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1. Introduction

This edition of the manual is intended for buyers of a SAMON Onion Lifter. It contains information about the use and maintenance of this machine.

When this manual was compiled the utmost care was taken to ensure that the illustrations and technical information are correct and current for this manual.

Ellens Landbouwtechniek BV recommends that users read this manual carefully before using the machine and observe the instructions, directions and comments.

References to the left or right side of the machine are determined on the basis of the direction in which the machine is driven.

Ellens Landbouwtechniek BV reserves the right to change the contents of this manual without notice.

This machine was designed in accordance with the provisions of the Machinery Directive 89/392/EEC + amendments.

2. Warranty and Liability

2.1 Warranty

SAMON agricultural machinery is covered by a 1-season warranty.

The SAMON Onion Lifter is designed and intended for harvesting onions.*

If the SAMON Onion Lifter is used in a manner other than intended such will be considered to be improper use.

* For harvesting any other types of deciduous species and crops, always first check with your Samon dealer.

This warranty is issued for construction defects in the machine that occur during normal use.

Parts which are subject to wear are not covered by this warranty, such parts include:

- Sprockets, chains, guide wheels,
- Sieve belts,
- Harvest shafts,
- Bearings,
- Tillers,
- Coulter disks,
- Other parts subject to wear.

The Warranty on hydraulic components, PTO shafts and gearboxes covers solely construction defects of the components that result in their failure as assessed by the manufacturer.

This warranty lapses in the event of:

- Structural modifications and changes to the machine without permission from Ellens Agricultural Engineering BV.
- Installation and use of components on or attached to the SAMON Onion Lifter that are detrimental to the rigidity of the structure.
- Failure of components due to the non-observance of maintenance intervals.
- Changing or ignoring the specified settings and adjustments that could result in damage.

Our dealers and manufacturer's service points will be pleased to provide you information and assistance.

2.2 Liability

Ellens Landbouwtechniek BV is not liable for damage to Samon agricultural machinery; tractors; machines of third parties; injuries to humans, animals and products as a result of:

- improper use.
- failure to observe the instructions and directions stated in the manual.

NOTE!!!

The SAMON Onion Lifter must only be operated, maintained and repaired by persons who are familiar with the machine and who are familiar with the safety procedures.

3. Safety and the Environment

3.1 General safety

NOTE!!!

Make sure that all persons that work with the SAMON Onion Lifter and/or that perform maintenance on it read this manual carefully and take the required precautions for their own safety and that of others.

Always keep the following points in mind when working with or on the SAMON Onion Lifter.

- The SAMON Onion Lifter must only be operated, maintained and repaired by persons who are familiar with the machine and the safety procedures.
- When performing inspections and maintenance on the SAMON Onion Lifter always switch the tractor engine off and remove the key from the ignition.
- The SAMON Onion Lifter is equipped with rotating sieve belts that can entrap body parts.
- Ensure that there are no objects or persons in the vicinity of the SAMON Onion Lifter during folding and unfolding.
- Keep away from the SAMON Onion Lifter while it is in operation.
- Do not operate the SAMON 3-Bed Onion Lifter when it is in folded position.
- Always use a tractor with cab.
- When an object is hit, switch off the SAMON Onion Lifter and check for damage before switching back on again.
- The SAMON Onion Lifter contains a number of parts that are fitted with locking pins and safety belts and/or chains. These must always be fitted to the machine.
- Damaged and broken safeguards and locking devices must be replaced immediately.
- Protective covers, sleeves and rubber flaps may never be damaged. Always replace them when they are dented or cracked.
- Always use original SAMON parts as they are specifically designed for the Onion Lifter.

3.2 The environment

For ecological reasons cleaning and maintenance to the SAMON 3-Bed Onion Lifter must take place on a hard, impervious floor.

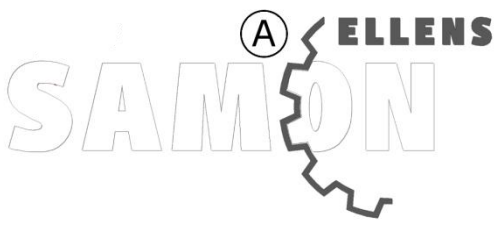
NOTE!!!

Dispose of spent lubricant in an environmentally-friendly manner. We recommend that you collect spent oil in a closed tank and deliver the oil to a recycling centre or a collection point. Never dispose of spent oil by allowing it to run off into a ditch, drain, sewer or the soil.

