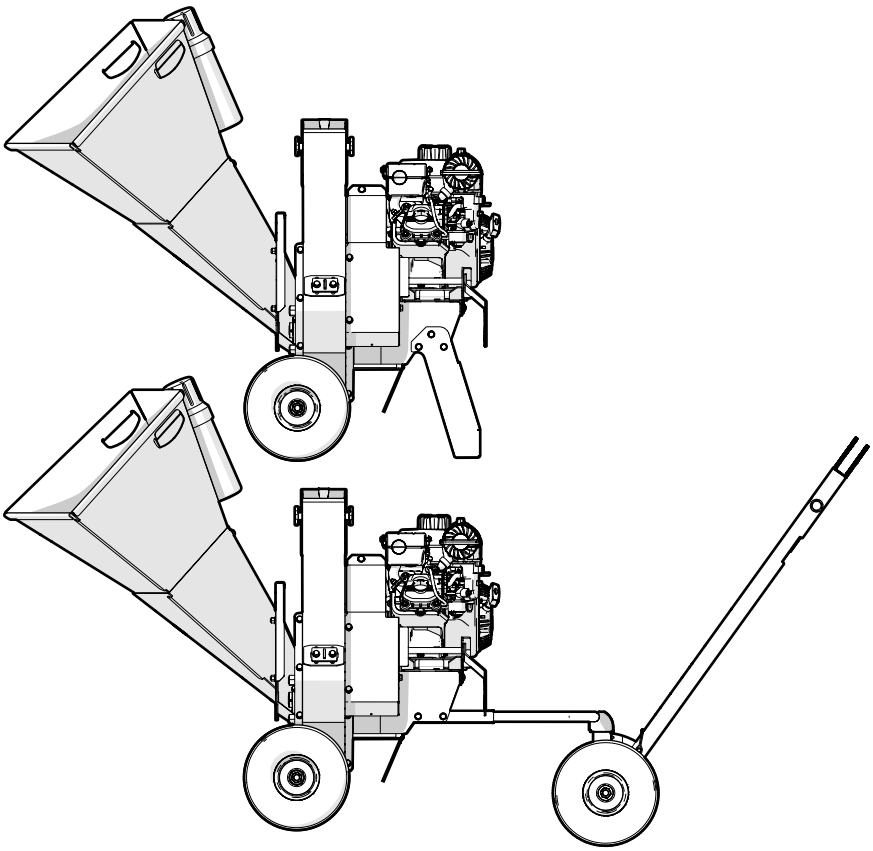
OPERATOR'S MANUAL

Serial number 1C34424 to 1C34471

BXC34 / BXC34 Bundle
Wood Chipper



Rev Jun-2022

Part Number: Z97110_En

WALLENSTEIN

Table of Contents

1. Foreword

⚠ WARNING!

Do not attempt to start or operate the machine before you read this manual thoroughly. Make sure that you understand how to operate the machine correctly and safely before you use it.

Keep this manual with the machine at all times.

W034

1.1 Introduction

Congratulations on your choice of a Wallenstein BXC34 wood chipper!

This high-quality machine is designed and manufactured to chip wood in a fast and efficient manner for homeowners and landscapers.

The following models are described in this manual:

Model	Features
BXC34	Wood chipper with support stand.
BXC34 Bundle	Wood chipper with support stand, jockey wheel, and mulch collector bag.

The feed hopper moves the wood material into the rotor for chipping. The rotor has two opposing knives that provide a uniform chip size. The twig breaker on the rotor housing helps to break up smaller material when it moves through the machine.

A Vanguard® gas engine provides power to the rotor through a V-belt clutch and brake drive system. The BXC drive system is designed to replace the traditional belt tensioning system. Features include a longer belt life and a braking clutch that quickly and safely stops the rotor when the clutch is disengaged. The 3" (75 mm) positive, fail safe brake meets the current European and U.S. requirements.

Safe, efficient, and trouble-free operation of this Wallenstein Equipment product requires that anyone using or maintaining the machine reads and understands the safety, operation, and maintenance information in this manual and the engine manufacturer's manual.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your local Wallenstein dealer or the distributor if you need assistance, information, or additional copies of the manuals.

Units of measurement in Wallenstein technical manuals are written as: US Customary (SI metric)

For support or service, contact your local Wallenstein Equipment dealer or distributor.

1.2 Delivery Inspection Report

Wallenstein Wood Chipper

To activate the warranty, register your product at WallensteinEquipment.com.

This form must be completed by the dealer at the time of delivery, and then signed by the dealer and customer.

I have received the product manuals and been thoroughly instructed about the care, adjustments, safe operation, and applicable warranty policy.

Customer

Address

City, State/Province, ZIP/Postal Code

( )

Phone Number

Contact Name

Model

Serial Number

Delivery date

I have thoroughly instructed the customer about the equipment care, adjustments, safe operation, applicable warranty policy, and reviewed the manuals with them.

Dealer

Address

City, State/Province, ZIP/Postal Code

( )

Phone Number

Dealer Inspection Checklist

_____ Rotor turns freely and the knife clearance is correct.

_____ All cutting edges are sharp and in good condition.

_____ Discharge chute and deflector move freely.

_____ Drive belt is aligned and the tension is correct.

_____ All fasteners are tightened to the correct torque.

_____ All grease points are lubricated.

_____ Engine and rotor sheaves align.

_____ Engine starts and runs, and fluid levels are correct.

_____ Tire pressure is correct (see the tire sidewall).

_____ Tires are in good condition.

_____ Purchased accessories are included, if applicable.

_____ Operator's Manual is in the storage tube.

Safety Checks

_____ All safety sign decals are applied and legible.

_____ Operating and safety instructions were reviewed.

_____ All guards, shields, and covers are installed and secure.

_____ A retainer is installed through each hitch point (if the trailer hitch accessory is purchased).

_____ Safety flap is present in the feed hopper.

Wheel lug nuts are tightened to the correct torque.

BXC34 Bundle

_____ Jockey wheel is included with the machine.

_____ Mulch collector bag is included with the machine.

1.3 Serial Number Location

Always provide the model and serial number of your Wallenstein product when ordering parts or requesting service or other information. The product information plate location is shown in the following illustration.

Record the serial number of your product here

Model	
Serial Number	

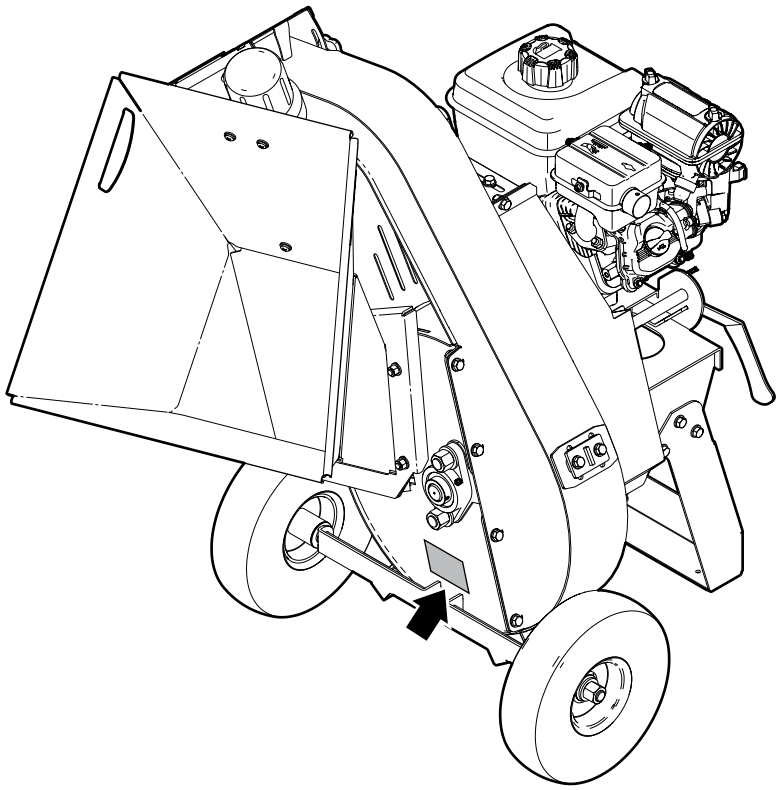
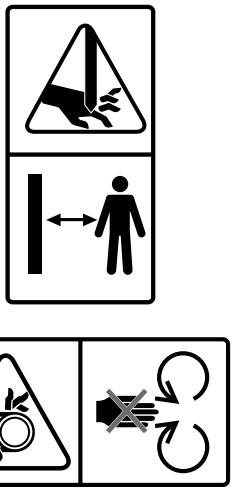


Fig. 1 – Product information plate location (typical)

1.4 Types of Decals on the Machine

When getting familiar with the Wallenstein product, notice that there are numerous decals located on the machine. There are different types of decals for safety, information, and product identification. The following section explains what they are for and how to read them.

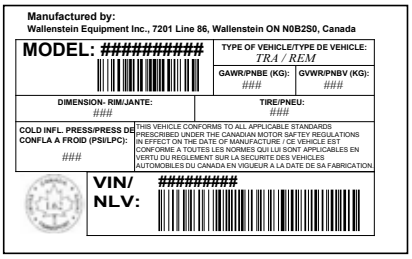
Safety Sign Decals have a yellow background and are generally two panel. They can be either vertical or horizontal.



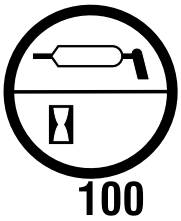
Safety Notice Decals are pictorial with a blue background and generally rectangular with single or multiple symbols. This decal informs what Personal Protective Equipment is required for safe operation.

Informative Decals are generally pictorial with a white background and can vary in the number of panels. This type of decal provides additional information for the operator or explains the operation of a control.

Product Decals indicate machine model and serial number, and other important information.



Maintenance Decals have a green background and can vary to the number of panels. This decal shows the type of maintenance required and frequency interval.



For safety sign decal definitions, see *Safety Sign Explanations on page 15*. For a complete illustration of decals and decal locations, download the parts manual for your Wallenstein product at WallensteinEquipment.com.

2. Safety

Read and understand all safety information before operating the machine.

2.1 Safety Alert Symbol

This Safety Alert Symbol means:

ATTENTION! BE ALERT!

YOUR SAFETY IS INVOLVED!

The safety alert symbol identifies important safety messages on the machine and in the manual.

When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** determine the seriousness level of the warning messages in this manual. The appropriate signal word for each message in this manual has been selected using the following guidelines:

DANGER –

Indicates an imminently hazardous situation that, if not avoided, **will** result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING –

Indicates a potentially hazardous situation that, if not avoided, **could** result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION –

Indicates a potentially hazardous situation that, if not avoided, **may** result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT – To avoid confusing equipment protection with personal safety messages, a signal word IMPORTANT indicates a situation that if not avoided, could result in damage to the machine.

☞ *Provides additional information that is helpful.*

2.3 Why Safety is Important

- **Accidents disable and kill people.**
- **Accidents cost money.**
- **Accidents are preventable**

YOU are responsible for the SAFE operation and maintenance of your Wallenstein product. **YOU** must make sure that you and anyone else who is going to use, maintain, or work around the machine is familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual provides good safety practices that should be followed while using this machine.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Make sure that **EVERYONE** who uses this machine is familiar with the recommended operating and maintenance procedures and complies with all the safety precautions. Most accidents can be prevented.

Do not risk injury or death by ignoring good safety practices.

2.4 Safety Rules

CAUTION!

Hearing loss hazard. Prolonged exposure to loud noise may cause permanent hearing loss. Use suitable protection while operating the machine.

W016

Safety is a primary concern in the design and manufacture of Wallenstein products. Unfortunately, efforts to provide safe equipment can be wiped out by a single careless act.

For safety information that is specific to machine operation, service, or maintenance, see the applicable section in this manual.

- It is the operator's responsibility to read, understand, and follow ALL safety and operating instructions in this manual.
- If you do not understand any part of this manual or require assistance, contact your local dealer, the distributor, or Wallenstein Equipment.
- Do not allow anyone to use this machine until they have read this manual. Operator's must have a thorough understanding of the safety precautions and how the machine works. Review the safety instructions with all users annually.
- Operators of this machine must be responsible, physically able people who are familiar with machinery and trained in the operation of this equipment. If an elderly person is assisting with the work, their physical limitations need to be recognized and accommodated.
- Make sure that all users understand the safety signs on the machine before operating, servicing, adjusting, or cleaning it. For safety sign decal definitions, see *Safety Sign Explanations on page 15*.
- Learn the controls and how to stop the machine quickly in the event of an emergency. For instructions, see *Emergency Stop on page 27*.

- Keep a first-aid kit available for use, should the need arise, and know how to use the contents.

- Keep a fire extinguisher available for use, should the need arise, and know how to use it.
- Wear the appropriate PPE when operating, servicing, or maintaining the machine.
  This includes, but is not limited to:
  - A hard hat.
  - Heavy gloves.
  - Hearing protection.
  - Protective shoes with steel toes and slip resistant soles.
  - Protective glasses, goggles, or a face shield.

- Prolonged exposure to loud noise may cause permanent hearing loss. Power equipment with or without a vehicle attached can often be noisy enough to cause permanent, partial hearing loss.
- Wear hearing protection on a full-time basis if the noise in the operator's position exceeds 80 dB. Noise over 85 dB on a long-term basis can cause severe hearing loss. Noise over 90 dB adjacent to the operator on a long-term basis may cause permanent, total hearing loss.
- Avoid wearing loose fitting clothing, loose or uncovered long hair, jewelry, and loose personal articles. These can get caught in moving parts and cause injury. Jewelry may also ground a live electrical circuit causing injury and machine damage.
- Never consume alcohol or drugs before or during machine operation. Alertness or coordination can be affected. Consult your doctor about operating this machine while taking prescription medications.
- Only use the machine in daylight or good artificial light.
- Keep all guards, shields, and covers in place. If removal is necessary for repair, replace them before using the machine.
- Never allow anyone to ride on the machine during transport.
- Keep bystanders at least 10 ft (3 m) from the discharge area. Mark the discharge area with safety cones.
- Before starting the engine, make sure that the machine is clear of debris.
- Do not touch hot engine parts, the muffler cover, hoses, engine body, or engine oil during operation or after the engine is turned off. Contact with hot surfaces may cause burns.

2.5 Equipment Safety Guidelines

Safety is one of the main concerns in designing and developing equipment. However, every year many accidents occur that could have been avoided by a few seconds of thought and a more careful approach to handling equipment.

Avoid hazards by observing the following precautions. Insist anyone working with you follow them as well.

- Replace safety or instruction signs (decals) that are not readable or missing. For locations and explanations, see *Safety Signs on page 12*.
- Do not modify the equipment in any way. Unauthorized modifications may affect the integrity of the machine or the ability of the machine to perform as designed. Modifications can impair safety or function. They can affect the life of the equipment and void the warranty.
- Do not tilt the machine when the engine is on. Tilting the engine changes the fluid levels, which can cause damage when the engine is on.
- Make sure the machine is correctly stationed, adjusted, and in good operating condition.
- Keep the machine free of accumulated trash, grease, and debris to prevent fires.
- Determine where wood chips will be piled and make sure it does not interfere with safe operation of the machine.
- Be aware of overhead hazards (for example; branches, cables, and electrical wires).
- Never exceed the limitations of the machine. If its ability to do the job, or to do it safely is in question–**STOP!**

2.6 Safe Condition

References are made to **safe condition** throughout this manual. Safe condition means putting the machine in a state that makes it safe to service or maintain.

Before starting any service or maintenance, complete the following:

SAFE CONDITION

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
2. Wait for all moving parts to stop.
3. Disconnect the engine spark-plug wire and keep it away from the spark plug.

2.7 Safety Training

An untrained operator can cause serious injury or death to themselves or others. Review the safety instructions with all users annually. The *Sign-Off Form on page 10* can be used to keep a training record.

- An employer has the responsibility to train employees how to operate the equipment they are using. When someone does not understand the basic operation of a piece of equipment, they can create dangerous situations very quickly. Operators must completely understand the safety information in this manual and the safety decals on the machine
- Provide instruction to anyone else who is going to operate the machine. This equipment is dangerous to anyone who is unfamiliar with its operation.
- If the machine is loaned or rented, it is the owner's responsibility to make sure that, before using the machine, every operator:
  - Reads and understands this manual.
  - Is instructed in the safe and correct use of the machine and related equipment.
  - Understands and knows how to set the machine to a **Safe Condition**.
    For instructions, see *Safe Condition*.

