

OPERATOR'S MANUAL

AERATOR MODELS:

CA-18HD

Compact Aerator



CLASSEN[®]

C100628

1028 Street Road • P.O. Box 38
Southampton, PA 18966 U.S.A.
Ph. (877)596-6337

TABLE OF CONTENTS

INTRODUCTION	1
Thank You	1
Read This Manual	1
Warranty	1
Measurements	1
Serial Numbers	1
Ordering Part	1
Directions	1
OWNERS RECORD.....	1
PRE-DELIVERY CHECK LIST	1
DELIVERY CHECK LIST.....	1
SAFETY PRECAUTIONS.....	2
Training	2
Preparation Safety	2
Engine Safety.....	2
Operational Safety	2
OPERATION.....	3
Preparation	3
Starting Engine	3
Transporting Aerator	3
To Operate Aerator.....	3
GENERAL MAINTENANCE	4
Aerator Maintenance.....	4
Engine Maintenance	5
AERATOR STORAGE	5
Storing Aerator	5
Operation After Extended Storage	5
SAFETY DECALS	5
E15 ETHANOL INFO.....	6-9
TWO YEAR LIMITED WARRANTY	10

INTRODUCTION

THANK YOU

Thank you for purchasing a CLASSEN Aerator

READ THIS MANUAL

Read this manual carefully in its entirety. It contains safety, operating, maintenance, and adjustment instructions for your Aerator. By following the operating and maintenance instructions you will prolong the life of your equipment and maintain its maximum efficiency. Failure to do so could result in personal injury or equipment damage.

This manual should be considered a permanent part of your Aerator and should remain with it if you sell it.

WARRANTY

Refer to last page.

MEASUREMENTS

U.S. Units of measure are used in this manual.

SERIAL NUMBERS

Write frame and engine serial numbers, plus model numbers in "Owner's Record" section below. You may need these numbers when you order parts. The serial number stick plate is located on the right rear of the Aerator frame.

ORDERING PARTS

When ordering parts, always give the serial number and model of your Aerator as well as the quantity, part number and description of the part needed.

DIRECTIONS

"Right Hand" and "Left Hand" sides of the Aerator are determined by facing the "back" of the Aerator as you would operate the machine.

OWNER'S RECORD

DATE PURCHASED _____
AERATOR MODEL NUMBER _____
AERATOR SERIAL NUMBER _____
ENGINE MODEL NUMBER _____
ENGINE SERIAL NUMBER _____

PRE-DELIVERY CHECK LIST

Check the following before you deliver the Aerator to the customer.

1. Guards and shields fastened in place.
2. Decals fastened and legible.
3. Weight bar installed.
4. Gas lever on engine turned on.
5. All lubrication points greased.
6. 6:1 gearbox oil level.
7. Engine oil level.
8. Air cleaner.
9. Touch up scratches.
10. Chain(s) tight.
11. Lowering handle working properly.
12. Control handle(s) working to tighten V-belt(s).
13. Add fuel, start engine, test run.

DATE SET UP _____/_____/_____

DELIVERY CHECK LIST

Review the operators manual with the customer.

1. Schiller Grounds Care, Inc. warranty.
2. Safe operation and service.
3. How to use controls.
4. Operating the machine correctly.
5. Transporting the Aerator.
6. Correct fuel and lubricants.
7. Daily and periodic inspections.
8. Changing oil after break-in period.
9. Servicing the Aerator regularly and correctly.
10. Schiller Grounds Care, Inc. parts and service.
11. Give the customer the operators manual and encourage customer to read it.

DATE DELIVERED _____/_____/_____

SIGNATURE _____

SAFETY PRECAUTIONS

TRAINING

1. Regard the unit as a piece of power equipment and teach this regard to all who operate this unit.
2. Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.
3. Never allow children, teenagers or people unfamiliar with these instructions to use this piece of equipment.
4. Avoid operating unit while people, especially children or pets, are nearby. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
5. Be sure you know how to stop the Aerator at a moments notice.

