ELECTRIC/SERIES



GS ePANTHER

OPERATING MANUAL

TS INDUSTRIE®

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DECLARATION OF CONFORMITY

S.E.E
3 rue Jules Verne
L'Orée du Golf
59790 RONCHIN France

SEE owns 100% of the share capital of SEE PRODUKTION GmbH (the Group's production site).
Production site address: Industriering Ost 42, 47906 Kempen, Germany
Machines bearing the identification plate "SEE Produktion GmbH" are designed, assembled, and tested at this production site under the sole responsibility of SEE.

HEREBY DECLARE THAT THE MACHINE: XXXXXX
Designation : **Schredder**
Trade name : ***TS INDUSTRIE***
Type : **GS/E-PANTHER**
Engine performance : **33.7 kW**

Technical documentation held by Mathieu Willerval
IS IN CONFORMITY WITH THE EUROPEAN DIRECTIVE 2006/42/CE, as well as other applicable European regulations in force.

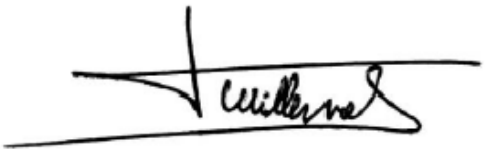
Harmonised standards applied:
- **EN 13525 :2020** Machinery Directive
- **EN ISO 12100 :2010** General safety of machinery
- **EN 55012 :2008 +A1** Electromagnetic Directive
- **EN 60204-1 : 2018** Electrical safety

Conformity assessment procedure concerning Directive 2000/14/EC Annex V.

Installed power @ 2000 rpm	*Measured sound power level*	*Gauranteed sound power level (Lwa)*
33.7 Kw	121 dBA	123 dBA

Done at RONCHIN, March 4th 2022

Mathieu Willerval (President of SEE)



Introduction

Thank you for choosing the TS INDUSTRIE multi-purpose shredder.

Your TS Industrie shredder has been manufactured with the utmost care and to the highest quality standards. In order to meet these requirements, including most professional requirements, please read this user manual carefully and pay particular attention to the warnings and maintenance instructions.

Only by carrying out all maintenance work as specified in the prescribed maintenance intervals can we guarantee the full manufacturer's warranty for your TS INDUSTRIE shredder.

The user manual includes several types. An explanation is provided in the introduction on how to quickly find your way around using the small pictograms.

Guarantees

Settlement of warranty claims

(see full warranty conditions provided with the EC type-approval documents supplied upon delivery of the machine)

Warranty rights, in accordance with the manufacturer's General Terms and Conditions of Sale, are valid on new TS INDUSTRIE shredders for a period of two (2) years (or 650 hours of total machine use), from the date of commissioning of the machine, within a limit of 12 months from the date of the invoice sent by TS INDUSTRIE to the authorised dealer. The invoice sent by the dealer to the end customer shall serve as proof.

Registering your new shredder on the www.TS INDUSTRIE.fr website (reseller access) entitles you to a third year of warranty (or 1,000 hours of total machine use). This mandatory registration of the machine must be carried out by an authorised TS INDUSTRIE dealer no later than one month after the sale. It must be accompanied by the sales invoice to the first owner of the machine.

Any technical modifications to the machines and/or their parts will void the warranty. The same applies to cases of improper handling or the use of lubricants, spare parts or accessories that are not authorised or prescribed by the manufacturer. Damage and deterioration related to transport, when caused by normal wear and tear after the machine has been put into service, are not covered by the warranty.

The delivered machine must undergo mandatory visual inspections or inspections prescribed in accordance with the existing maintenance plan at the specified intervals. Warranty claims shall lapse in the event of non-compliance with the mandatory visual inspections and the inspection plan. A further condition for warranty claims is the presentation of complete documentation of the mandatory visual inspections and inspections carried out.

All warranty and maintenance work must be carried out by an authorised TS INDUSTRIE distributor.

It is specified that work carried out under warranty exceeding 500€ must be authorised in advance by the manufacturer. In such cases, the manufacturer reserves the right to carry out the repair itself.

The essential condition for claiming the warranty is the return of the duly completed and signed machine delivery note.

It is not permitted to modify the equipment or electronic programming in any way. Any unauthorised modification could affect the operation or safety of the equipment and possibly shorten its service life.

Important: remember to register your machine to ensure your warranty remains valid.

Safety

General information

It is strictly forbidden to use the machine if the emergency stops, cables or any other safety or control device is damaged or missing

Our machines undergo strict quality control before delivery.

Once the goods have left the factory, we have no control over the conditions of transport and handling. It is therefore essential that the retailer carries out a thorough inspection of the machine upon receipt.

Before any delivery to the end customer, the following points must be checked:

-external damage caused by transport, etc.
-all screws and hydraulic pipe connections are properly secured
-the hydraulic oil level
-full operational check of all parts

This inspection is confirmed by a stamp and signature on the machine delivery note. The warranty claim is not valid without the return of the duly completed and signed machine delivery note!

In addition, check that all parts are securely tightened after initial use and check the friction points of the hydraulic hose passages!

Arrange an appointment directly with your client to discuss this matter.

Regular inspections must be carried out in accordance with these operating instructions!

For your safety, in the event of breakage of the red side cables or emergency stop buttons, please refer to the parts list or spare parts service to order replacement parts.

Safety instructions

1. The machine must only be used in full compliance with the operating instructions!

2. The operating instructions for the drive motor must also be observed for motorised machines.

3. The extension of the feed tray (if present) must only be raised when the grinding rotor is at a standstill.

4. Maintenance, cleaning, adjustment and removal of the protective device must only be carried out with the engine switched off, the ignition key removed, the transmission disengaged (PTO machines) and the tools switched off. Remove the ignition key so that the engine cannot be started accidentally.

5. Foreign objects mixed in with the material to be crushed, e.g. iron parts, stones, must be removed before starting up the machine.

6. Check that all protective devices are in place after maintenance or repairs.

7. The rotor must only be accessible when it has come to a complete standstill. This means that the drive motor is switched off and the ignition is in the 0 position.

8. The machine operator must ensure, under his or her responsibility, that no third parties are present in the working area or danger zone.

9. Ensure that only verified original spare parts are used during repairs.

10. Only trained persons aged 18 or over may operate the shredder.

11. Safety footwear and close-fitting clothing, as well as work gloves with tight cuffs, a protective helmet and safety goggles must be worn.

12.The shredder must be placed in the correct position during transport:

- Lift the tablett (if present) and check whether the lock is engaged.
- Switch the shredder to transport position and check that the safety bolts are engaged.
- Move the ejection chimney so that it does not protrude beyond the side of the machine.
- Raise all supports if necessary.

13.When driving on public roads, the lighting must comply with the Highway Code of the country of registration.

14. The shredder must be stable during operation and must not be able to tip over.
The necessary safety measures should be taken to immobilise it.

15. - Single-axle motorised shredders are towed by tractor vehicles; a parking brake may be applied if they are equipped with one.
If they do not have brakes, the immobilisation chocks supplied with the machines must be used.
- When not towing, the supports (jockey wheel at the front and kickstand at the rear) must be lowered.

16.For safety reasons, a minimum distance of 10 metres from the machine to the ejection point must be maintained. **Ejection must always be handled by operating personnel.**

17.Hands may only be inserted into the feed opening when the motor is switched off and the grinding rotor has come to a complete standstill.

18.The factory-set permissible operating pressure must not be altered.

19. Only trunks with a diameter of less than **19 cm** may be processed with the shredder.

    Permitted materials: All types of wood

    Prohibited materials: Stone, metal parts, building materials, plastics and glass

20. The hydraulic system must undergo a professional inspection every year. Hydraulic hoses must be replaced every 5 years.

21. When loading the shredder, do not hold the feed hopper. To insert short pieces or shrubbery, use only stable wooden sticks or other wooden tools. Our shredders can only be used for manual loading. Never use mechanical loading (grapple). Do not move around in the ejection area.

22. Perform a daily operational check before starting up, particularly the safety device (tightening of the drawbar linkage, hood locks, engine hood safety switches and chimney access). The operational capacity and secure attachment of the blades and hammers must also be checked.

23. The operator must be given detailed instructions before commissioning.

24. The grinding rotor must only be accessible when it has come to a complete standstill and the drive motor has been switched off.

25. Projection hazards. It must be taken into account that pieces such as wood chips may be projected out of the hopper into the working area. Personal protective equipment must always be worn. The control must be located on the side of the hopper.

26. Take care on sloping ground. The machine operator must ensure that the machine is securely immobilised and remains stable during operation.

27. After coupling the machine to the towing vehicle, raise the jockey wheel as high as possible, or preferably remove it.

28.The machine must only be loaded with wood. Ensure that no stones, metal parts, building materials, plastics or glass enter the machine.

29.The machine must not be used to transport materials or persons under any circumstances.

30.The machine must not be used to push or pull anything.

31.The work must be carried out by a qualified technician. All assembly, disassembly and/or special maintenance work must be carried out by an authorised distributor.

32.In the feed hopper, take care not to get caught by loose clothing on the rough edges formed by the drive teeth of the conveyor belt.

33. Clean the anti-spill curtain regularly to keep it transparent..

34. Only trained professionals have access to the machine. Use and access is strictly prohibited to minors and persons under the age of 18.

35.The machine must be used at an altitude below 1,000 metres.

36.The relative humidity (HR) must not exceed 90% in order to ensure normal operation of the machine, particularly when it is connected to the domestic mains supply.

37.The solution must be used away from any salty environment (beach, etc.), as salt in suspension could cause premature deterioration of the battery pack.

38.Under no circumstances should the shredder be cleaned using a high-pressure cleaner or water in general. Electrical components must not be cleaned with water. The use of an air blower is recommended.

39.In the working position, the shredder must be installed parallel to the ground and in such a way that there is a minimum height of 600 mm between the ground and the feed hopper.

Pictograms

Protective eyewear and a helmet must be worn!



Wear protective gloves with tight cuffs!



Wear protective footwear!



Only touch the machine parts when

These are at a complete standstill!



Maintain sufficient distance from the parts

of the rotating machine!



Never open or remove safety devices during operation!



Read the user manual before use!



Do not remain in the ejection zone with a machine

in operation!

Provide a danger zone with a radius of at least 10 metres around

from the point where the chips land



Switch off the engine before starting work.

maintenance and repair and remove the key!



Caution: suction roller.

Never lean over or climb into the hopper or onto the conveyor belt.

engine running.



Hydraulic oil to be used: HV46



Lubrication points



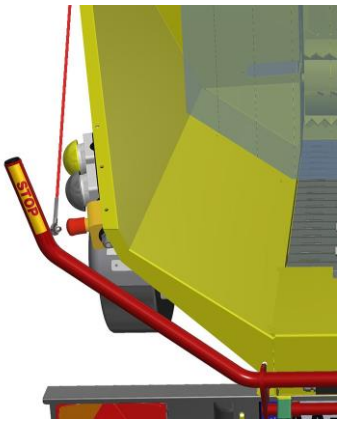
The noise level of the machine during operation does not exceed the standard.

displayed on the sticker on the machine



STOP feed roller and conveyor belt

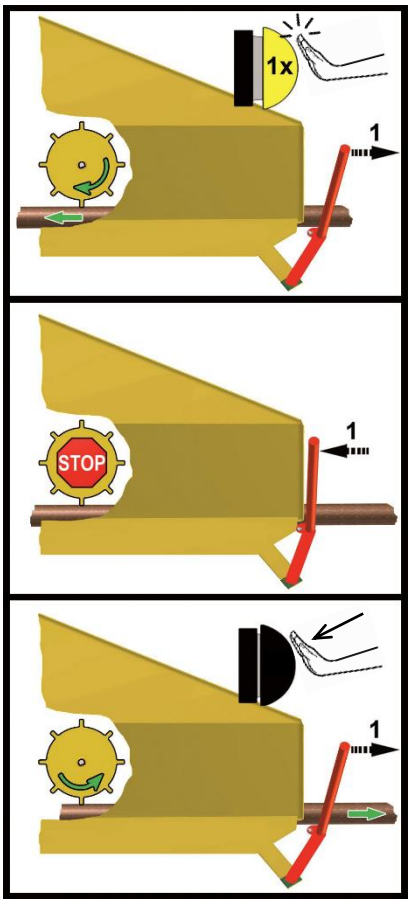




Feeder roller rotation controls

Grinding of materials (forward at maximum speed):

single press to initiate movement



Stopping the rotation of the feed rollers: push the bar

Material clearance: black button constant action

to engage reverse gear

It is strictly forbidden to lean over, climb into the hopper or onto the conveyor belt.



The grey push button on a white background is labelled **"Start & Stop"**.

Its function is to pause/resume work.

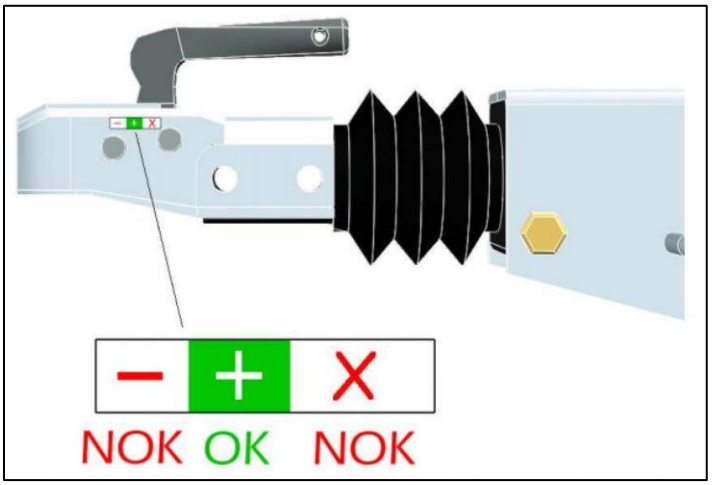
<u>It is not used to shut down the shredder.</u>



This button must be pressed to accelerate the motor and activate the grinding process. When the user wishes, they can press it again to stop the conveyor belt and the motor.

Transport safety

Hitch wear indicator:



Check the wear indicator every time you hitch up the machine.

Always change the vehicle's tow bar head and/or ball if the slider is in the MINUS zone, otherwise you risk losing the shredder on a hump or when reversing against a kerb.

YOU ARE LIABLE IN THE EVENT OF AN ACCIDENT

1. Ensure that you comply with the laws set out in the current Highway Code.
2. Ensure that your equipment is always fitted with clean and functional signal lights for other drivers.
3. Slow down on rough roads and surfaces.
4. Empty and thoroughly clean the hopper of all branch residues.
5. Orient the chimney as far forward as possible and lower the chimney cap as far as possible.

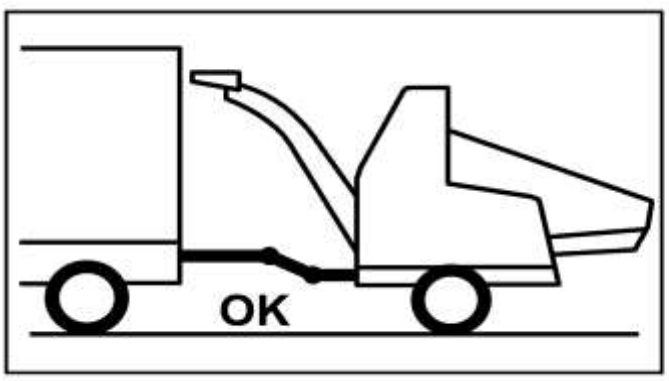
Hitch on the vehicle:

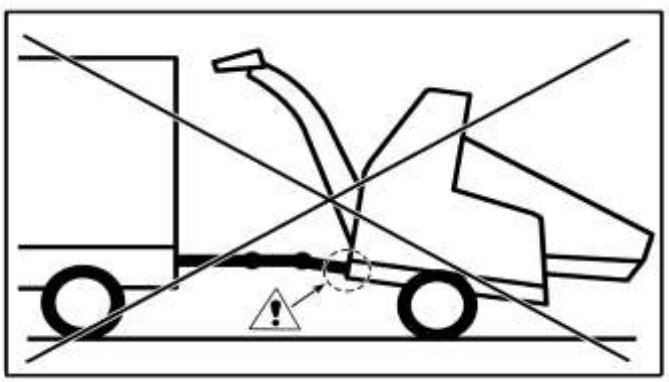
Always attach the shredder horizontally to avoid shifting weight to the rear AND check daily if necessary:

- Tightening the parallelogram drawbar pins

- Tightening the knurled nuts on the adjustable drawbar joint

, in order to eliminate any jolts that could damage the longevity of the drawbar-trailer assembly.





General description

General description of the machine

The e-PANTHER multi-purpose shredders are designed for shredding vegetation and branches up to 190 mm in diameter.

