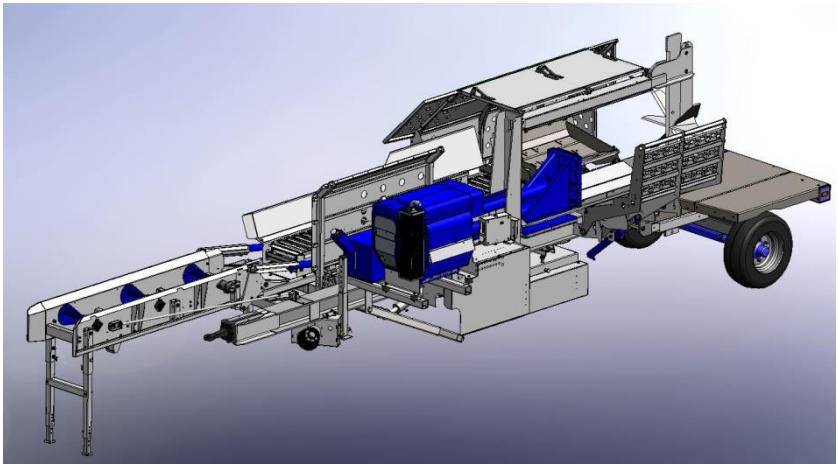
Binderberger
Maschinenbau GmbH
Made in Austria

Sawing and splitting machine SSG750



English translation of the original operating instructions

Carefully read these operating instructions before starting up the machine!

These operating instructions are valid for:

Type	Article number
SSG Z	SSG-M75-1
SSG D	SSG-M75-5

Version of this operating manual: **SSG750 2.0**

Release date: **2017-01**

Table of Content

1 Declaration of EC Conformity

We hereby declare that this machine, in all its available technical versions, complies with the regulations of Machine Directive 2006/42/EG and with all directly connected standards.

The safety instructions and operating instructions delivered here are valid for this machine.

This machine may not be changed technically. Any change that has not been coordinated with us will make this declaration invalid.

It is forbidden to operate the machine without the belonging protecting devices, because it will no longer comply with the EC directives and because it will lead to a higher risk of injury.

Name and address of the person authorized to compose the technical documentation:

St. Georgen am Fillmannsbach, 2017

Karl Binderberger

CEO / Geschäftsführer

Binderberger Maschinenbau GmbH

Fillmannsbach 9

AT-5144 St. Georgen am Fillmannsbach

2 Safety instructions

2.1 Meaning of symbols and hints

Please observe the meaning of the symbols and hints illustrated hereafter. They are classified according to danger levels and comply with ISO 3864-2.

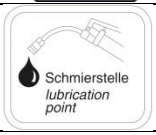
D A N G E R	
	***Points to an immediately threatening danger.*** ***Disregarding this information may lead to death or to most severe injuries (invalidity).***

W A R N I N G	
	***Points to a possible danger situation.*** ***Disregarding this information may lead to death or to most severe injuries (invalidity).***

A T T E N T I O N	
	***Points to a possible danger situation.*** ***Disregarding this information may lead to death or to small / medium injuries.***

A D V I C E	
	***Points to general information, useful operating instructions and handling recommendations, which however do not influence the safety and health of the personnel).***

2.2 Meaning of icons

	***Carefully read the operating instructions before starting up the machine!***
	***Always wear ear protection and eye protection during operation!***
	***Always wear steel-toed safety shoes during operation!***
	***The machine may be operated by a single person only!***
	***Danger from electric current!***
	***Trip hazard!***
	***Danger of injury from slipping!***
	***Beware of hot materials!***
	***Beware of floating load!***
	***Danger of tipping! Work on levelled ground!***
	***Lubrication spot***

2.3 Keep all information available

This operating manual must always be at the machine. Every person which works with the machine must have permanent access to this operating manual.

All labels with safety instructions and with operating instructions must always be kept in a well-legible condition. You must replace any label which has been damaged or which has become illegible.

2.4 General safety instructions

The machine may only be operated by persons which have been trained, instructed and authorized. These persons must be familiar with the operating instructions and must act accordingly. The competence of every operator must be defined clearly.

Apprentice personnel may only start operating the machine under the supervision of an experienced person. Successful and completed training of apprentice personnel should be confirmed in written.

2.5 Proper use

The sawing and splitting machine has been designed exclusively for sawing and splitting wood logs with a maximum diameter of 75 cm / 30”. Any use beyond these purposes is not permitted. In case of any personal injuries and damages resulting from improper use, the responsibility lies with the operator of the machine, not with the producer!

Proper use also includes reading this operating manual and adhering to all information contained here, especially adhering to the safety instructions. Proper use also includes the execution of all inspection and maintenance tasks within the prescribed time intervals.

2.6 Due diligence of the operator

This machine has been designed and manufactured according to the results of a hazard analysis and after careful selection of the harmonized standards to be complied with, as well as according to further relevant technical specifications. It represents the state-of-the-art for manufacturing and provides the maximum level of operational safety.

Still the operator must provide these conditions for safe operation:

- Only operate the machine according to the intended use (also see chapter „Proper use“)
- Only operate the machine in immaculate, fully functional condition, and execute a periodic test of the availability of the machine’s safety devices
- Supply personal protective clothing for all operators, maintenance and repair personnel, and make sure that the protective clothing is being used
- Make sure that the operating manual is completely available at the machine in a legible condition
- Make sure that only sufficiently qualified and authorized personnel will operate, maintain and repair the machine
- Make sure that all personnel will be trained on a regular basis concerning the appropriate issues of work safety and environmental protection, and that they are familiar with the operating instructions and all safety instructions contained therein
- Keep all safety and warning labels on the machine complete and in legible condition.

2.7 Required operator qualification

Operating this machine does not require special knowledge from the fields of machine engineering or electric engineering. The operator must however be at least **18 years** old. Before his first use of the machine, the owner of the machine must train and instruct him accordingly (see the general safety requirements). While operating the machine, the operator must wear safety shoes and tight-fitting work clothes.

If the operator must execute maintenance and repair work, he must have the required technical knowledge and abilities.

All operating personnel must be trained in order to be able to execute these tasks independently:

- Reviewing the safety devices before the start of operation and during operation.
- Repairing faults which do not require professional training in the fields of machine engineering or electrical engineering.

2.8 Maintenance and repair personnel

This operating manual includes all information on setting up and maintaining the machine, and addresses trained personnel with these tasks:

- Machine inspection, maintenance and repair
- Machine setup and adjustment
- Review the safety devices
- Execution of test runs
- Repairing malfunctions which require professional training in the fields of machine engineering or electrical engineering.

2.9 Technical modifications to the machine

For safety reasons, the operator is not authorized to carry out technical modifications to the machine. This is also true for welding work on supporting parts. All planned technical changes must be authorized beforehand in writing by manufacturer Binderberger GmbH.

Only use original spare parts / original wear parts / original accessory parts – these parts have been designed especially for the machine. Using parts from other sources will not guarantee that they have been designed and manufactured according to the occurring stress and the required safety level.

Parts and optional equipment which have not been delivered by Binderberger GmbH also have no approval from the manufacturer for use with the machine.

2.10 Protection of the environment

During all kinds of operation at or with the machine, the provisions concerning waste avoidance and concerning proper recycling and disposing must be adhered to.
Take special care during installation and maintenance work, as well as during machine shutdown, to avoid groundwater endangering materials like lubricants, oils, cleaning agents containing solvents from penetrating the ground and from entering the sewage water system. Make sure to collect and to dispose these materials using suitable containers.

3 Description of the machine

3.1 Operating mode

The sawing and splitting machine is driven by a hydraulic system. The hydraulic circuit is supplied by a diesel engine or by a PTO drive.

The sawing and splitting machine may only be operated, maintained and repaired by persons which are familiar with the machine and which have been informed about all potential dangers.

The machine must be installed and prepared for operation as described in chapter “Installation”. In case of **PTO operation**, the tractor must be situated at the left side of the drawbar, the joint shaft must be connected properly between tractor and machine, until it engages. The joint shaft protection must be secured against rotation with the securing chain.

In case of **diesel engine operation**, the engine must be inspected for sufficient oil level and absence of external damage or defects.

