

# OPERATION MANUAL OF VF FLAIL MOWER



## CONTENTS

Chapter I SAFETY INFORMATION .....	1
1.1 Safety First .....	1
1.2 Safety Signs .....	2
Chapter II SPECIFICATIONS .....	5
2.1 Brief Introduction .....	5
2.2 Specifications and Parameters for Flail Mower .....	5
Chapter III OPERATION .....	6
3.1 Checking Before Operating .....	6
3.2 Adjusting the Height .....	6
3.3 Flail Mower Adjustment .....	7
3.4 Regulating the Tension of Driving Belt .....	7
3.5 Starting up .....	8
Chapter IV SERVICE AND MAINTENANCE .....	9
4.1 Service .....	9
4.2 Maintenance .....	9
4.3 Storage .....	10
4.4 Operation After Storage .....	11
Chapter V ILLUSTRATED PARTS CATALOGUE .....	11
5.1 Flail Mower Assembly .....	12

# Chapter I SAFETY INFORMATION

## PLEASE NOTE

**Make sure all potential operators of this equipment review this manual and all safety messages contained within.**

### 1.1 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).

## 1.2 Safety Signs

### 1.2.1 Care of Safety Signs

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. If a component with a safety sign(s) affixed is replaced with a new part, make sure new safety sign(s) are attached in the same locations as the replaced components.
4. Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

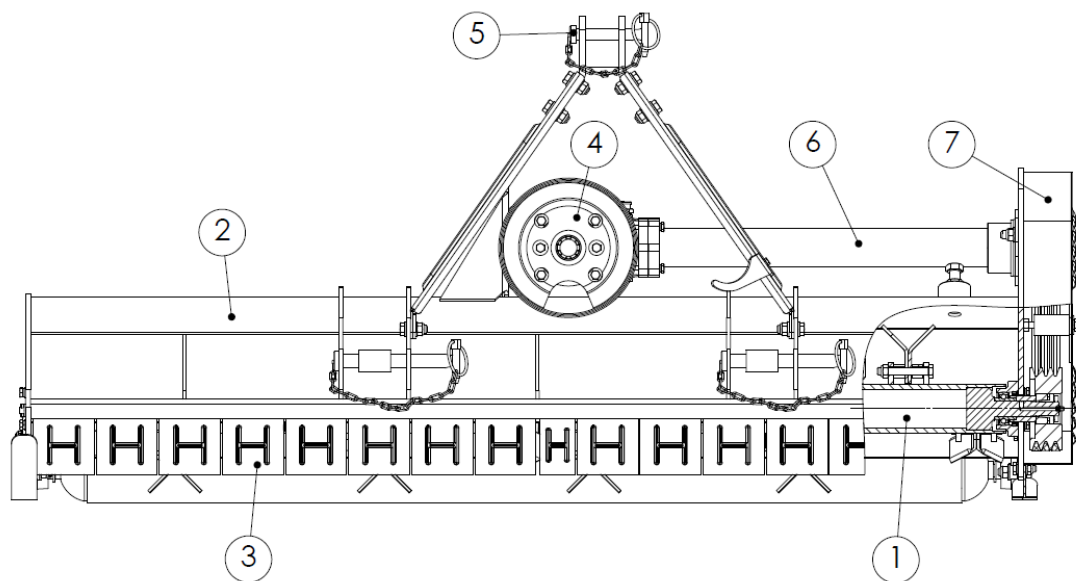
## Chapter II SPECIFICATIONS

### 2.1 Brief Introduction

VF series 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.



**Fig. 2.1 Main components of the Flail mower**

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

### 2.2 Specifications and Parameters for Flail Mower

Model	VF125	VF135	VF145	VF155	VF165
Dimensions (L×W×H) (mm)	1340 ×700×520	1440 ×700×520	1540 ×700×520	1640 ×700×520	1740 ×700×520
Structure weight (kg)	260	280	300	320	340
Cutting width (mm)	1250	1350	1450	1550	1650
Working efficiency (m <sup>2</sup> /h)	4000-7000	4000-7000	4000-7000	4000-7000	4000-7000
Input rotating speed (RPM)	540				
PTO spline size	6-tooth Φ35mm Rectangular spline				
Power required (HP)	20-35	20-35	20-35	20-35	20-35

## Chapter III OPERATION



**CAUTION:** 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.

### 3.1 Checking Before Operating



**ATTENTION:** 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.

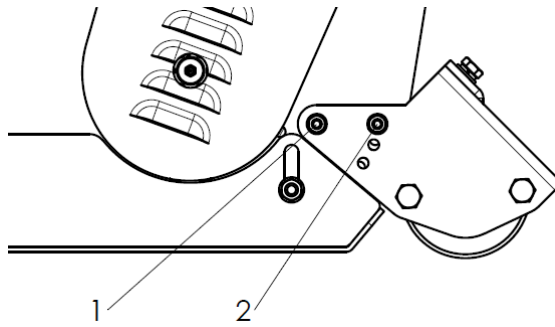
### 3.2 Adjusting the Height

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).



