ELECTRIC/SERIES



GS eJAGUAR

TECHNICAL MANUAL

ts-industrie.eu

TS INDUSTRIE®

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DECLARATION OF CONFORMITY

THE COMPANY S.E.E 3 rue Jules Verne L'Orée du Golf 59790 RONCHIN France
(Translation of the original declaration)

*The company **SEE** holds 100% of the capital of **SEE PRODUKTION GmbH** (the Group's production site).*
Production site address: Industriering Ost 42, 47906 Kempen, Germany.
Machines bearing the « SEE Produktion GmbH » identification plate are designed, assembled and inspected at this production site, under the sole responsibility of the company SEE.

HEREBY DECLARES THAT THE MACHINE:

Designation:	**Multi-purpose green waste shredder (SHREDDER)**
Type / Model:	**GS/E-JAGUAR**
Serial number:	**XXXXXX**
Motor power:	**25 kW**

COMPLIES WITH THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC,
as well as with the other applicable European regulations in force:

Directive 2006/42/EC	on machinery / OJEU ref.: OJ L 157, 9.6.2006, p. 24–86.
Directive 2014/30/EU	relating to electromagnetic compatibility (EMC) / OJEU ref.: OJ L 96, 29.3.2014, p. 79–106.
Directive 2014/35/EU	relating to electrical equipment designed for use within certain voltage limits (LVD) / OJEU ref.: OJ L 96, 29.3.2014, p. 357–374.
Regulation (EU) 2023/1542	concerning batteries and waste batteries / OJEU ref.: OJ L 191, 28.7.2023, p. 1–117.
Directive 2000/14/EC	relating to the noise emission in the environment by equipment for use outdoors / OJEU ref.: OJ L 162, 3.7.2000, p. 1–78.

Conformity assessment procedure for Directive 2000/14/EC, Annex V

Installed power at 2000 rpm	*Measured sound power level*	*Guaranteed sound power level (Lwa)*
25 kW	121 dBA	123 dBA

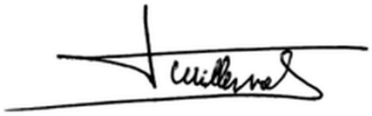
Harmonised standards applied:

EN 13525 : 2020	Forestry machinery - Wood chippers - Safety.
EN ISO 12100 : 2010	Safety of machinery - General principles for design Risk assessment and risk reduction.
EN 60204-1 : 2018	Safety of machinery - Electrical equipment of machines Part 1: General requirements.
EN 55012 : 2008 + A1	Electromagnetic compatibility Emissions from vehicles, boats and internal combustion engines.

Technical documentation held by Mathieu Willerval.

Done at RONCHIN, on 4 March 2022

Mathieu Willerval (President of the company SEE)



Preface

Thank you for choosing a TS Industrie multi-purpose green waste shredder.

Your TS Industrie shredder has been manufactured with the greatest care and to the strictest quality standards. To meet these standards, including most professional requirements, please read this operating manual carefully and pay particular attention to the warnings and maintenance instructions.

Only by carrying out all the maintenance work listed, at the prescribed maintenance intervals, can we guarantee the full manufacturer's warranty on your TS Industrie shredder.

This operating manual covers several types. An explanation is given in the introduction so that you can quickly find your way around using the small pictograms.

Warranty

Warranty claims

(see the full warranty conditions supplied with the CE approval documents handed over on delivery of the machine)

In accordance with the manufacturer's General Terms and Conditions of Sale, warranty rights apply to new TS Industrie shredders for a period of two (2) years (or 650 hours of total machine use), from the date the machine is put into service, within a limit of 12 months from the date of the invoice issued by TS Industrie to the authorised dealer. The invoice issued by the dealer to the end customer shall be authoritative.

Registering the new shredder on www.ts-industrie.eu (dealer access) entitles the owner to a third year of warranty (or 1000 hours of total machine use). This mandatory registration of the machine must be carried out by the 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 modification to the machines and/or their parts will void the warranty. The same applies to improper handling or the use of lubricants, spare parts or accessories that are not authorised or not specified by the manufacturer. Damage and deterioration attributed to transport, when caused by normal wear after the machine has been put into service, are in principle not covered by the warranty.

The delivered machine must undergo the mandatory visual checks or the prescribed inspections in accordance with the existing maintenance plan, at the intervals indicated. Warranty rights lapse if the mandatory visual checks and the inspection plan are not complied with. A further condition of the warranty is the presentation of full proof of the mandatory visual checks and inspections carried out.

All warranty and maintenance work must be carried out by an approved TS Industrie dealer.

Please note that warranty work exceeding 500 euros requires the manufacturer's prior authorisation. In this case, the manufacturer reserves the right to carry out the repair itself.

The essential condition for any warranty claim is the return of the machine handover form, duly completed and signed.

The equipment and the electronic programming must not be modified in any way. Any unauthorised modification could affect operation or safety and may shorten the service life of the equipment.

Important: remember to register your machine to ensure your warranty is valid

Safety

General

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

Our machines undergo strict quality control before delivery.

Once they have left the factory, transport and handling conditions are beyond our control. It is therefore essential that the dealer carries out a full inspection of the machine on receipt.

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

- external damage due to transport, etc.
- that all screws and hydraulic hose fittings are securely tightened
- the hydraulic oil level
- a full functional check of all parts

This check is confirmed by a stamp and signature on the machine handover form. The warranty is not valid unless the machine handover form is returned duly completed and signed!

In addition, the tightness of parts and the friction points along the hydraulic hose routes must be checked after the first use!

Make an appointment with your customer directly for this purpose.

Regular inspections must be carried out in accordance with this operating manual!

For your safety, if the red side cables or the emergency stop buttons are broken, please refer to the exploded parts diagrams or contact the spare parts department to order the parts

Safety instructions

1. The machine must only be used in full compliance with the operating manual!
2. For engine-driven machines, the operating manual of the drive engine must also be observed.
3. The feed table extension (if fitted) must only be raised when the shredding rotor is at a standstill.
4. Maintenance, cleaning and adjustment work and removal of the guards must only be carried out with the motor stopped, the ignition off, the drive disengaged (PTO machines) and the tools at a standstill. Remove the ignition key so that the machine cannot be started accidentally.
5. Foreign bodies mixed with the material to be shredded, e.g. pieces of iron or stones, must be removed before the machine is put into service.
6. Check that all guards are fitted after any maintenance or repair.
7. The rotor must only be accessed when it has come to a complete stop. This means that the drive motor is stopped and the ignition is in position 0.
8. The machine operator is responsible for ensuring that no third party is in the working and danger area.
9. Make sure that only inspected original spare parts are used for repairs.
10. Only trained persons aged 18 or over may operate the shredder.
11. Safety footwear and close-fitting clothing, work gloves with tight cuffs, a safety helmet and safety glasses must be worn.
12. The shredder must be placed in the correct position for transport:

    - Raise the hopper flap (if fitted) and check that the lock is engaged.
    - Tilt the shredder into the transport position and check that the safety bolts are engaged.
    - Move the discharge chute 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 must be taken to immobilise it.
15. - Single-axle motorised shredders are towed by towing vehicles; a parking brake can be applied if they are fitted with one.
    If they have no brakes, the wheel chocks supplied with the machines must be used.
    - When not hitched to a towing vehicle, the supports (jockey wheel at the front and prop stand at the rear) must be lowered.

16. For safety reasons, a minimum distance of 10 metres from the machine to the discharge point must be maintained. **The discharge must always be handled by the operating personnel.**
17. Hands may only be inserted into the feed opening when the motor is switched off and the shredding rotor has come to a standstill.
18. The permitted operating pressure set at the factory must not be modified.
19. Only trunks up to a specified diameter of **18 cm** may be processed with the shredder.

    Permitted materials: All types of wood

    Prohibited materials: Stones, metal parts, building materials, plastics and glass
20. The hydraulic system must be inspected by a professional every year. The hydraulic hoses must be replaced every 5 years.
21. When loading the shredder, do not hold the feed hopper. To feed in short pieces or brushwood, use only sturdy wooden sticks or other wooden tools. Our shredders may only be loaded by hand. Never use mechanical loading (grab). Do not move around in the discharge area.
22. Carry out a daily functional check before start-up, in particular of the safety devices (**tightness of the drawbar linkage**, cover locks, safety switches on the motor covers and chute access). The operating condition and secure fastening of the knives and hammers must also be checked.
23. The operator must be given detailed instructions before start-up.
24. The shredding rotor must only be accessed when it has come to a complete stop and the drive motor is switched off.
25. Danger from flying debris. Bear in mind that parts such as wood chips may be ejected from the hopper into the working area. Personal protective equipment must always be worn. The machine must be operated from the side of the hopper.
26. Take care on sloping ground. The machine operator must ensure that the machine is safely immobilised and remains stable during work.
27. After hitching the machine to the towing vehicle, raise the jockey wheel as far as possible, or preferably remove it.
28. The machine must only be loaded with wood. Make sure that no stones, metal parts, building materials, plastics or glass enter the machine.
29. The machine must never be used to transport materials or people.
30. The machine must not be used to push or pull anything.
31. Work must be carried out by a qualified technician. All assembly, disassembly and/or special maintenance work must be carried out by an authorised dealer.

32. In the feed hopper, take care not to get loose clothing caught on the rough edges formed by the drive teeth of the feed conveyor.
33. Clean the anti-projection flap regularly so that it remains transparent.
34. Only trained professionals may access the machine. Use of and access to the machine are strictly forbidden to minors under 18 years of age.
35. The machine must be used at an altitude below 1000 metres.
36. Relative humidity (RH) must not exceed 90%, in order to ensure normal operation of the machine and, in particular, its charging (connected to the domestic mains).
37. The machine must be operated away from any saline atmosphere (beach, etc.); airborne salt could prematurely damage the battery pack.
38. The shredder must never be cleaned with a high-pressure washer, nor with 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, with a minimum height of 600mm between the ground and the feed hopper.

Pictograms

Safety glasses and a helmet must be worn!



Wear protective gloves with tight cuffs!



Wear safety footwear!



Only touch machine parts when

they have come to a complete stop!



Keep a sufficient distance from rotating

machine parts!



Never open or remove safety devices during operation!



Read the operating manual before start-up!



Do not stand in the discharge area while the machine

is running!

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

the point where the chips land



Switch off the motor before maintenance

and repair work and remove the key!



Caution: feed roller can draw you in.

Never lean into or climb into the hopper or onto the conveyor

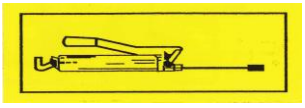
while the motor is running.



Hydraulic oil to be used: HV46



Lubrication points



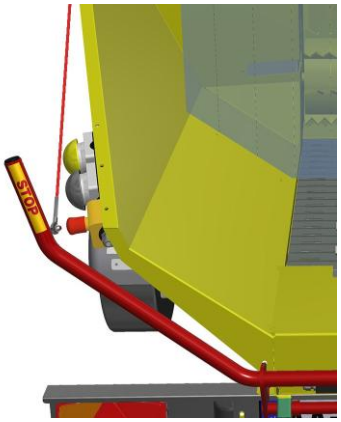
The noise level of the machine in operation does not exceed the level

shown on the machine sticker



STOP feed roller and metal conveyor





Feed roller rotation controls

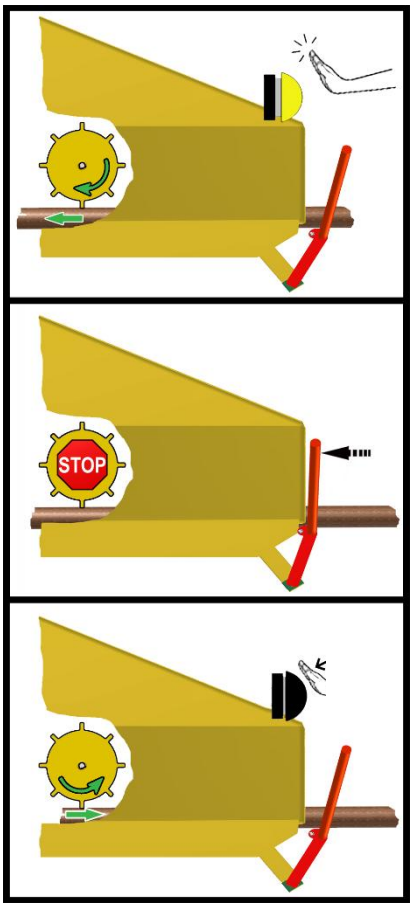
Shredding material (forward at maximum speed):

press once to start the movement

Stopping the feed rollers: push the bar

Clearing material: hold down the black button

to activate reverse



It is strictly forbidden to lean into or climb into the hopper or onto the conveyor



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

Its function is to pause / resume work

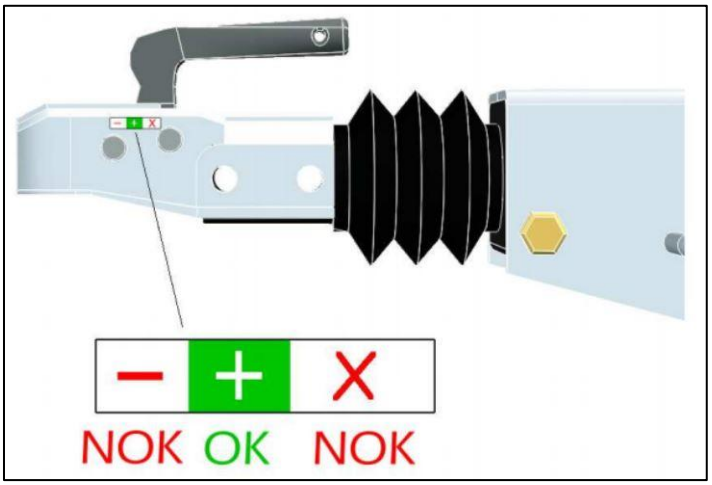
It is not used to shut down the shredder



This button must be pressed to make the motor speed up and start the shredding process. When the user wishes, pressing it again stops the conveyor and the motor.

Transport safety

Coupling wear indicator:



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

Always replace the vehicle's coupling head and/or tow ball if the indicator is in the MINUS zone; otherwise you risk losing the shredder over a speed bump or when reversing against a kerb.

YOU ARE LIABLE IN THE EVENT OF AN ACCIDENT

- Make sure you comply with the Highway Code in force.
- Make sure your equipment always has clean, working signal lights for other drivers.
- Reduce your speed on rough tracks and surfaces.
- Completely empty and clean the hopper of all branch residue
- Turn the chute as far forward as possible and lower the chute deflector as far as possible

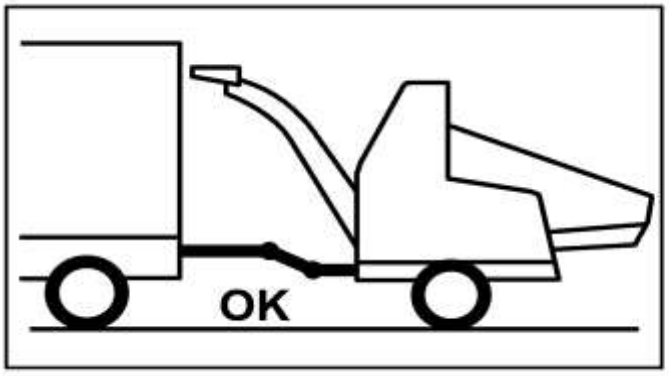
Hitching to the vehicle:

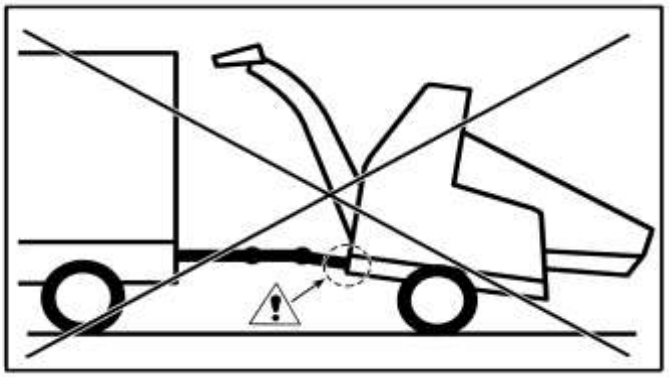
Always hitch the shredder horizontally to avoid weight transfer to the rear AND, where applicable, check daily:

- The tightness of the parallelogram drawbar pins

- The tightness of the notched joint nuts on the adjustable drawbar

, in order to eliminate any jolts that could shorten the life of the drawbar/trailer assembly.





