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1. Introduction.

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

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

Ellens Agricultural Engineering BV recommends users to carefully read this manual, instructions, directions and comments before using the machine.

References to the left or right side of the machine are determined based on the driving direction of the machine.

Ellens Agricultural Engineering BV reserves the right to change the contents of this manual without prior notice.

This machine was designed in accordance with the provisions of the machinery directive 89/392/EEC and amendments.

2. Warranty and liability

2.1 Warranty

SAMON agricultural machinery comes with a warranty period of 1 season.

The SAMON Haulm Topper is designed and intended for cutting haulms off onions, chicory and carrots.* Using the SAMON Haulm Topper for purposes it is not intended for is considered improper use.

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

This warranty is provided on construction defects in the machine encountered during normal use.

Parts that are subject to wear are not covered by this warranty, these are:

- drive wheels, drive belts, guide wheels,
- bearings,
- blade holders and blades,
- coulter disks,
- tensioners,
- other parts subject to wear.

The warranty on hydraulic components, PTO shafts and gear drives is given only on construction defects of the components, which result in failure, in the opinion of the manufacturer.

This warranty lapses in the following instances:

- Constructive adjustments and changes to the machine without permission from Ellens Agricultural Engineering BV.
- Installation and use of components on or to the Haulm Topper that has an adverse impact on the solidity of the construction.
- Failure of components due to maintenance intervals not being observed.
- Changes to or non-adherence to adjustments and settings prescribed, which could result in damage.

Our dealers and manufacturing service points are all available to provide information and guidance.

2.2 Liability

Ellens Agricultural Engineering 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 follow the instructions and directions described in the manual.



NOTE!!!

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

3. Safety and the environment

3.1 General safety



NOTE!!!

Make sure that all persons that work with the SAMON Haulm Topper and/or that perform maintenance on it read this manual carefully and take the required precautions for their own safety and others in the area while operating the SAMON Haulm Topper.

Always keep the following points in mind when working with or on the SAMON Haulm Topper.

- The SAMON Haulm Topper 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 Haulm Topper always switch the tractor engine off and remove the key from the ignition.
- The SAMON Haulm Topper is fitted with a ball valve on the hydraulic hose. This valve must be closed when the Haulm Topper is folded away in order to prevent the Haulm Topper from folding out.
- The SAMON Haulm Topper comes with highly dangerous blades that rotate at approximately 2000 RPM.
- Bear in mind that the blades will keep turning for a while after the SAMON Haulm Topper is switched off.
- Always wait until the blades have come to a complete halt before approaching or folding the machine.
- Before starting the machine, always clear the work area of potential flying objects such as twigs, stones or other objects; loose objects can project out of the SAMON Haulm Topper and cause serious damage and injury to the Haulm Topper and to you or others, animals and property.
- Keep away from the SAMON Haulm Topper while it is in operation.
- Always use a tractor with cab.
- When an object is hit, switch off the SAMON Haulm Topper and check for damage before switching it back on.
- The SAMON Haulm Topper contains a number of parts that are fitted with locking pins and safety cords and/or chains. They must always be in position.
- Damaged and broken safety devices and locking agents must be replaced immediately.
- Protective covers, sleeves and rubber flaps must always be undamaged. Always replace when dents or cracks appear.
- Always use original SAMON parts as they are specifically designed for the Haulm Topper.

3.2 Environment

For ecological reasons, cleaning and maintenance of the SAMON Haulm Topper must take place on a hard, liquid-proof floor.



NOTE!!!

Dispose of used lubricants in an environmentally friendly manner. We recommend delivering spent oil in a closed tank at a recycling centre or a collection point. Never dispose of spent oil in a dustbin, ditch, sewer, drain or on the soil.

3.3 Warning labels and pictograms

SAMON Haulm Toppers are provided with the following labels and warning pictograms:

	Description:	Dimensions: (WxH)	Order no.
A:	"Samon" label	24.8 x 7.8	TL6304
B:	"Height adjustment" label	42.7 x 4.9	TL6300
C:	"Rotating blades" label	18.4 x 19.8	TL6314
D:	"Voltage" label	8.5 x 7.2	TL6321
E:	"Hand/foot hazard" label	19.3 x 6.4	TL6309
F:	"Foot hazard" label	13.3 x 6.4	TL6308
G:	"Check the manual" label	13.3 x 6.4	TL6310
H:	"Max 30 l/min" label	6.0 x 5.0	TL6320
I:	"Blade speed" label	9.8 x 7.8	TL6312

If any of these labels should be missing or illegible you can order a replacement at your SAMON dealer.

4. Inspections before and during use



WARNING!!!

When performing maintenance on the SAMON Haulm Topper always switch the tractor engine off and remove the key from the ignition.

