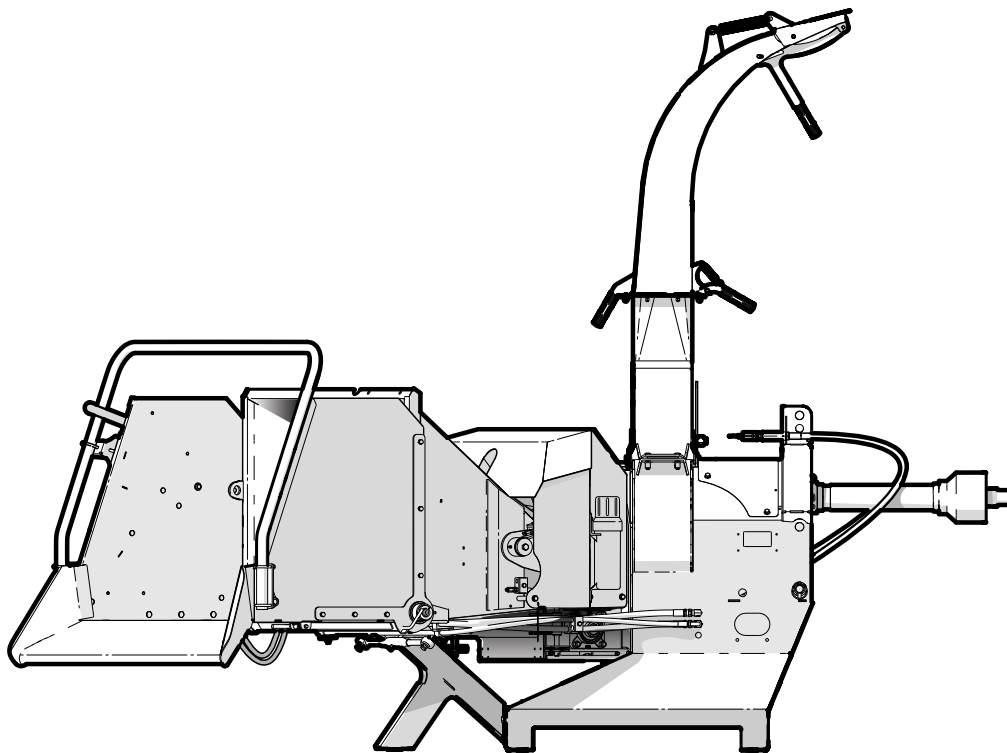


OPERATOR'S MANUAL

BX52R Models – S/N 152R999 to 152R1436
BX72R Models – S/N 172R578 to 172R723
BX102R Models – S/N 1102R407 to 1102R509

BXR Series 3 PH Roller-feed Chipper

P3 PULSE™ TECHNOLOGY



1. Foreword

1.1 Introduction

Congratulations on your choice of a Wallenstein **BXR Series Roller Feed Chipper**!

Wallenstein BXR Series Wood Chippers are designed to chip and chop scrap lumber, small trees, brush, limbs and other wood debris. The chipped material is fine enough to be composted or used in a variety of ways.

This manual covers all of the BXR Series models:

- **BX52R**
- **BX52RI (P3 PULSE option, S/N 152R999 to 152R1436)**
- **BX72R**
- **BX72RI (P3 PULSE option, S/N 172R578 to 172R723)**
- **BX102R**
- **BX102RI (P3 PULSE option, S/N 1102R407 to 1102R509)**
- **BX102RPI (winch and P3 PULSE options, S/N 1102R407 to 1102R509)**

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 the 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)

Wallenstein Equipment Inc. • © 2021. All rights reserved.

No part of this work may be copied, reproduced, replaced, distributed, published, displayed, modified, or transferred in any form or by any means except with the prior permission of Wallenstein Equipment Inc.



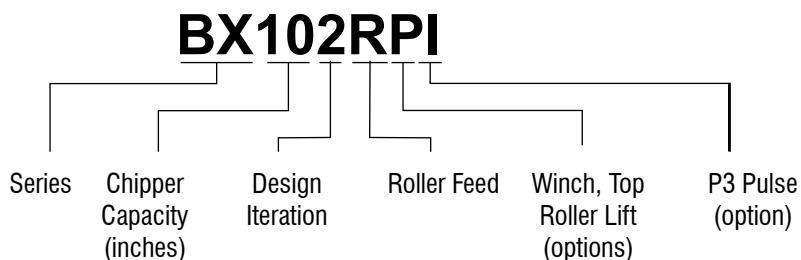
WARNING!

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

Table of Contents

1. Foreword	2	7. Operating Instructions	40
1.1 Introduction.....	2	7.1 Operating Safety Rules	40
1.2 Delivery Inspection Report.....	4	7.2 Pre-operation Checklist	41
1.3 Serial Number Location	5	7.3 Before Startup	41
1.4 Types of Decals on the Machine	6	7.4 Chipping Operation.....	43
2. Safety	7	7.5 P3 PULSE Equipped Models	44
2.1 Safety Alert Symbol.....	7	7.6 Winch-equipped Models	44
2.2 Signal Words.....	7	7.7 Stopping Procedure.....	46
2.3 Why Safety is Important	7	7.8 Stopping in an Emergency	46
2.4 Safety Rules.....	7	7.9 Unplugging the Chipper	46
2.5 Equipment Safety Guidelines	8	7.10 Transporting the Chipper	49
2.6 Safe Condition.....	8	7.11 Storage.....	50
2.7 Safety Training	9	8. Service and Maintenance.....	51
2.8 Being Prepared.....	9	8.1 Safety Rules.....	51
2.9 Hydraulic System Safety.....	9	8.2 Fluids and Lubricants	51
2.10 Sign-Off Form	10	8.3 Maintenance Schedule	52
3. Safety Signs	11	8.4 Grease Points.....	53
3.1 Safety Sign Locations.....	11	8.5 PTO Shaft Maintenance	56
3.2 Safety Sign Explanations	12	8.6 Twig Breaker	57
3.3 Replace Damaged Safety Signs	14	8.7 Rotor Blades	57
4. Familiarization.....	15	8.8 Ledger Knife.....	58
4.1 To the New Operator or Owner.....	15	8.9 Feed Rollers	60
4.2 Operator Orientation	15	8.10 Electrical System – General	61
4.3 Machine Components.....	16	9. Troubleshooting.....	62
5. Attach to a Tractor	19	10. Specifications	64
5.1 Connect 3-point Hitch.....	19	10.1 Machine Specifications.....	64
5.2 Size PTO Shaft	20	10.2 Common Bolt Torque Values	65
5.3 Install PTO Shaft.....	23	10.3 Hydraulic Fitting Torque.....	66
5.4 Connect Hydraulic Hoses	24	11. Product Warranty	67
5.5 P3 PULSE Equipped Models – BX52RI, BX72RI, BX102RI / RPI	24	12. Alphabetical Index	68
6. Controls	25		
6.1 Discharge Chute.....	25		
6.2 Discharge Chute Deflector	25		
6.3 Feed Roller Control Bar.....	26		
6.4 Feed Roller Flow Control Valve.....	29		
6.5 Easy Start System.....	29		
6.6 Rotor Lock.....	30		
6.7 P3 PULSE Electronic Control System	31		
6.8 Display.....	32		
6.9 Start-up Screen	32		
6.10 Display Screens	33		
6.11 Hydraulic Feed Roller Lift Option (BX102R only).....	37		
6.12 Hydraulic Winch Option (BX102RP only).....	38		

1.2 Delivery Inspection Report

Wallenstein BXR Series Roller Feed 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.

I have thoroughly instructed the buyer on the equipment care, adjustments, safe operation and applicable warranty policy and reviewed the manuals.

Customer
Address
City, State/Province, ZIP/Postal Code
()
Phone Number
Contact Name
Model
Serial Number
Delivery date

Dealer
Address
City, State/Province, ZIP/Postal Code
()
Phone Number

Dealer Inspection Checklist

- _____ Rotor turns freely and the blade clearance is correct.
- _____ All cutting edges are sharp and in good condition.
- _____ Feed table and control handle move freely.
- _____ Discharge chute and deflector move freely.
- _____ Lower roller clean out moves freely.
- _____ Lock pins align and move freely.
- _____ Drive lever functions correctly.
- _____ All fasteners are tightened to the correct torque.
- _____ All grease points are lubricated.
- _____ Hydraulic system and cylinders function correctly.
- _____ Hydraulic connections are tight, and hoses and fittings are in good condition.
- _____ There are no hydraulic leaks.
- _____ Purchased accessories are included, if applicable.
- _____ Operator's Manual is in the storage tube.

Winch Option

- _____ Winch motor and gear-lock function correctly.
- _____ Winch hook, and fairlead are in good condition.
- _____ Winch arm functions correctly.
- _____ Winch clutch-handle control functions correctly.

P3 PULSE Option

- _____ Electrical harness connection is secure.
- _____ Wire connections are secure and wires are in good condition.
- _____ Display functions correctly.

Safety Checks

- _____ All safety sign decals are applied and legible.
- _____ All guards, shields, and covers are installed and secure.
- _____ A retainer is installed through each hitch point.
- _____ SMV sign is installed.
- _____ Operating and safety instructions were reviewed.

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.

Please record the product Model and Serial Number in the space provided below for easy reference.

Record Product Information Here	
Model:	
Serial Number:	

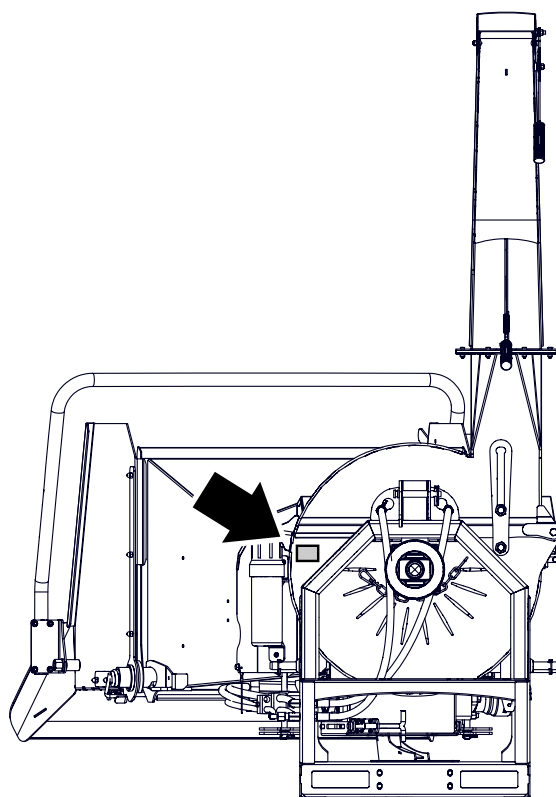
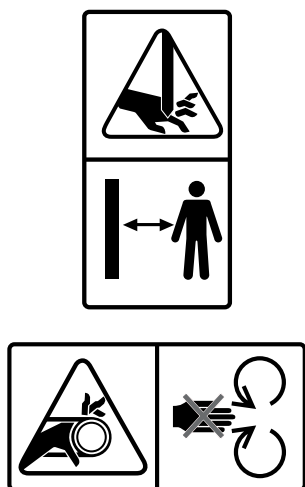


Fig. 1—Serial Number Plate Location (Typical)

1.4 Types of Decals on the Machine

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

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



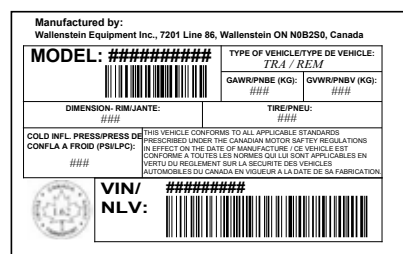
Safety Notice Decals are pictorial with a blue background and generally rectangular with single or multiple symbols. This decal informs what Personal Protective Equipment is required for safe operation.



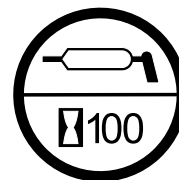
Informative Decals are generally pictorial with a white background and can vary in the number of panels. This type of decal provides additional information to the operator or explains the operation of a control.



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



Maintenance Decals have a green background. The decal indicates a maintenance procedure 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

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

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

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 operating 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 for this machine to all employees who are going to use it.



- Read and follow ALL safety and operating instructions in this manual. The most important safety device on this equipment is a SAFE operator.
- Review safety related items annually with all personnel operating or performing maintenance.

- Wear the appropriate PPE. This includes but is not limited to:
 - A hard hat.
 - Heavy gloves.
 - Hearing protection.
 - Protective footwear with steel toes and slip resistant soles.
 - Protective glasses, goggles, or a face shield.
- Keep a first-aid kit available for use should the need arise and know how to use it.
- Inspect and secure all guards before starting.
- Keep a fire extinguisher available for use should the need arise and know how to use it.
- **DO NOT** expect anyone to operate this machine unless they have read and understand all operation and safety instructions. An untrained operator is not qualified and can create the risk of possible serious injury or death. It is the machine owner's responsibility to make sure operators are properly trained.
- **DO NOT** allow riders during transport.
- **DO NOT** risk injury or death by ignoring good safety practices.



- Never consume alcoholic beverages or drugs while using this equipment. Alertness or coordination can be affected. Consult your doctor about using this machine while taking prescription medications.
- This equipment is dangerous to children and persons unfamiliar with its operation. Do not allow persons to use or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works. Review the safety instructions with all users annually.
- The operator must be a responsible, properly trained and physically able person familiar with machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
- Use this machine only in daylight or good artificial light.
- Learn the controls and how to stop the tractor and machine quickly in an emergency.
- 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. Unapproved modifications void warranty.
- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely is in question – **DO NOT TRY IT**.
- On winch-equipped models, replace synthetic rope if kinked, badly frayed, has knots, cuts, or broken strands. If rope fails under tension it can snap back with great force causing injury or death. Avoid sudden jerks, quick starts or stops. Start slowly and smoothly.

2.5 Equipment Safety Guidelines

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

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

- Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use. In some cases, certain illustrations in this manual may show an assembly with a safety shield removed for clarity. However, equipment should never be used in this condition.
- Replace any safety sign or instruction sign that is not readable or is missing. Location and explanation of safety signs are on *page 11*.
- Avoid loose fitting clothing, loose or uncovered long hair, jewelry, and loose personal articles. These can get caught in moving parts. Jewelry may also ground a live circuit.

2.6 Safe Condition

The term **Safe Condition** is referenced throughout this manual. What this means is setting the machine in a state that makes it safe to load, service, maintain, or prepare for storage.


Complete the following to place the machine in a Safe Condition before performing any service, maintenance work, or storage preparation:

Safe Condition


1. Lower the chipper to the ground.
2. Disengage the PTO.
3. Set the parking brake and turn off the tractor engine. Remove the ignition key.
4. Make sure all components have stopped moving.
5. Block and chock the tractor wheels.
6. If required, set the rotor lock.

2.7 Safety Training

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

- It is the operator's responsibility to read, understand and follow ALL safety and operation instructions in this manual.
- 
- Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will use the machinery. A person who has not read and understood all instructions is not qualified to use the machine. An untrained operator can cause possible serious injury or death.
 - Learn the controls and how to stop the machine quickly in an emergency.
 - If this machine is used by any other person, loaned or rented, it is the owner's responsibility to make certain that prior to using, every operator:
 - Reads and understands the owner's manual
 - Is instructed in safe and proper use of the equipment
 - Understands and knows how to perform the Safe Condition procedure

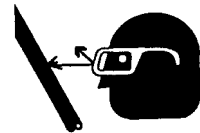
2.8 Being Prepared

- Never use the machine until the operators have been adequately trained in the safe operation of the machine and have read and completely understand:
 - Safety, operation and feature sections of this manual
 - Each of the safety messages found on the safety signs on the machine.
 - Engine operator's manual
 - PPE is recommended during assembly, installation, operation, adjustment, maintenance, repair, removal, cleaning, and transport.
 - Prolonged exposure to loud noise may cause permanent hearing loss! Power equipment with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss.
- 
- Always wear hearing protection if the noise in any area you work in exceeds 80 dB.
 - Noise over 85 dB on a long-term basis can cause severe hearing loss.
 - Exposure to noise over 90 dB over a long-term basis may cause permanent, total hearing loss.

- Hearing loss from loud noise (from engines, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime, without hope of natural recovery.
- Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
- Determine where chips will be piled and ensure it does not interfere with safe operation of the machine
- Be aware of overhead hazards: branches, cables, electrical wires.
- Use this machine only in daylight or good artificial light.
- Be sure machine is properly mounted, adjusted and in good operating condition.
- Perform the **Pre-start Checks** before starting work (see page 41).

2.9 Hydraulic System 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 will 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 hydraulic circuit working on system.



2.10 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 & Lawn Equipment

[illegible]

3. Safety Signs

3.1 Safety Sign Locations

The top (or left-hand) panel 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!

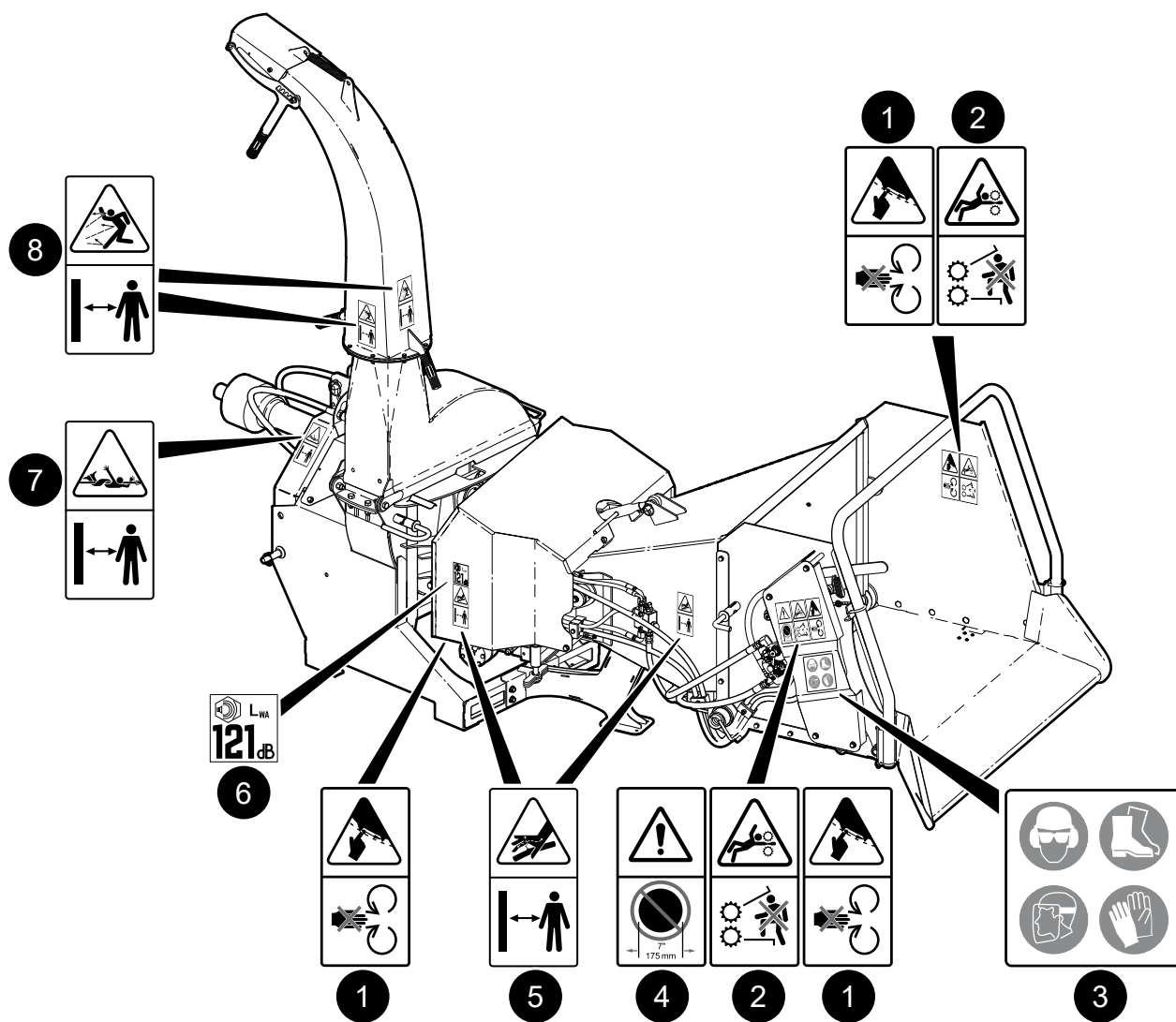
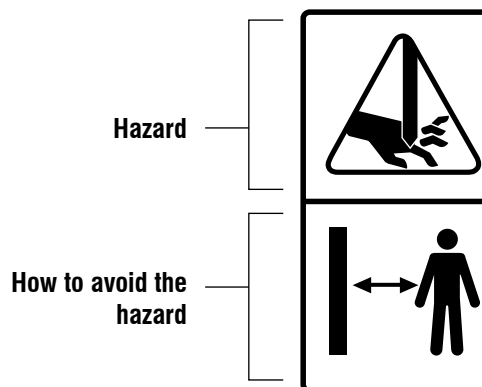


Fig. 2–Safety Sign Decal Locations

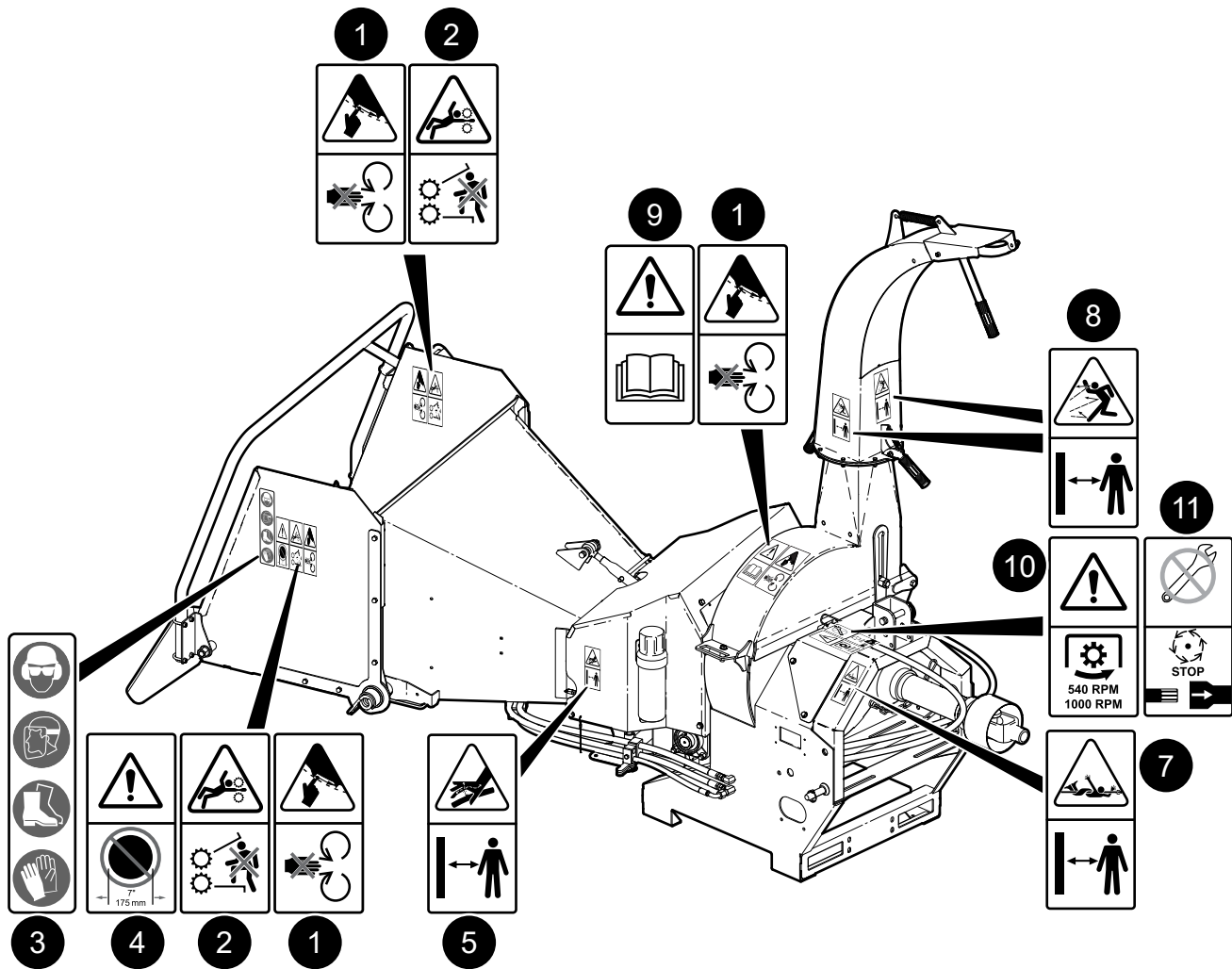


Fig. 4—Safety Sign Decal Locations

3.2 Safety Sign Explanations

IMPORTANT! If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied.

