

# Instruction manual

# Palax Active

Powered by tractor  
Powered by electric motor  
Powered by combustion engine



Serial number

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Year of manufacture

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PALAX  
Lahdentie 9  
FI-61400 Ylistaro, FINLAND  
Tel. +358 6 4745100  
Fax. +358 6 4740790  
[www.palax.fi](http://www.palax.fi)

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# 1. Overview

## 1.1. Foreword

This manual is intended for instructing you to operate the machine safely. The operator must have usual general knowledge and skills. For example, the buyer of a tractor-powered machine is expected to master the use of PTO shaft transmission.

Before the installation and operation, the operator of the machine must become thoroughly familiar with the contents of the manual. The operator is also obliged to gain familiarity with the operating controls of the machine and the emergency stop mechanism. For more information about our products, please visit our website at [www.palax.fi](http://www.palax.fi).

Register at <https://info.palax.fi> to ensure that you at all times have the most recent information about your machine at your disposal.

**NOTE ! Keep this manual with the machine at all times.**

## 1.2.EU Declaration of Conformity

Directive 2006/42/EC

Manufacturer: Ylistaron Terästäkomo Oy  
 www.palax.fi  
 Lahdentie 9  
 FI-61400 Ylistaro  
 Finland  
 +358 6 474 5100

The person in charge of Technical Construction File: Kai Koskela, kai.koskela@palax.fi

Product: Palax Active is a firewood processor equipped with either a 2.6-m discharge conveyor or a 0.7-m out-take trough.

Powered by: hydraulic system of the tractor, tractor PTO, electric motor, combustion engine

Models:	TR/TR	Tractor-powered by tractor's hydraulics
	TR/OHD	Powered by tractor equipped with own hydraulic system
	SM	Powered by electric motor
	PM	Powered by combustion engine

Serial number: \_\_\_\_\_

We hereby certify that the machine meets the requirements of the Government Decree 12.6.2008/400 on safety of machinery through which the Machine Directive 2006/42/EC has been put into effect, and that during the manufacturing process the following harmonized standards have been applied.

SFS-HANDBOOK93-series, SFS-EN 349-1+A1, SFS-EN 609-1+A1, SFS-EN 618, SFS-EN 620, SFS-EN 953+A1, SFS-EN 954-1, SFS-EN 982+A1, SFS-EN 4254-1, SFS-EN 11684, SFS-EN 12100-1+A1, SFS-EN 12100-2, SFS-EN 13850, SFS-EN 13857, SFS-EN 14121-1, SFS-EN 14121-2 SFS-EN 60204-1+A1, SFS-EN 13849.

Ylistaron Terästäkomo Oy  
 1.6.2020

Jori Lammi  
 Managing Director

### 1.3. Intended use of the machine









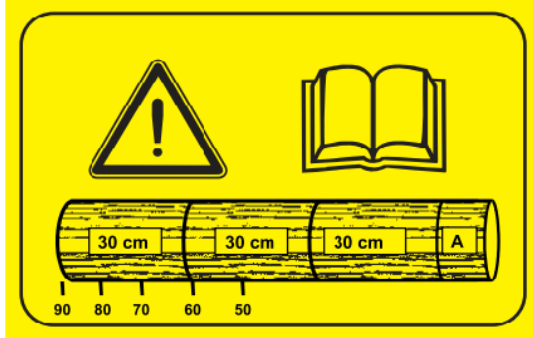

This firewood processor is intended to be used for production of firewood from round timber. Use of the machine for any other purposes is prohibited.

#### Maximum size of the wood

- ❑ For cutting, the maximum diameter of the tree is about 27 cm.
- ❑ The maximum length of the log is 3m.
- ❑ When handling long trees, we recommend using a specific log-stand with rollers.

### 1.4. Warning signs

	Read the instruction manual		
	Beware of the moving saw-bar	Permissible revolutions range of the PTO shaft	Limitation of the hydraulic pump flow in the TR/TR model
	Wear protective clothing		
	Use eye guards and hearing protectors	Opening the safety net stops the operation of the machine	Direction of rotation of the motor
	Wear safety shoes		
		Lifting point	Lifting point for forklift truck

 <p><b>Adjusting the chain oil flow</b></p>	 <p><b>Launch of splitting. Cutting Stop Feeding</b></p>		
 <p><b>Saw-chain oil tank</b></p>	 <p><b>Disconnect the machine from the power source before servicing</b></p>	 <p><b>The machine may only be operated by one person</b></p>	 <p><b>Risk of getting squashed</b></p>
 <p><b>Beware of the PTO shaft</b></p>	 <p><b>The danger zone around the conveyor is 5 metres</b></p>  <p><b>See instructions for cutting the last billet in the manual</b></p>		 <p><b>Maximum speed of the towable platform</b></p>



## 1.5.Nameplates

### Nameplate on the machine

- ❑ The name and address of the manufacturer
- ❑ Designation of the machine type
- ❑ Serial number and year of manufacture
- ❑ Total weight of the machine
- ❑ The plate is located at the same end of the machine as the in-feed deck.

When ordering spare parts, always mention the serial number and year of manufacture.



### Nameplates on the electric drive

- ❑ 3-phase motor
- ❑ Voltage 230/380 V.
- ❑ Output 4 kW, current 16 A.

The plate is located in the connecting box of the electric motor.



## 1.6. The main dimensions and models of the machine

Dimensions of the machine in the transport position without the discharge conveyor/out-take trough.

Item	TR/TR	TR/OHD	SM	PM
Output	-	-	4 kW	13 hp
Fuse size	-	-	16 A	-
Weight	382 kg	395 kg	408 kg	408 kg
Height/width/length cm (in the transport position), with legs	168x100x185	168x100x185	168x85x185	168x116x185
Height/width/length cm (in the transport position), with light platform	-	-	171x111x292	171x111x292
Height/width/length cm (in the transport position), with platform requiring registering	-	-	173x166x292	173x166x292
Out-take trough: length +48 cm Conveyor: length with platform +55cm, without platform +75cm, height +25cm.				
Saw-bar length	13"			
Saw-chain	Gauge 1,3 mm; pitch 0,325"; 56 links			
Max. diameter of the log	27 cm			
Max. length of the log to be split	40cm			
<ul style="list-style-type: none"> <li>❑ The 0.7-m-long out-take trough is a standard feature. Weight of trough 22 kg</li> <li>❑ The 2.6-m-long discharge conveyor is available as an option. Weight of conveyor 75 kg</li> <li>❑ A light transport platform is available as an option. Weight PM, conveyor and platform 490kg</li> <li>❑ A transport platform that requires registering is available as an option. Weight PM, conveyor and platform 500kg</li> </ul>				

## 1.7.Safety instructions

### General regulations and restrictions

- ❑ The maximum length of log that can be cut without a log-stand is 3 metres.
- ❑ The machine is exclusively intended for the production of firewood.
- ❑ The machine may only be operated by one person.
- ❑ The danger zone around the conveyor/out-take trough is 5 metres to the sides and away from the conveyor.
- ❑ Always lift and lock the in-feed deck and the conveyor/out-take trough in the transport position for transportation.
- ❑ Never remove any safety-related devices from the machine.
- ❑ The transport width of the TR model is 2.37 m (with a 2.6-m conveyor).

### The operator

- ❑ Only persons over 18 years of age are allowed to operate this machine.
- ❑ Every person operating the machine, must thoroughly study the entire user manual.
- ❑ Always use eye guards and hearing protectors.
- ❑ Always wear protective shoes.
- ❑ Always wear work gloves.
- ❑ Do not wear loosely-fitting clothing.

### Before use

- ❑ Always carry out the required preparations on both the machine and the conveyor/out-take trough before starting the machine.
- ❑ Make sure that all other people stay outside the operating range.
- ❑ Only use a fault-free PTO shaft and attach the chain for the shaft-guard. The permissible revolutions range of the PTO shaft is 400–450 r.p.m.
- ❑ Only operate the machine on a sufficiently firm and level surface.
- ❑ Only operate the machine in an adequately lit space.
- ❑ Keep the tractor-powered machine hitched to the tractor. Ensure that sufficient space is provided for the PTO shaft and its guard.
- ❑ Always check that all the covers are intact and properly fastened.
- ❑ Always ensure that the saw-chain is in perfect condition.
- ❑ Always ensure that the electric conductors are intact.
- ❑ Always check that all the controls are operational.
- ❑ Always check the oil level and make sure that the hydraulic hoses and components are free of damage.
- ❑ Before starting the work, make sure that the machine is firmly in position.

### During operation

- ❑ Carelessness during the cut-off operation constitutes a major hazard!
- ❑ During the cut-off operation, make sure that the log is always supported by the rear part of the in-feed deck and the in-feed deck. Danger of rolling over!
- ❑ Exercise particular caution when cutting knotty or crooked logs, because, as faulty cutting might roll the log over or twist the saw-bar with enough force to break it.
- ❑ Keep the working space clean and clear of foreign objects.
- ❑ Always stop the machine and disconnect the power supply cable or the PTO shaft before servicing.

- ❑ Only cut one log at a time.
- ❑ Danger! Stay away from moving parts.
- ❑ Never leave the machine unattended while it is running.

### **1.8.Noise emission and vibration**

- ❑ Equivalent continuous A-weighted sound-pressure level at the workstation is 89.5 dB (A) and the sound power level is 100.5 dB (A).
- ❑ The vibration emission values do not exceed the limit 2,5m/s<sup>2</sup>.

### **1.9.Responsibilities of the operator**

- ❑ The machine may only be used to produce firewood.
- ❑ All the safety-related devices are necessary to ensure a sufficient level of safety.
- ❑ The Palax Active is a very safe machine, provided that the instructions supplied are properly followed, the regular maintenance routines are duly executed, and the work is carried out without haste.
- ❑ It is the responsibility of the operator to ensure before the work is started that all the safety-related devices are in perfect order and the machine has been serviced in a due manner.
- ❑ The operator is responsible for ensuring that no one else is subjected to any danger.
- ❑ Modifying the construction of the machine is prohibited.
- ❑ The machine must never be operated under the influence of alcohol or drugs.
- ❑ As the operator, remember that you are responsible for any injuries caused if safety-related devices have been removed from the machine.

### **1.10.Operating conditions**

- ❑ Always place the machine on as level a surface as possible.
- ❑ Prevent risks, such as slipping in winter, by organising the work site in a due manner.
- ❑ When starting the machine in severe frost, allow it to idle at about 1/4 of the maximum speed for about 5 to 10 minutes in order to warm up the oil and make it less viscous.
- ❑ Only operate the machine in an adequately lit space.
- ❑ It is recommended that a suitable stand be purchased or made that enables the trees to be processed where the logs are ready at the level of the in-feed deck. Hence, unnecessary lifting may be avoided and the work can proceed much faster. We recommend using the Palax Log log-stand.
- ❑ The most suitable temperature range for operation is approximately - 20 to +30 degrees Centigrade. Otherwise, the weather conditions do not set any restrictions on the operation.
- ❑ Make sure that no other people, especially children, are present inside the operating range.
- ❑ Never use the machine indoors, owing to the risk of dust generation or the danger of exhaust gases.

### **1.11. Terms of warranty**

The warranty period runs for 12 months from the date of purchase.

**The parts that affect the safety or the adjustment of the machine are sealed. The seal must not be broken without the consent of the manufacturer or the dealer. Breaking the seal voids the warranty, and transfers the liability from the machine's manufacturer to the person, who broke the seal.**

#### **The warranty covers**

- ❑ Parts which have been damaged during normal operation of the machine due to any defects in material or workmanship.
- ❑ The reasonable repair cost as set forth in the agreement between the buyer and the manufacturer.
- ❑ A new part delivered as a replacement for the defective one.

