



Wood Chipper Model CX951

Operator's Manual



THIS MANUAL MUST BE READ AND UNDERSTOOD BEFORE ANYONE OPERATES THIS MACHINE!

*Manual# 990034
Revised 04/2012*

To the Owner;

Thank-You for choosing a quality product from Pequea. We strive to give you the best equipment and the best level of service of any company. With a little care and maintenance this machine will do your work for you for many years. In this manual, we make an effort to get you better acquainted with the machine so you can achieve maximum performance. We design and build all of our equipment with the end user in mind so we welcome any suggestions or ideas for improvement. Please note that it is within our rights to make changes or improvements to our equipment without updating the equipment that was manufactured before the change took place.

Please take a few minutes to fill out the area below. This information will be valuable to you when ordering parts or requesting service from your dealer.

Dealer Name: _____

Dealer Phone Number: _____

Service Manager/Technician: _____

Model# and Description: _____

Serial Number: _____

Date of Purchase: _____

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INTRODUCTION

Intended Use

Pequea Chippers are designed to chip natural, untreated wood only. Materials that are processed may contain chemicals or by-products that could corrode the machine, damage the blades, or spontaneously combust. Pequea will not cover under warranty any chipper that has been used for anything besides natural wood.

Serial Number

The chipper's serial number is located on the chipper housing near the front of the machine. This number helps us to track changes and improvements and must be mentioned when ordering parts or requesting service. For your convenience, a space has been provided inside the front cover of this manual to record the serial number, model number, purchase date, and dealer name.

Specifications



Specifications	CX350	CX550	CX551	CX951
Chip Opening	3 x 5.5 in. (7.5 x 14cm)	5.5 x 8 in. (14 x 20cm)		9 x 16 in (23 x 40.6cm)
Drive System	PTO	PTO		PTO
Engine	N/A	N/A		N/A
Transport	3 Point Hitch			Towable
HP Required	16	35+		80+
Rotor/Drum Size	65 lbs.	165 lbs.		490 lbs.
Knives	(2) 2.5 x 3.25 x 5/16 in.	(4) 2.5 x 3.25 x 5/16 in.		(2) 4.5 x 9 x 5/8 in.
Knife Bolts	3/8" Recessed Head Hardened Bolts			5/8" Grade 8
Feed System	Manual		Hydraulic	
Hydraulic Requirement	N/A		6 GPM	8GPM
Feed Roller	N/A		12" (30.5cm)	15.5" (39.4cm)
Hopper Opening	25 x 18 in. (62.5 x 45cm)	28 x 28 in. (70 x 70cm)		28 x 42 in (70 x 106cm)
Feed Height	38" (95cm)	41" (102.5cm)	21" (52.5cm)	27" (68cm)
Weight (lbs.)	375	650	775	2100

SAFETY



Do not operate this machine until this manual has been read and fully understood; serious injury or death can occur if these safety warnings are ignored!



Never allow more than one person to operate this machine at a time. If two people are working together it will increase the chance of your workmate engaging the machine or causing you to fall into the machine.



Wood is much harder than human flesh! If your hand is ever near the chipping or feeding area serious injury can occur. NEVER place your hands on the machine while it is chipping.



Never place your hands or feet on or near the machine while it is engaged.



Never place your hands or feet on or near the material while it is feeding.



DO NOT wear loose clothing, jewelry, or anything that can catch a branch that is feeding into the chipper.



DO NOT stand directly in front of the infeed hopper when loading material into the hopper; always load from the side of the hopper. This will not allow any part of your body to be pulled into the machine.



Do not go near any hydraulic leaks. Hydraulic oil is under extreme pressure and a small leak can easily penetrate the skin, causing serious injury or infection.



Always wear safety hearing protection, eye wear, gloves, and long pants when operating the chipper.



Never place your hands beyond the opening of the hopper while the chipper is running.



Never allow children, disabled, or untrained persons to operate the chipper.



Do not operate the chipper near bystanders, public roads, or anywhere that the debris may travel far enough to injure another person.



Never move the chipper while it is running.



Shut off the tractor and allow the chipper to come to a complete stop before removing any debris.



Never perform any maintenance or repair while the chipper is running.

