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**EXCAVATOR ROTARY MOWER  
EX50LDC  
Operator's Manual  
&  
Parts List**

**US Mower  
11949 Westar Ln.  
Burlington, WA 98233**

**Ph. 360-757-7555  
Fx. 360-757-7567**



## Reference Information

Record the following information for your mower here for quick access when needed, such as: service, warranty or theft.

Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Local Dealer: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Additional Information:

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US Mower  
1949 Westar Ln.  
Burlington, WA 98233

Ph. 360-757-7555  
Fx. 360-757-7567

## US Mower Warranty

USM warrants all of its mowers for a period of 12 months. The warranty specifically covers proven manufacturing or component defects only. Defects or damage caused by non - US MOWER installers or owner/operators are not covered. Normal wear parts are not covered by this warranty.

### Credit for components

Purchaser must return the mower or the failed component freight prepaid to a franchised dealer or US Mower for inspection, where determination will be made as to whether the problem can be covered under the warranty. **The following are not covered by USM's warranty:**

- (1) Components showing evidence of operational misuse, or modification.
- (2) Components showing evidence of maintenance neglect including but not limited to:
  - a. Improper oil level
  - b. Poor oil quality
  - c. Oil filters not replaced as needed, or inappropriate filter installed
  - d. Failure to follow grease lubrication schedule
  - e. Failure to set and maintain proper bolt torque
  - f. Failure to set and maintain proper bearing pre-load
- (3) Technician or mechanics travel time.
- (4) Mower haulage to repair facility.
- (5) Components classified as consumables.
- (6) Hydraulic hoses not of USM manufacture.

If an otherwise warrantable hose is replaced from other sources, a credit can be issued which will represent USM's cost of manufacturing that hose and shipping by UPS ground. Coverage for major hydraulic components is dependent on USM's hydraulic evaluation and may require an oil sample. All replacement components shipped are invoiced as a matter of course. Components that require evaluation at the factory must be shipped freight prepaid. A credit will be issued for the replacement component and freight when it is determined that the warranty is applicable. **If there are questions regarding applicability of the warranty, a call to USM is recommended before work proceeds.**

### Credit for Labor

Labor credit for a warrantable repair will be issued only for work done in a franchised dealer's shop. No labor credit will be issued for work done in the field (i.e., at the machine site) except by specific factory authorization.

### Damage and Injury

USM liability is specifically limited to the replacement of components for its products if a warrantable defect is discovered. Collateral damage to property or personal injury is exclusively the responsibility of the owner and or operator since USM has no control over the circumstances in which it's equipment is used.

# US Mower Warranty

## Express Limited Warranty

Seller warrants that:

- (1) The goods to be supplied pursuant to this agreement (purchasers agreement to buy and seller's agreement to sell) are fit and sufficient for the purpose intended.
- (2) The goods are merchantable, of good quality and free from defects within the seller knowledge, whether patent or latent, in material or workmanship.
- (3) The seller has title to the goods supplied in that the goods are free and clear of all liens, encumbrances and security interests. All warranties made in this agreement, together with service warranties and guarantees shall run to buyer and the original customer of buyer.

**THERE ARE NO OTHER WARRANTIES EXPRESS OR IMPLIED.**

Should you have questions regarding warranty issues or experience any problems, please call your dealer or US Mower at 877-757-7555 or E-mail: [www.info@usmower.com](mailto:www.info@usmower.com).

**Your mower is a powerful industrial machine with substantial capacity. All safety precautions should be taken to prevent property damage, personal injury or death.**

# Safety

## BEFORE YOU START!!

**Failing to follow safety messages and operating instructions can cause serious bodily injury or even death to operator and others in the area.** Your mower is a powerful industrial machine with substantial capacity to cause property damage, personal injury or even death when used improperly or without proper safety equipment.

Read the safety messages on the implement and in your manual. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents. There is no substitute for an informed, cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices.

1. Study Operator's Manuals and Safety Decals for excavator and cutter thoroughly to prevent misuse, abuse and accidents. Practice before operating.
2. **Do not** allow children on or near implement. **Do not** allow riders on excavator or implement. Falling off may cause serious **injury** or **death** by being run over by excavator or cutter . **Keep Children Away!**
3. Operate with **ROPS** and **fastened seat belt** to prevent **injury** and possible **crushing death** from falling off or excavator overturn.
4. Wear hard hat, safety glasses and safety shoes for personal protection.
5. Make certain that **SMV sign, warning lights and reflectors** are clearly visible when operator is on road ways
6. Block up or support cutter securely before putting hands or feet under or working underneath lifted components to prevent **crushing injury** or **death** from sudden, accidental dropping. Make certain area is clear before lowering.
7. Before transporting, put lift lever in detent (full-lift) position to prevent dropping. Follow local traffic codes. Slow down at night, in turns, and on hillsides.
8. Before dismounting, secure implement in transport position or lower to ground. Put excavator in park or set brake, stop engine and remove key. Never mount or dismount a moving vehicle to prevent crushing **injury** or **death**.

