GS/**JAGUAR** PTO

OPERATING MANUAL

saelen.fr ts-industrie.eu

SAELEN® TS INDUSTRIE®

TABLE OF CONTENT

DECLARATION OF CONFORMITY
of Quasi-Machine

LA SOCIETE **TS industrie**

Weserstrasse 2
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Tél : +49(0)2845 9292-0 - Fax : +49(0)2845 9292-28

HEREBY DECLARE THAT THE MACHINE:

Trade Name: **TS Industrie**
Type : **GS/JAGUAR PTO**

Technical documentation held by Mathieu Willerval

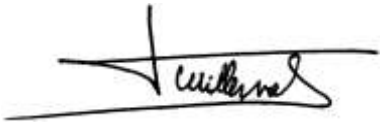
is in conformity with the following european directives:

- **2006/42/CE** Directive „Machinery“

Reference of the applicable harmonised standards:

- **EN 13525**

RONCHIN, June 01, 2017



Mathieu Willerval (Directeur Fabrication TS Industrie)

Attention!

Before our machines are delivered they pass a tight quality control in the works.

Given that we no longer have a bearing on the machine after it leaves the works, the dealer has to perform another check before the delivery to the end customer.

The following is to be checked:
- Exterior damages produced by transport etc.
- Tight seat of all screw and hose connections
- Filling level of oil, water and fuel
- Complete functional control of all parts

This control is to be confirmed with stamp and signature on the **Machine Delivery Document**. If the fully completed and signed delivery document is not returned there is no right for warranty!

Furthermore, it is required to check all screw connections for tight seat and the laid hoses for marks of abrasion!
Agree a date for this directly with your customer.
Regular inspections according to the operating manual are to be met!

Controlled quality – an important step towards customer satisfaction!
Play your part!

Processing of warranty claims

Warranty claims according to the General Business Terms of the manufacturer are valid for

At the entrance of its PTO, the JAGUAR PTO requires, with a standard box, a power of 45 to 52 cv at 540 RPM or 45 at 80 cv at 1000 RPM for an optimum operation of NoStress system. (With the OPTION big power tractor, 45 to 82 HP to 540 RPM or 45 to 120 HP to 1000 RPM.)

This guarantee does not apply to crushers that have been modified outside our workshops and that, according to the SAELEN norms, have been affected in their functioning, safety and longevity, notably following the use of a too large tractor.

the period of 1 year starting with the day of delivery.
Determinative for the moment of the transfer of risk is the date written in the **Machine Delivery Document**. As a matter of principle, warranty claims are to be announced to the supplying franchised dealer. For the preservation of evidence, all parts of the delivered machine covered by this have always to be stored unchanged until the final processing of the warranty claim brought to notice.

Technical modification at machines and/or parts thereof will result in loss of any and all right of warranty claims. The same is applicable in case of inappropriate treatment or use of lubricants and spare parts or accessories not approved by the manufacturer. Transport damages and damages cause by usual wear after commissioning of the machine do not create any warranty claims.

The delivered machine has to be subjected to the obligatory check and inspection intervals specified in the enclosed maintenance schedule. If the obligatory visual check and inspections schedule is not complied with, any and all warranty claims become void. Another requirement for a valid warranty claim is the presentation of a complete proof about the executed obligatory visual checks and inspections.

All warranty and maintenance works are only allowed to be carried out by a specialist dealer authorised by **TS Industrie**.

It is pointed out that warranty works exceeding an amount of 150.00 € is unconditionally to be agreed with **TS Industrie** and authorised by **TS Industrie**. In this case, the manufacturer reserves the right that he carries out the repair.
Prerequisite for the assertion of a warranty claim is the return of the fully completed and signed Machine Delivery Document.

Modifications on the equipment and programming of the electronic system are prohibited because these might have a negative effect on the operational safety and life time of the machine.

DO NOT FORGET TO REGISTER THE WARRANTY, OTHERWISE IT WILL BECOME VOID

www.ts-industrie.eu
Section: Services / Warranty

RÉPUBLIQUE FRANÇAISE

INPI
INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE

BREVET D'INVENTION

Code de la propriété intellectuelle-Livres VI

DECISION DE DELIVRANCE

Le Directeur général de l'Institut national de la propriété industrielle décide que le brevet d'invention n° [illegible] dont le texte est ci-annexé est délivré à :
SAELEN S.N.S. Société anonyme - FR

La délivrance produit ses effets pour une période de vingt ans à compter de la date de dépôt de la demande, sous réserve du paiement des redevances annuelles.

PATENT FOR INVENTION

Intellectual property law-Books VI

GRANTING DECISION

The General Manager of the National Institute of industrial property has decided that invention patent # ##-##### the text of which is appended shall be delivered to:
SAELEN S.N.S. Company - FR

The delivery produces its effects for a period of twenty years starting on the date of deposit of the application, under reserve of payment of the annual royalties.

Mention of the delivery is made in the Official Bulletin of industrial property ###/## of ##:##:## (publication # # ### ###).

Le Directeur général de l'institut national de la propriété industrielle

D. HANGARD

INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE
SIEGE
26 bis, rue de Saint Petersbourg
75800 PARIS cedex 08
Téléphone : 01 53 04 53 04
Télécopie : 01 42 93 59 30

ETABLISSEMENT PUBLIC NATIONAL — CREE PAR LA LOI N° 51-444 DU 19 AVRIL 1951

Preface

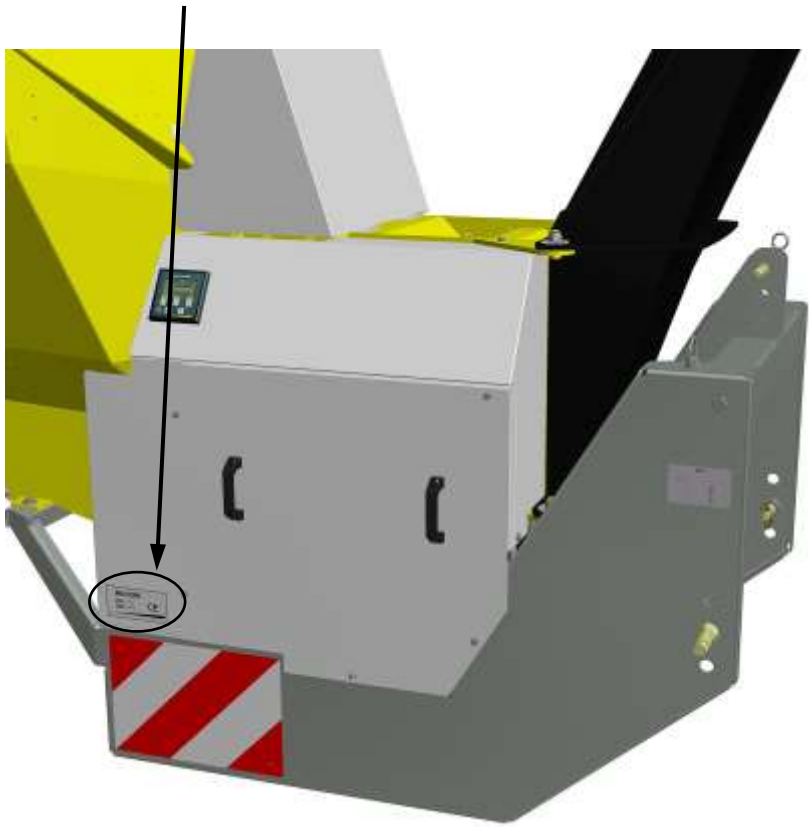
We thank you very much for deciding to purchase an universal chipper from **TS Industrie**.
Your universal chipper was manufactured with utmost care and high quality standards. In order to meet these requirements also for the mostly professional applications, we kindly ask you to diligently read this operating manual and to comply especially with the warning and maintenance information.
Only if complying with all maintenance works within the specified maintenance intervals we can concede the full manufacturer's warranty for your universal chipper from **TS Industrie**.

The operating manual includes several models such that in the introduction is explained how to orient yourself with the help of small pictographs.

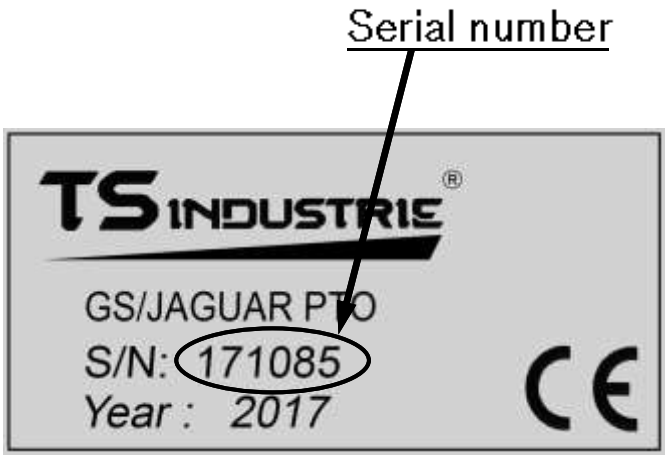
Location of the serial number

For any spare parts order or a question regarding technical information have always the serial number of your **JAGUAR PTO** at hand.

Manufacturer's type plate



The serial number is located as shown in the image. It does always have **five- or six-digit number**.



Safety instructions

1. The machine is only allowed to be used according to the operating manual!

2. The tractor operating instructions must also be observed for the PTO machines

3. Folding the intake extension up (as far as present) is only allowed after standstill of the rotor.

4. Maintenance, cleaning and setting works as well as the removal of protective devices are only allowed after the tractor is shut down, the ignition switched off, the drive decoupled and the tools immobile. Remove the ignition key such that unintended start is impossible.

5. Prior to operation it is required to remove foreign matters, e.g. ferrous parts, stones etc.

6. After maintenance or repair it is to be checked if all protective devices are mounted.

7. The wood chipper is not allowed to be operated in closed spaces because of the risk of intoxication.

8. The rotor must not be uncovered before it has reached standstill. That is to say, the propulsion engine (tractor) is parked and the ignition is in 0-position.

9. The machine operator is responsible that no third persons are staying in the working and danger area.

10. For repairs it is to be observed to use approved original spare parts only.

11. Only persons of over 18 years are allowed to operate the wood chipper.

12. Safety shoes and tight fitting clothes, work gloves with tight gauntlets as well as ear protection and goggles are to be used.

13. For transporting the wood chipper it must be moved into transport position.
A) Fold the hopper (as far as present) up and check if the locking device is engaged.
B) Move the wood chipper into transport position an check if the safety pin has engaged.
C) Turn the ejection channel such that it does not jut laterally out over the machine.
D) If necessary lift all parking sustainers.

14. When driving on public roads the lighting must correspond to the Highway Code.

15. For work, the wood chipper must be parked stable.

16.
a) Single-axle machines with engine are attached to tractor vehicles, and the parking brake is applied as far as present.
In case of machines without brakes it is required to push the supplied chocks under the wheels.

b) For operation without tractor vehicle it is required to lower the parking sustainers (front and rear).

17. For safety reasons a minimum distance of 10 metres should be kept from the machine. **The expulsion must always be directed away from the operating personnel**.

18. Only after the engine is shut off and the rotor is standing still, it is allowed to reach with the hands into the infeed mouth.

19. The admissible hydraulic operating pressure set ex works is not allowed to be changed.

20. Only trunks up to a diameter of **18 cm** are allowed to be processed.

21. The hydraulic system is to be competently checked every year. The hydraulic hoses are to be replaced after 5 years.

22. During feed of the wood chipper do not reach into the feed hopper. Congestions are to be removed in a safe manner (shut the engine down, use an aid). For pushing in short pieces or shrubbery material do only use solid wooden rods or other aids made of wood. Our wood chippers are designed only for manual feed. Do not use mechanical resources (gripper) for feeding the machine.
Do not move in the area of the expulsion.

23. Carry out an functional check every day before starting the machine, especially of the safety equipment (**trailer coupling**, gear linkage, shifting block, cut-off switch on the hoods in case of the M version etc.). Chipping knives and counter-knives are also to be checked for proper functioning and tight seat.

24. Prior to starting the machine the operator must be trained in detail.

25. The rotor must not be uncovered before standstill and the engine is switched off.

26. Danger because of flying off pieces. It is to be observed that also in the operating range pieces such as wood chips might fly out of the hopper area. Body protection is always to be used. Operation is to be carried out lateral of the hopper.

27. Caution when parking the machine on a slope. The machine operator has to ensure that the machine is safely stationed for the time of the work.

28. The machine must only be fed with wood. Ensure that no stones or metal objects enter the machine.

29. The machine must not be used for transporting material or persons.

30. The machine must not be used for pushing or towing.

31. Always disconnect the electrical connector connected to the tractor before any work on the electric installation.

32. Only **trained personnel** is authorised to carry out these works. The execution of all installation and removal works as well as special maintenance works is reserved for an authorised specialist dealer.

33. Pay attention that you are not drawn into the infeed roller with the clothes.

34. Regularly clean the lateral skirt such that it remains transparent.

Pictographs

Wear eye and ear protection!

Use protective gloves with specially tight gauntlets!

Wear safety shoes!

Do only touch machine parts after they are at a complete standstill!

Keep sufficient distance to rotating machine parts!

Pictographs

While the drive is running never open and remove protective devices!

Read the operating manual before start-up!

Do not stay in the area of the expulsion if the machine is running! Hazard area!

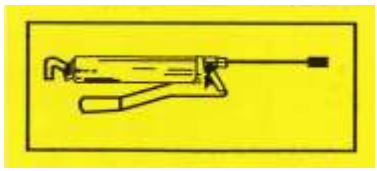
Shut down the engine and remove the key prior to any maintenance and repair work!

Caution! Entanglement.

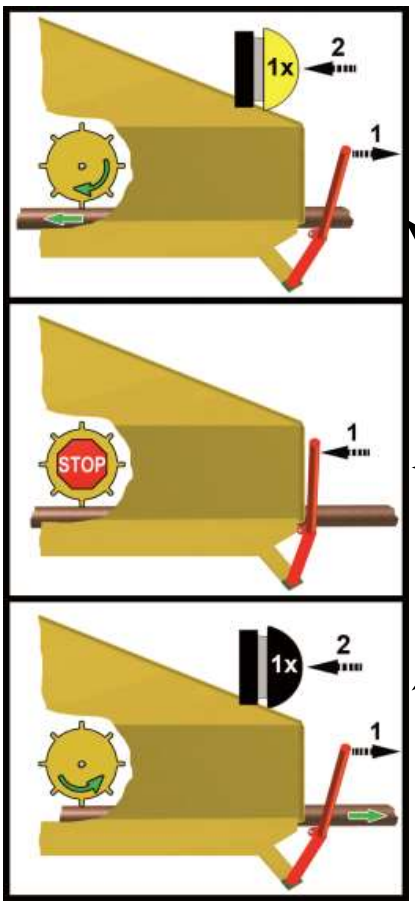
Never reach into the infeed hopper while the engine is running.

The machine is operated with hydraulic oil HV46.

