HANSA™ chippers for a lifetime

HANSA C65

Operation, maintenance, and safety manual

All operators must fully read and understand this operator's manual before using the chipper. Keep this manual for future reference.

3 YEAR | GLOBAL WARRANTY

Register your Hansa chipper to qualify
www.hansaproducts.com/registration

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TABLE OF CONTENTS

What can my Hansa chipper process?

Intended uses of the chipper

The Hansa C65 chipper is built to process organic material including wooden branches not exceeding 254 mm in diameter. It is designed to be used on by commercial arborists, tree contractors and hire / rental companies. **Do NOT** use the chipper for any other purpose.

Organic wastes include:

- **Prunings, stalks, roots, vegetable matter, hay, grass, bark**
- **Branches**
- **Palm fronds**
- **Dead and hard timbers (Note: these will dull the knives faster)**
- **Paper or cardboard**

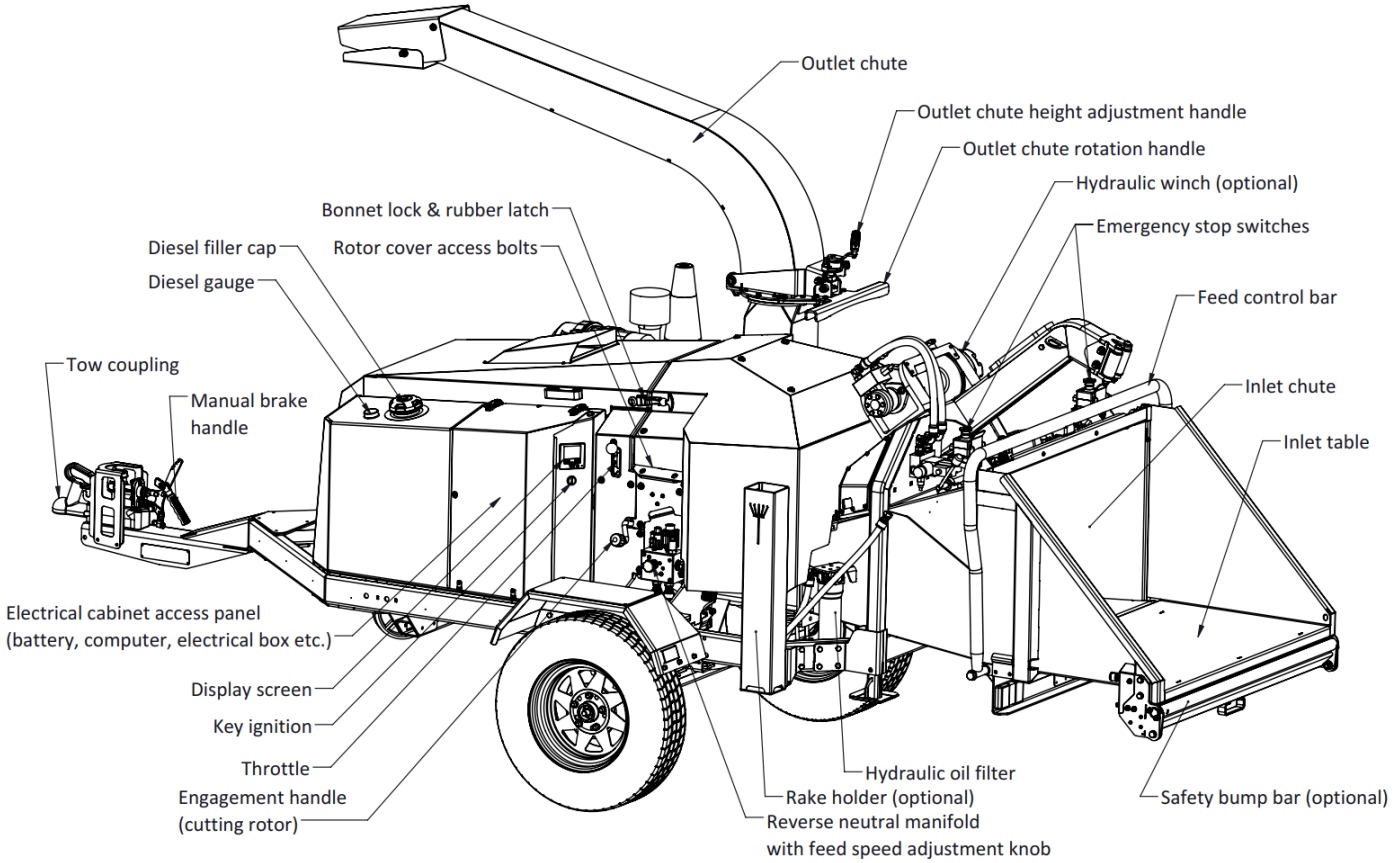
Do NOT process:

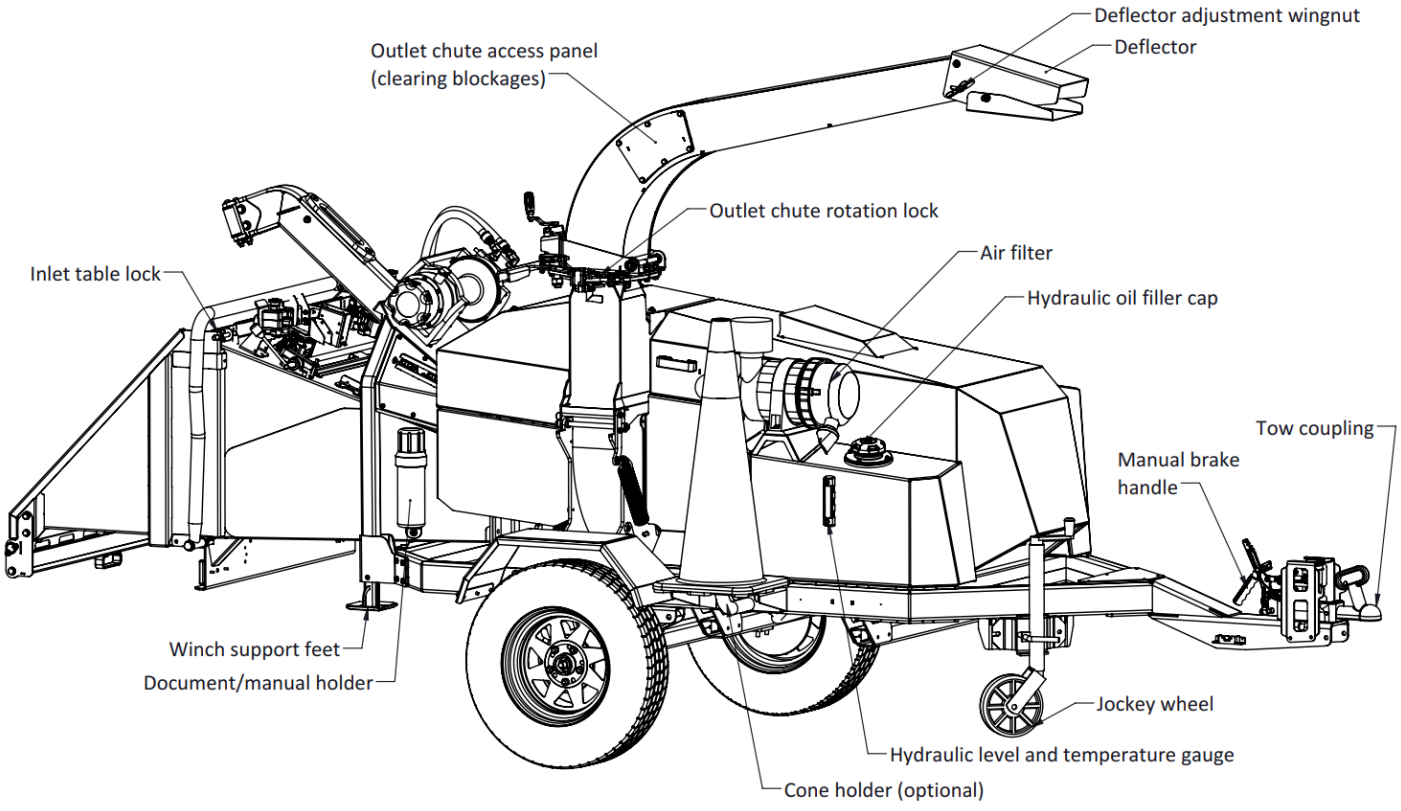
- **Flax, root balls**
- **Soil, bones, sand, grit, stones, metal**

If you have any questions, contact your authorised dealer.

Do NOT exceed 254 mm branch diameter

Chipper overview





Safety

Preventing accidents is the responsibility of every equipment operator. The operator is responsible for any accidents or hazards occurring to people or their property. Ensure every operator is familiar with the safe operation procedures and controls of the machine, how to identify hazards, and the steps required to avoid injury while handling and operating the chipper. Relevant information is contained in this manual.

- **Do NOT** modify the design of the chipper.

Operator competency

- Ensure that every person operating the chipper understands and follows the safe operating and maintenance procedures as detailed in this manual.
- **Do NOT** allow persons below the age of 18 to operate the chipper. Additionally, local regulations may restrict the age of the operator.
- **Do NOT** allow persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge to operate the machine.

Identifying hazards and risks

Identify hazards and risks, and take preventative steps to avoid accidents and minimise risk. Possible hazards include, but are not limited to, moving parts, thrown objects, weight of chipper and components, and the operating environment.

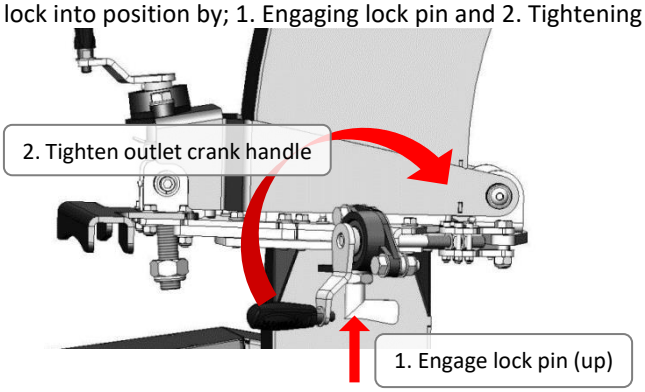
Below is a list of hazards and actions required to prevent injury.

