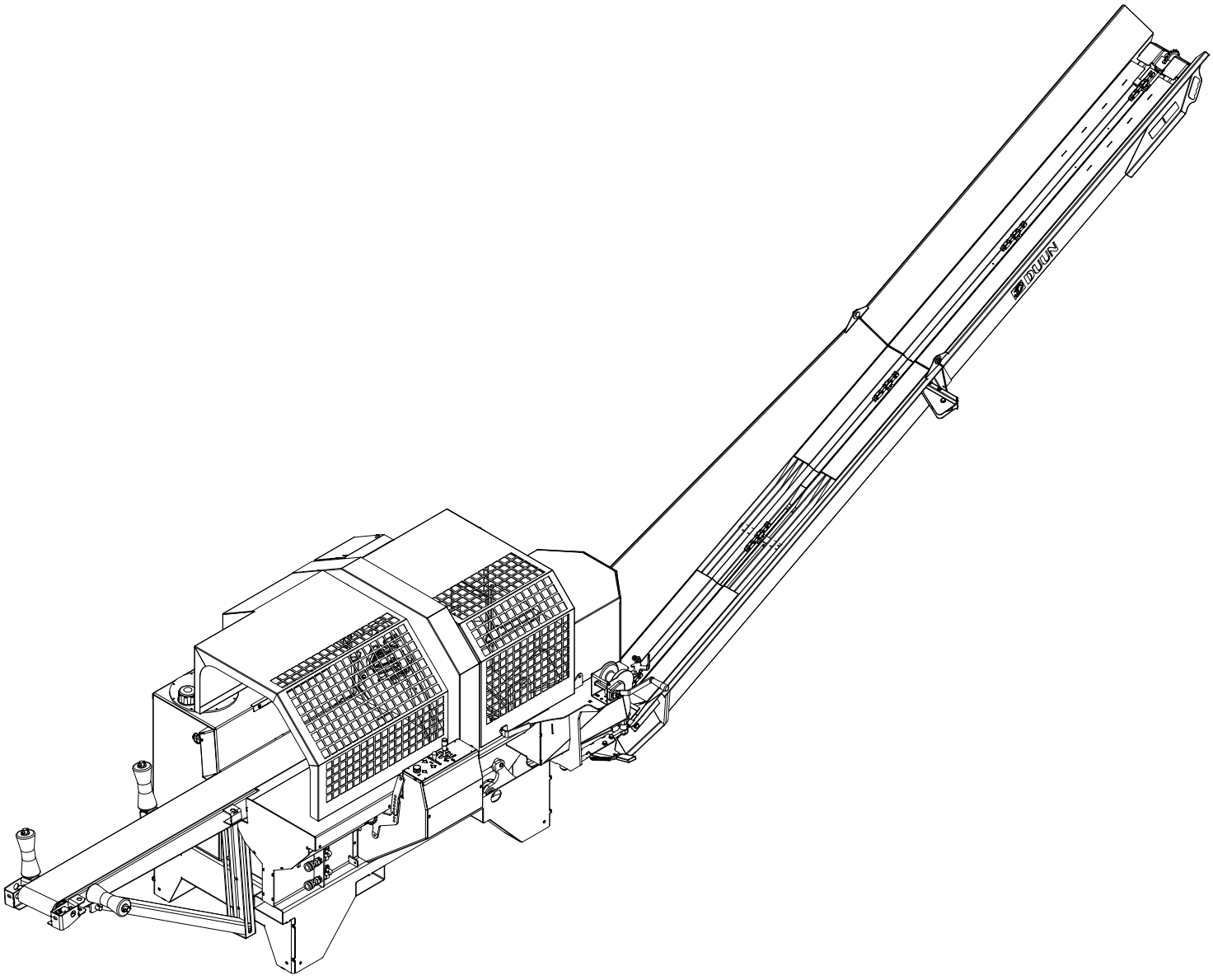
Duun Industrier as
7630 Åsen, Norway
www.duun.no

# VM370 Mk2 Instruction manual

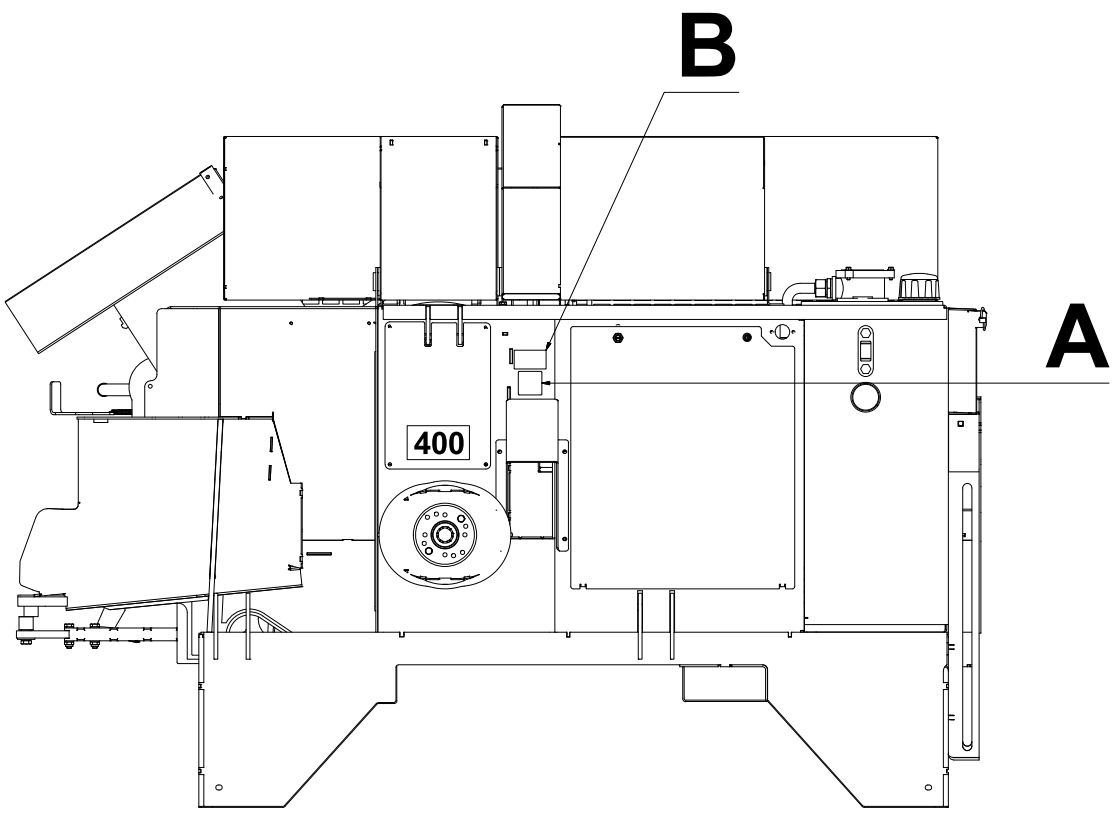


Congratulations on your Duun VM370 firewood processor.

All Duun tractor operated machines have been engineered and tested in close cooperation with representative users to produce functionally safe and user-friendly machines.

Please read this instruction manual before using the machine.

Good luck!




## Machine identification

Serial number and manufacturer are indicated on badge (A).
Register serial number and delivery time as indicated.
Always specify serial number when requesting service for the machine.
The machine is CE-marked (B). This marking confirms that the machine has been manufactured in conformity with EU Directive Machinery.

Serial number

Time of delivery (month/year)

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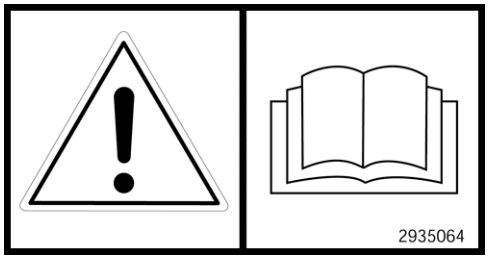
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# Safety

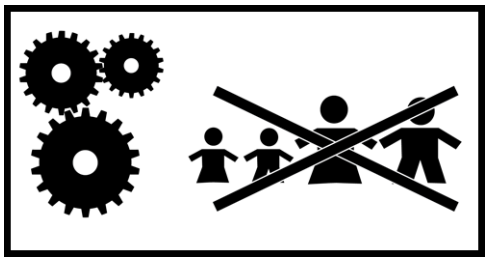
All operators, mechanics and the owner must always work carefully with agricultural machinery. Read and observe safety instructions in this instruction manual.



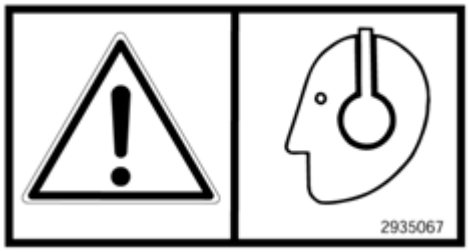
Be particularly aware of warning signs with this symbol, it marks measures that must be carried out in order to avoid accidents. The symbol appears in the instruction manual and on warning signs on the machine.




**Instruction manual**
All operators, mechanics and the owner must be well acquainted with the instruction in this instruction manual before the machine is taken into use.



**Safety of the surroundings**
Be very careful when other people or animals are near the machine or tractor. Never stand between the tractor wheels and the machine!



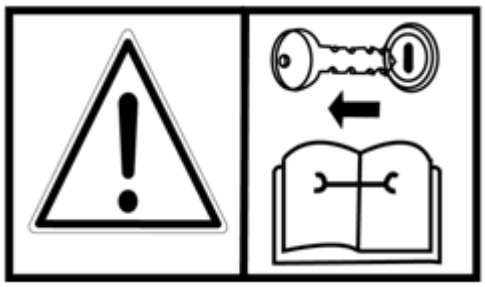

**Protective equipment**
Always wear hearing protection and safety glasses when using the firewood processor. Furthermore, safety shoes and sturdy work gloves should be used when operating the machine and materials.



