REAR SWING FLAIL

OPERATOR'S MANUAL

350 EAST 60TH ST. N. • SIOUX FALLS, SD 57104
800.658.5561 • 605.977.3300
WWW.DIAMONDMOWERS.COM

PARTS 888.960.0361
WARRANTY + SERVICE 888.960.0364

PRODUCT INFORMATION

Record the model and serial number of your unit here. When calling for warranty, service, or parts, you may be asked to provide this information, in order to ensure fast, accurate service.

MODEL: Rear Swing Flail

SERIAL NUMBER: _____

Any failure to read, understand and follow the instructions found in this operator's manual could lead to serious injury. Operators who choose to operate this equipment without following instructions, or who choose to operate this equipment in a manner inconsistent with the recommendations set forth in this manual, do so at their own risk and assume the risk of injury. Diamond Mowers will not be liable for an owner or operator's loss, damage, or injury due to the misuse of the equipment, failure to understand the inherent risks, or inability to properly operate the equipment.

Provisional Patents: 62/484,363

WELCOME!

Thank you for choosing Diamond Mowers, and welcome to your Rear Swing Flail. Before you begin operating, we encourage you to look through this manual to review the proper maintenance and operating techniques that will keep you, and your equipment, safe – while ensuring you the most productive flail mower in the market.

We have nothing but respect and admiration for you. Our job at Diamond is to provide you with the toughest, most reliable and safest equipment that will allow you to do your job better. That also means being there when you need us.

CONTACT US:

Parts: 888.960.0361 | parts@diamondmowers.com
Warranty / Service: 888.960.0364 | warranty@diamondmowers.com
Main Office: 800.658.5561 | 605.977.3300
Website: www.diamondmowers.com | **Email**: info@diamondmowers.com

Your time is important to us.
We guarantee that Genuine Diamond Parts will ship within 72-hours of the order being placed or the parts and shipping are free.

Your satisfaction is guaranteed.
If you are not completely satisfied with your new Diamond in the first 30-days, we will buy it back. No questions asked.

Thanks again for choosing Diamond.
If at any time your needs are not being met by our team, please feel free to call me direct.

Tim Kubista
VP Sales & Marketing
651.955.6665

OWNER REGISTRATION

In your welcome packet you should have received a warranty registration form. Complete and return this form to our main office.

If you'd rather complete this info online, go to:
http://info.diamondmowers.com/register-my-product

Returning your registration information to Diamond will help us process any warranty claims quickly and efficiently – so you can get back to work, fast.

TRANSFERRED OWNERSHIP

If you have acquired this flail mower from a previous owner, we encourage you to register your equipment online. By registering your Diamond Mowers unit, you'll stay informed on product advancements, offers and service alerts.

Register by going to: http://info.diamondmowers.com/register-my-product

We honor our equipment's warranty from the date it was put into service, no matter who's in charge of running it.

For any questions, contact our Warranty / Service team at:
888.960.0364 or 605.977.3300
warranty@diamondmowers.com

TABLE OF CONTENTS

INTENDED USE

This attachment is designed to be used for mowing and light brush management applications.

This includes:

- Cutting grass.
- Mulching light brush.
- Cutting a maximum of 2" (51mm) material continuously.

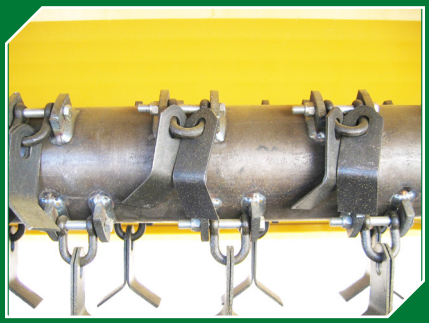
This attachment should only be used in an area free of obstructions and bystanders. Any use on non-vegetative material, or in an area that is not clear of persons and property, is strictly prohibited. Any use outside of the aforementioned application is considered contrary to its intended use. Any damage that may occur as a result of misuse will void warranty as stated in Diamond Mowers' warranty policy.

NOTICE

Do not operate this unit without first reading the safety precautions and operating instructions in this manual.

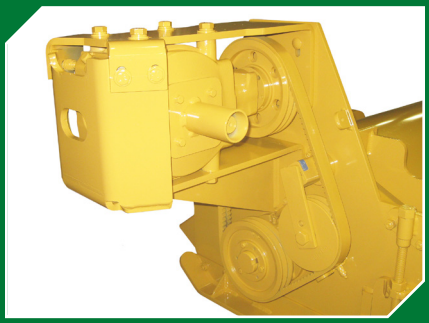
TAKE A LOOK AROUND

Let's get started by doing a quick walk around of the Rear Swing Flail.



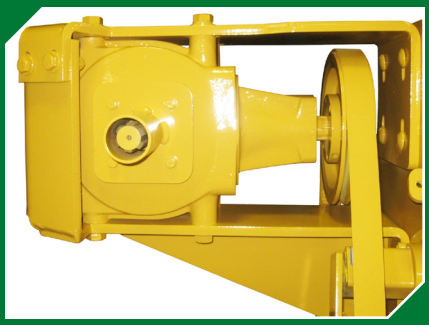
KNIVES

The cutting shaft is equipped with our heavy duty brush and grass blades for a smooth, even cut.



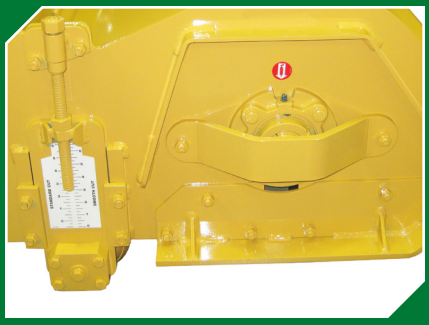
BELT DRIVE

All of our heavy duty flails use a high strength belt with an automatic self-tensioner; no manual adjustment needed.



GEAR BOX

Our Rear Swing Flail comes standard with a heavy duty oil bath gear box for ultimate reliability.



BEARINGS

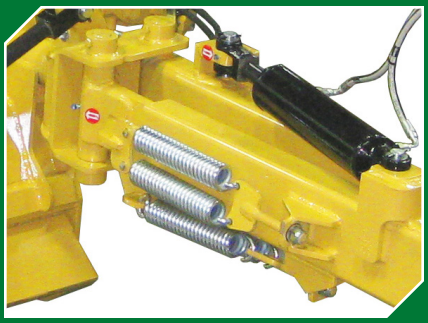
For ultimate long life and reliability, our flail cutting shafts and ground rollers are equipped with the best bearings in the industry.

CONTINUED ON NEXT PAGE

TAKE A LOOK AROUND

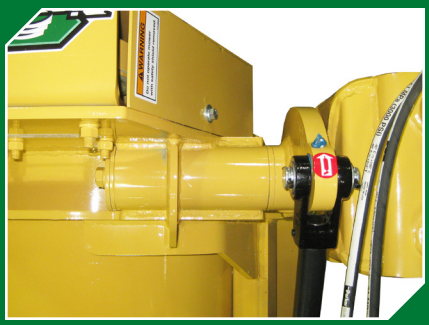
SWING ARM

Our fully articulating swing arm allows you to mow steep inclines and ditches, as well as other hard-to-reach areas standard side mounted flails cannot go.



SHOCK ABSORBER

The swing arm comes equipped with a shock absorbtion system that helps prevent damage in the event of a collision.



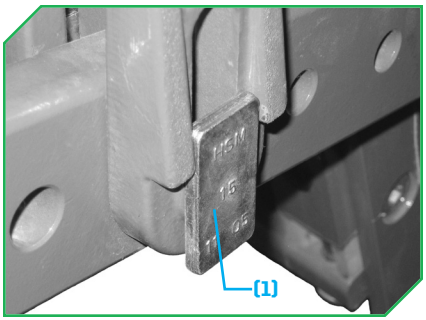
SWIVEL

Our heavy duty swivel is equipped with greaseless nylatron bearings and bushings, for long life and service.

GETTING STARTED

MACHINE REQUIREMENTS

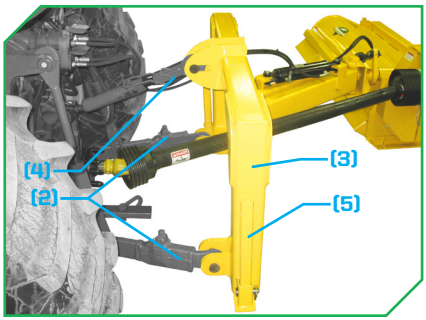
Diamond's Rear Swing Flail must be used on a tractor with a minimum weight of 9500lbs (4310kg) (sans weights), equipped with a category II 3-Point hitch, and a 540RPM PTO drive.
The tractor must be rated at a minimum of 75hp (56kW).

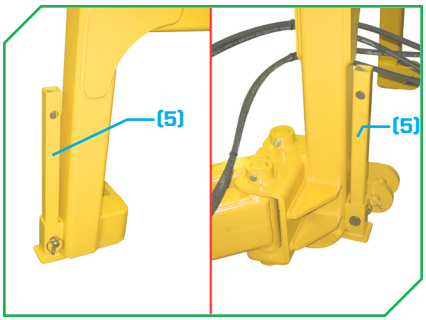


MOUNTING THE ATTACHMENT

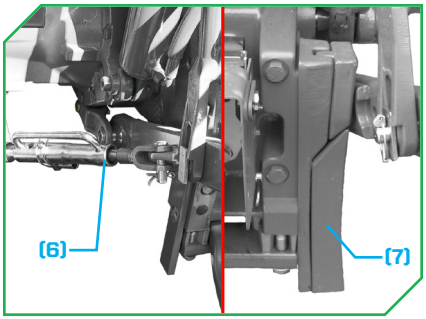
To mount the attachment to the tractor:

- Adjust the draft beam links(1) (if present) to their "float" position.
  - NOTE: Your draft beam links(1) (if present) may not look exactly the same as this example.
- Mount the hitch frame(3) to the tractor's 3-Point hitch draft beams(2) and upper link(4).
- Start the tractor and raise the hitch frame(3) to the desired work height.
- Adjust the upper link(4) until the hitch frame(3) is plumb.
- Raise the jack stands(5) up against the hitch frame(3).
  - Whenever disconnecting the hitch frame(3) from the tractor's 3-Point hitch, use the support stands(5) to support the hitch frame(3) by sliding them to their lowered position.

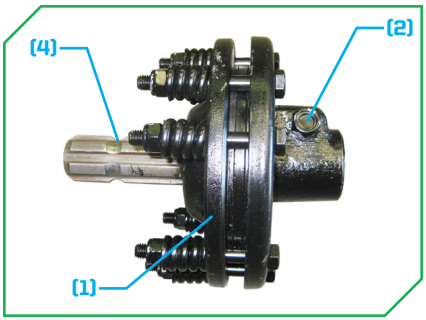




CONTINUED ON NEXT PAGE

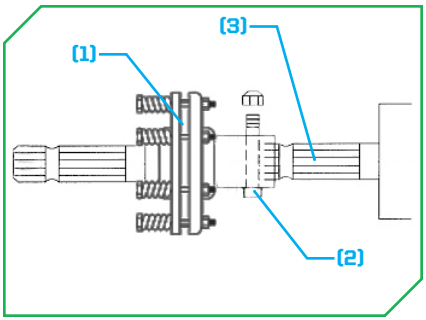


- Adjust your draft beam stabilizers(6) and/or spacers(7) (if present) to minimize any horizontal sway in the tractor's 3-Point hitch draft beams.
  - NOTE: Your draft beam stabilizers(6) and/or spacers(7) (if present) may not look exactly the same as this example.

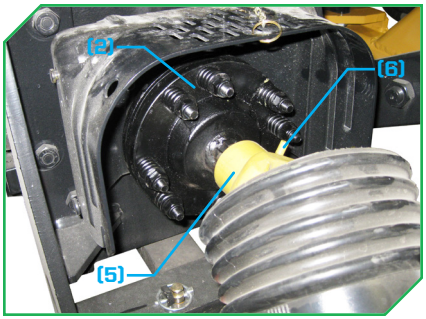


CONNECTING THE PTO DRIVE

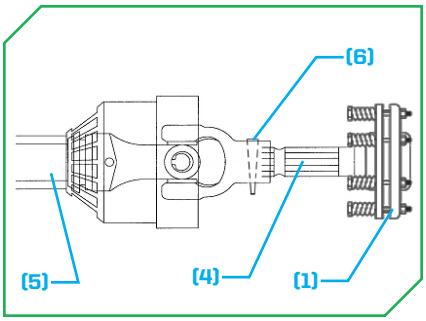
- Slide the slip clutch(1) onto the tractor's PTO splined shaft(3).
  - Secure it in place with the locking bolt(2) and lock nut thru the groove on the tractor's PTO splined shaft(3).



