



Operator's Manual

# KG540

Power Rake





500 Venture Drive  
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### To the Owner Contact Information and Product Identification

If you need to contact an authorized Ventrac dealer for information on servicing your product, always provide the product model and serial numbers.

Please fill in the following information for future reference. See the picture(s) below to find the location of the identification numbers. Record them in the spaces provided.

Date of Purchase: \_\_\_\_\_

Dealer: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

Dealer Phone Number: \_\_\_\_\_

Dealer Fax Number: \_\_\_\_\_

Model # (A): \_\_\_\_\_

Serial # (B): \_\_\_\_\_



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# INTRODUCTION

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Venture Products Inc. is pleased to provide you with your new Ventrac power rake! We hope that Ventrac equipment will provide you with a ONE Tractor Solution.

## Product Description

The KG540 power rake is designed for smoothing rough ground, removing surface rocks and debris, preparing soil for new lawn installations, and leveling gravel driveways. Its compact design allows the operator to work in tight quarters, including around corners and edges.

Seventy two replaceable carbide tips pulverize and refine the soil. Materials can be moved forward or to either side by hydraulically angling the rotor drum left or right. The rotor drum is reversible to allow back dragging of the soil and to pull material away from buildings, trees, or other obstructions.

The rotor drum depth is hydraulically controlled from the operator's seat.

The adjustable side wings can be lowered on either side for routing materials.

## Why Do I Need an Operator's Manual?

This manual has been created to help you gain the important knowledge of what is needed to safely operate, maintain, and service your machine. It is divided into sections for convenient reference of the appropriate section.

You must read and understand the operator's manual for each piece of Ventrac equipment you own. Reading the operator's manual will help you become familiar with each specific piece of equipment. Understanding the operator's manual will help you, as well as others, avoid personal injury and/or damage to the equipment. Keep this manual with the machine at all times. The manual should remain with the machine even if it is sold. If this manual becomes damaged or unreadable, it should be replaced immediately. Contact your local Ventrac dealer for a replacement.

When using a Ventrac attachment, be sure to read and follow the safety and operating instructions of both the power unit and the attachment being used to ensure the safest operation possible.

The information in this manual provides the operator with the safest procedures to operate the machine while getting the maximum use out of the unit. Failure to follow the safety precautions listed in this manual may result in personal injury and/or damage to the equipment.

# INTRODUCTION

## Using Your Manual

Throughout this manual, you will encounter special messages and symbols that identify potential safety concerns to help you as well as others avoid personal injury or damage to the equipment.

### SYMBOL DEFINITIONS

#### **ATTENTION**

 This symbol identifies potential health and safety hazards. It marks safety precautions. Your safety and the safety of others is involved.

There are three signal words that describe the level of safety concern: Danger, Warning, and Caution. Safety should always be the first priority when working on or operating equipment. Accidents are more likely to occur when proper operating procedures are not followed or inexperienced operators are involved.

Note: Right-Hand and Left-Hand orientations may be referred to at different places throughout this manual. Right-Hand and Left-Hand is determined as if facing forward from the operator station.

### SIGNAL WORD DEFINITIONS

#### **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme cases.

#### **WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

#### **CAUTION**

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

## Manual Glossary

- Power Unit** A Ventrac tractor or other Ventrac engine powered device that may be operated by itself or with an attachment or accessory.
- Attachment** A piece of Ventrac equipment that requires a Power Unit for operation.
- Accessory** A device that attaches to a Power Unit or Attachment to extend its capabilities.
- Machine** Describes any "Attachment" or "Accessory" that is used in conjunction with a power unit.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



### Training Required

- The owner of this machine is solely responsible for properly training the operators.
- The owner/operator is solely responsible for the operation of this machine and for the prevention of accidents or injuries occurring to him/herself, other people, or property.
- Do not allow operation or service by children or untrained personnel. Local regulations may restrict the age of the operator.
- Before operating this machine, read the operator's manual and understand its contents.
- If the operator of the machine cannot understand this manual, then it is the responsibility of this machine's owner to fully explain the material within this manual to the operator.
- Learn and understand the use of all the controls.
- Know how to stop the power unit and the attachments quickly in the event of an emergency.

### Requirements for Personal Protective Equipment (PPE)

- The owner is responsible for ensuring that all the operators use the proper PPE while operating the machine. Whenever you use the machine, use the following PPE:
- Certified eye protection and hearing protection.
- Closed toe, slip resistant footwear.
- Long pants or trousers.
- A dust mask for dusty conditions.
- Additional PPE may be required. Refer to the product safety procedures for any additional requirements.

### Operation Safety

- Secure long hair and loose clothing. Do not wear jewelry.
- Inspect the machine before operation. Repair or replace any damaged, worn, or missing parts. Be sure the guards and shields are in proper working condition and are secured in place. Make any necessary adjustments before operating the machine.
- Some pictures in this manual may show shields or covers opened or removed in order to clearly illustrate the instructions. Under no circumstance should the machine be operated without these devices in place.
- Alterations or modifications to this machine can reduce safety and could cause damage to the machine. Do not alter the safety devices or operate with the shields or covers removed.
- Before each use, verify that all the controls function properly and inspect all the safety devices. Do not operate if the controls or safety devices are not in proper working condition.
- Check the parking brake function before operating. Repair or adjust the parking brake if necessary.
- Observe and follow all of the safety decals.
- All the controls are to be operated from the operator's station only.
- Always wear a seat belt if the machine has a roll cage/bar installed and in the upright position.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



