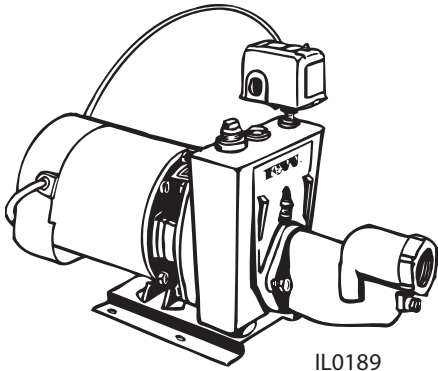


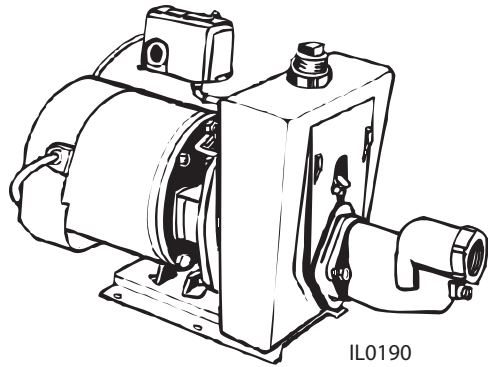


Installation Instructions and Parts Manual "CPJ" SERIES JET PUMPS

Shallow Well Jet Pumps



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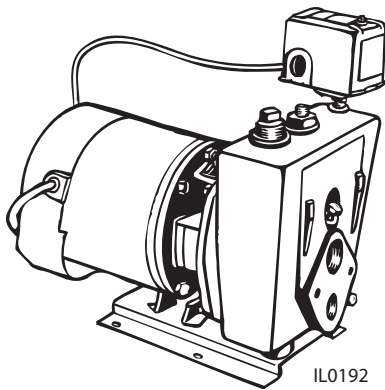


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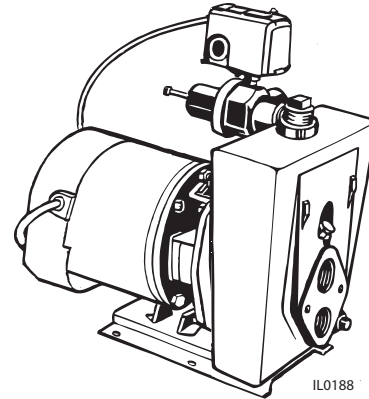
Figure 1 - 1/3 - 1/2 HP "CPJS" SHALLOW WELL

Figure 2 - 3/4 - 1-1/2 HP "CPJ" SHALLOW WELL

Convertible Jet Pumps



IL0192

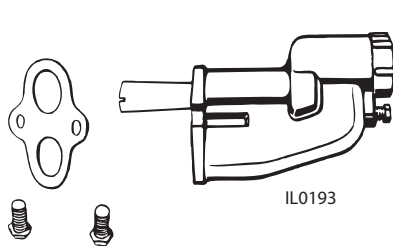


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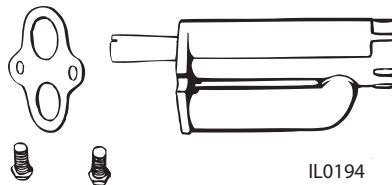
Figure 3 - 1/2 HP "CPJ" CONVERTIBLE

Figure 4 - 3/4 - 1-1/2 HP "CPJ" CONVERTIBLE

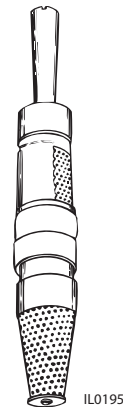
Ejectors



IL0193



IL0194



IL0195

Figure 5 - Shallow Well Ejector for Lifts to 25 Feet

Figure 6 - Convertible Ejector for Shallow or 4" Inside Diameter Deep Well Pumping

Figure 7 - Single Pipe Ejector for 2" Inside Diameter Deep Well Pumping

“CPJ” Series Pump & Motor Specifications

Chart 1

Pump Model No.	HP	Motor Voltage	Motor Wired For	Motor Max. Amps		Pressure Switch Setting PSI	Tapping Size (Inches)		
				115V	230V		Discharge	Suction	Pressure
CPJ03SB	1/3	115/230*	115	8.6	4.3	30-50	3/4	1-1/4	—
CPJ05B	1/2	115/230*	115	13	6.5	30-50	3/4	1-1/4	1
CPJ05SB	1/2	115/230*	115	13	6.5	30-50	3/4	1-1/4	—
CPJ07B	3/4	115/230*	230	14	7	30-50	1	1-1/4	1
CPJ07SB	3/4	115/230*	230	14	7	30-50	1	1-1/4	—
CPJ10B	1	115/230*	230	18	9	30-50	1	1-1/4	1
CPJ10SB	1	115/230*	230	18	9	30-50	1	1-1/4	—
CPJ15B	1-1/2	115/230*	230	21	10.5	30-50	1	1-1/4	1
CPJ15SB	1-1/2	115/230*	230	21	10.5	30-50	1	1-1/4	—

All motors are single phase, 60 Hz., 3450 RPM.