### 3.3 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

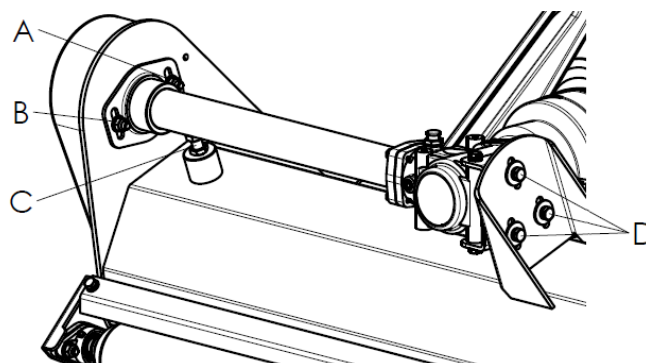
### 3.4 Regulating the Tension of Driving Belt



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

Remove the driving belt cover.

1. Loosen the Screw A and B that locks the support shaft and loosen the counter nut C.
2. Loosen the screws that lock the gear box on the mounting plate D.



3. 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.

4. Align the gearbox so the drive shaft is parallel with the body.
5. 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.



Approx. 10mm  
deflection



Align with a  
Straight Edge

Fit the safety covers and tighten the mounting bolts before operation

### 3.5 Starting up

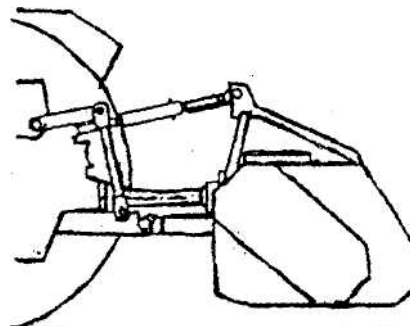
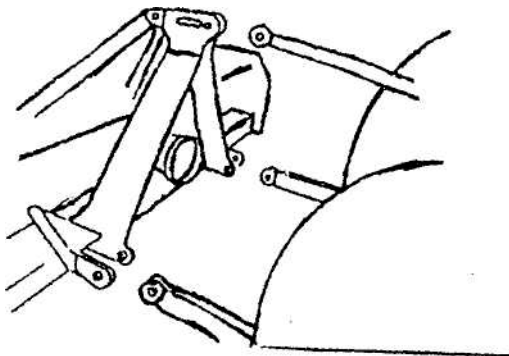
Before starting the machine, control and adjust the following items:

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



**ATTENTION: 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 5/10 cm.



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.



# Chapter IV SERVICE AND MAINTENANCE

## 4.1 Service

### 4.1.1 FLUIDS AND LUBRICANTS

#### 1. Grease:

Use multi-purpose lithium based grease.

#### 2. Gear Box Oil:

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

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.

### 1.1.2 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.

## 4.2 Maintenance



**ATTENTION: 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.

### 4.2.1 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.



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

#### 4.2.2 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.

#### 4.2.3 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 driveline 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.



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

### 4.3 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.

Recoat the parts rubbed and damaged for anti corrosion.

Store the machine in a dry, level area. Support the frame with planks if require.

