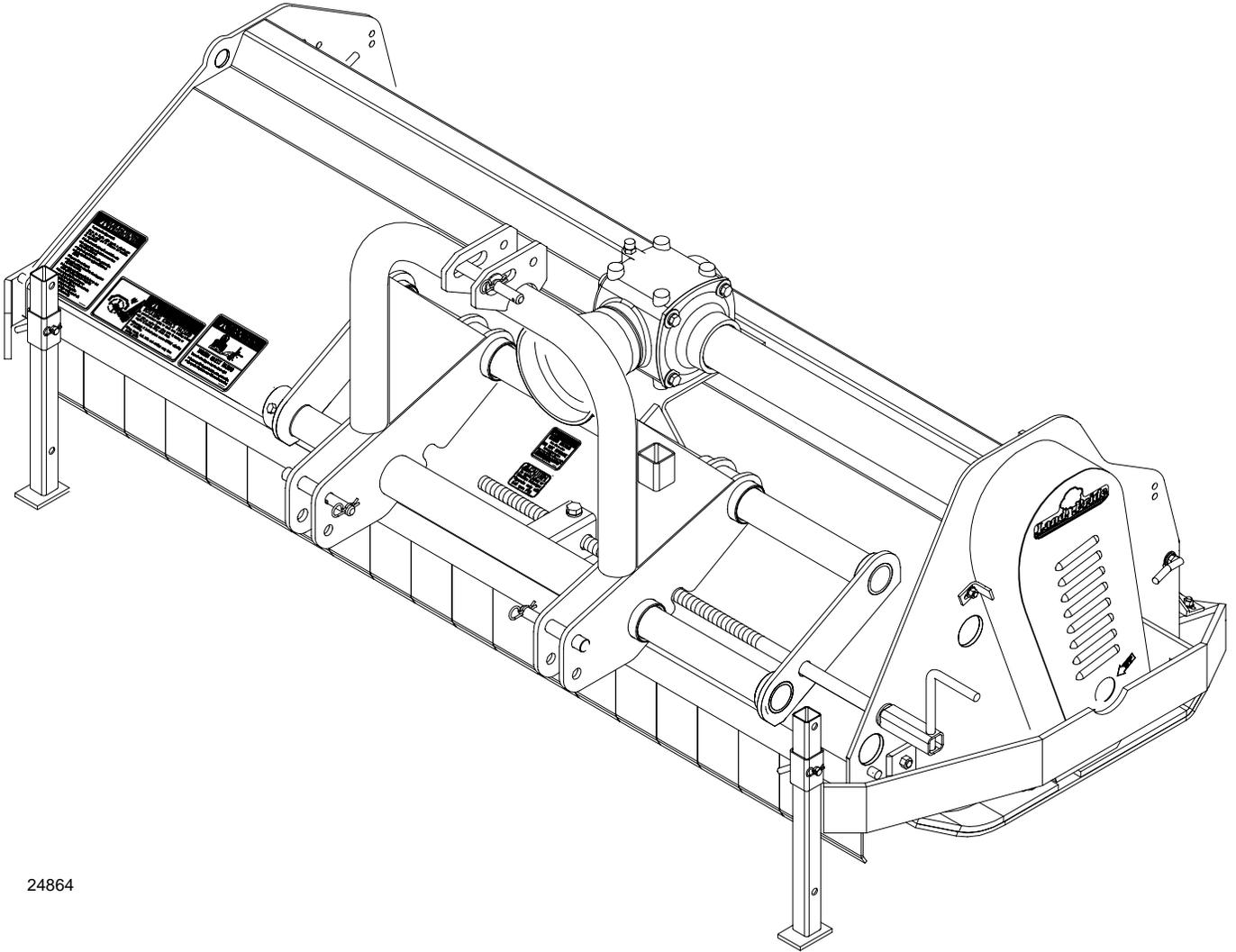


Flail Mowers

FM3188 & FM4188



24864

309-523M Operator's Manual



Read the Operator's manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



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Cover photo may show optional equipment not supplied with standard unit.

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Important Safety Information

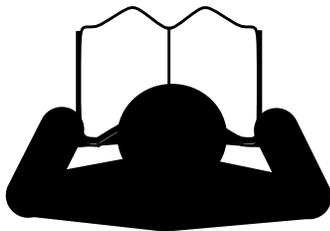
These are common practices that may or may not be applicable to the products described in this manual.

Safety at All Times

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Label" section, read all instructions noted on them.

Do not allow anyone to operate this equipment who has not fully read and comprehended this manual and who has not been properly trained in the safe operation of the equipment.

- ▲ Operator should be familiar with all functions of the unit.
- ▲ Operate implement from the driver's seat only.
- ▲ Make sure all guards and shields are in place and secured before operating the implement.
- ▲ Do not leave tractor or implement unattended with engine running.
- ▲ Dismounting from a moving tractor could cause serious injury or death.
- ▲ Do not stand between the tractor and implement during hitching.
- ▲ Keep hands, feet, and clothing away from power-driven parts.
- ▲ Wear snug fitting clothing to avoid entanglement with moving parts.
- ▲ Watch out for wires, trees, etc., when raising implement. Make sure all persons are clear of working area.
- ▲ Turning tractor too tight may cause implement to ride up on wheels. This could result in injury or equipment damage.



Look For The Safety Alert Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Be Aware of Signal Words

A Signal word designates a degree or level of hazard seriousness. The signal words are:

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING

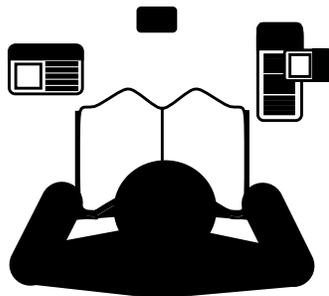
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

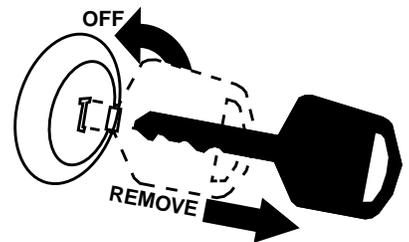
For Your Protection

- ▲ Thoroughly read and understand the "Safety Label" section, read all instructions noted on them.



Shutdown and Storage

- ▲ Lower machine to ground, put tractor in park, turn off engine, and remove the key.
- ▲ Detach and store implements in a area where children normally do not play. Secure implement by using blocks and supports.

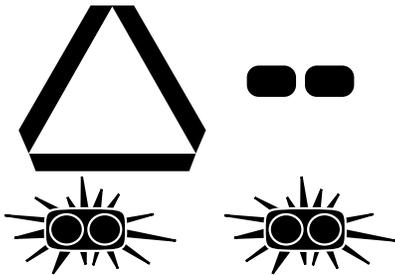


Important Safety Information

These are common practices that may or may not be applicable to the products described in this manual.

Use Safety Lights and Devices

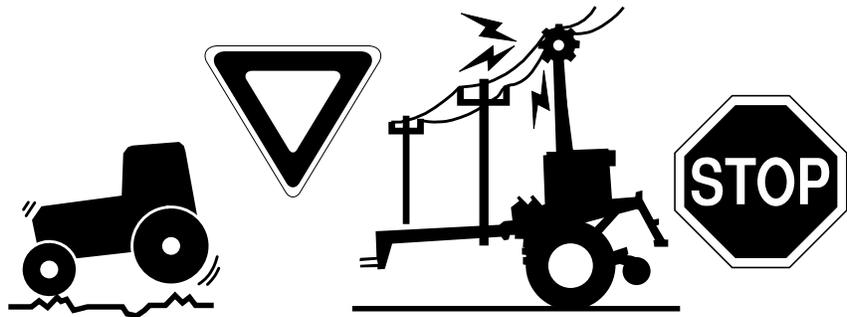
- ▲ Slow moving tractors, self-propelled equipment, and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- ▲ Flashing warning lights and turn signals are recommended whenever driving on public roads. Use lights and devices provided with implement.



Transport Machinery Safely

- ▲ Comply with state and local laws.
- ▲ Maximum transport speed for implement is 20 mph. **DO NOT EXCEED.** Never travel at a speed which does not allow adequate control of steering and stopping. Some rough terrain require a slower speed.
- ▲ Sudden braking can cause a towed load to swerve and upset. Reduce speed if towed load is not equipped with brakes.

- ▲ Use the following maximum speed - tow load weight ratios as a guideline:
20 mph when weight is less than or equal to the weight of tractor.
10 mph when weight is double the weight of tractor.
- ▲ **IMPORTANT:** Do not tow a load that is more than double the weight of tractor.



Practice Safe Maintenance

- ▲ Understand procedure before doing work. Use proper tools and equipment, refer to Operator's Manual for additional information.
- ▲ Work in a clean dry area.
- ▲ Lower the implement to the ground, put tractor in park, turn off engine, and remove key before performing maintenance.
- ▲ Allow implement to cool completely.
- ▲ Do not grease or oil implement while it is in operation.
- ▲ Inspect all parts. Make sure parts are in good condition & installed properly.
- ▲ Remove buildup of grease, oil or debris.
- ▲ Remove all tools and unused parts from implement before operation.

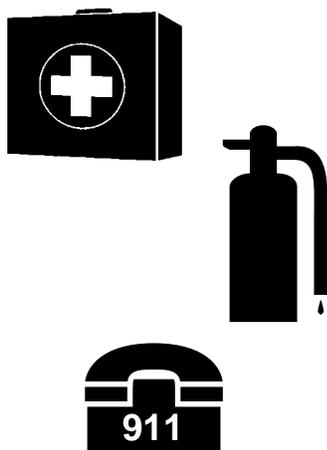


Important Safety Information

These are common practices that may or may not be applicable to the products described in this manual.

Prepare for Emergencies

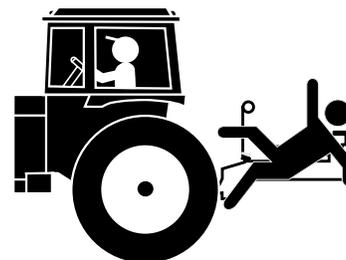
- ▲ Be prepared if a fire starts.
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.

**Wear Protective Equipment**

- ▲ Protective clothing and equipment should be worn.
- ▲ Wear clothing and equipment appropriate for the job. Avoid loose fitting clothing.
- ▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- ▲ Operating equipment safely requires the full attention of the operator. Avoid wearing radio headphones while operating machinery.

**Keep Riders Off Machinery**

- ▲ Riders obstruct the operator's view, they could be struck by foreign objects or thrown from the machine.
- ▲ Never allow children to operate equipment.