Motors marked with * are dual voltage and can be changed to either 115V or 230V by following the wiring diagram on motor decal.

READ THESE INSTRUCTIONS CAREFULLY

Read these installation instructions in detail before installing your pump. Be sure to check the following:

1. Be certain the motor is connected for the correct line voltage being used (check motor nameplate).
2. Be certain the pump is completely primed before starting. Otherwise damage may occur to the seal.

Every pump is tested before leaving the factory, and its performance depends largely on the installation.

GENERAL SAFETY INFORMATION

1. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
2. Replace or repair damaged or worn cord immediately.
3. Do not kink

GENERAL SAFETY INFORMATION

1. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
2. Replace or repair damaged or worn cord immediately.
3. Do not kink power cable and never allow the cable to come in contact with oil, grease, hot surfaces or chemicals.
4. Protect the power cable from coming in contact with sharp objects.
5. Be careful when touching the exterior of an

- operating motor - it may be hot enough to be painful or cause injury. With modern motors this condition is normal if operated at rated load and voltage - modern motors are built to operate at higher temperatures.
6. Make certain that the power source conforms to the requirements of your equipment.
7. Always disconnect power source before performing any work on or near the motor or its connected load. If the power disconnect point is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power. Failure to do so could result in fatal electrical shock.
8. Do not handle the pump with wet hands or when standing in water as fatal electrical shock could occur. **DISCONNECT MAIN POWER BEFORE HANDLING UNIT FOR ANY REASON!**
9. Unit must be securely and adequately electrically grounded. This can be

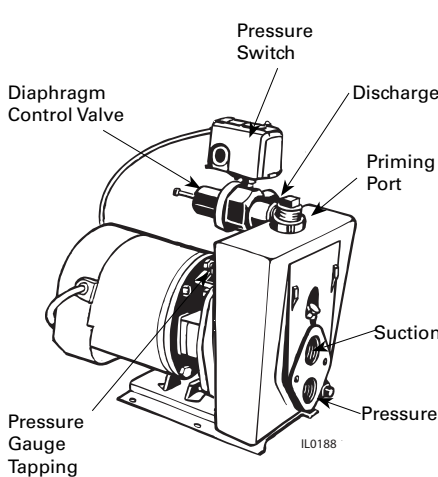


Figure 8 - CPJ Convertible 3/4 - 1-1/2 HP

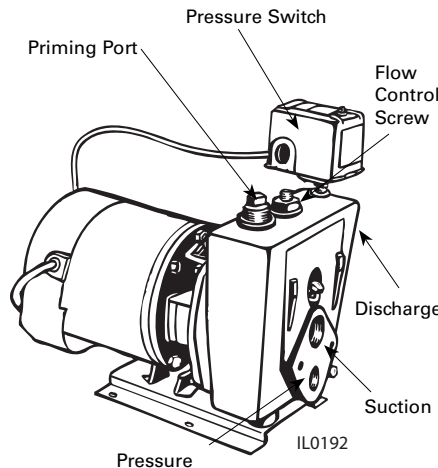


Figure 9 - CPJ Convertible 1/2 HP

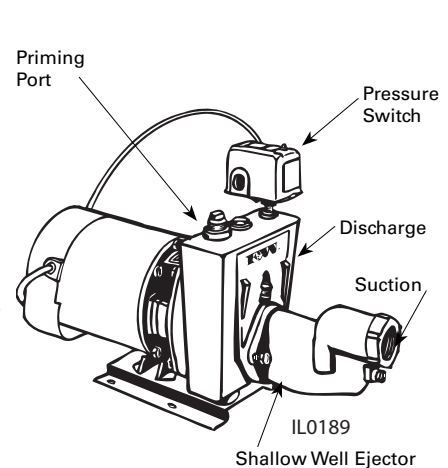


Figure 10 - CPJ Shallow Well 1/3 - 1/2 HP

accomplished by wiring the unit to a ground metal-clad raceway system or by using a separate ground wire connected to the bare metal of the motor frame or other suitable means.

10. **▲ WARNING** *Risk of Electric Shock.*
This pump has not been investigated for use in swimming pool areas.

11. **▲ WARNING** *This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.*

NOTE: Pumps with the CSA mark are tested to UL standard UL778 and certified to CSA Standard C22.2 No. 108.

PRELIMINARY CONSIDERATIONS

Location

1. Pump can be located at the well or can be offset some distance away from the well. For best performance it should be located as close to the well as possible.
2. Location can be in the basement, a pit below ground, or in a pump house above ground.
3. Ventilation and drainage must be provided to prevent damage from moisture to the motor and pressure switch.
4. The pump and all piping must be protected from freezing.
5. Pump and pipe line must be drained when not in use if there is any danger of freezing.