New safety signs are available from your authorized dealer.

1. WARNING!

Risk of fingers being severed or serious injury to hands in this area!

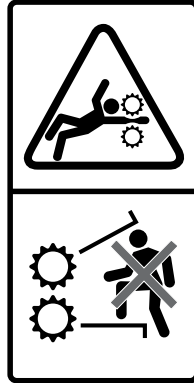
Keep hands and feet out of inlet and discharge openings while machine is operating.



2. WARNING!

Risk of serious personal injury if you are caught in the chipper feed rollers!

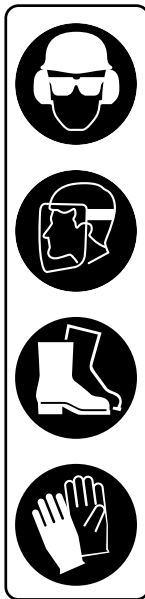
Do not step into or place any part of your body inside the feed hopper area when the chipper is operating. Serious injury or death could result.



3. CAUTION!

Always wear appropriate Personal Protective Equipment if around this machine when it is in operation.

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



4. CAUTION!

Risk of personal injury!

Do not overload the chipper by placing material into the feed hopper larger than the size stated on the decal, for example 7" (175 mm) in diameter.

Machine damage could result.



5. WARNING!

Hydraulic fluid under pressure! Risk of high pressure fluid being injected under the skin!

Never check for leaks with your hand. Use a piece of wood or cardboard instead. Keep clear of oil leaks that are under pressure.



6. CAUTION!

A noise declaration decal indicates the sound power (LWA) emitted by the machine when operating. For this chipper, it can be up to 121 decibels at close distances.

Always wear hearing protection when near the operating machine. Noise exposure over 85 dB on a long-term basis can cause severe hearing loss. Exposure over 90 dB over a long-term basis may cause permanent, total hearing loss.



7. WARNING!

Risk of entanglement in rotating drive line!

Stay clear of the PTO shaft when the chipper is operating. Do not operate chipper with PTO shaft cover removed. Keep hands, loose clothing, and long hair away from drive line while it is rotating.



8. WARNING!

Risk of injury from flying debris!

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

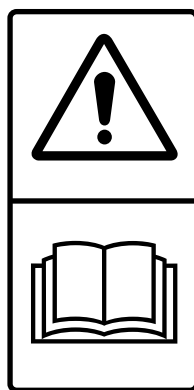
Do not point discharge at people, animals or buildings. Point chipper discharge away from work area and bystanders. Keep a safe distance from discharge.



9. WARNING!

Refer to the operator's manual. Read **ALL** operating instructions in the manual. Learn the meaning of **ALL** safety signs on the machine before operating it!

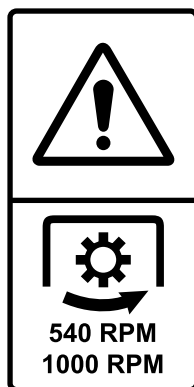
The best safety feature is an informed operator.



10. WARNING!

Risk of personal injury. Operate chipper at the correct PTO speed and direction.

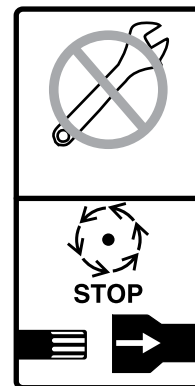
Tractor PTO must operate at 540 or 1000 rpm, rotating in the direction of the arrow.



11. WARNING!

Risk of personal injury!

Stop the machine and disconnect the PTO shaft before performing any repair or maintenance procedure. Place the machine in a state that makes it safe to work on. See page 7.



3.3 Replace Damaged Safety Signs

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

Procedure

Installation area must be clean and dry. Make sure the surface is free of grease or oil. Ambient temperature must be above 50 °F (10 °C).



Determine exact position before removing the backing paper on the decal.

1. Peel the decal off the backing sheet.
2. Align the decal with an edge on the machine if possible.
3. Starting on one edge, carefully press the center of the exposed sticky backing in place, smoothing it out as you work from one side to the other.
4. Use a squeegee, credit card or similar to smooth it out. Work from one end of the decal to the other end.

Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

4. Familiarization

4.1 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 exactly. Safety is everyone's business.

By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to use the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to use the chipper safely and provide maximum efficiency. By following these instructions in conjunction with a good maintenance program, your BXR Wood Chipper can provide many years of trouble-free service.

4.2 Operator Orientation

IMPORTANT! The directions for left-hand, right-hand, backward, and forward mentioned throughout this manual are determined when sitting in the tractor seat, facing the direction of forward travel.

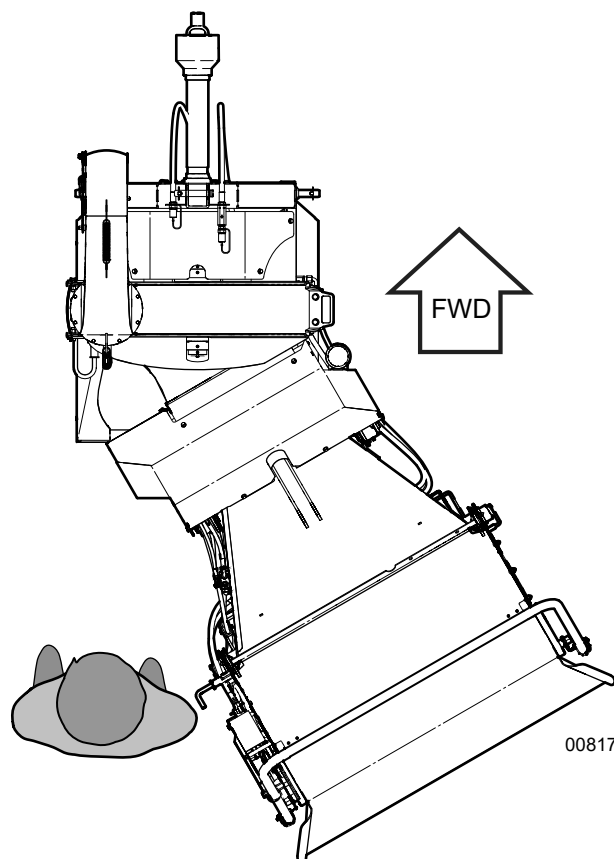
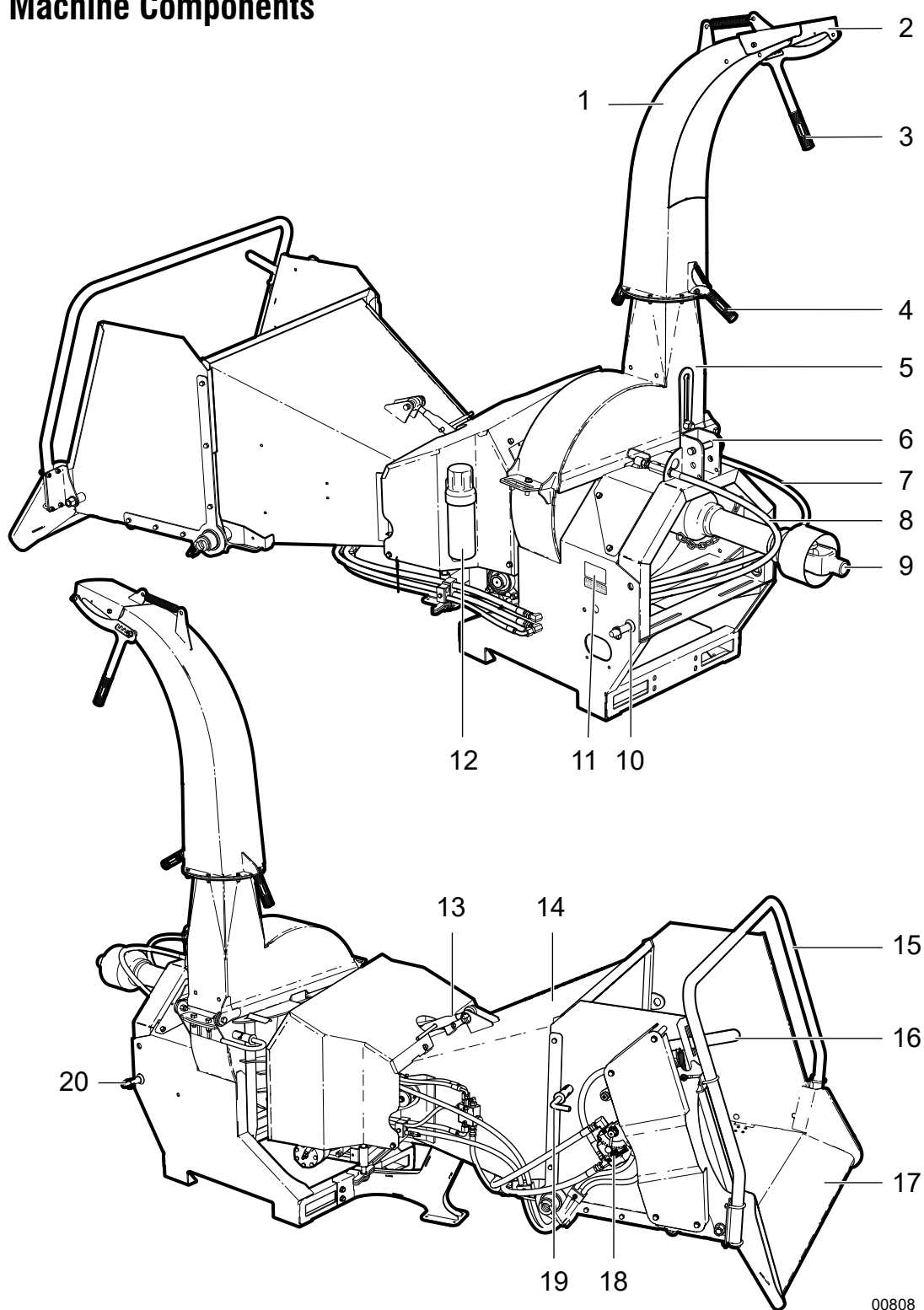


Fig. 3—Direction of forward travel

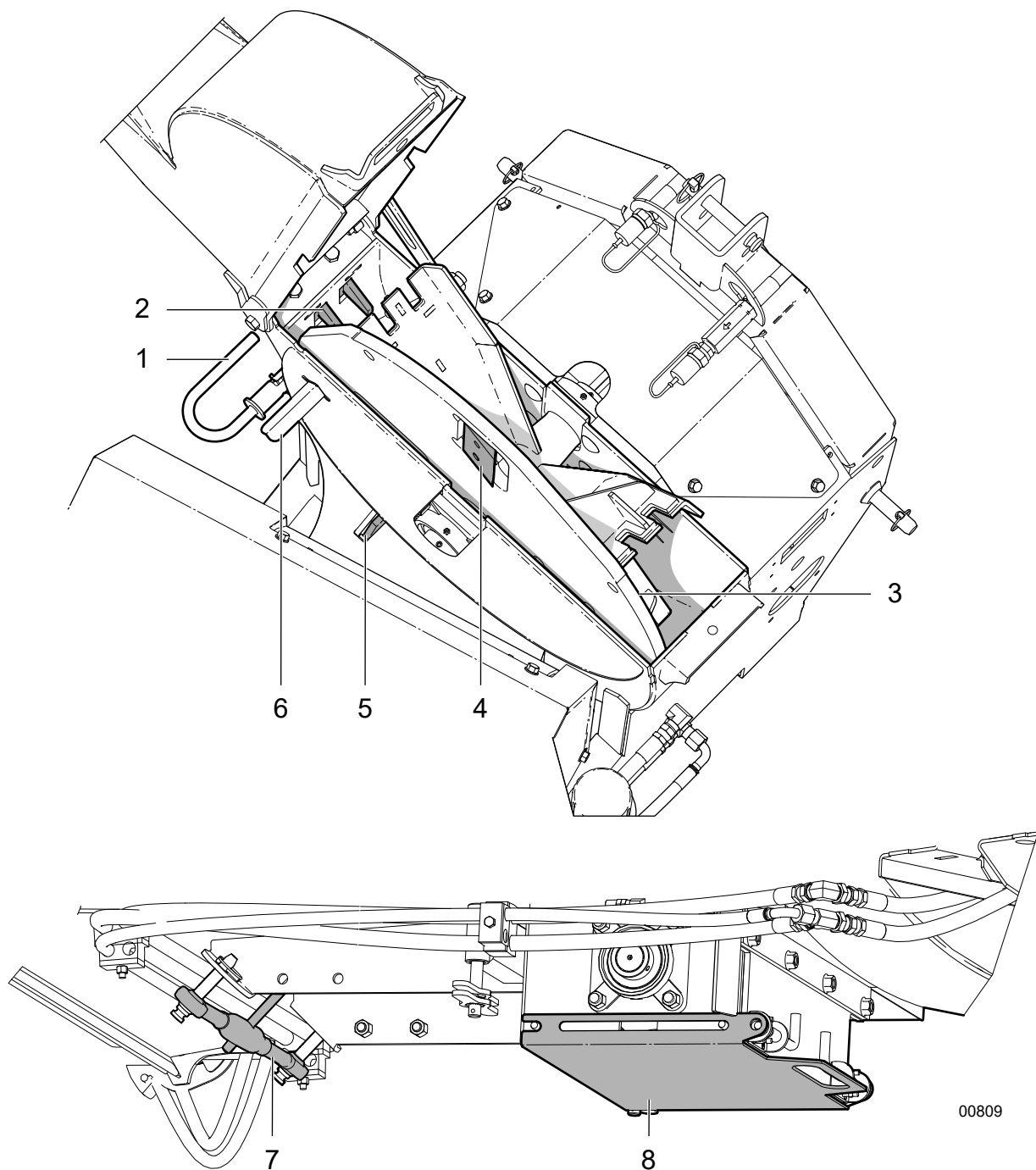
4.3 Machine Components



00808

Fig. 5—Components (Typical)

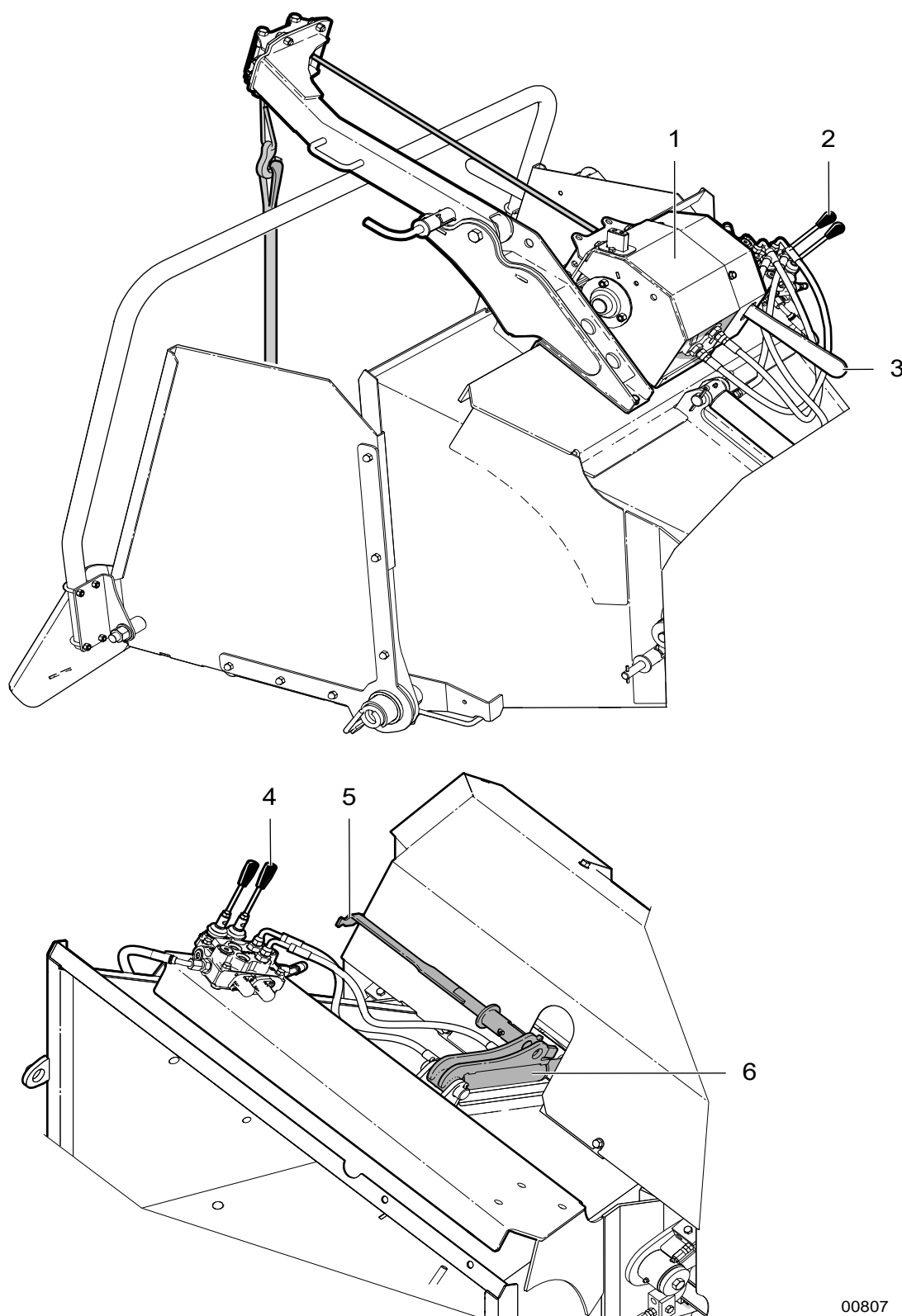
- | | | |
|---------------------------------|-----------------------------------|-------------------------------------|
| 1. Discharge Chute | 8. Return Hose | 15. Feed Roller Control Bar |
| 2. Discharge Chute Deflector | 9. Power Take Off (PTO) Shaft | 16. Detent Reset |
| 3. Discharge Deflector Handle | 10. Lower Link Pin—RH | 17. Feed Table |
| 4. Discharge Chute Latch Handle | 11. P3 PULSE (option) | 18. Feed Roller Speed Control Valve |
| 5. Upper Housing | 12. Manual Tube | 19. Feed Table Lock |
| 6. Toplink Pin | 13. Toplink (BX52R, BX72R models) | 20. Lower Link Pin—LH |
| 7. Pressure Hose | 14. Feed Hopper | |



00809

Fig. 6—Components (Typical)

- | | | |
|-----------------|---|---------------------------|
| 1. Rotor Lock | 5. Ledger Knife | 8. Lower Roller Clean out |
| 2. Twig Breaker | 6. Ledger Setting Gauge | |
| 3. Rotor | 7. Toplink Storage Position (BX102R models) | |
| 4. Rotor Knife | | |



00807

Fig. 7 – Winch and Hydraulic Feed Roller Lift Options (BX102RP only)

1. Hydraulic Winch
2. Hydraulic Winch Control Valve
3. Winch Gear Engage-Disengage Lever
4. Hydraulic Feed Roller Lift Control Valve

5. Lift Cylinder Locking Pin
6. Feed Roller Lift Cylinder

5. Attach to a Tractor

5.1 Connect 3-point Hitch

WARNING!

Never let anyone stand between the tractor and the implement during hitching. Too fast of an approach or the operator's foot slipping from the clutch can lead to injury or fatality to the person standing nearby.

W048

IMPORTANT! Removing the drawbar may be required for clearance.

- The BX102R models are Category II.
- The BX72R models are Category I, and are Quick Hitch and iMatch™ compatible.
- The BX52R models are Category I, and are Quick Hitch and iMatch compatible. They feature an adjustable lower ski. Ski adjustment may be required when determining PTO shaft length. See *page 20*. These models feature additional lower clevis style attachment points. To use these attachment points, a 7/8" pin is required (not supplied).

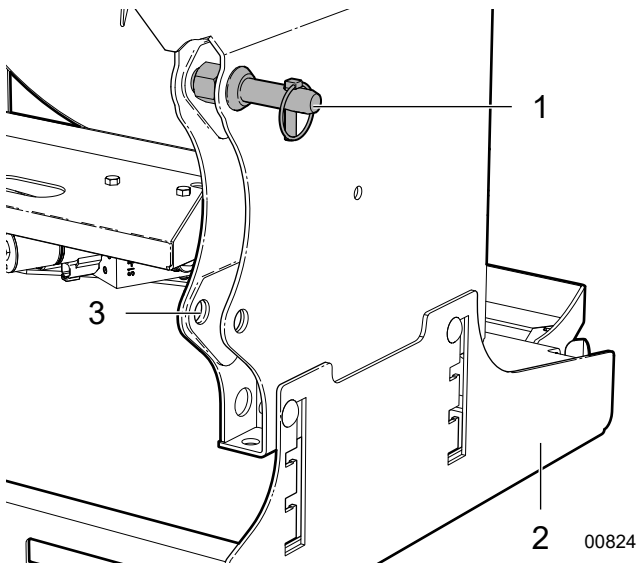


Fig. 8—BX52R Models

1. Implement Pin
2. Adjustable Ski
3. Lower Attachment Point

Make sure there is enough room and clearance to safely reverse to the chipper.

Procedure

1. On the tractor, place the 3-point hitch lift arms in their full sway position, then reverse the tractor up to the chipper. The tractor needs to be exactly in-line with the mounting points of the chipper otherwise attaching the 3-point hitch may require moving the implement from side to side.
2. When reversing, lower/raise the lift arms so that they are level with the lower attachment points on the chipper.

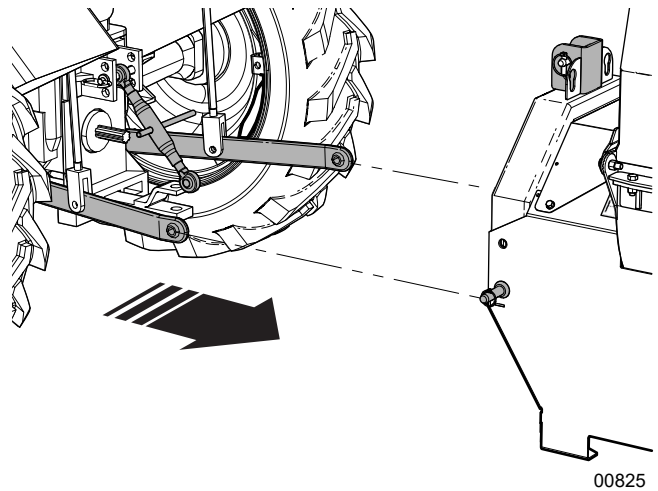


Fig. 9—Back up in line with the chipper

3. Back up slowly and align the balls in the lift arms to the pins on the chipper.
4. Apply the tractor park brake.
5. Starting on one side, push the floating ball on the tractor's lift arms over the lower attachment pin on the chipper.
6. Do the other side in the same manner, keeping the lift arms even. Insert lynch pins on both sides to secure the chipper to the tractor.
7. Attach the tractor top link to the upper attachment point on the chipper. Insert the pin and lynch pin.
8. As with any implement, the turnbuckle on the top link may need to be adjusted to level the chipper. Raise the implement just off the ground to check. Adjust top link length as required.
9. If not already done, level the chipper from side to side using the lift arm jack-screw arm and the top link turnbuckle. The chipper frame should always be kept horizontal during operation.

