

# HANSA C21

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

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## TABLE OF CONTENTS

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<b>WHAT CAN MY HANSA CHIPPER PROCESS? .....</b>	<b>1</b>
INTENDED USES OF THE CHIPPER .....	1
<b>RECEIVING YOUR HANSA CHIPPER .....</b>	<b>1</b>
CHIPPER COMPONENTS .....	1
<b>ASSEMBLING THE CHIPPER .....</b>	<b>2</b>
ATTACH THE DRAWBAR .....	2
ATTACH THE MUD GUARDS .....	2
ATTACH THE TAIL LIGHTS .....	3
SECURE THE WIRE LOOM .....	3
REWIRE THE TRAILER PLUG.....	3
ATTACH THE WHEELS .....	4
FIT THE OUTLET CHUTE.....	4
FIT THE INLET CHUTE.....	5
<b>SAFETY .....</b>	<b>6</b>
OPERATOR COMPETENCY.....	6
TOWING SAFETY .....	6
IDENTIFYING HAZARDS AND RISKS .....	6
<b>OPERATION .....</b>	<b>7</b>
SAFE SETUP PROCEDURE.....	7
SAFE OPERATING PROCEDURE.....	8
STARTING PROCEDURE .....	9
SHUTDOWN PROCEDURE .....	10
PETROL.....	11
EMERGENCY STOP .....	11
<b>STORAGE.....</b>	<b>11</b>
<b>TROUBLESHOOTING .....</b>	<b>11</b>
WHAT TO DO IF: .....	11
<b>MAINTENANCE.....</b>	<b>12</b>
KNIFE RE-SHARPENING AND KNIFE REPLACEMENT .....	13
ANVIL ADJUSTMENT/REPLACEMENT.....	16
ENGINE SERVICING .....	16
ENGINE OIL.....	16
BELT TENSION .....	17
BELT REPLACEMENT.....	18
TYRE PRESSURE .....	19
BOLT TORQUE .....	20
MAINTENANCE SCHEDULE .....	20
<b>SPECIFICATIONS .....</b>	<b>21</b>
<b>DECALS.....</b>	<b>21</b>
<b>HANSA GLOBAL INDUSTRIAL LIMITED WARRANTY.....</b>	<b>23</b>
<b>COMMISSIONING CHECKLIST AND REGISTRATION .....</b>	<b>25</b>

# What can my Hansa chipper process?

## Intended uses of the chipper

The Hansa C21 chipper is built to process organic material including wooden branches not exceeding 130 mm in diameter. It is designed to be used on by commercial garden maintenance contactors, 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
- ✓ Dry manure
- ✓ 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

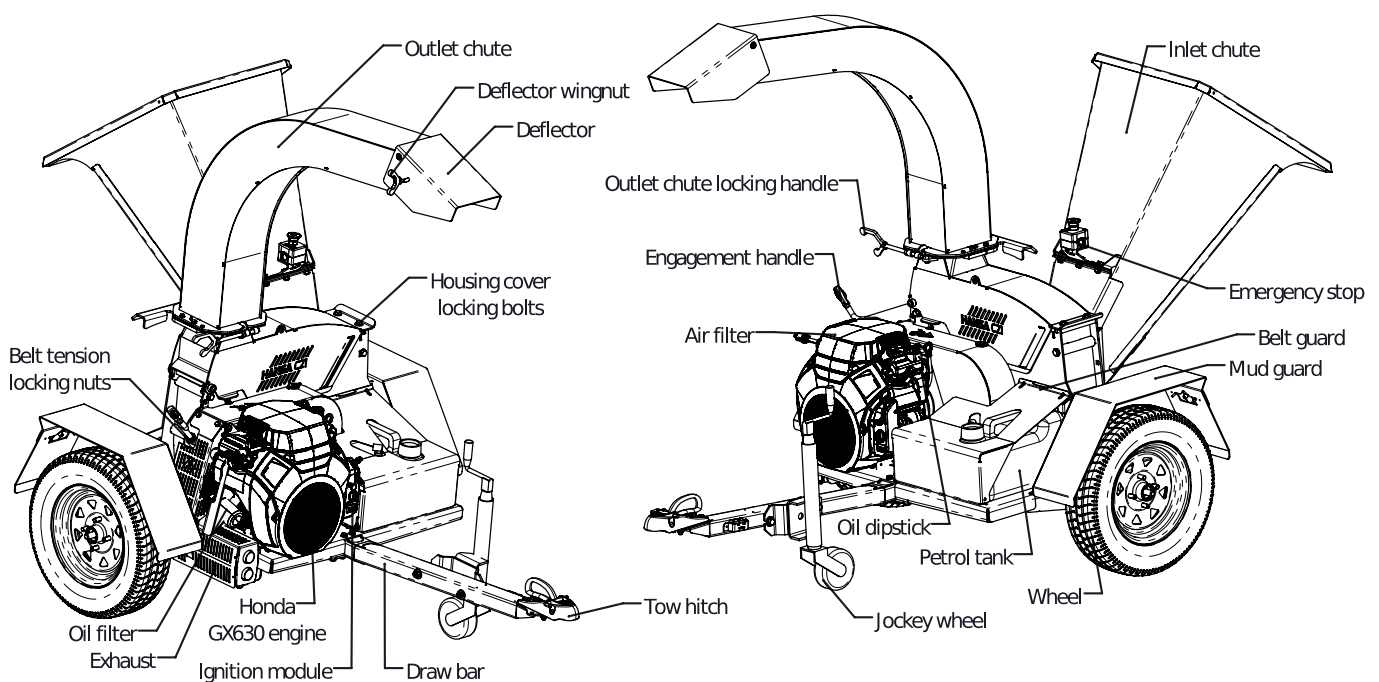
If you have any questions, contact your authorised dealer.

 **Do NOT** exceed 130 mm branch diameter

## Receiving your Hansa chipper

You may receive your chipper assembled from your dealer or it may be packaged in two boxes. Assembly takes approximately 30 minutes, two people working together will make the assembly easier.