- Ensure the attachment or accessory is locked or fastened securely to the power unit before operating.
- Ensure that all bystanders are clear of the power unit and the attachment before operating. Stop the machine if someone enters your work area.
- Always be alert to what is happening around you, but do not lose focus on the task you are performing. Always look in the direction the machine is moving.
- Look behind and down before backing up to be sure of a clear path.
- If you hit an object, stop and inspect the machine. Make any necessary repairs before operating the machine again.
- Stop operation immediately at any sign of equipment failure. An unusual noise can be a warning of equipment failure or a sign that maintenance is required. Make any necessary repairs before operating the machine again.
- If equipped with a high/low range feature, never shift between high and low range while on a slope. Always move the machine to level ground and engage the parking brake before shifting range.
- Do not leave the machine unattended while it is running.
- Always park the machine on level ground.
- Always shut off the engine when connecting the attachment drive belt to the power unit.
- Never leave the operator's station without lowering the attachment to the ground, engaging the parking brake, shutting off the engine, and removing the ignition key. Make sure all moving parts have come to a complete stop before dismounting.
- Never leave the machine unattended without lowering the attachment to the ground, engaging the parking brake, shutting off the engine, and removing the ignition key.
- Only operate in well-lit conditions.
- Do not operate when there is a risk of lightning.
- Never direct the discharge of any attachment in the direction of people, buildings, animals, vehicles, or other objects of value.
- Never discharge material against a wall or obstruction. The material may ricochet back toward the operator.
- Use extra caution when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.
- Do not run the engine in a building without adequate ventilation.
- Do not touch the engine or the muffler while the engine is running or immediately after stopping the engine. These areas may be hot enough to cause a burn.
- Do not change the engine governor settings or over-speed the engine. Operating the engine at excessive speeds may increase the hazard of personal injury.
- To reduce the hazard of fire, keep the battery compartment, engine, and muffler areas free of grass, leaves, excessive grease, and other flammable materials.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



- Clear the working area of objects that might be hit or thrown from the machine.
- Keep people and pets out of the working area.
- Know the work area well before operation. Do not operate where traction or stability is questionable.
- Reduce speed when you are operating over rough ground.
- Equipment can cause serious injury and/or death when improperly used. Before operating, know and understand the operation and safety of the power unit and the attachment being used.
- Do not operate the machine if you are not in good physical and mental health, if you will be distracted by personal devices, or if you are under the influence of any substance which might impair your decisions, dexterity, or judgment.
- Children are attracted to machine activity. Be aware of children and do not allow them in the work area. Turn off the machine if a child enters the work area.
- Power units, attachments, and accessories are not designed or intended for travel on public roadways. Never operate or travel on public roads or highways.
- Operate with safety lights when operating near roadways.
- Slow down and be careful of traffic when operating near or crossing roadways. Stop before crossing roads or sidewalks. Use care when approaching areas or objects that may obscure vision.

### Keep Riders Off

- Only allow the operator on the power unit. Keep riders off.
- Never allow riders on any attachment or accessory.

### Operating On Slopes

- Slopes can cause loss-of-control and tip-over accidents, which can result in severe injury or death. Be familiar with the emergency parking brake, along with the power unit controls and their functions.
- If the power unit is equipped with a fold down roll bar, it must be locked in the upright position when operating on any slope.
- Use low range (if equipped) when operating on slopes greater than 15 degrees.
- Do not stop or start suddenly when operating on slopes.
- Never shift between high and low range while on a slope. Always move the power unit to level ground and engage the parking brake before shifting range or placing the power unit in neutral.
- Variables such as wet surfaces and loose ground will reduce the degree of safety. Do not drive where the machine could lose traction or tip over.
- Keep alert for hidden hazards in the terrain.
- Stay away from drop-offs, ditches, and embankments.
- Sharp turns should be avoided when operating on slopes.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



- Pulling loads on hills decreases safety. It is the responsibility of the owner/operator to determine loads that can safely be controlled on slopes.
- Transport the machine with the attachment lowered or close to the ground to improve stability.
- While operating on slopes, drive in an up and down direction whenever possible. If turning is necessary while driving across slopes, reduce your speed and turn slowly in the downhill direction.
- Ensure a sufficient supply of fuel for continuous operation. A minimum of one-half tank of fuel is recommended.

### Truck Or Trailer Transport

- Use care when loading or unloading the machine into a truck or trailer.
- Use full width ramps for loading the machine into a truck or trailer.
- The parking brake is not sufficient to lock the machine during transport. Always secure the power unit and/or attachment to the transporting vehicle securely using straps, chains, cables, or ropes. Both the front and rear straps should be directed down and outward from the machine.
- Shut off the fuel supply to the power unit during transport on a truck or trailer.
- If equipped, turn the battery disconnect switch to the Off position to shut off electrical power.

### Maintenance

- Keep the safety decals legible. Remove all grease, dirt, and debris from the safety decals and instructional labels.
- If any decals are faded, illegible, or missing, contact your dealer promptly for replacements.
- When new components are installed, be sure that the current safety decals are affixed to the replacement components.
- If any component requires replacement, use only original Ventrac replacement parts.
- Always turn the battery disconnect to the Off position or disconnect the battery before performing any repairs. Disconnect the negative terminal first and the positive terminal last. Reconnect the positive terminal first and the negative terminal last.
- Keep all bolts, nuts, screws, and other fasteners properly tightened.
- Always lower the attachment to the ground, engage the parking brake, shut off the engine, and remove the ignition key. Make sure all moving parts have come to a complete stop before cleaning, inspecting, adjusting, or repairing.
- If the power unit, attachment, or accessory requires repairs or adjustments not instructed in the operator's manual, the power unit, attachment, or accessory must be taken to an authorized Ventrac dealer for service.
- Never perform maintenance on the power unit and/or attachment if someone is in the operator's station.
- Always use protective glasses when handling the battery.
- Check the fuel lines for tightness and wear on a regular basis. Tighten or repair them as needed.
- To reduce the hazard of fire, keep the battery compartment, engine, and muffler areas free of grass, leaves, and excess grease.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



- Do not touch the engine, the muffler, or other exhaust components while the engine is running or immediately after stopping the engine. These areas may be hot enough to cause a burn.
- Allow the engine to cool before storing and do not store near an open flame.
- Do not change the engine governor settings or over-speed the engine. Operating engine at excessive speeds may increase the hazard of personal injury.
- Springs may contain stored energy. Use caution when disengaging or removing springs and/or spring loaded components.
- An obstruction or blockage in a drive system or moving/rotating parts may cause a buildup of stored energy. When the obstruction or blockage is removed, the drive system or moving/rotating parts may move suddenly. Do not attempt to remove an obstruction or blockage with your hands. Keep your hands, feet, and clothing away from all power-driven parts.