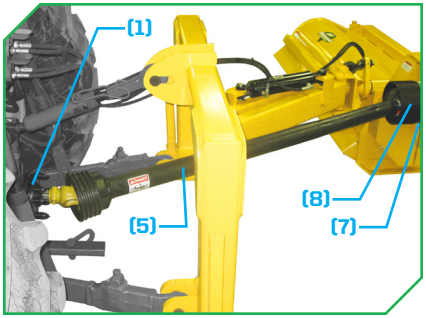
CONTINUED ON NEXT PAGE

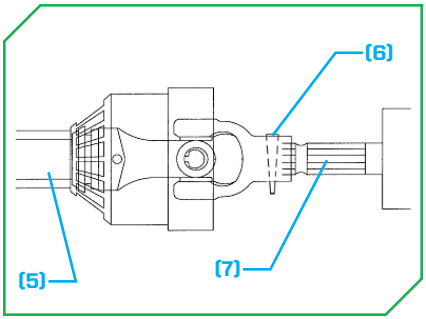


- Push in the spring loaded locking pin(6) on the PTO drive shaft(5) and slide it onto the slip clutch's splined shaft(4).
  - Push until the spring loaded locking pin(6) on the PTO drive shaft(5) locks into place in the groove on the slip clutch's splined shaft(4).



- Push in the spring loaded locking pin(6) on the other end of the PTO drive shaft(5) and slide it onto the gear box's splined shaft(7).
  - Push until the spring loaded locking pin(6) on the PTO drive shaft(5) locks into place in the groove on the gear box's splined shaft(7).
- Attach the PTO drive shaft safety guard(8) to the gear box(7).

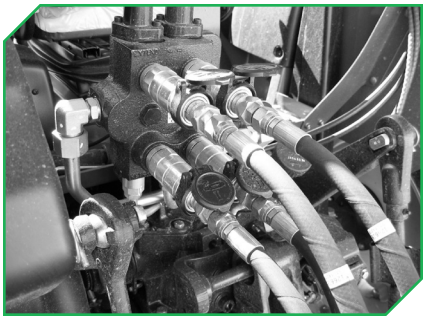




⚠WARNING

Always test a PTO drive shaft connection by giving it a hard tug in an attempt to disengage it. Do not use a PTO drive shaft that fails to stay locked to a splined shaft! Serious damage, injury or death can occur!

CONTINUED ON NEXT PAGE



CONNECTING THE HYDRAULICS

- Connect the four hydraulic hoses from the attachment to the tractor's auxiliary hydraulic remotes.
  - Make sure the connections are done to match the recommended lever control functions as described in the *Operation* section of this manual.
  - Reference the tractor's operator manual for more information on the tractor's auxiliary hydraulic remotes.

OPERATING YOUR FLAIL MOWER

Before you operate, note that the primary responsibility for safety on this equipment falls to the operator. Only trained individuals who have read and understood this manual should operate this unit.

If any portion of this manual is not understood, contact Diamond Mowers' Service/Warranty at 888.960.0364 or 605.977.3300.

SAFETY TIPS

Be sure to read all warnings carefully. They are included for your safety, and for the safety of others working with you.

NOTICE

Indicates a property damage hazard *ONLY*, no *PERSONAL* injury.

⚠ CAUTION

Indicates where *MINOR* injury *COULD* result if instructions are not followed.

⚠ WARNING

Indicates where *SERIOUS* injury or death *COULD* result if instructions are not followed.

⚠ DANGER

Indicates where *SERIOUS* injury or death *WILL* result if instructions are not followed.

- Always wear applicable personal protective equipment (PPE) when operating.
- Block off work area from bystanders, livestock, etc.
- Bystanders must keep a distance of 300ft/100m from the unit when operating.
- Knives are always sharp and can cause injury, even when not in motion.

CONTINUED ON NEXT PAGE

- **DO NOT** use extremities to dislodge debris from the cutting shaft or knives.
- Operate only from the operator's station.
- Hydraulic fluid is hot and will heat any exposed steel, hoses, motor, or spindle in its proximity.
- Route hoses correctly to ensure a full range in motion.
- Make certain hoses are out of the way of tires, tracks or the ground.
- Be certain the cutting shaft has come to a complete stop before exiting the cab.

STOWED POSITION

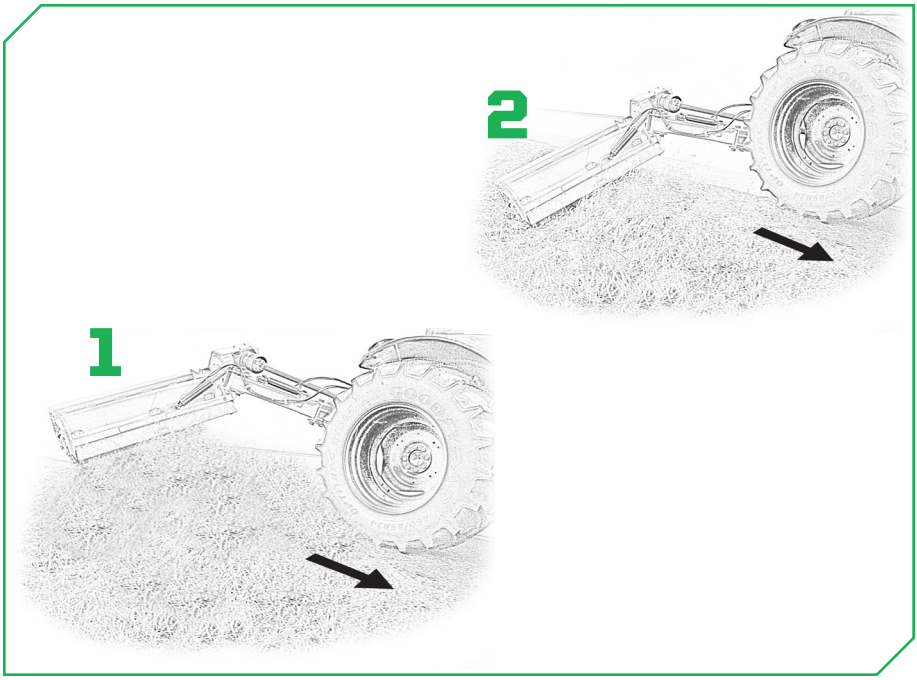
When transporting Diamond's Flail Mower between operations, make sure to protect it from collisions and accidental damages by placing it in the stowed position.
Failure to place the head in its stowed position could result in structural damage.

⚠ DANGER

Contact with the cutting shaft and knives while in motion will cause serious injury or death. The cutting shaft spins at a very high speed and can take several minutes to stop. Be sure all personnel are clear of the machine before engaging the Flail Mower.

CONTINUED ON NEXT PAGE

OPERATING TECHNIQUES



GRASS & BRUSH CUT

Use to cut grass or brush.

1. Lower the front of the deck slightly to ensure that there is ample room for exhausted material to be dispersed.
   - If you hear the cutting shaft, or engine slow down, lift up the head and/or slow your ground speed.

2. A second pass may be needed for heavy brush or grass.
   - Complete the initial pass at 12" (305mm) into the material.
   - Complete a second pass at ground level to thoroughly mulch the remaining material.

CONTINUED ON NEXT PAGE

OPERATING TECHNIQUES

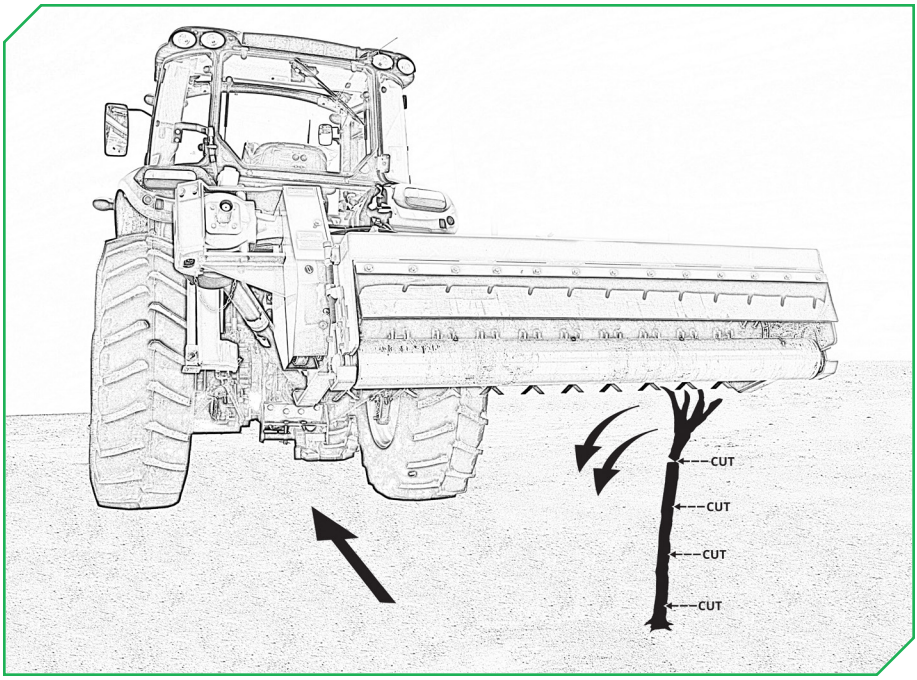
FINISHED MOW

Use for a finished look.

- Drive straight into the material keeping the deck low and level, with the ground roller resting on the ground.
- Maintain speed of the cutting shaft and ground speed.

CONTINUED ON NEXT PAGE

OPERATING TECHNIQUES



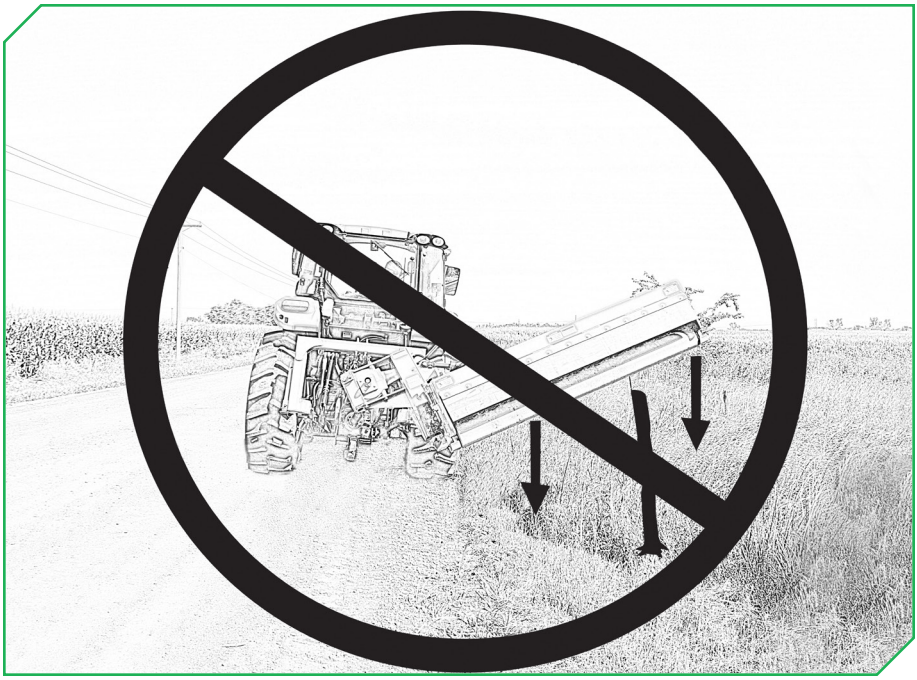
TREE CUT

Use to cut small trees or brush without mulching.

- For small trees, start working at the top and cut the tree in 12" (305mm) increments.
- With the Flail Mower lifted slightly, drive straight into the material.
- Allow enough time for the tree section to fall away while cutting.
- Use a smooth, quick action to cut the material completely.
  - NOTE: Never drop the mower straight down on trees. Severe damage will incur. **NO PANCAKING!**

CONTINUED ON NEXT PAGE

OPERATING TECHNIQUES



NO PANCAKING

DO NOT pancake.