# Safety

**There are obvious and hidden potential hazards involved in the operation of this implement. Serious injury or death may occur unless care is taken to insure the safety of both the operator and any other persons in the area. The following is a list of some safeguards which should be followed. Serious injury or death may occur unless care is taken.**

## **DANGER—WARNING—CAUTION**

1. The operator and all support personnel should wear “Safety Glasses”, “Safety Shoes” and “Hard Hats” to protect them against items thrown by the machine or falling objects.
2. Never leave the excavator or mower unattended in a raised position.
3. Before leaving the excavator seat, turn the excavator engine off, and wait for all moving parts to stop. Never mount or dismount a moving excavator. Operate the excavator controls from the seat only.
- 4.. **STOP MOWING IF PASSERSBY ARE WITHIN 100 YARDS! Mowers are capable of throwing objects for great distances and inflicting serious injury or death. WATCH YOUR SAFETY ZONE!!**
5. **NEVER ALLOW CHILDREN TO OPERATE, RIDE ON, OR COME CLOSE TO MOWER OR EXCAVATOR. Never lift a person or allow anyone to stand on a mower head. KEEP BYSTANDERS CLEAR AND OFF OF EQUIPMENT.**
6. Extreme care should be taken when operating near loose objects such as gravel, rocks or general debris. These objects should be removed or avoided to prevent injury from thrown objects. Note: Where there are grass and weeds high enough to hide debris that could be struck by the blades, the area should be inspected and large debris removed. Mow cleared area at an intermediate height, inspect closely for remaining debris and remove. Mow again at desired final height.
7. Keep the mower head at least 10 feet from electric lines and pipe lines to prevent accidental contact and possible serious injury or even death.

# Safety

8. The excavator and rotary head should be stopped and inspected for damage after striking a foreign object. Check blade, bolts, and blade bar for tightness.
9. Inspect excavator and rotary head before operating. Make sure all bolts and screws are tight and blades are in good working condition.
10. Secure the implement when working under the rotary head.
11. To prevent tipping or loss of control reduce speed on slopes and make gradual turns. Exercise caution when changing direction on slopes. Always watch for drop-offs or holes in the terrain.

**SAFETY FIRST—SAFETY IS NOT AN ACCIDENT.**



## Operator's Responsibility

PRIOR TO OPERATING A MOWER, REGARDLESS OF TIME OF DAY, PERFORM A "WALK THROUGH" OF IMPLEMENT.

Daily maintenance and "walk through" should be performed **3 times a day**.

**During a "walk through" you are looking for the following items.:**

1. Loose, worn or missing bolts.
2. Fatigue or cracks in mower head.
3. Hydraulic oil leaks.
4. Pinched or worn hydraulic hoses.
5. Quick coupler connections
9. Spindle pre-load check for bar, disc or pan assemblies.
10. Blade and Blade bolt wear
11. Blade bolt nuts secured/ roll pins installed?

**Check condition of:**

1. Blades
2. Front and rear discharge shields
3. Blade bar or disc

**Tech Tip:** This list is a minimum! Always be looking for possible sources of failure. Listen while operating. If you hear sounds that aren't natural to the implement **Stop**, shut the machine down and execute a through walk through. If at any time you find one of these problems listed or any other problem that could lead to a source of failure, do not operate machine until proper repair has been made.

Industrial mowers by nature are **dangerous**. Do not operate this equipment when there is evidence of a failure or soon to be failure. Remember the ultimate responsibility is on the operator.

**SAFETY FIRST——SAFETY IS NOT AN ACCIDENT.**

# Operation

Before starting, the operator should read and understand the owner/operation manual for the parent implement to determine the proper procedure for turning on the auxiliary hydraulics to run the mower.

## INSTALL CASE DRAIN LINE

It is recommended that a case drain line be installed from the motor to the tank. The purpose of the case drain is to increase the life of the hydraulic motor seal by reducing the back pressure. The case drain line can be a low pressure hydraulic line.

**\* The pressure seal will not be warranted, if a case drain line is not installed and the seal fails.**

Make sure that all hoses are secured and out of the way.

## Hook-up

Procedure is the same as other powered attachments for your excavator.

1. Pull up and connect EX50LDRC to your excavator.
2. Connect hydraulic hoses.

**RECOMMENDED HOSE END TORQUE VALUES FOR  
37 DEGREE ANGLE STEEL HOSE END FITTINGS**

DASH SIZE	NOMINAL SIZE (IN.)	TORQUE (IN LBS.)	VALUE* (FT. LBS.)
-4	1/4	140	12
-6	3/8	230	19
-8	1/2	450	38
-10	5/8	650	54
-12	3/4	900	75
-16	1	1200	100
-20	1 1/4	1600	133
-24	1 1/2	2000	167
-32	2	2800	233

\* Straight threads do not always seal better when higher torque are used.  
Too much torque causes distortion and may lead to leakage

**RECOMMENDED TORQUE IN FT-LBS (Nm)  
COARSE AND FINE THREADS**

BOLT DIAMETER	PLAIN HEAD	THREE DASHES	SIX DASHES
1/4		10 (14)	14 (19)
5/16		20 (27)	30 (41)
3/8		35 (47)	50 (68)
7/16	35 (47)	55 (75)	80 (108)
1/2	55 (75)	85 (115)	120 (163)
9/16	75 (105)	130 (176)	175 (237)
5/8	105 (142)	170 (230)	240 (325)
3/4	185 (251)	300 (407)	425 (576)
7/8	160 (217)	445 (603)	685 (929)
1	250 (339)	670 (908)	1030 (1396)
1-1/8	330 (447)	910 (1234)	1460 (1979)
1-1/4	480 (651)	1250 (1695)	2060 (2793)

Note: If plated or lubricated reduce torque by 25%

# Repair and Maintenance

## EX50RLDC

**For all maintenance operations secure the mower head in an accessible position and shut off the excavator. Do not rely on the excavator hydraulics to maintain position during servicing.**

### Blade Bar—Removal

1. Remove the (6) 1/2" fine thread spindle bolts holding the bar to the spindle.  
A 3/4" impact gun is normally required for this procedure.

