

USMOWER

Operator's Manual

EX30

EX30HD

Flail Mower



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THE **USMOWER** WAY:

US Mower flail and rotary mowers are designed and manufactured in Burlington, WA. Founded in 1999, US Mower's commitment to our domestic design, fabrication and assembly of our flail and rotary mower heads is steadfast. Our team at US Mower is decades strong giving our customers and dealers the best service possible.

US Mower equipment is manufactured to have a long, productive service life. Our products are built with Precision in-house bending, Expert fitting, and industry leading welds. The electronic and hydraulic components are also designed and assembled in house providing the ultimate fit and function.

US Mower rotary and flail mowers for excavators and skid steers are used by commercial mowers for industrial mowing applications including land clearing, pipeline maintenance, ditch maintenance and general herbicide free vegetation management. The very first flail mower built in 1999 is still in use today.

US Mower offers complete tractor integrated mowers for Case, John Deere, Kubota, New Holland and Massey Ferguson tractors. From delivery of the tractor to our facility in Washington, every customer receives our complete attention to the details that matter for your application. Our staff will understand your goals for the final product and deliver to your specs from the quotation phase to completion of your mower.

The team at US Mower understands that a flail or a rotary mower is a big investment whether on a single excavator or a fleet of tractors.

It is our motto to build:

"Proven, reliable implements built with superior fabrication for maximum productivity. Domestically built and supported by our committed team delivering genuine, personalized service."

And we stand by it-faithfully.



Failing to follow safety messages and operating instructions can cause serious bodily injury or even death to the operator or 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.

BEFORE YOU START!!

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

- Study Operator's Manuals and Safety Decals for Excavator and cutter thoroughly to prevent misuse, abuse and accidents.
- 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!
- Operate with ROPS and fastened seat belt to prevent injury and possible crushing death from falling off or Excavator overturn.
- Wear hard hat and safety glasses for personal protection.
- Make certain that SMV sign, warning lights and reflectors are clearly visible.
- Turn Machine off. 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, inadvertent dropping. Make certain area is clear before lowering.
- Follow local traffic codes. Slow down at night, in turns, and on hillsides.
- Before dismounting, secure implement in transport position or lower to Ground. Disengage Interlock, Turn off machine. Never mount or dismount a moving vehicle to prevent crushing injury or death.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon awareness, concern and prudence. suitable training of personnel involved in the operation, transport, maintenance and storage of equipment is required.



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

- Dress for the job. Choose close-fitting clothes and long pants, hearing protection, eye protection, work boots with traction and heavy gloves (when handling blades). Do not wear loose-fitting clothes or jewelry, which can get caught or hung up on a machine and cause injury.
- Know your machine. Read the operators manual to familiarize yourself with your machines unique features. For example deflector shields, adjustments, skid shoes, retention systems and maintenance.
- Read warning labels and check safety features. Never operate your mower if your safety guards and devices are not in place. Replace safety guards and devices if damaged or not operating properly.
- Stop mowing if passersby are within 50 yard radius from mower head.
- Never allow children to operate, ride on, or come close to mower or equipment. Never lift a person or allow anyone to stand on a mower head. Keep bystanders and pets clear and off of equipment.
- 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. Where grass and weeds are 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.
- 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.
- Pressurized hydraulic fluid can penetrate the skin causing serious injury. Do not use your hand to check for leaks on a pressurized system. Use a piece of cardboard or paper to search for leaks. Stop the engine and relieve pressure before connecting or disconnecting lines. Tighten all connections before starting the engine or pressurizing lines. If fluid is injected into the skin, obtain medical attention immediately.
- Check attachment points. Check your mower's connection to the power unit. All pins, bushings and linkage should be checked to insure they are free to travel the full distance without interference. Repair if necessary.
- Conduct daily inspections. Verify that all shields and guards are in proper working order. Check blade attachment bolts to insure all blades are present and in good condition. Check blades for cracks around bolt hole. Check that hydraulic hose connections are completely engaged.

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.

Mounting the mower

After removing the bucket from the stick by disconnecting the quick attach mechanism install the mower in it's place. The mower with its' mount should readily attach in place of the bucket. Confirm that the locking mechanism is properly engaged. Install the case drain line and then, attach the supplied hoses with quick couplers to the auxiliary circuit lines on the excavator. Make sure that the quick connect couplers are completely engaged and locked.

Case drain line, what and why is it needed?

The case drain protects the motor shaft seal from excessive pressure. Motor shaft seals are usually rated to 100 psi for brief periods or less than about 50 PSI continuously. High pressure oil from the gear section travels between the shaft and its sleeve bearing to an area behind the shaft seal. Through the return line by way of an internal check valve or through an external case drain. In most compact equipment return line pressure is high enough to cause either abrupt seal blowout (150+ psi) or early failure of the motor shaft. Higher pressure seals are available, but are not always reliable and cause other problems as well.

The best solution is a dedicated case drain. Your machine may have an internal or external case drain system that can accommodate the small volume of gear motor case flow. Contact your vehicle dealer or manufacturer for technical details.

Motor shaft seals are not covered under warranty if case drain is not properly installed or fails. Make sure case drain line couplers are properly connected.

Attaching Mower to Excavator

- Securely attach the flail mower in the same manner you would attach a bucket or other excavator attachment. Confirm that the locking mechanism is properly engaged.
- Carefully clean the Hydraulic quick couplers before making connections. Dirt quickly damages the hydraulic system. Always cover or connect couplers together when not in use.
- Connect supply, return and case drain lines. Confirm that the hydraulic quick couplers are fully engaged and locked by turning the collars. Check with your power units manuals on how best to release the pressure in the auxiliary lines for easy coupling to the connectors.
- Activate the auxiliary hydraulic circuit with the cutter head raised off the ground. The cutter shaft should turn freely and smoothly.

Mowing with the Excavator Flail

Techniques vary with the operator and the mowing task. However, the factors below should be kept in mind.

- The mower is fragile compared to an excavator bucket. The bucket is designed to withstand very high digging force. The mower will crumple with any substantial fraction of that. Keep in mind that excavator mowing requires a light hand. Do not push on the mower head to move the excavator or to push objects.
- It is particularly important to avoid pushing with the flail shaft. Keep the flail shaft and blade towers clear of solid objects. Let the blades do the cutting. Bending the flail shaft will result in vibration that requires remanufacturing the shaft to fix. Do not continue to mow with a severely bent or unbalanced shaft.
- Good performance depends on the free swinging of the blades. The two pound blades can sever 4 inch diameter soft wood with one hit of one blade. Forcing the flail into vegetation, such that the blades are held against the flail shaft, slows mowing. Keep the blades swinging.
- The flail mower is designed to cut all types of grasses, brush and small trees. The ground conditions and the type of brush being cut will determine the best cutting procedure and ground speed.
- Sharp blades make a substantial difference in cutter efficiency. This is most noticeable in heavy conditions when the mower is operating at capacity. Running the blades into rocks or other hard objects will blunt blades and will reduce mowing capacity.

