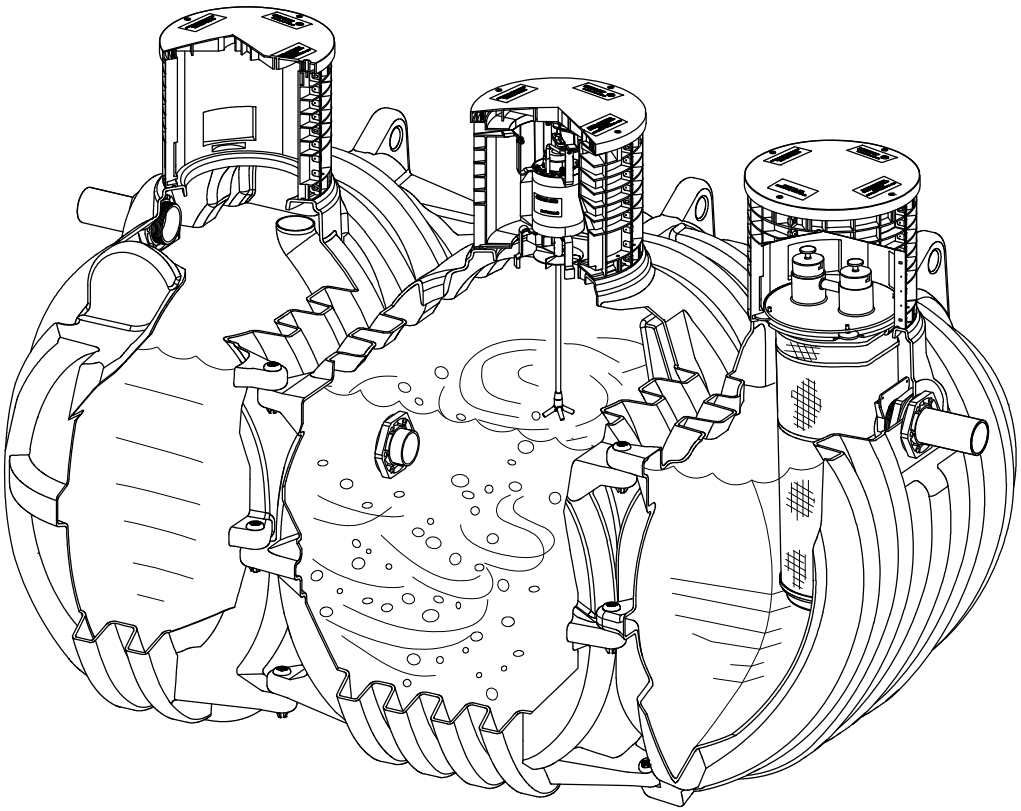
SINGULAIR GREEN®

INDIVIDUAL HOME WASTEWATER TREATMENT PLANT with

BIO-KINETIC® SYSTEM



PROGRESS THROUGH norweco® SERVICE SINCE 1906

OREGON OPERATION & MAINTENANCE STANDARDS

norweco® SINGULAIR®

BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

STATE OF OREGON SERVICE CONTRACT

This two year service contract has been developed for Singulair Bio-Kinetic wastewater treatment systems installed within the State of Oregon. This service contract is intended to enable the owner to economically obtain regular service inspections for the Singulair unit, as well as non-scheduled or emergency service that may be required by a qualified service provider. When this contract is in force, the owner will not be charged for any routine service labor. Under the terms of this service contract, a service provider will regularly inspect the plant at six month intervals. This service contract shall remain in effect for a period of two years, as specified in the effective and expiration dates, unless otherwise terminated or cancelled by either party provided herein.

SINGULAIR SYSTEM CUSTOMER

Name:_____

Address:_____

City, State, Zip Code:_____

Telephone:_____Email:_____

SINGULAIR SYSTEM LOCATION

Address:_____

City, State, Zip Code:_____

Legal Description:_____

System Installation Date:_____

Effective Date:_____ Expiration Date:_____

SINGULAIR SYSTEM SERVICE PROVIDER

Name:_____

Address:_____

City, State, Zip Code:_____

Telephone:_____Email:_____

REGULATORY CONTACT INFORMATION

Name:_____

Address:_____

City, State, Zip Code:_____

Telephone:_____Email:_____

Now, therefore, in consideration of the terms, provisions, covenants and conditions contained herein, the parties hereto agree as follows:

PERFORMANCE OF SERVICES

The authorized Singulair service provider shall perform system inspection/service visits during the two year period after installation, as shown in the diagram:

Inspection / Service Visits[1]

3 to 6 months_____
6 to 12 months_____
12 to 18 months_____
18 to 24 months_____

Alarm Response
Other Services[2]

System Monitoring_____
Reporting_____

[1]As required by NSF International, these services will be included as part of the initial purchase of the system for the first two years of system operation.

[2]These services may be paid for during purchase or at a later date, when the work is performed.

SERVICE PERFORMANCE RECORD

These services shall be performed during normal business hours Monday through Friday (excluding national holidays) on a prescheduled basis and as the authorized Singulair service provider deems necessary or advisable.

At each service visit, the Singulair system shall be inspected and serviced in accordance with the instructions in the Singulair Service Manual. Additionally, an effluent quality inspection consisting of a visual assessment of color, turbidity and scum overflow and an olfactory assessment for odor shall be performed.

STATE OF OREGON SERVICE CONTRACT (Cont.)

The service provider shall provide emergency service within 48 hours of a service request. The service provider shall also be responsible for submitting the annual report and annual evaluation fee to the appropriate regulatory agency as required in OAR-071-0345.

The Singulair service provider shall notify the owner in writing if any improper system operation cannot be remedied at the time of servicing. The written notification shall include an estimated date of correction.

DEFINITIONS

For purposes of this service contract, the following definitions shall apply:

"System Monitoring" - shall include the collecting and processing of data transmitted by telemetry, PDA, laptop computer or other for evaluating the operating parameters of the treatment system, including alarm notification. It shall also include all sampling and laboratory information.

"System" - shall mean a Singulair Bio-Kinetic wastewater treatment system.

"System Start-Up Date" - shall mean the date the Singulair system begins operating for its intended purpose.

CHARGES

Basic services, including service, inspection, effluent quality evaluation and service shall be included with the purchase of the Singulair system. Optional, additional services shall be provided at the agreed upon contract price and terms. The annual report and annual evaluation fee required by DEQ is not optional and may or may not be included in the cost of basic services. Refer to the service provider's fee schedule for an outline of the cost of basic services and optional services to be provided under this contract.

WARRANTY

The Singulair service provider warrants that all services shall be performed in a good and workmanlike manner and that the service provider will correct any Singulair system errors, malfunctions or defects directly caused by the service provider's failure to perform the services and additional services in such manner.

LIMITATION OF LIABILITY

The sole liability of the Singulair service provider under this agreement shall be to correct any errors, malfunctions or defects in the system directly caused by the Singulair service provider's failure to perform any services in a good and workmanlike manner pursuant to the charges outlined above. In no event shall the service provider's liability to the customer hereunder exceed the total of the amounts paid to the service provider hereunder by the customer. In no event shall the Singulair service provider be liable to the customer or any third party claimant for any indirect, special, punitive, consequential or incidental damages or lost profits arising out of or related to this service contract or the performance or breach thereof, whether based upon a claim or action of contract, warranty, negligence or strict liability or other tort, breach of any statutory duty, indemnity or contribution or otherwise, even if the service provider has been advised of the possibility of such damages.

SERVICE CONTRACT TERMINATION/CANCELLATION

Service contracts may be terminated or cancelled only upon:

- Written notice by one party effective as of the effective date thereof if the other party is in default of any provision of this agreement and such default is not cured by the defaulting party within fifteen (15) days after the effective date of said notice from the non-defaulting party or by the mutual written agreement of both parties.
- Copy of such written notice shall be forwarded to the regulatory agency.

MISCELLANEOUS PROVISIONS

This agreement is personal in nature and may not be delegated, assigned or transferred by either party without prior written consent of the other party. The laws of the State of Oregon shall govern this agreement.

The homeowner shall be responsible for complying with the Singulair Owner's Manual provided to them with the purchase of the system.

Any notice or other communication required or permitted to be given under this agreement shall be in writing and shall be mailed by certified mail, return receipt requested, postage prepaid, addressed to the parties at the addresses shown on the first page of this contract. Any notice or other communication shall be deemed given at the expiration of the second day after the date of deposit in the United States mail. These addresses to which notices or other communications shall be mailed may be changed from time to time by giving written notice to the other party as provided in this section.

SINGULAIR SYSTEM PROVIDER

Name/Title:_____

Signature:_____Date:_____

SINGULAIR SYSTEM CUSTOMER

Name/Title:_____

Signature:_____Date:_____

MANUFACTURED BY

norweco®

Engineering the future of water and wastewater treatment

NORWECO, INC.
NORWALK, OHIO
U.S.A. 44857
www.norweco.com

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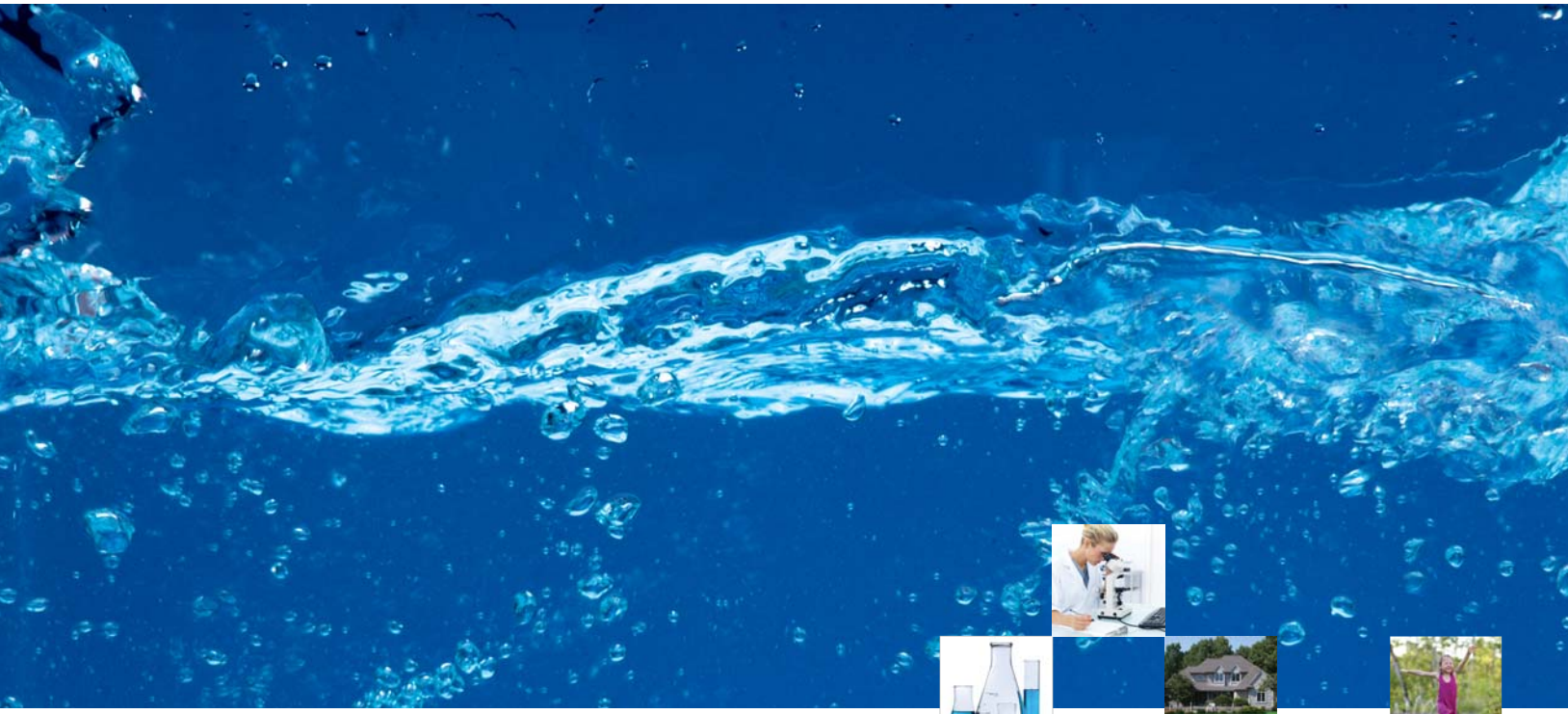
SINGULAIR GREEN®



norweco®

Engineering the future of water and wastewater treatment

SINGULAIR GREEN®

The best treatment system is now even better, with simplified installation and competitive pricing

We've been providing progress through service since 1906. The Singulair Green aerobic wastewater treatment system incorporates our advanced aerobic treatment process into a durable, watertight polyethylene tank. Easily installed at even the most difficult jobsite with just a backhoe, the integral support ribs insure the structural integrity of the Singulair Green tank, while the four step Singulair treatment process flawlessly transforms domestic wastewater into clean, odorless effluent in less than 24 hours.

Providing a treatment solution for any property not connected to centralized sewers, Singulair Green is the most advanced and versatile treatment system on the market.

solutions in wastewater treatment

Norweco distributors, dealers, installers and service providers are located throughout North America and much of the rest of the world. Research, product development, manufacturing, marketing and sales support are conducted inside our offices and factory in Norwalk, Ohio USA. Everyone at Norweco is committed to shaping the future of our industry.

engineering the future

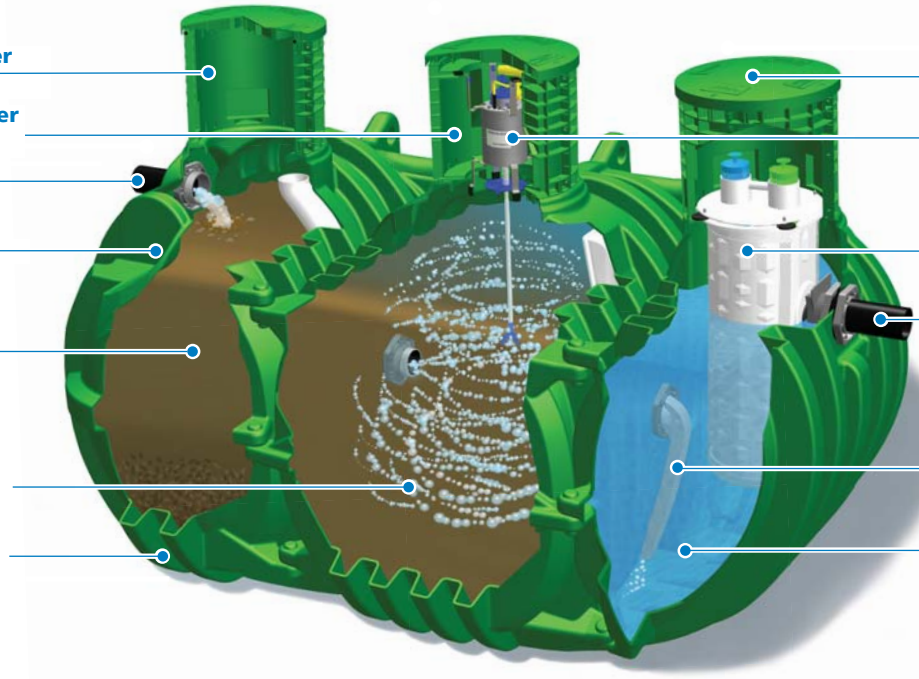
of water and wastewater treatment

Specify Singulair Green®

Your local Norweco distributor is fully trained to install your Singulair Green system and any other Norweco product you choose to protect your environment. Each of our dealers has completed a nationally accredited Singulair Green factory-training program.

The Singulair Green system comes to you complete, including delivery, tank setting, equipment installation, plant start-up and service. A series of service and adjustment inspections are scheduled for the first two years of operation at the time your system is installed. These inspections are included in the sale so that your system continues to perform at the highest level to protect you and your investment. Extended service contracts are also available from your Norweco distributors and dealers.

Install with confidence when using a Singulair Green® complete onsite wastewater treatment package



U.S. and Foreign Patents Granted and Pending

Inlet
Untreated wastewater enters the system here.

Pretreatment Chamber
Wastewater enters at the Singulair inlet and is equalized here as anaerobic bacteria and gravity precondition it.

Aeration Chamber
Here, safe, living aerobic bacteria convert the wastewater into stable substances. Flow equalization maximizes this biological oxidation and assures 24-hour retention and treatment of all wastewater flow.

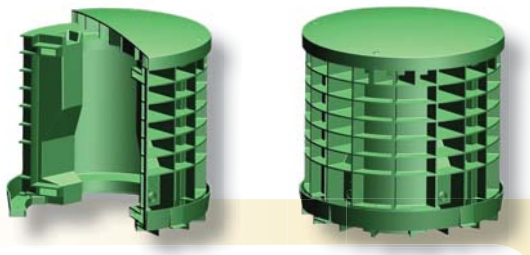
Clarification Chamber
Flow equalization enhances settling of biologically active substances inside the Clarification Chamber where wastewater is converted to a clarified liquid.

Bio-Kinetic System
Combines filtration, settling, flow equalization and adjustable outlet weir into a single, revolutionary package. Liquids exit the perimeter settling zone through the flow equalization ports. These ports control the flow through all upstream and downstream processes and regulate the amount of liquid that can enter the Bio-Kinetic system.

Outlet
A flow equalized, treated, clear, safe and odorless liquid exits the system for return to your environment.

Aerator provides complete treatment
Powered by our 1725 RPM, 115 volt, fractional horsepower motor, the quiet, reliable aerator is economical to operate, reduces heat build up and dramatically increases bearing life. Each aerator is ANSI/NSF certified to operate only 30-minutes per hour.

Polyethylene Tank
Rotationally molded, UV stabilized high density polyethylene, plus strategically located ribs, result in uncompromising tank integrity. Installation is quick and easy, with long term performance assured.



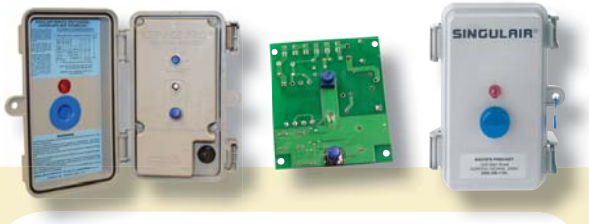
UV Protected Molded Risers with Sealed or Vented Lids
INJECTION MOLDED RISERS AND LIDS ARE INCLUDED WITH EVERY SYSTEM. ALL RISERS AND COVERS ARE SEALED TO THE TANK WITH O-RINGS AND TAMPER RESISTANT FASTENERS. ADDITIONAL RISERS CAN BE ADDED TO FIT SPECIFIC JOBSITE REQUIREMENTS.

Progress Through Service Since 1906. Ultimately, our success over all these years boils down to perceived, appreciated and consistently delivered service to our customers.

customer focus

Consider the facts:

- The Singulair Green treatment unit is certified to NSF Standard 40. Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) have certified and/or listed all electro-mechanical equipment and components. These listings provide you the highest safety, reliability and quality.
- Contained in a rugged, heavy duty, UV protected polyethylene tank, the Singulair Green treatment system weighs less than 900 pounds and can easily be installed with a backhoe.
- 48-hour retention in the Singulair Green system reduces tank pumping frequency as compared to other systems that have a smaller capacity.
- System operating costs are low. The only electrical component is our low RPM Singulair aerator.
- Durable, reliable components are safely installed out of sight, below grade. No exposed power cords, compressors, equipment or air lines that are above ground and accessible to children or pets.
- The patent-pending internal and external ribbed design assures long term tank integrity and minimizes the potential for tank damage due to careless pumping or hydraulic forces.
- The robust tank design and integrally molded internal walls allow Singulair Green to be installed up to three feet below grade. Injection molded risers and lids, with tamper resistant fasteners, provide security, strength and safety.
- Single tank convenience; the Singulair Green contains pretreatment, aeration, clarification, filtration, flow equalization, optional disinfection and dechlorination all in one compact treatment unit. The need for additional treatment system tankage is eliminated.
- The inherently strong ribbed-arch shape of the Singulair Green tank allows the use of most native soils for backfill and minimizes the need for water during the installation process.
- The Singulair Green system automatically equalizes influent and effluent flow through all stages of the treatment process. Even during periods of extreme hydraulic or organic overload, effluent quality is maintained. Variations in flow do not affect treatment performance or system operation.
- Your local, factory-trained, certified and licensed Singulair Green dealer sells, installs and services every wastewater treatment system with pride. You'll find their name and address conveniently posted on the control center cover.



SERVICE PRO® Control Center

EVERY SINGULAIR AERATOR IS INSTALLED WITH A SOLID STATE ELECTRICAL CONTROL CENTER. EACH IS EQUIPPED WITH RESETTABLE CURRENT SENSOR, ON/OFF SELECTOR SWITCH, RED WARNING LIGHT, TIME CLOCK, AUDIBLE ALARM AND OPTIONAL FCC LICENSED AUTODIALER FOR REMOTE MONITORING OF INDIVIDUAL SYSTEM COMPONENTS.

Today's Answer for the Protection of Tomorrow's Environment

comprehensive protection, guaranteed

Singulair Green is warranted against defects in material and workmanship under normal use and service by a comprehensive Lifetime Warranty and Exchange Program. The 3 year Limited Warranty and Lifetime Exchange program covers all electro-mechanical components in the system.

An impressive list of installations including the Army Corps of Engineers, FHA, Department of Energy, numerous Fortune 500 firms, the Atomic Energy Commission, Department of Defense, U.S. Department of Natural Resources and USEPA funded projects demonstrate the field proven acceptability of Norweco's products. Quality products, serviced by local experts, have earned Norweco a long-standing reputation for excellence.

Other Products

Modulair® Wastewater Treatment Plants
FOR SEMI-COMMERCIAL APPLICATIONS

Travalair® Wastewater Treatment Plants
FEATURING AUTO SLUDGE AND SKIMMER SYSTEM

norweco®
Engineering the future of water and wastewater treatment

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Norwalk, Ohio, U.S.A. 44857-1156
PH: 419.668.4471
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www.norweco.com

The Singulair Green Bio-Kinetic System components have been listed, licensed and/or certified by each of the following agencies and organizations.

Progress Through Service Since 1906

We engineer, manufacture, install and maintain advanced water and wastewater treatment technologies for residential properties, communities and commercial properties that are not connected to sewer lines. Norweco treatment systems are in service all over the world.

Norweco®, Norweco.com®, Singulair®, Modulair®, Travalair®, Singulair Green®, Lift-Rail®, Microsonic®, Bio-Dynamic®, Bio-Sanitizer®, Bio-Neutralizer®, Bio-Kinetic®, Bio-Static®, Bio-Gem®, Bio-Max®, Bio-Regeneration®, Bio-Perc®, Blue Crystal®, ClearCheck®, ChemCheck®, Service Pro®, Grease Buster® and "BUSTER" logo are all registered trademarks of Norwalk Wastewater Equipment Company, Inc.

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norweco®

SINGULAIR GREEN® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

MODELS 960 AND TNT WITH SERVICE PRO® CONTROL CENTER

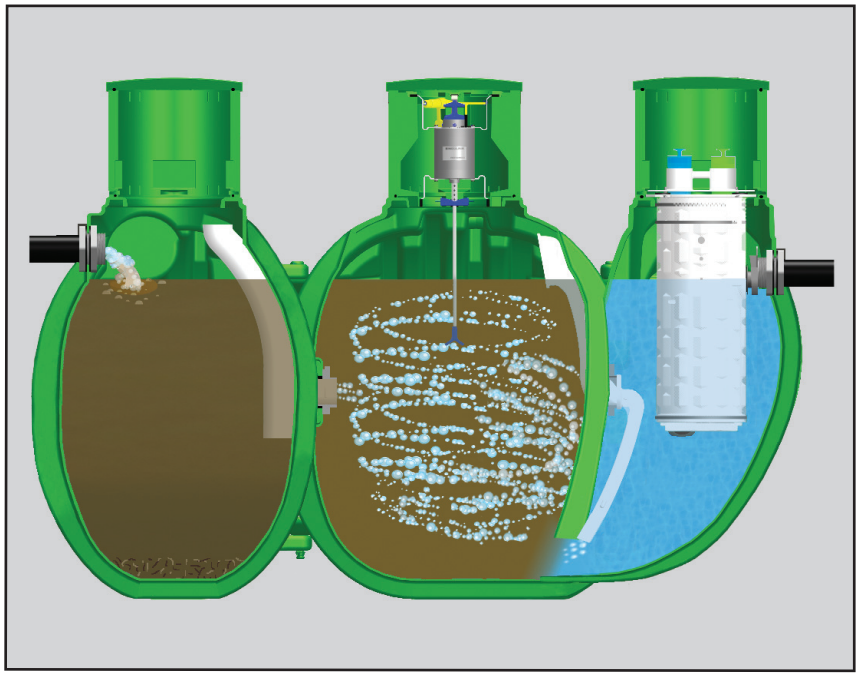
OWNER'S MANUAL

INTRODUCTION

The Singulair Green unit is the finest system available and utilizes the most up-to-date wastewater treatment technology. It is a sound investment that protects you and the environment. Please take the time to familiarize yourself with the contents of this manual.

HOW THE SINGULAIR GREEN® SYSTEM WORKS

Developed to serve homes and small businesses beyond the reach of city sewers, the Singulair Green system employs the extended aeration process. Similar to the treatment method used by most municipal wastewater treatment facilities, this process involves a natural, biological breakdown of the organic matter in wastewater.