Hazard	Risk	Corrective action
Dust	Injury or irritation of the eyes Respiratory irritation	Wear safety glasses Process freshly cut materials and / or wear a dust mask
Exhaust Fumes	Respiratory irritation	Place the chipper in a manner that the operator or onlookers are not exposed to direct exhaust fumes
Hot Exhaust	Heat burns	Keep bare hands and other body parts a safe distance away from hot exhaust
Fire	Heat burns	Clear any build-up of chipping debris around the engine and exhaust regularly
Belt Drive	Skin pinching and/or abrasions	Ensure that the belt guard is in place, and keep away from the belt
Cutting rotor and knives	Pinching, crushing, cutting, severing	Keep hands and other body parts out of the inlet chute - Use a stick to push materials into the inlet chute feed roller - **Do NOT** push material into the feed roller with your hands
Feed swing arm	Crushing, severing	Do not touch or approach the feed roller motor and swing arm while the machine is operating
Feed roller and feeding material	Being pulled into chipper resulting in possible crushing, cutting, severing, fatal injuries	Do not stand directly in front of the inlet table while feeding material into the chipper; stand to either side. Do not climb onto the inlet table or enter the infeed chute unless the machine is off, and the cutting rotor is stationary
Winch rope	Winch rope can be rapidly pulled in by the feed roller and/or cutting rotor causing crushing, severing, fatal injuries. Winch rope under tension can cause crushing, severing, fatal	Keep away from the winch rope when under tension. Do not let winch rope enter inlet chute - Ensure the winch rope is fully retracted and attached to the keeper hook before feeding material into the chipper - Do not feed and winch at the same time

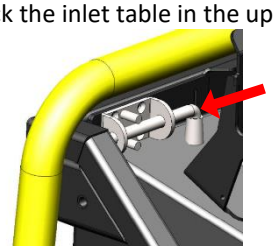
	injuries.	
⚠ Sound	Damage to hearing	Always wear hearing protection when operating the machinery
⚠ Discharge material	Eye injury, minor cuts	Always wear safety glasses when operating the machinery ✖ **Do NOT** stand in front of the outlet chute ✖ **Do NOT** face the machinery in a place where the outlet chute is directed on a hard surface
⚠ Feeding material	Cuts and scrapes	Wear tight fitting safety gloves Wear tight fitting long sleeves and pants to cover bare skin when operating the machinery
⚠ Weight of the chipper	Straining, crushing	Place the machinery on level ground ✖ **Do NOT** attempt to move the machinery up/down slopes unless is attached to a towing vehicle
⚠ Pinch points	Pinching, crushing	When opening/closing the inlet table, bonnet, or other guard, it is recommended to use the handles provided
⚠ Petrol, oil, grease	Poisoning, skin irritation, harmful vapours	Take care when handling petrol, oil and grease Wash skin if contaminated with petrol, oil or grease ✖ **Do NOT** refuel the chipper in enclosed areas

Towing safety

- ✔ Before towing, rotate the discharge chute to face either forwards or backwards, parallel with the direction of towing and lock into position by; 1. Engaging lock pin and 2. Tightening outlet crank handle:



- ✔ Lock the inlet table in the up position



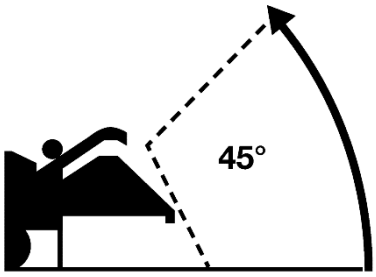
- ✔ Connect the tow coupling to the towing vehicle (check the ball dimensions are the same as the coupling)
- ✔ Connect safety chain with shackle
- ✔ If the machine is fitted with brakes, check handbrake is off and road brakes are on by removing the reversing lever
- ✔ Plug in lights and check they are operational
- ✔ Check wheel nuts and axle U-bolts periodically to make sure they are secure
- ✔ Ensure the jockey wheel is in the up position and locked away during transport
- ✔ Ensure the machine is towed in accordance with local trailer transport regulations
- ✔ Turn the machine off while towing

Winch operation safety

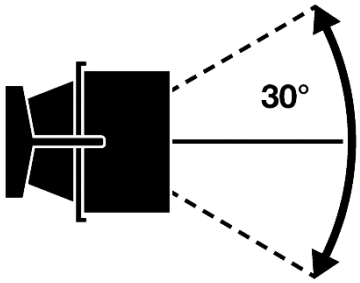
Winch operation safety:

- Be careful when retracting the winch. **Do NOT** retract the winch hook in past the rollers at the end of the winch boom
  - ⇨ The winch does not automatically stop once it reaches the rollers. Retracting the winch too far may damage the hook or rollers
- **Do NOT** attempt to lift/pull objects that weigh more than 1400 kg.
  - ⇨ Ensure you are familiar with the capabilities and weight of the machine before winching particularly heavy objects
- Ensure the winch rope is fully retracted and attached to the keeper hook before feeding material into the chipper
  - ⇨ This is to ensure the feed roller/cutting rotor does not pull in the winch rope. The rotor is rotating at high speed and if it does pull the winch rope in, it will do so rapidly and has the potential to cause serious injury or death to operators and/or result in damage to the machine
- Ensure both stabiliser feet are lowered while operating the winch
- Ensure the pull angle of the winch is within the safe operating envelope. This is outlined below:

Safe operating envelope (vertical)



Safe operating envelope (horizontal)



- Ensure the rope wraps around the drum at least five times
  - **Do NOT** extend the rope past this point
    - ⇨ Winches operate on the friction principle; with less than five wraps, the rope will separate from the drum
- Ensure both stabiliser feet are lowered while operating the winch
- If a replacement winch rope is required, the rope must be of equal or greater strength than what is specified (see the 'Operation – Hydraulic Winch' section of this manual). Contact Hansa for more information

Chipping safety

Checklist before operation

Engine:

- ✓ Check oil level in engine
- ✓ Check condition of air cleaner
- ✓ Refer to engine manual for more details

Check Hydraulics:

- ✓ Check level of hydraulic fluid
- ✓ Check all hydraulic components for leaks

General:

- ✓ Check machine for proper lubrication
- ✓ Check nuts and bolts to ensure they are tight
- ✓ Check tires for proper air pressure as stated on the tire
- ✓ Check diesel level
- ✓ Check that the fuel cap is secured and there is no fuel leaking from the tank
- ✓ Check direction of the discharge chute
- ✓ Check guards are all in place and in good condition
- ✓ Check all labels are legible. Replace if necessary (contact Hansa for replacements)
- ✓ Refer to maintenance section for more details

Safe setup procedures

- Ensure all pre-operation checks have been done
- Setup the work site so there is no danger to traffic or public and provide adequate warnings
- Ensure the chipper is positioned on firm level ground
- Ensure the feed control bar is in the neutral position when starting the chipper
- Ensure the inlet table is clear of material when starting the chipper
- Ensure the throttle control lever is the initially in the idle position when starting the chipper
- Ensure the outlet chute is discharged onto soft ground (e.g. grass)
  - **Do NOT** allow the outlet chute to discharge chip onto hard surfaces (such as a paved or gravel surface)
    - ⇨ Ejected material can rebound and cause injury
- Keep children and spectators clear of the work area at all times
  - **Do NOT** operate the chipper where there is a hazard to onlookers
  - **Do NOT** allow any person under the age of 18 to operate the chipper
- Refuelling:
  - Take extra care in handling fuels
    - ⇨ They are flammable and vapors are explosive
  - Use only an approved fuel container
  - Always replace and securely tighten fuel cap after refuelling
  - Allow engine to cool down before refuelling
  - **Do NOT** smoke when using or refuelling the chipper
  - Never remove fuel cap or add fuel with the engine running
  - Never refuel the chipper indoors
  - Never store the chipper or fuel container inside where there is an open flame, such as a water heater
  - If fuel is spilled, do not attempt to start the engine. Wipe up the spilled fuel, and move the chipper away from the area of spillage before starting

Safe operating procedures

DO:

- **Wear safety equipment:** Safety glasses and hearing protection must be worn at all times
- **Wear work gloves:** The wearing of work gloves is optional but highly recommended - ensure that the gloves fit tightly
  - **Do NOT** wear loose fitting gloves or gloves with long cuffs
  - ⇨ Loose gloves may get snagged by branches, which could result in the operator being pulled into the chipper
- Tie long hair up
  - ⇨ Long hair could be snagged by a branch and may be pulled into chipper
- Wear clothes that sit tightly
  - ⇨ Avoid scarves and any items that can get caught in the chipper or snagged on branches
- Place the chipper on even ground and direct outlet chute onto soft ground
- Ensure exhaust is pointing away from the working area and downwind from the operator and onlookers
- Keep proper balance and footing at all times and stand at the same level as the chipper
  - **Do NOT** climb onto the inlet table to push material into the feed roller
- Ensure the chipper is positioned so that there is a minimum inlet table height of 600 mm off the ground
- Keep your face and body away from the inlet chute. Stand to the side of the inlet table while feeding material into the chipper
  - ⇨ Standing to the side gives better access to the control bar and helps in keeping clear from flying debris
- Feed only freshly cut material into the chipper
  - **Do NOT** feed in materials covered in gravel, stones and dirt as this can rebound, injure the operator and damage the machinery
- Prune to a size that suits the chipper's capabilities
- Pre-cut side branches
  - ⇨ The branch will 'self-feed' more efficiently
- Keep the engine clean of debris and other accumulations
  - ⇨ This prevents damage to the engine or possible fire
- Feed limbs and branches through butt end first, leaving the bushy head on
  - ⇨ This helps guide the limb down the inlet chute
  - ⇨ It reduces spinning and the occurrence of ejection of small pieces back up the inlet chute

- Feed soft materials intermittently with branches
  - ⇨ The wood chips tend to clean out any soft residue left in the chipper
  - ⇨ The chipper can clog up with soft, wet or fibrous materials
- Keep well clear of the outlet chute discharge area, even when the chipper is not currently processing material
  - ⇨ High velocity, sharp discharge can cause serious injury
- Keep the outlet free of blockage
  - ⇨ If blockage occurs, turn the engine off and wait for rotor to stop spinning. Open the outlet chute access panel and remove material until the outlet chute is clear
- Keep the feed roller free of blockage
  - ⇨ If a blockage occurs, only attempt to manually remove the blockage when the engine is off, and the cutting rotor is stopped. To get access to the feed roller area, refer to the instructions in the "Maintenance & Service" section in this manual.
- Turn off the engine whenever you leave the work area

DO NOT:

- Run the chipper in an enclosed area
  - ⚠ Exhaust fumes contain carbon monoxide which is poisonous, colourless, odourless, and tasteless
- Operate the chipper wearing loose clothing and untied long hair
- Stand at a higher level than the base of the chipper when feeding material into it
- Feed flax and cabbage tree leaves into the machine
  - ⇨ These stringy materials can wrap around the rotor shaft and work their way into the bearing.
  - If any stringy material becomes wrapped around the rotor shaft, remove it before it works itself into the bearing
- Process old materials such as dried wooden branches
  - ⇨ They get very hard and springy when dried out
  - ⇨ They are more awkward to handle
  - ⇨ The knives dull much quicker
- Feed short, stubby pieces of wood into the chipper
  - ⇨ They bounce and spin in the inlet chute
  - Feed short stubby pieces together with longer pieces
- Feed branches that are too large (max 254 mm branch diameter)
  - ⇨ The chipper engine will stall, which could result in damage to the engine or drive belts
- Put soil, sand, grit, stones or pieces of metal into the chipper
  - ⇨ This will damage the sharp edge of the cutting knives and can rebound and injure the operator
- Put root balls and dead wood into the chipper
  - ⇨ This dulls the knives quickly
- Overload the chipper
  - ⇨ If the cutting rotor is slowing down, feed the material in slower
- Transport the chipper while the engine is running
- Tamper with the engine governor settings on the chipper
  - ⇨ The governor controls the maximum safe operating speed and protects the engine and all moving parts from damage caused by overspeed
- Operate the chipper with blunt knives
  - ⇨ This causes excessive vibration which may result in damage to the chipper
- Remove any guards on the chipper unless the engine is turned off and the cutting rotor has come to a complete standstill
- Enter the inlet chute
- Get on, or lean over the feed table
- Put hands or any other part of the body or clothing:
  - ⇨ Inside the inlet chute
  - ⇨ Inside or near the opening of the discharge chute
  - ⇨ Near any moving part
- Use the feed control bar as a handle to manoeuvre the machine