Important Safety Information

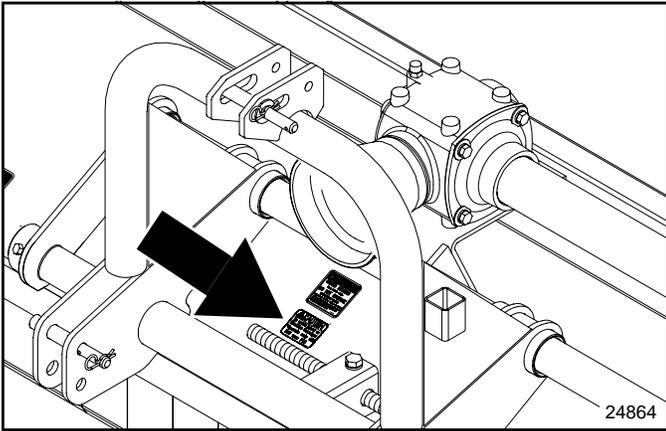
Safety Labels

Your Flail Mower comes equipped with all safety labels in place. They were designed to help you safely operate your implement. Read and follow their directions.

1. Keep all safety labels clean and legible.
2. Replace all damaged or missing labels. To order new labels go to your nearest Land Pride dealer or visit our dealer locator at landpride.com.
3. Some new equipment installed during repair requires safety labels to be affixed to the replaced component as

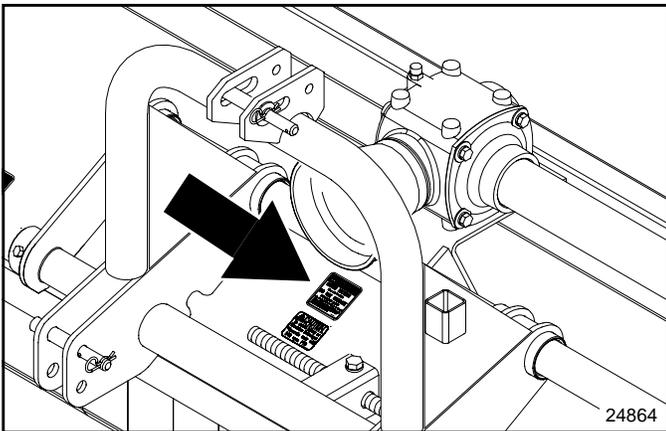
specified by Land Pride. When ordering new components make sure the correct safety labels are included in the request.

4. Refer to this section for proper label placement.
To install new labels:
 - a. Clean the area the label is to be placed.
 - b. Spray soapy water on the surface where the label is to be placed.
 - c. Peel backing from label. Press firmly onto the surface.
 - d. Squeeze out air bubbles with the edge of a credit card.



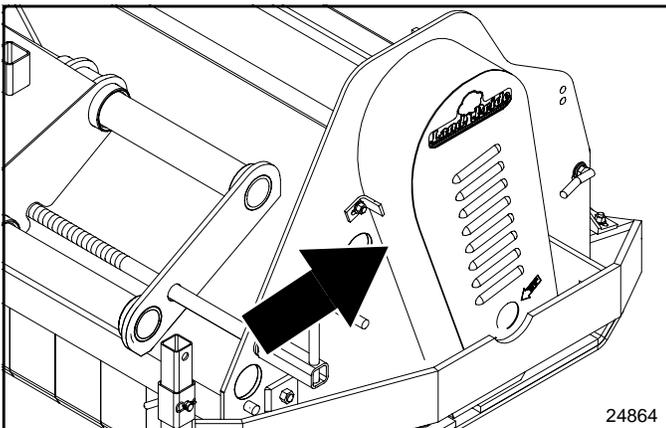
818-130C

Caution: To avoid injury

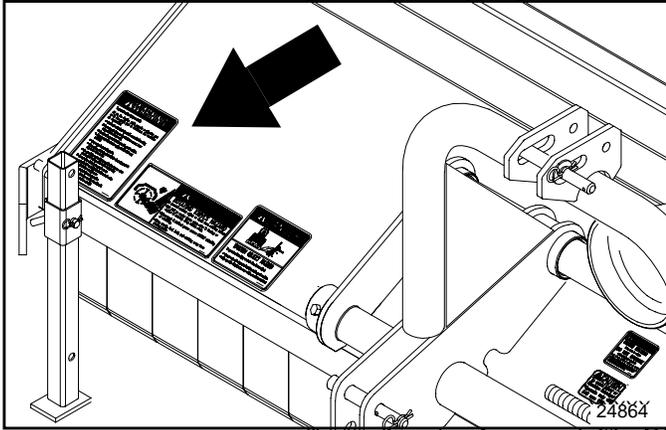


818-543C

Danger: Guard Missing



Important Safety Information



! WARNING

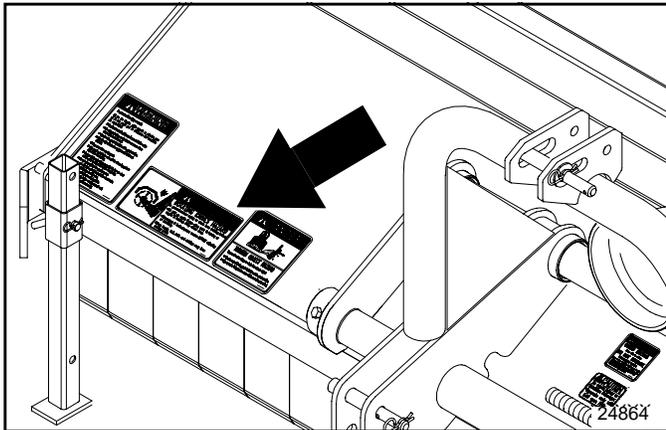
To prevent serious injury or death:

- Read and understand Operator's manual before using.
- Do not permit riders on the tractor or mower. Never carry child on tractor seat.
- Operate with guards installed and in good condition.
- Operate only with tractor equipped with ROPS and seatbelts.
- Keep away from moving parts.
- Stop engine, set brake and wait for all moving parts to stop before dismounting.
- Be sure lights and reflectors required by law are clean and in good working order before transporting.
- Do not allow children to operate mower.
- Travel with SMV and lights that follow local codes.
- Clean debris from mowing area.
- Do not operate in the raised position.
- Support securely before working beneath unit.
- Review safety instructions annually.

Si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.

818-558C

818-558C
Warning: General



! DANGER

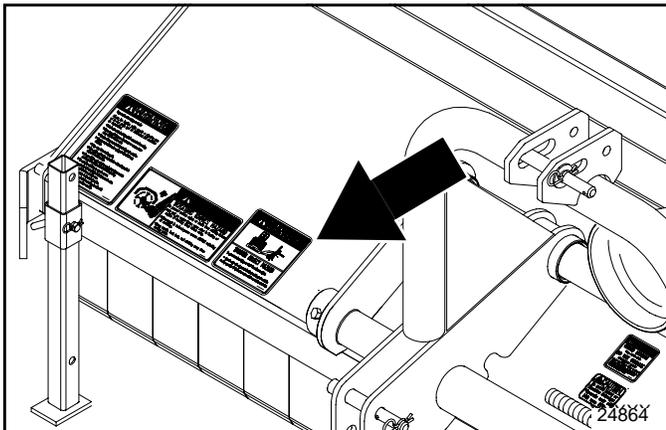
ROTATING KNIVES HAZARD

To prevent serious injury or death from rotating knives:

- DO NOT go under frame when rotor is turning or engine is running. Keep others away.
- Disconnect & lockout power source BEFORE adjusting or servicing.
- Keep hands, feet, hair, and clothing away from moving parts.

838-079C

838-079C
Danger: Rotating
Knives Both sides



! DANGER

THROWN OBJECT HAZARD

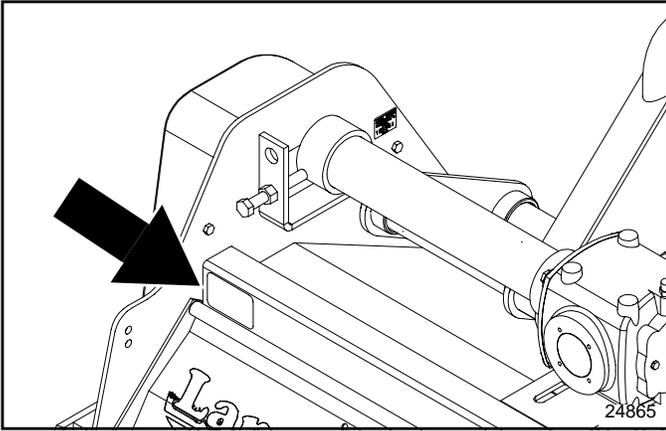
To prevent serious injury or death from thrown object:

- Operate only with all guards installed and in good condition.
- Stop operation if bystanders come within several hundred feet.

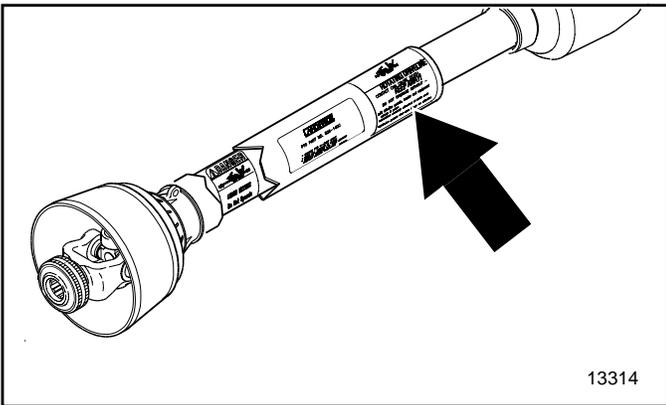
818-556C

818-556C
Danger: Thrown Object

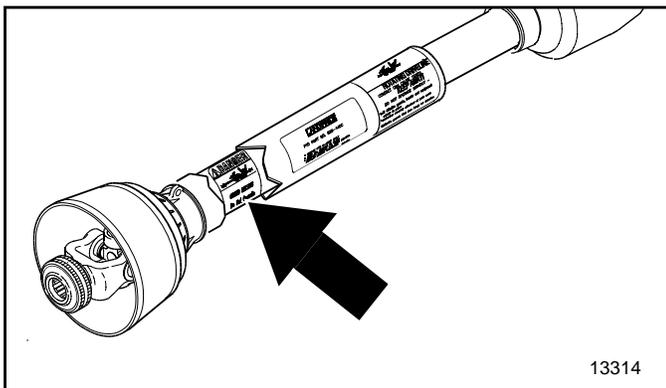
Important Safety Information



818-230C
Red Reflector (Both Sides)



818-552C
Danger: Rotating Driveline



818-540C
Danger: Guard Missing

Introduction

Land Pride welcomes you to the growing family of new product owners. This implement has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this product.

