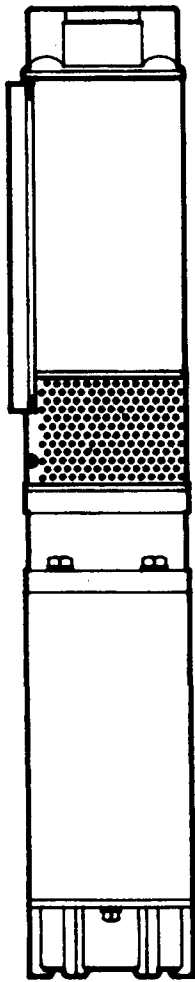


Installation and Operation Guide

“The Wrangler”

6-Inch Submersible Pumps
60, 90 & 140 GPM Models



- A** Pump Selection & Inspection Page 3
- B** Pre-Installation Preparation Page 3
- C** Electrical Preparation Page 4
- D** Installation of Pump in Well Page 5
- E** Above-Ground Electrical Connections Page 6
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Motors are purchased separately.

WARNING! IMPORTANT SAFETY INSTRUCTIONS! READ CAREFULLY BEFORE INSTALLATION

WARNING



Hazardous voltage can shock, burn or cause death.

FAILURE TO FOLLOW THESE INSTRUCTIONS AND COMPLY WITH ALL CODES MAY CAUSE SERIOUS BODILY INJURY AND/OR PROPERTY DAMAGE.

1) Before installing or servicing your pump,* **BE CERTAIN THE PUMP**

POWER SOURCE IS TURNED OFF AND DISCONNECTED.

2) All installation and electrical wiring must adhere to state and local codes. Check with appropriate community agencies, or contact your local electrical and pump professionals for help.

3) **CALL AN ELECTRICIAN WHEN IN DOUBT.** Pump must be connected to a separate electrical circuit directly from the entrance box. There must be an appropriately sized fuse or circuit breaker in this line. Tying into existing circuits may cause circuit overloading, blown fuses, tripped circuit breakers, or a burned up motor.

4) Do not connect pump to a power supply until the pump is grounded. For maximum safety, a ground fault interrupter should be used. **CAUTION: FAILURE TO GROUND THIS UNIT PROPERLY MAY RESULT IN SEVERE ELECTRICAL SHOCK.**

5) **WARNING:** Reduced risk of electric shock during operation of this pump requires the provision of acceptable grounding:

a) If the means of connection to the supply-connection box is other than grounded metal conduit, ground the pump back to the service by connecting a copper conductor, at least the size of the circuit conductors supplying the pump, to the grounding screw provided within the wiring compartment.

b) This pump is provided with a means for grounding. To reduce the risk of electric shock from contact with adjacent metal parts, bond supply box to the pump-motor-grounding means and to all metal parts accessible at the well head, including metal discharge pipes, metal well casing, and the like, by means of

(1) an equipment-grounding conductor at least the size of the well

— cable conductors, or the equivalent, that runs down the well with the well cable and,

(2) a clamp, a weld, or both if necessary, secured to the equipment-grounding lead, the equipment-grounding terminal, or the grounding conductor on the pump housing. The equipment-grounding lead, if one is provided, is the conductor that is green with or without one or more yellow stripes.

(6) The voltage and phase of the power supply must match the voltage and phase of the pump.

(7) Do not use an extension cord; splices must be made with an approved splice kit and should be checked for integrity before submerging in water, above ground joints must be made in an approved junction box.

(8) Do not work on this pump while the power is on.

(9) Never operate a pump with a frayed or brittle motor lead, and always protect it from sharp objects, hot surfaces, oil and chemicals. Avoid kinking the wire.

(10) Never service a motor or motor lead with wet hands or while standing in or near water or damp ground.

(11) Three phase units must be wired by a qualified electrician, using an approved starter box and switching device.

(12) Do not use this pump in or near a swimming pool, pond, lake or river.

(13) The three wire units require a control box. Make sure the control box matches the motor in voltage, horsepower, and phase.

(14) Three phase motors should be protected by proper, thermal and amperage protection. (Check local codes.)

(15) Check for nicks in the wire and pump insulation by using an ohm meter and checking resistance to ground before installing the pump and after installing the pump. If in doubt on the proper procedure check with a qualified electrician.

(16) Do not pump gasoline, chemicals, corrosives, or flammable liquids; they could ignite, explode, or damage the pump, causing injury and voiding the warranty.