General description

General description of the machine

e-JAGUAR multi-purpose green waste shredders are designed for shredding plant material and branches up to 180 mm in diameter.

The machine comprises the following main components:

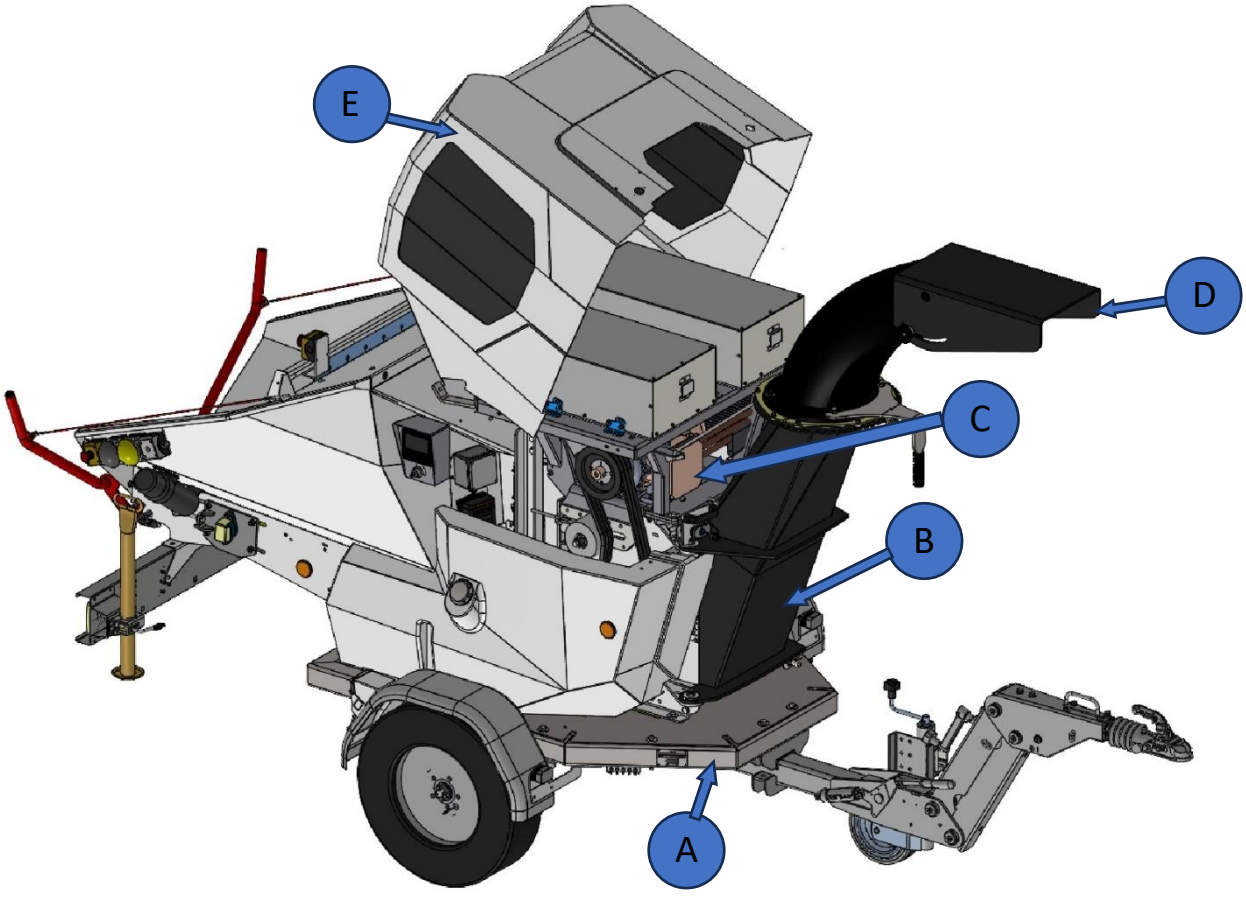
(A) : the chassis

(B) : the shredding chamber

(C) : the motor and its various transmissions

(D) : the discharge chute

(E) : the covers



Identification

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



The TS Industrie manufacturer's serial number always consists of a six-digit number

Designation: SHREDDER

Model: GS/ E JAGUAR

S/N: 6-digit serial number

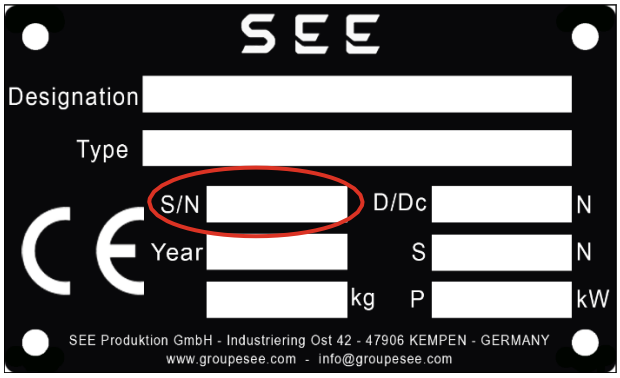
Year: Year of manufacture

Weight: in kg

D/Dc: maximum permissible towing force on the coupling, in N

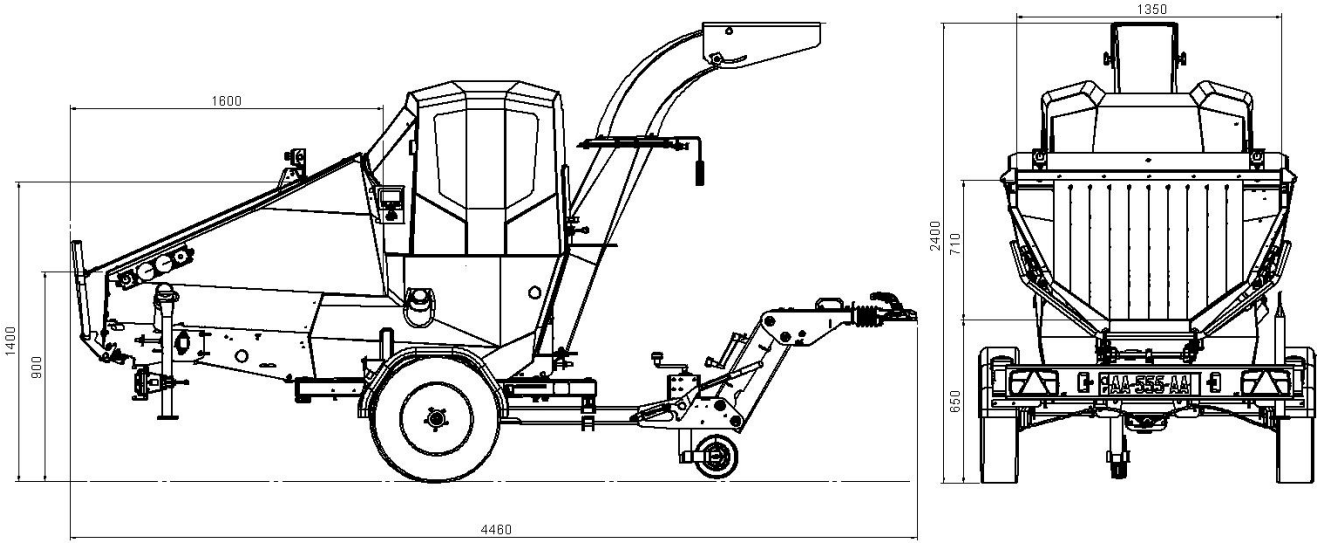
S: maximum permissible vertical load on the coupling, in N

Power: in kW



Technical data

	E JAGUAR
Capacity:	180 mm
Hourly output:	32 m3/h
Length:	4.51 m
Width:	2.20 m
Height:	2.36 m
Weight:	1467 kg
Number of hammers:	12
Number of knives:	6
Rotor diameter:	560 mm
Rotor weight:	150 kg
Rotor width:	400 mm
Motor power:	25 kW electric
Motor speed:	3000 rpm
Rotor speed:	2000 rpm
Anti-jamming:	YES
Hydraulic power supply:	YES
Hydraulic capacity:	15 L
Hydraulic pressure:	120 bar
Road axle:	YES
Number of wheels:	2
Tyre size:	185R14C
Tyre pressure:	3.5 bar
Presence sensor system:	Optional



The guaranteed sound power level of the shredder (Directive 2000/14/EC) is estimated at:

Sound power level LWA [dB]	Sound pressure level [dB(A)]
123	121



We authorise operation of the machine with battery temperatures between -20 °C and 46 °C (outside these temperatures, the batteries do not allow operation)

The permitted ambient temperature range for operation is 10 °C to 40 °C.

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

The batteries are IP44 rated and withstand splashing water from all directions

Components and functions

Components

A. The chassis.

The shredder chassis supports the various components of the e-JAGUAR. It allows the machine to be moved independently.

B. The shredding chamber.



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

Conveyor and feed roller:

They carry the material at constant speed towards the shredding rotor. An anti-jamming system stops them when the rotor speed drops too low (jamming in the shredding area); they start rotating again automatically once the rotor has regained sufficient speed to shred properly.

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



Their rotation speed can be adjusted with the knob (4) located in the rear left cover, depending on the diameter of the material to be shredded

Shredding rotor:



The key component of the machine, it shreds the material brought in by the feed roller. It starts rotating when the motor speeds up and rotates continuously.

Its speed is fixed.

C. The motor and its transmission.



The electric motor is located on top of the shredding chamber; it provides the power needed to drive the rotor and the oil pump (1) of the hydraulic circuit.

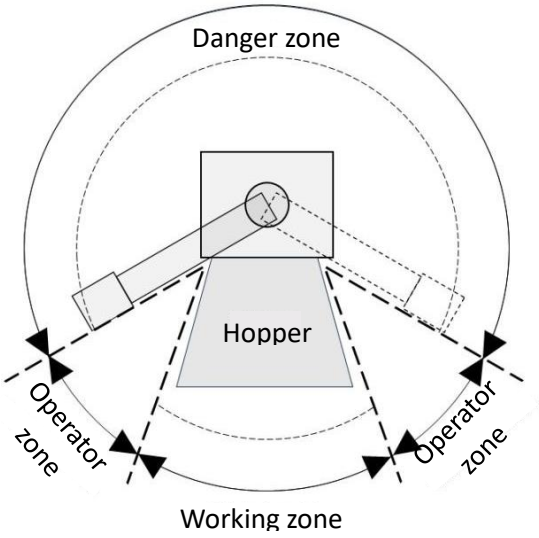
The motor is an asynchronous electric motor. For further information on this motor, please refer to the manufacturer's manual.

The output shaft is fitted with a pulley (2) driving 4 belts that turn the shredding rotor.

Model	Power	Speed
GS/e JAGUAR	25 kW	3000 rpm

D. The discharge chute.

This discharges the chips; its upper part can be swivelled horizontally through 180°. Its deflector can be tilted vertically.



Note:

Wood chip residues may be ejected when the shredder is started.

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

E. The covers.

A set of motor and machine covers 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 motor cover or the chute 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 actuated, these emergency stops instantly stop the machine: both the rotation of the feed roller and conveyor, and the shredding components.



For your safety, if the red side cables or the emergency stop buttons are broken, please refer to the exploded parts diagrams or contact the spare parts department to order the parts.

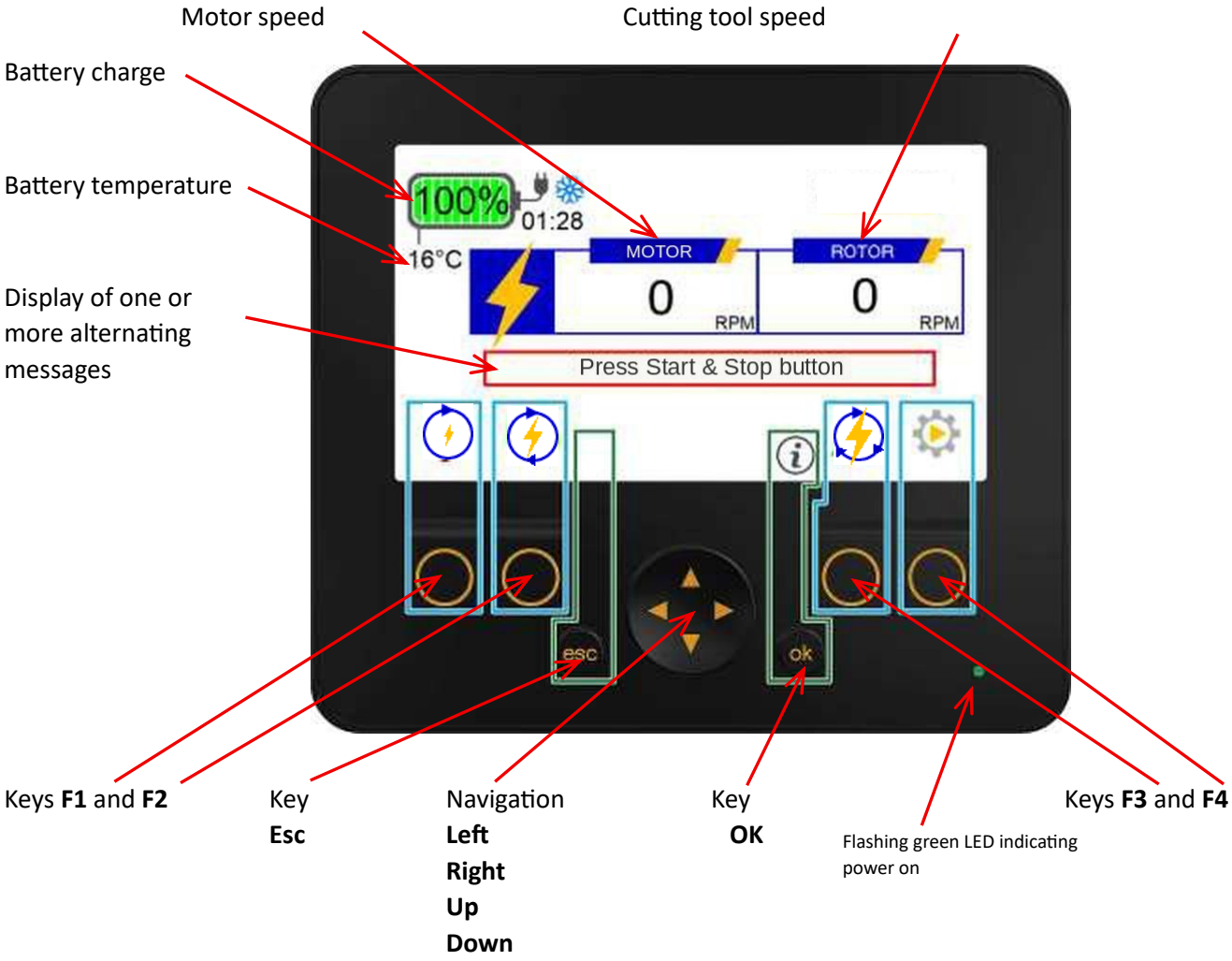
S-COCKPIT instructions



Available functions

1. Permanent display of motor speed
2. Permanent display of cutting tool speed
3. Display of daily hours
4. Flashing green LED indicating power on
5. Feed roller reverse pulse to free the cutting tool when NoStress is triggered
6. Different NoStress operating ranges depending on the type of wood to be shredded
7. Service management: motor and battery maintenance intervals
8. Belt slip protection (ideal for rental)
9. Motor stop and anti-start safety if the motor cover or chute is open
10. Operating fault memory
11. 5 languages available: French, German, English, Spanish, Dutch
12. Control check page (technical diagnostics or fault detection)

Main screen description



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

Any modification to the safety devices or programming made outside our factory is the sole responsibility of the person who made these changes.

