# WG24 PRO PTO STUMP GRINDER



**OPERATOR'S MANUAL** 

0010926-M-EN: Rev B Publication Date: 10-Jan-2025





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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 stump grinder. 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 not be 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 with the product.

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



# **SAFETY, WARNING & INFORMATION SYMBOLS**

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

| Symbol   | Description  |
|----------|--|
|          | Refer to instruction/operator's manual   |
|          | Wear protective gloves   |
|          | Wear safety footwear   |
|          | Wear eye protection  |
|          | Wear a face shield   |
|          | Wear a mask  |
|          | Wear ear protection  |
|          | Lift point   |
| <b>F</b> | Lifting hazard   |
|          | General warning  |
| **L      | ook for symbols in the upper-right corner of the page throughout the manual.** |



# **INTENDED USE**

This stump grinder is designed for grinding stumps using a tractor's Power Take-Off (PTO) at an operating rpm of 540.

## **TECHNICAL SPECIFICATIONS**

| Item                           | Specification                    |  |
|--------------------------------|----------------------------------|--|
| Tractor Compatibility          | Category 1                       |  |
| Recommended Horsepower         | 15 - 45 hp                       |  |
| Flywheel Diameter              | 24 in [610 mm]                   |  |
| Number of Teeth                | 34                               |  |
| Tooth                          | Grade 8.8 Carbide Steel, Bolt-in |  |
| Tooth Torque Specification     | 160 ft•lb [215 N•m]              |  |
| Required PTO Speed             | 540 rpm                          |  |
| Maximum Cutting Depth Per Pass | 5 in [127 mm]                    |  |
| Maximum Depth Below Grade      | 6 in [152 mm]                    |  |
| Product Weight                 | 473 lb [215 kg]                  |  |
| Shipping Weight                | 533 lb [242 kg]                  |  |

#### **TOOLS REQUIRED**

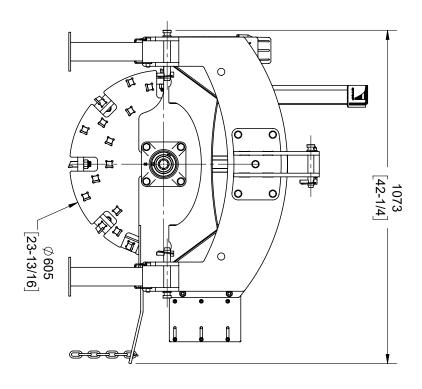
| Tool                      | Specification                  | Use                 |
|---------------------------|--------------------------------|---------------------|
| Phillips Head Screwdriver | No. 3                          | Assembly            |
| Wrench/Socket             | 13 mm (2X)                     | Assembly            |
| Wrench/Socket             | 16 mm (2X)                     | PTO Clutch Run-In   |
| Wrench/Socket             | 17 mm                          | PTO Clutch Lock Pin |
| Wrench/Socket             | 18 mm                          | Assembly            |
| Wrench/Socket             | 19 mm                          | Assembly            |
| Wrench/Socket             | 24 mm                          | Tooth Replacement   |
| Torque Wrench             | Capable of 160 ft•lb [215 N•m] | Multiple            |
| Calliper*                 | Vernier, Dial, or Digital      | PTO Clutch Run-In   |
| Hacksaw**                 |                                | PTO Trimming        |
| Coloured Pencil/Marker    |                                | PTO Clutch Run-In   |

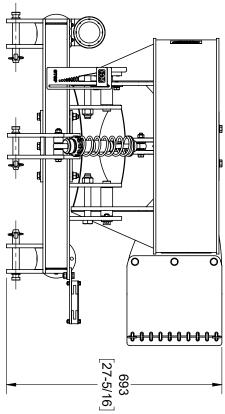
<sup>\*</sup> Recommended but not required.

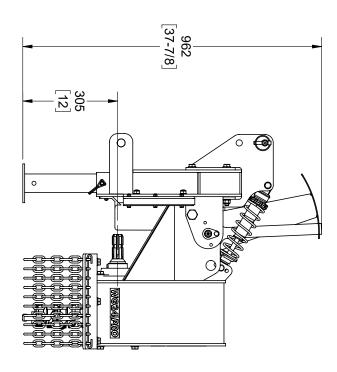
<sup>\*\*</sup> Only if PTO shaft requires trimming. See *Trimming the PTO Shaft* section for more detail.



# **OVERALL DIMENSIONS**

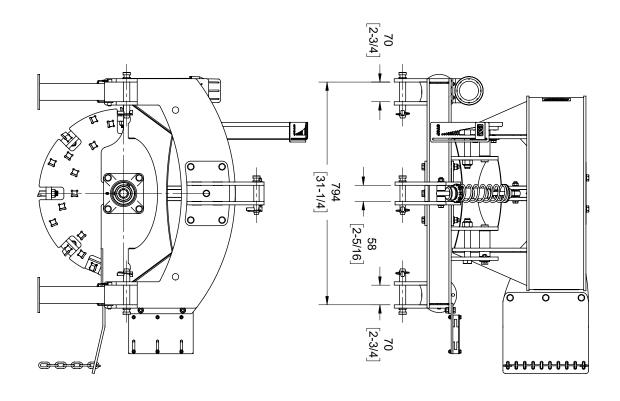


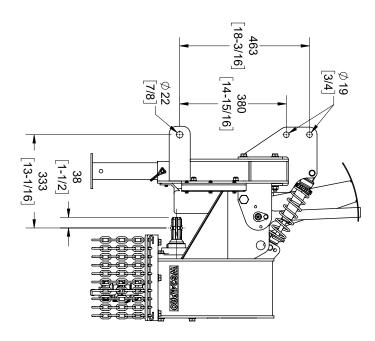






## **3-POINT HITCH DIMENSIONS**







#### **GENERAL SAFETY RULES**



# **WARNING!**

Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.



## **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.

- All Federal and State laws and any regulation having jurisdiction covering the safety requirements for use of the machine take precedence over the statements in this manual. Users of this machine must adhere to such regulations.
- Only people that have read and understood these instructions are permitted to use the stump grinder.
- Inspect the stump grinder and tractor at the beginning of every working day and repair any defects.
- Stop the engine and make sure that the machine will not start accidentally while repairing defects or performing maintenance.
- Do not disable or remove the stump grinder's safety devices.
- Always locate and mark buried wires, cables, and pipelines prior to grinding.



#### **PERSONAL SAFETY**

- Stay alert, watch what you are doing and use common sense when operating machinery. Do not use a machine when you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating machinery 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 which 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, hardhat, gloves, dust collection systems, and hearing protection when appropriate.
- **Do not overreach.** Keep proper footing and balance at all times.
- Remove adjusting keys or wrenches before connecting to the power supply or turning on the machine. A wrench or key that is left attached to a rotating part of the machine may result in personal injury.
- Never conduct any maintenance or make any other adjustments while the tractor engine is running. Always shut the tractor engine off, remove the ignition key, and keep the engine off before carrying out any of the following procedures. Consult your tractor's operator manual for safe shutdown procedures to prevent accidental ignition.
- Never allow passengers to ride on the stump grinder.



#### **MACHINE USE AND CARE**

- Always be sure the operator is familiar with proper safety precautions and operation techniques before using machine.
- **Do not force the machine.** Machines do a better and safer job when used in the manner for which they are designed.
- Storing the machine. When the machine is not in use, store it in a dry, secure place or keep it well-covered and out of the reach of children. Inspect the machine for good working condition prior to storage and before each use.
- Maintain the machine. It is recommended that the general condition of the machine be examined before it is used. Keep your machine in good working order by adopting a program of conscientious repair and maintenance in accordance with the recommended procedures found in this manual. If any abnormal vibrations or noise occurs, turn the machine off immediately and have the problem corrected before further use.
- Cleaning. Use a pressure washer to clean the carbide teeth while taking care not to
  pressure-wash the bearings as this could introduce water into areas of the machine that may
  cause malfunction or damage.
- **Use only accessories that are recommended** by the manufacturer. Accessories that may be suitable for another machine may create a risk of injury when used on this machine.
- Always operate the machine with all safety devices and guards in place and in good 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 the machine running unattended.
- Never use the machine to grind anything other than stumps or for any purpose other than grinding stumps as described in this manual.