Now the desired cutting length for the logs must be selected (see chapter “Setting the splitting length”).

The cross wedge height position must be adjusted to split the log centrally (see chapter “Height adjustment of the splitting frame knife” for further details).

Now the processing operation may be started. Load the first log into the machine. The log may have a maximum diameter of 75 cm / 30 “.

See chapter 6.2 “Remote control unit” for all control button functions.

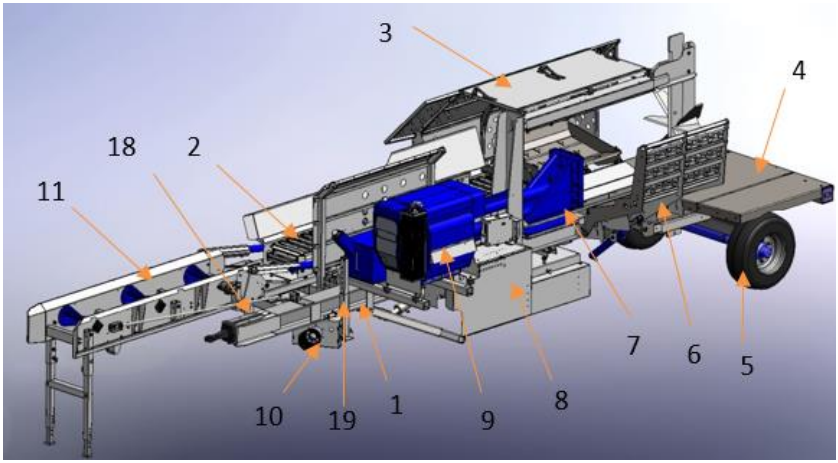
Step 1: The log is conveyed to the sawing section, until it touches the length stop and triggers the signal for step 2: the sawing process. The log is being clamped, then the hydraulic chain saw swings upwards and cuts the log.

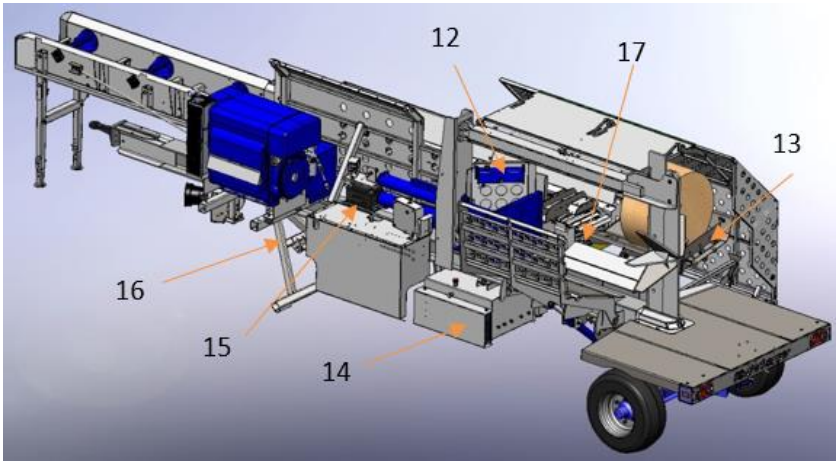
Make sure that the log has been cut through completely, but the saw sword will not leave the kerf. Otherwise the saw sword may get jammed while moving back to initial position.

Step 3: The pivoting table moves the cut part into the splitting section. Before this step is initiated, the lifting basket on the opposite side must be in its top position – otherwise the log could fall down at this side, with a danger of operator injury.

The cross wedge must be in the desired height, then the splitting process must be initiated.

3.2 Overview and details





3.3 Parts list

Item	Part
1	Framework
2	Feeder belt
3	Saw protection
4	Ablagetisch
5	Axle (brake axle, trailing axle)
6	Lifting basket
7	Pusher
8	Control block
9	Diesel engine
10	PTO driven unit
11	Feeder trestle
12	Tank for chain lubrication oil
13	Cross wedge
14	Hydraulic oil
15	Battery housing (for Diesel engine)
16	Leg support
17	Harvester unit
18	Foot, left side
19	Foot, right side

3.4 Technical data

Type	SSG Z	SSG D
Empty weight*	2,100 kg	4,680 kg
Support load*	850 kg	850 kg
Working height	1 m	1 m
Chain saw type	Oregon 18H	
Chain sword type	Oregon EA 542HSFL 104	
Motor output	30 kW (41 HP)	45.1 kW HATZ Diesel
rpm	450	1,450
Operating noise dB(A)	98 - 100	98 - 100
Splitting force	40 metric tons	
Log length	33 – 100 cm / 13 – 40 inches	
Maximum log diameter	75 cm / 30 inches	
Hydraulic oil	180 litres HVI 46	
Capacity of diesel fuel tank	---	70 l
Splitting speed V1	10 cms (4“) /sec	6 cms (2.4“) /sec
Splitting speed V2	19 cms (7.5“) /sec	11 cms (4.3“) /sec
Return movement speed	29 cms (11.4“) /sec	17 cms (6.7“) /sec
Chain tension pressure	8 bar	8 bar
Operation dimensions LxWxH*	8,600 x 2,450 x 2,260 mm	
Transport dimensions LxWxH*	7,350 x 2,450 x 2,660 mm	

*…..all given dimensions and weights are guide values only.

3.5 Optional equipment

Article no.	Section / detail
	Feeding section
SSG-Z75-1	Feeder trestle 2 m, foldable (together with attachment elements)
SSG-Z75-2	Feeder trestle 2 m, static
	Axle without brake
SSG-Z75-6	Chassis for 25 km/h (15 mph) with equipment, compressed air, lighting
SSG-Z75-7	TÜV type approval for public traffic at 25 km/h (15 mph)
	Splitting knife
SSG-Z75-8	Frame with 4 splitting knives
SSG-Z75-9	Frame with 6 splitting knives
SSG-Z75-10	Frame with 8 splitting knives
SSG-Z75-11	Frame with 12 splitting knives
	General equipment and accessories
SSG-Z75-13	PTO joint shaft 1,010 mm BG4 (Walterscheid)
SSG-Z75-14	Harvester sword 100 cm / 40”
SSG-Z75-15	Sawing chain with 110 links
SSG-Z75-16	Service kit for HATZ 3 cylinder motor (2 x oil filter, 2 x fuel filter)
SSG-Z75-17	Starter pack: 1 x sword, 3 x chain, 1 x limit switch each, 1x filter kit
SSG-Z75-18	Electric motor cart for Z drive

4 Transport

4.1 Safety instructions for transport

WARNING	
	**Danger of injury during transport!** • ***Make sure that no persons remain within the danger area and that a sufficient safety distance is kept at all times!*** • ***After a slanted machine position has resulted from transport, lubricants may have escaped – danger of chemical burns threatens in case of direct skin contact!*** • ***Pending loads may fall down, resulting in danger of life: Never stay underneath pending loads!*** • ***Always use suitable lifting gear for loading the machine!*** • ***The machine may only be lifted when using the designated holding spots!***

4.2 Transporting the machine

Before transporting the machine, you must execute all tasks required for taking the machine out of service.

When driving on public roads you must comply with all legal requirements!

When driving on public roads, a maximum vehicle / machine width of 2.50 m may not be exceeded!

The lighting system must always be reviewed before driving on public roads.

Before driving on public roads, clean the machine from severe soiling.

Machines with type approval for public roads must comply with the locally valid traffic laws; they must be examined and approved within the time periods stipulated by law by a certified authority, concerning their road safety (like „Pickerl“ in Austria, TÜV examination in Germany).

Checklist before transport:

- Has the feeder trestle been flapped upwards and secured?
- Is the shutoff valve in SHUT position?
- Hast he lifting basket been flapped upwards?
- Is the lighting system in proper condition?

