

ROTARY MOWER

MAINTENANCE 101



**THANK YOU TO SHULTE FOR THEIR
CONTENT CONTRIBUTION**

MAY 2020

Introduction

BEFORE YOU START! READ, UNDERSTAND, and FOLLOW the information in your mower manual, and the tractor operator's manual carefully to learn how to operate and service your machine properly. Failure to do so could result in personal injury to you and bystanders. All implements with moving parts are potentially hazardous. Operators & maintainers must avoid engaging in unsafe practices and follow the written instructions provided by their equipment providers.

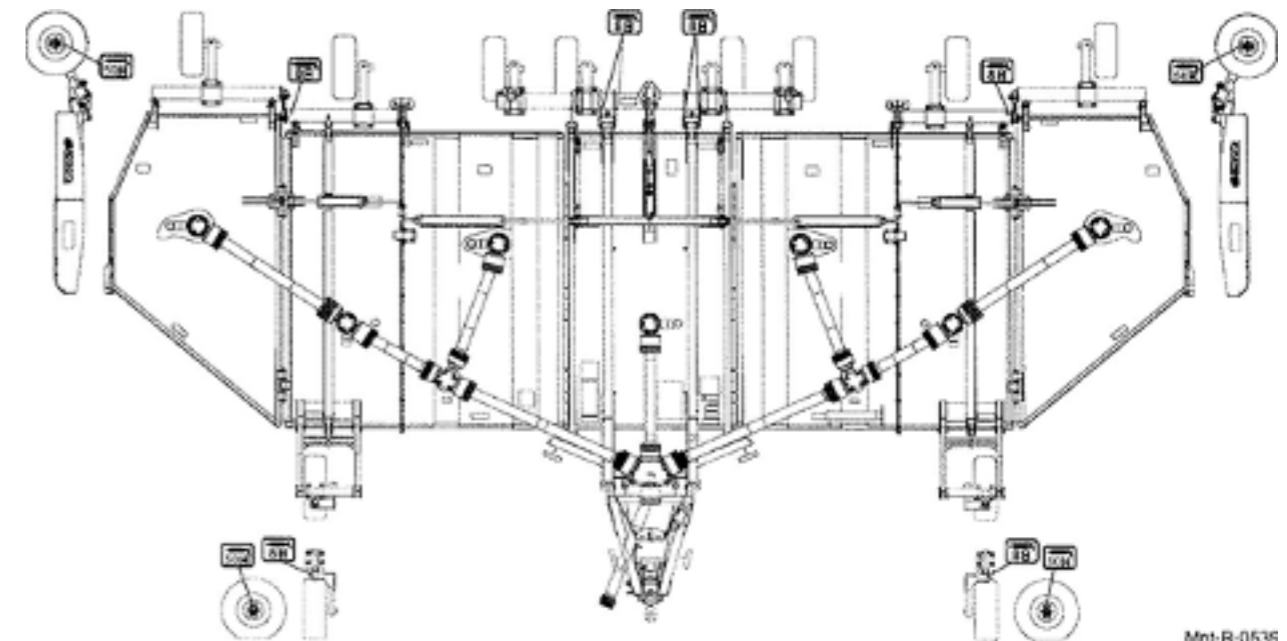
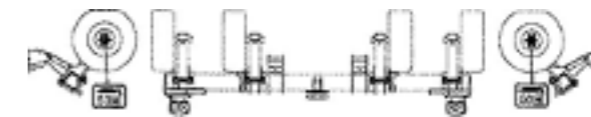
SAFETY FIRST. Do not operate or allow anyone to operate equipment and or maintain equipment on which they are not fully trained.

