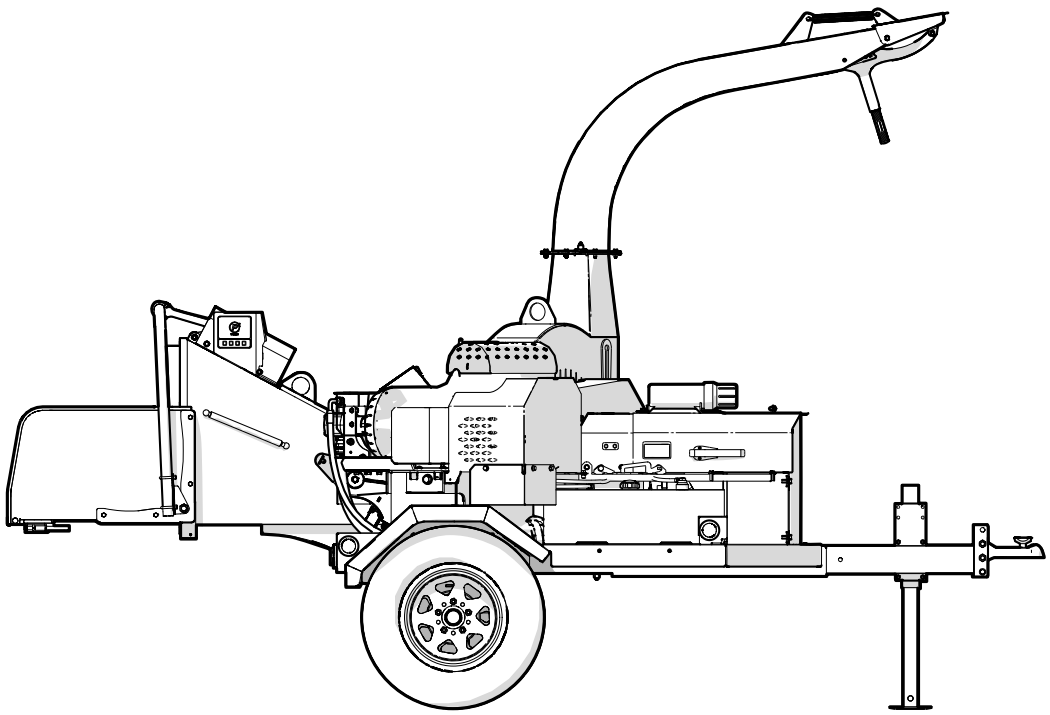
OPERATOR'S MANUAL

Serial number 2E9US1119MS091394 to 2E9US111XNS091453

BXTR6438
Trailer Wood Chipper

P3 PULSE™ TECHNOLOGY



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WALLENSTEIN

1. Foreword

1.1 Introduction

Congratulations on choosing the Wallenstein **BXTR6438 Trailer Wood Chipper!**

This machine is designed and manufactured to meet the needs of the timber and landscaping industries, as well as township and municipal requirements.

Review all safety, operation and maintenance information contained in this manual.

Safe, efficient, and trouble-free operation of this Wallenstein product requires that anyone using or maintaining the machine reads and understands the Safety, Operation, Maintenance information contained within this Operator's Manual.

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

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

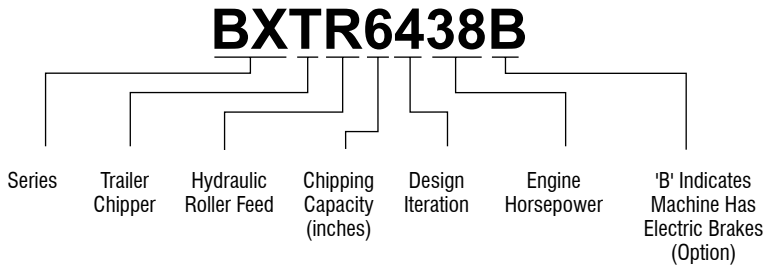
⚠ WARNING!

Do not attempt to start or operate the machine without thoroughly reviewing this manual for safe and proper operation.

Always keep this manual with the machine.

W034

Model Configuration



www.wallensteinequipment.com

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1.2 Delivery Inspection Report

Wallenstein BXTR6438 Trailer Wood Chipper

To activate warranty, register your product at: *www.wallensteinequipment.com*

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

The product manuals have been received by me and I have been thoroughly instructed as to 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 buyer on the equipment care, adjustments, safe operation, and applicable warranty policy and reviewed the manuals.

Dealer

Address

City, State/Province, ZIP/Postal Code

( )

Phone Number

1.2.1 Dealer Inspection Report

_____ Engine Oil Level Checked
_____ Engine Starts and Runs
_____ Check Blade Clearance
_____ Rotor Turns Freely
_____ Belt Tension Correct
_____ Engine / Rotor Sheaves Aligned
_____ Lubricate Grease Points
_____ All Fasteners Tight
_____ Pivot points lubricated.
_____ Tire Pressure Checked
_____ P3 PULSE Display Function

Safety Checks

_____ All Safety Decals Installed
_____ Guards and Shields Installed / Secured
_____ Safety Chain on Hitch
_____ Check Wheel Lug Torque
_____ Check Operation of Running / Brake / Turn Signal Lights

1.3 Serial Number Location

Always provide the serial number of your Wallenstein product when ordering parts or requesting service or other information. The Serial Number Plate location is shown in the illustration.

Record the product Serial Number in the space provided below for future reference.

Record Product Information Here	
Model:	**BXTR6438**
Serial Number:	

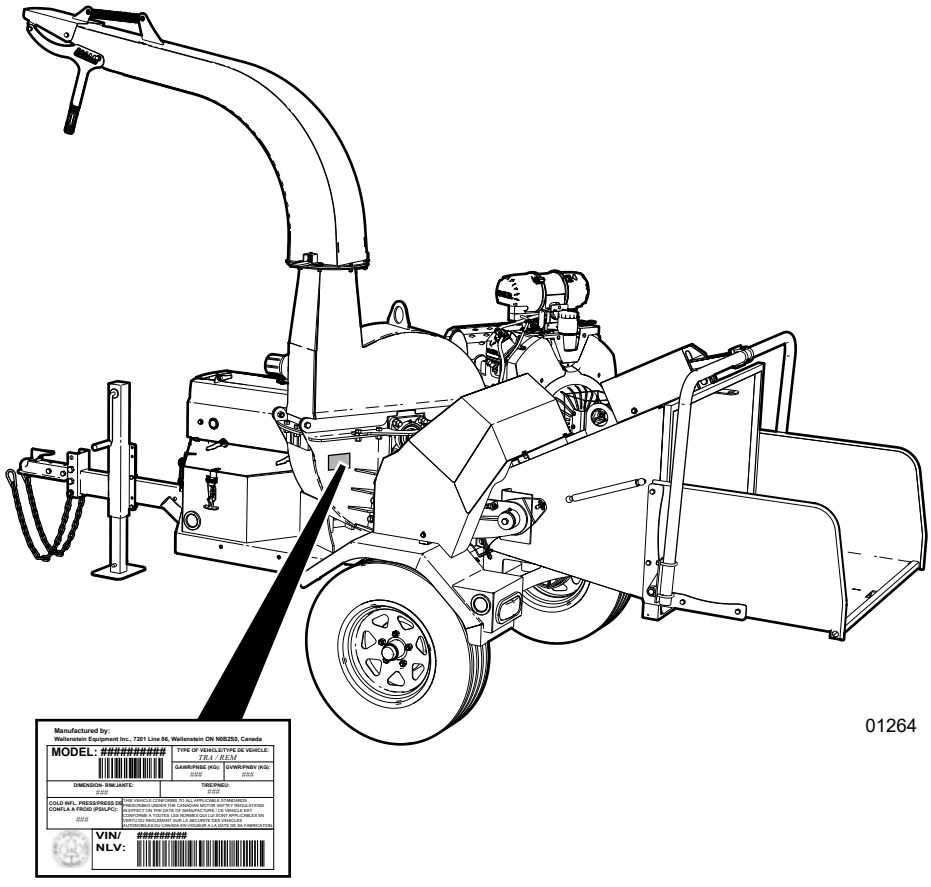
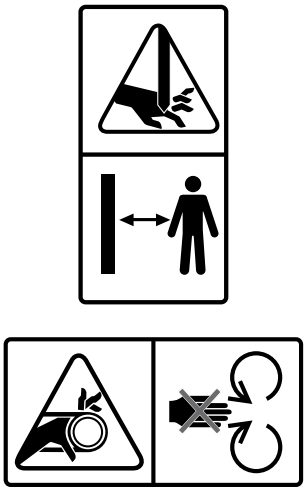


Fig. 1 – Serial Number Plate Location

1.4 Types of Decals on the Machine

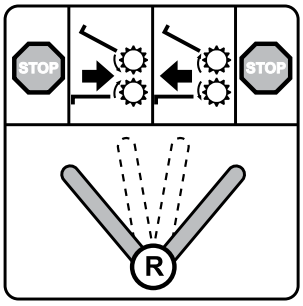
When getting familiar with the Wallenstein product, notice that there are numerous decals located on the machine. There are different types of decals for safety, information, and product identification. The following section explains what they are for and how to read them.

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

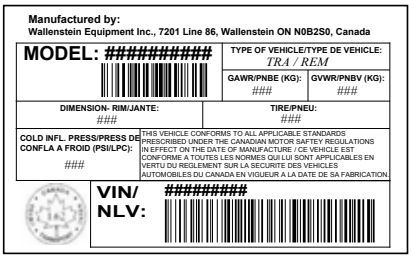


Safety Notice Decals are pictorial with a blue background and generally rectangular with single or multiple symbols. This decal informs what Personal Protective Equipment is required for safe operation.

Informative Decals are generally pictorial with a white background and can vary in the number of panels. This type of decal explains how a control works.



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 a type maintenance required and frequency interval.

See the section on safety signs for safety decal definitions. For a complete illustration of decals and decal locations, download the parts manual for your model product at **www.wallensteinequipment.com.**

2. Safety

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 Wallenstein wood chipper 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.

2.3 Why SAFETY is Important

Three Big Reasons:

- **Accidents Disable and Kill**
- **Accidents Cost**
- **Accidents Can Be Avoided**

The policy of Wallenstein Equipment Inc. is to produce products that are safe and reliable. However, even when using well-engineered equipment, there is always an element of risk. To minimize the risks and always promote safety, this section of the operator's manual details several safety rules that must always be followed and obeyed.

YOU are responsible for the SAFE operation and maintenance of your Wallenstein Trailer Wood Chipper. **YOU** must ensure that you and anyone else who is going to use, maintain or work around the wood chipper be 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 the wood chipper.

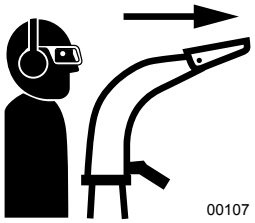
Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** using this equipment is familiar with the recommended use and maintenance procedures and follows all the safety precautions.

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

2.4 Safety Rules

- Provide operating instructions to operators or employees before allowing them to operate the machine, and REVIEW annually thereafter.
- Read and understand ALL Safety and Operating instructions in the manual and follow them. The most important safety device on this equipment is a SAFE operator.

- Review safety related items annually with all personnel who are operating the machine or performing maintenance.
- Wear appropriate Personal Protective Equipment (PPE). The suggested equipment includes but is not limited to the following:
  - Hearing Protection
  - Protective glasses, goggles or face shield
  - Heavy work gloves



- Have a first-aid kit available for use should the need arise and know how to use it.

- Read and understand all safety signs located on the machine before operating, servicing, adjusting, or cleaning. Replace any safety sign that is damaged or missing.
- Inspect and secure all guards before starting.
- Check input and discharge chutes, engine intake and exhaust. Make sure they are clear of debris prior to starting the machine.
- Inspect and secure all guards before starting.
- Have a fire extinguisher available for use should the need arise. Know how to use it.

- Do not touch hot engine parts, muffler cover, hydraulic hoses, engine body, engine oil, and so on during operation or if the engine was recently shut off. Contact may cause burns.
- Never expect a person who has not read and understood all operation and safety instructions to use the machine. An untrained operator is not qualified and is exposed to possible serious injury or death. It is the owner's responsibility to make sure to the operator has familiarity and understanding of the machine.
- Do not modify, disable, or change the roller feed safety / control bar in any way.
- Do not allow riders during transport.
- Do not risk injury or death by ignoring good safety practices.
- Think SAFETY! Work SAFELY!

2.4.1 Safe Condition

Throughout this manual, we talk about a '*Safe Condition*'. What this means is setting the machine in a state that makes it safe to service or repair.

Place the machine in a Safe Condition before performing any service, maintenance work or storage preparation by performing the following:

⚠ SAFE CONDITION

- Shut off engine. Remove ignition key.
- Make sure all moving parts have stopped.
- Disconnect battery ground (-) cable.
- Block or chock wheels.

2.4.2 Safety Training

- The best safety feature is an informed, careful operator—we ask you to be that kind of operator. It is the operator's responsibility to read, understand and follow ALL safety and operation instructions in the manual.

- Train all new personnel and review instructions frequently with existing workers. Only properly trained and physically able operators should use this equipment. **A person who has not read and understood all operation and safety instructions is not qualified to use the machine.** Untrained operators expose themselves and bystanders to possible serious injury or death. If elderly people are assisting with the work, their physical limitations need to be recognized and accommodated.
- Learn the controls and how to stop the machine quickly in an emergency.
- If this machine is loaned or rented, it is the machine owner's responsibility to make certain that every operator:
  - Reads and understands the owner's manual
  - Is instructed in safe and proper use of the equipment

2.4.3 Be Prepared

- Wear appropriate personal protective equipment. Tie back long hair, remove jewelry, and avoid loose fitting clothing. Prolonged exposure to loud noise can cause permanent hearing loss! Wear hearing protection on a full-time basis when using this machine.
- Determine where chips are piled and ensure the location does not interfere with safe operation of the machine.
- Determine a safe work area location:
  - Area must be clear of stones, branches or hidden obstacles that might cause a tripping, hooking, or snagging hazard
  - Ground should be firm and level
- Be aware of overhead hazards such as branches, cables, or electrical wires.
- Operate only in daylight or good artificial light.
- Make sure machine is properly adjusted and in good operating condition.
- Store fuel well away from the material pile.

2.4.4 Operating Safety

Read and obey the safety signs on the machine. Clean or replace them if they are not legible.

There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices. This machine must be used with all its safety equipment properly installed to minimize the chance of accidents.

- When operating this equipment always have at least two workers present and trained in safe operation of the machine.
- Do not overreach into the hopper. Always keep proper balance and footing.
- Feed rollers can cause serious injury or death. Keep hands, feet, and clothing away from the feed roller.
- Never allow anyone to sit on the feed table.
- Do not put metal objects, bottles, cans, rocks, glass, or other foreign material into wood chipper. If such items happen to get into the chipper, stop machine and turn engine off. Wait for all moving parts to stop before removing material. Inspect machine for damaged or loose parts before resuming work.
- Make sure all guards, deflectors and shields are in place before starting and operating.
- Do not allow anyone within the work area during operation. Ejected wood chips can cause injuries. Keep children away.
- Never place any part of your body where it would be in danger if machine movement should occur during assembly, installation, operation, maintenance, repairing, unplugging, or moving.
- Inspect electrical harness, sensors, and controller to make sure they are in good condition before operating.
- Do not operate on hillsides or when working area is cluttered, wet, muddy, or icy to prevent slipping and tripping. Operate only on level ground.
- Position machine so prevailing winds blow engine exhaust fumes away from operator's station.
- Never use engine-powered machinery indoors. Gas engine exhaust contains toxic carbon monoxide, which cannot be smelled or seen. Breathing carbon monoxide can be lethal.
- Stop engine when leaving the machine unattended.

2.5 Equipment Safety Guidelines

- Never use equipment with safety shields removed. Keep all shields in place. If shield removal becomes necessary for repairs, reinstall the shield prior to use.
- Do not allow anyone other than a responsible, properly trained and physically able person to operate this machine. This equipment is dangerous to children and persons unfamiliar with its operation.
- Do not modify the equipment in any way. Unauthorized modification may result in serious injury or death and may impair the function and life of the equipment.
- Never exceed the limits of the machine. If its ability to do the job or to do it safely is in question—
  STOP IMMEDIATELY!

2.5.1 Transport Safety

- Comply with local laws governing safety and transporting of machinery on public roads.
- Do not exceed 50 mph (80 km/h) when towing this machine. Slow down for rough terrain and cornering.
- Do not transport or move the wood chipper with the engine running.
- Ensure all latch handles are secure.
- Be sure the trailer is hitched correctly to the towing vehicle and a retainer is used through the hitch mechanism.
- Always attach safety chains between the hitch and the towing vehicle. Cross the chains underneath the trailer tongue.
- Check wheel lugs and tighten if required. Inspect rims for damage.
- Inspect tires for cuts or damage. Check tire pressure and adjust if required.
- Ensure the stability jacks are raised and secured with the latch pin.

- Make sure tow vehicle is fitted with the correct size towing ball.
- Inspect all access panels and guards to ensure they are secured.
- Make sure fuel and hydraulic tank caps are on tight to prevent spills while transporting.
- Clean all debris off the chipper. Remove any tools or other loose items.
- Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
- Never allow riders on the machine.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, and so on.
- Watch for other traffic when near or crossing roadways.
- Before transporting, perform a walk-around inspection to ensure everything is safe.

2.5.2 Tire Safety

- Follow recommended tire pressure as indicated on tire sidewall.
- Failure to follow proper 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 proper equipment and experience to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.
- When replacing worn tires, make sure they meet the original tire specifications. Never install undersized tires.

2.5.3 Battery Safety

⚠ CAUTION!

Risk of burns! Battery electrolyte is extremely corrosive and poisonous. Contact with the eyes, skin, or clothing can result in severe burns or other serious personal injury. If contact occurs seek medical attention immediately. Handle batteries carefully.

W020

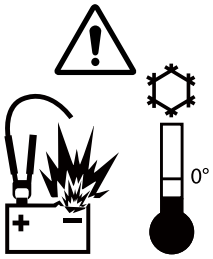
- Wear gloves and safety glasses or face shield when working on or near batteries.
- Avoid contact with battery electrolyte:
  - **External Contact:** Flush immediately with water.
  - **Eye Contact:** Flush with water for 15 minutes. Get prompt medical attention. Clean up any spilled electrolyte immediately.
- Avoid contact with battery posts, terminals, and related accessories, they contain lead and lead compound chemicals known to cause harm if ingested. Wash hands immediately after handling battery.
- Keep all sparks and flames away from batteries. Electrolyte fumes are explosive.
- To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of the electrical system.

⚠ CAUTION!

Risk of explosion or fire! Do not let metal objects come in contact with the battery terminals. Arcing can cause a fire or explosion. Cover terminals if working near batteries.

W021

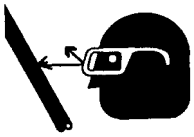
- Do not jump start or charge a frozen battery. Frozen batteries can explode and result in death or serious injury. Let battery thaw before charging.



2.5.4 Hydraulic Safety

- Make sure that all the components in the hydraulic system are kept in good condition and are clean.
- Before applying pressure to the system, make sure all components are tight, and that lines, hoses and couplings are not damaged.

- Do not attempt any makeshift repairs to the hydraulic lines, fittings, or hoses by using tapes, clamps, or cements. The hydraulic system operates under extremely high pressure. Such repairs can fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.



- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Relieve pressure in the hydraulic system before working on it.

2.5.5 Gas Engine Safety

⚠ CAUTION!

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

W019

- **DO NOT** operate engine in an enclosed area. Exhaust gases contain odorless and deadly carbon monoxide that can cause death by asphyxiation.
- **DO NOT** place hands or feet near moving or rotating parts.
- **DO NOT** store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
- **DO NOT** refuel indoors where area is not well ventilated.
- **DO NOT** refuel while engine is running. Allow engine to cool for five minutes before refueling. Store fuel in approved safety containers.
- **DO NOT** remove fuel tank cap while engine is running.
- **DO NOT** operate engine if gasoline is spilled. Move machine away from the spill and avoid engine ignition until gasoline has evaporated.
- **DO NOT** smoke while filling fuel tank.
- **DO NOT** choke carburetor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
- **DO NOT** run engine above rated speeds. This may result in injury.
- **DO NOT** tamper with governor springs, governor links or other parts which may increase the governed speed.
- **DO NOT** tamper with the engine as set by the original equipment manufacturer.
- **DO NOT** check for spark with spark plug or spark plug wire removed.
- **DO NOT** crank engine with spark plug removed. If engine is flooded, crank until engine starts.
- **DO NOT** strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.
- **DO NOT** operate engine without a muffler. Inspect periodically and replace, if necessary.
- **DO NOT** operate engine with an accumulation of grass, leaves, dirt, or other combustible materials in the muffler area.
- **DO NOT** use this 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 above 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 hot muffler, engine body or cooling fins. Contact may cause burns.
- **DO NOT** run engine with air cleaner or air cleaner cover removed.

Be sure to:

- Remove the wire from the spark plug when servicing the engine or equipment to prevent accidental starting. Disconnect the ground (-) wire from the battery terminal.
- Keep engine cooling fins and governor parts free of grass and other debris that can affect engine speed.
- Examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
- Use fresh gasoline. Old fuel can clog carburetor and cause leakage.
- Check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

2.6 Sign-Off Form

Anyone using this machine must read and thoroughly understand all Safety, Operation and Maintenance information in this manual. An untrained operator should never use this machine.

To help document this training, the sign-off sheet provided below can be used.

Make periodic reviews of Safety and Operation a standard practice for all operators. Review again at the startup of every season.