5 Installation

5.1 Safety instructions for installation

DANGER	
	***Danger of being crushed!*** • ***Secure the tractor against rolling away!*** • ***Secure the machine against rolling away!***

WARNING	
	***Danger of injury from improper machine installation!*** • ***Check the machine for transport damage before every new installation!*** • ***Install the machine on solid, levelled ground only!*** • ***Always apply the leg supports of the machine!*** • ***Make sure that no persons are endangered by the installation and that no persons and foreign objects remain within the danger zone!*** • ***Position all machine connections, cables and hoses in a way that no tripping points will be caused!*** • ***The machine may only be operated while in immaculate condition!***

5.2 Duties before starting operation

ADVICE	
	***Before starting operation, you must execute these tasks:*** • ***Review all electric connections before starting the machine!*** • ***Check all safety devices for proper functioning!*** • ***Check all bolts and screw connection for proper fastening before starting operation!*** • ***Check the electric motor for proper rotation direction before starting the machine. Wrong rotation direction will destroy the pump!*** • ***Check the oil cooler for proper status (cleanness)!*** • ***Review all hydraulic connections, the level in the hydraulic oil tank and the lubrication supply! ATTENTION: Never operate the machine without chain lubrication oil!*** • ***In case of ambient temperatures below 0°C / 32°F let the machine run at idling speed for some 5 minutes.*** • ***Before machine startup check the oil level of the motor and check the machine for apparent external damage!***

5.3 Electric supply

The fuse and the dimension of the electric supply line must be determined according to national standards and according to the cable length by a skilled electrician!

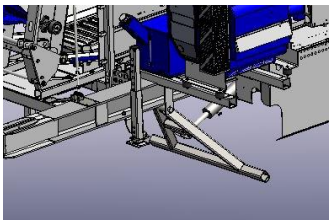
Plug the 400 V / 63 A cable into the machine socket.

Work on electric devices is only permitted to persons with the required professional competence!

5.4 Establish the machine's working position

In order to avoid grave injuries to persons and severe damage to the machine, the system must always be placed on solid and levelled ground, and the instructions hereafter must be observed exactly.

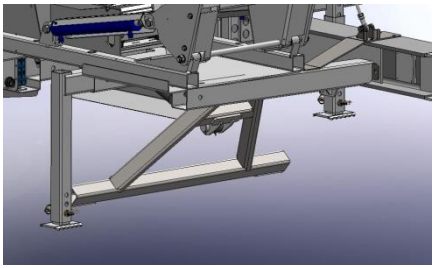
Apply the manual leg support:

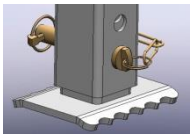


Set wheel stops to prevent the machine from rolling away. Use the hydraulic leg support to lift the machine's drawbar until the drawbar eyelet no longer rests on the towing hitch.

Now you can uncouple the machine from the tractor.

Use the hydraulic leg support to lift the machine, until the machine is in an exactly levelled position.



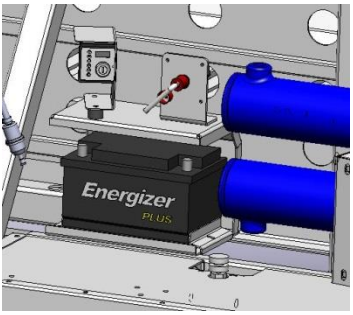


Now adapt the manual leg supports to the ground:

Remove the securing bolts from both leg supports, and extend the legs as far as possible. Enter and secure the bolts.

After both legs are on the ground and ready to support the machine, you relieve the hydraulic leg support.

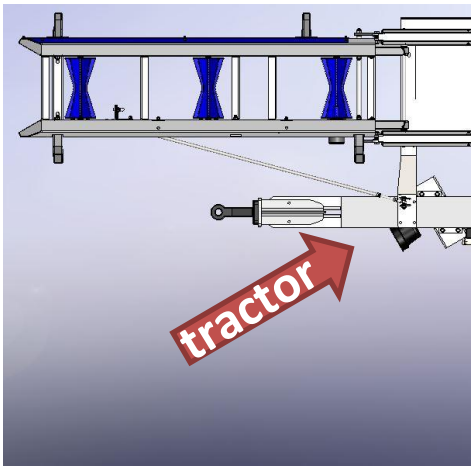
5.5 Turn the main battery switch on (diesel engine only)



The battery for the diesel motor of the sawing and splitting machine is equipped with a main switch. Turn the switch into ON position to enable the start of the motor and to supply the controls with electric current.

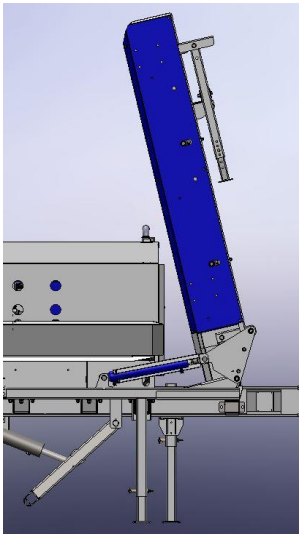
In order to avoid the discharge of the battery, you must turn the main switch OFF after the end of operation – but do not turn the switch off before the oil cooler has stopped running!

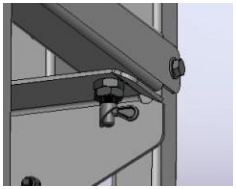
5.6 Establish the tractor's working position

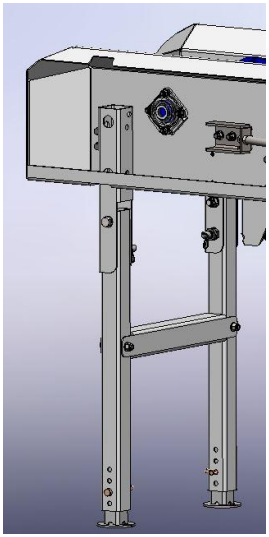


In case of PTO operation, the tractor must be situated at the left side of the drawbar, the joint shaft must be connected properly between tractor and machine, until it engages. The joint shaft protection must be secured against rotation with the securing chain.

5.7 Extend the feeder framework







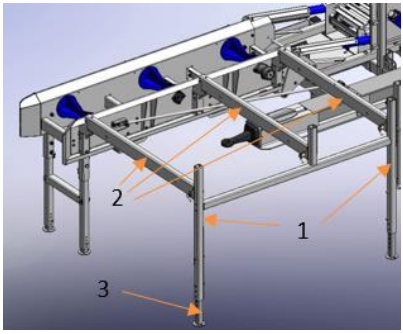
Press button 8B of the RC unit (for details see chapter 6.3 “Remote control”), to lower the feeder framework.

Stop the movement, before the feeder is in horizontal position. Now you need to flap out the supporting legs (3): Rotate every spring bolt (4) half a turn, then pull them out. Swing out the legs 90°, then secure them at the inside of the supports with the spring bolts (4) again.

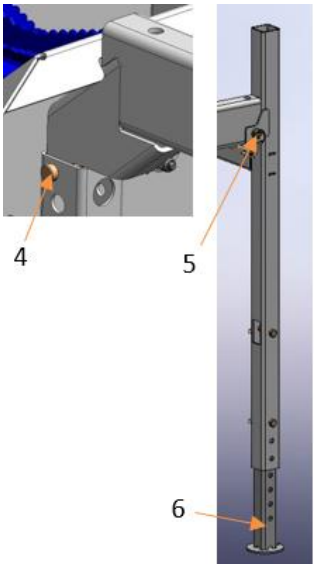
Now continue moving the feeder framework into the horizontal working position.

If necessary, you can adjust the length of both supporting legs (3) to the ground level. Make sure that both legs stand firmly on the ground.

5.8 Aufbau des Zubringers



The feeder framework consists of the “H”-shape frame (1), 3 cross beams (2) and 2 supporting legs (3).



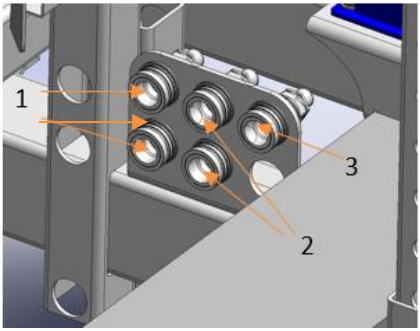
First attach one cross beam to the beam on the feeder with bolt (4), then secure it with a cotter pin (5).

Then attach the second and third cross beam in the same way.

Finally adjust the supporting legs (3) using their bottom extensions (6), to establish an exact horizontal position of the cross beams (2).

5.9 Hydraulic connection of feeder / attach cross conveyor

A cross conveyor can optionally be attached to the feeder trestle.

