TF810 PRO PTO WOOD CHIPPER

PRO
-SERIES-
TWINFLYWHEEL
TECHNOLOGY

OPERATOR'S MANUAL

0007030-M-EN: Rev J
Publication Date: 23-Oct-2024

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 twin flywheel 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 twin flywheel 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, WARNING & INFORMATION SYMBOLS

Throughout this operator's manual and on the wood chipper, there are safety, warning, and information symbols. Please heed and obey all warnings.

Symbol	Description
	Refer to instruction/operator's manual
	Wear eye protection
	Wear a face shield
	Wear ear protection
	Wear protective gloves
	General warning
	Sharp element warning
	Moving parts warning
	Flying debris warning
	Stand clear warning

****Look for symbols in the upper-right corner of each page throughout the manual.****

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.
- Shut off the engine and be sure the PTO driveline has 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 would allow a 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

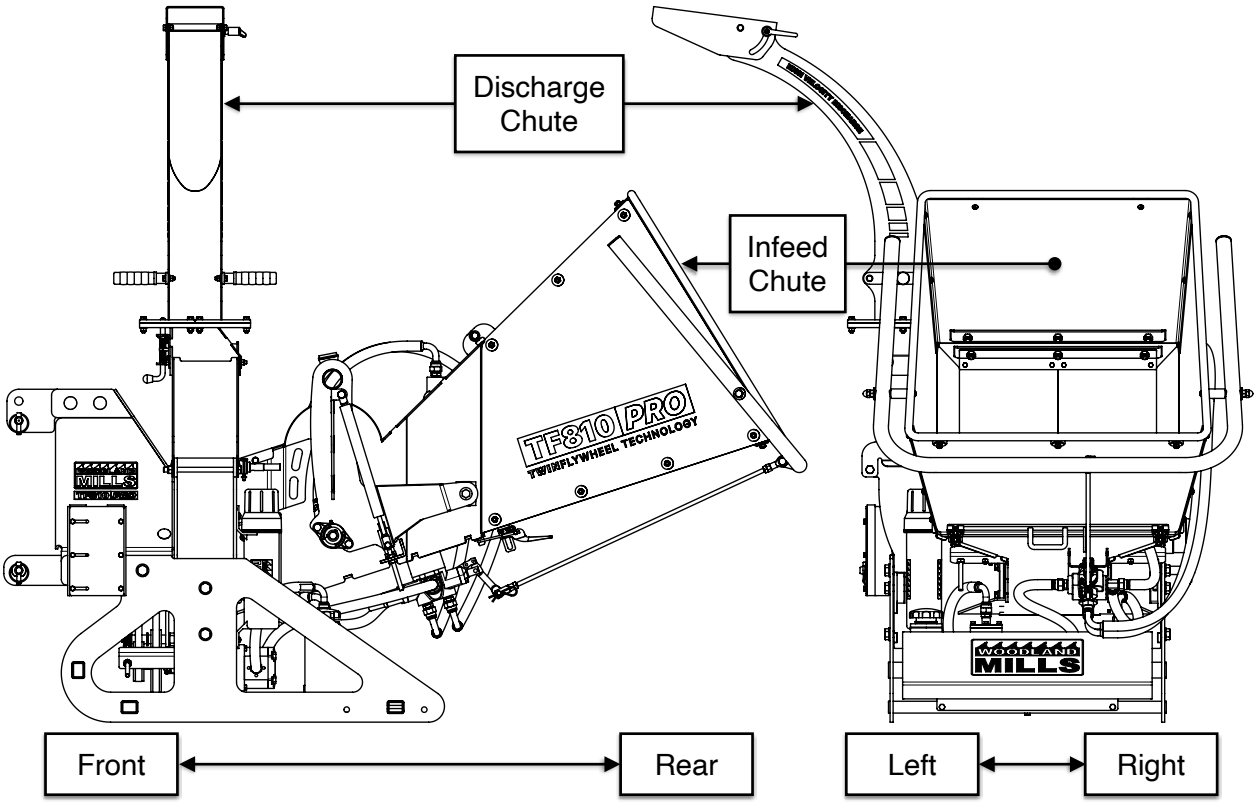
- **Keep work area clean**, free of clutter and well lit. Cluttered and dark work areas can cause accidents.
- **Do not use your wood chipper where there is a risk of causing a fire or an explosion**; e.g. in the presence of flammable liquids, gasses, or dust. Power tools create sparks which may ignite 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

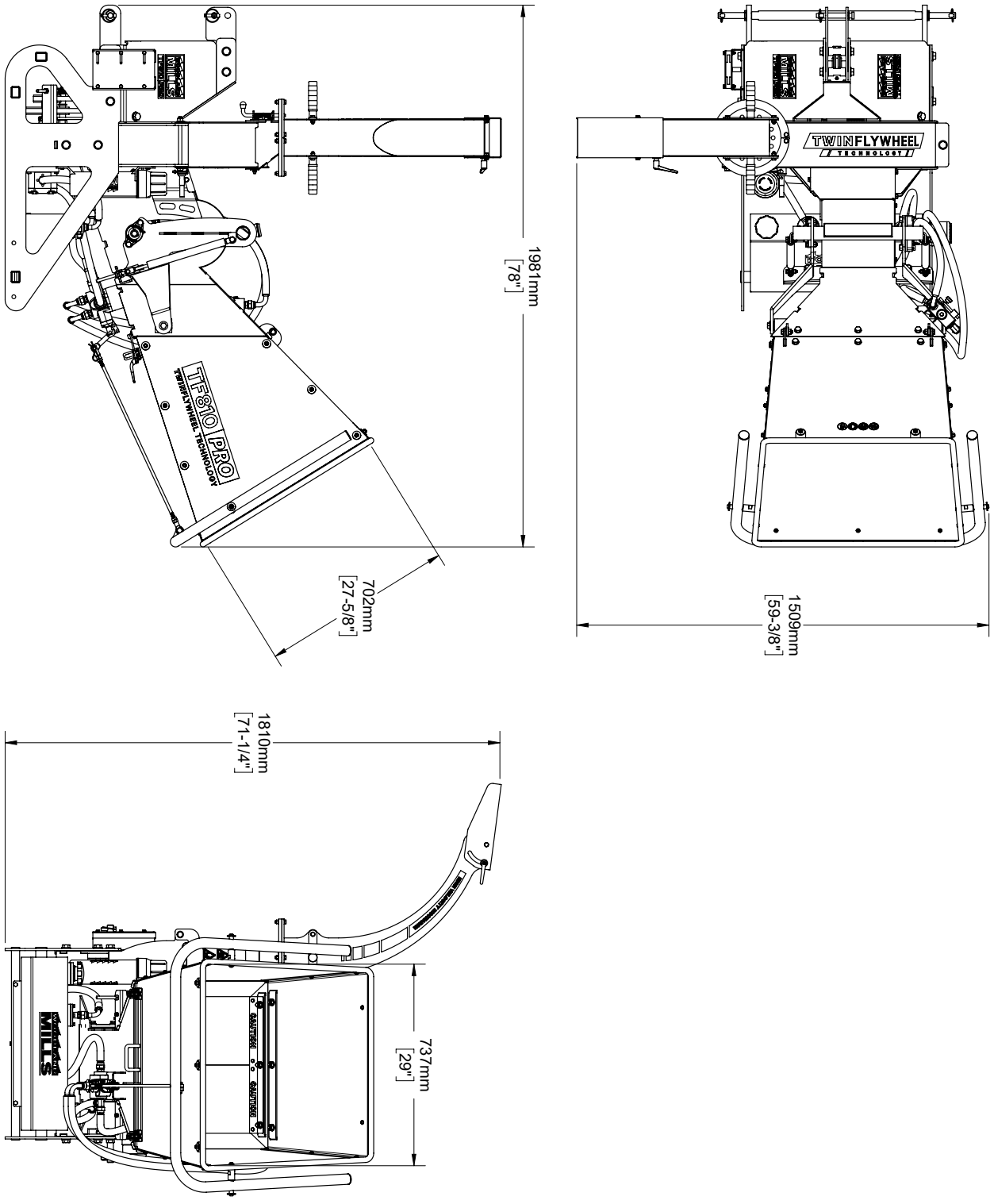
- **Always be sure the operator is familiar** with proper safety precautions and operation techniques before using machine.
- **Do not force the tool.** Tools do a better and safer job when used in the manner for which they are designed.
- **Turn off the tractor engine** and disconnect the PTO shaft 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 8" [203 mm] in diameter** or for any purpose other than chipping brush as described in this manual.

TECHNICAL SPECIFICATIONS

Component	TF810 PRO Specification
Drive System	PTO
Transport	3-Point Hitch
Minimum HP Required (at PTO)	35 hp
In-Feed System	Hydraulic
Hydraulic Oil	ISO 32 (ISO 46 for warmer climates)
Hydraulic Tank Volume	5 gal [19 L]
Hydraulic Requirement (Tractor)	None. Self contained.
PTO Shear Bolt	Class 8.8 M8 X 50 mm Hex Bolt
Blade Dimensions	6-1/16 X 2-23/32 X 5/16 in [154 X 69 X 8 mm] (8 total)
Blade Hardware	Class 8.8 M10 X 20 mm Hex Head Bolts (3 per blade)
Infeed Roller Diameter	8 in [203 mm] at Tooth Tip
Infeed Chute Dimensions (H X W)	29 X 27-⅝ in [737 X 702 mm]
Product Weight	994 lb [451 kg]
Product Shipping Weight	1139 lb [517 kg]

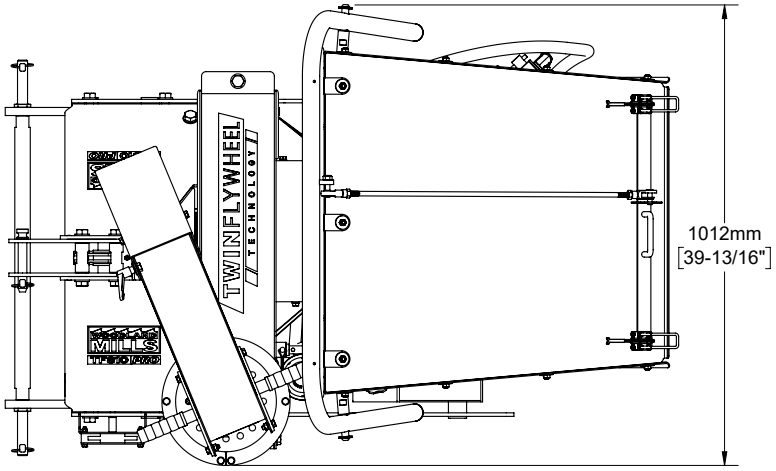


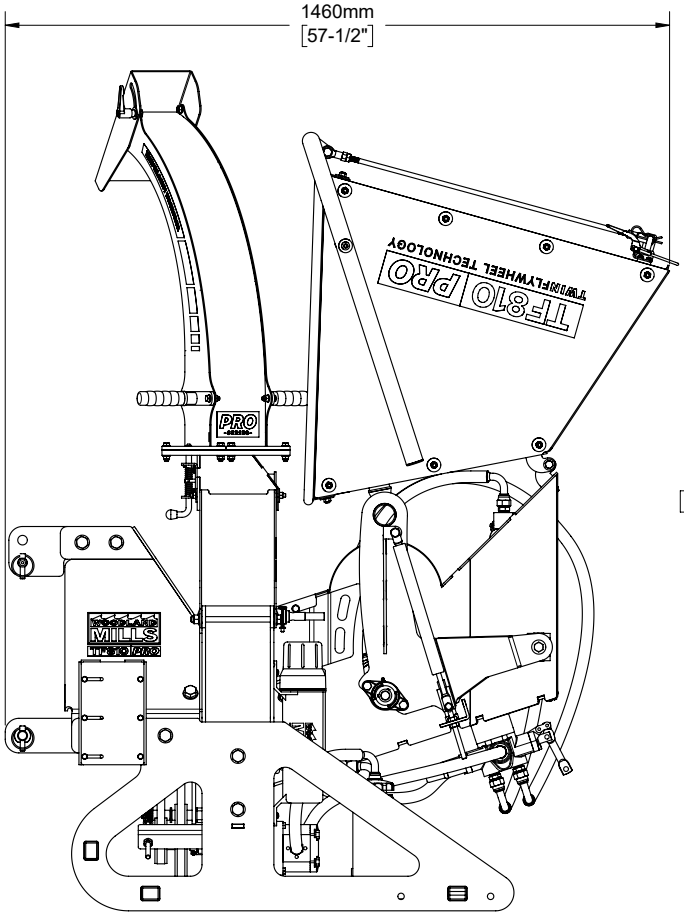
i. OVERALL DIMENSIONS—OPERATING STATE

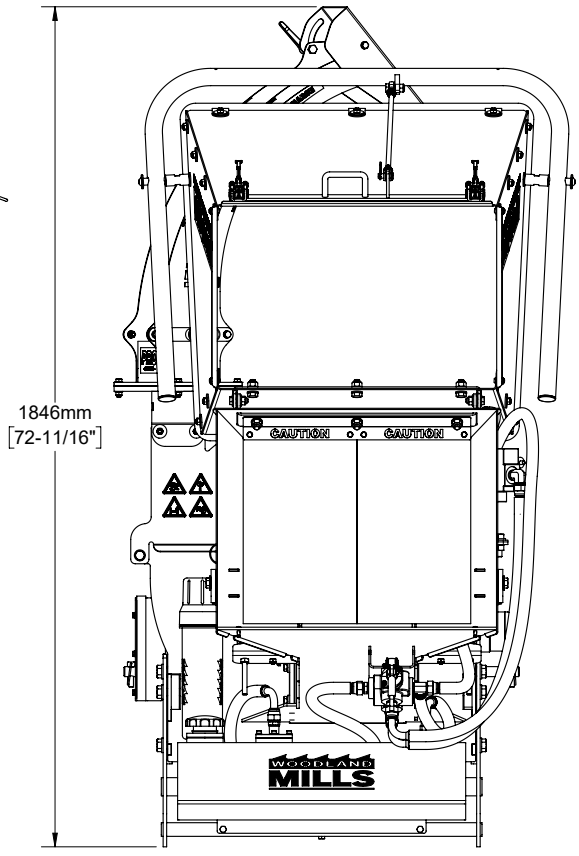


ii. OVERALL DIMENSIONS—STORED STATE

The discharge chute deflector must be pointing down in order to clear the control arm on the infeed chute when it is flipped upward for storage. See section ***STORAGE*** for more information.



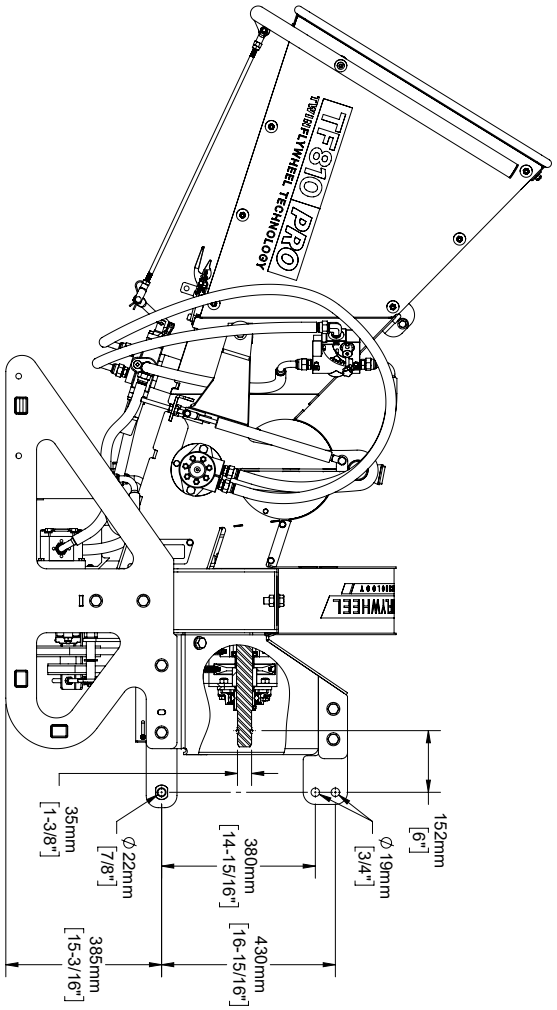


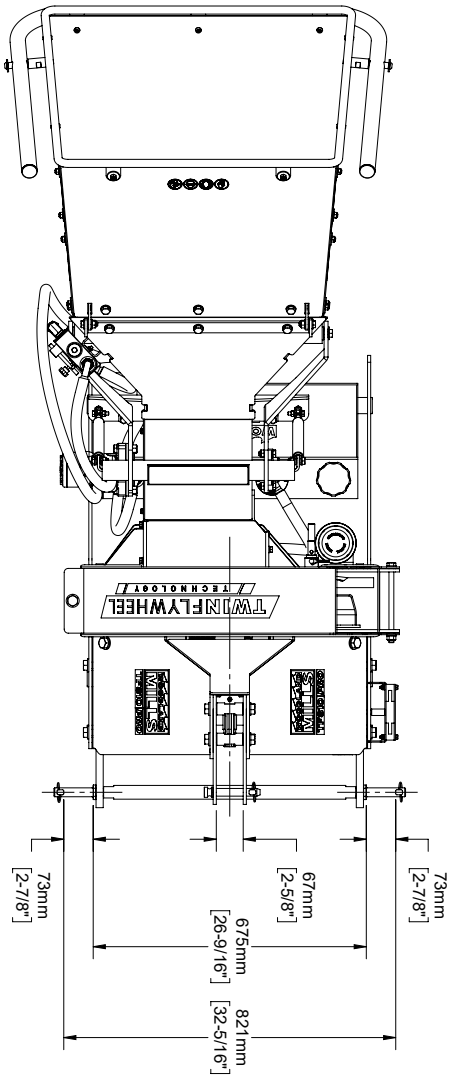


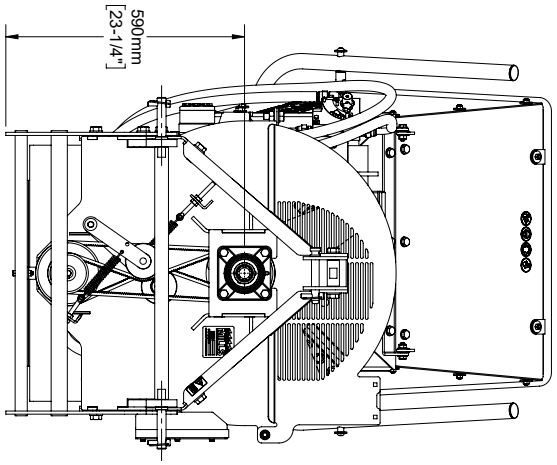
iii. 3-POINT HITCH DIMENSIONS

CATEGORY 1 HITCH

The *Category 1* hitch is designed to work with tractors in the horsepower range of 35-100+ hp. Top hitch pin is ¾" [19 mm] diameter and the lower hitch pins are ⅞" [22 mm] diameter.



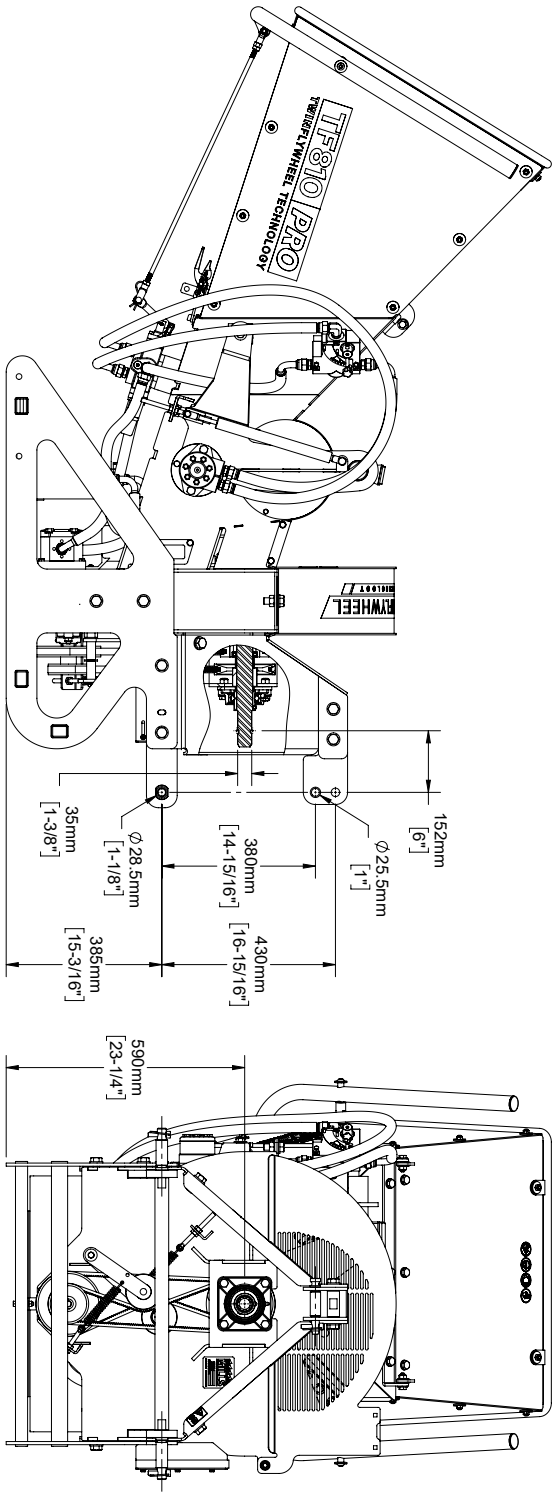


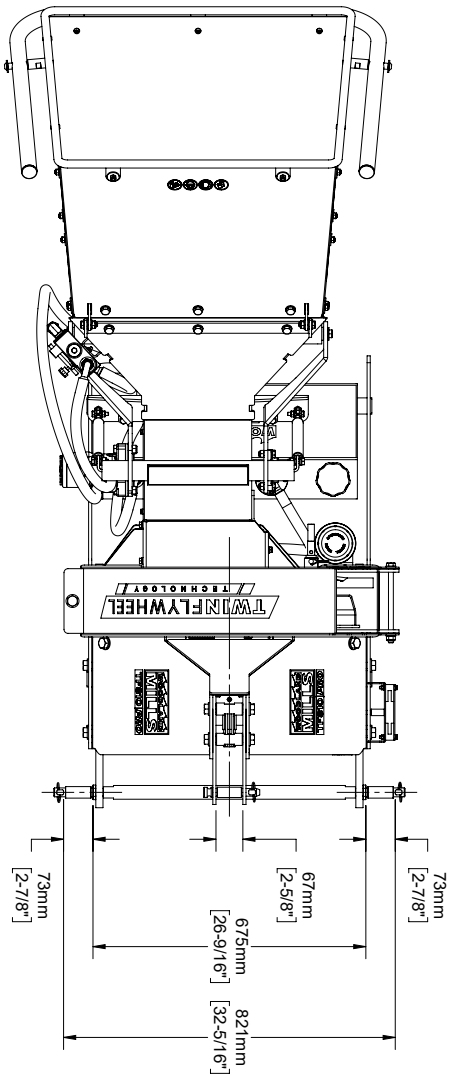


Discharge chute removed from views for clarity.

CATEGORY 2 HITCH PIN BUSHINGS

The *Category 2* hitch pin bushings work in conjunction with the *Category 1* hitch pins allowing Category 2 tractors to run the TF810 PRO. Top hitch pin bushing is 1" [25.5 mm] diameter and the lower hitch pin bushings are 1-⅛" [28.5 mm] diameter.

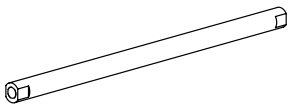
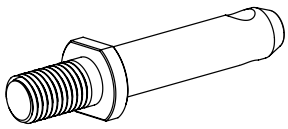
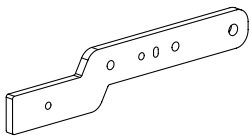
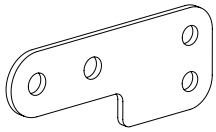
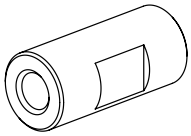
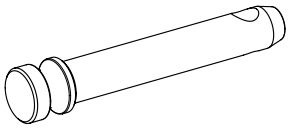
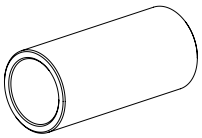
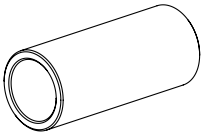
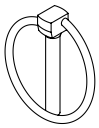
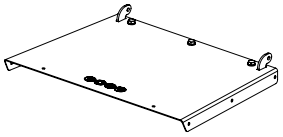


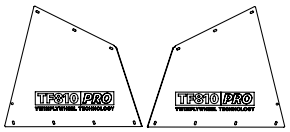
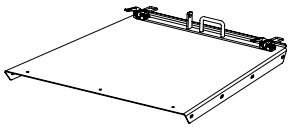
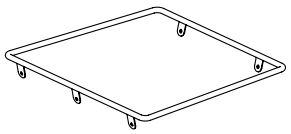
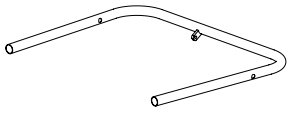
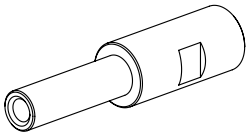
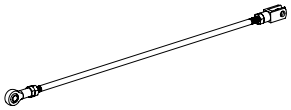
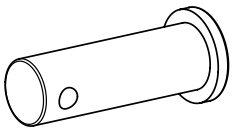
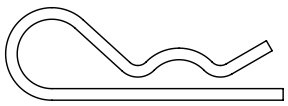
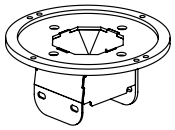
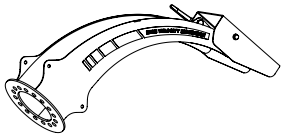


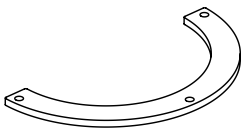
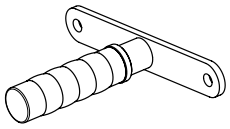
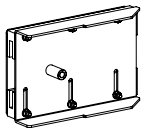
Discharge chute removed from views for clarity.

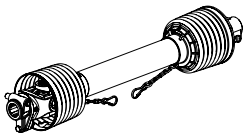
COMPONENT LISTS

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

1x	Connecting Rod [0006728]	
2x	Lower Hitch Pin [0007118]	
2x	Lower Hitch Arm [0007088]	
2x	Upper Hitch Plate [0007036]	
2x	Upper Hitch Bushing [0009856]	
1x	Upper Hitch Pin [0001156]	
2x	Lower Hitch Pin Bushing [0011603]	
1x	Upper Hitch Pin Bushing [0011602]	
3x	Linch Pin [0004705]	
1x	Infeed Chute Top Panel Assembly	

1x 1x	Infeed Chute Side Panels [R: 0008162] [L: 0008161]	
1x	Infeed Chute Bottom Panel Assembly	
1x	Round Edge Bar [0006968]	
1x	Control Arm [0008160]	
2x	Control Arm Spacer [0008193]	
1x	Linkage Rod Assembly	
1x	Clevis Pin 10 mm [0004749]	
1x	Hairpin Cotter Pin [0004760]	
1x	Discharge Chute Nozzle [0003539]	
1x	Discharge Chute Assembly	

2x	Discharge Chute Retainer [0009211]	
2x	Discharge Chute Handle with Grip	
1x	Chainsaw Holder Assembly	

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.

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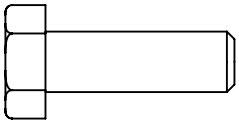
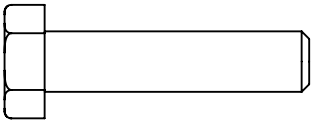
		
6x	HHB-MBJ090FCJ	M8 X 1.25 X 35 mm HEX HEAD BOLT
		
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	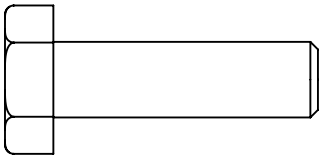	
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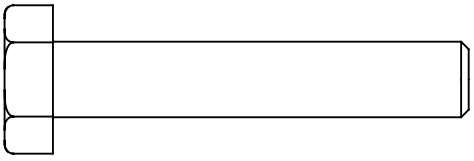
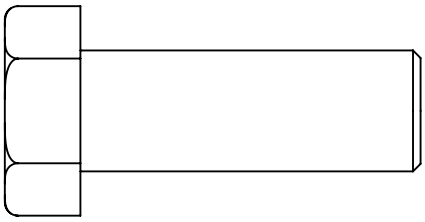
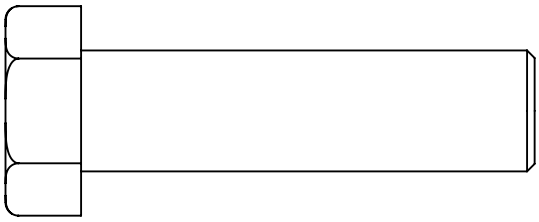
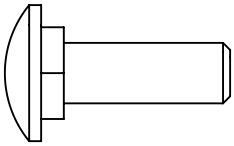
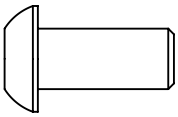
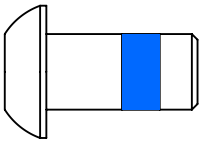
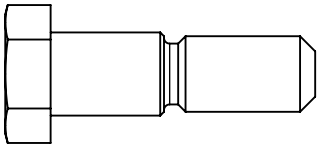
		

4x	HHB-MCA100FCJ	M16 X 2 X 45 mm HEX HEAD BOLT
		
4x	HHB-MCA115PCJ	M16 X 2 X 60 mm HEX HEAD BOLT
		
4x	SNC-MBJ080FCJ	M8 X 1.25 X 25 mm CARRIAGE HEAD BOLT
		
19x	BHS-MBJ073FCM	M8 X 1.25 X 18 mm BUTTON HEAD SCREW
		
4x	BHS-MBM075FCT	M10 X 1.5 X 20 mm BUTTON HEAD SCREW, THREADLOCKER
		
2x	HHS-MBM057069AJ	M10 X 1.5 X 20 mm HEX HEAD SHOULDER SCREW
		

SCALES

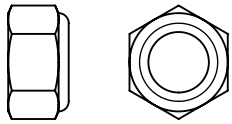
Ruler scales are provided below to double-check bolt and screw lengths if necessary.

CENTIMETRES / MILLIMETRES

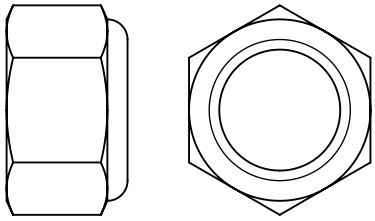
INCHES

NUTS

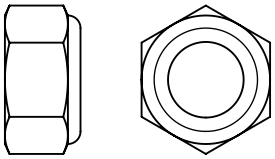
33x	HLN-MBJCH M8 X 1.25 LOCK NUT



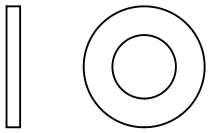
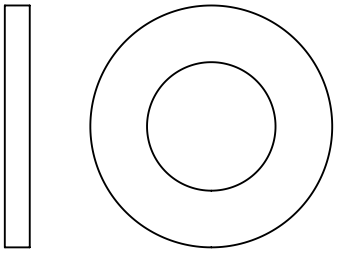
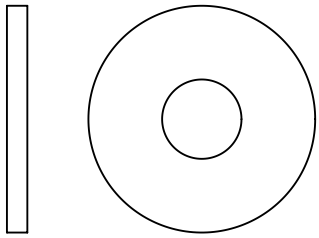
4x	HLN-MCACH M16 X 2 LOCK NUT

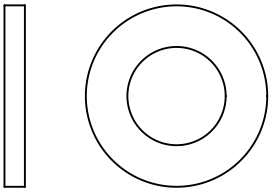
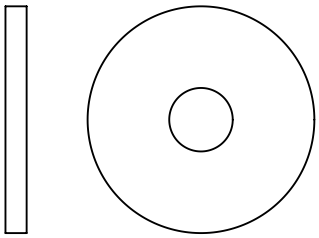
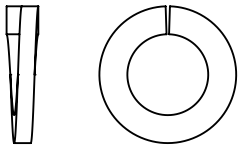


5x	HLN-MBMCH M10 X 1.5 LOCK NUT



WASHERS

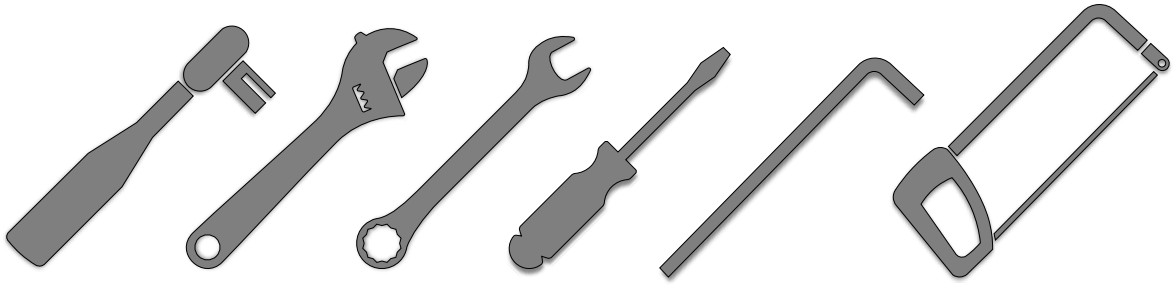
20x	**FTW-MBJ000AJ M8 FLAT WASHER**
	
12x	**FTW-MCA000AJ M16 FLAT WASHER**
	
5x	**FDW-MBM079000AJ M10 FENDER WASHER, 30 mm OD**
	

6x	**FTW-MBR000NA M12 NYLON FLAT WASHER**
	
23x	**FDW-MBJ079000AJ M8 FENDER WASHER, 30 mm OD**
	
1x	**SLW-MBMAJ M10 SPLIT LOCK WASHER**
	

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 [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.

