

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

Dayton® High Efficiency Jet Pumps

Description

Dayton high efficiency shallow well pumps (Models 1D872, 1D874, 1D876 and 1D878) are designed for use where the suction lift is 25 feet or less. They can be used with drilled (cased wells), dug wells, driven wells or with cisterns or lakes. Shallow well pumps include the pump, motor, shallow well ejector and the pressure switch.

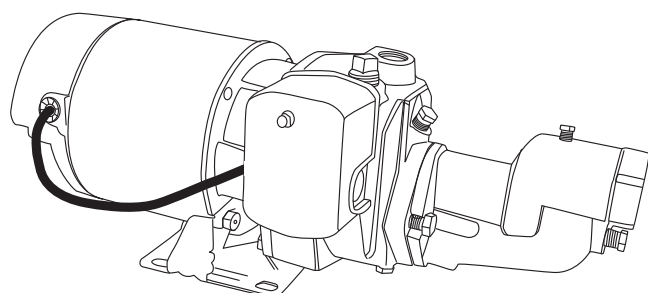
Dayton convertible jet pumps (Models 1D873, 1D875, 1D877 and 1D879) are utilized in domestic well water systems. With the proper selection of the ejector, they can be used for either shallow well (0-25 feet) or deep well applications (30-140 feet). The unit includes the pump, motor, pressure switch, pressure gauge and pressure control. An ejector (not included) is required with each convertible jet pump. Deep well ejectors are convertible and can be used for shallow wells (0-25 feet) or deep wells (30-140 feet). Shallow well ejectors are used for 0-25 feet suction lifts only. The pump is equipped with a cast iron pump body and motor mounting bracket and utilizes a non-corrosive impeller and diffuser. The motor is dual voltage (115/230V) capacitor start. Pressure switch is factory preset at 30-50 psi.

Unpacking

1. Open carton and remove package that has been packed with the pump. This package includes the following:
 - a. Shallow well pumps: Pressure switch, Teflon® tape, shallow well ejector, gasket and bolts.
 - b. Convertible jet pumps: Pressure switch, pressure gauge, pressure control and Teflon® tape.
2. Remove pump from carton.
3. Check for loose, missing or damaged parts.

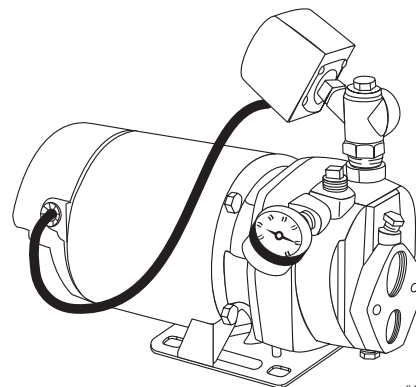
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Figure 1A - Shallow Well Pump



IL1342

Figure 1B - Convertible Pump

Specifications

Chart A

Model No.	HP	Motor Volt	PH	Hz	RPM	Motor Conn. For	Press. Switch Set psi	Disch. Port	Suct. Port	Drive Port	Dimensions			Wt. Lbs.
											H	W	L	
Shallow Well Models														
1D876	1/2	115/230	1	60	3450	115	30/50	3/4"	1 1/4"	—	6 3/4"	9 7/8"	20"	42
1D874	3/4	115/230	1	60	3450	230	30/50	1	1 1/4	—	7 3/4	10 7/8	20 1/4	51
1D872	1	115/230	1	60	3450	230	30/50	1	1 1/4	—	7 3/4	10 7/8	21	54
1D878	1 1/2	115/230	1	60	3450	230	30/50	1	1 1/4	—	7 3/4	10 7/8	21 3/4	58
Convertible Models														
1D877	1/2	115/230	1	60	3450	115	30/50	3/4	1 1/4	1"	12 3/4	6 1/2	13 7/8	38
1D875	3/4	115/230	1	60	3450	230	30/50	1	1 1/4	1	13 7/8	7 1/2	14 3/8	45
1D873	1	115/230	1	60	3450	230	30/50	1	1 1/4	1	13 7/8	7 1/2	14 7/8	49
1D879	1 1/2	115/230	1	60	3450	230	30/50	1	1 1/4	1	13 7/8	7 1/2	15 1/2	54

Dayton® High Efficiency Jet Pumps

Wiring and Fuse Sizes

Chart B

Motor HP	Volts	Max. Load Amps	Branch Fuse † Rating- Amps	Distance In Feet From Motor To Service Panel				
				0-50 Ft.	50-100 Ft.	100-150 Ft.	150-200 Ft.	200-300 Ft.
1/2	115/230	13.0/ 6.5	20/15	12/14	12/14	12/14	12/14	10/14
3/4	115/230	14.0/ 7.0	20/15	12/14	12/14	10/14	10/12	8/12
1	115/230	18.0/ 9.0	30/15	10/14	10/14	10/12	8/12	6/10
1 1/2	115/230	21.0/10.5	30/20	10/12	8/12	6/12	*/10	*/10

(†) Fusetrans are recommended instead of fuses on all motor circuits.

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

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Shallow Well Performance - Shallow Well Ejector Attached To Face Of Pump

Chart C

HP	Pump Model No.	Ejector Required	Nozzle Venturi Selection		Suction Lift Feet	Gallon Per Hour Capacity At Discharge Pressure (psi)				
			N	V		20	30	40	50	60
1/2	1D876 1D877	N/R 1D863	— 16	— 30	5	940	920	700	500	—
					10	840	810	650	410	—
					15	730	710	610	390	—
					20	590	570	540	390	—
					25	410	410	400	280	—
3/4	1D874 1D875	N/R 1D863	— 14	— 32	5	1210	1200	1190	1160	670
					10	1090	1070	1060	1030	560
					15	940	940	900	880	120
					20	790	770	760	740	—
					25	620	610	600	580	—
1	1D872 1D873	N/R 1D863	— 13	— 34	5	1410	1390	1380	1350	900
					10	1270	1260	1240	1230	750
					15	1090	1070	1060	1040	450
					20	900	890	880	870	—
					25	700	690	680	670	—
1 1/2	1D878 1D879	N/R 1D863	— 12	— 38	5	1740	1740	1730	1720	1450
					10	1590	1580	1570	1550	1290
					15	1380	1370	1360	1350	1120
					20	1180	1170	1160	1150	900
					25	910	900	900	900	510

(N/R) Ejector included with pump.

Models 1D872 thru 1D879

Shallow Well Performance - Convertible Deep Well Ejector Attached to Face of Pump Ejector Model 1D883

Chart D

HP	Pump Model No.	Nozzle Venturi Selection		Suction Lift	Gallon Per Hour Capacity At Discharge Pressure (psi)								
		N	V		20	30	40	50	60	70	80	90	
1/2	1D877	16	30	5 ft.	970	940	740	520	—	—	—	—	
				10	880	860	690	470	—	—	—	—	
				15	760	740	640	410	—	—	—	—	
				20	620	600	580	360	—	—	—	—	
				25	450	440	430	300	—	—	—	—	
1/2	1D877	18	28	5	720	690	680	610	470	300	—	—	
				10	650	620	610	580	440	270	—	—	
				15	540	530	520	510	400	250	—	—	
				20	460	450	430	420	330	220	—	—	
				25	320	320	310	310	300	200	—	—	
3/4	1D875	14	32	5	1220	1210	1190	1160	670	—	—	—	
				10	1090	1070	1060	1030	670	—	—	—	
				15	950	920	910	890	120	—	—	—	
				20	800	770	760	740	—	—	—	—	
				25	620	610	600	590	—	—	—	—	
3/4	1D875	17	26	5	610	600	580	570	560	550	450	340	
				10	550	530	520	510	500	500	430	330	
				15	480	450	440	440	430	430	400	300	
				20	400	380	380	370	370	360	360	280	
				25	290	280	270	260	250	250	250	100	
1	1D873	16	34	5	1320	1310	1300	1270	960	—	—	—	
				10	1180	1170	1160	1140	880	—	—	—	
				15	1030	1020	1000	990	780	—	—	—	
				20	870	860	850	840	680	—	—	—	
				25	710	700	690	690	570	—	—	—	
1	1D873	18	28	5	730	700	700	680	670	670	650	480	
				10	680	670	650	640	630	630	620	470	
				15	570	550	540	530	530	530	520	400	
				20	480	470	460	460	450	450	450	380	
				25	340	340	320	310	300	300	300	300	
1 1/2	1D879	17	36	5	1420	1410	1400	1380	1120	830	500	—	
				10	1250	1230	1220	1210	1050	760	430	—	
				15	1080	1080	1050	1040	980	700	360	—	
				20	870	850	840	830	800	540	220	—	
				25	660	640	640	630	620	500	120	—	

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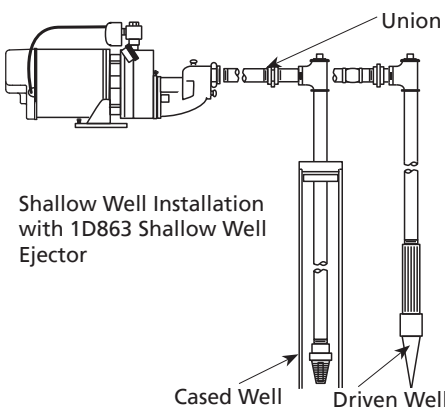


