OF NEW SEAL

1. Clean cavity in pump adapter. Wet rubber seat ring with soapy water, and push stationary part of seal into cavity, using 1" pipe nipple for pressing. Be sure to use a cardboard washer or disc on the lapped, polished seal surface to prevent scratching. It is important that this part be fully seated, Figure 8, Page 10.
2. Slide the adapter over the shaft, after making sure the seal seat ring is in place in its seat. Do not damage shaft seal seat as it is highly polished, and even a slight scratch on its surface would ruin it.
3. Line up the bolt holes in the adaptor with those in the motor. As there are four holes in the motor, be sure to use the two holes that will line up the switch tube with the regulator fitting. Bolt adaptor in place, tightening cap screws evenly.
4. Be sure Woodruff keys are in place in the shaft.
5. Push the shaft seal and seal spring onto the shaft, after being sure that the seal faces are clean, Figure 9. Place the spring holder on the spring, Figure 10. Slide the first impeller onto the shaft and the impeller spacer. Place volute gasket, lining up the bolt holes in the gasket with those on the adapter. Be sure the gasket is placed right side up, so the water passage holes line up properly.
6. Place the intermediate volute, lining up with the bolt holes in the adapter and gasket. Use the long capscrews to check this alignment. It cannot be stressed too strongly that all gaskets and volutes must line up with the bolt holes, or the pump will not assemble properly.
7. Test each impeller to see that the key was not dislodged when assembling.
8. After the last impeller is in place, put the lock nut on the shaft and tighten securely with a wrench. Hold the impeller with an impeller tool or screwdriver in the vanes. When the locknut is screwed onto the shaft as far as it will go, the impeller will automatically be spaced correctly.
9. Place the base volute after positioning the last gasket. Be sure the pump discharge is in the correct position to line up with the discharge piping.
10. Insert the four base capscrews and tighten evenly. If the stages and gaskets have been aligned properly, you should have little difficulty in inserting these screws.
11. Reinstall the pump onto the flange and regulator adapter and reconnect the electrical connections and tubing.

service

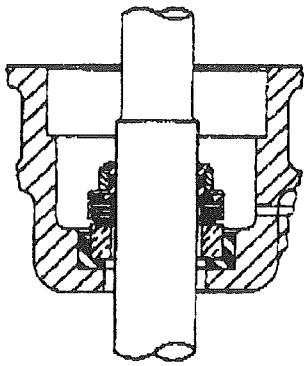


FIGURE 7

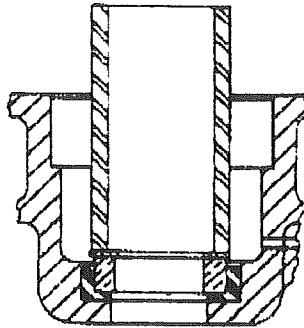


FIGURE 8

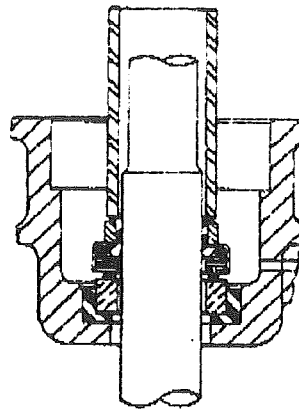


FIGURE 9

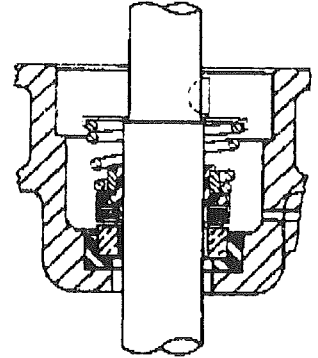


FIGURE 10

Cleaning Impeller

Disassemble pump as outlined under Removing Motor for Service and Replacing Shaft Seal. Follow procedure under item No. 1. Check each impeller and remove foreign material.

Cleaning Deep Well Jet

1. Disconnect power.
2. Disconnect piping and well seal or well casing adapter. (If pitless adapter is used, piping does not have to be disconnected.)
3. Withdraw jet assembly from well.
4. Unscrew and remove the venturi. Remove the nozzle with a socket wrench and clean.
5. Replace all parts, reprime, and turn on power.

SERVICE USES OF THE COMPOUND GAUGE

When it is found that the pump or water system is not operating efficiently, it is sometimes possible to use a compound gauge to determine the nature of the trouble.

A compound gauge is a combination vacuum and pressure gauge which will indicate (1) receding water level in the well, (2) leakage in the suction line or in pump, or (3) clogged impeller.

