TFG55 PTO WOOD CHIPPER

TWINFLYWHEEL TECHNOLOGY

OPERATOR'S MANUAL

0010476-M-EN: Rev B
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WOODLAND MILLS

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INTRODUCTION

Congratulations on your purchase and welcome to Woodland Mills! This manual gives you the necessary information about your machine so you will be able to use it properly. The entire manual must be read and understood before you start using the machine. If any questions should arise that are not covered by this manual, please contact Woodland Mills Inc.

OWNER'S RECORD

Please take a moment to record the following information about your wood chipper. If you need to call for assistance, please be ready to provide your model and serial numbers. This information will allow us to help you more quickly when you call.

MODEL NUMBER

SERIAL NUMBER

DATE OF PURCHASE

This machine is designed for certain applications only. We strongly recommend that this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted us to determine if it can or should be performed on the product.

For technical questions and replacement parts, please contact Woodland Mills Inc.

INTENDED USE

Woodland Mills wood chippers are designed for acreage owners to aid in chipping natural, untreated wood only. Materials that are processed may contain chemicals or by-products that could corrode the machine or damage it, resulting in safety concerns.

SAFETY GUIDELINES

SAVE THESE INSTRUCTIONS

- Do not operate this machine until this manual has been read and fully understood; serious injury or severe machine damage could occur if these safety warnings are ignored.
- Never allow more than one person to operate this machine at one 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.
- If your hand is ever near the chipping or feeding area, serious injury could occur.
- 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 wood chipper.
- DO NOT stand directly in front of the infeed chute when loading material into the hopper; always load from the side of the hopper. This will help prevent any part of your body from being pulled into the machine.
- Always wear safety hearing protection, eye wear, gloves, and long pants when operating the wood chipper.
- Never place your hands beyond the opening of the hopper while the wood chipper is running.
- Never allow children, disabled, or untrained persons to operate the wood chipper.
- Do not operate the wood chipper near bystanders, public roads, or anywhere that debris may travel far enough to injure another person.
- Never move the wood chipper while it is running.
- Shut off the tractor and allow the wood chipper to come to a complete stop before removing any debris.
- Never perform any maintenance or repair while the wood chipper is running.

ROTATING DRIVELINES

STAY CLEAR OF ROTATING DRIVELINES

- 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 spin freely.
- Wear close-fitting clothing.
- Be sure the PTO driveline has been disconnected 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 would 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.

WARNING!

Read and understand all instructions. Failure to properly follow the instructions listed below may result in serious injury or death.

WARNING!

The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product but must be supplied by the operator.

PERSONAL SAFETY

- **Stay alert**, watch what you are doing and use common sense when operating a power tool. Do not use a power tool when you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly.** Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents often cover moving parts and should be avoided.
- **Use safety apparel and equipment.** Use safety goggles or safety glasses with side shields that comply with current national standards, or when needed, a face shield. Use a dust mask in dusty work conditions. This applies to all persons in the work area. Also use non-skid safety shoes, a hardhat, gloves, dust collection systems, and hearing protection when appropriate.
- **Do not over reach.** Keep proper footing and balance at all times.
- **Remove adjusting keys or wrenches** before connecting to the power supply or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may result in personal injury.
- **Never remove or install blades, conduct any maintenance, or make any other adjustments while the tractor engine is running.** Always shut the engine off, remove the ignition key, and disconnect the PTO shaft prior to carrying out any of the aforementioned procedures. Consult your tractor's manual for safe shutdown procedures to prevent accidental ignition.

WORK AREA

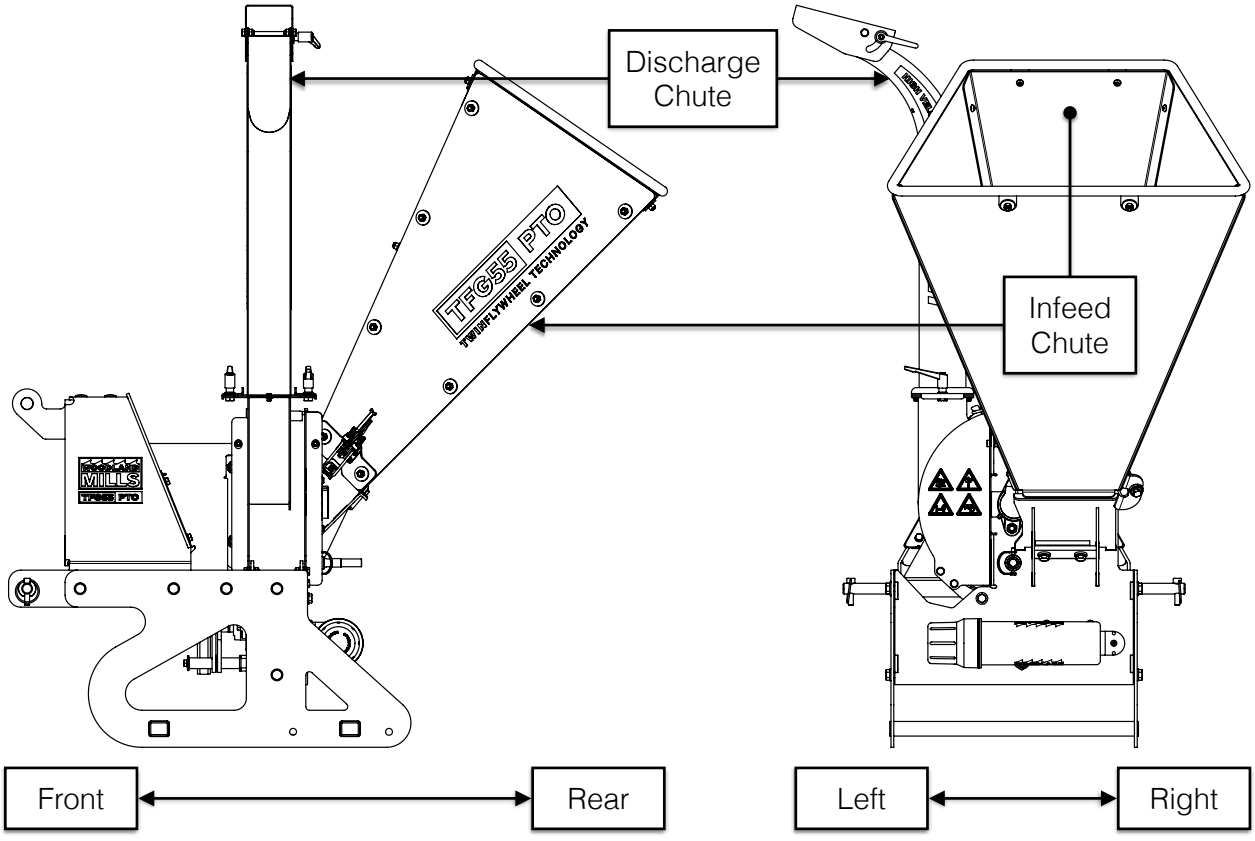
- **Keep work area clean**, free of clutter and well lit. Cluttered and dark work areas can cause accidents.
- **Do not use your wood chipper where there is a risk of causing a fire or an explosion**; e.g. in the presence of flammable liquids, gasses, or dust. Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders** away while operating a power tool. Distractions can cause you to lose control, therefore, visitors should remain a safe distance from the work area.
- **Be aware of all power lines, electrical circuits**, water pipes and other mechanical hazards in your work area, particularly those hazards below the work surface hidden from the operator's view that may be unintentionally contacted and cause personal harm or property damage.
- **Be aware of your surroundings.** Using power tools in confined work areas may put you dangerously close to cutting tools and rotating parts.

TOOL USE AND CARE

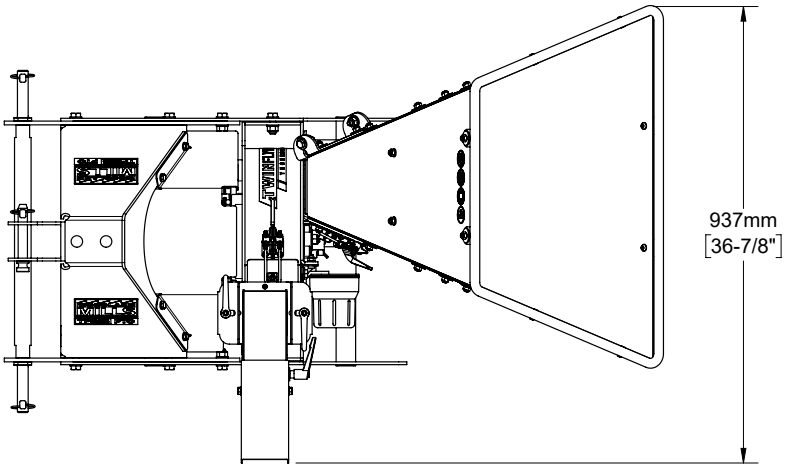
- **Always be sure the operator is familiar** with proper safety precautions and operation techniques before using machine.
- **Do not force the tool.** Tools do a better and safer job when used in the manner for which they are designed.
- **Turn off the tractor engine** and disconnect the PTO shaft before servicing, adjusting, installing accessories or attachments, or storing. Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Storing the wood chipper.** When the wood chipper is not in use, store it in a dry, secure place or keep it well covered and out of reach of children. Inspect the wood chipper for good working condition prior to storage and before re-use.
- **Maintain your wood chipper.** It is recommended that the general condition of the wood chipper be examined before it is used. Keep your wood chipper in good repair by adopting a program of conscientious repair and maintenance in accordance with the recommended procedures found in this manual. If abnormal vibration or noise occurs, turn the wood chipper off immediately and have the problem corrected before further use.
- **Keep blades sharp and clean.** Properly maintained wood chipper blades are less likely to bind and make feeding-in brush easier.
- **Cleaning and Lubrication.** Use only soap and a damp cloth to clean your wood chipper. Many household cleaners are harmful to plastic and rubber components on the wood chipper.
- **Use only accessories that are recommended** by the manufacturer for your model. Suitable accessories for another wood chipper may create an injury risk when used on this wood chipper.
- **Always** operate the machine with all safety devices and guards in place and in working order. DO NOT modify or make changes to safety devices. DO NOT operate the machine if any safety devices or guards are missing or inoperative.
- **Never leave wood chipper running unattended.**
- **Never use the equipment to chip brush with trunks exceeding 4" [102 mm] in diameter** or for any purpose other than chipping brush as described in this manual.

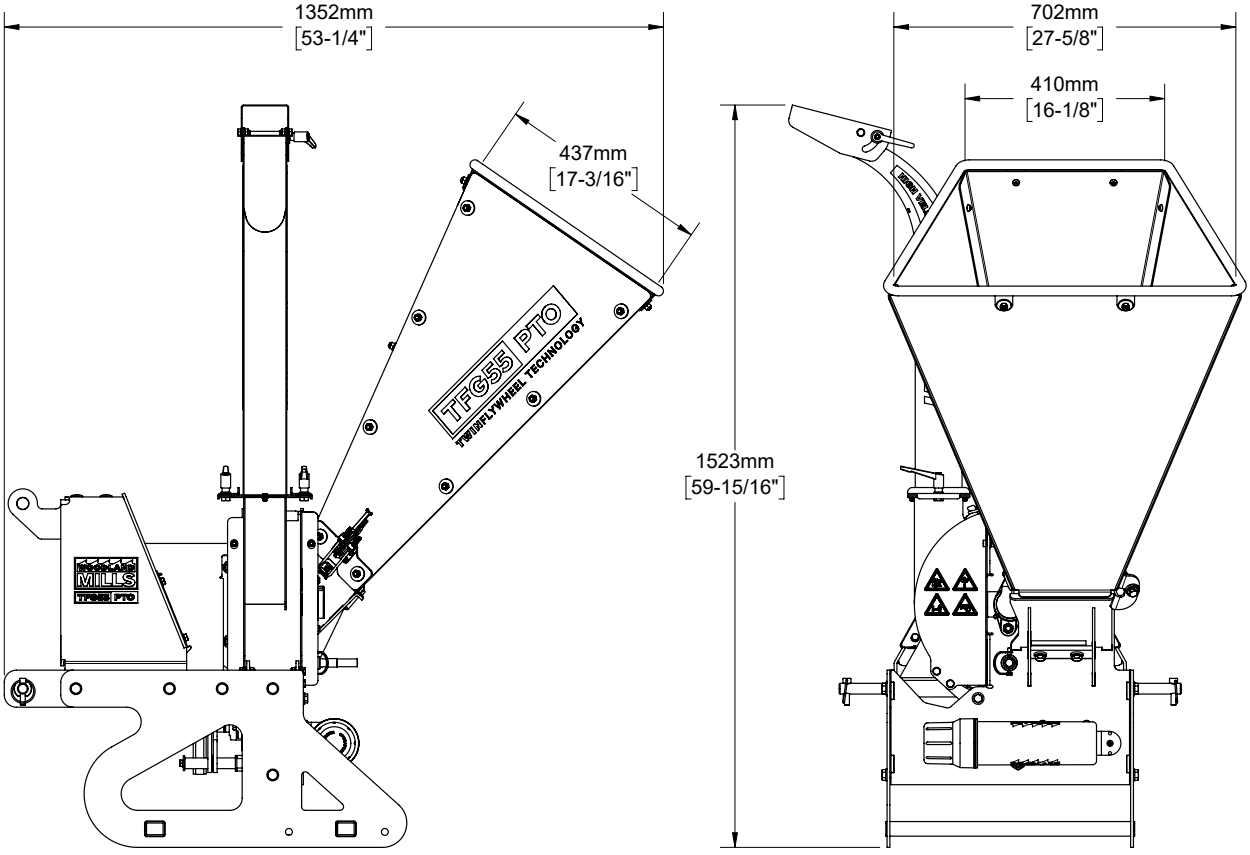
TECHNICAL SPECIFICATIONS

Component	TFG55 PTO Specification
Drive System	PTO
Transport	3-Point Hitch
Minimum HP Required (at PTO)	12 hp
Infeed System	Gravity
PTO Shear Bolt	M8 X 50 mm Class 8.8 [5/16-18 X 2 in Grade 5] Hex Bolt
Blade Quantity and Dimensions	Three (3); 5.53 X 2.24 X 0.28 in [140.5 X 57 X 7 mm]
Blade Hardware	Class 8.8 M8 X 20 mm Hex Head Bolts (3 per blade)
Infeed Chute Dimensions (W x H)	27-5/8 X 17-3/16 in [702 X 437 mm]
Product Weight	346 lb [157 kg]
Product Shipping Weight	454 lb [206 kg]



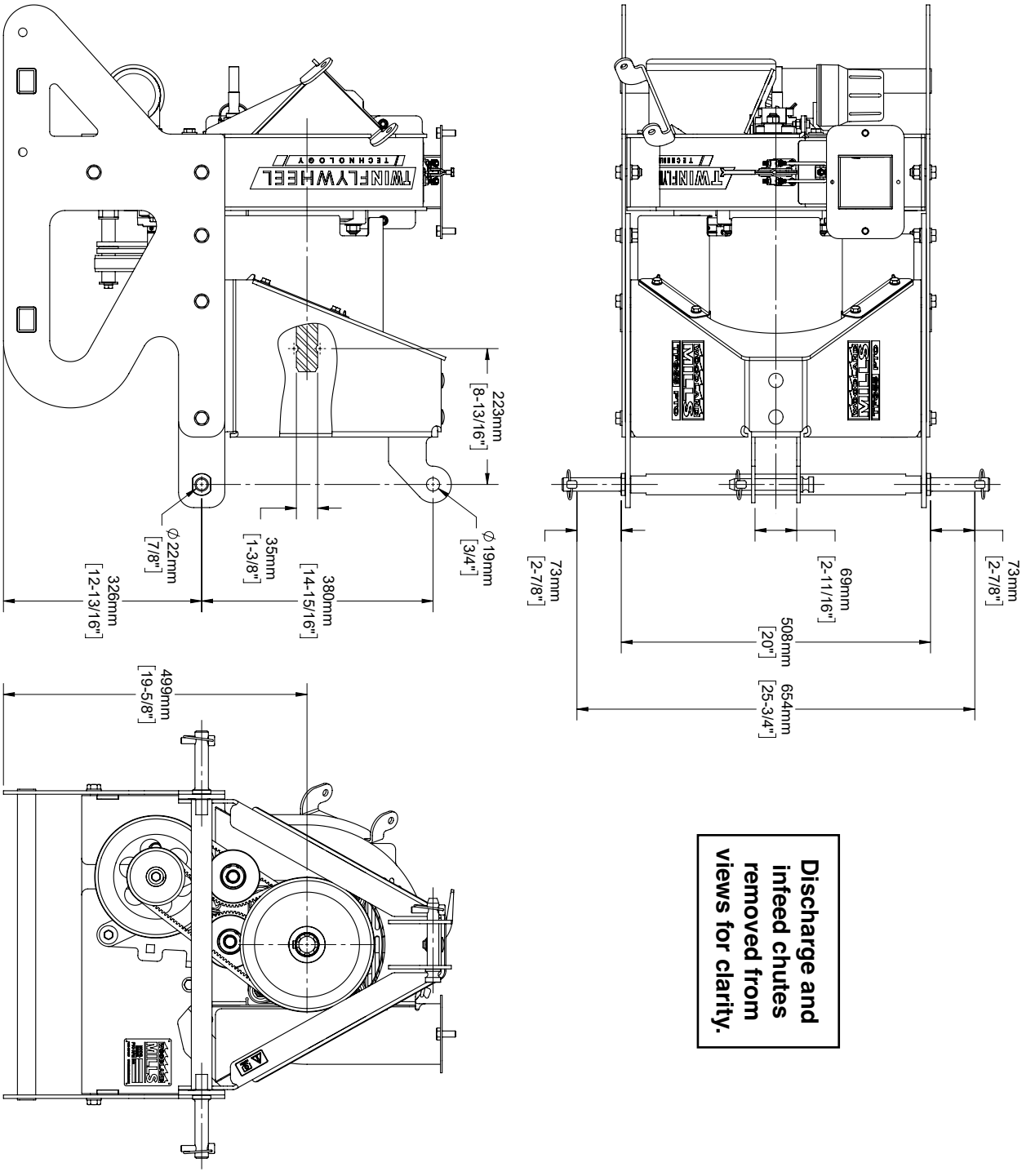
i. OVERALL DIMENSIONS—OPERATING STATE





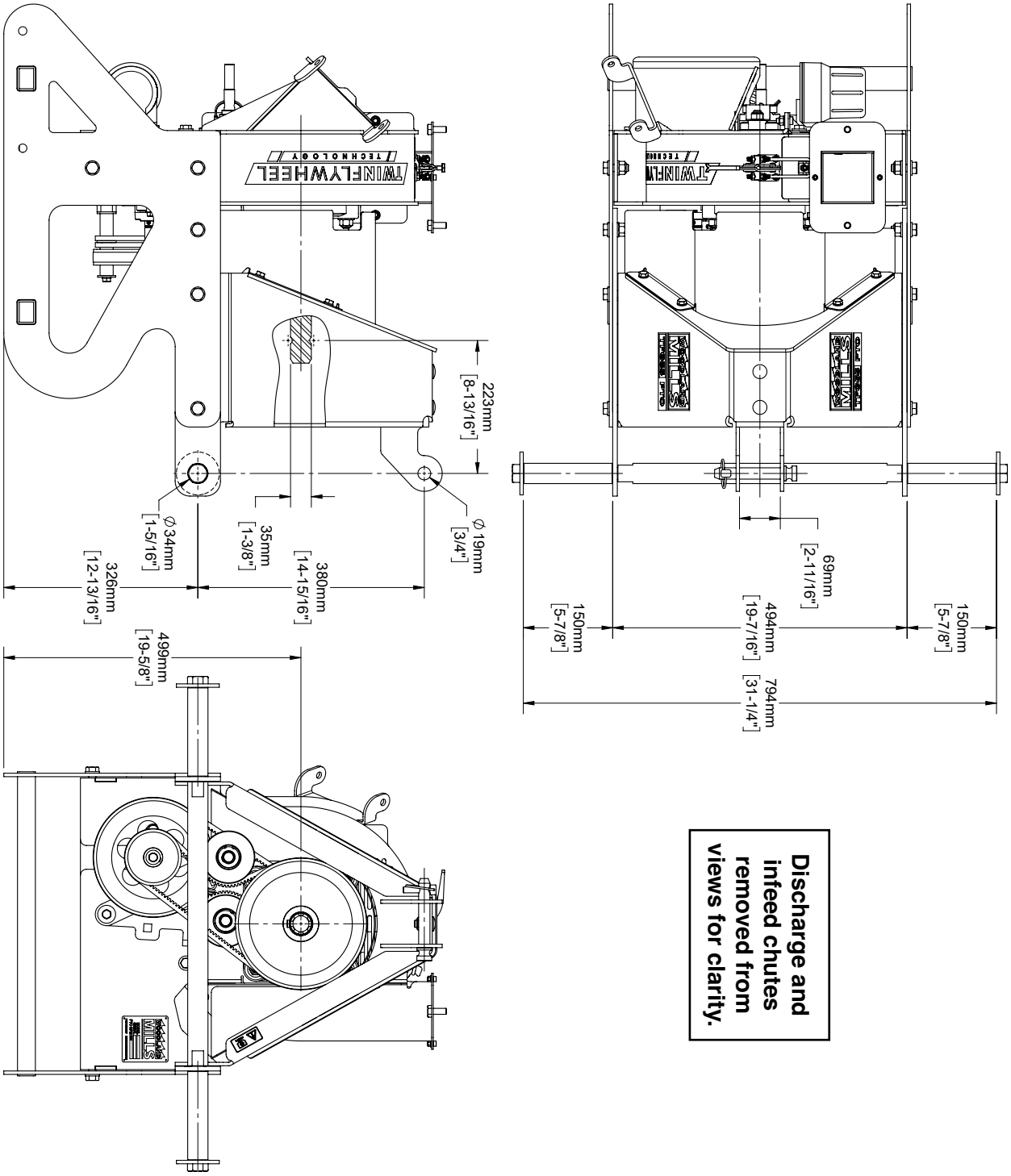
ii. 3-POINT HITCH DIMENSIONS

The TFG55 PTO wood chipper has a Category 1, 3-point hitch system that is designed to work with tractors rated at 15-30 PTO horsepower. Upper hitch pin is ¾" [19 mm] diameter and the lower hitch pins are ⅞" [22 mm] diameter.



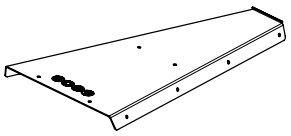
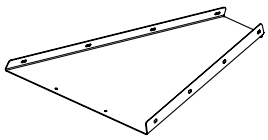
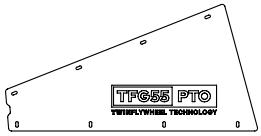
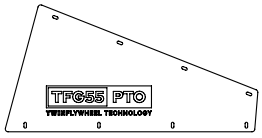
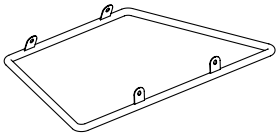
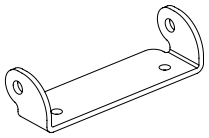
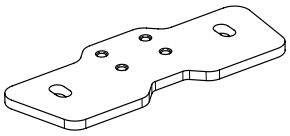
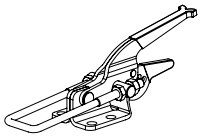
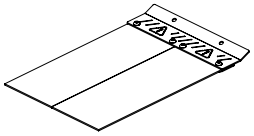
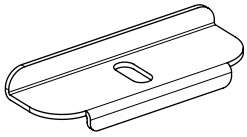
iii. QUICK-HITCH ADAPTER DIMENSIONS

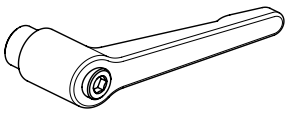
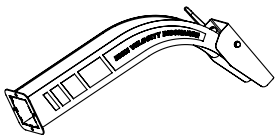
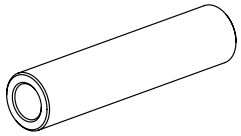
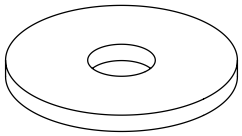
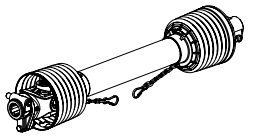
The TFG55 PTO wood chipper includes adapters that extend the lower hitch pins' useable length to work with quick-hitch enabled tractors. Upper hitch pin is ¾" [19 mm] diameter and the lower hitch adapter pins are 1-5/16" [34 mm] diameter.



COMPONENT LISTS

Verify all component and hardware quantities are correct prior to assembling the wood chipper.

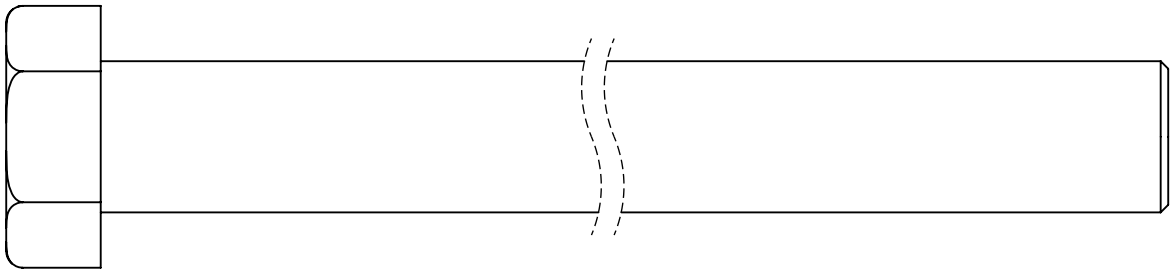
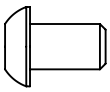
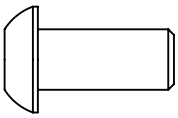
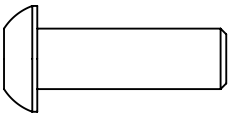
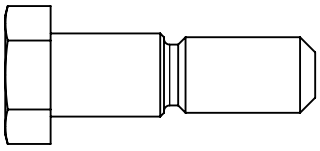
1x	Infeed Chute Top Panel [0010479]	
1x	Infeed Chute Bottom Panel [0010480]	
1x	Infeed Chute Left Side Panel [0010481]	
1x	Infeed Chute Right Side Panel [0010482]	
1x	Round Edge Bar [0010483]	
1x	Hinge [0010490]	
1x	Latch Plate [0010497]	
1x	Latch [0001304]	
1x	Curtain Assembly	
2x	Discharge Chute Retainer Plate [0009804]	

2x	Handle [0001786]	
1x	Discharge Chute Assembly [0009683]	
2x	Quick-Hitch Adapter [0007078]	
2x	Quick-Hitch Adapter Flange [0011352]	
1x	Bed Plate Gap Tool [0010411]	
1x	PTO Shaft [0010500]	

TO-SCALE HARDWARE

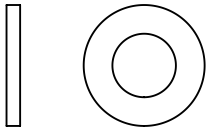
BOLTS & SCREWS

Hardware graphics are printed at 1:1 scale for ease of identification. Simply place the hardware over the image in the tables to verify it is the correct size.