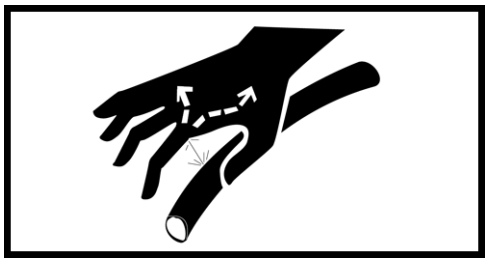
**Clothing and Power transmission shaft**
Do not work in clothing that can be pulled into moving parts of the machine (e.g. scarves, long coats).
The tractor is disengaged and the handbrake is applied before the shaft is connected to the tractor's PTO. The maximum power output speed is 400 rpm. The drive shafts are always to be equipped with original protection covers. **Damaged and worn covers are to be replaced immediately!** Make sure that all covers for the shaft are in good condition and correctly fitted. Never start the machine when this is not in order. The locking chains for the plastic covers are always to be fixed to the appropriate brackets in order to prevent the covers to rotate.



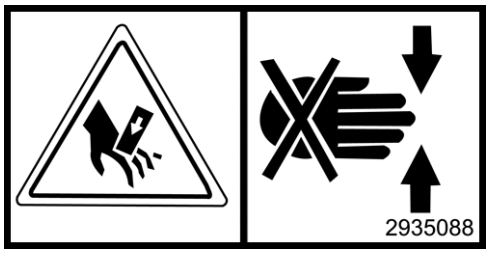

**Safe connection and use**
Do not allow anyone to stay between the machine and the tractor when the machine is connected to the tractor. The same applies during the use of the machine. Make sure that the connection is carried out in a safe manner.



**Safety in case of interruptions and maintenance**
Remember always to stop the tractor's engine and remove the ignition key before you lubricate, adjust, clean, or carry out repairs. This is to secure that the tractor does not start before you have completed the operation.



**Hydraulic high fluid pressure**
Be careful when you work with hydraulics. Wear eye protection and gloves. Hydraulic oil under high pressure may penetrate the skin and cause serious infections. See a doctor if you have sustained an injury. Make sure no one is close by when performing hydraulic functions.




**Danger of crushing at marked points**
Pay particular attention to the risk of crushing at points marked for this.



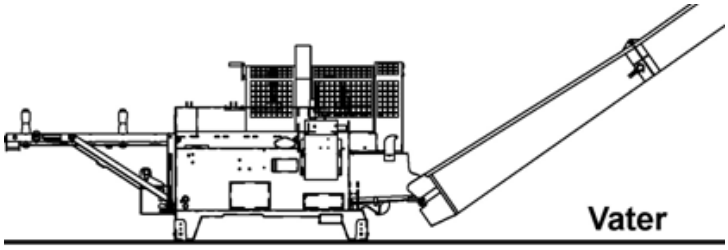

**0-promille**
People under the influence of alcohol cannot opperate the machine. The same applies for tired people who do not have full control over their movements.



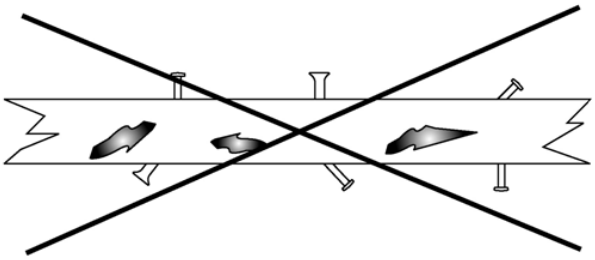
**Contact with current-carrying cables etc. during transport.**
Please note that the firewood processor can tip over the tractor during transport and there is a risk of contact with live wires, railway underpasses etc.!



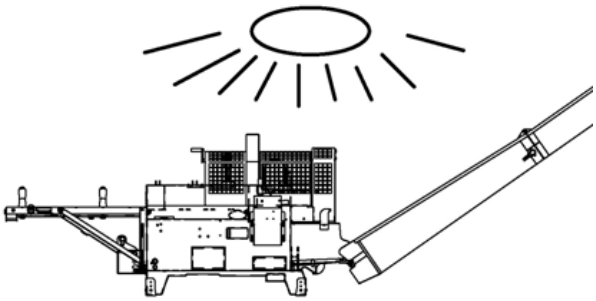

**Conveyor belt – transporter**
Do not stay under the conveyor when it is tensioned to avoid damage of an uncontrolled fall during use. Also avoid contact with the conveyor's moving parts during use.



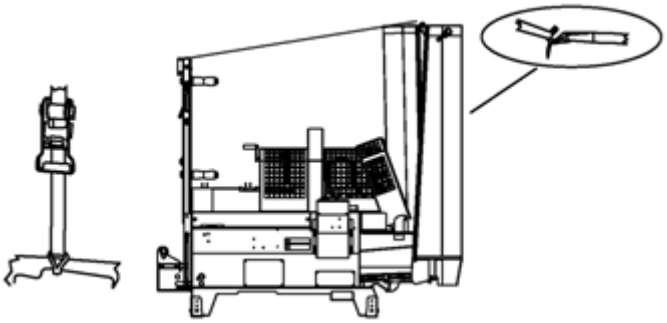

**Horizontal placement and tidiness**
Always place the machine as level and stable as possible to ensure stable working conditions. Keep the workplace as tidy as possible. This contributes to generally better security against unwanted incidents.



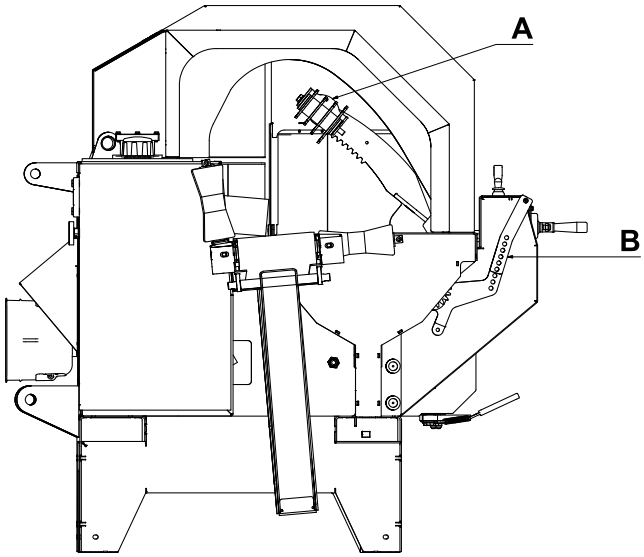
**Purpose of use**
The machines are only intended for the production of firewood from branched material without other extraneous objects. It is not permitted to use the machine for other material such as construction waste and similar material with metal objects such as nails, screws or similar things. The same applies to material contaminated with plaster and similar coatings. The saw chain is only intended for materials without extraneous objects.



**The necessity of good lighting**
The machine is used only in daylight, which ensures a good overview of the operations - otherwise, with artificial lighting, which gives a good view of the working area.
**Good lighting is very important for the safety reasons.**



**Safe transportation**
Before the machine is moved, the feed belt and conveyor (both in the folded-up position as outlined) must be strapped together with a load strap to ensure that they cannot fall down. The loading stop has an attachment at the bottom of the feed belt and secures the belt from falling off during transport.




**Safe cutting**
Avoid using your hands near the saw chain. This is achieved by consistently using the log holder **A** and the handle **B** for operating it.
Cutting the last log, it is important to keep a "correct" long one at the end and cut a shorter piece of wood as the penultimate one. During this operation, it is particularly important to use the manual log holder **A** that the user does not receive unexpected blows from the last length.
It is a great advantage to use the "countdown ruler" for the last three lengths that these can be cut to a shorter length than the desired length.
Cutting a twiggy or a crooked logs, it is important to ensure that these are not left unattended.
Cutting such wood, use the manual log holder **A** as often as possible to avoid pinching your fingers/hands.

Before starting up after maintenance, check that all tools have been removed and replaced.

Before raising or lowering the machine, check that no one is near or touching the machine.

**If warning signs are removed during repairs or service, new signs must be installed immediately!**

# Warranty terms

Duun VM370 has 12 months guarantee against defects in materials and workmanship.

Parts that are not originally manufactured by Duun Industrier as, for example, wheels, hydraulic parts, etc. are subject to these suppliers' guarantees and terms.

Parts that are considered wearing parts are not included in the warranty - these are specified in a separate table at the bottom of this page.

In cases where a repair is considered to be included as a matter of warranty, the representative must inform the supplier's representatives that the repair is thought to be carried out as a matter of warranty.

The following information must be registered in this connection:

- The product designation
- The product's serial number. (see machine identification p.2)
- Date of sale
- The product owner address, tel. no.
- The seller with address, tel. no.

In case of such a repair, the supplier is presented with a claim within 3 weeks after the repair date.

Replaced parts are to be kept until a decision has been made with reference to the claim and the replaced parts are to be forwarded to Duun Industrier as for assessment if so required.

As the employment of the product is beyond our control, we may only guarantee the quality and do not accept liability for the product's general performance.

Warranty liability requires that scheduled maintenance be done.

Duun Industrier as reserves the right to modify the design and specifications and/or make alterations and improvements without notification.

What is not included in the guarantee:

- The guarantee does not cover financial loss as a result of interruption of operation.
- The guarantee does not cover consequential loss due to defects.
- The guarantee does not cover defects or damage caused by misuse and uses that are not in accordance with the instruction manual's specifications and guidelines.

**The following parts and materials are considered wearing parts and are not covered by warranty:**

- Chain saw bar
- Chain saw
- Splitting knives
- Feeding belt
- Oil filter
- Hydraulic oil

# DELIVERY FORM OF DUUN FIREWOOD PROCESSOR

## MACHINE INFORMATION

Model _ _ _ _ _ _ _ _ _ _ _ _

Serial no. _ _ _ _ _ _ _ _ _ _ _ _

## CUSTOMER INFORMATION

Machine owner _ _ _ _ _ _ _ _ _ _

Address _ _ _ _ _ _ _ _ _

Zip code. _ _ _ _

Town _ _ _ _ _ _ _ _ _

## DELIVERY OF THE MACHINE

Seller and customer have together checked the machine is not damaged during transportation and that all equipment is included.

The customer has been made aware of the use of the machine:

- How to prepare machine for use from transport position.
- Correct length of PTO shaft. (page 14)
- How to control the temperature and oil level. (page 13)
- How to control condensation level on the oil tank. (page 13)
- What is the correct speed of the power transmission. (page 16)
- The functions of the machine.
  - Input: (page 17)
  - Cutting: Adjusting the speed and power of the chain saw bar. (page 17)
  - Sharpening and tightening of the chain. (page 20)
  - Adjustment of the chain lubrication. (page 21)
  - Use of the log holder. (page 19)
  - Splitting: Return function of splitters. . (page 19)
  - Elevation of splitting knives and change og splitting knives. (page 18)
  - Conveyor: Adjustment of speed. (page 17)
  - Sideward movement of conveyor. (page 14)

Sales representative and customer have read about service and maintenance. (page 20-24).