PREPARATION SAFETY

1. The use of personal protective equipment, such as (but not limited to) protection for the eyes, ears, feet and head is recommended.
2. While operating, always wear substantial foot wear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
3. Area should be free of all obstacles and debris.

ENGINE SAFETY

1. Handle gasoline with care; it is highly flammable.
2. Use an approved gasoline container.
3. Always add fuel before starting the engine.
4. Fill the fuel tank outdoors.
5. If fuel is spilled, do not attempt to start the engine. Move away from the area of the spill and avoid creating any source of ignition until fuel vapors have dissipated.

OPERATIONAL SAFETY

1. Carefully read and follow all caution decals. (See Pg. 5.)
2. Operate only in daylight or good artificial light.
3. Do not operate machine unless all guards, shields and covers are in place and in proper working condition.
4. It is essential all operator safety mechanisms be connected and in operating condition prior to use.
5. Do not change the engine governor settings or over-speed the engine. Operating an engine at excessive speed may increase the hazard of personal injury.
6. Disengage the drive control(s) and tine lowering handle before starting. (See Pg. 3, Fig 1.)
7. Start the engine carefully with feet well away from the tines.
8. Do not put hands, feet or clothing near rotating parts while the unit is being operated.
9. Travel up and down slopes at a 45 degree angle rather than across, to prevent unit from tipping over.
10. Exercise extreme caution when changing direction on slopes. Do not get too close to sharp drop-offs or operate unit on excessively steep slopes. DO NOT release control handle(s) on a slope, this will cause free wheeling, allowing unit to roll back down the slope. Make sure to leave yourself room to correct the problem if one arises.
11. Use caution when pulling the unit towards you.
12. Always stop the tines if unit has to be tilted for transportation or when crossing surfaces (i.e. sidewalks, driveways, stepping stones, etc.).
13. Never pick up or carry an Aerator while the engine is running.
14. Stop the engine and disconnect the spark plug wire: a) before checking, cleaning or working on unit, and b) after striking a foreign object (inspect the unit for damage and make repairs before restarting and operating).
15. Stop the engine: a) whenever you leave the unit, b) before refueling, and c) before clearing blockages.
16. Reduce the throttle setting during engine run-out and, if the engine is provided with shut-off valve, turn the fuel off at the conclusion of operating.



WARNING



DO NOT FILL TANK COMPLETELY FULL. DO NOT
SMOKE WHILE YOU FILL FUEL TANK. DO NOT
REMOVE GAS CAP IF ENGINE
IS RUNNING.

DO NOT OPERATE ENGINE IN A CONFINED SPACE
WHERE DANGEROUS CARBON MONOXIDE
FUMES CAN COLLECT.

OPERATION

PREPARATION

1. Carefully read this manual and operate Aerator correctly.
2. Always check machine on level ground.
3. Visually check all moving parts and all fasteners, if loose or broken, tighten or replace. Check for broken or bent tines, replace if necessary.
4. Lubricate all fittings after every four hours of using machine, using a pressurized gun with standard lithium base lubricant (see "General Maintenance" section). Wipe off fittings before and after lubricating.
5. Check engine crankcase and gear reduction case oil levels with engine resting in a level position. Add oil if necessary. (Refer to engine manufacturer's owners manual for the correct type and amount of oil.)
6. Fill the fuel tank according to engine manufacturer specifications.
7. For best performance and maximum tine penetration, thoroughly water lawn the day before aeration.
8. Police lawn area for obstacles and debris (i.e. sprinklers, hoses, toys, etc.)
9. Mark underground sprinkler heads and other hidden obstacles to prevent damage.



WARNING

CAUTION: TO AVOID INJURY, DO NOT PLACE YOUR FEET OR OTHER BODY PARTS UNDER THE TINES WHILE STARTING THE ENGINE.

STARTING ENGINE

1. Turn fuel cock to the "open" position.
2. Turn choke on (closed).
3. Turn ignition switch to "on".
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 operating.
7. Check engine rpm setting before operating.
DO NOT exceed 3600 rpm.

TRANSPORTING AERATOR

1. Raise tines before transporting unit across surfaces or before transporting from one work area to another by lifting up on lowering handle (see Fig. 1).
2. Aerator can be transported with the engine running or with the engine off.

