

GS/PREMIUMP

OPERATING MANUAL

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SAELEN® TS INDUSTRIE®

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DECLARATION OF CONFORMITY

LA SOCIETE **TS industrie**

Industriering Ost 42
47906 KEMPEN (Germany)

Tel.: +49 2152 / 99294545

HEREBY DECLARE THAT THE MACHINE:

Trade Name: **TS Industrie**
Type : **GS/PREMIUM25P**
Engine performance: **18,38 kW**
Technical documentation held by Mathieu Willerval.

is in conformity with the following European Directives:

- **2006/42/EC** Directive „Machinery“
- **2014/30/EU** Directive „Electromagnetic compatibility“
- **2016/1628** Directive „Emissions“
- **2000/14/EC** Directive „Noise emissions“

Conformity evaluation procedure concerning directive 2000/14/CE Annex V.

Power at 3600 rpm	*Measured sound pressure level*	*Guaranteed sound pressure level (EVA)*
18,38 Kw	**124 dBA**	**126 dBA**

RONCHIN, June 30, 2017

Mathieu Willerval (Production Manager 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 petrol
- 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!

It is strictly forbidden to use the machine if emergency stops, cables, or any other safety device or control device are damaged or not present

Guarantees

Processing of warranty claims

Warranty claims according to the General Business Terms of the manufacturer are valid for 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
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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 **machine** of your **PREMIUM P** at hand.

Serial number machine

Do not state the number from the type plate of the trail-er.



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

Serial number machine



Safety instructions

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

2. In case of machines with engine also the operating instructions of the engine are to be observed.

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 engine 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 5,118" / 13 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. Note for all machines with engine:
The inclination of the engine during operation (driving) must amount to max. 25°. In case of reduced oil level the lubrication of the engine is not ensured even at 25°!

28. 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.

29. After connecting the machine to the tractor vehicle, remove and store the support wheel.

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

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

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

33. Battery acid is a caustic fluid. Therefore any contact with eyes, skin and clothes must be avoided. In case of contact rinse all affected areas with water and go see a doctor, if required.

34. Always disconnect the battery before any work on the electric installation.

35. 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.

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

37. 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.



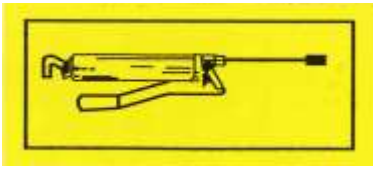
Fill the petrol tank with **gasoline**



The machine is operated with hydraulic oil HV46.



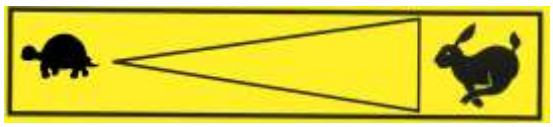
Lubrication points



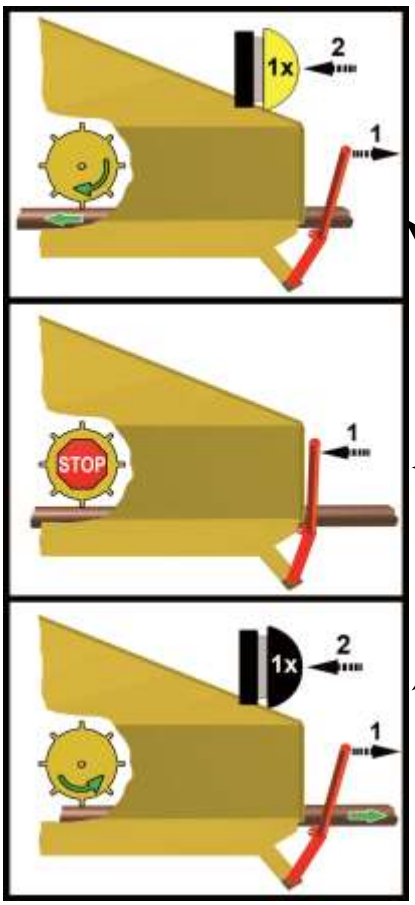
The sound level of the working machine is not the value of the standard level on the sticker.



Minimum RPM motor



MaximumRPM motor



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

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

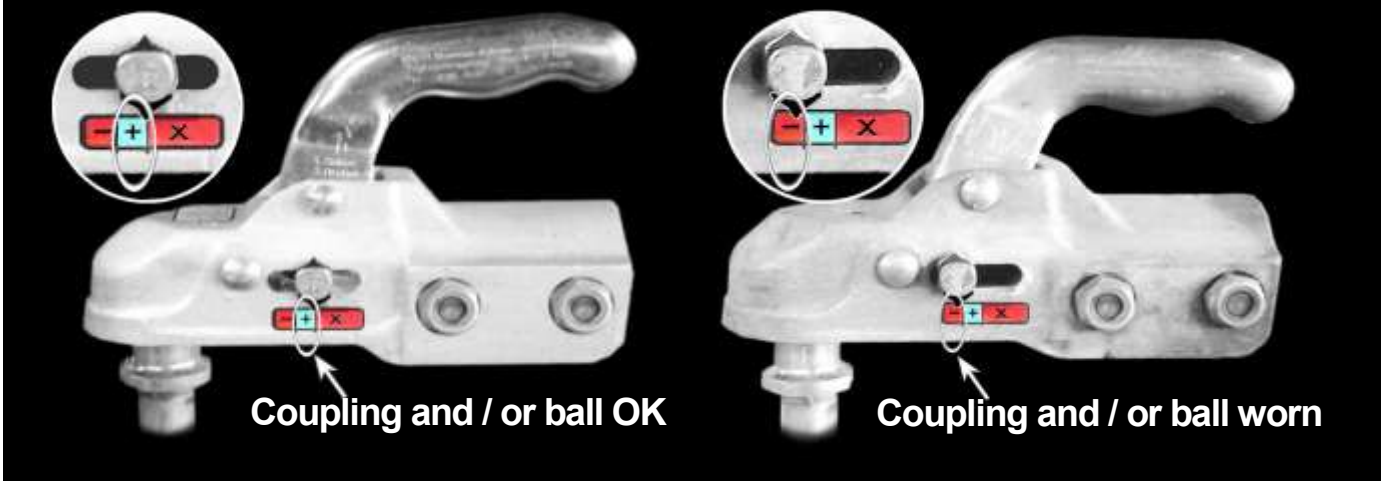
Stopping rotation of the infeed rollers

Loosening material (backwards)

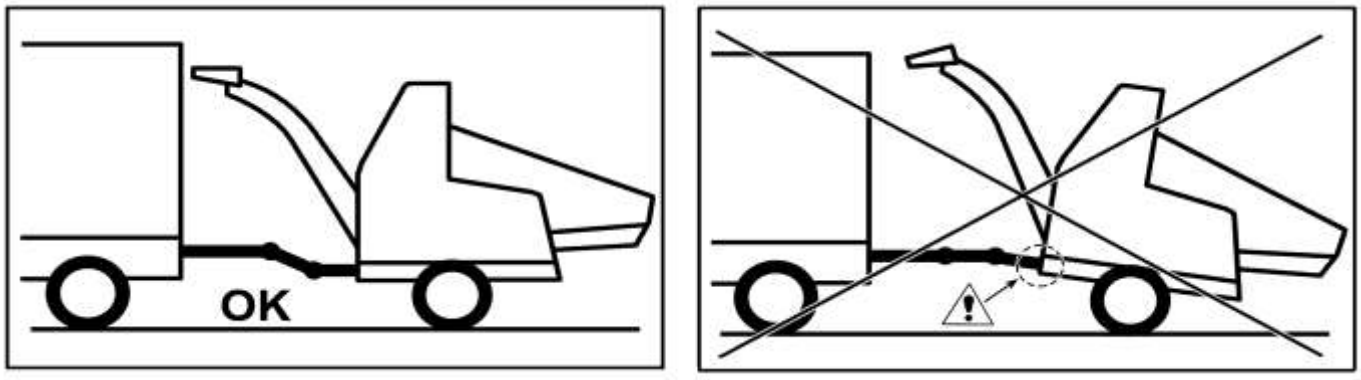
Safe transport

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.

<u>Coupling wear indication</u>:
Check the wear indication each time the machine is hooked up to the tractor vehicle. Acquire the habit to replace the coupling dog and / or coupling ball of the vehicle as soon as the wear indication hits the negative area, such that you cannot loose the chipper when driving on rough roads or driving against a kerb when reversing.



<u>Coupling to a vehicle</u>:
The chipper should always be coupled in horizontal position such that the machine is prevented from tilting backwards <u>AND</u> check every day that the drawbar adjusting devices are secured to prevent jerky movements, which damage coupling and towing device and reduce the life span.

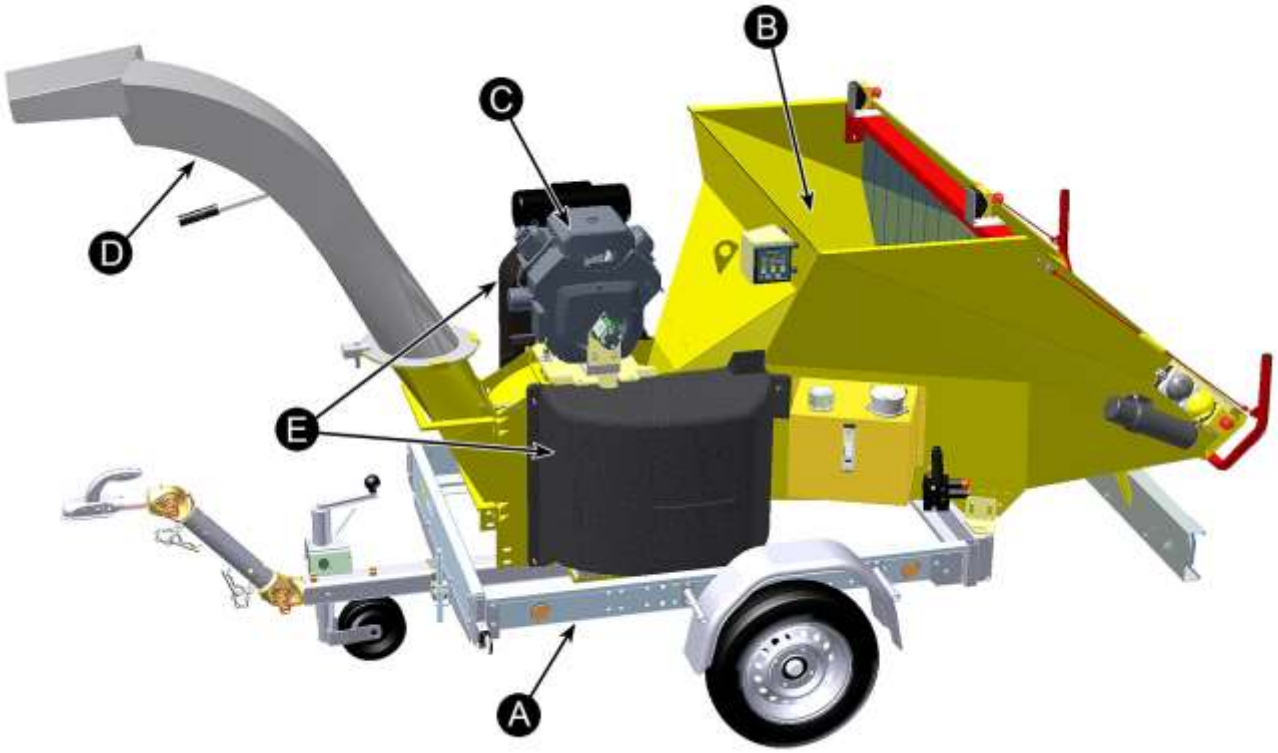


DESCRIPTION OF THE MACHINE

The chipper **PREMIUM P TS Industrie** is designed for chipping branches up to a **diameter of 5,18 inchs**.

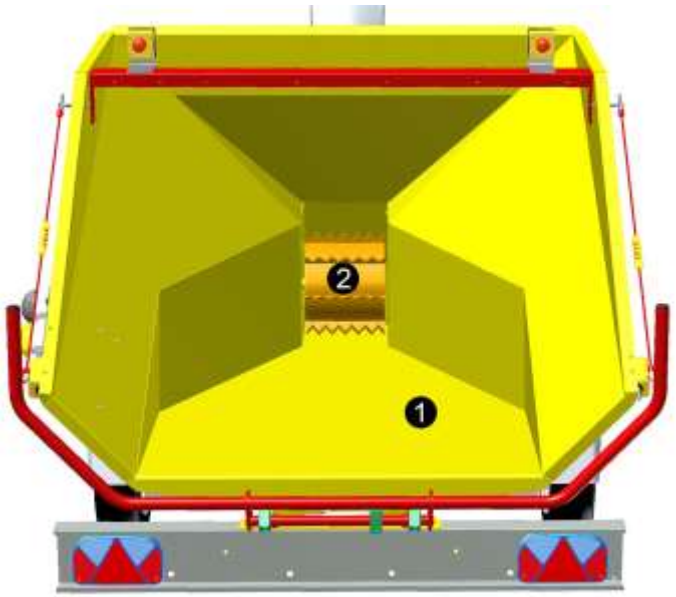
The machine consists of the following main components:

(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 **PREMIUM** and allows an independent movement of the machine.