Operation

The chipper is self-feeding and has a large inlet opening. It can process:

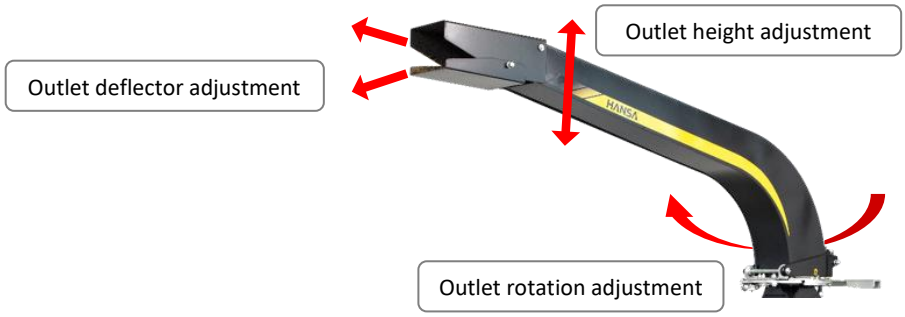
- Prunings, stalks, vines, leaves, roots and vegetable matter, paper and cardboard
- Freshly cut material is better to process than dry material
- Maximum capacity is 254 mm diameter branches

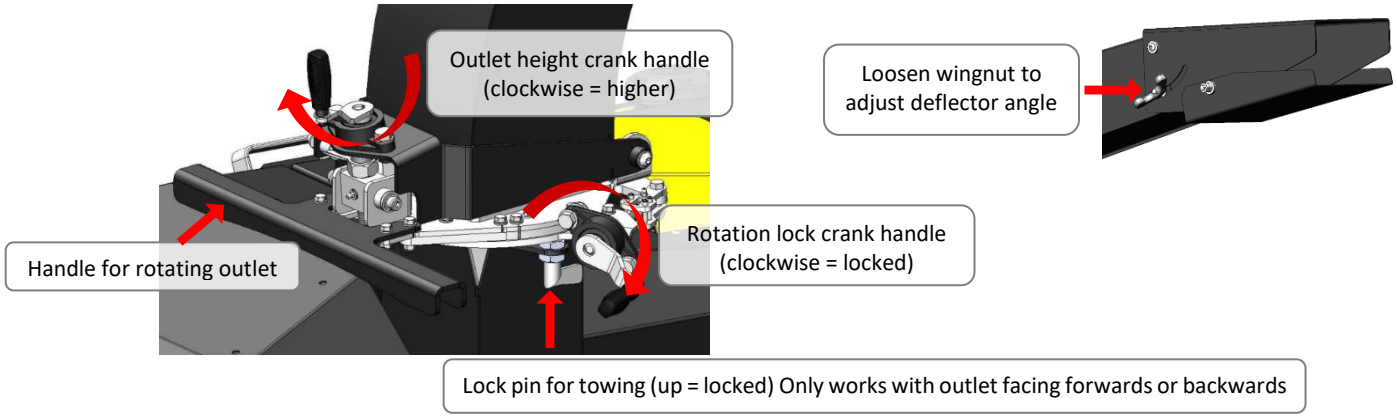
It is recommended to keep a wooden stick handy, approx. 60 mm diameter x 1000 mm long for:

- Pushing in short, brushy and very leafy materials
- Keeping the inlet table clear

Outlet chute adjustment

The C65 is fitted with a rotating outlet chute and deflector, allowing the operator to control the direction of material discharge from the machine:





Adjust outlet rotation direction: disengage the lock pin (down), loosen the rotation crank handle, change outlet direction, then tighten the rotation crank handle to lock into position.

Adjust outlet height: turn outlet height crank handle clockwise (higher) or anticlockwise (lower).

Adjust deflector angle: loosen wingnut, adjust angle, tighten wingnut.

Lock for towing: rotate the discharge chute to face either forwards or backwards, parallel with the direction of towing and lock into position by:

1. engaging lock pin and
2. tightening rotation crank handle.

Feed roller control

Feed – Neutral – Reverse

The feed roller is controlled with the yellow control bar which surrounds the inlet table. The control bar has three settings:

1) Reverse
2) Neutral
3) Feed

When the bar is fully pushed in, the feed roller will be set to reverse. When the bar is fully pulled out, the feed roller will feed material. The neutral position lies between the reverse and feed positions.

Automatic Feed Control

The electronic automatic feed control system controls the feed roller and improves operation by:

- ✓ Keeping the engine RPM at optimal speed and power
- ✓ Preventing the engine from stalling when overloaded
- ✓ Assisting with clearing blockages

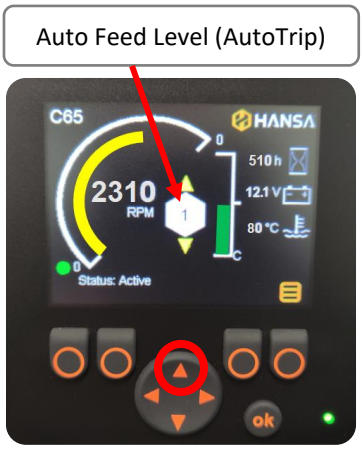
This system eliminates the need for the operator to control the speed at which material is manually fed into the chipper. A sensor detects the speed of the cutting rotor, once this speed drops to a pre-set level, the feed roller stops the material feeding into the machine. The engine then recovers to higher RPM and once it reaches a pre-set speed the feed-roller will start feeding again. The feed roller will also reverse back slightly after stopping (reducing the friction between the wood and knives), resulting in quicker RPM recovery.

The feed control can be set to 6 different AutoTrip levels from 1 to 6 or be disabled (OFF). Setting “1” is the default factory setting which allows the engine to drop the most in speed before pausing feeding. Setting “6” allows the engine to drop the least in speed before pausing feeding. Setting “OFF” will disable automatic feed control and the engine may stall if it is overloaded. If there are any issues with the electronic automatic feed system, the chipper can be used with the auto-feed disabled.

WARNING! Be careful using the machine with auto-feed disabled as the machine can be stalled easily.

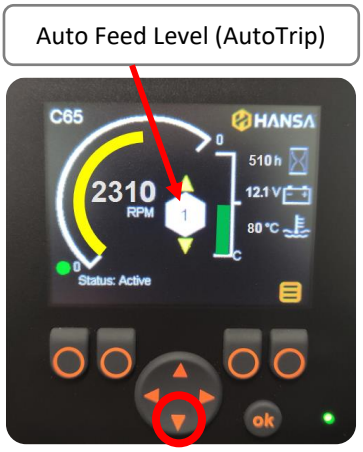
Adjust the AutoTrip setting:

1



Press “UP” function button to increase the AutoTrip level.

2



Press “DOWN” function button to decrease or turn off the AutoTrip level.

Hour meter / tachometer

The display screen shows:

- Tachometer: Engine speed (RPM, revolutions per minute). The engine speed is measured from the cutting rotor speed sensor and so only displays accurate speed while the cutting rotor is engaged.
- Hour meter (hours).

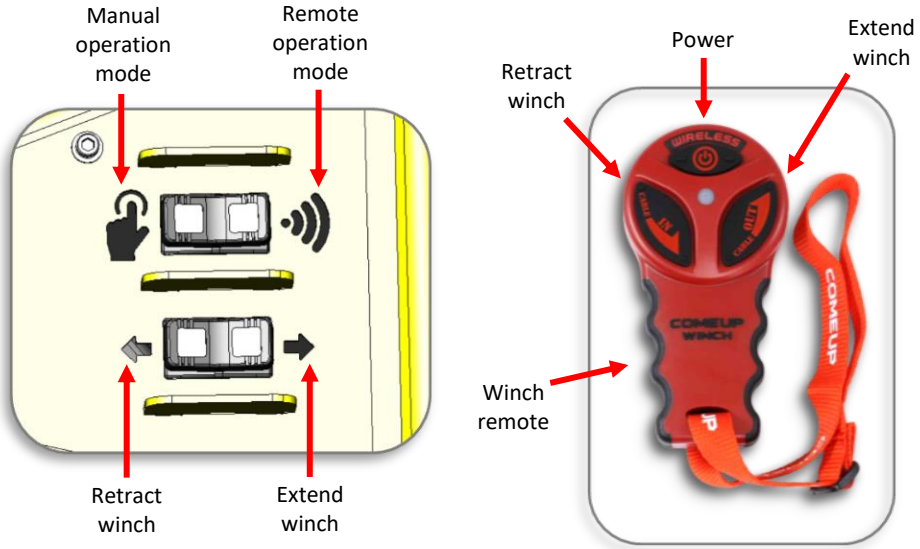
Hydraulic winch operation (optional machine feature)

Specifications
Model: Comeup HV-3
Rope type: 50m Dynice 75 or equivalent (minimum break load 4.2 ton)
Line pull: 1400 kg max
Line speed – 20m/min

Winch operation:

The winch is operated via a control panel near the base of the winch unit. The switch on the right controls whether the winch is being extended or retracted. The switch on the left toggles between remote operation and manual operation (via the chipper body).

Note: You may only operate the winch while the feed roller is in the neutral position.



To control the winch with the remote, switch the mode to remote operation, and press and hold the power button on the remote until the light turns green (about 5 seconds).

To disengage the winch, pull the T-handle up and twist to a horizontal position. When the winch is disengaged, the rope may be freely pulled from the drum (free spool).

Winch handle in engaged position

Pull up and twist

Winch handle in disengaged (free spool) position

Emergency stop

The C65 has two emergency stops on the top of the inlet chute. The emergency stops act as an immediate kill switch to the engine. It does not immediately stop the rotor from spinning. The rotor will continue to spin for some time due to its rotational inertia. The feed roller, however, will stop almost immediately. To engage the emergency stop, push the red button. To disengage the emergency stop, twist the red button clockwise until it releases outwards.

- Use it when foreign matter such as sand, stones or metal enter the inlet chute
- Use it in response to an immediate hazard/danger to an operator or onlooker
- After the rotor comes to a halt, follow the normal shutdown procedure in addition to using the emergency stop
- Inspect the machine before resetting the emergency stop
- Under normal conditions, **do NOT** use the emergency stop in place of the regular shutdown procedure

Bottom bump bar (optional machine feature)

The C65 may be fitted with a bottom bump bar which acts as an extra safety feature in addition to the emergency stops. Pushing the bump bar in immediately stops the movement of the feed roller. After activating the bump bar, the movement of the feed roller may be reset by setting the feed roller control bar to neutral, then back to feeding. The bump bar is designed to be activated by pushing against it with your hand, knee, foot or other body part in the event in which an operator is caught by in-feeding branches.

Starting procedure

Before starting the machine, operators must read the section “Chipping Safety” in this manual and follow all instructions.

