ENGLISH

Hakki Pilke 50 Pro

FIREWOOD PROCESSOR

– Instructions for assembly, operation and maintenance
– EC Declaration of Conformity
– Safety instructions
– Guarantee terms

The operator must read and understand these instructions before operating the machine!

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1. General information

1.1. Introduction

The purpose of this manual is to ensure that the machine is used in the manner intended by the manufacturer, taking safety into consideration. Everyone operating the machine or working in close proximity to it must study this manual carefully.

Operators of the machine are expected to have basic skills in tractor handling, such as utilising the cardan shaft drive and the tractor's lifting equipment. Before commencing work, operators must also familiarise themselves with the machine's control and safety equipment, and ensure their proper operation.

Additional information on Maaselän Kone Oy's products is available on our website at www.hakkipilke.fi.
Keep this manual in the immediate vicinity of the machine.

1.2. Purpose of use

The Hakki Pilke 50 Pro firewood processor is designed for preparing firewood from pruned wood or logs. The firewood processor must not be used to process any treated wood, such as is found in construction waste. Sand, nails or other impurities in the wood may damage the machine.

The maximum diameter of the logs to be processed is 47 cm. This limit must not be exceeded. When estimating the diameter of the log you are about to cut, note that the shape of the log and other factors, such as branches and burrs, make the actual diameter larger, and may prevent the log from being fed into the machine. The splitting groove is designed for logs up to 60 cm in length. Never cut or split logs that exceed the maximum length.

1.3. Machine models and basic information

Model	TR	Combi	
Driving power	Tractor's cardan shaft (PTO)	PTO	Electrical
Weight	2,100 kg	2,200 kg	
PTO/Electrical drive	min 35 hp / max 500 rpm	15 kW (min 32 A, type C fuse)	
Height/width/length	in transport position 2,900/3,100/1,520 (mm)		
In-feed/out-feed conveyor	2,850/4,000 (mm)		
Saw bar/chain	bar: 20" groove 1.6 mm, chain: 72 loops, pitch 0.404"		
Max log diameter	47 cm		
Max/min log length	Log max 60 cm; min 20 cm		

The machine's serial number, date of manufacture, weight, operating voltage (electric-powered machine) and model are indicated on the grey type plate located on the machine frame below the locking latch of the out-feed conveyor, on the right side of the operator.

1.4. Operating conditions

- The temperature range within which the machine can be operated is -20 to +30 °C. In the winter, the operator must ensure that there is no risk of slipping in the working area.
- The working area must be level and clear of unnecessary items. No unauthorised persons are allowed to enter the working area. The machine may only be used in sufficient lighting conditions.
- The machine may not be used indoors.

1.5.Safety instructions

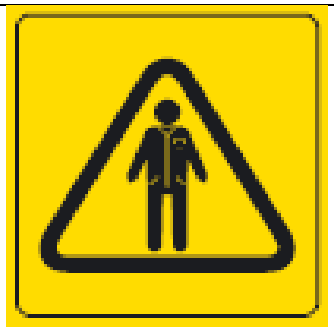
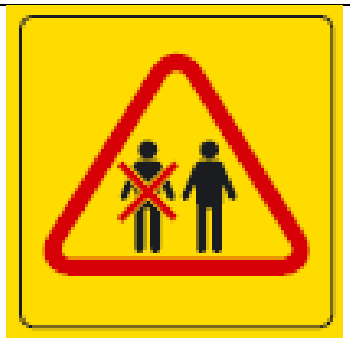
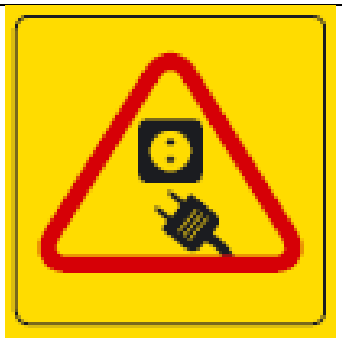
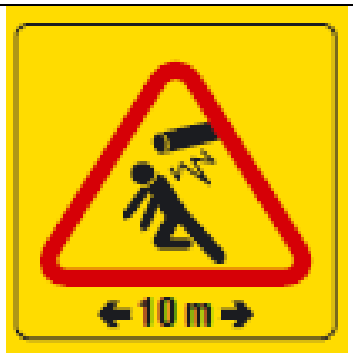
- This machine is intended to be operated by only one operator. The danger zone is 10 m from the machine.
- Persons under 18 years of age may not operate the machine.
- The operator must ensure that the use of the device does not cause danger to others and that there are no unauthorised persons in the danger zone.
- The machine must not be operated while under the influence of alcohol or other drugs, or when tired.
- The machine must not be operated unless the operator has familiarised themselves with this instruction manual.
- The machine has been designed solely for making firewood.
- The machine must be placed in the transport position whenever it is moved. When transporting the machine on a public road, it must be equipped with additional lights. When transporting the machine in a tractor's lifting gear, ensure that there is enough weight on the front axle to ensure proper steering.
- The operator is not permitted to modify the structure or operation of the machine or remove protective equipment.
- The operator must wear ear protectors, sufficiently tight-fitting work clothing and gloves, protective goggles and safety footwear.
- Before starting up the machine, the operator must ensure that the machine and its guards are intact.
- When powering the machine with a tractor, the operator must ensure that the cardan shaft is undamaged and that the selected rpm range is correct. The machine must be attached to the tractor's lifting equipment during operation.
- Before starting up the firewood processor, the operator must ensure that all the control and safety devices are functional.
- When cleaning the machine or carrying out any maintenance, it must be disconnected from its power source.
- Keep the machine's warning labels visible and in good condition. Ensure that the machine features the labels listed in Section 1.7. If necessary, obtain replacements from your retailer.

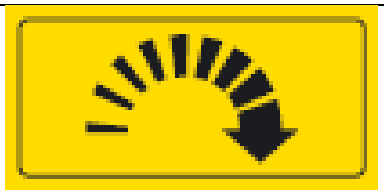
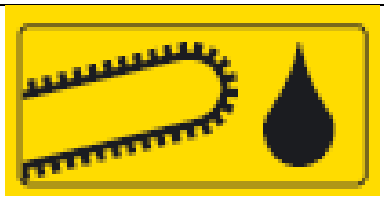
1.6.Noise and vibration

A-weighted sound pressure at the working location 94 dB (L_{pA}); sound power during work cycle 99.0 dB (*LWA*). The vibration values do not exceed 2.5 m/s2.

1.7.Warning symbols

 *Read the machine's manual before operating the machine.*	 *Wear eye and ear protection.*	 *Wear safety footwear and work gloves.*

 *Do not wear any loose items of clothing.*	 *Always grab the piece of wood or log from the side.*	 *Lifting point for a forklift.*
 *Beware of moving parts.*	 *Beware of the cardan shaft.*	 *Beware of the saw chain.*
 *Beware of the splitting blade.*	 *Only one person may operate the machine.*	 *Disconnect the power supply before any maintenance procedures.*
 *The danger zone around the machine is 10 metres.*	 Risk of crushing	 *The maximum permitted angle of the conveyor is 40°. Do not walk under the conveyor.*

 *The maximum speed for the cardan shaft is 500 rpm.*	 *The rotation direction is in the direction of the arrow.*	 *Saw chain oil*
 *Hydraulic oil*	 *Danger zone*	 *Lubrication point*

2. Receipt and assembly

2.1. Delivery inspection

Dispose of the machine's packaging materials in an environmentally friendly manner.
Check that the machine has not sustained any damage during transport, and ensure that all necessary parts are included in the package. In the event of any defects or damage, contact the retailer immediately. Remove any cable ties and strap supports installed for transport.

2.2. Lifting and moving the machine

When moving the machine, make sure that the moving and lifting capacity of your tractor or forklift is sufficient for the weight of the machine. Only lift the machine by the indicated lifting points or with the lifting equipment of the tractor.

Figure 1. Lifting points for a forklift (2 pcs).

When connecting the machine to the tractor's lifting equipment, the tractor cabin must be free of people in order to prevent any accidental contact with the controls. Check all the connecting devices of the tractor and the firewood processor before connecting them. Never use faulty equipment. The pins that are used to connect the pushbars and drawbars to the machine must be of the correct size, and the appropriate locking pins must be used to secure them.

The machine must be placed in the transport position if it is to be moved more than 5 metres. Exercise extreme caution when moving the machine in the operating position. Always lower the machine to the ground when you stop.

Note! Incorrect lifting may cause a hazardous situation or damage the machine.

2.3. Main components of the machine

The Hakki Pilke 50 Pro is a firewood processor with fully hydraulic controls. In other words, all of the machine's functions are controlled hydraulically with operating levers on the machine's control panel. The guard of the cutting and splitting section is interlocked with the machine's operation: Opening the guard stops the cutting and splitting functions.

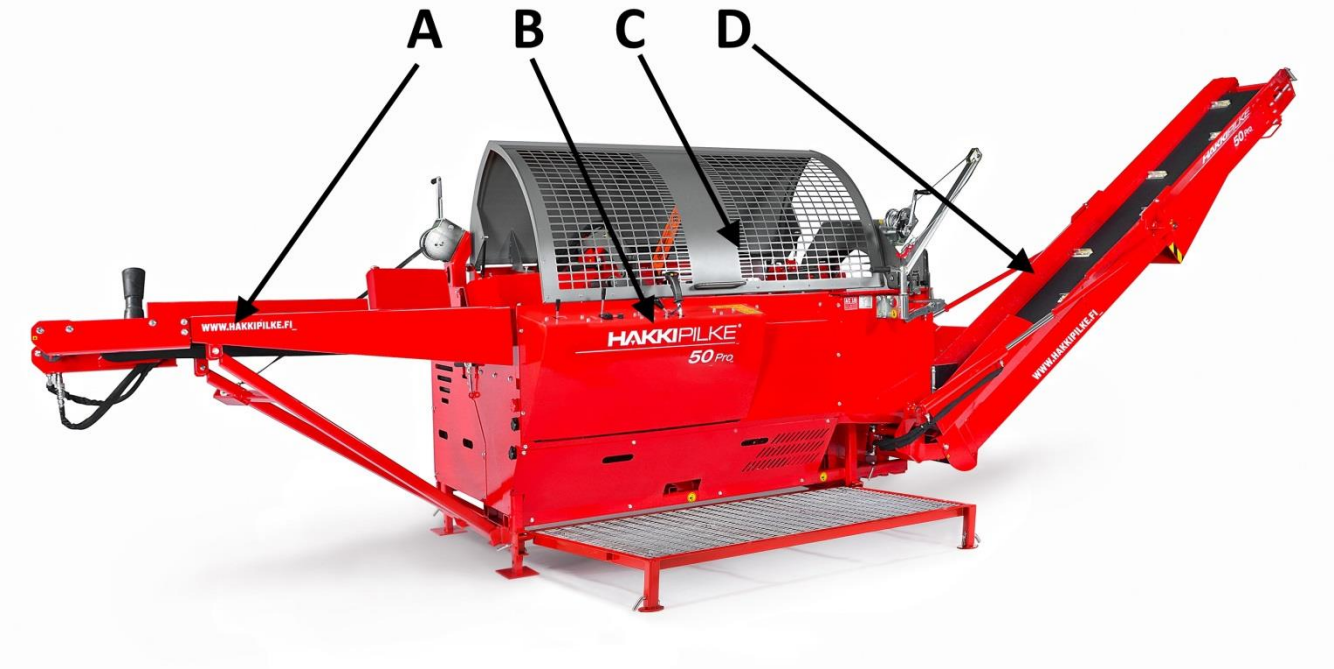


Figure 2. Main components of the machine

A. In-feed conveyor
B. Control panel
C. Cutting and splitting unit
D. Out-feed conveyor

3. Control functions and setting up the machine

3.1. Arranging the machine for operation and transport

Before arranging the machine for operation and using it, ensure that the operating conditions, detailed in Section 1.4, are met and review the safety instructions in Section 1.5.

Note! Inspect and clean the machine according to Sections 4.3 and 5.8 before arranging it for transport.

3.1.1. Placing the in-feed conveyor in the operating or transport position

Place the in-feed conveyor in the operating position as follows:

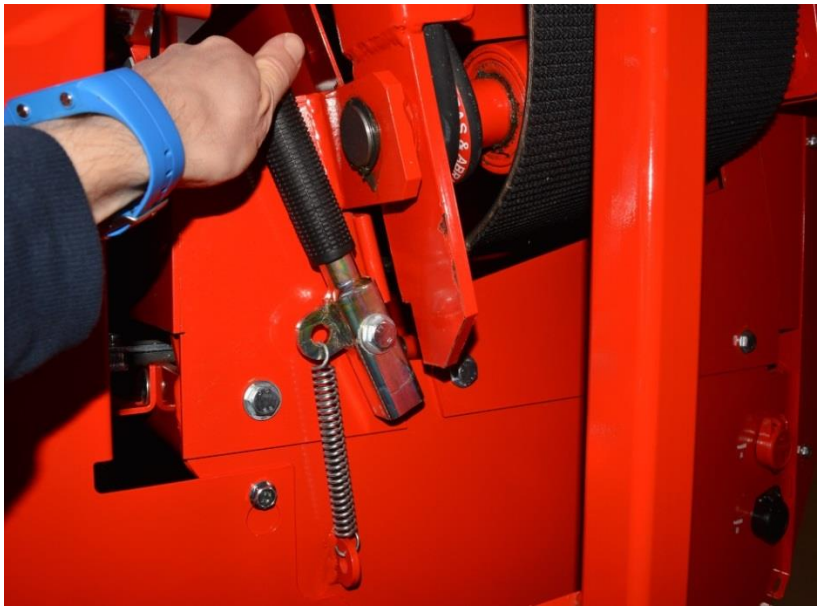


Figure 3.

1. Ensure that sufficient room is available to lower the in-feed conveyor (approx. 2 m).
2. Release the lock by opening the latch shown in Figure 3.

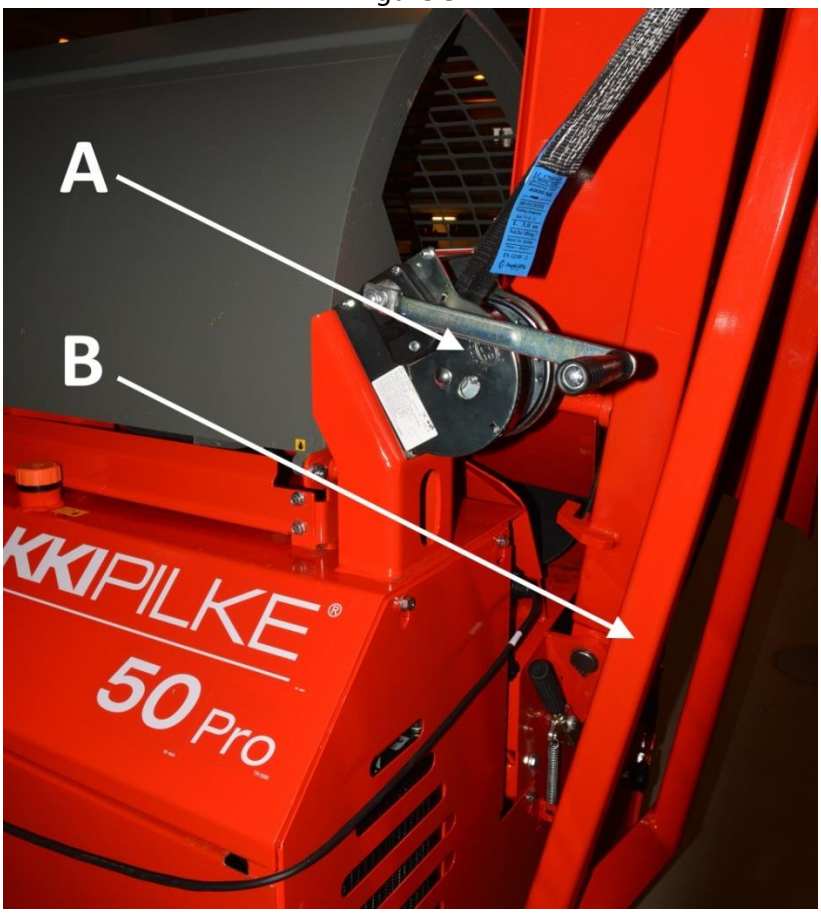


Figure 4.

3. Use winch A to lower the in-feed conveyor to the bottom position.

If necessary, guide support leg B with your other hand to ensure that it settles in the correct position, as shown in Figure 5.

Figure 5.

4. Turn log guide plate C into the working position, as shown in Figure 6.

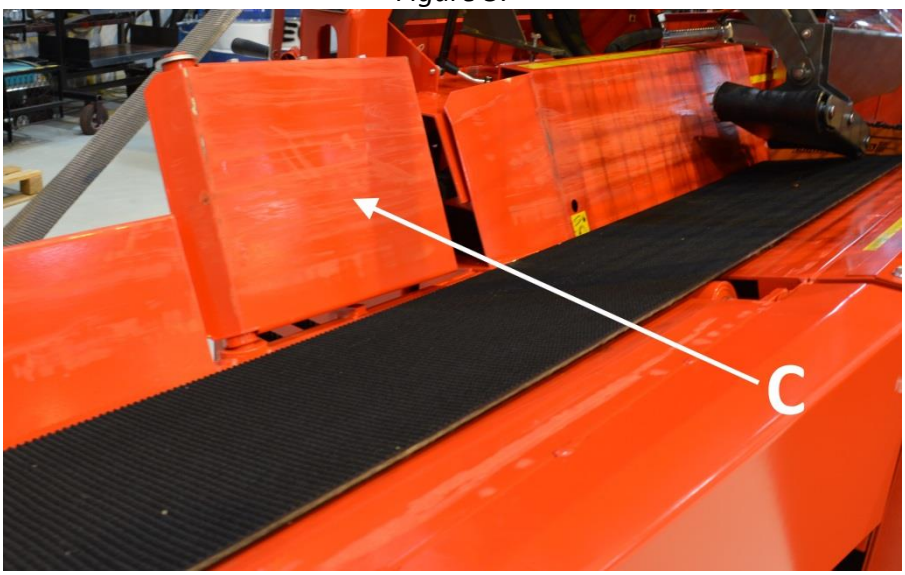


Figure 6.