The machine comprises the following main components:

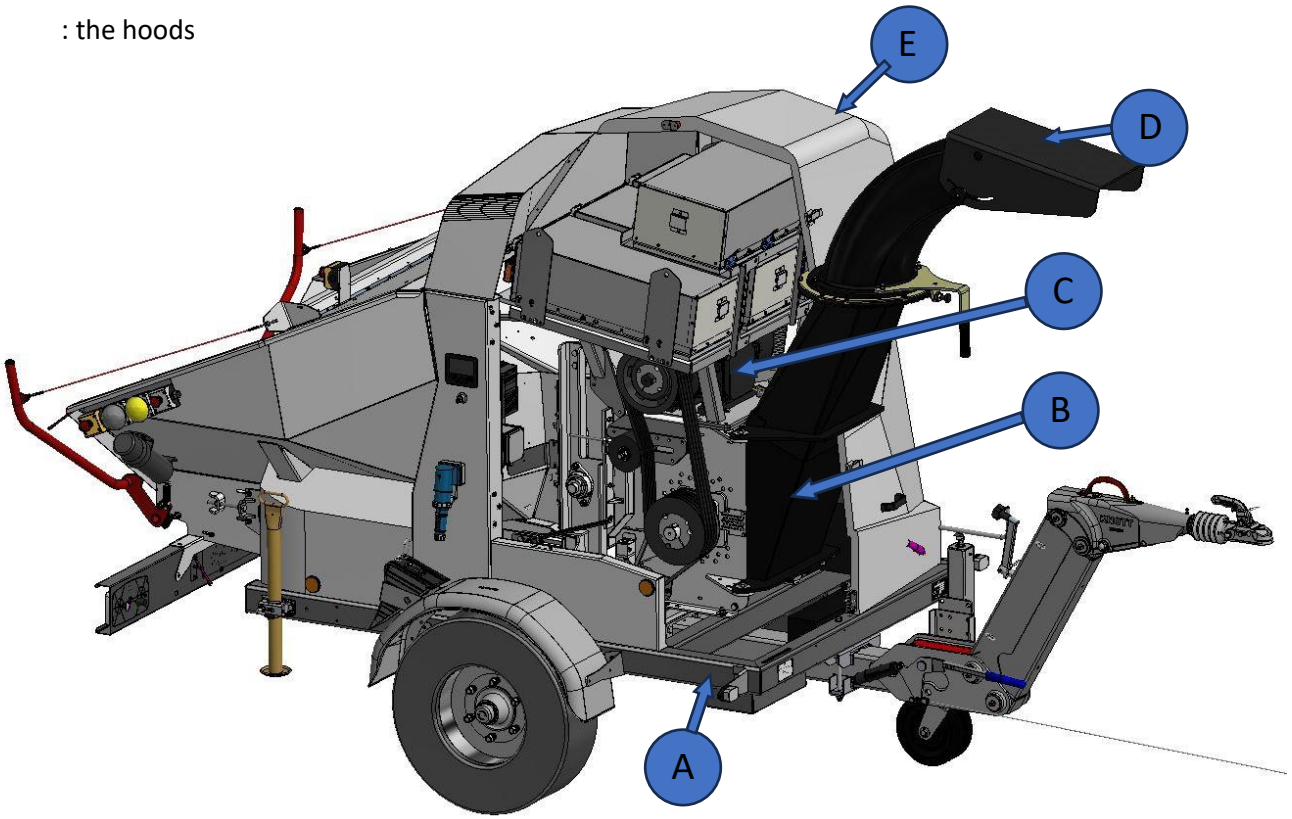
(A) : the chassis frame

(B) : the chipping cell

(C) : the engine and its transmission

(D) : the chimney

(E) : the hoods



Identification

The manufacturer's plate is riveted to the machine chassis, located at the front left of the chassis.



The TS INDUSTRIE manufacturer's serial number always consists of six digits.

Type: SHREDDER

Model: GS/ E PANTHER

S/N: 6-digit serial number

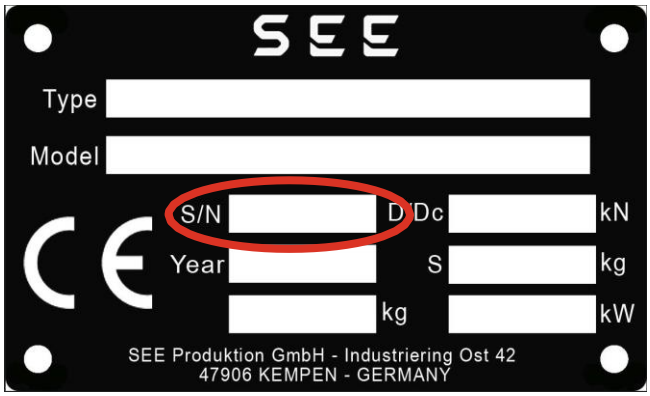
Year: Year of production

Weight: in kilograms

D/Dc: maximum permissible tensile force on the coupling, in kN

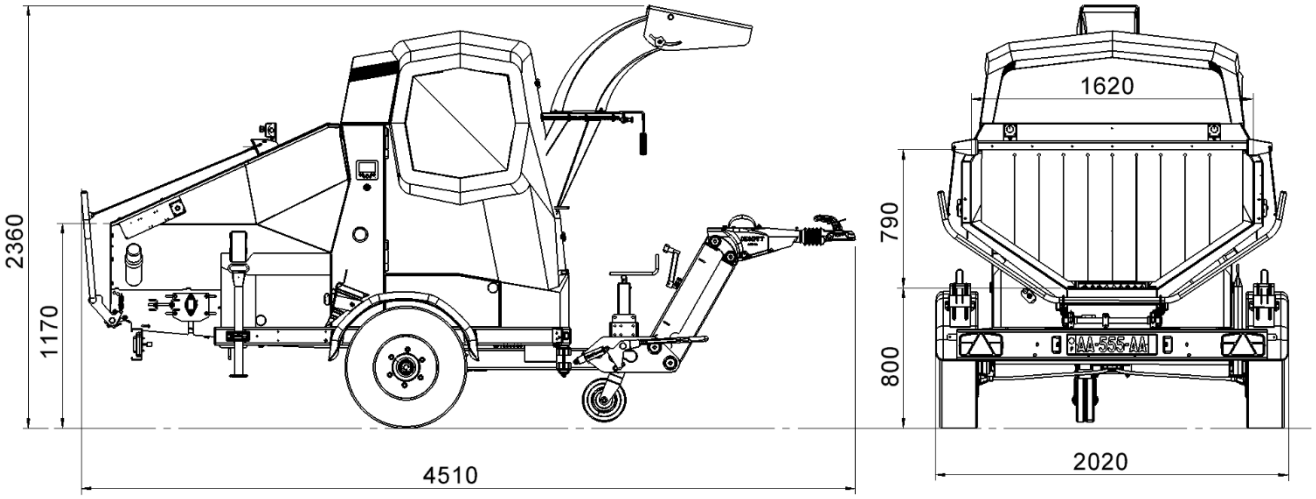
S: maximum permissible vertical force on the coupling, in kg

Power: in kW



Technical data

	E PANTHER
Capacity:	190 mm
Hour rating:	38 m3/h
Length:	4,51 m
Width:	2,20 m
Height:	2,36 m
Weight:	2197 Kg
Number of hammers:	12
Number of knives:	6
Rotor diameter:	560 mm
Rotor weight:	150 kg
Rotor width:	400 mm
Engine power:	33.7 kW electric
Engine speed:	2000 rpm
Rotor speed:	2000 rpm
Anti-jamming:	YES
Hydraulic power supply:	YES
Hydraulic oil capacity:	24 L
Hydraulic pressure:	120 bars
Road axle:	YES
Number of wheels:	2
Tyre size:	215R14C
Tyre pressure:	4,5 bars
Presence sensor system:	Option



The shredder produces acoustic power guaranteed in accordance with the directive.2000/14/CE estimated at :

Power acoustics LWA [dB]	Level of acoustic pressure [dB(A)]
123	121



We authorise the operation of the machine with batteries at temperatures of machine with battery temperatures between -20°C and 46°C. (above these temperatures, the batteries will not allow operation)

For the outside temperature, operation is permitted between 10°C and 40°C.

The nominal operating voltage of the machine is 98 volts (direct current battery), the motor is supplied with 3 x 67 volts three-phase current.

The batteries are IP44, they withstand water splashes from all directions.

Composition and functions

Composition

A. The chassis.

The shredder chassis serves as a support for the various components of the e-PANTHER. It allows the machine to be moved independently.

B. The grinding cell.



It consists of a feed hopper (1), a metal conveyor belt (2), a feed roller (3) with serrated bars, and a rotor that crushes the material.

Conveyor belt and feed roller:

They drive the material towards the grinding rotor at a constant speed. An anti-jamming system stops them when the rotor speed drops too low (jamming at the grinding stage), and they automatically start rotating again when the rotor has regained sufficient speed to grind properly.

They can be operated in both directions of rotation (forward and reverse) using the yellow and black control buttons located on the sides of the hopper.



Their rotation speeds can be adjusted using the screw (4) located in the rear left cover, depending on the diameter of the material to be crushed.

Grinding rotor:



The centrepiece of the machine, it grinds the material fed by the feed roller. It starts rotating when the motor is accelerated and runs continuously.

Its speed is fixed.

C. The engine and its transmission



The electric motor is located on top of the grinding cell. It provides the energy needed to drive the rotor and the oil pump (1) of the hydraulic circuit.

The motor is an asynchronous electric motor. For further information on this motor, please refer to the manufacturer's manual.

The output shaft is equipped with a pulley (2) driving four belts that rotate the grinding rotor.

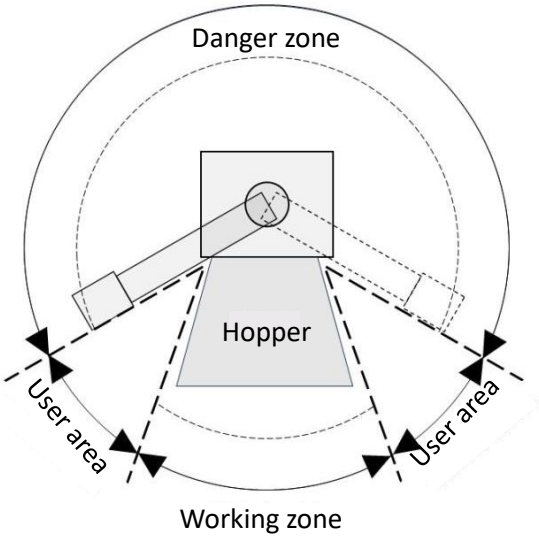
Model	Power	Speed
GS/e PANTHER	33.7 kW	2000 rpm

D. The chimney.

Note:

Wood chip residues may be ejected when starting up the shredder.

Two electrical safety devices stop the motor and prevent it from starting if the hopper or chimney is opened to access the cutting rotor.



E. The hoods.

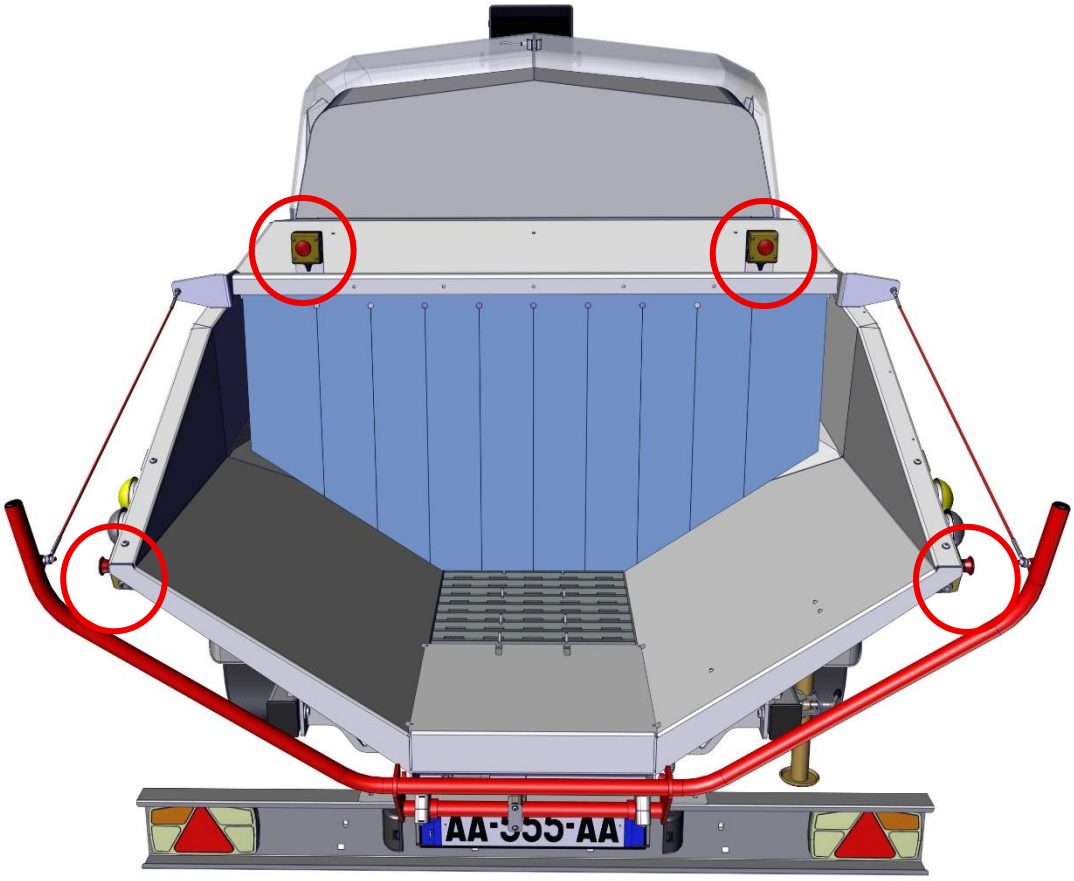
An engine cover and machine assembly protects the moving parts of the machine, allowing the user to work in complete safety.

Two electrical safety devices stop the motor and prevent it from starting if the hood or chimney is opened to access the cutting rotor.

F. Emergency stop buttons

The machine also has four emergency stop buttons located on each side of the machine.

When activated, these emergency stops instantly halt the machine, stopping the rotation of both the feed roller and the conveyor belt, as well as the shredding components.



For your safety, in the event of breakage of the red side cables or emergency stop buttons, please refer to the parts list or spare parts service to order replacement parts..

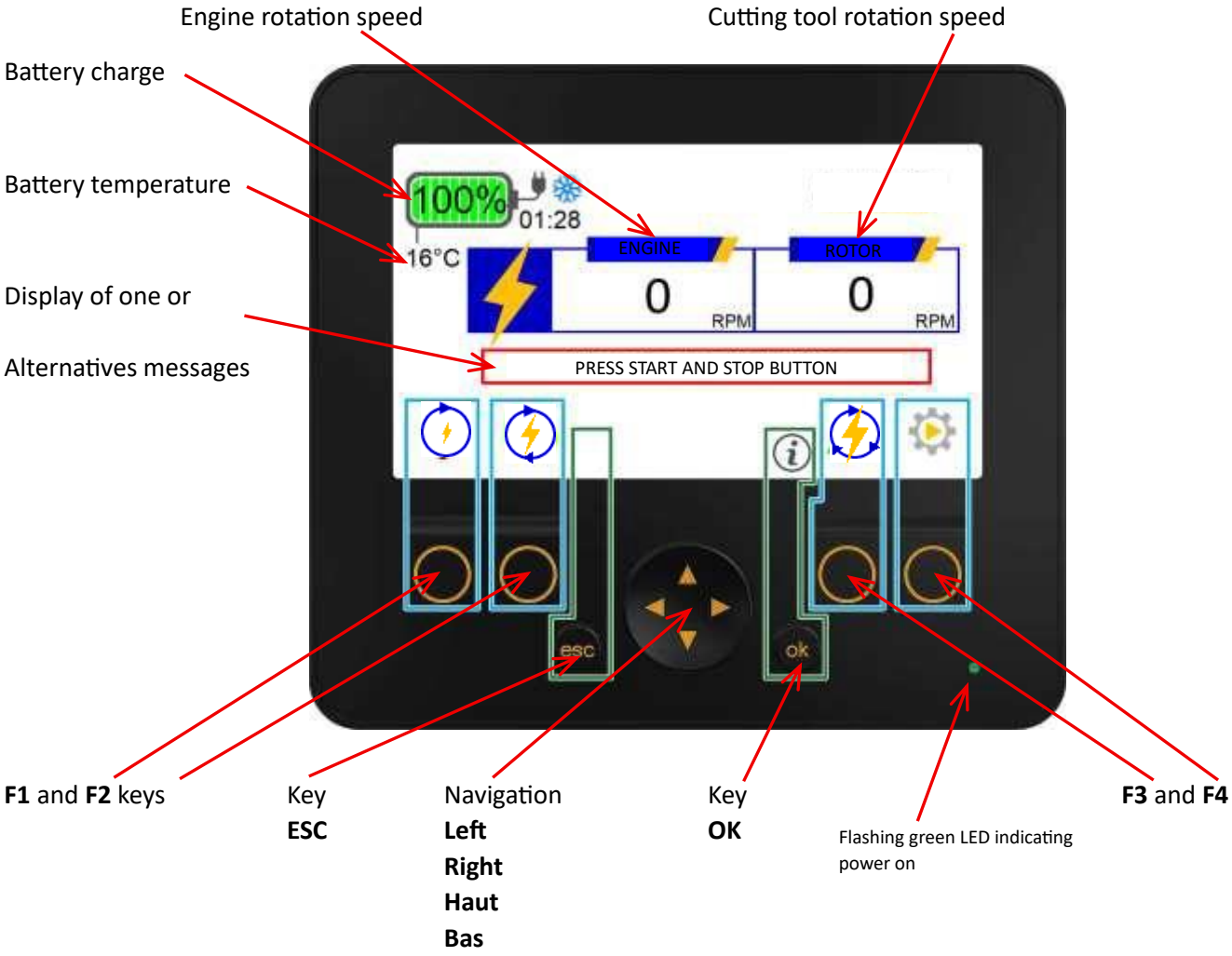
User manual for TS-COCKPIT



Available functions

1. Permanent display of engine speed
2. Permanent display of the cutting tool's rotation speed
3. Display of daily hours
4. Flashing green LED indicating power on
5. Reverse movement of the feed roller to release the cutting tool when NoStress is activated.
6. Different ranges of NoStress applications depending on the type of wood to be shredded
7. Service management: engine and battery maintenance intervals
8. Belt slip safety (ideal for rental)
9. Engine shut-off and anti-start safety feature if the hood or exhaust pipe is open.
10. Malfunction memory
11. 5 languages available: French, German, English, Spanish, Dutch
12. Command control screen (technical diagnostics or fault detection)

Description of the main screen



It is strictly forbidden to modify the factory settings of the TS.COCKPIT.