Install the gauge in the air volume control tapping (on outside base of pump). Open discharge valve between pump and tank (if used), and between tank and household piping. Tighten pressure regulator valve screw to maximum tightness. Prime pump and start. After running a few minutes to eliminate all air from pipes, loosen pressure regulator valve screw until a vacuum reading of 15" is reached on the vacuum gauge. This setting indicates that the pressure regulator is set at the point of highest water delivery for your installation. The pump should be allowed to operate several minutes at this condition to see whether the water level falls in the well, which will cause the vacuum reading to increase. This may necessitate resetting the pressure regulator to reduce the vacuum reading to the 15" recommended. Failure to build up 15" of vacuum may indicate leaks in the suction line or a clogged impeller.

HOW TO HANDLE A GASEOUS WELL

In some localities well water contains gases which must be allowed to escape before the water is used. This can be done as shown in Figure 11, Page 11.

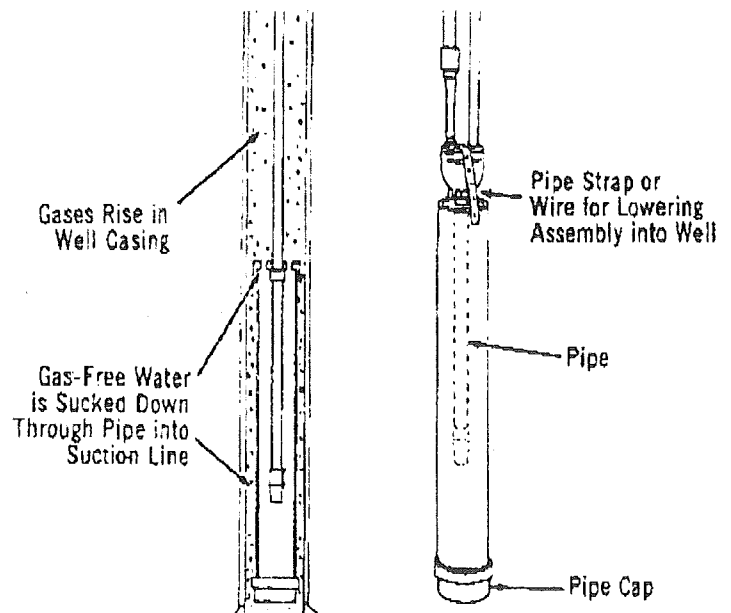


FIGURE 11

A good way of delivering gas-free water is to suspend a pipe, closed at the bottom and open at the top, surrounding the suction pipe (Fig. 11). Since the gases rise in the well casing, the water sucked down through the pipe and into the suction pipe is free of gas. It is imperative that this type of well be vented to the outside of any enclosure.