Wastewater enters the pretreatment chamber where anaerobic bacterial action combines with the effects of gravity to precondition the waste before it flows into the aeration chamber. Once in the aeration chamber, aerobic bacteria utilize the organic matter in the wastewater to biologically convert the waste into stable substances. Following aeration, flow is transferred to the clarification chamber where the effects of gravity settle out biologically active material. The Bio-Static sludge return, located in the clarification chamber, creates hydraulic currents that gently transfer settled particles back to the aeration chamber. As clarified liquids pass through the Bio-Kinetic system, they are filtered, settled and flow equalized. As a result, complete pretreatment, aeration, clarification and final filtration are assured. The Singulair Green system reliably protects you, your property and the environment.

FEATURES AND ADVANTAGES

Singulair Green tanks are constructed of rotationally molded, UV stabilized, high density polyethylene. Integrally molded treatment chamber walls and structural support ribs insure durability and maximum strength. Risers and lids are injection molded, heavy duty, glass-filled polypropylene. All components within the system that will contact the wastewater are constructed entirely of molded plastic, stainless steel or rubber.

The Singulair aerator is powered by a 1725 RPM, 115 volt, 60 hertz, single phase, fractional horsepower motor. It is the only electrically powered component in the Singulair Green system. The aerator has been designed specifically for use in the Singulair system. It costs less to operate and consumes fewer kilowatt hours of electricity than most major appliances.

The Singulair aerator is supplied with a prewired electrical control center contained in a NEMA rated enclosure. The control center contains a power switch and time clock that control aerator operation. The local dealer's name, address and telephone number are displayed on the control center cover. All system controls and necessary owner information are conveniently located at your fingertips.

Non-mechanical flow equalization and final filtration is accomplished within the Singulair Green tank by the Bio-Kinetic system. This revolutionary device is installed in the clarification chamber and connected to the system outlet. All Singulair Green components work together to assure complete pretreatment, aeration, clarification and final filtration.

SINGULAIR GREEN® SYSTEM PERFORMANCE

Rivaling the performance of the most advanced wastewater treatment plants in the world, the Singulair Green system complies with USEPA wastewater treatment guidelines for secondary treatment systems and meets all requirements of NSF/ANSI Standards 40 and 245. In ecologically sensitive areas, the most stringent effluent standards are 10 mg/L CBOD and 10 mg/L TSS. Rated Class I after successfully completing the 7 month Standard 40 test protocol, the Model 960 system averaged effluent of 6 mg/L CBOD and 10 mg/L TSS. The Model TNT system averaged effluent of 4 mg/L CBOD, 9 mg/L TSS and 12 mg/L Total Nitrogen.

OPERATIONAL REQUIREMENTS

The Singulair Green system is designed to treat only domestic wastewater. Domestic wastewater is defined as the waste generated from a typical residence. This includes flows originating from: bathtubs, clothes washers, dishwashers, drinking fountains, water coolers, food grinders, kitchen sinks, lavatories, mop basins, service sinks, shower stalls, sinks, wash sinks, water closets and whirlpool baths. While the use of bio-degradable detergents is recommended, the Singulair Green system has been designed to handle any reasonable amount of bathroom, kitchen or laundry waste. However, some care should be exercised to insure that non-biodegradable and/or toxic materials are not disposed of via the domestic wastewater plumbing. Do not use the plumbing system for disposal of lint, cooking grease, scouring pads, diapers, sanitary napkins, cotton balls, cotton swabs, cleaning rags, dental floss, strings, cigarette filters, rubber or plastic products, paints and thinning agents, gasoline, motor oil, drain cleaners or other harsh chemicals. These items could plug portions of the plumbing, interfere with biological treatment, accumulate in the treatment system and adversely affect system performance. Never connect roofing down spouts, footer drains, sump pump piping, garage and basement floor drains or water softener backwash to the domestic wastewater plumbing or the treatment system. Water softener backwash will interfere with biological treatment and must be disposed of separately.

ELECTRICAL REQUIREMENTS

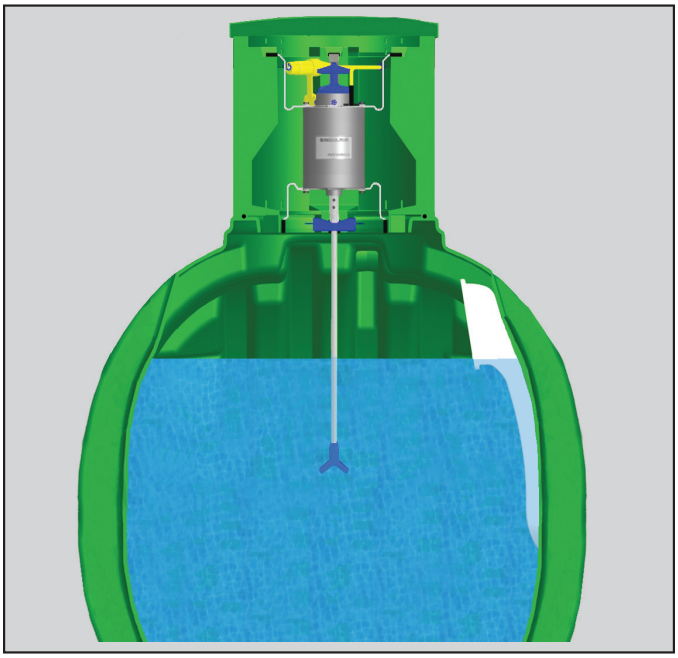
The Service Pro control center must be wired to a dedicated 115 VAC, single phase circuit at the main electrical service panel. A 15 amp circuit is recommended (10 amp minimum). A pictorial wiring diagram is provided inside the control center enclosure. All electrical work must be performed in accordance with the requirements of the National Electrical Code and all applicable local codes. Electrical connections should be made only by a qualified electrician following proper procedures and using safe tools.

CAUTION: Any time service is required, first shut off the dedicated circuit breaker in the main electrical service panel. Next, shut off the power switch in the Service Pro control center. Failure to do so could result in personal injury or equipment damage.

SINGULAIR® AERATOR

The aerator has been specifically designed for use in the Singulair system and includes special alloy and molded plastic parts to prolong aerator life. Aerator bearings are pre-lubricated and sealed. The Singulair aerator is installed in a plastic mounting riser above the aeration chamber. Fresh air enters the aerator through four intake ports located under the aerator handle. Air is drawn down the hollow aspirator shaft where it is introduced below the liquid surface. Only the molded plastic aspirator and the lower portion of the stainless steel aspirator shaft are submerged.

The aerator is not designed to run under water and will automatically shut off if a high water condition occurs. If the liquid rises to the level of the foam restrictor, the control center will shut off power to the aerator. Next, an automatic diagnostic sequence begins, as outlined in the section titled Service Pro Control Center.



The Singulair aerator is a precision engineered electro-mechanical device. Do not remove it from its installed position. Do not attempt any type of repair. Contact your local dealer if service is needed. Unauthorized tampering or repair will void important provisions of the lifetime warranty and exchange program.

FRESH AIR VENTING SYSTEM

A fresh air vent is designed into the perimeter of the access cover above the Singulair aerator. The perimeter vent supplies fresh air to the aerator, which is drawn through the aspirator and into the wastewater. Finished landscaping should be maintained six inches below the top of the vented access cover and graded to drain runoff away from the cover. Do not obstruct the vented access cover or allow plants, shrubbery, mulch or landscaping of any type to restrict the flow of air to the perimeter vent.

SERVICE PRO® CONTROL CENTER

To permit fully automatic operation, prewired electrical controls are supplied in a sealed NEMA rated enclosure for your safety and the protection of components and wiring. The control center should be located so the red warning light can be seen and the audible alarm heard, while minimizing exposure to harsh weather or conditions that might prevent routine access. If an issue with the aerator is detected, the red alarm light will flash and the control center will attempt to restart the aerator every five minutes for two hours. For an open motor or under current condition, the alarm light will display a repeating pattern of two short flashes followed by a three second pause. For an over current condition, the alarm light will flash evenly until serviced. If the aerator does not restart after two hours, the audible alarm will sound. To silence the audible alarm and attempt to restart the aerator, push the reset button on the control center cover. This should allow the aerator to resume normal operation. If the alarm condition is not resolved, the audible alarm will be silenced for 48 hours, but the alarm light will continue to flash. In this case, contact your local Singulair Green dealer.

TIME CLOCK

The control center for the Model TNT system is supplied with a non-adjustable time clock. The non-adjustable time clock creates a 60 minute aeration cycle followed by a 60 minute anoxic cycle during which the aerator is off. All other control centers are supplied with an adjustable time clock that determines the operating cycle of the aerator. The time clock will not permit the aerator to run less than 30 minutes out of each hour and is adjustable in five minute increments up to continuous operation. The performance of the Singulair Green system has been certified to meet NSF/ANSI Standard 40 effluent quality requirements and USEPA secondary treatment guidelines at the minimum time clock setting. The time clock is factory preset and should not be adjusted by the owner. Your factory-trained Singulair Green dealer will make necessary adjustments under the specific direction and authorization of the local regulatory agency.

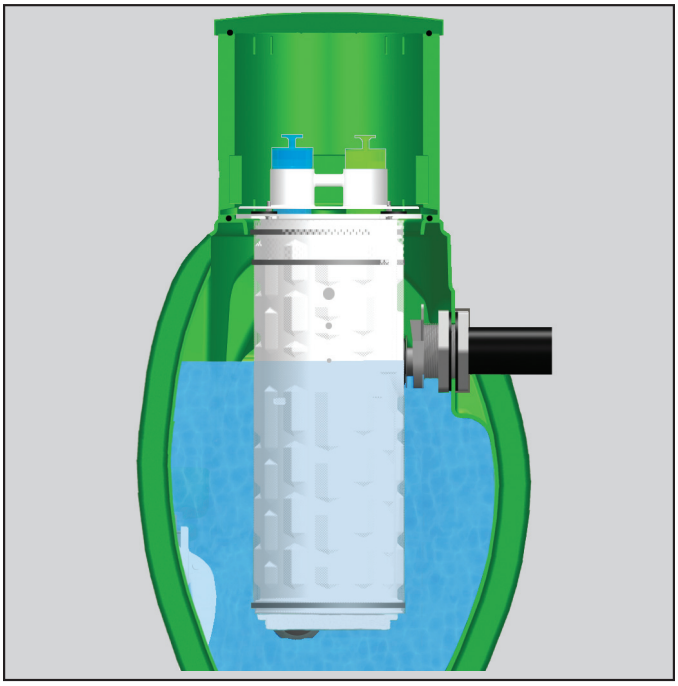
NOTE: The control center may regularly communicate with the Service Pro monitoring center using your telephone line and a toll free number. If the control center is using the line when you attempt to place a call, a high pitched digital communication signal will be heard. Hang up all telephones sharing the line and wait a few seconds. This will automatically disconnect the control center and make the line available for use.

BIO-STATIC® SLUDGE RETURN

A Bio-Static sludge return is installed in the aeration/clarification chamber wall. Aeration chamber hydraulic currents enter the sludge return and transfer solids from the clarification chamber back to the aeration chamber for additional treatment. The Bio-Static sludge return accomplishes resuspension and return of settled solids without disturbing the contents of the clarification chamber.

BIO-KINETIC® SYSTEM

The Bio-Kinetic system provides non-mechanical flow equalization through all plant processes. The Bio-Kinetic system contains 3 separate filtration zones, 8 independent settling zones. All components are manufactured from plastic or rubber. The Bio-Kinetic system is equipped with fill and drain valves which facilitate service to the filter. Your local dealer has the necessary training, tools and equipment for removal and cleaning. If your Bio-Kinetic system is in need of service, contact your local Singulair Green dealer. During each semi-annual service inspection, your local dealer will remove and clean the Bio-Kinetic system or replace it with a unit from their service stock.



NON-MECHANICAL FLOW EQUALIZATION

The patented design of the Bio-Kinetic system provides non-mechanical flow equalization for the Singulair Green wastewater treatment plant. Equalization reduces incoming hydraulic surges (e.g. typical shower of 10 minutes duration, bathtub discharge of 5 minutes duration, clothes washer discharge of 2 minutes duration and dishwasher discharge of 2 minutes duration) throughout the system. The flow equalization provided by the Bio-Kinetic system causes wastewater to be held upstream of the final outlet during hydraulic surges, which preserves treatment integrity and enhances system operation. The actual rate of equalization varies and depends upon specific loading patterns and the duration of each flow surge. At the 600 GPD (gallons per day) NSF/ANSI Standard 40 design loading schedule, minimum performance of the Singulair Green system equalizes all flow an average of 50%. As a result, hydraulic surges and periods of high wastewater flow are automatically reduced to protect the environment and all treatment plant processes on a demand use, as needed, basis.

NO OWNER MAINTENANCE

The Singulair Green system is inspected and serviced by a local licensed, factory-trained dealer, therefore, no owner maintenance is required during the warranty period. The Singulair Green system does not require pumping as often as a septic tank. Under normal use only the pretreatment chamber should be pumped. How often pumping is necessary depends on system use. The local Singulair Green dealer will inspect the aeration chamber contents and plant effluent at six month intervals to determine if the pretreatment chamber is discharging excessive solids. Every three years, the pretreatment chamber should be inspected. The pretreatment chamber will normally require pumping at three to five year intervals. Contact your local dealer prior to tank pumping for complete information on removal of equipment, access to individual chambers, coordination of services and proper disposal of tank contents. A tank pumping service licensed by the local regulatory agency must be used for removal and disposal of tank contents. The tank pumper should consult with local authorities to determine the proper disposal method.

If a period of intermittent use, or an extended period of non-use of the Singulair Green system is anticipated, contact the local dealer for instructions. Your local dealer has comprehensive service instructions and has been factory-trained in troubleshooting procedures. Contact your local Singulair Green dealer if you require service or information regarding tank pumping.

SERVICE PRO® MONITORING CENTER

The Service Pro monitoring center is a maintenance tracking database that is free for use by all Singulair Green dealers and service providers. If your Singulair Green dealer uses the Service Pro website, a record for your system will be created at **www.servicepromcd.com** when the system is installed. The serial numbers for Singulair Green equipment and treatment plant information will be entered at that time. This proprietary website stores all relevant system information in one convenient, secure and password protected location. The Service Pro website keeps a detailed history of all maintenance visits that are made to your installation. The monitoring center will schedule future service inspections and notify your Singulair Green dealer when they are due. System owners can also use the Service Pro website to access information, track service calls or monitor compliance with regulatory requirements. If you would like to use the Service Pro website, contact your Singulair Green dealer to receive a user name and password.

An optional Service Pro MCD control center or Service Pro TNT control center is available for use with the Singulair Green system. Designed to connect to a standard telephone line, these control centers provide MONITORING, COMPLIANCE and DIAGNOSTIC functions complete with telemetry for communication with the Service Pro monitoring center. Digital Subscriber Line (DSL) phone service requires the use of a low-cost DSL filter. Voice Over Internet Protocol (VOIP) is not reliable with any telemetry system and not recommended. Once your Service Pro control center is connected to a telephone line, commissioned, and covered by a remote monitoring agreement, your dealer will be immediately notified of any alarm condition. The Service Pro monitoring center will automatically log the time and date of alarm conditions, as well as service performed, and store them in your system history record for viewing at **www.servicepromcd.com**.

SINGULAIR GREEN® SERVICE PROGRAM

A minimum of four service inspections within the first two years of operation are provided by your local Singulair Green dealer and are included in your original purchase price. Costs for travel and labor are not charged to the owner. The exact frequency and scope of these visits are determined by the applicable regulatory agency. The obligation to provide these service inspections rests solely with your Singulair Green dealer or the authorized service provider, so it is important that you save a copy of your original purchase contract. To schedule service, learn more about maintenance requirements or report system malfunctions, contact your local Singulair Green dealer directly. Your dealer's name, address and phone number are conveniently located on the front of the control center. During an inspection, each Singulair aerator, Bio-Kinetic system and other plant components are serviced as outlined in the "SINGULAIR GREEN SERVICE MANUAL". Auxiliary equipment required in addition to the Singulair Green system, such as pumps, filters, valves, tankage, leach fields, chambers, mounds or irrigation components, are not part of the Singulair Green service program and should be covered by a separate maintenance agreement.

After the initial two year service program is completed, the Singulair Green dealer will offer to provide a continuing service agreement at the owner's option. In many areas, this continuing service agreement is required by the local regulatory agency. The service program should be renewed by the owner to insure maximum system performance. Professional service is important to proper system operation and should not be allowed to lapse. Each of these items are important:

- ✓ Check aerator operation
- ✓ Check aerator power consumption
- ✓ Check aerator air delivery
- ✓ Clean stainless steel aspirator shaft
- ✓ Clean aspirator tip
- ✓ Clean perimeter air vent in aerator cover
- ✓ Inspect aeration chamber contents
- ✓ Check operation of control center
- ✓ Adjust time clock when required
- ✓ Remove the Bio-Kinetic system
- ✓ Scrape the clarification chamber
- ✓ Inspect the Bio-Static sludge return
- ✓ Inspect outlet coupling
- ✓ Install a clean Bio-Kinetic system
- ✓ Inspect effluent quality
- ✓ Inspect outlet line
- ✓ Inspect ground water relief point
- ✓ Inspect effluent disposal system
- ✓ Complete 3-part service record
- ✓ Hang owner's record on front door
- ✓ Enter record into **www.servicepromcd.com**
- ✓ Mail health department notification

Your Singulair Green dealer will perform the services outlined above during each service inspection.

WARRANTY REGISTRATION

A Warranty Registration Card was attached to the Service Pro control center before it was shipped from the factory. If this card has not been returned to Norweco, complete and mail it immediately. If it is not returned within thirty days of the installation date, the three year limited warranty and lifetime aerator exchange program will begin on the date of component shipment from the factory.

If the Service Pro control center is mounted in an outdoor location, remove the aerator model number and serial number record card and store it safely for future reference. Otherwise, do not remove this card from the control center. If it is necessary to call your dealer for service, make note of the information on the control center data plate and the aerator serial number before calling. Warranty and service records are cross-indexed by owner name and aerator serial number. Supplying the aerator serial number with the service request will give the service provider a ready reference so that changes in system ownership will not delay service.

SINGULAIR GREEN® LIFETIME PROTECTION

The Singulair aerator enjoys the distinction of being the only aerator on the market today backed by a lifetime warranty and exchange program. Each Singulair aerator, Service Pro control center and Bio-Kinetic system are warranted to be free from defects in material and workmanship, under normal use and service, for a period of three years. The local, licensed dealer or service center has detailed warranty and exchange information and should be contacted for service or replacement instructions.

SERVICE PRO® SECURITY LOG IN

For your convenience, record your **www.servicepromcd.com** access information here:

User name:	Password:

SUPPLEMENTAL SERVICE RECORD

For your reference, please document service performed on the following chart:

DATE	DESCRIPTION

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SINGULAIR GREEN® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

TANK DELIVERY AND SETTING

To insure that all work proceeds safely and efficiently, check these items prior to delivery of the Singulair Green tank.

- ✓ Does the driver have complete and accurate directions to the installation?
- ✓ Does the driver have the Singulair installer's tool kit?
- ✓ Are the appropriate aerator mounting riser, vented access cover, Bio-Kinetic system mounting riser, pretreatment riser, sealed access covers and extension risers included?
- ✓ Are additional anti-flotation measures required for this installation?
- ✓ Is a sufficient amount of water and gravel available for the installation?
- ✓ Is an adequate supply of sealing material available for all plumbing connections?
- ✓ Does the delivery vehicle have the proper pick-up bar, cable, straps and/or chain?
- ✓ Is the proper Service Pro control center available for delivery with the tank?
- ✓ Is there sufficient underground electrical cable to reach from the control center to the tank?

PLEASE NOTE: The Singulair Green tank is constructed of high density polyethylene. All joints have been factory sealed for your convenience. This will minimize tank loading, unloading and setting time at the site. The Singulair Green tank has been designed for underground use only. Do not install the tank in a location that is subject to vehicular traffic.

CHECKING THE EXCAVATION

Before tank setting begins, verify that the excavation is level and free of sharp stones and construction debris. Clear out any objects that could come in contact with the tank.

The length, width and depth of the excavation should be checked. The excavation should have sufficient overdig to allow between 18" to 24" of clearance on both sides and 6" to 12" of clearance on the inlet and outlet ends of the Singulair Green system. In addition, the excavation should allow for a minimum of 6" and a maximum of 16 1/2" of cover over the top of the tank. For deeper installations, consult the Deeper Burial Requirements section of this guide. Failure to follow the excavation and backfilling guidelines may result in tank damage and will void the system warranty.

TANK WITH DELIVERY TRAILER

Check the influent and effluent sewer line trenches. The trench depth should correspond with the Singulair Green system inlet and outlet connections and the trenches should be smooth to prevent damage to the sewer lines.

A tank leveling pad should be installed in the bottom of the excavation. The leveling pad should be a minimum of 4" thick and leveled to within 1/4" from side to side and end to end. The elevation of the top of the leveling pad should correspond to the outside bottom of the Singulair Green tank when installed. In areas with unstable soil conditions, a reinforced concrete pad may be required under the Singulair Green tank.

Safe working conditions must be established and maintained during the entire installation procedure. Unstable soil conditions require constant monitoring of the site to insure safety. Installation procedures, equipment and personnel should always comply with applicable safety regulations as well as all federal, state and local codes.

If the Singulair Green tank is to be installed in saturated clay, areas with a high watertable, bogs, swampy areas, landfills where soil is soft or wet, areas containing expansive soils or soils with an ultimate bearing capacity of less than 1,500 PSF, the unit must be backfilled with gravel up to the base of the risers. Reference "Deeper Burial Requirements" in this manual for further details.

TEMPORARY UNIT STORAGE

If a Singulair Green tank is delivered before installation can occur, store the tank on smooth ground with no rocks or sharp objects against the tank. Chock the tank with sandbags to prevent tank movement. If high winds are anticipated, tie the tank down to prevent any damage.

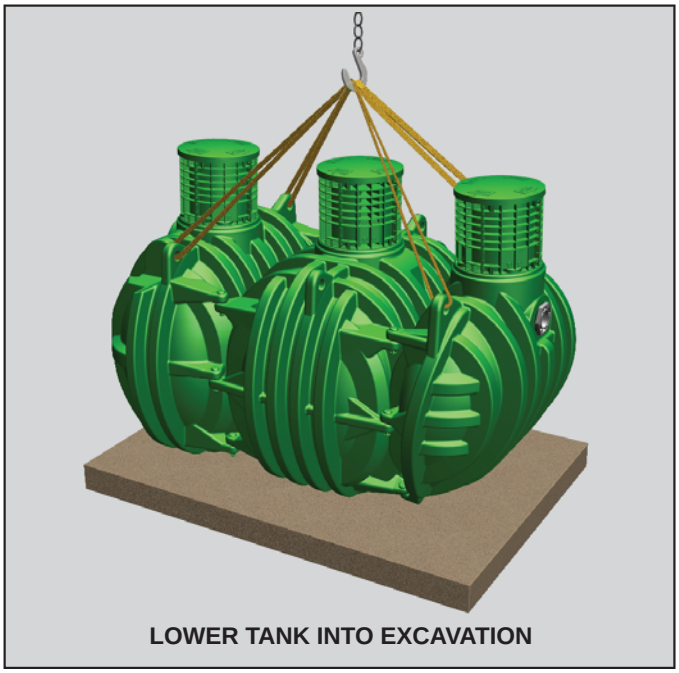
PREPARING THE SINGULAIR GREEN® TANK

Before installing the Singulair Green tank, inspect for signs of damage that may have occurred during transportation or handling. Damaged tanks could leak and should not be installed. Check the inlet and outlet couplings for any signs of damage that would prevent solvent welding to the plumbing. Inspect all risers and access covers to insure no damage has occurred. Verify that all riser and access cover fasteners are securely attached.

CAUTION: Extreme care should be used in the vicinity of any excavation. A delivery vehicle can place excessive loading on excavation sidewalls and care must be taken in its positioning. Once installed, no vehicle should operate over the tank or any other part of the treatment system.

TANK SETTING AND SAFETY

Make sure the delivery vehicle outriggers are firmly placed on stable soil at the excavation site. All personnel must be out of the excavation area and at a safe distance from the tank. Before lifting the tank, check all lifting chains, straps or cables to be sure they are properly secured. Lift the tank using at least four of the molded lifting lugs located on the Singulair Green tank. Carefully lower the tank into the excavation. Stop the tank several inches above the excavation floor and position it in the desired location. Lower the tank carefully until all tension is off the lifting device. Do not remove the lifting chains, straps or cables until tank leveling has been completed.



LOWER TANK INTO EXCAVATION

LEVELING THE TANK

Remove the access covers and place a level on the risers to verify that the tank is level within 1/4" from side to side and end to end. If the tank needs to be raised more than 6" to apply leveling material, all personnel should move to a safe location so the tank can be fully removed from the excavation. Fall through the system from inlet invert to outlet invert is 4". Therefore, the outlet invert of the system must be installed 4" lower than the inlet invert.

LEVEL BEFORE BACKFILLING TANK

MOUNTING RISER AND OPTIONAL EXTENSION RISER INSTALLATION

If extension risers are required, install them as needed above each mounting riser. To insure a watertight seal, install an o-ring gasket in all joints between the risers.

Access to the pretreatment chamber can be developed to grade or below grade as required by local regulation or owner preference. The access cover on the pretreatment chamber must be developed to within 12" of finished grade. Place a sealed access cover on the pretreatment chamber access opening. Place a vented access cover on the aerator mounting riser and a sealed access cover on the Bio-Kinetic system mounting riser before backfilling.