Well Conditions

1. New wells should be pumped clean of all sand and foreign matter before installing the pump or damage may result to the operating parts.
2. The foot valve should be installed a minimum of five (5) feet from the bottom of the well to prevent sand, mud or other foreign matter from entering the system.
3. The well must be capable of furnishing a sufficient quantity of water to satisfy the demands of the pump and personal needs. The water level must not draw down below the maximum rated depth of the pump or loss of capacity and prime will result.
4. For weak well installations, see Paragraph 1 under Deep Well (Double Pipe System) Installations.
5. For sanitary reasons, install a well seal or pitless adapter as required and in accordance with local and state codes.

Piping

1. Old or badly scaled pipe should not be used because dislodged flakes of scale can cause stoppage of the ejector nozzle and malfunction the entire system.
2. Use only pipe in good condition from rust and scale. Threads should be sharp, cleanly cut

with a minimum of two (2) threads remaining when connection is completely drawn up.

3. On galvanized steel pipe installations, the ends should be reamed to insure maximum capacity.
4. All joints and connections should be doped (male threads only) and drawn up tightly.

▲ CAUTION *The entire system must be air and water tight for efficient operation.*

Type of Pipe

1. Plastic or galvanized steel pipe may be used in the installation of jet pumps.
2. Plastic pipe must have a minimum pressure rating of 160 P.S.I.
3. Never use flexible plastic pipe and insert adapters on deep well single pipe ejector applications.

Well to Pump Piping

1. All offset piping should slope upwards from well to pump.
2. Avoid dips or pockets in offset piping or air will accumulate at high points which will make priming difficult.
3. Install unions at pump and at well to aid in servicing.
4. Allow enough room around pump and piping installation for using pipe wrenches and for service and installation.
5. Do not use piping of sizes smaller than those listed in Charts 2 and 3 or pump will not operate properly.

CHART 2

Recommended Suction Pipe Sizes For Shallow Well Pump					
Motor HP	Vertical Piping Size	Length of Offset from Well			
		0-20'	20-100'	100-200'	200-400'
1/3	1"	1"	1 1/4"	1 1/2"	2"
1/2	1"	1"	1 1/2"	1 1/2"	2"
3/4	1 1/4"	1 1/4"	1 1/2"	2"	2"
1	1 1/4"	1 1/4"	1 1/2"	2"	2"
1-1/2"	1 1/4"	1 1/4"	1 1/2"	2"	2"

CHART 3

Pipe Sizes Required for Offset Piping for Deep Well Ejector Installation								
Distance Well to Pump	1/3 HP		1/2 HP		3/4 HP		1 & 1-1/2 HP	
	Suc.	Press.	Suc.	Press.	Suc.	Press.	Suc.	Press.
0-25'	1 1/4"	1"	1 1/4"	1"	1 1/4"	1"	1 1/4"	1"
25-50'	1 1/4"	1"	1 1/4"	1 1/4"	1 1/2"	1 1/4"	1 1/2"	1 1/4"
50-75'	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
75-100'	1 1/2"	1 1/4"	1 1/2"	1 1/4"	1 1/2"	1 1/2"	2"	1 1/2"
100-150'	1 1/2"	1 1/4"	1 1/2"	1 1/2"	2"	1 1/2"	2"	2"

ASSEMBLY

Shallow Well Pumps (Figures 1 & 2)

1. Attach shallow well ejector to face of pump with two (2) bolts and gasket provided.
Venturi tube on the ejector inserts into the top

tapping on the face of the pump. (See figure 1 & 2 on front cover).

2. Screw pressure switch into appropriate 1/4" tapping using the required fittings as illustrated in the figures 1 & 2.
3. Loosely assembly priming plug into priming port. Do not tighten as this port will be used later during the priming operation.

CPJ03S & CPJ05S Models also include a plug and gasket assembly. Install into center tapping located on top of the pump head casting. (See figure 1).

Convertible Pumps (Figures 3 & 4)

1. 3/4 - 1-1/2 HP "CPJ" Convertible Pumps are supplied with a diaphragm pressure regulator. Assemble the regulator using the 1" nipple provided. (See figure 4).

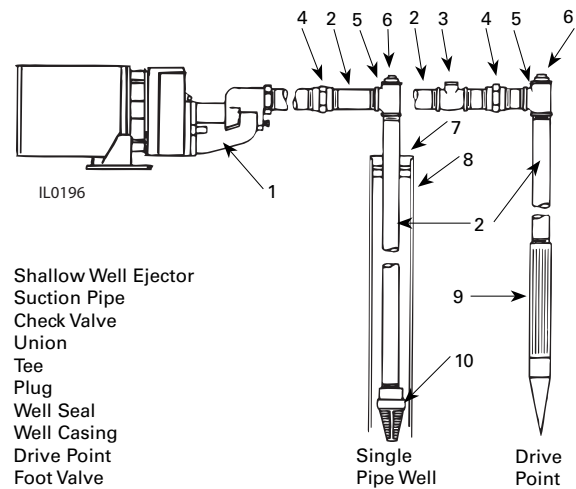
- Make certain the 1/4" switch tapping on the diaphragm regulator is in the "up" position for later attachment of the pressure switch. The CPJ05 model is supplied with a brass flow control screw. Install into center tapping located on top of pump head casting. (See figure 3).
2. Screw pressure switch into appropriate 1/4" tapping. (See figures 3 & 4).
 3. Loosely assembly priming plug into priming port. Do not tighten as this port will be used later during the priming operation.
 4. Assemble a pressure gauge (not provided) in 1/4" tapping as shown in figures 8, 9 & 10.