#### **The warranty does not cover**

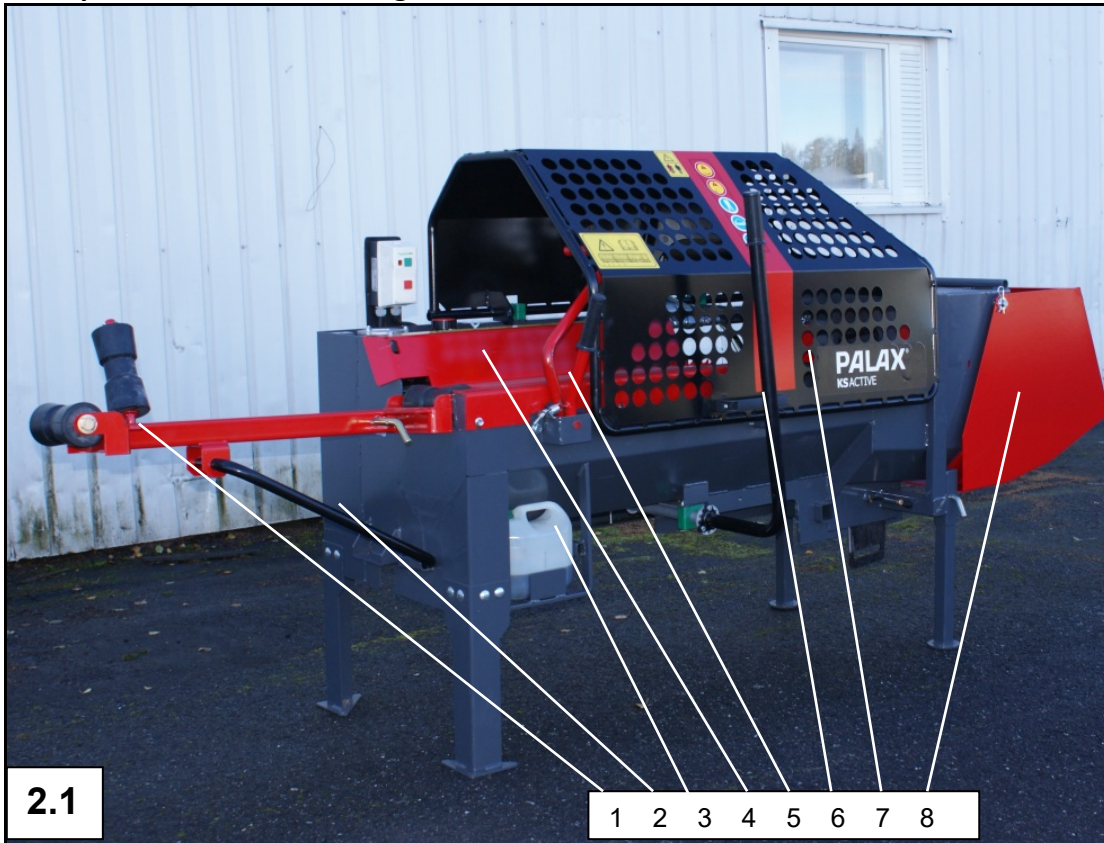
- ❑ Defects due to normal wear, faulty operation or negligent maintenance.
- ❑ The saw-bar, the drive wheel and the saw-chain are wear parts that are not covered by the warranty.
- ❑ Defects in the machine due to any modifications which the buyer has made or ordered from a third party and which have affected the machine in such a way that it can no longer be considered to correspond to its original configuration.
- ❑ Other possible expenses or financial claims due to the above-mentioned measures.
- ❑ Indirect expenses and/or travel costs incurred while making repairs under warranty.
- ❑ For parts changed during the warranty period, the warranty expires at the same time as the warranty period of the machine.

## 2. Acceptance and setting up the machine for operation

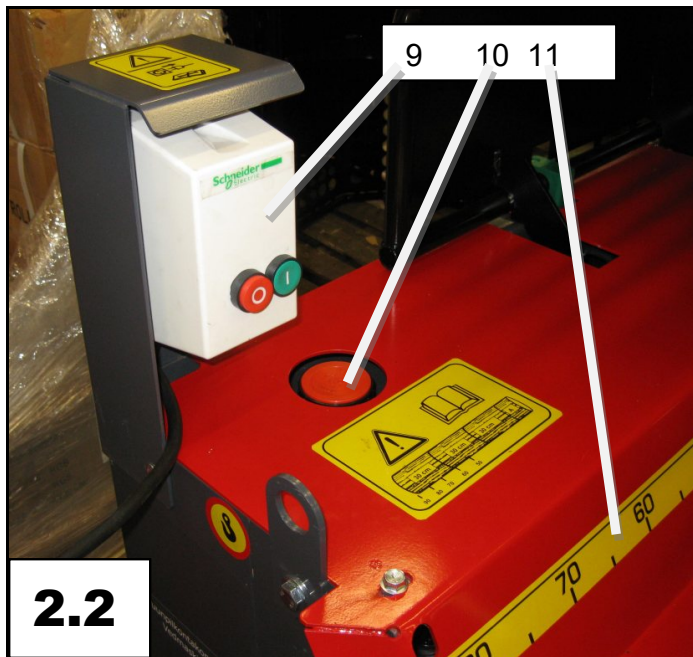
### 2.1.State of delivery and acceptance control

- ❑ The machine is delivered almost ready-assembled, adjusted and test driven.
- ❑ Check the delivered goods without delay.
- ❑ If the product shows transport damage, contact the transport company and your dealer immediately.

#### Main parts of the machine, Figs. 2.1, 2.2 and 2.3



- 1 In-feed deck extension
- 2 Leg for in-feed deck extension
- 3 Chain oil canister
- 4 In-feed deck
- 5 Log-clamp
- 6 Operating lever
- 7 Protective net
- 8 Out-take trough



- 9 Starter box for electric drive
- 10 Hydraulic oil tank cap
- 11 Sticker that indicates the distance to the crosscut saw

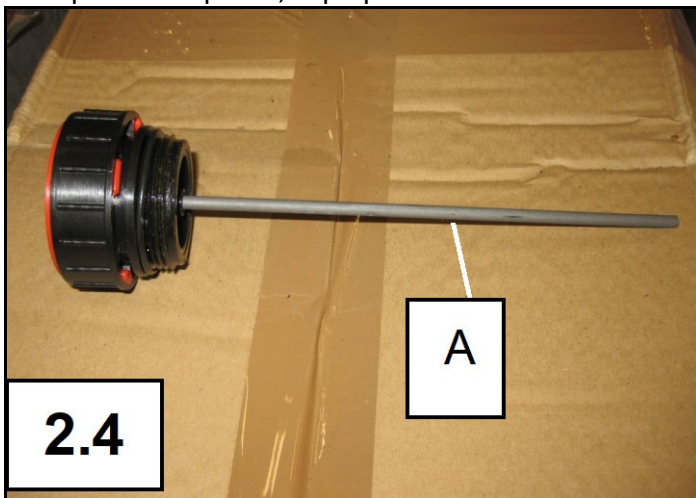


- 12 14 Lifting triangle for tractor-driven machine
- 13 15 Exit opening for sawdust
- 14 Attachment pin of the PTO shaft
- 15 Protective cover for the PTO drive
- 16 Rear leg
- 17 Drawbar of the lifting triangle



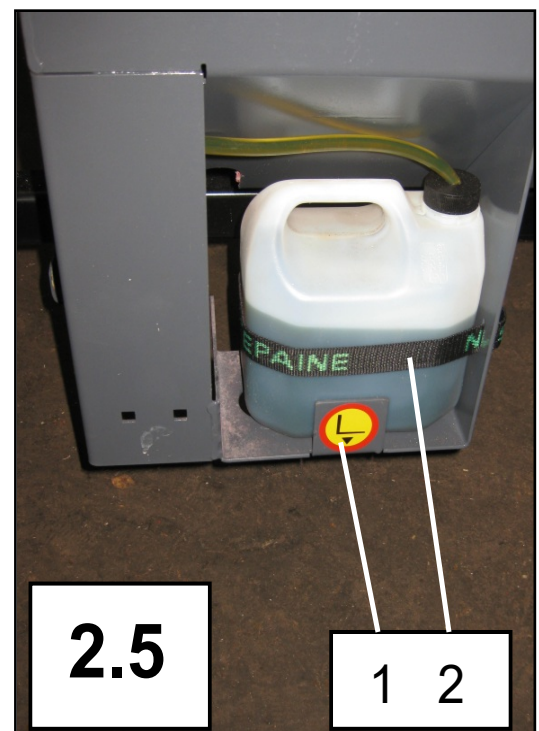
## 2.2. Topping up hydraulic oil

- ❑ The hydraulic oil volume is 28 litres.
- ❑ Filling cap for hydraulic oil, Fig. 2.2 part 12.
- ❑ The oil should be Unavis 32, Shell Tellus 32, NESTE HYDRAULI 32 or of equivalent quality.
- ❑ Only use fresh, clean oil, because smooth operation of the machine is highly dependent on the purity of the oil.
- ❑ Check the oil level regularly by means of the dipstick of the filling cap. Fig. 2.4 A. If the oil level is lower than the tip of the dipstick, top up the oil in the tank.



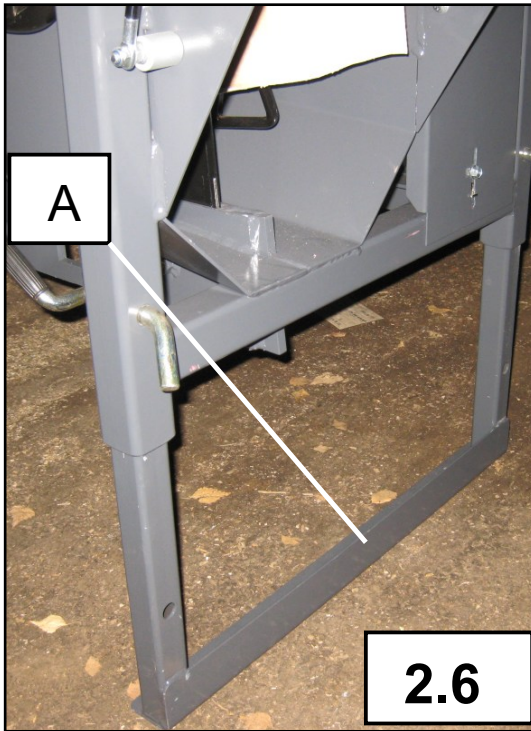
## 2.3. Checking and topping up saw-chain oil

- ❑ Regularly check the level of the saw-chain oil.
- ❑ Top up the oil, as necessary. The canister 2 should always be filled with oil at least to a third.
- ❑ The bottom of the saw-chain oil canister 1, also makes a lifting point for a forklift truck.

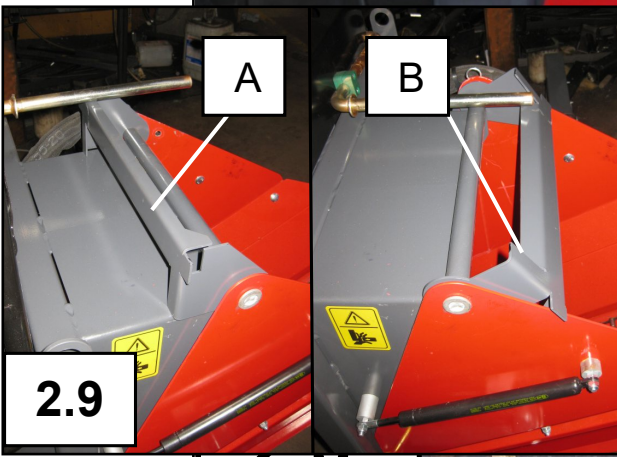
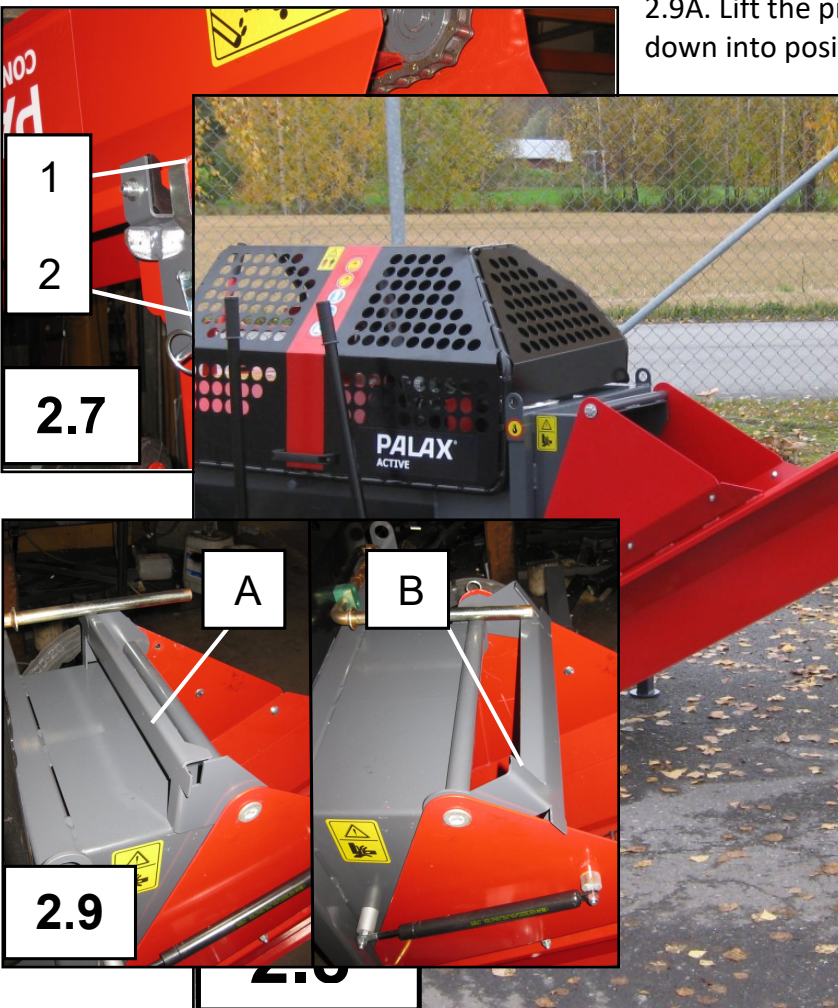