WARNING



Hazardous fluids can cause fire, burns or death.

17) Do not run this pump with the discharge completely closed. This will create superheated water and shorten the life of the motor. This superheated water could also cause severe burns. Always use a pressure relief valve,

set below the rating of the tank or system.

(18) Pump is capable of building high pressures. Always use a pressure relief valve.

(19) The well, cistern, or pit must be sealed to prevent a child, animal or foreign object from falling in.

(20) While the well seal or cap is removed for repairs, cover the well to prevent foreign matter from entering, contaminating the well, and possibly damaging the pump.

(21) Test well water for potability; chlorinating the well or purifying, is recommended every time the well is opened. Check with local Health Departments for testing and sanitizing procedures.

CAUTION!

(22) The following may cause severe damage to the pump and void warranty. It could also result in personal injury:

- Running the pump dry.
- Failure to protect the pump from below freezing temperatures.
- Running the pump with the discharge completely closed.
- Pumping chemicals or corrosive liquids.

(23) Never work on the pump or system without relieving the internal pressure.

(24) Do not pump water above 120° Fahrenheit.

(25) Never exceed the pressure rating of any system component.

* NOTE: The word "pump" refers to the complete pump/motor assembly.

A Pump Selection & Inspection

1. Select the right pump & motor

Gallons per minute desired + pressure required + depth to pumping level determines which Myers Submersible Pump size and model is right for your water well system.

All motors are NEMA standard water lubricated motors. Single phase

motors require Myers control boxes containing the capacitors, relay and combination starter, while three phase units require the Myers combination starters.

2. Inspect your new pump & motor

After purchase, check the pump and

motor and other contents of the shipping containers for possible damage. Do NOT lift the submersible motor by its attached electric motor cables.

Find the loose owner's information plates and check the listed model numbers against the data on the motor and the pump.

B Pre-Installation Preparation

1. New wells

a) Location of pump. Your Myers Submersible Pump can be installed at nearly any well location for years and years of dependable, trouble-free service. For new wells, always locate well to provide for easy removal and replacement of pump. The water tank and electrical controls can, of course, be located some distance from the well.

b) Determine depth of pump in well in order to purchase electrical cables of sufficient gauge and length to reach from pump motor to electrical motor control box - and to purchase galvanized iron pipe of sufficient length to reach from pump discharge to water tank. (See cable-length and cable-size charts in Sections C2 and C3.)

c) Location of water tank and electrical controls. Always install the pressure tank and electrical controls in a clean, dry basement or utility room to avoid dampness and temperature extremes. In any installation where the pump pressure could exceed the storage-tank pressure, provide a pressure relief valve piped to a suitable drain.

2. Replacing pump (or motor only) in existing well

a) Turn off power at electrical control box.

b) Remove well seal from top of well.

c) Remove old pump from well.

1) if Myers P/N 24429A010 or 24429A011 check valves were installed in the riser pipe, a break-out plug in the check valve can be dislodged to drain the water in the riser pipe for ease of lifting. Simply lower a suitable length of 2-inch pipe in the riser pipe to the location of the check valve to dislodge the break-out plug. Replace the break-out plug with a new one when re-installing the pump.

2) if galvanized iron pipe was used originally, you'll find a number of rigid sections joined together. Pull pipe upward and dismantle each section as you go, untaping or unbanding electrical motor cables from each section until you reach pump.

3) when old pump is out of well, cut electrical cables as close to original splice connection as possible.

4) while new cable is preferred (because it will remain submerged for

a number of years), you may wish to re-use the old cable. Wipe off and clean the insulation, examining carefully for cuts, cracks and abrasions. If in doubt, purchase new cable.

5) if new cable is necessary, measure length of old cable (from pump motor to electrical control box) and purchase sufficient replacement lengths (see wire-size and cable-length selection charts in sections C2 and C3).

3. Attaching pump to motor

a) Scrape mounting faces of both pump and motor. All rust and dirt must be completely removed.

b) The pump and motor must be kept in a straight line to assure proper shaft and coupling alignment. Carefully lower pump onto motor. If motor shaft splines and pump coupling splines do not engage, lift pump and rotate motor shaft only very slightly. Repeat until motor and pump are properly mated, then securely bolt together.

c) Install lead guard over leads with clamps. Leads should be protected at the top with a heavy layer of tape or rubber pads.



