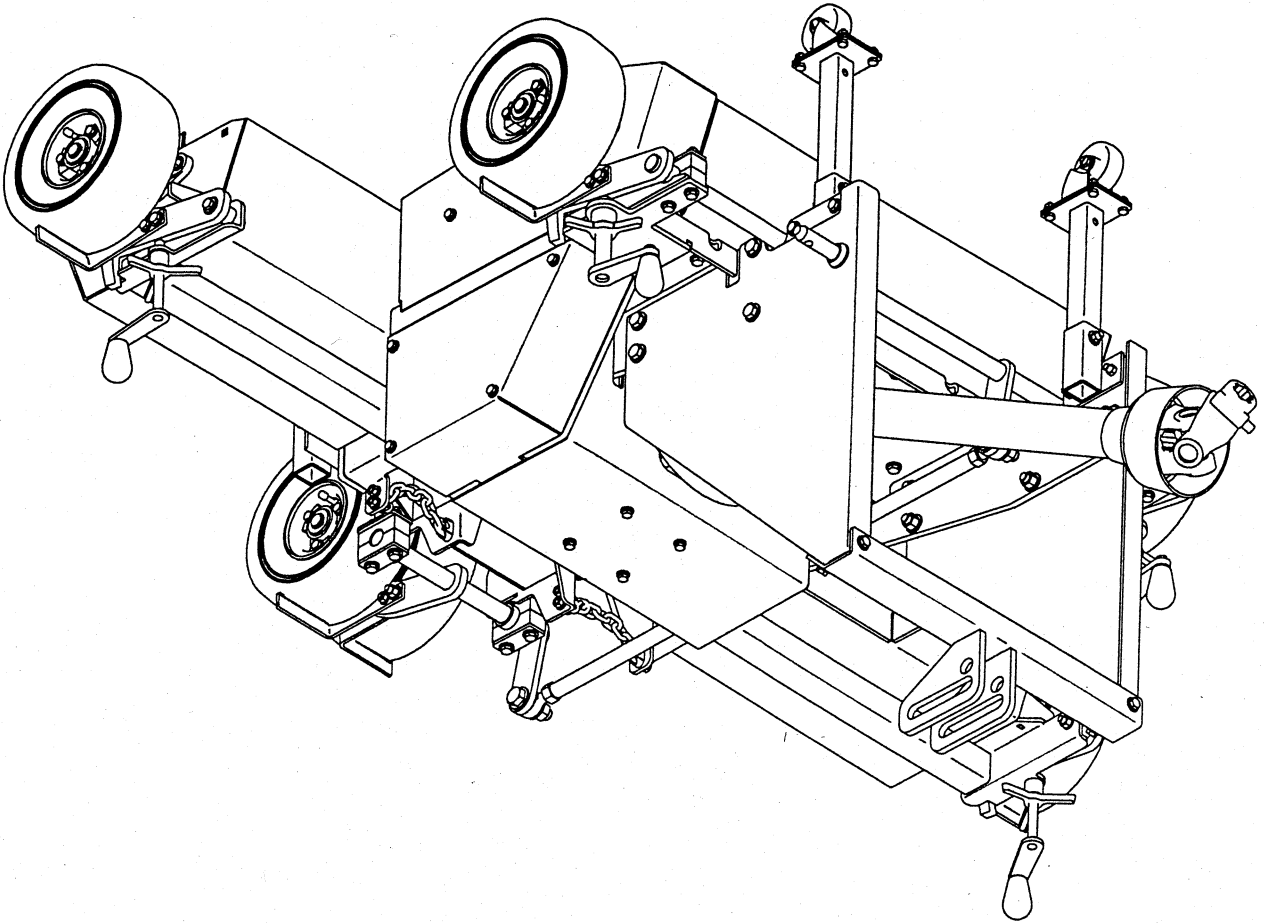


OWNERS MANUAL



SWING-WING
VERTICUTTER/SCARIFIER
SW04

GRADEN
INDUSTRIES
PTY LTD

Graden Industries Pty. Ltd.
26-28 Scammel Street, Campbellfield
Victoria, AUSTRALIA 3061
Phone : (03) 9305 3400
Fax : (03) 9305 3995
International Phone : (613) 9305 3400
Email : sales@graden.com.au
Website : www.graden.com.au