service

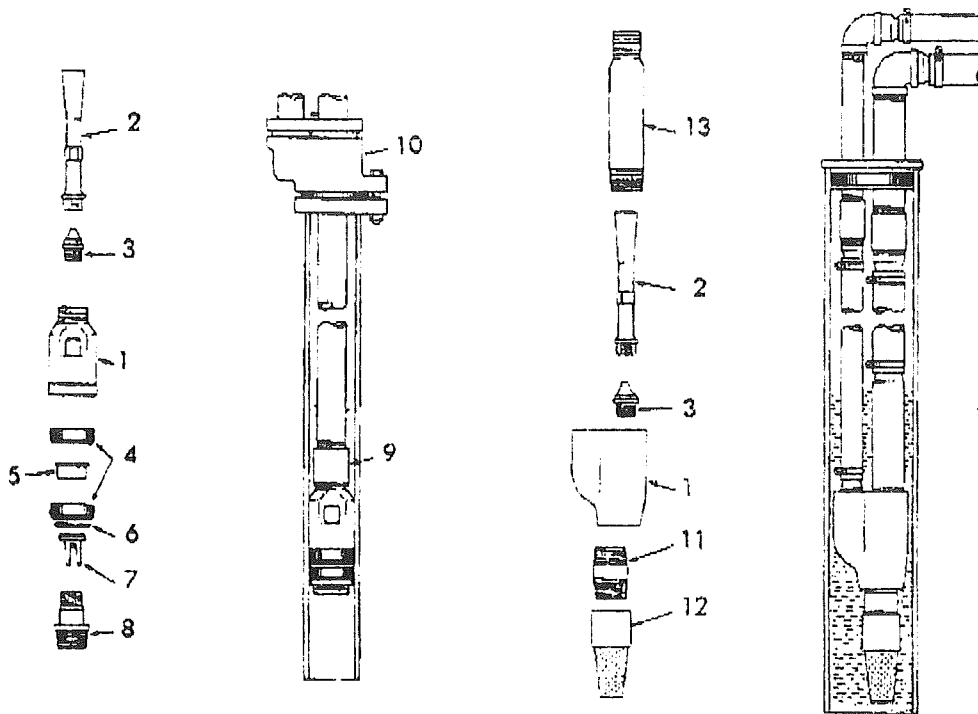
SERVICE CHART

TROUBLE	POSSIBLE CAUSES	REMEDIES
Motor will not run	<ol style="list-style-type: none"> 1. Disconnect switch is off 2. Fuse is blown 3. Starting switch is defective 4. Wires at motor are loose, disconnected, or wired incorrectly 5. Pressure switch contacts are dirty 	<ol style="list-style-type: none"> 1. Be sure switch is on 2. Replace fuse 3. Replace starting switch 4. Refer to instructions on wiring 5. Clean by sliding piece of plain paper between contacts
Motor runs hot and overload kicks off	<ol style="list-style-type: none"> 1. Motor is wired incorrectly 2. Voltage is too low 3. Pump cycles too frequently 	<ol style="list-style-type: none"> 1. Refer to instructions on wiring 2. Check with power company. Install heavier wiring if wire size is too small. See wiring instructions 3. See section below on too frequent cycling
Motor runs but no water is delivered	<ol style="list-style-type: none"> 1. Pump in a new installation did not pick up prime through: <ol style="list-style-type: none"> a. Improper priming b. Air leaks c. Leaking foot valve 2. Pump has lost its prime through: <ol style="list-style-type: none"> a. Air leaks b. Water level below suction of pump 3. Jet or impeller is plugged 4. Check valve or foot valve is stuck in closed position 5. Pipes are frozen 6. Foot valve and/or strainer are buried in sand or mud 	<ol style="list-style-type: none"> 1. In new installation: <ol style="list-style-type: none"> a. Re-prime according to instructions b. Check all connections on suction line, air volume control, and jet c. Replace foot valve 2. In installation already in use: <ol style="list-style-type: none"> a. Check all connections on suction line, air volume control, jet and shaft seal b. Lower suction line into water and re-prime. If receding water level in a shallow well operation exceeds suction lift, a deep well pump is needed 3. Clean jet or impeller according to instructions 4. Replace check valve or foot valve 5. Thaw pipes. Bury pipes below frost line. Heat pit or pump house 6. Raise foot valve and/or strainer above well bottom
Pump does not deliver water to full capacity (Also check point 3 immediately above)	<ol style="list-style-type: none"> 1. Water level in well is lower than estimated 2. Steel piping (if used) is corroded or lined, causing excess friction 3. Offset piping is too small in size 	<ol style="list-style-type: none"> 1. A deep well jet pump may be needed (over 20 ft. to water) 2. Replace with SEARS Plastic Pipe where possible, otherwise with new steel pipe 3. Use larger offset piping
Pump pumps water but does not shut off	<ol style="list-style-type: none"> 1. Pressure switch is out of adjustment or contacts are "frozen" 2. Faucets have been left open 3. Jet or impeller is clogged 4. Water level in well is lower than estimated 	<ol style="list-style-type: none"> 1. Adjust or replace pressure switch 2. Close faucets 3. Clean jet or impeller 4. Check possibility of using a deep well jet pump
Pump cycles too frequently	<ol style="list-style-type: none"> 1. Standard pressure tank is water-logged and has no air cushion 2. Pipes leak 3. Faucets or valves are open 4. Foot valve leaks 5. Pressure switch is out of adjustment 6. Air charge too low in SEARS Captive Air Tank 	<ol style="list-style-type: none"> 1. Drain tank to air volume control tapping. Check air volume control for defects. Check for air leaks at any connection 2. Check connections 3. Close faucets or valves 4. Replace foot valve 5. Adjust or replace pressure switch 6. Disconnect electrical power and open faucets until all pressure is relieved. Using automobile tire pressure gauge, check air pressure in tank at the valve stem located at top of tank. If less than 40 pounds, pump air into tank from outside source, until 40 pounds pressure is reached. Check air valve for leaks, using soapy solution, and replace core if necessary.
Air spurts from faucets	<ol style="list-style-type: none"> 1. Pump is picking up prime 2. Leak in suction side of pump 3. Well is gaseous 4. Intermittent over-pumping of well 	<ol style="list-style-type: none"> 1. As soon as pump picks up prime, all air will be ejected 2. Check suction piping 3. Change installation as described in manual 4. Lower foot valve if possible, otherwise restrict discharge side of pump

