

AGL Ditch Bank Flail



MachineryDB

OPERATION & PARTS MANUAL

Please read these instructions before using. Always grease all fittings and be sure to always check and fill with oil before operating! Retain this manual for future use.

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1776 161 Rd, Quebec

Contents

Precautions	3
Decals	7
Specifications	10
Operation	12
Maintenance	16
Troubleshooting	19
Parts List	20
Parts Request Form	26
LIMITED WARRANTY	27
REGISTRATION	28

CHAPTER 1. SAFETY PRECAUTIONS



Before operating the Flail Mower read the following safety instructions. Failure to comply with these warnings may result in serious injury or death.

CONGRATULATIONS! On the purchase of your new Hanmey Flail Mower. This information is to assist you in preparing, operating and maintaining your flail mower. Please read and understand the information completely before operating your mower, paying special attention to all the safety details. Keep this manual handy for a ready reference.

1.1 SAFETY FIRST

YOU are responsible for the **SAFE** operation and maintenance of your Flail mower. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Flail mower is familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alert you to all good safety practices that should be adhered to while operating the Flail mower.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury of death by ignoring good safety practices.

- 1 Flail mower owners must give operating instructions to operators or employees before allowing them to operate the machine.
- 2 The most important safety feature on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.
- 3 A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator jeopardise himself and bystanders to possible serious injury or death.
- 4 Do not modify the equipment in any way. Unauthorized modification may weaken the function and/or safety and could affect the life of the equipment.
- 5 Think **SAFETY!** Work **SAFELY!**

1.2 GENERAL SAFETY

1. Read the operator's Manual and all safety signs carefully before operating, maintaining, adjusting or removing the Flail mower.
2. Do not allow passengers to ride on the Flail mower
3. Operate only at safe distance from bystanders. Clear the area of people, especially small children, before starting.
4. Stop PTO before dismounting tractor.
5. Keep feet and hands from under Flail mower at all times.
6. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

CHAPTER 1. SAFETY PRECAUTIONS

7. Do not stay between the tractor and the Flail Mower.
8. Do not approach the Flail mower until all motion has stopped.
9. All rotary blades have the ability to discharge objects at high speeds, which could result in serious injury to bystanders or passers-by, use with extreme caution.
10. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, attaching or removing.
11. Review safety related items annually with all personnel who will operate or maintain the Flail mower.
12. Do not operate machine if you feel unwell or physically unfit, in which case you should stop working.
13. This machine was designed with safety very much in mind. However, there is no real substitute for caution and attention in preventing accidents. Once an accident has happened, it is too late to think about what you should have done.
14. Use a tractor equipped with a Roll Over Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor – particularly during a turnover when the operator could be pinned under the ROPS or the tractor.
15. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question – **DON'T TRY IT.**
16. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.

1.3 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, repairing or removing.
2. Do not allow riders.
3. Install and secure all guards and shields before starting or operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, attaching or removing.
6. Place all tractor and machine controls in neutral before starting.
7. Never start or operate machine unless sitting on tractor seat.
8. Clear the area of bystanders, especially small children, before starting.
9. Stay away from PTO shaft and machine when engaging PTO. Keep others away.
10. Use warning lights on tractor when transporting.
11. Do not put hands or feet under machine while tractor engine or machine is running.
12. Do not operate Flail mower in the raised position.
13. Objects can be thrown out from under machine with sufficient force to severely injure people. Stay away from machine when it is running. Keep others away.
14. Always know what you are cutting. Never operate Flail mower in an area that has hidden obstacles. Remove sticks, stones, wire or other objects from working area before starting.
15. Review safety instructions with all operators annually.
16. Make sure to check and tighten all nuts and bolts prior to each use.