1

Ensure the rotor is disengaged by winding the engagement handle in the anti-clockwise direction until the handle comes to a stop (located next to the control panel).

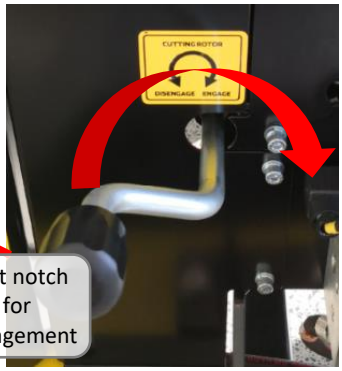
Additionally, ensure the throttle control is set to idle.

2

Insert the key into the ignition and turn clockwise to the “on” position (first click). Wait a few seconds for the electronic controller to start up, then turn the key clockwise (second click) to crank the engine until it starts. Allow the engine to warm up for 1-2 minutes.

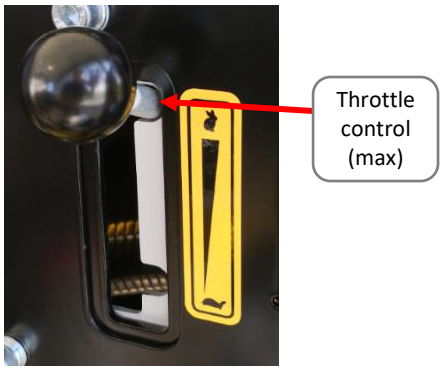
Note: If the engine fails to start on the first attempt, the key must be turned back to the off position before attempting to start again.

3



Increase the throttle up to the first notch on the throttle control gate. Gradually and slowly engage the rotor by winding the engagement handle in the clockwise direction until it comes to a stop. This should be done slowly to allow enough time for the cutting rotor to pick up speed without stalling the engine.

4



Increase throttle to maximum for chipping (move the throttle lever to the highest position).

Note: Engine must run at full throttle for the automatic feed control system to operate correctly.

Shutdown procedure

1

To shut the machine down, move the throttle control lever to the idle position (lowest position).

2

Once the engine has been given time to slow down to idle speed (about 10-15 seconds), disengage the rotor by winding the engagement handle in the anti-clockwise direction until the handle comes to a stop.

⚠ **WARNING!** Only engage and disengage the rotor at idle speed otherwise excessive vibration and belt friction may cause damage.

3

Allow the engine to cool down by running at idle for at least 1 – 2 minutes before shutting down. Turn the ignition key anti-clockwise into the off position to shut the chipper down.

⚠ **WARNING!** The heavy rotor will continue to turn for some time after the engine has been shut down. Do not open the rotor housing cover until the engine and cutting disk have completely stopped and the rotor is disengaged.

Troubleshooting

- The chipper won't start
  - The engine oil level might be too low
    - ⇨ The chipper is fitted with oil alert and will not start if the oil level is too low
    - ✓ Check the oil level and top up if required
  - The chipper is placed on a slope
    - ⇨ The chipper is fitted with oil alert and will not start if the oil is not level
    - ✓ Move the chipper to level ground
  - The emergency stop is engaged
    - ✓ Ensure both emergency stops are disengaged by twisting the red buttons clockwise before starting the chipper
  - The rotor/feed-roller cover is open or not closed completely
    - ⇨ The chipper is fitted with a safety switch on the rotor/feed-roller cover
    - ✓ Ensure the rotor/feed-roller cover is bolted down properly
- Belt drive engagement will not work
  - The housing might be blocked
    - ✓ Turn engine off, ensure rotor has completely stopped, remove debris, restart engine, then attempt to re-engage the belt drive
- Drive belts squealing/smoking
  - Drive belts are loose/damaged
    - ✓ Turn the engine off, ensure rotor has completely stopped. Follow the belt tensioning procedure
- Discharge slows down
  - The chipper is clogged up
    - ✓ Turn the engine off, ensure rotor has completely stopped, remove debris, then close and lock the outlet chute
- Outlet chute is blocked
  - ⇨ Outlet is pasted with wet/leafy material
    - ✓ Feed hard, dry material in with softer material
    - ✓ Turn the engine off and ensure rotor has completely stopped. Open the outlet chute and clear blockage
- The material is ejected in long strips
  - The knives and/or anvil might be blunt
    - ✓ Turn the engine off and ensure rotor has completely stopped. Inspect and sharpen or replace knives and/or anvil as required. Ensure correct clearances between knives and anvil
- The chipper starts making unusual noise, the cutting rotor strikes a foreign object, or the chipper starts to vibrate
  - ✓ Turn the engine off, ensure rotor has completely stopped, then inspect for damage
  - ✓ Replace or repair any damaged parts
  - ✓ Check for and tighten any loose parts
  - ✗ **Do NOT** attempt to repair the chipper unless you are competent to do so
- The chipper stalls when material is being fed
  - ⇨ Auto-feed control is not working
    - ✓ Check the Autotrip setting is not set to "OFF"
    - ✓ If auto-feed system is not working, contact Hansa
- The feed roller is not turning
  - ⇨ Engine is not running at full throttle
    - ✓ Increase the engine throttle to max RPM

⚠ **WARNING! Do NOT** open the housing unless the engine and cutting rotor have completely stopped.

Maintenance & Service

Warnings

⚠ **WARNING! Do NOT** perform any service & maintenance activities with the engine running unless it is safe to do so. Do not perform any service & maintenance activities while the cutting rotor is still spinning.

Lifting the swing arm for access

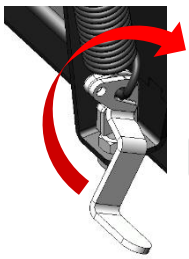
Lifting the swing arm to get access to the feed roller area may be required for:

- Inspecting, replacing, and adjusting the anvil
- Clearing a blockage

1. **If your machine is fitted with the "Lift & Crush" feature:**
    - Operator 1: Use the lift and crush control lever to lift the swing arm up and hold it there
    - Operator 2: Use the rotor lock pin to hold the swing arm up by inserting the pin into the hole on the right-hand side of the feed roller cover
        - ⚠ While inserting, take care to keep your hands away from the hole in case the swing arm unexpectedly lowers before you have removed your hand from the pin

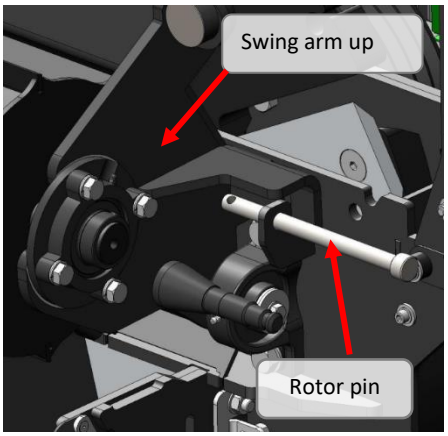
Insert pin while swing arm is held up

    - Operator 1: Once the pin is inserted and with all hands clear of pin, release the lift and crush lever and turn the machine off.
    - With the machine off and cutting rotor stopped, the feed roller area can be accessed safely.
        - ⚠ **Do NOT** attempt to access this area unless the engine is off, and rotor has stopped turning.
2. **If your machine is not fitted with the "Lift & Crush" feature:**
    - Turn the engine off and wait for rotor to stop spinning.
        - ⚠ **Do NOT** open the rotor cover or attempt to access this area unless the engine is off, and rotor has stopped turning.
    - Open the rotor cover
    - Carefully release the feed roller springs
        - ⚠ The feed roller springs can store a dangerous amount of energy so extreme care needs to be taken when releasing them. Ideally, try to release them using a stick or long tool. In any case, keep your hands away from the swinging path of the handle as it releases the tension.



Carefully release both feed roller springs

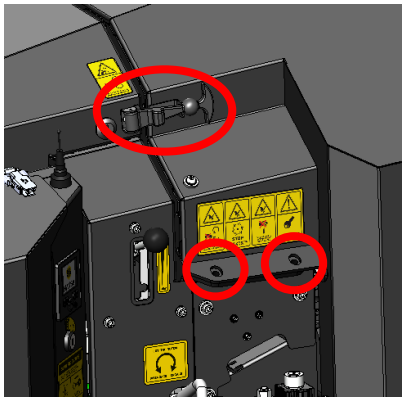
    - Lift the swing arm up and insert the rotor lock pin into the locking hole:



- With the machine off and cutting rotor stopped, the feed roller area can be accessed safely.
  - ⚠ **Do NOT** attempt to access this area unless the engine is off, and rotor has stopped turning.

Opening the rotor cover for access to cutting rotor

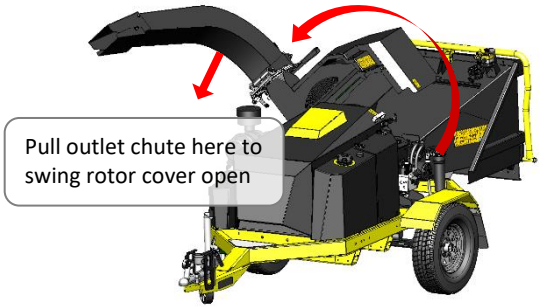
1



⚠ WARNING! **Do NOT** open rotor cover when engine is on and/or rotor is still spinning.

Ensure rotor has stopped spinning. Remove the two bolts from rotor cover and disconnect the rubber bonnet latch.

2



Ensure outlet chute rotation is locked. Pull on outlet chute to swing rotor cover open. Reverse process to close. Do not operate the machine without the rotor cover bolts installed.

Knife re-sharpening and knife replacement

How do I know that the knives need re-sharpening?

- ⇨ Chipper is vibrating excessively when processing material
- ⇨ Chipper is making more noise than usual when processing material
- ⇨ Rotor RPM is dropping more quickly than usual
- ⇨ Material comes out in long strips

WARNING! Do NOT operate your chipper with blunt knives.

- ⇨ Blunt knives will cause excessive vibration
- ⇨ Blunt knives result in damage to the chipper

How to re-sharpen the knives:

If you don't have a surface grinder or are unsure how to re-sharpen the knives, contact a professional saw doctor or Hansa to arrange re-sharpening.

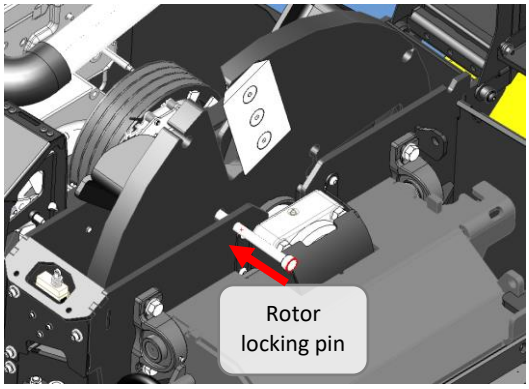
WARNING! Be careful when working around the sharp knives.