Before you go to work:

- Stop Engine and remove Key
- Do not touch or approach a rotating drive shaft
- Block vehicle and or equipment to avoid pinches or other physical harm potential
- Pay careful attention to blocking/locking large wings on mowers before engaging in work
- Inspect blades for cracking and or damage
- Have equipment manual handy and available

Lubrication:

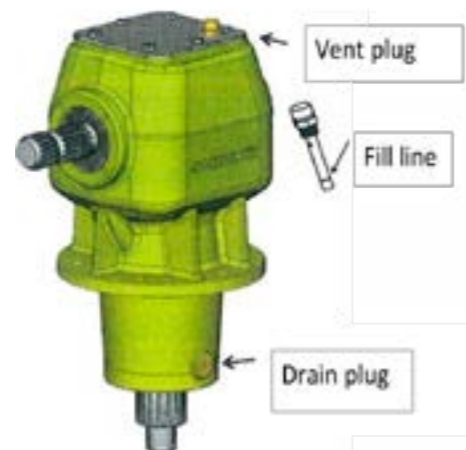
- Grease points around the cutter will be identified by greasing decals.
- In some cases, multiple grease points may be identified by a single decal if they are close together and the require the same greasing schedule.
- Always use recommended grease type/quality as per manufacturer
- Most Manuals will have a grease point chart as per page 3:



Gearboxes

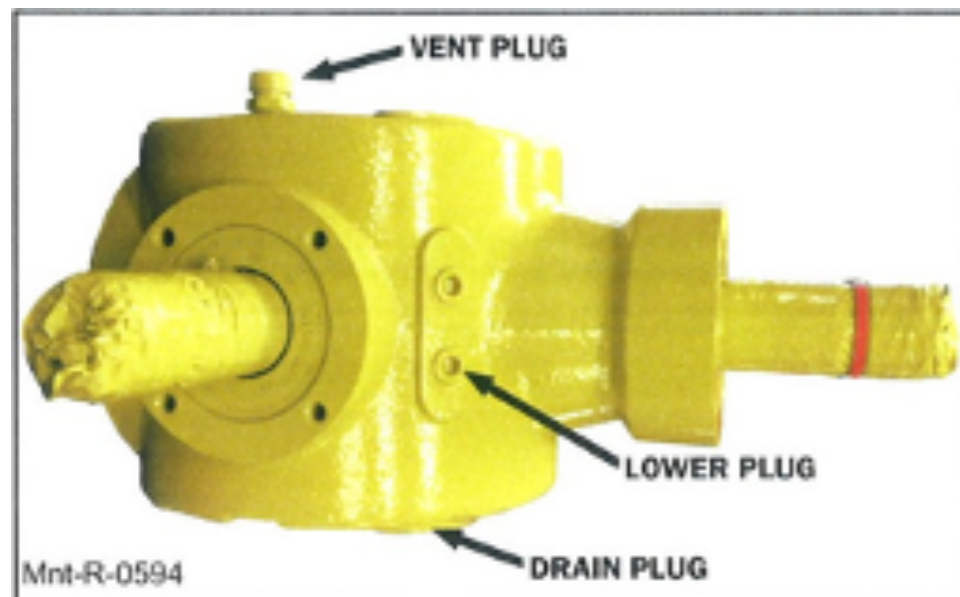
Procedure for refilling right-angle gearboxes:

- Park unit on a level surface and lower the wings. Install the center lock pin and block the unit to prevent falling or rolling.
- From under the cutter, remove the blade carrier to access the drain plug
- Remove the drain plug and drain out oil.
- Reinstall the drain plug and blade carrier.
- Remove the vent plug/ dipstick.
- Fill gearbox until oil level reaches the fill line on dipstick. See Owner's Manual for capacity.
- Reinstall vent plug/ dipstick. Dispose of old oil in accordance with the local