Place the in-feed conveyor in the transport position in reverse order.

3.1.2. Placing the out-feed conveyor in the operating or transport position

Place the out-feed conveyor in the operating position as follows:

1. Ensure that there is sufficient room for opening the out-feed conveyor.

2. Keep locking latch A, shown in Figure 7, open and lower the out-feed conveyor hydraulically by turning lever D (in Figure 10) to the right.

   Note! Leave sufficient clearance (approx. 30 cm) for the discharge opening of the conveyor.

3. Turn the upper section of the conveyor to the operating position with the handle(s) B (Figure 8). **Note! If necessary, have two people on either side of the conveyor to lift it!**

4. Lock the upper section of the conveyor into place with latch C and cotter pin D, as shown in Figure 9.

5. Turn the support bar (E in Figure 9) of the conveyor belt to the operating position.

Figure 7.

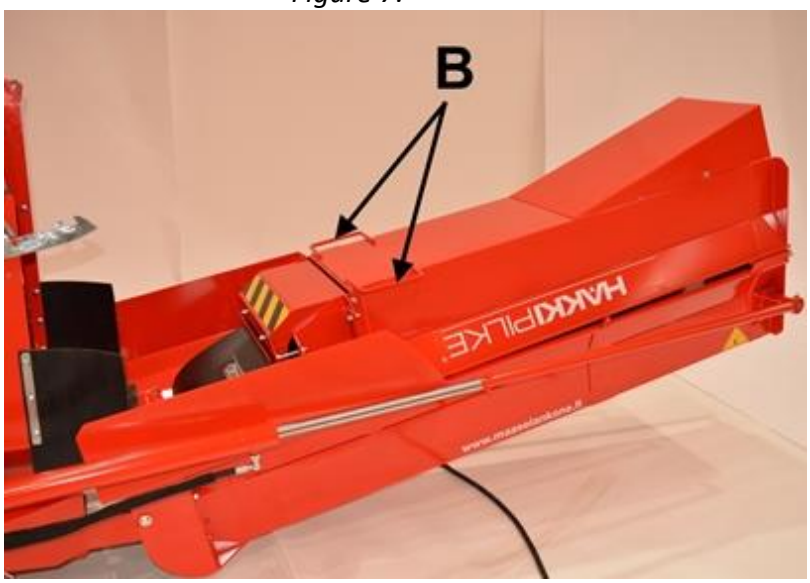


Figure 8.

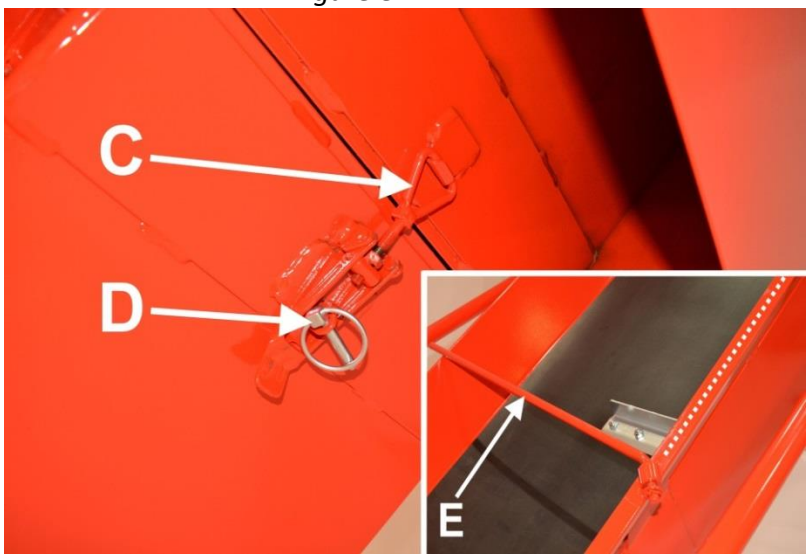


Figure 9.

6. Lower the splitting support arch to the working position and lock it with latch F.

7. Finally, insert support arch locking pin G and pin H, as shown in Figure 9b.

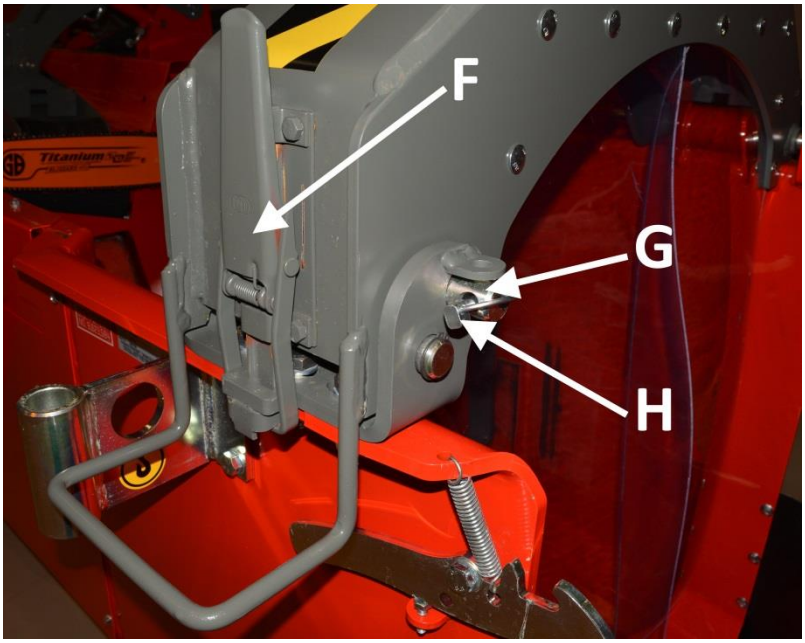


Figure 9b

Place the out-feed conveyor in the transport position as follows:

1. Turn the splitting groove support arch to the transport position, by performing steps 6 and 7 in reverse (Section 3.1.2).

2. Release lock C of the conveyor's upper section (Figure 9) and lower the conveyor to the lowest **possible** position with lever D, as shown in Figure 10.

3. Turn the conveyor belt's support bar E (Figure 9) on top of the belt and then turn the upper section of the conveyor on top of the lower section with the handle(s) B (Figure 8). **Note! If necessary, have two people on either side of the conveyor to lift it!**

4. Turn the conveyor to the middle position with lever D (Figure 10).

5. Lift the conveyor until it locks into the raised position. Ensure that lock A connects firmly. Ensure that the protective strip of the splitting groove is retracted in the front.

   Note! Do not stand on the out-feed conveyor!

3.2.Controls

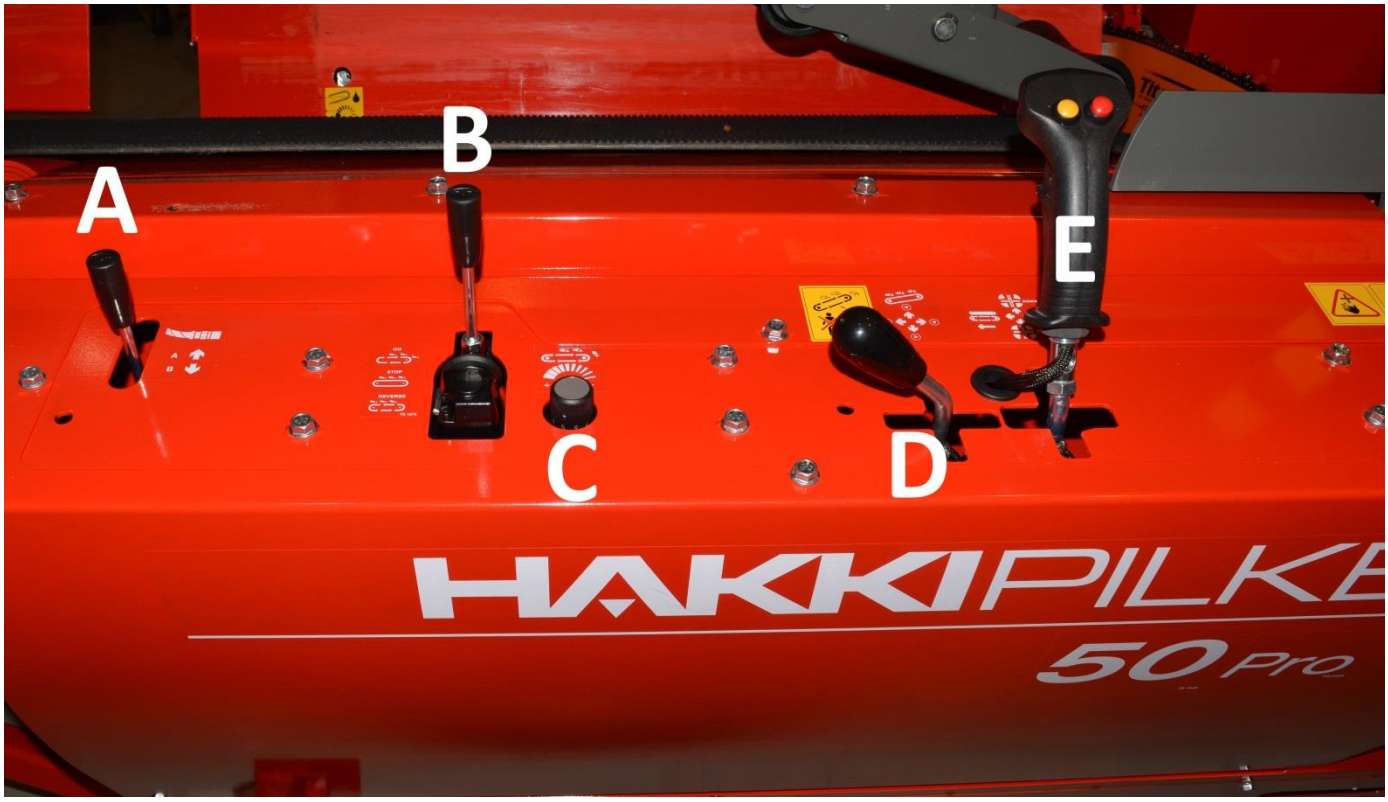


Figure 10. Controls

Names and functions of the controls in Figure 10

A. **Accessory valve.**

- Used for controlling accessories (HakkiFeed log racks)

B. **Out-feed conveyor belt control lever**

- Upper position: The out-feed conveyor belt runs forward
- Middle position: The out-feed conveyor belt does not run
- Lower position: The out-feed conveyor belt runs backwards (momentary use for removing a blockage, for example)

C. **Speed adjuster for the out-feed conveyor belt**

- The belt's speed decreases when the adjuster is turned towards the closed position and vice versa

D. **Out-feed conveyor control lever**

- Lever up/down: turns the out-feed conveyor to the right/left
- Lever right/left: decreases/increases the out-feed conveyor's angle in relation to the ground

E. **Joystick**

- Joystick to the left/right: the in-feed conveyor belt runs to the left/right
- Joystick forwards/backwards: the splitting blade is lowered/raised
- **Button A:** Splitting reverse button
- **Button B:** Lifting the hydraulic log press
- **Button C:** Activating the splitting function
- **Button D:** Performing the cutting function by keeping the button pressed down:
  - The saw performs the cutting motion automatically (the saw chain rotates and the saw bar is lowered to the lower position)
  - In addition, the wood measuring device turns out of the way and the log press is pressed against the log
  - Releasing the button stops the saw chain and raises the saw bar back up.

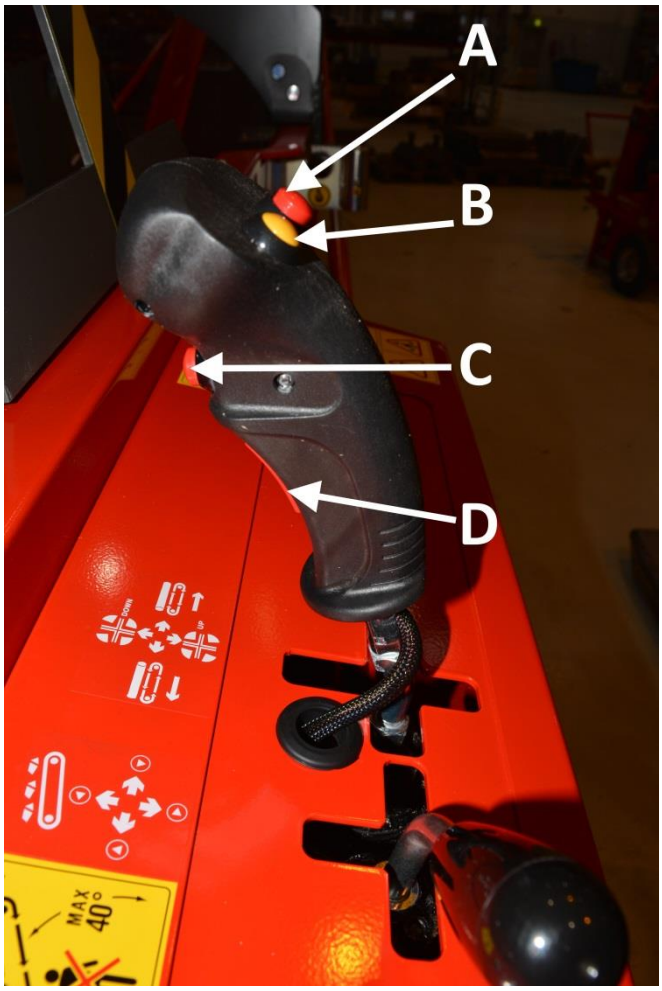


Figure 11. Joystick

3.2.1. Tractor drive

A tractor-powered firewood processor is connected to the tractor's three-point lifting devices and cardan shaft. To connect the machine to the cardan shaft, you have to move protective cover A of the socket and multiplier gear into a position where it covers the socket (in combi models).

Connecting the cardan shaft is a task for only one person. When connecting the machine to the tractor, there must be no one in the tractor cabin, so as to prevent any accidental contact with the controls. Check all the connecting devices of the tractor and the firewood processor before connecting them. Never use faulty equipment.

The 3-pin power cable for the electric controls is connected to the tractor's 12 V socket for a work machine (Figure 14).

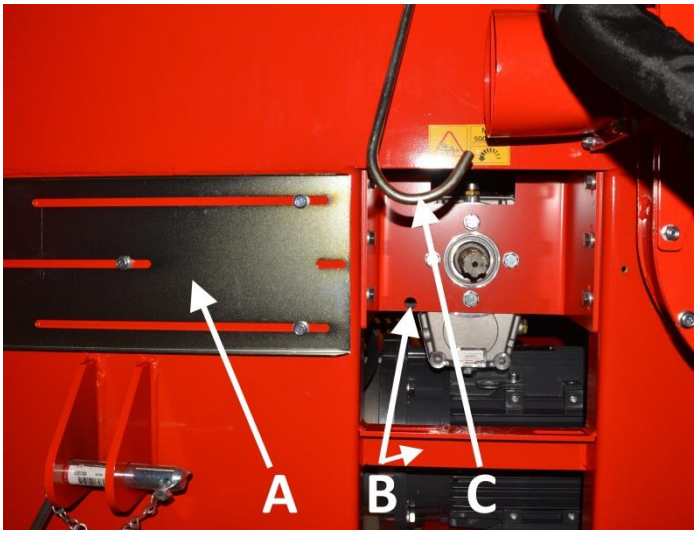


Figure 12.

When using the cardan shaft, observe any instructions provided by the manufacturer of the shaft. The machine requires 15 kW of power, which must be taken into account with regard to the capacity of the cardan shaft. A suitable cardan shaft is of power class four. Make sure that the connected shaft is locked to the splined shaft of the multiplier gear. Connect the chain that prevents the turning motion of the protective cover to slot B (2 options). Hang the cardan shaft from hook C when the machine is not being operated and when it is disconnected from the tractor. Finally, ensure that all connections are safe and secure. Never use a damaged or unprotected cardan shaft.

Note! Tractor-powered machines must be attached to the lifting equipment of the tractor.
Note! The starter (Figure 15) only functions when the machine is powered by electricity.

3.2.2. Electrical drive

An electrically powered machine is driven by a 15 kW electric motor. The IP rating of the electric motor is 55. The fuse must be at least a 32 A type C fuse. The electrical cable must be at least 5 x 6 mm², and the recommended maximum length is 25 metres. In order to connect the cable, move protective cover B of socket A and the multiplier gear and secure it into a position where it covers the multiplier gear.

