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1. Introduction.

This manual is intended for the recipient of the SAMON Onion Topper.
It contains information regarding the use and maintenance of the SAMON Onion Topper.

This manual has been created with the utmost care, illustrations and technical data are current until the print of this manual.

Ellens Agricultural Technology BV advises the users before using the SAMON Onion Topper to carefully read this manual and follow up safety instructions, directions and comments.

Reference to the left- or right side will be determined by the direction in which the SAMON Onion Topper will be driven, seen from behind.

Ellens Agricultural Technology BV has the right to change the contents of this manual without notice.

The SAMON Onion Topper has been designed according to the conditions of the machine directives 89/392/EEG + alterations.

2. Warranty and Liability.

2.1 Warranty.

SAMON Agricultural Machines are guaranteed for the period of one season.

The SAMON Onion Topper has been designed for cutting the haulm of onions, chicory and carrots.*
Using the SAMON Onion Topper otherwise than it has been designed for will be deemed as improper use.

* When using the SAMON Onion Topper for other crops and plants please check with your SAMON distributor.

The guarantee will be given to construction errors by normal use of the SAMON Onion Topper.

The guarantee does not cover wear parts, for example:

- Drive wheels, drive belts, deflector rolls
- bearings,
- Shares and bearers,
- Coulter disks,
- Other wear parts.

The guarantee covers hydraulic components, PTO shafts and gearboxes only when these components prematurely fail and after inspection by the manufacturer.

The inspection report of the manufacturer will decide if guarantee will be granted.

Guarantee will be void if:

- Constructive adaptations and additions to the SAMON Onion Topper without permission of Ellens Agricultural Technology BV
- Installing and use of components to and on the SAMON Onion Topper which will influence the rigidity of the construction.
- Failure of components due to improper use of the SAMON Onion Topper.
- Changing and ignoring specific settings and adjustments, therefore resulting in failure.

For information help and guidance our distributors and employees are at your service.

2.2 Liability.

Ellens Agricultural Technology BV are not liable for damage to SAMON Agricultural machines; tractors; machines from third parties; Injury to people and animals; damage to properties and products due to:

- Improper use .
- Not following the instructions and directions described in the manual.

ATTENTION!!!

The SAMON Onion Topper must be operated, maintained and repaired by persons whom are familiar with the machine and it's safety procedures.

3. Safety and Environment.

3.1 General safety.

WARNING!!!

- Make sure that everyone who works and maintains the SAMON Onion Topper, has read the manual and fully understands the personal safety procedures and the safety procedures for others while working with the SAMON Onion Topper.

Always maintain the following precautions while working with the SAMON Onion Topper.

- When inspecting and maintaining the SAMON Onion Topper always turn off the engine of the tractor and remove the key from the ignition.
- The SAMON Onion Topper is equipped with rotating knives, these rotate with approximately 2000 rpm and are extremely dangerous.
- Be aware that the knives will not immediately stop spinning after shutting down the SAMON Onion Topper.
- Always wait until the rotating knives are fully stopped before approaching the SAMON Onion Topper.
- Make sure, before using the SAMON Onion Topper, stones and other objects are being removed of the terrain. These object can be a hazard for the SAMON Onion Topper, people, animals and other objects.
- Do NOT approach a working SAMON Onion Topper.
- If an object has been hit; always turn off the SAMON Onion Topper and check for damage.
- The SAMON Onion Topper is equipped with parts which have safety chains, wires and locking pins. Make sure that these safety parts are always mounted.
- Always replace damaged and broken safety equipment.
- Protection covers and rubber flaps must always be undamaged. If torn or damaged always replace with new ones.
- Always use original SAMON spare parts, these are specifically designed for the SAMON Onion Topper.

3.2 Environment.

From ecological point of view, when cleaning and maintaining the SAMON Onion Topper use an solid and liquid proof floor.

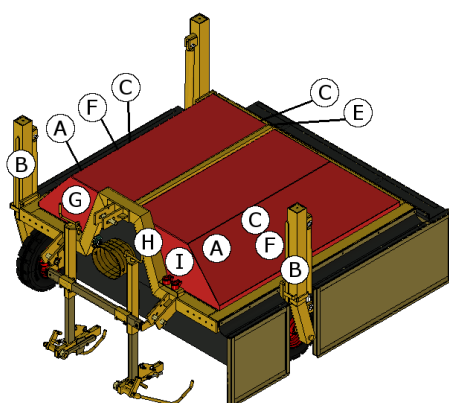
ATTENTION!!!

- The disposal of used lubricants should be on a environmentally friendly manner. We recommend to deliver the used lubricants in a closed container to a recycle center of collection station. Never drain used lubricants into a dustbin, ditch, sewer, cleanage drain or onto the ground.

