CLASSEN® RECIPROCATING AERATOR



MODELS: RA-21HE

Reciprocating Aerator Honda GX160

Rev A. 06-2014 Original Language Instructions

S SCHILLER GROUNDS

Parts Manual: 4170966

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

A WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

CALIFORNIA Proposition 65 Warning

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.

IMPORTANT MESSAGE

Thank you for purchasing this Classen product. You have purchased a world class product, one of the best designed and built anywhere.

This machine comes with an Operation and Safety Manual, Parts and Service Manual, and Engine Manual. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand these manuals. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Classen product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manuals thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a Classen dealer for any service or parts needed. Classen service ensures that you continue to receive the best results possible from Classen products. You can trust Classen replacement parts because they are manufactured with the same high precision and quality as the original parts.

Classen designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manuals, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Classen Schiller Grounds Care, Inc. 1028 Street Road Southampton, PA 18966-4217

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This Operator / Parts Manual is part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine.

NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Schiller Grounds Care, Inc. strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Schiller Grounds Care, Inc. Engineering Department. Any Schiller Grounds Care, Inc. product that is altered, modified or changed in any manner not specifically authorized after original manufacture-including the addition of "after-market" accessories or component parts not specifically approved by Schiller Grounds Care, Inc. will result in the Schiller Grounds Care, Inc. Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Schiller Grounds Care, Inc. will be considered the responsibility of the individual(s) or company designing and/or making such changes. Schiller Grounds Care, Inc. will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:

ATTENTION! BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Schiller Grounds Care, Inc. machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

ADANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

▲ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

ACAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage.



MODEL NUMBER: This number appears on sales literature, technical manuals and price lists and serial tag.

SERIAL NUMBER: This number appears only on your unit. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

OPERATOR PREPARATION & TRAINING

READ THE OPERATION & SAFETY MANUAL

 If an operator or mechanic cannot read English, it is the owner's responsibility to explain this material to them. If any portion of this material is unclear,



- contact your factory representative for clarification.
- Become familiar with the safe operation of the equipment, operator controls and safety signs. Be prepared to stop the engine quickly in an emergency. Do not operate or allow another person to operate this machine if there are any questions about safety.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Wear appropriate clothing, including safety goggles or safety glasses with side shields when operating.
 Wear substantial footwear and long pants. Do not operate barefoot or wearing open sandals. Long hair, loose clothing or jewelry may get tangled in moving parts.
- · Wear appropriate hearing protection.
- Never allow children, unskilled or improperly trained people to operate this equipment. Local regulations can restrict the age of the operator.
- Do not put hands or feet near or under rotating parts.
- Never pick up or carry the unit while the engine is running.
- Keep warning labels and this operator's manual legible and intact. Replacement labels and manuals are available from the factory.
- Do not operate machine while under the influence of drugs or alcohol, or any other condition of impairment.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.

SITE PREPARATION & CIRCUMSTANCES

- Evaluate the terrain to determine how to safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Clear the area of objects such as rocks, toys, wire or any other debris that may be thrown or get tangled in the aerator.
- Be sure the area is clear of pets and people, especially young children. Never assume they will remain where you last saw them. Stop the machine if any enter the area.
- Only USE in daylight or in good artificial light.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

MACHINE PREPARATION

- · Read engine manual.
- Do not tamper with or defeat safety devices. Keep guards, shields and interlock safety devices in place and in proper working condition. They are for your protection.
- Keep all fasteners such as nuts, bolts, and pins well secured.
- Visually inspect aerator and the assembly for wear or damage. Replace worn or damaged parts.
- Verify that machine and attachments, if any, are in good operating condition.
- Do not engage aerator until ready to use.

OPERATING SAFELY

IN GENERAL

- Use extra care when loading or unloading the machine into a trailer or truck.
- Never operate without guards, plates, or other safety protective devices in place.
- Do not run the engine in an enclosed area where dangerous carbon monoxide fumes can collect.
- Never leave a machine unattended. Turn off aerator and stop engine before leaving the machine.
- Use extreme caution when pulling machine towards you.
- Stop operation if someone approaches.

STARTING

- Start according to instructions in this manual or on the machine.
- Before attempting to start the engine, make sure the aerator is disengaged.
- When starting the engine, make sure hands and feet are clear of the aerator.
- Do not engage aerator at full throttle. Throttle to idle or lowest possible engine speed.
- Do not change engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.

A INTERRUPTING OPERATION

Before leaving the operator's position shut off engine.

