

User Manual and Spare Parts Catalogue



TP 235 MOBILE
TP 275 MOBILE

DESIGNED

MANUFACTURED

DENMARK

RELIABLE
CHIPPING



1 Introduction

Congratulations on your new TP wood chipper.

Linddana produces TP wood chippers of the finest quality by using the most modern production technologies, such as laser cutting, CNC technology and robot technology in bright and open production facilities.

For safety reasons and in order to get the maximum benefit from your wood chipper, it is important you read the user manual before use.

The user manual provides an explanation of safety, use and maintenance, to ensure working with the wood chipper will be safe and profitable.

This manual has been translated from Danish.

Linddana A/S



Jørgen Due Jensen, CEO

Your local dealer is always available with spare parts, advice and guidance.



Dealer stamp

2 EU DECLARATION OF CONFORMITY



Manufacturer:

LINDDANA A/S, Ølholm Bygade 70, Ølholm, DK-7160 Tørring, Denmark
hereby declares that

Wood chipper:

and accompanying extra equipment is in conformity with the requirements of the Machinery Directive (Directive 06/42/EC) and with the national legislation which translates this directive;

furthermore, is in conformity with the following EC Directives:
2000/14/EC

Furthermore it is stated that
EN 13525 (harmonised standard), has been applied.

Title: CEO

Name: Jørgen Due Jensen

A handwritten signature in black ink, appearing to read 'Jørgen Due Jensen', is written over a light blue grid background.

Ølholm, 6. October 2015

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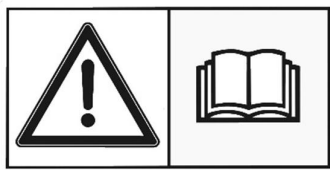



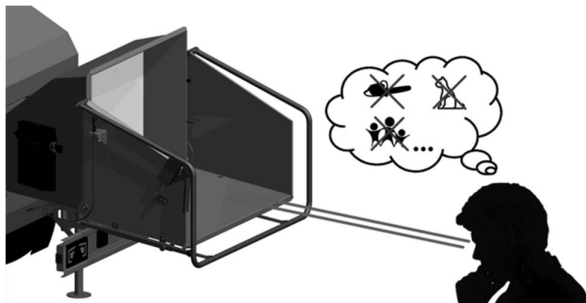
4 Use and safety






This TP wood chipper is specially designed as a **stationary** wood chipper, which chips wood in the form of branches, bushes and waste wood from windbreaks, parks, roadside trees, etc.






Any modification to the design of the machine is strictly prohibited. In the event that modifications are made, Linddana A/S disclaims all liability.




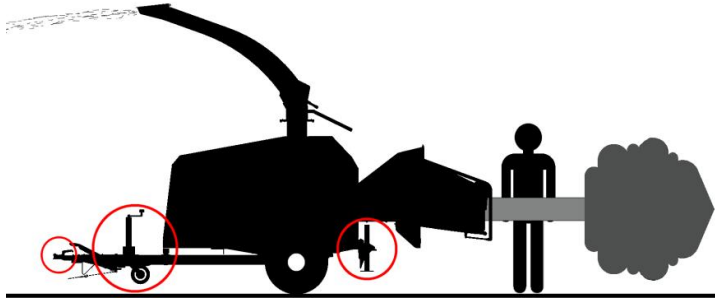



4.1 Mandatory Instructions and Warnings

4.1.1 Before use

	<div data-bbox="722 667 1049 835">  </div> <p>ALWAYS read the user manual before using the wood chipper. Remember to store the user manual in the manual box.</p>
	<div data-bbox="779 1031 990 1241">  </div> <p>ALWAYS wear ear protectors, safety goggles, close fitting safety clothing and safety shoes.</p>
	<div data-bbox="592 1428 1174 1728">  </div> <p>ALWAYS ensure that the funnel is free of people, animals and other foreign bodies before starting the wood chipper.</p>

	<p>ALWAYS ensure that all of the guards are securely closed/fitted before starting the wood chipper</p>
	<p>ALWAYS ensure that the wood chipper is safely parked before starting the wood chipper.</p>
	<div data-bbox="527 506 1239 800" data-label="Image"> </div> <p>ALWAYS ensure there is more than 600 mm of clearance between the ground and the wood chipper's lowest funnel edge and that it stands on a level surface.</p>
	<div data-bbox="553 961 1211 1482" data-label="Image"> </div> <p>ALWAYS ensure that all of the safety devices function correctly before starting the wood chipper. This applies in particular to the safety bar's STOP function.</p>
	<p>ALWAYS observe the ground conditions around the wood chipper. Falling down in the vicinity of the wood chipper is hazardous.</p>

	<div data-bbox="781 254 989 464" data-label="Image"> </div> <p>NEVER allow anyone under 18 years of age to operate the wood chipper (however, anyone who is 16 years old and over may do so under the supervision of an adult).</p>
	<div data-bbox="781 653 989 863" data-label="Image"> </div> <p>NEVER operate the wood chipper if under the influence of alcohol or narcotic substances.</p>
	<div data-bbox="529 1083 1240 1430" data-label="Image"> </div> <p>NEVER operate the wood chipper on uneven or inclined surfaces.</p>
	<p>NEVER start the wood chipper without the ejector spout fitted.</p>
	<p>NEVER use the wood chipper in enclosed or poorly ventilated spaces, because of the danger of carbon monoxide poisoning.</p>

	 <p>NEVER point the ejector spout in the same direction as people or at an area that people move around in. A safe distance of 20 m must be maintained in the direction of where the woodchip is ejected.</p>
	 <p>NEVER operate or park the wood chipper without support from the jack and support leg or from the vehicle's trailer hitch.</p>
	<p>NEVER use the wood chipper with material that is not wood.</p>
	<p>NEVER use the wood chipper to push trees, stumps, etc.</p>
	<p>NEVER transport equipment in the funnel, such as forest chains, axes, chainsaws, etc.</p>

4.1.2 During operation



ALWAYS push the safety bar into the STOP position if a dangerous situation arises (see chapter 8).



ALWAYS keep body parts away from the funnel and wood chipper's other moving parts.



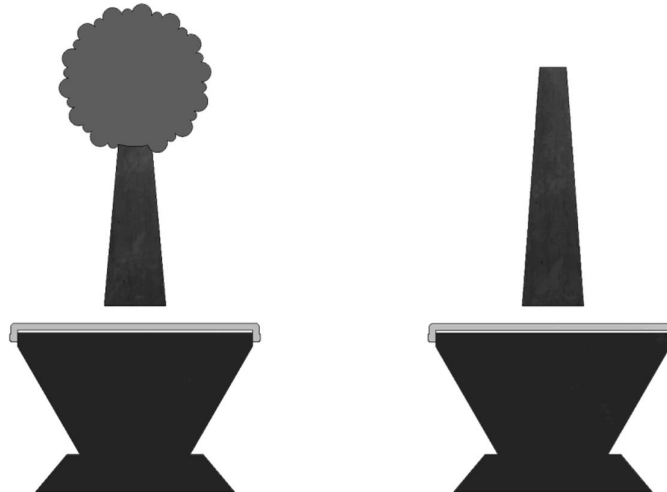
ALWAYS stand at the side of the funnel when the wood chipper is chipping trees that have branches.