SEWER LINE INSTALLATION

Sewer lines inlet invert 5' 0" and outlet invert 4' 8" may be installed as soon as the Singulair Green tank has been leveled. Sewer line trenches must be smoothly excavated and free of debris or sharp objects. The trenches must allow sewer lines to be laid with 1/8" of fall per lineal foot. Influent and effluent sewer lines must be at least 4" in diameter. The influent and effluent lines should be PVC pipe and solvent welded into the Singulair Green tank inlet and outlet couplings. Influent and effluent lines must be laid continuously and unspliced from the tank to the undisturbed earth beyond the tank excavation site.

Underground electrical cable for electrical service to the Singulair aerator should be installed in the influent sewer line trench before backfilling the Singulair Green tank. Refer to the “ELECTRICAL WIRING AND CONTROL CENTER INSTALLATION” instructions for complete details.

CAUTION: Do not attempt to adjust the position of the tank or sewer lines with the backhoe bucket. Excessive force may damage the inlet and/or outlet couplings.

GROUND WATER RELIEF POINT

The effluent sewer line should be installed with a ground water relief point to prevent back-up into the system if the effluent discharge point is blocked or flooded. This device can be constructed by installing a pipe tee in the effluent sewer line and extending it to grade. The relief point must be at a lower elevation than the outlet invert of the Singulair Green tank. The extension to grade should be installed with a suitable screen to prevent access to the sewer line.

BACKFILLING THE GREEN SYSTEM

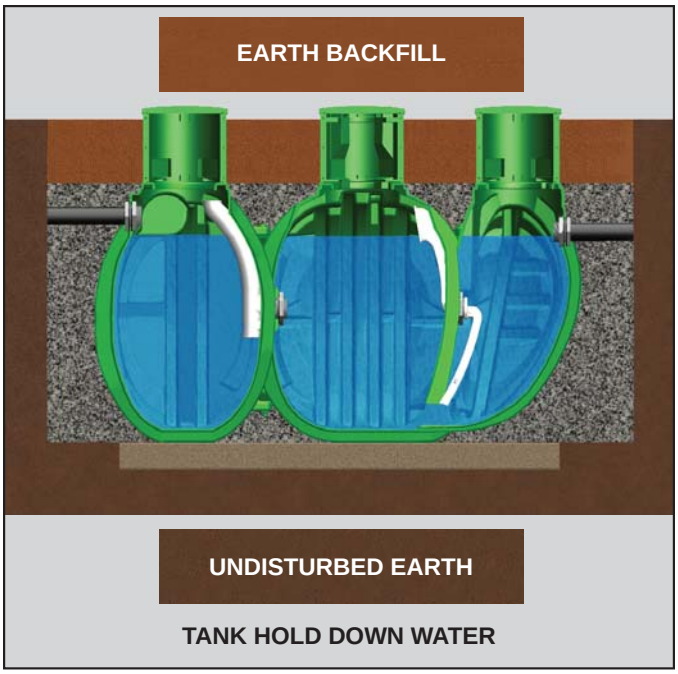
Prior to backfilling, add a minimum of 12" (250 gallons) of ballast water to the Singulair Green tank to prevent shifting in the excavation. Fill each chamber to an equal level. Do not add water through the clarifier access opening. The clarification chamber will be filled through the transfer opening between the aeration and clarification chambers as the aeration chamber is filled. The Singulair Green tank must be backfilled immediately after the sewer lines, underground electrical cable and ballast water are in place.

PROPER BACKFILL FOR THE TANK

Cover all openings, then begin backfilling with gravel under and around the sloped clarifier. Continue to add gravel until the discharge line from the Singulair Green tank is covered. Proceed to the inlet end of the pretreatment chamber and add gravel until the inlet line is covered. Fine, loose earth may be used to backfill the remainder of the excavation. Be sure that the backfill is free of rocks, sharp objects, large clumps of earth and construction debris. Never use clay for backfill material. The backfill must flow freely and care should be taken to insure that all recesses formed between the ribs and beneath the area between the pretreatment and aeration chambers are completely filled. Add backfill evenly around the entire perimeter of the Singulair Green tank in 12" increments. Hand tamp each layer of fill to compact soil. When backfilling over the tank, add fill to the area between the risers first. Final grading should be 3" to 6" below the top of each access cover and should slope away from the tank so surface runoff will drain away from the Singulair Green system. Use extreme care when backfilling the excavation. Do not allow dirt or mud to enter any part of the Singulair Green system or sewer lines.

TANK HOLD DOWN WATER

The Singulair Green tank must be filled with clean water to the outlet invert immediately following backfilling. The water must be free of leaves, mud, grit or other materials that might interfere with system operation.



TANK HOLD DOWN WATER

When pumping or dewatering the Singulair Green tank, only pump the pretreatment chamber. Then, promptly refill the tank to capacity with clean water. Dewatering and leaving the Singulair Green tank empty will effect tank integrity and void the Singulair Green warranty.

DEEPER BURIAL REQUIREMENTS

Special consideration should be taken if the Singulair Green tank is buried deeper than 16 $^{1}/_{2}$" below grade. However, the tank should never be buried deeper than 34 $^{1}/_{2}$" below grade. If deep burial is required, first fill the tank with 12" of clean ballast water. Next, backfill the entire tank with gravel up to the base of the risers. Once gravel is in place, fill the tank with clean water to the design flow line. Finally, backfill to grade with native soil.

SPECIAL ANTI-FLOTATION SYSTEM

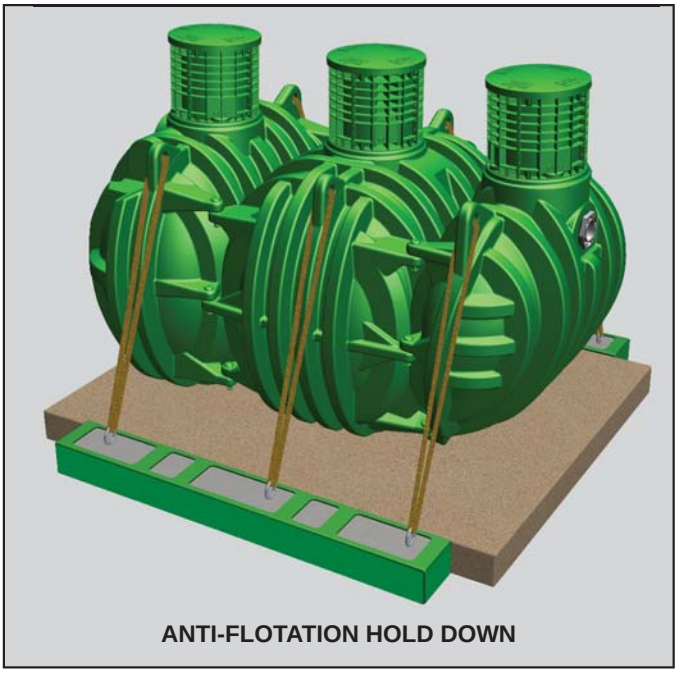
If high ground water is a concern, use anti-flotation measures to secure the Singulair Green tank. Failure to follow the anti-flotation recommendations provided in this document may result in damage to the Singulair Green tank or shifting in the excavation and may void all or part of the limited warranty.

After the amount of additional hold down weight is determined, it is recommended that a pair of concrete beams of appropriate size be placed at the base of the excavation. Alternately, plastic anti-flotation beams are available from Norweco. Plastic anti-flotation beams must be filled with concrete prior to installation. Beams must not be placed directly under the perimeter of the Singulair Green tank. The weight of the soil over the beams significantly contributes to the tank hold down forces. Placing beams under the tank will limit the amount of soil anchoring the beams into the excavation and should never be done.

Secure the anti-flotation beams to the Singulair Green tank with properly rated hold down straps that attach to the lifting lugs located at the top of each of the three chambers. The weight of the beams plus the weight of the soil over the beams must be greater than the required hold down weight shown in the table below.

COMPLETING THE INSTALLATION

Once backfilling has been completed and the tank has been filled with clean water, the access openings must be secured. Install a sealed access cover on the pretreatment and clarification chamber risers. Install a vented cover on the aeration chamber riser. Secure all access risers with the fasteners that have been provided. Installation of the control center and underground electrical cable are normally completed before leaving the site. Refer to “ELECTRICAL WIRING AND CONTROL CENTER INSTALLATION” instructions for details.



ANTI-FLOTATION HOLD DOWN

HOLD DOWN REQUIREMENTS	
Fill Over Tank (inches)	**Additional Weight Required (lbs.)**
6	6,915
8	6,091
10	5,267
12	4,443
14	3,619
16	2,796
18	1,972
20	1,148
22	324
24	*

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STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

Singulair Green® Bio-Kinetic® Wastewater Treatment System
A Guide for Inspecting the Singulair Green Installation

Tank Installation

- ❑ Verify that the local health department has issued an installation permit.
- ❑ Verify location of the 1000 gallon septic tank Singulair Green tank and effluent dosing tank per the site plan drawing.
- ❑ Review the tank dimensions per the scale drawing of the appropriate model of Singulair Green system.
- ❑ Calculate excavation length, width and depth with consideration of inlet and outlet inverts of the Singulair Green tank.
- ❑ The excavation should be 3' longer than the length required for the Singulair Green tank alone.
- ❑ Once excavation has reached desired size, install a four inch thick pad of gravel, sand or fine crushed stone.
- ❑ After tank installation, backfill the Singulair Green system using any fine, granular jobsite material. Do not use large clumps of earth, rocks or debris to backfill and do not allow dirt or debris to enter the Singulair Green tank.
- ❑ Add hold down water to the Singulair Green tank during backfilling.
- ❑ Before backfilling is completed, install the influent and effluent sewer lines.
- ❑ Make sure only domestic wastewater sources are connected to the influent sewer line.
- ❑ 115-volt AC single-phase, 60-Hertz power must be available for each Singulair control center. A telephone line is necessary to allow the Service Pro remote monitoring service to function properly.
- ❑ Verify that finished grade and landscaping conforms to the site plan drawing.

Electrical Wiring and Control Center Installation

- ❑ Confirm who is responsible for providing wiring supplies and Singulair control center.
- ❑ Review *Singulair Electrical Wiring and Control Center Installation Instructions* carefully.
- ❑ Install wiring and control center per Singulair system instructions.

Before Leaving the Jobsite, Check to Be Sure:

- ❑ Sewer lines, mounting castings and risers are grouted or sealed in place.
- ❑ No mud or debris has entered the Singulair Green tank.
- ❑ All access covers are in place.
- ❑ All Bio-Static Sludge Returns have been installed.

- ❑ The Singulair tank is completely backfilled and filled with clean hold down water.
- ❑ All electrical controls, circuits and wiring for the Singulair Green system are de-energized.
- ❑ A Singulair Green Owner's Manual has been provided.
- ❑ Review the Owner's Manual with the owner for future reference should there be questions about the system.
- ❑ A red warning tag and distributor identification label are attached to the Singulair control center.
- ❑ The owner is aware that he must contact your office two weeks before the facility is to be occupied so that the Singulair aerator and Bio-Kinetic system can be scheduled for installation.

Aerator and Bio-Kinetic System

- ❑ The Singulair aerator and Bio-Kinetic system unit should only be installed by a factory-trained technician. Do not attempt installation of these items without the assistance of a trained Singulair technician.

Final Instructions to the Singulair Green System Inspector

- ❑ The Singulair control center should be checked. If the red warning light is glowing and the audible alarm sounding, depress the reset button on the control center cover. The light should go off and the audible alarm should be silenced. If the alarms activate again, call the local distributor for service.
- ❑ Check the fresh air openings in each vented cover monthly to make sure the passage of air into the Singulair Green tank has not been restricted.
- ❑ Inspect the effluent discharge point to make sure there are no restrictions to the effluent flow.

norweco® SINGULAIR® BIO-KINETIC®

WASTEWATER TREATMENT SYSTEM

TANK PUMPING INSTRUCTIONS

These instructions provide a general guideline concerning when and how to pump out the Singulair system. This literature supplements other instructional materials included in the Singulair Bio-Kinetic System Service Manual.

In order to maximize performance, protect system components and insure protection of the surrounding environment, the Singulair system should be thoroughly checked every six months by a factory-trained Norweco service technician. An initial service program that provides a minimum of four service inspections during the first two years of system operation is included in the system purchase price. Renewable service contracts to extend these routine inspections after the initial program expires are available from the local licensed Norweco distributor.

The pretreatment chamber of the Singulair system will periodically require pumping. Because the Singulair system is a biological treatment device, the time frames listed within these instructions are estimates. Actual pumping frequency will depend on the amount and strength of the wastewater being treated.

Handling and disposal of pretreatment chamber contents, referred to as septage, or the contents of the aeration and clarification chambers, referred to as biosolids, are regulated by local, state and federal authorities. Disposal options may include land application, lagoon treatment, municipal wastewater treatment or landfill disposal. Prior to arranging for tank pumping, contact the Norweco distributor to obtain complete information on access to chambers, removing equipment, coordination of services and disposal of tank contents.

During Singulair system installation and backfilling, do not allow dirt or mud to enter the system. Once in the system, dirt or mud will form a heavy sludge which will affect settling characteristics, interfere with filtration and degrade effluent quality. If dirt or mud enters the system, it must be removed to insure proper system operation. Removing the dirt or mud may require repeated flushing and tank pumping. For additional details refer to Singulair Tank Delivery and Setting instructions.

INTRODUCTION

The Singulair system is a biological treatment device and should not require pumping as frequently as a septic tank. Septic tanks are designed to store solids and perform limited biological treatment. Frequent pumping of a septic tank is mandatory to remove and dispose of these solids before they discharge from the tank. The Singulair system is designed to biologically treat all incoming wastewater and return only a high quality effluent to the environment. The multiple operating processes contained within the plant accomplish primary, secondary and tertiary treatment in each Singulair system. The pretreatment chamber of the Singulair system is designed to retain non-biodegradable solids and allow biodegradable solids to flow into the aeration chamber. The aerobic treatment process in the Singulair system utilizes these biodegradable solids to convert the wastewater into carbon dioxide and water. This natural biological process minimizes the accumulation of solids and eliminates the need to pump the system as frequently as a septic tank. Because the Singulair system utilizes the biodegradable material found in wastewater to perform biological treatment, pumping the system more often than needed will not improve operational performance. Removal of the solids in the Singulair system will be required when indicated by an inspection or evaluation as outlined herein.

WHEN TO PUMP

Norweco distributors provide maintenance and service inspections free of charge at regular six month intervals during the initial warranty period. These routine service inspections will determine if a pretreatment chamber evaluation is necessary. The pretreatment chamber should be evaluated by a factory-trained technician at least every three years to determine if pumping is required. Pumping of this chamber by a licensed tank pumping and disposal service will likely be necessary at 3 to 5 year intervals, based on variations in system occupancy, usage and loading.

ROUTINE SERVICE INSPECTIONS

Semi-annual service inspection procedures are outlined in detail in the Singulair Bio-Kinetic System Service Manual. These routine service procedures include inspection of the aeration chamber, clarification chamber and effluent line to determine if the pretreatment chamber should be evaluated. A brief outline of these routine service procedures, as well as the detailed steps required to perform a comprehensive pretreatment chamber evaluation, are listed here. The results of the routine service inspection, pretreatment chamber evaluation and tank pumping (when performed) should be noted on the Service Inspection Card.

AERATION CHAMBER INSPECTION

A summary of the aeration chamber inspection procedure is listed below. For complete details on aeration chamber service, refer to the Singulair Service Manual.

CAUTION: Any time an aerator or service pump is connected or disconnected, first shut off the selector switch in each Singulair control center. Failure to do so could result in personal injury or equipment damage.

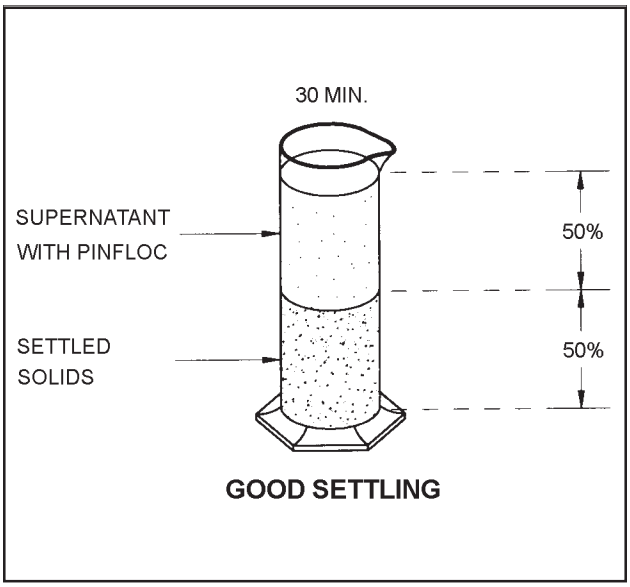
1. Remove the vented concrete aeration chamber access cover and set aside.

2. Unplug the aerator and secure the closure cap in position to protect the electrical connector.

3. Lift the aerator straight up out of the access opening and lay it flat on the vented cover. DO NOT bump the aspirator shaft or rest the aerator on the aspirator shaft.

4. Perform a settleable solids test using a graduated cone or other clear container. For this test, make sure the aerator has been running for at least 10 minutes. Collect an aeration chamber sample immediately after turning off and removing the aerator. Refer to the "Settleable Solids Test" section of these instructions for additional details.

5. Loosen the two set screws on the bottom of the intermediate shaft and remove the aspirator shaft.



GOOD SETTLING

6. Clean any debris from the aspirator shaft and flush the inside of the shaft with a hose.

7. Visually check the aeration chamber surface for the presence of grease or oil. An accumulation of these materials indicates the pretreatment chamber should be evaluated.

8. Check the aeration chamber contents for the presence of non-biodegradable materials, paper, mop fibers, hair, grease or oil. A significant accumulation of these materials in the aeration chamber indicates the pretreatment chamber should be evaluated.

Repeat steps 1-8 for Singulair systems with multiple aeration chambers and aerators.

NOTE: Do not replace the aerator(s) until the Bio-Kinetic system(s) have been removed from the clarification chamber and properly serviced.

SETTLEABLE SOLIDS TEST

A settleable solids test should be conducted as part of the aeration chamber evaluation during each routine service inspection to monitor system performance.

To insure a well mixed sample is collected for the settleable solids test, make sure the aerator has been running for at least 10 minutes. Collect the sample immediately after turning off and removing the aerator and before the aeration chamber contents begin to settle. Using a graduated cone or other clear container, dip the container into the aeration chamber to a depth of $2\frac{1}{2}$ feet. Set the container on a level surface and allow the solids to "settle" for 30 minutes while you complete the service inspection. Do not disturb the container during the test.

After 30 minutes, read the level of solids and compare it with the total liquid volume in the container. Calculate the percentage of settled solids volume (i.e. $\frac{1}{2}$ full of solids equals 50%). If the settled material contains large pockets of clear liquid, estimate the volume of these pockets and reduce the settled solids reading by that amount. A settled solids reading of up to 75% indicates no adjustments are necessary. **NOTE:** The solids should settle and compact within the 30 minute test. System start-up, or periods of low organic loading will result in solids that are too light to settle, and will appear as a full container with no clear separation. This should not be interpreted as having excess solids and system operation can continue without adjustment.

A settled solids level greater than 75% indicates excessive solids in the aeration chamber and that the pretreatment chamber may need to be pumped. In this case, a pretreatment chamber evaluation must be performed. Refer to the "Pretreatment Chamber Evaluation" section of these instructions for more details. If the pretreatment chamber evaluation indicates pumping is not required, the aerator operating cycle should be increased. Consult the local regulatory agency and the Singulair Time Clock Setting instructions before adjusting the aerator operating cycle.

The results of the settleable solids test, and any adjustment made to the system time cycle, should be recorded on the Service Inspection Card.

CLARIFICATION CHAMBER INSPECTION

A summary of the clarification chamber and Bio-Kinetic service inspection procedure is listed below. For complete details on clarification chamber service, refer to the Singulair Bio-Kinetic System Service Manual.

1. Remove the system access cover and set aside.

2. Install the Outlet Sealing Tool into the receiving flange to prevent loss of liquid from the Singulair system during service.

3. Remove the Singulair aerator and place the service funnel over the aerator mounting casting.

4. Using the universal tool, remove the flow deck and chamber plate assembly from the Bio-Kinetic system. Place the assembly on the service funnel for cleaning.

5. Using the universal tool, disengage all four black locking lugs to allow for removal of the outer chamber.

6. Lower the fixed handle of the universal tool into the upper lip of the Bio-Kinetic system outer chamber . Turn the handle until the lifting tool is engaged into the lifting rib.

7. The outer chamber is equipped with a drain valve and fill valve to allow for easy removal and reinstallation during service. Begin lifting the outer chamber from the tank. The drain valve will automatically open as the outer chamber is lifted out of the clarification chamber. Remove the outer chamber from the mounting casting and set it on the upside down lid of the service container.

NOTE: Repeat steps 1-7for clarification chambers with multiple Bio-Kinetic systems.

8. Reinstall the Singulair aerator(s) as outlined in the Singulair Aerator Service Instructions. The aerator(s) must be in operation while the remaining clarification chamber service is performed.

9. Check the surface of the clarification chamber for the presence of grease or biologically untreatable material. A significant accumulation of these materials would indicate that the pretreatment chamber should be evaluated.

10. With the aerator running, use the hopper scraping tool to gently scrape all areas of the clarification chamber hopper side walls.

11. Complete the clarification chamber service as outlined in the “Clarification Chamber” section of the Singulair Bio-Kinetic System Service Manual.

12. Make appropriate notations on the Singulair Service Inspection Card and on the Owner’s Manual.

EFFLUENT LINE INSPECTION

Check the groundwater relief point installed in the effluent line to make sure it is free of obstruction. An accumulation of paper, fibers, hair or grease indicates that the Singulair system needs to be pumped. If there is a surface discharge point, make sure that it is free of debris, foam, mud, etc. Make appropriate notations on the Service Inspection Card.

PRETREATMENT CHAMBER EVALUATION

The pretreatment chamber must be evaluated within three years of system start-up or the most recent tank pumping. An evaluation must also take place any time a routine service inspection indicates the chamber may be discharging excessive solids. This evaluation includes measuring the depth of the floating scum and settled sludge layers to determine if pumping is required. If the pretreatment chamber evaluation indicates the chamber does not require pumping, these evaluations should be repeated annually until pumping is necessary.

PRETREATMENT CHAMBER INSPECTION

A complete pretreatment chamber inspection procedure is listed below. The results of the inspection should be noted on the Service Inspection Card.

1. If the pretreatment chamber access opening is not equipped with a riser and cover at grade, dig down to the access opening in the top of the tank. The opening is in line with the access opening for the aeration chamber and the system outlet. The access cover should not be more than 12" below grade.

2. Remove the cover(s) and be careful not to allow dirt or mud to enter the tank.

3. Visually examine the surface of the pretreatment chamber for a significant accumulation of grease, oil or non-biodegradable materials.

4. Using the hopper scraping tool, gently probe the surface of the chamber to determine the thickness of the scum mat. Force the tool down through the scum mat, rotate the tool one quarter turn, then raise it until the bottom of the mat is felt. If the depth of the floating scum layer has reached the bottom of the discharge tee, the chamber should be pumped.

5. To check the depth of the settled sludge layer, secure a rough white towel to the handle of the hopper scraping tool and lower it to the bottom of the chamber.

Lower the tool behind the discharge tee (baffle) to avoid floating particles. Push the tool through the settled sludge layer to the bottom of the tank. Wait several minutes and carefully remove the tool. The depth of the settled sludge layer will be shown by a dark line on the towel. If the settled sludge layer has accumulated to the bottom of the discharge tee, the chamber should be pumped.

Review the “Operational Requirements” section of the Owner’s Manual with the owner. If lint, grease, scouring pads, diapers, sanitary napkins, cotton balls, cotton swabs, cleaning rags, dental floss, strings, cigarette filters, rubber or plastic products, paints, thinning agents or other harsh chemicals are discovered in the system, the owner should be cautioned regarding proper use of the system.

WHAT TO PUMP

When pumping is required, normally it is necessary to pump only the pretreatment chamber if the Singulair system has been serviced at regular 6-month intervals. If service has been interrupted for an extended period of time, or if mud or toxic material is present, it may be necessary to pump out the entire system. When pumping, it is not necessary to wash down the compartments unless significant quantities of grease, hair, fibers, mud, toxic substances or biologically untreatable materials are present. The following chart provides volumetric capacities within each Singulair system:

SYSTEM CAPACITY

Singulair Model	Pretreatment Chamber	Total System
500 GPD	450 Gallons	1300 Gallons

HOW TO PUMP THE SINGULAIR SYSTEM

A complete Singulair system pumping procedure is listed below. Prior to tank pumping, contact the Norweco distributor to obtain complete information on equipment removal and reinstallation.

1. If any portion of the Singulair system requires pumping, contact a tank pumping service licensed by the local regulatory agency. The septage or biosolids from the system must be removed and disposed of in a manner consistent with federal, state and local regulations.
2. Refer to the “System Capacity” table and advise the pumping service what volume of liquid is to be removed from the system.
3. For pumping the pretreatment chamber only, remove the pretreatment chamber access cover and insert a suction hose into the chamber. Lower the hose until it contacts the bottom of the tank. Withdraw the hose approximately 2" and connect the opposite end to the pump being used to evacuate the chamber.
4. Break up the scum mat to facilitate pumping. Activate the pump and remove the pretreatment chamber contents. It is not necessary to wash down the sidewalls or tank bottom.
5. If the solids in the chamber are so concentrated that the suction hose cannot withdraw them, tank contents may be back-flushed to break up the solid matter.
6. If special circumstances require the total system to be pumped, contact the local Norweco Singulair distributor. Each aerator and Bio-Kinetic system must be removed for full access to all chambers and to prevent damage to components.