CHAPTER 1. SAFETY PRECAUTIONS

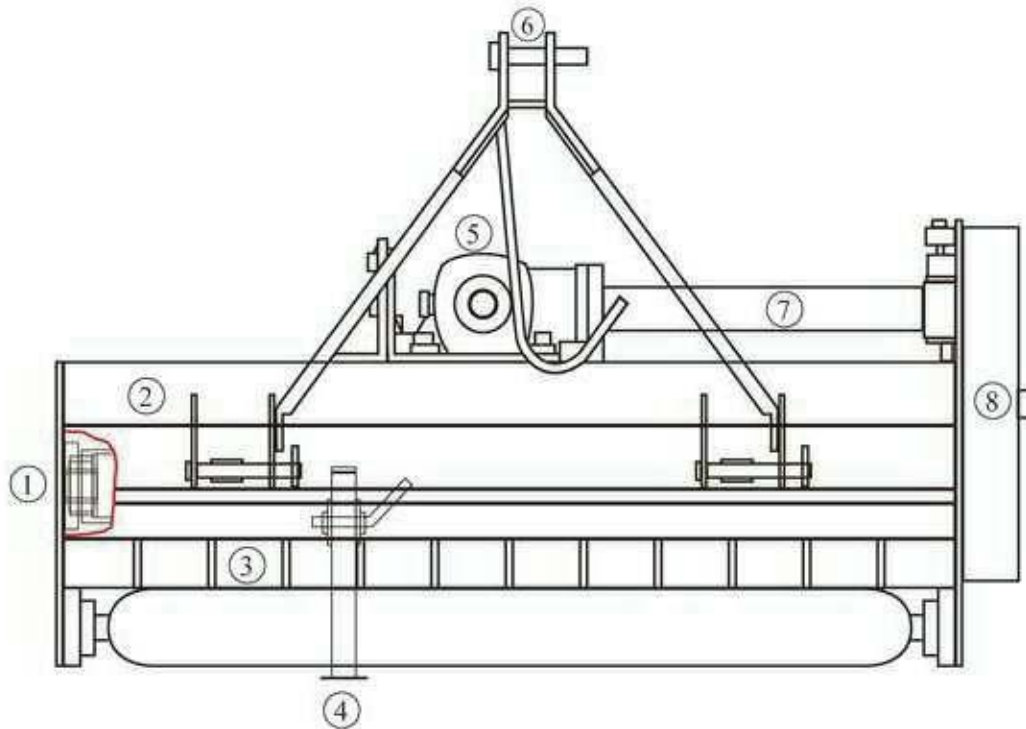
1.4 STORAGE SAFETY

1. Store the machine in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the machine in a dry, level area.
4. Clean grease and oil as required and protect it from the elements.

1.5 MAINTENANCE SAFETY

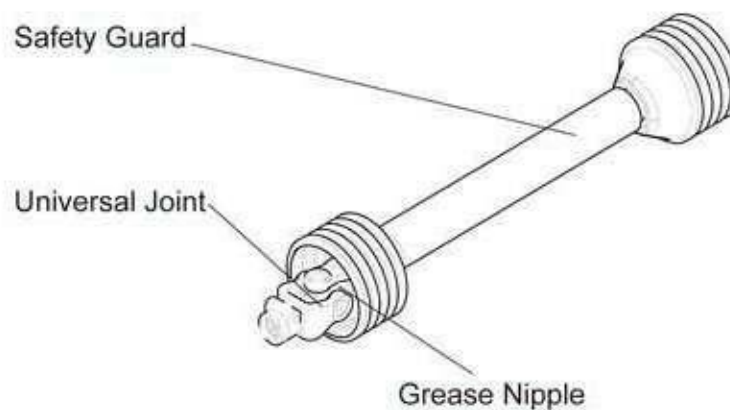
1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
2. Follow good shop practices.
3. Keep service area clean and dry.
4. Be sure electrical outlets and tools are properly grounded.
5. Use adequate light for the job at hand.
6. Make sure there is plenty of ventilation. Never operate the engine of the tractor in a closed building. The exhaust fumes may cause asphyxiation.
7. Before working on this machine, shut off the engine, set the brakes, and remove the ignition key.
8. Never work under equipment unless it is secured by a mechanical stand.
9. Use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy gloves when handling blades.
10. Only use genuine parts for service and maintenance.
11. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
12. Periodically tighten all bolts, nuts and screws and check that all pins are properly installed to ensure unit is in a safe condition.
13. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing machine in service.

CHAPTER 1. SAFETY PRECAUTIONS



1. Blade axle	2. Blade axle cover	3. Combined fender
4. Stand	5. Gear box	6. Top Link Bracket
7. Transmission shaft		8. Belt & Pulley Cover

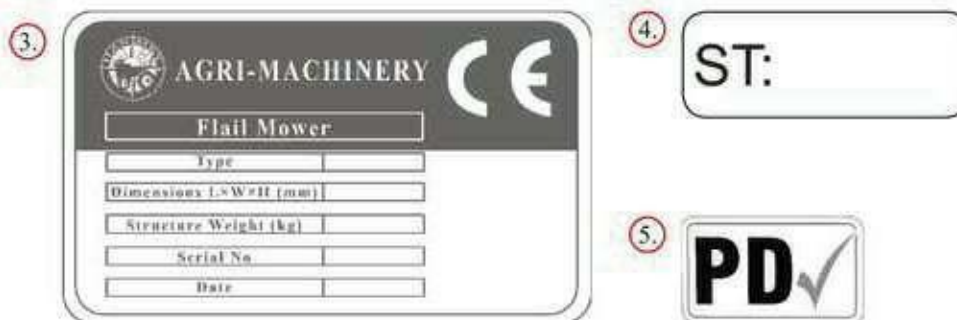
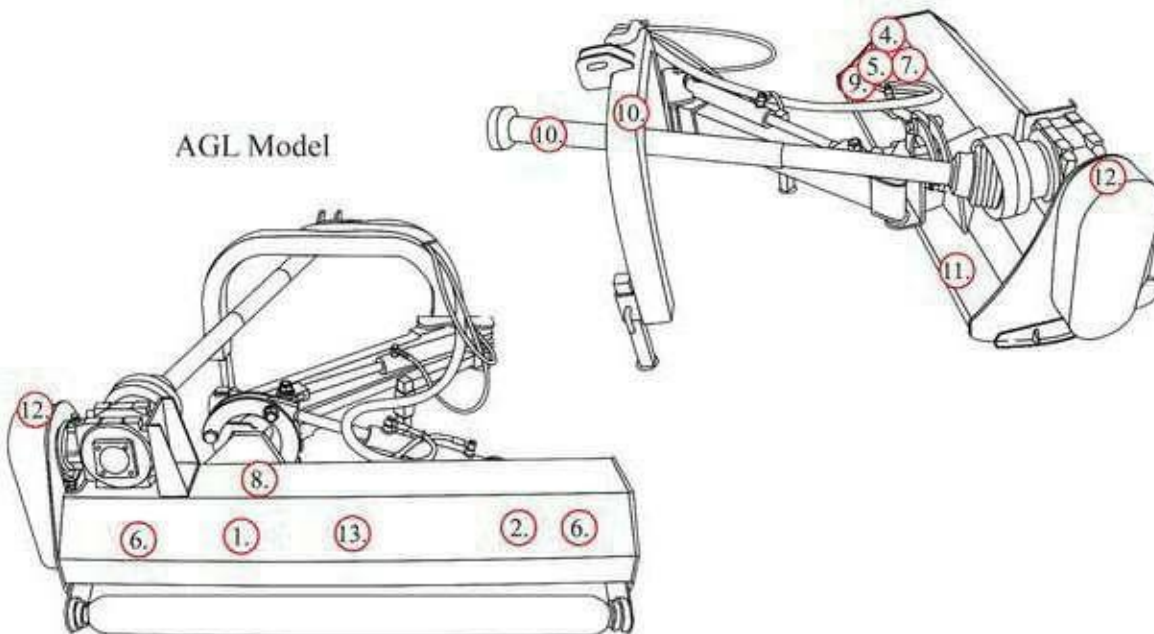
PTO Shaft