## 2.4. Bringing the conveyor into the work position

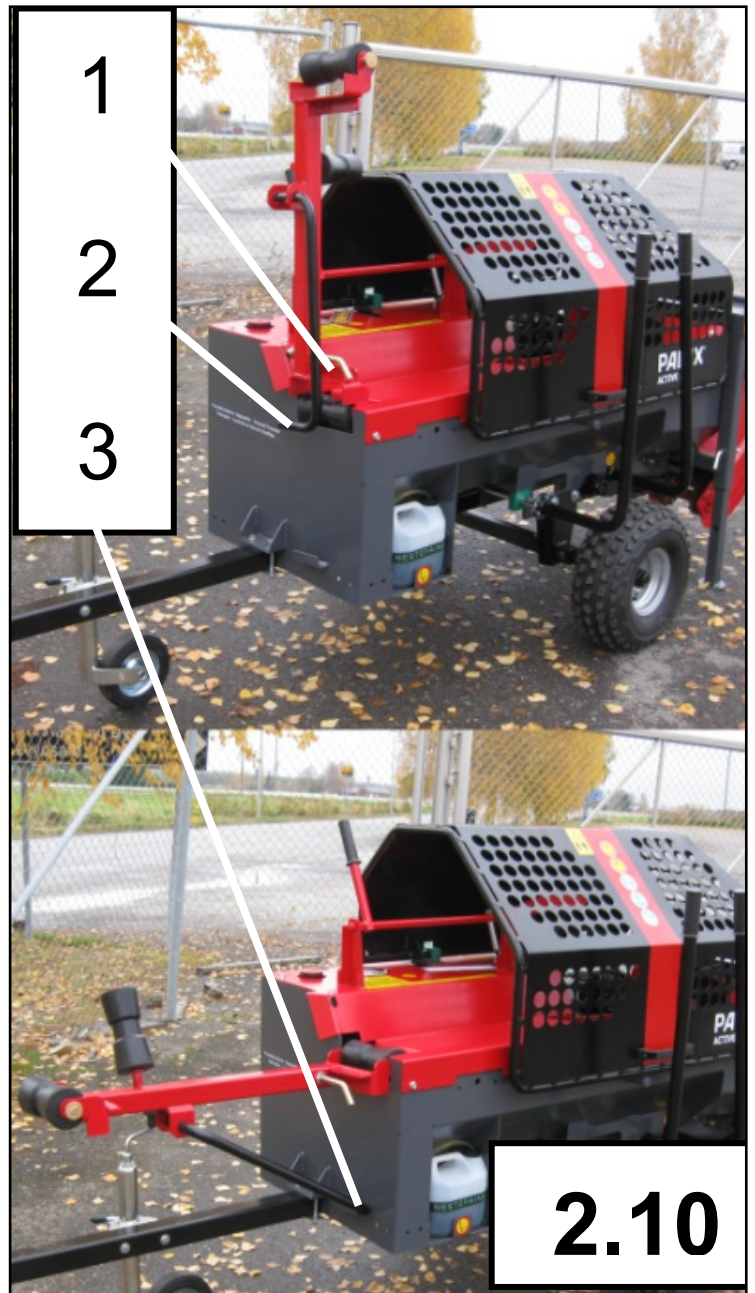


- ❑ Lower the support leg at the rear part of the machine (on the splitting side), Fig. 2.6 A. Make sure that the leg is standing on a hard and even surface.
- ❑ Remove the locking cotter for the conveyor support, Fig 2.7 2, and open the latch.
- ❑ Turn the attachment hook, Fig. 2.7 1, away from the edge of the conveyor.
- ❑ Bring the discharge conveyor into the work position by holding it all the time. Be careful not to allow the conveyor to fall down too quickly. Fig. 2.8
- ❑ The iron, that prevents the discharge conveyor from starting, remains in its upper position, leaving the protective net slightly ajar. This prevents the discharge conveyor from starting while in the transport position, Fig. 2.9A. Lift the protective net slightly, and turn the locking iron down into position B.



## 2.5. Bringing the extension table into the work position

- ❑ Pull the handle 1 of the locking device.
- ❑ Swing the extension table into the work position.
- ❑ When swinging the table into the work position, place the support leg 2 in the slot 3.

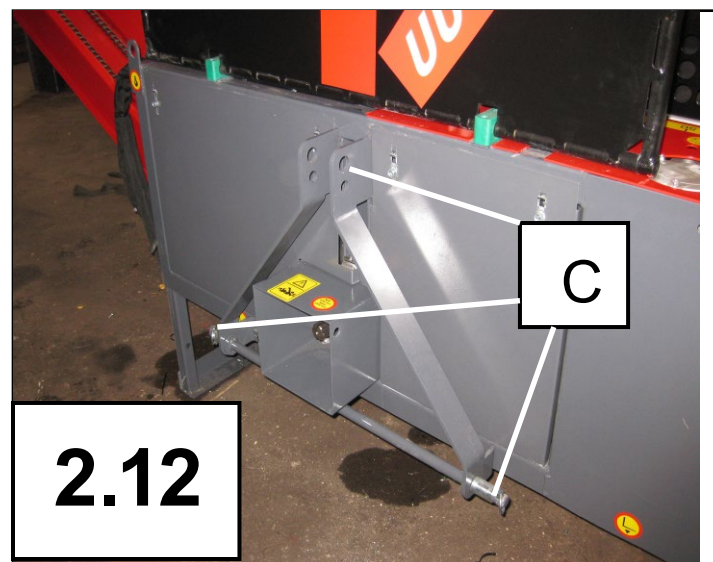
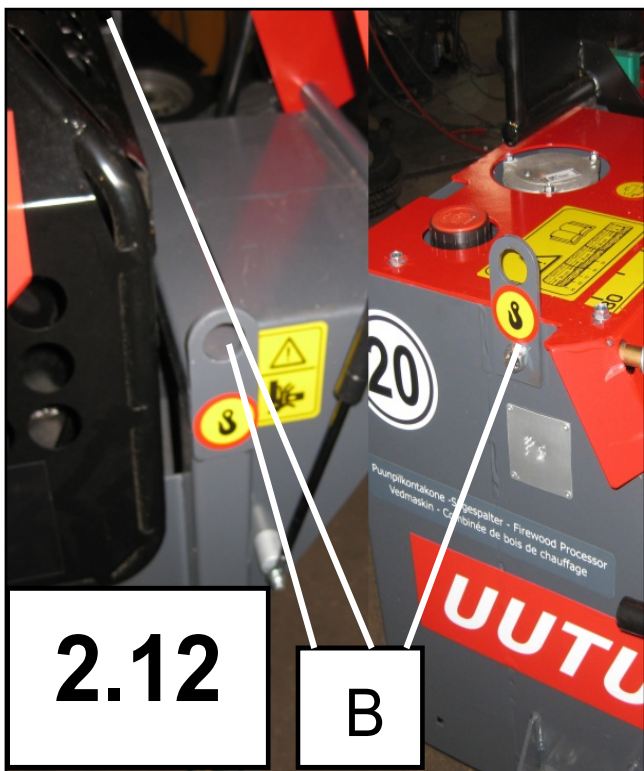
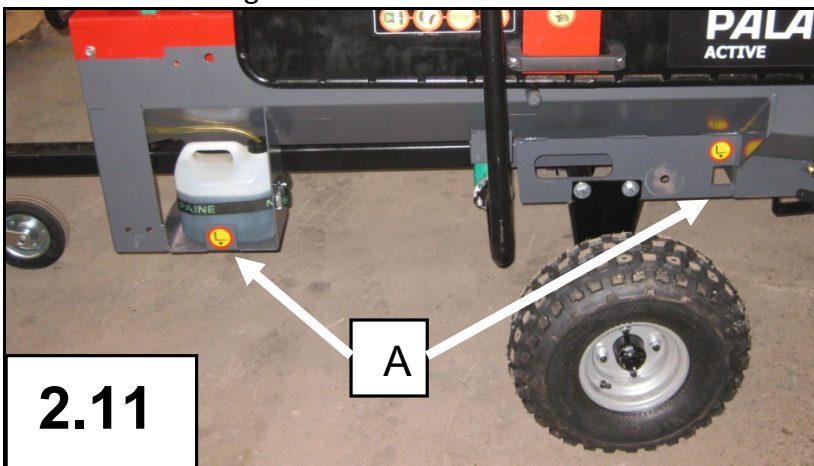




## 2.7. Lifting and transferring the machine

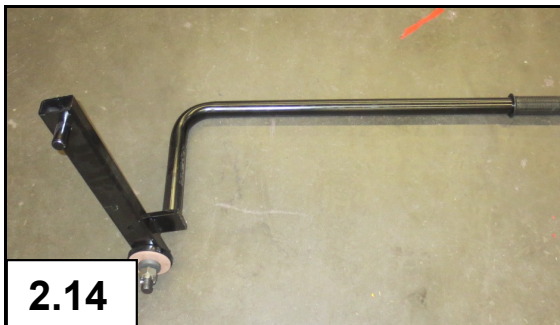
### Lifting the machine is allowed:

- ❑ With a forklift truck, by the lifting points A in the front and rear under the machine's frame.
- ❑ By means of hooks by the lifting points B at both ends of the frame.
- ❑ By tractor by the lifting triangle C of the three-point lift.
- ❑ When moving the machine by tractor, ensure that the tractor's transfer/lifting capacity is sufficient with respect to the machine's weight.