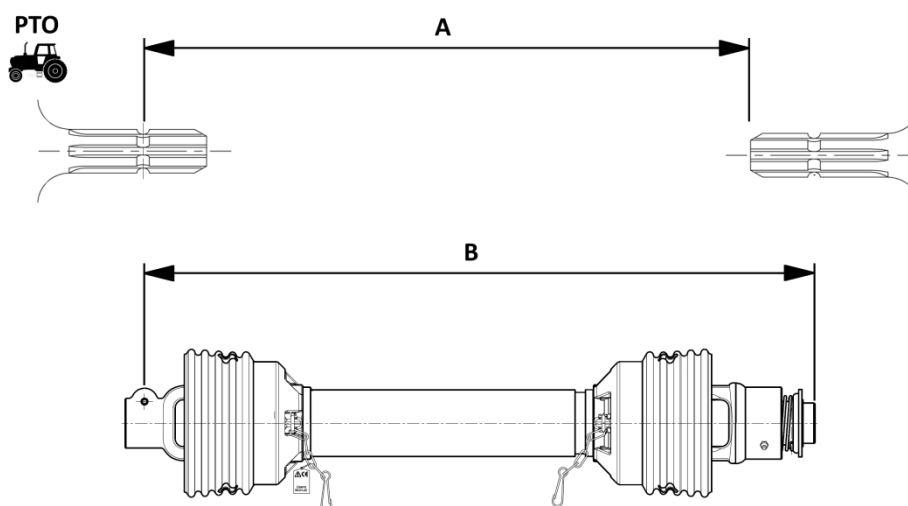
After switching off the machine, wait until the blades come to a complete halt!

4.1 Checks to be performed before use

- Check the gear drive for leaks.
- Check the tyre pressure. (4.5 Bar)
- Check the length of the PTO shaft. (see 4.2)
- Check all protective covers and rubbers on the SAMON Haulm Topper for damage.
- Check the protective covers of the PTO shafts for cracks.
- Check that the safety chains of the PTO shafts are mounted.
- Check that the locking clips and safety cords are in place.
- Check the drive belts for cracks and tears.
- Check the tension of the drive belt and do so regularly while in use.
- Check the hydraulic system for damage and leaks.
- Check the electrical system for damage.
- Check the blades and fixing bolts of blades for wear.

4.2 Shortening the PTO shaft

If it should appear during inspection that the PTO shaft is too long, it can be shortened as follows:



- Hitch the machine to the tractor.
- Position the PTO shafts together as short as possible.
- 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 with the result (see example)

Calculation example:

A=400 mm

B=450 mm

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

Trimming length = 60 mm

4.3 Connecting the SAMON Haulm Topper

- Hitch the machine to the tractor.
- Attach the mechanical pins and secure with the locking clips.
- Check that the top rod is free.
- Mount the PTO shaft (**1000 rpm PTO**).
 - SU15AO3B / SU18AO3B : **1000 rpm**.
 - SU20AO3B : **800 - 900 rpm**.
- Secure the safety chains of the protective cover of the PTO shaft.
- Install the supplied hydraulic hoses; the thicker hydraulic hose is the return hose.



NOTE!!!

Use with a SAMON Haulm Topper with automatic depth control of up to 30 L/min and always connect the return hose to a pressure-free return!

- Check all functions of the machine and the automatic depth control.

4.4 Inspection after ± 5 metres

- Check that the machine is set to the correct depth.
- Check that the top rod is free.

4.5 Inspection and maintenance after ± 5 ha.

- Check the bolts on the blades and the blades for wear or damage. **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 and adjust if necessary (see 5.2).



WARNING!!!

Replace the knives on time. Vibration in the machine due to an imbalance can cause a lot of damage.

5. Maintenance



WARNING!!!

When performing maintenance on the SAMON Haulm Topper always switch the tractor engine off and remove the key from the ignition.

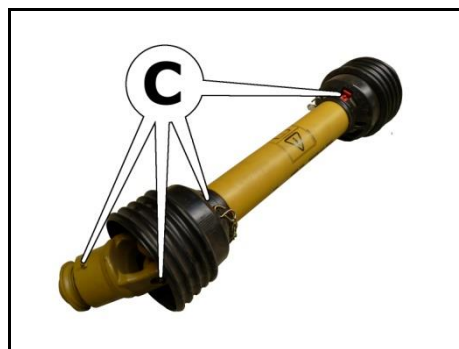
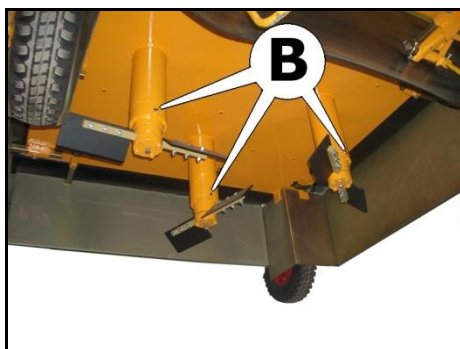
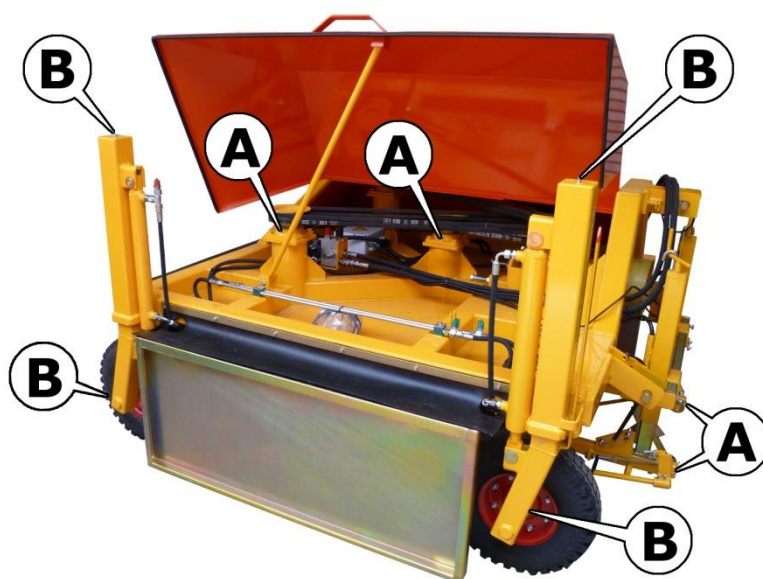
After switching off the machine, wait until the blades come to a complete halt!