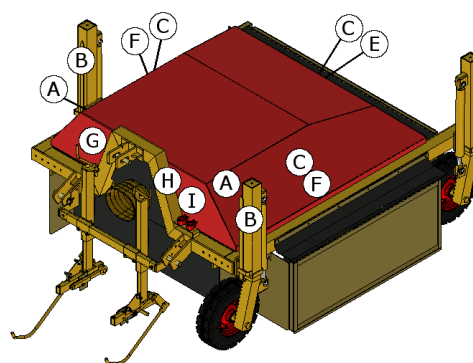
3.3 Warning stickers and pictograms.

Every SAMON Onion Topper has been equipped with the following stickers and warning labels:

	Description:	Size.: (b x h)	Order nr.
	A: Sticker "Samon"	24,8 x 7,8	TL6304
	B: Sticker "Height adjustment"	42,7 x 4,9	TL6300
	C: Sticker "Spinning knives"	18,4 x 19,8	TL6314
	D: Sticker "Note of exclamation"	8,5 x 7,2	TL6306
	E: Sticker "Attention Hand/Foot"	19,3 x 6,4	TL6309
	F: Sticker "Attention Foot"	13,3 x 6,4	TL6308
	G: Sticker "Attention Manual"	13,3 x 6,4	TL6310
	H: Sticker "Max 30 l/min"	6,0 x 5,0	TL6320
	I: Sticker "RPM knives"	9,8 x 7,8	TL6312



Labels SAMON Onion Topper type: Rear



Labels SAMON Onion Topper type: Front

If one of the labels is missing or damaged, it can be ordered at the SAMON distributor.

4. Inspections before and during use.

ATTENTION!!!

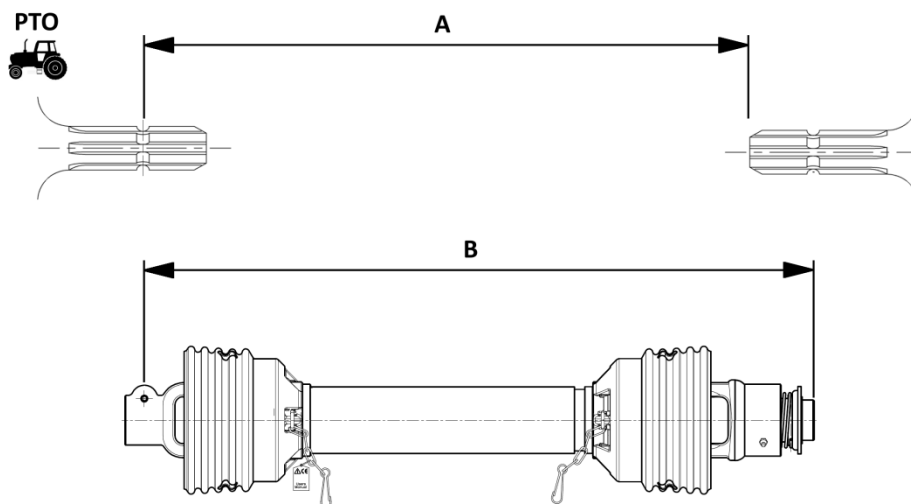
When inspecting and maintaining the SAMON Onion Topper always turn off the engine of the tractor and remove the key from the ignition. Be aware that the knives will not immediately stop spinning after shutting down the SAMON Onion Topper.

4.1 Necessary inspections before use.

- Check the gearbox for leakage.
- Check the tire pressure. (4,5 Atm.)
- Check the length of the PTO shaft.
- Check the protective cover of the PTO shaft for damage.
- Check if the safety chain of the PTO shaft is mounted.
- Check if safety clips, chains and wires are mounted.
- Check the drive belts for cracks and tears.
- Check the tension of the drive belts, also check this regularly during use.
- Check the hydraulic system for damages and leaks.
- Check the electrical system for damages.
- Check knives and mounting bolts for wear.

4.2 Shortening the PTO shaft.

If during the pre-check the PTO shaft turns out to be long, use the following directive for shortening the PTO shaft.



- Connect the SAMON Onion Topper to the tractor.
- Position the PTO axles as close as possible towards each other.
- Measure distance "A" of the PTO axles.
- Measure distance "B" of the PTO.
(See drawing for measure points)
- Subtract length "A" from length "B"
- Shorten the PTO with the solution. (See example)

Example:

A=400 mm
B=450 mm

$$B(450) - A(400) = 50 + 10 \text{ mm}$$

Shorten length = 60 mm

4.3 Connecting the SAMON Onion Topper.

- Connect the SAMON Onion Topper to the tractor.
- Connect the top and lower link pins and connect the Linch pins
- Check if the top link pin has clearance.
- Mount the PTO. (Rear Topper 540 PTO, Front Topper 750 PTO)
- Connect the safety chains of the protective sleeve of the PTO.
- Mount the hydraulic hoses (Max. 30 L/Min)
- Check all the functions of the (Automatic) Depth Control.



