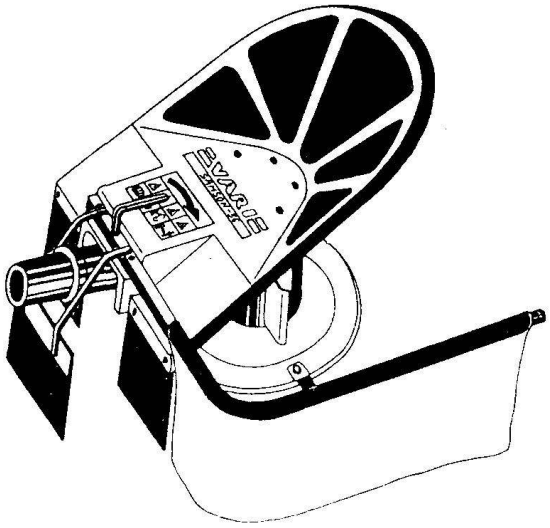
VARI®

SMALL AGRICULTURAL AND GARDEN MACHINES AND EQUIPMENT

DISK GRASS CUTTER

SAMSON - 56

For mowing high grass of all kinds of grass-plots



The product design corresponds to the requirements of Act No. 22/1997 Collection and connected acts and regulations.

The manufacturer reserves the right to carry out technical modifications and innovations in the course of manufacture which can not be described in these directions and which do not substantially influence the function and safety of operation. The manufacturer reserves the right without prior notice or obligation to carry out technical modifications and innovations which may not correspond with the text and diagrams of these directions.

publication No: ML – 029BK - 98

We ask you to take note of the following information concerning your machine. It is necessary that this information be known when ordering spare parts.
We recommend that you make a copy of this completed page on purchase of the machine in case of loss or theft of the original.

Model	**SAMSON - 56 BK**
Serial number	
Purchase date	
Supplier	
Address	
Telephone / fax	

Comments:

W A R N I N G!

The user is obliged to acquaint himself with these directions and observe all operating instructions in order to avoid endangering the health and property of the user and other persons. The safety instructions in these operating instructions do not describe all possibilities, conditions and situations which can occur in practice.
It is assumed that each person handling this machine or carrying out maintenance on this machine exercises common sense, caution, prudence, care, and conscientiousness.

Only mentally and physically healthy persons should be allowed to operate this machine.
In cases of professional use of this machine the owner is obliged to instruct persons operating the machine on safety of operation and safety of work, and to carry out training and keep records of training.

The manufacturer is not responsible for damage caused by unauthorised use, incorrect operation of the machine, or for damages resulting from any modification of the machine without the manufacturer's consent.

In the event that any information in the operating instructions is incomprehensible please contact your dealer or the manufacturer directly.

Address and telephone contacts are provided at the end of these operating instructions.

The operating instructions included with the machine form an integral part of the product. The operating instructions must be available at all times, and must be kept in an accessible place where no danger of destruction exists. When selling the machine to another person the operating instructions of the machine must be handed over to the new owner. The manufacturer has no responsibility for risks, danger, accidents and injuries resulting from the operation of the machine unless the above conditions are fulfilled.

When operating the machine it is necessary to follow safety regulations in order to avoid the risk of injury, not only of the person operating the machine, but also other persons in the surroundings. These instructions are indicated in the operating instructions by this safety symbol:

	When you see this symbol read the following communication carefull

C O N T E N T S

I. INTRODUCTION

Dear customer!

By purchasing this product you have become the owner of one product in a wide range of small agricultural and garden machines and tools manufactured under the following brand

VARI®

SMALL AGRICULTURAL AND GARDEN MACHINES AND EQUIPMENT

by the joint-stock company MEPOL LIBICE nad CIDLINOU.

This system has been designed for allotment holders, small growers and farmers and peasants running small farms and areas.

It is possible without any difficulties to use the machines, equipment and tools of this system for all necessary works: for example, both active and passive soil tilling, pumping liquids, mowing blade plants and grass, snow removal, sweeping away wastes and dirt, and also transport of any material on uniaxial trailers.