repair parts

MULTI-STAGE JET PUMPS

¾ HP, MODEL 390.253150; 1 HP, MODEL 390.253250; 1½ HP, MODEL 390.253350



SINGLE PIPE JETS

Jet Size	Pump Model	Jet Pkg. Stock No.	* Jet No. Stamped on Venturi	Max. Pumping Depth	1 Jet Body	2 Venturi	3 Nozzle Part No.	No. Stamped on Nozzle	4 Packer Leather	5 Spacer	6 Washer	7 Check Valve	8 Valve Seat	9 Turned Coupling	10 Casing Adapter
2"	390.253150	29670	None	60'	J40-24	J32P-24	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13
			8AP	120'	J40-24	J32P-18	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13
	390.253250		None	90'	J40-24	J32P-24	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13
			8AP	180'	J40-24	J32P-18	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13
390.253350	390.253350	None	120'	J40-24	J32P-24	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13	
		8AP	240'	J40-24	J32P-18	J34P-42	52	J57-1	J43-14P	—	P122-10B	J66-13	U11-1	J216-13	
3"	390.253150	29902	None	60'	J40-25	J32P-24	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14
			16CP	120'	J40-25	J32P-18	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14
	390.253250		None	100'	J40-25	J32P-24	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14
			16CP	210'	J40-25	J32P-18	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14
390.253350	390.253350	None	120'	J40-25	J32P-24	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14	
		16CP	280'	J40-25	J32P-18	J34P-42	52	J57-3	J43-16	J43-20	J161-3	J66-14	—	J216-14	

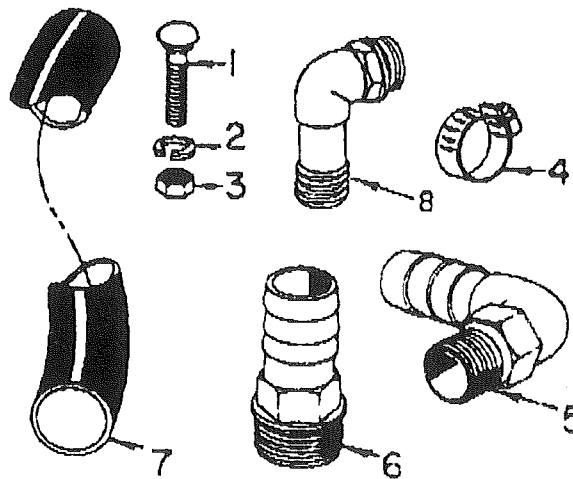
4" DOUBLE PIPE JETS

Jet Size	Pump Model	Jet Pkg. Stock No.	* Jet No. Stamped on Venturi	Max. Pumping Depth	1 Jet Body	2 Venturi	3 Nozzle	No. Stamped on Nozzle	11 Nipple	12 Foot Valve and Strainer	13 Plastic Pipe Adapter
4"	390.253150	29660	None	60'	J40-23	J32P-24	J34P-42	52	U37-67P	U212-158P	U11-104P
			15EP	120'	J40-23	J32P-18	J34P-42	52	U37-67P	U212-158P	U11-104P
	390.253250		None	100'	J40-23	J32P-24	J34P-42	52	U37-67P	U212-158P	U11-104P
			15EP	210'	J40-23	J32P-18	J34P-42	52	U37-67P	U212-158P	U11-104P
	390.253350		None	120'	J40-23	J32P-24	J34P-42	52	U37-67P	U212-158P	U11-104P
			15EP	280'	J40-23	J32P-18	J34P-42	52	U37-67P	U212-158P	U11-104P

*NOTE: ORDER JETS AS FOLLOWS: JET 8AP - JET 15EP, ETC.