ATTENTION!!!

Use only a pressureless hydraulic return.

4.4 Checks after ± 5 Meters.

- Check if the SAMON Onion Topper has the correct height adjustment
- Check if the top link pin has clearance.

4.5 Checks and maintenance after ± 5 ha.

- Check the knives and connection nuts and bolts for wear and damage. Replace these parts for original new parts when needed. Note: always replace both knives from the same holder at once.
- Check the drive belts for cracks and tears.
- Check the tension of the drive belts, also check this regularly during use.

5. Maintenance.

WARNING!!!

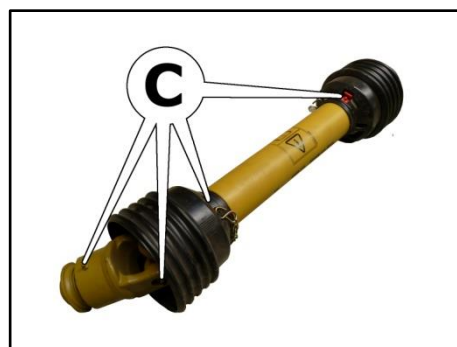
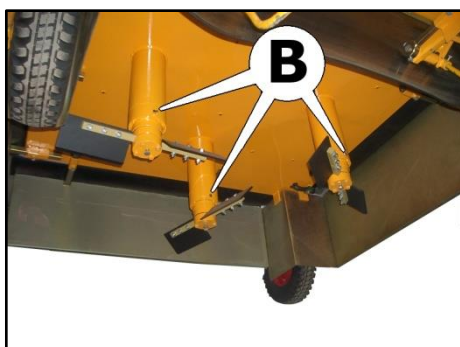
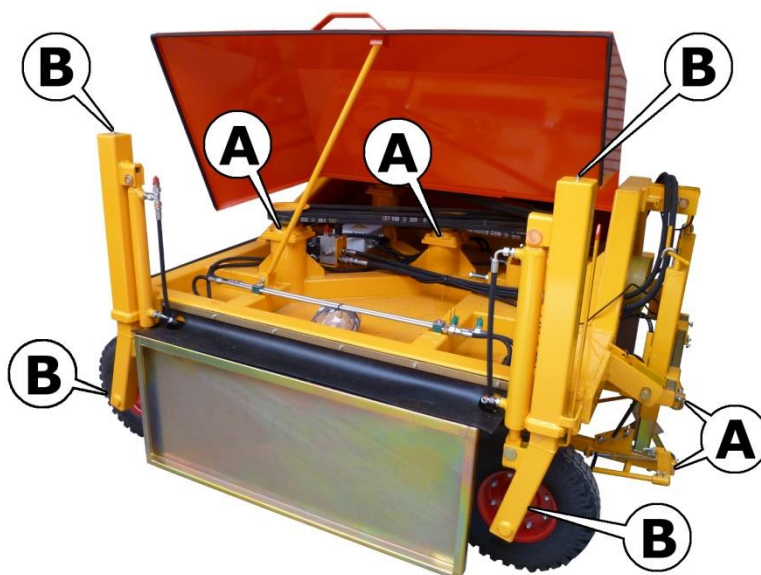
When inspecting and maintaining the SAMON Onion Topper always turn off the engine of the tractor and remove the key from the ignition. Be aware that the knives will not immediately stop spinning after shutting down the SAMON Onion Topper!

5.1 Lubrication schedule.

Lubricate the SAMON Onion Topper according to the following lubrication schedule.

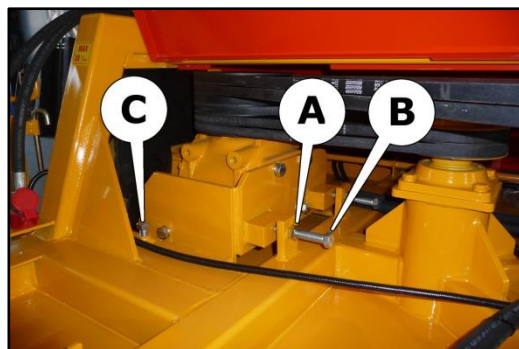
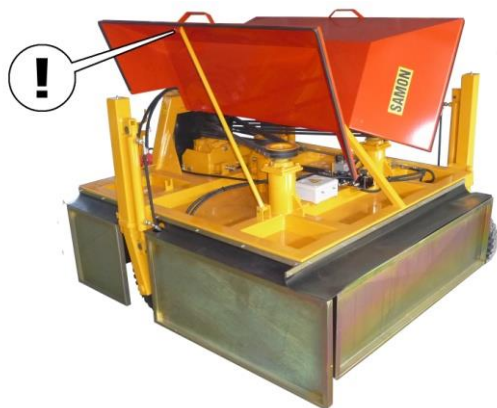
Lubrication schedule Samon Onion Topper.