ALWAYS push logs in from the rear of the log.

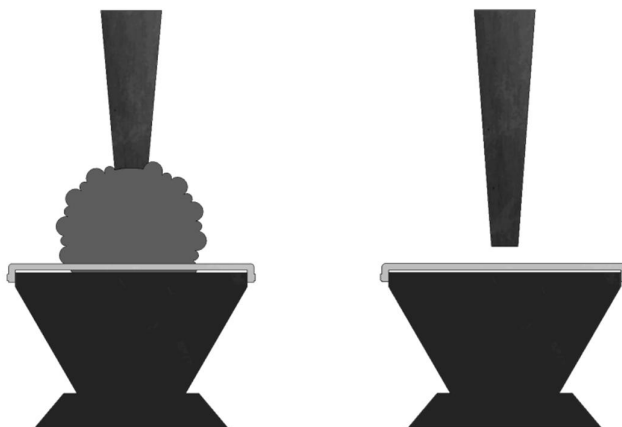


ALWAYS use a rod to push short pieces of tree into the rollers.



ALWAYS feed the wood chipper with the thick end of the log first.

ALWAYS feed the wood chipper so that the tree crown points away from the funnel.



NEVER feed the tree crown into the wood chipper first.

NEVER feed the wood chipper with the thin end of the log first.



NEVER attempt to remove any trapped material from between the feed rollers before the wood chipper has stopped and the key has been removed.










NEVER reach into the funnel to push wood into the rollers.



NEVER open or remove the guard while the wood chipper is operating.


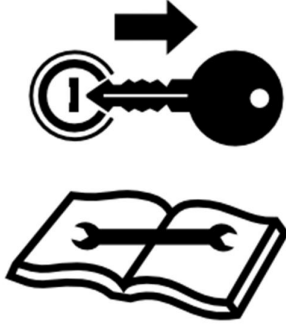


4.1.3 Transport and parking



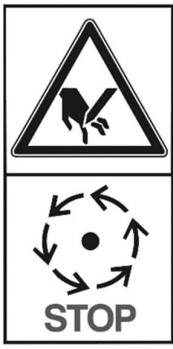
	ALWAYS comply with local public authority regulations when transporting the wood chipper on public roads.
	ALWAYS keep the ejector spout completely down in the bottom during transport
	ALWAYS keep the ejector spout within the width of the machine during transport. Remember to ensure that the ejector spout is securely fastened.
	ALWAYS place the foldable funnel in the transport position during transport (the funnel must be folded up).
	ALWAYS ensure that all of the wood chipper lights work correctly before operating.
	<div data-bbox="527 1024 1242 1297"></div> <p>ALWAYS park the wood chipper on a level surface.</p>



NEVER park the wood chipper on inclined or uneven surfaces.

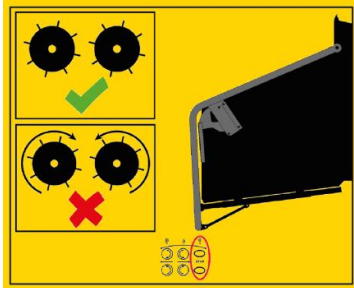
4.1.4 Service and repairs

	 <p>ALWAYS remove the key from the ignition and ensure the disc has stopped moving before carrying out service or repairs.</p>
	<p>ALWAYS after service or repair, ensure that all of wood chipper bolts are fitted and tightened securely and that all of the safety devices are fitted and function properly.</p>
	<p>ALWAYS ensure that the knives, counterknives and rollers are kept sharp. This results in smoother in-feed, higher quality wood chips and less fuel consumption.</p>

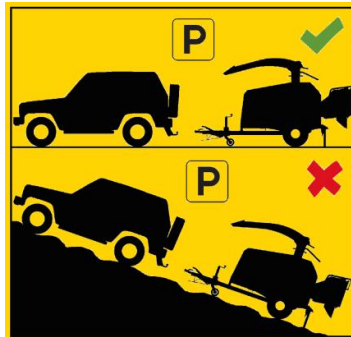
	<p>NEVER carry out service or repairs on the wood chipper while the key is in the ignition.</p>
	 <p>NEVER remove or open the guards before the disc has stopped moving.</p>

4.2 Pictograms used

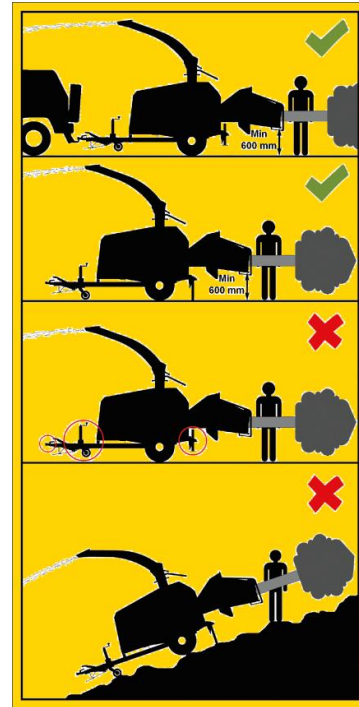
 <p>Warning: Ejected Objects!</p> <p>Warning: Safe distance of 20 m!</p>	 <p>Warning: Rotating knives!</p> <p>Warning: Wait for disc to stop!</p>	 <p>Warning: Crushing hazard!</p> <p>Warning: Rotating rollers!</p>
 <p>Warning: Crushing hazard!</p> <p>Warning: Rotating belts!</p>	 <p>Warning: Crushing hazard!</p> <p>Warning: Do not touch the funnel!</p>	 <p>Warning: Crushing hazard!</p> <p>Warning: Do not step on the funnel!</p>
 <p>Warning: Read the instruction manual before use!</p>	 <p>Warning: Ensure that the funnel is free of people, animals and other foreign bodies!</p>	 <p>Warning: Remove the ignition key and read the user manual before service or repairs.</p>



Warning: Ensure the safety bar works!



Warning: Do not park on uneven or inclined surfaces!



Warning: Do not operate the wood chipper without support from the jack and support leg or from the vehicle's trailer hitch!

Warning: Do not operate the wood chipper on uneven or inclined surfaces!



Warning: Hot surface!



Ear and eye protection mandatory!



Lifting point for crane!