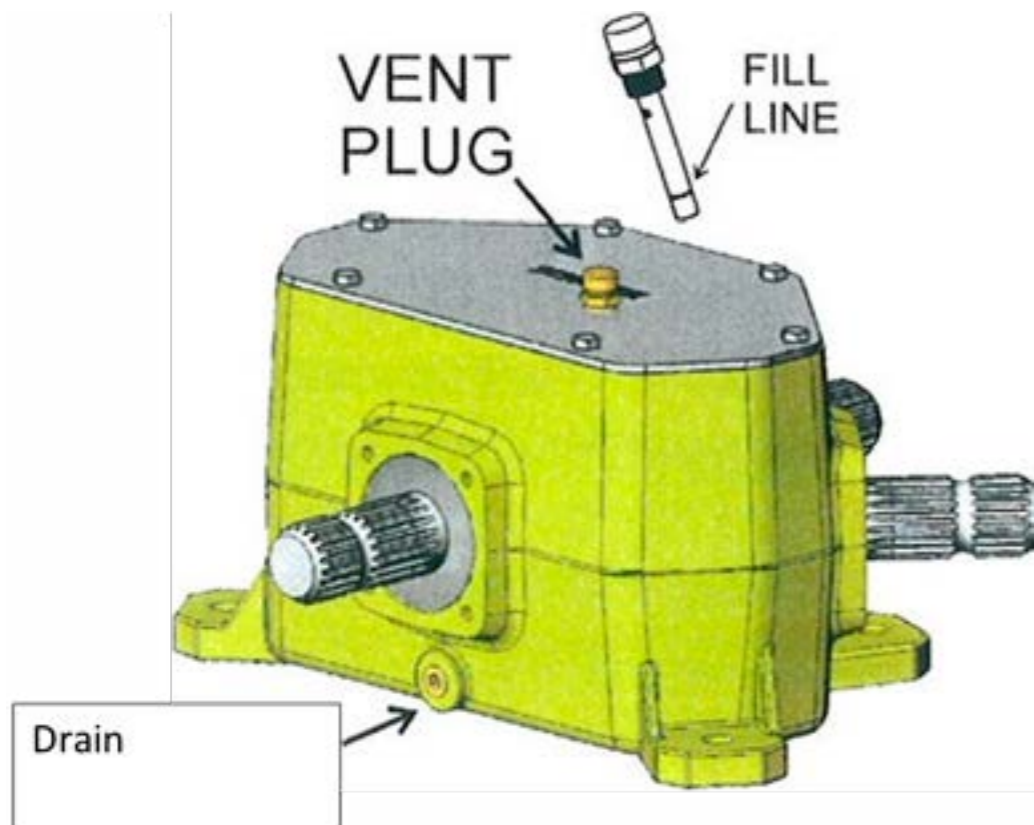
Procedure for refilling "T" gearboxes:

- Park unit on a level surface and lower the wings. Install the center lock pin and block the unit to prevent falling or rolling.
- Remove the drain plug and drain out oil. Drain plug is accessed from under the cutter.
- Reinstall the drain plug
- Remove the vent plug from top and the lower plug on the side of the gearbox.
- Fill gearbox until oil level reaches the bottom of the hole in the side where the plug was. See Owner's manual for capacity.
- Reinstall vent plug and side plug. Dispose of oil in accordance with the local regulations.



Procedures for refilling the splitter type gearbox

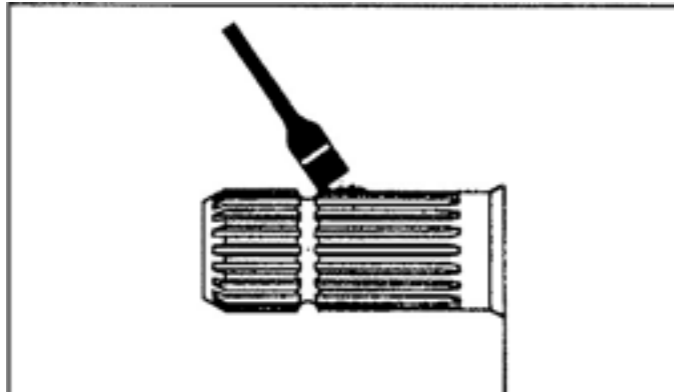
- Park unit on a level surface
- Remove drain plug and drain out oil
- Reinstall drain plug
- Remove vent plug/dipstick.
- Fill gearbox until oil level reaches the fill line on dipstick. Capacity is approximately 5 liters (5.28 qt.). Do not screw dipstick when checking oil level.
- Reinstall vent plug and level plug
- Dispose of old oil in accordance with the local regulations



*Other Gearbox related notes

- Replace oil in gearboxes after the first 50 hours of operation then year.
- Check gearbox oil level frequently. Steady loss of oil will indicate damaged seals, which should be replaced immediately to prevent ruining the gearbox.