## Chipper components



# Assembling the chipper

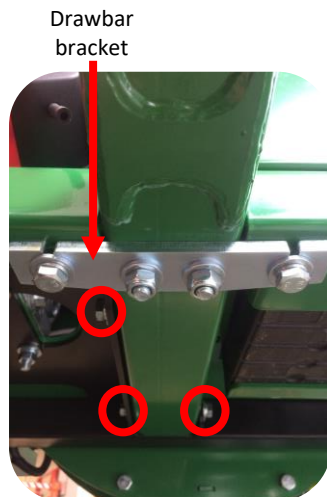
When you receive your Hansa brush chipper, the inlet and outlet chute may not be assembled on the chipper. All the fasteners (bolts, nuts and washers) will be attached to their respective components.

## Tools required for assembly (not supplied):

- 16 mm spanner - to fit the inlet and outlet chute
- 17 mm spanner - to fit the inlet and outlet chute

## Attach the drawbar

1



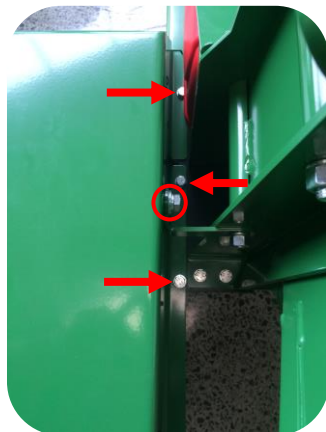
Slide the wire loom through the drawbar so that it comes out the tow hitch end. Insert three bolts, spring washers, and heavy washers through the chassis and the side of the drawbar. Ensure that the spring washer is touching the bolt head and the heavy washer is touching the chassis.

Insert two bolts and light washers through the two center holes in the drawbar bracket, followed by a heavy washer and nyloc nut. Ensure that the light washer is touching the bolt head and the heavy washer is touching the nyloc nut.

Insert two bolts, spring washers, and heavy washers through the outer holes of the drawbar bracket. Ensure that the spring washer is touching the bolt head and the heavy washer is touching the drawbar bracket. Tighten the nuts and bolts to secure the drawbar.

## Attach the mud guards

2



Attach the left mud guard - secure the mud guard to the chipper chassis by inserting three bolts and light washers through the holes at the base of the mudguard (indicated by the arrows in the image). Screw the nyloc nuts underneath and tighten them.

**Note:** Feed the wire loom through the slot in the mud guard.

Attach the 'L' bracket to the top of the mud guard by screwing in the bolt, spring washer and heavy washer which has been circled. Ensure that the spring washer is touching the bolt head and the heavy washer is touching the 'L' bracket.

3



Attach the right mud guard - secure the mud guard to the chipper chassis by inserting two bolts and light washers through the holes where the arrows point to. Screw the nyloc nuts on underneath and tighten them.

**Note:** Feed the wire loom through the slot in the mud guard.

Attach the 'L' bracket to the top of the mud guard by screwing in the bolt, spring washer and heavy washer which has been circled. Ensure that the spring washer is touching the bolt head and the heavy washer is touching the 'L' bracket.

## Attach the tail lights

4



Slide the tail light through the hole in the back of the mud guard. Ensure that the tail light is orientated so that the indicator is closest to the outside edge of the mud guard. Insert the bolts through the holes in the tail light and mud guard, then secure the tail light by tightening the nuts and bolts.

**Note:** Do NOT overtighten the nuts.

Lightly press the plastic caps into the inserts above the bolt head using a nylon hammer or suitable alternative.

## Secure the wire loom

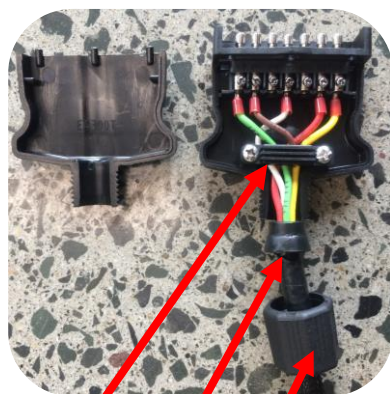
5



Each mud guard requires seven cable ties to secure the wire loom to it. (Two more behind the wheel which cannot be seen in this image).

## Rewire the trailer plug

6



Wire clamp Rubber bung Plastic nut

Unscrew the plastic nut from the trailer plug and slide it onto the wire loom, followed by the rubber bung. Ensure that the nut and bung are in the correct orientation (refer to image).

Unscrew all 7 relevant screws and insert the wires in the correct order (as shown in the image).

Signal Left	- Yellow
Brake	- Red
Service	- N/A
Earth	- White
Reverse	- N/A
Tail	- Brown
Signal Right	- Green

Tighten the smaller screws to hold the wires connections in place, then tighten the two bigger screws to clamp the wire loom into place. Finally, clip the other half of the trailer plug into place and screw the plastic nut on.

## Attach the wheels

7



Bolt the wheels on, then screw the wheel nuts on, ensuring the rounded side of the nuts taper into the steel rim.

Tighten the nuts using a 19 mm socket, then torque them to 77 Nm.

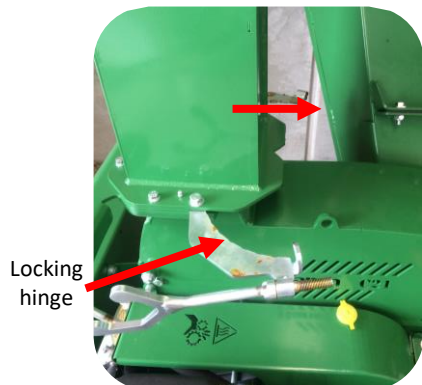
## Fit the outlet chute

8



Lightly grease the flange on the chipper body.

9



Slide the outlet chute onto the greased flange of the chipper body, ensuring that the locking hinge is open.

