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Franklin electric submersible pump owners manual

Franklin electric manual. Franklin electric submersible motor control. Franklin electric pump manual. Franklin electric submersible pump manual. Franklin submersible pump manual.

Given article text here The proper functioning of an electric submersible pump depends on following the guidelines outlined in this manual and respecting the manufacturer's recommendations. It is essential to carefully read and follow the instructions provided, as well as any warnings or precautions mentioned. Before using the pump, verify that the technical data listed on the identification plate matches the order specifications. Additionally, inspect the pump for any damage during transport and report any issues to the manufacturer. ****Important Safety Precautions**** Before installing the pump, inspect it for any damage during shipping and report any issues to the dealer. Ensure that all safety labels are in good condition and replace any missing or damaged ones. When connecting the motor to power lines, follow National Electrical Code, Canadian Electrical Code, and local electrical codes. Ground the motor before connecting to a power supply and disconnect power before working on the pump, motor, or tank. ****Installation Warning**** This equipment is intended for installation by technically qualified personnel. Failure to install it in compliance with national and local electrical codes may result in electrical shock or fire hazard, unsatisfactory performance, and equipment failure. ****Installation Records**** Keep a record of your installation, including: * Purchased from: Date of Installation * Pump Model No. and Date Code * Well inside diameter (in/mm) * Depth of well (ft/m) * Depth of water (ft/m) * Pump setting (ft/m) * Drop pipe size * Wire size (pump to control box) and (control box to power source) * Horizontal offset (between well & house) * Make of motor, ampere rating, HP, Volts, Ph, and make of control box * Power supply voltage and HZ ****Test Running the Pump**** If test running the pump before installation: 1. Ensure that the power supply matches the nameplate on the motor and control box. 2. Install the pump and components as shown in Fig. 1. 3. Make electrical connections as shown in Fig. 2, 3 or 4. 4. For three-phase units, use a magnetic starter with quick-trip and ambient compensated heaters of correct size for the horsepower of the motor. To ensure correct rotation of three-phase units, securely brace the pump shell. Apply power momentarily by quickly flipping the line switch on and off. If the rotation is correct, you'll notice a clockwise reaction when viewed from the pump discharge (i.e., the pump shaft will rotate counter-clockwise). To reverse rotation, simply interchange any two leads at the magnetic starter. Next, run the pump and motor unit for a few seconds to ensure everything is functioning properly. **FIGURE 1 - Installation Diagram Pressure Tank | Sanitary Well Seal/Pitless Adapter | Drop Pipe | Discharge Pipe Submersible Cable | Spring-Loaded Check Valve (Recommended every 100'/30m) | Safety Cable | Submersible Cable (secured to drop pipe with tape or clamps every 10'/3m) | Torque Arrestor | Well Casing | Spring-Loaded Check Valve at Pump Discharge | Submersible Pump Unit | Suction Screen | Motor | Well Screen or Casing Perforations See Wiring Diagrams | Pressure Relief Valve | Pressure Gauge Note: Keep pump at least 5' from bottom of well casing perforations. SUITING WELL** Looking forward to seeing everyone at the meeting tomorrow and discussing our strategies is not relevant to this topic. Reaction time can cause water hammer, which is discussed further on the next page. Check valves are used in submersible installations to eliminate water hammer, but only positive sealing check valves should be used due to drilling or drain-back check valves may create upthrust problems. A. Backspin - Without a check valve, the water flows down the discharge pipe when the motor stops, causing the pump to rotate in reverse direction and leading to early pump or motor failure. B. Upthrust - With no check valve, a leaking check valve, or drilled check valve, the unit starts under zero head condition, causing an uplifting on the impeller-shaft assembly in the pump, which can lead to premature failure of both the pump and motor. C. Water Hammer - If the lowest check valve is above 30 feet from the standing water level, a vacuum is created, filling the void with high-velocity water when the next pump starts, causing hydraulic shock that can damage pipes, joints, and the pump or motor. Water hammer often causes a hydraulic shock that can be heard or felt and should be addressed by shutting down the system and contacting the pump installer. 1. Before securing the pump/motor assembly to the drop pipe, ensure that the lead wires are safely housed under the provided lead guard and that fastening screws are installed correctly. 2. Regularly secure the submersible cable to the drop pipe using clamps or tape every 10 ft (3m) to prevent tangling and damage. 3. Handle the submersible cable with care, avoiding contact with the well casing to prevent pinching or scraping. 4. Conduct insulation and continuity checks on the cable once the pump is installed using an ohmmeter or megger to detect any faults. 5. Ensure proper installation of system check valves, referencing previous sections for guidance on placement, type, and troubleshooting. 6. Install a torque arrestor above the pump to prevent chafing the cable during pump operation. 7. Secure the pump with a safety cable to prevent loss in case of pipe breakage. 