Any modifications to the safety features or programming made outside our factory are the sole responsibility of the person who made these changes.

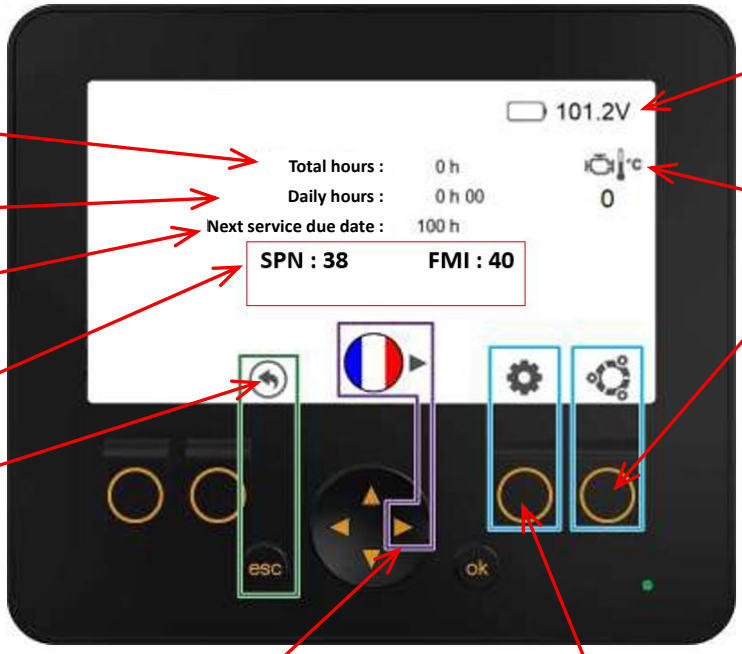
The values given in the following pages are provided for information purposes only.

Description of symbols

	Range 1 grinding
	Range 2 grinding
	Range 3 grinding
	Quick press : Personnalized range Long press : settings screen
	Selected function
	Return to previous screen
	Access to the next screen
	Defect history
	Machine and motor control status
	Reset daily counter
	Validation of engine oil change
	Validation

	Wintering mode activated
	In charge
	Battery status
	Engine temperature
	Revision to be done. Engine fault (s): water in fuel, feed pump fault, high cooling temperature or other faults sent by the CAN
	Red light: oil pressure too low, maximum cooling temperature reached, low battery voltage, sliding problem or cutting tool blocked at start-up
	Engine malfunction

Description of the secondary screen



Total hours

Daily hours

Next service due date

Fault code and message

Press **Escape.**
Back to previous screen

Battery voltage

Engine temperature

Displays the **"Status"** page of commands and engine data.

See below

Navigation arrow **Right**
Press several times to scroll through the different languages available :
French, German, English, Spanish, Dutch

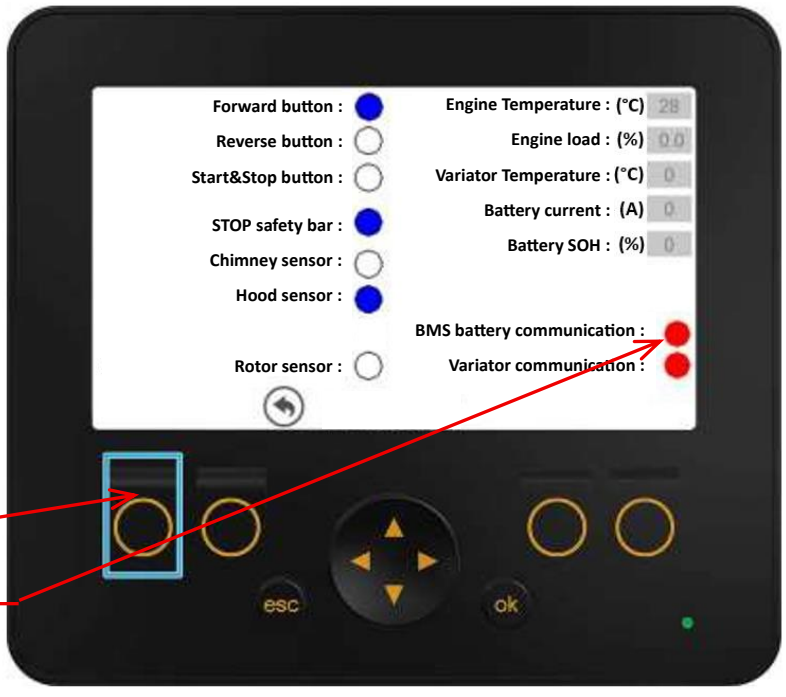
Provides access to the history of recent faults

(See engine error codes)

Description of the "States" page

Each machine control has an activation indicator light:
◯ = Command not activated
● = Command activated

In the example shown here:
-The yellow forward button is held pressed.
-The red STOP bar is kept pressed down.
-The hood is open.

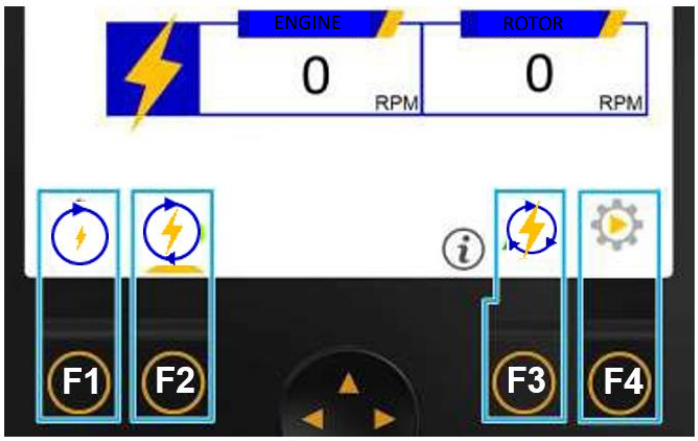


<u>Rotor sensor signal control:</u>
When contact is ON and the cutting tool is stopped, the circle is white *(regardless of the position of the index finger in front of the sensor)*. When the cutting tool is rotating, the circle turns blue.

If the rotor is stopped, place your finger in front of the sensor and press the **F1** key: the circle will turn blue during this time = sensor OK.

<u>CAN communication indicators:</u>
● = communication OK
● = communication problem

Choice of No-stress range



TS.COCKPIT has four engine operating ranges with associated NoStress ranges..

Each button has its own pictogram, which will appear under the logo of the selected button. Above, range 2 has been selected..

F1 key : the engine will settle at a very moderate speed, and the NoStress management of the feed roller will also adapt to this engine speed.

Suitable for shredding medium-sized branches.

This range greatly promotes energy savings while significantly reducing noise pollution for the environment.

F2 key: this is the most suitable range for grinding. It sets an average engine speed using its own NoStress range.

Suitable for shredding leafy branches and, temporarily, for shredding conifers and vegetation.

This range also promotes, to a lesser extent, energy savings and noise reduction by optimising the machine's performance.

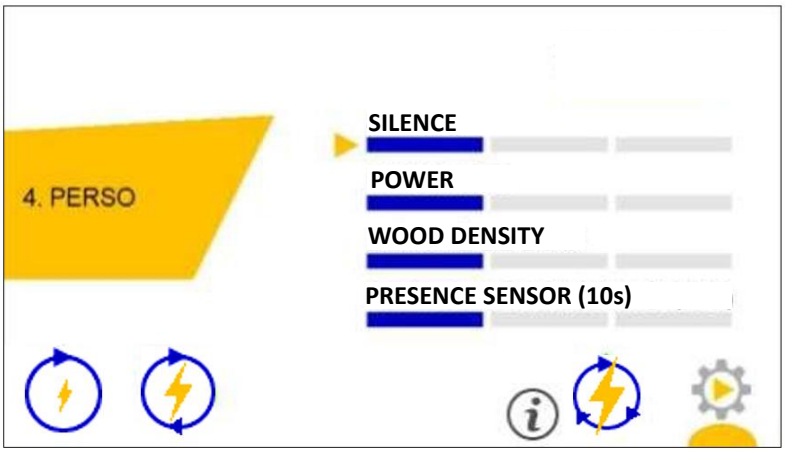
F3 key: this range is the machine's "boost" mode. It uses the maximum permitted engine speed, using the maximum power of the engine and the ejection fan for crushed material, in extreme operating conditions.

Suitable for shredding conifers and heavy vegetation thanks to its high-speed motor range for optimum ventilation.

F4 key: With a short press, this range allows you to use the machine's custom settings (silence, power, and wood density).

With a long press, the F4 key displays the site settings page.

Personnalized settings page



On the main screen, pressing and holding the F4 key displays the site settings page.

This page allows you to customise the following machine settings, depending on the configuration or environment of the worksite and the number of people loading the machine.

SILENCE: in the example above (1 filled blue rectangle), the machine will operate with minimal noise.

POWER: in the example above (1 filled blue rectangle), the machine will operate using minimum motor power. This setting helps to preserve battery life.

WOOD DENSITY: in the example above (1 blue rectangle filled in), TS.Cockpit will optimise the machine's operation for soft, light vegetation. Conversely, a setting with 3 blue rectangles filled in will optimise operation for harder, heavier vegetation.

PRESENCE SENSOR (optional): 4 settings are available: disabled (off), 10 seconds (10s), 20 seconds (20s), 30 seconds (30s). See operation on page 29

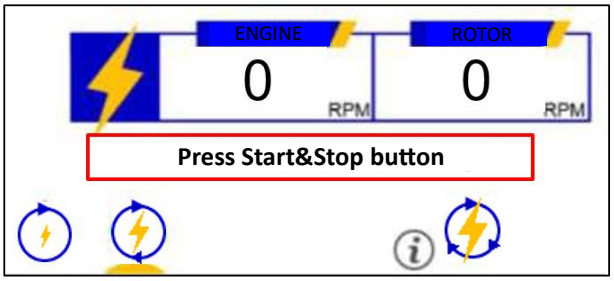
Normal operation and overspeed

The main rotation data taken into account for monitoring the operation of the shredder is that of the rotor.

After selecting a range, press the Start & Stop button to start the engine.

The message **"Press forward button"** indicates that the minimum speed for the feeder to operate has been reached.

You can press the yellow forward feed button.

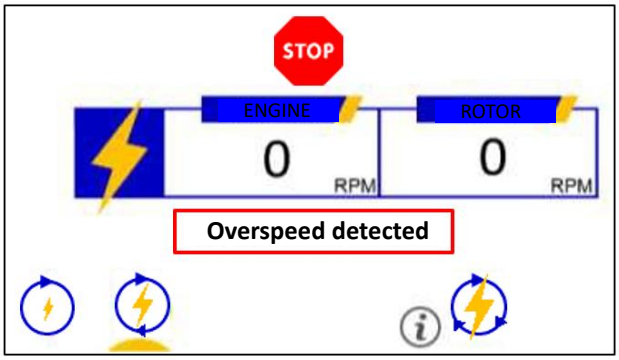


When the feedrolle is rotating forwards, if you press the red safetybar at the rear of the hopper, the feedroller will stop and the message **"Safety bar activated"** will be displayed.



En In the event of the cutting rotor overspeeding, a red STOP icon appears with the message "Overspeed detected", the feed roller rotation is stopped to prevent use of the machine, and the motor stops.

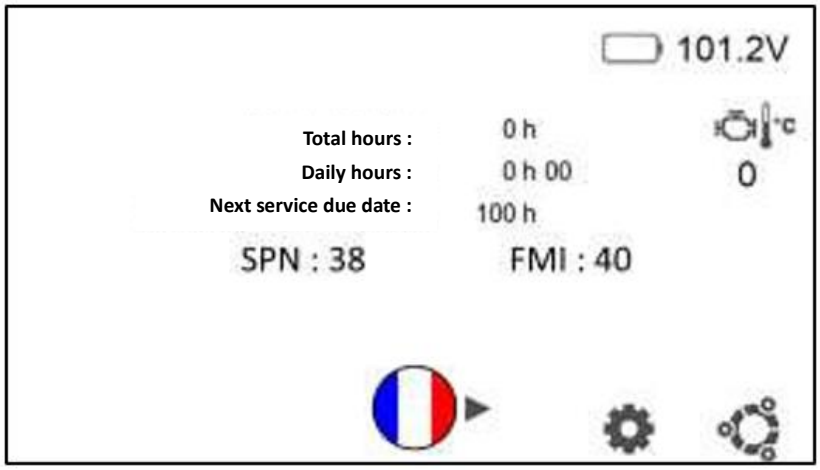
Investigate the cause of the problem before restarting the machine.



Access to CLIENT settings (owner). Code 3003

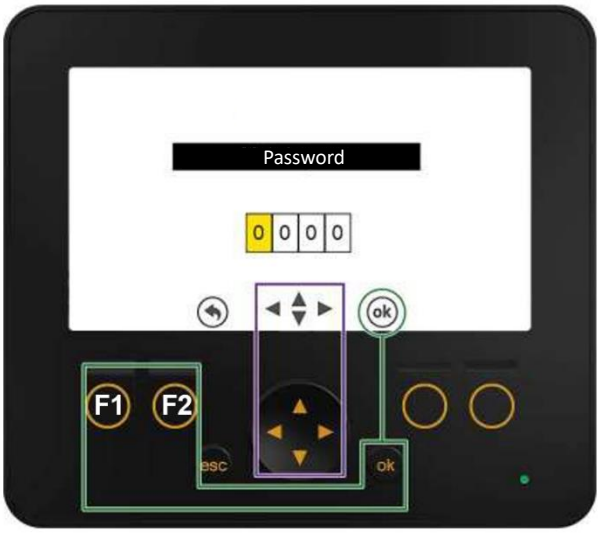
From the main screen, press the OK button (i) to display the secondary screen, shown below.





Press the **F1**, **F2** and **ok** keys simultaneously to display the screen below.



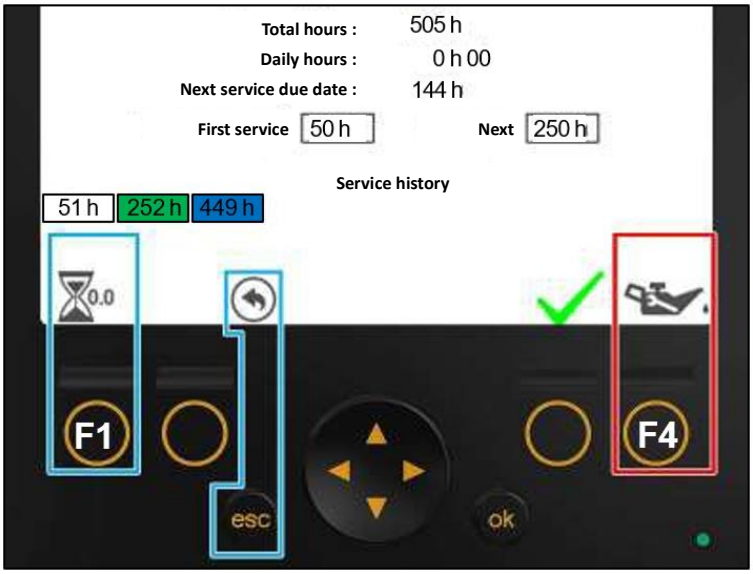


The screen displays the password **0000**. The first digit on the yellow background can be changed using the multi-directional pad.