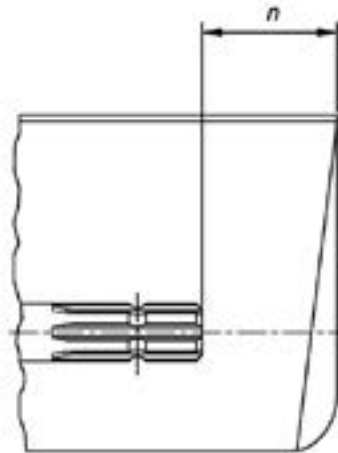


The SMV (Slow Moving Vehicle) Triangle must be visible at all times when traveling on public roads.

Stay Clear of Rotating Drivelines



TS1644-UN-22AUG95



H96219-UN-29APR10

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

Do not install any adapter device between the tractor and the primary implement PTO drive shaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)

SAFETY

Safety Decals

Warning decals are provided to insure safe and proper use of the machine and should be heeded at all times. If at any time there are damaged and/or faded decals, contact your dealer for replacements immediately. Below is an illustration of each decal.



⚠ DANGER

Entanglement in rotating driveline can cause serious injury or death.

Keep all shields in place.

Avoid contact with rotating parts.

⚠ WARNING

THROWN OBJECTS

Do not operate near people. Debris can be thrown a long distance.

⚠ WARNING

To avoid serious injury or death from contact with rotating blades, do not place hands or feet beyond the opening of the hopper.

⚠ DANGER

To avoid serious injury or death do not remove shields during operation. Disconnect power source when not in use.

⚠ WARNING

High-Pressure hydraulic oil leaks can penetrate skin resulting in serious injury, gangrene, or death.

- Check for leaks with cardboard; never use hand.
- Before loosening fittings: Lower load, release pressure, and be sure oil is cool.
- Consult physician immediately if skin penetration occurs.

⚠ CAUTION

Operate only with 540 rpm PTO

⚠ CAUTION

To avoid serious injury:

- Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
- Never allow riders.
- Keep bystanders away from equipment during operation.
- Operate from tractor seat only.
- Keep all shields in place and good condition.
- Lower equipment to ground, stop engine, remove key and set brake before dismounting tractor.
- Never allow children or untrained persons to operate equipment.

⚠ WARNING

Do not exceed this implement's maximum transport speed of 32km/h (20mph).

Exceeding this speed may result in loss of control during transport or braking and serious injury or death.

Transport only with a properly ballasted tractor and a properly attached safety tow chain. Do not transport with a motor vehicle. Reduce speed and use additional caution when on Inclines, towing under adverse surface conditions, and turning.

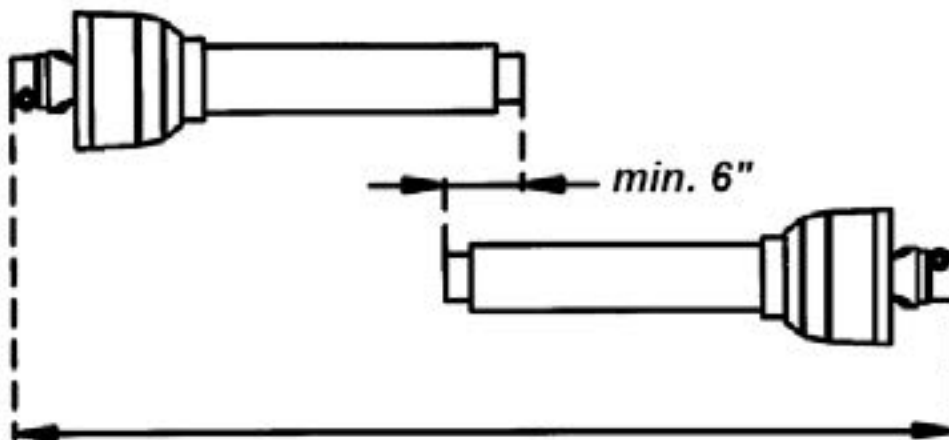
⚠ WARNING

To avoid serious injury or death from crushing and pinching hazards:

- Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

INSPECTION AND SET-UP

- Follow the instructions in the lubrication section of this manual to make sure the chipper is greased properly. The initial grease is applied at the factory, but a routine maintenance schedule is the user's responsibility.
- Check all bolts and nuts to make sure everything is tight. All hardware is checked at the factory, but sometimes it will vibrate loose during shipment. Also check all fasteners periodically between uses. A wood chipper produces high vibration levels which can cause hardware to loosen.
- Check the length of the PTO shaft. Some tractor draw bars are shorter and require a shorter PTO shaft. To determine whether your shaft needs to be cut down to fit you will need to hitch the chipper to the tractor draw bar, connect the PTO shaft to both the tractor and chipper, and watch closely to make sure that the PTO shaft does not fully retract when you turn sharply or drive over uneven ground. If it does, you will need to remove it and cut it down accordingly. If the PTO shaft is not fitted properly it can "bottom out" and cause damage to the PTO shaft or the chipper. Also check the PTO to make sure the tubes overlap at least 6 in. (15cm) (see illustration below) when the chipper is in operation.



TRANSPORTING

Field Transport

Make sure that the feed control lever is in the neutral position and the chipper hopper lid is closed before transporting.

Always shut of the tractor's hydraulics and PTO before transporting.

Never allow any riders on the chipper or the tractor.

Avoid tight turns to reduce the possibility of loss of control or PTO shaft damage.

Remain fully aware of the width of the chipper in relation to the objects you are passing, either stationary or moving.

Never travel at speeds over 10 MPH (16km/hr.) in the field.

Road Transport

Adhere to all suggestions for transport in the field listed above.

Follow all local regulations for moving equipment on public roads, especially those related to reflectors, SMV (slow moving vehicle) symbols and safety markers.

Never travel at speeds over 20 MPH (32km/hr.) on the road.

OPERATION

Startup

- Attach the chipper to the tractor using an approved hitch pin and secure with a cotter pin or other locking device.
- Connect the pto shaft to the tractor. Be sure that the locking collar slides forward and locks the PTO shaft securely to the tractor output shaft. Make sure that the pto safety chains are attached to both the tractor and the chipper to keep the protective PTO shield from rotating.
- Make sure the feed drive control bar on the chipper is in the 'neutral' position and connect the hydraulic hoses to the tractor
- Park the chipper so that it is sitting parallel to the tractor. If it is not parallel the PTO shaft will be running at an angle which increases stress on the knuckles.
- Place tractor transmission in neutral and set the parking brake, then turn the tractor engine off.
- Turn the chip chute in a safe direction and adjust the chip deflector to the desired position.
- Start tractor engine and hold the engine rpm's at a strong idle. Engage the pto slowly. If the tractor is running at a high speed when you engage the PTO you could damage the drive belts. After the rotor is spinning freely raise the tractor rpm's until the PTO speed is around 540 rpm.
- With the chipper now running at full speed you may begin chipping. Start by feeding small diameter branches until you get better acquainted with the machine and its operation, then you may begin feeding larger pieces.

Chipping tips

- Feed the blunt end of the branch in first.
- Trim the side limbs that won't fit into the hopper before you feed the chipper.
- Stand to the side of the hopper to feed the material so that debris doesn't fly back at you. Never stand directly in front of the hopper when feeding the chipper.
- If you have a lot of dry material, try to mix in some green (fresh) limbs with the dry. The moisture in the green wood will lubricate and cool the knives. Chipping only dry wood will cause the knives to heat up. A hot knife will lose its edge much quicker.

OPERATION

Chip chute adjustments

To position the chip chute, loosen the set bolt (Figure 3) and rotate the chute to the desired position, then retighten the set bolt. The chute conveniently rotates a full 360 degrees. Be sure the set bolt is tight and the chute is locked in place before transporting the chipper!

Deflector

The chip deflector easily adjusts to regulate the distance that the chips are thrown. Loosen the locking handle and adjust as desired. (Figure 4)



Figure 3



Figure 4

OPERATION

Feeding Material

The flow control valve (Figure 5) will control the speed of the material being fed into the chipper, The tractor’s hydraulic pressure will also contribute to the speed of the feed.

To adjust the speed of the feed system, find a small branch and feed it into the chipper with the feed adjusted to 3 or 4 and keep adjusting up until you reach the desired feed speed and/or chip thickness. The feed setting “0” will completely stop the flow of oil to the drive motors, stopping the feed roller.