5.2 Size PTO Shaft

IMPORTANT! The PTO shaft that came with your machine may need to be shortened. A longer shaft is supplied because tractor lift arms vary in length.

The PTO shaft must be free to telescope and not bottom out when going through its working range. It should never completely collapse in use. There should always be 2" (50 mm) of space for retract.

If the shaft bottoms out, the bearings on both ends can be overloaded and could fail causing damage or injury.

WARNING!

Avoid the risk of personal injury or machine damage! Read the operator's manual before using this equipment. Carefully read all safety messages in the manual and follow all safety signs on the machine.

W081

CAUTION!

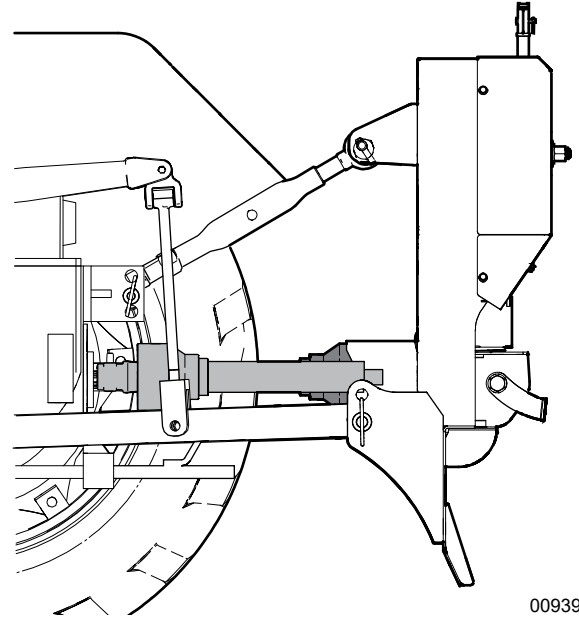
Wear suitable eye protection when cutting steel tubes.

1. Remove the PTO shaft and mount the attachment on the tractor three-point hitch.
2. Start the tractor and raise the three-point hitch up off the ground until the machine's input shaft is level with the tractor PTO output shaft. **This is the shortest distance between the input and output shafts.**
3. Make sure tractor is shut off with parking brake applied.

4. Pull the PTO shaft apart and place one end on the tractor output spline. Place the other on the implement input.



Illustrations show a winch; however, the method is the same.



00939

Fig. 10—Input shaft and output shaft

5. Lift the shaft ends up so that they are as parallel to each other as possible. Support them with blocking or tie them together. If the shafts are too long or there is not enough room, see *Alternate Method* on page 22.

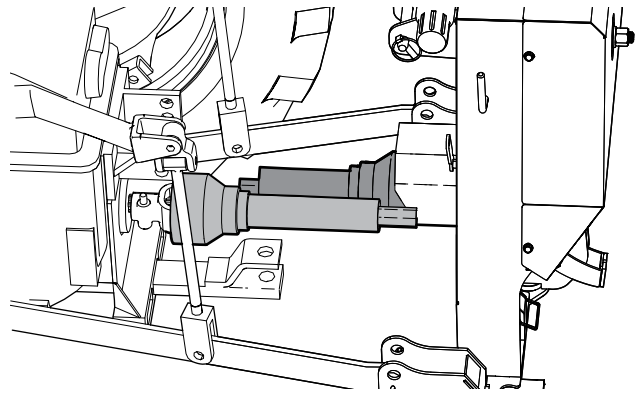


Fig. 11—Lift shaft ends up parallel

6. Using a straight edge, transfer a mark from the end of one tube section to the other section as shown.

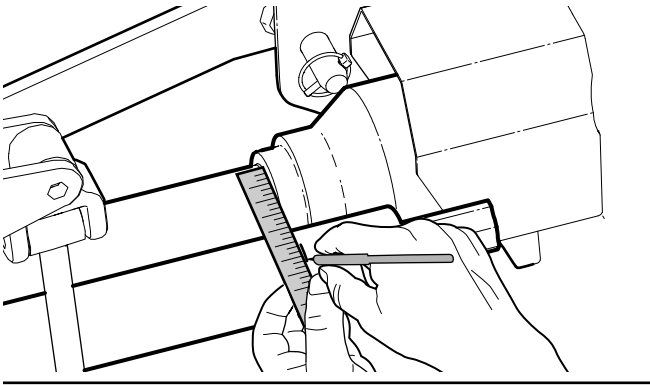


Fig. 12—Transferring the mark

7. Add 2 inches (50 mm) to that measurement and place a second mark on the outer plastic tube. This is where the plastic shielding needs to be cut off.

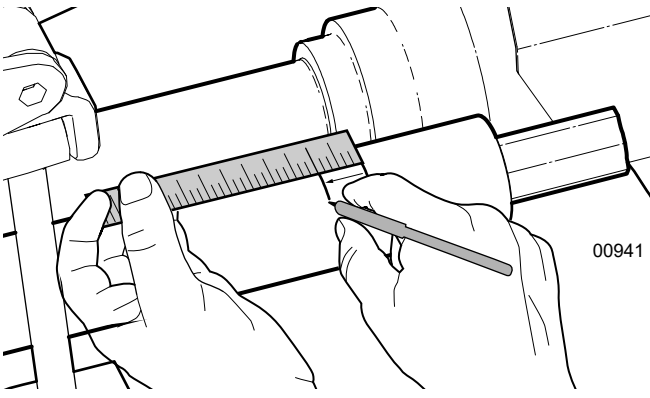


Fig. 13—Place mark to cut plastic tube

8. Cut the plastic tube off at the mark, leaving the steel shaft inside.

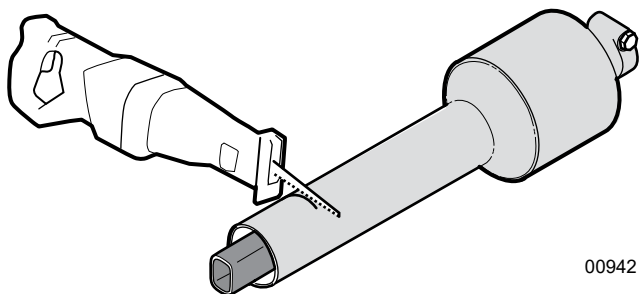


Fig. 14—Cut plastic tube at the mark

9. Using the cut-off length of plastic tube as a guide, mark the steel tube. Align the end of the plastic tube with the end of the steel shaft.

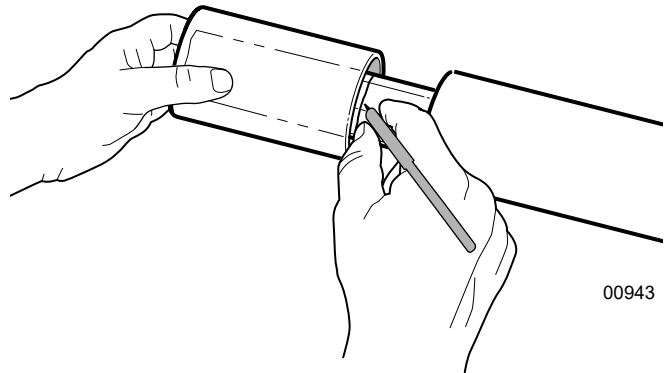


Fig. 15—Marking steel tube.

10. Cut the steel tube off at the mark.
11. Using the cut-off length of plastic tube to mark the remaining cuts, repeat this process for **BOTH** PTO shaft halves.



Place the end of the steel shaft to be cut off in a vice so it is easier to control your cut.

12. Remove the burrs from the edges of the steel shaft that were cut. Clean the steel shaft halves.
13. Grease the inner tube so the tube halves slide together easier.

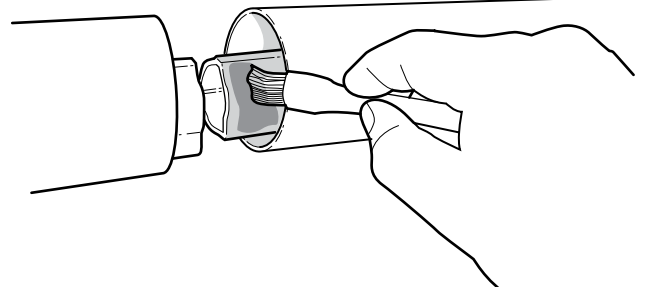


Fig. 16—Grease the inner tube

14. Assemble the two halves of the PTO shaft.

IMPORTANT! Using a driveshaft not supplied with your machine may result in being assembled out of phase (universal joint yokes are not aligned with each other). Make sure driveshaft is assembled with u-joints in phase otherwise unbalances cause wear and eventually lead to failure.

15. Make sure the shaft can telescope freely before installing. If it does not, separate the two parts and inspect for burrs or cuttings on the shaft ends.

IMPORTANT! The two PTO shaft halves should overlap inside at least 6" (150 mm).

5.2.1 Alternate Method

This method can be used if the two ends of the PTO shaft cannot be put close enough together to measure.

1. Install the attachment on the tractor. Lift the attachment up so that the tractor output is level with implement input shaft.
2. Take the PTO shaft that came with your machine, fully collapse it, and measure the distance between the locking yokes. Call this measurement **A**.

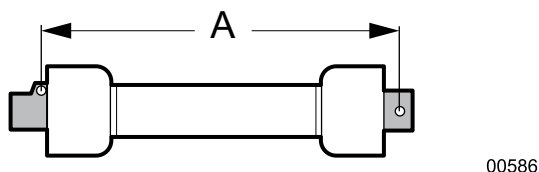


Fig. 17—Measurement A

3. Measure the distance between the grooves for the locking collars on each input. Subtract 2 inches (50 mm) from this measurement. Call this measurement **B**.

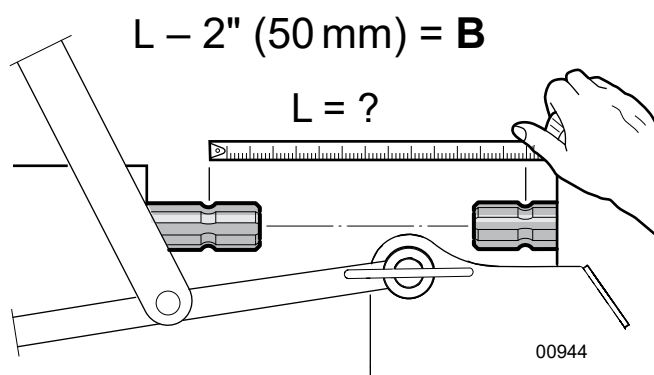


Fig. 18—Measurement B

4. If the collapsed length **A** is longer than measurement **B** from Step 3, the PTO shaft must be shortened.
5. Subtract **B** from the uncut PTO shaft measurement **A**.
(**A - B**)

The result is how much **BOTH** halves of the PTO shaft need to be shortened. Call this value **C**.

$$A - B = C$$

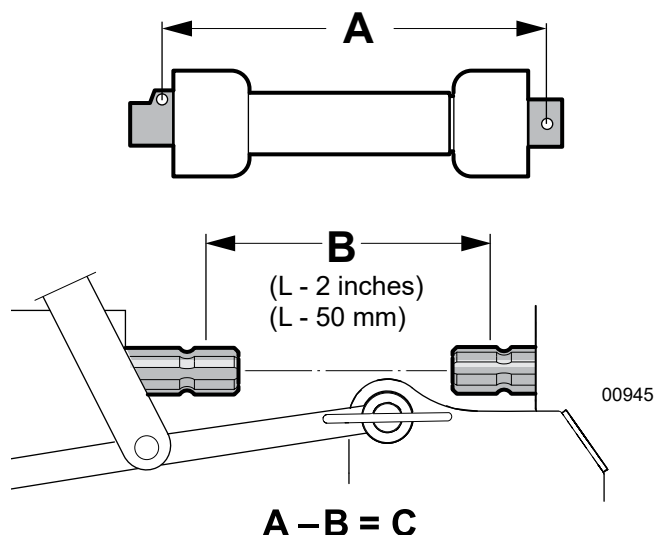


Fig. 19—Value C = Cut Length

6. Pull the PTO shaft apart, and then measure and cut the length **C** from both the outer plastic covers and the inner metal tubes.



Use the cut off piece of outer shielding to mark the inner tube. Leave the steel center tubes longer than the plastic outer tubes, otherwise they can be harder to put back together.

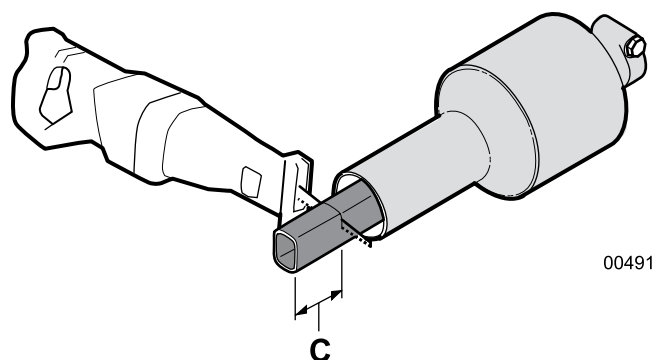


Fig. 20—Cut off the Length C from both PTO Shaft halves

5.3 Install PTO Shaft

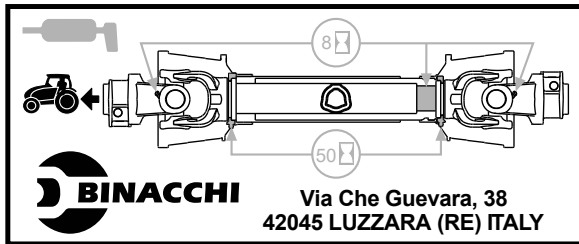
The implement must be mounted to the tractor, and fully lowered to the ground. Make sure tractor is shut off with parking brake applied.

Check to make sure the shielding on the PTO shaft is in good condition and able to turn freely, independent of the PTO shaft.

Make sure the PTO yoke ends are clean. Adding a small amount of lubricant on the splines can help them slide on.

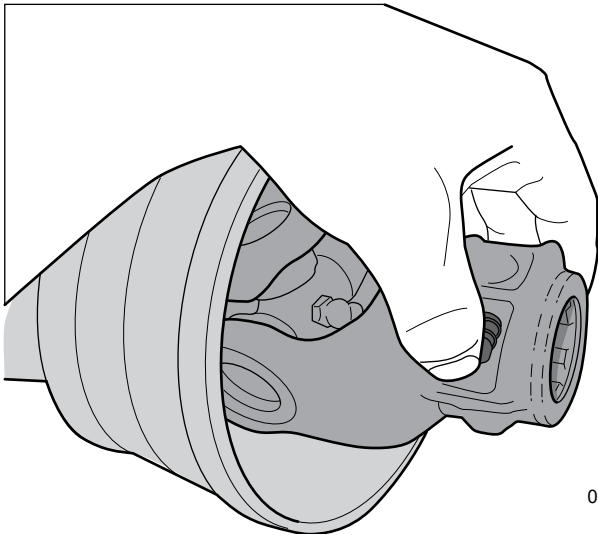


A decal on the shielding indicates the tractor-end of the driveshaft.



01655

1. Install the PTO shaft on the implement. Press the locking pin button and push the shaft end onto the input PTO. Connect the safety chain to the implement so that the shielding does not turn during operation.



00866

Fig. 21—Locking Pin Button

2. Slide out the end of the PTO shaft up to the tractor output PTO, aligning the two shaft splines. Press the locking pin button and push the shaft end onto output PTO.
3. Once started, slide the shaft all the way on. You might hear a click and your button should retract to the original position.

4. To check that the shaft lock is fully seated, pull back on the shaft with your hands off the button.
5. Start the tractor and raise / lower the attachment to check clearances. A correctly sized shaft should never bottom out or come apart.

IMPORTANT! Check driveshaft alignment. During operation, the working angle should not be greater than 15° between the tractor and the implement. Misalignment can cause premature wear and eventually failure.

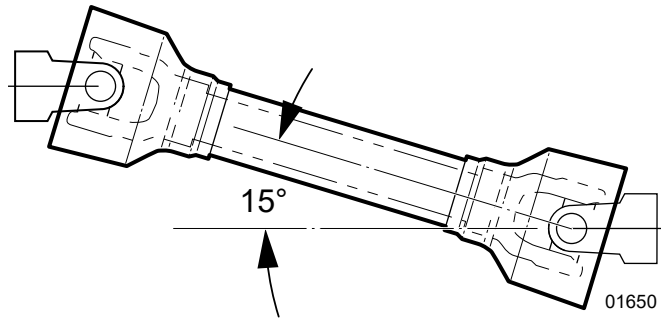


Fig. 22—Driveshaft Alignment

6. Check the rotation direction. A decal on the machine indicates correct rotation.



5.4 Connect Hydraulic Hoses



WARNING!

Hydraulic oil under pressure can penetrate the skin or eyes causing serious injury.

- Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard or wood, not your hand. Take care to protect hands and body from high-pressure fluids. Wear a face shield or goggles for eye protection.
- If an accident occurs, see a doctor familiar with this type of injury immediately.

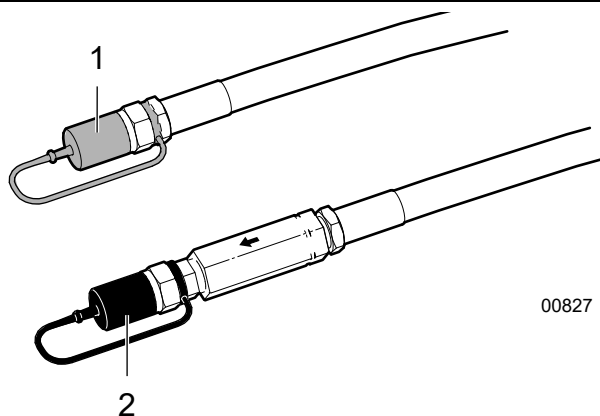
W040

Hydraulic power from the tractor is required to drive the feed rollers.

1. Clean any dirt from the quick-disconnect couplers on the tractor.
2. Route the hoses to avoid binding or pinching, then connect them to the tractor couplers.

The protective caps on the hoses are colored to indicate function—red is the pressure line, black is return.

Additionally, the return line has an arrow on the in-line check valve to indicate oil flow direction.



00827

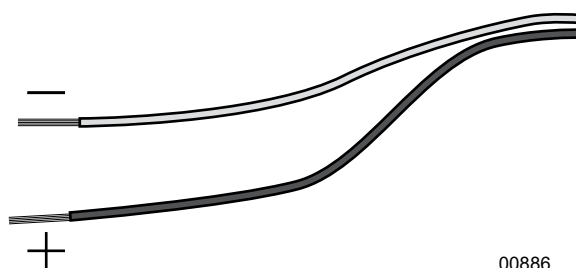
Fig. 23—Hydraulic hoses

1. Pressure Line to Chipper (red cap)
2. Return Line to Tractor (black cap)

5.5 P3 PULSE Equipped Models – BX52RI, BX72RI, BX102RI / RPI

Models equipped with P3 PULSE electronic control system require a 12 VDC, 2-amp power supply from the tractor in order to function. Connection must be to a (14.5 V) charging battery.

1. Route the harness across the tractor hitch to avoid rubbing or chafing.
2. First, connect the positive (+) red wire to the 12 VDC supply on the tractor.
3. Connect the ground (-) black to the ground connection on the tractor.



00886

Fig. 24—P3 PULSE Power Connection

6. Controls

This section reviews the controls on the chipper. Before starting to work, all operators should familiarize themselves with the location and function of all controls.

6.1 Discharge Chute

The discharge chute has a spring-loaded latch handle that allows the chute to be positioned at any angle, then locked into position with the latch.

1. Lift the latch handle up until the chute lock pin disengages.
2. Use the handles to turn the chute.
3. Release the latch handle and make sure the chute locks into position at the next nearest lock point.

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

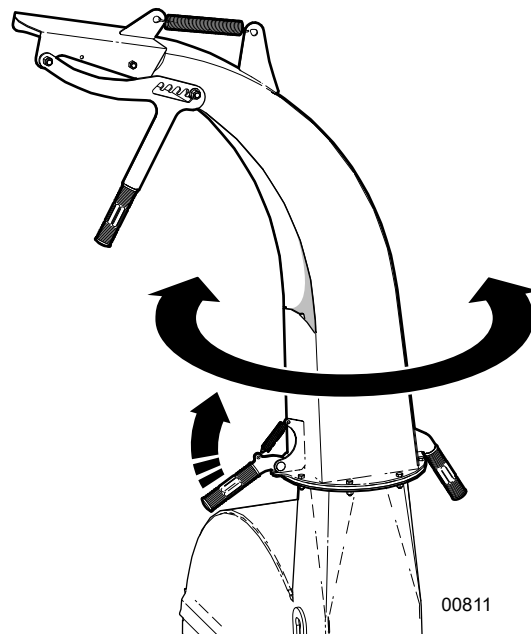


Fig. 25—Discharge Chute

6.2 Discharge Chute Deflector

The discharge chute is equipped with a spring-tensioned hood deflector to direct the wood chips.

1. Lift and push the adjuster grip handle forward to move the deflector into position as required.
2. Lock the deflector into position by pulling back and down.

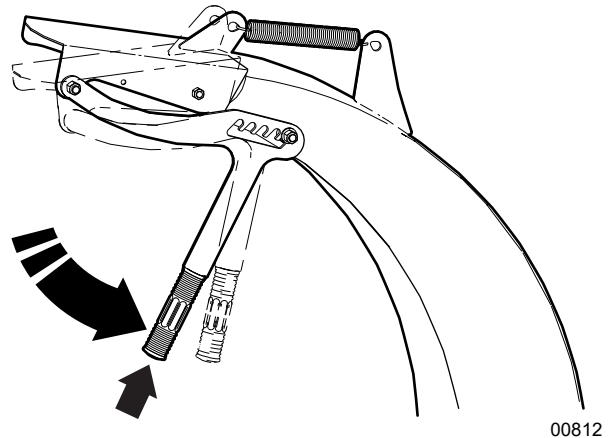


Fig. 26—Chute Deflector

6.3 Feed Roller 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.

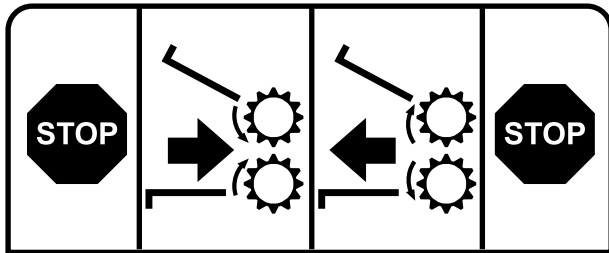
W023



To quickly stop the feed rollers in an emergency situation, rapidly pull or push the bar to its maximum position.

The feed roller bar remains locked in the STOP position until it is released by the detent reset handle.

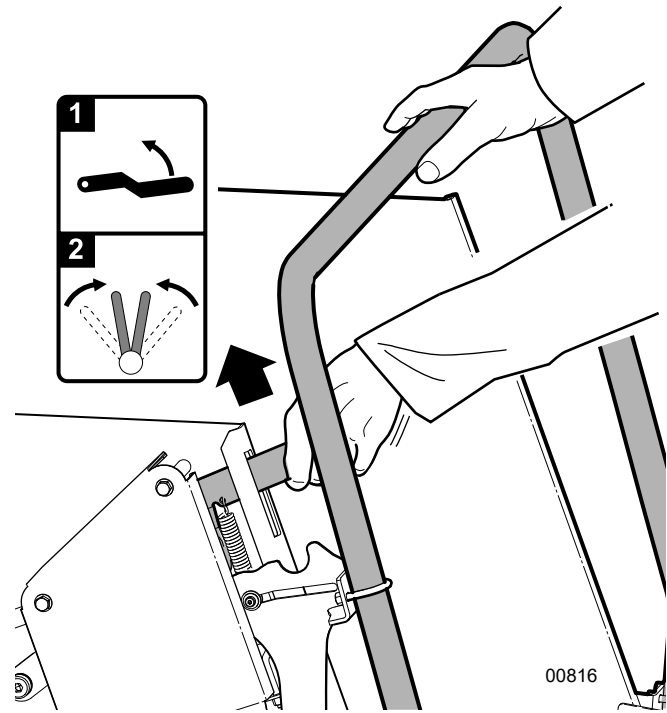
The Feed Roller Control bar on the back of the hopper controls the material feed into the chipper. The control bar has four positions: **Stop–Forward–Reverse–Stop**. Decals on the side of the feed table indicate feed control bar operation.