### Blade Bar Installation

1. Check the threaded holes on the spindle bottom for damage or debris.
2. Clean the pilot recess on the top of the blade bar.
3. Set the blade bar on the spindle so that the spindle is bottomed in the pilot flat and square.
4. Clock the bolt hole pattern in the bar to match the spindle.
5. Apply high strength thread locking compound ( i.e. red loctite 262) to each bolt and install them at 90 ft/ lbs.

### Blade Removal

1. Drive the roll pin out of the slotted nut and blade bolt.
2. Remove the blade bolt nut.
3. The bolt and nut should come free from the bottom of the bar.

**OBSERVE THE RULES OF SAFETY AND COMMONSENSE!**

# Repair and Maintenance

## Blade Bolt Installation

1. Insert blade bolt through blade and into blade bar.
2. Roll pin hole in blade bolt should run across the bar not end to end.
3. Thread nut onto blade bolt.
4. Run nut to top of blade bar. **DO NOT OVER TORQUE. DO NOT PRE LOAD THE BLADE BOLT WITH THE NUT.** Retention of the nut is not provided by stretching the blade bolt as in normal fastener systems.
5. Turn the nut to align the next tighter slot in nut.
6. Drive roll pin into blade bolt/nut

**Blades should always be replaced in pairs. Blades of different weights can cause serious imbalance and damage to the machine and personnel. When replacing blades, check the condition of the blade bolts and nuts.**

## Spindle Housing Maintenance

Other than keeping the bearings well greased, the single most important factor to longevity of the spindle assembly is bearing pre-load. Bearing pre-load must be maintained. Pre-load is provided by the spindle nut at the top of the spindle. The torque on this nut should be close to 40 ft. lbs. Pre-load may need adjustment after several hard ground strikes. A helicopter like noise, when the plane of the deck is changed, is a clear indication of the need for pre-load adjustment. If in doubt, manually examine pre-load.

Set deck in a vertical position and grip edges of the blade bar while alternately pulling hard on one side and pushing hard on the other. **If any play can be detected pre-load adjustment is needed.**

## Repair and Maintenance

Before mounting the hydraulic motor to the spindle housing, clean and grease the oring on the motor mounting face to seal out contaminants. With the motor in place, pump grease into the assembly through the grease whip until the housing is filled. Including grease used for assembly, the assembly should take 3-4 tubes of grease.

**US Mower recommends synthetic # 2 grease. Pre-load can be lost over time or from hard strikes with the blade bar. To check pre-load, stand the mower deck on edge, grasp one end of the blade bar and rock it towards and away from the mower deck. If you can feel the bar move even a little, the pre-load should be reset. The spindle housing should be greased every 8 hours of mowing: more often in severe conditions (i.e. under water, very dusty or sandy conditions).**

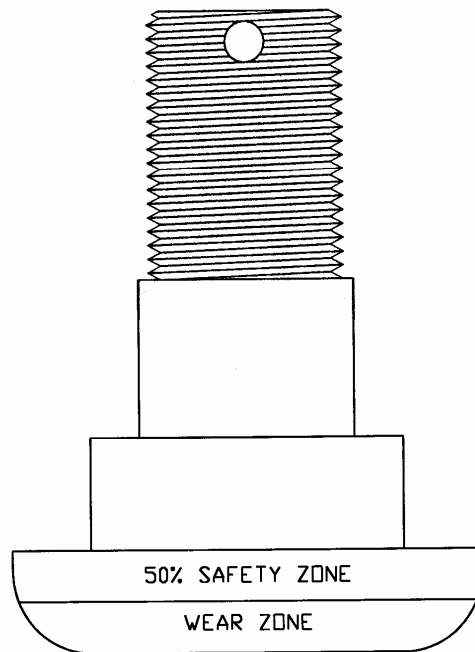


Fig. 2  
Checking pre-load of the spindle housing bearings

# Rotary Mower Maintenance

Rotary mowers take and deliver a terrific beating. Shock and vibration levels are very high so bolts loosen. It is important to check for loose or missing bolts at least once a day and twice if cutting has been particularly tough.

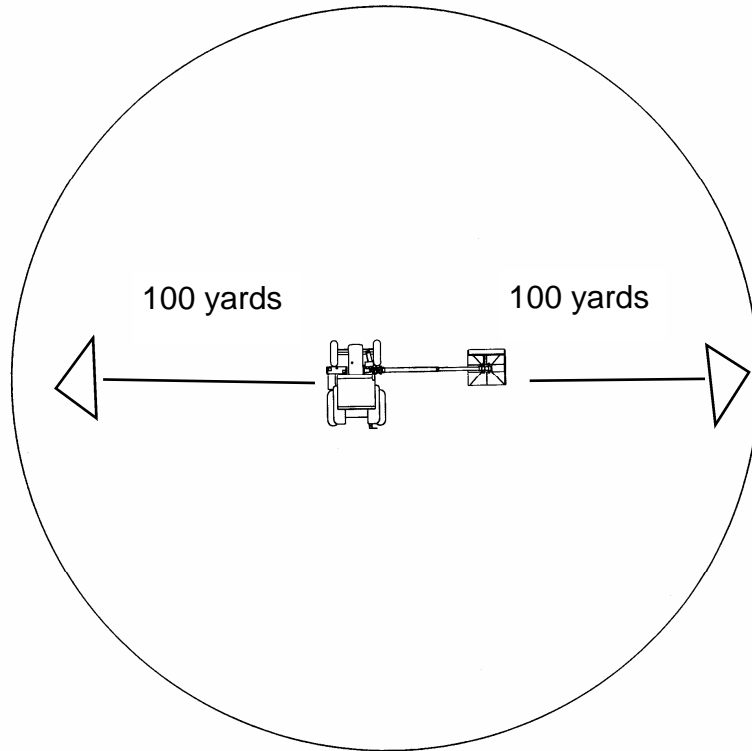
Blade bolts are designed to be used twice if wear is not advanced. Simply rotate the bolt 180 degrees and re-tighten. The square shoulders on the bolt are intended for just this purpose.