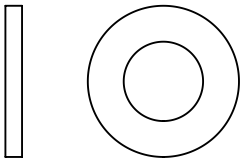
2x	**HHB-MCF265PCJ**	**M20 X 2.5 X 210 mm HEX BOLT**
		
*Note: bolt length is not 1:1 as it will not fit on the page at full scale.		
6x	**BHS-MBE059FCM**	**M6 X 1 X 10 mm BUTTON HEAD SCREW**
		
18x	**BHS-MBJ073FCM**	**M8 X 1.25 X 18 mm BUTTON HEAD SCREW**
		
4x	**BHS-MBJ080FCM**	**M8 X 1.25 X 25 mm BUTTON HEAD SCREW**
		
2x	**HHS-MBM057069AJ**	**M10 X 1.5 X 20 mm HEX HEAD SHOULDER SCREW**
		

WASHERS

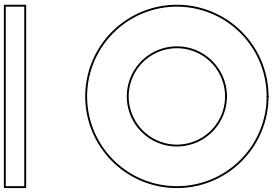
2x	**FTW-MBJ000AJ** **M8 FLAT WASHER**



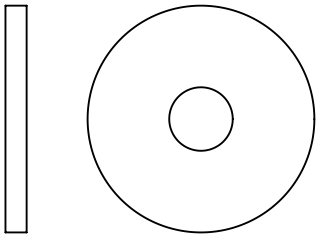
4x	**FTW-MBM000AJ** **M10 FLAT WASHER**



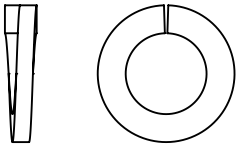
6x	**FTW-MBR000NA** **M12 NYLON FLAT WASHER**



20x	**FDW-MBJ079000AJ** **M8 FENDER WASHER, 30 mm OD**

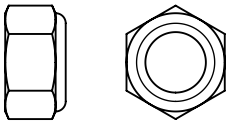


6x	**SLW-MBMAJ** **M10 SPLIT LOCK WASHER**

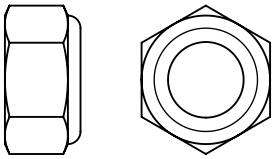


NUTS

22x	**HLN-MBJCH** **M8 X 1.25 LOCK NUT**



2x	**HLN-MBMCH** **M10 X 1.5 LOCK NUT**

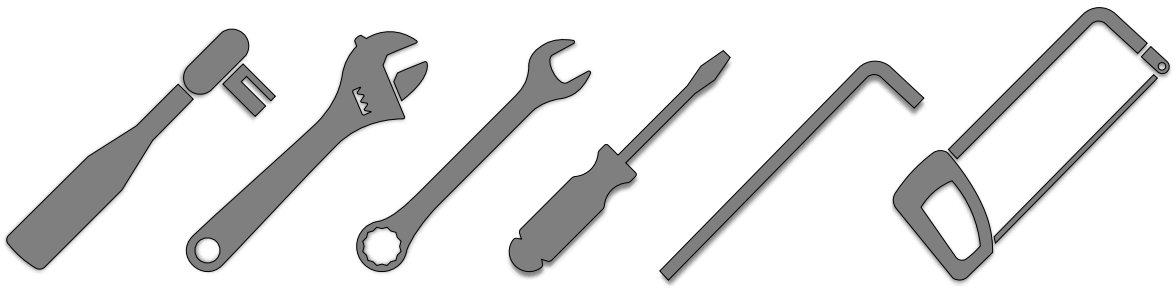


ASSEMBLY

1. TOOLS REQUIRED

Tool	Specification
Wrench/Socket	13 mm (2X)
Wrench/Socket	16 mm (2X)
Wrench/Socket	17 mm
Wrench/Socket	24 mm or Adjustable Wrench
Wrench	27 mm or Adjustable Wrench
Hex Key	Set of Metric Hex Keys (e.g. 2-10 mm)
Hacksaw*	Any metal-cutting saw (Sawzall, etc.)

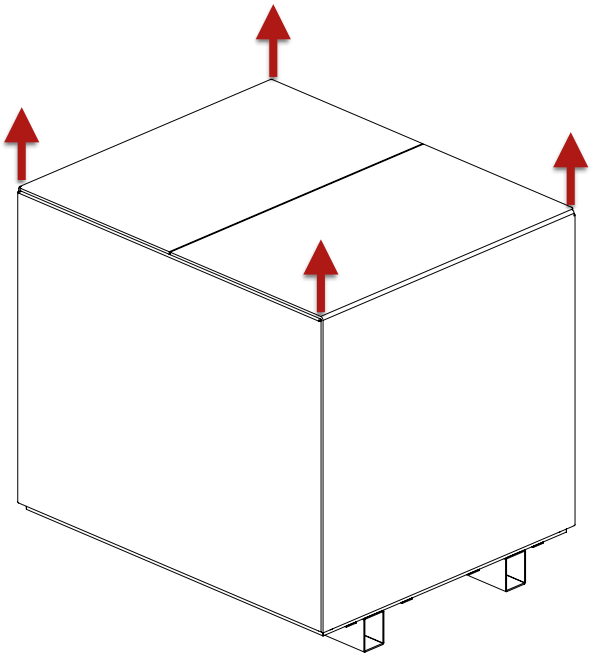
* Only if PTO shaft requires trimming. See ***TRIMMING THE PTO SHAFT*** section for more detail.

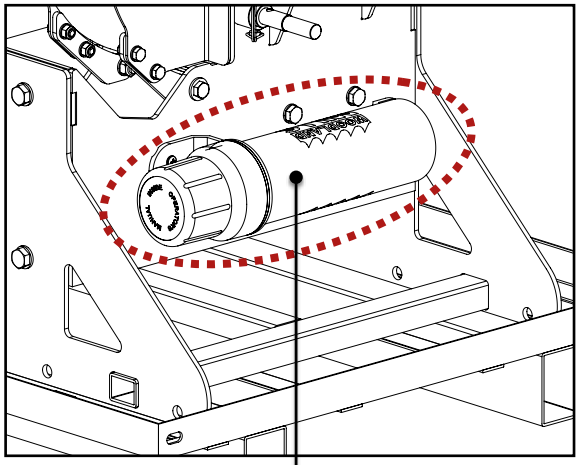


2. UNPACKING

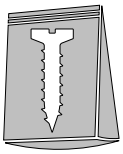
A. UNBOXING THE CRATE

Unpack the contents of the crate by first cutting the nylon strapping and then remove the cardboard top and sides. Remove the four (4) M8 hex bolts and nuts located at each bottom corner of the crate and then lift it off the skid. Discard the top portion of the crate.





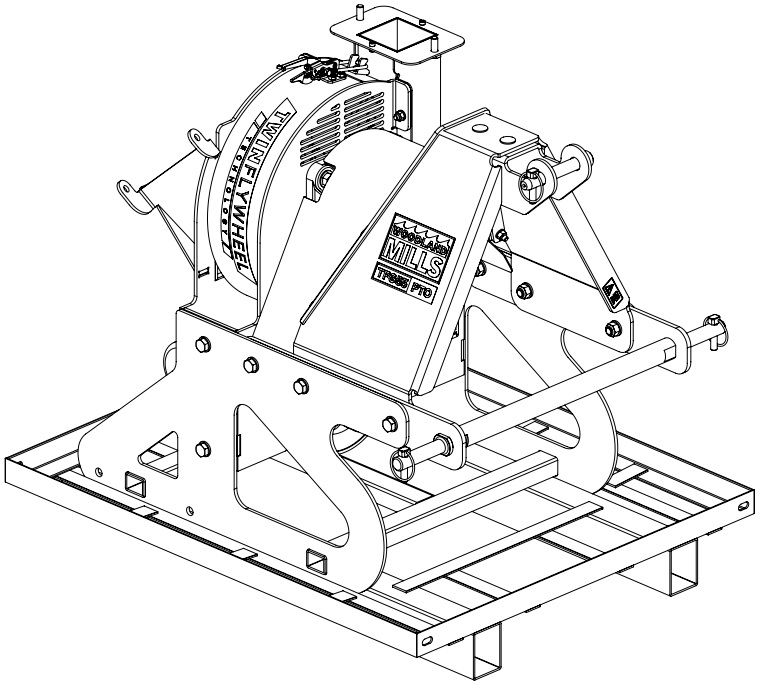
Assembly hardware stored inside manual tube



Remove all the loose components from the skid (infeed chute panels, edge bar, discharge chute, discharge chute handles, PTO shaft) and set them to the side. Leave the wood chipper on the skid.

Hardware for assembly is stored inside the manual tube.

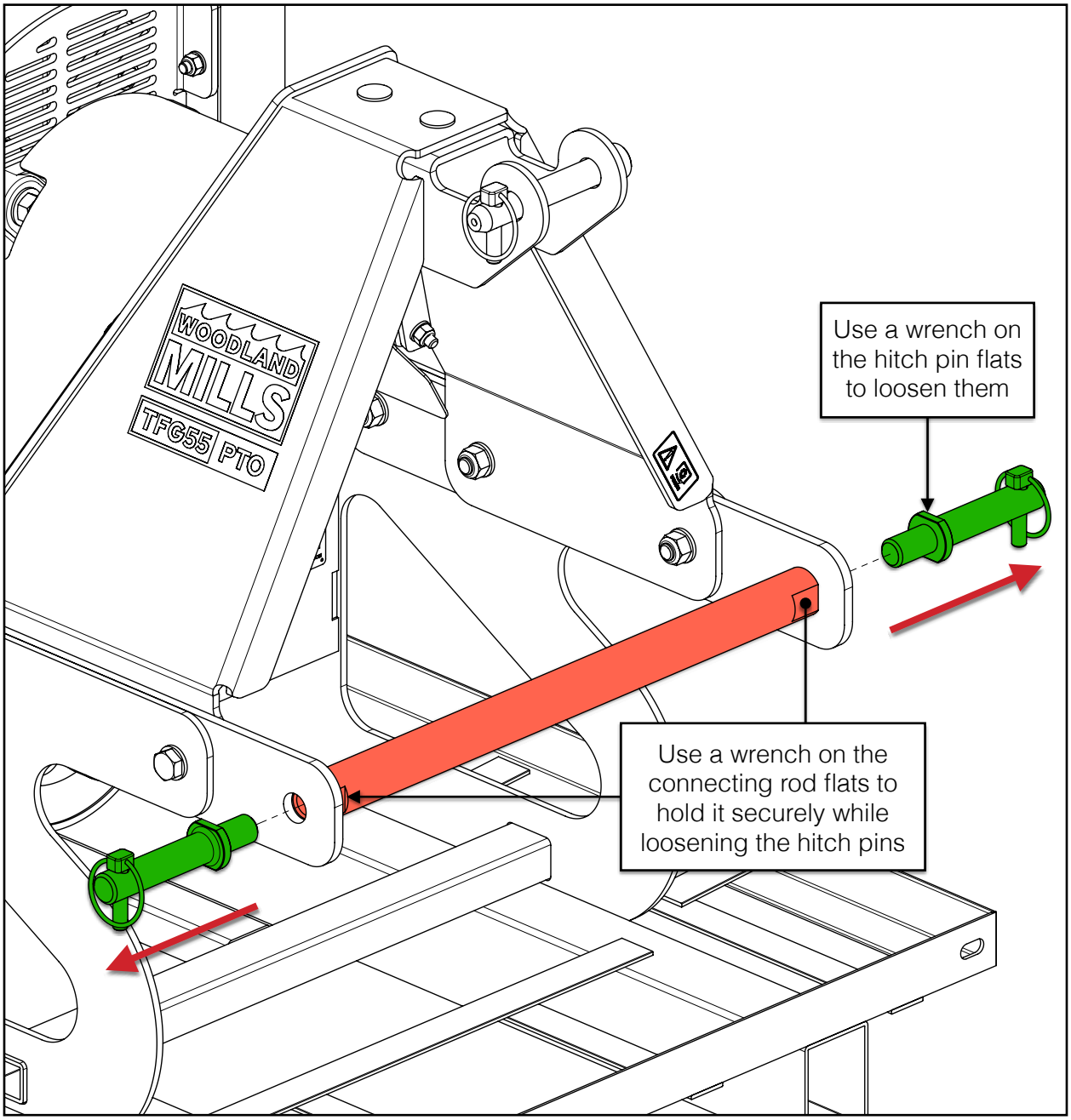
Note that the wood chipper is shipped dry (i.e. no hydraulic fluid). See the ***TECHNICAL SPECIFICATIONS*** section for the volume and type of oil required.



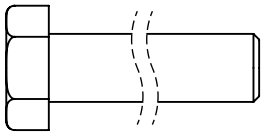
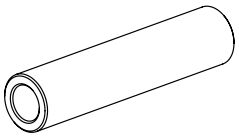
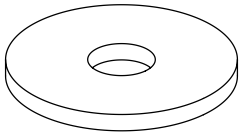
B. QUICK-HITCH ADAPTERS (OPTIONAL)

****For quick-hitch attachment setups only. Skip this section if a quick-hitch will not be utilized.****

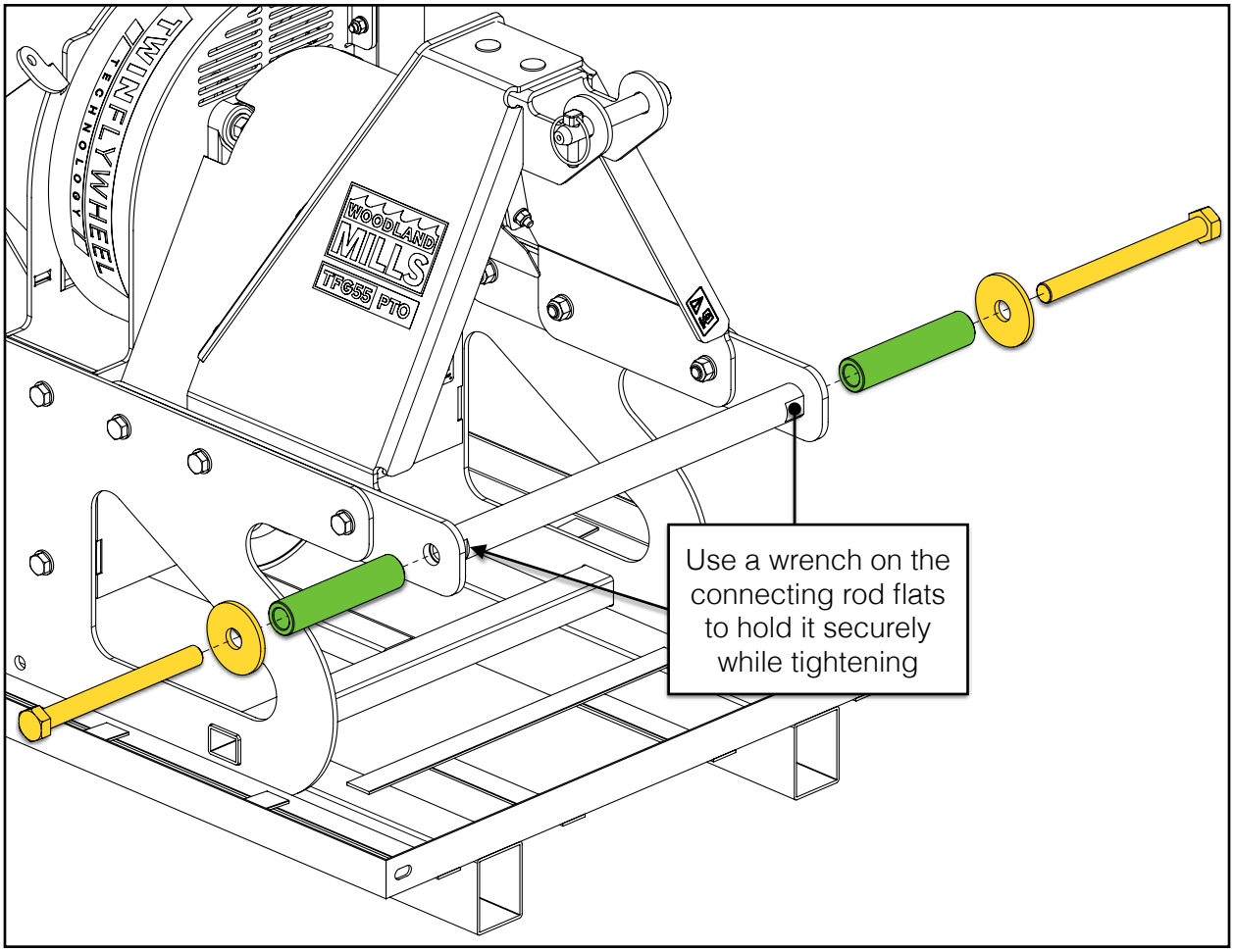
The lower hitch pins need to be removed before installing the quick-hitch adapters. Hold a 1-⅛ in [28 mm] wrench steady on the connecting rod flats while using another wrench to remove the hitch pins one at a time.



Using the components listed in the table below, assemble the adapters to the connecting rod for setups that will accommodate quick-hitches.

2x	M20 X 210 mm Hex Bolt		2x	Quick-Hitch Adapter	
			2x	Quick-Hitch Adapter Flange	

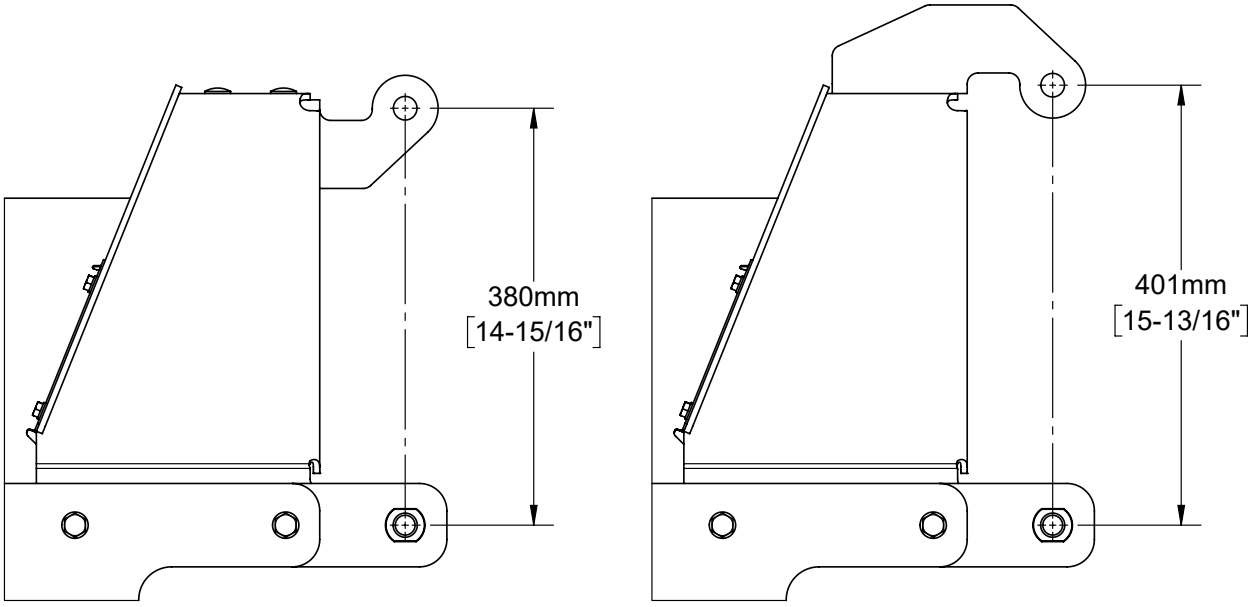
With the connecting rod positioned between the two (2) lower hitch arms, secure it with one (1) M20 X 210 mm hex bolt, one (1) quick-hitch adapter flange, and one (1) quick-hitch adapter at each end. The flats at both ends of the connecting rod will accommodate a 1-⅛ in [28 mm] wrench to prevent it from rotating while both bolts are tightened.



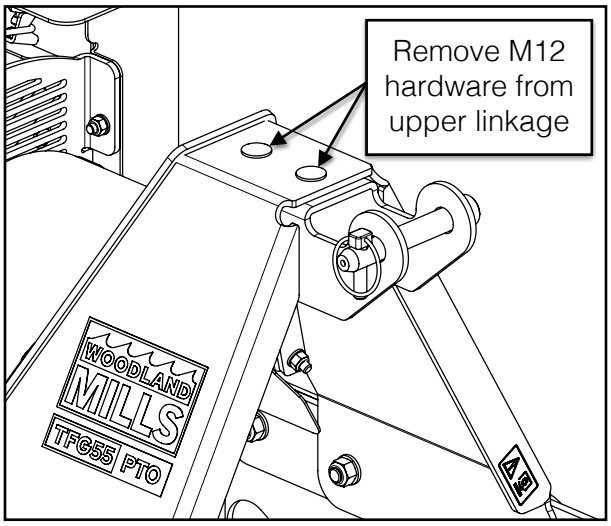
C. FLIP UPPER HITCH (OPTIONAL)

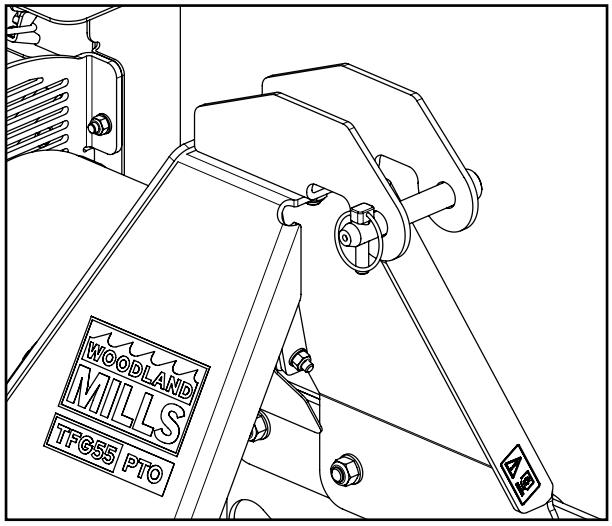
****This step is only for setups where a quick-hitch is too tall to fit the TFG55. If there are no fitment issues, skip this section.****

Some quick-hitch setups may require a greater vertical distance between the upper and lower hitch pins. Flipping the upper hitch pin will net an extra 13/16 in [21 mm] of clearance.



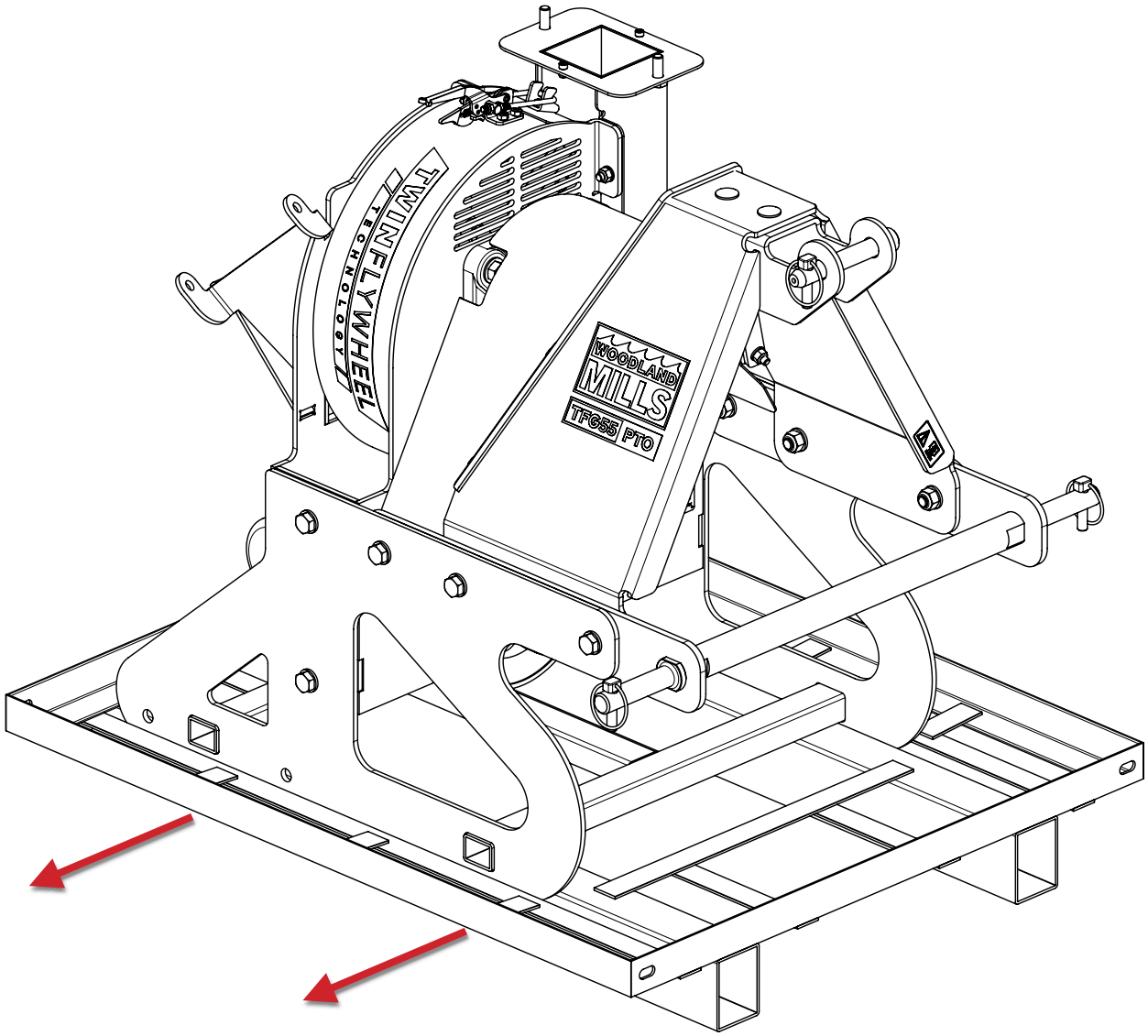
Temporarily remove the two (2) M12 X 30 mm carriage bolts, two (2) M12 flat washers, and two (2) M12 lock nuts from the upper linkage. Pull the linkage out from underneath the belt guard, flip it 180°, and reassemble it to the top of the belt guard as shown. Fully tighten the hardware.





D. REMOVE SKID

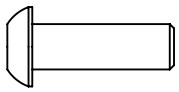
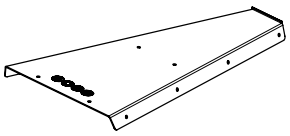
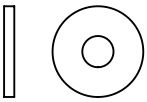
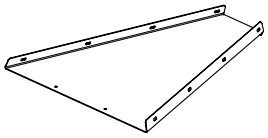
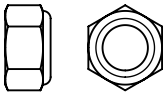
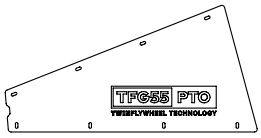
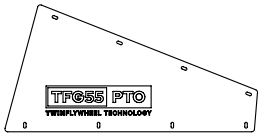
With the hitch pin setup finalized, use the tractor's 3-point hitch—or quick-hitch—to lift the TFG55 off the crate skid and then slide the skid out from underneath. Set the wood chipper back down on level ground. Discard the skid.



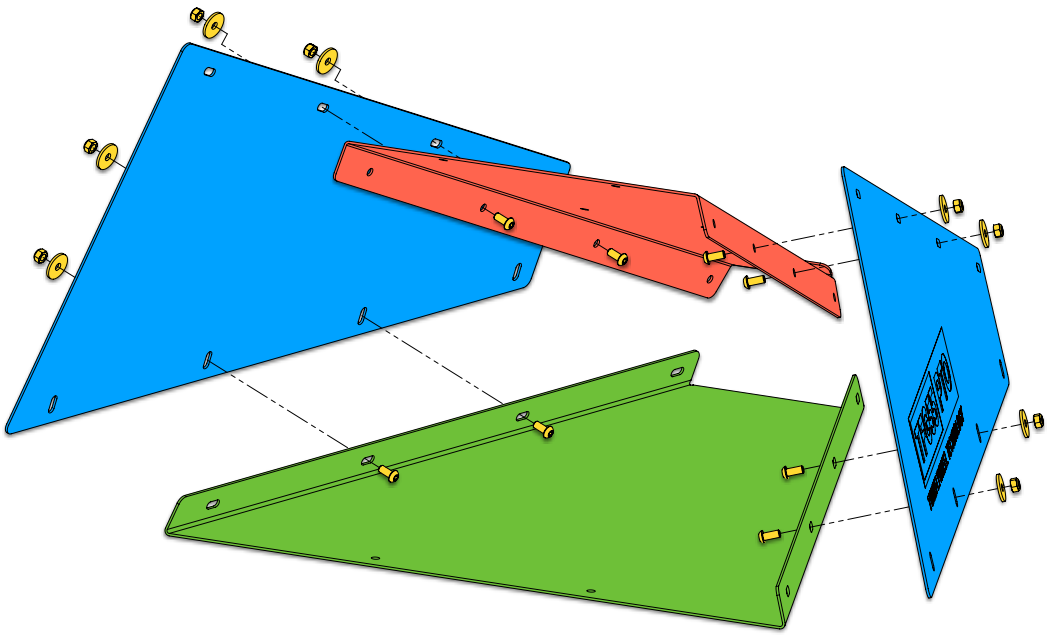
3. INFEED CHUTE

A. PANELS

Using the hardware and components listed in the table below, loosely assemble the infeed chute panels together.