Please read these operating instructions carefully. If these operating instructions are followed, our products will serve you reliably for many years.

II. TECHNICAL DESCRIPTION

USE

The SAMSON-56 disk grass cutter has been designed for mowing high grass of all kinds of grass growth. Taking into consideration the proper technical execution of the machine it has been designated to serve for larger areas and is particularly suitable for professional use.

⚠ **WARNING :** This machine can not be used as a mower for park treatment of grass-plots! It has been designed to serve for mowing high grass vegetation.

On the mowing disk there are three pivoted mowing blades made of high-quality steel provided with a hardened cutting edge by means of which the mowed vegetation is perfectly mown.
The mown growth is thrown aside by the rotating disk. An apron preventing the vegetation from being thrown aside forms at the same time an edge from the mown vegetation.

DSK-316 series gear boxes driven by JM 4 - 003 and PJ - 5 driving units have been designed to drive this machine.
It is not possible that driving units DMJ - 315 be used for the drive. The disk mower in connection with gear box DSK - 316 and this driving unit are not balanced, therefore, it relieves the mowing disk which then results in poor-quality mowing of the vegetation.

⚠ **WARNING :** the circumferential velocity of the working blade ends is

57,5 m.s^{-1}

Solid bodies sprung back by the working blades may fly very far!
Observe, therefore, basic safety regulations when operating this machine. The machine is fitted with a rotating working disk.
While working with this machine see to it that other persons are at **a safe distance from the machine!**

III. TECHNICAL DATA

SAMSON - 56

	unit	value
Length	mm	770
Height	mm	516
Width	mm	288
Mass	kg	44
Maximum attack width of the machine	cm	56
Working blade speed		
when using gear boxes 2T	min^{-1}	1706 ± 50
when using gear boxes 4T	min^{-1}	1963 ± 50
Circumferential velocity of blades		
when using gear boxes 2T	$m.s^{-1}$	50 ± 1.46
when using gear boxes 4T	$m.s^{-1}$	57.5 ± 1.46
Blade drive gear speed ratio	-	1.2
Machine surface capacity		
(according to vegetation)	m^3/hour	800 - 1400
Oil filling capacity	l	0.15
Oil quality	according to API	GL - 4, GL - 5
	according to SAE	90, 80 W - 90

TECHNICAL DESCRIPTION :

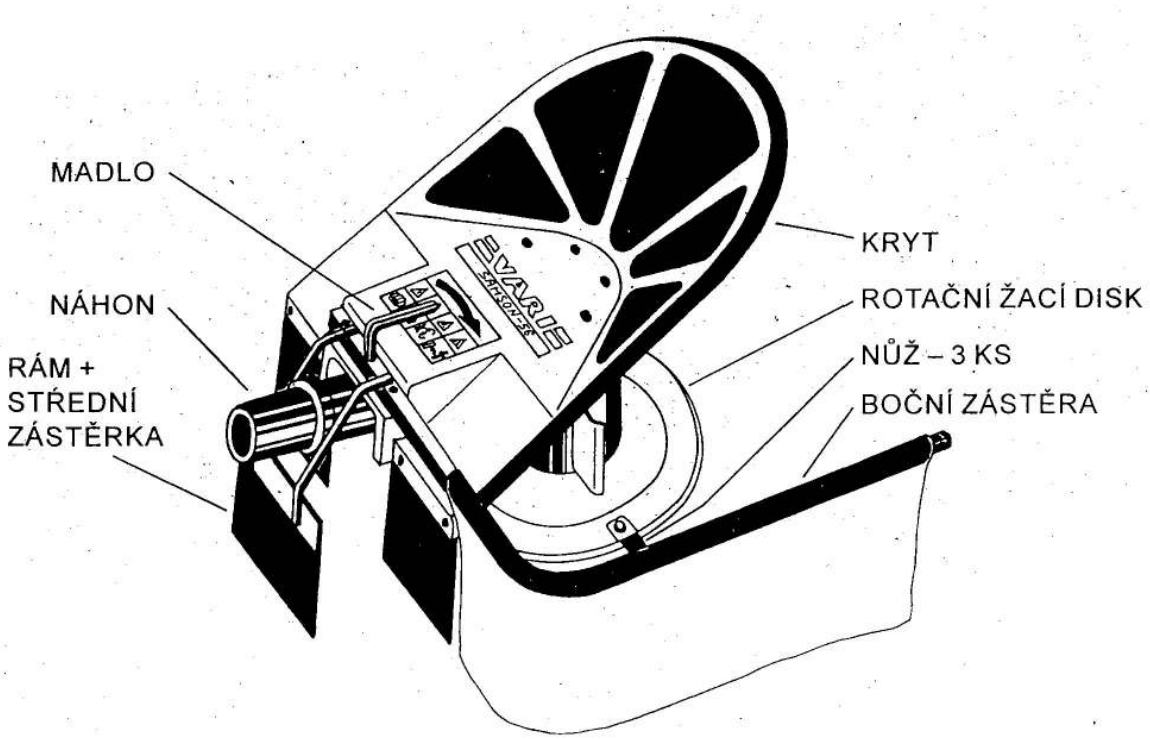
Drive: the drive is a supporting component of the whole machine. The drive body is a grey cast iron casting with machined function surfaces. The case cover is fitted on the body with four screws. The drive shaft is mounted on antifriction bearings in the drive body. A bevel gear wheel is mounted on the front end. On the bottom end of the bevel pinion which is mounted in the case cover on two ball bearings and one needle bearing there is a rotating disk provided with three mowing blades which is carried along by means of a feather. The bottom disk is pivoted on ball bearings.
The mowing blades are pivoted on the circumference of the rotating disk. The screws of the rotating disks are made of high-quality high-strength steel .
Oil is filled through an oil filling hole fitted with a plug.