### Fuel Safety

- To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.
- Do not refuel the machine while smoking or at a location near flames or sparks.
- Always refuel the machine outdoors.
- Do not store the machine or fuel container indoors where the fumes or fuel can reach an open flame, spark, or pilot light.
- Only store fuel in an approved container. Keep out of the reach of children.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place the containers on the ground away from your vehicle before filling.
- Remove the machine from the truck or trailer and refuel it on the ground. If this is not possible, refuel the machine using a portable container, rather than from a fuel dispenser nozzle.
- Never remove the fuel cap or add fuel with the engine running. Allow the engine to cool before refueling.
- Never remove the fuel cap while on a slope. Only remove the fuel cap when parked on a level surface.
- Replace the fuel tank cap and the container cap securely.
- Do not overfill the fuel tank. Only fill to the bottom of the fuel neck, do not fill the fuel neck full. Overfilling of the fuel tank could result in engine flooding, fuel leakage from the tank, and/or damage to the emissions control system.
- If fuel is spilled, do not attempt to start the engine. Move the power unit away from the fuel spill and avoid creating any source of ignition until the fuel vapors have dissipated.
- If the fuel tank must be drained, it should be drained outdoors into an approved container.
- Check the fuel lines for tightness and wear on a regular basis. Tighten or repair them as needed.
- The fuel system is equipped with a shut-off valve. Shut off the fuel when transporting the machine to and from the job, when parking the machine indoors, or when servicing the fuel system.

# SAFETY

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## General Safety Procedures for Ventrac Power Units, Attachments, & Accessories



### Hydraulic Safety

- Make sure the hydraulic connections are tight and all hydraulic hoses and tubes are in good condition. Repair any leaks and replace any damaged or deteriorated hoses or tubes before starting the machine.
- Hydraulic leaks can occur under high pressure. Hydraulic leaks require special care and attention.
- Use a piece of cardboard and a magnifying glass to locate suspected hydraulic leaks.
- Keep your body and hands away from pinhole leaks or nozzles that eject high pressure hydraulic fluid. Hydraulic fluid escaping under high pressure can penetrate the skin causing serious injury, leading to severe complications and/or secondary infections if left untreated. If hydraulic fluid is injected into the skin, seek immediate medical attention no matter how minor the injury appears.
- The hydraulic system may contain stored energy. Before performing maintenance or repairs on the hydraulic system, remove any attachments, engage the parking brake, disengage the weight transfer system (if equipped), shut off the engine, and remove the ignition key. To relieve pressure on the auxiliary hydraulic system, shut off the power unit engine and move the hydraulic control lever left and right before disconnecting the auxiliary hydraulic quick couplers.

# SAFETY

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## KG540 Safety Procedures



- The attachment hydraulic system may contain stored energy. Before performing maintenance or repairs on the hydraulic system, the attachment's auxiliary hydraulic hoses must be disconnected from the power unit. Lower the attachment to the ground, shut off power unit engine, move the secondary SDLA lever left and right to relieve auxiliary hydraulic pressure, and disconnect the auxiliary hydraulic quick couplers.
- Always wear eye protection when installing or removing the carbide tips.

# SAFETY

## Safety Decals

The following safety decals must be maintained on your attachment.

Keep all safety decals legible. Remove all grease, dirt, and debris from safety decals and instructional labels. If any decals are faded, illegible, or missing, contact your dealer promptly for replacements.

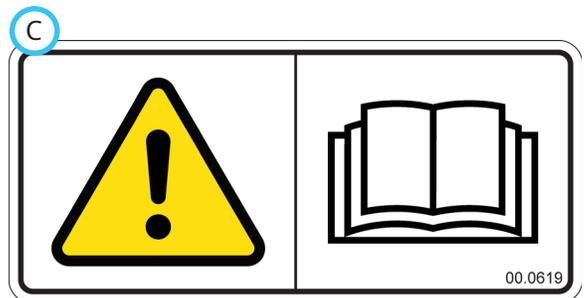
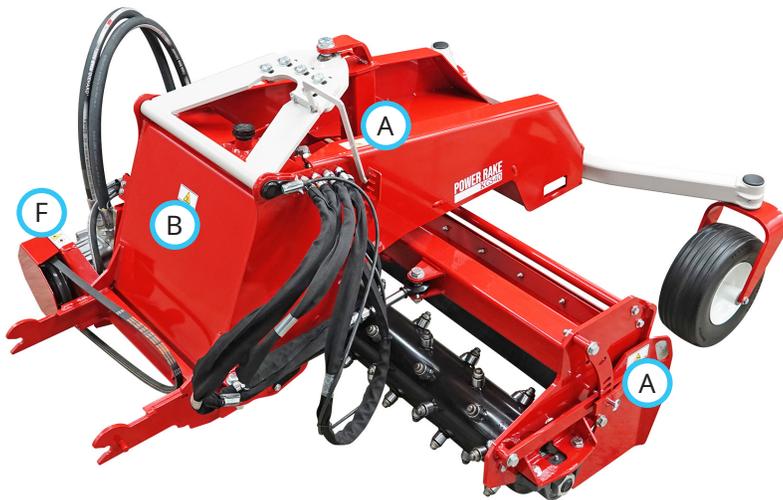
When new components are installed, be sure that current safety decals are affixed to the replacement components.



Pinching or crushing hazard.  
Stay away from moving parts.



Hot surface. Do not touch.



Warning, Read Operator's Manual

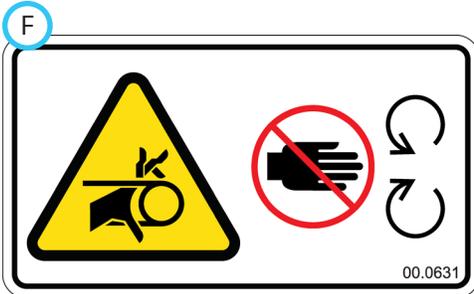
# SAFETY



Pinching or crushing hazard.