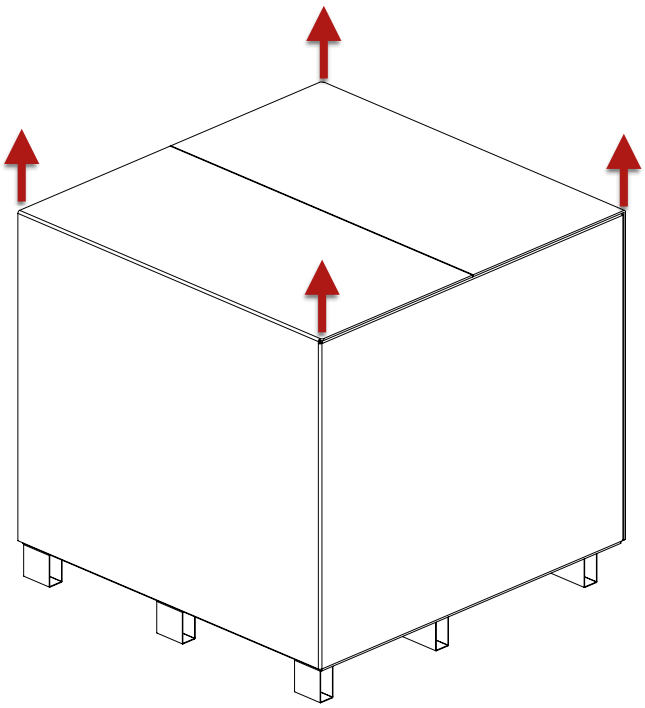


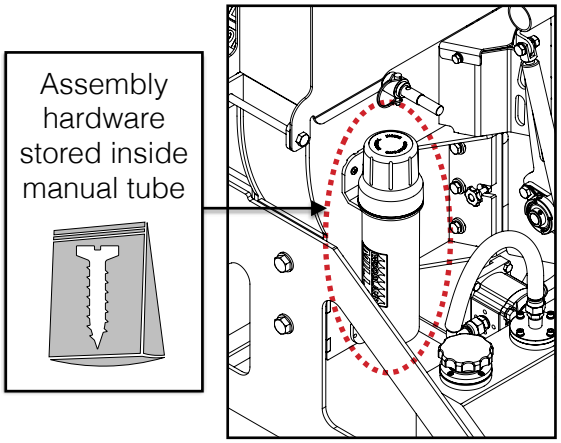
ASSEMBLY

1. 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 crate.

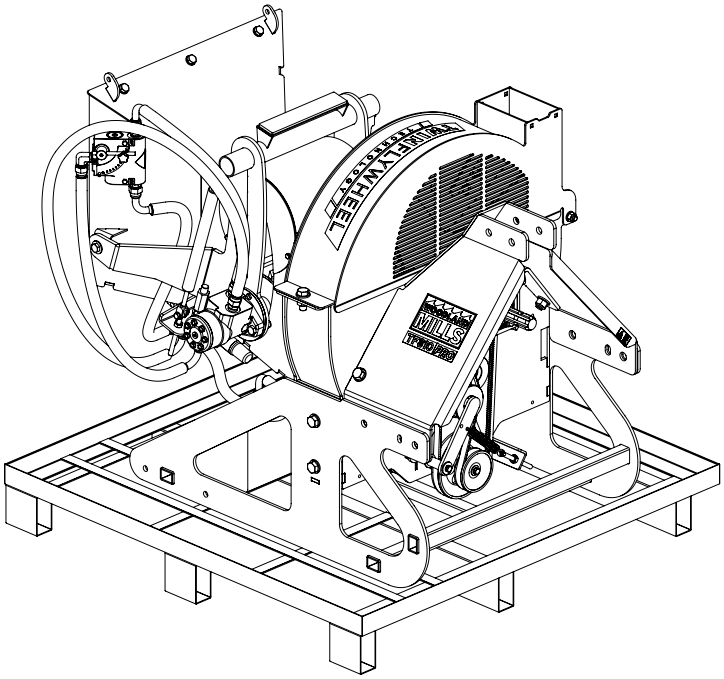




Remove all the loose components from the skid (infeed chute panels, control arm, edge bar, control arm linkage, discharge chute, discharge chute handles, PTO shaft) and set them to the side. Leave the wood chipper on the skid.

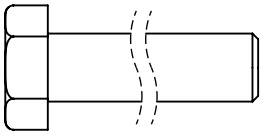
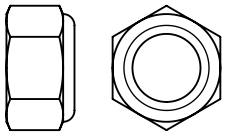
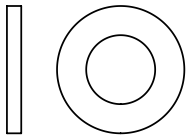
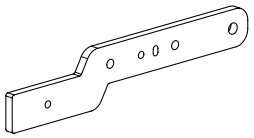
Hardware for assembly is stored inside the manual tube.

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.



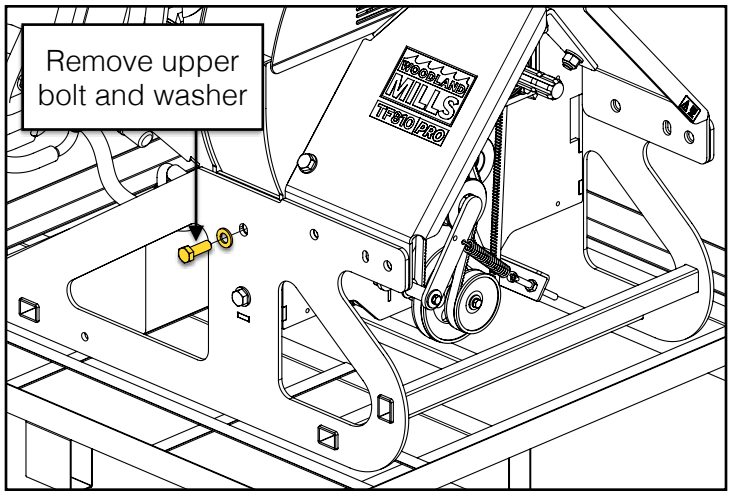
B. LOWER HITCH ARMS

Using the hardware listed below, reorient and then assemble the lower hitch arms.

4x	M16 X 60 mm Hex Bolt		4x	M16 Lock Nut	
8x	M16 Flat Washer		2x	Lower Hitch Arm	

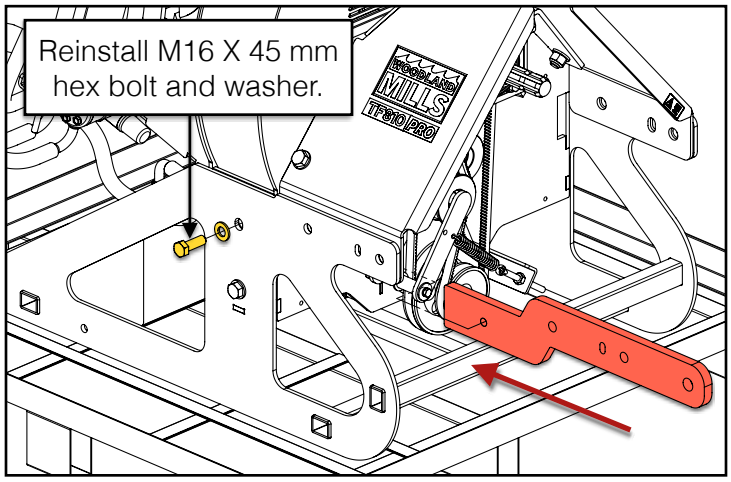
It is imperative that only one side's upper base hardware is removed at a time while the hitch arm for that side is installed. Remove each side's hardware only when instructed.*

Remove the M16 X 45 mm hex bolt and flat washer from the side of the base. Discard the M16 hex nut.



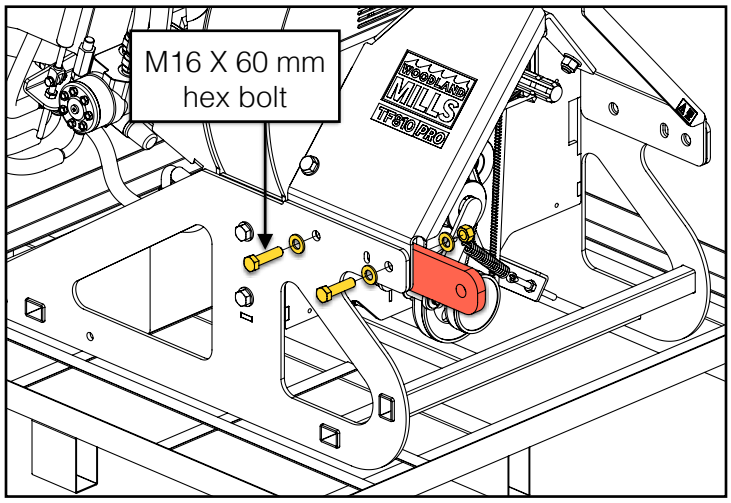
Slide one (1) of the lower hitch arms into the rectangular slot on the left-side of the lower flywheel housing and reinstall the M16 X 45 mm bolt and M16 flat washer that were temporarily removed.

Do *not* fully tighten the hardware until instructed in a later step.

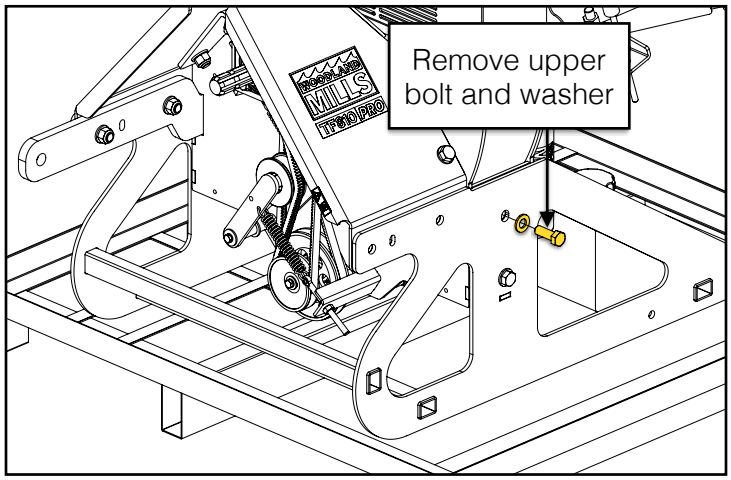


Use two (2) M16 X 60 mm bolts, four (4) M16 flat washers, and two (2) M16 lock nuts to secure the arm.

Do *not* fully tighten the hardware until instructed in a later step.

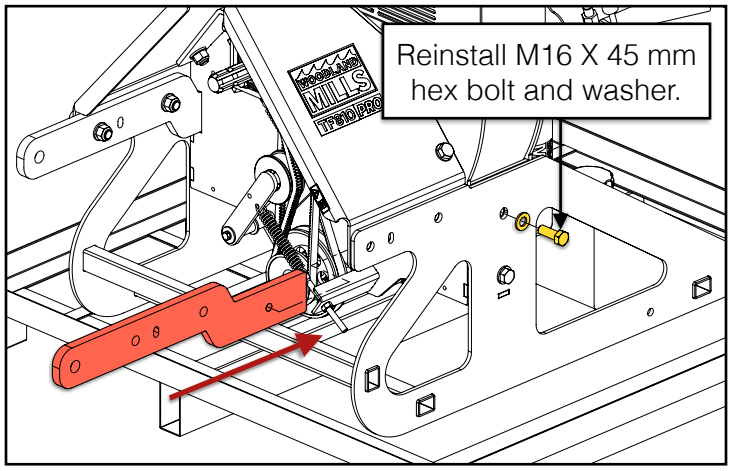


Remove the M16 X 45 mm hex bolt and flat washer from the side of the base. Discard the M16 hex nut.



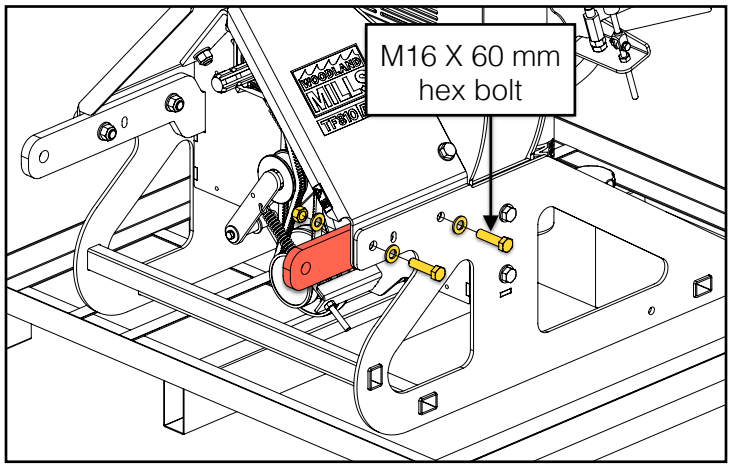
Slide the remaining lower hitch arm into the rectangular slot on the right-side of the lower flywheel housing and reinstall the M16 X 45 mm bolt and M16 flat washer that were temporarily removed.

Do *not* fully tighten the hardware until instructed in a later step.



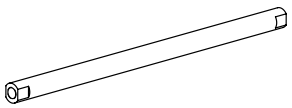
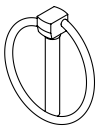
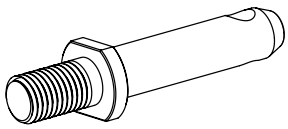
Use two (2) M16 X 60 mm bolts, four (4) M16 flat washers, and two (2) M16 lock nuts to secure the arm.

Do *not* fully tighten the hardware until instructed in a later step.

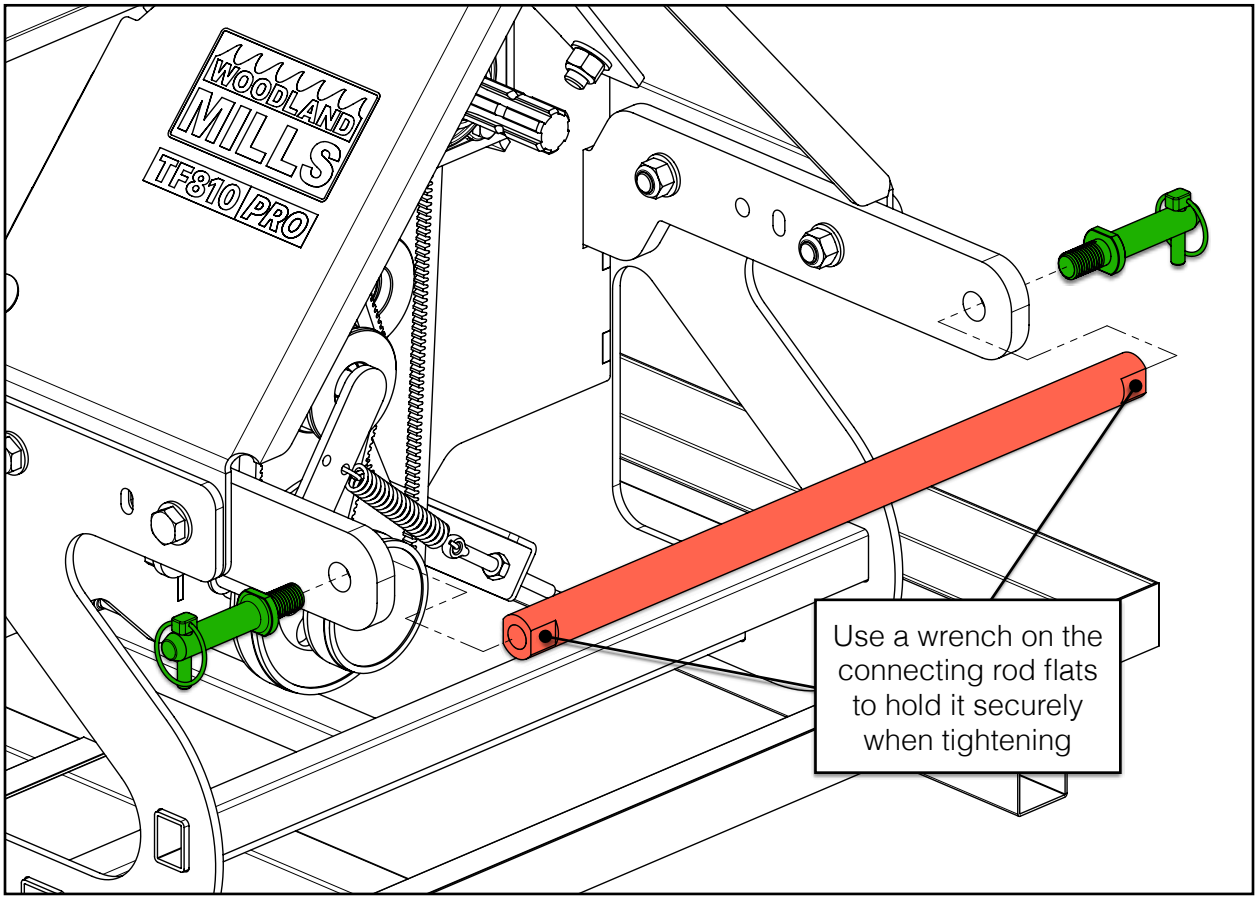


C. CONNECTING ROD

Using the components listed below, assemble the connecting rod and lower hitch pins to the lower hitch arms.

1x	Connecting Rod		2x	Linch Pin	
2x	Lower Hitch Pin				

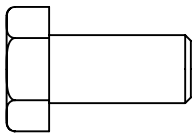
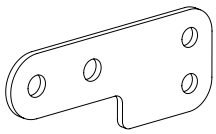
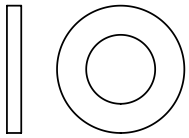
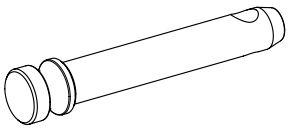
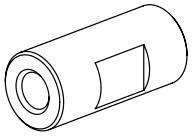
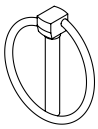
Position the connecting rod between the two (2) lower hitch arms and then thread one (1) lower hitch pin into each end, securing it to the arms. The flats at both ends of the connecting rod will accommodate a 1-⅛ in [28 mm] wrench to prevent it from rotating when tightened.



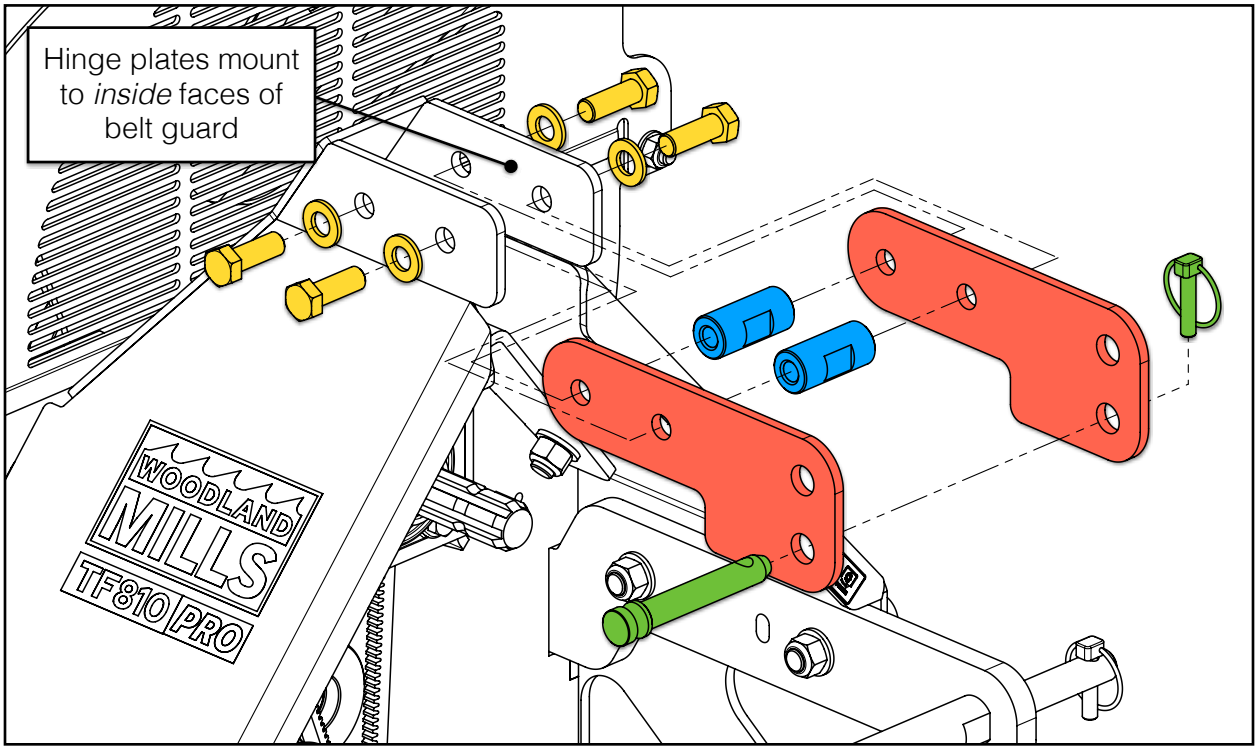
With the connecting rod tight, now fully tighten all the hardware for the lower hitch arms from the previous step.

D. UPPER HINGE PLATES

Using the hardware and components listed below, assemble the upper hitch plates to the belt guard.

4x	M16 X 45 mm Hex Bolt		2x	Upper Hitch Plate	
4x	M16 Flat Washer		1x	Upper Hitch Pin	
2x	Upper Hitch Bushing		1x	Linch Pin	

Assemble the plates to the belt guard using four (4) M16 X 45 mm hex bolts, four (4) M16 flat washers, and two (2) hitch bushings. The upper hitch plates mount to the *inner faces* of the belt guard with the bushings between them.

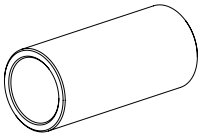
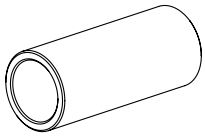


When tightening the hardware, hold the bushings still with an adjustable or 15/16 in [24 mm] wrench and turn the hex bolts with a second wrench or ratchet. Fully tighten all the hardware.

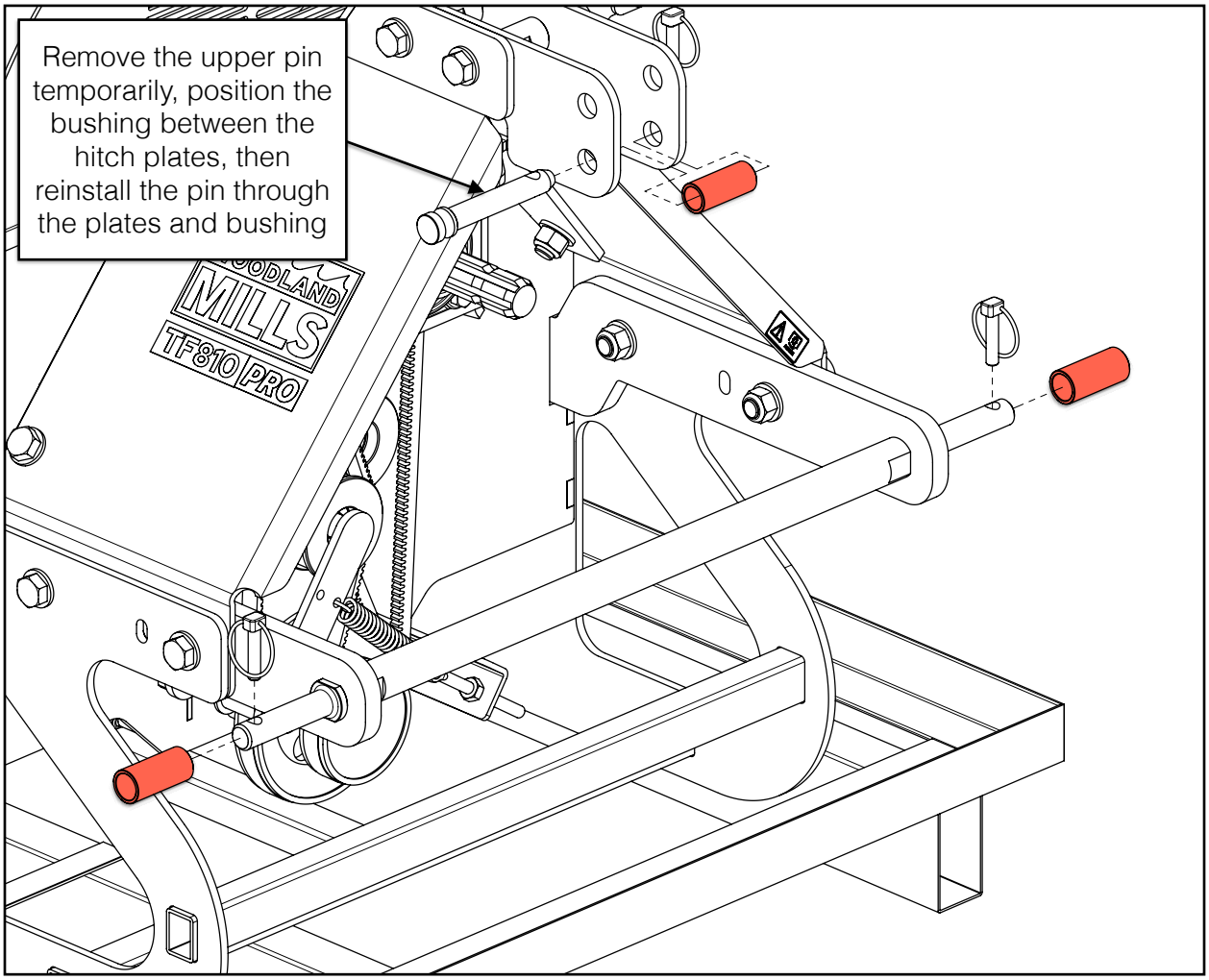
E. CAT 1 HITCH PIN BUSHINGS (OPTIONAL)

****Note: this step only applies to customers with Category 2 tractors. Skip this step and proceed to the next page if a Category 1 tractor will be used to run the wood chipper.****

Using the components listed below, assemble the upper & lower hitch pin bushings in order to accommodate a Category 2 tractor.

2x	Lower Hinge Adapter		1x	Upper Hinge Adapter	

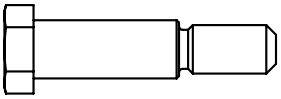
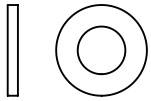
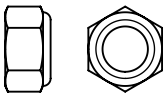
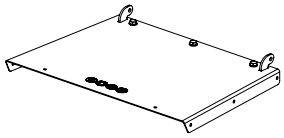
Remove the three (3) linch pins from the lower and upper hitch pins, then slide the bushings over the hitch pins. Reinstall the linch pins. Now the lower pins will accommodate a 1-⅛ in [28.5 mm] receiver and the upper a 1 in [25.5 mm] receiver for Category 2 tractors.

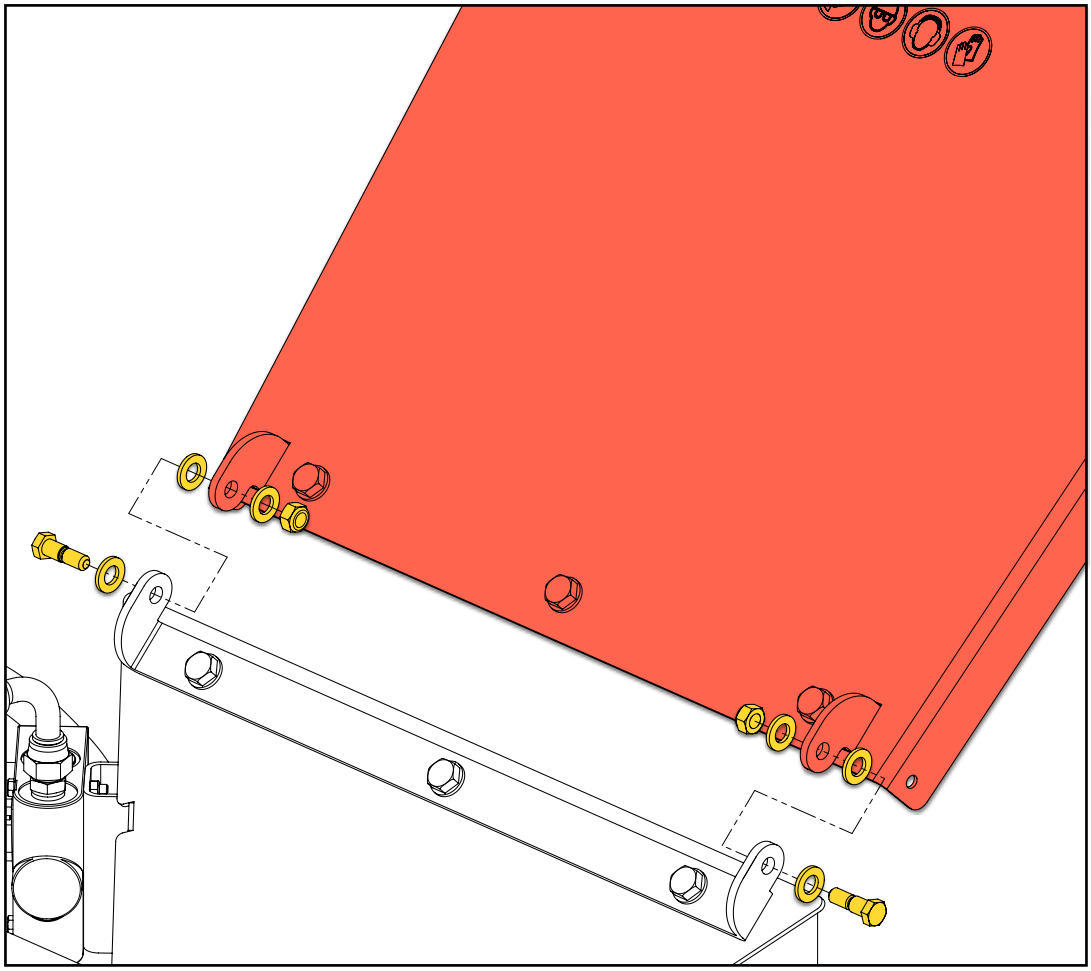


2. INFEED CHUTE

A. TOP PANEL

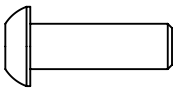
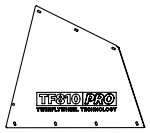
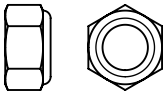
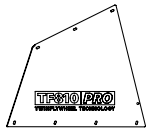
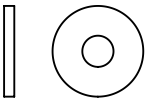
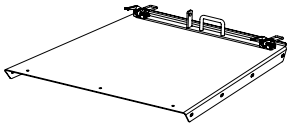
The wood chipper infeed chute consists of four (4) metal panels that are bolted together. The first step is bolting the top panel to the lower flywheel housing that forms the hinge. Using the hardware listed in the table below, assemble the hinge connection. Note that the infeed chute top panel and hinge bracket come pre-assembled.

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

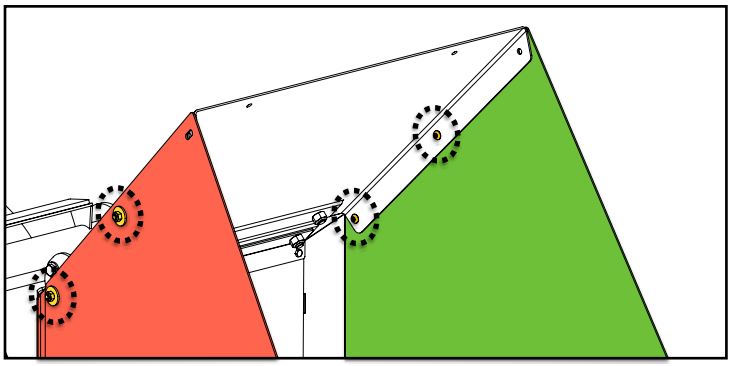


B. SIDE PANELS AND BOTTOM PANEL

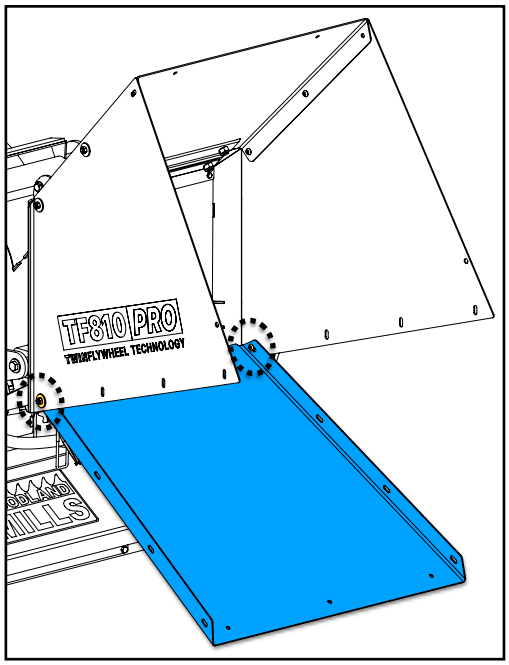
With the top panel bolted to the hinge, assemble each side panel to the sides of the top panel using the M8 X 18 mm button head screws, M8 lock nuts, and M8 fender washers. Use a hex key for the screws and a socket/wrench for the lock nuts.

