FÖRST™

Rely on it

TR6P

OPERATOR AND MAINTENANCE MANUAL

Redwood Global Ltd

CE

UK CA

The English language is used for the original instructions.
Other languages are a translation of the original instructions.
(Directive 2006/42/EC)

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DISCLAIMER

This manual has been written by Redwood Global Ltd, to detail the safe operation and maintenance of the Först machine.

This document provides information on the design of the product, procedures for routine maintenance, servicing, operating instructions and offers a troubleshooting guide to follow in the event of an unexpected occurrence.

It is always the responsibility of the customer to train and advise not only his or her personnel, but also any contractors' personnel who are servicing, repairing, or operating the equipment, in all safety aspects.

Whilst great care and attention has been taken to ensure all information provided in this manual is safe and correct, Redwood Global Ltd accepts no responsibility whatsoever for any damage to equipment or injury or death to any person(s) which may occur while carrying out any of the instructions or procedures described within this manual.

All customer personnel must always satisfy themselves with the safety of any procedures described herein, being mindful of the circumstances in which any work is being carried out.

Please take the time to study all of the owner/operator literature supplied with your machine as soon as possible.

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CONTENTS

FIGURES

TABLES

PREFACE

DESCRIPTION OF THE USER

These instructions are intended for the end-user of the TR6P.

The end-user can be described as each person who interacts directly with the machine. The end-user typically includes, but is not limited to:

- Operator/Owner
- Hirer
- Maintenance personnel or technician

All use of this machinery shall only be carried out by an authorised and properly qualified person of 18 years or older, who:

- Has read and understood this manual
- Is familiar with operating similar equipment
- Knows how to control this machinery
- Is aware of all possible dangers and acts accordingly
- Obeys advice on safe working practices

LEFT-HAND AND RIGHT-HAND SIDE

In this manual "left-hand" and "right-hand" mean your left and right when you are standing facing forward, while standing on the footplate.

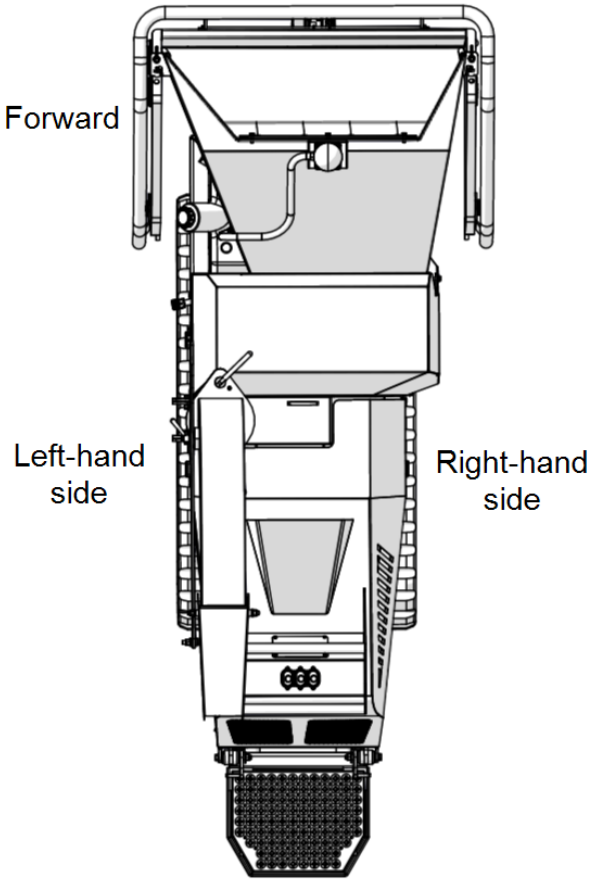


Figure 1 - Left hand and right hand side

PURPOSE OF THESE INSTRUCTIONS

Thank you for purchasing/hiring this Först wood chipping machine.

The purpose of this document is to make you familiar with the operation and maintenance of the machine, so that you can safely operate it as an end-user. This documentation should therefore be regarded as an integral part of the machine.

By observing the contents of this manual, we hope the machine gives safe and productive service. This user manual is intended for the owner/operator to safely and effectively operate this machine and carry out routine maintenance between services.

This is not a comprehensive service manual. Refer to the Service Schedule for routine maintenance and when to take the machine to a service specialist. For engine maintenance, please refer to the engine manual supplied with this machine.

This machine has been through a pre-delivery inspection before leaving the factory and is ready to use.

CAUTION
Before use and as a minimum, the safety and machine operation sections covered in Chapters 3 and 4 must be read and understood. Failure to do so could result in serious injury or loss of life to the operator and others nearby.

Also, damage to property and this machine may occur. Please observe and obey all warning signs (decals) located on the machine. Their meaning is covered in Refer to "Decals" on page 46

Redwood Global Ltd endeavour to continuously develop and improve its products. They reserve the right to make changes at any time, without notice or incurring any obligation.

Continuous improvement will affect machine design and production so there may be minor discrepancies between the actual product and this manual.

CONVENTIONS IN THIS DOCUMENT

This document uses the following safety notices and tips:

DANGER
Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION
Indicates a hazardous situation which, if not avoided, could result in moderate injury or damage the product.

NOTICE
Indicates an important situation which, if not avoided, may seriously impair operations.

Additional information relating to the current section.

Cross references:

- Refer to... A cross-reference to a related or more detailed topic.

Image references

(3, Figure 2) A reference to item 3 in Figure 2.

OBTAINING DOCUMENTATION AND INFORMATION

The latest version of the documentation is available at the following address:
https://forstglobal.com/my-forst/manuals

CHAPTER 1: MACHINE OVERVIEW

In this chapter:

1.1 INTENDED USE

The Först TR6P is designed to be hand fed and reduce wood material up to 150mm (6 inch) in diameter to woodchip. This machine is capable of processing up to 5 tonnes of wood per hour.

1.2 TECHNICAL DATA

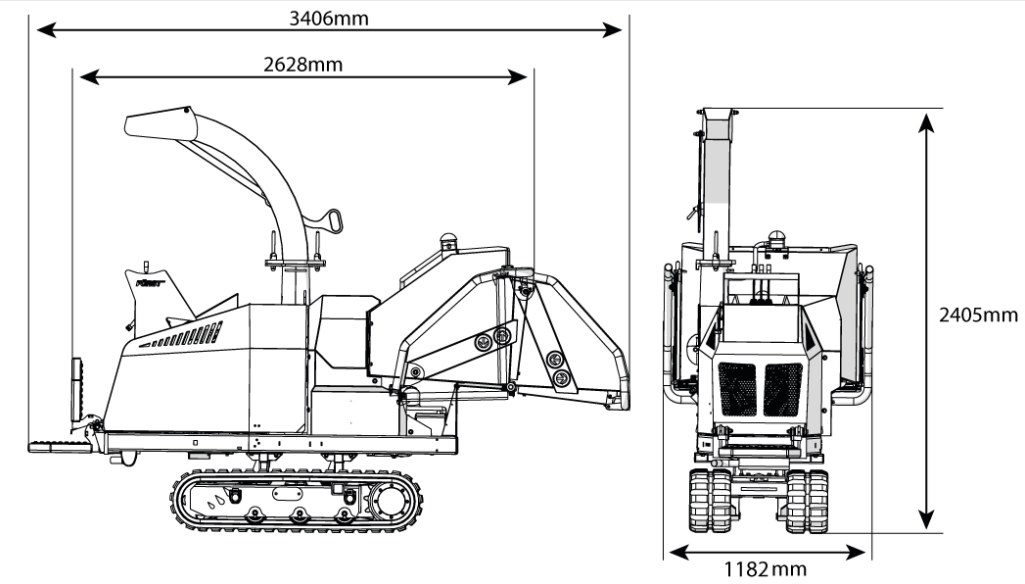


Figure 2 - Dimensions

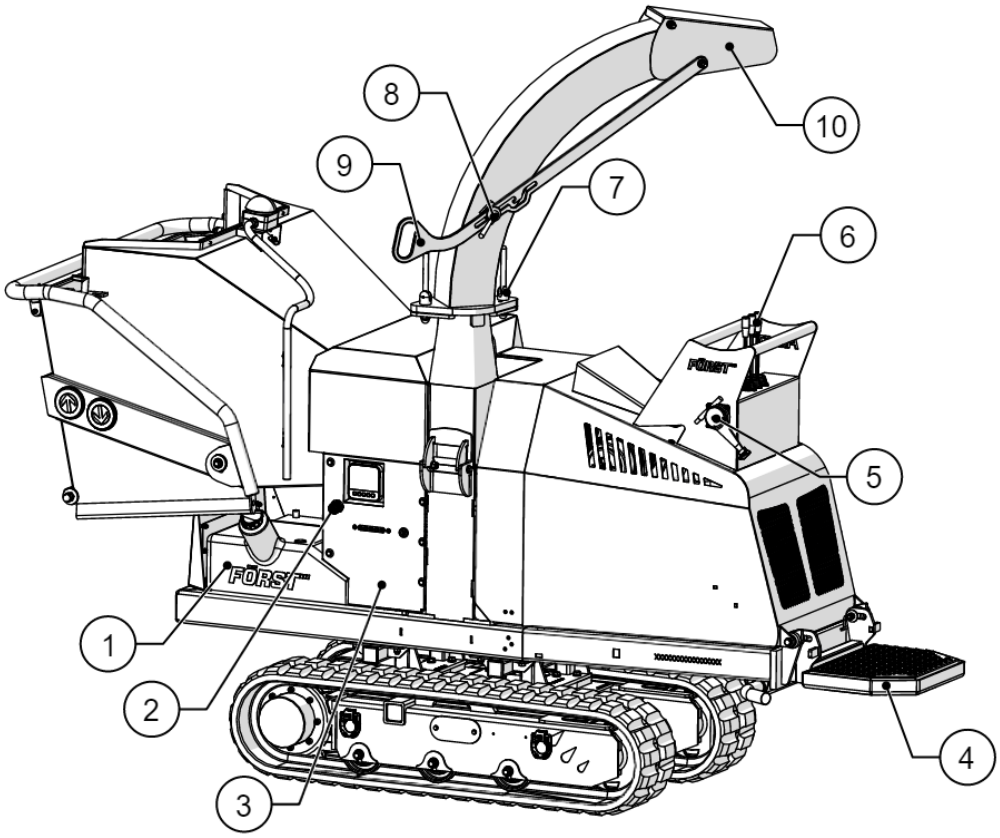
Table 1 - Technical data

Technical Data	TR6P
Part number	13-A-024
Weight	
Overall weight	1200kg
Engine	
Engine Type	Briggs Vanguard V twin EFI
Maximum Power	37hp (27kW)
Engine Oil	5w30 API SJ or higher (fully-synthetic)
Cooling Method	Air cooled
Starting Method	Electric
Fuel Type	Petrol
Fuel Capacity	30 Litre
Hydraulics	
Hydraulic Oil Capacity	18 Litre
Hydraulic Oil Type	ISO 46 (VG 46)
Electrical System	
Voltage	12V DC Negative Earth
Battery	063 44Ah
Rollers	
Roller Feed	Twin series hydraulic motors

Technical Data	TR6P
Material Processing	
Maximum Material Diameter	150 mm (6 inch)
Material Processing Capacity	5 Tons /Hour

1.3 EXTERIOR COMPONENTS

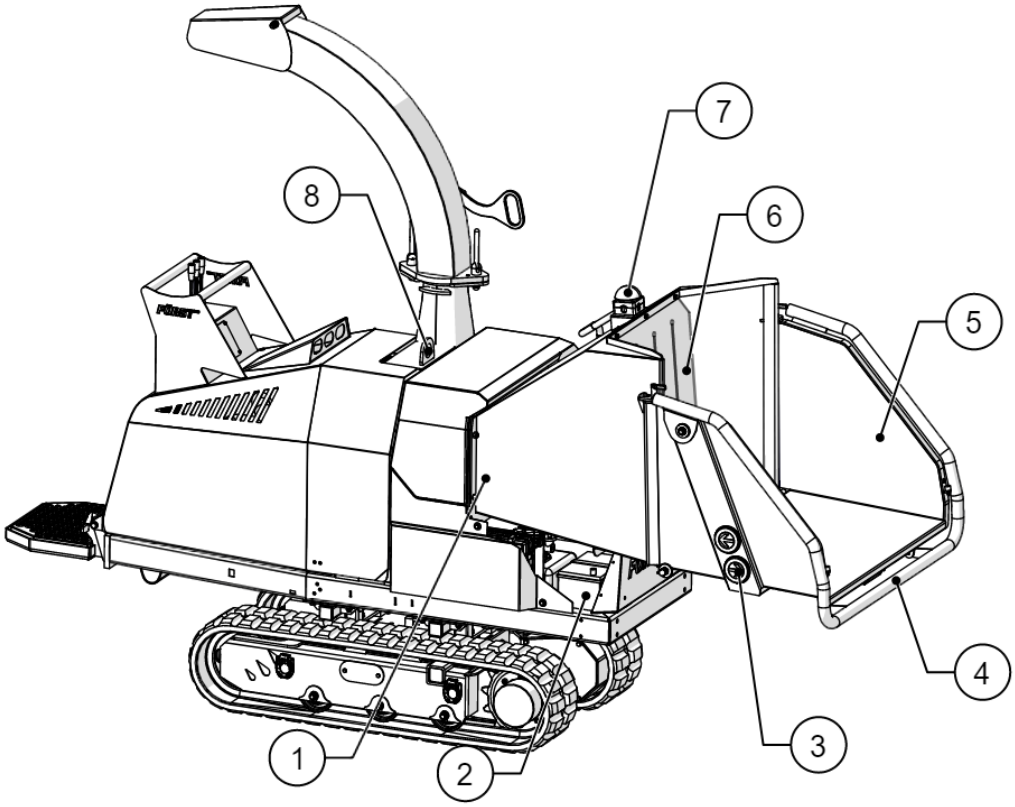
Below are the components located on the left side of the machine.



1	Fuel tank	6	Control levers
2	Feed roller speed control	7	Chute rotation clamp
3	Control panel	8	Chute handle clamp
4	Foot plate	9	Chute handle
5	Throttle	10	Chute hood

Figure 3 - Exterior components left-hand side

Below are the components located on the right side of the machine.

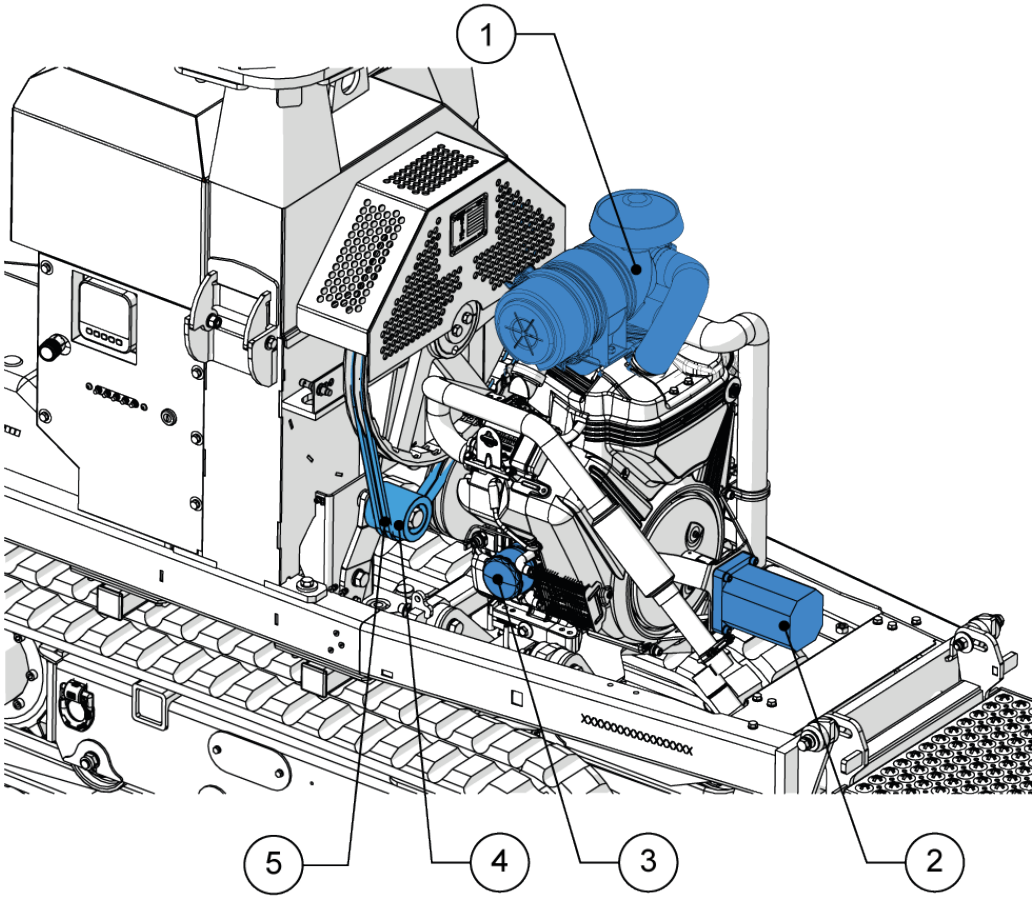


1	Hopper	5	Hopper tray
2	Battery	6	Safety curtains
3	Hopper tray buttons	7	Emergency stop
4	Stop bar	8	Lifting eye

Figure 4 - Exterior components right-hand side

1.4 ENGINE COMPARTMENT OVERVIEW

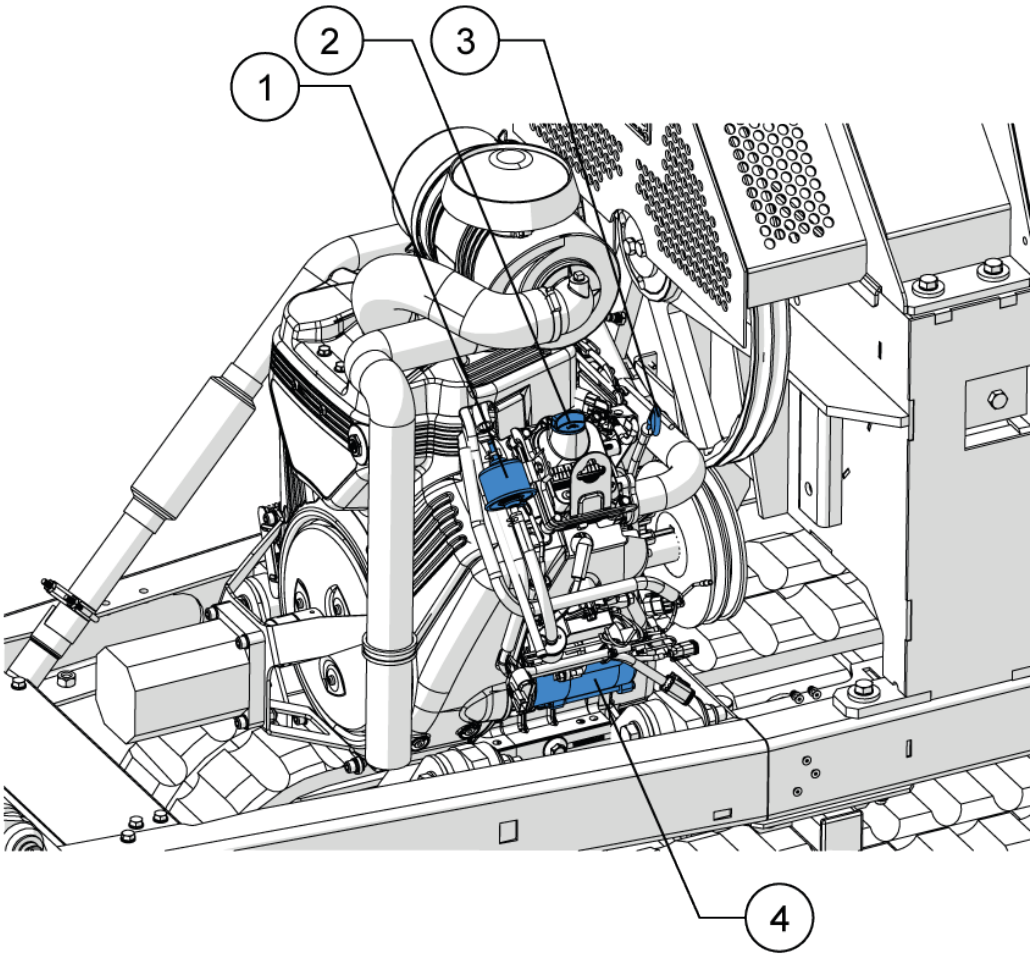
Below are the components of the engine located on the left side of the engine.



1 Air filter assembly
2 Hydraulic oil pump
3 Engine oil filter
4 V-belt tension adjuster
5 V-belt

Figure 5 - Engine compartment left-hand side

Below are the components located on the right side of the engine.



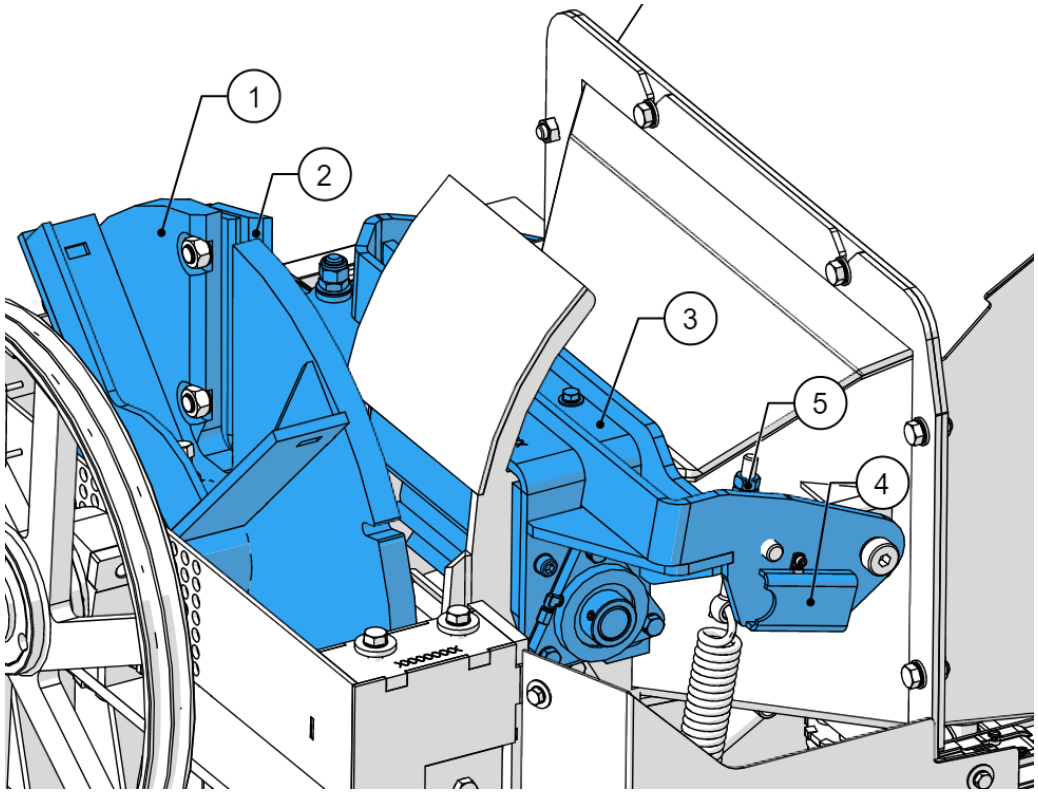
1 In-line filter
2 Engine oil filler cap
3 Engine oil dipstick
4 Starter motor

Figure 6 - Engine compartment right-hand side

1.5 CHIPPING CHAMBER OVERVIEW

Chipping chamber overview:

► *Refer to "Opening the chipping chamber cover" on page 88*



1 Flywheel
2 Flywheel blade
3 Top feed roller (TFR) assembly
4 TFR lifting tool slot
5 Spring hanger nut

Figure 7 - Chipping chamber overview

1.6 AUTOINTELLIGENCE SYSTEM

The woodchipper incorporates the Först Autointelligence system. This system monitors and manages the machine's electrical system.

For example, the Autointelligence system:

- Will stop and start the feed rollers, making sure that the cutting conditions remain within the optimum limits. This maximises throughput while minimising jams and blockages.
- When the flywheel speed drops below the lower threshold, the Autointelligence system stops the feed rollers. The flywheel speed will increase past the middle threshold, and the feed rollers will restart and feed wood into the machine again.
- Will inform you when the machine requires routine maintenance or service.

WARNING
There will be times when the material is being cut, and the feed will momentarily stop until engine speed increases. At this point, the feed rollers will start without warning.

1.7 FEED ROLLER CONTROLS

Red stop bar

The stop bar (1, Figure 8) located on the hopper tray is used to stop the feed rollers during normal operation. When pushed, the spring-loaded bar interrupts power to the feed rollers, and they stop instantly.

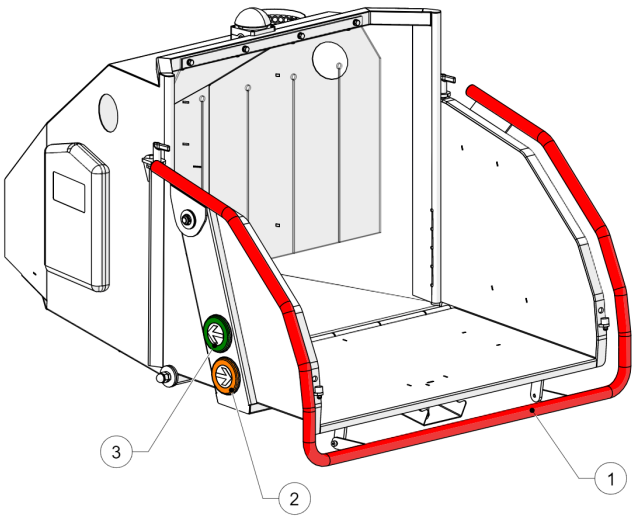
The stop bar must be pushed through its full travel to activate the proximity switch.