CAUTION To assure leak proof connections use Teflon tape or pipe dope on all exterior threads.

INSTALLATION

Shallow Well Application - Where Suction Lift is Less Than 25 Feet

1. On single pipe installations (see figure 11) attach foot valve to the end of the suction line and set into the well making certain the valve is below the water level. The foot valve should be at least five (5) feet from the bottom of the well to prevent sand from being drawn into the system.
2. When connecting a drive point (see figure 11) a check valve must be used in the suction line in place of a foot valve. For easy priming connect the check valve as close to the well as possible.
3. All piping from the well to the pump should slope slightly upward. Unions in the suction line near the well will aid in servicing. Be sure to leave enough room so that wrenches can be used without difficulty.



- 1) Shallow Well Ejector
- 2) Suction Pipe
- 3) Check Valve
- 4) Union
- 5) Tee
- 6) Plug
- 7) Well Seal
- 8) Well Casing
- 9) Drive Point
- 10) Foot Valve

Figure 11 - Shallow Well Single Pipe or Drive Point Installation

DEEP WELL (DOUBLE PIPE SYSTEM)

Application - Where pumping water level is greater than 25 feet and inside diameter of well is four (4) inches or larger. (See figure 12).

1. Attach the foot valve to the ejector using a galvanized steel or plastic nipple. Add sufficient pressure pipe (1") and suction pipe (1-1/4") to submerge ejector 10 to 15 feet below pumping water level making certain foot valve is at least 5 feet from bottom of well. If pressure pipe and suction pipe of the same diameter are used be sure to identify them clearly so that they will be connected to the proper tapping of the pump. If a known weak well exists replace nipple with 34 feet of 1" tail pipe between the ejector and the foot valve. This will provide a continuous source of water for the pumping system.
2. Check pipe and foot valve for leaks by filling pipes with water. A continuous loss of water indicates a leak in the piping, foot valve or unions, and must be corrected.
3. If no leaks are found connect pressure and suction pipes from well to pump using piping of the same diameter as the suction pipe (1-1/4") and pressure pipe (1") tapping of the pump. For long offset distances, check with Chart 3 for the proper pipe size.
4. Unions in suction and discharge piping near pump and well will aid in servicing. Be sure to leave enough surrounding room so that wrenches can be used without difficulty.

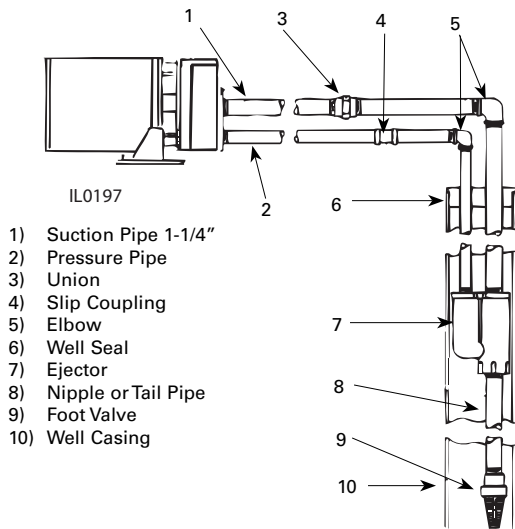


Figure 12 - 4" I.D. Deep Well Installation

DEEP WELL (SINGLE PIPE SYSTEM)

Application - Where pumping water level is greater than 25 feet and inside diameter of well is 2, 2-1/2, or 3 inches (See figure 13).

On single pipe deep well installations clean, sound well casing must be used to give a tight seal.

1. Attach foot valve directly to bottom of ejector assembly (tail pipe not used on single pipe installations). Ejector is to be submerged 10 to 15 feet below pumping water level, making certain foot valve is at least five (5) feet from bottom of well.
2. Attach foot valve and packer ejector to suction pipe (presoak packer leathers for approximately two (2) hours). Start the assembly down the well. Some force may be required to push the packer down the casing.
3. As each section is lowered check for leaks by pouring water into suction pipe.
4. Attach well adapter to suction pipe, lower over casing top and tighten adapter flange.