TO OPERATE AERATOR

1. Start engine. (See "Starting Engine" section.)

WARNING

CAUTION: TO AVOID INJURY, DO NOT PLACE FEET OR OTHER BODY PARTS UNDER TINES WHILE STARTING THE ENGINE.

2. Make sure the rear tires are in the down position (tines not touching ground). Slowly pull back on control handle(s). (See Fig. 1.)

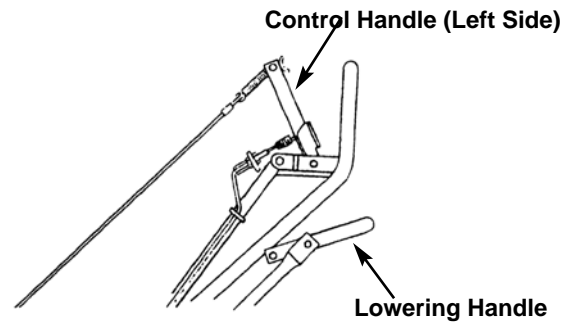


Fig. 1

3. Move Aerator to the work area. (See "Transporting Aerator" section.)
4. Upon reaching the work area, release control handle(s) and push down on lowering handle (see Fig. 1) putting tines in the turf.
5. Pull back slowly on the control handle(s) to begin aerating.
6. For maximum tine penetration into turf, apply downward pressure on handle.
7. **Models CA-18:** At the end of aerating run, release control handle and lift up on lowering handle. Turn Aerator around and repeat steps 5 and 6.
8. When finished aerating, lift up on lowering handle to move wheels into transport position. (See "Transporting Aerator" section.)
9. To stop engine, take hands off control handle(s).
10. Turn off ignition switch.

GENERAL MAINTENANCE

AERATOR MAINTENANCE

TO KEEP THE AERATOR IN GOOD OPERATING CONDITION, PERFORM THE FOLLOWING:

- 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.
- Any warning decal that becomes illegible should be replaced immediately. (See Pg. 5.)
- Do not operate equipment without shield(s) in place. Do not make any adjustments or perform any maintenance while the engine is running.
- Thoroughly clean all tines inside and out when aerating is completed and apply a light coat of oil to prevent rust on tines.
- Always lubricate Aerator each time it is put into service. Wipe off lubrication fittings before and after each lubrication. The number of lubrication fittings vary depending on model of Aerator.

Model CA-18 - Qty 2, one in each rear wheel assembly.

- Keep drive belt(s) free of oil and dirt.

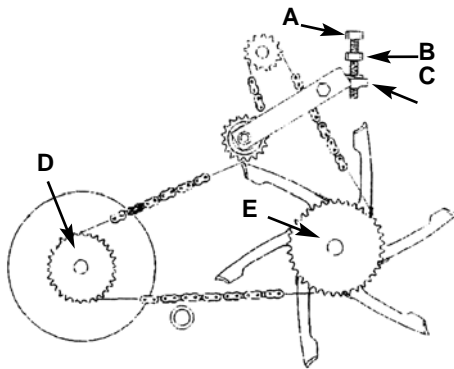


Fig. 2

Model CA-18 (See Fig.2.)

1. Disconnect spark plug.
2. Take off pulley guard by removing two nuts and lock washers.
3. Loosen nut (B) by turning counter-clockwise until nut comes in contact with head of bolt (A).
4. Tighten bolt (A) until chain is tight between front axle sprocket (D) and tine assembly sprocket (E). (See Note Opposite Page)
5. Retighten nut (B) by turning clockwise against lock washer (C).
6. Replace pulley guard, nuts and lock washers and retighten nuts.

ENGINE MAINTENANCE

(Refer to engine manufacturer's owners manual) Check engine and gear reduction case oil level with engine resting in a level position. Inspect air filter element and replace if necessary.

AERATOR STORAGE



SAFETY WARNING: TO PREVENT POSSIBLE EXPLOSION OR IGNITION OF VAPORIZED FUEL, DO NOT STORE EQUIPMENT WITH FUEL IN TANK OR CARBURETOR OR NEAR OPEN FLAME (I.E. FURNACE, WATER HEATER, PILOT LIGHT).