Figure 2

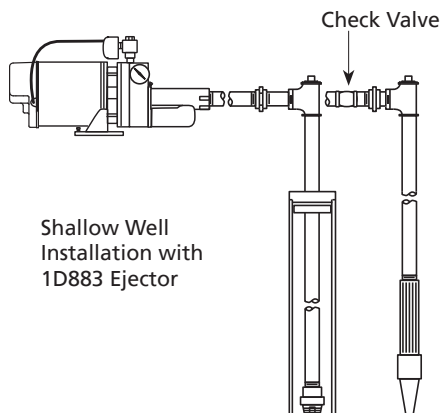


Figure 3

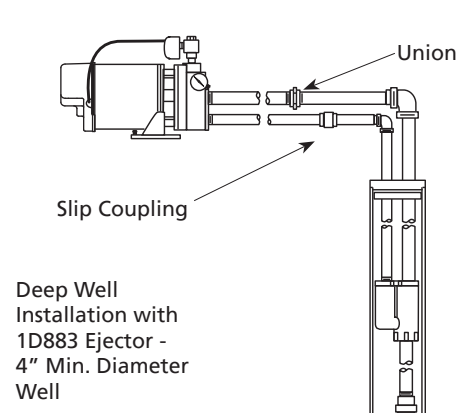


Figure 4

Dayton® High Efficiency Jet Pumps


Deep Well Performance - Convertible Deep Well Ejector Installed In 4" I.D. Well Or Larger Ejector Model 1D883 Chart E

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Pump Model No.	HP	psi	Nozzle Venturi Selection		Capacities In Gallons Per Hour To Pumping Water Level In Feet												
			N	V	30	40	50	60	70	80	90	100	110	120	130	140	
1D877	1/2	20	18	28	740	620	500	—	—	—	—	—	—	—	—	—	—
		30			670	550	450	—	—	—	—	—	—	—	—	—	
		40			450	360	270	—	—	—	—	—	—	—	—	—	
		50			330	230	140	—	—	—	—	—	—	—	—	—	
		60			—	—	—	—	—	—	—	—	—	—	—	—	
1D877	20	20	16	22	—	470	440	400	340	260	200	—	—	—	—	—	
		30			—	400	360	330	270	200	150	—	—	—	—		
		40			—	320	260	250	200	150	100	—	—	—	—		
		50			—	260	230	200	150	100	48	—	—	—	—		
		60			—	—	—	—	—	—	—	—	—	—	—		
1D875	3/4	20	16	30	900	800	550	—	—	—	—	—	—	—	—	—	
		30			870	750	500	—	—	—	—	—	—	—	—		
		40			730	580	330	—	—	—	—	—	—	—	—		
		50			510	310	150	—	—	—	—	—	—	—	—		
		60			280	100	—	—	—	—	—	—	—	—	—		
1D875	20	20	17	26	760	730	600	570	490	390	310	—	—	—	—		
		30			710	690	640	550	470	370	290	—	—	—			
		40			630	590	550	480	400	320	240	—	—	—			
		50			550	490	430	340	260	190	100	—	—	—			
		60			—	—	280	200	130	60	—	—	—	—			
1D875	20	20	15	20	—	—	—	—	—	330	310	270	230	—	—		
		30			—	—	—	—	300	290	260	220	—	—			
		40			—	—	—	—	260	240	220	210	—	—			
		50			—	—	—	—	220	200	180	160	—	—			
		60			—	—	—	—	200	160	140	110	—	—			
1D873	1	20	16	34	960	740	540	—	—	—	—	—	—	—	—		
		30			920	700	500	—	—	—	—	—	—	—			
		40			770	600	310	—	—	—	—	—	—	—			
		50			450	300	150	—	—	—	—	—	—	—			
		60			—	—	—	—	—	—	—	—	—	—			
1D873	20	20	18	28	—	820	790	660	570	470	—	—	—	—			
		30			—	790	770	640	550	460	—	—	—				
		40			—	730	680	560	460	380	—	—	—				
		50			—	660	580	480	380	310	—	—	—				
		60			—	600	490	390	280	220	—	—	—				
1D873	20	20	15	20	—	—	—	—	—	360	340	310	280	260	230	200	
		30			—	—	—	—	330	330	300	270	230	210	160		
		40			—	—	—	—	320	320	280	250	210	190	150		
		50			—	—	—	—	310	280	250	220	190	160	130		
		60			—	—	—	—	290	250	220	180	100	—	—		
1D879	1 1/2	20	17	36	1090	900	640	500	—	—	—	—	—	—			
		30			1080	800	600	400	—	—	—	—	—	—			
		40			1020	610	440	300	—	—	—	—	—	—			
		50			700	500	300	160	—	—	—	—	—	—			
		60			—	—	—	—	—	—	—	—	—	—			
1D879	20	20	17	28	—	810	790	670	570	480	390	310	220	—	—		
		30			—	800	760	650	550	460	380	300	210	—			
		40			—	750	730	620	520	440	350	220	170	—			
		50			—	720	700	590	480	410	310	200	150	—			
		60			—	670	650	550	440	370	280	60	—	—			
1D879	20	20	15	20	—	—	—	—	—	—	320	310	300	260	210		
		30			—	—	—	—	—	320	310	260	220	190			
		40			—	—	—	—	—	320	300	240	210	170			
		50			—	—	—	—	—	290	250	220	190	160			
		60			—	—	—	—	—	160	160	160	60	—			

Models 1D872 thru 1D879

General Safety Information
Carefully read and follow all safety instructions in this manual and on pump. Keep safety labels in good condition. Replace missing or damaged safety labels.

 **This is a SAFETY ALERT SYMBOL.** When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.


⚠ DANGER Warns of hazards that **WILL** cause serious personal injury, death or major property damage if ignored.


⚠ WARNING Warns of hazards that **CAN** cause serious personal injury or death, if ignored.


⚠ CAUTION Warns of hazards that **MAY** cause minor personal injury, product or property damage if ignored.

IMPORTANT: Indicates factors concerned with operation, installation, assembly or maintenance which could result in damage to the machine or equipment if ignored.

NOTE: Indicates special instructions which are important but are not related to hazards.

⚠ WARNING  **Wire motor for correct voltage.** See *Electrical section and Motor Data Charts A & B of this manual, and motor nameplate.*

 **Ground motor before connecting to power supply.**

 **Meet United States National Electrical Code and local codes for all wiring.**

Hazardous voltage. Can shock, burn or cause death. Ground pump before connecting to power supply.

⚠ Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface or in water.


⚠ Follow wiring instructions in this manual when connecting to power lines.


⚠ WARNING Always disconnect power source before performing any work on or near the motor or its connected load.

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

⚠ WARNING Risk of electric shock. This pump has not been investigated for use in swimming pool areas.

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

 **Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in flammable and/or explosive atmospheres.**

 **Hazardous pressure! Install pressure relief valve in discharge pipe. Release all pressure on system before working on any component.**

1. Make workshop child proof - use padlocks, master switches; remove starter keys.
2. Wear safety glasses when working with pumps.
3. Pump water only with this pump.
4. Keep work area clean, uncluttered and properly lighted; replace all unused tools and equipment.
5. Provide guarding around moving parts.
6. Keep visitors at a safe distance from the work area.
7. Periodically inspect pump and system components.
8. Protect electrical cord. Replace or repair damaged or worn cords immediately.
9. Do not insert finger or any object into pump or motor openings.
10. Do not allow pump or any other system component to freeze. Freezing may damage system, leading to injury or flooding. Allowing pump or system components to freeze will void

warranty.

⚠ CAUTION Do not touch an operating motor or engine. They are designed to operate at high temperatures.

IMPORTANT: Pump must be primed; make sure pump is full of water before running. Failure to do so will cause damage to the pump and void the warranty.

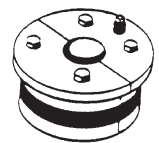
Pre-Installation

For installation the following general materials will be required:

- PVC cement (if plastic pipe is used)
- Pipe compound (if steel pipe is used)
- Teflon tape
- Pipe, pipe couplings and fittings
- 1 1/4" foot valve (for cased wells)
- 1 1/4" check valve (for driven wells)
- Copper electrical wire (See Wiring in Electrical section)

Depending upon the installation (shallow well or deep well) a well seal and ejector may also be required (See Figures 5 & 6).

Shallow well (less than 25 ft. depth of water)



Single pipe well seal for 1 1/4" pipe (cased or dug wells only)

Shallow well ejector (mounts to face of pump) 1D863 Cast Iron

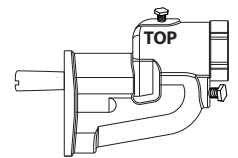
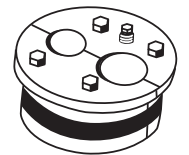


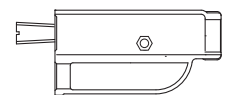
Figure 5

Deep well (25 ft. or more depth of water)



4" Double-pipe well seal

4" Double pipe deep well ejector* 1D883 Cast Iron



Deep well ejectors are installed in well casing

* Deep well ejector is convertible and can be used on shallow wells when mounted to face of pump

Figure 6

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Dayton® High Efficiency Jet Pumps

Pre-Installation (Continued)

Before installing, observe the following precautions and pre-installation procedures.