Date: 11-08-04

"Responsible" Person empowered to sign: Mr Graham Dryden
 Managing Director

Together with all relevant National Technical Standards and Specifications as applicable:
 (including parts/clauses of):

EN292 pt 1, EN 292 pt 2, EN 294 1992, EN 563 1994.

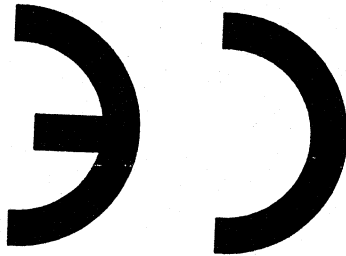
Harmonised standards applied: (including parts/clauses of):

Equipment description	:	Turf scarifier/aerator
Type	:	Tractor mounted
Title	:	SW04 SWING-WING VERTICUTTER
Serial No.	:	000501 thru to 010001

and the National Laws and Regulations adopting this directive
 and all relevant Essential Health and Safety Requirements.

EC Machinery Directive (98/37/EC)

Graden Industries Pty. Ltd. Of 26-28 Scammel Street, Campbellfield 3061, PO Box 29 Somerton 3062,
 Victoria, Australia, as the manufacturer,
 Certifies that the machine stipulated below complies with all the relevant provisions of the:



EC Declaration of Conformity

Table of Contents

1.	<u>Specifications</u>	
	1.1 Specifications	
	1.2 Statement of Machine Use	
	1.3 Serial Number Plate	
2.	<u>To the Owner</u>	
	2.1 Preliminary instructions	
	2.2 Warning symbols	
	2.3 Servicing the Swing-Wing Verticutter	
3.	<u>Safety Information</u>	
	3.1 General rules	
	3.2 Training	
	3.3 Personal Protective Equipment (PPE)	
	3.4 Preparation	
	3.5 Operational Safety	
	3.6 Maintenance Safety	
4.	<u>Assembly Instructions</u>	
5.	<u>Operating Instructions</u>	
	5.1 Preliminary checks	
	5.2 Set up	
	5.3 Transporting (traversing) the Verticutter	
	5.4 Verticutting	
	5.5 Shut down	
6.	<u>Maintenance Operations</u>	
	6.1 Adjustments and settings	
	6.1.1 Rotor belts (centre rotor)	
	6.1.2 Rotor belts (wing rotors)	
	6.2 Replacements	
	6.2.1 Blade replacement	
	6.2.1.1 Centre blade reel	
	6.2.1.2 Wing blade reels	
	6.2.2 Belt replacement	
	6.2.2.1 Rotor belts : centre reel	
	6.2.2.2 Rotor belts : wing reels	
	6.3 Gearbox	
	6.4 Maintenance schedule	
7.	<u>Warranty</u>	
8.	<u>Parts & Illustrations</u>	
	8.1 Parts Diagrams	
	8.2 Warning/Compliance Decals	

1.1 Specifications

Model	Graden SW04 Swing-Wing Verticutter
P.T.O. Horsepower	20 - 35 h.p.
Drive	Belt drive via Tractor PTO
Gearbox	Cormer T27A Increasing Gearbox
Gearbox oil	Gear Oil - SAE 80W90
Cutting Reels	1 Fixed (13 blades), 2 Floating (8 blades ea.)
Cutting width	1520mm (60 inches)
Cutting depth (nominal)	0 to 40mm (maximum with standard blades)
Blades	Tungsten carbide tipped spring steel Standard : 210mm x 2mm tip Part No. 0232 210mm x 3mm tip Part No. 0217 210mm x 1mm tip Part No. 1122 Optional :
Blade tip speed	1250m/min (standard blades at normal PTO speed of 540 rpm)
Weight	290 kg
Height	1110 mm (machine on stands)
Overall width	1980 mm
Length	1330mm
Tyres	4.10/3.50 - 4 Slick Pattern (6 per machine)
Tyre pressure	275 - 345 kPa (40 -50 psi)
Rotor belts	A47 Dayco Super 2 Series (8 per machine)