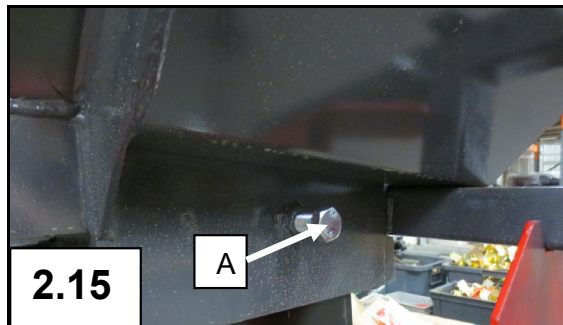


## 2.8.Height adjustment of splitting wedge (option)

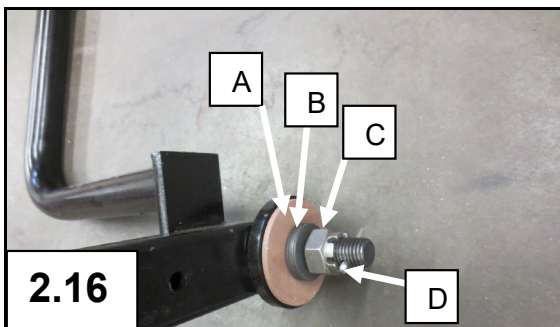
- The lever for adjusting the height is included in the delivery of the 2/4 splitting wedge. Fig. 2.7



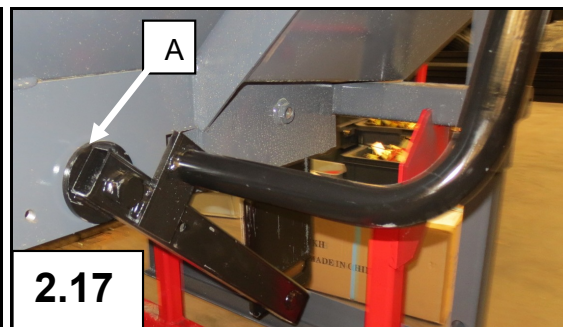
2.14



2.15

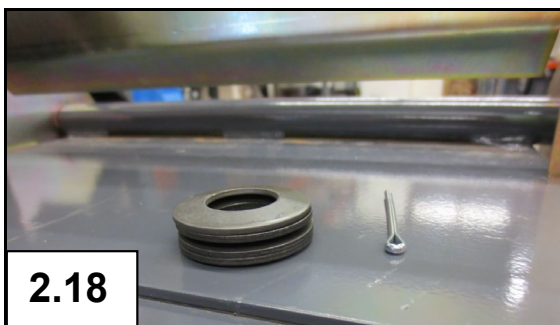


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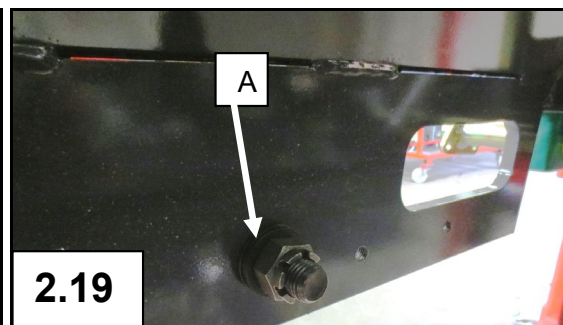


2.17

- Installing the lever: Remove the attachment screw of the splitting wedge and lift away the used wedge. Fig. 2.15. A. Parts of the lever, Fig. 2.16; Friction plate A, Spring washers B, Attachment nut C, Safety cotter D.
- Remove the cotter and twist open the nut; remove the spring washers. Lift the 2/4 wedge in place, and after this, install the height adjustment lever into position leaving the friction plate between the lever and the frame, Fig 2.17A. Place the pin at the end of the lever in the slot at the lower end of the splitting wedge.



2.18



2.19

- Place the spring washers face-to-face between the attachment screw of the adjustment lever and the frame before twisting the nut into position, as shown in Fig. 2.18. Wrench the nut suitably tight so that the splitting wedge will move when the lever is being pulled. After this, insert the cotter in the hole in the bolt.

### 3. Using the firewood processor, description of operation

#### 3.1. Transmission

- ❑ All actuators for the machine – including the in-feed roller, the discharge conveyor and the chain-saw – are equipped with hydraulic motors.
- ❑ The hydraulic pump of the tractor-driven machine is equipped with a gearbox and a PTO drive.
- ❑ In the electric-powered and combustion engine-powered machines, the pump is connected directly to the motor/engine.
- ❑ In the TR/TR model, the machine is driven by the tractor's own hydraulics.

#### 3.2. Setting up the machine for operation

- ❑ Place the firewood processor by the log-stand or the pile of logs to be split so that access and working with the machine is completely unobstructed. A suitable distance from the log-stand to the in-feed deck is about 1/4–1/3 of the length of the trunks.
- ❑ Set up the discharge conveyor and the extension table into the work position in accordance with the guidelines presented above.
- ❑ Before starting up, check the condition of the operating controls and the safety devices.
- ❑ Before starting up, always check the levels of the hydraulic oil and the chain oil.

#### 3.3. Testing the machine

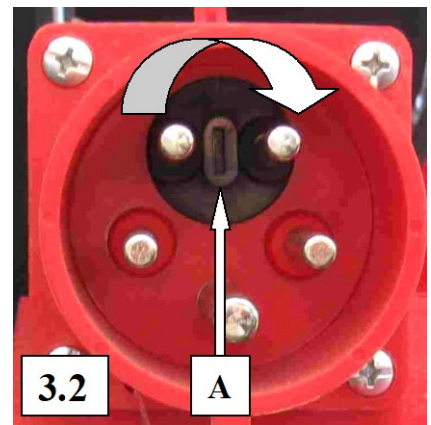
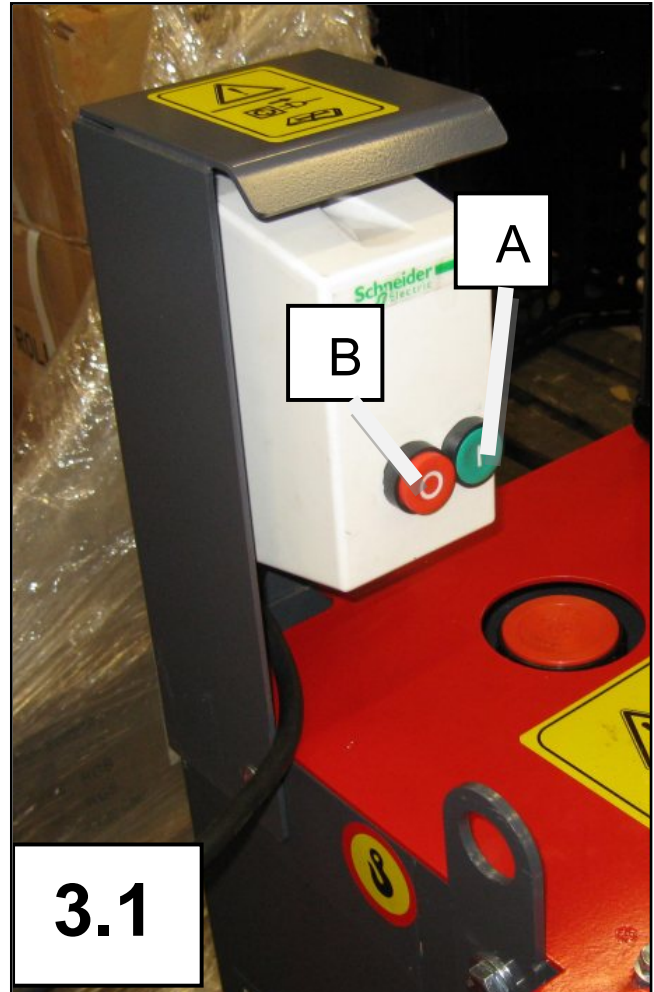
- ❑ When starting the machine in severe frost, allow it first to idle at low speed for about 5 minutes; this warms up the oil.
- ❑ While the motor is running, check that the hydraulic system and the controls for shutting off are operational.
- ❑ Test that the safety limit switches are operating when the cover is opened. The cutting or splitting operations of the machine cannot be launched with the cover open.
- ❑ Check the oil supply to the saw-chain. You may have to adjust the oil flow to the saw-chain, for example, if the oil is too cold or too warm.
- ❑ If you observe even a minor malfunction in the operation of the machine, find out the cause and repair it!
- ❑ The machine must always be tested before starting its use.

**NOTE ! Stop the machine and disengage the power take-off of the tractor or disconnect the power cord from the socket to locate and repair a possible fault in the machine! Turn the shut-down switch of the Honda engine of the PM model to position 0!**



### 3.4. Electric drive, start and emergency stop

- ❑ The power output of the motor is 4 kW and the speed is 1,500 r.p.m.
- ❑ All the electric installations have been made ready.
- ❑ The cross-section of the extension cable required for a tension of 400 V must be at least 2.5 mm<sup>2</sup>.
- ❑ The IP class of the machine is 55.
- ❑ The machine may only be connected to a power supply equipped with a fault current switch of 30 mA.
- ❑ The machine requires a 5-pole extension cable (L1, L2, L3, N and PE) to operate.
- ❑ To start the machine, press the green start button on the starter box, Fig. 3.1 A.
- ❑ To stop the machine, press the red stop button on the starter box, Fig. 3.1 B.
- ❑ The Palax Active is equipped with a plug that enables switching of the phase, Fig. 3.2 A. This feature enables changing the direction of rotation of the electric motor if the motor is running in the wrong direction.

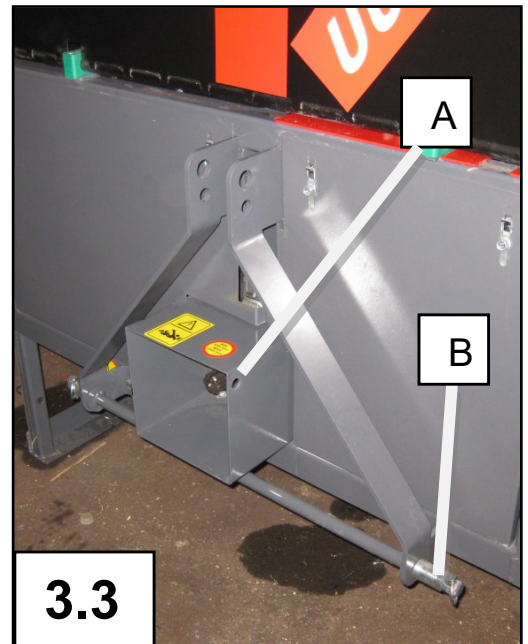


**NOTE ! Check the direction of rotation of the engine (in the SM model).**

**NOTE ! Electric work may only be carried out by a professional person.**

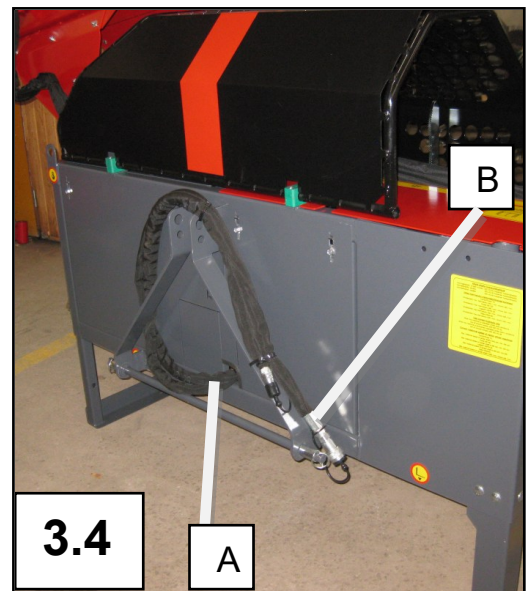
### 3.5. Tractor-powered (TR/OHD)

- ❑ The tractor-powered machine must always be connected to the tractor's three-point lift. This ensures that the distance between the firewood processor and the tractor stays correct. If it changes during operation, severe damage might result.
- ❑ Usually, the machine is delivered with the lifting triangle removed. The triangle shall be attached by the customer.
- ❑ A suitable size for PTO shaft is, for example, a BONDIOLI 143 or WALTERSCHEID W 2100.
- ❑ No safety clutch is required for the PTO shaft.
- ❑ Only use fault-free PTO shafts and always attach the chains for the shaft-guards to the machine (Fig. 3.3 A).
- ❑ Start the tractor and switch on its PTO at low revolutions, then increase the revolutions to 400-450 r.p.m.
- ❑ The machine comes with towing pins of 22 mm.
- ❑ The delivery also includes bushings for the towing pins (Fig. 3.3 B) to increase their diameter to 28 mm.



### 3.6. Operation by tractor's own hydraulics (TR/TR)

- ❑ If the machine is driven by the tractor's own hydraulics, **the flow of the hydraulic pump must be between 20 l.p.m and 35 l.p.m.**
- ❑ The pressure must not exceed 180 bar.
- ❑ Usually, the machine is delivered with the lifting triangle removed. The triangle shall be attached by the customer.
- ❑ Connect the hydraulic hoses sticking out from the machine, Fig. 3.4 A, to the hydraulic connectors of the tractor. The return hose must be connected to the free flow connector of the tractor.
- ❑ The oil return hose is equipped with a non-return valve, Fig. 3.4 B, which prevents use of the machine when the hoses are connected in the wrong order.