Tools and materials required for re-sharpening (approx. 40 mins):

- 24 mm ring spanner
- 19 mm ring spanner
- 16 mm ring spanner
- 14 mm Allen key
- Torque wrench with a 24 mm socket and 16mm crows-foot wrench
- A stick magnet (optional)
- Surface grinder
- Coolant

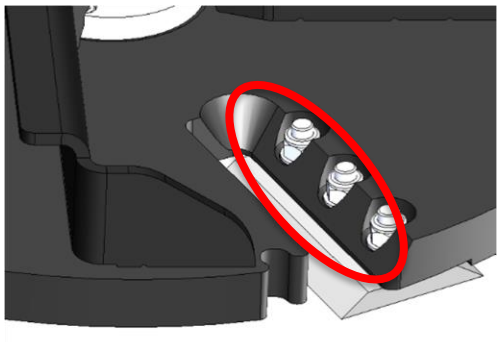
Remove the knives for sharpening:

1



Open the rotor cover (refer to "Opening the rotor cover for access to cutting rotor" in the "Maintenance & Service" section in this manual). Rotate the cutting rotor to gain access to the knives, then insert the rotor locking pin (normally located under the reverse neutral manifold) into the housing and through the cut-out in the rotor to lock it in place.

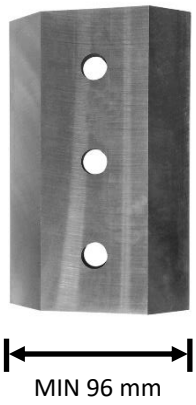
2



Using a socket and Allen key, remove the three knife mounting bolts from each knife

- ⇨ To preserve the Allen key cut-out in the bolt heads, loosen them by turning the nut and holding the bolt head stationary.
- ⇨ Be careful not to drop the bolts or knives into the chipper.
- ⇨ A stick magnet can be used to retrieve them if this does occur.

3



Measure the width of the knife and check that it will be at least 96 mm after sharpening.

If the knives will be shorter than 96 mm, then the knives should be replaced. Please contact your nearest Hansa dealer.

Sharpen the knives:

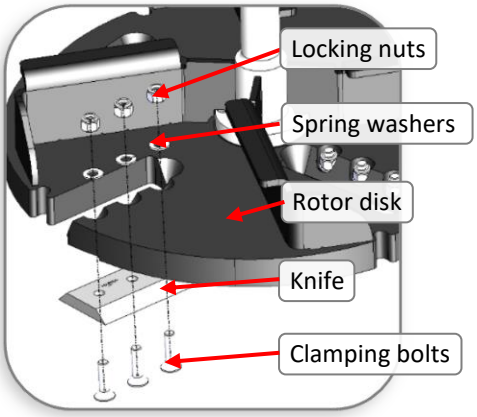
4

Sharpen the knives on a surface grinder. A cutting angle of 36° is critical for the performance of the chipper. Make sure there is plenty of coolant used when grinding to avoid softening of the steel knives. Ensure that the knives are evenly sharpened on both edges.

Note: You do not need to sharpen your knives unless both sides of the reversible knives have been used.

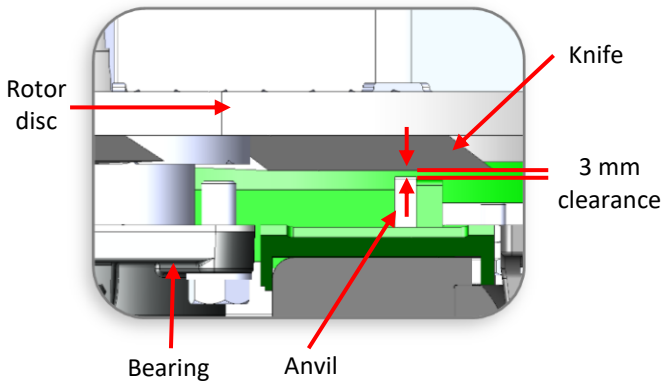
Reinstall the knives:

5



Clean all mounting surfaces and remount the knives in the reverse procedure. Torque the knife clamping nuts up to 190 Nm. Note: Torque the nuts while holding the bolt head stationary, to ensure correct torque.

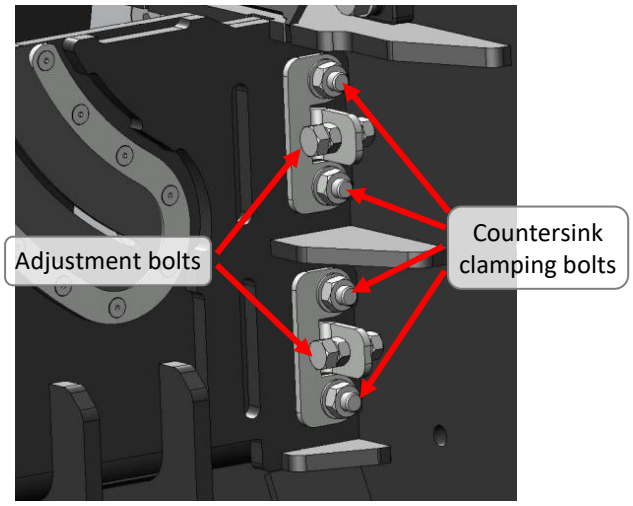
6



Top view: Knife and anvil set-up

After sharpening, the width of the knives will have been reduced, therefore the gap between the knives and anvil may require adjustment. There should be 3 mm of clearance between the knife and the anvil. If there is not enough clearance, the knife edge may touch the anvil through deflection when cutting heavy branches and damage the sharp edge. Too much clearance will allow small twigs and fibrous materials to be dragged through without being cut.

To adjust the gap between the knives and the anvil, first loosen the locking nuts from the adjustment bolts on the anvil mounting plate using a 16 mm spanner. Now tighten or loosen the two adjustment bolts. Tightening these



bolts will cause the anvil mounting plate to slide further along the slotted holes. Ensure you tighten the two bolts evenly to avoid setting the anvil on an angle.

Once the correct anvil position has been set, ensure the locking nuts on the adjustment bolts are tightened. Additionally, ensure the clamping nuts are torqued to 77 Nm.

Remove the rotor pin and turn the rotor slowly by hand to check that it turns freely.

7 Close and secure the rotor cover.

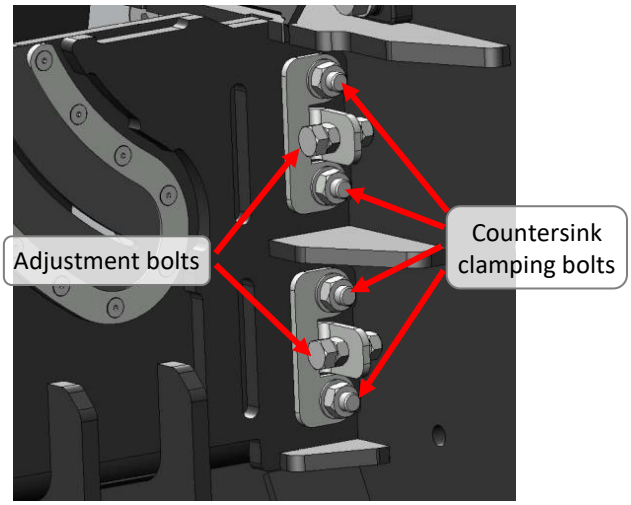
⚠ **WARNING!** Every time the knife clamping bolts are torqued up to 190 Nm and loosened off again, the life of the bolts is reduced. The knife clamping bolts must be replaced at most after every six sharpens. Contact Hansa for replacement bolts (M16x50 countersunk bolts of grade 12.9 and Zinc finish). It is recommended to use only genuine Hansa bolts.

Anvil adjustment

Whenever the chipper knives are inspected/sharpened, the condition of the anvil should also be checked. If the edge of the anvil is significantly rounded and/or uneven, then it should be reversed or replaced. Typically, the anvil will maintain its sharp edge for about 500 hours of operation.

Anvil replacement

1 Lift the swing arm up and lock with rotor pin. Refer to instructions for “Lifting the swing arm for access” in the “Maintenance & Service” section in this manual.



2

To remove the anvil, you must remove the four countersink clamping bolts using an 18 mm socket and extension. If the bolt head turns, hold it with a 6 mm Allen key.

Note: **Do NOT** use the Allen key to turn the bolt; turn only the nut.

3 Inspect the condition of the Anvil. If the other side of the anvil hasn’t been used yet: rotate the anvil 180 degrees and place it back on the feed roller housing wall. If both sides of the anvil are blunt: remove the anvil and replace it with a new one. Contact Hansa if a replacement anvil is required.

4 Tighten the clamping bolts, ensuring there is a spring washer between the clamping plate and each nut. Torque the nuts to 77 Nm. Check the gap between anvil and knives as per knife sharpening & setting procedure.

Belt tension

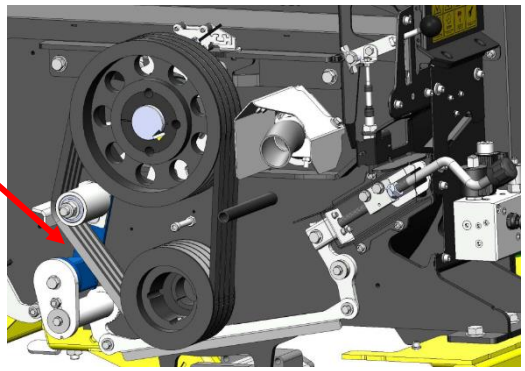
Correct belt tension is crucial for minimising belt wear and maximising machine efficiency. The C65 uses a flexible tensioning device (shown in blue below). The tension of the device is set by adjusting the angle of how much the device flexes.

Note: New belts can lose tension as they "wear in" and so it is recommended to check the tension after the first 5 hours of operation on new belts and readjust if necessary.

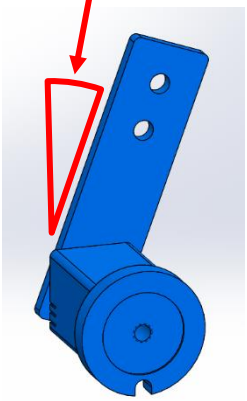
Checking and setting belt tension

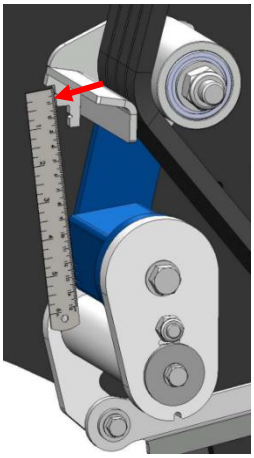
1

With the engine off, fully engage the cutting rotor.



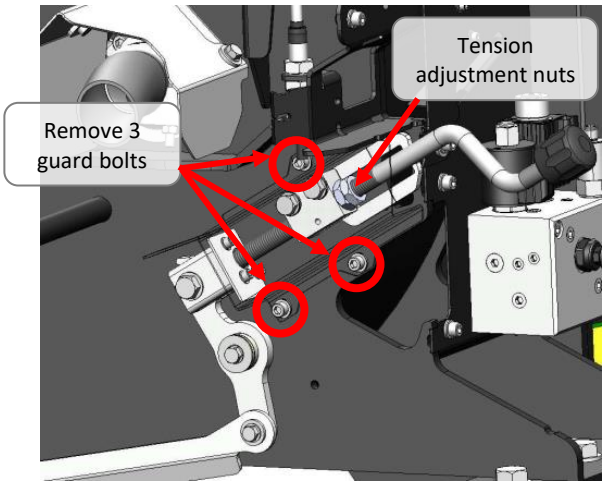
2





Check the angle of the blue tensioner device. When the engagement handle is fully engaged, this should be bent 20°, as shown. The angle can be checked by placing a ruler on the square base and checking that it lines up with the top cut-out (not the lower cut-out) in the metal plate as shown. This is the best way to set the angle. Some machines may not have this cut-out and instead the indicator on the tensioner can be used.