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

ISO 4254-1 Agricultural machinery – Safety

ASABE S318 Safety for Agricultural Field Equipment

ISO 3600 Operator's Manual – Machinery for Agriculture, Forestry and Lawn Equipment

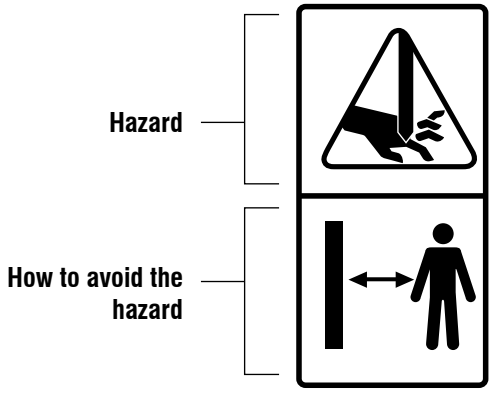
Sign-off Form		
Date	**Owner**	**Employee**

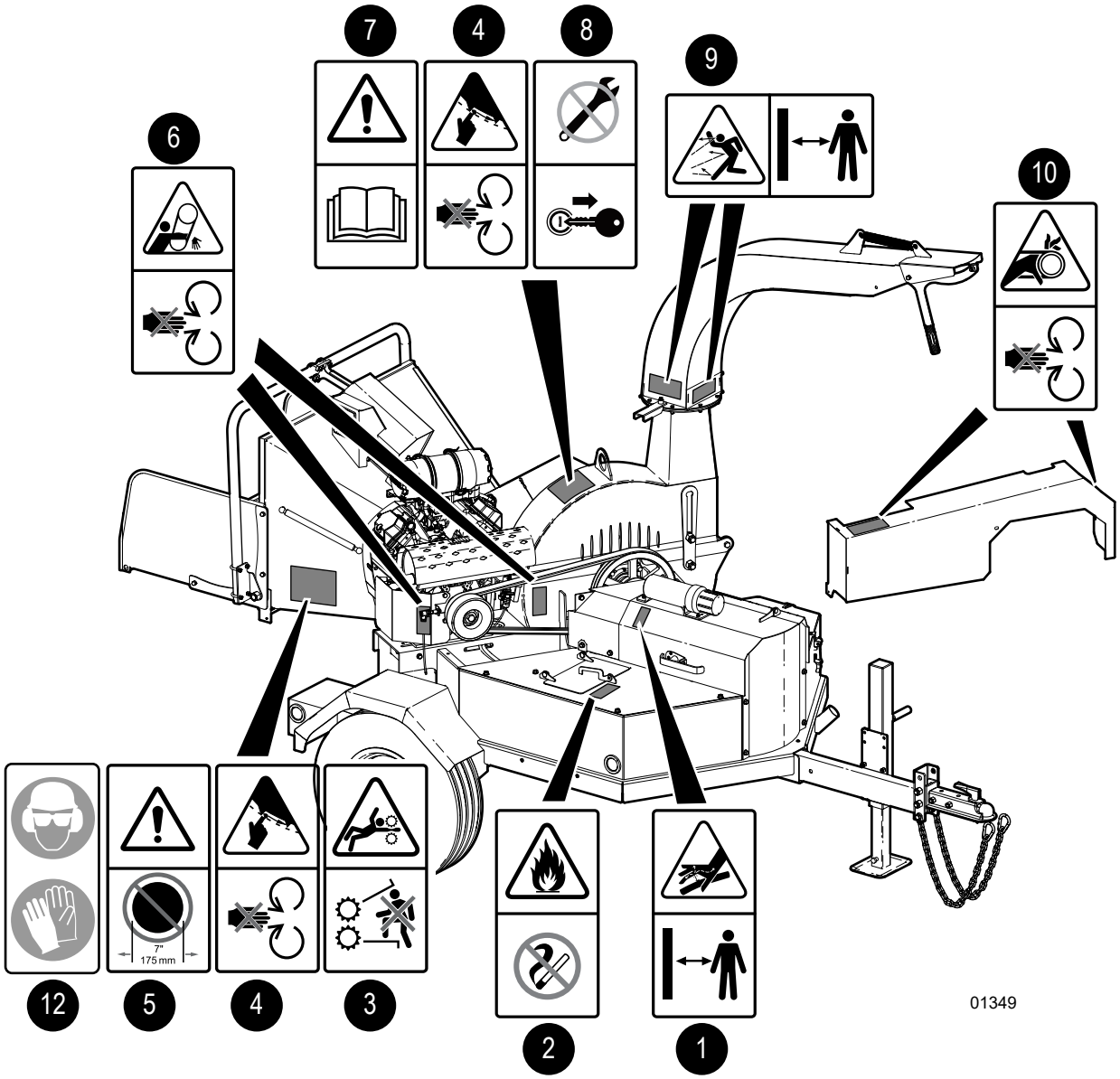
2.7 Safety Sign Explanations

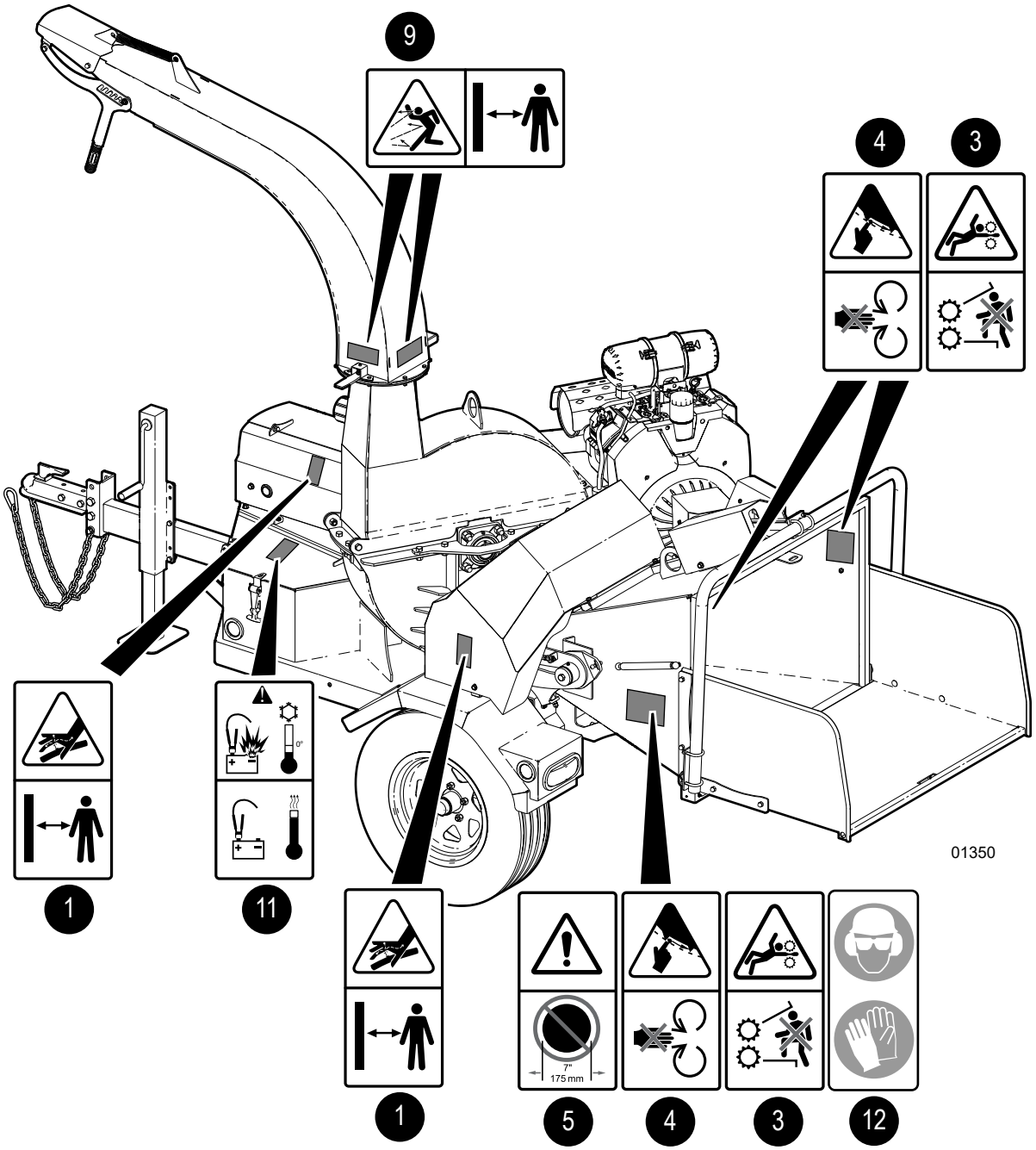
The top (or left-hand) panel on the safety decal shows the safety alert (the potential hazard), and the bottom (or right-hand) panel shows the message (how to avoid the hazard).

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

Think SAFETY! Work SAFELY!







1. Warning!

Risk of high-pressure hydraulic fluid piercing exposed skin.

Do not check for leaks with hand or fingers. Serious injury can result.

2. Warning!

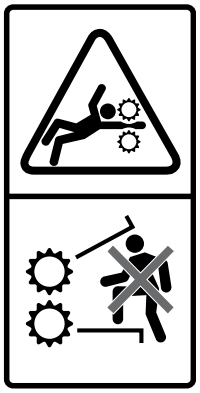
Risk of explosion.

Do not refuel the machine while smoking or near open flame or sparks. Serious injury can result.

3. Warning!

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

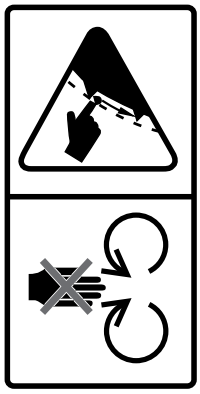
Do not attempt to reach in while parts are turning. Keep hands, loose clothing, and long hair away.



4. Warning!

Risk of serious injury. Keep hands and feet out of inlet and discharge openings while machine is operating.

Wait for all moving parts to come to a complete stop before clearing obstructions.



5. Caution!

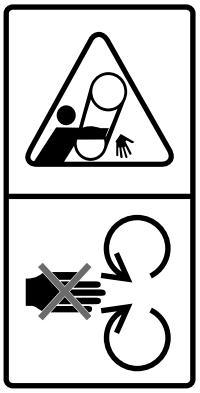
Risk of personal injury or equipment damage.

Do not put material larger than 7" (18 cm) diameter into the chipper. Attempting to chip anything larger could stall the engine, damage the machine or cause personal injury.

6. Caution!

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

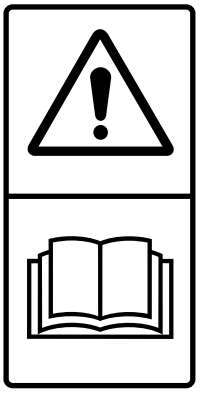
Do not operate machine without shields in place. If shield is removed, replace it before operating machine.



7. Caution!

Refer to the operator's manual. Read ALL operating instructions in the manual and learn the meaning of ALL safety signs on the machine.

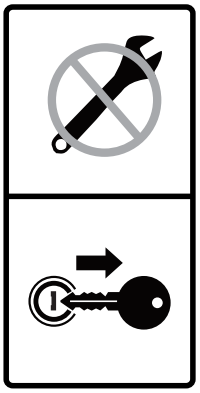
The best safety feature is an informed operator.



8. Caution!

Risk of serious injury or death if the engine is not shut off during maintenance procedures.

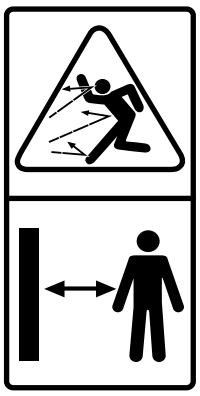
Shut off the engine and remove the key.



9. Caution!

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

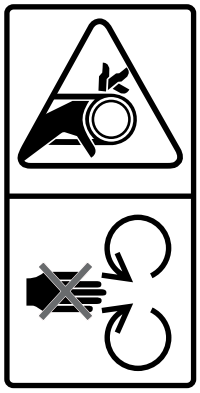
Do not point discharge at people, animals, or buildings.



10. Warning!

Rotating parts are exposed or under a guard. Do not attempt to reach in while parts are rotating.

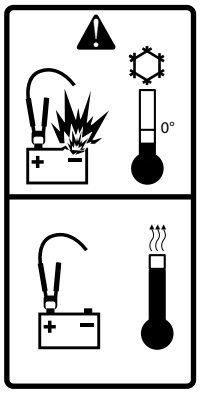
Keep hands, loose clothing, and long hair away. Serious injury can result.



11. Warning!

Risk of explosion.

Do not jump start / charge a frozen battery. Frozen batteries can explode and result in serious injury. Let battery thaw before charging.

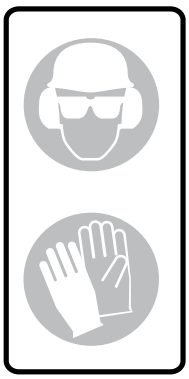


12. Warning!

PPE is required when operating this machine.

- A hard hat
- Hearing protection
- Protective glasses, goggles or face shield
- Protective shoes with slip resistant soles
- Heavy gloves

Failure to wear PPE can result in personal injury.



IMPORTANT! If parts are replaced that have safety signs on them, new signs must be applied. Safety signs must always be replaced if they become damaged, are removed, or become illegible.

Safety signs are available from your authorized dealer.

Replacing Damaged Safety Signs

- Always keep safety signs clean and legible.
- Replace safety signs that are missing or have become illegible.
- Parts that were replaced with a safety decal on them must also have the safety sign replaced.
- Replacement safety signs are available from your authorized Distributor, Dealer Parts Department, or Wallenstein Equipment.

Procedure

1. Be sure that the installation area is clean and dry.
2. Be sure temperature is above 50 °F (10 °C).
3. Determine exact position before removing from the backing paper.
4. Pull the decal off the backing sheet, align the sign over the specified area, then carefully press the exposed sticky backing in place.
5. Use a piece of the backing paper to smooth the decal out, pressing from the center outwards.
6. Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

3. Familiarization

3.1 To the New Operator or Owner

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions. Untrained operators are not qualified to use the machine.

1. Review control location, function and movement directions.
2. Move the unit to a large open area to allow the operator to become familiar with control function and machine response. When a new operator is familiar and comfortable with the machine, they can proceed with the work.
3. Do not allow untrained operators to use the machine. They can endanger themselves and others or damage property and the machine.

IMPORTANT! Make sure all operators understand how to put the machine in a safe service position before servicing or repairing. See *page 8.*

3.2 Job Site Familiarization

It is the responsibility of the operator to be thoroughly familiar with the work site prior to starting. Prevent the chance or possibility of problems or accidents by avoiding unsafe situations.

Some items operators should check include, but are not limited to:

1. Avoid close or cramped work spaces. Be sure there is enough space and clearance for the machine.
2. Position the machine so prevailing winds blow engine exhaust fumes and chain saw chips away from operator's station.
3. Choose flat and level ground and make sure the machine is level before operating.
4. Avoid muddy or soft ground as the trailer jack could sink. If unavoidable, use boards or plates to increase the surface area of the jack foot.

3.3 Operator Orientation

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

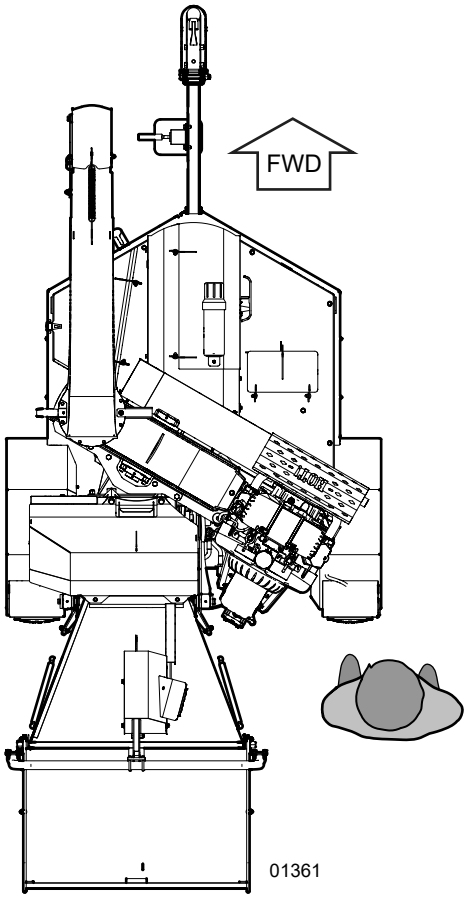


Fig. 2– Direction of Forward Machine Travel

3.4 Main Parts of the Chipper

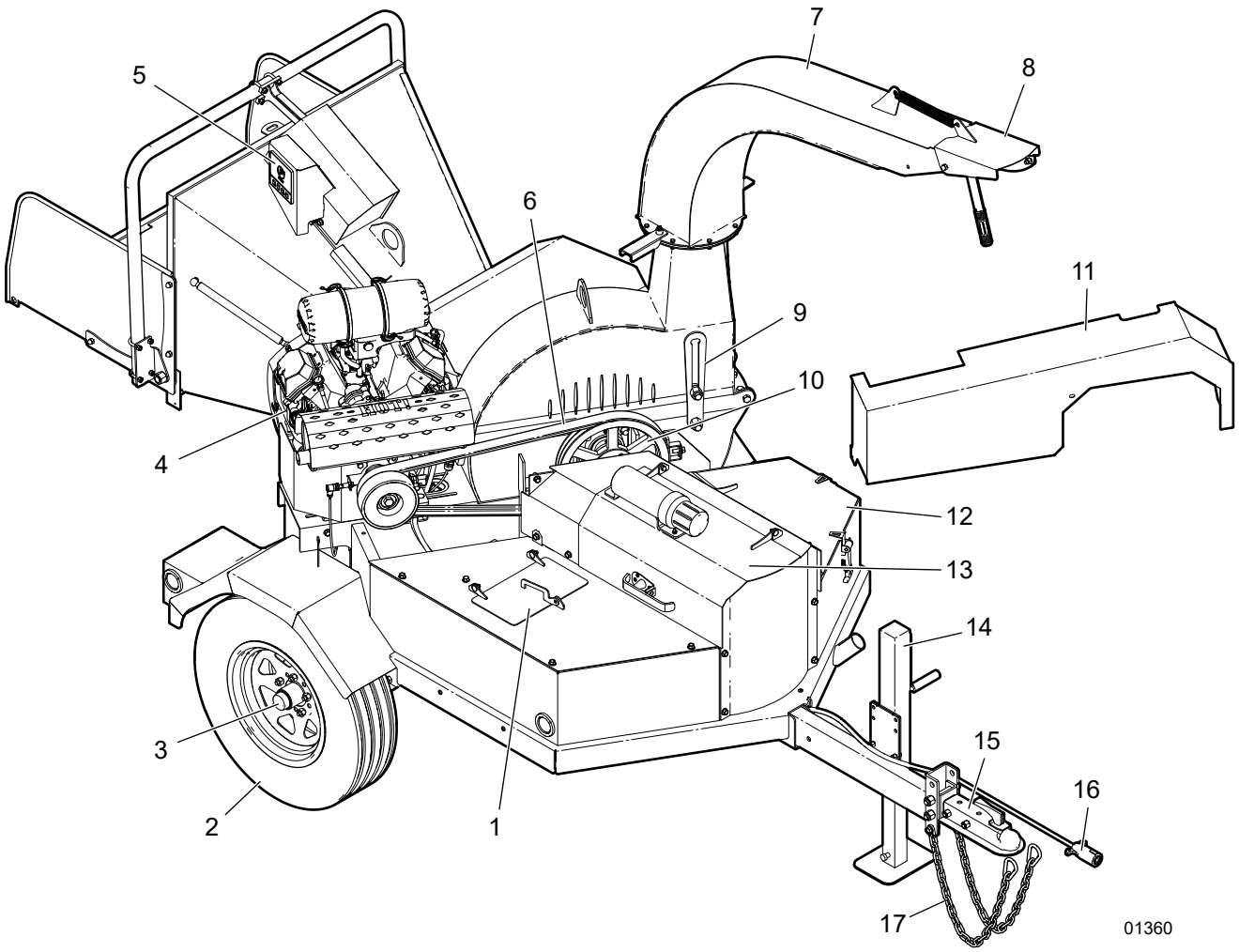
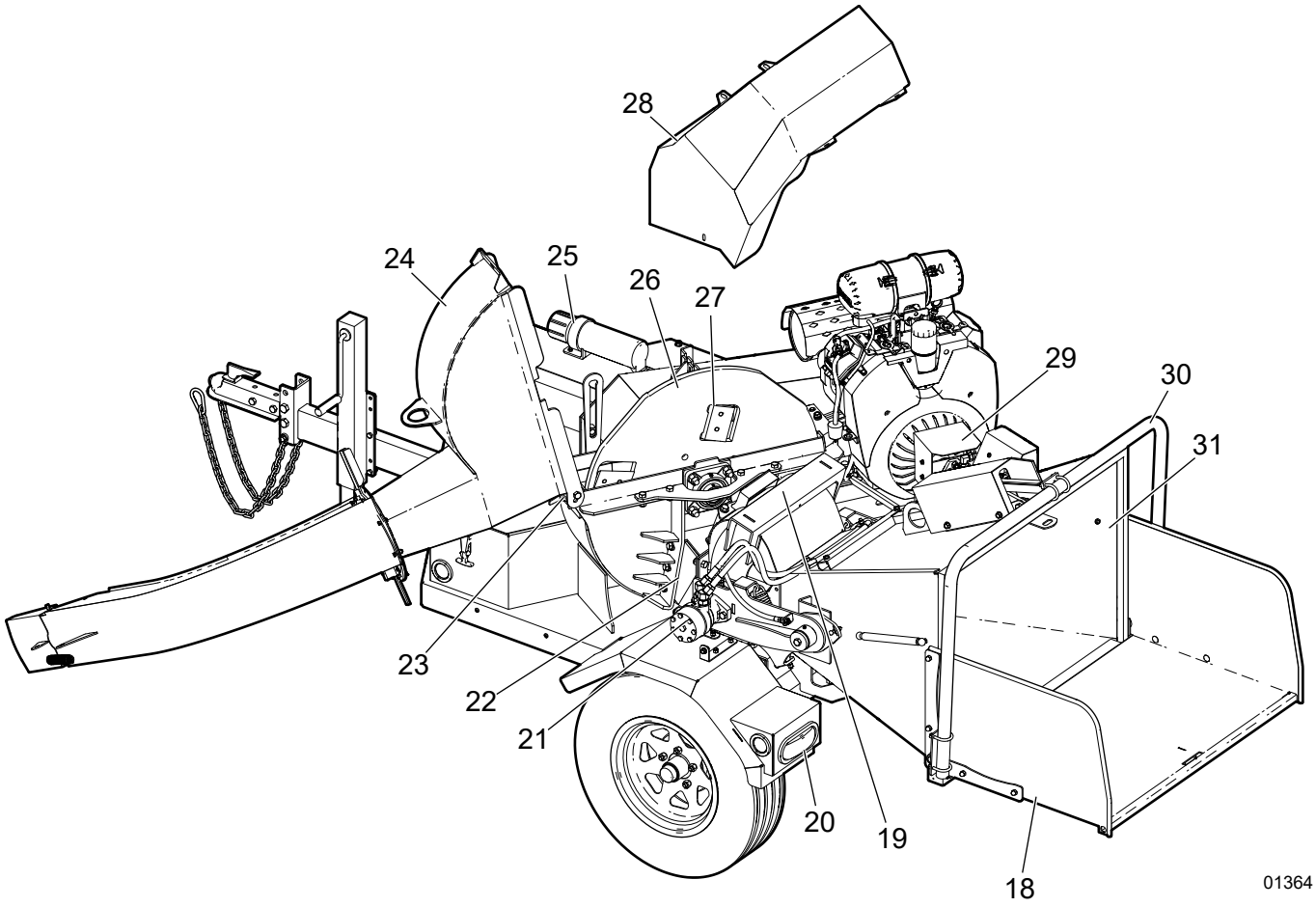
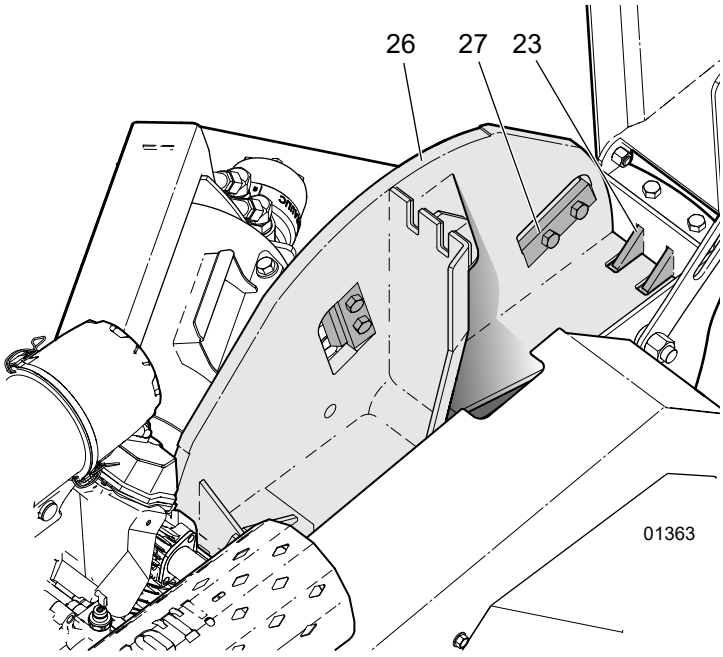


Fig. 3–BXTR6438

1. Fuel tank
2. ST205/75R14 LRC Radial Tires
3. Electric Brakes (Option)
4. Kohler® CH980 Engine
5. P3 Electronic Control System Display
6. Drive Belt
7. Discharge Chute
8. Hood Deflector
9. Upper Housing Rotation Stop
10. Rotor Sheave
11. Belt guard
12. Tool Box
13. Hydraulic Tank
14. Tongue Jack
15. 2" Coupler
16. Electrical Harness Plug
17. Safety Chains



18. Feed Table
19. Upper Roller Assembly Lift Handle
20. Stop / Tail / Turn Signal Light
21. Hydraulic Motor
22. Ledger Blade
23. Twig Breaker
24. Upper Rotor Housing
25. Operators Manual
26. Rotor
27. Rotor Blade
28. Bridge Guard
29. Hydraulic Pump
30. Feed Roller Control Bar
31. Feed Hopper



4. Controls

Review this section to become familiar with the location and function of each control before starting.