The customer has been introduced to warranty terms. (page 8)

The customer is made aware of the conditions for practical use. (page 16)

Part list is available at sale representative.

Place _ _ _ _ _ _ _

Date _ _ _ _ _ _ _

Customers signature

_ _ _ _ _ _ _ _ _

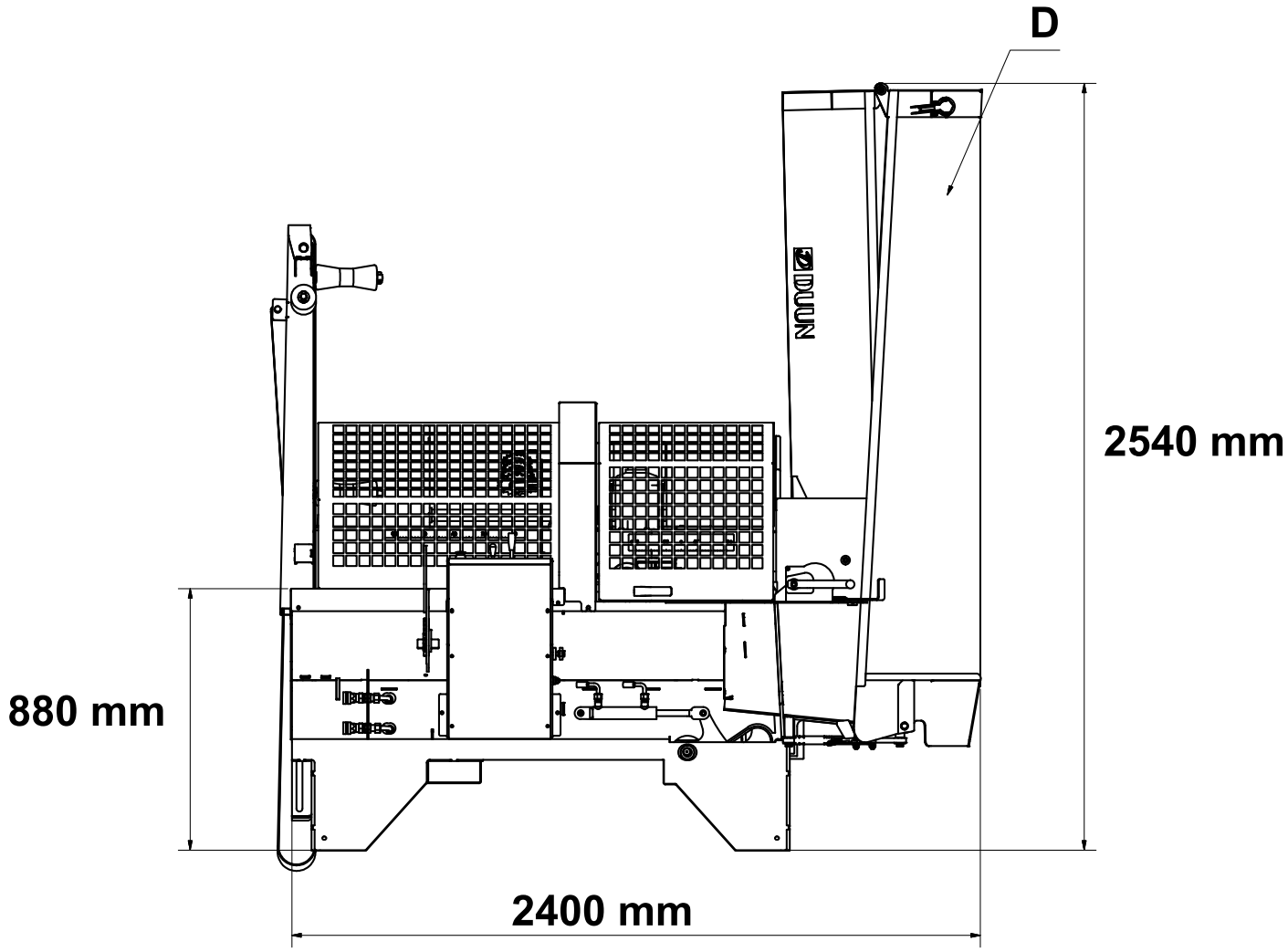
Sales representatives signature

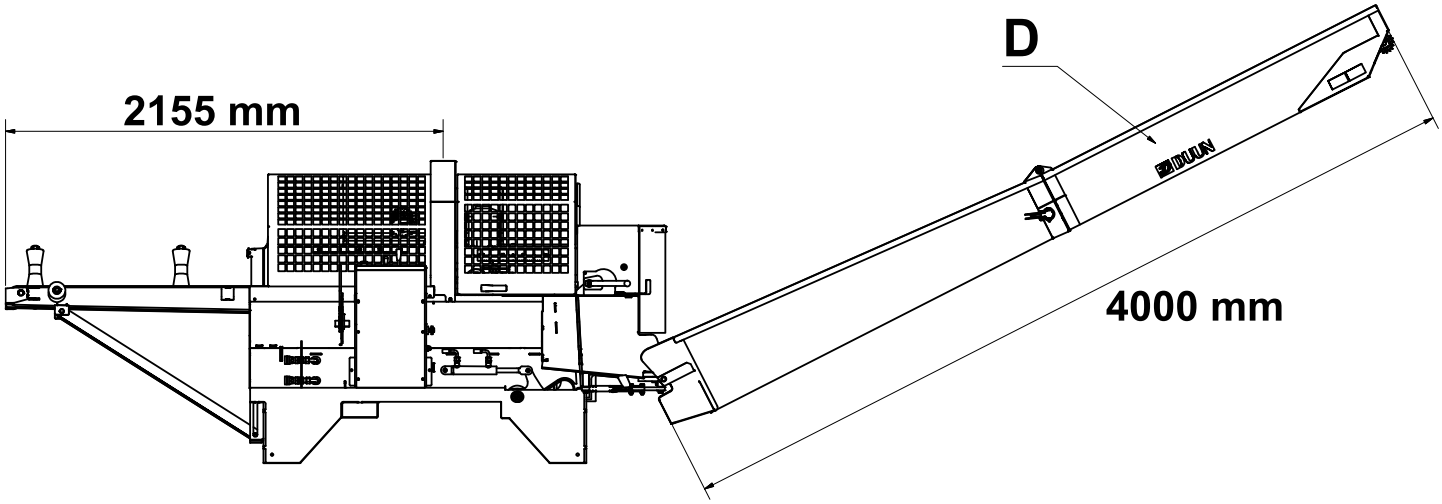
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# Technical data

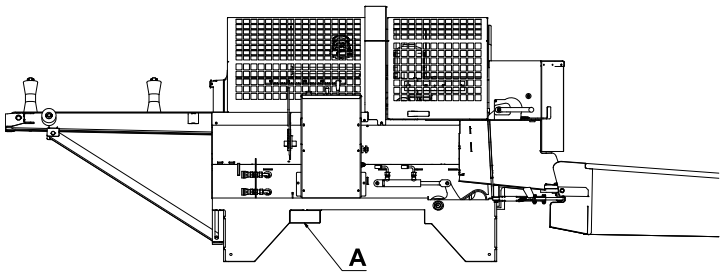
| Features | VM370 | VM370X |
|---|---|---|
| Max cutting diameter | 37 cm | 37 cm |
| Max splitting force | 7000 kg | 8500 kg |
| Chain drive | Hydraulic | Hydraulic |
| Cutting length | 20-50 cm stepless | 20-50 cm stepless |
| Saw chain type | 1,6 mm | 1,6 mm |
| Chain speed | 23 seconds metre | 23 seconds metre |
| Saw chain pitch | 0,325" division | 0,325" division |
| Total saw chain links | 78 links | 78 links |
| Weight | Approx. 880 kg | Approx. 880 kg |
| Moving log stop | Yes | Yes |
| Height of work table F | 880-960 mm | 880-960 mm |
| Support legs | Asseccory 0-40-80 mm | Asseccory 0-40-80 mm |
| Splitting knife | 4-part frame mount | 6-part frame mount |
| Rinsing conveyor | Yes | Yes |
| Saw chain lubrication | Separate pump | Separate pump |
| Knivfe adjustment | Manual | Hydraulic |
| Number og hydraulic pumps | 2 | 3 |
| Feed belt A | Hydraulic | Hydraulic |
| Conveyor length B | 4000 mm | 4000 mm |
| Conveyor lateral movement D | 25° to the each side | 25° to each the side |
| Maximum height E | 2540 mm | 2540 mm |
| Maximum width C | 2400 mm | 2400 mm |
| Depth transport position | 1500 mm | 1500 mm |
| Saw chain oil container | 2,5 liter | 2,5 liter |
| RPM’s at pto | 400 rpm | 400 rpm |
| Oil tank volume | 75 litres | 75 litres |

| Asseccories | Article number |
|---|---|
| 4- part splitter | 14131128 |
| 6- part splitter | 14131035 |
| Adjustable support legs | 141309131 |
| Triangel quick connection | 1252637 |
| HMV quick connection | 1252638 |
| Manual Log rack | 141409001 |
| Hydraulic Log rack | 141409002 |


D
2540 mm
880 mm
2400 mm

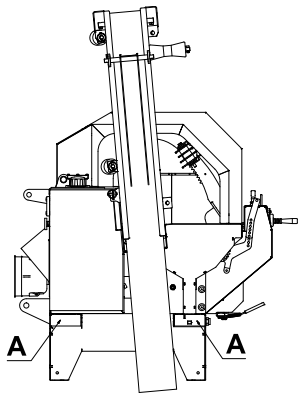

D
2155 mm
4000 mm

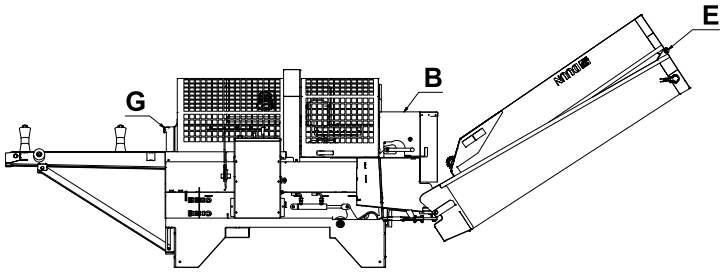
# Transportation and handling before use




## Transport and handling before use

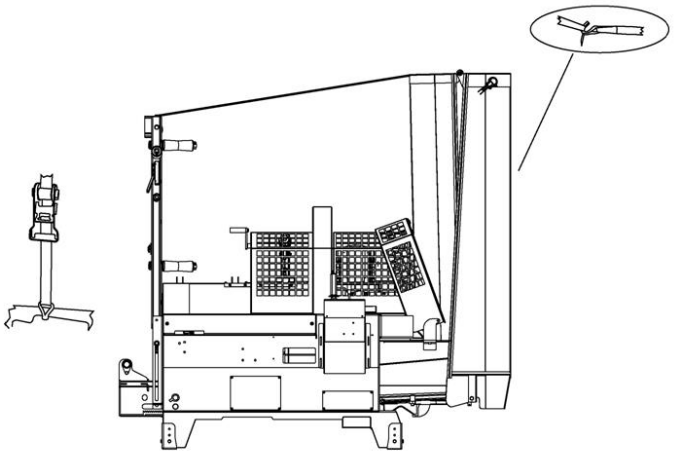
The hull for the VM370 is equipped with a fork pocket (**A**) for handling with a forklift or pallet forks. Be aware that a single firewood machine weighs approximately 880 kg. Use lifting equipment designed for such a total weight!