# **COMPONENT LISTS**

Verify all component and hardware quantities are correct prior to assembling the stump grinder.

| 1x | Top Link<br>Bracket<br>[0010930]         |  |
|----|--|--|
| 1x | Upper Hitch Pin<br>[0001156]             |  |
| 1x | Linch Pin<br>[0004705]                   |  |
| 1x | Shock<br>Absorber<br>[0011619]           |  |
| 2x | Shock<br>Absorber<br>Spacer<br>[0009995] |  |

| 1x | Draw Speed<br>Indicator Gauge<br>[0009993] |  |
|----|--|--|
| 1x | Draw Speed<br>Indicator<br>[0009994]       |  |
| 1x | Deflector<br>Assembly                      |  |
| 1x | Chainsaw<br>Holder<br>Assembly             |  |
| 1x | PTO Shaft<br>[0011800]                     |  |



## **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.

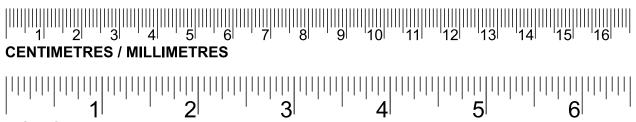
| 4x | HHB-MBM075FCJ | M10 X 1.5 X 20 mm HEX BOLT  |
|----|---------------|-----------------------------|
|    |               |                             |
| 2x | HHB-MBM085FCJ | M10 X 1.5 X 30 mm HEX BOLT  |
|    |               |                             |
| 1x | HHB-MBM125PCJ | M10 X 1.5 X 70 mm HEX BOLT  |
|    |               |                             |
| 1x | HHB-MBM155PCJ | M10 X 1.5 X 100 mm HEX BOLT |
|    |               |                             |



| 3x | HHB-MBR090FCJ | M12 X 1.75 X 35 mm HEX BOLT |  |  |
|----|---------------|-----------------------------|--|--|
|    |               |                             |  |  |
| 3x | HHB-MBR090FCJ | M12 X 1.75 X 35 mm HEX BOLT |  |  |
|    |               |                             |  |  |

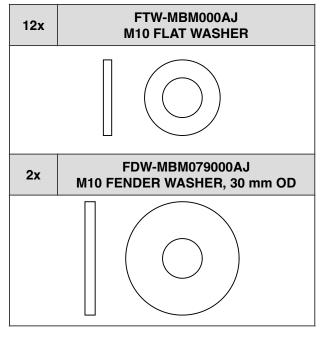
#### **SCALES**

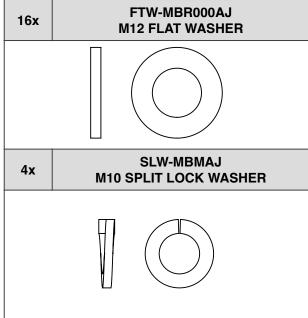
Ruler scales are also provided below to double-check bolt and screw lengths when necessary.



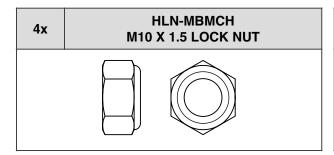


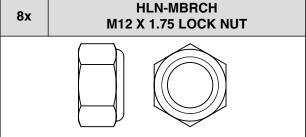
#### **WASHERS**





## **NUTS**



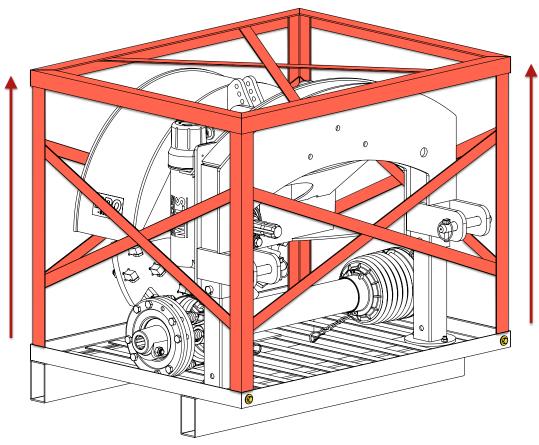




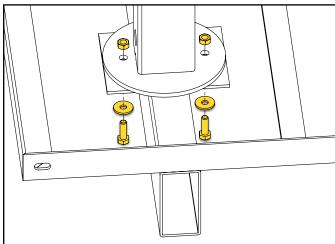
# **ASSEMBLY**

## 1. UNPACKING

Unfasten the M8 X 25 mm hex bolts from the four (4) bottom corners of the crate and remove the top frame.



Unfasten the two (2) M8 X 25 mm hex bolts securing both support legs to the bottom crate frame.





## 2. TOP LINK & SHOCK ABSORBER

Using the hardware and components listed below, assemble the top link to the back frame and then assemble the shock absorber between the top link and the flywheel housing.

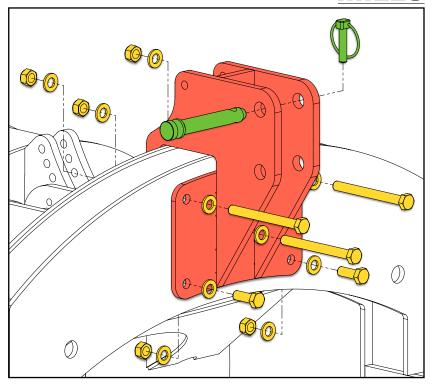
| 3x  | M12 X 125 mm<br>Hex Bolt     |  | 1x | Top Link                    |  |
|-----|------------------------------|--|----|-----------------------------|--|
| 2x  | M12 X 35 mm<br>Hex Bolt      |  | IX |                             |  |
| 10x | M12 Flat<br>Washer           |  | 1x | Upper Hitch Pin             |  |
| 5x  | M12 Lock Nut                 |  | 1x | Linch Pin                   |  |
| 1x  | M10 X 100 mm<br>Hex Bolt     |  | 2x | Shock<br>Absorber<br>Spacer |  |
| 1x  | M10 X 70 mm<br>Hex Bolt      |  | 1x | Shock<br>Absorber           |  |
| 4x  | M10 Flat<br>Washer           |  |    |                             |  |
| 2x  | M10 X 30 mm<br>Fender Washer |  |    |                             |  |
| 2x  | M10 Lock Nut                 |  |    |                             |  |

WOODLAND MILLS

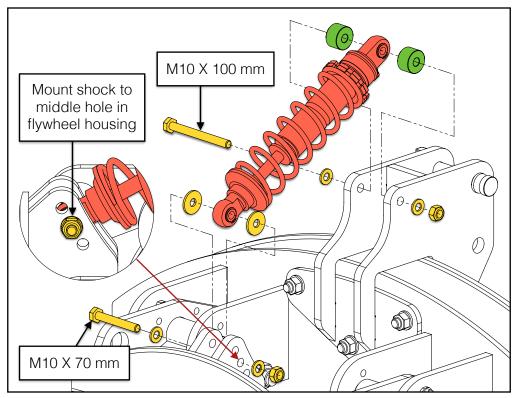
Assemble the top link to the back frame using three (3) M12 X 125 mm hex bolts, two (2) M12 X 35 mm hex bolts, ten (10) M12 flat washers, and five (5) M12 lock nuts.

Torque all bolts to 65 ft•lb [88 N•m].

Finally, insert the upper hitch pin through the upper set of holes in the top link and secure it with a linch pin.



Assemble the upper end of the shock absorber to the top link with the spacers using one (1) M10 X 100 mm hex bolt, two (2) M10 flat washers, and one (1) M10 lock nut. Assemble the lower end of the shock to the *middle hole in the flywheel housing* using one (1) M10 X 70 mm hex bolt, two (2) M10 flat washers, two (2) M10 X 30 mm fender washers, and one (1) M10 lock nut. Fully tighten all the hardware.



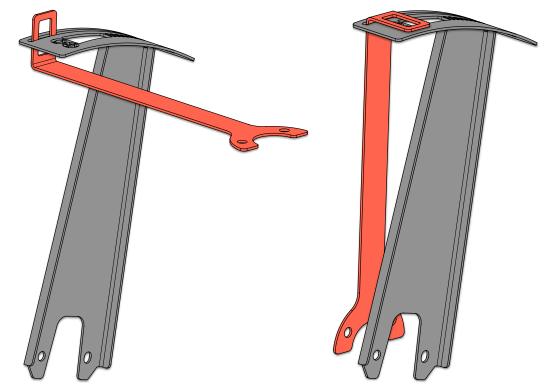


#### 3. DRAW SPEED INDICATOR

Using the hardware listed below, assemble the draw speed indicator and indicator gauge to the flywheel housing and back frame respectively.

| 4x | M10 X 20 mm<br>Hex Bolt  | 1x | Draw Speed<br>Indicator          |      |
|----|--------------------------|----|----------------------------------|------|
| 4x | M10 Split Lock<br>Washer | 1x | Draw Speed<br>Indicator<br>Gauge | 0000 |
| 4x | M10 Flat<br>Washer       |    |                                  |      |

Before the indicator and gauge can be installed to the stump grinder, they must first be loosely assembled together as shown:

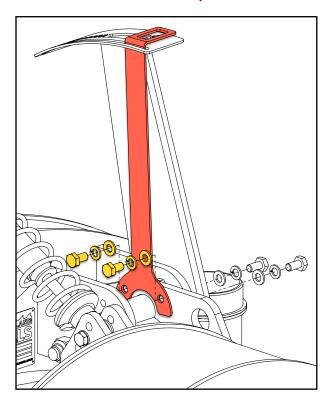


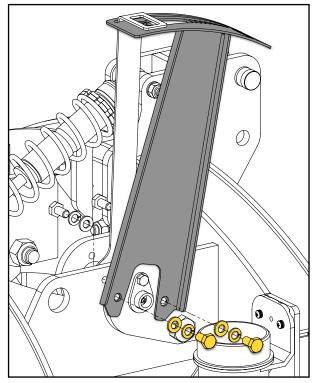
Holding the indicator perpendicular to the gauge, insert the view window tab of the indicator up though the bottom of the long slot in the gauge. Then rotate the indicator back down until they are parallel with each other.



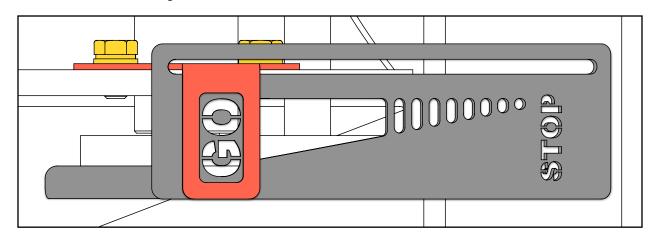
Using four (4) M10 X 20 mm hex bolts, four (4) M10 lock washers, and four (4) M10 flat washers, assemble the indicator to the housing and then the indicator gauge to the back frame.