The hydraulic system on the chipper requires at least 8 GPM to operate the chipper at full capacity.

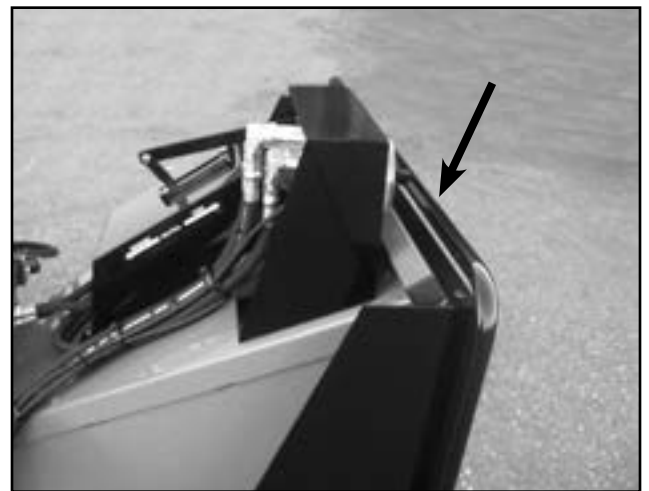
Sometimes when the brush is wet or if there is a lot of small twigs and branches the feed roller can slip because of the wet wood or the type of material. In this situation you can reverse the feed roller and try feeding it again in a different position so the roller grabs a different part of the branch.

Figure 5



Hydraulic Flow Control

Figure 6



Reverse ← Neutral → Forward

Shown above (Figure 6) is the control bar that operates the feed roller. This control bar has three positions, forward, neutral, and reverse. The feeding position is to the rear of the machine so that in an emergency the operator can just push the control bar and it will either stop or reverse the feed roller. Always keep the control bar in the neutral position whenever you are not feeding the chipper to eliminate the chance of accidentally feeding something into the machine

OPERATION

Feeding Material, Cont'd

The optional tachometer (Figure 7) and shut off switch will stop the feed roller if the chipper rotor RPM drops below the specified low speed setting. This feature keeps the tractor from stalling and eliminates undue stress on the drive system when the torque requirement is too high. The feed roller will restart automatically after the tractor recovers to the specified high speed setting.

Only the Hi/Lo settings on the tachometer are field modifiable. All other settings are pre-programmed at the factory and should not need to be changed. In case of total memory loss, see factory calibration section below to re-set to factory settings.

FIELD OPERATION:

Normal Operation: Press "O" button to toggle between RPM display, hours, or volts

Programming: Press and hold "O" button for three seconds to enter programming mode. Press "O" button momentarily to select parameter to adjust. Press "+" and "-" buttons to change setting. Only the Hi/Lo settings are field modifiable. ("Hi" setting is 1900, "Lo" setting 1700)

FACTORY CALIBRATION

Factory calibration is performed quickly and easily using any Sony television compatible infrared remote control. Factory calibration includes number of pulses per revolution (10), mode of operation (Mode 0, Output 1) and all field adjustable parameters.

- Press "TV" on remote to select television mode
- Press "POWER" 5 times within 2 seconds to enter programming mode.
- Press CHANNEL +/- to select parameter to adjust
- Press VOLUME +/- to change value OR press number keys to enter values directly.
- Press ENT to save and exit programming mode

The magnetic sensor (Figure 8) should be within .0025" from the teeth on the speed sensor wheel



Figure 7

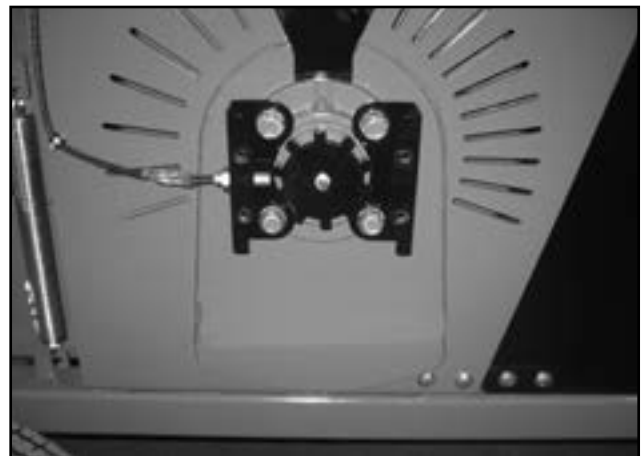


Figure 8*

*Shield has been removed to show detail. All shields must be on at all times during operation!!