repair parts

**TANK ADAPTER PKG. — #2788 (Not Furnished)
Must be Purchased Separately.**

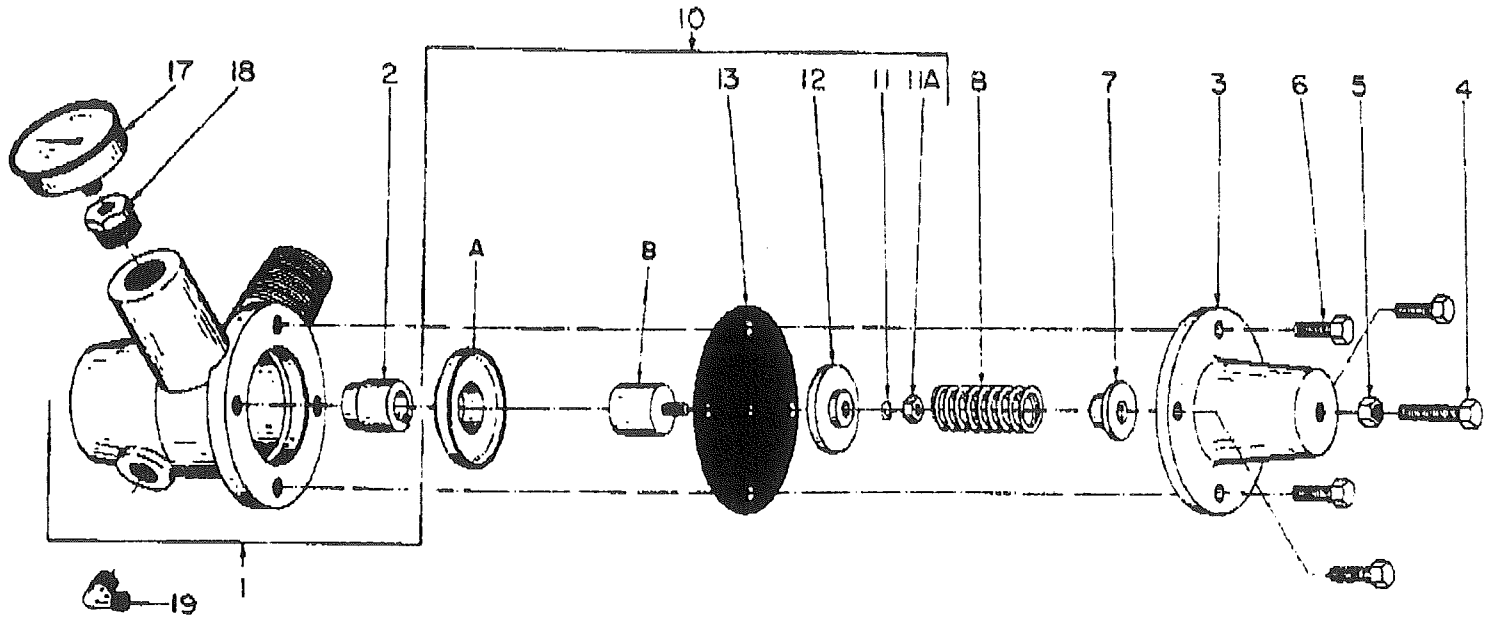


REPAIR PARTS

KEY NO.	PART NO.	PART DESCRIPTION
1	U30-256ZP	Bolt - 3/8" - 16 x 1-1/4" Lg. (2 Req.)
2	U43-12ZP	Washer - 3/8" (2 Req.)
3	U36-38ZP	Nut - Hex 3/8" - 16 (2 Req.)
4	U19-55SS	Clamp - Hose (2 Req.)
5	U78-770P	Elbow - 3/4" Pipe Thread by 1" Insert
6	U78-777P	Adapter - 1" Pipe Thread by 1" Insert (2 Req.)
7	U74-37J	Hose
8	U78-769P	Elbow - 1" (2 Req.)

repair parts

**MULTI-STAGE JET PUMP
PRESSURE REGULATOR
FOR MODELS
390.253150
390.253250
390.253350**



**PRESSURE REGULATOR — "210" SERIES MULTI-STAGE JET PUMPS
¾ HP, MODEL 390.253150; 1 HP, MODEL 390-253250, 1½ HP, MODEL 390-253350**

Key No.	J212-24A ¾, 1 & 1½ HP	Part Description
1	J112-14	Pressure Regulator Body w/Seat
2	J66-16	Valve Seat
3	J52-9	Bonnet
4	U30-665ZP	Adjusting Screw
5*	U36-37ZP	Locknut - 5/16 - 18 Hex.
6*	U30-60ZP	Capscrew - 5/16 18 x ¾" Lg. Hex (4 required)
7	J61-5	Spring Guide
8	J24-13	Spring
10	J220-16B	Diaphragm and Stem Assembly
A**	—	Regulator Guide
11*	U43-23ZP	Lockwasher - ¼"
11A*	U36-36ZP	Nut - ¼ - 20 Hex
12	J43-31	Spring Follower
13	J20-16	Diaphragm
B**	—	Stem Assembly
17	TC2104	Pressure Gauge - 0-150#
18	U78-107DT	Reducer Bushing - ½ x ⅜" NPT Compression Elbow
19	U111-86T	½ NPT x ¼" Tube (Body only)