3.3 Warning labels and pictograms

Each SAMON 3-Bed Onion Lifter is provided with the following labels and warning pictograms:

	Description:	Dimensions: (wxh)	Order no.
A:	"Samon" label	24.8 x 7.8	TL6304
B:	"Hand/foot hazard" label	19.3 x 6.4	TL6309
C:	"Check the manual" label	13.3 x 6.4	TL6310



If any of these labels is missing or illegible you can order a replacement from your SAMON dealer.

4. Inspections Before and After Use

WARNING!!!

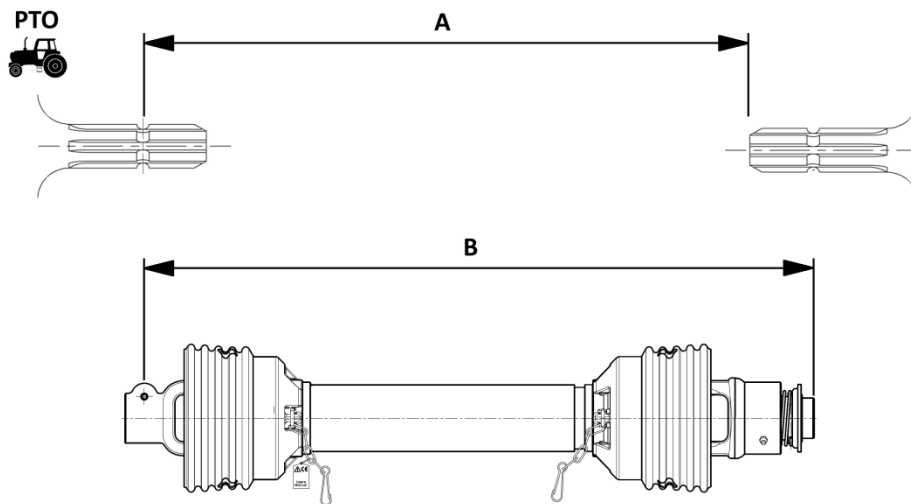
When performing inspection of the SAMON 3-Bed Onion Lifter always switch the tractor engine off and remove the key from the ignition.

4.1 Inspections before use

- Check that the ball valve of the hydraulic tank is open.
- Check the gear drive for leaks.
- Check the hydraulic system for leaks.
- Check the electronic components for cracks and damage.
- Check the belt tension (3.5 bar).
- Check the length of the PTO shaft (see 4.2).
- Check the protective cover of the PTO shaft for cracks.
- Check that the safety chains of the PTO shaft are fitted.
- Check that the locking clips and safety cords are in place.
- Check the drive chains for cracks and tears.
- Check the tension of the drive chains and do so regularly while in use.
- Check the harvest shafts for damage and wear.
- Check the sieve belt and drive wheels for damage and wear.

4.2 Shortening the PTO shaft

If the inspection before use reveals that the PTO shaft is too long then it can be shortened as follows:



- Connect the machine to the tractor.
- Position the PTO shafts so that they are as close as possible to each other.
- Measure distance "A" of the PTO shafts.
- Measure distance "B" of the PTO shafts (see the illustration for the measuring points).
- Subtract length "A" from length "B".
- Shorten the PTO shaft by the result (see example).

Example of calculation:

A=400 mm

B=450 mm

$B(450) - A(400) = 50 + 10$

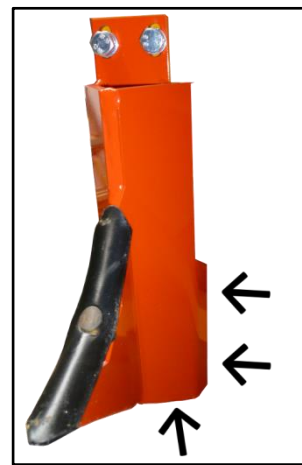
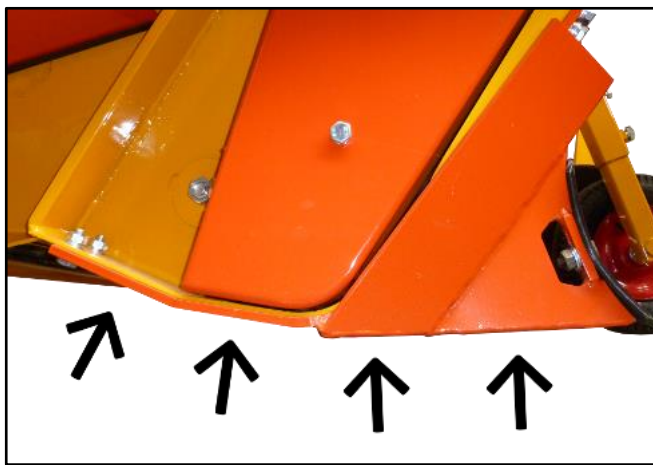
Shortening length = 60 mm

4.3 Inspection after ± 5 metres

- Check the harvest shafts for proper depth.
- Check the product for damage.
- Check that the catch plates are adjusted correctly.
- Check if the coulter disks are adjusted correctly.