3

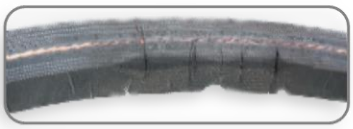


If the tension needs adjustment:

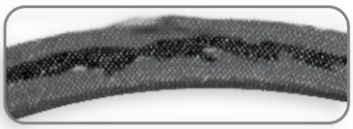
1. Remove the engagement guard (shown transparently in image) by removing the 3 guard bolts
2. Loosen the two engagement nuts. Move the nuts further up the shaft for more tension (more tensioner angle) or further down the shaft for less.
3. Tighten the locknuts against each other
4. Turn the engagement handle fully clockwise and check tension again
5. Reinstall the guard

Belt replacement

If the belts in your chipper look similar to any of the following images or are clearly worn, then they need to be replaced.


Cracked underside of belt


Split belt cover


Soft, swollen belt


Worn cover on back of belt

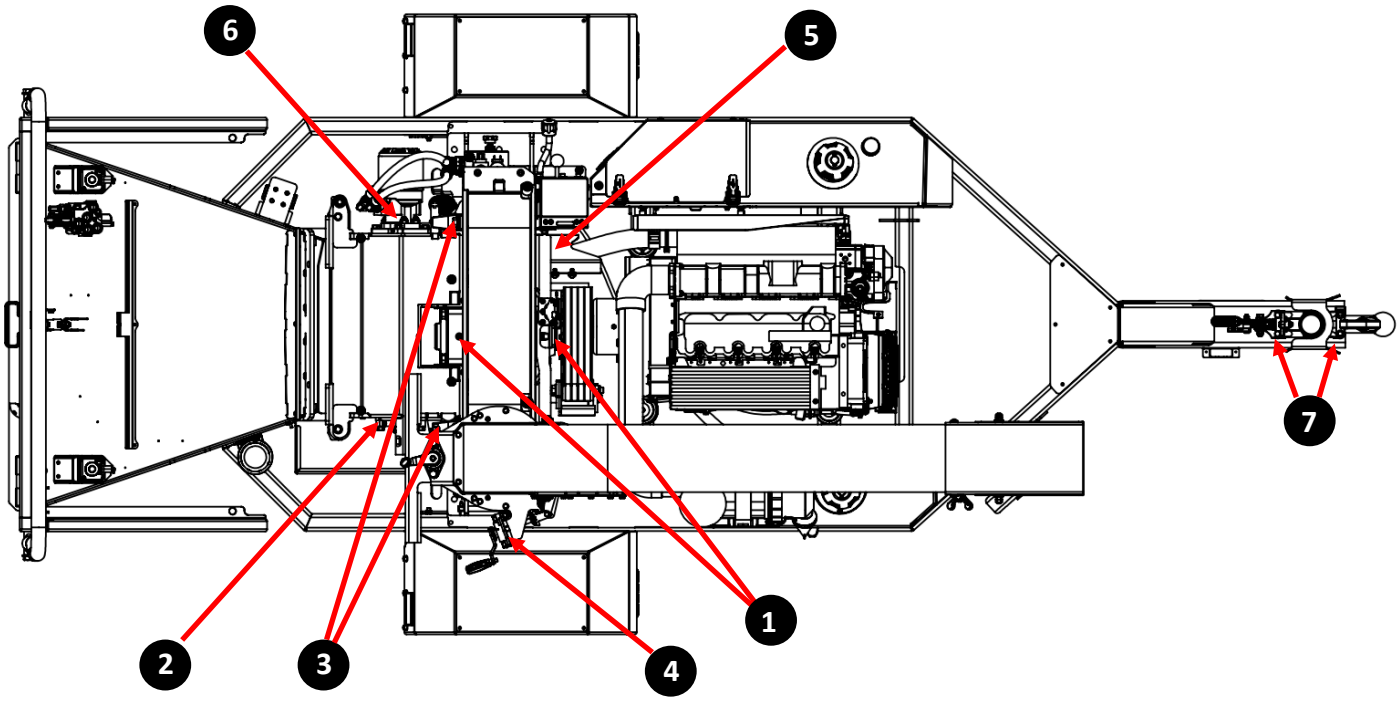

Sidewall belt wear

To remove the belts, open the bonnet and fully disengage the belts. The C65 requires four SPB1360 belts.

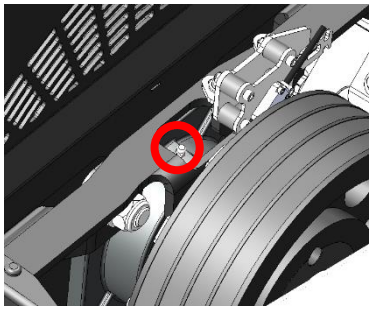
Grease points

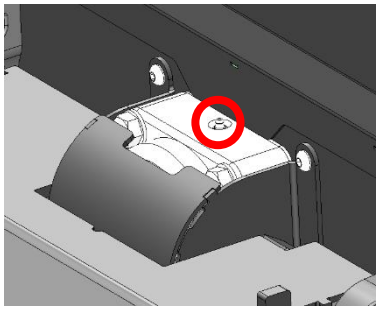
General grease points

The grease points listed below must be greased every 50 operating hours with bearing grease or all-purpose grease:

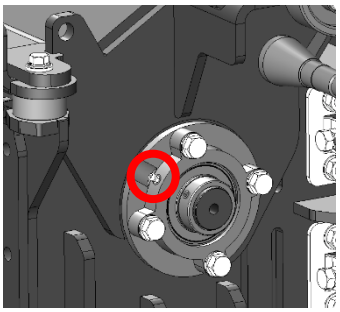


1. Two bearings on the cutting rotor shaft, one on the front side of the housing, and one on the rear:

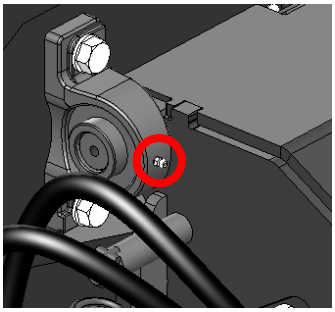


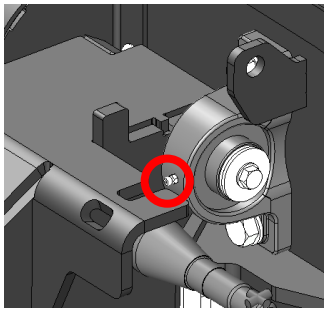


2. One bearing on the right-hand side of the feed roller

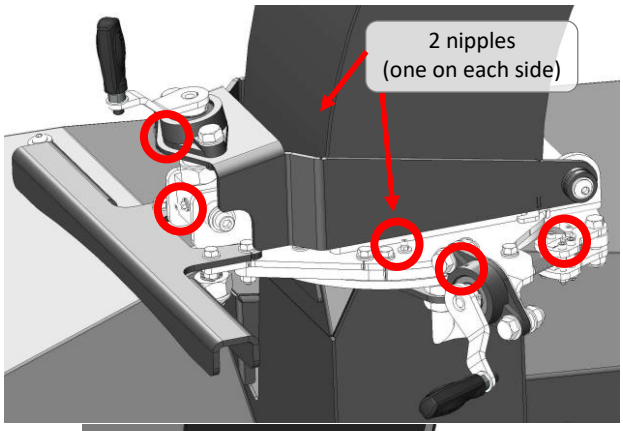


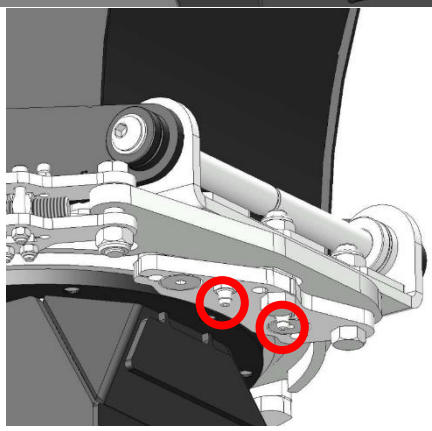
3. Two bearings on either side of the feed roller pivot (also referred to as “swing arm”):



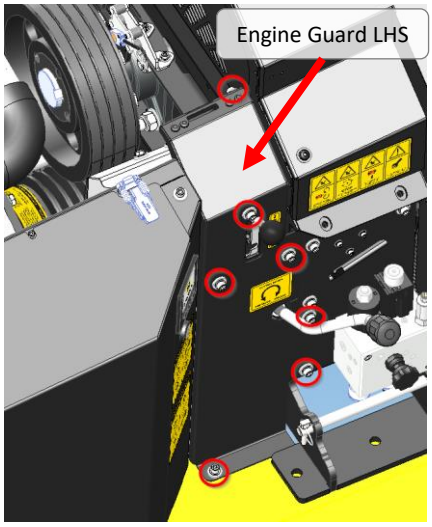


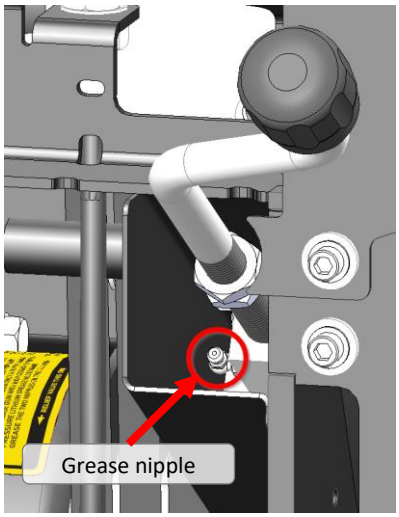
4. Eight grease nipples on the outlet chute (two underneath the front edge)



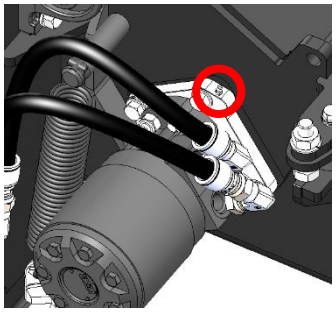


5. One grease nipple on the engine engagement screw thread: Remove the 'Engine Guard LHS' to reach the grease nipple by removing the 7 mounting bolts

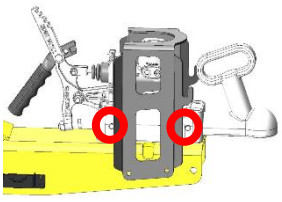




6. One grease nipple for the feed roller spline connection:



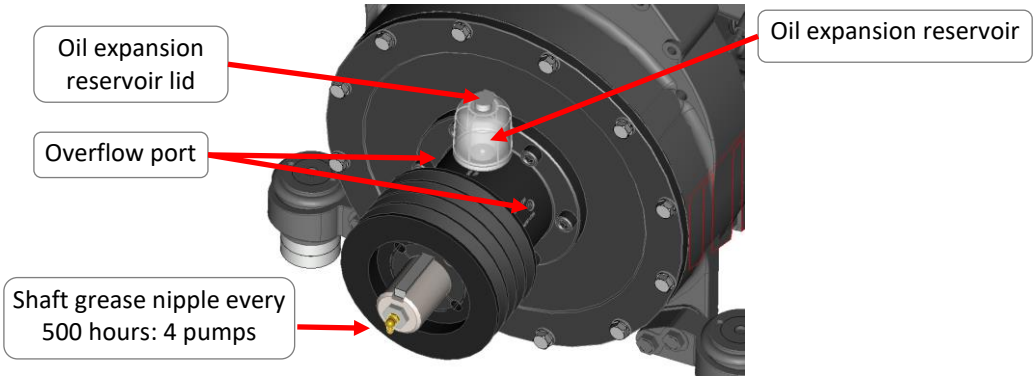
7. Two grease nipples on the tow coupling



Engine output shaft greasing

⚠ **WARNING: Do Not** grease the engine output shaft before reading these instructions. Over greasing and under greasing can cause serious failure, voiding warranty. Note: the coupling is greased from new.