MAINTENANCE & SERVICE

Belt tension

The belt tension is adjusted by moving the gearbox stand assembly forward or back until the desired tension is reached. Follow the steps below to adjust the tension.

- Loosen the two carriage bolts on each side of the gearbox stand. Do not remove the bolts. Just loosen them enough so the gearbox stand can slide forward or back.
- Loosen the locking nuts on the threaded adjustment rod (Figure 9).
- Turn the adjusting nuts on the threaded rod until the desired tension is achieved. Be sure to adjust both sides by the same amount.
- Retighten the locking nuts and the carriage bolts to lock the gearbox stand in position.

Belt Replacement

To replace the belts (Figure 10), decrease the tension as outlined above until the belt can be removed. Install new belts and retighten until belts are snug. Belts typically stretch over time so it is always best to replace all the belts so the load is equal on each one.

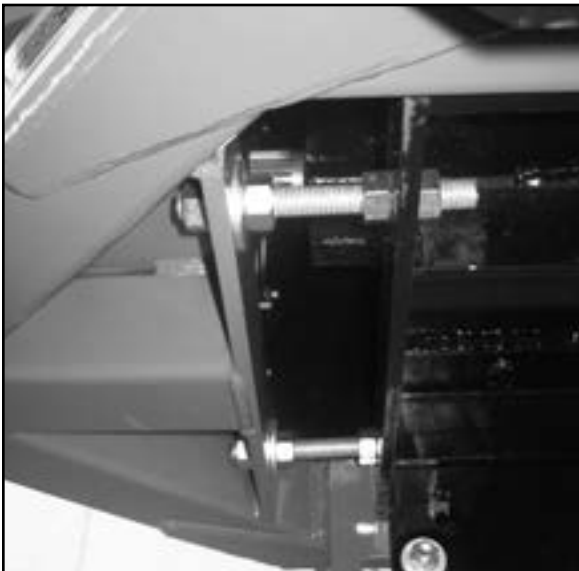


Figure 9



Figure 10*

*Shield has been removed to show detail. All shields must be on at all times during operation!!

MAINTENANCE & SERVICE

Knives

The performance of the chipper will depend largely on the condition of the knives. If the knives are dull or damaged you will create a lot of unnecessary stress on the machine and consumes more power from the tractor. The knives are reversible and can easily be reversed or replaced by removing the four bolts. (Figure 11) The bolts thread into a removable threaded block. Torque setting for knife bolts is 212 ft. lb. We recommend that the knives be re-sharpened by a precision sharpening service to retain the proper angle. The angle of the cutting edge should be 30 degrees. It is good to keep an extra set of knives on hand to use while the other set is being sharpened.

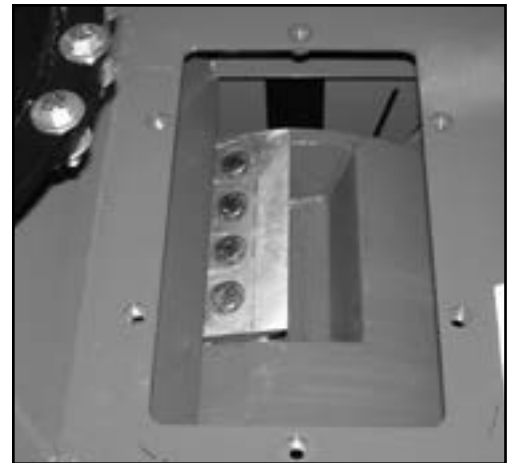


Figure 11*

Anvil (Shear Bar)

The anvil setting will also affect the performance of your chipper. Follow these steps to adjust the anvil. The anvil can also be reversed if the edge gets damaged. This is a two man job.