B. Chipping unit
The unit consists of one infeed hopper **(1)**, one infeed roller **(2)** 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 side of the infeed hopper



The speed of rotation can be matched to the diameter of the material to be chipped using the regulating screw **(3)** on the left side.



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 diesel engine is located above the chipping unit. It supplies the required energy for the drive of the rotor and the hydraulic oil pump **(1)**.
The machine is driven by a 2-cylinder gasoline engine with an output of 18,38 kW (25 HP) at 3600 rpm. Further information regarding the engine can be taken from the manual of the manufacturer.
The rotor is driven via the output shaft, the centrifugal clutch with belt pulley **(2)** and 2 V-belts. The hydraulic pump is connected to the diesel engine and drives the hydraulic motors of the infeed rollers.



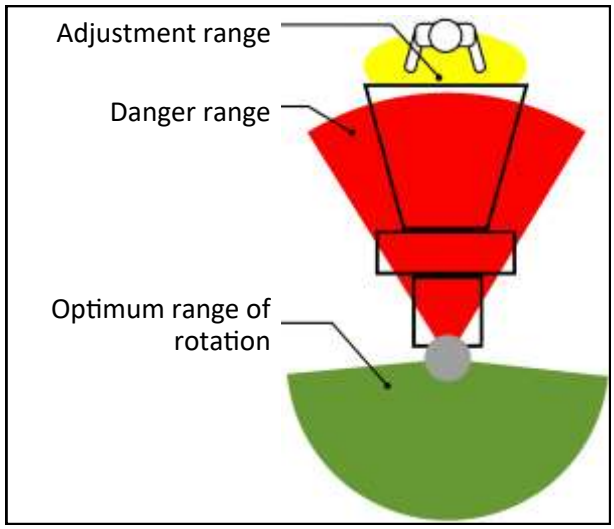


D. Expulsion channel

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.

Two electric switches disconnects the engine and prevents a restart if the expulsion chimney is open towards the rotor.



E. Hood

Different hoods protect against rotating parts making work safe.
Two electric switch disconnects the engine and prevents a restart when opening the hoods.

MATERIAL INFEED

The **PREMIUM** is fitted with an electrically controlled hydraulic distributor, which is activated with two buttons at the 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.

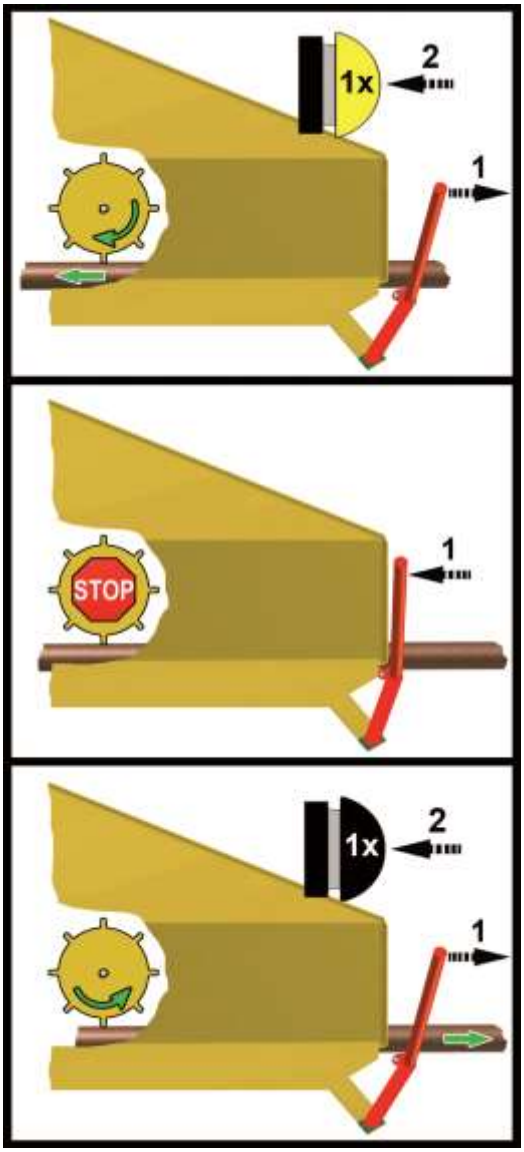
<u>STOP THE INFEED:</u>

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.



COUPLING THE MACHINE TO A VEHICLE

When hooking the wood chipper to a vehicle the procedure is as follows.

With the support wheel adjust the height of the drawbar such that the trailer coupling is standing above the vehicle. Now reel the support wheel in and the open ball head coupling has to engage on the ball of the trailer coupling.
Ensure that the trailer coupling safely engages!

The wear indication on the coupling must be in the green area (see page 16).

Then connect the arrestor cable with the vehicle and plug in the connector for the lighting. **Reel the support wheel completely in.** check the lighting.

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 following filling levels:
   - Engine oil
   - Petrol
3. Check the hydraulic oil level.
4. Check that the air filter is clean.
5. Ensure that all hoods are closed and locked.
6. 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.
7. The expulsion channel and the expulsion hatch are only allowed to be adjusted by an authorised operator.

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!!!**

START-UP



Each time before start-up of the machine ensure that is is standing stable on solid ground.

1) Check that the cap at the end of the shaft is open.

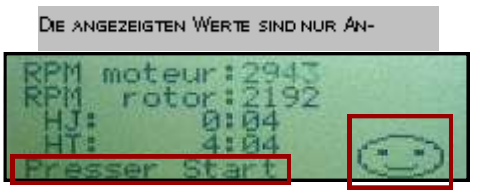
2) Slightly accelerate the engine's throttle lever

- engage the starter

3) Start the engine with the ignition key.

- remove the starter

See page 40 if the engine immediately shuts down again and the message **"Slip Error"** is displayed on the **Pilot System**.

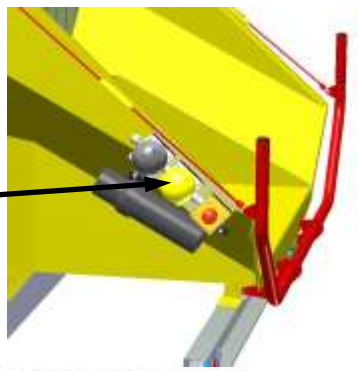


4. Accelerate the engine at half-speed. Let the engine run until it has reached operating temperature.

5. On the Pilot System choose the desired range **1**, **2** or **3** (see page 38).

6. Accelerate the engine's speed to bring it to its maximum speed.

7. As soon as the engine has reached working speed, the message **Press Start** appears and a **Smiley**.



8. Press the **yellow** button on the infeed table to connect the infeed roller.

9. Now work can be started.

Material infeed and operation

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, 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)]
PREMIUM P	126	123

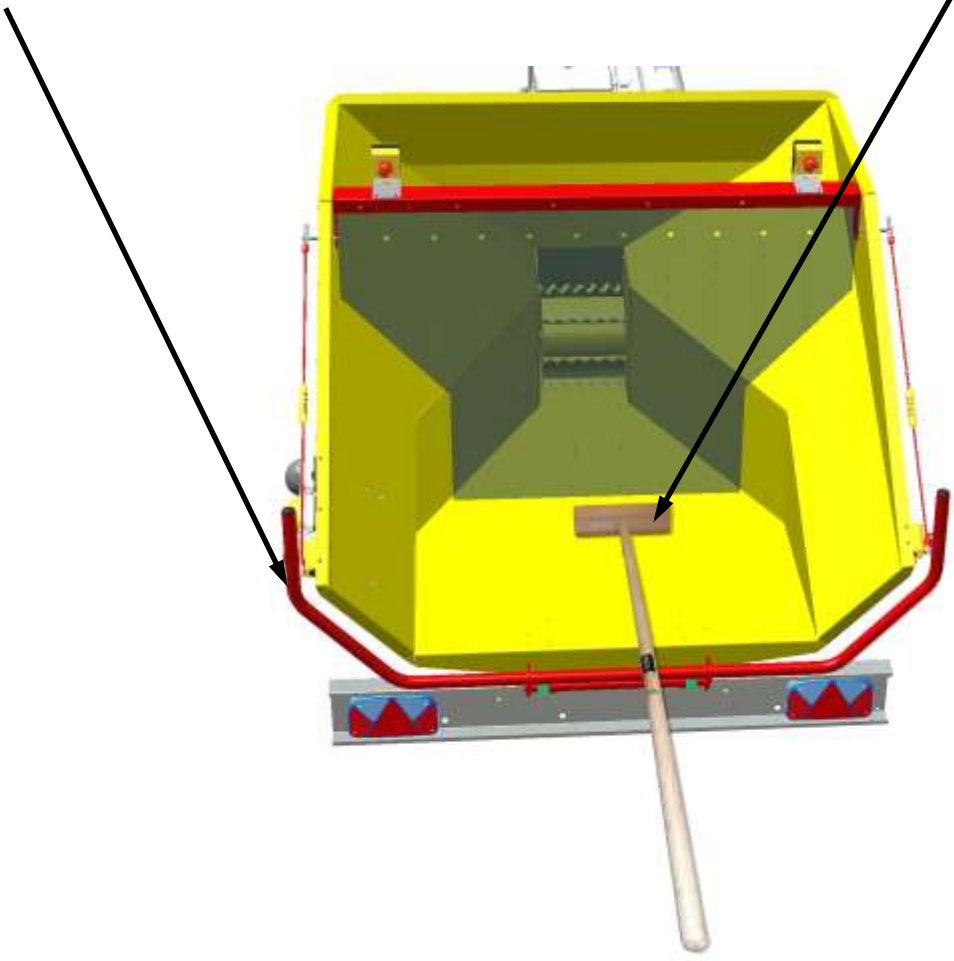


SHUT-DOWN

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** **(see page 44).**

2. Ensure the integrity of the pusher. It must be used at the end of the work, in order to push the last debris into the feed elements

3. For stopping the infeed roller move the control rod forward.



4. Set the engine to idle speed.

5. Turn the key on the control element to the left and shut the engine off.

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:

Engine: 1,3 l.

Petrol: 30 l.

Hydraulic oil: 23 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 "

4) Engine oil:
SAE 15W40 according to standard API CH4-CG4-CF
"MINERVA POWER LONG WAY 15W-40 "

ENGINE MAINTENANCE INTERVALS:
See operating instructions of the engine

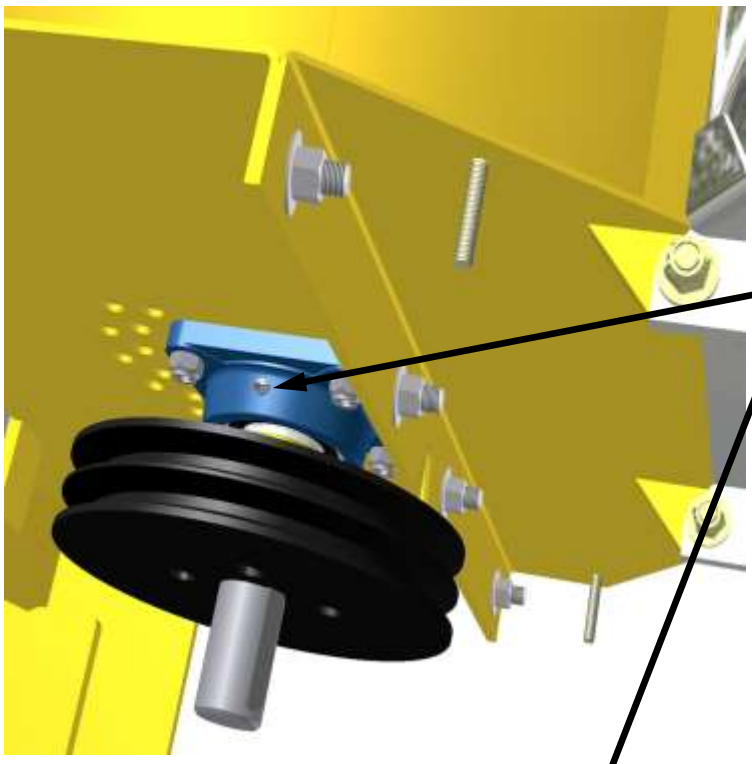
MACHINE MAINTENANCE INTERVALS

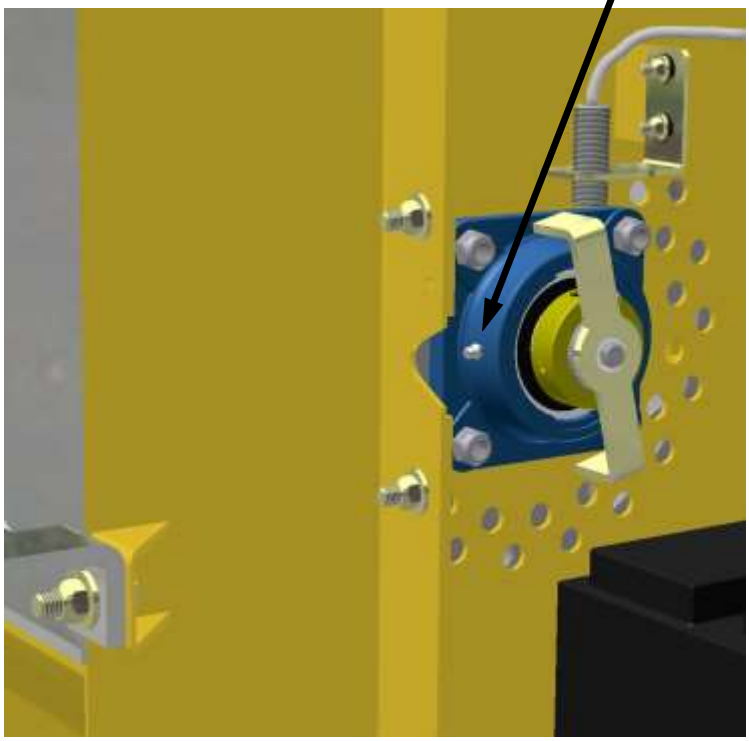
Operating hours	Maintenance works
Every day	**- Check tight seat of the adjusting joints front side of the trailer coupling/ drawbar** **- Check function of the safety switches and the red control rod** - Check the engine oil level - Check the trailer coupling - Check the tight seat of wheel nuts
First time after 4 operating hours	- Check the tight seat of all fastening screws - Check the tension of the rotor drive belts
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 if material is wrapped around the bearings and remove - Check rings of infeed rollers - Check the hydraulic oil level
Every 150 operating hours	- 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 200 operating hours	-**change wear rings hammers:** (see page 31)
Every 300 operating hours	- Check the battery acid level
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