**Fig. 1**  
**NEVER ALLOW WEAR PAST SAFETY ZONE!**

2558294—Blade Bolt  
2558390—Roll Pin  
2558349—Slotted Nut

# Rotary Mower Operation



**Allow all vehicles to pass through “Safety Zone” before continuing cutting.**

**KNOW YOUR SAFETY ZONE!!**

## **Operating Safety Zone**

Operator awareness is key to the safety of this machine. Never operate or continue to operate this machine when there is a person or moving vehicle within 100 yards of the cutting operation. If a person comes inside your “Safety Zone” (100 yard radius) shut the machine down until the person has been advised of danger and has vacated the “Safety Zone” area.



## Rotary Mower Operation

Rotary mowers are the most efficient type of cutter, but careless use can easily lead to property damage, injury or even death. The blade tip velocity is about 350 ft. per second. The speed and weight gives these mowers the ability to accelerate rocks and debris into dangerous projectiles. **When using rotary mowers, thought should always be given to where a projectile from the deck might go. Always maintain a 100-yard safety zone. Keep this zone free of people, vehicles and anything you do not want harmed. If something or someone is in the 100-yard danger zone, shut down immediately. Do not take unnecessary risks.**

**SAFETY IS NO ACCIDENT——MAINTAIN A 100 YARD SAFETY ZONE**

**DANGER——WARNING——CAUTION**

### SAFETY TIPS:

1. Move the cutter deck immediately if the plane of a rotating blade intersects people or property. Debris lodged in the bar might come loose and exit the shroud in any direction.
2. Do not exit the excavator cab until the rotor has stopped.
3. Do not operate the mower over gravel or loose debris, as this material can easily be vacuumed into the blades.
4. Look out for rope, cable or chains. If entanglement occurs, immediately shut down. Clear entanglement before continuing.
5. Keep the boom and deck clear of electrical power lines.
6. Be careful about turnover when the excavator is on slopes.
7. Use a radio equipped flagger when mowing in areas where forward sight line is blocked by a curve or obstruction and traffic may appear.
8. **Install polycarbonate or screens to protect operator from ricochet.**

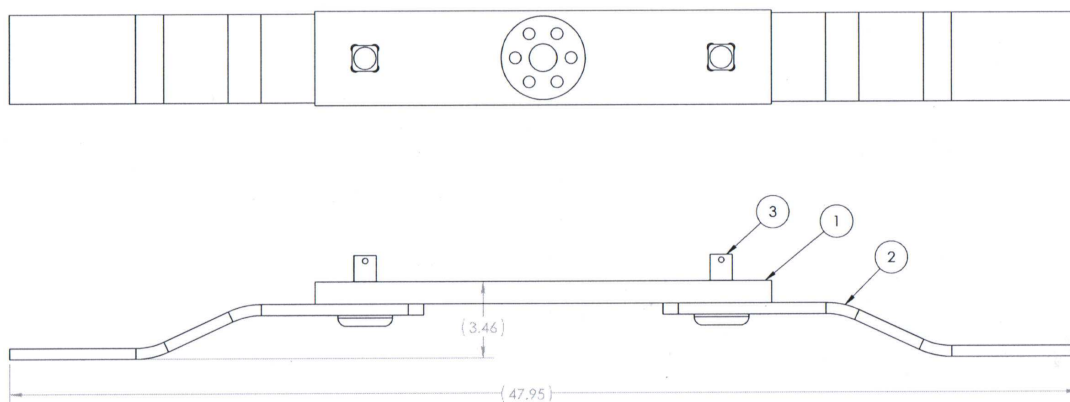
# Rotary Mower Maintenance



Item	Part Number	Description	Qty
1	260072	Chain Rod 1/2 X 54	1
2	2600701	Chain Rod Block	4
3		Chain 4 Link	13
4		Chain 5 Link	34