### 3.7. Honda petrol engine, start, stop and emergency stop

- ❑ Refer to the engine's instruction manual for detailed operating and servicing instructions. Visit the importer's website at [www.brandt.fi](http://www.brandt.fi) for the operating instructions.
- ❑ Check the oil level in the engine and top it up if necessary.
- ❑ Motor model: Honda GX 390 SX.

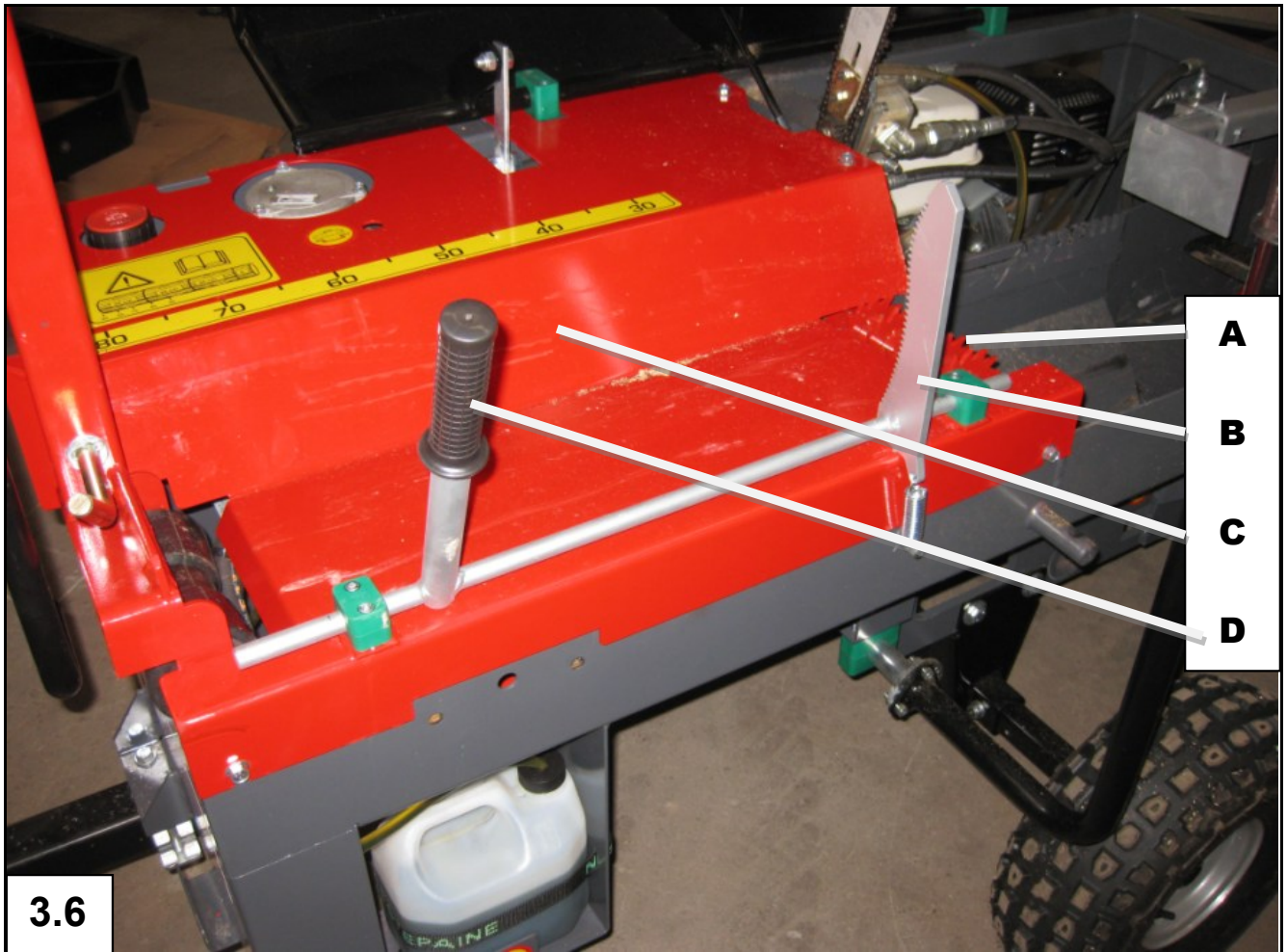
#### **NOTE ! Petrol is highly flammable!**

- ❑ Use 98 E5 as petrol for the combustion engine.
- ❑ Always stop the machine for refuelling.
- ❑ Take care not to spill petrol on the hot engine.
- ❑ If the engine is to be left unused for over three months, we recommend using special petrol intended for small machines during its final use before being left.



### 3.8. In-feed deck

- ❑ The Palax Active is equipped with a 300-mm wide and 825-mm long in-feed deck (Fig. 3.6 C) with a hydraulically driven feed roller. Fig. 3.6 A.
- ❑ The in-feed deck is fitted with an adjustable log clamp with return spring. Fig. 3.6 B. The clamp is controlled mechanically by means of the handle D.
- ❑ The clamp makes sawing of the last log significantly easier, as it enables the log to be kept in position during the sawing operation.



### 3.9. How the safety features affect the operation of the machine

- ❑ The machine is equipped with devices that ensure operational safety. The safety-related devices affect the operation of the cover for the splitting area, the saw-bar and the pusher.
- ❑ The protective net for the splitting chute must be closed so as to enable the cutting and splitting operations.
- ❑ Once the protective net is opened, the pusher stops, and the operation of the hydraulic valves is prevented. When the cover is closed, the pusher automatically returns to its rear position.

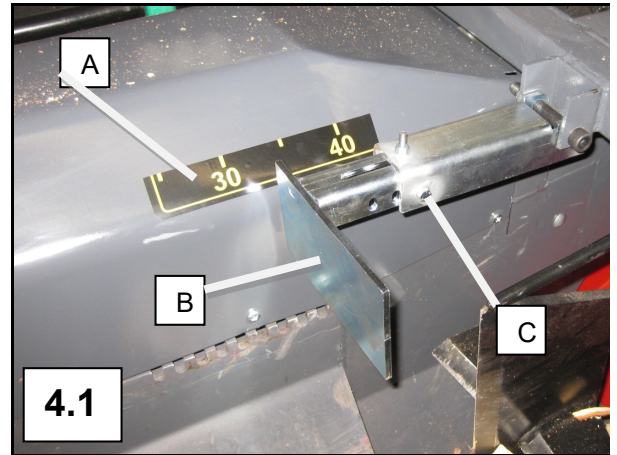
#### Warning!

- ❑ All the safety-related devices are necessary to ensure a sufficient level of safety.
- ❑ Do not remove any of the safety features from the machine. The machine operator is responsible for the correct operation of the safety-related devices.

## 4. Use of the firewood processor, crosscut operation

### 4.1. Adjusting the log length

- ❑ The length of the log is adjusted by shifting the log length limiter, Fig 4.1 .
- ❑ Remove the bolt C, and shift the log length limiter to the desired position on the scale A.



### 4.2. During the operation

- ❑ During the crosscut operation, make sure that the log always is supported on the in-feed deck at the cutting point.
- ❑ Exercise caution, always keep your hands away from the saw-blade.
- ❑ Be especially careful when cutting knotty or crooked trees.
- ❑ When the log stops for cutting, return the feed lever to its initial position. Before cutting the log, make sure it is not too twiggy or its form is not such that cutting it might be hazardous or cause some damage.

#### Placing the log on the deck

- ❑ The machine is equipped with a feed roller with hydraulic motor. The toothed roller helps transfer the log to the length set by means of the log length limiter.
- ❑ Select the log that you wish to process. Note that the maximum diameter of the log allowed for the machine is 27 cm. The presence of branches and the shape of the tree may increase the classified diameter of the trunk. When transferring the log to the machine, be careful not to endanger or harm the operator or the machine.
- ❑ The operator must take into account the weight of large logs, and take care to avoid getting injured while lifting them.
- ❑ To make the work easier, we recommend using a log-stand with the Palax Active firewood processor.

**WARNING! The trunks must not be loaded on the in-feed deck using a timber crane.**

**WARNING! Wrongly positioned logs may get turned over on the deck by the cutting force. This might badly twist the saw-bar, causing it to break.**

**WARNING! Beware of rotating in-feed roller.**



### 4.3.Sawing

- ❑ To transfer the log for cutting, shift the control lever to the front, in direction A, (Fig. 4.2).
- ❑ Ensure that the log stays on the in-feed conveyor throughout the feed operation.
- ❑ As soon as the end of the log comes into contact with the length limiter, cut the log by pulling the control lever to the rear, in direction B.
- ❑ As the lever is actuated, the crosscut saw-bar goes down and the saw-motor starts up.
- ❑ To start the splitting operation, move the control lever into its extreme position C and then return it to its initial position.



- ❑ During the transfer, the operator must be at the operating controls and absolutely not by the moving log. While the log is lying on the in-feed deck and on the feed roller during transfer, always make sure that neither your hands nor other parts of your body get squeezed between the log and parts of the machine.
- ❑ Do not put your hand inside the protective net.
- ❑ If the log bumps into the edge of the cutting opening or any other part of the machine, the feed movement of the conveyor must be stopped. Correct the position of the log, and check that it is not too large.
- ❑ The log must stay in position on the in-feed conveyor throughout the execution of the last cut. If the remaining part of the trunk is not long enough for two full-length pieces of firewood, leave the full-length part on the in-feed conveyor, place the shorter end on the splitting chute, and do the cutting in this position. This is to ensure that the longer and heavier part of the log is not left hanging without support, which would make it rise up from under the saw-bar. The length scale is located above the in-feed conveyor and the zero-point is at the saw-bar.

### 4.4.Instruction for problematic situations

- ❑ If the saw-bar gets stuck or does not bite into the log properly, lift the saw-bar up, and try to saw anew at the same place. If the sawing is still not successful, move the log a little.

#### **Crooked trees**

- ❑ Cut crooked trees where they bend.
- ❑ When cutting crooked trees, make sure that the log is properly supported by the in-feed deck.

#### **Big trees**

- ❑ Make sure that the rotational speed of the saw-blade is correct. Min. 400 r.p.m, max .450 r.p.m.
- ❑ Make sure that the saw-chain is sharp and properly lubricated.

### Cutting small trees

- ❑ Ensure that the log is travelling at the rear edge of the in-feed deck.
- ❑ Only cut one log at a time.
- ❑ Make sure that the last log to be cut is kept firmly in position under the clamp during sawing.

## 4.5. Lubricating the chain-saw

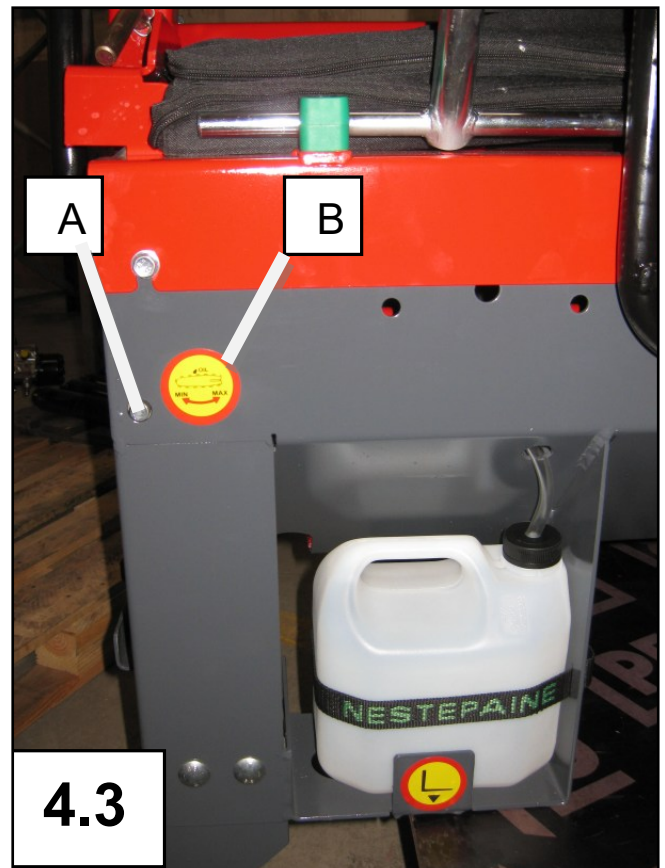
- ❑ The machine is equipped with an automatic lubricator for applying saw-chain oil.
- ❑ The machine is equipped with a hydraulically controlled piston pump with adjustable, precise metering.