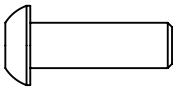
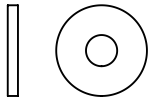
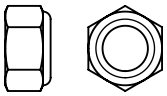
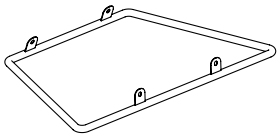
8x	M8 X 18 mm Button Head Screw		1x	Infeed Chute Top Panel	
8x	M8 X 30 mm Fender Washer		1x	Infeed Chute Bottom Panel	
8x	M8 Lock Nut		1x	Infeed Chute Left Side Panel	
			1x	Infeed Chute Right Side Panel	

Assemble both the left and right side panels to the top and bottom panels using four (4) M8 X 18 mm button head screws, four (4) M8 X 30 mm fender washers, and four (4) M8 lock nuts per side. Snug the hardware but do not fully tighten.



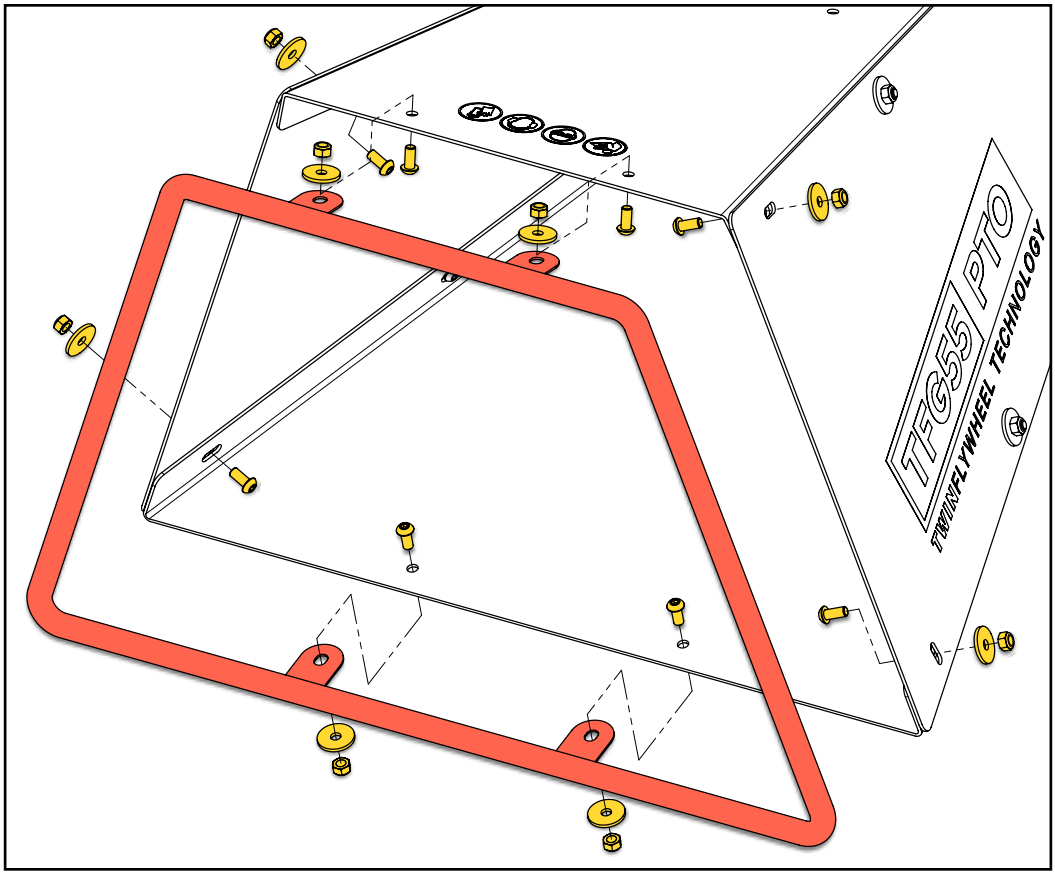
B. EDGE BAR

Assemble the round edge bar to the infeed chute using the hardware listed below.

8x	M8 X 18 mm Button Head Screw		8x	M8 X 30 mm Fender Washer	
8x	M8 Lock Nut		1x	Infeed Chute Round Edge Bar	

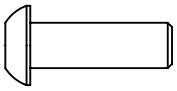
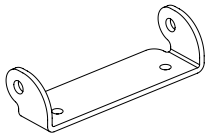
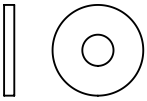
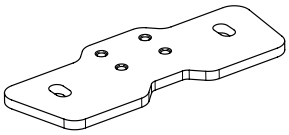
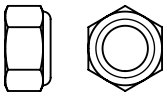
Position the lower tabs of the round edge bar *under* the bottom panel and the upper tabs *over* the top panel. Secure the round edge bar using four (4) M8 X 18 mm button head screws, four (4) M8 X 30 mm fender washers, and four (4) M8 lock nuts.

Join the four outer corners of the chute panels using four (4) M8 X 18 mm button head screws, four (4) M8 X 30 mm fender washers, and four (4) M8 lock nuts. Snug all the hardware but do not fully tighten.



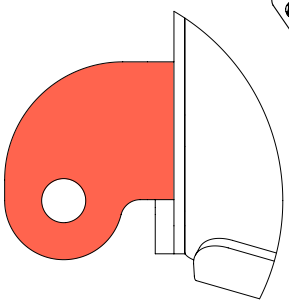
C. HINGE & LATCH PLATE

Assemble the inner hinge and latch plate to the infeed chute using the hardware listed below.

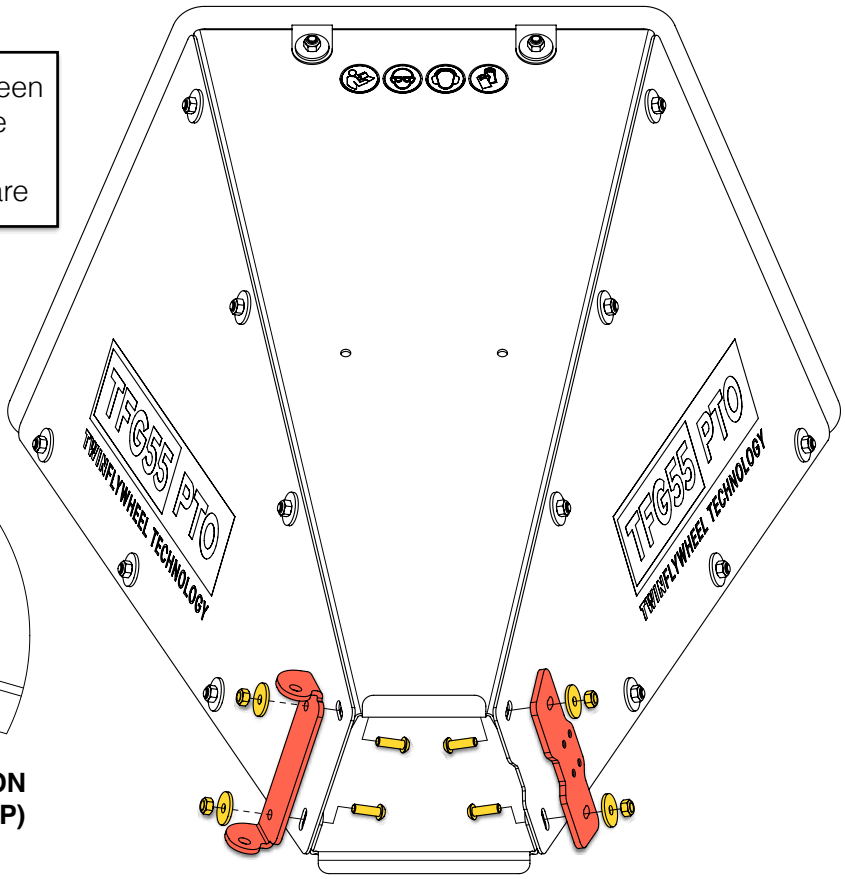
4x	M8 X 25 mm Button Head Screw		1x	Hinge	
4x	M8 X 30 mm Fender Washer		1x	Latch Plate	
4x	M8 Lock Nut				

Assemble both the hinge and latch plate using two (2) M8 X 25 mm button head screws, two (2) M8 X 30 mm fender washers, and two (2) M8 lock nuts each. Fully tighten all the infeed chute hardware from this and previous steps.

Ensure all edges between adjoining panels are aligned before fully tightening the hardware

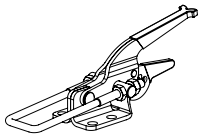
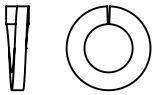


HINGE ORIENTATION (VIEWED FROM TOP)

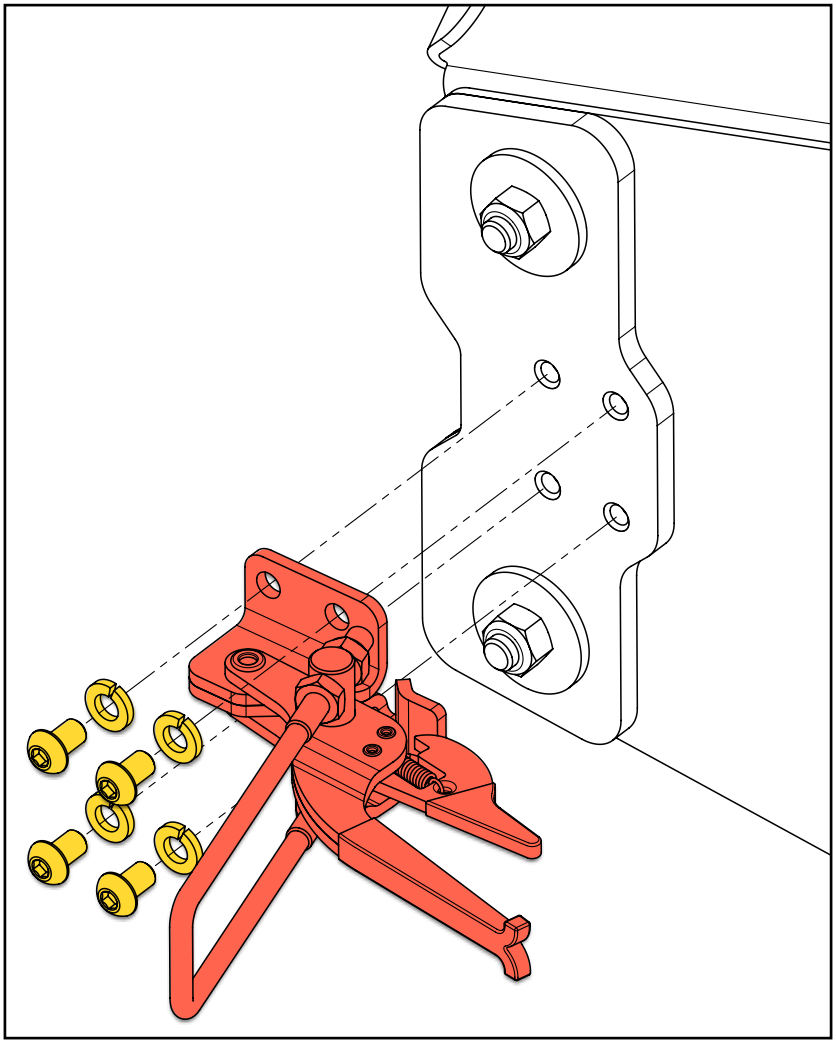


D. LATCH

Assemble the latch using the hardware and components listed in the table below.

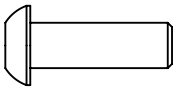
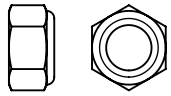
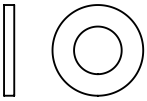
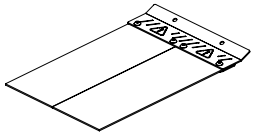
4x	M6 X 10 mm Button Head Screw		1x	Latch	
4x	M6 Split Lock Washer				

Assemble the latch to the latch plate on the left side of the infeed chute using four (2) M6 X 10 mm button head screws and four (4) M6 split lock washers. Fully tighten the hardware.

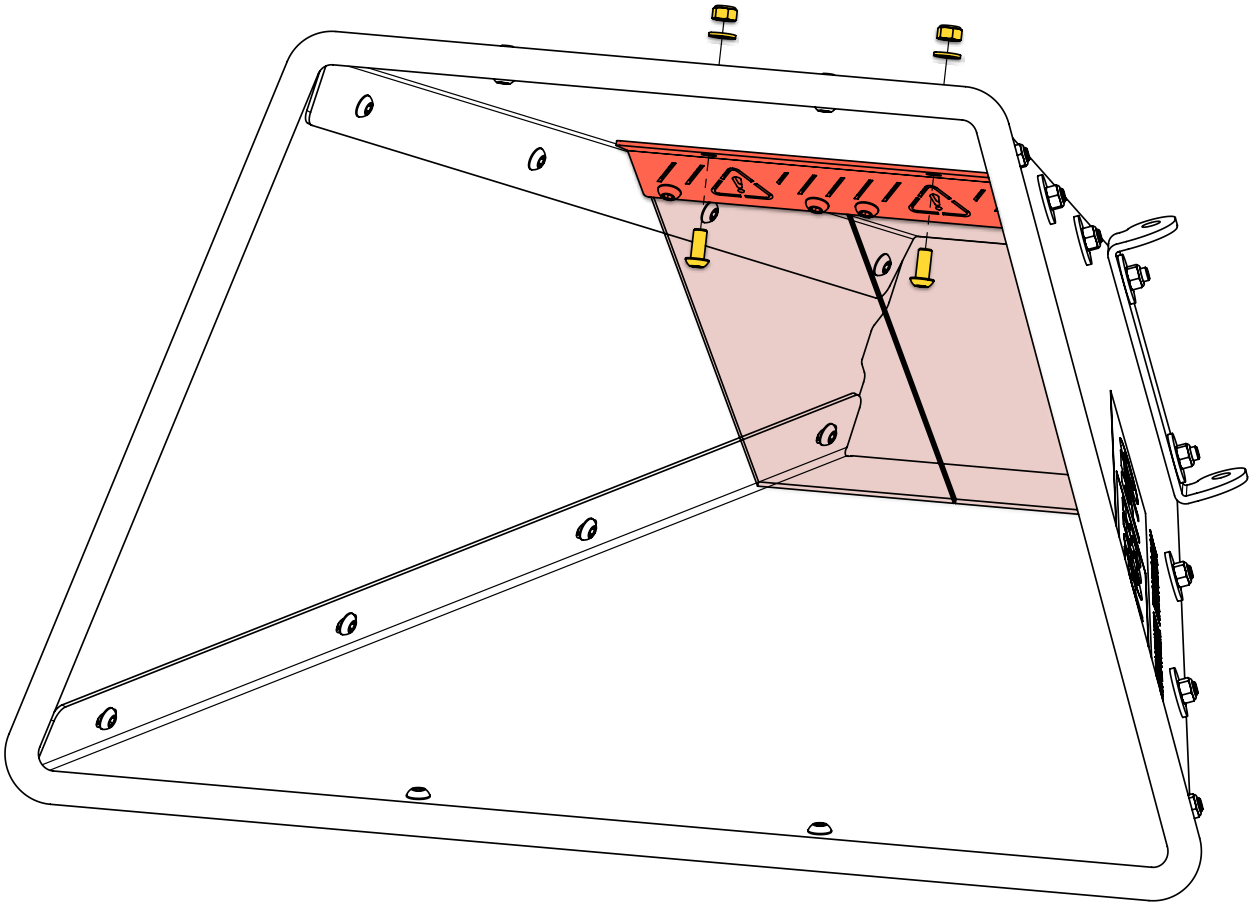


E. CURTAIN

Assemble the curtain using the hardware and components listed in the table below.

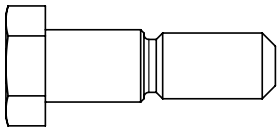
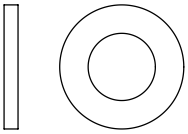
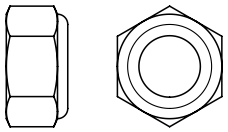
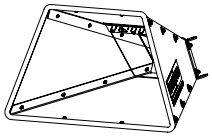
2x	M8 X 18 mm Button Head Screw		2x	M8 Lock Nut	
2x	M8 Flat Washer		1x	Curtain Assembly	

Assemble the curtain assembly to the top chute panel using two (2) M8 X 18 mm button head screws, two (2) M8 flat washers, and two (2) M8 lock nuts. Fully tighten the hardware.

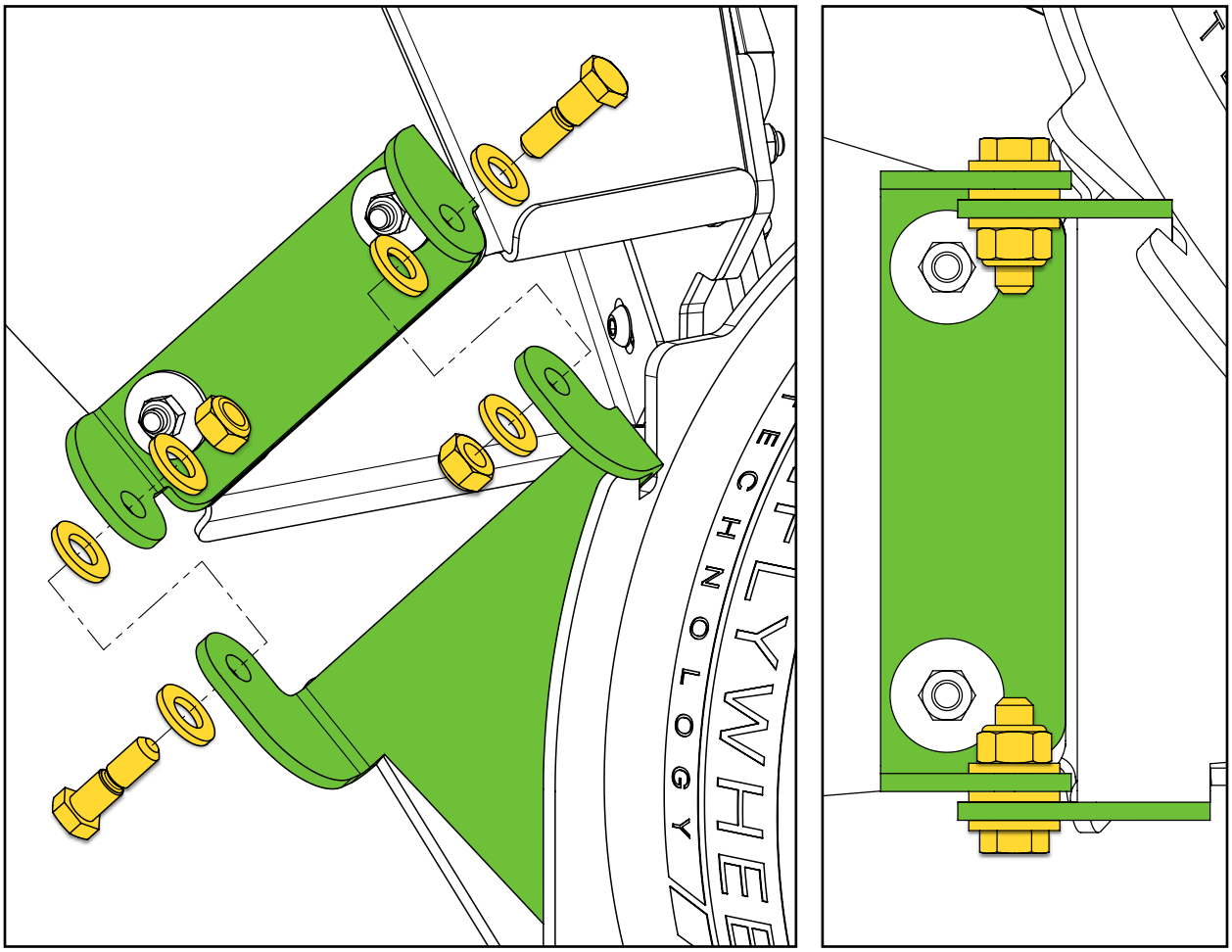


F. MOUNT INFEED CHUTE TO CHIPPER

Mount the infeed chute assembly hinge to the wood chipper using the hardware listed in the table below.

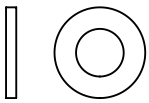
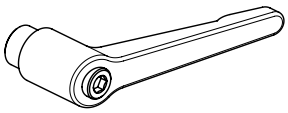
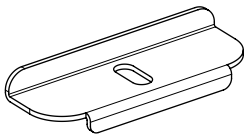
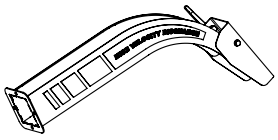
2x	M10 X 15 X 20 mm Shoulder Bolt		6x	M12 Nylon Flat Washer	
2x	M10 Lock Nut		1x	Infeed Chute Assembly	

With the assistance of a second person supporting the infeed chute assembly, assemble the chute to the wood chipper using two (2) M10 X 15 X 20 mm shoulder bolts, six (6) M12 nylon flat washers, and two (2) M10 lock nuts. Tighten the hardware ensuring the chute swings freely.

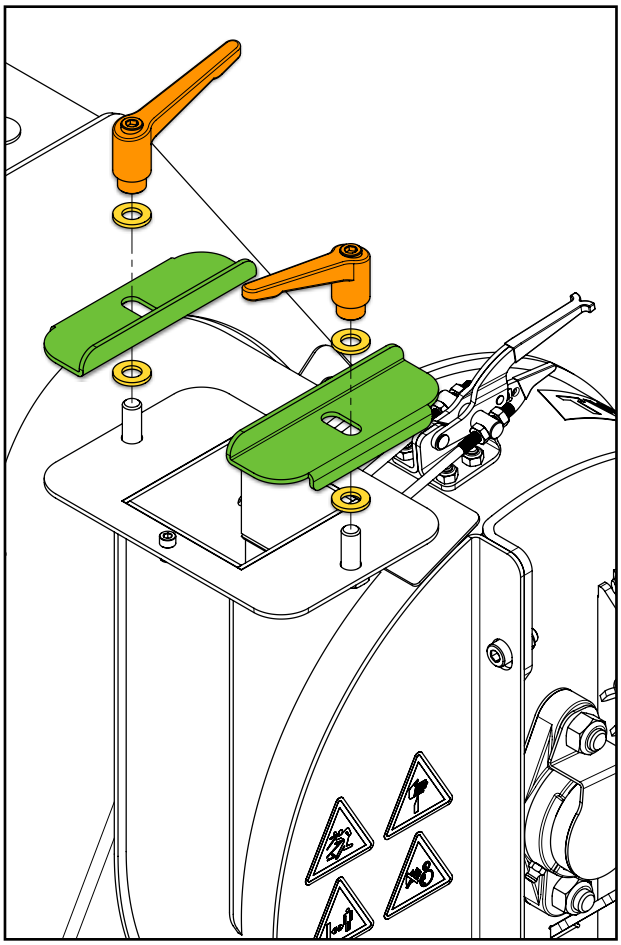


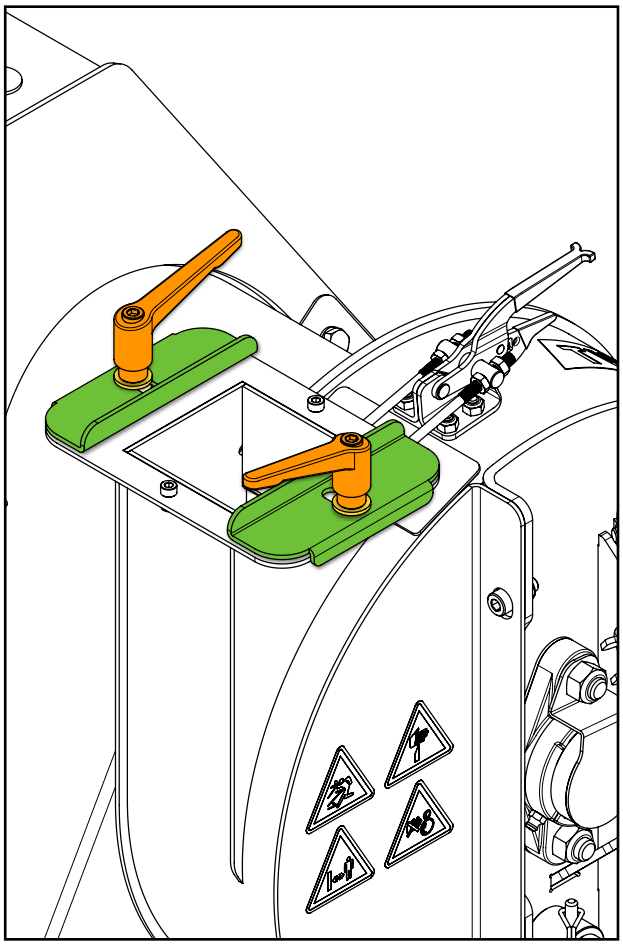
4. DISCHARGE CHUTE

With the components and hardware listed below, assemble the discharge chute retainer plates and discharge chute to the upper flywheel housing.

4x	M10 Flat Washer		2x	Handle	
2x	Discharge Chute Retainer Plate		1x	Discharge Chute Assembly	

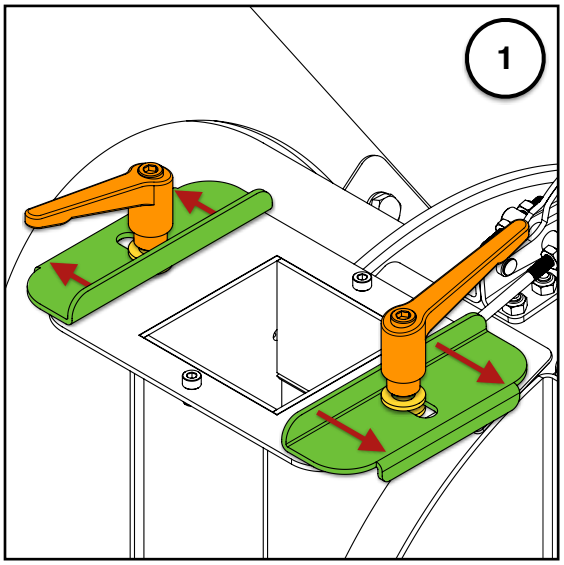
Slide an M10 flat washer over both of the threaded studs in the side housing nozzle followed by a discharge chute retainer plate and then another M10 flat washer. Thread a handle on to each stud until the retainer plates are *almost* snug—the plates should still slide easily.