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. The diameter of the suction, drive and discharge pipe should be no smaller than the corresponding ports of the pump (See Chart A). Smaller pipe will reduce the capacity of the pump. Increase pipe size on long runs.
3. Be sure well is clear of sand. Sand will plug the pump and void the warranty.
4. 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).
5. Be sure all pipes and foot valve are clean and in good shape.
6. Insure that there are no air pockets in suction pipe.
7. There should be no leaks in suction pipe. Use Teflon® tape or Plasto-Joint Stik to seal pipe joints.

NOTE: Do not use just any kind of thread sealing compound. If using plastic pipe, use thread sealing compound specifically recommended for this use.

IMPORTANT: Flow into well must at least equal flow out through pump! See Performance Chart.

8. Unions installed near pump and well will aid in servicing. Leave room to use wrenches.
9. Match pump to well.

CAUTION Over pressure may cause pump body to explode. Do not allow pressure in pump to exceed 125 psi under any circumstances.

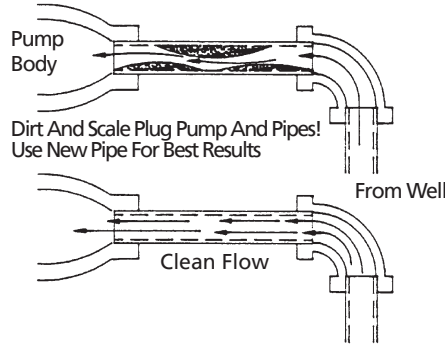


Figure 7 - No Dirt Or Scale In Suction Pipe

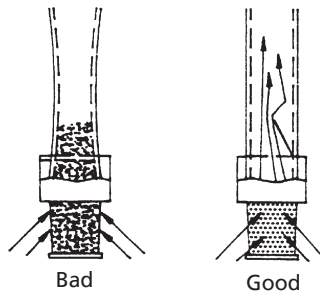


Figure 8 - Foot Valve Must Work Freely

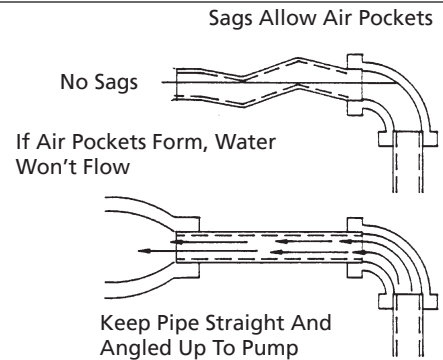


Figure 9 - No Air Pockets In Suction Pipe

Pipe Joint Compound Will Damage Plastic

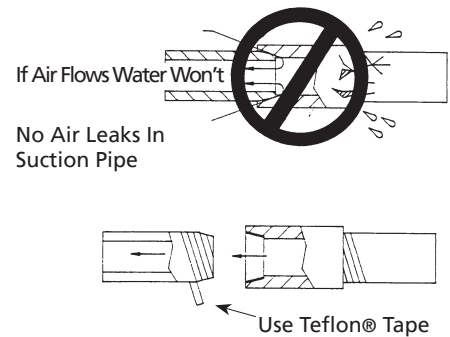


Figure 10 - Suction Pipe Must Not Leak

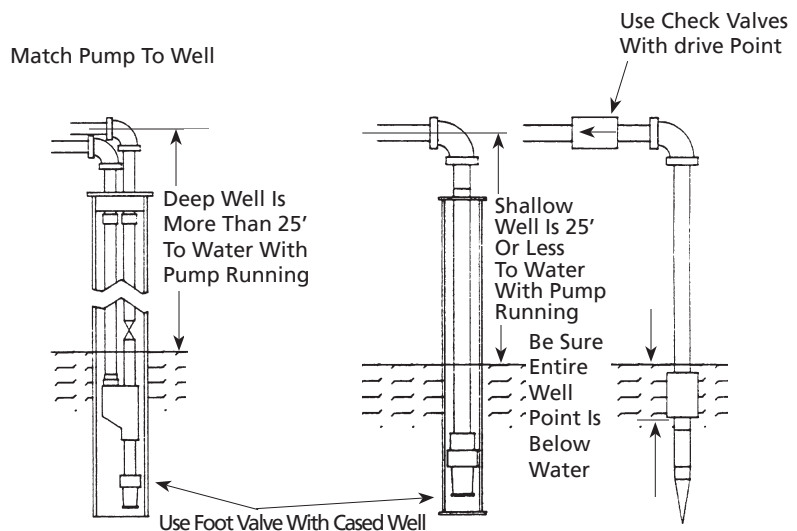


Figure 11 - Match Pump To Well

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Models 1D872 thru 1D879

Assembly

SHALLOW WELL PUMP

1. Attach ejector to face of pump with two bolts and gasket provided. The venturi tube inserts into the top tapping on the face of the pump (See Figure 12).
2. Remove 1/4" plug from side of pump. Apply two wraps of Teflon® tape provided to threads of the pressure switch and screw into tapping as shown in Figure 12. Refer to Electrical Section for pressure switch wiring.

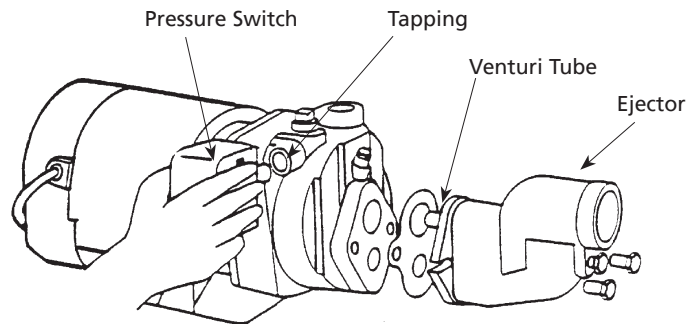


Figure 12 - Shallow Well Pump

CONVERTIBLE PUMP

1. Apply two wraps of Teflon® tape to threads of pressure control body and loosely assemble to discharge tapping of pump head (See Figure 13).

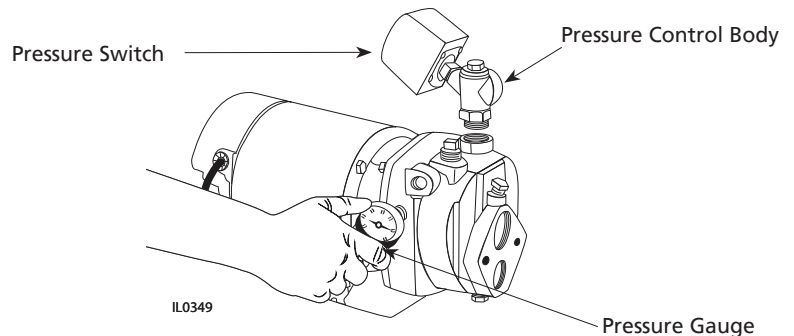


Figure 13 - Convertible Pump

NOTE: On 3/4 to 1½ HP models, apply Teflon tape to 1" x 3/4" reducer bushing (provided) and thread into discharge outlet of pump before assembly of the pressure control body.

2. Apply two wraps of Teflon® tape to threads of pressure switch and screw into 1/4" tapping of pressure control body as shown in Figure 13. Hand tighten plus 1½ additional turns.
3. Position the discharge outlet of the control body facing right as you look directly into the face of the pump. The outlet of the pressure control can be adjusted slightly to match discharge piping as required, upon final installation.
4. Install flow control screw into top of pressure control body. DO NOT use Teflon® tape.
5. Using Teflon® tape, install pressure gauge in 1/4" tapping on side of pump body. Face of gauge should be positioned so that the dial can be read easily (See Figure 13).

Ejector Selection

NOTE: For proper performance, the pump MUST be matched with the correct ejector. Ejector selection is based upon capacity required, pressure required and well depth. Refer to the following explanation and Performance Charts C, D and E to determine the correct ejector for well conditions and your pump model.

NOTE: The ejector includes extra nozzles and venturi's for various HP sizes and depth settings.

SHALLOW WELL PUMPS

(Models 1D872, 1D874, 1D876 and 1D878)

1. Shallow well pumps include the ejector. The nozzle and venturi are included (See Figure 12).
2. Refer to Chart C for performance data.

CONVERTIBLE PUMPS

(Models 1D873, 1D875, 1D877 and 1D879)

Convertible pumps can be used for either shallow well or deep well applications. The ejector is NOT included with the pump and must be purchased separately. Refer to Charts C, D and E.

1. For shallow well application, select ejector 1D863. Refer to Chart C to determine which nozzle and venturi are required.
2. For deep well applications, select ejector 1D883. Refer to Chart E to determine which nozzle and venturi are required.

NOTE: Deep well ejectors are convertible and can be used on shallow well applications when mounted to the face of the pump (See Chart D).

Dayton® High Efficiency Jet Pumps

ENGLISH

Installation

Well Pipe for Shallow Well CASED/DUG WELL INSTALLATION

1. 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 five 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.