Flail mowers can be equipped with cut height adjusting roller for brush cutting at ground level. For brush cutting at higher levels, including canopy mowing, the roller is best left off.

Cutter shaft should be run at 1800 to 2000 rpm.

Clearing brush in an open area

- Position the excavator at a starting point. Set the height of mower head so the brush is less than about 2 feet above the top of the mower. Swing the mower through the brush matching the swing speed to the performance of the mower. Over feeding the mower will drag down cutter shaft speed reducing mower efficiency. Lower the head and swing again. Repeat until desired cut height is reached.

Canopy Mowing & Trees

- Canopy mowing requires rotating the head so that the flail is upside down and positioned upward, the level of the canopy to be cut. Turning the cab from side to side while moving the excavator forward, one can readily mow the underside of a tree canopy.
- Tree mowing is generally best done by first running the flail head up and down the trunk removing the branches. If the tree is not too large, positioning the head at the top of what remains of the trunk while working the head up and down can reduce the trunk to little more than a stump. Bear in mind, however, that the flail is not a chipper or stump grinder. Its ability to do this kind of cutting is limited by the hardness of the material.

Operating Safety Zone---50 Yard Radius from Mower Head

KNOW YOUR OPERATING SAFETY ZONE!!

Stop! And allow all vehicles to pass through operating "Safety Zone" before continuing cutting. Operator awareness is key to safe operation. Never operate or continue to operate this machine when there is a person or vehicle within a 50 yard radius of the cutting operation. If a person comes inside your operating "Safety Zone" (50 yard radius) shut the machine down.



Frequent and routine maintenance procedures should be followed to ensure the safe and efficient operation of the mower. The following procedures should be performed every 8 working hours. Under severe conditions this schedule should be accelerated.

- Check free end bearing and bearing housing for excessive heat: indicating loss of lubrication or possible bearing damage.
- Check blades, blade bolts, nuts and towers for excessive wear, chipping or cracking.
- Grease bearings: free end ~4 pumps every 4 hours — drive end until grease comes out the breather
- Check hydraulic lines for damage and leaks.
- Clean debris, leaves, grass and sticks from inside shroud and or rollers.
- Check bolts and nuts on all mountings and optional equipment.
- Check depending on your options: gates, shields, shroud and rollers etc. Repair if damaged or replace if necessary.

Lubrication

The drive end bearing housing has a grease zerk and a grease vent plumbed to the surface of the mower enclosure. The amount needed varies with ambient temperature and mowing load. Generally greasing twice a day is sufficient for heavy operation. A good quality NLGI#2 lithium grease is usually satisfactory. If the bearing housing is pumped full of grease when cold, at first run up after a cold fill, a substantial quantity of grease will issue from the vent as the grease heats. This is normal. To reduce this, grease when equipment is at operating temperature.

Inspect before mowing

Inspect cutter drum and knives. Inspect the blades for wear, damage & cracks. Inspect towers for cracks. Inspect blade bolts for wear and tightness. Replace or repair any problem items immediately. Injury can be caused if a blade or tower is thrown from cutter shaft while mowing.

Replacing bearings—free end

Removal

- Loosen the set screw that holds the collar of the bearing to the shaft.
- Unbolt the (4) bolts (7/16-14 x 1 1/2") that hold the bearing in place.
- Clean dirt and rust from surface. Smooth off raised areas.
- Slide the bearing off the shaft. Because of rust or nicks on the shaft, a puller may be needed.

Installation

- Clean the shaft and bearing bore.
- Apply anti-seeze.
- Slide bearing in place.
- Install (4) bolts (1/2" -14 x 2 1/4") and torque to 100 ft/lbs.
- Tighten collar set screws.

Replacing bearings—drive end

- Remove the hoses and the four bolts holding the hydraulic motor to the end of the bearing housing and remove the motor.
- Loosen the 3 set screws on the nut and remove the nut.
- Block up the cutter shaft.
- Remove the clamp ring that compresses the outer edge of the rubber disc.
- You should now be able to slide the bearing housing off the shaft. (A puller may be needed. Use motor mount bolts and push from inside drive stub.
- When reassembling the housing, note the two ball bearings must be installed so that their thrust direction is back to back. (Numbers on bearings should face each other.)
- Push seal into housing. Pressing seal is not necessary.
- This is also a good time to examine the rubber disc and shaft seal. Inspect for tears, wear or separation. Replace if damaged.
- When tightening Outer Clamp Ring through ISO Ring to head, tighten bolts just until rubber starts to bulge.

Installing the Compact Drive Nut

Do not use anti-size on the nut or drive stub.

Caution: Do not tighten set screws before installing nut.

- Thoroughly clean and degrease the threads on both the nut and the drive stub and set screws.
- Apply Blue Loctite to set screw and stub threads.
- Screw the nut onto the drive stub and tighten to about 40 FT/LBS
- Turn the shaft 2-3 full rotations.
- Loosen nut slightly and torque to 40 FT/LBS
- Torque again to 40 FT/LBS.
- Torque set screws to 160 IN/LBS.

Replacing blades and blade bolts

Your mower will be more efficient if running with sharp blades. Blades may be turned around if one side is worn. Blades should be replaced in sets to maintain cutter shaft balance. Blade bolts, washers and bolt nuts should be examined and replaced if worn. Bear in mind that parts subject to intense pounding will in time develop fatigue cracks. Install the blade assembly as shown in the shaft diagram. Note that if top lock nuts are used they should be threaded onto the bolt such that the nut runs out of bolt threads. It is the resulting thread jamming effect on the nut that holds it in place against shock and vibration. This type of nut must be driven to refusal with a 3/4" High power impact gun.