#### \*\*Remove the cap from the manual tube if extra clearance is needed.\*\*





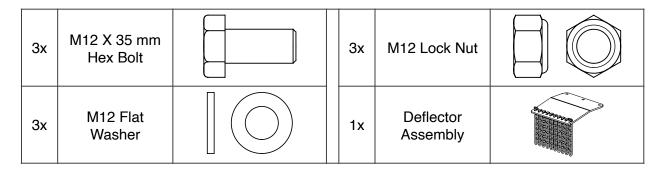
With all the fasteners tight, the "GO" text should be centred in the indicator view window.



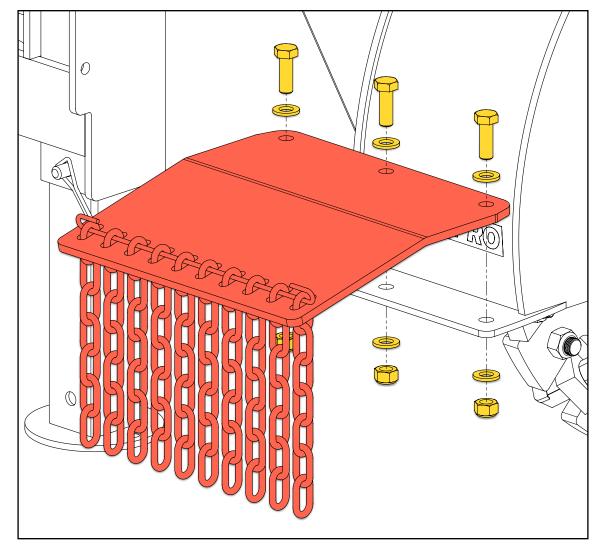


## 4. DEFLECTOR

Using the hardware listed below, assemble the deflector to the flywheel housing.



Using three (3) M12 X 35 mm bolts, three (3) M12 flat washers, and three (3) M12 lock nuts, assemble the deflector assembly to the flywheel housing. Fully tighten the hardware.



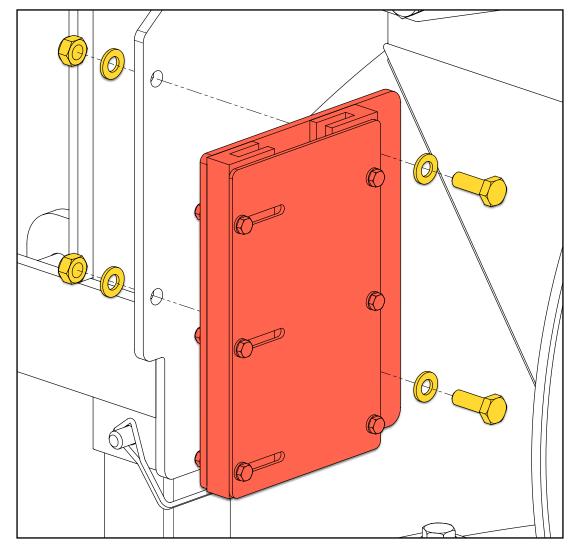


## 5. CHAINSAW HOLDER

Using the hardware listed below, assemble the chainsaw holder to the back frame.

| 2x | M10 X 30 mm<br>Hex Bolt | 2x | M10 Lock Nut                   |  |
|----|-------------------------|----|--------------------------------|--|
| 4x | M10 Flat<br>Washer      | 1x | Chainsaw<br>Holder<br>Assembly |  |

Using two (2) M10 X 30 mm bolts, four (4) M10 flat washers, and two (2) M10 lock nuts, assemble the chainsaw holder assembly to the back frame. Fully tighten the hardware.





#### TRIMMING THE PTO SHAFT

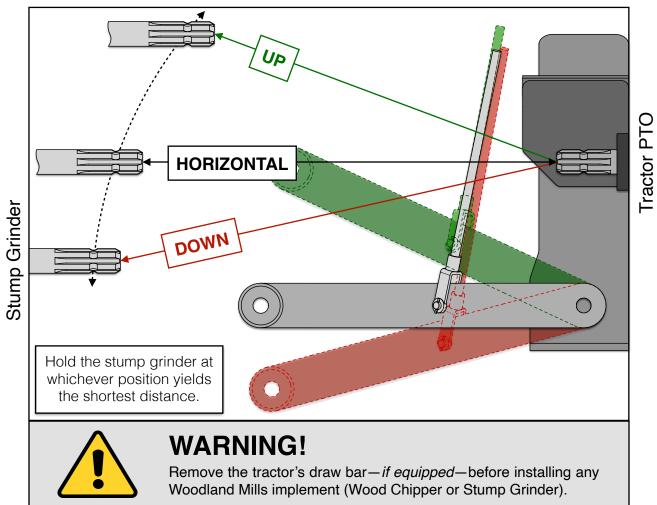
The PTO shaft may need to be trimmed depending on the tractor size and configuration. Follow the 6 steps below to ensure the PTO shaft is fitted correctly, and trimmed if necessary.

#### 1. FIND THE SHORTEST DISTANCE

- 1. Attach the stump grinder 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 stump grinder 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 stump grinder at that position for the next step*.

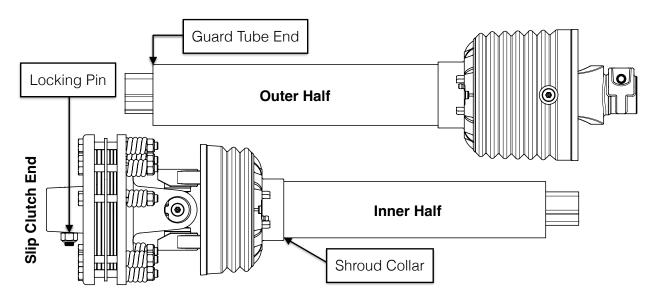
\*\*Note: if the stump grinder shaft cannot be positioned in-line or below the tractor PTO due to the size of the tractor relative to the stump grinder, take two (2) measurements instead: 1 at the lowest and 1 at the highest 3-point hitch position.\*\*





#### 2. SEPARATE PTO HALVES

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



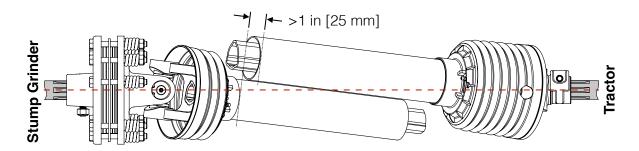
#### 3. ATTACH THE PTO SHAFT

Attach the slip clutch end to the stump grinder and the outer half to the tractor as separate pieces. Install the locking pin and thread the locking pin nut on loosely—it is unnecessary to fully tighten it during this step.

## 4. DETERMINE IF TRIMMING IS REQUIRED

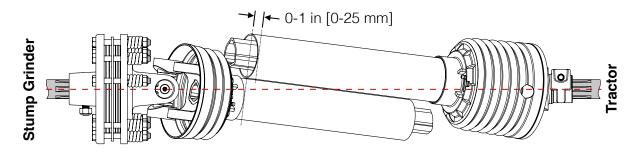
Hold the shafts parallel. Use tape or tie the shaft halves together with string if necessary to get proper measurements. Three possible scenarios can exist:

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 stump grinder and proceed to Step 6.

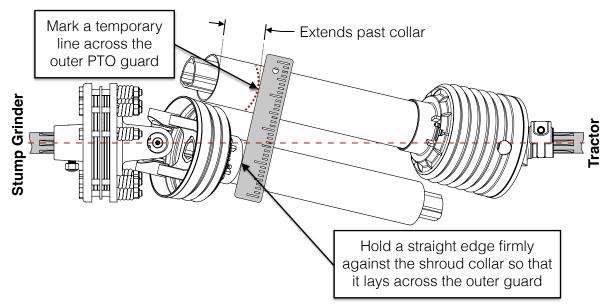




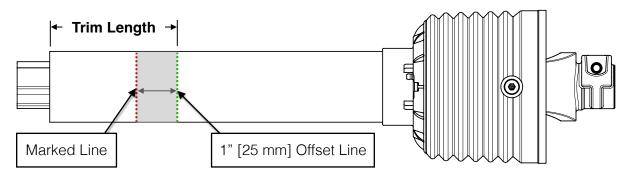
Scenario 2. If the distance between the shroud collar and the guard tube end is **between 0**and 1 in [25 mm], the PTO shaft requires a 1 in [25 mm] trim. Proceed to Step 5 using 1 in [25 mm] as the "Trim Length".



**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.



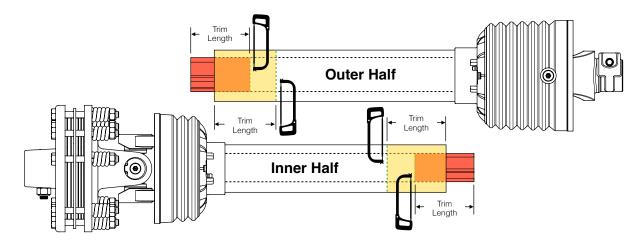
Measure 1 in [25 mm] past the marked line to the guard tube end to determine the trim length. This is the "**Trim Length**" by which the PTO shaft needs to be trimmed. Proceed to Step 5.