Point:	Interval:	Description:
A	8 hrs	Upper bearings rotary axle, Automatic Depth Control.
B	16 hrs	Lower bearing rotary axle, Wheel supports, Wheels.
C	50 hrs	PTO shaft.

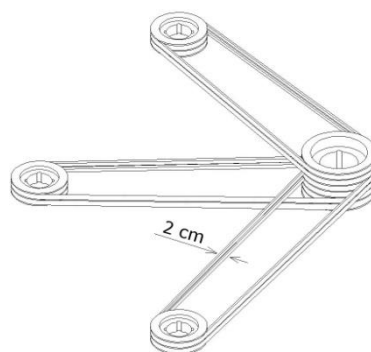


5.2 Adjusting drive belts.

When the drive belts need adjusting use the following directives.



- Open the hoods and fix the supports.
- Unscrew nuts "A".
- Unscrew bolts "C".
- Adjust the tension of the belts with bolts "B".
- Keep a slack of about 2cm.
- Tighten nuts "A".
- Tighten bolts "C".



ATTENTION!!!

Worn or hardened drive belts should be replaced.

5.3 Maintenance Gearbox.

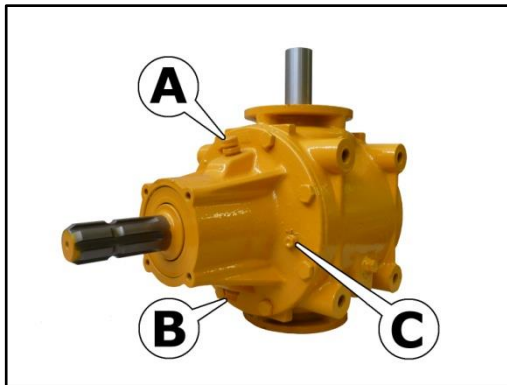
The gearbox has been filled in the factory with gearbox oil. (SAE 90)

ATTENTION!!!

Gearbox oil needs to be changed every 2 years.

5.3.1 Filling up the gearbox oil.

- Make sure the SAMON Onion Topper is on a flat, liquid proof floor.
- Disconnect the PTO shaft.
- Unscrew the breather plug(A) on the top of the gearbox.
- Unscrew plug (C) .
- Fill the gearbox with gearbox oil (SAE 90) until the oil runs out of plughole (C).
- Install plug (C) and breather plug (A).
- Mount the PTO shaft.



5.3.2 Changing gearbox oil.

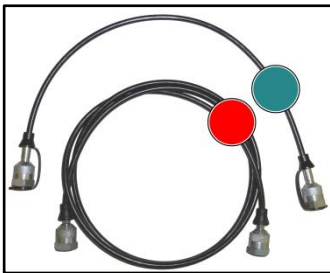
- Disconnect the PTO shaft.
- Disconnect the drive belts.
- Remove the gearbox out of the SAMON Onion Topper.
- Unscrew the breather plug(A) on the top of the gearbox.
- Unscrew plug (B) on the bottom of the gearbox.
- Drain the oil out of the gearbox in a container and make sure it is disposed on a ecological friendly manner.
- Install plug (B) and mount the gearbox back in the bracket.
- Unscrew plug (C) .
- Fill the gearbox with gearbox oil (SAE 90) until the oil runs out of plughole (C).
- Install plug (C) and breather plug (A).
- Install the drive belts with the correct tension.
- Install the PTO shaft.

5.4 Equate wheelsets without Automatic Depth Control.

When the height adjusting isn't working properly because the wheelsets aren't level use the following directions to solve this.

- Connect the two supplied connection hoses to the color coded connection.
- Raise the SAMON Onion Topper until the wheels can't touch the ground.
- Move the wheelsets up and down with the maximum stroke and repeat this a few times.
- Lower the wheelsets completely to its maximum position and remove the connection hoses.
- Install the protective covers on the connections.
- Check if all the wheels are level by raising and lowering the wheelsets.
- Repeat the above instructions if the wheelsets aren't level.

- Connection red: Long hose
- Connection green: Short hose

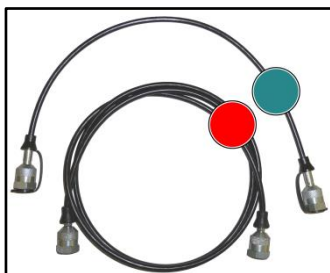


5.5 Equate wheelsets with Automatic Depth Control.

When the height adjusting isn't working properly because the wheelsets aren't level use the following directions to solve this.