- This machine is not built to drop on top of material for cutting or mulching. Damage will incur to the cutting shaft and bearings as a result of driving down (pancaking) on top of the material.

NOTICE

Dropping the mower straight down (pancaking) on heavy vegetation can cause severe damage to the cutting shaft and bearings.

For more tips, visit us online at www.DiamondMowers.com

MAINTENANCE INTERVALS

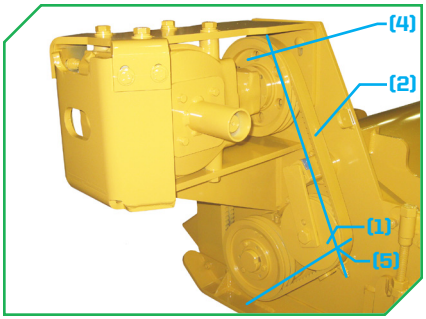
Regular maintenance will make certain your unit stays productive and retains a long, operating life. The following chart represents the minimum intervals recommended for inspection and maintenance.

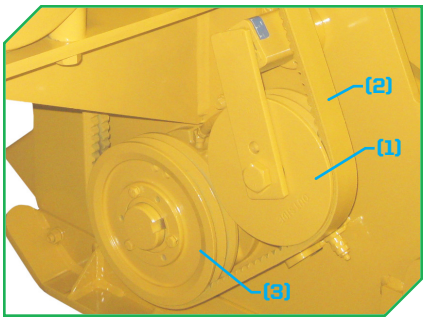
PROCEDURE	10 HOURS/ DAILY	50 HOURS/ WEEKLY	500 HOURS/ ANNUALLY	AS NEEDED
Belts & Pulleys				Adjust
Cutting Shaft	Grease	Inspect		
Discharge Flap		Inspect		
Gear Box		Inspect	Oil	
Ground Roller			Oil	
Hitch Frame (3-Point)	Inspect			
Hydraulic Fittings	Inspect			
Knives	Inspect			
PTO Slip Clutch / Drive Shaft		Grease		
Skid Shoes		Inspect		
Swing Arm	Grease			
Swivel				Replace

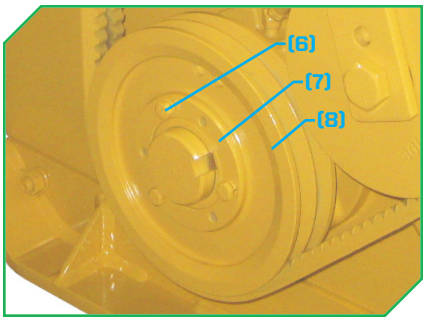
When replacing parts, use Genuine Diamond Parts. Guaranteed to ship within 72-hours of your order being placed, or the parts and shipping are free.

Call: 888-960-0361 or 605.977.3300 | **Email:** parts@diamondmowers.com
Order online: www.diamondmowers.com

CONTINUED ON NEXT PAGE







BELTS AND PULLEYS

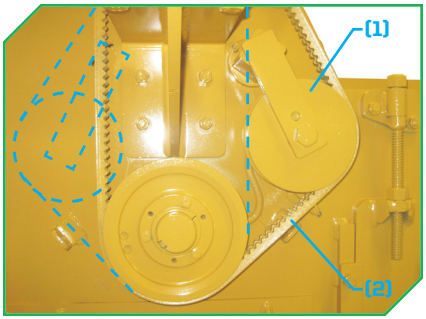
Belt Replacement:

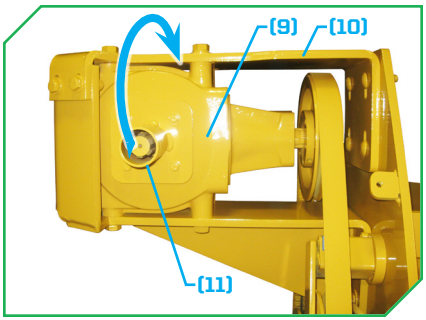
- Remove the access cover and top gear box bracket section.
- Push the idler pulley(1) away from the belt(2) with a wrench, pry bar, or similar tool to relieve pressure on the belt.
  - **DO NOT** damage the idler pulley or other components when relieving pressure on the belt.
- Remove the belt from the pulleys.
- Reverse the above instructions to install the new belt(2).
- Replace the access cover.

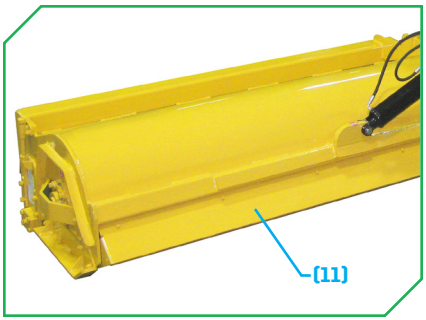
Pulley Alignment:

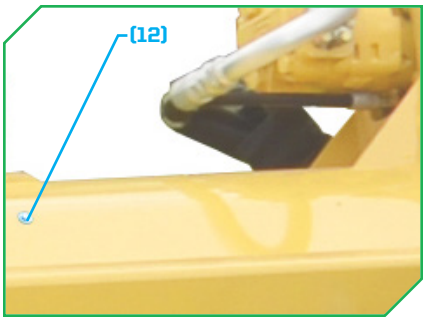
- Use a straight edge(5) to confirm the cutting shaft(3) and motor(4) pulleys are in the same plane as the idler pulley(1).
- If pulley misalignment is found, correct as follows:
  - Loosen the bolts(6) holding the tapered collar(7) to the out-of-alignment pulley(8).
  - With a padded mallet, tap the pulley(8) backwards or forwards on its shaft to align it with the idler pulley(1).
  - With the pulley(8) aligned, tighten the bolts(6) holding the tapered collar(7) to the pulley.
  - NOTE: This process may be easier without the belt installed.
- Replace the access cover.

CONTINUED ON NEXT PAGE









BELTS AND PULLEYS

Reversing Cutting Shaft Rotation:

NOTE: ***"Forward rotation" is defined as blade rotation the same as the tractor tires when driving forward. "Reverse rotation" is the opposite.***

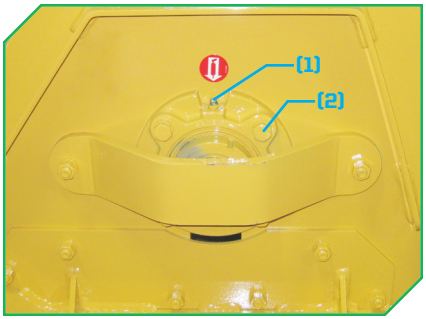
- Remove access cover and belt(2) from the pulleys as described on the previous page.
- Remove the idler pulley(1) stop bolt and main center bolt.
- Remount the idler pulley(1) with its stop bolt as illustrated (dashed outline).
  - A second location for the idler position stop bolt will be exposed.
  - Re-attach the main center bolt to lock it into position.
- Replace the belt(2) as illustrated (dashed outline) and access cover.
- Disconnect the PTO drive shaft from the gear box(9).
- Unbolt the top bracket(10) of the gear box from the flail and gear box(9).
- Swap the oil breather and oil drain plug illustrated in the **GEAR BOX** section of this manual on the gear box(9).
- Remove the input shaft guard(11) and reinstall onto the input shaft on the opposite side of the gear box(9).
- Turn the gear box(9) over 180° and reinstall it along with the top bracket(10).
- Replace any lost oil as described in the **GEAR BOX** section of this manual.

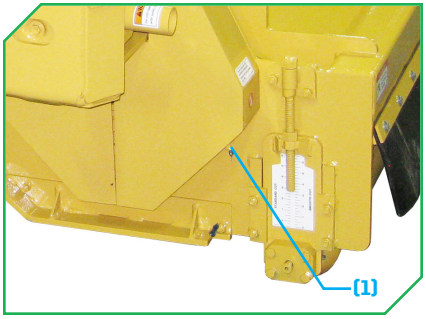
CONTINUED ON NEXT PAGE

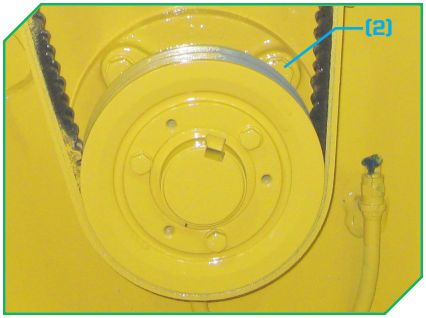
BELTS AND PULLEYS

Reversing Cutting Shaft Rotation:

- Install the front shield(11) for reverse rotation, or remove it for forward rotation.
- Install the baffle with bolts(12) for forward rotation, or remove it for reverse rotation.
  - Reference the parts pages for additional information.



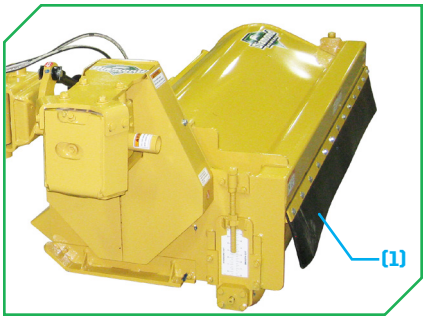




CUTTING SHAFT

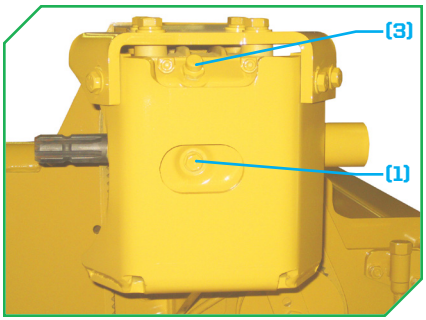
- Grease the cutting shaft bearing zerks(1) (1 on each side of the flail) every 10 hours or daily with #2 lithium based grease from a hand grease gun until grease purges from the bearing seals.
- Torque the cutting shaft bearing bolts(2) to 90ft-lbs (122Nm) on each side of the flail every 50 hours or weekly.
  - NOTE: The access covers covering the pulleys and belt must be removed to gain access to the cutting shaft bearing bolts located underneath the bottom pulley of the flail.

CONTINUED ON NEXT PAGE



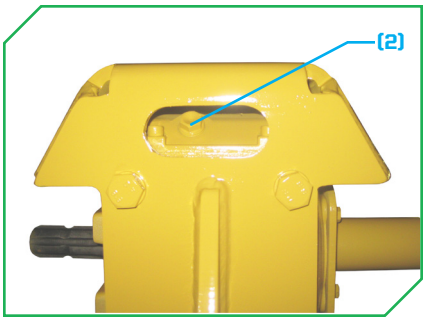
DISCHARGE FLAP

- Inspect each flail head's rear discharge flap(1) every 50 hours or weekly:
  - Excessive wear
  - Cuts, gouges, excessive damage.
- Replace as needed.

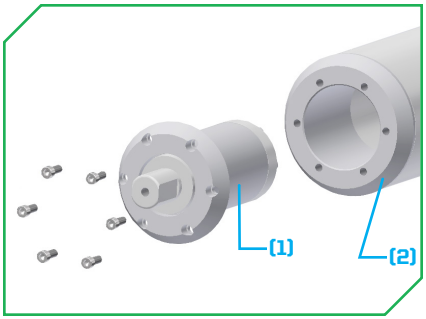


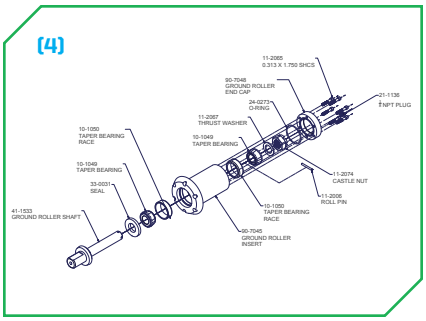
GEAR BOX

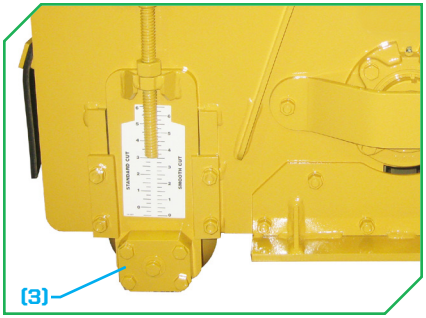
- The oil level should be inspected every 50 hours or weekly:
  - Remove the oil level check plug(1). Oil should be level with the port.
- The gear box oil should be replaced after the first 50 hours of operation, and then every 500 hours or annually:
  - Remove the oil drain plug(2).
  - Use an air powered vacuum to suck out the oil.
  - Replace the oil drain plug(2).
  - Remove the oil fill / breather(2) and oil level check plug(1).
  - Fill the gear box with synthetic SAE 75W-90W oil until level with the oil level check port.
  - Replace the oil fill / breather(2) and oil level check plug(1).