Electrical Preparation

1. Motor voltage

- a) Be sure to select the proper voltage.
- b) Motor operating voltage must be within 10% of nominal rated voltage.
- c) Motor control box must be for the same horsepower size and voltage as pump motor.

cable. See chart of proper-sized cable (in chart, the smaller the AWG number, the larger the cable wire size).

For Canadian installations: a) type RWU, TWU, SGOW or SWOW power supply cables are recommended. b) The well seal and motor case shall be bonded to the main A-C ground.

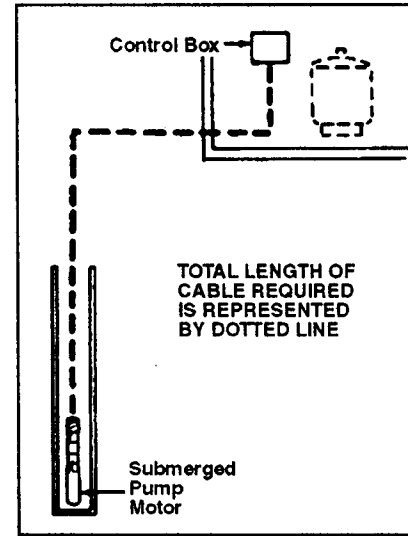
2. Cable size

Submersible pump cable is not just ordinary wire, the copper cable is well insulated to withstand many years of complete submersion in water. Selection of proper size cable is very important. Under-sized cable results in too low a voltage supply to the motor and ultimate motor failure. Over-sized cable will cost much more than proper-sized

3. Length of cable

Maximum cable length specified for each horsepower size and minimum AWG cable wire size referred to in chart means the total distance from the submerged pump motor to the electrical motor control box as shown in this diagram.

Myers warranty is void if under-sized AWG cable is used or if cable lengths longer than specified for each cable wire size are used.



60 Hertz

Motor Rating		Max. Amps	Copper Wire Size/Feet										Winding Resistance	Control Box Overload Heater F. E. Myers (Furnas)	Disconnect Switch Time Delay Fuse Size - Amps	
Volts	HP		14	12	10	8	6	4	2	0	00	000				0000
200V 60 Hz Three Phase Three Wire 6" Motor	5	19.1	110	170	280	440	690	1080	1660	2490	3050	3670	4440	.68 - .84 .39 - .48 .33 - .42 .22 - .27 .14 - .17 .11 - .14	13621A072 (K61) 13621A063 (K67) 13621A099 (K72) 13621A077 (K76) 13621A068 (K78) 13621A103 (K86)	50 70 100 150 200 225
	7.5	28.3			200	310	490	770	1180	1770	2170	2600	3150			
	10	37.0			150	230	370	570	880	1330	1640	1970	2390			
	15	54.5				160	250	390	600	910	1110	1340	1630			
	20	69.7					190	300	460	700	960	1050	1270			
25	66.3					240	370	570	700	840	1030					
230V 60 Hz Single Phase 6" Motor	5	29.5			180	280	450	710	1110	1740	2170	2680	.55 - .68M .36 - .50 .27 - .33 .17 - .22	24002A031 24002A032 24002A033 24002A028	80 100 150 200	
	7.5	42.0			200	310	490	750	1140	1410	1720	2160				
	10	51.0			250	390	600	930	1160	1430	1780	2200				
	15	72.0			170	270	430	660	820	1020	1260					
	20															
230V 60 Hz Three Phase Three Wire 6" Motor	5	16.6		200	370	590	920	1430	2190	3290	4030	4850	5870	.88 - 1.09 .57 - .71 .44 - .55 .27 - .33 .20 - .25 .15 - .19	13621A060 (K60) 13621A064 (K64) 13621A076 (K70) 13621A067 (K75) 13621A068 (K78) 13621A111 (K83)	45 70 80 125 175 200
	7.5	24.6		260	420	650	1020	1560	2340	2870	3440	4160				
	10	32.2			310	490	760	1170	1760	2160	2610	3160				
	15	47.4			330	520	800	1200	1470	1780	2150					
	20	60.6				400	610	930	1140	1380	1680					
25	75.0					320	500	750	920	1120	1360					
460V 60 Hz Three Phase Three Wire 6" Motor	5	8.3	590	950	1500	2360	3700	5750					3.53 - 4.37 2.17 - 2.68 1.76 - 2.17 1.07 - 1.32 .76 - .94 .59 - .73	13621A062 (K49) 13621A078 (K54) 13621A061 (K58) 13621A064 (K64) 13621A058 (K69) 13621A099 (K72)	25 30 40 60 80 100	
	7.5	12.3	420	680	1070	1690	2640	4100	6280							
	10	16.1	310	500	790	1250	1960	3050	4680	7050						
	15	23.7		340	540	850	1340	2090	3200	4810	5900	7110				
	20	30.3			410	650	1030	1610	2470	3730	4580	5530				
25	37.5				530	830	1300	1990	3010	3700	4470	5430				
575V 60 Hz Three Phase Three Wire 6" Motor	5	6.4	920	1480	2330	3680	5730						5.93 - 7.16 3.65 - 4.41 2.87 - 3.47 1.70 - 2.10 1.22 - 1.52 1.01 - 1.25	13621A081 (K41) 13621A097 (K52) 13621A105 (K55) 13621A072 (K61) 13621A064 (K64) 13621A058 (K69)	20 25 35 50 70 80	
	7.5	9.8	660	1060	1680	2650	4150									
	10	12.9	490	780	1240	1950	3060	4770								
	15	19.0	330	530	850	1340	2090	3260	3860	5830						
	20	24.2		410	650	1030	1610	2520	3860	5830	4710					
25	30.0			520	830	1300	2030	3110	4710							