00125

Fig. 27 – Feed Roller Control Bar Positions

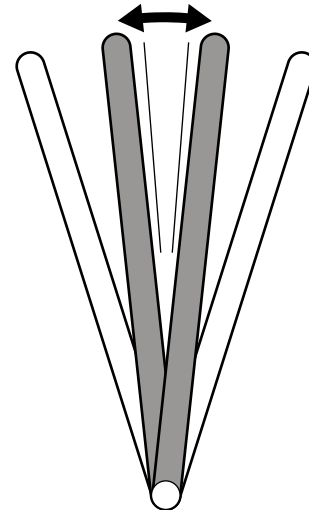
Once moved into either Stop position, the bar is locked there until the Detent Release Lever is pulled up to release it.



00816

Fig. 28 – Detent Reset Lever

The control bar can be moved back and forth freely between Forward (feed) and Reverse.



00820

6.3.1 STOP Positions

The feed rollers stop any time the control bar is pushed fully forward (towards the feed table) to the maximum detent position to stop the feed rollers.

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

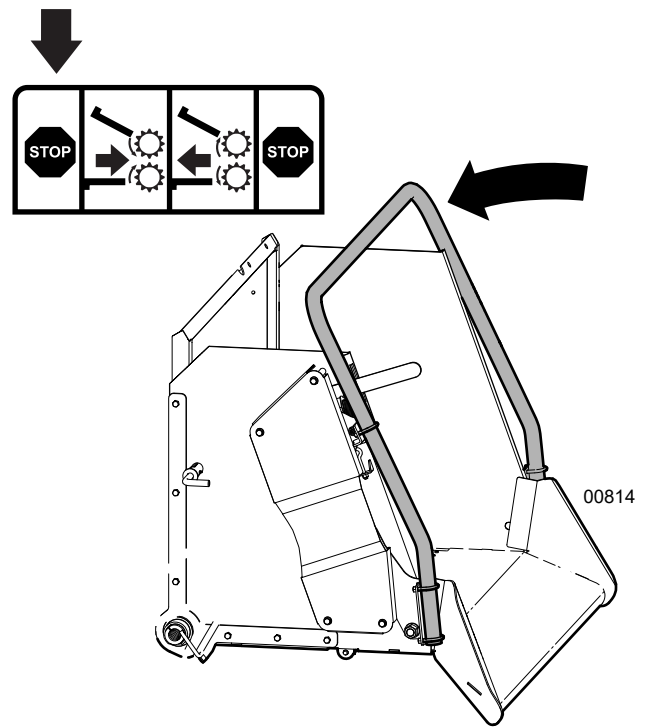


Fig. 29—STOP (Locked)

- Pull the control bar fully back (away from the feed table) into the maximum detent position to stop the feed rollers.

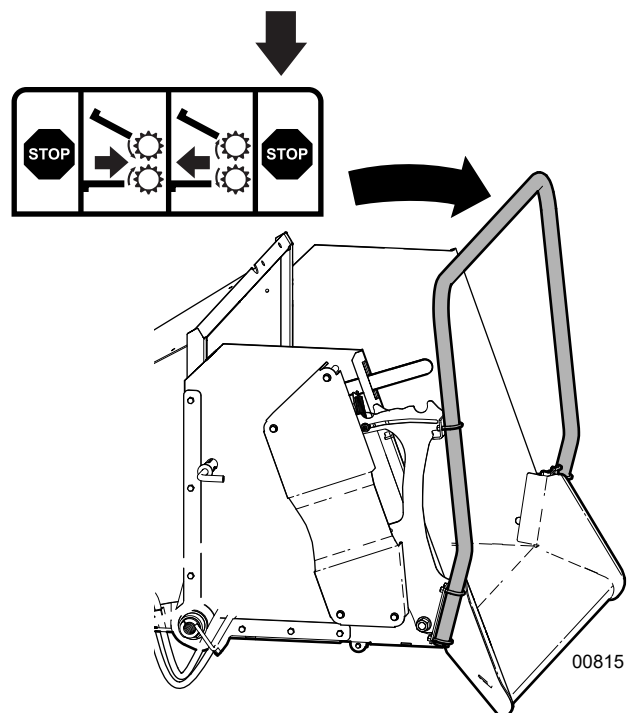
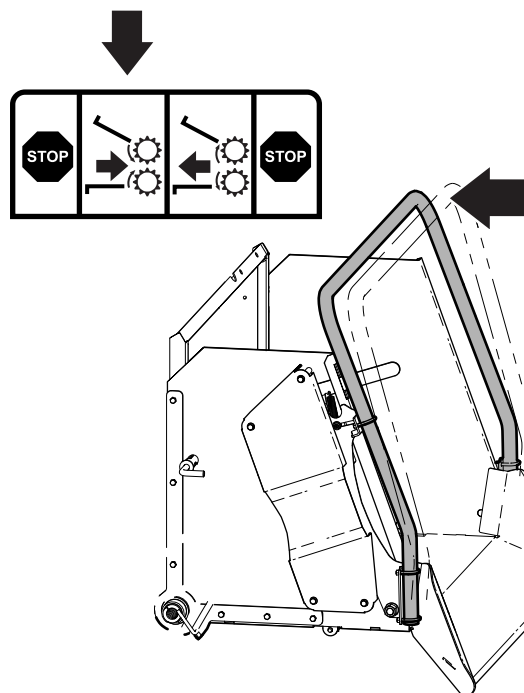
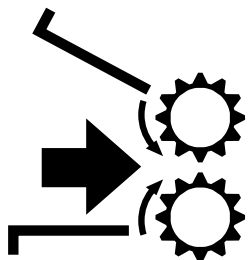


Fig. 30—STOP (Locked)

6.3.2 Forward (Feed)

- Lift up the detent reset lever, push the control bar forward to the first detent position to start the forward feed. This is the normal operating position. The control bar stays in this position until moved.



00819

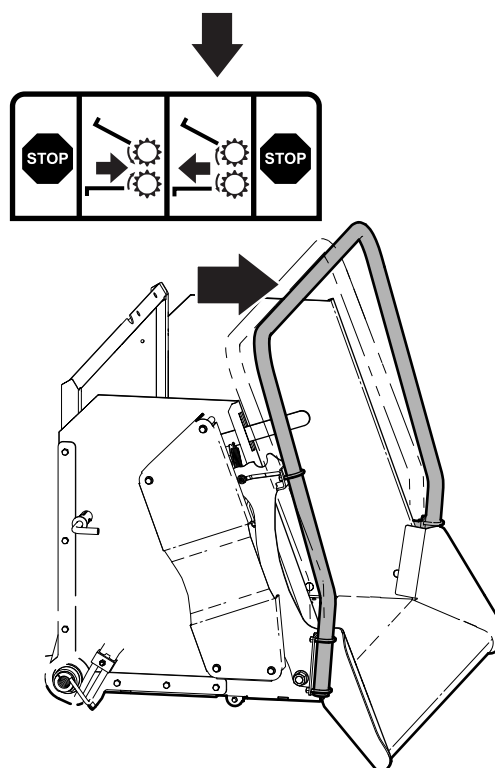
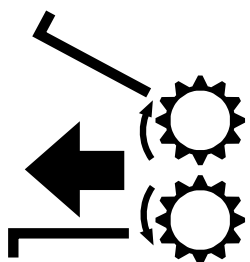
Fig. 31 – Forward (Feed)

6.3.3 Reverse

- Pull the control bar back to the next detent position to reverse the feed rollers.



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



00821

Fig. 32 – Reverse

6.4 Feed Roller Flow Control Valve

The hydraulic feed circuit is equipped a flow control valve that can be manually set to adjust chipping speed rate.

The flow control valve sets the speed of the feed rollers. Use the material size and the quality of the job required to establish the appropriate feed speed.

- Increase the speed when chipping brush or twigs.
- Decrease the speed when chipping hard, solid material or when the engine load is excessive.

The operator can adjust the feeding speed appropriate for the operating conditions.

A scale on the face of the valve is numbered from 0–10 (0–100%).

If the hydraulic oil flow from the tractor exceeds the requirements of the chipper, adjust the flow control valve.

To adjust the feed rate:

1. Loosen the thumb screw (2).
2. Move the control lever (1) to the desired position.
3. Tighten the thumb screw.

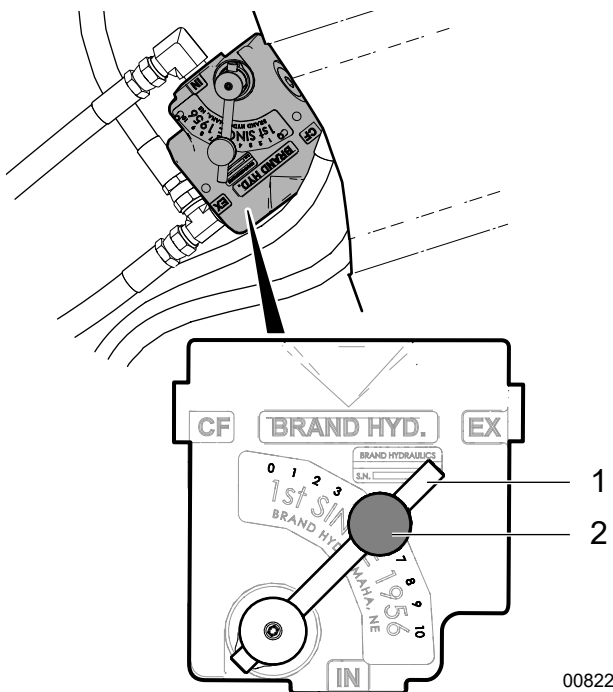


Fig. 33–Flow Control Valve

1. Control Lever
2. Thumb Screw

6.5 Easy Start System

Easy Start means there is 1/2"–1" (12–25 mm) free movement at the top of the feed roller springs allowing the roller wheel to easily climb up on large material before spring tension begins. Spring tension keeps the upper roller pressing down on the material as it is fed through the chipper.

Spring tension can be adjusted in the following manner:

IMPORTANT! Adjust feed roller tensioners the same amount on both sides. Measure exposed bolt threads and adjust so they are equal length.

1. Hold the upper nut and turn the bottom nut counter-clockwise to loosen.
2. Adjust the top nut—
 - Clockwise to *increase* tension or
 - Counterclockwise to *decrease* tension
3. Hold the top nut and tighten the bottom jam nut.

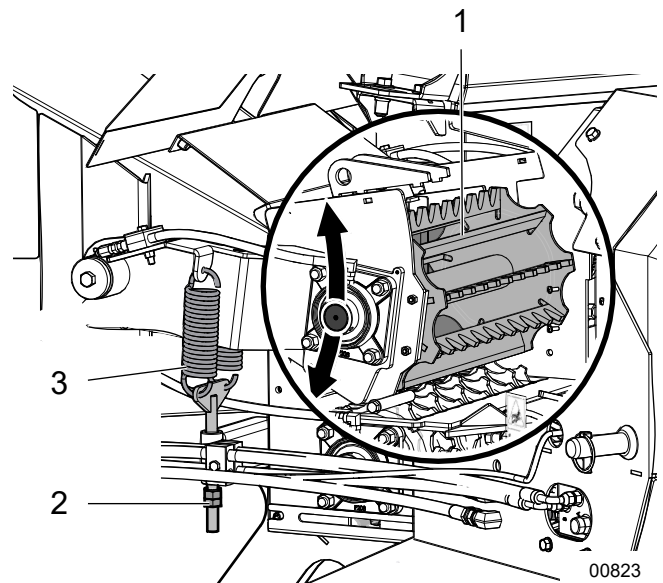


Fig. 34–Cutaway View to see Upper Roller

1. Floating Upper Roller
2. Hex and Jam Nuts (US model shown)
3. Tension Springs

6.6 Rotor Lock

The Rotor Lock is used to secure the rotor from moving while the upper rotor housing is open. It can only be engaged when the rotor housing is open. The spring pin cannot be engaged when the rotor housing is closed. This prevents unintended use while in operation.

The rotor lock pin should be used anytime the rotor housing is open to prevent potential injury.

6.6.1 Set Rotor Lock

- First, place the chipper in a **Safe Condition**. See page 7.
- Open the upper housing.
- Turn the lock handle up so that the spring pulls the handle pin into the groove.

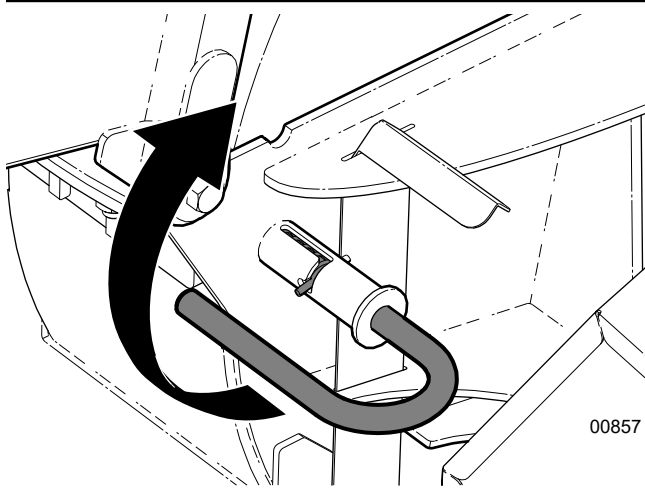


Fig. 35–Rotor Unlocked Position

- Allow the spring to pull the lock handle up against the rotor.
- Turn the rotor slowly by hand until the lock handle slips into one of the holes in the rotor.
- Verify that the pin is fully inserted, and the rotor does not turn.

CAUTION!

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

W003

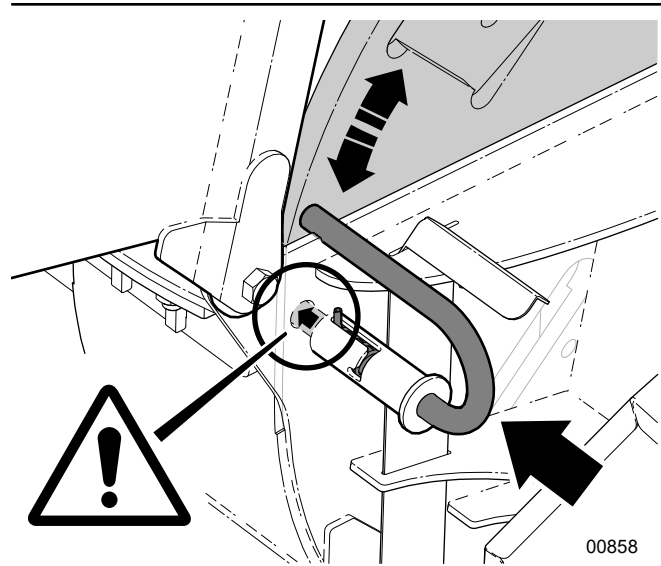


Fig. 36–Rotor Locked Position

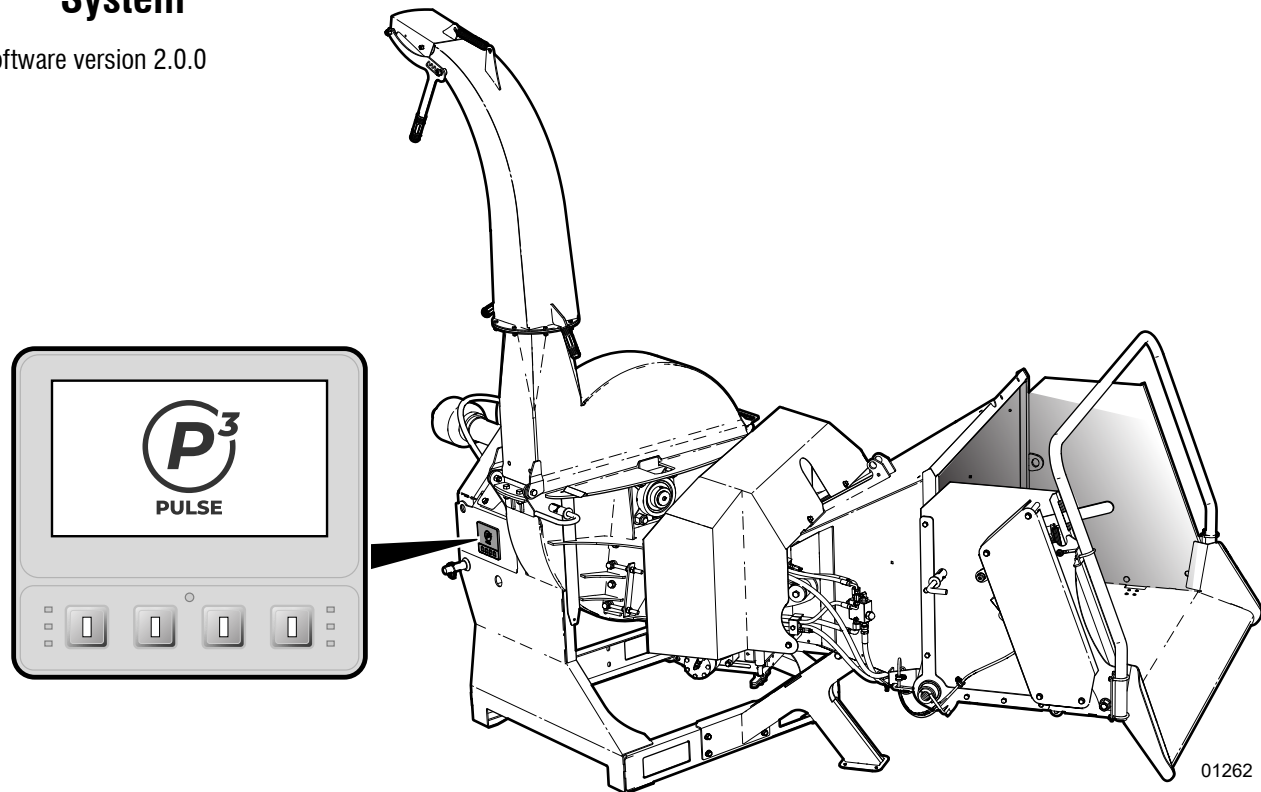
- Reverse the above procedure to unlock the rotor.



The upper housing cannot be closed with rotor lock engaged.

6.7 P3 PULSE Electronic Control System

Software version 2.0.0



WALLENSTEIN

Fig. 37 – Wallenstein P3 PULSE Electronic Control System

6.7.1 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.

6.8 Display

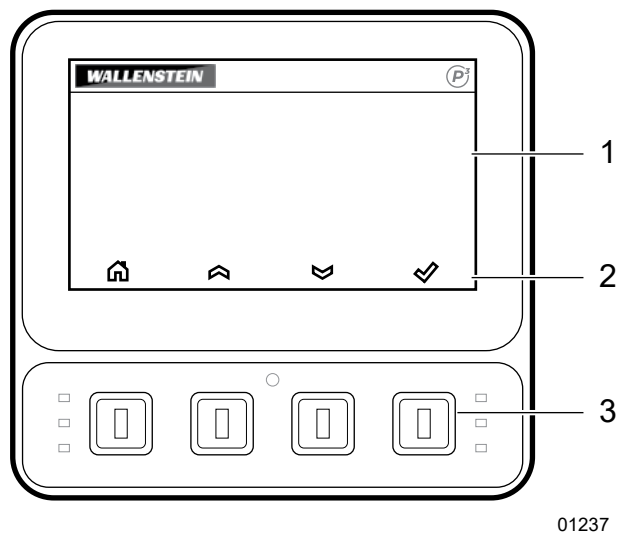








Fig. 38 – P3 PULSE Display

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.

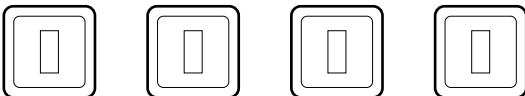
2. Soft Key Icons

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.



6.9 Start-up Screen


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



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

6.10 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.

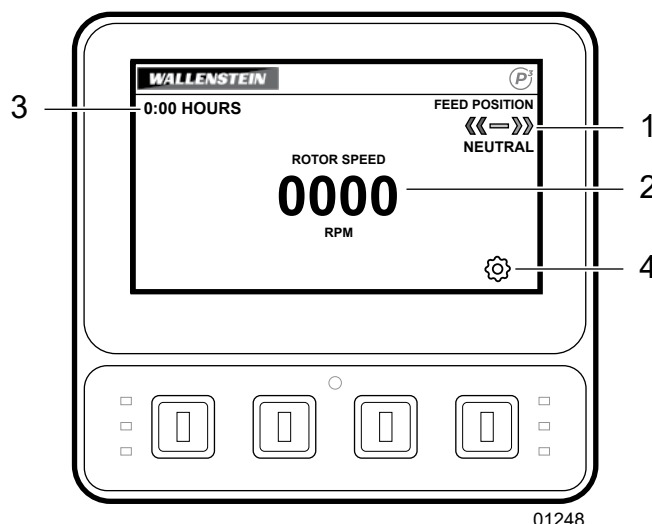



Fig. 39–Main screen

01248




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 34*) 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 36*) to confirm that you want to return all settings to the factory default values.
- **DIAGNOSTICS** – Opens the Diagnostics screen (see *page 36*) 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.

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.

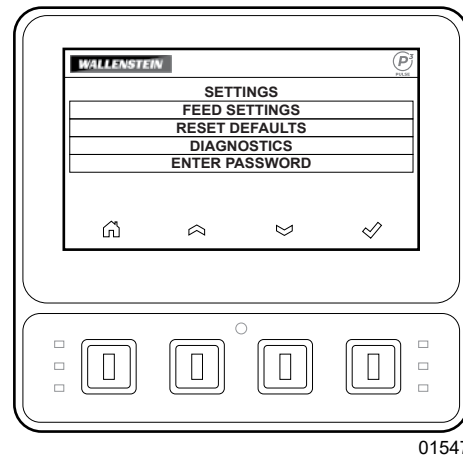
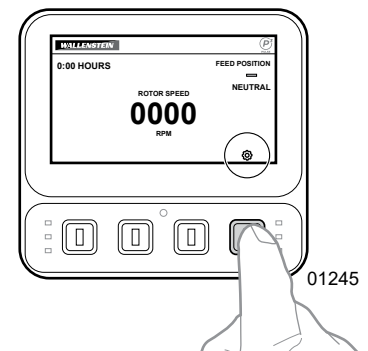


Fig. 41 – Settings Menu screen

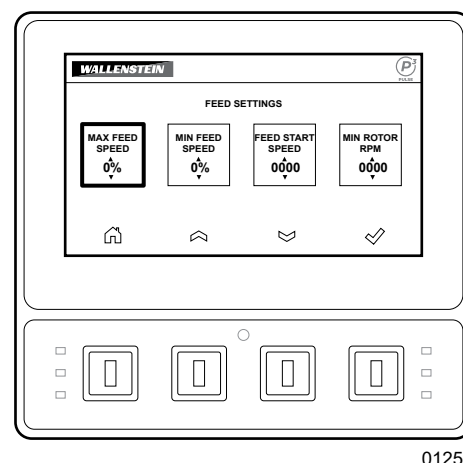
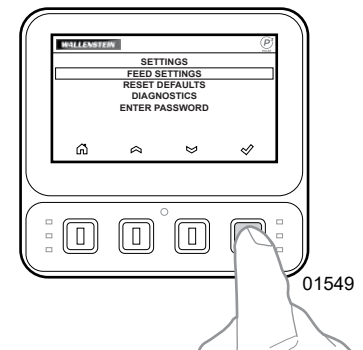
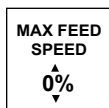


Fig. 40 – Feed Settings Screen

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.