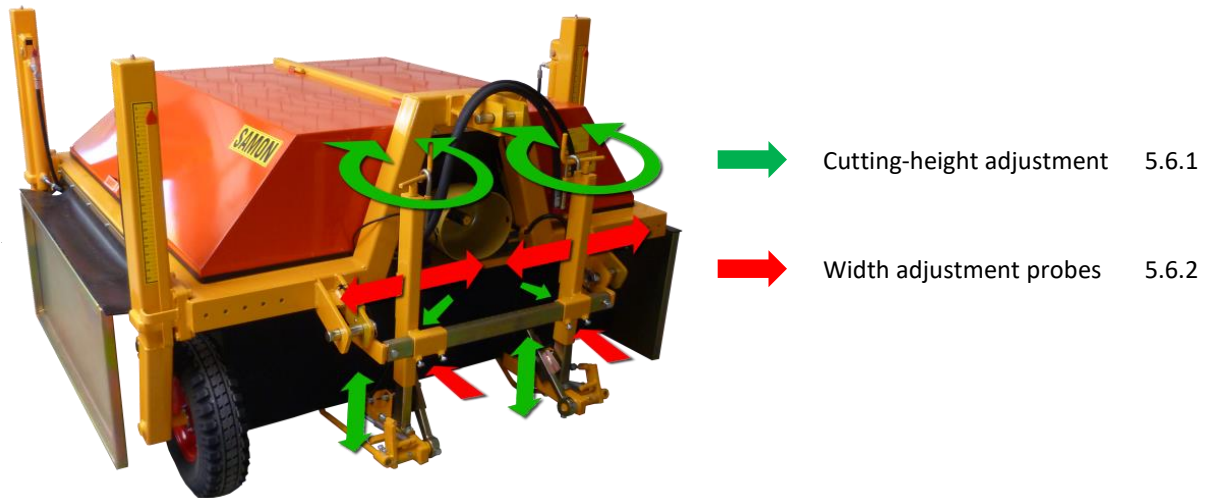
- Connect the two supplied connection hoses to the color coded connection.
- Raise the SAMON Onion Topper until the wheels can't touch the ground.
- Turn on the Automatic Depth Control.
- Move the wheelsets up and down with the maximum stroke by moving the probe of the Automatic Depth Control up and down and repeat this a few times.
- Lower the wheelsets completely to its maximum position and remove the connection hoses.
- Install the protective covers on the connections.
- Check if all wheels are level by raising and lowering the wheelsets.
- Repeat the above instructions if the wheelsets aren't level.

- Connection red: Long hose
- Connection green: Short hose



5.6 Automatic Depth Control.

If the SAMON Onion Topper has been equipped with the Automatic Depth Control the cutting-height and width of the probes must be set before using the SAMON Onion Topper.



5.6.1 Adjusting cutting-height Automatic Depth Control.

- Raise the SAMON Onion topper into the floating position.
- Make sure the Automatic Depth Control is turned on.
- Release the retainer bolts of the height adjustment.
- Remove the locking bracket from the rotating levers.
- Check if both reaction plates are situated between the two sensors.
- Rotate the levers to adjust cutting-height.
- Lock the rotating levers with the bracket.
- Tighten the retainer bolts.

5.6.2 Width adjustment probes Automatic Depth Control.

For an optimal working Automatic Depth Control the probes must be running in the right tracks therefore the probes have the possibility to adjust the width.

- Release the retainer bolts of the width adjustment.
- Slide the legs to the left or right to the desired position.
- Tighten the retainer bolts.

5.6.3 Settings and adjusting the Automatic Depth Control Valve-block.

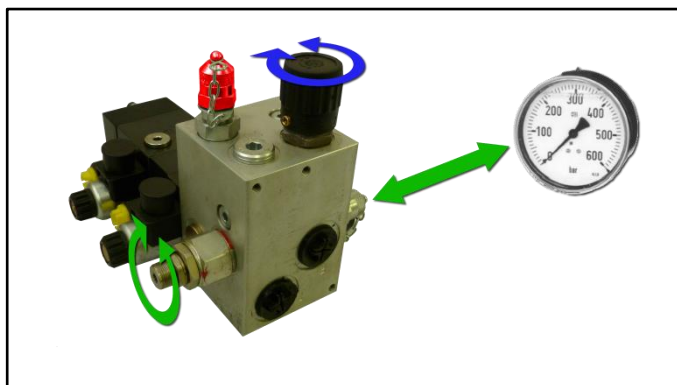
ATTENTION!!!

The Valve block has been preset at the factory.

WARNING!!!

Make sure during maintenance to the hydraulic system of the SAMON Onion Topper there is no pressure on the system.

Always disconnect hydraulic hoses during maintenance.



Adjusting pressure

Adjusting flow

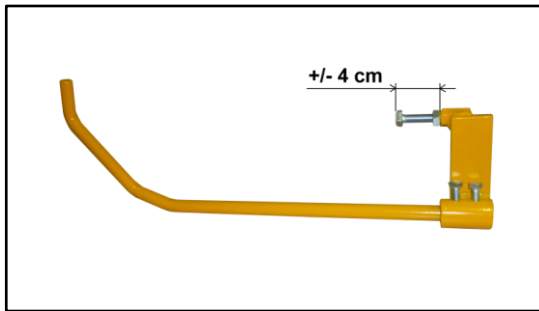
After repairing the valve block, for an optimal operation of the Automatic depth Control, use the following settings.