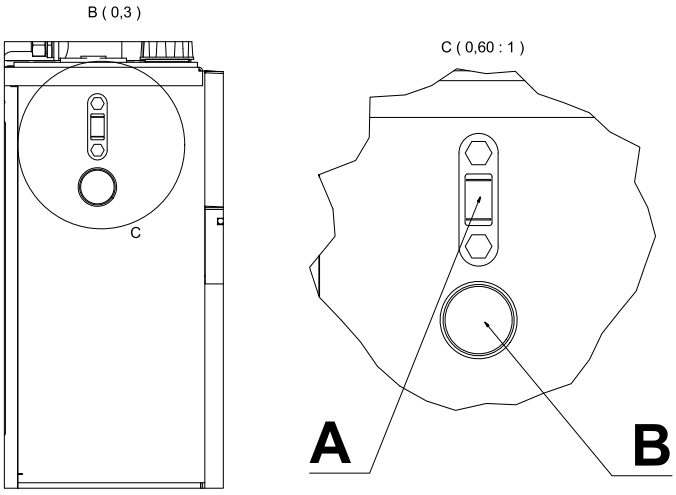

## Preparation for movment by tractor

The transporter is folded together in the joint E. The conveyor is then pulled to a vertical position using the winch wire. During this process, the protection cover is shifted in point B. Feeding table and the conveyor belt are adjusted to a vertical and horizontal position by releasing the locking pin in point G.



## Transmission security

Ultimately, the connection between the feeding table and the conveyor is secured with a tensioning strap for this with attachment at points as illustrated. This is important to ensure that the feeding conveyor is kept in place during transport and the connection between the feeing table and the transporter is safely secured.




## Hydraulic oil quality

The machines' ability to function will mostly depend on the hydraulic oil being intact.
The biggest dangers to the oil quality are:

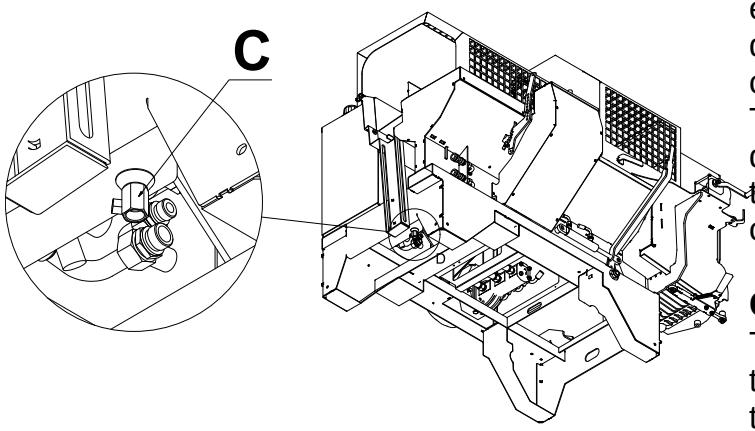
- Excessively high temperature which entails poor lubrication performance and risk of faults and break-down of expensive components such as valves, pumps and motors.
- Condensation which is formed during conditions including humid air combined with temperature fluctuations. (the oil tank breathes through the filter and pull in humid air).
- Condensation water in the oil has the same effect as excessively high oil temperature. Condensation appears mainly during the use in conditions involving humid air and temperature around 0°C. The oil tank is equipped with a draining plug for changing oil and checks for condensation.

**Oil level control**

The machines are filled with 75 liters of hydraulic oil from the factory. Recommended oil quality is ISO VG46 (viscosity group 46). Examples of such oils are Mobil DTE15m and Statoil Hydraway HVXA46.
The oil level is checked by observing the level glass **A**, which is in the intake grid of the hydraulic tank.

## Oil temperature control

It is very important to keep control of the oil temperature **B** and avoid situations where it exceeds 70 degrees. This situation may occur during unfavourable operating conditions for example in case of too high rotational speed during the use. The pto speed should under no circumstances exceed 400 rpm.
The processor has a built in temperature control device which stops machine functions if the oil temperature rises too high. Stop the machine and cool it off before further operation.

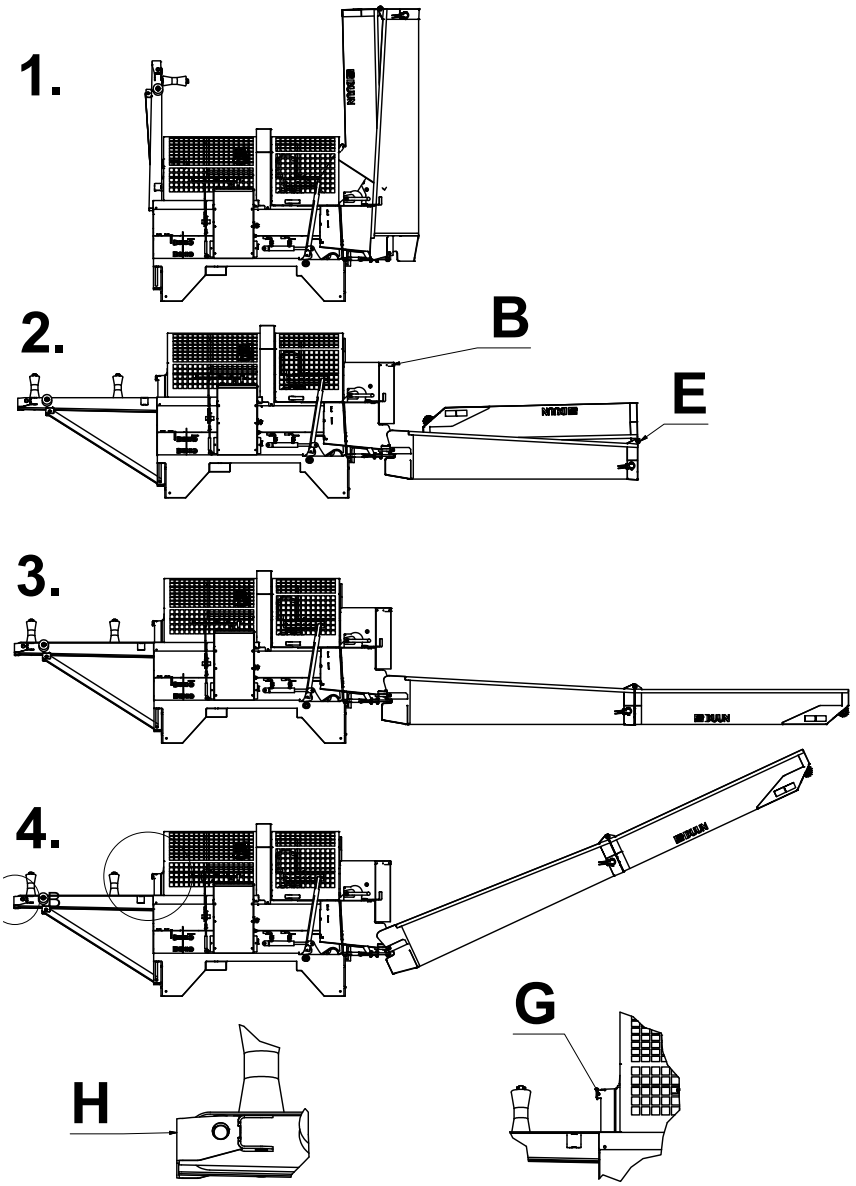



## Condensation control

The oil tank is equipped with a drainage plug **C** in the bottom. Grey oil is an indication of water in the oil. Beyond such conditions, the hydraulic oil must be changed every year or after 500 operating hours (whatever occurs first).

## Power transmission shaft

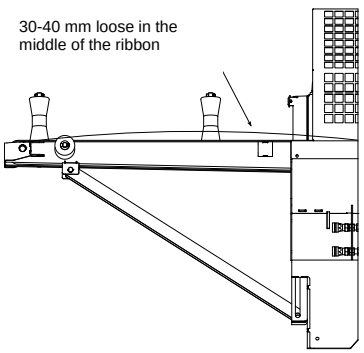
The power transmission shaft is maintained and used in accordance with the instruction manual for it.
To achieve a better operating angle, it is recommended to leave the machine standing by itseft and place the tractor at a longer distance and use a longer power transmission shaft during the operation.
The requirement for the length of the drive shaft will vary in pace with the size of the tractor and the length of the steady-braces.
For working angles of 25 degrees and above, a category 6 shaft should be used for durability.
If large angles occur, it may be advantageous to either lower the tractor or raise the machine. It can be raised with the support legs which are standard equipment mounted in the corners and raise the machine up to 80 mm.
Make sure the pto shaft has sufficient length. After any cutting, the profile tubes in the shast must overlap each other by the half the tube length. Any cutting of the shaft must be carried out in accordance with the instructions for this – the cut must be trimmed for burrs both on the inside as well on the outside and the profile tubes should be well greased.
NB! Too long shaft can lead to spraining of the shaft and risk of overloading the tractor's PTO and the gearbox in VM370.
Please lubricate the PTO drive shaft before use.
The locking chains for the plastic covers must always be fixed to the appropriate brackets in order to prevent the covers to rotate.