50 Hertz

Three Phase Motor Maximum Feet Three Wire Copper Cable

Motor Rating			AWG Wire Size												
Volts	KW	HP	14	12	10	8	6	4	2	1	0	00	000	0000	
220 Volts 50 Hz	2.2	3	250	410	650	1030	1610	2530	3880	4790	5890	7250	8790	10640	
	3.7	5	150	250	390	620	980	1540	2370	2940	3610	4450	5400	6550	
	5.5	7.5	0	170	280	440	700	1090	1680	2080	2550	3140	3810	4620	
	7.5	10	0	0	210	340	530	830	1290	1590	1960	2420	2940	3570	
11	15	0	0	0	230	360	560	870	1080	1330	1640	2000	2420		
380 Volts* 50 Hz	2.2	3	770	1230	1950	3080	4830	7550	11590	14310	17590	21640	26230	31750	
	3.7	5	470	750	1190	1880	2950	4620	7110	8780	10800	13300	16150	19570	
	5.5	7.5	330	530	840	1330	2090	3260	5020	6200	7620	9370	11360	13750	
	7.5	10	250	400	640	1010	1580	2500	3850	4760	5820	7230	8790	10660	
11	15	0	270	430	690	1080	1690	2610	3230	3980	4910	5970	7240		

* 415 and 440 volts may use 115% of table.

Three Phase Motor Maximum Meters Three Wire Square Millimeter Copper Cable

Motor Rating			Metric Cable Size Square Millimeters											
Volts	KW	HP	1.5	2.5	4	6	10	16	25	35	50	70	95	120
220 Volts 50 Hz	2.2	3	50	80	130	200	340	540	820	1120	1570	2130	2680	3310
	3.7	5	30	50	80	120	210	330	500	690	960	1300	1650	2030
	5.5	7.5	0	30	60	90	150	230	350	490	680	920	1160	1430
	7.5	10	0	0	40	70	110	180	270	370	520	710	900	1110
11	15	0	0	0	40	40	80	120	190	250	350	480	610	750
380 Volts* 50 Hz	2.2	3	150	250	400	600	1030	1600	2440	3350	4680	6340	7990	9870
	3.7	5	90	150	240	370	630	980	1490	2050	2870	3900	4920	6090
	5.5	7.5	60	110	170	260	440	690	1060	1450	2030	2750	3480	4270
	7.5	10	50	80	130	200	340	530	810	1110	1560	2120	2680	3310
11	15	0	50	90	130	230	360	550	750	1060	1440	1820	2250	

* 415 and 440 volts may use 115% of table.

4. Splicing power cables to pump

After making sure your power cables are the proper AWG size and specified length, splice them to the pump cables with HS-6 splice kit (used for wire sizes 6 to 14).