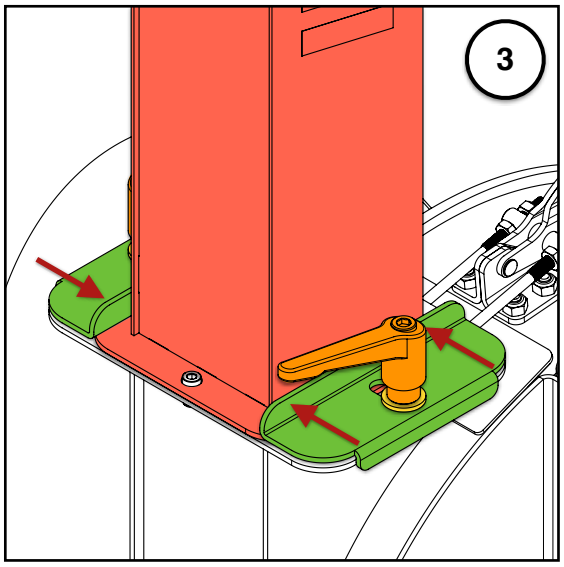


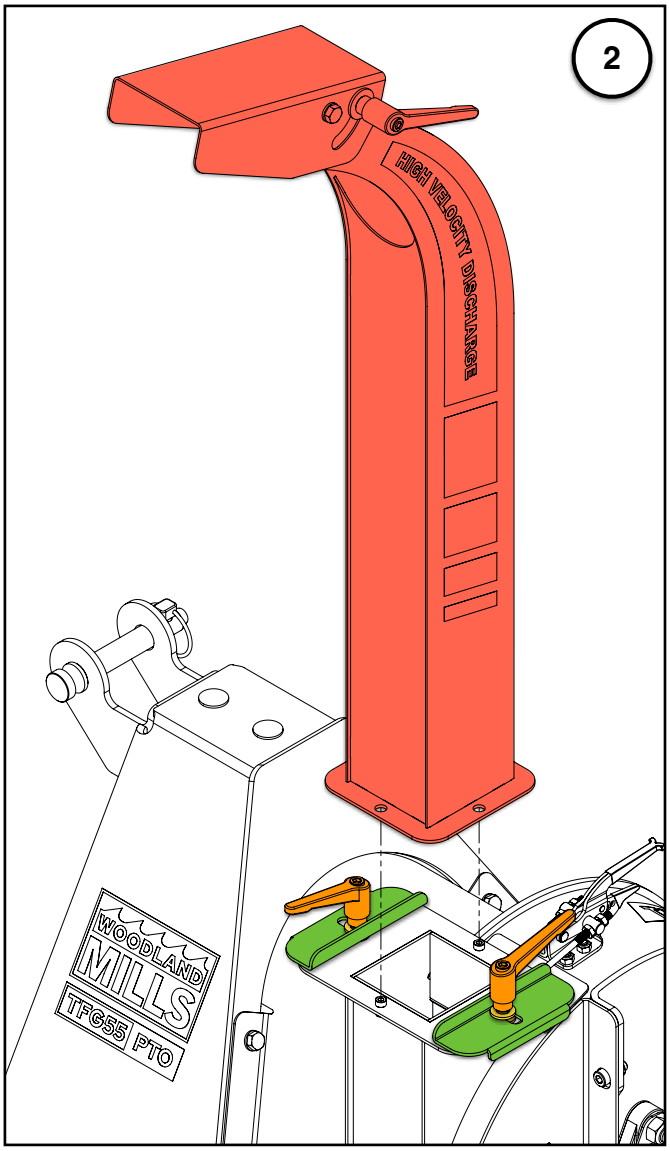


To assemble the discharge chute to the side housing:

1. Ensure both handles are loose enough to spread the retainers apart.
2. Install the discharge chute assembly onto the nozzle, ensuring the cap screw heads align with the holes in the chute flange.
3. Push the retainers in as far as they will go and tighten both handles.







TRIMMING THE PTO SHAFT

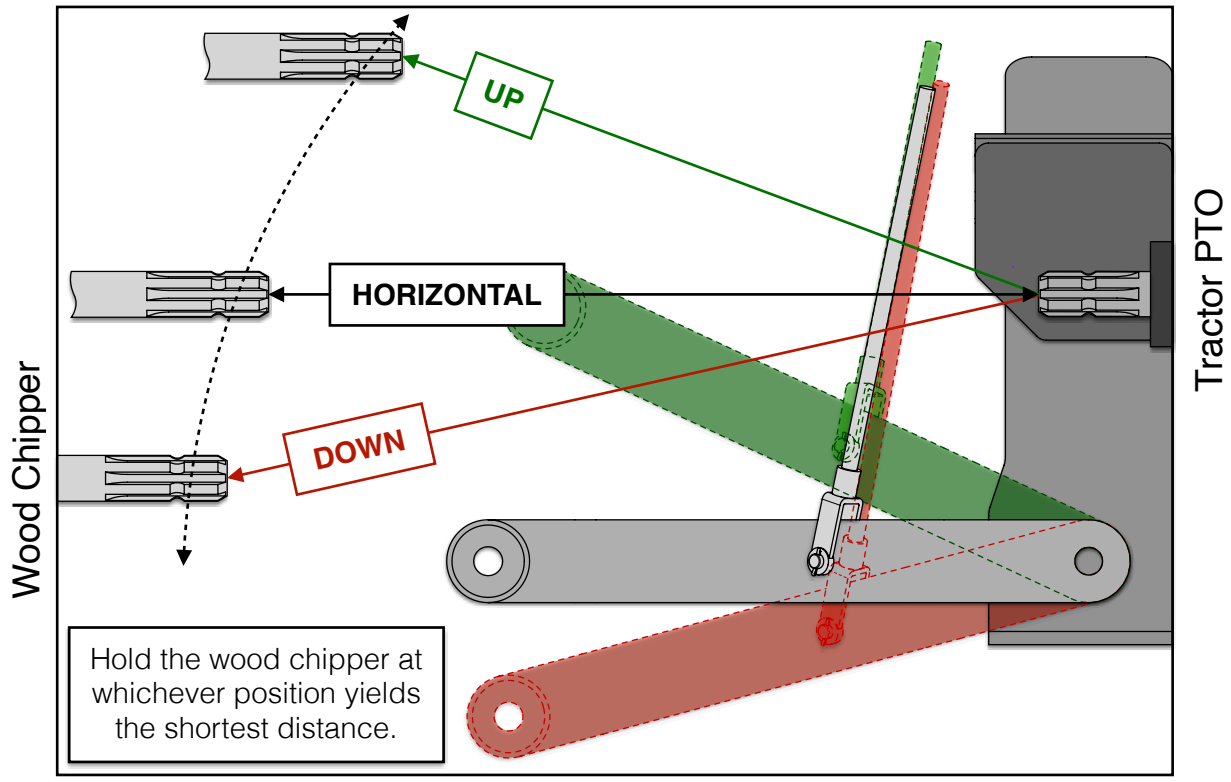
The PTO shaft may need to be trimmed depending on the tractor size and configuration. Follow the 6 steps below to ensure the PTO shaft is fitted correctly, and trimmed if necessary.

1. FIND THE SHORTEST DISTANCE

1. Attach the wood chipper to the tractor's 3-point hitch. Do *not* install the PTO shaft yet.
2. Measure the distance between the splined shafts on the tractor PTO and the wood chipper with the 3-point hitch in the following positions:
    i. All the way Down
    ii. In-Line / Horizontal
    iii. All the way Up

    Whichever position yields the *shortest* distance, ***hold the wood chipper at that position for the next step***.

****Note: if the wood chipper shaft cannot be positioned in-line or below the tractor PTO due to the size of the tractor relative to the wood chipper, take two (2) measurements instead: 1 at the lowest and 1 at the highest 3-point hitch position.****

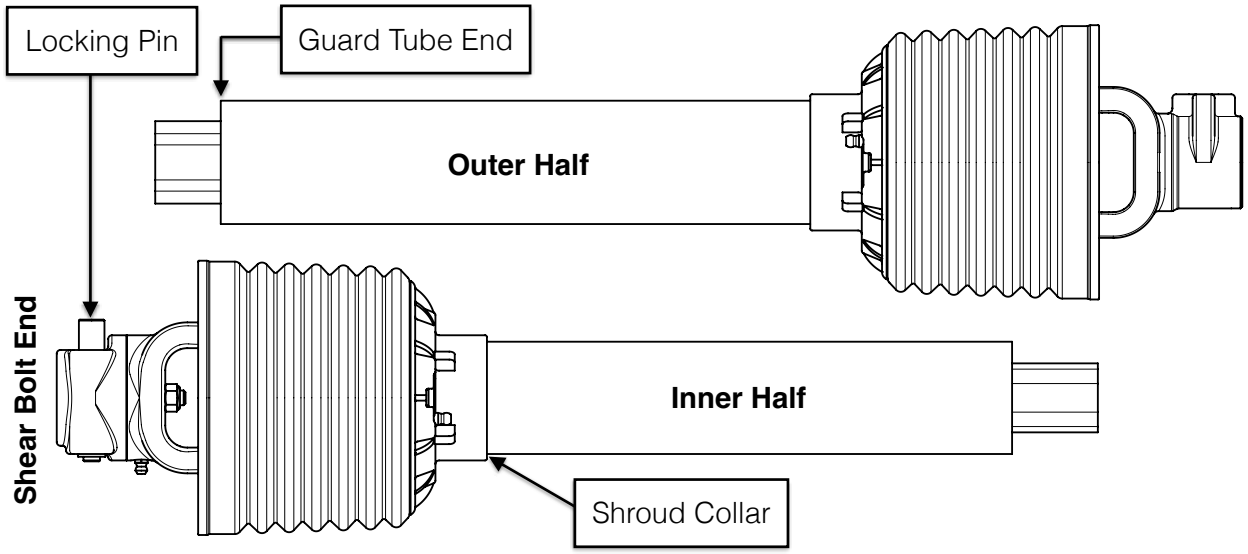


WARNING!

Remove the tractor's draw bar—*if equipped*—before installing any Woodland Mills implement (Wood Chipper or Stump Grinder).

2. SEPARATE PTO HALVES

Pull the PTO shaft apart until it is two separate halves: inner and outer.



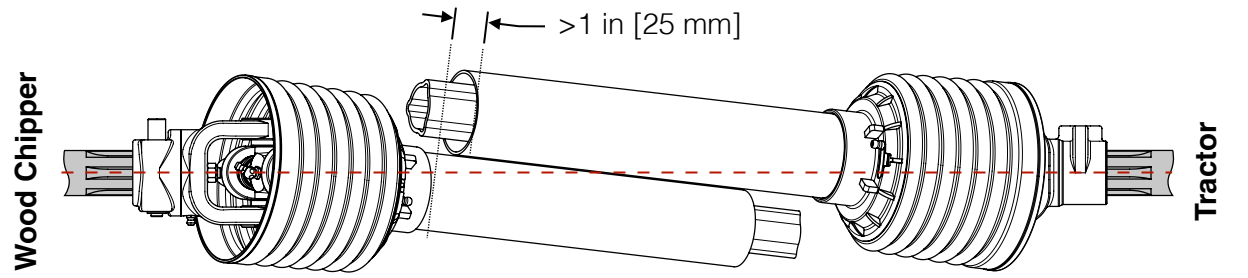
3. ATTACH THE PTO SHAFT

Attach the shear bolt end to the wood chipper and the outer half to the tractor as separate pieces.

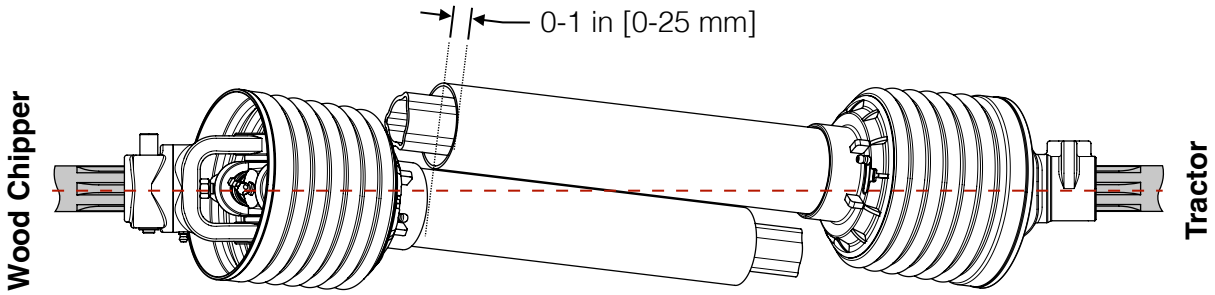
4. DETERMINE IF TRIMMING IS REQUIRED

Hold the shafts parallel. Use tape or tie the shaft halves together with string if necessary to get proper measurements. Three possible scenarios can exist.

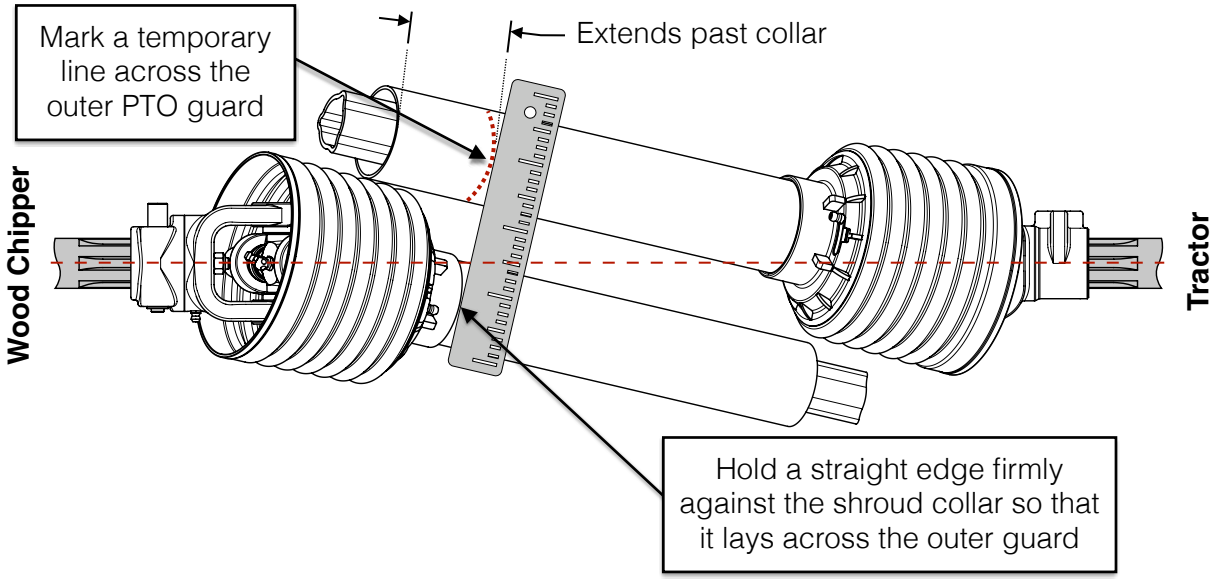
Scenario 1. If the distance between the shroud collar and the guard tube end is ***greater than* 1 in [25 mm]**, the PTO shaft does not require trimming. Remove the PTO shaft from the tractor and wood chipper and proceed to Step 6.



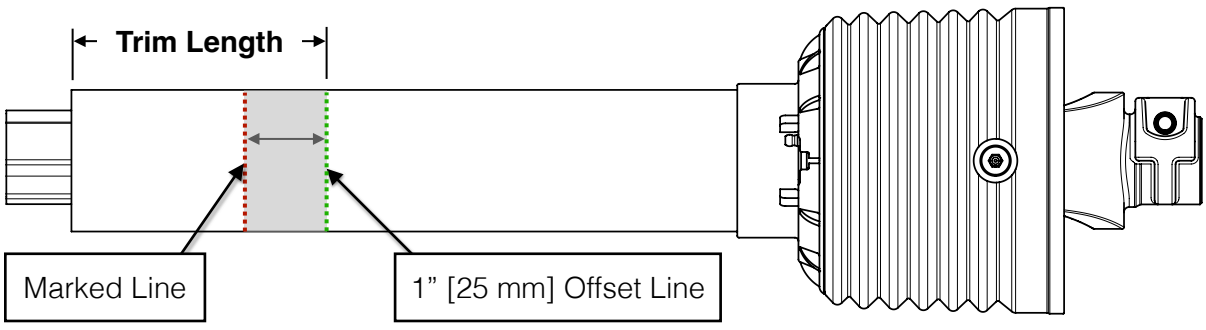
Scenario 2. If the distance between the shroud collar and the guard tube end is ***between 0 and* 1 in [25 mm]**, the PTO shaft requires a 1 in [25 mm] trim. Proceed to Step 5 using 1 in [25 mm] as the "**Trim Length"**.



Scenario 3. If the guard tube end extends past the shroud collar, hold a straight edge firmly against the shroud collar so that it lays across the outer guard. Mark the position on the outer guard.

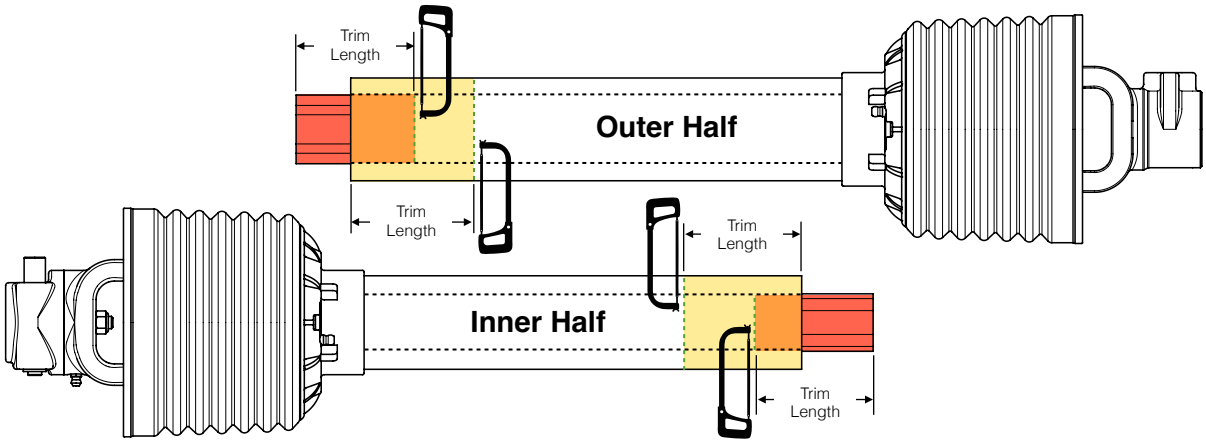


Measure 1 in [25 mm] past the marked line to the guard tube end to determine the trim length. This is the "**Trim Length**" by which the PTO shaft needs to be trimmed. Proceed to Step 5.



5. TRIM THE PTO SHAFT

Remove both halves of the PTO shaft from the tractor and wood chipper. Trim **both** outer plastic guards and **both** inner triangular steel shafts by the "**Trim Length**". Trim the plastic guards first, taking care not to cut into the triangular shafts inside. Then trim **both** triangular steel shafts by the **"Trim Length"**. File burrs as necessary.



6. REASSEMBLE THE PTO SHAFT

1. Slide the halves back together, ensuring they telescope in-and-out freely.
2. Slide the shear bolt end onto the wood chipper. Install the other end on the tractor.
3. Raise and lower the 3-point hitch, ensuring there is a 1 in [25 mm] minimum gap between the shroud collar and guard tube end throughout the entire lifting range.

OPERATION

1. PRE-START UP CHECKLIST

i. Attach the wood chipper to a tractor and take the appropriate measurements to trim the PTO shaft. Refer to the ***TRIMMING THE PTO SHAFT*** section of the operator's manual for detailed instructions.

****Note: Failure to do so may result in severe damage to the implement and is *not* covered under warranty.****

ii. Ensure the bed plate gap is set to within 1/16—1/8 in [1.5—3 mm] between it and the blades. Refer to ***SETTING THE BED PLATE GAP*** in the operator's manual for detailed instructions.

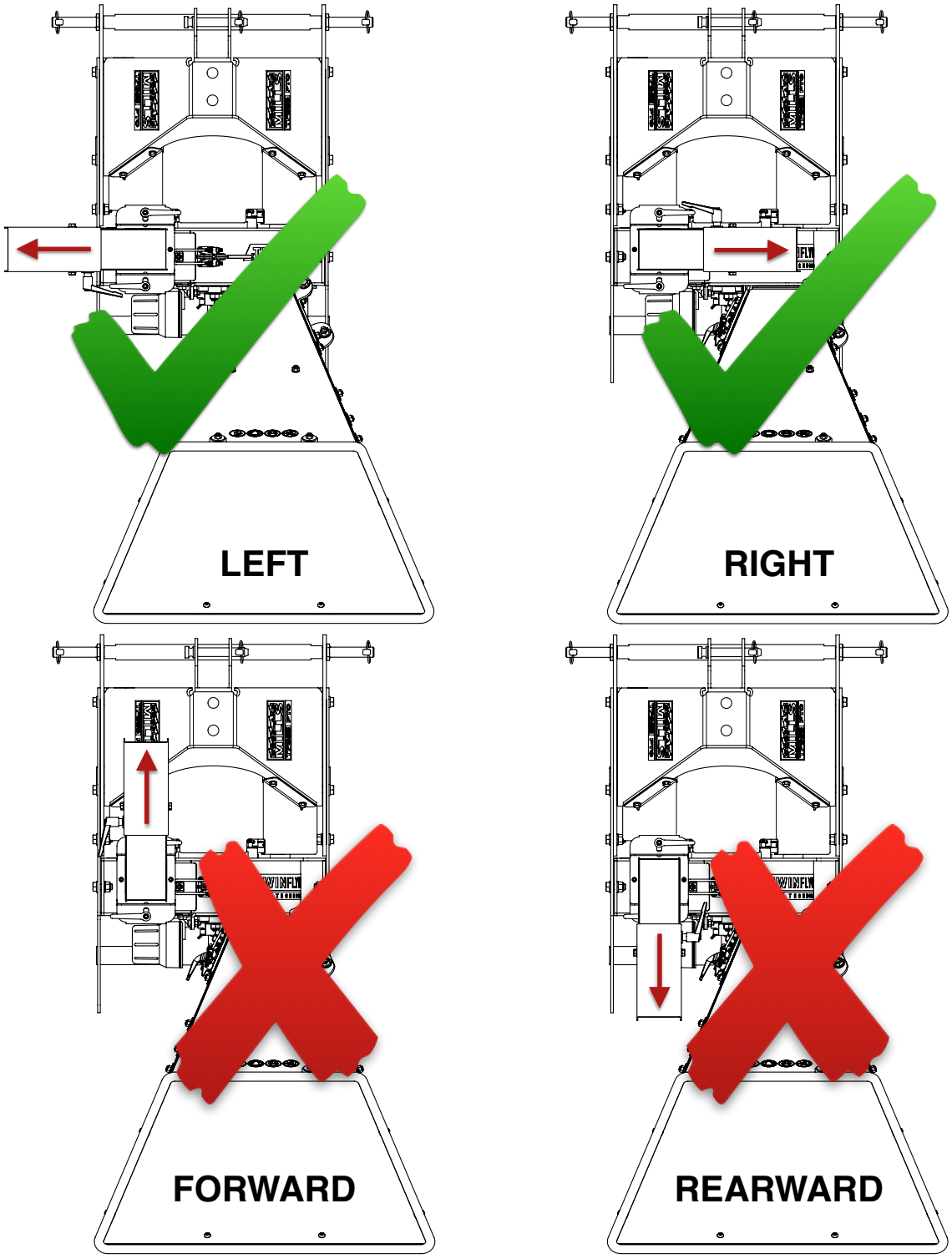
iii. The wood chipper has four (4) bearings fitted with Zerk fittings for greasing. The PTO shaft is equipped with seven (7) Zerk fittings. The PTO shaft and all bearings come pre-greased and do not require greasing on initial start-up. Refer to the ***GREASING*** section of the operator's manual for detailed maintenance instructions.

iv. Check the bolts on each of the four flywheel blades ensuring the torque is set to 40 ft•lb [54 N•m].

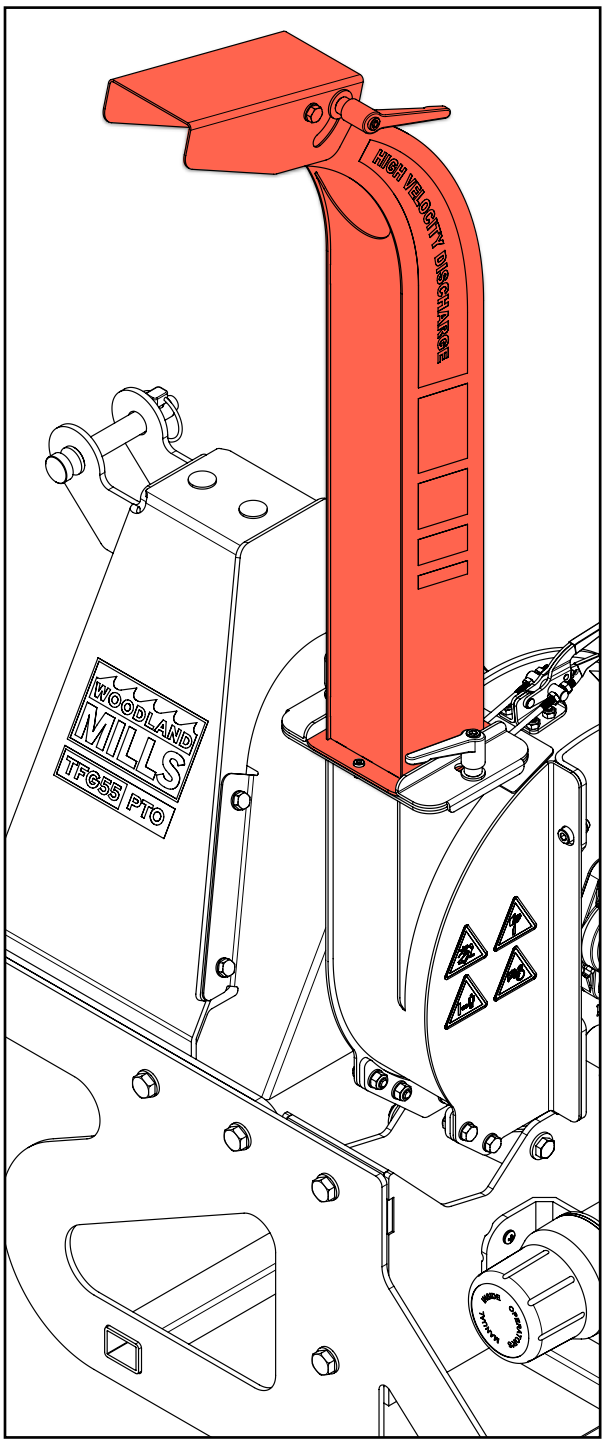
v. After the first hour of use, inspect the drive belt tension and adjust if required. Refer to section, ***ADJUSTING THE BELTS' TENSION***, for detailed tensioning instructions.

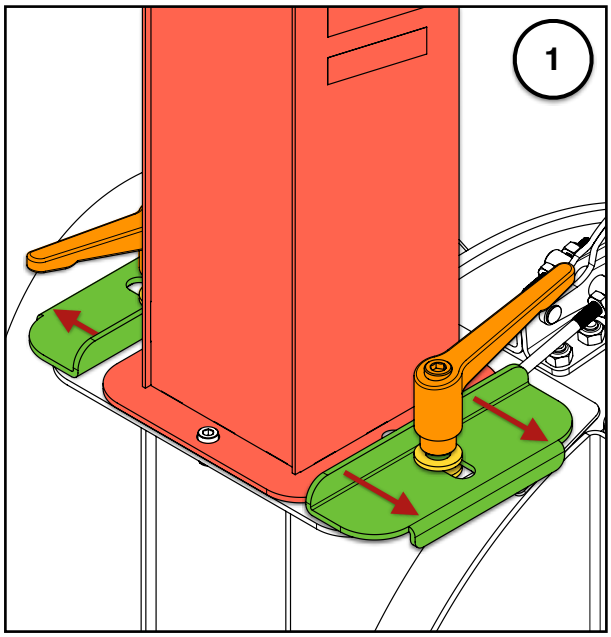
2. DISCHARGE CHUTE

The discharge chute can be rotated in 180° increments, pointing left or right. The chute should ***never be pointed forward or rearward*** or the chips could be thrown at the tractor or operator.