LUBRICATING POINTS



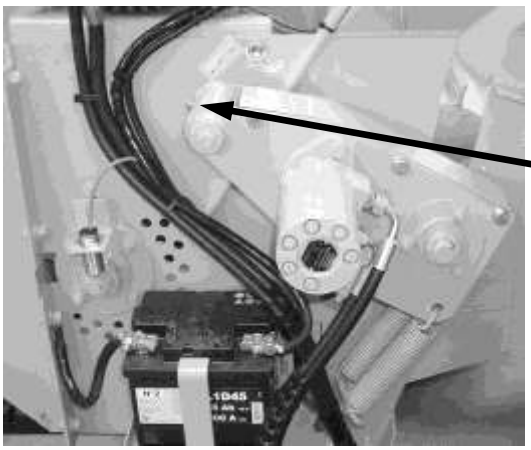
Shut the engine off and remove the key before the lubricating and maintenance works.



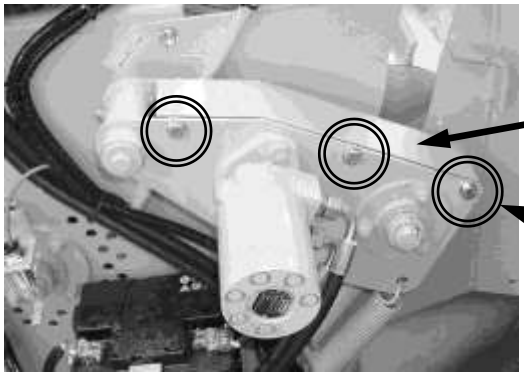


LUBRICATING POINTS



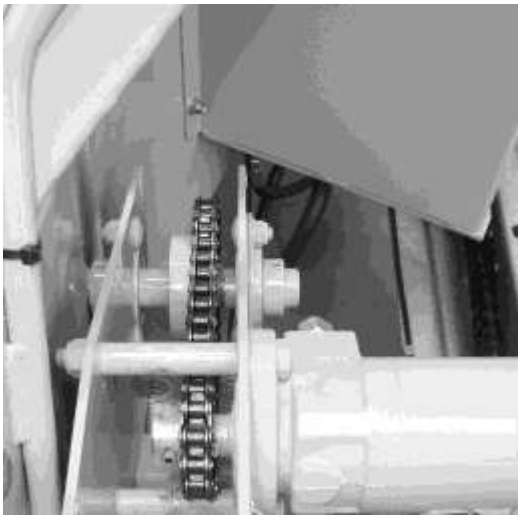


LUBRICATION OF THE DOUBLE RING OF THE FEEDER'S ARTICULATION



LUBRICATION OF THE FEED ROLLER'S DRIVE CHAIN

To access the feed roller's drive chain; remove the three screws of the feeder arm's cover.



Beings the chain runs at low speed it has no extender. If the clearance becomes too important a false link can be removed, after which it will have to be changed

OIL LEVELS



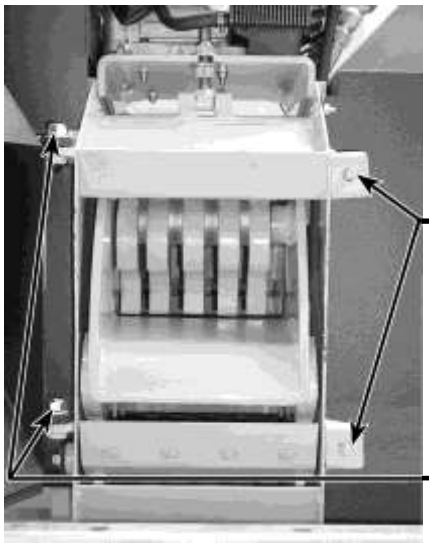
HYDRAULIC RESERVOIR'S LEVEL



ENGINE'S OIL GAUGE

KNIFE AND INSERTS REPLACEMENT

Remove ignition key before the maintenance works.



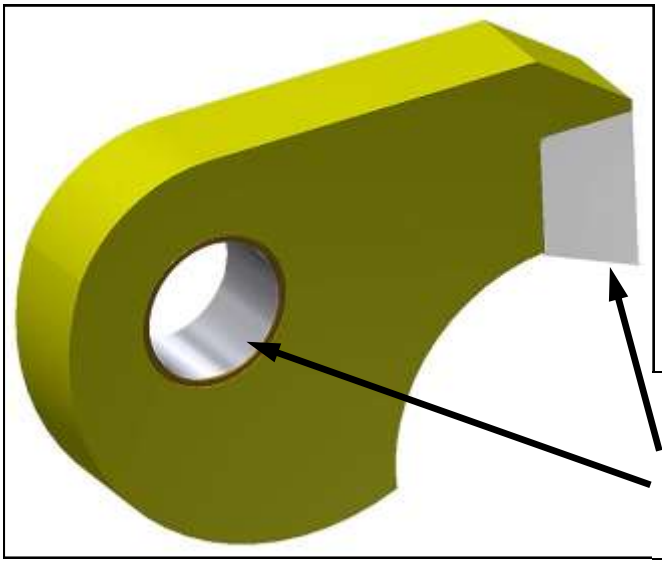
ACCESS TO ROTOR:

In order to gain access to the rotor:

-Remove the two Nylstop nuts

-Open the chute by rotating it on the two articulations

For easier maintenance, henceforth the hammers are mounted without lubricator but with special wear rings.
The lack of lubricators on the hammers however should not stop you from inspecting the hammer discs and blades on a regular basis.



Upon inspection, check whether the hammers are rotating freely.
In case there is a coarseness, spray penetrating grease onto the axles and tap the hammer(s) using a mallet.

Frequency of inspections:

- control blades and hammer inserts : 50h
- **change wear rings hammers: 200h**

DISASSEMBLY TO REPLACE THE BLADES AND THE HAMMER INSERTS

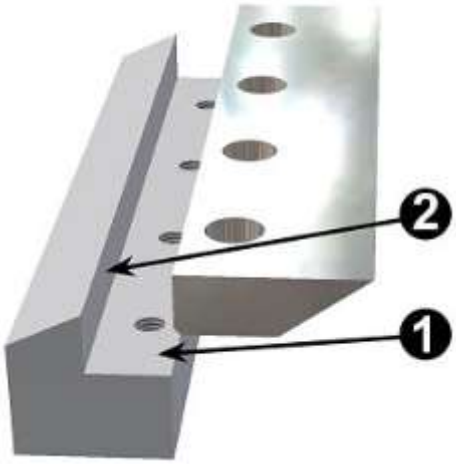
Remove the ignition key before proceeding.

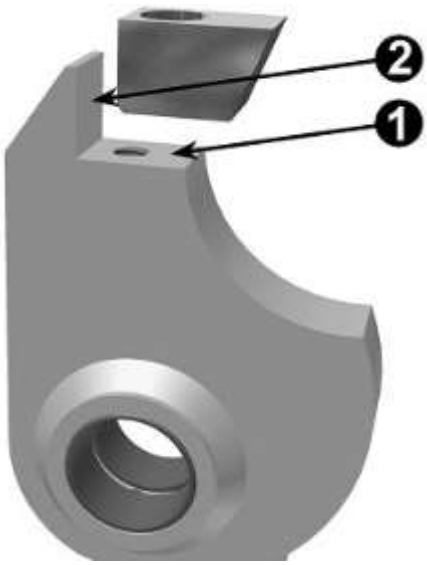
-The hollow hexagonal screws of the blades and hammer inserts are mounted at the manufacture **without Loctite at a torque of 16 M. Kg (157 N.m).** Use the appropriate wrench that is in good condition to remove them.

-Open the chute as described on previous page.

-Remove the screws from blades and inserts. (For the assembly later on, only use the news screws **category 12.9**).

-Clean the contact surfaces of the blades and the inserts clean at the base **(1)** as well as the wall **(2)**.





-Install identical or newly ground blades.

IMPORTANT: the blades must be ground by a professional using specific tools, and not with a grinding disc. Make sure tha 35° angle of the cutting edge is respected. The minimal lengt of **A** should not be smaller than 50 mm after grinding. (The length of a new blade is 60 mm).



-Tighten the screws category 12.9 to 16 M.kg torque (157 Nm),
and make sure the blades and inserts lean against the wall.



-Close the chute and the covers.

-Start the engine and warm it during a few minutes.

-Accelerate to maximum speed to make sure no abnormal vibrations disturb the functioning of the machine.

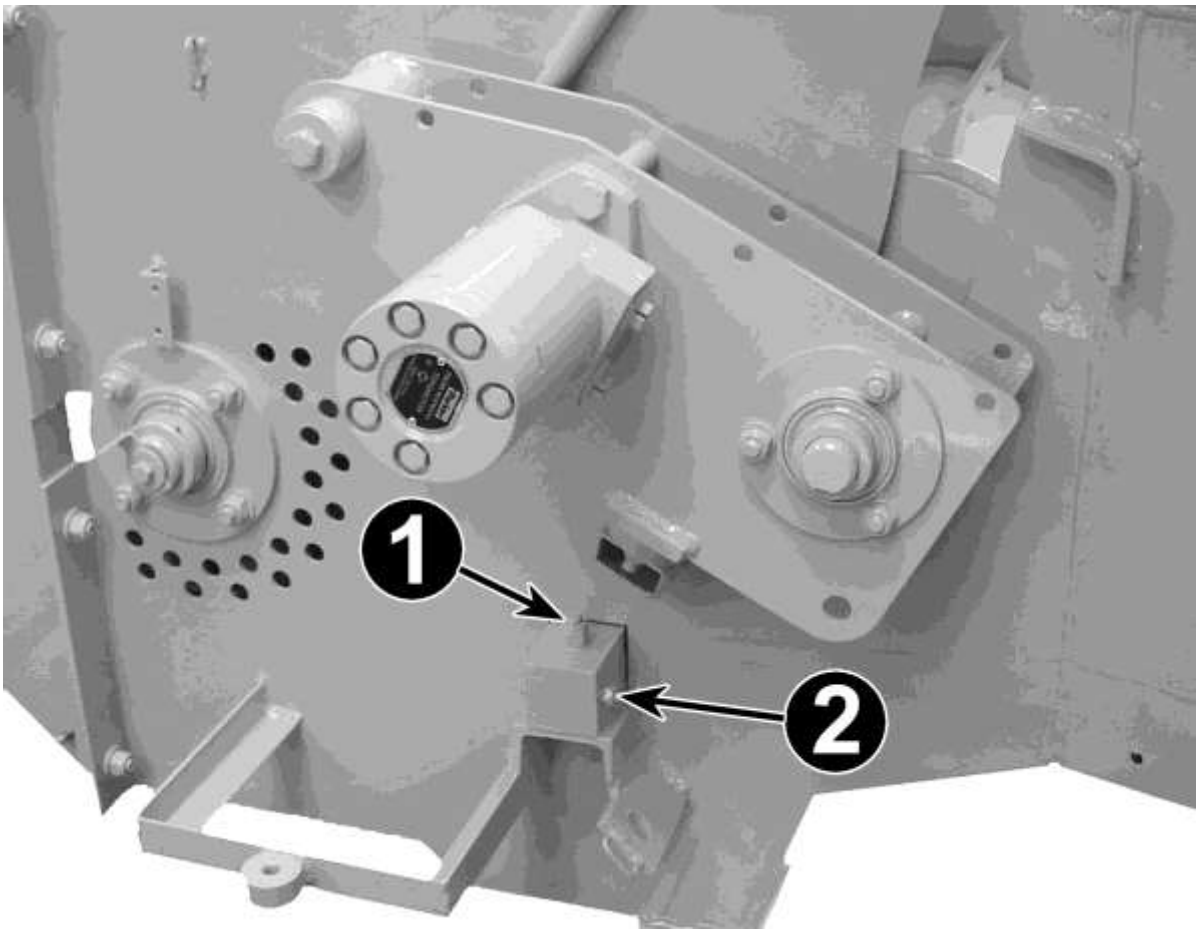
CHECK COUNTER-KNIFE

Remove ignition key before the maintenance works.