	Value:	Adjustment:
Flow:	Max 30 L/min	Close the flow-valve completely by turning the knob  , turn the knob  to open the valve then fix the knob with the locking pin.
Pressure:	Max 120 bar.	Connect the pressure-gauge on the Yellow connection. Unlock the retain nut on the adjustment screw. Adjust the pressure by turning the adjustment screw of the valve. Lock the adjustment screw with the nut.

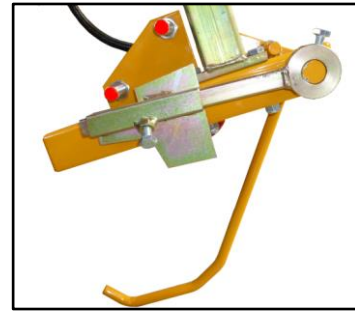
5.6.4 Adjusting and setting the sensors after maintenance.

Adjusting the sensors and probes is only necessary when the Automatic Depth Control has been taken apart for maintenance.

- Raise the SAMON Onion Topper until the wheels can't touch the ground.
- Screw in the adjustment-bolt until the distance between screw head and probe is approximately 4 cm.
- Tighten the retainer nut.
- Lower the probe until the adjustment-bolt meets the stop.
- Place the reaction-plate just below the sensors and tighten the locking bolt.
- Mount the spring and check if the Automatic Depth Control is working.



Adjustment-bolt in the probe.



Location reaction-plate below sensors

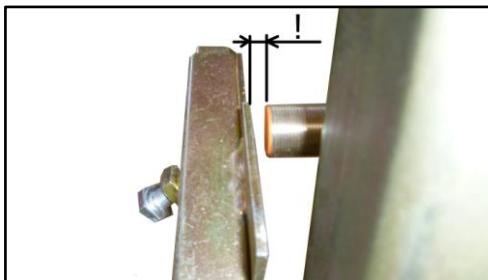
ATTENTION!!!

For simple operation check:

The sensors and magnetic coil plugs are fitted with LED lights. If operated the LED will light up.

ATTENTION!!!

Minimal distance sensor <--> reaction plate is 1,5 mm, this is for optimal working conditions of the Automatic Depth Control.



6. Transport and Storage.

6.1 Transport on a carrier.

- Make sure that the SAMON Onion Topper has been firmly strapped with proper lashing straps.
- Block the wheels with wheel chocks.

6.2 Transport on a tractor.

- Maintain the traffic regulation if you transport the SAMON Onion Topper on the public road.
- Before lifting the SAMON Onion Topper always make sure the machine is turned off and the knives don't rotate anymore.
- Cutting knives aren't protected when the SAMON Onion Topper is lifted.
- Keep in mind that there is a reduced visibility during the transport of the SAMON Onion Topper.

6.3 Storage.

- Clean the SAMON Topper thoroughly.

ATTENTION!!!

If using a high pressure cleaner, don't spray directly into bearings and electronics.

- Check tires for damage and pressure . (4,5 Atm.)
- Check the drive belts for cracks and tears.
- Relieve the tension of the drive belts.
- Check all bearings and replace these if they have too much clearance.

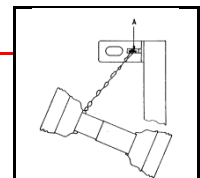
ATTENTION!!!

Let the lower bearings of the rotary axes be replaced by an authorized SAMON dealer. These bearings require precise adjustment to minimize wear.

- Check knives and mounting bolts of the knives for wear and replace when necessary.
- Lubricate every lubrication point of the machine.
- Check the oil level in the gearbox if necessary fill it up.
- Check the cross-bearing and the slide parts of the PTO for wear.
- Check the PTO protective covers for damage and wear.
- Check the safety wires of the PTO
- Lubricate the whole PTO shaft

ATTENTION!!!

If the SAMON Topper isn't used, even for a short period, and the PTO shaft is still mounted. Always connect the safety chain of the PTO to the designated bracket to prevent damage to the PTO shaft and its components.



- Check safety wires and retainer clips for damage and wear.
- Check the hydraulic system for damages and leaks.
- Check the electrical system for damages.
- Store the SAMON Topper when it is fully dry.