Application

The heavy duty FM3188 and FM4188 Series Flail Mowers are designed and built to provide excellent cutting performance on gently sloping or slightly contoured right-of ways, roadsides, ditches, pastures, nurseries, and smaller fields of row crop debris, stalks, and residual agricultural growth.

Both are capable of cutting 88" wide and 1/2" to 6" high. The three-point Cat. I hitch is designed to be used on tractors with a maximum 80 PTO horsepower. Their hitch is designed with a screw type crank adjustment for 7 3/4" offset capability to the left or right making this mower even more desirable for cutting in and around trees with extremely low hanging branches. Its horizontal rotor cutting design greatly reduces the potential of launching projectiles out from under the mower making it an excellent choice for state and municipal mowing applications. Both models are complete with a 540 rpm Cat. 4 driveline.

The FM3188 model equipped with fine cutting knives will perform extremely well cutting material up to 1" in diameter or provide a very respectable quality of cut for grooming yards, municipal parks, medians, and right of ways.

The FM4188 model equipped with forged hammer knives and heavy duty brush rake teeth make this model well suited for nursery and agricultural applications where heavy grass, brush, prunings, saplings, small stumps, corn stocks and other row crop debris are present. The rake teeth will gather and aggressively force material into the rotor hammer knives for a more complete pulverization.

See "Specifications & Capacities" on page 21 and "Features and Benefits" on page 22 for additional information and performance enhancing options.

Using This Manual

- This Operator's Manual is designed to help familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
- The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
- To order a new Operator's or Parts Manual contact your authorized dealer. Manuals can also be downloaded, free-of-charge from our website at www.landpride.com or printed from the Land Pride Service & Support Center by your dealer.

Terminology

"Right" or "Left" as used in this manual is determined by facing the direction the machine will operate while in use unless otherwise stated.

Definitions

NOTE: A special point of information that the operator must be aware of before continuing.

IMPORTANT: A special point of information related to its preceding topic. Land Pride's intention is that this information should be read and noted before continuing.

Owner Assistance

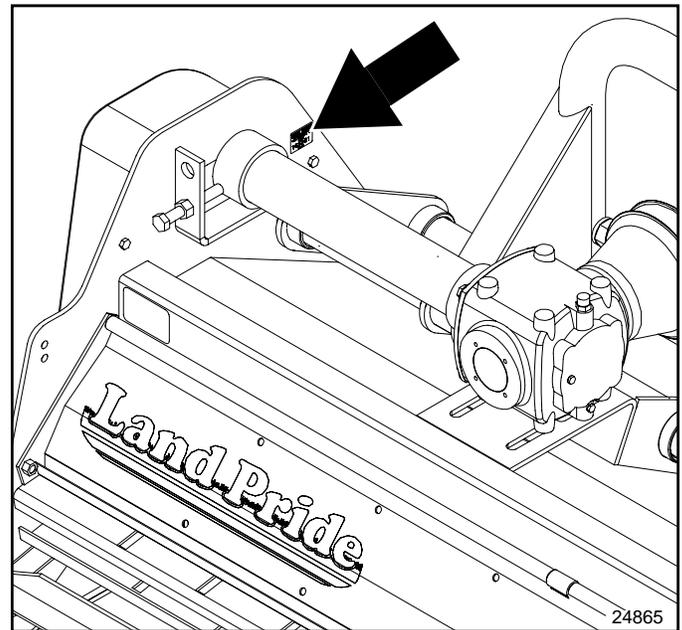
The Warranty Registration card should be filled out by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

If customer service or repair parts are required contact a Land Pride dealer. A dealer has trained personnel, repair parts and equipment needed to service the mower.

The parts on your Flail Mower have been specially designed and should only be replaced with genuine Land Pride parts. Therefore, should your mower require replacement parts go to your Land Pride Dealer.

Serial Number Plate

For prompt service always use the serial number and model number when ordering parts from your Land Pride dealer. Be sure to include your serial and model numbers in correspondence also. Refer to Figure 1 for the location of your serial number plate.



Serial Number Plate Location
Figure 1

Introduction

Further Assistance

Your dealer wants you to be satisfied with your new Flail Mower. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

1. Discuss the matter with your dealership service manager making sure he is aware of any problems you may have and that he has had the opportunity to assist you.
2. If you are still not satisfied, seek out the owner or general manager of the dealership, explain the problem and request assistance.
3. For further assistance write to:

Land Pride Service Department

1525 East North Street

P.O. Box 5060

Salina, Ks. 67402-5060

E-mail address

lp servicedept@landpride.com

Section 1: Assembly and Set-up

Tractor Requirements

Tractor horse power rating should be between 35 & 80 PTO horsepower. Tractors outside this horsepower range must not be used.

The rear power take-off (PTO) speed must be capable 540 RPM and have a 1 3/8"-6 spline.

A 3-Point Category I or II hitch is required. The lower 3-Point arms must be stabilized to prevent side-to-side movement. Most tractors have sway blocks or adjustable chains for this purpose.

NOTE: Ballast may need to be added to your tractor to maintain steering control. Refer to your tractor's operator manual to determine if additional ballast is needed.

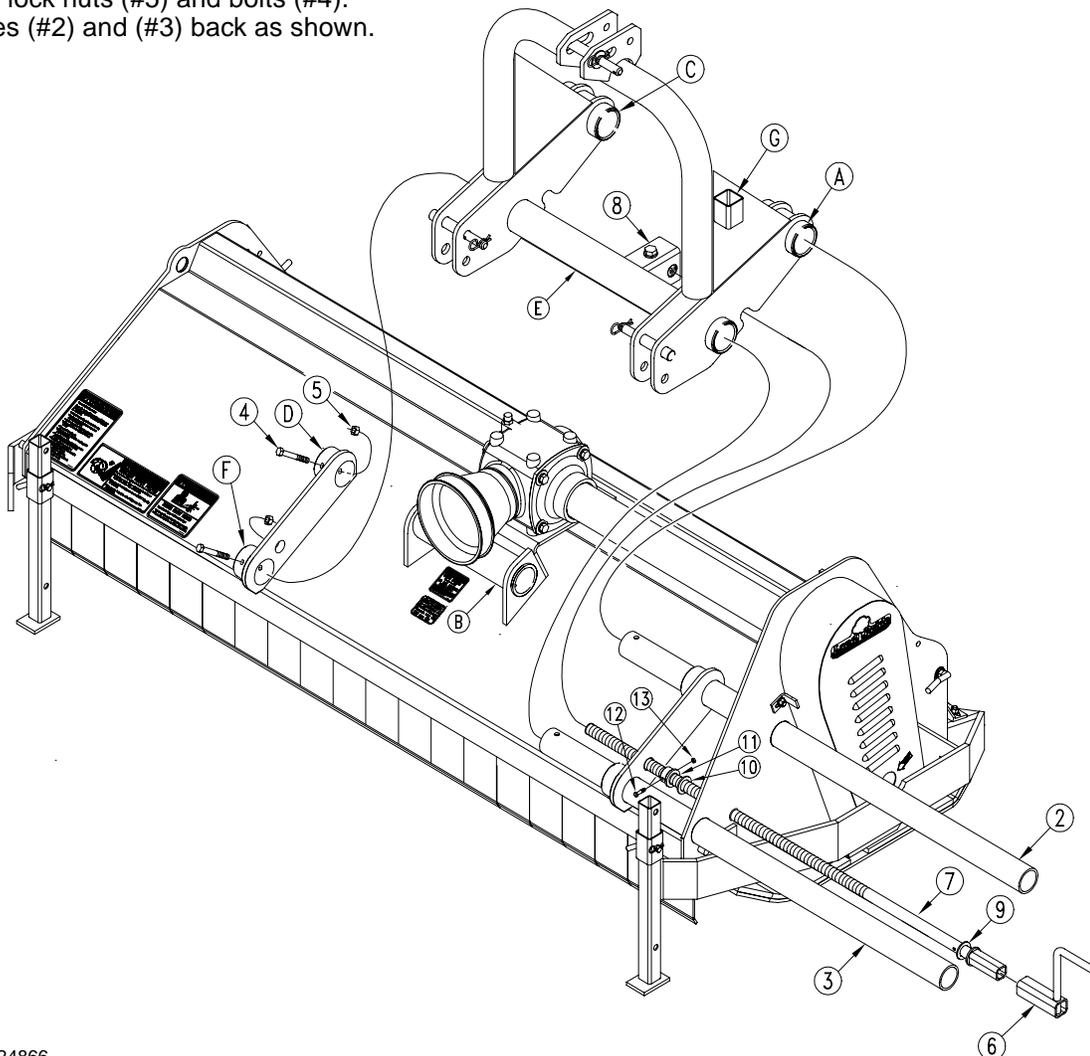
Hitch Assembly

Refer to Figure 1-1:

The hitch is disassembled for ease in shipping.

1. Remove lock nuts (#5) and bolts (#4). Pull tubes (#2) and (#3) back as shown.

2. Remove lock nut (#13) and bolt (#12). Pull adjustment rod (#7) back as shown.
3. Assemble hitch (#1) to Flail Mower by inserting upper tube (#2) through hitch tube (A), spacer tube (B), hitch tube (C) and into retaining collar (D).
4. Secure upper tube with bolt (#4) and lock nut (#5).
5. Insert lower tube (#3) through lower hitch tube (E) and into retaining collar (F).
6. Secure lower tube with bolt (#4) and lock nut (#5).
7. With hand crank (#6), screw adjustment rod (#7) into adjustment block (#8) until washer (#9) is tight against the side panel.
8. Press washer (#10) against the side panel. Insert bolt (#12) through retaining collar (#11) and adjustment rod (#7). Secure with lock nut (#13).
9. Return hand crank (#6) to its carrying tube (G).
10. Tighten all hardware. Refer to "**Torque Values Chart for Common Bolt Sizes**" Page 24.



24866

Hitch Assembly
Figure 1-1

Section 1: Assembly and Set-up

Tractor Hook-Up

Refer to Figure 1-2:

1. Be certain tractor draw bar does not interfere. Move draw bar ahead or remove if required. Draw bar should also be checked for clearance when unit is raised for the first time.
2. Remove all three clevis hitch pins.
3. Align ball swivels in the tractor's lower 3-point arms with pin holes in the mower's lower hitch clevises. Insert hitch pins and secure with hair pin cotters.
4. Align the top center link with the mower's center hitch clevis. Insert hitch pin and secure with hair pin cotter.
5. With tractor's 3-point controls, lift mower up 1 to 2 inches and then raise jack stands fully up. Secure stands with jack pins and hair pin cotters.
6. Level mower by adjusting lower 3-point arms and upper center link. Refer to "Leveling the Mower" on page 14.