5 Noise level

The sound output level and the sound pressure level for every wood chipper has been measured during use with the disc at nominal rpm, powered by the engine. For specific rpm values and engine types (see technical data wood chipper in chapter 15).

The measurements have been conducted in accordance with testing provisions

Directive 2000/14/EC, 3 July 2000

EN ISO 3744, 1995

ISO 11201, 1995

ISO 4871, 19 March 1997

EN 13525, 17 February 2005

The guaranteed sound output level which must be stated by the manufacturer in accordance with Directive 2000/14/EC is as follows:

TP 235 MOBILE: 125 dB (A) relative to 1 pW

TP 275 MOBILE: 127 dB (A) relative to 1 pW

The wood chipper's sound pressure level at the operator's position is measured in accordance with ISO 11201 and measured as:

TP 235 MOBILE: 107 dB (A)

TP 275 MOBILE: 109 dB (A)

The values stated above are subject to the common uncertainty of the measuring method and the estimated variation in a product series for the type of machine. Detailed information about the measurements and results and estimation of uncertainty are found in a detailed report which can be supplied on request.

As a result of the actual sound levels, the wearing of ear protectors is mandatory when using the wood chipper.

5.1 Environmental instructions

When changing hydraulic oil or engine oil, oil and used oil filters and air filters must be disposed of at an approved waste disposal station.

Oil spillage must be avoided as far as possible. Should oil spillage occur, the spilled oil must be cleaned up and disposed of at an approved waste disposal station.

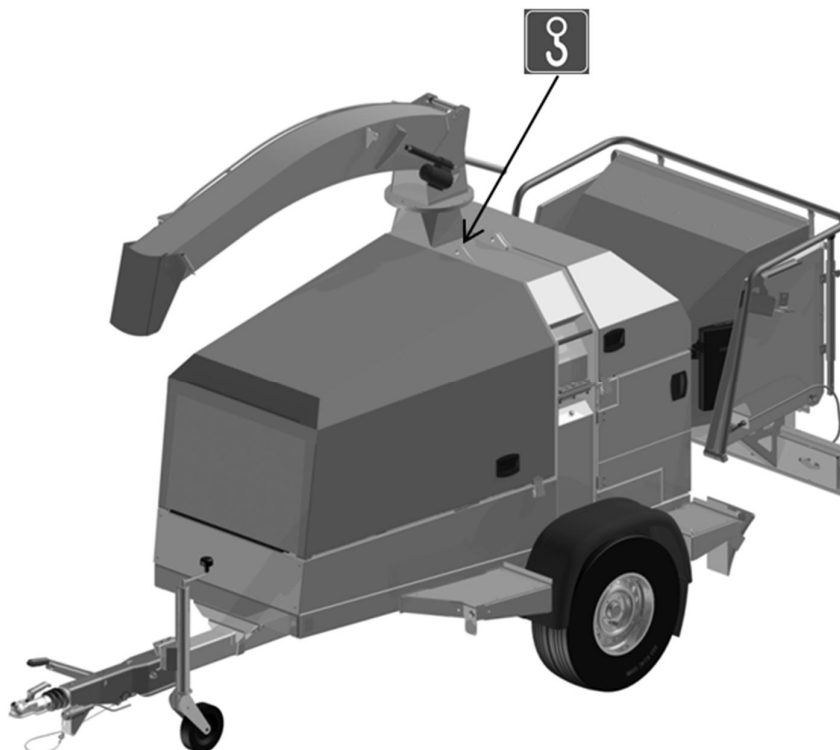
Worn out parts must be disposed of for recycling.

When the wood chipper is worn out it must be disposed of responsibly. Hydraulic oil and engine oil must be drained and disposed of along with oil filters and air filters at an approved waste disposal station.

The rest of the wood chipper must be disposed of at an approved recycling centre.

6 Handling

Lifting point



The wood chipper is equipped with a lifting point, which must be used whenever it is lifted by a crane or other lifting gear (with hooks).

7 Before start-up

7.1 Check the wood chipper before start-up.

Chipping unit

1. Open the disc housing, as described later in this chapter.
2. Ensure that the wood chipper is free of any foreign bodies by turning the disc a few times by hand. Remove any foreign bodies.
3. Check that the knives run clear of the counterknives.
4. Ensure that the distance between the knives and counterknives is correct. The distance is stated in chapter 10.
5. Close the disc housing, as described later in this chapter.
6. Ensure that all of the bolts, nuts and screws are tightened securely.
7. NB: Lubricate all of the lubrication points (see maintenance schedule, chapter 10).

Engine

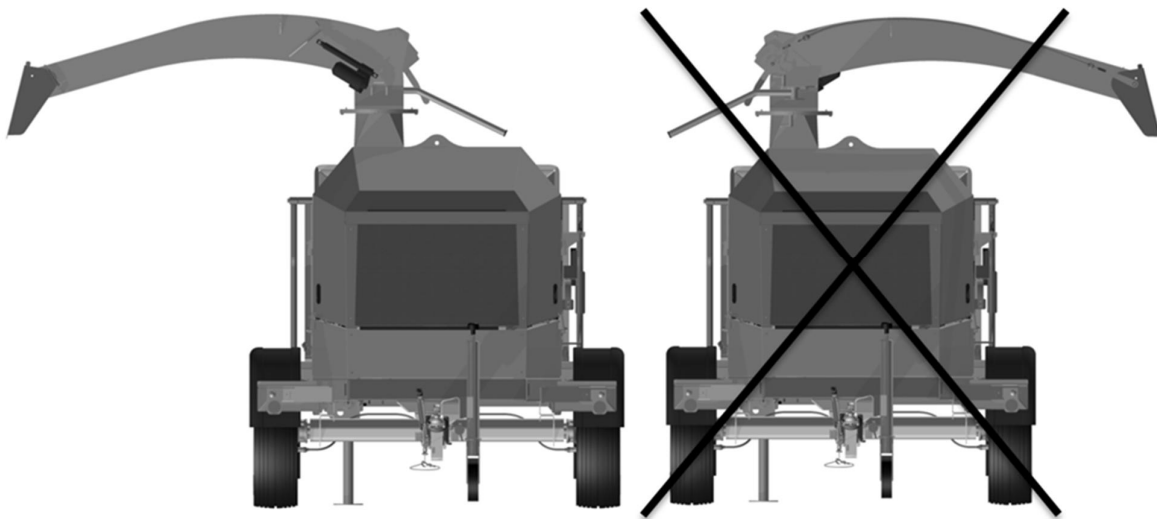
1. Check the engine's oil level.
2. Check the coolant's level.
3. Check the fuel level.

