

# EFS 48/60/65 Flail Mower



## Operator's Manual

**MechMaxx**

[www.mechmaxx.com](http://www.mechmaxx.com)



Your new Flail Mower offers quality construction, and is easy and safe to operate. With proper use and care, it is designed to give you many years of dependable service.

Prepare to experience the durability to take on any job with the ease, portability, and convenience of your new Flail Mower !

**MAX performance,MAX Value,MAX Support that's Flail Mower**

- ✓ Enhanced design features come standard
- ✓ Engineered for the best user experience
- ✓ Quality metal parts are used instead of plastic
- ✓ A robust warranty supports all products
- ✓ Budget-friendly prices make it practical

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## SPECIFICATIONS

Model	EFS48	EFS60	EFS65
Tractor HP	15-35 HP	13-35 HP	30-60 HP
Working Width	48 in	60 in	65 in
PTO Shaft	T5-LF-31.5" with shear bolt 31-1/2"/ 43"		
	04B-LF-800 with shear bolt 31-1/2"/ 43"(EFS65)		
PTO Turning Speed	540 r/min		
Cutting Height Range	0.7 – 1.9in		
Flail Type	Hammer		
Number Of Flails	Hammer*20	Hammer*24	Hammer*26
Strudure Weight	375 lb	408 lb	441 lb

**SAFETY SIGNS**

The rating plate on your machine may show symbols. These represent important information about the product or instructions on its use.

**⚠ WARNING**

The PTO Driveline **MUST** be measured and cut (if required) as per the Owner's Manual. Failure to do so will result in damage to both the tractor and the implement.

**⚠ DANGER**




**ROTATING DRIVELINE CONTACT CAN CAUSE DEATH. KEEP AWAY!**

**DO NOT OPERATE WITHOUT :**

- All driveline guards, tractor, and equipment shields in place.
- Drivelines securely attached at both ends.
- Driveline guards that turn freely on driveline.

**⚠ DANGER**



**High Pressure Fluid Hazard**  
High pressure fluid leak will pierce skin. Release pressure before working on system. Detect leaks with wood or cardboard. Wear sturdy gloves and goggles. NEVER use fingers.  
Fluid injected in skin must be surgically removed by trained doctor immediately or gangrene will result.  
Fluid injected into skin will injure or kill.

**⚠ WARNING**

**To Prevent Serious Injury Or Death:**

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

**⚠ WARNING**

**ENGAGE TRACTOR CLUTCH SLOWLY DURING START UP OR DAMAGE WILL OCCUR. KEEP PTO SHAFT WITH 25° OF LEVEL DURING OPERATION.**

**⚠ DANGER**

**GUARD MISSING WHEN THIS IS VISIBLE DO NOT OPERATE ENTANGLEMENT HAZARD**

**⚠ DANGER**



**ROTATING KNIVES HAZARD**

To prevent serious injury or death from rotating knives:

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


**⚠ WARNING**



**BELT DRIVE: HAND AND ARM ENTANGLEMENT HAZARD.**

Do not open or remove safety shields while engine is running.

**LIFT POINT**



**⚠ DANGER!** STAY BACK 150 FEET AT ALL TIMES


**⚠ WARNING!** DO NOT MOW IN REVERSE OR DAMAGE WILL OCCUR TO YOUR MOWER!

**⚠ CAUTION**



**GREASE**

**⚠ WARNING**



Read and understand operators manual before using this machine.

**⚠ CAUTION** To avoid Injury or Machine Damage: \*Operate only with 540 rpm PTO

**540 RPM ONLY**

**⚠ WARNING**



**PINCH POINT HAZARD**  
Keep clear

**⚠ WARNING**



**HIGH PRESSURE FLUID HAZARD**

Relieve pressure before disconnecting lines. Do Not use hands to check for leaks. Consult physician immediately if skin penetration occurs.