Driveline Installation

An additional driveline may be required if the Flail Mower is used on more than one tractor.

WARNING

Damaged drivelines can cause serious injury or death.

CAUTION

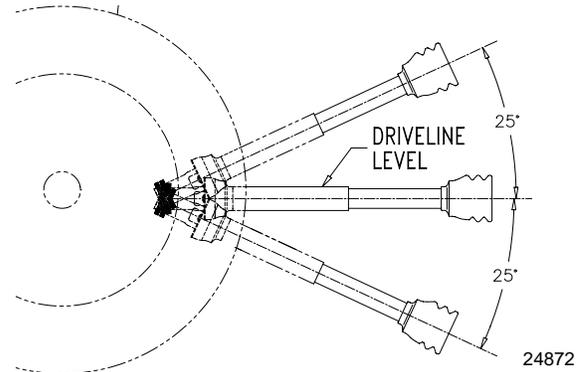
Tractor PTO shield and all mower guards must be in place at all times during operation!

CAUTION

Always engage parking brake, shut off tractor and remove key before dismounting from tractor.

IMPORTANT: Some tractors are equipped with multispeed PTO ranges. Be certain your tractor's PTO is set for 540 rpm.

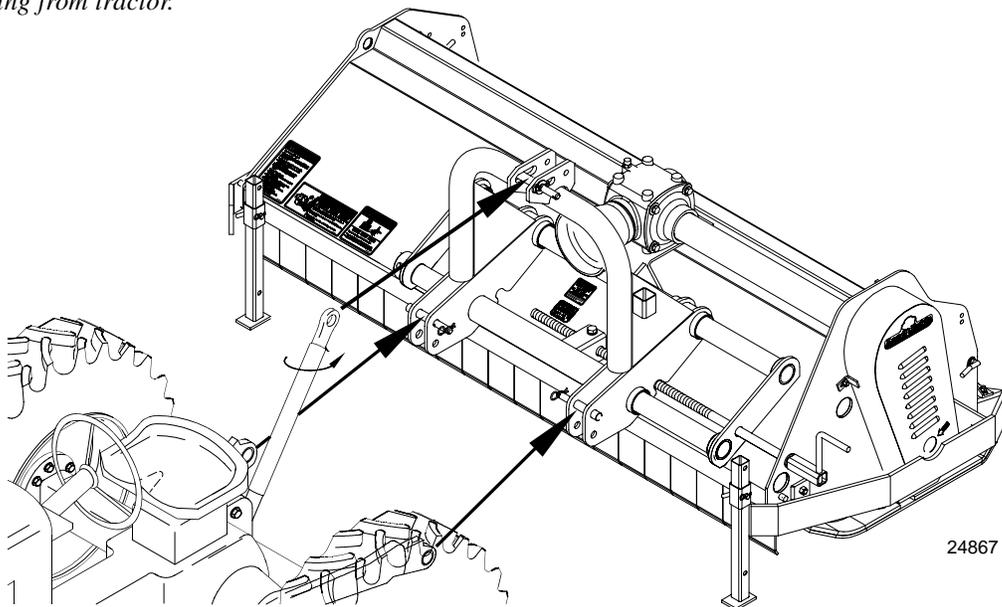
IMPORTANT: See Figure 1-3 below. Avoid premature driveline breakdown. A driveline that is operating **must not exceed** an angle of 25 degrees up or down while operating the 3-point lift.



Maximum Allowable Driveline Movement
Figure 1-3

IMPORTANT: Always check driveline minimum length and maximum allowable length during initial setup and when connecting to a different tractor. More than one driveline may be required to fit all applications.

IMPORTANT: It is necessary to align the tractor's PTO shaft level with the gearbox shaft when checking driveline minimum length. Too long a driveline can damage tractor, gearbox and driveline.



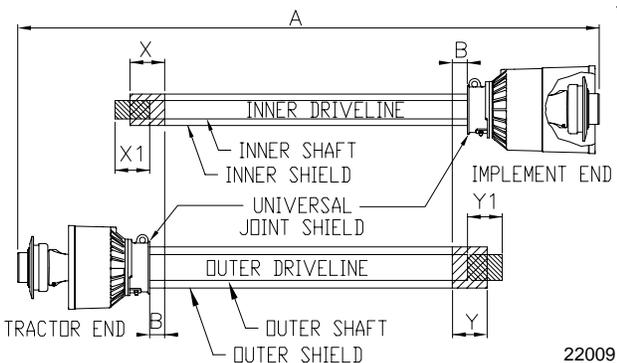
Tractor Hook-Up
Figure 1-2

Section 1: Assembly and Set-up

Driveline Minimum Length

Refer to Figure 1-4:

1. Start tractor and slowly engage 3-point controls to move lower arms until the gearbox shaft is approximately level with the tractor's PTO shaft.
2. Slide inner yoke of driveline over the gearbox shaft and secure with locking collar.
3. Slide outer yoke of driveline over the tractor PTO shaft and secure with locking collar. Skip to "Driveline Maximum Allowable Length" if driveline fits.
4. The driveline will require shortening if it does not fit between tractor and mower. Shorten driveline as follows:
 - a. Raise or lower 3-point lower arms until mower and tractor PTO shafts are approximately level with each other. Securely block Flail Mower frame in this position.
 - b. Set tractor in park, shut tractor engine off, set park brake and remove switch key.
 - c. Pull driveline apart into two sections as shown in Figure 1-4. Attach outer driveline universal joint to the tractor PTO shaft. Attach inner driveline universal joint to the gearbox shaft. Pull on each driveline section to be sure universal joints are secured to the shafts.
 - d. Hold driveline sections parallel to each other to determine if they are too long. The inner and outer shields on each section should end approximately 1" short of reaching the universal joint shield on the adjacent section (see "B" dimension). If they are too long, measure 1" ("B" dimension) back from the universal joint shield and make a mark at this location on the inner and outer driveline shields.
 - e. Cut off inner shield at mark ("X" dimension). Cut same amount off inner shaft ("X1" dimension). Repeat cut off procedure ("Y" & "Y1" dimensions) to cut outer driveline half.
 - f. Remove all burrs and cuttings.



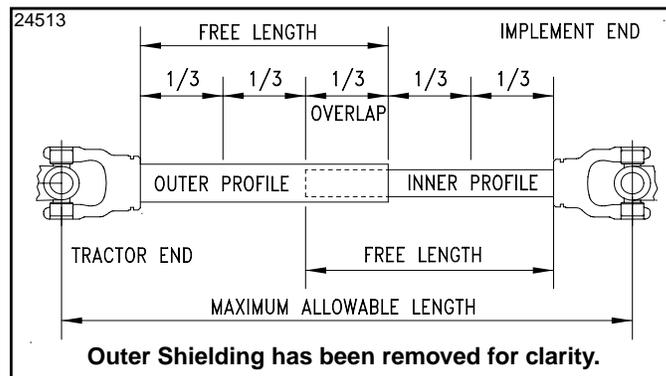
Driveline Shortening
Figure 1-4

Driveline Maximum Allowable Length

Be sure to check driveline minimum length before checking driveline maximum allowable length.

Refer to Figure 1-5:

Driveline maximum allowable +length, when fully extended, must have a minimum overlap of profile tubes by not less than 1/3 the free length with both inner and outer profile tubes being of equal length.



Driveline Maximum Length
Figure 1-5

1. Measure and record driveline free length.
2. Apply multi-purpose grease to the inside of the outer driveline profile and reassemble the two profiles.
3. Move driveline halves together until profile tubes overlap by 1/3 the free length. Measure and record maximum allowable length shown in Figure 1-5.
4. Attach inner driveline yoke to gearbox shaft and outer driveline yoke to tractor's PTO shaft.
5. The driveline should now be moved back and forth to insure that both ends are secured to the PTO shafts. Reattach any end that is loose.

IMPORTANT: The two supplied safety chains must be attached to outer and inner driveline yoke shields and to the mower deck and tractor to keep driveline shields from rotating.

6. Hook one driveline safety chain in the hole on the outer driveline yoke shield and the opposite end to the tractor.
7. Hook the second driveline safety chain in the hole on the inner driveline yoke shield and the opposite end to the mower.
8. Start tractor and raise Flail Mower just enough to remove support blocks used in step 4a.
9. Slowly engage tractor's 3-point controls to lower mower. Check for sufficient drawbar clearance. Move drawbar ahead, aside or remove if required.
10. Raise and lower implement to find the maximum possible extended driveline length. Check to make certain that the driveline has not extended beyond the maximum allowable length recorded in step 3 of this section.

Section 2: Operating Instructions

Transporting

NOTE: Always disengage PTO before raising mower to transport position.

1. When raising mower to transport position, be sure driveline does not contact tractor or mower. Adjust and set tractor's 3-point lift height so that the driveline does not contact mower deck in the fully raised position.
2. Be sure to reduce tractor ground speed when turning, leaving enough clearance so that the mower does not contact obstacles such as buildings, trees or fences.
3. Select a safe ground travel speed when transporting from one area to another. When traveling on roadways, transport in such a way that faster moving vehicles may pass safely.
4. When traveling over rough or hilly terrain, shift tractor to a lower gear.

CAUTION

When traveling on public roads whether at night or during the day, use accessory light and devices for adequate warning to operators of other vehicles. Comply with all federal, state and local laws.

Mowing Instructions

DANGER

Gearbox shields must be secured in place when operating to avoid injury or death from entanglement in rotating drivelines.

DANGER

Flail Mowers have the ability to discharge objects at high speeds if guards and safety shields are not in place and closed.

WARNING

The FM3188 is designed to cut grass and brush up to 1" diameter and the FM4188 will cut up to 2" diameter brush. Using this mower for another type of work can damage the cutting components, drive components, mower frame and tractor.

1. Clear area to be mowed of objects and debris that might be picked up and thrown by the mower blades. Do not use mower on stony ground.
2. Make the following machine checks before operating the mower.
 - All hook-up pins should be secured.
 - All shields should be in place and secured.
 - All bolts and nuts should be present and tight.
 - Make sure the knives are not be broken or loose.

3. Grass is best cut when it is dry. Mowing wet grass can cause plugging resulting in grass clumps behind the mower.
4. Grass should be mowed frequently as shorter clippings deteriorate faster.
5. If mowing extremely tall grass, it is best to raise cutting height and mow the area, then lower cutting height and mow a second time at the desired height.