## 4.4 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.



**ATTENTION: 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.



**ATTENTION: 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.**

## Chapter V 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.

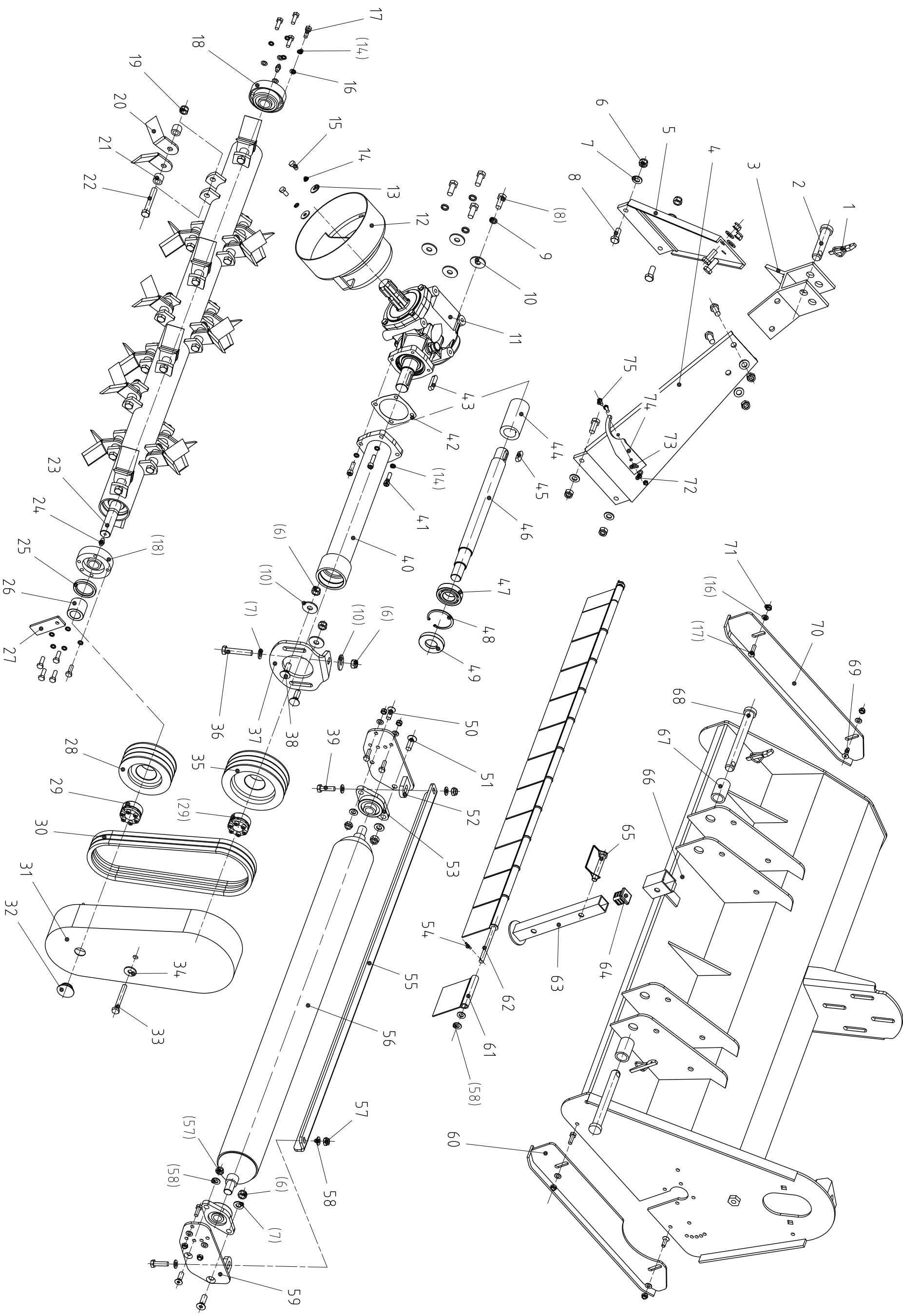
The first page of each major section lists the contents of that section, each of which consists of exploded views and related tabular listings.

### 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.

The information contained in this operations manual is a general introduction only. The information contained herein may be modified at any time, for any reason. Modification may affect the details or specifications of the product described in this manual. Therefore, users – dealers must include the manufacturing date and serial number when placing an order for spare parts and components. Thanks.