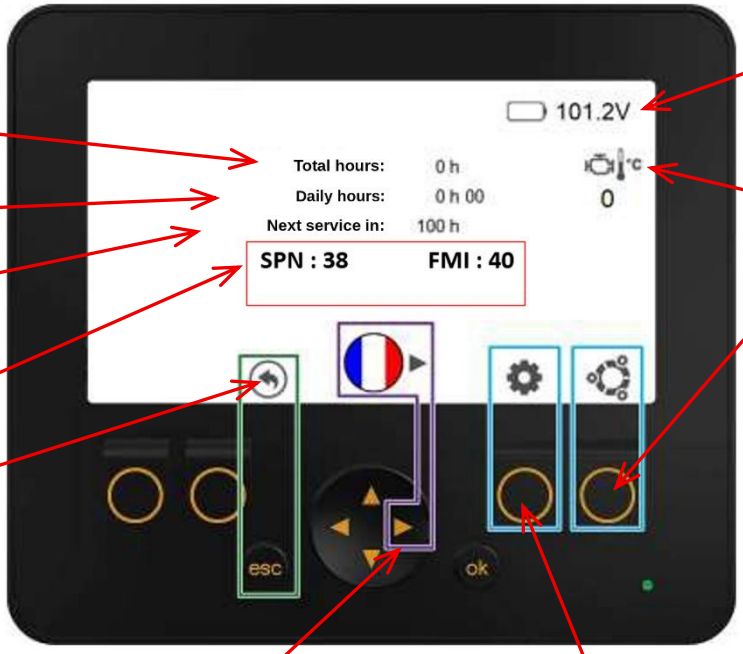
The values given on the following pages are for guidance only

Description of indicator lights and symbols

	Shredding mode 1
	Shredding mode 2
	Shredding mode 3
	Short press: custom shredding mode Long press: access to worksite settings page
	Selected function
	Back to previous screen
	Go to next screen
	Fault history
	Status of machine and motor controls
	Daily counter reset
	Service validation
	Confirmation of completed action

	Battery in winter storage mode
	Battery charging
	Battery voltage
	Motor temperature
	Service due Motor, drive or battery fault(s) requiring a machine check
	Motor, drive or battery fault(s) requiring the machine to be stopped
	Motor or drive operating fault

Secondary screen description



Total hours

Daily hours

Next service due

Fault code and message

Esc key.
Return to the previous screen page

Battery voltage

Motor T°

Displays the **"Status"** page for controls and motor data

See below

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

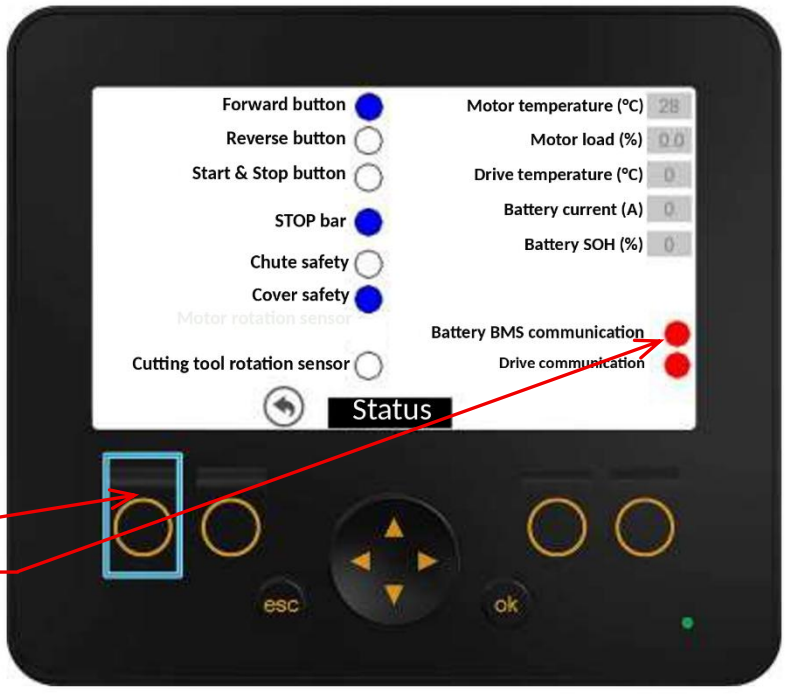
Gives access to the history of the most recent faults

(See motor error codes)

Description of the "Status" page

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

In the example opposite:
-The yellow forward button is held down
-The red STOP bar is held down
-The motor cover is open

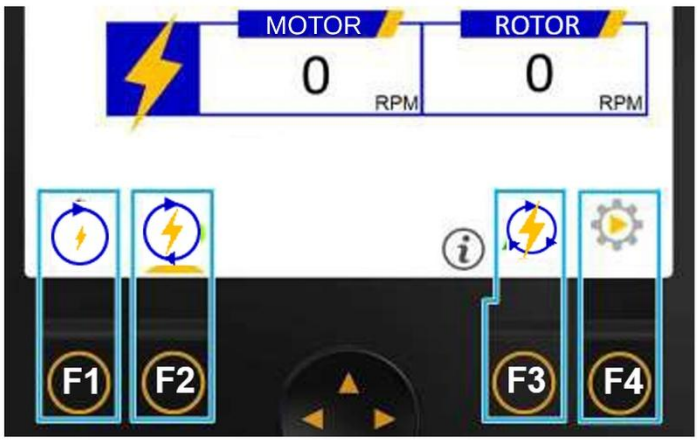


<u>Cutting tool sensor signal check:</u>
Ignition on, cutting tool stopped: the circle is white *(whatever the position of the indexing finger in front of the sensor)*. With the cutting tool rotating, the circle turns blue.

If the rotor is stopped, place the finger opposite the sensor and press the **F1** key: the circle turns blue during this time = sensor OK.

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

Choice of NoStress modes



The S.COCKPIT has 4 motor operating modes with associated NoStress ranges.

Each key has its own specific pictogram which is displayed under the logo of the selected key. Above, mode 2 has been selected.

F1 key: the motor settles at a very moderate speed; the NoStress management of the feed roller also adapts to this motor speed.

Suitable for shredding medium-section pruning branches.

This mode greatly favours energy saving while considerably reducing noise nuisance for the surroundings.

F2 key: this is the most suitable mode for shredding. It sets a medium motor speed using its own NoStress range.

Suitable for shredding leafy branches and, occasionally, conifers and plant material.

This mode also favours, to a lesser extent, energy saving and low noise, while optimising the machine's output as far as possible.

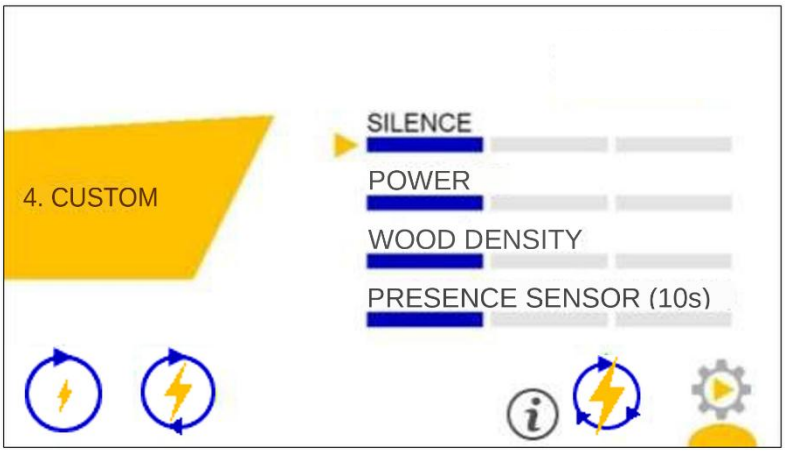
F3 key: this mode is the machine's "boost". It uses the maximum permitted motor speed, using the maximum power of the motor and of the discharge ventilation for the shredded material, in extreme operating conditions.

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

F4 key: With a short press, this mode uses the machine's custom settings (silence, power and wood density).

With a long press, the F4 key displays the worksite settings page

Worksite settings page



On the main screen, a long press on the F4 key displays the worksite settings page.

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

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

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

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

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

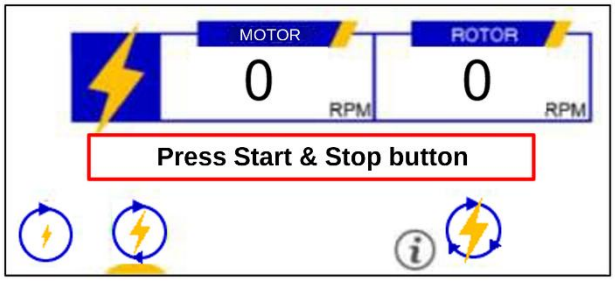
Normal operation and overspeed

The main speed value used to monitor shredder operation is that of the cutting rotor.

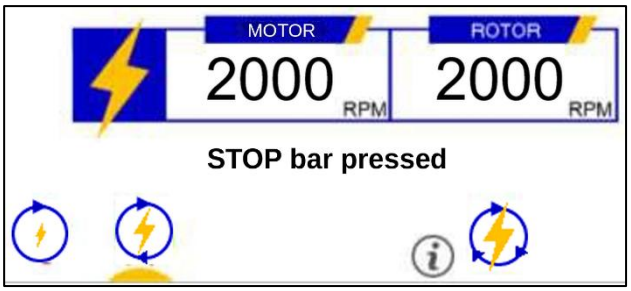
After choosing a mode, pressing the Start & Stop button starts the motor.

A **"Press forward button"** message indicates that the minimum speed for feed operation has been reached.

You can press the yellow feed forward button.

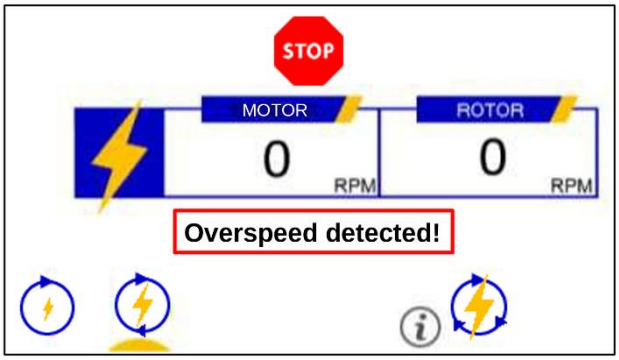


With the feed running forward, if you operate the red safety bar at the rear of the hopper, the feed stops and the message **"STOP bar pressed"** is displayed.



If the cutting rotor overspeeds, a **red STOP** icon is displayed with the message **"Overspeed detected"**; feed roller rotation is stopped to prevent use of the machine, and the motor stops.

Find the cause of the problem before restarting the machine.



Access to CUSTOMER (owner) settings. Code 3003



From the main screen, press the ok key (i) to display the secondary screen, below.



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



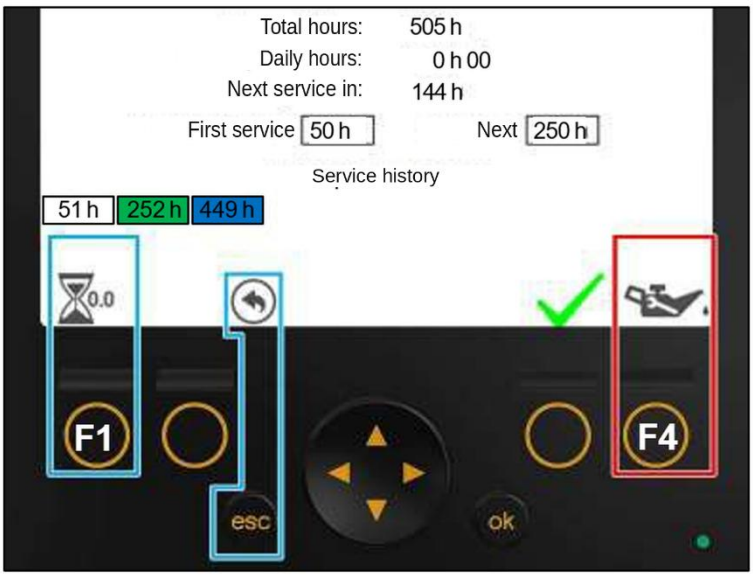


The screen displays the password **0000**. The first digit, on a yellow background, can be changed using the multi-directional keypad.

1) Press the arrow key 3 times ▲ to enter the digit **3**
2) Press the arrow key 3 times ▶ to confirm the **two zeros** and reach the 4th digit
3) Press the arrow key 3 times again ▲ to enter the digit **3**
4) Confirm the code **3003** by pressing **ok**

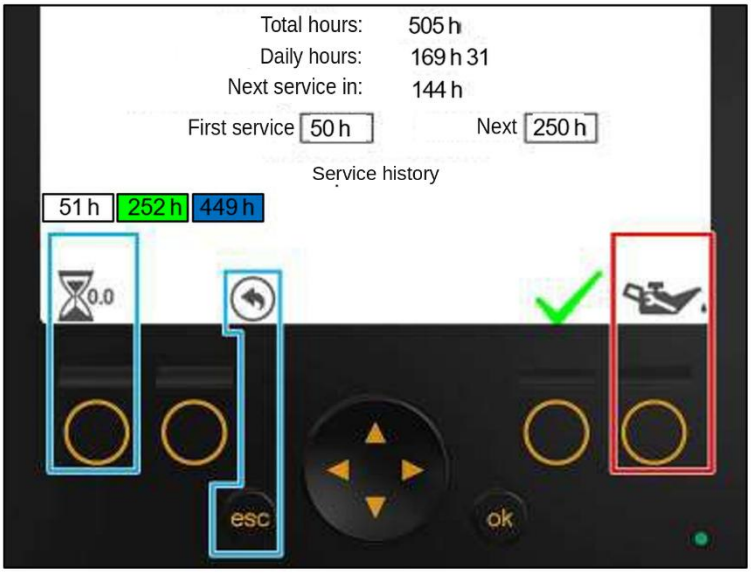
Resetting the daily counter

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 carried out, press the **F4** key to validate it. The hour at which it was carried out is added to the table.
Press the **esc** key to exit and return to the work page.