BOLT TORQUE CHART

SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		L9	
	ASSEMBLY TORQUE		ASSEMBLY TORQUE		ASSEMBLY TORQUE		ASSEMBLY TORQUE	
	DRY	LUBRICATED	DRY	LUBRICATED	DRY	LUBRICATED	DRY	LUBRICATED
1/4-20	66*	49*	8	75*	12	9	11	
1/4-28	76*	56*	10	86*	14	10	13	
5/16-18	11	8	17	13	20	18	21	
5/16-24	12	9	19	14	25	20	23	
3/8-16	20	15	30	23	45	30	33	
3/8-24	23	17	35	25	50	35	38	
7/16-14	30	24	50	35	70	55	60	
7/16-20	35	25	55	40	80	60	65	
1/2-13	50	35	75	55	110	80	95	
1/2-20	55	40	90	65	120	90	105	
9/16-12	65	50	110	80	150	110	140	
9/16-18	75	55	120	90	170	130	150	
5/8-11	90	70	150	110	220	170	185	
5/8-18	100	80	180	130	240	180	205	
3/4-10	160	120	260	200	380	280	290	
3/4-16	180	140	300	220	420	320	355	
7/8-9	190	140	400	300	600	460	505	
7/8-14	210	155	440	320	660	500	585	
1-8	220	160	580	440	900	680	775	
1-14	240	170	640	480	1000	740	900	
1 1/8-7	300	220	800	600	1280	960	1150	
1 1/8-12	340	260	880	660	1440	1080	1325	
1 1/4-7	420	320	1120	840	1820	1380	1600	
1 1/4-12	460	360	1240	920	2000	1500	1750	
1 3/8-6	560	420	1460	1100	2380	1780	—	
1 3/8-12	640	460	1680	1260	2720	2040	—	
1 1/2-6	740	560	1940	1460	3160	2360	3250	
1 1/2-12	840	620	2200	1640	3560	2660	3650	

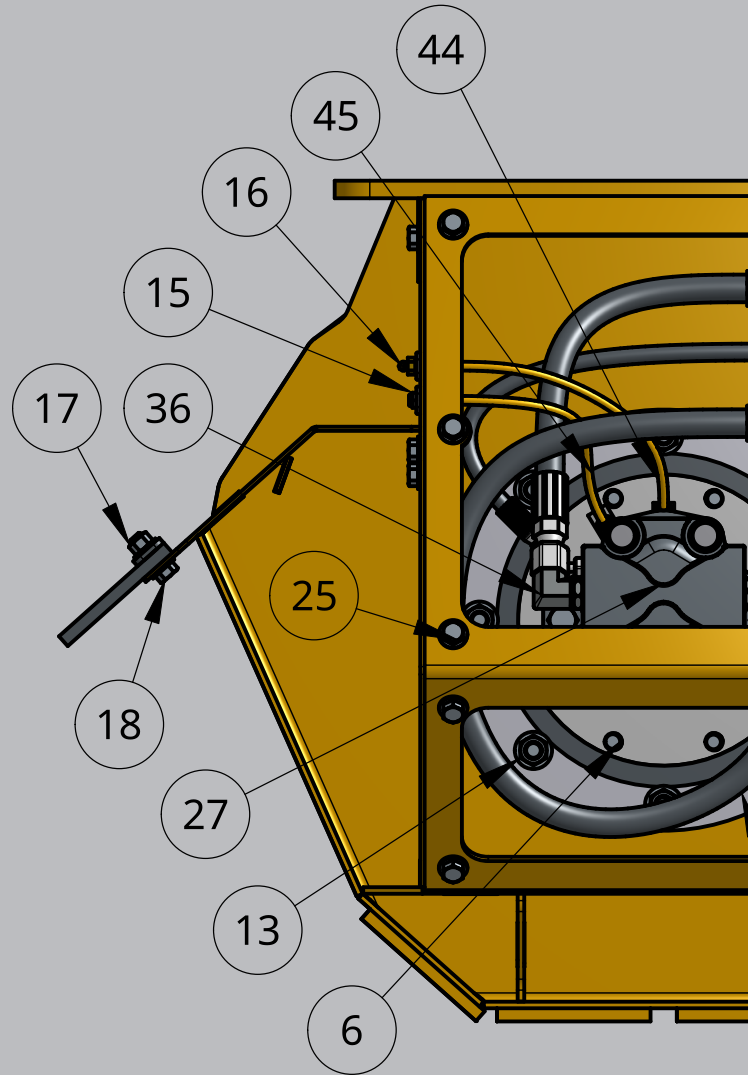
ITEMS WITH * = INCH POUNDS
ALL OTHERS = FOOT POUNDS