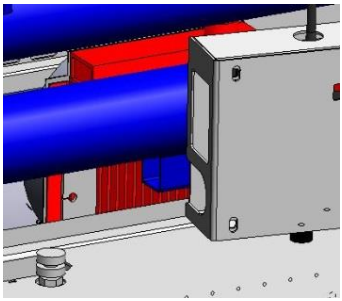


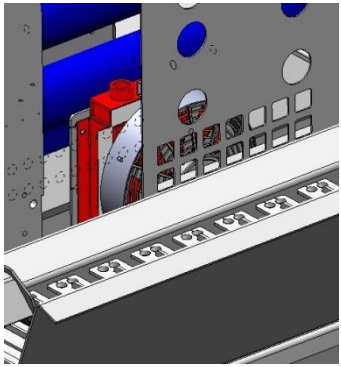
Connections:
1 feeder trestle
2 cross conveyor
3 leak oil pipes

5.10 Oil cooler

The oil cooler is installed in a protected location between the pressing cylinders and the feeder belt.

Always keep the cooling fins clean, to ensure faultless cooling performance.

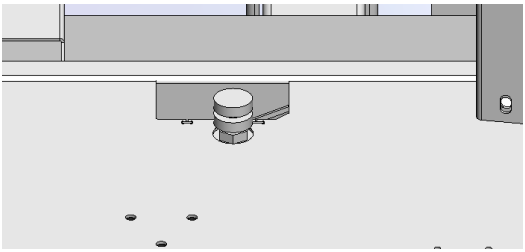




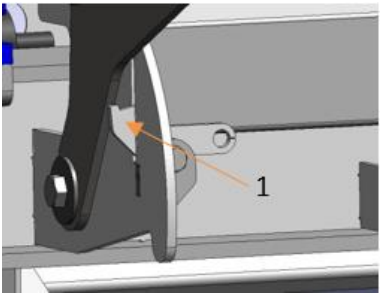
5.11 Setting up the saw chain movement

The setting wheel for the saw chain movement is located on the operating panel.

After you have adjusted the setting, secure the setting wheel against inadvertent twisting using the counter nut.



5.12 Unlocking the lifting basket



Use control button 3B of the remote control unit (see chapter 6.2: “Remote control”) to flap the lifting basket upwards into maximum position. Now you can switch the locking lever (1) into the rear position.

6 Operation

6.1 Safety instructions concerning operation

D A N G E R	
	***Danger of injury from getting caught or dragged in by moving machine parts!*** • ***Always keep a sufficient safety distance from moving machine parts!*** • ***Provide sufficient lighting for the working area!***

W A R N I N G	
	***Danger of injury during operation:*** • ***Make sure that no persons stay within the danger zone and that sufficient safety distance is kept at all times!*** • ***Turn the drive off before you remove jammed logs!***

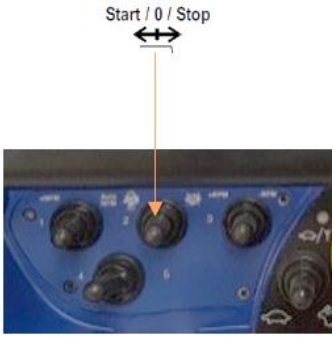
A T T E N T I O N	
	***Stumbling / tripping on objects lieing about!*** • ***Remove all objects that are not part of the machine from its vicinity.***

A T T E N T I O N	
	***Danger of injury from missing personal protecting equipment!*** • ***Always wear eye protection, ear protection, protecting gloves and steel-toed safety shoes!***

A T T E N T I O N	
	***Danger of injury during operation!*** • ***The machine must be operated by a single person only!*** • ***Make sure that no further persons stay within the machine's operating area!***

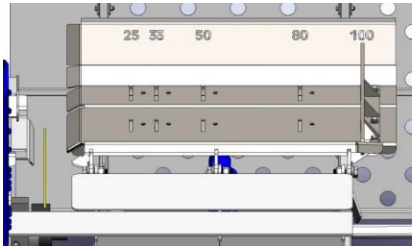
A D V I C E	
	• ***The operating personnel must ensure that no unauthorized persons stay within the working area of the machine.*** • ***Before starting the machine, the operator must be informed about the proper measures in case of accidents.*** • ***Before starting the machine, the operator must execute all items listed in chapter "Duties before starting operation".*** • ***After shutting down the machine, the operator must execute all items listed in chapter "Shutdown" hereafter.*** • ***Before the operator leaves the machine unattended, he must turn it off and secure it against inadvertent restart.***

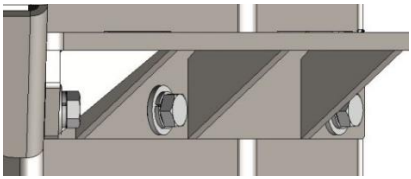
6.2 Remote control unit



1A – Feeder backwards
1B – Feeder forward
2A – (no function)
2B – Harvester chain drive
3A – Harvester transport downwards
3B – Harvester transport upwards
4A – Tilting rocker to the rear
4B – Tilting rocker to the front
5A – Pressing cylinder backwards
5B – Pressing cylinder forward
6A – Knife adjustment downwards
6B – Knife adjustment upwards
7A – Lifting basket downwards
7B – Lifting basket upwards
8A – external function (e.g. move feeder trestle upwards)
8B – external function (e.g. move feeder trestle downwards)
Rocker switches
Start – Cross conveyor backwards
Stop – Cross conveyor forward

6.3 Setting the splitting length





The splitting length can be adjusted in steps, to cover a moving range of 25 – 100 cm (10” – 40”).

The stop plate must be secured against inadvertent shifting by 3 bolts M12 x 30, the belonging lock washers and flat washers.

To adjust the stop plate, first unscrew all 3 bolts, reset the plate to the required position, then fasten all 3 bolts tightly again.

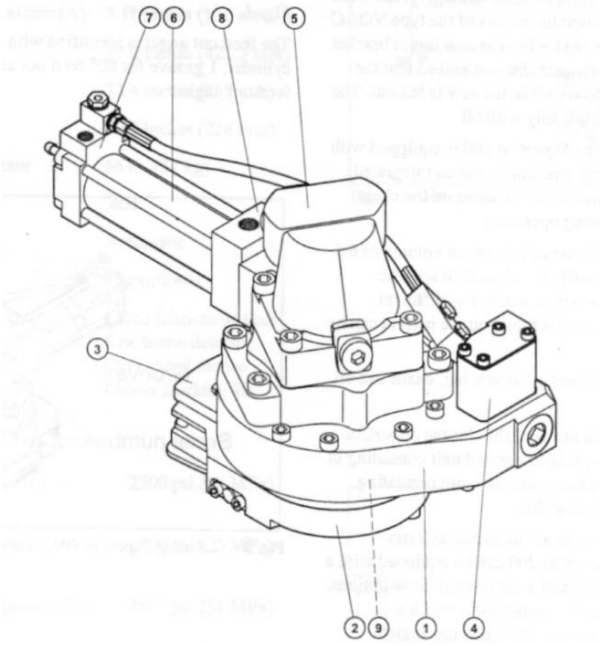
6.4 Splitting operation

1. Move the lifting basket downwards, then enter one log.
2. Move the lifting basket upwards: the log will be fed to the splitting area.
3. If necessary, adjust the splitting knife height to the diameter of the log, then press button 5B: the pressing cylinder will move forward.
4. After the splitting process is finished, press button 5A: the pressing cylinder will return to its initial position.
5. The log parts rest on the depositing table of the splitter, from where you can take them out comfortably.
6. Now the next splitting cycle can be executed.