10

Outlet chute locking handle



Close the locking hinge and tighten the outlet chute locking handle to secure the outlet chute to the chipper body.

**Note:** The outlet chute locking handle will be in the documentation package.

## Fit the inlet chute

11



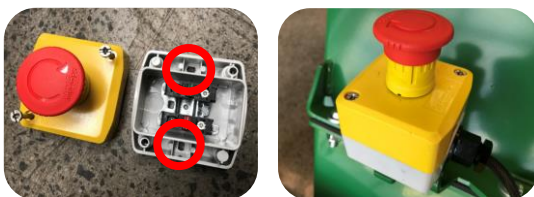
Fix the inlet chute - place the inlet chute onto the chipper body with the black rubber flap sandwiched in between and ensure all three holes line up. Tighten the nuts, washers, and bolts using a 16 mm and 17 mm spanner. Ensure that the washer is touching the bolt head.

12



Line up the holes and insert the bolts, washers and nuts; ensuring that the heavy washer is touching the bolt head.

13



Attach the emergency stop to the bracket on the inlet chute. Use a Phillip's head screwdriver to unfasten the screws from the emergency stop, then use a 4 mm Allen key to fasten the provided M5 x 10 cap screws into the threaded bracket on the inlet. Reattach and screw on the top of the emergency stop once the base is secured to the inlet chute. Press and reset the button a few times to test it is working correctly. Connect the male plug on the emergency stop wiring to the female plug on the wiring of the chipper body. Start the chipper and check to make sure the button is working properly.

# 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.









## Towing safety

- ✅ Rotate the discharge chute to face the opposite direction of the towing vehicle before towing and lock into position
- ✅ Connect tow coupling to the towing vehicle (check the ball dimensions are the same as the coupling)
- ✅ Connect safety chain with shackle
- ✅ Plug in lights and check they are operational
- ✅ Check wheel nuts periodically to make sure they are secure
- ✅ Ensure the jockey wheel is in the up position and locked away during travel
- ✅ Ensure that the machine is towed in accordance with local trailer transport regulations

## 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 is 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 and its guarding
 Cutting rotor and knives	Pinching, crushing, cutting, severing	Keep your face and body out of the inlet chute <ul style="list-style-type: none"><li>❌ <b>Do NOT</b> extend hands/arms past the rubber flap</li><li>✅ Use a stick to push materials into the inlet chute</li><li>❌ <b>Do NOT</b> push the stick beyond the guard flap</li></ul>
 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 <ul style="list-style-type: none"> <li>❌ <b>Do NOT</b> put any body part in front of the outlet chute</li> <li>❌ <b>Do NOT</b> put the machinery in a place where the outlet chute is directed on a hard surface</li> </ul>
⚠ Feeding material	Cuts and scrapes	Wear 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 firm level ground <ul style="list-style-type: none"> <li>❌ <b>Do NOT</b> attempt to move the machinery up/down slopes unless is attached to a towing vehicle</li> </ul>
⚠ 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 <ul style="list-style-type: none"> <li>❌ <b>Do NOT</b> refuel the chipper in enclosed areas</li> </ul>

## 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 130 mm diameter branches

It is helpful (but not required) to keep a wooden stick handy, approx. 60 mm diameter x 600 mm long for:

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



## Safe setup procedure

### Before you start:

- ✔ Ensure the chipper is positioned in an open area and on firm level ground.
- ✔ Ensure that 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, pets, 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
- ✔ Check:
  - ✔ That all screws, nuts, bolts, and other fasteners are properly secured
  - ✔ That all chipper components are in place and in good condition
    - ⇒ If any parts are worn or damaged, contact Hansa for replacements
  - ✔ That fuel and engine oil levels are above the minimum levels
  - ✔ That the fuel cap is secured and there is no fuel leaking from the tank
  - ✔ That the inlet chute and housing are clear of any leftover material
  - ✔ That all labels are in good condition and easily legible
    - ⇒ Replace damaged or unreadable labels
    - ⇒ View photos of labels in the 'Decals' section
- ✔ 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
  - ❌ **Do NOT** 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 procedure

### ✔ DO:

- ✔ **Wear safety equipment:** Safety glasses and earmuffs must be worn at all times
- ✔ **Wear work gloves:** Wearing work gloves is optional but highly recommended - ensure that the gloves fit tightly
- ✔ Tie long hair up
  - ⇒ Long hair could be pulled into the chipper
- ✔ Wear clothes that sit tightly
  - ⚠ Avoid scarves and any items that can get caught in the chipper
- ✔ Keep your face and body away from the inlet chute
- ✔ Stand clear of the discharge zone, even when no material is being fed into the machine
- ✔ Place the chipper on even ground and direct the outlet chute onto soft ground
- ✔ Ensure the 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** overreach
  - ❌ **Do NOT** run near the machine
- ✔ 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
  - ⇒ Branches 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 foliage 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
- ✔ Hold larger branches back and feed the chipper with care until you are familiar with its capacity
  - ⇒ The engine will slow down or stall if the branch is too large
- ✔ Feed longer pieces together with short stubby pieces
- ✔ 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 the outlet free of blockage
  - ⇒ If a blockage occurs, turn the engine off and wait for rotor to stop spinning. Open the outlet chute and remove material until the outlet chute is clear
- ✔ As the discharge material piles up
  - ⇒ Move the chipper to direct the outlet chute away from the pile, or move the processed material to avoid blocking
- ✔ 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
- ❌ 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
  - ⇒ The chipper can easily stall
- ✘ Put soil, sand, grit, stones, glass, pieces of metal or other foreign objects 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 (max branch diameter 130 mm)
  - ⇒ If the cutting rotor is slowing down, feed the material in slower
- ✘ Allow processed material to build up in the discharge area as this can:
  - ⇒ Prevent proper discharge
  - ⇒ Result in kickback of material through the feed opening
- ✘ 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
- ✘ Move or tilt the chipper while it is running
- ✘ Touch any guards or stick hands between guards while the chipper is running
- ✘ Touch any guards or stick hands between guards
- ✘ Put hands or any other part of the body or clothing:
  - ⇒ Inside the feed chute past the rubber flap
  - ⇒ Inside or near the opening of the discharge chute
  - ⇒ Near any moving part
- ✘ Remove any guards on the chipper unless the engine is turned off and the cutting rotor has come to a complete standstill
- ✘ Leave the chipper on while it is unattended

## Starting procedure

1



Throttle lever  
(1/3 position)

Choke lever  
("on" position)

Ignition key  
("on" position)

Turn the ignition key to the "on" position (first click).