#### 5. TRIM THE PTO SHAFT

Remove both halves of the PTO shaft from the tractor and stump grinder. 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 SHAFT

- 1. Slide the halves back together, ensuring they telescope in-and-out freely.
- 2. Slide the slip clutch end onto the stump grinder. Install the locking pin and fully tighten the locking pin nut. 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.

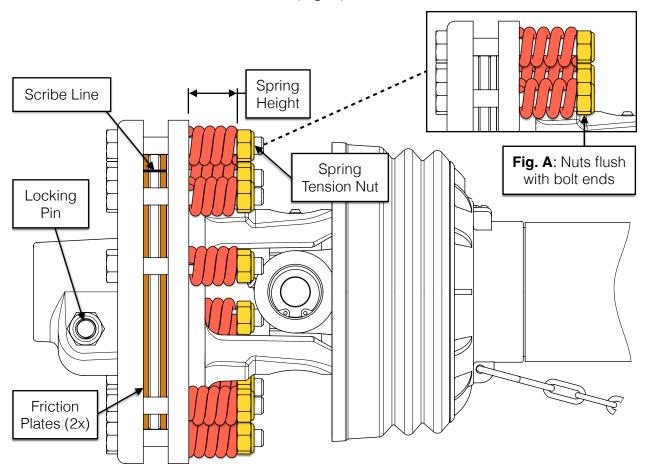


#### PTO SHAFT CLUTCH RUN-IN

The stump grinder is shipped with a slip clutch PTO shaft. Follow the steps below before using your stump grinder to ensure the PTO shaft clutch friction plates are set properly.

\*\*This procedure should be performed periodically throughout ownership as the friction plates can stick together—particularly after long periods of inactivity—which could prevent the plates from slipping during operation as designed. This could result in higher than normal torque being applied and damage the triangular shafts, which is not covered under warranty.\*\*

- 1. Connect the PTO shaft to the stump grinder and tractor <u>with the clutch end of the PTO shaft</u> <u>mounted to the stump grinder</u>. Insert the locking pin on the clutch yoke and tighten the nut using a wrench/socket.
- 2. Using a coloured pencil or marker, scribe a line across the exposed edges of both sets of clutch friction plates.
- 3. Using a wrench/socket, loosen all eight (8) spring tension nuts uniformly until the ends of the nuts are flush with the ends of the bolts (**Fig. A**).



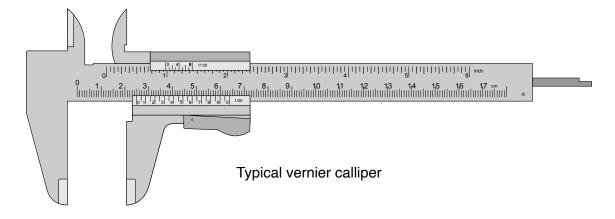


- 4. Start the tractor and engage the PTO for 2-3 seconds to permit slippage of clutch surfaces. Disengage the PTO then re-engage a second time for 2-3 seconds. Disengage the PTO again, shut off the tractor, and remove the key. Wait for all components to stop rotating before removing the PTO shaft from tractor.
- 5. Inspect the clutch and ensure that the scribed markings made across the clutch plates have changed position. Slippage has not occurred if the marks on the clutch plates are still aligned. A clutch that has not slipped must be disassembled to separate the clutch plates.
- 6. Tighten all eight (8) nuts until the proper spring height dimension values are achieved per the "PTO Shaft Clutch Spring Height vs. Horsepower" table below for the PTO output horsepower. It is recommended that a calliper (either digital, dial, or vernier—similar to the one shown below) be used to accurately verify the spring height measurements. After setting all eight (8) spring heights, the PTO shaft is now ready for use.

PTO Shaft Clutch Spring Height vs. Horsepower

| PTO Shaft | Clutch Flange Dia | PTO hp   | Spring Height   |
|-----------|-------------------|----------|-----------------|
|           | 7-%" (200 mm)     | 15-20 hp | 1.26" (31.9 mm) |
|           |                   | 25 hp    | 1.25" (31.7 mm) |
| 5S.FF2    |                   | 30 hp    | 1.24" (31.4 mm) |
|           |                   | 35 hp    | 1.22" (31.1 mm) |
|           |                   | 45 hp    | 1.20" (30.5 mm) |

All ratings are at 540 rpm PTO speed

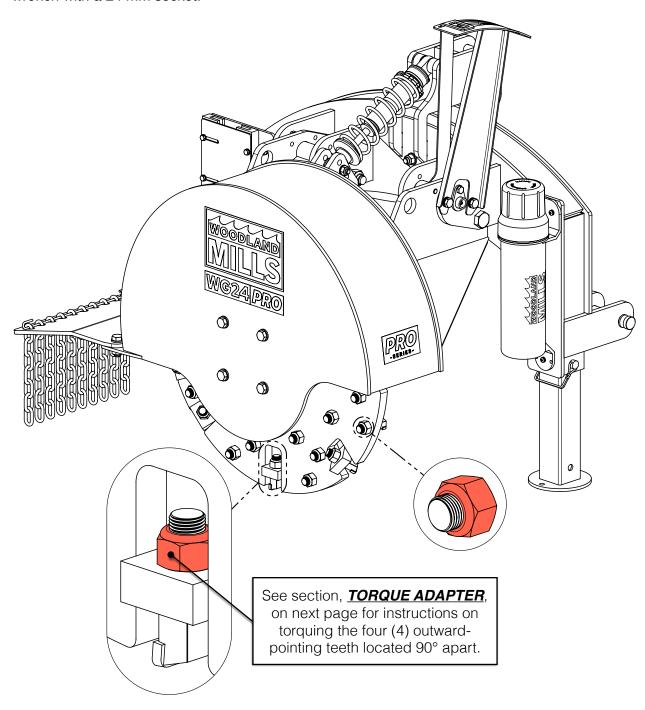


7. The clutch should be checked during the first hour of use and periodically each week thereafter. Excessive clutch plate slippage, burning odour, or visible smoking should *never* be observed during use.



# **FLYWHEEL TOOTH TORQUING**

Prior to each operation, ensure all 34 teeth are torqued to 160 ft•lb [215 N•m] using a torque wrench with a 24 mm socket.



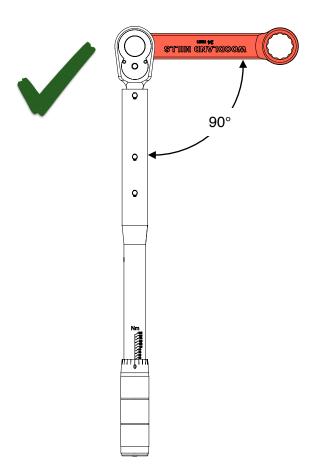


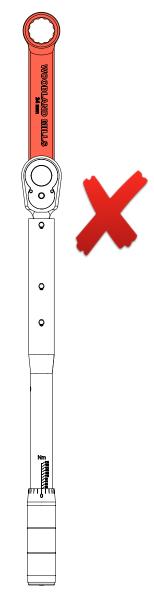
#### **TORQUE ADAPTER**

The stump grinder ships with a 24 mm torque adapter to assist torquing the four (4) outward-pointing teeth. It connects directly to a ½ in drive torque wrench. Use a ¾-to-½ in socket adapter if the torque wrench is ¾ in drive.



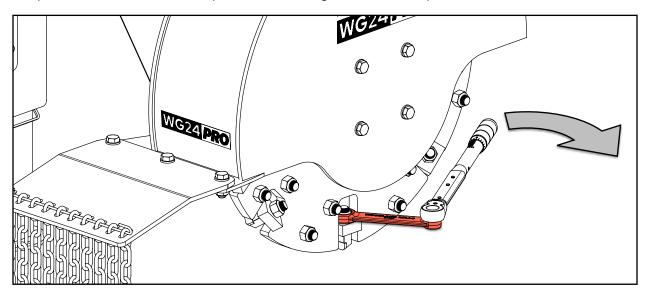
It is critical that the torque adapter be positioned  $90^{\circ}$  to the torque wrench when torquing the nuts ( $\checkmark$ ). If left straight (X), the nuts will be overtorqued and likely damage the grinder teeth threads.

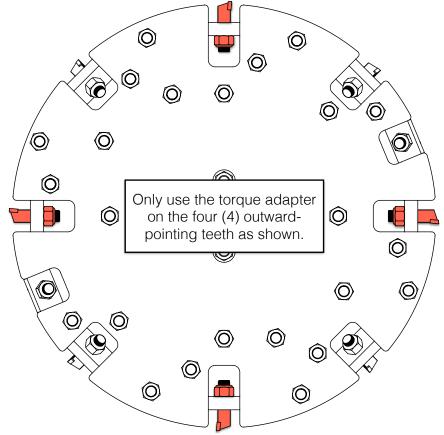






Slide the torque adapter and torque wrench over the nut and torque the nut by rotating it clockwise. Repeat the process for all four (4) of the outward-pointing teeth. Ensure the torque adapter remains 90° to the torque wrench throughout the entire process.