1) Press the arrow three times ▲ to set the number **3**
2) Press the arrow three times ▶ to validate the **two zeros** and get to the 4th digit
3) Press the arrow three times ▲ to set the number **3**
4) Validate the code **3003** by pressing te key **ok**

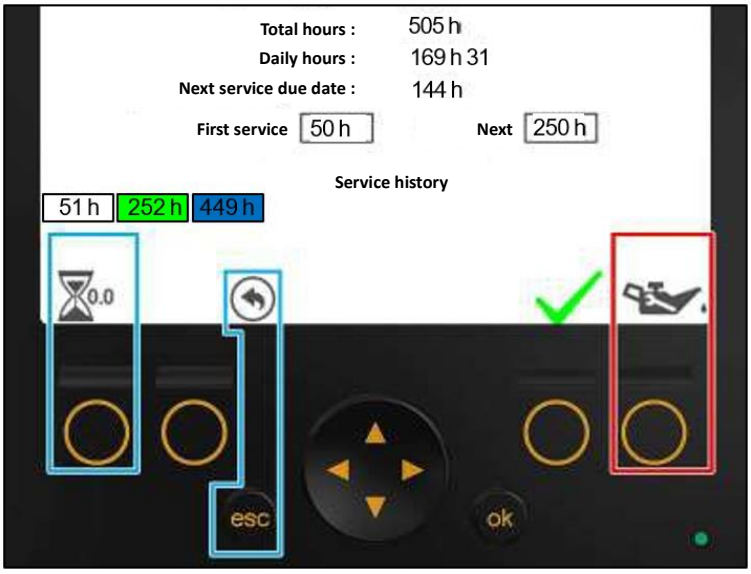
Resetting the daily counter 

Press the **F1** key to reset the daily hours to zero.
Press the **esc** key to exit and return to the main screen.



Service validation

Once the service has been performed, press the **F4** key to confirm the service. The time at which it was performed is added to the table.
Press the **esc** key to exit and return to the work page.



Blue background: 449 h service provided by the owner

Green background: 252h service provided by the dealer

White background: 51h service provided by the factory

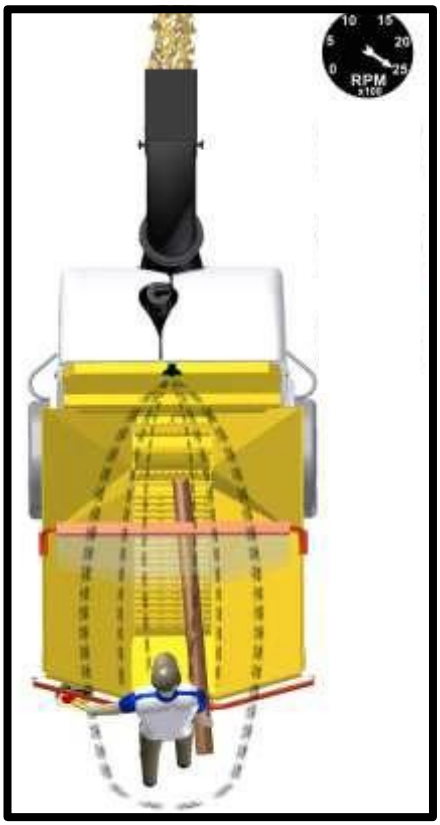
NOTE: 15 hours before the deadline, the message "Schedule service" appears.
When the deadline has passed, the background is orange and the triangle flashes.
The message **"Schedule service"** appears.

The secondary screen displays **"Service delayed by: 5 hours"**

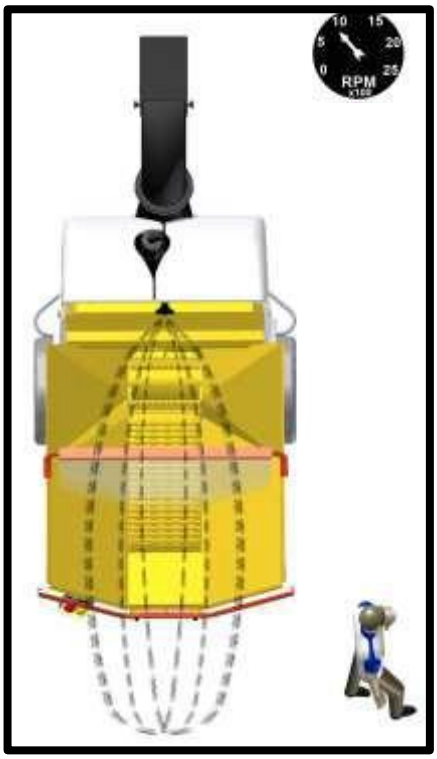
Presence sensor (optional)

Description and operating principle of the presence sensor



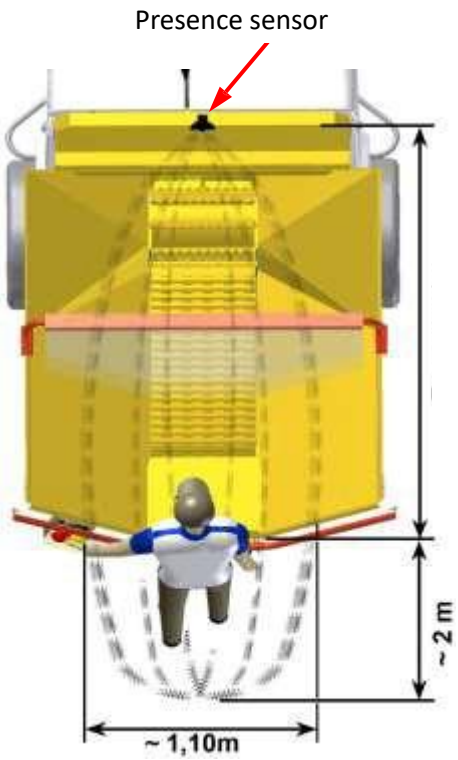


The crusher is a machine that operates continuously at high engine speed, with crushing periods alternating with periods of idle operation of varying lengths depending on the configuration of the worksites. Noise pollution and energy consumption are therefore also always at their maximum.



To avoid these inconveniences and in order to protect the environment, whenever the user leaves the shredder workstation, after a set period of time, the presence sensor automatically stops the motor, thus eliminating noise pollution and energy consumption. Simply press the illuminated Start & Stop button on the back of the machine to restart the motor and resume operation. In addition to the environmental benefits mentioned above, the presence sensor also increases the service life of all moving parts of the machine: engine, transmission, feed roller, feed belt, motors and hydraulic circuit.

Manipulation



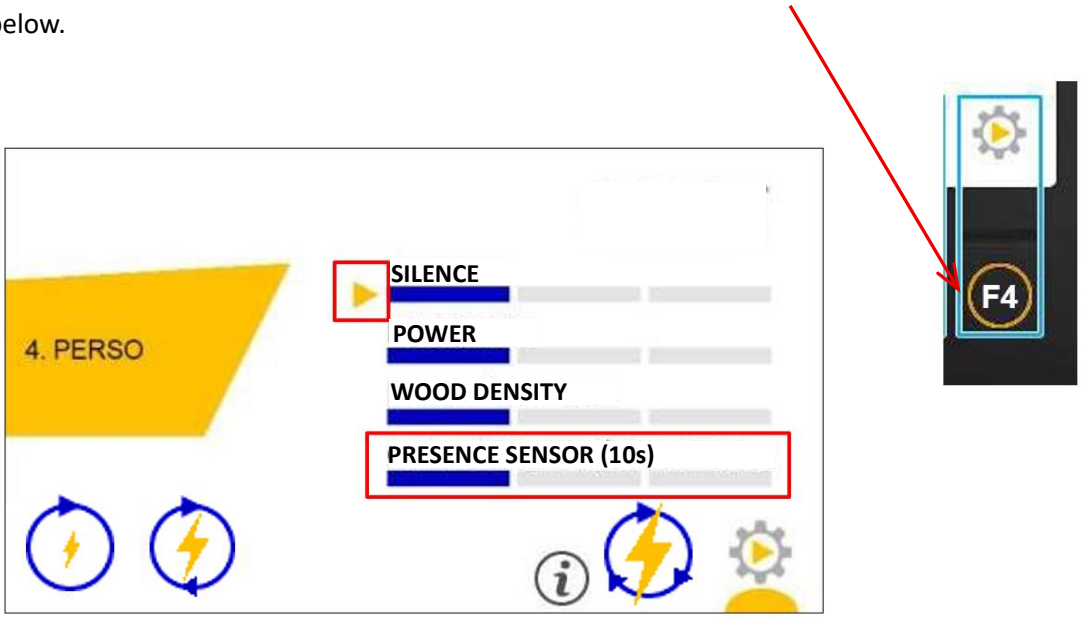
The presence sensor located at the rear of the hood detects the user up to 2 metres behind the loading hopper and across a width of approximately 1.10 metres. The area corresponding to the hopper is a dead zone not covered by the sensor.

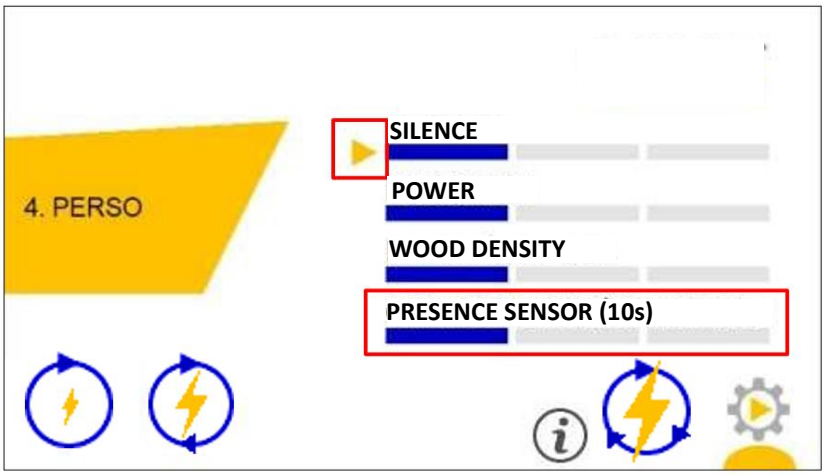
However, any object, even an inert one (such as a wall or vehicle), located less than 2 metres behind the shredder will prevent the engine from stopping automatically.

NOTE: For safety reasons, do not alter the position or angle of the detector. The height of the detector is set high enough to detect adults but not young children.

When first started up, the presence sensor is not activated by default, so it will not stop the motor if no presence is detected.

1) After turning on the ignition, press the **F4** key on the main screen to display the site settings screen shown below.





2) If necessary, move the yellow arrow to the line "PRESENCE SENSOR" using the up ▲ and down ▼ arrows.

3) Using the arrows ◀ and ▶ select a **delay of 10, 20, or 30 seconds**, or desactivate the presence sensor completely. Above, the 10-second delay has been selected.

4) Return to the main screen by pressing the **esc** key.

5) Start the engine by selecting a range and then pressing the Start & Stop button.

6) If no presence and no motor load is detected during the selected time, the motor and feed roller will stop in order to save energy and reduce noise pollution.

7) As long as the user is present in the detection zone, the motor remains at its operating speed.

The delay you have selected (10 seconds in this example) will remain in effect during subsequent restarts until you disable the delay.

End of grinding function:

If the user has left the detection zone and the delay period expires while there is still material to be shredded, the feed roller will continue to rotate and the motor will remain at high speed to finish the job.

Note: this system does not work for small branches less than 15 to 20 mm in diameter.

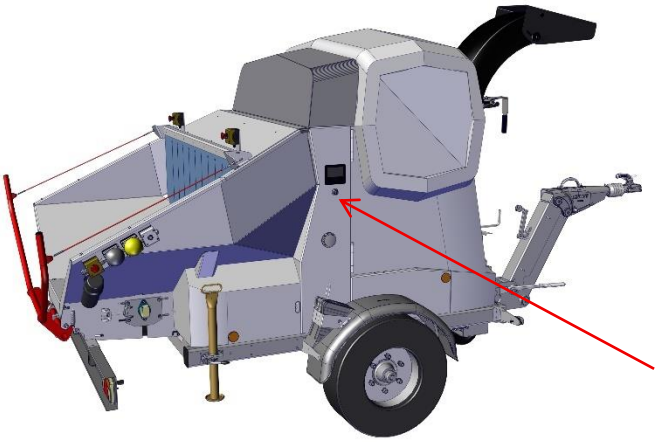
Reminder: To use the machine without the presence sensor, deselect the delay on the site settings screen.

Presence detector malfunction:

- Never alter the height of the anti-reflux bib support.
- Do not alter the angle of the sensor bracket.
- Do not leave any branches above the bib holder.
- In the event of **very heavy rain** or **strong winds**.

Operation - Commissioning and decommissioning

The machine is switched on and off using the ignition key, located on the right-hand side of the machine.





On the GS/ePANTHER, it is located here

Turn the key to the right to start the machine. This will turn on the "TS-COCKPIT" screen.

See TS-COCKPIT user manual, page 20.

Turn the key to the left to switch off the power to the machine.

Before each use, ensure that the machine is correctly positioned and balanced.

- Machine parallel to the ground
- Distance between the floor and the bottom of the hopper: minimum 600 mm
- Prevent the machine from tilting over by installing the stand if it is fitted to the machine..

Insertion of equipment and handling

Before commissioning, you must ensure that the machine is stable and engage the parking brake.



1) Ensure that the cap at the extremity of the chimney is opened

2) On the TS.COCKPIT, select the range  ou  ou  you want to use

3) When the **TS-COCKPIT** shows this screen 

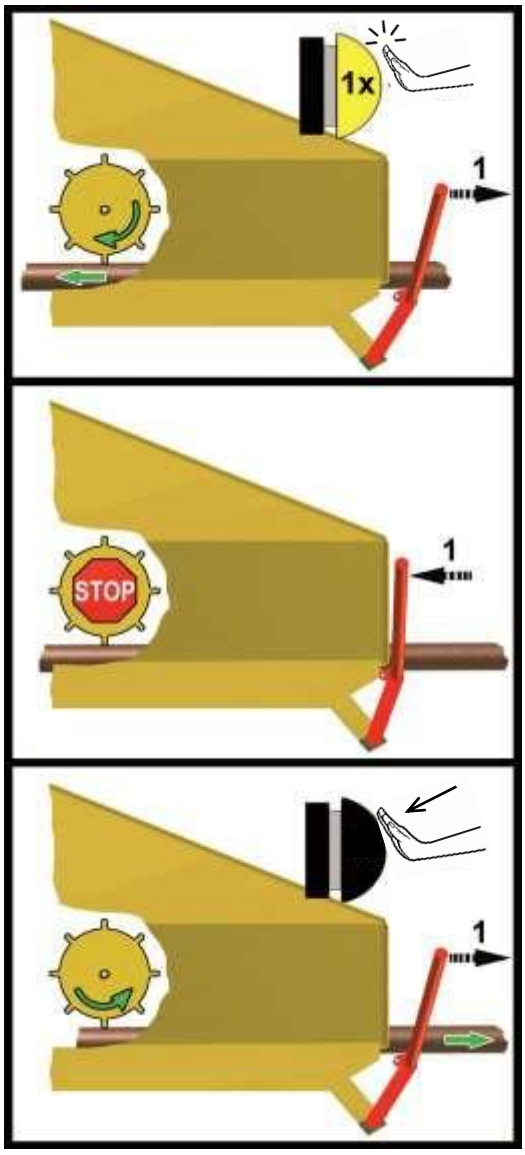
See the section **Function slip** in the Notice of the **TS.COCKPIT** if the engine stops immediately and that the message " **Tool for cutting blocked** " is displayed on the screen

Once the engine speed has been reached, the message " Press forward button" appears.

4) Rotate the feed roller/conveyor belt assembly by pressing the yellow control button on the branch feed hopper.

5) Start grinding.

The shredder is equipped with a hydraulic distributor with electric controls operated by mushroom-shaped push buttons on the rear of the hopper for forward and reverse movement, and a red "handrail" control bar for stopping the feed roller/conveyor belt assembly.



FORWARD CONTROL:

1: To operate the roller in forward motion, the red handrail must be pulled back.

2: Press the yellow push button once to activate the roller in forward motion.

SFATEY BAR ACTIVATION :

1: Push the red safety bar to stop the feedroller.

REVERSE CONTROL :

1: To operate the roller in reverse, the safety bar must be pulled back.

2: Press and hold the black push button.

NOTE: The feedrolle can be controlled directly from forward to reverse without using the red safety bar.

INSTRUCTIONS DURING GRINDING

Care must be taken to ensure the stability of the operating personnel

Place the fodder in the bottom of the hopper and insert the end into the hopper. a5>the with the thickest end (branch) into the feed cylinder (cut the wood at an angle at the end).

As soon as they have absorbed the material, place them on the side of the car. on the side because ejections may occur due to irregularities in the branch.

The inserted material is automatically crushed and projected in the direction (distance). a3>projected in the direction (distance) in which the ejection chute has been set beforehand.

After inserting the material, you must also pay attention to the ejection of the branches. Readjust the ejection direction if necessary. The ejection distance is controlled by the ejection cap.

When shredding branch waste, small logs and dead wood, the formation of projectiles is prevented because the materials are inserted into the feed chute.

If the introduction does not occur (blockage by too much material in the forks) press by maintening the black reverse control button (the feeder rotates backwards) and the material to be shredded is pushed back. Cut the quantity of material into small pieces, saw the fork and restart the feed.

