INSTALLATION AND SERVICE MANUAL

REPCO CONTROLS STANDARD ELECTRICAL PANELS

WARNING: Before handling these controls always disconnect the power first.

Do not smoke or use sparkable electrical devices or flames in a gaseous or possible septic sump

PANEL PREPARATION: Prior to installing the control panel, tighten all screws and nuts. Make sure that all electrical connections are secure.

INSTALLATION INSTRUCTIONS

ELECTRICAL CONNECTIONS

The contractor must conform to the latest requirements of the National Electrical Code. All conduit and cables shall be in accordance with NEC code NFPA #70.

Prior to conducting any installation, repair or service with regard to the control panel, refer to the schematic appropriate for the panel. The schematic will provide guidance with regard to the terminal block connections.

Make the Following Electrical Connections:

Connect all the control leads to the appropriate panel terminal blocks. Contractor must be very careful in locating the floats at the proper elevations.

Connect the pump leads to the control panel. When connecting the pump leads it is very critical that the proper sequence be maintained. On single phase pumps, connect the proper color coded pump leads to the appropriate leg of the overload relay as directed by the control schematic.

Before connecting power to the control panel, make sure all control switches (I.e. H-O-A switch) and protective devices (I.e. breakers) are in the off position. Now connect power to the terminal block or the circuit breaker as directed by the schematic.

Control panel must be grounded properly per EC and/or local codes. To facilitate this a ground lug is provided on the control panel.

Field Wiring

Provision is made in the standard REPCO CONTROLS panel to allow routing of the high water alarm float leads to the alarm panel. This is necessary because all float leads emerge from the wet well in a common conduit. Refer to the appropriate schematic for details. If a separate conduit is used for the high water float leads from the wet well, these can be routed directly to the alarm panel and need not interface with the control panel.

START UP CHECK LIST

WARNING: Before handling controls, always disconnect power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

Check List:

1. Check junction box for moisture. Moisture may cause chattering of relays/contactors.
2. Energize control panel. (Turn on power to panel.)
3. Check overload relay and verify reset mode (if overload is supplied).
4. **WARNING!** LIVE VOLTAGE CAN KILL! Check voltage to the panel and at secondary of control transformer using a voltmeter. If no transformer is supplied, check voltage at the circuit breakers.
5. Check response of control panel to the control operation. For sequence of operation refer to design

specification.
6. Check full load current with amprobe and compare it with the nameplate rating. (Clamp amprobe around one phase.)
7. With pump running, check discharge to verify the pump is running. Check for flow.
8. Check voltage with voltmeter and amperage with amprobe at overload.
9. Check operation of start relay if supplied on single phase panels per procedure in item #7 of Maintenance instructions below.
10. Make sure H-O-A switch is left in the "Auto" position after start-up is completed.

Pump Start Up:
Check the Pump Manuals

PERIODIC MAINTENANCE

Warning: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

Maintenance
The periodicity of the maintenance schedule will vary with operating and environmental conditions. It will also vary with the specific type of control supplied. The list herein is a guide only.
1. Exercise breaker through two cycles. Be careful not to over-exercise as the breaker is not a switching device. Excessive operations tend to affect the trip curve of the breaker.
2. Check contractors and relays for excessive humming. This can be accomplished by turning pumps on and off in the hand and off modes with the H-O-A switch.
3. Check bulbs in all fixtures.
4. Check continuity through control fuses.
5. Check voltage at primary and secondary of control transformer.
6. Check the pump full load amps.
7. Check the start relay (if supplied) by using an amprobe around the red wire (start winding). Amprobe should display a very brisk action from zero to locked rotor and back to operating load. This action occurs on pump start and the action must show no lazy movement. For further details, consult the factory.
8. Check junction boxed for moisture. Moisture may cause chattering of relays and contractors.
9. Check door gasket for integrity. This can be a visual inspection.
10. Check labels to verify they have not been damaged.
11. Lubricate enclosure hinges.

SPARE PARTS LIST
The following is a list of recommended spare parts; however conditions of service vary significantly and a general list may not in its entirety be applicable to a given installation. The user should exercise judgment in defining his specific requirements based on this guide.
1. Fuses
2. Contactor.
3. Control relays
4. Bulbs for lights
6. Control transformer. (If Needed)

TROUBLESHOOTING CHART
1. **Warning:** Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a gaseous or possible septic sump.

2. Pump does not run in hand position.
   a. Check pump circuit breaker, control circuit breaker and control fuses for tripped or blown condition.
   b. Check overload relay to see if it is tripped. Reset relay if tripped.
   c. Check wiring of pump to control panel. It should agree with the schematic.
3. Pump does not run in auto position.
   a. Check items a. through c. per item #1 above.
   b. Floats may be mis-wired to control panel. Check type (NC) and hook-up by referring to the schematic. If start and stop are hooked in reverse, pump will short cycle and will not pump the level down.
   c. The alternator could be defective. Operate panel through a few cycles to check alternator operation.
4. Pump runs but green light does not energize.
   a. Check the bulb.
   b. Check for loose wire at light or in panel.
5. Pump runs but does not pump
   a. Pump rotation may be wrong. Wiring of pump to control panel may be reverse sequenced.
   b. Impeller may be dragging in volute due to solids. High ampere draw would identify this.
   c. Refer to the pump manual for other possibilities such as closed discharge gate valve, etc.
6. Severe humming/chattering of contactors and control relays.
   a. There may be low voltage. Check voltage at primary and secondary of control transformer using a voltmeter. This low voltage condition may even cause severe chattering and burn-up relays.
   b. Contactor may have dust around magnet of coil structure. Dry or clean as required.
   c. Check voltage to the control panel. Contactors require a minimum of 85% of full voltage to pull in without chatter. If the problem is a chronic one, measure voltage with recorder on a 24 hour basis.
   d. Dry out the junction box (if furnished); moisture in the junction box may tend to cause relays to energize intermittently.
7. Nuisance tripping of overload on motor starters or circuit breakers.
   a. Check all reset buttons and tripped breakers.
   b. Check pump amp draw with amprobe and compare to name-plate amps on pump.
   c. The impeller may be locked up.
   d. Possible motor failure (fault on windings.)
   e. Pump may be mis-wired to terminal block.
8. Run light stays on. Selector switch may be in the hand position.
9. Test for blown fuse. Check for continuity with a V-O-M set on OHMS scale.