Lubrication points



The sound level of the working machine is not the value of the standard level on the sticker.



<u>Moving direction commands for the conveyor belt</u>

Material chipping (forward **max. speed**)

Stopping rotation of the infeed rollers

Loosening material (backwards)

Safe transport

1) Observe the valid Highway Code.

2) Ensure that the machine is always fitted with signal lights, which are clean and visible for other road users.

3) Reduce speed when driving on rural roads and unlevel routes.

4) Remove all remaining material from the hopper.

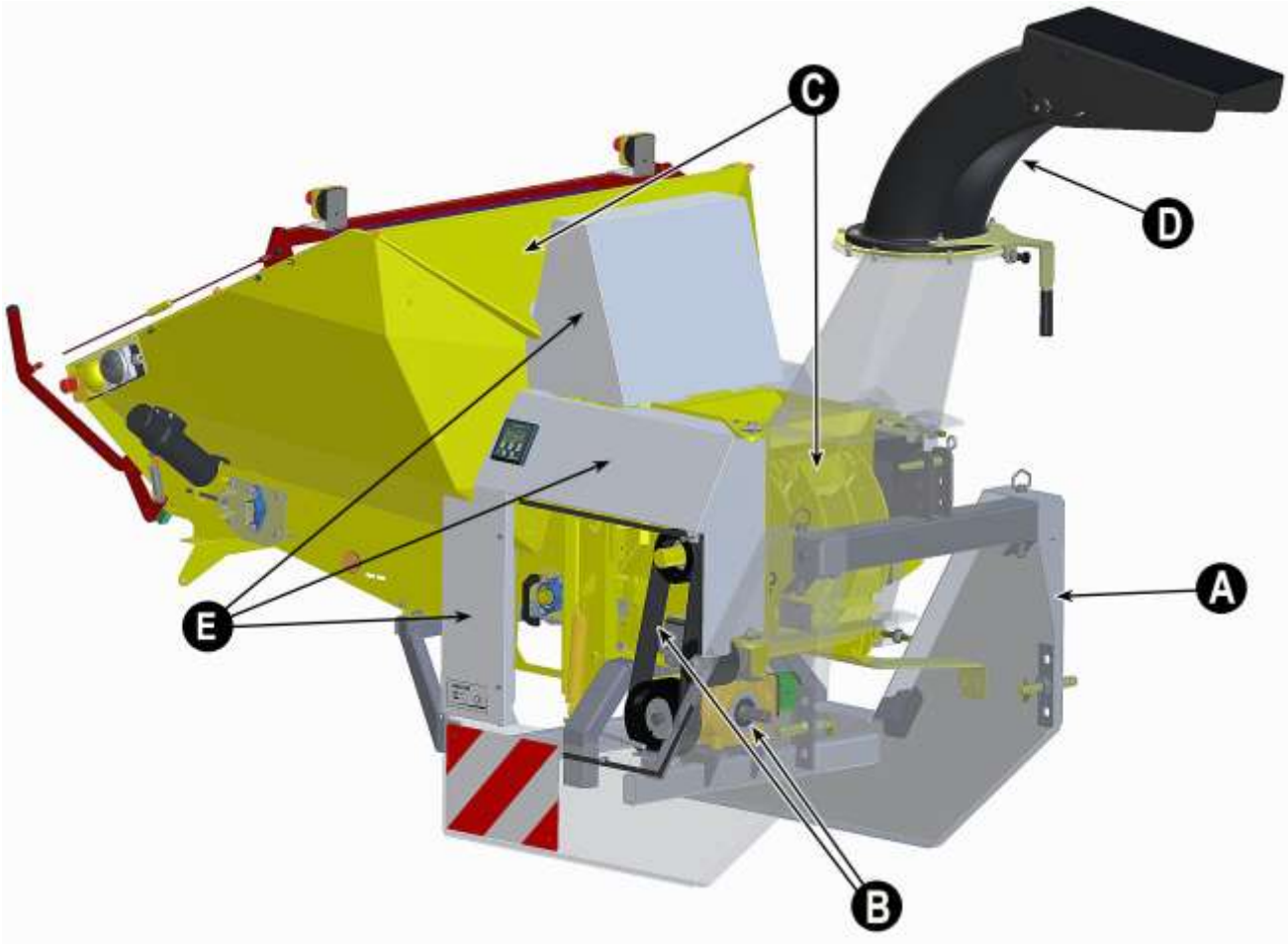
5) Turn the expulsion chimney completely to the front and fold the expulsion hatch completely down.

DESCRIPTION OF THE MACHINE

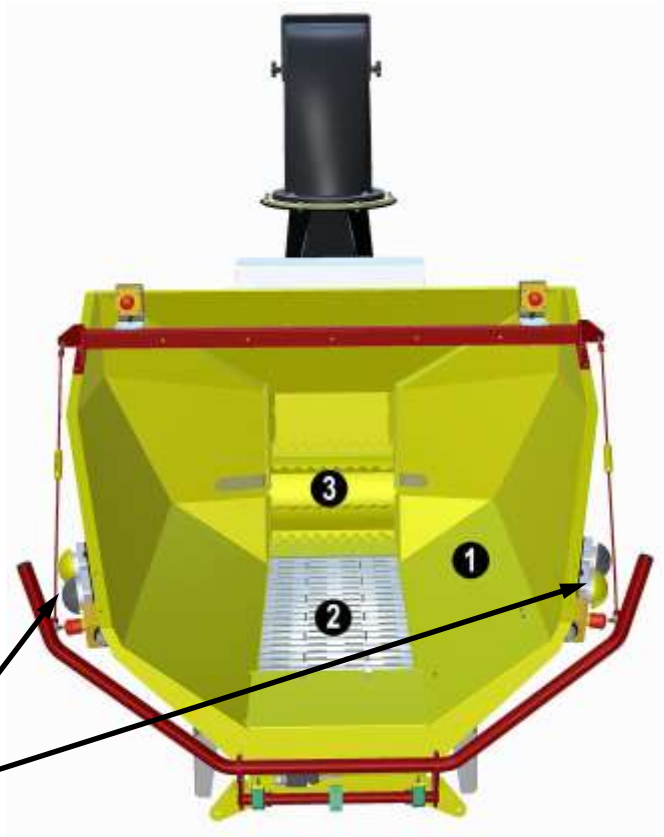
The chipper **JAGUAR PTO TS Industrie** is designed for chipping branches up to a **diameter of 7,09 inches**.

The machine consists of the following main components:

(A) : Frame
(B) : Chipping unit
(C) : Engine and drives
(D) : Expulsion chimney
(E) : Noise insulation hoods



A. Frame
The frame is used for allocating the different components of the chipper **JAGUAR** and allows an independent movement of the machine.



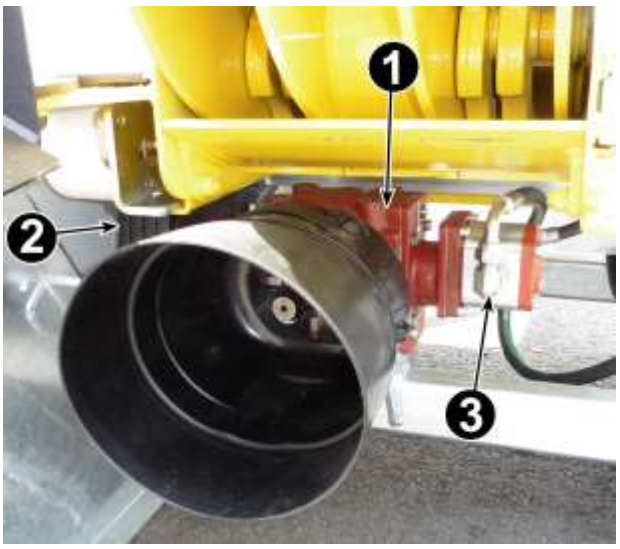
B. Chipping unit
The unit consists of one infeed hopper **(1)**, one conveyor belt **(2)**, one infeed roller **(3)** and one rotor.
Conveyor belt and infeed roller:
They transport the chipping material at constant speed in direction rotor. An anti-blocking system disconnects the infeed if the speed of the rotor falls below the minimum speed (chipping unit jammed) and automatically connects again after the speed of the rotor is sufficient for correct chipping work.
The infeed can turn into both directions (forward and backwards) when using the yellow and the black button located on the left and right side of the infeed hopper

The speed of rotation can be matched to the diameter of the material to be chipped using the

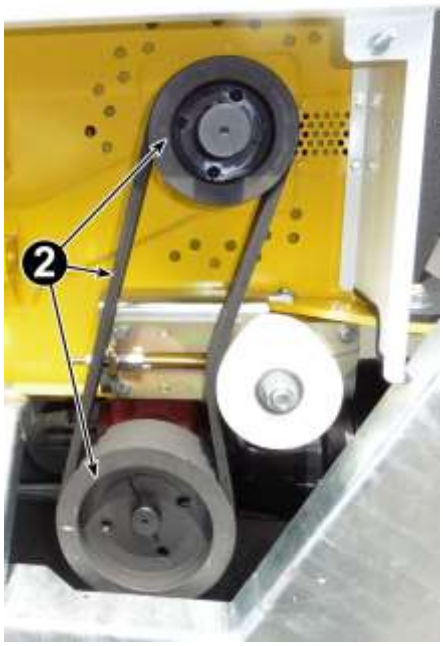
Rotor:
The rotor is the main component of the machine and has the task to chip the material coming from the infeed roller. After the engine accelerates, the rotor connects and rotates at a constant speed.

C. Engine and drives

The necessary energy supplied by the tractor's PTO 540 RPM to rotate the rotor is provided via a angle gearbox **(1)** and a set of pulleys and belts **(2)** .
The hydraulic pressure necessary for the rotation of the feed roller is supplied by the hydraulic pump **(3)** of the chipper.



ou en OPTION 1000 Tr/mn si la machine est sortie d'usine avec l'autocollant 1000 Tr/mn PTO apposé et les poulies adéquates à cette vitesse.

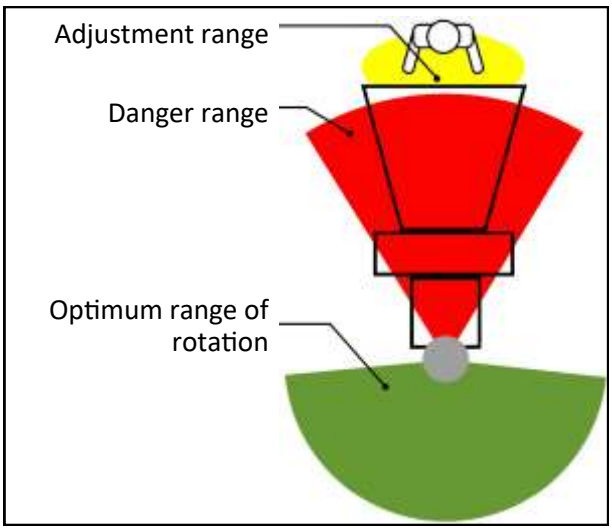


D. Expulsion channel

This expulsion channel expulses the chipped material. The upper part can be swivelled by 180° in horizontale position. The expulsion hatch can be adjusted in vertical position.

Caution:
When connecting the wood chipper residual chips can be expulsed.

One electric switche disconnects the feed roller and prevents a restart if the expulsion chimney is open towards the rotor.



E. Hood

Different hoods protect against rotating parts making work safe.

MATERIAL INFEED

The **JAGUAR** is fitted with an electrically controlled hydraulic distributor, which is activated with two buttons at the left and right rear of the infeed hopper for running forwards and backwards, and with a red control rod for disconnection of the infeed roller and the conveyor belt.

<u>Note</u>: The engine has to run at max. speed for making the conveyor belt and the infeed roller turn.

<u>FORWARDS MODE:</u>

1. Move the red control rod back such that the infeed roller moves to forward motion.
2. Push the **yellow** button to make the roller move forwards.

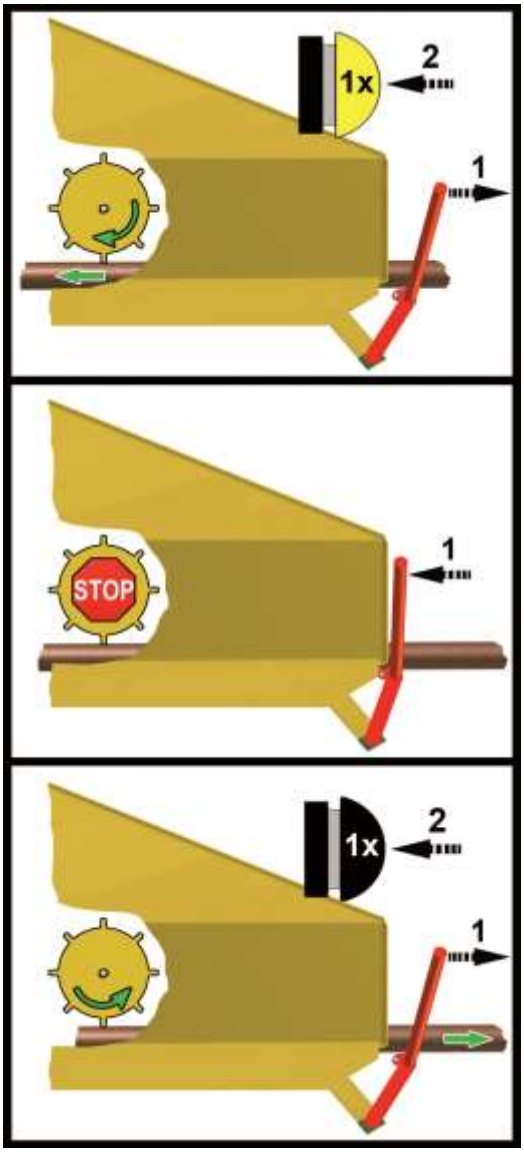
<u>STOP THE INFEED:</u>

1. Push the red control rod to make the infeed stop.

<u>BACKWARDS MODE:</u>

1. Move the red control rod back
2. Push the **black** button.

<u>NOTE</u>: The infeed can be switched directly from forwards to backwards and vice versa without operating the control rod.



Joint Shafts

The PTO drive includes a free wheel and a torque limiter.
The joint shaft are equipped with a freewheel and safety coupling. The freewheel serves the purpose of securing the tractor gearbox (subsequent running of hacking disc) and coupling as a security element for all wood shredders. The joint shaft speed may not be increased above the speed specified on the type label (sticker).

Caution:
Joint shafts may only be used up to max. 10° bending angle!
At a bending angle of 10° to 35°, wide angle joint shafts are necessary!

For PTO shaft driven machines with an excessive tractor power, there is the risk of overload. The large tractor motor keeps the speed and therefore the speed of the hacking disc. The NoStress System cannot react because no reduction in speed occurs and the hacker therefore becomes strained (gearbox damages, drive shaft break).