- Stop the engine, disengage the tines, set parking brake and wait until the tines stop rotating:
 - before refueling.
- Stop the engine, disengage the aerator, and disconnect the spark plug wire:
 - before clearing blockages or unclogging:
 - before checking, cleaning or working on the machine:
 - after striking a foreign object. Inspect the machine for damage and have repairs made as needed before restarting;
 - if the machine begins to vibrate abnormally: shut off machine immediately. Inspect and have repairs made as needed before restarting;
 - except for repairs or adjustments as specifically noted, such as for carburetor adjustment, where the engine must be running. Keep hands and feet clear of moving parts in these circumstances.
- Allow the aerator to come to a complete stop when stopping operation to clear blockages, unclog, inspect the machine, do maintenance or repair.
- Reduce the throttle setting during engine shutdown and, if the engine is provided with a shutoff valve, turn the fuel off at the conclusion of operation.

OPERATING ON SLOPES 🗥



Use Extra Care When Working On Slopes

- Do not operate on slopes if uneasy or uncertain. Ultimate responsibility for safe operation on slopes rests with the operator.
- Do not operate on steep slopes.
- Keep all movement on slopes slow and gradual.
- Do not turn on slopes unless necessary, and then turn slowly and downhill when possible.
- Be sure of your footing on slopes.

MAINTENANCE SAFETY

IN GENERAL

- Maintain machine according to manufacturer's schedule and instructions for maximum safety and best results.
- · Park machine on level ground.
- Never allow untrained personnel to service machine.
- Guards should only be removed by a qualified technician for maintenance or service. Replace when work is completed.
- Adjust or repair only after the engine has been stopped and the aerator has stopped moving.
- Disconnect spark plug wire(s) before doing any maintenance.
- Replace parts if worn, damaged or faulty. For best results, always replace with parts recommended by the manufacturer.
- Do not dismantle the machine without releasing or restraining forces which may cause parts to move suddenly.
- Provide adequate support, e.g. jack stands for lifted machine or parts if working beneath.
- Do not put hands or feet near or under rotating parts.
- · Clean up spilled oil or fuel thoroughly.
- · Replace faulty mufflers.
- To reduce fire hazards, keep the engine, muffler, and fuel storage area free of grass, leaves, debris buildup or grease.
- Never attempt to make adjustments while the engine is running except for repairs or adjustments as specifically noted, such as for carburetor adjustment, where the engine must be running. Keep hands and feet clear of moving parts in these circumstances.

FUEL SAFETY

Petrol (gasoline) and diesel fuels are flammable; petrol (gasoline) vapors are explosive. Use extra care when handling.



- Store only in containers specifically designed for fuel.
- When refueling or checking fuel level:
 - Stop the engine and allow to cool;
 - Do not smoke;
 - Refuel outdoors only:
 - Use a funnel;
 - Do not overfill;
 - If fuel is spilled, do not attempt to start the engine until the spill is cleaned up and vapors have cleared.
 - Replace caps on fuel containers and tanks securely.

Sparks from static electricity can start fires or cause explosions. Flowing fuel can generate static electricity. To prevent static electricity sparks:

- Keep containers electrically grounded. Do not fill containers in a vehicle or on a truck or trailer bed with a plastic liner. Fill containers on the ground away from the vehicle.
- When practical, remove gasoline powered equipment from the truck or trailer and refuel it on the ground.
 If equipment must be refueled on the truck or trailer, refuel from a portable container rather than a dispenser nozzle.
- Keep the dispenser nozzle in contact with the rim of the fuel tank or container opening until fueling is complete. Do not use a nozzle lock-open device.
- If fuel is spilled on clothing change it immediately.

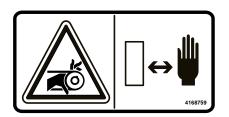
STORAGE SAFETY

- Stop the engine and allow to cool before storing.
- · Drain the fuel tank outdoors only.
- Store fuel in an approved container in a cool, dry place.
- Keep the machine and fuel containers in a locked storage place to prevent tampering and to keep children from playing with them.
- Do not store the fuel container or equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.
- Appliances such as furnaces and water heaters with a pilot light have an open flame.
- Keep gasoline storage area free of grass, leaves and excessive grease to reduce fire hazard.
- Clean debris from cutting units, drives, mufflers and engine to help prevent fires.
- Clean up any spilled gasoline or oil in the storage area.