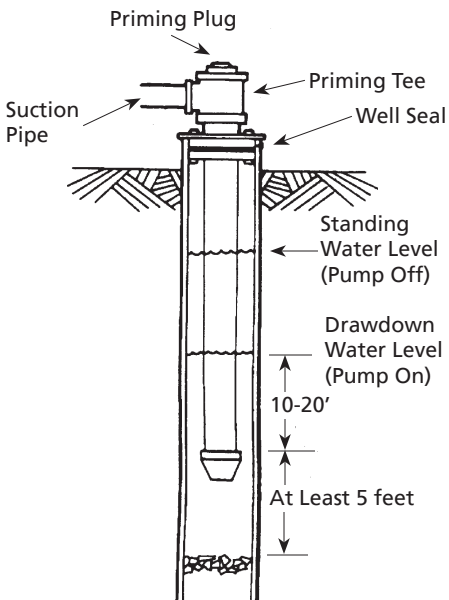


Figure 14 - Cased/Dug Well Installation

5. When using a foot valve, a priming tee and plug as shown in Figure 14 are recommended.

DRIVEN POINT INSTALLATION

1. Connect the suction pipe to the drive point as illustrated in Figure 15. Keep horizontal pipe run as short as possible. Use Teflon® tape on male pipe threads.
2. Install a check valve in suction pipe (See Figure 15). Check valve flow arrow must point toward pump.

LAKE INSTALLATION

Same as cased well except as follows:

1. Protect end of suction pipe, foot valve and strainer with screening (See Figure 16).
2. Install suction pipe far enough below lake level so that end of pipe will be submerged at all times. End of suction pipe must be off lake bottom to help keep sand and sediment from entering the system, causing pump failure.

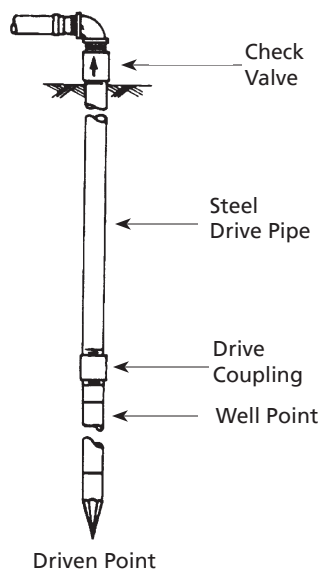


Figure 15 - Driven Point Installation

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 where the horizontal piping is more than 25 feet long, install a line check valve as shown in Figure 16. Be sure check valve flow arrow points 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 ft. run: Same size as pump discharge port.
 - 100 ft. to 300 ft. run: Increase one pipe size.
 - 300 ft. to 600 ft. run: Increase two pipe sizes.

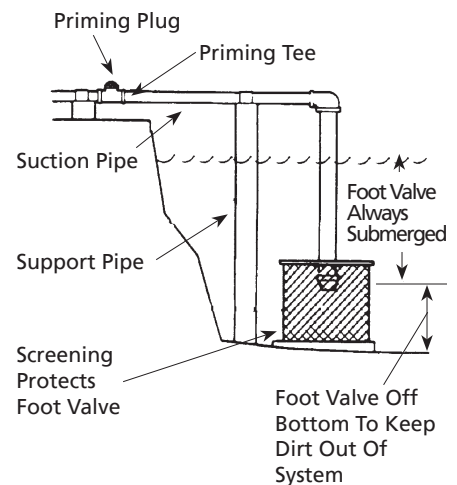


Figure 16 - Lake Installation

Models 1D872 thru 1D879

Installation (Continued) Deep Well Installation For Double Pipe PIPING IN THE DEEP WELL

NOTE: Deep well installations are double pipe (4" and larger wells). In a double pipe installation, the larger pipe is the suction pipe and the smaller pipe is the drive pipe.

Plastic pipe is ideal for double pipe installations. Due to its light weight, it is easy to handle and does not usually require a block and tackle for installation and removal.

NOTE: Pipes installed in the ejector are so close that normal unions cannot be used in the well. There are special pipes/unions made for this when using steel or rigid piping. When running the horizontal lines to the house, make sure to offset the pipes enough so that normal unions can be installed.

PLASTIC PIPE INSTALLATION - DOUBLE PIPE

(See Figure 18)

NOTE: Use Teflon® tape on all male threads on plastic pipe and fittings to prevent air leaks in suction piping.

1. Inspect ejector to make sure that nozzle and venturi openings are clean and clear.
2. Inspect pipe for any foreign matter or obstructions.

IMPORTANT: Make sure that no foreign matter enters pipe openings while installing pump.

3. Install nozzle and venturi in deep well ejector. Consult Chart E for proper nozzle and venturi.
4. Make sure foot valve operates freely: attach to ejector with a close nipple. Use Teflon tape on male threads.
5. Using Teflon® tape on male threads, install a 1 1/4" plastic pipe adapter by screwing adapter into 1 1/4" tapped hole in ejector body (See Figure 17).

6. Thread a 1" plastic pipe adapter into the 1" tapped hole in ejector body.
7. Install sufficient plastic pipe in well casing to place ejector at the proper depth (Your well driller should supply this information).

IMPORTANT: As a guide, the ejector should be set at least 10 to 20 feet below the lowest water level with pump running, if possible, but always at least five feet from the bottom of the well.

8. Tighten all hose clamps securely on plastic pipe. Use two clamps per joint to prevent air leaks into suction pipe. Clamp screws should be on opposite sides of the pipe. Fill pipes with water to make sure that foot valve and connections do not leak.

9. Install a sanitary well seal on top of well casing: use steel nipples through the well seal and steel elbows to mount horizontal offset piping. Tighten bolts on well seal to form seal. Use plastic pipe adapters to offset piping as needed. Use plastic pipe adapters to connect plastic pipe.

10. Connect horizontal offset piping as needed. Use plastic pipe adapters with Teflon® tape to make connections to pump.
11. See "Discharge Pipe Sizes" for information regarding correct discharge pipe size.

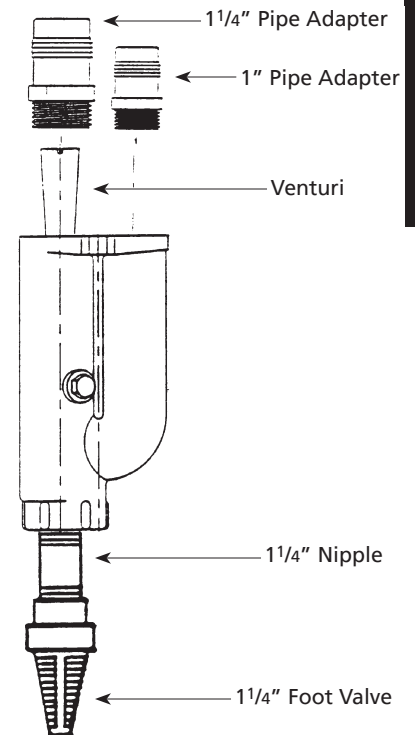


Figure 17

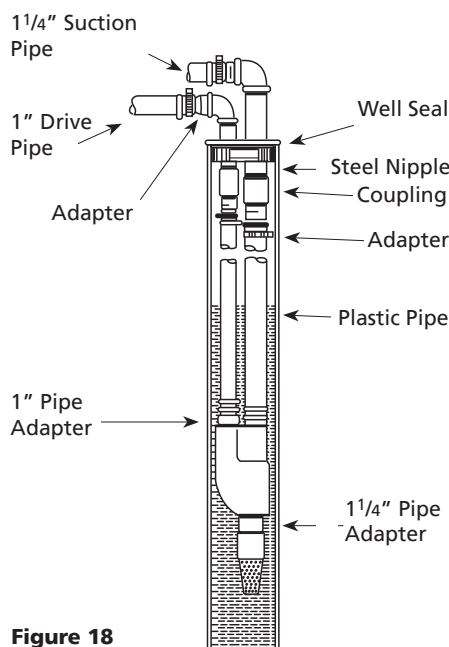


Figure 18

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Dayton® High Efficiency Jet Pumps

Installation (Continued)

Pump/Piping Installation

1. Bolt pump to solid, level foundation.
2. Support all piping connected to the pump.
3. Wrap 1½ to 2 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 1½ turns. Do not overtighten.

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

IMPORTANT: For long horizontal pipe runs, install a priming tee between check valve and well head as shown in Figure 16. For driven point installations, where the horizontal piping is more than 25 feet long, install a check valve as shown in Figure 15. Be sure check valve flow arrow points toward pump.

See "Well Pipe Installation" (See pages 8 & 9) for more information.

PRESSURE TANK INSTALLATION

The pressure tank provides a reservoir of water under pressure and maintains cushion of air pressure to prevent pipe hammering and possible damage to plumbing components. When water is drawn off through house fixtures, the pressure in the tank is lowered and the pressure switch starts the pump.

STANDARD TANK CONNECTION

When a standard tank is used, an air volume control (AVC) adds air to the tank when it is needed. See Figures 21A, 21B, 23A & 23B for typical standard tank installation.

1. On shallow well installations the AVC tubing is connected via a 1/4" compression fitting into the tapped hole on the side of the ejector (See Figure 21B).
2. On deep well installations the AVC tubing is connected to the tapped hole located directly above the suction pipe tapping of the pump case (See Figure 23A).
3. Cut tubing to length to reach AVC. Assemble to fitting on pump and to AVC on tank. See installation instructions provided with tank and AVC for details.