**⚠ WARNING**



**FLYING OBJECTS HAZARD**  
Keep clear.

**⚠ DANGER**



**ROTATING BLADES**  
KEEP HANDS AWAY

## SAFETY INFORMATION

### SAFETY FIRST

Read this service manual before using the machine.



**This safety alert symbol indicates important safety messages in this manual. When you see this symbol, carefully read this message that follows and be alert to the possibility of personal injury or death.**

This machine is designed for pulverizing grass and short bramble, and shall be used in the indicated purpose. You take the responsibility if the machine is used in any other purposes.

For safety of personnel and good performance of the machine, you shall check the performance of the machine and the tractor before starting the machine.

All persons and animals shall keep away the machine when you start it.

The operator shall not put on too loose clothes during operating the machine.

Do not touch the rotor when the machine rotates.

Keep away the machine when it moves.

When the tractor and the machine are moving on the road, always keep the machine off.

Before repairing the machine, stop all movable parts and the tractor, keep the key with yourself.

Always keep the machine in a good state, if necessary, repair or change the defective parts.

Don't use the machine to transport personnel.

Don't modify the machine.

Pay attention to the sharp and pointed parts during repairing the machine.

All protective parts shall be guaranteed to be in good state before starting the machine.

Don't leave the tractor when moving the machine; and always take away the key of the tractor with you.

The machine shall be operated in the recommended speed.

Don't stay between the tractor and the machine.

Don't start the machine in a closed place (due to the smoke from the tractor).