5.1 Lubrication schedule

Lubricate periodically to ensure that the SAMON Haulm Topper works optimally.

Schedule for lubricating the Samon Haulm Topper

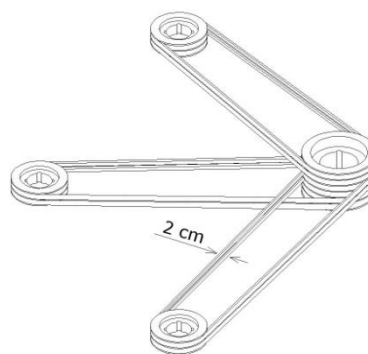
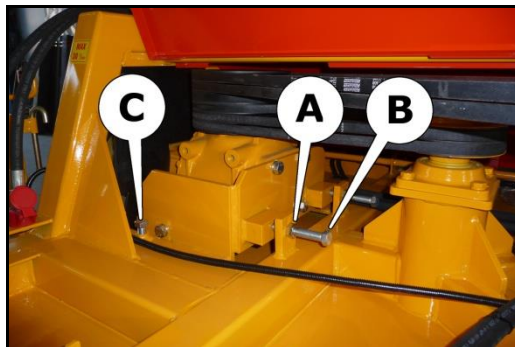
Lubricating point:	Interval:	Item:
A	8 hours	Upper bearings of topper shafts, automatic depth control.
B	16 hours	Bottom bearing of topper shafts, wheel feet, wheels.
C	50 hours	PTO shaft.



5.2 Adjusting drive belts

Each part of the SAMON Onion Haulm Topper, left, right and the centre, has a structure for adjusting the drive belts. The following applies to each part:

- Make sure that the SAMON Onion Haulm Topper is folded out and standing on a flat, level surface.
- Open and secure the protective covers with the supports.
- Loosen nuts "A".
- Loosen nuts "C".
- Turn bolt "B" to adjust the drive belts to the proper tension.
- Maintain about 2 cm play.
- Retighten nuts "A".
- Retighten nuts "C".



NOTE!!!

Always replace worn or hardened drive belts.

5.3 Gear drive maintenance

The gear drives are filled in the factory with gear drive oil (SAE 90).

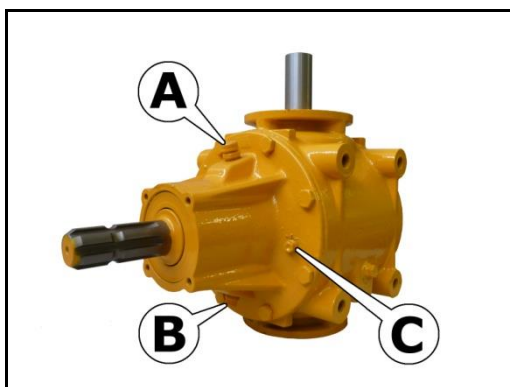


NOTE!!!

The gear drive oil must be replaced every 2 years.

5.3.1 Topping up the gear drive oil

- Make sure the SAMON Onion Haulm Topper is standing on a flat, level surface.
- Remove the PTO shaft(s).
- Remove bleed nipple or vent hose (A) at the top.
- Remove plug (C) from the gear drive.
- Fill the gear drive with oil (SAE 90) until oil starts coming out of plug hole (C).
- Fit plug (C) and bleed nipple (A)
- Mount the PTO shaft.



5.4.2 Replacing the gear drive oil

- Remove the PTO shaft.
- Remove the drive belts.
- Remove the gear drive from the frame.
- Remove bleed nipple (A) at the top.
- Remove plug (B) from the bottom of the gear drive.
- Drain the gear drive and collect the oil in a container - make sure to dispose of it in an ecologically responsible manner.
- Tighten plug (B) and place the gear drive back in the frame.
- Remove plug (C) from the gear drive.
- Fill the gear drive with oil (SAE 90) until oil starts coming out of plug hole (C).
- Fit plug (C) and bleed nipple (A)
- Install and adjust the drive belts.
- Mount the PTO shaft.

5.4 Aligning wheels with automatic depth control

If the wheel sets are not aligned at the same height, they can be adjusted as follows.