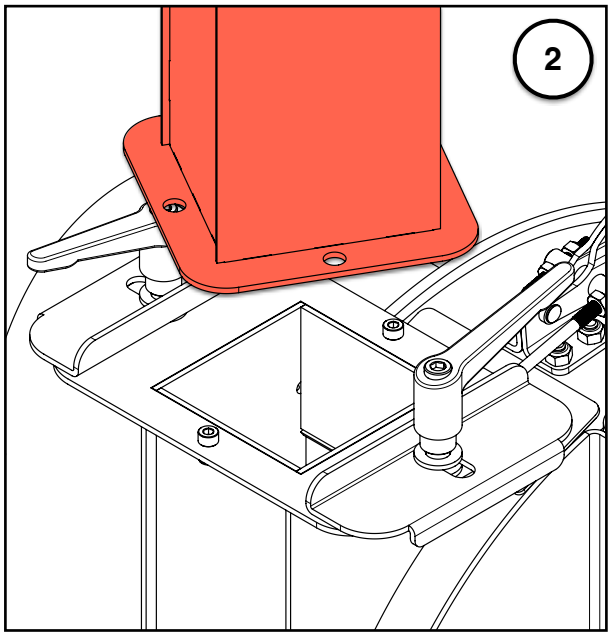


To rotate the discharge chute in an alternate direction, follow these steps:

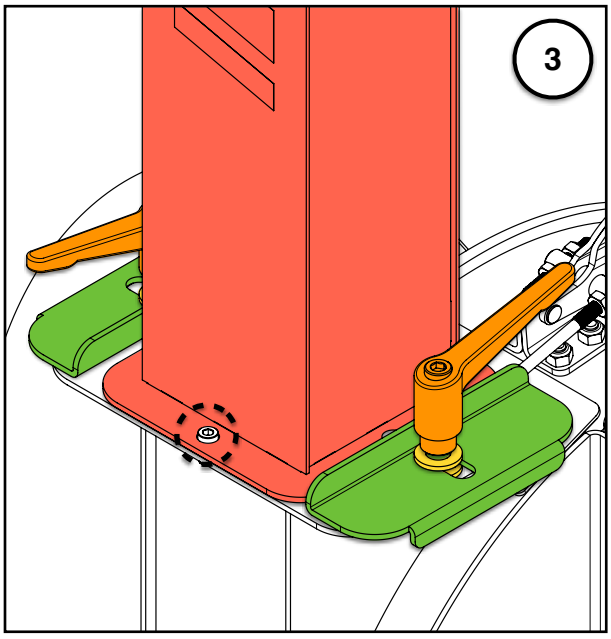




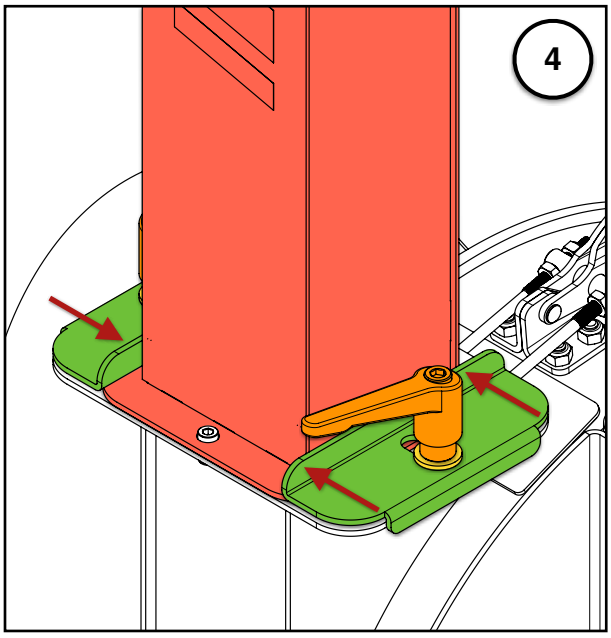
1. LOOSEN BOTH HANDLES AND SPREAD THE RETAINERS APART.



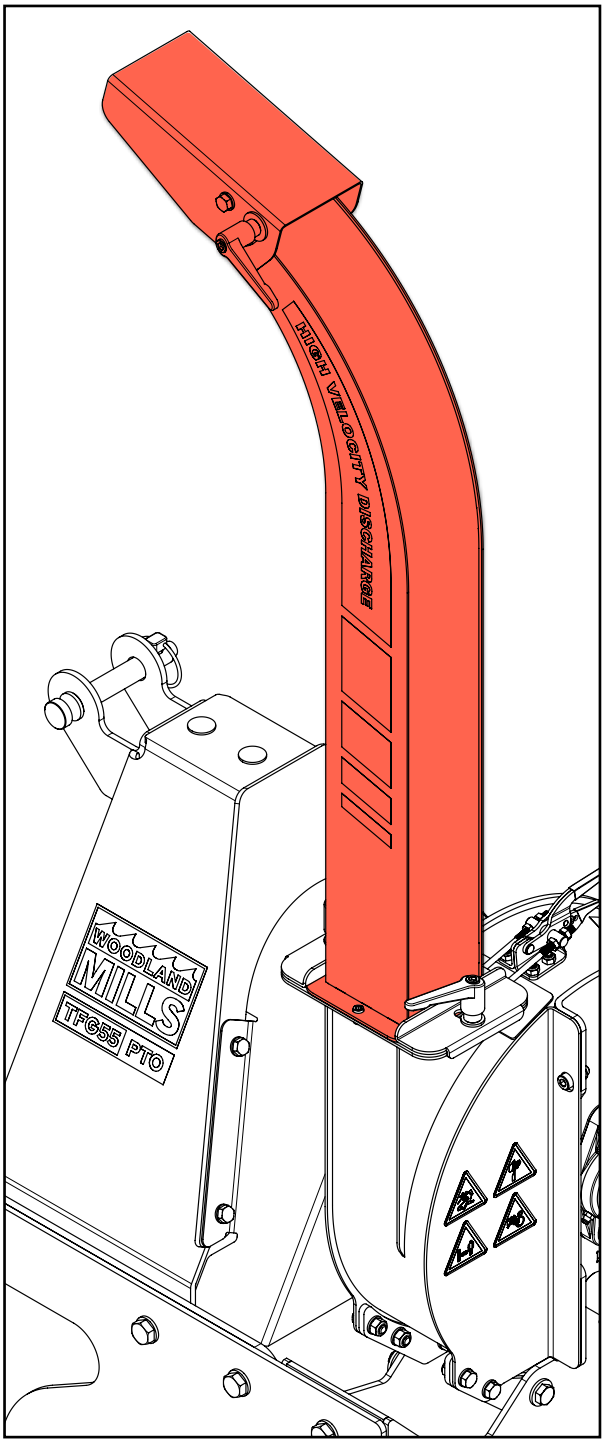
2. LIFT THE CHUTE OFF THE NOZZLE AND ROTATE IT IN THE DESIRED DIRECTION.



3. ALIGN HOLES IN CHUTE FLANGE WITH CAP SCREWS IN NOZZLE.

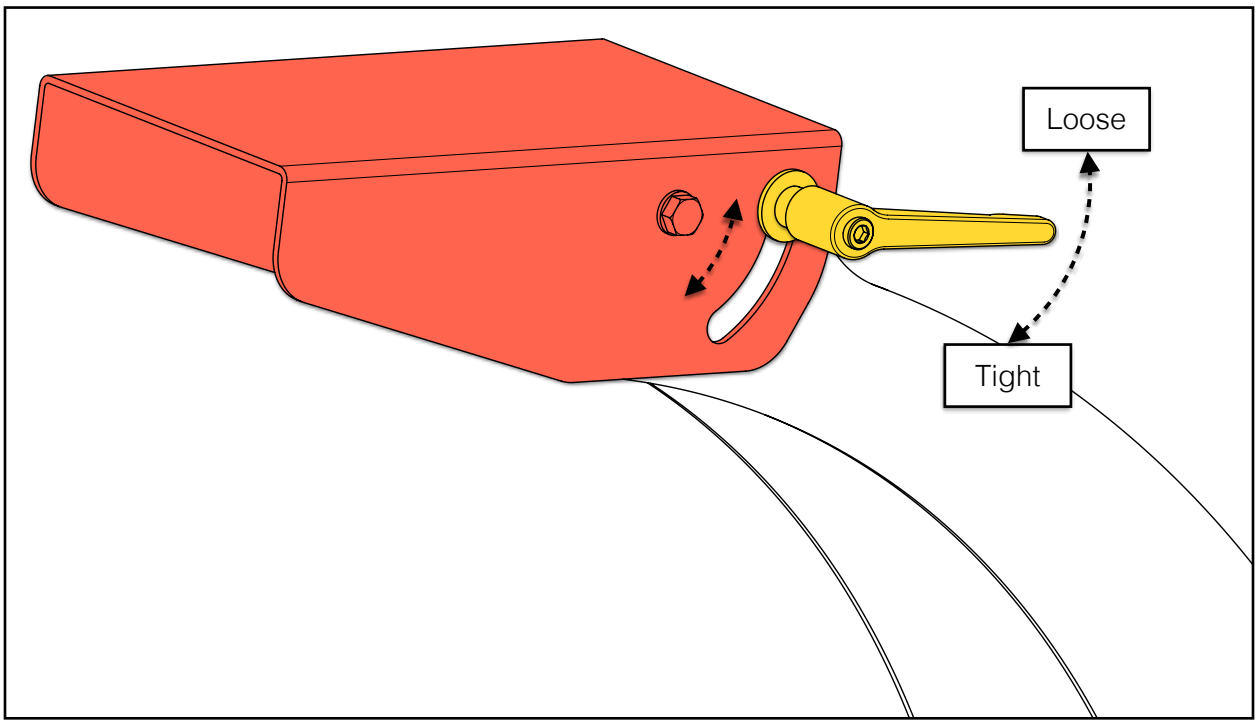


4. PUSH THE RETAINERS INWARD AND TIGHTEN THE HANDLES



DEFLECTOR

The chip deflector easily adjusts to regulate the distance the chips are thrown. Rotate the handle counterclockwise to loosen the deflector, adjust the deflector to the desired angle, then re-tighten the handle by rotating it clockwise to secure the deflector.



3. CHIPPING

Keep your face and body away from the feed opening. Do not over reach. Keep proper balance and footing at all times. The wood chipper is designed to chip a variety of materials into a more readily decomposing or handled condition. The following guidelines can be used to help get started. Please read and follow all safety instructions in this manual. Failure to operate the wood chipper in accordance with the safety instructions **MAY RESULT IN PERSONAL INJURY!**

- Ensure the wood chipper is at full operating speed before starting to chip material.
- Select limbs up to 4 in [102 mm] in diameter, although certain hardwood species may require reducing the diameter by 1 in [25 mm]. Trim side branches that cannot be bent enough to feed into the wood chipper infeed chute. Hold small diameter branches in a bundle and feed simultaneously.
- Feed brush while standing to the side of the infeed chute rather than from the front. Step aside to avoid being hit by brush moving into the wood chipper.
- When chipping larger diameter material, feed the material down the *right side* of the infeed chute. The shearing action between the blades and bed plate will naturally pull the material to the right and this will prevent heavier material from unexpectedly shifting while chipping.
- Never lean into the infeed chute or extend any parts of your body inside the infeed chute to push objects further into the wood chipper. Use another stick or branch.
- Do not use hand tools to push brush into the wood chipper. They can go through the wood chipper and cause injury or damage to the wood chipper.
- Place branches, butt end first, into the wood chipper infeed chute until it contacts the blades. Once the blades make contact with the branches, it will pull the material inwards.
- **NOTE**: The wood chipper blades dull with use and require periodic sharpening and sometimes replacing. Refer to section, ***BLADE SHARPENING***, for further instructions.

4. STOPPING

Do not leave the wood chipper unattended or attempt any inspection/service unless the PTO is disengaged and the tractor engine is turned off. Allow time for the wood chipper to come to a complete stop. To stop the wood chipper, follow the steps below:

1. Move the tractor throttle to the SLOW/IDLE position.
2. Disengage the PTO lever and turn off the tractor engine.
3. Allow time for the wood chipper to come to a complete stop.

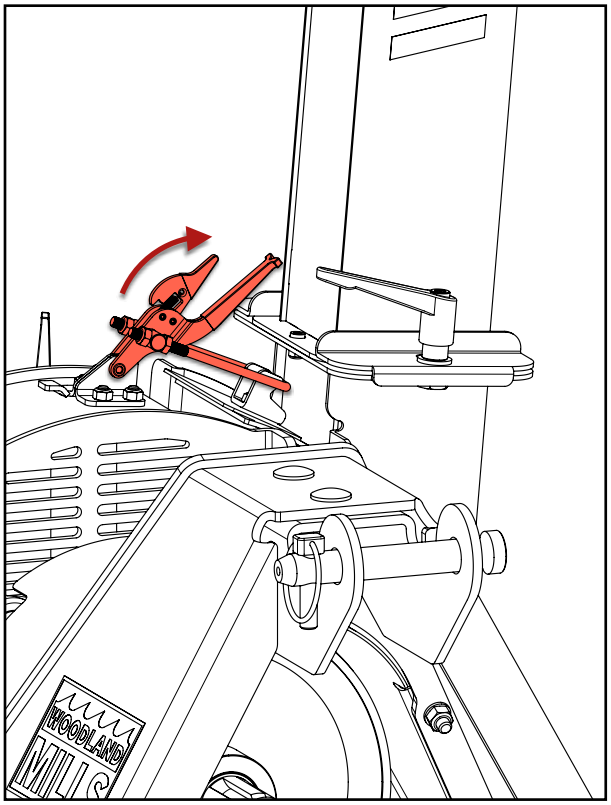
   NOTE: The flywheel continues to spin for some time after the engine or tractor has been turned off. The flywheel has stopped spinning when noise and/or machine vibration are no longer detectable. The PTO shaft will also no longer be spinning.

MAINTENANCE
OPENING THE WOOD CHIPPER

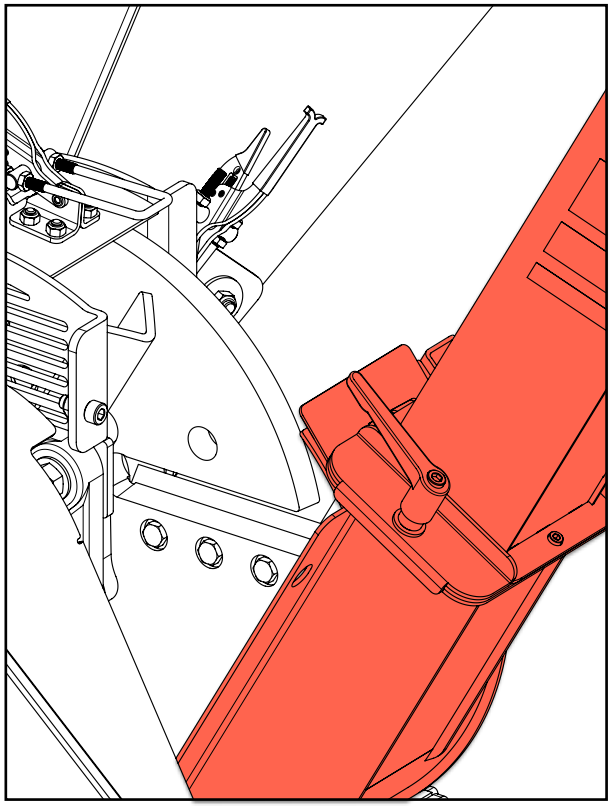
Follow these safety steps whenever the wood chipper is opened in order to gain access to the blades, setting the bed plate gap, or when clearing debris is necessary:

1. Always turn off the tractor engine and disconnect the PTO shaft from the tractor.
2. Always wear protective gloves to avoid contact with the blades as they can be sharp, even if they are in need of replacing or sharpening.

SIDE HOUSING



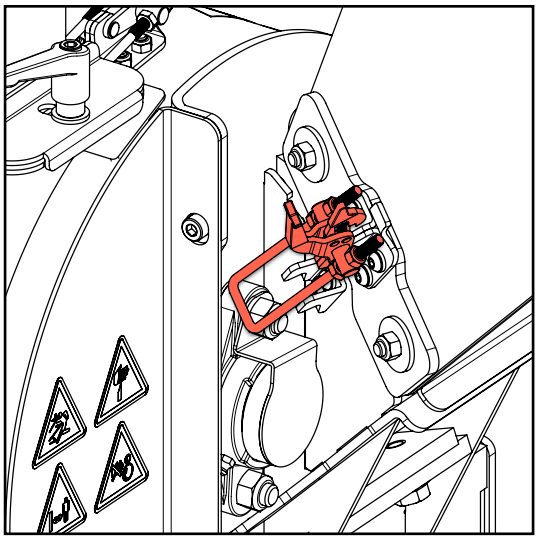
1. RELEASE THE LATCH AND PUSH IT ALL THE WAY FORWARD.

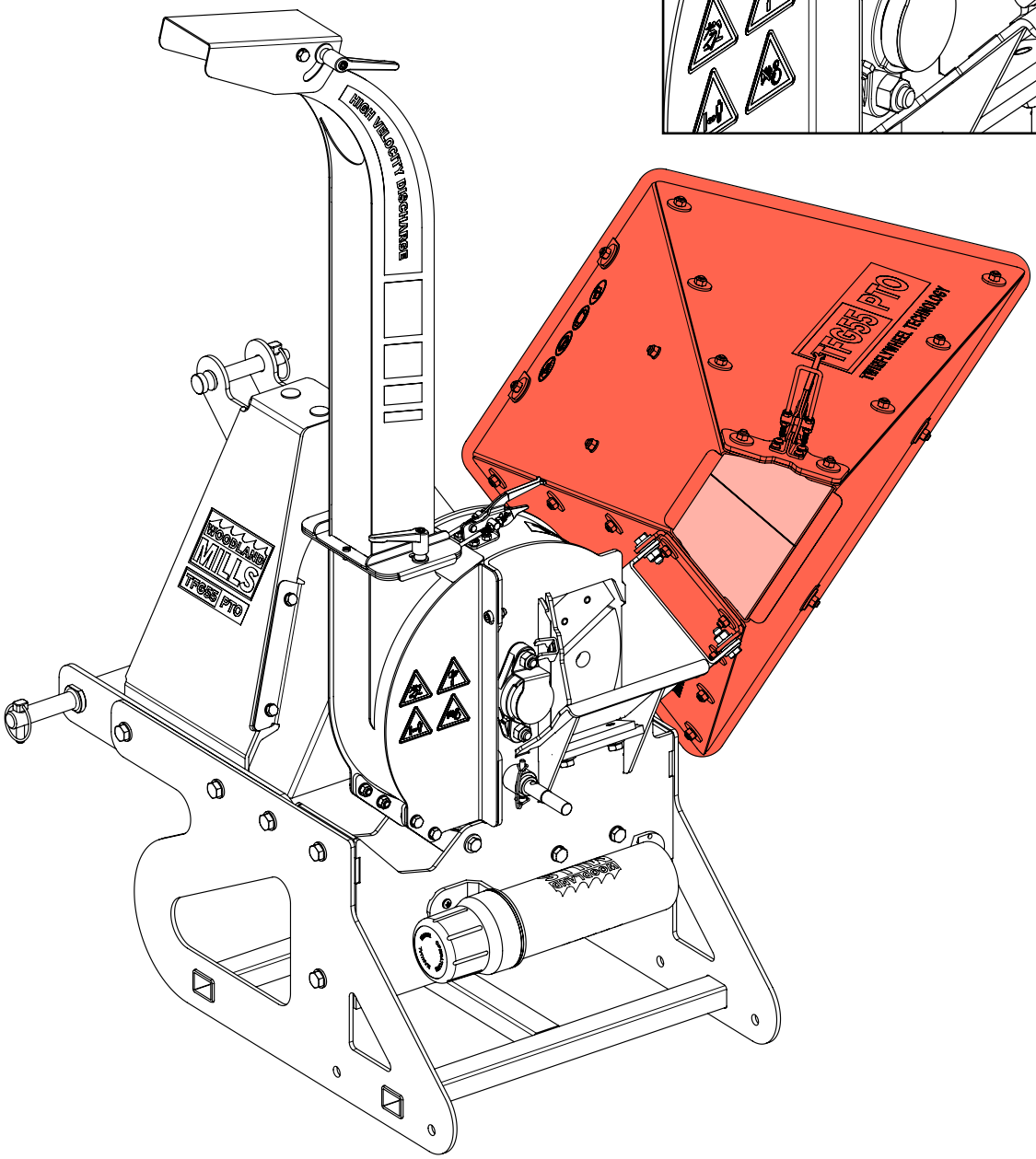


2. WITH THE LATCH RELEASED, ROTATE THE SIDE HOUSING OPEN UNTIL IT STOPS.

INFEED CHUTE

To open the infeed chute, release the latch located on the left side. Then swing the infeed chute around to the right until it comes to a rest.



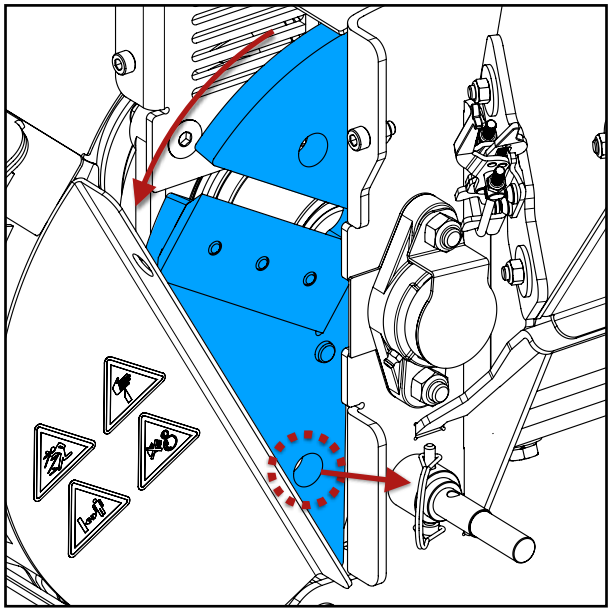


REPLACING BLADES

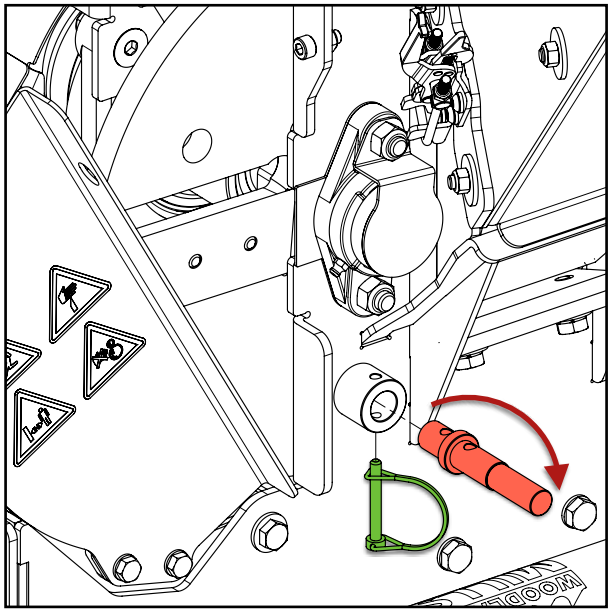
Follow these steps to replace the blades. The TFG55 wood chipper uses three (3) reversible hardened steel blades. Each blade is 5-½ X 2-¼ X .275 in [140.5 X 57 X 7 mm] in size.

WARNING!

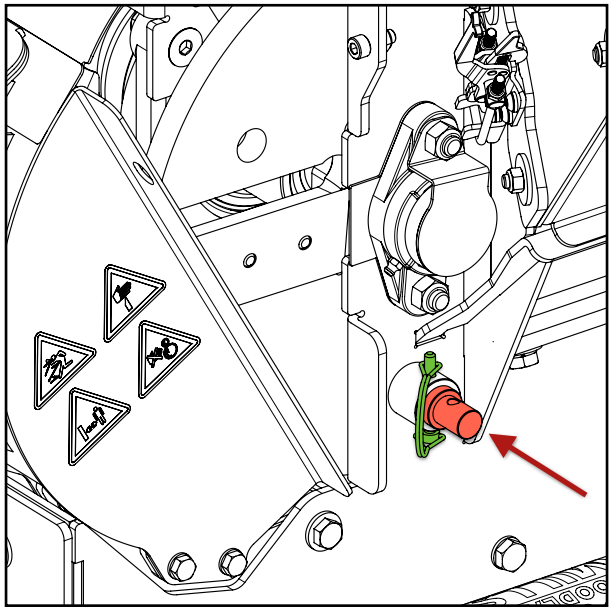
Wear protective gloves when handling the blades as they can still be very sharp, even if they are due for replacement or sharpening.



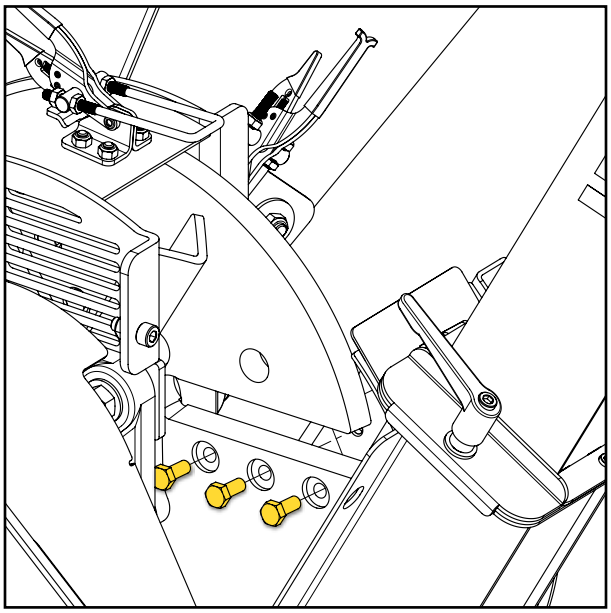
1. ROTATE FLYWHEEL BY HAND UNTIL LOCKING HOLE ALIGNS WITH LOCK PIN



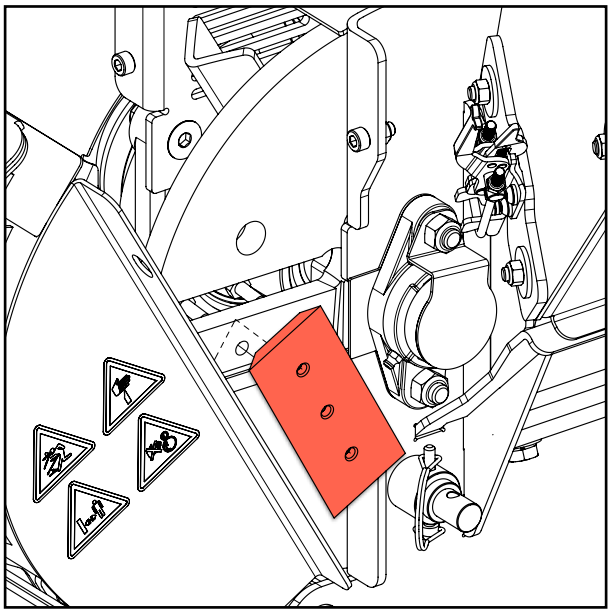
2. REMOVE ROUND LOCKING PIN AND FLYWHEEL LOCKING PIN.



3. ROTATE FLYWHEEL LOCKING PIN 180° THEN REINSTALL BOTH PINS.

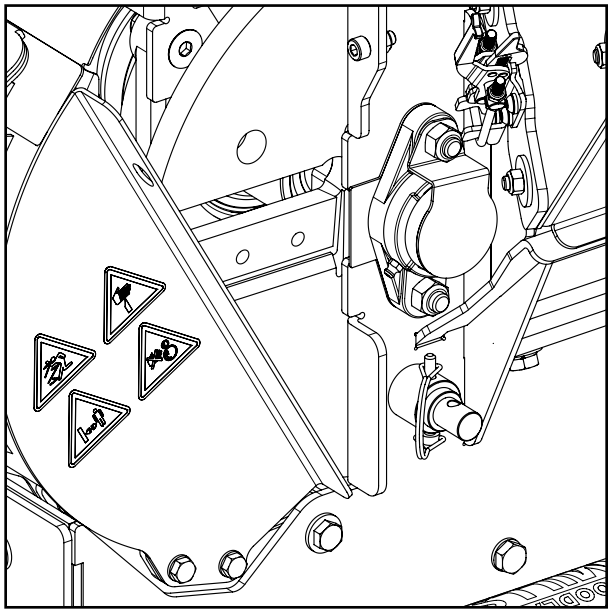


4. REMOVE THE THREE (3) M8 X 20 MM HEX BOLTS FROM THE BACK OF THE FLYWHEEL. NOTE: HOLD THE BLADE AS THE BOLTS ARE REMOVED SO THAT IT DOES NOT FALL AND GET DAMAGED.