   NOTE: Access to the contents of the aeration and clarification chambers of Singulair systems should be made only through an aerator mounting casting. Never insert the hose through the Bio-Kinetic system mounting casting.
7. A Singulair system that has been inactive for an extended period of time or that has accumulated mud or dirt during installation may have to be washed down with fresh water and pumped out. This process may have to be repeated for proper system operation.
8. After pumping, fill all chambers to capacity with water. Return all aerators, Bio-Kinetic systems and access covers to their proper locations, as outlined in the Singulair Service Manual. Be sure each control center selector switch is in the “automatic” position, and each enclosure is secured with a tamper evident seal.

Following tank pumping, no other system adjustments are necessary for proper biological treatment to continue. Semi-annual service inspections by a factory-trained Norweco service technician should be conducted to insure long term system performance.

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Engineering the future of water and wastewater treatment

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SINGULAIR®

LIFETIME WARRANTY AND EXCHANGE PROGRAM

OWNER PROTECTION PROGRAM

Norweco's comprehensive exchange program offers Singulair owners a lifetime of protection. The chart below reflects the customer's cost for a replacement Singulair aerator, as a percentage of the aerator list price in effect at the time of the exchange.

Today's Answer for the Protection of Tomorrow's Environment

SYSTEM AGE	OWNER EXCHANGE
0-3 Years	In Warranty
3-5 Years	50 Percent
5-8 Years	60 Percent
8-15 Years	65 Percent

SYSTEM AGE	OWNER EXCHANGE
15-20 Years	70 Percent
20-30 Years	75 Percent
30-50 Years	85 Percent
50 + Years	90 Percent

AVAILABLE ONLY THROUGH FACTORY-TRAINED DISTRIBUTORS, LICENSED SERVICE CENTERS OR AUTHORIZED DEALERS

The Singulair aerator enjoys the distinction of being the only aerator on the market today backed by a lifetime exchange program. After the initial Singulair aerator three year warranty has expired, the owner is entitled to a lifetime of aerator protection with the exchange program.

Customers with a Singulair system may exchange any aerator, any age, for a replacement unit. The three year limited warranty starts over again on the replacement unit installation date. Norweco is proud to be able to offer a lifetime of protection to its Singulair customers. To qualify for the exchange program the conditions outlined below must be met.

Aerators can be accepted by Norweco for exchange if they are returned, freight prepaid, to our factory by a licensed Norweco Singulair distributor, licensed service center or authorized dealer. Collect shipments, or units returned directly from customers cannot be accepted. If aerator parts are missing or the aerator has been disassembled by unauthorized persons or tampered with in any way, it will be remanufactured on a time and materials basis rather than at a fixed exchange cost. Norweco cannot guarantee that the current exchange program will always be available, however, that is our goal, and we are happy to offer it at this time.

Singulair installations are also protected with an initial two year service program included in the cost of the system. A series of service and adjustment inspections by our local factory-trained personnel are prescheduled for the first two years of operation and included in the purchase price. "Progress through service since 1906" sums it up nicely. A quality product - serviced by a local expert - has earned Norweco a reputation for excellence.

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SINGULAIR®

THREE YEAR LIMITED WARRANTY

Norweco, Inc. warrants every new aerator, control center, Bio-Kinetic system, Singulair Green tank and any other Singulair component manufactured by Norweco to be free from defects in material and workmanship under normal use and service for a period of three years from the date of installation, as provided herein. Norweco will repair or replace the warranted component which in the sole judgement of Norweco shows evidence of manufacturing defect, provided that the defective component is returned to the factory, freight prepaid, by a licensed Singulair distributor, licensed service center or authorized dealer. This limited warranty shall be recognized in effect for three years from the date of Singulair system installation, if a warranty registration card has been properly registered with the factory, according to the terms of this warranty. If the warranty registration card has not been registered upon installation of the Singulair system, the limited warranty shall be recognized in effect for three years from the date the warranted component was shipped from the factory.

Norweco reserves the right to revise, change or modify the construction or design of the Singulair system or component parts without incurring any obligation to make such changes or modifications in earlier model components. Norweco reserves the right to furnish new or rebuilt component parts which, in Norweco's judgement, are the equivalent of the parts being replaced.

Service may occasionally be required for the Singulair system due to damage resulting from accident, improper use, voltage fluctuations greater than ±5% of the aerator nameplate rating, abuse, tampering, act of God, improper installation, vandalism or failure to follow operating procedures. As this damage has not resulted from defects in workmanship or material, it shall not be covered by this warranty. Service charges incurred in these cases, including parts and labor, shall not be assumed by Norweco and shall be the responsibility of the customer.

This Singulair three year limited warranty does not include any portion of the customer's wiring, plumbing, drainage, disposal system, or tankage not manufactured by Norweco, nor does it include freight charges (round trip) required to return the warranted component for factory replacement. Norweco shall not be responsible for damages of any kind or character resulting from or caused directly or indirectly by any defective component, inaccuracy, weakness, failure or delay. The warranty shall not apply to any missing components or to any items which have been disassembled, repaired, altered or tampered with, prior to their return to the factory. Therefore, if a Singulair component part fails to meet Norweco's manufacturing standards or product representations stated herein, do not use or dismantle it, contact the local licensed Singulair distributor, licensed service center or authorized dealer. The distributor, service center or dealer will arrange to have the component part returned to Norweco. Norweco's liability is limited solely to the replacement of the defective component part. Norweco shall not be liable for any labor involved during the removal or replacement of equipment, nor for charges for equipment, freight, transportation, inspection or handling of any component part. In no case will Norweco be liable for loss incurred because of interruption of service or for consequential damages, contingent liabilities or other similar expenses.

This limited warranty is, and the owner agrees that it shall be, in lieu of all other warranties whether expressed or implied. No distributor, service center, dealer or person is authorized or permitted to make any contract or assume any other obligations or liabilities for Norweco. Laws governing limited warranties vary in some states and although this warranty gives the owner specific legal rights there may be additional rights not contained herein.

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CONTROL CENTER WITH MCD TECHNOLOGY

GETTING STARTED WEBSITE INSTRUCTIONS

The Service Pro website is located at **www.servicepromcd.com**. Navigating through the Service Pro website is similar to browsing any other site found on the Internet. To utilize all features of the website, pop ups must be allowed. Refer to your Internet browser provider for specific instructions to allow pop ups. The computer mouse, on screen cursor and keyboard are the primary tools used to move through the website. To browse the Service Pro website, position the cursor over any hyperlink on the computer screen. A highlighted word is a hyperlink if the cursor changes from an arrow to a hand when it is positioned over the word. Information contained within the hyperlink can be accessed by clicking the left mouse button while the cursor is positioned over it. After pressing the left mouse button the computer screen will display the desired information.

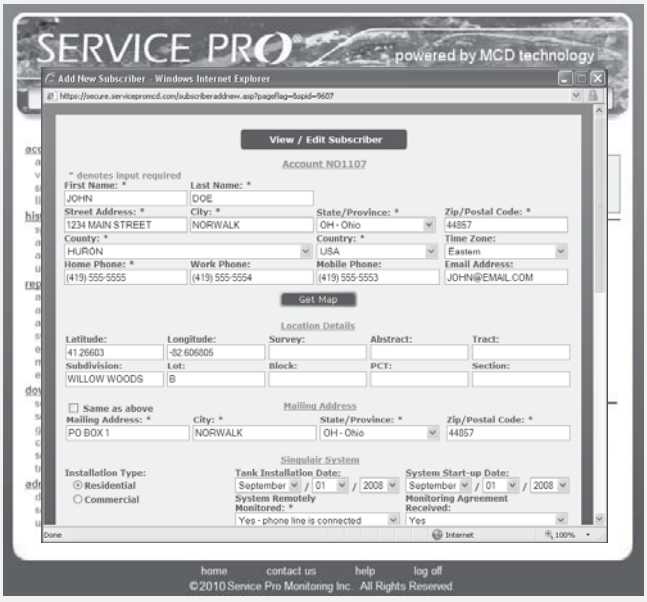
Data fields are the primary building blocks of the Service Pro website. A data field is an area within the site where information can be entered and saved. The computer keyboard is used to enter the data into the fields. Many fields in the Service Pro website have pre-selected lists of options to choose from called drop down lists, identified by the arrow (▾) symbol beside the field. Drop down lists can be accessed by clicking the arrow. In order to select an item from the drop down list, position the cursor over the desired response and click the left mouse button.

SERVICE PRO SITE MAP

The website is broken down into five sections to manage the data. These five sections are as follows:

1) Accounts
This area is where specific account information is entered and accessed. The subsections of this area are:

A) Add New Subscriber - Add new subscriber to the monitoring system by entering the subscriber's location, Singulair system, accessories, permit and service contract information.
B) View/Edit Subscriber - View or edit subscriber's account and system information.



VIEW/EDIT SUBSCRIBER SCREEN

C) Suspend/Restore/Archive - Stop and reactivate remote monitoring to a system or archive an account that is no longer needed.
D) List Accounts - Search and sort subscribers by one of the account categories listed below:
- ❑ Monitored Accounts - Accounts that are connected to a telephone line for remote monitoring.
- ❑ Suspended Accounts - Accounts that are temporarily inactive.
- ❑ Records Only - Active Accounts - Accounts that are not connected to a telephone line, but tracked for service.
- ❑ Records Only - Inactive Accounts - Accounts that are not remotely monitored or under a service contract, but maintained for future reference.
- ❑ Archived Accounts - Accounts that are marked for deletion.
- ❑ All Accounts - All accounts regardless of status.

NOTE: The results will appear in a report format that can be sorted by any column header. Reports can be viewed, printed or downloaded.

2) History
This area is where historical information about an account is stored and accessed. At the request of the distributor, regulatory officials may gain access to this area for accounts that are within their jurisdiction. The subsections of this area are:

A) Specific Account - Obtain information regarding a specific subscriber.
B) All Active Accounts - View history information for all active subscribers.
C) All Suspended Accounts - View history information for all suspended subscribers.

GETTING STARTED WEBSITE INSTRUCTIONS (Cont.)

NOTE: The information accessed in each of these categories can be specific to certain types of history by clicking on the circle next to 'Service History Only', 'Alarm History Only' or 'All History'. The account history can also be viewed for a specific time period by clicking on the circle next to 'Past Month', 'Past 6 Months', 'Past 24 Months' or 'Complete History'.

3) Reports

This area is where service information is entered, stored and accessed. Regulatory officials may be granted access to this area for accounts that are within their jurisdiction. The subsections of this area are:

A) Add Service Report - Enter a service report for a specific subscriber account.
B) Add Comment - Record a comment regarding the system.
C) Alarm State - View list of all subscriber systems currently in alarm state including a description of the alarm condition.
D) Systems Due for Service - View list of subscriber systems due for service. Select the accounts to list by clicking on the box next to 'Overdue', 'Due in 30 Days', 'Due in 60 Days' or 'Due in 90 Days'.
E) Expiring Contracts - View list of service contracts due to expire. Select the accounts to list by clicking on the box next to 'Expired Contracts', 'Due in 30 Days', 'Due in 60 Days' or 'Due in 90 Days'.
F) Missing Agreements - View list of subscriber systems that are missing monitoring agreements.

ADD SERVICE REPORT SCREEN

4) Downloads

This area is where users can download and print documents relating to the Service Pro website. The subsections of this area are:

A) Service Pro Instructions - Download the Service Pro Control Center Installation and Operation Instructions.
B) Service Pro Specifications - Download the Service Pro Control Center Specifications.
C) General Service Form - Download the pre-printed Singulair Bio-Kinetic Wastewater Treatment System Record of Service Performed form.
D) Contract Renewal Form - Download the standard Singulair Service Contract.
E) Service Pro Quick Start - Download the Service Pro Quick Start Guide for an overview of the control center functionality.
F) TNT Service Pro Quick Start - Download the TNT Service Pro Quick Start Guide for an overview of the control center functionality.

5) Administration

This area is used to administer the various levels of the user groups. The subsections in this area are:

A) Distributor - Edit and view distributor's contact information and Service Pro alarm notification method.
   - ❑ Edit Distributor
   - ❑ View Distributor
   - ❑ List System Status
B) Service Provider - Enter, edit and view service provider's contact information and Service Pro alarm notification method.
   - ❑ Add New Service Provider
   - ❑ Edit Service Provider
   - ❑ View Service Provider
   - ❑ List Service Providers
   - ❑ List System Status
C) User Internet Access - Enter, edit and view service provider and subscriber login name and passwords.
   - ❑ Service Provider Password
   - ❑ Subscriber Password

HORIZONTAL HEADER

The horizontal header is located below the Service Pro logo at the top of every page. The header provides hyperlinks for the most frequently used features of the Service Pro website. Click the left mouse button while the cursor is over the displayed hyperlink. The desired information will automatically be launched for the user. The hyperlinks in the horizontal header are:

A) Search - Directs the user to the Search Accounts page. Provides user easy access to search and sort subscriber accounts.
B) Service Due - Directs the user to a list of subscriber

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GETTING STARTED WEBSITE INSTRUCTIONS (Cont.)

systems due for service within selected time periods. Results can be sorted by any column header.

C) Panel Info - Directs the user to a brief synopsis of the Service Pro control center features. This information should be provided to regulatory officials, system designers and system owners.

D) Alarm State - Directs the user to a list of subscriber systems currently in alarm state. Results can be sorted by any column header.

E) Frequently Asked Questions (FAQ) - Directs the user to a list of questions frequently asked by distributors, regulators, service providers and system owners. Click the left mouse button while the cursor is over the desired question. The answer to the desired question will display.

F) Norweco.com - Directs the user to the Norweco website home page.

HORIZONTAL FOOTER

The horizontal footer is located at the bottom of every page. The footer provides hyperlinks for the most frequently used web browsing features. Click the left mouse button while the cursor is over the desired hyperlink. The desired result will automatically display. The hyperlinks in this area are:

A) Home - Hyperlink which goes to the **www.servicepromcd.com** start up page.

B) Contact Us - Automatically initiates an email correspondence direct to Norweco. Type in your desired question and send the email. A Customer Service representative will respond promptly.

C) Help - Provides information about the Service Pro website. Click the left mouse button while the cursor is over the desired topic. A brief description about the topic is displayed.

D) Log Off - Formally exits the Service Pro website data fields. The login page will be displayed.

HEADER, FOOTER AND QUICK ACCOUNT SEARCH

QUICK ACCOUNT SEARCH

The Quick Account Search box is located on the right side of every screen. The box displays the current account number selected, subscriber name, subscriber address and subscriber account status.

ACCESSING THE SERVICE PRO WEBSITE

1. Contact Norweco customer service to request a user name and password.
2. Open your Internet browser in standard fashion and in the address bar at the top of the computer screen enter "**http://www.servicepromcd.com**".
3. Press the enter key. The Service Pro Log In page will be displayed.
4. Type the user name provided by Norweco in the 'User Name' field. Press the tab key or click in the 'Password' field.
5. Type the password provided by Norweco in the 'Password' field. Press the enter key or click the left mouse button while the cursor is over the blue Log In box on the computer screen. The home page will be displayed.

ADD NEW SUBSCRIBER

1. Click the left mouse button while the cursor is over the blue 'add new subscriber' link. The Add New Subscriber page will be displayed.
2. Click the left mouse button while the cursor is over the black arrow located to the right of the 'select distributor/ service provider' drop down list.
3. Click the left mouse button while the cursor is over the correct Distributor or Service Provider name.
4. Click the left mouse button while the cursor is over the blue Submit box. The Add New Subscriber detail screen will be displayed.

NOTE: All fields with a red asterisk are required and must be completed before moving to the next screen.

5. Enter the subscriber's name, address and contact information into the fields provided.
6. The Location Details data fields are optional fields for use in further identifying the location of the system.
7. Next, if the mailing address is the same as the installation address, click the check box titled 'Same as above'.

GETTING STARTED WEBSITE INSTRUCTIONS (Cont.)

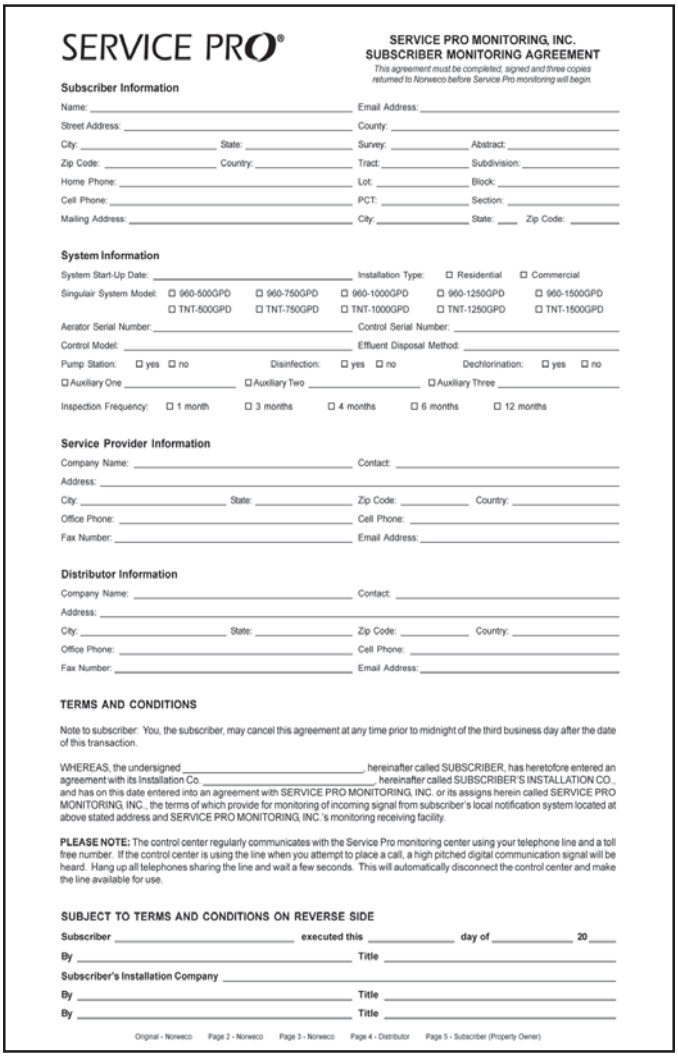
8. If the mailing address is different than the installation address, enter the correct mailing address in the data fields provided.
9. Next are data fields pertaining to the Singulair System. For the installation type, select 'Residential' or 'Commercial'. Select the installation date and system start-up date.
10. Indicate whether the Singulair system is remotely monitored by choosing 'Yes - phone line is connected' or 'No' and indicate if the monitoring agreement has been received. The monitoring start date and scheduled monitoring renewal dates are automatically displayed.

NOTE: Selecting 'Yes - phone line is connected' will initiate the start of the monitoring service billing period. For systems that will be monitored at a future date, select 'No'. Once monitoring should begin, use 'view/edit subscriber' to update the system to 'Yes - phone line is connected'.

11. Select the correct Singulair system model from the drop down list; '960-1000', '960-1250', '960-1500', '960-500', '960-600', '960-750' or 'Other'. If 'Other', key in the appropriate system model.
12. Key in the appropriate aerator serial number and select the correct model from the drop down list; '206C', '780', '93', '95', '96' or 'Other'. If 'Other', key in the appropriate aerator model. Enter the 'Control Serial Number' and select the correct 'Control Model' from the drop down list; 'Service Pro' or 'Other'. If 'Other', key in the appropriate control model.
13. Select up to three auxiliary alarms that are connected for remote monitoring. The drop down list includes 'ChemCheck', 'Effluent Pump', 'None', 'Post Air Pump', 'UV Disinfectant Device' and 'Other'. If 'Other', key in the type of auxiliary to be monitored.
14. Choose from the drop down lists any accessories used regarding 'Effluent Disposal Method', 'Disinfection', 'Dechlorination', 'Pump Station' or key in 'Other' if not available from the drop down menus.
15. Permit information data fields are used to enter the permit number and date.
16. Under Service Contract, select contract type 'Warranty' or 'Maintenance', enter the 'Contract Cost', 'Contract Start Date' and 'Contract Duration'.
17. Enter the duration, in months, between maintenance visits in the 'Maintenance due every ☐ months' field.
18. Record any additional notes in the last field.
19. Click the blue Submit button.
20. Adding the new subscriber is complete and remote monitoring will begin.

DOCUMENTATION

To initiate Service Pro remote monitoring, the Subscriber Monitoring Agreement must be completed and signed by the property owner. The agreement is a one page, five part carbonless form. Remote monitoring will begin when the new subscriber has been entered into the Service Pro website, the Singulair system is started up and the Service Pro control center is commissioned and three copies of the signed agreement are received by Norweco. The information on the agreement should be used to complete the new subscriber account on the Service Pro website and register the aerator and control center warranty.



SERVICE PRO®

SERVICE PRO MONITORING, INC.
SUBSCRIBER MONITORING AGREEMENT
This agreement must be completed, signed and three copies returned to Norweco before Service Pro monitoring will begin.

Subscriber Information

Name: _____ Email Address: _____
Street Address: _____ County: _____
City: _____ State: _____ Survey: _____ Abstract: _____
Zip Code: _____ Country: _____ Tract: _____ Subdivision: _____
Home Phone: _____ Lot: _____ Block: _____
Cell Phone: _____ PCT: _____ Section: _____
Mailing Address: _____ City: _____ State: ___ Zip Code: _____

System Information

System Start-Up Date: _____ Installation Type: ☐ Residential ☐ Commercial
Singulair System Model: ☐ 960-500GPD ☐ 960-750GPD ☐ 960-1000GPD ☐ 960-1250GPD ☐ 960-1500GPD
☐ TNT-500GPD ☐ TNT-750GPD ☐ TNT-1000GPD ☐ TNT-1250GPD ☐ TNT-1500GPD
Aerator Serial Number: _____ Control Serial Number: _____
Control Model: _____ Effluent Disposal Method: _____
Pump Station: ☐ yes ☐ no Disinfection: ☐ yes ☐ no Dechlorination: ☐ yes ☐ no
☐ Auxiliary One _____ ☐ Auxiliary Two _____ ☐ Auxiliary Three _____
Inspection Frequency: ☐ 1 month ☐ 3 months ☐ 4 months ☐ 6 months ☐ 12 months

Service Provider Information

Company Name: _____ Contact: _____
Address: _____
City: _____ State: _____ Zip Code: _____ Country: _____
Office Phone: _____ Cell Phone: _____
Fax Number: _____ Email Address: _____

Distributor Information

Company Name: _____ Contact: _____
Address: _____
City: _____ State: _____ Zip Code: _____ Country: _____
Office Phone: _____ Cell Phone: _____
Fax Number: _____ Email Address: _____

TERMS AND CONDITIONS

Note to subscriber: You, the subscriber, may cancel this agreement at any time prior to midnight of the third business day after the date of this transaction.

WHEREAS, the undersigned _____, hereinafter called SUBSCRIBER, has heretofore entered an agreement with its Installation Co. _____, hereinafter called SUBSCRIBER'S INSTALLATION CO., and has on this date entered into an agreement with SERVICE PRO MONITORING, INC. or its assigns herein called SERVICE PRO MONITORING, INC., the terms of which provide for monitoring of incoming signal from subscriber's local notification system located at above stated address and SERVICE PRO MONITORING, INC.'s monitoring receiving facility.

PLEASE NOTE: The control center regularly communicates with the Service Pro monitoring center using your telephone line and a toll free number. If the control center is using the line when you attempt to place a call, a high pitched digital communication signal will be heard. Hang up all telephones sharing the line and wait a few seconds. This will automatically disconnect the control center and make the line available for use.

SUBJECT TO TERMS AND CONDITIONS ON REVERSE SIDE

Subscriber _____ **executed this** _____ **day of** _____ **20**___
By _____ **Title** _____
Subscriber's Installation Company _____
By _____ **Title** _____
By _____ **Title** _____

Original - Norweco Page 2 - Norweco Page 3 - Norweco Page 4 - Distributor Page 5 - Subscriber (Property Owner)

Each new subscriber must sign a 24 month monitoring agreement. If the monitoring agreement is not received by Norweco within 60 days of the new account being commissioned, the account will be suspended until the monitoring agreement is received. To insure continuous monitoring, agreements are automatically renewed. Initial and renewal Singulair service contracts should include the cost to provide the Service Pro monitoring service.

NOTE: The Service Pro website should be book marked in all Internet browser programs to facilitate easy access.

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norweco® SINGULAIR®

BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

SERVICE PROGRAM AND RECORDKEEPING

Complete and detailed installation and service records must be kept on each Singulair system. Properly maintained records will enable you to determine, at a glance, the history and condition of each system sold. Keep all installation and service records filed as outlined herein so that you will have immediate access to this information. Following these procedures allows efficient organization of service inspection dates and service policy mailings. Their use will enable you to provide complete and professional service to your Singulair customers.

INITIAL ORDER RECORDS

When a Singulair order is received, record the following information on your delivery slip: customer's name, address and telephone number, equipment ordered (including system model number and optional equipment such as Blue Crystal disinfection system, Bio-Neutralizer dechlorination system or risers) directions to the site, delivery date and time requested. Give this information to the dispatcher for delivery truck scheduling.

ASSIGN COMPONENTS FROM STOCK

To begin processing the order, select the proper quantity of Norweco aerators from your stock. Open each aerator shipping carton at the top and remove the Singulair control center. Attached to the control center is a copy of the three-part warranty registration card, an Owner's Manual and a red warning tag. Make sure that the model number and serial number on the outside of each aerator shipping carton matches the aerator nameplate and all three sections of the registration card. Give all control centers with attached literature to the tank delivery driver.