#### **OPERATION**

#### PRE-START CHECKLIST

- 1. Prior to operation, ensure all 34 teeth are torqued to 160 ft•lb [215 N•m] using a torque wrench with a 24 mm socket. Refer to section "FLYWHEEL TOOTH TORQUING" for detailed instructions.
- 2. With the stump grinder attached to your tractor, 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 <u>not</u> covered under warranty.\*\*
- 3. Perform the clutch run-in procedure prior to using the stump grinder. Refer to the procedure in section "*PTO SHAFT CLUTCH RUN-IN*" for detailed instructions.
- 4. The stump grinder has bearings fitted with Zerk fittings for greasing. The PTO shaft is fitted with two (2) Zerk fittings, one on each yoke. The PTO shaft and all bearings come pregreased and do not require greasing on initial start up. Refer to section "MAINTENANCE" for detailed maintenance instructions.
- 5. Read the "**STUMP GRINDING PROCEDURE**" section of this manual before operating the stump grinder. It is important to grind stumps correctly to ensure optimal grinding performance and safe operation.



#### **STARTUP**

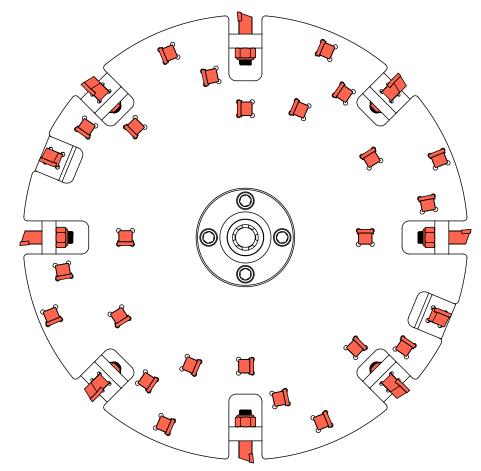




## **WARNING!**

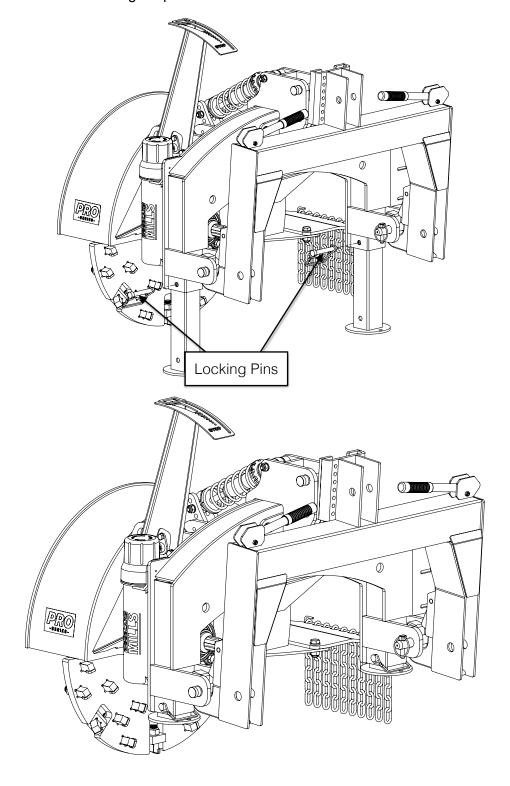
To avoid death or serious injury, do not grind stumps containing embedded foreign objects such as nails, wire, metal fragments, etc.

- Wear heavy-duty work gloves, ANSI-approved goggles behind a full face shield, steel-toed work boots, and a dust mask.
- Install the included Category 1 or Category 2 hitch pins based on the tractor's specs. Securely attach the stump grinder to the tractor's 3-point hitch system or quick-hitch and install the PTO shaft.
- 3. Prior to each daily use, check all 34 teeth and ensure they are not loose, missing, or damaged, and are torqued to the proper specification. Torque any undamaged loose teeth to 160 ft•lb [215 N•m] using a torque wrench with a 24 mm socket.



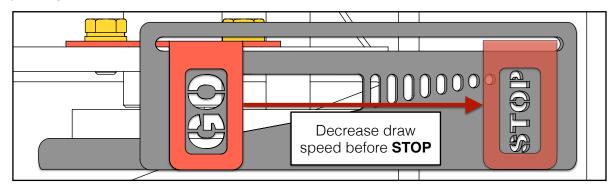


4. Remove the leg locking pins, slide the legs up inside the back frame tubes, then reinstall the pins to secure the legs in place.

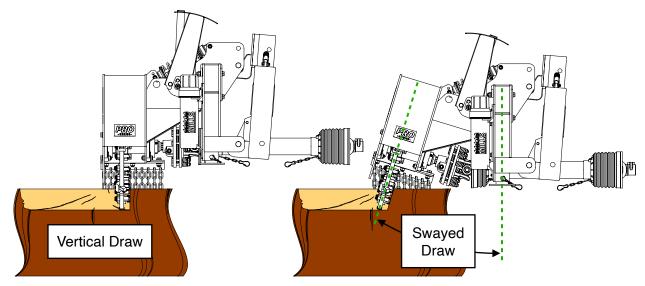




- 5. Reverse over a stump and lower the stump grinder so it will remove no more than 2 in [50 mm] per pass. Depth of grind should be adjusted to achieve proper grinding performance.
- 6. While drawing the stump grinder through a cut, use the Draw Speed Indicator to gauge the speed the tractor is pulling the grinder through the stump. If the indicator gets close to STOP, slow the tractor down. Always ensure the grinder is cutting properly and not jumping around erratically.



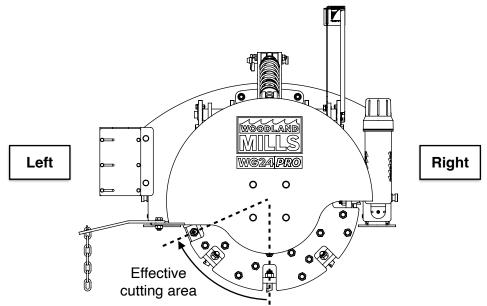
- 7. Once the stump is at ground level, continue to take up to 2 in [50 mm] deep passes until the stump and roots are 4-6 in [100-150 mm] below grade. Keep a watch out for foreign objects below the soil like rocks or buried metal. These can damage or break the teeth resulting in poor grinding performance.
- 8. During use, it is important to never let the stump grinder sway to such an extreme angle where the suspension gets fully compressed. The WG24 PRO stump grinder is designed to pull through stumps in a swayed draw orientation, however, the grinding effectiveness is diminished the more it sways. If the tractor is advancing faster than the flywheel can remove material—or if too much material is being removed per pass—immediately stop moving forward and and allow the stump grinder to swing back into a vertical draw position. Take a slower pass and/or shallower cut if necessary.



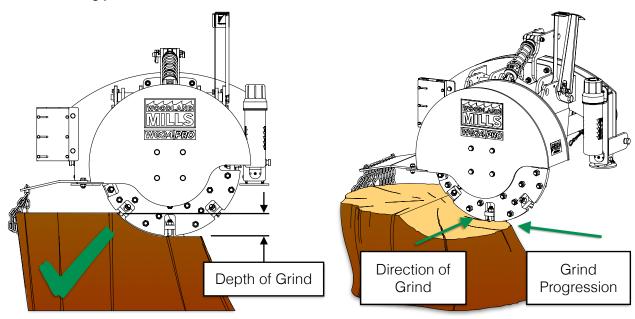


#### STUMP GRINDING PROCEDURE

The flywheel spins clockwise (when facing the rear of the machine) with the effective cutting area in the lower-left quadrant as shown below:



When grinding a tree stump, <u>always start from the right side of the stump</u>, moving incrementally to the left, pulling the grinder straight forward through the stump on each pass. When grinding softwoods like pine, spruce, or poplar, it may be permissible to remove upwards of 2 in [50 mm] of material per pass. However, hardwoods like oak, ash, and birch can be much more dense and the depth of grind may only be up to 1 in [25 mm]. If the chassis is swaying like described in the <u>previous section</u>, or the grinder is vibrating or bouncing, reduce the depth of cut or feed rate accordingly.

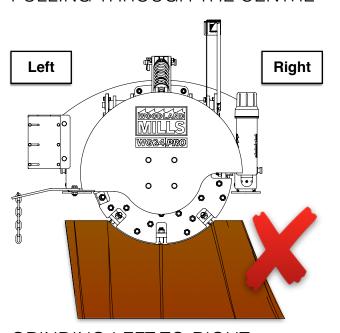


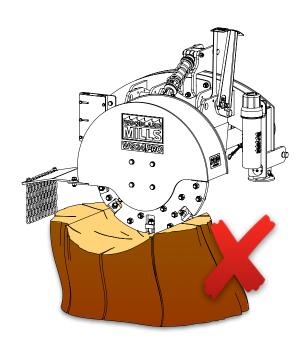


#### **INCORRECT GRINDING PROCEDURES**

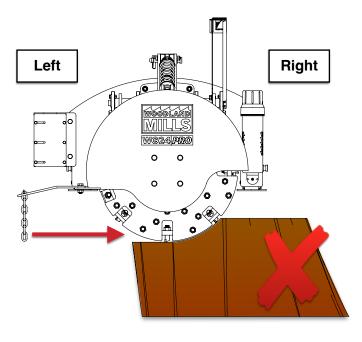
It is critical that the stump grinder is <u>never</u> pulled through the centre of a stump or ground from left-to-right. This will induce severe vibration and cause the grinder to sway and bounce. It may also damage the machine and/or break teeth. Follow the directions on the <u>previous page</u> to ensure efficient and safe grinding.