6x	M8 X 18 mm Button Head Screw		1x	Infeed Chute Side Panel [Right]	
6x	M8 Lock Nut		1x	Infeed Chute Side Panel [Left]	
6x	M8 X 30 mm Fender Washer		1x	Infeed Chute Bottom Panel Assembly	

Install two (2) screws per side along the top edge leaving the last holes empty. Do not fully tighten the screws. Be sure to assemble the screws with the heads on the inside of the chute pointing outwards. Next, install the bottom panel using only the first two (2) bolts as shown below (right). This will allow it to swing up to join the side panels in the coming steps. Note that the infeed chute bottom panel and latches come pre-assembled.

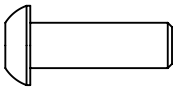
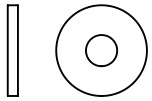
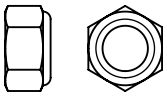
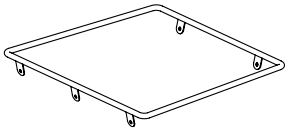


Ensure the side panels are assembled so that the lip edges are *outside* the chute [Viewed from top]



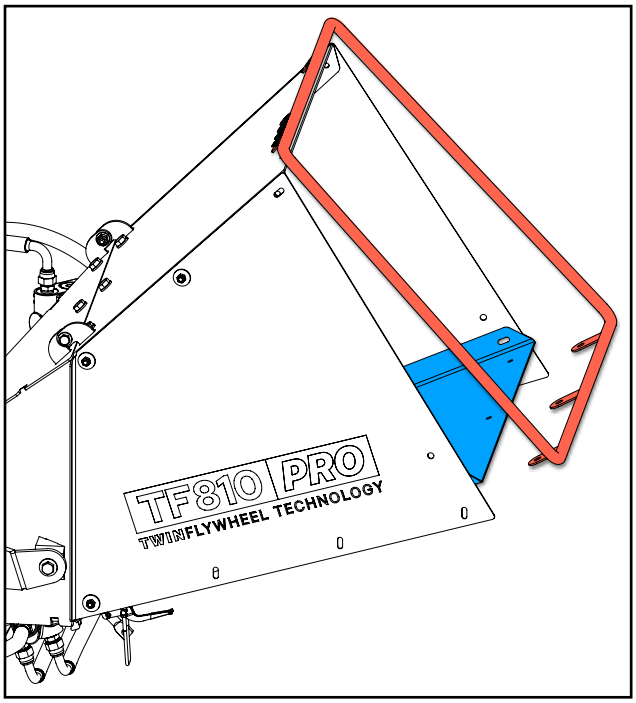
C. ROUND EDGE BAR

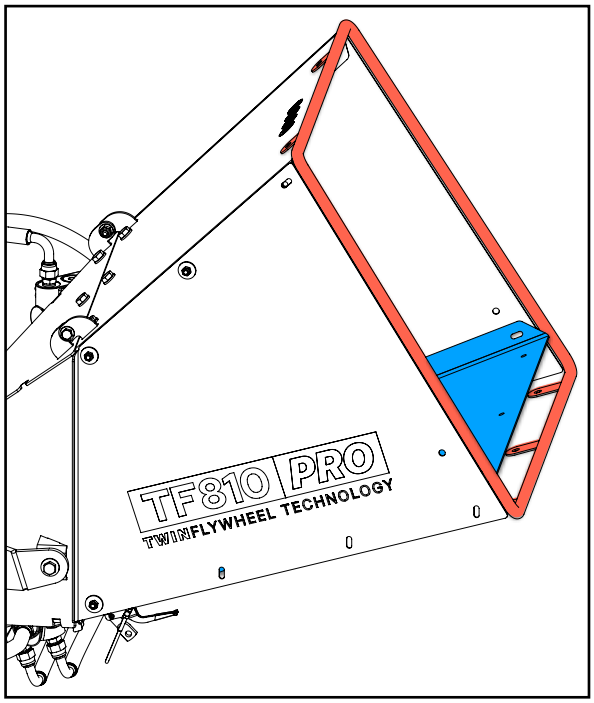
Assemble the round edge bar to the infeed chute using the hardware listed below.

13x	M8 X 18 mm Button Head Screw		13x	M8 X 30 mm Fender Washer	
13x	M8 Lock Nut		1x	Round Edge Bar	

The round edge bar is designed to add additional strength to the infeed panels as well as act as a rounded edge, eliminating branches from getting caught on the edge of the infeed panels.

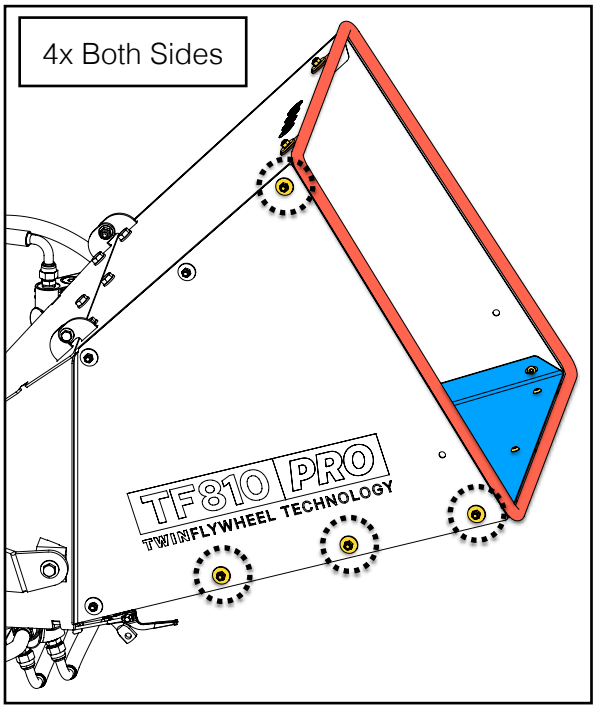
Swing the bottom panel up and fit the top and bottom tabs of the round edge bar over the outside faces of the top and bottom panels as shown below.

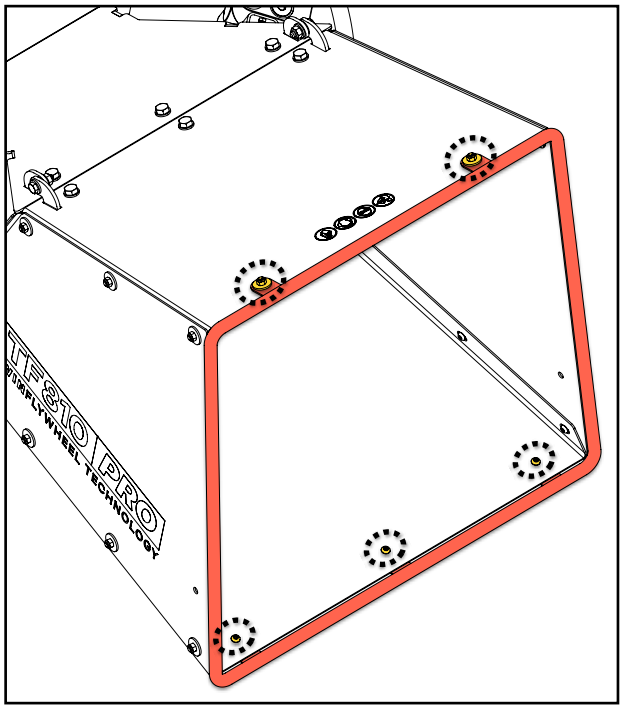




With the edge bar in place, assemble the panels to the edge bar. Use a hex key for the button head screws and a socket/wrench for the lock nuts. Install the remaining thirteen (13) M8 X 18 mm button head screws, M8 lock nuts, and M8 X 30 mm fender washers as shown below to secure the panels and edge bar in place.

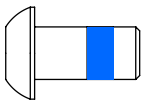
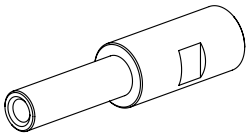
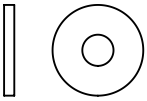
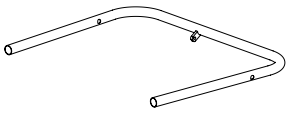
Fully tighten *all* the infeed chute screws.



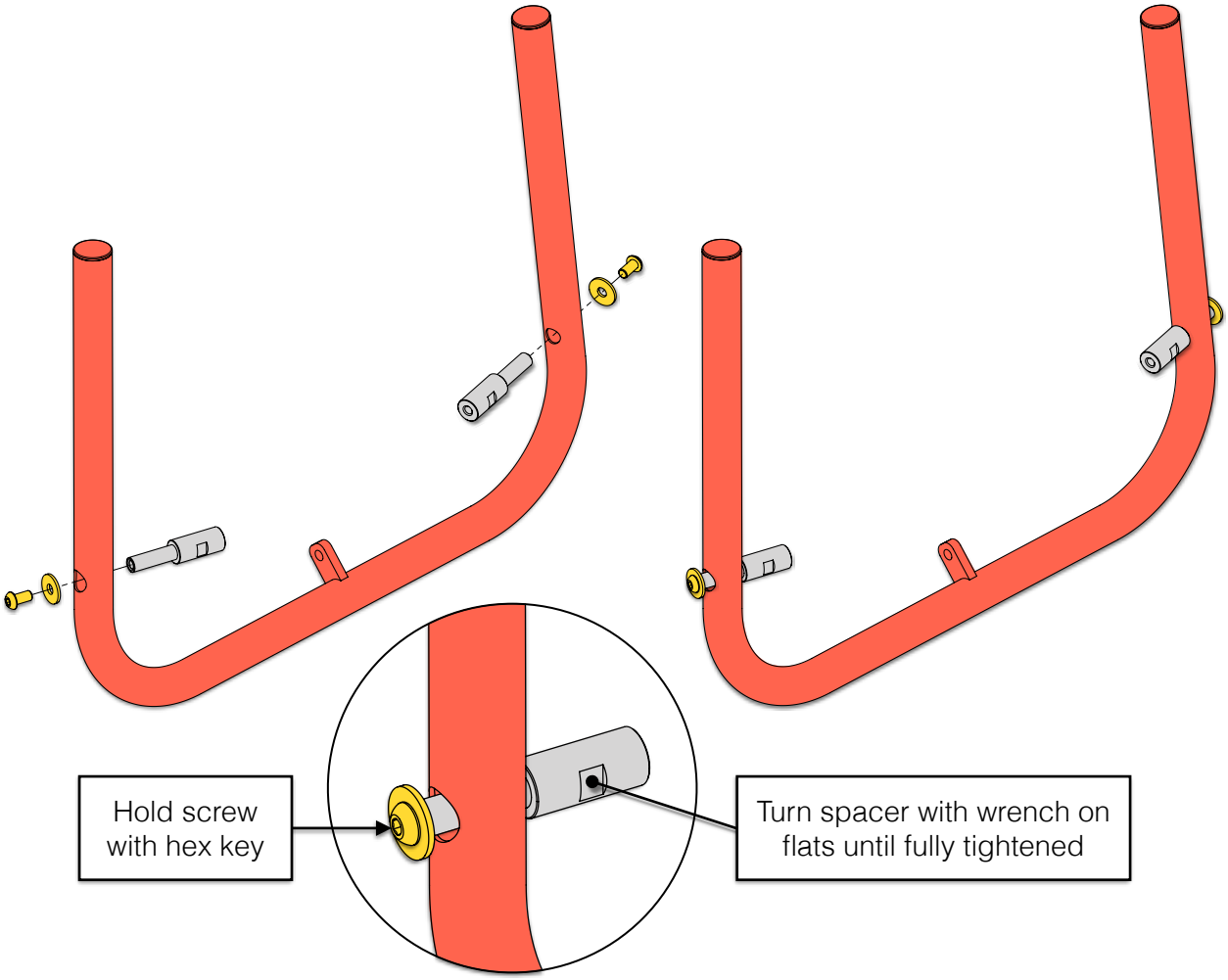


D. CONTROL ARM

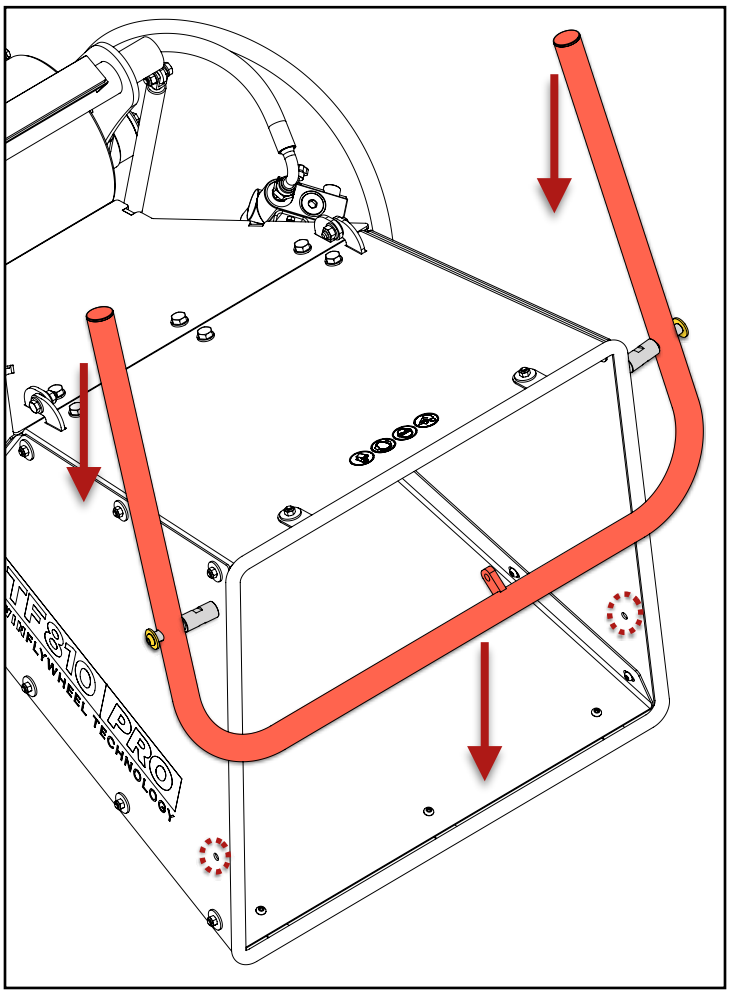
The large red infeed control arm is attached to the infeed chute using the hardware below.

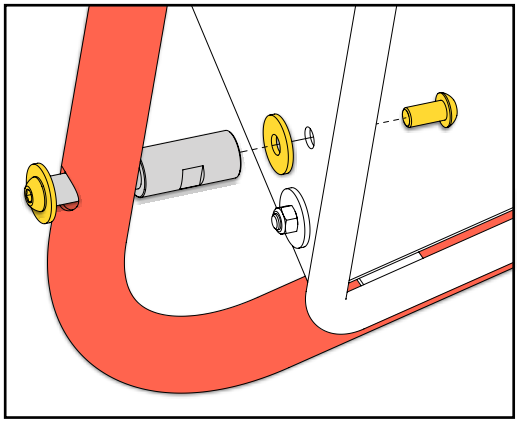
4x	M10 X 20 mm Button Head Screw with Threadlocker		2x	Control Arm Spacer	
4x	M10 X 30 mm Fender Washer		1x	Control Arm	

Insert the control arm spacers into the holes in the control arm as shown ***(below-left)***. While holding the spacers in place, slide the control arm down over the top of the infeed chute until the spacers are aligned with the holes in the side panels where noted.

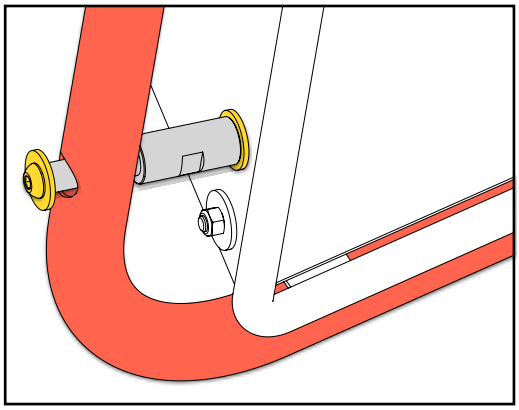


While holding the control arm by the spacers, slide it down over the top of the infeed chute until the spacers are aligned with the holes in the side panels (below left).





USE 1 M10 X 30 FENDER WASHER BETWEEN THE SPACER AND CHUTE



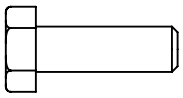
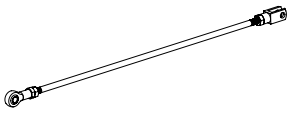
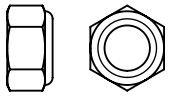
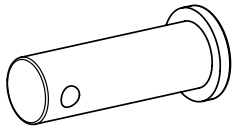
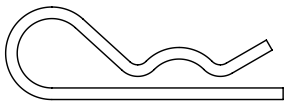
HOLD INNER SCREW WITH HEX KEY AND TURN SPACER WITH WRENCH ON FLATS UNTIL FULLY TIGHTENED

With the spacers aligned with the holes in the infeed chute side panels, place one (1) M10 X 30 mm fender washer between the spacer and side panel, and then secure it with one (1) M10 X 20 mm button head screw from inside the infeed chute. Repeat for the other side.

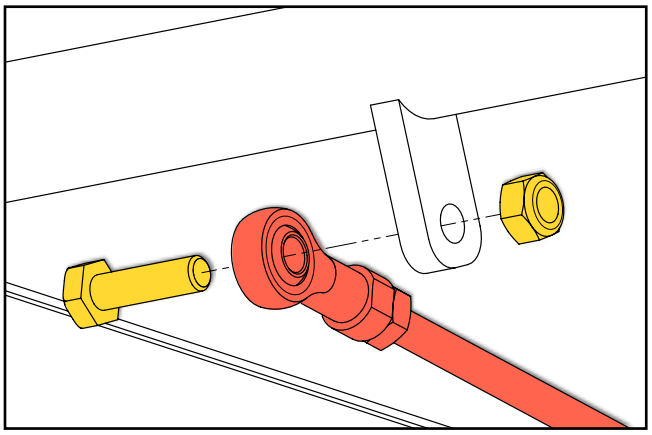
When tightening the two (2) inner button head screws, hold the button head screw inside the infeed chute still with a 6 mm hex key and turn the spacer with a ¾ in [19 mm] wrench. Fully tighten the hardware on both sides.

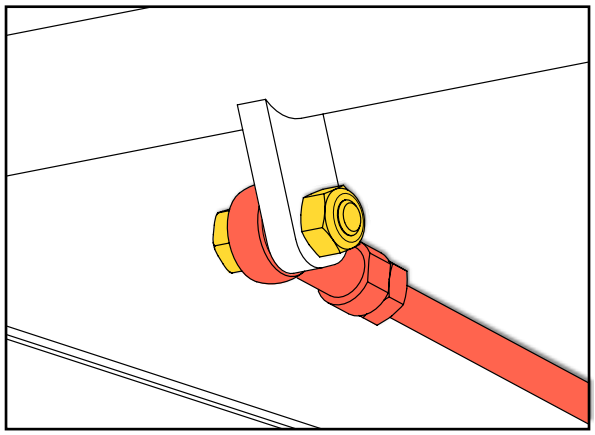
E. CONTROL ARM LINKAGE

With the control arm fastened to the infeed chute, the linkage assembly can now be connected between it and the hydraulic directional control valve.

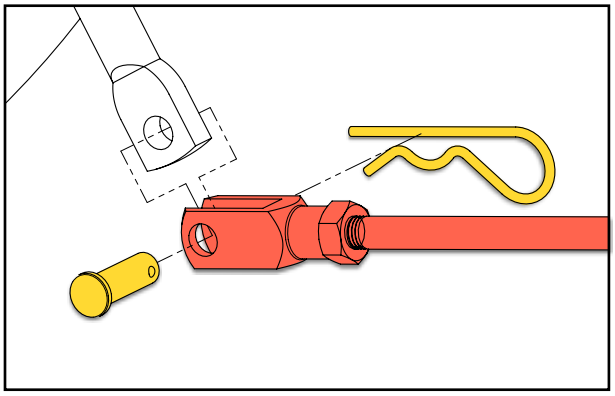
1x	M10 X 35 mm Hex Bolt		1x	Control Arm Linkage Assembly	
1x	M10 Lock Nut		1x	10 mm Clevis Pin	
			1x	Hairpin Cotter Pin	

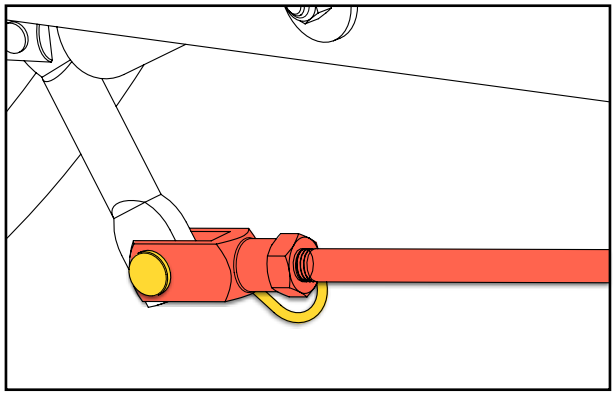
Fasten the rod end bearing to the red control arm with the M10 X 35 mm hex bolt and M10 lock nut as shown below.



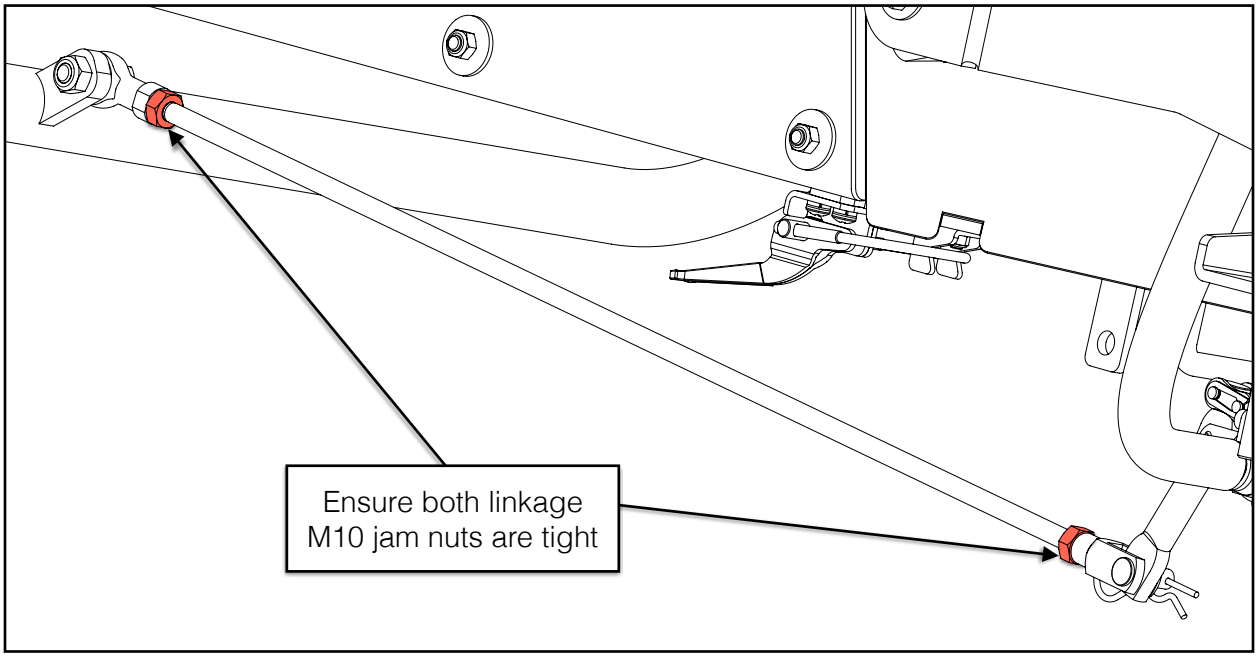


On the opposite end of the linkage, secure the linkage to the the hydraulic directional control valve actuator using the clevis pin and hairpin cotter pin.



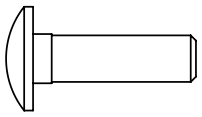
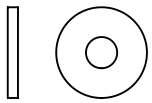
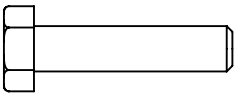
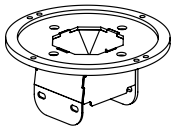
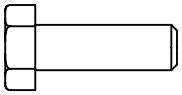
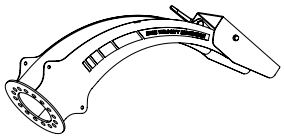
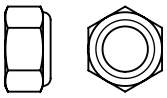
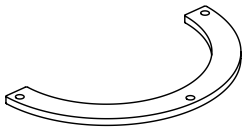
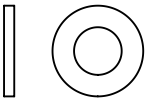
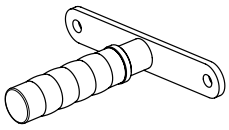


Once the linkage has been assembled, ensure both M10 jam nuts are tight.

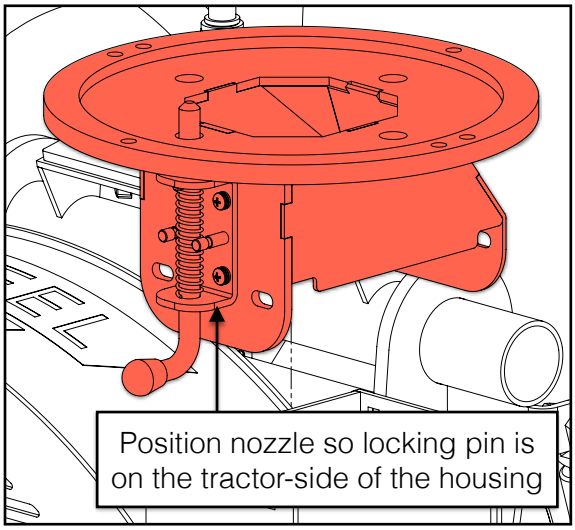


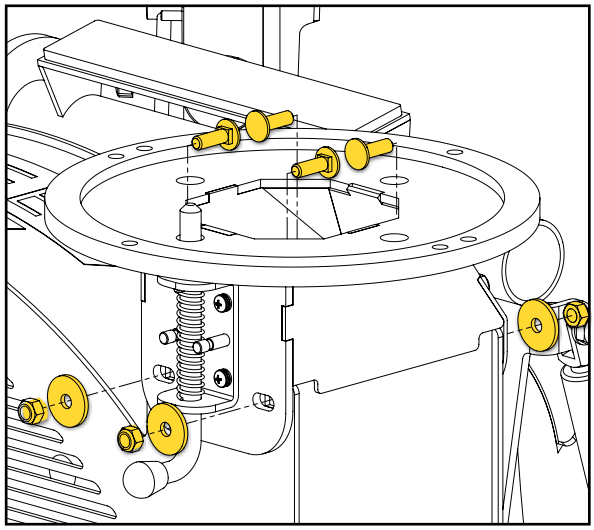
3. DISCHARGE CHUTE

The discharge chute comes partially assembled. With the components and hardware listed below, assemble the discharge chute to the upper flywheel housing.

4x	M8 X 25 mm Carriage Bolt		4x	M8 X 30 mm Fender Washer	
6x	M8 X 35 mm Hex Head Bolt		1x	Nozzle	
4x	M8 X 25 mm Hex Head Bolt		1x	Discharge Chute Assembly	
14x	M8 Lock Nut		2x	Retainer	
20x	M8 Flat Washer		2x	Handle with Grip	

Slide the nozzle over the upper flywheel housing. Secure it to the housing using the four (4) M8 X 25 mm carriage bolts, M8 fender washers, and M8 lock nuts. The carriage bolts are assembled from inside the housing, pointing outward. Fully tighten all the hardware.

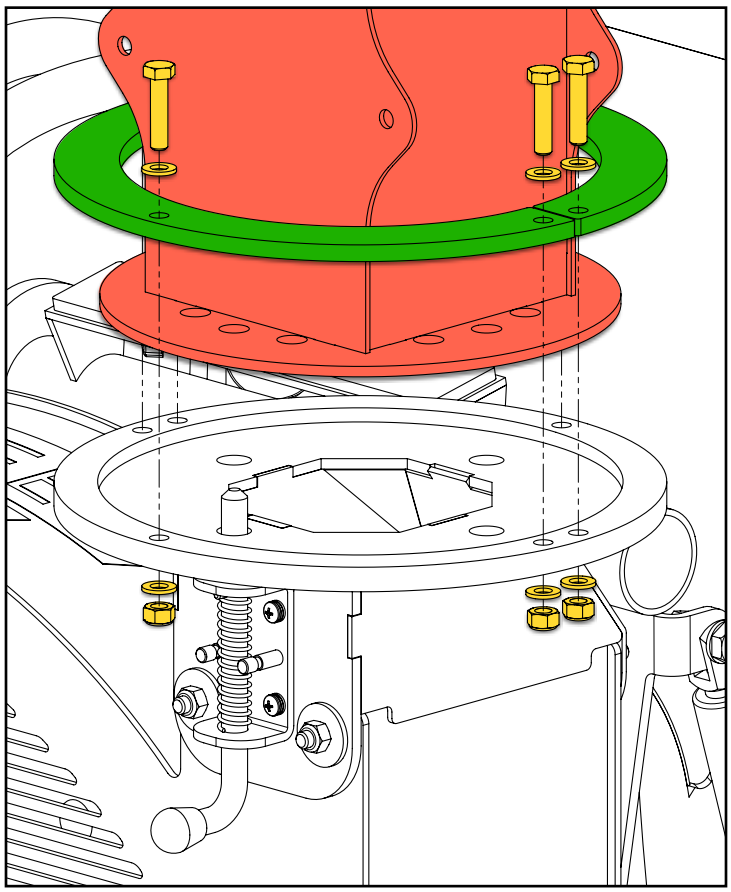




Set the discharge chute into the recess in the top of the nozzle.

Secure the chute to the nozzle using the two (2) retainers with six (6) M8 X 35 mm hex bolts, twelve (12) M8 flat washers, and six (6) M8 lock nuts.

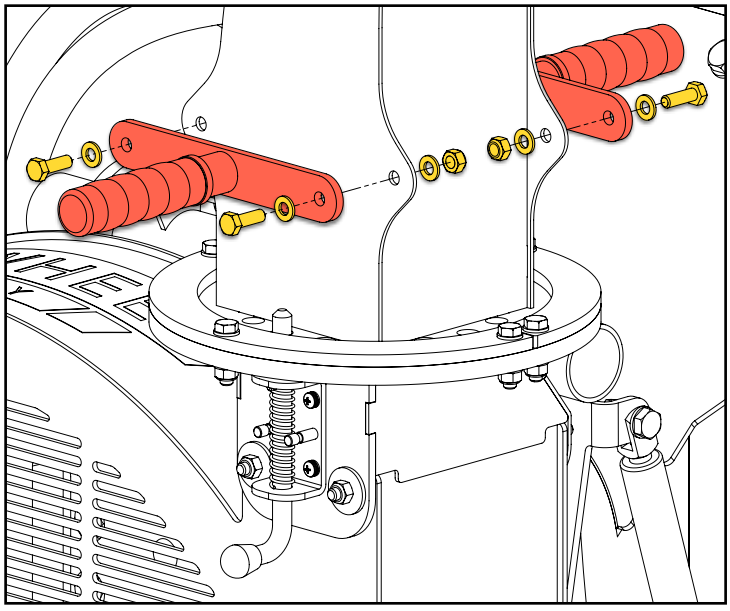
Fully tighten all the hardware.



Assemble the handles—one on each side of the discharge chute.

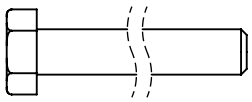
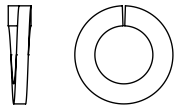
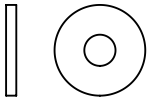
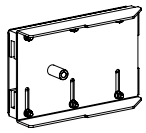
Secure each handle to the chute using two M8 X 25 mm hex bolts, four (4) M8 flat washers, and two (2) M8 lock nuts.

Fully tighten all the hardware.