Drivelines

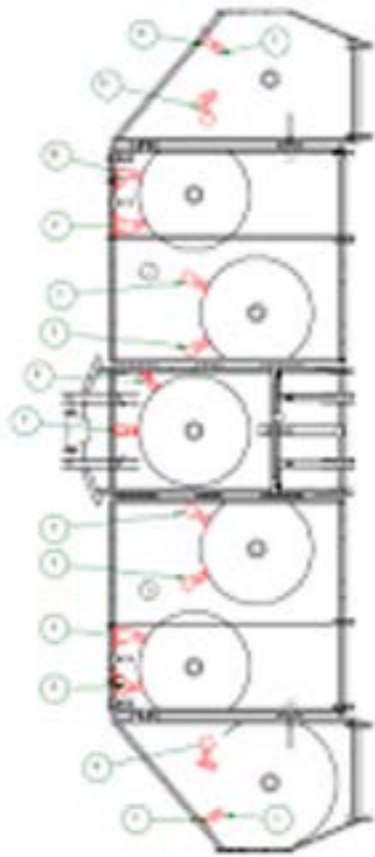
Greasing is very important!

Grease should meet the following recommendations:

- Type of Grease: A good quality NLGI #2 EP grease, lithium soap base should be used. For heavy duty applications a compatible grease with 3 to 5% molybdenum disulfide additive may be used.
- Before attaching the driveline, clean and grease the tractor PTO and the Implement shaft spline
- Telescoping Tubes - 8-10 pumps every 8 hours. The grease fitting will become exposed when the wings are laying flat/open (if equipped).
- Occasionally (monthly) pull the universal joint halves apart and apply grease to all sides of the shaft.
- At least once per year (more often in dusty or dirty conditions) the shielding should be removed, and the old grease wiped from the shaft. Do not use an alcohol or acid-based solvent to remove the grease.
- A fresh coat of grease should be applied to the entire surface of the inner tube
- Cross Journals - 2-3 pumps every 8 hours
- Lubricate until grease purges from underneath all four needle bearing caps
- Shield Retaining Bearings 2-3 pumps every 8 hours
- Check that the driveline shielding is not damaged and rotates freely on the driveline.
- If sliding members are allowed to dry out to the point where the two halves cannot slip freely, damage to the rotary cutter or tractor may occur.

Cutter Frame

- Frame may use greaseless bushings. Inspect and replace as required
- Check entire frame for cracks and or weaknesses and repair immediately
- Ensure cutter blade ring (under deck) is installed and is secure



Blades

Blade and Blade Carriers

Inspect blades daily, Blades should be free of deep cracks or abnormal bends.

Blades should always be replaced in pairs. Blades of different weights may cause serious imbalance which can result in damage to the gearbox. Damage caused by unbalanced blades can make the machine dangerous to operate, increasing the risk of a broken gearbox lower shaft. Never weld or modify blades. Welding and other modifications such as straightening the blade after it has been bent can severely reduce the strength of the blade, increasing the likelihood that a piece breaks and can be thrown from the machine.



DO NOT SHARPEN BLADES. Sharpening blades can reduce the strength of the blade, increasing the likelihood that a piece breaks and can be thrown from the machine. Should the blades become dull, replace them. Blades should always be replaced in pairs.

To AVOID PERSONAL INJURY. Blade and/or blade carrier removal should be done only with the tractor engine shut off, key removed, in neutral, parking brake on, PTO disengaged, PTO input shaft removed, and the cutter blocked in the raised position.



Blade Installation

- When installing blades, use new blade bolts and blade nuts. Always replace blades in matched sets.
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- Check blade bolt torque after the first 10 hours of operation.
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- Use only original equipment blades on the cutter. Substitute blades may not meet specifications and may be dangerous.
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- Retighten blade bolts daily. Access holes are provided on the deck of the cutter to facilitate this. After installing new blades or blade bolts ensure that blades are free swinging and that there is 1" to 1-1/2" (25-38 mm) of free up and down motion at the tip of the blade.