4.1 Engine

Always read the engine operator's manual supplied with the machine to familiarize yourself with its operating and procedure details.

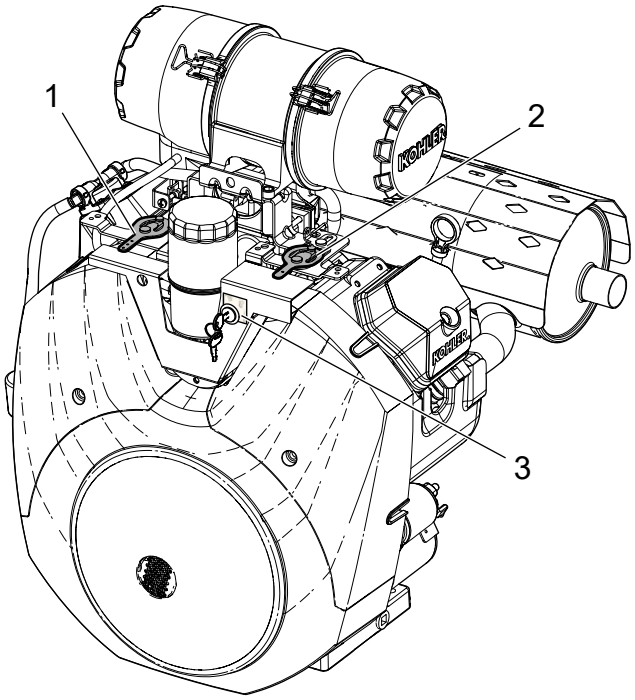


Fig. 4–Engine Controls

1. Engine Throttle
2. Choke Control
3. Ignition Switch

4.1.1 Ignition Switch

This key-operated switch controls the electric power to the engine. The switch has three positions—OFF, RUN, and START.

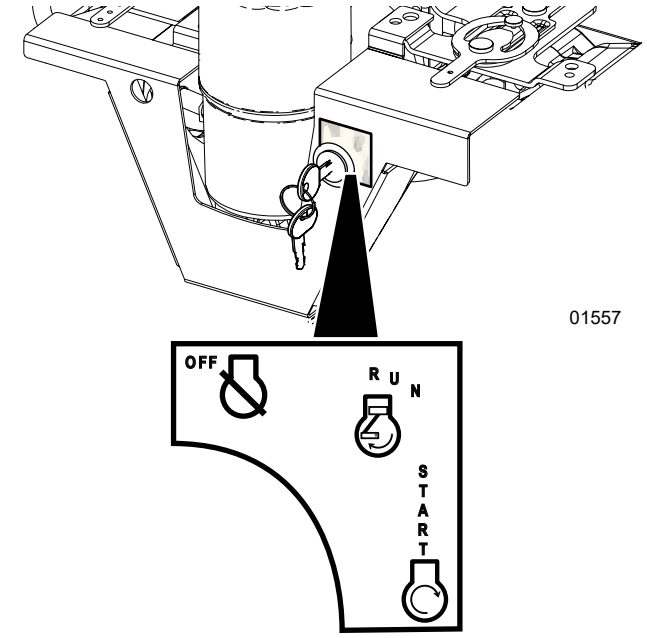


Fig. 5–Ignition Switch

OFF – Turn key fully counterclockwise to stop the electrical system power and turn the engine off.

RUN (ON) – Turn clockwise to the centre detent for the run position. This is the position where the engine operates. In a starting attempt, pause briefly at RUN to power up system electronics.

START – Turn fully clockwise to the last spring-loaded detent position to engage the engine starter. Release it the key switch returns to RUN.

4.1.2 Choke

This lever opens and closes the choke on the carburetor.

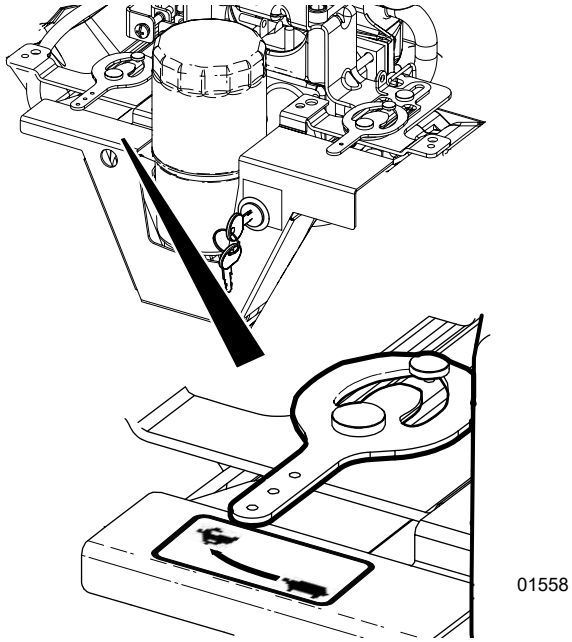


Fig. 6 – Engine Choke Control

- Slide the lever to the right to close the choke when starting a cold engine.
- Slide it to the left gradually to open the choke as the engine warms. Always slide the choke fully to the left when operating the machine.

4.1.3 Throttle

This lever controls engine speed.

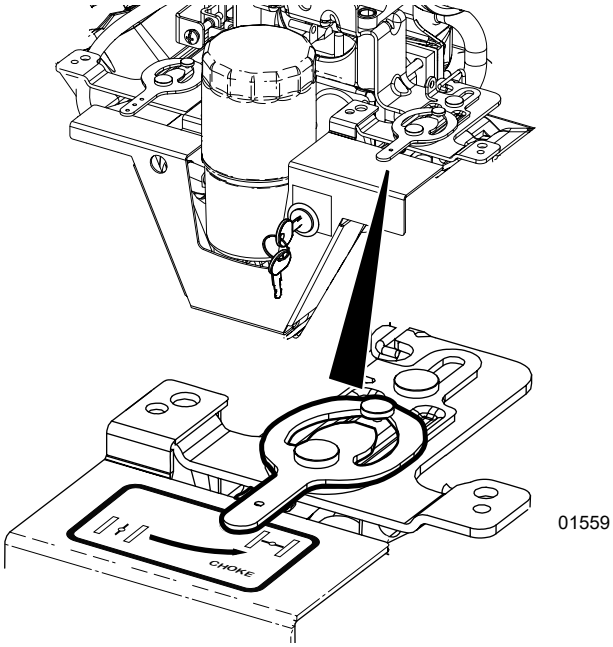


Fig. 7 – Throttle Control

- Slide the lever to the left to increase engine speed and right to decrease. Always operate the chipper at full engine speed.

4.2 Discharge Chute:

The discharge chute is designed with a spring-loaded latch handle that allows the chute to be positioned 360° then locked into position with the latch.

1. Lift the latch handle till the chute lock pin disengages.
2. Use the latch and grip handles to position the chute as required.
3. Release the latch handle and lock the chute into position at the next nearest lock point.

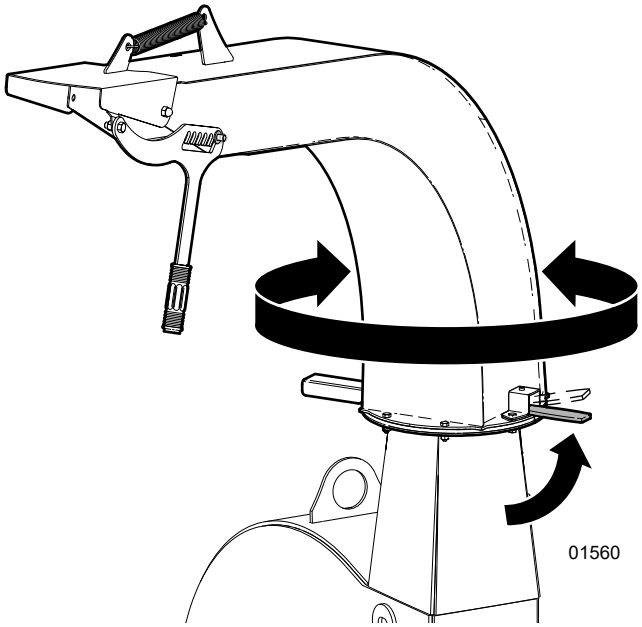


Fig. 8 – Adjusting Discharge Chute

4.3 Hood Deflector:

The discharge chute is equipped with a hood deflector on the end of the chute to direct the chips exactly where desired. The deflector is held in position by a slotted position handle.

1. Grasp the handle and lift slightly to clear the handle cogs.
2. Move the deflector with the handle as required.
3. Lock the deflector into position by lowering the handle into one of the slots.

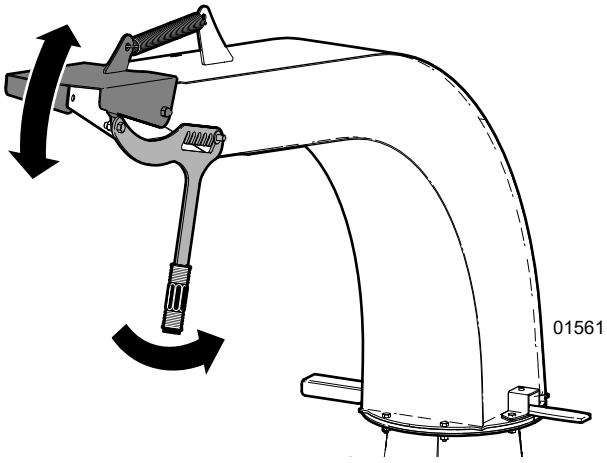


Fig. 9 – Adjusting Hood Deflector

4.4 Roller Feed Control Bar

WARNING!

Risk of serious injury or death. Keep hands, feet and clothing away from feed rollers when the chipper is operating. Do not climb onto the feed table or hopper.

W023

The Feed Roller Control Bar on the back of the hopper controls the material feed into the chipper. The control bar has four positions—**Stop**, **Forward**, **Reverse, Stop**. Decals on the side of the feed table indicate feed control bar operation.

The control bar can be moved freely between Forward and Reverse.

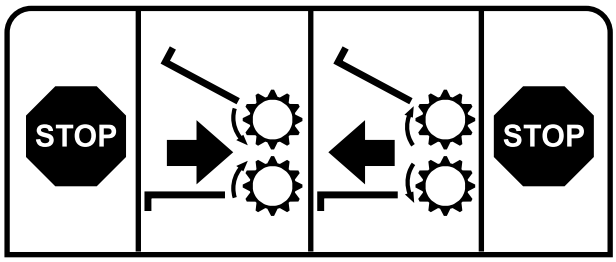


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Fig. 10–Feed Roller Control Bar Positions (RH side shown)

4.4.1 STOP Positions

Stop the feed rollers at any time by pushing the control bar fully forward or pulling it fully rearward.

- Push the control bar fully **forward** (towards the feed table) into the maximum detent position to stop the feed roller.

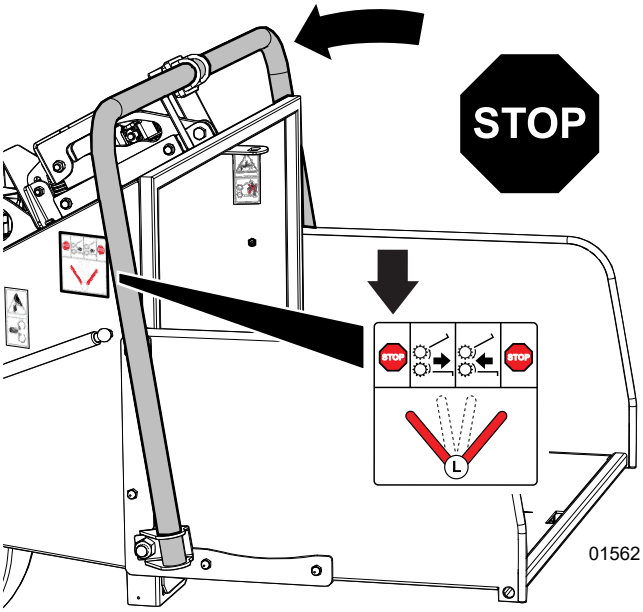


Fig. 11–Forward Stop Position

- Pull the feed roller control bar fully **rearward** (away from the feed table) to the maximum detent position to stop the feed rollers.

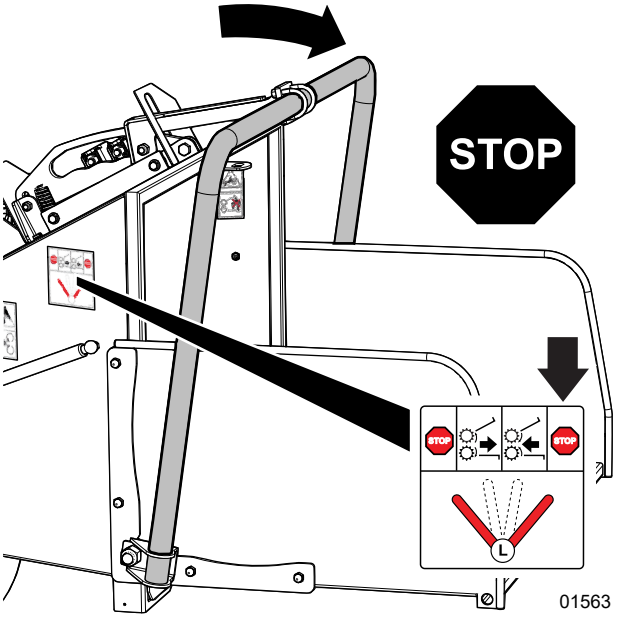


Fig. 12–Rear Stop Position

4.4.2 Forward – Feed material into Rollers

- Pull the feed roller control bar backward to the third detent position to start the forward feed. This is the normal operating position. The control bar stays in this position until moved.

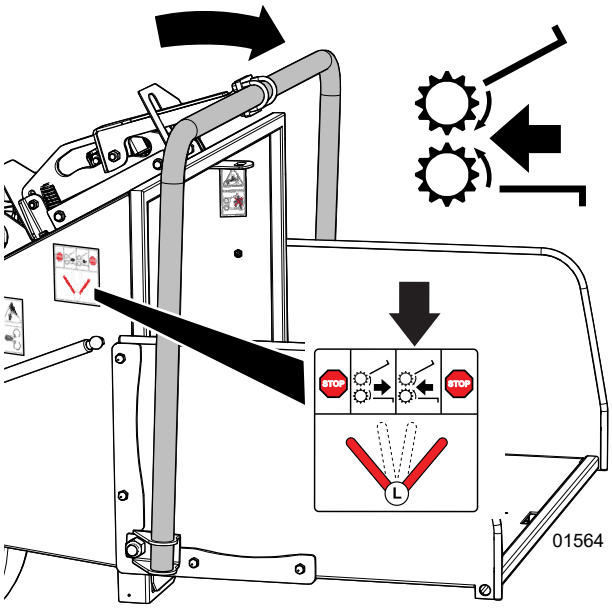


Fig. 13–Forward Feed

4.4.3 Reverse Feed Rollers

- Place the feed roller control bar in the second detent position to reverse the feed rollers.

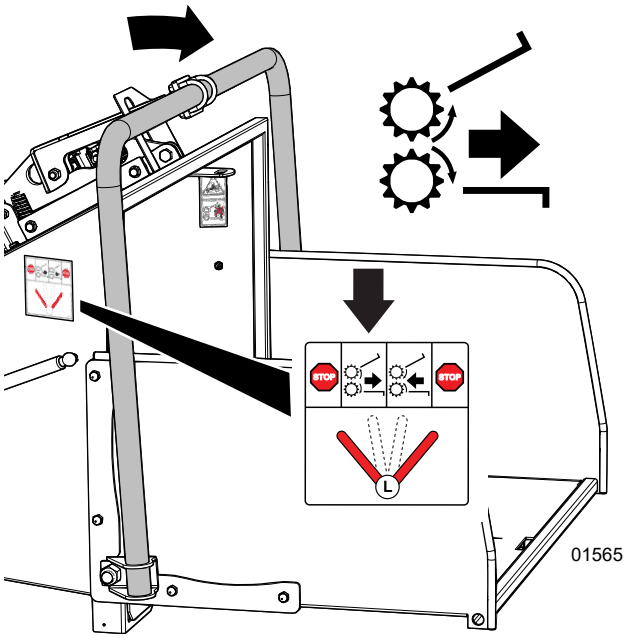
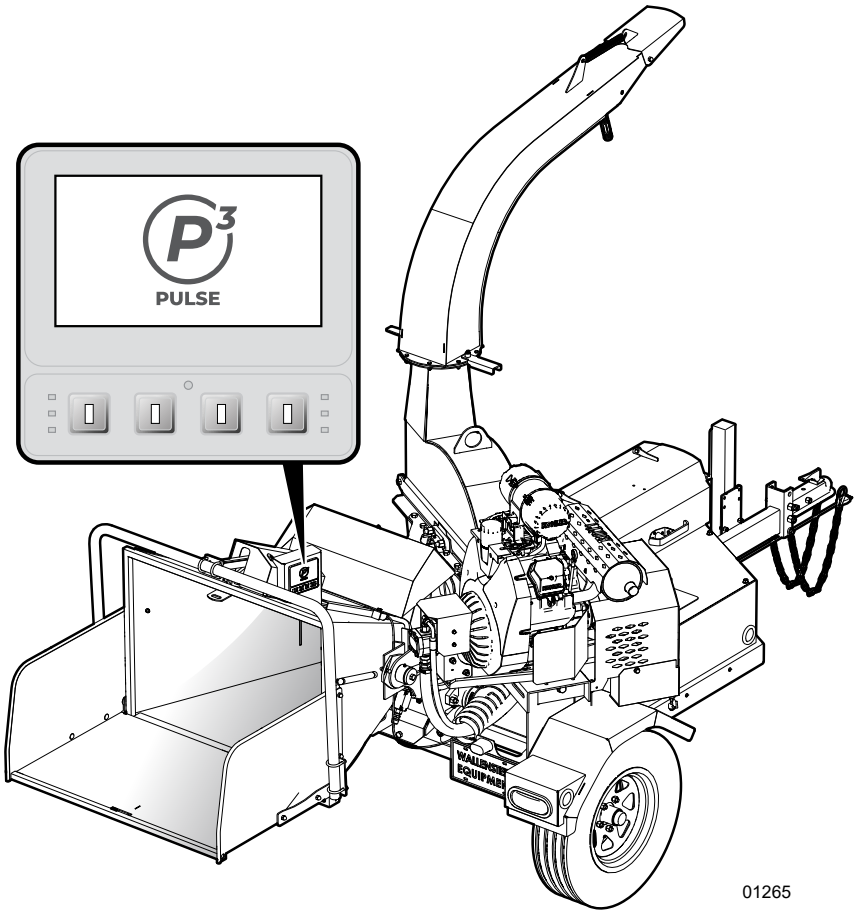


Fig. 14–Reverse Feed Rollers

NOTE: The feed roller control bar can move freely between Forward and Reverse.

4.5 P3 PULSE Electronic Control System

Software version 2.0.0



4.5.1 Overview

The Wallenstein P3 PULSE Electronic Control System optimizes the capacity of the chipper. Operators can adjust feed settings to customize chip size when chipping any type of material. P3 tracks rotor hours of operation and provides system diagnostics. In the unlikely event the rotor becomes jammed with material, P3 quickly stops the engine to prevent clutch burn out.

P3 keeps the chipper working in the peak working range by matching feed rate with rotor speed. As material is put into the chipper, a sensor on the rotor sheave continually monitors rotor rpm. If the rotor slows down under load, P3 slows the feed roller speed allowing the rotor to recover. If it slows below the minimum rotor speed setting, P3 auto-reverses the feed rollers preventing a stall out. Wood material is then pulled away from the rotor giving it the opportunity to regain speed. Once back at operating rpm, the feed rollers start feeding material into the chipper again.

P3 PULSE consists of a rugged, user-friendly 4.3" (109 mm) display and electronic controller. From the display, the user can see all the important operating parameters. These parameters are set up depending on machine model.

Navigating through the menus is done with the four soft keys below the display screen. Icons in the display above the soft keys indicate menu selection options.

IMPORTANT! Graphical display and controller are not serviceable. Return to the factory in the event of failure.

4.6 Display

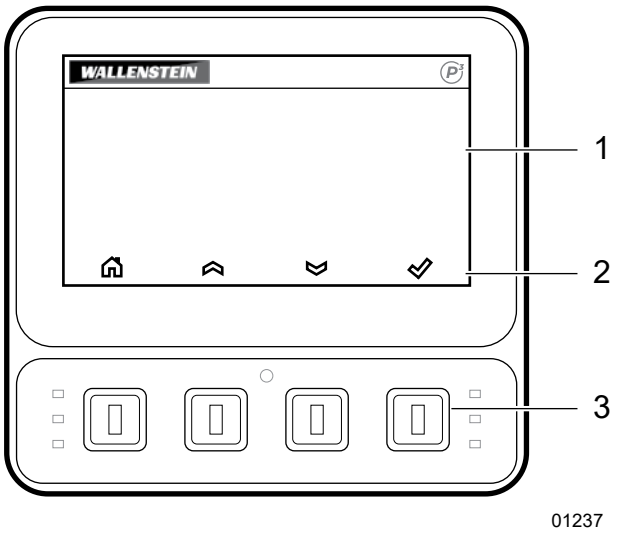


Fig. 15–P3 PULSE Display

1. Display Screen

The display screen is part of the P3 PULSE electronic control system display. The screen is an anti-glare coated, 4.3 in (109 mm) color display. The machine is controlled using the soft key navigation buttons.