4.5 Inspection and maintenance after ± 5 ha.

- Check the sieve belt for cracks and tears.
- Check the tension of the drive chains and adjust if necessary.
- Check the tiller ends and the tillers for wear, particularly the bottom and inner sides. The tillers are provided for the purpose of protecting the frame of the SAMON 3-Bed Onion Lifter, so make sure to replace them on time to prevent damage to the frame or bearings.



WARNING!!!

Due to the various compositions of soil types it is possible that the tillers could wear out faster. Check them regularly to prevent damage to the SAMON 3-Bed Onion Lifter.

5. Use and Control

5.1 Connecting the SAMON 3-Bed Onion Lifter

- Adjust the drawbar height with the hand-operated pump.
- Connect the machine to the tractor with the tow-ring.
- Make sure that the tow-ring is connected properly and securely.
- Fit the PTO shaft. **max 700 rpm**
- Secure the safety chains of the protective cover of the PTO shaft.
- Connect the electrical devices to the tractor.
- Connect the hydraulic hoses. **Note: Incorrect mounted return hose will cause damage to the machine!**
- Ensure that the ball valve of the hydraulic tank is open.
- Ensure that the ball valve at the rear of the depth control is open.
- Check all functions.



NOTE!!!

The SAMON 3-Bed Onion Lifter uses Load-Sensing. Always connect the return hose on the tractor to a pressure-free return!

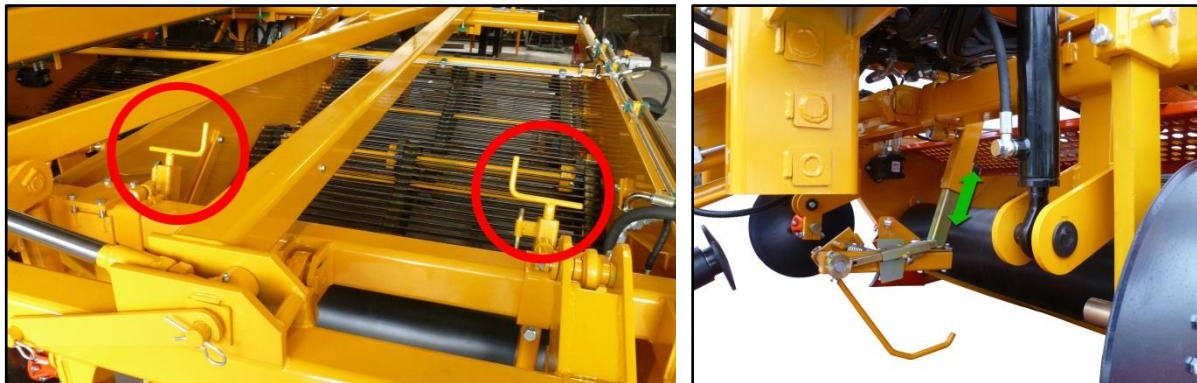
5.2 Setting frame height in working position

- The frame height in working position can be adjusted by moving the sensor on the drawbar cylinders.
- Adjust the sensor so that the automatic dept control cylinders are on 2/3 of the maximum stroke in working position.



5.3 Setting the harvesting depth

- Harvesting depth can be set using the rotary spindles on the probes.
- Each lifter can be set separately.



5.4 Remote control



- | | | | |
|---|--|----|--|
| 1 | Folding / unfolding right harvester | 7 | Sliding discharge belts |
| 2 | Joystick steering and working position | 8 | Stop 2 nd web and discharge belts |
| 3 | Lower machine | 9 | Centre steering axle |
| 4 | LED remote control | 10 | LED dept control |
| 5 | On / off remote control | 11 | On / off dept control |
| 6 | Folding / unfolding left harvester | | |

5.4.1 Operating the automatic depth control

- Move joystick (2) to the left. Now the drawbar cylinders will drop until the sensor.
- Turn on the automatic depth control with switch (11).
- LED (10) will turn red and the machine moves to the set depth.