Blue background: 449h service by the owner

Green background: 252h service by the dealer

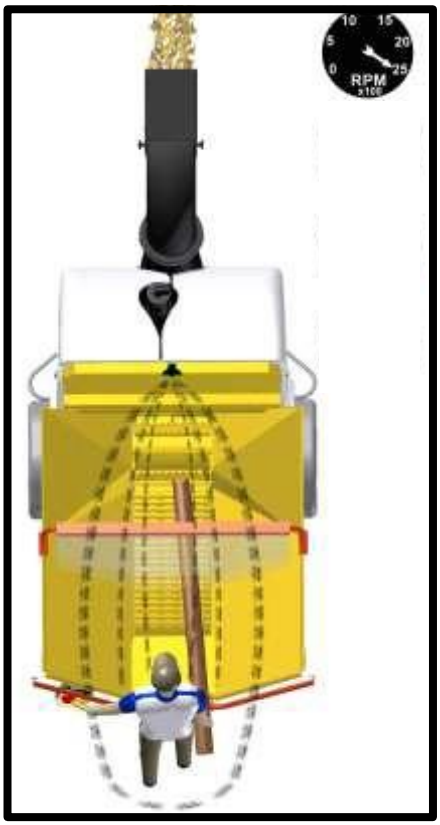
White background: 51h service by the factory

NOTE: **15h** before the due date, the message **"Service due soon"** appears.
When overdue, the background turns orange and the triangle flashes
The message **"Service due soon"** appears.
The secondary screen displays **"Service overdue by: 5 h"**

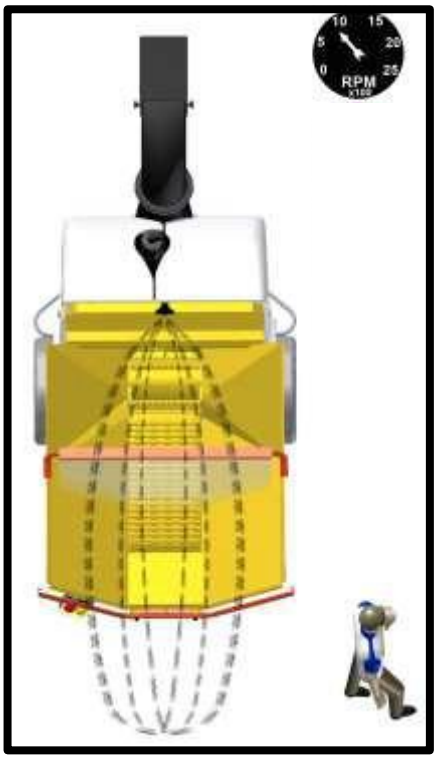
Presence sensor (option)

Description and operating principle of the presence sensor





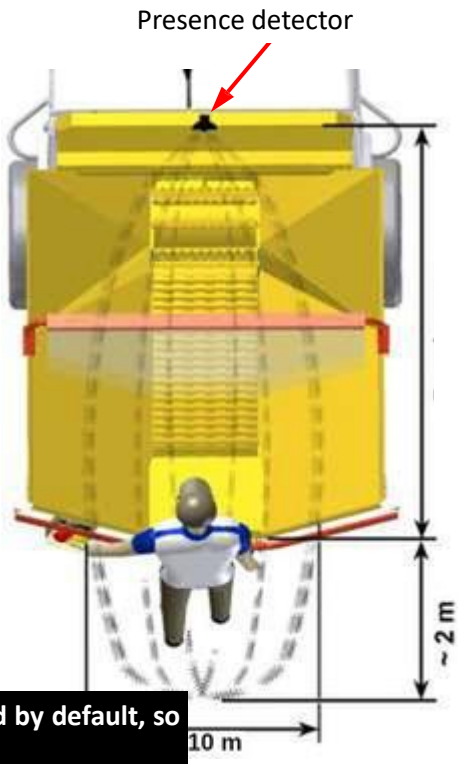
The shredder is a machine that runs continuously at high motor speed, with shredding periods alternating with longer or shorter periods of idle running depending on the worksite configuration. As a result, noise nuisance and energy consumption are also always at their maximum.



To avoid these drawbacks and in the interest of protecting the environment, whenever the user leaves the shredder's work station, the presence sensor automatically stops the motor after a set time, thus putting an end to noise nuisance and energy consumption. A simple press on the illuminated Start & Stop button at the rear of the machine restarts the motor so that it returns to its working speed.

In addition to the environmental benefits mentioned above, the presence sensor also extends the service life of all the moving parts of the machine: motor, transmission, feed roller, feed conveyor, hydraulic motors and circuit.

Operation



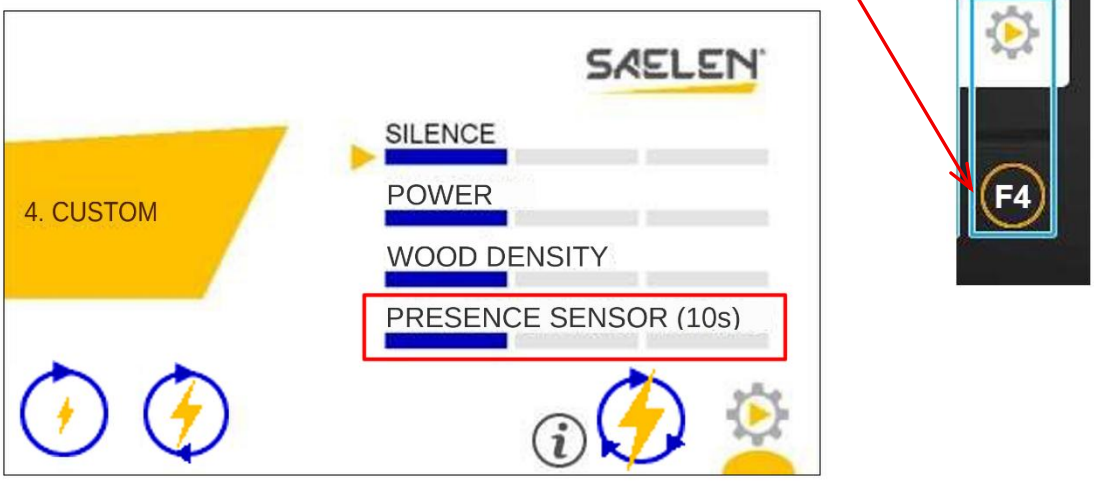
The presence sensor, located at the rear of the cover, detects the user up to 2m behind the loading hopper and over a width of approximately 1.10m. The area corresponding to the hopper is a dead zone not covered by the sensor.

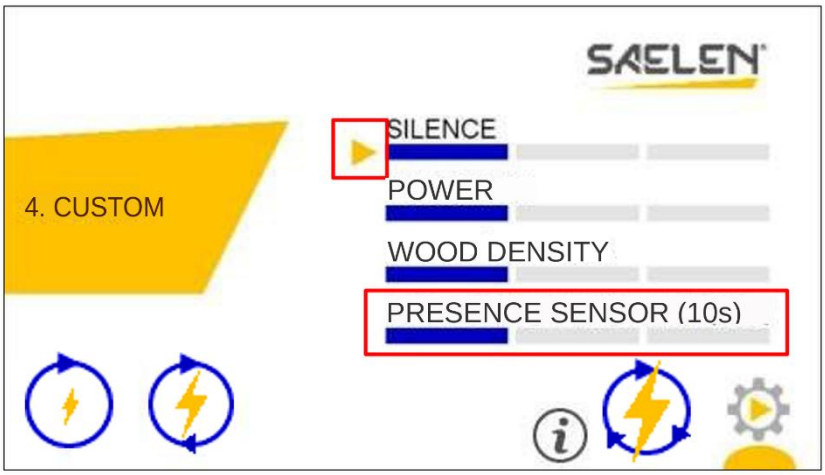
However, any object, even a stationary one (a wall or a vehicle, for example), located less than 2m behind the shredder will prevent the motor from stopping automatically.

NOTE: For safety reasons, do not change the position or tilt of the detector; the sighting height is set high enough to detect adults but not young children.

On the very first start-up, the presence sensor is not activated by default, so it will not stop the motor if no presence is detected.

1) With the ignition on, from the main screen, press the **F4** key to display the worksite settings screen, below.





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

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

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

5) Start the motor by choosing a mode and then pressing the Start & Stop button.

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

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

The time delay you have selected *(10 seconds in this example)* will remain active for subsequent restarts until you disable it.

End-of-shredding function:

If the user has left the detection zone and the time delay expires while there is still material to be shredded, the feed roller will keep turning and the motor will stay at its high speed to finish the job.

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

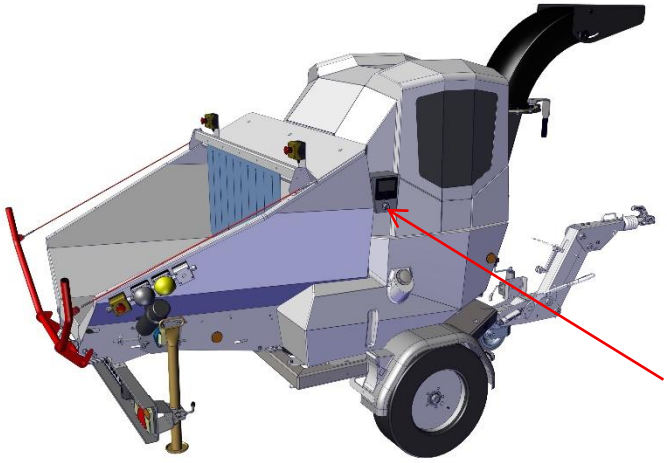
Reminder: to use the machine without the presence sensor, deselect the time delay on the worksite settings screen.

Interference with the presence detector:

- Never change the height of the anti-projection flap support.
- Do not change the tilt of the detector support.
- Do not leave branches above the flap support.
- In the event of **very heavy rain** or **strong wind**.

Operation - Starting up and shutting down

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





On the GS/eJAGUAR, it is located here

Turn the key to the right to start the machine; this will switch on the "S-COCKPIT" screen.

See the S-COCKPIT instructions, **page 20.**

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

Before each start-up, make sure the machine is correctly positioned and well balanced.

- Machine parallel to the ground
- Minimum distance of 600mm between the ground and the bottom of the feed hopper
- Prevent the machine from tipping over by fitting the prop stand, if the machine has one.

We authorise operation of the machine with battery temperatures between -20 °C and 46 °C (outside these temperatures, the batteries do not allow operation)

The permitted ambient temperature range for operation is 10 °C to 40 °C.

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

The batteries are IP44 rated and withstand splashing water from all directions

Feeding material and handling



Before start-up, make sure the machine is stable and apply the parking brake.

1) Check that the deflector at the top end of the chute is open

2) On the S.COCKPIT screen, select mode  or  or  that you wish to use

3) When the **S-COCKPIT** displays this screen 

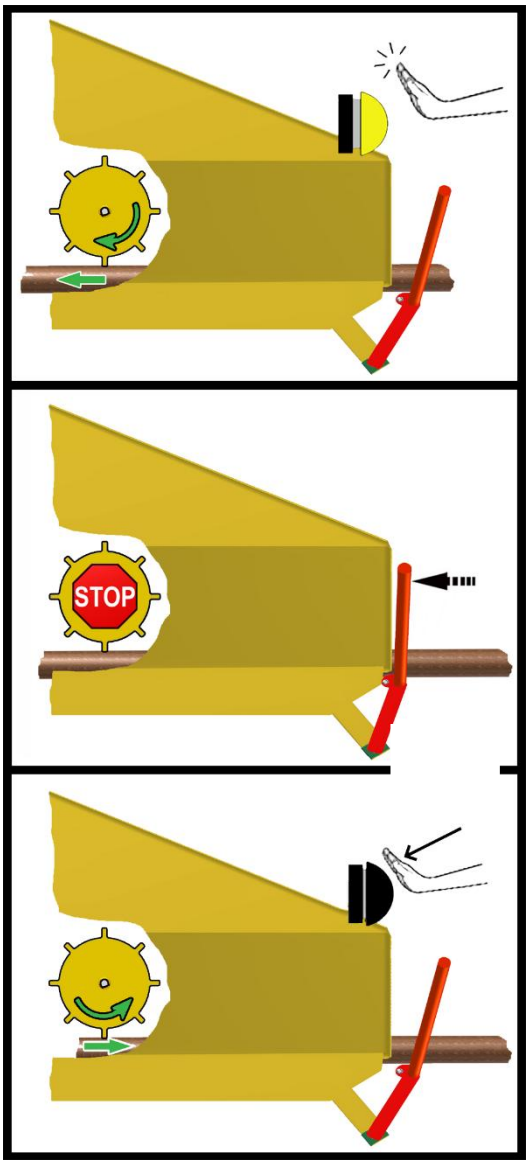
See the **Slip function** section in the S.COCKPIT instructions if the motor stops at once and the message " **Cutting tool jammed** " is displayed on the screen

Once the working motor speed is reached, the message "**Press forward button**" is displayed

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

5) Start shredding.

The shredder is fitted with an electrically controlled hydraulic valve operated by 'mushroom' push buttons at the rear of the hopper for forward and reverse, and a red "safety bar" control bar for stopping the feed roller / conveyor assembly.



FORWARD CONTROL:

1: To operate the roller in forward, the red safety bar must be pulled back to the rear position.

2: Press the yellow push button once to run the roller forward.

FEED STOP CONTROL:

1: Push the red safety bar to stop the feed roller.

REVERSE CONTROL:

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

2: Press and hold the black push button.

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

INSTRUCTIONS DURING SHREDDING

Make sure the operating personnel are standing on stable footing!

Place the brushwood in the bottom of the hopper and feed it in with the thickest end (branch) first into the feed cylinder (saw the end of the wood at an angle).

As soon as the rollers have drawn in the material, stand to the side, as material may be ejected due to irregularities in the branch.

The material fed in is shredded automatically and thrown in the direction (distance) to which the discharge chute was previously set.

After feeding in the material, also watch the discharge of the branches and readjust the discharge direction if necessary. The discharge distance is controlled by the chute deflector.

When shredding pruning waste, small sticks and dead wood, the formation of projectiles is prevented because the materials are, as a rule, fed in side by side lengthwise into the feed chute.

If the material is no longer drawn in (blockage due to too much material or to forked branches), press the black reverse control button (the feed turns backwards) and the material is pushed back. Cut the material into smaller pieces, saw off the fork and resume feeding.

Caution:
Do not touch the hopper when the machine is running. Never push the material to be shredded into the hopper with a stick or a metal pusher. It is also forbidden 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 motor speed drops, so that the motor can return to its nominal speed.



In the event of a blockage in the discharge channel area, the chute may only be opened after the cutting rotor and the drive motor have stopped, and the jammed wood can then be cleared.

When a period of inactivity is planned, it is recommended to press the **Start & Stop** button. This activates the battery pack regeneration process.

The machine then uses the kinetic energy of the rotating rotor to generate an electric current that recharges the battery pack. This process recovers some of the energy that would otherwise be lost.

Proper use of this function can increase the range of the battery pack by up to **30%** over a working day.

SLIP function

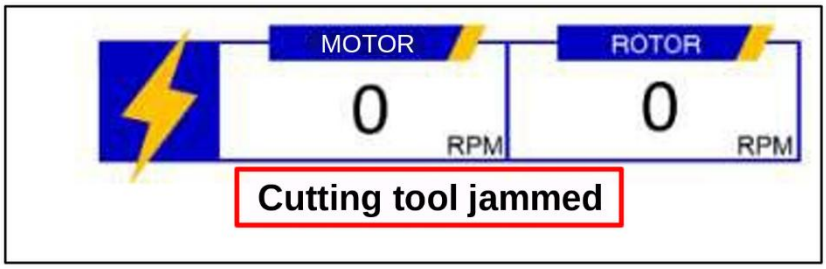
The S. COCKPIT monitors the slip of the cutting tool transmission system by continuously comparing the speed of the motor pulley with that of the cutting tool pulley. A certain percentage of slip is tolerated in order to protect the transmission (belts). If this value is exceeded, the motor is stopped and two different messages may be displayed.