> **CAUTION**
> When the stop bar or E-stop is pushed, the engine will continue to run and the flywheel will still be turning.

Forward and backwards buttons

The green and orange buttons are used to control the feed roller direction.

- The green button (3, Figure 8) turns the feed rollers forward.
- The orange button (2, Figure 8) turns the feed rollers backward.



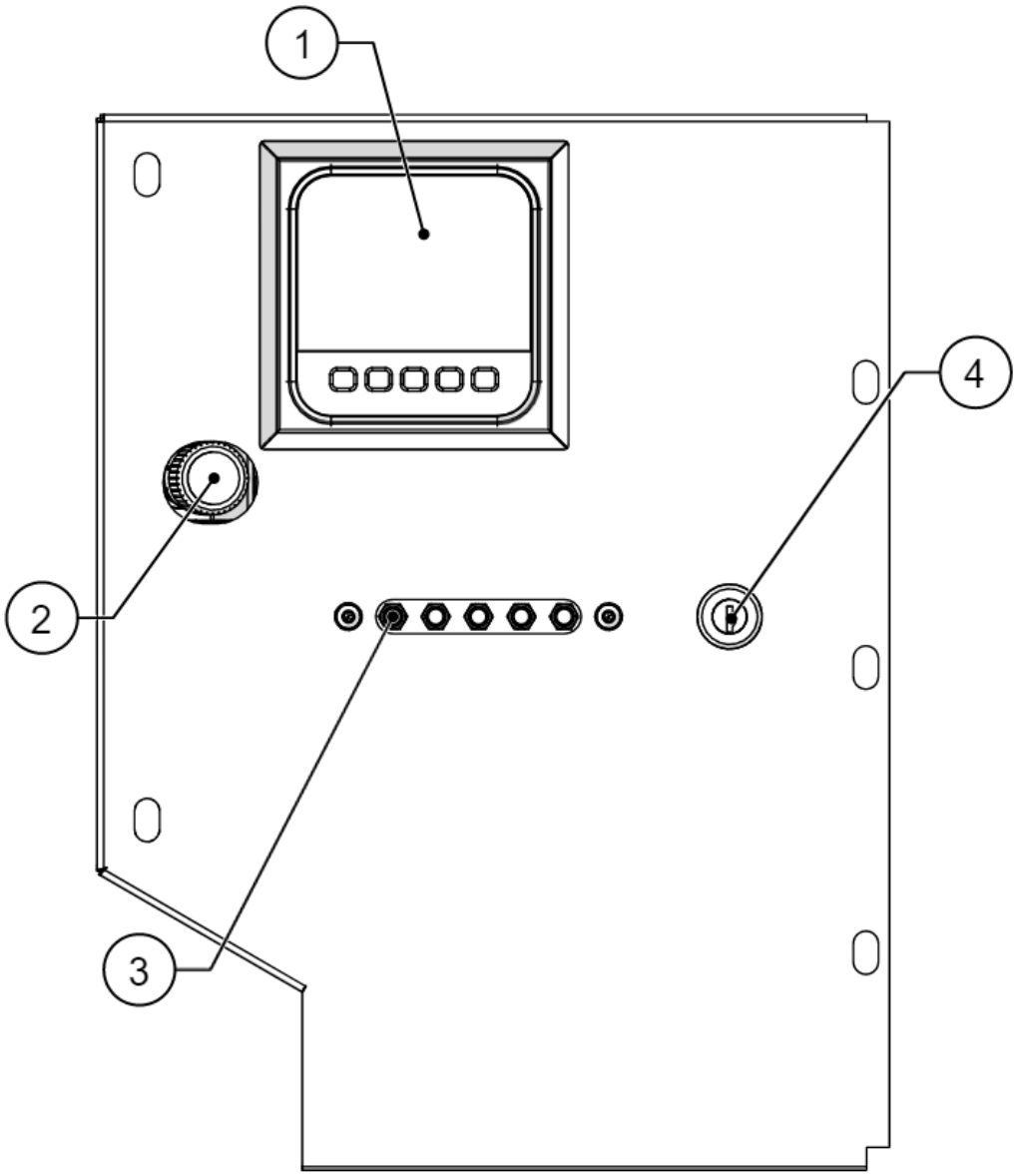
1 Stop bar
2 Orange reverse button
3 Green forward button

Figure 8 - Feed roller controls

1.8 CONTROL PANEL

The control panel is located on the side panel. On the control panel you will find the following:

- Display screen
  - *Refer to "Control panel" on page 26*
- Ignition switch
  - *Refer to "Ignition switch" on page 37*
- Grease bank
- Control valve speed adjust



1 Display screen
2 Control valve speed adjust
3 Grease bank
4 Ignition switch

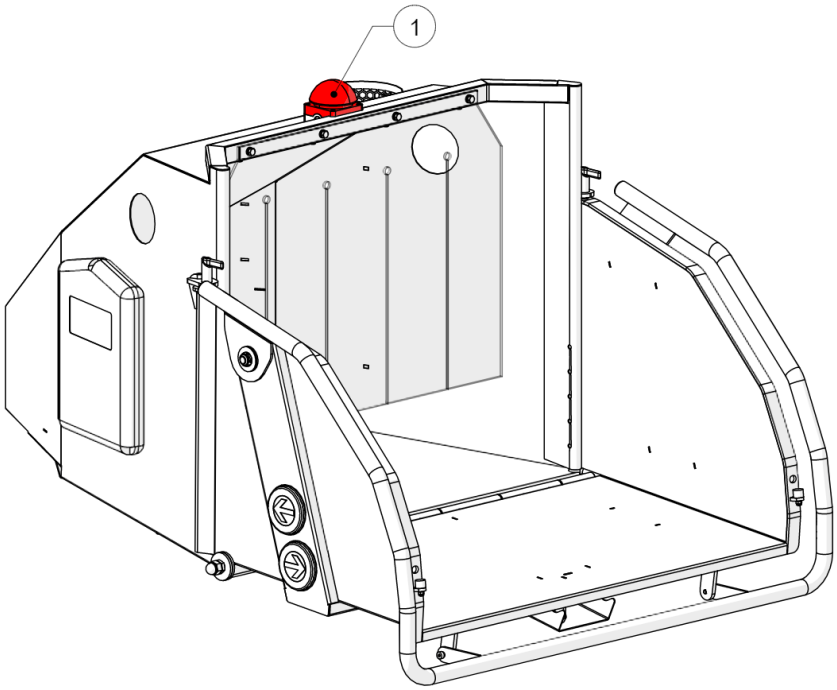
Figure 9 - Control panel

1.9 EMERGENCY STOP BUTTONS

WARNING
Pushing an emergency stop button does not stop the engine.

There is one emergency stop button located on the top of the hopper.

Push the emergency stop to stop the feed rollers instantly.



1 Emergency stop button

Figure 10 - Emergency stop button

NOTICE
Pull the emergency stop button up to reset.

1.10 CONTROL SCREEN

The control screen houses the Först Autointelligence software. The software maintains and controls all functionality of the machine.

The control screen also displays information for all aspects of the machine, such as:

- Flywheel speed
- Engine speed
- Machine sensor status
- Throttle type
- Engine type

The control screen also shows all current and archived errors that the machine may have experienced. Först service personnel will need this information if a fault occurs in the machine.

1.10.1 BUTTON FUNCTIONS

Each button performs multiple functions depending on which screen is displayed.

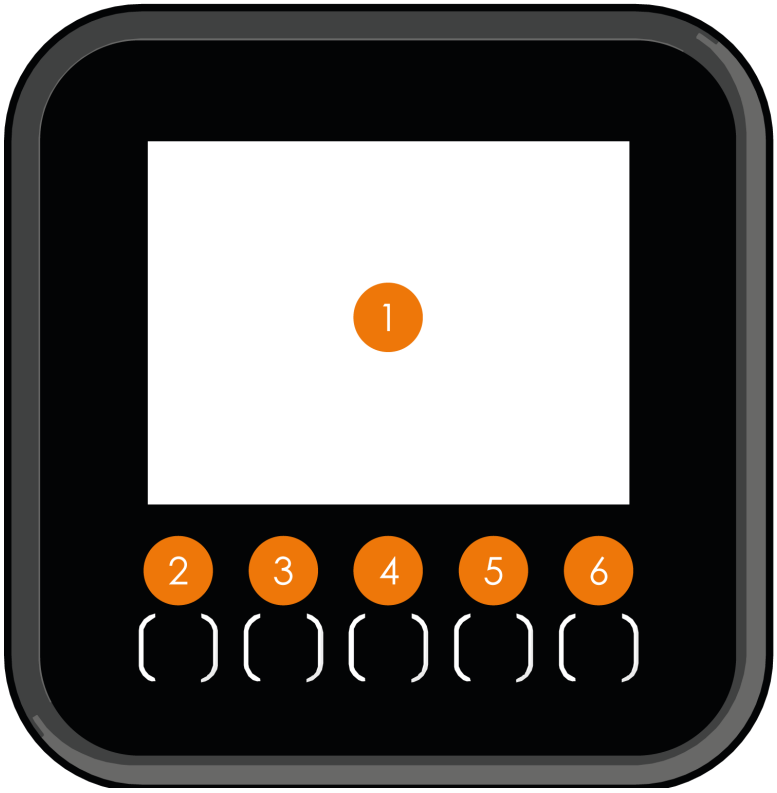


Figure 11 - Button functions

No.	Description
1	Screen - displays information
2	Minus button - press to switch between options of highlighted icon, this button also activates the DPF (Diesel Particulate Filter) forced regeneration sequence, or reduces engine speed
3	Left button - press to navigate left through the on-screen icons and reset the fuel counter to zero
4	Menu button - press to cycle through screens, press and hold to return to the home screen
5	Right button - press to navigate right through the on-screen icons and reset the timer to zero
6	Plus button - press to switch between options of highlighted the highlighted icon, this button also inhibits the DPF regeneration sequence. When in TR mode pressing the button increases the engine speed.

1.10.2 NAVIGATION

This section describes how to navigate within the software.

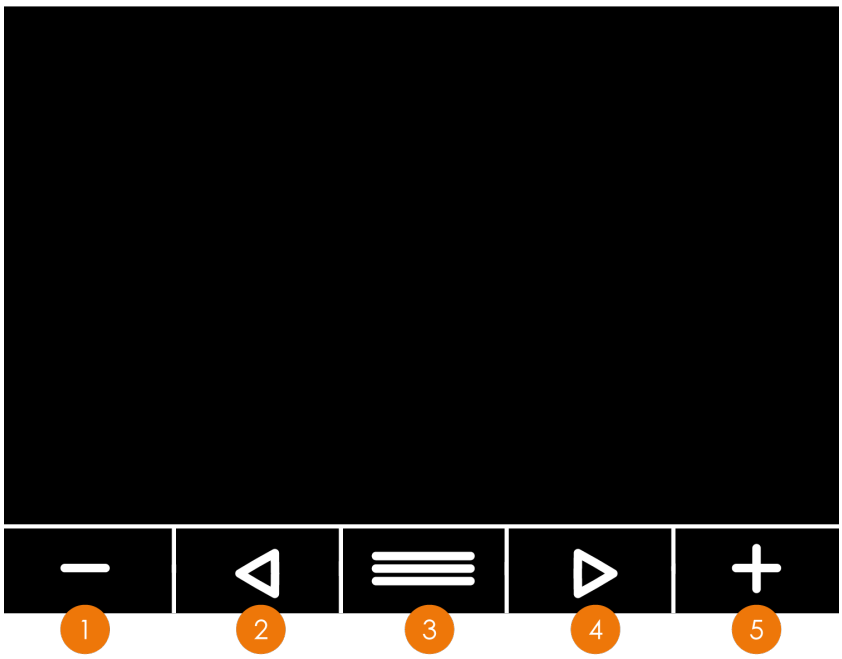


Figure 12 - Screen navigation

No.	Description
1	Minus button - when an icon is highlighted, press this button to navigate left through the icons options
2	Left arrow - use this button to navigate left through the icons on the screen
3	Menu - use this button to cycle through all screens on the control screen
4	Right arrow - use this button to navigate right through the icons on screen
5	Plus button - with an icon highlighted, press this button to cycle right through the icons options

1.10.3 HOME SCREEN

The home screen displays by default once the machine is powered on. On the home screen you can see the actual engine speed, the target speed of the flywheel, the amount of fuel used and the engine running time since the last manual reset.

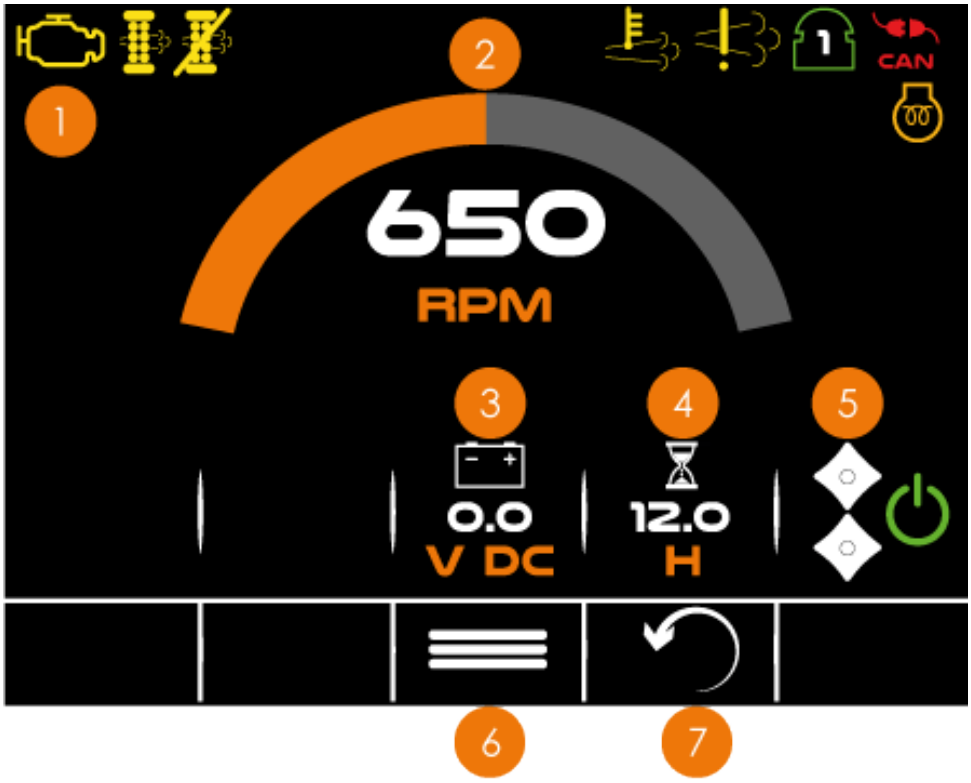


Figure 13 - Home screen

No.	Description
1	Warning icons - these display if the machine has a fault.
2	Actual speed - displays the actual engine speed.
3	Battery - displays the battery voltage.
4	Hours - displays the hours since last manual reset.
5	Feed rollers - displays if feed rollers are active.
6	Menu button.
7	Hour reset button.

1.10.4 SENSORS

The sensors page displays the sensor. If a sensor is tripped the corresponding icon will illuminate or extinguish.

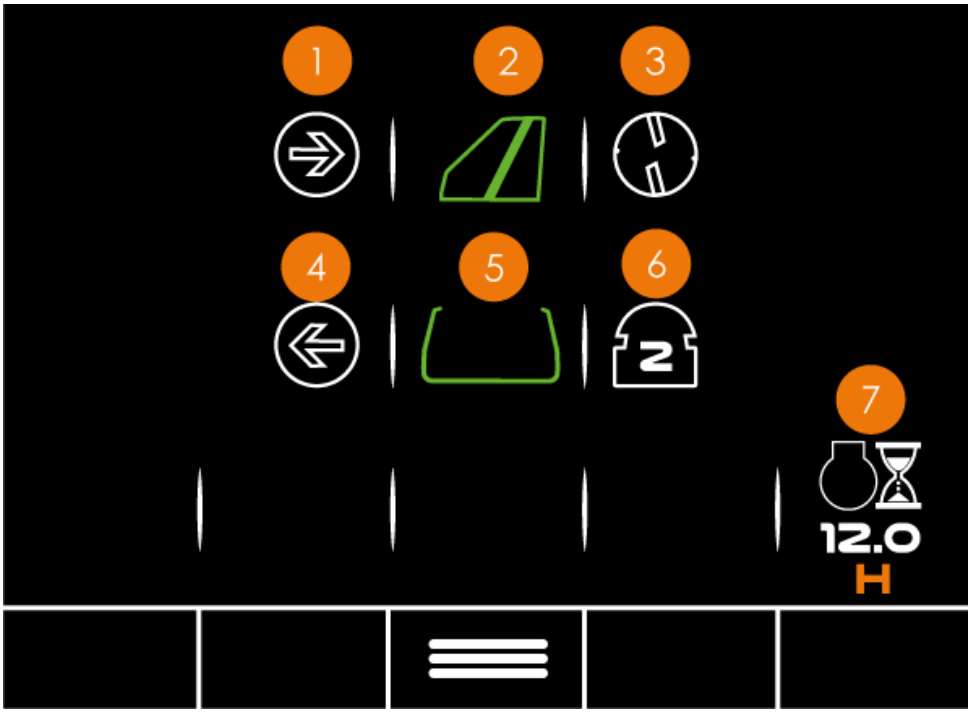


Figure 14 - Sensors and DPF screen

No.	Description
1	Forward button sensor - while this is active the icon illuminates green.
2	Tray sensor - if the tray is down the icon illuminates green.
3	Flywheel sensor - every time a spoke passes the sensor, the icon flashes green.
4	Reverse button sensor - while this is active, the button illuminates green.
5	Stop bar sensor - if the stop bar is pressed the icon illuminates white.
6	E-Stop sensor - The E-Stop illuminates green when pressed, red if there is a fault and the number indicates which E-Stop has been pressed.
7	Engine hours - displays the total amount of engine hours.

1.10.5 MACHINE INFORMATION

This screen displays all of the machines information such as its engine and how many spokes it has. By default all features in this screen are locked and any changes to these settings are password protected. Only qualified Först service personnel should change any settings in this screen.

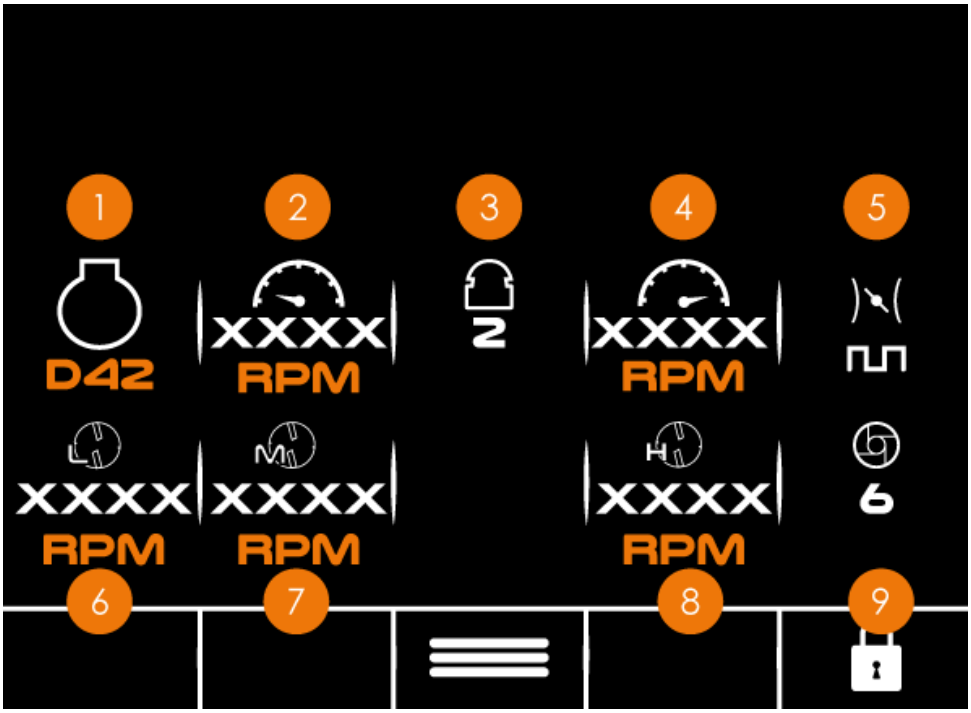


Figure 15 - Machine information screen

No.	Description
1	Engine type - displays the engine in this machine
2	Min RPM (revolutions per minute) - displays the idle speed of the engine with the throttle on its lowest setting
3	E-Stop count - shows how many E-Stops are on this machine
4	Max RPM - displays the maximum speed of the engine with the throttle in its highest setting
5	Throttle type - displays the throttle type on this machine
6	Flywheel low threshold - displays the lowest chipping threshold
7	Medium threshold - displays the medium chipping threshold
8	High threshold - displays the highest chipping threshold
9	Spokes - displays the number of spokes the machines flywheel has

1.10.6 ACTIVE ENGINE CODES (DM1)

This screen displays any active fault codes. If your machine has a problem, the corresponding fault code displays on this screen. If this happens, contact Först service personnel and quote the error code shown on this screen when asked.

You can navigate to this screen by pressing the menu button until the screen appears.

Figure 16 - Fault screen DM1

1.10.7 SETTINGS

In this screen you can adjust the pressure unit type, fuel unit type and the screen brightness.

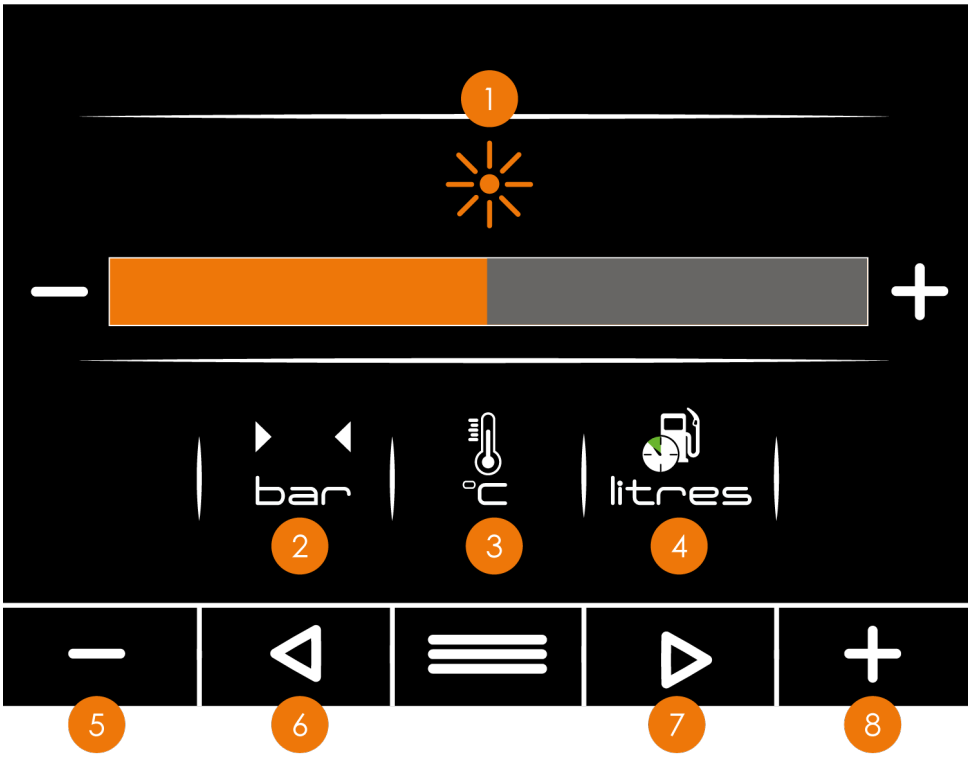


Figure 17 - Settings screen

No.	Description
1	Brightness - displays the current screen brightness level
2	Pressure unit - displays the unit of pressure you have selected
3	Temperature unit - displays the unit of temperature you have selected
4	Fuel unit - displays the unit of fuel you have selected
5	Minus button - with an icon highlighted, press the button to cycle through unit types
6	Left arrow - use this button to navigate left through the icons on screen
7	Right arrow - use this button to navigate right through the icons on screen
8	Plus button - with an icon highlighted, press this button to cycle through the unit types

1.10.8 ALARM SPLASH SCREEN

If there is an alarm, the alarm splash screen appears. The screen shows details about the alarm. Contact Först service personnel immediately and describe the alarm message displayed on screen.

To exit this screen, press the menu button, this will take you back to the home page.