Cover: the drive is fitted with a cover made of ABS plastic. The cover ensures the discharge of mown vegetation out of the machine. Rubber aprons are screwed on to the rear part of the cover, as well as a handrail for handling the machine and a rubber apron preventing mown vegetation from flying off between the power assist wheels. The side apron is fitted to a holder which is fitted in a rectangular tube located on the rear part of the machine cover and it is secured by means of two screws.

A cast iron weight with a mass of 6 kg is screwed on the cover to ensure a better balance which is necessary for a better copying terrain by the rotating disk of the machine, particularly in cases of a markedly uneven terrain.

Figure 1 DICK GRASS CUTTER SAMSON - 56

1. HANDRAIL
2. DRIVE
3. FRAME + MIDDLE APRON
4. COVER
5. ROTATING MOWING DISK
6. BLADE - 3 PCS
7. SIDE APRON



IV. SAFETY REGULATIONS

⚠ This international safety symbol indicates important information concerning safety. When you see this symbol pay attention for the possibility of your own injury or injury of other persons, and read the following communication carefully.

⚠ **1.** Follow the basic safety instructions when operating this machine. The machine is fitted with a rotating working blade. The maximum circumferential velocity is 57.5 $m.s^{-1}$. Therefore, see to it that other persons keep a safe distance from the machine during operation.

⚠ Before using the machine all foreign bodies (as stones, wires etc.) which could be hurled away or could result in damage to the machine should be removed from the vegetation. Avoid mowing in places where it is not possible to remove such bodies.

⚠ Before each use check the machine for damaged or loosened parts. All defects found must be removed immediately. Repair with original manufacturer's parts only.

⚠ **2.** When working wear close-fitting work clothing, hard-wearing work boots, work gloves, and protect your eyes with goggles. Observe the safe distance given by the grip of the machine.

⚠ **3.** All persons operating the machine must be more than eighteen years old and an owner of a class A, B or T driving licence. All persons operating the machine are obliged to familiarise themselves with these operating instructions and to be acquainted with general principles of work safety.

⚠ **4.** Do not start the engine in closed rooms! After the engine has been stopped the exhaust silencer of the engine remains hot, therefore, pay increased attention to handling the machine. Pay attention to refuelling to avoid leakage or spillage of fuel and staining parts of the engine.
Before starting wipe stained parts dry or wait until the fuel is evaporated.

5. When working with the machine all other persons and animals must be out of the working area of the machine. Anyone operating the machine must not continue working unless other persons are kept at a safe distance.