1.2 Statement of Machine Use

The Graden SW04 Swing-Wing Verticutter/Scarifier's main use is as a verticutting/scarifying/de-thatching tool on areas such as golf courses, bowling greens, cricket wickets, tennis courts, and other sporting fields.

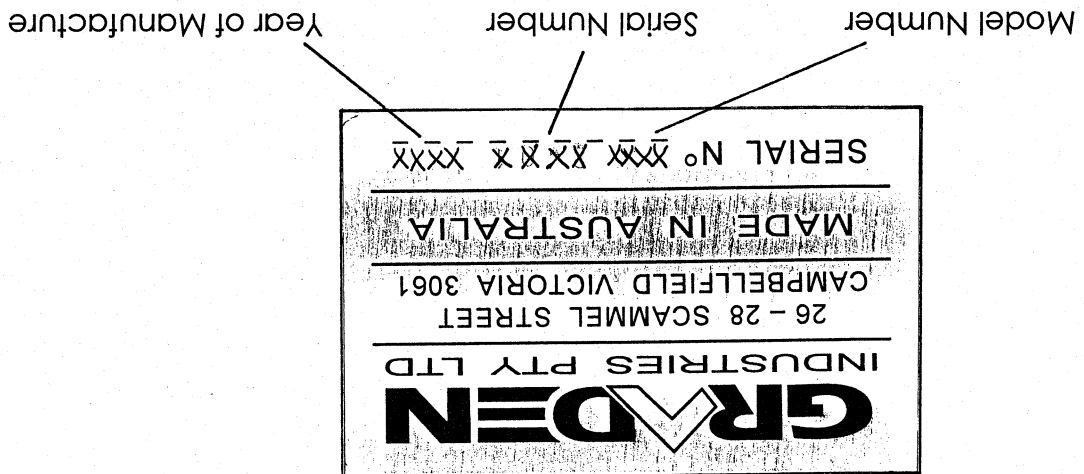
It is not for use on turf areas where rocks and other hard foreign bodies may be present. The use of this machine in turf profiles of this nature will likely cause premature wear or shattering of the blade tips and could result in rocks being projected at dangerous speeds, resulting in potential injury to the operator or damage to the machinery.

This machine is not for use in anything other than the soil profiles typically to be found on the sporting fields mentioned above. Any use of this machine in any other type of surface or for any other purpose may void the warranty.

Please contact Graden Industries if you are unsure about your application complying with the intended use of this machine.

1.3 Serial Number Plate

The serial number plate layout is shown below. The serial number is comprised of three sections. The first section is the model number, the second section is the serial number and the third section is the year of manufacture of the machine, as indicated below:



2. To the Owner

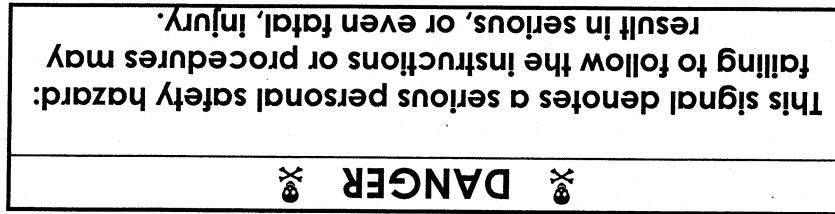
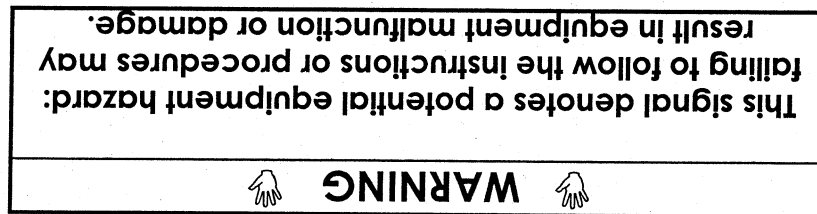
Read this manual before operating the Swing-Wing Verticutter