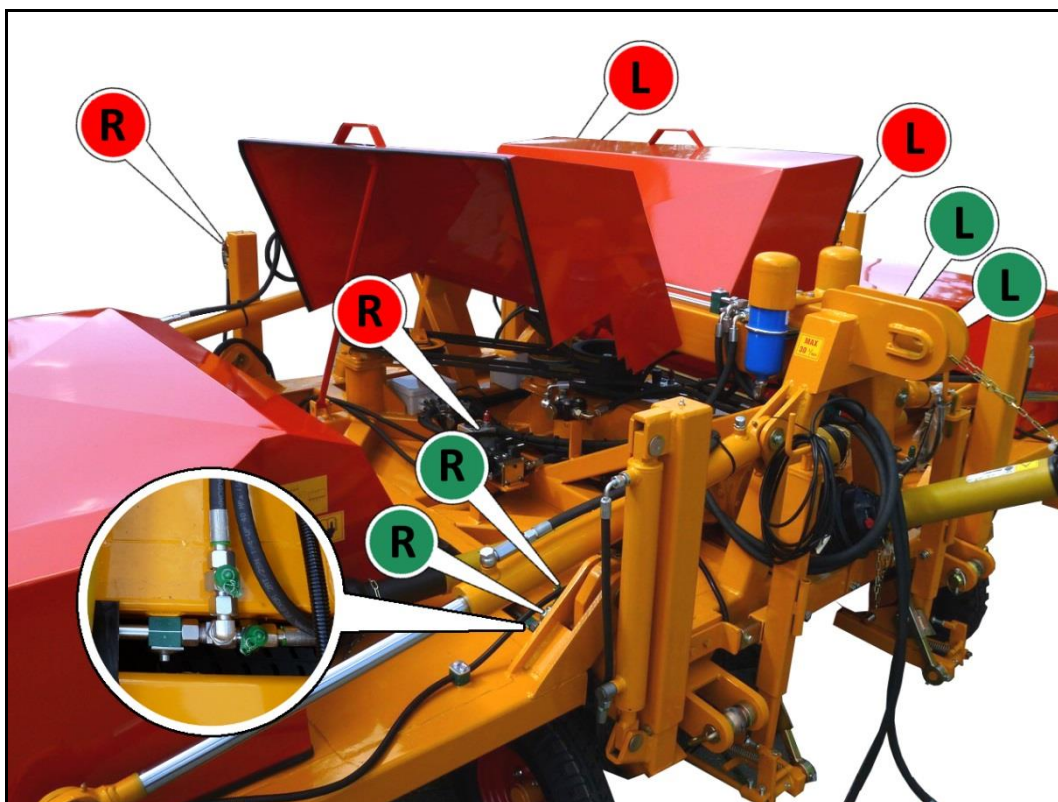
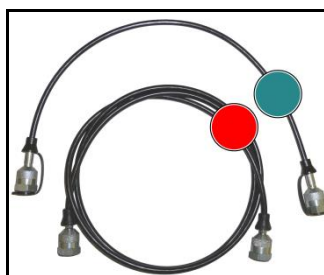


NOTE!!!

Adjust the left and right side separately.

- Connect the two supplied connection hoses to the colour-coded connections.
- Lift the machine until the wheels clear the ground.
- Turn on the automatic depth control.
- Move the probe up and down and make sure that the wheels turn a full revolution.
- Repeat this several times.
- Turn the wheel sets in the maximum extended position and remove the connection hoses.
- Screw the protective caps of the connecting nipples back on.
- Check the alignment again.

- Red connection: Long hose
- Green connection: Short hose



5.5 Automatic depth control

If the SAMON Haulm Topper is equipped with an automatic depth control, it will be necessary to adjust the cutting height and working width of the probes.



- ➔ Cutting height adjustment: 5.5.1
- ➔ Width adjustment: 5.5.2

5.5.1 Adjusting automatic depth control folding height

- Set the lifting device of the tractor with the SAMON Haulm Topper in "floating mode"
- Make sure automatic depth control is turned on.
- Loosen the locking bolts of the height adjustment.
- Remove the locking brackets from the pivot levers.
- Check that the reaction plate is located between the two sensors.
- Turn the levers to set the desired cutting height.
- Lock the pivot levers with the catches.
- Tighten the locking bolts of the height adjustment.

5.5.2 Adjusting width of automatic depth control probes

To ensure maximum performance of the automatic depth control, the probes must run in the appropriate tracks.

- Loosen the locking bolts from the width adjuster of the probe legs.
- Move the legs until the depth control probes fall in the appropriate track.
- Secure the probe legs with the locking bolts.

5.5.3 Adjusting and setting the automatic depth control valve block



NOTE!!!