PRE-CHARGED TANK CONNECTION

When a pre-charged tank is used, no AVC is necessary. See Figures 22 & 24 for typical pre-charged tank installation. A pre-charged tank contains a factory provided air charge.

IMPORTANT: Your pump pressure switch is set for a 30-50 psi range and requires a tank pre-charge of 28 psi for proper operation (See Figure 20). See tank owner's manual for instructions on checking tank air charge. An annual check on tank charge is recommended.

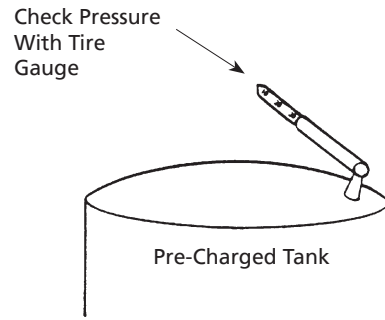


Figure 20 - Checking Tank Pre-Charge

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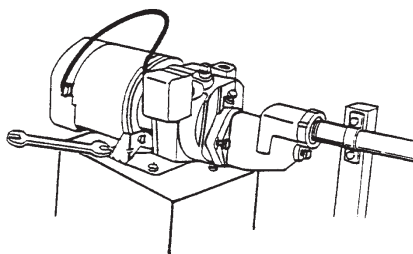


Figure 19A - Bolt Pump Down

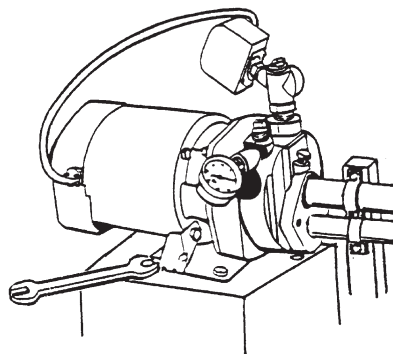


Figure 19B - Independently Support All Piping Attached To Pump

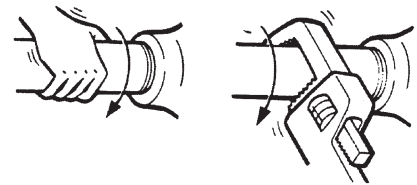


Figure 19C - Don't Overtighten

Models 1D872 thru 1D879

Pressure Tank Connection for Shallow Well

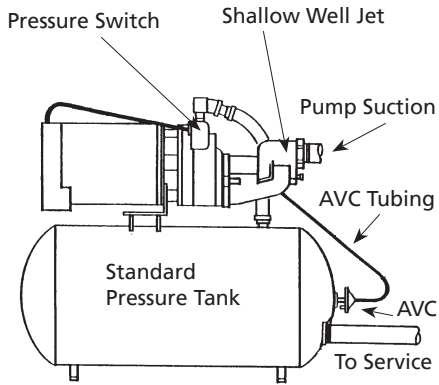


Figure 21A - Pump On Standard Tank

Pressure Tank Connection for Deep Well

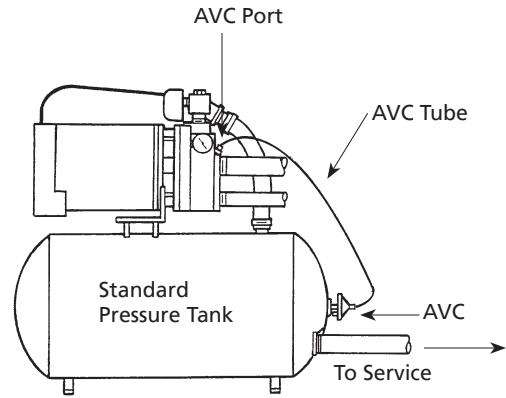


Figure 23A - AVC Connection Deep Well

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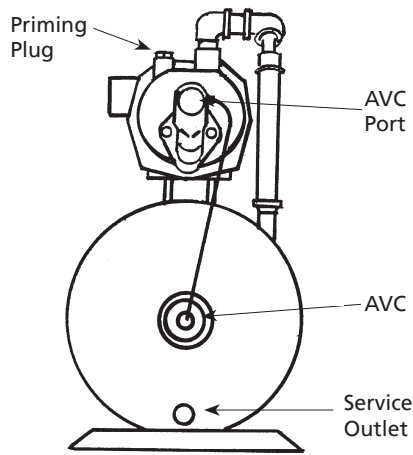


Figure 21B - AVC Connection

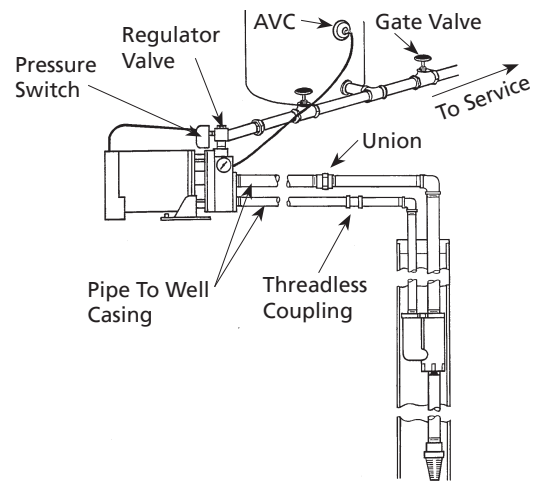


Figure 23B - Pump On Standard Tank

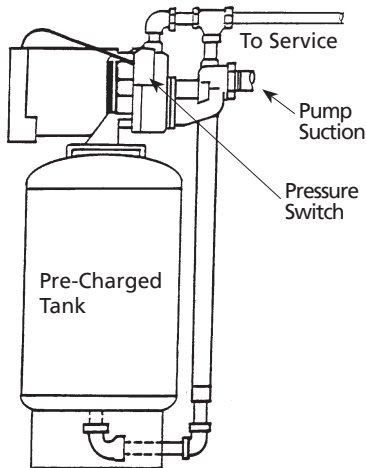


Figure 22 - Pump On Pre-Charged Tank

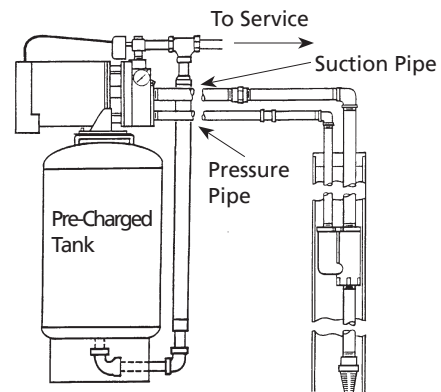


Figure 24 - Pump On Pre-Charged Tank

Dayton® High Efficiency Jet Pumps

ENGLISH

Installation (Continued)

⚠ WARNING



Hazardous voltage. Can shock, burn or cause death.
Ground pump before connecting to power supply.



Ground motor before connecting to electrical power supply.



Failure to ground motor can cause severe or fatal electrical shock hazard.



Do not ground to a gas supply line.



To avoid dangerous

or fatal electrical shock, turn off power to motor before working on electrical connections.

Supply voltage must be within ± 10% of nameplate voltage.

Incorrect voltage can cause fire or seriously damage motor and voids warranty. If in doubt, consult a licensed electrician.

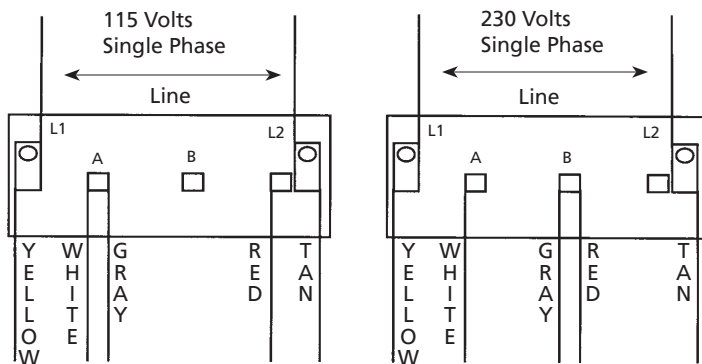
Use wire size specified in wiring Chart B. If possible, connect pump to a separate branch circuit with no other appliances on it. If motor wiring diagram differs from diagram shown below, follow diagram on motor.

WIRING

1. Install, ground, wire and maintain this pump in accordance with your local electrical code and all other codes and ordinances that apply. Consult your local building inspector for local code information.
2. Ground the pump permanently using a wire of size and type specified by local or United States National Electrical Code. **Do not ground to a gas supply line.**
3. Connect ground wire first. Connect to ground first, then to green grounding terminal provided on pressure switch (See Figure 26) identified as GRD. Ground connection MUST be made to this terminal. **Do not** connect motor to electrical power supply until unit is permanently grounded; otherwise serious or fatal electrical shock hazard may be caused.
4. Connect the other end of the ground wire to a properly grounded service panel or to a control panel ground bar if it is connected to the power supply ground.

IMPORTANT: Check local and/or national electric codes for proper grounding information.