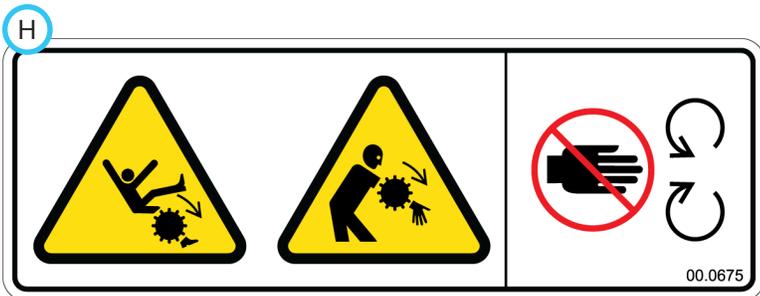
High pressure fluid hazard - keep your body and hands away from suspected hydraulic leaks.



Fingers or hand entanglement.  
Stay away from moving parts.



Thrown object hazard.  
Keep bystanders away from the machine.



Entanglement of foot/leg - rotating parts.  
Entanglement of arm/upper body - rotating parts.  
Stay away from moving parts.

Decal	Description	Part Number	Quantity
A	Pinch Point	00.0364	4
B	Hot Surface	00.0374	1
C	Read Operator's Manual	00.0619	1
D	Pinching or Crushing Hazard	00.0620	1
E	High Pressure Fluid Hazard	00.0621	1
F	Finger/Hand Entanglement	00.0631	1
G	Thrown Object Hazard	00.0674	1
H	Entanglement Hazard	00.0675	1

# OPERATIONAL CONTROLS



## Rotor Angle (Secondary SDLA Lever)

The secondary SDLA lever (A) on the power unit controls the angle of the power rake's rotor. The rotor can be angled up to 18 degrees to the left or the right. Push the secondary SDLA lever to the right to angle the rotor to the right. Pull the secondary SDLA lever to the left to angle the rotor to the left.

## Rotor Depth (Secondary SDLA Lever)

The secondary SDLA lever (A) on the power unit controls the depth of the power rake's rotor. The dual hydraulic auxiliary switch (B) selects the rotor depth function. Press and hold the switch to adjust the rotor depth. Push the secondary SDLA lever to the right to raise the rotor. Pull the secondary SDLA lever to the left to lower the rotor.

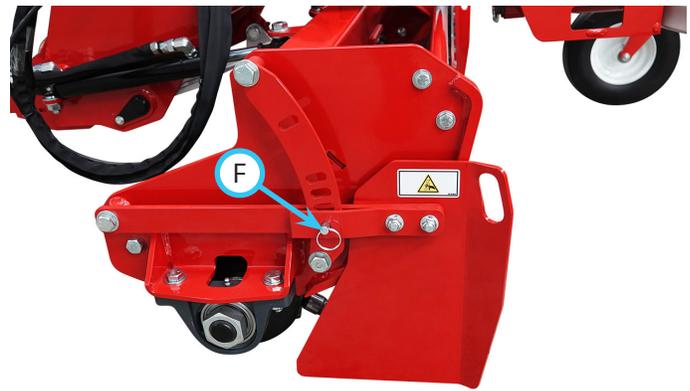
## Rotor Speed and Direction (Momentary Switches)

The momentary switches (C and D) on the primary SDLA lever (E) control the rotor speed and direction. For the rotor to operate effectively, it should rotate in the against the travel direction of the power unit. Refer to the chart below.

Roller Rotation	Travel Direction	Switch
		Yellow
		Orange

Press and hold the yellow or orange switch to change the rotor speed or direction. Release the switch when the desired speed or direction is reached.

## Side Wings



Raise the side wings to allow debris to windrow off the end of the rotor when it is angled left or right, or lower the side wings to contain debris in front of the rotor while clean material passes between the rotor and the dirt containment flap.

With the side wings down and the rotor straight, material can be moved to fill in low spots.

To adjust:

1. Remove the ball pin (F).
2. Raise or lower the side wing.
3. Insert the ball pin to secure the side wing in the selected position.

# GENERAL OPERATION

## Daily Inspection

### **WARNING**

Always engage the parking brake, shut off the power unit engine, remove the ignition key, and ensure that all moving parts have come to a complete stop before inspecting the components, or attempting any repair or adjustment.

1. Park the machine on a level surface, with the engine shut off and all fluids cold.
2. Perform a visual inspection of both the power unit and the attachment. Look for loose or missing hardware, damaged components, or signs of wear.
3. Inspect the hydraulic hoses and the hydraulic fittings to ensure tight, leak free connections.
4. Inspect the belts for damage or excessive wear. Refer to the Belt Inspection section of this manual.

## Attaching

1. Drive the power unit slowly forward into the hitch arms of the attachment. Align the lift arms of the power unit with the attachment hitch arms by raising or lowering the front hitch and complete the engagement.
2. Once completely engaged, close the front hitch locking lever.\*
3. Engage the parking brake\* and shut off the engine.
4. Place the attachment belt onto the PTO drive pulley on the power unit. Ensure the belt is properly seated in each pulley.
5. Engage the PTO belt tensioner rod.
6. Wipe the hose ends clean and connect to the power unit's hydraulic quick couplers. If equipped, connect the hoses and the quick couplers so the colored indicators are paired together (red to red, etc.).
7. Connect the electric plug to the power unit.

## Detaching

1. Park the power unit on a level surface and engage the parking brake.\*
2. Lower the attachment to the ground.
3. Adjust the rotor depth to support the hitch arms at the current position for ease of reattachment.
4. Shut off the power unit engine.
5. Disengage the PTO belt tensioner rod.
6. Remove the attachment belt from the PTO drive pulley of the power unit.
7. Disconnect the electric plug from the power unit.
8. Disconnect the hydraulic quick couplers from the power unit and store the hose ends in the frame holes on the attachment.
9. Disengage the front hitch locking lever.\*
10. Restart the power unit and slowly back away from the attachment. A side to side movement of the steering wheel may aid in disengagement.