1) **As soon as the cutting tool starts rotating:**

If the message **"Cutting tool jammed"** is displayed

Possible causes of slip:

- cutting tool jammed by shredding residue left in the shredding chamber
- broken belts

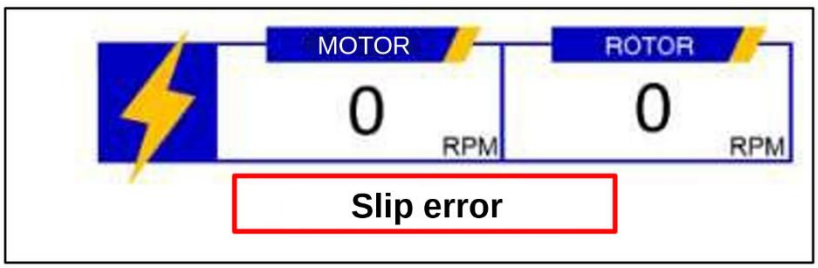


2) **During shredding:**

If the message **"Slip error"**

Possible causes of slip:

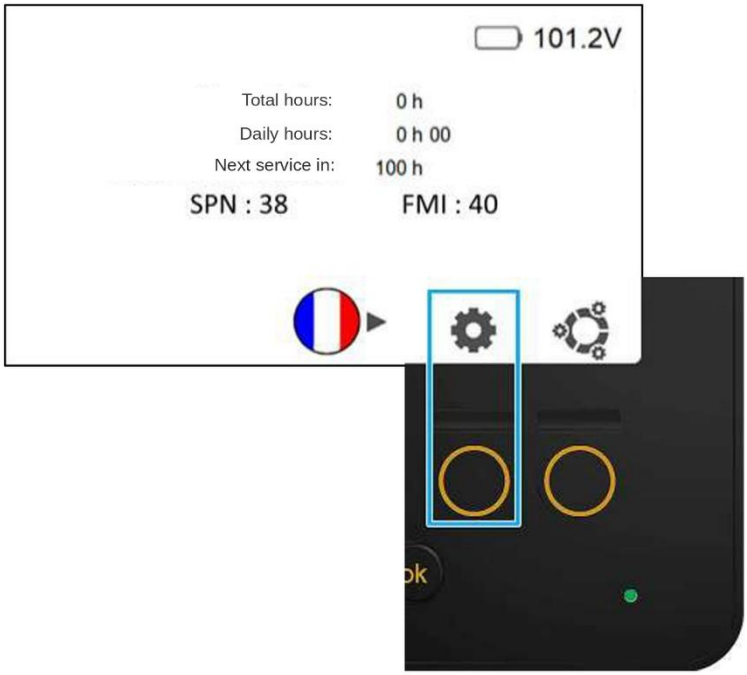
- cutting tool jammed
- slack or broken belts



SPN/FMI message in the event of a fault

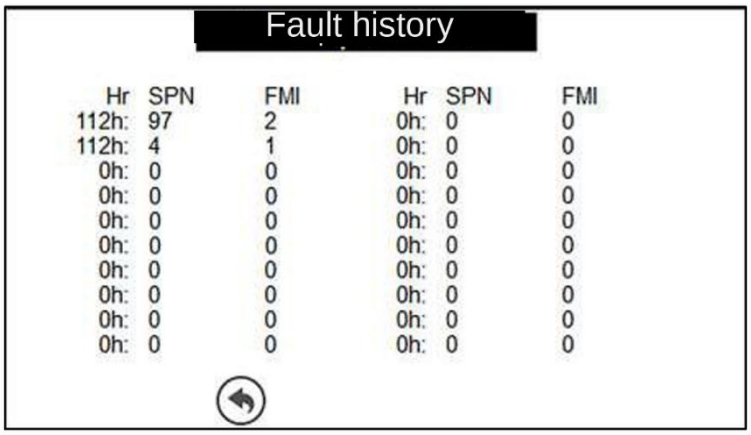
In the event of a fault (machine, motor, drive, batteries), the screen automatically switches to the secondary screen, showing an SPN/FMI code and, where applicable, an explanation of the fault.

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



Fault codes are recorded in a history log together with the motor hours at which they occurred.

They can be viewed by pressing the F3 key 



SHUTTING DOWN

1) Let the shredder run empty for a few minutes to clear any residue of material in front of the feed roller and in the shredding chamber, which could jam the rotor at the next start-up and cause a slip error message.

2) Push the control bar forward to stop the feed roller / conveyor assembly



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



4) Wait 10 seconds for the shredder to complete its regeneration phase (**see page 36**) until the rotating parts have stopped.

   Caution: Failure to follow this step may damage the machine.

5) Stop the machine by turning the ignition key to the "OFF" position

Maintenance and service









BIO LUBRICANTS TO REDUCE THE RISK OF POLLUTION

By their very function, TS Industrie shredders are already part of the sustainable development cycle: the shredded material can be used for composting, mulching or heating.

Forests, parks, worksites near a lake or watercourse…: TS Industrie shredders often work in natural environments where any leak or accidental loss of hydraulic lubricant poses a direct risk to the environment.

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

Compliant with French Agricultural Orientation Act No. 2006-11 drawn up and published in the Journal Officiel of 06/01/2006.

Advantages of Bio Lubricants:

- Prevention of the risk of environmental pollution
- High biodegradability
- Non-toxic (based on rapeseed and sunflower)
- Renewable
- Very high viscosity index
- Enhanced anti-wear, anti-corrosion and anti-oxidant properties
- Increased safety for the user
- Longer equipment life
- Low volatility

All machines are tested before leaving the production plant. On delivery, the hydraulic tank is filled with hydraulic oil up to the upper mark of the level indicator. After 150 operating hours, the filter must be replaced. After that, it is replaced according to the maintenance plan. The first inspection is an integral part of the warranty conditions.

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

The motor manufacturer's operating manual must be followed for motor maintenance.

The bearings are already lubricated on delivery and the transmission is filled with oil. It is recommended to carry out a check before putting the machine into service.

Model	Hydraulic capacity
GS/e JAGUAR	15 litres

Recommended LUBRICANTS:

1) Grease for the rotor hammers:

You must use a water-resistant, extreme-pressure NLGI 2 grease *" TS INDUSTRIE BIOPLEX "*

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

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

3) Hydraulic oil:

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

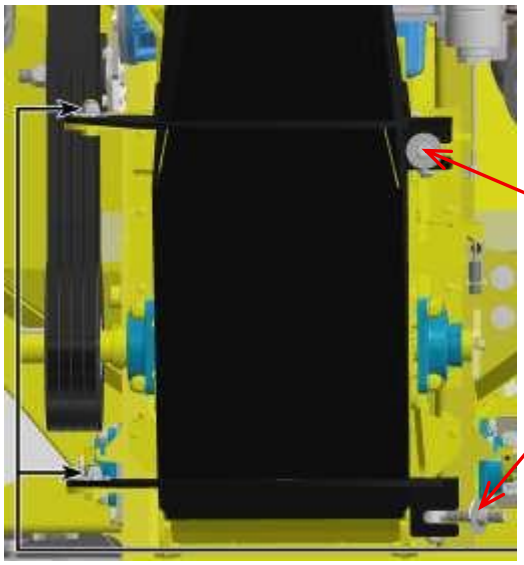
Maintenance intervals

TASK	daily	at 4h	at 50h	Every 15h	every 50h	every 150h	every 400h	as per manufacturer	annual
Check the hydraulic oil level	■				■				
Check the battery charge level and the battery terminals	■								
Check the rotor V-belts	■								
Check the cutting tools: knives, tips, anvil	■		■						
Check for fluid leaks	■								
Check the condition of the protective flap in the hopper	■								
Check the operation of the safety devices (emergency stop, safety bar, controls, etc.)	■								
Check operation of the feed roller and conveyor	■								
Lubrication of the rotor hammers				■					
Check the tightness of the 8 rotor bearing mounting screws			■						
Check the rotor belt tension		■	■						
Check the conveyor tension		■	■						
Test the trailer lighting	■								
Test the tyres: condition/ air pressure	■								
Test the overrun device and the coupling device	■							■	
Test the axles and brakes	■							■	
Check the warning pictograms for damage/ legibility	■								
Lubricate all lubrication points (earlier if necessary, see lubrication points)			■		■				
Check the hydraulic hoses and their fastenings			■		■				
Check the battery electrical cables			■		■				
Replace the hydraulic oil filter and the strainer			■			■			
Hydraulic oil change							■		
Replace the rotor belts (or earlier if necessary)							■		
Safety test									■

Lubrication points



Carry out lubrication and maintenance of the machine with the motor stopped and the ignition key removed

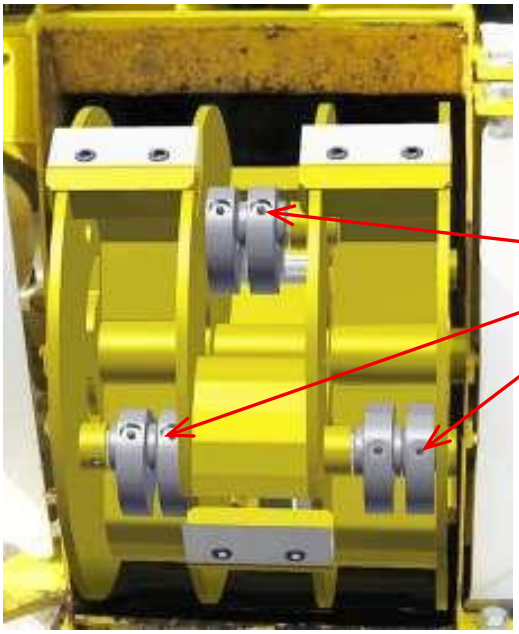


LUBRICATING THE HAMMERS:

To access the rotor:

-Loosen the two Nylstop locking nuts

-Open the discharge chute by swinging it on its two hinges.



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

-Grease the 12 hammers

Note: Do not over-grease; ~2 strokes of the grease gun per nipple are sufficient.

Excessive greasing would cause the surplus grease to be thrown by centrifugal force against the inner wall of the chute as the rotor turns, impeding the flow of shredded material.)

CENTRALISED LUBRICATION





LUBRICATING THE LEFT AND RIGHT ROTOR BEARINGS





LUBRICATING THE LEFT AND RIGHT FEED ROLLER BEARINGS





LUBRICATING THE LEFT AND RIGHT CONVEYOR BEARINGS



CENTRAL LUBRICATION POINT



LUBRICATING THE TWO BEARINGS OF THE REAR CONVEYOR ROLLER

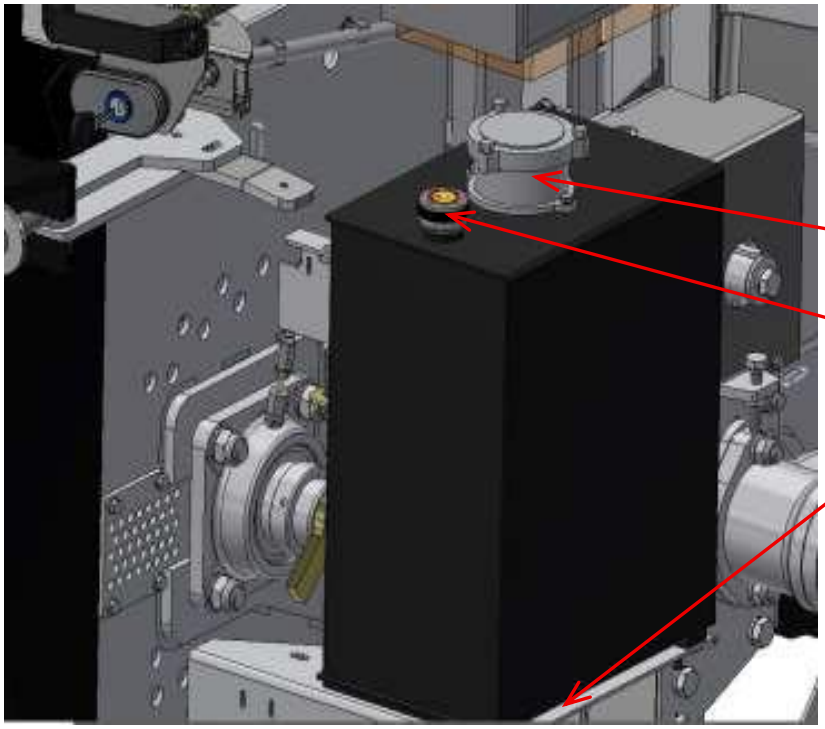


LUBRICATING THE JOCKEY WHEEL, COUPLING HEAD AND DRAWBAR JOINTS

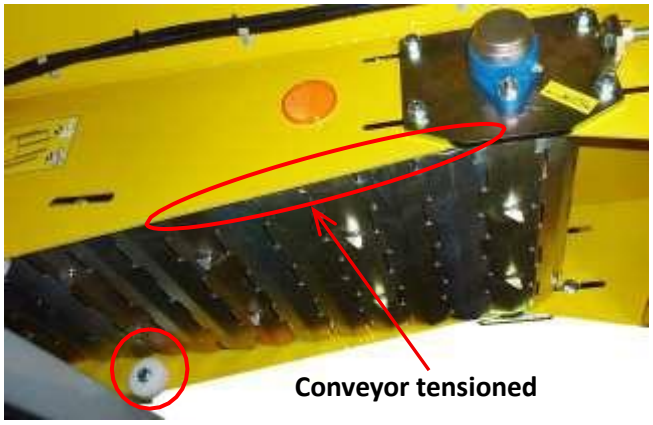
Technical checks

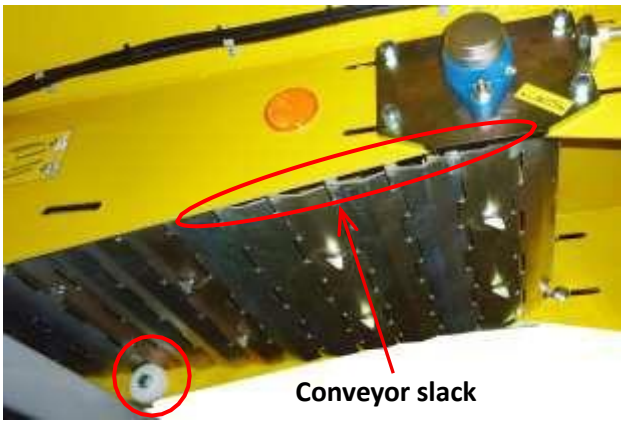
HYDRAULIC OIL LEVEL

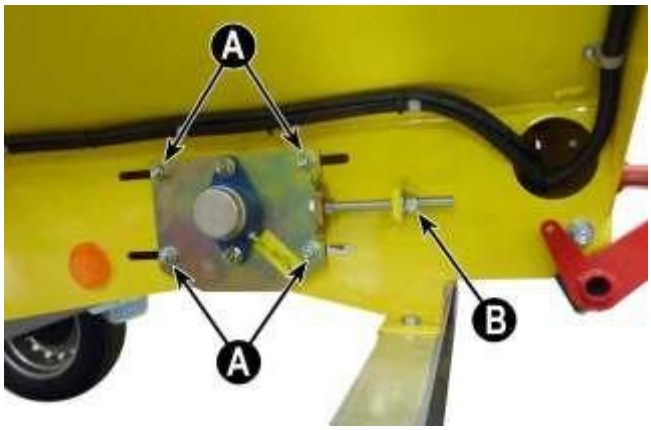
The GS/e-JAGUAR has a 15-litre hydraulic oil tank comprising:



CHECKING THE METAL CONVEYOR TENSION







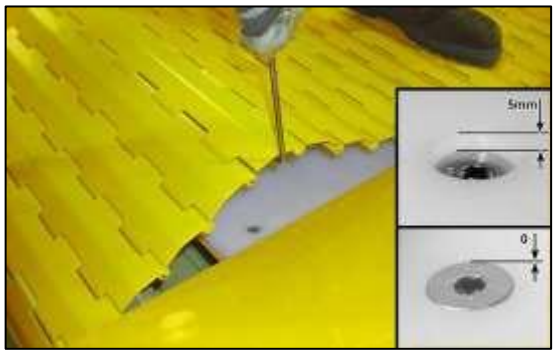


To tension the conveyor:

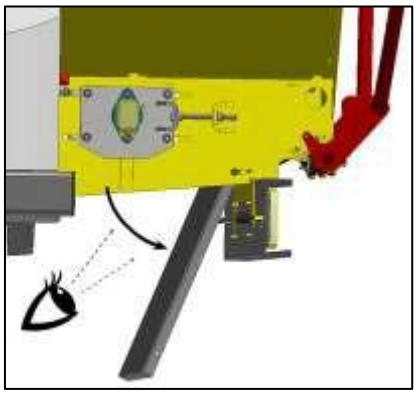
- Loosen the four marked nuts (A) on each side
- Tighten the tensioners (B) simultaneously so that a conveyor hinge is centred in the maximum tension window (see photo 4)
- Retighten the screws (A)
- After tensioning, run the conveyor several turns forward and in reverse to make sure it stays properly aligned.