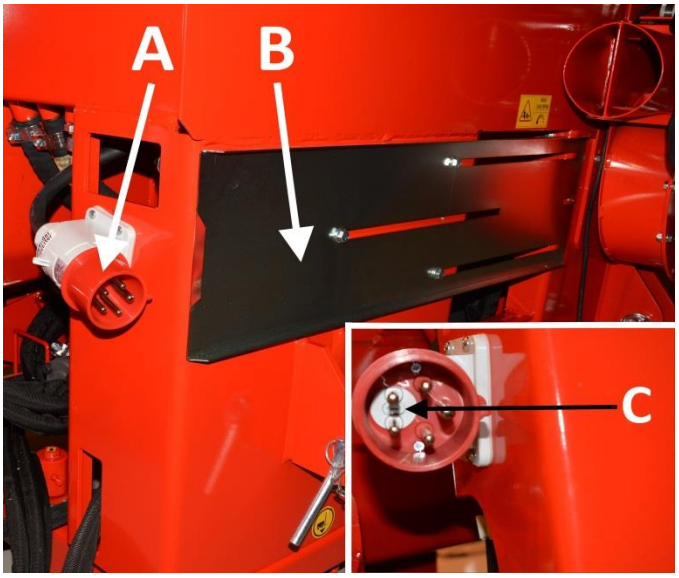


Figure 13. The machine's electrical drive

In an electrically powered machine, the power cable for the electric controls is connected to the 3-pin socket on the side of the machine.

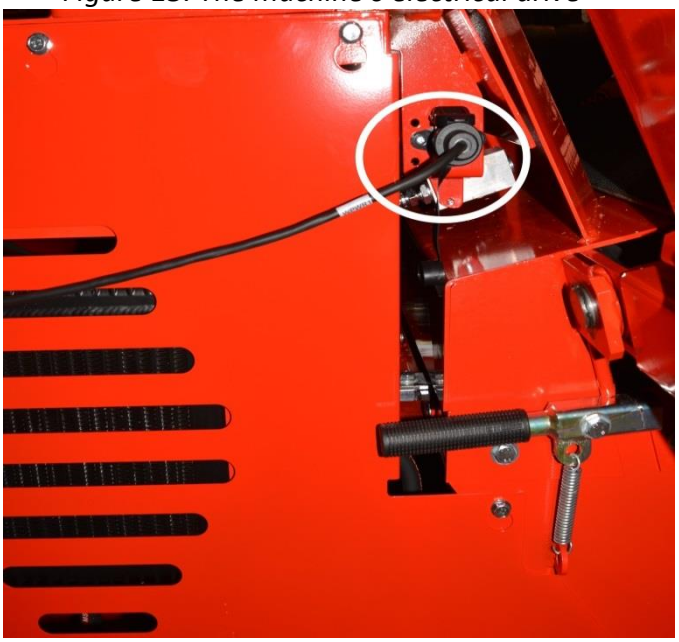


Figure 14. Electrical connector of the electric control device

The electrically powered machine is turned on with the green button of the remote starter, located in the control panel in the front of the machine (Figure 15). The actual starter is located behind the machine's rear cover. The starter features an automatic fuse and a thermal relay for the electric motor. The thermal relay can be reset by pressing the red stop button on the starter at the rear of the machine.

If the electric motor rotates in the wrong direction (i.e. the machine makes an abnormal noise and the hydraulic functions are inoperable), the current phase is incorrect.
You can turn the gear with switch C in Figure 13 by rotating it 180 degrees.

Figure 15. The machine's remote starter

3.2.3. **Adjusting the log length**

The Hakki Pilke 50 Pro features a hydraulic measuring device for cutting firewood, with an adjustment value of approx. 20 to 60 cm.
When sawing, the log limiter plate (B in Figure 16) always moves approx. 5 cm backwards with the help of a hydraulic cylinder to ensure that the log does not get stuck and falls freely into the splitting groove. Before splitting, the operator must always ensure that the log is not oversized and does not connect with limiter plate B.

1. Turn the machine off and open the machine's guard.
2. Adjust the log length limiter to the desired length by releasing the lock in Figure 16 to the open position (as shown in the smaller figure) and sliding limiter plate B to the desired position.
3. Turn lock A in Figure 16 back to the closed position.
4. If necessary, you can fine-tune the measuring device by loosening nut C in Figure 16 and rotating adjustment screw D to the desired direction. Tightening the screw increases log length and vice versa. When you are finished, lock nut C back into place. (If the log length is standard, you can fine tune the log length to minimise the amount of waste wood).

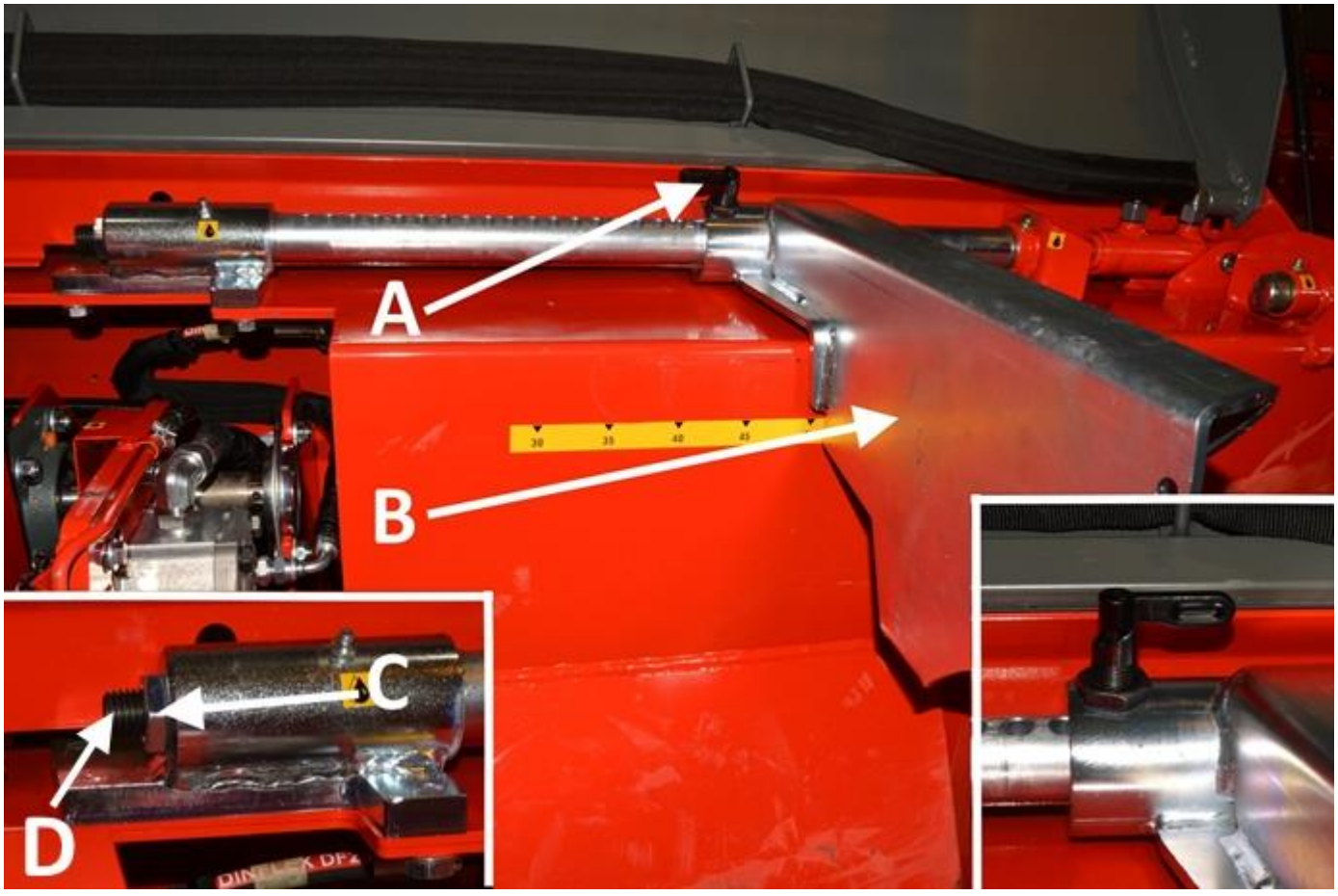


Figure 16. Log length adjustment

3.2.4. Using the out-feed conveyor

The Hakki Pilke 50 Pro firewood processor's out-feed conveyor belt is driven by a hydraulic motor. To change the speed of the belt, use adjuster C in Figure 17. The conveyor angle can be changed hydraulically in the horizontal and vertical directions by using lever D shown in Figure 17:

- Lever forwards: the conveyor turns to the left
- Lever backwards: the conveyor turns to the right
- Lever to the left: the conveyor's angle to the ground increases
- Lever to the right: the conveyor's angle decreases

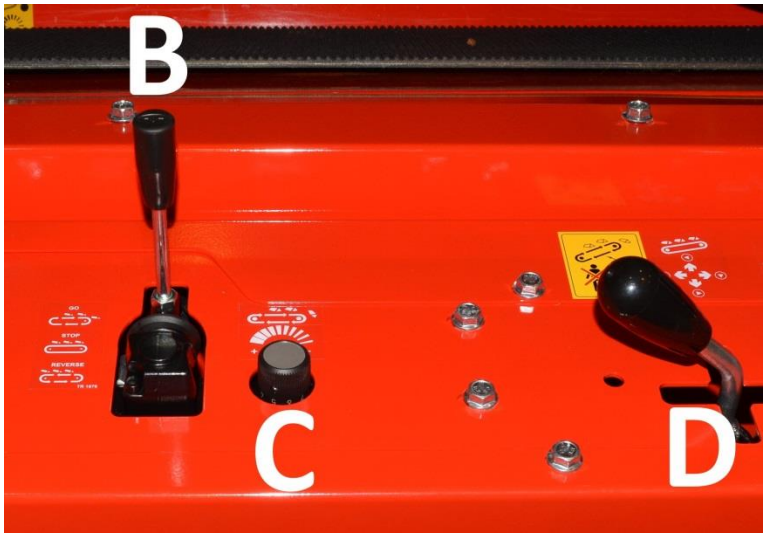
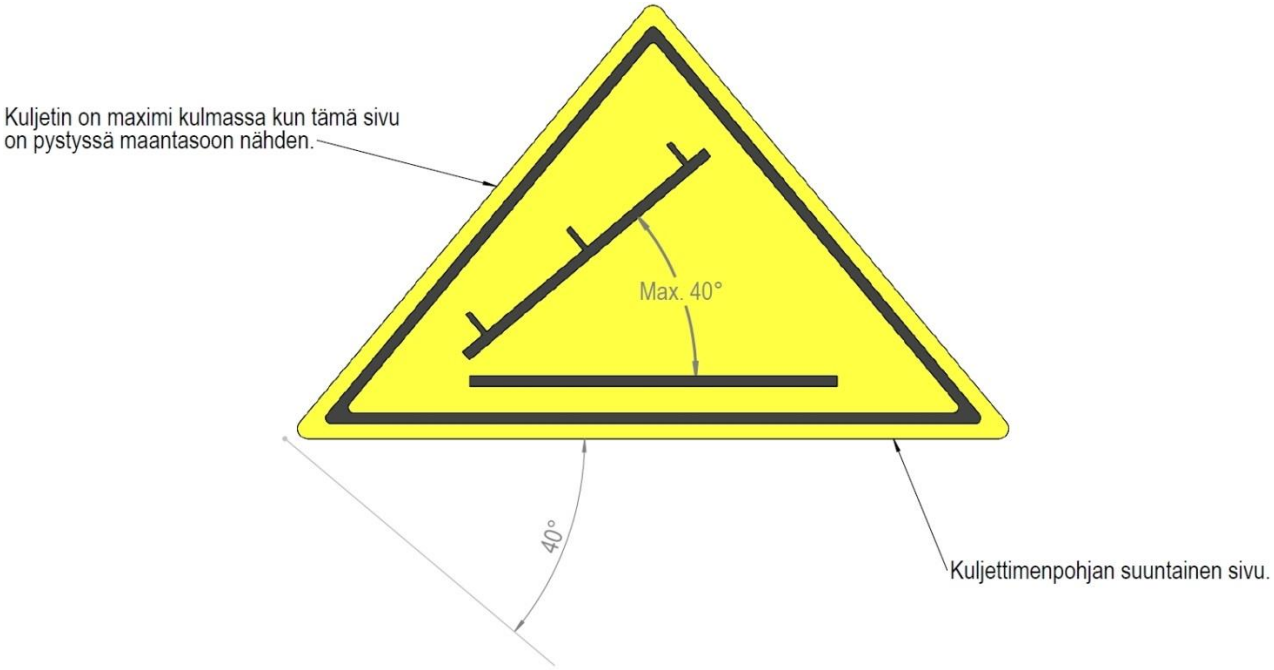


Figure 17.

By using lever B (Figure 17), you can stop the conveyor (middle position) and, if necessary, reverse the conveyor belt for a short distance (approx. 1 m) by pulling the lever back if a piece of wood is stuck between the conveyor cleaning plate and the upper roller, for example.

NOTE! The maximum operating angle for the out-feed conveyor is 40°. The maximum angle is indicated in the label below and the instructions attached to the out-feed conveyor.



3.2.5. Splitting blade adjustment

The machine's splitting blade is controlled hydraulically with control lever E (Figure 10). Pushing the lever in the front position causes the blade to be lowered, while pulling the lever to the back position causes it to rise. Logs should always be as centred as possible when passing the blade in order to keep the size of the firewood consistent.

The blade can be lowered to the lowest position in one go by raising the blade to the upper position and clearing the space under the blade. The machine must be shut down and disconnected from its power source for the duration of the cleaning.

3.2.6. Using a sawdust blower

A hydraulic sawdust blower is available as an accessory for tractor-powered machines, while an electrical blower is available for electrically powered and tractor-powered machines. The sawdust blower allows you to keep the base of the machine clean and collect sawdust for other purposes.

Using a hydraulic sawdust blower:

The hydraulic sawdust blower (accessory) is powered by the tractor's hydraulics. Install the blower as follows:

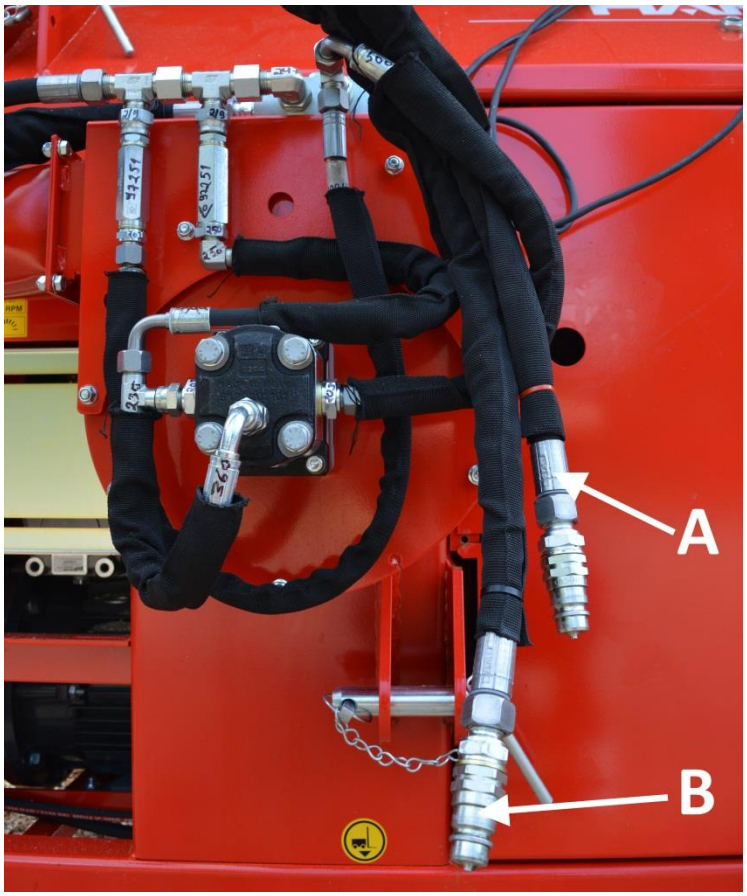


Figure 17a.

1. Attach hose A (red string) in Figure 17a to the pressure-side quick coupling of the tractor's hydraulics.

2. Connect hose B (black string) to the return-side quick coupling in the tractor's hydraulics.

3. Ensure that flow adjustment screw C is in the correct position as follows.

- Loosen locking nut D.

- Fully bottom out adjustment screw C.

- Then, **OPEN** adjustment screw C for **exactly 1 rotation.**

- Retighten locking nut D.

At these adjustments, the sawdust blower's rotor speed will be roughly **2,600 rpm**.

Note! Excessive rotation speed (adjustment screw C is opened by more than one rotation) may damage the sawdust blower!

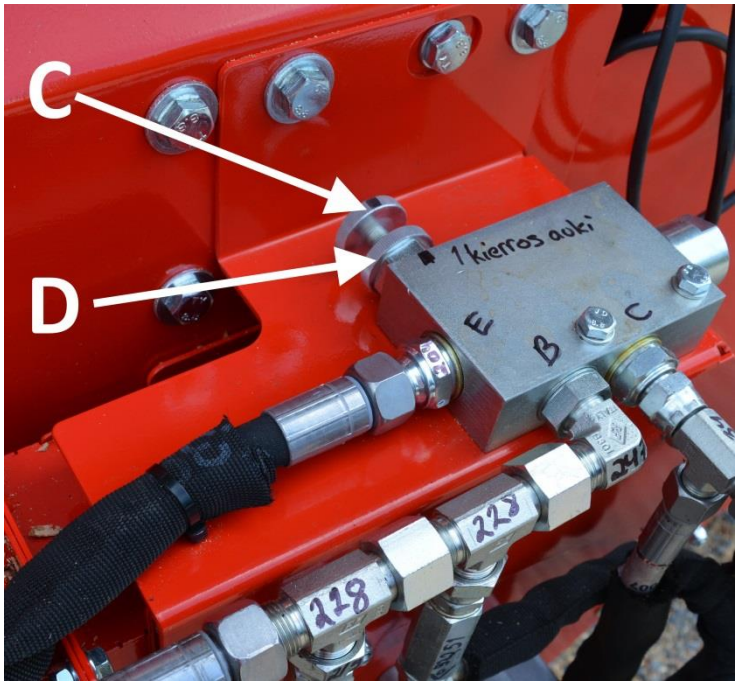


Figure 17b.