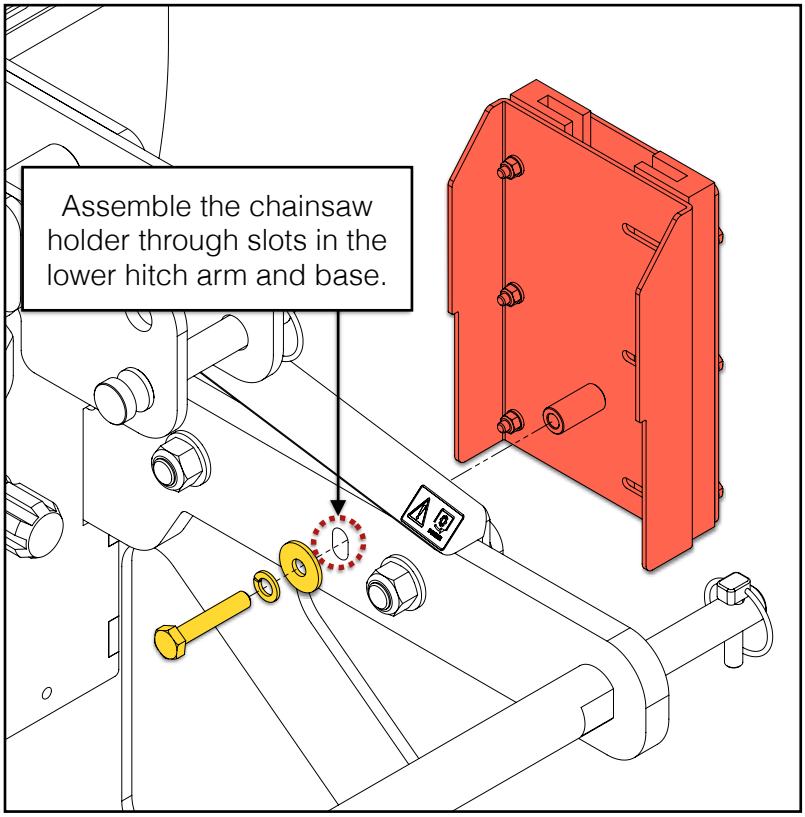
4. CHAINSAW HOLDER

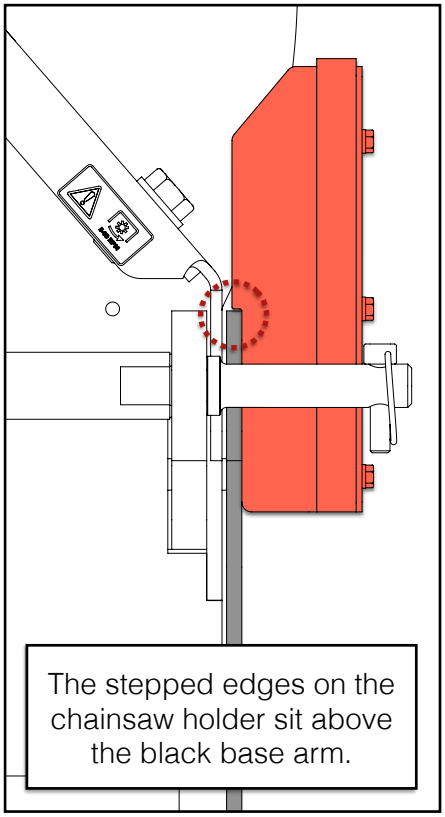
Mount the chainsaw holder assembly to the side of the chipper base using the hardware and components listed in the table below.

1x	M10 X 55 mm Hex Bolt		1x	M10 Split Lock Washer	
1x	M10 X 30 mm Fender Washer		1x	Chainsaw Holder Assembly	

The chainsaw holder can be mounted to either side of the base through the vertical slots in the lower hitch arm and base.

Assemble the holder to the base using one (1) M10 X 55 mm hex bolt, one (1) M10 X 30 mm fender washer, and one (1) M10 split lock washer through the slot as shown. Be sure the stepped edges on the chainsaw holder sit above the base arm. Fully tighten the hardware.





TRIMMING THE PTO SHAFT

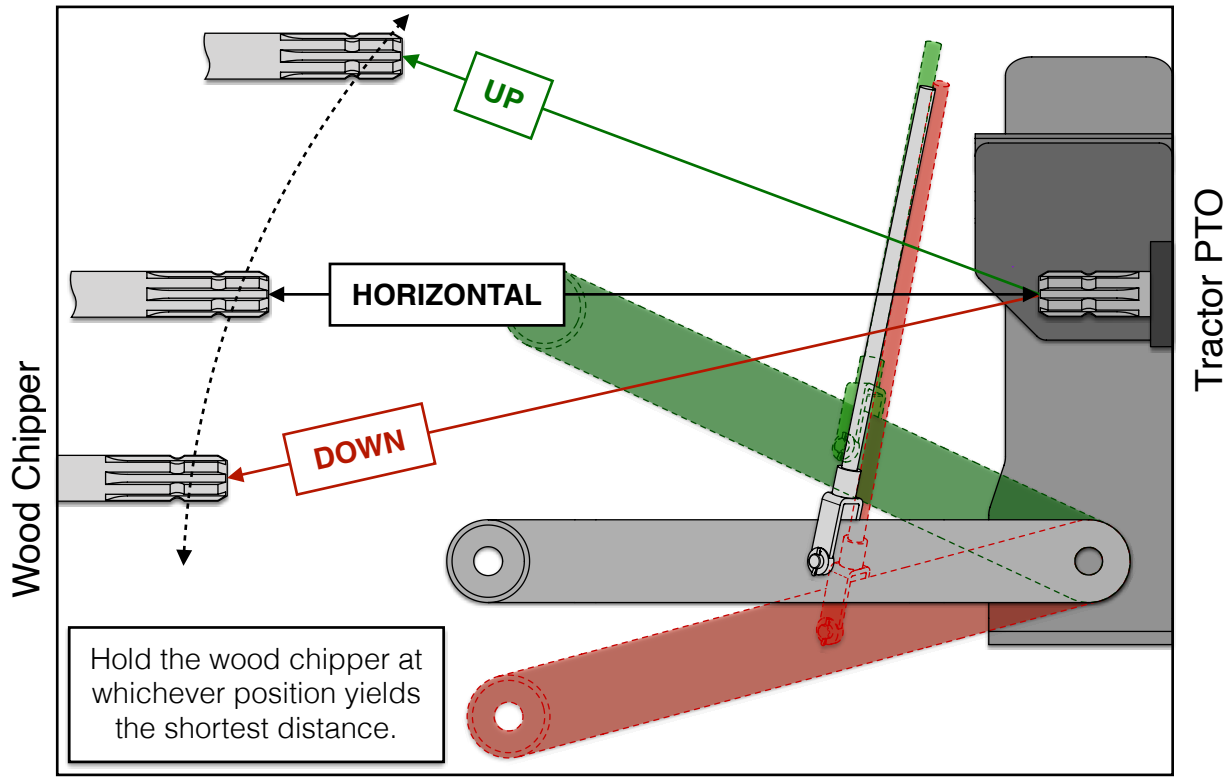
The PTO shaft may need to be trimmed depending on the tractor size and configuration. Follow the 6 steps below to ensure the PTO shaft is fitted correctly, and trimmed if necessary.

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.****

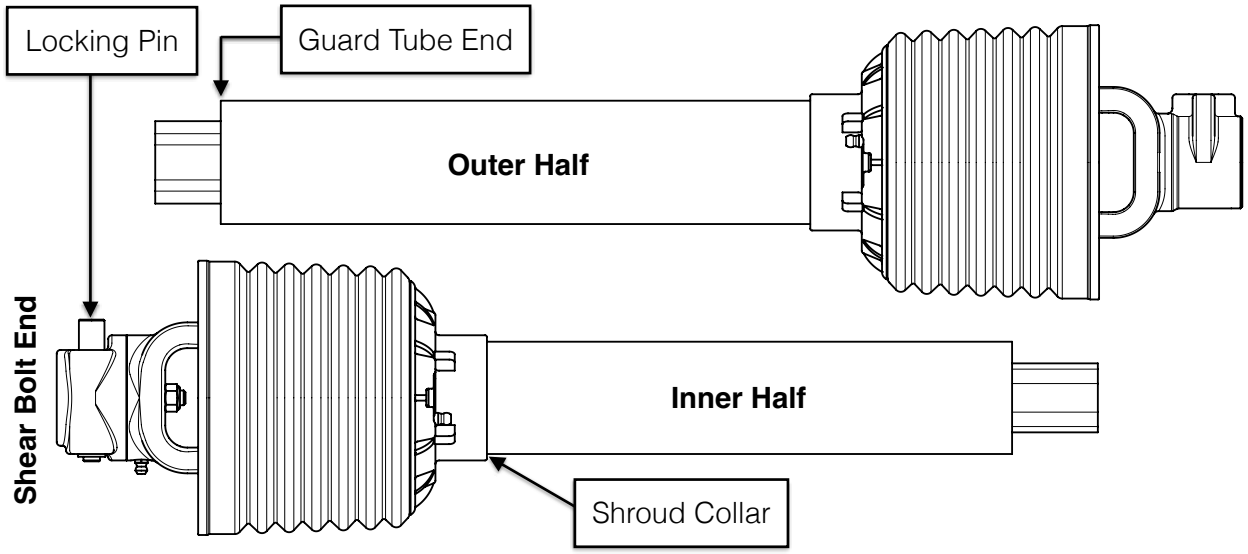


WARNING!

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.



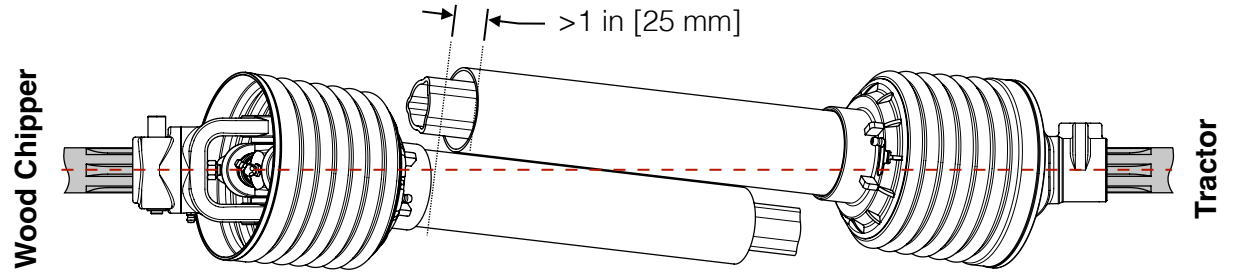
3. ATTACH THE PTO SHAFT

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

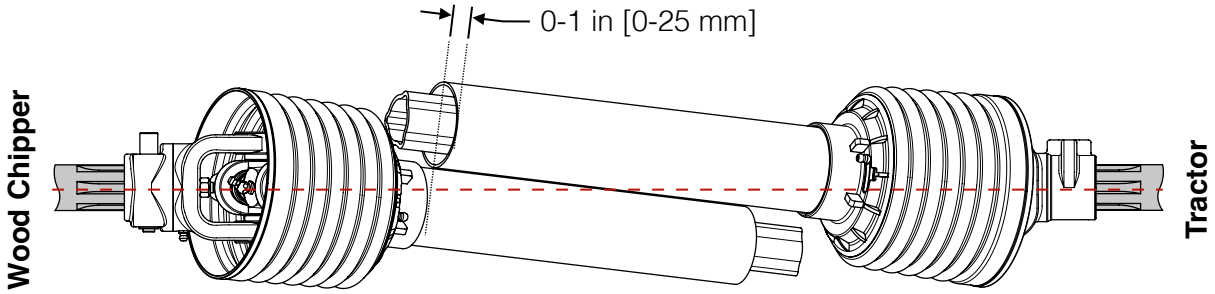
4. DETERMINE IF TRIMMING IS REQUIRED

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.

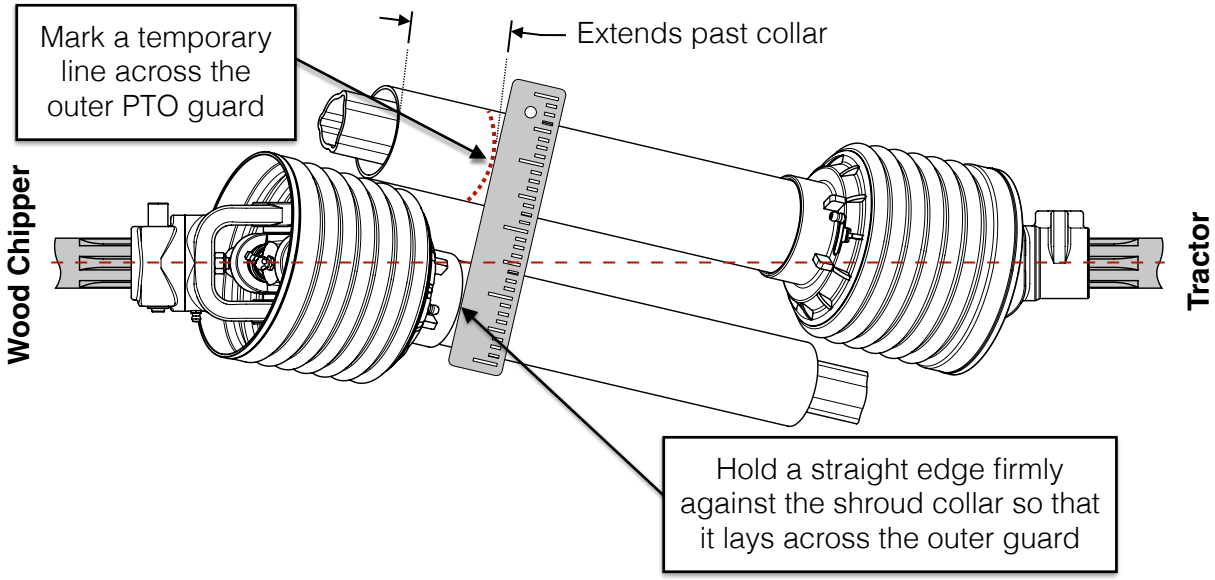
Scenario 1. If the distance between the shroud collar and the guard tube end is ***greater than* 1 in [25 mm]**, the PTO shaft does not require trimming. Remove the PTO shaft from the tractor and wood chipper and proceed to Step 6.



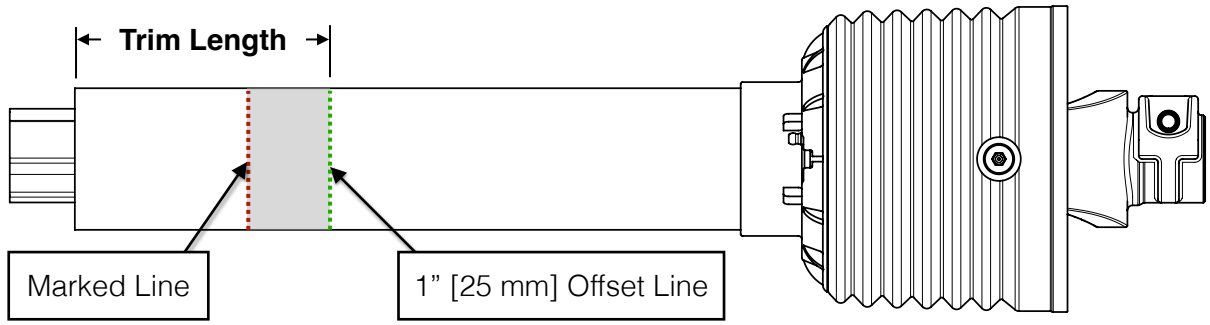
Scenario 2. If the distance between the shroud collar and the guard tube end is ***between 0 and* 1 in [25 mm]**, the PTO shaft requires a 1 in [25 mm] trim. Proceed to Step 5 using 1 in [25 mm] as the "**Trim Length"**.



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.

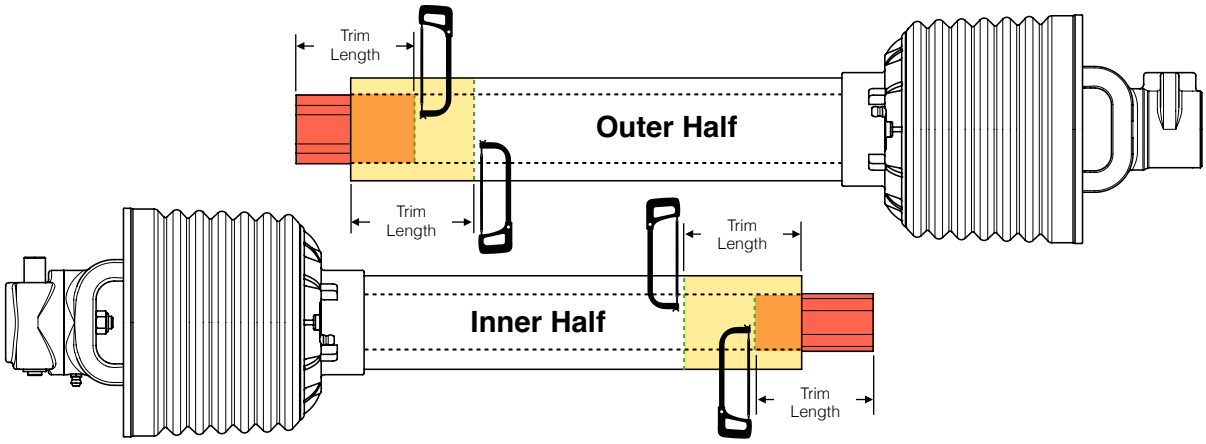


Measure 1 in [25 mm] past the marked line to the guard tube end to determine the trim length. This is the "**Trim Length**" by which the PTO shaft needs to be trimmed. Proceed to Step 5.



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. Fill the hydraulic tank with hydraulic oil per the table below:

Model	Capacity		Hydraulic Oil
	Gallons (gal)	Litres (L)	
WC46	4.5	17	ISO 32, ISO 46, AW 32, AW 46
WC68	5	18.9	
WC88	5	18.9	
TF46 PRO	3.2	12	
TF68 PRO	5	18.9	
➡ TF810 PRO	5	18.9	

ii. Attach the wood chipper to your tractor and take the appropriate measurements to trim the PTO shaft. Refer to section ***TRIMMING THE PTO SHAFT*** for detailed instructions.

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

iii. Check the gap between the bed plate and blades by using the Bed Plate Gap Tool (⅛ in [3 mm]). Refer to section ***SETTING THE BED PLATE GAP*** for detailed instructions.

iv. The wood chipper has five (5) 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 section ***GREASING BEARINGS AND PTO SHAFT*** for detailed maintenance instructions.

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

2. START UP

The following steps in the sub-section below (*a.* through *i.*) are a summarization of the steps necessary to safely and properly operate the wood chipper. Please follow the references to other sections that provide further detail into the step being performed.

a. Place the tractor transmission in neutral, set the parking brake, then turn the tractor engine off.

b. Connect the 3-point hitch linkages to the wood chipper and secure them with linch pins.

c. Adjust the top link of the 3-point hitch so that the wood chipper sits level.

d. Connect the PTO shaft to the tractor with the shear bolt end of the PTO on the wood chipper. Make sure the PTO safety chains are attached to both the tractor and the wood chipper to keep the protective PTO safety cover from rotating.

e. Rotate the discharge chute towards a safe direction and lock it in place with the spring-loaded latch and indexing holes. Adjust the chip deflector to the desired position based on how far they should be thrown.

f. Push the red control arm all the way in until it stops, then pull it out one click to ensure the infeed roller is in the neutral position.

g. Start the 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 the PTO is engaged, you could damage the drive belts or break the shear bolt on the PTO shaft. After the rotor is spinning freely increase the tractor RPM's until the PTO speed is 540 RPM. Most tractor tachometers commonly indicate this with a line and/or text.

h. ***Push*** the red control arm away from the operator at the top of the arm until it stops (forward position). This will start the infeed roller rotating. Set the infeed roller control to the desired speed.

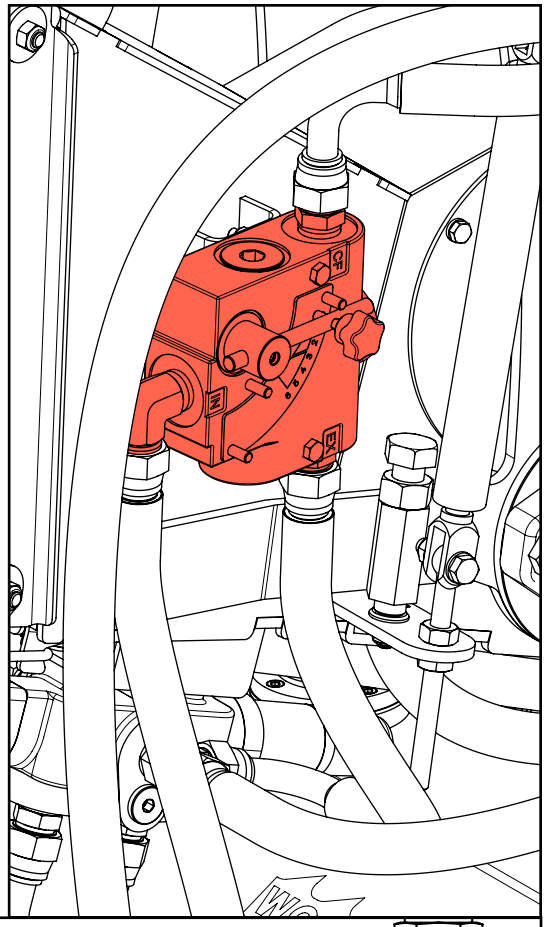
i. With the wood chipper now running and the infeed roller rotating, it is safe to begin chipping. Start by feeding smaller diameter branches until better acquainted with the machine and its operation. Once comfortable, begin feeding in larger pieces. Adjust the infeed roller control as necessary to regulate the infeed rate of the branches.

WARNING!

To avoid serious injury or death, do not chip brush containing embedded foreign objects such as nails, wire, metal fragments, etc. The operator and any assistants must always stay clear of the infeed chute of the wood chipper whenever it is running.

3. INFEED ROLLER CONTROL

The valve that controls the wood chipper's infeed roller speed is located to the right of the infeed chute.

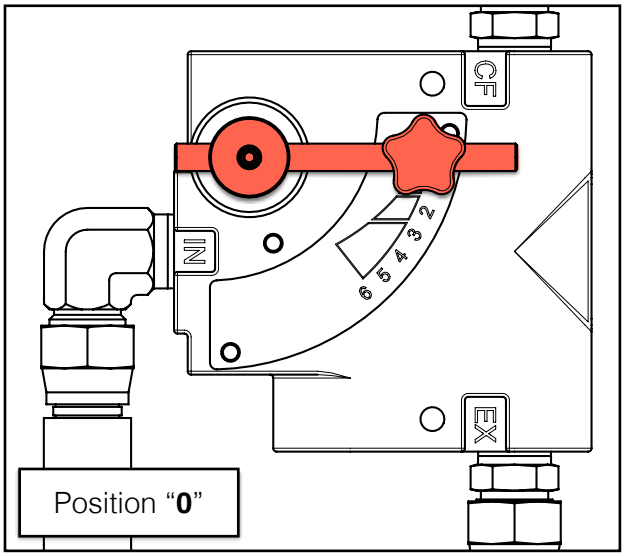


Rotating the valve arm as shown in the pictures below will increase or decrease the roller speed without load and will create a pulsating action once loaded with a branch.

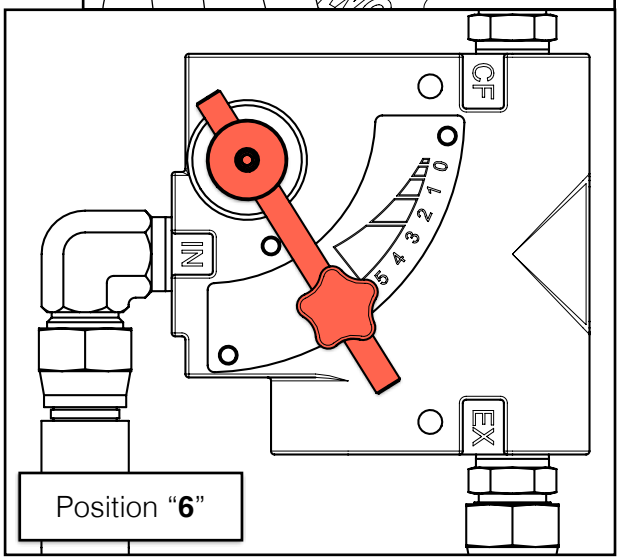
The number "**0**" (left image below) represents no infeed roller rotation while "**6**" (right image below) represents full speed. To maximize productivity and performance, chipping at full infeed speed is recommended.

If the tractor is unable to keep up with the workload, rotating the valve arm throughout its range will create a pulsating action—*dependent on branch size and workload*—that will allow larger material to be chipped when horsepower is limited.

This pulsating action can also be created using the red control arm by switching the chipper into **neutral**—which allows the tractor and flywheels to regain speed—and then switching back into **forward** as it works through larger material.

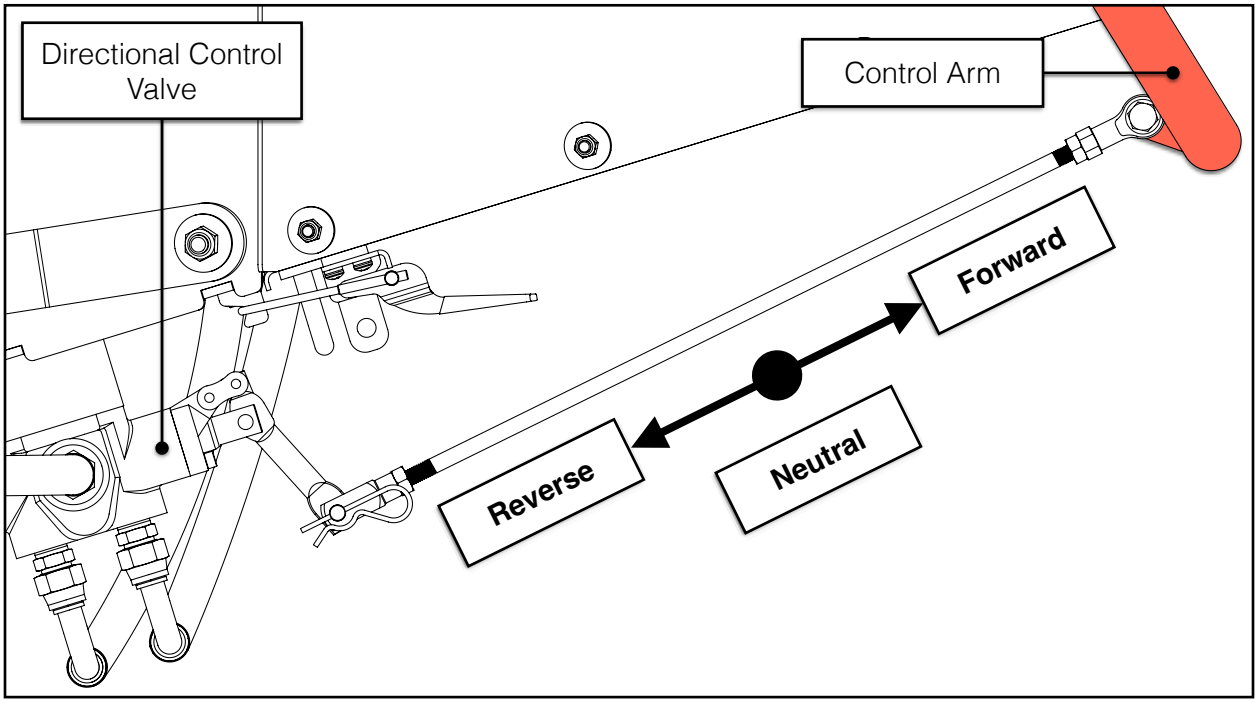


Position "**0**"



Position "**6**"

The infeed roller can be set to three (3) different rotation settings—*forward*, *neutral* and *reverse*—by pushing or pulling the red control arm. The *forward* position pulls branches into the wood chipper; *neutral* stops the roller from rotating; and *reverse* pushes the branches back out the wood chipper towards the operator. The diagram below illustrates the 3 positions:

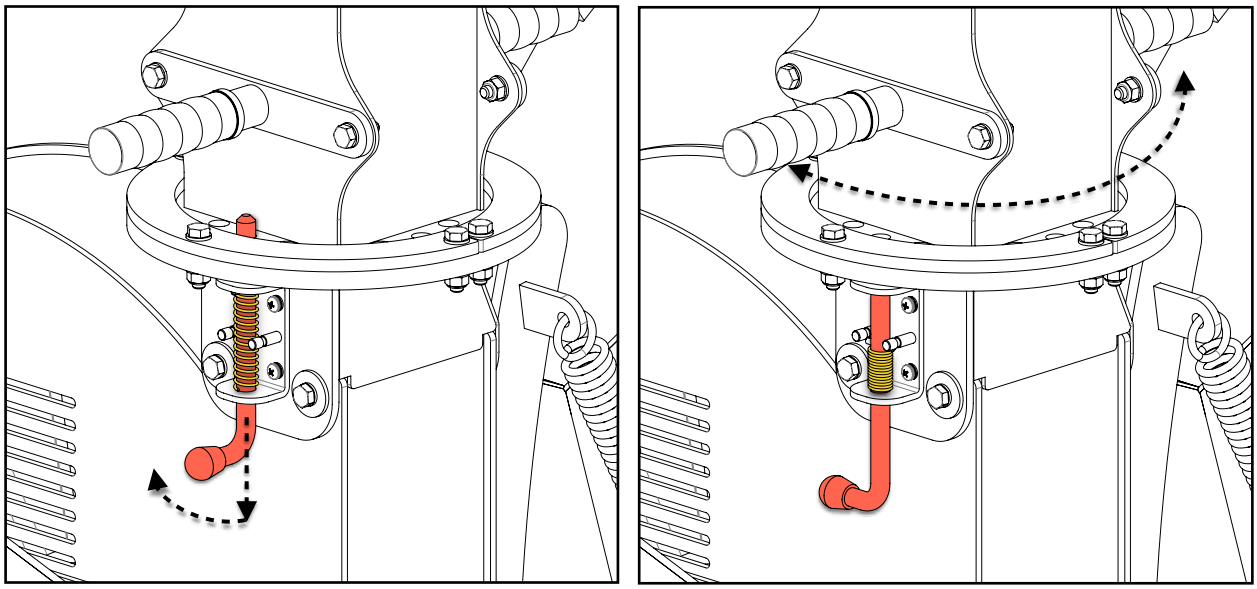


To change the speed of the infeed roller, place the red control arm in the *neutral* position. This stops the infeed roller from rotating. The speed control valve can now be moved to the desired position/speed. Reengage the infeed roller via the control arm.

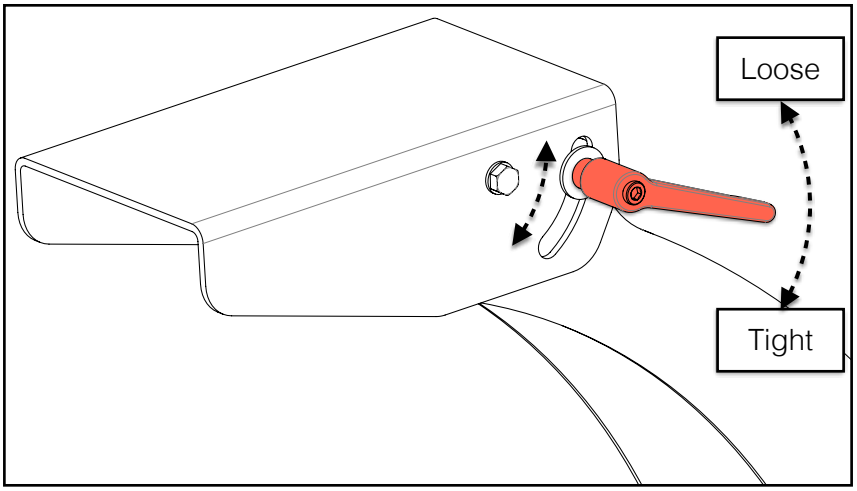
See maintenance section, ***ADJUSTING THE CONTROL ARM***, if the control arm feels too loose or stiff, or if it falls into neutral or reverse unexpectedly.

4. DISCHARGE CHUTE

To rotate the discharge chute, push down all the way on the spring-loaded locking pin and twist it 90° to temporarily lock it in the open position. The discharge chute is now free to rotate a full 360°. Using the handles, rotate it to the desired position and then twist the locking pin back 90° so that it extends into the closest locking hole to secure the chute in position.



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.



5. 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 you 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 8" [203 mm] in diameter. 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 from the side of the infeed chute rather than from the front. Step aside to avoid being hit by brush moving into the wood chipper.
- Never lean into the infeed chute or extend any parts of your body inside the infer 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 infeed roller. Once the infeed roller makes 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 the section under service and maintenance, "Sharpening Wood Chipper Blades," for further instructions.