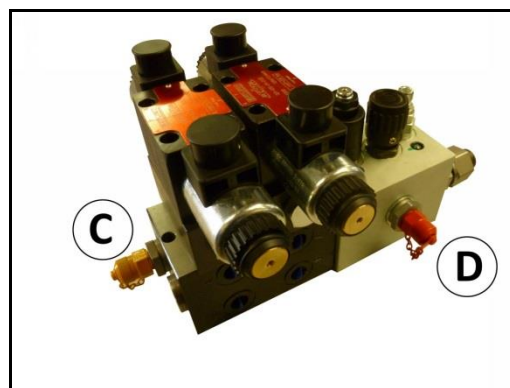
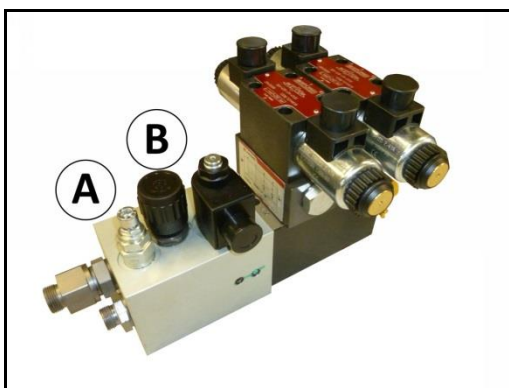
The valve block has been set to the proper pressure and flow at the factory.



WARNING!!!

When performing maintenance on the hydraulic system of the SAMON Haulm Topper, make sure that there is no pressure on the system.

Always remove the hydraulic hoses before maintenance.



A: Set the valve block pressure.

B: Set the valve block flow.

C: Connection point for pressure measurement.

D: Vent connection point.

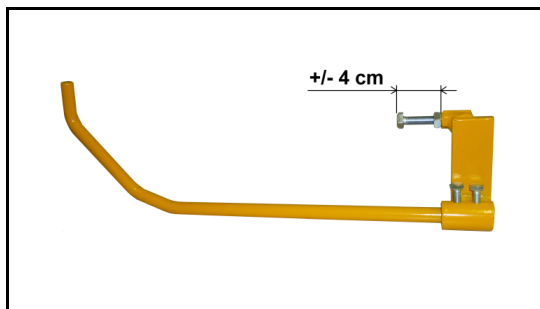
To ensure maximum performance of the automatic depth control, it will be necessary to adjust the valve block as follows after repair or maintenance.

	Value:	Adjustment:
Flow:	Max 30 L/min	Turn the knob to close the flow control valve ☺, then open by 1 ¼ turn ☺ and secure the locking pin.
Pressure:	Max. 120 bar	Measure using a manometer connected to the measuring point (yellow cap). After setting, retighten the lock nut.

5.5.4 Adjusting automatic depth control sensors after repair/installation

The automatic depth control sensors will require readjustment only when disassembled for maintenance/repair.

- Lift the machine until the wheels clear the ground.
- Turn the set screw of the probe about 4 cm into the probe arm.
- Tighten the lock nut.
- Move the probe down until the set screw is resting against the stop.
- Place the reaction arm with the stepped reaction plate just below the bottom sensors and secure with the locking bolts.
- Install the spring and test the automatic depth control.



Probe set screw adjustment



Position of reaction arm with plate relative to the sensors.



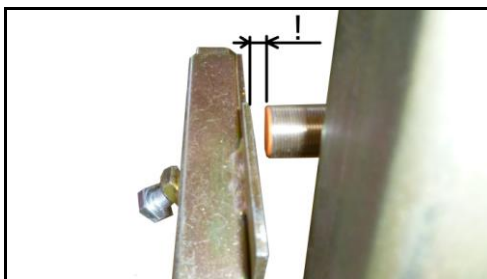
NOTE!!!

The sensors and plugs of the magnet coils are provided with a LED to facilitate in controlling their operation. When in operation, the LED will light up.



NOTE!!!

The minimum distance between sensor and reaction plate is 1.5 mm in order to ensure maximum performance by the automatic depth control.