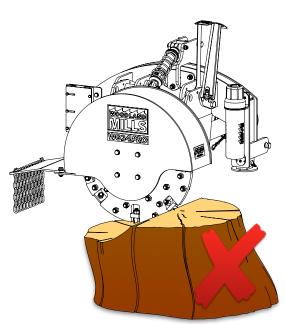
#### PULLING THROUGH THE CENTRE





**GRINDING LEFT-TO-RIGHT** 

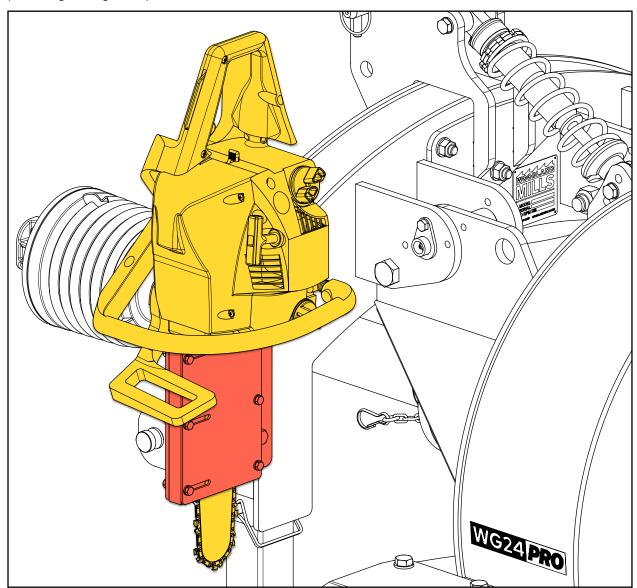






#### **CHAINSAW HOLDER**

Use the chainsaw holder only during transport. Always remove the chainsaw from the holder prior to grinding stumps.



#### **STORAGE**

- 1. Lower both support legs and reinsert the locking pins.
- 2. Lower the stump grinder onto a flat, level surface.
- 3. Disconnect the PTO shaft.
- 4. Remove the stump grinder from the tractor's 3-point hitch system.

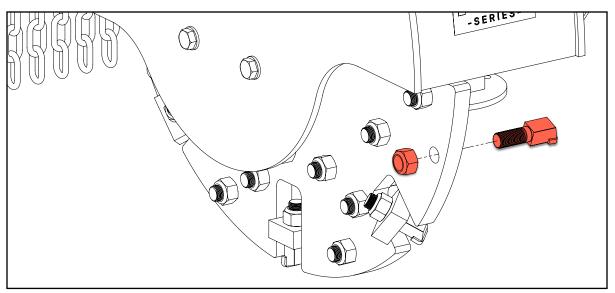


#### **MAINTENANCE**

- Proper routine maintenance is critical to operator safety, achieving proper stump grinding results, and prolonging the life of the machine.
- Before cleaning and/or any maintenance is performed on the stump grinder, always turn off the tractor engine and disconnect the PTO shaft.
- Inspect the machine before each use for loose nuts and worn cutting teeth and clean any debris that has built-up.
- After 2 hours of operation, check for loose nuts and worn cutting teeth. Tighten and replace as necessary.
- Grease the bearings and the pivot pins on the main housing as needed before each use.
   Do not over-grease the bearings as this can blow out the seals and cause premature bearing failure. Refer to section, *GREASING*, for information.
- Inspect the clutch plates on the PTO shaft periodically to ensure that they are not seized together. Refer to <u>PTO SHAFT CLUTCH RUN-IN</u> in the <u>SET UP PROCEDURES</u> section of the manual.

#### REPLACING TEETH

- 1. Disconnect the PTO shaft from the tractor and set the stump grinder on a flat, level surface.
- 2. Remove the M16 X 1.5 mm lock nut (fine thread) from the back of the tooth using a 24 mm wrench or socket.
- 3. Remove the worn cutting tooth while noting its orientation so that the replacement tooth will be installed in the same manner.



4. Install the replacement tooth and lock nut using a torque wrench set to 160 ft•lb [215 N•m]. Refer to section *FLYWHEEL TOOTH TORQUING* for more detail.



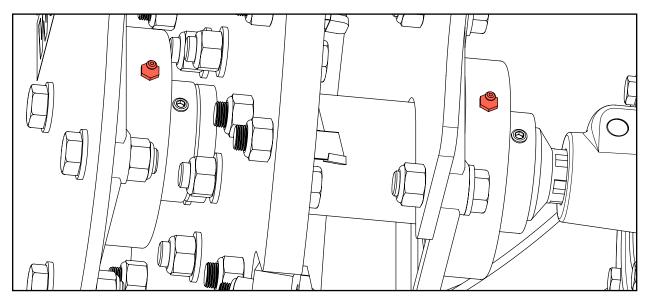
#### **GREASING**

#### **BEARINGS & OUTPUT SHAFT**

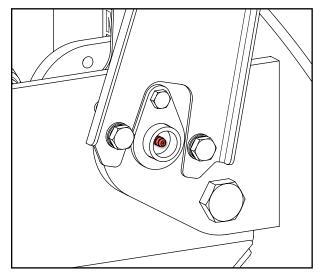
The stump grinder has ten (10) grease points: two (2) flywheel bearings, two (2) hinge pins, and six (6) on the PTO shaft. Check each grease point prior to use and add grease as needed.

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

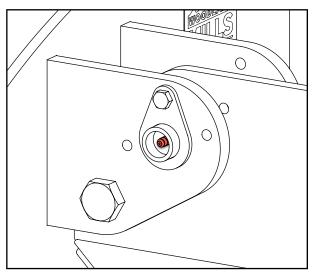
\*\*Warning: These grease points come pre-greased from the factory. <u>Do not add grease to these points on a new stump grinder</u>. Over-greasing can damage the bearing seals.\*\*



Flywheel Shaft Bearings (Underside of Flywheel Housing)





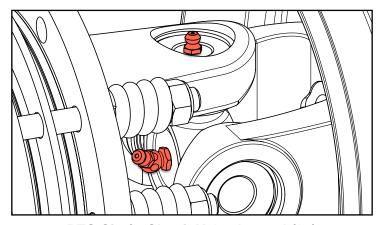


**Left Pivot Hinge** 

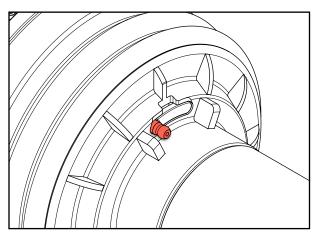


#### PTO SHAFT

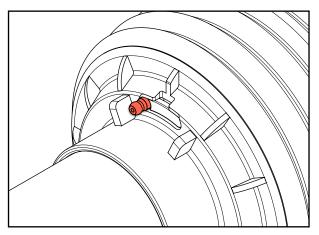
The PTO shaft has six (6) grease points that accessible from the outside: two (2) on the clutch yoke journal, one (1) on each of the inner and outer guards, and two (2) on the tractor yoke journal. Check each grease point prior to use and add grease as needed.



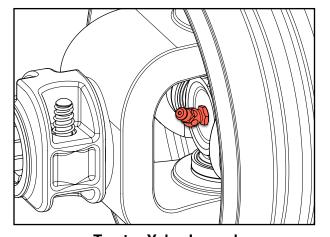
PTO Shaft: Clutch Yoke Journal (2x)