2.1 Preliminary Instructions

- It is important that the owner completely familiarises themselves with the contents of this manual
- Keep this manual at hand as a ready reference for anybody using the Graden Swing-Wing Verticutter
- The designed and tested safety features of this machine are dependent on it being operated within the limitations described in this manual

2.2 Warning Symbols

Throughout this manual the following symbols are used to indicate important safety issues. When either or both of these symbols are present the operator must be aware that there is the potential to damage equipment and/or incur serious personal injury.



2.3 Service the SwingWing Verticutter

The Graden Swing-Wing Verticutter has been carefully engineered and manufactured to provide safe, dependable and effective service.

As with all mechanical equipment it requires routine cleaning and maintenance.

Your authorised Graden representative has access to tools, genuine spares and equipment to service any and all of your requirements.

Use only genuine Graden parts; substitute parts will void the warranty and may not meet the safety and performance standards required for safe and effective operation of the Swing-Wing Verticutter.

Please record the model and serial numbers of the Swing-Wing Verticutter in the space provided below and quote this information when ordering parts or communicating with Graden Industries or its' approved representatives.

Model Number : _____

Serial Number : _____

Date Purchased : _____

3. Safety Information

This manual is provided to help you operate and maintain the Swing Wing Verticutter. Please read it carefully.

It has been compiled from extensive field experience and engineering data.

In some aspects it is generalised because it is impossible to cover all operating

scenarios. However, combining the information provided in this manual with your own increasing experience and knowledge with the Swing-Wing Verticutter will enable you to develop procedures suitable for your individual needs.

The Swing-Wing Verticutter, like most modern machinery, is constantly undergoing

development on the basis of experience and market needs. At the time of printing, material in this manual was current but may vary due to the aforementioned ongoing

development.

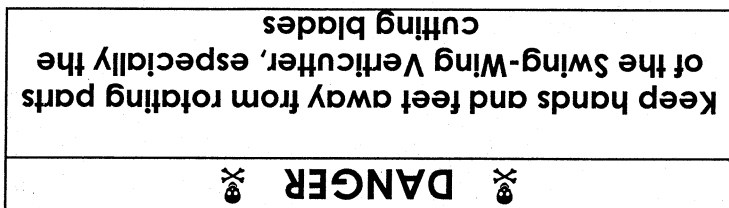
Graden Industries reserve the right to change the machinery specifications without notice.

3.1 General Rules

- Direction on the machine (right or left) is determined from standing behind the machine and facing in the direction of forward travel, all directions are given in this manual with this rule in mind

- When viewed from the right side the blades rotate anti-clockwise (counter rotating to the forward rotation of the tractor wheels)

- This is a precision piece of machinery with high speed cutting blades



- Do not allow children to operate the machine or be near it during its' operation.
- Never allow anyone to ride on the Swing-Wing Verticutter at any time.
- Only people who are very familiar with the rules of safe operation should be allowed to use this machine

⚠ DANGER ⚠
Read any manuals supplied with the tractor and know how to stop it and shut down all actions in an emergency.

- Do not allow anybody to operate the machine without instruction
- Know your controls and how to stop the machine and shut down the tractor quickly in an emergency
- To maintain control and reduce the possibility of upset, damage or collision, operate the machine smoothly. Avoid erratic operation and excessive speed.
- The tractor has its' own set of safety and operating rules. These must be complied with.

⚠ WARNING ⚠
Read this manual completely before beginning to learn how to use the Swing-Wing Verticutter



3.2 Training

⚠ DANGER ⚠
Never operate the Swing-Wing Verticutter with any of the covers or safety guards removed or not properly secured.