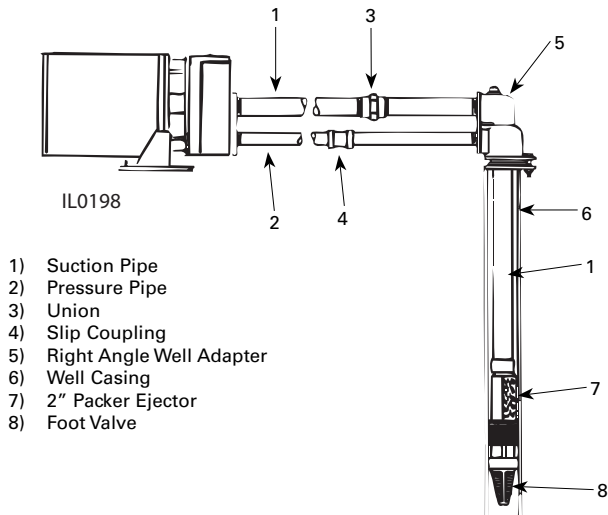


Figure 13 - 2" I.D. Single Pipe Deep Well Installation

Pressure Tank Hook Up

1. Conventional pressure tanks require an air volume control to insure the proper air to water ratio in the pressure tank. On shallow well installations, the air volume control tubing is connected to the 1/4" tapping on the side of the ejector. On deep well installations, the air volume control tubing is connected to the 1/4" tapping on the pump case directly above the suction pipe tapping.
 2. Air-E-Tainer tanks are equipped with a diaphragm or bladder that keeps the air and water from mixing. Since these tanks are factory precharged with air, an air volume control is not required.
 3. On factory assembled tank mounted pump systems where Air-E-Tainer tanks are utilized, the tank is precharged with air at 30 P.S.I. This corresponds with the 30 P.S.I. cut-in pressure of the pressure switch.
- To check tank air pressure, use a good tire pressure gauge. Do not add air to tank unless tank is empty of water.
4. On vertical tank installations, where the pump is offset from the tank, galvanized steel or plastic pipe can be used to connect the pump to the tank. To assist in servicing, place a shut-off valve and union in line between pump and tank.
 5. **DO NOT install a check valve between pump and pressure tank. This will cause the pressure switch to malfunction.**

▲ CAUTION Install a pressure relief valve on any installation where the pump pressure can exceed the tanks maximum working pressure.

Wiring

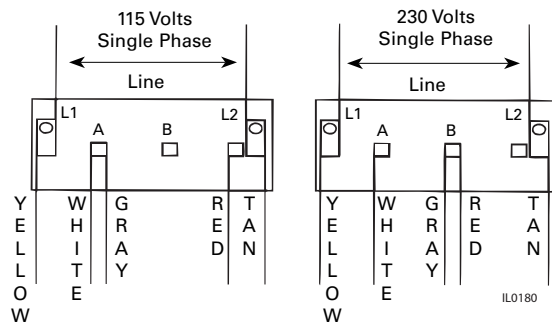
1. All jet pump motors are suitable for use with 60 cycle A.C. current only. 1/3 and 1/2 HP pumps are factory connected for 115V at the motor. Pumps with 3/4 and 1 HP motors are connected for 230V service.
2. All motors are dual voltage and may be field connected for either 115 or 230V service. See Chart 1 for voltage specifications.

NOTE: See the following wiring diagram or the motor nameplate if a change is required. Always use the higher voltage where possible. Remove motor access cover to make wiring change. Replace cover.

CHART 4

Recommended Copper Wire & Fuse Sizes					
Distance from	HP Rating of Single Phase Motors				
	1/3	1/2	3/4	1	1-1/2
0-50'					
115V	14 GA	12 GA	12 GA	10 GA	10 GA
230V	14 GA	14 GA	14 GA	14 GA	12 GA
50- 100'					
115V	14 GA	12 GA	12 GA	10 GA	8 GA
230V	14 GA	14 GA	14 GA	14 GA	12 GA
100- 150'					
115V	14 GA	12 GA	10 GA	10 GA	6 GA
230V	14 GA	14 GA	14 GA	12 GA	12 GA
150-200'					
115V	12 GA	12 GA	10 GA	8 GA	•
230V	14 GA	14 GA	12 GA	12 GA	10 GA
200-300'					
115V	12 GA	10 GA	8 GA	6 GA	•
230V	14 GA	14 GA	12 GA	10 GA	10 GA
Fuse Size	Amps	Amps	Amps	Amps	Amps
115V	15	20	20	30	30
230V	15	15	15	15	20

(•) Not economical to run in 115V, use 230V



DO NOT CONNECT ANY GROUND WIRE TO THESE LEADS

NOTE: Dual voltage motors, change the red and gray wire to the voltage required.

Figure 14 - Dual Voltage Wiring Diagram

3. Your pump motor has built-in thermal overload that protects the motor against burnout from overload of low voltage, high voltage and other causes. The device is automatic and resets itself once the temperature has dropped to a safe point. Frequent tripping of the device indicates trouble in the motor or power lines and immediate attention is needed. The device should never be tampered with and unless the trouble is located and corrected, motor failure can eventually be expected.

CAUTION Never examine, make wiring changes or touch the motor before disconnecting the main electrical supply switch. The thermal device may have opened the electrical circuit.