⚠ **6.** It is not allowed to remove any protecting devices and protecting covers from the machine!

⚠ **7.** The machine shall be transported either by an automobile or by a set of an uniaxial small tractors with a semi-trailer.

⚠ **8.** When working with a driving unit, gear box and disk mower transport is not allowed on any roads with the exception of a perpendicular crossing of these roads.

9. The safe slope capability of the machine is 7 grades.

10. The machine should not be used at night from 21.00 to 7.00 in recreation or health zones.

⚠ **11.** Before working with the machine verify the function of the breaks located on the left-hand handlebar of the driving unit. This breaker switches off the engine ignition, therefore, stopping the engine immediately after the working place has been left by an operator either under a critical emergency condition or at shutting the machine down.

The safety ignition breaker has three positions (see Figure 2a).

Position **1** is used when starting the engine.

⚠ Stand by the right-hand handlebar when starting the engine. Operate the accelerator lever with your left hand, start the engine with your right hand with the starting cord. When starting the engine stand so as to maintain a safe distance from the rotating mowing disk which is given by the axis of the gearbox power assist wheels.

⚠ With the safety ignition breaker in position 1 always put the gear in neutral or disengage the clutch of the power assist wheels!

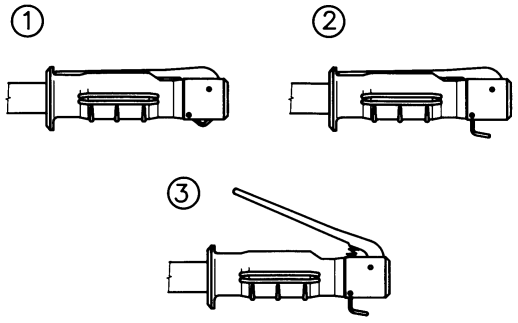
Position **2** is used for operation of the machine. During operation of the machine when an operator holds the guiding grips by both hands the wire catch must always be released!

Position **3**. If an operator releases the handlebar in a critical situation the engine ignition is short circuited, therefore, the engine is stopped. It is sufficient to let go of the left-hand handlebar hand rail and the engine stops. This position is used also for stopping the engine at shut down.

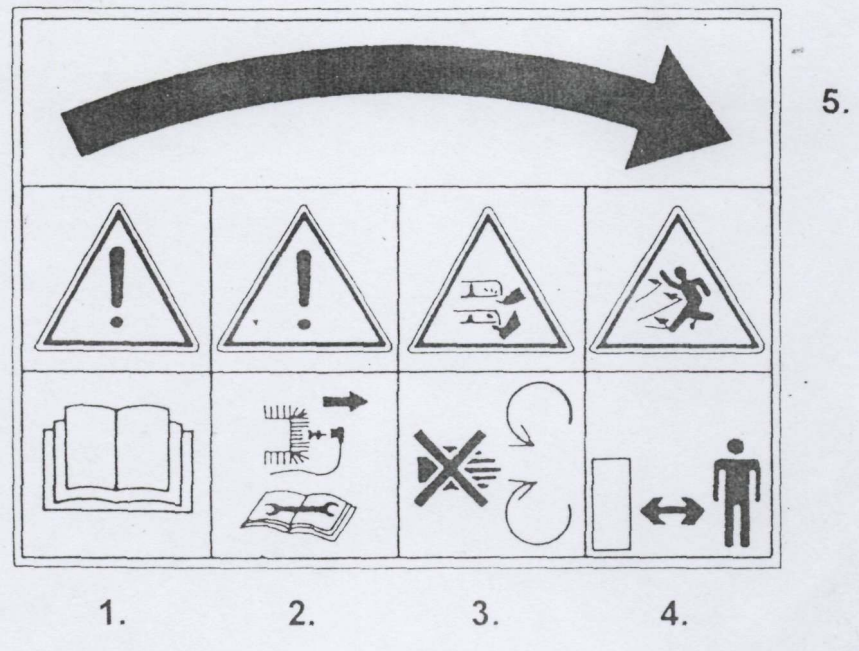
12. Do not drive across readily flammable materials - for example hay or straw.