Using an electrical sawdust blower:

The external electrical sawdust blower is operated with standard mains current of 230 V.
The sawdust blower is provided with its own operating manual. Please read the manual before using the device.

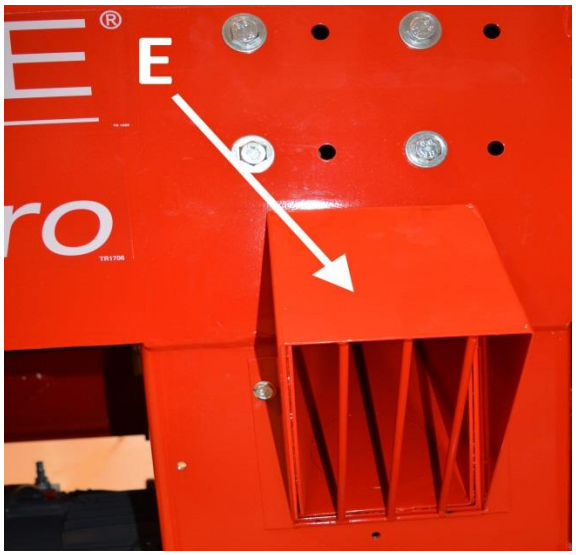


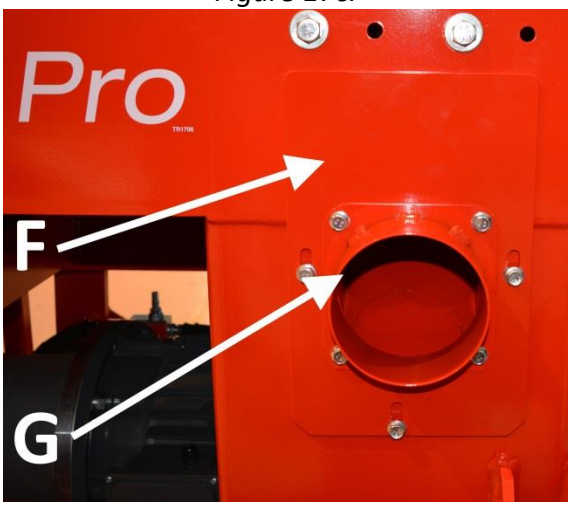
Figure 17c.

Connect the sawdust blower to the machine as follows:

1. Remove sawdust guide E by removing the fastening bolts (2 pcs).

2. Attach adapter F and blower hose connector G with 7 bolts, as shown in Figure 17d.

3. Use a clamp to fasten the hose to connector G.



17d.

4. Operating the machine

4.1. Performing a test run on the machine

The machine may not be used before a test run has been performed and all the functions of the machine have been tested. Both the test run and testing can only be performed by a person who has studied the machine's manual.

Note! When turning on the machine in cold weather (-5°C or colder), it is recommended that you use a separate heater for oil (accessory). In addition to this, the machine needs to be idled without work motions until the oil temperature has increased sufficiently.

Before the test run, all the components of the firewood processor must be checked. If any faults or wear and tear that may affect the safe use of the machine are discovered, the processor must not be used until the faulty or worn component is replaced and safe use can be ensured.

1. Check that the guard for the firewood processor's cutting and splitting section is down.
2. Check that the in-feed and out-feed conveyors are in the operating position.
3. Make sure that the splitting groove is empty.

4. Make sure that you are familiar with the functions of the machine's controls. If necessary, see Section 3.2.
5. Activation.

   a. Tractor drive: Insert the connector for the electric control device into the tractor's electrical socket. Start the tractor and connect the output, starting with a slow speed and increasing the speed to a maximum of 500 rpm.

   b. Electrical drive: Connect the cable to the socket of the firewood processor, start the machine by pressing the start button and wait until the electric motor operates at full speed.
6. Start the splitting motion by pressing button C on the joystick in Figure 11. The splitting motion must be normal.
7. Make sure that the saw and the lubrication on the saw chain work as follows: (If necessary, see Section 7.0.)
   a. Perform a few sawing cycles without wood by pressing down button D (Figure 11).
   b. Make sure that the saw bar is lowered all the way down during the sawing cycle, then automatically raised back up when button D is released, and that the saw chain rotates for the entire time that button D is pressed down.
   c. Turn off the machine and disconnect it from the power source.
   d. Open the guard and see if the saw chain has been supplied with oil.

8. Start the splitting cycle and stop it by opening the guard mesh. Make sure that the splitting beam returns to its initial position when the guard mesh is closed. In addition to this, ensure that the splitting beam is returned to its original position by pressing button A (Figure 11).
9. Conduct a test run for the in-feed conveyor's feed and return motion with joystick E (Figure 10).
10. Activate the out-feed conveyor by pushing lever B (Figure 10) to the front position. Make sure that the conveyor belt stops when lever G is placed in the middle position and that the feed is reversed when lever B is in the back position. Set the conveyor belt to a suitable speed with controller C (Figure 10).

If a fault, failure or leak occurs during the test run, determine the cause and take remedial action as necessary. The machine must be shut down and disconnected from the power source for the duration of both the diagnostics and repairs.

4.2. Placing logs on the in-feed conveyor

We recommend the use of auxiliary devices, such as the HakkiFeed 472 log table. If a log table is not attached to the machine, the maximum allowed length is 4.5 m. Always lift and place wood on the in-feed conveyor in a safe manner that does not put the operator in danger.

Note! Placing logs directly on the in-feed conveyor with a loader is strictly prohibited.
Note! Ensure that the log's centre of gravity stays on the conveyor.

4.3. Feeding and sawing wood

The in-feed conveyor feeds the wood into the firewood processor. Turn joystick E (Figure 10) to the right to feed wood into the machine. The feed can be cancelled by turning the joystick to the left.

When feeding wood into the machine, make sure that it does not present a risk of your clothes, hands or other parts getting caught in the machine, such as due to the shape of the log. Do not use your hand to

guide the log into the cutting section. Adjust the wood measuring device to the desired length and make sure that the speed of the out-feed conveyor belt is suitable by adjusting it.

1. Choose the log to process. Note that the maximum log diameter is 47 cm. The knottiness and shape of the log can increase the diameter.
2. Use joystick E to feed the log into the machine with the in-feed conveyor.
3. When the log stops in the hydraulic measuring device for cutting, cut the log by pressing button D (Figure 11) on the joystick. This will activate the saw chain and sawing cycle automatically.
4. Return the saw bar to the upper position by releasing button D (Figure 11).

Note! Do not operate the feed during sawing or when the saw bar is not fully in the upper position.

4.3.1. Hydraulic log press

The Hakki Pilke 50 Pro firewood processor is equipped with a hydraulic log press, which always **automatically** presses the log against the in-feed conveyor during the cutting motion. The log press is also locked in this position until it is released with button B (Figure 11).
The operator must ensure that the log being fed into the machine does not collide with the log press due to variations in log size, for example. **When feeding in a new log, always raise the log press to the upper position with button B.**

4.3.2. Jamming of the cutting blade

If the cutting blade gets jammed in the log, stop sawing and try again on another section of the log. If the cut is misaligned because the bar drags to one side, the sharpness of the saw chain and the bar must be checked. A chain that is not evenly sharp will always drag towards the blunter side, which will make cutting a thick log impossible. On the other hand, sawing with an evenly dull chain is inefficient, and the saw chain must be sharpened or replaced (see Section 5.1.1).

4.3.3. Sawing the last log

When sawing logs, the second to last piece should be sawn in such a way that the remaining piece is of a sufficient length. This ensures that the log stays firmly under the hydraulic log press and that the sawing is steady and safe.

4.3.4. Using the quick couplings of the additional hydraulics

1. Connect the additional hydraulics (e.g. when using the lateral transfer mechanism of the HakkiFeed 472 log table) by pushing the auxiliary device's hydraulic hoses into quick couplings A and B in Figure 18. Connect the accessory hose (marked in red) to quick coupling A.

2. Use the additional hydraulics with controller A in Figure 10.

Note! If the log table's hydraulic motor features an overflow hose, for example, it must be connected to quick coupling C, i.e. the direct line to the hydraulic tank.

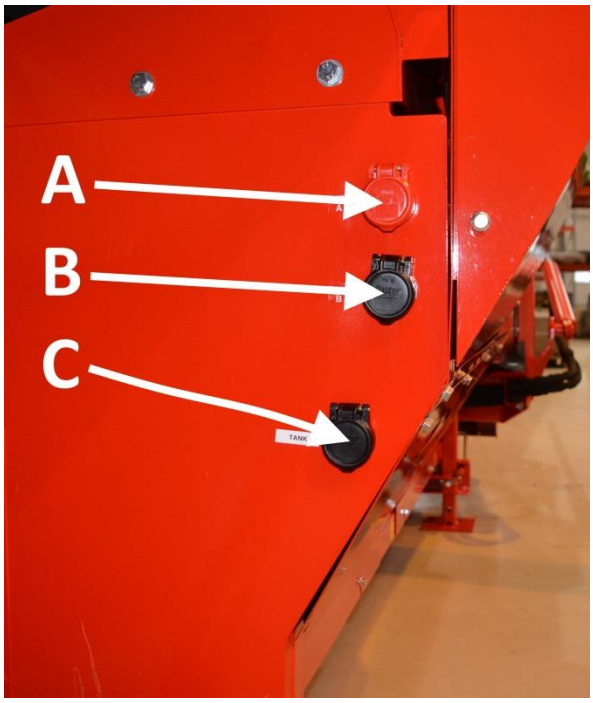


Figure 18.

4.3.5. Connecting a log table's in-feed rollers to the in-feed conveyor

A log table's (e.g. HakkiFeed 472) in-feed rollers can be connected in series with the in-feed conveyor. This way, the rollers are automatically synchronised to operate with the input conveyor when feeding logs using joystick E (Figure 10). Connect the hoses of the log table to the machine's in-feed conveyor as follows:

1. Turn off the machine and disconnect it from the power source.

2. Remove hose B from quick coupling A (Figure 19).

3. Connect the pressure hose of the log table rollers (marked in red) to quick coupling A.

4. Connect the return hose of the log table rollers to hose B (with a female coupling).

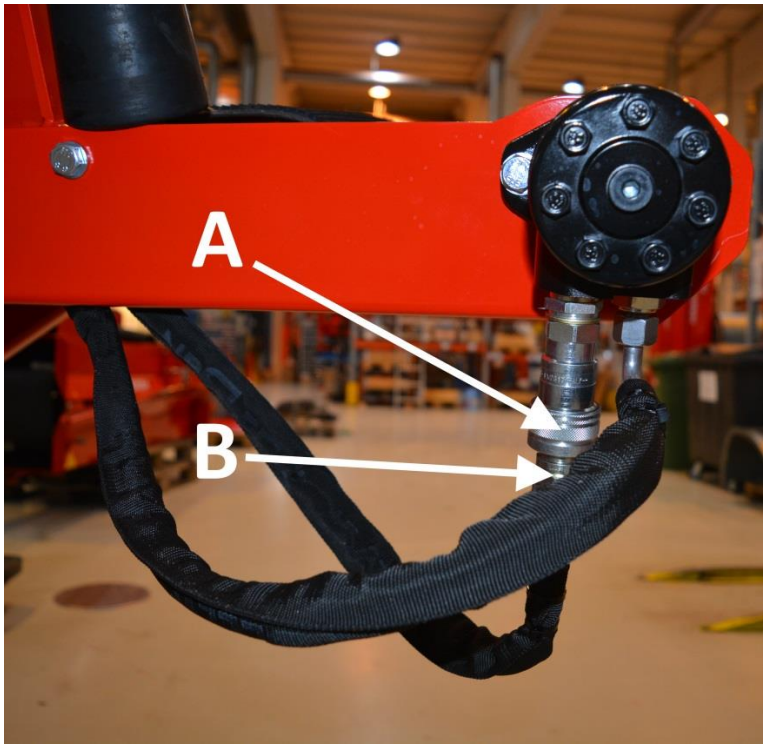


Figure 19.

4.4.Log splitting

4.4.1. Jamming of wood on the splitting blade

If a piece of wood gets jammed on the splitting blade in a situation where the splitting force is insufficient to push the piece past the blade, carry out the following:

1. Return the splitting beam fully to the starting position by pressing **button A (Figure 11)**.
2. Restart the splitting by pressing button C (Figure 11). This recharges the machine's pressure booster to provide full power.
3. If the log is still not split completely, raise the splitting blade slightly (approx. 5 cm) and repeat step 2.

4.4.2. Resplitting or splitting without cutting

1. Raise the protective cover of the cutting and splitting groove.
2. Place the log you want to split in the splitting groove.
3. Close the protective cover of the cutting and splitting groove.
4. Activate the splitting cycle with button C (Figure 11).

The above procedure can be used to split wood without cutting it, as necessary.

4.4.1. Replacing the splitting blade

Exercise extreme caution when handling the blade, and wear protective gloves.

1. Pull handle B (Figure 20). If the handle does not move, raise the blade slightly.

2. Lower the splitting blade to the lowest possible position to remove the control shaft from slot A (Figure 20).

   If necessary, remove pieces of wood from under the blade.

3. Turn off the machine and disconnect it from the power source.

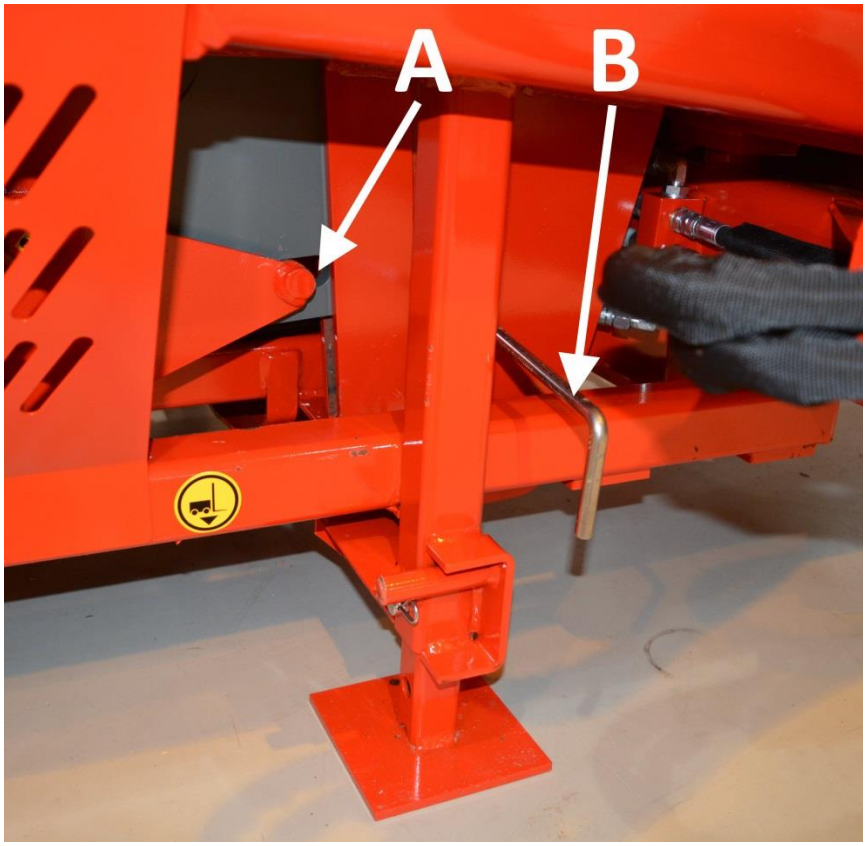


Figure 20.

4. Open the machine guard and raise the splitting groove support arch C to the upper position (as instructed in Section 3.1.2.).

5. Connect the hook of winch D to the splitting blade's lifting hole E, as shown in Figure 21.

6. Use the winch to lift the splitting blade out of its place, guide the splitting blade out from the out-feed conveyor's side and lower it carefully onto a fork lift pallet, for example.