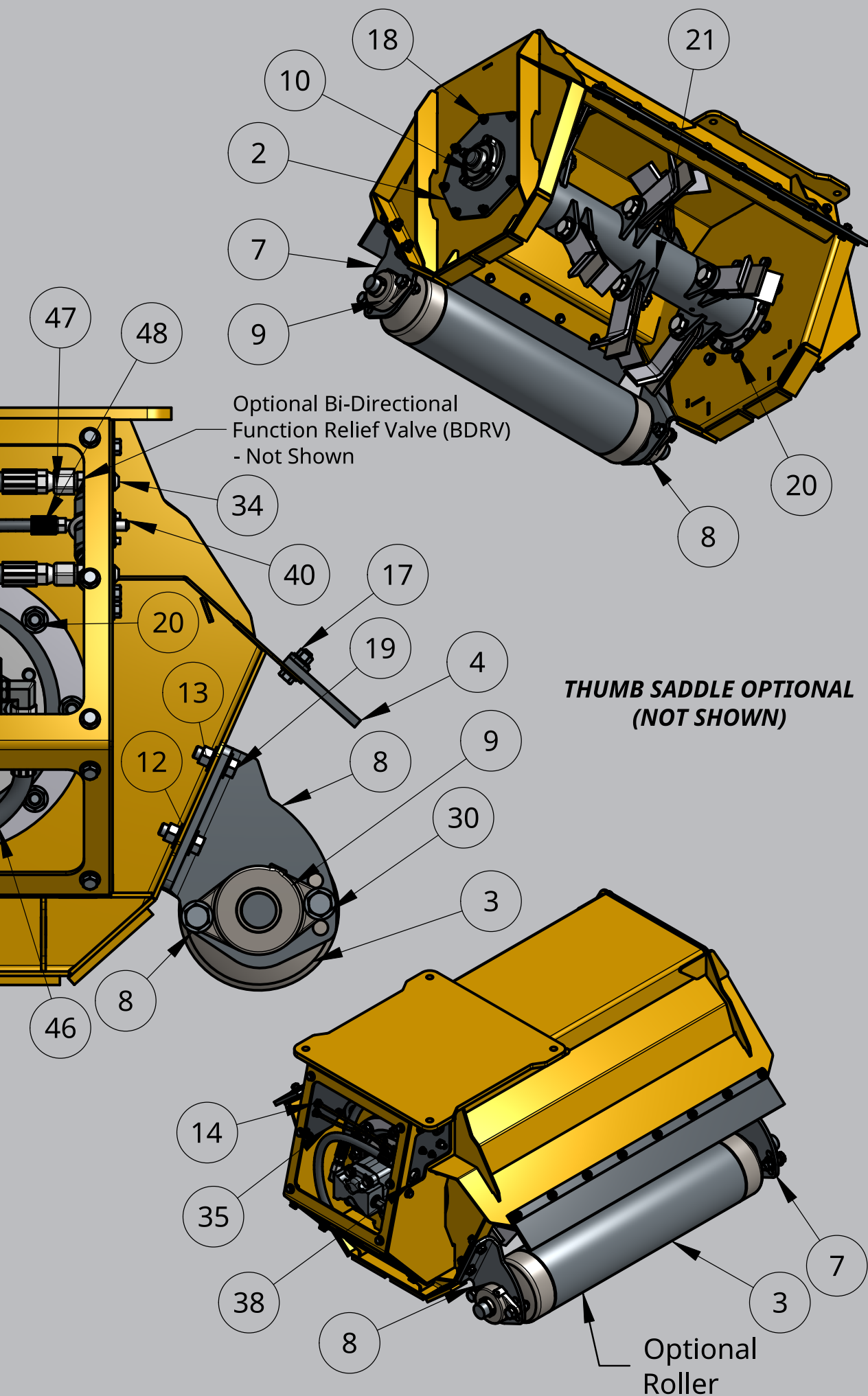
"LUBRICATED"
INCLUDES LUBRICANTS, LUBRIZING, PLATING, AND HARDENED WASHERS



PARTS LIST - EX30 FLAIL MOWER

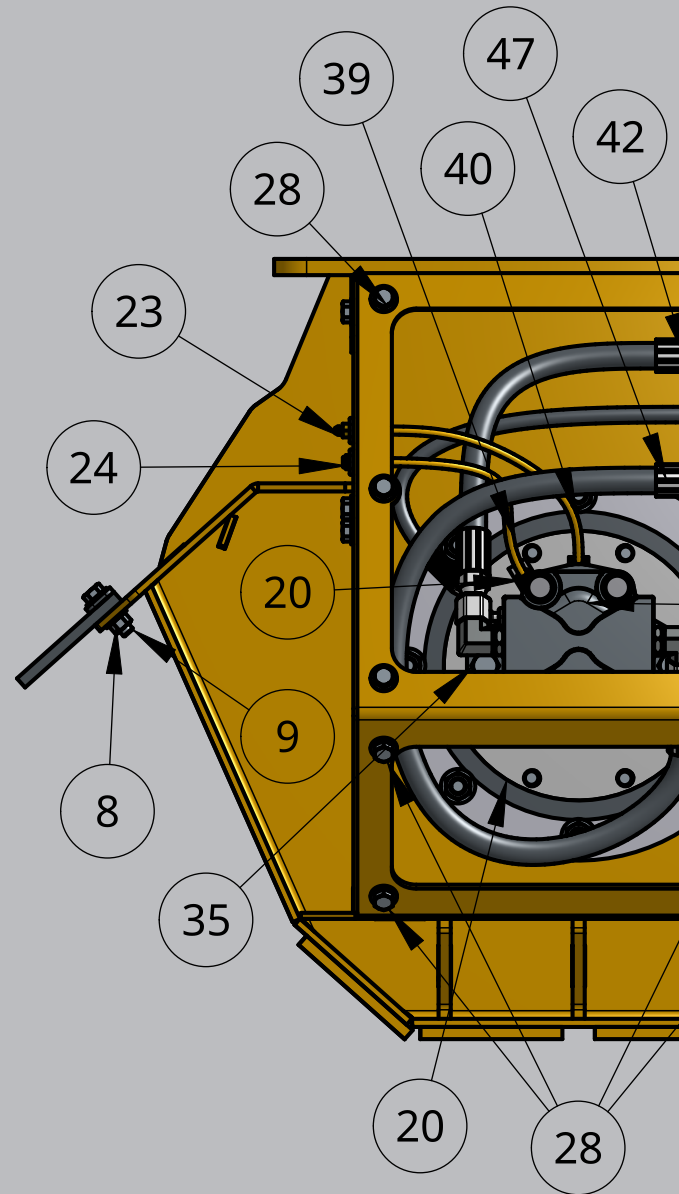
Item	Quantity	Part number	Description
1	1	ASM-15239	EX30 Weldment
2	1	2602548	Ex30-HD30 Bearing End Plate
3	1	2564287	Roller
4	2	2560284	Deflector Shield
5	2	2560281	Clamp Strip
6	1	2564574	DD30 Drive End
7	1	PRT-15102	Roller Bracket L
8	1	PRT-15103	Roller Bracket R
9	2	2560205	1.4375 Bearing
10	1	2562272	1.5 4 Bolt Piloted Bearing
11	66	2561301	3/8 Flat Washer ZP
12	24	2557626	1/2 Flat Washer ZP
13	12	2556571	1/2-13 Top Lock Nut ZP GC
14	2	2602585	1/8 NPT-1/4 Tube Bulk Head Fitting
15	1	2558654	1/8 Poppet Valve
16	1	2556412	.125in MPT STR Zerk
17	32	2562572	3/8-16 Top Lock Nut ZP G8
18	24	2556428	3/8-16 x 1.25 HCS ZP G8
19	4	2556827	1/2-13 x 1.5 HCS ZP G8
20	8	2556269	1/2-13 x 2 HCS ZPG8
21	1	ASM-15268	EX30 Cutter Shaft
22	1	2562894	KMTA8 Shaft Lock Nut (18TPI)
23	1	PRT-15288	Lower Cover
24	1	PRT-15289	Upper Cover
25	18	2556427	3/8-16 x 1 HCS ZP G8
26	2	2561108	1/2-13 x 1.75 HCS ZP G8
27	1	ASM-16152	Motor Varies
28	8	2600375	5/8 Flat Washer ZP G8
29	4	2564448	5/8-11 Top Lock Nut Zp GC
30	4	2556605	5/8-11 x 2 HCS ZP G8
31	4	2601297	7/16 Lock Washer
32	4	2601296	7/16-14 x 1.5 HCS ZP G8
33	1	810204102	5 PSI 1/2 Body SAE
34	2	6803-8	Jlc 2 ORing Tee
35	1	PRT-18639	Zerk/Grease Fitting Mount Plate
36	2	6801-8-8 90	Oil Fitting 90
37	1	6400-4-4	6400-4-4
38	1	PRT-18643	Check Valve Mount Plate
39	1	U bolt 1/4-20	U Bolt 1/4-20
40	1	2700-4-4	1-1/4 Jlc x 1-1/4
41	1	PRT-16151	0306-4 4 Bulkhead Nut
42	2	2562640	1/4 Flat Washer ZP
43	2	2561310	1/4-20 Top Lock Nut G8 ZP GC
44	1	PRT-18653	Filler Tube 11in
45	1	PRT-18654	Grease Line
46	1	ASM-19209	8M3K-8FJX E/E 30in C/L
47	1	ASM-19211	8M3K-8FJX-E/E 13in C/L
48	1	ASM-19213	4M3K-4FJX-4FJX45-20" C/L