8. Use a sanitary well seal or pitless adapter, as recommended by manufacturers, over the top of the well. 9. Keep the pump at least 5' (1.5m) from the bottom of the well and above any well screen or casing perforations. The installation requires a control box with overload relays, which can be depicted in Fig. 3 for single-phase systems. If the pressure switch's electrical rating isn't sufficient to handle the motor's submersible rating, a magnetic contactor must be used, and the pressure switch will then be part of a pilot circuit controlling it. The connections at the control box should follow its wiring diagram to prevent damage to the motor. For three-phase pumps, Fig. 4 illustrates the necessary setup, which includes a magnetic contractor with three-leg protection and quick-trip overload relays. After installation, use an ohmmeter for continuity and insulation checks. Label both the pump and motor, placing them in the disconnect switch or circuit breaker box for future reference. Well performance should be checked before final connection to ensure clear discharge. This involves installing a gate valve, starting the pump, and gradually opening the valve while monitoring water clarity and potential sand issues. Maximum required system flow rate must be achieved without exceeding well yield, which can be monitored by checking the well drawdown level. Running the pump without sufficient water levels can cause damage and airlocks under certain conditions. Given article text here may stop since the pump cannot generate pressure with insufficient water. In this case, the column of water already in the drop pipe holds the check valve closed and an airlock may develop inside the pump. Because the conditions ensure neither adequate lubrication of the pump nor proper cooling for the motor, damage can result if power is not cut off quickly. Use one or more of the following methods to correct and/or protect this installation. 1. Install additional length of drop pipe to place pump lower in well if possible. 2. Install a Franklin Pumptec or similar electronic drawdown sensor. 3. Install a floatless liquid level control. This device consists of an electrical relay activated by currents flowing through the ground-return circuits of electrodes hung in the well. The lower (STOP) electrode, just above the pump, ensures that the water level can never be pumped down to the suction screen. The upper (START) electrode, just below the lowest static water level, ensures that the pump can start again as soon as the well has recovered. A floatless liquid level control works in series with the pressure switch. Refer to the manufacturer's instructions provided with the control. 4. Install a flow control valve in the discharge line upstream from the pressure switch. This restricts the output from the pump without affecting the rate that water can be drawn from the pressure tank. Nevertheless, a heavy demand for water could empty the pressure tank, so a tank with a bonded diaphragm, air cell, or water bag is recommended. 5. Install a smaller pump to avoid over pumping the well. Have a dealer size pump to the well yield. 6. Install a low-pressure cut-off switch. A low pressure cut off switch, or a pressure switch with such an arrangement built in, protects a shallow-well pump from losing its prime, but it does not always provide satisfactory protection to a submersible pump from the effects of over pumping the well. This is because it responds to a loss of pressure at the surface, which may occur after an air lock has formed inside the pump. We recommend either a floatless liquid level control or a flow control valve, in that order, in preference to a low-pressure cutoff switch as protection against over pumping. 6 DISCHARGE PLUMBING Fig. 1 illustrates a typical well installation showing above ground components. Adhere to the following items when installing the discharge plumbing: 1. Install an above ground check valve upstream from the pressure switch. 2. Always install a pressure relief valve in the system. The relief valve should be capable of discharging the flow rate of the pump at the rated working pressure of the pressure tank. Locate the relief valve close to the pressure tank. 3. Install a pressure switch between the check valve and the pressure tank. Refer to Fig. 2, 3, or 4 for proper wiring connections of pressure switch. 4. Install a pressure tank as close as possible to the pressure switch. Refer to manufacturer's recommendations for installation. **TROUBLESHOOTING 1. PUMP FAILS TO START** a) Electrical trouble - call dealer or electrician. b) Drawdown protection device has pump turned off. c) Overload tripped. d) Reset low pressure cutoff switch (if installed). 2. **PUMP FAILS TO DELIVER** 1. Reduced Pump Output a) Insufficient well yield b) Worn pump c) Clogged intake screen d) Low voltage e) Incorrect rotation (3-phase only) 2. Frequent Pump Cycling a) Excessive pressure drop between pressure switch and pressure tank b) "Cut-in" pressure at pressure tank too high c) "Cut-out" pressure at pressure tank too low d) Waterlogged pressure tank e) Close proximity of start and stop electrodes f) Tank size too small for system requirements 3. Overloads a) Electrical issues - contact dealer or electrician 4. Rapid Pressure Switch Cycles a) Pressure switch placement b) Adjust air charge according to manufacturer's recommendations The product's use and limitations are governed by its instructions. The seller and company disclaim liability for any damage, injury, or loss resulting from the product's use or inability to use it, including consequential damages. The buyer agrees that no other remedy is available beyond this limited warranty. This exclusive warranty replaces any other express or implied warranties, including those of merchantability or fitness for a particular purpose. Any oral statements about the product do not constitute warranties and are not part of the sale contract. The company's only obligation is to replace or repair the product as described above. The user must determine the product's suitability for their intended use and assumes all risk and liability associated with it. Some jurisdictions may not allow the exclusion or limitation of implied warranties or incidental/consequential damages, so this warranty may not apply in full. This warranty provides specific legal rights, and additional rights may vary by state or country. 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