## Transporter preparation

Preparing for transport by:

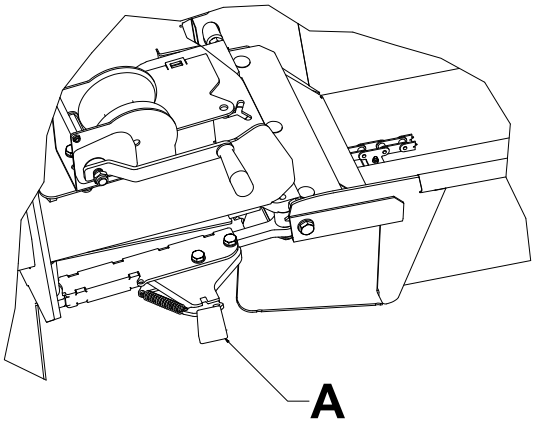
1. Releasing the strap fixing point and loosening the strap at the points outlined in the illustration.
2. The transporter is put in place by releasing the winch and the wire which holds it in place – the transporter will fold out until it is level with the ground.
3. Afterwards, the transporter is folded out in its full length in the joint **E**.
4. The transporter is elevated to the required height by the winch.



## Feeding belt preparation

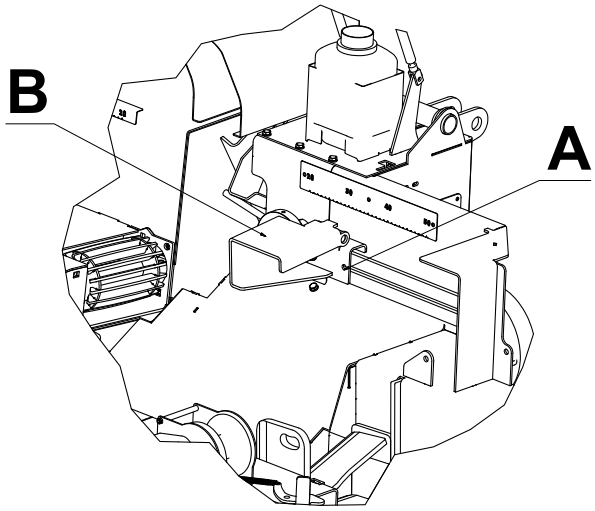
The feeding belt is folded in place by releasing the locking pin at letter **G** which locks it.
The belt is tensioned by adjusting the screws at letter **H**. The belt is sufficiently tensioned if it feeds in the wood without friction. Too hard tensioning increases the wear of the belt and reduces the service life considerably.

An indication of proper tightening is when the belt in the middle of the feed table can leave 30-40 millimeters of space.



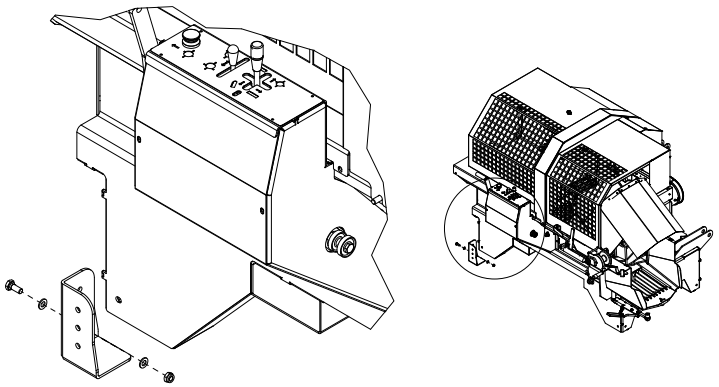

## Side adjustment of conveyor

The conveyor can be fixed in three positions at each side, totally 7 positions. To unlock the lock, move the handle **A**. The conveyor is now release for sideways movement The handle **A** will grip the first vacant position available and lock the conveyor sideways. If you want to "side-regulate" to the outer position, it is advisable to move the conveyor sideways to the first stop and then release the handle **A** to get to the next position.




## Adjustment of the cutting length

The cut length can be adjusted by releasing the screw **A** and adjust the stop point **B** to wanted length.



## Høyderegulering av maskin

For eventuelt å kunne heve selve maskinen i intervaller av 40mm opp til 80mm kan støtteføttene som er festet i hjørnene stilles til ønsket høyde.

Regulerbare støttebein er ekstrautstyr.
Varenummer: 141309131

# Practical use




## Conditions

The machine **may not be used** until the operator has done the following:

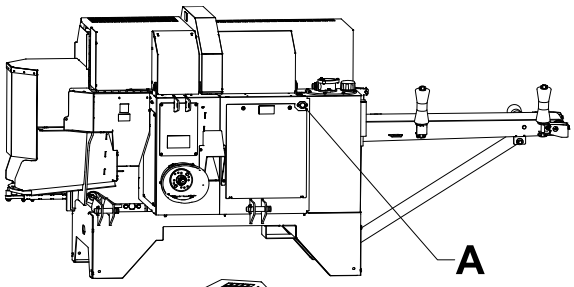
- Has read the instruction manual and knows how the machine works and how to operate it.
- Has made himself acquainted with and observed the information regarding safety described on pages 4 to 7 in the instruction manual.
- Employs suitable clothing; i.e. hearing protection – protective goggles – protective footwear – work gloves.
- Does not wear clothing that may be caught in the moving parts of the machine (for example scarf, wide coats).

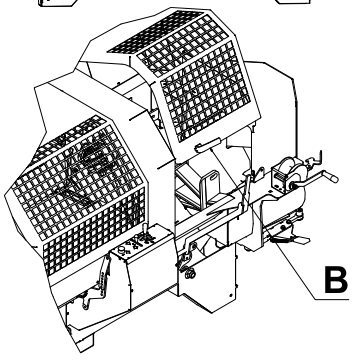
**If any faults occur in the functions of the machine during work, the machines is to not to be used before the defects have been repaired.**




## Start-up and appropriate speed

The PTO of the tractor is connected at low rotating speed and increased slowly to 400 rpm which is the max rotating speed of the pto.
In order that the machine is to work at its optimum, the rotating speed must be between 380 and 400 rpm.
At lower speed, some functions will receive too low oil pressure.
Let the machine run for some minutes before you start the hydraulic functions.

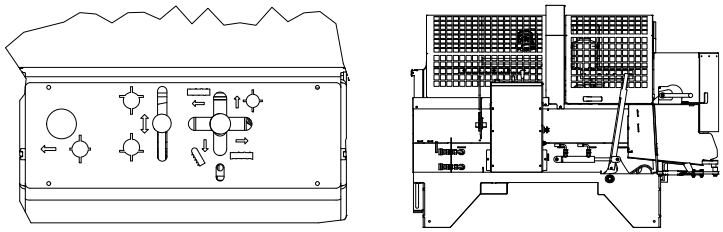


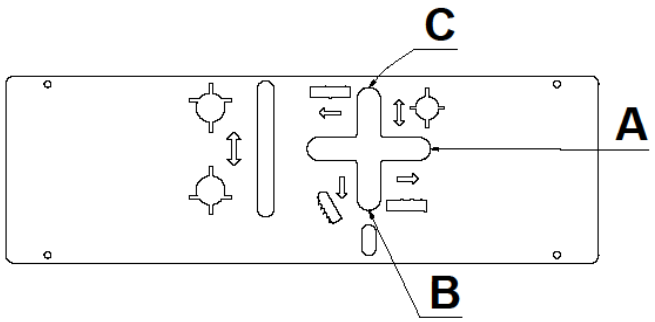




## Activation of electrical control

The processor is equipped with electric controlled valves for splitter, saw motor and safety functions**.** Connect the cable delivered with the machine to the socket marked **A,** to the power source on thetractor. If the tractor does not have a 3-pole connector, this must be installed or you can use an other power sources with 12 volts, for example directly on the tractor's battery. Use 2.5 square wire when extending the wire.

Starting the machine or every time the electricity supply is cut, the lid (**B**) covering the splitter must be opened and closed for activating the electric control. If the machine's hydraulics overheat, the electrical functions stop working. Let the machine cool down. Cover (**B**) must be opened and closed and the splitting function must be reset. Check function (**E**) in the next page.



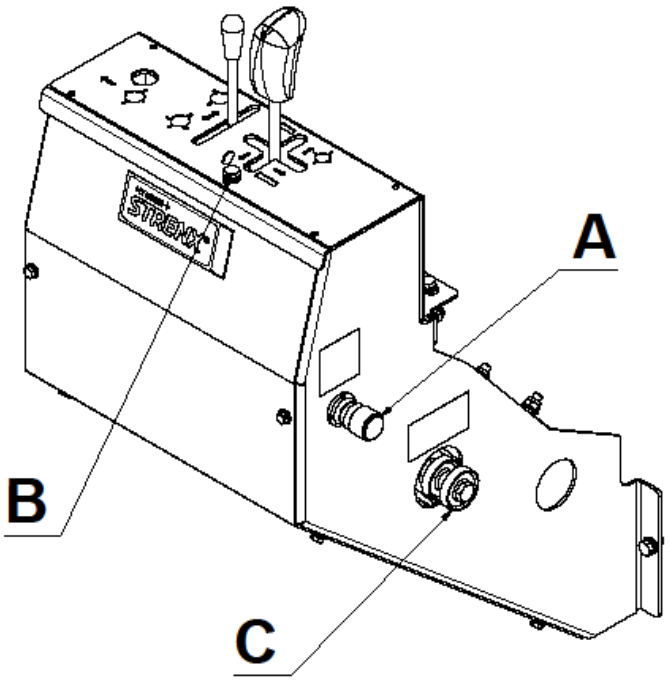



## The main functions – feeding – conveyor belt speed adjustment

The wood material that is to be cut is fed on the feeding belt.
The main functions are:

- **A.** To move the feeding belt forwards/backwards.
- **B.** Operate the cutting sword up and down.
- **C.** Releasing the splitting blow.

When the splitter is running, you can stop it by pushing the lever towards **C** once more.