6.5 The Harvester assembly

6.5.1 The Hultdins chainsaw

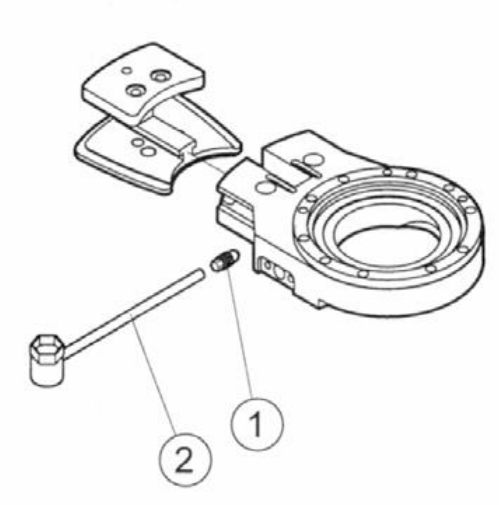
- The chainsaw has very sharp edges and angles. Always wear safety gloves and use the proper fork wrenches when working with the chainsaw. Take the saw chain off during due service and setup works.
- Always use a pressure gauge when setting / adjusting the pressure of the hydraulic system.
- Always connect all couplings tightly to avoid unnecessary oil leaks.



1 saw housing	4 cutting control	7 lubrication pump
2 tensioning device	5 saw motor	8 fastening flange
3 sword support	6 transport cylinder	9 slewing motor with bearing

6.5.2 Venting the chain tensioning system

ATTENTION: All service and repair works must be performed by qualified personnel or by an authorized repair shop only!



1. Take out the saw chain (see chapter “Chain replacement”).
2. Start the machine and let it run in idle mode.
3. Flip the unit backwards as far as possible, so the outlet valve will be as high above the tensioning piston as possible.
4. Open the bleeding valve (1) by turning it 1 - 2 times. Use the tool displayed in the illustration above.
5. Observe the escaping oil: as soon as it is free from air bubbles, you shut the bleeding valve (1) again.
6. Install the saw chain again.
7. Repeat the complete process after some 30 minutes of operation.

6.5.3 Setting the chain tension pressure

If the chain jumps off the sword during sawing operation, there may be air inside the tensioning system, or the tension pressure is probably too low.

Try to solve the problem by venting the system (see the earlier chapter: “Venting the chain tensioning system”).

If the problem remains, you need to adjust the chain tension pressure. The tension measuring spot is just ahead of the pressure control valve.

Execute these steps to adjust the pressure:

1. Remove the saw chain (see chapter: “Replacing the chain”).
2. Connect a pressure gauge to the pressure measuring point of the chain tensioning piping.
3. Start the machine and let it run in idle mode. If the chain is absent, the sword will move to the extreme OUT position and remain there.
4. Now check the dynamic pressure.
5. At the pressure control valve set the dynamic pressure to 8 – 20 bar.

   ATTENTION: Never change the pressure without using a pressure gauge!
6. Disconnect the pressure gauge.
7. Install the saw chain again.

6.5.4 Setting the saw movement

Check the saw movement pressure by executing these steps:

1. Remove the saw chain (see chapter: “Replacing the chain”).
2. Connect a pressure gauge to the pressure measuring point of the chain tensioning piping.
3. First shut the protecting cover, then start the machine and the saw.
4. Now check the movement pressure (proper pressure: 85 – 95 bar).
5. Disconnect the pressure gauge.
6. Install the saw chain again.

Movement speed of the sword

If the return movement speed of the sword appears too high, a grave malfunction has occurred at the saw unit.

The movement during cutting must be between 2 – 5 seconds. The return movement must take at least 1 second.

To adjust the return movement speed of the sword, use the throttle valve on the moving cylinder.

6.5.5 Replacing the chain

Early indications of a blunt chain are very long sawing times and blue smoke originating from the cutting area. Execute these steps to replace the chain:

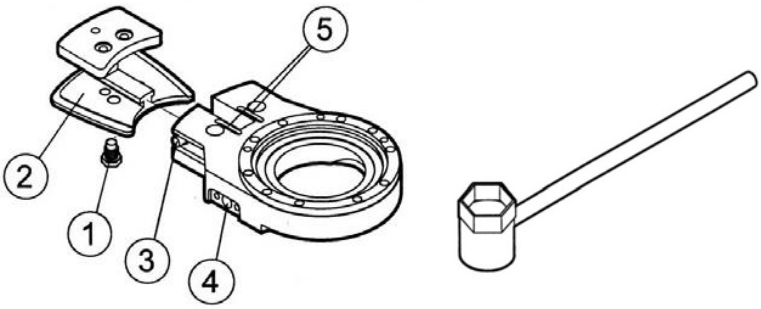
- Before installing a new chain, keep it overnight in a basin with clean chain lubrication oil. This way the chain oil will penetrate all chain links.

  Before starting the chain replacement, turn the machine OFF and disconnect it from the power supply (electric circuit, tractor, motor).

  ATTENTION: Always wear protecting gloves and proper work clothing when replacing a chain

1. Relieve the chain tensioning device:
   - Slowly lift the chain off the sword, until the tensioning device has retracted completely.
   - If there is no saw chain on the sword, slowly press the sword towards the tensioning device to retract it completely.
2. Take the chain off the sword.
3. Clean the sword thoroughly from all soiling and debris.
4. Install the new chain – pay attention to the proper cutting direction! Slowly lift the chain, until the mechanic tensioning device untightens again.

5. Start the chain just for a moment: Pressure will build up inside the chain tensioning system. If the new chain jumps off the sword, you must bleed the system.
6. Problems during chain replacement may be caused by a soiled chain or by debris inside the lubrication channels. Soiling may also encumber the free movement of the sword. In this case, you must disassemble and clean the sword bearing.



1 guide screw	4 control valve
2 sword support	5 grooves
3 locking device	Right side: Screw tool

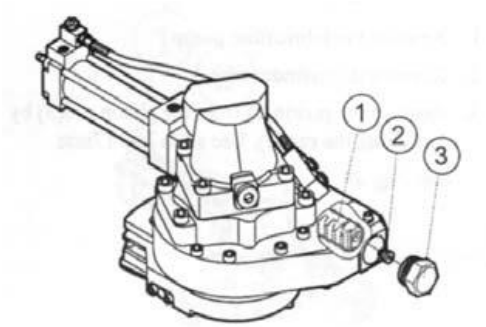
6.5.6 Replacing the sword

1. First take off the chain.
2. Use the supplied special tool to release the guide screws, then pull out the sword (see the illustration above).
3. Insert the new sword and tighten the guide screws.
4. Install the chain again.

6.5.7 Venting the lubrication system

During the complete slewing process, the lubrication pump delivers oil.

1. First take off the chain.
2. Use a 37 mm wrench (1.5”) to take off the end screw (3) as illustrated below.
3. Use a 5 mm (0.2”) Allen wrench to open the sealing screw (2).
4. Observe the escaping oil of the piston rod: as soon as it is free from air bubbles, you shut the sealing screw again.
5. Install and tighten the end screw (3).
6. Install the chain again.



1 Piston rod
2 Sealing screw
3 End screw

7 Shutdown

7.1 Safety instructions concerning shutdown

D A N G E R	
	***Danger of injury from getting caught or dragged in by moving machine parts!*** • ***After machine shutdown, you must wait until all moving machine parts have come to a halt!*** • ***Always keep a sufficient safety distance from moving machine parts!***

W A R N I N G	
	***Danger of injury during shutdown:*** • ***Make sure that no persons stay within the danger zone and that sufficient safety distance is kept at all times!*** • ***Read chapter "Safety instructions"!***

W A R N I N G	
	***Danger of injury from starting the machine by unauthorized persons!*** • ***Secure the machine against unauthorized restart!***

7.2 Shutting down the drive

Before you shut down the machine after a longer period of full speed operation, let the drive run at idle speed for a couple of minutes, in order to cool the system down to normal temperature.

After you have shut down the drive and the oil cooling system has stopped working, you must switch off the diesel engine / the PTO drive / tractor.

7.2.1 Diesel engine

Before you shut down the machine after a longer period of full speed operation, let the Diesel engine run at low speed for a couple of minutes, in order to cool the engine down to normal temperature.

7.2.2 Electric PTO drive

1. Use the main switch to turn the electric motor OFF.

2. Disconnect the 400 V / 64 A power cable from the machine socket, and protect the drive against restart.

7.2.3 PTO drive with tractor

Uncouple the drive shaft correctly from the PTO drive assembly or from the tractor. The joint shaft protection must remain secured against rotation with the securing chain.

8 Servicing

Before starting any maintenance activities on the machine, always turn the machine OFF and disconnect the power supply from the tractor or the engine.