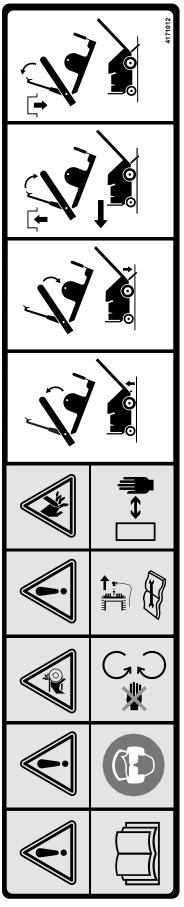
SPECIFICATIONS/LABELS

RA-21HE Dimensions: Width..... 31.5" (800 mm) Length..... 64" (1626 mm) 49" (1245 mm) Length (handle folded)..... Height (transport)..... 39" (991 mm) Height (handle folded)..... 24" (610 mm) Maximum gate Width..... 32" (813 mm) Net Weight: Weight..... 261 lbs. (119 Kg) Removable weights..... Speed: Aerate..... up to 305 f.p.m. (2.84 km/h) **Engine:** Model RA-21HE Model..... GX160 Honda, 4.8 h.p., 4 cycle Recoil, on/off switch Starter..... 3600 RPM, no load Governor..... Idle Speed..... 1400 + 100 RPM .825 gal. (3.1 L) Fuel Tank..... Gear Reduction..... 6 to 1 Drive: Machine..... Push off the tines Primary..... Sheaves and Belts Wheels: 2.80-4 Front..... Rear..... 4.10 x 3.50 -4 Aeration: 5/8" (15.875 mm) diameter, 8 per unit Tines.... 2 3/4" (70 mm) max. Penetration Depth..... Swath Width..... 20.8" (558 mm) Hole Pattern..... 2.6" x 7.5" (66 x 191 mm) on center

Up to 26,000 sq. ft. / hour (2415 sq.m /hour)



RA-21



Production.....

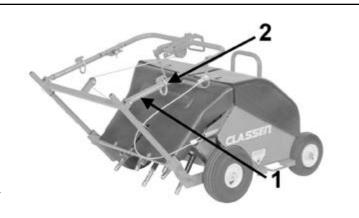
CONTROLS / ASSEMBLY INSTRUCTIONS

RA-21

SET-UP INSTRUCTIONS

NOTE: Units ship with no gas or oil.

- 1. Cut banding and roll aerator off pallet.
- 2. Unfold by pulling up on handle 1. Slide lock rings down
- Add oil to the engine and gearbox with the engine resting in a level position. Refer to the engine manufacturer's Owners manual for the correct type and amount of oil.
- 4. Fill the fuel tank according to the engine manufacturer specifications.



CONTROLS

FUEL SHUT OFF(A)

Move to the "OFF" position to shut off the fuel whenever transporting the machine by trailer or storing it. Move to the "ON" position before starting the engine.

CHOKE (C)

Move to the choke position to apply the choke. Move to the run position to remove the choke.

THROTTLE (D)

Controls the engine speed.

BELT IDLER HANDLE (F)

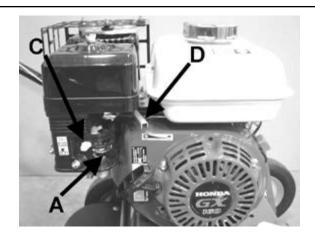
This lever engages the drive belt idler. Pull it back to engage. This lever must be held back for operation. When released, forward motion will stop. If the lever fails to spring forward when released, immediately contact the manufacturer as this is a safety feature.

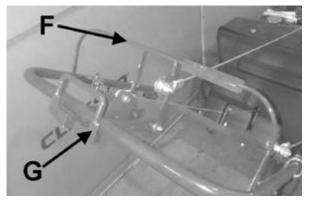
TINE BLOCK LEVER (G)

This lever swings the tine block into the operating position. Release the handle and allow lever to move forward. This will place it into the operating position.

ENGINE SWITCH (H)

Move to the "OFF" position to stop the engine. Move to the "ON" position before starting the engine.





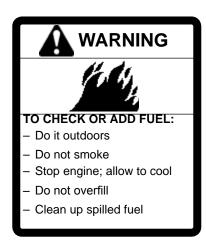


PRE-OPERATION CHECK LIST OWNER'S RESPONSIBILITY

- Review and follow all safety rules and safety decal instructions.
- Check that all safety decals are installed and in good condition. Replace if damaged.
- Check to make sure all shields and guards are properly installed and in good condition.
- Check that all hardware is properly installed and secured.
- Check to be sure engine is free of dirt and debris.
 Pay particular attention to the cooling fins, governor parts and muffler. Clean air intake screen. Check air cleaner; service as necessary.
- Check all lubrication points and grease as instructed in manual.
- Inspect area and remove stones, branches or other hard objects that might be thrown, causing injury or damage.
- Check that there are no exposed underground utilities in the work area.