CAUTION *Make certain that the power supply conforms to the electrical specifications of the motor supplied. See Motor Data Chart A.*



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

Figure 25 - Wiring Diagram for Single Phase Motors

5. On Models 1D876 & 1D877, the motors are prewired from the factory for use with 115V service. All other models are wired for 230V. All motors are dual voltage (115V/230V) and may be field connected for either voltage. See motor wiring diagram (Figure 25) if a change is required.
6. To make the wiring change remove the rear access cover.

⚠ WARNING

Replace rear access cover

before starting or operating pump. Failure to do so can result in personal injury.

IMPORTANT: Do not use an extension cord or splice wires. Joints should be made in an approved junction box. If the above information or the following wiring diagrams are confusing, consult a licensed electrician.

WIRING THE PRESSURE SWITCH

1. Remove pressure switch cover to expose wiring terminals.
2. Insert motor wires through side hole of pressure switch and attach to the two inside flag terminals marked "load" (See Figure 26).
3. Connect the green ground wire of the motor and the power supply to the switch ground terminals.
4. Connect the power supply wire to the two outside pressure switch terminals marked "line" and replace the switch cover.

⚠ WARNING

Never examine, make wiring

changes or touch the motor before disconnecting the main electrical supply switch.

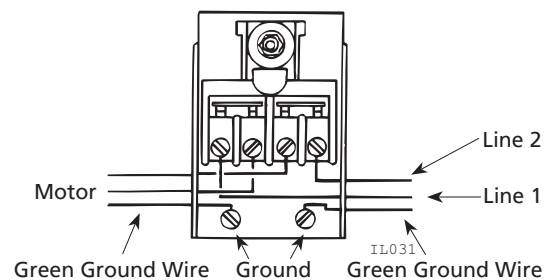


Figure 26 - Pressure Switch Wiring Diagram

Models 1D872 thru 1D879

Operation

PRIMING THE PUMP

⚠ WARNING *Never run pump dry or against a closed discharge. To do so can cause pump to overheat, damaging seal and possibly causing burns to persons handling pump. Fill pump with water before starting.*

SHALLOW WELL APPLICATION ONLY

(Models 1D872, 1D874, 1D876 and 1D878)

NOTE: Open water system faucets before priming pump for the first time.

⚠ CAUTION *All pumps must be primed (filling the cavity with water) before they are first operated. This may take several gallons of water, as the suction line will be filled in addition to the pump cavity.*

1. Remove the 1/2 in. priming plug with pressure gauge and air relief plug. (Fig. 27)

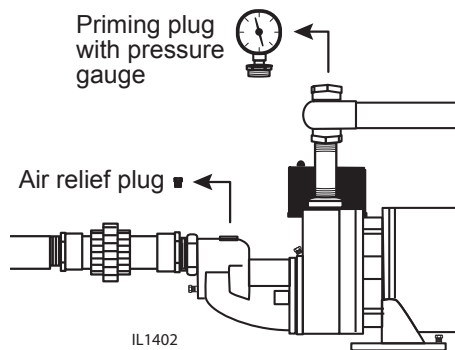


Figure 27 - Remove priming plug

2. Slowly fill pump cavity until water comes out of air relief hole on top of the ejector body. (Fig. 28)

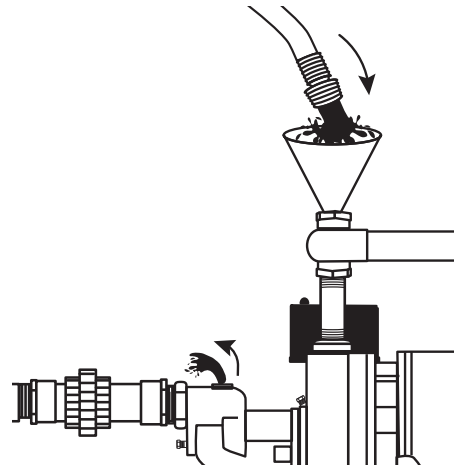


Figure 28 - Add water to pump cavity

3. Replace air relief plug and continue adding water to pump cavity until water reaches the top of the priming plug. (Fig. 29)

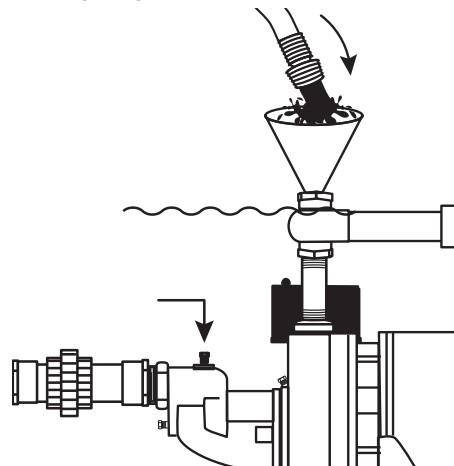


Figure 29 - Replace air relief plug

4. Thread in priming plug and then open optional ball valve if installed by turning handle to line up with the pipe. (Fig. 30)

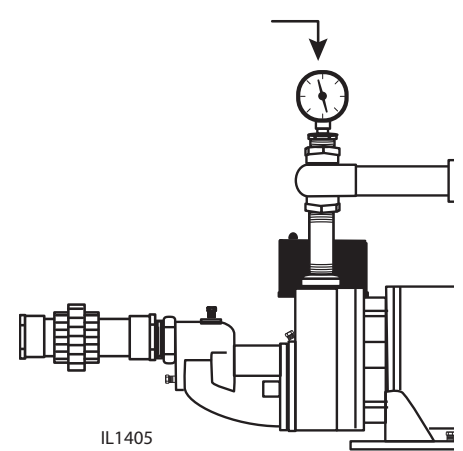


Figure 30 - Replace priming plug

5. Turn on breaker to start pump
IMPORTANT: If the pump hums instead of pumping or turns off repeatedly, shut pump off immediately. Check voltage. Make sure your incoming voltage matches the pump wiring voltage. See wiring guide in the instructions.

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Dayton® High Efficiency Jet Pumps

Operation (Continued) CONVERTIBLE PUMPS

(Models 1D873, 1D875, 1D877 and 1D879)

Convertible pumps can be used for either shallow well or deep well installations. For shallow well installations, refer to previous section. For deep well installations, refer to the following:

NOTE: Open water system faucets before priming pump for the first time

CAUTION All pumps must be primed (filling the cavity with water) before they are first operated. This may take several gallons of water, as the suction line will be filled in addition to the pump cavity.

1. Remove the 1/2" priming plug. (Fig. 31)

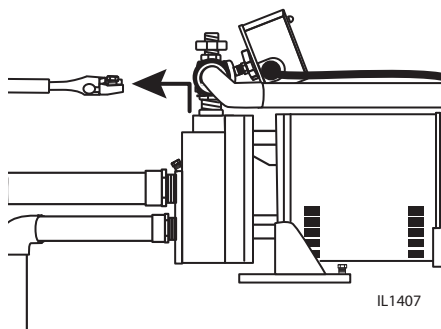


Figure 31 - Remove priming plug

2. Fill pump cavity with water until full and replace priming plug. (Fig. 32)

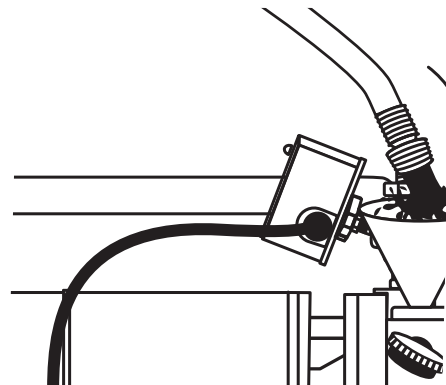


Figure 32 - Fill cavity with water

3. Tighten flow control screw completely by turning clockwise, then loosen two turns. Now start the pump. (Fig. 33)

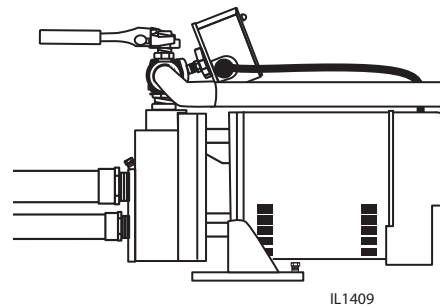


Figure 33 - Tighten flow control screw

4. If pump is properly primed, pressure will quickly build and register on the gauge mounted directly on the pump body. If pressure does not build repeat priming operation. All air must be vented from the drive and suction pipes as well as the body before the pump will prime. The pump body may need to be filled several times in order to achieve the prime. (Fig. 34)

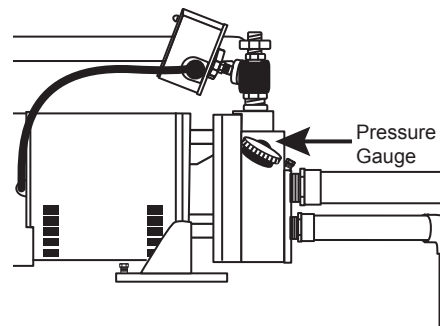


Figure 34 - Check pressure gauge

5. 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. The flow control screw diverts the proper amount of water to operate the ejector. (Fig. 35)

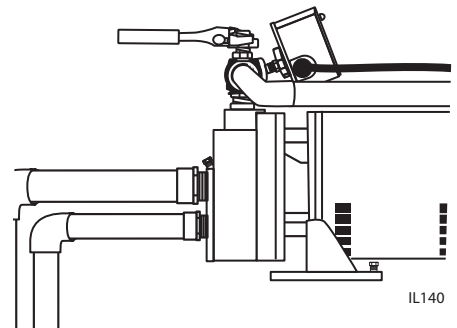


Figure 35 - Unscrew flow control screw

Chart G

HP	Pressure Setting
1/2	27 psi
3/4	38
1	46
1 1/2	53

Models 1D872 thru 1D879

Maintenance

⚠ CAUTION

Disconnect power supply and

depressurize system before servicing pump or removing any component.