\*Refer to power unit operator's manual for operation of power unit controls.

# GENERAL OPERATION

## ATTENTION

The power rake is not intended to replace a blade, bulldozer, or loader. The work site should be graded close to its desired state prior to leveling, debris removal, and finishing with the power rake.

Operate the power rake with the power unit in low range. The deeper the rotor depth is set, the slower you will need to travel.

### Leveling the Work Area Prior to Finish Grading

When smoothing out rough ground, begin by working the soil to a depth of 5 - 8 cm (2 - 3 inches).

Depending on soil compaction, it may take several passes while incrementally increasing the rotor depth to work the soil to the proper depth. It is best if the rotor is set low enough to carry a pile of dirt ahead of it as you work. This can be any setting of 2.5 cm (1 inch) or more in depth. This will help fill in low spots while reducing high spots to create a more level surface. Always work the high spots toward the low spots. Changing the travel direction by 30 or 45 degrees will also help to create a smooth surface.

The rotor can be reversed to pull loose soil and debris away from structures and other obstacles.

The initial leveling is done to break up the soil, remove any high spots, and fill in the low spots. During this initial leveling, the rake will create ridges on both sides of the rotor. These ridges will be smoothed out during finish grading.

### Spreading Fill or Topsoil

The rotor depth will need to be adjusted depending on the amount of material you are moving and the desired depth of the material. Angle the rotor and lower the side wings as needed to control the movement of the material.

### Debris Removal

Debris is any unwanted material that is mixed in the soil or gravel you are working. Set the rotor depth so the carbide teeth are approximately 1.25 cm (1/2 inch) into the soil. The rotor drum should not contact the soil. Angle the rotor so the debris is rake off to one side. Rake all the debris to the outside edge of the work area where it can be collected and removed. If there are large amounts of debris in the work area, the side wings can be lowered to help collect the debris while moving it to the edge of the work area. Depending on the soil conditions and the amount of debris, several passes over the same spot may be required.

### Finish Grading (Lawn Preparation)

Prior to beginning lawn preparation, the soil should be loosened to a depth of 5 - 8 cm (2 - 3 inches) as described in the Leveling the Work Area section. Set the rotor depth so the carbide teeth are approximately 1.25 - 2 cm (1/2 - 3/4 inch) into the soil. The rotor drum should not contact the soil. Begin by angling the rotor so the soil rolls in the same direction. This will smooth the surface and help to rake debris such as rocks, sticks, tree roots, grass clumps, etc. to the edge of the work area. Depending on the soil condition, several passes over the same spot may be required. The result is a smooth surface that is ready to seed.

### Gravel Driveway Restoration

The power rake can be used to repair driveways, easily removing pot holes and loosening compacted gravel, leaving you with a fresh gravel surface without having to add new gravel. For best results, the driveway should be worked when it is damp. The gravel will work easier and create less dust, and it will level and pack better.

Begin by working the gravel to a depth of 2.5 - 5 cm (1 - 2 inches). If potholes are present in the driveway, the gravel must be worked to a depth of 1.25 - 2.5 cm (1/2 - 1 inch) lower than the potholes to keep them from returning. If the potholes are just filled shut, they will return in a very short time. When working the gravel on initial passes, always rake toward the middle of the driveway.

TIP: when working on driveways, lower the side wing on the rotor end next to the grass to help prevent gravel from overflowing into the grass.

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# GENERAL OPERATION

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## Gravel Driveway Finish

Lower the power rake to the ground and place the power unit's primary SDLA lever in the float position. Set the rotor depth so the carbide teeth are approximately 1.25 cm (1/2 inch) into the gravel. Make one pass down the center of the driveway with the rotor straight (perpendicular to the power unit). Angle the rotor to the left so the motor is close to the left tire on the power unit and make a pass down both sides of the driveway with the grass edge to the right of the machine. This will provide the smoothest appearance and will put a crown back in the middle of the driveway. Repeat as necessary until there are no ridges in the driveway.

**TIP:** You do not want to push dirt while finishing the driveway. If you are pushing any dirt, raise the rotor until the teeth are only touching the gravel. Travelling too fast will create a bumpy driveway. A good speed is about 75% stroke on the SDLA lever with the power unit set in low range.

## Gravel Paths and Walkways

The power rake does an excellent job of maintaining gravel paths and walkways by loosening compacted gravel and removing weeds.

Lower the side wings to help contain the gravel on the walkway. With the rotor straight (perpendicular to the power unit), drive slowly along the walkway, while working the gravel to a depth of 2.5 - 5 cm (1 - 2 inches). This will level the gravel surface and turn under the weeds, leaving you with a smooth, weed-free surface without the use of chemicals.

## Chemical Free Weeding

The power rake can be used to remove weeds from both gravel and dirt surfaces without the use of weed killing chemicals.

Set the rotor depth to 2.5 - 5 cm (1 - 2 inches) and work the gravel or soil to remove the weeds. Loose weeds can then be raked to the edge of the work area (debris removal) and collected.

## Operating Procedure

Before operation, perform the daily inspection, set the power unit's weight transfer to maximum (if equipped), and set the rotor to the desired depth. Place the side wings in the appropriate position for the conditions and type of work.

Move the machine into position and lower the power rake to the ground. Place the power unit's primary SDLA lever in the float position.

Move the secondary SDLA lever to the left or right to angle the rotor and windrow any debris to the side. Raise the side wings when the rotor is angled to allow the debris to flow off the end of the rotor.

With the power unit's engine running between 2,000 and 2,500 RPM, engage the PTO switch, then adjust the throttle to the desired engine RPM. Adjust the rotor rotation to the desired speed and direction.

Move the SDLA lever in the desired direction of travel and adjust the travel speed to give the desired results. In extremely hard packed conditions or if there is a lot of debris present in the soil, it may be beneficial to slow the rotor rotation speed.

If debris becomes wrapped around the rotor drum, it will reduce the performance of the power rake. Clean the rotor drum as needed.

While the power rake works in either travel direction, it is recommended that the majority of the work be done in the forward direction for operator comfort. If the power unit tire tracks are undesirable in the finished surface, the final pass can be done in the reverse direction to remove them.