Brush Rake Teeth

The FM4188 comes equipped with adjustable brush rake teeth. Adjust teeth closer to the ground to allow continued chopping of material into fine cuttings before final dispersal or raise teeth fully up to discharge material quickly. Refer to "Brush Rake Teeth Adjustment" on page 15.

Operating Instructions

Proper servicing and adjustments are the key to the long life of any machine. With careful and systematic inspection of the mower, costly maintenance, time and repair can be avoided.

CAUTION

When mowing in sandy soil areas, wear may occur to the mower knives from sand erosion. Frequent inspection should be made and knives replaced if damaged.

Before beginning to mow, the following inspection and checks should be performed:

1. Check oil level in gearbox. Refer to "Section 4: Maintenance and Lubrication" on page 16.
2. Check that all plugs in gearbox have been replaced and tightened properly.
3. Be sure all mower knives, bolts and nuts are tight.
4. Be certain all guards and shields are in place and secure.
5. Grease driveline shaft and all other grease fittings.
6. Clear area to be mowed of rocks, branches and other foreign objects. Do not use mower on stony ground.
7. Lower mower to ground. Set tractor throttle at approximately 1/4 open. Engage PTO to start blades rotating.
8. Operate with 540 rpm PTO tractor.
9. At first begin mowing at a slow forward speed and shift up until the desired speed is achieved - maintaining 540 PTO rpm.
10. The rotor knives will cut better at a faster blade speed than at reduced throttle.
11. After mowing the first 50 feet, stop and check to see that the mower is adjusted properly.
12. **Do not** make sharp turns or attempt to back up while mower is on the ground.

Section 2: Operating Instructions

13. Never work close to or on steep slopes.
14. **Do not** engage PTO with mower in the fully raised position. **Do not** engage PTO at full throttle. **Do not** lift mower with PTO engage.
15. **Do not** allow anyone including yourself near the mower when it is operating.
16. Periodically check for foreign objects wrapped around the rotor shaft and remove them after disengaging PTO, turning off tractor, and removing ignition key.

General Operating Instructions

Now that you have familiarized yourself with the Operator's Manual, completed the Operators Checklist, properly attached your Flail Mower to your tractor, made the right offset or center adjustments, and preset your cutting height, you're almost ready to begin using your Land Pride FM3188 or FM4188 Flail Mower.

It's now time to do a running operational safety check. If at any time during this safety check you detect a malfunction in either the mower or tractor shut the tractor off immediately, remove the key, and make necessary repairs or adjustments before continuing on.

Make sure the tractor's park brake is engaged, the tractor's PTO is disengaged, and the mower is resting on the ground. Start the tractor and then back the tractor throttle off till the engine is at low idle. With the tractor's rear hydraulic lift control lever, raise the mower to transport position making sure that the PTO shaft is not in a bind and does not come in contact with the mower frame. Lower the unit to cutting position and, with the tractor still at low idle, engage the PTO. If everything is running smoothly at this point increase the engine rpm until the tractor's engine reaches full PTO operating speed which will be 540 rpm. Slowly raise the cutter to transport height to make sure the driveline does not bind or chatter. Then return the engine to low idle, disengage PTO, and position the adjustable stops on the tractor's hydraulic lift lever control console so the cutter can be consistently returned to the same cutting and transport height.

You should now be ready to move to the cutting site to begin mowing. You should have inspected and should only be cutting in an area you are familiar with which is relatively free of debris and unseen objects. Never assume an area is clear. Extremely tall grass or brush should be cut twice to detect potential hazards. In the event you do strike an object, stop the tractor and mower immediately to inspect the rotor and make any necessary repairs before resuming operation. It pays to inspect a new area and to develop a plan before you cut.

Normal mowing speed will be between 2-5 mph and you will need to maintain tractor PTO speed to produce a clean cut so make a tractor gear and range selection that will maintain this combination. Generally the quality of cut or degree of debris pulverization will be better at lower ground speeds and cutting denser ground cover or

heavier brush may create the need to slow down. Always cut downward on slopes and avoid crossing the face of steep slopes. Avoid sharp drops and cross diagonally through dips to prevent hanging up the tractor and mower. Slow down in turns and avoid sharp turns if at all possible. Remember to look back often.

Now you're prepared and well briefed so let's begin cutting. Reduce the tractor's engine rpm, make sure the mower is on the ground and in cutting position, engage the PTO, raise the engine rpm to the appropriate PTO speed, and begin mowing. Operators must plan ahead and choose a cutting route that allows safe turns. Try increasing or decreasing ground speed to determine the effect on quality of cut. With a little practice you will be pleased with what you and your Land Pride Flail Mower can do.

If you are cutting with an FM4188 and using the hammer knives and the standard brush rake teeth you will accumulate and force more material into the rotor for pulverization. This will require more horsepower and will cause you to slow down especially if you are encountering material up to 2" in diameter. The fine cutting knives on the FM3188 are much better suited for a finer quality of cut in grass cutting applications and in no case should fine cut blades be used for cutting material greater than 1" in diameter.

When you are done mowing, need to take a break, or just need to make a few adjustments to the mower, remember to always do the following. Reduce the tractor's engine rpm, disengage the PTO, stop on level ground, set the park brake, turn off the engine, and remove the key.

Section 3: Adjustments

CAUTION

Engage parking brake, shut off tractor, remove key and disengage PTO before making any adjustments!

CAUTION

Secure mower with special supports if it is necessary to lift mower off the ground to make adjustments! If not supported, the mower could fall causing serious injury to those present.

Leveling the Mower

Level adjustments are made at the tractor's 3-point lower arms and top center link.

1. Park tractor and Flail Mower on a flat level surface.
2. Slowly raise mower with the tractor's hydraulic 3-point lift until the unit is about 1 to 2" above the ground.
3. Ensure that the lower arms are blocked to prevent excessive side movement.
4. Place a spirit level on the top cover running from left to right and adjust one of the lower 3-point arms up or down until the mower is level from left to right.
5. Adjust tractor's top center link to place the upper hitch pin vertically above or slightly behind the lower hitch pins. The mower should be run with the back 15 degrees lower than the front.
6. Slowly operate the tractor's 3-point hydraulic control up and down to check for clearance between the tires, frame, drawbar etc.

Cutting Height Adjustment

Refer to Figure 3-1:

The machine's cutting height depends upon the position of the rear roller.

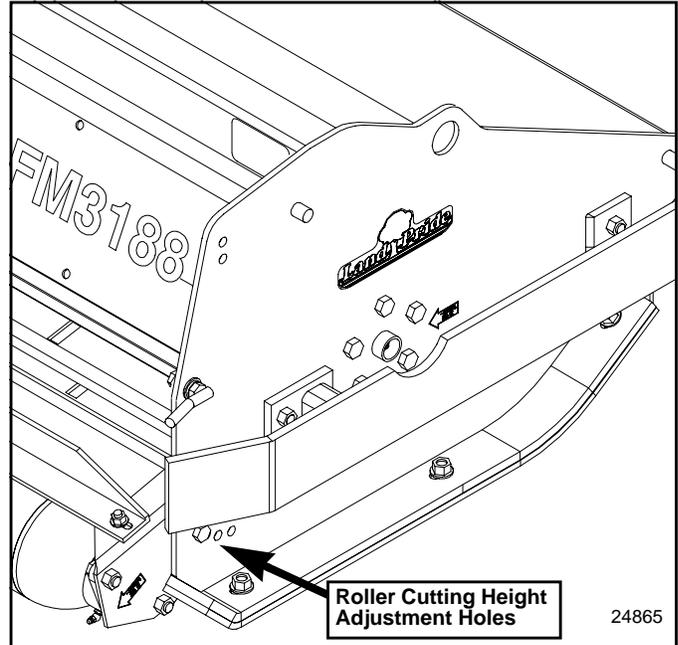
1. Remove bolts that fix the roller height on both sides.
2. Lift or lower both sides of roller in equal measurements.
3. Replace bolts and re-tighten. Refer to "**Torque Values Chart for Common Bolt Sizes**" Page 24.
4. Inspect knives to make sure they do not touch the ground. Knives that come in contact with the ground will wear quickly. If necessary, readjust cutting height to keep knives from touching the ground.

Mower Hitch Adjustments

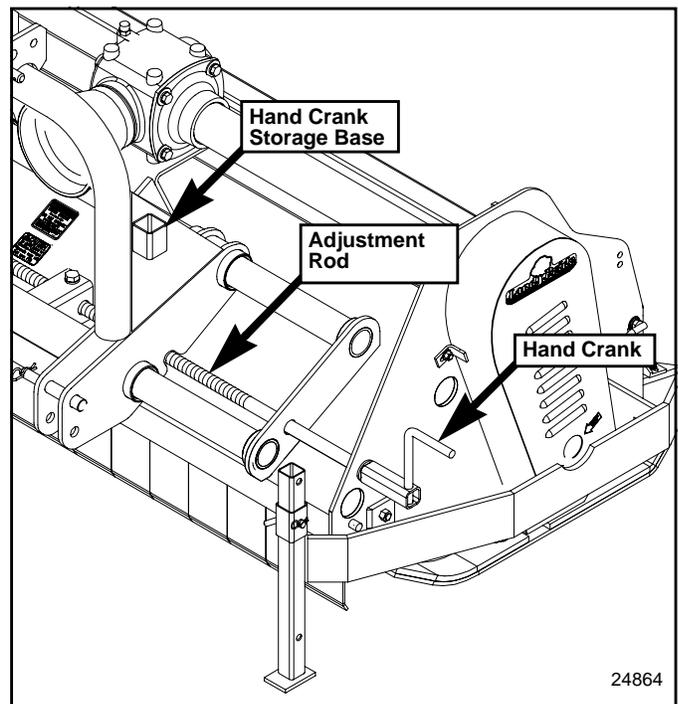
The mower hitch system has been designed for front to back flotation when mowing on uneven terrain. Make certain the top center link is adjusted as outlined in Step 5 under "Leveling the Mower".

Refer to Figure 3-2:

The hitch can also be adjusted from side to side by turning the adjustment rod with the hand crank. Always return hand crank to its storage base after use.



Cutting Height Adjustment
Figure 3-1



Hitch Adjustment
Figure 3-2

Section 3: Adjustments

Belt Tension Adjustment

CAUTION

Belt drive system under spring tension; use care to avoid bodily harm!

WARNING

Excessive tension on the belt may lead to premature failure of belt and drive components. Excessive tension on the belt may also lead to a safety hazard to the operator or bystanders.