- Stop the tractor and remove the PTO and hydraulic connections.
- Move the tongue jack up to the top of the feed chamber (Figure 12) and raise the feed roller carriage so you can see the anvil through the feed opening.
- Loosen the bolts (Figure 13) that clamp the anvil in position. The holes for these bolts are slotted to allow for adjustment.
- Place a .0040 shim between the knife and anvil and have the second person tighten the bolts when the anvil is set. There will be excess vibration and torque requirement if the anvil is set too far from the knives.
- Retighten the bolts to secure the anvil. Tighten to 60 ft.lb.
- Lower the feed roller carriage and remove the jack.

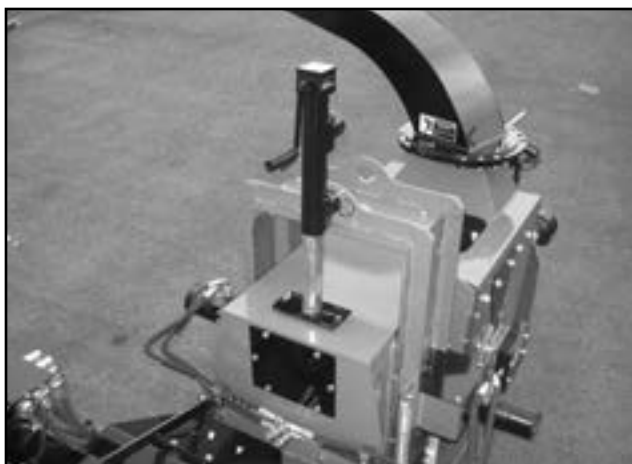


Figure 12

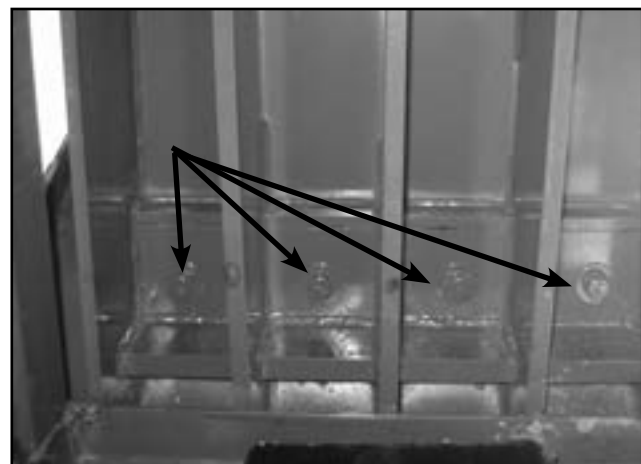


Figure 13

*Shield has been removed to show detail. All shields must be on at all times during operation!!

LUBRICATION

Bearings

The CX951 chipper has six bearings. Figure 14 shows the bearings on the output shaft going to the large pulley. Figure 15 shows the location of the feed roller bearing. There is one on each side of the feed roller carriage. The shields may need to be removed to access these bearings. All sealed bearings should be greased lightly every 20 hours of use. Be sure to wipe all the dirt off of the fitting before greasing.



Figure 14*



Figure 15

Figures 16 & 17 show the rotor shaft bearings. These should also be greased lightly every 20 hours. When greasing a sealed bearing, be careful that you do not over-grease or the grease will push the rubber seal away and expose the bearing to dirt and moisture.

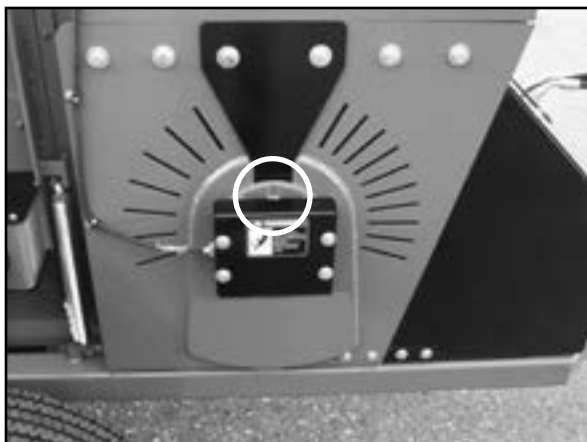


Figure 16



Figure 17

*Shields have been removed to show detail. All shields must be on at all times during operation.

LUBRICATION

Feed Roller Slide

The feed roller slide should always be wet with grease. Grease the feed slides every 10 hours (this might be excessive but too much grease won't damage the feed slide).