Every 500 hours: Using only a manual hand pump grease gun with high quality extreme pressure lithium grease NLGI2 grade, grease the nipple at the end of the shaft on the coupling as per diagram below.
Every 500 hours / year: Replace oil with 5W/30 engine oil (Mobil 1 recommended). Drain used oil from the drain port under the hub. Then, fill it up with recommended oil from the oil expansion reservoir lid until it comes from one of the overflow ports. You will need approximately 150 ml oil.



Hydraulic system

- Replace hydraulic oil filter every 500 hours
- Change hydraulic oil every 1000 hours. Use only good quality ISO 46 grade hydraulic oil.

The hydraulic system is a closed system therefore it should not become contaminated, however if contamination is detected, oil should be changed.

Fill the hydraulic oil tank so that the oil level is at the line indicated by the cold oil level label to the left of the oil level indicator. The level should be checked with the engine off while the oil is cold.

For any repair in the hydraulic system, contact Hansa Products or seek advice from a competent service agent.

Engine servicing

For servicing of the engine, please refer to the engine manual. Change oil, oil filter, fuel filter and air filter as recommended in the manual. Ensure the correct engine oil is used.

Deutz engine oil spec: "15W40 Diesel engine oil. Specification: ACEA E3/E4/E5/E6; API CH-4/CG-4; DHD-1”

Other servicing

- ✓ Check all bolts and other fasteners for the correct torque setting
- ✓ Check wheel nuts and U-bolts are fastened correctly
- ✓ Check and repack wheel bearings with grease every 12 months
- ✓ Check air pressure in tires. Inflate to pressure as indicated on the tire
- ✓ Check safety chains and hitch

Rotor bearing replacement

Replacing rotor bearing on engine side of rotor:

1. Remove belts
2. Remove engine pulley by unbolting both grub screws in bush. Then screw one grub screw into the third hole and tighten until the pulley separates from the bush. Slide bush off the shaft, followed by the pulley.
3. Remove two grub screws in the bearing.

4. Remove M16 nuts and bolts bolting the bearing to the housing.
5. Remove and replace bearing.
6. When replacing the pulley ensure the rotor pulley is lined up to the engine pulley with a straight edge. Ensure the grub screws are tightened evenly so the pulley is tightened evenly.
7. After setting the pulley, the gap between the end of the rotor RPM sensor and the sensing plate should be 4 mm to ensure reliable operation. Adjust the sensor gap if necessary.

Replacing rotor bearing on inlet chute side of rotor:

It is recommended to have this bearing replaced by a Hansa specialist dealer.

Tyre pressure

The recommended tyre pressure is 65 Psi.

Bolt torque

When servicing the machine, ensure any bolts you remove are done back up and torqued to the values listed in the torque table below:

		Torque setting	
Bolt size	**Bolt shaft diameter**	lb ft	Nm
M8	8 mm	16	22
M10	10 mm	32	44
M12	12 mm	57	77
M16	16 mm	140	190
M20	20 mm	274	372

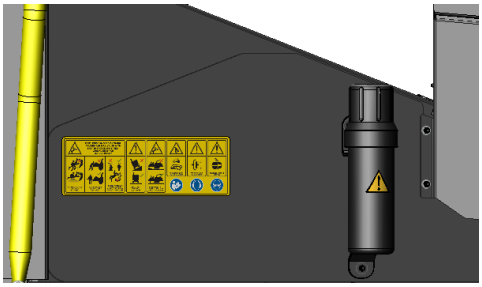
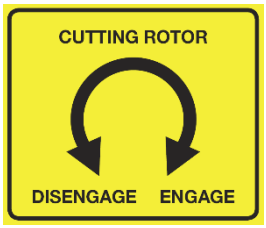
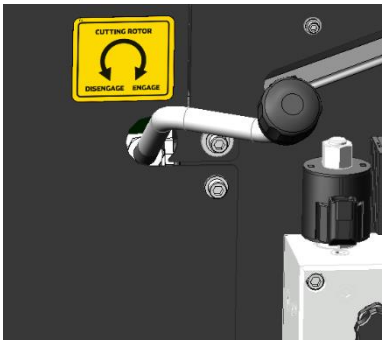
Maintenance & service intervals

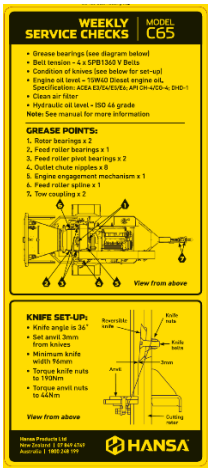
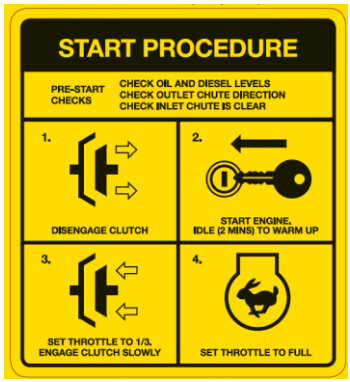
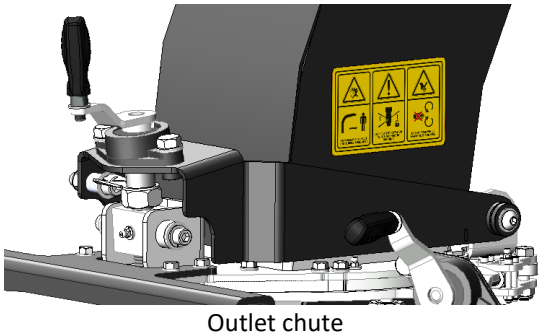
Service	Maintenance interval - service hours								
	10 or Daily	50 or Weekly	100	250	500	1000	3000	Yearly	As req.
Drive belts tension – initial check	Initial								
Engine oil level – check	•								
Cooling air duct screen – check/clean	•								
Air cleaner element – clean	•								•
General grease points (see section in manual "General grease points" or weekly service checks label on housing wall)		•							
Knives– check, sharpen or replace		•							•
Tires & rims – check			•						
Spring mounting – check U bolts			•						
Brake fluid - check			•						
Drive belts tension - check/adjust			•						
Hydraulic system – check			•						
Engine fan belt – check				•					
Engine oil & filter – change				•				•	
Battery electrolyte level & terminals - check				•					
Engine fuel filter – replace				•					
Outlet chute – remove & clean swivel				•					
Feed roller tension springs - replace				•					•
Anvil – check knife clearance and bolt torque				•					•
Hydraulic oil filter – replace					•				
Hayes coupling - Grease engine output shaft and replace oil					•				
Air cleaner element – replace					•				
Feed roller teeth – sharpen					•				•
Hydraulic oil – replace						•			
Engine fan belt - replace						•			
Engine – Valve clearances (refer to Deutz service manual)						•			
Engine – 3000-hour service by authorised Deutz specialist (refer to Deutz service manual)							•		
Nuts & bolts – check torque & replace if worn									•
Battery – replace									•
Drive belts – replace									•
Knives – replace									•
Anvil – replace									•
Hazard labels – replace									•

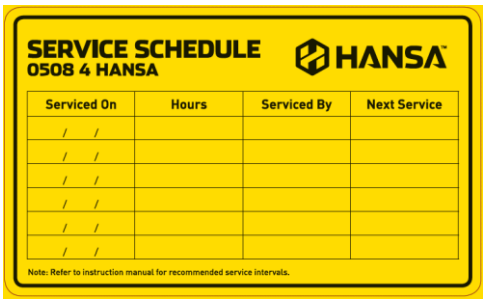
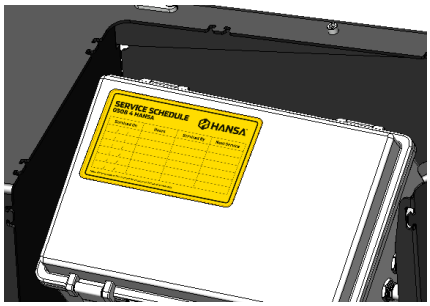
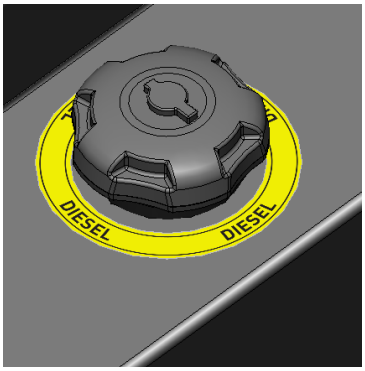
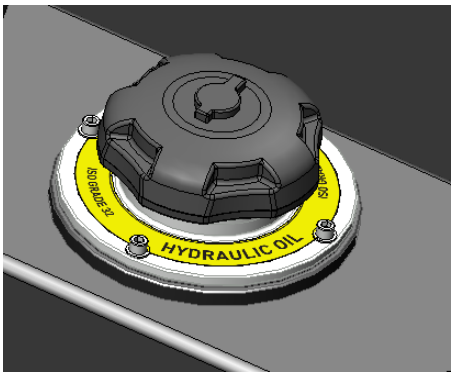
Specifications