D Installation of Pump in Well

1. Before lowering pump

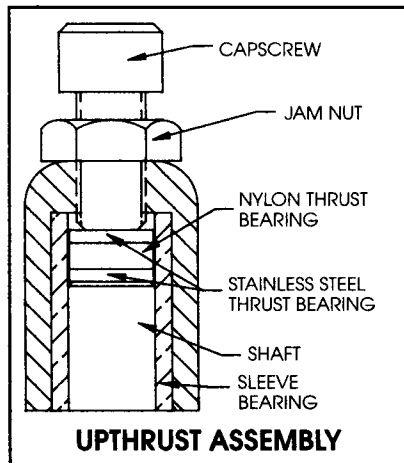
UPTHRUST ASSEMBLY

With the pump coupled to the motor, support the pump and motor assembly in its vertical position.

Loosen the lock nut of the upthrust assembly and tighten the cap screw until it touches the thrust bearing.

Loosen the cap screw 1/2 turn off the pump shaft bearing, and hold it in that position while tightening the lock nut.

This will then prevent the rotating assembly from rising more than 0.040-inch if the pump is started with above-normal submergence, and the cap screw absorbs the resulting upthrust.



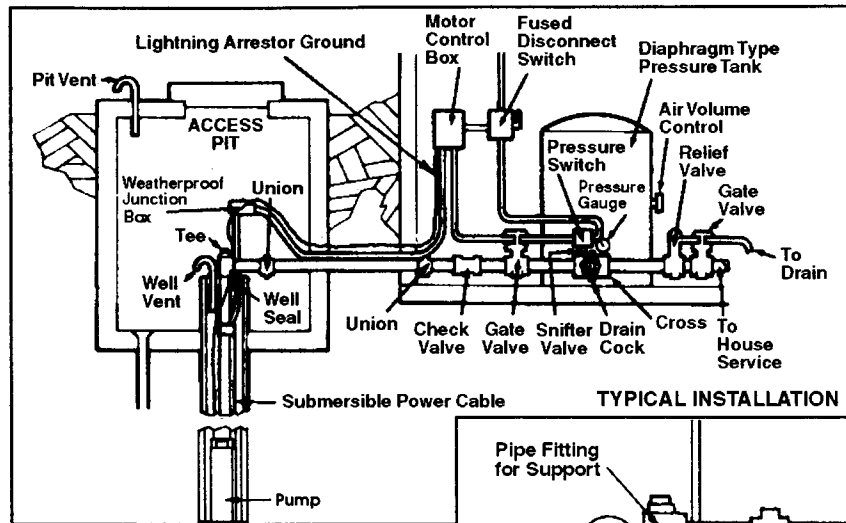
Smooth out any rough spots or sharp edges on the top lip of the well casing with a hammer or metal file to prevent damage to the pump or power cables when lowering into well.

As you add additional sections of galvanized iron pipe, apply pipe compound only to the male threaded ends of each section and tighten to next section.

Tape the power cables to the pipe, straight up from bottom to top. Do NOT spiral cable around the pipe. Use waterproof tape or nylon lock bands every 20 ft. on galvanized iron pipe. Do not allow any excess cable between bands, cable must be as flat against pipe as possible.

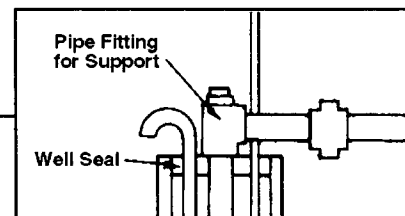
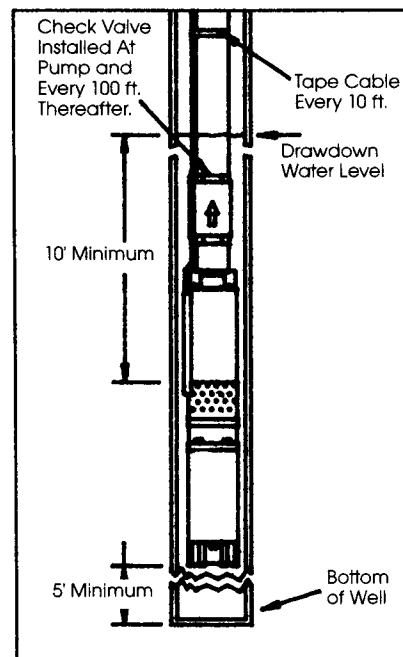
2. Lowering the pump

a) Align pump carefully when beginning to lower it down the well casing. Do not let the pump, cables or pipe drag on the well casing. Take care that cable insulation is not dragged or scraped over the top lip of the well casing.



