

norweco® **SINGULAIR**®

INTEGRATED SYSTEM CONTROLS

SINGULAIR® SYSTEM FINAL CHECK & SYSTEM START-UP

When Singulair wastewater treatment systems are installed in conjunction with effluent disposal systems requiring pumping, the optional integrated system controls allow both aerator and pump operations to be controlled from a single panel. Based on the specific Singulair model number and the corresponding quantity of aerators and effluent pumps required, integrated system controls are available in simplex aerator/simplex pump, duplex aerators/simplex pump and duplex aerators/duplex pumps configurations. Optional features allow chemical level monitoring, failsafe pump control and telemetry.

These instructions are directed only to the specific requirements of the optional integrated system controls. They are not intended to cover all aspects of preliminary inspection of the Singulair system. Additional instructions are contained in Bio-Kinetic wastewater treatment system Singulair System Final Check and System Start-up.

PRELIMINARY ELECTRICAL INSPECTION

CAUTION: Before initiating any electrical component inspection, turn off all power to the Singulair system and test for voltage with the electrical multi-meter from the Service Pro Tool Kaddy. Inspection and repairs should always be made by a qualified electrician using proper procedures and safe tools. Make sure all circuits are properly grounded. Do not stand in damp locations when making electrical system tests. Always use tools with insulated handles for electrical repairs. Inspect the Singulair integrated system controls for damage that may have occurred after its installation. Inspect all visible wiring to and from the control center. Report any damage to the owner at once. Any damage must be corrected before proceeding with electrical testing.

Make sure that the circuit breaker which supplies power to the Singulair system from the main electrical service panel is in the "off" position. Open the control center cover and make sure all circuit breakers and selector switches are in the "off" or "normal" position. Proceed to the Singulair system and unplug each watertight electrical connector. Secure the closure cap in position on each electrical connector and return to the control center.

VOLTAGE TEST OF CONTROL CENTER

Energize the circuit breaker in the main electrical service panel, as well as all circuit breakers in the integrated system controls. If the control center is equipped with the optional failsafe pump control feature, the alarms may activate. If this occurs, place the ALARM SILENCE switch in the "silence" position. Remove the electrical multi-meter from the Tool Kaddy to test the voltage being supplied. Set up the meter to read AC voltage on the 0-150 volt scale. Place one probe of the meter on the terminal marked L1 and one probe on the adjacent terminal marked N. It should read between 109-121 volts. If it is within these limits, place one

probe of the multi-meter on one of the terminals marked A1 and one probe on the adjacent terminal marked N. The meter should read 0 volts. Repeat this step for all other terminals marked AERATOR POWER. If zero voltage is indicated at all terminals marked A1 or A2, move the control center selector switch to the "continuous" position and the ALARM SILENCE switch to the "normal" position. The meter should now read the same as the incoming voltage between each set of terminals marked AERATOR POWER. Check the voltage at all sets of terminals marked A1 or A2 and N. If the voltage reads the same as incoming voltage, move the control center selector switch to the "automatic" position. Rotate the aerator timer knob until voltage is read. The meter should now read the same as the incoming voltage between each set of terminals marked AERATOR POWER. Manually rotate the aerator timer knob approximately 1/2 turn until the meter reads 0 volts. Once these readings are confirmed for all sets of terminals marked AERATOR POWER, place the aerator selector switch in the "off" position.

ALARM TESTING

Test the alarm functions by placing the SYSTEM TEST switch in the "alarm test" position. The audible alarm should sound and the warning lights should illuminate. Place the ALARM SILENCE switch in the "silence" position. The audible alarm should not sound, but the all warning lights should continue to illuminate. Return both the SYSTEM TEST and ALARM SILENCE switches to the "normal" position.

Place the control center selector switch in the "continuous" position. Test the yellow aerator alarm light by de-energizing the aerator circuit breaker. The yellow aerator alarm light should illuminate and the audible alarm will sound. Re-energize the aerator circuit breaker.