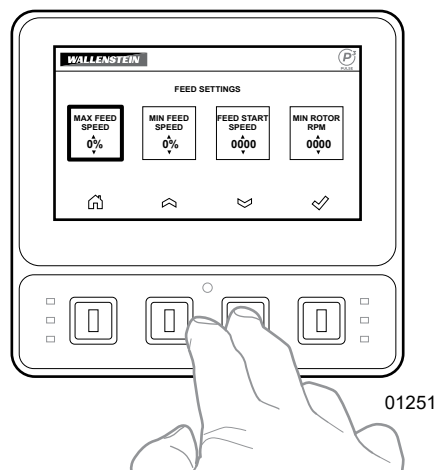
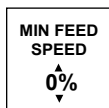


Fig. 42 – Select a setting

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.

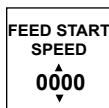
Performance Hints

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

Some helpful hints:

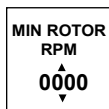
- For very heavy brush – decrease MAX FEED SPEED to slow the feed roller speed.
- For smaller, consistent chip size – decrease MAX FEED SPEED closer to MIN FEED SPEED.
- For larger chip sizes and more aggressive feeding – Leave MAX FEED SPEED at 100% and raise MIN FEED SPEED.

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.

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*.

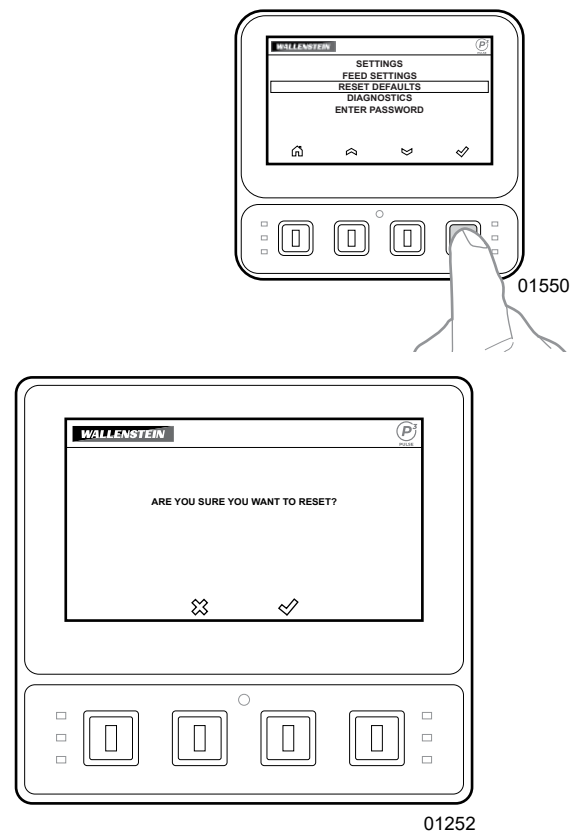


Fig. 43—Reset Defaults screen

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 34).
- Controller software version (for example; CV:2.0.0).
- Display software version (for example; DV:2.0.0).

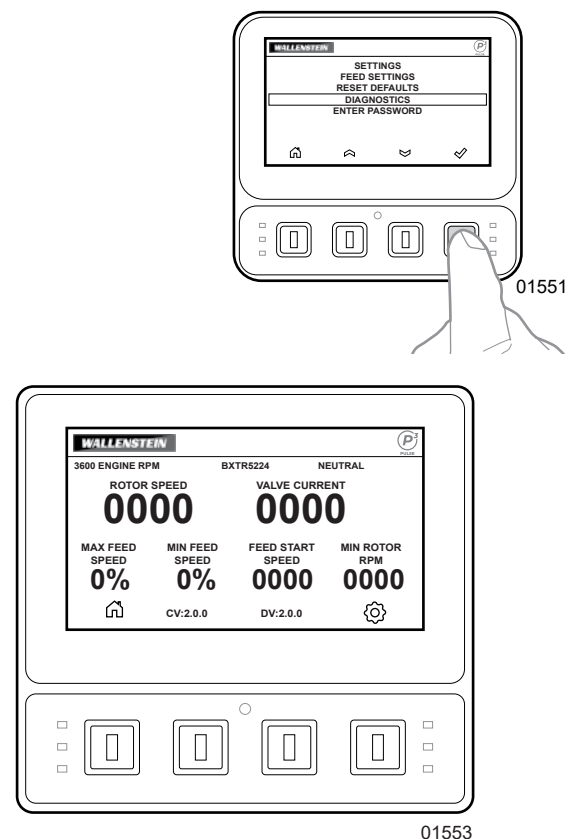


Fig. 44—Diagnostics screen

6.11 Hydraulic Feed Roller Lift Option (BX102R only)

! WARNING!

Risk of critical injury! Never place any part of your body in the rollers without the machine stopped and the locking pin in place. When performing maintenance on the roller and lift, follow the maintenance procedure carefully.

W057

! WARNING!

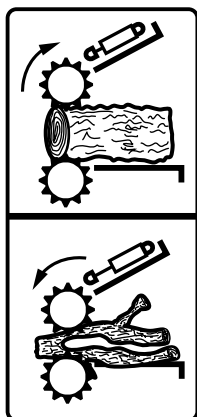
Risk of serious injury or death. Keep hands, feet and clothing away from feed rollers when the chipper is operating. Do not climb onto the feed table or hopper.

W023

The Feed Roller Lift option uses a hydraulic cylinder to lift, lower or apply down pressure to the top feed roller. The lower feed roller is fixed.

The lift feature can be useful when feeding in large end-cut material that the roller has difficulty climbing over. Lift the roller, start the material then release the roller to begin feeding.

When feeding in extremely curved or bushy material, use the cylinder down force to hold and help grip the material as it is fed through.



- Push the control valve lever forward to raise the top feed roller. Push it all the way forward into the detent and the cylinder holds the feed roller up while you feed in large material.
- Pull the valve lever back to lower the top roller or apply down force to the top roller. Release the lever and it returns to its neutral position. The cylinder then remains stationary and stops applying down force to the roller.

For servicing purposes or clearing a jam, lock the upper feed roller in the raised position by engaging the cylinder locking pin.

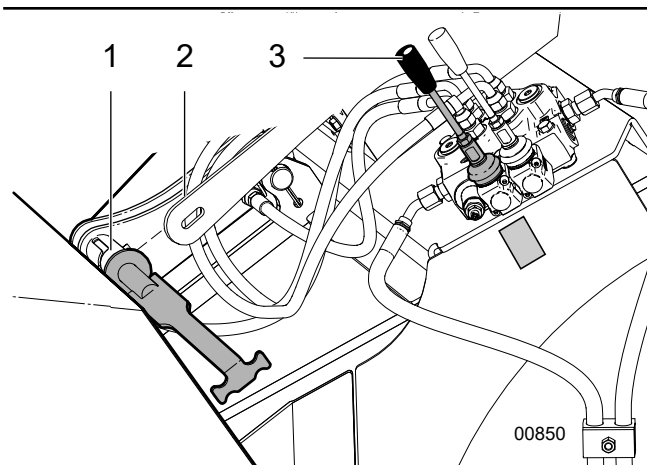


Fig. 45—Hydraulic Feed Roller Lift

1. Cylinder Locking Pin
2. Hydraulic Cylinder
3. Control Valve

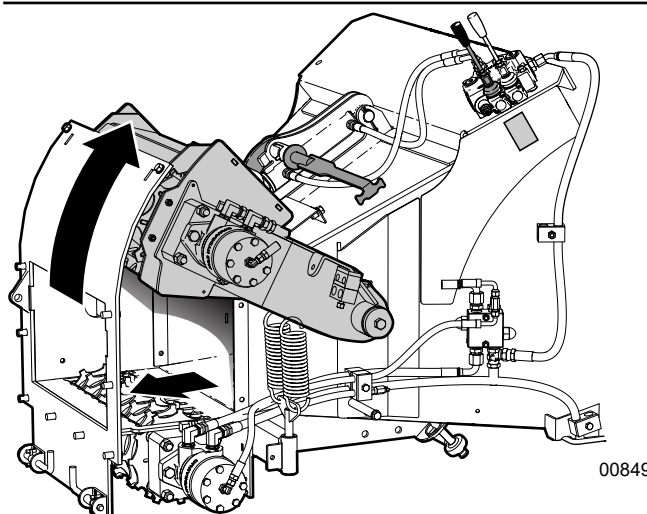


Fig. 46—View to show Feed Roller Raised

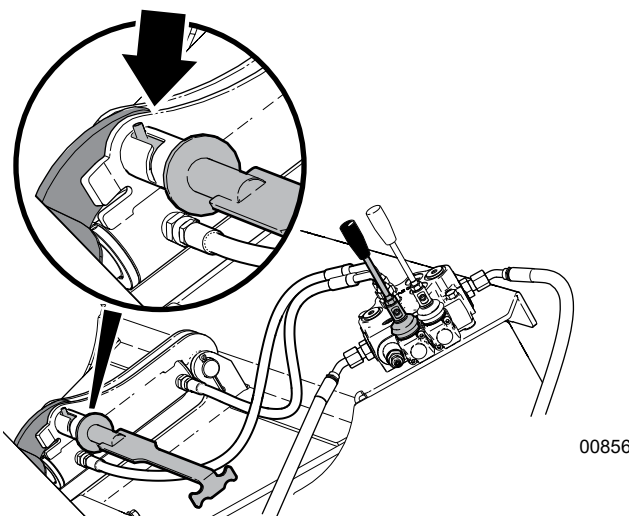


Fig. 47—Cylinder Locking Pin in Place

6.12 Hydraulic Winch Option (BX102RP only)

CAUTION!

Stay clear of the winch rope while winching. Injury from entanglement or rope burn could occur!

W056

CAUTION!

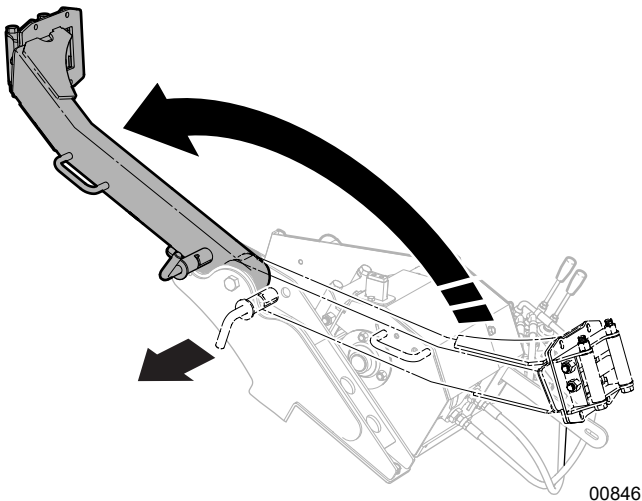
Always make sure the area is clear of bystanders when operating the winch. Never use the winch to hold or secure loads.

W055

The Hydraulic Winch option is used to pull material up to the chipper that is too large to carry. Use it to assist in lifting heavy material onto the feed tray.

Winch Arm Extension

- Pull out the plunger and swing the Winch Arm Extension up out of its stowed position.
- Release the plunger and lock the arm in the work position.

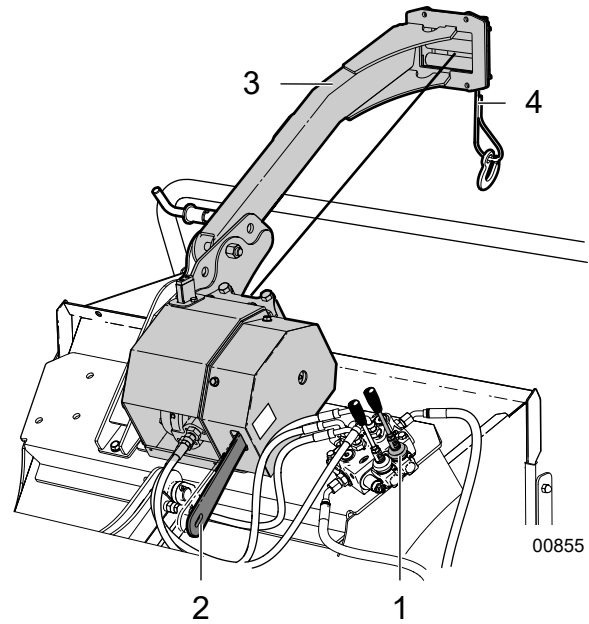


00846

Fig. 48—Winch Arm Extension

A control valve is used to power the winch drive. A control lever on the winch drive gear engages/disengages the drive.

- Disengage the drive to pull rope out.
- Engage it to winch material in.



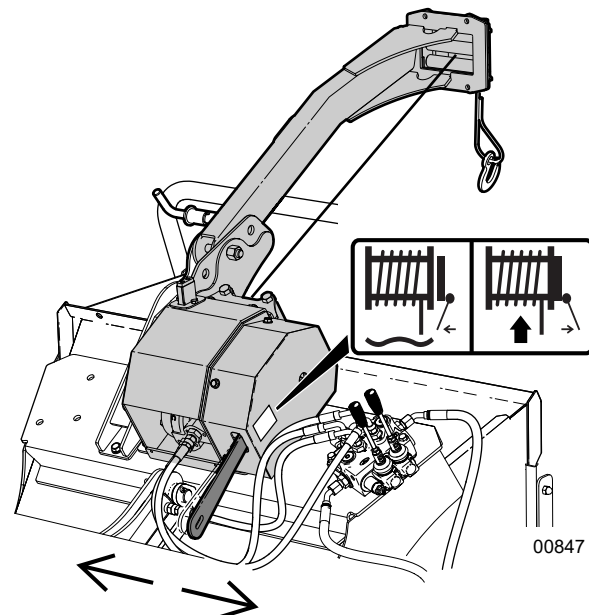
00855

Fig. 49—Hydraulic Winch

1. Winch Control Valve
2. Winch Drive Control
3. Winch Arm Extension
4. Fairlead and Winch Rope

Winch Drive

- Push the lever away from you to disengage the winch drive. The drive can then freespool allowing rope to be pulled out to the load.
- Pull the Winch Drive Gear lever towards you to engage the winch drive.



00847

Fig. 50—Winch Drive Gear

Winch Control Valve

- Pull the hydraulic control lever back towards you and hold to wind the rope in. Releasing the lever returns it to neutral and the winch stops.
- Push the lever forward to allow the rope to unwind under power. Releasing the lever returns it to neutral and the winch stops.

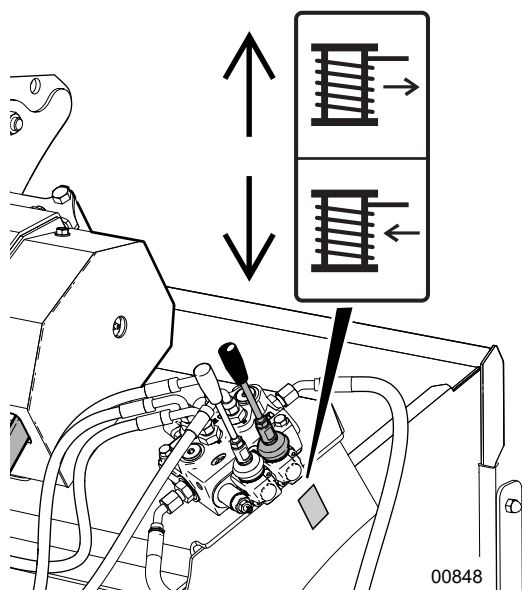


Fig. 51—Winch Control Valve

7. Operating Instructions

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

CAUTION!

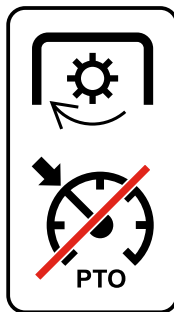


Hearing loss hazard. Prolonged exposure to loud noise may cause permanent hearing loss. Use suitable protection while operating the machine.

W016

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.

IMPORTANT! Do not use PTO Cruise Control with this wood chipper. The chipper rotor slows and speeds up as material is fed in. Cruise control then attempts to adjust to changing flywheel speeds. These fluctuations in engine speed and torque can result in component failure.



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

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

7.1 Operating Safety Rules

- Do not reach into rotor or feed hopper openings when the machine is running. Install and secure access covers before starting engine.
- Do not move or transport chipper when the rotor is turning.
- Keep hydraulic lines and fittings tight, in good condition and free of leaks.
- Keep the working area clean and free of debris to prevent tripping. Operate only on level ground.
- Do not point discharge at people, animals or buildings. Rotor can expel wood chips fast enough to cause injury.
- Be aware of the size and shape of the material. Crotchety branches and logs can move in unpredictable ways as they pass through the feed rollers and could cause injuries. Large curved pieces should be cut to smaller straighter sections.
- Do not work alone, it is safer to work in pairs in case an emergency arises.
- Never stand, sit, or climb onto any part of the chipper while it is running.
- Place chipper in a Safe Condition before servicing, adjusting, repairing, or unplugging.
- Always use the rotor lock to immobilize the rotor when attempting to clear a clog or changing chipper blades. See *page 30*.
- Do not run machine inside a closed building to prevent asphyxiation from engine exhaust.
- Use care when feeding material into chipper. Do not send metal, bottles, cans, rocks, glass or other foreign material into wood chipper. If foreign material enters chipper, inspect machine for damaged or loose parts before resuming work.

CAUTION!

Do not risk injury by working in an unsafe situation. Take steps to make the machine safe to work on before performing any maintenance or service procedure.

Follow steps listed to put the machine in a Safe Condition.

W049

Safe Condition

1. Lower the chipper to the ground.
2. Disengage the PTO.
3. Set the parking brake and turn off the tractor engine.
Remove the ignition key.
4. Make sure all components have stopped moving.
5. Block and chock the tractor wheels.
6. If required, set the rotor lock.

7.2 Pre-operation Checklist

Check the following each time the wood chipper is used:

Item to check	✓
Check the machine has been lubricated following the schedule outlined in the Maintenance section.	
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 for hydraulic leaks. Tighten connections or replace components to stop leaks.	
Check and ensure that all covers, guards, and shields are in place, secure, and functioning as designed.	
Check that all bearings turn freely. Replace if they do not.	
Check hydraulic fluid level. Top level up as required.	
Check and tighten all fasteners. Make sure the equipment is in good condition.	
On winch equipped models, check the condition of the winch rope for visible damage. Replace if kinked, frayed, has knots, cuts, or any broken strands. Failure to replace could result in breakage.	

7.3 Before Startup

1. Check the hydraulic oil level in the tractor.
2. Review Operating Safety Rules.
3. Clear the area of all bystanders, especially children.
4. Make sure each operator is trained and familiar with the set up and operation of the wood chipper.
5. Perform the Pre-start Checks.
6. Review Controls on *page 25*.
7. Place the chipper in a clear, level work area close to the material at the work site. Material can then be loaded straight into the feed table with limited handling.
8. Set the tractor brake and block or chock the wheels.
9. Lower the chipper so the machine is resting on the ground. Make sure machine is level and stable.

IMPORTANT! The chipper must be resting on the ground during operation. Operating the chipper while raised off the ground is dangerous and results in damage to the machine.

10. Release the two spring loaded latch pins from the feed table pin tabs and lower the feed table.

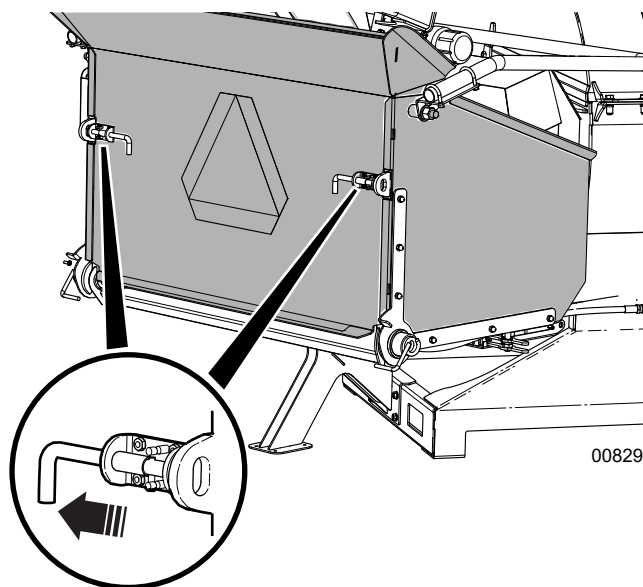


Fig. 52 – Feed Table in Stowed Position

11. With the feed table in position, engage the spring-loaded table lock pins to secure the table.

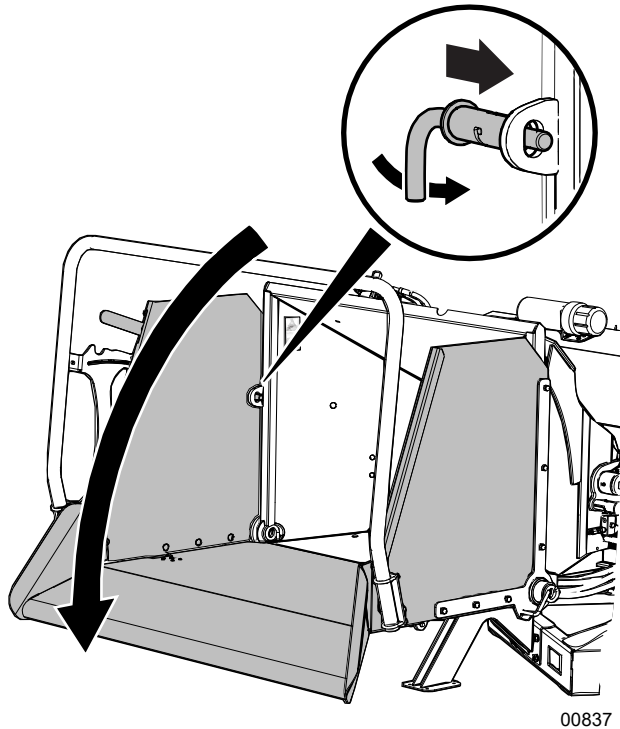


Fig. 53—Table Lock Pins

12. Turn the discharge chute to the desired position and adjust the deflector as required.

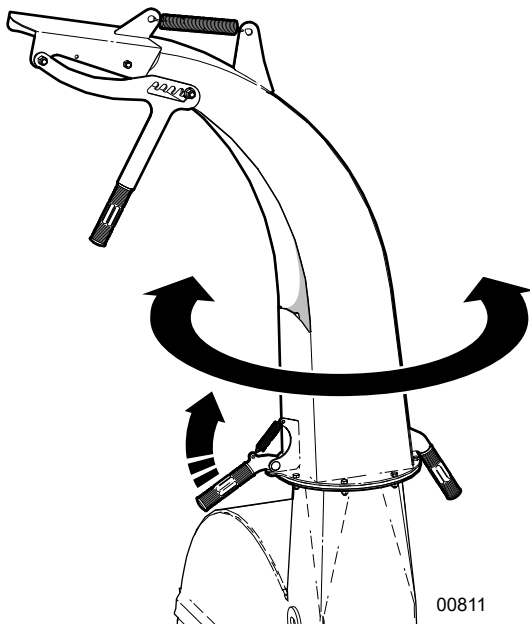


Fig. 54—Discharge Chute

Adjustable Ski Height (BX52R only)

The BX52R ski can be adjusted up to 6" (15 cm) if required, to help align the PTO shaft when attaching the chipper to the tractor. The PTO shaft should be as level as possible when the chipper is in the lowered (working) position.

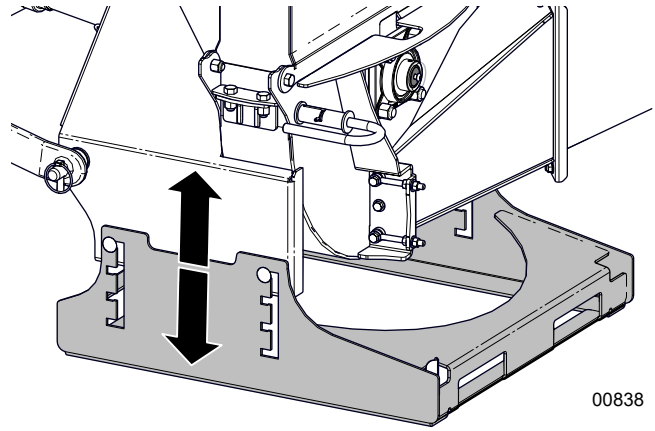


Fig. 55—BX52R Adjustable Ski Height

1. Raise the chipper up. Loosen the nuts on the four plow bolts on the ski base.
2. Adjust the ski to the best position for the PTO connection. Re-tighten the nuts.