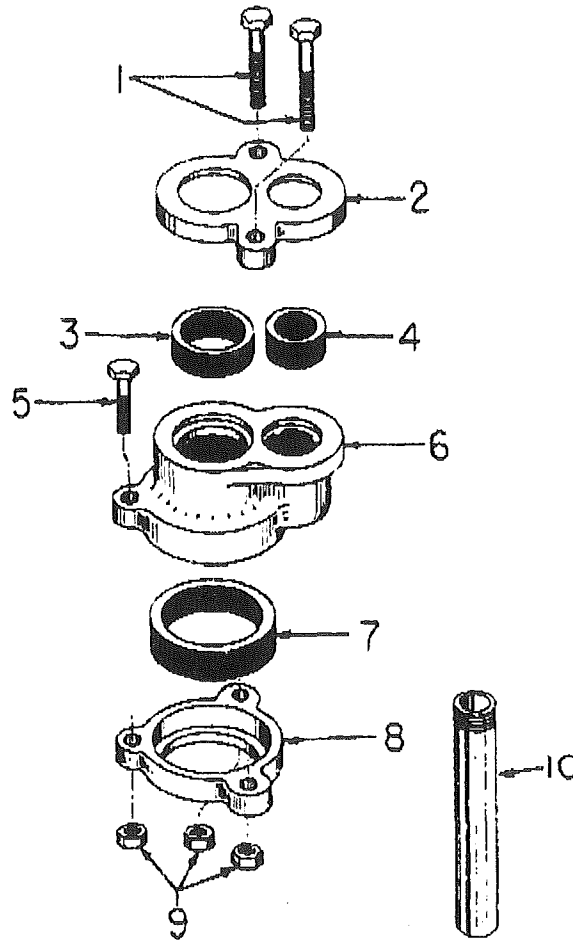
* Standard hardware item; may be purchased locally.

** Items A and B included with Item 10.

repair parts

**SEARS VERTICAL
CASING ADAPTERS
FOR MULTI-STAGE
JET PUMPS
MODELS
390.253150
390.253250
390.253350**

SEARS VERTICAL CASING ADAPTERS



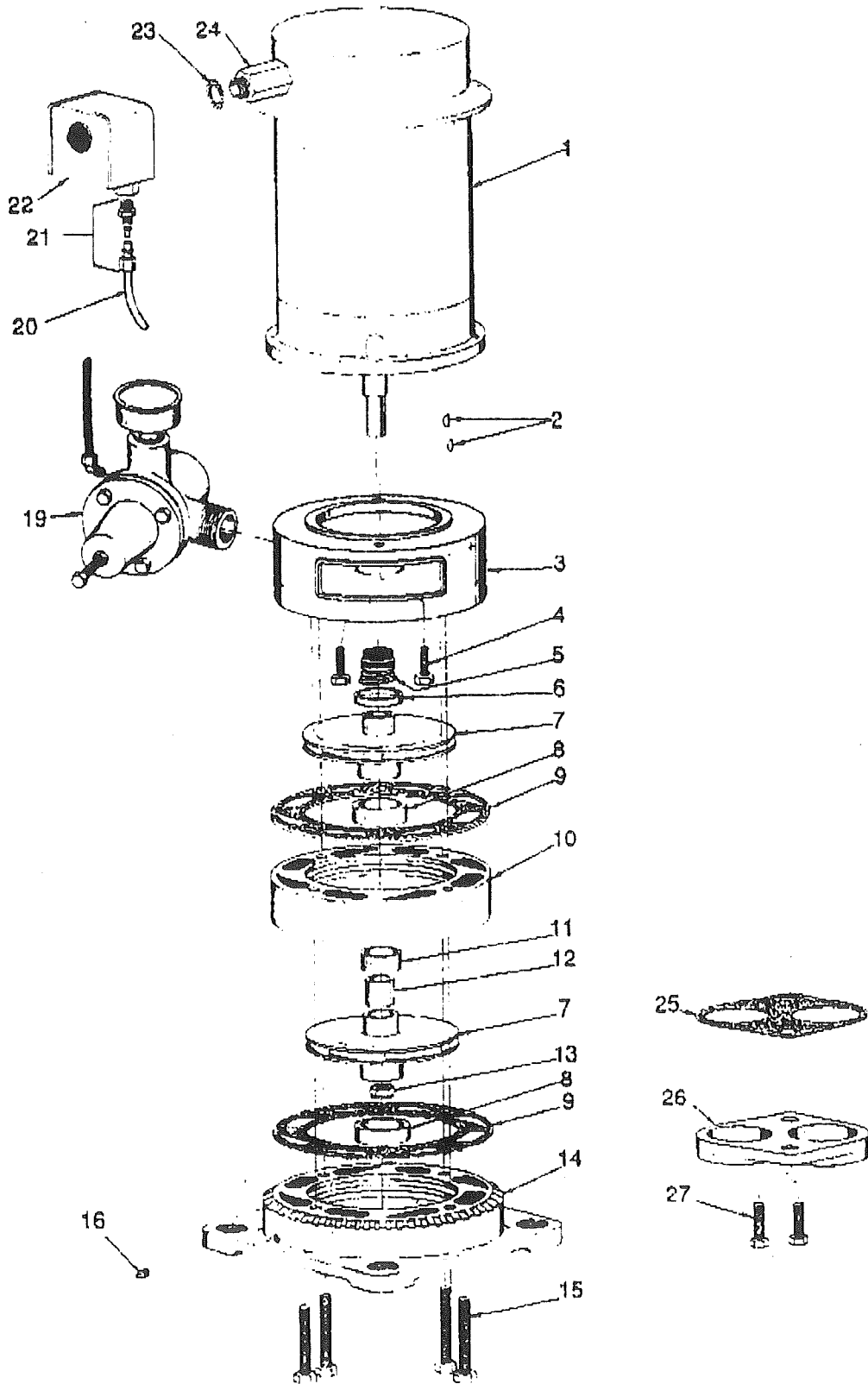
REPAIR PARTS LIST 2" and 3" Vertical Casing Adapter