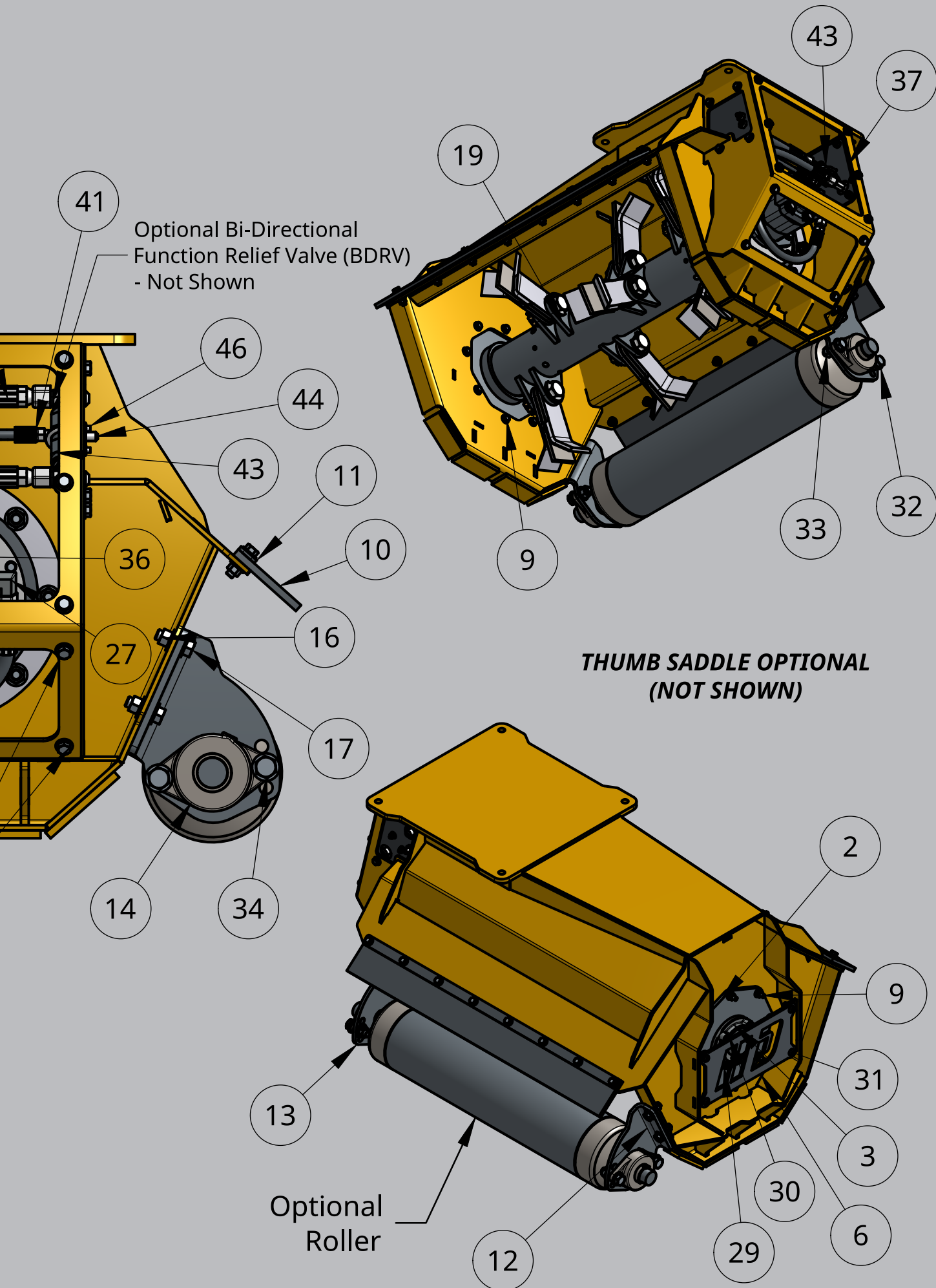


PARTS LIST - EX30HD FLAIL MOWER

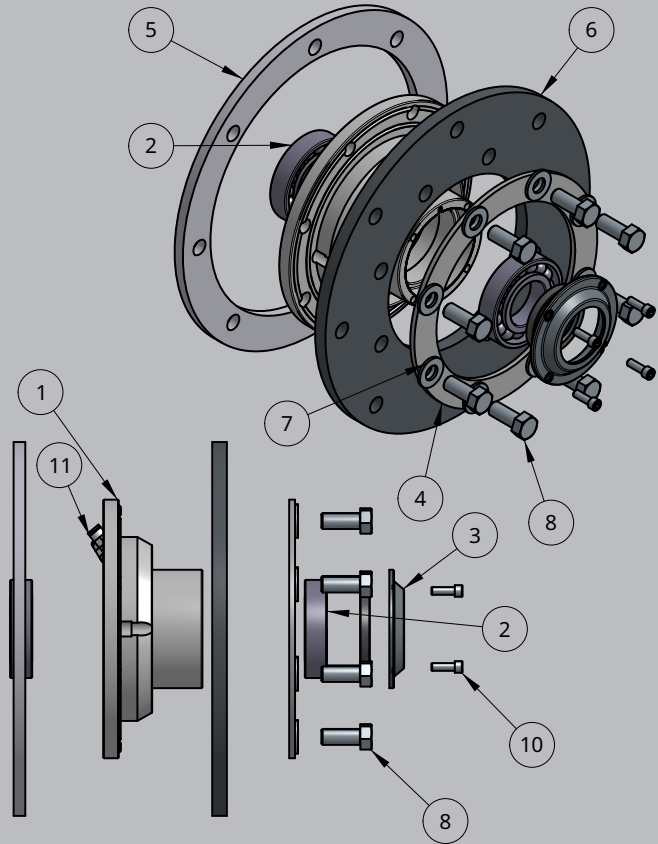
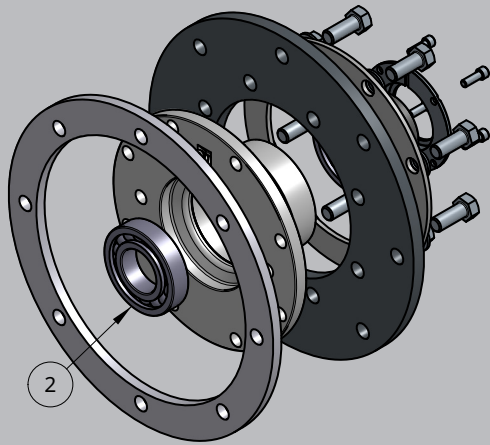
Item	Quantity	Part number	Description
1	1	ASM-15061	EX30HD Weldment
2	1	2602548	Ex30-HD30 Bearing End Plate
3	1	2562272	1.5 4 Bolt Piloted Bearing
4	1	PRT-15062	Upper Cover
5	1	PRT-15063	Lower Cover
6	1	PRT-15051	HD Guard
7	70	2561301	3/8 Flat Washer ZP
8	36	2562572	3/8-16 Top Lock Nut ZP G8
9	24	2559028	3/8-16 x1.5 HCS ZP G8
10	2	2560284	Deflector Shield
11	2	2560281	Clamp Strip
12	1	PRT-15102	Roller Bracket L
13	1	PRT-15103	Roller Bracket R
14	2	2560205	1.4375 Bearing
15	24	2557626	1/2 Flat Washer ZP
16	12	2556571	1/2-13 Top Lock Nut ZP GC
17	4	2556827	1/2-13 x 1.5 HCS ZP G8
18	1	2564287	Roller
19	1	2564352	HD 30 Cutter Shaft
20	1	2564574	DD30 Drive End
21	8	2556269	1/2-13 x 2 HCS ZPG8
22	2	2602585	1/8 NPT-1/4 Tube Bulk Head Fitting
23	1	2556412	.125in MPT STR Zerk
24	1	2558654	1/8 Poppet Valve
25	1	2562894	KMTA8 Shaft Lock Nut (18TPI)
26	1	6400-4-4	6400-4-4
27	2	6801-8-8 90	Oil Fitting 90
28	18	2556427	3/8-16 x 1 HCS ZP G8
29	4	2601297	7/16 Lock Washer
30	4	2601296	7/16-14 x 1.5 HCS ZP G8
31	4	PRT-16318	Head Hex Drive Screw
32	8	2600375	5/8 Flat Washer ZP G8
33	4	2564448	5/8-11 Top Lock Nut Zp GC
34	4	2556605	5/8-11 x 2 HCS ZP G8
35	2	2561108	1/2-13 x 1.75 HCS ZP G8
36	1	ASM-16152	Motor Varies
37	1	PRT-18643	Check Valve Mount Plate
38	1	PRT-18639	Zerk/Grease Fitting Mount Plate
39	1	PRT-18654	Grease Line
40	1	PRT-18653	Filler Tube 11in