ATTACHMENT TO A TRACTOR

When attaching to a tractor, you should make sure that no one is between the machine and tractor -> danger of crushing. You must ensure that the upper steering wheel and both lower steering wheels are secured with bolts and folding splints.
When attaching the joint shaft, make sure that it has sufficient overlapping in the pipe profiles. Furthermore, you must make sure that the securing pins click into the forks! If you do not pay attention to this, there is a risk of fatal injury due to flying parts!
There is also the risk of gearbox damages to the tractor and the machine!
Finally, the plug needs to be plugged in so that the machine has a power supply.

The driver must make sure that the authorised axle loads of the tractor are met.
Furthermore, the driver must ensure that the machine is sufficiently counterbalanced according.
If this does not take place, it may be the case that the tractor cannot follow the bends.

CHECKS PRIOR TO INITIAL START-UP OF THE MACHINE

Every operator has to read and understand the provisions, and has to observe all safety measures included in this chapter. A list with the checks for initial start-up is available to the operator. These checks have to be carried out for safety reasons to ensure the safe and efficient operation of the chipper.
The following points are to be checked before using the machine:

1. The machine is sufficiently lubricated as indicated in the operating manual?
2. Check the hydraulic oil level.
3. Ensure that all hoods are closed and locked.
4. The machine must not be operated in confined spaces. Risk of intoxication because of the diesel engine exhaust gases and dust generation by the chipper.
5. The expulsion channel and the expulsion hatch are only allowed to be adjusted by an authorised operator.

At the entrance of its PTO, the JAGUAR PTO requires, with a standard box, a power of 45 to 52 cv at 540 RPM or 45 at 80 cv at 1000 RPM for an optimum operation of NoStress system. (With the OPTION big power tractor, 45 to 82 HP to 540 RPM or 45 to 120 HP to 1000 RPM.)

Operating power in excess would render the NoStress system inoperable, resulting in early damage to the transmission and the rotor.

ATTENTION!

In case the machine shows difficulties in chipping the material and has to be switched off, **restart the engine only after having removed the cause and the material was removed from the rotor!!!**

Make sure that the machine is placed on the ground before use.

Position the tractor PTO rotation lever at 540 RPM (RPM) (see Overspeed page 40) **or OPTION 1000 RPM if the machine is shipped with the 1000 RPM PTO sticker affixed (suitable pulleys are fitted for this speed).**

ATTENTION !

In order for the feed roller to turn in FORWARD, it is absolutely necessary that the electric cable of the mill be connected to the tractor via the 7 or 13-pin light socket, turn on the parking lights and be at maximum speed PTO.

1) Connect the power supply cable to the tractor
2) Switch on the parking lights
3) Check whether the emergency stop buttons and the “NoStress” anti-jamming system are working.

NB: The Emergency stop switches off the hydraulic supply of feed roller AND the +12V. power supply to the Pilot System

4) Check that the cap at the top of the discharge shaft is open
5) Gradually engage the clutch of the tractor’s power take-off.
6) Increase the engine speed to maximum.
7) Press the **yellow button** to activate the forward feed roller

(see exploitation Pilot System **page 40**)

8) Adapt the speed of the feeder roller according to the oil flow produced by the tractor by playing on the adjusting wheel of the distributor on the crusher.
9) Start the shredding.

INSTRUCTIONS FOR CHIPPING

Watch out for solid foothold of the operating personnel!

Place chipping material on the hopper bottom and move it with the thicker en (trunk) towards the infeed rollers (chamfer the thick end of the trunk).

As soon as the material is captured by the rollers move to the side, because due to unevenness of the trunk there might be material kick-out.

The captured material now is automatically chipped and hurled into the direction (distance) into which the expulsion chimney was set to beforehand.

After the material infeed from time to time attention is also to be paid to the thrown out chippings, and maybe readjust the direction of ejection. The ejection distance of the material is controlled with the ejection hatch.

When chipping splints, barks and brush-wood splintering can be avoided by always feeding the material side-by-side and lengthwise positioned into the infeed channel.

If the feed stops (jamming because of too much material or forked branches), press the **black** button (rollers rotate backwards) and the chipping material is pushed back. Now reduce the material quantity, cut the forked branch, and restart the infeed.

The hopper can only be cleaned using appropriate wooden aids.

Caution**:**
While the machine is running do not reach into the hopper! If required, push the kindling further using a wooden slat or wood slider! Never push the chipping material into the hopper using a metal rod or metal slider! It is also prohibited to stay in the danger area! In case of especially thick or hard wood, it makes sense to slow down the engine tractor, reduce the speed until it has reached the rated speed.

If the area of the expulsion chimney is jammed, the hood must not be opened before standstill of the rotor and shut-down drive engine, and then the material can be removed with an appropriate tool.

Noise emission

The chipper produces a guaranteed sound power level according to Directive le 2000/14/EC :

Model	Sound power level EVA [dB]	Sound pressure level [dB(A)]
JAGUAR PTO	126	124

SHUT-DOWN

1. **Have the chipper run for some minutes empty for removing the residual material behind the infeed roller in the chipper to prevent that the rotor becomes jammed in the next application, and the message "SLIP ERROR" is indicated**

2. For stopping the infeed roller move the red control rod forward.

3. Return the tractor engine to idle speed.

4. Disengage the tractor PTO.

5. Stop the tractor engine

BIO
LUBRIFIANT DÉGRADABLE

BIODEGRADABLE LUBRICANTS FOR REDUCING ENVIRONMENTAL POLLUTION

Just by their function, the chippers from **TS Industrie** are used as a solution for the sustainable development for the production of compost, mulch and wood chips.

TS Industrie chippers are often used in woods, parks, landmarks, in the proximity of lakes and rivers, where leaks and hydraulic fluids signify a risk for the environment.
Therefore, the company **TS Industrie** contributes to the environmental protection by supplying their machines with **biodegradable high performance lubricants**.

Corresponds to the agricultural Directive 2006/11/EG.

Advantage of biodegradable lubricants:
- No risk for the environment
- Increase biodegradability
- Not toxic (based on rapeseed and sunflower oil)
- Regenerative
- Very high viscosity
- Excellent wear and anticorrosive properties
- Increased safety for the user
- Increased duration of the components
- Reduced volatility properties

SAFETY INSTRUCTIONS

1. Securely park the machine, remove the contact key and wait until the standstill of all mobile parts before starting the maintenance and repair works.
2. After termination of the maintenance works ensure that all protective devices are properly mounted and are operative.

All machines pass a test-drive before leaving the works. On delivery the hydraulic tank is filled up to the upper mark of the sight-glass with hydraulic oil. The filter has to be replaced after 150 operating hours. Thereafter, the replacement takes place according to the maintenance schedule. The first inspection is integral part of the warranty terms.
Only trained personnel is allowed to carry out maintenance and repair works.
The maintenance of the engine is to be carried out according to the enclosed operating instructions of the engine manufacturer.
On delivery, the bearings are lubricated and the transmissions are filled with oil. It is recommended to perform an inspection of the machine prior to initial start-up.

LUBRICANT: Filling quantity:

Hydraulic oil: 15 l.

Recommended **LUBRICANTS**:

1) Lubricants for rotor knives:
Only a water resistant high-performance grease NLGI 2
"SAELEN BIOPLEX "

2) Lubricants for bearings, joints and different components:
Multi-purpose high-performance grease SAE (EP).
"SAELEN BIOPLEX "

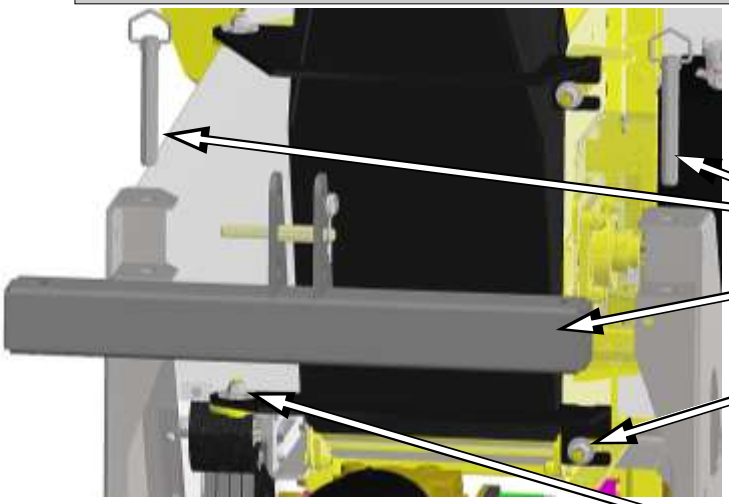
3) Hydraulic oil:
AFNOR NFE 48603 Type HV ISO VG 46
"MINERVA BIO HYDRO 46 "

MACHINE MAINTENANCE INTERVALS

Operating hours	Maintenance works
Every day	**- Check tightening of the coupling pins** **- Check function of the safety switches and the red control rod** - Check the tight seat of wheel nuts
First time after 4 operating hours	- Check the tight seat of all fastening screws - Check the tension of the rotor drive belts - Check the tension of the conveyor
Every 15 operating hours	- Lubricate the rotor knives and check condition of wearing rings
Every 50 operating hours	- Check the tension of the rotor drive belts - After the first 50 operating hours: Check the tight seat of the 8 fastening screws from rotor bearings - Check knives and counter-knives - Lubricate both rotor bearings - Check ventilation holes under the rotor for free passage - Check if material is wrapped around the bearings and remove - Check infeed rollers - Check the hydraulic oil level - Check the tension of the conveyor
Every 150 operating hours	- Lubricate front/rear bearings of conveyor - **1. Replace** the hydraulic oil filter (thereafter all 500 operating hours or every 2 years) - Lubricate drive chain of conveyor - Check condition of counter-knives
Every 300 operating hours	- Check condition of conveyor and slide plate
Every 500 operating hours	- Change the hydraulic oil (or every 2 years) - Replace the hydraulic oil return filter (or every 2 years) - Replace the intake strainer in the hydraulic oil tank - Oil change hydraulic coupler

LUBRICATING POINTS

Shut the engine off and remove the key before the lubricating and maintenance works.



LUBRICATION OF KNIVES:

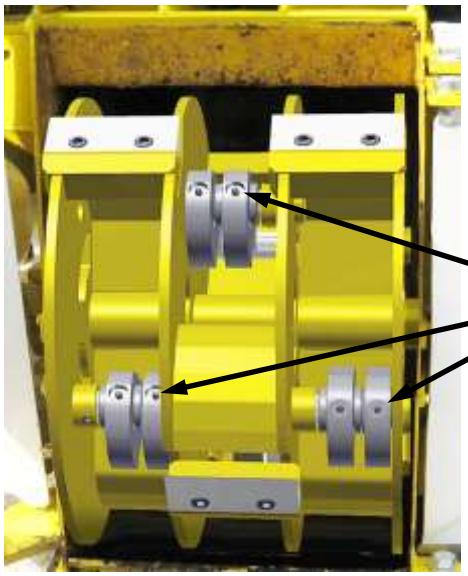
Access to the rotor:

- Unclip and remove the two pins.

-Remove the crossmember

-Loosen the upper and lower nuts of closure of the chimney.

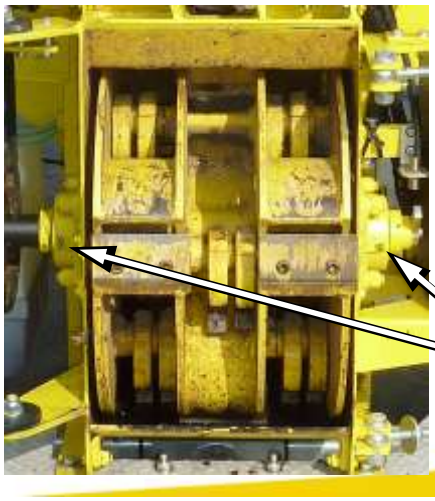
-Open the chimney by pivoting it on its two hinges.



- Clean all grease nipples with compressed air or using a small screwdriver.

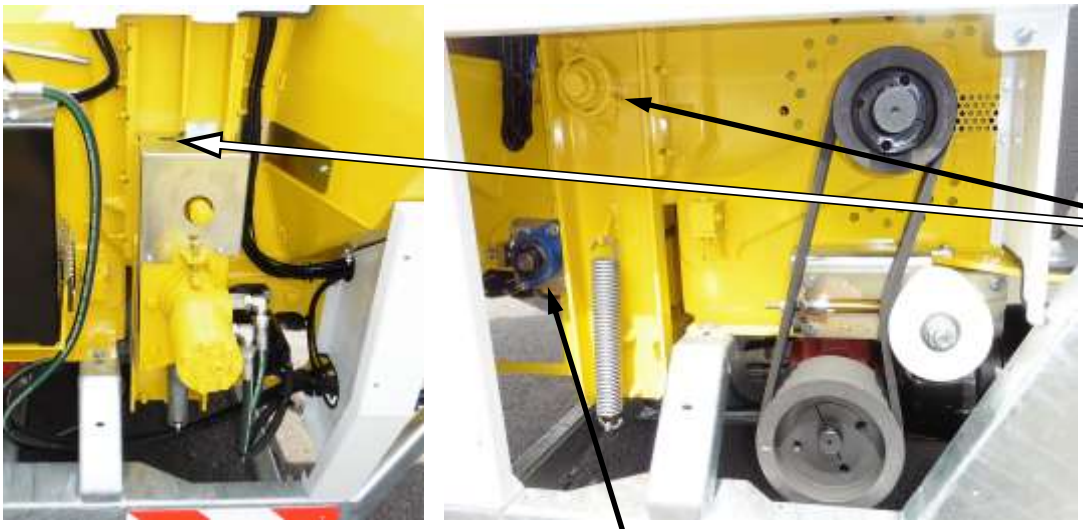
- Lubricate all 12 knives.