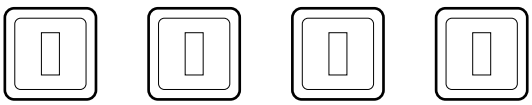
2. Soft Key Icons

These icons are displayed directly above the soft key navigation buttons. They indicate the current selection options and are only shown when a selection is available.

- Settings
- Home
- Up arrow
- Down arrow
- Select (enter)
- Cancel

3. Soft Key Navigation Buttons

Use the four context-dependent soft keys located on the front of the display to navigate through the information and configuration screens.



4.7 Start-up Screen

The start-up screen briefly displays the P3 PULSE™ logo when the key is turned ON.

NOTE: Machine model is selected by the manufacturer or dealer to set the default P3 PULSE operating parameters.

4.8 Display Screens

Main screen

The Main screen is the default screen that is displayed when the ignition key is in the ON position. Pressing the soft key below *Home* on any screen opens the Main screen.

If the display is left unattended (approximately 60 seconds), the system returns to the Main screen.

The Main screen displays:

1. Feed Position

Feed roller drive position is displayed with colored icons to indicate direction.

REVERSE	REVERSE (red arrows) – feed rollers are reversing. Material in the rollers is pulled back, away from the rotor.
NEUTRAL	NEUTRAL (amber) – feed rollers are stopped.
FORWARD	FORWARD (green arrows) – feed rollers are going forward. Material in the rollers is pushed into the rotor.
LOW RPM	LOW RPM (green arrows) – with the feed control bar in Forward, the feed rollers are not moving because rotor rpm is too low for chipping. When the engine speed increases above the minimum start speed and the feed rollers start to move, FORWARD is displayed.

2. Rotor Speed (rpm)

Displays the speed (revolutions per minute) the rotor is turning. A value of 0000 indicates the rotor is not turning.

3. Hours

Counts the total operating hours of the rotor. (Engine hours are displayed on the hour meter beside the ignition key. Use the engine hours as a service interval guide.)

4. Settings

Press the soft key below *Settings* to open the **Settings Menu** screen.

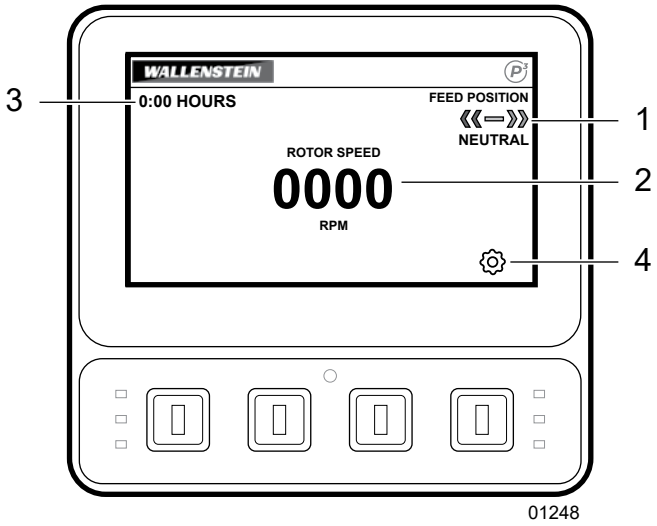


Fig. 16–Main screen

Settings Menu screen

On the **Main** screen, press the soft key below ⚙ *Settings* to open the **Settings Menu** screen. Use this screen to select a settings option. All settings are retained when the machine is shut down.

The Settings Menu screen includes:

- FEED SETTINGS – Opens the Feed Settings screen (see *page 28*) to set the maximum or minimum feed roller speed, feed roller start speed, or minimum feed rotor speed.
- RESET DEFAULTS – Opens the Reset Defaults screen (see *page 30*) to confirm that you want to return all settings to the factory default values.
- DIAGNOSTICS – Opens the Diagnostics screen (see *page 30*) to see an overview of the machine operating parameters (for example; feed roller position, rotor speed, solenoid valve current, or current feed settings).
- ENTER PASSWORD – This is for use by Wallenstein technicians and dealers.

Open a screen:

1. Use the soft key below the ⌃ *Up arrow* or ⌄ *Down arrow* to scroll through the menu options. The active selection is highlighted.
2. Press the soft key below ✓ *Select* to open the highlighted screen.

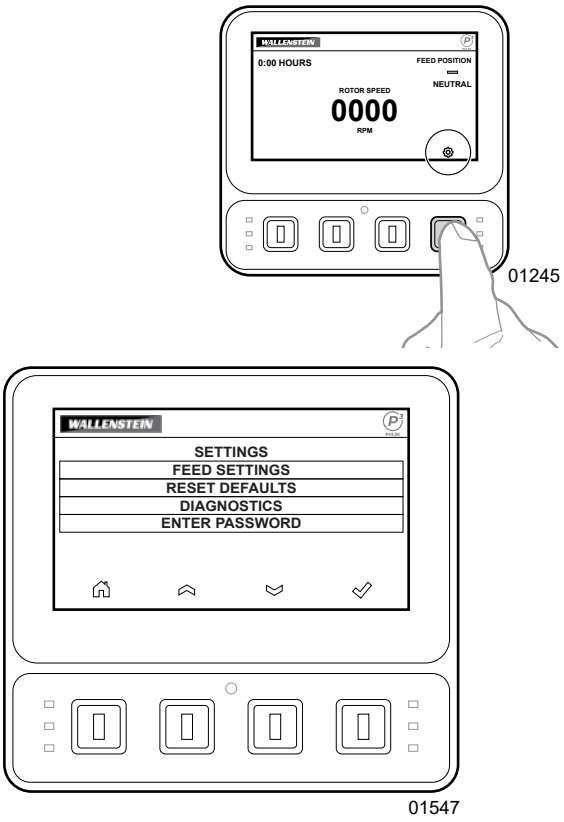


Fig. 18 – Settings Menu screen

Feed Settings screen

The **Feed Settings** screen provides access to the four main P3 PULSE program settings. The active selection is highlighted.

The initial selection is MAX FEED SPEED.

Change settings:

1. If required, press the soft key below the ⌃ *Up arrow* or ⌄ *Down arrow* to change the setting number.
2. Press the soft key below ✓ *Select* to save the displayed number and select the setting to the right.
3. Repeat Steps 1 and 2 three times to change the settings, as required, and return to **Settings Menu** screen.

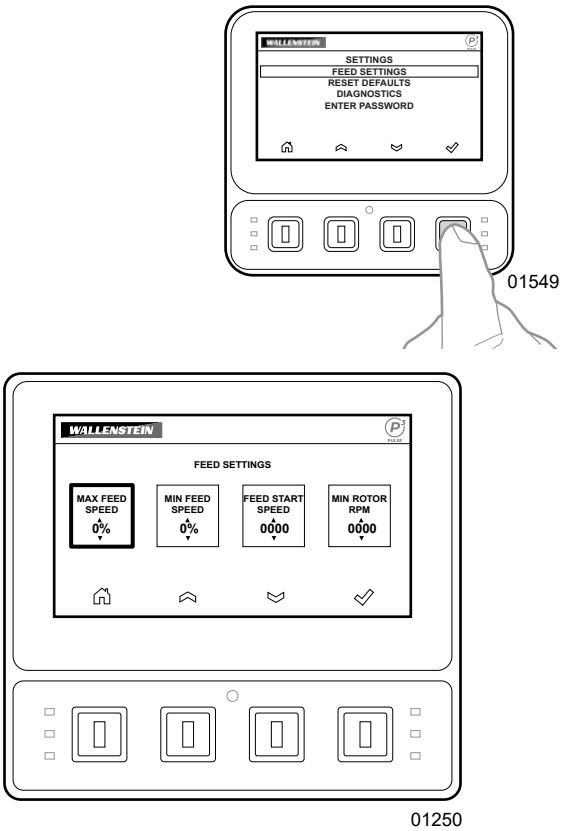


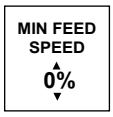
Fig. 17 – Feed Settings Screen

Max Feed Speed

Sets the maximum (max) feed roller speed in 5% increments. The value is shown as a percentage of the maximum speed (100%).

- Set MAX FEED SPEED higher for larger chip size. It can be set and left at 100%.
- Set MAX FEED SPEED lower (close to the MIN FEED SPEED) for smaller consistent chip size.

Min Feed Speed



Sets the minimum (min) feed roller speed in 5% increments. The value is shown as a percentage of the maximum speed (100%). Setting the MIN FEED SPEED higher provides a larger chip size and prevents the chipper from slowing up as much when wood is put through.

The MIN FEED SPEED cannot be set higher than 5% below the MAX FEED SPEED.

Feed Start Speed

Sets the rpm point where the feed rollers start up.

Min Rotor rpm

Sets the low rpm point where the feed rollers auto-reverse. If the rotor speed slows down under load below this setting, the P3 PULSE auto-reverses the feed rollers. Once the rotor regains speed, forward feed resumes. If the engine stalls out, MIN ROTOR RPM is set too low.

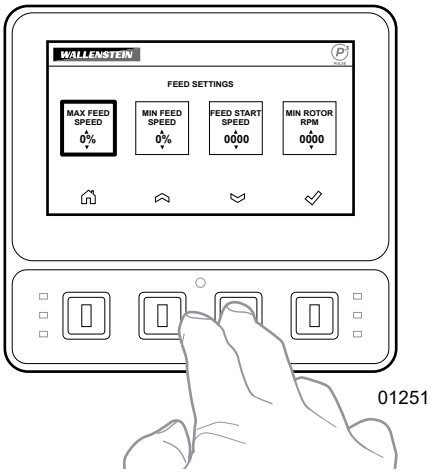


Fig. 19–Select a setting

Performance Hints

The factory settings provide good overall performance for the machine; however, you may choose to customize performance.

Some helpful hints:

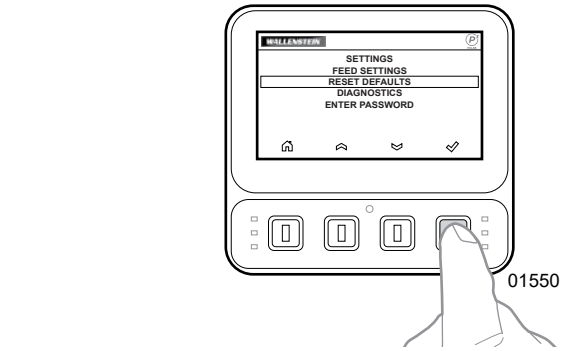
- For very heavy brush – decrease MAX FEED SPEED to slow the feed roller speed.
- For smaller, consistent chip size – decrease MAX FEED SPEED closer to MIN FEED SPEED.
- For larger chip sizes and more aggressive feeding – Leave MAX FEED SPEED at 100% and raise MIN FEED SPEED.

Reset Defaults screen

The Reset Defaults screen provides the option to return the P3 PULSE setup parameters to the factory settings or cancel and keep the current settings.

Complete one of the following:

- To cancel and return to the **Settings Menu** screen without changing the current settings, press the soft key below ✕ *Cancel*.
- To reboot the P3 PULSE and reset the system to the factory default settings, press the soft key below ✓ *Select*.



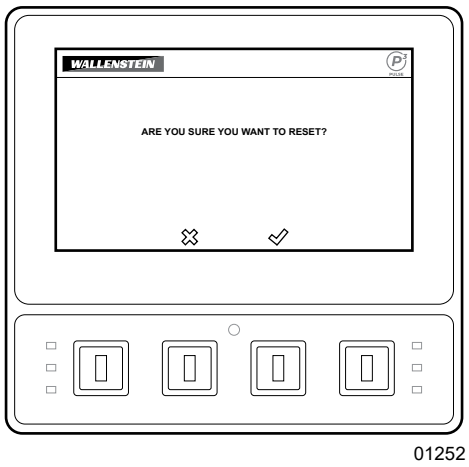


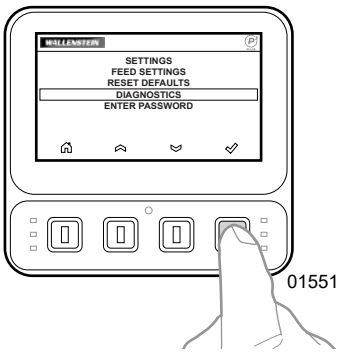
Fig. 20 – Reset Defaults screen

Diagnostics screen

The Diagnostics screen is typically used by technicians for debugging and testing purposes. However, during operation you can observe all the machine parameters on this screen.

The Diagnostics screen displays the following information:

- ENGINE RPM (for example; 3600).
- Machine model (for example; BXTR5224).
- Current state of the feed roller drive (for example; NEUTRAL).
- ROTOR SPEED – the speed (rpm) the rotor is turning. 0000 indicates that the rotor is not turning.
- VALVE CURRENT – the electrical current (amperes) supplied to the forward solenoid on the control valve. 0000 indicates that no electrical current is being received.
- Current feed settings that are available on the Feed Settings screen (see *page 28*).
- Controller software version (for example; CV:2.0.0).
- Display software version (for example; DV:2.0.0).



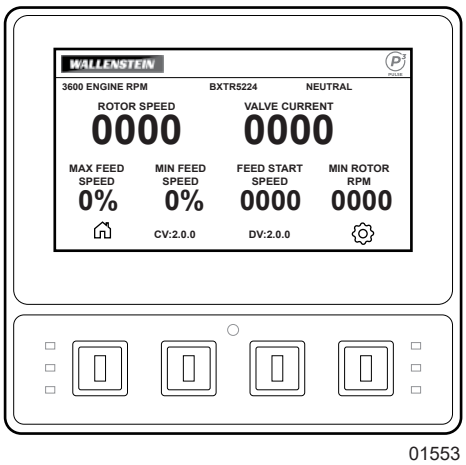


Fig. 21 – Diagnostics screen

4.9 Ball Hitch 2-5/16"

(As equipped)

4.9.1 Coupling for transport

1. Make sure all bystanders are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Use the trailer jack to raise the tongue above the height of the tow vehicle ball hitch.
4. Slowly back the tow vehicle until the coupler on the hitch and ball are aligned.
5. Attach the ball hitch:
   - Place the coupler over the ball on the hitch.
   - Turn the hand wheel clockwise until it is snug and the hitch ball is secure.
   - Crank the jack up.
6. Cross safety chains under the trailer tongue and attach securely to the tow vehicle.
7. Connect the wire harness plug to the tow vehicle. Make sure there is provide slack for turning.
8. Check to be sure turn signal, marker and brake lights are functioning.

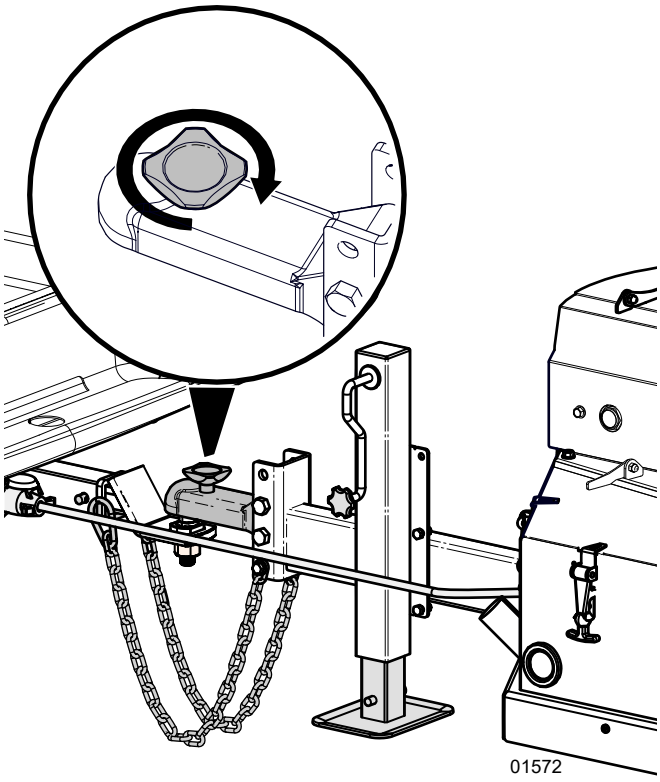


Fig. 22 – Trailer Hook-up

4.9.2 Adjustable Height

The height of the hitch coupler can be adjusted when using a different tow vehicle to haul the chipper.

Lower the trailer jack. Place wheel chocks at the chipper wheels to prevent unexpected movement of the chipper. Disconnect from the tow vehicle.

1. Remove the two bolts and nuts that fasten the coupler to the hitch ladder.
2. Move the coupler to the desired position
3. Reinstall the bolts and nuts. Torque to 160 ft•lb (215 N•m).

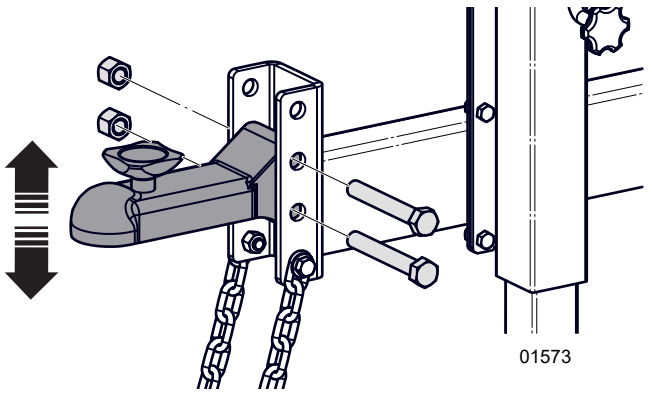


Fig. 23 – Adjust Hitch Coupler height

5. Operating Instructions

CAUTION!

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

W016

The operator has the responsibility of being familiar with and following all operating and safety procedures.

When operating this equipment always have at least two workers present and trained in safe operation of the machine.

Although this machine is easy to use, each operator should review this section to get familiar with the detailed safety and operating procedures.

5.1 Before Startup

1. Check the engine oil level. See *page 33.*
2. Check the hydraulic oil level. See *page 35.*
3. Check the fuel level. See *page 34.*
4. Review the Safety Rules on *page 8*.
5. Clear the area of bystanders.
6. Make sure each operator is trained and familiar with the set up and operation of the wood chipper.
7. Perform the Pre-start checks.
8. Review the Controls (see *page 20*).
9. Survey the work site and place the chipper in a clear, level work area.
10. Set up the machine correctly. See Machine Setup *page 36*.

5.2 Pre-start Checks

Check the following each time the wood chipper is used:

Area to Check	✓
Check the machine has been lubricated following the schedule outlined in the Maintenance section.	
Check the tension and alignment of the belts. Adjust as required.	
Check the rotor housing and discharge chute. Remove any blockages, twine, wire or other material that has become entangled.	
Check the condition and clearance of the twig breaker, rotor and stationary blades. Adjust or replace as required.	
Check condition of the battery and other electrical components. Keep all components in good condition.	
Check for hydraulic leaks. Tighten connections or replace components to stop leaks.	
Check and ensure that all covers, guards and shields are in place, secured, and can function as designed.	
Check that all bearings are properly greased. Replace if they do not turn freely.	
Check and inspect tires, wheels, and hubs.	
Check hydraulic fluid level. Top level up as required.	
Check and tighten all fasteners. Make sure the equipment is in good condition.	

5.3 Machine Break-In

Although there are no operational restrictions on the wood chipper when used for the first time, it is recommended that the following mechanical items be checked:

After 1–5 hours of operation:

1. Review the engine operator's manual for break-in information.
2. Inspect the axle, tires, and wheel hubs. Check wheel nut torque.
3. Check tire pressure. Inflate as required.
4. Check sheave alignment. Re-align if required. See *page 54.*
5. Check belt tension. Adjust if required. See *page 52 and page 53.*
6. Visually check condition of rotor bearings.
7. Check the condition and clearance of the twig-breaker, rotor and ledger blades. Adjust as required.
8. Check for entangled material. Remove all entangled material before resuming work.
9. Check condition of electrical and hydraulic components. Keep all components in good condition.
10. Check all fluid levels. Top up as required.
11. Check torque on fasteners and hardware.

After 8 hours of operation:

12. Repeat all previous steps.
13. Check wheel bolt torque after 20–25 mi (32–40 km). Regularly check weekly.
14. Perform all the checks in the Pre-start checks. See *page 32.*

5.4 Engine Oil Level Check

Check engine oil level daily. Check with the machine parked on level ground and the engine stopped.

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

1. Make sure the engine is stopped, level, and is cool so the oil has had time to drain into the sump.
2. Clean the area around the dipstick before removing it. This helps to keep dirt out of the engine.
3. Remove the dipstick and wipe oil off. Reinsert the dipstick into the tube until fully seated.
4. Remove dipstick and check oil level. The level should be between the **F** and **L** marks. If low (L), remove the oil fill cap (2) and add oil of the proper type up to the **F** mark. Reinstall oil fill cap and dipstick.
   SAE 10W-30 is recommended for general use.

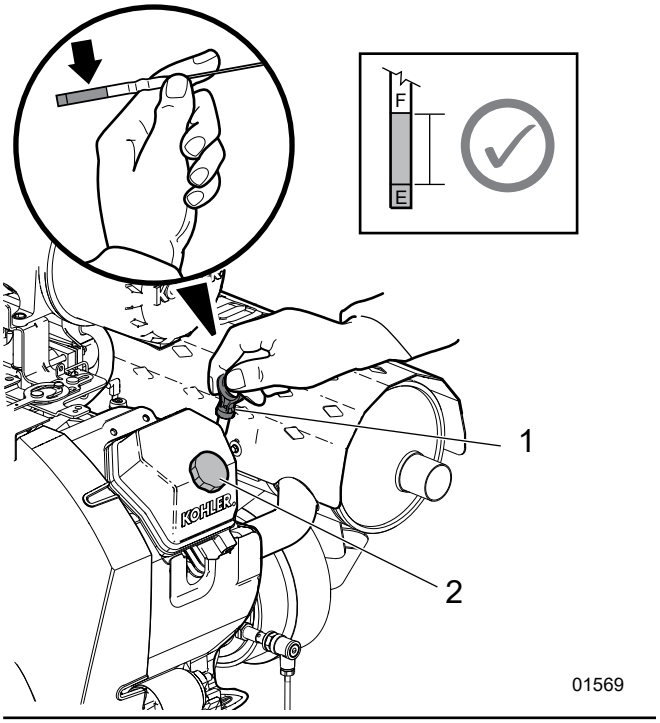


Fig. 24– Checking Engine Oil Level

1. Oil Level Dipstick
2. Oil Filler Cap

Refer to the engine owner's manual included in the manual tube for further information on engine oils.