4. Undersize wiring can cause motor failure (low voltage), frequent cut-out of motor overload protector, television interference and even

fire. Make certain the wiring is adequately sized (Chart 4), well insulated and connected to a separate circuit outside the house in case of fire. For added safety, the pump and motor should be securely grounded to the well casing or to a separate ground rod driven eight (8) feet into the ground. Consult local codes before attempting a wiring installation.

- When fusing the pump service entrance box, consult Chart 4 for proper fuse size. Consult local codes before attempting a wiring installation. Use only the fuse that is stipulated for your particular installation. Never use one larger. Service should never be reinstated to the pump motor by attempting to circumvent a blown fuse by any other means.
- The pressure switch is wired to the motor by connecting the motor lead to the two (2) inside pressure switch flag terminals marked Load. Connect the power supply line to the outside pressure switch terminals marked Line.

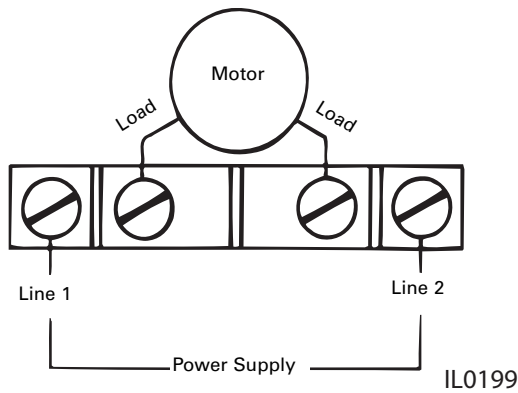


Figure 15

PRIMING & ADJUSTMENT

▲ CAUTION Before starting the motor, the pump body must be completely filled with water. Running the pump dry will cause seal damage.

Shallow Well Pumps (Figures 8, 9 & 10)

1. Remove plug from the priming port. Pour in water continuously until all air has been expelled from pump and suction line. If tee has been provided at the well head the suction pipe in the well can be filled at this point.
2. Replace plug, screwing in only far enough to seal, and start the motor. If pump fails to build up pressure within three (3) minutes, shut off pump and prime again. Once the pump is primed, tighten priming plug completely.

Deep Well Pumps With Diaphragm Control Valve (Figures 8, 9 & 10)

1. Remove priming plug from pump. Fill pump body completely with water until all air has been expelled. Replace plug.
2. Screw adjusting stem on control valve all the way in, then start the pump. If the pump is properly primed, pressure will build quickly and register on the pressure gauge. If pressure does not build, repeat the priming operation.
3. With the pump operating at high pressure and no pressure in the tank (two or more faucets open) slowly unscrew the adjusting stem until maximum flow is obtained. The case pressure at this point will be the average operating pressure and should agree with Chart 5.
4. If the control valve is opened too far, a slight cavitation noise will be noticeable and still further opening will cause the pump to lose prime.

Deep Well Pumps With Flow Control Screw (Figures 8, 9 & 10)

1. Remove the priming plug from the priming opening and fill with water until all air has

been expelled. Replace priming plug. Tighten flow control screw completely by turning clockwise, then loosen two turns. Now, start the pump.

2. If pump is properly primed, pressure will quickly build and register on the gauge mounted directly in the pump body. If pressure does not build repeat priming operation. On deep well installations all air must be vented from the drive and suction pipes as well as the body before the pump will prime. Several fillings of the pump body may be necessary to achieve the prime.
3. With pump operating at high pressure open two or more faucets and slowly unscrew the flow control screw until maximum flow is obtained. This steady pressure will be minimum operating pressure and should agree with the pressure shown below (Chart 5). The flow control screw diverts the proper amount of water to operate the ejector.
4. The optimum control valve setting is dependent upon the type of well installation and pressure switch setting for the particular pump. For shallow well installations, the control valve, if supplied, should be set at full open.

NOTE: Pump will not prime if there is any leakage in suction piping.

CHART 5

Average Operating Pressure	
HP	Pressure Setting
1/3	24 PSI
1/2	27 PSI
3/4	38 PSI
1	46 PSI
1-1/2	53 PSI

MAINTENANCE

Lubrication

1. The pumps and motors require no lubrication. The ball bearings of the motor have been greased at the factory and under normal operating conditions should require no further greasing.

Freezing

1. Drain the entire system if there is danger of freezing. A drain plug is provided at the bottom of the pump case for this purpose.

Rotary Seal Assembly Replacement

▲ CAUTION Make certain that the power supply is disconnected before attempting to service the unit! The rotary seal assembly must be handled carefully to avoid damaging the precision lapped faces of the sealing components.

1. Disengage pump body from motor and

- mounting ring.
2. Remove diffuser and unthread impeller from the motor shaft. The motor shaft can be held by using a 9/16" open end wrench on the flats located in the middle of the mounting ring.
 3. The rotary seal will come loose at this time. Use a screwdriver (or similar instrument) to pry the ceramic seal and rubber gasket from the recess of the mounting bracket.