-Remove the two attachment bolts diam.12 **(1)** as well as the two safety bolts **(2)** diam.8 at each end of the counter-knife.

-Drive it out by sliding it in its housing on either side. If the edge is worn out; completely remove the counter-knife from its housing, and remount it by shifting it a quarter turn so as to show a new edge facing the knives.
(Each of the counter-blade's four edges can be used)

-Reinsert the two bolts **(1)** and **(2)**.



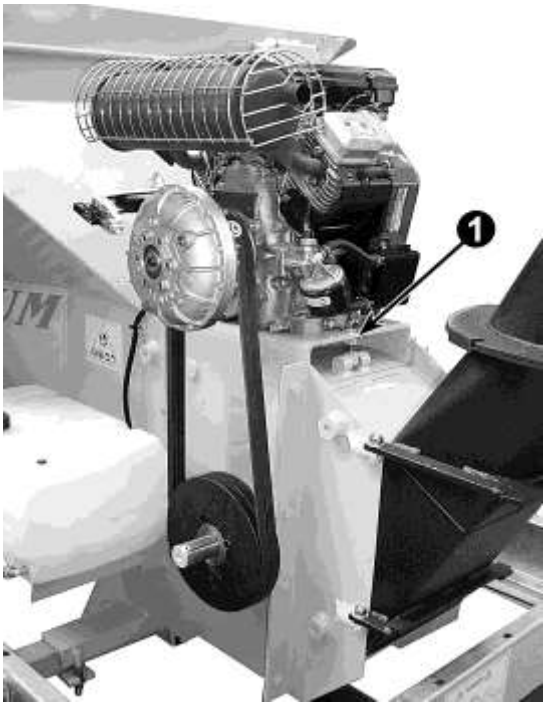
TENSIONING THE V-BELT FOR THE ROTOR DRIVE

The rotor's belts are permanently kept extended by an extender.

The adjustment of the belts' tension is done through the pivoting of the engine's support plate while acting on the extender **(1)**.

This procedure should be carried out by a qualified technician.

Only trained personnel can carry out this work.

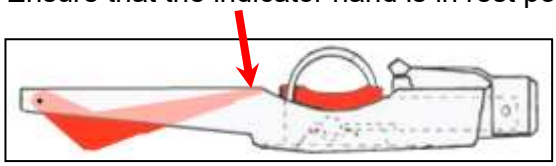


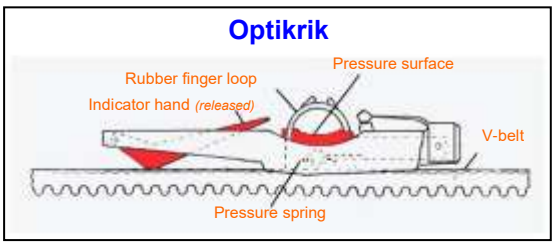
Check V-belt tension with pretension measuring device Optikrik. Reference: OPTIKRIK1

The pretension measuring device Optikrik *(available at your agent's)* is used for checking the V-belt tension at the PREMIUM and any other machine.

In case of the PREMIUM the V-belts are to be tensioned with **260 N-m**.

1. Ensure that the indicator hand is in rest position.







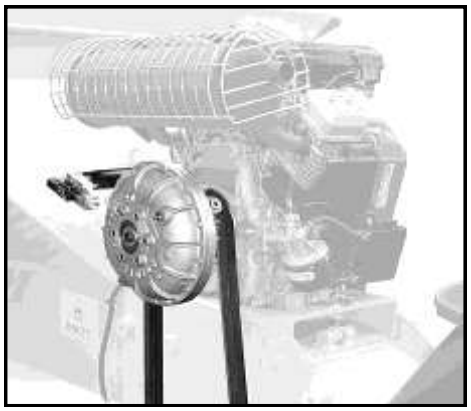
2. Engage the V-belt and place the device flat on the back of the V-belt in the middle of the two pulleys.

3. With one finger press slowly onto the pressure surface until the indicator hand releases.

4. The intersection of indicator hand and scale must be at **260 N-m**.



HYDRAULIC COUPLER



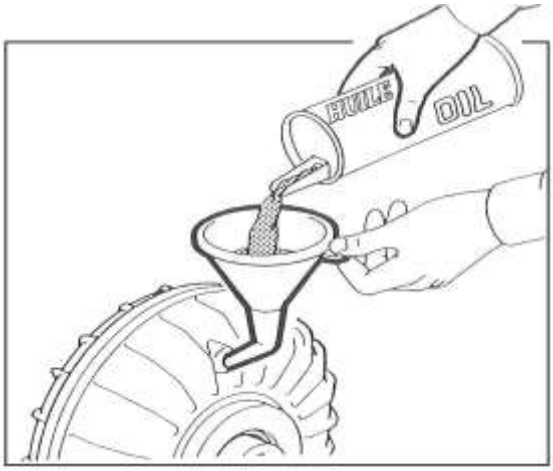
The **PREMIUM** is equipped with a hydraulic coupling that requires no specific maintenance with normal use.

Changing the oil



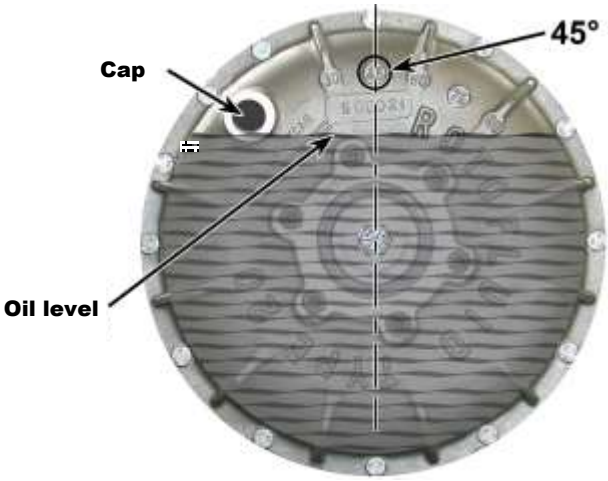
Change the oil via the green cap ***(First purge the couplyng by unscrewing the top cap)***

Filling



Add oil (1,14 L) through the expansion cap or the green cap

Oil level



Set mark **45** vertically to the coupling xis. Remove the expansion cap and if the level is correct, the oil is at the same level as the opening.

If the rotor blocks when starting the machine (rotor blocked by some branches if it was not well emptied after previous use for example), the oil temperature will quickly rise and the oil will be evacuated outside through the core of the green fuse-cap, which is supposed to melt with a temperature above 180°C.
One security "SLIPPING" was added to avoid this problem. ***(see page 40)***



PILOT SYSTEM



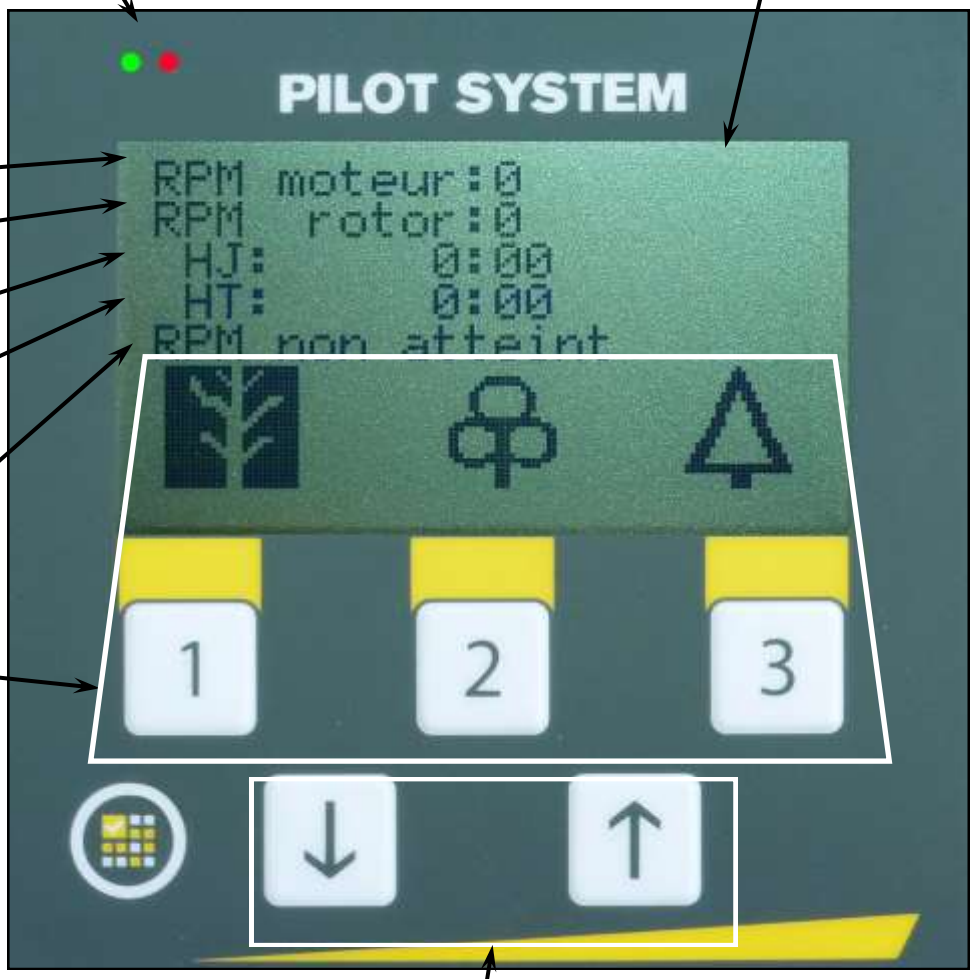
Available functions

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.

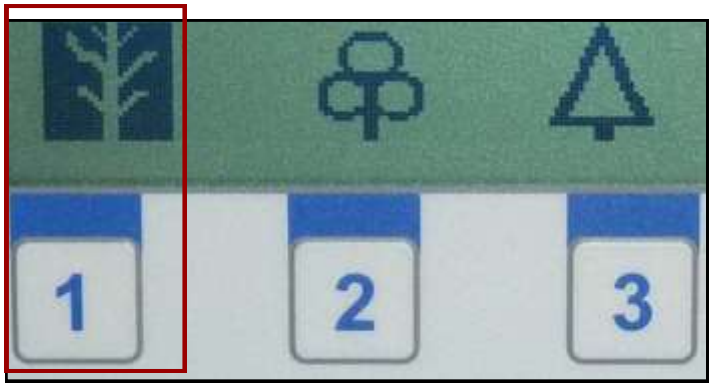
The values indicated on the following pages are reference values only

Selecting No Stress settings

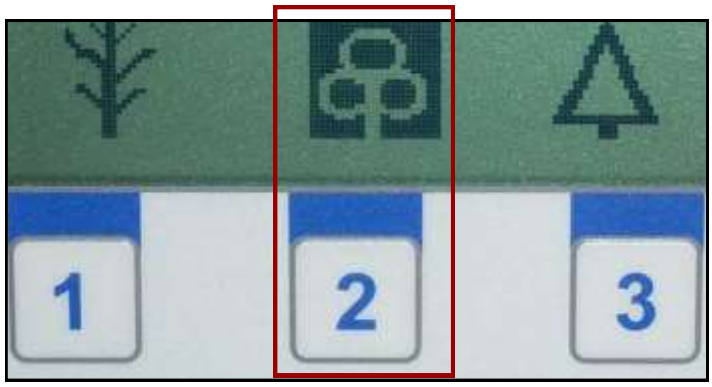
The Pilot System has 3 No Stress settings

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

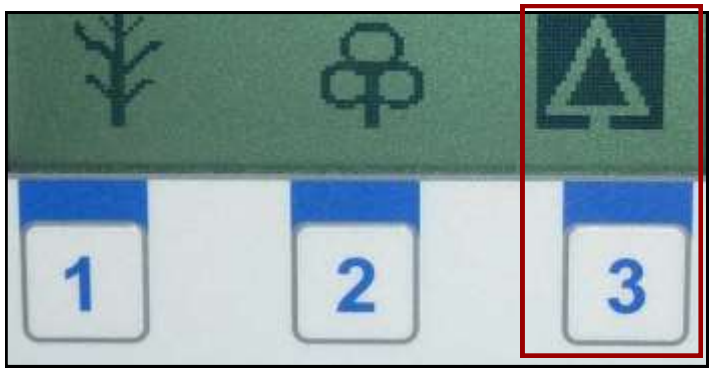
Key 1 for wooden waste: Utilises an amplified engine speed



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

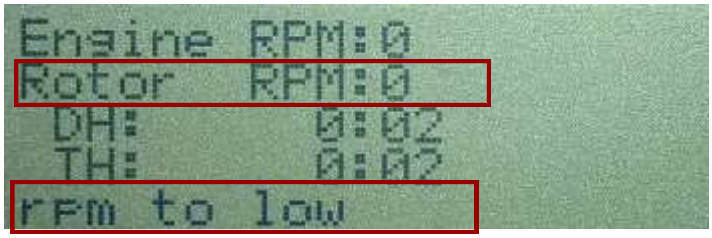


In case the settings shall be changed during the work, it is required to press the yellow button on the infeed hopper for re-starting the infeed rollers.