5.5 Fuel Level Check

The fuel tank is in front of the engine on the right-hand side of the machine. Volume is **9 US gal (34 L)**.

Avoid running the tank dry. Use the appropriate grade of fuel, and use caution to prevent spilling. **Do not smoke while refueling.**

IMPORTANT! Refer to engine manual supplied with this machine for fuel specification.

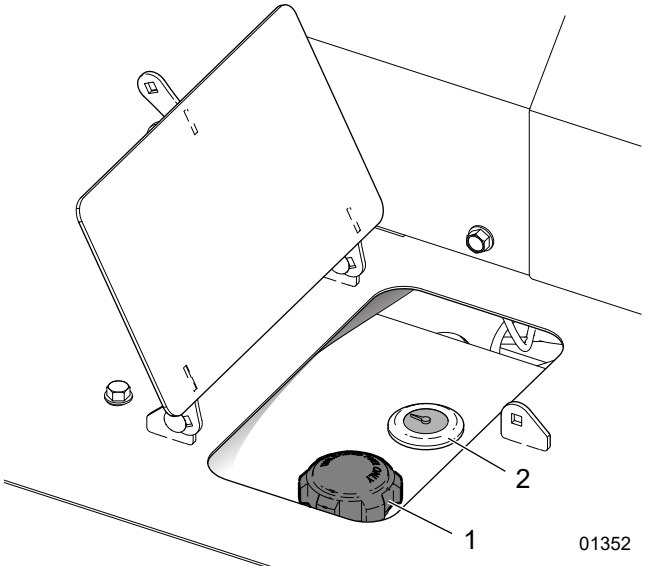


Fig. 25–Fuel Tank

1. Fuel tank cap
2. Fuel gauge

5.5.1 Refueling Safety

- **Engine fuel is highly flammable. Handle with care.**
- **Fill fuel tank outdoors.**
- **Stop the engine before refueling. Allow engine to cool for five minutes. Clean up spilled fuel before restarting engine.**
- **Do not overfill the fuel tank.**
- **If fuel is spilled, wipe it away carefully and wait until the fuel has dried before starting the engine.**
- **Do not refuel the machine while smoking or when near open flame or sparks.**

⚠ WARNING!

Fuel vapors can explode causing injury or death. Do not smoke while refueling. Keep sparks, flames, and hot components away.

W027

- **After refueling, make sure that the fuel cap is secured to prevent spillage.**
- **Prevent fires by keeping machine clean of accumulated trash, grease, and debris.**

To add fuel:

1. Allow the engine and muffler to cool.
2. Clean area around fuel compartment lid. Open it and remove cap.
3. Using a clean funnel, fill fuel tank to 1/2" (13 mm) below bottom of filler neck to provide space for any fuel expansion. Do not overfill.
4. Install fuel fill cap securely and wipe up any spilled fuel.

5.6 Hydraulic Oil Level Check

Check hydraulic oil level daily. The hydraulic oil tank is located on the front of the machine. There is a sight glass on the tank left-hand side to view oil level.

Check with the machine parked on level ground and the engine stopped.

The proper level is when the oil is visible in half the glass window. If the level is not visible in the sight glass, add oil.

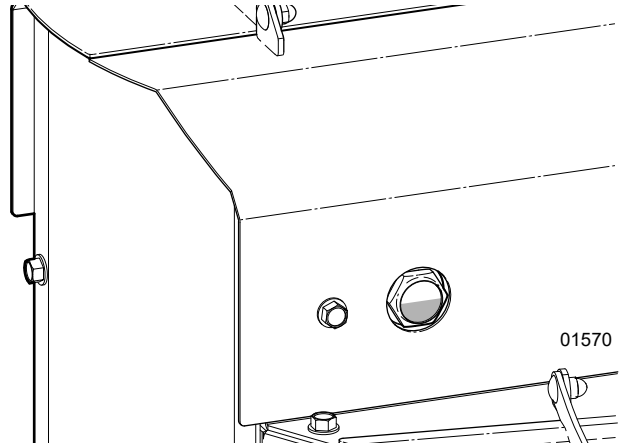


Fig. 26–Hydraulic Tank Oil Level Check

IMPORTANT! Do not operate machine if oil level is not visible in the sight glass. Damage to the pump and other components can occur.

Do not overfill the tank past the sight glass window.

IMPORTANT! Hydraulic oil quality should be inspected every 50 hours. If the oil is dirty or smells burnt, it should be replaced.

IMPORTANT! Be aware of high oil temperatures. Temperatures higher than 180 °F (82 °C) could cause seal damage and degrade oil quality.

5.6.1 Adding Oil to the Tank

The hydraulic system uses **Dexron® III ATF**.

1. Clean the area around filler cap and remove it.
2. Use a clean funnel and add oil until the level fills half of the sight glass window.
3. Install filler cap securely. Wipe up any spilled oil.

Check levels after changing filters or servicing hydraulic components.

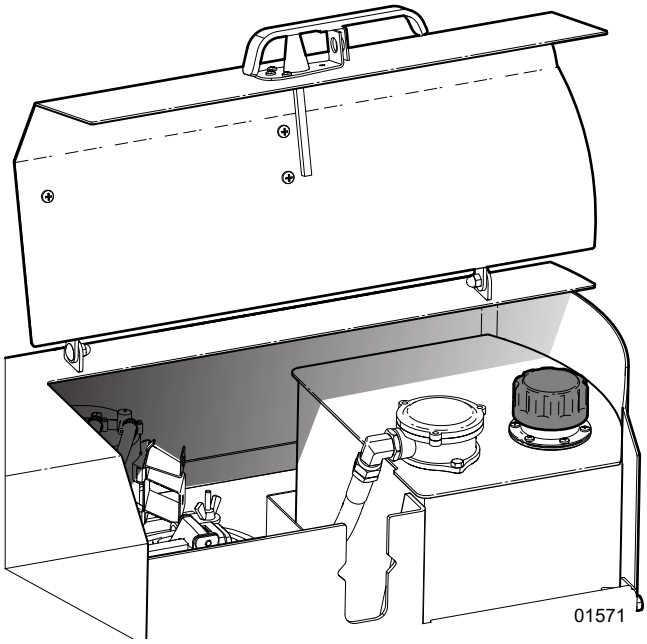


Fig. 27–Hydraulic Oil Tank Filler Cap

5.7 Machine Set-up

CAUTION!

Park the machine so prevailing winds blow exhaust gases / fumes away from the operator.

W006

CAUTION!

Risk of injury from ejected wood chips. Chipper rotor can expel wood chips fast enough to cause injury or damage.

Direct chute discharge away from work area, people, animals, and objects.

W024

Follow this procedure to prepare and set-up the machine at the work site:

1. Use the tow vehicle to position the Wood Chipper at the work site.
2. For greater stability leave your chipper attached to the tow vehicle. The chipper can be used as a stand alone, but be sure to chock the wheels.
3. Lower the crank jack so that the machine is stable.
4. Open the latch on the feed table and carefully lower the feed table.
5. Turn the discharge chute to the desired position and adjust the defector as required.
6. Check the battery cable and if required, connect the cable and tighten fastener securely to ensure a good connection.

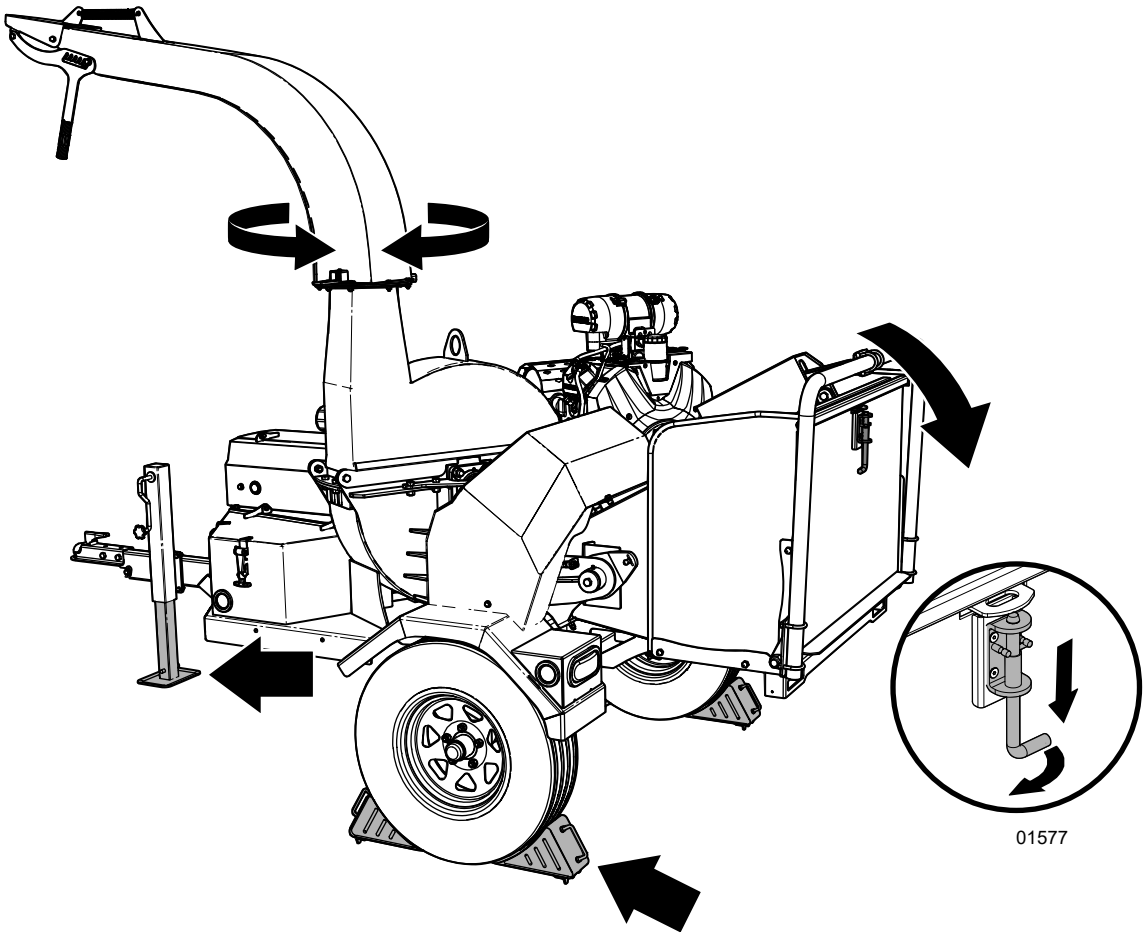


Fig. 28 – Setting Chipper up to Work

5.8 Starting Procedure

1. The Wood Chipper should be set up and ready to run.
2. Set park brake if connected to tow vehicle.
3. Lower the support leg stand.
4. Close the choke if the engine is cold.
5. Move the throttle to its 1/4 throttle position. (If the throttle is set any higher the centrifugal clutch could potentially engage and stall a cold engine.)
6. Turn the ignition key to RUN, then turn fully clockwise to Start to engage the starter. Release the key when the engine starts.

> In a starting attempt, pause briefly at RUN to power up system electronics.

7. Operate at low idle for a few minutes to allow the engine to warm.
8. Gradually open the choke.
9. Turn the discharge head to its desired position.
10. Slowly increase the engine speed to engage the rotor drive.
11. Increase throttle setting to maximum speed for operation.
12. Ensure that the rotor is up to speed, start feeding material into hopper.

5.8.1 Stopping:

1. Stop feeding material into the hopper.
2. Slow engine to idle.
3. Turn ignition switch off.

5.8.2 Emergency Stopping

If an emergency occurs:

- Shut off the engine.
- Correct emergency situation before restarting engine and resuming work.

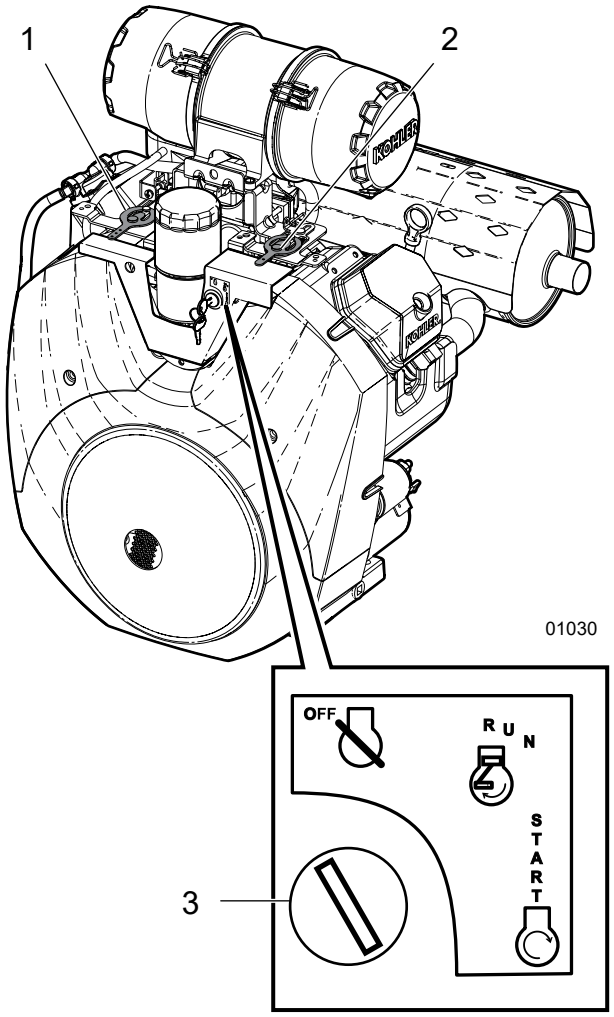


Fig. 29–Engine Controls

1. Throttle Lever
2. Choke Lever
3. Ignition Switch

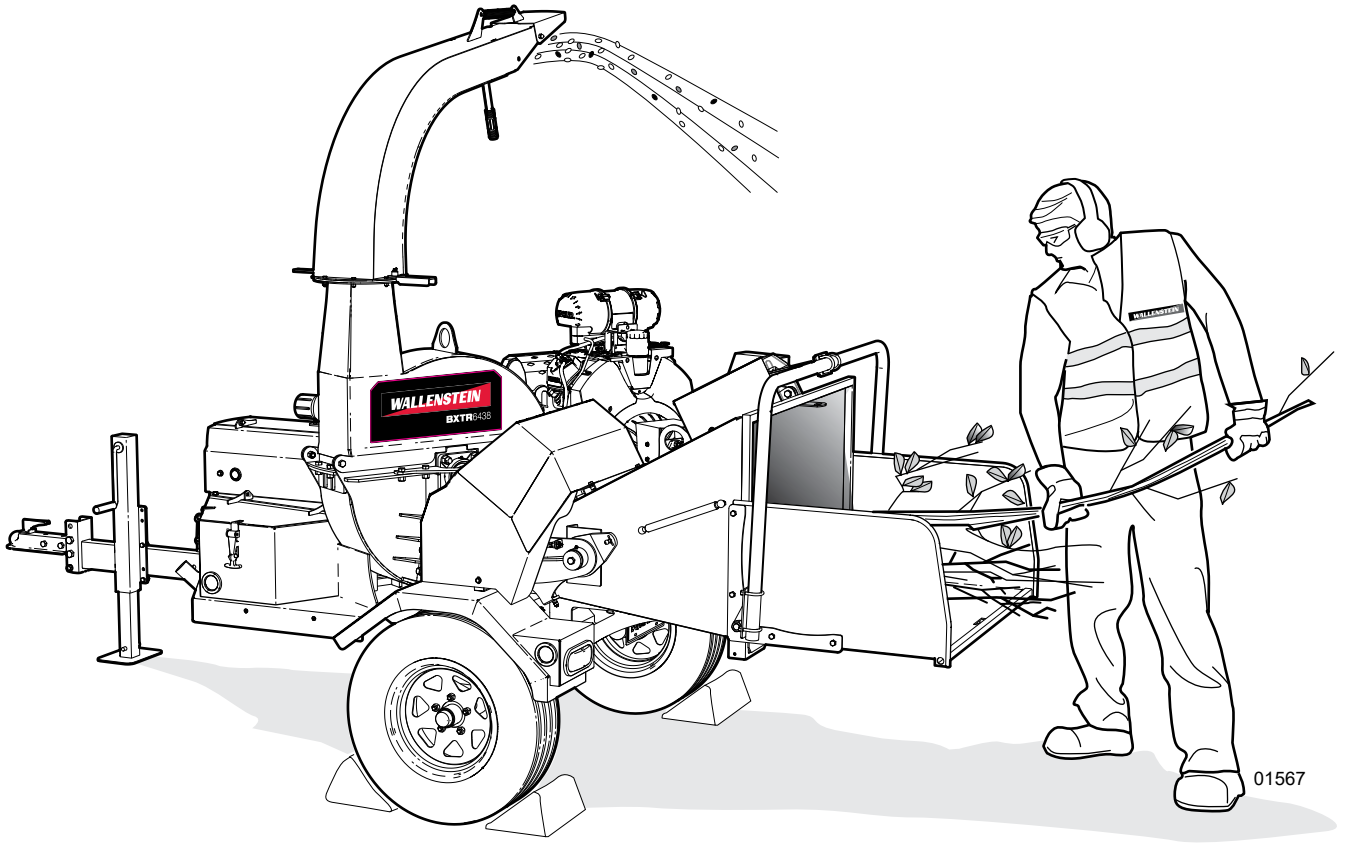


Fig. 30– Setup to Operate the Chipper

5.9 Chipping Operation

The Wallenstein wood chipper is a strong, rugged machine that is built to provide consistent chipping of logs up to 7" (17 cm) in diameter.

⚠ WARNING!

Risk of serious injury or death. Keep hands, feet and clothing away from feed rollers when the chipper is operating. Do not climb onto the feed table or hopper.

W023

⚠ WARNING!

Never reach into the feed hopper. Doing so risks hands getting caught. Use a stick or branch to push in any material that does not move on its own.

If jammed, stop the engine, wait for the rotor to stop, then clear the jam.

W004

IMPORTANT! Do not put metal objects, bottles, cans, rocks, glass or other foreign material into wood chipper. If such items happen to get into the chipper, stop machine and turn engine off. Wait for all moving parts to stop before removing material. Inspect machine for damaged or loose parts before resuming work.

- De-limb large branches and trees. The limbs on large branches sticking out of the feed hopper may catch the roller feed control bar, and shut the rollers off.
- Be aware of the size and shape of the material. Complicated, curved branches and logs can move in unpredictable ways as they pass through the feed rollers. Large curved pieces should be cut to smaller straighter sections.
- Hold small diameter branches together in a bundle and feed in together.
- Place short branches on top of longer ones to avoid reaching into the hopper.

P3 PULSE

P3 control system prevents the engine from getting bogged down if material is put into the chipper too quickly. Feed roller speed is regulated by monitoring the rotor rpm. For information on setup, see *page 25.*

As material is put into the chipper, P3 continually monitors rotor speed. If the rotor slows down under load below a lower speed setting, P3 auto-reverses the feed rollers. Wood is then pulled away from the rotor giving it the opportunity to regain speed.

Once back at operating rpm, P3 automatically resumes forward feed.

Procedure:

1. Check the engine is warmed, at MAX throttle setting, and the rotor is up to speed. Once the rotor is up to speed, P3 PULSE starts the feed rollers when the feed roller control bar is placed in the Forward (feed) position.

NOTE: *Engine throttle must be at MAX and rotor at full speed for feed rollers to function in Forward. Feed rollers function in Reverse even at engine idle so material can be backed out.*

2. Move the feed roller control bar out of the Stop position.
3. Pull the control bar backwards to the first detent position to start the Forward feed. The control bar stays in this position until moved.

NOTE: *The control bar can move freely between Forward and Reverse without locking.*

Reversing the feed rollers can be manually controlled with the feed control handle at any time, even at engine idle. The rotor does not have to be turning for Reverse to work.

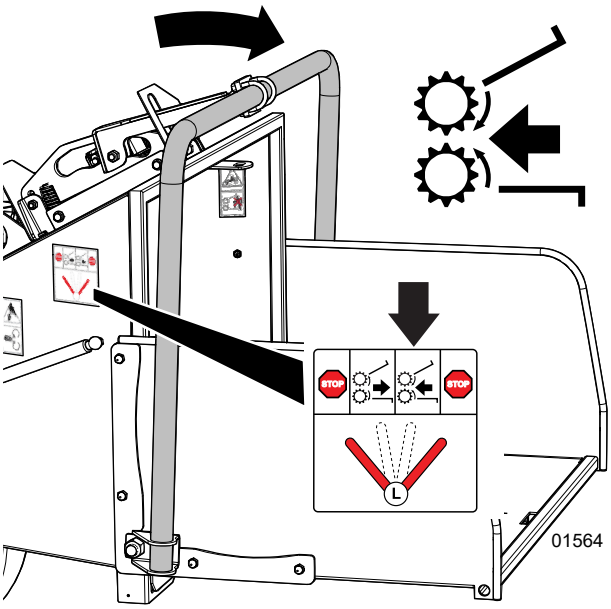


Fig. 31 – Forward Feed Position

4. Stand to the side of the feed table and slowly slide material into the feed rollers. Do not force the material. The material is drawn in as it engages the rollers. **When operating this equipment always have at least two workers present and trained in safe operation of the machine.**

5.10 Machine Break-In

Although there are no operational restrictions on the Wood Chipper when used for the first time, it is recommended that the following mechanical items be checked:

After operating for 1 hour:

1. Inspect the axle, tires, wheels.
2. Check alignment of pulleys. Align as required.
3. Check belt tension. Adjust as required.
4. Torque all fasteners and hardware.
5. Check condition of rotor bearings.
6. Check the condition and clearance of the twig-breaker, rotor and ledger blades. Adjust as required.
7. Check for entangled material. Remove all entangled material before resuming work.
8. Check condition of electrical and hydraulic components. Keep all components in good condition.
9. Check all fluid levels. Top up as required.

After operating for 8 hours:

10. Repeat steps 1 through 9.
11. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section *page 46*.

5.11 Unplugging the Chipper

The wood chipper is designed to handle a wide range of material sizes without any problem. However, in the event material gets lodged in the chipper, follow this procedure to clear the blockage.

1. Before shutting the engine off, reverse the feed rollers to remove the material from the feed hopper.
2. **Place the machine in a Safe Condition before proceeding further.** See *page 8*.
3. Clear all the material out of the feed hopper. Make sure nothing is jammed or wedged between the feed rollers and the rotor. If material is jammed in this area, proceed to Step 7.

If the chipper is still plugged or the engine has shut down, the jammed material must be removed by hand.

⚠ CAUTION!

Be aware of the risk of injury. Rotor continues to turn for a few revolutions after engine is stopped. Wait for all parts to stop moving before opening any machine access.

W092

⚠ CAUTION!

The chipper blades are very sharp. Use caution when reaching into the rotor compartment to clear stuck material.

W026

4. Remove the rotor housing flange bolt and open the housing. Clear out any jammed material inside.
5. Pull any remaining material out of the feed hopper and discharge hood.
6. Use a stick to poke any material loose jammed into the discharge hood. Be sure all the material is cleared out, and nothing is jammed or wedged between the input opening and the rotor.
7. Check that everyone is clear of machine before restarting engine.
8. Start the engine and resume working.