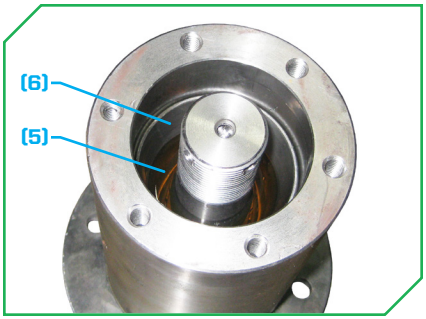


CONTINUED ON NEXT PAGE







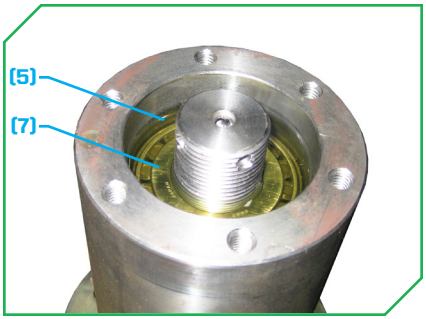


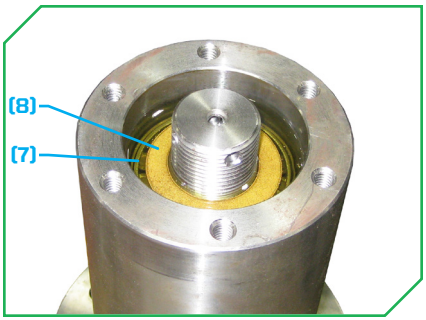
GROUND ROLLER

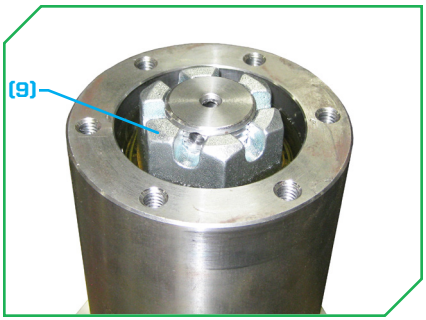
Bearing Maintenance:

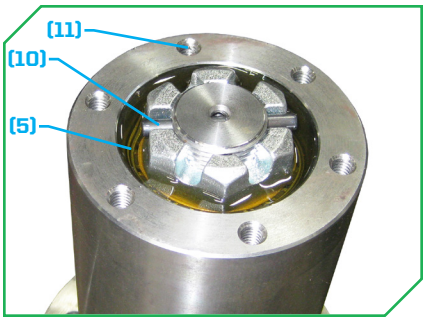
- Each bearing(1) must have the oil and O-ring replaced once annually with 7-8oz of synthetic 75-90W oil and a new O-ring.
- Rest the ground roller(1) on the ground.
  Block it from moving.
- Unbolt the bearing blocks(3) from each side of the flail and ground roller.
  - **DO NOT** reassemble the bearing block hardware from one side of the flail on the other.
- Lift the flail head for access to the ground roller.
- Remove the cap screws securing the bearings(1) to the ground roller(2) on each side.
- Disassemble each bearing(4) (Reference page 49):
  - Remove the cap screws, 1/8" NPT plug, and end cap.
  - Discard the old O-ring.
- Remove the roll pin and castle nut(4).
- Pour out the old oil from the insert(4).
  - Catch and retrieve the thrust washer and taper bearing.
  - Examine the taper bearing its race for damage or wear.
    - No wear; proceed with the following steps.
    - Wear detected; contact **Diamond Mowers** for a rebuild kit with instruction.
- Pour synthetic SAE 75-90W oil(5) into the ground roller insert(4) until it just touches the taper bearing race(6).

CONTINUED ON NEXT PAGE







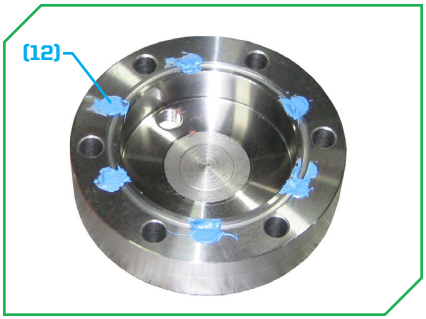


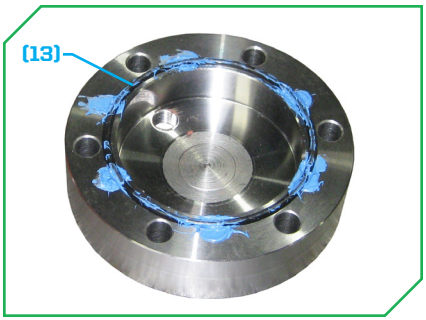
GROUND ROLLER

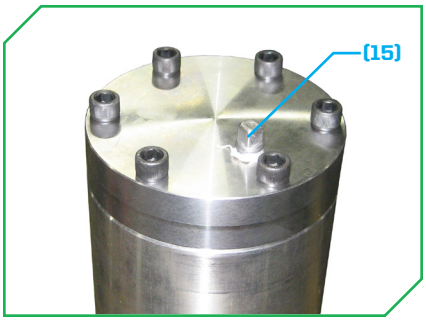
Bearing Maintenance:

- Place the taper bearing(7) over the ground roller shaft and into the taper bearing race.
- Add more synthetic SAE 75-90W oil(5) until approximately 1/8" (3mm) above the taper bearing.
- Place a thrust washer(8) over the ground roller shaft and on top of the taper bearing race(7).
- Thread the castle nut(9) onto the ground roller shaft until it just contacts the thrust washer(8).
  - Find the roll pin hole; if covered, slightly tighten or loosen the castle nut (whichever exposes the hole first) until the hole is fully exposed.
- Lift the ground roller insert, and pull down on the ground roller shaft to check for end-play(4).
  - No end-play; proceed to the next step.
  - End-play detected; tighten the castle nut(9) to expose the roll pin hole in the next notch on the castle nut(9).
  - Re-check the end-play again and correct as needed.
- Tap the roll pin(10) into the ground roller shaft hole until centered.
- Fill the insert to the brim with synthetic SAE 75-90W oil(5).
  - 7-8oz of oil should have been used at this point.
- Thread a cap screw into EACH of the cap screw hole(11) locations to force out any oil that may be in there.

CONTINUED ON NEXT PAGE





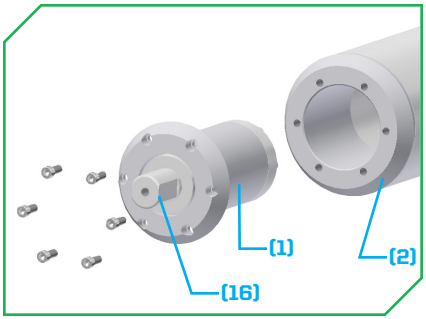


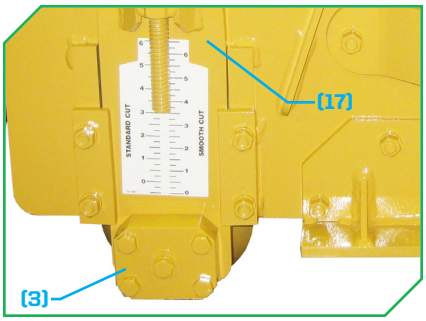
GROUND ROLLER

Bearing Maintenance:

- Clean any oil or debris off the surface of the insert where the end cap will mate(4).
- Remove the cap screws.
  - NOTE: Failure to remove excess oil from the holes may result in a cracked insert when the end cap is secured to the insert.
- Place the end cap upside down on the work surface and clean any oil or debris off of the grooved surface where the insert will mate to(4).
  - Place a dot of RTV silicone sealant(12) on the groove between each hole.
  - Place the O-ring(13) into the groove on the end cap.
- Place the end cap onto the ground insert without dislodging the O-ring from its groove(14).
- Secure the end cap to the insert with the cap screws(14).
  - Tighten the cap screws evenly in a criss-cross pattern.
  - Torque the cap screws to 29ft-lbs (39Nm).
  - Make sure the plug hole is not blocked to allow air to escape.
- Wrap the 1/8" NPT plug(15) with teflon tape and thread it into the plug hole on the end cap.
  - Tighten until snug.

CONTINUED ON NEXT PAGE



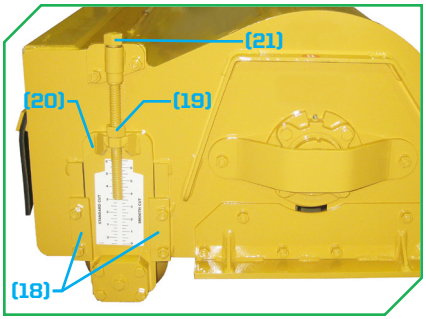


GROUND ROLLER

Bearing Maintenance:

- Reassemble the bearings(1) into the ground roller(2) with their cap screws.
  - Torque the hardware to 51ft-lbs (69Nm).
- Lower the flail back onto the ground roller, allowing the bearing shafts to slide back into their slots on the roller brackets.
- Place the bearing blocks(3) onto the ground roller shafts.
  - Align the "flat" of the block(3) opening to the "flat" of the bearing shaft(16).
- Mount the bearing blocks(3) to the roller brackets(17) of the flail.
  - Use loctite 262 with primer 7649 on the hardware.
  - Torque the hardware to 75ft-lbs (102Nm).
- Secure the ground roller(2) to the bearing blocks(3) with the original hardware from that side of the flail.
  - Bearing block bolt WITH the shoulder using loctite 243 on the belt side of the flail.
  - Bearing block bolt WITHOUT the shoulder, along with a flat washer and lock washer, using loctite 243 on the non-belt side of the flail.
  - Torque each bearing block bolt to 75ft-lbs (102Nm).

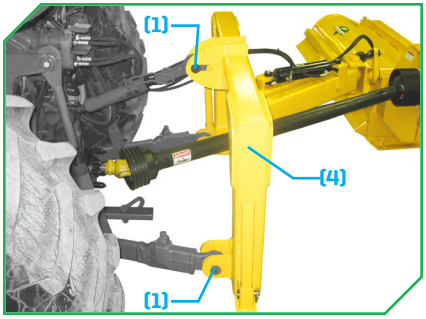
CONTINUED ON NEXT PAGE

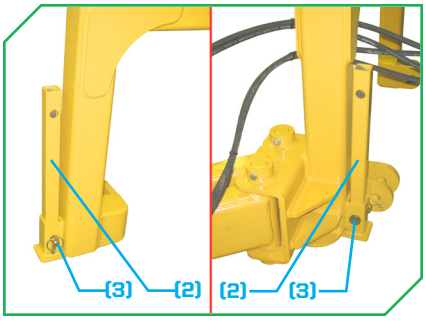


GROUND ROLLER

Cutting Height Adjustment:

- Loosen the retaining plates(18) and lock nuts(19) on both sides of the flail.
- Adjust the ground roller brackets(20) up or down by turning the adjustment nuts(21).
- Tighten the lock nuts(18) and retaining plate hardware.
  - Torque the hardware to 75ft-lbs (102Nm).

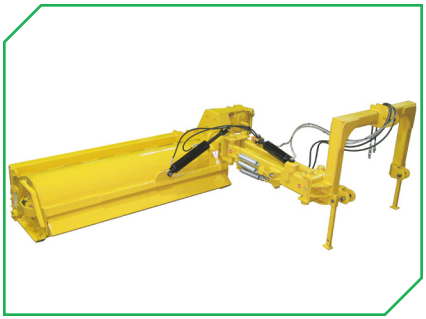


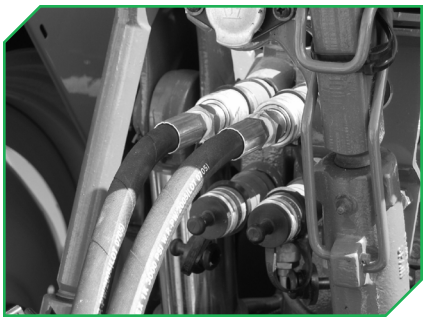


HITCH FRAME (3-POINT)

- Inspect hitch frame(4) components every 10 hours or daily.
  - 3-Point hitch link pins(1) are in good repair and secure.
  - Support stands(2) are retracted and secured with their lynch pins(3).
    - Support stands(2) are lowered to rest the hitch frame(4) when removing the unit from the tractor.