7.2 Opening and closing of disc housing

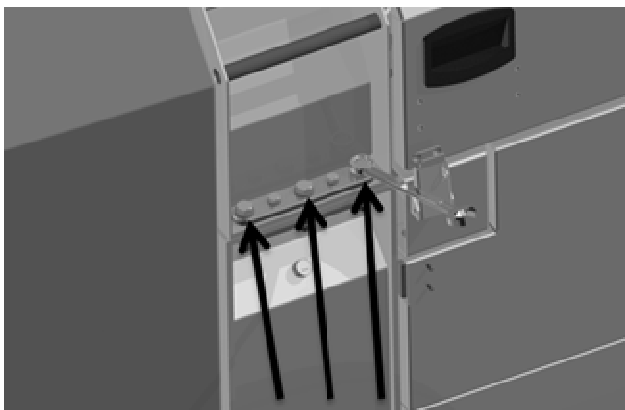
The wood chipper's key must be removed from the ignition when the disc housing is opened and may only be re-inserted after the disc housing has been closed again!

Opening the disc housing

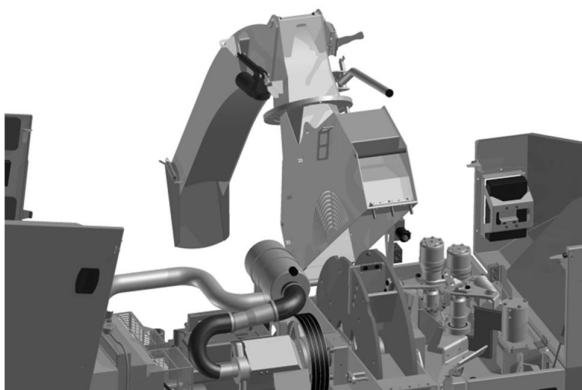
1. Lower the ejector spout all the way to the bottom.
2. Check that the wood chipper's key is removed from the ignition and the disc has stopped moving.
3. Open the bonnet. The bonnet is locked with an external catch on each side.
4. Turn the ejector spout so that it faces the opposite direction of the disc housing (see illustration below).



5. Loosen the three bolts that secure the disc housing top and bottom parts together (see the illustration below).

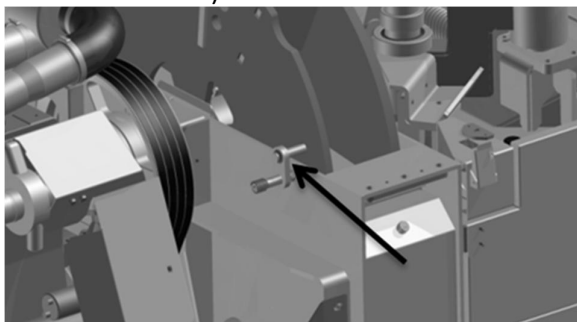


6. For easier access to the disc, open the cover over the in-feed. The cover is locked with an external catch on each side.
7. Open the top part of disc housing until it meets the stop (see illustration below).



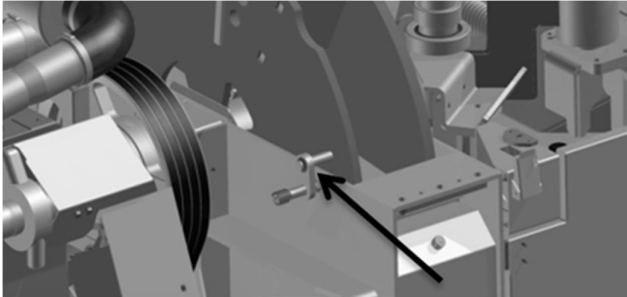
8. Turn the disc until the yellow disc lock can go into one of the holes on the disc. The disc is now locked. Keep fingers away from the knives when the disc is being turned.

As far as possible, the disc must always be locked when the disc housing is open (see illustration below).

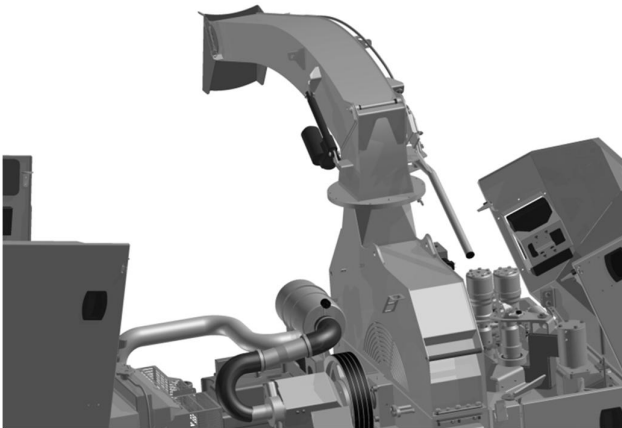


Closing the disc housing

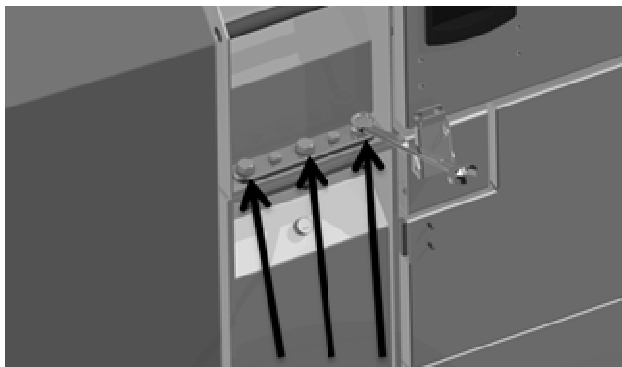
1. Free the yellow disc lock from the disc and turn the disc a few times to make sure that there are no objects in the disc housing. Exercise caution and keep fingers away from the knives when the disc turns (see illustration below).