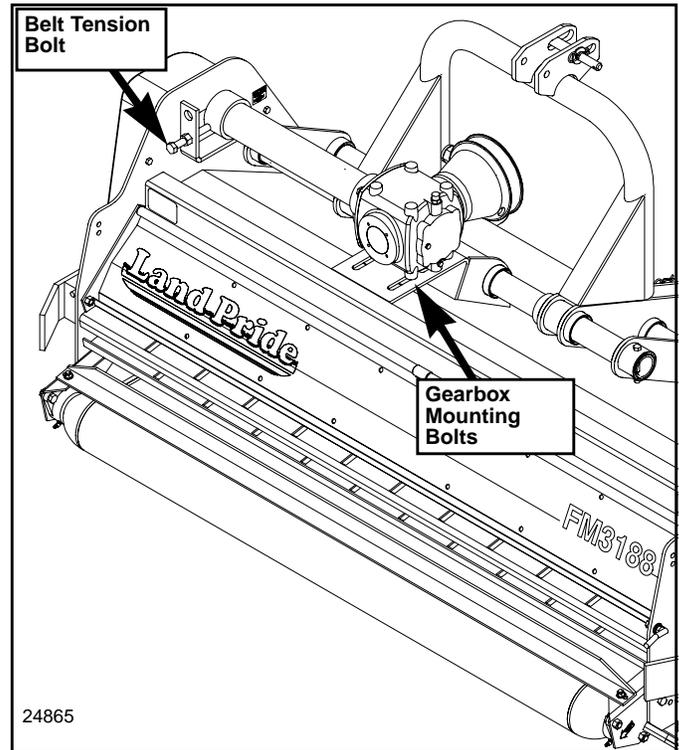
The Belt tension should be checked after the first 20 hours of use and every 40 hours thereafter.

Refer to Figure 3-3:

1. Check belt tension by applying approximately 22 pounds of pressure half way between the pulleys. The belt should deflect approximately 3/8".
2. Belt tension can be adjusted at the belt tension bolt. Turn belt tension bolt until desired belt tension is achieved.
3. Loosen gearbox mounting bolts and move gearbox until mower driveline is running straight (parallel) with the Flail Mower. Retighten mounting bolts to the correct torque. Refer to "**Torque Values Chart for Common Bolt Sizes**" Page 24.

IMPORTANT: Replace belts if they cannot be tensioned correctly. Refer to "V-Belt Installation" on page 17 when replacing belts.

IMPORTANT: Do not over tension belts. Excessive tension may lead to premature failure of belt and drive components.



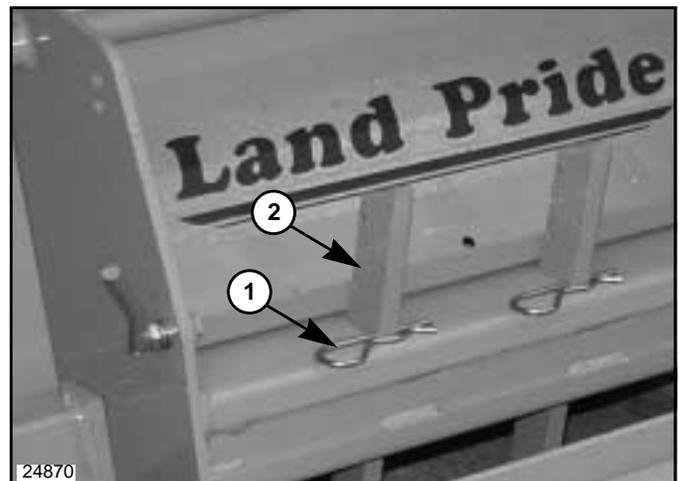
Belt Tension Adjustment
Figure 3-3

Brush Rake Teeth Adjustment

Refer to Figure 3-4:

The FM4188 comes equipped with adjustable brush rake teeth. The teeth allow continued cutting/chopping of material before final dispersal. The closer the teeth are located to the ground the more material they will accumulate for continued cutting/chopping. Adjust teeth as follows:

1. Remove hair pin cotter (#1) and raise or lower the rake tooth (#2) to a new hole location.
2. Replace hair pin cotter (#1) at this new location.
3. Repeat steps 1 & 2 for the remaining rake teeth.



Brush Rake Teeth Adjustment
Figure 3-4

Section 4: Maintenance and Lubrication

Maintenance

Proper servicing and adjustment is the key to the long life of any implement. With careful and systematic inspection, costly maintenance, time and repair can be avoided.

CAUTION

For safety reasons, each maintenance operation must be performed with tractor PTO disengaged, mower lowered completely to ground and tractor engine shut off with ignition key removed.

- After using the mower for several hours, check all bolts to be sure they are tight and check drive belt tension. Refer to "Belt Tension Adjustment" on page 15.
- Lubricate components as listed under "Lubrication" on page 18.
- Replace any worn, damaged or illegible safety labels by obtaining new labels from your Land Pride Dealer. Information about labels is located under "Safety Labels" on page 4.

Trash Removal & Rotor Knife Access

Refer to Figure 4-1 & Figure 4-2:

The rotor knives and trash accumulated around them can be accessed by opening the rear cover (#2).

1. Unscrew cover locking handles (#1) located on both sides.
2. Raise rear cover (#2) up as shown.
3. Replace locking handle in cover open location (#3) to secure cover in the up position.

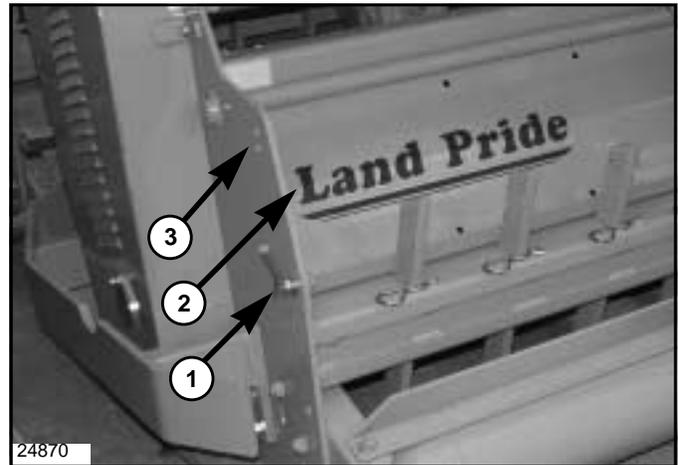
4. Return cover to the closed position after servicing rotor knives and cleaning out trash.

Rotor Knife Replacement

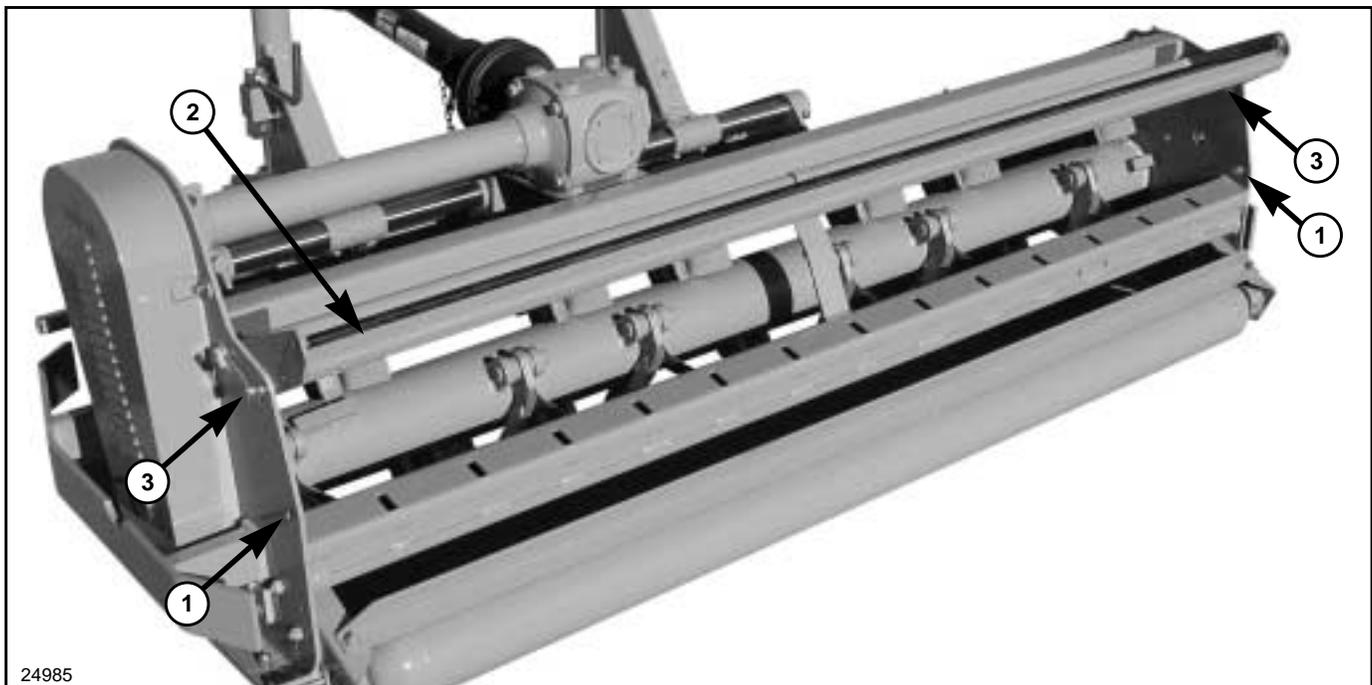
Frequently check rotor knives to make sure they are in good working condition and properly secured to the rotor. Replace worn or damaged knives with new knives.

IMPORTANT: Make sure the replacement knife is the same length as the others on the mower. This will keep the rotor rotation balanced.

IMPORTANT: Replace cutting knives with Land Pride fine cutting knives or hammer knives only.



Rotor Knife Access (Shown With Cover Closed)
Figure 4-1



Rotor Knife Access (Shown With Cover Open)
Figure 4-2

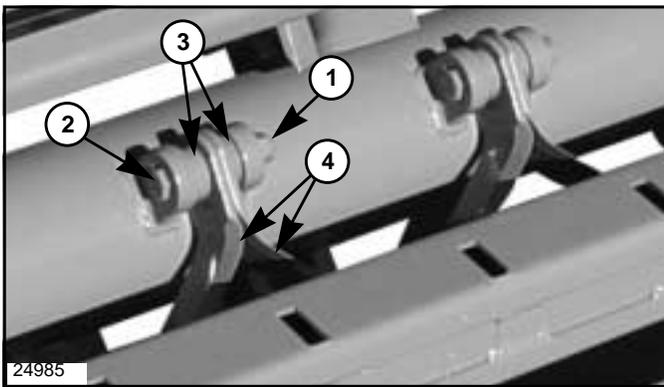
Section 4: Maintenance and Lubrication

FM3188 Cutting Knife Replacement

Refer to Figure 4-3:

The cutting knives have a cutting edge on both the leading and trailing edges. When the leading edge wears out, turn existing pair of knives around 180 degrees and reinstall. Replacement knives should be the same length as existing knives to maintain rotor balance.