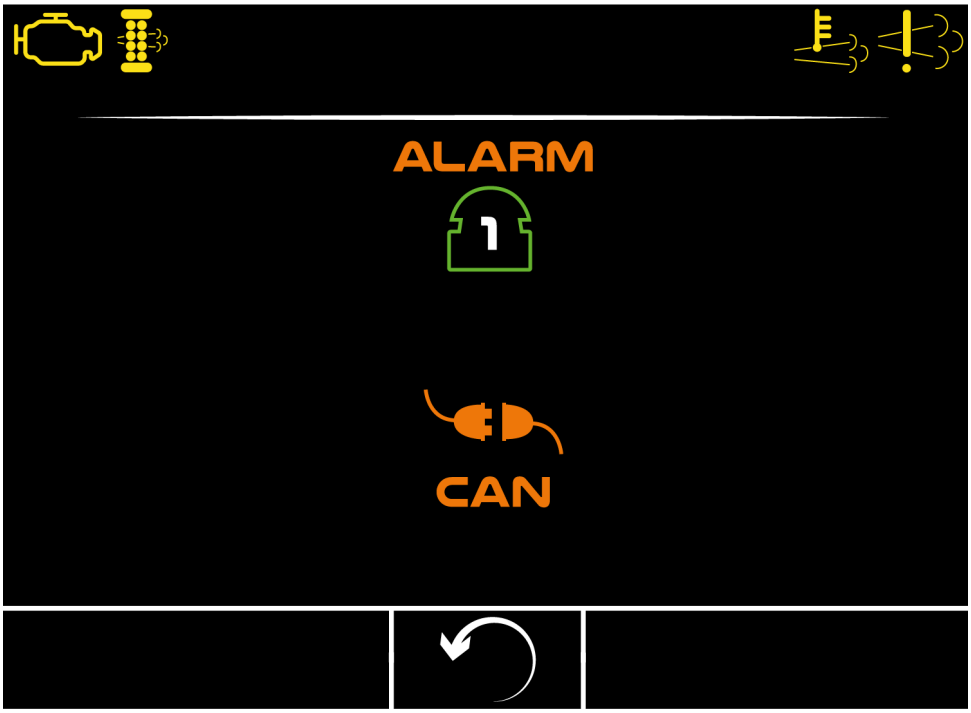


Figure 18 - Alarm screen

1.11 IGNITION SWITCH

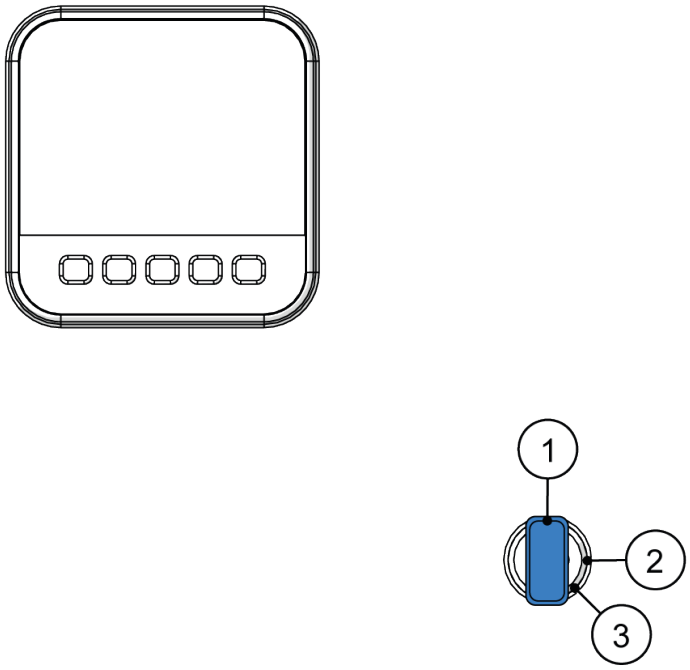


Figure 19 - Ignition switch

Off position (1, Figure 19)

This is the normal position when the machine is not in use.

On position (2, Figure 19)

This is the normal operating position. All electrical systems are on.

Start position (3, Figure 19)

This is the position for starting the engine. The key should be released from this position as soon as the engine starts.

1.12 MANUFACTURER'S STATUTORY PLATE

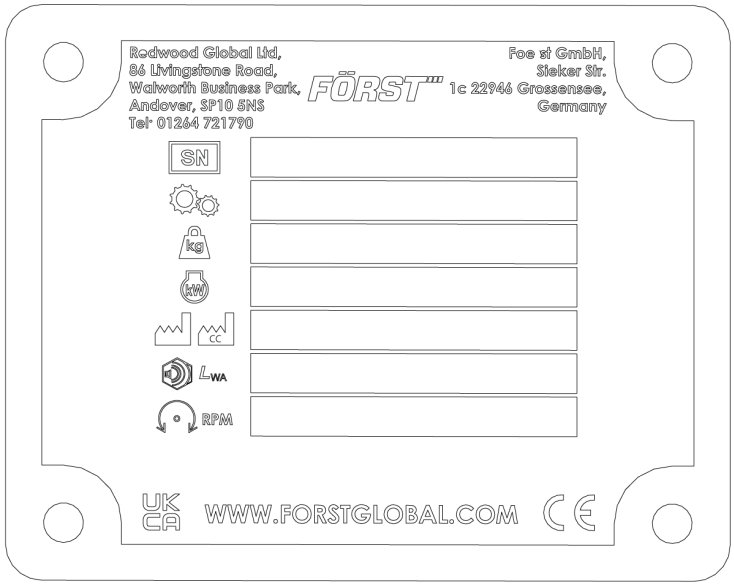


Figure 20 - Manufacturer's statutory plate

Information on the Manufacturer's Statutory Plate in line order from top to bottom is as follows:

- Manufacturing company and address
- Serial Number
- Machine designation
- Mass
- Power of prime mover
- Year of manufacture
- Sound power level
- Drive rotation and speed
- Website and CE Mark

CHAPTER 2: SAFETY INSTRUCTIONS

In this chapter:

2.1 SAFE WORKING

Before using this machine, make sure that you are trained and competent in its operation.

- Know the location of and how to use all the safety features.
- Know how to control the feed and stop the machine in an emergency.
- Be familiar with the hazards and safe working practices to prevent injury, damage to property, and machine.
- Also, be aware of the legal restrictions for personnel and towing with vehicles.

DANGER
NEVER operate the machine without the discharge chute attached. Doing so could result in serious injury.

DANGER
ALWAYS load wood from the sides of the hopper and never directly behind it.

WARNING
Prolonged exposure to vibration could lead to damage to joints, muscles, circulation and sensory nerves. It is recommended that the user operates within the safe exposure level. It is advised that the HSE Hand-Arm Vibration Exposer Calculator is utilised to calculate limits within your risk assessment.

WARNING
Only suitability trained or qualified personnel must operate this machine.

- Operators and service personnel must be above the minimum school leaving age (MSLA).
- Do not let anyone operate or service the machine who has not been fully trained.

WARNING
Always wear suitable personnel protective equipment (PPE) when operating the woodchipper machine.

Recommended PPE:

- Chainsaw safety helmet (EN 397) with mesh visor (EN 1731)
- Correctly rated ear defenders (EN 352)
- Work gloves with elasticated wrist bands
- Steel toe cap boots (EN 345-1)
- Close fitting heavy duty non-snag clothing. High visibility clothing (EN 471), if needed

Avoid:

- Wearing rings, bracelets, watches or jewellery

WARNING
When the machine is In use, woodchip and debris are ejected with considerable force from the chute.

- Make sure the discharge chute directs woodchip in a safe direction to avoid injury or property damaged

WARNING
Keep children and animals away from the working area.

WARNING
Protect breathing with a face mask if appropriate. Some plant material can give off harmful dust and poisonous vapours. This may cause respiratory problems or serious poisoning. Check the material to be processed before starting.

WARNING
All personnel operating or feeding material into the machine must wear heavy duty non-snag clothing to help prevent being caught on material and drawn into the machine. The feed mechanism of this machine uses high powered hydraulic motors to drive sharp toothed rollers that feed material into the cutting blades. **DO NOT** take risks with it.

WARNING
Never climb onto the hopper area while the engine is running. If access is required for maintenance or to clear blockages:

- Stop the engine
- Remove the ignition key

WARNING
Keep hands and feet outside the hopper at all times. Never assist any material into the feed rollers with hands or feet. Use the wooden paddle.

WARNING
Material can be forcibly ejected from the hopper towards the operator. Make sure full head and face protection is worn.

WARNING
Very twisted material should be trimmed into manageable pieces. Failure to do this can result in material extending outside the hopper, moving aggressively side-to-side creating a hazard to the operator.

WARNING
Keep all guards and shields around any moving parts in place while the machine is operational.

WARNING
Do not remove, jam, disable or otherwise impede the effectiveness of any stop and reset controls.

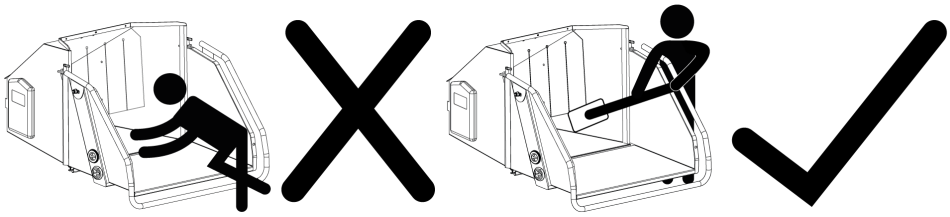
WARNING
Do not position the machine in such a way that the hopper tray is lower to the ground than the rest of the machine.

WARNING
Do not operate the machine inside a building or structure.

WARNING
Stay clear of chipping area while machine is operational.

WARNING
The exhaust can get extremely hot and may cause serious burns. DO NOT make contact with the exhaust while the machine is operational or within 30 minutes of the machine being turned off.

WARNING
DO NOT stand directly in front of the in-feed hopper when using the machine. Loading should only be conducted from the side, please refer to the safe zoning area decal.



CAUTION
When operating the machine, be aware of your surroundings and work in a safe location.

- Position the machine:
  - On as firm a surface as possible and stabilise the machine.
  - So that operators do not have to stand on embankments/slopes when feeding material into the machine.
  - Furthest from any local danger. For example, when working next to a road, position the machine on the road verge.
  - Away from drains and manhole covers.
- Make sure the machine cannot move or topple when in use.
- Do not use the machine in poor visibility or insufficient light.
- Make sure ventilation is adequate and any exhaust fumes are vented into open air if working in an enclosed space.
- Create a 10m exclusion zone around the woodchipper machine while machine is in operation.
- On all reasonably foreseeable approaches to the work-site, erect warning and prohibition signs conforming to the Health and Safety (Safety Signs and Signals) Regulations 1996, indicating a hazardous work site and that unauthorised access is prohibited. In areas of very high public access, additional controls (e.g. barrier tape, barriers, extra manning) may be required.
- Make sure all operations near to highways are adequately signed with the appropriate notices as specified in the Department of Transport's Safety at street works and road works: A Code of Practice.
- Make sure the discharge chute is positioned to prevent chips being blown onto the highway during roadside operations or in any direction where they can affect colleagues or members of the public.
- Keep the work area free of material build up.

NOTICE
If you are operating the machine outside the United Kingdom please refer to in-country safety standards.

CAUTION
Do not try to force material over 150mm (6 inches) in diameter into the machine.

2.2 GENERAL SAFETY

DO stop the machine before making any adjustments, refuelling or cleaning.

DO make sure all moving parts in the machine have stopped. Remove the ignition key before starting any maintenance or when the machine is left unattended.

DO make sure that the machine is level, well supported and cannot move during use.

DO run the machine at maximum throttle.

DO conduct regular machine checks for visual fluid leaks.

DO take regular breaks. Wearing protective equipment can be hot and tiring leading to a lack of concentration, increasing the risk of having an accident.

DO keep hands, feet and clothing out of the feed area, discharge chute and moving parts.

DO remove any debris attached to the wood, such as nails, wire or mesh before commencing work.

DO NOT use machine in poor visibility or insufficient light to see clearly.

DO NOT use or attempt to start the machine without the discharge chute or guards correctly and securely fitted.

DO NOT stand directly in front of the hopper when using the machine. Stand to one side.

DO NOT allow the following to enter the machine as damage is likely:

BRICKS	METAL
STRING	GLASS
CLOTH	RUBBER
PLASTIC	ROOTS
STONES	BEDDING PLANTS

DO NOT stand in front of the discharge chute.

DO NOT smoke when refuelling. Fuel is highly flammable and explosive in certain conditions.

DO NOT let anyone who has not received instruction, operate the machine.

DO NOT climb on the machine at any time except for the foot plate fitted to tracked machines.

DO NOT handle material partially engaged in the machine while in operation.

DO NOT touch any exposed wiring while the machine is running.

2.3 NOISE TEST INFORMATION

Machine TR6P

Notes Tested chipping 50 x 50mm pine or an equivalent type of timber 4m in length.

Noise levels above 90dB will be experienced at the working position and within a metre radius. Operators and personnel must wear appropriate ear protection at all times while machine is in operation to reduce the risk of hearing damage.

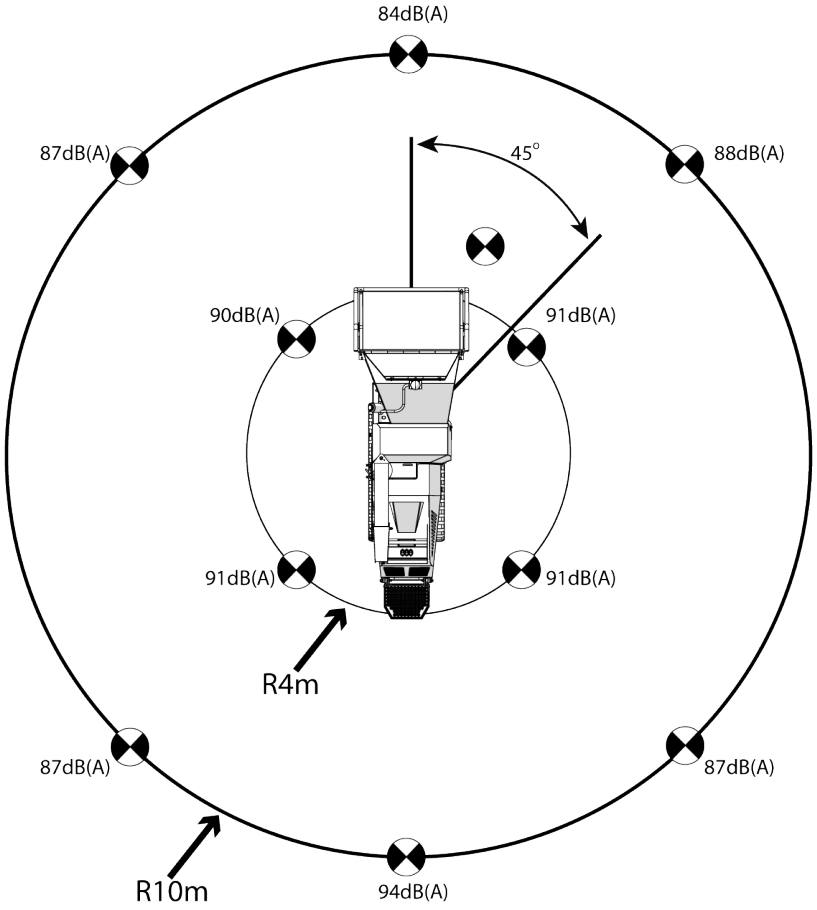


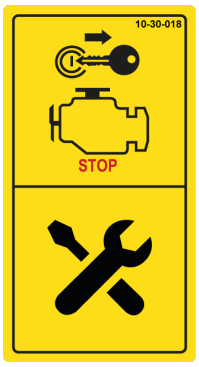
Figure 21 - Noise test information

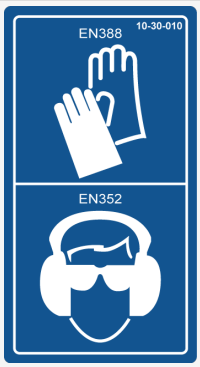
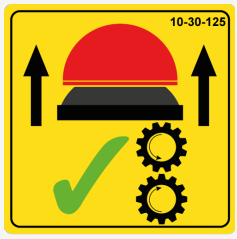
A-weighted emission sound pressure (beside operator's ear) LpA = 106.3 dB(A). Peak C-weighted instantaneous sound pressure (beside operator's ear) LCpeak = 128.4 dB(C). Results at 10 metre radius are calculated.

Guaranteed sound power: 118 **dB(A)**

As required by Forestry machinery - Wood chippers – Safety BS EN 13525 and in line with Machinery Directive 2006/42/EC.

2.4 DECALS

Decal	Description	Decal	Description
	CE (Conformité Européenne or European Conformity) mark. Manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environment protection legislation. UK Conformity Assessed marking is a certification mark that indicates conformity with the applicable requirements for products sold within Great Britain.		Ensure that all rotating parts have stopped before maintenance
	Warning: Risk on access to the in feed and/or chipping components (cutting, crushing and entanglement)		Warning: Risk of being pulled into the in feed mechanism. Warning: Stay within the designated manual loading area when feeding the chipper. Warning: Do not climb into the in feed chute
	Warning: Read the operators manuals before working on the machine		Turn the feed roller controls to 4.5 for optimal results when chipping leafy material.

Decal	Description	Decal	Description
	Use only close fitting gloves, suitable hearing protection and eye protection to protect against the risk of ejected material.		Apply 2x parts of grease to each grease nipple after 8 hours of operation.
	Tighten the flywheel nuts to 310Nm. Warning: danger of cutting		Warning: Do not run the engine with the discharge chute removed.
	Use only Petrol for this machine		Pull the E-Stop up to engage the feed rollers if feed rollers are stopped.

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CHAPTER 3: TRANSPORTATION AND STORAGE

In this chapter:

3.1 LOADING MACHINE ONTO A TRAILER

> NOTICE
> The machine should only be transported on a trailer, it does not have a tow bar or wheels. The machine should not be towed under any circumstances.

1. Drive the machine onto your trailer, then make sure the following is carried out before departing:
    a. The engine is off.
    b. The hopper tray and footplate are in the raised position.
    c. Tie down the machine using the tie down points located on both tracks.

Refer to your trailer manual for information on how to properly tie down.

2. When hauling the machine, obey the legal towing requirements/limits for your country.
3. On very rough and uneven road surfaces, reduce the speed to protect the machine from undue vibration.
4. When off road:
    a. Avoid objects that may collide with the trailer underside.
    b. Avoid steep gradients.
5. Avoid excessively pot holed ground.
6. Exercise extreme caution when reversing the trailer, as the short wheelbase will react quickly to steering.

3.2 UNLOADING MACHINE FROM A TRAILER

Follow the procedure below to unload the machine from the trailer safely.

1. Make sure the trailer is on level and stable ground, and lower any stabilisers.
2. Unfasten the straps used to tie the machine down.
3. Start the engine.
4. Slowly drive down the ramp by moving the levers in the required direction.

3.3 MACHINE LIFTING

DANGER
The lifting eye should not be used as the single point for lifting.

WARNING
When lifting the woodchipper, be aware that the lifting eye can securely hold the machines weight only.

- Use a correctly rated safety shackle.
- Inspect the lifting eye before each use.
- Do not use the lifting eye if damaged.
- Do not use a hoist hook directly on the lifting eye.

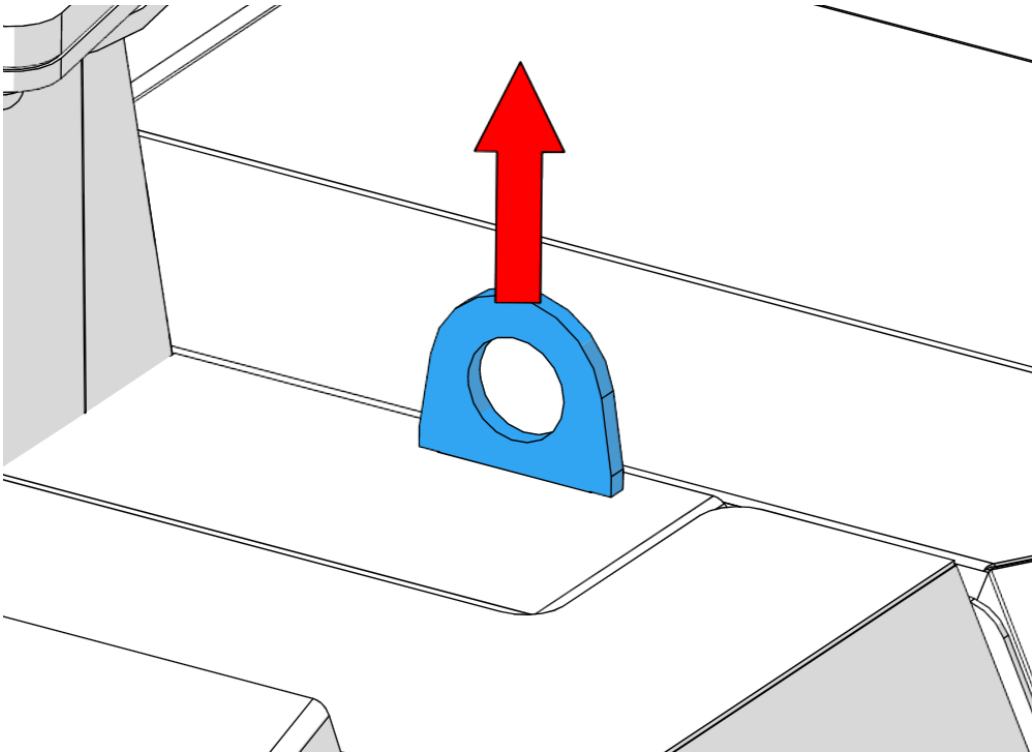

Figure 22 - Lifting eye

3.4 REMOVING THE DISCHARGE CHUTE

DANGER
DO NOT remove the rear chute clamp when removing the chute. Doing so will result in the chute falling.

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Rotate the discharge chute so that is not hanging over the machine.
   ► *Refer to "Removing the discharge chute" on page 52*
4. Loosen the front chute rotation clamp by rotating the clamp lever.

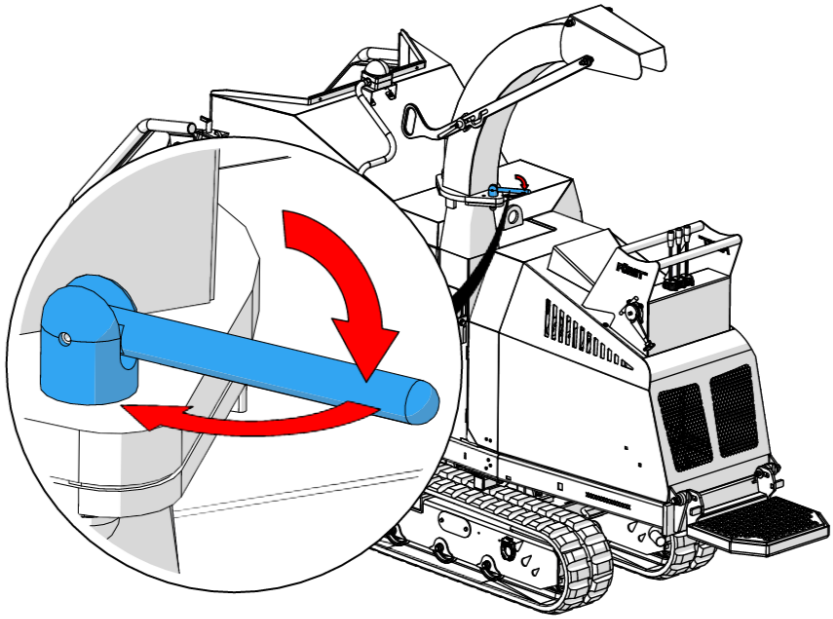

Figure 23 - Front rotation clamp

5. Remove both the clamp and the clamp nut and put them somewhere safe. Hold the clamp and nut while removing so they do not fall.

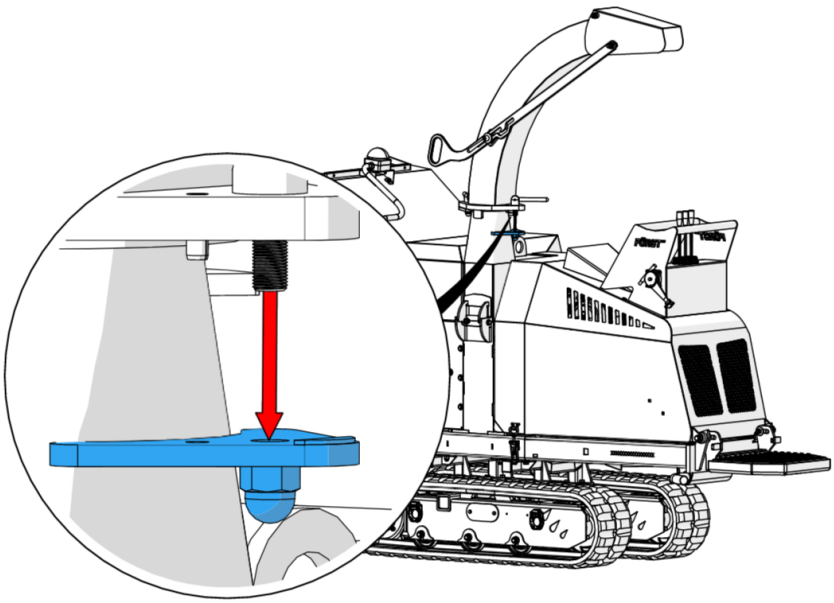

Figure 24 - Remove clamp and nut

6. Loosen the rear clamp by rotating the clamp lever.

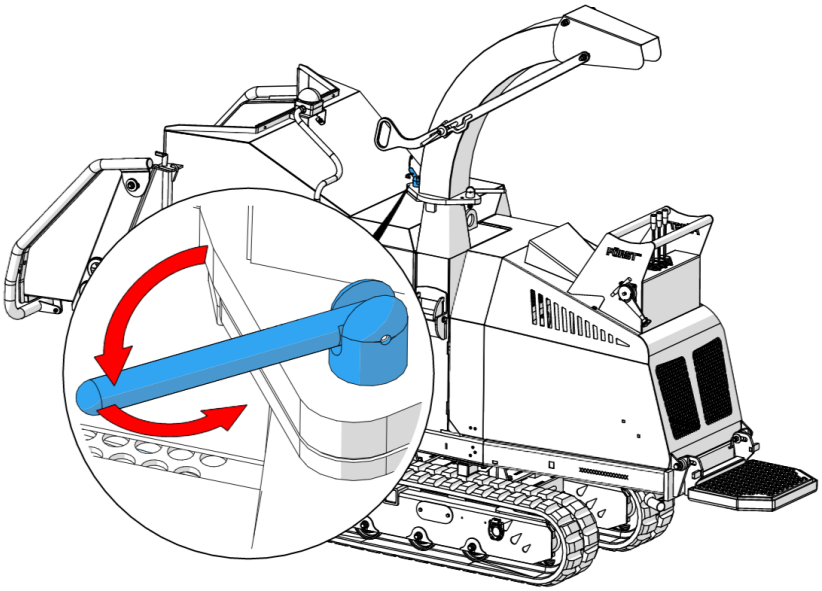

Figure 25 - Rear rotation clamp

7. Using 2x hands, carefully slide the chute backwards removing it from the machine.

3.5 STORAGE

If the machine will not be used for an extended period, you must store the machine correctly. If you prepare the machine carefully and apply on-going care you can prevent deterioration and damage to the machine while it is in storage.