CHAPTER 2. SAFETY DECALS

SAFETY & MODEL DECAL

The position of safety decals are shown in the illustrations below. Good safety requires that you familiarize yourself with the various safety signs, and increase your **SAFETY AWARENESS**.



CHAPTER 2. SAFETY DECALS

6.



7.



8.



9.



10.



11.



12.

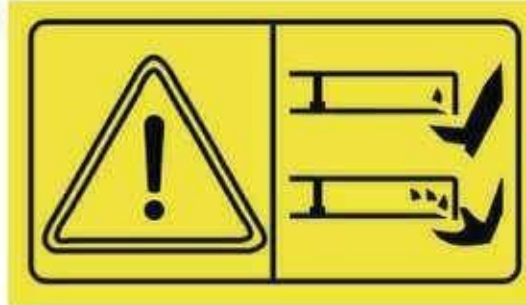


CHAPTER 2. SAFETY DECALS

14.



15.



16.



CHAPTER 3. PRODUCT SPECIFICATIONS

3.1 Product No.

FLAIL MOWER MODELS

AGL

Verge Hydraulic Reach Flail, Medium Duty

3.2 Implement Specifications

Models	AGL125	AGL145	AGL165
Working Width	48"	57"	65"
Overall Width			
Min HP req.	22HP	25HP	40HP
Hitch	Cat1	Cat1	Cat1
Gearbox Rating	65HP	65HP	65HP
optional Y balde	32	36	52
Hammer balde	16	18	26
Housing thickness	0,25	0,25	0,25
Roller Diam.	4"	4"	4"
Rotor Diam.	4 1/2	4 1/2	4 1/2
No. Of belts	3	3	3
Warranty	1 Year	1Year	1Year
Weight			

CHAPTER 3. PRODUCT SPECIFICATIONS

Uses:

Perfect for use after storms when debris is scattered throughout areas usually maintained with normal mowers ~ Multi-purpose machines for mulching foliage and sticks ~ ideal for thick grass, sticks, undergrowth and light vine mulching ~ vegetable & pasture topping ~ roadside maintenance.

Features:

Cutting height controlled by adjustable skids ~ high strength mulching blades ~ belt driven ~ safety flaps to prevent debris being thrown ~ extra strong and designed with safety in mind ~ support leg for storage ~ solid hitch ~FC-120/160 models include hydraulic flail catcher.

3.3 Identification of the Implement

An Identification plate is affixed to the frame of each implement. It contains the "CE" Certification brand and information about: the Manufacturer, Model, Serial Number, Year of Manufacture and Weight.

CE Identification Plate



CHAPTER 4. PRODUCT OPERATION

4.1 CHECKING BEFORE OPERATING

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

1. Before starting up the machine, check and Lubricate all grease points, on the machine and drive shaft.
2. Use only an agricultural tractor with horsepower within limits of the implement.
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, if required.
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 PTO, ensure the engine is stopped and the PTO shaft is in safe working order.
12. All other people shall leave the area before connecting the driving power from the tractor. Keep the output of the tractor at 540 RPM.
13. Before cleaning, repairing and lubricating the machine, stop the motor and take the key away with you.
14. When the PTO shaft is not connected with the tractor, support it through the frame to protect it from lying in the dirt.
15. Don't approach the machine when it is operating.

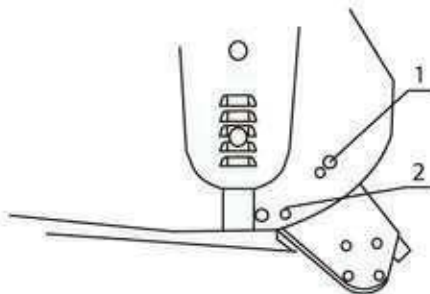
4.2 ADJUSTMENTS

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 alligning 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).