Attention **:**
Do not touch the hopper when the machine is in operation. If necessary, insert small branches using a stick or a wooden pusher! Never insert the material to be shredded into the hopper with a stick or a wooden pusher! It is also prohibited to remain in the danger zone! If the wood is sturdy or hard, it is advisable to reduce the rotation speed of the feed roller if the speed of the / motor speed drops so that the motor can reach its rated speed again.



In the event of a blockage in the ejection channel area, the chimney may only be opened after the cutting rotor has stopped and the drive motor and the stuck wood have cooled down. The wood that is stuck can be removed with a suitable tool.

SLIDE function

The TS. COCKPIT controls the slippage of the cutting tool transmission system by continuously comparing the speed difference between the motor pulley and the cutting tool pulley. A percentage of slippage is tolerated in order to protect the transmission (belts). If this value is exceeded, the motor is stopped and two different messages may be displayed.

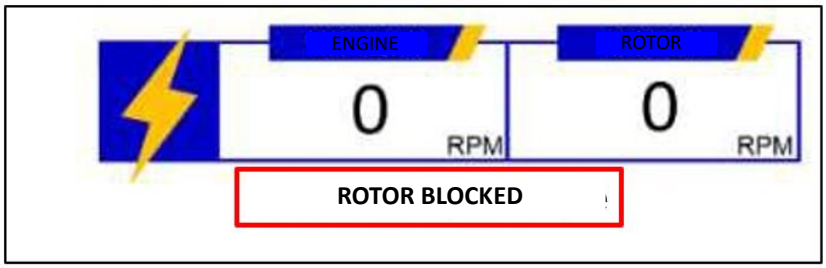
1. As soon as the cutting tool starts rotating:

If the message **"Rotor blocked"** is displayed

Various possible causes of slippage:

-cutting tool blocked by grinding residues remaining in the grinding cell

-broken belts

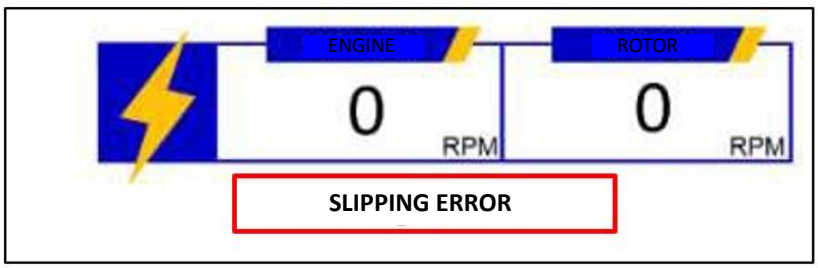


2. During grinding:

If message **"Slipping error"**

Various possible causes of slippage:

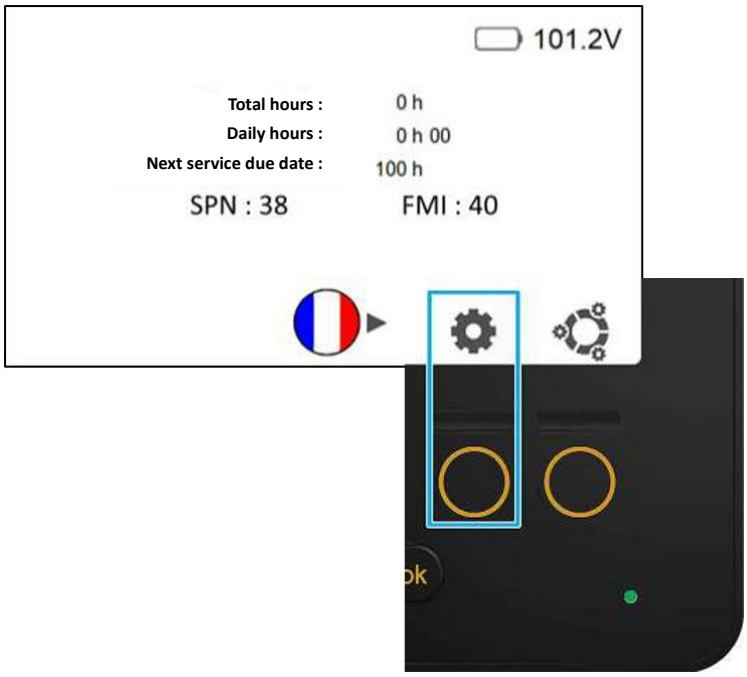
- cutting tool jammed
- loose or broken belts



SPN/IMF message in the event of default

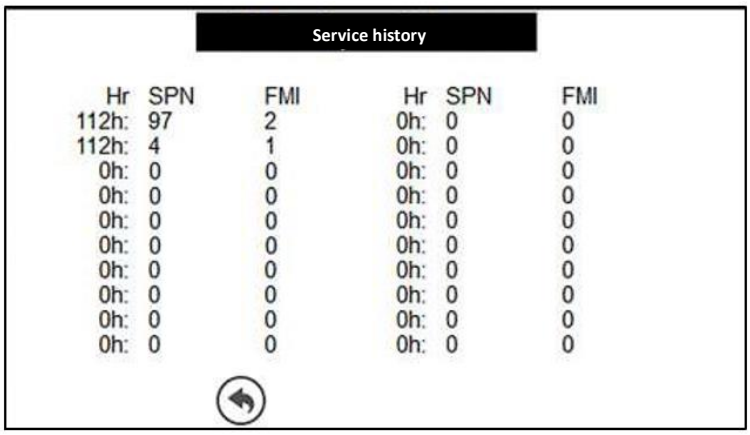
In the event of a fault (machine, motor, drive, batteries), the screen automatically displays the secondary screen, showing an SPN/FMI code and, where applicable, an explanation of the fault.

If several fault codes are present, they are displayed alternatively.



Fault codes are recorded in a log along with the number of engine hours at which they occurred.

They can be viewed by pressing the F3 key.



DECOMMISSIONING

1. Allow the shredder to empty for a few minutes to thoroughly remove any residue from the material in front of the feed roller and into the body of the shredder, which could block the rotor during the next start-up and cause a slip error message.

   Push forward the control bar to stop the feedroller and conveyor belt



Press the "Start & Stop" button or deselect a range on the screen to stop the motor.



Switch off the machine by turning the ignition key to the "OFF" position.

Maintenance and service









BIO LUBRICANTS TO REDUCE THE RISK OF POLLUTION

TS INDUSTRIE shredders are naturally part of the sustainable development cycle due to their function: the shredded material can be used for composting, mulching or heating.

Forests, parks, construction sites near lakes or rivers... TS INDUSTRIE shredders are often used in natural environments that pose a direct risk to the environment in the event of accidental leakage or loss of hydraulic lubricant.

This is why TS INDUSTRIE has adopted an eco-responsible approach by equipping its shredders with biodegradable hydraulic lubricants that combine environmental protection and high performance, replacing traditional oils and greases.

Compliant with Agricultural Policy Act No. 2006-11 drafted and published in the Official Journal on 6 January 2006.

The advantages of Bio Lubricants:

- Prevention of environmental pollution risk
- High biodegradability
- Non-toxic (made from rapeseed and sunflower oil)
- Renewables
- Very high viscosity index
- Enhanced anti-wear, anti-corrosion and anti-oxidant properties
- Enhanced user safety
- Increased equipment longevity
-Low volatility

All machines are tested before leaving the production plant. The hydraulic tank is filled to the upper mark on the level indicator with hydraulic oil upon delivery. After 150 hours of operation, the filter must be changed. Thereafter, changes are made according to the maintenance schedule. The first inspection is an integral part of the warranty conditions.

Only trained personnel are authorised to carry out maintenance and repair work.

The engine manufacturer's operating instructions must be followed for engine maintenance.

The bearings are already lubricated upon delivery and the transmission is filled with oil. It is recommended that you carry out a check before starting up the machine.

Model	Hydraulic oil capacity
GS/e PANTHER	24 litres

Recommended LUBRICANTS:

1) Grease for rotor hammers:

Be sure to use a water-resistant, extreme pressure NLGI 2 grease *"TS INDUSTRIE BIOPLEX"*.

2) Grease for bearings, drive chain and various components:

Use a high-performance, extreme pressure (EP) SAE multi-purpose grease *"TS INDUSTRIE BIOPLEX"*.

3) Hydraulic oil:

Use an oil of grade AFNOR NFE 48603 Types HV iso VG 46 *"MINERVA BIO HYDRO 46 "*

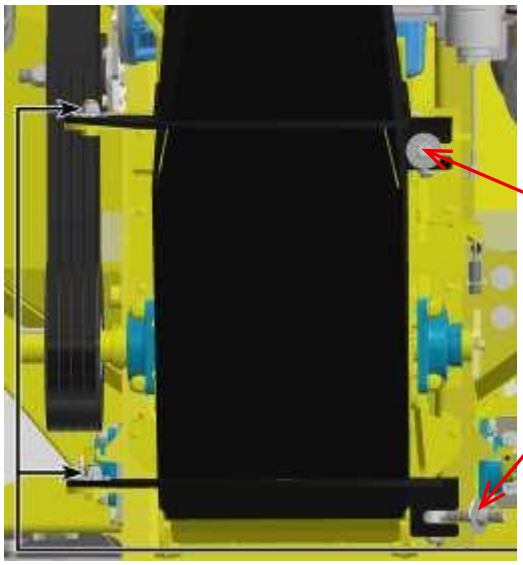
Frequency of services

Task	daily	at 4h	at 50h	every 15h	every 50h	every 150h	every 400h	specific	Every year
Check the level of hydraulic oil	■				■				
Check the state of charge of the battery and the battery terminals.	■								
Check the V-belts on the rotor.	■								
Check the cutting tools: knives, cutting disc, anvil.	■		■						
Check for leaks of liquids	■								
Check the condition of the protective flap in the hopper.	■								
Check the operation of the devices. safety (emergency stop , safety bar , control, etc.)	■								
Check operation of the feedroller and conveyor belt	■								
Lubrication of rotor hammers				■					
Check the tightness of the 8 screws securing the rotor bearings.			■						
Check the tension of the rotor belts.		■	■						
Check the conveyor belt tension		■	■						
Testing the lighting of the trailer	■								
Tyre test: condition/air pressure	■								
Testing of the inertia device, the coupling device	■							■	
Testing of axles, brakes	■							■	
Check warning signs for damage/legibility.	■								
Lubricate all lubrication points (sooner if necessary, see lubrication points).			■		■				
Check the hydraulic hoses and the fixings.			■		■				
Check the battery cables.			■		■				
Replacement of the hydraulic filter and the sucker strainer			■			■			
Draining oil hydraulic							■		
Replacement of the rotor belts (or sooner if necessary)							■		
Safety test									■

Greasing points



Lubricate and service the machine with the engine switched off and the ignition key removed.

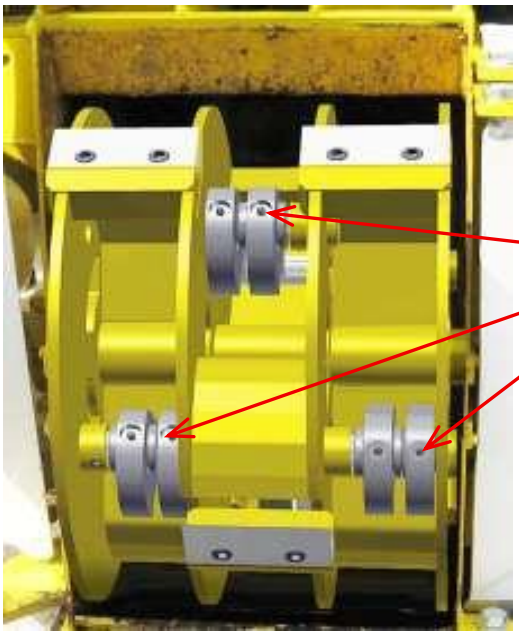


LUBRICATING THE HAMMERS:

To access the rotor:

-Loosen the two Nylstop locking nuts.

-Open the exhaust vent by pivoting it on its two hinges..



-Clean the grease nipples on the back of the hammers using a small screwdriver or an air gun.

-Grease the 12 hammers

Note: Do not grease excessively; ~2 pumps per grease nipple are sufficient.

Excessive lubrication would cause the excess grease to be centrifuged against the inner wall of the chimney during rotor rotation, resulting in poor sliding of the crushed material.

CENTRALISED LUBRICATION





LUBRICATION OF THE LEFT AND RIGHT BEARINGS OF THE ROTOR





LUBRICATION OF THE LEFT AND RIGHT BEARINGS OF THE FEEDROLLER





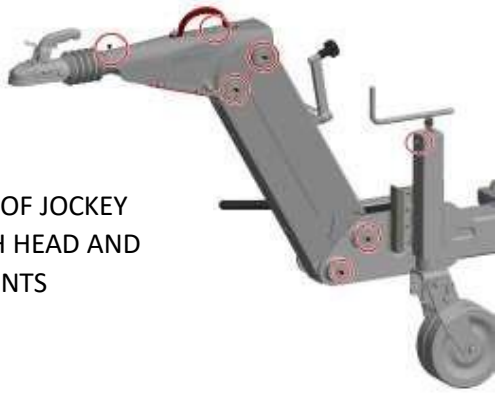
LUBRICATING THE LEFT AND RIGHT BEARINGS OF THE CONVEYOR BELT



LUBRICATION CENTRE



LUBRICATION OF THE TWO BEARINGS OF THE REAR CONVEYOR BELT ROLLER

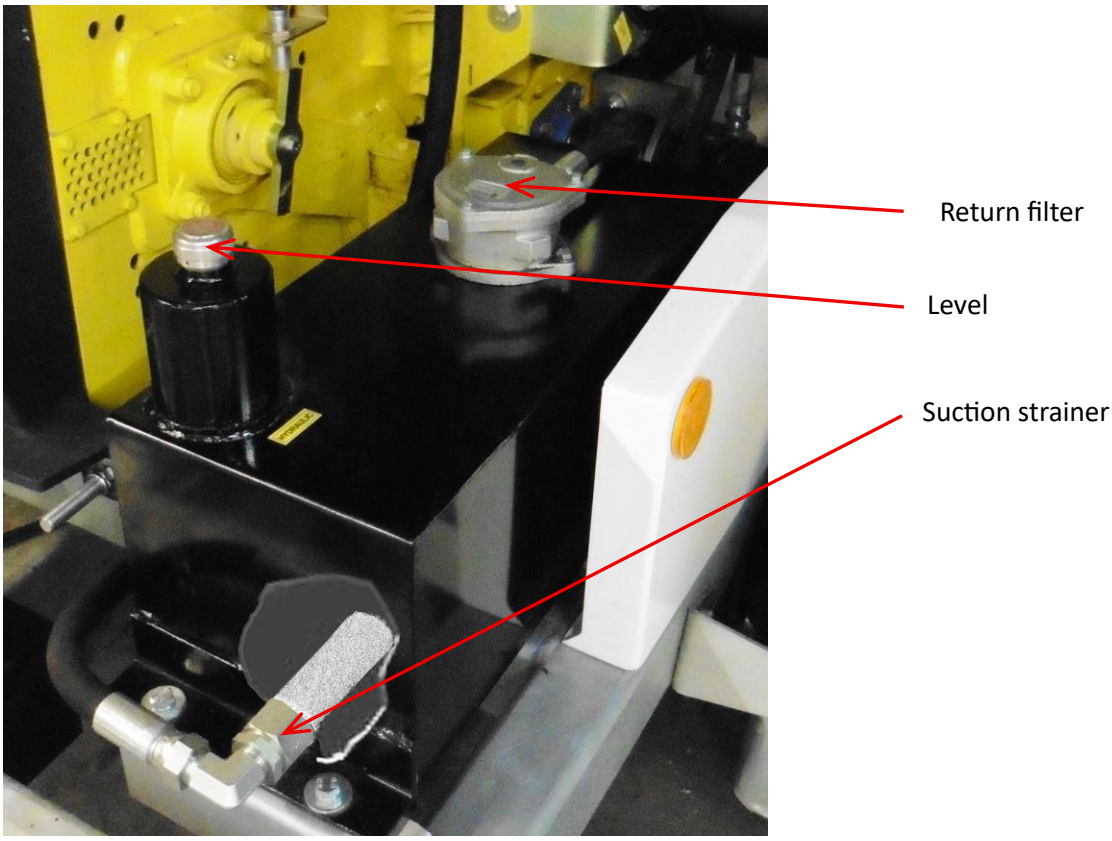


LUBRICATION OF JOCKEY WHEEL, HITCH HEAD AND DRAWBAR JOINTS

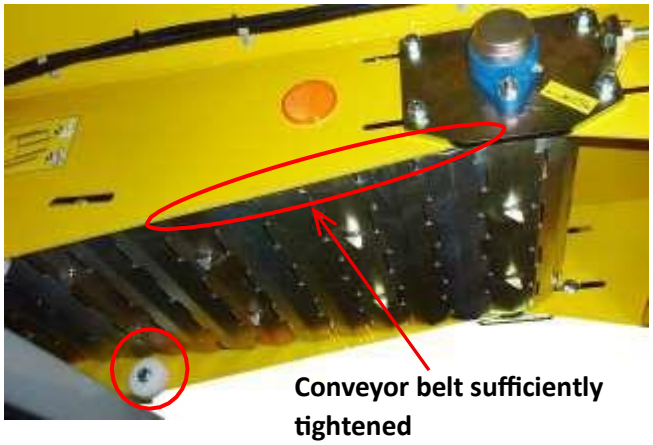
Technical checks

HYDRAULIC OIL LEVEL

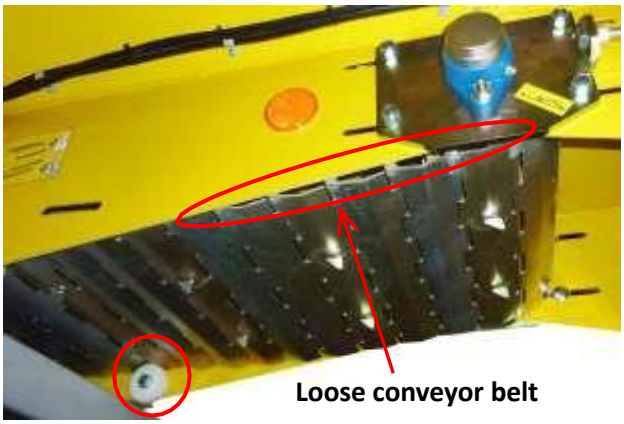
The GS/e-PANTHER has a 24-litre hydraulic oil tank comprising:



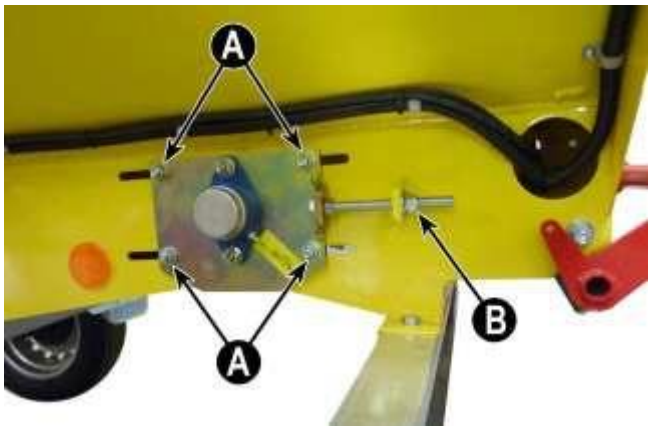
CONVEYOR BELT TENSION CONTROL



Conveyor belt sufficiently tightened



Loose conveyor belt



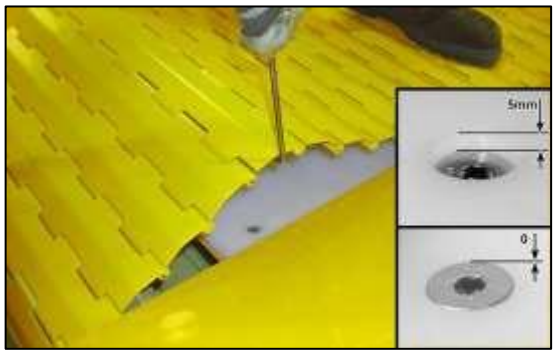


To stretch the carpet:

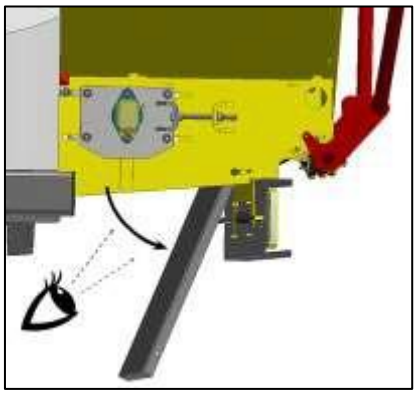
1. Loosen the four index nuts (A) on each side.
2. Simultaneously tighten the tensioners (B) so that a hinge is centred in the maximum tension window (see photo 4).
3. Tighten the screws (A)
4. After tensioning, rotate the belt several times forwards and backwards to ensure that it remains properly aligned.

After running in the carpet, check its tension for the first time after 4 hours, then regularly every 50 hours.

CHECK WEAR ON MAT AND SLIDING PLATE AND CLEANLINESS OF REAR ROLLER



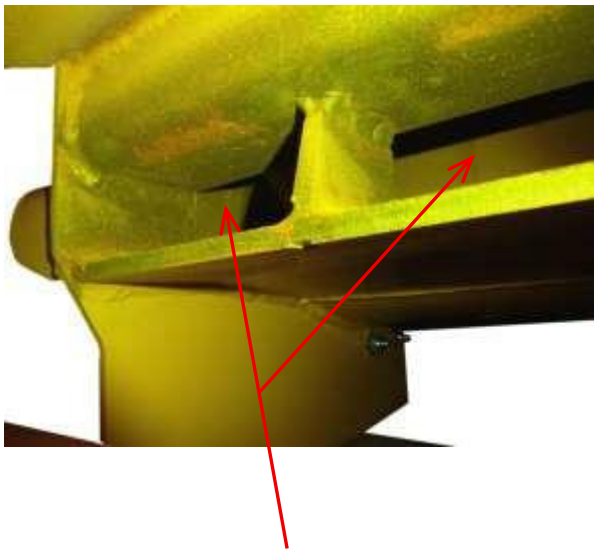




To check the wear on the belt and the self-lubricating polyethylene slide plate, fully loosen the belt, lift it with a hook and check:

1. The thickness of the plate above its four fixing screws
2. Wear and tear on carpet strips

VENTILATION AIR INTAKES ROTOR





The shredder has an additional air intake under the rotor, in addition to the two usual intakes on each side, to improve rotor ventilation and optimise the ejection of shredded material from the chimney.

Regularly check the cleanliness of the three air intakes to optimise ventilation and the ejection of crushed material.

DISASSEMBLY FOR REPLACEMENT OF BLADES AND HAMMER INSERTS

ROTOR BLOCKING TOOL



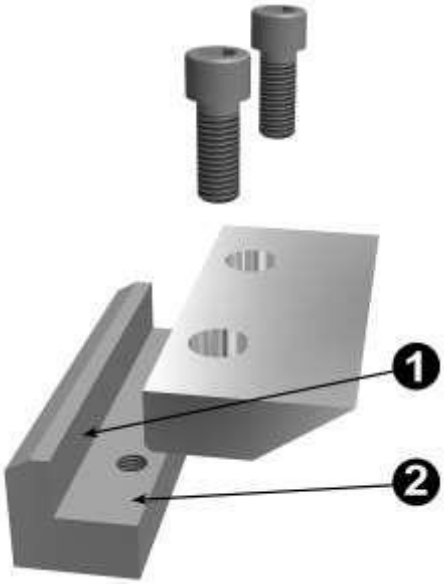


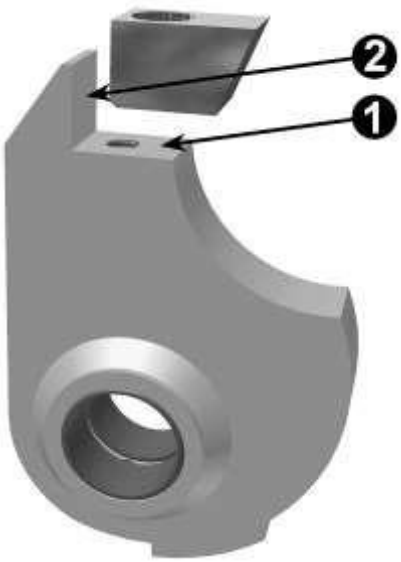
Unscrewing of screws



tightening of screws : 157 N.m

1. The hexagon socket screws securing the blades and hammer pads are factory-fitted without threadlocker **at a torque of 157 N.m** (16 M.kg). To remove them, use a suitable spanner in good condition.
2. Open the chimney as shown on page 42.
3. Remove all screws from the blades and washers (when reassembling, use only new class 12.9 screws)
4. Clean the bearing surfaces; seats and heels (1 and 2) of the blades and hammer pads.



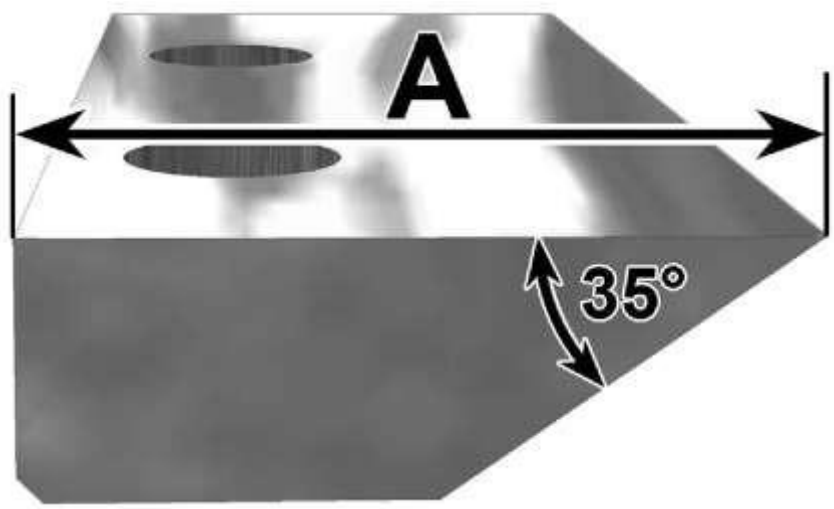


5. Refit sharpened knives of identical weight or new ones.

IMPORTANT: Sharpening must be carried out by a professional using a machine specially designed for this purpose, and not with a grinder.

Also ensure that the 35° angle of the cutting edge is maintained.

The minimum length A after sharpening must not be less than 50 mm. (The length of the new knife is 60 mm.)



Use only screws of type: TCHC 12 X 40 cl.12.9

Tighten the class 12.9 screws to a torque of 16 M.kg (157 N.m), ensuring that the blades and inserts are firmly pressed against their heels.

Grease the hammer pins (approximately two strokes of the grease gun per hammer).

Close the chimney and the covers.

Start the engine and let it warm up for a few minutes.

Accelerate to maximum speed to ensure that no abnormal vibrations are disrupting the smooth running of the machine.

DISASSEMBLY FOR CHECKING THE COUNTER BLADE

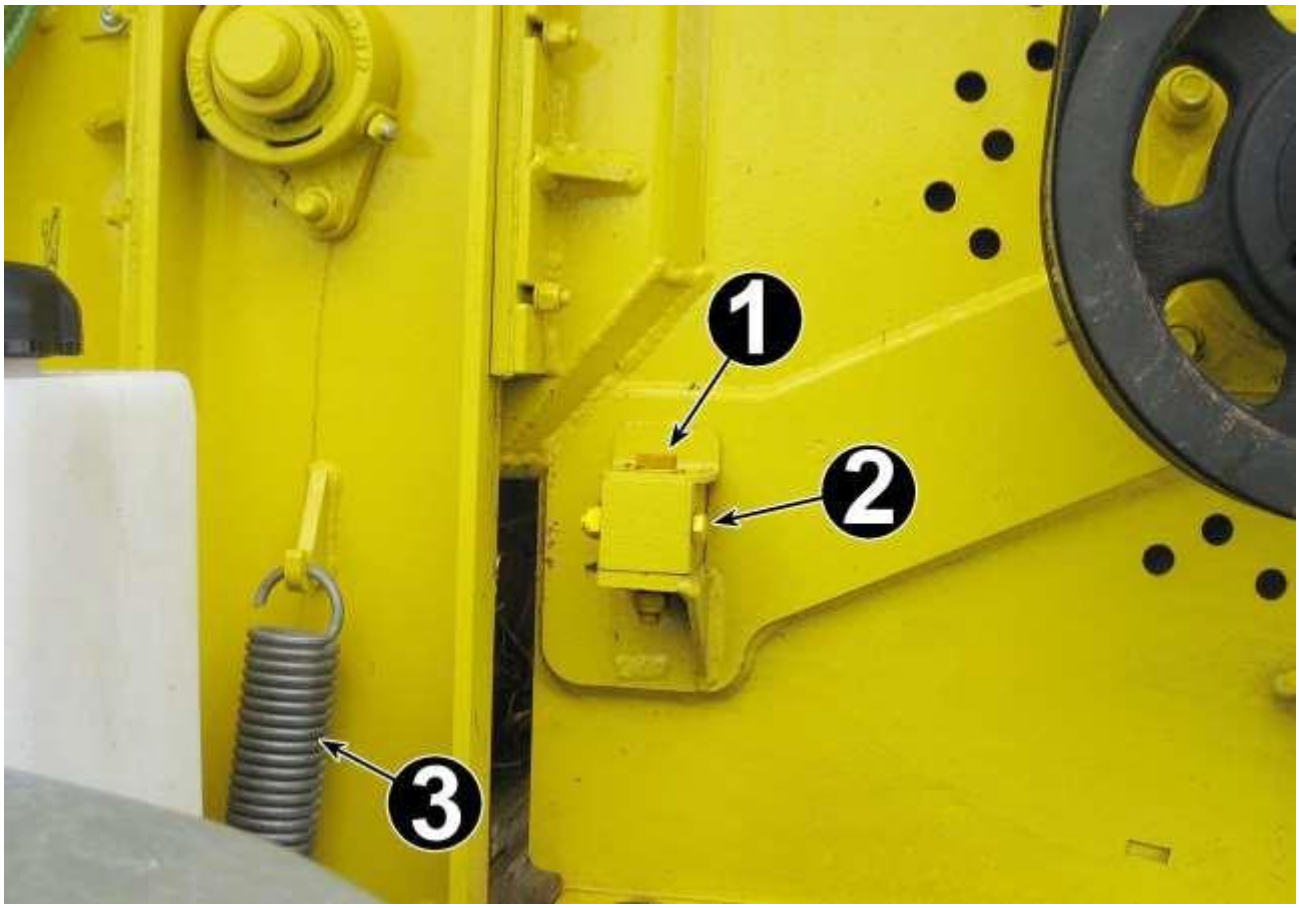
-Remove the two Ø10 retaining bolts (1) at each end of the counter blade.

-Remove the two Ø8 safety bolts (2)

-Remove the counter knife by sliding it into its slot on either side.

- If the edge shows signs of wear, remove the counter blade completely from its housing and refit it by rotating it 90° (a quarter turn) so that a new edge faces the blades.

(All four sides of the counter blade can be used)



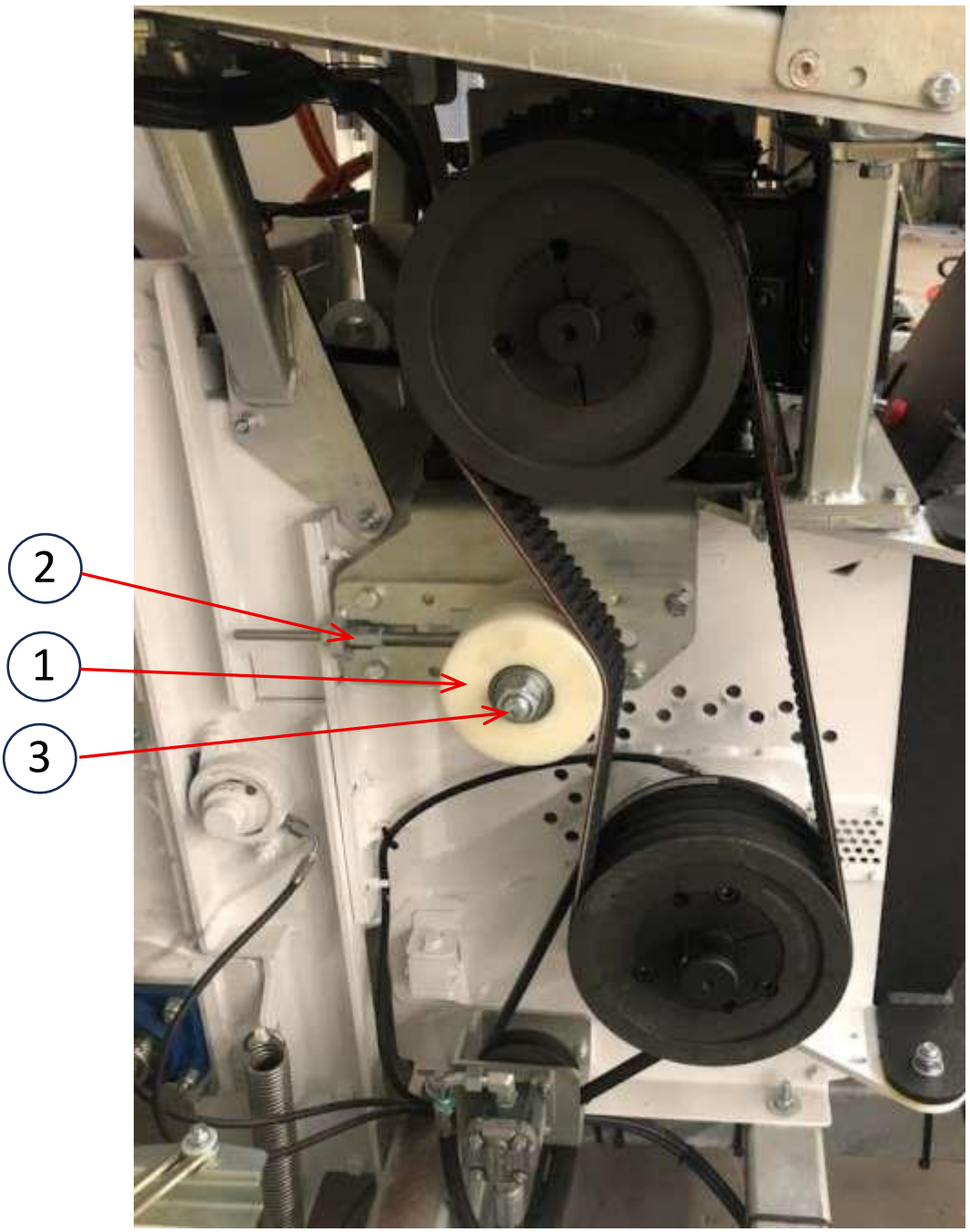
PRESSURE OF THE FEEDER ON THE MATERIAL

The feeder exerts pressure on the material using two springs (3) (one on each side).