⚠ **13.** All repairs, adjustments, settings, lubrication and cleaning of the machine should be carried out in the standstill position at the same time with the spark plug cable or driving unit disconnected.

Figure 2 SAFETY IGNITION BREAKER POSITIONS BVA - 96



The following diagrams are fixed to the machine



1. Before using the machine be familiar with the operating instructions.
2. When carrying out maintenance on the machine, disconnect the spark plug cable.
3. It is not allowed to put your hands into or walk with your foot under the working area of the mower: danger of cutting.
4. When working with the machine keep a safe distance from the machine - danger of being hit by ejected mown matter.
5. Arrow indicating the rotation direction of the working tool.

⚠ The user is obliged to maintain the diagrams on the machine in a legible condition and in case of damage to these picture diagrams the user is obliged to replace them.

A self-adhesive label with picture diagrams is placed on the rotating disk cover.

V. OPERATING INSTRUCTIONS

MACHINE ASSEMBLY

At first, get the driving unit and gear box ready in accordance with the appropriate operating instructions.

Apply a thin layer of plastic lubricant (e.g. MOGUL A 00) on the surface of the drive body, shift out (movement 1 / Figure 3) an arresting pin on the gear box flange and slide the drive body in this flange up to the stop (movement 2 / Figure 3).
Unlock (movement 3 / Figure 3) a locking pin on the gear box flange so as to fit in an oval hole in the drive body.

⚠ When handling the machine hold the machine by the following two points:
in the rear part of the machine using the handrail, in the front part using the drive cover border. The machine must be handled by two operators.

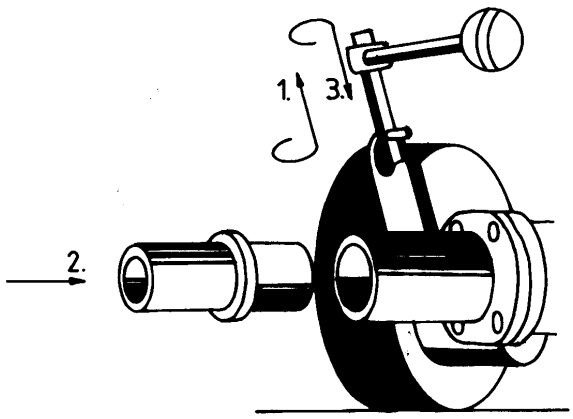
After sliding into the drive move with the machine from side to side in the direction of the machine's longitudinal axis until the pin fits in the hole. The pin on the arresting pin must fit in the bottom notch. During this manipulation hold the machine using the cover border on the sides, approximately in the middle of its length.

Slide the apron in the holder in the rear part into such a position as to ensure a gap of 25 centimetres between the apron and the shifted out blade in normal position to the machine axis. Secure the apron holder in this position by tightening two screws M6.

The side plate of the guiding handles of the driving unit should be adjusted in a position as close as possible to the engine to ensure a shifting of the centre of gravity of the driving unit and gear box in a forward direction and pushing the rotating disk with blades against ground.

⚠ Before starting proper work with the machine check the function of the safety ignition breaker **BVA-96!**

Figure 3 FITTING THE MACHINE DRIVE ON THE GEAR BOX



USE OF THE MOWER

⚠ Before working with the machine make sure that on places where you intend to use the mower there are no foreign bodies hidden in the vegetation (stones, wires, tubes, thick branches etc.) which should be removed because they could be hurled away or could result in damage to the machine. Avoid mowing in areas where it is not possible to clear such bodies.

⚠ A person operating the mower is **obliged** to keep all other unauthorised persons and animals at a safe distance.

⚠ Check that the mowing blades are undamaged and secure in the disk.

If all parts of the machine (driving unit, gear box and disk mower) are adjusted in accordance with the operating instructions you can start proper working.

Power assisting with mower

⚠ **1.** When starting the engine it is unconditionally necessary to disengage and secure the clutch lever by means of which the clutch of the power assist wheels is disengaged (see Figure 4).
In gear boxes provided with drive which can be disengaged, disengage the drive by means of a pull-rod.