⚠ WARNING!

Machine shown with shields removed for illustrative purposes only. Never operate machine with shields removed.

W001

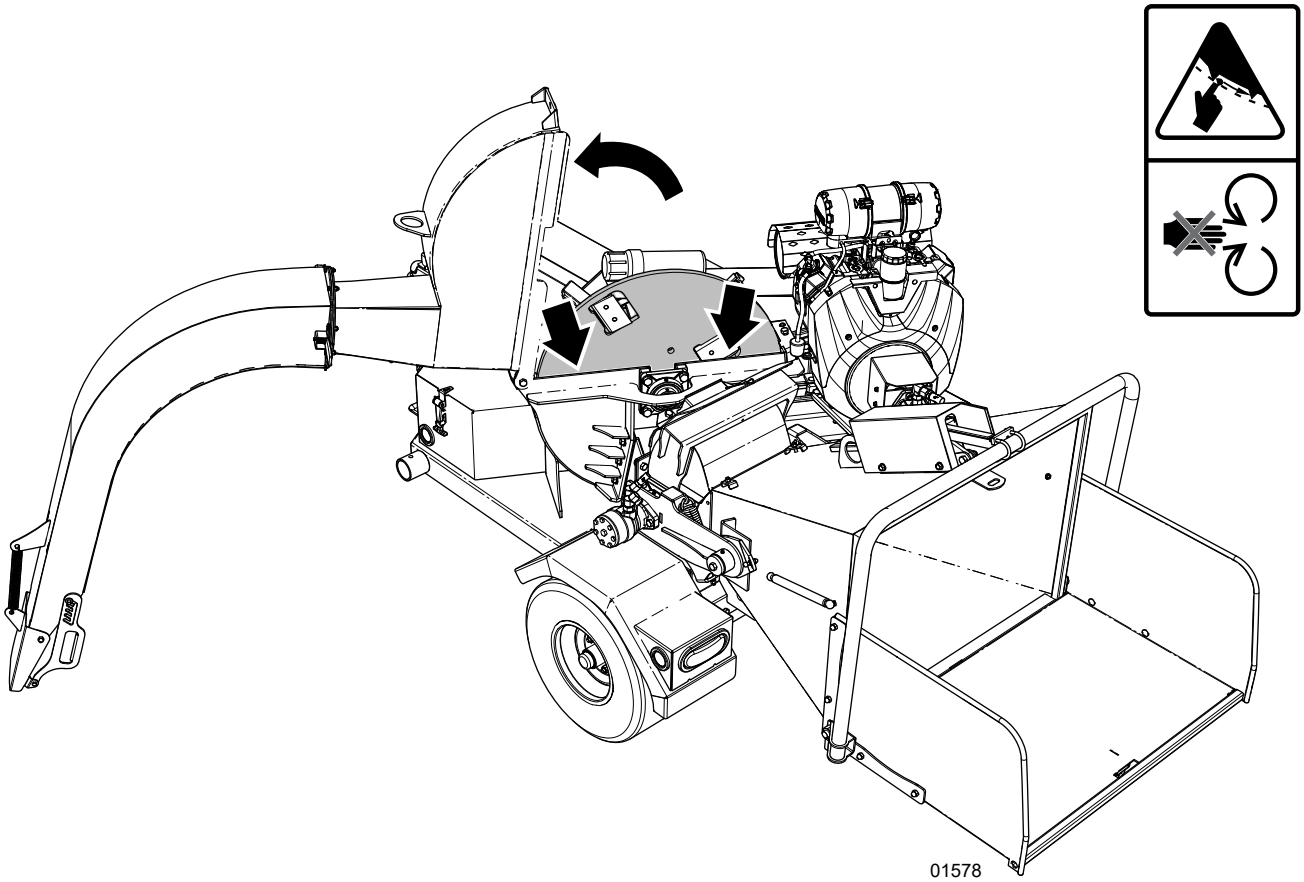


Fig. 34– Open Upper rotor Housing to clear Jam

Chipper Severely Plugged

9. Ensure the machine is in **safe condition** before beginning.
10. Open the upper rotor housing.
11. Remove jammed material from inside the rotor compartment.
12. Clean out the discharge chute.
13. Inspect the lower rotor housing and clean out any debris.

⚠ CAUTION!

The chipper blades are very sharp. Use caution when reaching into the rotor compartment to clear stuck material.

W026

14. If required, rotate the rotor by hand **very carefully** and slowly to be sure there is nothing jammed between the rotor and stationary blades. **Do not reach into the rotor housing while the rotor is moving.**
15. Remove the bridge guard over the roller housing. Unscrew the two bolts that secure the upper roller assembly.

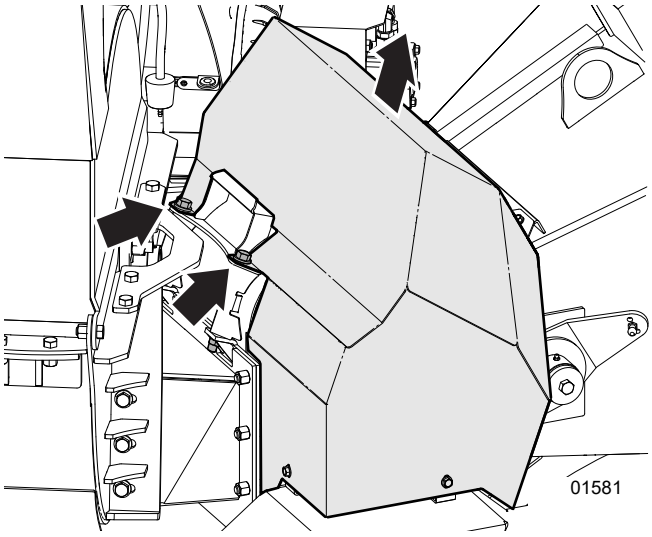


Fig. 32–Bridge Cover

16. Grasp the roller assembly lift handle and pull the upper roller arm up and back to gain access to the roller housing. The gas springs hold it up.

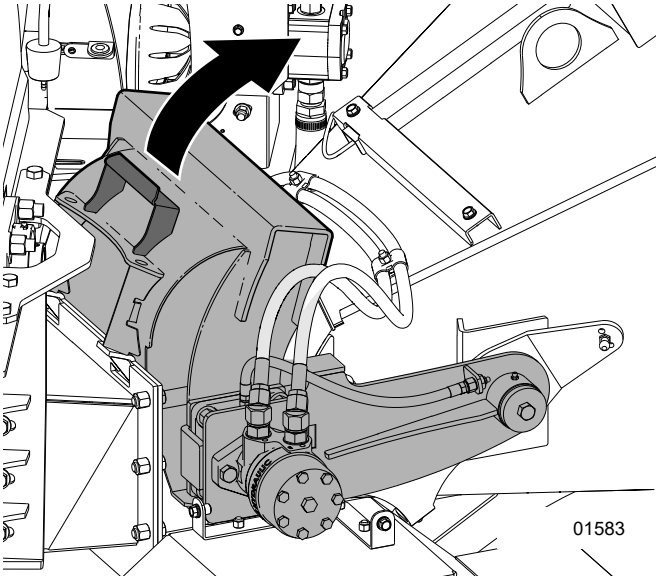


Fig. 33–Upper Roller Arm Assembly

17. **Carefully** reach into the roller housing and remove any debris.
18. If material is jammed around the rotor, **very carefully** and slowly turn the rotor by hand to remove any jammed material. **Do not reach into the roller housing while the rotor is moving.**
19. When all debris has been removed, lower the upper roller housing back into position. Install the two housing bolts.
20. Reinstall the bridge guard. Tighten fasteners to their specified torque.

5.12 Transporting the Chipper

1. Stow feed table and secure the latch.
2. Make sure that the machine is securely hitched to the tow vehicle and the ball coupler hand wheel is snug. Insert mechanical retainer through the ball hitch.
3. Always use safety chains crossed underneath the trailer tongue.
4. Raise jack stand and secure it to the transport socket on the side of the trailer.
5. Connect the light harness cable. Check that all the lights and reflectors required by the highway authorities are in place, clean and working.
6. Turn the discharge hood and point toward the feed table to reduce the width of the machine.
7. Check tire air pressure. Check for cuts or damaged rims.
8. Check lug nuts and re-torque if necessary. New chippers check after 20–25 mi (32–40 km).
9. Inspect and replace any axle dust caps that are damaged or leaking.
10. Check and secure chipper components including:
    - Tool and tank doors latched
    - Belt access covers, and shields secured
    - Rotor housing secured
    - Feed table latched.
11. Do not allow riders.
12. Never exceed 50 mph (80 km/h). Slow down when encountering rough road conditions and cornering.

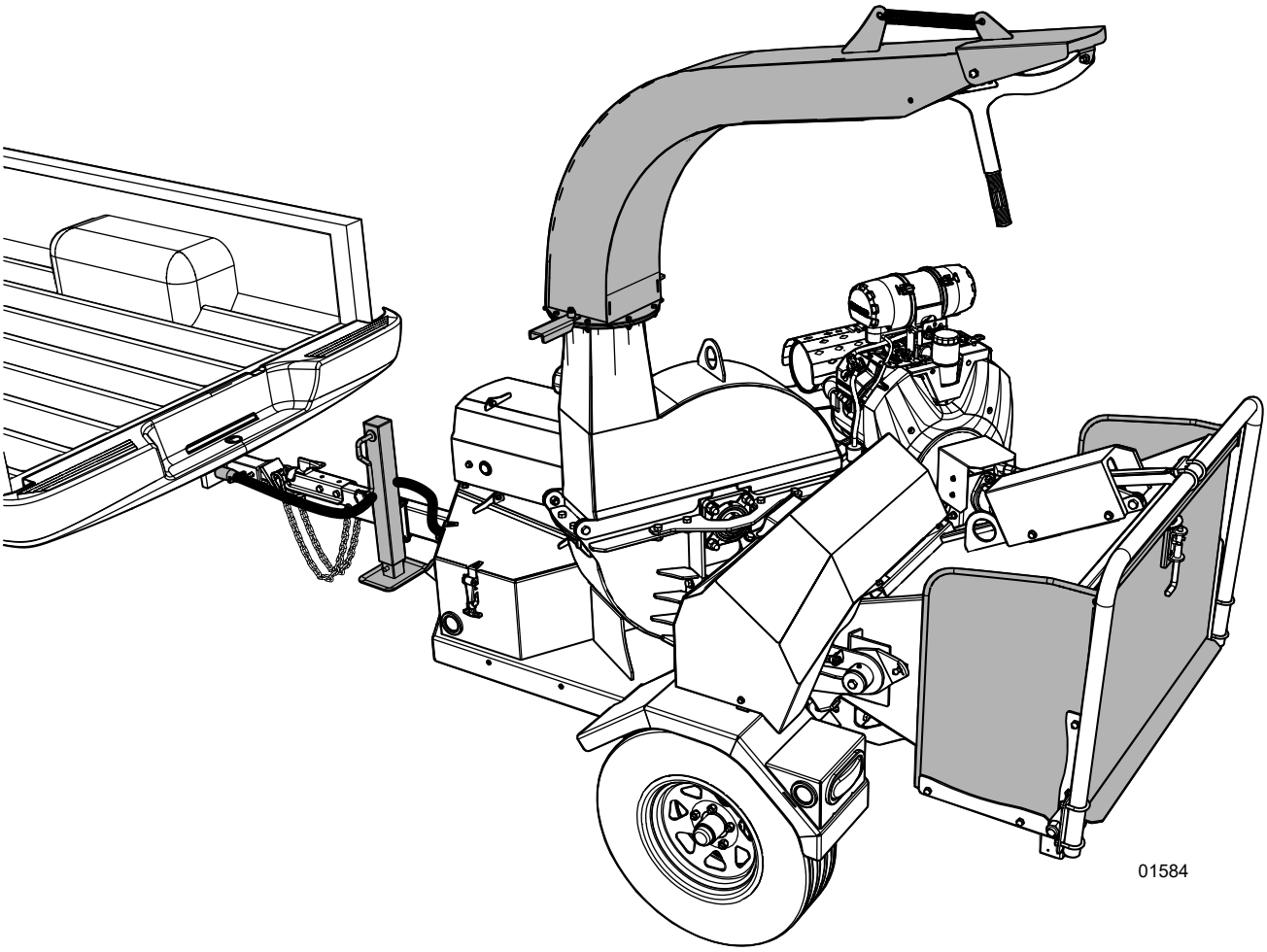


Fig. 35– Prepared for Transport

5.13 Storage

- If the machine is not going to be used for a period of time, put the chipper away in storage.
- Store the unit in an area away from human activity.
- Do not let children play on or around the stored machine.
- Store the unit in a dry, level area.
- Perform the following measures to ensure a smooth start-up before putting the chipper back to work. Completely inspect all major systems. Replace or repair any worn or damaged components.

IMPORTANT! Review the engine owner's manual to prepare the engine for storage.

1. Fill the fuel tank and add fuel stabilizer. Operate the engine for a few minutes to let fuel cycle through the system.
2. Remove ignition key and store in a secure place.
3. Remove the battery and store it in a cool, dry area where it cannot freeze. See *page 51*. Connect a battery maintainer to keep it at full charge.
4. Inspect all rotating parts for entangled material. Remove all entangled material.
5. Remove all remaining material and debris from the machine.
6. Clean the machine to remove all dirt, mud or debris.
7. Check the condition of the drive belt and sheaves. Replace or adjust as required.
8. Fold up the feed table up and secure. Turn the discharge chute towards the engine.
9. Make sure tool and tank doors are latched, belt access covers, and shields are bolted.
10. Touch up paint nicks and scratches to prevent rusting.
11. Cover with a waterproof tarp if storing the machine inside is not possible.

5.13.1 Removing from Storage

When removing this machine from storage, follow this procedure:

1. Review and follow the Pre-start checks on *page 32*.
2. Review safety and operation procedures.
3. Install and connect the battery. See *page 51*.

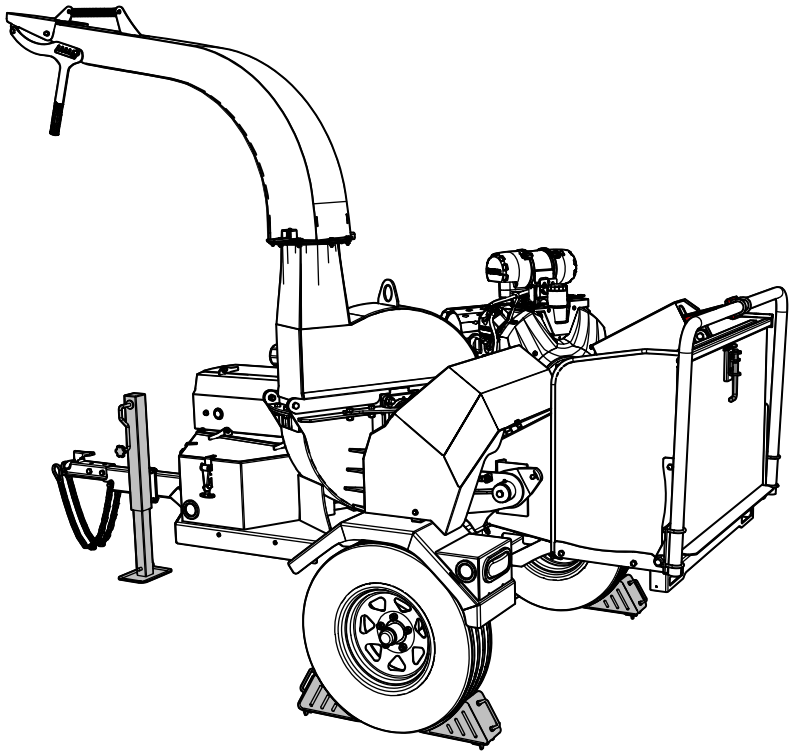


Fig. 36 – Prepared for Storage

6. Service and Maintenance

WARNING!

Risk of serious personal injury. Stop engine before performing ANY service or maintenance procedure. Reinstall all covers and shields removed before putting machine back into service.

W033

WARNING!

Shut down the machine and allow it to cool before performing any service, maintenance, or inspection procedure. Engine components and oil may be hot enough to cause injury.

Make sure the machine is in a Safe Condition to work on. Review Maintenance Safety beforehand.

W041

SAFE CONDITION

- Shut off engine. Remove ignition key.
- Make sure all moving parts have stopped.
- Disconnect battery ground (-) cable.
- Block or chock wheels.

6.1 Maintenance Safety

- Follow good shop practices:
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.

- Never operate the machine or the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Allow the engine to cool before performing maintenance. Engine components and oil may be hot enough to cause injury.
- Never work under equipment unless it is properly supported.
- When performing any service or maintenance work always use personal protective equipment.
- Where replacement parts are necessary, use only OEM parts to restore your equipment to original specifications. The manufacturer is not responsible for injuries or damages caused by use of unapproved parts or accessories.
- Inspect and tighten all bolts, nuts and screws. Check that all electrical and fuel connections are properly secured.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing chipper in service.
- A When cleaning any parts, do not use gasoline. Use a cleanser designed for that purpose.
- Always use proper tools in good condition. Make sure you understand how to use them, before performing any service work.

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

6.2 Fluids and Lubricants

1. Engine Oil

SAE 10W-30 motor oil with API service class SG, SH, SJ or higher is recommended for general use. Use a consistent brand. **Refer to the engine manufacturer's manual for further information.**

2. Grease

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

3. Engine Fuel

This engine requires clean, unleaded gasoline with a pump octane rating of 87 or higher. Gasoline up to 10% ethyl alcohol, 90% unleaded is acceptable. **Refer to the engine manufacturer's manual for further information.**

4. Hydraulic Oil

Use Dexron® III ATF for all operating conditions. Dexron VI or Mercon® are acceptable substitutes.

5. Storing Lubricants

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

6.3 Maintenance Schedule

Perform maintenance procedures at time shown or hour interval, whichever comes first.

As Required
Visually check drive belt tension.
Remove entangled material from chipper.
Check that all fasteners are tight.
Check hydraulic hoses and connections. Check for chafing or leaks. Reroute or tighten as required. Replace if damaged.

Every 8 hours or Daily	
Perform Pre-start checks.	See *page 32*
Periodically inspect rotor blades, ledger knife, and twig breaker.	—

Every 50 hours or Annually	
Grease machine.	See *page 47*
Clean engine air filter.	See engine manual
Check and adjust drive belt tension and sheave alignment.	See *page 52*
Check rotor blade sharpness.	See *page 55*
Check ledger knife sharpness.	See *page 56*
Check twig breaker.	See *page 46*
Check condition of battery.	*See page 51*

Every 100 hours or Annually	
Change engine oil.	See engine manual
Change engine air filter.	See engine manual
Clean machine. Remove debris and entangled material.	—
Change hydraulic oil.	See *page 50*
Change hydraulic oil filter	*See page 50*
Change fuel filter.	See engine manual
Check tire pressure.	Refer to tire sidewall

6.4 Grease Points

Use a hand-held grease gun for all greasing. Pump one shot of grease per fitting.

- Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
- If fittings do not take grease, remove and clean them thoroughly. Replace grease fittings as necessary.

Location	Every 50 hours of operation or annually
1	Rotor Shaft Bearings
2	Upper Roller Bearings
3	Lower Roller Bearings
4	Roller Arm Pivot Bushings
5	Wheel Bearings

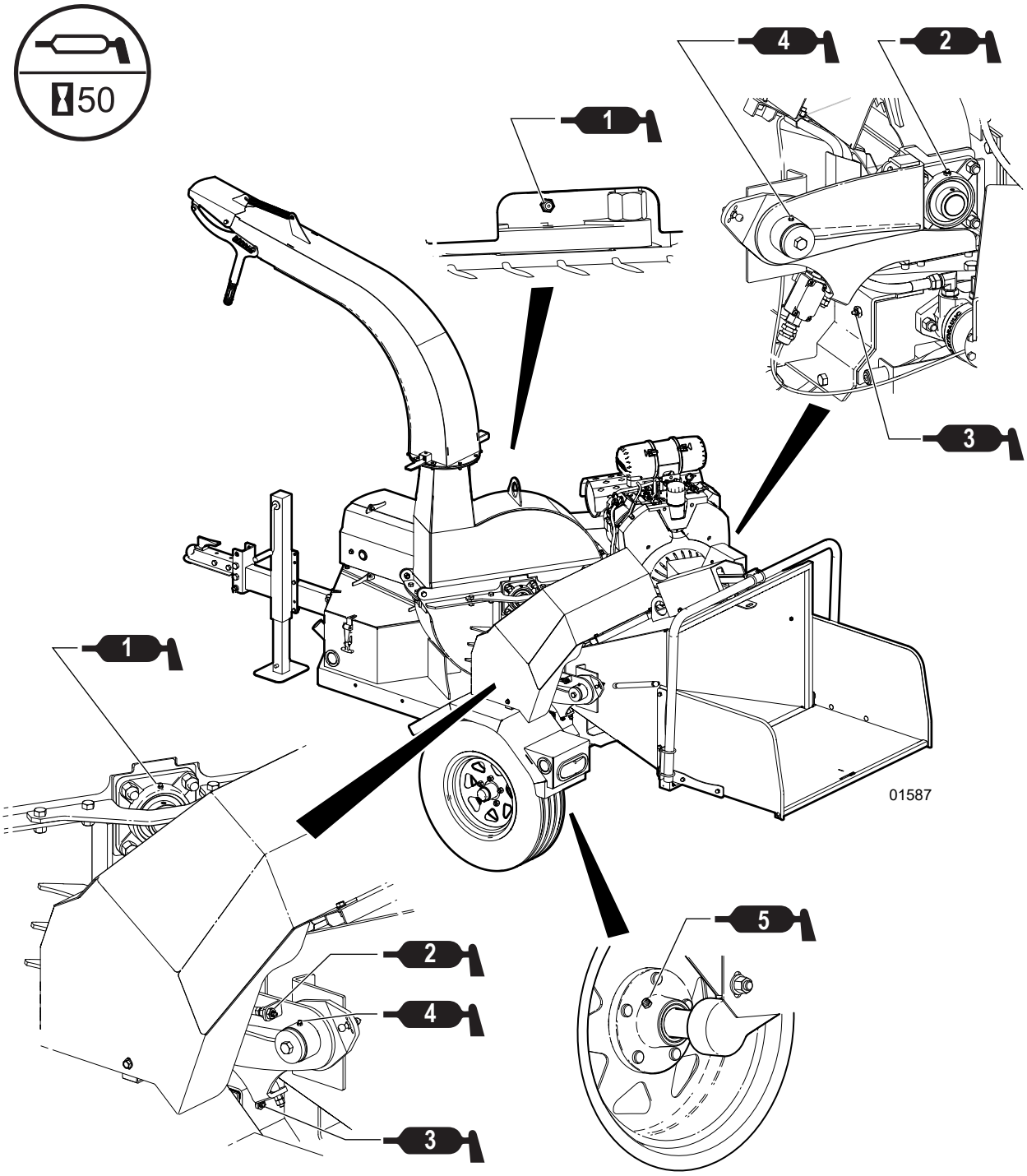


Fig. 37 – Grease Points

6.4.1 Lubricate Hinge and Pivot Points

Location	Every 50 hours of operation or annually
1	Hood Deflector / Chute
2	Feeder Control Linkage
3	Feed Table Hinges
4	Upper Rotor Housing / Access Door Hinges
5	Jack Stand and Hitch Coupler