## SPECIFICATIONS

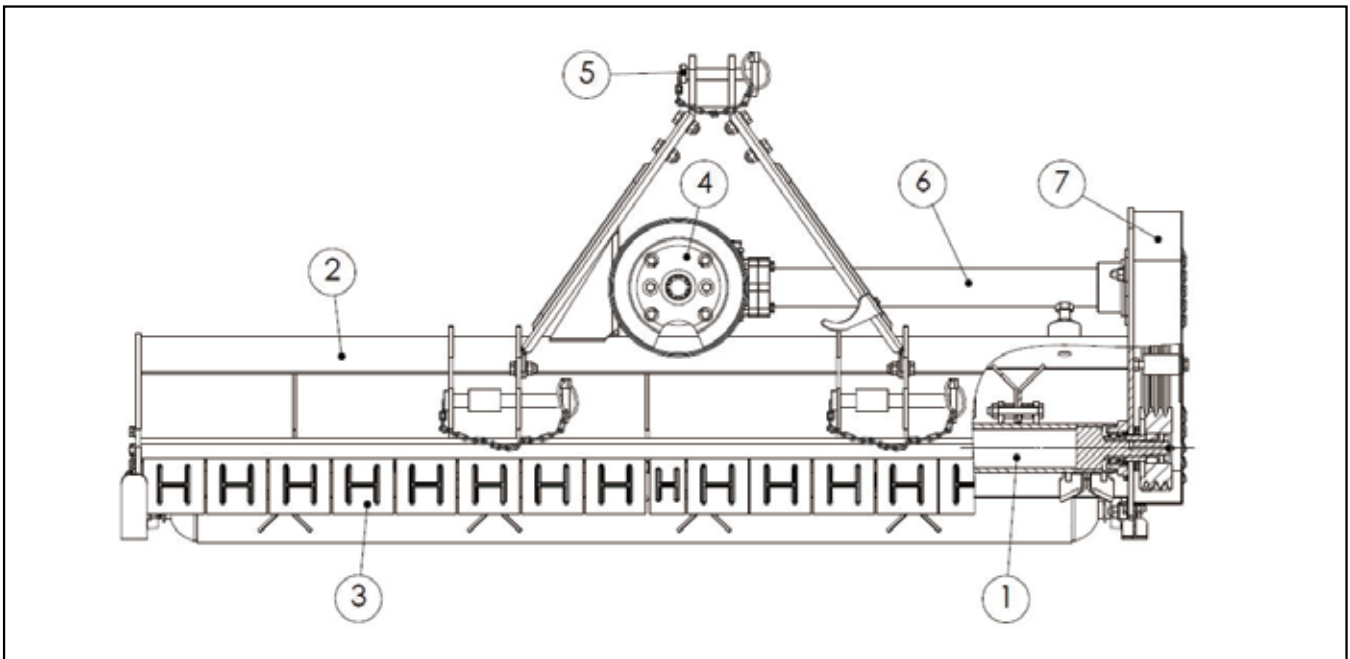
### BRIEF INTRODUCTION

Read this service manual before using the machine.

Flail mower is designed for pulverizing grass and short bramble, and shall be used in the indicated purpose.

The Flail mower consists of a rotating shaft with many blades attached to it. The blades cut the grass while traveling over the working area. Rotational power to the shaft is provided by the tractor PTO through the gearbox in the center of the machine.

The Flail mower attaches to the 3 point hitch on the tractor.



### MAIN COMPONENTS OF THE FLAIL MOWER

1. Blade axle
2. Blade axle cover
3. Combined fender
4. Gear box assembly
5. Suspension bracket
6. Transmission shaft
7. Belt wheel and belt

## OPERATION



**Be familiar with the machine before starting. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency.**

### CHECKING BEFORE OPERATING



**Only use universal joint conforming to CE standard and protect them properly.**

Before operating the machine, the following areas should be checked off:

1. Before starting up the machine, check and Lubricate all grease points, all lubricated parts inside the machine.
2. Use only an agricultural tractor of horsepower within limits of the machine specified.
3. Check that the machine is properly attached to the tractor. Be sure retainers are used on the mounting pins.
4. Be sure extra weights are mounted on the front of the tractor.
5. Check the oil level in the gearbox. Add as required.
6. Check that the tractor PTO shaft turns freely and that the machine driving shaft can telescope easily.
7. Check the blades. Be sure they are not damaged or broken and swing freely in their mount. Repair or replace as required.
8. Check and tighten the blade bolts.
9. Check for entangled material in all rotating parts. Remove this material.
10. Install and secure all guards, doors and covers before starting.
11. Before installing the universal joint, the tractor and the machine motor shall be stopped and the key be taken away. The universal joints shall be installed in good state, with proper protective parts.
12. The chain on the protective parts of the universal joint shall be guaranteed in good condition, in case, automatic rotation occurs.
13. All other persons shall leave the ground before connecting the driving power from the tractor. Keep the output of the tractor at 540 RPM.

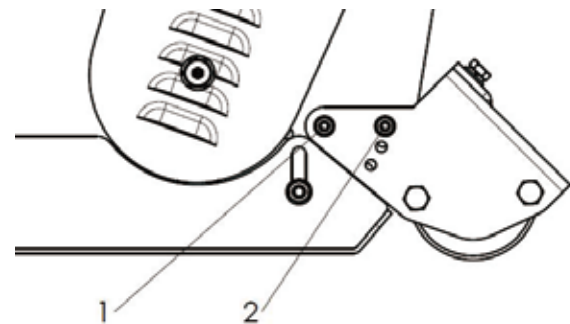
14. Before cleaning, repairing and lubricating the machine, stop the motor and take away the key with you.

15. When the universal joint is not connected with the tractor, they must be connected again through the frame to protect the joint from damaging.

16. Don't approach the machine when the machine runs.

### ADJUSTING THE HEIGHT

To get the most out of your flail mower, it should be set within the recommended height. To save fuel and power and reduce wear and tear, the cutting height must be regulated correctly. When adjusting the working height, loosen screw (1), remove screw (2) on both sides; The roller height (see following drawing) can be adjusted by aligning the selected hole in the roller support bracket at position 2. The lowest hole is the highest working height; put the screw (2) into the selected hole; tighten screw (1) and screw (2).