Item	Quantity	Part number	Description
41	1	ASM-19229	4M3K-4FJX-4FJX45-20" C/L
42	1	ASM-19227	8M3K-8FJX-E/E 13in C/L
43	1	810204102	5 PSI 1/2 Body SAE
44	1	2700-4-4	1-1/4 Jlc x 1-1/4
45	2	6803-8	Jlc 2 ORing Tee
46	1	U bolt 1/4-20	U Bolt 1/4-20
47	1	ASM-19225	8M3K-8FJX E/E 30in C/L
48	2	2562640	1/4 Flat Washer ZP
49	2	2561310	1/4-20 Top Lock Nut G8 ZP GC
50	1	PRT-16151	0306-4 4 Bulkhead Nut

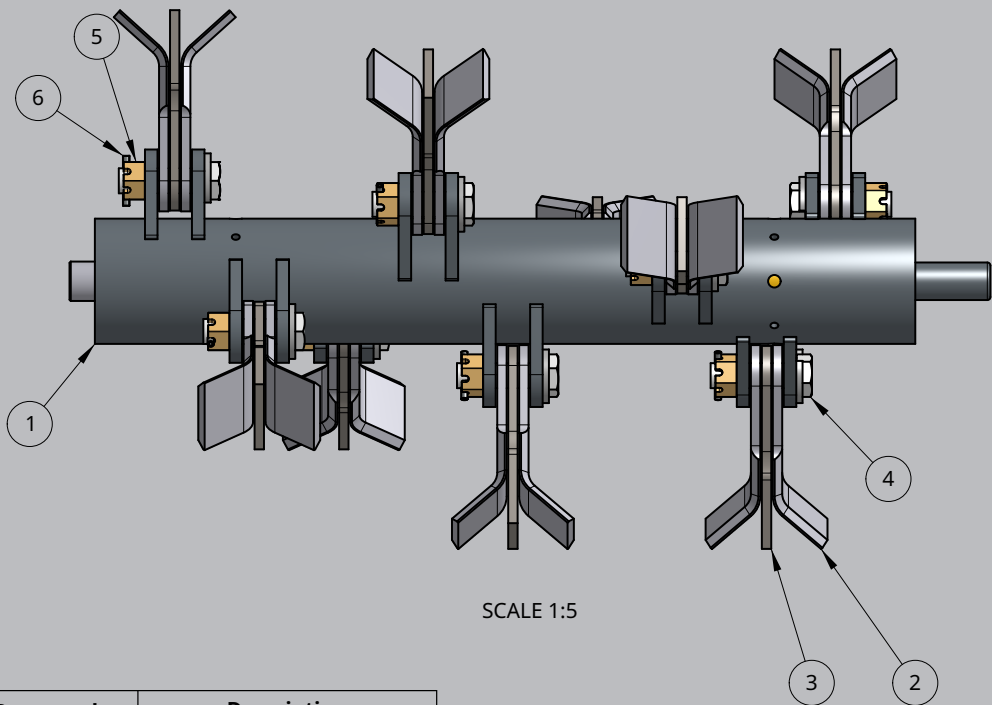


Drive End Assembly



Item No.	Quantity	Part number	Description
1	1	2560265	EX30 Bearing Housing
2	2	2560095 40MM Bearing	EX30 Drive End Bearing
3	1	2560266	EX30 Bearing Cap
4	1	2560282	EX30 Inner Clamp Ring
5	1	2558461	EX30 Torque Disc Retainer Clamp Ring
6	1	2560272	EX30 Iso Ring
7	8	2557626	1/2 Flat Washer ZP
8	8	2559030	1/2-13 x 1.25 HCS ZP G8
9	1	2560096	EX30 Shaft Seal
10	4	2564818	1/4-20 x 0.75 SHCS PL
11	2	2602584	Push on Grease Line Fitting