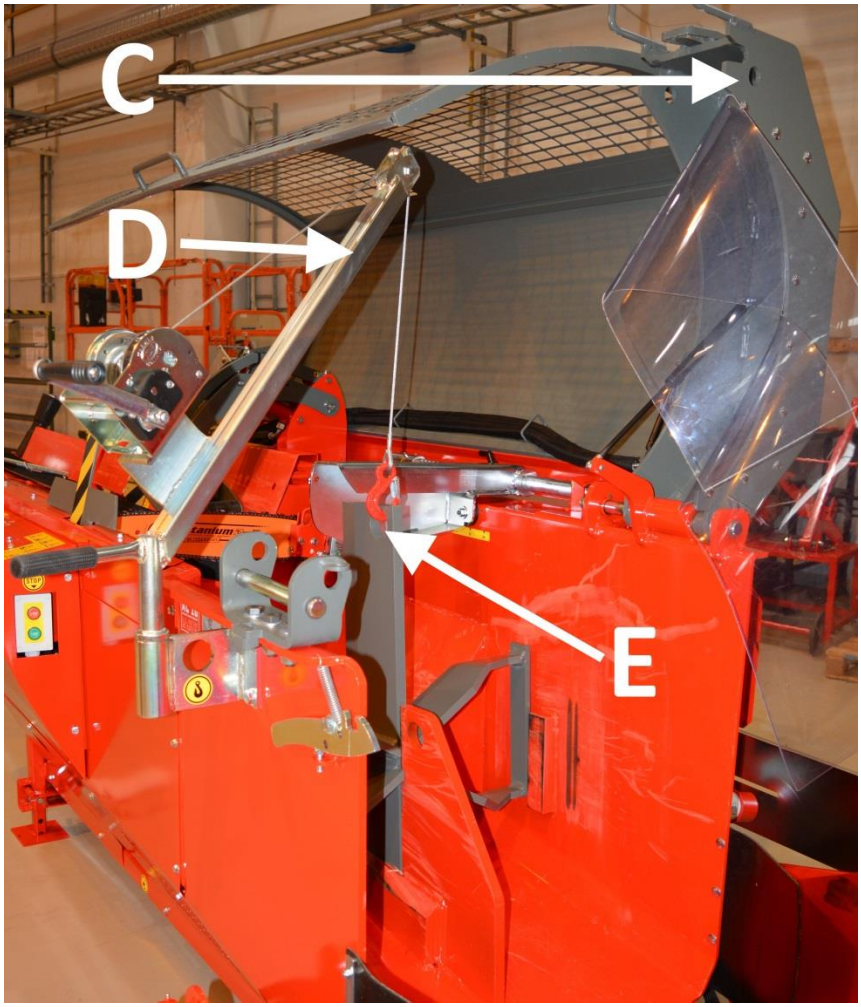


Figure 21.

Install a new splitting blade by completing the steps in reverse order.

4.4.2. Adjusting the stroke length of the splitting motion

In the Hakki Pilke 50 Pro firewood processor, the splitting cylinder is controlled electrically with sensors A and B in Figure 22. The stroke length of the splitting cylinder can be adjusted as follows:

1. Shut down the machine and disconnect it from its power sources.

2. Remove the machine's cover plate (from the rear of the machine), as shown in Figure 22.

3. Sensor A (Figure 22) determines the spot in which the splitting beam stops during the return motion. If necessary, change the position of the sensor. Loosen the sensor's fastening bolt, move the sensor and tighten the bolt to secure it in place.

4. Sensor B (Figure 22) is used to determine the point at which the splitting cylinder changes direction during the splitting cycle, i.e. how close to the splitting beam the splitting blade goes. If necessary, change the position of the sensor, as instructed in section 3 above.

Note! The covers and guards must be reattached after maintenance.

Figure 22.

4.5. Using the out-feed conveyor

The out-feed conveyor can be controlled horizontally and vertically. The safety zone for the out-feed conveyor is 10 metres. When operating the machine, the maximum permitted angle of the out-feed conveyor is 40°. The running speed of the out-feed conveyor can be freely adjusted with adjustment screw C (Figure 10). If the conveyor is jammed for any reason, the out-feed conveyor must be stopped with lever B (Figure 10) and the machine shut down before the cause is removed. If the cause for the failure is in the debris removal mechanism, you can reverse the conveyor belt for a short distance with lever B (Figure 10). There must be at least 50 cm between the end of the out-feed conveyor and the pile of processed firewood.

The tightness of the out-feed conveyor belt (and the belt's alignment) can be adjusted as follows:

1. Loosen fastening nut A (Figure 23).
2. Tighten/loosen the belt with nut B in Figure 23 (the same amount on both sides of the belt). If the belt is crooked, loosen nut B (in relation to the spring) on the side towards which you wish to align the belt better.
3. When the conveyor belt is at the correct tension and properly aligned, tighten the fastening nuts (A) on both sides.

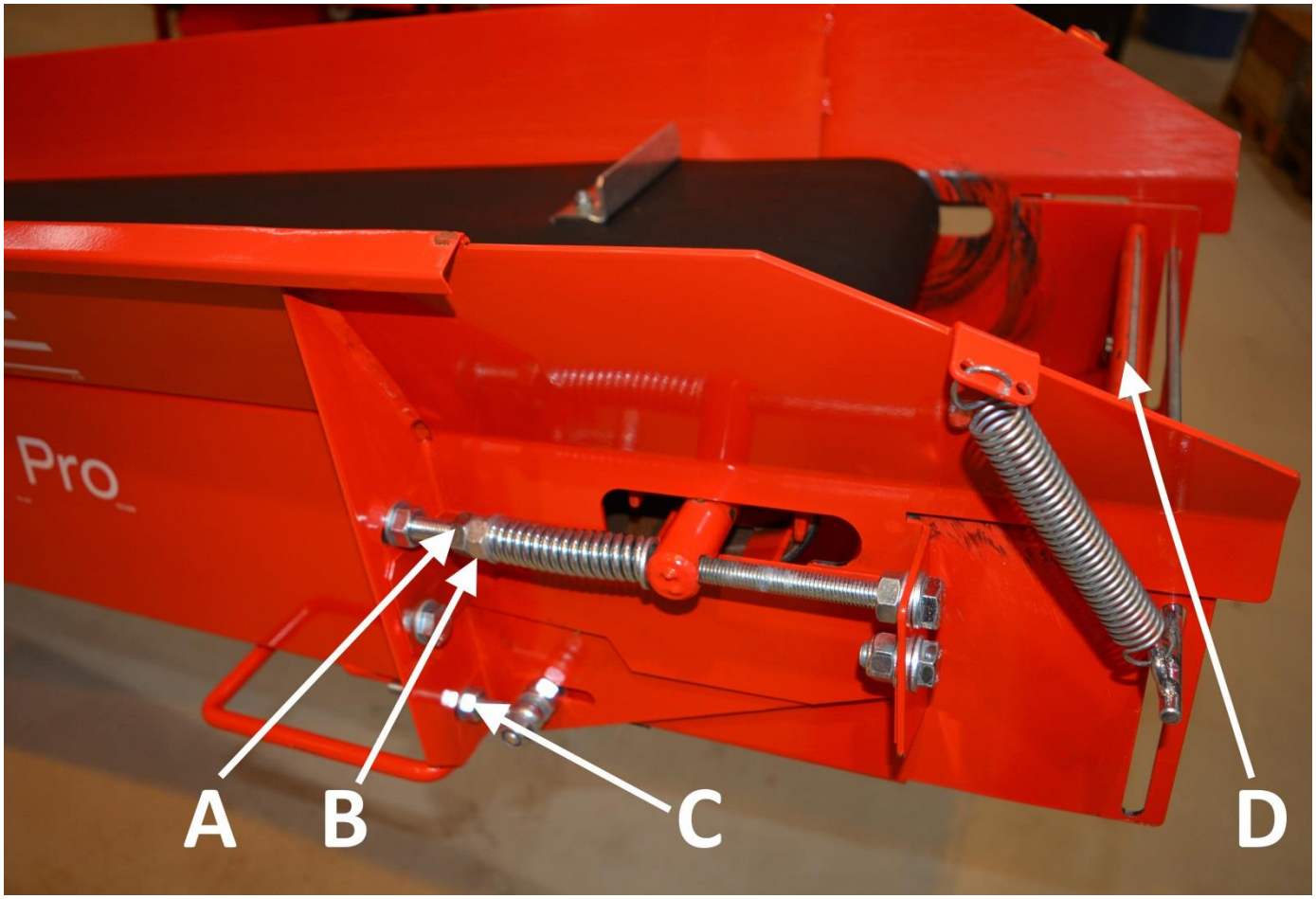


Figure 23.

The out-feed conveyor is equipped with an automatic debris removal device. It separates debris and sawdust from the processed firewood.

The following things significantly affect the operation of the debris removal device: the angle of the out-feed conveyor, the speed of the belt and the distance of separation plate D (Figure 23) from the upper roller of the conveyor. In other words, the debris separation result is better the steeper the angle (however, no more than 40 degrees), the lower the speed and the longer the distance between separation plate D and the upper roller. The distance of separation plate D is optimised at the factory in conjunction with the testing of the machine. However, the adjustment can be changed with adjustment screw C (2 pcs, Figure 23), if necessary.
The optimal speed for the belt can be determined by trying different settings. The split logs should only just pass over the plate.

Note! The operator must ensure that the distance between the debris discharge opening and the pile of debris that accumulates under it is at least 30 cm.

4.6. After use

1. After you have finished making firewood, stop the out-feed conveyor, shut down the machine and remove the firewood from the splitting channel and conveyor.
2. Check that the machine has not been damaged.
3. Place the out-feed conveyor into a position that allows the conveyor and firewood processor to be moved safely off the processed firewood.

4. Clean the machine.

If you will not be using the firewood processor for a while, do the following:

5. As necessary, use your tractor's hydraulics or a forklift to hoist the firewood processor and carefully move it to a location where you can place the in-feed and out-feed conveyors into their transport and storage position.
6. Place the conveyors into the transport and storage position.
7. Clean the machine and carry out any maintenance.
8. Store the machine according to the instructions in Section 10.

5. Machine maintenance

The machine must be disconnected from its power source before any maintenance, adjustment, replacement or cleaning measures. Only use spare parts that are supplied by the manufacturer or your retailer. If the guards of the machine have to be removed for maintenance, they must always be reattached before the machine is activated. After maintenance and adjustment measures, the machine must be test run according to the instructions in Section 4.1.

5.1. Cutting blade and drive end

If the cutting blade of the machine does not penetrate the wood properly or the cut is skewed, the saw chain is most likely blunt or the saw bar is bent. **The most common cause for problems with cutting logs is an unevenly dulled saw chain which veers 5–10 cm to either side and causes the saw bar to stop.** It is a good idea to keep a replacement chain on hand, so that you do not need to interrupt your work to sharpen the chain.

5.1.1. Replacing and tensioning the saw chain

The Hakki Pilke 50 Pro firewood processor comes standard with a patented AC10™ automatic and hydraulically powered saw chain tensioner. When the machine is running, the hydraulic cylinder pushes the saw motor backwards with a constant force, keeping the saw chain's tension optimal. The operator does not need to worry about the saw chain's tension.

Replace the saw chain as follows:

1. Turn off the machine, disconnect it from its power source and open the machine guard.
2. Turn lever A (Figure 24) to the OFF position to release the pressure in the automatic saw chain tensioner.
3. Put on gloves and pull the saw chain downwards at the middle of the beam. This will loosen the chain and allow you to remove it.
4. Install the new saw chain and ensure that the cutting teeth come first in relation to the rotating direction.
5. Turn lever A (Figure 25) to the ON position, as shown in Figure 24.
6. Close the machine guard and turn on the machine. This will automatically tension the saw chain to the right tension and raise the saw bar.

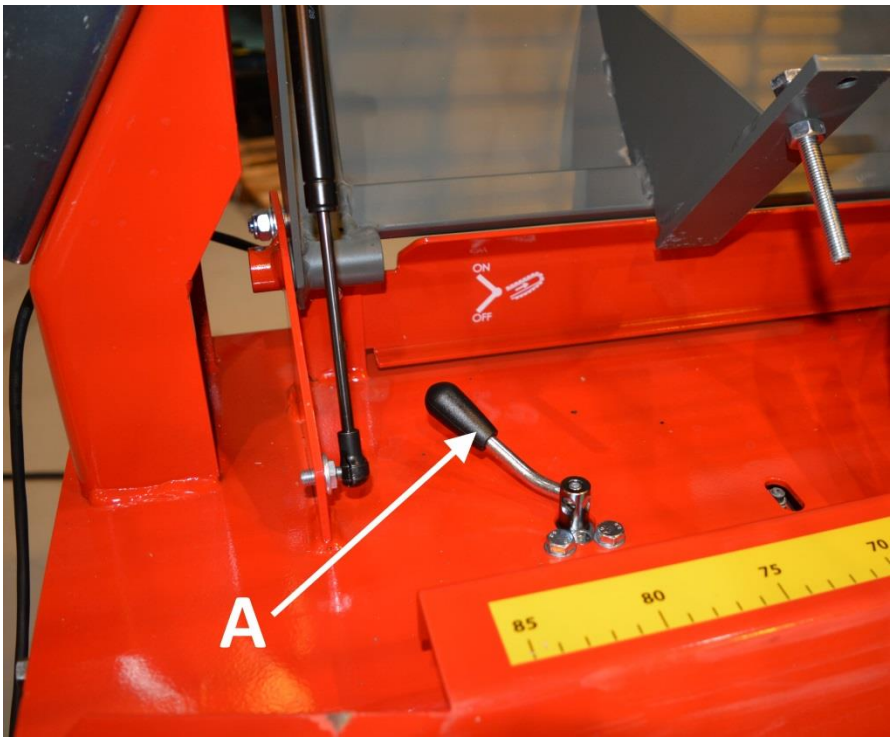


Figure 24.

To check the tension of the saw chain, wear protective gloves and pull the lower edge of the chain at the middle of the beam. The tension is correct when you cannot pull a drive tooth to a fully visible position with moderate force, but the chain moves on the bar when pulled with a tool.

5.1.2. Replacing the saw bar

Replace the saw bar as follows:

1. Remove the saw chain according to steps 1–3 of Section 5.1.1.
2. Remove the bar's fastening bolts (A in Figure 25).
3. Remove fastening plate C (Figure 26) and remove the saw bar from the groove.
4. Place the new bar against gear wheel B, twist it into the groove and loosely attach the saw bar bolts (A) and fastening plate C.
5. Install the saw chain in place according to steps 4–6 of Section 5.1.1.

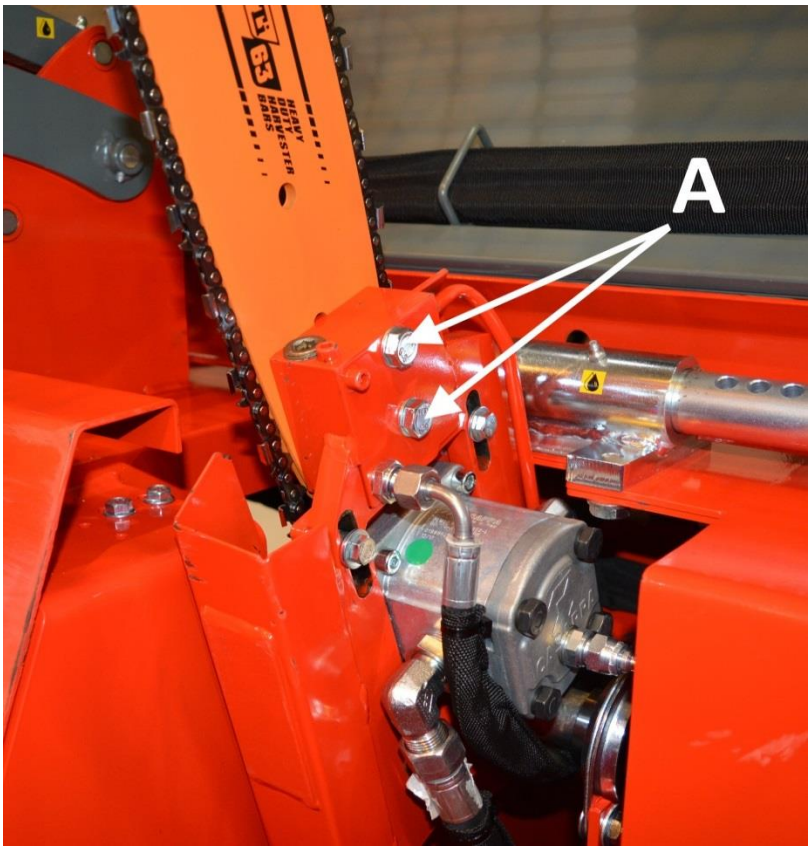


Figure 25.

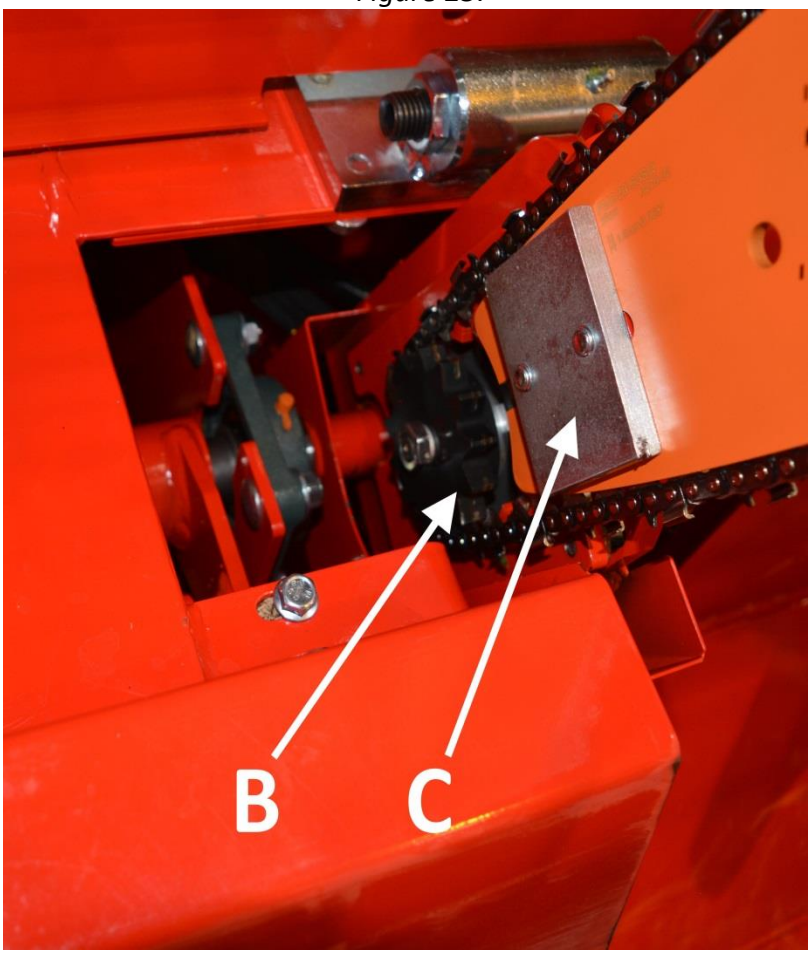


Figure 26.