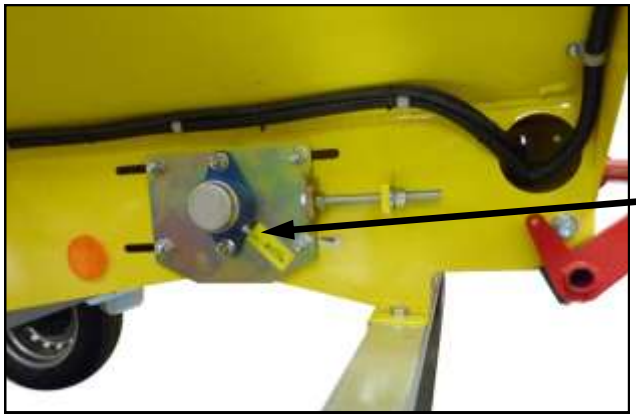
Note: Do not grease too much, i.e. only about 2 strokes with the grease gun.
An excessive lubrication, the rotation of the rotor would toss the surplus of grease against the inside wall of the chimney, and the chipped material would be expulsed with difficulty **.**



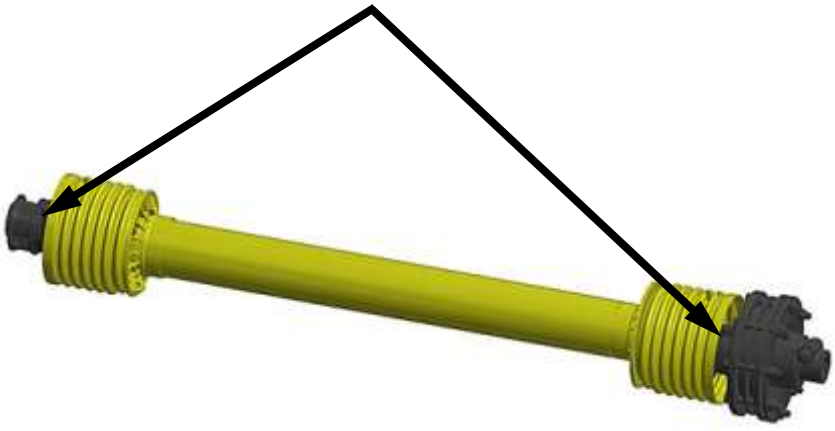
ROTOR BEARING LUBRICATION

LUBRICATING POINTS

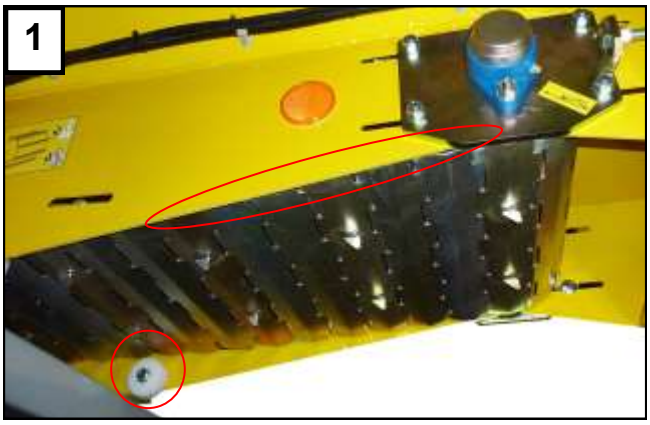


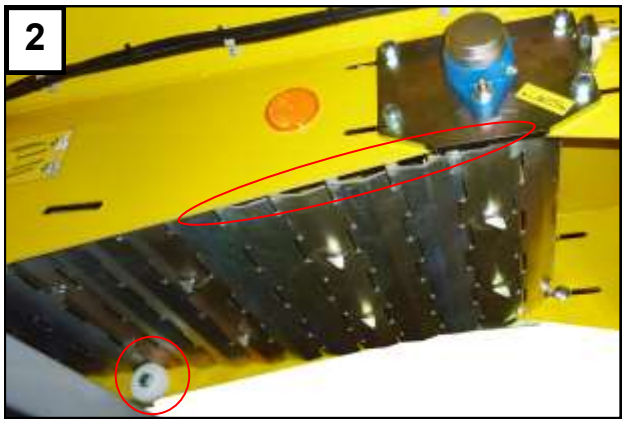


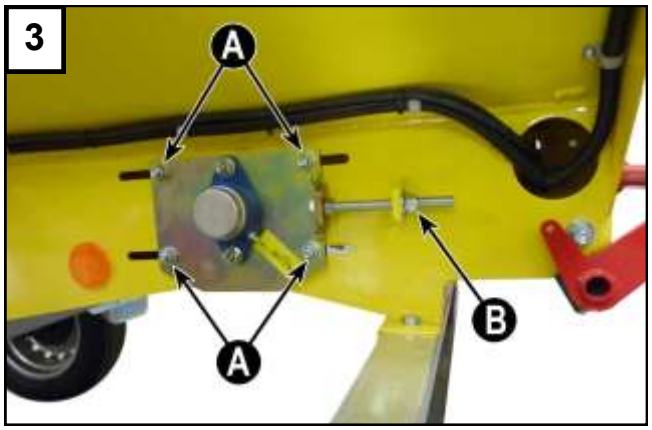
LUBRICATE CARDAN SHAFTS

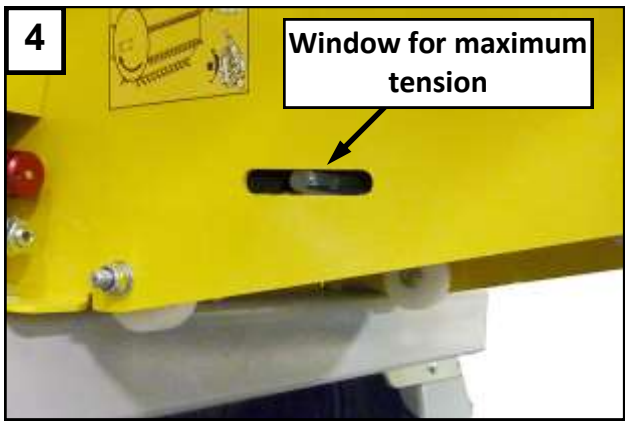


ADJUSTING THE TENSION OF THE CONVEYOR BELT









After run-in of the machine, the tension of the conveyor belt must be checked after the first 4 operating hours, and thereafter every 50 operating hours.

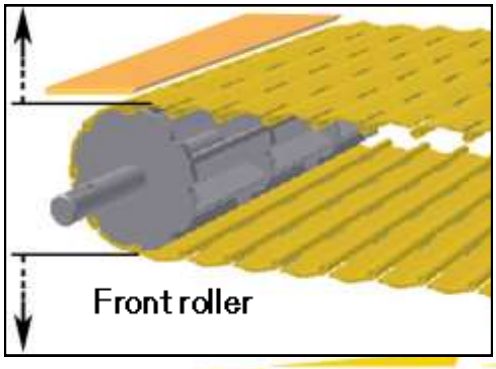
1 Conveyor belt correctly tensioned

2 Conveyor belt loose

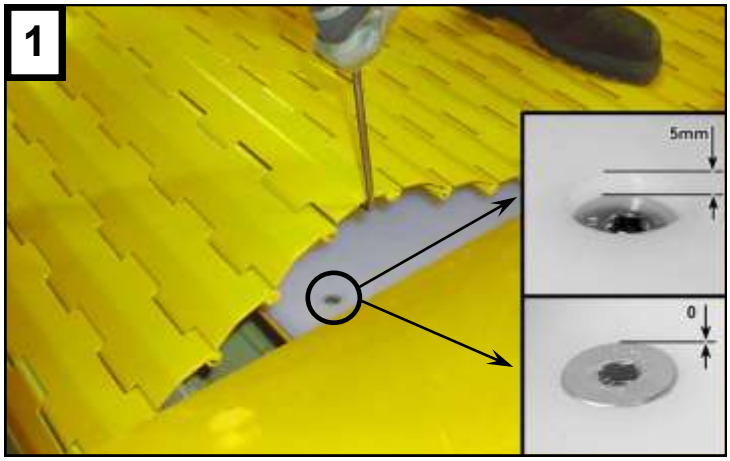
3 Tension the conveyor belt as follows: Loosen on both sides of the machine all 4 nuts **(A),** and tension the conveyor belt with the tensioning screws **(B)** such that the roller is standing centrally in the window for maximum tension (Fig. **4**). Tighten the nuts **(A)** again. Have the conveyor belt run several times forward and backward, and check for directional stability.

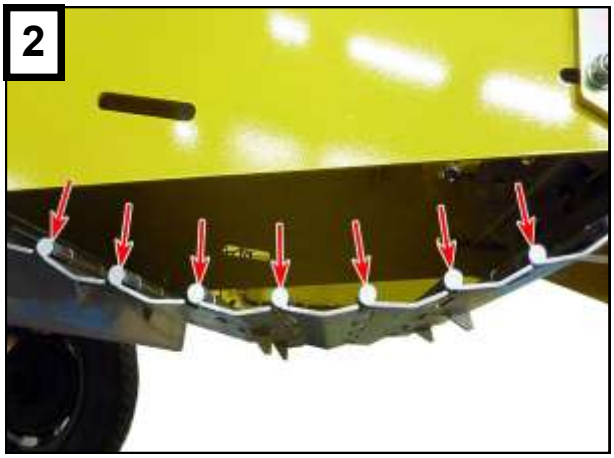
Note: Do not tension the conveyor belt to much; for running correctly the belt does not need excessive tension. Utilise the window for maximum tension (Fig. 4).

Attention: Avoid infeed of roots with earth still sticking to it. This might accumulate in the front drive roll and block the conveyor belt.



CHECK CONDITION OF CONVEYOR BELT AND SLIDING PLATE



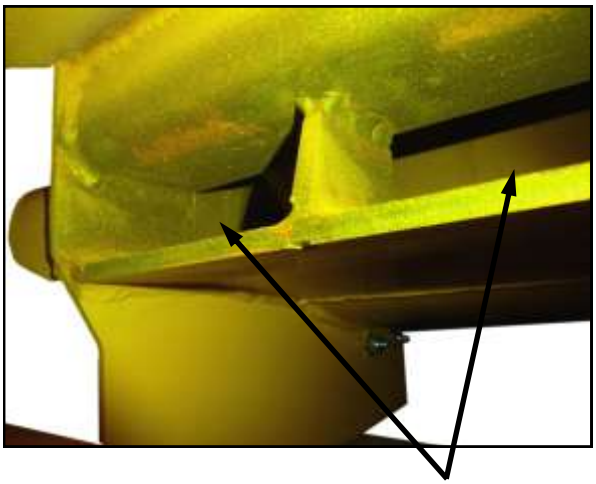


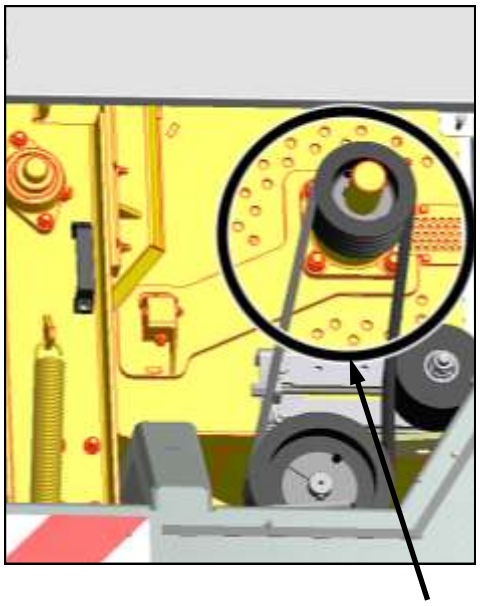
For checking the conveyor belt and the self-lubricating polyethylene plate, completely relax the conveyor belt and lift it with a hook. The following parts have to be checked:

1 Thickness of the sliding plate above the 4 fastening screws

2 Condition of the belt rods

VENT OPENINGS UNDER THE ROTOR





For improving the rotor ventilation and the material expulsions, the **JAGUAR** is fitted with another vent opening under the rotor, additionally to the standard two lateral vent openings.

These air intakes must be checked for cleanliness and free passage in regular intervals.

KNIFE AND INSERTS REPLACEMENT

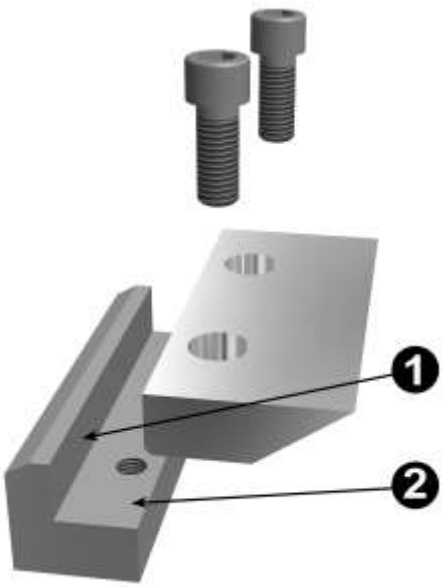
Remove ignition key before the maintenance works.

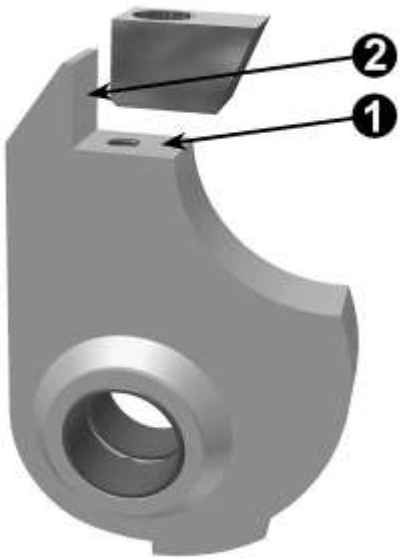
Tool to lock rotor

To remove knives and hammers

Screwlock knives and hammers: 157 N.m.

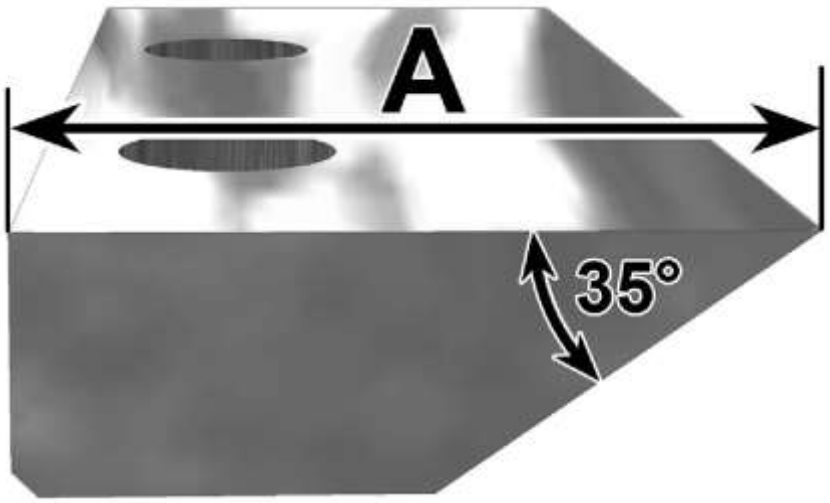
- Ex works, all 6 fastening screws of knives and inserts secured without screwlock medium, with a torque of **157 Nm (16 M.kg)**, and therefore must be loosened using a corresponding tool.
- Open the expulsion channel (see page 28).
- Unsrew all fastening screws from knives and inserts. Do always use new screws of **class 12.9** for installing knives and inserts.
- Clean contact surfaces **(1)** and shoulders **(2)** of knives and inserts.





- Install new or sharpened knives of identical weight.

IMPORTANT: Only a specialist is allowed to sharpen the knives on an appropriate machine and not on a portable grinding machine.
Also it is to be observed that the edge of the knives is to be sharpened at an angle of 35°.
After sharpening, the length **A** must not fall below 50 mm (a new knife has a length of **60 mm**).



Do only use screws of type TCHC 12 X 40 class 12.9

- **Tighten screws of class 12.9 applying a torque of 157 Nm and ensure correct seat of knives and inserts.**

Tightening with the correct torque is important to prevent the screws from coming loose.

- Lubricate the knive bolts (for each grease nipple aprox. 2 strokes with the grease gun).

- Close expulsion chimney and hoods again.

- Start the tractor engine and have it run until is has reached operating temperature.