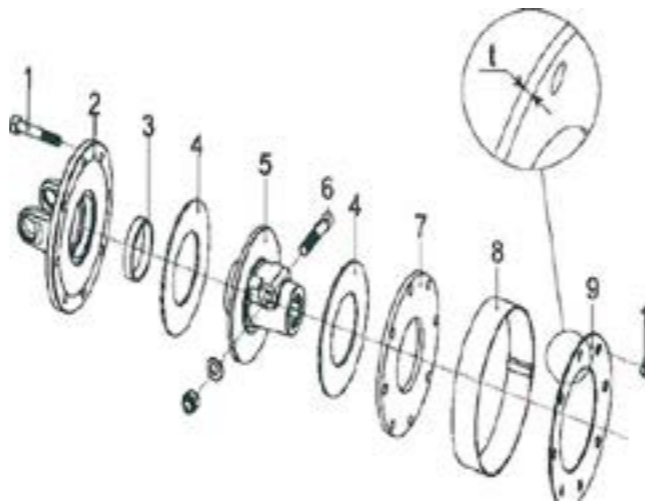
Blade Carrier Removal & Installation

- See Operators/Maintenance manual for specific instructions
- **AVOID PERSONAL INJURY DO NOT** work under cutter without support blocks to keep the frame from falling.



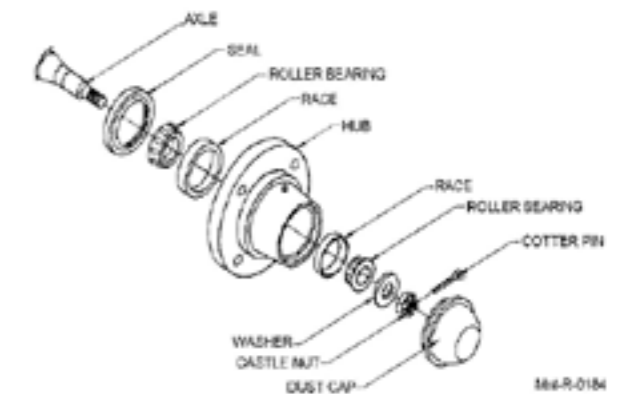
Slip Clutches

- Slip clutches (if equipped) are general pre-set and run-in by the supplier, so they should not be adjusted by the dealer or end user.
- After an extended period (4 to 6 months) of not being used, the clutches should be taken apart to ensure all parts are movable and all surfaces are free of rust.
- To service the clutch and/or change the linings, see manufacturer for details.



Hubs & Spindles

- Check hubs weekly for bearing play and condition of seal
- It is recommended that hubs are dismantled, cleaned and repacked every year/annually (see below for instruction)
- Replace any and all worn parts immediately



Repacking a hub (typical process)

- Using a grease packer, pack both roller bearings with a good grade of wheel grease. The bearings should be thoroughly coated with grease. Spread grease on the outside of the bearing. Ensure that no dirt and or filings contact the grease or the bearings.
- Pack the inside of the hub with grease. Grease needs to cover complete surface areas inside hub but does not need to fill cavity.
- Smear grease on both races.
- Install the large bearing into the back of the hub and rotate the bearing several times.
- Install the dust/grease seal using the right size seal driver. Spread a film of grease on the dust seal rubber and on the axle where the seal fits.
- Position the hub on the axle and firmly push into place and then pull the hub towards you. Slowly rotate the hub while gently pushing the hub back onto the axle.
- Check dust seal to ensure seal rubber is positioned correctly.
- Install the small/outer bearing.
- Install the axle washer and castle nut on the axle.