Pull the choke lever to turn the choke on.

Turn the throttle lever away from the "min" position, about 1/3 of the way toward the "max" position.

2



Make sure the belt drive is disengaged by winding the engagement handle counter clock-wise until it comes to a stop.

3

Turn the ignition key clockwise to start the engine.

Once the engine is started and has warmed up (approx. 10 seconds), turn the choke lever to the "off" position by pushing the lever in towards the engine.

4



To engage the belt drive, slowly rotate the engagement handle clockwise until it comes to a stop. This must be done slowly to allow the cutting rotor to pick up speed; otherwise the engine may stall.

5



Move the throttle lever to the "max" position.

### Shutdown procedure

1



Throttle lever (min position)

Turn the throttle lever to the "min" position and wait for the rotor to slow down.

2



Disengage the belt drive by rotating the engagement handle anti clockwise until it comes to a stop.

3



Ignition key (off position)

Turn the ignition key to the "off" position.



**WARNING! Do NOT** disengage the belt drive with the chipper running at full revs, as this will cause friction and vibration on the belt drive.

## Petrol



The chipper requires 91 unleaded or E10 petrol to run; check the petrol level before starting.

## Emergency stop

The emergency stop acts 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. 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



## Storage

- ✔ Always allow the chipper to cool before storing
- ✔ Store the chipper out of the reach of children
- ✔ Store the chipper where fuel vapor will not reach an open flame or spark
- ✔ Switch the fuel lever to the off position
  - ⇒ For extended storage periods, run the engine dry of fuel
- ✔ Store the chipper out of the rain
  - ⇒ Water can rust the steel body of the chipper

## Troubleshooting



### What to do if:

- ❓ 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 still engaged
    - ✔ Ensure emergency stop is disengaged by twisting the red button clockwise before starting the chipper
- ❓ Belt drive engagement will not work
  - The inlet chute or housing might be blocked
    - ✔ Turn engine off, disconnect the spark plug wire, ensure rotor has completely stopped, remove debris, restart engine, then attempt to re-engage the belt drive
- ❓ The chipper slows down and stalls
  - The chipper is clogged up
    - ✔ Turn the engine off, disconnect the spark plug wire, ensure rotor has completely stopped, remove debris, then close and lock the outlet chute
- ❓ Discharge slows down

- The chipper is clogged up
  - ✔ Turn the engine off, disconnect the spark plug wire, ensure rotor has completely stopped, remove debris, then close and lock the outlet chute
- ? The chipper is slowing down
  - The chipper can't process the amount of material fed into it
    - ✔ Feed the material in slower
    - ✔ Reduce material volume
- ? The chipper will not self-feed
  - ⇒ The knives and/or anvil might be blunt
    - ✔ Inspect and sharpen or replace knives and/or anvil as required. Ensure correct clearances between knives and anvil
- ? The material is ejected in long strips
  - The knives and/or anvil might be blunt
    - ✔ Inspect and sharpen or replace knives and/or anvil as required. Ensure correct clearances between knives and anvil
- ? The chipper is clogged
  - ✔ Turn the engine off, disconnect the spark plug wire, ensure rotor has completely stopped, remove debris, then close and lock the outlet chute
- ? The chipper starts making unusual noise, the cutting rotor strikes a foreign object or the chipper starts to vibrate
  - ✔ Turn the engine off, disconnect the spark plug wire, 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



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

## Maintenance

Maintain the chipper with care and keep it clean at all times.

To service or inspect the equipment, or to change an accessory, you must:

- ✓ Switch the engine off
- ✓ Allow the chipper to cool before any inspections or adjustments
- ✓ Wait until the cutting rotor and engine are at a complete standstill before opening the cutting rotor housing
- ✓ Disconnect the spark plug wire from the spark plug

Initially after 2 working hours:

- ✓ Check for any loose nuts and bolts
- ✓ Check belt tension (refer to belt tension section)
  - ⇒ The belts will stretch when they are new
- ✓ Grease the two rotor bearings
  - ⇒ One or two pumps are sufficient
  - ⇒ Be careful not to over grease
  - ⇒ The bearings are already greased when the equipment is new
  - ⇒ Use bearing grease or all-purpose grease

Every 20 working hours:

- ✓ Check for any loose nuts and bolts
- ✓ Check belt tension (refer to belt tension section)
- ✓ Grease two bearings as above, be careful not to over-grease
- ✓ Check sharpness of knives
- ✓ Check condition of guarding
  - ⇒ A damaged guard must be replaced by an identical or equivalent guard immediately
  - ⇒ It is recommended to contact Hansa for a replacement guard.

# Knife re-sharpening and knife replacement

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

- ⇒ Chipper loses its self-feeding action with blunt knives
- ⇒ Material has to be pushed in
- ⇒ 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. Be aware that even though the engine is switched off, the cutting means can still move

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

- 16 mm spanner
- 6 mm hexagonal Allen key
- A stick magnet (optional)
- Surface grinder
- Coolant

## Remove the knives for sharpening

1



Open the rotor housing cover by removing the two housing cover locking bolts with a 16 mm spanner, then lift the rotor housing cover to access the cutting rotor.

Rotate the cutting rotor to gain access to the knives, then engage the belt drive to stop the cutting rotor from rotating.