### FLAIL MOWER ADJUSTMENT

1. On a flat piece of ground, attach the Flail Mower to the Tractor using the three point linkage
2. Use a solid adjustable top link
3. Lower the three point linkage to its lowest position
4. With the roller at the rear in contact with the ground, adjust the length of the top link so that the lower edge at the side of the flail mower is parallel with the ground
5. Rotate the blade drum by hand so that a row of blades hang vertically towards the ground.
6. Measure the clearance between the bottom of the extended blades and the ground.


Minimum 50mm

Note in rough or lumpy paddocks the clearance needs to be increased to ensure that the blades don't impact the ground in operation.



7. Adjust the roller height to increase or decrease the blade clearance as required
8. Go through steps 4 to 7 until the required clearance is achieved. When the Flail Mower has been set up with the required tolerances: Operate the Flail Mower with tractor in low range and the PTO delivering 540 RPM

## REGULATING THE TENSION OF DRIVING BELT

 **The machine shall always stand still for regulating the tension.**

Remove the driving belt cover.




1. Adjust the drive belt tension. The correct belt tension is achieved when the belt can be deflected by the belt thickness about 10mm at the center point between the pulleys.
2. Align the gearbox so the drive shaft is parallel with the body.
3. Use a straight edge to make sure the belt pulleys are in line and running true. If misaligned, call your dealer or service agent for technical support.

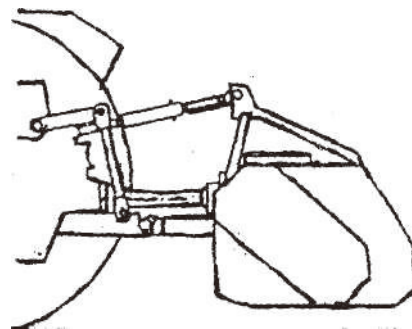
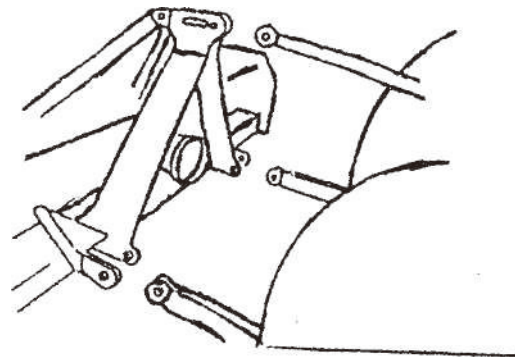
## STARING UP

Before starting the machine, control and adjust the following items:

- Tension of trapezoidal driving belt.
- Oil level of gear.
- Point of lubrication
- All bolts, nuts and screws.

 **When transferring the moving state of the machine to the working state, do not stand between the machine and the tractor.**

The machine coupling is equipped with 3 pins so that the machine can be coupled with all tractors with universal coupling with 3 pins. Each telescopic pole on the machine can be adjusted properly according to the type of the tractor. Keep the Flail mower away the tractor with a certain distance. The universal joint shall be tense and the largest distance in the closed state shall be 2/4 in.



Moving the lifting arm, and putting it between axes, insert the joint pins and fix them with pins. Fix the lifting arm with chain and tensioning device so as to prevent lateral movement of the machine. Connect the universal joint to the PTO shaft of the tractor on the side of the tractor. In any event, it cannot produce a collision in any position. While connecting 3 points, pay attention to that the PTO shaft of the tractor shall be parallel with the ground. It is very important to keep the machine driving axle and the PTO shaft of the tractor in parallel.

The machine shall be lifted from the ground before moving the machine.

## SERVICE AND MAINTENANCE

### SERVICE

#### FLUIDS AND LUBRICANTS

##### 1. Greas:

Use multi-purpose lithium based grease.