SAFETY DECALS



All Guards Must Be In Place While Machine Is In Operation

STORAGE INSTRUCTIONS

Before the Aerator is put into storage for any period exceeding 30 days, the following steps should be taken.

1. Drain all fuel from fuel tank and fuel lines.
2. Start engine and run until all fuel is used from carburetor float bowl.
3. While engine is still warm, drain the crankcase oil and replace with the proper weight oil corresponding to the season the Aerator will next be used.
4. Remove the spark plug and squirt a small quantity of engine oil into the cylinder. Turn the engine over a few times to distribute that oil.
5. Lubricate all lubrication fittings.

To put Aerator into operation after an extended storage:

1. Check for loose parts and tighten if necessary.
2. Check for cracked or broken tines and replace.
3. Fill fuel tank.
4. Check engine and gear reduction case oil levels (with engine in a level position).
5. Start engine.
6. Check for fuel leaks.
7. Check operation of control handle(s) to make sure unit stops when lever is released forward.
8. Aerator is equipped with fuel shut-off valve, close valve before transporting.



Fuels and Fuel Additives

You are here: [EPA Home](#) [Transportation & Air Quality](#) [Fuels & Fuel Additives](#) E15 (a blend of gasoline and ethanol)

E15 (a blend of gasoline and ethanol)

On October 13, 2010, the Environmental Protection Agency partially granted Growth Energy's waiver request application submitted under section 211(f)(4) of the Clean Air Act. This partial waiver will allow fuel and fuel additive manufacturers to introduce into commerce gasoline that contains greater than 10 volume percent (vol%) ethanol and up to 15 vol% ethanol (E15) for use in certain motor vehicles once certain other conditions are fulfilled. It is important to remember that there are a number of additional steps that must be completed - some of which are not under EPA control - to allow the sale and distribution of E15. These include but are not limited to submission of a complete E15 fuels registration application by industry and changes to some states' laws to allow for the use of E15.



[What is E15?](#)

[What is the E15 Waiver?](#)

[What Vehicles May Use E15?](#)

[What Vehicles and Engines May Not Use E15?](#)

[The Agency is Deferring Action on the Waiver Request for the Following Vehicles Pending Completion of DOE Testing](#)

[What Conditions are Part of the Waiver Decision?](#)

[What is EPA doing to Address Potential Misfueling?](#)

[The Waiver Notices](#)

[The Regulations](#)

What is E15?

Ethanol is an alcohol that can be mixed with gasoline to result in a cleaner-burning fuel. The most common blend of gasoline and ethanol is E10, or 10 percent of ethanol to 90 percent of gasoline. E15 is gasoline containing 15 vol% ethanol.

The primary source of ethanol is corn, but other grains or biomass sources may be used such as sorghum, corn cobs, cornstalks, and switchgrass.

What is the E15 waiver?

In order to protect the emission control systems of vehicles and engines, the Clean Air Act prohibits the introduction of fuels or fuel additives that are not substantially similar to the fuels or additives used in certifying vehicles and engines to emission standards. However, the Act authorizes EPA to grant a waiver of this prohibition for a fuel or additive if it can be demonstrated that vehicles and engines using the otherwise prohibited fuel or additive will continue to meet emission standards over their useful lives.

In March 2009, Growth Energy (a coalition of U.S. ethanol supporters) and 54 ethanol manufacturers applied for a waiver to increase the allowable amount of ethanol in gasoline from E10 to E15. The waiver application included data on the impact of E15 on vehicle emissions, fuel system materials, and driveability. Additional data were developed by the US Department of Energy, which began testing for potential impacts of various ethanol-gasoline blends on motor vehicle emissions. This testing followed enactment of the Energy Independence and Security Act of 2007, which calls for significantly increasing the amount of biofuels, such as ethanol, to be used in transportation fuel. EPA received over 78,000 public comments about Growth Energy's application.