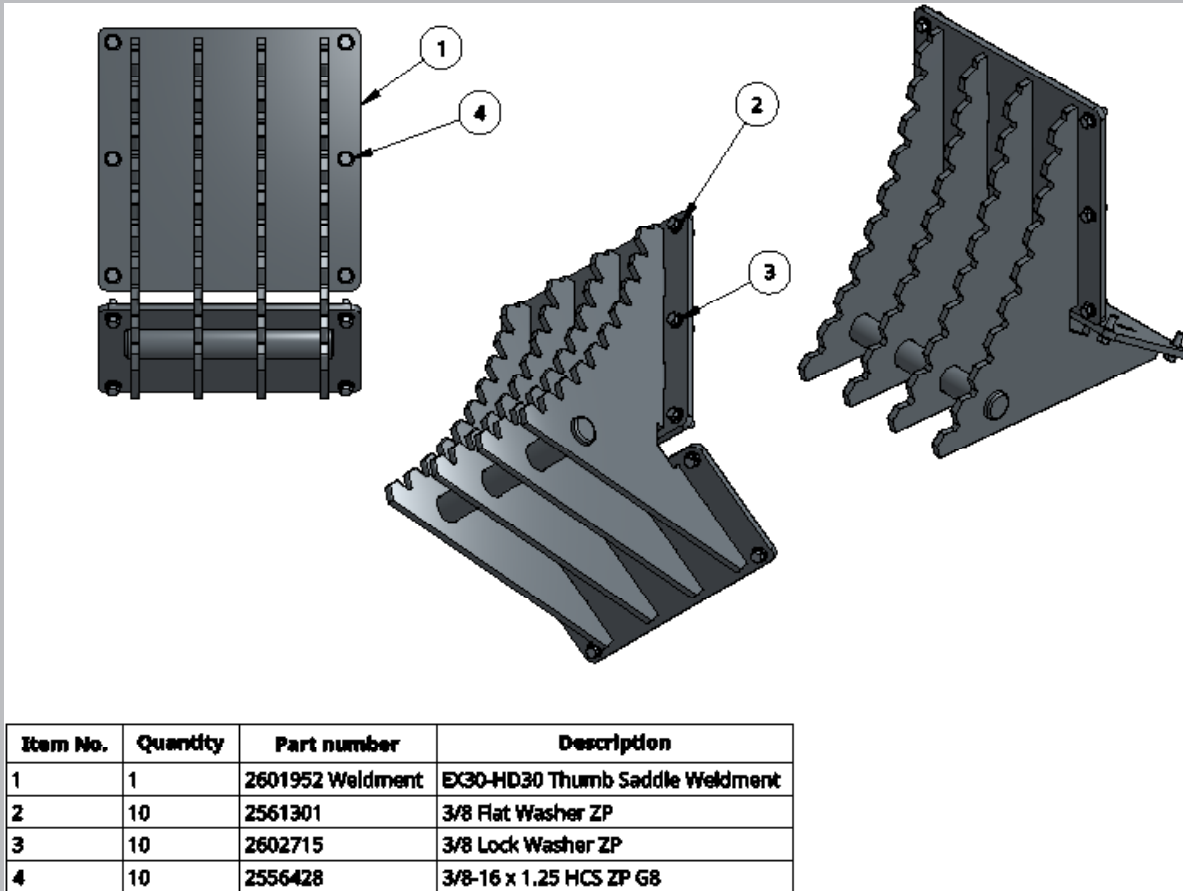
Shaft Assembly



Item No.	Quantity	Part number	Description
1	1	2561630/2564352	EX30/EX30HD Shaft Weldment
2	16	2558468	2lb Blade
3	8	2560622	Thatch Blade
4	8	2558544	2lb Flail Blade Bolt
5	8	2558349	1-14 Castle Nut
6	8	2556294	Roll Pin

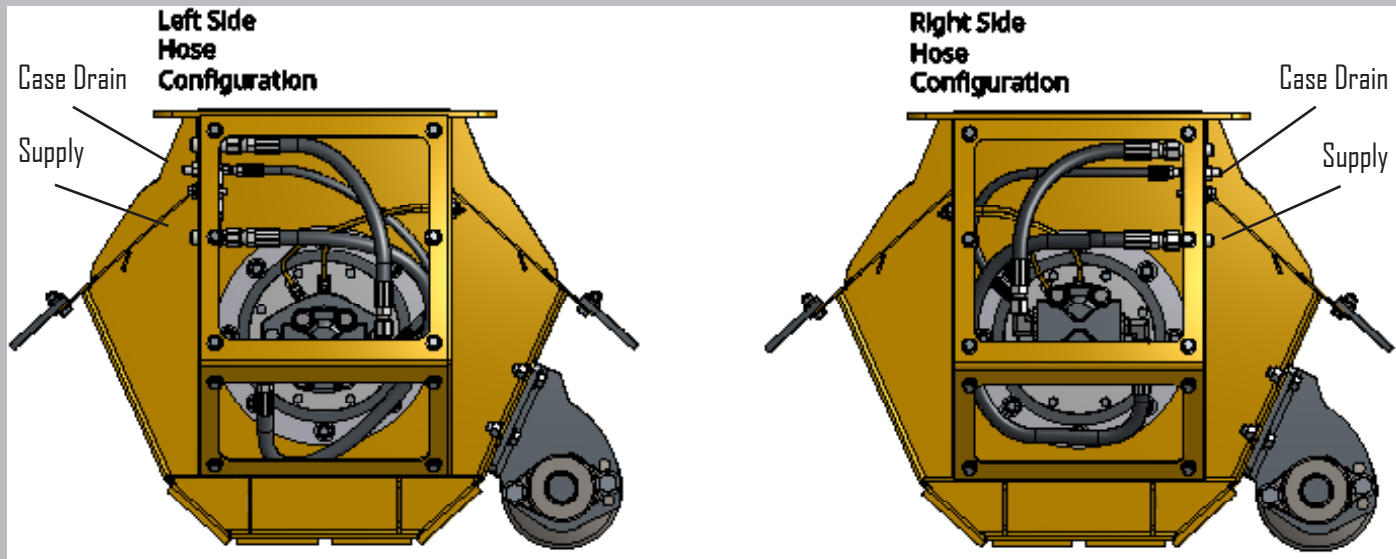
**Complete Blade, Bolt and Nut Kit
EX30/EX30HD Part #2564496**

Optional Thumb Saddle



Drive End Exploded View with Optional Hose Routing for LS Boom Plumbing

Standard Configuration



Motor must be turned 180° for clearance of case drain line when switching plumbing to opposing side.