Standard operation and overspeed

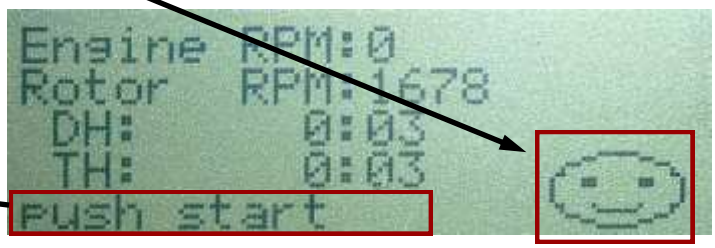
The speed of the rotor is the essential data for the functional check of the machine.

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

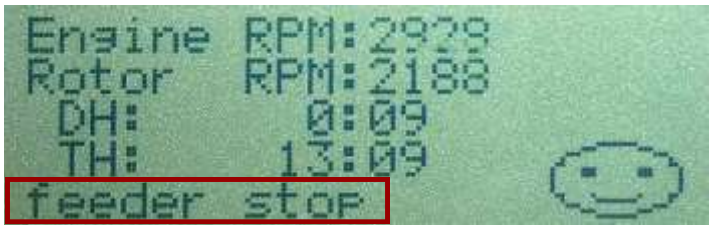


Adjust engine to max. speed. A **Smiley** is shown as soon as the minimum speed is reached for connecting the infeed roller.
Now the **yellow** button can be activated.

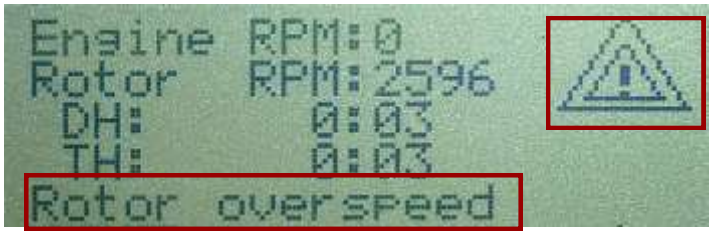




As soon as the infeed roller is rotating and the rear red control rod is activated, appears the message **infeed stop**.



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**.



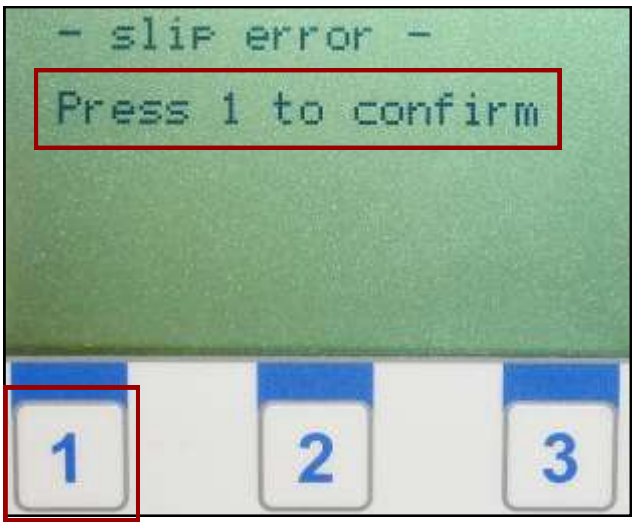
<u>After having removed the cause for the overspeed</u> it is required to reduce the engine speed to idle running, then increasing it again to max. Speed, to allow the infeed roller to re-connect.

Slipping function

The Pilot System controls the slip between the belt pulleys of rotor and engine by continuous comparison of both speeds. For the protection of V-belts, centrifugal clutch and hydraulic coupling, a slip of one per cent is admissible. If slip increases to over one per cent, the engine is shut off and the following messages appears on the display.

Different reasons for slip:

- **Rotor blocked**
- **V-belt loose**
- **Coupling worn**



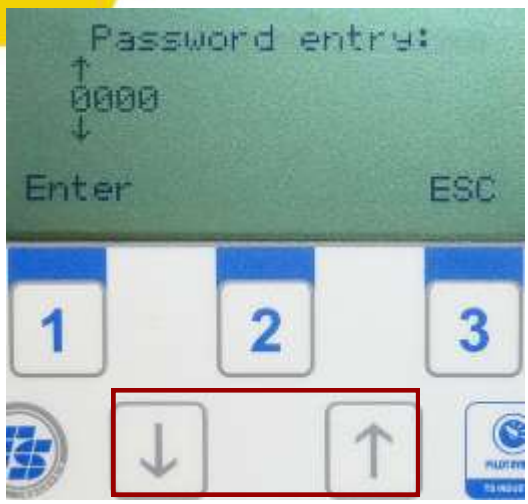
Note: Slip can be produced if the machine from standing is accelerated very slowly.

After stopping/checking the drive press key 1 to be able to continue work.

Date and time of this message are saved in the memory of the Pilot System, and can be read by the dealer.

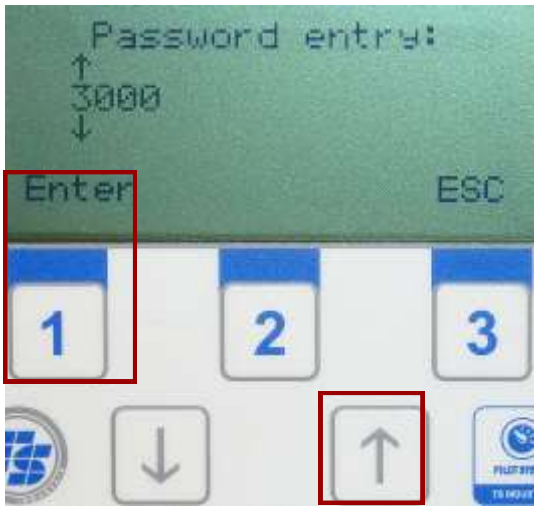
Access to the CUSTOMER Parameters Code 3003

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



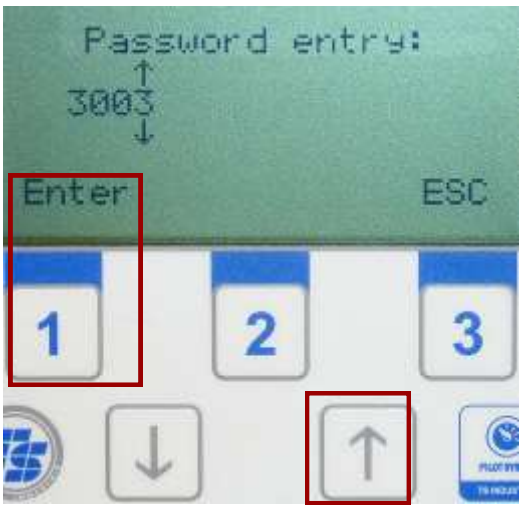
Press key **1** for confirmation and go to the first **0**.

4



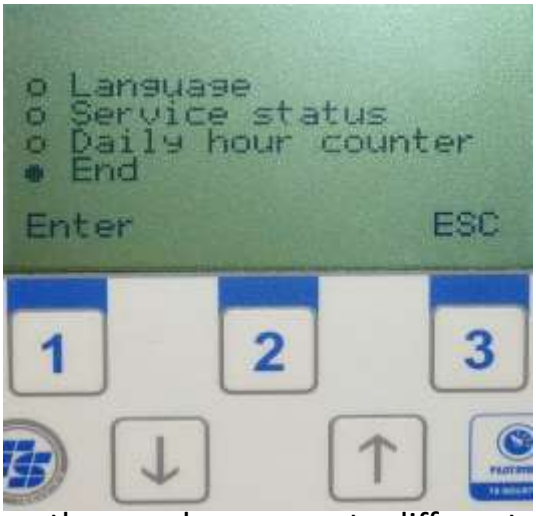
Press key **1** again for confirmation and go to the second **0**.

5



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

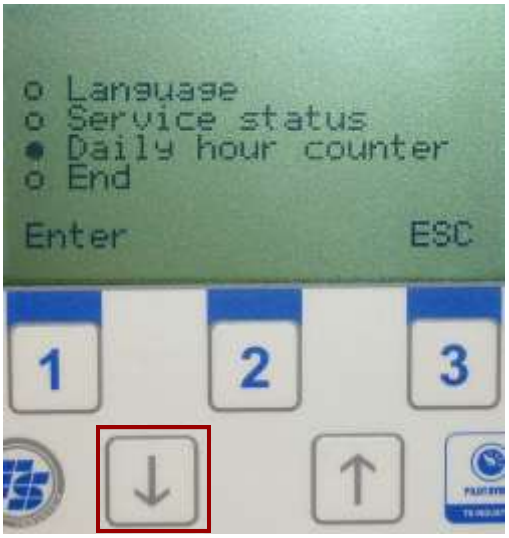
6



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

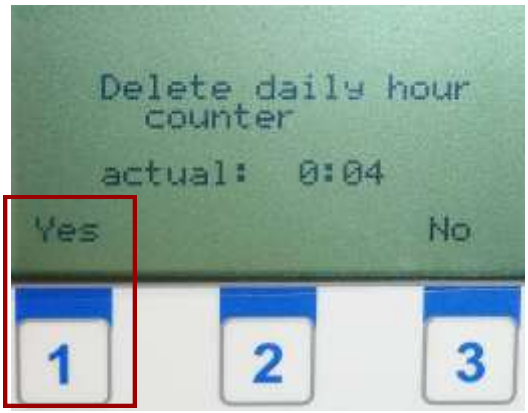
Reset of the daily operating hour counter

1



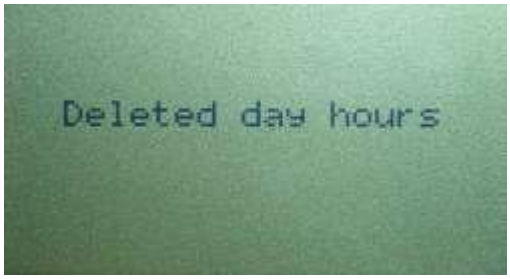
Press key ↓ and put the cursor on **Daily oper. hrs.**

2



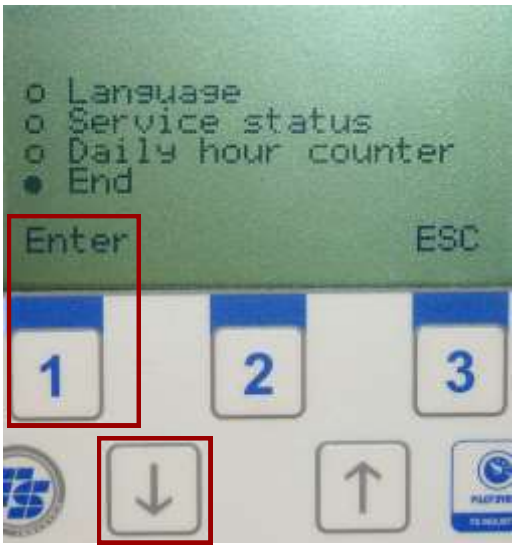
Press key **1** to confirm deletion of the daily operating hours.

3



The process is indicated with a corresponding message.

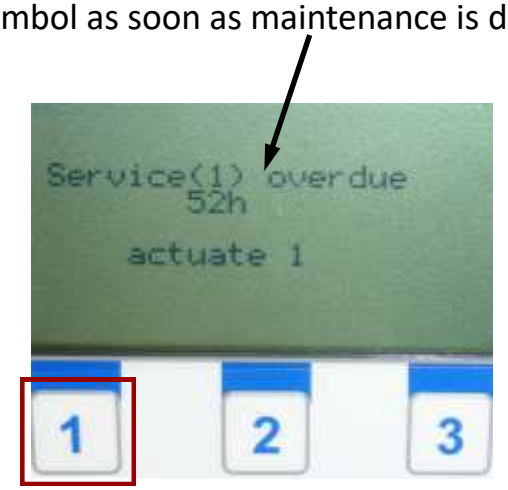
4

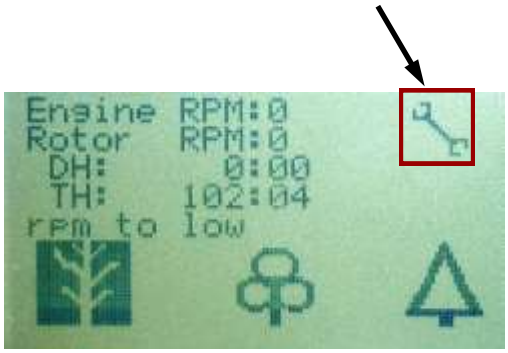


Press key ↓ and put the cursor on **End**. Confirm with key **1 Enter**.