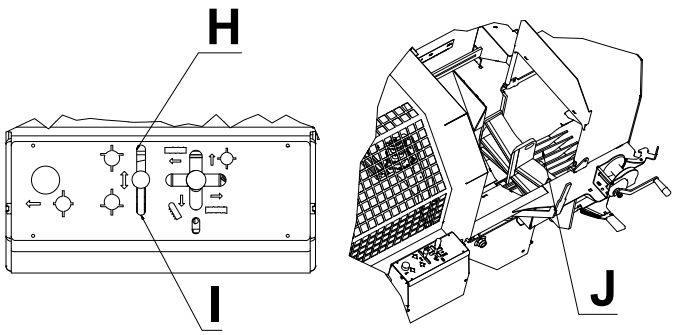



## Cutting adjustment

To adapt the cutting function as best as possible to the material, the speed and pressure of the blade can be adjusted.
The downward speed of the sword are adjusted by the joystick during cutting. Adjusting the screw **B** maximum movement level can be reached.
The swoord pressure can be adjusted by the screw marked **A**.
Start with low pressure and adjust upwards. Too low pressure might stop the saw bar from moving to the «bottom» level.
Too much pressure can harm the motors pull ability and engage the safety valve.
The wheel is marked with + and -. Turning the wheel clockwise increases the pressure.

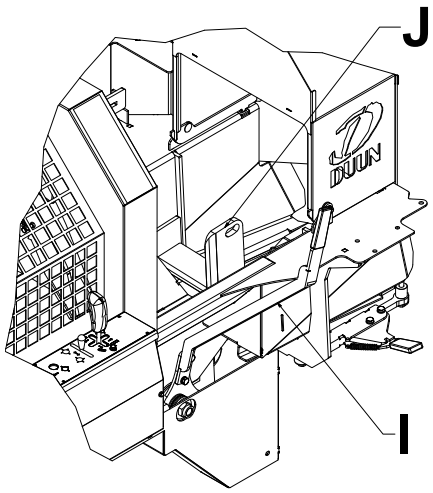
## Conveyor belt speed

The speed is adjusted with an adjustment wheel fitted on the adjustment block for this at letter **C** as illustrated.
Select a speed that suits the purpose – depends on the desired throwing length and container to receive the wood. Make sure that the steering wheel does not "locks" in the block. It is adviced to loosen the wheel when the machine is not used.



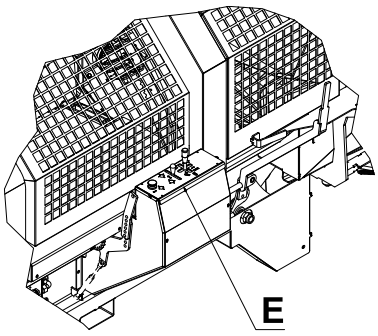

## Hydraulic knife lift

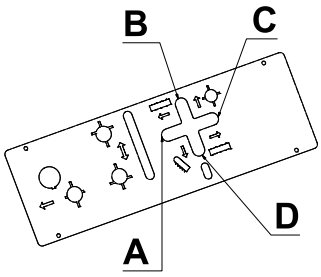
The splitting knife **H** is adjusted up **H** and down **I** with the lever equipped for this purpose.
To change the knife **J**, move the handle all the way to the top position (**H**). Release the bolt which holds the knife in the lower edge and lift out.
This is valid for VM370X-model.




## Manual knife lift

The splitting knife **J** is adjusted up and down by pushing the handle **I** to the right or left.
Changing the knife is done as described above.



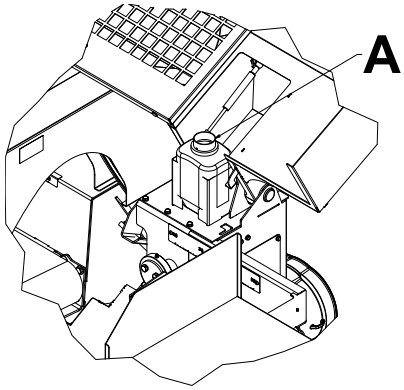




## Cutting

The lever for operating cutting and operation of the feeding conveyor forwards and backwards (**E**) has several functions:
The saw chain is hydraulically operated and starts when the lever is moved towards (**D**).
The lever also releases the splitting function when it is moved towards (**B**) as illustrated.
If you move the lever in direction (**C**), the feeding belt moves forwards and in direction (**A**) backwards.

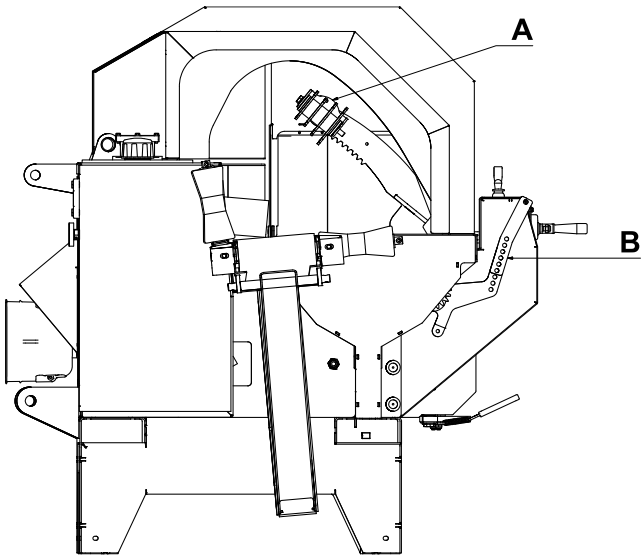
## Thin wood material that is not to be split

When cutting thin wood materials, you may cut several continuous lengths and let them fall into the splitting cradle without activating the splitting piston. This makes for a far faster cycle.
The splitting function is always released by moving the cutting lever to position **B**.



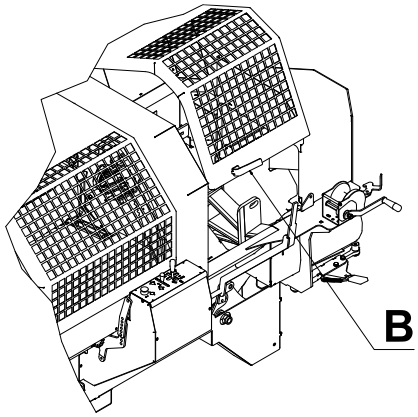

## Saw chain oil filling

The machine has a separate container **A** for the saw chain oil. The chain is lubricated for each cutting movement and it is important to refill before the container is empty. Use ordinary saw chain oil designed for chainsaws.



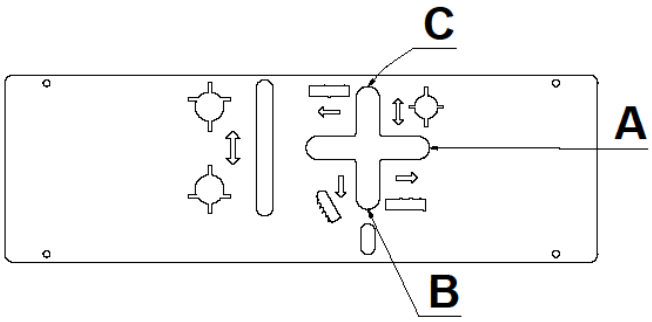

## Safe manually operated log holder

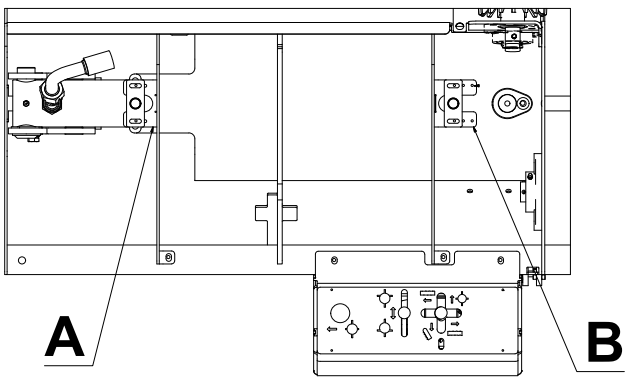
Avoid using your hands near the saw chain. This is achieved by using the log holder **A** and the handle **B** for operating this.
Cutting the last log, it is important to keep a "correct" long one at the end and cut a short length of wood as the penultimate one. During this operation, it is particularly important to use the manual operated log holder **A** by means of the handle **B** to avoid unexpected blows from the last length.
Cutting twiggy or crooked logs, it is important to ensure that these are not left unattended. Use the manual log holder as much as possible when cutting such timber to prevent fingers/hands from getting pinched.




## Stuck material

If the splitter is unable to split the wood - the piston is driven back by moving the joystick forward **C**, or open the safety cover marked **B** so that the splitter stops. The wood has to be solved manually. Close the cover and the cleaver will automatically return. The cube can be thrown in for another attempt.




The stop signal and return signal for the splitter piston occurs via two solenoid valves. These contact points can be adjusted by positioning the solenoid valves on the brackets.
Solenoid valve **A** adjusts the stop signal.
Solenoid valve **B** adjusts the return signal.
It is important that the cylinder does not go all the way in and all the way out.

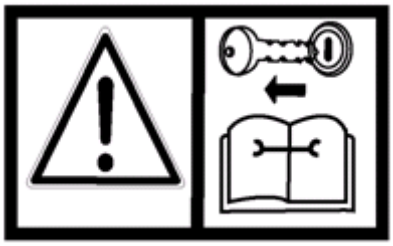
# Chain sharpening and tightening

**General**

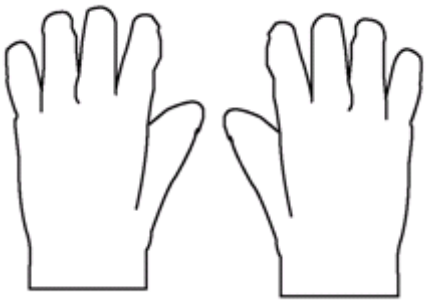
Blunt chains and skewly sharpened chains entail great wear on the saw chain sword and risk of extra costs and complications.
To avoid this, the Duun VM370 is designed that the saw chain must always be removed from the machine for sharpening or replacement.

As a starting point, we recommend replacement of the chain or sharpening in equipment designed for this purpose.