5.4.2 Lower further function

The "lower further" function is available in case there is an uneven section in the work area that may prevent the harvest shaft from moving downward through the soil. This function will "turn off" the drawbar sensor and allow the drawbar cylinders to be lowered further by holding switch (3). The function can be disabled by moving the machine back up with joystick (2) until the cylinder passes the sensor again.

5.4.3 Stop 2nd Sieve belt

When operating switch (8) it is possible to turn off the 2nd sieve belts of the outside lifters and the discharge belts.

5.4.4 Steering

The SAMON 3-Bed Lifter is provided with a steering axle. The SAMON 3-Bed Lifter can be steered by moving joystick (2) up or down. Pressing push button (9) will result in the steering axle automatically moving to the center position.

5.4.5 Folding and unfolding the SAMON 3-Bed Lifter

The left and right side of the SAMON 3-Bed Onion Lifter can be folded and unfolded with switches (1) and (6). When folding, the Onion Lifters retract automatically. Also the discharge belts will slide toward the outside. The discharge belts will have to be out all the way before the machine can be folded / unfolded.

5.5 Adjusting pressure in accumulator for unfolding swath boards.

The machine is equipped with an accumulator for quickly unfolding the swath boards. The pressure can be read on the pressure gauge on the front of the machine. When the swath boards are folded in, the pressure should be 80 +/- 10 bar. If the pressure is too low, it can be readjusted by the following steps:

- Make sure the swath boards are folded in.
- Make sure the discharge belts are fully extended.
- Open the tap at the accumulator at the back of the machine.
- Operate the strap extension function until the pressure gauge reads 80 bar (the accumulator may be on a different function, then use this function).
- Close the tap on the accumulator again.



5.6 Control box adjustments

The control box is located on top of the machine in the middle. The control box contains 4 potentiometers to adjust the operation of the machine.



R2 – Steering axle correction

This allows the centre position of the rear axle to be adjusted. If the wheels are not exactly straight when the centre position button is pressed, this can be corrected with the potentiometer R2.

R3 – Depth sensor delay time

To make the depth control system quieter, a delay can be set on the probe sensors. With a longer delay, the depth control system will react less to short-term differences in height such as foliage or clods.

R4 – Shaft maximum hysteresis

The maximum difference between the left and right depth control cylinder of each harvesting element can be set with R4. At a low difference, the harvesting element can only go straight up and down. If there is a large difference, the harvesting element can harvest obliquely.

R5 – Stop delay time

When the machines are lifted by moving joystick (2) to the right, the automatic depth control is switched off and the swath boards will be folded in. With this potentiometer the system can do this with a delay. With a long delay joystick (2) can be moved to right to the right raises the tiller without disabling the automatic depth control. With a short delay, it will be switched off immediately.

For all 4 potentiometers it applies that they cannot be set to the maximum values 0 and 10. The setting range is from 1 to 9.

5.7 Adjusting speed hydraulic cylinders

The speed of different cylinder groups can be adjusted at the bottom of the Danfoss valve block. This valve block is located under the control box in the middle of the machine.



Tightening the set screws A and B will reduce the oil flow. The lock nut must be loosened for this.

1A: Folding/unfolding machine. Sliding discharge belts. Extract drawbar cylinders.

1B: Steering

2A: Down left machine left cylinder

2B: Up left machine left cylinder

3A: Down left machine right cylinder

3B: Up left machine right cylinder

4A: Down middle machine left cylinder

4B: Up middle machine left cylinder

5A: Down middle machine right cylinder

5B: Up middle machine right cylinder

6A: Down right machine left cylinder

6B: Up right machine right cylinder

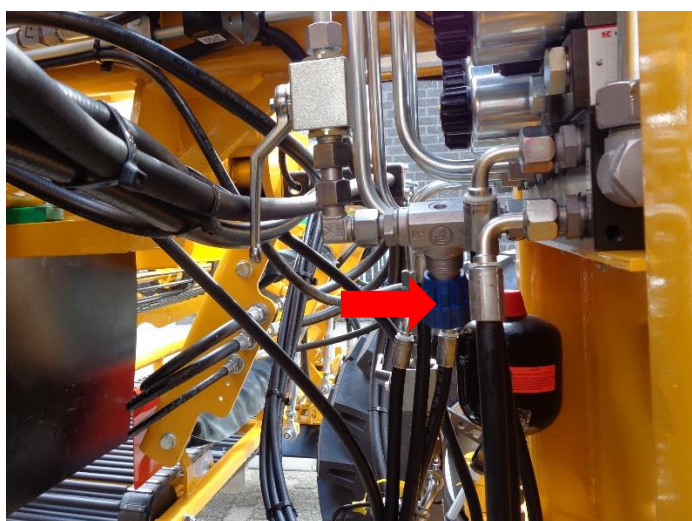
7A: Down right machine right cylinder

7B: Up right machine right cylinder

NOTE!!!