- Accelerate the engine up to maximum speed and check if the machine produces unusual vibrations.

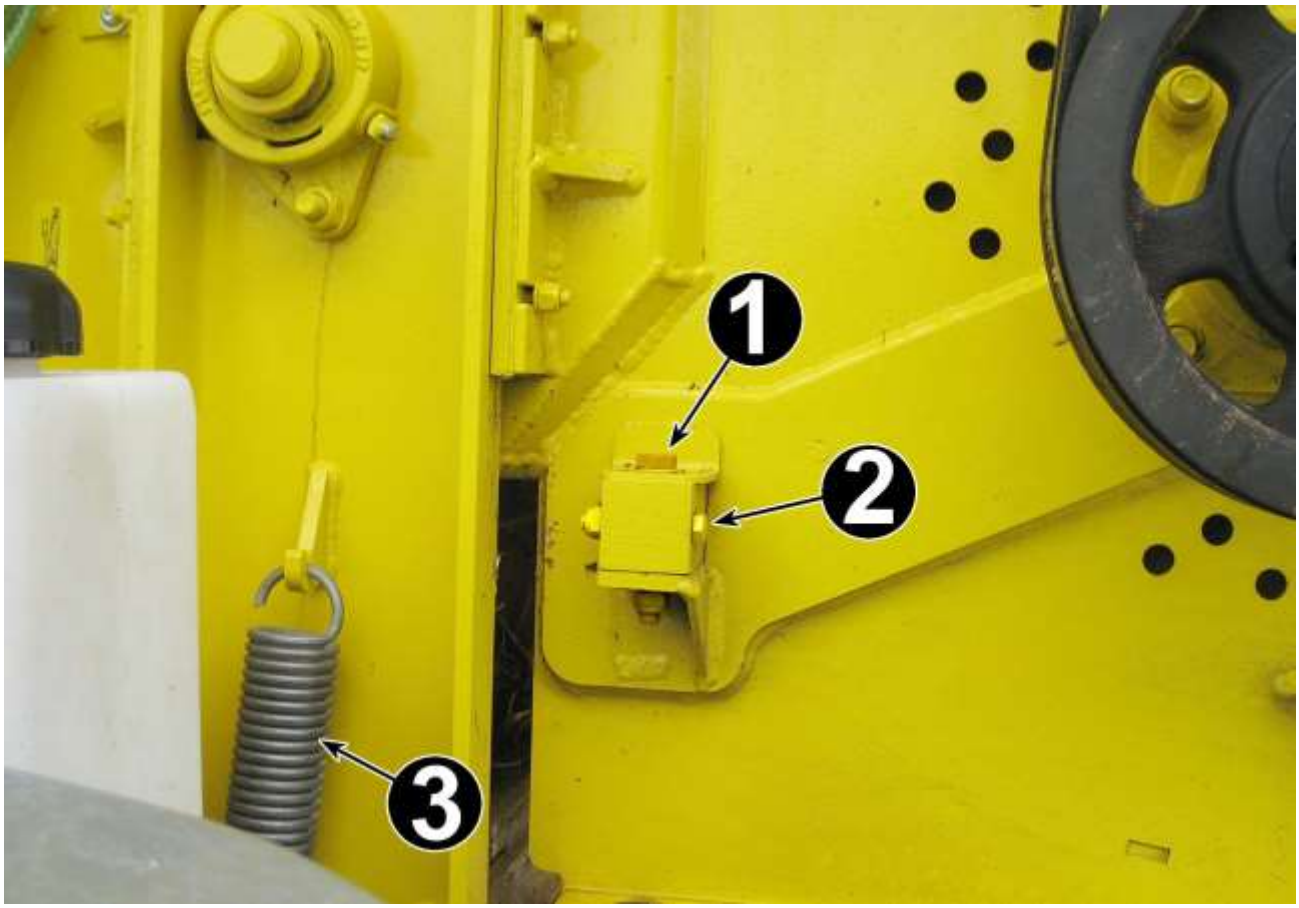
CHECK COUNTER-KNIFE

Remove ignition key before the maintenance works.

- Unscrew retaining screws Ø10 **(1)** at both ends of the counter-knife.
- Unscrew both locking screws Ø8 **(2)**.
- Pull the counter-knife partially out of the housing. If the edge is worn, pull the counter-knife out of the housing, give it a quarter turn, such that the new edge is pointing towards the knives, and push the counter -knife back into the housing.

(The counter-knife can be pulled out of the housing on the right side as well as on the left side)

(All 4 edges can be utilised)



PRESSURE OF THE INFEED ROLLER ONTO THE MATERIAL

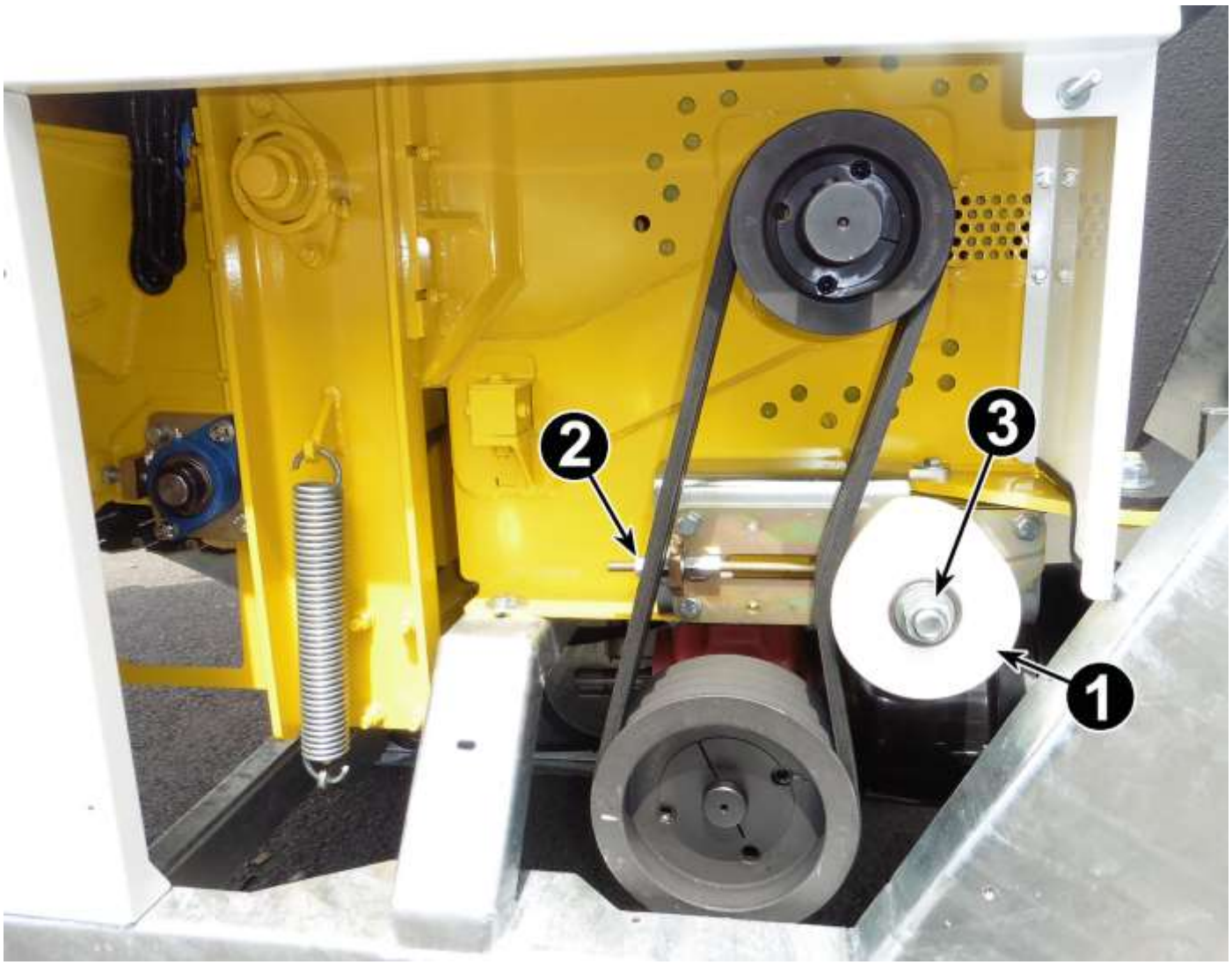
The pressure of the infeed roller onto the material is produced by two springs **(3)** on each side of the machine.

TENSIONING THE V-BELT FOR THE ROTOR DRIVE

The tension of the V-belts is ensured by a belt pulley(**1**).

The adjustment of the V-belt tension is carried out by loosening the nut (**4**) on the belt pulley as well as the locknut (**3**) and readjusting the belt pulley with help of the screw (**2**).

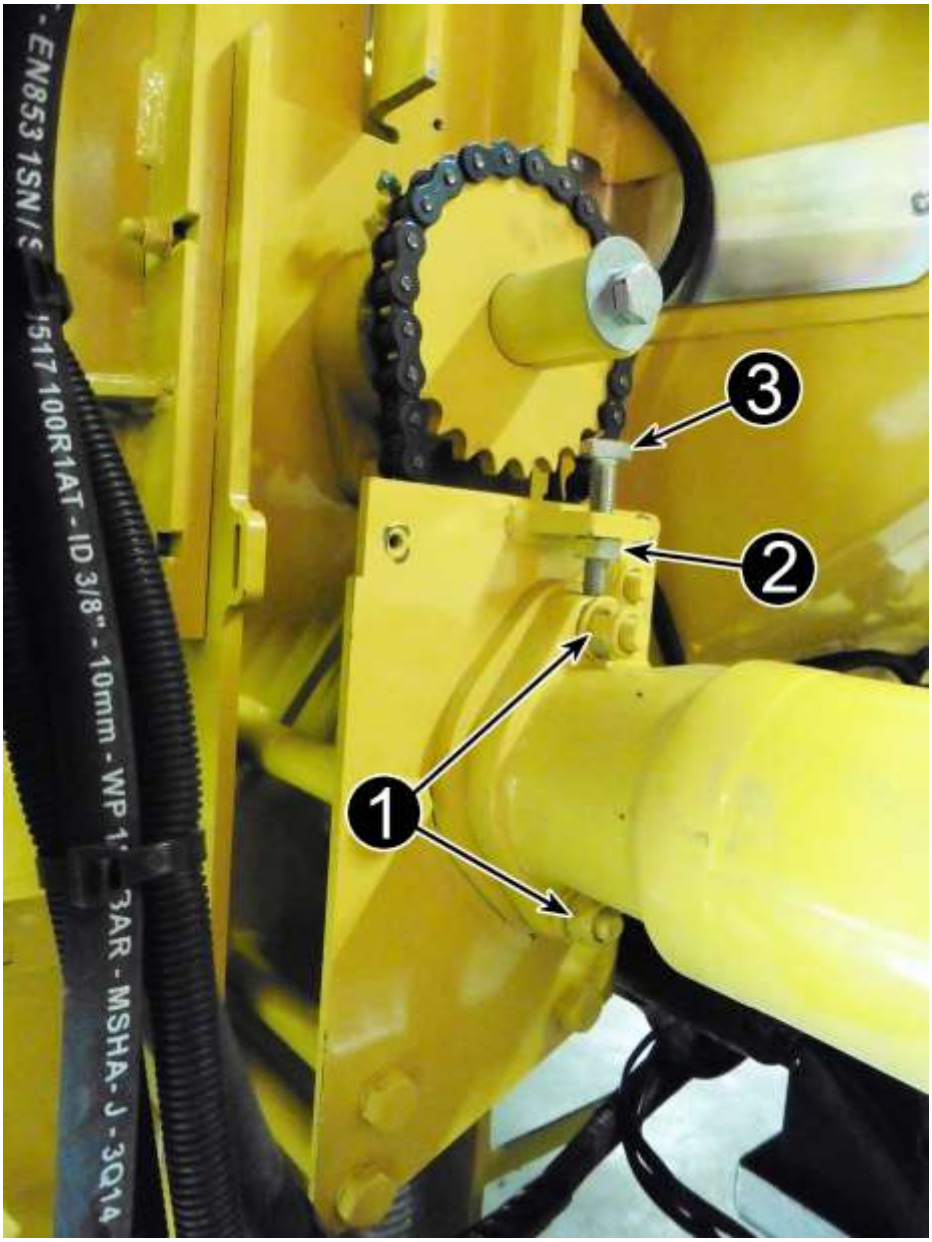
Only trained personnel can carry out this work.



TENSIONING THE DRIVE CHAIN FOR THE INFEED ROLLER

- Remove the protective hood, loosen the two screws **(1)** and unscrew by approx. 1 turn.
- Loosen the locknut **(2)**.
- Slowly turn the tensioning screw **(3)** and move the hydraulic motor with pinion down until the chain is **slightly tensioned**.
- Correctly retighten locknut **(2)** and both screws **(1)**.
- Install the protective hood.

Only trained personnel can carry out this work.