After the conveyor's "running-in" period, check its tension for the first time after 4h, then regularly every 50h.

CHECKING CONVEYOR AND SLIDE PLATE WEAR, AND REAR ROLLER CLEANLINESS



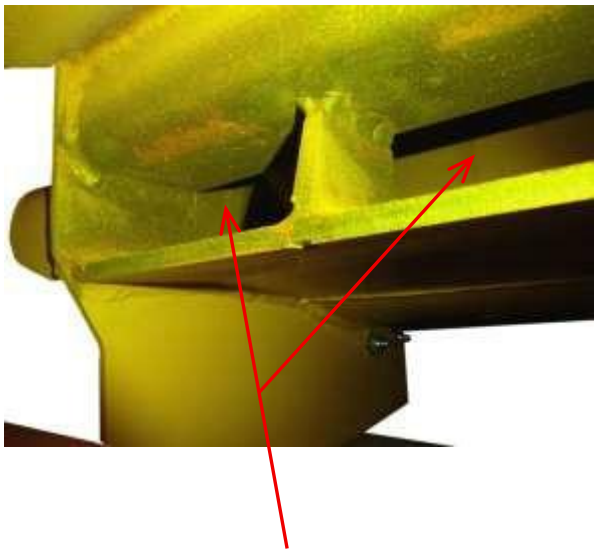




To check the wear of the conveyor and of the self-lubricating polyethylene slide plate, fully slacken the conveyor, lift it with a hook and check:

- The thickness of the plate above its four fixing screws
- The wear of the conveyor slats

ROTOR VENTILATION AIR INTAKES





In addition to the usual two on each side, the shredder has an extra air intake under the rotor to improve rotor ventilation and optimise the discharge of shredded material at the chute outlet.

Regularly check that the three air intakes are clean in order to optimise ventilation and the discharge of shredded material.

DISMANTLING TO REPLACE THE KNIVES AND HAMMER TIPS

Rotor locking tool



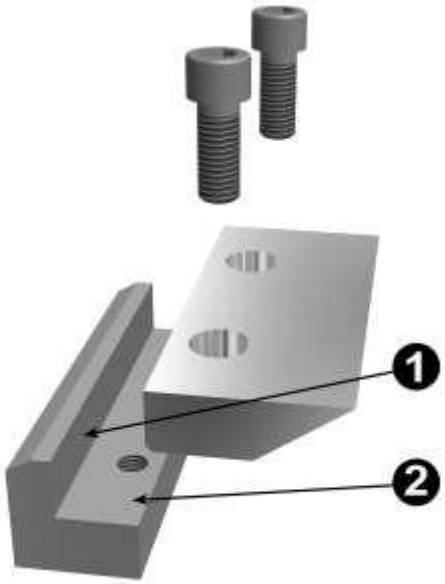


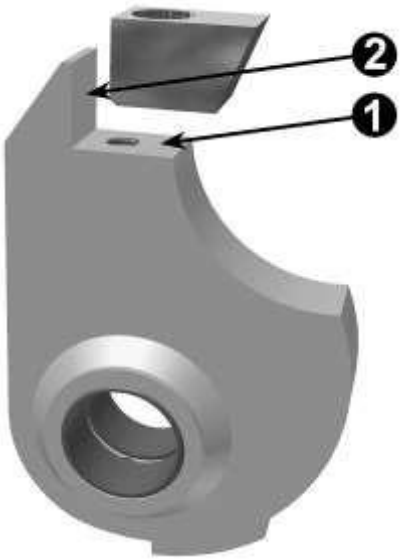
Loosening knife and hammer screws



Tightening knife/hammer screws: 157 N.m

- The hexagon socket screws holding the knives and hammer tips are factory-fitted without thread-locker **at a torque of 157 N.m** (16 m.kg). To remove them, use a suitable spanner in good condition.
- Open the chute as shown on page 28.
- Remove all the knife and tip screws (when reassembling, use only new class 12.9 screws).
- Clean the bearing faces, seats and heels (1 and 2) of the knives and hammer tips.



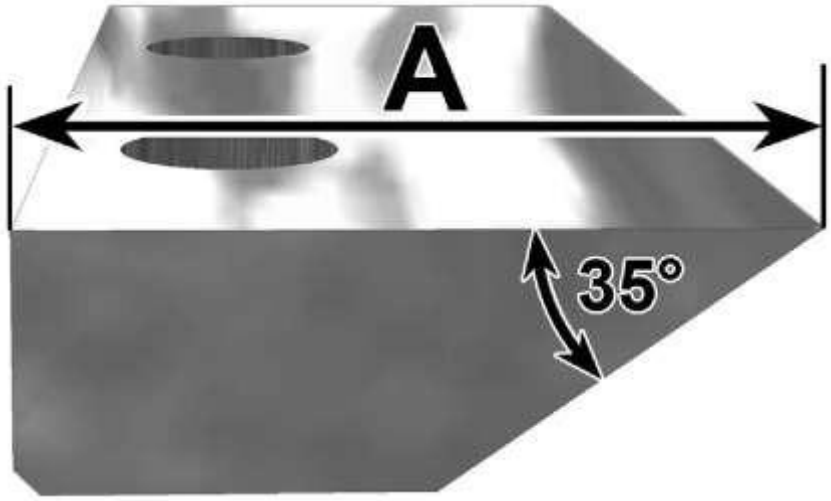


-Refit sharpened knives of identical weight, or new knives.

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

Also make sure 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 a new knife is 60 mm)



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

Retighten the class 12.9 screws to a torque of 16 m.kg (157 N.m), making sure that the knives and tips are firmly seated against their heels.

Grease the hammer pins (~2 strokes of the grease gun per hammer).

Close the chute and the covers.

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

Accelerate to maximum speed to make sure that no abnormal vibration affects the proper operation of the machine.

DISMANTLING TO CHECK THE COUNTER-KNIFE

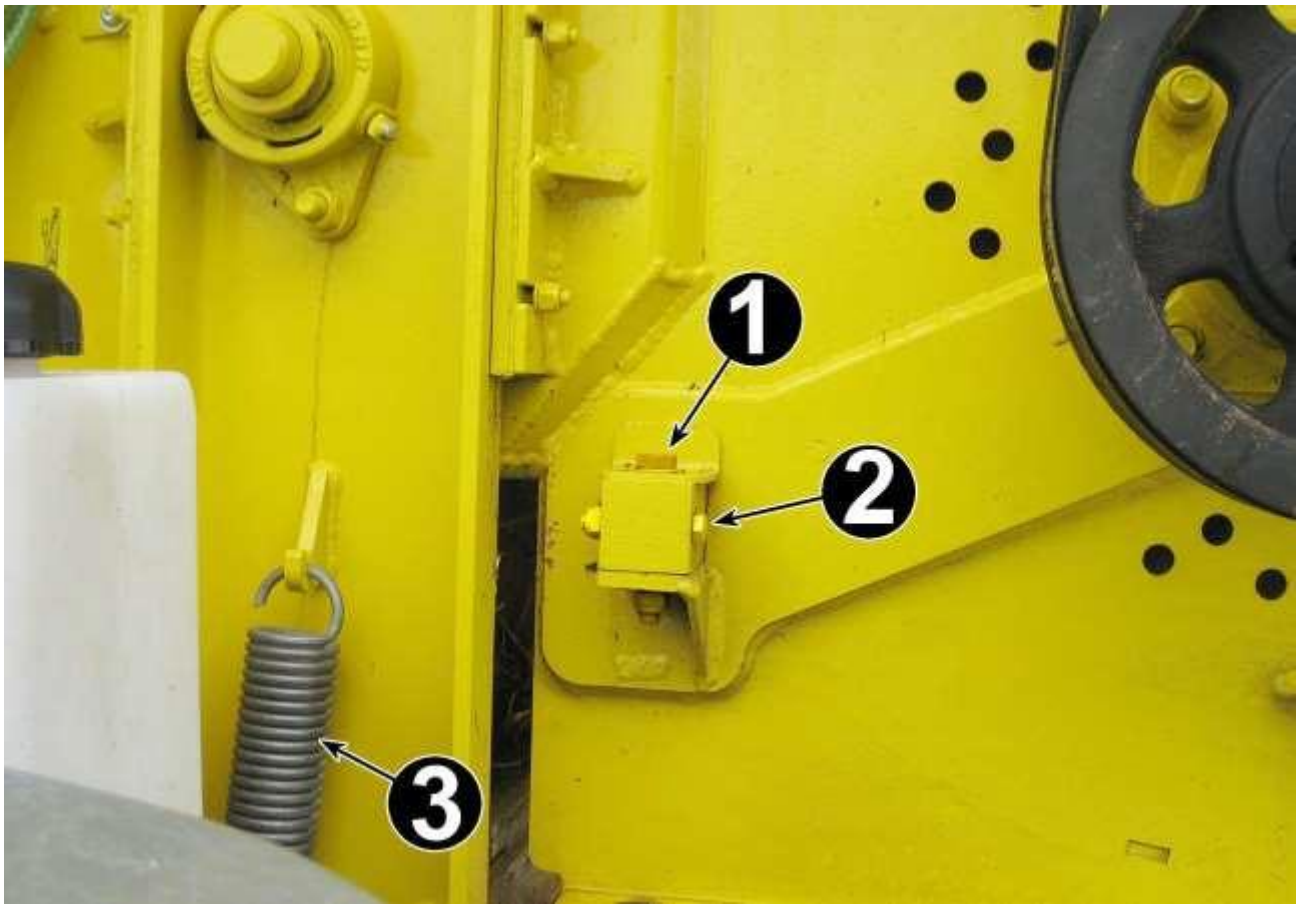
-Remove the two Ø10 retaining bolts (1) at each end of the counter-knife.

-Remove the two Ø8 safety bolts (2)

-Drive out the counter-knife by sliding it along its housing to one side or the other.

- If the edge is worn, remove the counter-knife completely from its housing and refit it rotated by 90° (a quarter turn) so that a new edge faces the knives.

(All four faces of the counter-knife can be used)



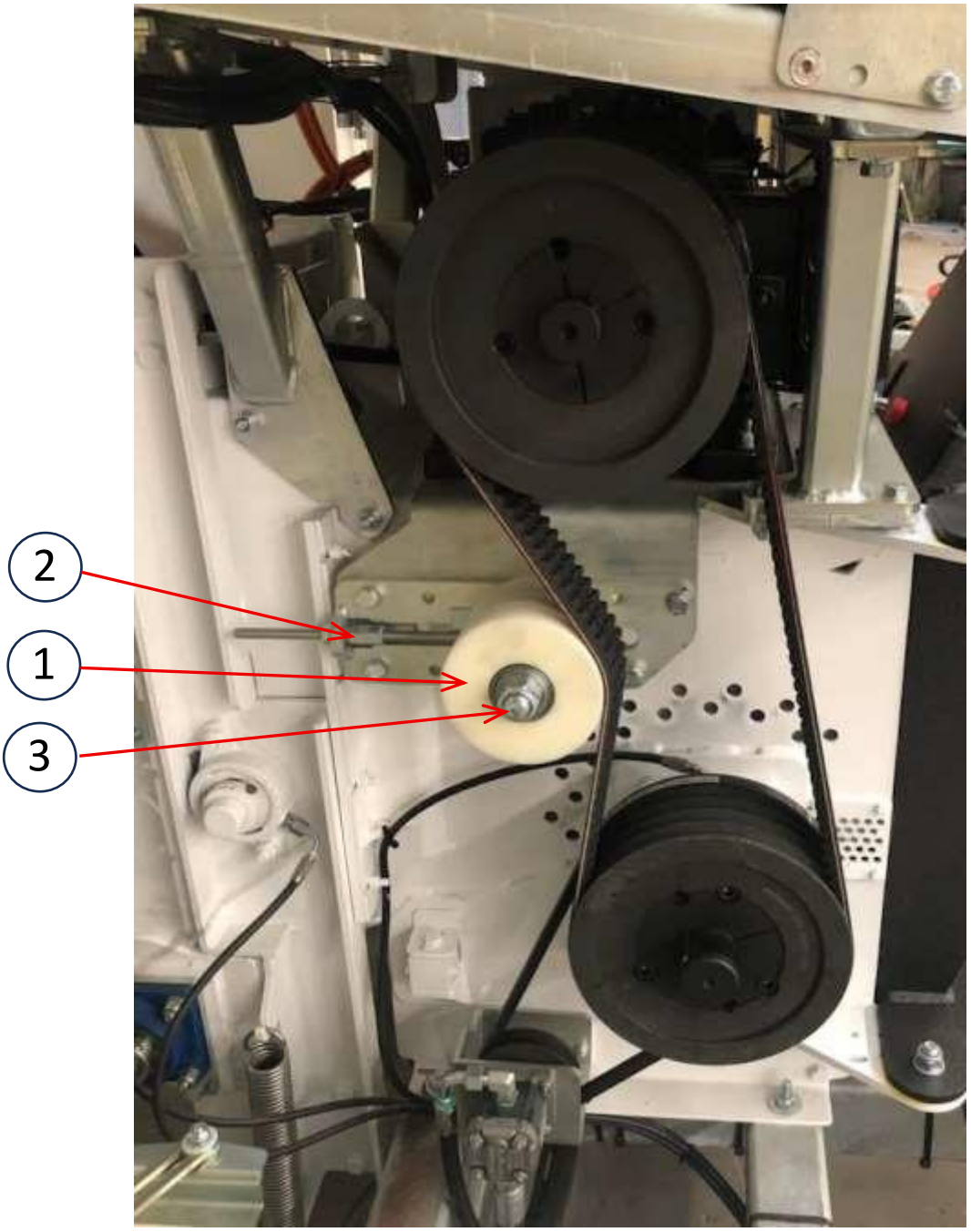
FEED ROLLER PRESSURE ON THE MATERIAL

The feed roller exerts pressure on the material by means of two springs (3) (1 on each side)

ADJUSTING THE ROTOR BELTS

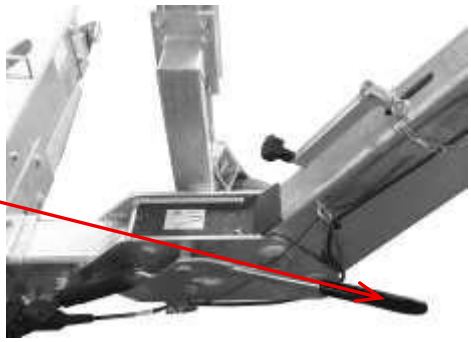
The rotor belts are kept permanently tensioned by a tensioner pulley.

The belt tension is adjusted by moving the tensioner pulley (1) forward using the nut (2), after first loosening the central nut (3) of the pulley.