##### 2. Gear Box Oil:

Use N46 drive & hydraulic dual-purpose oil or equivalent for all operating

Each Gearbox Capacity: 0.85 liter

##### 3. Storing Lubricants:

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

#### GREASING

- Use a hand-held grease gun for all greasing.
- Wipe grease nipple with a clean cloth before greasing, to avoid injecting dirt and grit.
- Replace and repair broken nipple immediately.
- If nipples will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace nipple if necessary.

### MAINTENANCE



**All maintenance, repairing, cleaning and lubricating shall be conducted when the tractor and motor are stopped and the key is taken away.**

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent maintenance.

#### 8 HOURS OR DAILY MAINTENANCE

- Check and screw all nuts and bolts in connection parts.
- Check the blade and fixing parts every day and replace the damaged parts if they are found damaged. Don't install damaged, worn and unbalanced blade. New sleeve shall be used to replace the worn fixing parts on the blade.

NOTE: The operator shall put on gloves and use suitable tools before changing blade.

- Check the oil in gearbox. Fill them up to line if it's necessary.
- Press butter in each oil nipple three to five times.
- Clean the implement; take away all grass and mud.



**Check the oil level only when the unit is cold and the machine is on the level.**


### SEASON MAINTENANCE

- Check the machine as below beside the terms of daily maintenance.
- Check the oil in gearbox; replace it if it is bad.
- Check the bearings of blade spindles whether mud and water have been enter because oil seals are damaged, if it's so, disassemble and clean them and replace them if it is necessary. And then press butter into them.
- Check the distance between bearings and gears. Adjust them if it's necessary.

### ANNUALLY MAINTENANCE

- Cleaning mud and grass on the machine thoroughly.
- Check all clearance between bearings and gears if you have replaced them. Please run it without load for 3-5 minutes.
- Check and clean blade axles. Replace oil seals and press butter into them.
- Check all blades, replace then if they are wear-out or damaged.
- Repair the side skirts; let them to original technical condition. Replace damaged or broken protective devices.
- Remove the driving shaft from the machine. Pull the machine driving shaft apart. Check and replace any components that are damaged or worn. Install the drive line on the machine. The machine driving shaft should telescope easily and the guard turn freely on the shaft
- Let the oil in gearbox drain out thoroughly. Check and clean it. Fill new gear oil up to the dedicated oil level.
- The oil shall be drained off after 50 hours of using time. Then the oil shall be drained off every 250 hours. One time every year at least.

- The draining procedure is as follows: remove the draining bolt under the gear box, so that the oil drains off. After the oil is drained off, put back the cover and fill the gear oil up to the dedicated oil level.

 **Don't forget to disconnect the generator cable and batteries when welding on the machine, while the machine is coupled with the tractor.**

**STORAGE**

The machine inside and outside shall be cleaned carefully so as to avoid corrosion.

Don't spray water on the rolling bearing if you clean the machine with high pressure sprayer.

Check and clean the universal joint, driving belt press roller, or replace them if they are not in good state.

Spread oil on all parts required.

Recat the parts rubbed and damaged for anti corrosion.- Store the machine in a dry, level area. Support the frame with planks if require.

**OPERATION AFTER STORAGE**

Before the machine is started up, check the following items regularly:

Check oil level and add it if not enough.


Check and tighten all screws and nuts;

Check the regulated state of the machine.

Check the blade state.


Check the air hole on the gearbox. If it is blocked, clean or open the hole with compressed air.

Don't spread oil or grease on the driving belts. If there is oil or grease on the belts, wipe the belts, in case the belt sliding and wearing occur.

 **Check the machine every 10 hours. Repair the damaged parts or replace the blade according to the manufacturer's recommendation, to keep the machine balancing.**

Check all tightening parts and replace them if necessary.

Don't remove the protective parts on some points and protect the machine.