ADJUSTING THE ROTOR BELTS

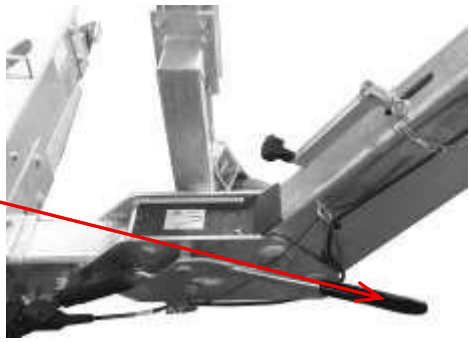
The rotor belts are kept taut at all times by a tension roller.

The belt tension is adjusted by moving the tensioner roller (1) forward by turning the nut (2) after first loosening the central nut (3) on the roller.

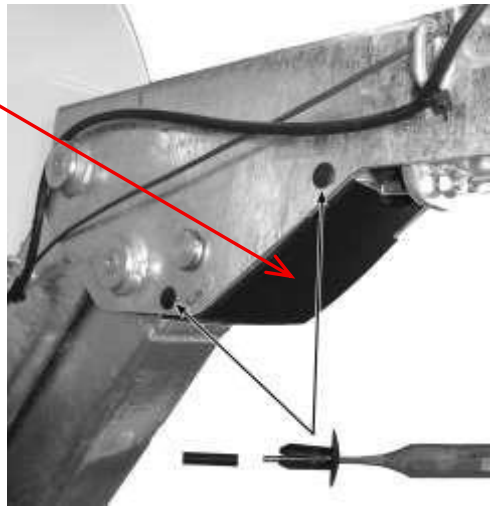


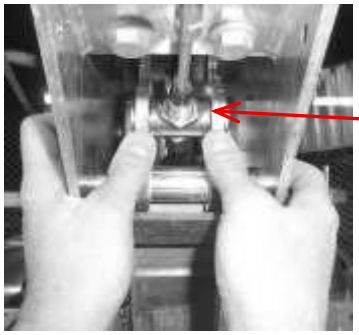
RBRAKE ADJUSTMENT

Put the brake lever in the low position.

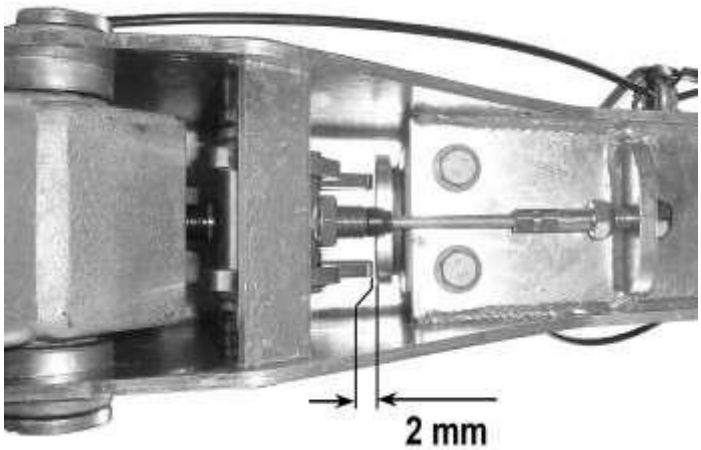


Remove the black plastic guard under the coupling head by removing the plastic rivets after first driving out their pins.



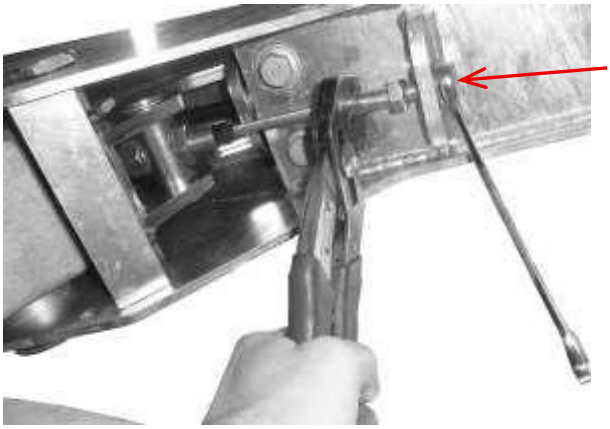


Press the double latch and check the clearance between it and the end of the slide.



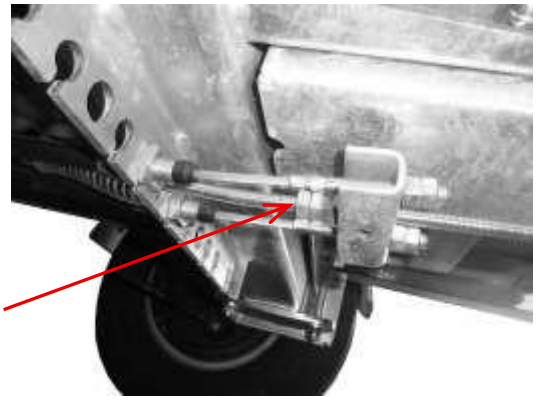
The clearance should be between 1 and 3 mm.

Excessive play delays braking and causes jerking.



If there is too much play, tighten the nut at the end of the cable.

If this is not sufficient, tighten the nut and lock nut on the axle.



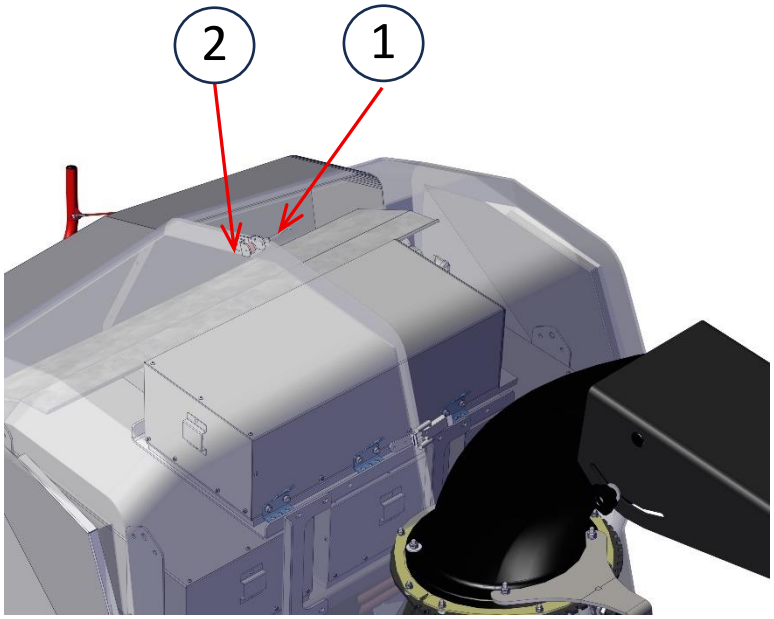
HOOD AND CHIMNEY SAFETY

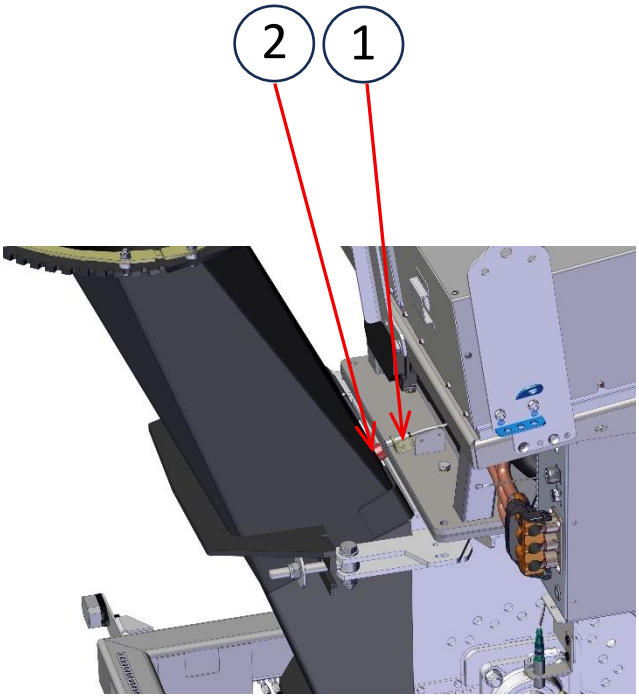
The machine has a safety feature on the engine cover and chimney opening:

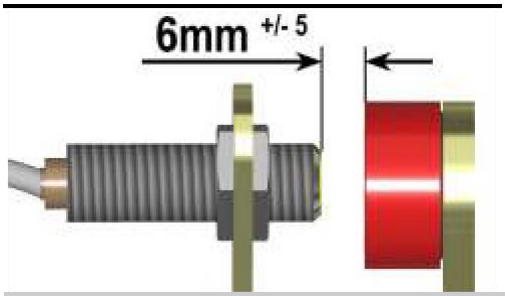
This is an inductive sensor (1) placed on a fixed support or on one of the doors.

Electrical contact is made when the magnet (2) attached to the engine cover or chimney is brought close.

When the hood and/or chimney are opened, the safety devices shut down the engine.





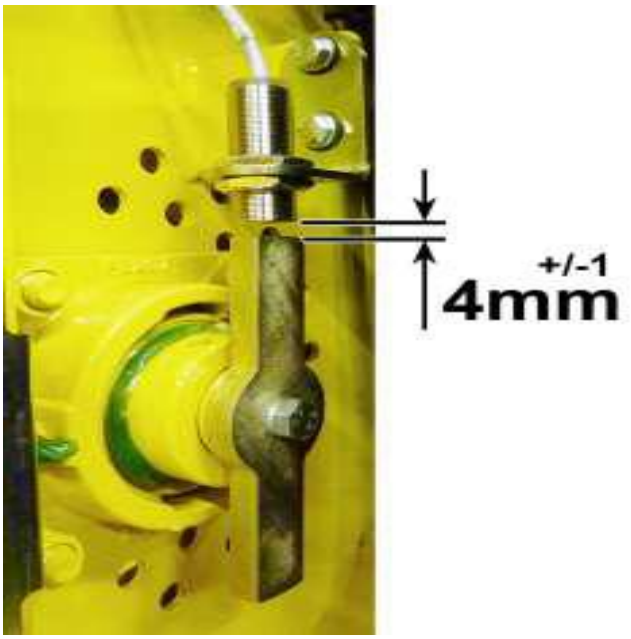


There must be no physical contact between the sensor and its magnet. However, ensure there is a clearance of 6 mm +/-5 between the two.

INDUCTIVE SENSOR

An M18 (Ø18) inductive sensor placed at the end of the rotor shaft indicates the rotation of the rotor to the TS-Cockpit.

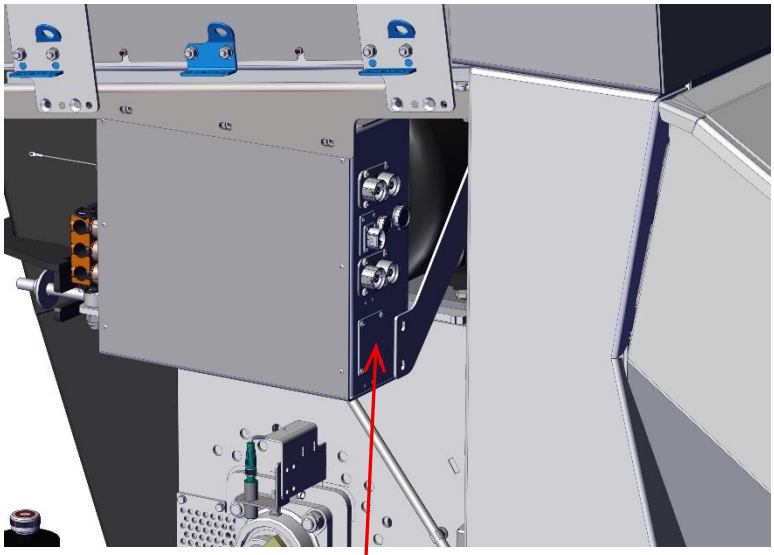
The distance between this sensor and the index finger fixed opposite it is 4 mm +/-1.



Please note that if the engine starts and stops after a few seconds and displays a message **"SLIP ERROR"** on the TS-Cockpit,

You should always look for the cause of the problem:
- Rotor blocked by residues from previous grinding
- Loose or broken belts
- Faulty M18 sensor.

FUSES



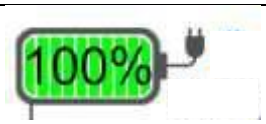
Protective fuses are located in the Powerbox on the left side of the machine. They protect the electrical installation.

CHIMNEY

The upper part of the exhaust chimney can be rotated 90° to the left and 90° to the right by unlocking the latch (1).



Charging



To charge the battery, connect the charging cable to the mains. There is no need to turn on the screen to charge the battery. When connecting the charging cable to the mains, if the screen is on, it will turn off and then turn back on. This behaviour is normal.

During charging, it is not possible to grind with the machine. Only the screen may be switched on. If you switch off the screen by turning the key to "OFF", the battery will continue to charge.

When the battery is charging, a logo appears on the screen near the battery logo.

When charging is complete, the battery and screen will switch off. To turn on the screen, set the key to "OFF", wait a few seconds, then set the key back to "ON". If the machine is still connected to the mains, the battery will start charging again and display a charge status of 99%.

You cannot charge the machine if the battery temperature is below 0°C. Tips:

-Load the machine as soon as it returns from the site, as its temperature will inevitably be above 0°C.

-Otherwise, run the shredder empty if you have a few per cent left, in order to reach a temperature above 0°C (the battery heats up during use).

Notes: Perform a full charge at least every 10 charges (cell balancing) to preserve battery life.

1. Charging must only be carried out using the 5-metre cable supplied by TS INDUSTRIE, which complies with current standards. It must be connected to a single-phase 220-volt, 16-amp circuit protected by a residual current device.

2. The machine base is IP67 rated, so it can be charged outdoors even in rainy weather (the connection to the mains must be sheltered and protected from water splashes).

3.The charger integrated into the machine is powered via the charging base with single-phase alternating current, 220 volts, 16 amps. It delivers 25 amps of direct current to the batteries. Charging is automatically controlled by the batteries via the CAN bus.

The charging cable must always be removed with the machine switch closed and in the OFF position.

4. We only permit charging at temperatures above 0°C in order to preserve battery life. Use of the shredder is

Follow the instructions carefully:

1. The charging cable must always be removed with the machine switch closed and in the OFF position.
2. The machine is only designed to operate when connected to a 220-volt single-phase mains supply, so you must disconnect the cable if you wish to work and grind.
3. >Perform a 100% charge and balancing (automatic after reaching 100%) every 10 charges.

In the case of a 380V charger (optional), DO NOT CONNECT BOTH CHARGERS SIMULTANEOUSLY!!

Wintering mode

Wintering mode is activated using the button on the Powerbox.
It allows the battery charge to be limited to 70% in order to preserve its life during prolonged storage.

When hibernation mode is activated, a logo and a message will appear on the main page of the TS-Cockpit screen.

When winter mode is activated and the battery is not charging, the machine can be used normally without any power limitations.

NB: if winter mode is activated and the charge percentage is above 70%, connecting the charging cable to the mains will cause the batteries to switch off and you will not be able to turn on the screen.
If you wish to turn on the screen, you will need to:
- either disconnect the charging cable
- either deactivate hibernation mode

then turn the key to "OFF" and then "ON".



For long periods of non-use, and in order to preserve the battery, the required charge level is 70% (SOC: State of Charge). The "winter storage" mode allows you to maintain the charge at 70%.

You must charge the machine and press the "winterisation" button on the Powerbox.