Protection for Hydraulic Functions

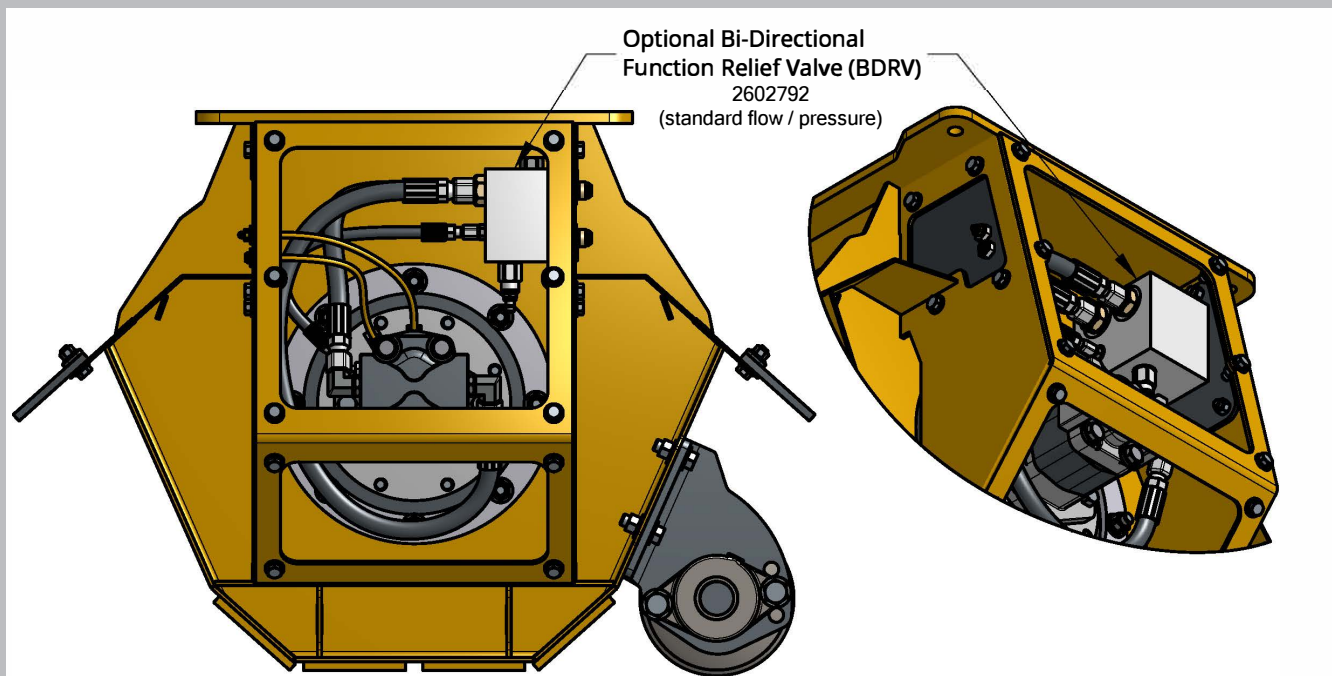
All U.S. Mower attachments have some level of protection for the hydraulic motor on the mower. The basic functions allow for operation in a single direction. No pressure relief is provided. To reverse operations, hoses must be switched inside the attachment head (see previous page for exploded view of standard configuration).

U.S. Mower offers advanced packages for attachments that protect the hydraulic system from a wide range of failure modes and allow for bidirectional operation via our bidirectional function relief valve (BDRV) depending on how the excavator hydraulic system works.

Typical Options:

- 1. Machines that can only provide enough power for mowing with the oil flowing in one direction:** Using the same gender quick couplers on both sides of the circuit for easy manual direction changes is the best option in this circumstance. Note that this is still better than a basic setup, which requires swapping hoses on the motor and provides no pressure relief.
- 2. Machines that can provide bidirectional operation, but not full power in both directions:** This is useful for controlling the direction material is thrown from the blades or untangling but is not ideal for mowing productivity. Note switching between modes involves getting out of the cab and manually turning a valve on some of these machines.
- 3. Machines that can operate at full power in both directions:** This allows for seamless mowing operation in both directions.

Please contact U.S. Mower for questions related to your specific configuration for best results and equipment functionality.





12 MONTH FACTORY WARRANTY

Warranty Coverage Includes Defects in Workmanship and Materials. Coverage begins at the Date of invoice to the end user. Valid for 12 Calendar Months

Specific Areas Include:

1. Mount System and Attachment Shroud-Manufacture Defects in Welds, Construction, Materials (Includes Full Length Rail System, Chin Mount, Snorkel, Under Belly Support, Left Side Mount, Primary Boom and Jib Boom.)
2. Hydraulic System-Piston Pump(s), Piston Motor, Motor Control Valve, Hydraulic Valve, Electronic Circuit Board, Driveline from Engine to Pump, Hydraulic Tank, Hydraulic Cylinders.
3. UPS Ground Shipping or when required LTL paid by US Mower.

Warranty Coverage Does Not Include:

4. Normal wear parts, lubricants, oil, grease, filters, hoses, belts, springs, sheeves, driveline Spiders.
5. Components classified as consumables, wear out items, serviceable items, filters, Spindle and Motor Seals, Cylinder Internal Parts, hoses, sheeves, belts, springs, tensioners, shop supplies, lubricants, oil, grease, blades, blade bolts, flail knives, clevises and all other wearable and servicing parts.
6. Hydraulic hoses not of USM manufacturing unless pre-approval from US Mower in writing.
 - a. If an otherwise warrantable hydraulic hose is used to replace the Manufacture hose, credit can be issued which will represent US Mower cost of original parts.
7. Technician Travel Time to and from Manufacture or Dealer
8. Machine Pick-up and or Delivery from Manufacture or Dealer
9. Components showing evidence of maintenance neglect including but not limited to:
 - a. Failure to follow the lubrication schedule.
 - b. Failure to maintain proper hardware.
 - c. Failure to maintain proper bearing pre-load.
10. Components showing evidence of operational misuse, abuse and or modification.
11. Non-DEM parts or components without prior written approval from US Mower.
12. Damage caused by Non-US Mower personnel.

Warranty Process:

13. Determine if the Malfunction is Warranty Related
14. Submit the US Mower Warranty Authorization Form. This form can be found by contacting US Mower. Images and other supporting documentation can be submitted at that time.
15. Approved Warranties will be credited or replacement components will be shipped per shipping policy.
16. If a US Mower Dealer/Service Center is required for evaluation or labor, it must be approved in advance by US Mower. Please call our factory for service center authorization. If purchased through a dealer, please use that dealer if possible for all service.
17. Dealer labor rate agreement must be approved in advance by US Mower.

Shipping/Freight Policy During Warranty Process:

18. Components and or parts that require evaluation at the factory must be shipped freight pre-paid.
19. All parts shipped will be invoiced at the time of shipping.
20. A credit will be issued for the replacement component and or part(s) plus freight if any, pre-paid when it is determined that warranty is applicable.

Damage and Injury:

1. US Mower liability is specifically limited to the replacement of components and or parts for its products if a warrantable defect is covered.
2. Collateral damage to property and or personal injury is exclusively the responsibility of the owner and or operator since US Mower has no control over the circumstances in which its equipment is used.

Seller Warrants That:

1. The goods to be supplied pursuant to this agreement (purchaser's 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(s) knowledge, whether patent or latent, in material(s) and or workmanship.
3. The seller has title to the goods supplied in that the goods are free and clear of liens, encumbrances and security interest. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED

US MOWER



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