3.5.1 PREPARING THE MACHINE FOR STORAGE

1. Clean the machine to remove all unwanted material and corrosive products.
2. Dry the machine to remove solvents and moisture.
3. Apply grease to the moving parts.
4. Examine the machine for worn or damaged parts. Replace if necessary.
5. Fill the fuel tank to prevent a build up of condensation in the tank.
6. Examine all fluid levels. Top up if necessary.
7. Disconnect and remove battery (place in suitable storage).
8. Rotate the discharge chute so that it is positioned over the centre of the machine or remove the discharge chute.

3.5.2 PUT INTO STORAGE

1. Park the machine on solid, level ground.
    a. Park the machine in an area where it is easy to access. (In case the machine does not start at the end of the storage period).
    b. Put suitable timbers under the machine to eliminate direct contact with the ground.
2. Remove the ignition key.
3. Remove the battery.
    a. Keep the battery in warm, dry conditions.
    b. Charge the battery periodically.
4. If you keep the machine outdoors, cover the machine with tarpaulins or plastic sheets.

3.5.3 DURING STORAGE

Operate the machine functions each week to prevent a build up of rust in the engine and hydraulic circuits and to minimise the deterioration of the hydraulic seals.

1. Remove any covers.
2. Examine all fluid levels. If necessary, add more fuel.
3. Install a charged battery.
4. Start the engine.
5. Operate the feed roller controls. Make sure that the feed roller functions operate correctly.
6. Prepare the machine for storage.

3.5.4 TAKE OUT OF STORAGE

1. Remove any covers.
2. Examine all fluid levels. If necessary replace the fluid or add more fluid.
3. Check the condition of the tracks, remove any debris that may impede the functionality of the tracks.
4. Clean the machine to remove all unwanted material and corrosive products. Dry the machine to remove solvents and moisture.
5. Install a charged battery.
6. Start the engine.
7. Operate the feed roller controls. Make sure that the feed roller functions operate correctly.

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CHAPTER 4: OPERATION

In this chapter:

4.1 PREPARATION FOR USE

Do not attempt to operate a newly delivered machine before complying with the preparation for use instructions. The operator must be thoroughly familiar with the operating and safety instructions before using the machine.

General

The machine has been lubricated, adjusted and tested by the manufacturer prior to delivery; however a new unit must be properly prepared for service by carrying out the daily checks.

► *Refer to "Daily checks" on page 81*

CAUTION
Only operate the machine while standing on the foot plate facing towards the front of the machine.

CAUTION
The machine is not road legal, do not operate on and public roads.

CAUTION
The machine is designed to carry one operator at a time, under no circumstance must there be any passengers on the machine.

NOTICE
When the machine is new, the hydraulic oil level may drop during initial use. Regularly check the level and top-up until the level settles. If a top-up is required, thoroughly clean around the filler cap before removing to help prevent debris falling into the oil tank, top up as required ad replace the filler cap.

All the checks concern the serviceability of the machine. Some concern your safety. Get your service engineer to check and correct any defects.

4.2 POSITIONING THE MACHINE FOR USE

WARNING
Take care when lowering and lifting the hopper. Improperly handling the hopper can result in injury.

CAUTION
Obey all relevant safety warnings when positioning the machine for operation.

To set up the machine for operation follow the procedure below.

1. Make sure the machine is on even, level, and stable ground.

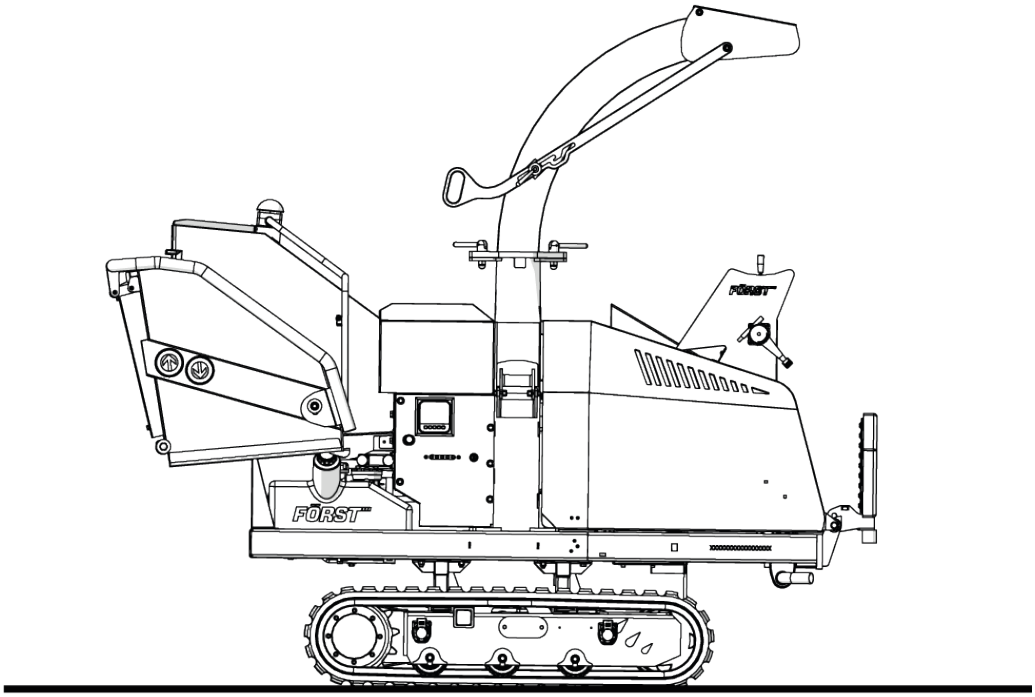


Figure 26 - Positioning the machine

2. Disengage both hopper tray locking latches.

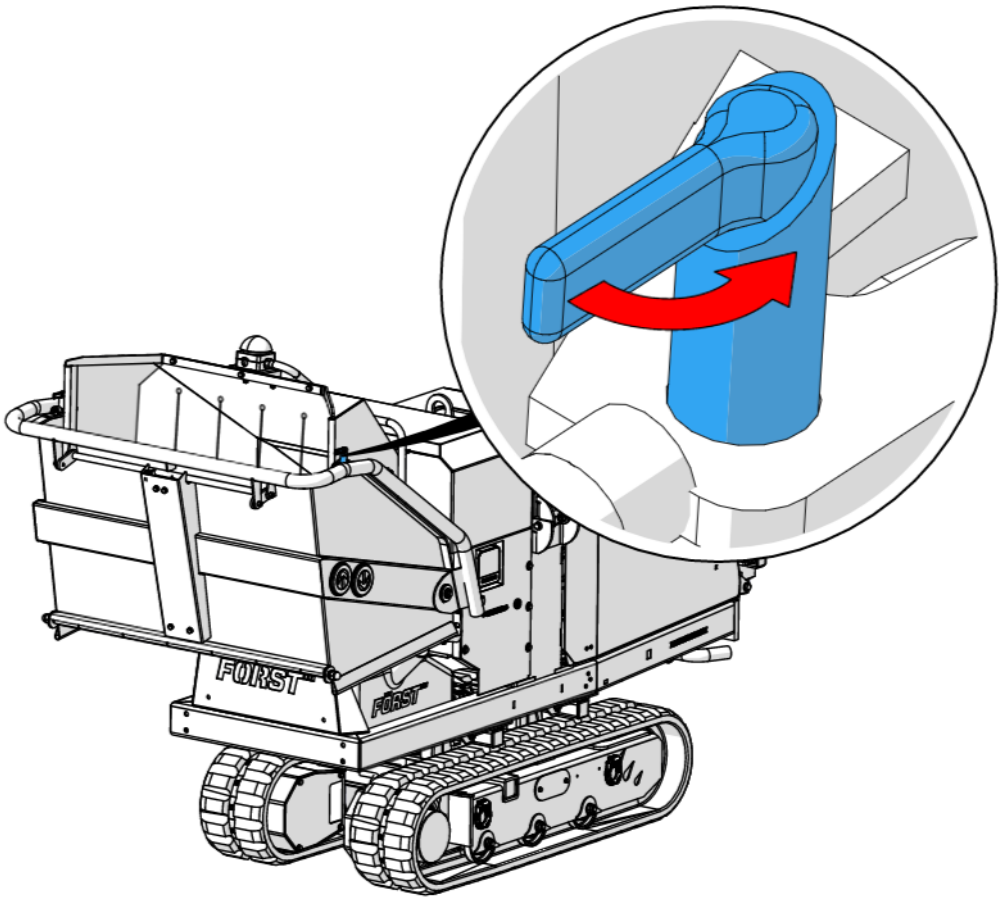


Figure 27 - Hopper tray locking latch

3. Lower the hopper tray in a controlled manner (do not drop the hopper tray).
4. Engage the locking latches, locking the hopper tray in the down position.

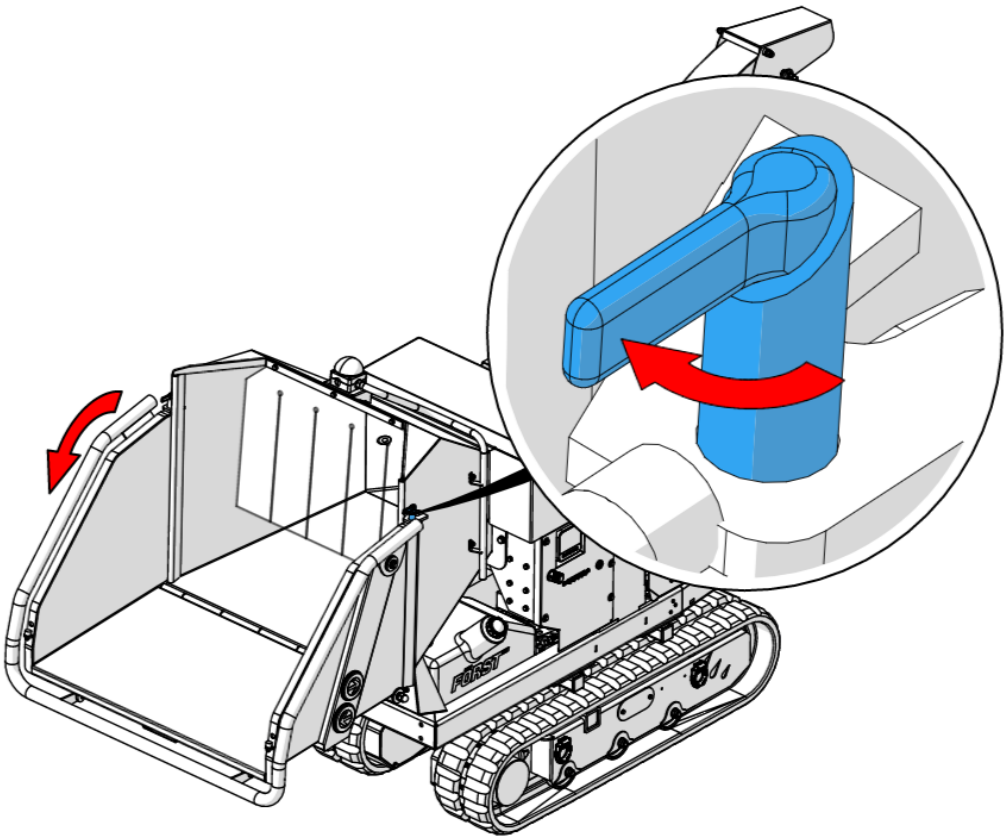


Figure 28 - Hopper tray locked down

5. Rotate the discharge chute to direct woodchip in a safe direction to avoid injury or property damaged.
6. You are now ready to start the engine.

4.3 SAFETY & FUNCTION TEST

The safety & function test makes sure that the safety devices and controls on the machine are working correctly.

WARNING
If any of these checks fail, turn off the machine, remove the key from the ignition switch, and contact FörstAssist.

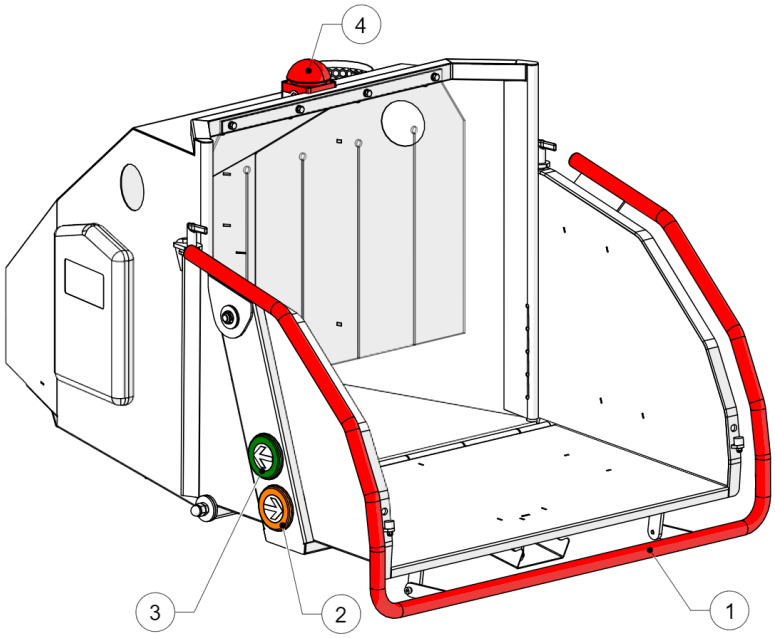
CAUTION
Faulty or malfunctioning safety devices and controls can put users at risk of injury. If the machine fails any of the safety and function checks, do not use it.

GREEN AND ORANGE HOPPER BUTTONS

Table 2 - Safety and function test

	Action	Expected outcome	
1	Visually inspect the stop bar, stop bar damper, stop bar sensor, hopper tray sensor and hopper tray buttons.	No signs of damage.	☐
2	Visually inspect the E-stops.	No signs of damage and in reset position.	☐
3	Start the engine.		☐
4	Push the green hopper tray button on either side of the hopper tray.	The rollers do not turn.	☐
5	Lower the hopper tray.		☐
6	On the right-hand side of the hopper tray, do the following:		☐
	a. Push the green hopper tray button.	The feed rollers do not turn.	☐
	b. Push and hold the orange hopper tray button.	The feed rollers turn backwards continuously while held.	☐
7	On the left-hand side of the hopper tray, repeat step 6.		☐
8	Increase the engine speed to maximum RPM.		☐
9	On the right-hand side of the hopper tray, do the following:		☐
	a. Press and hold the orange hopper tray button.	The feed rollers turn backwards continuously while held.	☐
	b. Push the green hopper tray button.	The feed rollers turn backwards.	☐
	c. Push the stop bar.	The feed rollers stop	☐
10	On the left-hand side of the hopper tray, repeat step 9.		☐
11	Push any green hopper tray button.	The feed rollers turn forwards.	☐
12	Reduce the engine speed to idle.	The feed rollers stop.	☐
13	Increase the engine speed to maximum RPM	The feed rollers turn forwards.	☐

	Action	Expected outcome	
14	Turn the feed roller flow control valve between 1 and 10.	The speed of the feed rollers decreases and increases.	☐
15	Close the hopper tray.	The feed rollers stop.	☐
16	Reduce the engine speed to idle.	Allow the machine to run for 30s.	☐
17	Open the bonnet.	The engine shuts down.	☐
18	Close the bonnet.		☐
19	Do the following for each E-Stop button.		☐
	a. Restart the woodchipper.		☐
	b. Lower the hopper tray.		☐
	c. Increase the engine speed to maximum RPM.		☐
	d. Push any green hopper tray button.	The feed rollers turn forwards.	☐
	e. Push the E-Stop button.	The feed rollers stop.	☐
	f. Reduce the engine speed to idle.		☐
	g. Reset the E-Stop button.		☐
20	Turn the key to the off position and remove it from the ignition.		☐



1 Stop bar
2 Orange reverse button
3 Green forward button
4 E-stop

Figure 29 - Feed roller controls

4.4 FEED ROLLER SPEED ADJUSTMENT

The feed roller speed can be adjusted to suit the material being chipped, refer to Figure 30.

1. Turn dial to align number with paint spot (1, Figure 30).
2. Set the feed roller speed so that the No-Stress operates as little as possible, this will give the highest throughput.
3. When feeding Leylandii or leafy material, set the feed roller speed to **4.5**.
4. Control valve speed adjustment.

   Position indicated by paint spot. (1, Figure 30):

   - 0 = Minimum
   - 10 = Maximum

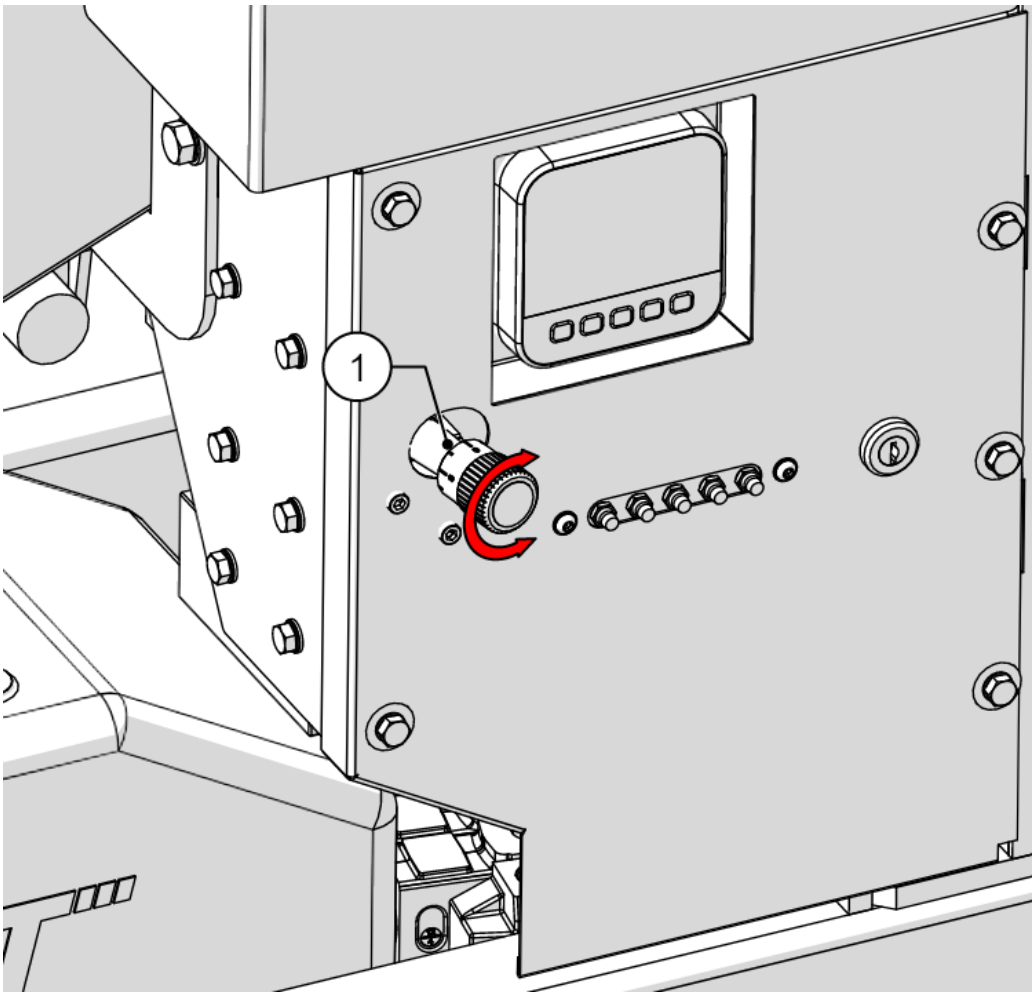


Figure 30 - Feed roller speed adjustment

4.5 STARTING THE MACHINE

Carry out daily checks before first use of machine everyday.

To start safely, follow the start up procedure below.

1. Insert the key into the ignition.
2. Make sure that the discharge chute is pointing in a safe direction.
3. Turn the key 90° clockwise.
   The screen switches on.

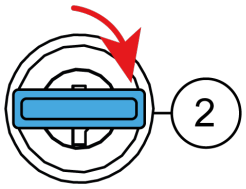


Figure 31 - Key in the ON position

4. After the screen has switched on, turn the key 45° clockwise. Hold the key in this position until the engine starts or the crank cycle finishes. The crank cycle typically takes 5 seconds.

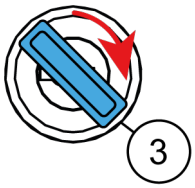


Figure 32 - Key in the engine crank position

   - If the engine doesn't fire, turn the key to the OFF position and return to step 3
   - If the engine doesn't fire after trying three times, check for faults.

   ► *Refer to "Troubleshooting" on page 117*

5. Once engine has started, allow the engine to idle for 30 seconds for the oil to flow around the engine before slowly increasing the speed to maximum.

> **NOTICE**
> Increase and decrease the engine speed slowly, especially during the first 50 hours of operation.

6. Increase speed to maximum.

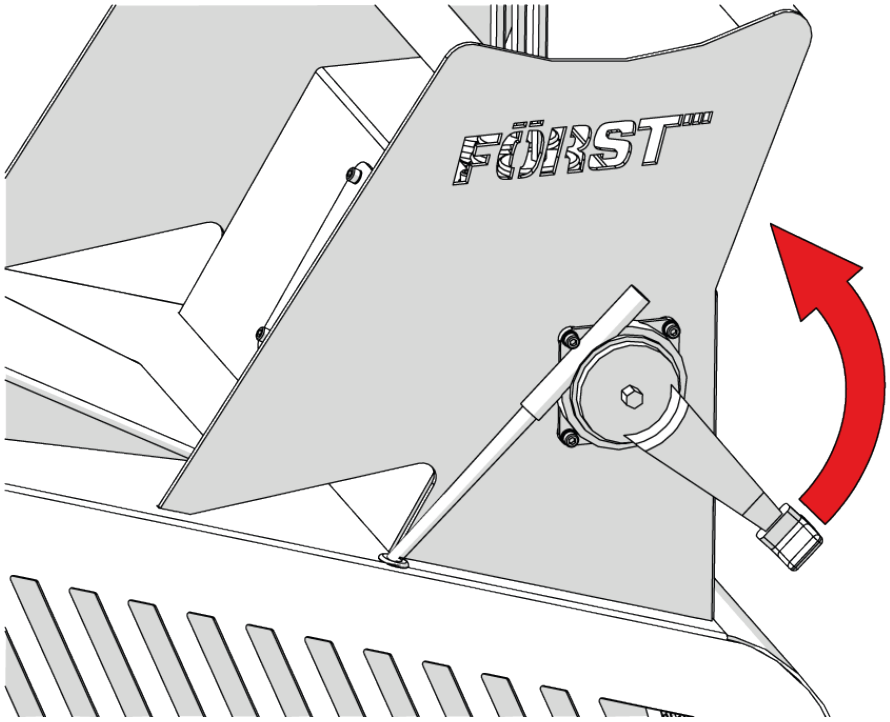


Figure 33 - Maximum throttle position

7. Check the safety system is functioning correctly.
8. The machine is now ready for use. Wait until the engine is warm before heavy use.