5.2. Changing the multiplier gear's oil

1. Remove drain plug C (Figure 29) and drain the oil into a suitable container.

   Note! The multiplier gear's oil volume is 0.34 litres.

2. Close plug C and open filler cap A (Figure 27).

3. Feed the new oil to the multiplier gear and close filler cap E. The required amount is 0.34 litres.
   You can check the oil level through oil level gauge B (Figure 27).

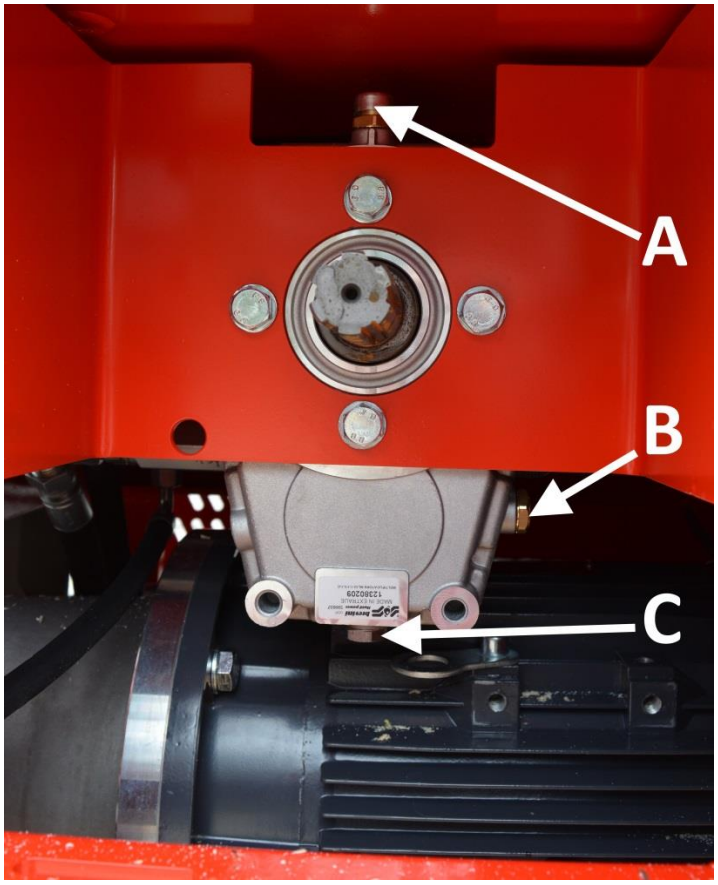


Figure 27.

5.3. Changing the hydraulic oil and filters

1. Turn off the machine and disconnect it from its power source.

2. Open filler cap A (Figure 28).

3. Remove plug D from the drain hose in Figure 30 and drain the old oil.

4. Detach the machine's rear cover and remove hydraulic filter C in Figure 29 by opening the filter.

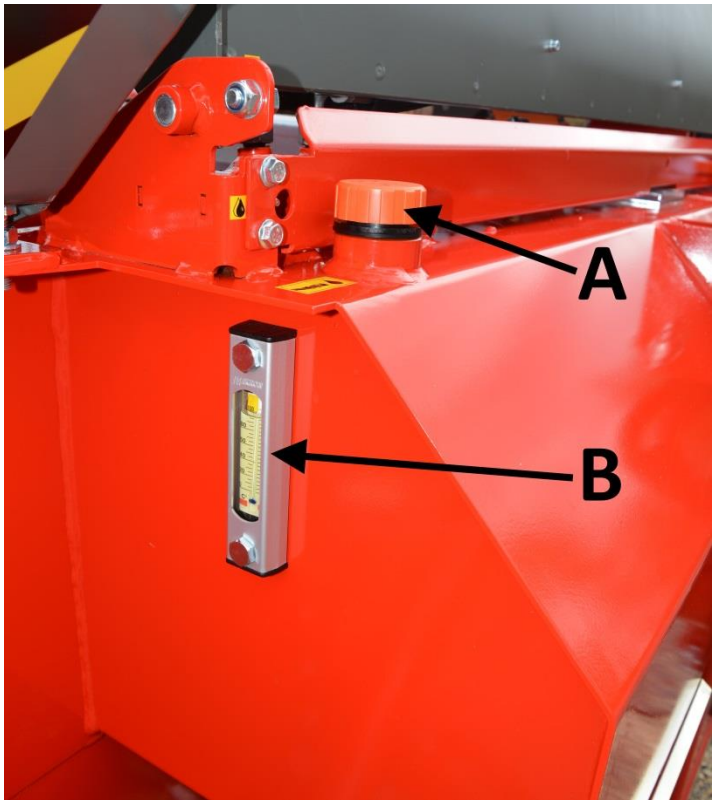


Figure 28.

Note! The oil volume is approx. 125 litres, so be prepared to replace the container more than once as necessary.

Note! Choose the correct type of oil according to the operating conditions! If the electric motor is turned on in a cold space, the use of an oil with a viscosity of ISO VG 32 and an oil heater accessory is recommended.

In a tractor-powered machine, the recommended oil under normal conditions is ISO VG 46 (with the oil temperature no more than 60°C).

Figure 29.

5. Put plug D back into place, install the new filter and pour the new oil to the tank through the opening of filler cap A (approx. 125 litres).

6. Use gauge B (Figure 30) to make sure that the oil level is near maximum.

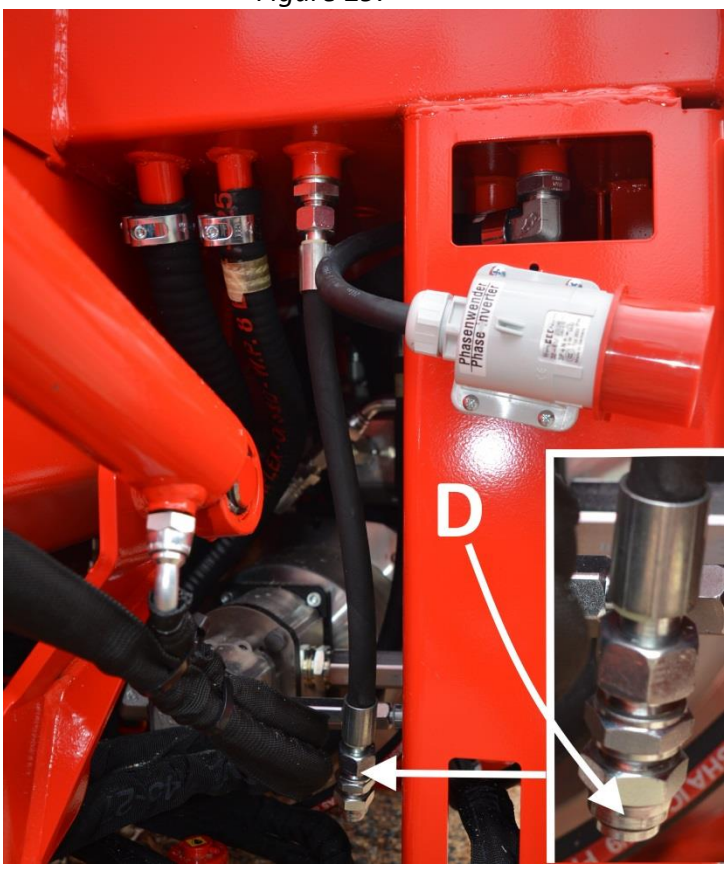


Figure 30.

5.4. Conveyor maintenance

5.4.1. Replacing and tensioning the in-feed conveyor belt

Replace the in-feed conveyor belt as follows:

1. Shut the machine down and disconnect it from its power sources.
2. Raise and lock the in-feed conveyor into the transport position. (See Section 3.1.1.)
3. Move the belt joint to a suitable height.
4. Disconnect the joint by using, for example, pliers to pull out pin A (Figure 31) holding the joint together.
5. Remove the old belt.
6. Slide the new belt under the table through opening B at the side of the in-feed conveyor's drive roller until you can pull the belt out from the other end C.
7. Lead the rest of the belt under the log press, around the rear roller and, finally, behind the conveyor.
8. Connect the joint by inserting pin A into the joint.
9. Turn the conveyor back to the operating position and tension the belt.
10. Finally, adjust the belt to the correct tension and to run straight with the help of the adjustment nuts D.

The belt is at the correct tension when its middle section is raised approx. 5 cm when the conveyor is in the operating position. An excessively tight belt may be damaged more easily, and it places unnecessary strain on the bearings of the conveyor.

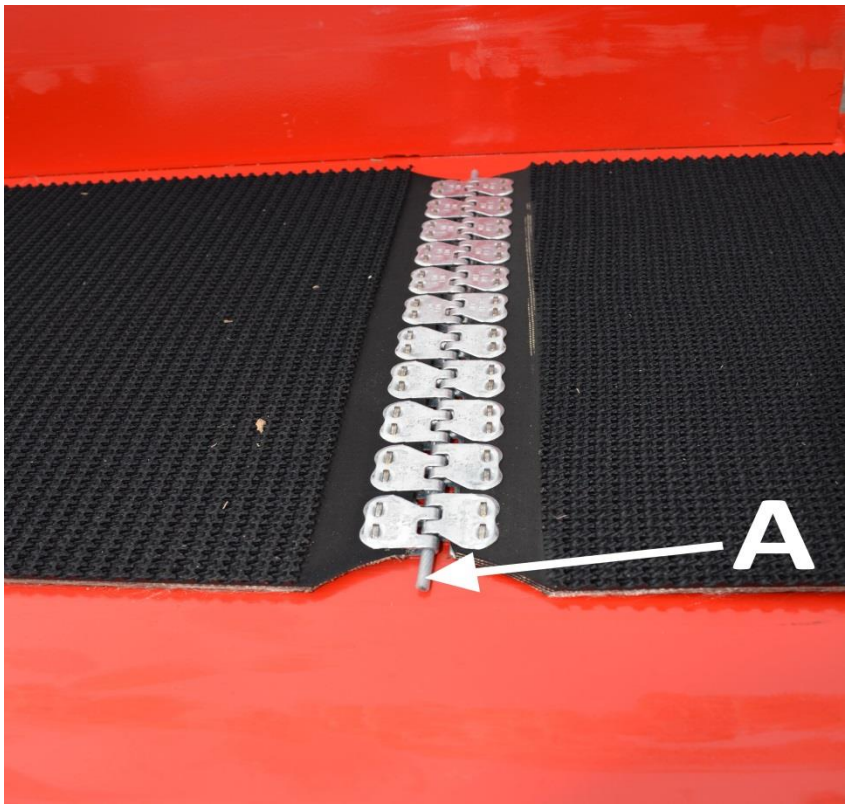


Figure 31.

Figure 32.

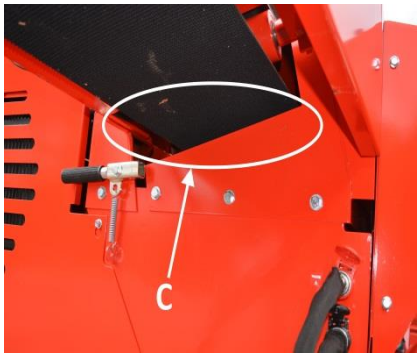


Figure 33.

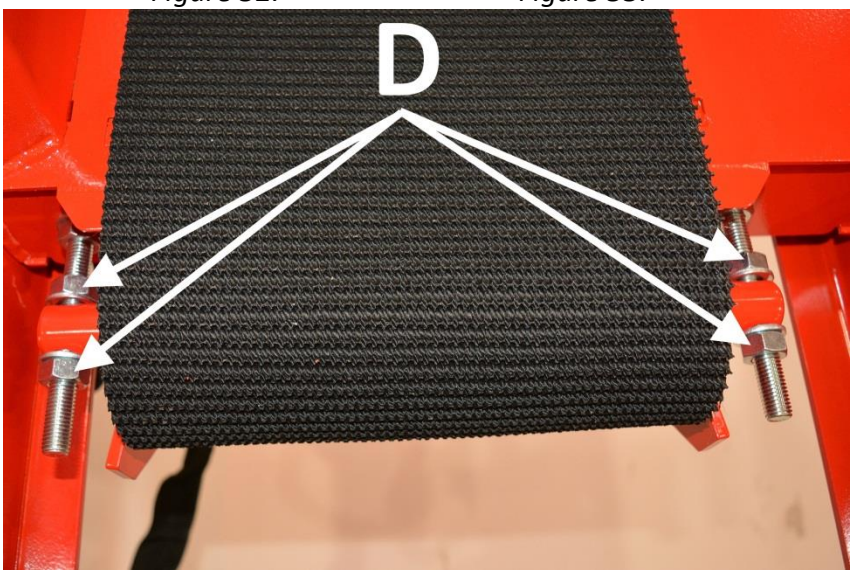


Figure 34.

5.4.2. Replacing and tensioning the out-feed conveyor belt

The instructions for tensioning and aligning the out-feed conveyor are presented in Section 4.4.

Replace the out-feed conveyor belt as follows:

1. Pull out the pin locking the conveyor in place and lower the conveyor to the ground.
2. Shut the machine down and disconnect it from its power sources.
3. Move the belt joint to the start of the conveyor.
4. Fold the conveyor, but do not place the belt support in the transport position. This will allow the belt to hang loose.
5. Disconnect the joint by opening the bolts.
6. Remove the old belt.
7. First, insert the new belt under the folded conveyor (bottom opening) from the end of the conveyor with the plates facing downwards. Feed the belt in until you can pull it out from the other end of the conveyor. Pull out a length of approx. 60 cm.
8. Push the other end of the belt into the upper section of the folded conveyor (top opening) from the end of the conveyor. Feed it in until you can connect the joint.
9. Pull the excess belt to the start of the conveyor.
10. Lower the conveyor back to the operating position and tension the belt.

The belt is at the correct tension when its middle section is raised approx. 15 cm when the conveyor is in the operating position. An excessively tight belt may be damaged more easily, and it places unnecessary strain on the conveyor bearings.

5.4.3. Replacing the out-feed conveyor plates

The out-feed conveyor plates can be replaced by disconnecting the bolt joints (3 x M8) fastening the plates and replacing the plates with new ones. It is recommended that you move the belt into a position that puts the plate to be replaced above the conveyor. Shut the machine down and disconnect it from the power source for the duration of the procedure.

5.5. Lubrication

All of the firewood processor's lubrication points, which require Vaseline, have been labelled. There are 24 lubrication points, presented in the figures below. Note! Take care when applying grease to dustproof bearings!

1. Hinged nipples of the guard (2 pcs) in Figures 35 and 36. (every 200 hours)
2. Grease nipple for the wood measuring device cylinder in Figure 35. (every 50 hours)
3. Bearing nipples of the out-feed conveyor’s lower roller (2 pcs) in Figure 37. (every 200 hours)
4. Grease nipple for the output conveyor's turning device in Figure 37. (every 200 hours)
5. Grease nipples of the out-feed conveyor’s swivel cylinder (2 pcs) in Figure 38. (every 200 hours)
6. Grease nipples of the out-feed conveyor’s lifting cylinder (4 pcs) in Figures 38–40 (every 200 hours).
7. Grease nipple of the hydraulic in-feed roller bearing in Figure 41. (every 200 hours)
8. Grease nipple for the wood measuring device cylinder in Figure 42. (every 50 hours)
9. Grease nipples of the cutting cylinder (2 pcs) in Figure 46. (every 50 hours)
10. Grease nipples in the splitting groove support (Figure 42) and splitting blade winch (Figure 39). (according to use)
11. Grease nipple of the in-feed conveyor roller in Figure 43. (every 200 hours)
12. Grease nipples of the log press (4 pcs) in Figure 42. (every 50 hours)

13. Grease nipple of the saw shaft in Figure 45. (every 200 hours)
14. Grease nipples of the saw cylinder (2 pcs) in Figure 46. (every 50 hours)
15. Grease nipple of the cylinder pin in Figure 47. (every 200 hours)
16. Grease nipple for the wood measuring device in Figure 48. (every 50 hours)

Figure 35.

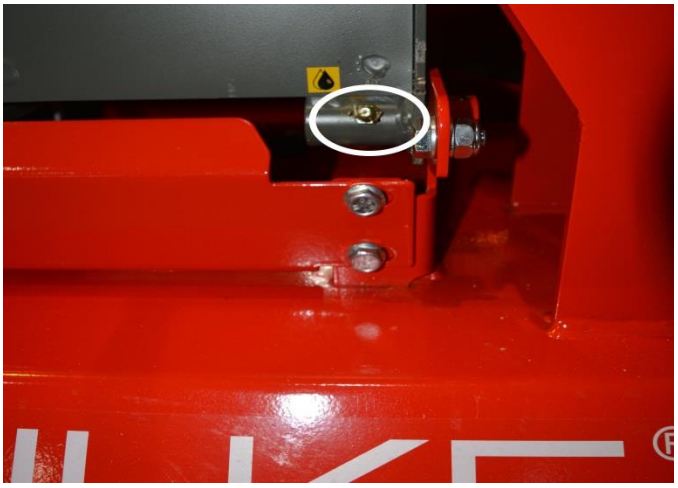


Figure 36.