Tires & Wheels

- Using a grease packer, pack both roller bearings with a good grade of wheel grease. The bearings should be thoroughly coated with grease. Spread grease on the outside of the bearing. Ensure that no dirt and or filings contact the grease or the bearings.
 - Pack the inside of the hub with grease. Grease needs to cover complete surface areas inside hub but does not need to fill cavity.
 - Smear grease on both races.
 - Install the large bearing into the back of the hub and rotate the bearing several times.
 - Install the dust/grease seal using the right size seal driver. Spread a film of grease on the dust seal rubber and on the axle where the seal fits.
 - Position the hub on the axle and firmly push into place and then pull the hub towards you. Slowly rotate the hub while gently pushing the hub back onto the axle.
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- Check dust seal to ensure seal rubber is positioned correctly.
 - Install the small/outer bearing.
 - Install the axle washer and castle nut on the axle.
 - prevent any tire from overheating. The tires should be checked periodically during transport. If the tires are beginning to overheat, they should be allowed to cool and the travel speed should be lowered.
 - Faster than recommended transport speed during delivery of a machine to a customer or general transport from job site to job site can cause serious tire damage and potential failure.
 - Please see Manufactures chart for tire speed ratings and recommended inflation pressures.
 - Replace any worn and or cracked tires immediately.
 - Grease Castor Wheel Frame every 8 hours. Fill until grease is seen purging from the ends of the seamless
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- **Grease Wheel Hubs every 50 hours. Fill until grease is seen purging at the pivot bearing seals.**



Hydraulic Hoses

- Replace pinched and broken Hydraulic Hoses at once.
- Tighten any Hydraulic Fitting with fluid leaking from it. If fluid still leaks, loosen the fitting, apply a pipe thread compound to the threads and tighten. Care must be exercised when tightening Hydraulic Fittings, too much tightening can cause the fittings to crack and require replacement fittings.
- Although a small amount of oil will be present from bleeding at all Hydraulic Fittings, significant amount of oil leaking around the Breather Plug on the Cylinder indicates that the seal in the Cylinder is worn out. Replace the seals in the Cylinder immediately before the Cylinder is damaged or too much hydraulic fluid is lost.
- **MAXIMUM ALLOWABLE OPERATING OIL TEMPERATURE**
- Do not operate this implement if the tractor hydraulic oil temperature exceeds manufacturer's recommendations

Hydraulic Cylinders (on wing style rotary mowers)

- Clear the area of all personnel before lowering the wings.
- From the tractor seat with your seat belt fastened around you, lower the implement wings to the ground. Do not attempt to replace the cylinder with the wings in the raised position.
- Shut off the tractor, engage the parking brake, place the tractor transmission in the park position, and remove the key before dismounting.
- Block up the center and wing sections with blocks or jack stands.
- Release all Oil pressure from the circuit by moving the valve controls handles back and forward.
- Remove the implement Input Driveline from the tractor PTO shaft.
- Remove the hydraulic hoses from tractor quick disconnects.
- Wear Safety Glasses and impenetrable gloves when working with hydraulic hoses and fittings.
- Check to see that the cylinder is not under pressure by moving the cylinder pins by hand. The pins should be loose. If the cylinder is in a bind and cannot be moved, the cylinder may be under pressure. Make sure the implement decks and axles are supported by blocks and then carefully remove one of the cylinder pins, Do not allow any one of any part of your body to be underneath the implement wing.
- Do not loosen the hydraulic connections to the cylinder until all pressure has been relieved.
- Slowly loosen the hydraulic hose connection to the cylinder.
- Remove the other cylinder pin and remove the cylinder.
- The cylinder may be heavy, use proper lifting techniques to lift and handle the cylinder, and if needed, get assistance in lifting from another person.
- Measure the distance between the cylinder pin holes and extend the new cylinder to that length before installing.
- Install the new cylinder in place and install both cylinder pins and retaining clips in place.

- Reconnect hydraulic hose(s) to the cylinder and tighten the fittings.
- Wing cylinder has a special adaptor with a small hole drilled in it to control the lowering speed on the wing. Make sure this adaptor is installed. Without this adaptor, the wing can fail rapidly. Make sure the transport lock device(s) are reattached when inserting the cylinder pins. 1 5 Reconnect the implement hoses to the tractor.
- Get into the tractor seat and fasten your seat belt. Clear the area of all persons before attempting to raise the wing. From the tractor seat, start the tractor and operate the control valve to raise the wing.
- Look for sign of oil leak. If an oil leak exists, shut the tractor down and remove all oil pressure in the lines by moving the valve control handles back and forward.
- Retighten any loose fittings or connections.
- If a hose is leaking, replace the hose with a new hose.
- If there are no leaks, raise and lower the wing completely at least three full cycles to remove any air trapped in the circuit.
- Check the hydraulic reservoir of the tractor to ensure there is sufficient oil. If the wing is to remain in the raised position, attach the wing transport latch.