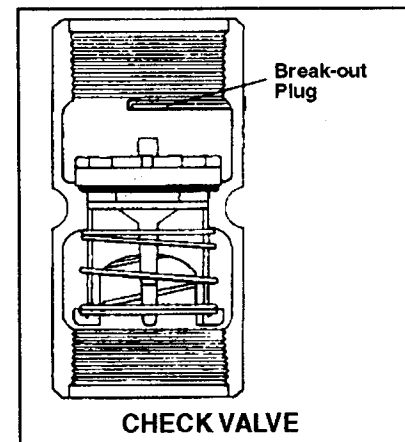
b) Depth of pump setting. Lower pump into well slowly without forcing. (On deep settings, we recommend that a check valve be installed at the pump and every 100 ft. thereafter to prevent water pump. Myers check valving utilize a break-out plug to drain the riser pipe if the pump requires servicing. See diagram.)

Lower pump to at least 10 ft. below the maximum drawdown of the water level, if possible, and never closer than 5 ft. from the bottom of the well.



c) Pipe fitting to support pump. When a well seal is used, either a coupling, elbow or tee is installed on the top end of the last vertical length of pipe and is allowed to rest on the outside of the well seal to support the pipe, power cable, and pump. Most well seals provide a fitting to seal the power cables, but if no such fitting is provided, conduit must be used to protect cables and to prevent water and any foreign matter from leaking into well around cable.

d) Frost-proof pitless installation. In installations where the pipe from the well seal to the water pipe is subject to frost or freezing conditions, a pitless installation is recommended. (See diagram on page 6.)



E

Above-Ground Electrical Connections

1. Connect pressure switch & power cables

The control box must be installed in a clean, dry location and not in a damp pit or in direct sunlight. Extremes of temperature from summer to winter can cause improper action of overload control if installed in the open. Control box must be mounted level in a vertical position.

The 3-phase control boxes for 6-inch motors may have 230/460 dual voltage overload relays. These must be connected for the 230 volt or 460 volt service of the installation in accordance with the wiring instructions in the control box.

Be sure to attach nameplates furnished to the lid of control box. This is the only permanent record of pump size, serial number and electrical data.

Zero ohmmeter properly (RX100K) and again check motor and cable for grounds before connecting the three-wire cable to the control box.

If single-phase current, run two power lines directly from fused disconnect switch to pressure switch line terminals. If three-phase current, use three power lines.

From load terminals in pressure switch, run one wire to L1 and one wire to L2 in the motor control box, if single phase. Run wires to L1, L2 and L3, if three phase.

Motor is protected against overload damage by a thermal type control element. The overload trips under abnormal conditions and is reset by pushing on reset button. **CAUTION:** In resetting overload do not hold in on button. Push in until it clicks, then release. If button does not click it means it has not cooled sufficiently to reset. Do not repeatedly reset overload until cause of overload has been determined.

Wiring around the overload voids guarantee.

2. Fuses for disconnect switch

Power supply is wired directly from the main switch to a separate fused disconnect switch.