▲ CAUTION *Be careful not to damage the motor shaft or recess surface.*

4. Clean the recess and motor shaft thoroughly.
5. Install the new rotary seal assembly:
 - a. Insert the ceramic seal and the rubber gasket into the recess.

NOTE: To help facilitate installation, apply one drop of liquid soap solution to the outside diameter of the rubber gasket. Make certain that the ceramic seal is kept clean and free of dirt and/or oil.

Liquid Soap Solution: One drop of liquid soap combined with one teaspoon of water.

- b. Slip the remaining parts of the rotary seal assembly onto the motor shaft.

NOTE: Apply a light coating of liquid soap solution to the inside diameter of the rubber drive ring.

6. Replace the impeller and diffuser removed in Step 2.
7. Reassemble the pump body to the motor and mounting bracket.

MOTOR REPLACEMENT

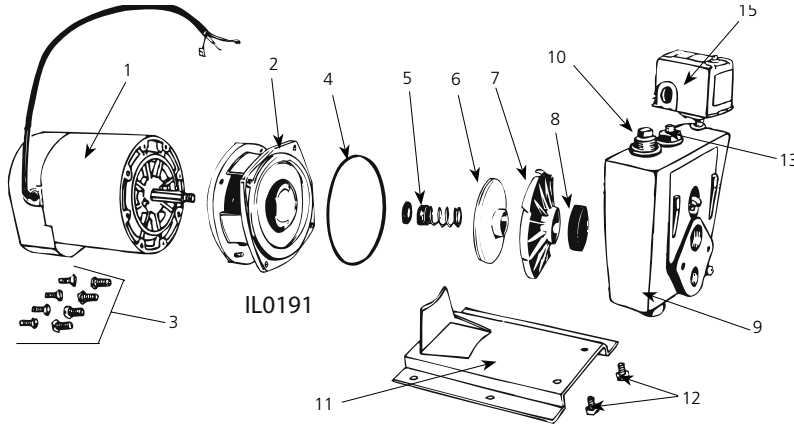
The motor can be replaced with any standard Nema 56J jet pump motor (of proper HP for each pump) by referring to the following instructions.

1. Follow steps as outlined under Rotary Seal Replacement and Pump Disassembly.
2. Remove cap screws that connect the motor to the mounting ring and pull motor away.
3. Replace motor with standard Nema 56J jet pump motor by positioning motor against the mounting frame and assembling with four (4) cap screws.

Because damage to the shaft seal can occur in disassembly, a new seal will be necessary.

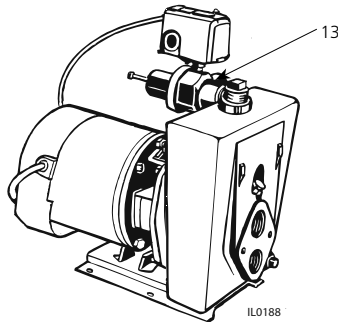
4. Follow steps 4, 5, 6 & 7 of Rotary Seal Assembly to reassemble the remainder of the pump.

CONVERTIBLE and SHALLOW WELL JET PUMP REPAIR PARTS "CPJ" and "CPJS" SERIES (For Pricing Refer To Repair Parts Price List)

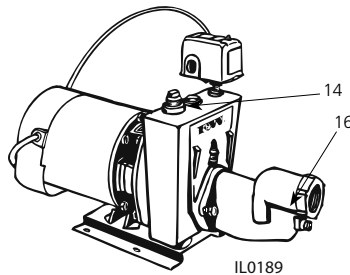


SERVICE KIT FOR JET PUMPS	
MODEL NO	KIT CONTAINS
KF01 ¹	Impeller, Diffuser, Rotary Seal, Quadraseal, Diffuser Rubber
KF02 ²	
KF03 ³	
KF16 ⁴	
KF04 ⁵	Rotary Seal, Quadraseal (2), Diffuser Rubber

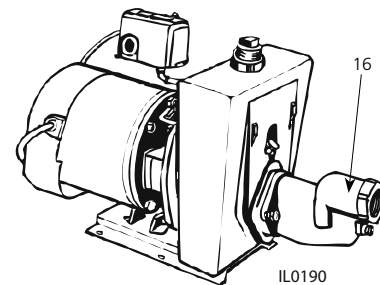
1. Applies to 1/3HP, CPJ Jet Pumps
2. Applies to 1/2HP, CPJ & CPH Jet Pumps
3. Applies to 3/4HP, CPJ & CPH Jet Pumps
4. Applies to 1HP, CPJ & CPH Jet Pumps and VPH10
5. Applies to all Horizontal Cast Iron Jet Pumps