# GENERAL OPERATION

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## Cleaning Debris from the Rotor

If debris such as wire, rope, vines, etc. becomes wrapped around the rotor drum during use, stop the power unit and raise the power rake off the ground. Reverse the rotor rotation to allow the debris to unwind from the rotor drum. The rotation may need to be changed back and forth several times until all the debris is removed.

## ATTENTION

If debris becomes wrapped around the bearing or the motor shaft at the ends of the rotor, stop operation immediately and remove the debris. Continued operation could damage the machine.

## Transport of the Attachment

Transport the attachment with the power unit front hitch and attachment fully raised to reduce wear of the equipment. Travel slowly when transporting over undulating and rough surfaces to maintain control of the power unit and to reduce the shock to the power unit and the attachment. Always disengage the power unit PTO before transporting the attachment.

## Dirt Containment Flap



The normal gap between the containment flap (A) and the carbide teeth on the rotor is approximately 2 - 2.5 cm (3/4 - 1 inch). You can adjust this gap by loosening the two bolts (B) on each end of the containment flap bracket and rotating the flap to the desired position. Torque the four bolts to 42 Nm (31 ft-lbs).

A narrow opening will keep smaller debris from passing through and give the most debris free soil. Depending on the soil conditions, a narrow setting can result in unwanted removal of soil. A wider opening will allow more debris to pass through and not be removed from the soil.

# SERVICE

## ⚠ WARNING

Always engage the parking brake, shut off the power unit engine, remove the ignition key, and ensure that all moving parts have come to a complete stop before inspecting the components, or attempting any repair or adjustment.

## ATTENTION

If any component requires replacement, use only original Ventrac replacement parts.

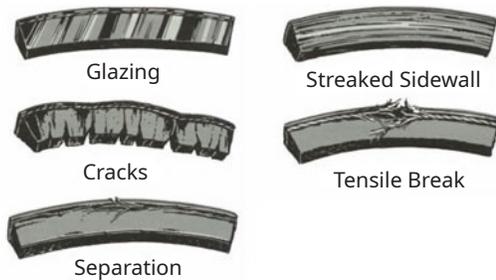
### Cleaning and General Maintenance

For best results, and to maintain the finish of the attachment, clean or wash the attachment to remove dirt, gravel, and debris. Remove any debris that may be stuck in or wrapped around the rotor.

### Belt Inspection

Inspecting the drive belts of the attachment can prevent sudden belt failure by finding problems before they cause a belt to break.

Typical wear on a drive belt may result in the conditions shown in the diagram. If any of these conditions occur, the drive belt will require replacement.



### Attachment Drive Belt Replacement

1. Detach the power rake from the power unit.
  2. Remove the drive pulley shield (A).
  3. Remove the old attachment drive belt and install the new drive belt onto the pulley.
  4. Reinstall the drive pulley shield.
- Torque the nut to 11 Nm (100 in-lbs).



### Carbide Tooth Replacement

If the carbide teeth become excessively worn or damaged, they will need to be replaced.

## ⚠ WARNING

The carbide teeth can chip and cause a flying debris hazard during removal and installation. Always wear eye protection when replacing the carbide teeth.

1. Remove the carbide tooth using a cold chisel and a hammer. Place the chisel against the bottom flange of the carbide tooth and hammer the tooth out of the sleeve.



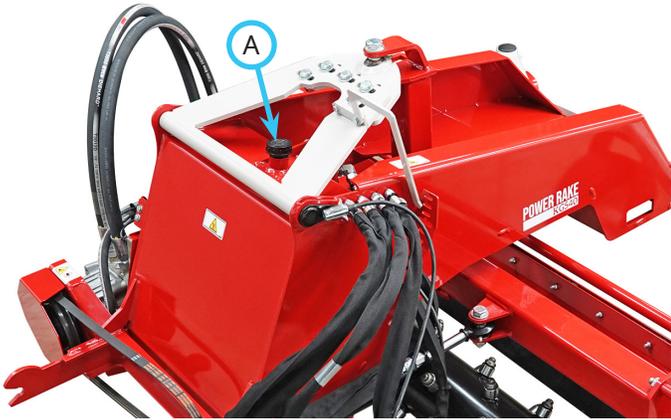
2. Use a channel lock pliers to compress the retainer ring on the carbide tooth.
3. Insert the tooth into the rotor sleeve and tap in with a hammer.

# SERVICE

## Checking the Hydraulic Oil Level

Check the hydraulic oil level before operating when the hydraulic system is cold. If the hydraulic system is warm when the oil level is checked, it will produce an inaccurate oil level reading. If the hydraulic system is warm, allow the hydraulic system to cool for one hour before checking the oil level.

1. Park the power rake on a level surface and allow to cool if the hydraulic system is warm.
2. Remove the dipstick (A) from the hydraulic tank and wipe with a clean cloth.



3. Set the dipstick back in place without threading it into the tank.
4. Remove the dipstick and check the oil level. The level should be between the two notches on the dipstick.
5. If the hydraulic oil level is low, add HydroTorq XL synthetic hydraulic oil until the proper level is reached.
6. Reinstall the dipstick into the hydraulic oil tank.

## Changing the Hydraulic Oil

1. Adjust the rotor angle so the rotor is straight.
2. Park the power rake on a level surface and detach from the power unit.
3. Place a drain pan of sufficient size under the drain plug on the bottom of the oil tank.
4. Remove the plug to drain the oil.
5. After the oil has drained, reinstall the drain plug.
6. Remove the dipstick from the oil tank and add Ventrac HydroTorq XL synthetic hydraulic oil until the proper level is reached.
7. Reinstall the dipstick into the hydraulic oil tank.
8. Clean up any spilled oil and dispose of the used oil in accordance with local laws.