**NOTE !** The volume of oil applied at each pass is sufficient by a fair margin to lubricate the chain under normal conditions. If you cut a lot of thick trees, it is advisable to increase the oil volume. Temporarily, the oil volume can be increased by lifting up the crosscut saw-bar and, immediately after that, resuming the operation.

## 4.6. Adjusting the oil feeding rate

**NOTE !** Always switch off the machine before adjusting the oil flow.

- ❑ The adjustment screw (6-mm hexagon socket) (Fig. 4.3 A) is located in the machine's frame, above the chain oil tank.
- ❑ The correct adjustment directions are shown on the decal affixed to the machine (Fig. 4.3 B). The oil flow is increased by turning the screw counter-clockwise, and it is decreased by turning it clockwise.
- ❑ The basic setting of the screw is 1-2 turns in the open direction.
- ❑ Twisting the adjustment screw by one turn increases or reduces the oil rate by about 0.1 millilitres.
- ❑ If you see air in the suction hose of the oil pump or the oil pump has sucked air, check that the suction hose is immersed in the oil, turn the setting of the pump (several turns) in the plus-direction, and execute a few sawing movements. In this way, air will be more efficiently removed from the pump, and the oil supply to the saw will remain constant. After this, remember to turn the oil flow adjustment screw back to its initial setting.



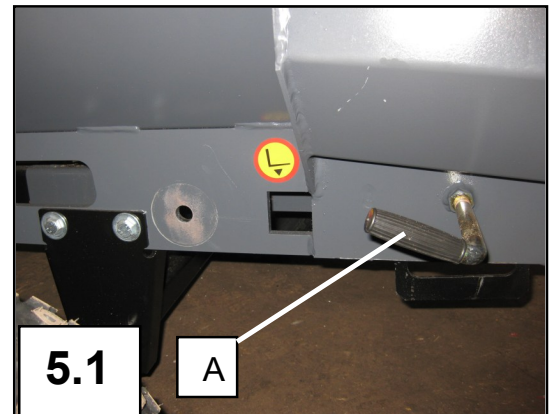
## 5. Use of the firewood processor, splitting operation

### 5.1. Splitting wedges

- ❑ Keep the splitting wedge sharp and make sure during handling that the logs do not contain anything that could damage it.
- ❑ The height of the splitting wedge can be adjusted. To adjust the height in the basic model, turn open the attachment screw A, Fig. 5.1, and lift or lower the wedge to the desired height.

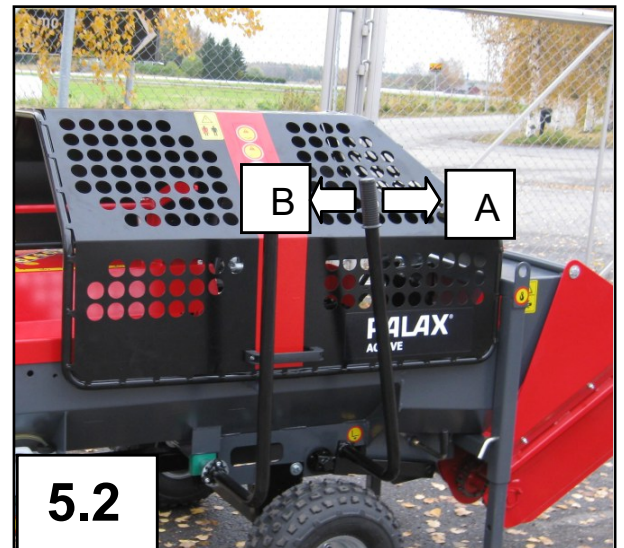
Standard wedge:

- ❑ The 2/0 wedge – a short straight wedge for splitting the wood in 2 ways or, if the wedge is lowered, no splitting will take place.



Optional wedges:

- ❑ The 2/4 wedge for splitting the wood in 2 or 4 ways.
- ❑ The delivery of the optional wedge includes an adjustment lever, by means of which the splitting wedge can be lowered steplessly, in the direction A, Fig. 5.2, or raised in the direction B.



### 5.2. Disturbances during the splitting operation and their remedy

- ❑ If the logs are big and have big branches, the force of the pusher may not be sufficient.
- ❑ If the billet sticks to the wedge, open and shut the protective net to reverse the pusher to its initial position.
- ❑ Raise the splitting-wedge and retry to split the billet by launching the splitting operation by pulling the control lever to the rear. Changing the position of the billet often helps.
- ❑ If the billet does not split, open and shut the protective net to reverse the pusher into its initial position. Open the protective net again, after the pusher reaches its initial position. Now it is safe to remove the billet.
- ❑ Open the protective net and hit the stuck billet loose using another piece of wood.
- ❑ If there is a big branch on the billet, turn the billet around so you are able to split the branch by pushing the billet against the wedge with the butt-end first. Doing it this way requires the least power.
- ❑ If the billet rises up during splitting, open and shut the protective net to reverse the pusher into its initial position.



## 6. Out-take trough and discharge conveyor

### 6.1. Out-take trough

- As standard, the machine is equipped with a 0.7 m-long out-take trough.



### 6.2. Discharge conveyor

- As an option, the machine can be equipped with an hydraulically-driven 2.6 m-long discharge conveyor.
- Each individual machine is equipped for the discharge conveyor, so the conveyor can even be retro-fitted.





## 7. Mobile models

**Note!** When working using the mobile platform, remember to disconnect the machine from the towing vehicle/ATV, and lower the support legs.

### 7.1. Light platform

- ❑ As an option, the Palax Active can be equipped with a light platform, which is intended for transferring the machine within a closed area by means of – for example – an ATV.
- ❑ The max. permissible speed during towing of the platform is 20 km/h.
- ❑ The light platform does not have any lighting.



**NOTE !** The light platform is not intended for road traffic.

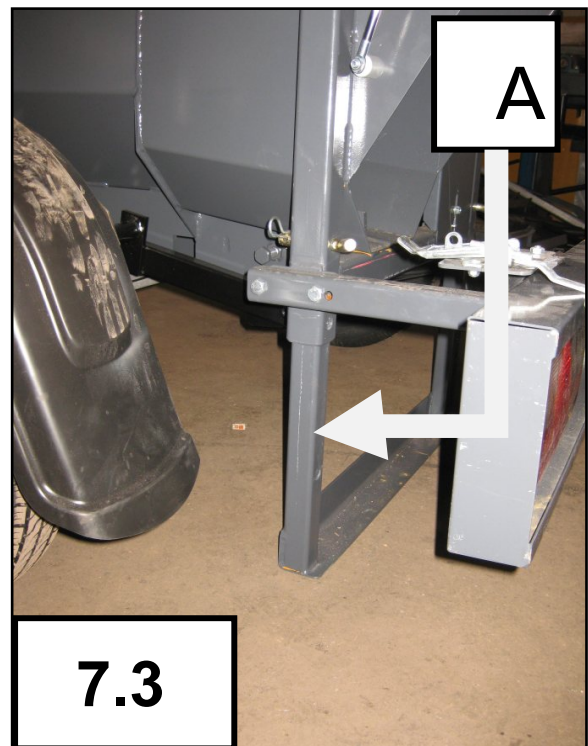
## 7.2. Transport platform that requires registering

- ❑ The transport platform that requires registering is intended for transporting the machine on public roads by means of – for example – a motor car.
- ❑ The max. permissible speed during towing of the platform (in Finland) is 80 km/h.
- ❑ When towing the machine on public roads, take into account the requirements of the national road traffic legislation in the respective country, and any vehicle-specific limitations.

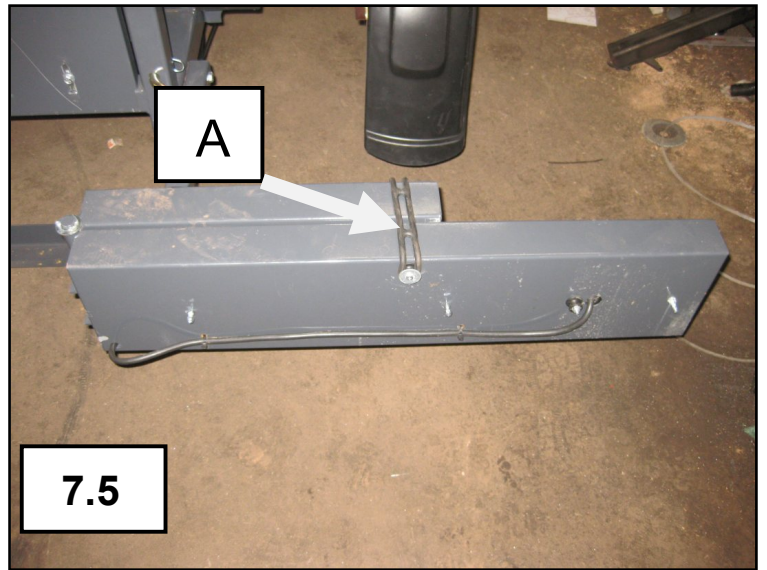
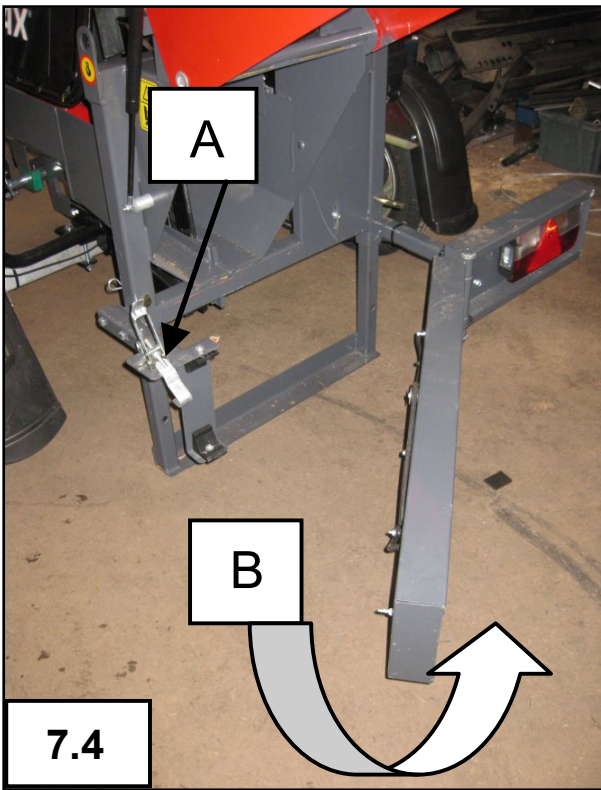


## 7.3. Bringing the mobile model into the work position

- ❑ Put the machine in the correct location for the work, and disconnect it from the towing vehicle.
- ❑ Lower the support leg (Fig. 7.3 A), and raise the machine slightly against its rear leg by means of the jockey wheel. Note that the in-feed deck must be on a level during the work.
- ❑ Open the lock for the rear light panel (Fig. 7.4 A), and turn the light panel away from the front of the conveyor, in the direction B.
- ❑ Using the rubber strap behind the panel, lock the light panel in position for working, Fig 7.5 A.



- After this, bring the machine into the work position in accordance with points 2.4 and 2.5.





## 8. Maintenance of the machine

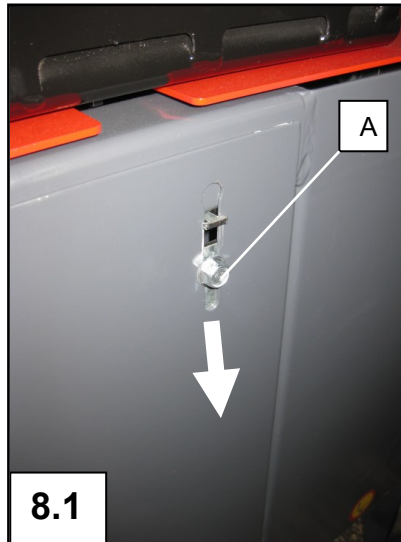
**Note!** Before performing any service measures, always stop the machine and disconnect it from the power source.

If a service measure requires the power source to be running, particular caution must be exercised!