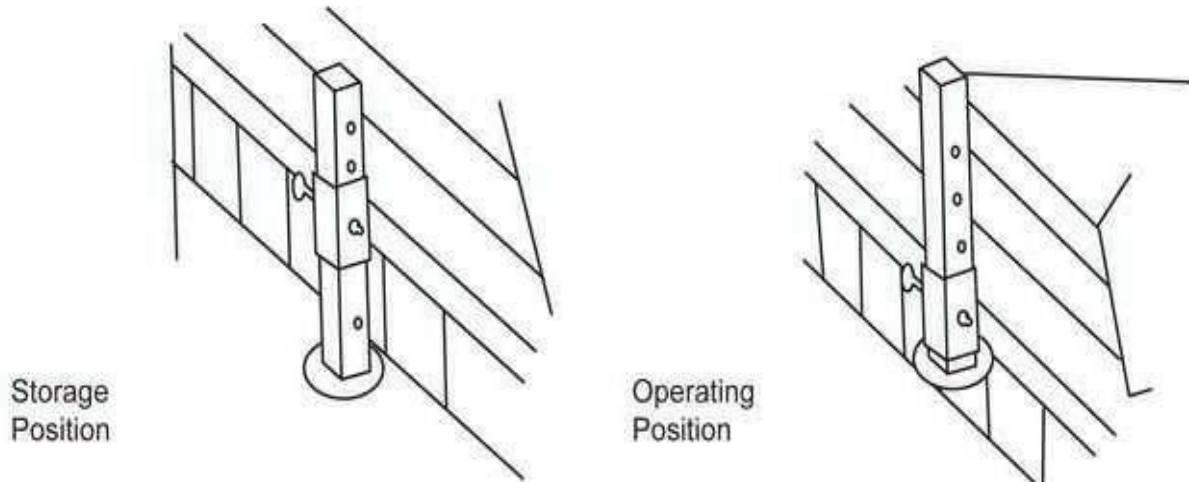


CHAPTER 4. PRODUCT OPERATION

4.4 STARTING UP

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

- Drive belt tension.
- Gearbox oil level.
- Grease nipples on bearings and PTO shaft.
- All bolts, nuts and screws.

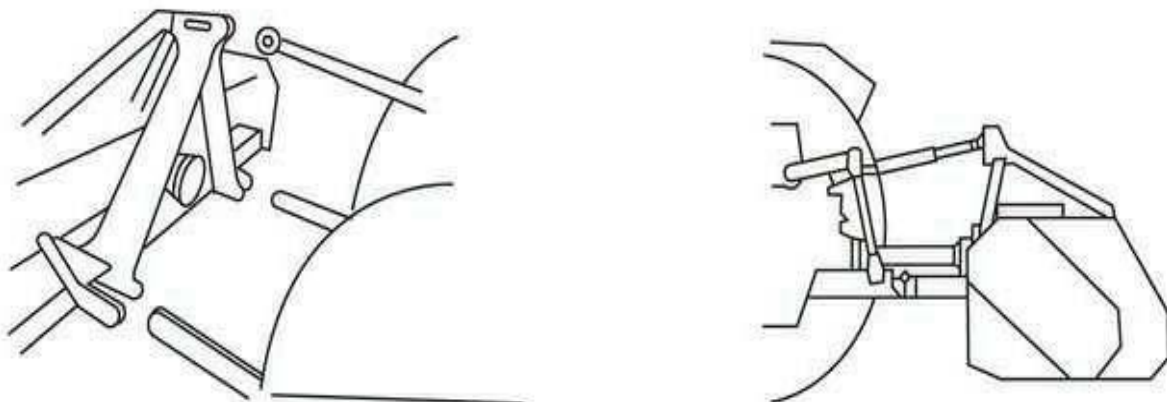


In order to keep the machine stable, lower the adjustment stand when the machine is stopped (see above drawing).

Follow all safety precaution detailed in this manual.

The machine is equipped with a standard category one, three point linkage.

Back the tractor into position in front of the flail mower. Lower the tractor hydraulic lift arms. Turn the tractor off. Maneuver the implement by hand and attach the lower link arms to the lower link pin. Ensure they are secured with lynch pin. Attach the top link to the top link bracket. Adjust the lower link sway chains to allow minimal lateral movement. Attach the PTO shaft to the Tractor PTO ensuring it has been cut to the required length.



CHAPTER 4. PRODUCT OPERATION

4.5 HYDRAULIC CONNECTION

- Switch the engine off, set the handbrake and remove the ignition key. Push the hydraulic lever to release pressure at the remotes. Connect the implement's hydraulic hoses to the remotes using the quick couplers, having checked the quick couplers are clean and in good condition.
- Start the engine and activate the hydraulics to check the connection. Check there are no oil leaks at the connection or the implement.
- Before disconnecting, stop the engine and move the remotes lever back and forth to release the hydraulic oil pressure as previously mentioned.

4.6 GREASING AND LUBRICATION

Each 4 hours of work:

- Check and tighten nuts and bolts
- Grease with lithium based grease when it is indicated by the symbol GREASE



After 50 hr of work, check and fill the gearbox to the required level, using oil type SAE 90 EP API GL4 Oil.

Each 100 hr of work:

Check the gearbox oil level. Replace as required.

CHAPTER 5. SERVICE AND MAINTENANCE

5.1 SERVICE

FLUIDS AND LUBRICANTS

1. Grease:
Use multi-purpose lithium based grease.
2. Gear Box Oil:
Use SAE 90 Gear oil.
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

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

5.2 MAINTENANCE

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

HOURS OR DAILY MAINTENANCE

- Check all nuts and bolts, tighten as required.
- Check the blade and blade bolts every day and replace the damaged parts. Don't install damaged, worn and unbalanced blade. Replace sleeves as they become worn.