PILOT SYSTEM

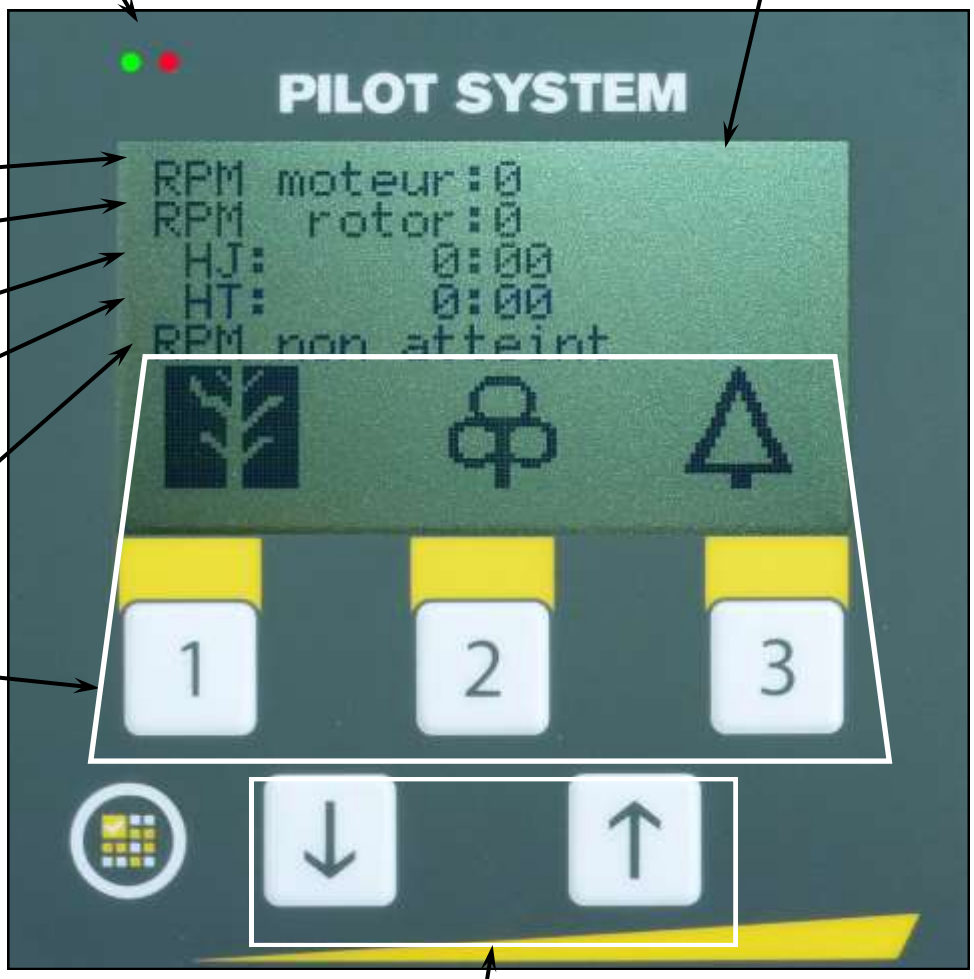
AVAILABLE FUNCTIONS

1. Continuous indication of the engine speed
2. Continuous indication of the rotor speed
3. Continuous indication of the daily operating hours
4. Continuous indication the total operating hours
5. INDICATION FOR OPERATION AND OF THE PULSES FROM THE ROTOR ENCODER WITH GREEN LED
6. INDICATION OF ERRORS WITH RED LED
7. Hydraulic test: a fast forward and backward travel speed serves for testing the hydraulic system
8. A fast forward movement of the infeed roller serves for testing the No Stress System
9. 3 No Stress (Vario Stress) Options for choosing the type of wood
10. Service management : Intervals for oil change
11. Belt slip, clutch and hydraulic coupling system (ideal for rental equipment)
12. CUT-OUT FUSE FOR ENGINE AND START INTERLOCK IF HOODS ARE OPEN
13. ERROR MEMORY
14. 21 Machine types are lodged in the memory
15. 4 optional selectable languages: English, French, German and Spanish

DESCRIPTION

LED:
- Green - continuous: ON
- Green - flashing: Pulses from rotor encoder
- Red - continuous: Engine hood or access to chimney open

LCD display with background lighting



Engine speed

Rotor speed

Daily operating hours

Total operating hours (since initial start-up)

Current operating stages

Function keys **1** to **3** for selecting the No Stress settings

The input of the access code and the menu navigation is carried out with the arrow keys ↓ and ↑

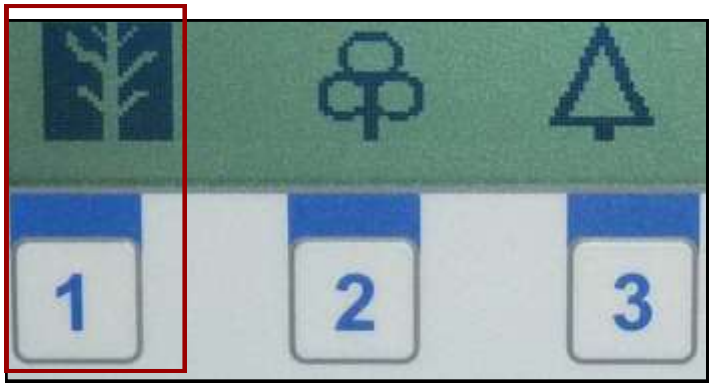
It is strictly prohibited to change the factory settings of the Pilot System. The programming person is responsible for any change of the parameters outside the works of TS Industrie.

The values indicated on the following pages are reference values only

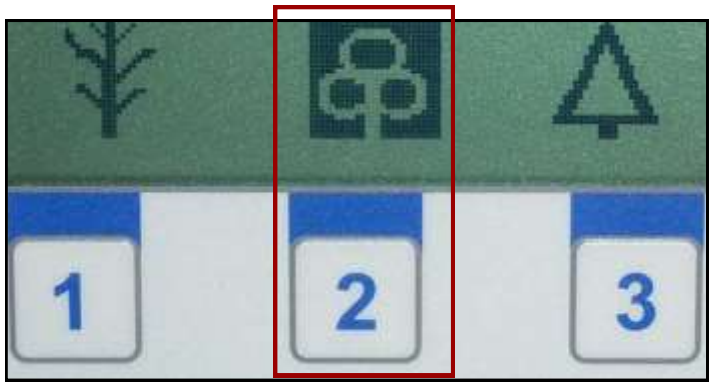
Selecting No Stress settings

The Pilot System has 3 No Stress settings

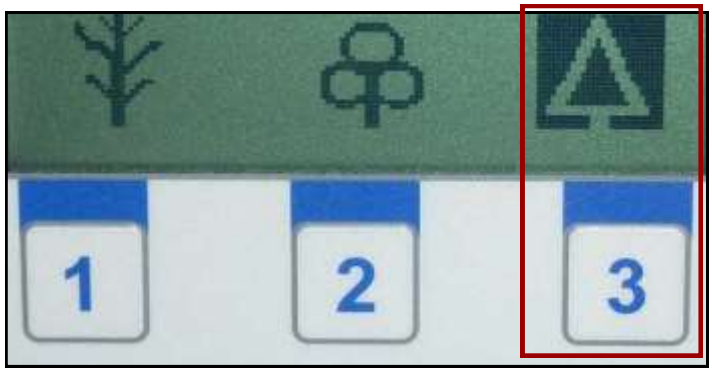
Above each key there is a symbol for the according setting, showing a black background when selecting this setting.



Key 1 for wooden waste: Utilises an amplified engine speed



Key 2 for average waste: Utilises a medium speed range. Branches and coniferous wood can be processed



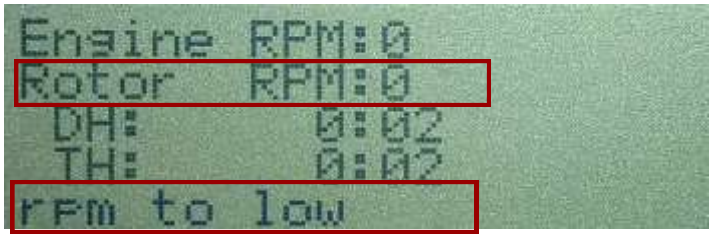
Key 3 for coniferous wood and vegetation, e.g. coniferous wood and humid green wood

In case the settings shall be changed during the work, it is required to press the yellow button on the infeed hopper for re-starting the infeed rollers.

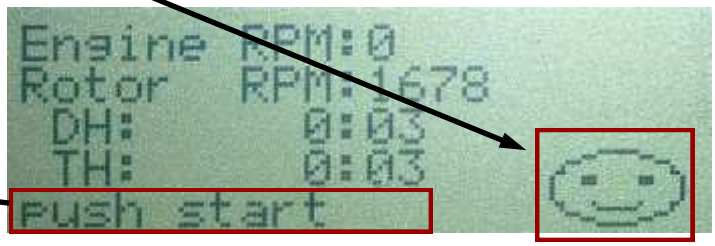
Standard operation and overspeed

The speed of the rotor is the essential data for the functional check of the machine.

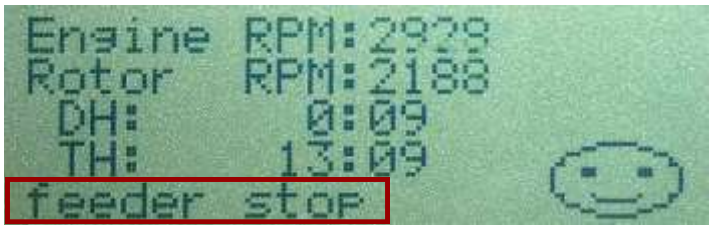
The indication **RPM too low** shows that the engine speed is insufficient for continuous material infeed to the rotor.



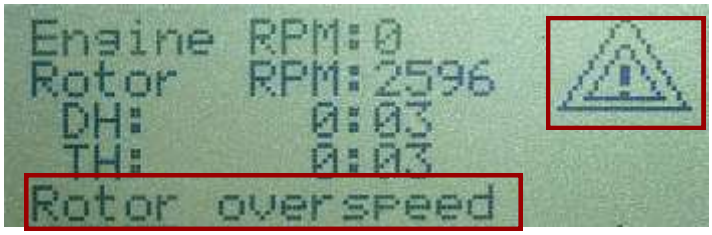
Adjust engine to max. speed. A **Smiley** is shown as soon as the minimum speed is reached for connecting the infeed roller.
Now the **yellow** button can be activated.



As soon as the infeed roller is rotating and the rear red control rod is activated, appears the message **infeed stop**.



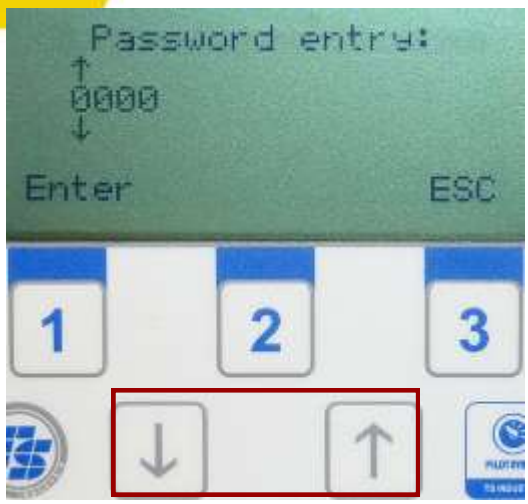
If the rotor speed is too high, the infeed roller is automatically stopped to protect the machine. At the same time appears the symbol Attention as well as the message **overspeed**.



<u>After having removed the cause for the overspeed</u> it is required to reduce the engine speed to idle running, then increasing it again to max. Speed, to allow the infeed roller to re-connect.

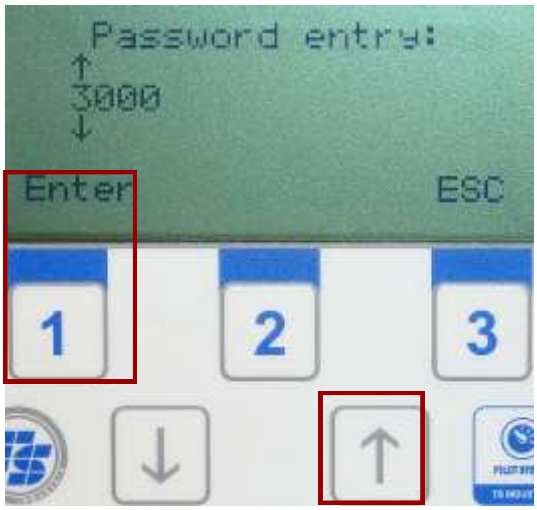
Access to the CUSTOMER Parameters Code 3003

1



Keep key ↓ and ↑ pressed for 4 seconds.

2



Press key ↑ **3 times** until the number 3 is displayed, than confirm with key **1**.

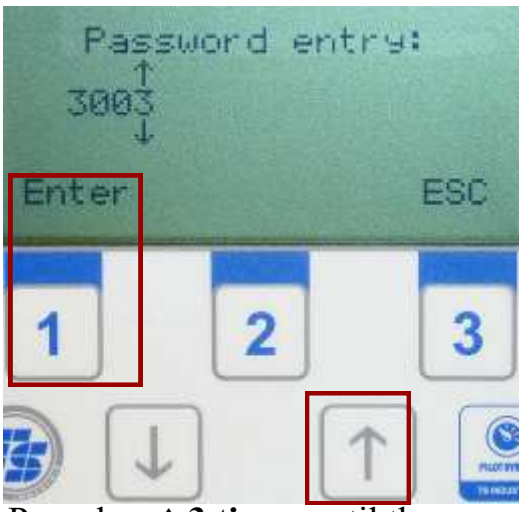
3

Press key **1** for confirmation and go to the first **0**.

4

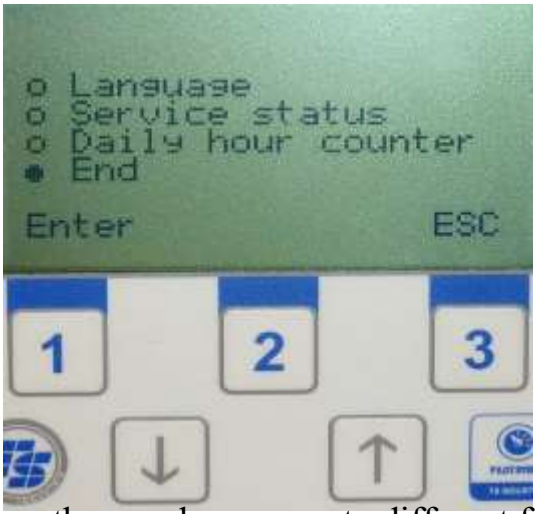
Press key **1** again for confirmation and go to the second **0**.

5



Press key ↑ **3 times** until the number 3 is displayed, the confirm with key **1**.

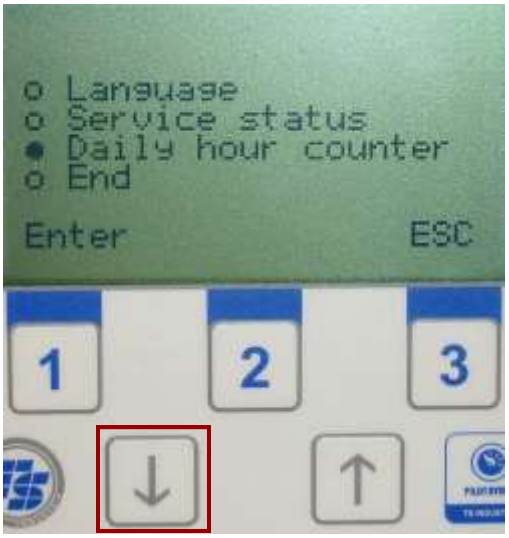
6



Now, the user has access to different functions and **END** navigation.

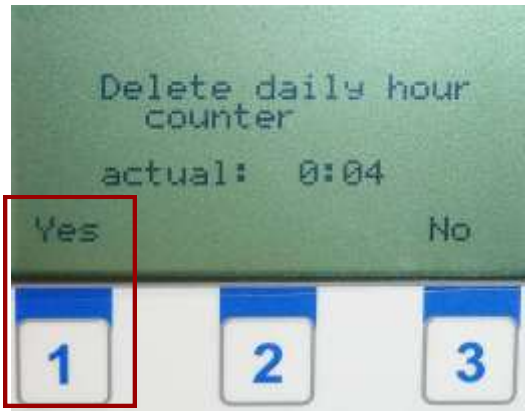
Reset of the daily operating hour counter

1



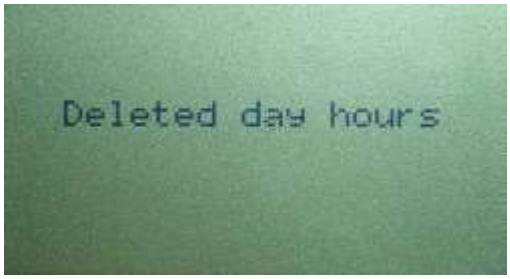
Press key ↓ and put the cursor on **Daily oper. hrs.**

2



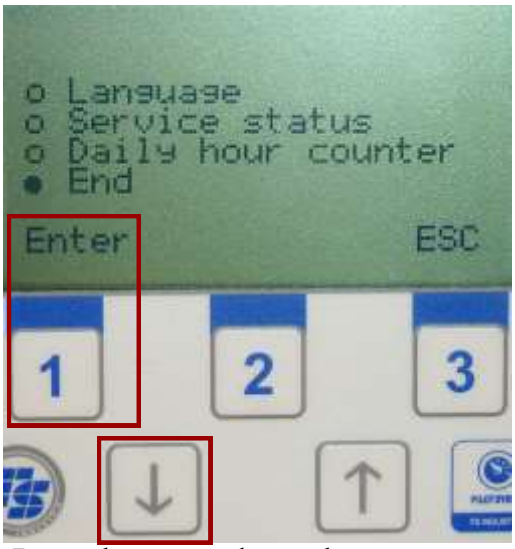
Press key **1** to confirm deletion of the daily operating hours.