4.6 OPERATING THE MACHINE

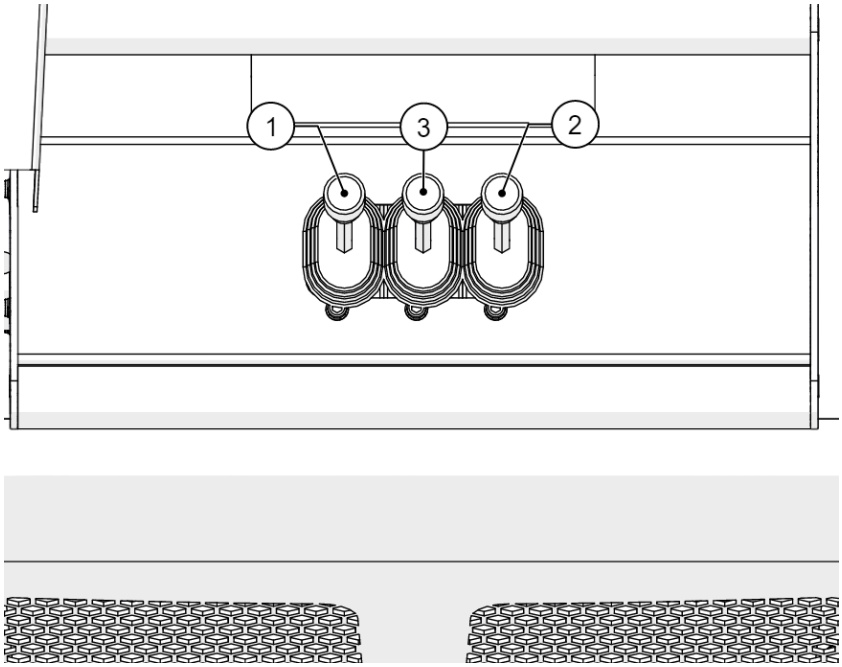
WARNING
Do not operate the left and right levers in opposition to one another with high engine speed, doing this causes the machine to spin on its axis. This could lead to serious injury or death.

WARNING
Take great care when driving on inclined ground as there is a risk of the machine toppling. Do not drive on ground with an incline in excess of 15°.

WARNING
Make sure the engine and hydraulic oil are warm before working on inclined ground. If the machine has to be stopped on an incline, make sure that the machine is pointing either up or down the slope and chock both tracks at the downhill end.

NOTICE
Avoid driving on ground too soft to support the machine's weight.

Driving controls are all situated on the engine cover and operated while standing on the fold down foot plate.



Item	Description
1	Left track lever
2	Right track lever
3	Vari track lever

Figure 34 - Controls

Lever 1 operates the left track, pushing the lever forward causes the machine to turn right and pulling the lever causes the machine to reverse left.

Lever 2 operates the right track, pushing the lever forward causes the machine to turn left and pulling the lever causes the machine to reverse right.

Pushing the levers together drives the machine forward while pulling the levers together will cause the machine to reverse.

Lever 3 operates the machines vari track. Pushing the lever forwards widens the track base. Pulling the lever shortens the track base.

4.7 SHUTTING DOWN THE MACHINE

To shut down safely, follow the procedure below.

1. Reduce the speed to idle.

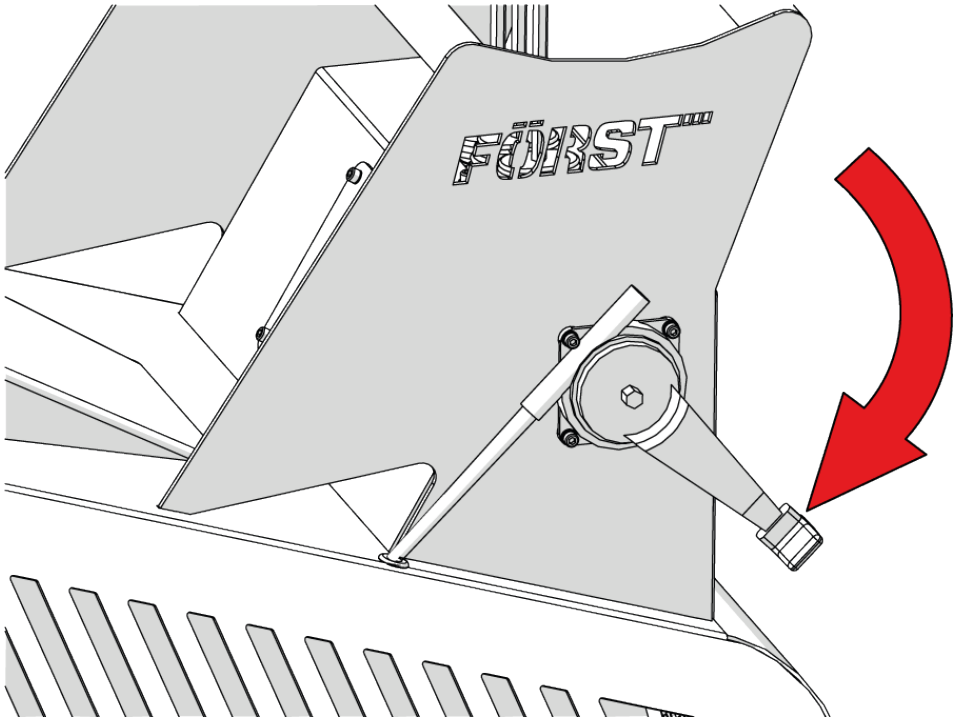


Figure 35 - Idle

2. Allow the engine to run unloaded and idle for 30 seconds.
3. Turn the key 90° anticlockwise.

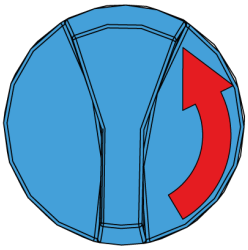


Figure 36 - Key in the OFF position

4. Wait until the engine comes to a complete stop.
5. Remove the ignition key and keep it in a safe place.

4.8 REMOVING BLOCKAGES

Be careful, whatever is fed into the machine has to come out of the discharge chute.

DANGER
Stop the engine before attempting to remove any blockages in the machine. Failure to do so may result in serious injury and loss of life.

CAUTION
Take care when clearing any blockages, potential energy in the machine can cause sudden movements between the teeth and in feed components.

CAUTION
Always monitor the woodchip flow out of the discharge chute. If the flow stops, **stop feeding material immediately**. Continuing to feed material will further compact a blockage and make it more difficult to clear.

1. Stop the engine
2. Remove the ignition key and keep in a safe place.

Check the discharge chute:

3. Remove the discharge chute.
4. Make sure that there is no blockage in the discharge chute.
   If the discharge chute is blocked, remove the unwanted material.

Check the flywheel and chipping chamber:

WARNING
When moving the flywheel in either direction, position your hands correctly to avoid injury. Position your hands as shown in Figure 37 and Figure 38.

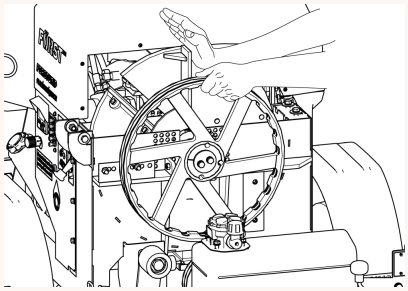


Figure 37 - Pushing the flywheel away from you

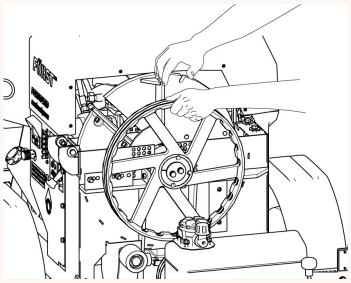


Figure 38 - Pulling the flywheel towards you

5. Check if the flywheel is free to rotate.
6. If the flywheel does not rotate freely do the following:
7. Wearing protective gloves and using a **piece of wood**, carefully clean out the chipping chamber.

Check the feed rollers:

8. Open the bonnet.
9. Open the chipping chamber cover.
   ► *Refer to "Opening the chipping chamber cover" on page 88.*
10. Using a suitable tool, loosen the nuts located on top of the spring hangers.

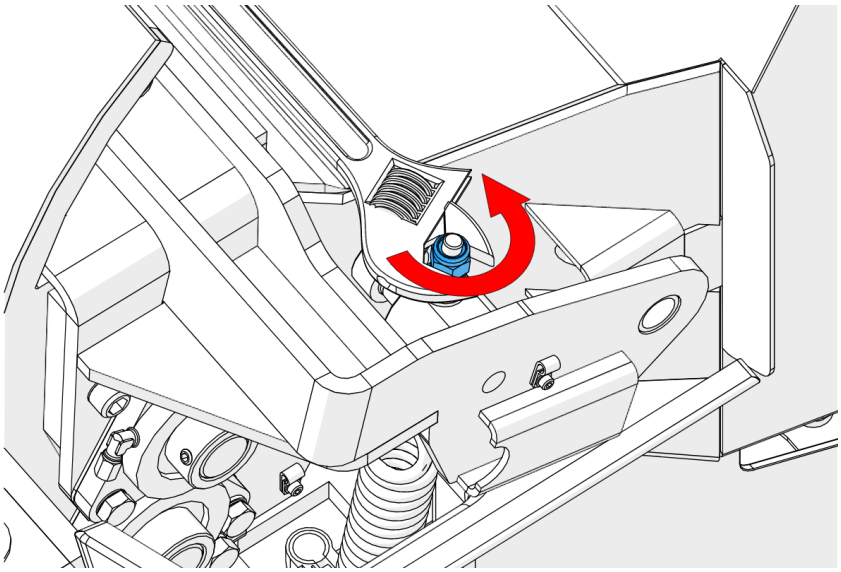


Figure 39 - Spring hanger

11. Put the top feed roller lifting tool (1, Figure 40) into the slot (2, Figure 40).

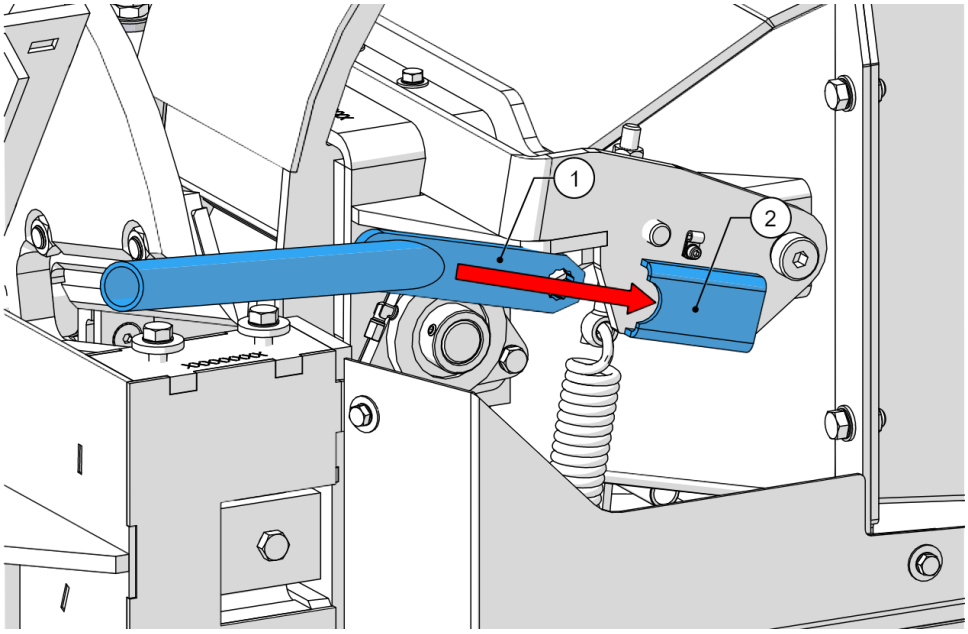


Figure 40 - Feed roller spring tension

12. 2x people are needed for this step. One person lifts the top feed roller (2, Figure 41) to the fully open position while the other person, wearing protective gloves and using a piece of wood, carefully clears the blockage from inside the feed chamber.

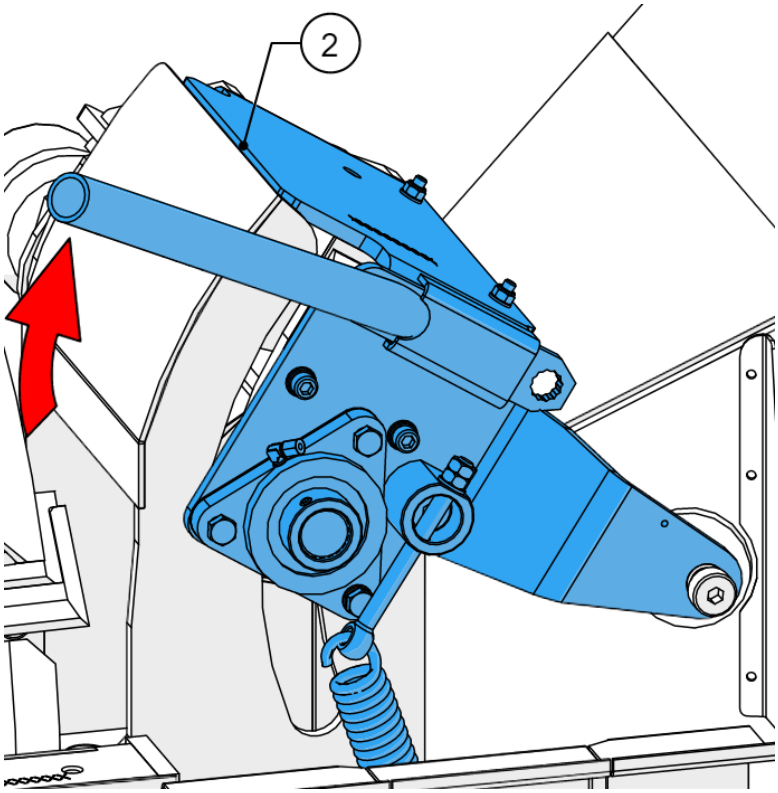


Figure 41 - Raising the top feed roller housing

WARNING
Be careful: this is the machines cutting zone. The top and bottom feed rollers have sharp teeth and, the flywheel cutting blades are not far from them. **Do not put your hands into this area**.

4.9 REMOVING THE HOPPER

DANGER
The hopper weight is approximately 130kgs, **DO NOT** attempt to remove the hopper alone. Refer to your risk assessment.

DANGER
DO NOT attempt to remove the hopper while on uneven or soft ground. Doing so may lead to falling or tripping while handling the hopper.

To remove the hopper, follow the procedure below:

1. Turn off the engine.

► *Refer to "Shutting down the machine" on page 70*

2. Remove the key from the ignition and store it in a safe place.
3. Disconnect the plug from its socket.

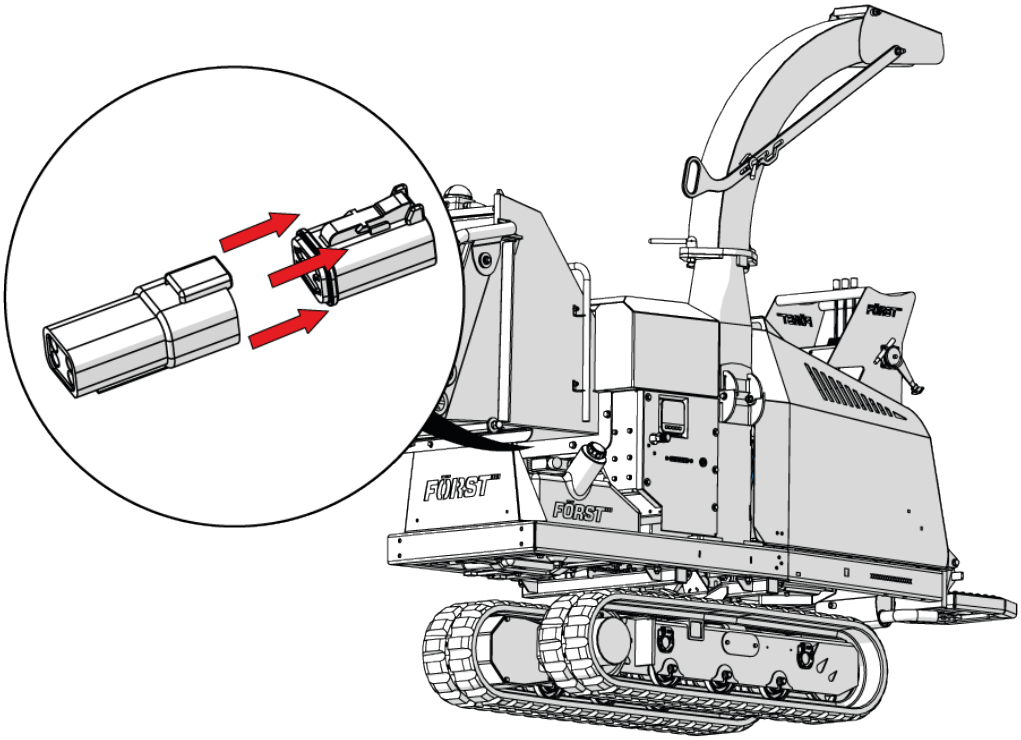


Figure 42 - Disconnect plug

4. Using a suitable tool, ONLY remove the nuts and bolts located underneath, either side and between the hopper and hopper support.

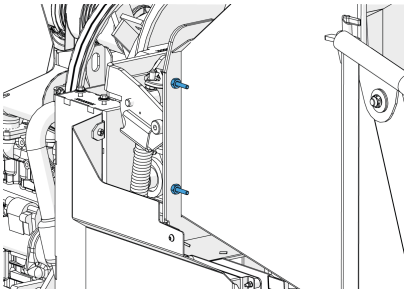


Figure 43 - Hopper bolts left side

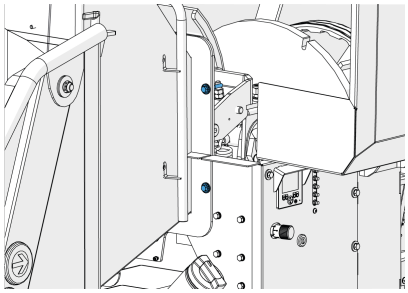


Figure 44 - Hopper bolts right side

5. Using a suitable tool loosen the bolts located along the top edge of the hopper.

WARNING
Removing these bolts will result in the hopper falling.

6. Close and lock the hopper tray.
   ► *Refer to "Positioning the machine for use" on page 59.*
7. Slowly and carefully lift the hopper upwards until the top bolts are clear of their corresponding slots.

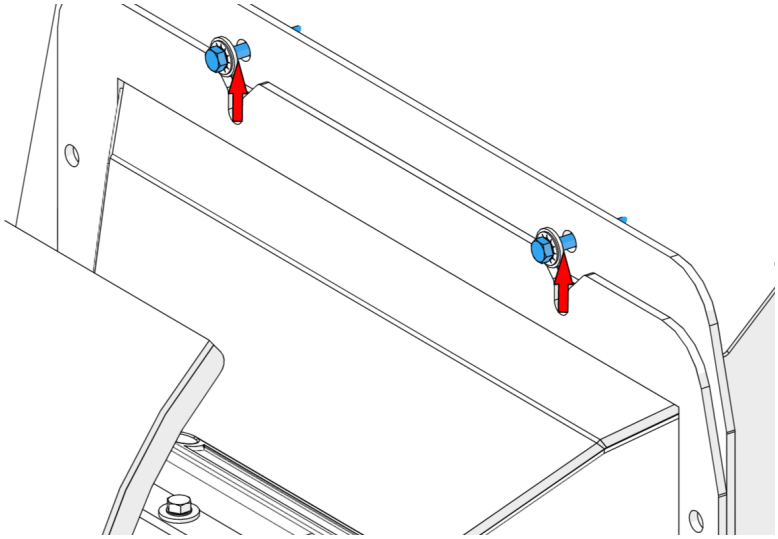


Figure 45 - Lifting hopper

8. The hopper is now removed from the machine, slowly and carefully place the hopper in somewhere safe.

4.10 INSTALLING THE HOPPER

DANGER
The hopper weight is approximately 130kgs, **DO NOT** attempt to install the hopper alone. Refer to your risk assessment.

DANGER
DO NOT attempt to install the hopper while on uneven or soft ground. Doing so may lead to falling or tripping while handling the hopper.

To install the hopper, follow the procedure below:

1. Turn off the engine.
   ► *For more information, refer to "Shutting down the machine" on page 70*
2. Remove the key from the ignition and store it in a safe place.
3. Partially screw bolts into the top holes of the hopper.
4. Carefully lower the hopper in to place by inserting the bolts located along the top of the hopper into their corresponding slots located on the hopper fixing plate.

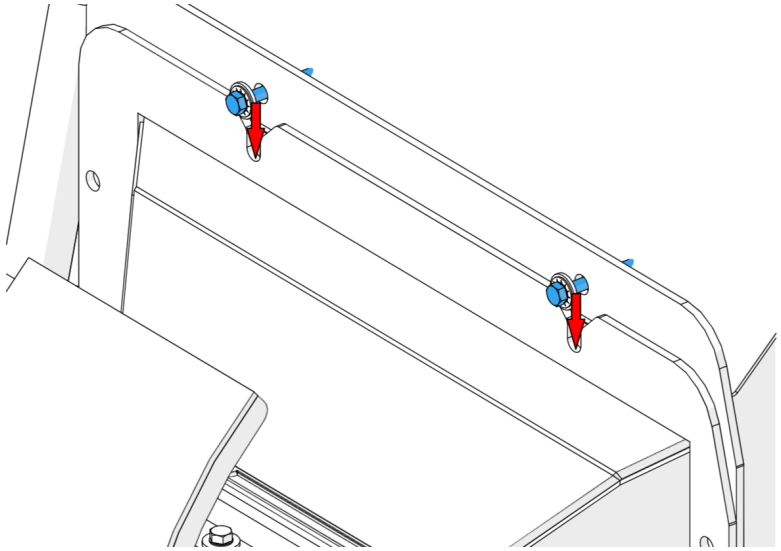


Figure 46 - Install hopper

5. Once the hopper is in place, torque the bolts to **86Nm**.

6. Reconnect the hopper tray plug.

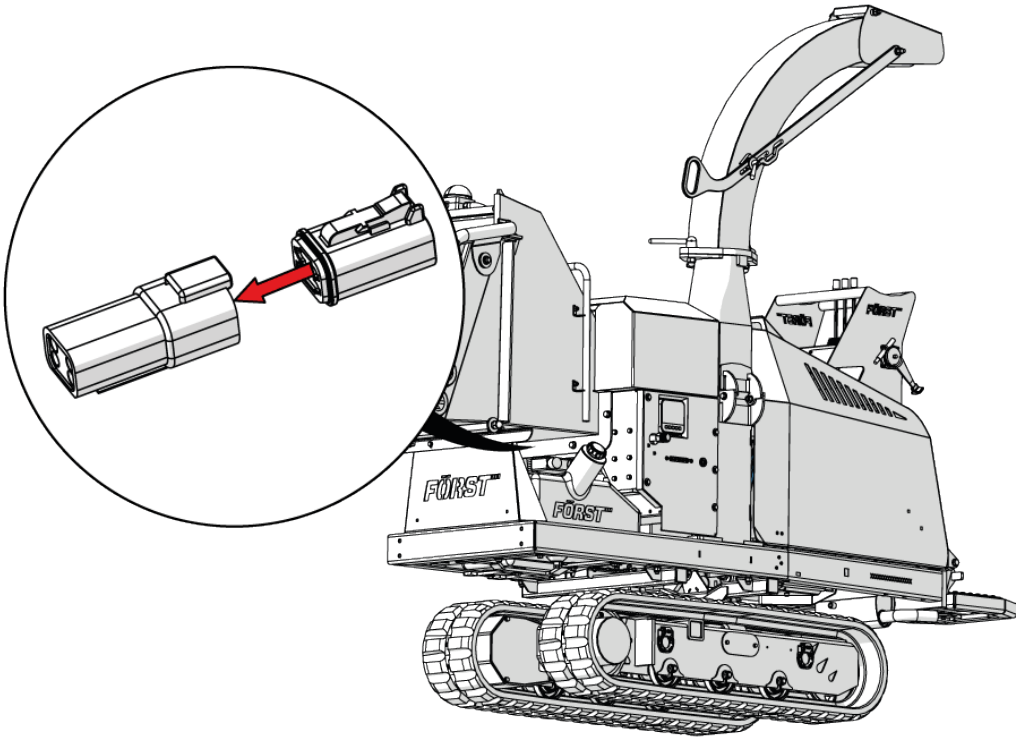


Figure 47 - Connect plug

7. Lower the hopper tray.
   ► *Refer to "Positioning the machine for use" on page 59*
8. Using a suitable tool replace the nuts and bolts on the underside, either side of the hopper, and between the hopper support and hopper. Torque the bolts to **86Nm**.

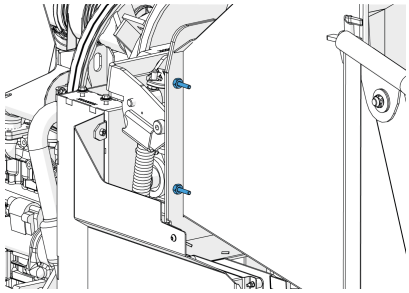


Figure 48 - Hopper bolts left side

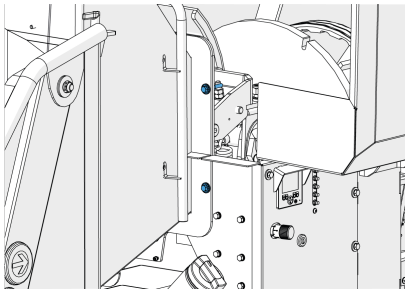


Figure 49 - Hopper bolts right side

9. Close the chipping chamber cover.
10. Close the bonnet.

4.11 SAFE SLOPE OPERATION

DANGER
If operating on a slope or uneven surface the machine may tip over and cause serious injury, crushing or death.

WARNING
Ground conditions can effect the values shown in this section dramatically. Use extra caution when operating the machine on wet or damp ground.

Operating safely on a slope depends to many factors including:

- Even or rough conditions
- Potential for ground giving way causing machine to unexpectedly tilt forward, backwards or sideways
- Proximity of ditches, ruts, stumps, or other obstacles and sudden changes in inclines
- Speed
- Turning
- Braking performance
- Operator skill

It is important for the operator to be aware of these conditions and adjust the operation of the machine accordingly.