6. 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:

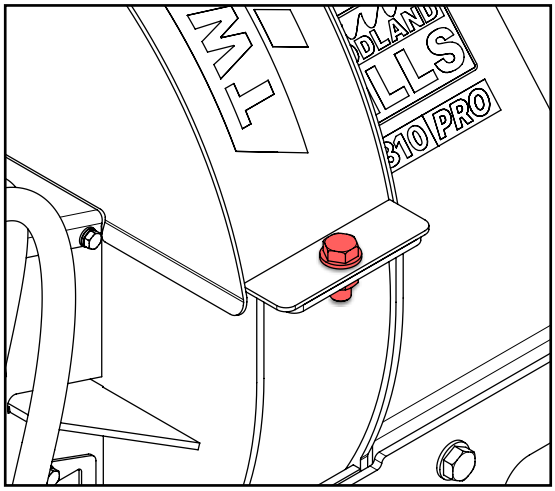
1. Move the tractor throttle to the SLOW/IDLE position.
2. Disengage the PTO lever and turn off the tractor engine.
3. Allow time for the wood chipper to come to a complete stop.

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

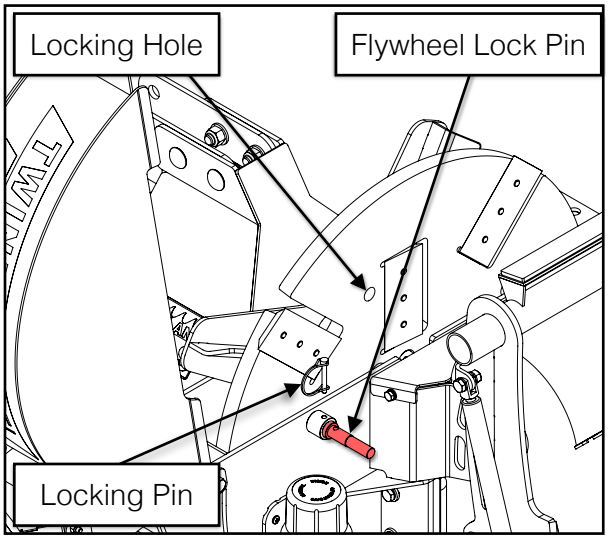
MAINTENANCE
REPLACING BLADES

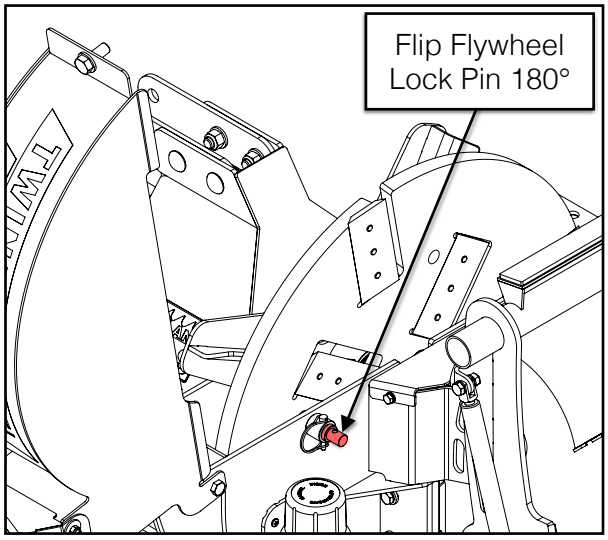
Follow these steps when replacing blades. The TF810 PRO wood chipper uses eight (8) reversible hardened steel blades. Each blade measures 6-1/16 X 2-23/32 X 5/16 in [154 X 69 X 8 mm] in size.

1. If installed, disconnect the PTO shaft from the tractor for safety.
2. Open the upper flywheel housing using a 24 mm socket/wrench by removing the M16 X 40 mm bolt and flat washer securing the upper and lower housings together.

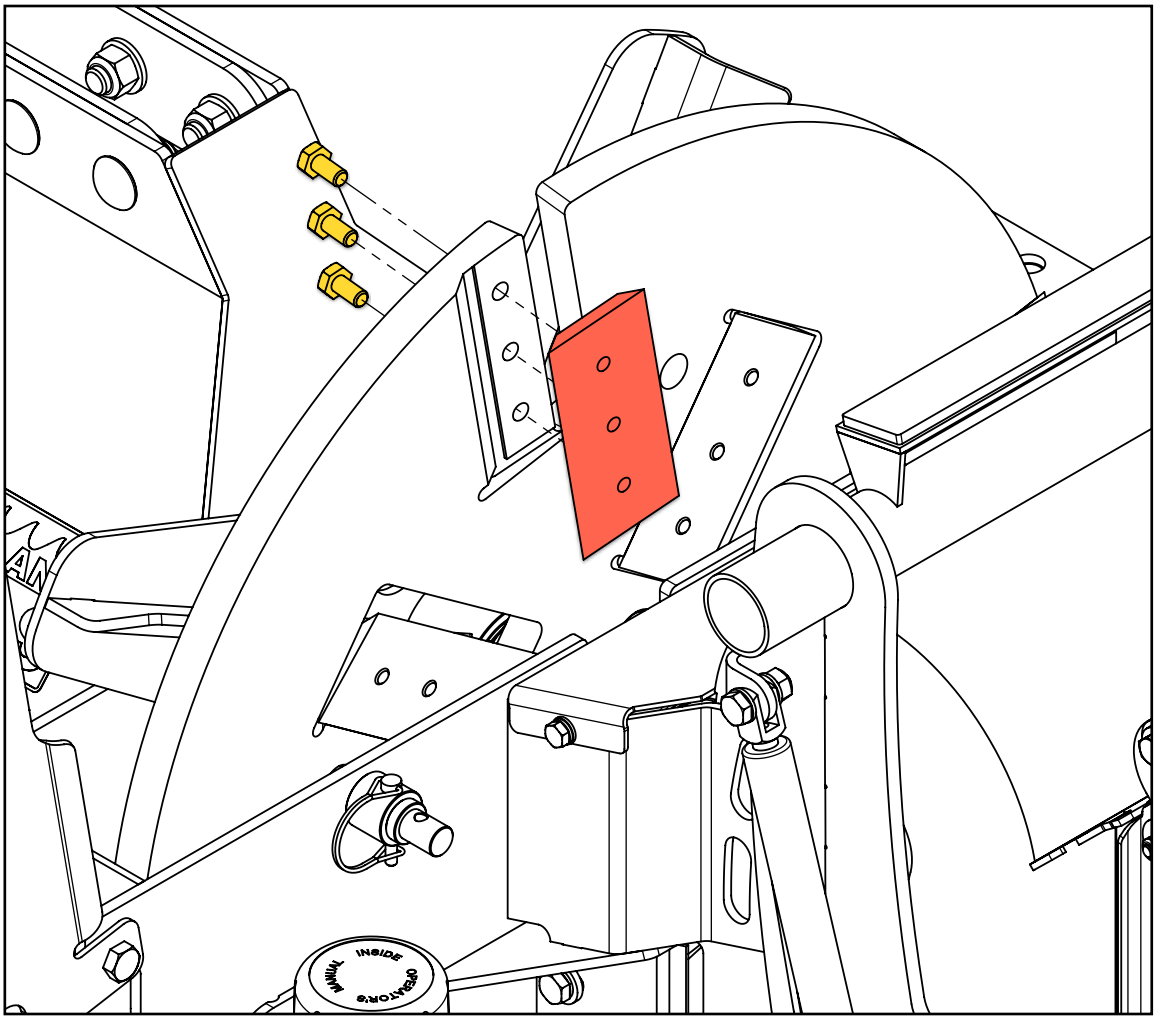


3. With the primary flywheel exposed, manually rotate it so that one of the four (4) locking holes in the flywheel (near the front of the blade) approximately lines up with the flywheel lock pin at the rear of the housing. Remove the round locking pin from the flywheel lock pin and flip the flywheel lock pin around 180°, passing it through the housing and into the locking hole in the primary flywheel. Reinstall the round locking pin into the flywheel lock pin.





4. Remove the three (3) M10 X 20 mm hex head bolts that fasten the blade to the primary flywheel using a socket. Take care not to drop the hardware into the lower flywheel housing. However, should this occur, a telescoping pen magnet can be used to retrieve them.



5. Repeat Steps 3 & 4 above to remove the remaining seven 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 M10 X 20 mm hex head bolts to 40 ft•lb [54 N•m] when installing blades. Refer to section, ***BLADE SHARPENING***, for blade sharpening instructions.
6. 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.
7. Following 3 hours of use after replacing blades, re-torque the blade bolts to ensure they remain secure.

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 TF810 PRO wood chipper uses eight (8) hardened steel blades. The blades are reversible and can be sharpened on both sides. Follow the below steps to sharpen the blades.

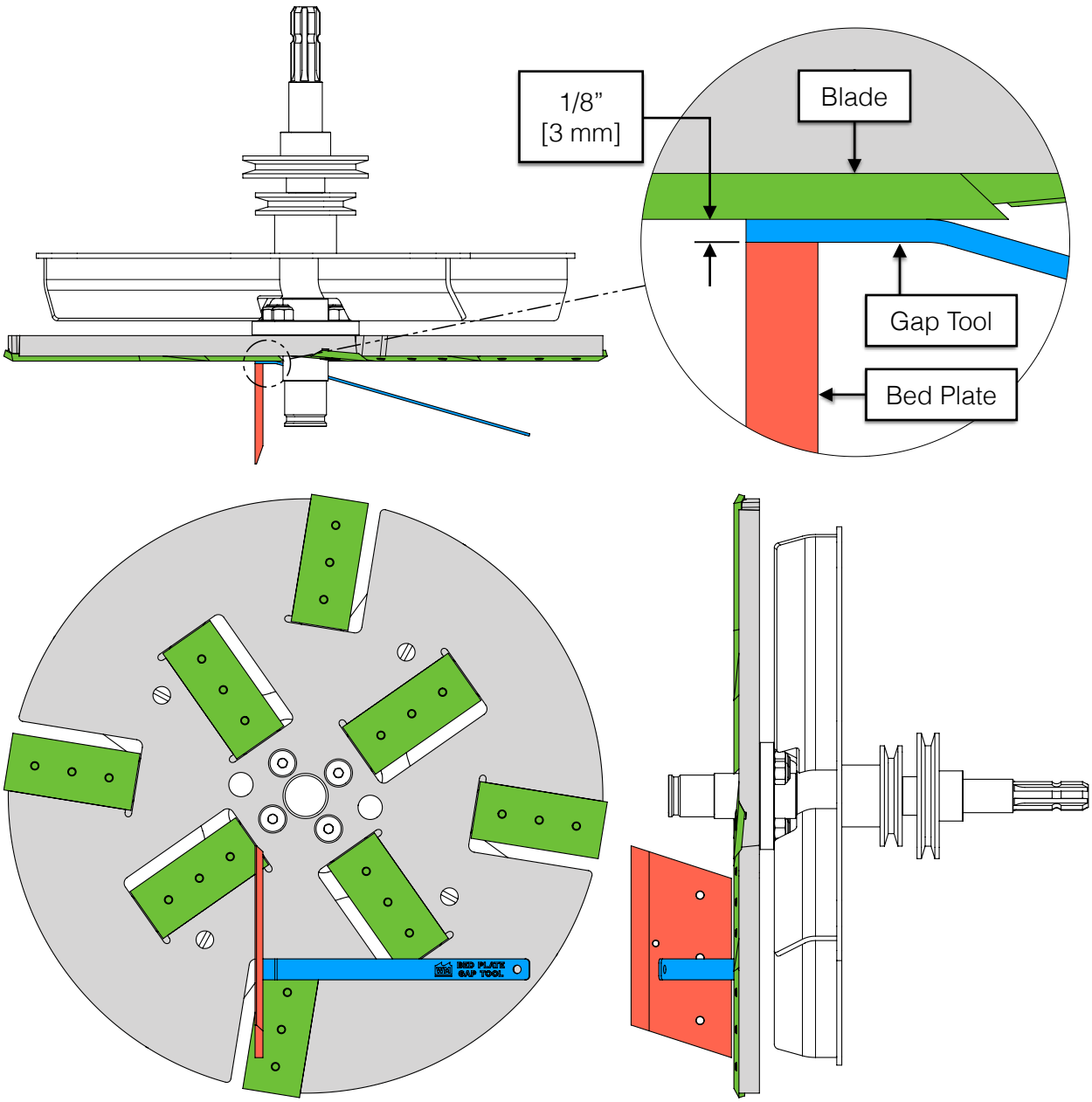
1. Follow the steps from the previous section, ***REPLACING BLADES***, to safely remove the blades from the primary flywheel.
2. Hand-grind the angled edges of the blade at 33° (see diagram below) using a whetstone or have them sharpened by a professional. A pedestal style bench grinder will likely yield 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 primary flywheel.

Blade Profile

3. Reinstall the sharpened blades on the primary flywheel and torque the M10 X 20 mm hex head bolts to 40 ft•lb [54 N•m].
4. Once the blades have been sharpened, proceed to the next section, ***SETTING THE BED PLATE GAP***, to properly set the spacing between the newly sharpened blades and the bed plate.
5. Following 3 hours of use after replacing blades, re-torque the blade bolts to ensure they remain secure.

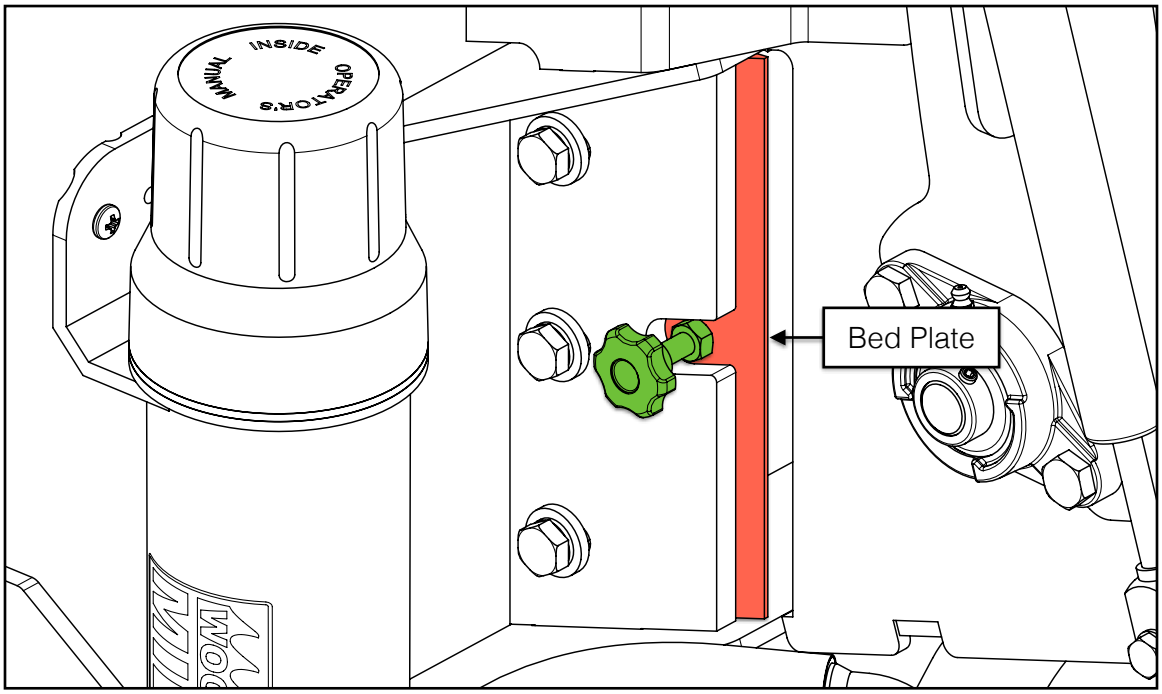
SETTING THE BED PLATE GAP

The bed plate (also known as the *anvil plate*) is located on the left side of the flywheel housing (while facing the infeed chute). For ideal chipping performance, the gap between the bed plate and blades should be set using the *Bed Plate Gap Tool* (⅛ in [3 mm]).

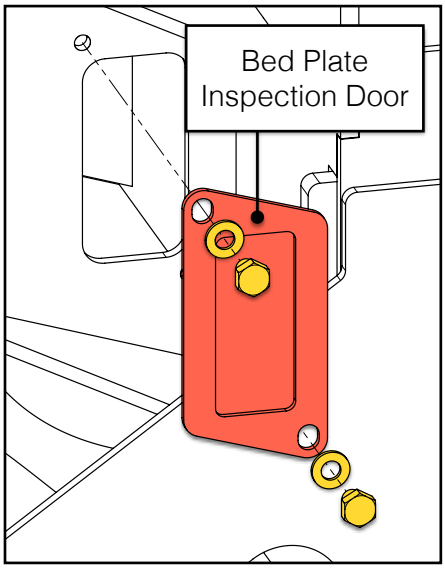


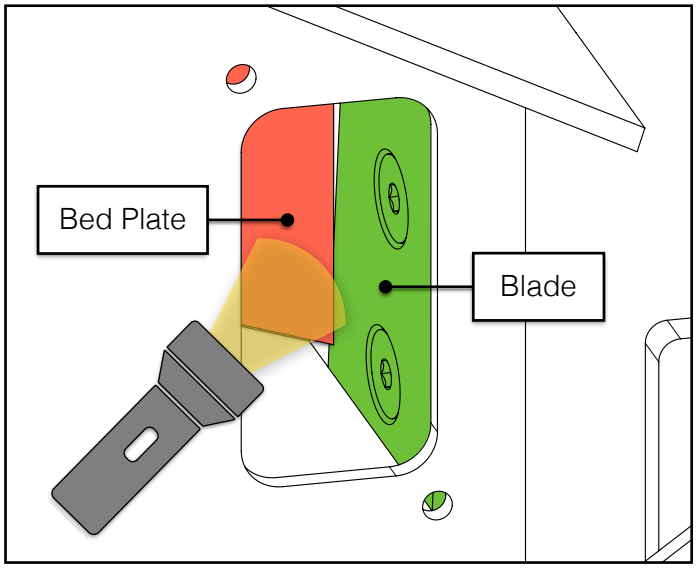
This graphic illustrates how the gap tool interfaces with the bed plate and blades in order to achieve uniform spacing. Some components removed for clarity.

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.

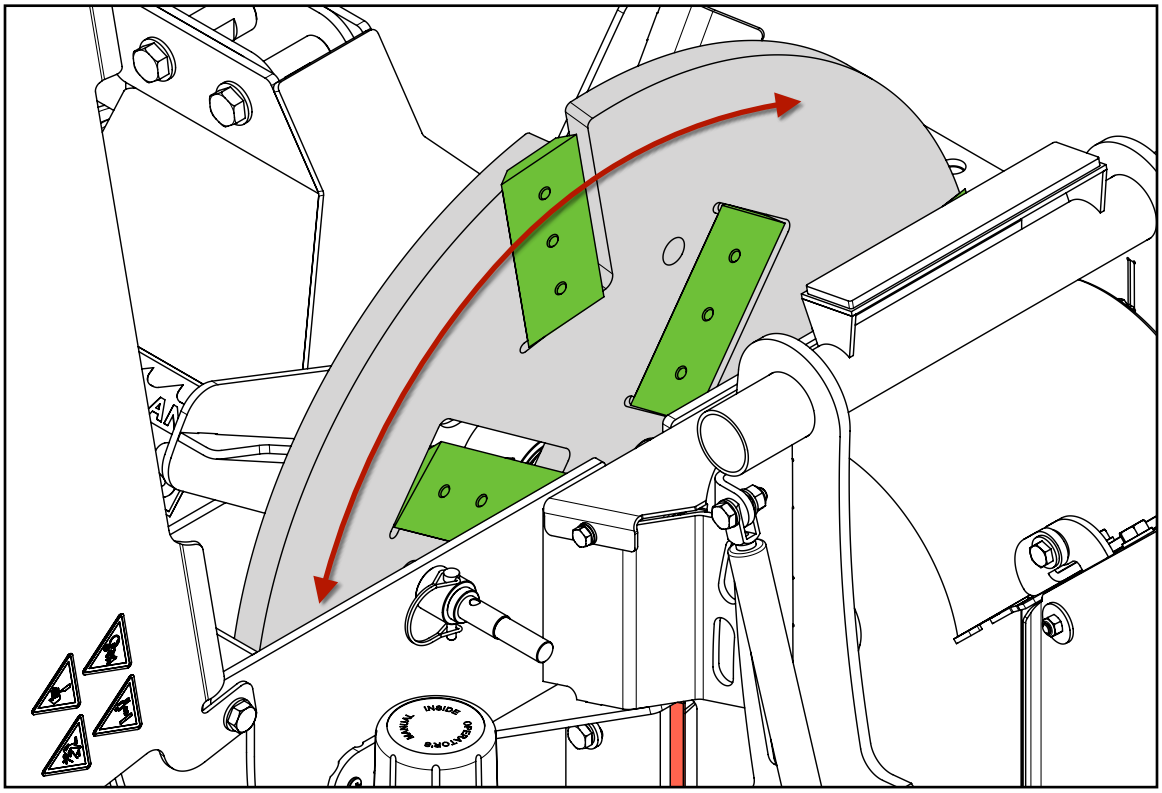


1. Disconnect the PTO shaft from the tractor for safety.
2. Open the upper flywheel housing using a 24 mm socket/wrench.
3. Remove the two (2) M8 X 10 mm hex bolts securing the bed plate inspection door located on the right-side of the lower infeed housing. With the bed plate inspection door removed, a clear view of the bed plate and its relationship to the blades can be seen. Use a flashlight for better viewing if necessary.

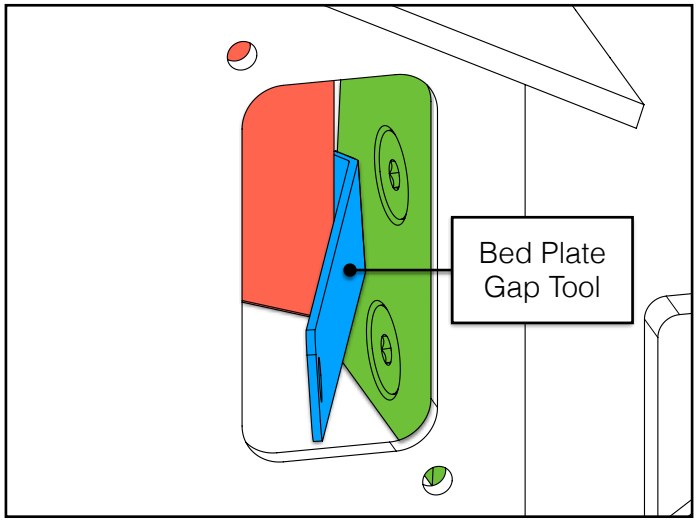




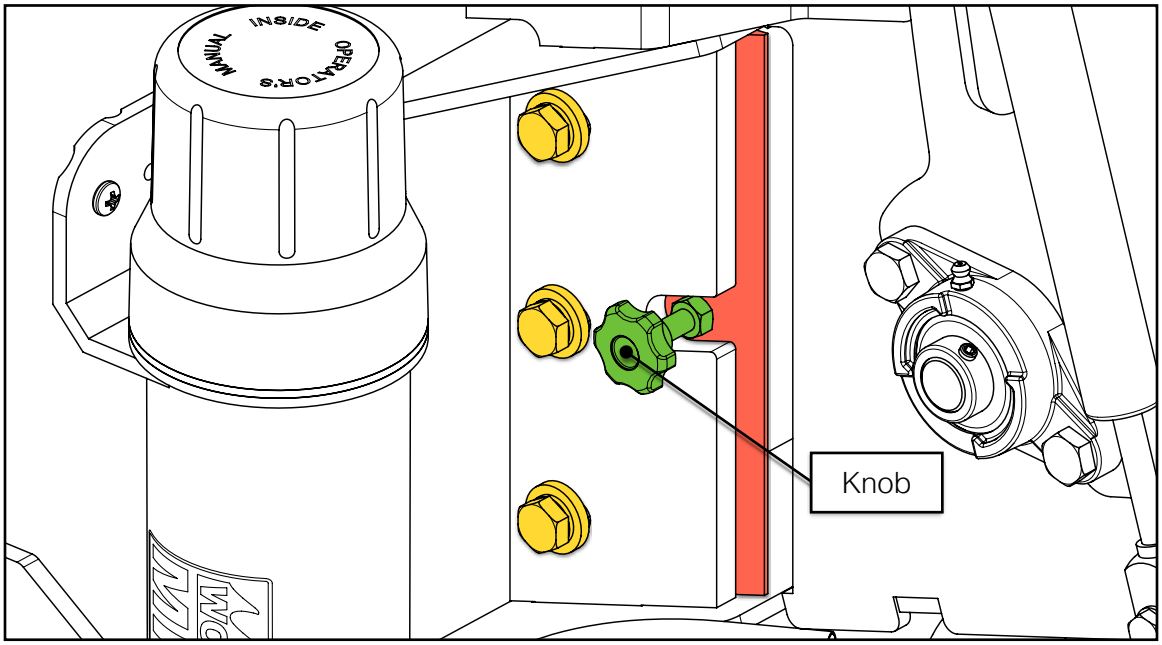
4. Rotate the primary flywheel so that the first blade is aligned with the bed plate. Take note of the gap between the two and continue to check the remaining blades relative to the bed plate—*taking note of which blade is closest*. Position this closest blade at the bed plate as this is the blade that will be used to set the proper gap with the provided tool.



5. Place the bed plate gap tool between the bed plate and blade. Verify that the gap is consistent vertically from the top of the bed plate to the bottom.



6. Loosen the three (3) bed plate M10 X 25 mm hex bolts enough so that the bed plate is free to slide in and out. This movement will increase or decrease the gap between the bed plate and the cutting edge of the blade.



Slide the bed plate by gripping the knob and adjust its position so that it touches the bed plate gap tool. Ensure the gap is uniform along the entire edge of the blade.

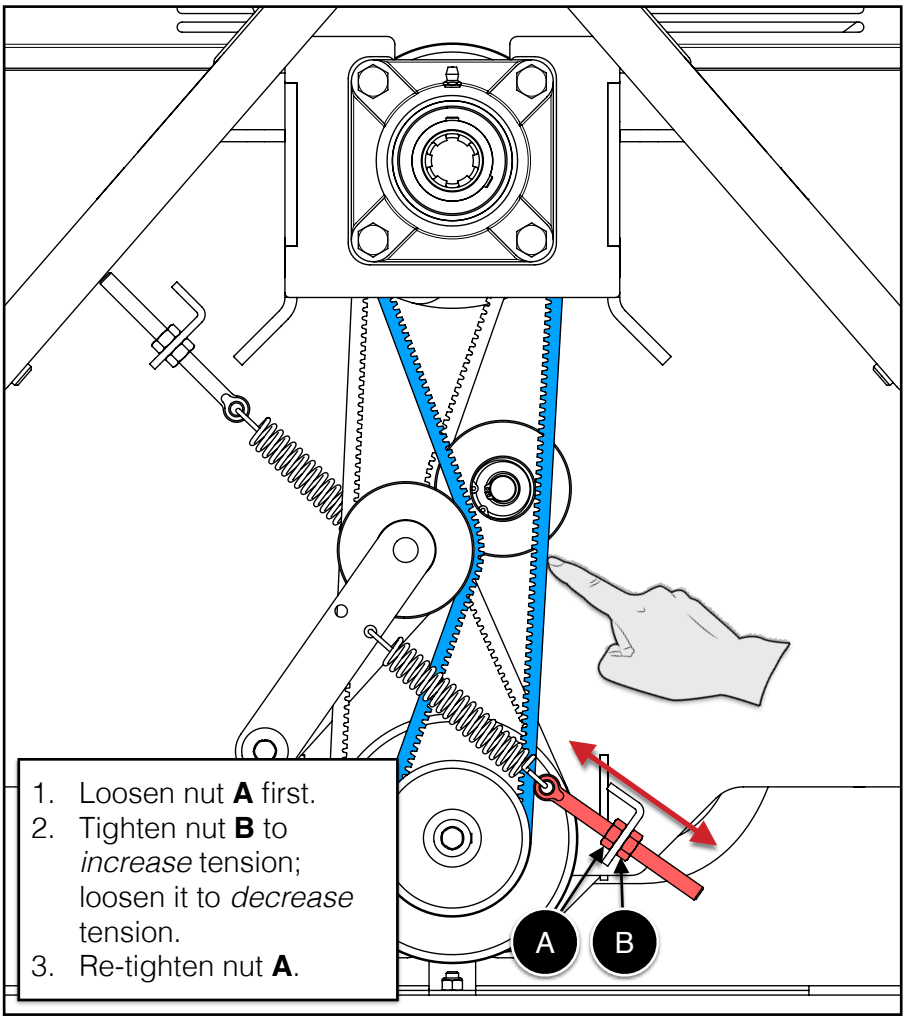
7. Snug the three (3) bed plate bolts once the gap has been set correctly for the blade closest to the bed plate.
8. Rotate the primary flywheel by hand again, checking the gap at each blade. The bed plate gap tool should still fit between the bed plate and blade along the entire length of the blade.
9. Once the bed plate gap is set, torque the three (3) M10 X 25 mm bed plate hex bolts to 40 ft•lb [54 N•m].
10. Close the upper flywheel housing and secure it to the lower housing by reinstalling the M16 X 40 mm bolt and flat washer.
11. Reinstall the bed plate inspection door and torque the two (2) M8 X 10 mm hex bolts to 225 in•lb [25 N•m].

ADJUSTING BELT TENSION

HYDRAULIC PUMP BELT

The hydraulic pump belt is the belt *closest* to the tractor. Check the condition and tension of the belt after every 30 hours of operation. It is self-tensioning via an extension spring. The amount of tension can be adjusted by following these steps:

1. If installed, disconnect the PTO shaft from the wood chipper for safety and to allow rotation of the belt and pulleys.
2. Check the pump belt tension by pressing on it with your finger. There should not be any free slack in the belt. It should be under firm tension.
3. If the pump belt requires more tension, the *lower right-side* eyebolt can be adjusted by loosening and tightening the M10 hex nuts as shown below. This will stretch the spring and increase the tension until the belt is firm.

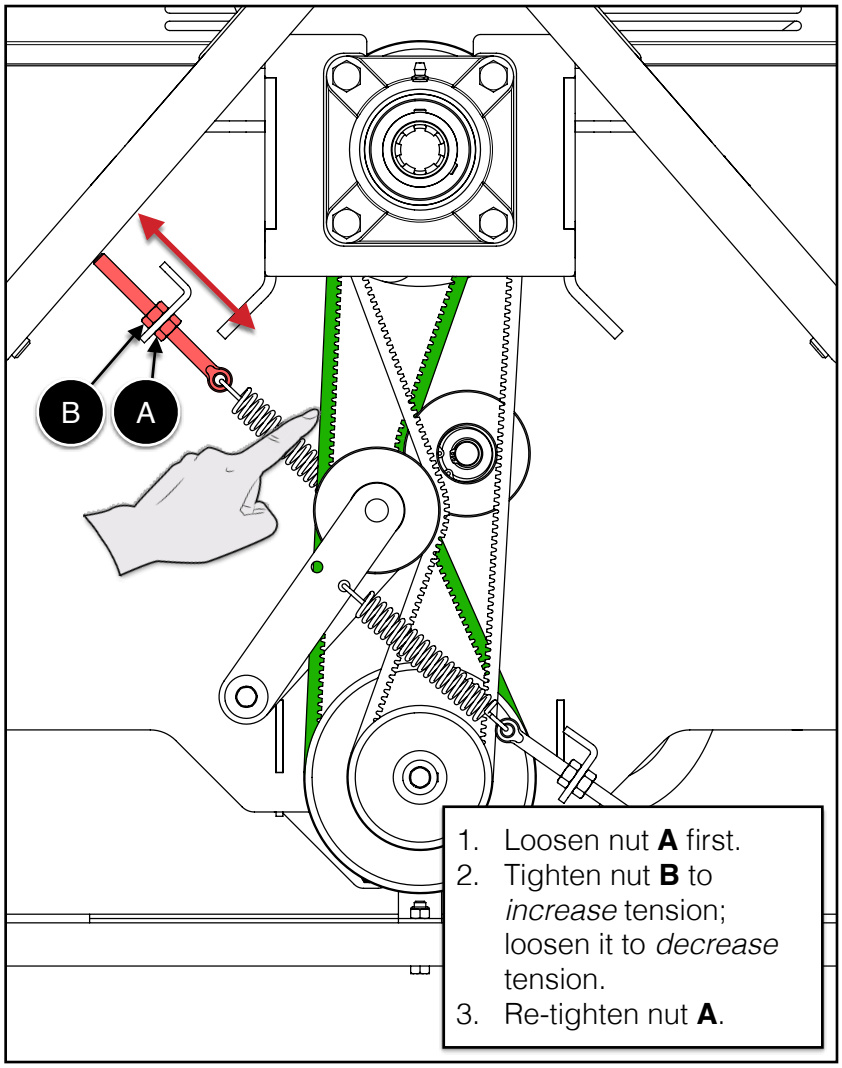


Adjusting Hydraulic Pump Belt Tension

SECONDARY FLYWHEEL BELT

The secondary flywheel belt is the belt *farthest* from the tractor. Check the condition and tension of the belt after every 30 hours of operation. It is self-tensioning via an extension spring. The amount of tension can be adjusted by following these steps:

1. If installed, disconnect the PTO shaft from the wood chipper for safety and to allow rotation of the belt and pulleys.
2. Check the secondary flywheel belt tension by pressing on it with your finger. There should not be any free slack in the belt. It should be under firm tension.
3. If the secondary flywheel belt requires more tension, the *upper* left-*side* eyebolt can be adjusted by loosening and tightening the M10 hex nuts as shown below. This will stretch the spring and increase the tension until the belt is firm.