3



The process is indicated with a corresponding message.

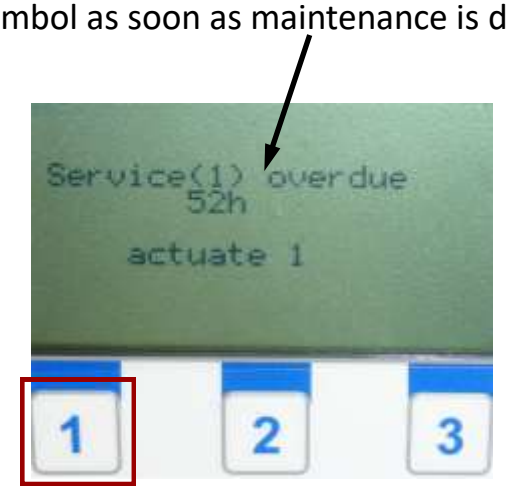
4

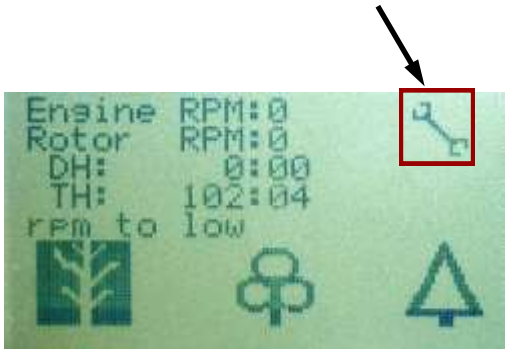


Press key ↓ and put the cursor on **End**. Confirm with key **1 Enter**.

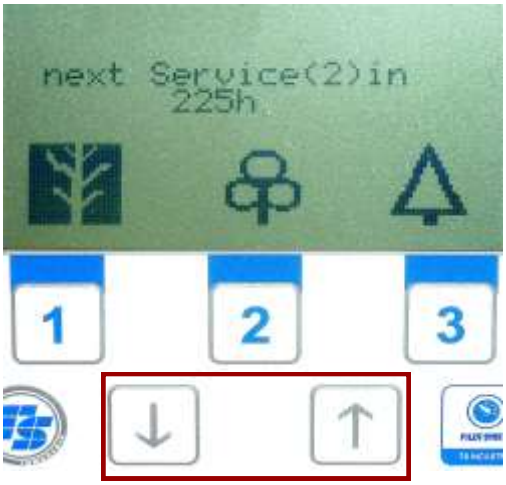
Overdue service and further service information *(engine oil change)*

When starting the machine, the system shows a warning message and a corresponding symbol as soon as maintenance is due or overdue.





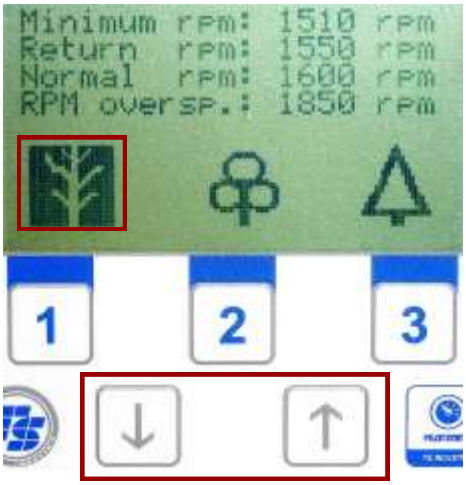
Agree with your dealer a date for an oil change. The message is saved in the Pilot System. Press key 1 for confirming the message and to be able to continue work.



Press key ↓ or ↑ once or twice for displaying the next oil change or service. Contact your dealer to agree a date.

Rotor speeds of the No Stress settings

(The examples are reference values only)



Press key ↓ or ↑ once or twice at any time for indication of the **rotor speed** for the selected NO Stress setting:

Example <u>setting **1**</u>:

Minimum rpm: Speed below 1510 rpm. The infeed roller is disconnected.

Return rpm: As from a speed of 1550 rpm. The infeed roller is restarted.

Normal rpm: After an overspeed of the engine, the speed of the rotor must be reduced to below 1600 rpm for the infeed roller to reconnect.

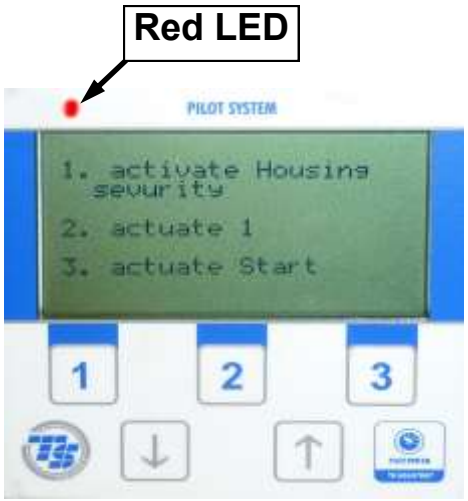
RPM over sp.: Overspeed. The infeed roller is switched off at a speed of 1850 rpm.

Attention:

It is strictly prohibited to change the factory settings of the Pilot System. The programming person is responsible for any change of the parameters outside the works of TS Industrie.

Hood safeguard

An open or incorrectly closed hood is indicated by a **red LED** an a corresponding message. The safety system shuts the engine off and impedes a restart. In this case, close the affected hood correctly and then press key **1**. The message disappears.



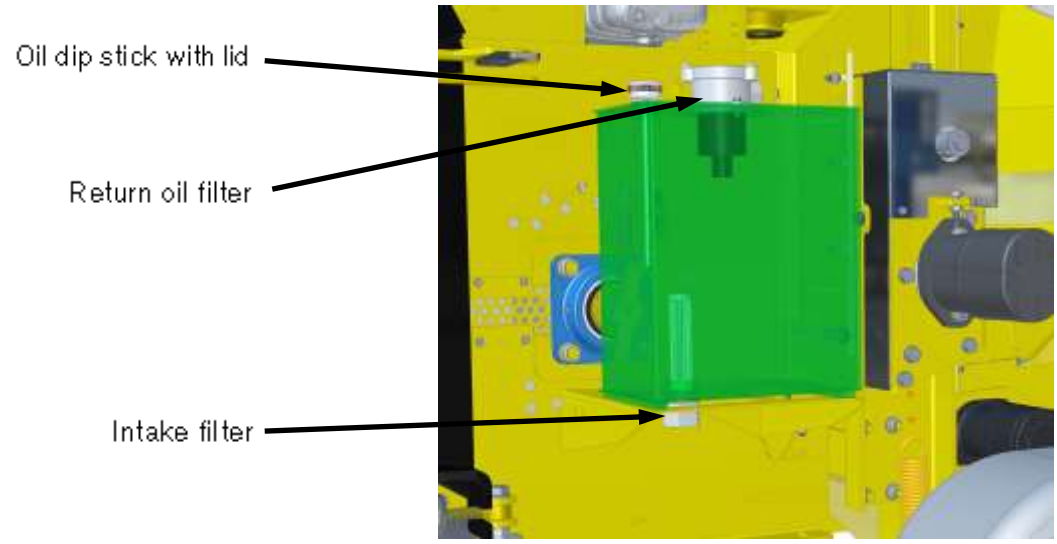
Rotor speed encoder pulses

A permanently shining **green LED** shows that rotor and system are operating. The LED starts flashing when it receives a signal from the speed encoder M18 on the rotor. The frequency of the flashing changes with the speed of the rotor.

TANKS

The machine is fitted with two tanks:

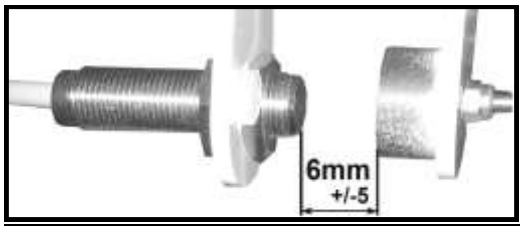
Hydraulic oil tank with a capacity of 15 liters, consisting of:



HOOD AND EXPULSION CHANNEL SAFEGUARD

The machine is fitted with a safeguard for expulsion chimney:

This safeguard consists of on proximity sensor located at the rear side from the expulsion chimney. The electric switching contact is established when the sensor approaches the magnet fixed on the chimney. When opening the expulsion chimney the contact is interrupted and the feed roller is shut off.



The proximity switch must not enter in contact with the magnet. The distance between sensor and magnet must amount to 6 mm +/-5 .

EMERGENCY STOP SWITCH

The machine is also fitted with four emergency stop switches, two on each side of the machine.

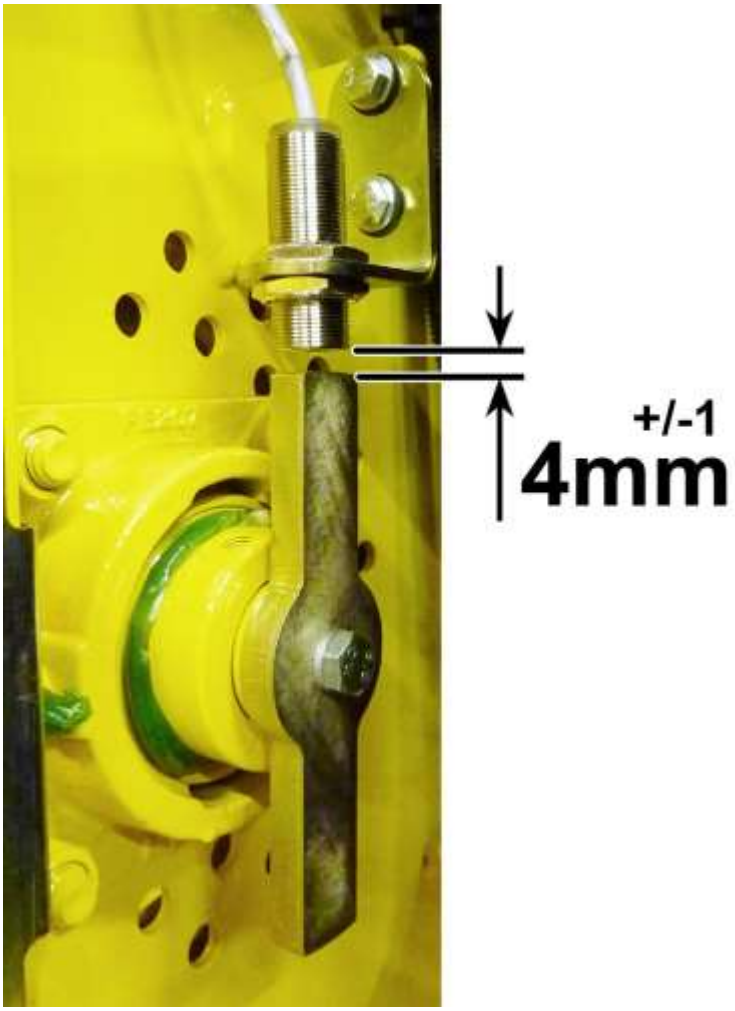
When activated, these switches stop the feed roller

(the Pilot System is switched off)

PROXIMITY SENSOR

The proximity sensor M18 (Ø18) at the end of the rotor shaft captures the speed and sends it to the Pilot System.

The distance between sensor and metal pin opposite of the V-belt pulley must amount to **4 mm** $^{+/-1}$ **0,16“**



EXPULSION CHANNEL

After opening the latch **(1)** the upper part of the expulsion chimney can be turned by 90° to the left and by 90° to the right.

In this chapter we have compiled a list of possible errors, their causes and their solutions. In case an error appears, which is not listed in chapter "Troubleshooting", please contact your dealer. Have your operating manual and the serial number of your machine on hand.

FAILURE	CAUSE	REMEDY
Not possible to connect the Pilot System	- Electrical cable not connected to the tractor	- Connect the machine electrical socket to the tractor lighting socket
	- Emergency stop switch activated	- Unlock switch
The feed roller does not start	- Electrical cable not connected to the tractor	- Connect the machine electrical socket to the tractor lighting socket
	- Emergency stop switch activated	- Unlock switch
	- Expulsion chimney open	- Check locking of the expulsion chimney
	- Expulsion chimney safeguard wrong adjusted or defective	- Check sensor (see page 47)
No forward or backward motion of the conveyor belt or of the infeed roller	- Regulating screw at infeed completely screwed down	- Loosen the regulating screw
	- Hydraulic motor or pump defective	- Check defective part or replace
	- Oil deficiency in hydraulic tank	- Check oil level
The machine is chipping with difficulties	- Knives/Inserts blunt	- Sharpen or replace knives/ inserts
	- V-belt damaged or loose	- Replace or tension V-belt
The infeed roller does not regulate, neither under the switch-on limit of the Pilot System	- Failure of the electric or hydraulic installation	- Contact dealer