2



Use an 18 mm spanner to remove the knives from the cutting rotor. There are four bolts that you must remove to do so.

- ⇒ 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 65 mm after sharpening.

If the knives will be shorter than 65 mm, then the knives should be replaced. Please contact your nearest Hansa dealer.

### Sharpen the knives

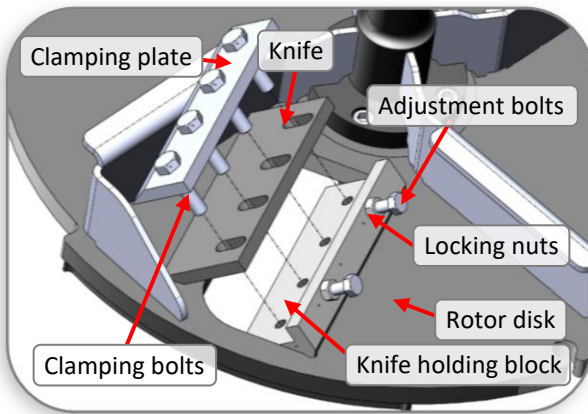
4



Sharpen the knives on a surface grinder. A cutting angle of 36 ° is critical for the performance of the chipper. Make sure plenty of coolant is used when grinding to avoid softening of the steel knives.

### Reinstall the knives

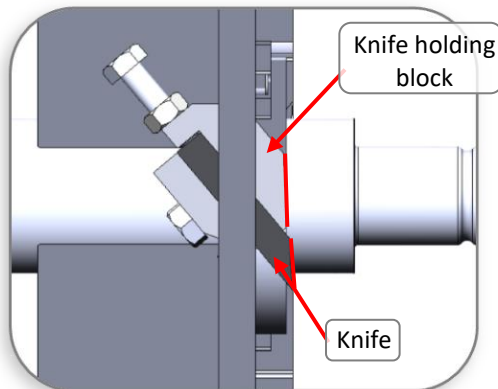
5



Clean all mounting surfaces and remount the knives in the reverse procedure.

**Note:** Be sure to replace the knives the correct way around (as shown in the diagram). Only tighten the clamping bolts enough to hold the knives in place during adjustment. Do not tighten them fully until step 7.

6

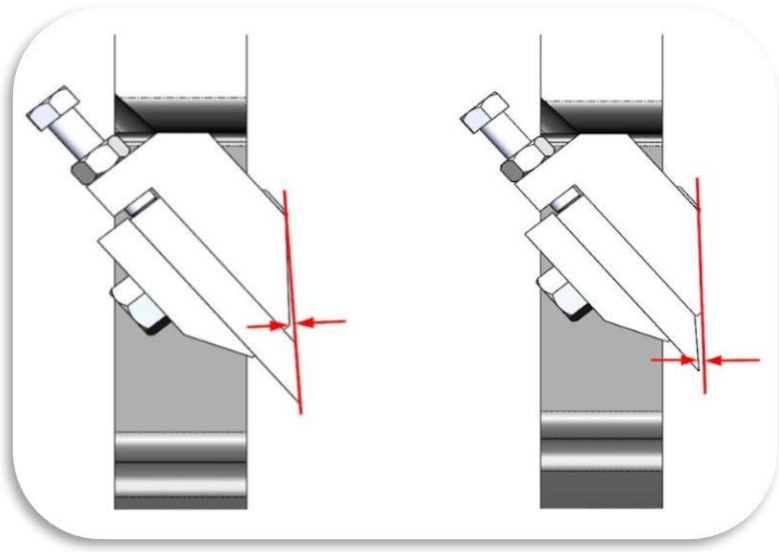


Adjust the knives initially using the adjustment bolts to protrude the edge of the knife just past the edge of the knife holding block.

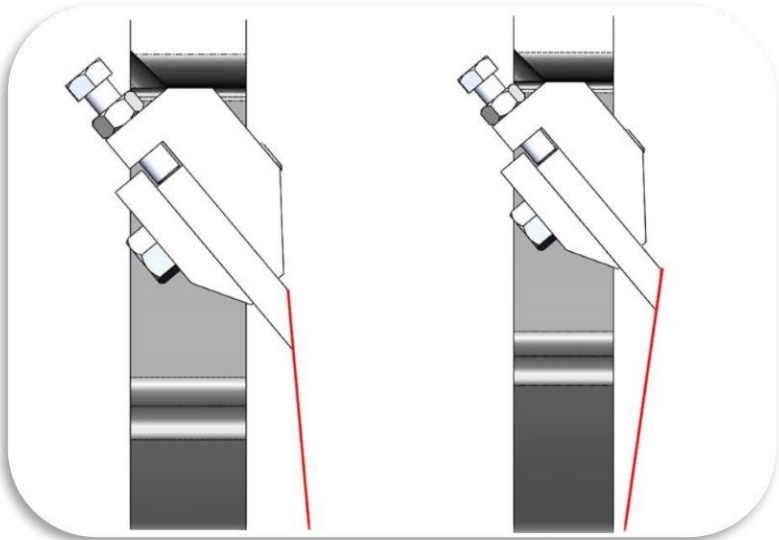
Side view: Cutting rotor



✔ Out of the pocket enough      ✘ Not far enough out of pocket



✔ Correct knife angle      ✘ Incorrect knife angle



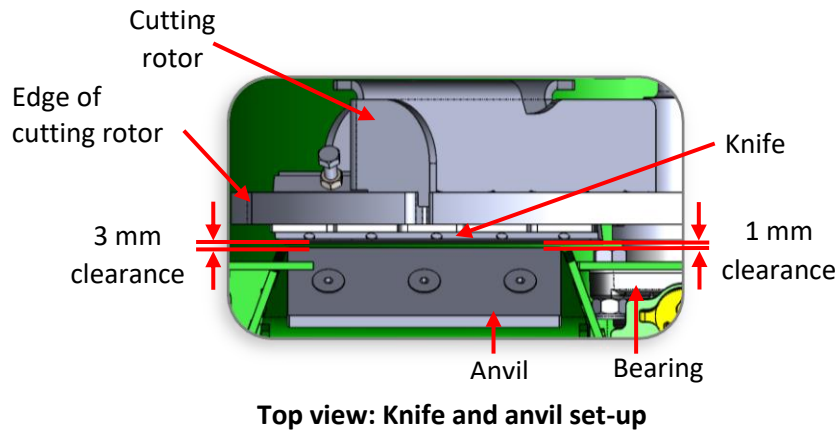
**7**



After sharpening, the width of the knives will have been reduced, therefore the gap between the knives and anvil may require adjustment. This gap is tapered out slightly to allow for a small amount of movement in the cutting rotor as it bites into the wood.