 **In the case of vibration, stop the machine and check the blade. If the blade breaks or is damaged, replace it with same type of the blade. If the machine vibrates still, send the machine to the authorized repairer.**

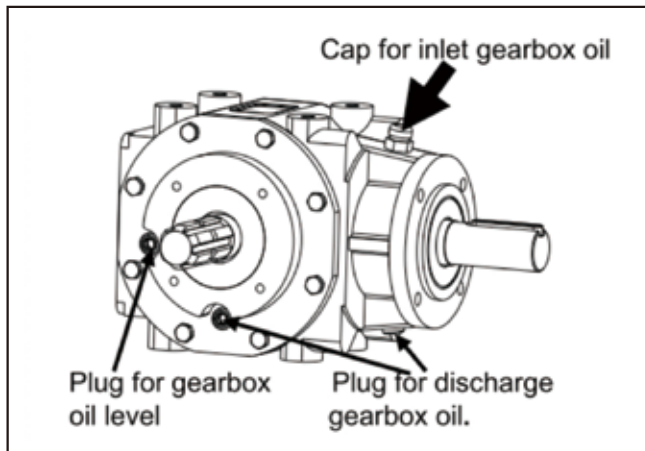
**LUBRICATION**

Gearbox



Type of Lubrication: SAE 90W Gear Lube

Check oil level in gearbox by removing the plug located on the right hand side. Oil should be level with bottom of plug hole. Add oil if necessary by removing top fill plug and side plug. Add oil until it flows from side plug hole. Do not overfill!



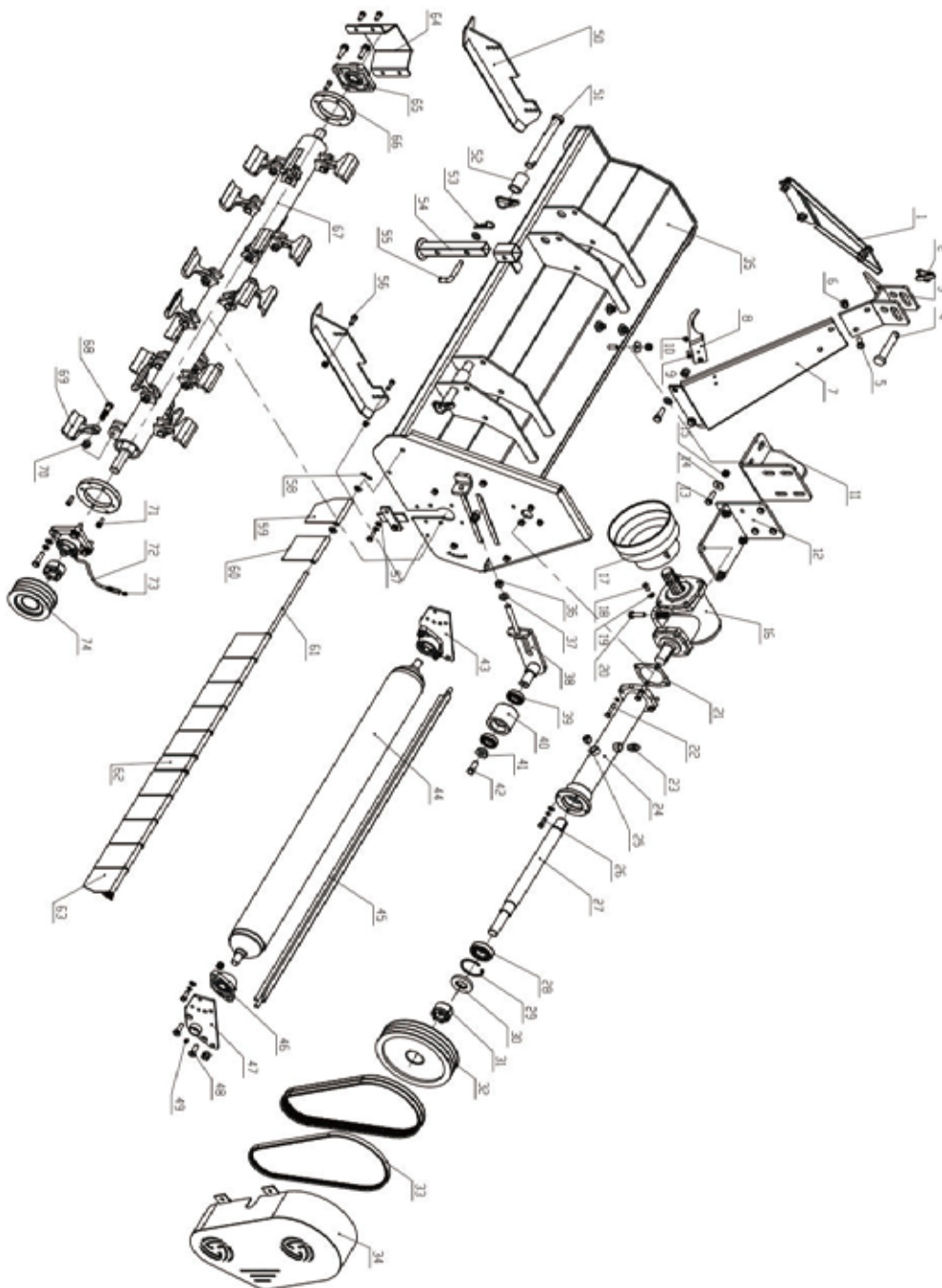
**IMPORTANT:** Mower should be level when checking oil in gearbox!