FUELING-Gasoline is extremely flammable and highly explosive under certain conditions. BE SURE to install fuel cap after fueling.

- Fill fuel tank with good quality, clean, unleaded regular petrol (gasoline) to the level recommended by the engine manufacturer.
- Use a funnel to avoid spilling.



BEFORE STARTING THE ENGINE

- Read the operator manual and engine manual.
- Be familiar with all controls, how each functions and what each operates.
- Check the engine and gearbox oil level and add if necessary. Follow the engine manufacturers recommendations per the engine manual supplied with the machine
- Open the fuel valve.
- Choke: For cold starts, set the choke lever to the "CHOKE" position. For warm starts attempt to start without the choke first to avoid flooding. If the engine does not start then use the choke.

STARTING THE ENGINE



- 1. Turn fuel cock to the "open" position.
- 2. Turn choke on (closed).
- 3. Put On/Off switch to the On position.
- 4. Pull recoil starter rope until engine starts.
- 5. After engine is warm, turn off choke (open).
- 6. Allow engine to run one minute before using.
- 7. Check engine rpm setting before operating. DO NOT exceed 3600 rpm.

NOTE: A warm engine requires less choking than a cold engine.

STOPPING OPERATION

1. Put On/Off switch on handle to OFF position.

TO AERATE

 Release the tine block lever and allow the tines to move forward. Pull the belt idler handle toward the main handle and hold. The tines will penetrate deeper if you let the machine pull itself forward.

TO STOP AERATING

- 1. Release the belt idler handle.
- 2. Pull the tine block lever back to lock.

MAINTENANCE



Stop the engine and remove spark plug wire before performing any maintenance.

When replacement parts are required, use genuine Classen parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or bystanders.

Carbon monoxide present in the exhaust is an odorless and deadly gas. Never start or run the engine where exhaust fumes can collect. Provide enough fresh air to keep fumes from getting too strong.

Replace any warning decals that become illegible immediately.

DAILY MAINTENANCE

Hardware

- Tighten any hardware (nuts, bolts, etc) that are found loose.
- Replace any broken or missing hardware (nuts, bolts, cotter pins, etc.).
- Check to see that set screws on pulley are tight.

Engine

See engine manual for oil change intervals and oil and gas specifications. See engine manual for air cleaner service intervals and servicing procedure.

Oil

See engine manual for air cleaner service intervals and servicing procedure.

AERATOR SERVICE

Stop engine and remove spark plug wire before servicing aerator.

Guards

- Check condition of guards for damage or wear.
- Replace broken, worn, or damaged shield plates.

Belts

- Check condition of belts for damage or wear.
- Replace broken, worn, or damaged belts.

Belt Replacement

 Stop the engine and disconnect the spark plug wire before attempting to replace any belt.

Lubrication

Grease the crankshaft and arm bearings every 25 hours of operation.

Storage

To prevent possible explosion or ignition of vaporized fuel, do not store equipment with fuel in tank or carburetor in an enclosure with open flame (for example, a furnace or water heater pilot).

Before the equipment is put into storage for any period exceeding 30 days.

- 1. Drain all fuel from the fuel tank and fuel lines.
- Start the engine and run until all the fuel is used from the carburetor float bowl and the engine stops.
- While the engine is still warm, drain the crankcase oil and replace with the proper weight oil corresponding to the season the equipment will be next used.
- 4. Remove the spark plug and squirt a small amount of engine oil into the cylinder. Slowly pull the starter a few times to distribute oil in the cylinder and reinstall the spark plug.
- 5. Top off if necessary. See engine manual for details.

To put the equipment into service after an extended period of storage.

- 1. Check for loose parts and tighten if necessary.
- 2. Fill the fuel tank and then check the engine oil level.
- 3. Start the engine and check for fuel leaks. Repair any leaks before operating the unit.