After completing the service measures, and before starting the operation, fasten all the protective covers in place, ensure that the protective devices are in order and test run the machine in accordance with the instructions in point 3.3.

### 8.1. Removing the covers

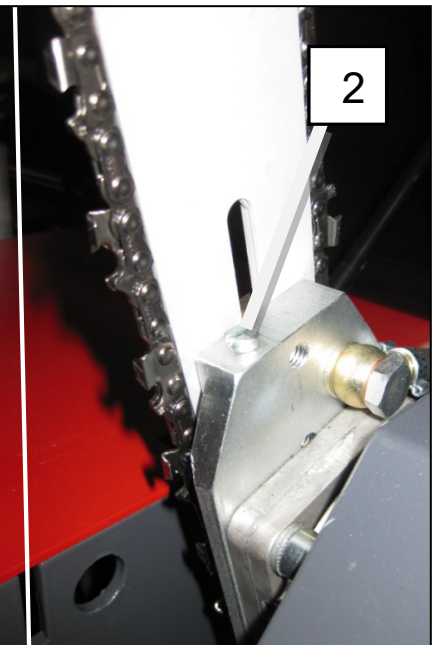
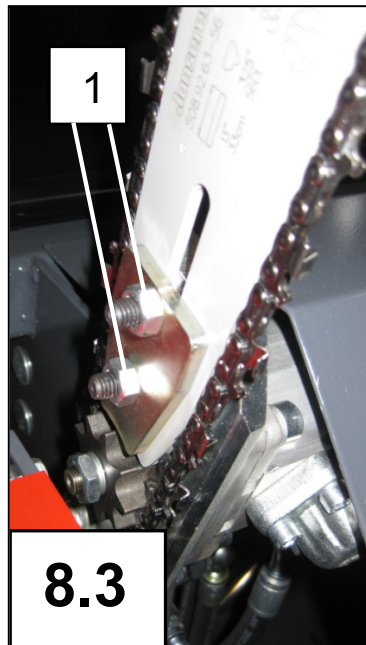
Loosen the attachment screws for the covers, Fig 8.1 A, a few centimetres, and let the screw fall in the direction of the arrow to the lower edge of the slot, Fig 8.2. After this, remove the cover by pulling it. The attachment screws need not be taken away for removal of the protective covers.



### 8.2. Crosscut saw-bar

**Changing and tightening the saw-chain**

- Open the protective net.



- ❑ To tighten the saw-chain, loosen the attachment nuts (1) of the saw-bar (Fig. 8.3) and turn the tightening screw (2) clockwise.
- ❑ To remove the saw-chain, turn the tightening bolt (2) counter-clockwise until the chain slackens.
- ❑ The chain needs to be tightened enough to prevent it from sagging under the saw-bar.
- ❑ Finally, tighten the attachment nuts of the saw-bar.
- ❑ Check the chain for tightness at regular intervals.
- ❑ Working with a blunt or damaged saw-chain is utterly uneconomical. Clean up and check the saw-chain. Make sure that there are no cracks in the chain links and that all the rivets are intact. If the chain is damaged or worn out, it must be replaced.

#### **Servicing the saw-chain**

- ❑ If the saw-chain will not be used for a while, clean it up using a brush and immerse it in an oil bath.
- ❑ Always after re-sharpening, clean up the saw-chain thoroughly, remove from it any stuck chips or grinding dust and immerse it in oil.

#### **Cutting teeth**

- ❑ Use only special saw-chain files!
- ❑ The saw-chain is a standard version, commonly available in agricultural stores
- ❑ Saw-chain pitch 0.325"; gauge 1.3 mm; length 56 links.
- ❑ Checking the saw-chain pitch:  $t = \frac{\text{the distance over three rivets}}{\text{divided by two}}$ .
- ❑ The standard filing angle is 30°.
- ❑ The angles must be the same on all the cutters of the saw-chain. If the angles are uneven, the saw-chain will rotate unevenly, will wear more quickly and may even break.
- ❑ All cutters must be the same length. If the cutters are not the same length, they will have different heights. This makes the chain run roughly and possibly crack.
- ❑ The required sharpening results can be met only after sufficient and constant practice. Use a file holder! As required, turn to a professional.

#### **Servicing the saw-bar**

- ❑ Always turn the saw-bar over, file its side and clean its groove when necessary.

### 8.3.Changing oil of multiplier gear

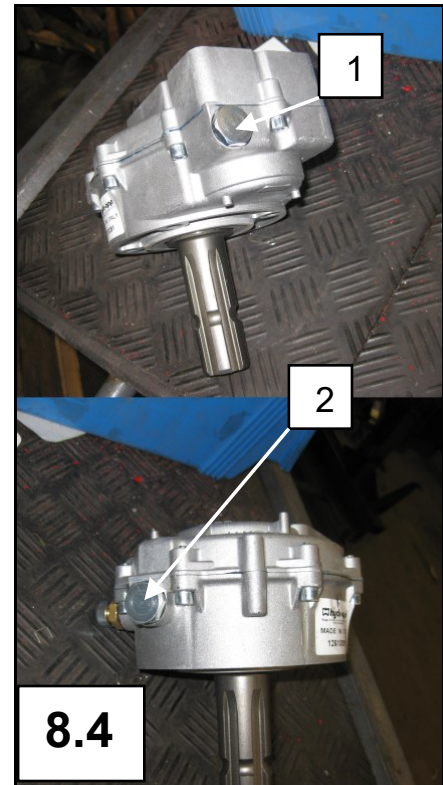
- ❑ Remove both covers from the rear of the machine. See 8.1 Removing the covers.
- ❑ The oil plugs are located on top and at the lower edge of the angular gear. Filling 1 and drainage 2, Fig. 8.4.
- ❑ Fill up with about 0.3 litres of new oil.
- ❑ Oil type SAE 90.

#### Lubricating the machine

- ❑ See the service schedule. Many of the bearings are lubed-for-life and do not need to be lubricated. If a lubed-for-life bearing receives too much lubricant, its gasket may get damaged.

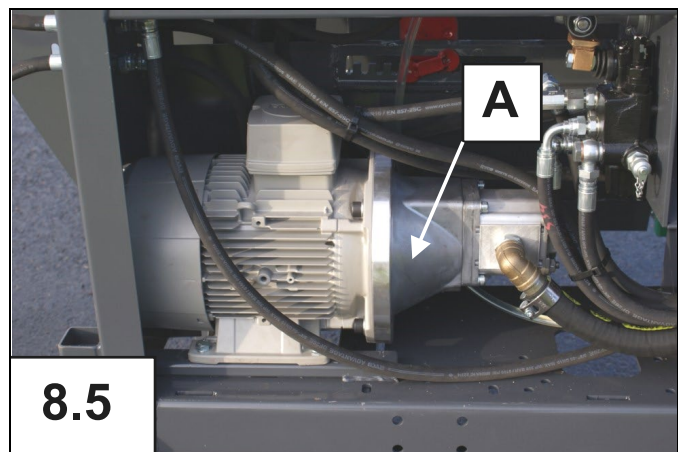
**NOTE ! If the machine is left standing for a longer period of time, it is important that the bearings always be provided with clean lubricant.**

- ❑ If the machine is used regularly, lubricate the bearings once a week.
- ❑ Oil the moving joints daily.



### 8.4.Electric motor coupling

- ❑ The coupling of the electric motor is protected inside the housing. Fig. 8.5 A.
- ❑ If the coupling makes an unusual rattling noise, the coupling rubber and possibly also the coupling claws are worn out and need to be replaced without delay.

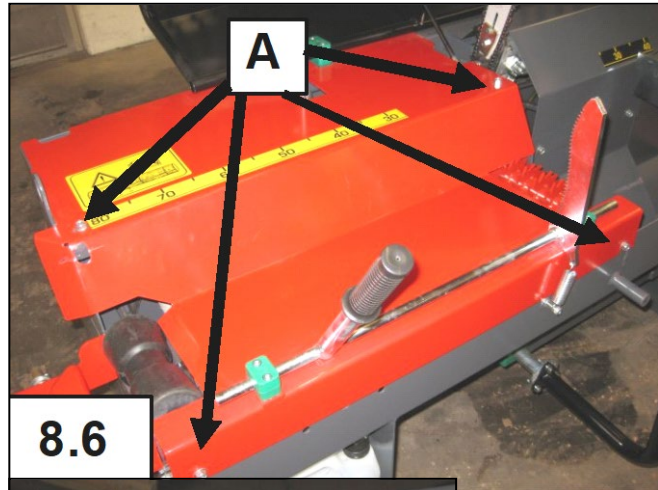


### 8.5.Oil change

- ❑ To ensure flawless operation of the machine, the oil must be changed every 500 operating hours or at least one year after the start of operations.
- ❑ The oil tank is drained by opening the bottom plug under the tank.
- ❑ The filter shall be changed for the first time soon after the start-up, because the largest impurities come loose from the hydraulic system shortly after the start-up.

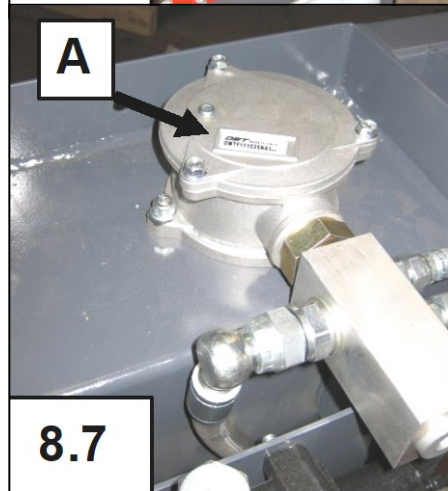
## 8.6.Changing the oil filter

- ❑ The oil filter is located on top of the oil tank under machine's in-feed deck. To gain access to the oil filter, open the in-feed deck (four screws, Fig 8.6 A) and lift it away.
- ❑ The filter cartridge is located inside the filter housing (Fig. 8.7 A). Undo the three screws to open the housing.



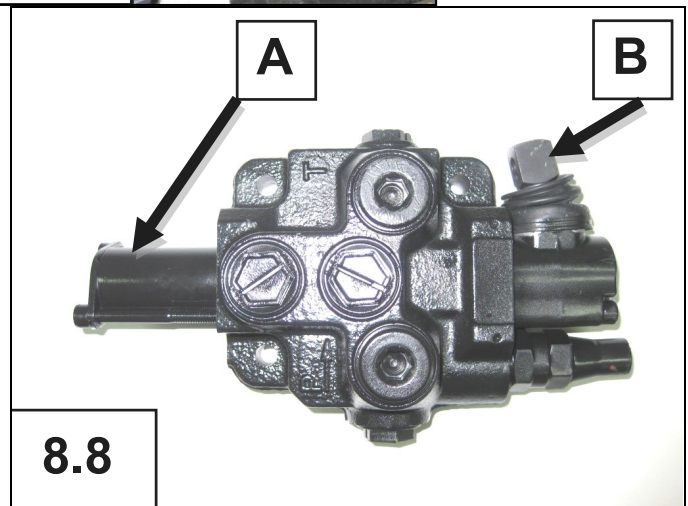
8.6

## 8.7.Maintenance of the valve



8.7

- ❑ The detent end A, the spool shifter joint B and the ball joint of the control valve must be lubricated regularly to ensure their long service life and flawless operation.
- ❑ Lubrication of the valve is particularly important, if the machine is left standing for several months.
- ❑ If the parts of the detent have become rusty, the machine will not operate flawlessly.