Remove the vent cap assembly from each aerator shipping carton and place it into your revolving stock. Do not remove the aerator or aspirator shaft from the shipping carton. Close each aerator carton and identify it on the outside with the name and address of your customer so that matching aerator and control centers will be installed. All aerators will remain in your plant until the customer requests installation and start-up.

Select the proper quantity of Bio-Kinetic systems and optional equipment from your stock. Make sure the model number for each Bio-Kinetic system matches the customer order. Identify the outside of each Bio-Kinetic system shipping carton with the customer's name and address.

TANK INSTALLATION RECORDS

When the Singulair tank and controls are installed, the contractor or owner should sign an itemized delivery slip. Your driver should tear off the bottom portion of the three part card attached to each control center. One service and warranty record card should be filled out with the tank setting date, owner's name, address and telephone number, contractor's name, directions to the jobsite, a description of the installation, optional equipment installed and location of the tank and control center. Other service and warranty record cards for the same system should be attached to the completed card. All service and warranty record cards should be returned to your office and kept until the system is ready for start-up. Leave the remaining two portions of the three part card intact and store them with the Singulair Owner's Manual.

RECORDS OF SYSTEM START-UP

When aerator and Bio-Kinetic system installation is scheduled, give all service and warranty record cards to your installer. These cards contain all information needed to perform start-up services. The date of aerator installation and start-up should be filled in and these cards returned to the office when each aerator and Bio-Kinetic system has been installed.

SINGULAIR CUSTOMER MASTER FILE

When system start-up is complete, transfer the owner's name, address, telephone number, system model number, serial number for each aerator and system installation date from the service and warranty record card to a standard 4 x 6 file card. Place all cards alphabetically by owner name in the Singulair master file. The file should contain one card for each Singulair installation. It must be updated whenever an exchange aerator is installed or system ownership changes.

SINGULAIR SERVICE FILE

File each original service and warranty record card in the Singulair service file. The service file should be set up on the first month you begin to install and start-up Singulair systems. Make a divider tab which has visible the number "1" on it. File the service and warranty record card for each

SERVICE PROGRAM AND RECORDKEEPING (Cont.)

system placed into operation this month ahead of this divider "1" tab. On the first day of the second month, make a new divider tab titled "2." File this divider behind the first one and move all registration cards filed last month to a new position in front of divider #2. Place all record cards for installations started-up in this, your second month, ahead of divider #1. On the first day of each succeeding month, a new divider must be placed at the end of the file, then all cards moved back one divider, then all new installation cards for the current month filed ahead of divider #1. Do not file current installation cards prior to advancing the previous month's cards.

SCHEDULING SINGULAIR SERVICE INSPECTIONS

Four semi-annual service inspections are to be completed after the system has been installed. They are scheduled after six, twelve, eighteen and twenty-four months. To determine which systems are due inspections each month, update the Singulair service file with a new month divider on the first day of the month and remove all cards from behind divider tabs 6, 12, 18, and 24. Fill out one three-part service inspection record card for each system with system model number, all aerator model and serial numbers, county, owner's name, address and directions to the site. Be sure this information is duplicated on all three sections of the card. The other side of the card will be filled out by the service technician at the site. If this is to be the 24th month inspection and the owner has not returned a service contract, check the box on all three portions of the card indicating that the service policy has expired. Give the service inspection record cards to the service manager.

Your service technicians must fill in the remaining items on both sides of each card as they make the inspections. The top portion is torn off and left with the owner. The lower two portions are returned to the office. The middle portion of the card is for health department notification. Most health departments prefer that these cards are collected by the distributor and mailed in monthly rather than individually.

The bottom portion of the service card is retained for your records. It should be filed behind the service and warranty record card for that installation. This allows all records of service inspections for each installation to be filed together. As you file the service inspection cards, you should update the service and warranty record card with the date and results of your service inspection.

EMERGENCY SERVICE CALLS

Occasionally you may be asked to service a Singulair system in advance of its next prescheduled inspection. When the service request is taken, look up the service and warranty record card in the service file. Use it to prepare a new three-part service inspection card and check the box for "Special Service Call." This service inspection card must be completed by your service technician and returned to your office. When it is returned, the check for "Special Service Call" signifies that the service and warranty record card for this installation probably will not be found following a divider tab scheduled for service this month. When the record card is located, fill in the service call date for the next prescheduled inspection and file the service card in chronological order behind the service and warranty record card. When the next prescheduled inspection for this system is due, service will be considered complete.

MAILING SERVICE POLICIES

Initial Singulair service is in effect for the first twenty-four months of system operation. After that time the owner is invited to continue service on an annual basis. Service contracts should be mailed in the twenty-second month of system operation. After updating the service file at the beginning of each month, remove all service and warranty record cards from behind divider tab #22 and mail a service contract and cover letter to each. Follow-up each mailing to owners who have not responded to your 22nd month notice by remailing to all service and warranty record cards behind divider tab #23 whose contracts have not been renewed. Record the dates of these mailings on the registration card.

MAIL SERVICE POLICIES AT 22 AND 23 MONTHS

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SINGULAIR® BIO-KINETIC®

WASTEWATER TREATMENT SYSTEM

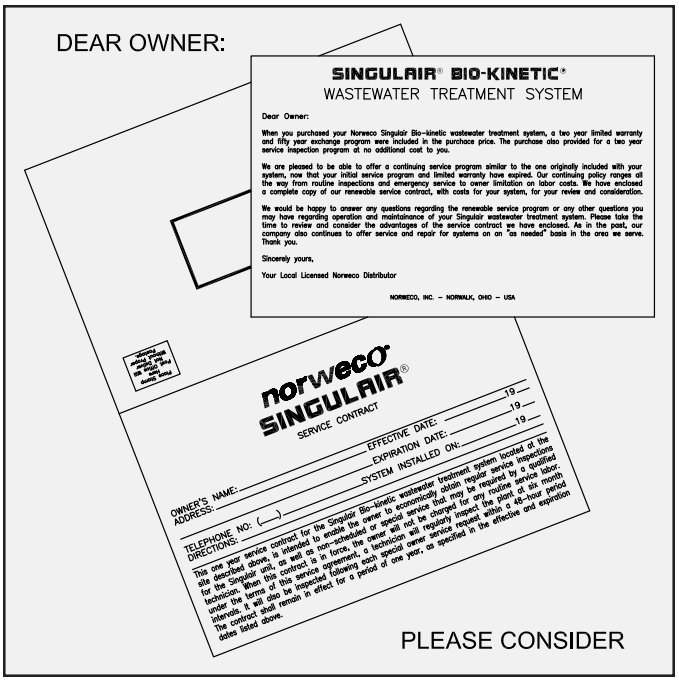
SERVICE PROGRAM AND RECORDKEEPING (Cont.)

RENEWED SERVICE POLICIES

If an executed service contract and fee are received by the end of the two year service period, the service and warranty record card (followed by four completed service inspection cards) is retained in the service file. Service policy inspections after the initial two year program are performed in the same fashion as initial inspections. Cards each month from behind divider tabs 6, 12, 18 and 24 and from behind tabs which are multiples of six: 30, 36, 42, 48, etc. are used to schedule routine service for the month. Fill out three-part service cards for each installation and continue to file completed service inspection cards chronologically behind individual service and warranty record cards. Remember to update the service and warranty record cards for each installation as service contract inspections are performed.

Continued service policies are renewed annually. Renewal service contracts should automatically be mailed in their tenth month. They should be done monthly when initial service contracts are mailed to owners in the twenty-second month of Singulair system operation. In any given month, service contracts due to expire in two months will be located behind divider tabs #34, 46, 58 and so forth. Second mailings may be made from cards located behind divider tabs #35, 47, 59, etc. excluding those whose renewal contracts have been returned.

Executed service contracts should be filed alphabetically by owner's name in a separate file. Multiple copies for owners who consistently renew their contracts should be attached to each other and organized chronologically.



LAPSED SERVICE CONTRACT RENEWALS

From time to time an owner may wish to renew a service contract which had been permitted to lapse. When the executed contract and fee are received, remove the service and warranty record card, with all service cards, from the alphabetical master file. Only the 4 x 6 master card should remain. Refile all other cards in the active service file behind the divider tab it would have been found in, according to system age as if the service policy had been continuously in force. This filing order will allow you to use the procedures already established for service scheduling and renewal policy mailings.

INSTALLATION OF EXCHANGE AERATORS

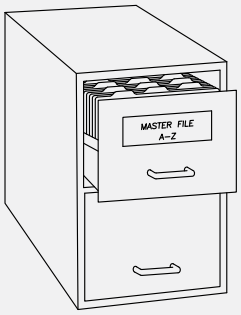
When an owner uses the lifetime exchange program to receive a new aerator, the three year limited warranty begins again. However, the two year initial service program does not. No service is performed unless a service contract is in effect. When the exchange aerator is installed, a new warranty registration is included. The top portion, containing the new aerator serial number is to be kept with the Owner's Manual. The middle portion must be signed by the owner and returned to the factory. The lower portion is filed behind the original card in the Singulair customer master file or service file, whichever is appropriate. Note on the new card the aerator installation date and also mark the card that the six, twelve, eighteen and twenty-four month inspections will not apply. Record the exchange unit serial number and installation date on the 4 x 6 card in the alphabetical master file. It is important that service and warranty record cards be retained for installations with exchange aerators because future determinations of aerator age will be based upon the original system start-up date.

INACTIVE SINGULAIR INSTALLATIONS

If an executed service contract and fee are not returned by the end of the twenty-fourth month of system operation, the installation is considered inactive. Its service and warranty record cards and all service cards must be removed from the active service file. They are refiled behind the alphabetical listing card in the Singulair customer master file. Inactive cards remain in this file unless the owner executes a new service contract at a later date. All renewed service contract holders whose contracts lapse must also have their cards transferred to the alphabetical file. If an owner requests service on an out-of-warranty system, service should be performed on a time and materials basis. A three-part service card must be completed as usual and the distributor's copy should be returned to the office and filed in order behind the last service card for the installation.

THREE SIMPLE FILES PROVIDE AUTOMATIC SERVICE SCHEDULING

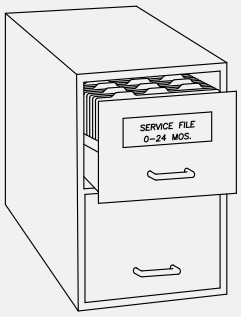
Detailed and accurate record keeping guarantees efficient service performance, reduced man-hours and increased profits.



MASTER FILE

Contains a 4 x 6 file card for each installation which:

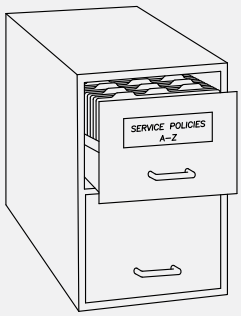
- Lists owner's name, address and telephone number
- Lists system installation date, model number and serial number
- Is updated when ownership changes
- Is updated when an exchange aerator is installed
- Is followed by service and warranty record card and all service inspection cards for inactive installations



SERVICE FILE

Contains monthly divider tabs used to:

- File service and warranty record cards by month of installation for in-warranty components
- File all service and warranty record cards for out-of-warranty systems with continued service policies



SERVICE POLICY FILE

Contains all executed service contracts for each Singulair installation filed:

- In alphabetical order by owner's name
- In chronological order by contract effective date

PROGRESS THROUGH norweco® **SERVICE SINCE 1906**

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

SINGULAIR® SYSTEM AND CONTROL CENTER SERVICE

To maximize owner protection, the Singulair Bio-Kinetic wastewater treatment system is backed by a three year limited warranty on system components and a lifetime aerator exchange program. The initial selling price includes a series of four prescheduled service inspections at six month intervals which cover the first two years of system operation. These inspections should completely familiarize the owner with the Singulair Bio-Kinetic wastewater treatment system and answer any questions that arise. Carefully check all component parts of the Singulair system to insure proper operation and overall wastewater treatment quality. Regular service inspections by qualified technicians establish an excellent relationship with the owner as well as with local health officials. They must be performed faithfully to keep you up-to-date on the performance of each Singulair system you have installed.

While making service inspections during the intial two year period, be sure to explain to the owner that they are being performed at no charge and that the same coverage can be renewed on a continuing basis at a nominal charge following the initial two year program. Point out the advantages of continuous protection with the service contract. Be sure to remember that service contract sales have advantages for the distributor as well. They result in more efficient service inspection scheduling with more actual “service time” and less “travel time” per day. These savings can be passed on to the owner through more attractive renewal contract fees in future years.

All of the equipment and tools needed for Singulair system service work are contained in the Singulair field service cart and Tool Kaddy. You will also need exchange Bio-Kinetic systems, a supply of Blue Crystal disinfecting tablets and a supply of Bio-Neutralizer dechlorination tablets. Bio-Kinetic systems may be supplied with or without Blue Crystal and Bio-Neutralizer chemical feed systems. Therefore, check your Distributor Service and Warranty Record Card carefully to be sure you have selected exchange Bio-Kinetic systems with correct flow distribution decks.

SINGULAIR SYSTEM SERVICE PROVIDES CONTINUOUS OWNER PROTECTION WITH THESE ADVANTAGES

- Travel and labor costs during service inspections are provided at no charge to the owner.
- Special service calls that may be necessary during the program are performed at no charge to the owner.
- Owner’s investment, property and the environment are fully protected.
- Guaranteed response to emergency service requests is made within forty-eight hours.
- Local health department is automatically notified of system condition by the distributor.
- Owner has an up-to-date, written record of the condition of the Singulair aerator, control center and Bio-Kinetic system.
- Owner is continuously informed of the treatment quality provided by the system.
- Routine maintenance is performed by factory-trained service technicians; no owner maintenance is required.
- Owner can expect maximum aerator life and minimal power consumption costs due to regular, qualified service visits.

These instructions are designed to cover the important points of Singulair Bio-Kinetic system operation which should be checked during each service inspection. They have been arranged in normal service order to assure that you make the most efficient use of your time. While a visual check is normally sufficient to be certain that each item is in proper working order, several items listed in this manual are indications of potential problems. If anything unusual is encountered, refer to the Singulair Troubleshooting Guide.

NORWECO PRESCHEDULED SERVICE INSPECTIONS (Cont.)

Before you leave your plant

- Be sure you have a complete list of service needs in the area you are going to work.
- Check to see that you have detailed directions to each installation.
- Be sure your service vehicle is fully stocked.

When you arrive at the site

- Meet the owner. Introduce yourself and present your business card.
- Explain the service inspection program and outline what you will do. Mention that your services are at no charge.
- Ask for permission to inspect the Service Pro control center and Singulair tankage.
- Make sure the owner has a copy of the Owner's Manual, serial number tag and previous Service Inspection Record Cards.
- Suggest that the owner record the information from the Service Inspection Record Card in the Supplemental Service Record Section of the Owner's Manual.
- Ask if there are any questions concerning the system or its operation.

CONTROL CENTER SERVICE

CAUTION: If your visual inspection of the Service Pro control center reveals a problem, be sure to shut off the appropriate circuit breaker in the main service panel - then test all circuits with the electrical multi-meter to be sure they are de-energized before proceeding.

1. If there is no evidence of an electrical problem, check the main service panel to see that the circuit breaker for each Singulair system is turned on.
2. Make sure the panel is turned on and the power indicator light is on. If there are any alarm lights activated, refer to the Service Pro quick start guide for further diagnostic instructions.
3. See that your company's identification label is affixed to the Service Pro control center and is legible. Replace the label if necessary.
4. Make sure that the aerator model number and serial number tag is attached to the control center or has been stored by the owner in a secure location. If it has been misplaced, provide a new one and fill in the appropriate information.
5. See that the Owner's Manual has been stored by the owner in a secure location. If it has been misplaced, supply the owner with a new one.
6. Inspect the wiring from the control center to the aerator, as far as it is visible, and notify the owner if you see any damaged areas.
7. As you leave, make sure the Service Pro control center is turned on and there are no active alarms. Secure the Service Pro control center with a new tamper evident seal.
8. Make appropriate notations on the condition of the control center on the Service Inspection Record Card.

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norweco® SERVICE PRO®

CONTROL CENTER WITH MCD TECHNOLOGY

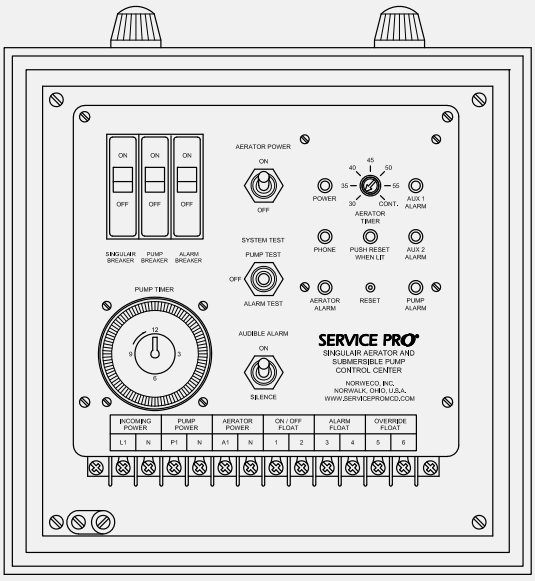
INTEGRATED SYSTEM AND CONTROL CENTER SERVICE

The integrated system controls are designed to accommodate installations where a Singulair wastewater treatment system is used in conjunction with an effluent disposal system that requires pumping. Integrated system controls allow both the Singulair aerator and the pump used in the associated effluent disposal system to be controlled from a single panel. These control systems are backed by the same three year limited warranty that is associated with the Singulair wastewater treatment system.

These instructions are directed to the specific requirements of servicing integrated system controls. They are not intended to cover all aspects of service for the Singulair system. Additional instructions are contained in the Bio-Kinetic wastewater treatment system, Singulair system and control center service instructions.

CONTROL CENTER SERVICE

CAUTION: If your visual inspection of the Service Pro control center reveals a problem, be sure to shut off the appropriate circuit breaker in the main service panel, then test all circuits with the electrical multi-meter to be sure they are de-energized prior to proceeding.



INTEGRATED SYSTEM CONTROLLER

While the power to the panel is “off”, check the terminal strip screws to insure that they are tight and securely connecting the wires at each connection. Also check the connection to the grounding lug to insure the ground wire is securely fastened to the grounding lug. Loose connections can result in system malfunction.

Control center service should be performed during each service inspection and should follow all parameters outlined in the Singulair Service Manual.

NOTE: The performance of the Singulair system has been tested and certified with the aerator(s) operating on a minimum cycle of 30 minutes per hour. No adjustment should be made to the factory preset time clock setting without following the detailed steps outlined in the “Time Clock Setting and Service Instructions”.

1. If there is no evidence of an electrical problem, check the main service panel to see that the circuit breaker is in the “on” position.
2. Check to see that all circuit breakers within the integrated control center are in the “on” position.
3. Check to see if the aerator breaker is in the “on” position. If this breaker is tripped, switch it to the “off” position and then the “on” position to reset it.
4. Check the aerator power switch in the Service Pro integrated system controls to make sure that it is set to “automatic” operation.
5. Activate the alarm test switch to insure the audible and visual alarms are functioning properly. While the audible alarm is sounding, test the alarm silence switch to verify proper operation.
6. Return the alarm test switch to the “off” position and the audible alarm switch to the “on” position after it has been determined that the alarm features are properly functioning.
7. Verify that your company’s identification label is affixed to the Service Pro control center and is legible. Replace the label if necessary.
8. Inspect wiring from the control center to the aerator(s) and pump(s) as far as it is visible, and notify the owner if you see any damaged areas.
9. Check the functionality of the pump by using the pump test switch. If the pump fails to activate see the troubleshooting section of this document.
10. As you leave, make sure that the Service Pro integrated system controls are set for automatic operation for all aerator(s) and pump(s).
11. Make appropriate notations on the electrical control center condition on the service inspection record card.

SINGULAIR® SYSTEM AND CONTROL CENTER SERVICE (Cont.)

TROUBLESHOOTING

ELECTRICAL TROUBLESHOOTING

CAUTION: Before initiating any electrical component inspection or repair, turn off all power to the Singulair system by switching off the dedicated circuit breaker in the main electrical service panel and then test with the electrical multi-meter. Repairs should always be made by a qualified electrician using proper procedures and safe tools. Make sure that 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.

NO ELECTRICAL POWER FROM ELECTRICAL SERVICE PANEL TO CONTROL CENTER

Integrated system controls terminal L1 and N read zero voltage	Follow instructions detailed in "Electrical Troubleshooting" section of the Singulair Service Manual

NO ELECTRICAL POWER FROM CONTROL CENTER TO AERATOR

Integrated system controls terminal A1 and N read zero voltage	Follow instructions detailed in "Electrical Troubleshooting" section of the Singulair Service Manual

NO ELECTRICAL POWER FROM CONTROL CENTER TO PUMP

Integrated system controls terminal P1 and N read zero voltage	Check to see that pump circuit breaker is in the "on" position
	Check to see that "on" float in pump station wet well is elevated to its "closed" position
	Check all wiring from control center to pump

AERATOR WILL NOT START

Aerator power switch in "on" position, but aerator does not run	Follow instructions detailed in "Electrical Troubleshooting" section of the Singulair Service Manual

PUMP WILL NOT START

Proper voltage at terminals P1 and N, but pump does not run	See instructions contained in Pump Operation and Maintenance Manual
Pump does not run when proper float is inverted	Replace defective float

AERATOR DRAWING EXCESSIVE CURRENT

Foam restrictor partially under water	See Singulair System Flooded
Debris on aspirator shaft	Remove debris with knife
Motor failure	Return aerator to factory
Insufficient voltage (less than 103 volts)	Report condition to power company
Excessive voltage (greater than 126 volts)	Report condition to power company

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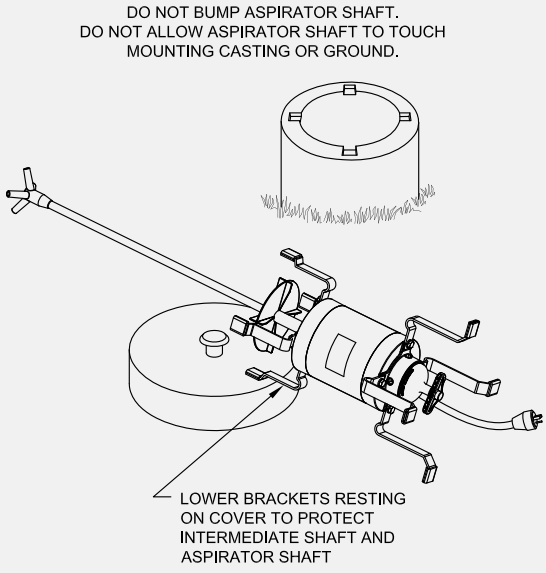
BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

SINGULAIR® AERATOR SERVICE

The Singulair aerator has been specifically designed for use in the Singulair system and is the only electro-mechanical component. It provides maximum air introduction, thorough mixing and assures reliable, economical wastewater treatment. For Singulair systems requiring more than one aerator, follow these instructions for each aerator and aeration chamber. The Singulair aerator is factory lubricated for the life of the unit. No service inside the aerator is required. Unauthorized disassembly will void the warranty.

CAUTION: Any time an aerator or test equipment is connected or disconnected, first shut "off" the selector switch in each control center. Failure to do so could result in personal injury or equipment damage.

1. Open the control center and push the reset button on the Service Pro panel.
2. As you approach the Singulair tank, listen for excessive noise before removing the vented cover.
3. Remove the vented access cover located above the aeration chamber and place it aside. The aerator should be operating normally.
4. Make sure the debris screens are in place in the air intake ports. Manually check the aerator brackets for excessive vibration.
5. Check the aeration chamber for odor. A musty odor indicates the presence of aerobic conditions essential for good treatment. A septic odor indicates inadequate aeration, suggesting that the passage of air into the tank contents has been restricted.
6. Carefully remove the debris screens from the air intake ports. Wipe the aerator air intake ports with a damp cloth being careful not to allow dirt or debris to enter the intake openings.
7. Using the Singulair flowmeter, check the air delivery. It should read approximately 3 CFM. Refer to the Singulair Aerator Flowmeter instruction sheet for complete details.
8. Inspect the outside of the electrical connector assembly for worn spots. Uncouple the connector and check for any evidence of moisture inside. Secure the closure cap over the female half of the connector to keep it clean and dry while you work.
9. Within 2-3 minutes after turning off the aerator, perform a settleable solids test of the aeration chamber contents. Refer to Singulair Tank Pumping instructions for details.
10. Remove the aerator from the mounting casting. BE CAREFUL when removing the aerator to see that the aspirator shaft does not come in contact with the mounting casting. The aspirator shaft is straightened to a critical tolerance before it is shipped from the factory. It must retain this straightness tolerance or vibration may result. Excessive vibration can greatly shorten aerator life and could also cause the unit to consume more electrical power than necessary.
11. Check the rubber shock absorbers on each bracket for wear. Replace any that are missing or worn.
12. Check the power cord from the moisture resistant electrical connector to the aerator. Be sure it is free of nicks or worn spots.
13. Lay the aerator on its side against the aerator mounting casting or vented cover. Check to see if there is a water mark on the outside of the aerator and notify the owner if one is found. The aerator is flood proof and mechanically designed so that it can return to normal operation unharmed after being subjected to intermittent high water. However, a high water mark on the outside of the aerator does indicate there is a problem in the effluent disposal line, disposal field or elsewhere in the installation. If the problem is left uncorrected, wastewater could back up into the tank, void the aerator warranty and eventually flood the facility.



