# **SAFETY INTRODUCTION**

Your safety, and the safety of others, is very important. To help you make informed decisions about safety, we have provided operation procedures and other information on labels and in this manual. This information alerts you to potential hazards that could hurt you or others.

You will find important safety information in a variety of forms, including:

Safety Labels-----on the mower

**Safety Messages**---preceded by a safety alert symbol *A* and one of two signal words: **DANGER, WARNING**.

These singnal words mean:

**DANGER**: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purpose, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

Please read this Manual and the Manual of Engine carefully so as to operate the Machine safely and correctly. It's required to use the Machine strictly referring to the Manual. The Machine is with several times of technical renovation and the national patent. It's strictly forbidden to do any imitation.

# **IMPORTANT SAFETY INFORMATION**

**WARNING**: Do not allow anyone to operate this equipment who has not fully read and comprehended the safety manual and who has not been properly trained in the safe operation of the equipment.



WARNING: Operator should be familiar with all functions of the unit.

DANGER:Keep hands,feet,hair and clothing away from moving parts.

**WARNING:**Remove all objects from the work area that might be picked up and thrown by the blades.

**WARNING:**Do not mow when children and others are around.

WARNING:Keep all safety shields and deflectors in place during operation.

WARNING: Shut off the engine and allow the mower blades to come to a complete shop before making any adjustments to the mower.

WARNING: Never carry children or passengers.

WARNING:Do not allow children to operate this machine.

WARNING:Clean or replace any Safety Signs that are not readable or damaged. Replacement decals can be purchased from your local dealer.

### Transportation Safety

• When transporting, especially over rough, reduce speed to prevent damage to machine.

- •Ensure ignition keys are removed.
- •This machine is not road legal.DO NOT tow on public highways.
- •Never transport the machine with the rotor running, ever for small distances.

## **Operation Safety**

•Pay special attention when working with the machine not to touch fixed objects such as walls, shafts, guard rails, tracks etc. This could cause the breakage of the blades, which would be thrown out of the machine at very high speed.

•If wires, rope or chains should become entangled in the rotor, stop immediately to prevent damage or dangerous situations; stop the mower and towing machine, take out the starting key or safety cut-out.Put working gloves on; clear the rotor with the aid of pliers or shears. Don't try to disentangle it.

•Do not use the machine when excessive vibration is experienced, as this may cause breakage and serious damage-find the cause of the vibration and eliminate it before using the machine again.

## **SAFETY SIGNS AND LOCATIONS**



UTV, compact tractor lawn-mower.

Designed to tackle anything from lawn to grass & weeds depending on machine specification & set-up.

The ATV series Finish mowers are ideal for lawn, smallholders, farmers & contractors alike, as each machine can be tailored to the user's specific requirements.

These machines should however only be used to perform tasks for which they were designed-use of the machine, for any other function may be both dangerous to persons, and potentially damaging to components.Use of machine beyond the stated usage may invalidate any applicable warranty, as well as being potential in breach of applicable safety regulations.

Model(Flail Mower)	ATV-FLM120	ATV-FLM150
Engine	13.5hp B&S engine	
Cutting Width	1150mm	1450mm
Blades	36	48
Cutting Height	25-70cm	
G.W.	276kgs	320kgs
Packing Size	1450*1050*1050mm	1600*1100*1100mm
Quantity for 20'GP	22	44



<u>adjustment</u>

## **ATTACHMENT**

Before Attachments the Machine

Before attachment, always ensure the following:

•The machine is in good condition

- •All safety guards & decals are in good working order and correctly fitted
- •All blades are correctly fitted, undamaged, and not worn to excess
- •Lubrication points have been well greased
- •The engine oil level is correctly and in good working condition

•The tyres are free of damage and inflated to the correct pressure

#### **ATTACHING THE MACHINE**

**NOTE:**This machine is designed to attach to the towing vehicle through a 50mm diameter ball hitch.

1, Reverse the towing vehicle up to the machine.

2,Attach the machine onto the towing vehicle's coupling. This is achieved by lifting the handle of the hitch upwards to disengage the safety lock and allow attachment. Ensure the hitch is pressed firmly down onto the ball, and check that the safety lock engages by pressing the handle downwards(towards the drawbar).

3, With the engine OFF, adjust the working height to a suitable level by offset the wheel Ring Nut in the right position aside the wheels.

4,Level the machine to suit the drawbar & cutting height. This is achieved by twisting the link connector fitted to the drawbar. When on level ground, the top face of the mower deck(where the engine is mounted) should be approximately parallel to the ground.

Set-up & Adjustment

#### Wheel Set-up & Adjustment

The height of cut depends greatly on the working conditions and volume of material. It is also affected by the forward speed of the towing vehicle, as cutting large volumes of material will require a slower forward speed in order to achieve a satisfactory cut in a single pass.