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.





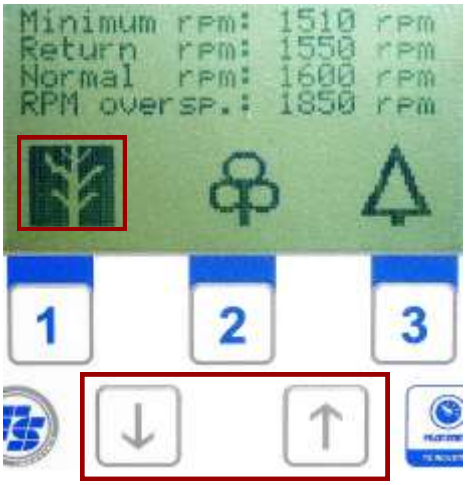
Agree with your dealer a date for an oil change. The message is saved in the Pilot System. Press key 1 for confirming the message and to be able to continue work.



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.

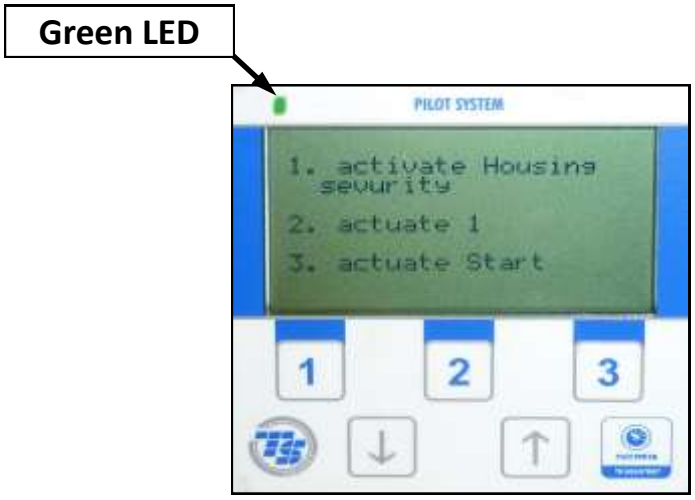
Hood safeguard

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:

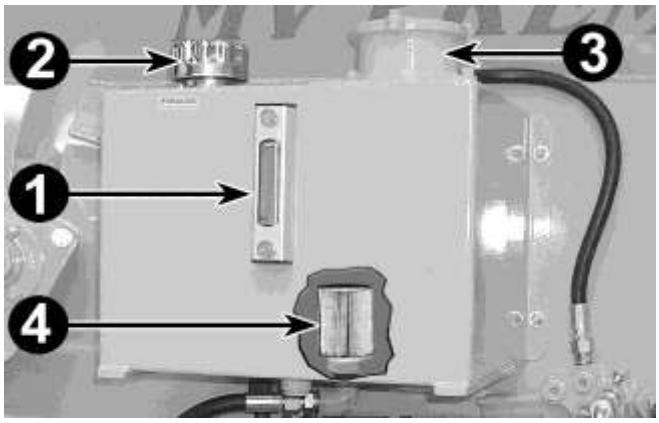
Hydraulic oil tank with a capacity of 23 liters, consisting of:

-The level gauge **(1)**

-The filler cap **(2)**

-The hydraulic return filter **(3)**

-The suction strainer **(4)** in the reservoir (accessible by removing the filter **(3)** completely)



-The **petrol tank** placed on the right side of the shredding unit

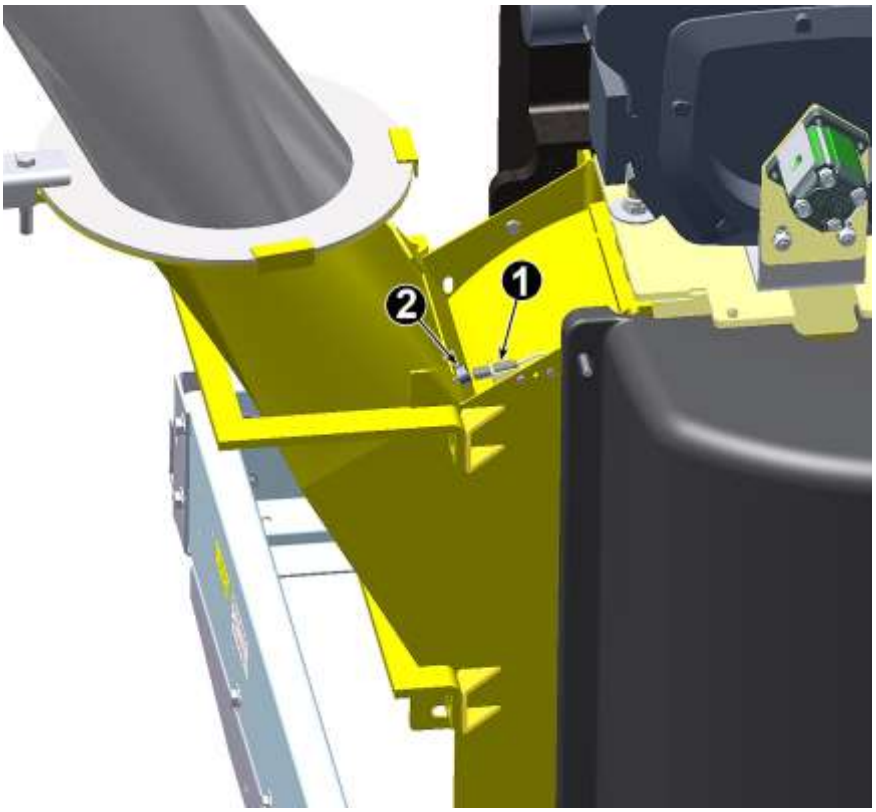
Capacity of 30 liters

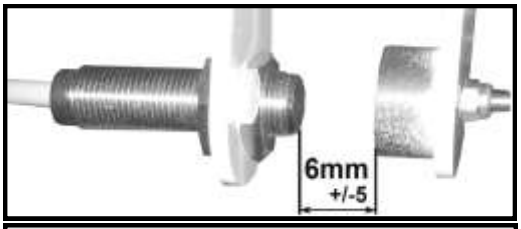


EXPULSION CHANNEL SAFEGUARD

The machine is fitted with a safeguard for expulsion chimney:

This safeguard consists of one proximity sensors (1) is located at the rear side from the expulsion chimney. The electric switching contact is established when the sensor approaches the magnet (2) fixed on the expulsion chimney. When opening the expulsion chimney the contact is interrupted and the engine is shut off or doe not started.





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 two emergency stop switches, one on each side of the machine.

When activated, these switches have the following functions **(the Pilot System is switched off)**:

1. Diesel engine shut off

2) Infeed roller shut off

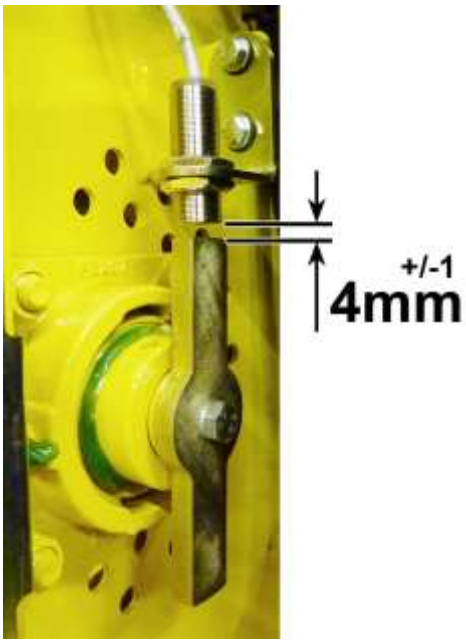


PROXIMITY SENSORS AND FUSE

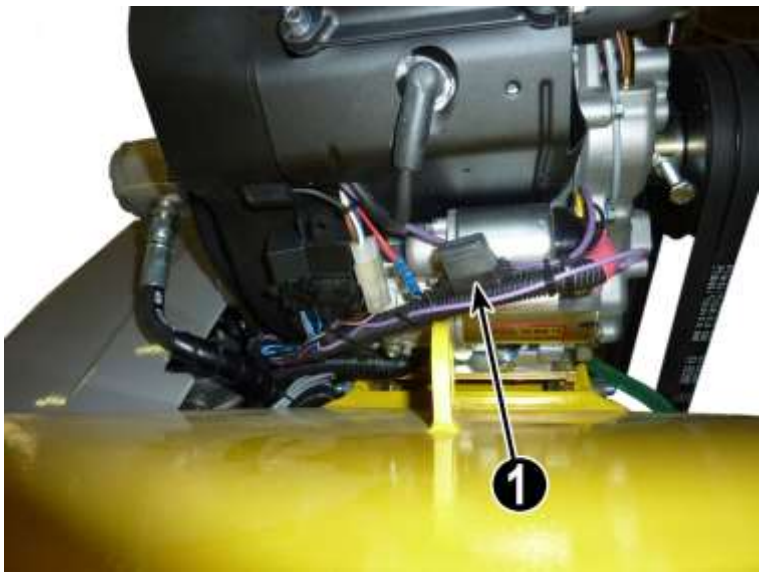
The proximity sensor M18 (Ø18) at the end of the rotor shaft captures the speed and sends it to the Pilot System. The one behind the hydraulic coupler transmits the RPM motor.

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





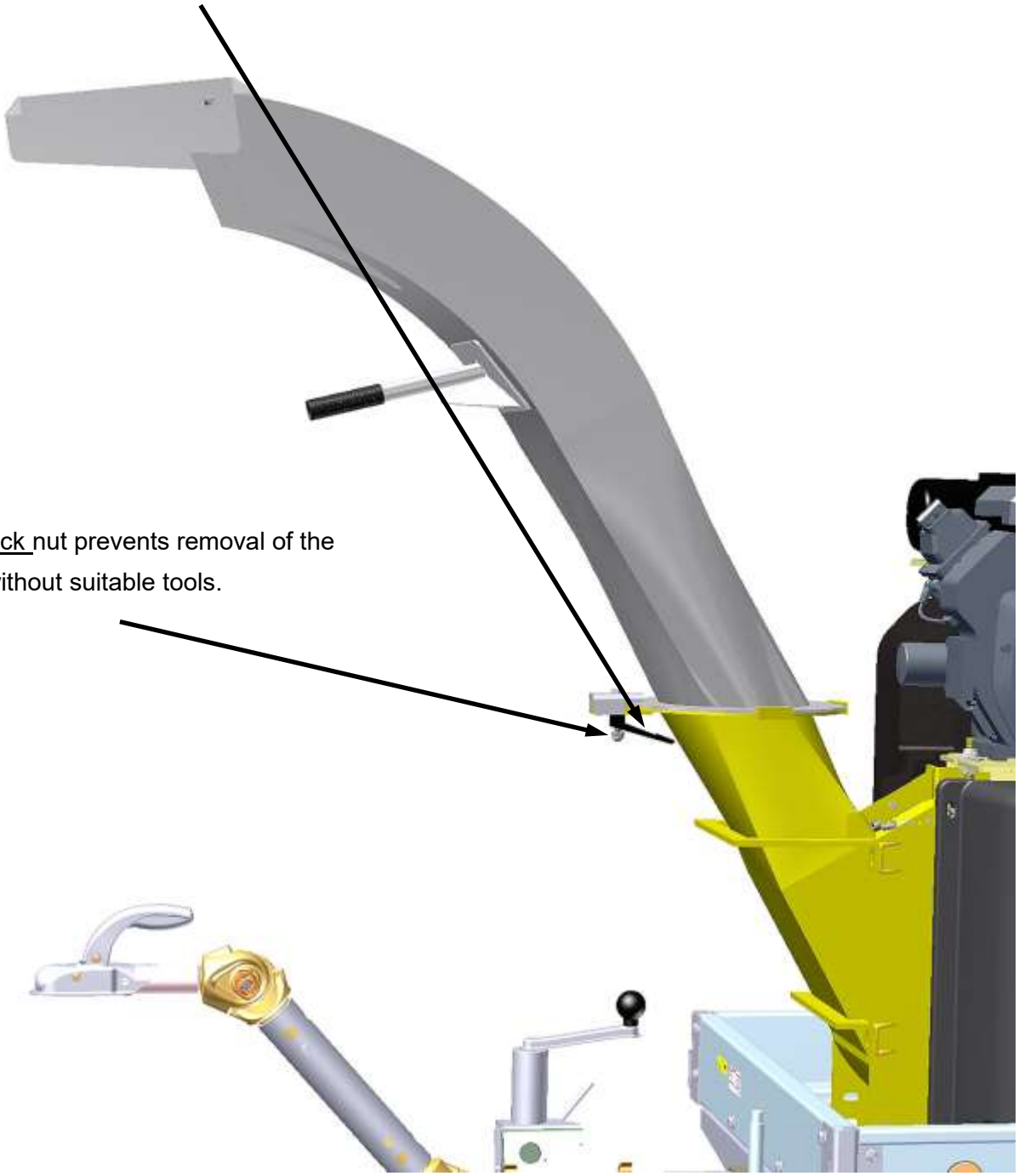
If after the start the engine is shut off again after some seconds and on the Pilot System appears the message "Slip error", it is required to find the cause for the error: ***Rotor blocked by chipping remains, loose or broken V-belts, defective coupling, defective sensor M18.***



One blade-type fuse **15 A** is located in the fixture on the battery cable beside the starter motor.