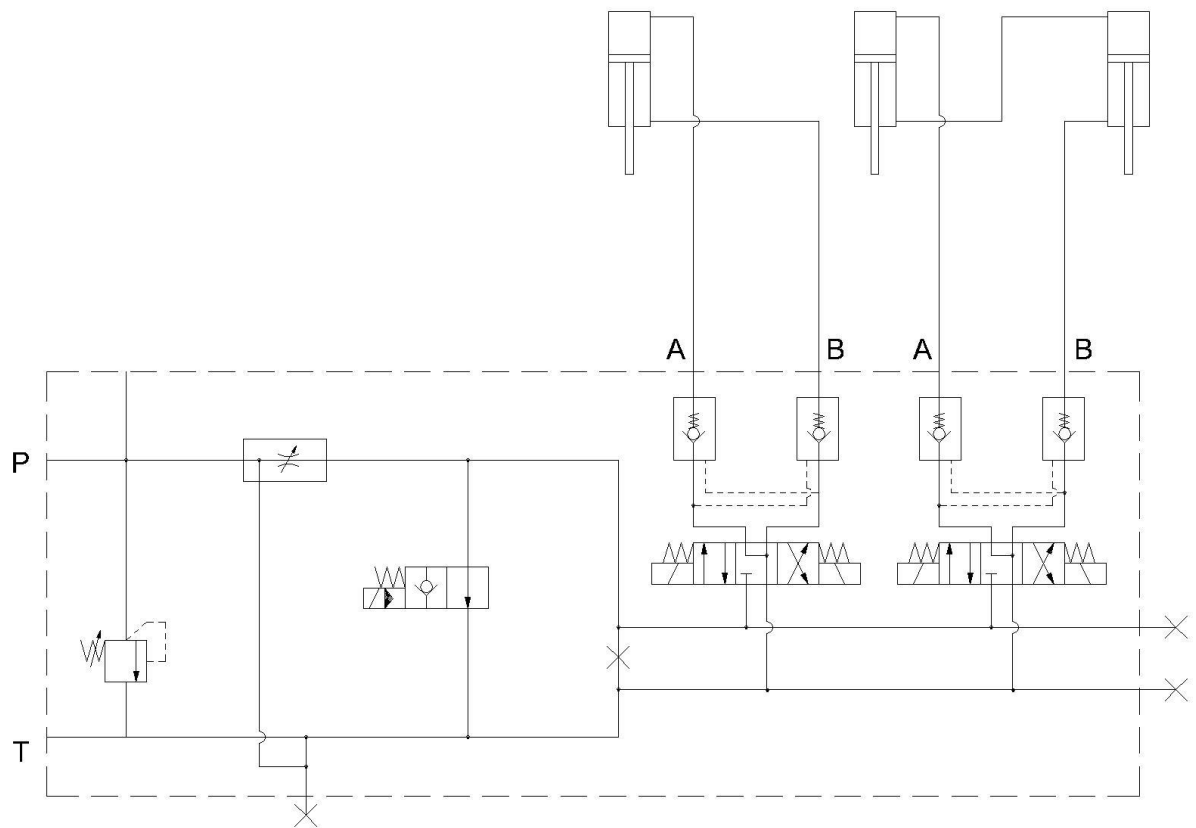
7. Technical Data.

SAMON Topper "Open version"				
Working Width:	1,5 Meters		1,8 Meters	
Use:	Rear	Front	Rear	Front
Type:	SU15AO	SU15FO	SU18AO	SU18FO
PTO:	540 PTO	750 PTO	540 PTO	750 PTO
Oil Gearbox:	SAE.90EP / 2,5 ltr	SAE.90EP / 2,5 ltr	SAE.90EP / 2,5 ltr	SAE.90EP / 2,5 ltr
Dimensions: (LxBxH)	200x205x130 cm	200x205x130 cm	215x215x130 cm	215x215x130 cm
Knives:	6	6	6	6
Weight:	680 - 715 kg *	660 – 695 kg *	695 - 730 kg *	725 – 760 kg *