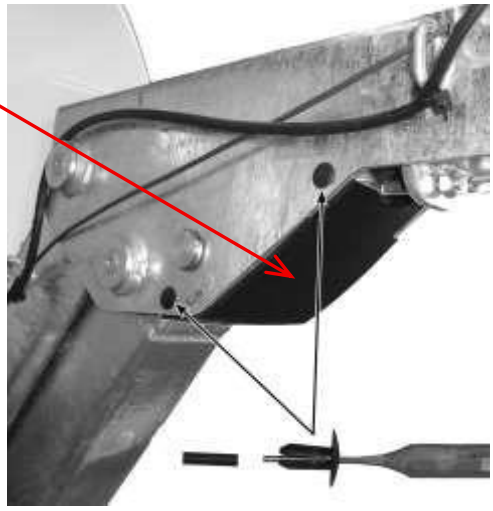


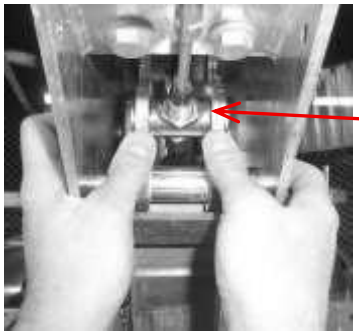
ADJUSTING THE BRAKES

Put the brake lever in the rest position (down)

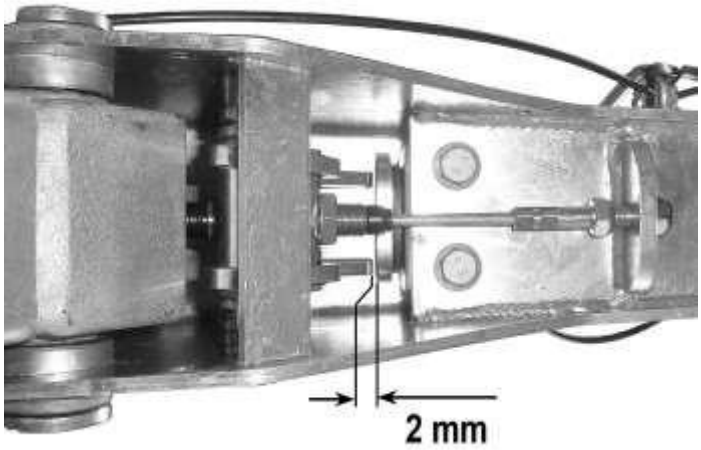


Remove the black plastic guard under the coupling head by removing the plastic rivets after first driving out their pins



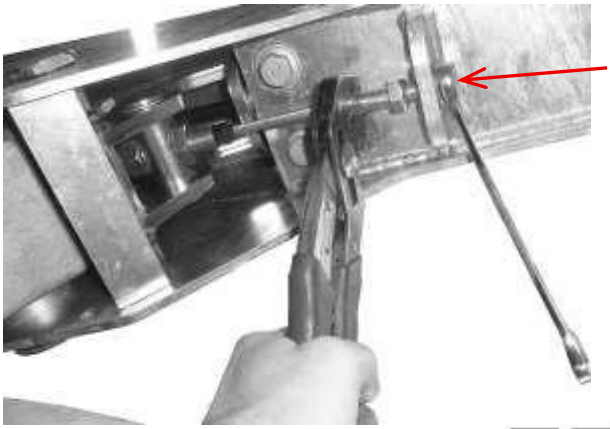


Push the double latch and check the clearance between the latch and the end of the slide



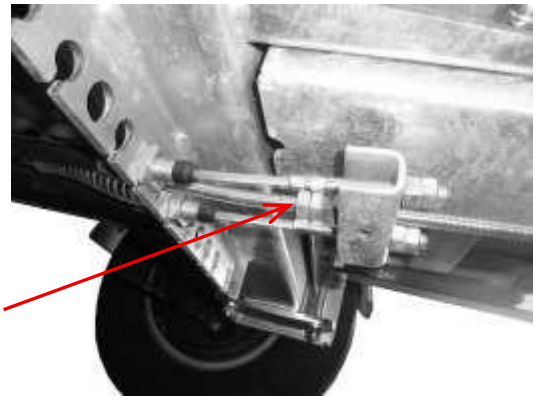
The clearance must be 1 to 3 mm.

Excessive clearance delays braking and causes jolts.



If the clearance is too large, tighten the nut at the end of the cable.

If this is not enough, tighten the nut and lock nut at the axle



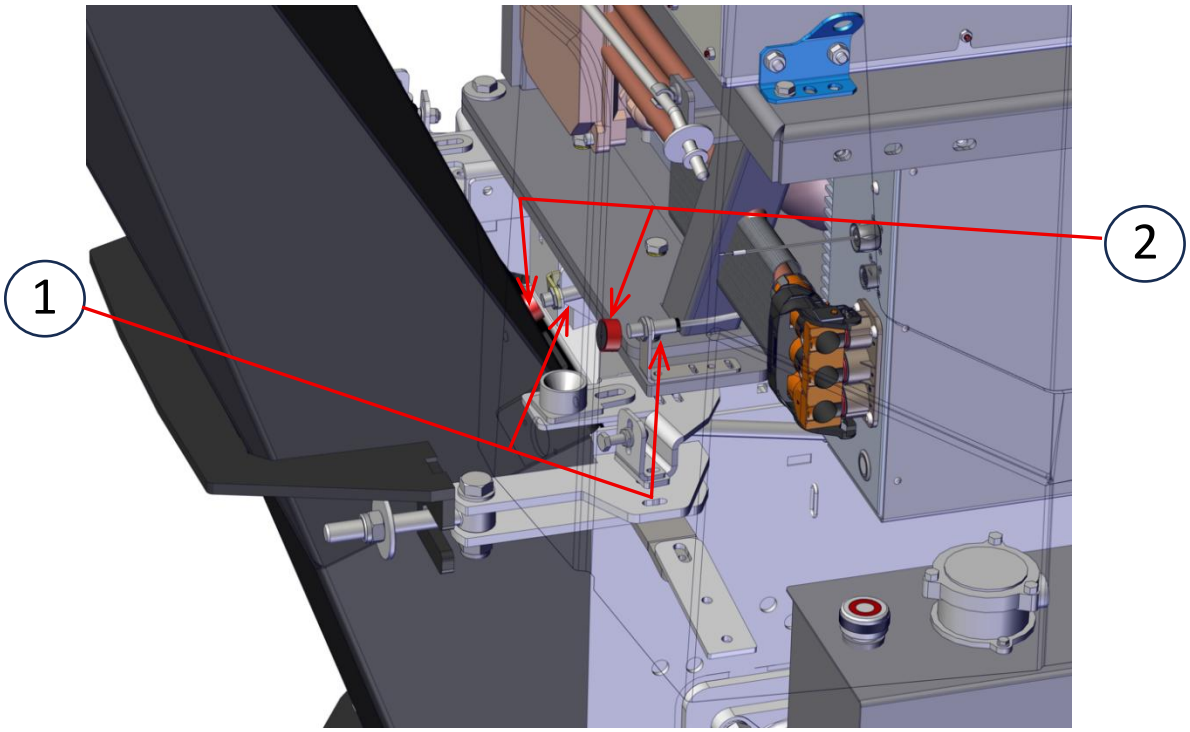
COVER AND CHUTE SAFETY

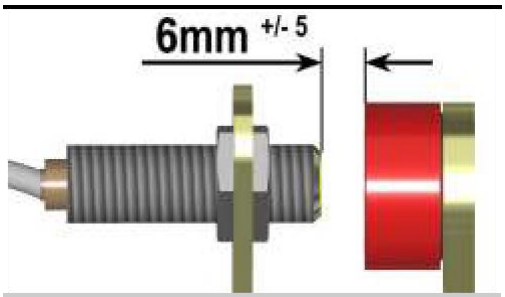
The machine has a safety device on the opening of the motor cover and the chute:

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

Electrical contact is made when the magnet (2) fixed to the motor cover or to the chute is brought close.

When the motor cover and/or the chute is opened, the safety devices stop the motor.



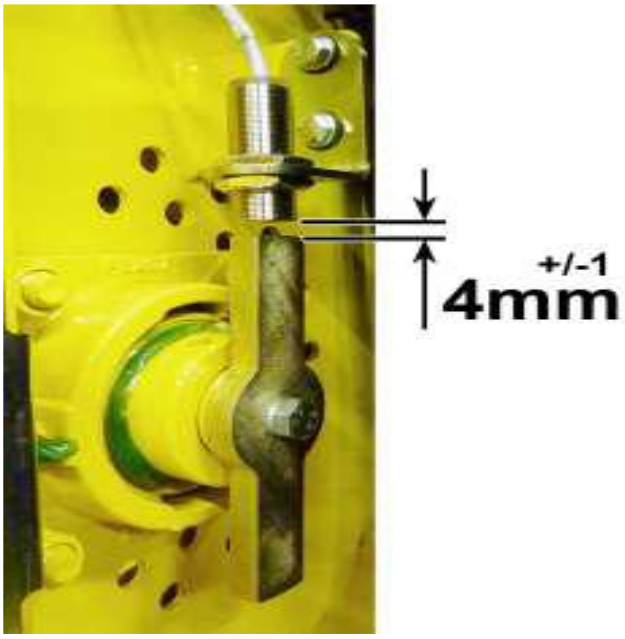


The sensor and its magnet must not touch. However, a clearance of 6 mm +/-5 must be kept between them

INDUCTIVE SENSOR

An M18 (Ø18) inductive sensor at the end of the rotor shaft reports rotor rotation to the S-Cockpit.

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

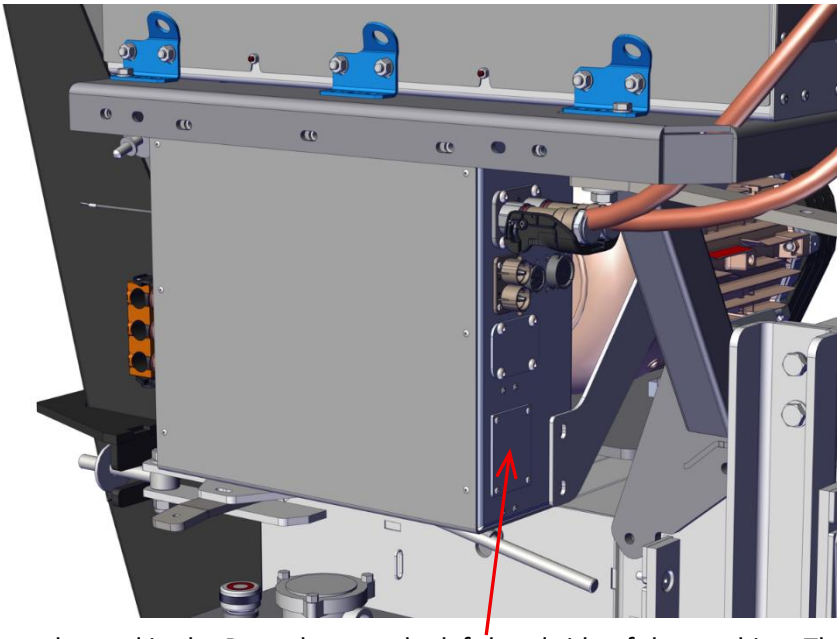


⚠

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

Always look for the cause of the problem:
- Rotor jammed by residue from previous shredding
- Slack or broken belts
- Faulty M18 sensor.

FUSES



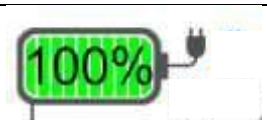
Protective fuses are located in the Powerbox, on the left-hand side of the machine. They protect the electrical installation

DISCHARGE CHUTE

The upper part of the discharge chute can be turned 90° to the left and 90° to the right by releasing the lock (1).



Charging



To charge the battery, connect the charging cable to the mains. There is no need to switch on the screen to charge the battery. When the charging cable is connected to the mains, if the screen is on, it switches off and then on again. This is normal.

The machine cannot be used for shredding while charging. Only the screen may be switched on. If you switch off the screen by turning the key to "OFF", battery charging continues.

When the battery is being charged, a logo  is displayed on the screen next to the battery logo.

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

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

- Charge the machine as soon as you return from the worksite; its temperature will necessarily be above 0°C
- Otherwise, run the shredder empty if you have a few % left, in order to reach a temperature above 0°C (the battery heats up during use)

Notes: carry out a full charge at least every 10 charges (cell balancing) in order to preserve battery life.

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

2. The machine socket is IP67 rated, so the machine can be charged outdoors even in the rain (the connection to the mains must be sheltered and protected from water splashes).
3. The charger built into the machine is supplied via the charging socket with single-phase alternating current, 220 volts, 16 amps. It delivers 25 amps of direct current to the batteries. Charging is controlled automatically by the batteries via the CAN BUS.

The charging cable must always be removed with the machine ignition off, in the OFF position.

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

Follow these instructions carefully:

- The charging cable must always be removed with the machine ignition off, in the OFF position.
- The machine cannot operate while charging on the 220-volt single-phase mains, so you must unplug the cable if you want to work and shred.
- >Carry out a 100% charge with balancing (automatic once 100% is reached) every 10 charges
-

With a 380V charger (option), DO NOT CONNECT BOTH CHARGERS AT THE SAME TIME!!

Winter storage mode

Winter storage mode is activated with the button on the Powerbox.
It limits the battery charge to 70% in order to preserve battery life during prolonged storage.

When the winter storage mode is on, a logo and a message are displayed on the main page of the S-Cockpit screen.

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

NB: if winter storage mode is activated and the state of charge is above 70%, connecting the charging cable to the mains will switch off the batteries and you will not be able to switch on the screen.
If you want to switch on the screen, you must:
- either unplug the charging cable
- or deactivate winter storage 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 maintains the charge at 70%.

You must put the machine on charge and press the "winter storage" push button on the Powerbox.