During the first month of operation, check all screws and connections once a week for tight fastening.

8.1 Safety instructions concerning servicing

D A N G E R	
	***Danger to life by starting the drive during service work!*** • ***Turn the machine OFF!*** • ***Secure the machine against restart!***

D A N G E R	
	***Danger from electric shock!*** • ***Only skilled electricians are allowed to work on electric appliances!*** • ***Secure the machine against restart and against connecting the power cable!***

ATTENTION	
	***Danger of slipping because of oil residue during service work (oil exchange)!*** • ***Use a suitable collecting bin.*** • ***Remove spilled oil immediately.***

ATTENTION	
	***Danger of injury: Scalding on hot machine components and media!*** • ***Before starting any service work, let the machine cool down to ambient temperature.***

ATTENTION	
	***Lubricants are poisonous and potentially carcinogenic!*** • ***Avoid skin and eye contact!*** • ***Use proper protecting equipment (protecting gloves, eye protection)!***

ATTENTION	
	***Danger of injury on sharp edges and spots on the Harvester!*** • ***Use proper protecting equipment (protecting gloves, eye protection)!***

8.2 Important servicing instructions

ADVICE	
	• ***Immediately replace any faulty machine parts!*** • ***Use original spare parts only.*** • ***Make sure that suitable collecting bins are available for any groundwater endangering media (removed oils, cooling agents).*** • ***Use the specified operating materials only.*** • ***Self-securing bolts and nuts must always be replaced.*** • ***All operating media which cannot be reused must be disposed according to the valid environmental regulations.*** • ***Severe damage to the machine can result when installing wrong spare parts or wear parts.*** • ***Welding work may cause fire. Keep a fire extinguisher at hand.*** • ***Cables which have been installed improperly may cause smouldering and cable fire.*** • ***Control the rotation direction of the motor. Wrong rotation direction will destroy the pump.*** • ***Never release the machine for operation without all safety installations provided by the manufacturer being available.*** • ***It is strictly forbidden to remove safety instructions and safety installations from the machine.*** • ***Always observe the warning instructions attached to the machine. They help avoiding danger situations.*** • ***Do not execute repair work if you do not possess the required qualification => engage a suitable repair workshop.***

8.3 Instructions for working on electric equipment

As a matter of principle, any work on electric equipment may only be carried out by skilled electricians.

Review electric equipment on a regular basis: Fasten any loose connection; replace damaged cables and wires immediately.

During any work on live machine components or cables, a second person must be present at all times, which can interrupt the electric supply in case of emergency.

Never clean electric equipment with water or other liquids!

8.4 Instructions for working on hydraulic equipment

As a matter of principle, any work on hydraulic equipment may only be carried out by skilled specialists.

All hydraulic systems and elements must be pressure-less before starting work on them.

Before starting work, make sure that suitable collecting basins are available for groundwater endangering materials (oils, cooling agents, ect.).

8.5 Duties before finishing work

Observe this list of tasks before finishing servicing work and before restarting the machine:

- Check all bolt connections you have loosened before for tight fit.
- Check whether all protecting devices, covers, lids ect. have been installed properly again.
- Install and secure all protecting devices that had been removed.

- Make sure that all used tools, materials and further equipment has been removed from the working area again.
- Clean the place of operation and remove all escaped liquids and similar materials.
- Make sure that all safety devices of the machine are functioning properly again.
- Check the function of all safety devices. Do not release the machine for operation again before all safety devices are functioning properly again.
- Collect all tools that have been left behind, all other parts and operating materials.
- Execute a test run and a functional control of all serviced parts.
- Keep the machine protected against inadvertent restart until you have finished all servicing tasks.
- It is forbidden to use open fire or to smoke within the working area.

8.6 Cleaning

Clean the machine from dirt and residue before every new operation and before maintenance work!

8.7 Daily maintenance tasks

Execute these checks carefully:

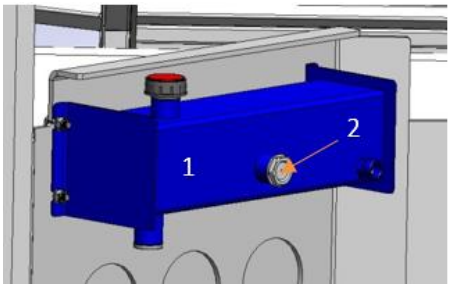
- All fastenings and all hydraulic couplings are in proper condition.
- No damages or cracks have occurred at the saw unit.
- No leakages can be detected.
- The saw chain is sharpened properly.

8.8 Battery maintenance (Diesel engine drive)

Check the level of the liquid inside the battery, refill with distilled water if necessary.

If the machine will be out of operation for a longer time, it is recommended to take out the battery and to connect it to a charger for keeping it charged.

8.9 Checking the level of the chain oil



Check the chain oil level before every start of operation, and refill oil if necessary.

ATTENTION: Only use chain oil with a viscosity level of 140!

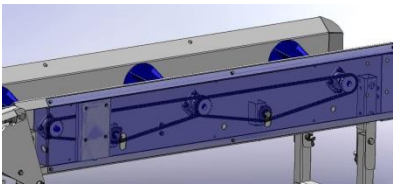
Make sure that the machine is in horizontal position when checking the oil level. The chain oil tank (1) has an inspection glass (2) on the front side. The oil level is correct when the inspection glass is filled completely.

8.10 Lubrication

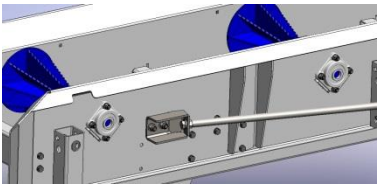
Depending on the operating conditions, the saw must be regreased at least every 200 operating hours. See the illustration below for the location of the grease nipples.

ATTENTION: Use anhydrous grease with lithium or silicone additives only! Further properties of the grease must be water-resistance, rust-resistance, high lubricity and mechanic stability.

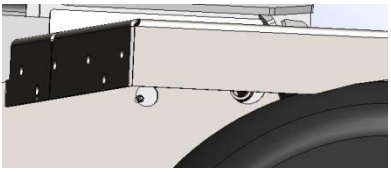
Lubrication spot	*Quantity*	SSG750D	SSG750Z
Conveyor belt	4x entry 4x exit	**x**	**x**
Harvester aggregate	2	**x**	**x**
Support foot	2	**x**	**x**
Pressing way	-	**x**	**x**
Feeder	5	**x**	**x**
Feeder joint	4	**x**	**x**



Feeder, front end

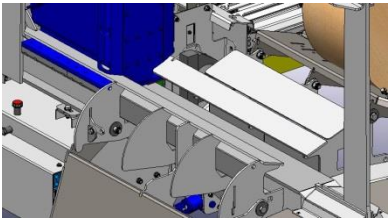


Feeder, rear end

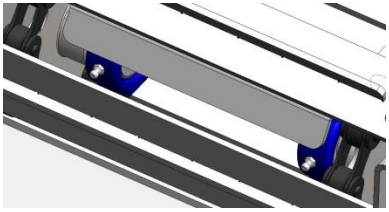


Knife, left side

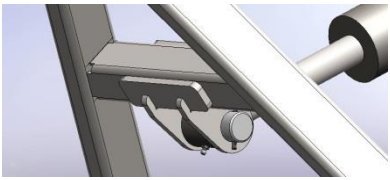
Knife, right side



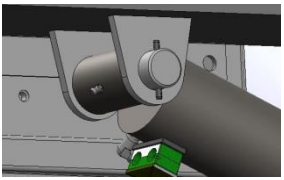
Pressing way



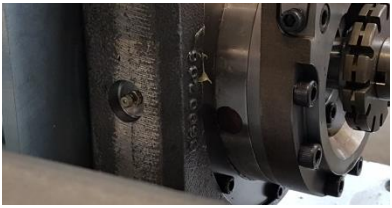
Feeder belt



Support foot #1

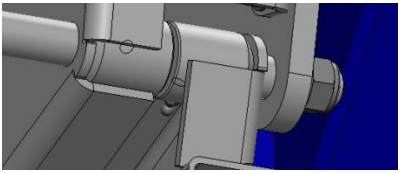


Support foot #2

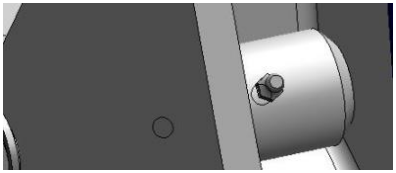


Harvester aggregate #1

Harvester aggregate #2



Joint, outside



Joint, inside

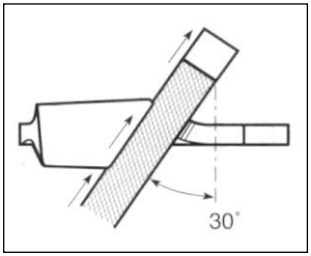
8.11 Maintenance tasks (every 250 operating hours)