⚠ **2.** Start the engine. At the same time follow the operating instructions for the driving unit.

⚠ Stand by the right-hand handlebar grip when starting the engine. Operate the accelerator lever with your left hand, start the engine with the use of the starting cord with your right hand. When starting the engine stand so as to maintain a safe distance from the rotating mowing disk which is given by the axis of the gearbox power assist wheels.
3. Grasp the handlebars, then depress the power assist clutch lever and put arrest of the clutch lever out of operation.
Increase the engine speed by using the accelerator lever.
Disengage the lever. Now, the power assist wheels are connected with the drive. The machine is put in motion. Work always with maximum engine speed.

⚠ **4.** If you wish to stop, first decrease the engine speed.

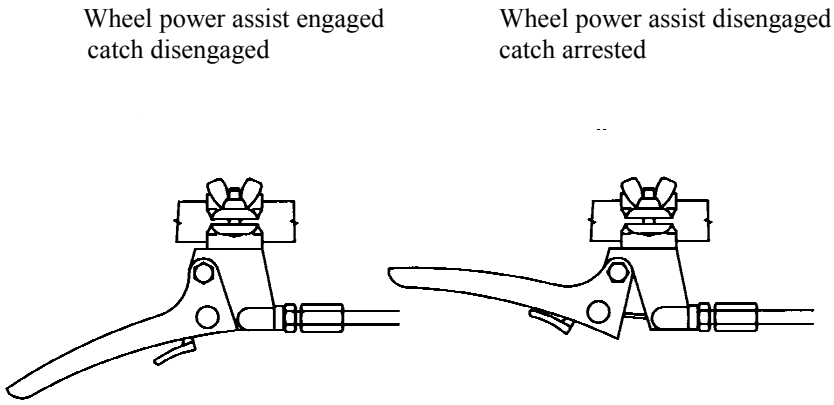
⚠ Never disengage the clutch lever at high engine speeds - at which the engine has maximum capacity and torque. The design of the clutch for engaging wheel power assist enables the clutch to be disengaged only at lower engine speeds - when the centrifugal clutch does not transmit a high power output and torque to the gear box.

Repeated moving off should be carried out in accordance with paragraph **3**.

At the machine shut down set the accelerator lever in the position of non-load speed and let the clutch lever disengaged. In this way, the machine is secured against spontaneous movement.

⚠ **Warning:**
During mowing it is necessary to pay attention to the fact that the bottom disk is continuously pressed down against the ground and does not rebound. The rebounding of the disk results in a sloppy mowing of the vegetation and uneven stubble field.
In particular, it is necessary to take care of pressing down the disk when mowing in an uneven terrain!

Figure 4 : POWER ASSIST CLUTCH LEVER



⚠ **In the event of any critical situation release the handlebars immediately. The safety ignition breaker stops the engine and machine stops.**

As a consequence of a small wheel spacing and their small diameter it is possible that the machine be turned round on a small radius. We are recommending you slightly decrease engine speed and slightly lift the machine when turning round on the ends of rows.

If you do not want the blades to be in operation while travelling across an area it is possible that the machine drive be disengaged from the gear box. It is sufficient in this case to pull up the arresting pin on the drive flange , push out a little the drive of the working machine by about 2 cm and slide in again the arresting pin, in this way the drive of the working machine is ensured.

⚠ The disengagement of the working machine drive and disconnecting of the drive should be carried out at the machine standstill, at the engine stopped and the power assist clutch engaged!

Working attack of the machine:

After the above mentioned elemental operations have been carried out it is possible to start the proper working with the machine.

Set up the engine maximum speed, put the rotation disk in the rotation with maximum speed and then set the machine in motion against the vegetation you wish to mow.

The vegetation mown is thrown away by the rotating disk in the direction against the apron by means of which it is put in a row. If the vegetation mown is very dense, overgrown, bad, rotten from the bottom or flattened it is necessary proportionally to this condition to decrease the width of the machine attack so as to avoid a marked decrease of the engine speed and clutch slip (slipping clutch is whistling or rattling).