# Rotary Mower Maintenance

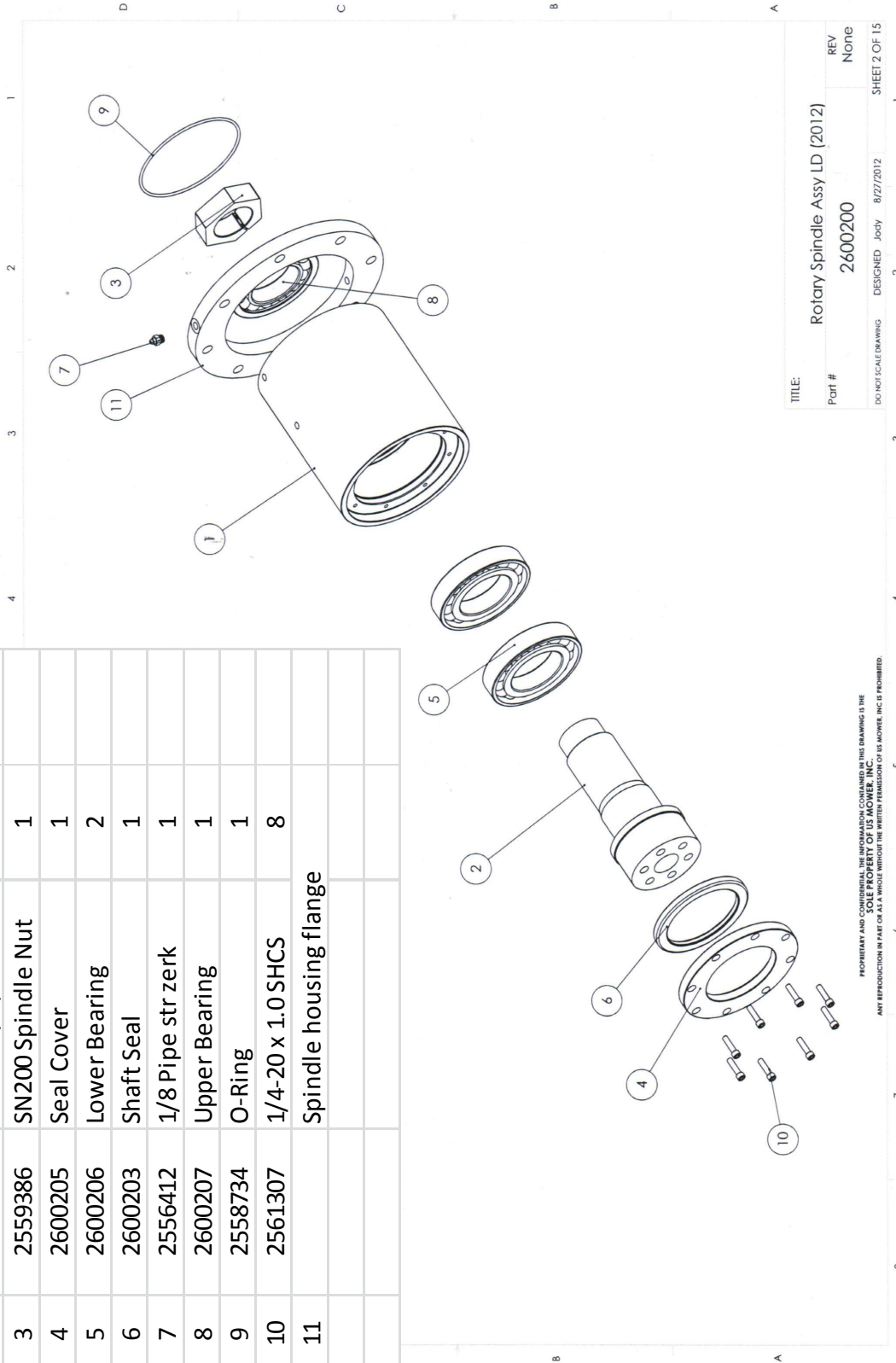
## Blade Bar Assembly



Item	Part Number	Description	Quantity
1	2600801	50LDR Blade Bar	1
2	2558363	Offset Blade	2
3	2558294	Blade Bolt	2
4	2558349	Slotted Nut (not shown)	2
5	2558390	Roll Pin (not shown)	2

# Rotary Mower Maintenance

Item	Part Number	Description	Qty
1	2600201	LD Spindle Housing	1
2	2600202	LD Rotary Spindle	1
3	2559386	SN200 Spindle Nut	1
4	2600205	Seal Cover	1
5	2600206	Lower Bearing	2
6	2600203	Shaft Seal	1
7	2556412	1/8 Pipe str zerk	1
8	2600207	Upper Bearing	1
9	2558734	O-Ring	1
10	2561307	1/4-20 x 1.0 SHCS	8
11		Spindle housing flange	



TITLE: Rotary Spindle Assy LD (2012)  
 Part # 2600200  
 REV None  
 DESIGNED: Jody 8/27/2012  
 SHEET 2 OF 15

PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE  
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# Rotary Mower Maintenance

Assembling spindle housing — Assemble all parts and supplies needed.



Item	Part #	Description	Qty
1	2600201	LD Spindle Housing	1
2	2600202	LD Rotary Spindle	1
3	2559386	SN200 Spindle Nut	1
4	2600205	Seal Cover	1
5	2600206	Lower Bearing	2
6	2600203	Shaft Seal	1
7	2556412	1/8 Pipe str zerk	2
8	2600207	Upper Bearing	1
9	2558734	O-Ring	1
10	2561307	1/4-20 x 1.0 shcs	8
11	2560013	Motor bolt bracket	2
12	2560842	Synthetic #2 Grease	2
13	2559333	1/4-20 x 2 hcs	4