EXPULSION CHANNEL

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



A safety lock nut prevents removal of the chimney without suitable tools.

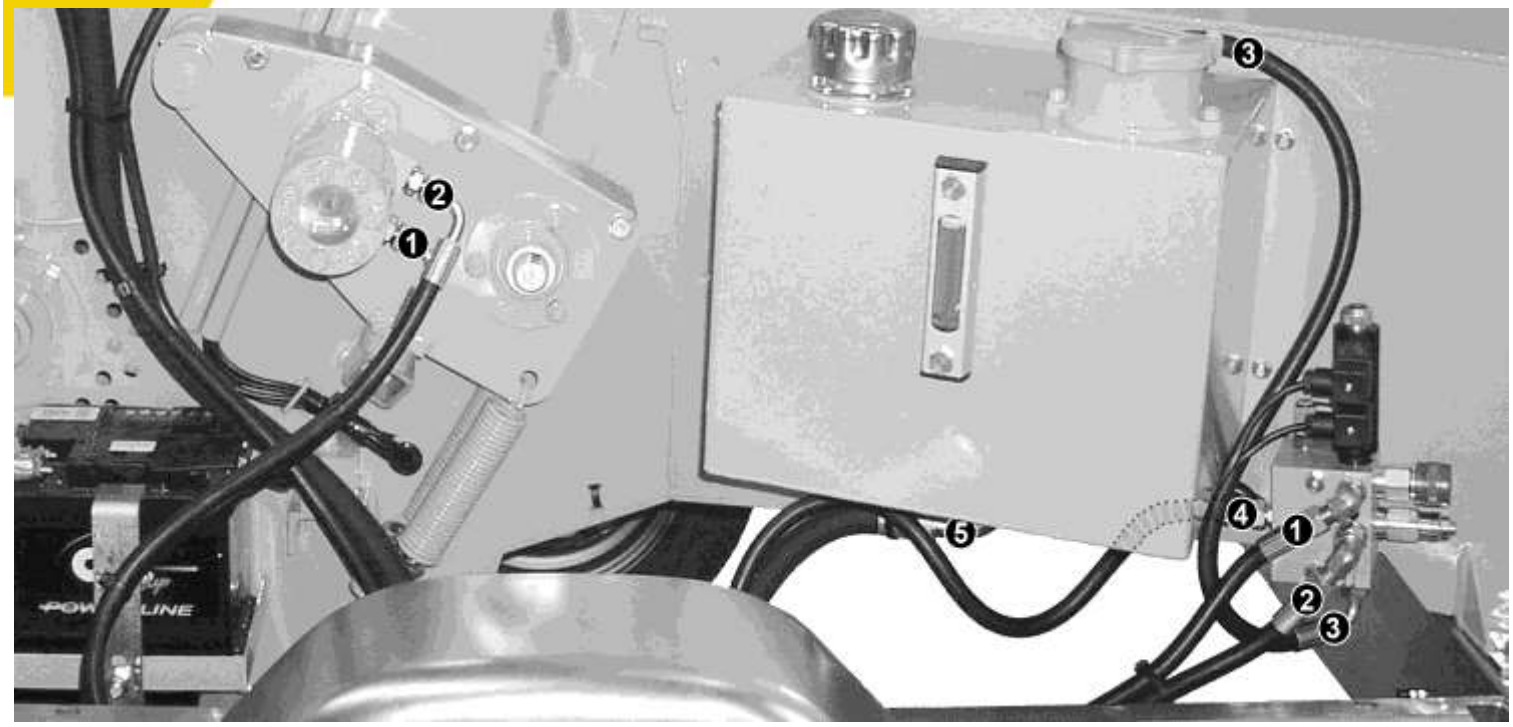
In this chapter we have compiled a list of possible errors, their causes and their solutions. In case an error appears, which is not listed in chapter "Troubleshooting", please contact your dealer. Have your operating manual and the serial number of your machine on hand.

FAILURE	CAUSE	REMEDY
The engine is shut off and the Pilot System shows the message "Slip error".	-See page 40	
Not possible to connect the Pilot System	- Emergency stop switch activated	- Unlock switch
The engine does not start	- Emergency stop switch activated - Hood open - Hood/expulsion channel safeguard wrong adjusted or defective - 40A-fuse defective - Battery empty - Supply cable damaged	- Unlock switch - Check locking of the hoods - Check sensor (see page 47) - Replace fuse (see page 49) - Charge or replace battery - Check electric circuits
Reduced engine output	- Radiator clogged - Knives/Counter-knife blunt - Petrol filter clogged	- Clean radiator -Sharpen or replace knives/ inserts - Replace filter
The engine shuts off and cannot be restarted	- Hood/Expulsion channel not correctly locked - Hood/Expulsion channel safeguard defective - Petroltank empty	- Check locking of the hoods/ channel - Check sensor (see page 47) - Fill with petrol
No forward or backward motion of the conveyor belt or of the infeed roller	- Regulating screw at infeed completely screwed down - Hydraulic motor or pump defective - Oil deficiency in hydraulic tank	- Loosen the regulating screw - Check defective part or replace - Check oil level
The machine is chipping with difficulties	- Knives/Inserts blunt - V-belt damaged or loose	- Sharpen or replace knives/ inserts - 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

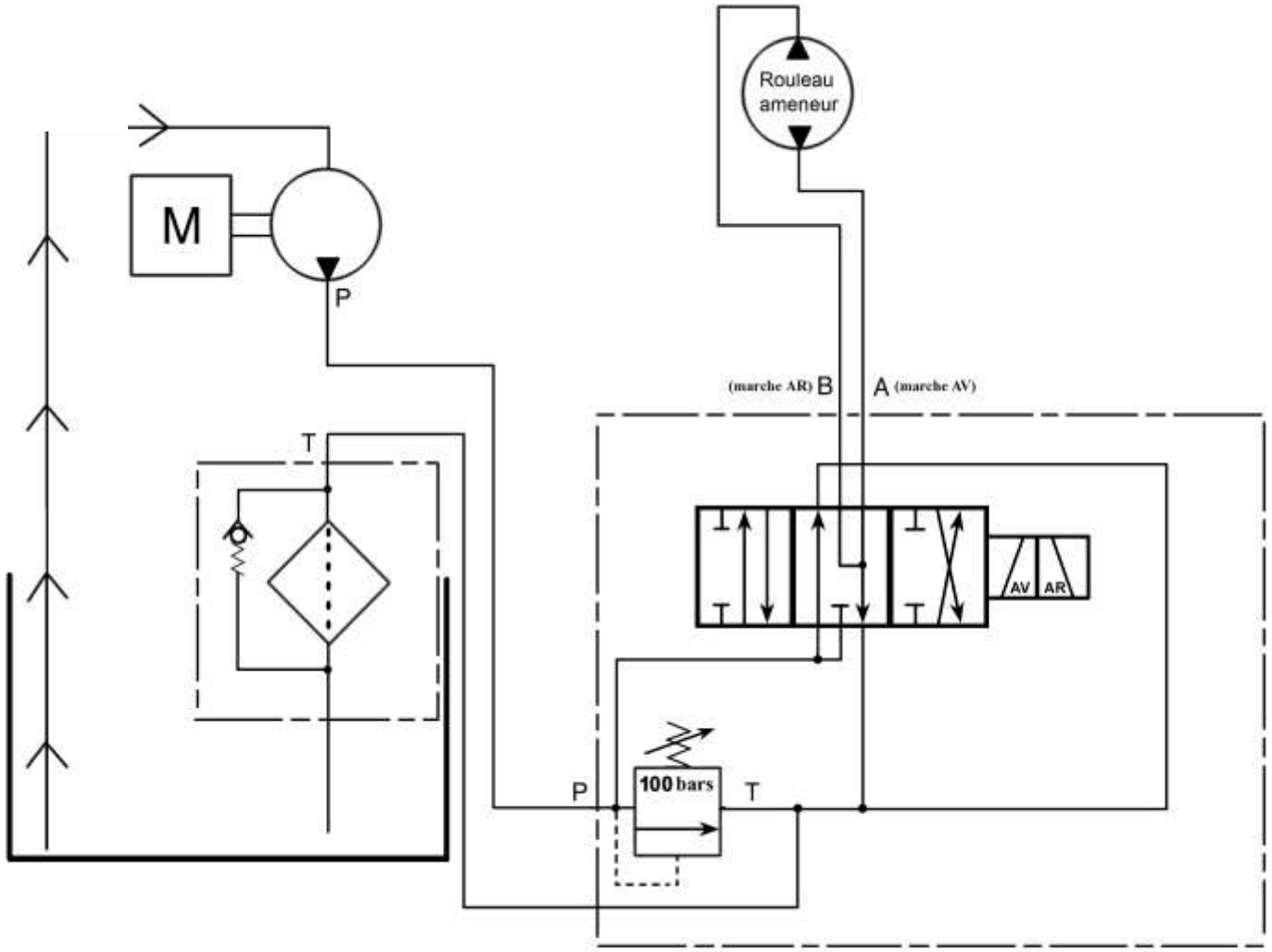
Specifications

	PREMIUM P
Performance:	51,18" / 130 mm
Hourly output:	27 m³/h
Length:	12'14" / 3,70 m
Width:	5'41" / 1,65m
Height:	7'74" / 2,36 m
Weight:	748 kg
Number of inserts:	10
Number of knives:	2
Rotor diameter:	22,04" / 560 mm
Rotor weight:	80 kg
Rotor width:	15,75" / 400 mm
Engine power:	25 Cv KOHLER CH730
Petrol tank capacity:	30 l
Engine speed:	3600 rpm
Rotor speed:	1900 rpm
Overload protection:	Yes
Hydraulic supply:	Yes
Hydraulic oil tank capacity:	23 l
Hydraulic pressure:	100 bar
Test drive:	Yes
Noise protection:	No
Number of wheels:	2
Tyres:	155/70R13
Tyre pressure:	2.5 bar
CO2 REDUCTION:	No