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.

Adjust the knife in or out using the two adjustment bolts to achieve the correct clearance between the knife and anvil. The clearance between the knife and anvil should be approximately 1 mm on the



inside closest to the bearing and 3 mm on the outside closest to the edge of the cutting rotor (refer to diagram for more detail).

After the correct clearance is set, fully tighten the clamping bolts using a torque wrench to 77 Nm and tighten the locking nuts on the adjustment bolts.

**Note:** Before adjusting the knives, ensure the gap between the holding block and the anvil is 4 - 5 mm. If not, then the anvil can be adjusted through the mounting slots. Once the position has been set, tighten the three M10 countersunk anvil bolts and torque to 44 Nm, then make further adjustments with the knives as described above.

Turn the cutting rotor slowly by hand to check that it turns freely.



Close and secure the outlet chute.



**WARNING!** Every time the knife clamping bolts are torqued up to 77 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 (m12x50 bolts of grade 10.9 or higher). Use only genuine Hansa bolts.

## Anvil adjustment/replacement

When cutting edge of the anvil is dull, the anvil may be reversed can be reversed. Each edge of the anvil will typically last for several hundred hours of operation. When both edges are worn, the anvil will need to be replaced.

To access the anvil the inlet chute needs to be removed (use the reverse procedure to fit the inlet on page 3). A 5 mm Allen key, a 17 mm socket and an extension are required to remove the anvil.

With the knives removed or set right back, the gap between the knife holding block and anvil should be 4 - 5 mm. The position of the anvil can be adjusted through the mounting slots. When this has been set, tighten the three M10 countersunk anvil bolts using a torque wrench to 44 Nm and then make further adjustments with the knives as described above.

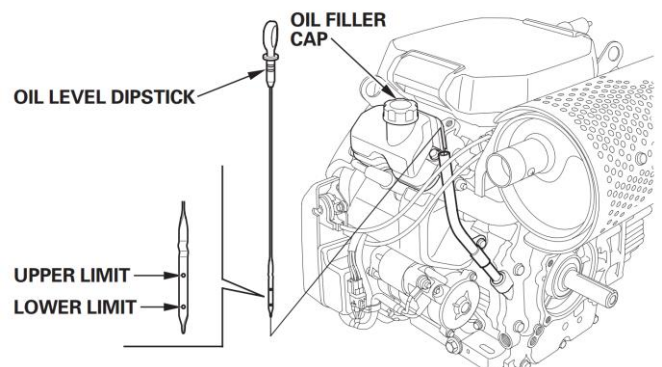
Turn the cutting rotor slowly by hand to check that it turns freely.

## Engine servicing

For servicing of the engine, please refer to the Honda engine manual.

## Engine oil

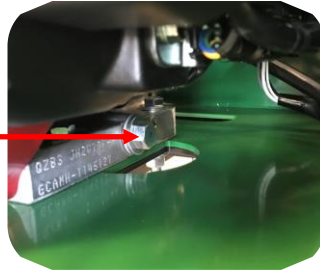
It is recommended you check the oil level every time you use your chipper. To check the oil level, remove the dipstick, clean the dipstick, then fully insert the dipstick back into its housing. Remove it and fill as necessary, using the diagram as a reference. For optimal performance of your chipper, the engine oil should be completely changed every 100 operating hours, or roughly once every 12 months on average.



## If the engine oil needs to be changed, follow these steps:

1

Oil drain plug



Run the engine for 1-2 minutes in order to warm up the oil. Switch the engine off after the oil is warm. Place a container underneath the engine. Remove oil filler cap/dipstick and oil drain plug (using a 19 mm spanner), then let the oil drain into the container through the opening in the chassis.

2

Screw the oil outlet drain plug back in and fill the engine with 2 Litres of SAE 10W30 or SAE 10W40 through the oil filler cap (located on the top of the engine).

3

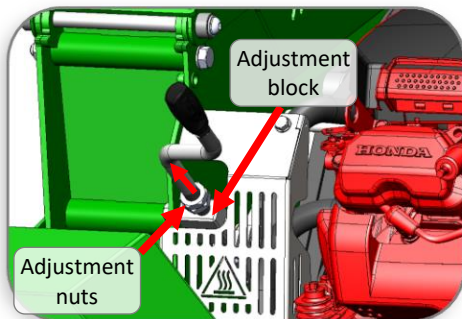
Using the dipstick, check the oil to make sure it is at the right level (close to the upper limit indicator, but not over). Screw the oil filler cap back into the hole. Dispose of the used engine oil in an environmentally sensitive way.

## Belt tension

Correct belt tension is crucial for minimising belt wear and maximising machine efficiency. To check the belt tension, first ensure the belt drive is disengaged by turning the engagement handle anticlockwise. Then, from the fully disengaged position, gently turn the engagement handle clockwise until you feel it start to resist. From this position, turn the engagement handle clockwise. If the tension is set correctly, the handle should turn one full revolution clockwise before coming to a stop. If there is a difference greater than 1/6 of a revolution either clockwise or anticlockwise from one full revolution, then the belt tension should be corrected following the 'adjusting belt tension' procedure.