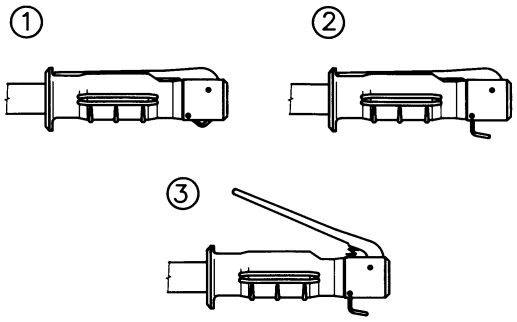
If a congestion of the space between the rotating disk and the power assist unit occurs stop the motion, stop the engine and clean this space.

⚠ Pay an increased attention and take increased care when cleaning the space below the cover. The cutting edges of the working blades are sharp. When cleaning protect your hands with protective gloves.

CONTROL TECHNIQUE OF THE SAFETY IGNITION BREAKER

The safety ignition breaker BVA - 96 corresponds to the standard of commonly used safety ignition breakers used by manufacturers of small agricultural mechanisation abroad.

Figure 5 : SAFETY IGNITION BREAKER POSITIONS



The safety ignition breaker has three positions.

Position **1** is used when starting the engine.

⚠ With the safety ignition breaker in position 1 always put the gear box in neutral or disengage the clutch of the power assist wheels!

Position **2** is used for operation of the machine. During operation of the machine when an operator holds the guiding grips with both the hands the wire catch must always be released!

Position **3**. If an operator releases the handlebar in a critical situation the engine ignition is short circuited, therefore, the engine stops. It is sufficient to let go of the left-hand handlebar hand rail and the engine stops. This position is also used for stopping the engine at shut down.

REPLACEMENT OF WORKING BLADES

If the cutting edges of the working blades becomes worn it is necessary to restore these cutting edges to ensure that they function effectively. The replacement procedure is as follows:
Disconnect the machine from the gear box. Put the machine to a solid support so as to ensure a good access to bolts of the blades.

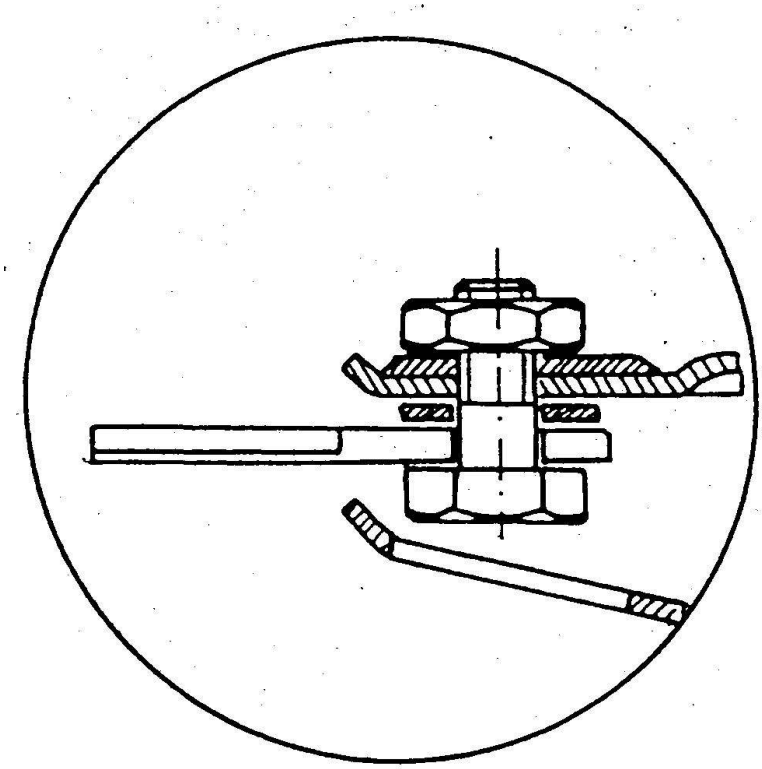
⚠ Never put the machine on a plastic cover. It would result in damage to the plastic cover.
Move the bottom disk round a slight amount so as to see the blade bolt through the hole. Hold the rotation disk so as to avoid its rotation and loosen the lock nut and then the bolt fixing the blade in the disk by using barrel spanner No. 16.
Remove the blade, plane and sharpen the cutting edges. The gradient of the sharpened cutting edge should be 20° against the bottom plane of the blade. If the blades are highly worn or bent it is necessary to use new blades delivered by the manufacturer.