The minimum height of cut should be 2-3cm. Any lower than this and you risk damaging the machine & blades, as well as increase the chance of stones being ejected at high speed from the machine.



**NOTE:** The rear roller is factory fitted to ensure the rotor & blades do not contact the ground if one wheel falls into a rut. It is imperative that the roller is set to the correct height to prevent damage to the machine.

**Towing parts Adjustment:** The ATV-FLM series flail mowers are towed from a central point, with offset towing permitted to either left or right at a variety of angles, to allow cutting outside the towing machine width.

The machine is offset left & right by unscrewing the SCREW as show aside. The drawbar can then be moved to the desired location, and the screw replaced in a suitable hole. The T-bar must be tightened firmly to prevent movement of the drawbar, and should be checked periodically for tightness.



And you can also adjust the drawbar height by adjust the tightness of the nut ①.Loosen the nut will lower the drawbar and fasten it will make the drawbar higher.

**WARNING**: Changing the drawbar angle must be undertaken with the engine switched off & the ignition keys removed. Failure to do so could result in injury or damage to the machine.

**Drive belt Adjustment:** The ATV-FLM mower is fitted with three, heavy duty wedge belts on the Right Hand side of the machine. It is important that these are checked regularly to ensure a long part life. The standard belt fitment is B1120 V Belt.

**NOTE:**Drive belts are a wearing part, and must be replaced if showing sings of wear.Replacements are readily available, and are not expensive.



Before adjustment the tension of the drive belts, first slacken slightly the tensioner mounting bolt①The 2/3 drive belts are then tensioned by pulling down the locknut ②.

The correct tension has been achieved when the belts deflect 15mm under 10kg of force applied at the midpoint between the two pulleys.Once the correct tension has been achieved, tighten the locknut<sup>®</sup>, and tighten mount bolt<sup>®</sup>.

Ensure that the tensioning mechanism mounting bolts are correctly fitted with a suitable thread locking compound to be precent vibration loosening of the bolt if the system is adjusted.

As part of the yearly maintenance schedule, this tensioning system should be checked and a small amount of grease applied to pulleys to prevent corrosion.

## Clutch

All machines in the ATV-FLM range are fitted with clutches, an important safety feature to act as overload suppression & to allow easy starting & stopping of the machine. The centrifugal clutch is located in the drive belt guard, either mounted directly onto the engine, or, for centrally mounted machines, mounted onto the driveshaft running off the engine.

The centrifugal clutch is a sealed unit and will not require any maintenance.DO NOT attempt to open the clutch assembly if you are having problems with the clutch, contact your machinery dealer.

NOTE: The clutch assembly fitted to the ATV-FLM range are a wearing part, and will need replacement once the clutch linings wear to excess. Replacement clutch linings are not available.

NOTE:On some new machines the clutches are known to stick slightly, before the clutch linings bed-in & hence will operate before the normal clutch cut-in point.This is not a fault with the clutch or machine-after a few hours use the clutch will bed in and operate normal.

WARNING:NEVER attempt to grease or oil the clutch. These are sealed units and do not require any maintenance.

# Operation

NOTE: Ensure that the operator is suitably qualified to use a machine of this

nature and that they have fully ready and understood this manual-they should be aware of all safety aspects relating to the safe use of the machine.

It is advisable that all "first time" operators practice using the machine is a clear safe area prior to work in order to familiar themselves with its operation.

# NOTE: After approximately one hour of work with a new machine, all nuts, bolts and drive belts should be checked for tightness and adjusted as necessary.

Prior to starting work the area to be cut should be checked for dangerous objects such as large stones, wood, wire, glass etc.---hazardous objects should be removed from the area prior to operation with the machine. The location of unmovable or natural hazards should be noted, or if necessary "marked", to indicate to the operator that the area should either be avoided or additional caution adopted whilst working around the hazard.

**Starting work:**With the machine switched off, adjust the cutting height to the desired position, and alter the drawbar so the mower deck is level at this height.

Start the engine, and engage drive by increasing the engine throttle to full power, allowing it to build up to the correct working speed before mowing off.

**Forward Speed:**The forward working speed will depend greatly on the working conditions and nature of the material being cut.Optimal speed will be in the region of 3-8km/h(2-5mph).

**Storage:**For extended periods of storage it is advisable that the machine be kept to storage.At this point it is good practice to check the machine for worn or damaged components-any parts that require replacing should be ordered and fitted at the earliest opportunity so the machine is fully prepared for the next seasons work.

#### **MAINTENANCE**

All maintenance, cleaning and repair operations must be performed with the machine suitably supported, the engine switched off (and cool), and the ignition keys removed.

The following maintenance tasks should be performed at the timescales stated to both maximize efficiency and prolong the working life of the machine.

**NOTE:**For commercial use, long hours of operation to determine proper maintenance intervals.

#### Maintenance Schedule-Machine

#### After first 2 hours of work

1)Check all nuts and bolts for tightness-retighten if required.