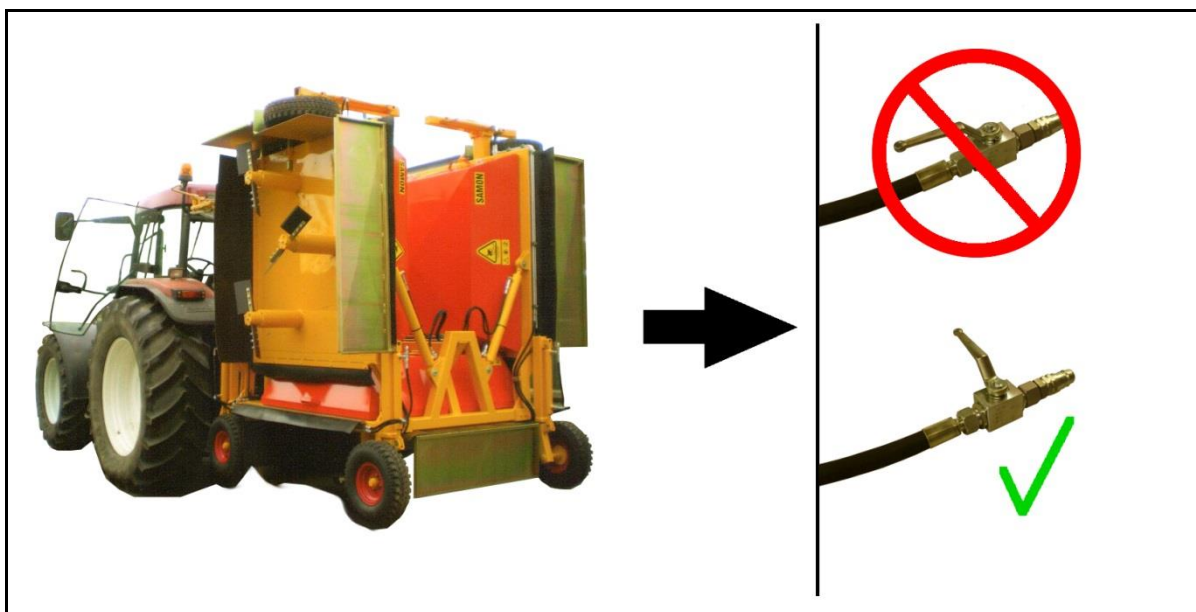
6. Transport and storage

6.1 Transport by transport vehicles

- After folding the machine for transport in a vehicle, always close the ball valve on the hydraulic hose.
- Make sure that the machine is firmly secured with rope or tensioning belts.
- Chock the wheels with wheel blocks.
- Bear the height in mind.

6.2 Transport by tractor

- Take local traffic rules into account when taking your SAMON Haulm Topper onto a public road with the tractor.
- Always switch off the SAMON Haulm Topper and wait until the blades stop turning before folding and lifting the Haulm Topper.
- After folding the machine for transport by road, always close the ball valve on the hydraulic hose.
- The blades are unprotected when the SAMON Haulm Topper is folded and lifted.
- Also keep in mind that the sight of the driver is limited when the SAMON Haulm Topper is connected to a tractor.



6.3 Storage

- Clean the machine properly.



NOTE!!!

When using a high pressure cleaner, do not spray directly on/in the bearings and electronic components.

- Check the tyre pressure and inspect for damage. (4.5 Bar)
- Check the drive belts for cracks and tears.
- Slacken the drive belts.
- Check all bearings and replace when clearance is excessive.



NOTE!!!

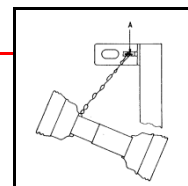
Replacement of the lower bearings of the topper shafts must be carried out by an authorised SAMON dealer. The bearings require precise adjustment to minimise wear.

- Check the bolts on the blades and the blades for wear and replace in time.
- Lubricate the machine as a whole (see lubrication schedules in the Maintenance section).
- 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.



NOTE!!!

When the machine is not in use (also for shorter periods of time) and the PTO shaft is left in the machine, attach the safety chain to the eye on the machine reserved for that purpose to prevent damage to the protective cover and the cross connection.



- Inspect the safety cords and locking clips for damage and cracks.
- Check the hydraulic system for damage and leaks.
- Check the electrical system for damage.
- Store the machine dry.