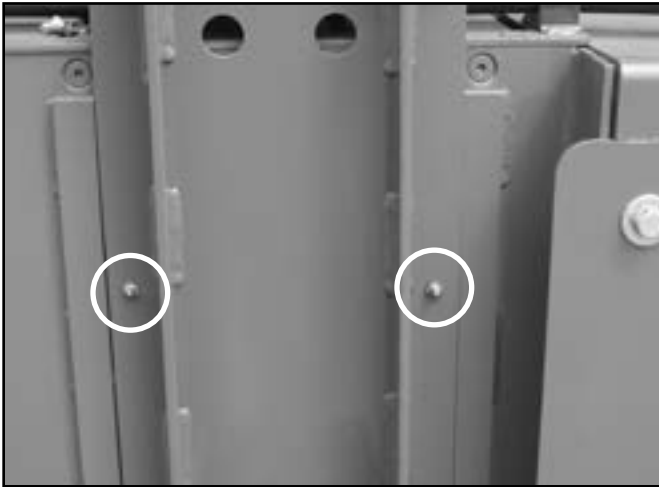


Figure 18



Figure 19

PTO Shaft

The PTO shaft has a grease fitting on each universal joint. The telescoping steel tubes must also be kept lubricated so the PTO shaft can extend and collapse freely.

Wheel Bearings

Wheel bearings should be repacked with fresh grease once a year.

Gearbox

Gearbox oil level should be checked periodically and maintained to the level of the lower of the two plugs on the back side of the gearbox housing. Once a year the oil should be drained and replaced with new 80W90 gear oil. There is a drain plug on the bottom of the gearbox

WARRANTY

Pequea Machine's Limited Warranty

Pequea Machine Company warrants to the original Purchaser all Machinery, Equipment, or Trailers manufactured by it, to be free from defects in material and workmanship under normal use and service. Its obligation under this Warranty shall be limited to replacement or repair of any parts thereof, free of charge to the original Purchaser, at its place of business, provided, however, that the part(s) to be replaced or repaired, shall within one (1) year after delivery to the original Purchaser, be demonstrated to be defective; which determination shall be made by the Company. The said components or parts must be returned through the Selling dealer or distributor directly to the Company with all transportation charges prepaid. Notice of defect shall be furnished in writing to the Seller and to the agent through whom the machinery was received, disclosing in full all known defects and failure in operation and use, and reasonable time shall be given to the Seller to remedy any such defects and failures. Failure to make such trial or give such notice shall be deemed an absolute acceptance by the Buyer and satisfaction in full of this Limited Warranty.

This Warranty does not cover, under any circumstances, any parts, components, or materials which, in the opinion of the Seller and Company, have been subjected to neglect, misuse, alteration, accident, or if repaired, with parts other than those manufactured by and obtained from Pequea Machine Company.

This Warranty does not cover components which are already covered by a separate Warranty provided by the supplier of said parts or components.

The Company's obligation under this Warranty is limited to repair or replacement, free of charge to the original Purchaser, of any part which in judgment of the Company is defective. This Warranty does not cover normal wear and tear.

THIS WARRANTY IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR USE AND PURPOSE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON ITS PART AND ANY IMPLIED WARRANTY. AND IT NEITHER ASSUMES NOR AUTHORIZES ANY OTHER LIABILITY IN CONNECTION WITH A SALE OF THIS MACHINE. THIS WARRANTY SHALL NOT APPLY TO THIS MACHINE OR TO ANY PART THEREOF WHICH HAS BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE, OR MISUSE.

The Company makes no Warranty whatsoever in respect to accessories or parts not supplied by the Company. The term "original Purchaser" as used in this warranty, shall be deemed that person for whom the Machine, Equipment, or Trailer is originally supplied. This Warranty shall apply only within the boundaries of the continental United States.

Under this Warranty, the Company cannot guarantee that existing conditions beyond its control will not affect its ability to obtain materials or manufacture necessary replacement parts.

No one is authorized to alter, modify, or change the terms of this Warranty in any manner.

The Company warrants the Construction of the equipment sold herein and will replace at its expense for a period of (1) year from the date hereof, any parts which prove defective as determined under the terms of this Limited Warranty.



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