Adjusting Secondary Flywheel Belt Tension

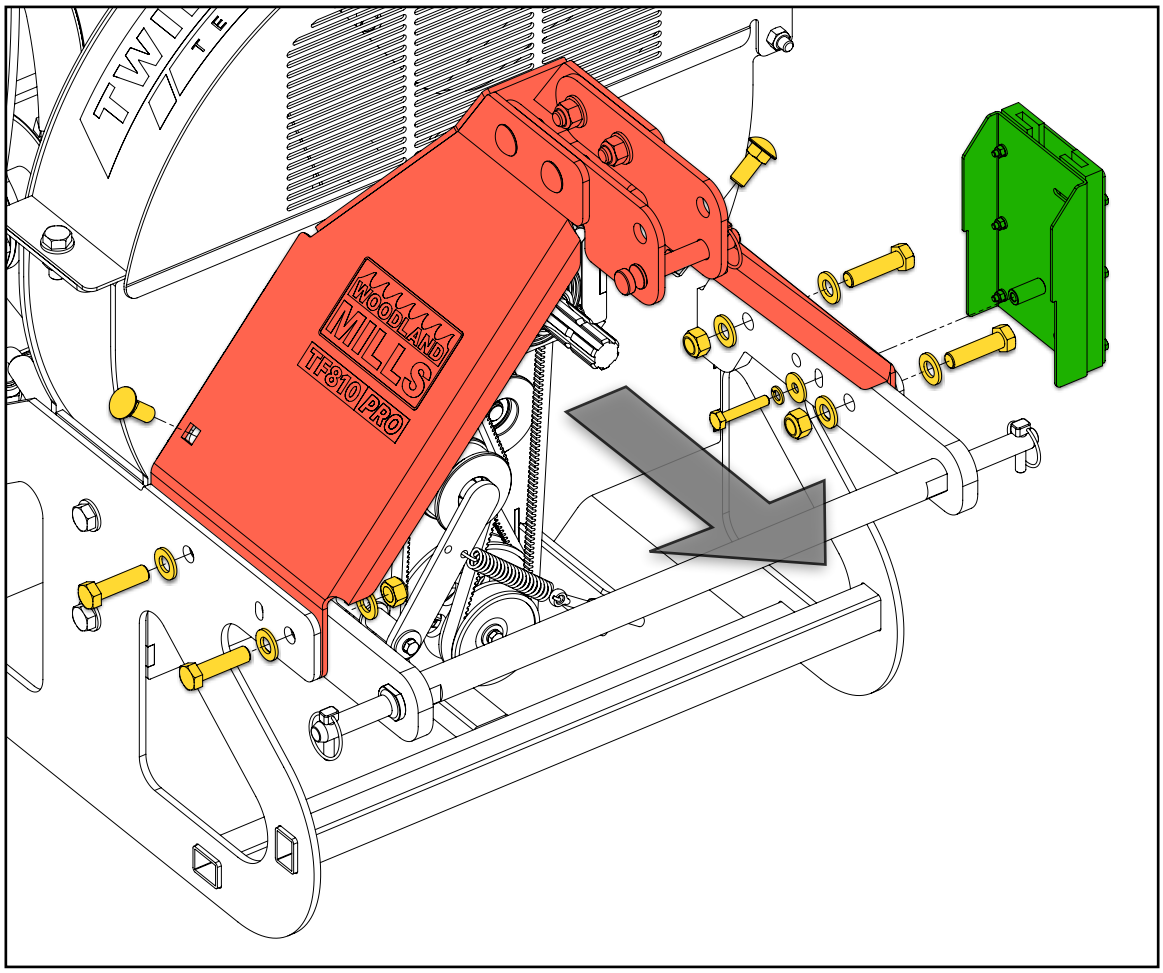
REPLACING BELTS

Check the condition and tension of both belts after every 30 hours of operation. If the infeed roller is not rotating—or rotating slowly—the hydraulic pump belt could be slipping. A squealing noise may also be heard. In either case, these conditions can occur due to a worn belt or improper belt tension (see the previous section, ***Adjusting Belt Tension***). It is recommended *both* belts be replaced at the same time to reduce future maintenance.

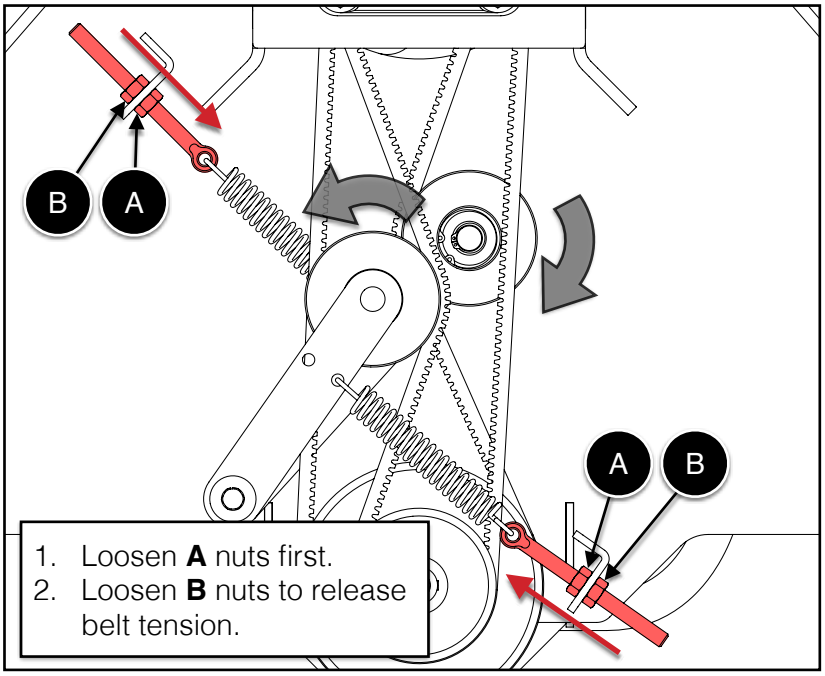
- *Hydraulic Pump Belt*: **BX48**
- *Secondary Flywheel Belt*: **BX50**

To replace the worn belts, follow the steps below:

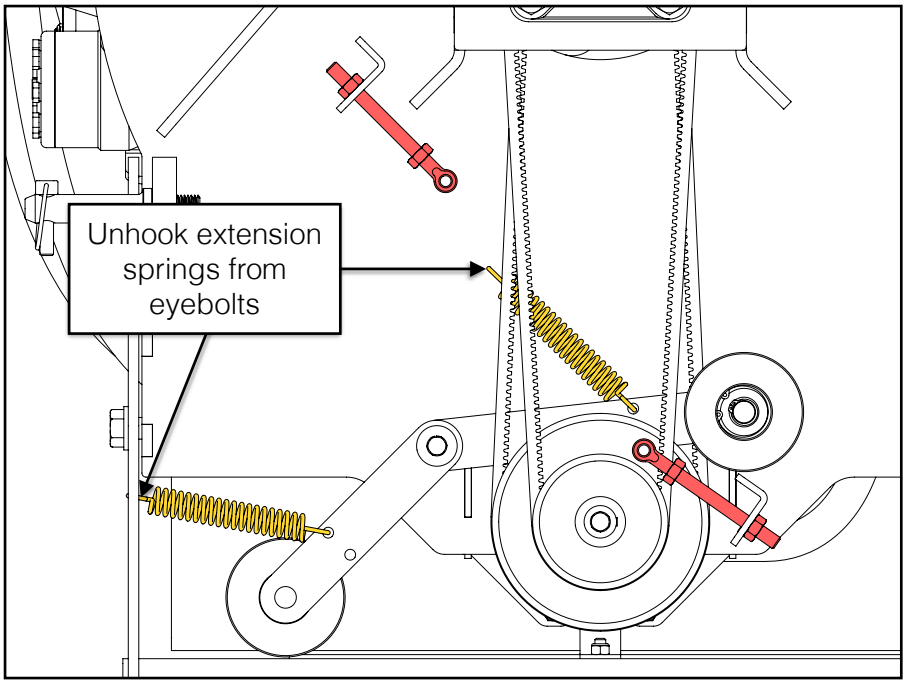
1. If installed, disconnect the PTO shaft from the wood chipper for safety.
2. Remove the four (4) M16 X 60 mm hex bolts, the two (2) M16 X 40 mm carriage bolts, and their respective washers and lock nuts securing the belt guard. Remove the chainsaw holder and its hardware (if installed). Set the belt guard aside.



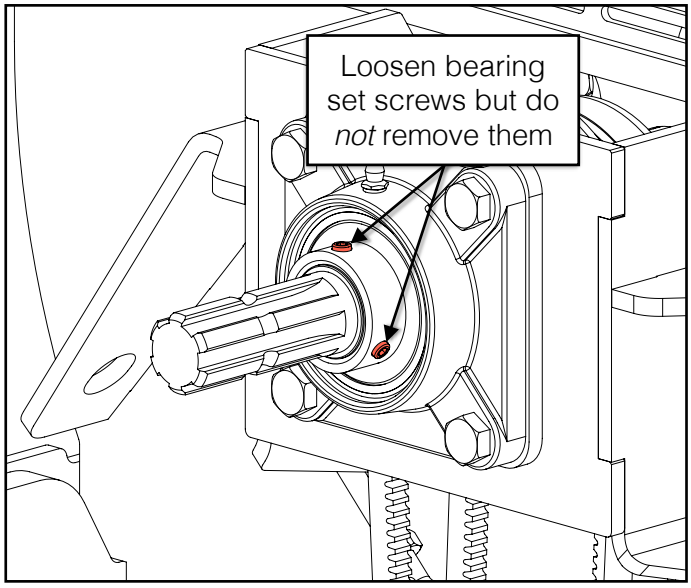
3. Loosen the two (2) jam nuts on both of the belt tensioner eyebolts to completely release the tension on the extension springs.



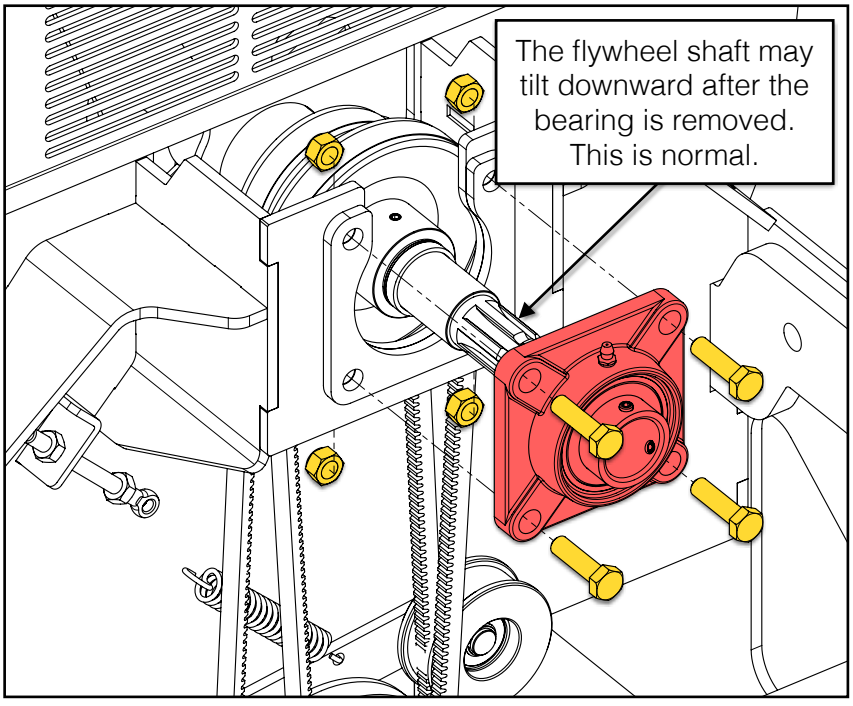
4. Unhook the extension springs from the eyebolts and allow the belt tension arms to rotate downward until they come to rest.



5. Loosen—but do not remove—the two (2) M8 set screws on the bearing collar as shown below.

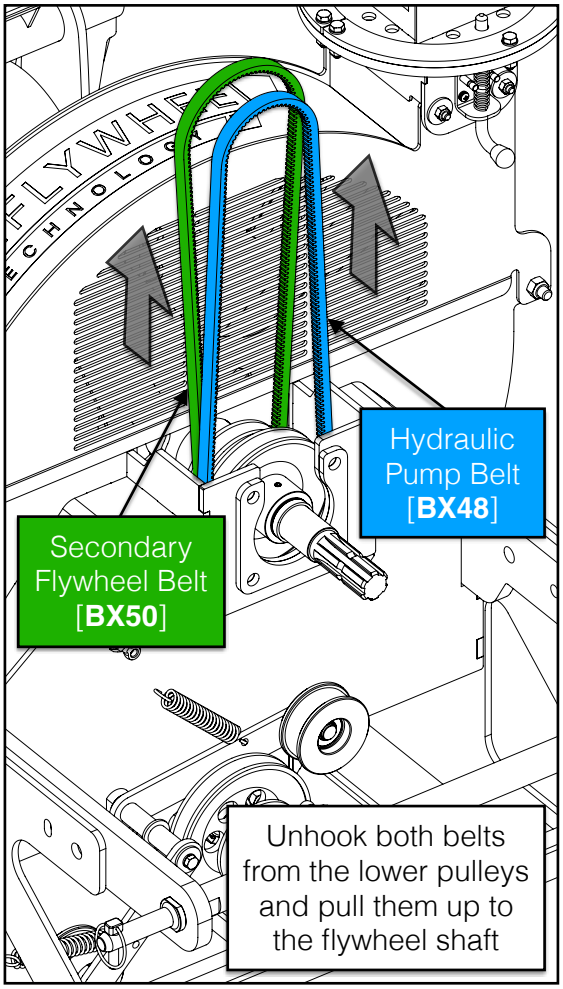


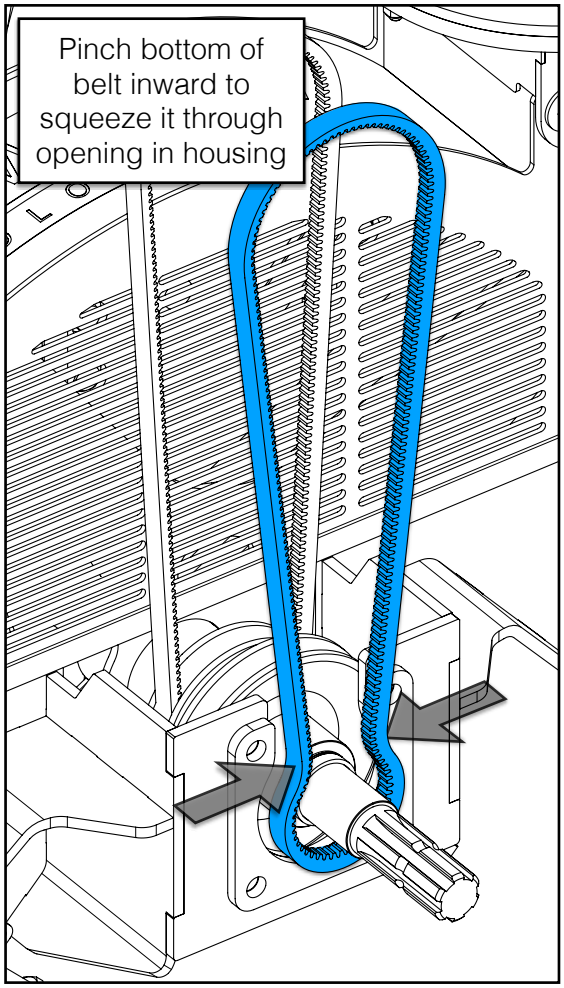
6. Remove the four (4) M12 X 45 mm hex bolts and lock nuts used to mount the bearing and slide it off the flywheel shaft as shown below. The shaft may tilt downward once the bolts are removed but this normal.



7. Unhook both belts from the lower pulleys and pull them up to the flywheel shaft as shown ***below-left***. Remove the hydraulic pump belt (front) first. Pinch the bottom of the belt inward and squeeze it through the opening between the flywheel shaft and housing as shown ***below-right***. Then repeat the procedure to remove the secondary flywheel belt (rear).

   Note: the shaft may have to be lifted up and supported by hand as each belt is removed.



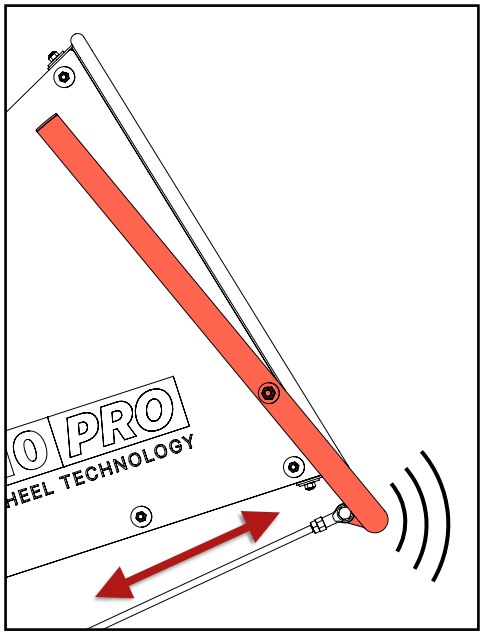


8. Reverse the steps to install new belts. Remember to install the secondary flywheel belt (rear) first before installing the hydraulic pump belt (front).

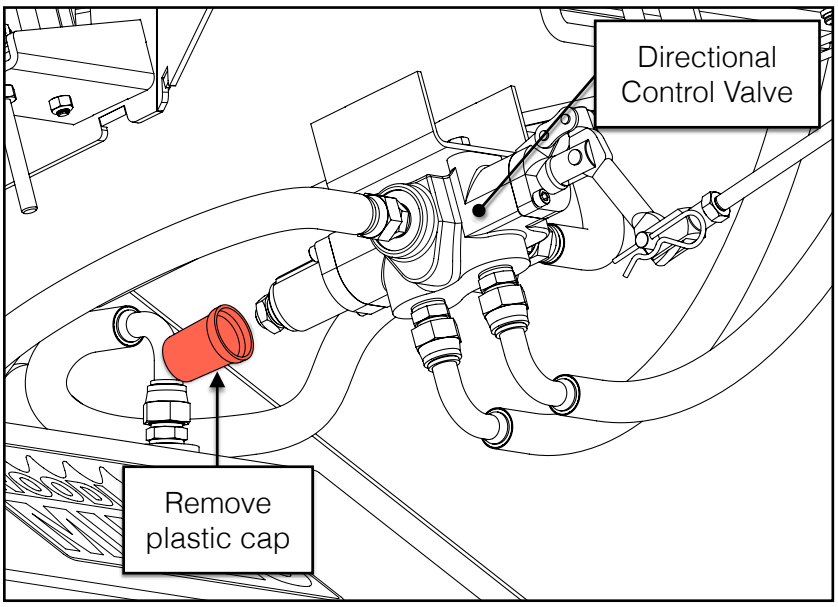
   ****Note: When reinstalling the bearing, be sure to torque the four (4) M12 X 45 mm hex bolts and lock nuts to 65 ft·lb [88 N·m].****

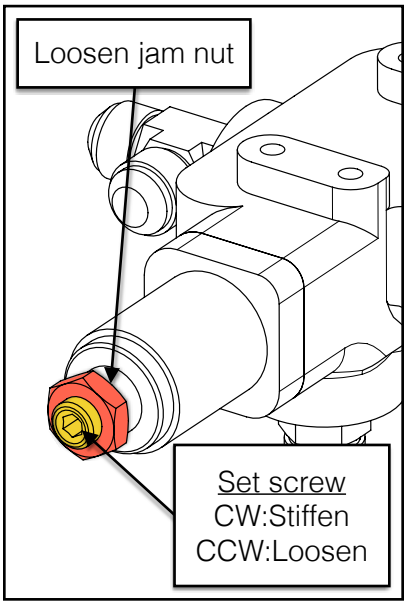
ADJUSTING THE CONTROL ARM

If the movement of the red control arm feels too stiff or too loose, or if it falls into neutral or reverse unexpectedly, it can be adjusted via the directional control valve.



Unscrew the plastic cap from the back of the directional control valve (located under the infeed chute), exposing the jam nut and set screw.





Loosen the jam nut with a 22 mm [⅞ in] wrench. Use a 6 mm hex key and turn the set screw ***clockwise (CW) to stiffen*** the movement of the arm, ***counter-clockwise (CCW) to loosen*** it. Tighten the jam nut and replace the cap after the control arm movement feels satisfactory.

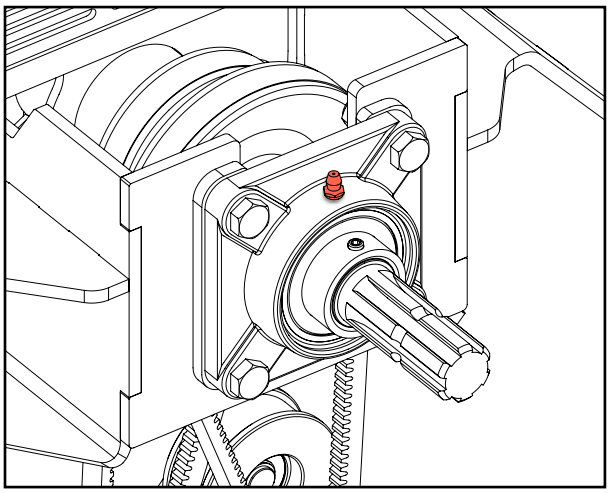
GREASING

BEARINGS & OUTPUT SHAFT

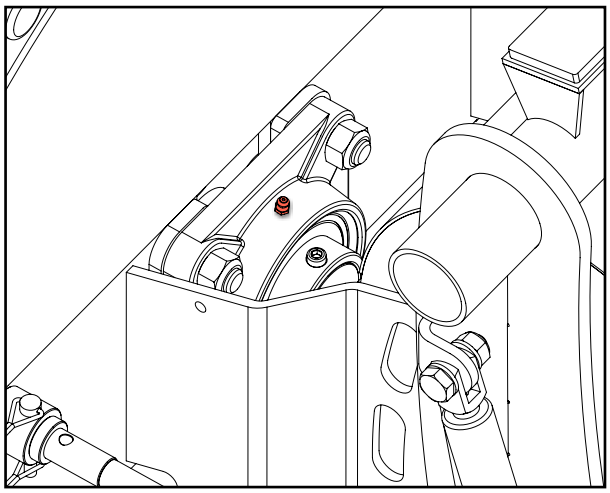
The wood chipper has five (5) grease points with Zerk fittings: two (2) flywheel shaft bearings, one (1) infeed roller bearing, and two (2) pump shaft bearings. Check each grease point prior to use and add grease as needed.

Also, periodically brush grease onto the wood chipper's output shaft for ease of PTO shaft assembly & removal, to prevent rust buildup, and to prevent the two shafts from seizing together.

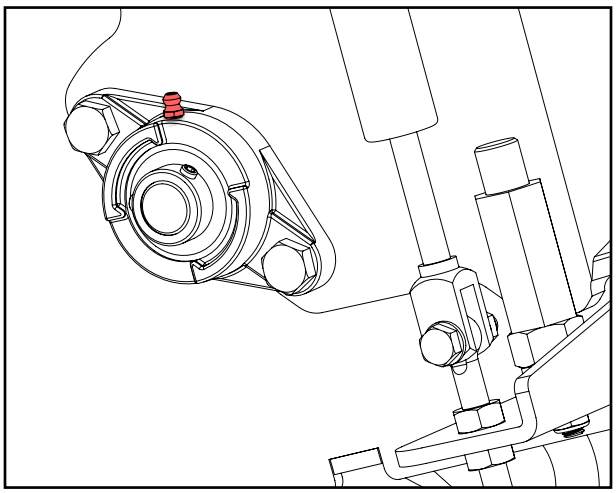
****Warning: These 5 grease points come pre-greased from the factory. *Do not add grease to the Zerk fittings on a new wood chipper*. Over-greasing can damage the bearing seals.****



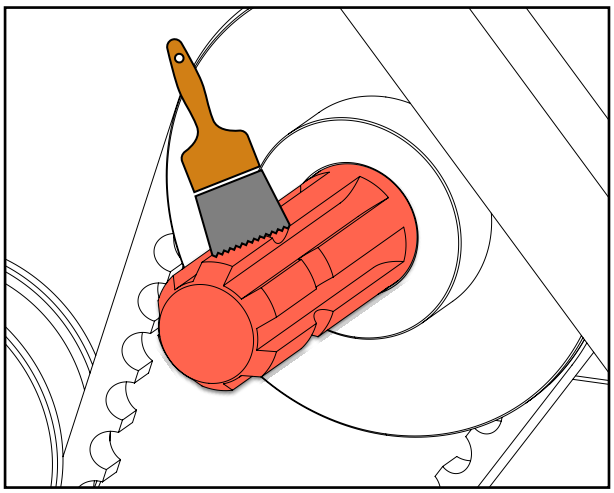
Front Flywheel Shaft Bearing
(Belt guard removed for clarity)



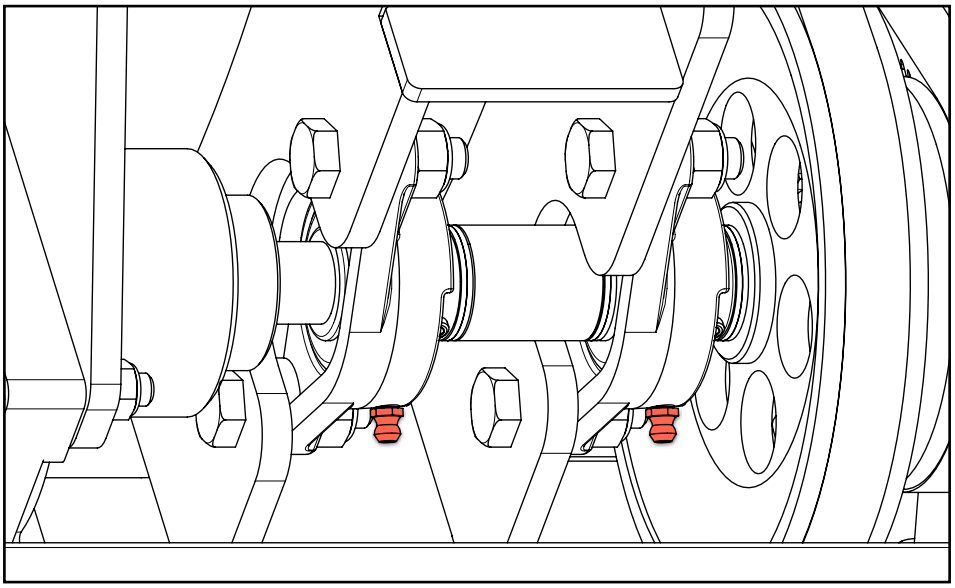
Rear Flywheel Shaft Bearing
(Bearing cover removed for clarity)



Infeed Roller Bearing



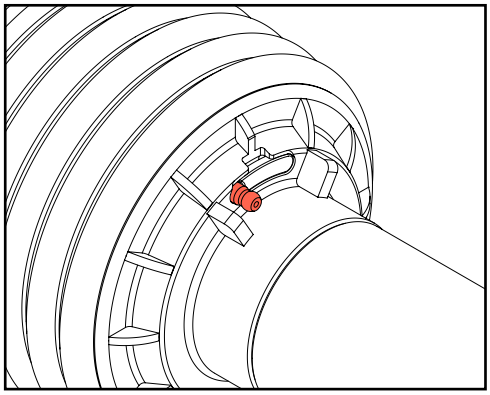
Output Shaft



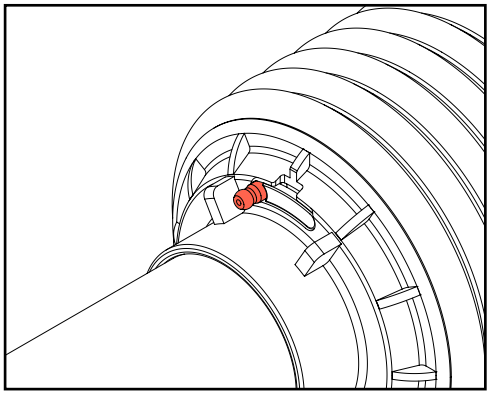
Front and Rear Pump Shaft Bearings
(Underside of flywheel housing)

PTO SHAFT

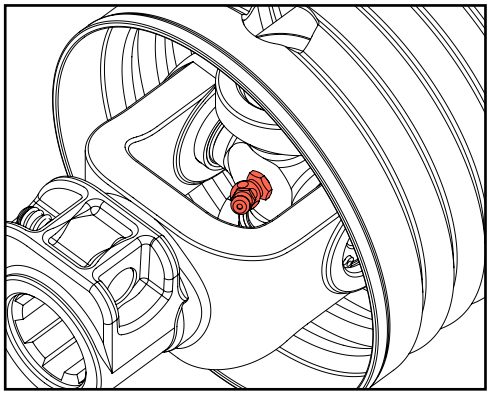
The PTO shaft has seven (7) grease points that are accessible from the outside: one (1) on each of the inner and outer guards, two (2) on the tractor yoke, and three (3) on the shear pin yoke. Check each grease point prior to use and add grease as needed.



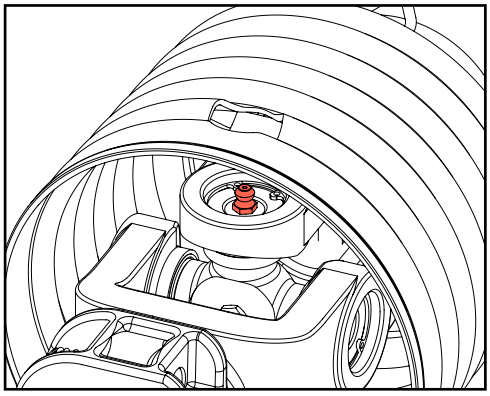
Inner Cover



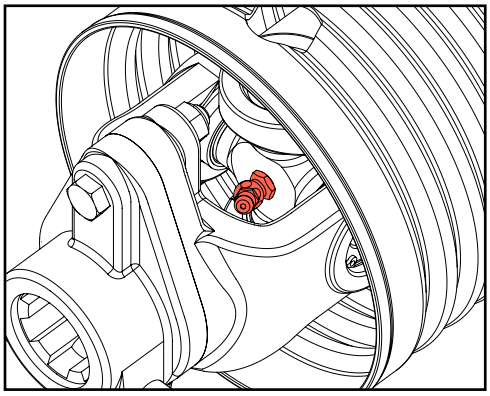
Outer Cover



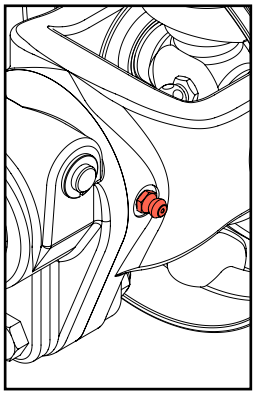
Tractor Yoke 1



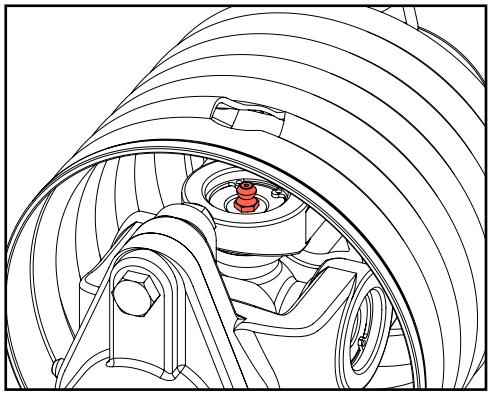
Tractor Yoke 2



Shear Bolt Yoke 1



Shear Bolt Yoke 2

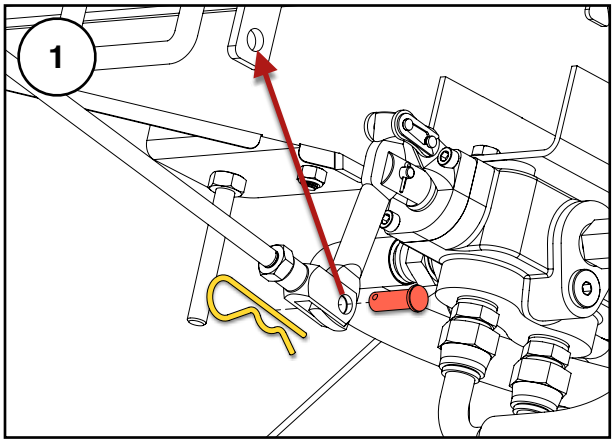


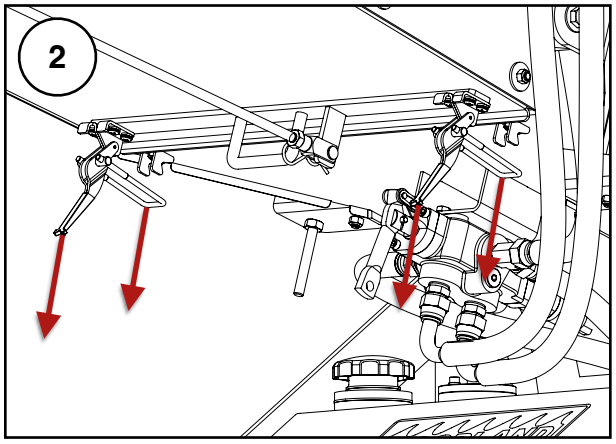
Shear Bolt Yoke 3

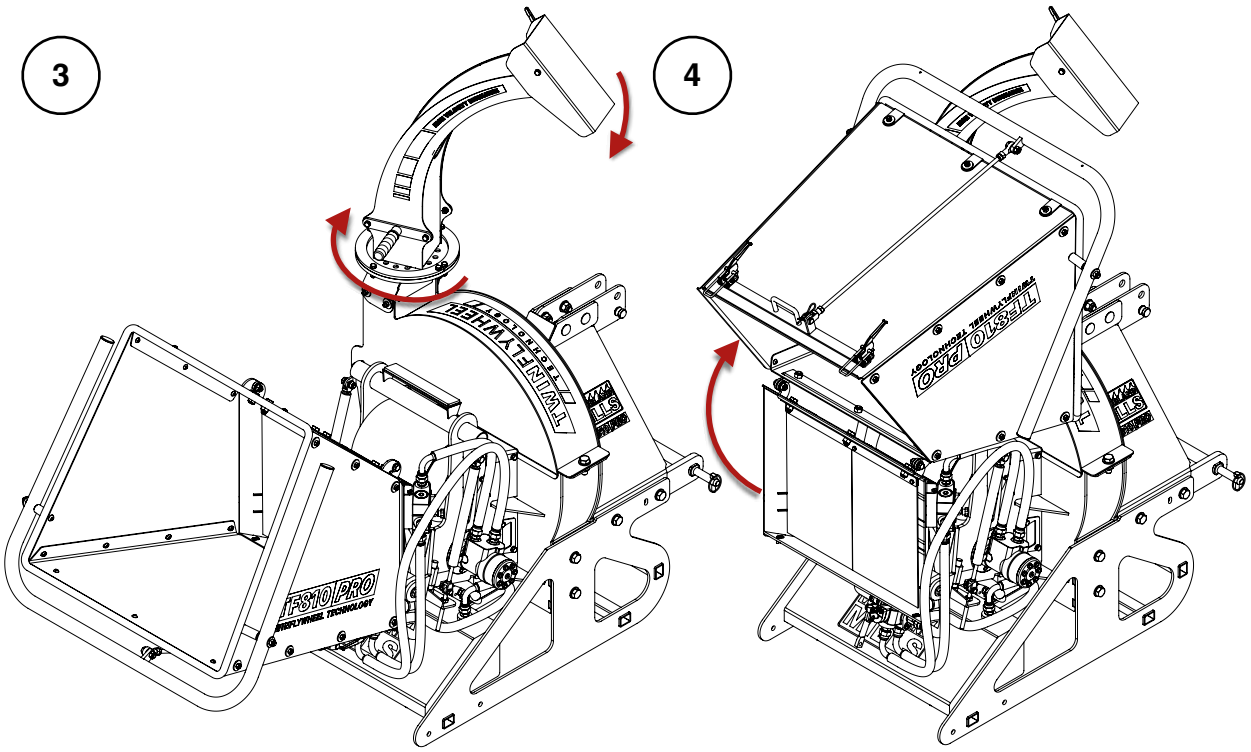
STORAGE

When the wood chipper is not in use, it can be stored to utilize a smaller footprint to save space. Follow these steps to put the wood chipper in its storage state:

1. Disconnect the control bar linkage from the directional control valve and reconnect it to the tab on the underside of the infeed chute bottom panel.
2. Disengage the two (2) latches on the underside of the infeed chute bottom panel.
3. Rotate the discharge chute so that it points to the right and then rotate the deflector until it points down.
4. Swing the infeed chute up until it is resting on the swingarm.