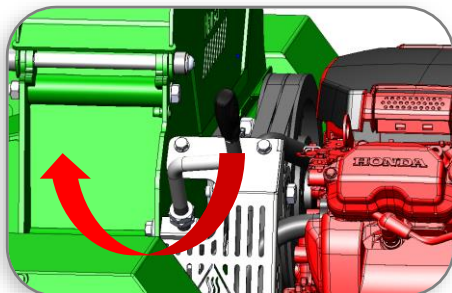
## Adjusting belt tension

1



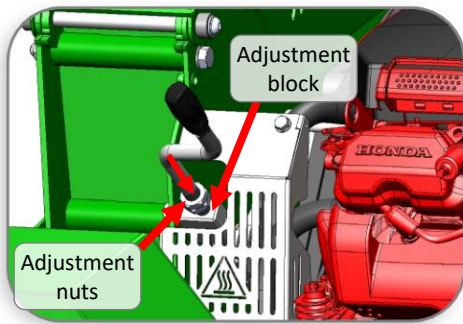
Using two 24 mm spanners, unlock the two locking nuts from above the adjustment block on the engagement handle by turning the top nut anticlockwise and the bottom nut clockwise. Then move both locking nuts upward along the thread. It may help to remove the upper exhaust guard (a 13 mm spanner and a 6 mm Allen key are required to do so).

2



From the fully disengaged position, gently turn the engagement handle clockwise until you feel it start to resist. From this position, turn the engagement handle one full revolution clockwise. This is the recommended tension for the belt drive when in the fully engaged position.

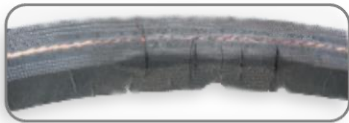
3



Using two 24 mm spanners, screw the two M16 adjustment nuts downwards until they touch the adjustment block. Then turn the top nut clockwise and the bottom nut anti clockwise simultaneously to lock the nuts in place.

## Belt replacement

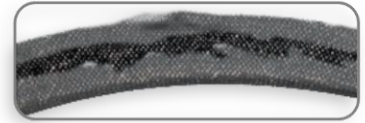
If the belts in your chipper look similar to any of the following images or are clearly broken, then they need to be replaced.



Cracked underside of belt



Split belt cover



Soft, swollen belt



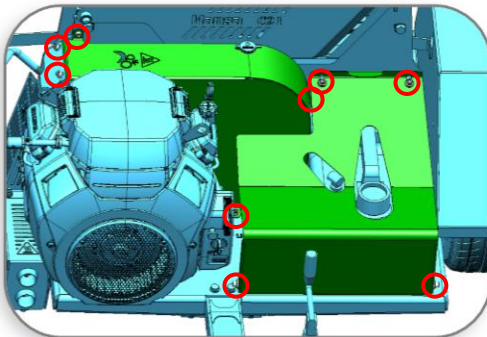
Worn cover on back of belt



Sidewall belt wear

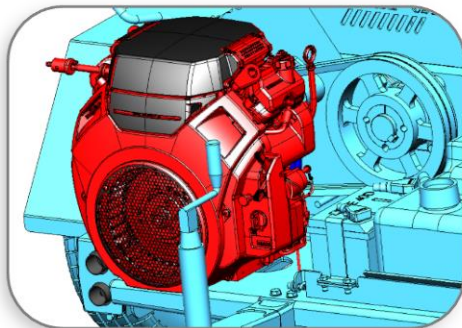
## If a belt change is necessary, follow these steps

1



Using a 6 mm Allen key, unbolt and remove the guards (9xM8 cap screws).

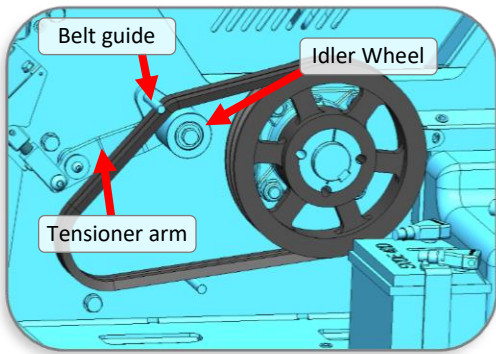
2



Using a 16mm and 17 mm spanner, unbolt and remove the engine (4xM10 nuts at the base of the engine).

**Note:** loosen the belt tensioner to allow room for removal.

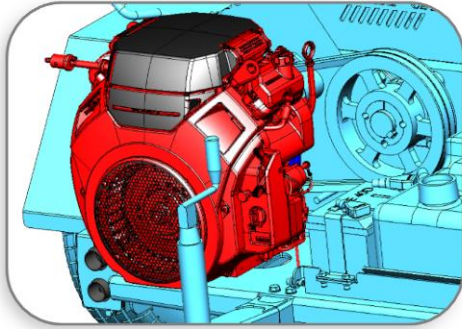
3



Remove the old belts and replace (2 x B46 vee belts).

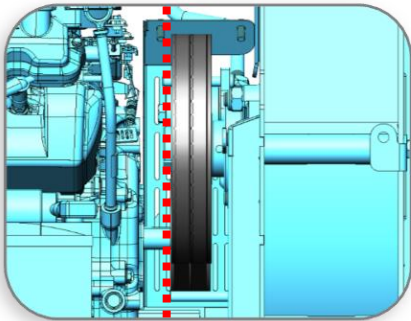
**Note:** The belts pass in between the idler wheel and belt guide on the tensioner arm.

4



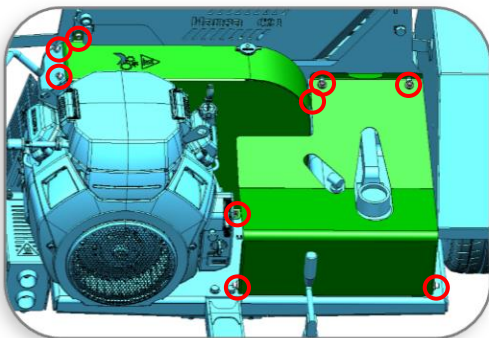
Place engine back in place and ensure the pulleys are in line.