Parts & Storage

Bolt Grade & Torque:

- It is very important to follow all manufacture's recommended bolt grade and torque requirements to ensure safe equipment operation and to help preserve the life of the equipment
- See attached PDF for Torque specifications (courtesy of Allied Systems Company)

Parts:

- It is suggested to work with your dealer/manufacturer to keep a recommended spare parts list (RSPL) inventory on hand at all times to help ensure minimal downtime during the cutting season

Storage:

- Your rotary cutter represents an investment from which you should get the greatest possible benefit. Therefore, when the season is over; the cutter should be thoroughly checked and prepared for storage so that a minimum amount of work will be required to put it back into operation for the next season.
- The following are suggested storage procedures:
- Thoroughly clean the cutter area, mower deck, wheels, splines, other
- Lubricate the cutter as covered in Maintenance Section.
- Tighten all bolts and pins to the recommended torque.
- Check the cutter for worn or damaged parts. Make replacements immediately.
- Store the cutter in a clean, dry place with the cutter housing resting on blocks.
- Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the cutter.

VIDEO TO REFERENCE (COURTESY OF SCHULTE INDUSTRIES):

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=-2J00PKIOAY0](https://www.youtube.com/watch?v=-2J00PKIOAY0)

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=BF1XRRGZUW](https://www.youtube.com/watch?v=BF1XRRGZUW)

CHECK LIST - PRE-DELIVERY and or PRE-SEASON Maintenance

CHECK AND ADJUST OR LUBRICATE AS REQUIRED

- See specific Operator's Manual for Details ON Warranty and Safety

LUBRICATION & HYDRAULICS

- Gearbox (Oil Levels)
- Hydraulic Oil Level (External Tank)
- Tractor Hydraulic Oil Level
- Hydraulic Hoses (Not Kinked, Tighten Connections)
- Front Pump Drive (Assembly Is Tight and Shaft Properly Aligned)

MOWER

- Spindle and Motor Bolts Properly Torqued
- Spindle Oil Level
- Blade Carrier Bolts Properly Torqued/Retaining Pin in Place
- Mower Cutting Height and Level Adjusted
- Cutting Shaft Bearings Lubricated
- All Hardware Properly Torqued
- Tire and Air Pressure/Lug Nuts (Correct Torque)
- Wheel Bearings (Check, Grease, and Preload)
- ATTACHMENTS & INSTALLATION
- Deflectors Front and Rear
- Shredding Attachments
- Correct Blade Rotation Direction
- Axle Arms and Beams
- Tongue and Control Rods (Installed And Adjusted)
- All Bolts - Pins and Nuts (Proper Torque)

MOWER TO TRACTOR CONNECTIONS

- Draw Bar Length (Check and Set)
- A-Frame Pivot & Links
- Control Rods (Adjusted Equal)
- Axle Height (Adjusted)
- Cutting Height (Adjust)
- Mount Kit-Pre-Operation Check Complete
- Mower Wing (Adjust Level with The Center)
- Mower Wing (Check for Proper Raising Operation)
- C.V. Drivelines (Check Max Turn Radius)
- Pull Type Hitch (Height Adjustment)
- Mounting Hardware Properly Torqued

SAFETY ITEMS

- Protective Shields (Operation and Installation)
- Driveline Clutch (Torque Limiter) (Adjust and Run In)
- Safety Decals (Installed)
- Operator's Manual (Supplied)
- Tractor PTO Shield (Installed)
- S.M.V. Emblem (Installed If Needed)
- Tongue Jack (Installation and Operation)
- Safety Tow Chain (Installed)

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