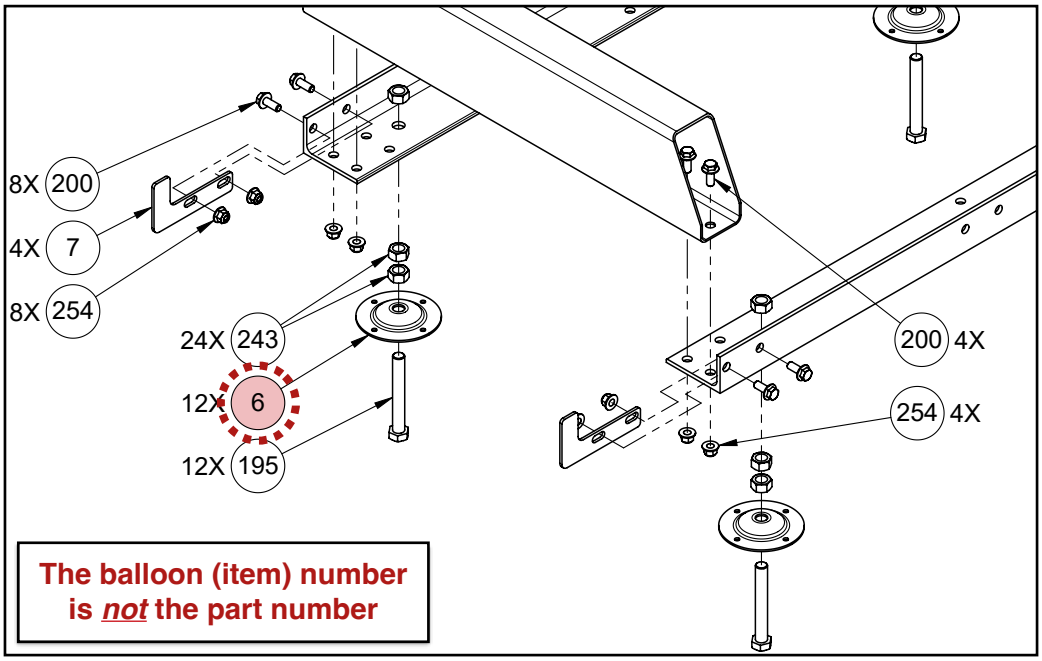


TROUBLESHOOTING

Problem/Issue	Possible Causes	Resolution Options
Brush is feeding too slowly	1. Infeed roller control set too low. 2. PTO RPM below 540. 3. Blades are dull. 4. Improper bed plate gap.	1. Increase infeed roller control to a higher value. Refer to page 45. 2. Adjust tractor RPMs to 540 at output. 3. Reverse, sharpen, or replace blades. Refer to page 49 & page 51. 4. Re-set bed plate gap. Refer to page 52.
Brush exiting discharge chute is stringy	1. Blades are dull. 2. Brush is excessively sappy.	1. Reverse, sharpen, or replace blades. Refer to page 49 & page 51. 2. Clean blades and bed plate.
Excessive clogging	1. Blades are dull. 2. Improper bed plate gap. 3. PTO RPM below 540.	1. Reverse, sharpen, or replace blades. Refer to page 49 & page 51. 2. Re-set bed plate gap. Refer to page 52. 3. Clean blades and bed plate. 4. Adjust tractor RPMs to 540 at output.
Drive belts slipping or squeaking	1. Belt tension not set properly. 2. Belts are old/worn.	1. Adjust belts' tension. Refer to page 56. 2. Replace belts. Refer to page 58.
Excessive noise coming from flywheel shaft bearings	1. Bearings not sufficiently lubricated. 2. Bearings are worn.	1. Grease bearings. Refer to page 63. 2. Replace bearings. Please contact Woodland Mills for bearing replacement instructions.
Red control arm falls into neutral or reverse	1. Directional control valve not adjusted properly.	1. Adjust directional control valve set screw. Refer to page 62.

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:

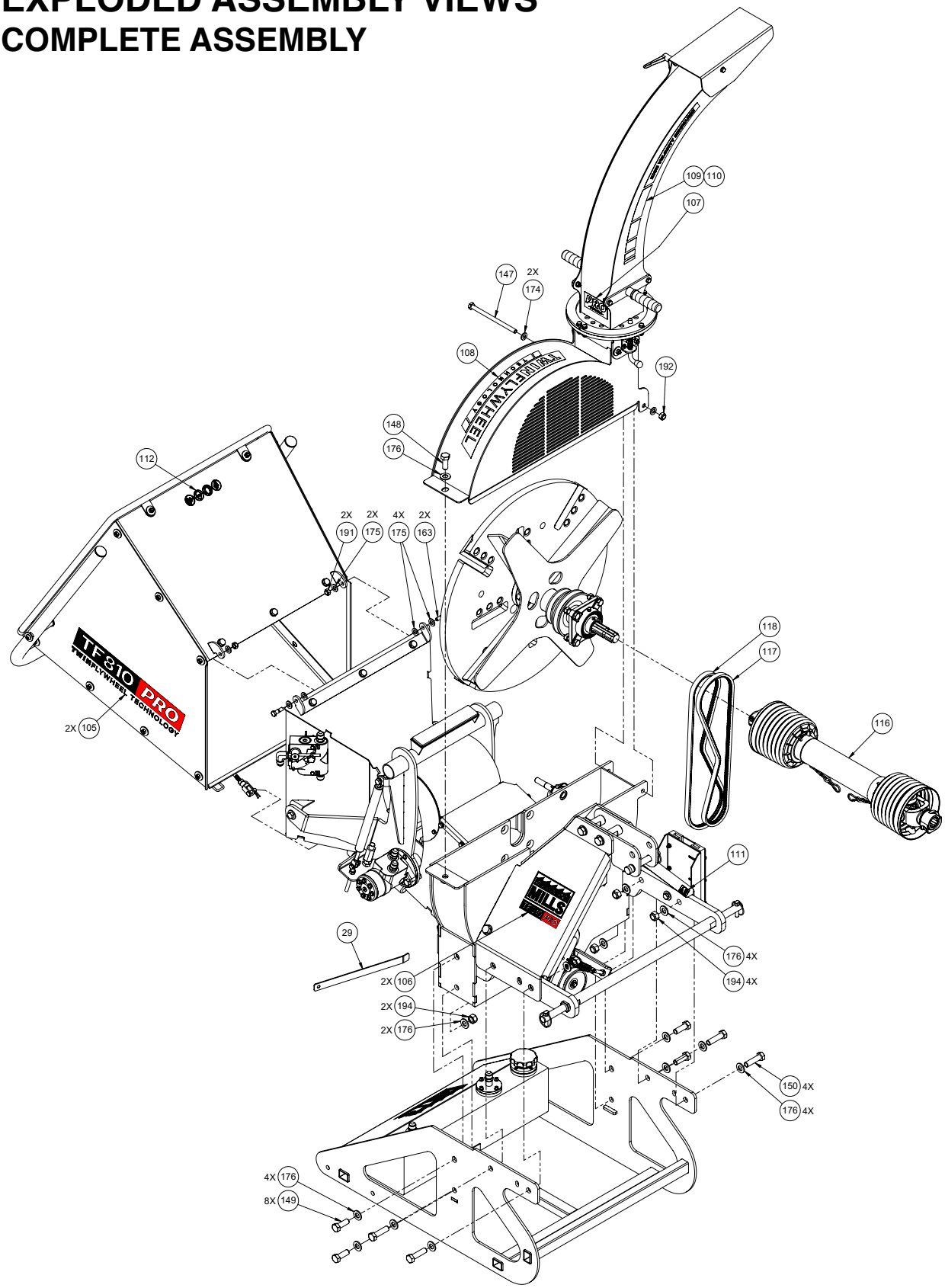
PARTS LIST

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

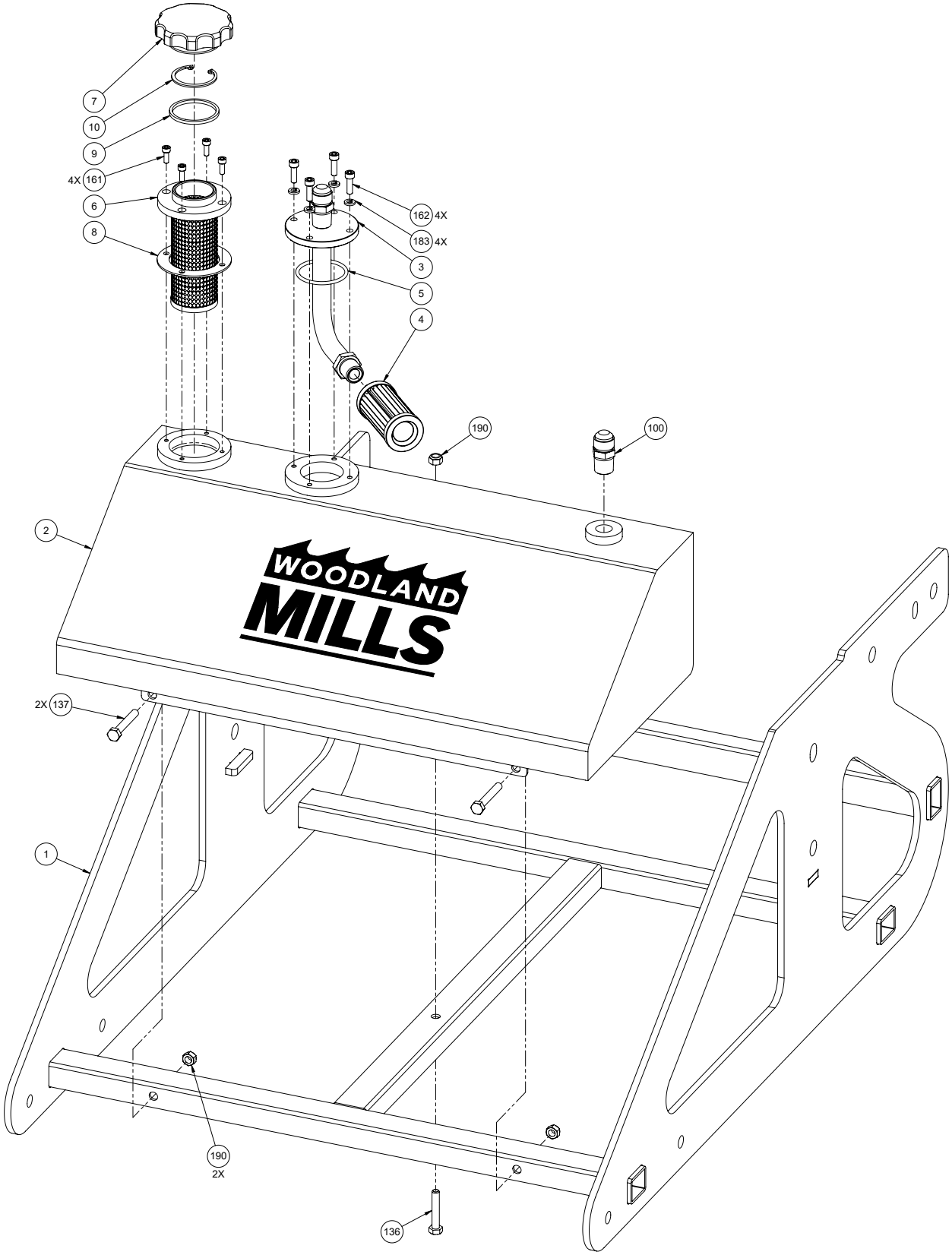
Record the part number (e.g. *0001071, HHB-MBM080FCJ, etc.*) in the "**Part No.**" column.

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.

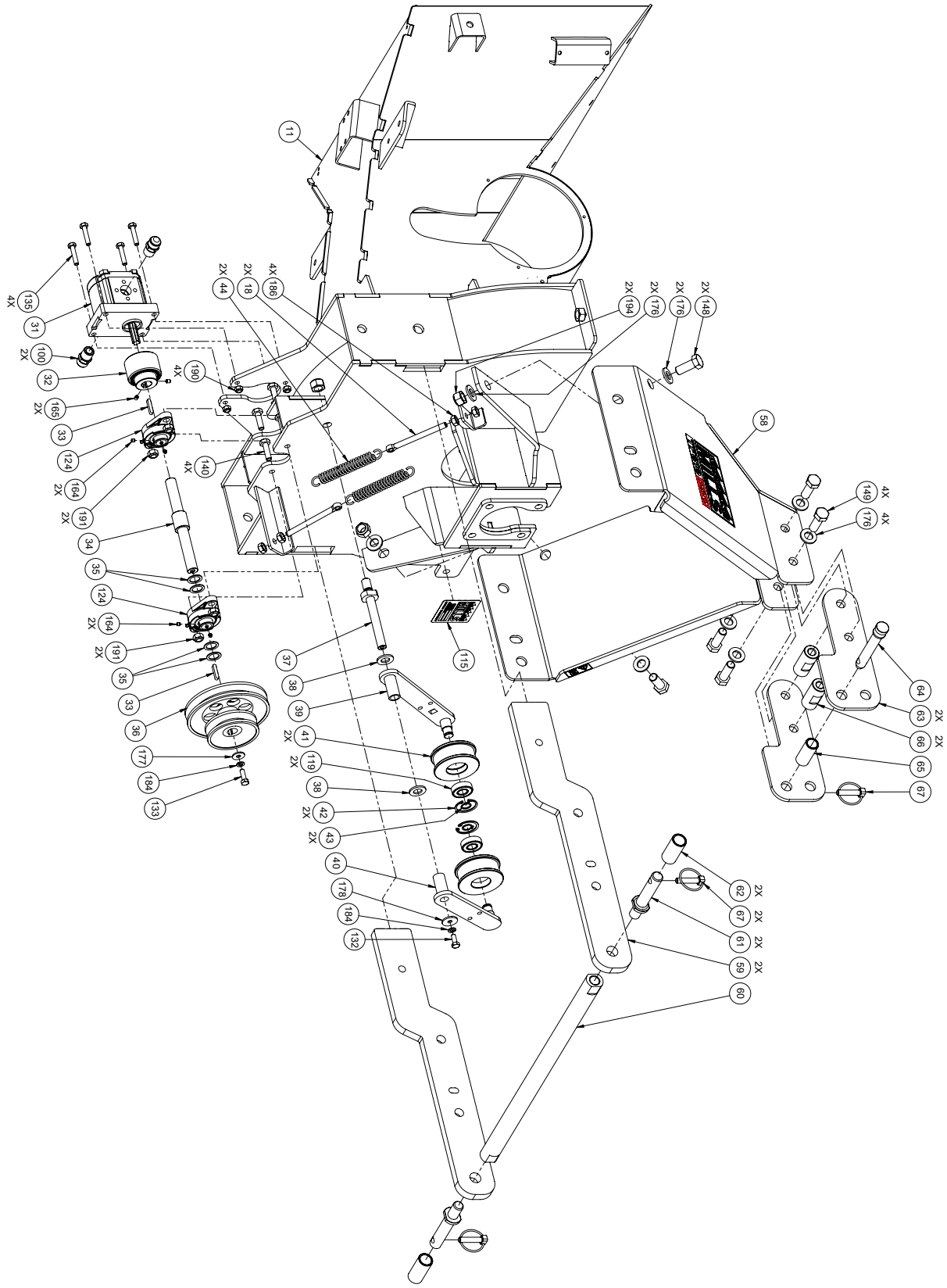
EXPLODED ASSEMBLY VIEWS
COMPLETE ASSEMBLY



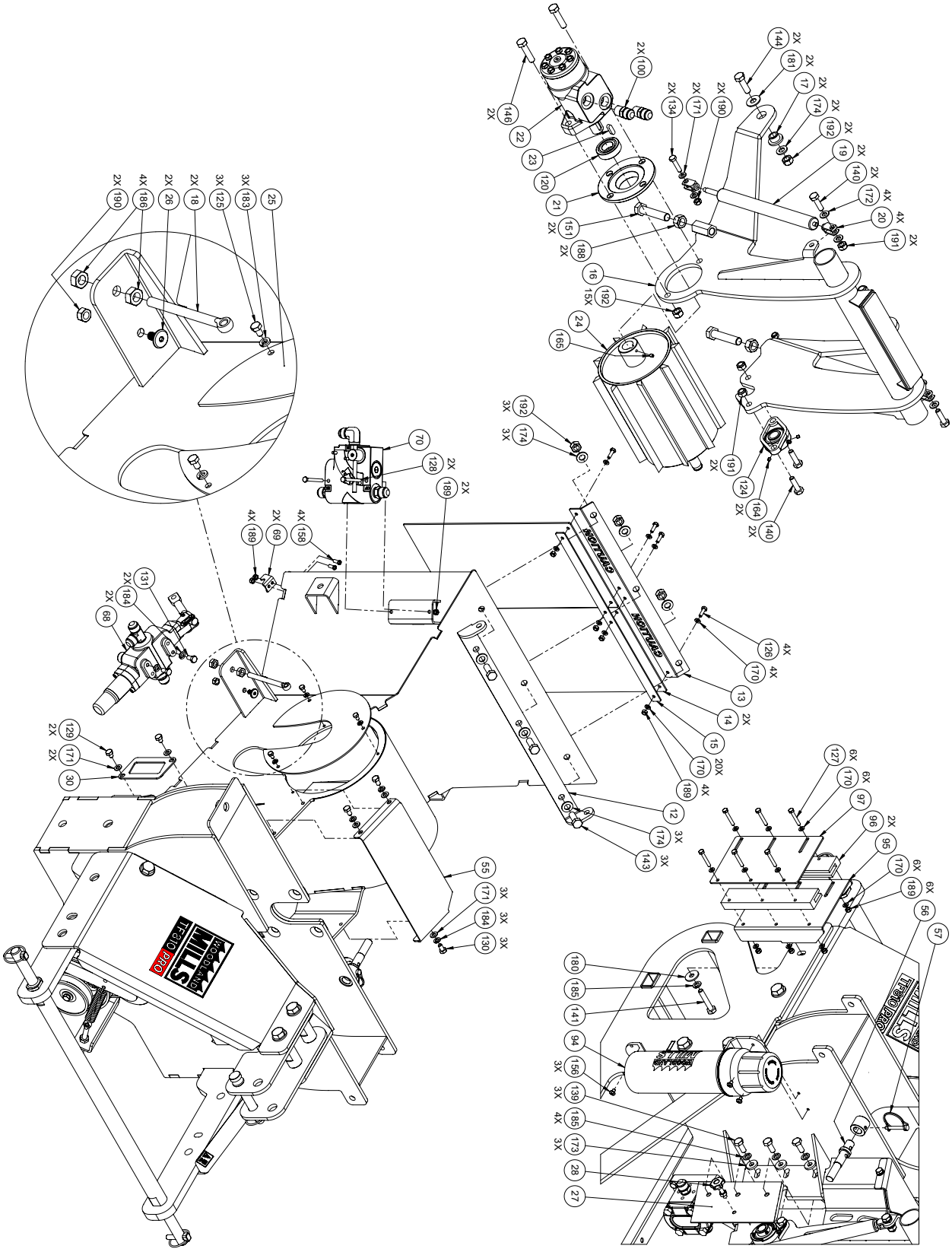
BASE



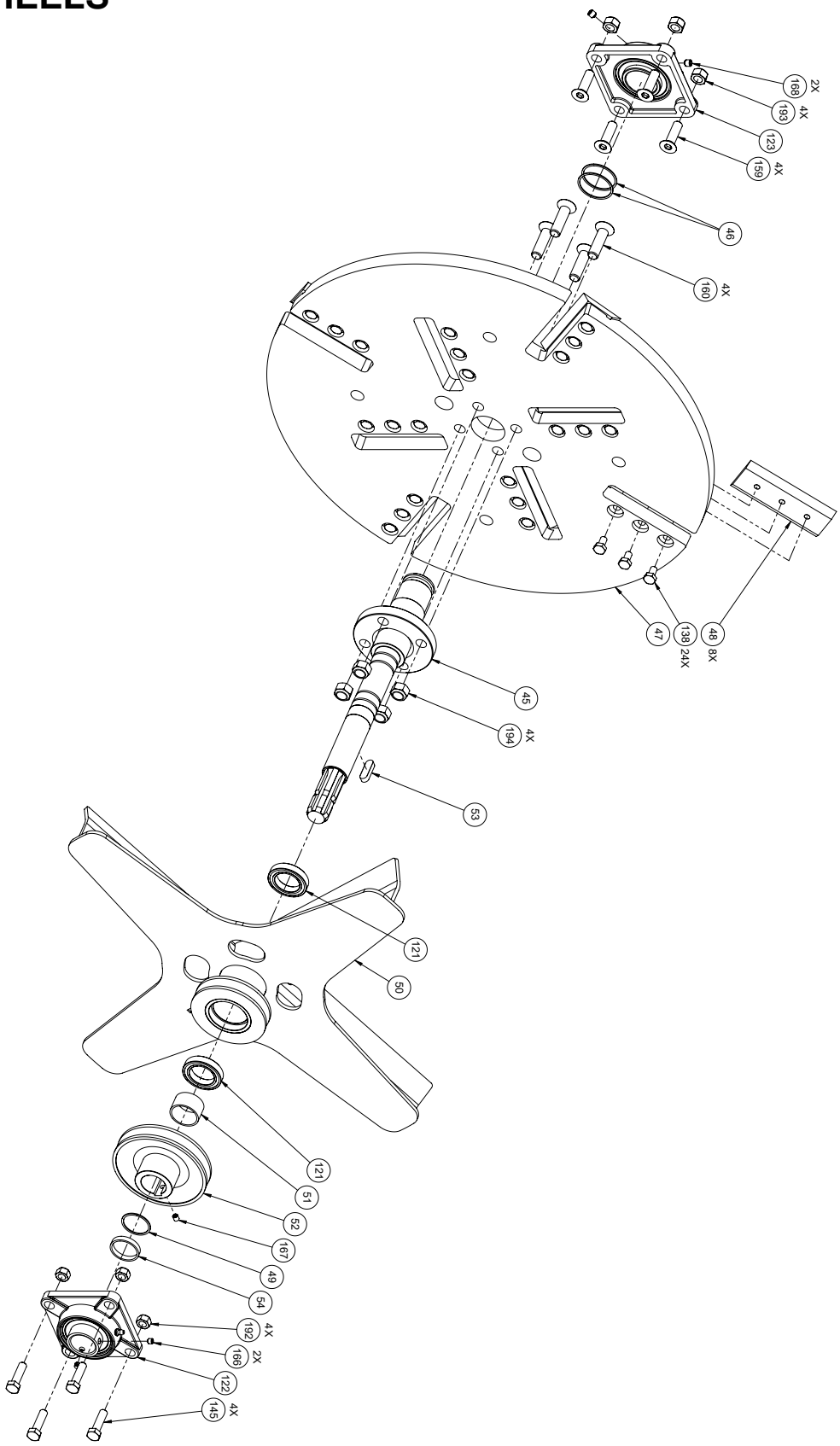
LOWER FLYWHEEL HOUSING [FRONT]



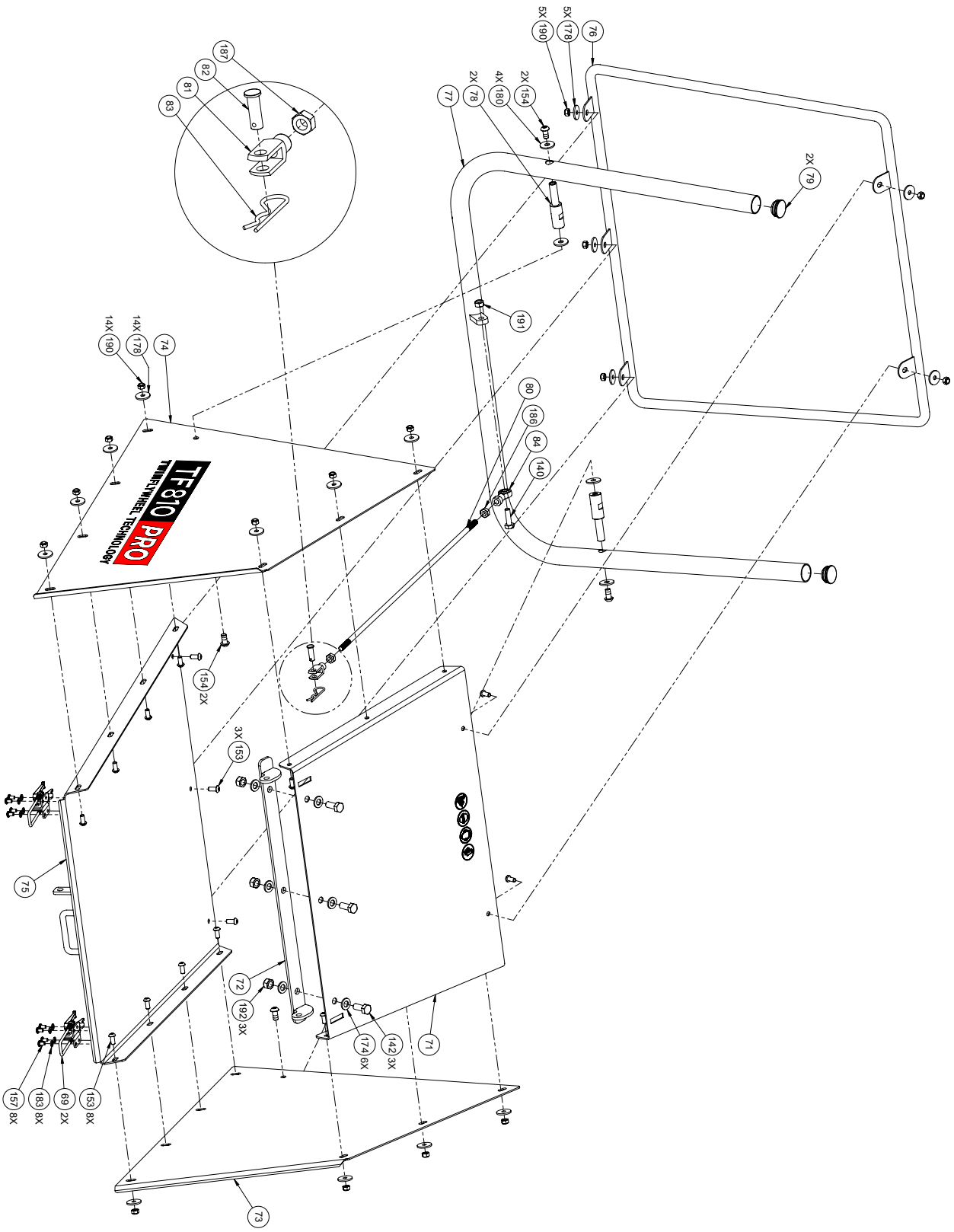
LOWER FLYWHEEL HOUSING [REAR]