2.8 Sign-Off Form

Everyone who uses this machine must read and thoroughly understand all safety, operation, and maintenance information in this manual. An untrained operator should never use this machine.

Make periodic review of machine safety and operation a standard practice for all operators. Operators should review these topics at the start of each season.

The following sign-off form can be used to record the completed training.

The design and manufacture of this product conforms to the applicable provisions in the following standards:

- EN 13683+A1:2009, Garden Equipment - Integrally Powered Shredders/Chippers - Safety
- ISO 3600 Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Operator's manuals – Content and format.

Training Sign-Off Form

Date	Owner's signature	Operator or technician's signature

2.9 Create a Safe Work Area

Review and follow the instructions for safe operation of the machine.

A safe work area is divided into two zones:

1. **Safe Zone** – The area outside the work zone perimeter. Bystanders or anyone not directly involved with the work is permitted to be in this area. There are minimal potential hazards in the safe zone.
2. **Work Zone** – The area where an operator must be to operate the machine. People assisting with the work who are wearing the appropriate PPE are permitted to be in this area. The operator must be aware of all the people who are in the work zone. The operator must make eye contact with people before they enter the work zone. Safety hazards are present in the work zone

To keep people safe from hazards, follow these important guidelines:

- Establish a work zone perimeter and mark it with safety cones. The perimeter should be a minimum of 10 ft (3 m) from any hazard within the work zone.
  The area outside the work zone perimeter is the safe zone.
- Never allow people to approach the work zone during machine operation, without first signaling and making eye contact with the operator.
- Keep all bystanders in the safe zone. Never allow bystanders in the work zone.
- Only the operator can authorize entry into the work zone. The operator must first make sure that it is safe to enter.
- Make eye contact with coworkers and have a hand-signal scheme worked out. Always be aware of the location of your coworkers.
- Be aware of the discharge area and potential projectiles.

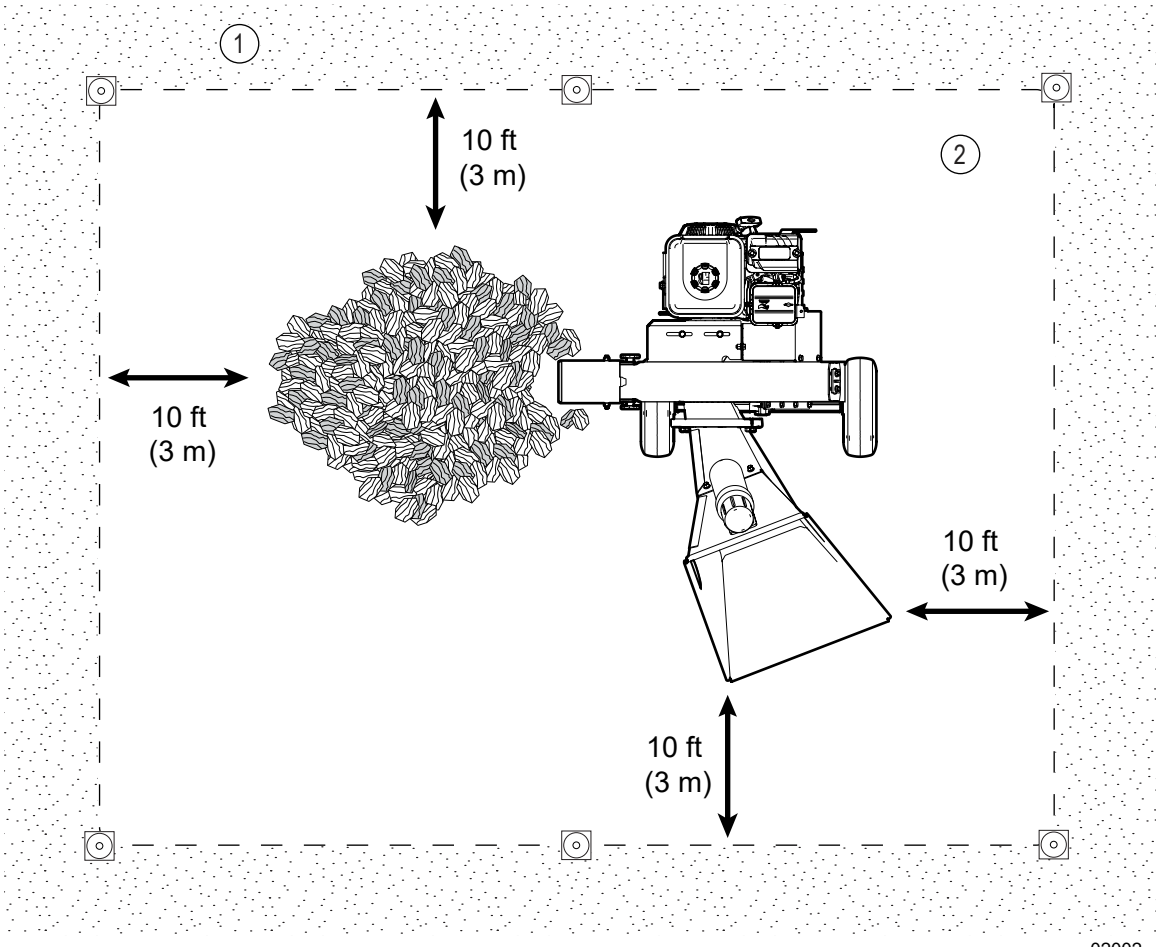


Fig. 2 – Example layout of a safe work area

3. Safety Signs

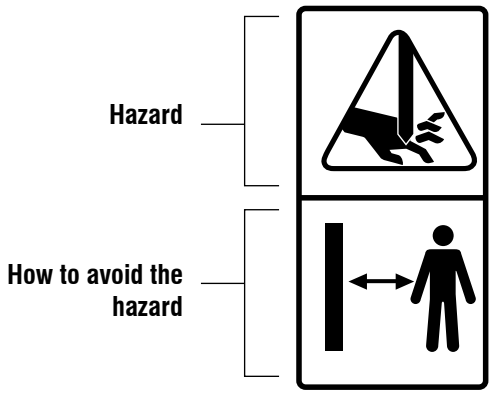
WARNING!

Risk of personal injury. Replace safety signs that are removed, damaged, or illegible. If a part with a safety sign on it is replaced, a new safety sign must be applied.

W100

Practicing good safety means becoming familiar with safety signs (decals) and warnings and being aware of situations that require alertness.

The top panel (or left-hand panel for horizontal signs) shows the safety alert (potential hazard), and the bottom (or right-hand) panel shows the message (how to avoid the hazard).



Think SAFETY! Work SAFELY!

3.1 Safety Sign Locations

Numbers correspond with the *Safety Sign Explanations on page 14*.

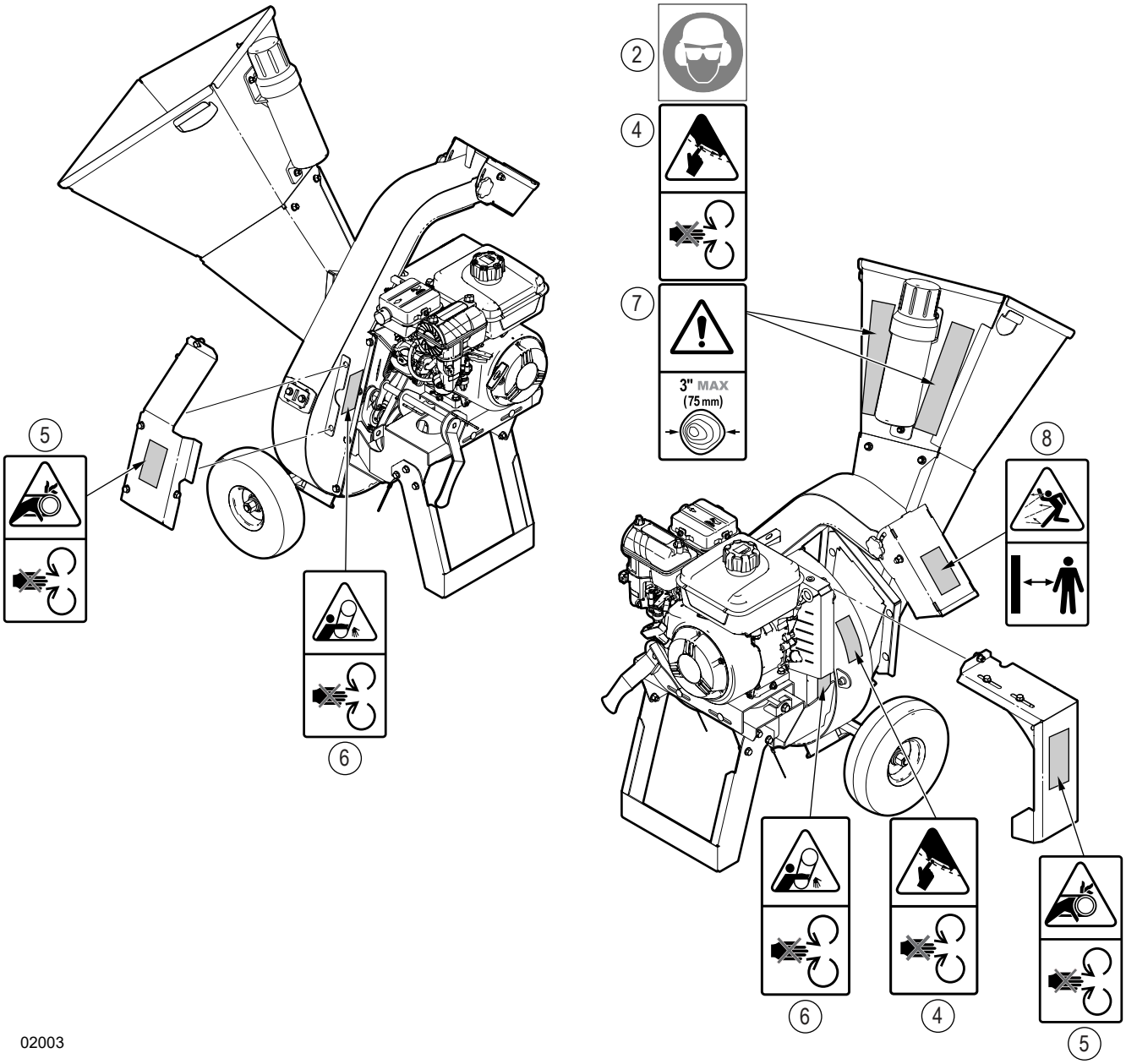


Fig. 3– Safety sign locations (front and sides)

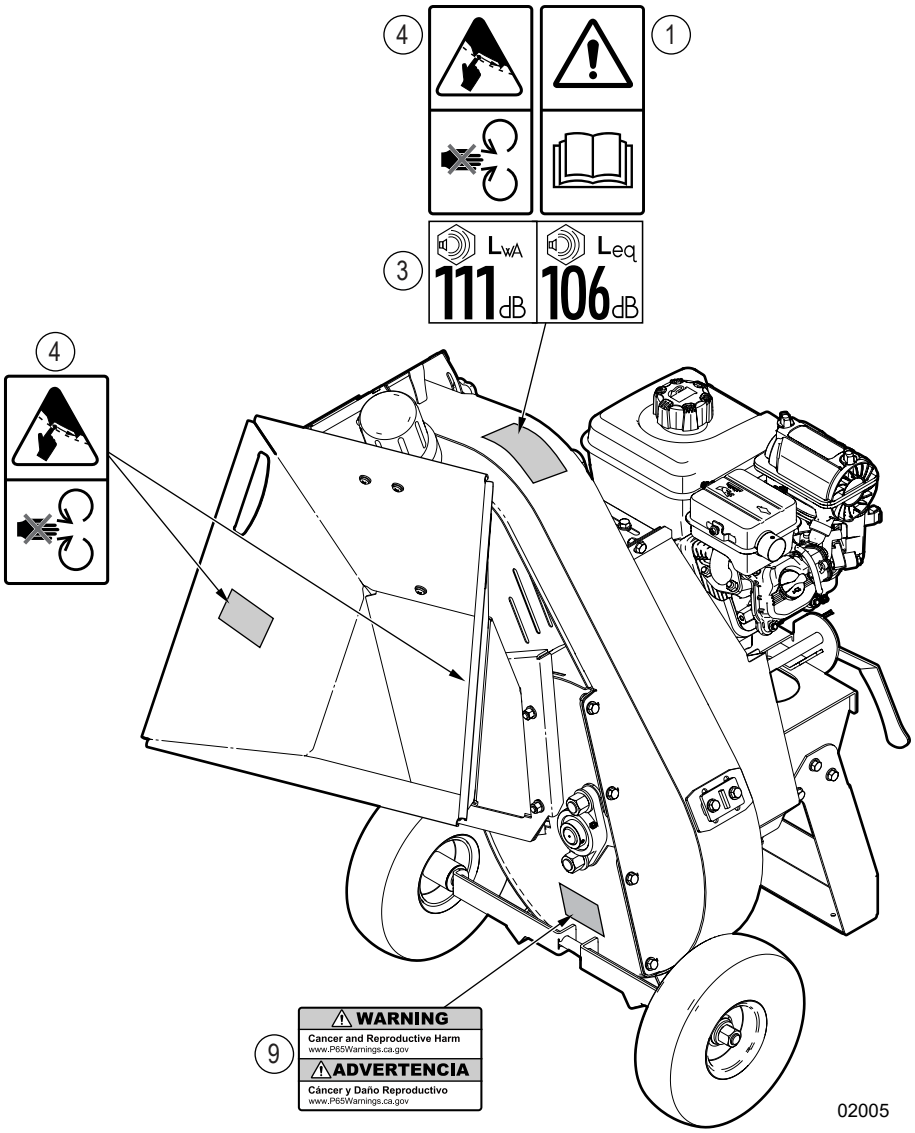
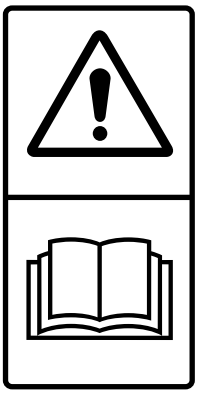


Fig. 4– Safety sign locations (back and top)

3.2 Safety Sign Explanations

1. Caution!

Read the Operator's Manual



Read ALL operating instructions and safety information in the manual. Learn the meaning of ALL safety signs on the machine.

The best safety feature is an informed operator.

2. Caution!

Always wear the appropriate PPE during operation:

- A hard hat.
- Heavy gloves.
- Hearing protection.
- Protective footwear with steel toes and slip resistant soles.
- Protective glasses, goggles, or a face shield.

3. Caution!

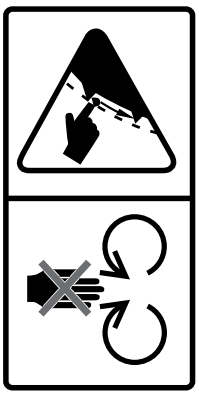
Noise level hazard.

The noise declaration decal indicates the sound power (L_{WA}) emitted by the machine when it is operating. For this machine, the noise level can be up to 87 decibels at close range.

Noise exposure over 85 dB on a long-term basis can cause severe hearing loss. Exposure over 90 dB on a long-term basis may cause permanent, total hearing loss.

4. Warning!

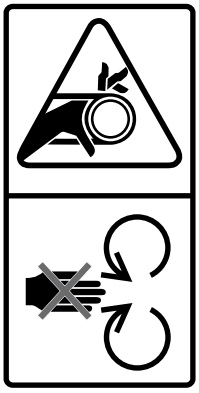
Risk of fingers being severed or serious injury to hands.



Keep hands and feet out of the inlet and discharge openings while the machine is operating.

5. Warning!

Risk of serious injury if caught in the drive belt.