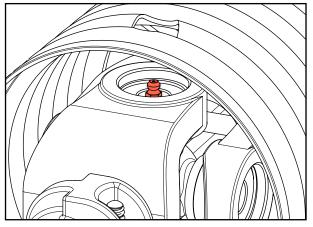
**Inner Guard Bearing** 



**Outer Guard Bearing** 



**Tractor Yoke Journal** 

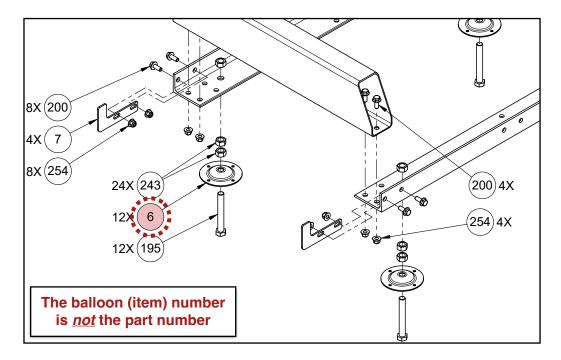


**Tractor Yoke Journal Bearing Cup** 



#### 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:

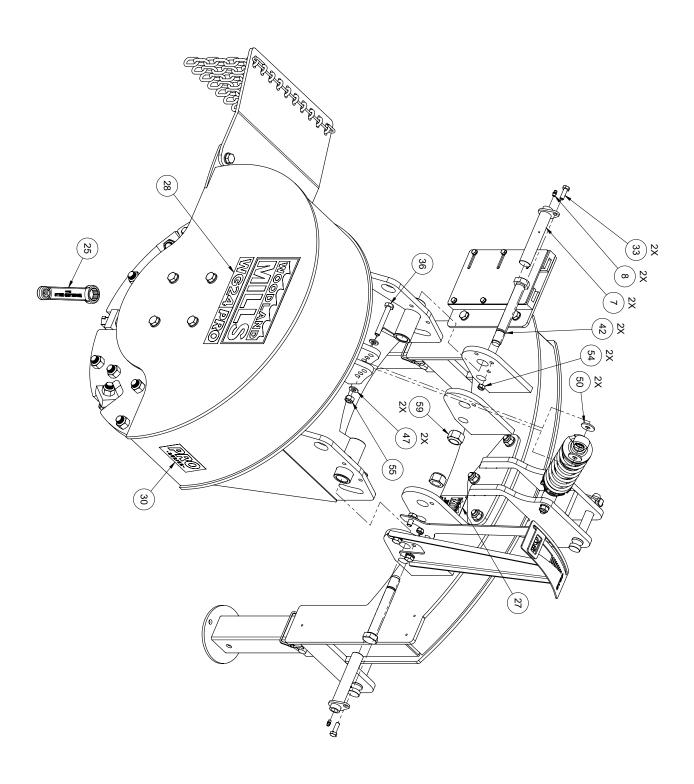
| PARTS LIST |          |        |          |                                      |  |
|------------|----------|--------|----------|--------------------------------------|--|
|            | Quantity |        | <b>5</b> |                                      |  |
| Item       | 14 hp    | 9.5 hp | Part No. | Description                          |  |
| 1          | 4        | 4      | 0001073  | TRACK RAIL, 58.5 mm TALL             |  |
| 4          | 2        | 2      | 0001075  | LOG BUNK, END                        |  |
| 3          | 2        | 2      | 0001080  | LOG BUNK, MID                        |  |
| 4          | 1        | 1      | 0001084  | LOG BUNK, CENTER                     |  |
| <b>—</b>   | 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.

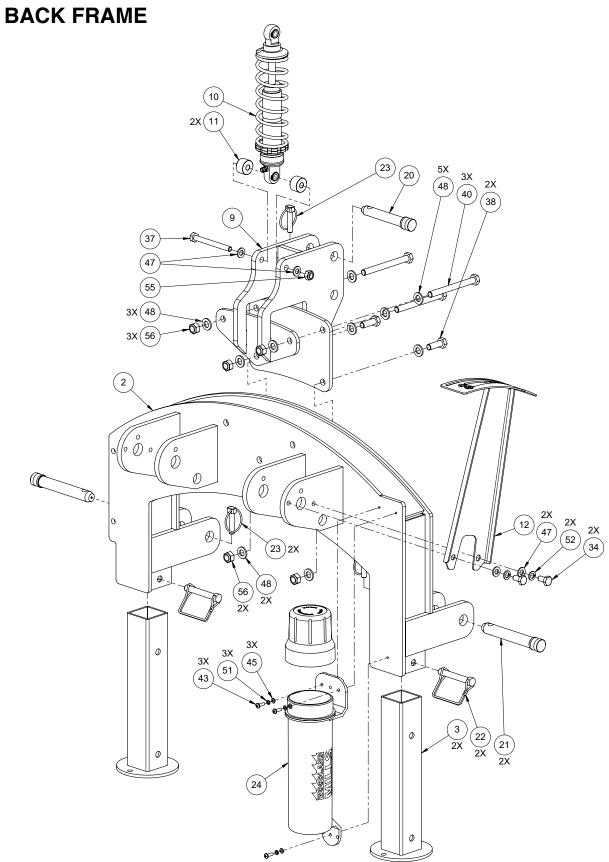
Contact Woodland Mills through the website or via phone/email. If possible, include the invoice or sales number from the purchased product so an associated account can be located. If the account has multiple addresses on file, please indicate to which address the replacement part(s) will be shipped.



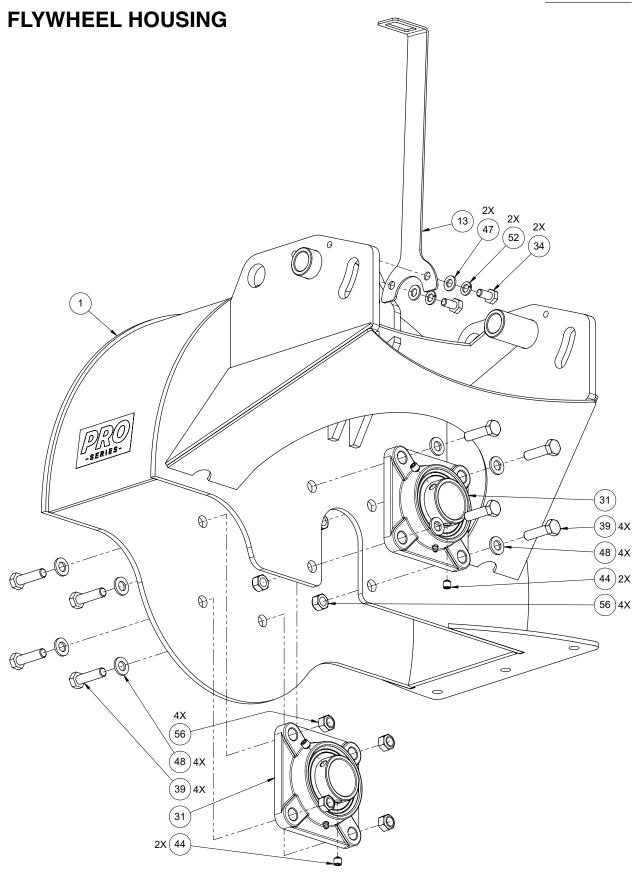
# **EXPLODED ASSEMBLY VIEWS**COMPLETE ASSEMBLY