Caution: the interval between 2 full charges with balancing (automatic function carried out at the end of a 100% charge) must be less than 3 months between 2 charges to 100%.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
The motor stops unexpectedly and will not restart	-The cover or chute is not properly closed -The cover or chute safety sensor is faulty	-Check that the cover or chute is closed -Check the sensor
The feed roller/conveyor assembly will not turn forward or in reverse	-Feed speed knob fully tightened -Faulty hydraulic motor or pump -Too little oil in the tank	-Loosen the adjusting knob on the valve -Check or replace the faulty part -Check the oil level
The machine has difficulty shredding	-Blunt knives and hammers -Faulty or insufficiently tensioned belts	-Sharpen or replace the knives. Replace the hammer tips -Replace and/or tension the belts
The feed in forward does not regulate, even below the S-Cockpit intervention threshold	-Electrical or hydraulic problem	-Contact your dealer

PROBLEM	CAUSE	SOLUTION
presence sensor ON, **mode 1, 2 or 3 activated** **the sensor does not detect the user's presence**	-Incorrect radar alignment -Interference with the radar beam -Radar fault	-Check that the radar is pointing slightly downwards -Check that no branch is lying above the hoop and that no "screen" is covering the presence detector -**Motor stopped and ignition on**, check on the back of the presence detector that**:** * the 1st **green** LED is lit * the 2nd LED lights up **yellow** when it detects a person behind the shredder hopper * If the 2nd LED flashes **red**: contact your dealer

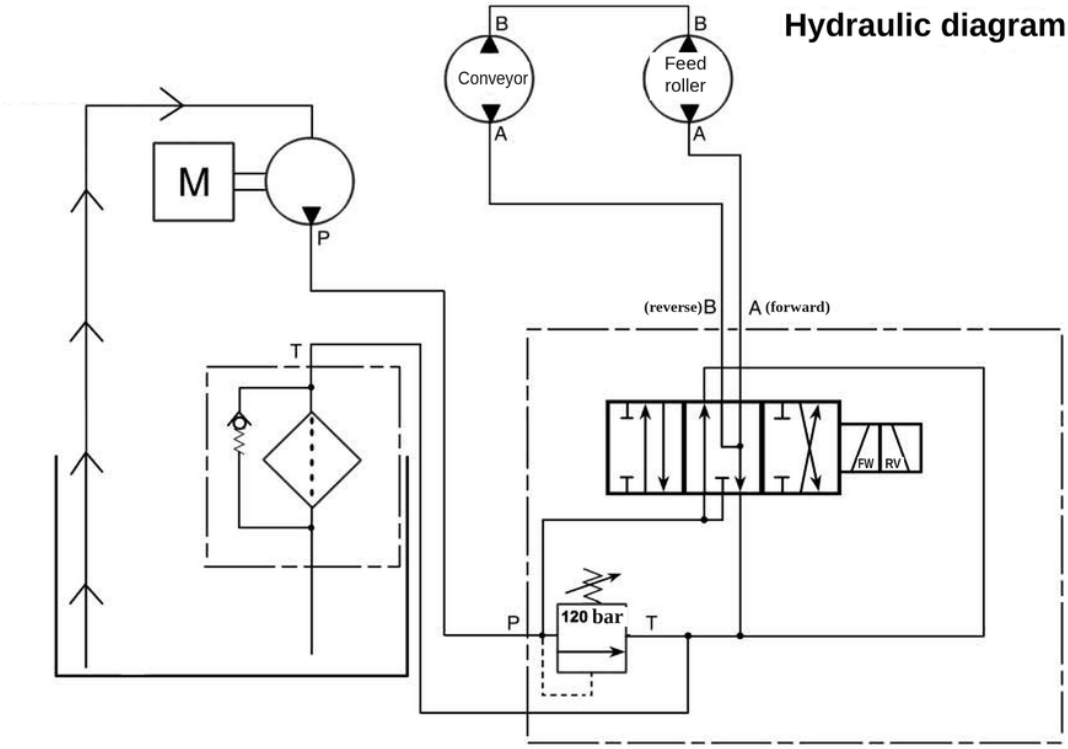
List of manufacturer SPN/FMI codes

These are displayed on the screen dedicated to error codes. (see page 31)

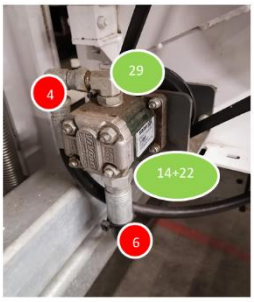
Their meaning is given below

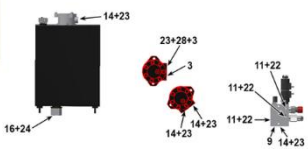
SPN	FMI	Fault
901	199	Slip error at first engagement or during shredding
902	199	Rotor jammed at start-up
903	199	Cutting tool overspeed detected
910	199	PLC can no longer see the display
911	199	Display can no longer see the PLC; a variable has been stored and will be saved to the PLC when it reconnects
920	199	Cover opened while the motor is running
921	199	Chute opened while the motor is running
922	199	Emergency stop (which cuts the motor) pressed while the motor is running
930	199	Vibration sensor exceeded orange threshold
931	199	Vibration sensor exceeded red threshold

Hydraulic diagram







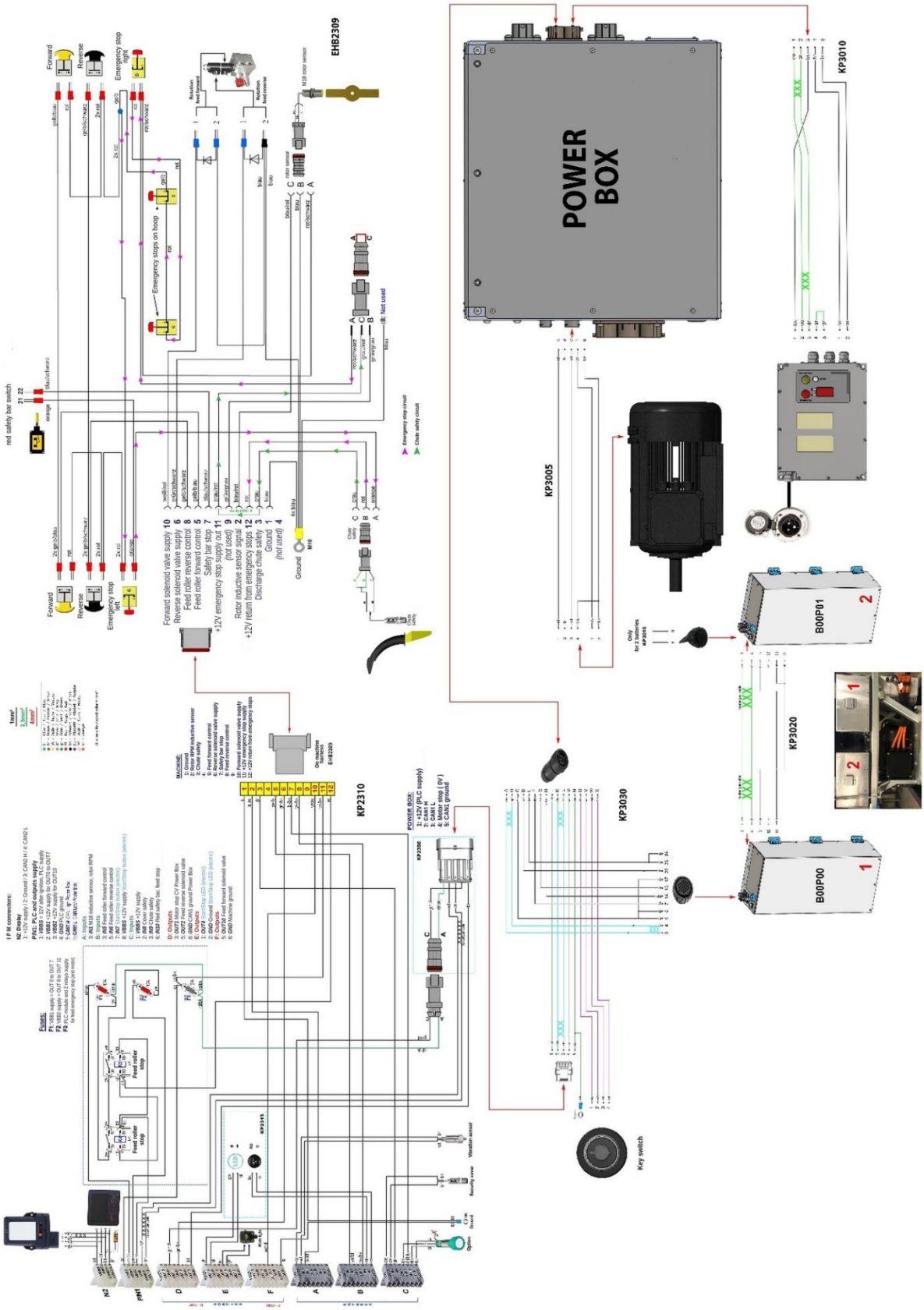


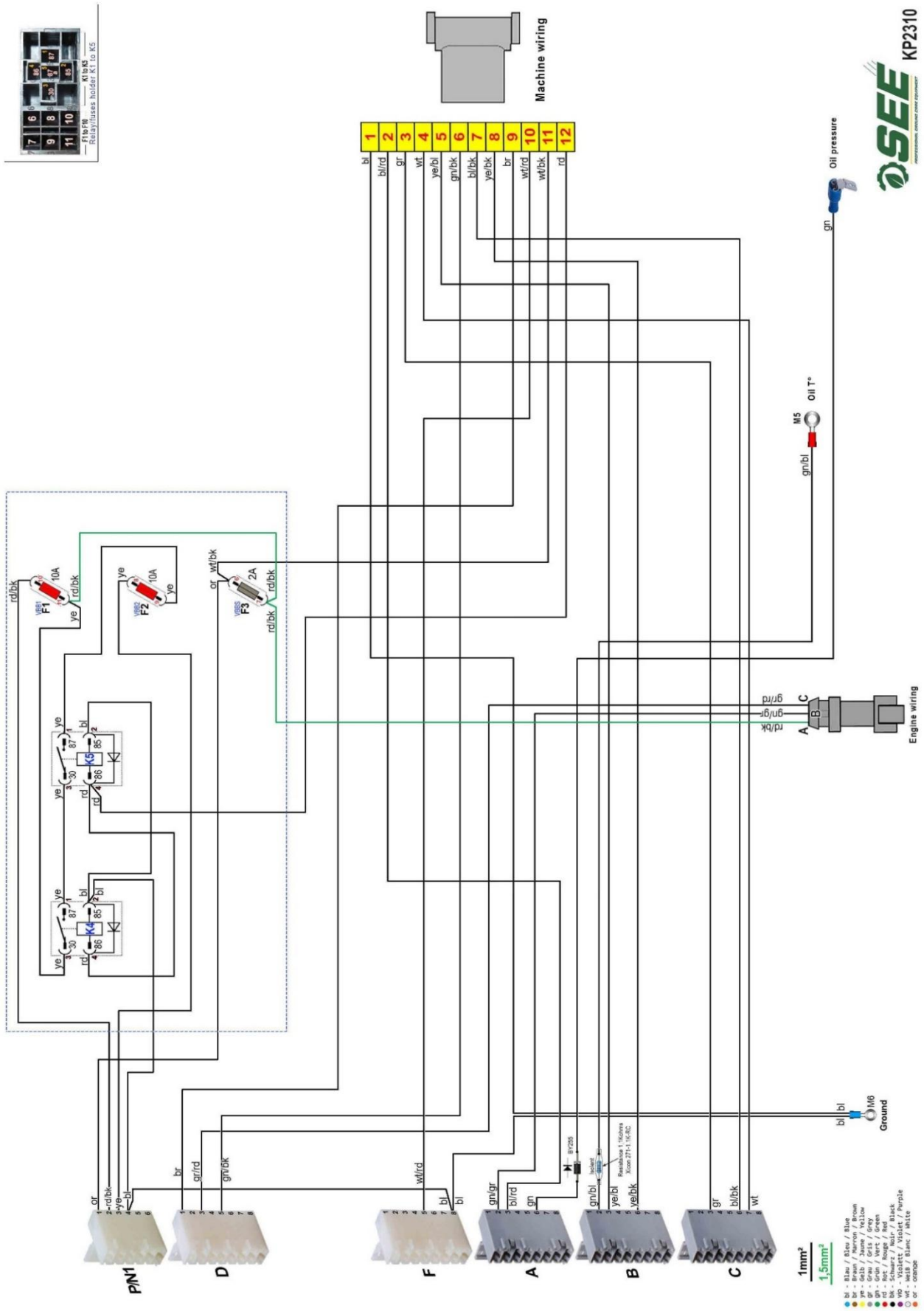
Qty	hose type	L (mm)	Reference
1	R2T.13 (1/2)	1450	HYDP/0114
1	R2T.10 (3/8)	1850	HYDP/0006
1	R2T.10 (3/8)	1500	HYDP/0005
1	R2T.10 (3/8)	950	HYDP/0030
1	R2T.10 (3/8)	550	HYDP/0031
1	R2T.10 (3/8)	550	HYDP/0032

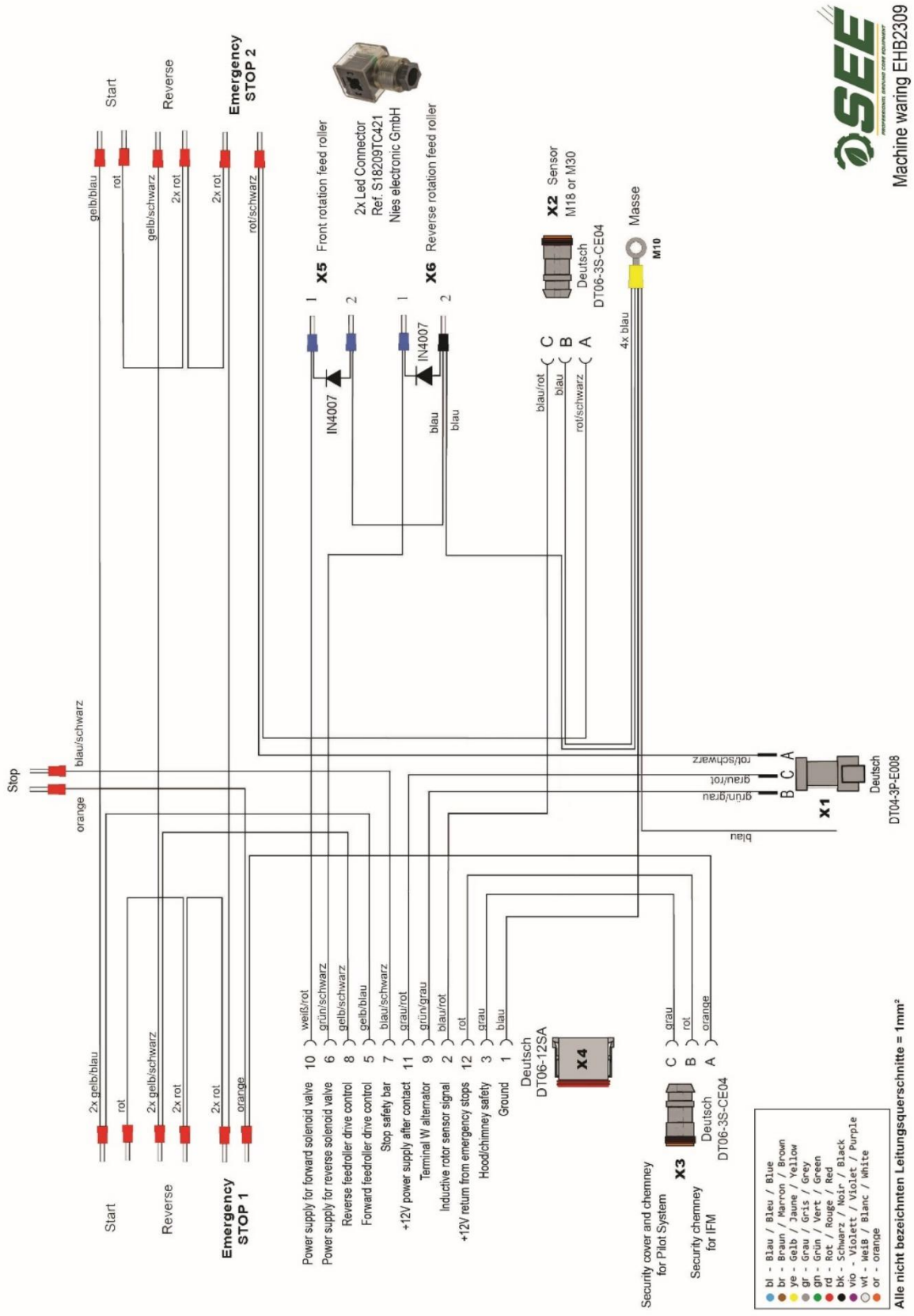
Qty	component	SAELEN ref.
2	90° elbow male/male swivel	HYDE/0001
1	90° elbow male/male swivel	HYDE/0003
1	BSP male plug parallel thread	HYDC/0002
4	male/male adapter	HYDF/0003
5	male/male adapter	HYDF/0002
1	male/male adapter	HYDF/0006
3	3/8 seal	HYDR/0003
5	1/2 seal	HYDR/0002
1	3/4 seal	HYDR/0004
1	male/female extension parallel thread	HYDF/0016

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

Wiring diagrams




Machine wiring
KP2310
Oil pressure
Oil T°
M5
Engine wiring
M6
Ground
P/N1
D
F
A
B
C



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

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