LUBRICATION

The motor has prelubricated bearings. No lubrication is required.

WINTERIZING

If pump is located in an area subject to freezing temperatures, the pump should be drained when it is not in service or in danger from freezing.

1. Disconnect power.
2. Slowly and carefully release all water pressure.
3. Drain suction pipe to a point below the frost line.
4. Drain all piping exposed to freezing temperatures.
5. Remove the 1/4" drain plug located on the bottom of the pump body.
6. Remove priming plug at the uppermost point on the pump case to vent.
7. Drain pressure tank.

CLEANING SHALLOW WELL EJECTOR

1. Remove the bolts that connect the ejector to the pump body (See Figure 12).

NOTE: Care should be taken when removing the ejector not to damage the gasket. If torn or damaged, the gasket will require replacement (See Parts List).

2. Remove the venturi using the edge of a putty knife blade or other tool, turning counterclockwise. Do NOT use pipe wrench or pliers as the venturi may be damaged.
3. Remove nozzle using a 3/4" socket wrench turning counterclockwise.
4. Clean venturi and nozzle by carefully inserting an awl or other small diameter pointed tool into venturi and/or nozzle dislodging material.

NOTE: Be careful not to enlarge hole in nozzle or venturi.

5. If venturi and nozzle cannot be cleaned or if they are damaged in the cleaning process, replace.
6. Replace nozzle and venturi by turning in clockwise until snug. Do not overtighten.

CLEANING DEEP WELL EJECTOR

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 ejector from well.
4. Unscrew and remove pipe adapter (if used).
5. Remove and clean venturi and nozzle by following steps 3 through 6 under cleaning Shallow Well Ejector.
6. Replace nozzle and venturi by turning clockwise until snug. Do not overtighten.

PUMP DISASSEMBLY

(See Figures 37 & 38)

To disassemble the pump, refer to the exploded parts view and the following instructions.

1. Disconnect power to motor.
2. Disconnect wires to pressure switch (Ref. No. 8).
3. Remove four hex cap screws (Ref. No. 10) and disengage the pump body (Ref. No. 9) from mounting ring (Ref. No. 2).
4. Remove diffuser (Ref. No. 6).

NOTE: The square cut sealing ring (Ref. No. 3) and diffuser rubber (Ref. No. 7) are generally reusable. However, check to see if cut or damaged and replace if necessary.

CLEANING/REPLACING IMPELLER

(See Figures 37 & 38)

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

1. With diffuser removed (Ref. No. 6) the exposed impeller can now be cleaned.
2. Remove impeller (Ref No. 5) by unthreading counter clockwise while looking into the eye of impeller. To hold motor shaft, use the screwdriver slot at the impeller eye.
3. To reinstall, reverse steps 1, 2 and 3 and re-mount diffuser.
4. Re-assemble the pump body (Ref. No. 9) to the mounting ring (Ref. No. 2).

MECHANICAL SEAL REPLACEMENT

(See Figures 37 & 38)

1. Follow instructions under "Pump Disassembly".
2. Follow steps 1 and 2 under "Cleaning/Replacing Impeller".
3. Remove the mechanical seal assembly (Ref. No. 4).
 - a. The rotary portion of the seal assembly (carbon ring, Buna-N gasket and spring will slide easily off the end of the shaft).
 - b. Using two (2) screwdrivers, pry the ceramic seal and rubber gasket from the recess of the mounting ring (See Figure 36A).
4. Clean the seal cavity of the mounting ring (Ref. No. 2) and the motor thoroughly.
5. Wet outer edge of rubber cup on ceramic seat with liquid soap solution. Use sparingly (one drop only).

NOTE: Liquid soap solution - one drop of liquid soap combined with one teaspoonful of water.

6. With thumb pressure, press ceramic seal half firmly and squarely into seal cavity. 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 (See Figure 36B).

Dayton® High Efficiency Jet Pumps

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Maintenance (Continued)

7. If seal does not seat correctly after recleaning cavity, place a cardboard washer over polished seal face and carefully press into place using a piece of standard clean 3/4" pipe as a press (See Figure 36C).

IMPORTANT: Do not scratch seal face.

8. Dispose of cardboard washer and recheck seal face to be sure it is free of dirt, foreign particles, scratches and grease.

9. Inspect shaft to be sure it is free of nicks and scratches.

10. Apply liquid soap solution sparingly (one drop is sufficient) to inside diameter of rubber rotating member.

11. Slide rotating seal member (carbon face down toward ceramic face) and spring over the shaft.

IMPORTANT: Be sure not to nick or scratch carbon face of seal when passing it over threaded shaft end of shaft shoulder.

The carbon surface must remain clean or short seal life will result.

12. Hold motor shaft with flat blade screwdriver and thread impeller onto shaft. Tightening impeller will automatically locate seal in correct position.

13. Remount diffuser (Ref. No. 6) to mounting ring (Ref. No. 2).

14. Reassemble the pump body (Ref. No. 9) to the mounting ring (Ref. No. 2).

MOTOR REPLACEMENT

(See Figures 37 & 38)

The motor can be replaced with a standard NEMA 56J motor of the same horsepower size by referring to the following instructions. For the correct replacement motor see the attached repair parts list. The original motor is a partial motor with no end bell on the shaft end. The replacement motor (any NEMA 56J) is a complete motor. This is designed for customer ease and consideration. It will work both mechanically and electrically.

1. Remove pump body (Ref. No. 9), diffuser (Ref. No. 6), impeller (Ref. No. 5) and mechanical seal (Ref. No. 4) by following steps 1 and 2 of Mechanical Seal Replacement.

2. Disassemble pump base (Ref. No. 11) from motor (Ref. No. 1) by removing two 3/8" hex size nuts.

3. Remove rear motor cover.

4. Remove four thru bolts from rear of motor and pull motor shell and stator assembly away from mounting ring (Ref. No. 2). Discard shell and stator assembly.

5. Disconnect four self tapping screws that hold the bearing housing to the mounting ring (Ref. No. 2). Discard the bearing housing, rotor assembly and two square headed screws.

6. Replace motor with correct NEMA 56J motor as indicated on repair parts list.

7. Position replacement motor against mounting ring (Ref. No. 2) and assemble with four 3/8"-16 x 3/4" long bolts (not provided). The mounting base (Ref. No. 11) connected at the bottom of the mounting ring (Ref. No. 2) with two of the four 3/8" bolts.

8. Follow steps 4 thru 14 of Mechanical Seal Replacement to reassemble the remainder of the pump.

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

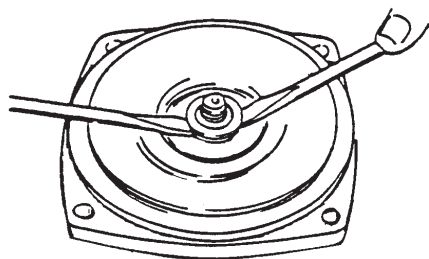


Figure 36A - Remove Mechanical Seal

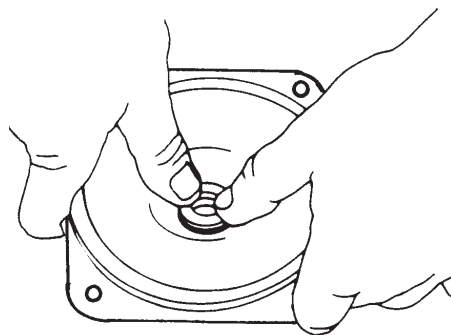


Figure 36B - Press In Seal

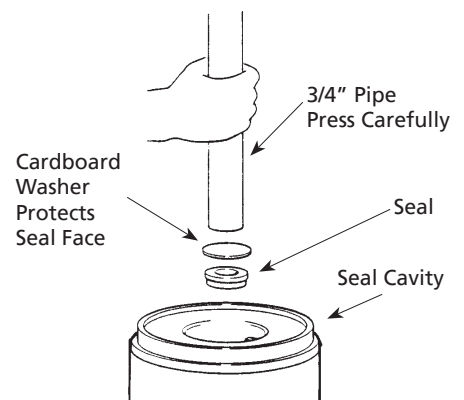


Figure 36C - If Necessary, Press With Cardboard And Pipe

For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

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

Address parts correspondence to:

Grainger Parts
 P.O. Box 3074
 1657 Shermer Road
 Northbrook, IL 60065-3074 U.S.A.