Key No.	2" Vertical Casing Adapter	3" Vertical Casing Adapter	Part Description
—	J216-13	—	2" Vertical Casing Adapter
—	—	J216-14	3" Vertical Casing Adapter
1	U30-282ZP	U30-282ZP	Machine Bolt 3/8-16 x 5" Lg. (2 Req.)
2	J16-19ZZ	J16-23ZZ	Upper Flange
3	J21-18	J21-18	Seal Ring—Suction Pipe
4	J21-19	J21-19	Seal Ring—Drive Pipe
5	U30-277ZP	U30-277ZP	Machine Bolt 3/8-16 x 2 1/2" Lg.
6	J51-1ZZ	J51-3ZZ	Casing Adapter Body
7	J21-17	J21-21	Seal Ring—Lower
8	J16-20ZZ	J16-24ZZ	Lower Flange
9	U36-38ZP	U36-38ZP	Nut 3/4" Hex. Hd. (3 Req.)
10*	U37-116GP	U37-116GP	1" x 6" Nipple

* Furnished with Jet Package.

repair parts

**MULTI-STAGE
JET PUMPS
MODELS
390.253150
390.253250
390.253350**



repair parts

SEARS MULTI-STAGE JET PUMPS

Key No.	Model Number			Part Description
	390.253150 3/4 HP 115/230V/60Hz	390.253250 1 HP 115/230V/60Hz	390.253350 1 1/2 HP 230V/60Hz/1Ph	
1**	J218-595C	J218-600C	J218-885C	Motor
2	U65-155S#	U65-155S#	U65-155S§	Shaft Key—Woodruff #3
3	L2-16	L2-16	L2-16	Pump Adapter
4	U30-861ZP	U30-861ZP	U30-861ZP	Capscrew 3/8-16 x 1 1/8" Lg. (2 Req.)
5	U9-99	U9-99	U9-99	Shaft Seal
6	J24-11	J24-11	J24-11	Spring Holder
7	J105-75P#	J105-75P#	J105-74PA§	Impeller
8	J23-10#	J23-10#	J23-10§	Wear Ring (only)
9	J20-11#	J20-11#	J20-11§	Gasket
●	J201-26	J201-26	J201-26#	Intermediate Volute—Complete
10	J101-26	J101-26	J101-26#	Intermediate Volute w/wear ring
11	J23-11	J23-11	J23-11#	Wear Ring (only)
12	J43-23	J43-23	J43-23#	Spacer—Impeller
13	U36-175D	U36-175D	U36-175D	Impeller Nut
●	J201-38	J201-38	J201-38A	Base Volute—Complete
14	J101-38	J101-38	J101-38	Base Volute w/Wear Ring
15	U30-82ZP	U30-82ZP	—	Capscrew 3/8-16 x 4 1/4" Lg. (4 Req.)
15	—	—	U30-705ZP	Capscrew 3/8-16 x 6 1/4" Lg. (4 Req.)
16*	U78-57CT	U78-57CT	U78-57CT	Pipe Plug 1/4" NPT Sq. Hd.
19	J212-24A	J212-24A	J212-24A	Pressure Regulator Assembly (See Page 14 for Parts)
20	U37-192P	U37-192P	U37-192P	Tube
21	U111-85T	U111-85T	U111-85T	Compression Fitting (straight)
22	2782	2782	2782	Pressure Switch
23*	U36-112ZP	U36-112ZP	U36-112ZP	Locknut 1/2"
24	J43-13C	J43-13C	J43-13C	Connector
●	F642-0291	F642-0291	F642-0291	Owners Manual

FITTINGS AND ACCESSORIES

Key No.	Model Number			Part Description
	390.253150	390.253250	390.253350	
25	J20-12	J20-12	J20-12	Gasket—Adapter
26	J2-15	—	—	Adapter—1 1/4" x 1" NPT
26	—	J2-17B	J2-17B	Adapter - 1 1/4" x 1 1/4" NPT
27*	U30-86ZP	U30-86ZP	U30-86ZP	Capscrew—1/2-13 x 1 1/4" Lg. (2 Req.)