Make sure that both cylinders of one harvesting element go in and out at the same speed.

The dropping speed of the drawbar cylinders can be adjusted with the adjuster in the picture below.



NOTE!!!

Set the dropping speed of the drawbar cylinders slow!

6. Maintenance

WARNING!!!

When performing maintenance on the SAMON 3-Bed Onion Lifter always switch the tractor engine off and remove the key from the ignition.



Always close the ball valve at the rear and the Ball valve on the tank before performing maintenance on the SAMON 3-Bed Lifter.

If this valve is not closed during maintenance, leaks or a rupture in the hydraulic system may cause the SAMON 3-Bed Onion Lifter to lower and cause injury and/or damage as a result.

Also close the ball valve on the front of the hydraulic tank during maintenance.

6.1 Lubrication schedule

Lubricate periodically to ensure that the SAMON 3-Bed Onion Lifter works optimally.

SAMON 3-Bed Onion Lifter lubrication schedule.

Lubricating point:	Interval:	Item:
A	3 hours	Harvest shaft bearings
B	8 hours	Bearings, coulter disks, chain tensioner, wheels. Pressure rollers
C	50 hours	PTO shaft.

6.2 Adjusting the shakers

The shakers of the sieve belt can be adjusted separately by turning the side handles and/or the rotary spindles in the middle of the SAMON 3-Bed Onion Lifter.

The position of the shaker can be adjusted by adjusting the intensity of shaking.



6.3 Gear drive maintenance

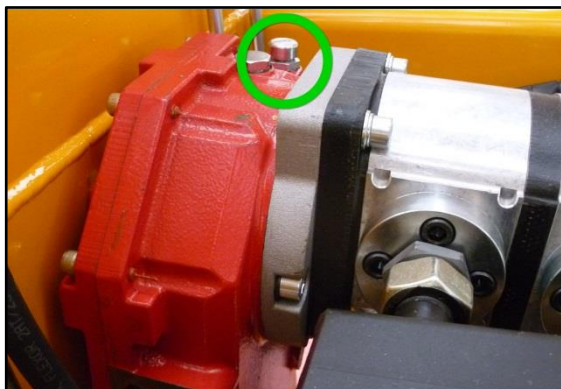
The gear drive is filled with gearbox oil (80W/90) when the machine leaves the factory.

NOTE!!!

On first use, change the gear drive oil after 50 hours and then every 2 years thereafter.

6.3.1 Topping up the gear drive oil

- Make sure that the SAMON 3-Bed Onion Lifter is standing on a flat, impervious surface.
- Remove the bleed nipple with dipstick at the top of the gear drive.
- Check the gear drive oil level with the groove in the dipstick.
- Top up the gear drive oil (80W/90), if necessary.
- Fit the bleed nipple.



6.3.2 Replacing the gear drive oil

- Remove the bleed nipple at the top of the gear drive.
- Remove the plug from the bottom and drain the gear drive oil into a container; make sure that the oil is processed in an environmentally-responsible manner.
- Fit the plug to the bottom.
- Top up the gear drive with gear drive oil (80W/90) and check the level with the dipstick.
- Fit the bleed nipple.

6.4 Hydraulic system

6.4.1 Hydraulic tank level



The oil level in the hydraulic tank can be read on the sight glass at the front of the tank. If no more oil is visible, it must be topped up via the filler cap with Hydraulic Oil H46. Fill the tank so that there is oil up to half of the sight glass when the tank is horizontal.

6.4.2 Hydraulic oil temperature

To keep the hydraulic oil at the proper temperature, an oil cooler is fitted to the rear of the 3-Bed Onion Lifter. The cooler's thermostat is set to cool the hydraulic oil when it rises above about 45°C. The temperature can be checked visually through the sight glass on the front of the hydraulic tank.

6.4.3 Changing the hydraulic oil

To change the hydraulic oil, place the 3-Bed Onion Lifter on an impervious floor. The hydraulic oil tank comes with a plug fitted to the bottom for draining the tank. Drain the hydraulic oil into a container and transport it to a receiving facility to ensure that it is processed in an environmentally sound manner.