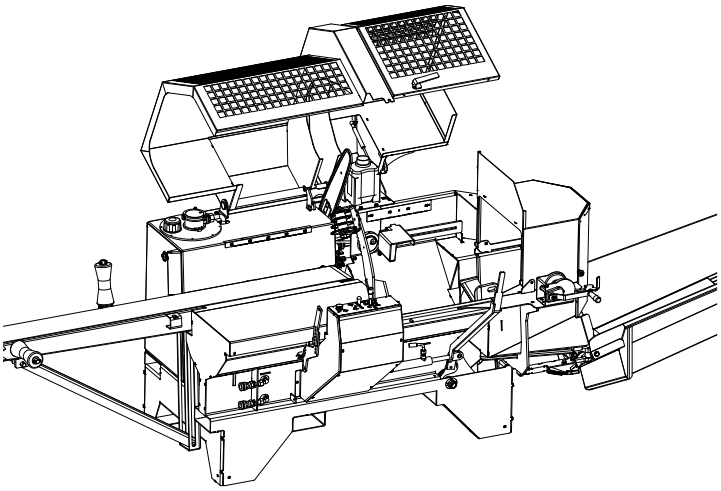
Alternatively, the saw chain can be sharpened according to the standard procedure with a file with a file template for a 4,8 mm chain and a rider gauge. This is to safeguard against faulty sharpening and complications.



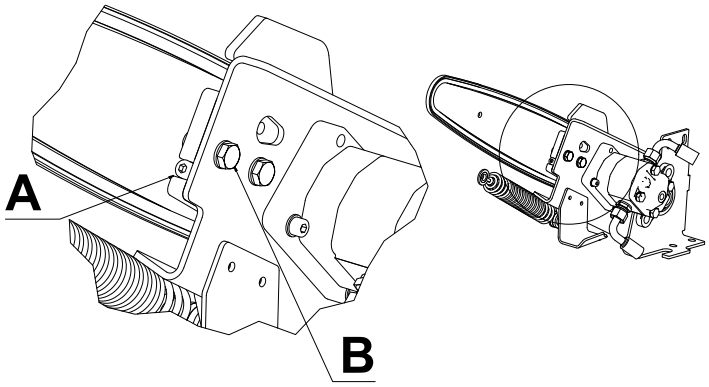
Before any sharpening work is initiated – stop the machine and the tractor and remove the key to prevent accidental start during the work.



Always wear work gloves when working with the chain!



The covers over the saw chain itself and the cover over the splitter are opened as illustrated.

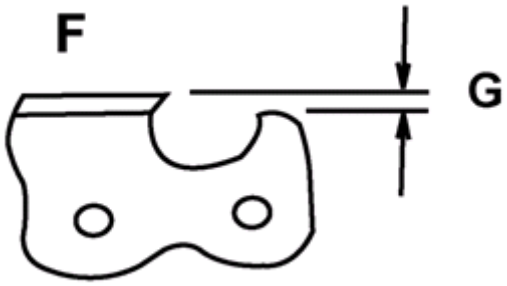



To change the chain, release both screws **B**. The screw **A** is loosened so far that the chain can be unhooked at the rear for maintenance or replacement.
To tighten the chain, loosen screws **B** and tighten with screw **A**.
Check the chain tension by pulling the chain in the middle of the long side of the bar. If you can pull the chain 4-5 mm up above the edge of the sword, this is considered suitable tightening. A new chain loosens more quickly and needs to be checked more often.




File dimension is 4,8 mm

The chain is now available for sharpening with a round file from both sides. It is very important to keep the correct shape of the saw teeth as illustrated. The main point is to use the right size file and make sure to maintain the right angle on the edge - i.e. 30-35 degrees. Figure **F** shows the correct shape of a sharpened tooth.

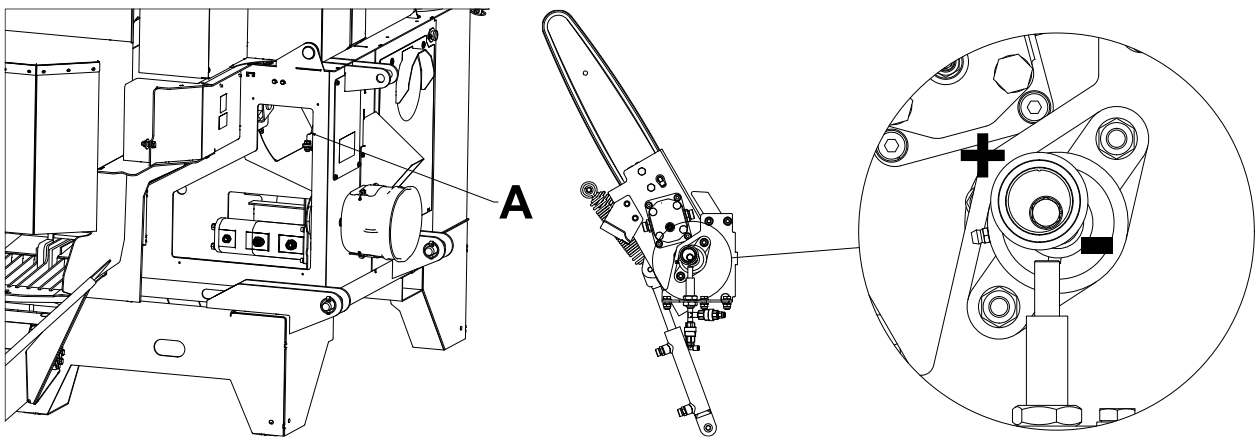



Also remove damages from saw bar and turn the saw bar regularly. This in order to achieve even wear on both sides.

## Adjustment of the chain lubrication

**Adjustment of the chain lubrication**

The need for chain lubrication may vary with the average thickness of the material.
Open the cover above the hatch marked **A**. Adjust by loosening the connection and turning the round eccentric washer (+) to increase the amount of lubrication per stroke or opposite (-) to reduce the quantity.

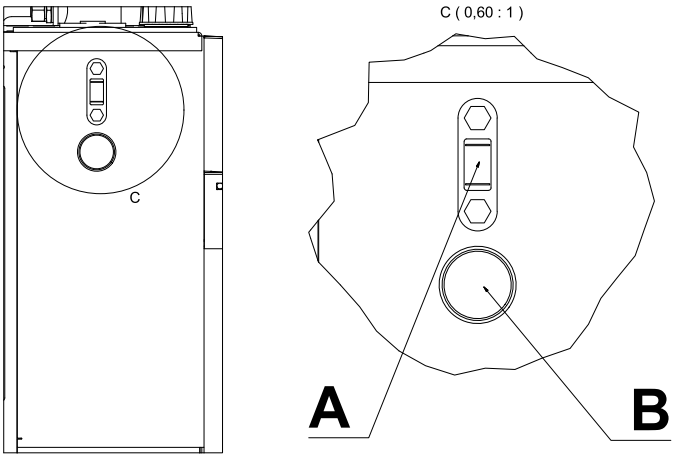


# Service and maintenance

Before opening any covers and carrying out service and maintenance, always switch off the machine to avoid damage.
**NB! There are movable parts in the mechanism with great power and a risk of crushing. The machine should never be run with the covers removed.**
The machine is factory set. Do not adjust any functions until the machine has reached a working temperature of over 20º C.

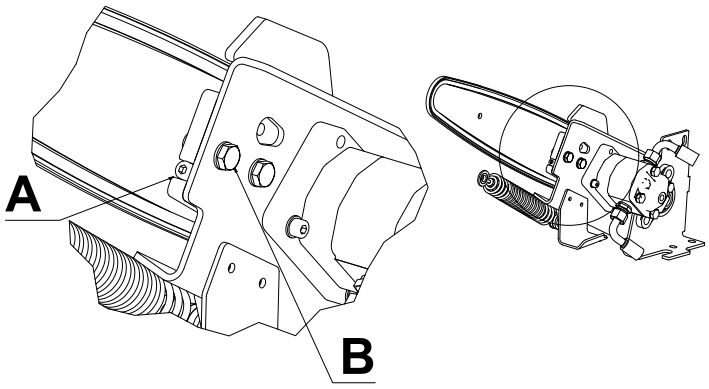
## Daily maintenance

Keep a cleand and tidy enviroment around the machine. In order for the machine to function optimally, it must be able to get rid of chips and have air under it.

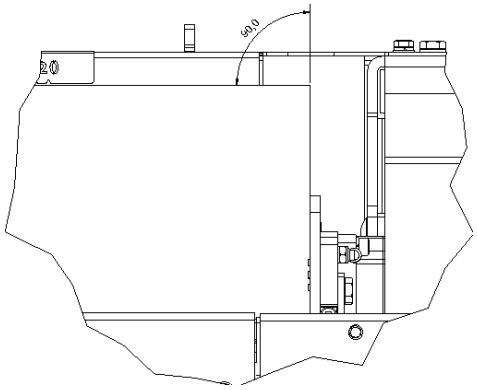


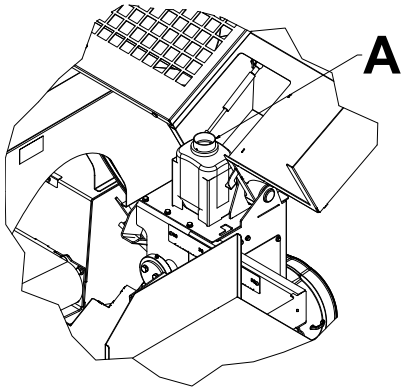

Check the oil level and temperature of the hydraulic oil regularly. Refill oil if necessary. The oil level should be in the middle of the level glass **A** when the machine is on level ground.

The temperature **B** must not be higher than 70ºC. If the temperature gets too high, the speed of the machine must be checked. NB! Max 400 rpm.



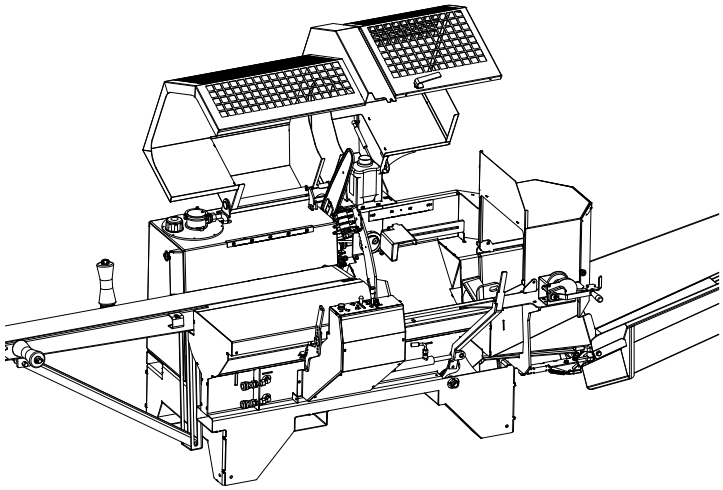

Check the saw chain and the cutter bar regularly. Wetting and tightening the saw chain is important for efficient cutting. Also check the vertical angle of the sword that the sword does not wedge against the stock.