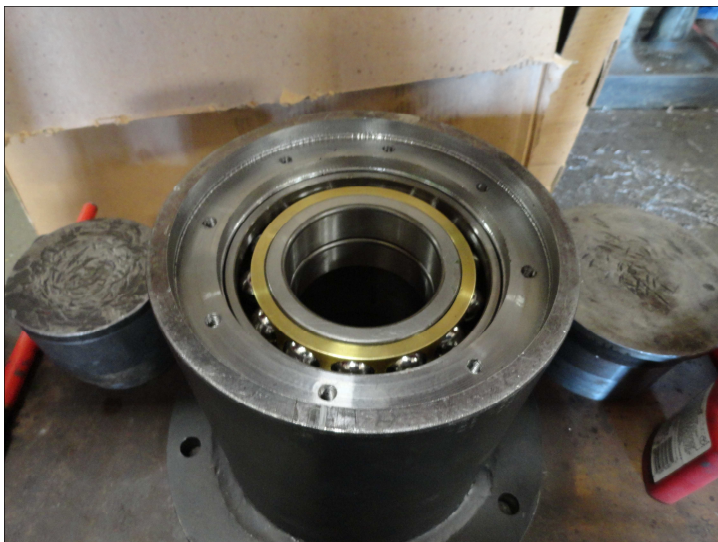
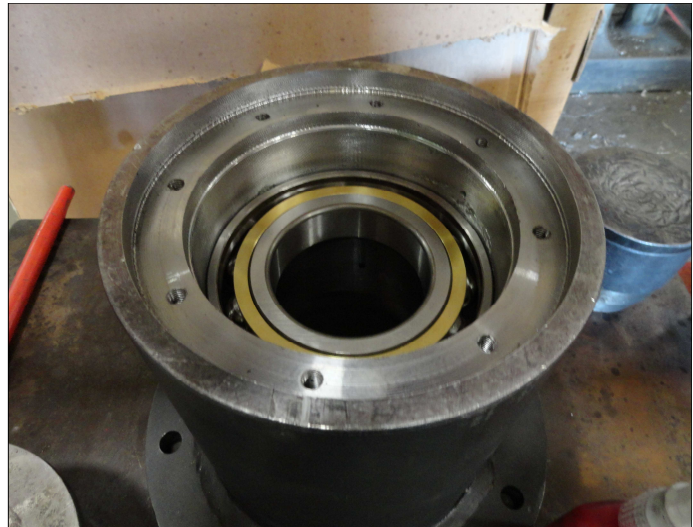
Loctite--609, 262, 242

## Rotary Mower Maintenance



#2 Spread Loctite 606 retaining compound around inside bottom of bearing housing and press first lower bearings into housing making sure the outer race is wide side down .

#3 Repeat step #2 with second bearing making sure the outer race is wide side down.

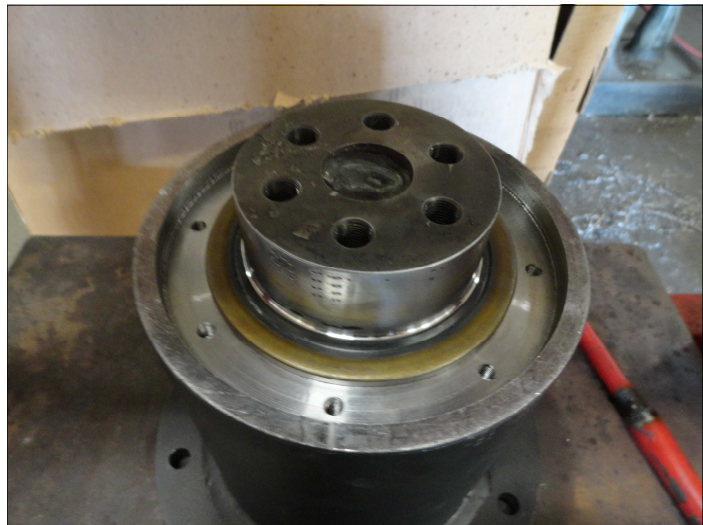


## Rotary Mower Maintenance



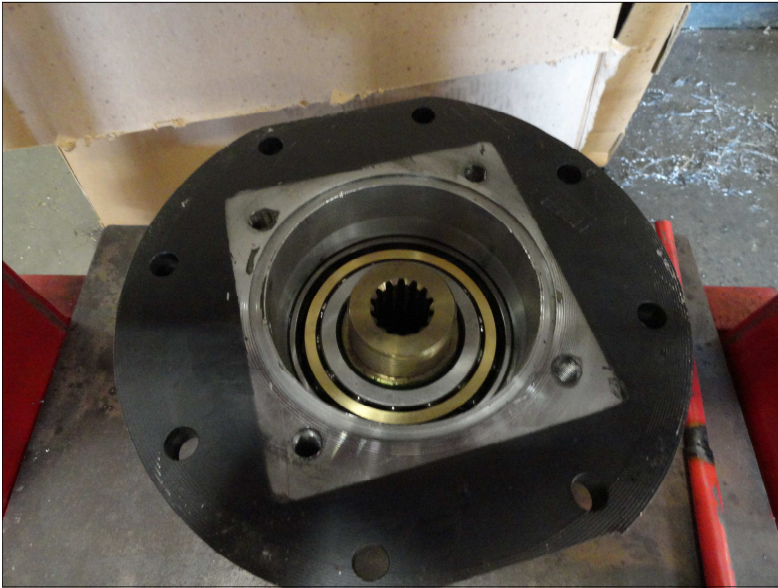
#5 Use retaining compound and press spindle into both lower bearings