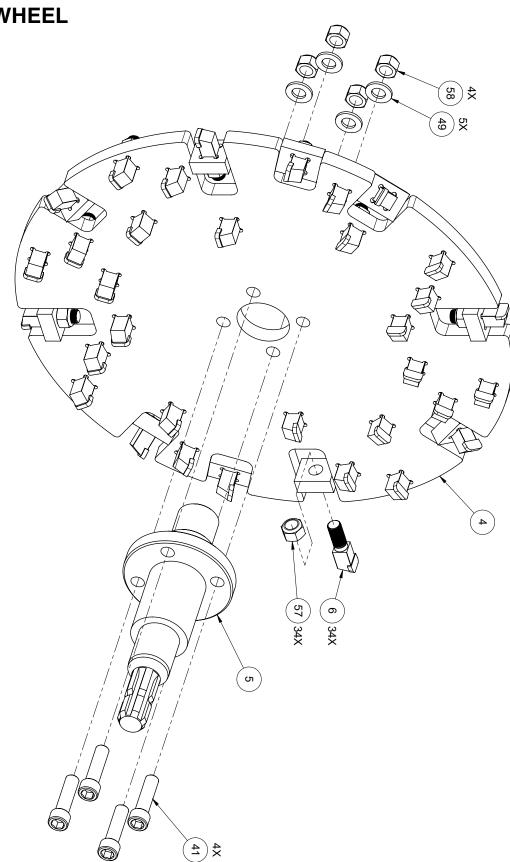






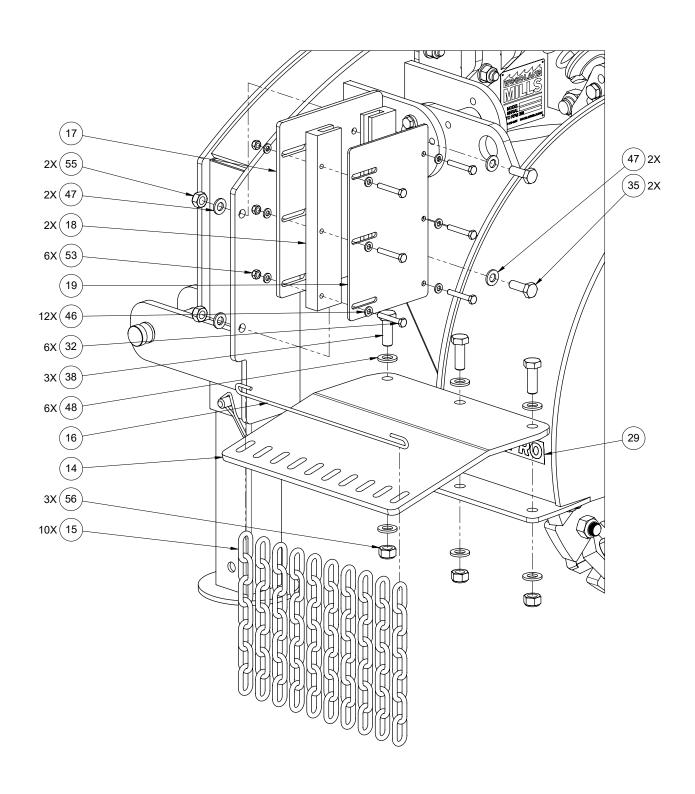


# **FLYWHEEL**



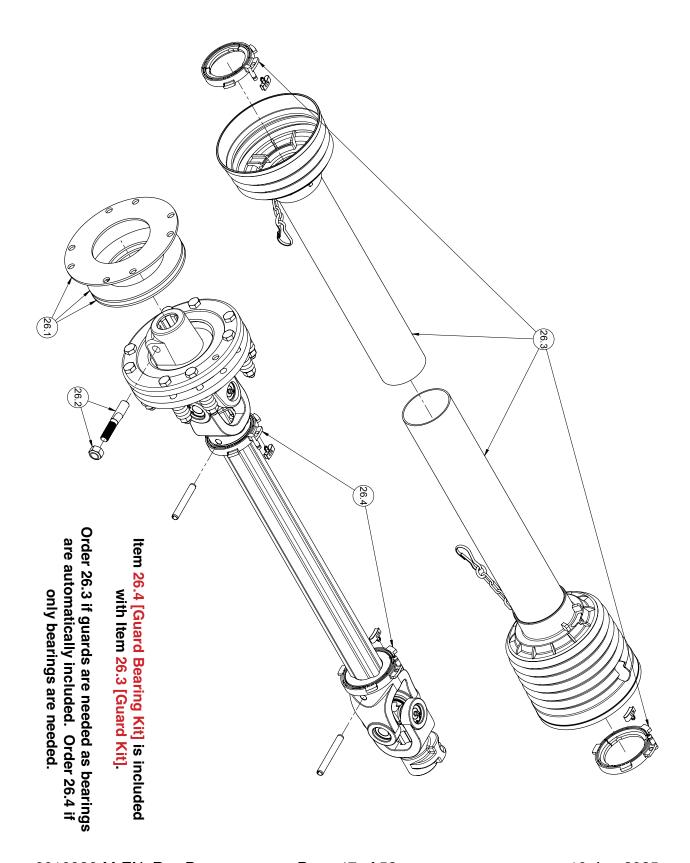


## **DEFLECTOR & CHAINSAW HOLDER**



# WOODLAND MILLS

## **PTO SHAFT**





# **PARTS LIST**

| Item | Qty | Part No.      | Description   |  |  |
|------|-----|---------------|---|--|--|
| 1    | 1   | 0010927       | FLYWHEEL HOUSING  BACK EDAME  |  |  |
| 2    | 1   | 0010929       | BACK FRAME  |  |  |
| 3    | 2   | 0001228       | BACK SUPPORT LEG, 60 X 60 mm  |  |  |
| 4    | 1   | 0001231       | FLYWHEEL  |  |  |
| 5    | 1   | 0001233       | FLYWHEEL SHAFT  |  |  |
| 6    | 34  | 0001232       | FLYWHEEL TOOTH, 18 mm SQ, M16 X 1.5, 72 mm LG, 30 mm LG THD               |  |  |
| 7    | 2   | 0001238       | GREASE PIN, 25 mm DIA   |  |  |
| 8    | 2   | 0004707       | GREASE FITTING, STRAIGHT, M6 X 1 TAPERED THD                              |  |  |
| 9    | 1   | 0010930       | TOP LINK BRACKET  |  |  |
| 10   | 1   | 0011619       | PNEUMATIC SHOCK ABSORBER, 6 mm WIRE, 88 lb, 305 mm CTC, 10 mm PIN         |  |  |
| 11   | 2   | 0009995       | SPACER, 10 ID X 30 OD X 18.5 mm LG  |  |  |
| 12   | 1   | 0010933       | DRAW SPEED INDICATOR GAUGE  |  |  |
| 13   | 1   | 0010934       | DRAW SPEED INDICATOR  |  |  |
| 14   | 1   | 0009980       | DEFLECTOR PLATE, DEBRIS CHAIN   |  |  |
| 15   | 10  | 0010928       | DEBRIS CHAIN  |  |  |
| 16   | 1   | 0009992       | CHAIN SKEWER  |  |  |
| 17   | 1   | 0010416       | CHAINSAW HOLDER MOUNTING PLATE  |  |  |
| 18   | 2   | 0002361       | CHAINSAW HOLDER NYLON GUIDE   |  |  |
| 19   | 1   | 0002363       | CHAINSAW HOLDER CLAMPING PLATE  |  |  |
| 20   | 1   | 0001156       | HITCH PIN, UPPER, CAT 1, 3/4 in [19 mm] DIA, 3-1/2 in [90 mm] USEABLE LG  |  |  |
| 21   | 2   | 0001240       | HITCH PIN, LOWER, CAT 1, 7/8 in [22 mm] DIA, 4-1/2 in [115 mm] USEABLE LG |  |  |
| 22   | 2   | 0004704       | LOCKING PIN, SQUARE, 12 mm DIA, 70 mm USABLE LG, 85 mm LG                 |  |  |
| 23   | 3   | 0004705       | LINCH PIN, 10 mm DIA, 38 mm USABLE LG, 45 mm LG                           |  |  |
| 24   | 1   | 0001655       | MANUAL TUBE   |  |  |
| 25   | 1   | 0004194       | TORQUE ADAPTER, 1/2 in DRIVE, 12-POINT 24 mm                              |  |  |
| 26   | 1   | 0011800       | PTO SHAFT, SLIP CLUTCH, 5S-SERIES   |  |  |
| 26.1 | 1   | 0002572       | PTO SLIP CLUTCH DISC KIT  |  |  |
| 26.2 | 1   | 0003056       | LOCKING PIN KIT, PTO SLIP CLUTCH  |  |  |
| 26.3 | 1   | 0011840       | GUARD KIT, PTO SLIP CLUTCH, 5S-SERIES                                     |  |  |
| 26.4 | 1   | 0010591       | GUARD BEARING KIT, 5S/7S-SERIES   |  |  |
| 26.5 | 1   | 0010591       | TRIANGULAR YOKE PIN KIT, 5S-SERIES PTO SHAFT                              |  |  |
| 27   | 1   | 0006495       | LABEL, SERIAL NUMBER, PTO   |  |  |
| 28   | 1   | 0010932       | LABEL, WG24 PRO W/ WOODLAND MILLS LOGO                                    |  |  |
| 29   | 1   | 0010932       | LABEL, WG24 PRO   |  |  |
| 30   | 1   | 0008937       | LABEL, PRO SERIES, 100 X 56 mm  |  |  |
| 31   | 2   | UCF210        | FLANGE BEARING, SQ, 4-BOLT, 50 mm SFT, 111 mm C-C                         |  |  |
| 32   | 6   | HHB-MBE095FCJ | HEX HEAD BOLT, CLS 8.8, M6 X 1, 40 mm LG, FULL                            |  |  |
| 33   | 2   | HHB-MBJ080FCJ | HEX HEAD BOLT, CLS 8.8, M8 X 1.25, 25 mm LG, FULL                         |  |  |
| _    | 4   | HHB-MBM075FCJ | HEX HEAD BOLT, CLS 8.8, M10 X 1.25, 25 mm LG, FULL                        |  |  |
| 34   | 2   | HHB-MBM085FCJ | HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 20 mm LG, FULL                         |  |  |
| 35   |     |               |   |  |  |
| 36   | 1   | HHB-MBM125PCJ | HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 70 mm LG, 26 mm LG THD                 |  |  |
| 37   | 1   | HHB-MBM155PCJ | HEX HEAD BOLT, CLS 8.8, M10 X 1.5, 100 mm LG, 26 mm LG THD                |  |  |
| 38   | 5   | HHB-MBR090FCJ | HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 35 mm LG, FULL                        |  |  |
| 39   | 8   | HHB-MBR100FCJ | HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 45 mm LG, FULL                        |  |  |
| 40   | 3   | HHB-MBR180PCJ | HEX HEAD BOLT, CLS 8.8, M12 X 1.75, 125 mm LG, 30 mm LG THD               |  |  |
| 41   | 4   | SHC-MCA115FCP | SHCS, CLS 12.9, M16 X 2, 60 mm LG, FULL                                   |  |  |



| Item | Qty | Part No.        | Description  |
|------|-----|-----------------|--|
| 42   | 2   | HHS-MCF068173AJ | SHLDR SCREW, HEX HEAD, ALLOY, 21 X 118 mm LG SHLDR, M20 X 2.5 X 32 mm LG THD |
| 43   | 3   | PPH-MBA071FCE   | SCREW, PPH, CLS 4.8, M5 X 0.8, 16 mm LG, FULL                                |
| 44   | 4   | KCS-MBN059GR    | SET SCREW, KNURLED CUP POINT, GR 45H, M10 X 1.25, 10 mm LG                   |
| 45   | 3   | FTW-MBA000AJ    | FLAT WASHER, M5  |
| 46   | 12  | FTW-MBE000AJ    | FLAT WASHER, M6  |
| 47   | 12  | FTW-MBM000AJ    | FLAT WASHER, M10   |
| 48   | 24  | FTW-MBR000AJ    | FLAT WASHER, M12   |
| 49   | 4   | FTW-MCA000AJ    | FLAT WASHER, M16   |
| 50   | 2   | FDW-MBM079000AJ | FENDER WASHER, M10, 30 mm OD   |
| 51   | 3   | SLW-MBAAJ       | SPLIT LOCK WASHER, M5  |
| 52   | 4   | SLW-MBMAJ       | SPLIT LOCK WASHER, M10   |
| 53   | 6   | HLN-MBECH       | LOCK NUT, CLS 8, M6 X 1  |
| 54   | 2   | HLN-MBJCH       | LOCK NUT, CLS 8, M8 X 1.25   |
| 55   | 4   | HLN-MBMCH       | LOCK NUT, CLS 8, M10 X 1.5   |
| 56   | 16  | HLN-MBRCH       | LOCK NUT, CLS 8, M12 X 1.75  |
| 57   | 34  | HLN-MCBCH       | LOCK NUT, CLS 8, M16 X 1.5   |
| 58   | 4   | HLN-MCACH       | LOCK NUT, CLS 8, M16 X 2   |
| 59   | 2   | HLN-MCFCH       | LOCK NUT, CLS 8, M20 X 2.5   |



| NOTES |  |  |  |  |  |  |
|-------|--|--|--|--|--|--|
|       |  |  |  |  |  |  |
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# WOODLAND MODLAS