# Flail Mower Assembly



## VF割草机

序号	零件代号	零件名称		数量	备注
1		锁销	lock pin	3	
2	WC42-0101	上拉杆销	upper pin	1	
3	VF125.021	上拉杆支架焊合件	upper support bracket	1	
4	VF125.022	左侧悬挂板焊合件	left hanging plate weldr	1	
5	VF125.020	右侧悬挂板焊合件	right hanging plate weld	1	
6	DIN985	防松螺母M12	lcok nutM12	13	
7	GB97.1-85	垫圈12	washer 12	19	
8	GB5783-86	螺栓M12X30	bolets M12*30	12	
9	GB93-87	垫圈12	WAHSER12	4	
10	GB96-85	加大垫圈12	LARGE WASHER12	7	
11	XH30.290Z.01W	齿轮箱总成	GEAR BOX	1	
12	EF100.00.112	传动轴罩	PTO COVER	1	
13	GB96-85	加大垫圈8	LARGE WASHER8	2	
14	GB93-87	垫圈8	WAHSER8	15	
15	GB5783-86	螺栓M8X16	BOLETS M8*16	2	
16	GB97.1-85	垫圈8	WAHSER8	17	
17	GB5783-86	螺栓M8X25	BOLETS M8*25	15	
18	EF100.00.012A	法兰座轴承UC205	FLANG BEARING UC205	2	
19	DIN985	防松螺母M12X1.5	lock nut M12*1.5	18	
20	VFMH125.105	刀	BLADE	36	
21	VFMH125.102	刀座隔套	SPACER	36	
22	GB5782-86	螺栓M12X1.5X78	Bolets M12*1.5*78	18	
23	VF125.017	刀轴焊合件	BLADE ROTOR WELDMENT	1	
24	GB1152-89	油嘴M6	GREASE NIPPLE	2	
25	GB13871-92	油封40X55X8	OIL SEAL 40*55*8	1	
26	VF125.106	油封套	OIL SEAL	1	
27	VF125.113	槽口挡板	CIRCLE	1	
28	VF125.107	小皮带轮	SMALL BELTS PULLEY	1	
29	JB/T7934Z3	涨套 REACH 05型 25X50	REACH 25*50	2	
30	GB1171-74	皮带A930	BELTS A930	3	
31	VF125.018	皮带轮防护罩	BELTS COVERWELDMENT	1	
32	EF100.00.119	橡胶罩	RUPPER COVER	1	
33	GB5782-86	螺栓M10X80	BOLETS M10*80	1	
34	GB96-85	加大垫圈10	LARGE WASHER10	1	
35	VF125.108	大皮带轮	BIG PULLEY	1	
36	GB5783-86	螺栓M12X65	BOLETS M12*65	1	
37	VF125.109	张紧板	TENSION PLATE	1	
38	DIN603	半圆头方颈螺栓M12X35	BOLETS M12*35	2	
39	GB5783-86	螺栓M10X35	BOLETS M10*35	2	
40	VF125.019	传动轴轴管焊合件	PTO COVER WELDMENT	1	
41	GB70-85	螺钉M8X30	BOLTS M8*30	4	
42	VF125.105	纸垫	PAPER WASHER	1	
43	GB1096-79	键10X45	KEY 10*45	1	
44	VF125.111	连接套	CONNECT SLEEVE	1	
45	GB1096-79	键10X30	KEY 10*30	1	
46	VF125.110	传动轴	TRANSMISSION SHAFT	1	
47	GB/T276-94	轴承6206	BEARING 6206	1	
48	GB893.1-86	挡圈62	CIRCLE 62	1	
49	GB13871-94	油封30X62X10	OIL SEAL 30*62*10	1	
50	GB/T70.3-2008	内六角沉头螺钉M10X30	BOLETS M10*30	2	
51	GB/T70.3-2008	内六角沉头螺钉M12X35	BOLETS M12*35	2	

52	VF125.013	左滚筒挂板焊接件	LEFT ROLLER HANGING PLAT	1	
53	GB7810-87	菱形座外球形轴承L204	BEAIRNG L204	2	
54	GB879-86	弹性圆柱销4X20	PIN 4*20	2	
55	VFSH200.106	刮泥板	SCRAPER FENDER	1	
56	VF125.011	滚筒焊合件	ROLLER	1	
57	DIN985	防松螺母M10	LOCK NUT M10	4	
58	GB97.1-85	垫圈10	CIRCLE 10	16	
59	VF125.014	右滚筒挂板焊接件	FIGHT ROLLER HANDGING PI	1	
60	VF125.016	右撑底板焊合件	RIGHTSKID PLATE	1	
61	VFSH200.103	挡板	FENDER	13	
62	VF125.101	挡板挂杆	DENDER PIPE	1	
63	VF125.012	支撑脚焊合件	LEFT SUPPORT PLATE	1	
64	EF100.00.117	端盖	COVER	1	
65		D型方销12X70	PIN12*70	1	
66	VF125.023	机罩焊合件	COVER DECK WELDMENT	1	
67	VF125.103	悬挂销隔套	SPACER	2	
68	VF125.102	下悬挂销	DOWN PIN	2	
69	GB/T70.3-2008	内六角沉头螺钉M8X25	BOLTSM8*25	2	
70	VF125.015	左撑底板焊合件	LEFT SKID PLATE	1	
71	DIN985	防松螺母M8	LOCK NUT M8	8	
72	DIN985	防松螺母M6	LOCK NUT M8	2	
73	GB97.1-85	垫圈6	WASHER 6	2	
74	VF125.112	挂钩	HANGING PLATE	1	
75	GB5783-86	螺栓M6X25	BOLETS M6*25	2	