#6 Pre grease seal. Carefully align over spindle and press seal as shown



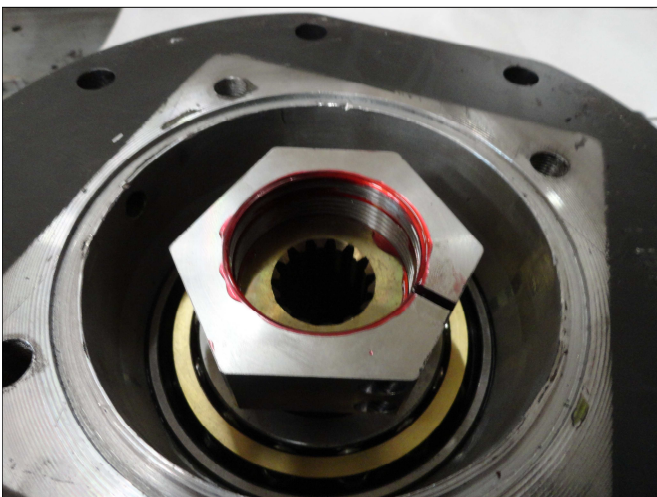
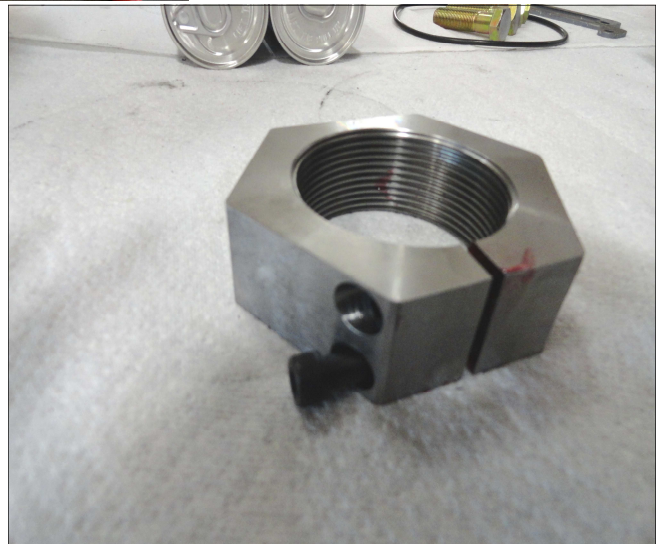
#7 Install seal retaining ring using Loctite 242 thread locker

## Rotary Mower Maintenance



#8 Turn spindle over and using Loctite 609 retaining compound press bearing over spindle and into housing at the same time. Making sure outer race is wide side down

#9 Use Loctite 262 on threads of spindle nut lock bolts and turn in just until bottoming on nut and back off 1/4 turn. One bolt has been bottomed in picture.

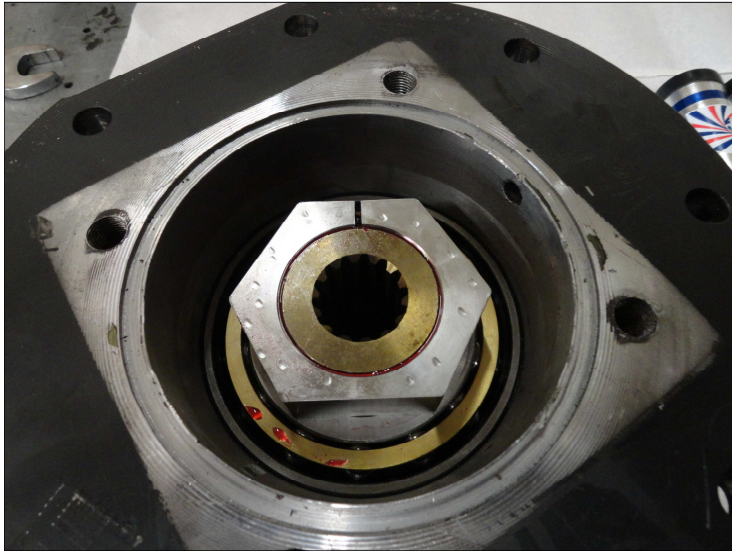


#10 Install spindle lock nut, it is a left handed buttress thread—so there is **only ONE direction it threads on.** Use a liberal amount of Loctite 262.

#11 Torque spindle nut to 40 ft. lbs, then back off and re torque to 35 ft. lbs.



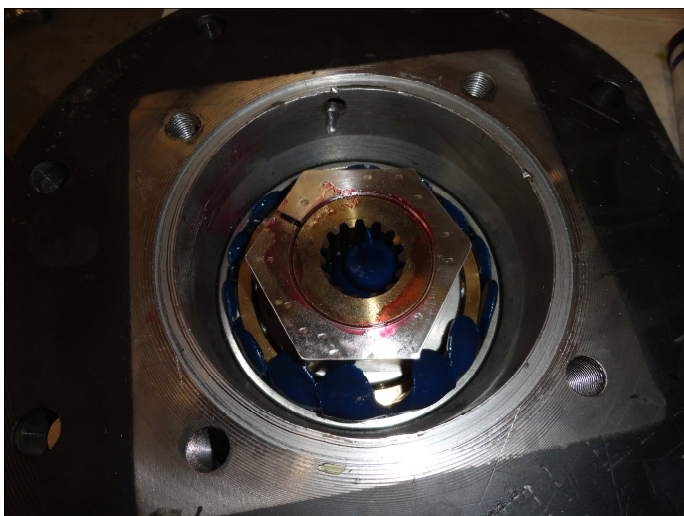
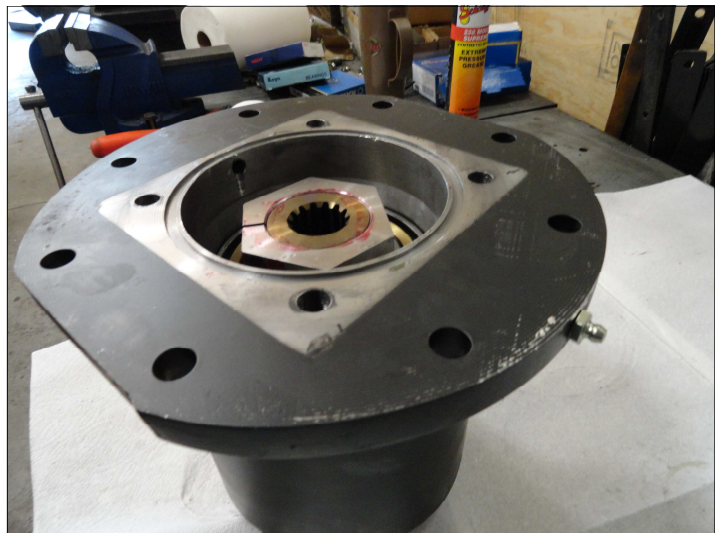
## Rotary Mower Maintenance