Maximum Chipper Operating Angle:

The maximum engine angle must never be exceeded.

Maximum engine lubrication angle is 15°.

CHAPTER 5: MAINTENANCE

In this chapter:

5.1 ROUTINE MAINTENANCE

WARNING
Make sure the key is removed from the ignition before commencing any service or maintenance on the machine.

WARNING
Exercise extreme care when checking for leaks. Hot liquid may cause scalding.

WARNING
Exercise extreme care to avoid injury when removing and replacing blades and anvils. The flywheel can turn creating crush and cutting points in and around the chipping chamber.

WARNING
Beware of hydraulic oil leaks, they can cause serious injury while the engine is running and the system is under pressure. A leak can easily inject high pressure oil deep into flesh and blood stream requiring immediate medical attention. **Do not check for leaks while the engine is running**. Hoses to the feed roller hydraulic motors are the most likely to become damaged as they are constantly moving during use. If hoses are replaced, all seals must be replaced at the same time.

WARNING
Damaged hydraulic hoses can cause fatal accidents. Inspect the hoses regularly. Do not use the machine if a hose or hose fitting is damaged.

WARNING
Fluid Under Pressure.
Fine jets of fluid at high pressure can penetrate the skin. Keep face and hands well clear of fluid under pressure and wear protective glasses and gloves. **Turn off the engine before checking for leaks**. If fluid penetrates your skin, get medical help immediately.

NOTICE
When the machine is new, the hydraulic oil level may drop during initial use. Regularly check and top-up until the level settles. If a top up is required, thoroughly clean around filler cap before removing to help prevent debris falling into oil tank, top up as required and replace filler cap.

5.2 DAILY CHECKS

Perform the following checks before putting the unit into operational service and before each operational day.

Table 3 - Daily checks

Item	Check	Further action	✓ /✗
1	Nuts, bolts and washers secure	Visual check of all nuts, bolts, and washers for security	☐
2	Check the throttle	• Make sure the throttle can move freely and the throttle cable is taught. Adjust if required. • Tight enough to hold maximum RPM	☐
3	Check the control lever	Make sure the levers move freely and are all clear of dirt and debris	☐
4	Check the lighting cable and adapter	Undamaged	☐
5	Check all fluid levels	• Engine oil • Hydraulic oil	☐
6	Proximity sensors are not damaged and work correctly	• Bonnet • Hopper tray • Stop bar	☐
7	Discharge chute	• Chute clamps – function and security • Deflector handle – fitted and secure	☐
8	Fuel tank	Fuel level and free from debris inside	☐
9	Check the stop bar	• Free to operate • Feed rollers stop when pressed	☐
10	Check the E-Stop (if fitted)	• Free to operate • Feed rollers or engine stop when pressed	☐
11	Check the hopper tray buttons	• Free from damage • Function correctly ► *For more information, refer to "Safety & function test" on page 62*	☐
12	Feed roller function	Feed rollers operate backwards and forwards at maximum RPM	☐
13	Check the hopper tray catches	Secure hopper tray	☐
14	Check the battery	• Terminals secure • Clamp secure	☐
15	Check the bonnet catches	• Secure • Function correctly	☐

Item	Check	Further action	✓ /✗
16	Check for fluid leaks	Visual check for any fluid leaks	☐
17	Check the lights	All lights working correctly and in good condition	☐
18	Check the tracks	The tracks are in good working order	☐
Additional comments:			
Date of check: Individual (Print Name): Individual (Signature):			

For additional sheets go to www.forstglobal.com.

5.3 WEEKLY MAINTENANCE CHECKS

Perform the following checks every week, or after every 8 hours of use.

Table 4 - Weekly checks

Item	Check	Further action	✓ /✗
1	Carry out all pre-use checks	▶ *Refer to "Daily checks" on page 81*	☐
2	Grease the bearings Grease nipples in the grease manifold	Apply 2 pumps of grease per grease nipple. (If in a low ambient temperate, grease with engine running and feed rollers turning)	☐
3	Check for any debris accumulated around the exhaust system	Remove if present	☐
4	Check the main belt tension	Adjust if required	☐
5	Check the blade condition	Replace if required	☐
6	Check the anvils	Turn or replace if required ▶ *Refer to "Turning or replacing the main anvil" on page 98*	☐
7	Check the engine fan and the fan guard	Clean if required	☐
8	Check the throttle handle tension	Adjust if required	☐
9	Check the flywheel main bearings	• Good general condition • Free from damage	☐
10	Check the pulleys and taper lock on the flywheel	• Undamaged	☐
11	Check the top feed roller spring tension	Adjust if required	☐
12	Check for any debris accumulated in the top feed roller assembly and around the assembly	Remove if present	☐
13	Check the feed roller motor mounts	Secure and undamaged Tighten if required	☐
14	Check the side panels	Behind panel is clear of debris – remove panel if required	☐
15	Check the battery terminals	Tighten if loose	
16	Visually check all electrical wiring	Cables and conduit secure and undamaged	☐
17	Visually check all hydraulic components	• Hoses secure • All components free of leaks	☐
18	Check the safety decals	Decals are fitted, legible and undamaged	☐

Item	Check	Further action	✓ /✗
19	Check the track assembly	• Clean any synthetic oils or fuel on the tracks • Clean any salt (if used in a coastal environment) and salty air may corrode track components • Tracks are undamaged and in good working order	☐
20	Make sure the service schedule is up to date	Is the machine due a service	☐
Additional comments:			
Date of check: Individual (Print Name): Individual (Signature):			

NOTICE
If any fault is found, contact FörstAssist immediately.

► *Refer to "FörstAssist" on page 124*

For additional sheets go to www.forstglobal.com.

5.4 ENGINE MAINTENANCE

Please refer to the engine manual supplied with this machine for the following:

- Checking the engine oil.
- Changing the engine oil and oil filter.
- Changing the fuel filter.

5.5 ROUTINE CLEANING

5.5.1 PRESSURE WASHING

CAUTION
The engine and other components could be damaged by high pressure washing systems. Special precautions must be taken if the machine is to be washed using a high pressure system.

NOTICE
Make sure that the alternator, starter motor, electrical control box and any other electrical components are shielded and not directly cleaned by the high pressure cleaning system. Do not aim the water jet directly at bearings, oil seals or the engine air induction and cooling system.

5.6 OPENING THE BONNET

To open the bonnet:

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Release the two bonnet catches.
4. Open the bonnet cover.

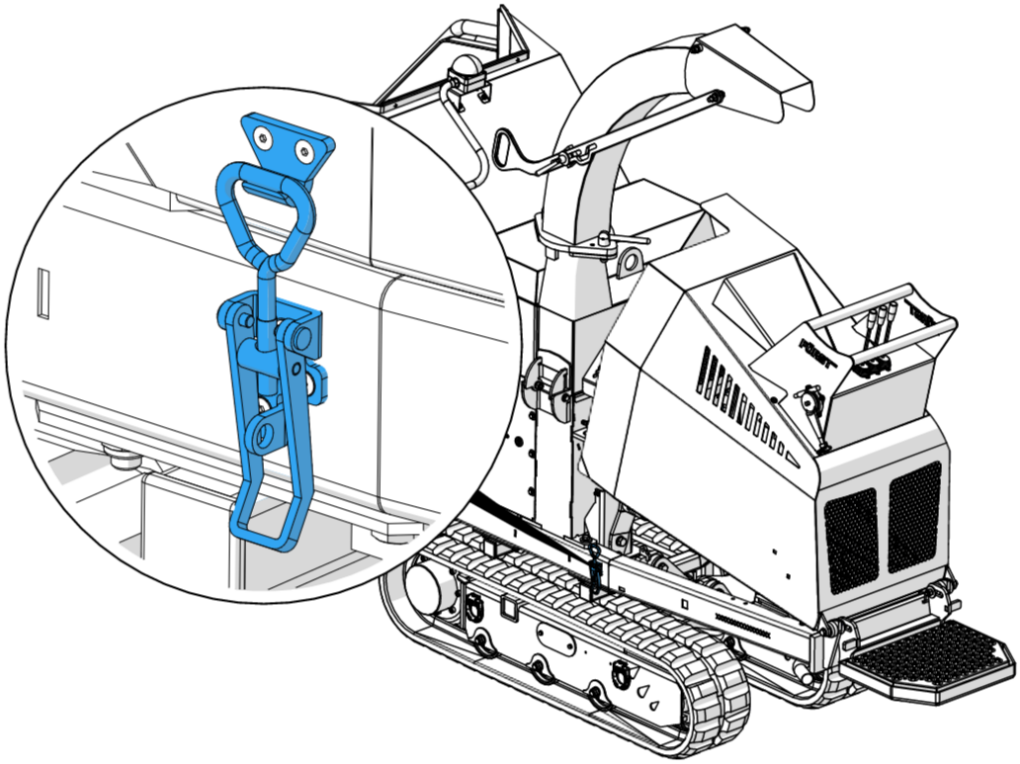


Figure 50 - Bonnet

5.7 OPENING THE CHIPPING CHAMBER COVER

To access the chipping chamber:

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Open the bonnet.
4. Rotate the discharge chute to point over the side of the machine.

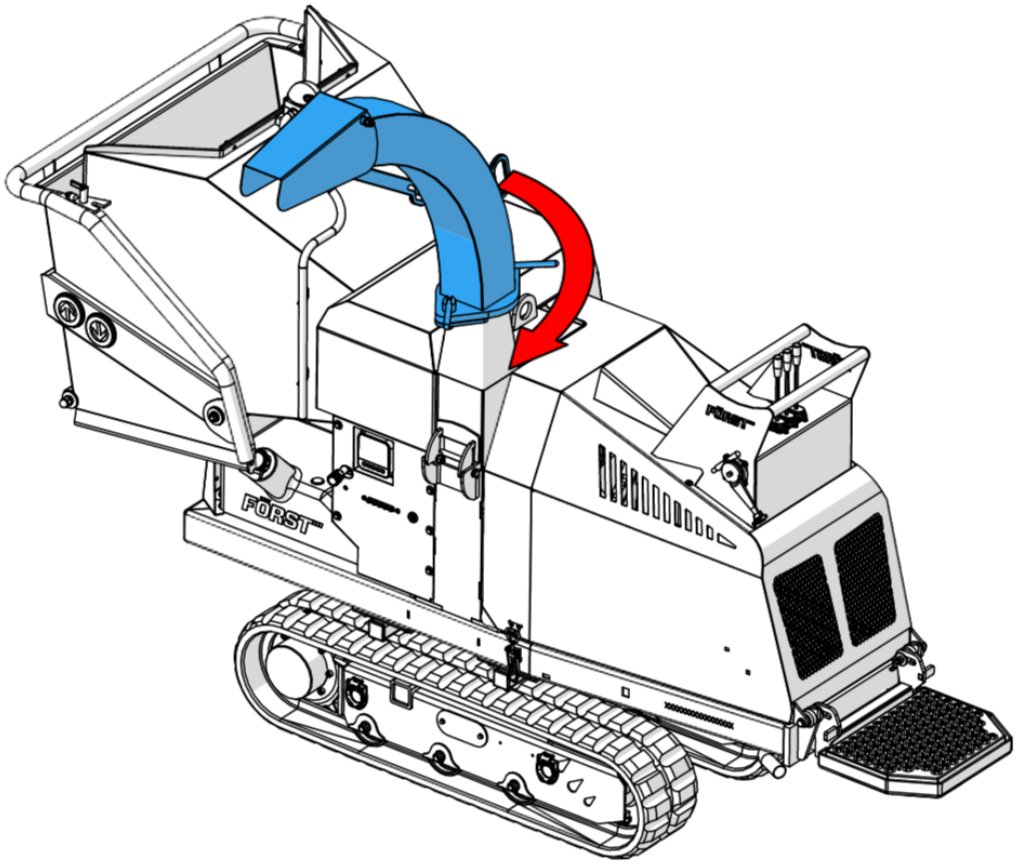


Figure 51 - Rotate the discharge chute

5. Remove the two bolts holding the chipping chamber cover closed (Figure 52).

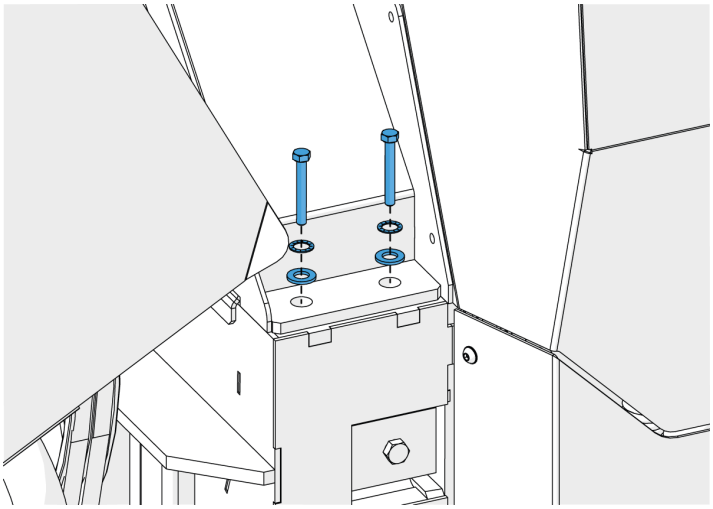


Figure 52 - Chipping chamber cover bolts

6. Using the discharge chute as a lever, carefully open the chipping chamber cover and let it come to rest on the hinge stops.

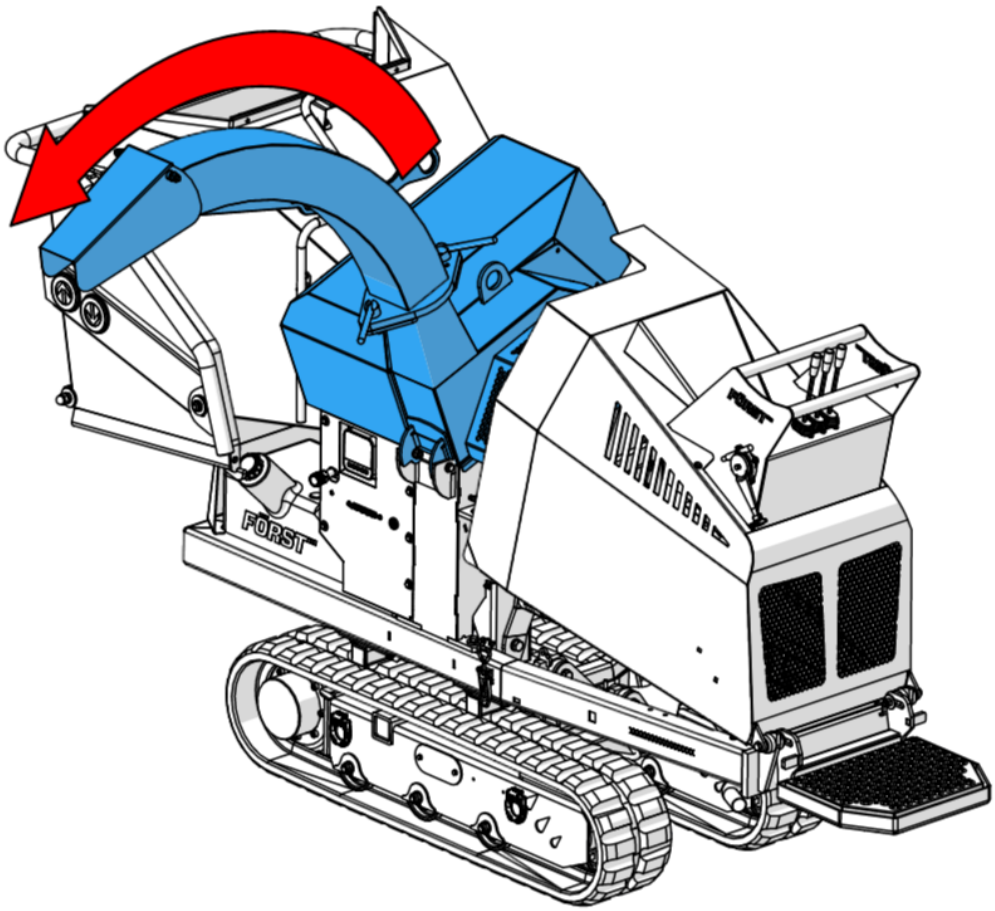


Figure 53 - Open chipping chamber cover

NOTICE
When closing the chipping chamber, carry out these tasks in reverse. When installing the two chipping chamber cover bolts bolts, torque to **86Nm**.

5.8 REMOVING THE SIDE PANEL

Removing the side panel will give you access to the following:

- Battery
- Hydraulic oil filter
- Hydraulic oil tank
- Stone trap
- Fuses
- Spring

To remove the side panel:

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Remove the bolts securing the panel (2, Figure 54).
4. Remove the side panel (1, Figure 55).

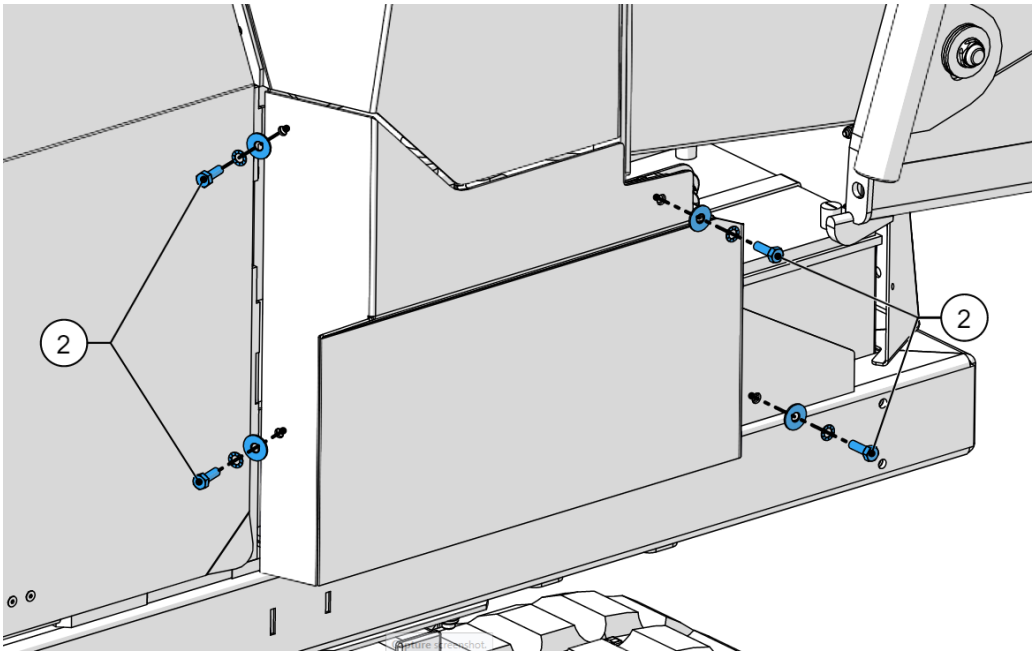


Figure 54 - Remove bolts

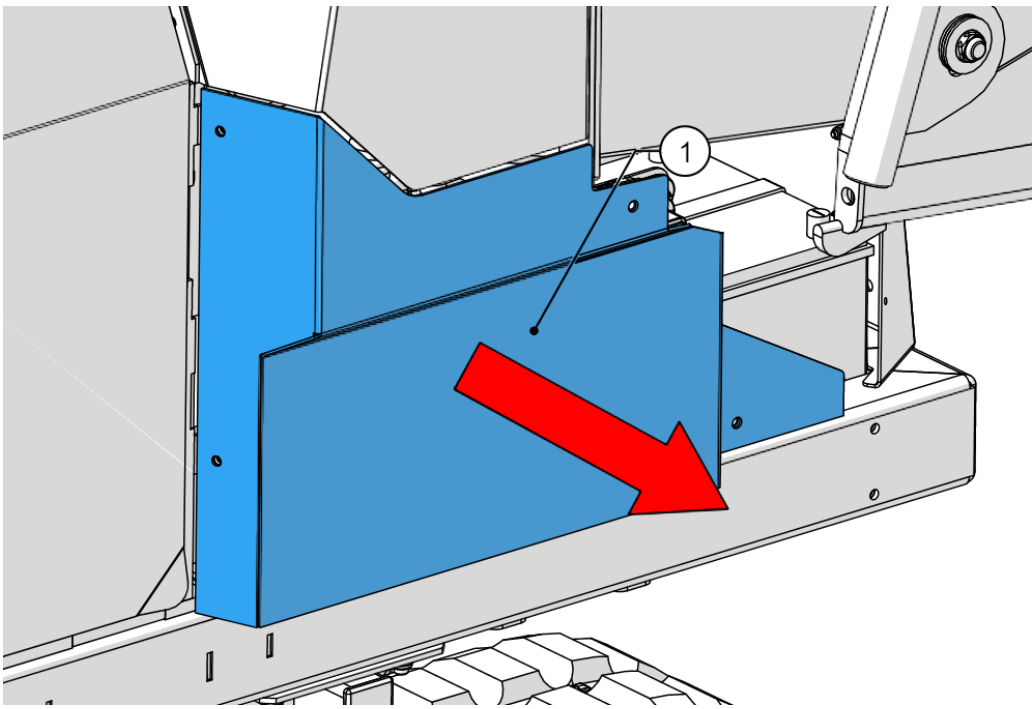


Figure 55 - Remove side panel

5.9 CHANGING THE BLADES

WARNING
The blades must not be used beyond the wear mark. Failure to comply with this could result in damaging the machine, injury, or loss of life.

WARNING
When changing the blades, be extremely careful of sharp edges.

WARNING
Rigger gloves must be worn whilst changing the blades. Hold the blades by the flat end.

WARNING

When moving the flywheel in any direction, position your hands correctly to avoid injury. Position your hands as shown below:

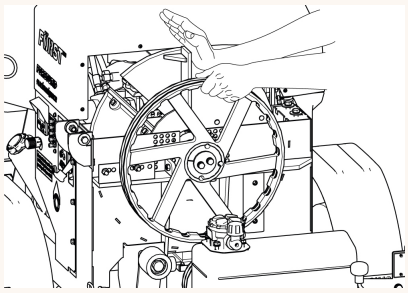


Figure 56 - Pushing the flywheel away from you

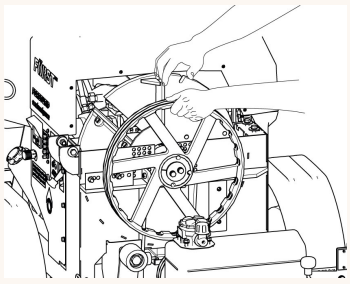


Figure 57 - Pulling the flywheel towards you

CAUTION
Failure to keep blades sharp will overload the engine and bearings which could result in a machine breakdown.

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Disconnect the battery leads.
4. Open the bonnet.

5. Open the chipping chamber cover.

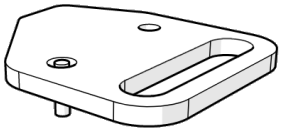


Figure 58 - Flywheel locking tool

6. Turn the flywheel until it is in the locking position (Figure 59).
7. Insert the flywheel locking tool into the groove on the flywheel. The groove becomes visible once the wheel is in the correct position (Figure 59).
8. Insert the locking pin into the bolt hole on the locking tool.
9. Secure the flywheel locking tool in place using the M12 bolt.

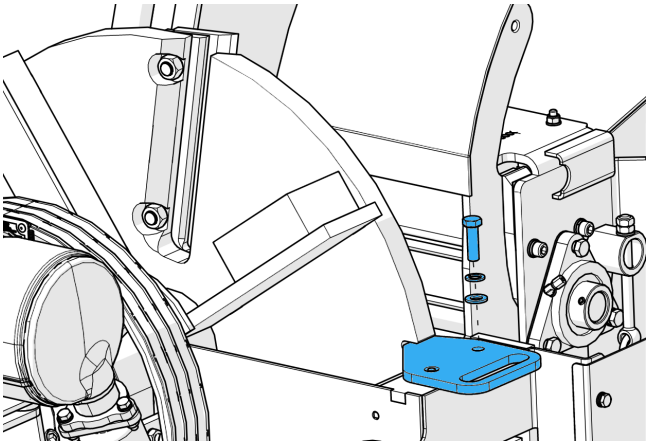


Figure 59 - Installing the flywheel locking tool

Removing the old blades:

1. Clean any debris from the knife bolts and nuts.
2. Use the 24mm socket from the tool pouch and a breaker bar to loosen the two blade bolt sets.
   - Leave the blade bolts in place until the blade is ready for removal.
   - When removing the two bolt sets, do not drop any nut, bolt, or washer into the chipping chamber.
3. Remove the lower blade bolt set.

CAUTION
New or resharpened blades are sharp, rigger gloves must be worn. During the next step hold the blade with one hand to make sure it does not fall.