## ILLUSTRATED PARTS CATALOGUE

The manual contains a parts list for your machine. It is divided into major sections, which correspond to the groups shown in the Table of Contents and the accompanying illustration.

The first page of each major section lists the contents of that section, each of which consists of exploded views and related tabular listings. When ordering parts

Always give your dealer the Model of your machine to assist him in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.



## EFS FLAIL MOWER PARTS LIST

REF	DESCRIPTION	QTY
1	linkage weldment (L)	1
2	Lock Pin 8*40	3
3	top link weldment	1
4	pin	1
5	Bolt M12*35	8
6	Lock Nut M12	12
7	linkage weldment (R)	1
8	Hook	1
9	Bolt M6*20	2
10	Lock Nut M6	2
11	weldment for gearbox	1
12	weldment for gearbox1	1
13	Bolt M10*35	4
14	Big washer 10	8
15	Locking Nut M10	16
16	gearbox	1
17	PTO Cover	1
18	Bolt M8*16	7
19	washer 8	25
20	Bolt M10*40	8
21	paper gaset	1
22	Bolt M8*40	4
23	breath bolt	1
24	Transmission shaft	1
25	Bolt	1
26	Bolt M8*40	1
27	shaft	1
28	bearing	1
29	circlip 62	1

REF	DESCRIPTION	QTY
30	oil seal FB30*62*10 Big washer 10	1
31	Power lock 25*50	2
32	big pulley	1
33	Belt	3
34	pulley cover	1
35	mower deck	1
36	Nut M12	2
37	Washer 12	7
38	tension plate	1
39	bearing 6005 1RS	2
40	tension roller	1
41	washer	1
42	Bolt M12*30	1
43	roller connection plate (Left)	1
44	Rear Roller	1
45	scraper	1
46	bearing L204	2
47	roller connection plate (right)	1
48	Bolt M10*35	4
49	grease nipple	2
50	skids	2
51	low pin	2
52	bushing	2
53	R Pin	1
54	stand foot weldment	1
55	pin	1
56	bolt M8*25	16
57	cover plate	2
58	clip	2

REF	DESCRIPTION	QTY
59	fender (left)	1
60	Fender	14
61	shaft bar for fender	1
62	fender	1
63	fender (right)	1
64	bearing protection	1
65	bearing	2
66	ring for grass	2
67	rotor weldment	1
68	Bolt M12*1.5*50	24
69	hammer	24
70	locking nu M12*1.5	24
71	Bolt M8*20	4
72	pipe for grease	1
73	grease nipple	1
74	small pulley	1



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