#12 Tighten both lock bolts—alternating until they are as tight as you can get them.

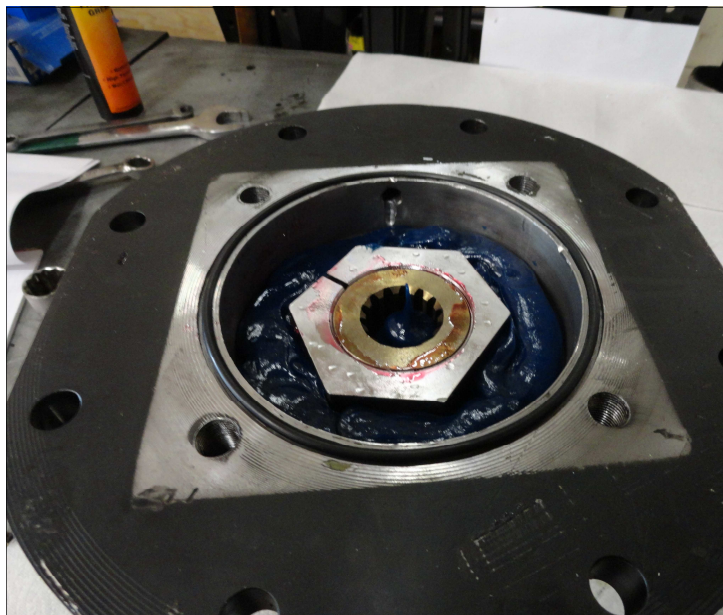
#13 Peen around top of nut with ball peen hammer then repeat Step # 12. Note peen marks in photo

#14 Install grease vent and grease zerk as per photo making sure vent is in passage that opens to the upper portion of spindle housing



#15 Fill with appropriate grease until it comes up through upper bearing. Also fill spline hole on spindle shaft.

## Rotary Mower Maintenance



#16 Fill remaining void between spindle nut and housing with grease

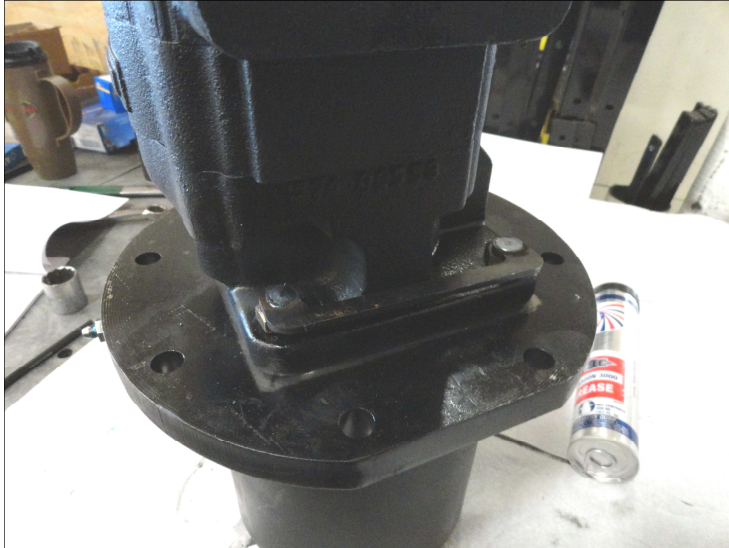
#17 Grease and install motor o-ring in groove on top of housing.

#18 Install motor with case drain port opposite grease zerk



#19 Grind heads clean on motor bolts for welding and install and torque to 75 ft lbs.

## Rotary Mower Maintenance



# 20 Weld bolt keepers on heads of bolts as shown

# 21 Install assembled spindle housing and motor onto mower shroud

If you have any questions regarding assembly/ installation of the spindle housing, please call US Mower @ 360-757-7555. Hours are 8-4:30 pacific standard time, Monday– Friday. email@ info@usmower.com

# Rotary Mower Maintenance

## Hydraulic Hoses and Connectors

Qty	Description
1	2404-04-06 --JIC TO Pipe
4	6400-12-12--JIC TO O-Ring
1	ISO 16028 3/8 Flat Face 3/8 NPT Plug
1	ISO 16028 1/2" Flat Face Plug - 3/4" SAE
1	ISO 16028 Flat Face Coupler - 3/4" SAE
1	3/4" SAE Check Valve 5 psi
2	FG6500-12- JIC Swivel Elbow 90
2	FG3804-2- JIC TO O-Ring Run Tee
2	Hyd. Ass. - 12M3K-12FJX E/E 86" CL
1	Hyd. Ass - 4M3K-4FJX E/E 100" CL
2	Hyd. Ass - 12M3K-12FJX90-12FJX-24" CL (Crimp 90)

## Notes