1. Lock the top part of the disc housing (see illustration below).



2. Tighten the three bolts to secure together the top and bottom parts of the disc housing (see the illustration below).

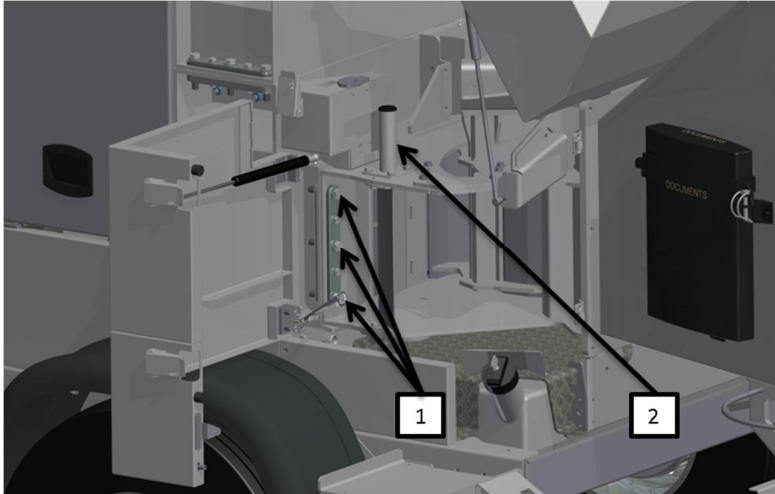


3. Close the bonnet and cover above the in-feed and lock them securely using the external catches.

7.3 Opening and closing by TP EASY SERVICE

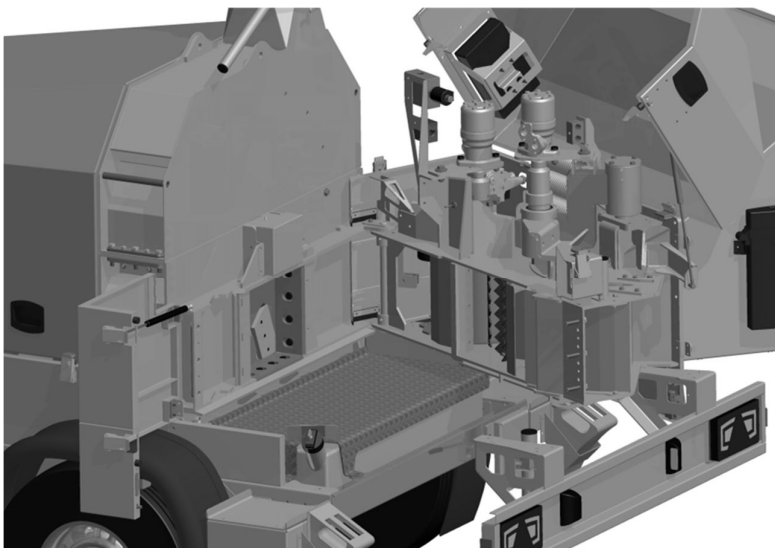
The wood chipper is equipped with TP EASY SERVICE, which makes it easier to access to the control/replacement of the counterknife and the rear of the in-feed.

Opening TP EASY SERVICE

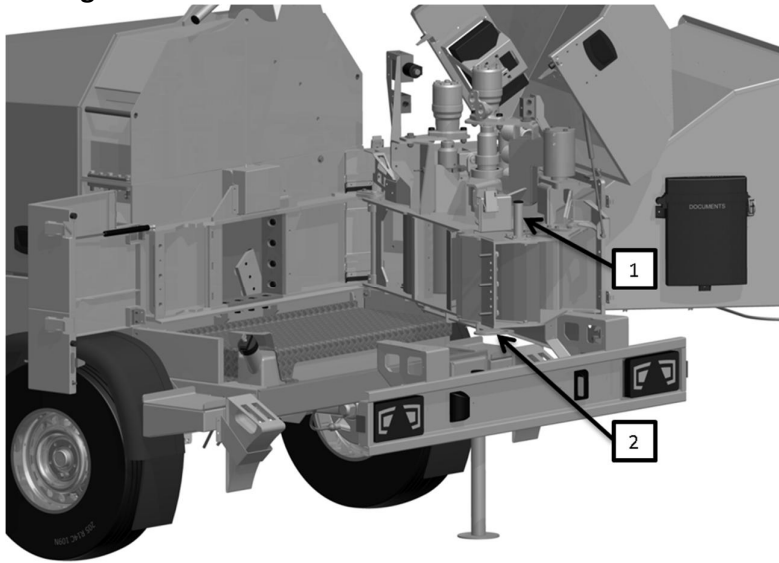


To open TP EASY SERVICE, the left side cover has to be opened. The cover is locked with an external catch on each side. Opening the cover over the in-feed will make accessing the disc easier. The cover is locked with an external catch on each side.

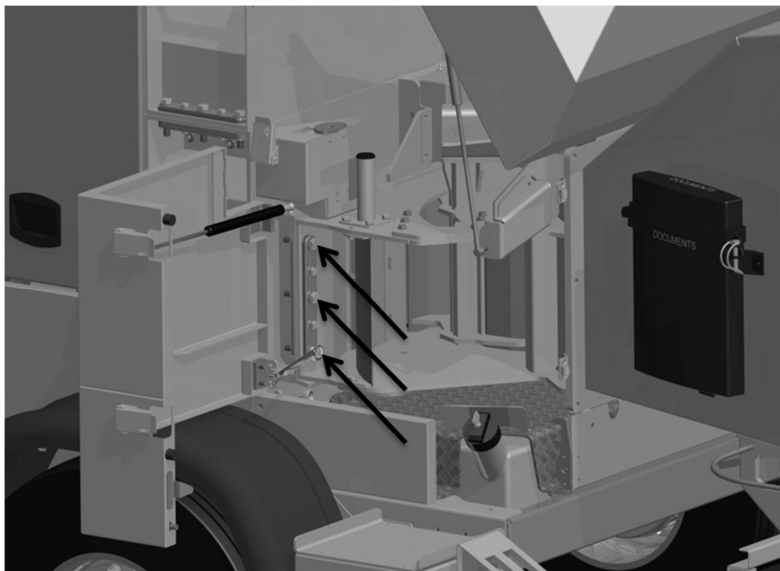
1. Loosen the three bolts (1) that secure the in-feed and disc housing.
2. Hold the handle (2) and pull the in-feed back until it meets the mechanical stop. The in-feed is now fully open and automatically locked in this position (see illustration below).



Closing TP EASY SERVICE



1. Hold the handle (1) and release the lock by pulling the locking handle (2).
2. Push the in-feed back into position against the returns disc housing.
3. Tighten the three bolts to secure together the in-feed and disc housing (see the illustration below).