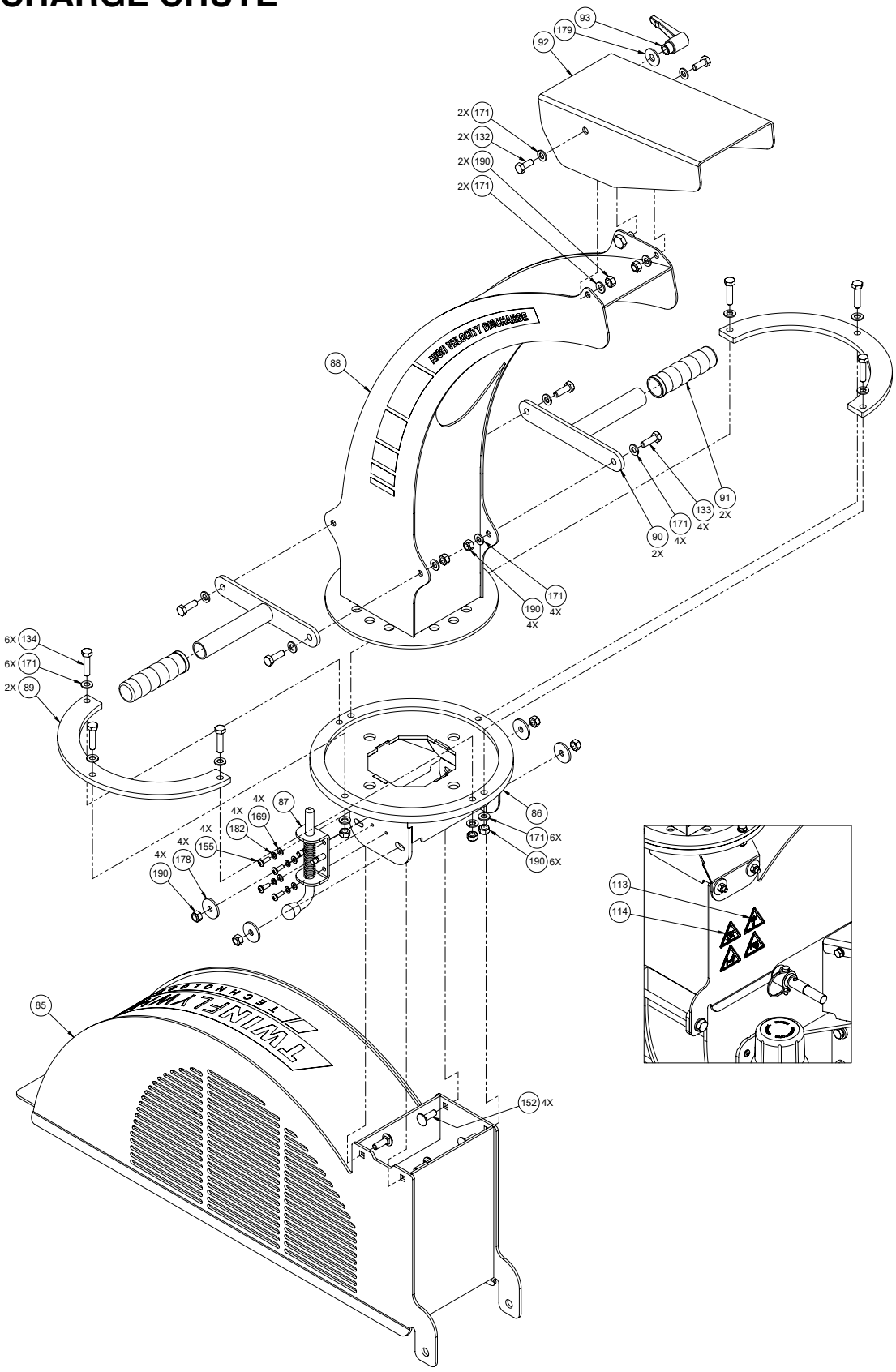
FLYWHEELS


168 2X
193 4X
123
159 4X
46
160 4X
47
138 24X
48 8X
45
194 4X
53
121
50
121
51
52
167
49
54
192 4X
166 2X
122
145 4X

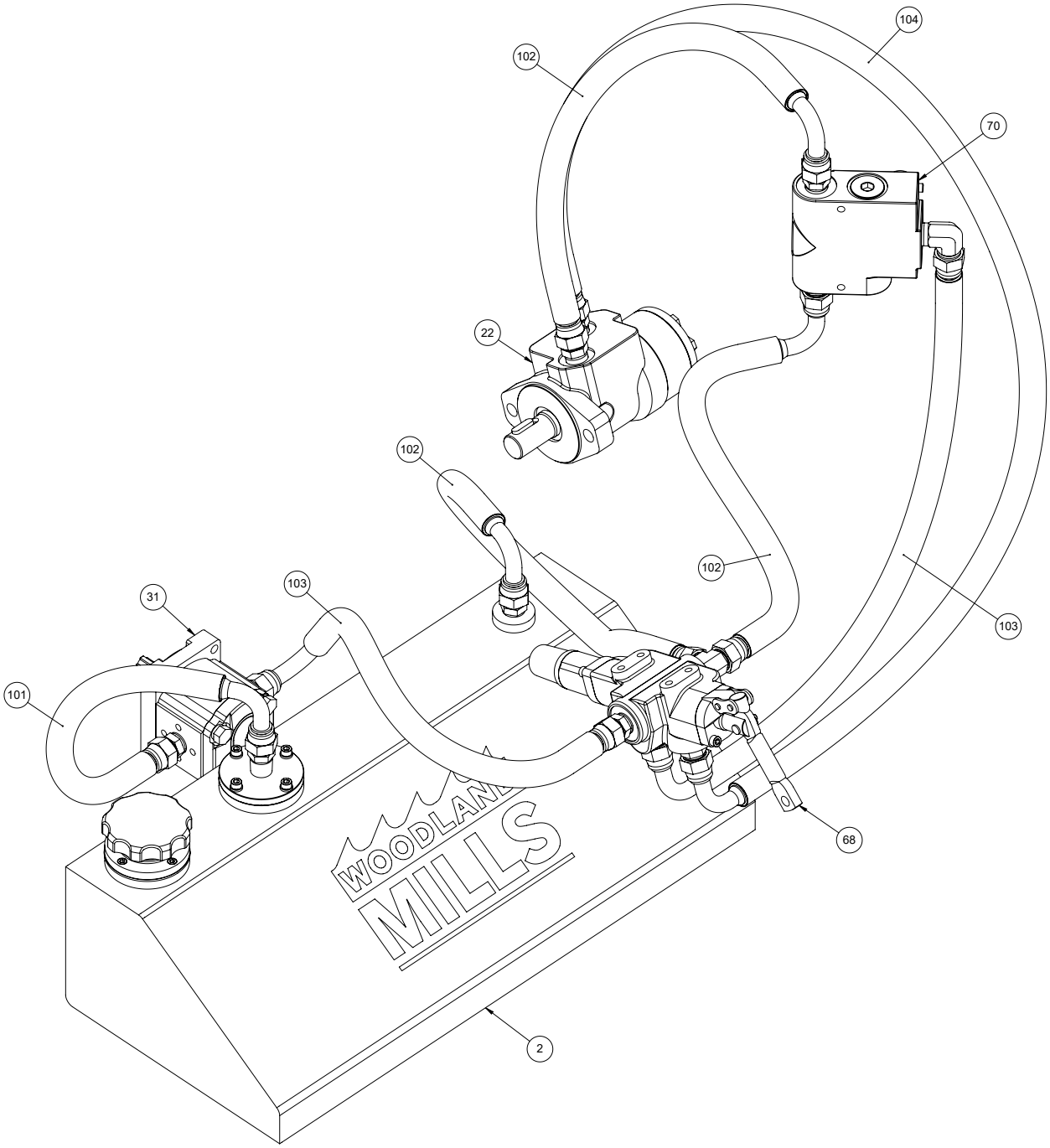
INFEED CHUTE



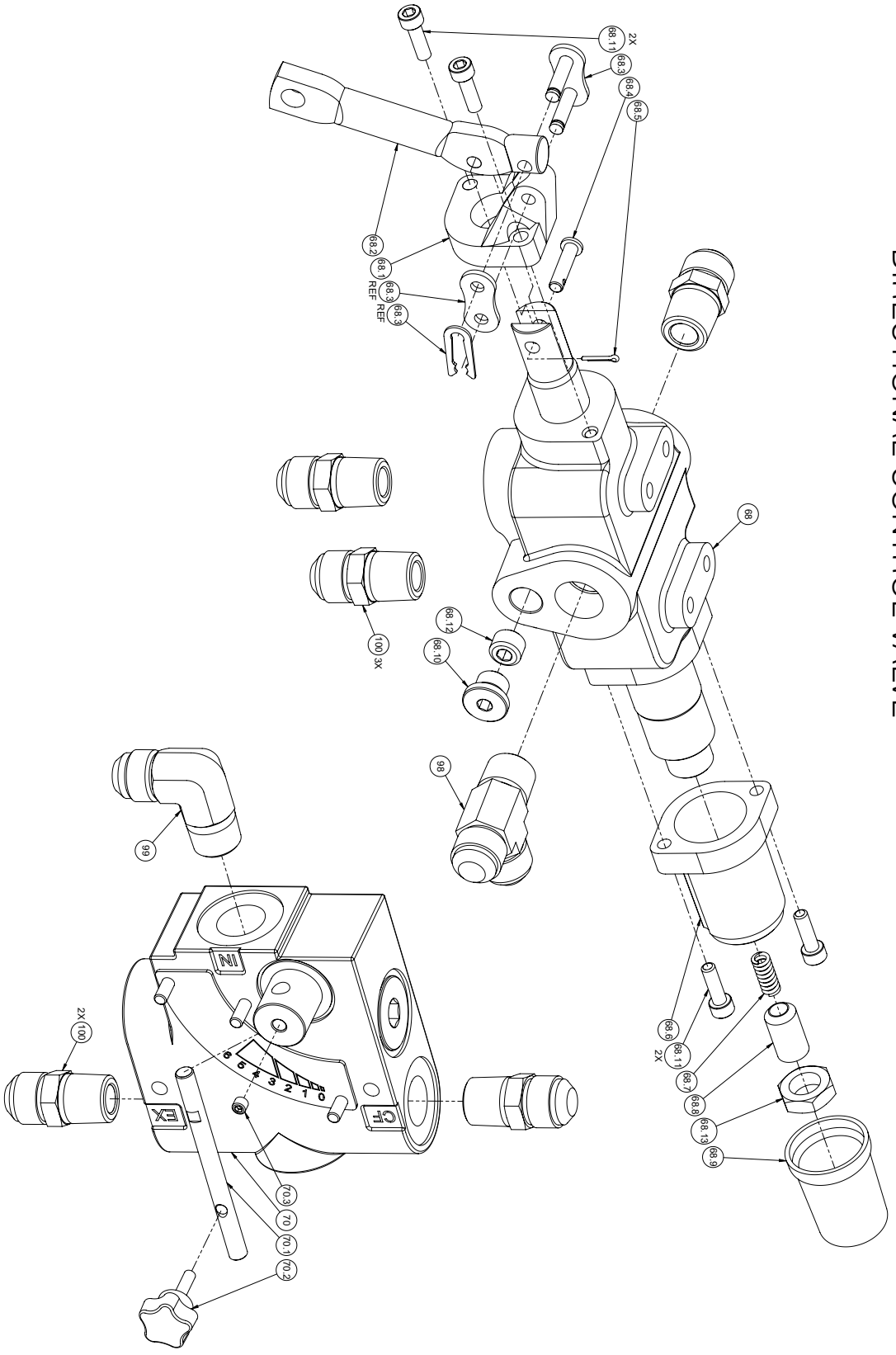
DISCHARGE CHUTE



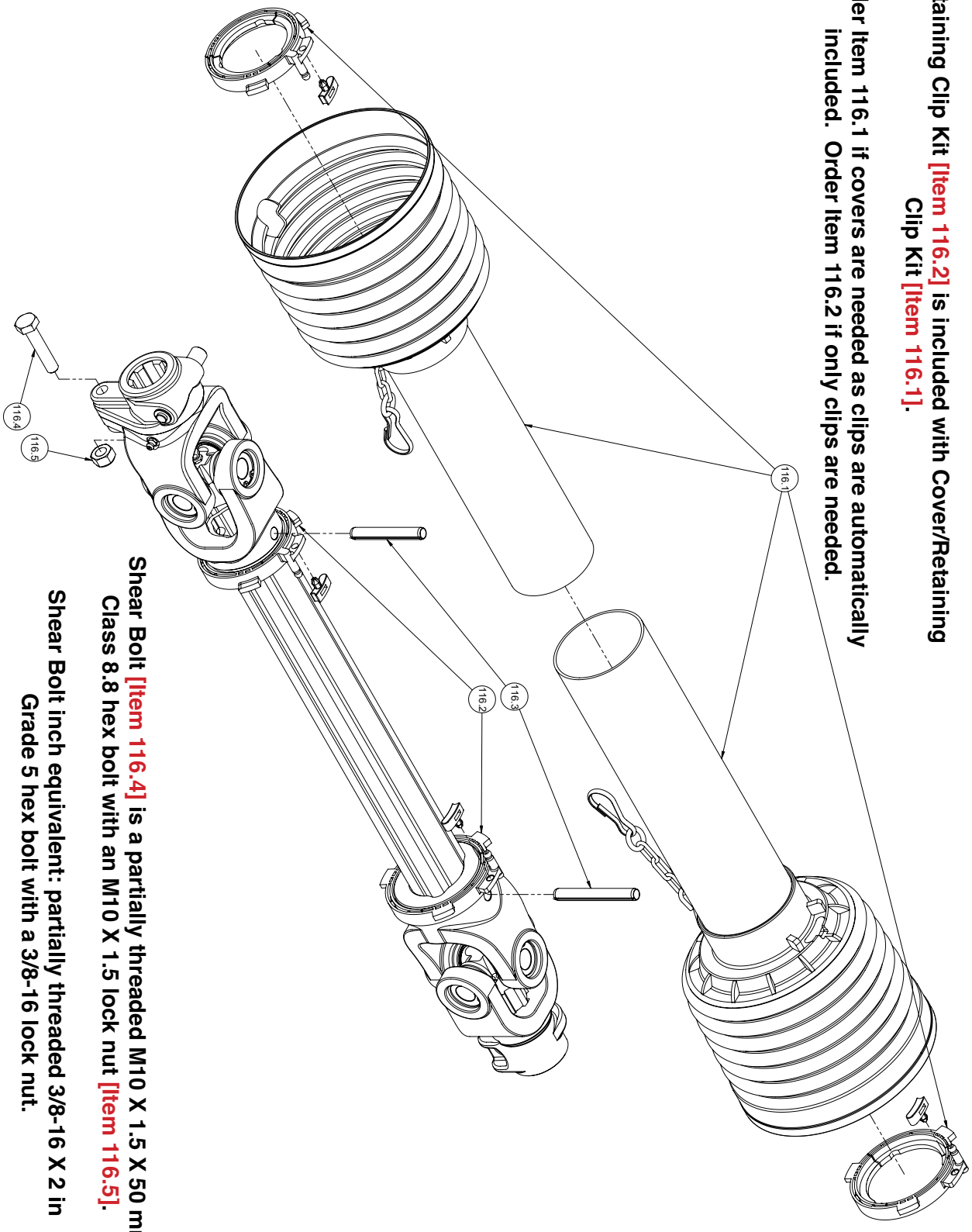
HYDRAULIC HOSES



CONTROL VALVES



PTO SHAFT



Retaining Clip Kit [Item 116.2] is included with Cover/Retaining Clip Kit [Item 116.1].

Order Item 116.1 if covers are needed as clips are automatically included. Order Item 116.2 if only clips are needed.

Shear Bolt [Item 116.4] is a partially threaded M10 X 1.5 X 50 mm Class 8.8 hex bolt with an M10 X 1.5 lock nut [Item 116.5].

Shear Bolt inch equivalent: partially threaded 3/8-16 X 2 in Grade 5 hex bolt with a 3/8-16 lock nut.

PARTS LIST

Item	Qty	Part No.	Description
1	1	0007085	BASE
2	1	0001168	HYDRAULIC TANK, 20 L [5.3 gal]
3	1	0001164	HYDRAULIC TANK INTAKE LINE
4	1	0001752	HYDRAULIC INTAKE FILTER, 1/2 NPT
5	1	0004841	O-RING, 50 mm ID / 57 mm OD, 3.5 mm THK
6	1	0005188	OIL SCREEN, 50 mm DIA X 120 mm LG SCREEN
7	1	0005183	OIL SCREEN CAP, 85 mm DIA, M48 X 2 THD
8	1	0005187	GASKET, OIL SCREEN, 55 mm ID
9	1	0005186	GASKET, OIL SCREEN CAP, 48 mm ID
10	1	0005185	RETAINING RING, INTERNAL, 46 mm BORE (48.5 mm GROOVE)
11	1	0007084	LOWER FLYWHEEL HOUSING
12	1	0006959	INNER HINGE, INFEED CHUTE
13	1	0006970	CURTAIN BRACKET
14	2	0006971	CURTAIN
15	1	0004582	CURTAIN PLATE
16	1	0007113	SWINGARM
17	2	0003846	SWINGARM PIVOT BUSHING, 4 mm SHOULDER
18	4	0006059	EYEBOLT, DIN444, M10 X 1.5, 120 mm LG
19	2	0011179	GAS SPRING, PULLING, 500 N [112.4 lb•f], 200 mm [7.87 in] STROKE, M8 X 1.25
20	4	0009822	CLEVIS ROD END, M8 X 1.25 THD, 10 mm ID, 9 mm JAW OPENING
21	1	0001179	HYDRAULIC MOTOR ADAPTER PLATE, 6205-2RS BEARING
22	1	0004862	HYDRAULIC MOTOR, CW, 240 cc [14.6 in^3/rev], 2-HOLE 1/2 in BSP.F OFFSET PORTS, 25 mm SFT
23	1	0004846	PARALLEL KEY, 8 X 7 mm, 25 mm LG
24	1	0004605	INFEED ROLLER
25	1	0001201	INFEED ROLLER COVER PLATE
26	2	0001733	STRIKE PLATE BOLT, 20 mm HEAD DIA, M8 X 1.25 THD
27	1	0003480	BED PLATE, 204 X 120 X 9.4 mm
28	1	0001191	KNOB, MULTI-LOBE, 32 mm OD, M8 X 1.25, 30 mm LG, M8 WLD HEX NUT
29	1	0010411	BED PLATE GAP TOOL
30	1	0007106	INSPECTION WINDOW COVER
31	1	0004868	HYDRAULIC GEAR PUMP, 10 mL/r, SPLINED SHAFT
32	1	0002185	FLEXIBLE SHAFT COUPLING, 20 mm SHAFT TO 12 mm SPLINED SHAFT
33	2	0004845	PARALLEL KEY, 6 X 6 mm, 32 mm LG
34	1	0003549	PUMP SHAFT
35	4	0002703	SPACER, 20 ID X 28 OD X 1.5 mm LG
36	1	0002194	V-BELT PULLEY, DUAL, 20 mm SHAFT, 160/100 mm DIA
37	1	0005561	IDLER PIVOT PIN, 16 mm DIA, 111.5 mm LG, M16 X 2 THD
38	2	0005560	SPACER, 17 ID X 32 OD X 3 mm LG
39	1	0005563	BELT TENSIONER ARM, SECONDARY FLYWHEEL BELT
40	1	0005562	BELT TENSIONER ARM, PUMP BELT
41	2	0001692	IDLER PULLEY, SINGLE BEARING, 25 mm WD, 80 mm DIA
42	2	0004816	RETAINING RING, INTERNAL, 40 mm BORE (42.5 mm GROOVE)
43	2	0004798	RETAINING RING, EXTERNAL, 17 mm SHAFT (16.2 mm GROOVE)
44	2	0001192	EXTENSION SPRING, HOOK ENDS, 21 mm OD, 3 mm DIA WIRE, 100 mm LG
45	1	0003415	FLYWHEEL SHAFT

Item	Qty	Part No.	Description
46	2	0001158	SPACER, 50.6 ID X 56 OD X 1.5 mm LG
47	1	0004382	PRIMARY FLYWHEEL
48	8	0003484	FLYWHEEL BLADE, 154 X 69 X 8 mm, TAPPED
49	1	0001734	SPACER, 40.6 ID X 46 OD X 1.5 mm LG
50	1	0003407	SECONDARY FLYWHEEL
51	1	0002705	SPACER, 40.6 ID X 46 OD X 26.7 mm LG
52	1	0002193	V-BELT PULLEY, 40 mm SHAFT, 150 mm DIA, 60 DIA X 45.5 mm LG COLLAR
53	1	0004850	PARALLEL KEY, 12 X 8 mm, 40 mm LG
54	1	0003858	SPACER, 40.6 ID X 46 OD X 7.75 mm LG
55	1	0004611	BEARING COVER
56	1	0001796	FLYWHEEL LOCKING PIN
57	1	0004728	LOCKING PIN, ROUND, 1/4 in DIA, 1-3/8 in USABLE LG, 2 in LG
58	1	0007086	BELT GUARD
59	2	0007088	3-POINT HITCH LOWER ARM
60	1	0006728	CONNECTING ROD
61	2	0001738	HITCH PIN, LOWER, CAT 1, M20 X 2.5, 7/8 in [22 mm] DIA, 3 in [75 mm] USEABLE LG
62	2	0011603	HITCH PIN BUSHING, LOWER, CAT 1 TO CAT 2, 63 mm LG
63	2	0007036	3-POINT HITCH UPPER ARM
64	1	0001156	HITCH PIN, UPPER, CAT 1, 3/4 in [19 mm] DIA, 3-1/2 in [90 mm] USEABLE LG
65	1	0011602	HITCH PIN BUSHING, UPPER, CAT 1 TO CAT 2, 60 mm LG
66	2	0009856	UPPER HITCH BUSHING
67	3	0004705	LINCH PIN, 10 mm DIA, 38 mm USABLE LG, 45 mm LG
68	1	0004872	DIRECTIONAL CONTROL VALVE, 1/2 NPT
68.1	1	0005487	ACTUATOR MOUNT, DIRECTIONAL CONTROL VALVE
68.2	1	0005486	ACTUATOR, 82 mm LG, DIRECTIONAL CONTROL VALVE
68.3	1	0005477	MASTER LINK, NO. 60 CHAIN
68.4	1	0005482	CLEVIS PIN, 6 mm DIA, 20 mm USABLE LG, 25 mm LG
68.5	1	0005483	COTTER PIN, 2 mm DIA, 10 mm LG
68.6	1	0005494	REAR COVER, DIRECTIONAL CONTROL VALVE
68.7	1	0005481	COMPRESSION SPRING, CLOSED GROUND ENDS, 8 mm OD, 1.5 mm DIA WIRE, 23 mm LG
68.8	1	0005489	ADJUSTMENT SCREW, M14 X 1.5, 25 mm LG, DIRECTIONAL CONTROL VALVE
68.9	1	0005488	CAP, DIRECTIONAL CONTROL VALVE
68.10	1	0007182	PRESSURE RELEASE PLUG, DIRECTIONAL CONTROL VALVE
68.11	4	SHC-MBE075FCP	SHCS, CLS 12.9, M6 X 1, 20 mm LG, FULL
68.12	1	FTS-MBY059GR	SET SCREW, FLAT TIP, GR 45H, M14 X 1.5, 10 mm LG
68.13	1	THN-MBYCC	HEX NUT, THIN, CLS 4, M14 X 1.5
69	2	0001304	LATCH-STYLE TOGGLE CLAMP, SAFETY LOCK
70	1	0004875	VARIABLE FLOW CONTROL VALVE, 1/2 in NPT, 0-16 gal/min
70.1	1	0007518	LEVER ARM, VARIABLE FLOW CONTROL VALVE
70.2	1	0007519	KNOB, MULTI-LOBE, 25 mm OD, M6 X 1, 20 mm LG
70.3	1	CPS-MBE051GR	SET SCREW, CUP POINT, GR 45H, M6 X 1, 6 mm LG
71	1	0006965	INFEED CHUTE TOP PANEL
72	1	0006973	OUTER HINGE, INFEED CHUTE
73	1	0008161	INFEED CHUTE LEFT SIDE PANEL
74	1	0008162	INFEED CHUTE RIGHT SIDE PANEL
75	1	0006967	INFEED CHUTE BOTTOM PANEL
76	1	0006968	ROUND EDGE BAR, INFEED CHUTE

Item	Qty	Part No.	Description
77	1	0008160	CONTROL ARM
78	2	0008193	CONTROL ARM SPACER
79	2	0001781	PLASTIC END CAP, ROUND, 38 mm DIA
80	1	0001303	LINKAGE ROD, CONTROL ARM, 670 mm LG
81	1	0004834	CLEVIS ROD END, M10 X 1.5 THD, 10 mm ID, 10 mm JAW OPENING
82	1	0004749	CLEVIS PIN, 10 mm DIA, 24 mm USABLE LG, 30 mm LG
83	1	0004760	COTTER PIN, HAIRPIN, 10-16 mm CLEVIS, 3 mm WIRE DIA
84	1	0004888	ROD END BEARING, 10 mm, M10 X 1.5 FEM THD
85	1	0004654	UPPER FLYWHEEL HOUSING
86	1	0003539	DISCHARGE CHUTE NOZZLE, 281.5 mm DIA
87	1	0001172	DISCHARGE CHUTE LOCK PIN ASSEMBLY, 12 mm DIA
88	1	0009210	DISCHARGE CHUTE
89	2	0009211	DISCHARGE CHUTE RETAINER PLATE, 281.5 mm DIA, BLACK
90	2	0009212	DISCHARGE CHUTE ROTATION HANDLE, 170 mm C-C, BLACK
91	2	0001030	HANDLE GRIP, GROOVED, 26 mm ID, 108 mm LG
92	1	0009213	DISCHARGE CHUTE DEFLECTOR
93	1	0001786	HANDLE, ADJUSTABLE POS, 78 X 54 mm, M10 X 1.5 FEM THD
94	1	0001655	MANUAL TUBE
95	1	0006813	CHAINSAW HOLDER BRACKET
96	2	0002361	CHAINSAW HOLDER NYLON GUIDE
97	1	0002363	CHAINSAW HOLDER CLAMPING PLATE
98	1	0004911	FITTING, TEE, 1/2 NPT TO 7/8-14 (2X)
99	1	0005115	FITTING, ELBOW, 90°, 1/2 NPT TO 7/8-14 THD
100	10	0005124	FITTING, ADAPTER, 1/2 in NPT MALE TO 7/8-14 UNF MALE
101	1	0003297	HYDRAULIC HOSE ASSEMBLY, STR AND ELB FITTINGS, 350 mm LG
102	3	0003298	HYDRAULIC HOSE ASSEMBLY, STR AND ELB FITTINGS, 500 mm LG
103	2	0003301	HYDRAULIC HOSE ASSEMBLY, STR AND ELB FITTINGS, 800 mm LG
104	1	0003302	HYDRAULIC HOSE ASSEMBLY, STR AND ELB FITTINGS, 1850 mm LG
105	2	0008935	LABEL, TF810 PRO TWIN FLYWHEEL TECHNOLOGY
106	2	0008936	LABEL, TF810 PRO W/ WOODLAND MILLS LOGO
107	1	0008937	LABEL, PRO SERIES, 100 X 56 mm
108	1	0008938	LABEL, TWIN FLYWHEEL TECHNOLOGY
109	1	0008939	LABEL, HIGH VELOCITY DISCHARGE
110	1	0008941	LABEL, HIGH VELOCITY DISCHARGE [REVERSE]
111	1	0010603	LABEL, PTO 540 RPM WARNING LABEL
112	1	0010920	LABEL, CHIPPER MANDATORY SYMBOLS
113	1	0010921	LABEL, CHIPPER INFEED WARNING SYMBOLS
114	1	0010922	LABEL, CHIPPER DISCHARGE WARNING SYMBOLS
115	1	0002321	SERIAL NUMBER PLATE, PTO
116	1	0011550	PTO SHAFT, SHEAR PIN, 5S-SERIES
116.1	1	0011590	GUARD KIT, PTO SHEAR BOLT, 5S-SERIES
116.2	1	0010591	GUARD BEARING KIT, 5S/7S-SERIES
116.3	1	0011592	TRIANGULAR YOKE PIN KIT, PTO SHEAR BOLT, 5S-SERIES
116.4	1	HHB-MBM105PCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 50 mm LG, 26 mm LG THD
116.5	1	HLN-MBMCH	LOCK NUT, CLS 8, M10 X 1.5
117	1	BX48	V-BELT, COGGED, BX48
118	1	BX50	V-BELT, COGGED, BX50
119	2	6203-2RS	BALL BEARING, SEALED, 17 mm SFT, 40 mm HSG, 12 mm WD

Item	Qty	Part No.	Description
120	1	6205-2RS	BALL BEARING, SEALED, 25 mm SFT, 52 mm HSG, 15 mm WD
121	2	6908-2RS	BALL BEARING, SEALED, 40 mm SFT, 62 mm HSG, 12 mm WD
122	1	UCF208	FLANGE BEARING, SQ, 4-BOLT, 40 mm SFT, 102 mm C-C
123	1	UCF210	FLANGE BEARING, SQ, 4-BOLT, 50 mm SFT, 111 mm C-C
124	3	UCFL204	FLANGE BEARING, OVAL, 2-BOLT, 20 mm SFT, 90 mm C-C
125	3	HHB-MBE059FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 10 mm LG, FULL
126	4	HHB-MBE075FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 20 mm LG, FULL
127	6	HHB-MBE095FCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 40 mm LG, FULL
128	2	HHB-MBE115PCJ	HEX HEAD BOLT, CLS 8.8, M6 X 1, 60 mm LG, 18 mm LG THD
129	2	HHB-MBJ059FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 10 mm LG, FULL
130	3	HHB-MBJ067FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 14 mm LG, FULL
131	2	HHB-MBJ071FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 16 mm LG, FULL
132	3	HHB-MBJ075FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 20 mm LG, FULL
133	5	HHB-MBJ080FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 25 mm LG, FULL
134	8	HHB-MBJ090FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 35 mm LG, FULL
135	4	HHB-MBJ095FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 40 mm LG, FULL
136	1	HHB-MBJ100FCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 45 mm LG, FULL
137	2	HHB-MBJ110PCJ	HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 55 mm LG, 22 mm LG THD
138	24	HHB-MBM075FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 20 mm LG, FULL
139	3	HHB-MBM080FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 25 mm LG, FULL
140	9	HHB-MBM090FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 35 mm LG, FULL
141	1	HHB-MBM110FCJ	HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 55 mm LG, FULL
142	3	HHB-MBR085FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 30 mm LG, FULL
143	3	HHB-MBR090FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 35 mm LG, FULL
144	2	HHB-MBR095FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 40 mm LG, FULL
145	4	HHB-MBR100FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 45 mm LG, FULL
146	2	HHB-MBR105FCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 50 mm LG, FULL
147	1	HHB-MBR245PCJ	HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 190 mm LG, 30 mm LG THD
148	3	HHB-MCA095FCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 40 mm LG, FULL
149	8	HHB-MCA100FCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 45 mm LG, FULL
150	4	HHB-MCA115PCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 60 mm LG, 38 mm LG THD
151	2	HHB-MCA135PCJ	HEX HEAD BOLT, CLS 8.8, M16 X 2, 80 mm LG, 38 mm LG THD
152	4	SNC-MBJ080FCJ	CARRIAGE BOLT, SQ NECK, CLS 8.8, M8 X 1.25, 25 mm LG, FULL
153	19	BHS-MBJ073FCM	BUTTON HEAD SCREW, CLS 10.9, M8 X 1.25, 18 mm LG, FULL
154	4	BHS-MBM075FCT	BUTTON HEAD SCREW, CLS 10.9, TL, M10 X 1.5, 20 mm LG, FULL
155	4	PPH-MBA067FCE	SCREW, PPH, CLS 4.8, M5 X 0.8, 14 mm LG, FULL
156	3	PPH-MBE055FCE	SCREW, PPH, CLS 4.8, M6 X 1, 8 mm LG, FULL
157	8	PPH-MBE059FCE	SCREW, PPH, CLS 4.8, M6 X 1, 10 mm LG, FULL
158	4	PPH-MBE071FCE	SCREW, PPH, CLS 4.8, M6 X 1, 16 mm LG, FULL
159	4	HFH-MBW105FCM	SCREW, HFH, CLS 10.9, M14 X 2, 50 mm LG, FULL
160	4	HFH-MCA115FCM	SCREW, HFH, CLS 10.9, M16 X 2, 60 mm LG, FULL
161	4	SHC-MBA067FCP	SHCS, CLS 12.9, M5 X 0.8, 14 mm LG, FULL
162	4	SHC-MBE075FCP	SHCS, CLS 12.9, M6 X 1, 20 mm LG, FULL
163	2	HHS-MBM057069AJ	SHLDR SCREW, HEX HEAD, ALLOY, 11 X 15 mm LG SHLDR, M10 X 1.5 X 20 mm LG THD
164	6	KCS-MBE051GR	SET SCREW, KNURLED CUP POINT, GR 45H, M6 X 1, 6 mm LG
165	3	KCS-MBE055GR	SET SCREW, KNURLED CUP POINT, GR 45H, M6 X 1, 8 mm LG
166	2	KCS-MBK055GR	SET SCREW, KNURLED CUP POINT, GR 45H, M8 X 1, 8 mm LG

Item	Qty	Part No.	Description
167	1	KCS-MBJ059GR	SET SCREW, KNURLED CUP POINT, GR 45H, M8 X 1.25, 10 mm LG
168	2	KCS-MBN059GR	SET SCREW, KNURLED CUP POINT, GR 45H, M10 X 1.25, 10 mm LG
169	4	FTW-MBA000AJ	FLAT WASHER, M5
170	20	FTW-MBE000AJ	FLAT WASHER, M6
171	33	FTW-MBJ000AJ	FLAT WASHER, M8
172	4	FTW-MBM000AJ	FLAT WASHER, M10
173	3	FTW-MBM165AJ	FLAT WASHER, DIN7349, M10, 4 mm THK
174	16	FTW-MBR000AJ	FLAT WASHER, M12
175	6	FTW-MBR000NA	FLAT WASHER, M12, NYLON
176	23	FTW-MCA000AJ	FLAT WASHER, M16
177	1	FDW-MBJ073000AJ	FENDER WASHER, M8, 24 mm OD
178	24	FDW-MBJ079000AJ	FENDER WASHER, M8, 30 mm OD
179	1	FDW-MBM075000AJ	FENDER WASHER, M10, 26 mm OD
180	5	FDW-MBM079000AJ	FENDER WASHER, M10, 30 mm OD
181	2	FDW-MBR080000AJ	FENDER WASHER, M12, 31 mm OD
182	4	SLW-MBAAJ	SPLIT LOCK WASHER, M5
183	15	SLW-MBEAJ	SPLIT LOCK WASHER, M6
184	7	SLW-MBJAJ	SPLIT LOCK WASHER, M8
185	4	SLW-MBMAJ	SPLIT LOCK WASHER, M10
186	9	HXN-MBMCH	HEX NUT, CLS 8, M10 X 1.5
187	1	HXN-MBNCH	HEX NUT, CLS 8, M10 X 1.25
188	2	HXN-MCACH	HEX NUT, CLS 8, M16 X 2
189	16	HLN-MBECH	LOCK NUT, CLS 8, M6 X 1
190	46	HLN-MBJCH	LOCK NUT, CLS 8, M8 X 1.25
191	11	HLN-MBMCH	LOCK NUT, CLS 8, M10 X 1.5
192	15	HLN-MBRCH	LOCK NUT, CLS 8, M12 X 1.75
193	4	HLN-MBWCH	LOCK NUT, CLS 8, M14 X 2
194	13	HLN-MCACH	LOCK NUT, CLS 8, M16 X 2

NOTES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