NOTE:

The operator should put on gloves and use suitable tools before changing blade.

- Check the oil in gearbox. Fill up to line if necessary.
- Pump grease into each grease nipple three to five times.
- Clean the implement; remove grass and mud.

SEASON MAINTENANCE

- Check the machine as in the terms of daily maintenance.
- Check the oil in gearbox; replace it if it is contaminated.
- Check the blade spindles for wear and tear. If worn, disassemble and clean them and replace them if it is necessary, grease as required.

ANNUAL MAINTENANCE

- Thoroughly Clean mud and grass off the machine.
- Check and clean blade axles. Replace seals and grease as required.
- Check all blades, replace them if they are wear-out or damaged.
- Repair or replace the side skirts back to their original size and shape. Replace damaged or broken protective devices.

CHAPTER 5. SERVICE AND MAINTENANCE

GEAR BOX MAINTENANCE

The oil should be drained out and replaced after the first 50 hours of operation. Then the oil should be changed every 250 hours, or at least once a year.

Drain oil from the gearbox thoroughly. Check and clean it. Fill with new gear oil up to the dedicated oil level.

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 out, put the plug back and fill with gear oil up to the dedicated oil level.

	8hrs/ Daily			50hrs/Weekly			Annually		
Lubricate PTO Shaft	✓			✓			✓		
Lubricate Caster Wheels	✓			✓			✓		
Lubricate Blade Spindle	✓			✓			✓		
Check Gear Box Oil Level				✓			✓		
Clean Machine							✓		
Lubricate and Clean PTO Shaft Cover							✓		

PTO SHAFT MAINTENANCE

The PTO shaft is designed to telescope to allow for dimensional changes as the machine goes through its operating range. A tubular guard encloses the driving components and is designed to turn relative to the driving components. The shaft should telescope easily and the guard turn freely on the shaft at all times. Annual disassembly, cleaning and lubrication is recommended to insure that all components function as intended. To maintain the shaft, follow this procedure:

1. Remove the shaft from the machine.
2. Pull shaft apart.
3. Use a screwdriver to pry the tabs out of the sleeves on each end.
4. Pull the shaft out of the plastic tubular guard.
5. Use a solvent to clean the male and female portions of the telescoping ends.
6. Apply a light coat of grease to each end.
7. Clean the grooves on each end where the tabs are located. Clean each tab also.
8. Apply a light coat of grease to each groove.
9. Insert the shaft into its respective guard and align the slots with the groove.
10. Insert the tabs through the slots and seat in the groove.
11. Check that each guard turns freely on the shaft.
12. Assemble the shaft.
13. Check that the shaft telescopes easily.
14. Replace any components that are damaged or worn.
15. Install the shaft on the machine.

CHAPTER 5. SERVICE AND MAINTENANCE

GEARBOX MAINTENANCE

The gearbox used on the Flail mower will give many years of trouble-free service with minimal maintenance requirements. Maintain the gearbox by following this procedure:

Oil Level:

- Remove the level plug from the rear or side of the gearbox.
- Add oil through the filler plug located on top of gearbox until oil comes out of the level plug.
- Add through the level plug if required.
- If gearbox has a dipstick on filler plug, then fill to indicator mark.

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

5.3 STORAGE

- Clean the machine inside and out 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 condition.
- Spread oil on all parts required.
- Recoat the parts rubbed and damaged for anti corrosion.
- Store the machine in a dry, level area.