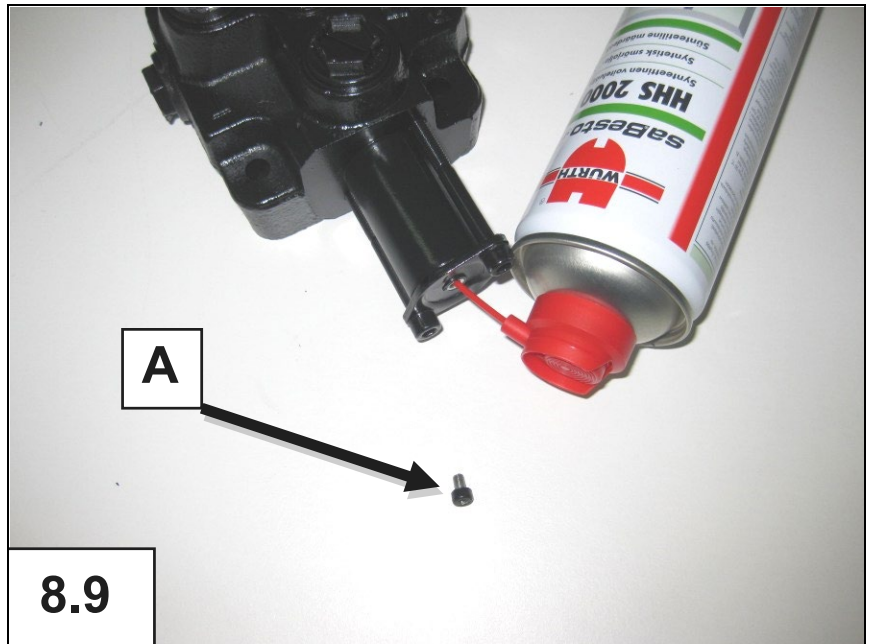


8.8



### 8.8. Detent end of valve

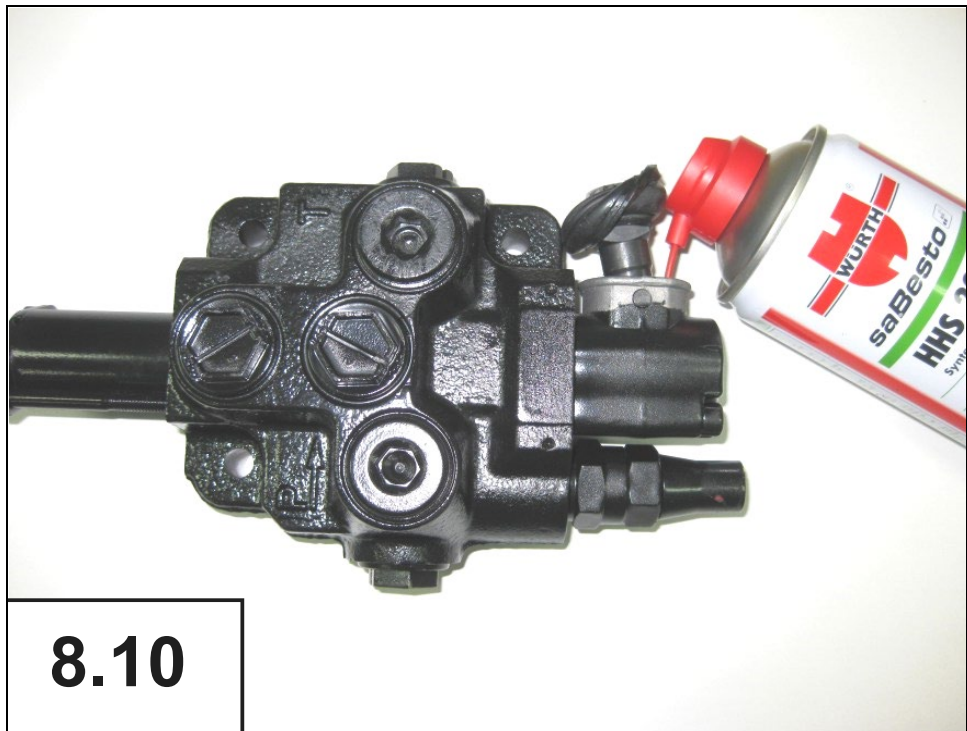
- ❑ There is a small hole (hexagon socket, 3 mm) in the middle of the end plate of the detent end of the valve for spraying lubricant onto the moving parts of the valve. The screw in the middle of the cover plate must be removed first.
- ❑ Only use oil that does not congeal in frost.
- ❑ The easiest way is to use a spray bottle with a nozzle and pipe.
- ❑ To spread oil smoothly on the moving parts of the detent end, insert the spray pipe in the hole and press 2-3 times for about 1-2 seconds at a time.



**NOTE ! Do not use Vaseline spray because this congeals in severe frost and the valve will not then operate properly.**

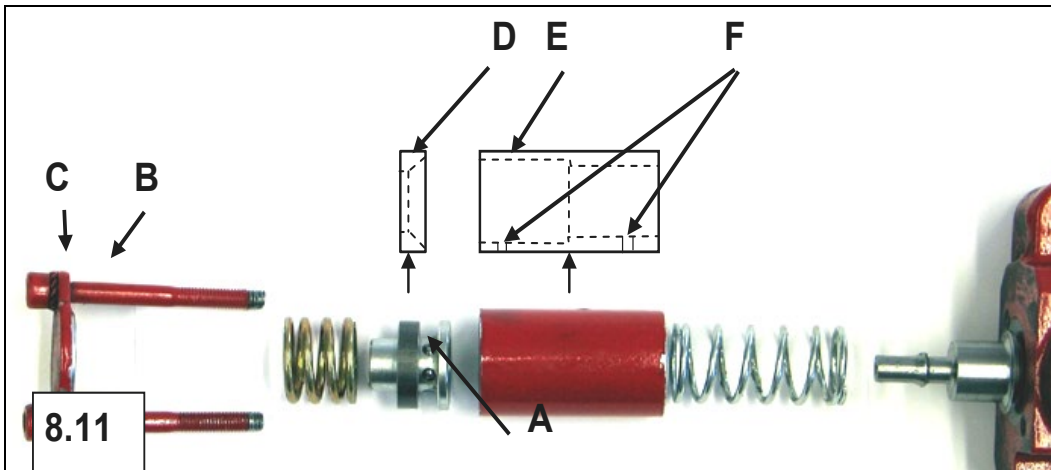
### 8.9. Lubricating the spool shifter

- ❑ The spool shifter is equipped with a pin and a ball joint that require regular maintenance and lubrication.
  1. Lift up the edge of the protective rubber of the spool shifter.
  2. Spray lubricant on both sides of the pin and down on the ball joint.
  3. At the same time, check that the rubber is intact.





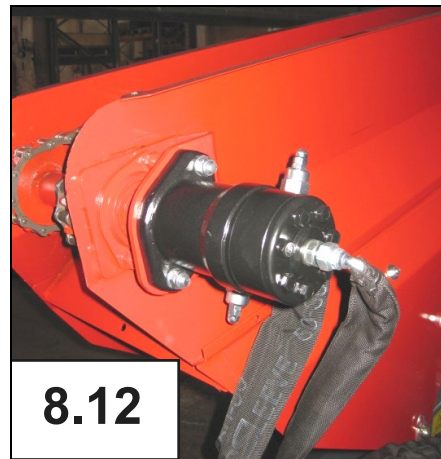
## 8.10. Structure of the detent end and the correct order of parts



- ❑ Keep cover C of the detent end depressed while opening screws C, as the stiff springs can throw the cover off. This can also make the springs and balls of the detent fly off.
- ❑ In connection with assembly of the detent end, apply a small amount of Vaseline to holes A of the detent end. This ensures the balls stay properly in position during assembly. Make sure that parts D and E line up in the right way, as shown in the picture.
- ❑ The small holes at the ends of part E are for drainage of condensed water.
- ❑ During assembly, make sure that the holes come on the underside.

## 8.11. Discharge conveyor

- ❑ The conveyor is equipped with hydraulic transmission
- ❑ The conveyor chains are equipped with automatic spring tensioning.
- ❑ The bearings of the conveyor are lubed-for-life, so they do not require any maintenance.
- ❑ When operated continuously, the conveyor chains should be lubricated daily.
- ❑ The easiest way to do this is to apply chain spray lubricant to the chain while the conveyor is rotating at low speed.
- ❑ When the machine is left standing for longer periods, it pays to lubricate the chain properly to prevent it from rusting.



### **8.12. Cleaning the machine**

- ❑ Keep the conveyor free of debris to ensure its trouble-free operation.
- ❑ The machine, and in particular the conveyors, must always be cleaned when the work is ended. This is especially important in winter.

### **8.13. Washing the machine**

- ❑ Wash the machine occasionally with a high-pressure cleaner. This is especially important if the machine is left standing for a longer period of time. Lubricate the machine after washing.

**Note.**        **Do not direct the water jet onto electric devices or bearings.**

### **8.14. Storing the machine.**

- ❑ The machine is intended for outdoor use but, to avoid corrosion or malfunctions, it is recommended to keep it under cover or indoors for longer standstills.
- ❑ For storing outdoors, cover the machine with a tarpaulin of suitable size.

**Note! After servicing, always ensure that the machine's operating controls and protective devices are operating properly. All the protective covers that were removed from the machine for the service must be returned to their places after the service measures.**

## 9. Maintenance schedule

Object	Task	Daily	Service interval 100 h	Service interval 500 h	Service interval 1000 h	Material /Method
Angular gear TR-powered	Check 1 Change 2 Change	Checking the level glass	X	X	X	SAE 90, about 0.3 l
Checking of saw oil level	Check	X				
Combustion engine Engine oil	Check 1 Change 2 Change	X	X	X		See the maintenance manual for the engine
Hydraulic oil Normal conditions	Check 1 Change 2 Change		X	X	X	Volume 28 l E.g. Esso Univis 32 Neste Hydraul 32
Oil filter	1 Change  2 Change		X	X		CR 60/3 The filter must always be changed in connection with the oil change.
Bearings requiring lubrication	Lubrication		X			Ball-bearing lubricant
Splitting valve	Lubrication		X			Lubrication oil, spray At least once a month.
All levers	Lubrication	X				Lubrication oil
Crosscut saw-blade	Sharpening					As required
Machine	Cleaning	X				
Electric motor	Cleaning	X				
Electric equipment	Cleaning	X				

## 10. Malfunctions and their remedy

<b>Disturbance</b>	<b>Cause</b>	<b>Remedy</b>
Splitting is not operational	<ol style="list-style-type: none"> <li>1. Protective cover for the splitting chute is open.</li> <li>2. No oil or too little oil.</li> <li>3. Debris inside the launch system.</li> <li>4. The oil is too cold.</li> <li>5. A hydraulic hose has burst or is leaking.</li> <li>6. The splitting system does not move due to freezing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Close the protective net.</li> <li>2. Stop the machine immediately and top up the oil.</li> <li>3. Clean up the launch system.</li> <li>4. Allow the oil to circulate at free-flow for a few minutes.</li> <li>5. Replace the hose.</li> <li>6. Always clean the machine when you stop working.</li> </ol>
The splitting movement does not stop, when the protective net is opened.	<ol style="list-style-type: none"> <li>1. The setting of the locking device has moved out of position or the locking device is broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the locking device or replace the faulty part.</li> </ol>
Slow or powerless splitting movement.	<ol style="list-style-type: none"> <li>1. The oil is too cold.</li> <li>2. No oil or too little oil.</li> </ol>	<ol style="list-style-type: none"> <li>1. Allow the oil to circulate at free-flow for a few minutes.</li> <li>2. Top up oil.</li> </ol>
The log does not split	<ol style="list-style-type: none"> <li>1. Incorrect position of the wedge.</li> <li>2. A large branch at the splitting point</li> <li>3. Exceeds the upper limit for the machine.</li> <li>4. The oil pressure has dropped.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the height of the wedge.</li> <li>2. Stop the machine, open the splitting cover, rotate the log, and close the splitting cover.</li> <li>3. Maximum thickness 27 cm.</li> <li>4. Check the hydraulic system.</li> </ol>
The crosscut saw cuts poorly.	<ol style="list-style-type: none"> <li>1. The blade is blunt</li> <li>2. No oil supply to the saw-chain</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen or replace the chain.</li> <li>2. Ensure oil supply to the chain</li> </ol>
The saw-chain clashes with the saw-cover.	<ol style="list-style-type: none"> <li>1. The bolts of the bearings supporting the saw-shaft have loosened. The saw-shaft in an oblique position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Straighten the saw-shaft and tighten the bolts.</li> </ol>
The billet rises up during splitting.	<ol style="list-style-type: none"> <li>1. Crooked or knotty tree.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct the position of the log.</li> </ol>
The electric motor rotates in the wrong direction.	<ol style="list-style-type: none"> <li>1. Two phase conductors in the wrong order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch phases by turning the phase switch in the plug.</li> </ol>

# 11. Electric diagram