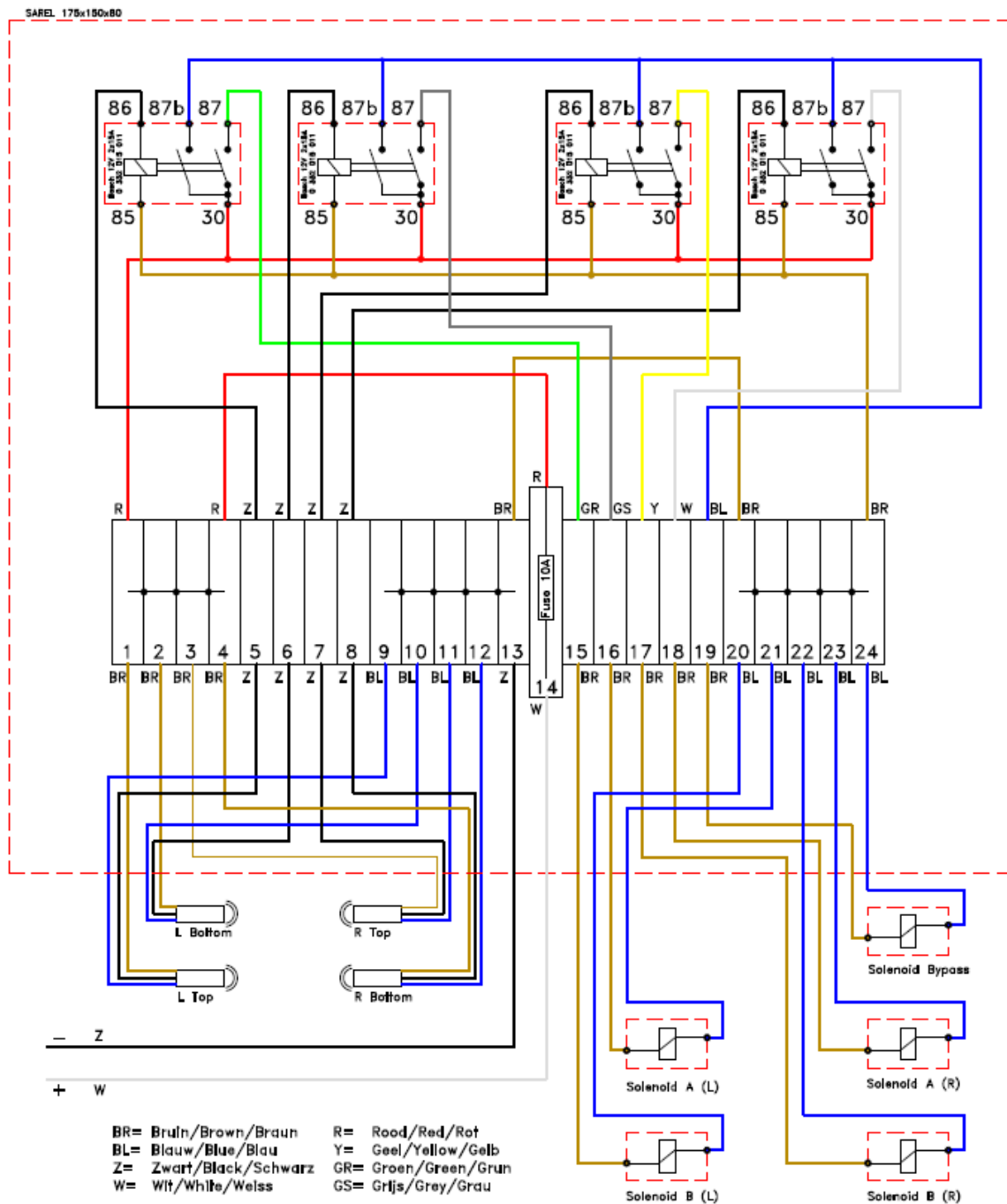
* Depending on options and accessories

8. Technical diagrams.

8.1 Hydraulic diagram Automatic depth control.



8.2 Electric diagram for Automatic depth control



9. Ordering spare parts.

When ordering spare parts use the instructions below, then you will be assured for a quick and accurate delivery.

1. Order your spare parts at an official SAMON dealer.
2. Discribe type, year en serialnumber of the machine, as described on the ID-tag.
The ID-tag is located on the frame near the PTO.
3. Always specify the part number and full description.



10. Troubleshooting.

Troubleshooting in general.

Malfunction:	Cause:	Solution:
Drive belts skid.	Drive belts have too much clearance.	Tension the drive belts.
	Drive belts are hardened or worn.	Replace drive belts
	Pulley's are worn.	Replace pulleys
Onion Topper vibrates.	Knife holder not aligned.	Realign knife holder.
	Object hit.	Turn of machine and check for damage.
	Knife-bolts are loose.	Tighten the knife-bolts. If worn replace the bolts.
	Knives worn or damaged.	Replace knives. Note: always replace both knives from the same holder at once.
	Bearings rotary axle are worn.	Replace bearings.
Wheelsets aren't level	Leakage hydraulic hoses, cylinders or couplings.	Detect leakage repair and equate wheelsets.

Troubleshooting with Automatic Depth Control.

Malfunction:	Cause:	Solution:
Automatic Depth Control doesn't work	No oil flow.	Check oil flow.
	No power supply electronics.	Check power supply.
	Faulty or damaged wiring.	Check wiring and replace faulty wiring.
	Bypass solenoid doesn't work.	Check electronic signal.
Automatic Depth Control works only on one side.	Relay defective.	Replace faulty relay.
	Sensor defective.	Replace faulty sensor.
	Faulty or damaged wiring.	Check wiring and replace faulty wiring.
	Defective non-return valve	Check by measuring and replace.
Automatic Depth Control response very slowly	Low hydraulic pressure.	Check by measuring and adjust pressure. (See chapter 5.6.3)
	Low hydraulic flow.	Reset the flow-valve. (see chapter 5.6.3)