TROUBLESHOOTING GUIDE			
PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION	
A. Engine will not start.	Out of gasoline.	Fill gasoline tank.	
	Spark plug lead wire loose or disconnected.	Reconnect spark plug lead wire.	
	3. Defective spark plug.	Replace spark plug.	
	Throttle control lever not in proper position.	Move throttle control lever to start position.	
	5. Engine flooded or flooding.	5. Start engine with choke fully open.	
	Stale or contaminated gasoline.	Drain, clean tank and system and refill with fresh gasoline.	
	7. Engine switch off.	7. Turn engine switch to ON position.	
	8. Oil level low.	8. Fill crankcase to proper oil level.	
	9. Front cover is loose on unit.	Make sure front cover is secured properly on unit.	
B. Loss of power, hard starting.	Spark plug lead wire loose.	Tighten spark plug lead wire.	
	2. Defective spark plug.	2. Replace spark plug.	
	3. Carburetor out of adjustment.	Properly adjust carburetor.	
	4. Air cleaner dirty.	Clean and service air cleaner. (See the engine Operation and Maintenance illustrations.)	
	5. Air vents clogged or plugged.	Clean vent in gasoline tank cap and carburetor	
C. Engine will not idle properly.	Idle speed too slow.	Adjust carburetor idle speed or idle mixture.	
	Spark plug gap incorrect.	Set spark plug gap; see your Engine Manual	
	3. Air cleaner dirty.	Clean and service air cleaner. (See the engine Operation and Maintenance illustrations.)	
D. Engine runs hot or overheats.	1. Oil level low.	Fill crankcase to proper oil level.	
	Engine cooling fins or baffles clogged with dirt and debris.	Clean and remove obstructions.	
	3. Carburetor out of adjustment	Readjust carburetor.	

EC Declaration of Conformity

The Undersigned Manufacturer:

Schiller Grounds Care, Inc.

1028 Street Road

Southampton, PA 18966

EU Authorized Representative:

Earlsmere Limited

Unit 18 Valley Road

Station Road Industrial Estate

Wombwell, Barnsley, South Yorkshire, S73 OBS UK

Kurt Knudsen

Kent Frenchen

Director of Operations Date: 12th June, 2014

Jim White

Managing Director
Date: 12th June 2014

Declare that the machine described below:

Make & Type...... Classen Reciprocating Aerator

 Category
 Aertator

 Series
 RA-21HE

 Engine
 Honda GX160

 Speed
 3600 rpm

 Net installed power
 3.6KW (4.8HP)

Complies with the provisions of the following European directives and Amendments and the Regulations transposing it into national law.

Sound:

Sound levels were determined in accordance with Directives 2000/14/EC and EN ISO 3744:2010.

Vibration:

Hand/arm vibration was measured at the right and left operator handles per ISO 5349-1-2001 and ISO 5349-2-2001. Levels were calculated using ISO/DIS 5395-1, in accordance with 2002/44/EC. Only the highest of the left and right readings is given.

Intended Use and Limits:

This machine is intended for aeration of turf areas.



2 YEAR LIMITED SERVICE AND WARRANTY POLICY

Schiller Grounds Care, Inc.

1028 Street Road • Southampton, PA 18966

Telephone: 1-800-366-6268

TWO YEAR LIMITED WARRANTY

Effective April 1, 2007

For the period of two years from the date of purchase, CLASSEN MFG., INC. will repair or replace for the original purchaser free of charge, any part or parts found upon the examination of our factory authorized service station, or by the factory in Southampton, PA, to be defective in material or workmanship. All transportation charges on parts submitted for repair or replacement under this warranty shall be borne by the purchaser.

This warranty does not include engines or engine parts, tires, batteries, or gearboxes that are covered under separate warranties furnished by their manufacturer or supplier, nor does it include normal maintenance parts, including but not limited to, spark plugs, points, filters, blades, and lubricants.

All service under this warranty will be furnished or performed by our factory authorized service stations.

There is no other expressed warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to two years from the date of purchase and to the extent permitted by law, any and all implied warranties are excluded. The above remedy of repair and replacement of defective parts is the purchaser's exclusive remedy for any defect, malfunction or breach of warranty. Liability for incidental or consequential damages under any and all warranties is excluded to the extent permitted by law.

NORMAL RESPONSIBILITIES OF THE SELLER AND THE USER

- 1. The Distributor or Dealer is responsible for the proper assembly and preparation of the product for delivery to the end user.
- 2. The User is responsible for reading the Manual and Instructions.
- 3. The User is responsible for proper operation and maintenance as described in the manual.
- 4. The User is responsible for the replacement of wear items such as blades, belts, tires, batteries, etc.
- 5. The User is responsible for damage due to improper operation and maintenance, as well as abuse.

All claims must be received by the factory 30 days after the end of the warranty period to receive warranty consideration.

Classen_®

SCHILLER GROUNDS CARE, INC. 1028 STREET ROAD, P.O. BOX 38 SOUTHAMPTON, PA 18966 PHONE 877-596-6337 • FAX 215-357-8045