The hydraulic tank has a capacity of approximately 209 liters, depending on the amount of oil that is in the system.

NOTE!!!

The hydraulic oil must be replaced every 2 years.

6.4.4 Hydraulic filters

The hydraulic system of the 3-bed onion lifter is fitted with 1 suction and 1 return filter. The suction filter placed inside the tank, this filter does not have to be replaced. The return filter is mounted in the cap of the tank.

Replace the return filter every 2 years or when changing the hydraulic oil.

7. Transport and Storage

7.1 Transport by transport vehicles

- Make sure that the machine is fastened securely with strong rope or tensioning belts before transport.
- Ensure that the folded lifters are secured with the retaining strap to prevent inadvertent unfolding.
- Block the wheels and pressure rollers with wheel blocks.

7.2 Transport by tractor

- Take local traffic rules into account when taking your SAMON 3-Bed Onion Lifter onto a public road with a tractor.
- Always switch off the sieve belts and wait until they stop turning before folding the SAMON 3-Bed Onion Lifter.
- Ensure that the folded lifters are secured with the retaining strap to prevent inadvertent unfolding.
- When driving, keep in mind that the SAMON 3-Bed Onion Lifter has a tail swing.
- The sight of the driver is limited when the SAMON 3-Bed Onion Lifter is connected to the tractor.

7.3 Storage

- Clean the machine thoroughly.

NOTE!!!

When using a high pressure cleaner, do not spray directly onto or into the bearings and electronic

- Check the tyres for damage and pressure (3.5 bar).
- Check the drive chains.
- Check the harvest shafts and other parts subject to wear and replace in time.
- Check all bearings and replace when the play is excessive.
- Check the sieve belt for damage and cracks.
- Check the feed rollers for damage and breakage.
- Check the pressure rollers for breakage and damage.
- Lubricate the entire machine (see the Maintenance section for more details).
- Check the oil level in the gear drive and top up if necessary.
- Check the cross connections and the turning parts of the PTO shaft for wear.
- Lubricate the cross connections and the turning parts of the PTO shaft.
- Check the protective cover of the PTO shaft for cracks.
- Check the safety chains of the PTO shaft.
- Check the safety cords and locking clips for damage and cracks.
- Store the machine when it is dry.
- Store the remote control in a dry environment.

8. Technical Information

SAMON 3-Bed Onion Lifter "SU23B"				
Working width:	1.5 metres	1.8 metres	2.0 metres	
Use:	Rear	Rear	Rear	
Type:	SU23B150	SU23B180	SU23B200	
PTO shaft:	Max. 700 PTO	Max. 700 PTO	Max. 700 PTO	
Gear drive oil:	80W/90	80W/90	80W/90	
Dimensions: (LxWxH)	700x250x300 cm	700x265x315 cm	700x280x330 cm	
Number of sieve belts:	6	6	6	
Cross belt:	2	2	2	
Tyres:	MPT 12.5-20	MPT 12.5-20	MPT 12.5-20	
Weight:	5100 kg *	5300 kg *	5500 kg *	

* Depending on options and extras.

9. Ordering Parts

Follow the instructions shown below when you are ordering parts to make sure that you receive the correct parts quickly.

- a. Order parts only from official SAMON dealers.
- b. State the type, model and serial number of your machine shown on the type plate.
The type shield is located on the frame of the PTO shaft.
- c. Measure the width of the SAMON 3-Bed Onion Lifter as many parts are dependent on the width of the sieve belt.
- d. Always state the full part number and description of the part.



10. Faults

General troubleshooting diagram

Fault:	Cause:	Solution:
The lifter does not want to go into the ground.	The tiller ends are worn.	Replace the tiller ends.
	Harvest shaft is worn.	Replace the harvest shaft.
The machine does not want to fold in or out	One of the sensors does not give a signal	Make sure the discharge belts are fully retracted Make sure all dept control cylinders are fully retracted Check whether a fault light is flashing in the control box at the front of the machine. Consult your dealer for a solution.

11. EC Declaration of Conformity

We, Ellens Agricultural Engineering BV

Ploegstraat 4, 8308 AA Nagele, the Netherlands, declare under our sole responsibility that the product:

SAMON 3-Bed Onion Lifter SU23B

Type:

Serial number:

To which this declaration relates, is in accordance with the following standard(s):

NEN-EN 292-1, NEN-EN 292-2, prNEN 1050

In accordance with the Machinery Directive 89/392/EEC + amendments



O. Ellens, Directeur.

Nagele, January 2021