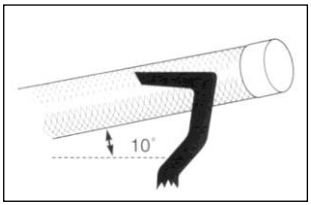
Execute these checks:

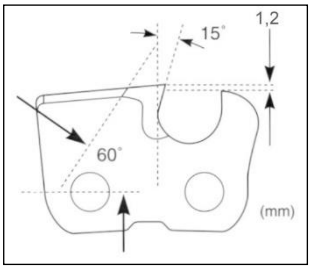
- No bearings and locks are missing
- The hydraulic hoses show no damage
- The sawing unit is free from damage and cracks
- No leakages are visible.

All damaged or worn out parts must be repaired or replaced.

8.12 Sharpening the saw chain







In order to achieve the required chain sharpness, you must adhere to these dimensions (all dimensions relate to the original chain type Oregon 18H):

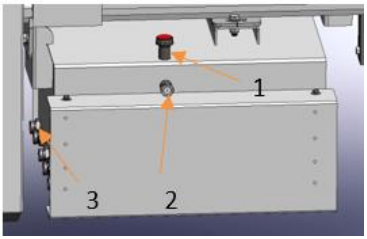
- The sharpening angle must be identical for all single chain teeth. Otherwise the chain will operate uneven and harsh, and will be subject to increased wear.
- The file must show an angle of 10° towards the ground during sharpening.
- Using a file holder will simplify work.
- Exact sharpening movement will automatically produce the mentioned angle.
- The depth limiter will set the depth of the cut. For optimum cutting results, a depth of 1.2 mm (0.05”) should be achieved.
- The distance towards the depth limiter must be verified using a file jig. If the depth limiter exceeds the file jig, you must reduce the limiter down to the jig using a flat or a triangular file.
- Use a special chain file with a diameter of 5.5 mm (0.2”) for sharpening the chain teeth.
- Always move the file from the inside to the outside to sharpen the cutting area.
- Work speedily. Remember that the file will only remove material during forward movement. You must lift the file off during return movement.
- Turn the file after regular intervals, to avoid uneven wear of the file.
- ATTENTION: Do not file the connecting and driving links!

- All sawing teeth must show the same length. Unequal lengths will result in uneven tooth heights. A variety in height will lead to bumpy chain movement and can even cause the chain to break.
- First of all, determine the shortest tooth. Start with sharpening this tooth, then file down all other teeth to the same length.
- First sharpen all cutting teeth on one side, afterwards sharpen them all on the other side.
- Check the chain regularly for tears / cracks and damaged rivets.
- Replace damaged chain links immediately.
- After installing new chain links, you must file them down to the size of the other chain links.
- It is recommended to sharpen in shorter intervals, but filing just a little. Usually, 2 – 3 file moves are sufficient.
- After the complete chain has been sharpened, you must clean it from all steel residue using benzene or other suitable cleaning solvents.
- Afterwards you must lubricate the chain by immerging it in an oil bath.
- During longer periods of non-operation, it is recommended to unmount the chain and leave it in an oil bath.

8.13 Oil exchange

The first oil change is due after 250 operating hours. Afterwards you must change the oil after every 1,000 operating hours or once a year.

Use hydraulic oil of class HVI 46 or equal quality only. For the oil change you need a suitable collecting vessel (with a capacity of at least 200 litres).



As the tank is installed at a very low level on the machine (to achieve a low point of gravity), there is no drain plug at the bottom of the tank.

To drain the hydraulic oil, you open a hydraulic connection (3) at the bottom edge of the tank.

After you have drained the tank completely, you must shut the hydraulic connection tightly again. Then you refill the tank from the filling neck (1) with oil. Check the inspection window (2) on the tank: The window must always be covered completely with oil, to ensure trouble-free operation.

After filling is completed, start the machine and let it perform a couple of cycles without logs. Then review the oil level at the inspection window (2), and refill oil if necessary. It may also be necessary to vent the chain tensioning system now.

8.14 Exchanging the transmission gearbox oil

The oil of the gearbox must be replaced after regular intervals. The first exchange is due after 100 operating hours; all consecutive oil changes must be performed after every 1,500 operating hours, or at least once a year.

- Put a suitable collecting bin underneath the gearbox.
- Remove the drain plug from the bottom side of the gearbox.
- Wait until the oil has been drained completely.
- Afterwards install the drain plug tightly again.
- Fill the gearbox from the side, up to the control opening, using gear oil of class 80-W-90.

8.15 Replacing the oil filter

The oil filter must be replaced after every 250 operating hours. Make sure that the machine is OFF and the oil has cooled down sufficiently before starting the exchange.

1. Unscrew the protecting cover from the block fastening
2. Put an oil drain gutter underneath the hydraulic filter
3. Unscrew the outside filter housing
4. Replace the filter cartridge
5. Install the filter housing tightly again
6. Check the complete filter and connections for proper sealing
7. Dispose drained hydraulic oil properly, then refill missing hydraulic oil.

8.16 Replacing the hydraulic hoses

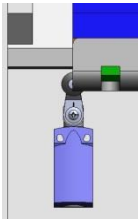
All hydraulic hoses must be replaced every 5 years.

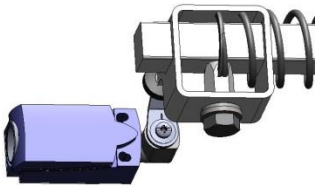
Otherwise damage may occur to the hoses (brittle), causing severe injuries.

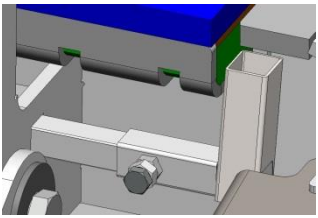
8.17 Adjusting the pressing limiters

The pressing unit is limited by limit switches, to protect it from overload and from unnecessary high oil temperature.

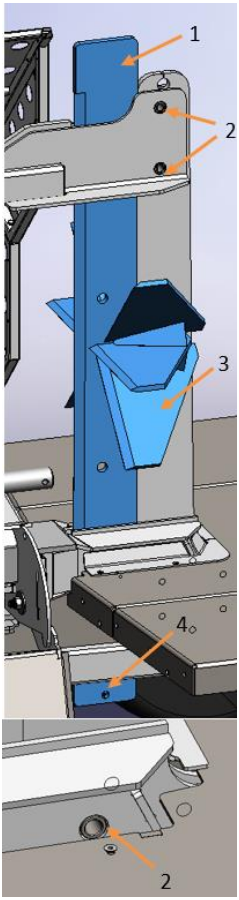
The limit switches must be set in a way, that they will respond 10 mm before the pressing unit reaches the stop.







8.18 Replacing the splitting knife



1 Splitting knife

2 Fastening spots of the knife guiding

3 Cross wedge

4 Fastening of the cylinder for height adjustment

1. Use the remote control to move the splitting knife completely upwards.
2. Turn the machine OFF.
3. Release the 3 fastening bolts (2) of the knife guiding and take them out.
4. Use a suitable lifting gear to take the knife guiding out vertically.
5. Use the lifting gear to protect the cross wedge from sliding down.
6. Release fastening bolt (4) of the cylinder and take it out.
7. Now you can pull the cross wedge out in rear direction.
8. Proceed in reverse order when installing the cross wedge again.