5.4 OPERATION AFTER STORAGE

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

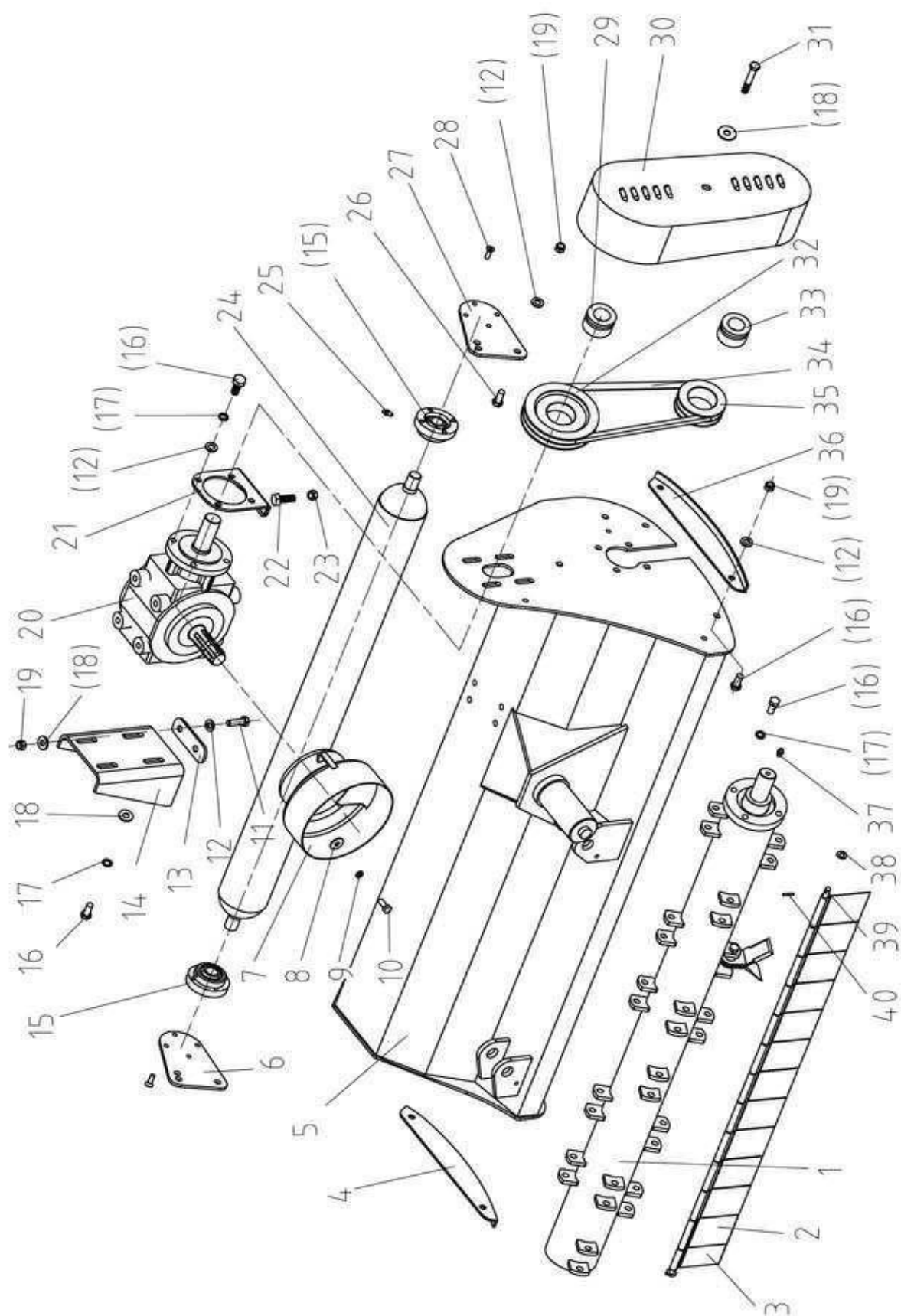
- Check oil level and add if required.
- Check and tighten all screws and nuts.
- Check the blade condition. Replace as required.
- Check the air hole on the gearbox. If it is blocked, clean or open the hole with compressed air.
- Don't spread oil or grease on the driving belts. If there is oil or grease on the belts, wipe the belts, to avoid slippage and premature wear.
- Check all moving parts and replace them if necessary.
- Check the protective covers are complete and operate correctly.

CHAPTER 6. TROUBLE SHOOTING

TROUBLE SHOOTING

FAILURE	CAUSE	SOLUTION	LEVEL OF DANGER
Excessive vibration of the machine	Broken flails	Replace broken flails.	Flails can be replaced by a competent operator. In the other cases, replacement must be done by specialised staff.
	Broken rotor support.	Replace rotor support with original parts.	
	Broken driving support shaft	Replace shaft support with original parts.	
	The worst: bent rotor	replace rotor with original parts	
The grass is not cut.	Broken flails.	Replace flails.	For replacement of flails, adjustment or replacement belts and fixing lock joints, see paragraph relating to maintenance.
	Belt slipping.	Adjust belt tension.	
	Broken belts.	Replace belts.	
	Pulleys slipping on shafts.	Fix pulley lock joints.	
	Broken gear box.	Repairing or replacement of gear box.	
Clogging of Hammers/ Knives	Rotor Speed is too low	Increase rotor speed	
Excessive wear of hammers/knives	Rotor speed is too high	Decrease rotor speed	
Flail Mower vibrates during works	Foreign matter stuck in between blades	Remove foreign matter	Secure flail mower on a mechanical stand before maintaining blades or rotor.
	Hammers/knives broken	Replace hammer/ knives	
	Bolts of the rotor shaft support have come loose	Lock bolts	