"CPJ" Convertible
3/4 to 1-1/2 HP



"CPJS" Shallow Well
1/3 to 1/2 HP



"CPJS" Shallow Well
3/4 to 1-1/2 HP

ITEM	HORSEPOWER	PART NO.	1/3	1/2	3/4	1	1-1/2
	MODEL NO.: "CPJ" Convertible "CPJS" Shallow Well		CPJ03	CPJ05 CPJ05B	CPJ07 CPJ07B	CPJ10 CPJ10B	CPJ15
	DESCRIPTION		CPJ03S CPJ03SB	CPJ05S CPJ05SB	CPJ07S CPJ07SB	CPJ10S CPJ10SB	CPJ15S
		QTY					
1	Motor, Nema J (Thd) Motor Access Cover Screws, Access Cover Motor Lead Wire	136132R 136133	94J503 1 2 136135A	94J105 1 2 136135A	94J107 1 2 136135A	94J110 1 2 136135A	94J115 1 2 136136A
2	Mounting Ring	*	135314	135314	136137	136137	136137
3	Hex Hd. Cap Screws 3/8 x 3/4"		8	8	8	8	8
4	Ring, Square Cut		132583	132583	132429	132429	132429
5	Seal, Rotary w/Spring	131100	1	1	1	1	1
6	Impeller		139348††	139349††	134137	134138	132417
7	Diffuser		132424	132424	132425‡	132425‡	132464
8	Rubber, Diffuser	132428	1	1	1	1	1
9	Pump Body		132582	132582	132418	132418	132418
10	Plug, Priming	*	3/4" NPT	3/4" NPT	1" NPT	1" NPT	1" NPT
11	Base	132430A	1	1	1	1	1
12	Hex Hd. Cap Screws 3/8 x 1/2"	*	2	2	2	2	2
13	Control Valve "CPJ"		124330	124330	132446	132446	133383
14	Plug w/Gasket "CPJS"		128794	128794	-	-	-
15	Pressure Switch "CPJ"		020345	020346	020346	020346	020346
15	Pressure Switch "CPJS"	020346	1	1	1	1	1
1	Shallow Well Ejector Package		SW03E-1626	SW05E-1630	SW07E-1432	SW10E-1334	SW15E-1238
†	Ejector Gasket Pkg. w/Bolts	132404	1	1	1	1	1
†	Ejector Gasket	130969	1	1	1	1	1

(*) Standard Hardware Item
(†) Not Shown
(††) Impeller w/ 138138 Seal Ring
(‡) Diffuser w/ 134240 Insert

Troubleshooting Chart		
Symptom	Possible Causes(s)	Corrective Action
Pump won't start or run	<ol style="list-style-type: none"> 1. Blown fuse 2. Low line voltage 3. Loose, broken or incorrect wiring 4. Defective motor 5. Defective pressure switch 6. Impeller or seal 7. Bad capacitor 	<ol style="list-style-type: none"> 1. If blown, replace with fuse of proper size. Use time delay fuses 2. If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company 3. Rewire any incorrect circuits. Tighten connections, replace defective wires 4. Replace 5. Adjust switch settings. Clean contacts with emery cloth if dirty 6. If impeller won't turn, remove housing and locate source of binding 7. Replace
Pump starts and stops too often	<ol style="list-style-type: none"> 1. Leak in pressure tank 2. Defective air volume control 3. Faulty pressure switch 4. Leak on discharge side of system 5. Leak on suction side of system 6. Leak in foot valve 	<ol style="list-style-type: none"> 1. Repair leaks or replace tank 2. Clean or replace defective control 3. Adjust switch settings. Clean contacts with emery cloth if dirty 4. Repair leaks as necessary 5. Make sure above ground connections are tight. Then repeat test. If necessary, pull piping and repair leak 6. Repair or replace
Pump won't shut off	<ol style="list-style-type: none"> 1. Wrong pressure switch setting or setting "drift" 2. Defective pressure switch 3. Loss of prime 4. Low well level 5. Fouled ejector 	<ol style="list-style-type: none"> 1. Adjust switch to proper setting 2. Replace switch if defective 3. Reprime if necessary 4. If undersized, replace pump or ejector 5. Clean
Pump operates, but delivers little or no water	<ol style="list-style-type: none"> 1. Low line voltage 2. System incompletely primed 3. Air lock in suction line 4. Undersized piping 5. Leak in air volume control or tubing 6. Leak on suction side of system 7. Low well capacity 8. Plugged ejector 9. Defective or plugged foot valve and/or strainer 10. Worn or defective pump parts or plugged impeller 	<ol style="list-style-type: none"> 1. If voltage under recommended minimum, check size of wiring from main switch on property. If OK, contact power company 2. Reprime if necessary 3. Rearrange piping to eliminate air lock 4. Replace undersized piping or install pump with higher capacity 5. Tighten all fittings and replace control if necessary 6. Make sure above ground connections are tight. Then repeat test. If necessary, pull piping and repair leak 7. Close down the valve on the discharge side of pump to limit the flow of water, in keeping with well capacity 8. Clean and reinstall if dirty 9. Clean, repair or replace as needed 10. Replace worn parts or entire pump. Clean parts if required