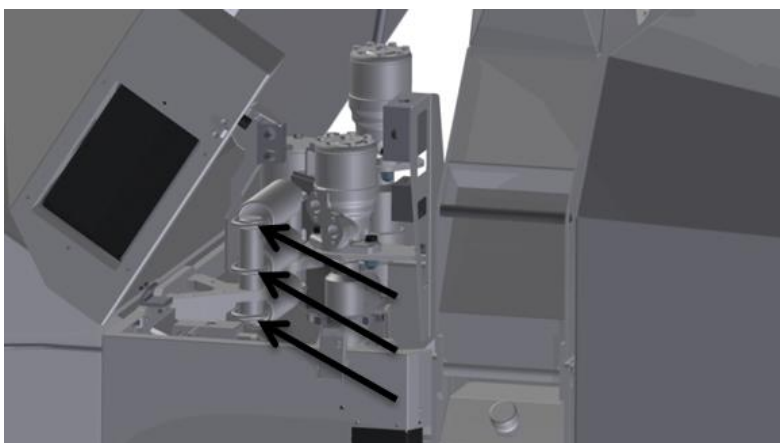


4. Close the left side screen and cover above the in-feed and lock them securely using the external catches.

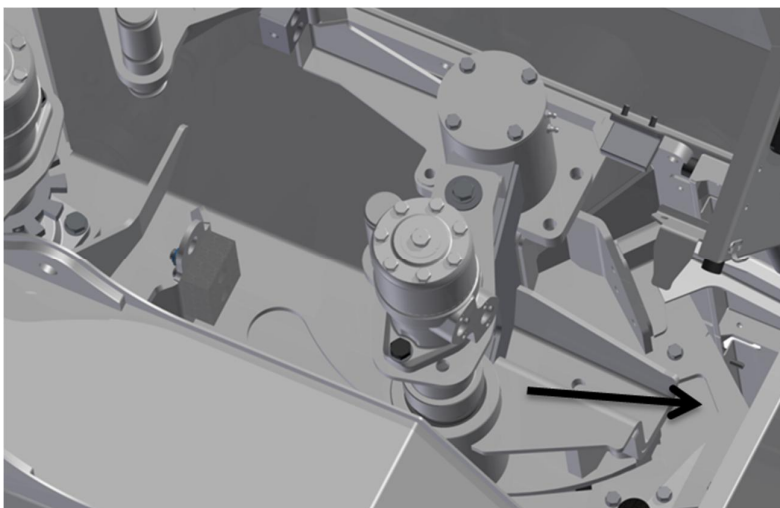
7.4 Opening and closing the revolving roller.

Opening the revolving roller

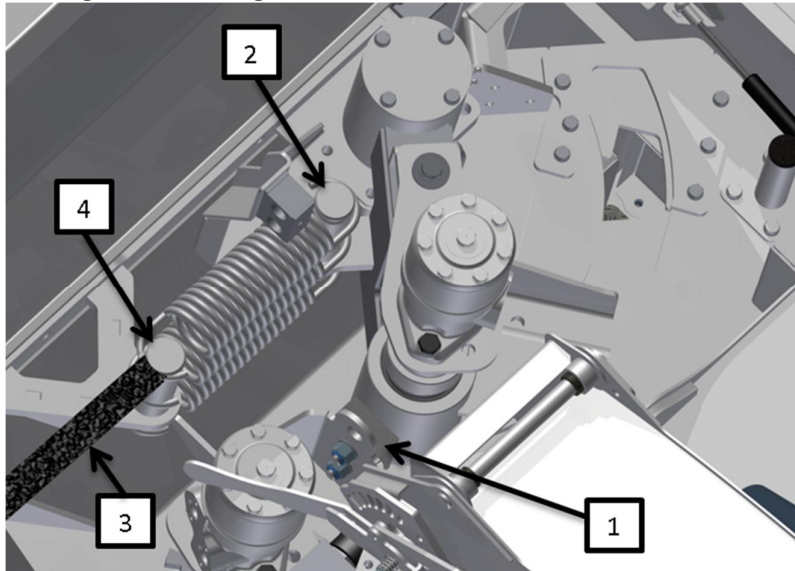
The revolving roller's retention force is created by springs. If the revolving roller needs to be opened so that foreign bodies can be removed from the in-feed, the springs must be removed (see illustration below).



1. Open the cover over the in-feed. The cover is locked with an external catch on each side.
2. Using multigrip pliers or similar, lift the springs from the spring holder (exercise caution and keep fingers away from the springs when the spring holder is lifted).
3. The revolving roller is now free to open up against the secured opening stop (see illustration below).



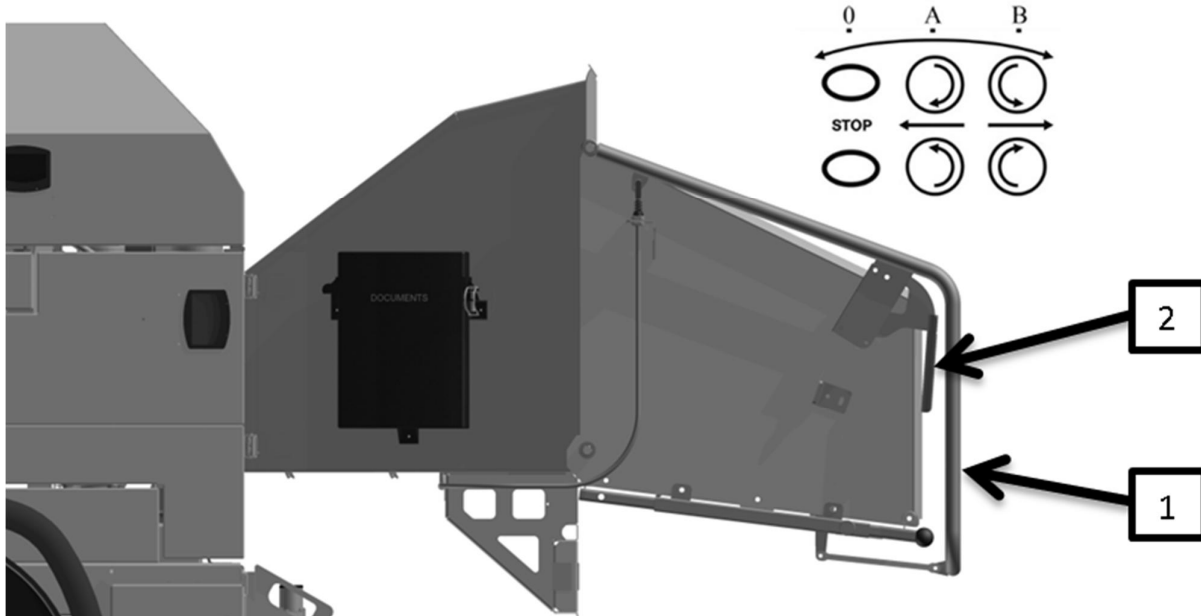
Closing the revolving roller



1. Close the revolving roller against the inside closing stop (1).
2. Fit the springs on the revolving roller's spring holder (2).
3. Using a flat fibre strap (3), pull the springs one after another, by placing the strap around the spring's eyes and pulling on both ends of the fibre strap (the strap is a part of the TP TOOLBOX). Once the spring has been pulled in across the spring holder on the in-feed (4), release one end of the fibre strap and then pull it out of the spring's eye by pulling the other end of the fibre strap. The springs can then slide into place in the spring guides.
4. Close the cover above the in-feed and lock securely using the external catches.

8 Operating the wood chipper

8.1 Safety bar



The wood chipper is equipped with two hydraulic rollers, which are controlled by a safety bar (1) with a reset handle (2) and a TP CSC, which is programmed from the TP NAVIGATOR (see instructions for TP NAVIGATOR in chapter 9).