PLACE AERATOR AGAINST COVER

SINGULAIR® AERATOR SERVICE (Cont.)

14. Carefully loosen the two stainless steel set screws on the bottom of the intermediate shaft and remove the aspirator shaft. Remove any internal deposits from the four aspirator orifices with the aspirator shaft cleaning tool. Connect the aspirator shaft to the shaft cleaning hose and outside water faucet to flush the inside of the aspirator shaft clean. Use full water pressure. Remove the shaft from the cleaning hose and inspect the bore to see that it is clean.
15. Push the stainless steel brush with extension handle through the stainless steel intermediate shaft and hollow motor shaft to dislodge any residue that may have accumulated. **NOTE:** Do not flush the motor shaft with water. Remove any debris from the air intake openings.
16. Thoroughly clean both the bottom and the top surfaces of the foam restrictor.
17. Reinstall the aspirator shaft into the intermediate shaft. Match the permanent alignment marks on the aspirator and intermediate shafts to maintain the original factory balance. Tighten the set screws with a tee-handle allen wrench, finger tight only. Too much pressure may dish the side of the aspirator shaft and compromise the straightness tolerance.
18. Visually check the aeration chamber surface for the presence of grease or oil. An accumulation of these materials indicates the pretreatment chamber should be evaluated. Refer to Singulair Tank Pumping instructions for details.
19. Check the aeration chamber for the presence of non-biodegradable materials, paper, mop fibers, hair, grease or oil. A significant accumulation of these materials in the aeration chamber indicates the pretreatment chamber should be evaluated. Refer to Singulair Tank Pumping instructions for details.
20. Inspect the underground power cable in the aerator mounting casting for breaks or scars in the insulation. Examine the inside of the mounting casting and riser for evidence of ground water entry.
21. Carefully reinstall the aerator in the mounting casting. Do not allow the aspirator shaft to touch the mounting casting side walls. Make sure the weight of the aerator is evenly distributed on the upper end of all four mounting brackets.
22. Using a multi-meter, check the voltage at the electrical connector. The meter should read 115 volts ± 5% for systems equipped with electro-mechanical control centers and zero volts for systems with Service Pro controls. Record the voltage on the Service Inspection Card.
23. Wipe the aerator electrical connector with a clean, dry cloth to remove moisture or dirt accumulated during service. Plug the electrical test pigtail in between the male and female electrical connectors and check the amperage of the newly serviced aerator. The aerator should not draw more than 3.8 amps. Record the amperage on the Service Inspection Card. **NOTE:** When the aerator is started for the first time, the break-in period may cause the amp draw to be as high as 4.2 amps for the first 48 hours of operation.
24. Clean or replace the four air intake debris screens. Make sure one screen is placed in each intake opening to prevent debris from entering the aerator.
25. Inspect the vent cap in the aerator access cover and clear the fresh air openings of any debris to insure unrestricted passage of air. Reinstall the access cover on the mounting casting.
26. Make the appropriate notations regarding the aerator, the results of the settleable solids test and related items on the Service Inspection Card.
27. Proceed with clarification chamber service as outlined in Clarification Chamber and Bio-Kinetic Service instructions. When the routine service is complete, return to the control center and restore the Singulair system to the proper operating time cycle for this installation. Close the control center cover and secure it with a new tamper evident seal.

IF AN AERATOR MUST BE REMOVED

The service technician should be able to restore most installations to full operation during the initial service call. If the aerator is no longer eligible for the three-year limited warranty, the aerator should be removed and replaced with a remanufactured and fully warranted exchange unit from your rotating stock. This will become the permanent aerator in service at the facility and your company's service records should be updated to reflect the new aerator serial number. If the serial number portion of the Warranty Registration Card is still attached to the control center, be sure to fill in the new serial number for the owner. When you have accumulated several aerators requiring factory service, return them to Norweco. This reduces administrative time and the cost of shipment per unit. When remanufactured aerators are returned to you, add them to your rotating stock. In this way, the installation is restored to full service with a fully warranted unit in only one service trip.

EXCHANGE AERATOR COSTS

You may compute exact costs for exchange aerators during your service inspection since the cost is determined by system age, regardless of condition. Exchange rates are given on the Singulair Warranty and Exchange Program data sheet. In cases where the aerator has failed under warranty, you should replace it with a loaner unit to insure continued operation of the system and protect effluent quality. Return the warranted unit to the factory immediately for replacement and schedule reinstallation with the owner at the earliest possible convenience when it is returned to you.

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

USING THE UNIVERSAL TOOL

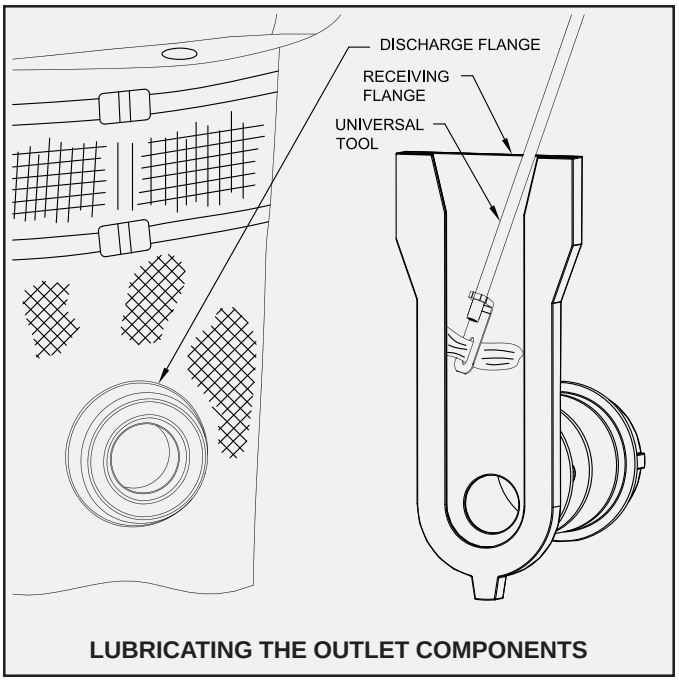
The universal tool is available to assist in the installation and service of the Bio-Kinetic system. This device incorporates a swab tool, locking lug tool, lifting tool and disassembly tool into one convenient package. The swab tool simplifies the application of Bio-Kinetic lubricant to the outlet components of the Singulair tank. The locking lug tool engages and disengages the locking lugs of the Bio-Kinetic system beneath the concrete lip of the mounting casting. The lifting tool assists in the installation and removal of the Bio-Kinetic system from the Singulair tank. The disassembly tool allows the inner components of the Bio-Kinetic system to be removed and reinstalled without removing the entire assembly.

USING THE SWAB TOOL

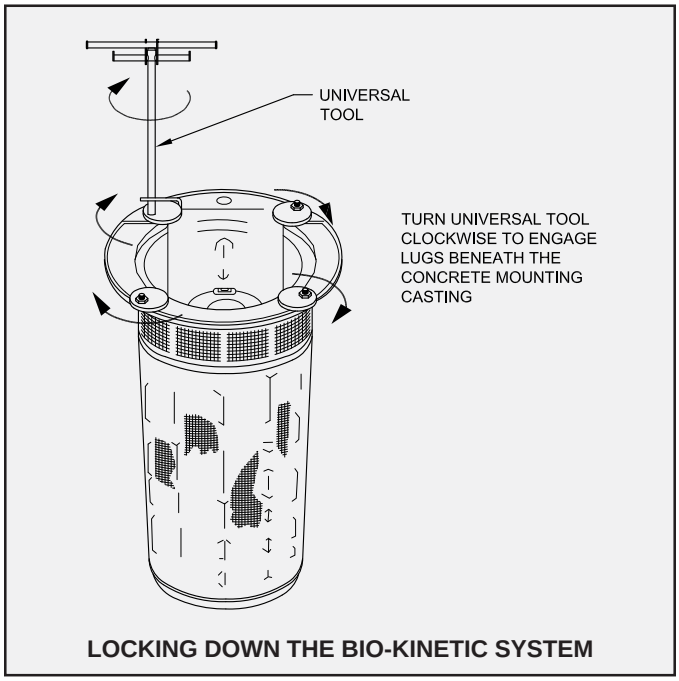
The swab tool is used to apply Bio-Kinetic lubricant to the rubber and plastic outlet connection components. Proper lubrication will insure the outlet connection engages easily without leaks. To prepare the swab tool for use, place a clean cloth through the eyelet of the swab tool and apply Bio-Kinetic lubricant to the cloth.

Examine the receiving flange cast into the outlet of the Singulair tank. The grooves and face of the receiving flange should be free from debris. Using the swab tool, apply a liberal amount of Bio-Kinetic lubricant to the grooves and face of the receiving flange. Locate the gasketed discharge flange assembly installed in the outlet of the Bio-Kinetic system. Remove any debris from the gasket with a clean cloth. Lubricate the gasket using the swab tool.

CAUTION: Bio-Kinetic lubricant has been specially formulated. Use of other lubricants, especially petroleum based lubricants, can cause degradation of the rubber components and will void the warranty.



LUBRICATING THE OUTLET COMPONENTS



LOCKING DOWN THE BIO-KINETIC SYSTEM

USING THE LOCKING LUG TOOL

The locking lug tool engages and disengages the locking lugs beneath the concrete lip of the mounting casting. When locked into position, the locking lugs hold the Bio-Kinetic system in place. The locking lugs must be disengaged to allow the Bio-Kinetic system to be removed from the Singulair tank for service.

To engage or disengage the locking lugs, remove the clarification chamber access cover and place it upside down next to the mounting casting. If the system is equipped with Blue Crystal or Bio-Neutralizer feed tubes, carefully remove each tube, one at a time. Lay each feed tube on the inverted access cover. Do not allow the feed tubes to touch each other. Remove the service cover from the Bio-Kinetic system. Place the locking lug tool, located opposite the fixed handle, over one of the locking lug bolts of the Bio-Kinetic system. Turn the locking lug tool clockwise to engage or disengage lugs beneath the concrete lip of the mounting casting.

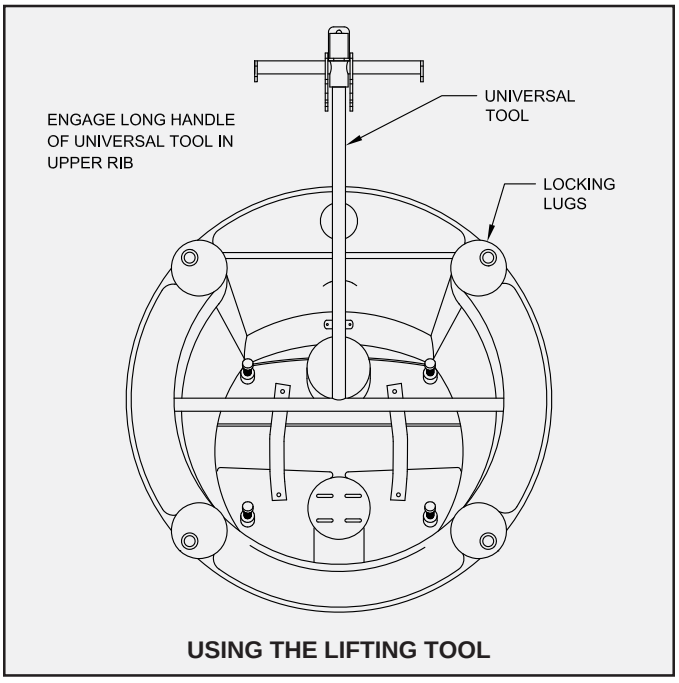
USING THE UNIVERSAL TOOL (Cont.)

USING THE LIFTING TOOL

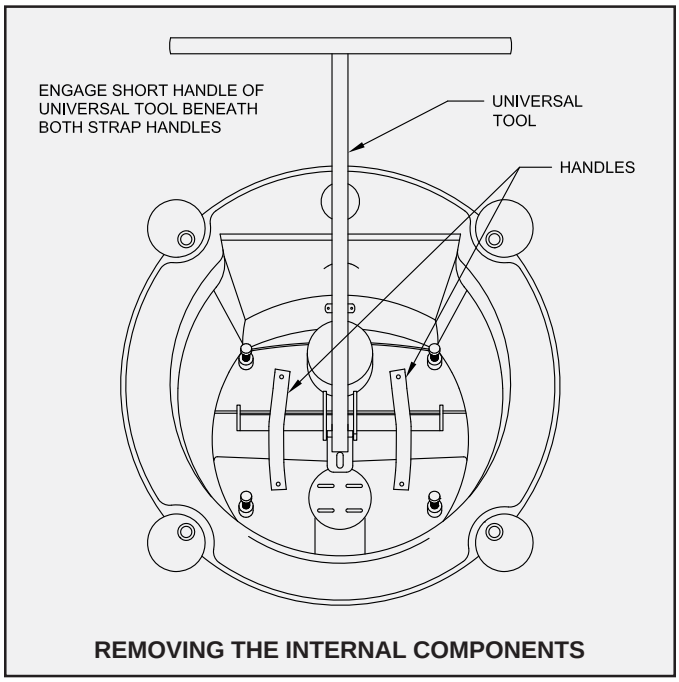
The lifting tool assists in the installation and removal of the Bio-Kinetic system from the Singulair tank. The Bio-Kinetic system will need to be removed from the clarification chamber periodically for cleaning and service.

To remove the Bio-Kinetic system, remove the clarification chamber access cover and place it upside down on the ground near the mounting casting. If the system is equipped with Blue Crystal or Bio-Neutralizer feed tubes, carefully remove each tube, one at a time. Lay each feed tube on the inverted access cover. Do not allow the feed tubes to touch each other. Remove the service cover from the Bio-Kinetic system. Follow the instructions on the previous page to disengage the locking lugs.

The universal tool is equipped with a fixed handle and a movable handle. Lower the fixed handle into the open top of the Bio-Kinetic system. The fixed handle of the lifting tool should be aligned with two opposing locking lugs to allow the tool to drop into the lifting rib on the Bio-Kinetic system. Insert the end of the fixed handle that is opposite the flat area on the Bio-Kinetic system into the lifting rib. Lower the other end of the fixed handle down by the side of the flat area and into the lifting rib. Turn the handle until the lifting tool is engaged into the lifting rib. Guide the Bio-Kinetic system out of the mounting casting as it is being dewatered. Once completely dewatered, remove the Bio-Kinetic system from the mounting casting.



USING THE LIFTING TOOL



REMOVING THE INTERNAL COMPONENTS

USING THE DISASSEMBLY TOOL

The disassembly tool allows the deck plates, flow deck, and inner baffle of the Bio-Kinetic system to be removed for service without removing the entire system from the clarification chamber. It is not necessary to dewater the Bio-Kinetic system before removing the internal components.

To remove the internal components, remove the Bio-Kinetic system access cover and place it upside down on the ground near the mounting casting. If the system is equipped with Blue Crystal or Bio-Neutralizer feed tubes, carefully remove each tube, one at a time. Lay each feed tube on the inverted access cover. Do not allow the feed tubes to touch each other. Remove the service cover from the Bio-Kinetic system. Do not disengage the locking lugs.

The universal tool is equipped with a fixed handle and a movable handle. Lower the movable handle into the open top of the Bio-Kinetic system. The movable handle of the disassembly tool should be positioned so that each end of the movable handle is beneath the plastic handles on top of the flow deck. Lift the internal components with the disassembly tool to remove them from the Bio-Kinetic system. When service has been completed, use the disassembly tool to lower the internal components back into the Bio-Kinetic system.

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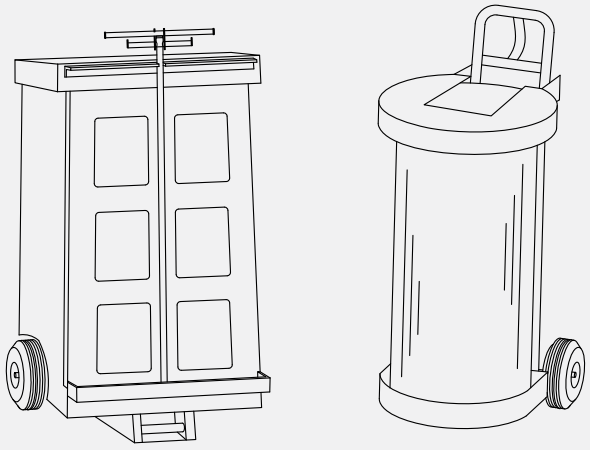
BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

CLARIFICATION CHAMBER AND BIO-KINETIC® SERVICE

Check operation of the Service Pro control center and complete all Singulair Aerator Service instructions to the point of aerator reinstallation before proceeding with clarification chamber service. Do not reinstall the aerator in the mounting casting until all Bio-Kinetic systems have been removed from the Singulair tank. For Singulair systems requiring more than one Bio-Kinetic tertiary treatment device, follow these instructions for each Bio-Kinetic system installed.

CAUTION: Anytime an aerator or service pump is connected or disconnected, first shut off the selector switch in each control center. Failure to do so could result in personal injury or equipment damage.

1. Move the Singulair field service cart with exchange Bio-Kinetic system and Tool Kaddy near the clarification chamber access cover. Remove the service container from the field service cart, unscrew the wing nuts holding the service container cover and set them aside. Remove the service container cover and place it upside down along side the clarification chamber access riser. Remove the exchange Bio-Kinetic system from the service container and set it aside. Remove the universal tool from the front of the Tool Kaddy and open the doors.



TOOL KADDY AND SERVICE CART

2. Lift off the concrete clarification chamber access cover(s) and turn it (them) upside down near the access riser.Remove the Bio-Kinetic system service cover and check the condition of the Bio-Kinetic system and the liquids in the tank for color and odor. Note the condition of the system on the Service Inspection Card.

   NOTE: Attached to the Bio-Kinetic system service cover is a red tag listing the Singulair system model number, classification and daily treatment capacity. This service cover and tag must remain with the installation and be reinstalled after exchanging the Bio-Kinetic system.

3. To prevent loss of liquid from the Singulair system during service, use the Bio-Kinetic System Outlet Sealing tool. Thoroughly lubricate both sides of the tool below the tabs to the rounded end with Bio-Kinetic lubricant. With the tabs facing toward the Bio-Kinetic system, insert the tool in between the Bio-Kinetic outlet flange and the cast-in-place receiving flange of the tank. Completely insert the tool to the bottom of the outlet coupling.

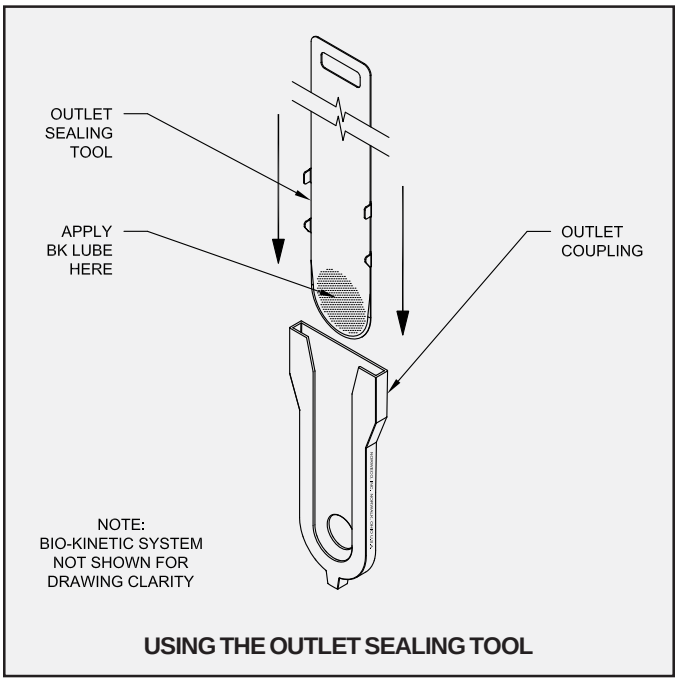
4. Using the disassembly tool, remove the internal components from the Bio-Kinetic system. The internal components should be set aside while the remainder of the Bio-Kinetic system is removed.

5. The Bio-Kinetic system is equipped with a drain valve and a fill valve to allow for easy removal and reinstallation during service. The locking lugs must be disengaged to allow for removal. Using the locking lug tool, rotate each of the four round black locking lugs clockwise from beneath the access riser. Insert the universal tool lifting handle into the upper lip of the Bio-Kinetic system outer chamber bucket.

6. While standing over the riser, begin lifting the system from the tank. The self drain valve will automatically open as the system is lifted out of the riser. Continue lifting until the majority of the water has drained out of the system. Remove the Bio-Kinetic system from the mounting casting. Set the Bio-Kinetic system on the upside down lid of the service container

7. Record the color and condition of the Bio-Kinetic system on the Service Inspection Card and on the “Supplementary Service” section of the Owner’s Manual.

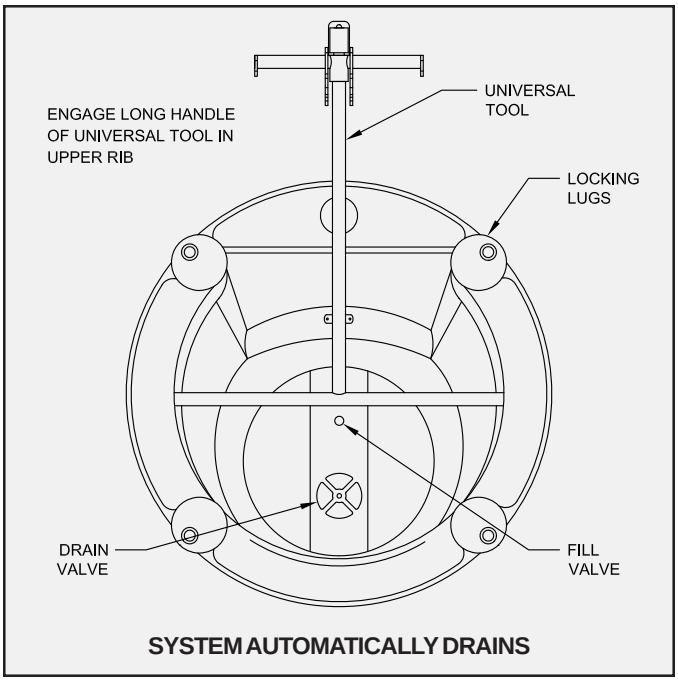
CLARIFICATION AND BIO-KINETIC® SERVICE (Page 2 of 6)



USING THE OUTLET SEALING TOOL

Make appropriate notations on the condition of the clarification chamber. Also note the liquid level on the filter media. The peak flow filter media should be clean in appearance if the hydraulic loading has never been great enough to cause the liquid level in the clarification chamber to rise above the design flow filter media. If a temporary hydraulic surge has occurred, a dark line will be visible on the peak flow filter media. Note the system water level on the Service Inspection Card.

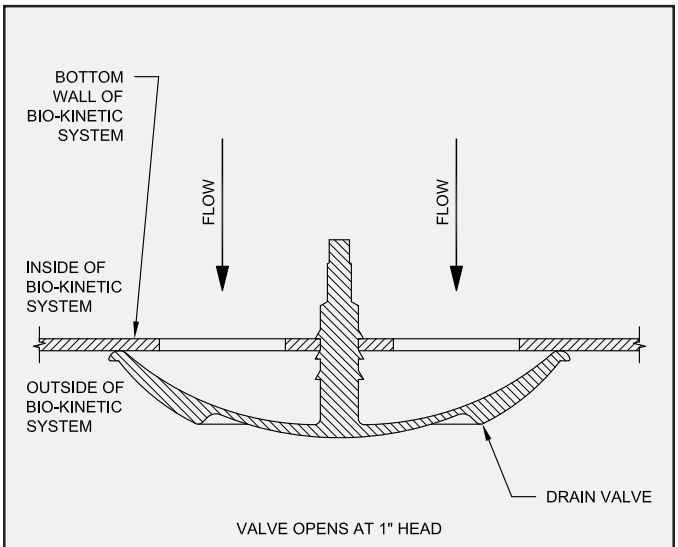
8. Unscrew the discharge flange assembly and remove both pieces. It may be necessary to hold the inside threaded flange to unscrew the two pieces. After both pieces of the discharge flange are removed, place the internal components back into the Bio-Kinetic system.



SYSTEM AUTOMATICALLY DRAINS

9. Place the Bio-Kinetic system into the service container. The outlet of the Bio-Kinetic system must align with the flat panel in the container. Thread the discharge flange assembly together and place it on the flow deck. Now put the service container cover in place.

10. Reinstall the Singulair aerator as outlined in the Aerator Installation instructions. The aerator must be in operation while the remaining clarification chamber service is performed.



DRAIN VALVE

11. Check the surface of the clarification chamber for grease or biologically untreatable material. A significant accumulation of these materials indicates the pretreatment chamber should be evaluated to determine if pumping is required. With the aerator running, use the hopper scraping tool to gently scrape all areas of the clarification chamber hopper side walls. Scrape all the way down to the bottom of the chamber, below the discharge of the Bio-Static sludge return. Then scrape the small flat area at the bottom of the hopper, pushing toward the aeration chamber as far as possible.