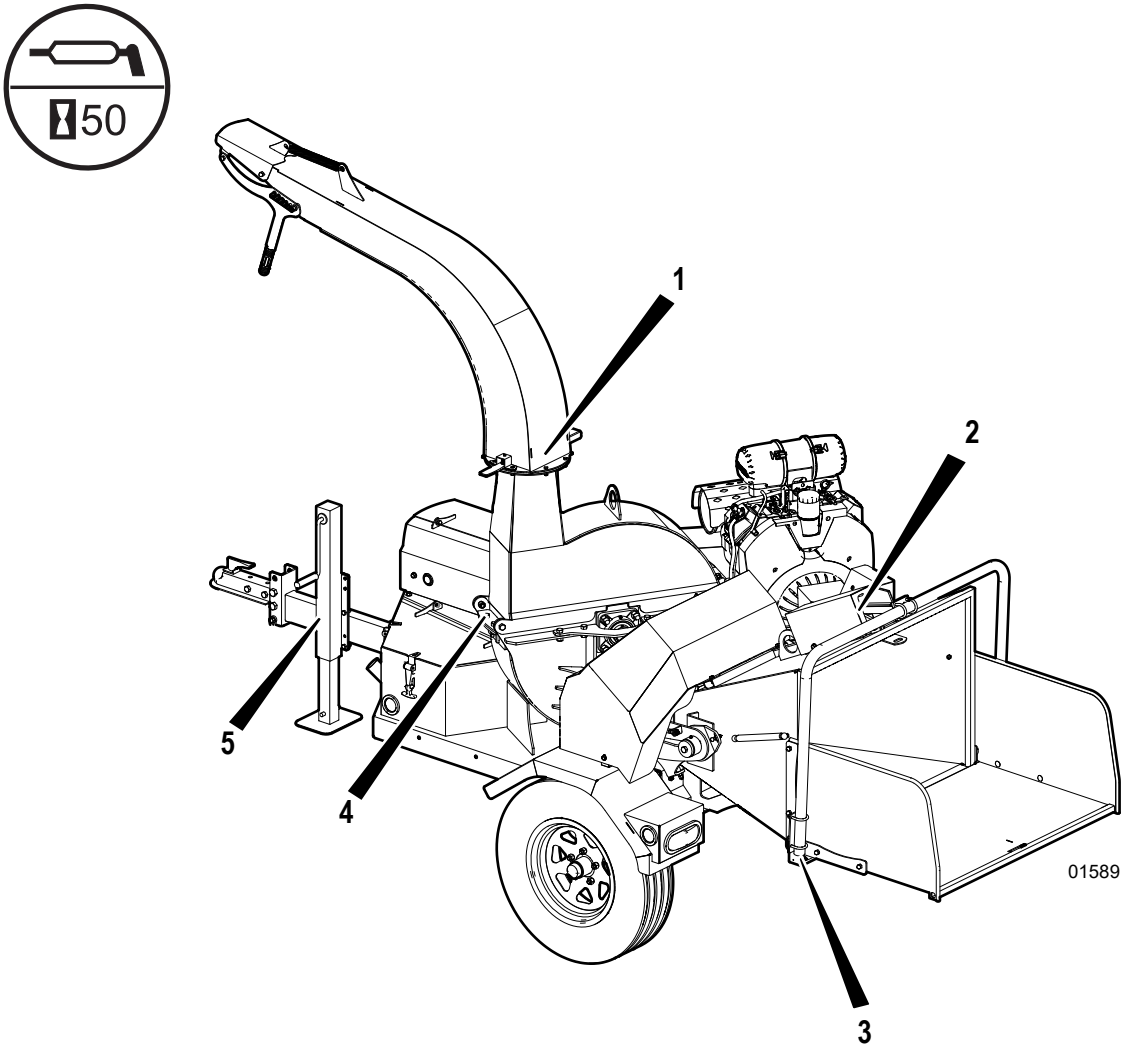


Fig. 38–Hinge Points

6.5 Engine Oil – Changing

Change engine oil every 100 hours.

Refer to the engine manual included in the manual tube for information on changing the engine oil and filter.

A remote engine oil drain is located on the rear of the machine on the right-hand side.

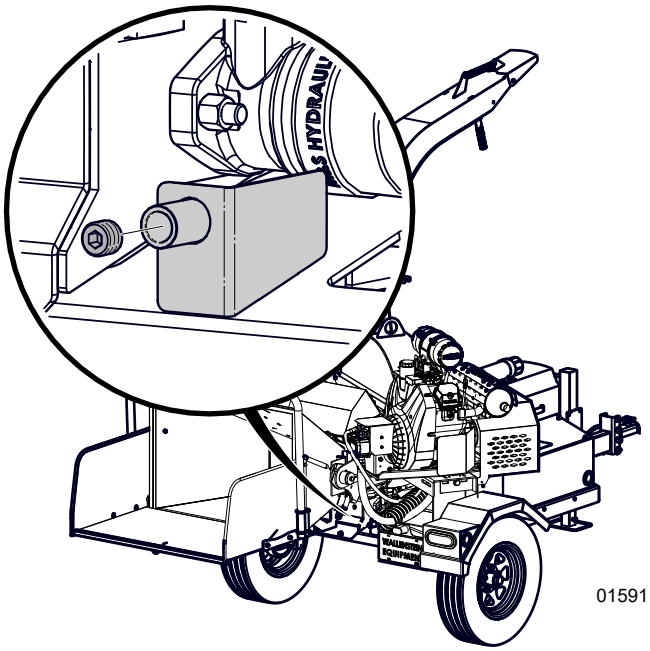


Fig. 39–Remote Engine Oil Drain

Review engine instruction manual for specific instructions on:

- Oil
- Oil filter
- Air cleaner
- Fuel filter
- Fuel lines

6.6 Hydraulic Oil Fill

The hydraulic tank is located next to the fuel tank. A site glass that shows the level of the oil in the tank (located just above the tool box lid).

Hydraulic oil level should be checked daily, and the quality of the oil should be inspected every 50 hours. If the oil is dirty or smells burnt, it should be replaced.

1. Allow the engine and muffler to cool.
2. Clean area around fill cap and remove cap.
3. Using a clean funnel, fill the tank according to the oil level gauge:
   - When filling the tank with oil, the window of the site glass will also fill with oil as the level gets higher in the tank.
   - Never fill the oil tank above the **site glass.**
   - Do not run the machine with the oil level below the **site glass.**
   - Reservoir Capacity 7 US gal (30 L).
   - Use Dexron III hydraulic oil for all operating conditions.
4. Install fill cap securely and wipe up any spilled oil.

Check levels after changing filters or servicing hydraulic components

The proper level is when the oil is visible in half the glass window. If the level is not visible in the sight glass, add oil.

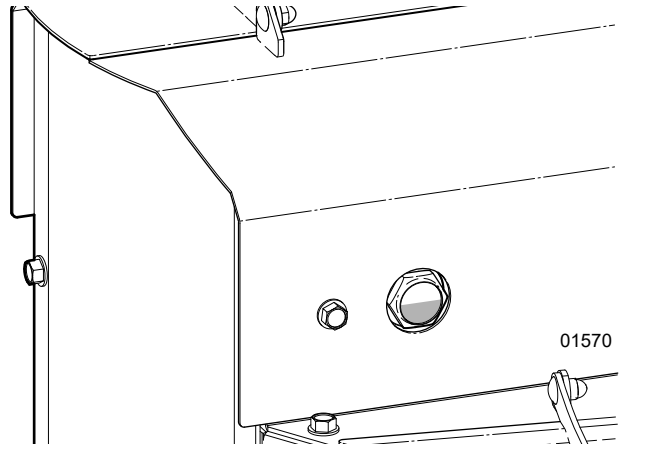


Fig. 40–Hydraulic Tank Oil Level Check

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6.7 Hydraulic Oil – Changing

⚠ CAUTION!

Risk of burns to exposed skin. Hydraulic oil becomes hot during operation. Hoses, lines, and other parts become hot as well. Wait for the oil and components to cool before starting any maintenance or inspection work.

W028

Change the hydraulic oil at 100 hours of operation or annually. Change the return filter and clean the suction strainer in the hydraulic tank at the same time.

- Hydraulic oil type: **Dexron III ATF.**
- Reservoir capacity is 7 US gal (30 L).

The hydraulic tank may occasionally need to be drained. The drain plug is located at the bottom of the hydraulic tank. Follow this procedure to drain the tank:

1. Have a drain pan ready of suitable capacity.
2. Clean the area around drain and remove the drain plug.
3. Allow the oil to fully drain, then flush the tank. Dispose of used oil in a environmentally acceptable fashion.
4. Install the drain plug.
5. Clean the filter suction strainer before filling the tank.

Dispose of used oil in an environmentally acceptable fashion.

IMPORTANT! Be aware of high oil temperatures. Optimum temperatures are 120–140 °F (50–60 °C). Temperatures higher than 180 °F (82 °C) could cause seal damage and degrade the hydraulic oil. High oil temperatures are often a symptom of another problem.

6.7.1 Clean Suction Strainer

With the hydraulic tank emptied, the suction strainer should be removed and cleaned. The strainer is made of stainless steel screen and is reused.

The suction strainer is located on the back of the tank, between the fuel tank and the battery box.

1. Remove the suction hose, then remove the strainer.
2. Place the suction strainer in a solvent tank and use a small brush to clean it. Examine the strainer screen and replace it if there are holes or damage.
3. Dry the suction screen thoroughly, then re-install.

6.8 Hydraulic Oil Filter

With the hydraulic tank emptied, the hydraulic return filter should be changed.

For optimum performance, the filter element should be changed every 100 hours. The filter is located on top of the hydraulic oil tank.

1. Have a drain pan ready to catch any dripping oil.
2. Remove the three screws on the filter cover and pull the cover off.
3. Remove the filter element and clean the bottom of the bowl.
4. Check that the O-rings are not damaged. If they are, replace them.
5. Install the new filter element.
6. Reinstall the filter cover and tighten the screws to **44 lbf•in (5 N•m)**.
7. Fill the tank with clean oil. The proper oil level is when it is visible in half the glass window.

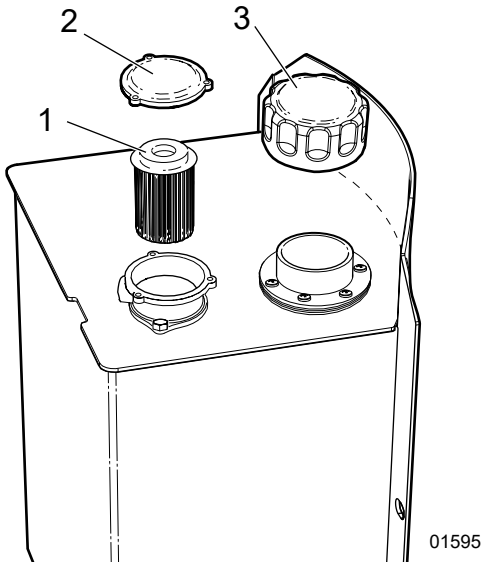


Fig. 41 – Hydraulic Tank

1. Hydraulic Return Filter Element
2. Oil Filter Cover
3. Hydraulic Tank Filler Cap

6.9 Servicing the Battery

CAUTION!

Risk of burns! Battery electrolyte is extremely corrosive and poisonous. Contact with the eyes, skin, or clothing can result in severe burns or other serious personal injury. If contact occurs seek medical attention immediately. Handle batteries carefully.

W020

CAUTION!

Battery posts, terminals and related accessories contain lead and lead compounds. These chemicals are known to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

W031

Remove

1. Disconnect negative (–) cable first, then positive (+) cable.
2. Remove battery hold-down bracket and battery from unit.

Install

3. Install battery on unit with battery hold-down bracket.
4. Connect positive (+) cable first, then negative (–) cable.
5. Coat terminals with dielectric grease or petroleum jelly.

Cleaning the Battery

6. Disconnect negative (–) cable first, then positive (+) cable.
7. Clean battery cable ends and terminals with wire brush. Rinse with a weak baking soda solution.
8. Connect positive (+) cable first, then negative (–) cable.
9. Coat terminals with dielectric grease or petroleum jelly.

Charging the Battery

DO NOT fast charge. Charging at a higher rate will reduce battery life.

ALWAYS follow information provided on battery and battery charger. Contact battery manufacturer and battery charger manufacturer for detailed instructions.

1. Remove battery from unit.
2. Use a battery carrier to lift the battery or place hands at opposite corners to avoid spilling acid through the vents
3. Place battery on bench or other well-ventilated area.
4. Connect positive (+) lead of charger to positive (+) terminal, and negative (–) lead to negative (–) terminal.
5. Charge battery according to the instructions from battery charger manufacturer and battery manufacturer.

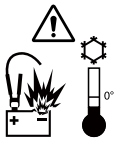
6.10 Jump Starting

CAUTION!

Risk of explosion or fire! Do not let metal objects come in contact with the battery terminals. Arcing can cause a fire or explosion. Cover terminals if working near batteries.

W021

WARNING!



Charging a frozen battery can cause it to explode. Warm the battery to 60 °F (16 °C) before charging.

W030

Boosting machine must have a 12-volt battery and be a negatively grounded system.

1. Connect positive (+) jumper cable to positive terminal of discharged battery.
2. Connect the other end of the same jumper cable to positive (+) terminal of booster battery.
3. Connect one end of the second jumper cable to negative (–) terminal of booster battery.
4. Make the final jumper cable connection to engine block or the furthest ground point away from the discharged battery.
5. Start engine.
6. After engine starts leave cables connected for one to two minutes.
7. Disconnect jumper cables in reverse order of installation.
8. Operate unit as normal to charge battery.

6.11 Drive Belt Replacement

If the drive belt is in disrepair or loose, the ability to drive the rotor may be affected. It is important to periodically check belt tension and condition. **Frayed, cracked, or worn drive belts should be replaced.**

IMPORTANT! If changing or removing drive belt, always set correct belt tension. Make sure engine and rotor sheaves align properly.

Check drive belt tension every 100 hours of operation.

Make sure the engine is off and components are cool to touch beforehand.

1. Remove the drive belt guard.

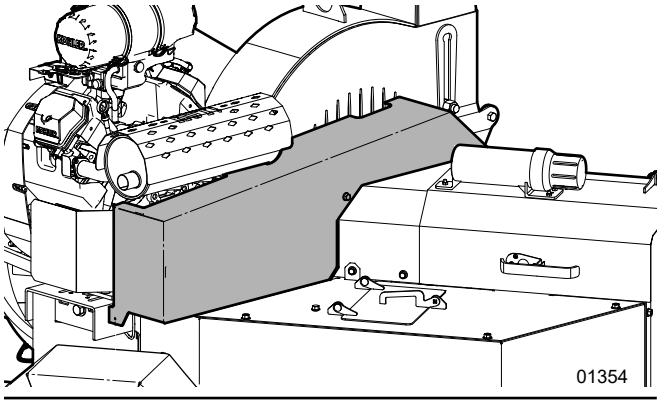


Fig. 42– Drive Belt Guard

2. Loosen the four bolts that hold the engine mount to the main frame.

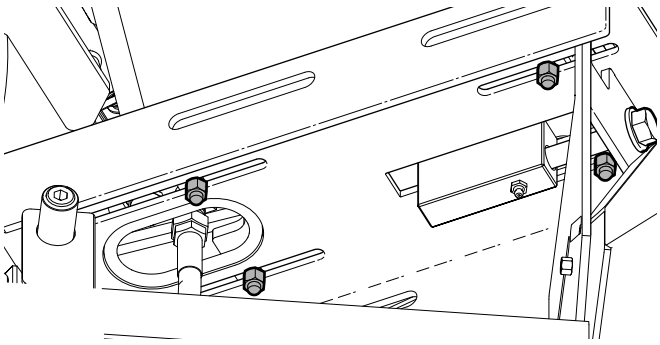


Fig. 43– Engine Mount Bolts

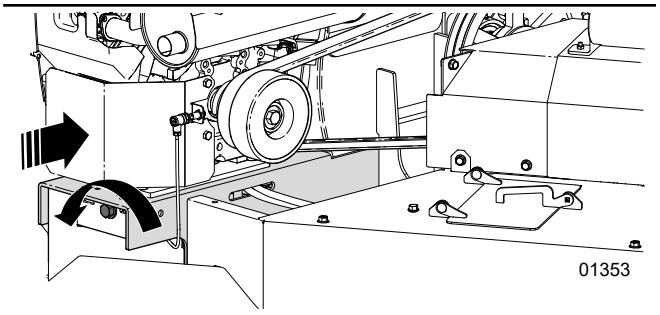


Fig. 44– Belt Tensioning Bolt

3. Turn the belt tensioning bolt counterclockwise to loosen the belt. Slide the engine back and remove the belt.
4. Install the new belt, slide the engine forward, and set correct drive belt tension. See *Drive Belt, Tensioning* to follow.

IMPORTANT! Check sheave alignment after changing the drive belt.

6.11.1 Drive Belt, Tensioning

Drive belt deflection should be no more than 3/8"–7/16" (10 mm–12 mm).

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

1. Push on the drive belt by hand to check its deflection.

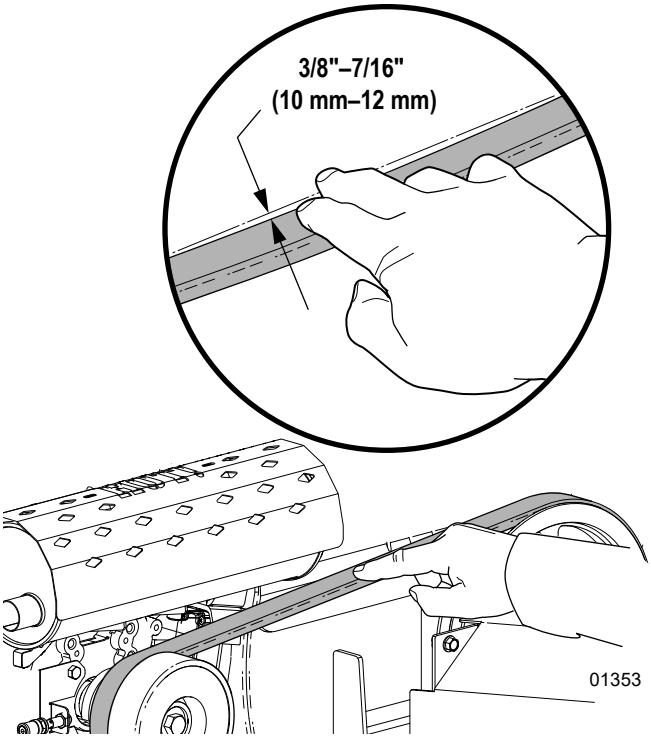


Fig. 45– Checking Drive Belt Deflection

2. If the belt requires adjustment, loosen (do not remove) the four bolts that hold the engine mount to the main frame.
3. Pull the engine back to snug up the belt, then tighten the bolts on the opposite side from the belt.
4. Turn the belt tension adjuster bolt clockwise to tighten the belt. Turn it counterclockwise to loosen the belt. Check and adjust belt tension accordingly. Be aware of belt alignment when adjusting belt tension. See *Drive Belt Alignment* to follow.

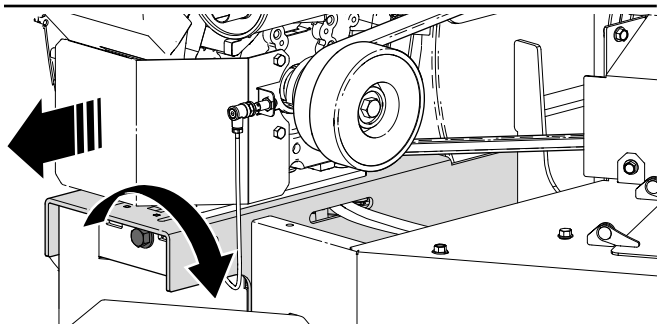


Fig. 46 – Drive Belt Tension Adjustment

5. Recheck belt tension. Once set correctly, tighten up all four engine mount bolts. Re-install the belt shield.
6. Recheck belt tension after 10 hours of operation.

6.11.2 Drive Belt Alignment

Observe drive belt alignment every 8 hours of operation.

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

NOTE: A straight edge at least 50" (127 cm) in length is required.

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

Place the straight edge along the back face of the rotor sheave and engine clutch. Compare the gap between the belt along the length of the straight edge. The gap between must be equal along its length. Adjust accordingly.

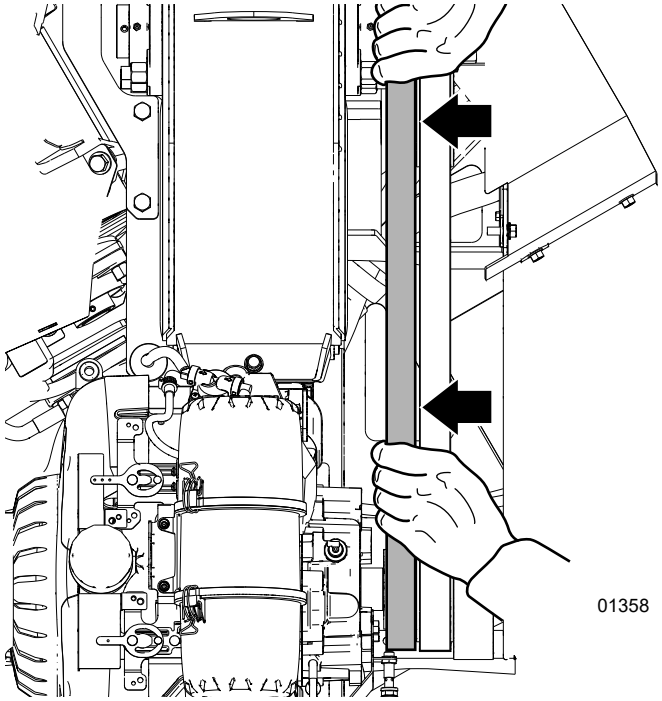


Fig. 47 – Sheave Alignment

If the gap is not even along the length of the belt, determine whether the engine is square to the chipper frame. It may also be that the rotor sheave has moved in or out on the shaft. Belt misalignment can be corrected two different ways:

- Engine mount alignment
- Rotor sheave alignment

Engine Mount Alignment

After changing the drive belt, the angle of the engine mount could shift resulting in poor belt alignment.