Check the pump tank to see that all floats are hanging down, which is the "off" position. Place one probe of the

SINGULAIR® SYSTEM FINAL CHECK & SYSTEM START-UP (Cont.)

multi-meter on a terminal marked P1 and the other probe on the adjacent terminal marked N. The meter should read 0 volts. Repeat this step for all other terminals marked PUMP POWER. If zero voltage is indicated at all terminals marked PUMP POWER, be sure the trippers on the pump timer in the enabled (outboard) position are in alignment with the triangular indicator on the inner face of the timer unit. At the pump tank, raise the lowest float (in the case of a 3 float pump station, or the lowest two floats in the case of a 4 float pump station), and secure them in the vertically "up" position. Return to the control center and again check the voltage at the terminals marked PUMP POWER. One set of terminals in the simplex pump panel and one of the two sets of terminals in the duplex panel should now read the same as the incoming voltage. Rotate the pump timer dial clockwise until the trippers in the disabled (inboard) position are in alignment with the triangular indicator on the inner face of the timer unit. All sets of PUMP POWER terminals should now read zero volts. In the case of a duplex pump panel, rotate the pump timer dial clockwise until the trippers in the enabled (outboard) position are in alignment with the triangular indicator on the inner face of the timer unit. Again, check the voltage at the terminals marked PUMP POWER. The alternate set of terminals should now read the same as the incoming voltage.

Return to the pump tank, invert the alarm float and secure it in the vertically "up" position. The audible and red visual alarms should be activated. Invert the highest float to a vertically "up" position and secure it. Check the voltage at all sets of terminals marked PUMP POWER. The meter should now read the same as the incoming voltage at each set of terminals. Return all floats to their vertically "down" position. If the integrated control center is equipped with duplex pump controls, press reset. The audible alarm should stop sounding and the red warning light should go off.

Check to make sure the trippers on the pump timer are enabled only during the time required by local regulations. Turn the outer ring dial of the pump timer until the correct time of day is currently displayed opposite the triangular indicator on the inner ring of the timer. Place the aerator selector switch in the "off" position.

OPTIONAL TELEMETRY SYSTEM

Systems equipped with the optional telemetry feature must be programmed prior to being placed into operation. Begin programming the auto-dialer by placing the power switch on the dialer in the "on" position. Press the MODE button to select the PROGRAM mode. "Program" should appear on the dialer display. Press all of the digits of the first number to be dialed. The display can be used to check accuracy, as it will display every number pressed. Momentarily press the MEMORY button after the entire phone number has been entered. Next, press the 1 key. This number is now stored in memory location 1. To program a phone number into memory location 2, enter all of the digits for the second

member to be dialed, momentarily press the MEMORY button, then press the 2 key. Repeat this process for memory locations 3 and 4, if desired.

Record an outgoing voice message that identifies the location of the Singulair system by locating the microphone in the lower right corner of the speaker. When recording a message, talk of a normal voice about 10 inches from the microphone. Place the unit in the PROGRAM mode by pressing the MODE button. Next, press the 1 button. To record, press and hold the VOICE button down to initiate the 16 second recording process. The word "Voice" will appear on the display during recording. The VOICE button must be pressed for the entire time of recording. When the VOICE button is released, the word "Voice" will disappear from the display indicating that the recording process is complete.

To test the telemetry system, first notify all individuals that the system is programmed to call. Next, place the SYSTEM TEST switch in the "alarm test" position. The audible and visual alarms should activate. The audible portion of the alarm may be disabled by placing the ALARM SILENCE switch in the "silence" position. The dialer system is equipped with a built in three minute delay. After three minutes, the display should read "Alarm On." Allow the system several minutes to dial out. Place the SYSTEM TEST switch back into the "normal" position. Press the MODE button on the dialer until the display reads "Operate." Call each number the dialer was programmed to call and verify that the recorded voice message was received.

CHEMCHECK® CHEMICAL DETECTION SYSTEM

Systems equipped with the optional ChemCheck Chemical Detection System should be tested prior to being placed on line. Insure that the two ChemCheck system leads are connected properly inside the control center to the two terminals labeled CL. The ChemCheck alarm can be tested by measuring the resistance between the two system leads. When there is slack in the line connecting the weight to the device cap an ohm meter will register a closed circuit. With the weight fully extended, an open circuit should be recorded. In alarm state a blue light and audible alarm will activate. For complete installation information reference Dry Chemical Feed System ChemCheck System Installation

Complete all of the remaining procedures outlined in Bio-Kinetic wastewater treatment system Singulair System Check and System Start-Up and conduct the polarity and voltage test for each Singulair system aerator connection.

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and wastewater treatment*

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