CONTINUED ON NEXT PAGE





HYDRAULIC FITTINGS

- Hydraulic hoses and fittings should be inspected every 10 hours or daily.

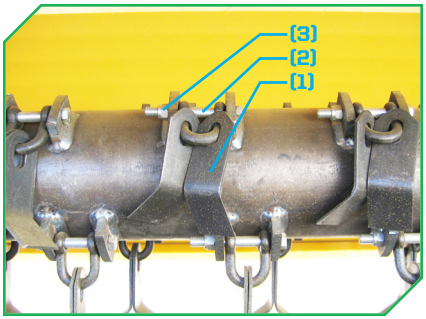
  What to look for:

  - Hydraulic fitting clamps, QD connectors, and threaded connections for any hydraulic fluid.
    - If any leaks are observed, stop immediately to prevent damage to your machine.
  - Hoses for any abrasions or cuts. Replace damaged or worn hoses.
  - Attach hose wrap around critical points where hoses are likely pinched or rubbed.

⚠ CAUTION

DO NOT check for hydraulic leaks with your hands or any part of your body. Use a heavy piece of paper or cardboard to check areas that are not readily visible. Pressurized hydraulic fluid can penetrate the skin and lead to serious health risks.

CONTINUED ON NEXT PAGE



KNIVES

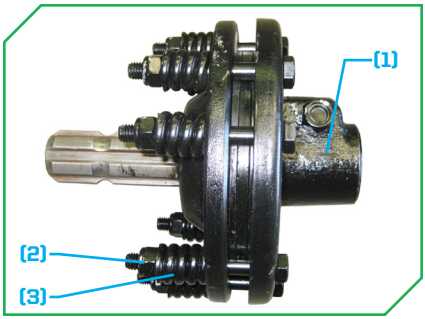
- Inspect the flail knives(1) for excessive wear or damage every 10 hours or daily.
  - Replace them as needed.
  - Replace knives(1) in pairs opposite of each other to maintain balance of the cutting shaft.
- Inspect the knife mounting bolts(2) and nylock nuts(3) for damage every 10 hours or daily.
  - Replace damaged components as needed.
  - Tighten nylock nuts(3) snug against the cutting shaft brackets.
    - NOTE: Knife bolts(2) and nuts(3) must be reassembled in the same orientation as they came from the factory.

NOTICE

Do not attempt to weld, or otherwise repair a damaged or worn flail knife. Replace knives evenly around the cutting shaft.

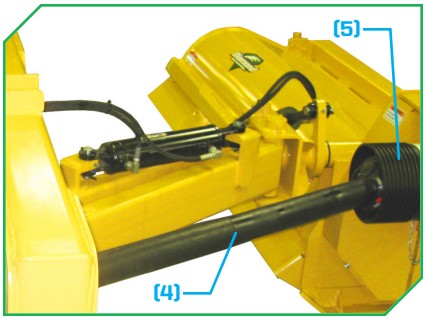
CONTINUED ON NEXT PAGE

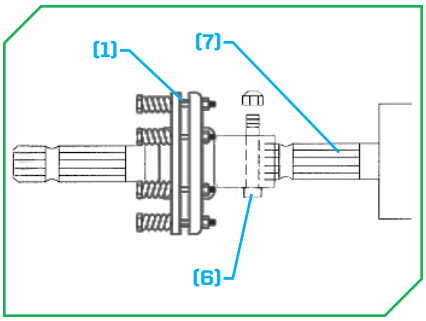
PTO SLIP CLUTCH / DRIVE SHAFT

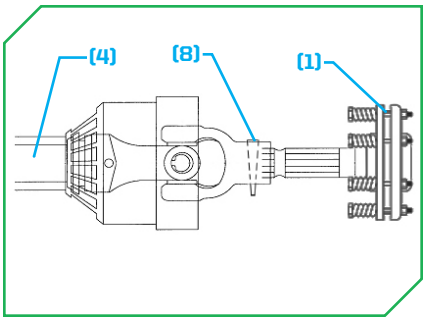


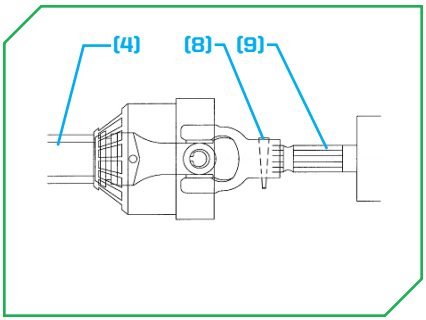
- New slip clutches(1), or any slip clutch(1) not used for 30 days should complete the run-in procedure:
  - Disengage the PTO power and turn off the tractor.
  - Loosen the six nuts(2) (evenly and on opposite sides) until loose, then tighten them one full turn.
  - Start the tractor and engage the PTO power; run for several seconds or until the slip clutch(1) visible smokes, then disengage the PTO power and shut off the tractor.
  - Tighten the six nuts(2) (evenly and on opposite sides) a half turn at a time until the six springs(3) measure 1.1" (26mm) using a vernier scale.
    - **NOTE:** Measure as accurately as possible - a dimensional difference of 1/64" (0.4mm) can result in a 15% variance in torque. Over tightening can cause the slip clutch(1) to fail and slip.
- When rebuilding slip clutches(1), follow the below listed procedure:
  - Disconnect and remove the PTO drive shaft from the slip clutch(1).
  - Loosen the six nuts(2) (evenly and on opposite sides) until loose. Remove them with the bolts, washers, springs, and pressure plate.
  - Seperate the hub, yoke, and friction discs. Discard all old friction discs.
  - Inspect the steel components for wear or warpage and replace as needed.
  - Inspect the bronze bushing for wear or warpage.
    - **NOTE:** This is not a servicable part - the entire hub must be replaced.
  - Clean rust and debris from the plate surfaces with a wire brush or steel wool.
  - Place one new friction disc on the yoke plate. Assemble the bronze bushing / hub into the yoke plate. Add the other new friction disc.
  - Add the pressure plate, and line up the holes in the yoke to the pressure plate.
    - **NOTE:** Double check the friction discs are seated correctly.
  - Assemble the bolts, washers, springs, nuts, and optional stops in their original postions.
  - Complete the run-in procedure as described above.

CONTINUED ON NEXT PAGE





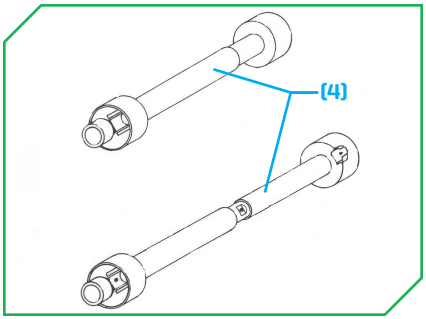




PTO SLIP CLUTCH / DRIVE SHAFT

- Confirm the locking bolt(6) is securing the slip clutch(1) to the tractor's PTO Drive(7).
- Grease the PTO drive shaft(4) every 50 hours or weekly. Remove the safety guard(5) to access the PTO drive shaft(4).
  - Depress the locking pin(8) and pull the PTO drive shaft(4) off of the slip clutch(1).
  - Depress the locking pin(8) and pull the PTO drive shaft(4) off of the gear box(9).
  - Pull apart the PTO drive shaft(4) and grease all zerks with #2 lithium based grease. Push the PTO drive shaft(4) back together.
  - Depress the locking pin(8) and push the PTO drive shaft(4) back onto the gear box(9) until the locking pin(8) locks.
    - NOTE: Push until the locking pin clicks into place on the groove of the gear box splined shaft.
  - Depress the locking pin(8) and push the PTO drive shaft(4) back onto the slip clutch(1) until the locking pin(8) locks.
    - NOTE: Push until the locking pin clicks into place on the groove of the gear box splined shaft.

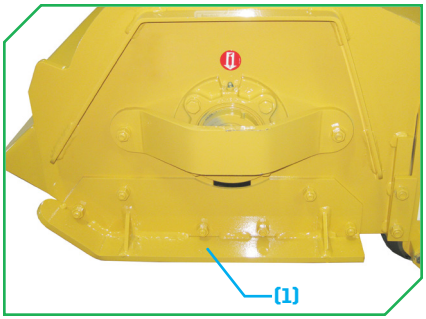
CONTINUED ON NEXT PAGE



PTO SLIP CLUTCH / DRIVE SHAFT

⚠WARNING

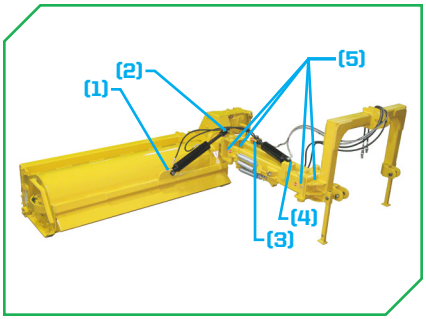
Always test a PTO drive shaft connection by giving it a hard tug in an attempt to disengage it. Do not use a PTO drive shaft that fails to stay locked to a splined shaft! Serious damage, injury or death can occur!

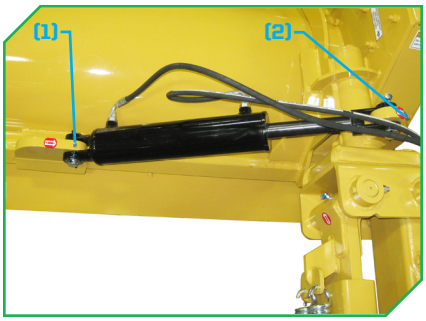


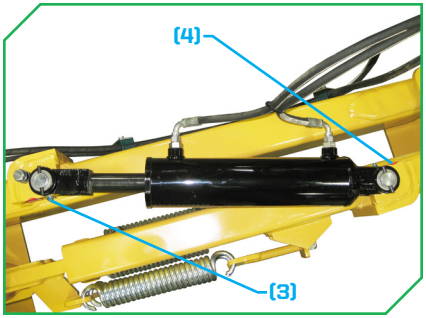
SKID SHOES

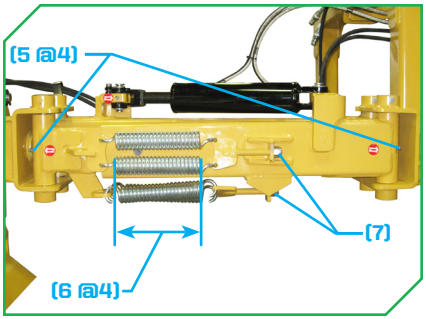
- Inspect the skid shoes(1) for excessive wear or damage every 50 hours or weekly.
  - Replace as needed.

CONTINUED ON NEXT PAGE









SWINGARM

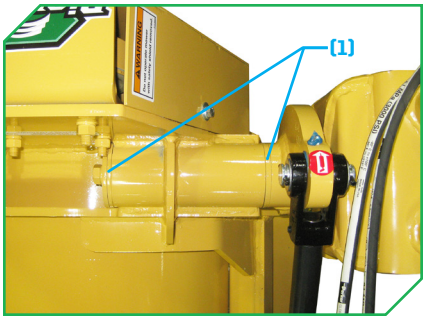
Greasing:

- Extend out the swing arm to expose the grease zerks. Rest the flail head on the ground to relieve pressure on the swing arm joints before greasing.
  - NOTE: It may be necessary to swing / rotate the swing arm to expose all of the grease zerks.
- Grease all of the zerks(1)(2)(3)(4)(5) with #2 lithium based grease every 10 hours or daily until grease appears around the joints.
- Inspect all cylinder anchor hardware for wear or damage and replace as needed.

Breakaway Spring Tension:

- Standard spring(6) tension is set with the springs(6) at 9" (228mm) measured from the center of the outermost coils.
  - Tighten or loosen the tension nuts(7) to achieve the proper spring(6) dimensions.
  - NOTE: If more breakaway spring pressure is desired, tighten the tension nuts(7) until the springs(6) measure an additional ¼" (6mm).
    - Test for satisfactory performance. Make additional tension nut(7) adjustments in ¼" (6mm) increments.