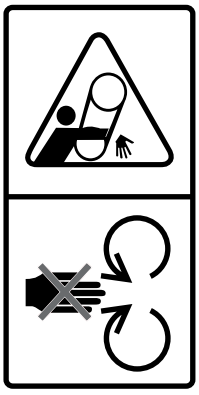


Never operate the machine with guards removed. Always keep guards, shields, and covers in place when the machine is in operation.

Keep hands, loose clothing, jewelry, and long hair away from rotating parts.

6. Warning!

Risk of serious injury or death if caught in rotating parts.



Never operate the machine with guards removed. Always keep guards, shields, and covers in place when the machine is in operation.

Keep hands, loose clothing, jewelry, and long hair away from rotating parts.

7. Caution!

Risk of personal injury!

Do not put material larger than 3" (75 mm) in diameter into the chipper.

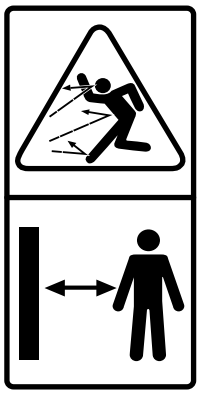
Material that is larger than the size stated on the safety sign can stall the engine, damage the machine, or cause personal injury.

8. Caution!

Risk of injury from flying debris!

Stay clear of material discharge chute. Machine can expel wood chips fast enough to cause injury.

Do not point discharge at people, animals or buildings. Point chipper discharge away from work area and bystanders. Keep a safe distance from discharge.



9. Warning!

Risk of cancer and reproductive harm

The machine materials contain chemicals or machine operation may produce gases or dust that are identified by the state of California as causes of cancer, birth defects, or other reproductive harm.

This warning is required by the state of California, USA to comply with Proposition 65: the Safe Drinking Water and Toxic Enforcement Act of 1986.

3.3 Replace Damaged or Missing Safety Signs

- Always replace safety signs that are missing or have become illegible. Replacement safety signs are available from your authorized distributor, dealer parts department, or Wallenstein Equipment.
- Keep the safety signs clean and legible at all times.
- Parts replaced that had a safety sign (decal) on them must also have the safety sign replaced.

Requirements

- The installation area must be clean and dry.
- The application surface must be clean and free of grease or oil.
- The ambient temperature must be above 50 °F (10 °C).
- A squeegee, plastic bank card, or similar tool is required to smooth out the decal.

Procedure

Determine the exact position for the decal before removing the backing paper. If possible, align the decal with an edge on the machine.

1. Peel the decal off the backing paper.
2. Position the decal above the location where it is being applied to the machine.
3. Starting at one edge, carefully press the center of the exposed sticky-backing in place, smoothing it out as you work from one side to the other.
4. Use an appropriate tool to smooth out the decal, working from one end to the other.
   Small air pockets can be pierced with a pin and smoothed out using a piece of the decal backing paper.

4. Familiarization

BXC34 wood chippers cut limbs, and branches into wood chips. Power to operate the machine is provided by a gas engine.

4.1 New Operator

⚠ WARNING!

Make sure that all operators understand how to set the machine to a safe condition before performing any service, maintenance, or storage preparation. For instructions, see *Safe Condition on page 9*.

It is the responsibility of the owner and the operator to read this manual, and to train all other operators before they work with the machine. Follow all safety instructions.

Untrained operators are not qualified to use the machine. They can endanger themselves and others or damage property.

4.2 Training

Each operator must be trained on the correct operating procedures before using the machine. The *Sign-Off Form on page 10* can be used to keep a training record.

1. Review control locations, functions, and movement directions.
2. Move the machine to a large open area and allow the new operator to become familiar with control functions and machine responses.
3. When the new operator is familiar and comfortable with the machine, they can proceed with the work.

4.3 Work Site Familiarization

It is the responsibility of the operator to be thoroughly familiar with the work site before starting work. Avoid unsafe situations and make every effort to prevent accidents.

When you set up a work site, consider the following things:

- Avoid close or cramped workspaces. Make sure there is enough space and clearance for the machine and discharge material.
- Position the machine so prevailing winds blow engine exhaust fumes away from operator's location.
- Choose flat, level ground, and make sure the machine is level before operating it.
- Avoid muddy or soft ground where the machine support will sink. If soft ground is unavoidable, place boards or plates under the machine support to increase the surface area.

4.4 Operator Orientation

IMPORTANT! When describing controls throughout this manual, the directions for left hand (LH), right hand (RH), backward, and forward are determined when standing at the hopper facing the direction of forward machine travel.

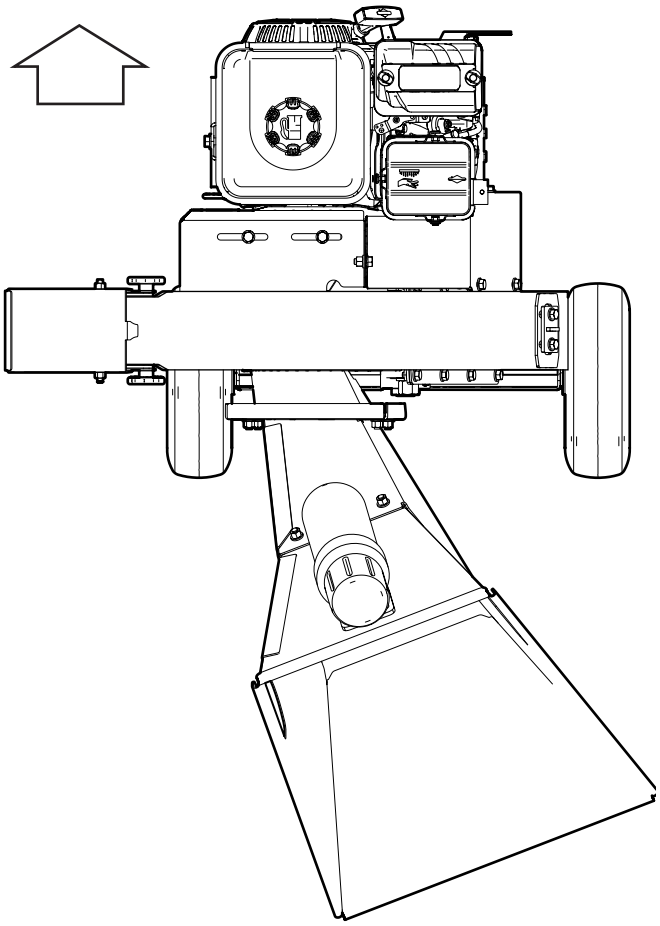


Fig. 5–Direction of forward travel

4.5 Machine Components

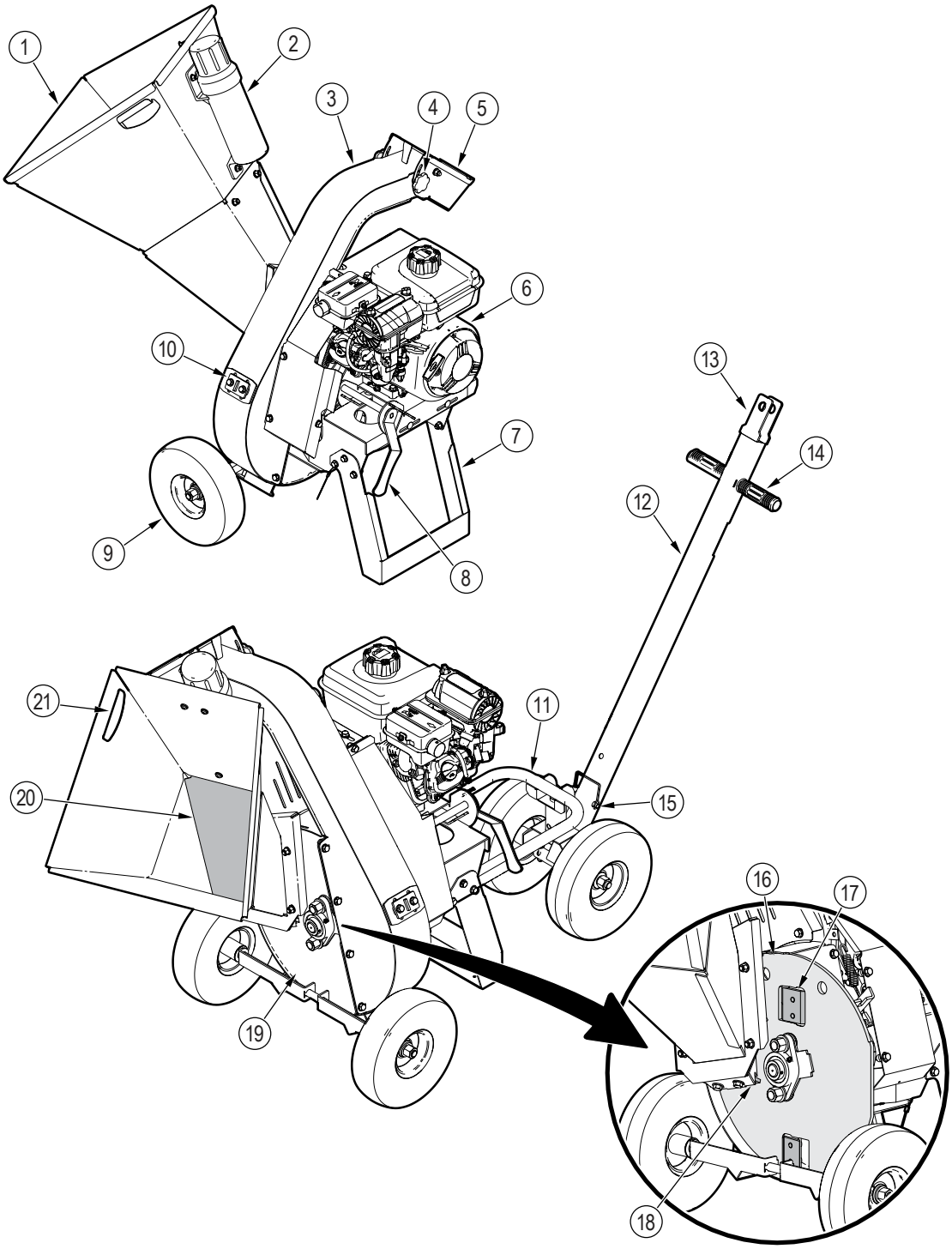


Fig. 6– Machine components

1. Feed hopper
2. Operator's Manual tube
3. Discharge chute
4. Hood-deflector knob
5. Hood deflector
6. Engine
7. Support stand
8. Clutch handle
9. Wheel (1 of 2) (4.10-3.50-4NHS LRB tires)
10. Twig breaker
11. Jockey wheel
12. Jockey-wheel handle
13. Jockey-wheel clevis hitch
14. Jockey-wheel handle grip
15. Snap pin
16. Rotor
17. Rotor knife (1 of 2)
18. Ledger knife (location)
19. Rotor housing
20. Safety flap
21. Handle (1 of 2)

5. Controls

⚠ WARNING!

Do not operate the machine until you are thoroughly familiar with the position and function of the various controls. Read the operator's manual thoroughly. Your safety is involved!

W065

5.1 Engine Controls

⚠ CAUTION!

Before starting the engine, review the safety, operating, and maintenance instructions in the engine manual.

W019

5.1.1 Throttle Control and Fuel Shutoff

The throttle control and fuel shutoff lever has the following functions:

Fast
Engine speed is fast.

Slow
Engine speed is slow.

Fuel shut-off closed

STOP
STOP
The engine is stopped.

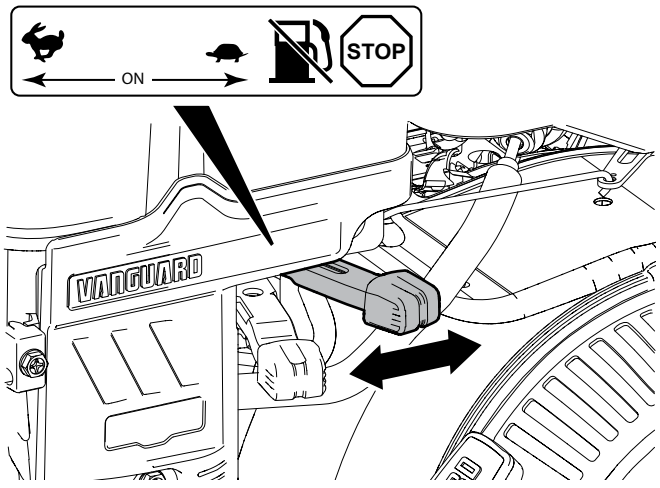


Fig. 7– Engine throttle control and fuel shutoff

5.1.2 Choke Control

The choke control lever has the following functions:

Closed
Engine start.

Open
Engine warm

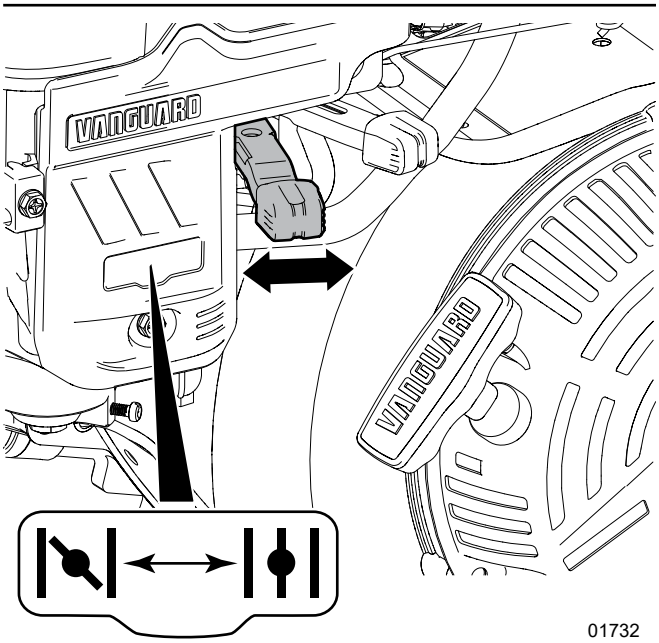


Fig. 8– Engine choke control

5.1.3 Rewind Start

⚠ WARNING!

Fast retraction of the starter cord (called kickback) pulls your hand and arm toward the engine faster than you can let go of the handle. Serious bodily harm (for example; bruises, sprains, fractures, and broken bones) can result.

When starting the engine, pull the starter cord slowly until you feel resistance, and then pull it rapidly to avoid kickback.

W102

For instructions that describe how to start the engine, see *Start the Machine on page 27*.

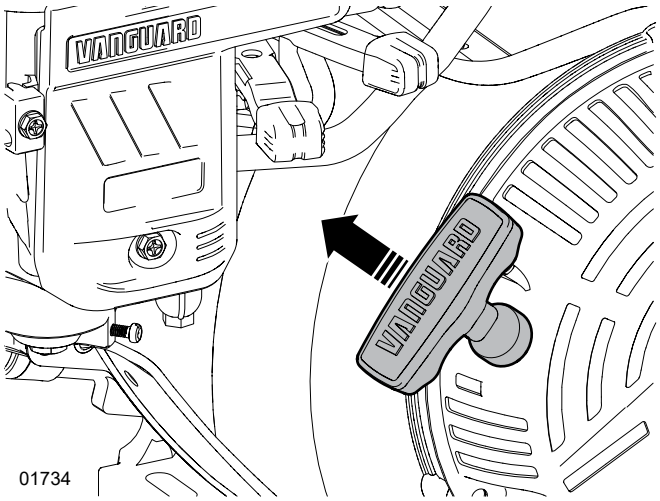


Fig. 9–Rewind-start handle

5.2 Hood Deflector

The discharge chute has a deflector on the end to direct wood chips. Use the hand knobs on each side to change the position.

1. Loosen the two hand knobs (turn them counterclockwise).
2. Rotate the deflector.
3. Tighten the hand knobs (turn them clockwise).