Flail Mower Assembly



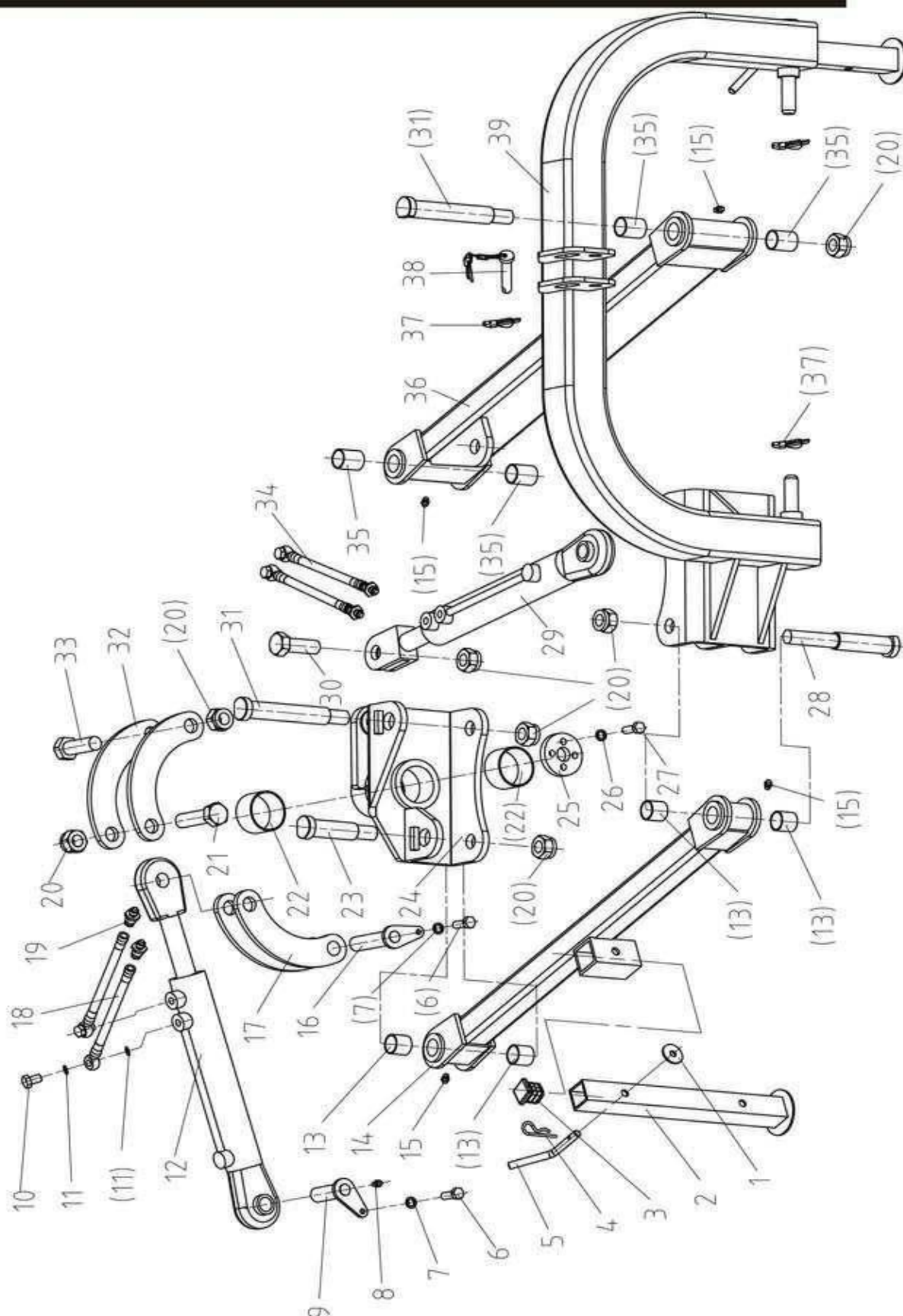
CHAPTER 7. PARTS LIST -

MODEL

Flail Mower Assembly

NO.	Part NO.		Name & Specifications	Quantity
	AGL-125	AGL-145		
1			Blade axle subassembly	1
2	EF100.00.122		Fender	12
3	EF100.00.121		Fender	1
4	EFAGL125.022			1
5	EFAGL125.013	EFAGL145.013	The cover weldment	1
6	EFAGL125.101			1
7	EF100.00.112		Guard shade	1
8	GB96-85		Plain washer 10	4
9	GB93-87		Spring washer 10	4
10	GB5783-86		Bolt M10X25	4
11	GB5783-86		Bolt M12X40	2
12	GB97.1-85		Plain washer 12	6
13	EFGC120.101		Splint	1
14	EFAGL125.015			1
15	EF100.00.012		Bearing with flange UC205	2
16	GB5783-86		Bolt M12X30	18
17	GB93-87		Spring washer 12	16
18	GB96-85		Plain washer 12	7
19	GB6184-86		Locking nut M12	6
20	XH50.300Z.02		Gearbox assembly	1
21	EFAGL125.014			1
22	GB5783-86		Bolt M12X45	2
23	GB6172-86		Nut M12	2
24	EFG120.012	EFG140.012	Roller weldment	1
25	GB1152-89		Oil cup M6	2
26	GB5783-86		Bolt M12X35	2
27	EFAGL125.101A			1
28	GB2673-86		Hex.head bolt M8X25	8
29	JB/T7934Z3		Swellable sleeve 33X60	1
30	EFGC120.016		Belt cover	1
31	GB5782-86		Bolt M12X110	1
32	EFG120.106A		Big belt ptiley	1
33	JB/T7934Z3		Swellable sleeve 35X60	1
34	GB-T1154-97		Strap B991	3
35	EFG120.105A		Small belt ptiley	1
36	EFAGL125.022			1
37	GB1152-89		Oil cup M8X1	2
38	GB97.1-85		Plain washer 10	18
39	EF100.00.123		Shaft for fender	1
40	GB879-86		Elastic cylindrical pin 4x22	2