EPA is partially granting Growth Energy's waiver request application. This partial grant waives the prohibition on fuel and fuel additive manufacturers on the introduction into commerce of gasoline containing greater than 10 vol% ethanol and no more than 15 vol% ethanol for use in certain motor vehicles. More specifically, this action has two components. First, we are approving the waiver for and allowing the introduction into commerce of E15 for use in Model Year (MY) 2007 and newer light-duty motor vehicles, which includes passenger cars, light-duty trucks, and medium-duty passenger vehicles.

The second component of the action is that we are not approving the waiver for E15 use in MY2000 and older light-duty motor vehicles, heavy-duty gasoline engines and vehicles (e.g., delivery trucks), highway and off-highway motorcycles, and nonroad engines, vehicles, and equipment (e.g., boats, snowmobiles, and lawnmowers) because there is insufficient test data to support it for these vehicles and engines. The Agency is deferring a decision on the applicability of a waiver with respect to MY2001-2006 light-duty motor vehicles. EPA expects to make a determination for these vehicles after DOE test data for those model years becomes available.

What Vehicles May Use E15?

- MY2007 and newer cars.
- MY2007 and newer light-duty trucks.
- MY2007 and newer medium-duty passenger vehicles.

What Vehicles and Engines May Not Use E15?

- All motorcycles.
- All vehicles with heavy-duty engines, such as school buses, transit buses, and delivery trucks.
- All off-road vehicles, such as boats and snowmobiles.
- All engines in off-road equipment, such as lawnmowers and chain saws.
- All MY2000 and older cars, light-duty trucks, and SUVs.
- All 2001-2006 cars, light-duty trucks, and medium-duty passenger vehicles (pending a waiver decision with respect to those vehicles).

The Agency is Deferring Action on the Waiver Request for the Following Vehicles and Pending Completion of DOE Testing

- All MY2001-2006 cars.
- All MY2001-2006 light-duty trucks.
- All MY2001-2006 medium-duty passenger vehicles.

What Conditions are Part of the Waiver Decision?

EPA placed two types of conditions on the waiver for E15: those for mitigating the potential for misfueling of E15 into vehicles and engines for which E15 is not approved, and those

addressing fuel and ethanol quality. All conditions must be met prior to the introduction of E15 into commerce.

Fuel quality conditions:

Ethanol used for E15 must meet ASTM International D4806-10.
The Reid Vapor Pressure for E15 is limited to 9.0 psi during the summertime.

Misfueling mitigation conditions:

Labels must be placed on E15 retail dispensers indicating that E15 use is only for MY2007 and newer motor vehicles.
Product Transfer Documents (PTDs) must accompany all transfers of fuels for E15 use.
Parties involved in the manufacture of E15 must participate in a survey of compliance at fuel retail dispensing facilities to ensure proper labeling of dispensers.
Parties must submit a plan addressing conditions to EPA for approval.

What is EPA doing to Address Potential Misfueling?

EPA is proposing a regulatory program to help mitigate potential misfueling of certain engines, vehicles and equipment with gasoline containing greater than E10 and no more than E15. This proposed rule would require all E15 fuel dispensers to have a label if a retail station chooses to sell E15 and seeks comment on separate labeling requirements for fuel blender pumps and fuel pumps that dispense E85. Similar to the prohibition in section 211(f)(1), the proposed rule would prohibit the use of gasoline containing greater than 10 vol% ethanol in vehicles and engines not covered by the partial waiver for E15. In addition, the proposed rule would require PTDs specifying ethanol content and Reid Vapor Pressure (RVP) to accompany the transfer of gasoline blended with ethanol and a national survey of retail stations to ensure compliance with these requirements. The proposed rule would also modify the Reformulated Gasoline (RFG) program by updating the Complex Model to allow fuel manufacturers to certify batches of gasoline containing up to E15. The proposed measures would help promote the successful introduction of E15 into commerce.