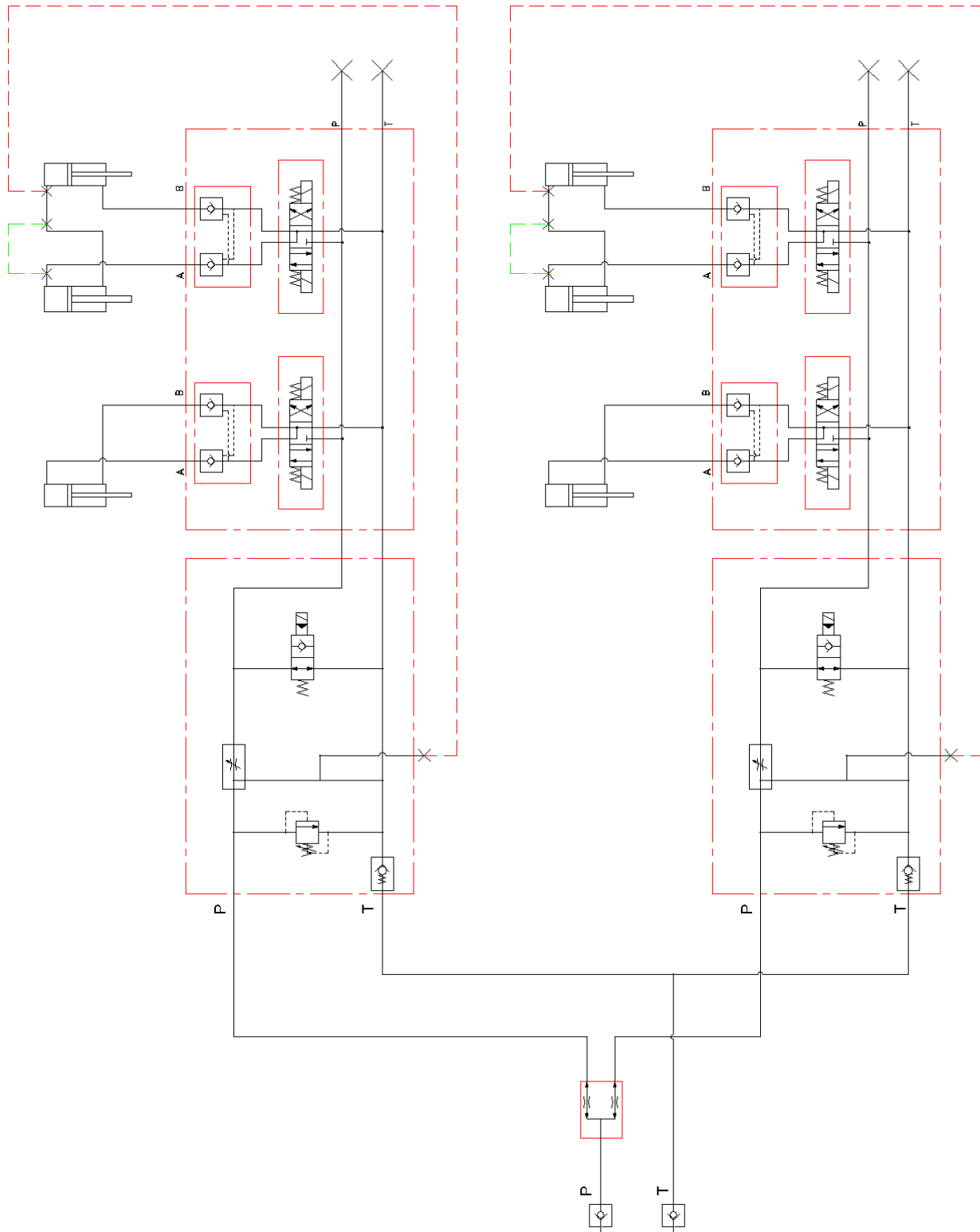
7. Technical data

SAMON 3-Bed Haulm Topper "Open model"				
Working width:	1.5 metres	1.8 metres	2.0 metres	
Use:	Rear	Rear	Rear	
Type:	SU15AO3B	SU18AO3B	SU20AO3B	
PTO shaft:	1000 PTO	1000 PTO	800-900 PTO	
Gear drive oil:	SAE.90EP	SAE.90EP	SAE.90EP	
Dimensions: (LxWxH)	260x250x290 cm	260x260x300 cm	260x290x320 cm	
Number of blades:	18	18	18	
Weight:	2180 kg *	2280 kg *	2380 kg *	

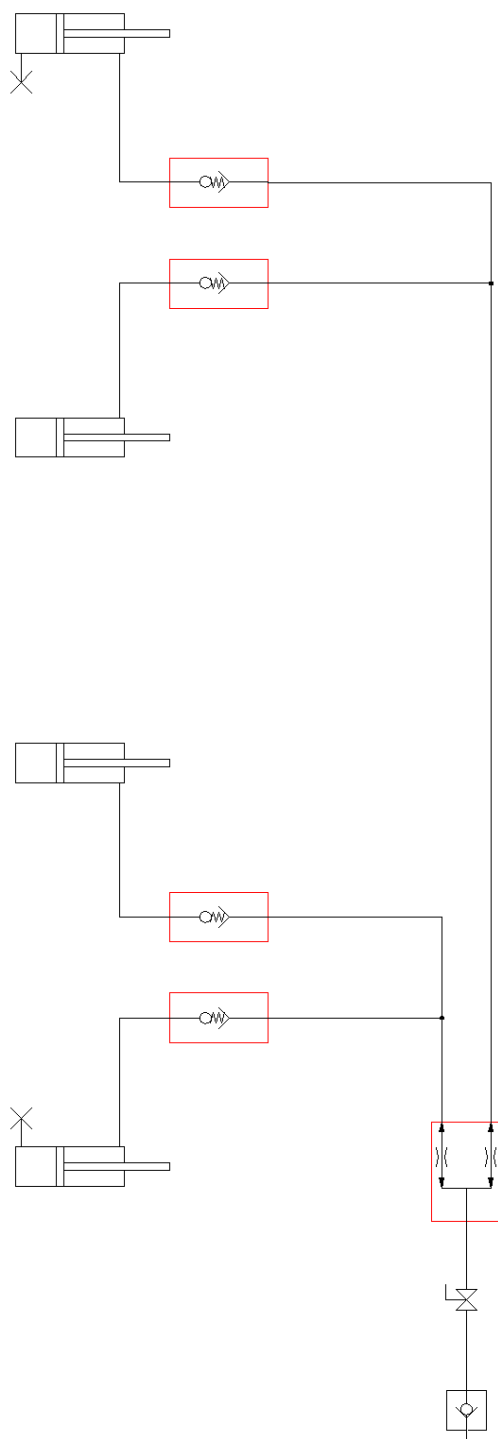
* Depending on options and additional extras.