The Sway Frame Assembly



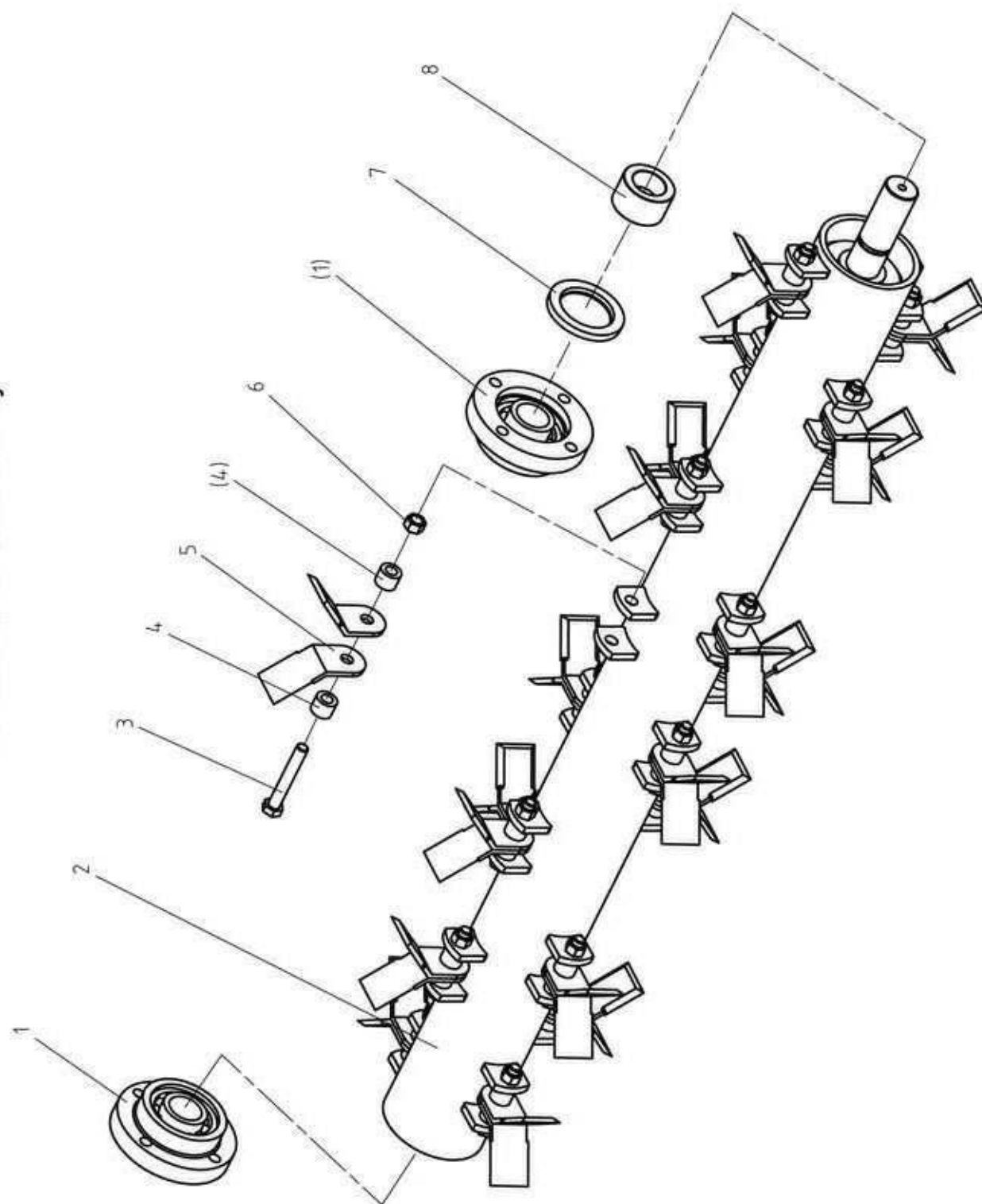
CHAPTER 7. PARTS LIST -

MODEL

The Sway Frame Assembly

NO.	Part NO.		Name & Specifications	Quantity
	AGL-125	AGL-145		
1		GB96-85	Plain washer 12	2
2		EFAGF140.012	Supporting frame (L)	2
3		MFP120.00.101	Cover (B)	2
4				2
5		EF100.00.111	Bent pin	2
6		GB5783-86	Bolt M8X16	2
7		GB93-87	Spring washer 8	2
8		GB1152-89	Oil cup M6	1
9		EFAGL125.103		1
10		GB3451-83	Bolt M14X1.5	4
11		GB3451-86	Washer 14	8
12		EFAGL125.016	Side sway cylinder	1
13		SF-2		4
14		EFAGL125.017		1
15		GB1152-89	Oil cup M10X1	5
16		EFAGL125.104		1
17		EFAGL125.021		1
18		EFAGL125.025	Oil pipe (L)	2
19			Quick connector R1/2"	4
20		GB6184-86	Locking nut M24	7
21		GB5781-86	Bolt M24X90	1
22		SF-2		2
23		EFAGL125.107	Pin (S)	1
24		EFAGL125.020		1
25		EFAGL125.102		1
26		GB5783-86	Bolt M10X35	4
27		GB97.1-85	Plain washer 10	4
28		EFAGL125.108		1
29		EFAGL125.018	Parallel movement cylinder	1
30		GB5781-86	Bolt M24X65	1
31		EFAGL125.109	Pin (L)	2
32		EFAGL125.105		2
33		GB5781-86	Bolt M24X70	1
34		EFAGL125.028	Oil pipe (S)	2
35		SF-2		4
36		EFAGL125.019		1
37		200.56.011		2
38		EF100.00.019	Pin shaft weldment	1
39		EFAGL125.011	Hanging weldment	1

Blade Axle Subassembly



CHAPTER 7. PARTS LIST -**MODEL****Blade Axle Subassembly**

NO.	Part NO.		Name & Specifications	Quantity
	AGL-125	AGL-145		
1	UC207-Z		Bearing with flange 90207	2
2	EFG120.013	EFG140.013	Blade axle weldment	1
3	GB5782-86		Bolt M12X78	20
4	EF100.00.101		Sleeve	40
5	EF100.00.102		Blade	40
6	GB6184-86		Locking nut M12	20
7	GB13871-94		Oil seal FB55X80X8	1
8	RK120.109		Oil-sealing sleeve	1