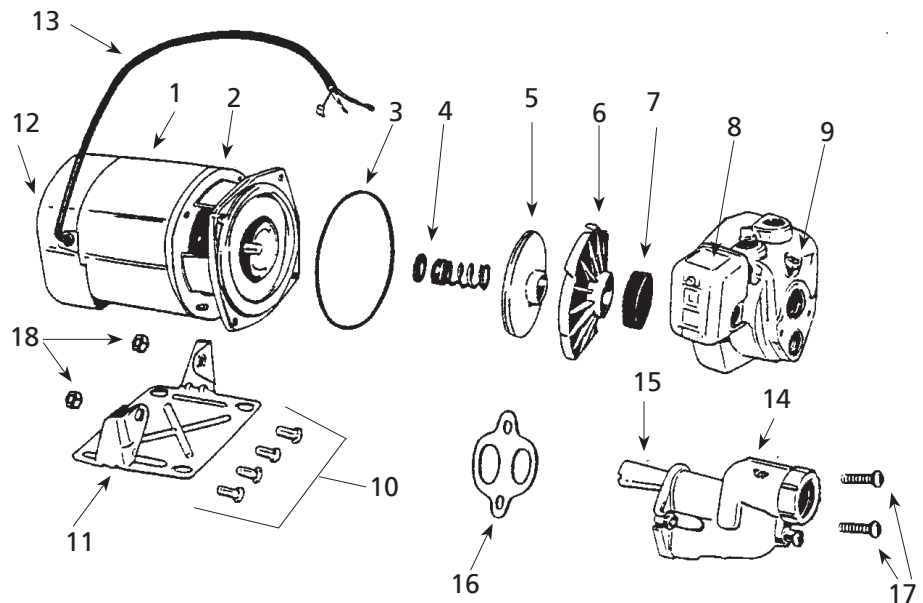


Figure 37 - Repair Parts Illustration

Repair Parts List - Shallow Well Jet Pumps

For Models 1D872, 1D874, 1D876 and 1D878

Ref. No.	Horsepower Model No. Description	Cast Iron Jet Pumps				
		1/2 1D876	3/4 1D874	1 1D872	1 1/2 1D878	
		Part No.				
1	†NEMA 56J motor	5K660	5K661	5K662	5K475	1
2	Mounting ring	134162	134163	134163	134163	1
3	Square cut ring	132583	132429	132429	132429	1
4	Mechanical seal assembly	2VJ43	2VJ43	2VJ43	2VJ43	1
5	Impeller	139349	134137	134138	132417	1
6	Diffuser	132424	132425	132425	132464	1
7	Diffuser rubber	132428	132428	132428	132428	1
8	1/4" NPTM Pressure switch	020346	020346	020346	020346	1
9	Pump body	134121	134123	134123	134123	1
10	3/8 x 3/4" Cap screws	*	*	*	*	4
11	Pump base	128034	128034	128034	128034	1
12	Rear motor cover w/screws	021301R	021301R	021301R	021301R	1
13	Lead wire	136135A	136135A	136135A	136136A	1
14	Ejector body	135021	135021	135021	135021	1
15	Ejector venturi	4C55-30	4C55-32	4C55-34	4C55-38	1
16	Ejector gasket	130969	130969	130969	130969	1
17	7/16-14x1" Long ejector bolts	*	*	*	*	2
18	3/8-16 Hex nut	*	*	*	*	2
△	Rear motor cover screw	021302	021302	021302	021302	2
△	Ejector nozzle	4C39-16	4C39-14	4C39-13	4C39-12	1

(*) Standard hardware item, available locally.

(△) Not shown.

(†) Not exact as original, but more economical, motor available locally.

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For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

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

Address parts correspondence to:

Grainger Parts
 P.O. Box 3074
 1657 Shermer Road
 Northbrook, IL 60065-3074 U.S.A.

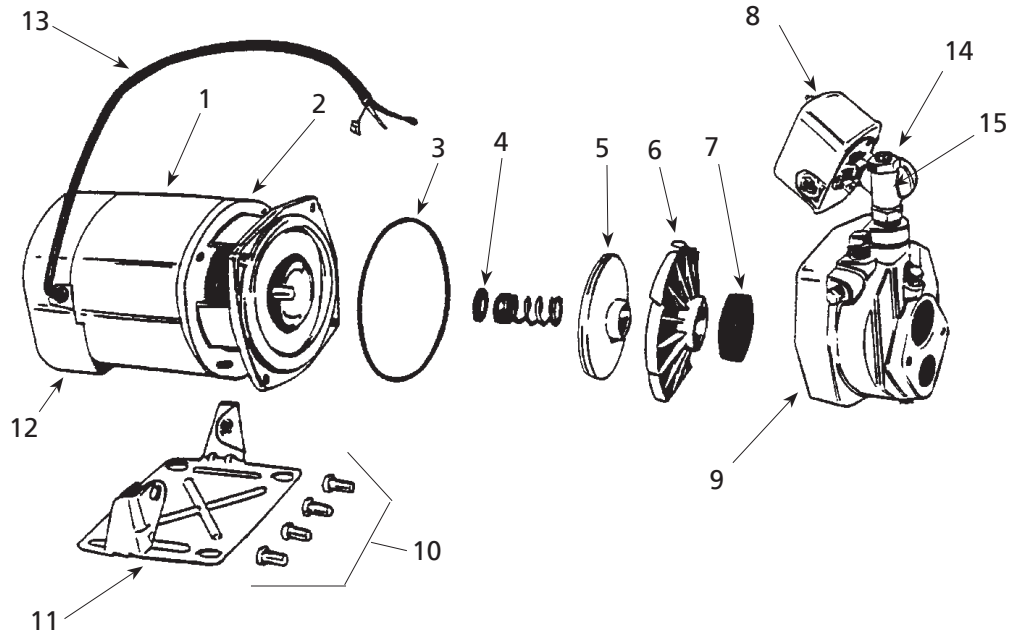


Figure 38 - Repair Parts Illustration

Repair Parts List - Convertible Jet Pumps

For Models 1D873, 1D875, 1D877 and 1D879

Ref. No.	Horsepower Model No. Description	Cast Iron Jet Pumps				Qty.
		1/2 1D877	3/4 1D875	1 1D873 Part No.	1 1/2 1D879	
1	†NEMA 56J motor	5K660	5K661	5K662	5K475	1
2	Mounting ring	134162	134163	134163	134163	1
3	Square cut ring	132583	132429	132429	132429	1
4	Mechanical seal assembly	2VJ43	2VJ43	2VJ43	2VJ43	1
5	Impeller	139349	134137	134138	132417	1
6	Diffuser	132424	132425	132425	132464	1
7	Diffuser rubber	132428	132428	132428	132428	1
8	1/4" NPTM Pressure switch	020346	020346	020346	020346	1
9	Pump body	134121	134123	134123	134123	1
10	3/8 x 3/4" Cap screws	*	*	*	*	4
11	Pump base	128034	128034	128034	128034	1
12	Rear motor cover w/screws	021301R	021301R	021301R	021301R	1
13	Lead wire	136135A	136135A	136135A	136136A	1
14	Flow control screw assembly	124330	124330	124330	124330	1
15	Pressure regulator body	135019	135019	135019	135019	1
△	3/8"-16 Hex nut	*	*	*	*	2
△	Rear motor cover screw	021302	021302	021302	021302	2

(*) Standard hardware item, available locally.

(△) Not shown.

(†) Not exact as original, but more economical, motor available locally.

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Models 1D872 thru 1D879

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
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. Disconnect power; replace starting switch 4. Refer to instructions on wiring. Disconnect power; check and tighten all wiring 5. Disconnect power and file contacts with emery board or nail file
Motors 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	<p>*1. Pump in a new installation did not pick up prime through:</p> <ol style="list-style-type: none"> a. Improper priming b. Air leaks c. Leaking foot valve <p>*2. Pump has lost its prime through:</p> <ol style="list-style-type: none"> a. Air leaks b. Water level below suction of pump <ol style="list-style-type: none"> 3. Ejector 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 ejector 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, ejector 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 ejector 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 limed, 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 25 ft. to water) 2. Replace with 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. Ejector 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 ejector or impeller 4. Check possibility of using a deep well jet pump

* (NOTE: Check prime before looking for other causes. Unscrew priming plug and see if there is water in priming hole)

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Dayton® High Efficiency Jet Pumps

Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
Pump cycles too frequently	<ol style="list-style-type: none"> Standard pressure tank is waterlogged and has no air cushion Pipes leak Faucets or valves are open Foot valve leaks Pressure switch is out of alignment Air charge too low in precharged tank 	<ol style="list-style-type: none"> Drain tank to air volume control tapping. Check air volume control for defect. Check for air leaks at any connection Check connections Close faucets or valves Replace foot valve Adjust or replace pressure switch 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. Air pressure should be 2 psi below pump pressure switch cut-in setting. Check air valve for leaks, using soapy solution, and replace core if necessary
Air spurts from faucets	<ol style="list-style-type: none"> Pump is picking up prime Leak in suction side of pump Well is gaseous Intermittent over-plumbing of well 	<ol style="list-style-type: none"> As soon as pump picks up prime, all air will be ejected Check suction piping Change installation as described in manual Lower foot valve if possible, otherwise restrict discharge side of pump to match well delivery

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Models 1D872 thru 1D879

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