1. Remove nylock nut (#1), bolt (#2) and spacers (#3).
2. Remove existing cutting knives (#4) or turn existing pair of knives around 180 degrees and reinstall.
3. Install cutting knife with existing bolt, spacers and nylock nut.
4. Tighten nylock nut to proper torque as listed in the "Torque Values Chart" on page 24.



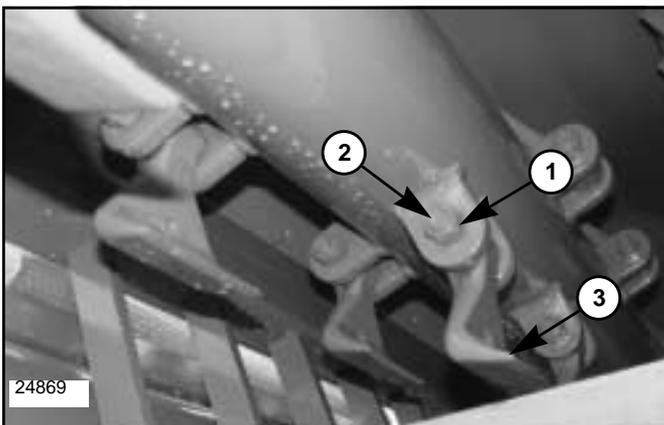
Fine Cutting Knives (FM3188 Only)
Figure 4-3

FM4188 Hammer Knife Replacement

Refer to Figure 4-4:

Replacement knives should be the same length as existing knives to maintain rotor balance.

1. Remove nylock nut (#1) and bolt (#2).
2. Remove old hammer knife (#3) and install new knife with existing bolt and nylock nut.
3. Tighten nylock nut to proper torque as listed in the "Torque Values Chart" on page 24.



Hammer Knives (FM4188 Only)
Figure 4-4

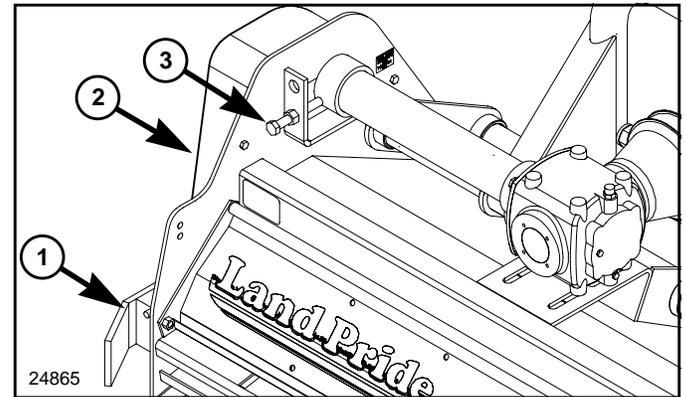
V-Belt Installation

Refer to Figure 4-5:



CAUTION
Belt drive system is under spring tension; use care to avoid bodily harm!

1. Remove belt guard fender (#1) and belt cover (#2).
2. Remove belt tension by loosening the belt tension bolt (#3) until belt can be removed.
3. Remove old belts from pulleys and install new belts.
4. Tighten belt tension bolt. See "Belt Tension Adjustment" on page 15.
5. Reinstall belt guard (#2) and belt guard fender (#1).
6. Tighten bolts to the proper torque. Refer to "Torque Values Chart for Common Bolt Sizes" Page 24.



Belt Installation
Figure 4-5

Storage

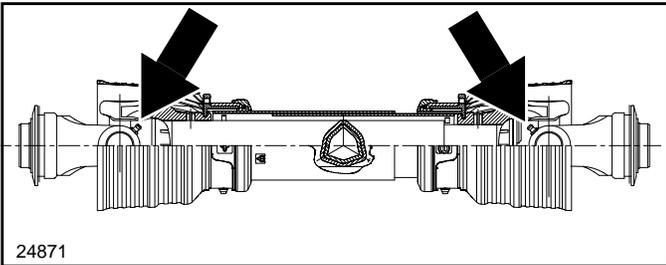
Clean the Flail Mower at the end of the working season or when the mower will not be used for a long period.

1. Clean off any dirt or grease that may have accumulated on the mower and moving parts. Scrape off compacted dirt from under the hood and then wash the surface thoroughly with a garden hose. A coating of oil may also be applied to the area to minimize oxidation.
2. Check rotor knives and knife bolts for wear and replace if necessary. See "Rotor Knife Replacement" on page 16.
3. Inspect for loose, damaged or worn parts and adjust or replace as needed.
4. Lubricate as noted in the *Lubrication* portion of this section starting on page 18.
5. Store mower in a clean, dry place. The unit should be positioned on a flat surface with jack stands lowered to suitable 3-Point height. Ensure that the main frame is stable.
6. Repaint parts where paint is worn or scratched to prevent rust. Ask your dealer for Aerosol Land Pride touch-up paint #821-011C.

Section 4: Maintenance and Lubrication

Lubrication

Lubrication Legend	 Multi-purpose spray lube	 Multi-purpose grease lube	 Multi-purpose oil lube	 50 hrs Intervals in hours at which lubrication is required
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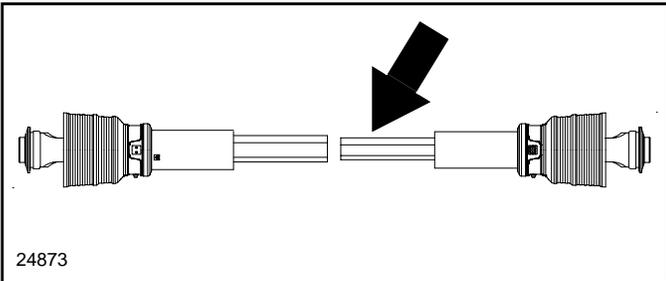


	 25 Hours
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Driveline Shaft U-Joints

Type of Lubrication: Multi-purpose Grease

Quantity - 4 to 8 Pumps

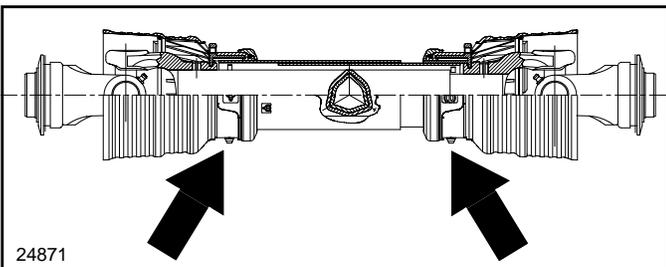


	 20 Hours
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Driveline Profiles

Type of Lubrication: Multi-purpose Grease

Quantity - Clean & coat inner profile tube of driveline with a light film of grease and then reassemble.



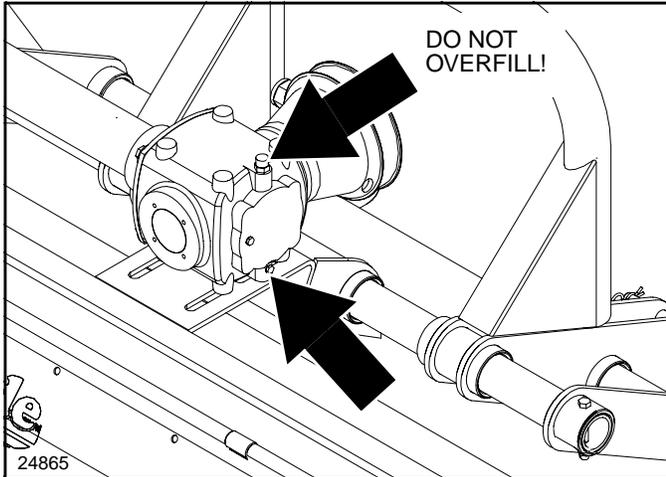
	 20 Hours
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Inner Tube Bearings

Type of Lubrication: Multi-purpose Grease

Quantity - As Required

Section 4: Maintenance and Lubrication



Gearbox

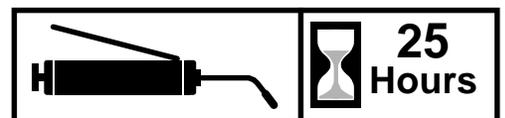
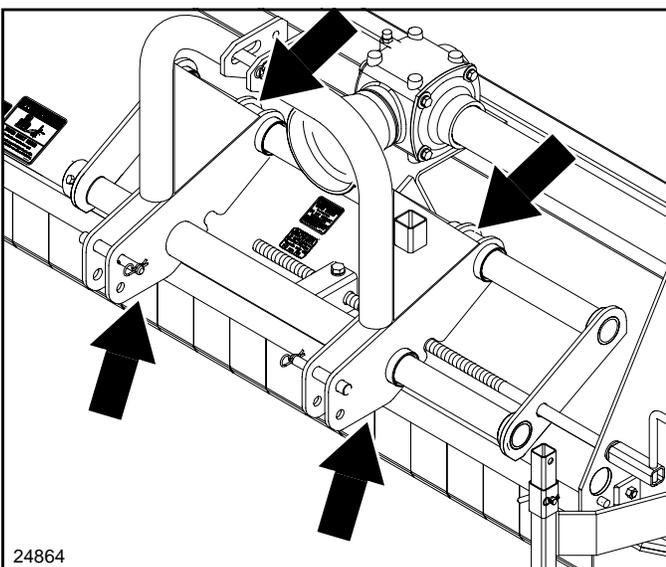
Type of Lubrication: SAE EP 90W Gear Lube

Check oil level in gearbox by removing the plug located on the right hand side. Oil should be level with bottom of plug hole. Add oil if necessary by removing top fill plug and side plug. Add oil until it flows from side plug hole.

Do not overfill!

Should your gearbox require service, take it to your LAND PRIDE dealer.

IMPORTANT: The mower should be level when checking oil in gearbox!