Figure 37.

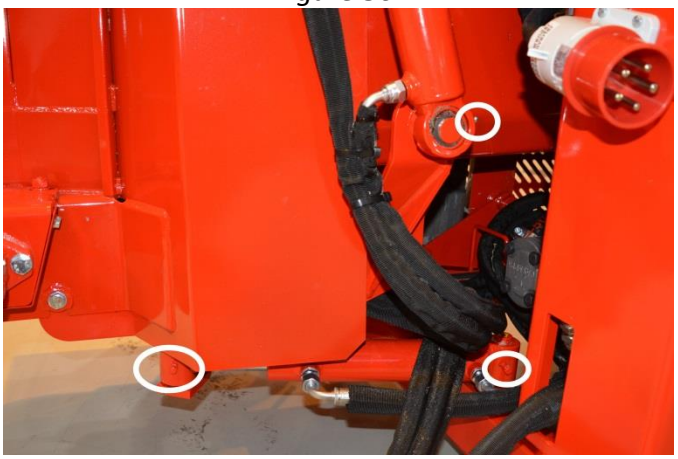


Figure 38.

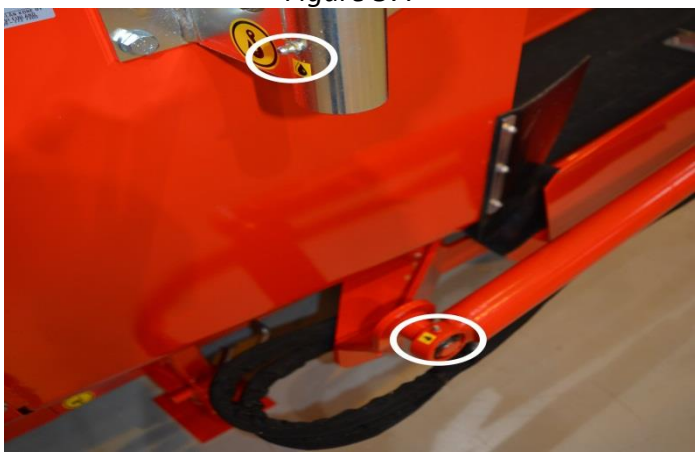


Figure 39.

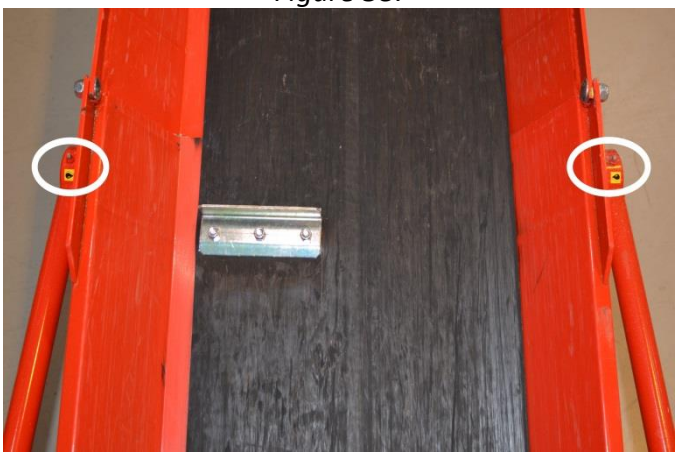


Figure 40.

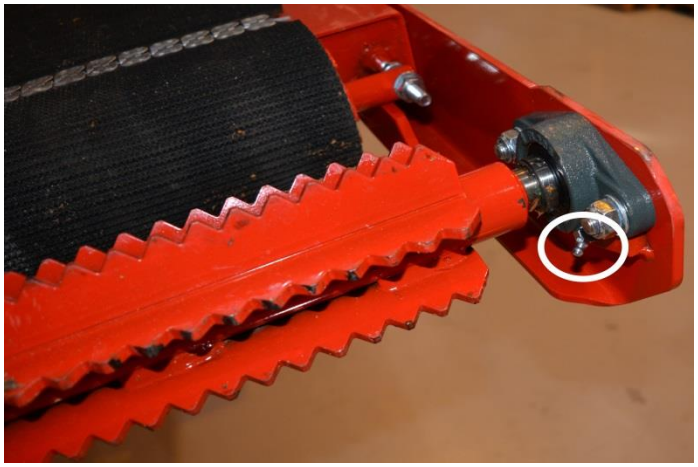


Figure 41.

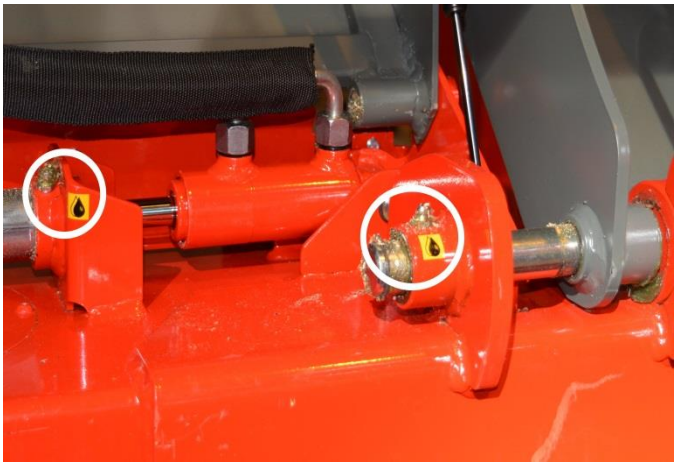


Figure 42.

Figure 43.

Figure 44.

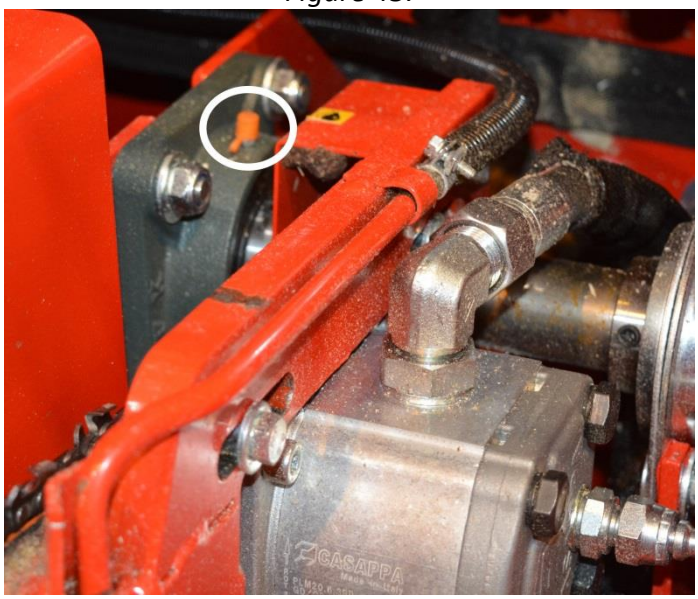


Figure 45.

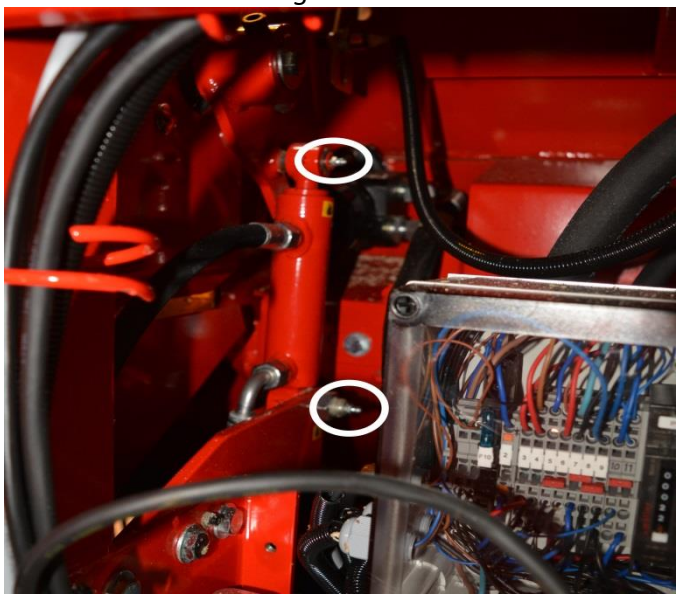


Figure 46.

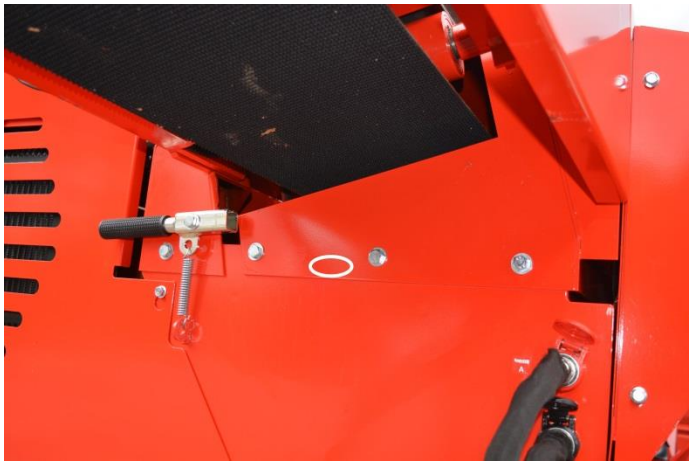


Figure 47.

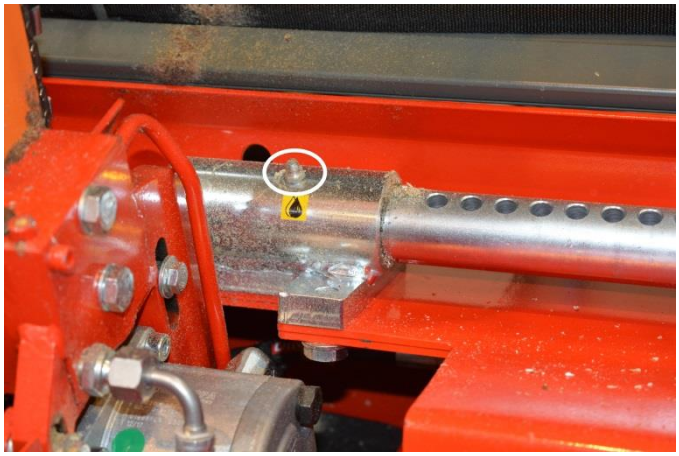


Figure 48.

5.6. Saw chain lubrication

The saw chain is automatically lubricated whenever it rotates. In other words, oil is fed to the saw chain hydraulically from the tank with a controlled pump, and the pumping motion occurs when the saw begins to run. You can adjust the amount of saw chain oil fed to the chain with the help of hex socket screw A (Figure 49), i.e. the amount of oil decreases when the screw is tightened and vice versa.

The factory setting for screw A (Figure 49) is 4 turns towards the open position from the closed position. Increase or decrease the amount as necessary according to the size and type of wood, air temperature and type of oil.

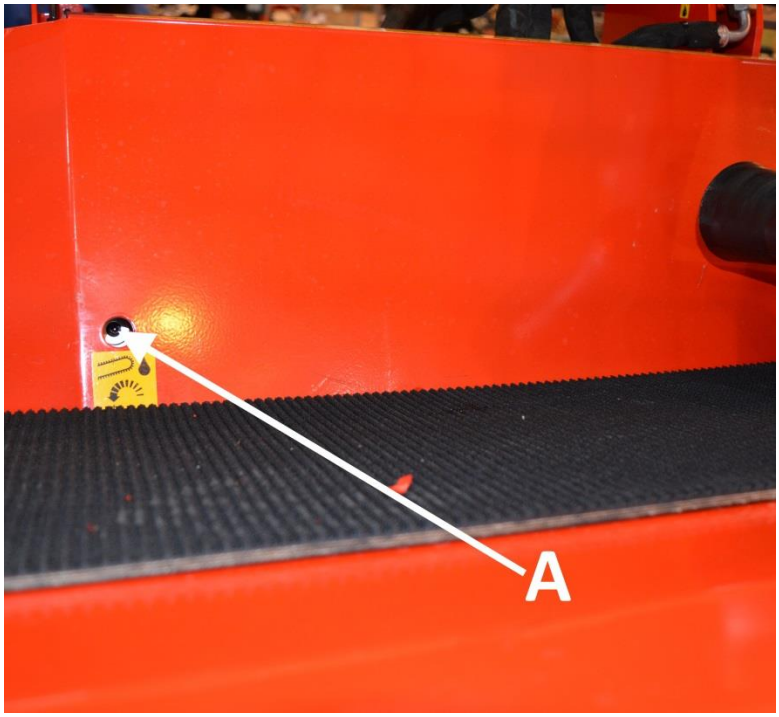


Figure 49.

Before starting, always check that oil is fed to the chain by rotating the chain without sawing wood.
You can monitor the oil level of the saw chain through sight glass C (Figure 50). When the oil level is below sight glass level (the glass is clear instead of the colour of oil), the saw chain oil must be immediately added through filler cap B.

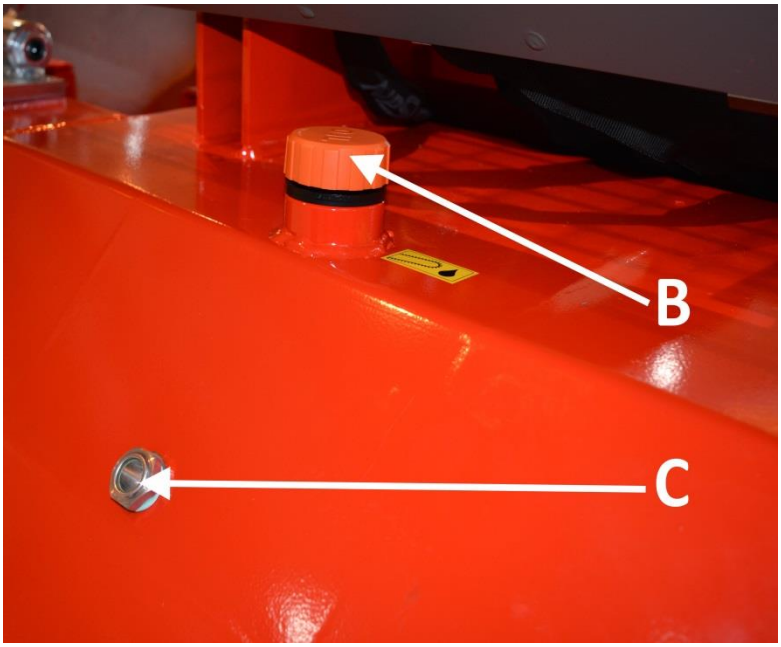


Figure 50.

Bleeding the air out of the saw chain oil lines:

Any possible air can be easily discharged from the system with a hydraulic pump. Remove hex socket screw A (Figure 47). Then pump the pump piston (under the screw) with a screwdriver, for example, until saw chain oil comes out of the base of the beam and there are no air bubbles in the hoses. Then fasten hex socket screw A back into place and adjust the saw chain oil volume with the help of the instructions in Section 5.6.

5.7. Solenoid and pressure regulating valves

The machine's cartridges have been adjusted to the correct settings at the factory. The firewood processor's guarantee is void if the factory settings are changed. If you need to change the settings for any reason, first contact the manufacturer or retailer and follow their instructions carefully. Changing the cartridge settings incorrectly may damage the machine or render it hazardous to operate. The relief valve settings can be changed as follows: loosen the locking nut and tighten or loosen the hex socket screw as needed (when the screw is tightened, the pressure increases and vice versa). Finally, tighten the locking nut.

Hakki Pilke 50 Pro's solenoid valves are presented in Figure 51.