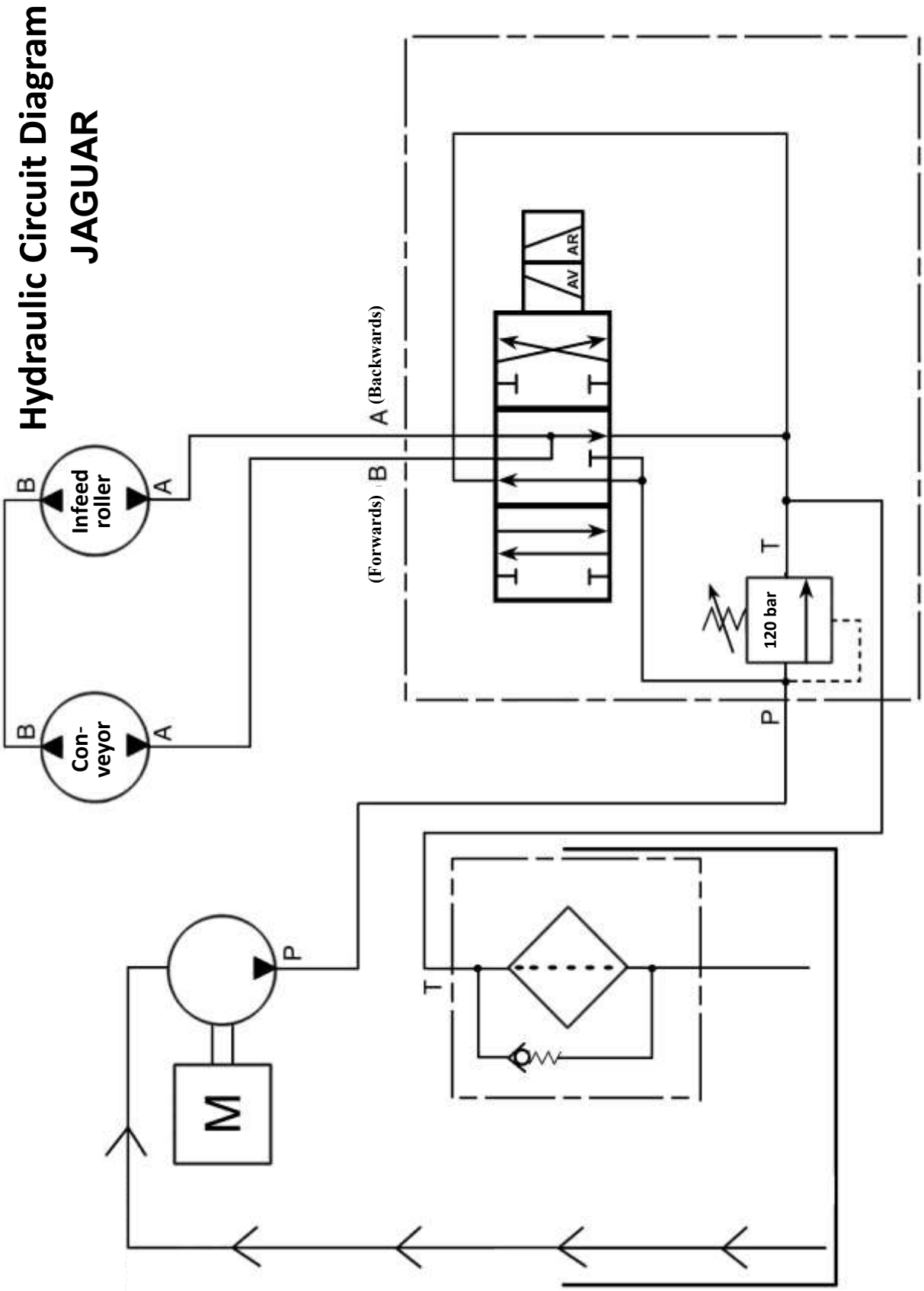
Specifications

	JAGUAR PTO
Performance:	7,09 inches
Hourly output:	30 m³/h selon tracteur
Length:	9,68 ft
Width:	4,95 ft
Height:	7,64 ft
Weight:	950 Kg
Number of ihamers	12
Number of knives:	6
Rotor diameter:	22,05”
Rotor weight:	150 Kg
Rotor width:	15,64”
Tractor Power Required at PTO: with standard transmission at 540 RPM	 45 à 52 cv
with standard transmission at 1000 RPM	45 à 80 cv
with OPTION big transmission tractor *at 540 RPM*	*45 à 82 cv*
with OPTION big transmission tractor *at 1000 RPM*	*45 à 120 cv*
Rotor speed at 540 PTO and 1000 PTO:	2000 Tr/mn
Overload protection:	Yes
Hydraulic supply:	Yes
Hydraulic oil tank capacity:	15 L.
Hydraulic pressure:	120 bars

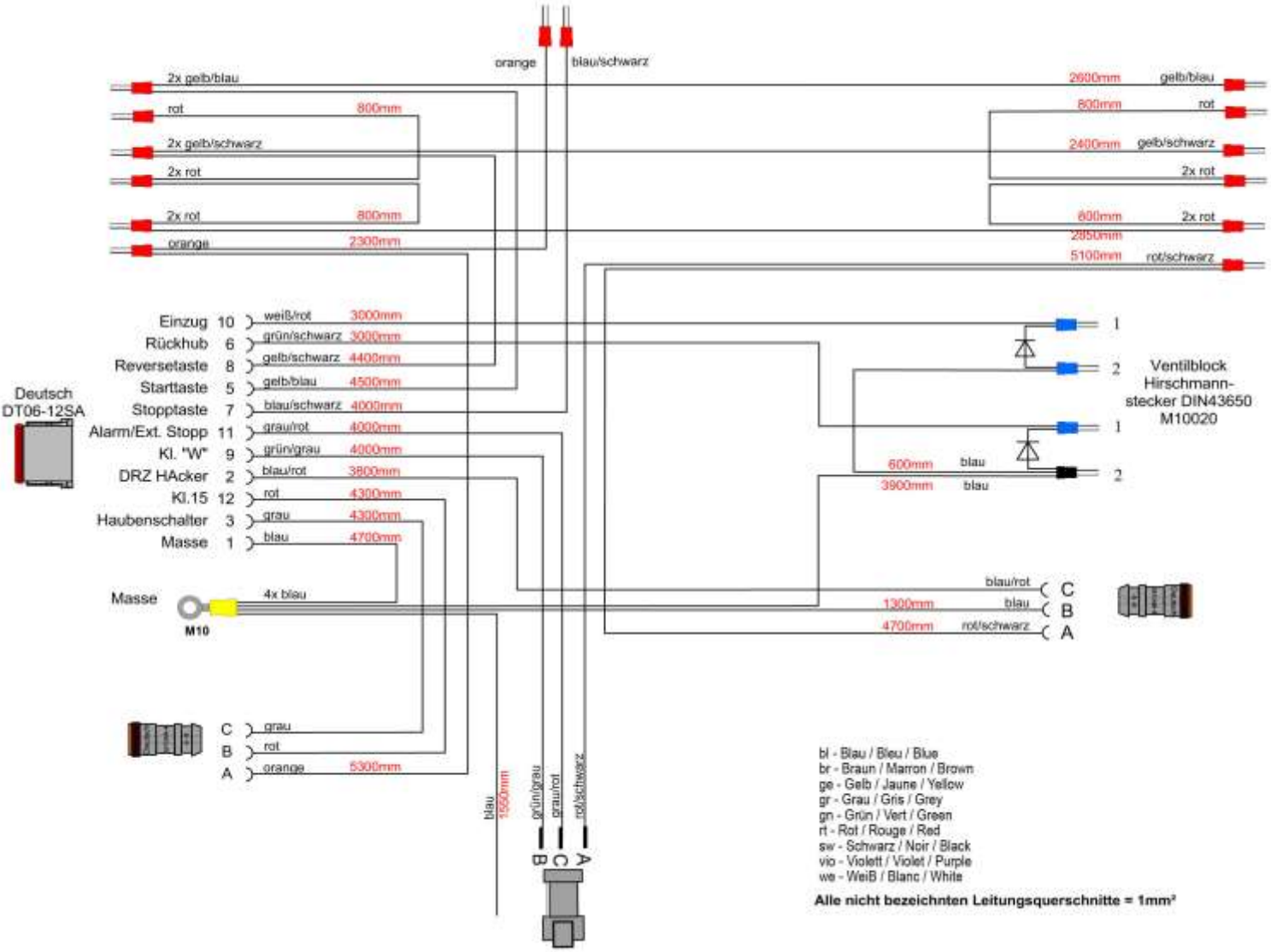
Hydraulic connections

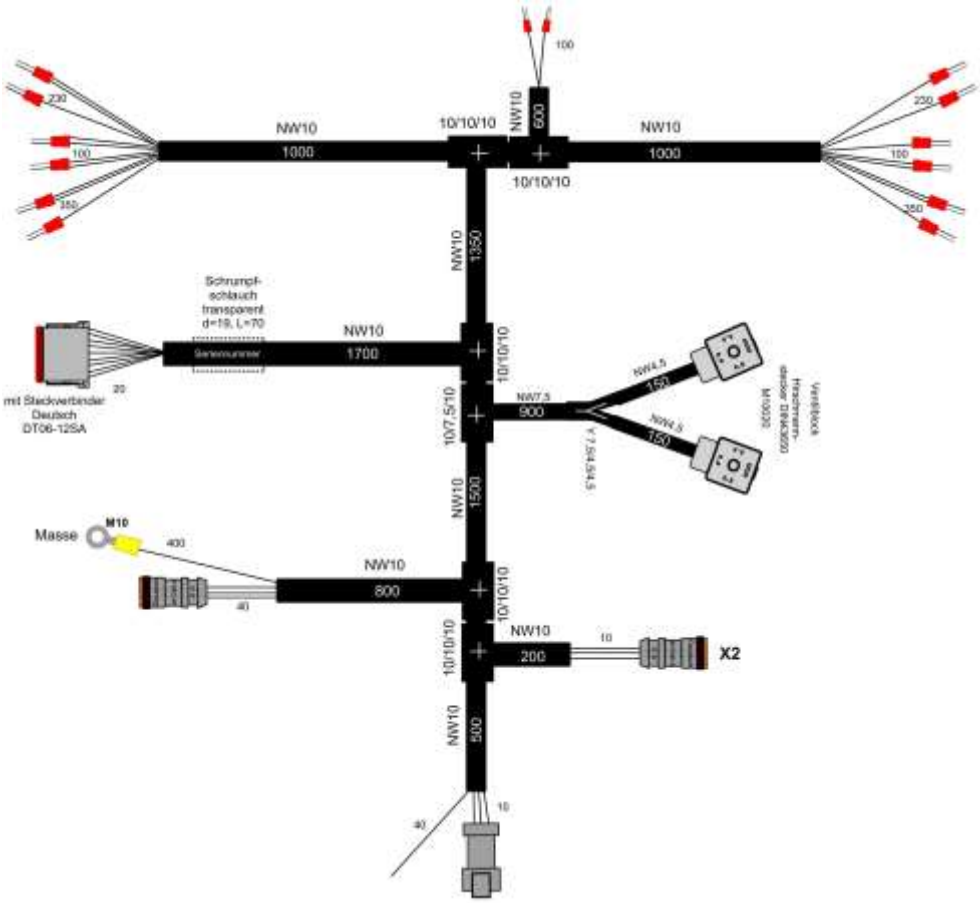
❶ 950 mm ❷ 550 mm ❸ 550 mm ❹ Pres.1850 mm ❺ Ret. 1500 mm ❻ Asp. 1260 mm

Hydraulic Circuit Diagram



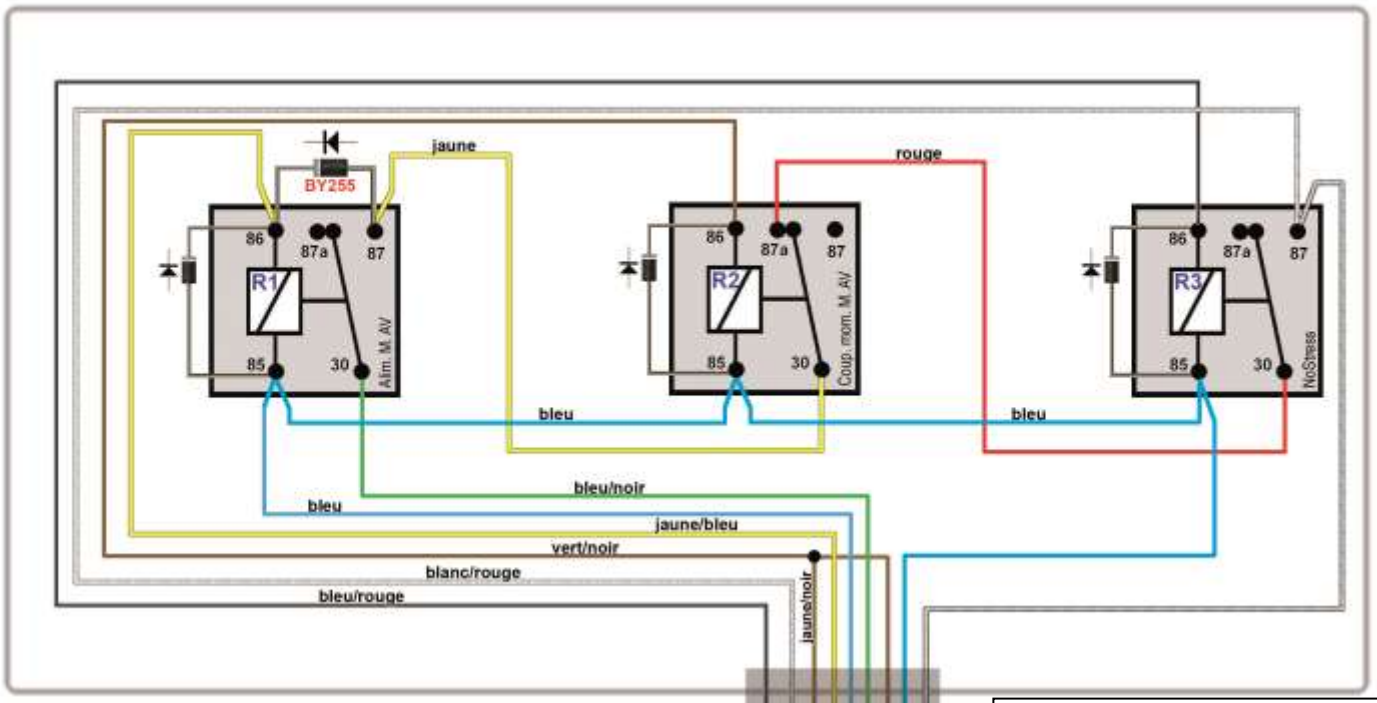
Wiring diagram





bl - Blau / Bleu
br - Braun / Marron
ge - Gelb / Jaune
gr - Grau / Gris
gn - Grün / Vert
rt - Rot / Rouge
sw - Schwarz / Noir
vio - Violett / Violet
we - WeiB / Blanc

Relay Box NoStress
and Feed Roller Controls



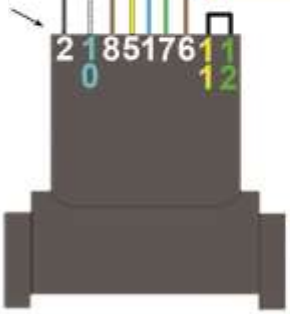
Relai R1: commande alimentation marche avant ameneur

Relai R2: coupure momentanée marche avant lors de la marche arrière

Relai R3: NoStress sur la marche avant

Horotachymeter:
Counts the hours only in forward rotation (grinding)
OR
by pressing the Yellow button for 8 seconds after the alimentation of Pilot System

Caps on **3**,**4** and **9**



1: Ground
2: Signal NoStress (+ 12V)
5: Yellow button forward (+ 12V)
7: + 12V. Current arrival
8-**6**: Black Button Stop Forward during reverse (+ 12V)
10: Output solenoid feed forward
12: + 12V to 11 (control relay activation starter)

Relay R1: forward rotation feed roller

Relay R2: momentary stop forward rotation during backward rotation

Relay R3: NoStress on the forward rotation

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