Hydraulic connections

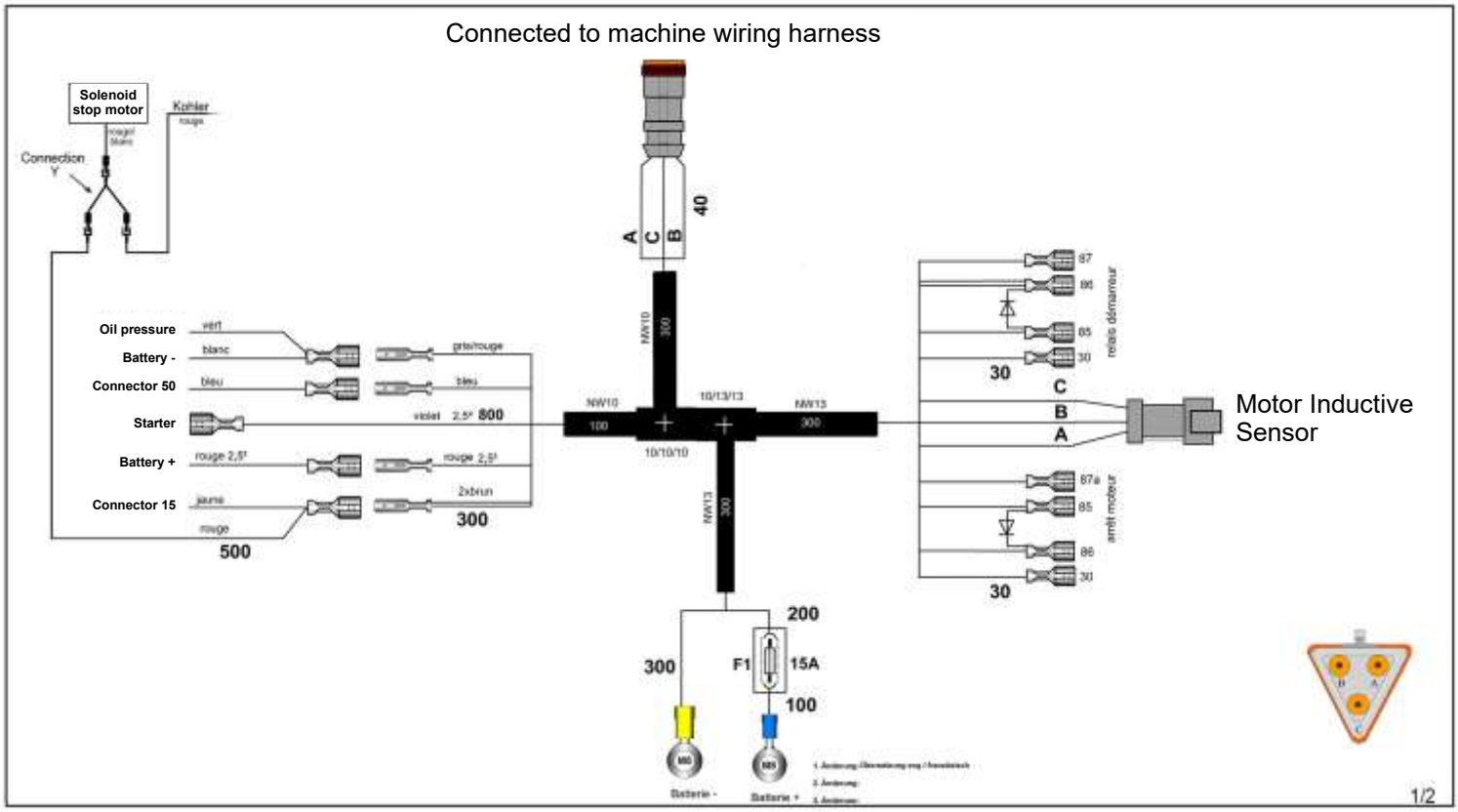


Hydraulic Circuit Diagram

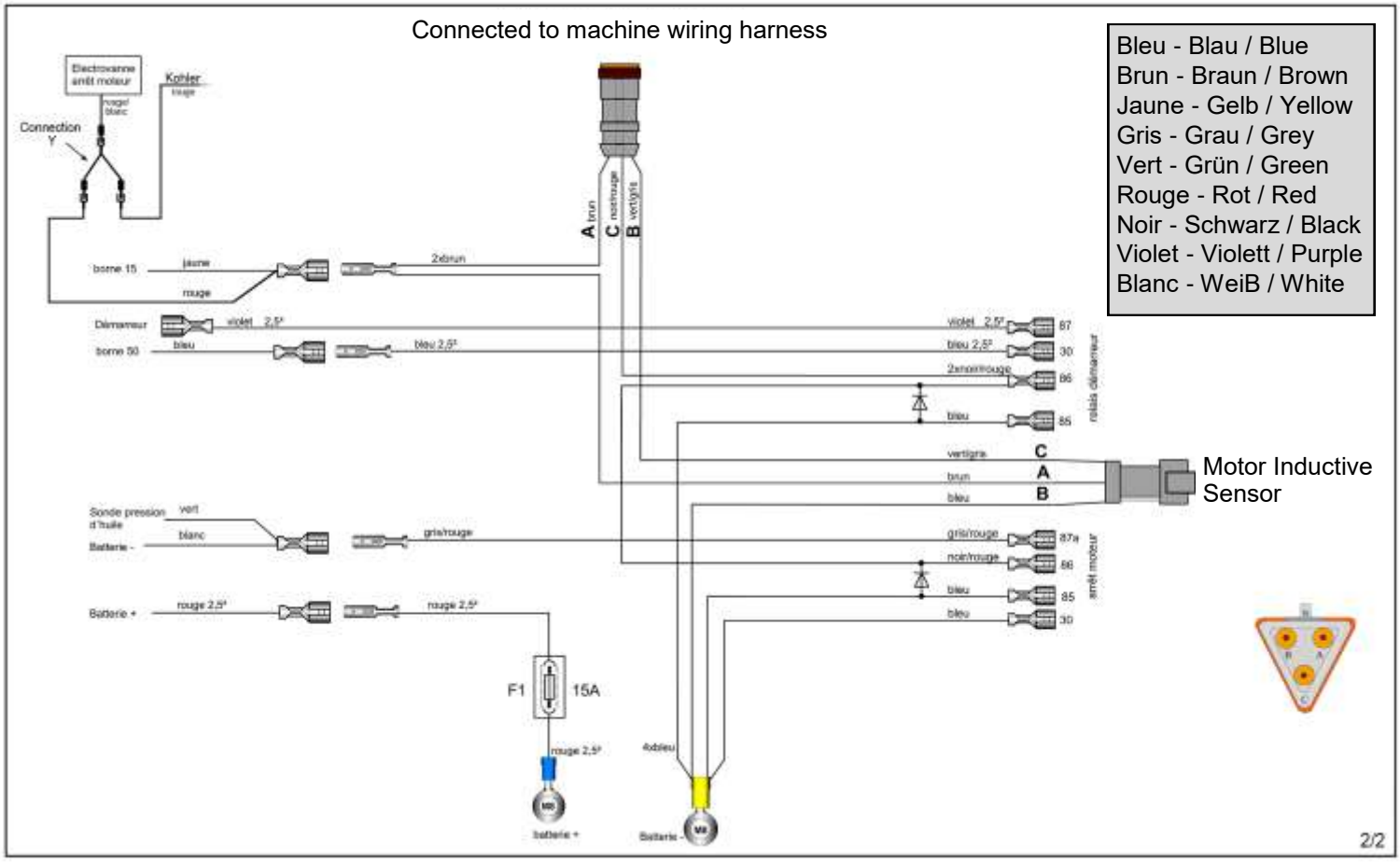


Electric Circuit Diagram Engine

Connected to machine wiring harness

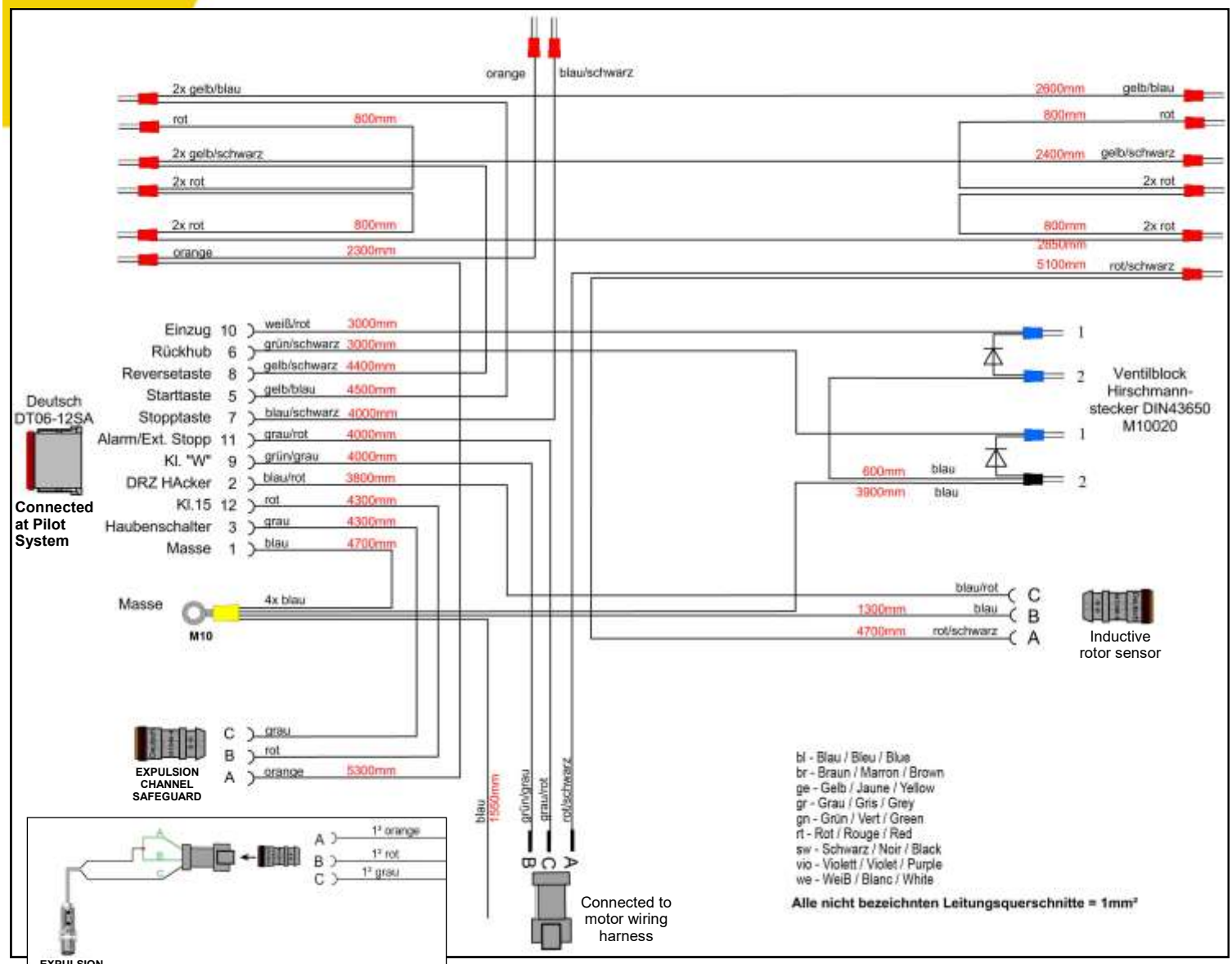


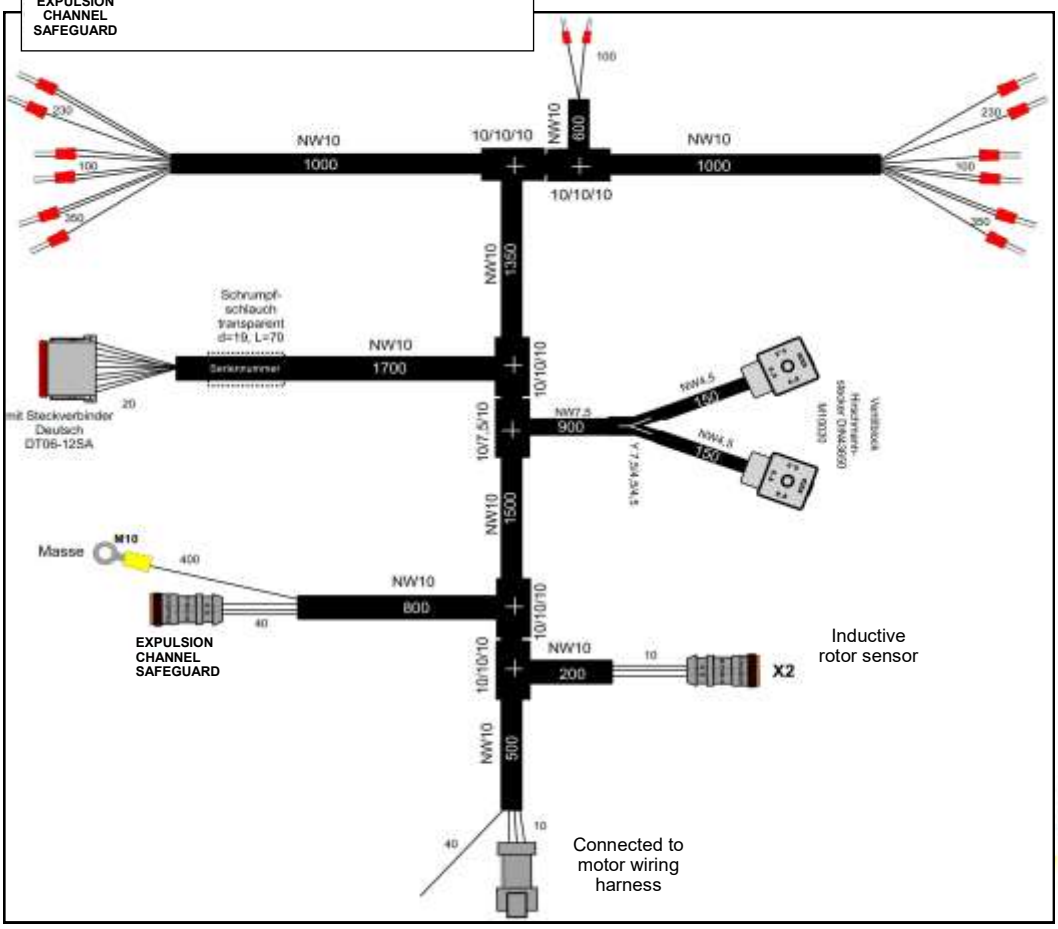
Connected to machine wiring harness



Bleu - Blau / Blue
Brun - Braun / Brown
Jaune - Gelb / Yellow
Gris - Grau / Grey
Vert - Grün / Green
Rouge - Rot / Red
Noir - Schwarz / Black
Violet - Violett / Purple
Blanc - WeiB / White

Electric Circuit Diagram Engine





1 - ground
2 rotor RPM sensor
3 safety chimney ejection
4 /
5 Front rotation control
6 Rear rotation solenoid valve
7 red handrail switch
8 Rear rotation control
9 Motor RPM sensor
10 Front rotation solenoid valve
11 Motor stop control
12 +12V after contact

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

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