* Standard hardware item; may be purchased locally.

** Not available; specify freight or express.

● Not illustrated.

For repair or service to motors, always give the Motor Model number and any other data found on the Motor Model Plate.
THIS IS A REPAIR PARTS LIST; NOT A PACKING LIST. ORDER BY PART NUMBER, NOT BY KEY NUMBER.

Two required.

§ Three required.

pump performance

MULTI-STAGE PUMPS

PUMP PERFORMANCE (in Gallons per Minute)

Type of System	Pump Stock No.	Jet Pkg. No.	Disch. Press. P.S.I.	Pumping Depth in Feet															
				40	60	70	80	90	100	110	120	140	160	180	210	240	260	280	
2" Single Pipe— Use 1 1/4 Galv. Pipe	390.253150 3/4 HP	29670	40	8.3	5.0	4.4	4.3	4.1	3.7	3.1	2.4								
			60	3.9	3.6	3.0	2.9	2.6	2.1	1.6	1.2								
	390.253250 1 HP		40	11.3	10.0	8.8	7.6	6.5	5.0	5.0	5.0	4.2	3.5	2.0					
			60	10.6	8.6	7.5	6.5	5.5	4.8	4.8	4.7	3.9	2.7	1.5					
	390.253350 1 1/2 HP		40	12.0	12.0	11.5	11.2	9.7	8.3	6.8	5.5	4.7	4.5	4.3	3.1	1.6			
			60	11.8	11.8	11.4	11.1	9.5	8.0	6.4	5.2	4.6	4.4	4.2	2.9	1.5			
3" Single Pipe— Use 1 1/4 Galv. Pipe	390.253150 3/4 HP	29902	40	8.4	5.8	4.7	4.3	4.1	3.7	3.1	2.7								
			60	4.0	1.4	3.2	2.9	2.6	2.1	1.6	1.4								
	390.253250 1 HP		40	11.7	11.1	10.2	9.2	7.8	6.4	5.1	5.0	4.5	4.0	3.2	2.1				
			60	11.0	9.5	8.6	7.8	6.6	5.4	4.7	4.6	4.2	3.4	2.6	1.7				
	390.253350 1 1/2 HP		40	12.2	12.2	11.7	11.3	10.7	9.9	9.0	8.3	5.0	4.9	4.9	4.3	3.7	3.0	2.3	
			60	12.0	12.0	11.6	11.2	10.5	9.5	8.5	7.8	5.0	4.9	4.8	4.1	3.5	2.8	2.0	
4" Double Pipe	390.253150 3/4 HP	29660	40	8.4	5.8	4.7	4.3	4.1	3.7	3.1	2.7								
			60	4.0	1.4	3.2	2.9	2.6	2.1	1.6	1.4								
	390.253250 1 HP		40	11.7	11.1	10.2	9.2	7.8	6.4	5.1	5.0	4.5	4.0	3.2	2.1				
			60	11.0	9.5	8.6	7.8	6.6	5.4	4.7	4.6	4.2	3.4	2.6	1.7				
	390.253350 1 1/2 HP		40	12.2	12.2	11.7	11.3	10.7	9.9	9.0	8.3	5.0	4.9	4.9	4.3	3.7	3.0	2.3	
			60	12.0	12.0	11.6	11.2	10.5	9.5	8.5	7.8	5.0	4.9	4.8	4.1	3.5	2.8	2.0	

390.253150 --- Use 160 PSI Min. Rating Plastic Pipe.

390.253250 --- Use 160 PSI Min. Rating Plastic Pipe.

390.253350 --- Use 160 PSI Min. Rating Plastic Pipe for depths up to 220'. Use Galvanized Steel Pipe for greater depths.

18

notes

SEARS**owners
manual****MODEL NO.**

390 253 159

390 253 250

390 253 350

**HOW TO ORDER
REPAIR PARTS****SEARS SERVICE
IS AT YOUR SERVICE
WHEREVER YOU LIVE
OR MOVE IN THE U.S.A.**

MULTI-STAGE JET PUMPS

Now that you have purchased your MULTI-STAGE JET 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 will be found on a plate attached to the Pump Body. Always mention the Model Number when requesting service or repair parts.

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.

Sears, Roebuck and Co., Chicago, Ill. 60684 U.S.A.