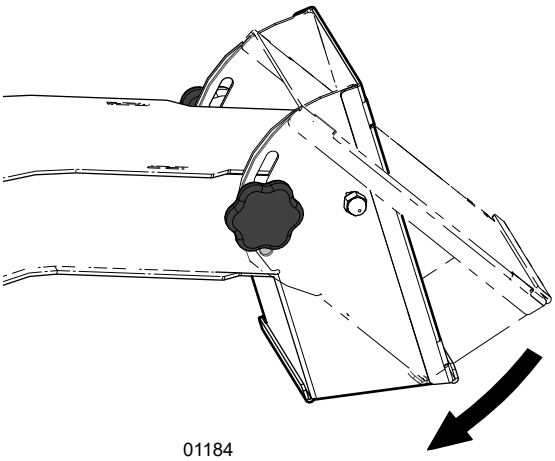


Fig. 10–Rotate the hood deflector

5.3 Handles

IMPORTANT! Do not tilt the machine when the engine is on. Tilting the engine changes the fluid levels, which can cause damage when the engine is on.

The machine has two handles, one on each side of the feed hopper.

For instructions, see *Use the Handles on page 31*.

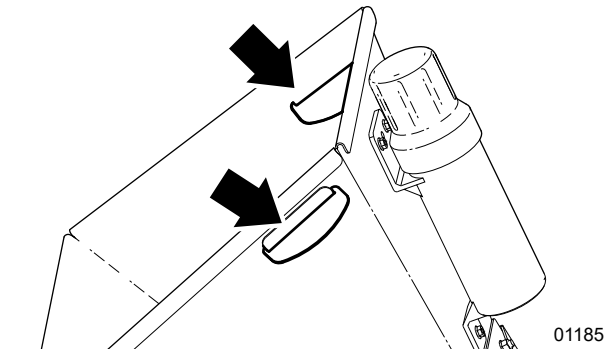


Fig. 11–Handles

5.4 Clutch Handle

The clutch handle engages or disengages the clutch to start or stop the rotor rotation. A clutch and brake system controls the power that transfers from the engine, through the drive belt, to the rotor.

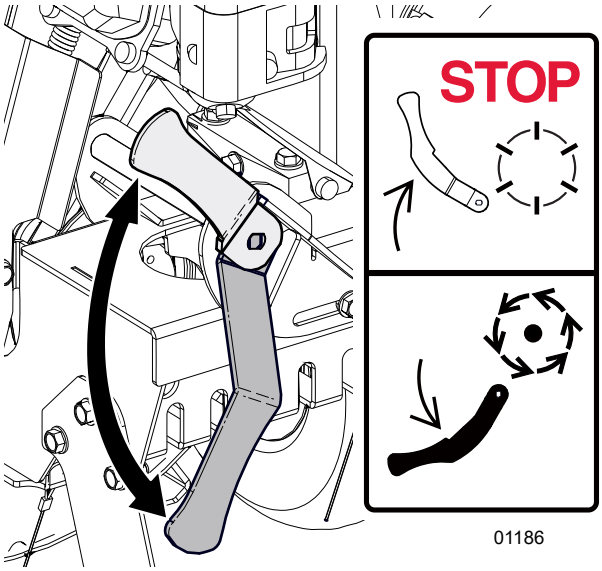


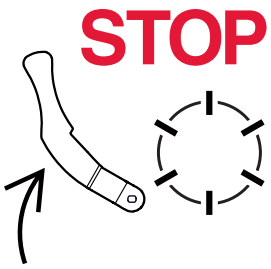
Fig. 12–Clutch handle

5.4.1 Stop Position

IMPORTANT! When the clutch disengages, the brake automatically engages.

When the clutch handle is in the STOP position, the clutch is disengaged. Power from the engine does not transfer to the drive belt. The drive belt and the rotor come to a stop (it takes approximately five seconds for the rotor to come to a full stop after you move the clutch handle to the STOP position).

Spring tension holds the clutch handle in the STOP position.

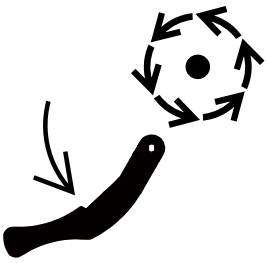


5.4.2 Rotate Position

Move the clutch handle slowly to engage the clutch. Quick movement of the clutch handle may cause the engine to stall.

When the clutch handle is in the rotate position, the clutch is engaged. Power from the engine transfers through the drive belt to rotate the rotor.

Spring tension holds the clutch handle in the rotate position.



6. Operating Instructions

Read and understand the operating instructions before using the machine.

6.1 Operating Safety

⚠ WARNING!

Wear the personal protective equipment (PPE) that is required to complete the work safely.

This includes, but is not limited to a hard hat, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W101

⚠ WARNING!

Never reach into the feed hopper. There are sharp knives that can trap, cut, and/or sever your fingers or hand. Use a stick or branch to push material that does not move into the machine.

If the machine is jammed, set the machine to a safe condition, and then clear the jam.

W004

⚠ WARNING!

Always use the machine outdoors and park the machine in a position where the prevailing winds blow the engine exhaust away from the operator. Exhaust from the engine contains carbon monoxide (CO) that can accumulate to a dangerous level, even in an area with good air flow.

W006

⚠ CAUTION!

Maintain a safe distance from the area where the machine expels the wood chips. Use the discharge chute and/or hood deflector to direct the expelled material away from the work area, all people, animals, and objects.

The machine can expel wood chips fast enough to cause eye, cut, and impact injuries and/or property damage.

W024

IMPORTANT! Do not put metal objects, bottles, cans, rocks, glass, or other foreign material into the wood chipper. These items will damage the machine.

If such items get into the wood chipper, stop the machine and set it to a safe condition before removing them. Inspect the machine for damage and loose parts before resuming operation.

- Read and understand this manual before starting the machine. Review all safety instructions annually.
- Park the machine in a clear location on dry, level ground. Do not operate the machine on a hillside or area that is cluttered, wet, muddy, or icy to prevent slips and trips.
- Keep the working area clean and free of debris.
- Never operate an engine inside a closed building. The exhaust fumes may cause asphyxiation.
- Close and secure all guards, shields, and covers before starting the machine. If a guard, shield, or cover is removed, replace it.
- Do not operate the machine with the safety flap removed or in poor condition. It prevents material (that may cause injury) from coming out of the feed hopper.
- Do not move or transport the wood chipper when the engine is running.
- Turn off the engine before leaving the machine unattended.
- Be aware of the size and shape of the wood material. Crotchety branches and brush can move in unpredictable ways and could cause injuries. Cut large curved branches into smaller, straighter sections.
- Never stand, sit, or climb on any part of the wood chipper, especially while the engine is on.
- **Never operate the machine alone!** Always have at least two fully trained people present.
  - It is recommended that there be one operator and one spotter present during machine operation. Both the operator and spotter must be completely familiar with all the machine safety, controls, and operating functions.
  - **The operator must be in control of the machine at all times. The spotter must remain outside of the work zone, while the machine is in operation.**
- Keep bystanders at least 10 ft (3 m) from the machine and wood chip discharge area. Mark the safe zone with safety cones.
- Before operation, complete the tasks described in the *Pre-Start Checklist on page 23*.

6.2 Pre-Start Checklist

Complete the following before you start the machine the first time and every time thereafter:

Items to Complete	✓
Review the *Operating Safety on page 22*.	
Check the condition and clearance of the twig breaker, rotor knives, and ledger knife. Adjust or replace them, as required.	
Check the engine oil level. For instructions, see *Check the Engine Oil Level on page 26*. If required, add oil.	
Check the engine fuel level. For instructions, see *Check the Engine Fuel Level on page 25*. If required, add fuel.	
Check the rotor knife sharpness. For instructions, see *Rotor Knife Maintenance on page 41*.	
Make sure that the machine is lubricated as specified in the *Maintenance Schedule on page 35*.	
Make sure the rotor housing and discharge chute are clear. Remove any blockages, twine, wire, or other material that is entangled in the machine.	
Make sure the rotor bearings turn freely. If the bearings are damaged or do not turn freely after they are lubricated, contact your dealer to have them replaced.	
Make sure all guards, shields, and covers are installed, secure, and in good condition. Replace missing or damaged guards, shields, or covers.	
Check the condition of the safety flap. Replace the safety flap if it is damaged.	
Check the tires, wheels, axle, and hubs. Inflate, repair, or replace, as required.	
Make sure that all the fasteners are installed and tightened to the correct torque. For more information, see *Bolt Torque on page 48*.	
Make sure the operator and spotter are wearing the required PPE (including, but not limited to: a hard hat, protective footwear, a face shield, hearing protection, and heavy gloves). Make sure that the PPE is clean and in good repair.	
Make sure that the operator and spotter are not wearing loose-fitting clothing or jewelry, and long hair is tied up.	
Make sure that there are no bystanders inside the work zone and the spotter is in the safety zone.	

6.3 Machine Break-In

Although there are no operational restrictions on the machine when it is used for the first time. Check the following mechanical items at the specified intervals:

After 1–5 hours of Operation

1. Review the engine operator's manual for break-in information.
2. Check the tension and alignment of the drive belt. Adjust as required. For instructions, see *Set the Drive Belt Tension on page 38* and *Align the Drive Belt on page 39*.
3. Check the condition and clearance of the twig breaker, rotor knives, and ledger knife. Adjust or replace them, as required.
4. Check the engine oil level. For instructions, see *Check the Engine Oil Level on page 26*. If required, add oil.
5. Check the engine fuel level. For instructions, see *Check the Engine Fuel Level on page 25*. If required, add fuel.
6. Check the engine air filter. For instructions, see *Clean the Engine Air Filter on page 37*. Clean or replace the filter if it is full of dirt or debris.
7. Make sure the rotor bearings turn freely.
   If the bearings are damaged or do not turn freely after they are lubricated, contact your dealer to have them replaced.
8. Check the condition of the feed-hopper safety flap. Replace the safety flap if it is damaged.
9. Check the tires, wheels, axle, and hubs. Inflate, repair, or replace, as required.
10. Make sure that all the fasteners are installed and tightened to the correct torque. For more information, see *Bolt Torque on page 48*.
11. Remove all entangled material.

After 8 hours of Operation

1. Complete the tasks listed under *After 1–5 hours of Operation*.
2. Change the engine oil.
   For instructions, see the engine manufacturer's manual.
3. Continue with the regular *Maintenance Schedule on page 35*.

6.4 Engine Operation

CAUTION!

Before starting the engine, review the safety, operating, and maintenance instructions in the engine manual.

W019

6.4.1 Engine Safety

WARNING!

Never operate the engine indoors. Park the machine outdoors in a position where the prevailing winds blow the exhaust away from you.

Engine exhaust contains carbon monoxide (CO) that can quickly accumulate to a dangerous level. Carbon monoxide can cause illness, unconsciousness, or death.

W072

- Remove the wire from the spark plug before servicing the engine or equipment to prevent accidental starting.
- Keep cylinder fins and governor parts free of grass and other debris that can affect the engine speed.
- Examine the muffler periodically to make sure it is functioning effectively. Repair or replace a worn or leaking muffler, as required.
- Use fresh gasoline (less than three months old). Stale fuel creates insoluble solids (deposits) that clog the carburetor and cause leaks.
- Before storage, replace fuel that contains ethanol with an alkylate or appropriate engineered fuel to prevent the buildup of deposits.
- Check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.
- Store fuel well away from all wood material.
- Do not place hands or feet near moving or rotating parts.
- Do not operate the engine in an area where fuel is spilled. Move the machine away from the spill until the fuel evaporates. Do not create any sources of ignition in the spill area.
- Do not choke the carburetor to stop the engine. Whenever possible, gradually reduce the engine speed before stopping.
- Do not tamper with governor springs, governor links or other parts that may increase the governed speed. Engine speed is selected by the original equipment manufacturer.
- Do not check for spark with the spark plug or spark plug wire removed.
- Do not attempt to start the engine with the spark plug removed. If the engine floods, set the choke control to OPEN, set the throttle control to FAST, then try to start the engine again.
- Do not strike the flywheel with a hard object or metal tool. This may cause the flywheel to shatter during operation. Use the correct tools to service the engine.
- Do not operate the engine without a muffler or heat shield. Inspect them periodically and replace if damaged.
- Do not operate the engine with an accumulation of wood chips, dirt, or other combustible materials in the muffler area.
- Do not use the engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the state of California, the previous statement is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.
- Do not touch a hot muffler, cylinder, or fins. Contact may cause burns.
- Do not run the engine with the air cleaner or air cleaner cover removed. Doing this can damage the engine.

6.4.2 Check the Engine Fuel Level

⚠ WARNING!

Keep fuel away from sparks, open flame, pilot lights, heat, and any other source of ignition. Fuel and vapors are extremely flammable and explosive. Fire or explosion can cause severe burns, bodily harm, or death.

⚠ CAUTION!

Check the fuel level outdoors or in an area where there is good air flow. Fuel vapors are very toxic. Breathing fuel vapors can cause irritation, illness, or unconsciousness.

Check the engine fuel level before each use.

Starting work with a full tank helps to eliminate or reduce operating interruptions for refueling. Avoid running the tank dry.

1. Park the machine on level ground.
2. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
3. Wait a minimum of five minutes for the engine to cool.
4. Turn the fuel cap counterclockwise to remove it.
5. Check the fuel level. The fuel tank is full when the fuel level is visible 1/2 inch (12 mm) below the filler neck. There must be room for fuel expansion.
6. Complete one of the following:
   - If there is enough fuel in the tank, install and secure the fuel cap to prevent spillage.
   - If there is not enough fuel in the tank, add fuel. For instructions, see *Add Fuel to the Engine.*

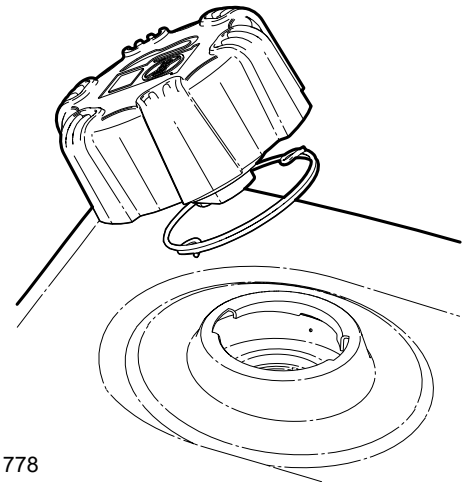


Fig. 13– Fuel cap

6.4.3 Add Fuel to the Engine

⚠ WARNING!

Never smoke or vape while working with fuel. Fuel vapors can explode causing injury or death. Keep sparks, flames, and hot components away.

W027

⚠ CAUTION!

Add fuel to the engine outdoors or in an area where there is good air flow. Fuel vapors are very toxic. Breathing fuel vapors can cause irritation, illness, or unconsciousness.

The engine requires clean, fresh, unleaded gasoline with a pump octane rating of 87 or higher (research octane number [RON] of 91 or higher). Gasoline with up to 10% ethanol (gasohol) is acceptable. For more information, see *Engine Fuel on page 34*.

For information about use at high altitudes, see the engine manufacturer's manual.

Fuel tank capacity: **0.82 US gal (3.1 L).**

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
2. Wait a minimum of five minutes for the engine to cool.
3. Turn the fuel cap counterclockwise to remove it.
4. Add the correct type and amount of fuel to the tank until the fuel level is visible 1/2 inch (12 mm) below the filler neck. Leave room for expansion. **Do not overfill the tank.**
5. Carefully, clean up any spilled fuel. Wait until the fuel dries before starting the engine.
6. Install and secure the fuel cap to prevent spillage.

6.4.4 Check the Engine Oil Level

IMPORTANT! For more information about engine oil, see the engine manufacturer's manual and *Engine Oil on page 34*.

Operating the engine with a low oil level can cause engine damage that is not covered by the warranty.

The engine must be in a level position for the dipstick to show the oil level correctly.

Check the engine oil level before each use.

1. Park the machine on level ground.
2. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
3. Pull out the oil-level dipstick and wipe it clean.
4. Fully reinsert the oil-level dipstick.
5. Pull out the oil-level dipstick and check the oil level.
   The oil level is correct when oil is visible on the dipstick from the end to the full (upper) mark.
6. Complete one of the following:
   - If the oil level is correct, continue with step 7.
   - If the oil level is low, add oil until the oil-level is at the full (upper) mark. For instructions, see *Add Oil to the Engine*.
7. Insert and secure the oil-level dipstick.