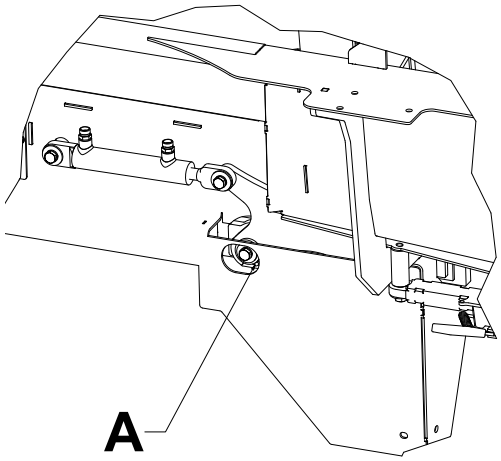



Make sure that the chain oil tank does not run out of oil. Check if the oil is consumed and the chain is lubricated.

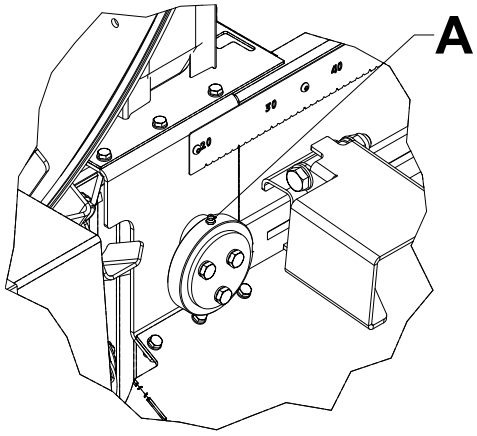
**Weekly maintenance**



Open all hatches and safety covers and blow clean of dirt and grime.
Sawdust and dirt will settle inside the machine and it is important to remove this in order for the machine to have optimal cooling and for all functions to work.

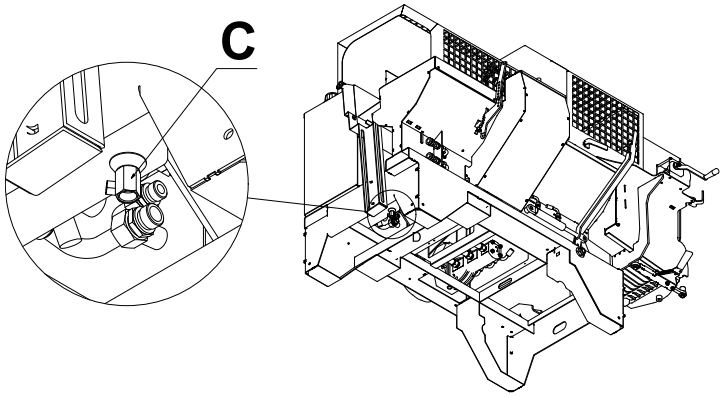



Lubricate the knife lift **A**.



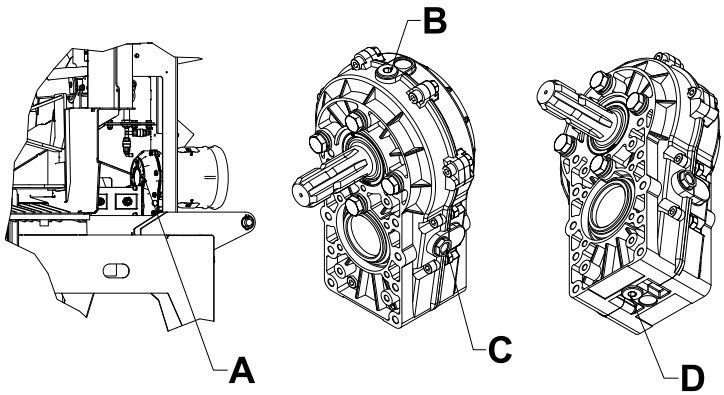

Lubricate the log stopper **A**.

## Monthly maintenance

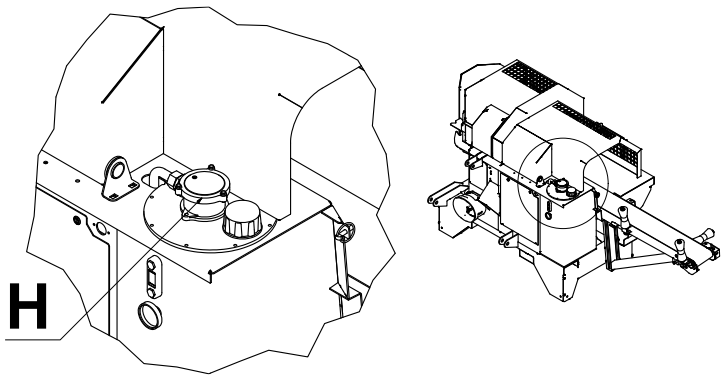



Drain some oil from the drain plug on the tank and check the oil at regular intervals. Gray oil is an indication of water in the oil due to condensation. Check this when the machine is cold and the water has collected at the bottom of the oil tank.
Drain until clean oil comes out and refill the tank.

## Annual maintenance




Check the oil level in the gearbox after each season by releasing level screw **C**. Oil should then leak out at a sufficient level. Filling takes place via the breather plug **B** at the top. Draining takes place via drain plug **D**. Oil changes are made after the first 50 operating hours and then every other season or after 500 operating hours. Whichever occurs first.
Recommended oil: Statoil Gearway PS45 75-90 Specification API GL-5. or equivalent. The oil volume is approx. 0.55 liters depending on the make of the gearbox.




Change filter insert **H** in the oil filter after the first 50 operating hours and then every year or after 500 operating hours(whichever occurs first).
Change the hydraulic oil every year or after 500 operating hours(whichever occurs first).

Filter insert, SIF.20C10
Art.no. 2251065

Clean and lubricate the machine properly between each season.
VM370 has many bearing points, many of which are lightly loaded and are therefore equipped with one-time lubricated bearings.
Other bearings are mainly flanged bearings that should be moderately lubricated. The main rule here is to avoid over-lubrication and squeezing of the seal rings in the bearings.

# USER MANUAL FOR DISPLAY IN VM370




Applies to software version v0.0 – v0.5.


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# 1. Startup

## Safety Check




Starting the machine, for safety reasons, it is necessary to test the safety switch on the firewood processor's cover.

The cover must be opened and closed.

If for some reason there is a loss of supply voltage, this test will be required again.

## Release all buttons




This is check that neither the buttons nor the joystick are in the affected position during start-up. Check for stuck or frozen buttons or joystick.

This applies to the four buttons on the joystick, the two buttons on the feeding belt, as well as the joystick's four directions.

## Safety Check OK



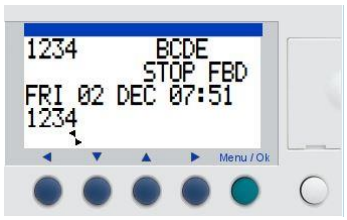

Confirmation of an approved safety test.

# 2. Display menu



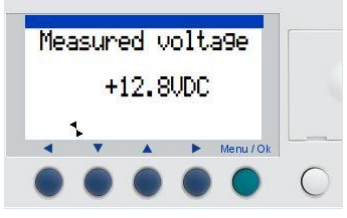
You can navigate through the on-screen menu by opening the cover and pushing the joystick.
The menu has seven images, scroll through them continuously by pushing the joystick several times.
The display's push buttons are not in use on this device, and will have no effect if pressed.

## Menu picture 1




This image will always be displayed after startup. It is mainly used for possible troubleshooting. The upper row (1-E) are inputs on the control, and the lower row (1-4) are outputs.

## Menu picture 2




Measured voltage

Here the supply voltage can be read during the operation.

### Menu picture 3




No of splits

Counts the number of splits the firewood processor has been instructed to perform.

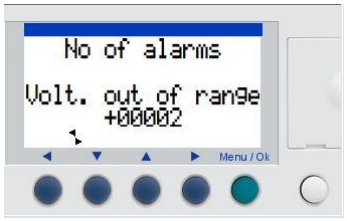
### Menu picture 4




Power ON time

Counts the number of hours the machine has been powered on.

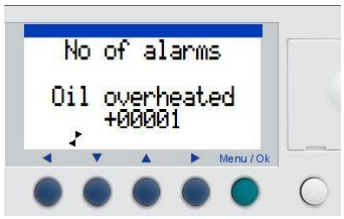
### Menu picture 5




No of alarms: Voltage out of range

Counts the number of times the oil temperature has been too high.

### Menu picture 6




No of alarms: Oil overheated

Counts the number of times the oil temperature has been too high.

### Menu picture 7

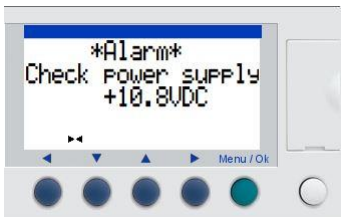



Software version

Shows which software version is on the device.

## 3. Alarms

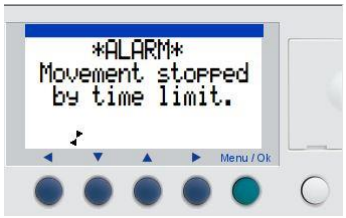
### Check power supply




The alarm occurs if the supply voltage is below 10.8 VDC or above 14.4 VDC. The recommended voltage range is within this range.

The alarm cannot be acknowledged but remains as long as the voltage does not exceed these values. The device works, but some functions may malfunction.

## Movement stopped




The alarm will sound if the movement is not completed within a reasonable time.

This applies to the movements for splitting and sawing. Resets by releasing the joystick and possibly reactivating it.

## Oil overheated




If the hydraulic oil on the machine gets too hot, this alarm will sound. You can finish a movement you have started, but you cannot start a new one until the machine has cooled down.

# Declaration of conformity

## Responsible person

| | |
|---|---|
| Name: | Karl Martin Eggen |
| Position: | CEO |
| Company name: | Duun Industrier as |
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Person responsible for the technical documentation: Rolf Even Duun

| | |
|---|---|
| Declares that the following machine: | VM370 Firewood processor |
| Manufacturer: | Duun Industrier as |
| Type | Duun Firewood processor VM370 |

is in accordance with:

Directive 2006/42/EC Machinery

Signed by:

Duun Industrier as

Karl Martin Eggen

Åsen, 15.09.2020