Fit the screw, blade, and flat washer back on. Tighten the screw so as to ensure that a clearance of the blade on the bolt in vertical direction is of 0.5 to 1 mm and that the blade is free rotating on the bolt. Then screw on the nut. Using the barrel spanner No. 16 hold the bolt head and tighten the nut firmly. Make sure that all blades are free rotating on the bolts. The cutting edge of the blades is double-sided. After one side has been worn it is possible that the blade be rotated and the cutting edge of the other side of the blade be utilised. We recommend you replace the blade at the same time with replacement of the bolt.

⚠ Take care while dismantling the blades. The cutting edges of the blades are sharp. Protect your hands with protective gloves.

Note:
After any non-professional repair of the blades without using original spare parts the manufacturer is not responsible for damage caused by the machine.
The blade is marked as **FRANCOUZ R 85/2.** This designation indicates the manufacturer and certification mark.

Figure 6 : Blade replacement



VI. MAINTENANCE AND ATTENDANCE

To ensure as high as possible satisfaction with our products for a long time it is necessary that appropriate care be taken of maintenance and attendance of this machine and all auxiliary equipment.
By carrying out regular maintenance on this mower machine wear is avoided and the correct functioning of all parts of the machine is ensured. Follow all instructions relating to time intervals of maintenance and adjustment of the machine.
We recommend you keep records on the number of working hours of the machine and on conditions under which the machine has been in operation.
Follow, therefore, the following instructions:

⚠ **1.** Gears of the gear boxes are in operation in an oil bath.
The oil should be exchanged in new machines after the first **10** hours of operation and then after **100** running hours or after the end of the season. In this way an excessive wear of the gearing is avoided. The oil should be checked once a month. The minimum classification of the gear oil should be according to API GL - 4, GL - 5, according to SAE 90 or 80W - 90.
As for domestic oils the transmission oil MOGUL TRANS 90 or MOGUL TRANS 80W - 90 are fully satisfactory.
In case of oils with a higher classification (API GL - 5, SAE 80 W - 90) it is possible that the exchange interval be prolonged up to 130 hours (it is necessary to maintain a time period of 10 hours for running-in.)
The oil exchange should be carried out while the drive case is warm because the oil is drained more easily. Loosen the plug fitted on the case cover and drain the oil into a vessel prepared before. Fill up the drive case with new oil. The oil level should reach the bottom edge of the hole. Then screw the plug in again. If the gasket below the plug is damaged it should be replaced with a new one.

⚠ When replacing oil basic hygiene rules should be followed and regulations and laws on environmental protection should be observed.

⚠ **2.** Check bolted joints for tightness. Before any use of the mower check bolts fastening the working blades for tightness.

3. Care should be taken of cleanness of all bearing and connecting surfaces. Apply a thin layer of plastic lubricant MOGUL A 00 on a flange for connecting the drive with the gear box.

4. After the end of the season remove all dirt and plant residue.
Check that the working blades are in an undamaged condition, sharpen cutting edges of blades and apply a conservation oil.

⚠ **5.** When cleaning, washing the machine with water, solvents and other chemical agents, it is necessary to proceed in such a way to follow accepted provisions and regulations on the protection of rivers and streams and other water sources against pollution, contamination and contamination by chemical substances.

VII. STORAGE

Store the machine in dry places. The access of unauthorised persons to the machine should be avoided.
In case of a longer shut down of the machine, conserve all connecting surfaces with the use of a conservation oil.
Protect the machine against the effects of weather.

VIII. LIQUIDATION OF PACKAGES

Paper packages	-	sale to purchase of secondary materials
		deposition on collection places in containers
		incineration
		other utilising
Plastic packages	-	deposition on collection places in containers
Wood	-	liquidation by incinerating, crushing or chipping