5



Fully tighten the four bolts holding the engine to the chassis. Check the pulleys are still in line by placing a straight-edge across the top and bottom front pulley. If they are not in line, loosen the four bolts holding the engine in to the chassis and then repeat this step.

6



Ensure belts are properly tensioned (follow the 'Adjusting belt tension' process on page 17). Fasten the guards back into place.

Note that after replacing a belt, the tension of the new belt will quickly change as the belt initially wears into the pulley system. Recheck the belt tension after two hours of operation after belt replacement.

## Tyre pressure

The maximum recommended tyre pressure is 65 Psi.

## Bolt torque

		Relative Strength Bolt Marking			
		4.6		8.8	
		Recommended Tightening Torque		Recommended Tightening Torque	
Bolt size	Spanner size	lb ft	Nm	lb ft	Nm
M8	13 mm	6	8.5	16	22
M10	16 mm	12.5	17	32	44
M12	18 mm	22	30	57	77
M16	24 mm	54	73	140	190
M20	30 mm	105	143	274	372


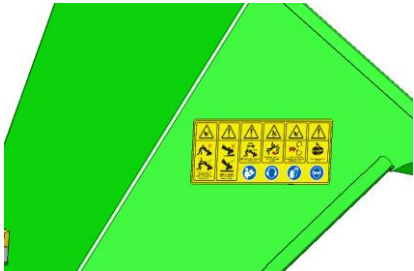

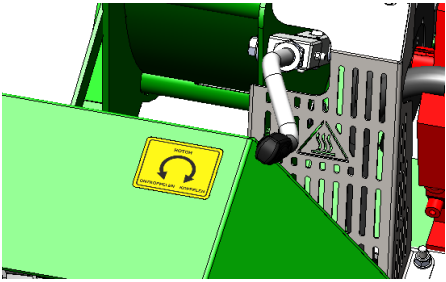
## Maintenance schedule


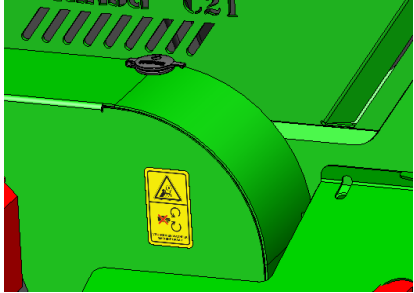

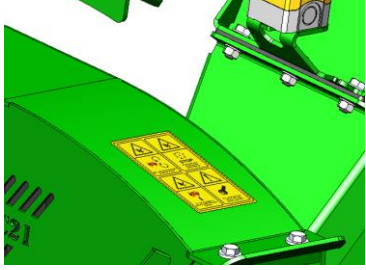

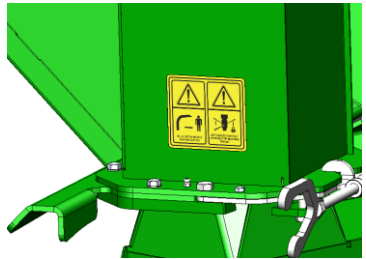



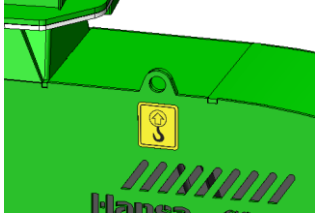


Service	Maintenance interval - service hours							
	10 or	50 or	100	250	500 or	800	Yearly	As req.
	Daily	Weekly			Biannually			
Engine oil change - initial change	Initial							
Belt tension – initial check	Initial							
Engine oil level – check	•							
Air cleaner element – clean	•							•
Bearings – grease		•						
Outlet swivel – grease		•						
Knives– check, sharpen or replace		•						•
Belt guarding – remove and clean chip build-up		•						•
Drive belts tension - check/adjust			•					
Engine oil & filter – change			•					
Nuts & bolts – check torque			•					
Tires & rims – check			•					
Battery electrolyte level & terminals - check				•				
Outlet chute – remove & clean swivel				•				
Anvil - check				•				•
Air cleaner element – replace					•			
Battery – replace								•
Drive belts – replace								•
Knives – replace								•
Anvil – replace								•
Hazard labels – replace								•

# Specifications

		C21
<b>General</b>	Length	2300 mm
	Width	1000 mm
	Height	1850 mm
	Weight	417 kg
	Wheels	12" wheels
<b>Engine</b>	Make & model	21 HP Honda GX630 V-twin
	Type of fuel	Petrol
	Fuel tank	11 L
<b>Cutting System</b>	Disc speed	1800 RPM
	Disc dimensions	650 x 20 mm
	Shaft diameter	50 mm
	Knives	Two
<b>Feed System</b>	Chipping capacity	130 mm (5")
	Feed type	Gravity fed, self-feeding
	Inlet chute opening	200 x 285 mm
<b>Discharge System</b>	Discharge height	1850 mm
	Degree of rotation	270°
<b>Transmission System</b>	Belt drive	2x B46

# Decals

Decal	Description	Location
	General machine safety and inlet chute considerations	 <p>Side of inlet chute</p>
	Rotor engagement control	 <p>Top right corner of mudguard</p>

	<p>Belt guard hazard</p>	 <p>Top right of pulley guard</p>
	<p>Rotor and housing safety</p>	 <p>Top face of outlet chute</p>
	<p>Outlet chute and deflector safety</p>	 <p>Outlet chute</p>
	<p>Shaft guard safety</p>	 <p>Next to shaft guard</p>
	<p>Lifting point</p>	 <p>Below lifting point on rotor cover</p>
	<p>Refuelling point</p>	 <p>Bottom right corner of fuel tank</p>



# 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	COMMERCIAL		
	DOMESTIC	(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](http://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](http://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](http://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:**

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