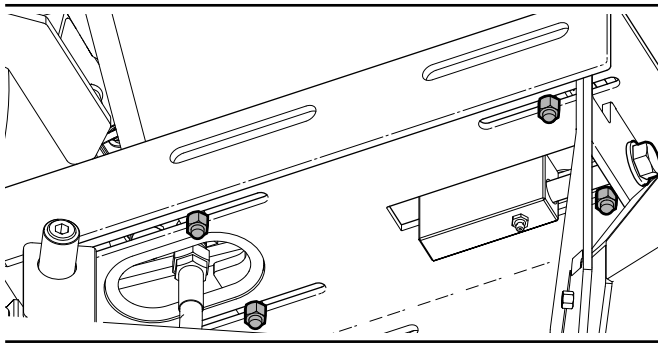


Fig. 48 – Engine Mount Bolts

1. Twist the engine to one side or the other on the base to adjust engine position. Recheck belt/sheave alignment. Repeat as necessary for the best result.
2. Recheck belt tension and adjust if required. Tighten the engine mount bolts.

Rotor Sheave Alignment

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

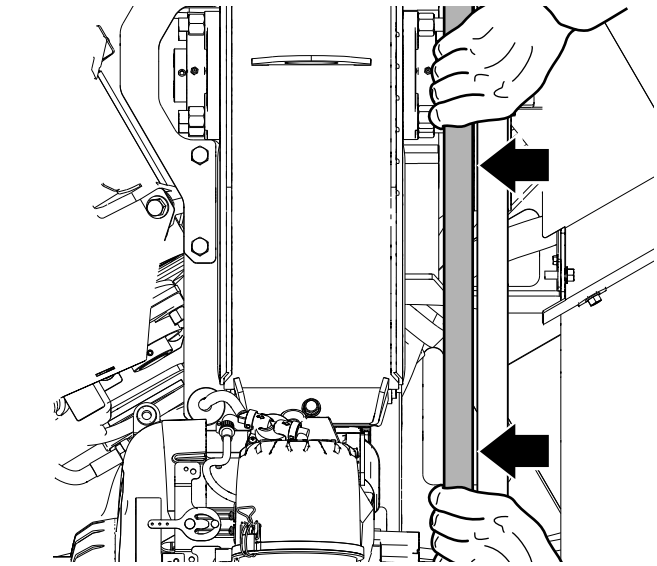


Fig. 49–Rotor Sheave Misalignment

1. Remove the drive belt.
2. Remove the set screw from the sheave (1).
3. Remove the sheave bolts (5) and the RPM Indicator Plate (4). Thread the bolts into the puller holes on the sheave hub.

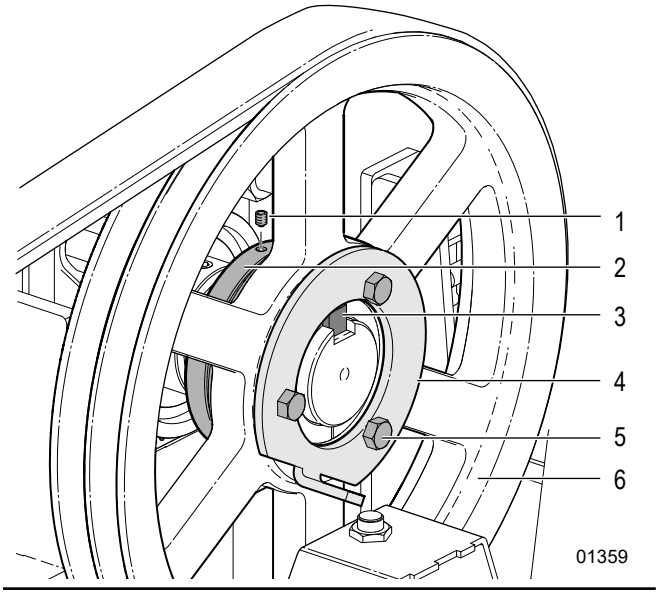


Fig. 50–Rotor Sheave

1. Set Screw
2. Sheave Hub
3. Shaft key
4. RPM Indicator Plate
5. Sheave Bolts
6. Sheave

4. Turn in the bolts evenly in 1/4-turn increments to pull the hub and the sheave slightly apart so they can move on the shaft.
5. Lightly tap the sheave hub with a block of wood to move it in or out on the shaft so it is re-aligned with engine clutch sheave. Confirm with the straight edge along the face of the engine clutch and rotor sheave.
6. Once aligned, insert the hub bolts and snug them up to the sheave. Recheck alignment.
7. Tighten hub bolts evenly in 1/4-turn increments until firmly seated. Install and tighten the set screw.
8. Re-check the alignment again with the straight edge once the bolts are tight. Re-check belt tension.
9. Reinstall the belt guard.

6.12 Rotor Blades

The rotor is equipped with four offset, evenly-spaced blades. If a blade needs to be changed, the one opposite should also be changed to keep the rotor balanced.

The rotor and ledger blades need to be sharp for the chipper to perform as expected. Periodic inspection is recommended. Keep the blades sharp to reduce the amount of power required during operation.

Watch the sharpness of the blades when processing material with a lot of sand, soil or dirt mixed with it. Reverse or sharpen the blades if the cutting edge becomes dull. It is recommended that the rotor blades be removed from the rotor when sharpening.

Always sharpen the blades at a 45° angle to provide the best cutting effect as it meets the stationary blade. Be sure to tighten the blade mounting bolts to their specified torque when re-installing the blades to the rotor.

1. Ensure the engine is off (ignition switch is off).
2. Remove the bolt that secures the upper rotor housing, and carefully open the rotor housing.

⚠ CAUTION!

Avoid reaching into rotor compartment. Rotor chipper blades are very sharp. If reaching inside is necessary, use extreme care.

W003

3. Manually rotate chipper rotor plate so that the blade is fully exposed.
4. Remove the bolts that hold the rotor blade to the rotor, remove the blade.
5. Rotate the blade and reinstall or replace with new or re-sharpened blade.
6. Ensure the blade is properly oriented, with the leading edge out. The blade is designed to fit into the rotor one way only. See diagram for proper installation.
7. Tighten down bolts as specified in the torque chart.
8. Repeat steps for second blade.

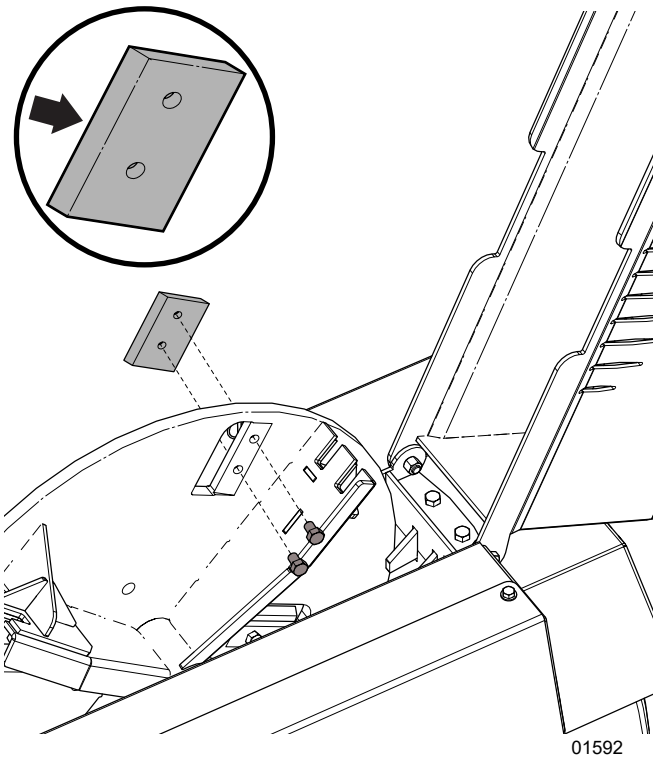


Fig. 51 – Leading Edge Outward

6.13 Ledger Knife

Each machine is equipped with a ledger (stationary) blade that acts as a shear for the moving rotor blades.

The ledger blade is designed with four usable corners. When the corner facing the rotor blade rounds over, remove the blade and re-install with a different corner facing the rotor blade. It is recommended that the clearance between the rotor and stationary blades be set and maintained at 1/32–1/16" (3/4 – 1-1/2 mm) to obtain the best performance.

Make sure the engine is off (ignition switch is off).

1. Remove the two bolts that hold the ledger blade to the ledger mount, then remove the blade.
2. Rotate the blade and replace, or swap with new or re-sharpened blade.
3. Hand tighten the bolts and set the clearance between the ledger and rotor blades at 1/32–1/16" (3/4 – 1-1/2 mm). For fast and easy setting, use the chipper Clearance Setting Gauge, available from your dealer.
4. Tighten down bolts.

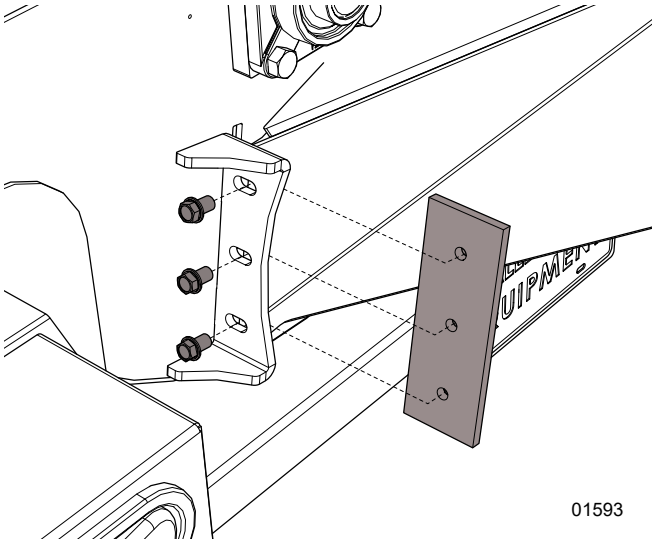


Fig. 52– Ledger Knife

6.14 Twig Breaker

The Twig Breaker is a breaker tab located on side of the lower rotor housing. As the discharge paddles pass, the twig breaker helps to break the material into smaller pieces and turn it into mulch.

Inspect the twig breaker for damage such as gouges, a bent, or missing tooth. A damaged twig breaker should be replaced. If the tooth is showing wear, remove and replace.

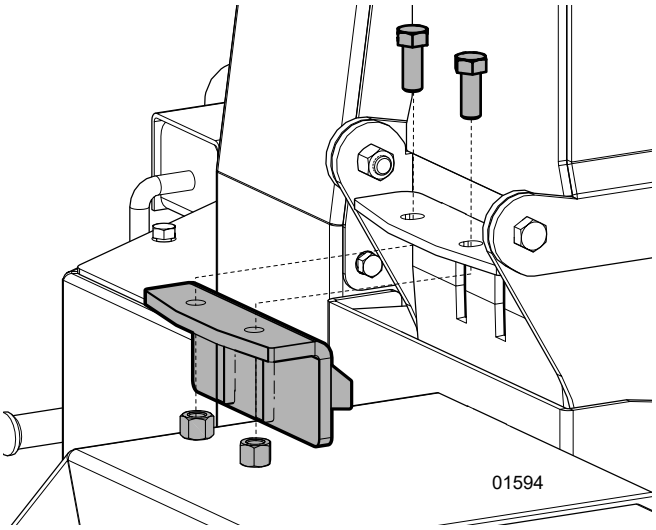


Fig. 53– Twig Breaker

6.15 Electrical System – General

IMPORTANT! When assembling or replacing wire harnesses, apply a thin coating of silicone dielectric grease to the harness connectors.

Clean off any corrosion or loose particles, then apply a small amount to the surfaces of the connectors where they meet. The grease helps to stop any possibility of future corrosion.

Reassemble the connection. Wipe off any grease that squeezes out.

IMPORTANT! If welding on the machine becomes necessary, sensitive electronic components must be removed from the machine beforehand. Welding can produce stray voltage spikes that can damage these items.

- **Disconnect and remove the P3 Display and Controller from the machine.**
- **Disconnect/unhook the machine from the tow unit, tractor, or carrier machine.**
- **Disconnect the machine's battery (as equipped). Disconnect the negative battery cable first before disconnecting the positive battery cable.**
- **Place the welder ground clamp as close to the work area as possible. Keep the welder cables away from the control system electrical harnesses.**

7. Troubleshooting Guide

The Wallenstein Wood Chipper is designed with blades on a rotor to cut, shear and chip wooden material. It is a simple and reliable system that requires minimal maintenance.

The following table lists causes and solutions to problems that could be encountered. If a problem encountered that is difficult to solve, contact a Wallenstein distributor or dealer. Have the chipper serial number handy.

Engine Related Issues—refer to the engine manual included with the manual set.

Brakes/Wheel Bearing Issues—refer to the Dexter Axle manual included with the manual set.

Problem	Cause	Solution
Rotor does not turn.	Obstructed discharge.	Clear debris from discharge chute.
	Rotor plugged.	Inspect and clear chipper hopper lower rotor housing and rotor.
	Clutch seized.	Replace.
Material feeding in too slow.	Engine or rotor speed to low.	Set throttle to increase rotor rpm.
	Blades or knives are dull or clearance incorrect.	Check rotor and ledger blades. Rotate, sharpen, or replace.
	Rotor blade knife edge angle incorrect.	Re-sharpen rotor knives to specified 45° angle and check that blade is installed properly.
	P3 programing incorrect.	Adjust programming. See *page 25*.
	Slow hydraulic flow.	Dirty or plugged hydraulic filter. Change filter. See *page 50*.
		Hydraulic oil is contaminated. Inspect oil condition for dirt or foaming. Replace oil. See *page 46*.
	Obstructed discharge.	Clear debris from discharge chute.
Unusual machine vibration while operating.	Broken or missing rotor blade.	Replace.
	Rotor may be bent.	Check for rotor wobble. Replace rotor.
	Rotor bearings failed.	Replace.
	Loose fasteners.	Tighten. See torque tables *page 47*.
Engine does not start.	Upper rotor housing open.	Close upper rotor housing. Make sure interlock cable is connected.
	Interlock switch defective.	Check interlock switch. Replace.
	Interlock wiring harness damaged.	Inspect wiring harness. Repair or replace.
	Engine problem.	Refer to engine manufacturer's manual.
	Clutch seized.	Replace.
Machine requires excessive power or stalls.	Obstructed discharge.	Clear debris from discharge chute.
	Feeding in too much material.	P3 PULSE programing incorrect. Adjust programming. See *page 25*.
	Feeding material too quickly.	P3 PULSE programing incorrect. Adjust programming. See *page 25*.
	Rotor plugged.	Inspect and clear chipper hopper lower rotor housing and rotor.
	Green material does not discharge.	Allow material to dry or alternate between dry and wet material.
	Space between rotor blade and ledger knife too large.	Use ledger gauge tool to check clearance. See *page 56*.
	Dull blades.	Check rotor and ledger blades. Rotate, sharpen, or replace. See *page 56*.
	Engine problem.	Refer to engine manufacturer's manual.

Problem	Cause	Solution
Noisy drive belt, premature wear.	Drive belts loose or worn.	Inspect drive belts. Adjust tension or replace if needed. See *page 52*.
	Wrong replacement belt.	Inspect drive belts. Replace. See *page 52*.
	Sheaves misaligned.	Check sheave alignment and adjust. See *page 53*.
	Rotor plugged.	Inspect and clear chipper hopper, lower rotor housing, and rotor.
	Belt tension too high.	Check belt tension and adjust.
	Sheaves worn.	Inspect sheaves and bearings. Replace if required.
	Oil or grease on drive system.	Check source of oil or grease and correct. Clean sheaves and belts. Belts may require replacement.
	Rotor bearings.	Check and replace if required.
Poor Chip Quality.	Dull blades.	Check rotor and ledger blades. Rotate, sharpen, or replace. See *page 56*.
	Drive belts loose or worn.	Inspect drive belts. Adjust or replace if needed. See *page 52*.
	Poor quality material.	Material is small or rotting. Mix with higher quality material.
	Knife clearance incorrect.	Check and adjust as required. See *page 56*.
Feed rollers intermittent or not turning	Feed roll control bar set to stop.	Move to Forward or Reverse position.
	Engine speed not at or above minimum setting.	Set engine throttle for maximum rpm. Make sure engine is properly tuned. Adjust P3 programming. See *page 25*.
	P3 programming incorrect.	Check that P3 settings are at factory specifications. Reset if required. See *page 25*.
	P3 not receiving signal.	Inspect rotor sensor for damage. Replace unit if required.
		Inspect rotor sensor mount or sheave mounted indicator plate for damage or misalignment. Repair or replace.
		Check P3 controller for output signal. Replace unit if required.
		Check harness for bad ground connection.
		Inspect wiring harness for damage. Repair or replace if damaged.
	P3 hydraulic control valve malfunction.	Inspect hydraulic control valve for damage. Check functionality.
	Feed control bar malfunction.	Check feed control bar switches. Replace, reposition pickup trigger.
	Slow hydraulic flow.	Filter is dirty. Change filter.
		Hydraulic oil is contaminated. Inspect oil condition for dirt, foaming. Replace oil.
	No electrical power.	Check battery, engine charging system for power.
	Hydraulic motor slow.	Check hydraulic circuit, oil, and motor condition. Replace if required.
	Roller drive key sheared.	Check and replace.
	Hydraulic pump fault.	Repair or replace.
Hydraulic oil overheating. Noisy hydraulic pump.	Reservoir oil level is too low.	Fill reservoir until fluid is visible in sight glass.
	Dirty filter.	Change filter.
	Hydraulic oil contaminated.	Inspect oil condition. Check for dirt or foaming. Replace oil.
	Feed rollers binding.	Inspect bearings. Lubricate or replace.
	Lines crimped or pinched.	Inspect, repair, or replace lines.
	Worn pump.	Check and replace.
	Line leak.	Inspect hydraulic lines and connections for leaks. Repair or replace.
	Pump leak.	Pump seals are worn. Replace.
	Pump noisy at startup.	Oil temperature too low. Allow machine to warm up before putting to work.

8. Accessories

Call your dealer for pricing and availability

	Ledger clearance setting gauge For **BXTR6438 Trailer Wood chipper** An easy and accurate way of setting the critical clearances between the ledger blade and the rotor chipper blade.

9. Specifications

Specifications Subject to Change Without Notice

Model	BXTR6438 Trailer Wood Chipper	BXTR6438B Trailer Wood Chipper
Engine	Kohler® CH980 35 hp (26 kW)	
Drive System	Rotor: Dual Belt, Auto Engage P3-protected Centrifugal Clutch	
Chipper Housing Opening (Height x Width)	7" x 11" (18 cm x 28 cm)	
Capacity	7" (17 cm) diameter /11" (28 cm) slab	
Chipper Hopper Opening (Height x Width)	25" x 34" (64 cm x 88 cm)	
Chipper Rotor Diameter / Weight	30" (76 cm) diameter @ 197 lb (90 kg)	
Feed System	Hydraulic roller feed with electronic control system	
Max Feed Rate	129 fpm (39 mpm)	
Knife Type	Hardened tool steel	
Number of Rotor Knives	4 segmented knives	
Rollers	Dual horizontal with hydraulic drive	
Discharge Hood Rotation	360°	
Discharge Hood Height	100" (252 cm)	
Hydraulic Tank	7 US gal (30 L)	
Fuel Tank	9 US gal (34 L)	
Mounting System	Trailer 2" (50.8 mm) ball and coupler	
Dry Weight	2,225 lb (1 009 kg)	
Dimensions (Length x Height x Width)	Feed Table Open–148-1/2" x 64" x 100" (378 cm x 163 cm x 255 cm) Closed–128" x 64" x 100" (326 cm x 163 cm x 254 cm)	
Distance of feed roller to edge of feed table to ground.	85" (216 cm)	
Axle	5-bolt Hub Heavy Duty 2200 lb Torsion Axle	5-bolt Hub Heavy Duty 2200 lb Torsion Axle with 7" Electric Brakes
Tire Size	ST205/75R14 Radial Tires	
Features	- P3 PULSE – Electronic feed control and rapid recovery auto-reverse and auto-stop clutch protection - Height-adjustable 2" Ball Coupler - EPA Emission Compliant - Hydraulic fluid level site glass - Fuel level gauge - STOP—FORWARD—REVERSE—STOP – Feed roller control bar - Lockable Fuel / Hydraulic Compartments - Tool compartment - Extendable two-position Trailer Tongue - Highway trailer lights - Electric Start, Heavy Duty Battery - Latching Feed Table (closed position) - Lift Assist for Feed Roller Maintenance - Meets 2013 Worksafe BC Safety Standards	

9.1 Common Bolt Torque Values

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%.

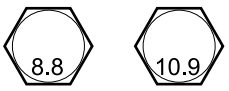
NOTE: Bolt grades are identified by their head markings.

Imperial Bolt Torque Specifications

Bolt Diameter	Torque Value					
	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
1"	225	345	630	850	970	1320

Metric Bolt Torque Specifications

Bolt Diameter	Torque Value			
	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



9.2 Hydraulic Fitting Torque

Tightening Flare Type Tube Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Hand-tighten swivel nut until snug.
4. To prevent twisting the tube, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second. Torque to values shown.

If a torque wrench is not available, use the FFFT (Flats From Finger Tight) method.

Hydraulic Fitting Torque					
Tube Size OD	Hex Size Across Flats	Torque value		Flats From Finger Tight	
Inches	Inches	lbf•ft	N•m	Flats	Turns
3/16	7/16	6	8	2	1/6
1/4	9/16	11–12	15–17	2	1/6
5/16	5/8	14–16	19–22	2	1/6
3/8	11/16	20–22	27–30	1-1/4	1/6
1/2	7/8	44–48	59–65	1	1/6
5/8	1	50–58	68–79	1	1/6
3/4	1-1/4	79–88	107–119	1	1/8
1	1-5/8	117–125	158–170	1	1/8

Values shown are for non-lubricated connections.

9.3 Wheel Lug Torque

It is extremely important safety procedure to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

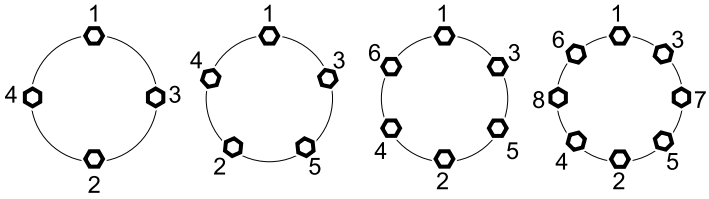
Wheel lugs should be torqued before first road use and after each wheel removal. Check and re torque after the first 10 miles (16 km), 25 miles (40 km), and again at 50 miles (80 km). Check periodically thereafter.

NOTE: Wheel lugs must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.

- Start all lugs by hand to prevent cross threading.
- Tighten lugs in sequence, per wheel lug torque sequence chart.
- The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements chart.

Wheel Lug Nut Torque				
Wheel Size	Units	1st Stage	2nd Stage	3rd Stage
8"	lbf•ft N•m	12–20 16–26	30–35 39–45.5	45–55 58.5–71.5
12"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
13"	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
14"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
15"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
16"	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156

Wheel Lug Torque Pattern



4-Bolt 5-Bolt 6-Bolt 8-Bolt

10. 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

11. Alphabetical Index

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