8. Technical diagrams

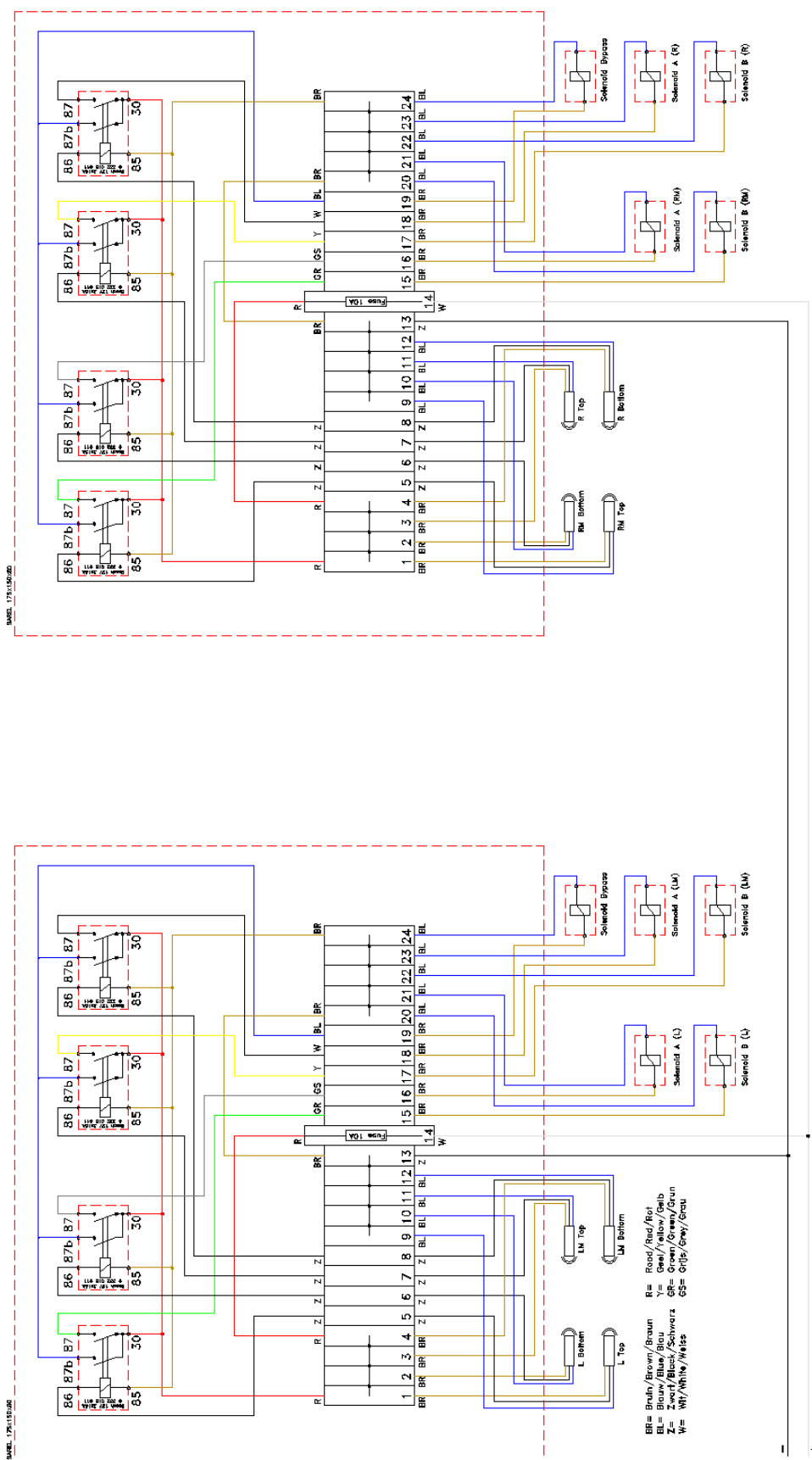
8.1 Hydraulic diagram of automatic depth control



8.2 Hydraulic diagram of folding frame



8.3 Electrical diagram



9. Ordering parts

Follow the instructions below for ordering parts to ensure quick and correct delivery.

1. Only order parts from official SAMON dealers.
2. Include the type, model and serial number of your machine as stated on the type shield.
The type shield is located on the frame of the PTO shaft.



3. Always state the part number and the description thereof in full.

10. Faults

General troubleshooting

Fault:	Cause:	Solution:
Drive belt slippage	Excessive play in drive belts	Re-tension drive belts
	Hardened drive belts	Replace
	Eroded pulleys	Replace
Haulm Topper vibrates	Blade holder is not centred	Realign blade holder
	Hit an object	Switch off machine and check for damage
	Loose blade bolts	Retighten bolts; replace if worn.
	Blades worn/damaged	Replace blades. Note: always replace both knives from the same holder at once.
	Bearings of topper shafts worn out	Replace and adjust bearings
Misaligned wheel sets	Possible causes: • leaking hose • leaking cylinder • leaking connection	Find and repair leak, then align wheel sets

Automatic depth control troubleshooting

Fault:	Cause:	Solution:
Depth control does not work	No oil supply	Check oil supply
	No electric power to electronic components	Check power supply
	Defective wiring	Check wiring and replace if necessary
	Electronic control valve does not work	Check electronic signal
Depth control works only on one side	Defective relay	Replace
	Defective sensor	Replace
	Defective wiring	Check wiring and replace if necessary
	Defective controlled check valve	Check by measuring and replace if necessary.
Depth control works slowly	Insufficient pressure	Perform pressure measurement and change with the pressure control valve, if necessary (Up to 120 Bar)
	Insufficient flow	Reset 3-way control valve (See 5.6.3)