2)Check belt tension-adjust/tighten if required(refer to belt section for details of adjustment)

#### **Every 8 hours**

1)Check all nuts and bolts for tightness-retighten if required

2)Check belt tension and adjust if required

3)Check wear and condition of blades-replacing missing, or damaged blades immediately

4)Check condition of safety guards- repair or replace if not performing their function

5)Lubricate rotor bearings-Apply grese to the two main rotor bearings.See below for locations of the grease points.

6)Lubricate rear rotor bearings-Apply grese to the two rear rotor bearings.See below for locations of the grease points.

7)Check rotor-remove foreign objects that may be fouling or lodged in the rotor.

#### After every 100 hours(or annually, whichever occurs first)

1)Grease wheel bearings

2)Check belt condition-replace if required

3)Check condition of battery & connections

4)Check condition of fuel lines & replace if damaged or perished

5)Check condition of battery cables -replace if worn

6)Check condition of battery strap-replace if showing signs or wear or deterioration

7)Check axle bearing condition-replace if required

8)Check rear roller bearing condition-replace if required

9)Check main rotor bearing condition-replace if required

#### **Maintenance Instruction**

**NOTE:**Engine maintenance schedules are for accurate servicing intervals & procedures consult the relevant engine manufacturer operator's manual supplied with this machine.

**Grease Point**:Lubricate the following points using EP2 grease as per the maintenance schedule.



## Flail blades condition & Replacement

Over time, the blades on your machine will wear, and performance will deteriorate. It is important that the blades are kept in good condition to ensure a long service life of your machine. Blades should be replaced when either; 3mm has worn off the end of the finish blades; the blades has become blunt or damage; blades are missing.

When replacing flails the diametrically opposite flail should be replaced at the same time in order to maintain rotor balance. When flails are fitted in pairs both must be replaced at the same time. As flail are fitted in a spiral pattern care must be taken to replace the correct diametrically opposite flails.

When replacing blades visually inspect the mounting bolts and bushes, if applicable. These are all wearing part and will require replacement if they become worn to excess.

Problem	Possible Causes	Remedies
Irregular Cut	Worn, bent or broken blades	Inspect&replace&damaged blades
	RPM too low	Increase engine revs
	Machine not level to the ground	Check & adjust tyre pressure
	Clogged material caused by excessive forwarder speed	Reduce forwarder speed
Excessive Machine Noise	Loose bolts	Check bolts & tighten as necessary
	Damage components	Repair or replace
Excessive Engine Noise	Worn Muffler	Repair or replace
	Engine Problems	Consult authorized dealer or our after service department
Excessive Belt Noise	Belt slipping	Adjust belt tensioner
	Belts worn	Replace belts
Vibration	Worn, bent or broken blades	Inspect and replace as necessary
Excessive movement of drawbar	Worn drawbar pins	Replace drawbar pins
	Loose drawbar hand screws	Tighten hand screws
Bearings tight or overheating	Bearings dirty or ungreased	Clear & grease bearings
	Bearing worn to excess	Replace bearing
Belts Overheating	Belts slipping on pulleys	Tension belts
	Blades contacting the ground	Raise cutting height
	Working speed too high	Reduce forward speed

# **TROUBLESHOOTING**

# WARRANTY

Our warrants that the machine referred to in the Warranty Registration Form will be free from defects in materials and workmanship for a period of 12 months from the date of sale. This warranty does not affect your statutory right, but merely adds to them. Should you have a problem with in 12 months from the date of sale please contact your original dealer, or Service Department.

## Warranty Conditions

1, The Warranty Registration Form must be completed and returned to us with in 30 days of the date of sale.

2, This warranty does not cover defects arising from fair wear and tear, willful damage, negligence, misuse, abnormal working conditions, use in competition, failure to follow our instructions or alteration or repair of the machinery without prior approval.

3, The machinery must have been serviced in accordance with the Operator's Manual and the Service Log must have been kept up to date and made available to the dealer should service, repair or warranty work be undertaken.

4, This warranty does not cover claims in respect of wearing parts such as blades, tyres, belts, bearings, linkage pins etc.(and the add list shows)unless there is a manufacturing or material defect or the cost of normal servicing items such as oils and lubricants.

5, This warranty does not cover any express or losses incurred whilst the machinery is out of use for warranty repairs or parts replacement.

6, This warranty does not extend to parts, materials of equipment not manufactured by us, for which the Buyer shall only be entitled to the benefit of any such warranty or guarantee given by the manufacturer to us. Only genuine replacement parts will be allowable for warranty claims.

7,All parts replaced by us under warranty become the property of us and must be returned to us if so requested.Such parts may only be disposed of after a warranty claim has been accepted and processed by us.

8,All warranty claims must be submitted to us within 30 days of completion of warranty work.Using the machine implies the knowledge and acceptance of these instructions and the limitations contained in this manual.