- Only use the machine during daylight or in good artificial light
- Some illustrations in this manual show the Swing-Wing Verticutter with safety guards removed. This is not a normal situation.



- Ensure that the Swing-Wing Verticutter is correctly mounted on the tractor and that the machine is properly adjusted.
- Ensure all safety warnings and decals are in place and legible (on both the Swing-Wing and the tractor).

3.4 Preparation

 DANGER 
Never wear sandals, sneakers or have bare feet when operating the tractor.

- Use appropriate PPE for eyes, ears and hands
- Wear sturdy footwear, preferably steel capped safety shoes or boots
- Clothing should be reasonably snug fitting and not free flowing so as to avoid the risk of entanglement in moving parts.

3.3 Personal Protective Equipment (PPE)

 DANGER 
The engine uses highly flammable petroleum fuel and produces toxic exhaust gases. Only add fuel to, or run, the engine in the open - never indoors.

- If the tractor is fitted with a Roll Over Protection Structure (ROPS), do not exceed the ROPS weight certification and always wear your seat belt.
- Be aware of the hazards associated with the tractor engine:
 - ⇒ The fuel used (Petrol, diesel, etc.) is highly flammable so only use an appropriate container
 - ⇒ Never remove the fuel cap or add fuel while the engine is running or still hot
 - ⇒ Never add fuel indoors and wipe up any spillages
 - ⇒ Never run the engine in an enclosed area because exhaust gases are toxic

- Remove any accumulated debris that might represent a fire hazard.
- Ensure that the blades are in a serviceable condition and that the rotor shaft mounting bolts are secure.
- Perform any appropriate scheduled maintenance before operating the machine.

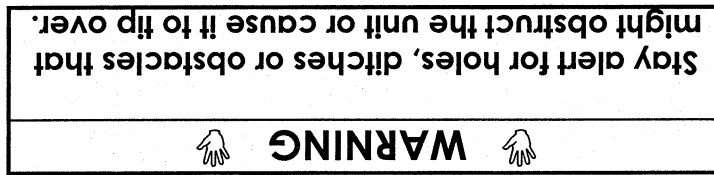
3.5 Operational Safety

- Always disengage the P.T.O before attempting to start the tractor.

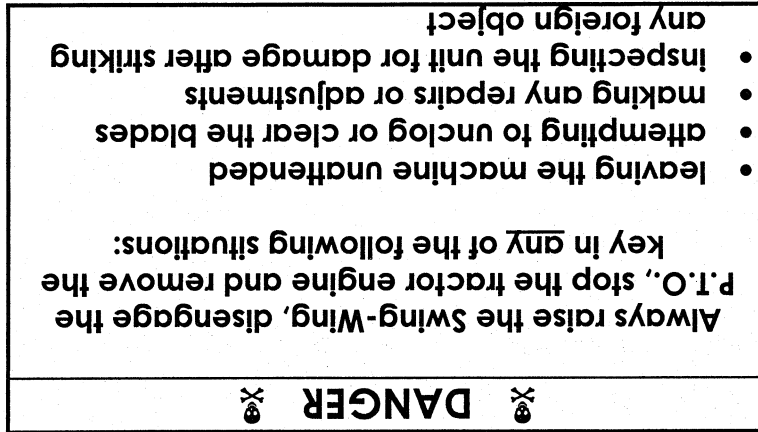
- Always raise the Swing-Wing Verticutter clear of the turf before attempting to engage the P.T.O.

- Always raise the Swing-Wing Verticutter clear of the ground and disengage the P.T.O when crossing gravel, walkways, roads, etc., or indeed any ground which you do not wish to verticut.

- Be very careful and maintain minimum ground speed when operating over rough ground, around trees, ditches, fences or on sloping ground.



- Never allow anybody in front or behind the tractor and Swing-Wing Verticutter while operating. Before reversing, disengage the P.T.O, then lift the machine clear of the ground and ensure that the area behind you is clear.



- Always repair any damage before recommencing operation.