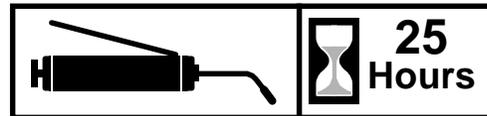
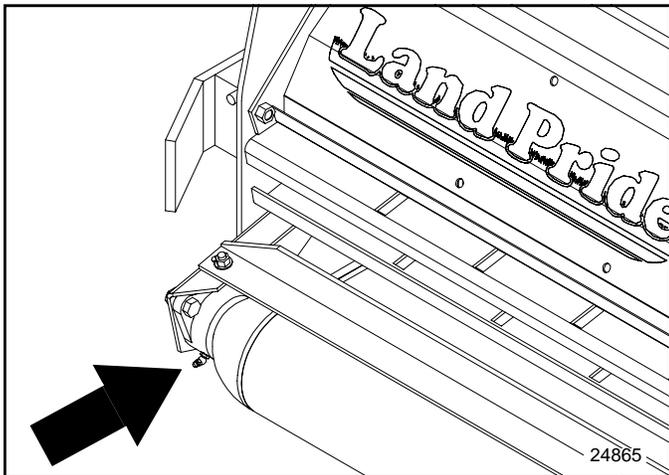


3-Point Hitch Slide

4- Places

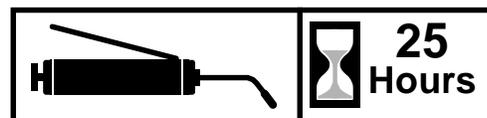
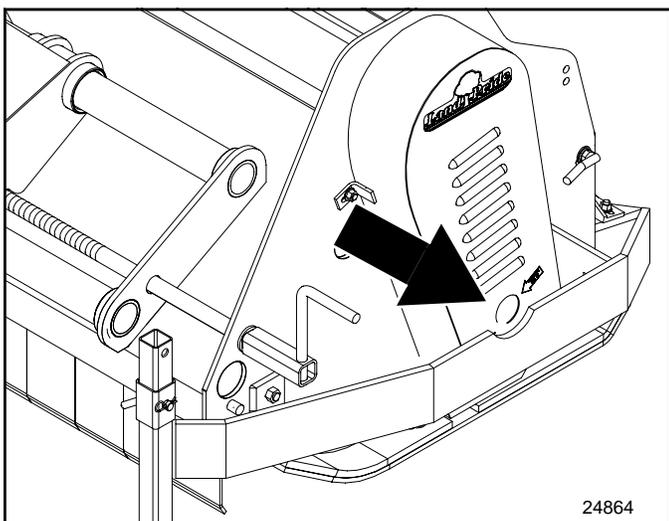
Type of Lubrication: Multi-purpose Grease

Section 4: Maintenance and Lubrication



Roller Bearing (Both Ends)

Type of Lubrication: Multi-purpose Grease



Cutter Rotor Bearing (Both Ends)

Type of Lubrication: Multi-purpose Grease

Section 5: Specifications & Capacities

FM31 & FM41 Series Flail Mowers		
	FM3188	FM4188
Cutting Width	88"	88"
Overall Width	96"	96"
Height	45"	
Depth	43"	
Approximate Machine Weight	1300 lbs.	1323 lbs.
Cutting Capacity	1"	2"
Cutting Height	1/2 - 6"	
Deck Material Thickness	3/16"	
Knives	Fine Cut Knives	Hammer Knives
Rotor Shaft Speed	2140 RPM	
Rotor Diameter	5 1/2"	
Rotor Rotation	Reverse	
Knife Tip Speed	9805 fpm	
Number of Knives	48 Fine cutting knives	24 Forged hammer knives
Hitch Type	Cat. I and II offset hitch	
Offset Hitch	7 3/4" Left & Right, Manual Screw-Type	
Driveline	Cat. 4	
Belt Type	3 - "C" Section belts	
Gearbox Type	540 RPM with internal over-running Clutch	
Gearbox Rating	80 HP	
Gearbox Lubrication	SAE EP 90W	
Rear Roller Diameter	5 1/2"	
Brush Rake Teeth	NA	13 each



FM31 & FM41 Series Flail Mowers

Features	Benefits
88" Cutting width	A good cutting width for many applications.
Gearbox HP Rating	35 - 80 HP
7 3/4" Left & right-screw type offset hitch	Easily offset the hitch for roadsides or getting under tree limbs.
ACME threads on offset	ACME threads are deeper allowing for easy screwing adjustment.
Gearbox Warranty	One year on all components.
540 RPM cast iron gearbox with over-running clutch	Enables the rotor to free swing to a stop when the tractor PTO has been turned off.
1/2" – 6" Cutting height	Variable cutting heights for many uses.
1" Cutting capacity (31 Series) 2" Cutting capacity (41 Series)	Cut saplings when used in a rough setting. 41 Series is good for chopping up tree trimmings.
Fine cutting knives (31 Series) Forged hammer knives (41 Series)	Heavy enough to cut 1" material, yet fine enough to groom a yard. Forged hammers are just right for chopping up prunings up to 2" thick, but will also groom grass in a very acceptable manner.
Brush rake teeth (41 Series Only)	The adjustable brush rake teeth continually push prunings into the knife path for repeated chopping action.
5 1/2" Rotor diameter	Large rotor is able to take rough conditions.
Reverse rotor rotation	Brings the cut material up and over which allows it to be dispersed more evenly.
Cat. 4 driveline	Heavy-duty driveline matches up with HP range as well as potential conditions.
3 - "C" Section belts	"C" Section belts have more surface to pulley contact and fits deeper in the groove.
3/16" Deck thickness	Allows the mower to handle rough conditions.
Baffles on top inside of deck	Keeps cut material from clumping together, ensuring an even distribution of clippings.
Hinged rear gate	Can be opened for easier discharge in heavy conditions, or left closed for greater mulching capabilities.
Height adjusting roller	Rear height adjusting roller with greaseable bearings and tapered ends to prevent gouging during turns.
Scrapers	Standard scrapers on rear height adjusting roller, keeps roller clean for consistent cutting height
High knife tip speed	Knife tip speed of 9,805 fpm for cleaner cut.

Section 7: Troubleshooting

Problem	Solution
 CAUTION <i>Do not try to clean rear discharge area when mower is running. Bodily harm may occur!</i>	
Belt slipping	Unplug and clean mower deck.
	Remove belt guard shields and clean sheaves.
	Replace belt
Patches of uncut grass	Mow at full throttle (540 PTO rpm), check PTO speed and tractor engine.
	Shift transmission to a lower gear.
	Tighten belts.
	Replace missing knives or hammers.
Excessive vibration	Replace knives or hammers
	Replace drive belt.
	Replace pulleys or align.
	Remove belt guard shields & clean debris from belt area & sheaves.
Gearbox noisy	Check lubricant level.
Knives scalping grass	Raise cutting height by adjusting roller.
	Change mowing pattern.
	Reduce speed turns.
Uneven cut	Shift to a lower gear.
	Level mower.
	Replace missing knives or hammers
Tractor loaded down by mower	Mow at full throttle (540 PTO rpm).
	Shift to a lower gear.
	Clean mower.

Torque Values Chart													
Bolt Size (Inches)	Bolt Head Identification						Bolt Size (Metric)	Bolt Head Identification					
	Grade 2		Grade 5		Grade 8			Class 5.8		Class 8.8		Class 10.9	
in-tpi ¹	N · m	ft-lb ³	N · m	ft-lb	N · m	ft-lb	mm x pitch	N · m	ft-lb	N · m	ft-lb	N · m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12	M 5 X 0.8	4	3	6	5	9	7
1/4" - 28	8.5	6	13	10	18	14	M 6 X 1	7	5	11	8	15	11
5/16" - 18	15	11	24	17	33	25	M 8 X 1.25	17	12	26	19	36	27
5/16" - 24	17	13	26	19	37	27	M 8 X 1	18	13	28	21	39	29
3/8" - 16	27	20	42	31	59	44	M10 X 1.5	33	24	52	39	72	53
3/8" - 24	31	22	47	35	67	49	M10 X 0.75	39	29	61	45	85	62
7/16" - 14	43	32	67	49	95	70	M12 X 1.75	58	42	91	67	125	93
7/16" - 20	49	36	75	55	105	78	M12 X 1.5	60	44	95	70	130	97
1/2" - 13	66	49	105	76	145	105	M12 X 1	90	66	105	77	145	105
1/2" - 20	75	55	115	85	165	120	M14 X 2	92	68	145	105	200	150
9/16" - 12	95	70	150	110	210	155	M14 X 1.5	99	73	155	115	215	160
9/16" - 18	105	79	165	120	235	170	M16 X 2	145	105	225	165	315	230
5/8" - 11	130	97	205	150	285	210	M16 X 1.5	155	115	240	180	335	245
5/8" - 18	150	110	230	170	325	240	M18 X 2.5	195	145	310	230	405	300
3/4" - 10	235	170	360	265	510	375	M18 X 1.5	220	165	350	260	485	355
3/4" - 16	260	190	405	295	570	420	M20 X 2.5	280	205	440	325	610	450
7/8" - 9	225	165	585	430	820	605	M20 X 1.5	310	230	650	480	900	665
7/8" - 14	250	185	640	475	905	670	M24 X 3	480	355	760	560	1050	780
1" - 8	340	250	875	645	1230	910	M24 X 2	525	390	830	610	1150	845
1" - 12	370	275	955	705	1350	995	M30 X 3.5	960	705	1510	1120	2100	1550
1-1/8" - 7	480	355	1080	795	1750	1290	M30 X 2	1060	785	1680	1240	2320	1710
1 1/8" - 12	540	395	1210	890	1960	1440	M36 X 3.5	1730	1270	2650	1950	3660	2700
1 1/4" - 7	680	500	1520	1120	2460	1820	M36 X 2	1880	1380	2960	2190	4100	3220
1 1/4" - 12	750	555	1680	1240	2730	2010							
1 3/8" - 6	890	655	1990	1470	3230	2380							
1 3/8" - 12	1010	745	2270	1670	3680	2710							
1 1/2" - 6	1180	870	2640	1950	4290	3160							
1 1/2" - 12	1330	980	2970	2190	4820	3560							

¹ in-tpi = nominal thread diameter in inches-threads per inch
² N · m = newton-meters
³ ft-lb = foot pounds
⁴ mm x pitch = nominal thread diameter in millimeters x thread pitch

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

Section 8: Appendix

Warranty

Land Pride warrants to the original purchaser that this Land Pride product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall Unit and Driveline: One year Parts and Labor

Gearbox: One year on all components.

Blades and Belts: Considered wear items.

This Warranty is limited to the replacement of any defective part by Land Pride and the installation by the dealer of any such replacement part, and does not cover common wear items. Land Pride reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Land Pride's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty should be made to the dealer which originally sold the product and all warranty adjustments must be made through an authorized Land Pride dealer. Land Pride reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Land Pride liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Land Pride shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Land Pride within 30 days from the date of purchase by the end user.



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