CONTINUED ON NEXT PAGE



SWIVEL

- If "looseness" or "play" is detected in the swivel, replace the nylatron bearings(1) and the internal greaseless bearing (not visible) in the interior of the swivel.
- It is best practice to replace the nylatron bearings(1) and internal greaseless bearing (not visible) at the same time.

NOTICE

Failure to inspect and replace hardware at recommended intervals will cause damage to the machine and/or mower.

TROUBLESHOOTING

PROBLEMS	POTENTIAL CAUSE	SOLUTION
Excessive Vibration	Loose hardware	Check and torque all hardware.
	Cutting assembly unbalanced and/or is damaged	Check for damaged knives, cutting shaft, etc. Check for wire & other debris entangled in the the cutting assembly.
	Loose belt(s)	Belt is stretched or badly worn; replace as needed. Flail mowers are equipped with automatic self-tensioners; call Diamond Mowers for assistance.
	Misaligned pulleys	Correct pulley alignment.
PROBLEMS	**POTENTIAL CAUSE**	**SOLUTION**
Mower Will Not Lift	Tractor's 3-Point hitch	Reference the tractor's operator manual for more information.
	Hydraulic hoses & fittings are damaged and/or is leaking.	Tighten or replace hoses and/or fittings.
	Hydraulic hoses are not attached to the tractor's auxiliary remotes	Connect the hoses to the tractor's auxiliary remotes.
	Faulty cylinder	Inspect, repair or replace cylinder.
PROBLEMS	**POTENTIAL CAUSE**	**SOLUTION**
Motor Runs, but Will Not Cut	Loose belt(s)	Belt is stretched or badly worn; replace as needed. Flail mowers are equipped with automatic self-tensioners; call Diamond Mowers for assistance.
	Excessive wear on internal parts	Diassemble and repair motor. Contact Diamond Mowers for a replacement.
	Broken belt	Belt is broken; replace. Flail mowers are equipped with automatic self-tensioners; call Diamond Mowers for assistance.
	Misaligned pulleys	Correct pulley alignment.

CONTINUED ON NEXT PAGE

PROBLEMS	POTENTIAL CAUSE	SOLUTION
Motor/Cutting Shaft Turns Slowly or Not at All	Loose belt(s)	Belt is stretched or badly worn; replace as needed. Flail mowers are equipped with automatic self-tensioners; call Diamond Mowers for assistance.
	Misaligned pulleys	Correct pulley alignment.
	Excessive wear on gear box	Diassemble and repair gear box. Contact Diamond Mowers for a replacement.
PROBLEMS	**POTENTIAL CAUSE**	**SOLUTION**
Mower Will Not Start or Run	No PTO power to the Rear Swing Flail attachment	Reference the vehicle's operator manual for instructions on how to operate the vehicle PTO drive.

For any questions, contact our Warranty / Service team at
888.960.0364 or 605.977.3300

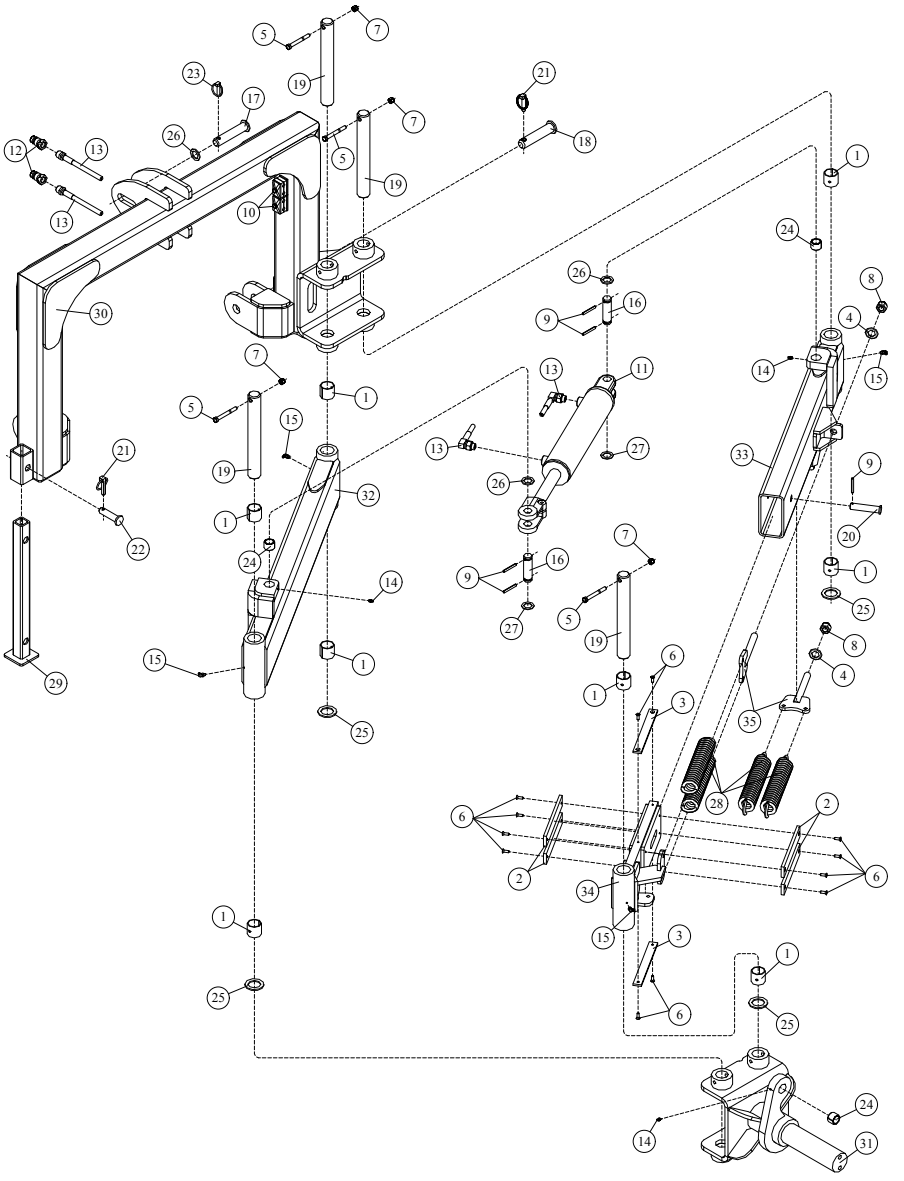
Diamond MOWERS™

REAR SWING FLAIL

PARTS BOOK

SWING ARM ASSEMBLY - 3-POINT HITCH

45-0312



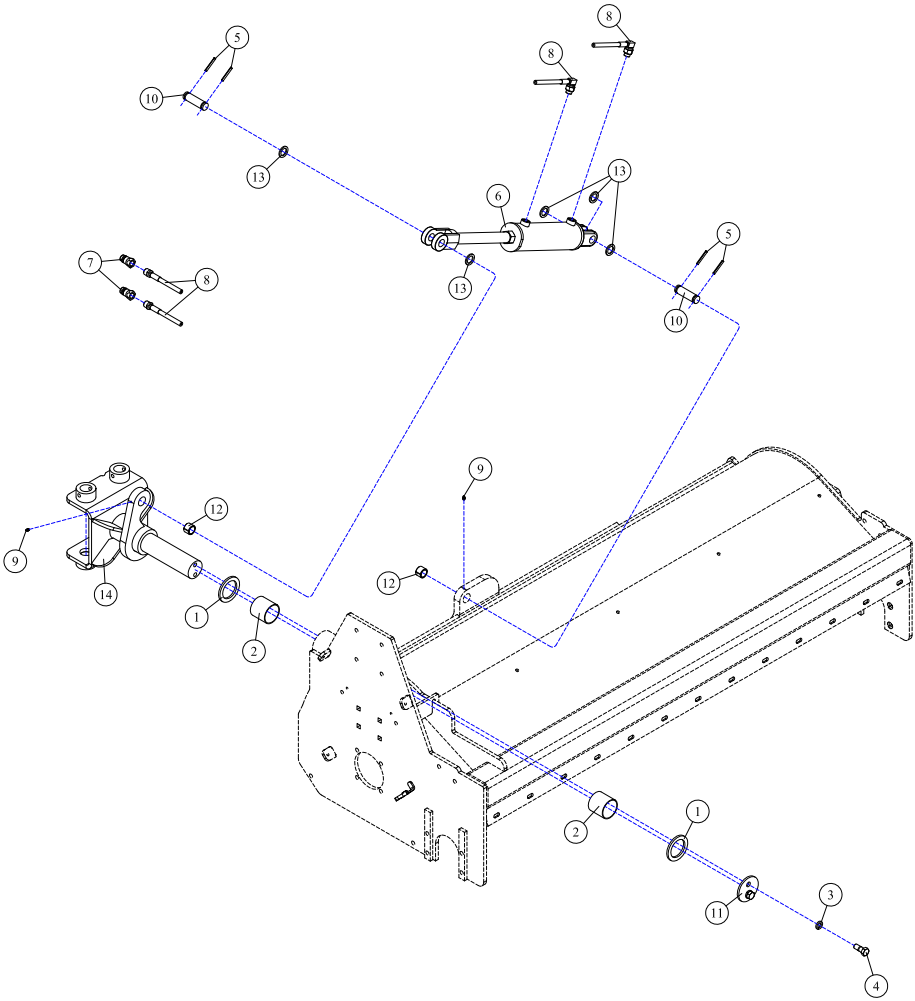
SWING ARM ASSEMBLY - 3-POINT HITCH

45-0312

REF#	PARTS DESCRIPTION	REQ	PART #
1	GARLOCK BUSHING	8	10-0033
2	HORIZONTAL BEARING PAD	4	10-0098
3	LOAD BEARING MD NYLON PAD	2	10-0099
4	3/4 SAE FLAT WASHER GR 8	2	11-0039
5	7/16 X 3-1/4 NC HEX CAPSCREW GR 5	4	11-0510
6	1/4 X 3/4 FLAT SKT HEAD CAPSCREW	12	11-0801
7	7/16 NC NYLOCK NUT	4	11-1003
8	3/4 NC NYLOCK NUT	2	11-1006
9	1/4 X 2 ROLL PIN	5	11-2005
10	1/4 DOUBLE HOSE CLAMP	2	11-2047
11	3 X 10 WELDED CYLINDER W/ 2" SLUG	1	14-0039
12	1/2 MALE QUICK COUPLER	2	21-2119
13	HOSE 1/4 X 85 (1/2MORB-90DEG X 1/2MP)	2	21-2234
14	1/4 GREASE ZERK, STRAIGHT	3	23-0004
15	1/4 X 90 DEG. GREASE ZERK	4	23-0009
16	CLEVIS PIN	2	27-0004
17	UPPER 3-PT PIN	1	27-0009
18	LOWER 3-PT PIN	2	27-0028
19	SWING ARM PIN	4	27-0515
20	BREAKAWAY PIN	1	27-0528
21	LYNCH PIN (LARGE)	4	27-1005
22	STAND PIN	2	27-1010
23	LYNCH PIN (SMALL)	1	27-1028
24	BUSHING	3	34-0005
25	10GA BUSHING (LARGE)	4	34-0057
26	10GA BUSHING (SMALL)	3	34-0060
27	14GA BUSHING	2	34-0061
28	SPRING	4	36-0011
29	REST	2	41-0728
30	MOUNT	1	41-0968
31	PIVOT	1	41-0969
32	SWING ARM	1	41-0970
33	STATIONARY BREAKAWAY ARM	1	41-1525
34	PIVOT ARM	1	41-1526
35	ADJUSTMENT BRACKET	2	41-1527