Please note that the interval between two full charges with balancing (automatic function performed at the end of a 100% charge) must be less than three months between two 100% charges.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
The engine stops unexpectedly and will not restart.	-The hood or the chimney is poorly closed. -The hood or chimney safety sensor is faulty.	-Check that the hood or chimney is closed. -Check the sensor
The feedroller /conveyor belt assembly refuses to rotate in forward and reverse mode.	-Feed speed dial fully tightened -Hydraulic motor or pump defective -Not enough oil in the tank	-Loosen the adjustment knob on the distributor. -Check or replace the defective part -Check the oil level.
The machine has difficulty grinding.	-Knives and hammers arenot sharped anymore -Defective belts or insufficiently tensioned belts	-Sharpen or replace the blades. Change the hammer inserts. -Replace and/or tighten the belts
The feed device in operation does not regulate , even below the TS-Cockpit intervention threshold.	-Electrical or hydraulic problem	-Contact your dealer

PROBLEM	CAUSE	SOLUTION
Presence sensor ON, **range 1, 2 or 3 enabled** **the sensor does not detect the presence of the user**	-Incorrect alignment of the radar sighting -Interference with the radar beam -Problem on the radar	-Check that the radar is pointing slightly downwards. -Check that no branches are hanging over the hoop or that no "screen" is covering the presence detector. -**Engine stopped ignition engaged**, check on the back of the presence detectorthat**:** 1. the first LED **green** is lit 2. the second LED lights up yellow when it detects a person behind the shredder hopper. 3. If the second LED flashes red: contact your dealer.

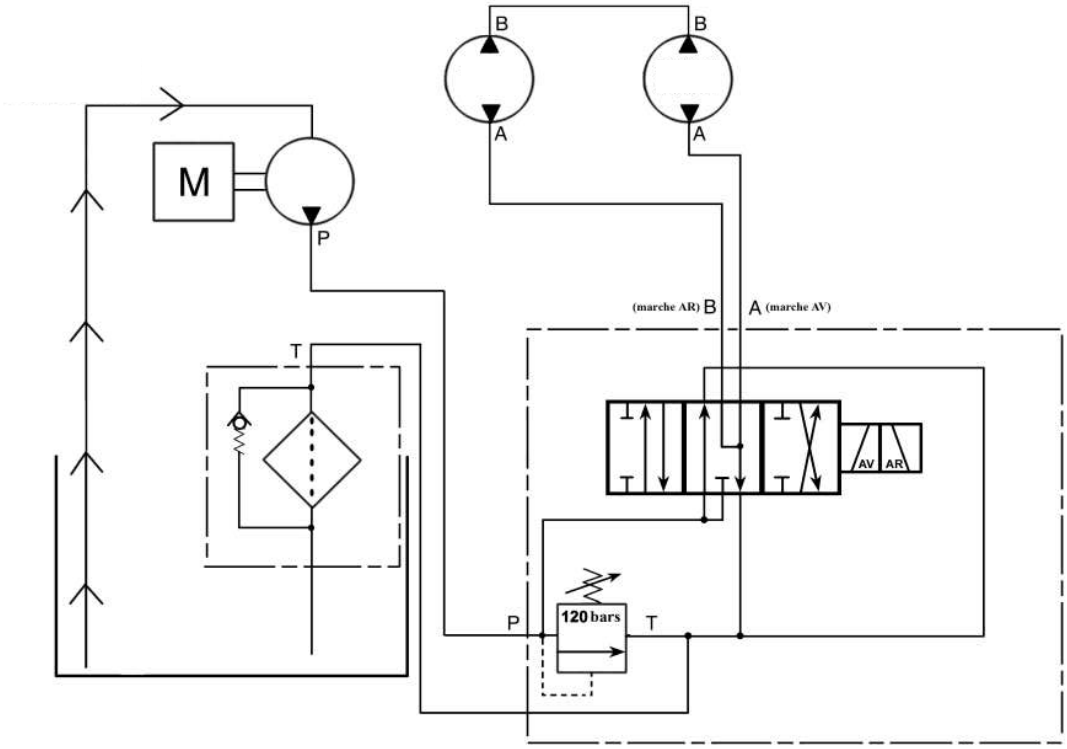
List of SPN/FMI codes Manufacturer

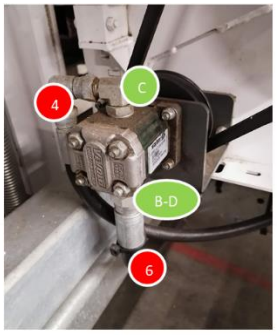
These are displayed on the error code screen. (see page 31)

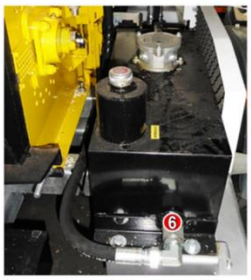
Here is their interpretation

SPN	FMI	Default
901	199	Slip error on first clutch engagement or during grinding
902	199	Rotor locked at start-up
903	199	Cutting tool overspeed detected
910	199	The PLC no longer sees the screen
911	199	The screen no longer sees the controler; it has stored a variable to save it in the controler when it returns.
920	199	Bonnet open while engine is running
921	199	Chimney open while engine is running
922	199	Emergency button (which cuts the engine) pressed while the engine is running
930	199	Vibration sensor exceeded orange threshold
931	199	Vibration sensor exceeded red threshold

Hydraulic diagram







1	R2T.19 (3/4)	1550	HYDP/0112
1	R2T.13 (1/2)	1650	HYDP/0072
1	R2T.13 (1/2)	850	HYDP/0073
1	R2T.13 (1/2)	2300	HYDP/0074
1	R2T.13 (1/2)	1350	HYDP/0075
1	R2T.10 (3/8)	2400	HYDP/0111

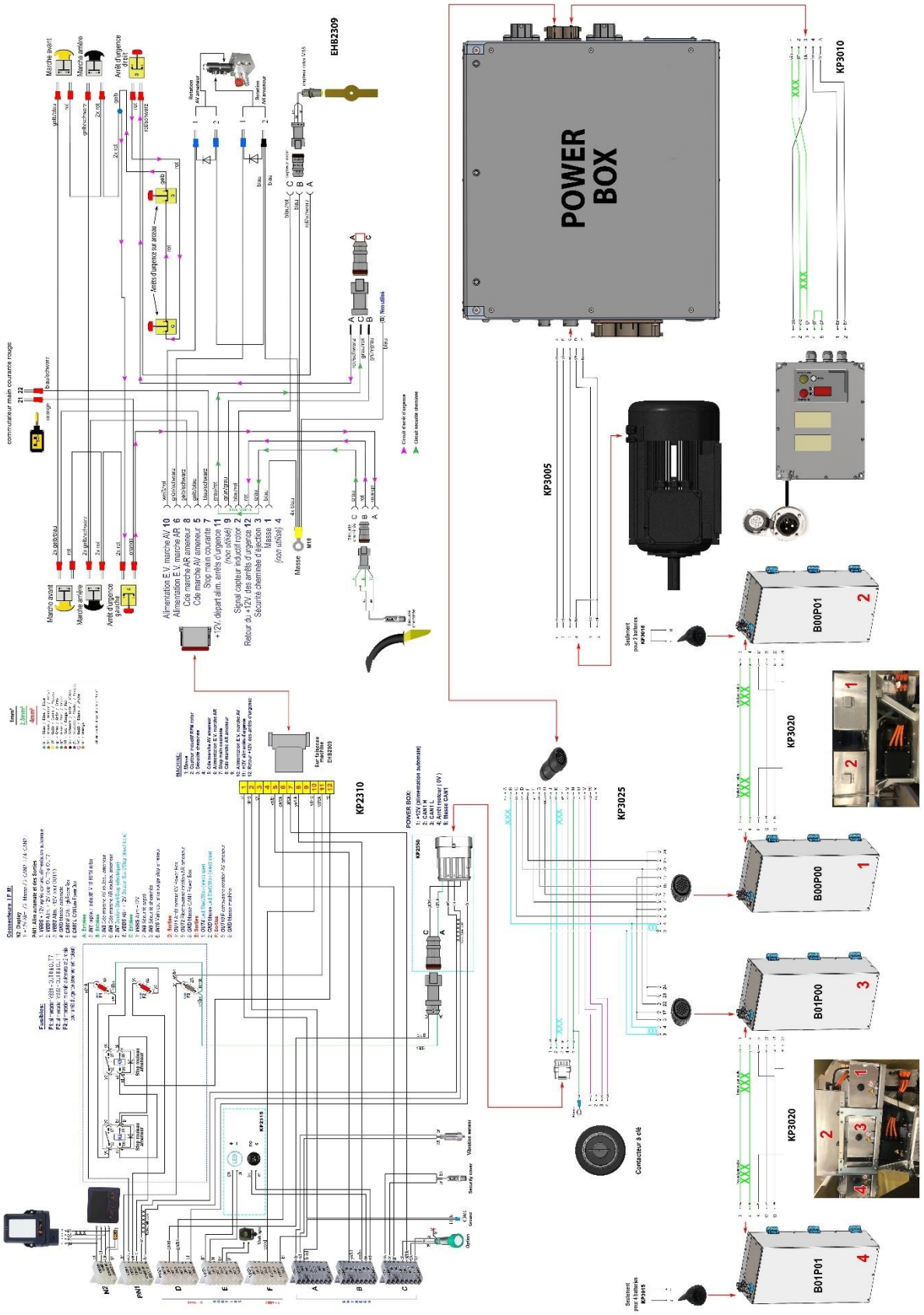


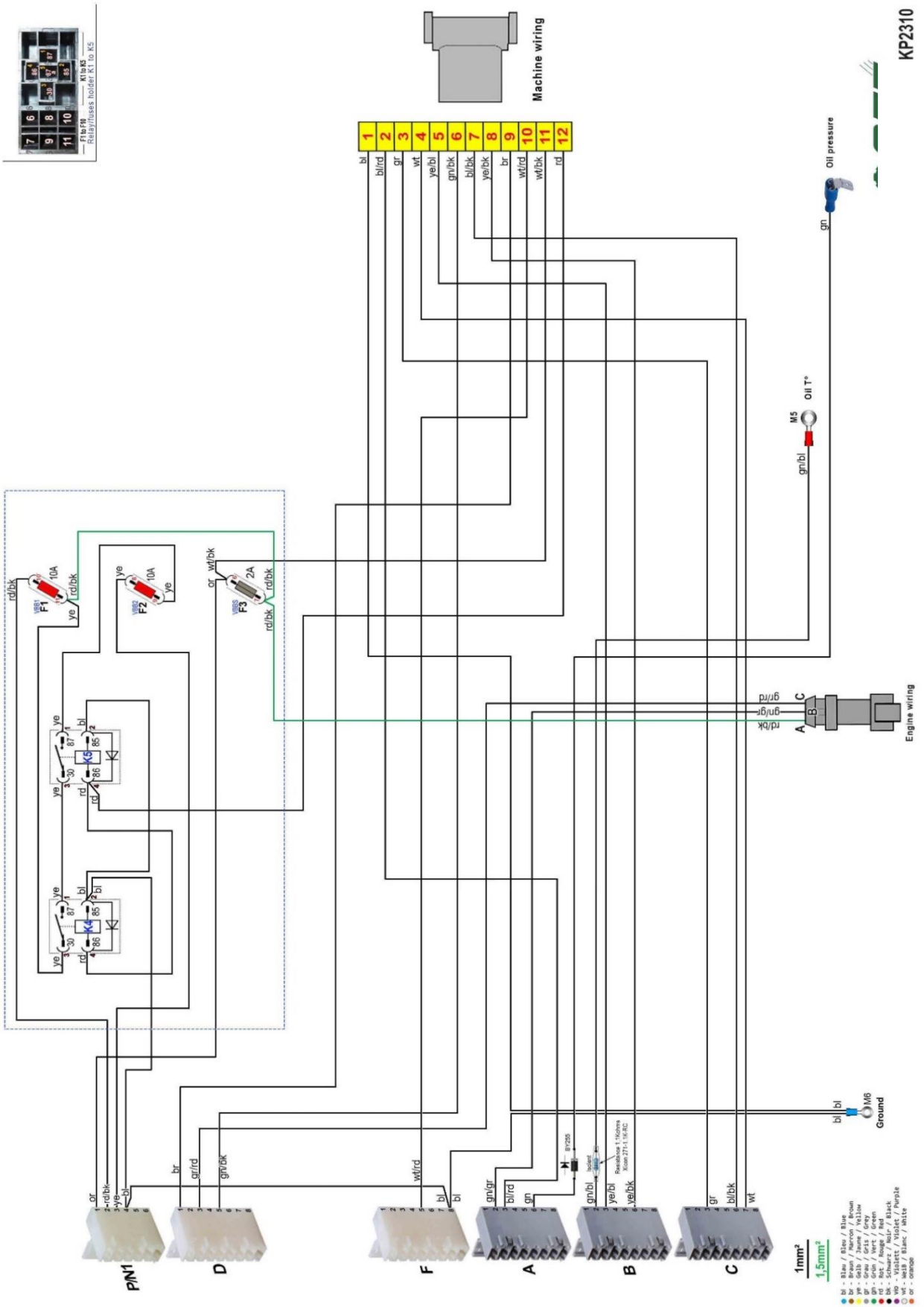


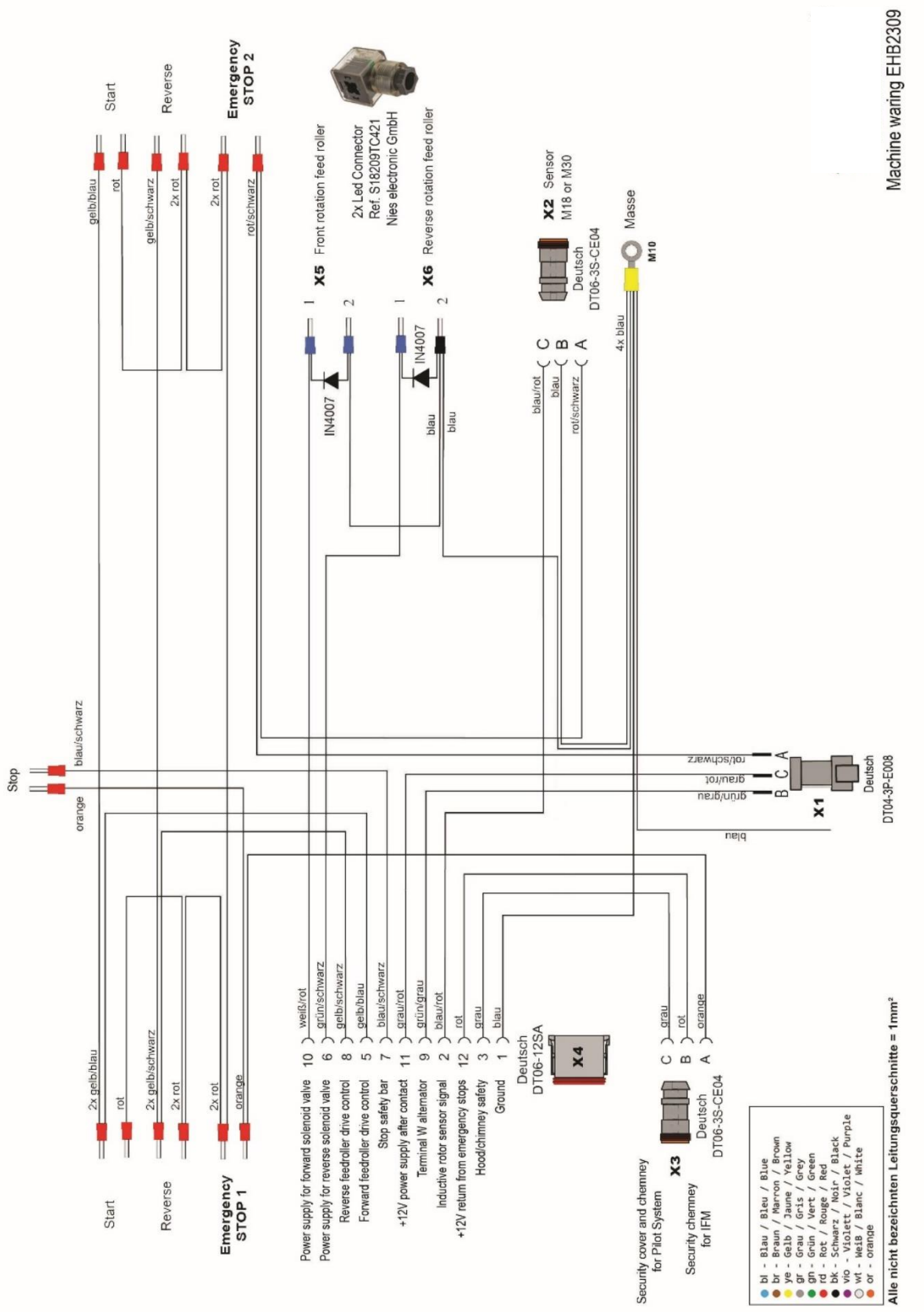
1	HYDE/0001
1	HYDE/0002
1	HYDC/0002
3	HYDF/0003
4	HYDF/0004
1	HYDF/0006
4	HYDR/0003
4	HYDR/0002
1	HYDR/0004
1	HYDE/0015 HYDF/0002
1	HYDF/0005

Please consult the dedicated parts list website for full details and references..

Electrical diagrams




KP2310
Machine wiring
Oil pressure
Oil T°
Engine wiring
Ground
F1 10A
F2 10A
F3 2A
K5
K4
PN1
D
F
A
B
C



Please consult the website dedicated to exploded diagrams for full details and references..