Position A

The rollers rotate inwards and the material is drawn into the wood chipper.

Position B

The rollers rotate outwards and the material is pushed out of the wood chipper.

Position 0

The rollers stop.

When the safety bar has been pushed into position 0, the bar is locked. This is to ensure the rollers are not unintentionally re-started.

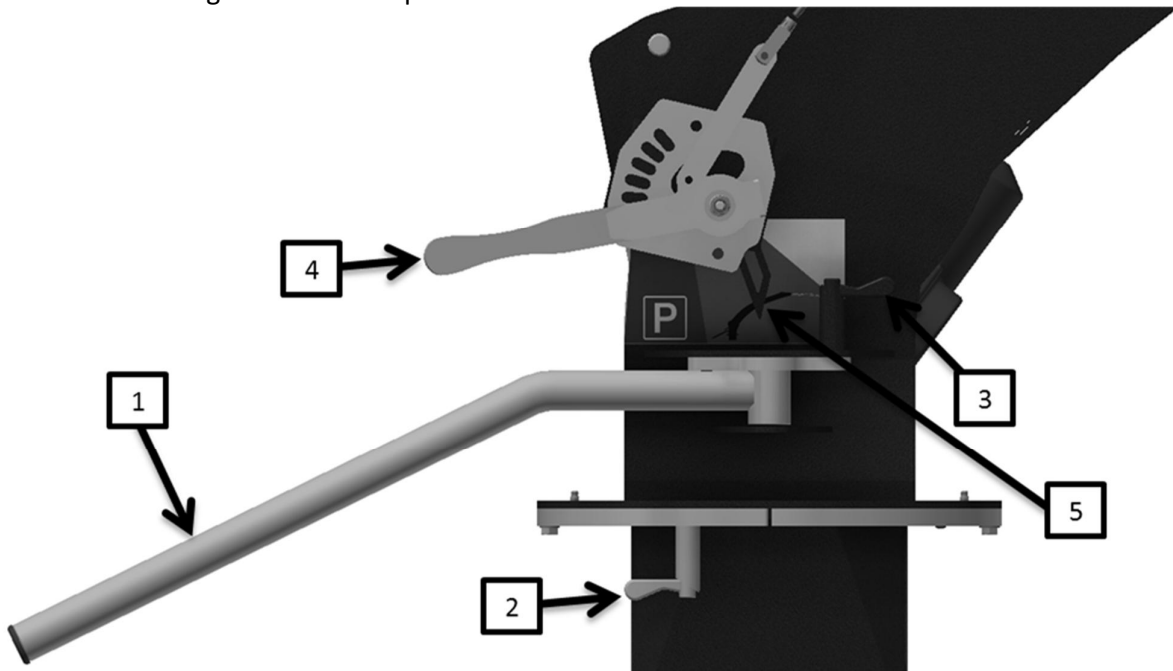
To subsequently move the safety bar into position A or B, activate the reset handle.

During start-up, the safety bar must always be in position 0.

IN CASE OF POTENTIAL HAZARDS PUSH THE SAFETY BAR INTO THE STOP POSITION (position 0).

8.2 TP VARIO SPOUT

TP 235 MOBILE and TP 275 MOBILE are equipped with TP VARIO SPOUT, which is a variable height-adjustable ejector spout, which is controlled via TP NAVIGATOR. TP VARIO SPOUT's height is controlled via TP NAVIGATOR (see chapter 9). NB: When operating the TP VARIO SPOUT, there must not be any people inside the ejection area. At the same time, exercise caution when TP VARIO SPOUT is lowered down into the transport position, because the end of the ejector spout reaches head height and this is a potential hazard.



To turn the TP VARIO SPOUT use the handles (1), once the sliding bolt (2) is loosened. To re-secure the TP VARIO SPOUT, lock the sliding bolt (2) in the desired position. The handle (1) can be turned in the opposite direction for operating from the rear of the TP VARIO SPOUT. To do this, loosen the sliding bolt (3) and turn the handle (1) 180 degrees until the sliding bolt (3) one again can lock the handle (1).

The tilting spout is operated using the handle (4), which tilts away from the front position plate. Next, move the handle (4) to the desired position and again release, the handle (4) subsequently locks the tilting spout in the desired ejection position.

Before starting the wood chipper, the TP VARIO SPOUT must be raised to the operating height. The operating height is found by looking at the indicator (5) positioned on the side of the ejector spout. The machine may only be operated when the indicator (5) is in the green area.

Once the wood chipper shall be parked or transported, lower the ejector spout all the way down so that the indicator (5) is at the rear in the blue P area. During transport, the TP VARIO SPOUT must always be within the machine's width.

8.3 In-feed speed

The wood chipper's in-feed speed is controlled by the TP CSC, which automatically regulates the amount of oil to the feed roller's oil motor. TP CSC is programmed in TP NAVIGATOR, where the desired chip length is entered (see instructions for TP NAVIGATOR in chapter 9). This ensures that there is always the correct in-feed speed, independent of the disc's rpm.

The table shown below provides the actual rpm of the feed rollers with the entered woodchip length.

Woodchip length Model	Disc rpm	6 mm rpm	8 mm rpm	10 mm rpm	12 mm rpm	14 mm rpm
TP 235 MOBILE	1150	17	22	28	33	39
TP 275 MOBILE	1370	20	26	33	40	46

8.4 Start-up and commissioning the wood chipper

Start the engine with the ignition key and let it run idle for a few minutes. Coupling of the wood chipper's disc can be subsequently activated in TP NAVIGATOR (see instructions for TP NAVIGATOR in chapter 9).

In TP NAVIGATOR, the start-up process is activated automatically, where the belts between the wood chipper and the engine are automatically coupled at the same time as the engine's rpm is increased from idle to nominal rpm. TP NAVIGATOR ensures that the belts have the correct pre-tension.