There will be a 60 day comment period for the proposed rule following publication in the Federal Register. In addition, EPA will hold a public hearing at the Millennium Knickerbocker Hotel in Chicago, IL. The hearing will start at 10 a.m. local time and will continue until everyone present has had a chance to speak. People wishing to testify at the hearing should notify Julia MacAllister at (734) 214-4131 (or at macallister.julia@epa.gov) by November 8, 2010. 150 phone lines will be available for those who wish to listen to the hearing but are unable to attend in person. During the hearing, you may call the following toll-free number: 1-866-299-3188. At the prompt, enter conference code 7342144423 followed by the # sign. Note that you will not be able to present testimony over the phone.

The Waiver Notices

EPA may consider a waiver for gasoline-ethanol blends greater than 10 vol% to be used in non flexible-fueled vehicles under its authority in Clean Air Act section 211 (f)(4).

EPA reviewed the March 2009 application from Growth Energy, available test data and public comments on the

NOTE: You will need Adobe Acrobat Reader, available as a free download, to view some of the files on this page. See EPA's [PDF page](#) to learn more about PDF, and for a link to the free Acrobat Reader.

waiver request. On October 13, 2010, EPA determined that, subject to compliance with all of the conditions listed in the waiver decision, a gasoline produced with greater than E10 and no more than E15 will not cause or contribute to a failure of certain motor vehicles to achieve compliance with the emission standards to which they have been certified over their useful lives. Therefore, EPA partially and conditionally granted the waiver request application submitted by Growth Energy for its gasoline-ethanol blend with up to 15 vol% ethanol.

[Response to Application for Waiver](#) | [PDF Version](#) (58 pp, 4.57M, published November 4, 2010)

[Status Update](#) (July 2010)

[Status Update \(PDF\)](#) (2 pp, 493K, November 30, 2009)

Extension of Comment Period: [Notice](#) | [PDF Version](#) (2 pp, 75K, published May 20, 2009)

[Notice of Receipt of Waiver Application](#) | [PDF Version](#) (3 pp, 77K, published April 21, 2009)

For further information or assistance, please contact [Robert Anderson](#) at 202-343-9718 or anderson.robert@epa.gov.

The Regulations

Proposed Rule: Regulation to Mitigate the Misfueling of Vehicles and Engines with Gasoline Containing Greater than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs

Fact Sheet: [EPA Announces E15 Partial Waiver Decision and Pump Labeling Proposal](#) | [PDF Version](#) (5 pp, 530K, October 13, 2010)

[Proposed Rule](#) | [PDF Version](#) (49 pp, 3.39M, published November 4, 2010)

For further information or assistance regarding please contact EPA's Assessment and Standards Division voicemail at: (734) 214-4636 or [email](mailto:ASDinfo@epa.gov): ASDinfo@epa.gov.

For more information, please contact the [EPA Fuels Programs Support Line](#) at 202-343-9755.

Please visit the EPA's Transportation and Air Quality web-based repository of mobile source documents, [Document Index System \(DIS\)](#). This searchable repository contains regulations, Federal Register notices, policy letters, and guidance documents.



**1028 Street Road • P.O. Box 38
Southampton, PA 18966 U.S.A.**

TWO YEAR LIMITED WARRANTY
Effective April 1, 2007

For the period of two years from the date of purchase, Schiller Grounds Care, 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 Norfolk, Nebraska, 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.

See the complete line of Turf Care Products

from

CLASSEN[®]

COMPACT AERATORS

CA-18H
CA-18B

STAND ON AERATOR

SA-25

SPLIT DRIVE AERATORS

TA-25D
TA-17D

TURF AERATORS

TA-19D
TA-19B
TA-26D

RECIPROCATING AERATORS

RA-21H
RA-21B
RAS-21H
RAS-21B

TOW/3PT AERATORS

48RT
60RT

TURF SEEDERS

TS-20H
TS-20B
TSS-20H
TSS-20B

TRAILERS

AST

TURF RAKES

TR-20H
TR-20B
TRS-20H
TRS-20B
TR-20RH
TR-20RB

SOD CUTTERS

SC-18/5.5
SC-18/8.0

HYDRO-DRIVE SOD CUTTERS

SCHV-18/5.5
SCHV-18/8.0

Classen reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously. Classen, or its distributors and dealers, accept no responsibility for variations which may be evident in the actual specifications of its products and the statements and descriptions contained in this publication.