7.4 Chipping Operation

Chipper Capacity

Model Series	Material Size
BX52R	5" (13 cm)
BX72R	7" (18 cm)
BX102R	10" (25 cm)

1. Engage the PTO. Set tractor at half throttle. Make sure the rotor is up to speed before beginning.
2. Move the control bar out of the STOP position. Lift up the detent reset lever to release it.

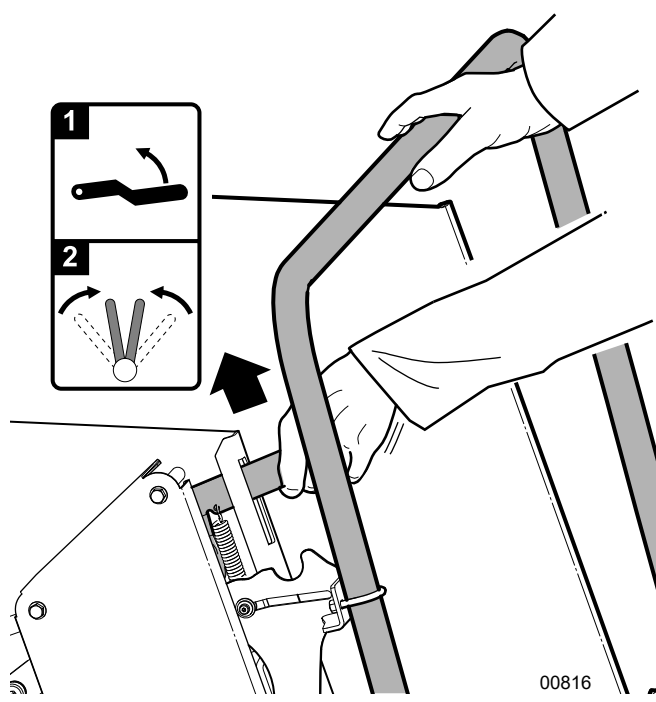


Fig. 56 – Detent Reset Lever



Feed rollers function in Reverse even at engine idle so material can be backed out.

3. Push the control bar forward to the first detent position to start the forward feed. The control bar stays in this position until moved.

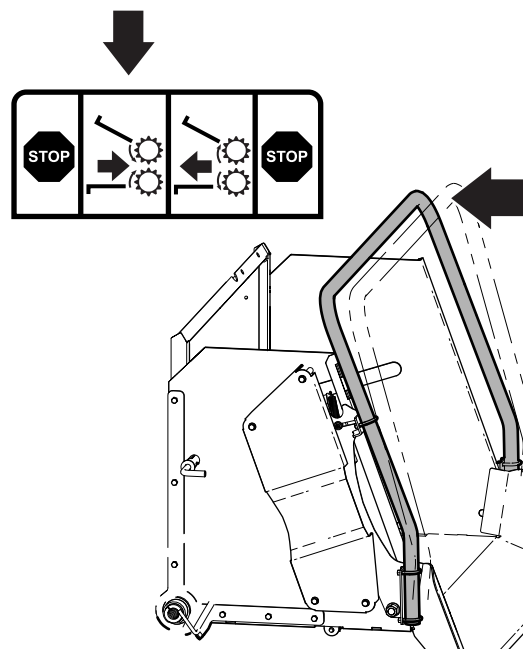


Fig. 57 – Forward (Feed)



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.

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.

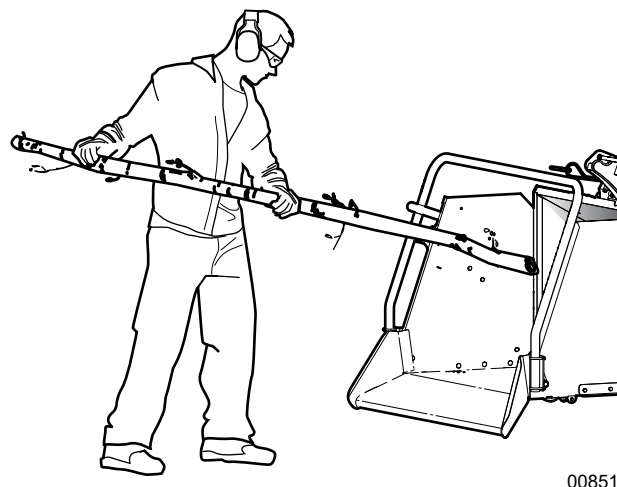


Fig. 58 – Stand to Side of Feed Table

5. Make sure the wood chip pile is contained and does not affect the immediate work area.



Delimb large branches and trees. The limbs on the branches may catch the roller feed control bar and shut the rollers off.

Be aware of the size and shape of the material. Crotchety, 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.

When feeding bushy, branched material, have an assistant positioned at the roller control bar to keep branches from hitting it and deactivating the rollers.

Hold small diameter branches / limbs together in a bundle and feed in together.

Place short branches on top of longer ones, to avoid reaching into the hopper.

7.5 P3 PULSE Equipped Models

(BX52RI, BX72RI, BX102RI / BX102RPI)

- P3 PULSE Electronic Control System prevents the tractor engine from getting bogged down if material is put into the chipper too quickly. Feed roller speed is regulated by monitoring the rotor rpm.
- Once the rotor is up to speed, P3 PULSE starts the feed rollers when the feed control handle is placed in the Forward (feed) position.
- As material is put into the chipper, P3 PULSE continually monitors rotor speed. If the rotor slows down under load below a lower speed setting, P3 PULSE 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 PULSE automatically resumes forward feed.

Auxiliary Power Pack-Equipped Machines

The Power Pack for the BXR Series chipper is powered by the PTO of your tractor and must be installed before attaching the tractor to the chipper.

1. Follow the power pack installation instructions to install the power pack.
2. Check hydraulic level in the reservoir. Top up if required.
3. Connect hydraulic hoses and engage the PTO. Operate the roller system and check for leaks.

7.6 Winch-equipped Models

(BXR102RP / BX102RPI)



WARNING!

Synthetic rope that fails under tension can snap back with great force causing injury or death. Avoid sudden jerks, quick starts or stops. Start slowly and smoothly. Replace if kinked, badly frayed, has knots, cuts, or broken strands.

W095



CAUTION!

Avoid the risk of rope failure. Do not replace rope with one that is not approved for use on this winch. Rope properties may be unknown and failure could result. Refer to the parts manual for replacement rope type.

W094

7.6.1 Winch Safety

- Never stand in line with the path of a rope under tension. Stand at least 10 ft (3 m) to the side to activate the winch. If a rope breaks under tension, it can snap back in an unpredictable direction with great force. The recoil may cause injury or death to a person in its path.
- Do not risk a rollover by exceeding a winching angle of $\pm 25^\circ$ from the centerline of the tractor. If unsure of winch angle, reposition tractor or use a snatch block. Whenever possible winch in-line with the tractor.
- Do not allow anyone within 20 ft (6 m) of logs when winching. Logs can roll in unpredictable ways.
- Choose a flat, solid skidding route for the tractor. Avoid steep slopes.
- Check that the winching trail is clear of other trees and obstructions so logs can be winched in easily.
- Make sure the chipper is lowered and that the tractor parking brake is applied.

IMPORTANT! Avoid continuous side pulls which can pile up the rope at one end of the drum. This pile up can cause rope damage.

IMPORTANT! If spooling the rope in with no load, keep a light tension on it to avoid entanglement. Make sure the rope is tightly and evenly layered.

Rope Inspection

It is a good idea to check the entire rope for wear and re spool it neatly after every use. Check the winch rope for any cut strands, fraying parts, abrasion, or heat damage from the winch. After use, all winch lines will get a little fuzzy from abrasion. This is normal, but **if an entire strand is cut the winch line needs to be replaced or fixed**. For the winch line to work properly and maintain its strength, all strands must be intact.

Both heat and UV exposure break down the fibers of the synthetic rope weakening it and making it brittle over time. Frequent use in mud, dirt and sandy conditions can also damage a synthetic rope if it is not properly cleaned and cared for.

Cleaning Synthetic Rope

When dirt and grit become lodged in between the strands of the winch line they cause abrasion to the fibers when the winch line is put under a load. Over time this can cause a breakdown in the integrity and strength of the rope.

Wash winch rope if it gets dirty by unspooling the entire line from the winch and lay it on a clean surface. Once the line is laid out, rinse it well with water from a hose.

To really get the strands free of dirt and grit, fill a bucket with water and mild soap. Push together on the rope to open the strands up and rinse in the water. Run the entire length of the winch line through the water until it is cleaned.

7.6.2 Synthetic Chokers

Synthetic chokers are available as an accessory. These chokers weigh less than the steel chain chokers and are easier to handle, however are more susceptible to abrasion.

Before each use, check the condition of the choker for visible damage. Replace if kinked, frayed, has knots, cuts, or any broken strands. Failure to replace could result in breakage.

- Push the probe end of the choker under the log.
- Pull the ends together and push the probe end through the loop.
- Attach the chain on the probe end to the keyhole slider on the cable.

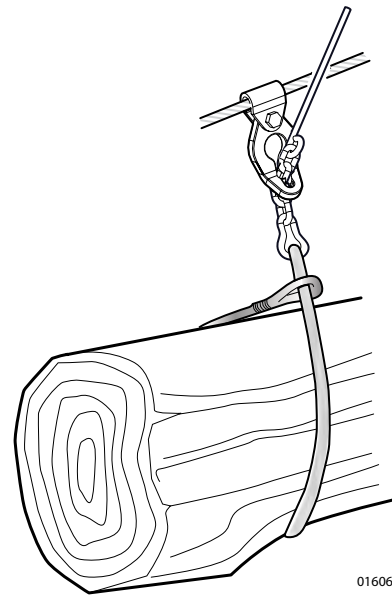


Fig. 59—Synthetic Choker

- A synthetic choker is very susceptible to damage from rubbing up against or sliding along rough ground or surfaces.
- Synthetic choker strength can be reduced if subjected to sudden jerking, or quick starts and stops. Avoid high shock loads on the rope by starting slowly and smoothly.

7.7 Stopping Procedure

1. Stop feeding material into the hopper.
2. Place the feed control bar in neutral position.
3. Slow engine RPM.
4. Turn off tractor hydraulic control to feed rollers.
5. Disengage PTO.
6. Stop engine, remove ignition key and wait for all moving parts to stop.

CAUTION!

Risk of injury from rotating parts. Wait for all parts to stop moving before attempting to access the machine. Rotor continues to turn for a few minutes after the engine has stopped.

W0025

7.8 Stopping in an Emergency

In an emergency:

1. Activate the emergency PTO shutoff on the tractor (if available).
2. Disengage the PTO and shut off the engine.
3. Correct emergency situation before restarting engine and resuming work.

7.9 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.

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

1. Before shutting the engine off, reverse the feed rollers to remove the material from the feed hopper.
2. **Shut down the tractor and place the machine in a Safe Condition before proceeding further. See page 41.**
3. Pull any remaining material out of the feed hopper and discharge hood.
4. Visually inspect and ensure all the material is out and nothing is jammed or wedged between the rollers and the rotor.

If the chipper is still plugged, the jammed material must be removed by hand.

5. Open the upper rotor housing and engage the rotor lock.

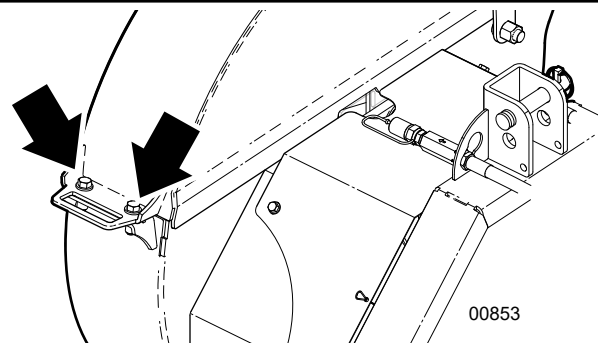


Fig. 60—Rotor Housing Flange Bolts

CAUTION!

Be aware. Rotor continues to turn for a few revolutions after the PTO is disengaged. Wait for all parts to stop moving before opening any machine access.

W005

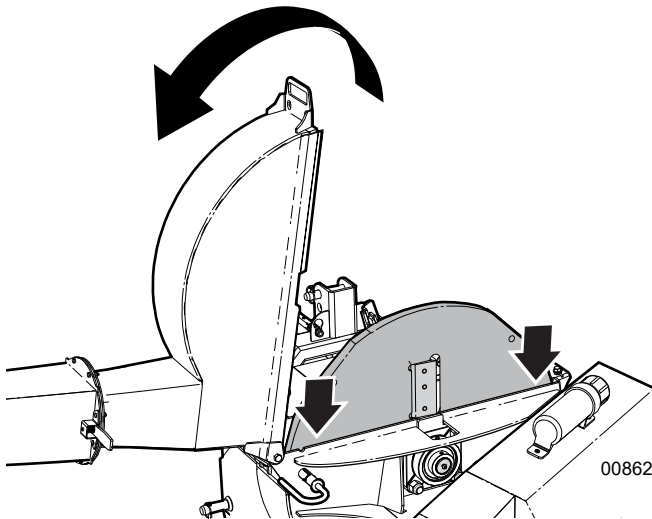


Fig. 61—Open Upper Rotor Housing

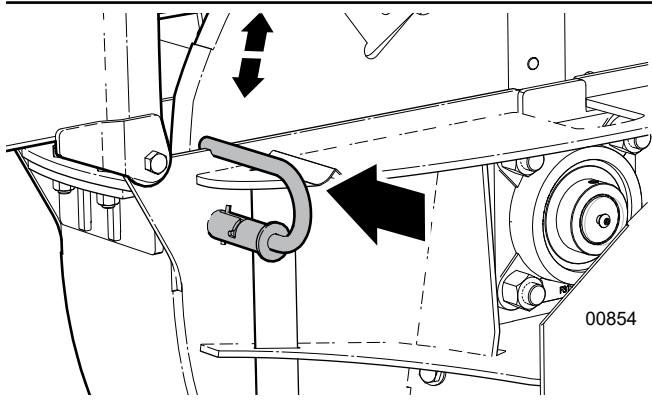


Fig. 62—Engage Rotor Lock

! CAUTION!

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

W003

6. Remove jammed material from inside the rotor compartment.
7. Clean out the discharge chute.
8. Inspect the lower rotor housing and clean out any debris.
9. If required, rotate the rotor. Disengage the rotor lock and very carefully turn the rotor by hand 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 or unlocked.

10. Open the lower roller clean-out tray located under the feed rollers and carefully remove any debris. Close and secure the tray.

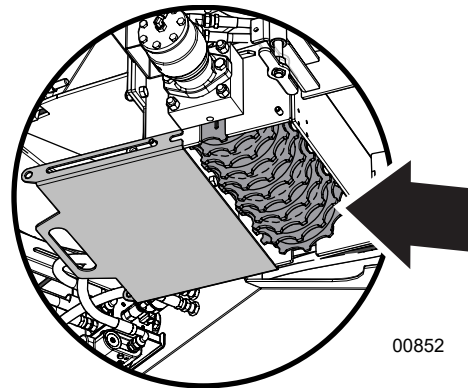


Fig. 63—Lower Roller Clean-out Tray

11. Disengage the rotor lock, close the upper rotor housing. Tighten the upper housing fasteners.
12. Check that everyone is clear of machine before restarting engine.

! WARNING!

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

W001

If the chipper is still jammed with material, see next steps.

Chipper Severely Plugged

The upper feed roller can be raised to clear the debris between the input opening and the rotor. That material can then be pulled back out of the feed table.



If chipper is equipped with the Hydraulic Feed Roller Lift option, see page 37.

13. Remove the Bridge Guard Cover to access the end of the Toplink.
14. Remove the pin and extend the Toplink out so the rod end can be pinned to the Bridge.

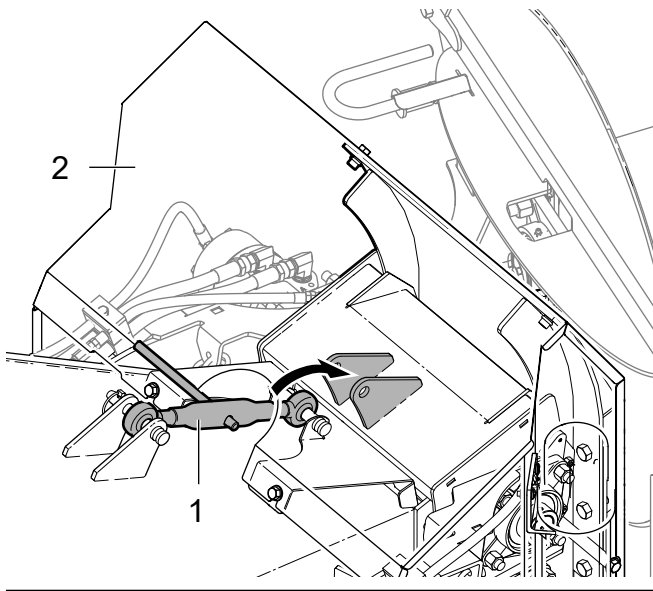


Fig. 64—Connect Toplink to Bridge

1. Toplink
2. Bridge Guard Cover

15. With the Toplink connected to the Bridge, wind it in so it shortens and raises the upper roller.

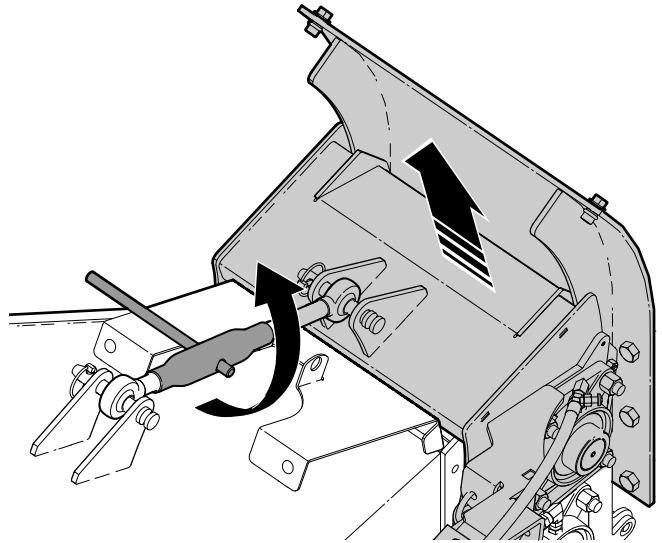


Fig. 65—Raise Upper Feed Roller

16. With the upper roller raised, carefully reach into the roller housing from inside the feed hopper to clear out the debris.
17. With the debris cleared, extend the Toplink to lower the upper roller back into position.
18. Disconnect the Toplink from the bridge, shorten it up, and reconnect it to its support. Reinstall the bridge cover.
19. Restart the chipper and resume operations.

IMPORTANT! Do not operate the chipper with the Toplink connected to the bridge. Damage to the machine can occur.

7.10 Transporting the Chipper

7.10.1 Safety Rules

- Do not exceed a safe travel speed.
- Always follow and obey applicable highway rules and regulations.
- Be sure all lights, markers and SMV sign required by the traffic regulations are in place, clean and working.
- Check three-point hitch connections and ensure they are safely pinned with retainers.
- Never allow riders on the machine.
- Avoid rough terrain. Slow down when encountering rough conditions or cornering.

7.10.2 Prepare for Transport

1. Make sure all access covers are secured in place, and the rotor upper housing is bolted down.
2. Place the feed table in the stowed position.
3. Turn the discharge hood towards the tractor to reduce the width of the machine.
4. Clean all debris off the chipper. Falling debris could cause problems for other traffic.

IMPORTANT! On BX102RP models equipped with the winch, the winch arm must be swung up into its stowed position first.

5. Pull the roller feed control bar backward to the rear STOP position. This way it clears the cowling when the feed table is folded up.
6. Release the table lock pins.
7. Carefully grasp the front edge of the feed table and fold it up to its vertical position.
8. Secure the feed table by engaging the two spring loaded latch pins into the pin tabs.
9. Make sure the tractor is in safe working order.
10. Plan the route. Choose the most direct and safest path.

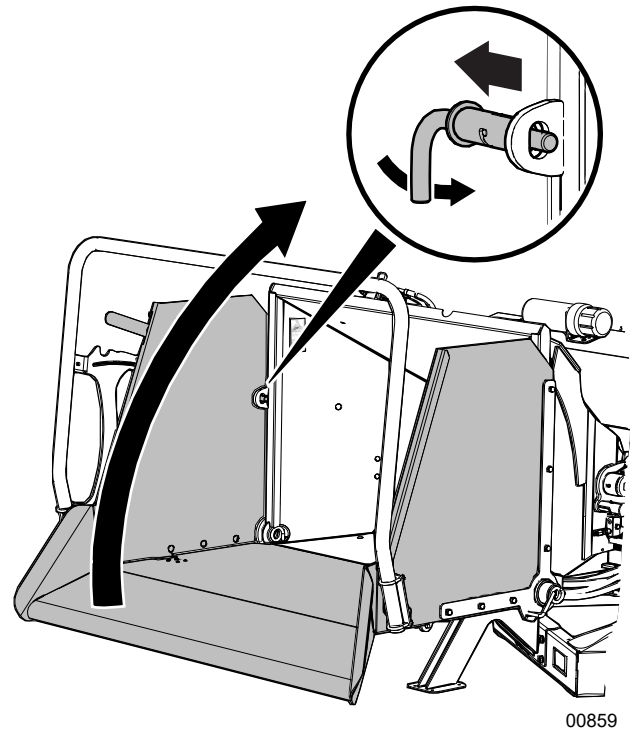


Fig. 66 – Table Lock Pins

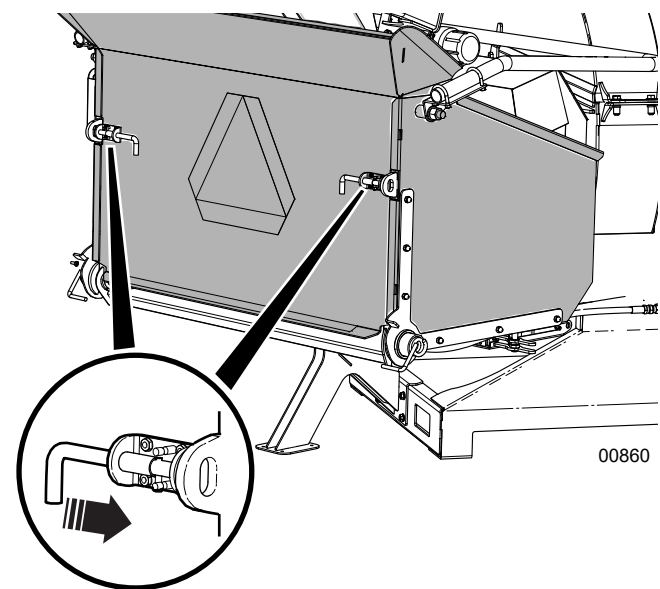


Fig. 67 – Feed Table in Stowed Position

7.11 Storage

After the season's use or when the machine is not going to be used for a period of time, place the chipper in storage.

Safety Rules

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with wood blocking as required.

Placing Chipper in Storage

1. Completely inspect all major systems. Replace or repair any worn or damaged components to prevent any unnecessary down time at the beginning of the next season.
2. Inspect all rotating parts and remove entangled material.
3. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud or debris.
4. Run the machine a few minutes to dry the moisture from inside the machine.
5. Move the roller feed control bar to the forward STOP position so it clears the cowling when the feed table is folded up.
6. Carefully grasp the front edge of the feed table and fold it up to its vertical position. Secure it by engaging the two spring loaded latch pins into the pin tabs.

7. Turn the discharge chute inward.

8. Touch up all paint nicks and scratches to prevent rusting.

9. Store the machine inside. If that is not possible, cover with a waterproof tarp. Remove the PTO shaft.

10. Store in an area away from human activity.

Removing from Storage

When taking the machine out of storage, review the Pre-start Checks before putting the machine back into service. See *page 41*.