5. LIFT THE BLADE UPWARDS, ROTATING IT SLIGHTLY IN ORDER TO PULL IT OUT THE FRONT OF THE CHIPPER.

6. Repeat all the steps to remove the remaining two blades. If this is the first time the blades have been removed following either the original wood chipper purchase or a recent blade sharpening, the blades can be reversed to utilize the other cutting edge. Or, the entire blade can be removed and sharpened, or it can be replaced with a new blade. Torque the M8 X 20 mm hex head bolts to 20-24 ft•lb [27-32 N•m] when installing blades. Refer to section, ***BLADE SHARPENING*** for blade sharpening instructions.
7. Once the blades have been reversed or new blades installed, proceed to section, ***SETTING THE BED PLATE GAP***, to properly set the spacing between the blades and bed plate.

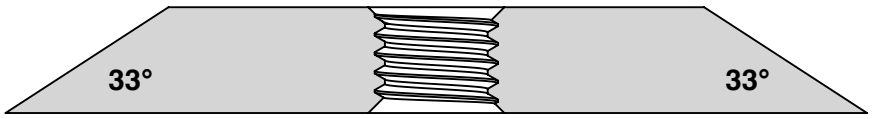


****When finished, remember to reverse the flywheel locking pin so that it points outside the machine otherwise serious damage or injury could occur once restarted.****

BLADE SHARPENING

The wood chipper blades will dull, making chipping difficult and cause your tractor to labour. It is recommended to sharpen the blades every 25-50 hours of operation. The TFG55 PTO wood chipper uses three (3) hardened steel blades. The blades are reversible and can be sharpened on both sides. Follow the below steps to sharpen the blades.

1. Follow the steps from the previous section, ***REPLACING BLADES***, to safely remove the blades from the flywheel.
2. Hand-grind the angled edges of the blade at 33° (see diagram below) using a whetstone or have them sharpened by a professional. A pedestal style bench grinder will likely yield poor results if not used properly. If sharpened quickly or aggressively on a bench grinder, the blade edge can get too hot and change colour, thus removing the heat treating-properties from the steel. Use short grinding times and cool frequently with water. Remove an equal and consistent amount of material from each blade to maintain proper balance when reassembled to the flywheel.

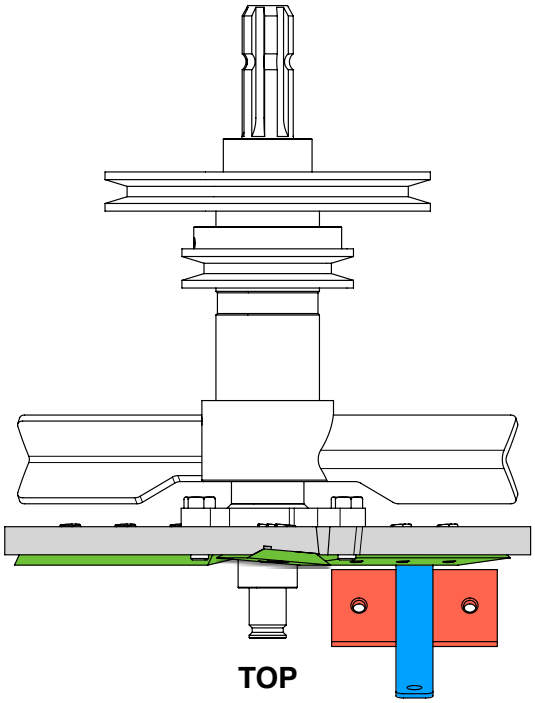


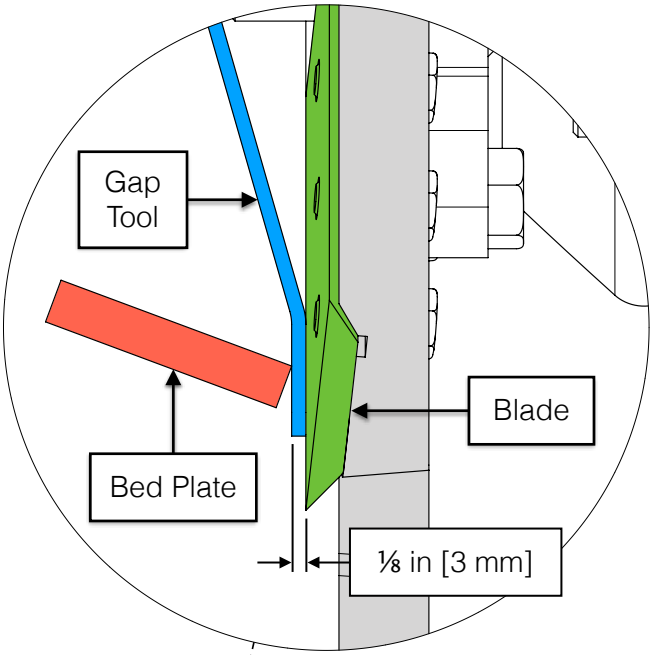
Blade Profile

3. Reinstall the sharpened blades on the flywheel and torque the M8 X 20 mm hex head bolts to 20-24 ft•lb [27-32 N•m].
4. Once the blades have been sharpened and reinstalled, proceed to the next section, ***SETTING THE BED PLATE GAP***, to properly set the spacing between the newly sharpened blades and the bed plate.

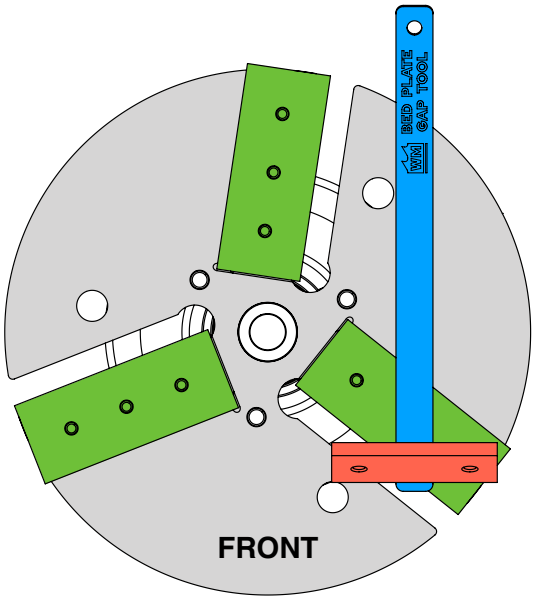
SETTING THE BED PLATE GAP

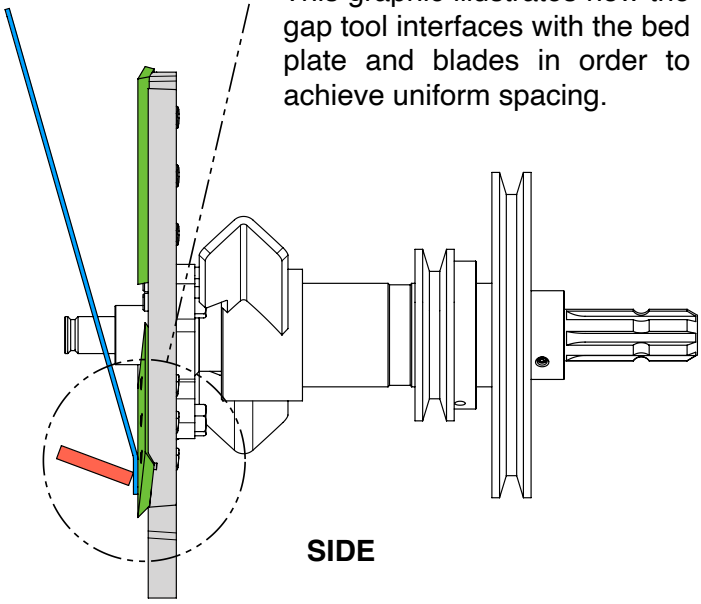
The bed plate (also known as the *anvil plate*) is located below the infeed chute. For ideal chipping performance, the gap between the bed plate and blades should be set to ⅛ in [3 mm] using the *Bed Plate Gap Tool*.



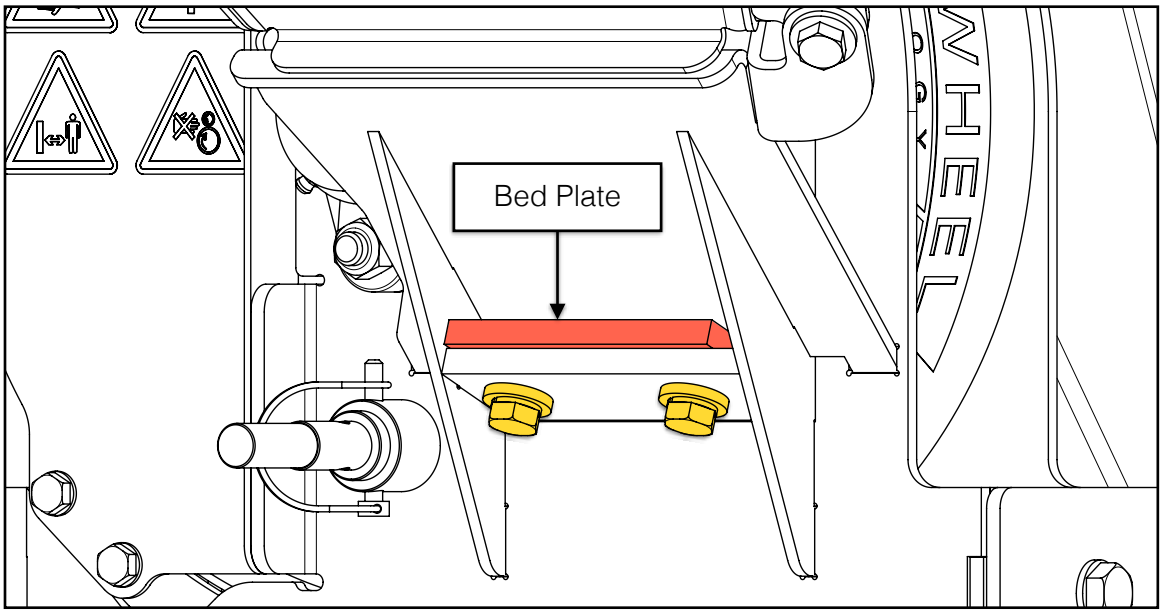


This graphic illustrates how the gap tool interfaces with the bed plate and blades in order to achieve uniform spacing.

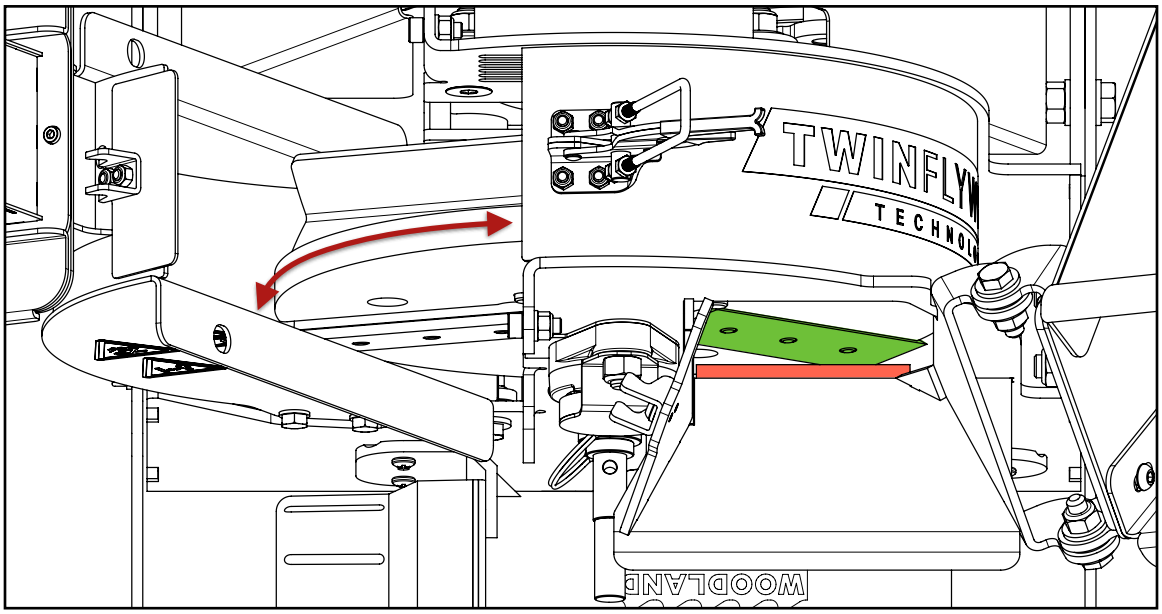




Follow the steps on the next page to set the gap correctly. Failure to set the proper gap can lead to poor chipping performance and/or clogging.

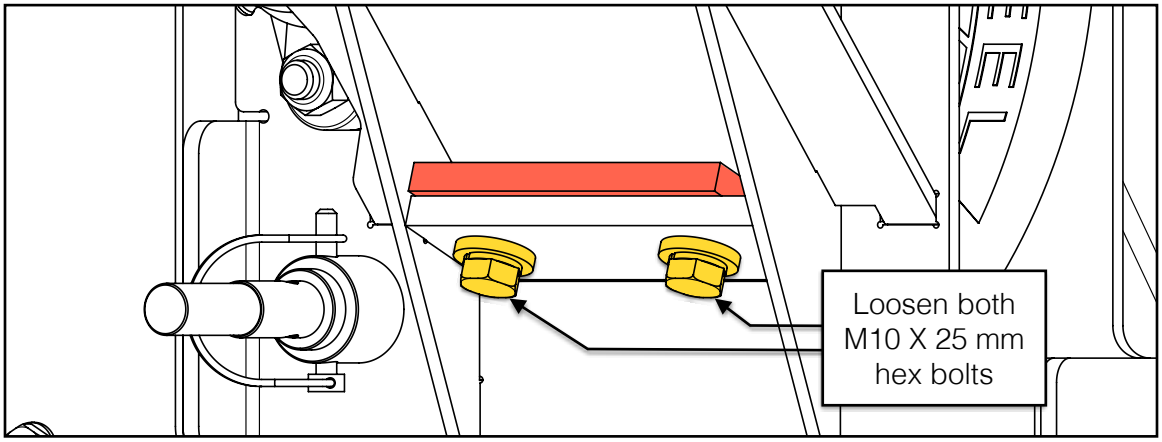


1. Disconnect the PTO shaft from the tractor for safety.
2. Open both the side housing *and* infeed chute. Refer to section, ***OPENING THE WOOD CHIPPER***, for detailed instructions.
3. With the flywheel exposed, manually rotate it so that one blade lines up with the bed plate and note the gap between them. Verify that the gap is uniform horizontally from the right of the bed plate to the left. Use a flash light for better viewing if necessary.

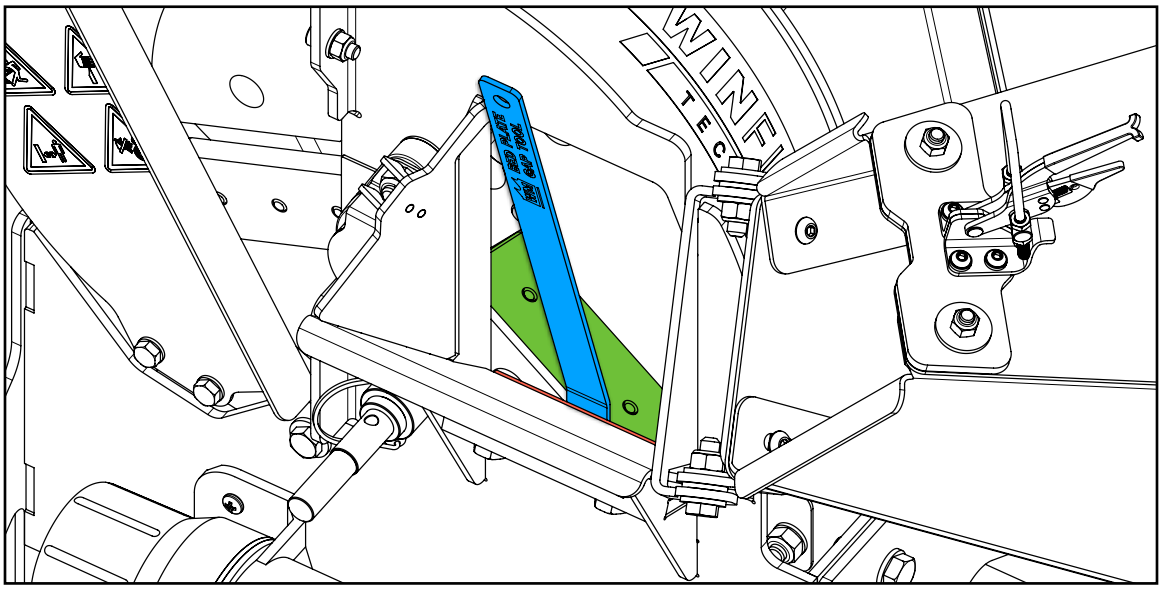


Continue to rotate the flywheel to check the remaining two blades relative to the bed plate, noting which blade is closest. Use the blade with the closest gap when setting the bed plate gap.

4. Loosen the two (2) M10 X 25 mm hex bolts securing the bed plate to the lower flywheel housing so the bed plate is free to slide in and out. This movement increases or decreases the gap between the bed plate and the cutting edge of the blade.



Place the short bent end of the bed plate gap tool between the bed plate and the blade and then push the bed plate against the tool. Move the tool left-to-right along the bed plate's length to ensure the gap is uniform along the edge of the blade.

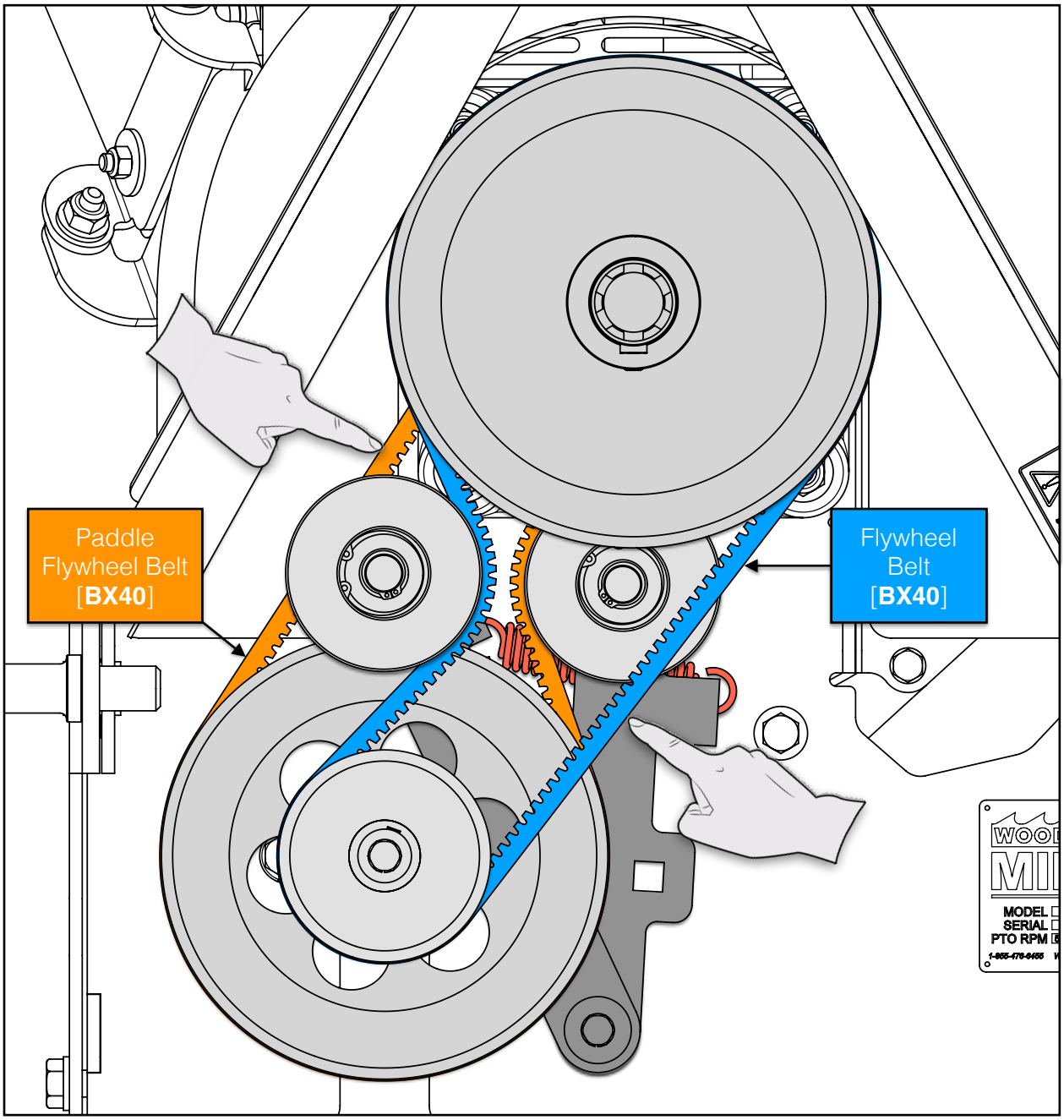


5. Snug the two (2) M10 X 25 mm bed plate hex bolts once the gap has been set correctly for the blade closest to the bed plate.
6. Rotate the flywheel by hand again and note the gap at each blade with the bed plate tool. Again, the gap should be no more than 1/8 in [3 mm] and no less than 1/16 in [1.5 mm] at each blade edge.
7. Once the gap is within tolerance for all the blades, torque the two (2) M10 X 25 mm bed plate hex bolts to 40 ft•lb [54 N•m].
8. Close the side housing and infeed chute and secure them with their respective latches.

BELT TENSION

The TFG55 PTO wood chipper utilizes a single-spring self-tensioning belt system. There are no adjustments required by the operator other than periodically verifying the tension is adequate.

Check both belts' tension by pressing on them with a finger. There should about ¼ in [6 mm] of free slack in the belts. If the belts are loose and/or slipping during operation, replace both belts at the same time. See ***REPLACING THE BELTS*** for instructions.



[Connecting rod removed from image for clarity]

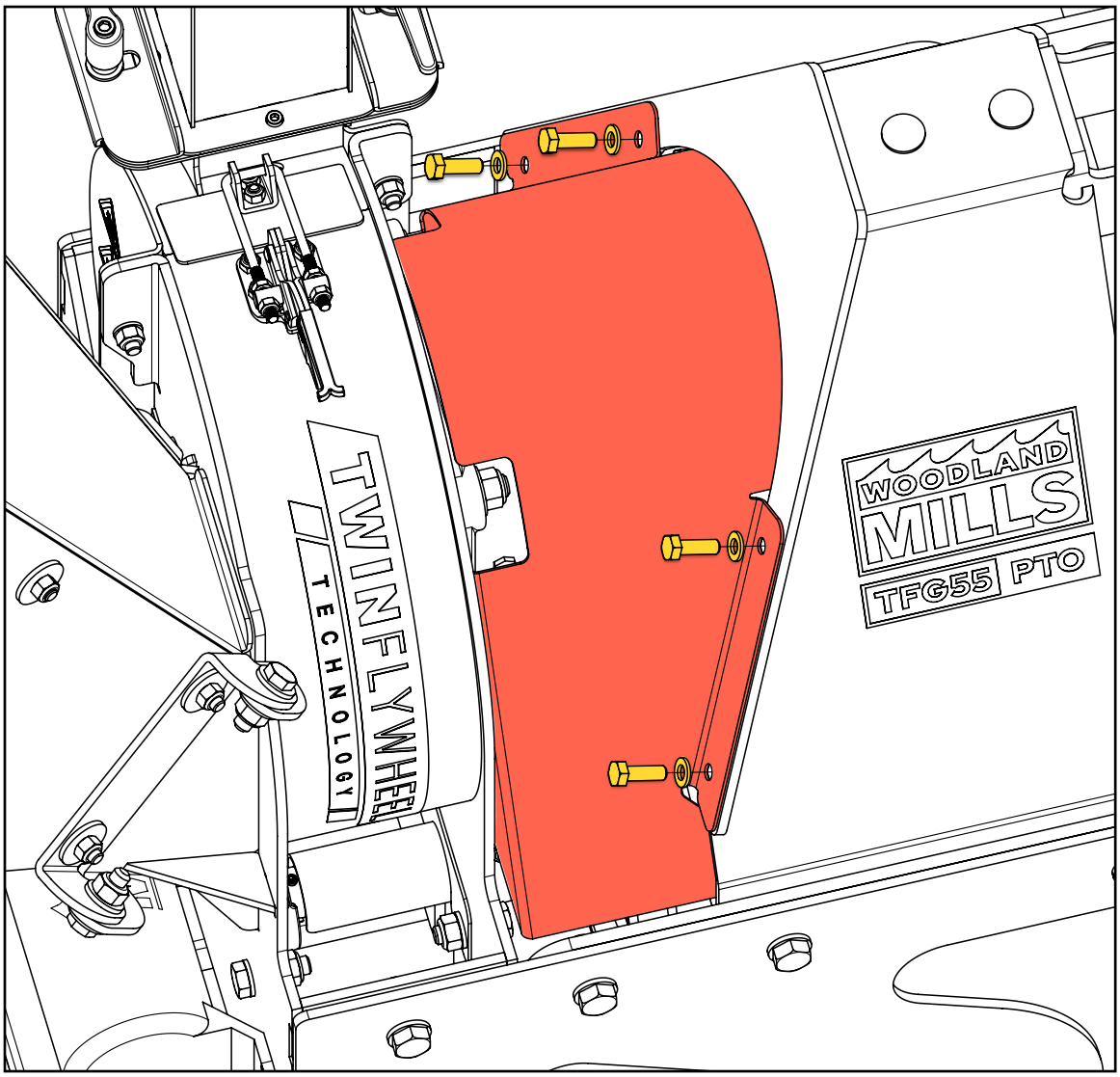
REPLACING THE BELTS

Check the condition and tension of both belts after every 30 hours of operation. If a squealing noise can be heard it is likely due to worn belts. It is recommended *both* belts be replaced at the same time to reduce future maintenance.

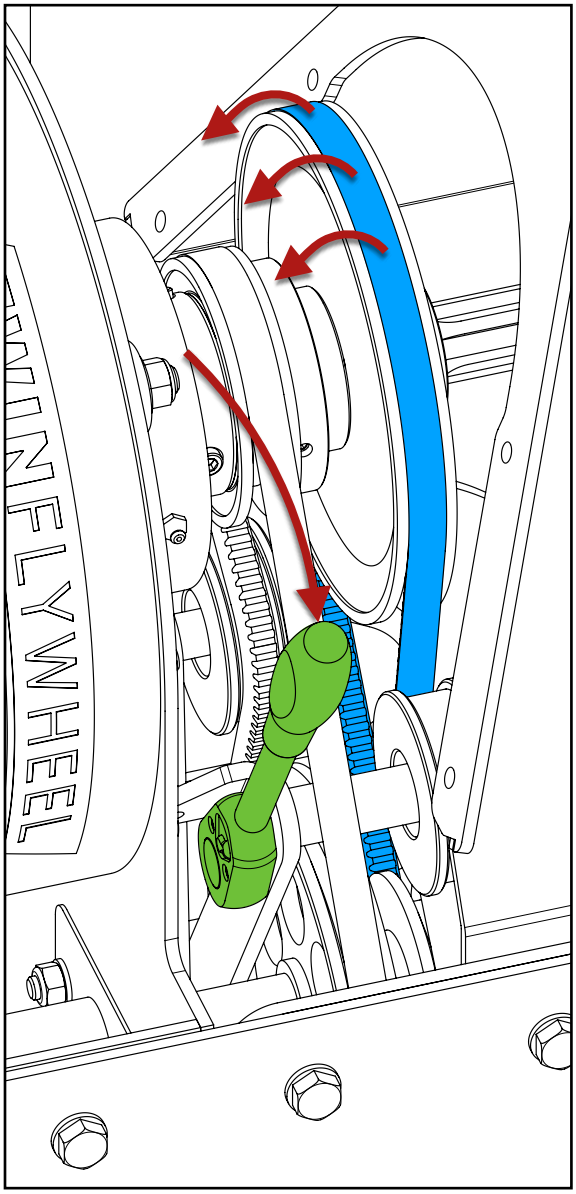
- *Flywheel Belt*: **BX40**
- *Paddle Flywheel Belt*: **BX40**

To replace the worn belts, follow the steps below:

1. If installed, disconnect the PTO shaft from the wood chipper for safety.
2. Remove the four (4) M8 X 25 mm hex bolts and their respective washers and lock nuts from the belt cover and lift the cover off.