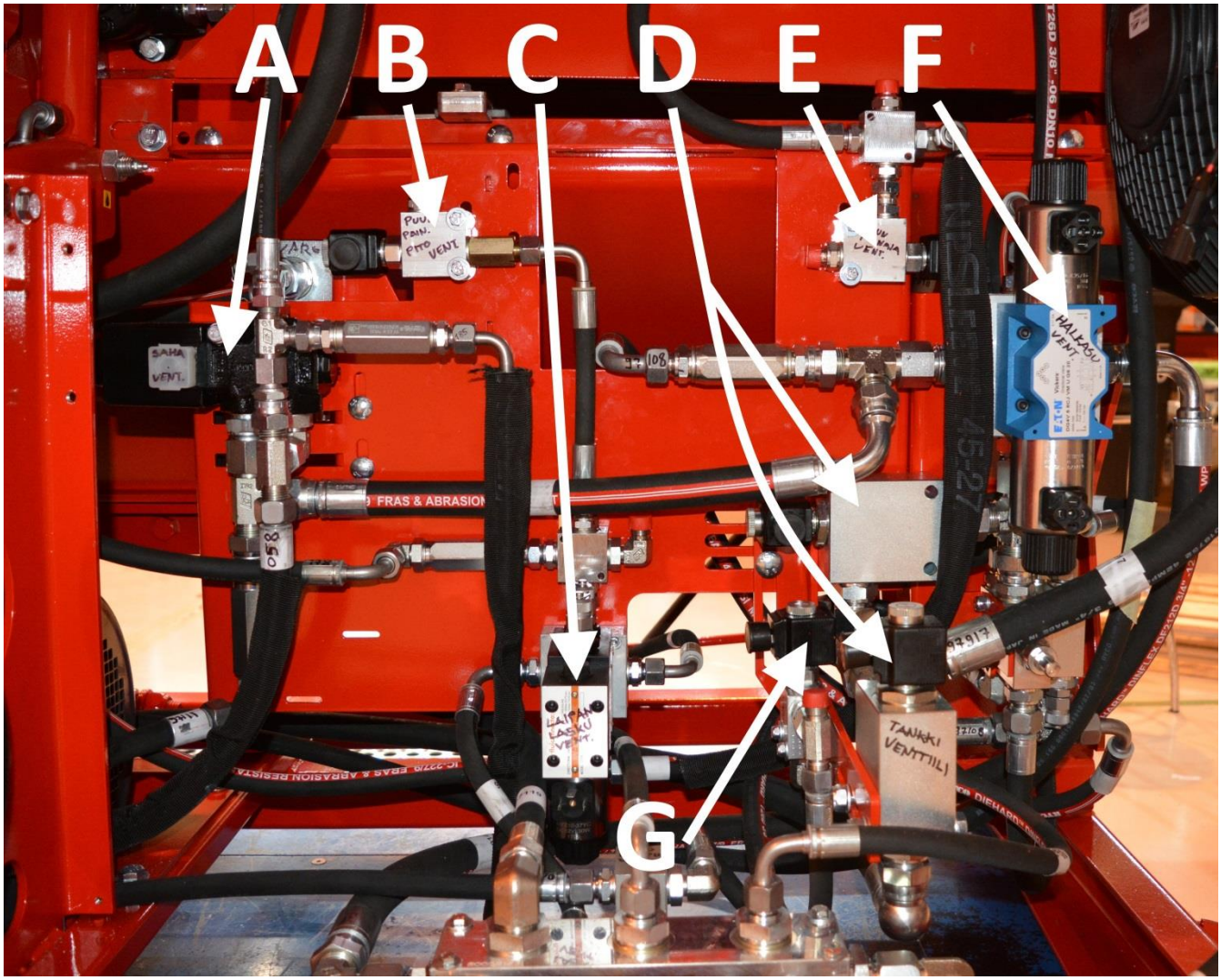


Figure 51

A. Saw control valve (saw chain on/off).
B. Log press retainer valve.
C. Saw bar control valve (bar up/down). Also controls the wood measuring device and log press (lowering motion).
D. Return oil control valve.
E. Log press control valve (lifting motion).
F. Splitting valve (controls the splitting cylinder forwards/backwards).
G. In-feed conveyor stop valve (in-feed conveyor does not run forwards until the saw bar is fully in the raised position).

Other valves of the machine are presented in Figures 52–54.

H. Relief valve of the small hydraulic pump (250 bar).

I. Relief valve of the large hydraulic pump (200 bar).

J. Booster valve. Correct adjustment value: the hex socket screw is **approx. 9.5 mm** visible in relation to its head (under a protective cup).

K. Speed valve. Correct adjustment value: the hex socket screw is **approx. 7.5 mm** visible in relation to its head (under a protective cup).

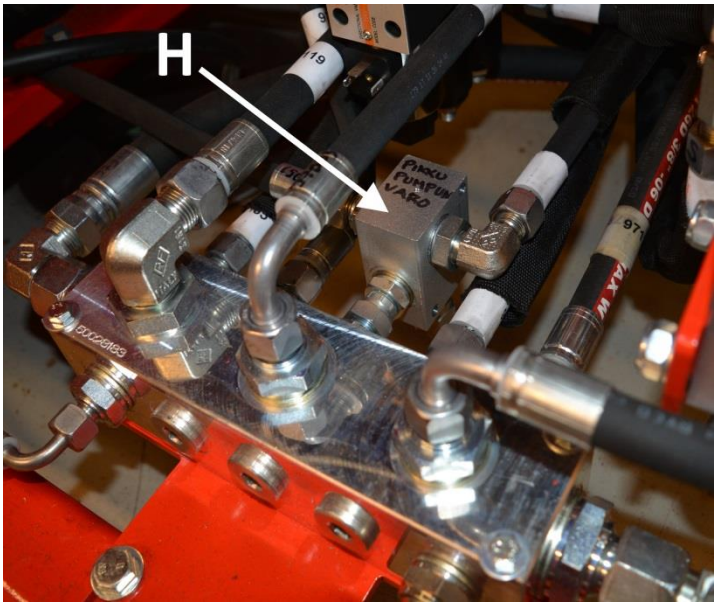


Figure 52.

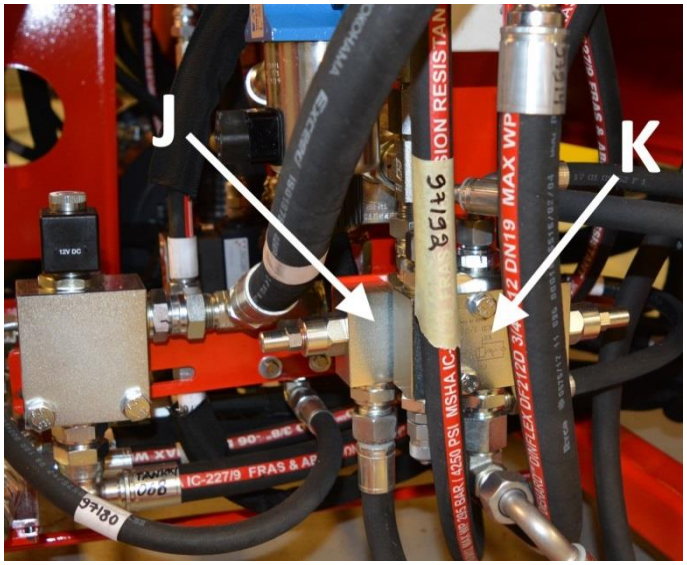


Figure 53.

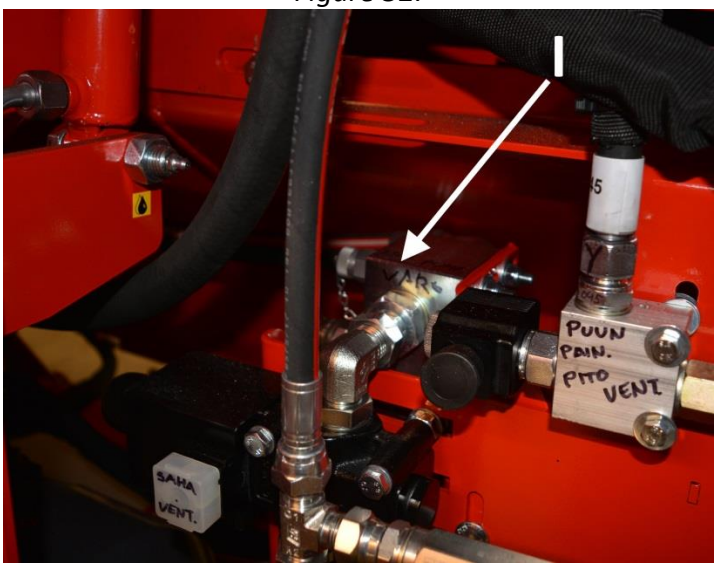


Figure 54.

5.8. Guard mesh safety device

The safety device connected to the guard mesh is located behind the relay housing (Figure 55, item A). The easiest way to access the safety device is to detach the machine's rear guard and removing the screws circled in Figure 55.

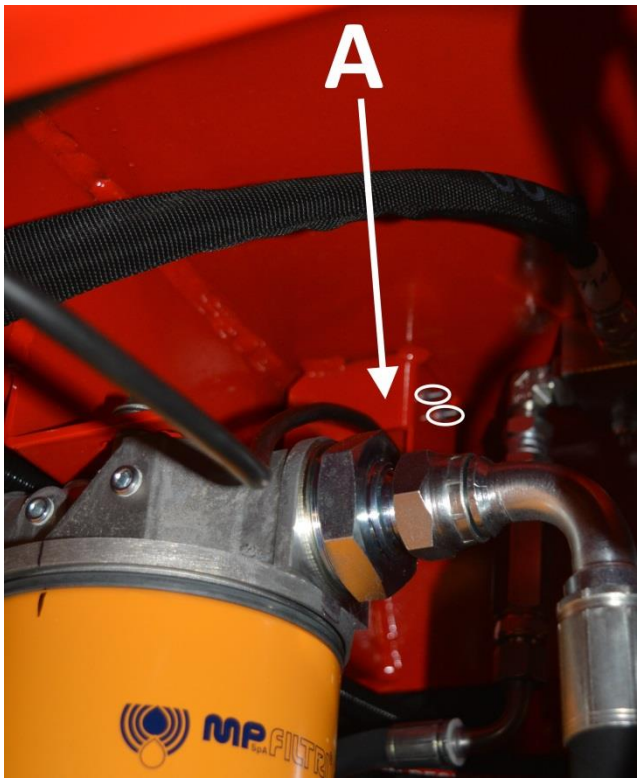


Figure 55.

The safety device operates as follows:

1. When the head of bolt B presses the safety sensor switch C to the lower position (Figure 56), the electrically controlled functions, such as sawing and splitting, are operational.

2. When the head of bolt B is raised slightly when the guard is opened (approx. 5 mm), all electrically controlled functions (splitting and sawing) stop working.

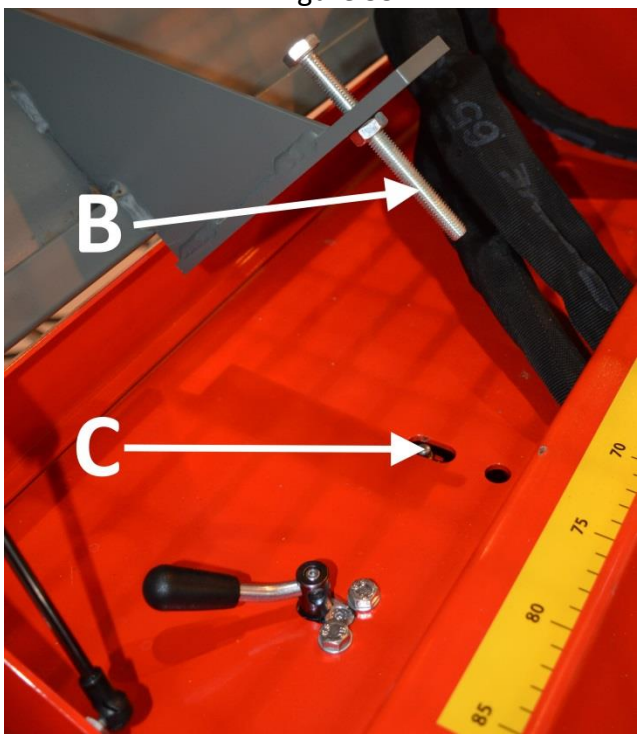


Figure 56.

5.9. Washing and cleaning

Any loose dirt and sawdust can be removed from the machine with pressurised air, for example. The machine can also be washed with a high-pressure washer as long as the water jet is not aimed directly at the bearings or electrical equipment.

Always ensure that the machine and the working area are sufficiently clean during operation. The machine must always be cleaned after use. Clean the machine at suitable intervals and always before storing the machine for a prolonged time. After washing, the firewood processor must be lubricated according to the instructions in Section 6.

5.10. Storage

Although the machine is intended for outdoor use, it should be covered and stored in a sheltered location or indoors. Before prolonged storage, the machine must first be cleaned, then washed according to the instructions in Section 9 and lubricated according to Section 6.

Note! The out-feed conveyor belt may shrink and tighten while in storage due to humidity. For this reason, the out-feed conveyor must be folded into the transport position while the machine is in storage.

5.11. **Maintenance table**

Item	**Task**	**Daily**	**Interval 100 h**	**Interval 500 h**	**Substance/accessory item**
Multiplier gear oil	Check 1st change Subsequent		X X	 X	SAE 80/90. 0.34 l
Hydraulic oil Normal conditions	Check 1st change Subsequent	X	 X	 X	Amount approx. 125 l For example ISO VG 32
Oil filter	Always when changing oil				Number: 97348 13921107005357
All levers	Lubrication		X		Lubrication oil
Saw bar	Check	X			20” 1.6 mm
Saw blade	Sharpen as necessary				0.404” 72 vl /1.6 mm
Machine	Clean Wash as necessary	X			
Electric motor	Cleaning	X			
Electrical equipment	Cleaning	X			
Winch and strap	Check	X			
Grease nipples	Lubrication	According to Section 6			
Splitting beam (inside the machine)	Cleaning as necessary		X		

5.12. Failures and remedial measures

Failure	Cause	Remedial measure
The splitting force is insufficient to split the log.	1. The log/splitting blade is in an incorrect position. 2. The splitting force is not great enough. **3. Pressure boost ends.**	1. Fix the position of the log/splitting blade. 2. Contact the retailer. **3. Return the splitting to the starting position and restart.**
The in-feed conveyor belt does not move.	1. The belt is too loose.	1. Tension the belt according to the instructions in Section 5.4.1.
The out-feed conveyor belt does not move	1. The belt is too loose (the lower drive roller moves). 2. The lower drive roller is jammed and does not move.	1. Tighten the belt according to the instructions in Section 4.4. 2. Disconnect the machine from the power source and remove the obstruction.
The saw chain does not properly sink into the wood.	1. The saw chain is dull or cuts to the side. 2. The saw bar is crooked. 3. The saw chain is not supplied with sufficient oil.	1. Sharpen or replace the saw chain. 2. File the bar to make it straight. 3. Increase oil feed.
The machine starts but none of the functions work. The machine makes an abnormal noise.	The electric motor runs in the wrong direction.	See Section 3.2.2.
The electric motor does not start.	1. The machine makes a loud noise but does not start. 2. The thermal relay has tripped. 3. Starter fuse triggered. 4. The input cable is faulty.	1. The gear fuse has blown. Replace it. 2. Reset the thermal relay with the starter's stop button. 3. Disconnect from the power source and check the starter relay. 4. Replace the cable.
The electric motor tends to stop, and the thermal relay is easily triggered.	1. The thermal relay is broken or incorrectly adjusted. Some other problem?	1. Contact the retailer.
The cutting or splitting function does not work.	1. The machine guard is open.	1. Close the guard completely.
The sawdust blower is jammed.	1. There is a chip or obstruction in the sawdust blower.	1. Clean the blower's motor.
The machine's electrical control does not work or works unreliably (sawing button, splitting button)	1. In a PTO machine, the 12 V plug is not connected to the tractor (in an electrical model, the 12 V plug is not connected to the machine) 2. Guard open or sensor fault 3. Connection or grounding fault in the tractor. 4. Burnt fuse in the 12 V relay box.	1. Connect plug. See Section 3.2.1 or 3.2.2 2. Fully lower the guard and check sensor operation (Figure 56). 3. Check the connections 4. Determine the cause of the burnt fuse, and replace the fuse after repairs.
The saw bar is not lowered fully when the cutting button is pressed.	1. Saw dust or debris under the saw drive end	1. Clean

6. Guarantee terms

“Guarantee terms come into force when you register as a customer on the extranet service on our website.”

The guarantee is valid for the original buyer for 12 months, starting from the date of purchase, but for no more than 1,000 operating hours.
In guarantee matters, always contact the machine’s seller before undertaking any procedures.

A guarantee claim must be issued to the seller in writing **immediately** upon discovery of a defect. If the defect concerns a damaged part or component, please send a photograph of the damaged part or component to the seller, if possible, so the fault can be identified. When submitting a guarantee claim, the buyer must always include the type and serial number of the machine in the claim and present a receipt that includes the date of purchase. Guarantee claims must be submitted to an authorised retailer.

The guarantee covers

- Parts damaged in normal use due to faults in the material or workmanship.
- Reasonable repair expenses in accordance with the agreement between the seller or buyer and the manufacturer. Faulty parts will be replaced with new ones. A faulty part or parts replaced due to a material fault must be returned to the manufacturer via the retailer.

The guarantee does not cover

- Damage caused by normal wear and tear (such as blades and belts), improper use or use contrary to the instruction manual.
- Damage caused by negligence of maintenance or storage procedures detailed in the instruction manual.
- Damage caused during transport.
- Cutting blades, V-belts and oil as well as normal adjustment, care, maintenance or cleaning procedures.
- Defects in a machine to which the buyer has carried out or commissioned structural or functional changes, to the degree that the machine can no longer be considered equivalent to the original machine.
- Other potential costs or financial obligations resulting from the procedures mentioned
- above.
- Indirect costs.
- Travel costs resulting from guarantee repairs.
- The guarantee for parts replaced during the guarantee period of the machine expires at the same time as the machine’s guarantee.
- The guarantee is void if the ownership of the machine is transferred to a third party during the guarantee period.
- The guarantee is void if any of the machine’s seals have been broken.

If a fault or defect reported by the customer is found not to be covered by the guarantee, the manufacturer has the right to charge the customer for the troubleshooting and possible repair of the fault or defect in accordance with the manufacturer's current price list.

This guarantee certificate indicates our responsibilities and obligations in full and excludes all other responsibilities.

7. EC Declaration of Conformity for the machine

(Machinery Directive 2006/42/EC, Appendix II A)

Manufacturer: Maaselän Kone Oy
Address: Valimotie 1, FI-85800 Haapajärvi, Finland

Name and address of the person who is authorised to compile the technical file:

Name: Timo Jussila Address: Valimotie 1, FI-85800 Haapajärvi, Finland

The aforementioned person assures that

Hakki Pilke 50 Pro firewood processor Serial number: ……

- is compliant with the applicable regulations of the Machinery Directive (2006/42/EC).

Location and date: Haapajärvi, 18 May 2018

Signature: 

Anssi Westerlund
Managing Director