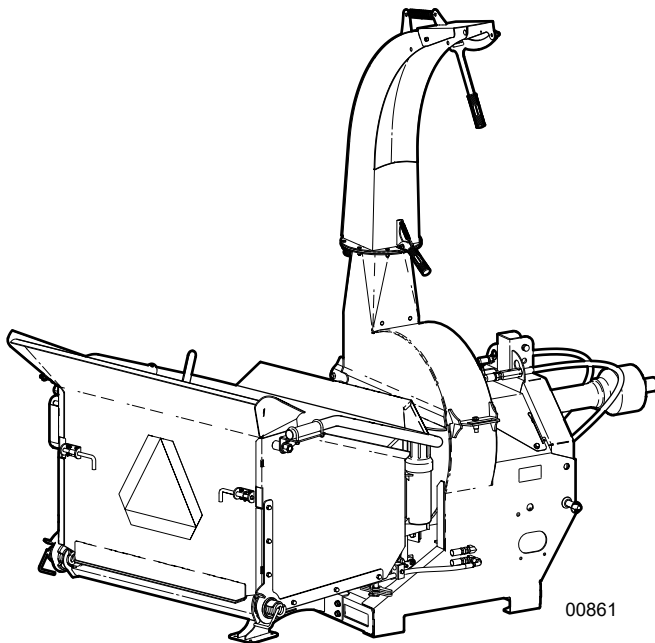


Fig. 68 – Storage Position

8. Service and Maintenance

Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

8.1 Safety Rules

- 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 tractor engine inside a closed building. The exhaust fumes may cause asphyxiation.
- Place machine in a Safe Condition before servicing or repairing. See *page 7*.
- Allow the machine to cool before performing maintenance. Components and oil may be hot enough to cause burn injury.
- Never work underneath equipment unless it is blocked securely.
- When performing any service or maintenance work always wear proper PPE for the job.
- Where replacement parts are necessary, genuine factory replacement parts must be used to restore 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 hydraulic connections are properly secured to ensure chipper is in a safe working condition.
- After completing a service procedure, make sure all covers and shields are reinstalled.
- When cleaning any parts, do not use gasoline or diesel fuel. Use a regular cleanser.
- Always use proper tools in good condition.

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

1. Lower the chipper to the ground.
2. Disengage the PTO.
3. Set the parking brake and turn off the tractor engine. Remove the ignition key.
4. Make sure all components have stopped moving.
5. Block and chock the tractor wheels.
6. If required, set the rotor lock. .

8.2 Fluids and Lubricants

1. Grease Type

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

2. Hydraulic Oil

The chipper uses the hydraulic oil from the tractor circuit.

3. 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.

8.3 Maintenance Schedule

Perform at time shown or hour interval, whichever comes first.	As required	Every 8 hours or daily	Every 50 hours or annually	Reference
Item				
Check the condition of all hydraulic lines, hoses and fittings. Replace any that are damaged.	●			
Remove entangled material from chipper.	●			
Lubricate hinges and pivot points.	●			See page 55
Grease PTO Shaft		●		See page 53 and page 56
Check tractor hydraulic oil level		●		—
Perform Pre-start checks		●		See page 41
Check rotor blade sharpness			●	See page 57
Check ledger knife sharpness			●	See page 58
Check twig breaker			●	See page 57
Grease entire machine			●	See page 51

8.4 Grease Points

IMPORTANT! 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	Grease Points – Every 8 hours of operation
1	PTO Shaft Universal Joints
2	PTO Shaft Slip Joint

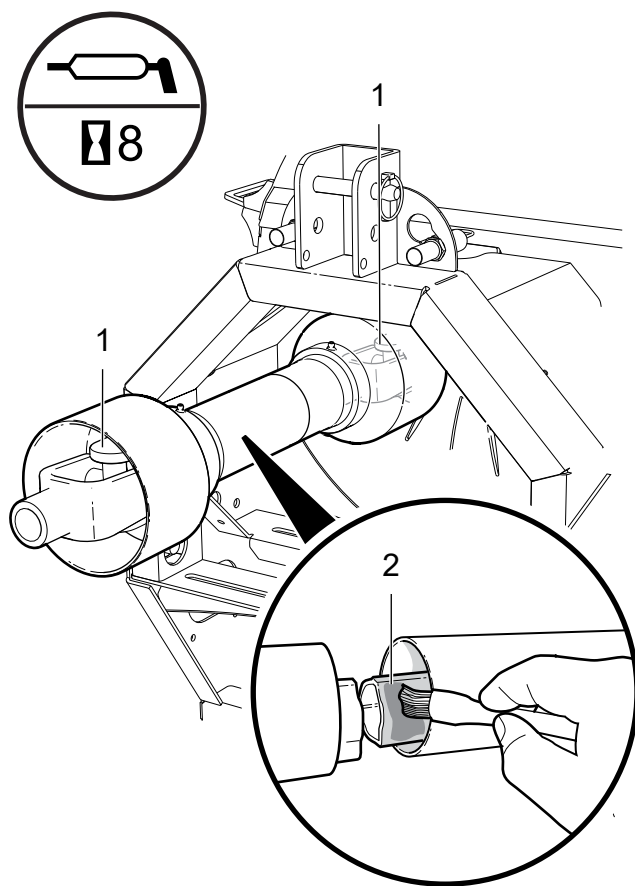


Fig. 69 – 8-hour Grease Points

Location	Grease Points – Every 50 hours of operation or annually
3	PTO Shaft Shield
4	Rotor Main Shaft – Front
5	Upper Roller Bearing – RH
6	Lower Roller Bearing – RH
7	Roller Pivot Bushing – RH
8	Upper Roller Bearing – LH
9	Upper Roller Bearing – LH
10	Roller Pivot Bushing – LH
11	Rotor Main Shaft – Rear

IMPORTANT! 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.

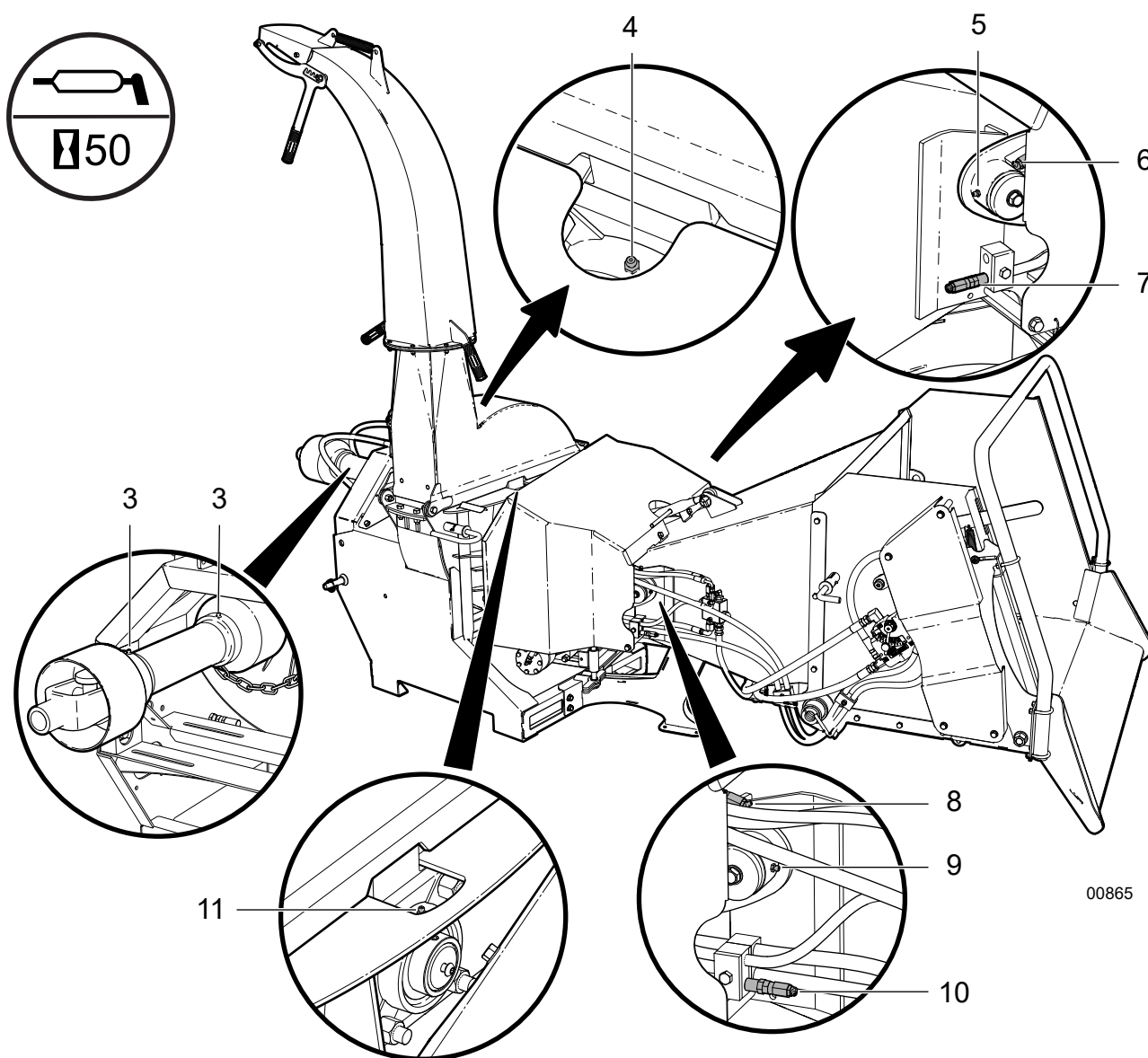
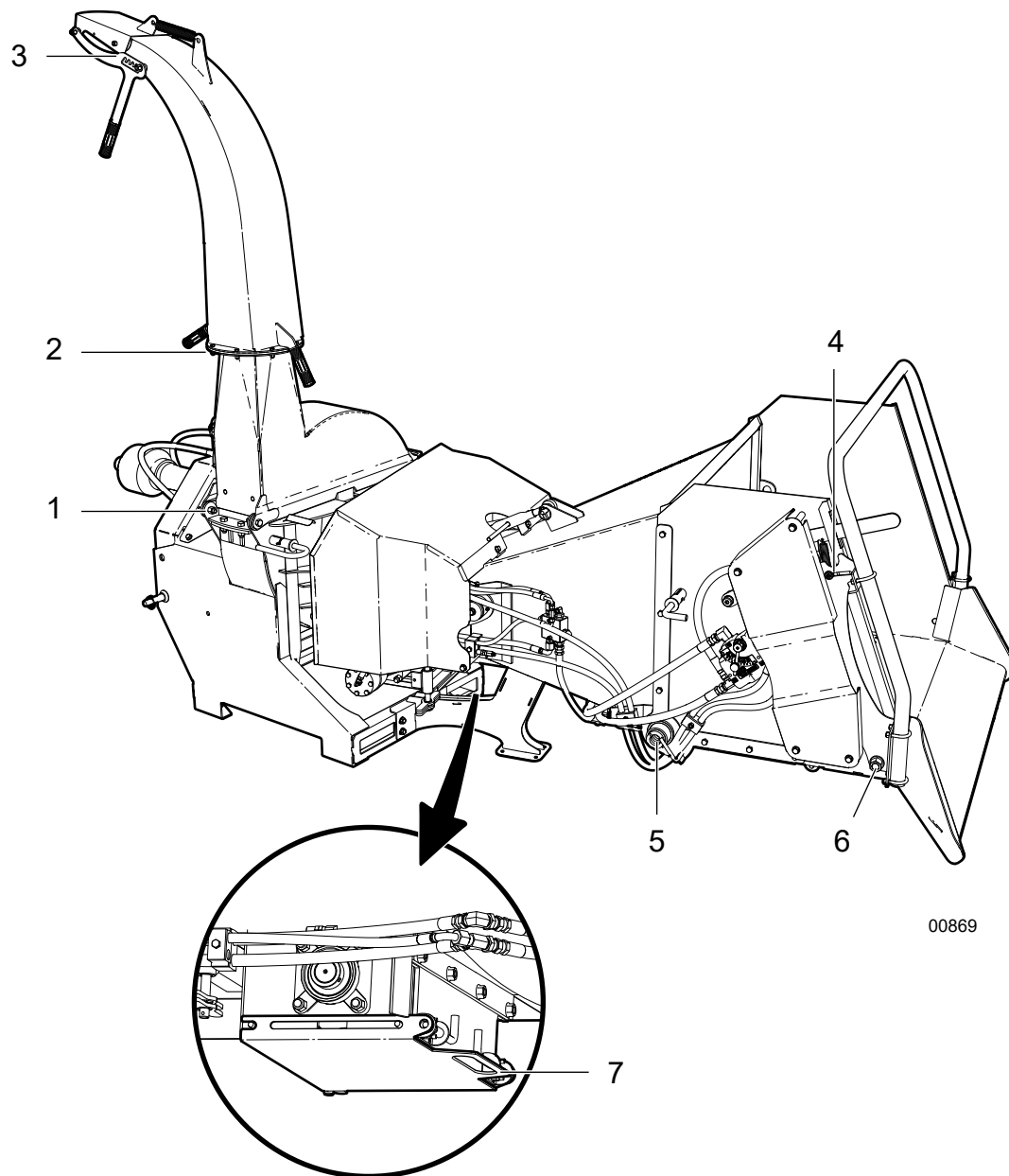


Fig. 70–Grease Points – 50 Hours of Operation or Annually

Location	Lubricate Hinges and Pivot Points – As required
1	Rotor Cover Hinge
2	Discharge Chute Rotate
3	Hood Deflector
4	Feed Table Hinges
5	Feeder Control Bar
6	Control Bar Roller Hinge
7	Clean-out Tray



00869

Fig. 71 – Grease Hinges and Pivot Points

8.4.1 Hydraulic Feed Roller Lift (Option)

Grease cylinder pivot points every 50 hours.

The hydraulic feed roller lift option has a hydraulic cylinder to lift or lower the top feed roller located on top of the feed roller chute.

There is a pivot point at each end of the cylinder. The bridge guard must be removed to access the lower fitting.

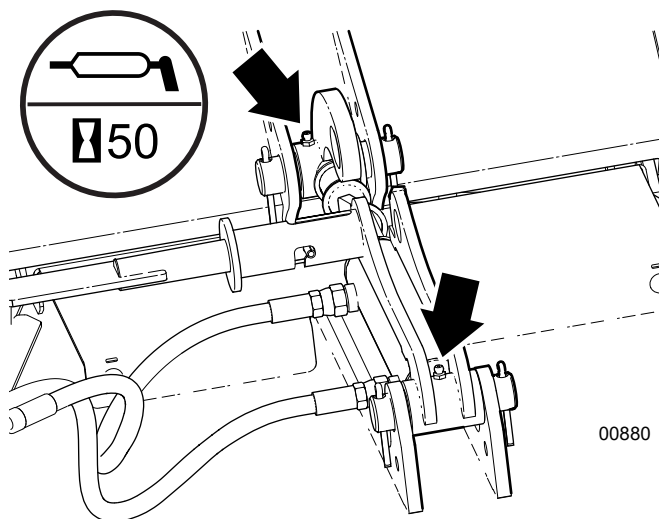


Fig. 72—Hydraulic Feed Roller Lift Cylinder

8.4.2 Hydraulic Winch Option – BX102RP

Grease winch motor every 50 hours.

The winch arm should be inspected daily and lubricated as required.

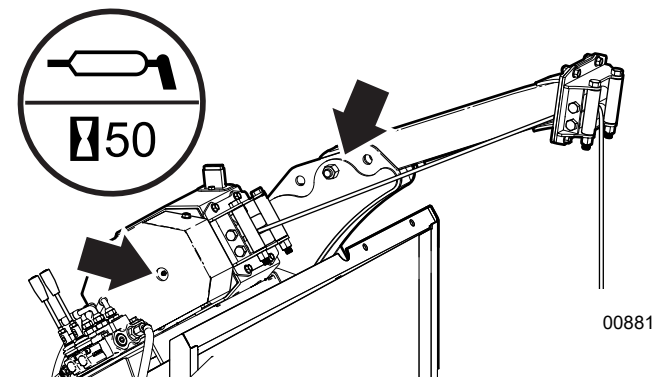


Fig. 73—Hydraulic Winch Option

8.5 PTO Shaft Maintenance

Grease the PTO shaft every 8 hours.

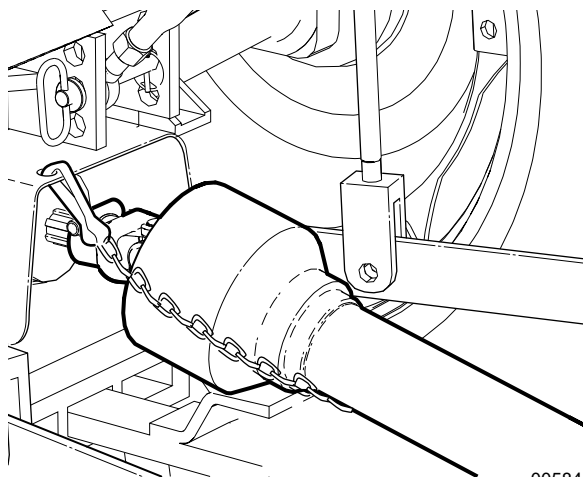


Fig. 74—PTO Shaft

The PTO shaft is designed to collapse and extend as the machine goes through its operational range.

Heavy-duty plastic shielding encloses the driving components. As a safety measure, it is designed to stay stationary as the driveshaft turns.

Annual disassembly, cleaning and inspection is recommended to make sure that all components function as intended.

Shear Bolt

The PTO shaft has a shear bolt on the implement end, at the input yoke. The shear bolt is designed to break in the event the drive system is overloaded to protect other critical components.

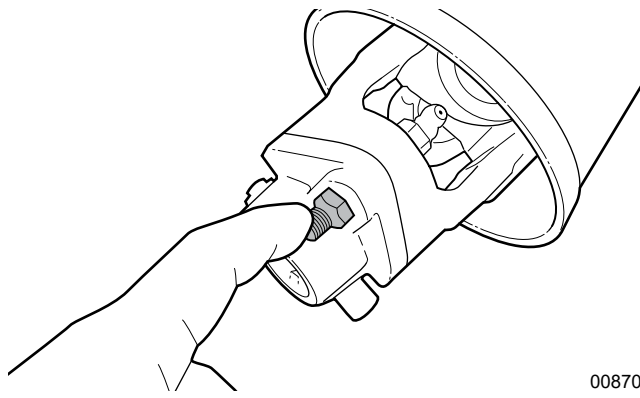


Fig. 75—PTO Shear Bolt

The drive system is designed to function well without failing the shear bolt. If it does fail, generally it is because material is being fed too fast or something very hard has been jammed into the rotor or between the blades.

Replace broken shear bolts with one the same size. Always determine the cause of the problem and correct it before resuming work. Shear bolts are available from your distributor or dealer.

8.6 Twig Breaker

Inspect the twig breaker for damage, bent or missing teeth every 50 hours.

The twig breaker is located inside the lower rotor housing. Material in the chipper is broken up into smaller pieces as the discharge paddles rotate past it.

A damaged or worn twig breaker should be replaced.

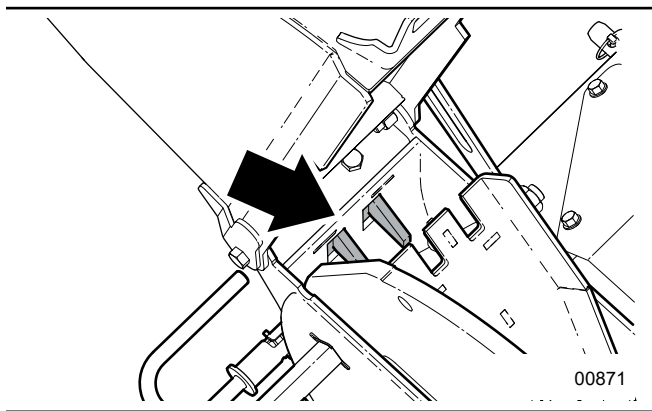


Fig. 76–Twig Breaker

8.7 Rotor Blades

Check rotor blade sharpness daily.

If the chipper is not pulling the material or material has to be pushed into the chipper, the rotor blades are probably dull. Reverse or sharpen the blades if the cutting edge becomes dull.

Check blade sharpness more often if processing material with a lot of sand, soil or dirt in it.

Keeping the blades sharp reduces the amount of power required during operation.

Sharpening Rotor Blades

1. Remove the blades from the rotor to sharpen. Sharpen at a 45° angle to provide the best cutting effect.

IMPORTANT! Make sure equal amount of material is removed from each blade when sharpening to maintain proper rotor balance.



Risk of getting hands pinched or wedged between lower rotor housing and rotor. Turn rotor slowly and be aware of hand positioning.

W032

2. Install rotor blades with leading edge out, towards the ledger blade. Tighten the blade mounting bolts to **80 lbf•ft (110 N•m)**.

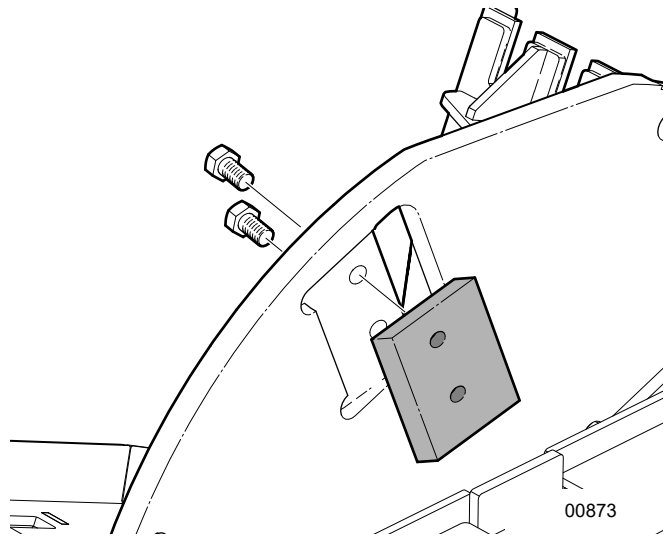


Fig. 77–Changing rotor blade

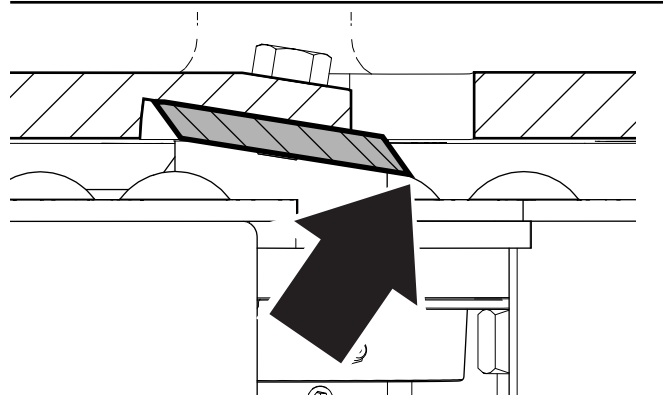


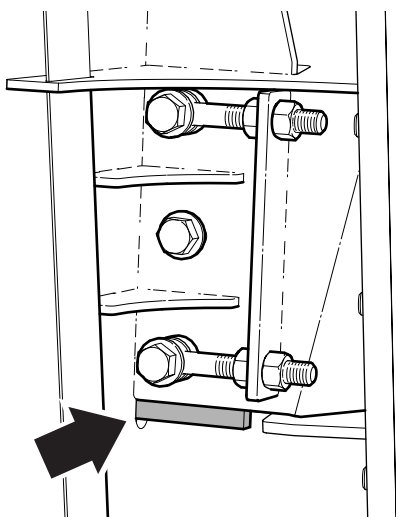
Fig. 78–Rotor blade leading edge

8.8 Ledger Knife

Observe ledger knife performance daily. Check the ledger knife sharpness every 50 hours.

The ledger knife is bolted inside the lower rotor housing assembly. As the rotor turns, material fed into the chipper is sheared off at the ledger knife by the rotor blades.

When the corner of the ledger knife facing the rotor blade rounds over, the blade can be removed and re-installed with a different corner facing the rotor blade. Once all four corners have been rounded, remove the knife to sharpen or replace it.