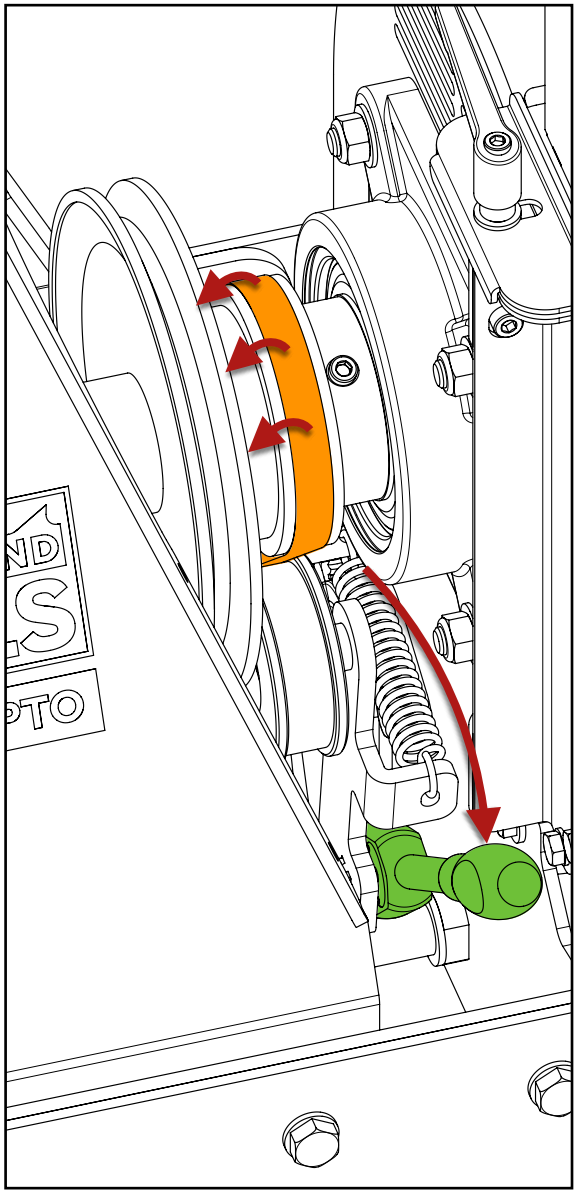


3. With the belt cover removed, the belts and tensioner system are exposed. There is a square hole in each of the tensioner arms that accepts a ½ in [12.7 mm] drive ratchet.



Flywheel Belt

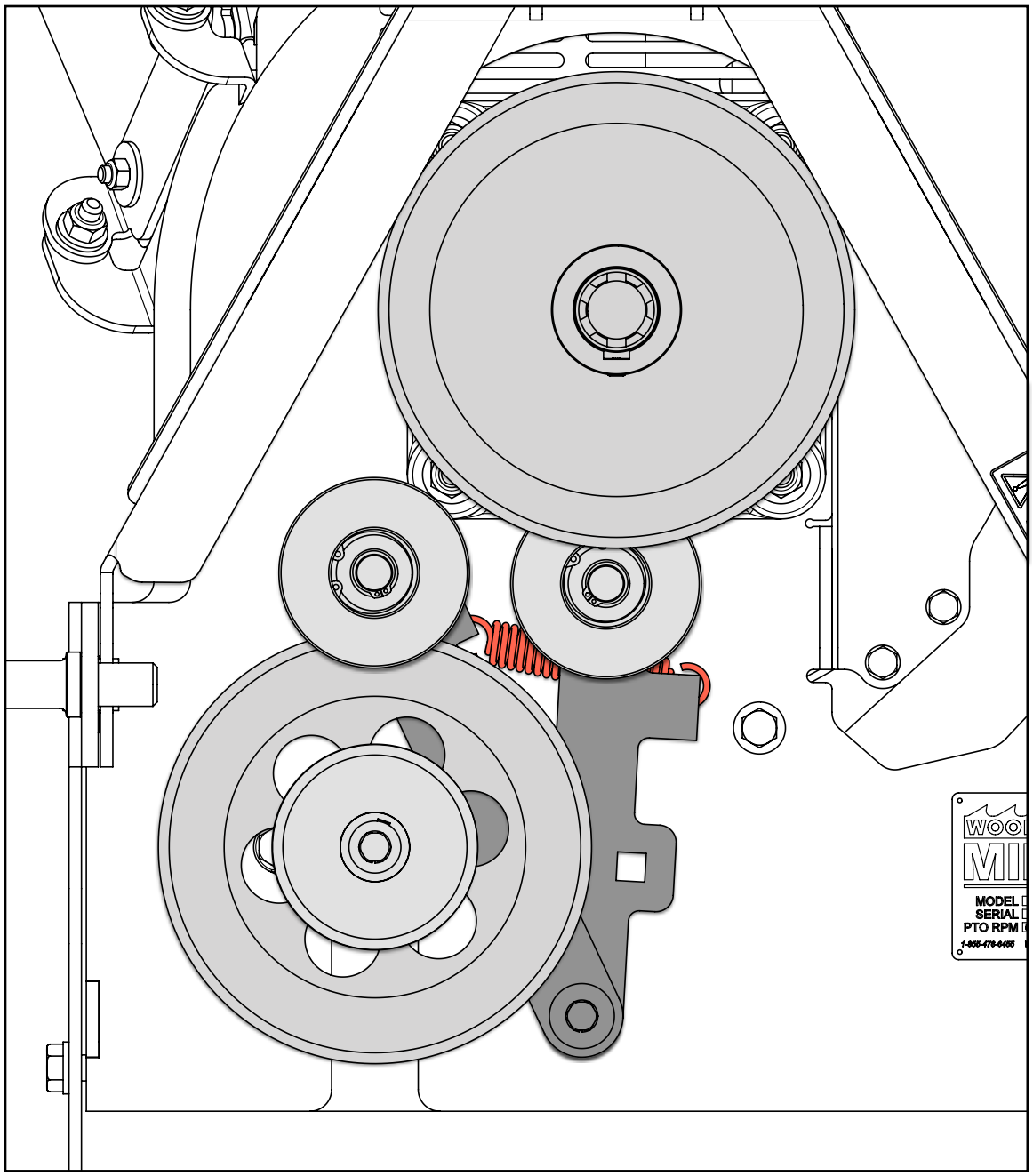
Insert a ratchet into the square hole in the leftmost tensioner arm, then push down on the ratchet to release the flywheel belt tension. Continue pressing down on the ratchet and roll the belt off the pulleys.



Paddle Flywheel Belt

Insert a ratchet into the square hole in the rightmost tensioner arm, then push down on the ratchet to release the paddle flywheel belt tension. Continue pressing down on the ratchet and roll the belt off the pulleys.

4. With both belts removed, the extension spring will fully retract. Repeat the steps in reverse order when reinstalling the belts. Start with the paddle flywheel belt at the rear and then the flywheel belt in the front.



Belts Removed
[Connecting rod removed from image for clarity]

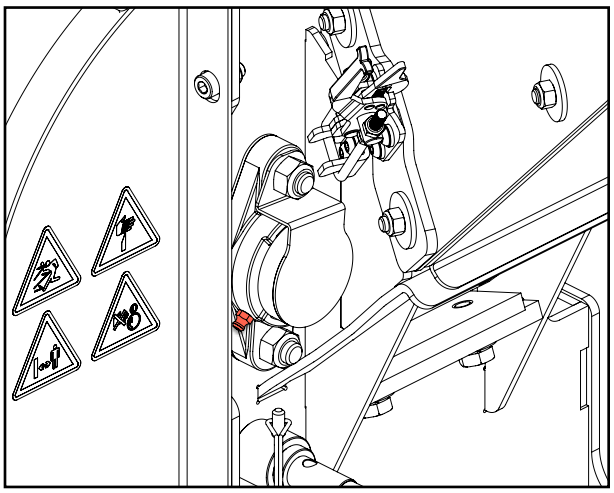
GREASING

BEARINGS & OUTPUT SHAFT

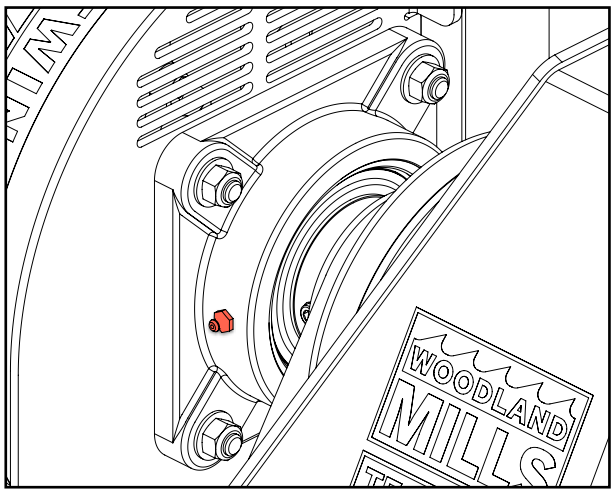
The wood chipper has four (4) grease points with Zerk fittings: two (2) flywheel shaft bearings and two (2) idler arm shaft bearings. Check each grease point prior to use and add grease as needed.

Also, periodically brush grease onto the flywheel shaft spline for ease of PTO shaft assembly & removal, to prevent rust buildup, and to prevent the two shafts from seizing together.

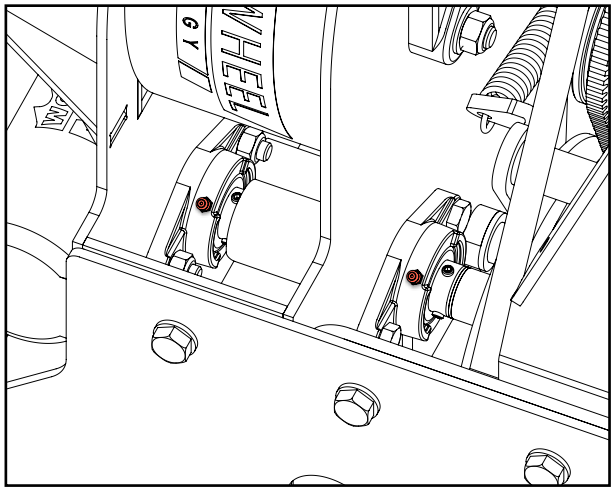
****Warning: These 4 grease points come pre-greased from the factory. *Do not add grease to the Zerk fittings on a new wood chipper*. Over-greasing can damage the bearing seals.****



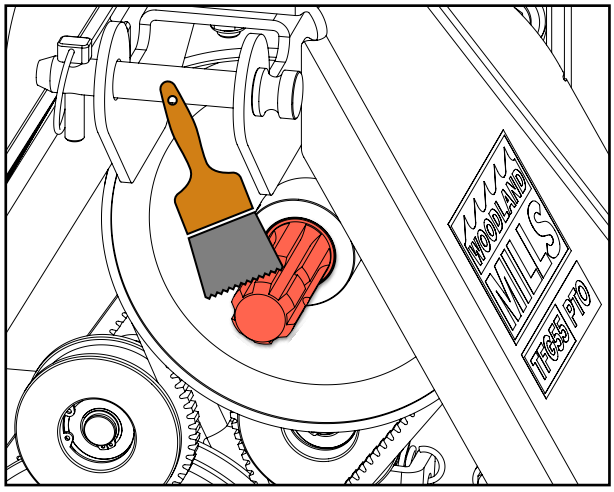
Front Flywheel Shaft Bearing



Rear Flywheel Shaft Bearing
(Belt cover removed)



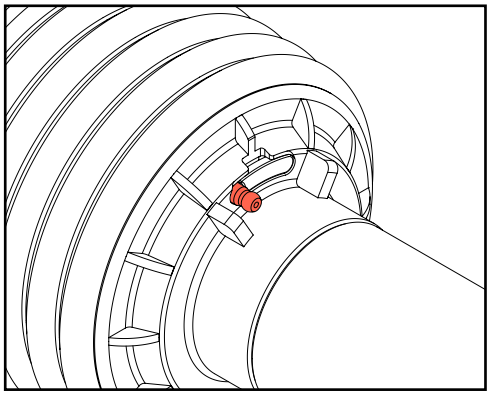
Idler Arm Shaft Bearings (2x)



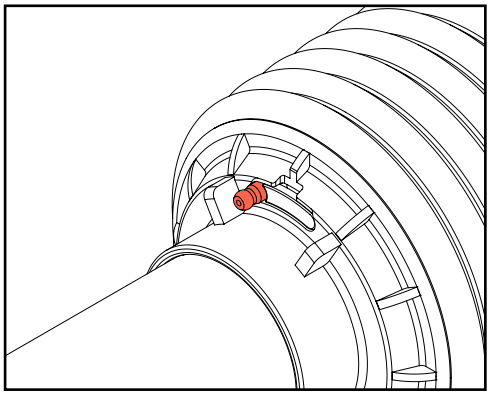
Flywheel Shaft Spline

PTO SHAFT

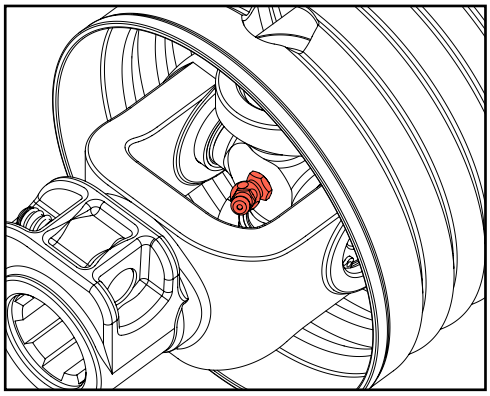
The PTO shaft has seven (7) grease points that are accessible from the outside: one (1) on each of the inner and outer guards, two (2) on the tractor yoke, and three (3) on the shear pin yoke. Check each grease point prior to use and add grease as needed.



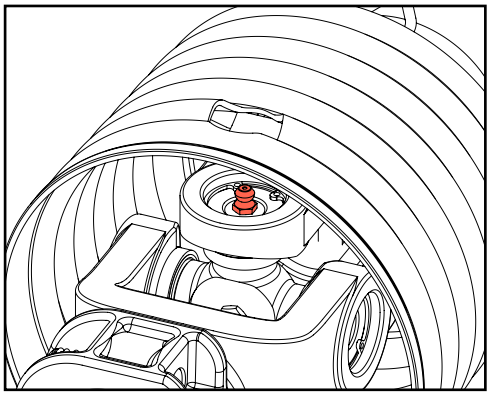
Inner Cover



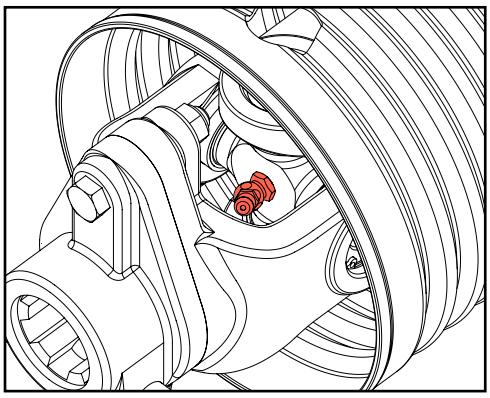
Outer Cover



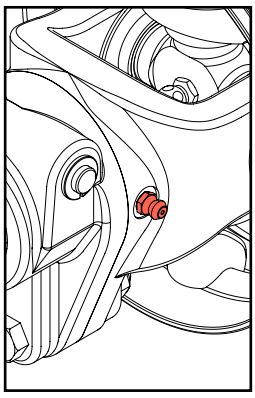
Tractor Yoke 1



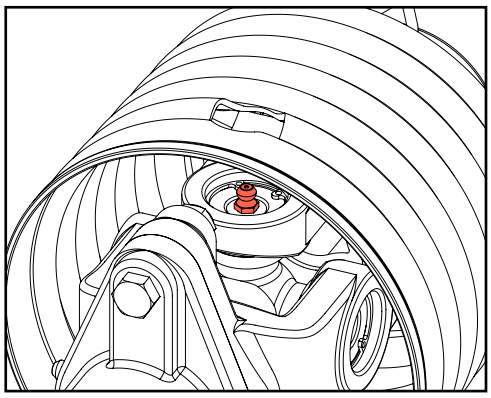
Tractor Yoke 2



Shear Bolt Yoke 1



Shear Bolt Yoke 2



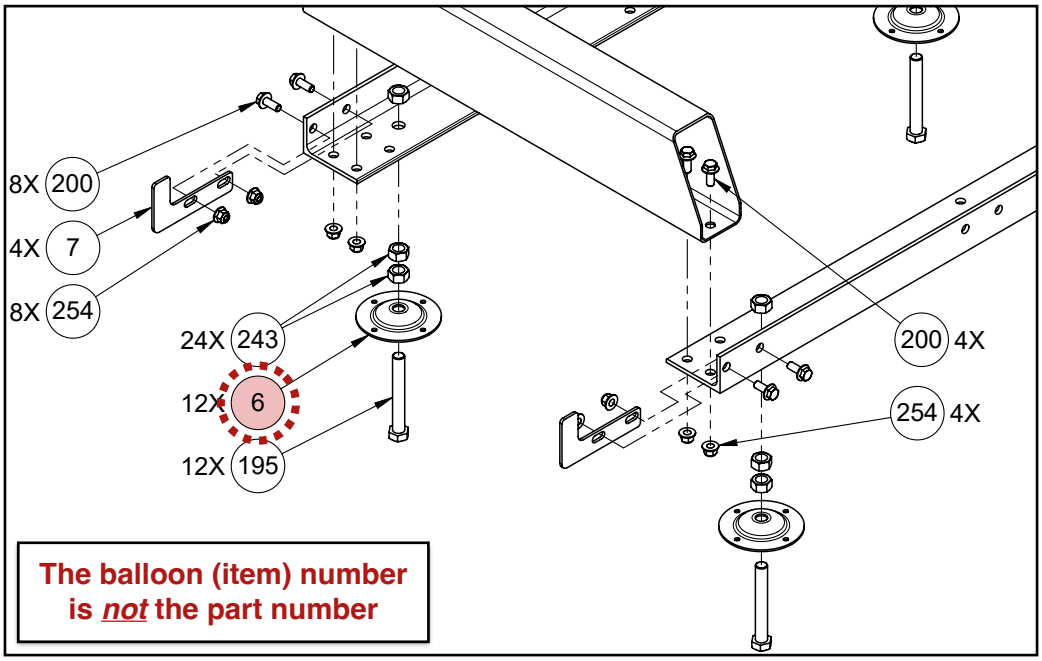
Shear Bolt Yoke 3

TROUBLESHOOTING

Problem/Issue	Possible Causes	Resolution Options
Brush is feeding too slowly	1. PTO RPM below 540. 2. Blades are dull. 3. Improper bed plate gap.	1. Adjust tractor RPMs to 540 at output. 2. Reverse, sharpen, or replace blades. Refer to page 42 & page 44. 3. Re-set bed plate gap. Refer to page 45.
Brush exiting discharge chute is stringy	1. Blades are dull. 2. Brush is excessively sappy.	1. Reverse, sharpen, or replace blades. Refer to page 42 & page 44. 2. Clean blades and bed plate.
Excessive clogging	1. Blades are dull. 2. Blades are covered with sap. 3. Improper bed plate gap. 4. PTO RPM below 540.	1. Reverse, sharpen, or replace blades. Refer to page 42 & page 44. 2. Clean blades and bed plate. 3. Re-set bed plate gap. Refer to page 45. 4. Adjust tractor RPMs to 540 at output.
Belts slipping or squeaking	1. Belt tension not set properly. 2. Belt is old/worn.	1. Replace both belts. Refer to page 49. 2. Replace the tensioner spring.
Excessive noise coming from flywheel bearings	1. Bearings not sufficiently lubricated. 2. Bearings are worn.	1. Grease bearings. Refer to page 52. 2. Replace bearings. Please contact Woodland Mills for bearing replacement instructions.

REPLACEMENT PARTS ORDERING

When ordering replacement parts, first locate the balloon number(s) from the appropriate ***exploded assembly view*** as shown in the example below:



Next, turn to the ***Parts List*** section and locate the balloon number in the "**Item**" column:

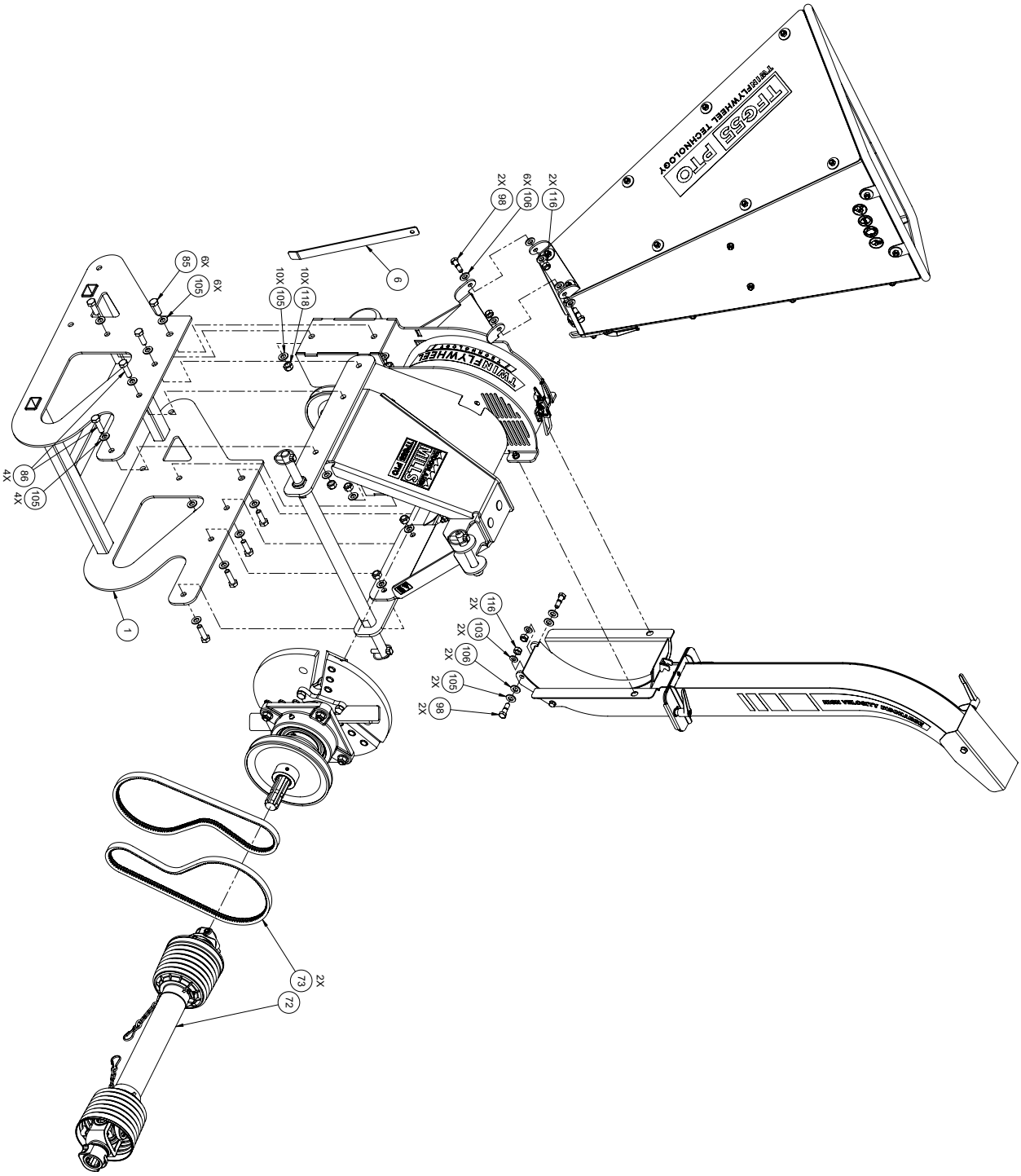
PARTS LIST

Item	Quantity		Part No.	Description
	14 hp	9.5 hp		
1	4	4	0001073	TRACK RAIL, 58.5 mm TALL
2	2	2	0001075	LOG BUNK, END
3	2	2	0001080	LOG BUNK, MID
4	1	1	0001084	LOG BUNK, CENTER
5	2	2	0001072	REINFORCEMENT PLATE, 90 X 200 mm
6	12	12	0001071	LEVELLING FOOT BASE
7	4	4	0001055	CARRIAGE STOP
8	1	1	0001062	LOG CLAMP SHAFT AND BRACKET WELDMENT

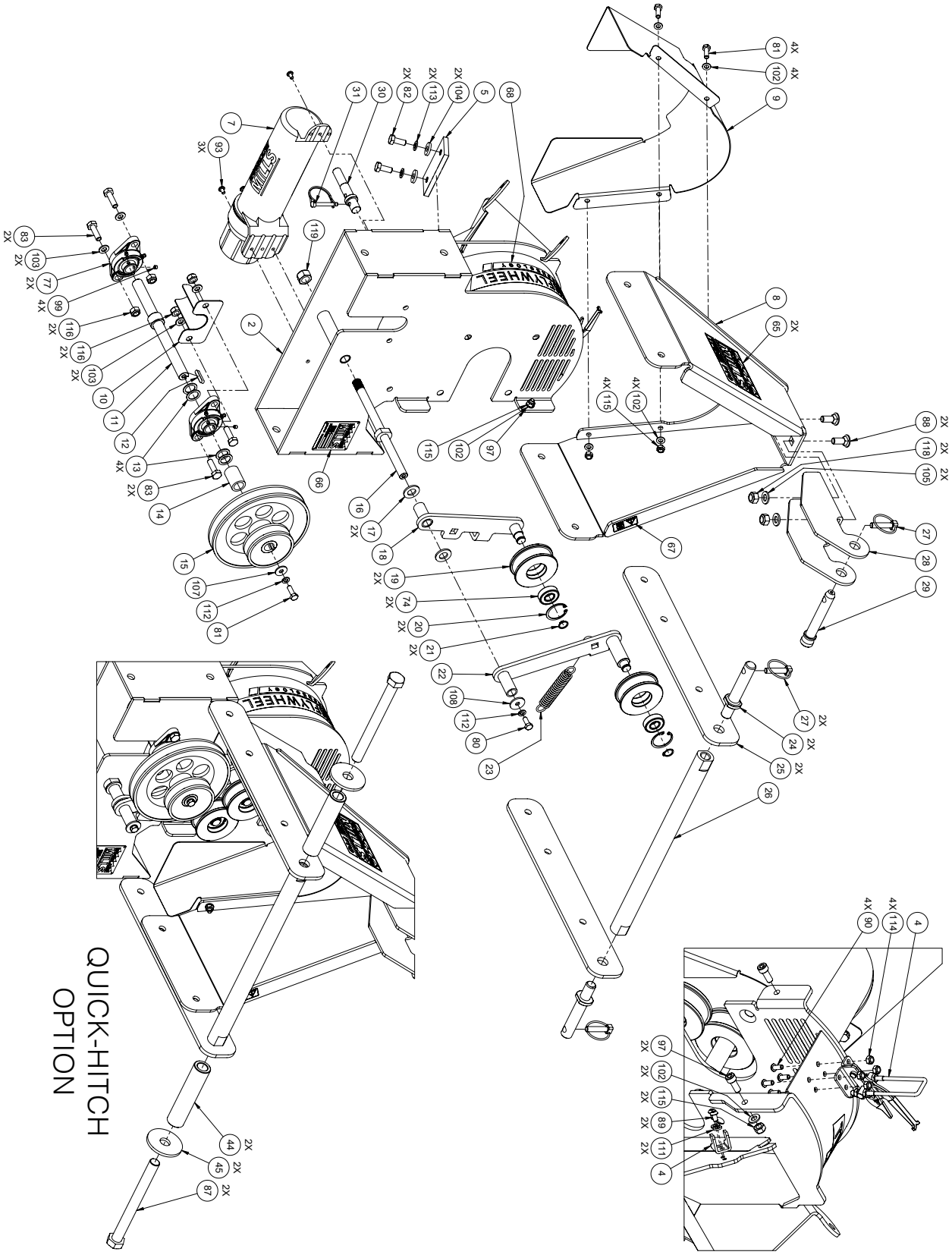
Record the part number (e.g. *0001071, HHB-MBM080FCJ, etc.*) in the "**Part No.**" column.