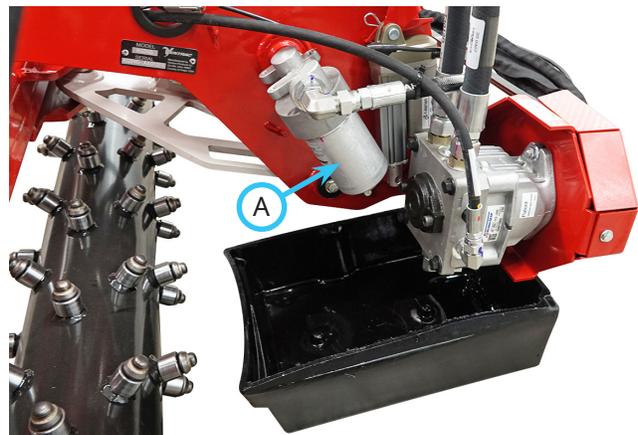
### ATTENTION

Oil is hazardous to the environment. Drain the oil into an approved container and dispose of used oil in accordance with local laws.

9. Refer to the following section for oil filter replacement instructions.

## Changing the Hydraulic Filter

1. Place a drain pan beneath the filter area to catch any oil leakage.
2. Remove the oil filter bowl (A) from the filter assembly and unscrew the filter element from the filter head.



3. Screw the new filter onto the filter head.
4. Reinstall the oil filter bowl onto the filter assembly and torque to 61 Nm (45 ft-lbs).
5. Clean up any spilled oil and dispose of the used oil and filter in accordance with local laws.

# SERVICE

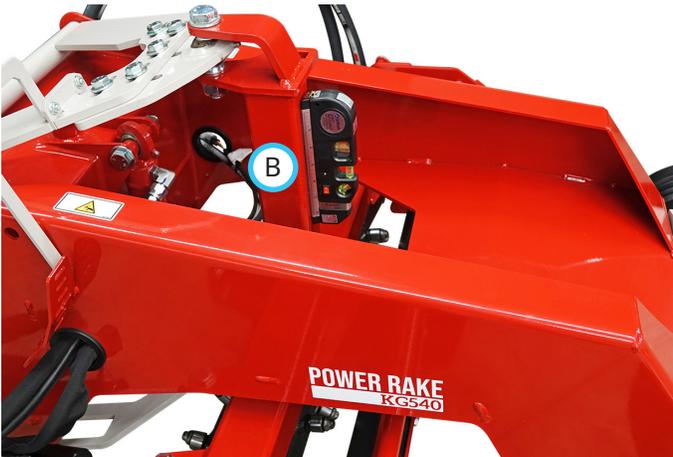
## Rotor Frame Leveling

Variables such as the tire size, tire inflation, and the power unit hitch height may require leveling of the power unit rotor frame. If the vertical post on the rotor frame leans forward or backward, when the rotor is angled left or right, the leading or trailing end will contact the ground while the other end of the rotor is still in the air.

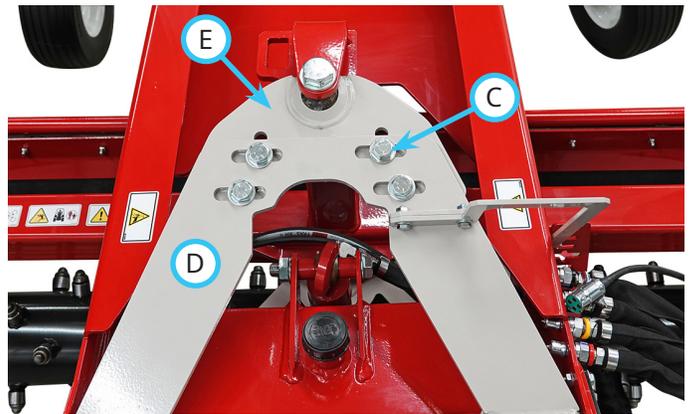
1. Park the power unit and power rake on a smooth, level surface and engage the parking brake.
2. Adjust the rotor depth until the rotor clears the surface by approximately 13 mm (1/2 inch).
3. Adjust the angle of the rotor until the rotor ends are straight across from each other.
4. Place the power unit's primary SDLA lever in the float position.
5. Shut off the engine and remove the ignition key.
6. Place a level on the horizontal tube (A) of the rotor frame to check the level from side to side.



7. Place the level on the vertical tube (B) of the rotor frame to check the level from front to back.



8. If the rotor frame is not level in one or both directions, loosen the four bolts (C) that fasten the upper rotor pivot frame (D) to the upper swivel mount (E).



9. If the rotor frame needs to be leveled from side to side, start the power unit engine and slowly lower the rotor frame until both ends of the rotor are resting on the ground.
10. Shut off the engine and remove the ignition key.
11. If the rotor frame needs to be leveled from front to back, slide the upper swivel mount forward or backward until the vertical tube is leveled.
12. Tighten the four bolts that fasten the upper rotor pivot frame to the upper swivel mount.
13. Start the power unit engine and adjust the rotor depth until the rotor clears the surface by approximately 13 mm (1/2 inch).
14. Recheck both the horizontal and vertical tubes of the rotor frame using the level. Readjust as necessary until the rotor frame is level in both directions.
15. Shut off the engine and remove the ignition key.
16. Torque the four bolts that fasten the upper rotor pivot frame to the upper swivel mount to 102 Nm (75 ft-lbs).

# SERVICE

## Lubrication Locations

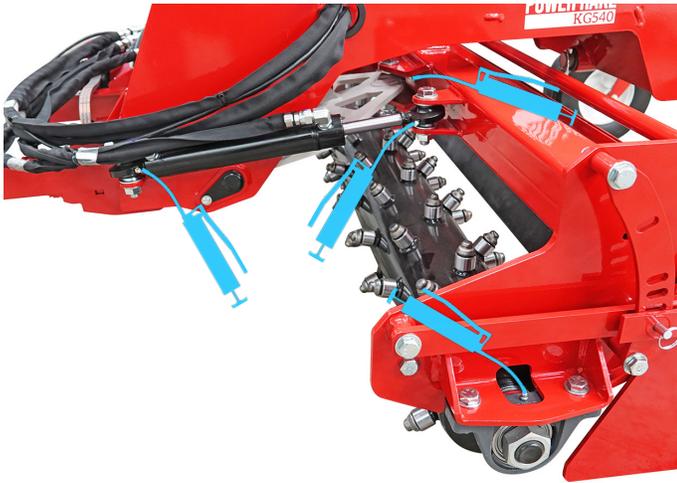
Lubrication is required at the following locations using a lithium complex NLGI #2 grease.