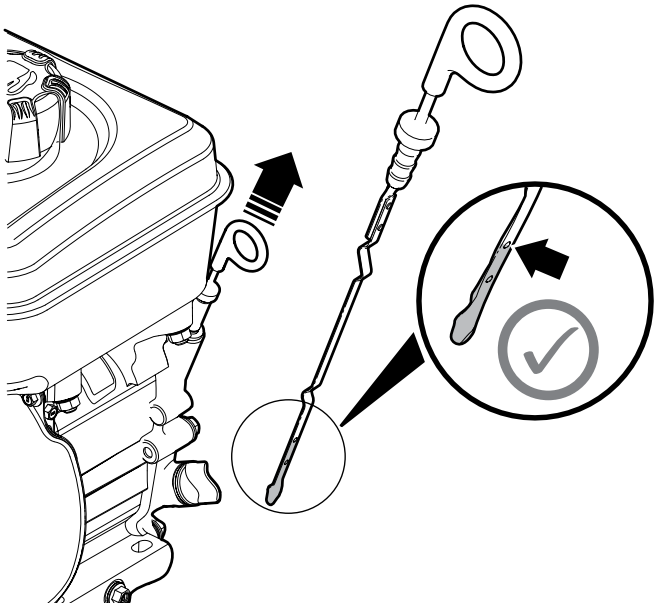


Fig. 14– Check the engine oil level

6.4.5 Add Oil to the Engine

IMPORTANT! For more information about engine oil, see the engine manufacturer's manual and *Engine Oil on page 34*.

The engine has three oil-fill locations. Two locations are on one side of the engine, and one location is on the opposite side.

1. Check the engine oil level to make sure that the oil level is low. For instructions, see *Check the Engine Oil Level*.
2. Turn an oil-fill cap counterclockwise to remove it.
3. Use a clean funnel to slowly add the correct type and amount of oil. **Do not overfill.**
4. Wait a minimum of one minute.
5. Remove the funnel, and then check the engine oil level.
6. Install and secure the oil-fill cap to prevent spillage.

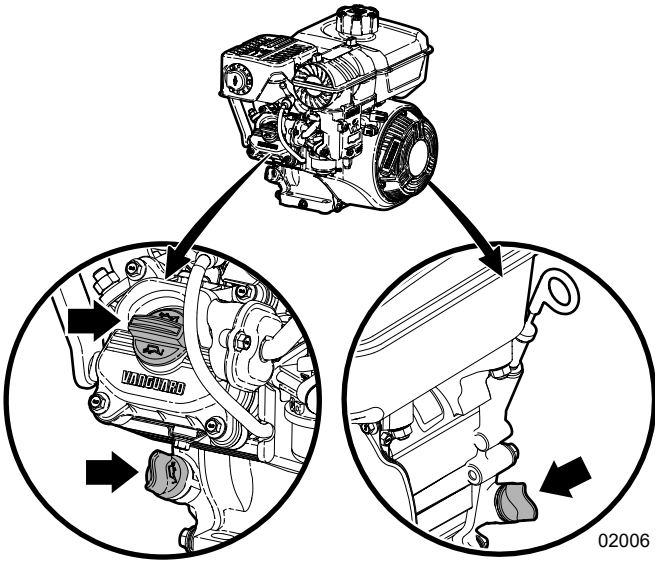


Fig. 15– Engine oil-fill locations

6.5 Start the Machine

⚠ WARNING!

Fast retraction of the starter cord (called kickback) pulls your hand and arm toward the engine faster than you can let go of the handle. Serious bodily harm (for example; bruises, sprains, fractures, and broken bones) can result.

When starting the engine, pull the starter cord slowly until you feel resistance, and then pull it rapidly to avoid kickback.

W102

⚠ WARNING!

Before you start the machine, read and understand all of the safety information in this manual and the engine manufacturer's manual.

IMPORTANT! If the engine does not start after repeated attempts, contact your local dealer or go to VanguardPower.com**.**

Before you start the machine, see the information under *Controls on page 21*.

1. Complete the tasks described in the *Pre-Start Checklist on page 23.*
2. Make sure that the machine is level and in a stable position.
3. Move the choke control to the **Open** position.
4. Move the throttle control to the **Fast** position.
5. Firmly grip the starter-cord handle.
6. Pull the starter cord out slowly until you feel resistance, then pull rapidly.
7. As the engine warms up, move the choke control to the **Closed** position.
8. Slowly, move the **clutch handle** to the **rotate** position.

6.6 Stop the Machine

IMPORTANT! Do not choke the carburetor to stop the engine.

1. Stop placing material into the feed hopper.
2. Wait for the machine to process the material that is in the feed hopper.
3. Move the **clutch handle** to the **STOP** position.
4. Move the **throttle control** to the **STOP** position to turn off the engine and close the fuel shut-off valve.
5. Wait 10 seconds for the drive belt and rotor to stop.

6.7 Emergency Stop

In the event of an emergency:

1. Move the **clutch handle** to the **STOP** position.
2. Move the throttle control to the **STOP** position to turn off the engine and close the fuel shut-off valve.
3. Wait 10 seconds for the drive belt and rotor to stop.
4. Remove the cause of the emergency before starting the engine and resuming work.

6.8 Set Up the Machine

⚠ WARNING!

Always use the machine outdoors and park the machine in a position where the prevailing winds blow the engine exhaust away from the operator. Exhaust from the engine contains carbon monoxide (CO) that can accumulate to a dangerous level, even in an area with good air flow.

W006

⚠ CAUTION!

Make sure that the machine is stable and on the level ground before operation. Operating the machine on uneven ground can cause the machine to tip over, which may result in personal injury or machine damage.

W038

1. Position the machine at the work site.
   For more information, see *Create a Safe Work Area on page 11*.
2. Make sure of the following:
   - The machine is close to the brush pile.
     This reduces material handling, provides easier loading, and reduces the risk of slips and trips.
   - The machine is stable and resting on level ground.
   - The work area is free of debris.
   - The discharge chute is pointing away from people, animals, or objects.
3. If the machine has a jockey wheel and is attached to a tow vehicle:
   a. Apply the tow vehicle's parking brake.
   b. Turn off the key and remove it from the ignition.
   c. Block the wheels.
4. Remove all debris from the feed hopper (to prevent a jam).
5. Rotate the hood deflector to direct the wood chips away from the work area, people, animals, and objects.
   For instructions, see *Hood Deflector on page 20*.

6.9 Chip Wood

⚠ WARNING!

Read and understand all of the safety information before operating the machine.
See *Safety on page 7* and *Operating Safety on page 22.*

☞ Delimb branches that are larger than 1" (2-1/2 cm) in diameter before you place them into the feed hopper. This can prevent the branch from becoming jammed in the feed hopper.

1. Set up the machine.
   For instructions, see *Set Up the Machine*.
2. Start the machine.
   For instructions, see *Start the Machine on page 27*.
3. Wait a minute for the rotor to rotate at full speed.
4. Carefully, slide the material into the feed hopper, through the safety flap, and into the rotor. The rotor will draw the material into the machine.
5. Continue to feed material into the hopper at a slow, steady rate.
   If the rotor begins to slow down, stop feeding material. Let the rotor regain the full speed, and then continue.

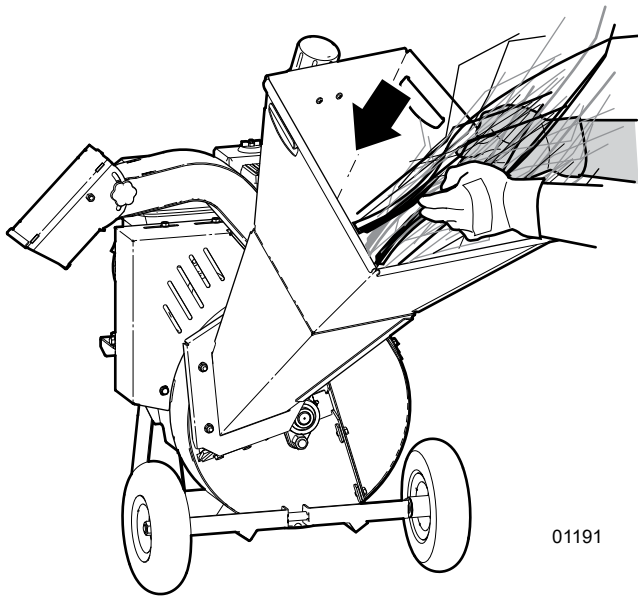


Fig. 16– Place material into the feed hopper

6.10 Mulch Collector Bag

A mulch collector bag can be attached to the discharge chute.

If you purchased a BXC34 Bundle, the mulch collector bag is included with your machine. To purchase a mulch collector bag separately, contact your local Wallenstein Equipment dealer or distributor.

The mulch bag holds 2.7 ft³ (28 L) of material and is made of a mildew-resistant, synthetic material. The porous fabric allows air from the rotor to pass through it without restricting collection of the wood chips.

6.10.1 Install a Mulch Collector Bag

1. Rotate the hood deflector to the horizontal position. For instructions, see *Hood Deflector on page 20*.
2. Place the open end of the mulch collector bag over the hood deflector and the end of the discharge chute.
3. Tighten the strap on the bag around the discharge chute to secure it.
4. Make sure that the zipper on the bottom of the bag is closed.

6.10.2 Remove a Mulch Collector Bag

When the mulch collector bag is full or you are finished chipping wood:

1. Loosen the mulch collector bag strap.
2. Carefully, slide the mulch collector bag off of the discharge chute and over the deflector hood.
3. To empty the mulch collector bag, unzip the bottom of the bag.

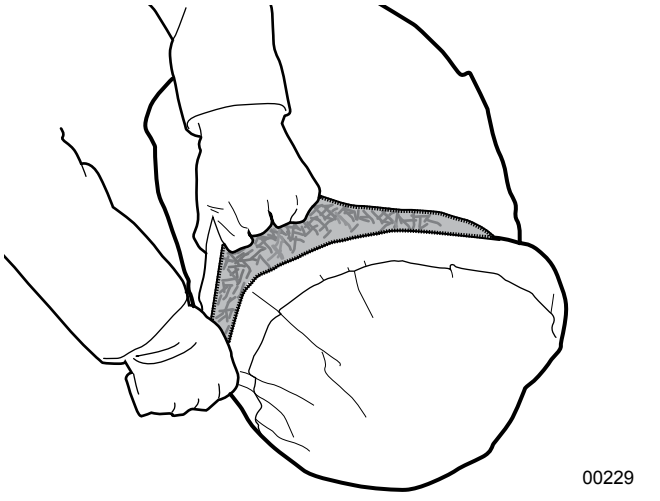


Fig. 17 – Empty the mulch collector bag

6.11 Jockey Wheel

A jockey wheel can be installed on the front of the machine.

If you purchased a BXC34 Bundle, the jockey wheel is included with your machine. To purchase a jockey wheel separately, contact your local Wallenstein Equipment dealer or distributor.

A jockey wheel makes the machine easier to move. The jockey-wheel handle can be attached to a clevis hitch to tow the machine behind a small lawn tractor. For movement and towing instructions, see *Transport on page 31*.

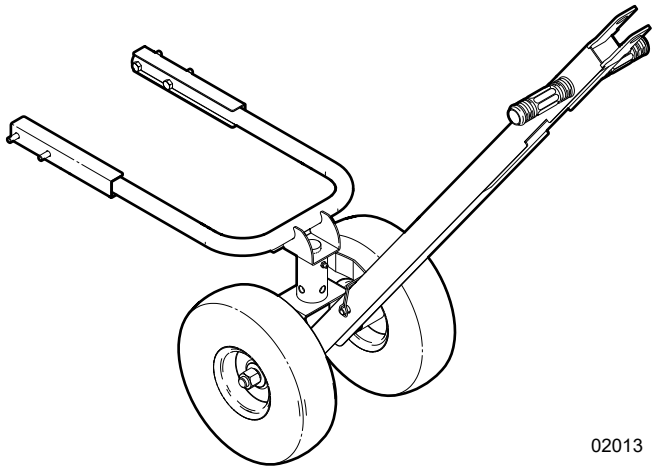


Fig. 18 – Jockey wheel

6.12 Clear a Jam

CAUTION!

Avoid reaching into the rotor housing. The rotor and ledger knives are very sharp. If it is necessary to reach into the rotor housing, set the machine to a safe condition, wear heavy gloves, and use extreme caution.

W003

The machine is designed to handle a wide range of materials. However, in the event that material gets lodged in the machine, follow this procedure to clear the jam:

1. Set the machine to a safe condition.
   For instructions, see *Safe Condition on page 9*.
2. Pull all of the material out of the feed hopper.
   Make sure that nothing is jammed or wedged between the opening and the rotor.
3. Pull all of the material out of the discharge chute.
   Use a stick to reach in and loosen material that is jammed in the discharge chute.
4. Start the machine to see if the jam is clear.
   For instructions, see *Start the Machine on page 27*.
5. If the jam is not clear, repeat steps 1 through 3.
6. Remove the discharge chute.
7. Remove all material from inside the rotor housing.
8. If necessary, **very carefully** and slowly, rotate the rotor by hand to make sure that there is nothing jammed between the rotor and the knives.
   Do not reach into the rotor housing if the rotor is moving.
9. Install the discharge chute.
10. Repeat step 4.

WARNING!

Never operate a machine with any guards or shields removed. The machine is shown here with guards and/or shields removed for illustrative purposes only.

W001

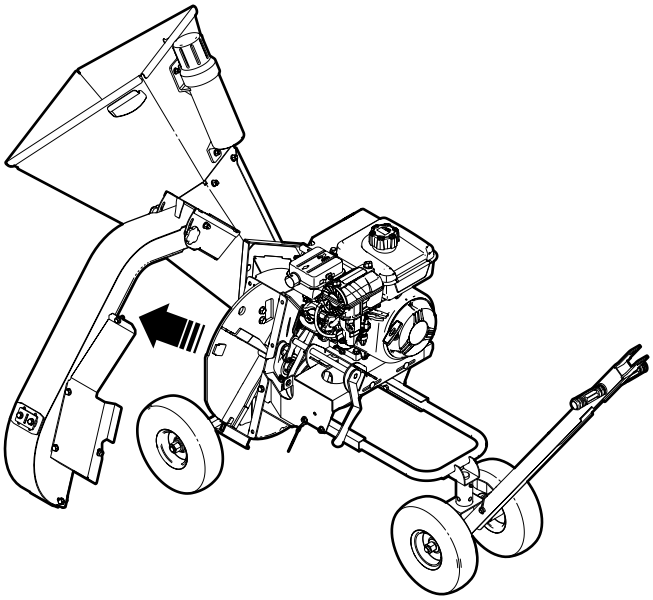


Fig. 19–Remove the discharge chute.

7. Transport

⚠ WARNING!

Do not tow this machine on a roadway. If transport to another location is required, secure it to the bed of a licensed truck or trailer.

7.1 Use the Handles

IMPORTANT! Turn off the engine before moving or tilting the machine. Tilting the engine causes the fluid levels to change and the oil level may become low. Operating an engine with a low oil level can damage the engine.

IMPORTANT! When you move the machine, avoid sharp turns. Sharp or abrupt turns can damage the tires.

The machine has two handles, one on each side of the feed hopper. Use the handles to move the machine. The machine is balanced for ease of movement.

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
2. Hold both of the handles.
3. Carefully, push the feed hopper down to lift the support stand off the ground.
4. Roll the machine forward or backward to move it to the required location.
5. Carefully, raise the feed hopper until the support stand is on the ground.

Make sure that the machine is parked firmly on level ground during operation.

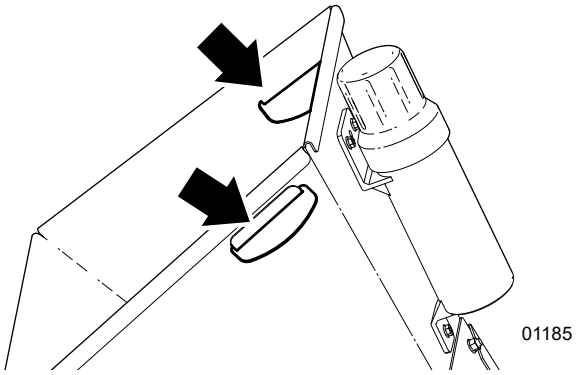


Fig. 20–Handles

7.2 Use the Jockey Wheel

For a demonstration, see the BXC34 Bundle video at WallensteinEquipment.com.