SWING ARM ASSEMBLY - ROTATOR

45-0312

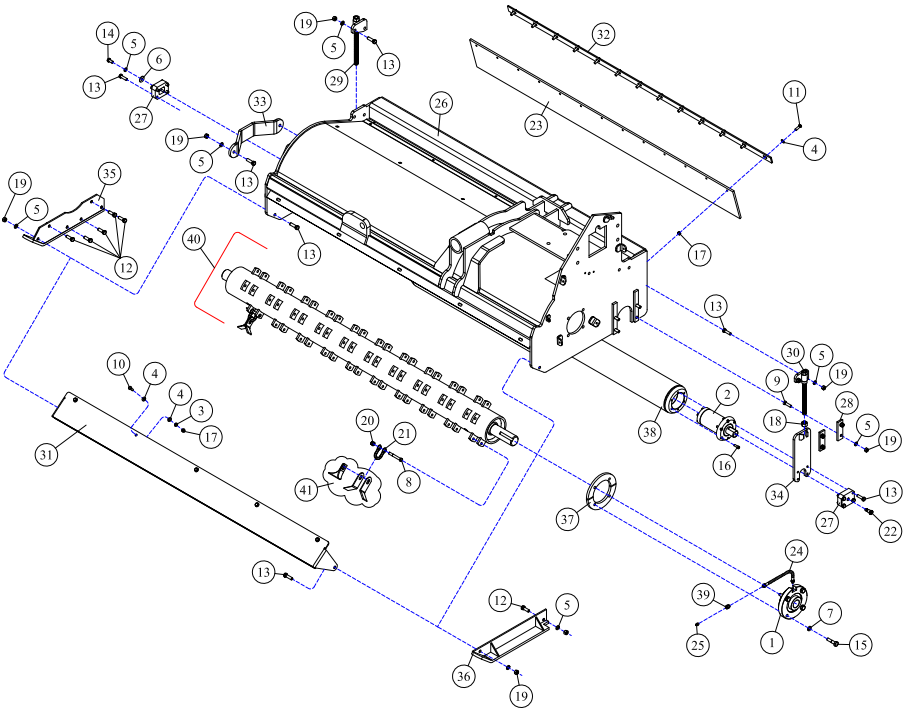


REF#	PARTS DESCRIPTION	REQ	PART #
1	PIVOT THRUST BEARING	2	10-0061
2	GREASELESS BUSHING BEARING	2	10-0062
3	5/8 LOCK WASHER GR 5	2	11-0004
4	5/8 X 1-1/2 NC HEX CAPSCREW	2	11-0565
5	1/4 X 2 ROLL PIN	4	11-2005
6	3 X 12 WELDED CYLINDER W/ 2" SLUG	1	14-0037
7	1/2 MALE QUICK COUPLER	2	21-2119

REF#	PARTS DESCRIPTION	REQ	PART #
8	HOSE 1/4 X 148 (1/2MORB-90DEG X 1/2MP)	2	21-2329
9	1/4 GREASE ZERK	2	23-0004
10	CLEVIS PIN	2	27-0004
11	SWING FLAIL PIVOT COVER	1	31-0168
12	BUSHING	2	34-0005
13	10GA BUSHING	5	34-0060
14	SWING FLAIL PIVOT	1	41-0969

75"(1905mm) CUTTER ASSEMBLY

25-1599



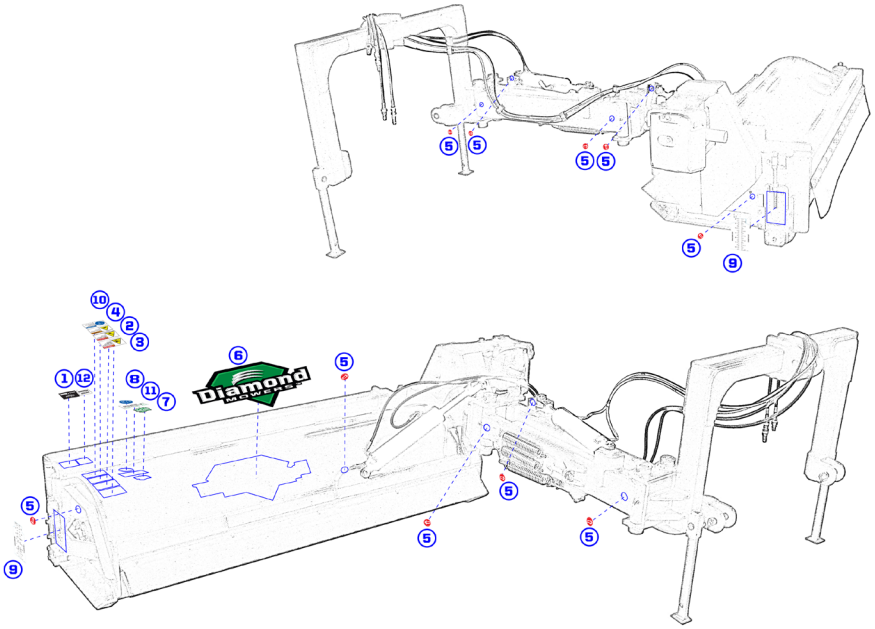
REF#	PARTS DESCRIPTION	REQ	PART #
1	CUTTERSHAFT BEARING	2	10-0006
2	GROUND ROLLER BEARING ASSY	2	10-1051
3	3/8 LOCK WASHER	5	11-0005
4	3/8 FLAT WASHER	23	11-0009
5	1/2 LOCK WASHER	23	11-0011
6	1/2 FLAT WASHER GR 5	1	11-0018
7	1/2 H.S. LOCK WASHER	8	11-0036
8	KNIFE MOUNTING BOLT	40	11-0506
9	1/2 X 2 NC PLOW BOLT	8	11-0515
10	3/8 X 1 NC HEX CAPSCREW	5	11-0532
11	3/8 X 1-1/4 NC HEX CAPSCREW	13	11-0533
12	1/2 X 1-1/2 NC HEX CAPSCREW	6	11-0534
13	1/2 X 1-3/4 NC HEX CAPSCREW	16	11-0535
14	1/2 X 1 NC HEX CAP	1	11-0569
15	1/2 X 2 H.S. NF HEX CAPSCREW	8	11-0633
16	3/8 X 1 H.S. NC SKT HEAD	12	11-0752
17	3/8 NC HEX NUT	18	11-1001
18	3/4 - 6 ACME HEX NUT	2	11-1012
19	1/2 NC HEX NUT	22	11-1016
20	7/16 NYLOCK JAM NUT	40	11-1146
21	CLEVIS	40	11-1501
22	SHOULDER BOLT	1	11-2086
23	75" FLAP	1	18-0011
24	GREASE ZERK HOSE	1	21-0002
25	1/8" GREASE ZERK	2	23-0003
26	BONNET - **RIGHT SWING**	1	25-0101
	BONNET - **LEFT SWING**	1	25-0108

REF#	PARTS DESCRIPTION	REQ	PART #
27	GROUND ROLLER BLOCK	2	31-0563
28	LOCK PLATE	4	41-0003
29	ADJUSTMENT ROD RIGHT	1	41-0005
30	ADJUSTMENT ROD LEFT	1	41-0006
31	75" TRASH GUARD	1	41-0036
32	75" FLAP BAR	1	41-0068
33	CUTTERSHAFT GUARD	1	41-0097
34	GROUND ROLLER BRACKET	2	41-1501
35	OUTER SKID SHOE - **RIGHT SWING**	1	42-0010
	OUTER SKID SHOE - **LEFT SWING**	1	42-0018
36	DRIVE SIDE SKID SHOE - **RIGHT SWING**	1	42-0015
	DRIVE SIDE SKID SHOE - **LEFT SWING**	1	42-0020
37	BEARING GUARD	4	46-0018
38	75" GROUND ROLLER	1	46-0051
39	1/8" BRASS COUPLER	1	9996
40	****CUTTER SHAFTS COMPLETE****		
	75" CUTTER SHAFT, SMOOTH CUT KNIVES	Opt.	46-1018
	75" CUTTER SHAFT, 3/16" HD KNIVES	1	46-1010
41	****FLAIL KNIVES****		
	SMOOTH CUT FLAIL KNIFE	40	22-1011
	3/6" HD FLAIL KNIFE	80	22-1016
42	**BLADE KITS**		
	Includes 11-0506, 11-1146, & 22-1006 (smooth)	1	44-0263
	Includes 11-0506, 11-1146, & 22-1016 (HD)	1	44-0242

Asy: 75" Swing Flail Cutter Assembly

DECAL IDENTIFICATION

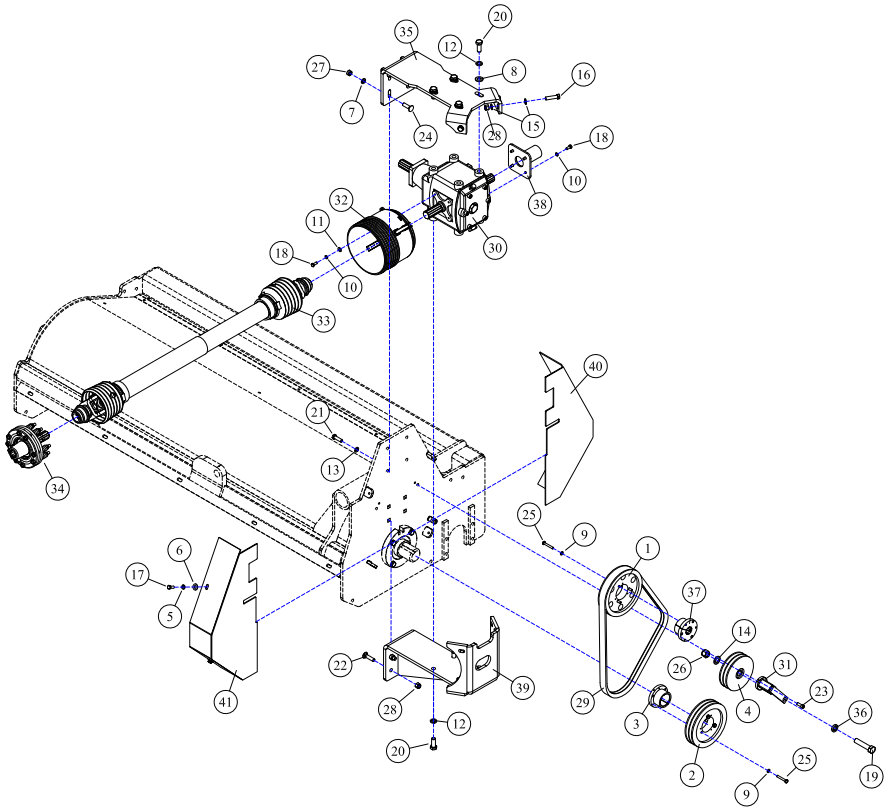
Swing Flail Head



1. **SERIAL NUMBER LABEL** - (not included in kit) - QTY 1
2. **PART #15-0001** - Sharp Objects Danger - QTY 1
3. **PART #15-0002** - Flying Objects Danger - QTY 1
4. **PART #15-0003** - Belt Cover Warning - QTY 1
5. **PART #15-0005** - Grease Here - QTY 10
6. **PART #15-0054** - Diamond Logo 15" - QTY 1
7. **PART #15-0055** - Made In USA - QTY 1
8. **PART #15-0058** - Read Manual - QTY 1
9. **PART #15-1001** - Ruler - QTY 2
10. **PART #15-1003** - Hand Grease Gun Only - QTY 1
11. **PART #15-1016** - Warranty - QTY 1
12. **PART #15-0067** - Patent Pending - QTY 1

DRIVE ASSEMBLY 25-1378

Swing Flail Head

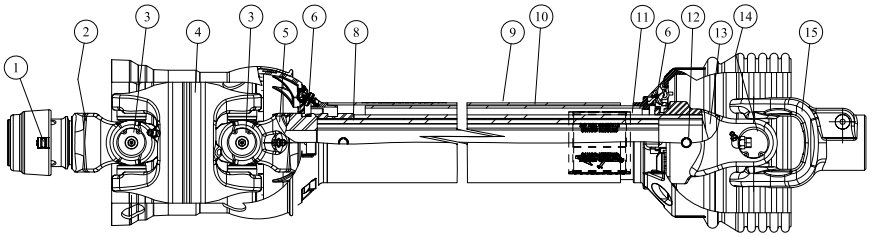


REF#	PARTS DESCRIPTION	REQ	PART #
1	SHEAVE 8.5	1	10-1009
2	SHEAVE 8.0	1	10-1011
3	2-3/16" TAPERLOCK BUSHING	1	10-1012
4	SHEAVE 6.3 IDLER ASSEMBLY	1	10-1019
5	3/8 LOCK WASHER GR 5	4	11-0005
6	3/8 FLAT WASHER GR 5	4	11-0009
7	1/2 LOCK WASHER GR 5	4	11-0011
8	5/8 SAE FLAT WASHER GR 8	4	11-0012
9	5/16 LOCK WASHER	6	11-0013
10	8MM LOCK WASHER H.S.	8	11-0021
11	1/4 FLAT WASHER GR 5	4	11-0023
12	16MM LOCK WASHER GR 8.8	8	11-0028
13	12MM LOCK WASHER	1	11-0031
14	3/4 SAE FLAT WASHER GR 8	1	11-0039
15	1/2 SAE FLAT WASHER GR 8	6	11-0042
16	1/2 X 2 NC HEX CAPSCREW	3	11-0522
17	3/8 X 1 NC HEX CAPSCREW	4	11-0532
18	8MM X 20MM X 1.25 HEX CAPSCREW	8	11-0549
19	3/4 X 3-1/2 NC HEX CAPSCREW	1	11-0551
20	16MM X 40MM X 2.0 HEX CAPSCREW	8	11-0627
21	12MM X 40MM X 1.75 HEX CAPSCREW	1	11-0672
22	1/2 X 2 NC CARRIAGE BOLT	4	11-0718