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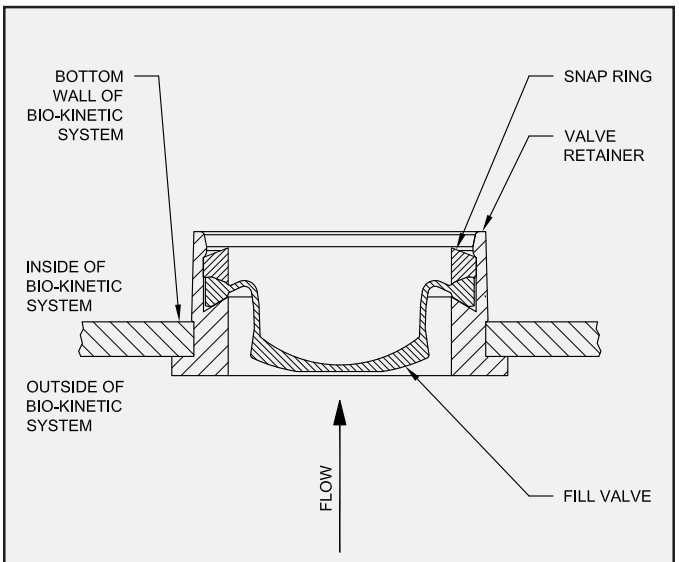
WASTEWATER TREATMENT SYSTEM

CLARIFICATION AND BIO-KINETIC® SERVICE (Page 3 of 6)

12. If the Singulair tank is pumped during system service the pressure sensitive fill valve will fill the Bio-Kinetic system automatically as the tank refills.

NOTE: It is important that the clarification chamber side walls be cleaned only after the aerator has been serviced and reinstalled. The aerator must be operating so that settled sludge will be fully returned to the aeration chamber by the hydraulic currents flowing through the Bio-Static sludge return.



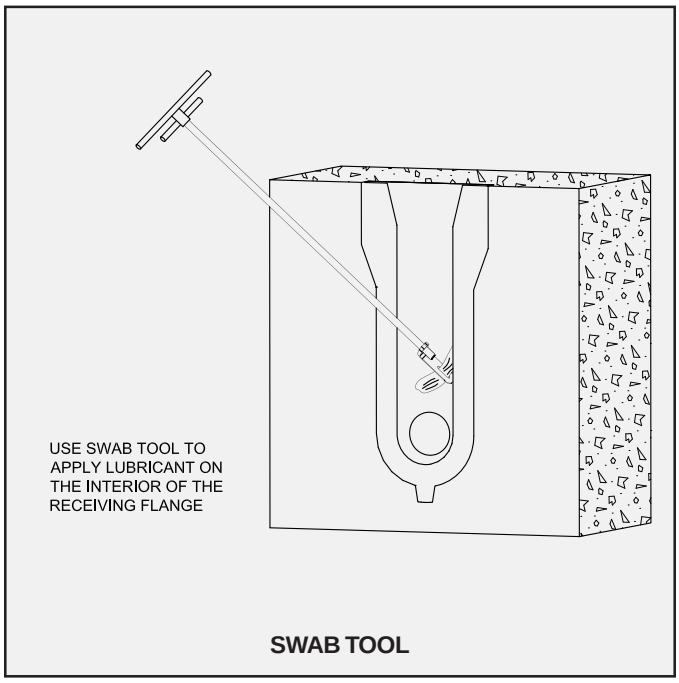
FILL VALVE

13. Visually check each Bio-Static sludge return to insure that it is securely engaged in the aeration/clarification chamber wall.

14. If necessary, use water to wash away any sludge from the inside of the system mounting casting, grade riser, cover and surrounding grass or landscaping.

15. Note the liquid level in the clarification chamber. If the liquid level is above the flow line of the outlet coupling, consult the troubleshooting guide to determine if there is a problem with drainage. Improper drainage will lead to flooding of the Singulair Bio-Kinetic wastewater treatment system and must be reported to the owner. Examine the inside of the access riser for evidence of surface water entry.

16. Examine the condition of the Singulair tank outlet coupling and cast-in receiving flange. Any debris that has accumulated in the grooves of the receiving flange or the inside of the tank outlet coupling must be removed. Wipe the face of the receiving flange and the internal surface of the grooves clean. Using the swab tool, apply a liberal amount of Bio-Kinetic lubricant to the entire face of the receiving flange and the inside of the grooves. Apply the lubricant evenly until all interior surfaces of the receiving flange and grooves are thoroughly coated.



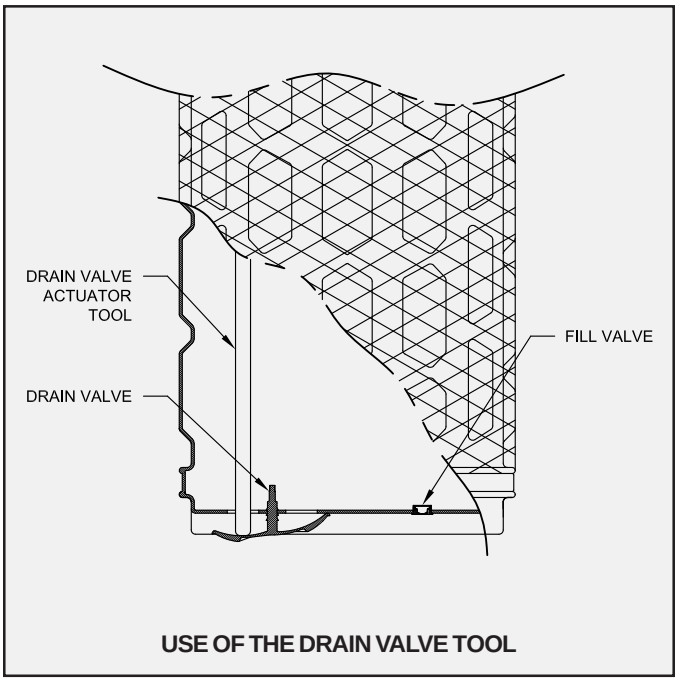
SWAB TOOL

CAUTION: Bio-Kinetic lubricant has been specially formulated. Use of other lubricants, especially petroleum based lubricants, can cause degradation of the rubber components and will void the warranty.

17. Remove the discharge flange assembly and internal components from the exchange Bio-Kinetic system. Lubricate the grommet in the outlet opening. From the inside of the contact chamber, insert the male threaded flange through the grommet. Reinstall the gasketed discharge flange on the Bio-Kinetic system by turning it clockwise until tight. Reinstall the flow deck and internal components. Apply lubricant to the exterior surfaces of the gasketed discharge flange.

18. Remove the internal components from the replacement Bio-Kinetic system and set aside. Use the universal tool to lower the exchange Bio-Kinetic system outer chamber into the mounting casting. Carefully insert the tip of the drain valve actuating tool through the drain valve located in the bottom of the outer chamber of the Bio-Kinetic system. This will allow the Bio-Kinetic

CLARIFICATION AND BIO-KINETIC® SERVICE (Page 4 of 6)



USE OF THE DRAIN VALVE TOOL

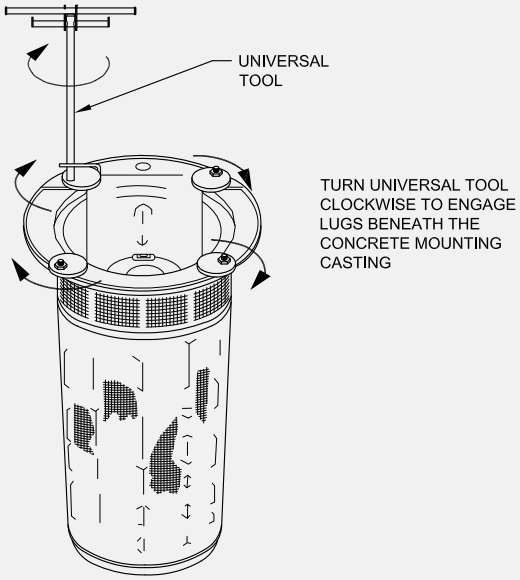
system to fill with water as it is lowered into position. If allowed to tilt, the Bio-Kinetic system could rub the edge of the access opening and damage the filter media. Align the discharge flange with the cast-in-place receiving flange. As the chamber is set into position on the concrete ledge of the access opening, the Bio-Kinetic system discharge flange must engage the top of the cast-in-place receiving flange before proceeding.

19. Once in the proper position, carefully remove both the drain valve actuating tool and the universal tool. This will allow the drain valve to seal against the exterior bottom of the Bio-Kinetic system. Use the locking lug tool to twist each of the round, black locking lugs clockwise so that each of the lugs is rotated to the furthest extension point possible.

20. Reinsert the internal components from the replacement Bio-Kinetic system. Locate the level indicator mounted above the outlet of the Bio-Kinetic system flow distribution deck. The bubble should be resting squarely between the two lines in the clear plastic case. If the location of the bubble indicates the system is not installed in a level position, the flow deck should be leveled using the four adjustment lugs provided for this purpose. With the ratchet drive, extension and $^{7}/_{16}$" socket from the Tool Kaddy, turn each of the adjustment lugs until the bubble comes to rest squarely between the two lines in the clear plastic case.
NOTE: Leveling of the flow distribution deck is essential for proper operation of the flow equalization ports, chemical feed tubes and effluent weir within the Bio-Kinetic system.

21. Remove the Bio-Kinetic system outlet sealing tool from in between the system outlet flange and the cast-in-place receiving flange of the Singulair tank.

22. The system service cover with information tag from the originally installed Bio-Kinetic system must be reinstalled in the tank. Install the cover, handle side up, by aligning. The cover will come to rest on the collar of the Bio-Kinetic system. There is no need to add fasteners to the locking lug bolts.



LOCKING DOWN THE BIO-KINETIC SYSTEM

EFFLUENT DISPOSAL SYSTEM CHECK

1. Determine if the effluent from the Singulair system is being carried to an outlet for surface and/or subsurface discharge, or if it is being disposed of onlot. Inspect the condition of the effluent disposal system and make appropriate notations on the Service Inspection Card.

2. Although the Singulair system effluent may be discharged and/or disposed of in several acceptable fashions, there should always be a ground water relief point installed in the effluent line. It should be located at a point no higher than the outlet invert of the Singulair tank. It will prevent flooding in cases where the disposal line is submerged or saturated with ground water. Locate the ground water relief point and be sure that it is free of obstructions.

3. Locate the point of discharge closest to the Singulair

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system outlet. A free-falling "grab" sample of effluent can be collected after the point of discharge has been thoroughly cleaned. Take note of effluent color, odor and the presence or absence of suspended particles. Accumulation of mud in the effluent disposal line or at its outlet can be a sign of a crushed or broken effluent line and should be reported to the owner. Foaming, odor or particulate sediment indicates that the Singulair system has not been providing adequate treatment. Recheck the entire system by using the Singulair Troubleshooting guide.

NOTE: An effluent "grab" sample allows a visual assessment and should only be used in conjunction with routine service and/or troubleshooting procedures to accurately evaluate system operation. A "composite" sample, collected over 24 hours of system operation, preserved and transported using USEPA established procedures, is necessary if laboratory analysis of the effluent is to be performed. Laboratory analysis of an effluent "grab" sample can lead to misleading conclusions about system operation and should not be conducted. For further information regarding proper evaluation techniques for sampling onsite systems, refer to the Norweco Technical Bulletin EFFLUENT SAMPLING TECHNIQUES FOR RESIDENTIAL TREATMENT SYSTEMS.

4. Make appropriate notations on the condition of the plant effluent and disposal system on the Service Inspection Card.

BEFORE YOU LEAVE THE FACILITY...

1. Make sure that both sides of all three Service Inspection Cards are properly and completely filled out, including any specific notes or special services that your inspection indicates are needed.

2. Leave the top section of the Service Inspection Card with the owner and provide a brief verbal explanation of the condition of the system. Advise when to expect your next routine visit and provide your business card with office phone number, should the owner have any questions.

3. Point out the advantages of a continued service policy with your company if the warranty or current service policy is nearing expiration.

4. Explain that the Singulair aerator is set to operate on a time cycle and should not be turned off even during extended periods of non-use. Explain also that the Singulair control center contains no user-serviceable parts and that the cover is secured with a tamper evident seal both for owner protection and protection of component parts.

5. Review the operation of the red warning light and audible alarm on the Service Pro control center with the owner. Inform the owner that the control center should be checked daily to insure proper system operation. Explain that if the light glows and the alarm sounds, it could be due to temporary high water or electrical power fluctuation and that the reset button should be pushed to see if normal operation is resumed before requesting special service.

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

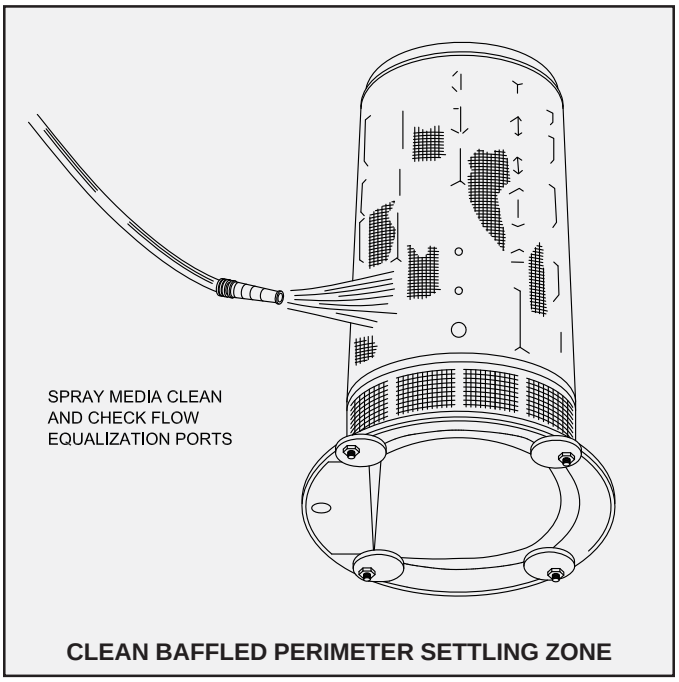
CLEANING AND DISASSEMBLY INSTRUCTIONS FOR THE BIO-KINETIC® SYSTEM

EQUIPMENT REQUIRED FROM THE BIO-KINETIC SYSTEM TOOL KADDY

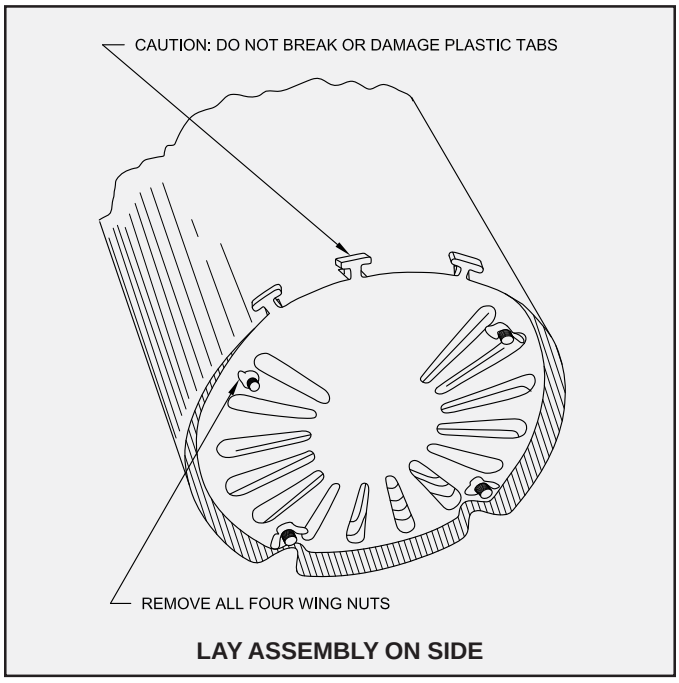
- ❑ water hose and spray nozzle
- ❑ Bio-Kinetic system universal tool
- ❑ rubber gloves
- ❑ safety face shield or goggles
- ❑ ratchet drive and $^{7}/_{16}$" socket

A fresh water supply and sewer drain are required for cleaning the Bio-Kinetic system.

1. Remove the Bio-Kinetic system from the service container. Rinse the container and lid. Rotate the four locking lugs to the outboard position on the Bio-Kinetic system. Remove the gasketed discharge flange assembly from the flow deck and rinse it with water.
2. Grasp the top flange of the system with one hand and insert the disassembly tool beneath each of the strap handles on the flow deck. Pull up on the disassembly tool to remove the flow deck and internal system components from the contact chamber and set aside. Use the water hose and spray nozzle to wash the inside of the contact chamber.
3. Use the water hose and spray nozzle to wash off the filter media. Continue spraying until all sludge and wastewater have been flushed from the media. Invert the filter assembly and flush accumulated material from the baffled perimeter settling zone. Inspect the perimeter settling zone to be certain that it is totally clean. Check the flow equalization ports to be sure they are clean and unobstructed.
4. Wash off any debris that has accumulated on the surface of the flow distribution deck and baffle wall shroud. Lay the assembly down on its side and remove the four wing nuts on the bottom. Remove and wash the bottom deck plate.



CLEAN BAFFLED PERIMETER SETTLING ZONE



LAY ASSEMBLY ON SIDE

CAUTION: Do not break or damage the molded plastic tabs on the edge of the bottom deck plate.

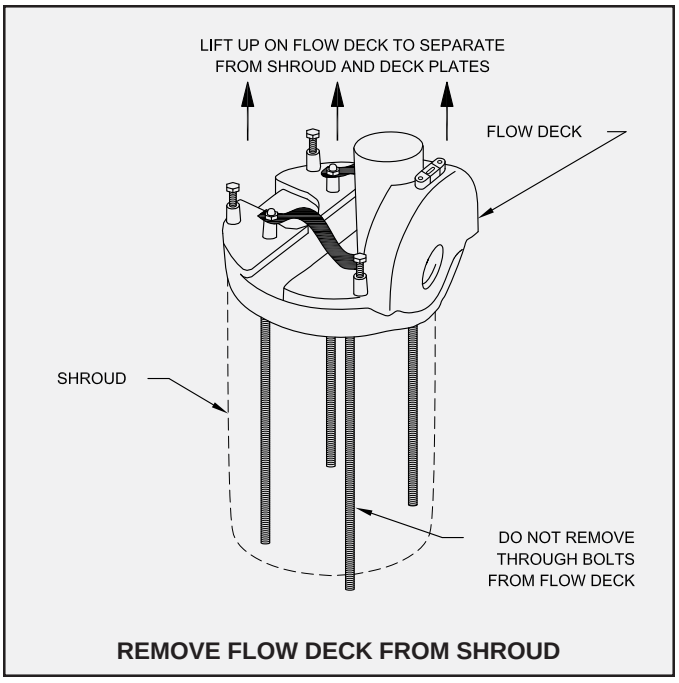
Do not remove the remaining deck plates at this time. Stand the assembly upright and lift up on the flow distribution deck to separate it from the baffle wall shroud and deck plates. You may find it helpful to hold the baffle shroud between your feet when lifting up on the flow deck.

NOTE: The through bolts will be removed from the shroud and deck plates when the flow deck is lifted off the baffle

BIO-KINETIC® SYSTEM CLEANING AND DISASSEMBLY INSTRUCTIONS (Cont.)

wall shroud. Do not remove the through bolts from the flow distribution deck. Rinse the flow distribution deck thoroughly inside and out. Inspect the weir and final discharge zone to be sure they are completely clean.

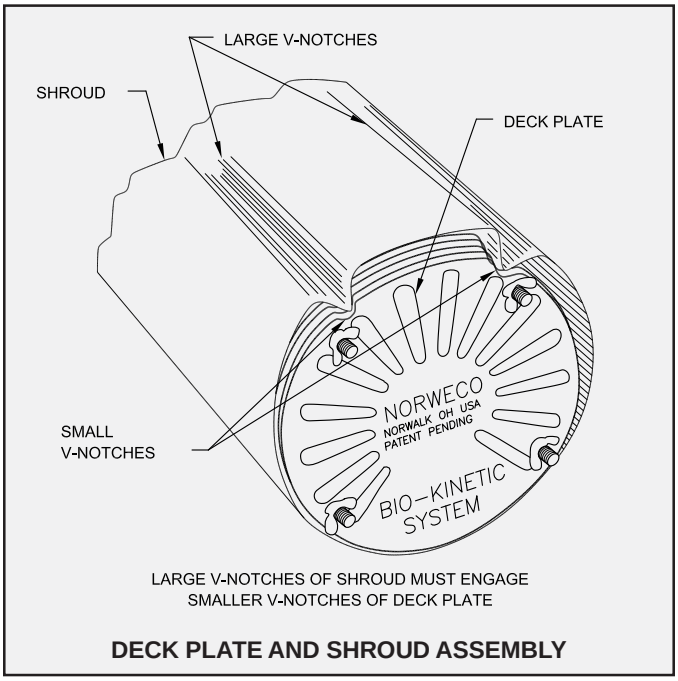
5. Lift up the baffle wall shroud to remove it from the deck plates. Rinse the inside and outside of the shroud and set it aside. Take the cleaned, round bottom deck plate and set it on the floor with the engraved name facing down.
6. Remove the top deck plate from the remaining stack and wash off both sides. When cleaned, set it on top of the cleaned, round bottom deck plate. Repeat this procedure with each deck plate until all plates are cleaned and reassembled into a single stack. Each deck plate is molded with four circular depressions in the bottom side of the plate and four round stand-off posts in the top side of the plate. When restacking the clean deck plates, make sure the four depressions on the bottom engage the top of the four posts below. All



REMOVE FLOW DECK FROM SHROUD

deck plates must be placed onto the stack baffle side up (engraving down). When properly assembled, all edges of each plate should be vertically aligned.

7. Lower the baffle wall shroud over the assembled stack of deck plates. The two large V-notches in the shroud should engage the smaller notches on the edge of the deck plates. Check the four leveling lugs on the flow deck. They must be unscrewed until they are flush with the bottom of the flow deck. Now position the flow distribution deck above the baffle wall shroud so that the outlet of the flow distribution deck is directly opposite the two large V-notches in the shroud. Insert each of the four through bolts through the holes in the top of the baffle shroud and into the stack of deck plates. Lower the flow distribution deck until it fully engages



DECK PLATE AND SHROUD ASSEMBLY

the top of the baffle shroud. Push each through bolt down into the assembly as far as it will go.

8. Lay the assembly on its side and push the through bolts through the bottom deck plate. Fasten a wing nut to each of the four through bolts where they project through the bottom deck plate. While tightening each wing nut, make sure the molded plastic tabs on the bottom deck plate engage the slots on the edge of the shroud. Tighten enough to insure all three tabs are fully engaged into the three slots in the shroud.
9. Lubricate the grommet in the outlet opening of the contact chamber. Grasp the strap handles and lower the flow deck and internal components into the cleaned contact chamber making sure to align the flow deck outlet with the outlet of the contact chamber. Apply a moderate amount of downward force until the outlet of the flow distribution deck aligns with the outlet of the contact chamber.
10. Place the assembled Bio-Kinetic system back into the cleaned service container. Place the discharge flange assembly onto the flow distribution deck. Now place the service container cover into position by aligning the four holes in the cover with the locking lug bolts. Add a wing nut to each of the lug bolts to hold the cover in place. Return the container to your service stock.

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

FILTER MEDIA REPLACEMENT KIT INSTRUCTIONS

The filter media replacement kit is provided so that repair of a Bio-Kinetic system with worn or damaged media may be easily accomplished, if required, during the routine service cycle. Media replacement should be done only when necessary and only by a factory-trained technician as part of maintaining a stock of exchange Bio-Kinetic systems. Media replacement should be performed at your place of business rather than at the installation site. Replacement of properly functioning media will not improve operational performance and is not recommended.

The filter media replacement kit contains the following items to be used during replacement:

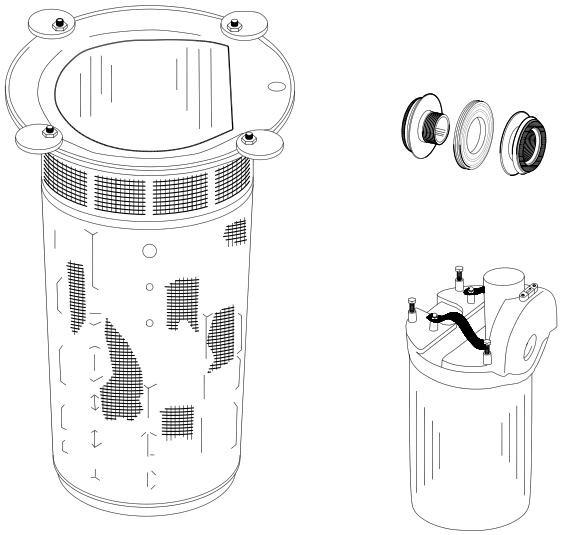
- ❑ One cylindrical filter media section, made up of design and peak flow media, lock-stitched together with bonded nylon thread for maximum strength and durability.
- ❑ Two retainer straps, one inserted into each stitched hem located at both ends of the filter media cylinder.
- ❑ One separate retainer strap to place around the outside of the center stitched seam connecting the peak flow and design flow media.

The following equipment is required from the Bio-Kinetic system Tool Kaddy:

- ❑ rubber gloves
- ❑ safety face shield or goggles
- ❑ retainer strap tool

No adhesive is necessary to attach the media to the Bio-Kinetic system when utilizing the replacement kit. Media replacement, when performed as outlined in these instructions, will bring the unit up to new system standards. For instructions regarding removal and reinstallation of the Bio-Kinetic system from the Singulair tank, refer to the instructions contained in the Clarification Chamber and Bio-Kinetic Service section of the Singulair Service Manual.

1. Remove the Bio-Kinetic system from the service container. Rinse the container and lid. Rotate the four locking lugs to the outboard position on the Bio-Kinetic system. Remove the gasketed discharge flange assembly from the flow deck and rinse it with water.