4. Holding onto the blade, remove the upper blade bolt set.

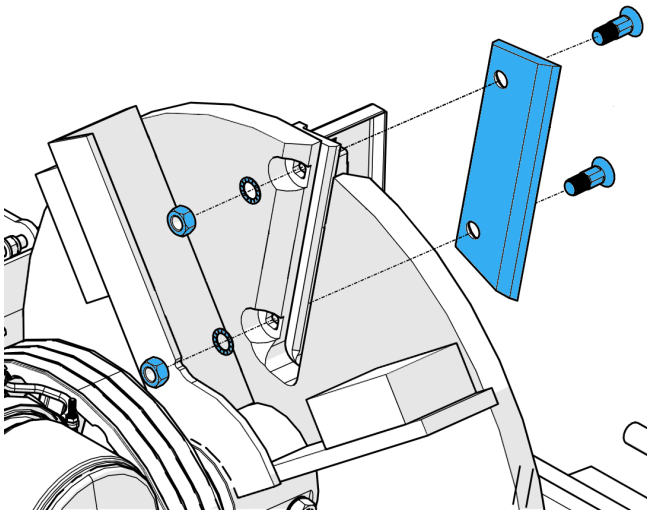


Figure 60 - Blade removal

Installing the replacement blades:

CAUTION
Use genuine Först blades and blade bolt sets only. Replace the blade bolt sets every time the blades removed.

CAUTION
When fitting a blade bolt set, NO lubricant or anti-seize compound is to be applied to the bolts. (310Nm is a dry torque).

CAUTION
The replacement blades must not have any debris underneath them when tightened, the smallest amount of debris behind the blade could result in blade failure causing damage to the machine.

5. Clean the blade bed thoroughly and remove any surface rust and debris.
6. Thoroughly clean and degrease the replacement blade.
7. Put the replacement blade against the blade bed.
8. Attach the blade using a new blade bolt set in the upper hole.
9. Fit the blade bolt set into the lower hole.
10. To locate the countersink of the bolt and blade, gently wiggle the blade when tightening the nut by hand.
11. Before you torque the blade bolt set, make sure that the back edge of the blade is tight against the flywheel blade bed heel.

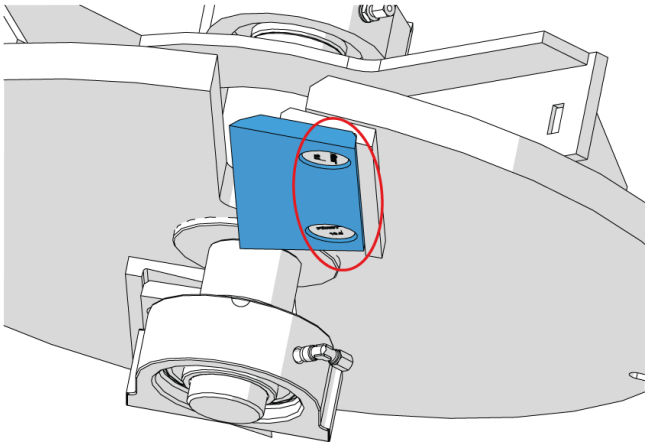


Figure 61 - Correct position of the back edge of the blade

CAUTION
Shims may be required to keep the gap between the blade and the anvil on the inner edge (closest to the flywheel shaft) at 1mm.

12. Torque the two blade bolt sets to **310Nm** with a calibrated torque wrench and 24mm socket.

NOTICE
You can only torque a blade bolt set once. Never re-use a blade bolt set once fitted to the flywheel and torqued to 310Nm.

13. Make sure the blade is fitted correctly.
14. Remove the flywheel locking tool.
15. Carefully turn the flywheel to the next blade position and repeat the process for the second blade.

NOTICE
If you need to carry out further work with the chipping chamber lid open, rotate the flywheel so that both blades are inside the chipping chamber.

16. When the work is complete, close the chipping chamber cover, install the two M12 bolts, and torque to 86Nm.
17. Connect the battery leads.

5.10 ABOUT BLADE SHARPENING

- After sharpening, reset the blade gap by using a blade shim.
  - Shims are available in the following thicknesses:

For optimum performance, keep the blades on the woodchipper sharp.

Only professionals can sharpen blades for the woodchipper.

Blade sharpening requirements

The minimum safe blade size is shown in Figure 62.

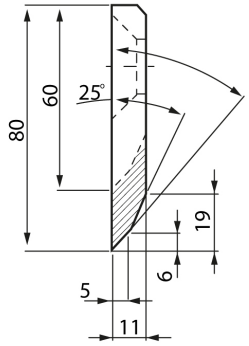
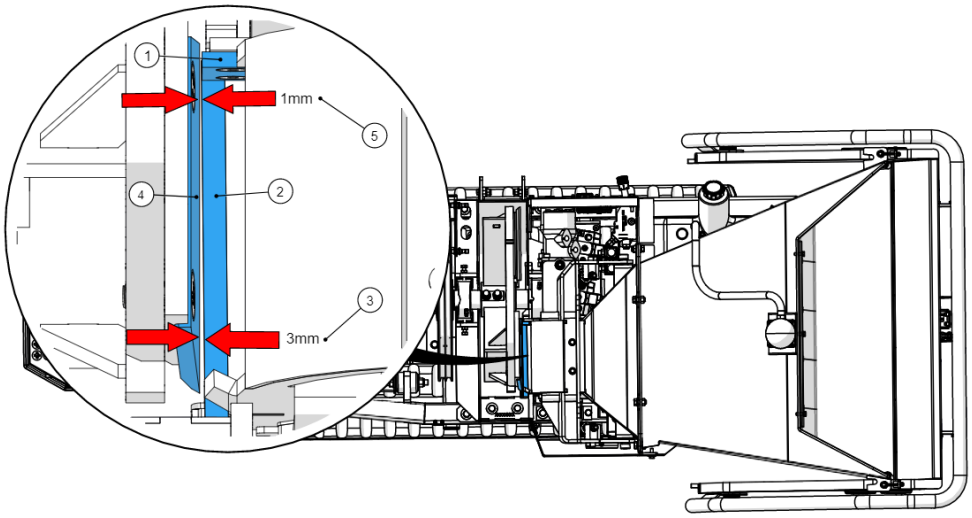


Figure 62 - Blade sharpening wear limit: 80mm to 60mm

Table 5 - Shim part numbers

Size mm	Part Number
0.5	12-03-093.05
1	12-03-093.10
1.5	12-03-093.15

  - Do not fit more than one shim under each blade.
  - Set a gap of 1 mm from the inner blade tip to anvil after sharpening. To do so, place an appropriate shim under the blade.
- The outer blade tip is automatically set, as the anvil is set at an angle to the blade.
- With a 1 mm gap at the inner blade tip, the outer blade tip should be 3 mm from the anvil.



1 Side Anvil
2 Anvil
3 Outside Blade Gap
4 Flywheel Blade
5 Inside Blade Gap

Figure 63 - Blade gaps

When changing the blades, make sure each blade bolt set is replaced every time the blades are changed. Make sure each blade bolt set is torqued up to 310Nm.

CAUTION
When fitting a blade bolt set, NO lubricant or anti-seize compound is to be applied to the bolts. (310Nm is a dry torque).

5.11 TURNING OR REPLACING THE MAIN ANVIL

If an anvil is worn or damaged, turn or replace it with a new one.

You can turn an anvil 180° to use it a second time.

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Open the bonnet and chipping chamber cover to improve access and visibility.
4. Locate the anvil clamp (1, Figure 64).
5. Remove the M12 clamp bolt, spring washer, and plain washer.
6. Remove the anvil clamp.

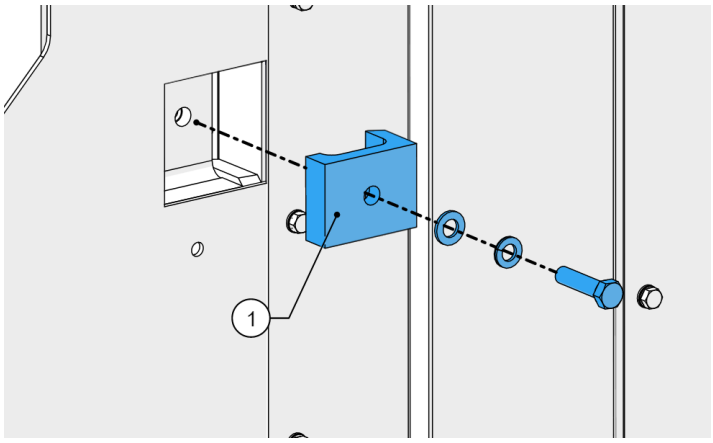


Figure 64 - Anvil clamp position

7. Clear any debris to gain access to the end of the anvil.
8. Insert a suitable slide hammer into the M8 hole (2, Figure 65).

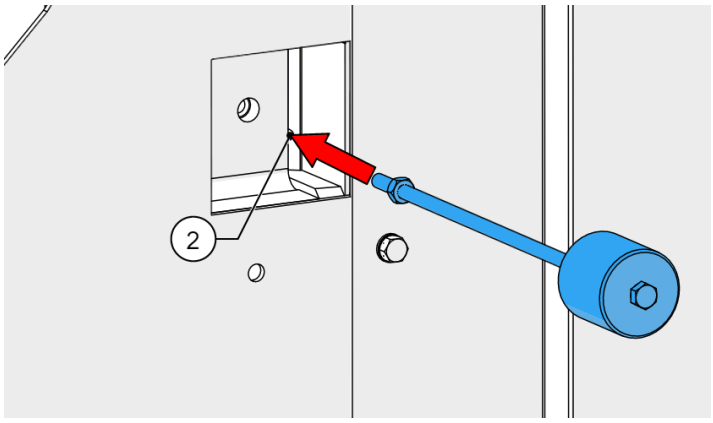


Figure 65 - Slide hammer

9. Lubricate the anvil surface to make it easier to remove.

10. Using the slide hammer, extract the anvil (3, Figure 66) through the side of the chamber.

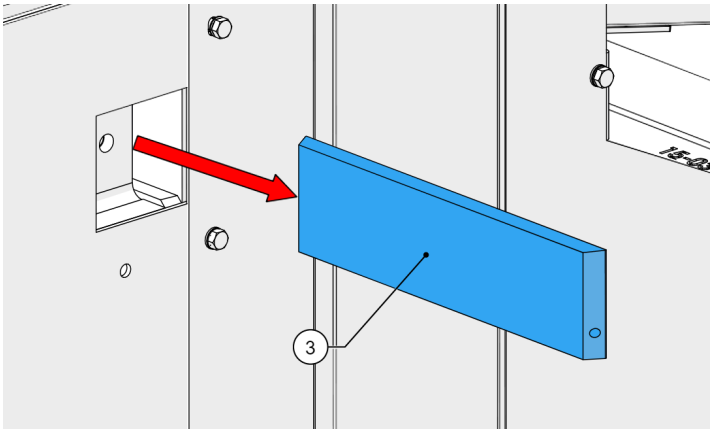


Figure 66 - Anvil removed

11. Check the anvil seats inside the chamber for damage or wear.
12. Make sure the anvil seats are free from dirt and debris before inserting anvil (4, Figure 67).

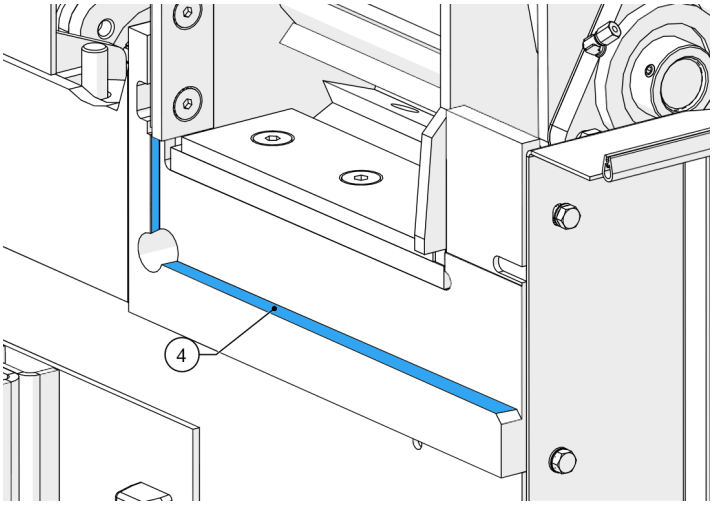


Figure 67 - Anvil seat

13. Make sure you:
    a. Clean all surfaces of the anvil.
    b. Inspect the anvil for any damage that would prevent further use.
    c. If using the same anvil turn it 180° from its previous position.

14. Insert the anvil through the side of the chamber, making sure that the anvil stays tight to the bed plate (5, Figure 68).

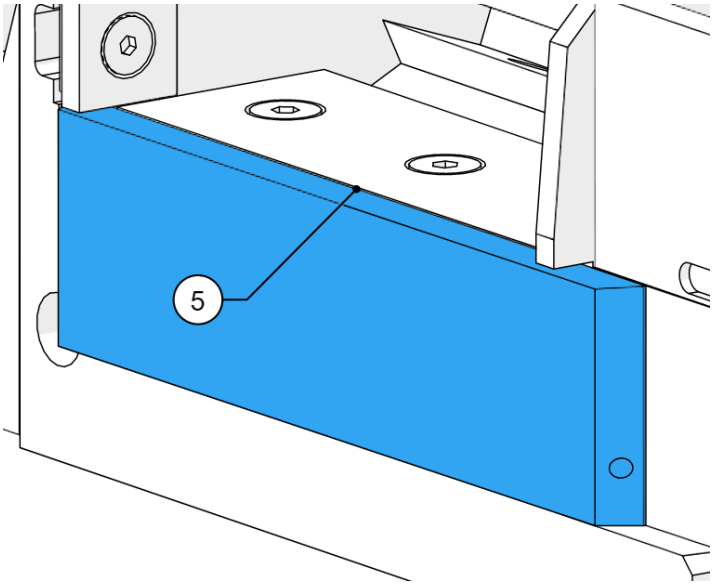


Figure 68 - Anvil tight to the bedplate

15. Push the anvil along the lower seat.
16. Push the anvil into the seat under the side anvil (6, Figure 69).

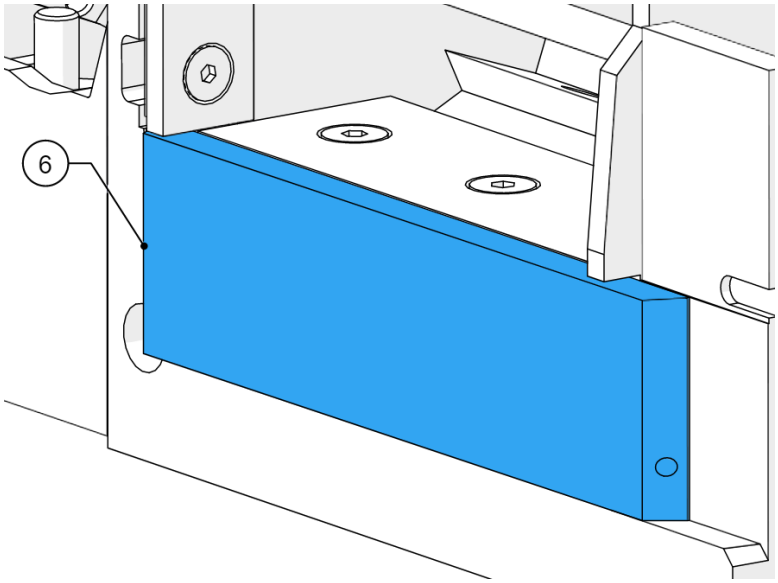


Figure 69 - Anvil in vertical seat

17. Inspect the M12 bolt and washers.
    If there are signs of damage or wear, replace them.
18. Attach the anvil clamp and the securing bolt.
19. Torque the M12 clamp bolt to 86Nm.
20. Make sure the anvil is fitted correctly.
21. Close the chipping chamber cover and bonnet.

5.12 ADJUSTING THE MAIN BELT TENSION

The flywheel V belts must be checked for tension and condition. If any belt shows sign of wear, surface damage, shredding, excessive glazing, or have been stretched to their limit, they must be replaced.

Multiple belt drives must have all belt drives replaced at the same time. Belts that are too loose will cause poor cutting performance, excessive belt and pulley wear.

To check the main belt tension and adjust it if required, do the following:

1. Stop the engine.
   ► *Refer to "Starting the Machine" on page 66*
2. Remove the ignition key and put it in a safe place.
3. Open the bonnet.
4. Locate the main belt tensioner (1, Figure 70).

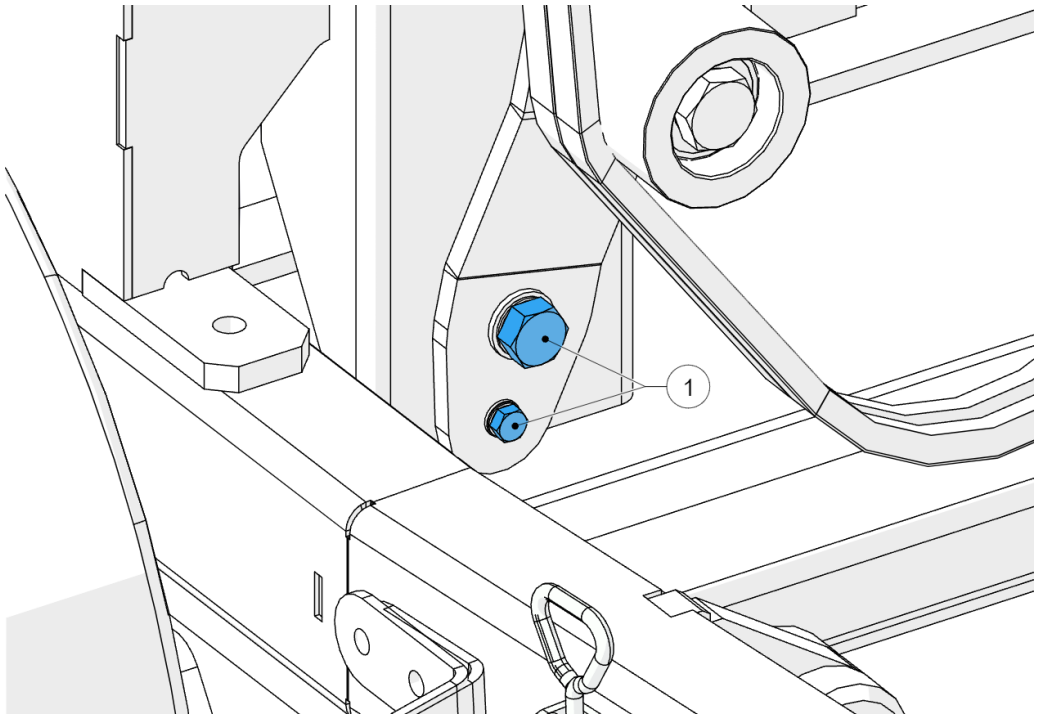


Figure 70 - Main belt tensioner

5. For the main belts, check the belt tension. The deflection should be the width of one belt.

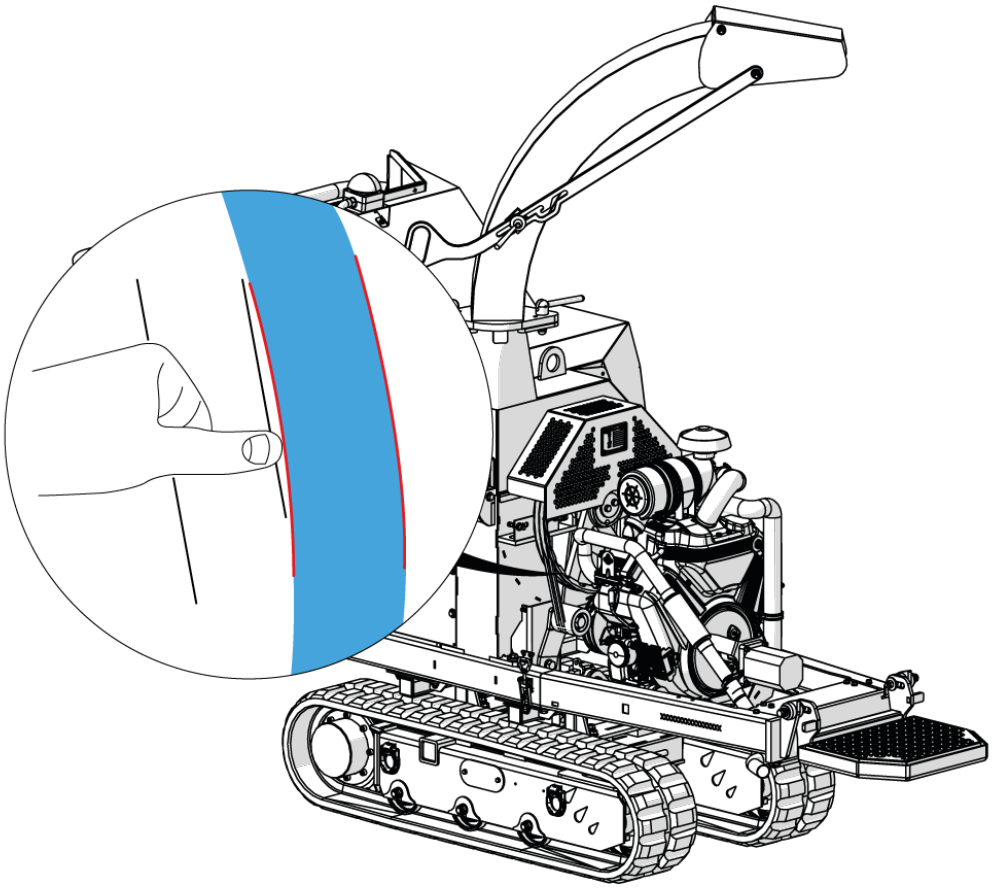


Figure 71 - Correct main belt tension

6. To adjust the tension:
    a. Using a suitable tool, loosen the main tension belt.
    b. With the bolts loosened, use a suitable tool to move the belt tensioner. Pressing against the belt will increase the tension and moving away from the belt reduces the tension.

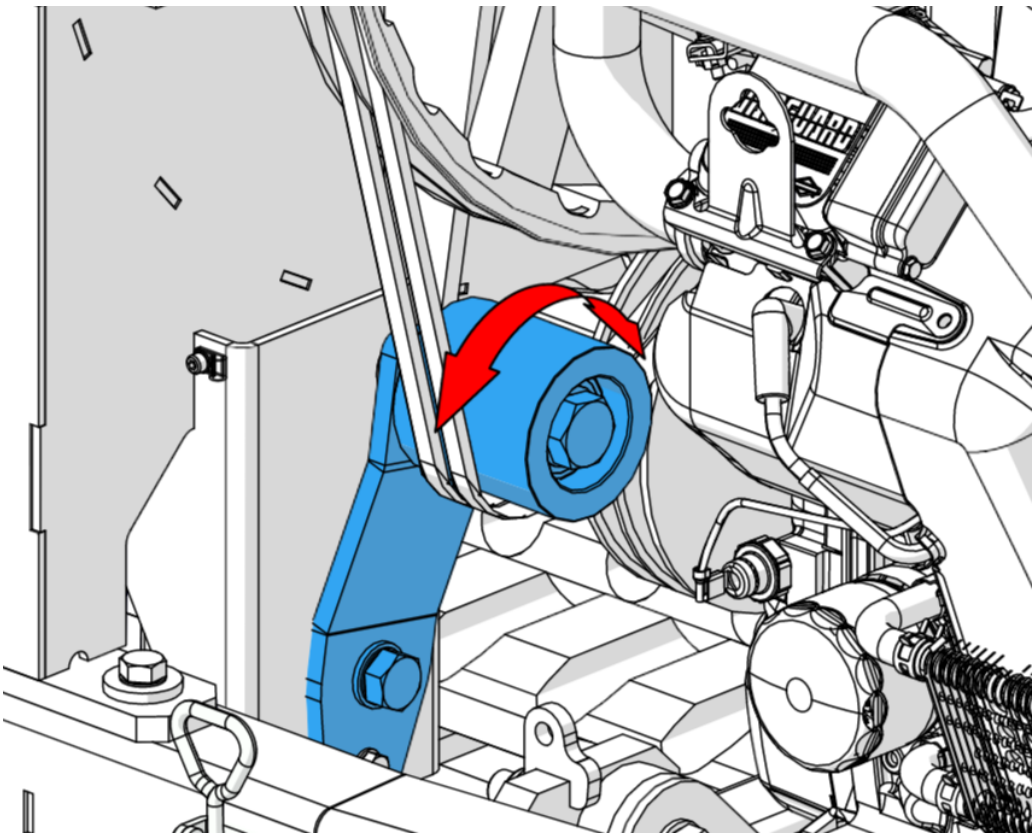


Figure 72 - Adjust tension

7. Once the tension has been adjusted, close the bonnet.
8. Start the engine.
   ► *Refer to "Starting the Machine" on page 66*
9. Allow the engine to idle for 30 seconds.
10. Turn the engine off and remove the key from the ignition switch.
11. Open the bonnet.
12. Check the main belt tension.
    If the tension is incorrect, adjust the tension again.

5.13 HYDRAULIC OIL FILTER

CAUTION
Use suitable protective gloves to prevent fluid contact with skin.

CAUTION
Use approved local authority environmental procedures when disposing of fluids and filters.

Use protective plastic gloves to keep oil off skin, dispose of oil and filter in an environmentally responsible manner.