Wipe the grease fittings clean before applying grease to the grease fittings.

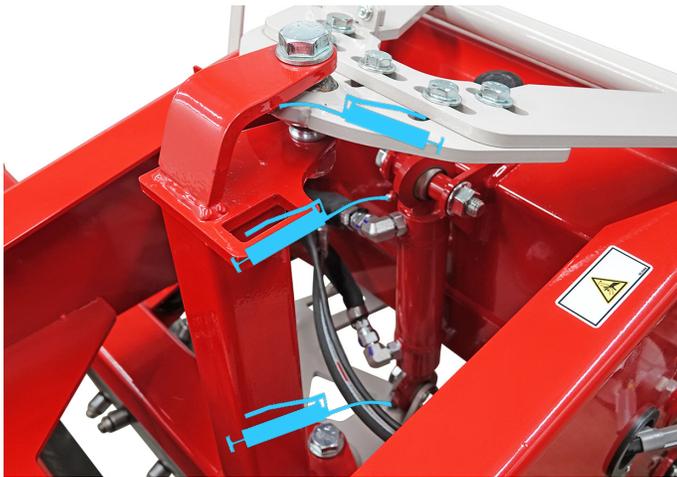
Refer to the maintenance schedule for service intervals and the amount of grease.

Angle the rotor so the right end rotated forward for easier access to the upper and lower pivots.

Grease the rotor angle cylinder ends, the rotor bearing, and the lower pivot.



Grease the rotor depth cylinder ends and the upper pivot.



Grease the caster wheel pivots and the wheel bearings.



## Storage

### Preparing the Attachment for Storage

1. Clean the attachment to remove accumulated dirt, gravel, and debris.
2. Inspect for loose or missing hardware, damaged components, or signs of wear. Repair or replace any damaged or worn components.
3. Inspect the safety decals. Replace any decals that are faded, illegible, or missing.
4. Inspect the hydraulic hoses and fittings to ensure tight, leak-free connections. Repair or replace any damaged or worn components.
5. Inspect the drive belt for damage or wear and replace if necessary.
6. Apply grease to all grease points and wipe off any excess grease.
7. Check the hydraulic oil level.
8. Inspect the painted components for chips, scratches, or rust. Clean and touch up the surfaces as needed.

### Removing the Attachment from Storage

1. Clean the attachment to remove any accumulated dust or debris.
2. Inspect the attachment as instructed in the Daily Inspection section of this manual.
3. Test the attachment to ensure that all the components are working properly.

# SERVICE

## Maintenance Schedule

	# of locations	# of pumps	As Needed	Daily	At 50 hours	At 100 hours	At 150 hours	At 200 hours	At 250 hours	At 300 hours	At 350 hours	At 400 hours	At 450 hours	At 500 hours	At 550 hours	At 600 hours	At 650 hours	At 700 hours	At 750 hours	At 800 hours	At 850 hours	At 900 hours	At 950 hours	At 1,000 hours	5 Years \ 500 Hrs	5 Years \ 2,000 Hrs
Grease and Lubrication: See Lubrication Section																										
Cylinder End Pivot	4	1	**		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Caster Wheel Pivot	2	1			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wheel Axle Bearing	2	^	**		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotor Bearing	1	1	**		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydraulic System																										
Check the Hydraulic Oil Level				✓																						
Change the Hydraulic Oil Filter																									✓	
Change the Hydraulic Oil																										✓
Inspection																										
Inspect for Loose, Missing, or Worn Components				✓																						
Inspect the Belts and Pulleys				✓																						
Inspect the Carbide Teeth				✓																						
Inspect the Safety Decals				✓																						
^Grease until fresh grease is visible.																										
**Operation in severe conditions may require more frequent service intervals.																										

## Maintenance Checklist

	# of locations	# of pumps	As Needed	Daily	At 50 hours	At 100 hours	At 150 hours	At 200 hours	At 250 hours	At 300 hours	At 350 hours	At 400 hours	At 450 hours	At 500 hours	At 550 hours	At 600 hours	At 650 hours	At 700 hours	At 750 hours	At 800 hours	At 850 hours	At 900 hours	At 950 hours	At 1,000 hours	5 Years \ 500 Hrs	5 Years \ 2,000 Hrs
Grease and Lubrication: See Lubrication Section																										
Cylinder End Pivot	4	1	**																							
Caster Wheel Pivot	2	1																								
Wheel Axle Bearing	2	^	**																							
Rotor Bearing	1	1	**																							
Hydraulic System																										
Check the Hydraulic Oil Level																										
Change the Hydraulic Oil Filter																										
Change the Hydraulic Oil																										
Inspection																										
Inspect for Loose, Missing, or Worn Components																										
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Inspect the Carbide Teeth																										
Inspect the Safety Decals																										
^Grease until fresh grease is visible.																										
**Operation in severe conditions may require more frequent service intervals.																										

# SPECIFICATIONS

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## Dimensions

Overall Height . . . . .	86.5 cm (34 inches)
Overall Length . . . . .	165 cm (65 inches)
Overall Width . . . . .	161.5 cm (63-1/2 inches)
Weight . . . . .	297 kg (655 pounds)
Rotor Width . . . . .	137 cm (54 inches)
Rotor Depth Adjustment Range . . . . .	20.5 cm (8 inches)
Rotor Angle . . . . .	18 degrees left or right
Hydraulic Oil Capacity . . . . .	30.3 liters (8 gallons)

## Features

- 72 carbide teeth that can be replaced without removing the rotor.
- Hydraulic driven rotor that can be reversed from the operator seat.
- Hydraulic control of the rotor angle.
- Hydraulic control of the rotor depth.
- Adjustable side wings for material control.

Visit [ventrac.com/manuals](http://ventrac.com/manuals)  
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