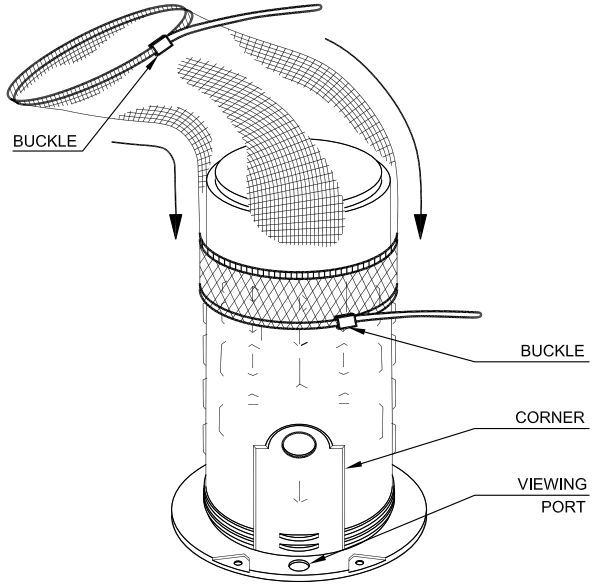


REMOVE FLOW DECK, COMPARTMENTED SETTLING ZONE AND INTERNAL COMPONENTS FROM CONTACT CHAMBER

2. Insert the disassembly tool beneath each of the strap handles on the flow deck. Pull up on the disassembly tool to remove the flow deck and internal system components from the contact chamber and set the internal components aside. Use the water hose and spray nozzle to wash the inside of the contact chamber.
3. Use the water hose to wash off the filter media. Spray until all sludge and dirt have been flushed from the media. Now invert the filter assembly and flush accumulated material from the baffled perimeter settling zone. Inspect the perimeter settling zone to be certain that it is totally clean. Check the flow equalization ports to be sure they are clean and unobstructed.
4. Remove the black rubber outlet grommet from the outlet opening. With a knife, cut and remove the three retainer straps and the old filter media from the Bio-Kinetic system. Take care not to damage the contact chamber or baffled perimeter settling zone. Clean any accumulation of adhesive from the horizontal grooves at the top, middle and bottom of the contact chamber. With a wet rag, clean the outside of the contact chamber to insure ease of installation of the new filter media and straps. Inspect the design flow, sustained flow and peak flow ports again to be sure they are clean and unobstructed. Be sure there are no burrs on the inside, as well as, the outside surface of each port.

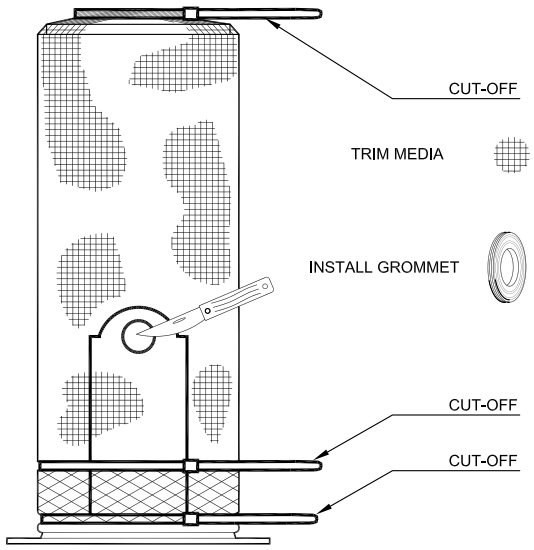
FILTER MEDIA REPLACEMENT KIT INSTRUCTIONS (Cont.)

5. Remove the locking lugs, bolts, nuts and washers from the top flange of the Bio-Kinetic system. Turn the contact chamber over with the top flange resting on a clean even surface.
6. Starting with the peak flow filter end, slide the replacement filter media cylinder onto the contact chamber. The filter media cylinder will fit tightly against the baffles of the perimeter settling zone. Some effort will be required to slide the media over the contact chamber. Rubber gloves will provide the friction necessary for proper media installation. Be careful not to damage the filter media or retainer straps.
7. The stitched hem at each end of the filter media cylinder has a retainer strap with plastic buckle. Install the filter media so that the retainer strap buckle is seated on the corner of the outlet boss of the contact chamber. This position is on the corner closest to one of the locking lugs on either side of the viewing port.



ALIGN BUCKLES WITH CORNER

8. Engage the peak flow retainer strap into the horizontal groove closest to the top flange of the contact chamber. Once in position, tighten the strap with the retainer strap tool. The strap should be tightened enough to permanently locate the filter media in position. Make sure the buckle remains on the corner of the outlet boss. Do not over-tighten the strap. Over-tightening could warp the contact chamber. Once the strap is secured, cut off the excess strapping material with the retainer strap tool.
9. Attach the retainer strap tool to the strap at the bottom of the design flow media. Tighten the strap until all wrinkles have been removed from the filter and the media cylinder is taut and firmly drawn against the baffles of the contact chamber. Do not over-tighten the media. Cut off the excess strapping material with the strap tool.



TRIM MEDIA FROM OUTLET WITH KNIFE

10. Place the third, separate retainer strap over the seam that joins the design flow and peak flow media. Make sure this strap is properly engaged in the locating grooves molded into the baffles of the contact chamber. Place the buckle on the edge of the outlet boss in alignment with the other two. Using the retainer strap tool, tighten the strap over the seam and secure the buckle on the outlet boss corner. Once the strap has been firmly tightened, cut off the excess strapping material with the strap tool.
11. With a knife, trim the media from the outlet of the Bio-Kinetic system using the outlet opening as a guide. The hole in the filter media should not be larger than the outlet opening. Remove the trimmed media and reinstall the black rubber grommet. **NOTE:** When reinstalling the grommet, make sure the media surrounding the outlet opening stays between the contact chamber and the outboard flange of the grommet. Correct reinstallation of the grommet is important for proper Bio-Kinetic system operation.
12. Reinstall all four locking lugs with the bolts, nuts and washers originally supplied.

Proceed with the remaining steps outlined in Bio-Kinetic System Cleaning and Disassembly Instructions. If no service is required, reassemble the Bio-Kinetic system according to Bio-Kinetic Cleaning and Disassembly Instructions and return the system to your service stock.

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

TROUBLESHOOTING

During service inspections you may periodically encounter a situation which, if not identified and corrected, will result in interruption of service for the Singulair system. This troubleshooting guide is designed to enable you to isolate the cause of system problems that may be encountered from time to time. Whenever a potential problem is encountered, you should take immediate steps to eliminate the cause. Please note that all areas of installation, including those normally the responsibility of the contractor, excavator, electrician and owner, are covered. You will find that many problems can be traced to causes other than the system or its components. Your help and suggestions in solving these for the owner will save unnecessary expense and will insure maximum system performance.

PLEASE NOTE:

This troubleshooting guide provides efficient and correct solutions to most wastewater treatment problems when used in conjunction with established inspection procedures performed by a factory-trained service technician.

Before responding to a customer service call, check to see that:

- ✓ A member of your service staff, factory-trained and certified by Norweco, is dispatched to answer the call.
- ✓ Installation and service records for the particular system are up-to-date and have been reviewed.
- ✓ The service technician has a copy of the Singulair Service Manual.
- ✓ The service vehicle has loaner aerators, exchange aerators, Bio-Kinetic Service Cart, exchange Bio-Kinetic systems and a fully stocked Tool Kaddy with replacement parts.
- ✓ Clear and concise directions to the installation, including tank and control center location, are given to the service technician.

OPERATIONAL TROUBLESHOOTING

MUD OR SILT IN SINGULAIR SYSTEM OR BIO-KINETIC SYSTEM*

Influent sewer line separated at a joint or fitting	Have contractor excavate and repair
Sewer line crushed	Have contractor excavate and replace
Defective seal around tank inlet or outlet	Excavate and reseal
Singulair tank structurally damaged	Excavate and patch or replace tank
Singulair casting joint improperly sealed	Excavate and seal with non-shrink grout

*Have Singulair system pumped to remove mud after repairs have been completed. Multiple pumping may be required to remove all mud from the Singulair system. See: Singulair Tank Pumping instructions.

TROUBLESHOOTING (Cont.)

SEPTIC ODOR IN SINGULAIR SYSTEM

Aerator turned off	Place control center selector switch in “automatic” position
Insufficient air delivery by aerator	Service aerator
Aspirator shaft plugged with deposits	Remove from aerator and flush with shaft cleaning hose
Aspirator orifices plugged with deposits	Remove deposits
Water softener backwash discharging into system	Have owner remove backwash line from system
Circuit breaker tripped	See “Control Center Warning Light Glows/Audible Alarm Sounding”
Improperly sealed pretreatment chamber access cover	Seal pretreatment access cover
Vent cap openings restrict fresh air entry	Clean vent cap openings
Incomplete treatment due to hydraulic overloading	See “Hydraulic Overloading”
Periodic septic odor for no reason	Have sanitary sewer vent checked

HYDRAULIC OVERLOADING OF SINGULAIR SYSTEM

Ground water entering system through tank joint	Excavate and seal with non-shrink grout
Ground water entering system through crack in side wall	Excavate and patch with non-shrink grout
Ground water entering system through defective seal at inlet or outlet line	Excavate and reseal piping as needed
Roofing down spouts, footer drains, sump pump piping or garage and basement floor drains tied into Singulair system influent line	Have contractor relocate improper connection downstream of Singulair system

ORGANIC OVERLOADING OF SINGULAIR SYSTEM

Aeration chamber settled solids test reads in excess of 75%	Evaluate pretreatment chamber - See Singulair Tank Pumping instructions
Aeration chamber solids appear black	Evaluate pretreatment chamber - See Singulair Tank Pumping instructions

FLOATING SOLIDS IN CLARIFICATION CHAMBER OR PLANT EFFLUENT

Excessive sludge on clarifier sidewalls	Scrape hopper side walls
Restriction of Bio-Static or sludge return port	Remove obstruction
Pretreatment chamber discharging excessive solids	Evaluate pretreatment chamber - See Singulair Tank Pumping instructions
Hydraulic overloading of system	See “Hydraulic Overloading”

CONTROL CENTER WARNING LIGHT GLOWS/AUDIBLE ALARM SOUNDING

Liquid in tank at level of foam restrictor	See “Singulair System Flooded”
Aerator drawing excessive current	See “Aerator Drawing Excessive Current”
Dead short in power line to aerator	Have owner call his electrician

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AERATOR TROUBLESHOOTING

AERATOR WILL NOT OPERATE

Electrical service to aerator interrupted	See “No Electrical Power from Control Center to Aerator”
Voltage supplied is insufficient to start aerator*	Report condition to power company
Defective bearing, windings or insulation in motor	Return entire aerator to factory
Debris wound on aspirator shaft	Remove debris with knife
Aspirator shaft bent	Return entire aerator to factory
Foam restrictor or entire aerator under water	See “Singulair System Flooded”

*If you suspect low voltage, check the voltage at the watertight electrical connector, not at the Service Pro control center. If voltage above 103 or more is measured, check the other possibilities listed in this section.

AERATOR DRAWING EXCESSIVE CURRENT

Foam restrictor partially under water	See “Singulair System Flooded”
Debris on aspirator shaft	Remove debris with knife
Motor failure	Return aerator to factory
Insufficient voltage (less than 103 volts)	Report condition to power company
Excessive voltage (greater than 126 volts)	Report condition to power company

AERATOR MAKING EXCESSIVE NOISE

Rubber shock absorbers on brackets worn	Replace shock absorbers
Bearing failure in aerator motor	Return aerator to factory
Noise is generated by excessive vibration	See “Aerator Operates With Excessive Vibration”

AERATOR OPERATES WITH EXCESSIVE VIBRATION

Debris on aspirator shaft	Remove debris with knife
Aspirator shaft bent	Return entire aerator to factory
Aerator mounting brackets bent	Straighten brackets
Top aerator brackets not seated evenly	Adjust mounting brackets
Aspirator shaft installed too tightly on intermediate shaft	Reinstall aspirator shaft with set screws finger tight only. If condition persists return entire aerator to factory.
Aspirator shaft installed with improper alignment to intermediate shaft	Reinstall aspirator shaft to factory alignment marks

AERATOR OPERATES BRIEFLY BEFORE CIRCUIT BREAKER TRIPS

Aerator is drawing excessive current	See “Aerator Drawing Excessive Current”
Aerator is partially under water	See “Singulair System Flooded”
Aspirator shaft bent	Return entire aerator to factory
Moisture has entered aerator motor	Return entire aerator to factory

AERATOR TROUBLESHOOTING (Cont.)

ELECTRICAL TROUBLESHOOTING

CAUTION: Before initiating any electrical component inspection or repair, turn off all power to the Singulair system by switching off the dedicated circuit breaker in the main electrical service panel and then testing with the electrical multi-meter. 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.

NO ELECTRICAL POWER FROM ELECTRICAL SERVICE PANEL TO CONTROL CENTER

Circuit breaker in electrical service panel has tripped	Turn breaker to “off” position, then turn “on”
Fuse in electrical service panel has blown	Have owner replace fuse
Circuit breaker in electrical service panel turned “off”	Turn breaker “on”
Loose connection in electrical service panel	Tighten all connections: First, shut off breaker in main electrical service panel
Defective circuit breaker in electrical service panel	Have owner replace circuit breaker
Corrosion on contacts prevents flow of current	Clean or replace contacts
Incomplete circuit - neutral not properly wired	Have owner wire directly to neutral bar
Power cable from service panel to Service Pro control center severed	Have owner locate break and repair

NO ELECTRICAL POWER FROM CONTROL CENTER TO AERATOR

Service Pro control center terminal A1 and neutral read zero voltage	Place selector switch in “on” position. If voltage is read, place selector switch in “automatic” position and rotate time clock knob until voltage is read. If no voltage can be read, replace control center insert.
Singulair circuit breaker has tripped	Push reset breaker
Singulair circuit breaker is defective	Replace breaker
Singulair selector switch turned “off”	Turn switch to “automatic” operation
Singulair selector switch defective	Replace control center insert
Corrosion on terminals prevents flow of current	Clean or replace contacts
Power cable from Service Pro control center to aerator damaged	Locate damage and repair
Loose wiring connection	Check all connections

AERATOR WILL NOT START

Reset breaker in Service Pro control center tripped	Push reset breaker
Loss of power to Service Pro control center	See both “No Electrical Power” sections
Insufficient voltage present at aerator	Report condition to power company
Watertight electrical connector not properly engaged	Remove watertight electrical connector and plug in tightly
Watertight electrical connector not properly wired	Rewire watertight electrical connector
Defective motor	Return entire aerator to factory

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BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

BIO-KINETIC® SYSTEM TROUBLESHOOTING

SINGULAIR SYSTEM FLOODED

Bio-Kinetic system plugged	See “Bio-Kinetic System Plugged”
Tank outlet plugged	Clean debris from tank outlet
Groundwater relief point restricted	Remove obstruction
Disposal field plugged	Notify owner immediately
Effluent pump failure	Repair or replace effluent pump
Surface water drains toward Singulair tank	Have contractor regrade and/or install risers
Outlet line installed with insufficient fall	Have contractor correct
Outlet line crushed or filled with debris	Have contractor clean or replace
Effluent disposal lines installed with insufficient fall or have settled	Have contractor correct or replace

BIO-KINETIC SYSTEM PLUGGED

Mud has fouled filter media	See “Mud or Silt in Singulair System”
Organic overloading	See “Organic Overloading”
Hydraulic overloading	See “Hydraulic Overloading”
Water softener backwash discharging into system	Have owner remove backwash line from system
Solids flowing in from pretreatment chamber	Evaluate pretreatment chamber - See Singulair Tank Pumping instructions
Incomplete treatment due to aerator shut-off	Place control center selector switch in “automatic” position
Internal components flooded	Remove and service Bio-Kinetic system
Grease or inorganic matter on filter media or in clarification chamber	Evaluate pretreatment chamber - See Singulair Tank Pumping instructions
Compartmented contact chamber plates plugged	Clean chamber plates
Outlet weir obstructed	Inspect and clean outlet weir

CAUTION: Never allow chemical wastes, grease or mud to enter the Singulair system. These materials alter the desirable characteristics of activated sludge and will cause severe problems in the performance of the system.

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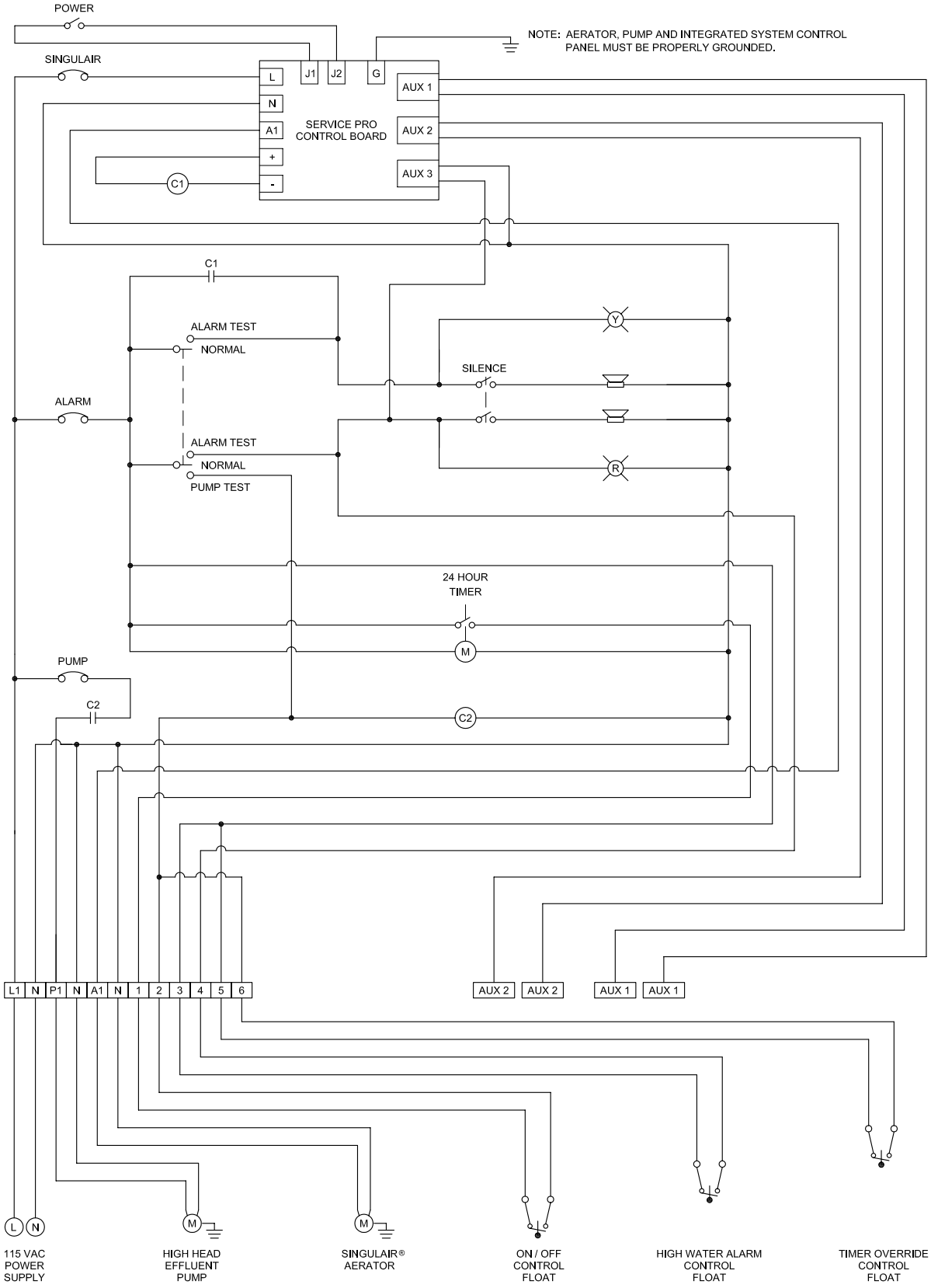
120 VOLT - 1Ø - 60 Hz - 20 AMP SERVICE



GENERAL NOTES:

① A DEDICATED 20 AMP CIRCUIT BREAKER AT MAIN SERVICE PANEL SHOULD NOT BE ENERGIZED UNTIL THE AERATOR IS INSTALLED AND READY TO BE PLACED INTO OPERATION.

② INSURE THE AERATOR IS OPERATING WHEN THE FACILITY IS OCCUPIED.

③ THE LOCAL, LICENSED NORWECO DISTRIBUTOR WILL PLACE THE AERATOR INTO SERVICE.

PART NUMBER: LTS00270

U.S. AND FOREIGN PATENTS PENDING

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SERVICE PRO ISC HYBRID SIMPLEX / SIMPLEX SPRAY WIRING DIAGRAM

REVISION DATE	REVISION
1-30-07	B
DRAWN BY: ED	
APPROVED BY: JMM	
DATE: 6-26-06	
SCALE: NTS	
DRAWING NO. PC-2-0526	

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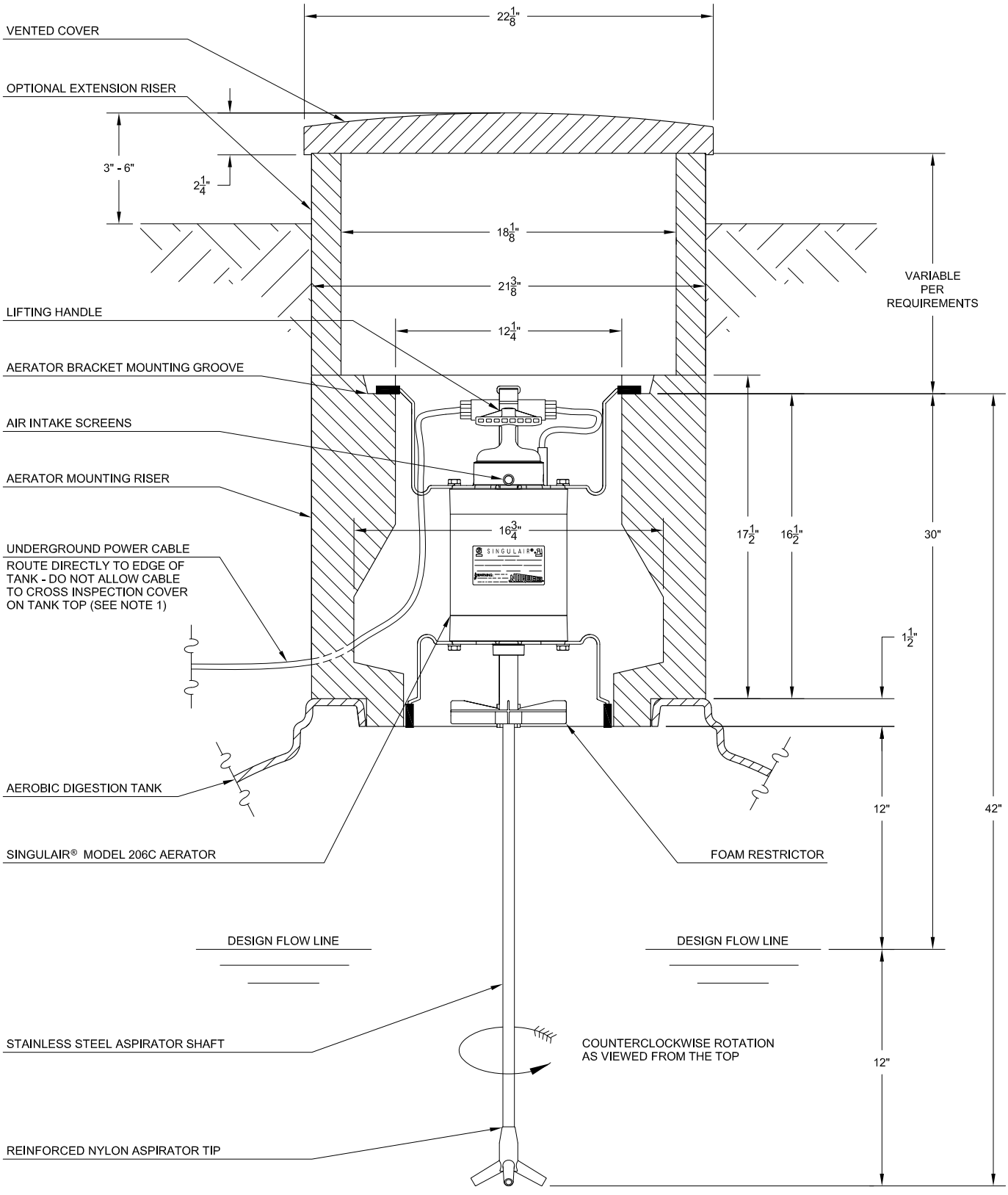

GENERAL NOTES:

1. UNDERGROUND POWER SUPPLY MUST BE WIRED INTO AN APPROVED SERVICE PRO® CONTROL CENTER.
2. SERVICE PRO® CONTROL CENTER MUST BE WIRED INTO A SEPARATE 15 AMP CIRCUIT BREAKER AT MAIN ELECTRICAL SERVICE PANEL IN THE FACILITY.
3. AERATOR AND AERATOR CONTROL CENTER MUST BE PROPERLY GROUNDED.
4. THE LOCAL, LICENSED NORWECO DISTRIBUTOR WILL PLACE THE AERATOR INTO SERVICE.

PART NUMBER:

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SINGULAIR GREEN® MODEL 206C AERATOR MOUNTING AND INSTALLATION DETAIL

REVISION DATE	10-29-10
REVISION	A
DRAWN BY	BDS
APPROVED BY	JMM
DATE	12-7-09
SCALE	NTS
DRAWING NO.	PC-5-9960

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