REF#	PARTS DESCRIPTION	REQ	PART #
23	3/8 X 1 H.S. NC SKT HEAD	1	11-0752
24	1/2 X 1-3/4 NC CARRIAGE BOLT	4	11-0812
25	5/16 X 2 NC HEX CAPSCREW	6	11-0827
26	3/4 NC NYLOCK NUT	1	11-1006
27	1/2 NC HEX NUT	4	11-1016
28	1/2 NC NYLOCK NUT	7	11-1018
29	DOUBLE 630 V-BELT	1	12-0009
30	GEAR BOX	1	19-0020
31	ROSTA TENSIONER	1	24-0082
32	INPUT CONNECTION SHIELD	1	29-0052
33	PTO DRIVE SHAFT	1	29-0054
34	**SLIP CLUTCH ASSEMBLY**	1	29-0101
	CLUTCH DISC	2	29-0115
	TENSION SPRING	8	29-0116
	NYLON BUSHING	1	29-0117
35	UPPER GEAR BOX BRACKET	1	31-0279
36	IDLER SPACER	1	34-0032
37	TAPERLOCK BUSHING, 6 SPLINE	1	37-0029
38	INPUT PTO SHAFT GUARD	1	41-0130
39	GEARBOX MOUNT	1	41-0971
40	REAR BELT COVER	1	41-0972
41	FRONT BELT COVER	1	41-0974

DRIVE ASSEMBLY 29-0054

Swing Flail Head

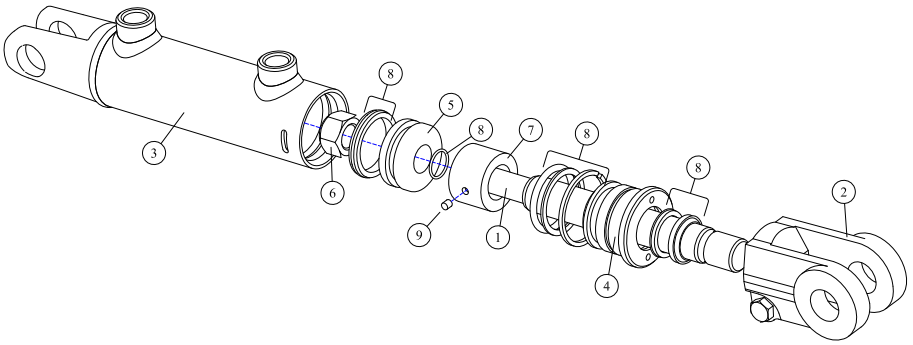


REF#	PARTS DESCRIPTION	REQ	PART #
1	REPAIR KIT, SSL/AUTO-LOK	1	29-0185
2	YOKE, FRONT	1	29-0186
3	CROSS KIT, AB 6/AW 22/480 PBL	2	29-0187
4	CENTER HOUSING	1	29-0188
5	YOKE AND TUBE, FRONT	1	29-0189
6	BEARING SET	2	29-0190
7	YOKE, CAT 4 80DEGREES, (NOT SHOWN)	1	29-0191
8	621-3905-100.ASM	1	29-0192

REF#	PARTS DESCRIPTION	REQ	PART #
9	OUTER GUARD	1	29-0194
10	INNER GUARD	1	29-0195
11	TUBE	1	29-0197
12	ROLL PIN	1	29-0198
13	YOKE AND TUBE, REAR	1	29-0199
14	CROSS KIT, AW35P, REPAIR	1	29-0200
15	YOKE, REAR	1	29-0201

CYLINDER ASSEMBLY 14-0004

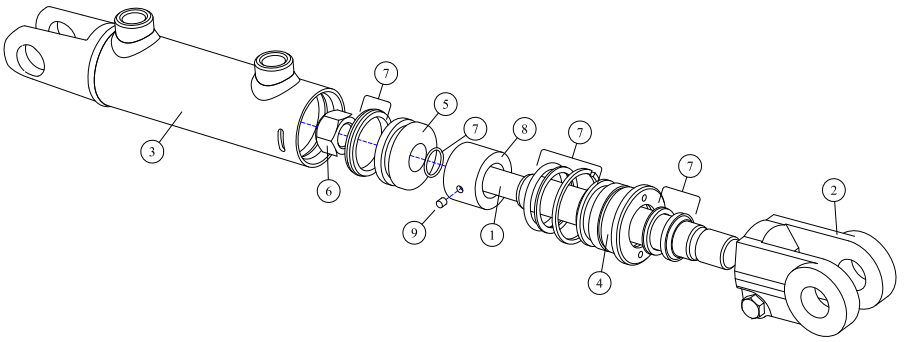
All Flail Assemblies



REF#	PARTS DESCRIPTION	REQ	PART #
1	PISTON ROD	1	14-1131
2	CLEVIS ASSEMBLY	1	14-1160
3	BUTT & TUBE ASSEMBLY	1	14-1141
4	GLAND	1	14-1155
5	PISTON	1	14-1150
6	LOCKNUT	1	14-1120
7	SLUG	1	14-1191
8	SEAL KIT	1	33-0038
9	SET SCREW	1	11-2007

CYLINDER ASSEMBLY 14-0039

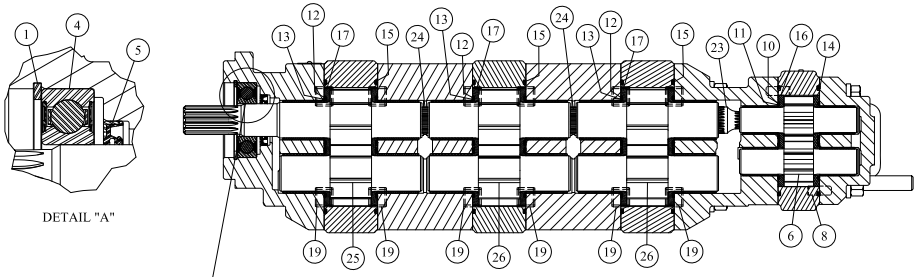
All Flail Assemblies

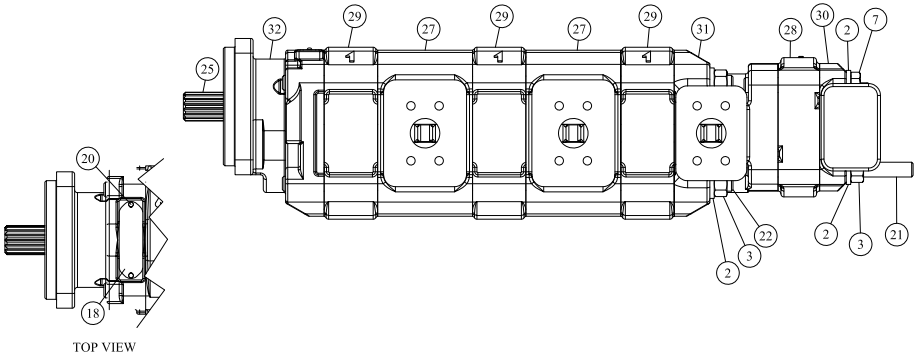


REF#	PARTS DESCRIPTION	REQ	PART #
1	PISTON ROD	1	14-1130
2	CLEVIS ASSEMBLY	1	14-1160
3	BUTT & TUBE ASSEMBLY	1	14-1140
4	GLAND	1	14-1155
5	PISTON	1	14-1150
6	LOCKNUT	1	14-1120
7	SEAL KIT	1	33-0038
8	SLUG	1	14-1191
9	SET SCREW	1	11-2007

GEAR BOX ASSEMBLY 19-0020

All Flail Assemblies





*Complete seal kit can be purchased using item #9.

**Item #5 lip seal (also sold separately) included with complete seal kit.

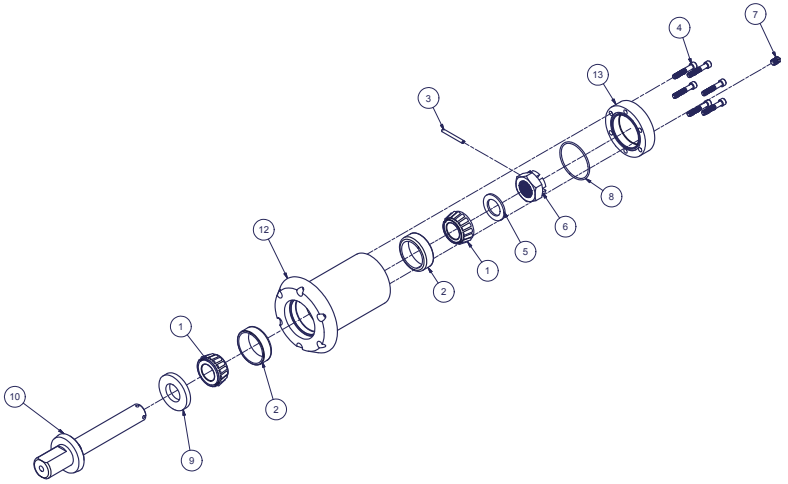
***Items #10-15 (not sold separately) included with complete seal kit.

REF#	PARTS DESCRIPTION	REQ	PART #
1	SNAP RING	1	30-1009
2	WASHER	8	30-1071
3	HEX NUT	6	30-1128
4	BALL BEARING	1	30-1173
5	**LIP SEAL	1	30-1181
6	GEAR SET, REAR	1	30-1191
7	CAPSCREW	2	30-1193
8	DOWEL PIN, REAR	4	30-1273
9	*SEAL KIT	1	30-1339
10	***CHANNEL SEAL, REAR	2	30-1340
11	***SEAL, BK-UP, REAR	2	30-1341
12	***CHANNEL SEAL	6	30-1342
13	***SEAL, BK-UP	6	30-1343
14	***SEAL, SQ-R, REAR	2	30-1344
15	***SEAL, SQ-R	6	30-1345
16	THRUST PLATE, REAR	2	30-1347

REF#	PARTS DESCRIPTION	REQ	PART #
17	THRUST PLATE	6	30-1348
18	NAME PLATE	1	30-1349
19	DOWEL PIN	24	30-1350
20	DRIVE SCREW	2	30-1351
21	STUD, REAR	2	30-1352
22	STUD	4	30-1353
23	CONNECTOR SHAFT, REAR	1	30-1354
24	CONNECTOR SHAFT	2	30-1355
25	GEAR SHAFT SET	1	30-1356
26	GEAR SET	2	30-1357
27	BEARING CARRIER HOUSING	2	30-1358
28	GEAR HOUSING, REAR	1	30-1359
29	GEAR HOUSING	3	30-1360
30	PEC HOUSING	1	30-1361
31	PIGGYBACK HOUSING	1	30-1362
32	SEC HOUSING	1	30-1363

GROUND ROLLER BEARING 10-1051

All Flail Assemblies



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)	TORQUE (Nm)
1	TAPER BEARING	2	10-1049		
2	TAPER BEARING RACE	2	10-1050		
3	ROLL PIN	1	11-2006		
4	5/16 X 1-3/4 NC SHCS	6	11-2065	28.7	38.9
5	THRUST WASHER 2.00 OD X 1.26 ID	1	11-2067		
6	CASTLE NUT	1	11-2074		
7	1/8 NPT PLUG	1	21-1136		
8	O RING 2-7/8 OD	1	24-0273		
9	SEAL TCM 132713TC	1	33-0031		
10	ASSY GROUND ROLLER SHAFT	1	41-1533		
11	SERVICE KIT, GROUND ROLLER (NOT SHOWN)	1	44-0780		
12	GROUND ROLLER INSERT	1	90-7045		
13	GROUND ROLLER END CAP	1	90-7048		

10-1051	Rev 000

INDEX

INDEX

S

T

W

Diamond MOWERS™

100% SATISFACTION GUARANTEE

★ GET IT, LOVE IT or LEAVE IT! ★

72-HOUR PARTS SHIPPING GUARANTEE

15-1102
RSF-MANUAL