Contact Woodland Mills through the website or via phone/email. If possible, include the invoice or sales number from the purchased product so an associated account can be located. If the account has multiple addresses on file, please indicate to which address the replacement part(s) will be shipped.

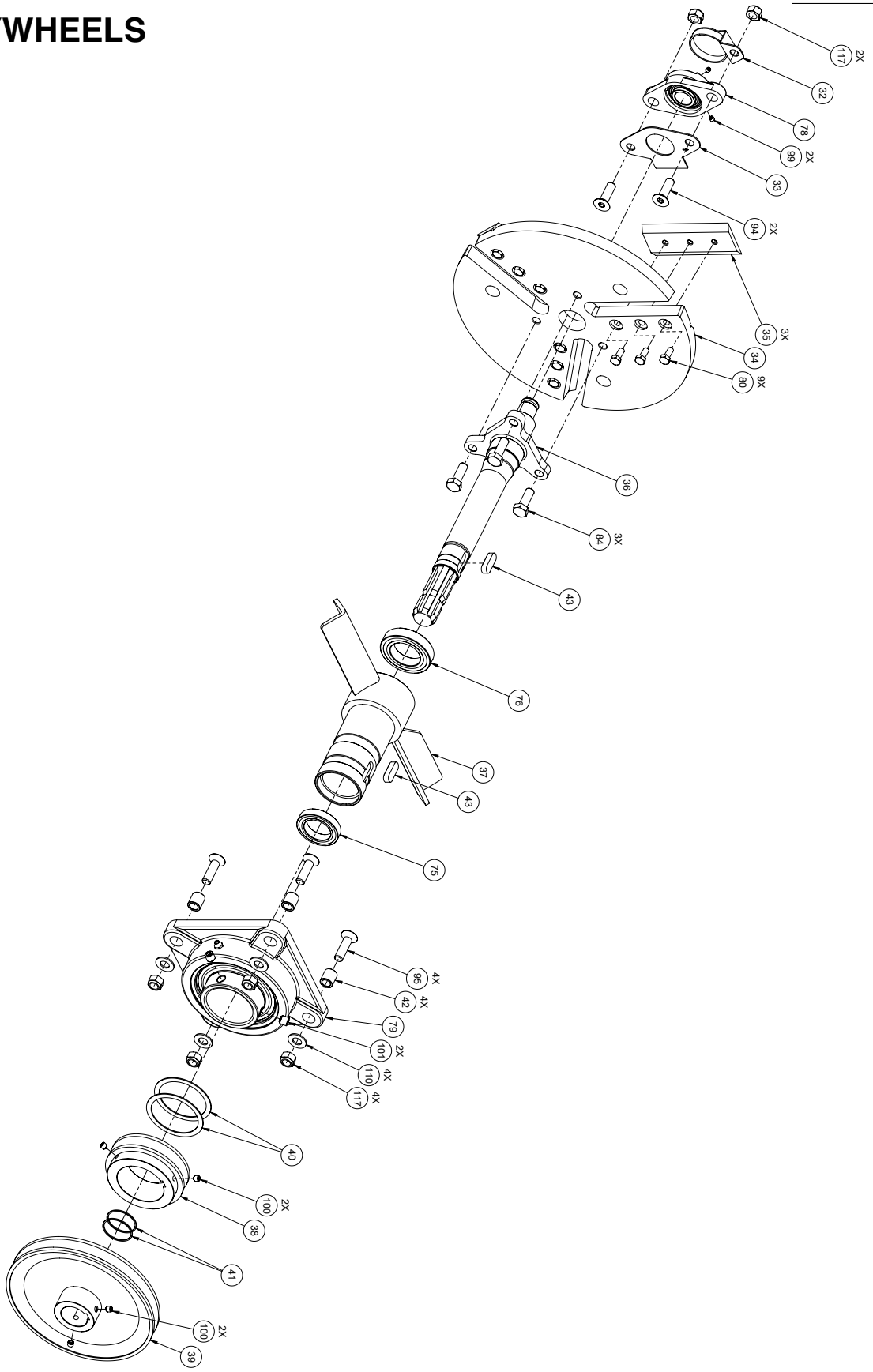
EXPLODED ASSEMBLY VIEWS
COMPLETE ASSEMBLY



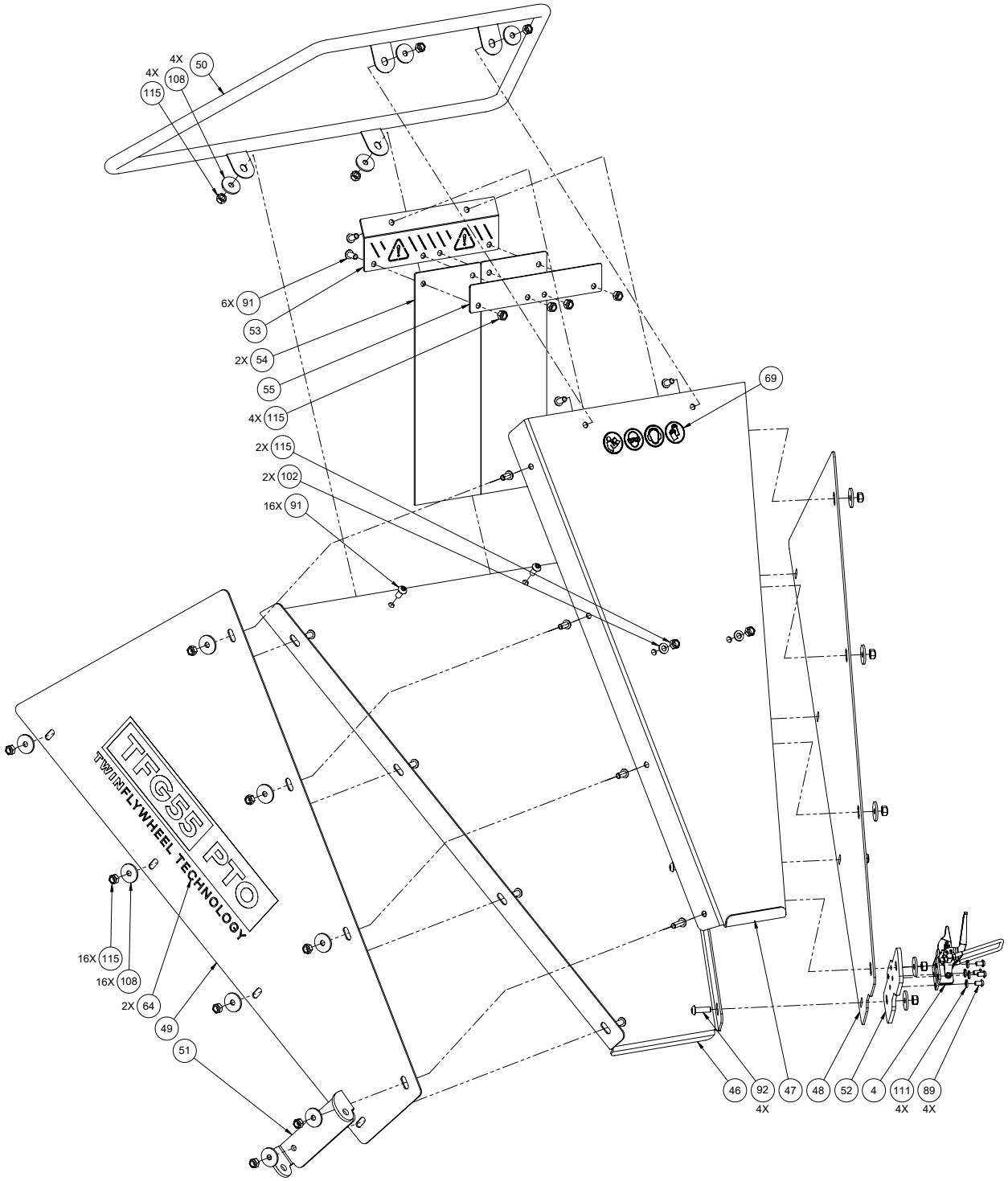
LOWER FLYWHEEL HOUSING



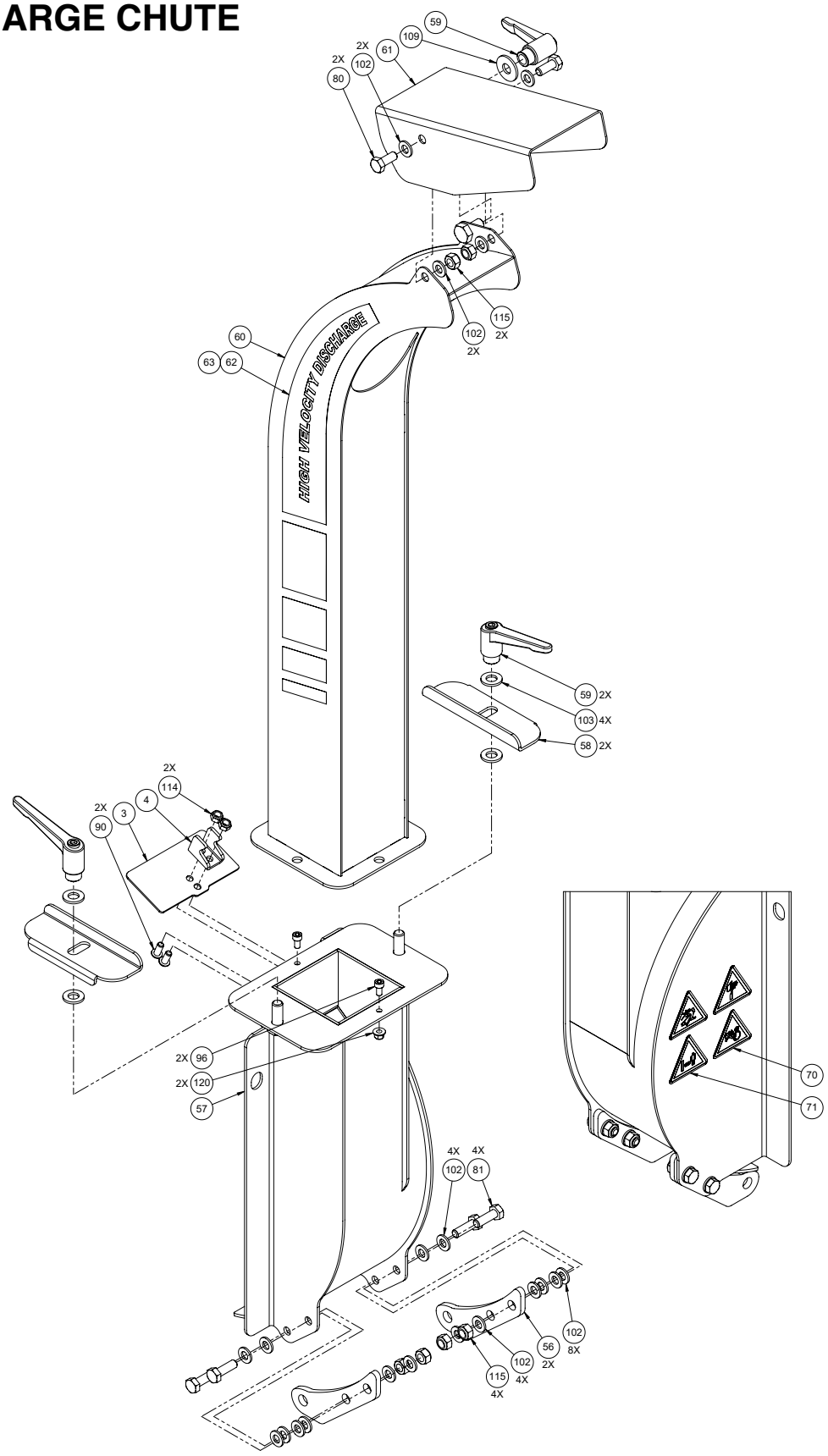
FLYWHEELS


117 2X
32
78
99 2X
33
94 2X
35 3X
34
80 9X
36
84 3X
43
76
37
43
75
95 4X
42 4X
79
101 2X
110 4X
117 4X
40
100 2X
38
41
100 2X
39

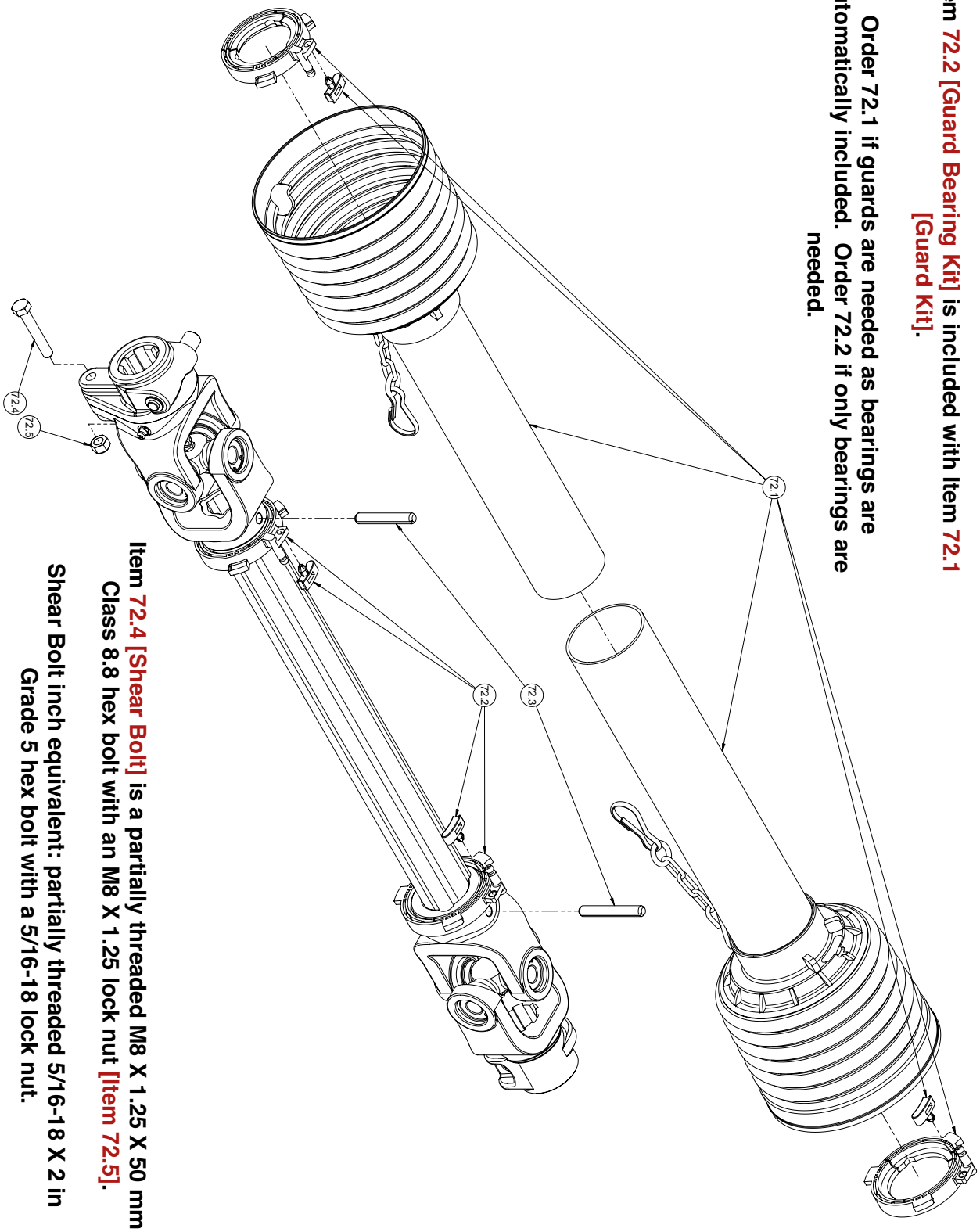
INFEED CHUTE



DISCHARGE CHUTE



PTO SHAFT



Item 72.2 [Guard Bearing Kit] is included with Item 72.1 [Guard Kit].

Order 72.1 if guards are needed as bearings are automatically included. Order 72.2 if only bearings are needed.

Item 72.4 [Shear Bolt] is a partially threaded M8 X 1.25 X 50 mm Class 8.8 hex bolt with an M8 X 1.25 lock nut [Item 72.5].

Shear Bolt inch equivalent: partially threaded 5/16-18 X 2 in Grade 5 hex bolt with a 5/16-18 lock nut.

PARTS LIST

Item	Qty	Part No.	Description
1	1	0010238	BASE
2	1	0010478	LOWER FLYWHEEL HOUSING
3	1	0010602	DUST COVER, DISCHARGE
4	2	0001304	LATCH-STYLE TOGGLE CLAMP, SAFETY LOCK
5	1	0009160	BED PLATE, 112 X 52 X 9.4 mm
6	1	0010411	BED PLATE GAP TOOL
7	1	0001655	MANUAL TUBE
8	1	0010237	BELT GUARD
9	1	0010230	BELT COVER
10	1	0009900	LAYSHAFT COVER
11	1	0009886	LAYSHAFT
12	1	0004845	PARALLEL KEY, 6 X 6 mm, 32 mm LG
13	4	0002703	SPACER, 20 ID X 28 OD X 1.5 mm LG
14	1	0009887	SPACER, 20 ID X 28 OD X 41 mm LG
15	1	0009853	V-BELT PULLEY, DUAL, 20 mm SHAFT, 200/95 mm DIA
16	1	0009888	IDLER PIVOT PIN, 16 mm DIA, 107 mm LG, M16 X 2 THD
17	2	0005560	SPACER, 17 ID X 32 OD X 3 mm LG
18	1	0009927	IDLER ARM, INNER
19	2	0008985	IDLER PULLEY, SINGLE BEARING, 21 mm WD, 80 mm DIA
20	2	0004816	RETAINING RING, INTERNAL, 40 mm BORE (42.5 mm GROOVE)
21	2	0004798	RETAINING RING, EXTERNAL, 17 mm SHAFT (16.2 mm GROOVE)
22	1	0009926	IDLER ARM, OUTER
23	1	0001192	EXTENSION SPRING, HOOK ENDS, 21 mm OD, 3 mm DIA WIRE, 100 mm LG
24	2	0001738	HITCH PIN, LOWER, CAT 1, M20 X 2.5, 7/8 in [22 mm] DIA, 3 in [75 mm] USEABLE LG
25	2	0010239	3-POINT HITCH LOWER ARM
26	1	0009943	CONNECTING ROD
27	3	0004705	LINCH PIN, 10 mm DIA, 38 mm USABLE LG, 45 mm LG
28	1	0009933	3- POINT HITCH UPPER ARM
29	1	0001156	HITCH PIN, UPPER, CAT 1, 3/4 in [19 mm] DIA, 3-1/2 in [90 mm] USEABLE LG
30	1	0001796	FLYWHEEL LOCKING PIN
31	1	0004728	LOCKING PIN, ROUND, 1/4 in DIA, 1-3/8 in USABLE LG, 2 in LG
32	1	0011280	FLYWHEEL SHAFT COVER, UCFL205 BEARING
33	1	0009656	FLYWHEEL SHAFT DUST COVER, UCFL205 BEARING
34	1	0010249	FLYWHEEL
35	3	0010422	FLYWHEEL BLADE, 140.5 X 57 X 7 mm, TAPPED
36	1	0010250	FLYWHEEL SHAFT
37	1	0010251	IMPELLER
38	1	0009848	V-BELT PULLEY, 70 mm SHAFT, 116 mm DIA
39	1	0009923	V-BELT PULLEY, 39 mm SHAFT, 220 mm DIA
40	2	0009377	SPACER, 70.6 ID X 84.5 OD X 1.5 mm THK
41	2	0009367	SPACER, 40.6 ID X 44 OD X 1.5 mm THK
42	4	0009383	SPACER, 12.5 ID X 18.5 OD X 20 mm THK
43	2	0009852	PARALLEL KEY, 12 X 8 mm, 35 mm LG
44	2	0007078	ADAPTER PIN, QUICK-HITCH, 21 ID X 34 OD X 150 mm LG
45	2	0011352	ADAPTER FLANGE, QUICK-HITCH, 21 ID X 72 OD X 6 mm THK

Item	Qty	Part No.	Description
46	1	0010480	INFEED CHUTE BOTTOM PANEL
47	1	0010479	INFEED CHUTE TOP PANEL
48	1	0010481	INFEED CHUTE LEFT SIDE PANEL
49	1	0010482	INFEED CHUTE RIGHT SIDE PANEL
50	1	0010483	ROUND EDGE BAR, INFEED CHUTE
51	1	0010490	HINGE, INFEED CHUTE
52	1	0010497	LATCH PLATE, INFEED CHUTE
53	1	0010245	CURTAIN BRACKET
54	2	0010246	CURTAIN
55	1	0010248	CURTAIN PLATE
56	2	0010199	HINGE PLATE, DISCHARGE SIDE HOUSING
57	1	0010227	DISCHARGE SIDE HOUSING
58	2	0009804	DISCHARGE CHUTE RETAINER PLATE, CLAMPING
59	3	0001786	HANDLE, ADJUSTABLE POS, 78 X 54 mm, M10 X 1.5 FEM THD
60	1	0009929	DISCHARGE CHUTE
61	1	0008301	DISCHARGE CHUTE DEFLECTOR
62	1	0010427	LABEL, HIGH VELOCITY DISCHARGE
63	1	0010428	LABEL, HIGH VELOCITY DISCHARGE [REVERSE]
64	2	0010431	LABEL, TFG55 PTO TWIN FLYWHEEL TECHNOLOGY
65	2	0010432	LABEL, TFG55 PTO W/WOODLAND MILLS LOGO
66	1	0006495	LABEL, SERIAL NUMBER, PTO
67	1	0010603	LABEL, PTO 540 RPM WARNING LABEL
68	1	0010918	LABEL, TWIN FLYWHEEL TECHNOLOGY
69	1	0010920	LABEL, CHIPPER MANDATORY SYMBOLS
70	1	0010921	LABEL, CHIPPER INFEED WARNING SYMBOLS
71	1	0010922	LABEL, CHIPPER DISCHARGE WARNING SYMBOLS
72	1	0010500	PTO SHAFT, SHEAR PIN, 4S-SERIES
72.1	1	0010540	GUARD KIT, PTO SHEAR BOLT, 4S-SERIES
72.2	1	0010541	GUARD BEARING KIT, PTO SHEAR BOLT, 4S-SERIES
72.3	1	0010542	TRIANGULAR YOKE PIN KIT, PTO SHEAR BOLT, 4S-SERIES
72.4	1	HHB-MBJ105PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 50 mm LG, 22 mm LG THD
72.5	1	HLN-MBJCH	LOCK NUT, CLS 8, M8 X 1.25
73	2	BX40	V-BELT, COGGED, BX40
74	2	6203-2RS	BALL BEARING, SEALED, 17 mm SFT, 40 mm HSG, 12 mm WD
75	1	6908-2RS	BALL BEARING, SEALED, 40 mm SFT, 62 mm HSG, 12 mm WD
76	1	6009-2RS	BALL BEARING, SEALED, 45 mm SFT, 75 mm HSG, 16 mm WD
77	2	UCFL204	FLANGE BEARING, OVAL, 2-BOLT, 20 mm SFT, 90 mm C-C
78	1	UCFL205	FLANGE BEARING, OVAL, 2-BOLT, 25 mm SFT, 99 mm C-C
79	1	UCF214	FLANGE BEARING, SQ, 4-BOLT, 70 mm SFT, 152 mm C-C
80	12	HHB-MBJ075FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 20 mm LG, FULL
81	9	HHB-MBJ080FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 25 mm LG, FULL
82	2	HHB-MBM080FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 25 mm LG, FULL
83	4	HHB-MBM090FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 35 mm LG, FULL
84	3	HHB-MBU090FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.25, 35 mm LG, FULL
85	6	HHB-MBR090FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 35 mm LG, FULL
86	4	HHB-MBR095FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 40 mm LG, FULL
87	2	HHB-MCF265PCJ	HEX HEAD BOLT, CLS 8.8, M20 X 2.5, 210 mm LG, 46 mm LG THD
88	2	SNC-MBR085FCJ	CARRIAGE BOLT, SQ NECK, CLS 8.8, M12 X 1.75, 30 mm LG, FULL

Item	Qty	Part No.	Description
89	6	BHS-MBE059FCM	BUTTON HEAD SCREW, CLS 10.9, M6 X 1, 10 mm LG, FULL
90	6	BHS-MBE067FTA	BUTTON HEAD SCREW, SST, M6 X 1, 14 mm LG, FULL
91	22	BHS-MBJ073FCM	BUTTON HEAD SCREW, CLS 10.9, M8 X 1.25, 18 mm LG, FULL
92	4	BHS-MBJ080FCM	BUTTON HEAD SCREW, CLS 10.9, M8 X 1.25, 25 mm LG, FULL
93	3	PPH-MBE059FCE	SCREW, PPH, CLS 4.8, M6 X 1, 10 mm LG, FULL
94	2	HFH-MBR095FCM	SCREW, HFH, CLS 10.9, M12 X 1.75, 40 mm LG, FULL
95	4	HFH-MBR100FCM	SCREW, HFH, CLS 10.9, M12 X 1.75, 45 mm LG, FULL
96	2	SHC-MBA059FCP	SHCS, CLS 12.9, M5 X 0.8, 10 mm LG, FULL
97	2	SHC-MBJ075FCP	SHCS, CLS 12.9, M8 X 1.25, 20 mm LG, FULL
98	4	HHS-MBM057069AJ	SHLDR SCREW, HEX HEAD, ALLOY, 11 X 15 mm LG SHLDR, M10 X 1.5 X 20 mm LG THD
99	6	KCS-MBE051GR	SET SCREW, KNURLED CUP POINT, GR 45H, M6 X 1, 6 mm LG
100	4	KCS-MBJ055GR	SET SCREW, KNURLED CUP POINT, GR 45H, M8 X 1.25, 8 mm LG
101	2	KCS-MBT063GR	SET SCREW, KNURLED CUP POINT, GR 45H, M12 X 1.5, 12 mm LG
102	32	FTW-MBJ000AJ	FLAT WASHER, M8
103	10	FTW-MBM000AJ	FLAT WASHER, M10
104	2	FTW-MBM165AJ	FLAT WASHER, DIN7349, M10, 4 mm THK
105	24	FTW-MBR000AJ	FLAT WASHER, M12
106	8	FTW-MBR000NA	FLAT WASHER, M12, NYLON
107	1	FDW-MBJ073000AJ	FENDER WASHER, M8, 24 mm OD
108	21	FDW-MBJ079000AJ	FENDER WASHER, M8, 30 mm OD
109	1	FDW-MBM075000AJ	FENDER WASHER, M10, 26 mm OD
110	4	FDW-MBR076145AJ	FENDER WASHER, M12, 27 mm OD, 2 mm THK
111	6	SLW-MBEAJ	SPLIT LOCK WASHER, M6
112	2	SLW-MBJAJ	SPLIT LOCK WASHER, M8
113	2	SLW-MBMAJ	SPLIT LOCK WASHER, M10
114	6	HLN-MBETA	LOCK NUT, SST, M6 X 1
115	38	HLN-MBJCH	LOCK NUT, CLS 8, M8 X 1.25
116	8	HLN-MBMCH	LOCK NUT, CLS 8, M10 X 1.5
117	6	HLN-MBTCH	LOCK NUT, CLS 8, M12 X 1.5
118	12	HLN-MBRCH	LOCK NUT, CLS 8, M12 X 1.75
119	1	HLN-MCACH	LOCK NUT, CLS 8, M16 X 2
120	2	FLN-MBACH	LOCK NUT, FLANGED, CLS 8, M5 X 0.8

NOTES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