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
2. Hold onto the jockey-wheel handle grips.
3. Pull the machine to the required location.

Make sure that the machine is parked firmly on level ground during operation.

7.3 Tow the Machine

When a jockey wheel is installed on the machine, the machine can be attached to a clevis hitch on a small tow vehicle (for example; a small lawn tractor or light utility vehicle).

For a demonstration, see the BXC34 Bundle video at WallensteinEquipment.com.

Connect to a tow vehicle:

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27.*
2. Park the machine near the tow vehicle hitch.
3. Remove the snap pin from the base of the jockey-wheel handle.
4. Lower the jockey-wheel handle and align the holes in the handle with the tow vehicle hitch.
5. Insert a hitch pin through the tow vehicle hitch and jockey-wheel handle. Insert a pin through the hitch pin to secure it.
6. Make sure that the machine is securely attached to the tow vehicle before towing.

Disconnect from a tow vehicle:

1. Remove the hitch pin from the vehicle hitch and jockey-wheel handle.
2. Raise the jockey-wheel handle to align the holes in the base of the handle with the jockey-wheel bracket.
3. Insert the snap pin through the bracket and handle.

BXC34 Bundle video

8. Storage

At the end of the season or when the machine is not going to be used for an extended period of time, completely inspect all of the major systems. Replace or repair any worn or damaged components to prevent unnecessary down time at the beginning of the next season. Touch up scratches or dents.

8.1 Storage Safety

WARNING!

Do not permit children to play on or around stored machinery or equipment. Sharp edges, unexpected movement, trips, falls, and other hazards can cause serious injury or death.

W105

- Store the machine in a dry, level location away from human activity.
- Store the machine indoors, where possible.

8.2 Place the Machine in Storage

For information about engine storage, see the engine manufacturer's manual.

1. Set the machine to a safe condition.
   For instructions, see *Safe Condition on page 9*.
2. Check all of the moving parts and remove all entangled material.
3. Use a pressure washer or water hose to thoroughly wash the machine. Remove all dirt, mud, and debris.
4. Start the machine, let it run for a few minutes to remove any moisture, and then stop the machine.
5. Thoroughly inspect the machine, including the drive belt and pulley. Replace or repair any worn or damaged parts.
6. Complete one of the following:
   - If the machine will be in storage for one to three months, add stabilizer to the engine fuel and drain the carburetor.
   - If the machine will be in storage for longer than three months, replace the engine fuel with an alkylate or appropriate engineered fuel. These fuel types prevent the buildup of insoluble solids (deposits) in the engine.
     For more information, see *Engine Fuel on page 34*.
     For instructions, see *Replace the Engine Fuel on page 32*.
7. Park the machine in the storage location.
8. Block the machine wheels to prevent accidental movement and increase the wheel bearing life.
9. If indoor storage is not possible, cover the machine with a waterproof tarp. It is recommended that the machine be stored indoors.

8.2.1 Replace the Engine Fuel

1. Remove the current fuel from the engine.
   Operate the machine until the fuel tank is empty or drain the fuel tank and properly dispose of the fuel.
2. Add new fuel to the engine.
   For instructions, see *Add Fuel to the Engine on page 25*.
3. Start the machine.
   For instructions, see *Start the Machine on page 27*.
4. Wait five to 10 minutes for the fuel to flush the carburetor.
5. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.

8.3 Remove the Machine from Storage

1. Complete the *Pre-Start Checklist on page 23*.
2. Complete the required maintenance.
   For maintenance requirements, see the *Maintenance Schedule on page 35*.

9. Service and Maintenance

Regular preventive maintenance can improve performance and prolong the life of the machine. Machine maintenance is your responsibility.

9.1 Service and Maintenance Safety

⚠ WARNING!

Before you start service or maintenance work:

- **Set the machine to a safe condition.**
- **Wait for the machine to cool down. Engine components and fluids may be hot enough to cause burns.**
- **Read and understand all of the service and maintenance safety information.**

W041

⚠ WARNING!

Wear the personal protective equipment (PPE) that is required to complete the work safely.

This includes, but is not limited to a hard hat, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W101

⚠ WARNING!

When service or maintenance work is complete, install all guards and/or shields that were removed. Operating a machine with a guard or shield removed can cause serious injuries and/or machine damage.

IMPORTANT! See the engine manufacturer's manual for maintenance and service information.

Set the machine to a safe condition before you start any service or maintenance:

⚠ SAFE CONDITION

1. Stop the machine.
   For instructions, see *Stop the Machine on page 27*.
2. Wait for all moving parts to stop.
3. Disconnect the engine spark-plug wire and keep it away from the spark plug.

- Follow good shop practices:
  - Keep the work area clean and dry.
  - Ground electrical outlets and tools.
  - Have adequate light for good visibility.
- Never operate an engine inside a closed building. The exhaust fumes may cause asphyxiation.
- Never work under equipment unless it is securely supported with blocks.
- Always have a minimum of two people present during maintenance or service. Do not work alone in case an emergency situation occurs.
- Keep a fire extinguisher and first aid kit readily accessible at all times.
- Do not use gasoline or diesel fuel to clean parts. Use a regular cleanser.
- When replacement parts are necessary, use genuine factory replacement parts to restore your equipment to original specifications. The manufacturer cannot be responsible for injuries or damages caused by use of unapproved parts or accessories.
- Check all of the fasteners after the work is complete. Tighten any loose bolts, nuts, or screws.
- Check all electrical and fuel connections to make sure that they are secure and the machine is in a safe working condition.
- Use tools that are in good condition and correct for the task. Make sure that you understand how to use the tools before performing any service work.

9.2 Fluids and Lubricants

The machine requires various fluids and lubricants for operation and maintenance.

9.2.1 Lubricant Handling and Storage

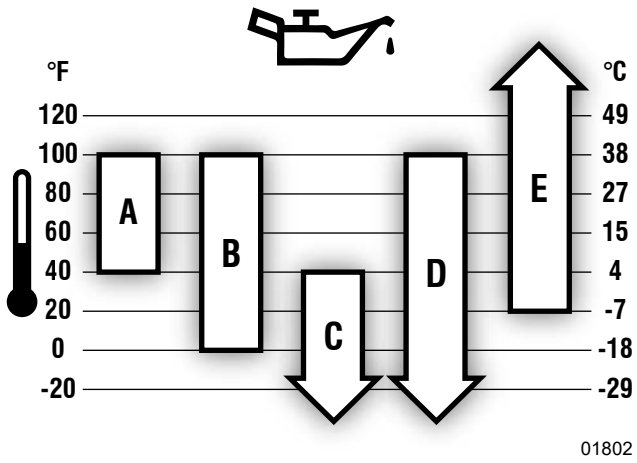
For optimum machine efficiency, use clean lubricants and clean containers to handle all lubricants. Store lubricants in an area that is protected from dust, moisture, and other contaminants.

9.2.2 Engine Oil

For engine maintenance and service information, see the engine manufacturer's manual.

Briggs & Stratton® Warranty Certified oils are recommended for the best engine performance. However, other high-quality detergent oils are permitted if they are classified for service SF, SG, SH, SJ, or higher. Do not use special additives.

Outdoor temperatures determine the required engine oil viscosity. Select the best oil viscosity for the expected outdoor temperature range. Use the following chart as a guide:



- **A** **SAE 30** – Below 40 °F (4 °C) the use of SAE 30 results in hard starting.
- **B** **10W-30** – Above 80 °F (27 °C) the use of 10W-30 may cause increased oil consumption. Check the oil level frequently.
- **C** **5W-30**
- **D** **Synthetic 5W-30**
- **E** **Vanguard® Synthetic 15W-50**

9.2.3 Engine Fuel

For complete fuel information and use at high altitudes, see the engine manufacturer's manual.

Fuel must meet the following specifications:

- Clean, fresh, unleaded gasoline.
- Minimum of 87 octane / 87 AKI (91 RON).
- Gasoline with up to 10% ethanol (gasohol) is acceptable if the fuel is fresh (less than three months old).

If the machine will be in storage for longer than three months, replace the fuel with one of the following fuel types:

- An alkylate fuel
- An engineered fuel that is high octane, ethanol-free, and formulated with power detergent to prevent the buildup of insoluble solids (deposits).

For instructions, see *Replace the Engine Fuel on page 32*.

9.2.4 Grease

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. An SAE multipurpose lithium-based grease is an acceptable substitute.

9.3 Maintenance Schedule

IMPORTANT! For more information, see the engine manufacturer's manual.

Complete maintenance tasks at the specified time or hour interval, whichever comes first.

Task	8 hours or daily	50 hours or annually	100 hours or annually	200 hours or annually	Annually	600 hours or every three years	Reference
Check the engine oil level and quality.	●						See *page 26*
Check the engine fuel level.	●						See *page 25*
Clean around the muffler and controls.	●						See the engine manual
Clean the engine air-intake grille.	●						N/A[1]
Check that all fasteners and the wheel lug nuts are tightened to the specified torque.	●						See *page 47*
Check the drive belt condition.	●						See *page 37*
Check the ledger knife sharpness.		●					See *page 42*
Check the twig breaker for damage.		●					See *page 43*
Check the drive belt tension.		●					See *page 38*
Check the ledger knife sharpness.			●				See *page 42*
Check the drive belt alignment.			●				See *page 39*
Check the tire pressure.			●				See the tire sidewall.
Grease the rotor bearings.			●				*See page 36*
Clean the machine. Remove debris and entangled material.			●				See *page 44*
Service the engine exhaust system.			●				See the engine manual
Clean the engine air filter.[2]				●			See *page 37*
Change the engine oil.				●			See the engine manual
Replace the engine spark plug.					●		See the engine manual
Service the engine cooling system.					●		See the engine manual
Service the engine fuel system.					●		See the engine manual
Replace the engine air filter.						●	See the engine manual

1 N/A indicates that a reference is not applicable.
2 In dusty conditions or when airborne debris is present, clean more often.

9.4 Grease Points

IMPORTANT! Do not over-grease the bearings. Too much grease can cause the bearing seals to fail.

Look for this decal on the machine. It indicates a grease point and the interval in hours.

Apply one pump of grease to each rotor bearing every 100 hours of operation or annually.

- Use a hand-held grease gun for all greasing. Apply one pump per location.
- Wipe each grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
- Replace or repair broken fittings immediately.
- If a fitting does not take grease, remove and clean the fitting thoroughly. Also, clean the lubricant passageway. If required, replace the fitting.

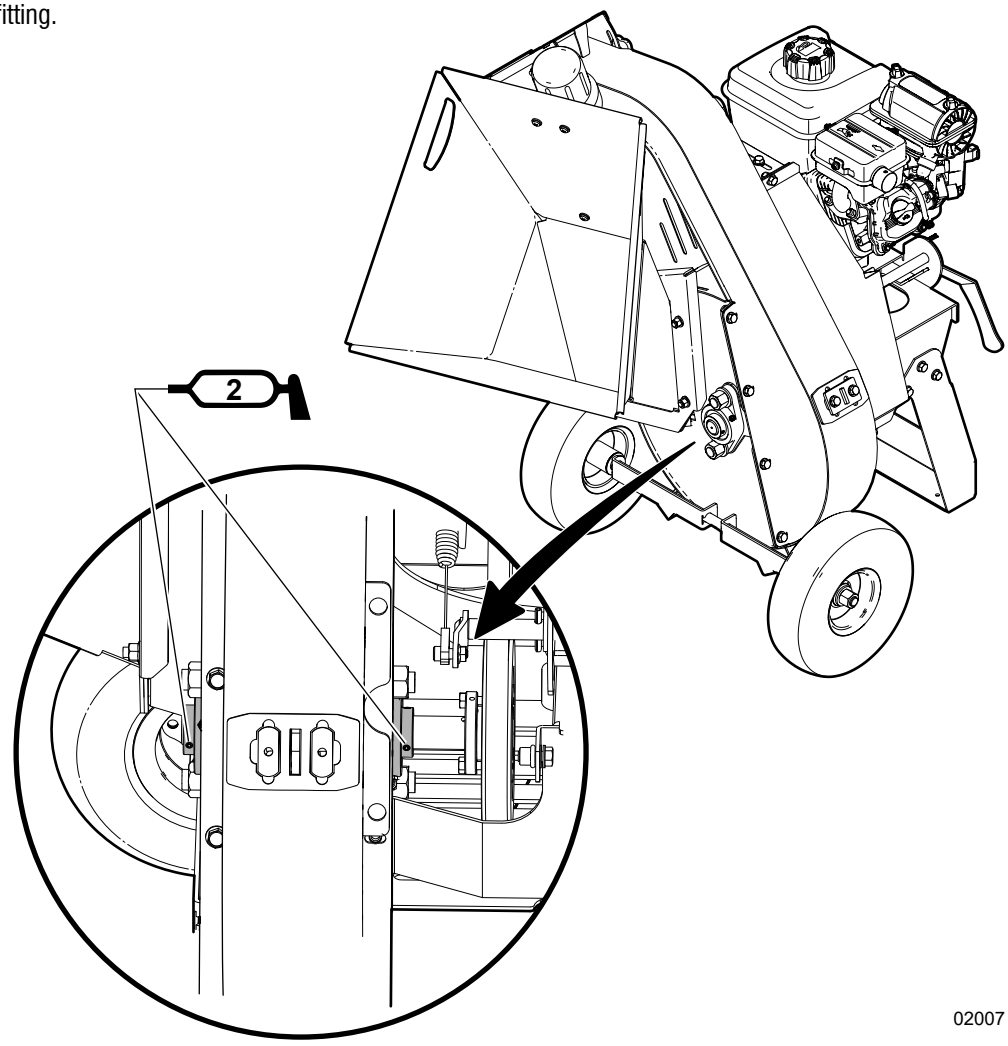


Fig. 21 – Grease points

9.5 Clean the Engine Air Filter

IMPORTANT! Operating the engine without an air filter, or with a damaged air filter, can allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by warranty.

Clean the air filter after every 200 hours of operation or annually.

A dirty air filter can restrict air flow to the carburetor, reducing the engine performance. If the engine is operated in very dusty areas, clean the air filter more often than specified.

1. Loosen the two air-filter cover fasteners.
2. Remove the cover.
3. Remove the air filter.
4. Gently tap the air filter on a hard surface to loosen and remove dust and debris.
5. If the air filter is excessively dirty or damaged, replace it with a new air filter.
6. Install the air filter in the engine.
7. Install the cover.
8. Tighten the two air-filter cover fasteners.

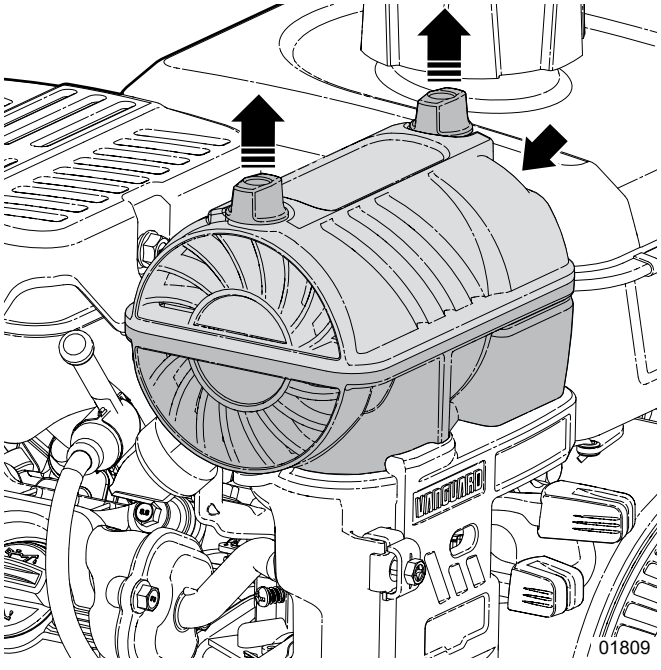


Fig. 22–Engine air filter

9.6 Replace the Drive Belt

IMPORTANT! After the drive belt is replaced, set the correct tension, and align the engine and rotor sheave.

The machine has a clutch mounted on the engine shaft that drives the rotor sheave. When the drive belt is loose or in disrepair, the ability of the engine to efficiently drive the rotor may be affected. Therefore, it is important to check the drive belt condition and tension on a regular basis. Replace the drive belt if it is frayed, cracked, or worn.