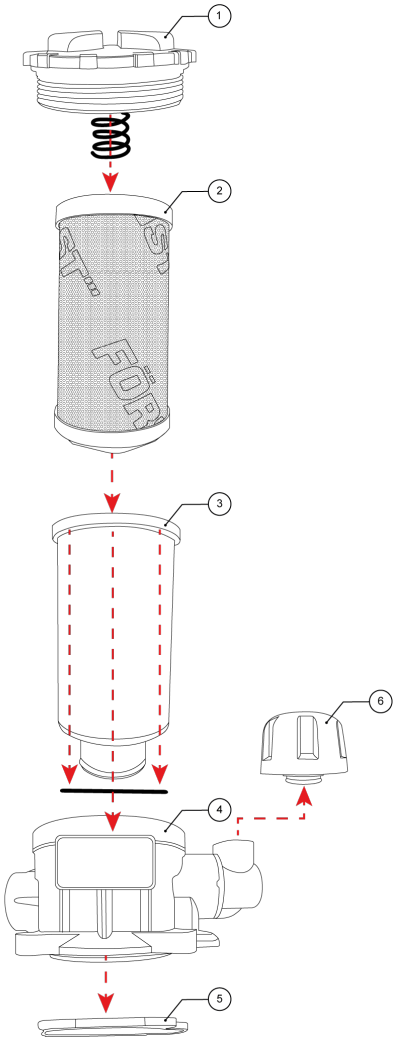


Figure 73 - Hydraulic oil filter

Item	Description	Qty	Item	Description	Qty
1	Filter cap	1	5	Housing	1
2	Filter Element	1	6	Gasket	1
3	Filter bowl	1	7	Breather	1
4	O-ring	1			

5.14 CHANGING THE HYDRAULIC FILTER

CAUTION
Use suitable protective gloves to prevent fluid contact with skin.

CAUTION
Use approved local authority environmental procedures when disposing of fluids and filters.

1. Stop the engine.
2. Remove the key from the ignition and store it in a safe place.
3. Remove the side panel and locate the hydraulic filter housing.
4. Using a suitable tool, unscrew and remove the cap from the hydraulic filter housing.
5. Locate the lifting tab on top of the hydraulic filter and gently lift the tab by a small amount.
   This allows the oil on top of the filter to leak back into the tank.

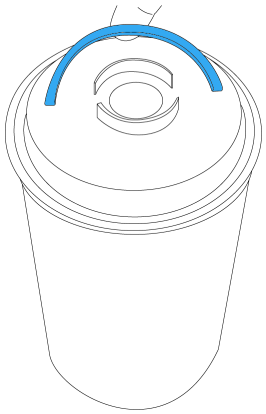


Figure 74 - Lifting tab

6. When the oil level has dropped, remove the filter and the filter bowl together.
7. Remove the filter from the filter bowl.
8. Dispose of the filter.
9. Clean the filter bowl.
10. If the level of hydraulic oil in the tank is low, add more oil.
11. Before refitting a new filter, apply a small amount of hydraulic oil to the filter O-ring.
12. Place the filter in the filter bowl.
13. Place the filter and the filter bowl into the filter housing.
14. Screw the cap onto the filter housing and torque to 30 Nm.
15. Clean the filter housing with a suitable degreaser.
16. Close the bonnet.
17. Start the engine of the woodchipper.
18. When the engine of the woodchipper is warm, stop it and check the hydraulic filter housing for leaks.

5.15 DRAINING THE HYDRAULIC OIL

CAUTION
Use suitable protective gloves to avoid contact with skin.

CAUTION
Use suitable protective eye wear to protect eyes from contact with oil.

CAUTION
Use approved local authority environmental procedures when disposing of fluids.

You may need to drain the hydraulic oil from the machine if:

- A leak has been detected on the machine
- The machine needs servicing
- The machine needs maintenance

1. Stop the engine.
2. Remove the ignition key and keep in a safe place.
3. Remove the side panel.
4. Remove the hydraulic filter filler cap.
5. Remove the filter element from the filter bowl.
6. Using a suitable tool capable of sucking oil, insert the tool into the hydraulic oil filter and suck the old oil out of the tank.
7. Dispose of the old oil safely and correctly.

5.16 BATTERY

Before using and charging batteries, read the following safety information:

WARNING
Battery acid is highly corrosive. Always wear eye protection when handling a battery. Do not tilt battery as acid could escape from vents.

WARNING
Keep children away from acid and batteries.

WARNING
When charged, battery emits highly explosive hydrogen gas. Do not allow fires, sparks, naked flames or smoking near the battery. Also avoid electrostatic discharges and electrical sparks when dealing with cables and electrical equipment.

CAUTION
Avoid short-circuiting the battery terminals.

Do not short-circuit from the positive terminal to any metal machine part. Take care not to short-circuit the battery due to loose metal parts and tools.

NOTICE
Dispose of old batteries at an authorised collection point. Never dispose of batteries in household waste.

5.16.1 FIRST AID

- If acid is splashed into eyes, immediately rinse with clean water for several minutes and consult a doctor.
- If acid is swallowed, consult a doctor immediately.

5.16.2 GOING INTO LONG TERM STORAGE

Charge the battery and store it in one of the following locations:

- Remove from machine and store in a cool, frost-free place
- On the vehicle, with the negative terminal disconnected
- Check the battery charge at regular intervals. If the battery charge is low, charge the battery.

5.16.3 REPLACING THE BATTERY

You can replace an old battery with a new one.

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Remove the panel covering the battery.
4. Remove any debris from around the battery.
5. Remove the negative lead at the battery (1, Figure 75), then the positive lead (2, Figure 75).

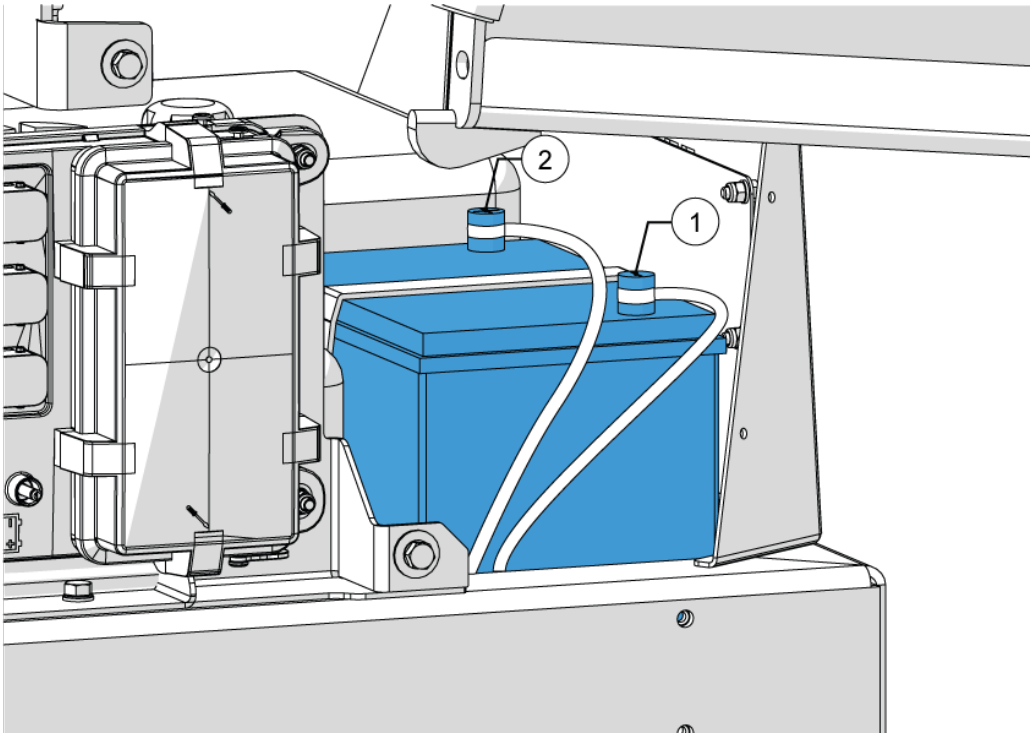


Figure 75 - Battery terminals

6. Loosen battery clamp screw and remove clamps.
7. Remove the battery.
8. Clean the battery tray.
9. Install the new battery.
10. Tighten battery clamp screw.
11. Connect the positive lead to the battery (2, Figure 75), then the negative lead (1, Figure 75).
12. Install the panel covering the battery.

5.16.4 CHARGING THE BATTERY

If the woodchipper has a flat battery, charge the battery.

> NOTICE
> When charging the battery, take the following into consideration:
>
> - Ensure good ventilation
> - Use suitable direct current mains chargers only
> - The charging current should be 10% of the battery Ah power rating
> - Use a charger with a constant charging voltage of 14.4V
> - If the acid temperature rises above 38°C, stop charging

To charge the battery:

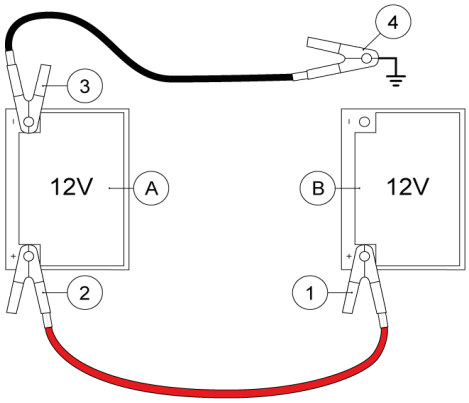
1. Replace the battery as described in Refer to "Replacing the battery" on page 108.
2. Remove the battery from the woodchipper.
3. Connect the battery's positive terminal to the charger output positive.
4. Connect the battery's negative terminal to the charger output negative.
5. Switch on the charger.
   The battery is fully charged when the charging voltage or acid specific gravity has stopped rising for two hours.
6. When charging is complete, switch off the charger, then disconnect the battery.
7. Install the battery.

5.16.5 JUMP STARTING THE BATTERY

If the woodchipper has a flat battery, you can use a support vehicle to jump start the battery.

> **CAUTION**
> When attaching jump leads to a battery, make sure that only the lead ends make contact with the battery terminals.

1. Stop the engine.
2. Remove the key from the ignition and keep in a safe place.
3. Remove the panel covering the battery.
4. Attach the red jump lead to the positive battery terminal on both the woodchipper and the support vehicle.
5. Attach the black jump lead to a good earth on the woodchipper and the negative battery terminal on the support vehicle.
6. Start the engine.
7. After the engine of the woodchipper starts, disconnect the black jump lead.
8. Disconnect the red jump lead.
9. Install the panel covering the battery.
   If the battery is still flat, contact a repair agent.



A Support vehicle battery
B Machine battery
1 Positive machine
3 Negative support vehicle
2 Positive support vehicle
4 Earth

Figure 76 - Jump start

5.17 OILS, FLUIDS AND LUBRICANTS

Table 6 - Oils, fluids and lubricants

Oils, Fluids, and Lubricants		
Item	Assembly	Product
1	Engine oil	5w30 API SJ or higher (fully-synthetic)
2	Hydraulic oil	ISO 46 (VG 46)
3	Fuel	Petrol
4	General greasing[1]	Lithium EP1 General Purpose
5	General oil lubrication	

Please consult your engine operator's manual for oil quantities relating to your engine type.

[1]The greasing points can be found on the control panel. Please do not over grease, 2 x pumps per grease nipple should be sufficient.

5.18 FASTENER TIGHTENING TORQUES

All machine fastener torques should be regularly checked in accordance with the table below. In particular, those for the flywheel blades, flywheel bearings, axle assembly, hitch, road wheels and engine mounts.

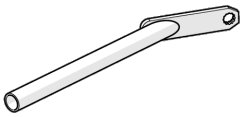
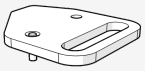
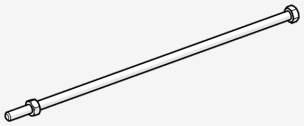
Table 7 - Torque settings

Tightening Torques for class 8.8 and 10.9 fasteners				
	Class 8.8		Class 10.9	
Thread Size (mm)	Nominal Torque (Nm)	Max/Min Torque (Nm)	Nominal Torque (Nm)	Max/Min Torque (Nm)
M6	10	9.5/10.4	14.5	14/15.3
M8	25	23.1/25.3	35	34/37.2
M10	49	46/51	72	68/75
M12	86	80/87	125	117/128
M16	210	194/214	310	
M20	410	392/431	610	558/615
M24	710	675/743	1050	961/1059

5.19 TOOLS AND ACCESSORIES

The following is a list of tools and accessories supplied with the machine.

Table 8 - Tools and accessories

Item	Part Number	Quantity	Item Description	Reference
1	12-19-124	1	Lifting Tool - Top Feed Roller 	Removing blockages
2	29-19-023	1	Flywheel Locking Tool 	Changing the blades
3	12-02-061	1	Blade bolt socket 	Changing the blades
4	98-98-096	1	13/17 mm combination spanner	
5	98-98-097	1	19/24 mm combination spanner	
6		1	Flywheel block (not supplied if locking lock is issued)	
7	12-02-060	1	Slide hammer weight 	Turning or replacing the main anvil
	12-99-009		Bolt (M8 x 300) 	
8	N/A	2	Machine key	

5.20 SERVICE SCHEDULE

> **NOTICE**
> Remember to carry out the Redwood Global Ltd standard inspection at every service.

Table 9 - Service schedule

Hours of operation	Tasks	Requirements and part numbers
20	Remove and replace hydraulic oil filter element.	12-24-054
	Top up hydraulic oil, if required.	VG ISO 46
	Check flywheel bearing grub screws. If required, tighten to 16 Nm.	
100	Replace spark plugs. • Required gap: 0.030 in (0.76 mm) • Required torque: 20 Nm	24-99-005
	Drain and replace engine oil.	Synthetic 5W-30
	Remove and replace engine oil filter.	24-99-003
	Replace outer air filter.	24-99-001
	Replace fuel filter.	24-99-004
	Check valve clearances and adjust, if required: • Intake valve clearance: 0.004-0.006 in (0.10-0.15 mm) • Exhaust valve clearance: 0.007-0.009 in (0.18-0.23 mm)	Competent person
	Check and sharpen feed rollers, if required.	
	Clean oil cooler fins.	
	Strip, clean and adjust brakes, as per manufacturer's specification.	Competent person
	Check and remove any debris from the fuel tank.	
200	Perform all **100 hour** tasks.	
300	Perform all **100 hour** tasks.	
	Replace inner air filter.	24-99-002
	Replace bottom feed roller inner bush.	12-01-052
	Remove engine front cover and clean cooling system.	Competent person
400	Perform all **100 hour** tasks.	
500	Perform all **100 hour** tasks.	
	Remove and replace hydraulic oil filter element.	12-24-054
	Top up hydraulic oil, if required.	VG ISO 46
600	Perform all **300 hour** tasks.	
700	Perform all **100 hour** tasks.	
800	Perform all **100 hour** tasks.	

Hours of operation	Tasks	Requirements and part numbers
900	Perform all **300 hour** tasks.	
1000	Perform all **100 hour** tasks.	
	Remove and replace hydraulic oil filter element.	12-24-054
	Drain and replace hydraulic oil.	VG ISO 46

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CHAPTER 6: TROUBLESHOOTING

In this chapter:

6.1 THE ENGINE DOESN'T CRANK

Possible cause	Check	Corrective action
Battery	Check battery terminals	Tighten if loose
	Check battery is charged	Charge if flat
	Check red and black battery cables at the engine connection	Tighten if loose
	Check battery condition	Replace if damaged
Bonnet sensor	Check condition	Replace if damaged
	Check if **Bonnet** is lit up on the display screen when the bonnet is down	Replace sensor or tighten connector plug
	Check sensor gap	Adjust to approx. 3-4 mm
	Check plug security	Tighten if loose
Blown fuse	Check fuse for controller	Replace if blown Check fuse security
Flywheel seized	Check flywheel and chamber for blockages	Clear blockages
Ignition switch	Check plug and wiring	Refit or replace
Starter motor	Check wiring and connections	Refit or replace

6.2 THE ENGINE CRANKS BUT DOESN'T FIRE

Possible cause	Check	Corrective action
Fuel is not flowing	Check fuel level	Top up if empty
	Check fuel tank for debris	Remove any debris
	Check in-line fuel filter for debris	Replace filter
	Check fuel lines for damage or kinks	Replace or remove kinks
	Check banjo bolt for blockage	Clear blockage
	Check fuel cap vent	Clean vent or replace cap
Poor quality fuel or wrong fuel	Check fuel	Drain and refill fuel system
Air in the fuel system	Check for loose fuel line clips or damaged hoses	Tighten or replace
Water in the fuel system	Drain water from the system	

Possible cause	Check	Corrective action
Battery	Check battery terminals	Tighten if loose
	Check battery is charged	Charge if flat
	Check red and black battery cables at the engine connection	Tighten if loose
	Check battery condition	Replace if damaged
Ignition switch is damaged	Check plug and wiring	Refit or repair
Debris in chamber	Check chamber for debris	Remove any debris

6.3 THE SCREEN IS BLANK

Possible cause	Check	Corrective action
Loose CAN cable (communication cable between screen and controller)	Check both ends of cable for security	Tighten if loose
Blown fuses	Check fuses	Replace if blown Check fuse security
Battery	Check battery terminals	Tighten if loose
	Check battery is charged	Charge if flat
	Check red and black battery cables at the engine connection	Tighten if loose
	Check battery condition	Replace if damaged

6.4 THE FEED ROLLERS ARE NOT TURNING

Possible cause	Check	Corrective action
Lack of hydraulic oil	Check hydraulic oil level	Top up if required
Loose belts	Check belt tension	Tension correctly
Low RPM	Check throttle	Ensure throttle is in the max position.
Damaged shaft or coupling at feed rollers	Check feed roller shaft and coupling	If faulty, contact repair agent
Speed sensor	Check sensor for damage	Replace if damaged
	When the ignition is on and there is metal in front of the sensor, the orange indicator light is ON	
	Check sensor gap	Adjust to approx. 3 to 4 mm
	Check plug security	Refit or replace as required
Valve block solenoid plugs	Check for function, security and condition	Refit or repair

Possible cause	Check	Corrective action
Flow control valve	Check valve is free to rotate	Set the dial to **5**
E-stop button depressed	Check E-stop button	Reset E-stop button
Faulty stop bar or hopper tray sensor	Check stop bar sensor Check hopper tray sensor Perform a function check. When the ignition is on and there is metal in front of the sensor, the orange indicator light is **OFF**	Replace sensor if damaged or not working

6.5 THE WOODCHIPPER SUDDENLY STOPS RUNNING

Possible cause	Check	Corrective action
Loss of oil pressure	Check oil level	Top up if required
	Check oil pressure switch	Replace if damaged or faulty
Overheated	Check cooling fan and belt	Replace if damaged
	Check fan guard for blockages	Clear blockages
Flywheel seized	Check flywheel and chamber for blockages	Clear blockages
Bonnet catches	Check condition and security	Refit or replace
Bonnet sensor	Check condition	Replace if damaged
	Check if **Bonnet** is lit up on the display screen when the bonnet is down	Replace sensor or tighten connector plug
	Check sensor gap	Adjust to approx. 3 to 4mm
Fuel not flowing	Check fuel level	Top up if empty
	Check fuel tank for debris	Remove any debris
	Check in-line fuel filter for debris	Replace filter
	Check fuel lines for damage or kinks	Replace or remove kinks
	Check banjo bolt for blockage	Clear blockage
	Check fuel cap vent	Clean vent or replace cap
Electrical issue	Check battery and connections	Replace, charge or tighten
	Check ignition switch	Refit plug
	Check wiring and connections	Replace, tighten or refit
	Check fuses	Replace if blown

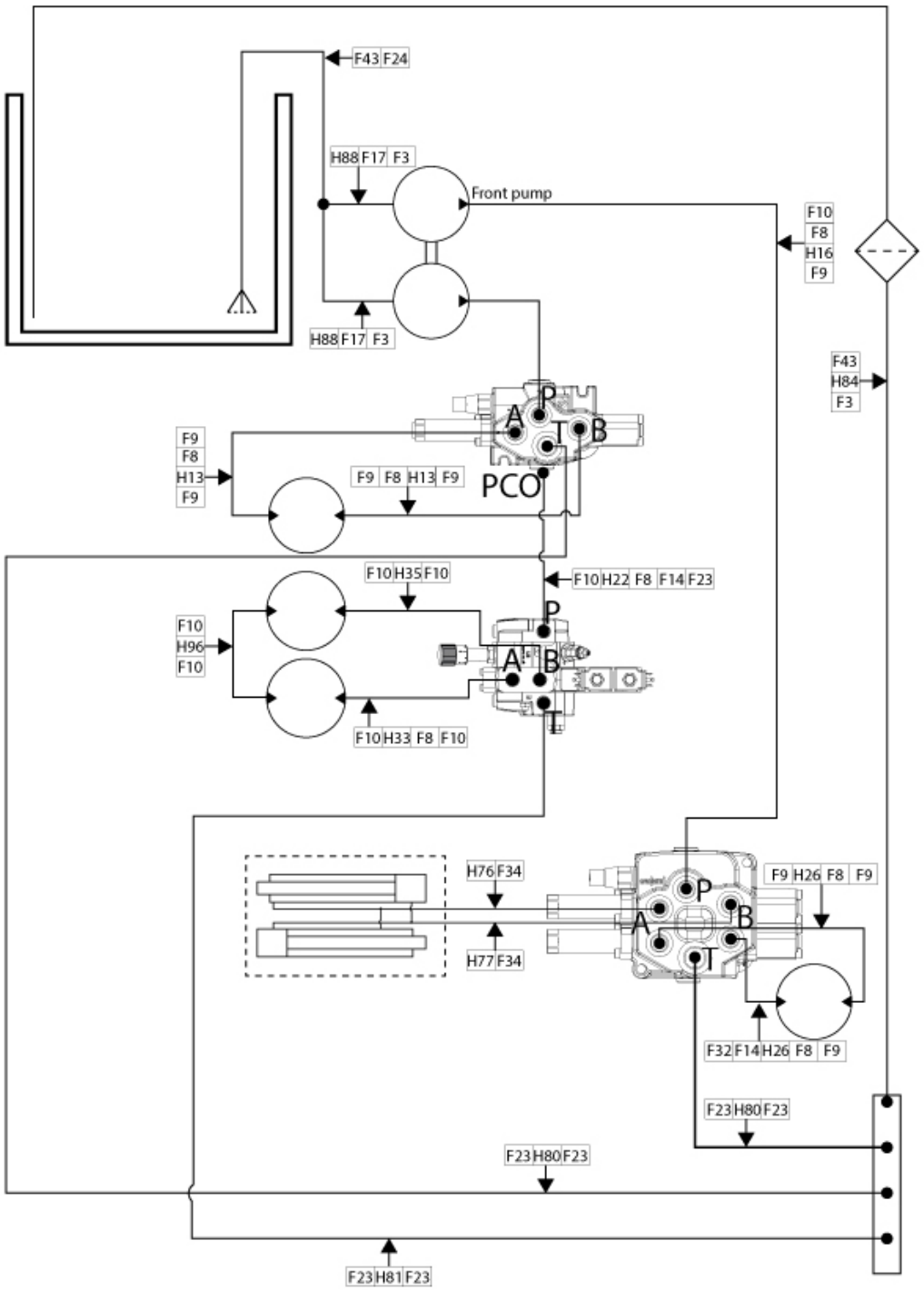
6.6 THE WOODCHIPPER IS STRUGGLING TO CHIP WOOD

Possible cause	Check	Corrective action
Lack of fuel	Check fuel system	Clean or refill fuel system as required
Lack of air	Check air filter	Clean or replace as required
Poor quality fuel	Check fuel	Drain and refill fuel system with a better quality fuel
No stress occurring too soon	Check main belts	Tension correctly
Low RPM	Check throttle	Adjust as required
Blade condition	Check blade sharpness	Replace if dull

6.7 HYDRAULIC OIL IS LEAKING

Possible cause	Check	Corrective action
Hydraulic oil level is too high	Check hydraulic oil level	Drain to correct level
Loose hydraulic fitting	Locate leaking fitting	Tighten or replace fitting

HYDRAULICS SCHEMATIC



FÖRSTASSIST

Please contact FörstAssist if you have any enquiries or if you require any assistance.

service@forstglobal.com

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WARRANTY

WARRANTY STATEMENT

1. Redwood Global Ltd guarantee all Först equipment supplied by them against any defect in manufacture and assembly – this guarantee is for a period of 3 years commencing on the date of sale to the first end user.
2. The guarantee will not apply to a failure where normal use has exhausted the life of a component.
3. Engine units are covered independently by their respective manufacturer's warranties.
4. Redwood Global Ltd's liability under this guarantee is limited to repair at Redwood Global Ltd's premises, selected Först dealer or authorised Först Service Partner.
5. No liability will be accepted for consequential lost/stolen equipment or damage of any kind.
6. The owner is responsible to make sure the chipper is operated at all times in accordance with the user manual.
7. The Redwood Global Ltd guarantee will be invalidated if any of the following points apply:
   - Failure to use genuine Först parts
   - Failure to perform routine servicing and maintenance
   - Failed parts or assembly have been interfered with
   - Chipper has been modified without written approval from Redwood Global Ltd
   - Chipper has been used to perform tasks contrary to those stated in the Redwood Global Ltd User Manual
   - Exclusions to the above warranty terms are – fair wear and tear on fuses and bulbs, tyres and brakes, lubrications, filters, blades, anvils, feed rollers, and paintwork.
   - Where an extended warranty has been given this will be stated on the original chipper invoice and will be subject to further conditions as stated in our supplementary warranty terms.

WARRANTY CLAIMS

To obtain warranty service please contact Redwood Global Ltd for the nearest approved Först Dealer. Your nearest dealer can be obtained from Redwood Global Ltd at the address on the front of the User Manual. In the event of a failure Redwood Global Ltd must be notified within 7 working days.

CERTIFICATION

Refer to declaration certificates issued on receipt of your machine.

SERVICE RECORD

Date	Service type	Hours	Agent stamp		Date	Service type	Hours	Agent stamp

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INDEX

FÖRST

Rely on it

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