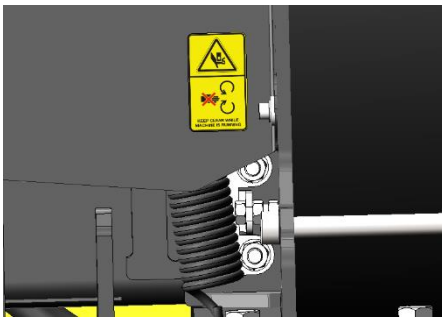
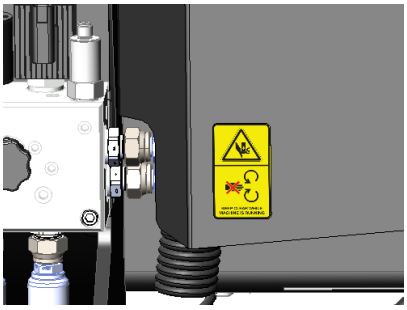
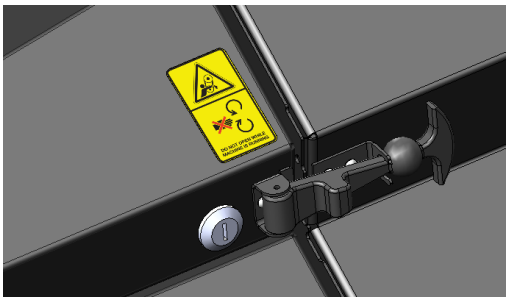
		C65
General	**Length**	4034 mm
	Width	1800 mm
	Height	2360 mm
	Weight	1740 to 1950 kg (depending on options)
Engine	**Make & model**	64 Hp Deutz F4L2011 4-cylinder, oil-cooled diesel engine
	Type of fuel	Diesel
Capacities	**Fuel tank**	70 L
	Hydraulic oil tank	50 L
Chassis	**Frame description**	100 x 50 x 5 mm RHS
	Wheels	15” wheels
Cutting System	**Disc speed**	1700 RPM
	Disc diameter	800 x 40 mm
	Shaft diameter	60 mm
	Knives	Four
Feed System	**Feed opening**	457 x 254 mm (18” x 10”)
	Chipping capacity	254 mm (10”)
	Feed table height	646 mm
	Feed table length	1590 mm
	Inlet chute opening	1050 x 630 mm
	Roller Style	Single roller, spring mounted, 300 mm (12”) diameter
	Feed speed range	0-40 m/min (135 f/min), full reverse
Discharge System	**Discharge height**	2140-2360 mm (adjustable)
	Degree of rotation	360°
Transmission System	**Belt drive**	4x SPB1360
Brakes	**Road brakes**	Hydraulic road brakes with hand-brake standard

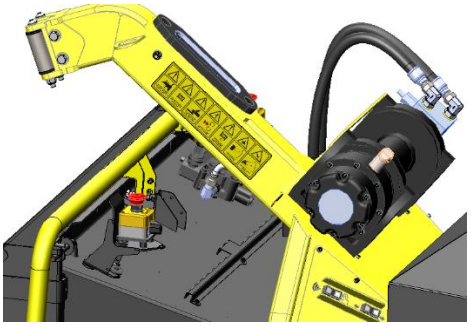
Safety Labels

Decal	Description	Location
	General machine safety and inlet chute safety	 Side of inlet chute (both sides)
	Inlet chute safety	 Inside of inlet table
	Rotor engagement control	 Belt guard next to engagement arm
	Throttle control	 Side of throttle lever

	Weekly service checks	 Rotor cover RH side
	Start procedure	 Under display screen
	Stop procedure	 Under start procedure
	Outlet chute safety	 Outlet chute

	Service schedule	 Electrical box lid
	Diesel tank	 Fuel tank
	Hydraulic oil tank	 Hydraulic oil tank
	Feed roller cover and guard safety (keep clear)	 Feed roller cover RH side

	Feed roller guard safety (keep clear)	 Feed roller guard RH side
	Feed roller guard safety (keep clear)	 Feed roller guard LH side
	Bonnet (do not open)	 Top face of engine bonnet (both sides)
	Feed control bar	 Feed control bar

	Winch safety (**Note**: This label is only applicable to C65 models fitted with a winch).	 Winch boom
	Rotor cover safety	 Rotor cover (LH side near throttle)
	Hydraulic oil fill level	 On hydraulic tank. (Label arrow aligned with 80 degree temperature mark to the left of the hydraulic level gauge)

HANSA global industrial limited warranty

For the purposes of this warranty document, "HANSA" means HANSA Products Limited and any of its international subsidiary companies. Refer to contact details below for further information.

HANSA warrants each new HANSA chipper ("HANSA product") free from defects in materials and workmanship under normal use and routine servicing, for the warranty periods and subject to the limitations and exclusions detailed below.

HANSA offers a special extended warranty period ("Extended Warranty") to new HANSA products purchased from an authorised HANSA dealer. The Extended Warranty period is set out below. In order to take advantage of the Extended Warranty you must:

1. Register your HANSA product through the HANSA warranty registration process and identify your HANSA product by its machine serial number. **Registration must be completed with ten (10) days from the date of purchase.** Your warranty registration confirmation email is your identification for warranty service; and
2. Have your registered HANSA product maintained in accordance with the schedule contained in the relevant owner's manual supplied with the product by an authorised HANSA dealer for the applicable territory. In order to ensure the safe operation of your HANSA product, we strongly recommend that you only use an authorised HANSA dealer for servicing. The cost of routine or required maintenance and services is the responsibility of the purchaser. You must keep a record of all service and maintenance history as proof of servicing history. HANSA may request such servicing history when assessing any future warranty claim.

When making a claim for warrantable repairs under the Extended Warranty, your warranty registration must accompany the HANSA product. If the warranty registration is lost or destroyed, proof of purchase documentation clearly recognising the machine serial number shall be accepted for warranty purposes. Where neither is available and HANSA does not have any record of the purchaser's details the warranty period shall be calculated from the appropriate dealer wholesale sale date. Any claim under the applicable Warranty must be made within the relevant warranty period specified below.

The Extended Warranty may be subject to cancellation if the above requirements are not satisfied.

The Extended Warranty is available to domestic (non-commercial) and commercial customers (excluding commercial customers in the business of plant/equipment hire).

All HANSA products that have not complied with the Extended Warranty registration and maintenance requirements are entitled to the "Non-Registered" warranty period set out below.

Any authorised HANSA dealer is further authorised to repair or replace any part which proves defective within the limits of the Extended Warranty or Non-Registered Warranty (the "Warranties") at no charge to the owner, covering parts and labour. Consumable items such as but not limited to oils, grease, blades and belts shall be the responsibility of the owner. All defective parts replaced under the Warranties become the property of HANSA.

You (as owner) are responsible for all shipping and transportation costs (including insurance) to and from an authorised HANSA dealer for the product subject to a warranty claim.

Exclusions

The warranties shall NOT APPLY TO:

- Any damage which results from neglect of periodic maintenance specified by HANSA.
- Any damage which results from repair or maintenance operations by methods other than specified by HANSA.
- Any damage which results from misuse or use beyond the limitations of the intended use specified by HANSA in the operation, maintenance and safety manual, such as overloading, including foreign objects such as stones, pieces of steel, glass etc. being dropped into the running machine or use under abnormal conditions (in HANSA's sole judgement).
- Any damage which results from use of non-genuine parts, lubricant or fluid not approved by HANSA.
- Any damage resulting from modification or installation in other products in a way not approved by HANSA which has any influence on the function and/or performance of the products.
- Any damage which results from operation other than specified in the Owner's Manual either intentionally or by error.
- Fading of painted surfaces, deterioration of plated surfaces, deterioration of rubber and plastics, including rusting due to the passage of time.
- Normal phenomena such as noise, vibration or oil seepage which are considered by HANSA as not affecting the quality, function or performance of the product.
- Any damage due to improper storage or transport.
- Consumable replacement items: Belts, cutting blades, anvil, serviceable bearings.
- Periodical maintenance items such as cleaning, inspection and adjustments.
- Any repair and/or adjustment performed by persons other than an authorised dealer, or damage resulting therefrom.
- Any repair and/or adjustment to correct improper or poor quality work previously performed.

- Incidental expenses incurred in the warranty claim. For example: additional expenses such as those for towing, communications, hotel and meals, incurred due to breakdown of the product at a remote location. Any expense related to personal injury and/or property damage, (exclusive of the product itself). Compensation for loss of time, commercial losses or rental costs of a substitute product during the period of adjustment.
- Any damage which results from unavoidable natural disasters, fire, collision, theft, etc.
- Any normal wear or deterioration, such as that of sliding or rotating parts caused under normal operating conditions. For example: Normal wear pivot points, rod ends and bearings.
- Any damage resulting from exposure of the product to soot and smoke, medicines and chemical agents, sea water, sea breeze, salt or other environmental phenomena.

Limitations

- HANSA reserves the right to modify, alter and improve any product without incurring any obligation to replace any product previously sold with such modification.
- In no event shall HANSA's liability exceed the purchase price of the product.
- Equipment and accessories not of HANSA's manufacture (such as engine, battery and tires) are warranted only to the extent of the original manufacturer's warranty and subject to their allowance to HANSA only if found to be defective by such manufacturer.
- HANSA reserves the right to supply remanufactured parts as it deems appropriate.

HANSA Product Warranty Period

HANSA CHIPPERS	DOMESTIC	COMMERCIAL (EXCLUDING HIRE)	COMMERCIAL (HIRE)
Non-Registered	12 months	12 months	3 months
Extended Warranty	36 months (Conditional)*	36 months (Conditional)*	N/A

Each of the warranty periods stated above commence from the date on which you purchased your HANSA product.
*Conditional Warranty:

This is a HANSA extended warranty period for products that are:

- Purchased from an authorised HANSA Dealer.
- Registered at the time of sale through the Hansa Chippers website: www.hansaproducts.com/registration
- Serviced by a HANSA Dealer in accordance with the Hansa service schedule using genuine HANSA parts.
- Meeting all other warranty requirements.

Warranty periods vary depending on whether the purchaser is: (i) a domestic (i.e. non-commercial) customer; (ii) commercial customer (excluding plant/equipment hire businesses); or (iii) a commercial customer in the business of plant/equipment hire.

General

1. Your rights:
   a. HANSA will recognise any implied rights and remedies that are available to you at law in the applicable territory and that cannot be excluded by HANSA.
   b. In New Zealand, Hansa Products Ltd will recognise your statutory rights under the Consumers Guarantee Act 1993 (provided that you are a consumer for the purposes of that Act).
   c. In Australia, this warranty is given by Hansa Products Pty Ltd. This warranty is provided in addition to other rights and remedies you have under law - our HANSA products come with guarantees that cannot be excluded under the Australian Consumer Laws.
2. If any provision of this warranty document is held by any competent authority to be invalid or unenforceable in whole or in part, the validity of the other provisions of this warranty document and the remainder of the provisions in question will not be affected.
3. The English language version of this warranty document prevails over any translated version/s of its terms.
4. This warranty document is governed by the laws of New Zealand. The parties submit to the exclusive jurisdiction of the New Zealand Courts.

Contact Details

New Zealand:
Hansa Products Limited
PO Box 10323, Te Rapa
Hamilton

Rest of World:
Please refer to www.hansaproducts.com
for a current list of our authorised dealers
and contact details relevant to your territory.

Commissioning checklist and registration

It is the retailers' responsibility to ensure that this chipper is correctly commissioned for use, and that the purchase is registered with Hansa Chippers so as to provide the owner with the full benefit of the warranty policy.

Product registration must be completed online:

www.hansaproducts.com/registration

For registration, you will require the chipper serial number and customer details.
It is the retailers' responsibility to check the following:

Final Assembly	Check all bolts for tightness including knives
Operation	Instruct the owner/operator on operating procedures and techniques
Safety	Instruct owner/operator on safety procedures
Maintenance	Explain the maintenance requirements and the importance of following the maintenance schedule to the owner/operator
Manual	Emphasise the importance of reading and understanding the manual in full before initial operation of the chipper