1. On the side of the machine, remove the drive-belt guard.
2. Loosen (do not remove) the four bolts (1) (two on each side) that secure the engine mount to the machine frame.
3. Turn the belt tensioning bolt (2) counterclockwise to loosen the drive belt tension.
4. Loosen the tension until you can slide the engine over and remove the belt.
5. Install the new drive belt.
6. Slide the engine back to apply tension to the drive belt.
7. Hand tighten the four engine mount bolts.
8. Set the drive belt tension.
   For instructions, see *Set the Drive Belt Tension on page 38*.
9. Align the drive belt.
   For instructions, see *Align the Drive Belt on page 39*.

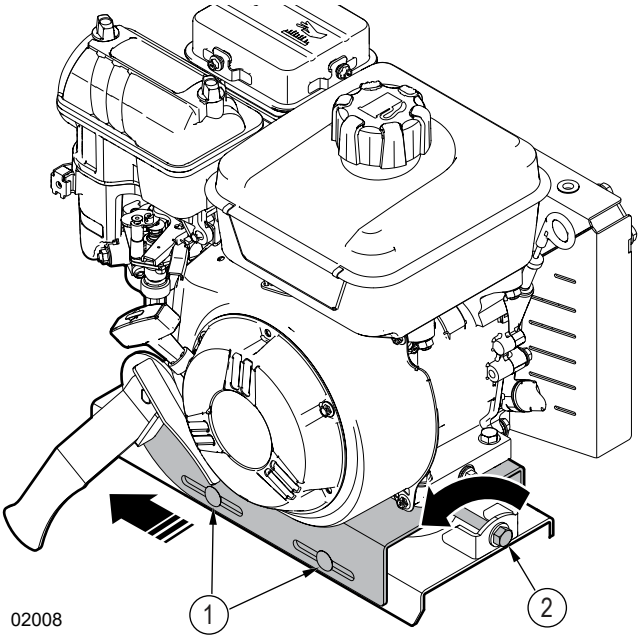


Fig. 23–Engine mount (two of four bolts shown)

9.6.1 Set the Drive Belt Tension

WARNING!

Never operate a machine with any guards or shields removed. The machine is shown here with guards and/or shields removed for illustrative purposes only.

W001

Check the drive belt tension after every 50 hours of operation.

For accurate measurement use a drive-belt tension gauge. If a gauge is not available, the following method can be used.

1. Use your hand to check the drive-belt deflection. Press on the top, center of the drive belt (*Fig. 24*).
   The drive-belt tension is correct when it does not deflect more than 1/4"–3/8" (6 mm–10 mm). Adjust the tension accordingly.
2. If the drive belt tension requires adjustment, loosen (do not remove) the four bolts (two on each side) that secure the engine mount to the machine frame.
3. Turn the drive-belt tension bolt to adjust the drive-belt tension:
   - Clockwise to increase the tension.
   - Counterclockwise to loosen the tension.

   Be aware of the drive-belt alignment while adjusting the drive-belt tension.
4. When the drive-belt tension is correct, check the drive belt alignment.
   For instructions, see *Align the Drive Belt on page 39*.
5. Complete one of the following:
   - If the drive-belt alignment is correct, use a calibrated torque wrench to tighten the four engine mount bolts to **33 lbf•ft (45 N•m)**, and then continue with step 6.
   - If the drive-belt alignment is not correct, align the drive belt.
6. Install the drive-belt guard.
7. Check the drive-belt tension after 10 hours of operation.

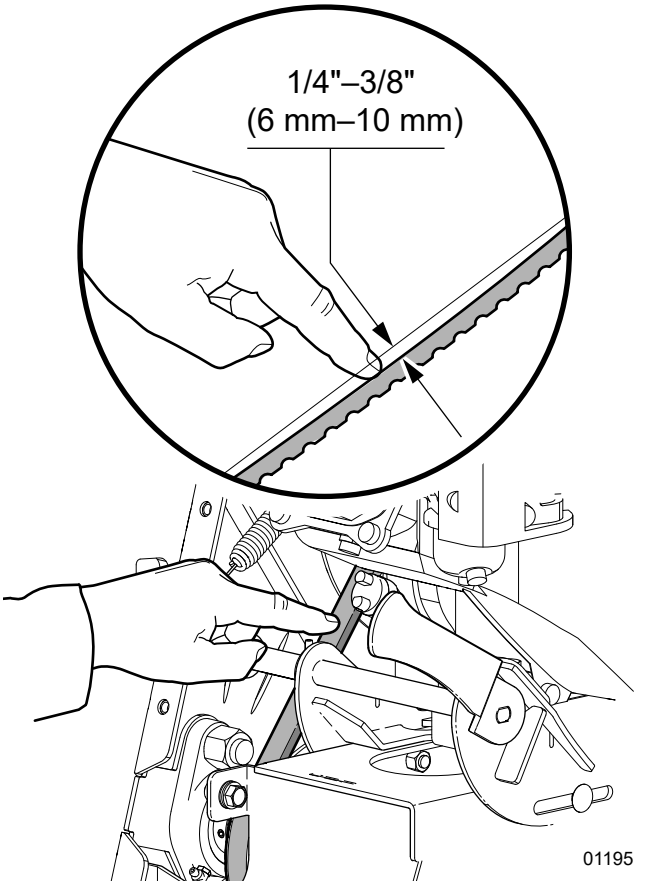


Fig. 24– Check the drive belt tension

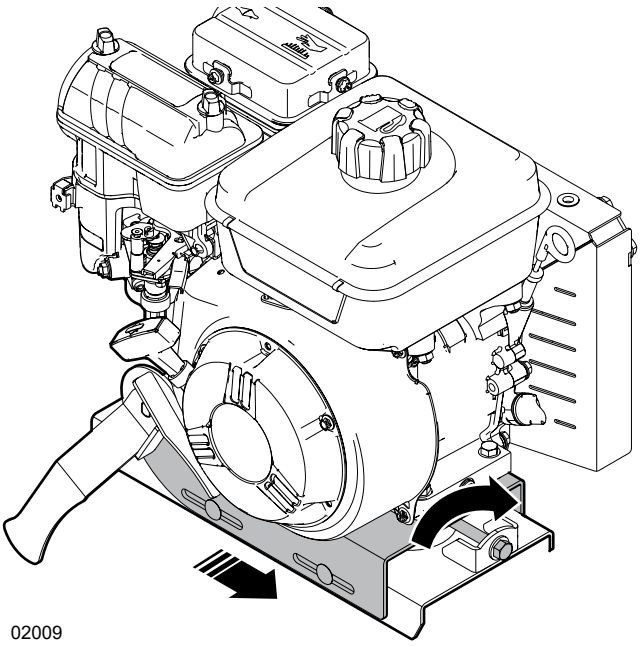


Fig. 25– Set the drive belt tension

9.6.2 Align the Drive Belt

Check the drive belt alignment after every 8 hours of operation.

For accurate measurement use a laser alignment tool. If a laser alignment tool is not available, the following method can be used.

The maximum offset (misalignment) is 1/32" (1 mm).

1. Remove the drive-belt guard.
2. Place a straight edge along the back face of the engine clutch and the rotor sheave. Check the space between the drive belt and the straight edge. The gap should be even along the length of the straight edge.
3. Complete one of the following:

- If the gap is even along the length of the straight edge, install the drive-belt guard. No further adjustment is required.
- If the gap is not even along the length of the straight edge, determine which is the best way to align the drive belt. There are two ways to correct the drive-belt alignment:
  - If the engine is not square to the chipper frame, turn the engine on the mount.
    For instructions, see *Align the Engine on page 39*.
  - If the rotor sheave has moved in or out on the shaft, adjust the rotor sheave on the shaft.
    For instructions, see *Align the Rotor Sheave on page 40*.

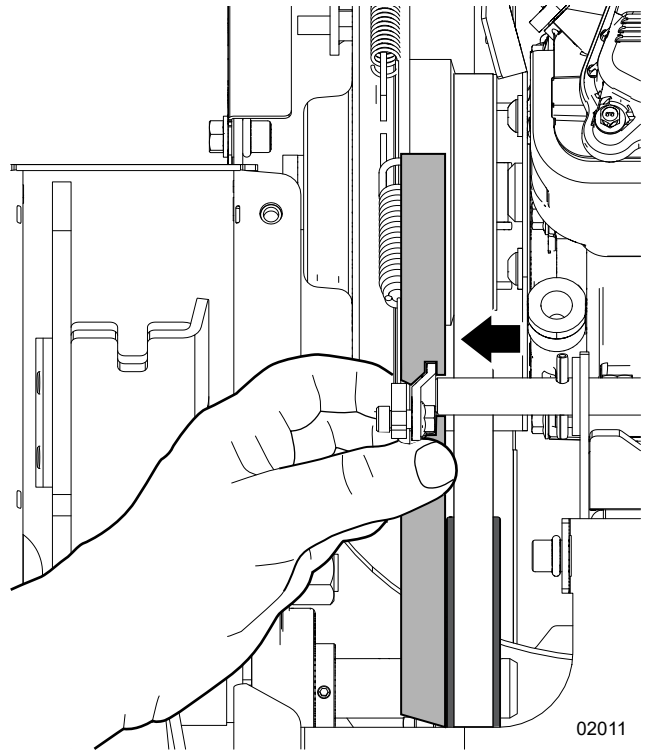


Fig. 26 – Align the drive belt

9.6.3 Align the Engine

After changing the drive belt or loosening the engine mounts, the drive belt may become misaligned.

1. Loosen the four engine bolts. If one corner of the engine does not need to move, leave the bolt snug.
2. Turn the engine to one side or the other on the mount to adjust its position.
3. Use a straight edge to check the drive-belt and sheave alignment (*Fig. 26*).
4. For the best results, repeat step 3.
5. Use a calibrated torque wrench to tighten the four engine mount bolts to **33 lbf•ft (45 N•m)**.
6. Check the drive-belt tension. If required, set the tension. For instructions, see *Set the Drive Belt Tension on page 38*.
7. Install the drive-belt guard.

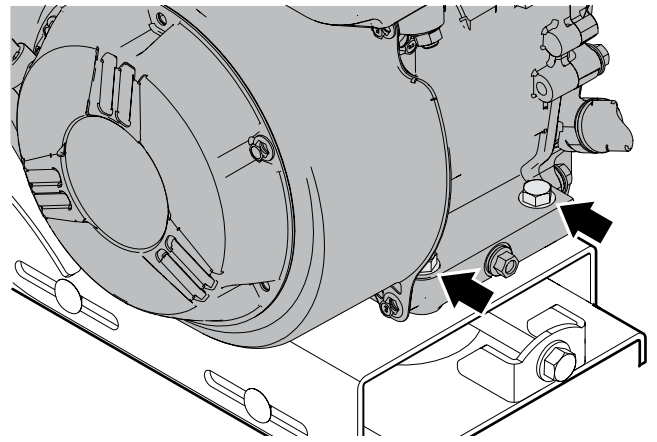


Fig. 27 – Engine bolts (two of four shown)

9.6.4 Align the Rotor Sheave

If the rotor sheave loosens on the shaft, it can become misaligned with the engine clutch and result in poor belt alignment.

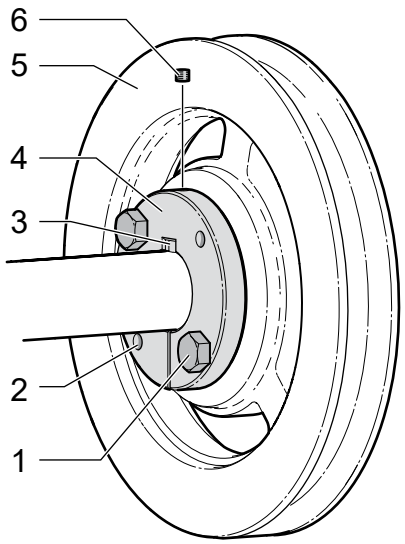


Fig. 28 – Rotor sheave

1. Sheave bolts
2. Threaded puller holes
3. Shaft key
4. Sheave hub
5. Sheave
6. Set screw

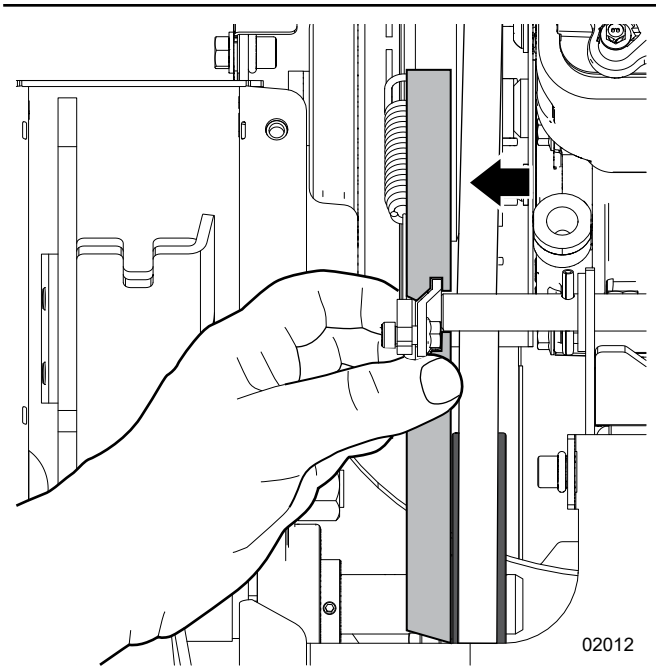


Fig. 29 – Example of rotor sheave misalignment

1. Remove the drive belt.
   For instructions, see *Replace the Drive Belt on page 37*.
2. Remove the set screw from the sheave (6).
3. Remove the sheave bolts (1), and then thread them into the puller holes on the sheave hub (2).
4. Slightly separate the hub and the sheave, so that they can move on the shaft. Turn in both bolts evenly in 1/4-turn increments.
5. Lightly tap the sheave hub with a block of wood to move it in or out on the shaft until it aligns with engine clutch sheave.
6. Place a straight edge along the face of the engine clutch and rotor sheave to make sure that they are aligned.
7. After the rotor sheave is aligned, insert the hub bolts and snug them up to the sheave. Repeat step 6 to check the alignment.
8. Tighten the hub bolts evenly in 1/4-turn increments until they are firmly seated.
9. Install and tighten the set screw. Repeat step 6 to check the alignment.
10. Check the drive-belt tension. If required, set the tension.
11. Install the drive-belt guard.

9.7 Rotor Knife Maintenance

WARNING!

Never operate a machine with any guards or shields removed. The machine is shown here with guards and/or shields removed for illustrative purposes only.

W001

CAUTION!

Wear heavy gloves, turn the rotor slowly, and be aware of your hand positions. The rotor knives are sharp and can cause cuts. Finger and hands can become pinched or wedged between the rotor and the rotor housing.

W032

IMPORTANT! If replacing or sharpening a knife, do the opposite one on the rotor as well to maintain the rotor balance. The clearance must be the same for each knife when it passes the ledger knife.

IMPORTANT! Rotor knives can be sharpened on both sides, as long as the correct clearance between the rotor knife and the ledger knife is maintained.

IMPORTANT! When sharpening a rotor knife, make sure that an equal amount of material is removed from each knife to maintain the correct rotor balance.

Observe the rotor knife performance during operation.

The rotor knives need to be sharp for the best performance. Keep the leading edges of the knives sharp to reduce the amount of power required during operation. If the chipper is not pulling the material or the material must be pushed into the chipper, the rotor knife edges may be rounded over (are likely dull).

Check the rotor knife sharpness daily or every eight hours.

Check the rotor knife sharpness more often if you are processing material with a lot of sand, soil, or dirt in it. If a rotor knife become dull, rotate both knives. Set the opposite edge of each knife to the leading edge. If the knives were previously rotated, and both edges are dull, replace both knives or sharpen all four knife edges.

Sharpen the rotor knives after every 50 hours of operation.

Always rotate, replace, or sharpen both knives at the same time.