9 Help in case of breakdowns

9.1 Safety instructions

DANGER	
	***Danger to life by starting the drive after a breakdown occurred!*** • ***Turn the machine OFF!*** • ***Secure the machine against restart!***

DANGER	
	***Danger from electric shock!*** • ***Only skilled electricians are allowed to work on electric appliances!*** • ***Secure the machine against restart and against connecting the power cable!***

ATTENTION	
	***Danger of injury: Scalding on hot machine components and media!*** • ***Before starting any repair work, let the machine cool down to ambient temperature.***

ATTENTION	
	***Danger of chemical burns from contact with lubricants!*** • ***Avoid skin and eye contact!*** • ***Use proper protecting equipment (protecting gloves, eye protection)!***

Also read and observe chapter „General Safety Instructions“!

9.2 Troubleshooting

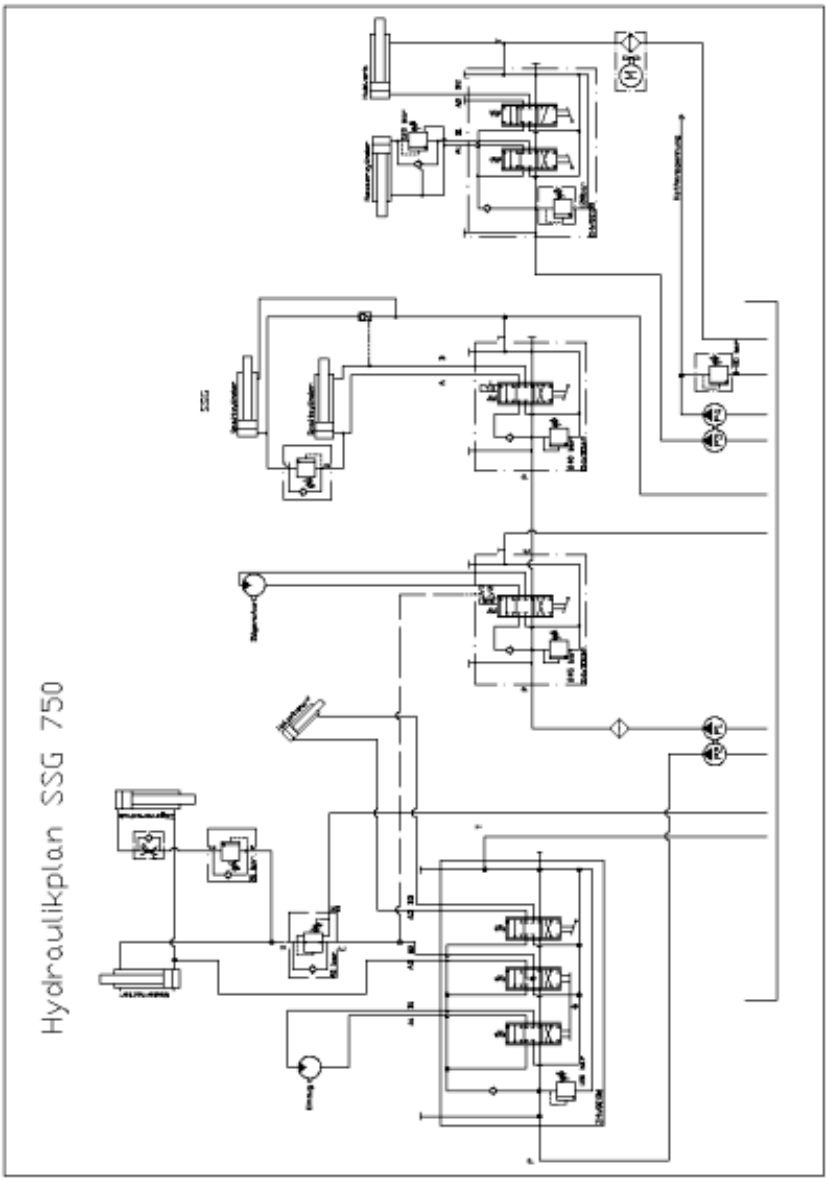
Malfunction	***Possible causes***	***Measures for repair***
Saw chain jumps off the sword	Chain tension pressure is too low	Adjust the chain tension pressure
	The non-return valve is leaking	Check the non-return valve, clean or replace It if necessary
	Air inside the chain tensioning system	Vent the chain tensioning system
Saw chain is not being lubricated	Oil tank for chain lubrication is empty	Refill the oil tank with saw chain lubricant
	Air bubbles inside the lubrication system	Deaerate the lubrication system
	Hydraulic hose of the lubrication system is damaged	Replace the damaged hydraulic hose
	Chain lubrication pump is leaking	Check the chain lubrication pump, clean or replace It if necessary
	Machine is not in horizontal position	Set the machine to horizontal position

See chapters Installation, Operation and Servicing for more details!

Malfunction	*Possible causes*	*Measures for repair*
Hydraulic oil becomes very hot	Oil cooler is not working properly	If the fan blades do not rotate: check power supply, check cleanness of the fan
	Oil filter is clogged or heavily polluted	Check the oil filter; replace it if necessary
	Not enough hydraulic oil available in the system	Check the oil level; refill if necessary
	Machine is not in horizontal position	Set the machine to horizontal position
Hydraulic cylinder is leaking	Sealing collar is worn out	Replace the sealing collar
Sawing takes a long time	Chain has become dull	Resharpen the chain
Conveyor belt is not moving or is jogging	Not enough hydraulic oil available in the system	Check the oil level; refill if necessary
Cross conveyor is not moving	Not enough hydraulic oil available in the system	Check the oil level; refill if necessary
	Flow divider has wrong setting	Adjust the flow divider
Splitting cylinder does not return	No signal from limit switch	Check the limit switch function
	Magnet valves are not switching	Check magnet valves
Splitting cylinder moves forward and does not stop	No signal from limit switch	Check the limit switch function
Chain saw is not moving downwards	Speed setting of the chain saw is wrong	Adjust the speed setting
Chain saw is not moving upwards	Speed setting of the chain saw is wrong	Adjust the speed setting
Saw motor is not running	Magnet valve does not switch	Check magnet valves CT 3 and CT 2

See chapters Installation, Operation and Servicing for more details!

If a malfunction can not be repaired with the measures above:
Please contact your dealer, he will organize further assistance!


Hydraulikplan SSG 750

10 Guarantee, warranty

For the sawing and splitting machine, manufacturer Binderberger Maschinenbau GmbH grants a guarantee period of 12 months and a warranty period of 24 months from the date of the invoice (please file the original invoice!)

Warranty covers parts with defects which can be attributed to material or production faults.

Defective parts will be replaced free of charge – the exchange must be performed by an authorized specialist. If safety and instruction labels have been damaged, remember to order and to attach new ones.

Warranty claims are excluded in case of

- Damage that has resulted from improper treatment or operation.
- Transport damage – any transport damage must be reported to the forwarder immediately after receipt of the shipment.
- Retrofitting or changes to the machine, or the use of unauthorized or non-standard parts for servicing and maintenance.

11 Behaviour in case of accidents

11.1 Residual risks

The sawing and splitting machine has been designed and manufactured according to the state-of-the-art technology and the currently valid safety directives.

- There is a danger of injury for hands and fingers in case of careless operation, non-compliance with the safety instructions and improper application of the machine
- If an injury occurs, you must shut down the machine immediately and provide First Aid measures.
- Children must stay away from the machine at all times! During work breaks, the machine must be secured against inadvertent restart.
- The valid safety instructions dad directives must be adhered to.
- The machine may only be operated by persons which are at least 18 years old.
- Always keep the machine in a clean status.

11.2 Proper reaction in case of accidents

- Take care of a periodic information update concerning the available facilities and means for First Aid.
- In case of an accident including injured persons, damage to machines or to buildings / structures, you must first provide initial treatment for the injured person, then inform the person in charge as soon as possible.
- To alarm the proper ambulance emergency resources, you must pass information about the severity of personal injuries and of damage.
- In case of a disaster (fire) leave the machine immediately.

12 Notes

Notice

Manufacturer Binderberger GmbH permanently works on the improvement of its products. We reserve the right to execute updates of the illustrations and descriptions of this operating manual and of the spare parts list. The customer cannot deduce a claim for changes / updates to machines that have already been delivered.

The published technical dimensions and weights are not binding.

Subject to errors.

Dealer's stamp:

Type label:

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