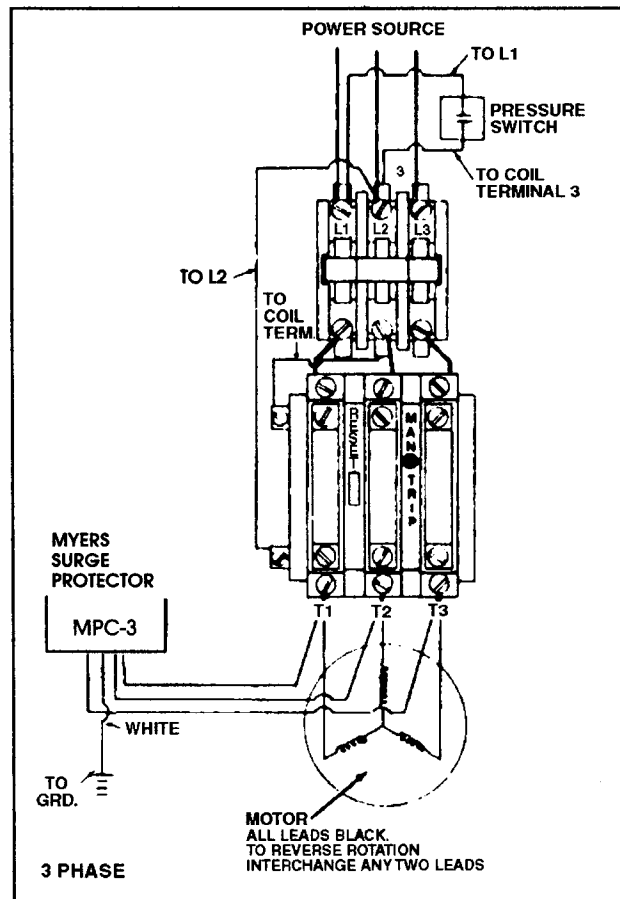
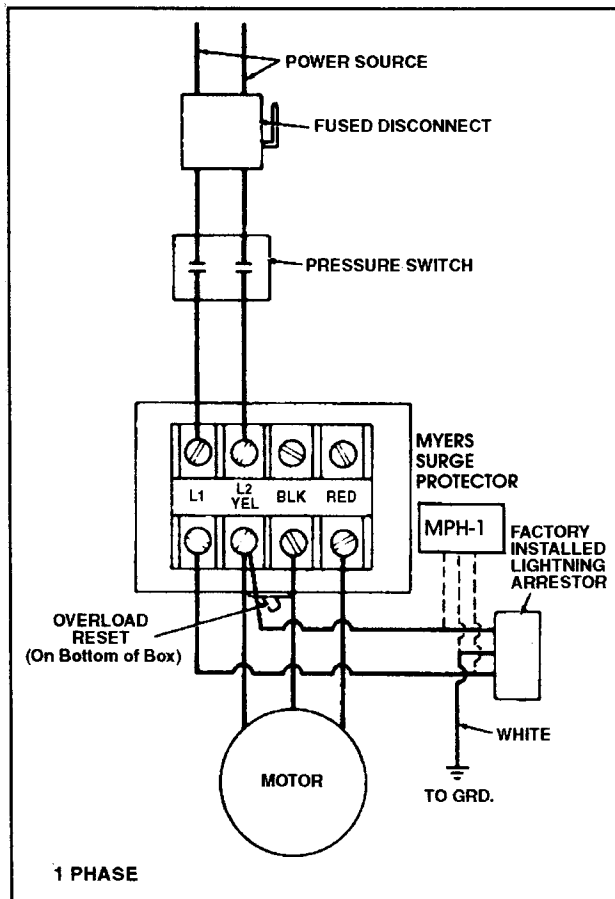
Select power size fuses from the chart on page 3.

3. Lightning Arrestor

A lightning arrestor is strongly recommended on every installation. Arrestor must be installed inside the motor control box or fused disconnect (see diagram).

The best possible ground for a lightning arrestor is the pump body or steel well casing when casing runs below water pumping level. For safety, close the motor control box cover before turning on power.

The Myers protectors no. MPH-1 (1 ϕ) and MPC-3 (3 ϕ) are highly recommended for installations of all pumps especially submersible pumps.



F Above-Ground Pipe & Tank Connections

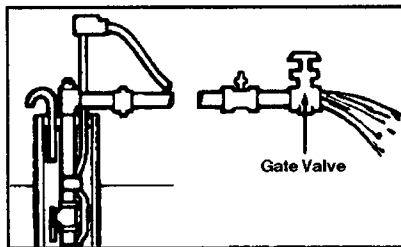
NOTE: Whenever the pump pressure can exceed the pressure rating of the tank, a relief valve must be installed and piped to a suitable drain.

1. Check pump before connecting piping to system

With all electrical connections complete and pump now lowered to desired depth, install a gate valve in the discharge pipe near well for preliminary test run (see diagram). Turn on power. Gradually open gate valve and let pump run until water is clear of sand and other impurities.

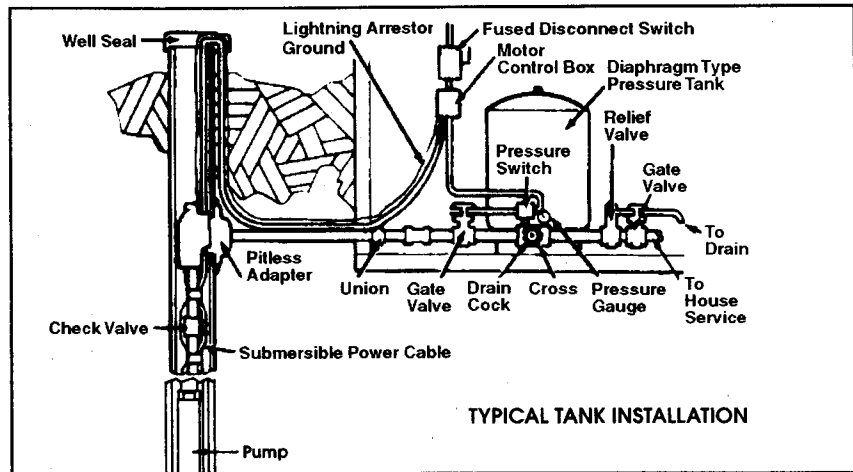
Fully open gate valve. If pump lowers water in the well to a point at which the pump loses its prime, either:

- a) Lower pump further down well (if possible); or,
- b) "Throttle" the pump to the capacity of the well by using a valve.



2. Connecting typical tank system

- a) Connect all piping as shown in diagram.
- b) Precharge tank to specified pressure (see instructions furnished with tank). If the system is to be set to operate at 30/50 pressure settings, the tank should be precharged to 28 psi (or 18 psi if system pressure is to be 20/40). Tank precharge pressure should always be 2 psi below the "cut-in" of the pressure switch.
- c) Start pump. Pressure in tank will build up to cut-off pressure of pressure switch setting.
- d) The system should now operate automatically.





Trouble-Shooting

The vast majority of service calls on waterwell systems are caused by either water-logged tanks or by problems which are electrical in nature.

The Myers Submersible Pump and water-well system should be checked periodically for quality of water, draw-down, pressure, GPM, cycling periods

(how often the pump starts and how long it runs) and proper operation of all automatic controls.

Never operate the pump for long periods of time with the discharge valve closed. This could cause overheating resulting in damage to the pump and its motor. A properly-sized relief valve

should be installed before the tank to prevent the pump from operating with the discharge valve closed.

Familiarize yourself with potential problems and trouble-shooting solutions.

PROBLEM

PROBABLE CAUSE

SOLUTION

Pump won't run

Blown fuse, broken (or loose) electrical connections.

Check fuses, capacitor, relays and all electrical connections.

Pressure switch not closing.

Adjust or replace.

Motor overload protection contacts open.

Contacts will close automatically within short time.

Incorrect control box.

Check and replace if necessary.

Improper wiring connections.

Check wiring diagram.

Low voltage.

Check voltage at control box.

Pump stuck or clogged with foreign matter.

Pull pump and examine.

Pump runs, but no water pumped

Check valve installed backwards.

Reverse and re-install.

Setting too deep for rating of pump.

Check rating table.

Pump not submerged, not deep enough in well.

Lower pump if possible. Check recovery of well.

Pump in mud, impeller plugged or intake strainer clogged.

Pull pump and clean. Check well depth. Raise pump if necessary.

Reduced capacity

Strainer or impellers partially clogged or plugged.

Pull pump and clean.

Corroded discharge pipe.

Replace pipe.

Excessive pump wear.

Pull pump and replace worn parts. Or, replace pump.

Pressure switch won't cut out

Pressure switch not set correctly.

Revise settings: 20-lb. cut-in, 40-lb. cut-out; or 30/50 (depending on tank size).

Water level too low in well for rating of pump.

Check pump setting.

Switch opening clogged.

Clean out openings or, if necessary replace switch.

Excessive wear on parts.

Replace worn parts.

Trouble-Shooting (continued)

**Pump starts too often,
runs too long**

Water-logged tank (loss of air pressure).

Check tanks for leaks. Re-charge with air pressure to proper level. Check air volume control.

Check valve leaks.

Replace or repair.

Pressure switch out of adjustment.

Adjust to proper setting and check to assure setting remains. If not, replace pressure switch.

Leaks in pipe.

Check above-ground piping for leaks. If none, pull pump and check all pipe connections and connection of pipe to pump.

Any or all the above

All known causes are checked but system won't work properly.

Call your Myers dealer, your water-well driller or your waterwell serviceman.

For your reference

Fill in the following information and keep this Installation and Operation Guide among your important papers. Information about your MYERS Submersible Pump will be found on the owner's information-plate. Whenever necessary to contact your dealer or installer, give him this information.

Motor Model No. _____ Pump Model No. _____

HP _____ Phase _____ Volts _____ Cycles _____

Amps: L1 _____ L2 _____ L3 _____ Date of installation _____

Well depth _____ ft. Pump depth _____ ft.

Name of dealer/installer from whom pump was bought _____

_____ Date purchased _____

Myers®

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