00874

Fig. 79—Ledger knife inside lower rotor housing

To obtain the best chipper performance, check the clearance between the rotor blade and stationary ledger blade every 50 hours.

8.8.1 Ledger Knife Clearance

Use the ledger setting gauge to check knife clearance. **The thickness of the gauge is the correct ledger blade clearance.** If spacing is in excess of the gauge thickness, adjust the clearance.



The actual clearance between the rotor blades and the ledger knife is 1/32"–1/16" (3/4–1-1/2 mm).

Checking

1. Open the upper rotor housing.

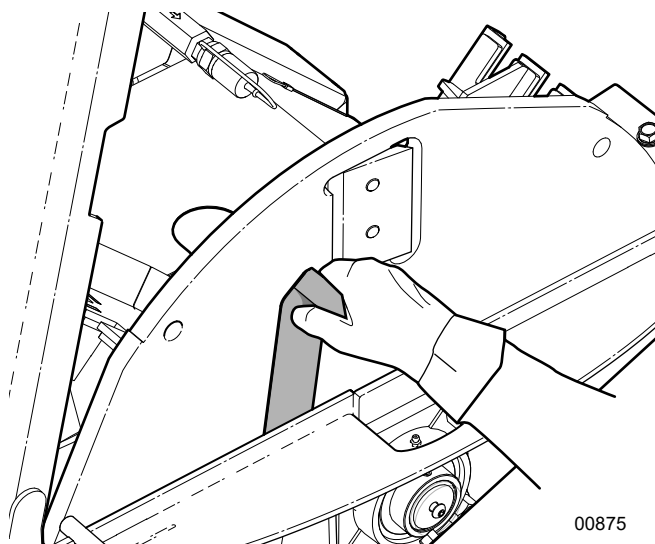


CAUTION!

Risk of getting hands pinched or wedged between lower rotor housing and rotor. Turn rotor slowly and be aware of hand positioning.

W032

2. Turn the rotor by hand so that one rotor blade edge is next to the ledger knife.
3. Slide the end of the ledger gauge down between the rotor blade and the ledger knife.



00875

Fig. 80—Inserting Gauge

4. Turn the rotor past the ledger knife with the gauge inserted between them to check clearance. The gauge should be tight. Check all four knives.

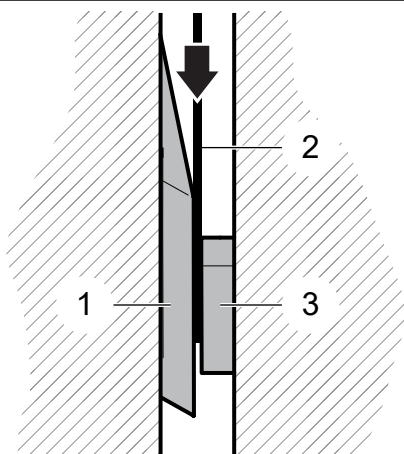
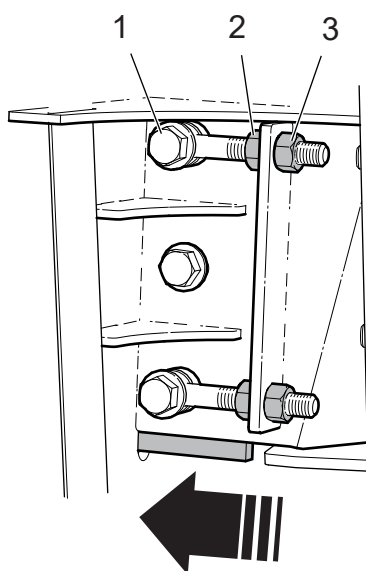


Fig. 81—Checking ledger knife clearance

1. Rotor Blades
2. Gauge
3. Ledger Knife

Adjusting

5. Loosen the securing bolts (1).
6. Loosen the jam nuts off on the outside of the ledger knife support (3).
7. Turn the two adjuster nuts (2) clockwise so the ledger knife slides firmly up against the gauge inside the rotor housing. Move both adjusters evenly.
8. Remove the ledger knife gauge. Tighten the jam nuts and securing bolts.



00879

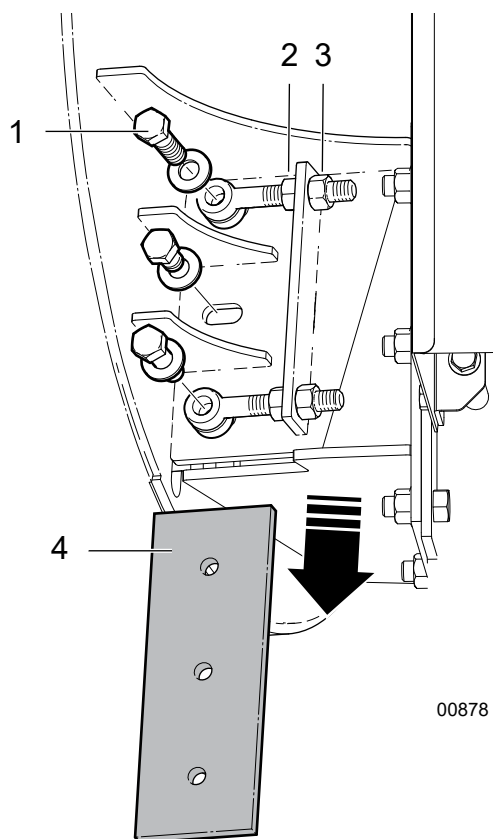
Fig. 82—Adjusting Ledger Knife

Changing Ledger Knife

The ledger knife is removed through the bottom of the chipper.

Procedure

1. Loosen the outside jam nuts (3) and the inside adjuster nuts (2).
2. Remove the bolts (1) holding the ledger knife in place to allow the blade to fall through the bottom of the chipper.



00878

Fig. 83—Changing Ledger Knife

1. Bolts
 2. Adjuster Nuts
 3. Jam Nuts
 4. Ledger Knife
3. Rotate the ledger knife or replace it with a new or sharpened knife.
 4. Hand-tighten the bolts.
 5. Verify clearance before tightening. See *page 58*.

8.9 Feed Rollers

The top and bottom feed rollers may occasionally require some maintenance (for example, removing a jam, cleaning, inspection, repair, and so on). In order to safely raise and gain access to the rollers, a turnbuckle has been included with the chipper. (On BX102R models, the turnbuckle is stored under the feed table with 2 link pins.)

To raise the upper feed roller:

1. Remove the bridge guard.
2. Remove the tension spring jam nut and hex nut from each side.

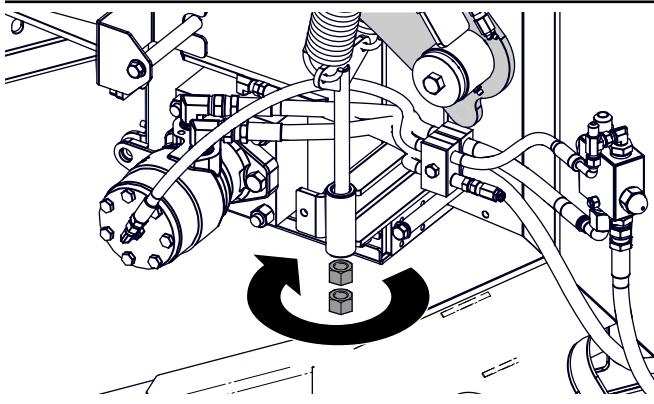


Fig. 84—Tension Spring hex Nuts

3. Attach the turnbuckle to the attachment points on the hopper and roller bridge using the two link pins.

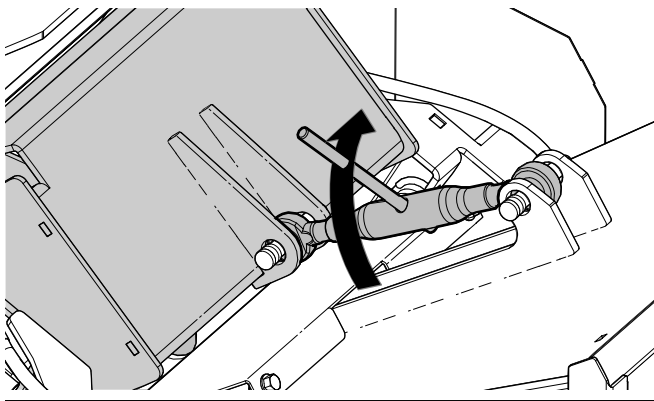


Fig. 85—Turnbuckle

4. Wind in the turnbuckle to raise the upper roller to the desired height.

The top roller is secured in the raised position by the turnbuckle and is safe to begin maintenance. Reverse the process to lower the upper roller into place.

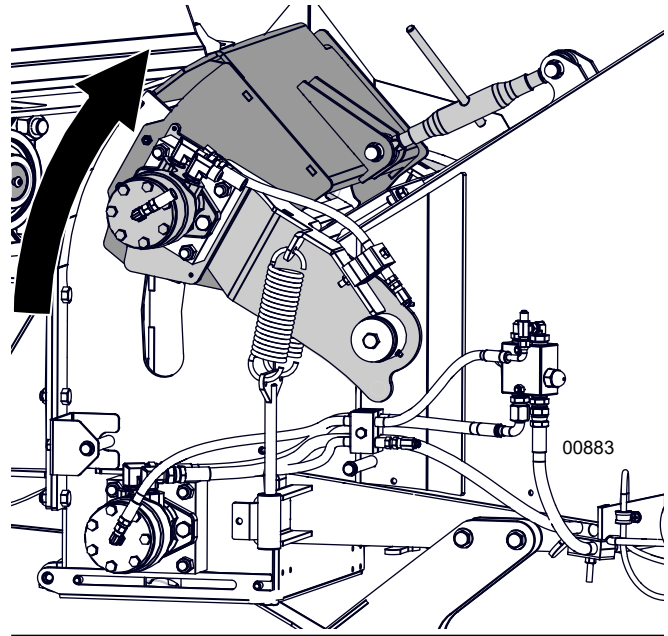


Fig. 86—Top Roller Raised

5. Reverse the process to lower the upper roller into place.
- To set feed roller spring tension, see *page 29*.

8.9.1 Feed Roller Maintenance on BX102RP Models

1. Start the tractor or power pack to energize the hydraulics.
2. Lift the roller using the hydraulics until the locking plate pin hole lines up with the locking pin on the clevis.
3. Pull back, rotate and release the locking pin. Make sure spring pulls the pin through the locking plate hole.

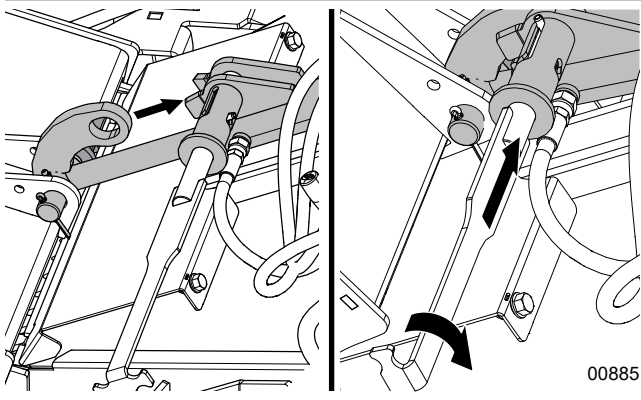


Fig. 87 – Locking Pin on BX102RP Models

4. Shut off the tractor or power pack.
5. Ensure the chipper rotor is locked and the PTO is disengaged.
6. The top roller is now secured and is safe to begin maintenance.
7. Reverse the process to lower the upper roller into place.

CAUTION!

Avoid Serious Injury. Always make sure the roller arm locking pin is in place before beginning any work in this area. Never rely on the hydraulic cylinder to hold up the roller!

8.10 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, protect the tractor electronics by unhooking the chipper beforehand. Always connect the ground clamp as close to the work area as possible.

if equipped with P3 PULSE system, 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 the tractor battery. 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.

9. Troubleshooting

The following table lists some problems that may be encountered, with possible causes and solutions.

If a problem persists after reading through the Troubleshooting section, contact your local dealer, distributor or Wallenstein. Have the serial number ready.

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.
	Broken shear bolt.	Replace it with a shear bolt that is the correct size and hardness. See the chipper Parts Manual.
Material feeding in too slow	Engine or rotor speed too low.	Set throttle to increase rotor rpm.
	Blades or knives are dull or clearance is incorrect.	Check rotor and ledger blades. Rotate, sharpen or replace. See <i>page 57</i> .
	Rotor blade knife edge angle incorrect.	Resharp the rotor knives to specified 45° angle and check that blade is installed properly. See <i>page 57</i> .
	P3 PULSE programming incorrect.	Adjust programming. See <i>page 31</i> .
	Slow hydraulic flow.	See Flow Control Valve Adjustment on <i>page 29</i> .
	Lower roller is jammed (not cleaned out from last use).	Open lower roller clean out and remove debris. Jammed debris could freeze in colder weather.
	Obstructed discharge.	Clear debris from discharge chute.
Unusual machine vibration while operating	Broken or missing rotor blade.	Replace the rotor blade. See <i>page 57</i> .
	Rotor may be bent.	Check for rotor wobble. Replace the rotor.
	Rotor bearings failed.	Replace the rotor bearings.
	Loose fasteners.	Tighten fasteners to the correct torque. See <i>page 65</i> .
	PTO shaft yokes are out of phase. (It is recommended that Binacchi® PTO shafts are used to prevent this from occurring).	Set the yokes on each end of the PTO shaft to the same phase.
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. Check P3 PULSE <i>page 31</i> .
	P3 PULSE programming incorrect.	Check that P3 PULSE settings are at factory specifications. Reset if required. See <i>page 36</i> .
	P3 PULSE 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 PULSE unit for output signal. Replace unit if required.
		Check harness for bad ground connection.
	Feed control bar malfunction.	Inspect P3 PULSE wiring harness for damage. Repair or replace if damaged.
		Check feed control bar switches. Replace or reposition the pickup trigger.
	Slow hydraulic flow.	See Flow Control Valve Adjustment on <i>page 29</i> .
		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.

Problem	Cause	Solution
Poor Chip Quality	Dull blades.	Check rotor and ledger blades. Rotate, sharpen or replace. See <i>page 57</i> .
	Poor quality material.	Material is small or rotting. Mix with higher quality material.
	Space between the rotor blades and ledger knife is too large.	Use the ledger guide tool to check the clearance. See <i>page 58</i> .
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 <i>page 31</i> .
	Feeding material too quickly.	P3 PULSE programing incorrect. Adjust programming. See <i>page 31</i> .
	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 the rotor blades and ledger knife is too large.	Use the ledger guide tool to check the clearance. See <i>page 58</i> .
	Dull blades.	Check rotor and ledger blades. Rotate, sharpen or replace. See <i>page 57</i> .
PTO shear bolt breaking	Tractor cruise control function is on.	Turn off the tractor cruise control.
	Rotor knives are dull.	Rotate, sharpen, or replace the rotor knives. See <i>page 57</i> .
	Space between the rotor blades and ledger knife is too large.	Use the ledger guide tool to check the clearance. See <i>page 58</i> .
	Tractor PTO speed is set too low.	Increase the PTO speed to 540 or 1,000 rpm.
	PTO shaft angle is incorrect.	Adjust the PTO shaft angle to 15° or less from horizontal. See <i>page 23</i> .
	Shear bolt is incorrect.	Replace it with a shear bolt that is the correct size and hardness. See the chipper Parts Manual.
	Chipper is not on the ground.	Place the chipper on the ground.
	Three-point hitch is raised or lowered, while the chipper rotor is turning.	Wait for the chipper rotor to stop turning before raising or lowering the chipper.
	Tractor PTO spline and chipper PTO spline are not on parallel planes.	Adjust the topline to align the tractor and chipper PTO spline planes.
	PTO shaft is too long.	Cut the PTO shaft to the correct length. See <i>page 20</i> .
	PTO shaft yokes are out of phase. (It is recommended that Binacchi® PTO shafts are used to prevent this from occurring).	Set the yokes on each end of the PTO shaft to the same phase.

10. Specifications

10.1 Machine Specifications¹

Model	BX52R	BX72R	BX102R
Drive System	Direct Drive, Power take-off with shear bolt		
Horsepower Range	40–55 hp (34–41 kW)	50–85 hp (37–63 kW)	80–120 hp (60–89 kW)
Minimum hydraulic flow required	3–6 gpm (12–23 Lpm)		4–8 gpm (15–30 Lpm)
Chipping Capacity	5" (13 cm)	7" (18 cm)	10" (25 cm)
Chipper Housing Opening	5" x 10" (13 cm x 26 cm)	7" x 12" (18 cm x 31 cm)	10" x 17" (25 cm x 43 cm)
Rotor Diameter	25" (63 cm)	28" (71 cm)	36" (92 cm)
Quantity of Rotor Knives	Four		
Rotor Weight	125 lb (57 kg)	185 lb (84 kg)	425 lb (193 kg)
Mounting System	Cat I, iMatch™ & Quick Hitch Compatible		Cat II, iMatch™ & Quick Hitch Compatible
Operating Weight	845 lb (384 kg)	1300 lb (590 kg)	1950 lb (885 kg)
Dimensions (Feed table open)	80" x 67" x 74" (204 cm x 171 cm x 188 cm)	108" x 64" x 90" (275 cm x 163 cm x 228 cm)	108" x 85" x 100" (270 cm x 215 cm x 253 cm)
Dimensions (Feed table closed)	62" x 61" x 74" (158 cm x 155 cm x 188 cm)	83" x 56" x 90" (211 cm x 143 cm x 228 cm)	85" x 71" x 100" (215 cm x 180 cm x 253 cm)
Hopper Opening	35" x 30" (89 cm x 76 cm)	26" x 35" (66 cm x 89 cm)	30" x 42" (76 cm x 107 cm)
Discharge Hood Rotation	360°		
Discharge Hood Height	74" (188 cm)	90" (228 cm)	100" (253 cm)
Rated rpm	540–1000		
Options	Self-contained Power Pack for tractors without hydraulic power supply		
			Hydraulic Winch
			Hydraulic Feed Roller Lift
	P3 PULSE Electronic Control System		
Features	<ul style="list-style-type: none"> - STOP—FORWARD—REVERSE—STOP – Feed roller control bar - Dual Hydraulic Feed Roller System - Easy Start - no fuss large diameter feed start - Folding Spring Assist / Latching Feed Table - Turnbuckle Lift Feed Roller (for maintenance) - Feed Roller Flow Control Valve - Multi-position, Locking Discharge Chute - Four-position Rotor Lock - Reversible Rotor Blades and Ledger Knife - Dual Blade Twig Breaker 		

¹ Specifications are subject to change without notice.

10.2 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%.



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



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

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



8.8



10.9

10.3 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.

11. 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

12. Alphabetical Index

A		Hydraulic Oil..... 51
Attach to Tractor..... 19		Hydraulic Winch 38
Connect 3-point Hitch 19		Winch Arm Extension..... 38
Connect Hydraulic Hoses 24		Winch Control Valve 39
P3 PULSE Equipped Models..... 24		Winch Drive 38
B		
Bolt torque..... 65		I
BX52R Adjustable Ski Height..... 42		Install PTO Shaft..... 23
C		
Checking Bolt Torque..... 65		L
Chipping Operation 43		Ledger Knife – Changing 59
Unplugging the Chipper..... 46		Ledger Knife – Checking..... 58
Cleaning Synthetic Rope..... 45		Lubricants..... 51
Control Bar Stop Positions..... 27		
Controls..... 25		M
Discharge Chute..... 25		Machine Components 16
Discharge Chute Deflector..... 25		Machine requires excessive power or stalls..... 63
Easy Start System 29		Maintenance..... 52
Feed Roller Control..... 26		Maintenance Schedule..... 52
Feed Roller Control Bar 26		Material feeding in too slow..... 62
Forward (Feed)..... 28		
Reverse 28		O
Stop Positions..... 27		Operating Instructions..... 40
Feed Roller Flow Control Valve 29		Before Startup..... 41
Adjust the feed rate..... 29		BXR Auxiliary Power Pack..... 44
Hydraulic Winch – Option (BX102RP)..... 38		Chipping Operation..... 43
Synthetic Chokers..... 45		P3 Equipped Models..... 44
		P3 PULSE Electronic Control System 31
		Pre-Operation Checklist..... 41
		Stopping..... 46
		Stopping in an Emergency..... 46
		Transporting..... 49
		Unplugging the Chipper..... 46
E		
Equipment Safety Guidelines..... 8		P
F		P3 PULSE Electronic Control System..... 31
Familiarization..... 15		Diagnostics screen 36
Machine Components..... 16		Display..... 32
Operator Orientation..... 15		Display Screens..... 33
To the New Operator..... 15		Feed Settings screen..... 34
Feed Roller Control..... 26		Main screen 33
Feed Roller Flow Control Valve, Adjusting 29		Overview..... 31
Feed Roller Maintenance..... 60		Performance Hints 35
Feed Roller Maintenance – BX102RP models..... 61		Reset Defaults screen 36
Feed rollers intermittent or not turning 62		Settings Menu screen 34
Fluids..... 51		Start-up Screen..... 32
Foreword..... 2		P3 PULSE Equipped Models 44
Delivery Inspection Report..... 4		Placing Chipper in Storage 50
Introduction..... 2		Placing Feed Table in Stowed Position 49
Serial number Location..... 5		Poor Chip Quality 63
Types of Decals on the Machine..... 6		Pre-operation Checklist..... 41
Forward (Feed) 28		Prepare for Transport..... 49
G		PTO Shaft
Grease Points 53		Install 23
Grease Type..... 51		Maintenance 56
H		Shear Bolt..... 56
Hinges and Pivot Points–Lubrication 55		Size..... 20
Hydraulic Feed Roller Lift..... 37		
Hydraulic Fitting Torque 66		

R		T	
Replacing Damaged Safety Signs	14	Three-point Hitch.....	19
Reverse.....	28	Category I and II	19
Rotor Blades	57	Connect	19
Sharpening	57	Transporting	49
Rotor does not turn	62	Prepare for Transport.....	49
Rotor Lock.....	30	Troubleshooting	62
Set Rotor Lock.....	30	Twig Breaker	57
S		U	
Safe Condition.....	8, 41, 51	Understanding Safety Decals.....	11
Safety	7	Unplugging the chipper	46
Being Prepared.....	9	Unusual machine vibration while operating.....	62
How to Install Safety Signs	14	W	
Hydraulic System Safety.....	9	Warranty.....	67
Safe Condition	8	Welding on the Chipper.....	61
Safety Alert Symbol	7	Welding on the machine.....	61
Safety Rules	7	Winch-equipped Models.....	44
Signal Words	7	Cleaning Synthetic Rope	45
Why Safety is Important.....	7	Rope inspection	45
Safety Rules.....	7	Synthetic Chokers.....	45
Safety Signs.....	11	Winch Safety.....	44
Safety Sign Explanations.....	12	Winch Safety	44
Safety Sign Locations	11		
Safety signs, installing.....	14		
Safety Training	9		
Service and Maintenance.....	51		
Electrical System	61		
Feed Roller Maintenance.....	60		
Feed Roller Maintenance on BX102RP Models	61		
Hydraulic Feed Roller Lift Option.....	56		
Hydraulic Winch Option	56		
Ledger Knife – Changing	59		
Ledger Knife – Checking	58		
Ledger Knife Clearance	58		
Maintenance Schedule	52		
PTO Shaft Maintenance	56		
Shear Bolt.....	56		
Rotor Blades – Changing.....	57		
Twig Breaker.....	57		
Welding on the Chipper	61		
Welding on the Machine	61		
Setting Rotor Lock.....	30		
Sharpening Rotor Blades	57		
Shear Bolt	56		
Sign-off form.....	10		
Size PTO Shaft	20		
Specifications	64		
Hydraulic Fitting Torque	66		
Stopping in an Emergency	46		
Stopping Procedure	46		
Storage.....	50		
Placing Chipper in Storage	50		
Removing from Storage.....	50		
Synthetic Chokers	45		
Synthetic Rope			
Cleaning.....	45		
Rope inspection	45		

[illegible]

[illegible]



www.wallensteinequipment.com