P

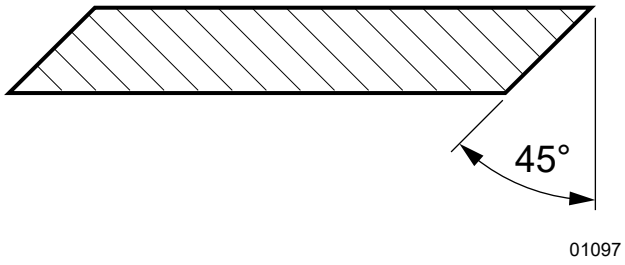


Fig. 30 – Sharpen rotor knives to a 45° angle

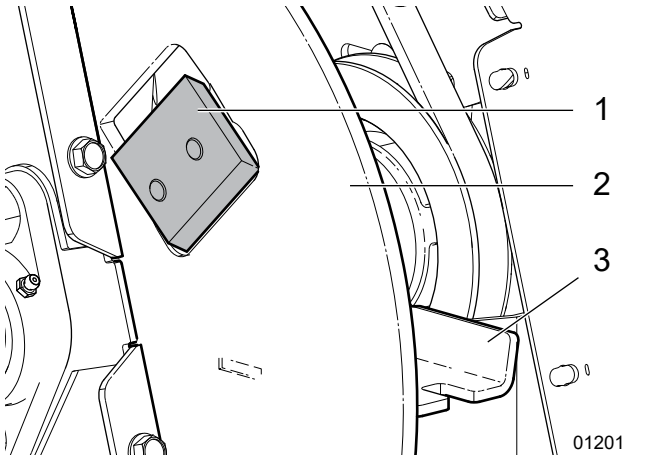


Fig. 31 – Rotor knife

1. Rotor knife
2. Rotor
3. Rotor paddle

9.7.1 Replace a Rotor Knife

IMPORTANT! Complete the same process for both rotor knives equally to keep the rotor balanced when it turns.

Slightly lift the clutch lever off the brake position to rotate the rotor. Engage the brake to lock the rotor in position before starting the procedure.

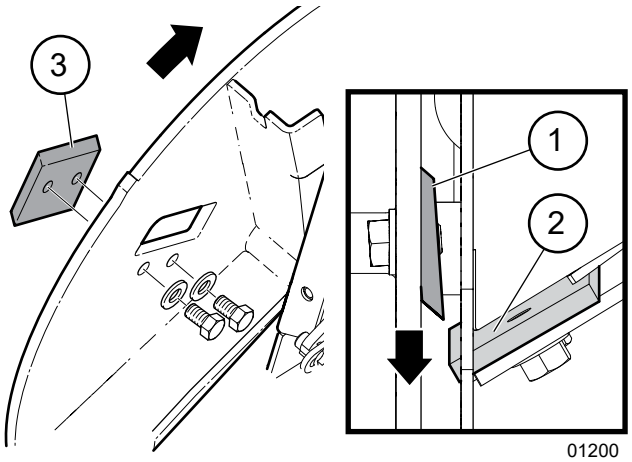


Fig. 32– Sharpen or change a rotor knife

1. Rotor knife
2. Ledger knife
3. Rotor knife leading edge

1. Remove the discharge chute.
2. Manually rotate the rotor to access one of the rotor knives.
3. Release the clutch lever to engage the brake and lock the rotor in position.
4. Insert a block of wood to prevent the rotor from moving. Make sure that the rotor cannot move.
5. Remove the two bolts and washers, and then remove the knife.
6. Repeat steps 2 through 4 for the second rotor knife.
7. Rotate, replace, or sharpen the rotor knives. If one knife needs to be rotated or replaced, rotate or replace both knives. If the knives are being sharpened, sharpen both knives evenly.
8. Install each rotor knife with the leading edge out. Apply blue Loctite® to the bolt threads.
9. Use a calibrated torque wrench to tighten the bolts to **33 lbf•ft (45 N•m)**.

9.8 Ledger Knife Maintenance

WARNING!

Never operate a machine with any guards or shields removed. The machine is shown here with guards and/or shields removed for illustrative purposes only.

W001

Observe the ledger knife performance during operation. Check the ledger knife sharpness after every 100 hours of operation.

Material in the chipper is sheared off at the stationary ledger knife when the rotor knives pass by.

The ledger knife can be turned or rotated, so that all four edges on the long sides can be used. When the edge facing the rotor knives becomes rounded over (dull), remove the ledger knife, and then install it with a different long edge facing the rotor knives.

When all four edges of the knife are dull, remove the ledger knife and sharpen it.

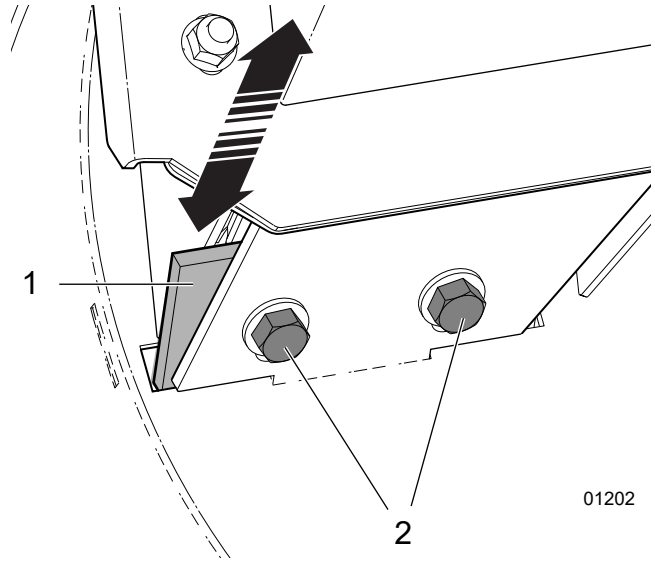


Fig. 33– Ledger Knife in the rotor housing

1. Ledger knife
2. Mounting bolts and washers

9.8.1 Sharpen the Ledger Knife

If the ledger knife has been sharpened on all corners and it is no longer possible to set the correct clearance with the rotor knives, replace the ledger knife.

1. Sharpen the long edges of the knife at a 90° angle on each side.
2. Install the ledger knife and use the ledger knife clearance gauge to set the correct clearance.
3. Use a calibrated torque wrench to tighten the bolts to **33 lbf•ft (45 N•m)**.

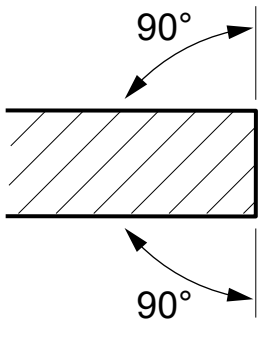


Fig. 34– Sharpen a ledger knife

9.8.2 Set the Ledger Knife Clearance

If the correct clearance cannot be set because the ledger knife is damaged, rotate or replace the knife.

1. Loosen the ledger knife bolts.
2. Move the ledger knife forward (toward the rotor knives). Hand tighten the bolts.
3. Turn the rotor until one of the rotor knives is directly aligned with the ledger knife.

   Use the ledger knife clearance gauge to set the clearance between the two knives. Tap the ledger knife toward the rotor knife.
   If a ledger knife clearance gauge is not available, set the clearance to between 1/32" and 1/16" (1 mm to 1.5 mm).
4. Use a calibrated torque wrench to tighten the bolts to **33 lbf•ft (45 N•m)**.

9.9 Twig Breaker Maintenance

The twig breaker is attached to the discharge chute. When the rotor paddles pass by the twig breaker, the material is further broken up as it exits the discharge chute.

When inspecting the twig breaker, look for damage such as gouges, or a bent or missing tooth. Replace a twig breaker that is damaged.

If the twig breaker tooth is worn, remove it and rotate it to wear on the other side.

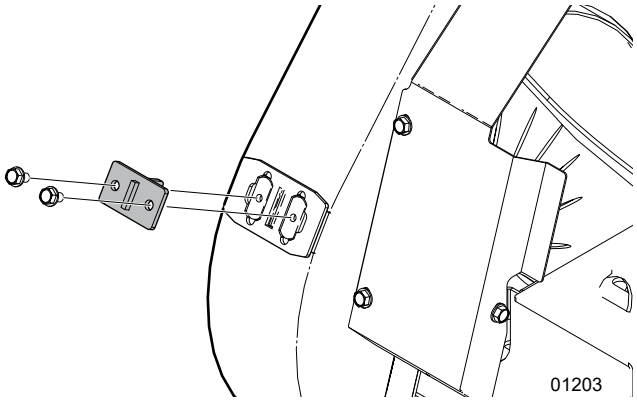


Fig. 35– Twig Breaker

9.10 Tire Maintenance and Safety

WARNING!

Failure to follow the correct procedures when mounting a tire on a wheel or rim can produce an explosion, which may result in serious injury or death. Do not attempt to mount a tire unless you have the correct equipment and experience. Have a qualified tire dealer or repair service perform tire maintenance.

IMPORTANT! Replace worn tires with tires that meet the original tire specifications. Never undersize tires.

- Check the tire pressure on a regular basis. See the tire sidewall for the correct pressure.
- At a minimum, check the tire pressure after every 100 hours of operation or annually.

9.11 Wash the Machine

IMPORTANT! Using harsh chemicals can damage the machine finish. Do not use gasoline, diesel fuel, or thinners for cleaning.

IMPORTANT! A pressure washer can damage the machine's product identification plate and make it unreadable. Do not direct the spray from a pressure washer onto the product identification plate.

IMPORTANT! A pressure washer can damage the bearings. Do not direct the spray from a pressure washer directly onto the bearings.

1. Use a hose or pressure washer and mild detergent to remove dust, dirt, and debris.
2. Use a clean, soft cloth, that is dampened with water to remove dirt from the product identification plate.
3. Apply grease to the rotor bearings.
4. Start the machine, let the engine run for a few minutes to dry, and then stop the machine.

10. Troubleshooting

⚠ WARNING!

Before troubleshooting, read and understand the *Service and Maintenance Safety on page 33*. Set the machine to a safe condition.

The following table lists some of the problems that you may encounter and provides possible causes and solutions.

If you encounter a problem that is difficult to solve, even after reading this information, please contact your local dealer, the distributor, or Wallenstein Equipment. Before you call, please have the serial number for your product handy.

To find the serial number on your machine, see *Serial Number Location on page 5*.

For engine troubleshooting, see the engine manufacturer's manual.

Problem	Cause	Solution
Rotor does not turn.	The discharge chute is obstructed.	Clear debris from the discharge chute.
	The rotor is jammed.	Clear the jam. For instructions, see *page 30*.
	The drive belt is loose.	Set the drive belt tension. For instructions, see *page 38*.
	The clutch brake spring is broken.	Remove the drive-belt shield and inspect the spring.
	The drive belt is broken.	Replace the drive belt. For instructions, see *page 37*.
Material is moving in too slowly.	The engine or rotor speed is too slow.	Set the engine throttle to increase the rotor's rpm. See *page 19*.
	The knives are not sharp or the clearance is incorrect.	Check the rotor and ledger knives. Rotate, sharpen, or replace the knives, as required. See *page 41*.
	The rotor knife angle is incorrect.	Sharpen the rotor knives to the specified 45° angle and check that knives are installed correctly. See *page 41*.
	The mulch collector bag is full.	Empty the mulch collector bag. For instructions, see *page 29*.
	The discharge chute is obstructed.	Clear all debris from the discharge chute.
Unusual machine vibration while operating.	The ledger knife is broken or missing.	Inspect the ledger knife. Replace the ledger knife if it is damaged or missing. See *page 42*.
	The rotor may be bent.	Check the rotor rotation to see if there is wobble. If the rotor wobbles, contact your local dealer or distributor to replace the rotor.
Machine requires excessive power or stalls.	The discharge chute is obstructed.	Clear all debris from the discharge chute.
	The clutch is being engaged too quickly.	Move the clutch handle to the rotate position slowly. Make sure that the rotor housing and feed hopper are clear before starting the machine.
	The mulch collector bag is full.	Empty the mulch collector bag. For instructions, see *page 29*.
	Too much material is being put into the feed hopper.	Place smaller amounts of material in the feed hopper.
	Material is being put into the feed hopper too quickly.	Place large material into the feed hopper slowly.
	The rotor is jammed.	Clear the jam. For instructions, see *page 30*.
	The ledger knife clearance is incorrect.	Use a ledger-knife clearance gauge to set the correct space. For instructions, see *page 43*.
	The knives are not sharp.	Rotate, sharpen, or replace the knives, as required. For instructions, see *page 41*.
	There is a problem with the engine.	See the engine manufacturer's manual.
Noisy drive belt or drive belt premature wear.	The drive belt is loose or worn.	Inspect drive the drive belt. Adjust the tension or replace the drive belt, as required. For instructions, see *page 38*.
	An incorrect replacement belt was installed.	Replace the drive belt. For instructions, see *page 37*.
	The rotor is jammed.	Clear the jam. For instructions, see *page 30*.
	A rotor bearing is worn or damaged.	Inspect the rotor bearings. Replace a bearing that is worn or damaged.

Problem	Cause	Solution
Poor wood chip quality.	The knives are not sharp.	Rotate, sharpen, or replace the knives, as required. For instructions, see *page 41.*
	The drive belt is loose or worn.	Inspect drive the drive belt. Adjust the tension or replace the drive belt, as required. For instructions, see *page 38*.
	The material being chipped is poor quality.	The material is small or rotting. Mix the material with higher quality material.
	The ledger knife clearance is incorrect.	Use a ledger-knife clearance gauge to set the correct space. For instructions, see *page 43*.

11. Specifications

For engine specifications, see the engine manufacturer's manual

11.1 Machine Specifications[1]

Feature	BXC34
Engine	Vanguard® 200
Horsepower	6.5 hp
Drive system	Brake and clutch with belt drive
Number of rotor knives	Two offset
Feed hopper opening	18" x 18" (46 cm x 46 cm)
Rotor housing opening	4" x 4" (10 cm x 10 cm)
Rotor diameter	17" (43 cm)
Rotor weight	28 lb (13 kg)
Knife material of construction	Hardened tool steel
Feed system	Manual (gravity)
Material maximum diameter	3 in (8 cm)
Material discharge	Blower with positional hood deflector
Tires	4.10 X 3.5 rubber
Dimensions length x width x height	49" x 35" x 44" (124 cm x 89 cm x 112 cm)
Weight	213 lb (97 kg)
Included with the BXC34 Bundle	Mulch collector bag 2.7 ft^3 (28 L) (Z99006) Jockey wheel (C500)
Separate accessories	Mulch collector bag 2.7 ft^3 (28 L) (Z99006)
	Jockey wheel (C500)
	Ledger knife clearance gauge (1012L269)
	Trailer hitch (1082A355)
Wear parts	Ledger knife (1056M304)
	Reversible rotor knife (1056M303)

1 Specifications are subject to change without notice.

11.2 Bolt Torque

Checking Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

IMPORTANT! If replacing hardware, use fasteners of the same grade.

IMPORTANT! Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.

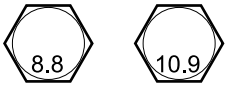
Bolt grades are identified by their head markings.

Imperial Bolt Torque Specifications

Bolt Diameter	Torque					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4"	6	8	9	12	12	17
5/16"	10	13	19	25	27	36
3/8"	20	27	33	45	45	63
7/16"	30	41	53	72	75	100
1/2"	45	61	80	110	115	155
9/16"	60	95	115	155	165	220
5/8"	95	128	160	215	220	305
3/4"	165	225	290	390	400	540
7/8"	170	230	420	570	650	880

Metric Bolt Torque Specifications

Bolt Diameter	Torque			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1,495	1,550	2,100



12. Product Warranty

LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five Years for Consumer Use

Two Years for Commercial/Rental Use

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

This warranty does not cover the following:

1) Normal maintenance or adjustments
2) Normal replacement of wearable and service parts
3) Consequential damage, indirect damage, or loss of profits
4) Damages resulting from:
   - Misuse, negligence, accident, theft or fire
   - Use of improper or insufficient fuel, fluids or lubricants
   - Use of parts or aftermarket accessories other than genuine Wallenstein parts
   - Modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
   - Any device or accessories installed by parties other than an authorized dealer
5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at www.wallensteinequipment.com

rev. Nov-2018

13. Index

O

P

R

S

T

W

WALLENSTEIN

WallensteinEquipment.com