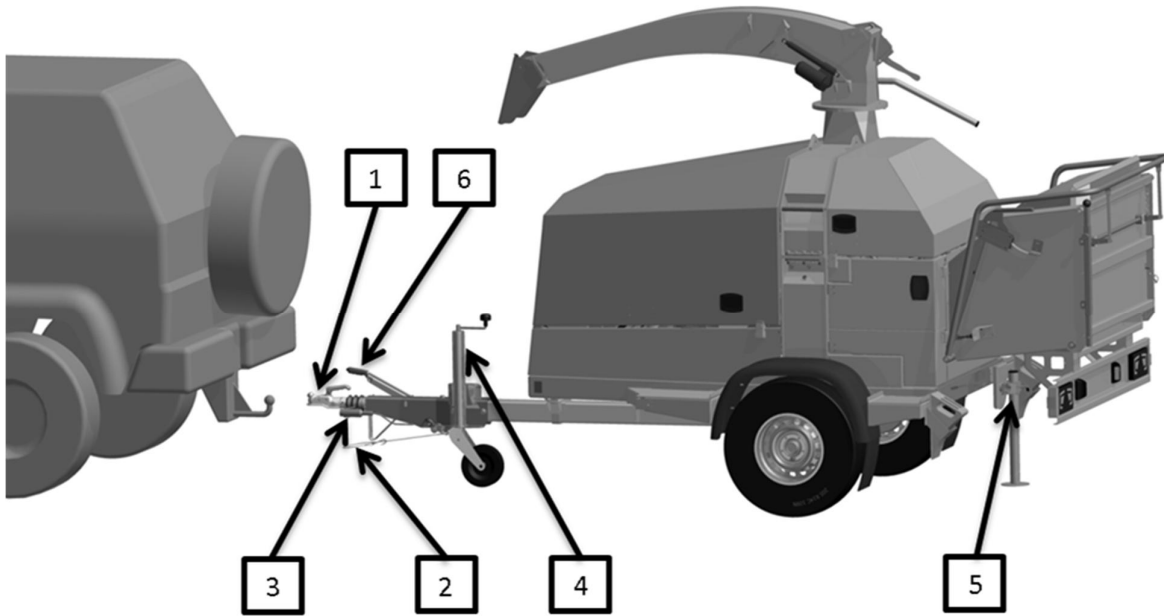
Prior to the wood chipper starting, it must be ensured that the TP VARIO SPOUT is at the operating height (see TP VARIO SPOUT in chapter 8).

8.5 Connecting and disconnecting instructions

The wood chipper is a trailer hitched wood chipper and is designed to be fitted behind a vehicle with a trailer hitch, as a coupling without requiring inspection. The wood chipper with trailer and own engine is registered as a trailer tool.

REMEMBER: The wood chipper must always be coupled/uncoupled on a level surface!

Coupling with straight drawbar



1. Connect the wood chipper to the vehicle by securing the wood chipper's socket coupling (1) onto the trailer hitch on the vehicle.
2. Fit the safety wire (2) to the trailer hitch.
3. Connect the 13-pin connector (3) to the vehicle.
4. Screw up the front jack (4).
5. Push down the rear support leg (5) and turn to the transport position.
6. Loosen the handbrake (6).

Uncoupling the wood chipper from the vehicle

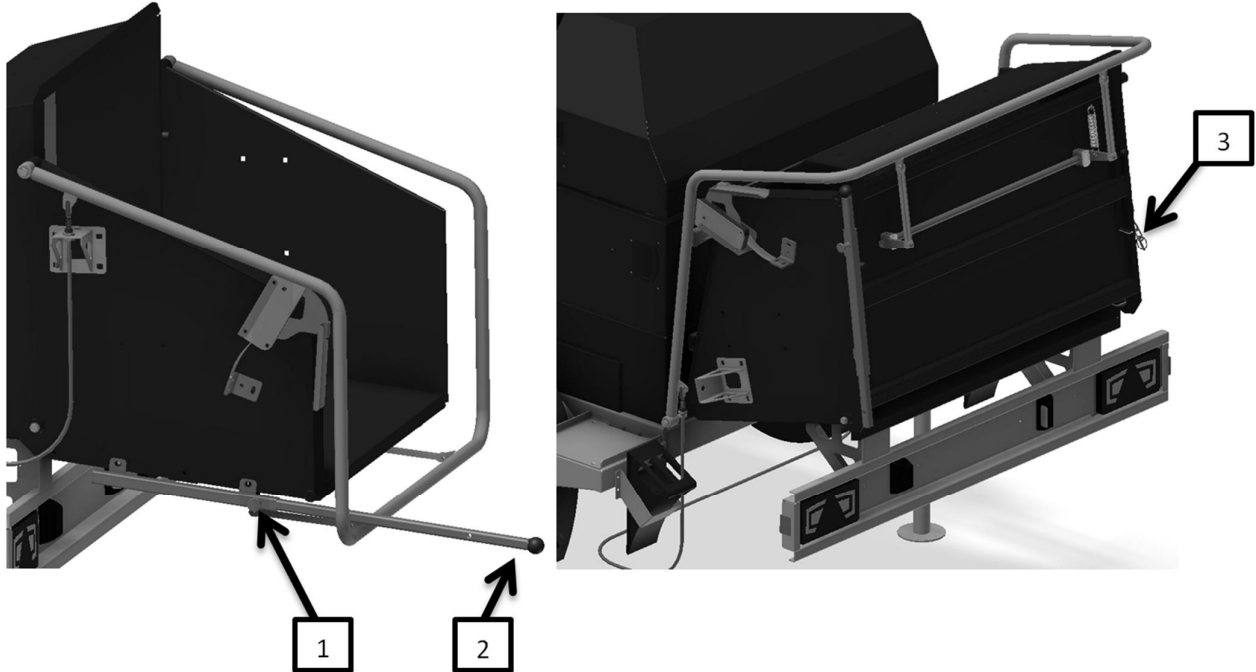
To correctly uncouple the wood chipper, repeat the coupling procedure in reverse order.

8.6 Foldable funnel

The aim of the foldable funnel is to minimise the total length of the mobile wood chipper during transport and when storing it.

The foldable funnel must always be in the transport position during transport on public roads.

Transport position



1. Pull the sliding bolt (1) out while pulling the lever (2) out.
2. Now fold up the funnel by lifting the lever (2) (use both hands).
3. Once the funnel is folded up, secure it using the ring pin (3) in the right side.
4. Pull the sliding bolt (1) out and push the lever (2) back into its starting position. The funnel is now in the transport position.

Operating position

To put the foldable funnel into the operating position, repeat the transport position procedure in reverse.

9 TP NAVIGATOR

TP NAVIGATOR is a fully functional control system with a touchscreen and associated key.

The system controls and monitors a large number of the wood chipper's instruments.

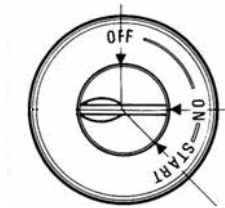
9.1 Key

The key is used the same way any other ignition key with ignition lock is used, and has the following positions:

First position = Off

Second position = On

Third position = Start



The key is equipped with an ignition lock, so that if an attempt has been made to start the wood chipper, the key must be turned to the off position, before another attempt at ignition can be made.

The key functions as an emergency stop for the machine. If a dangerous situation arises, switch off using the key!

9.2 Operating TP NAVIGATOR

TP NAVIGATOR is equipped with a touchscreen, which is operated by touch. Because the screen functions using resistive technology, the operator can wear gloves.

Navigate in TP NAVIGATOR by:

- Pressing the buttons directly on the screen.
- Browse between different functions by swiping a finger across the screen.

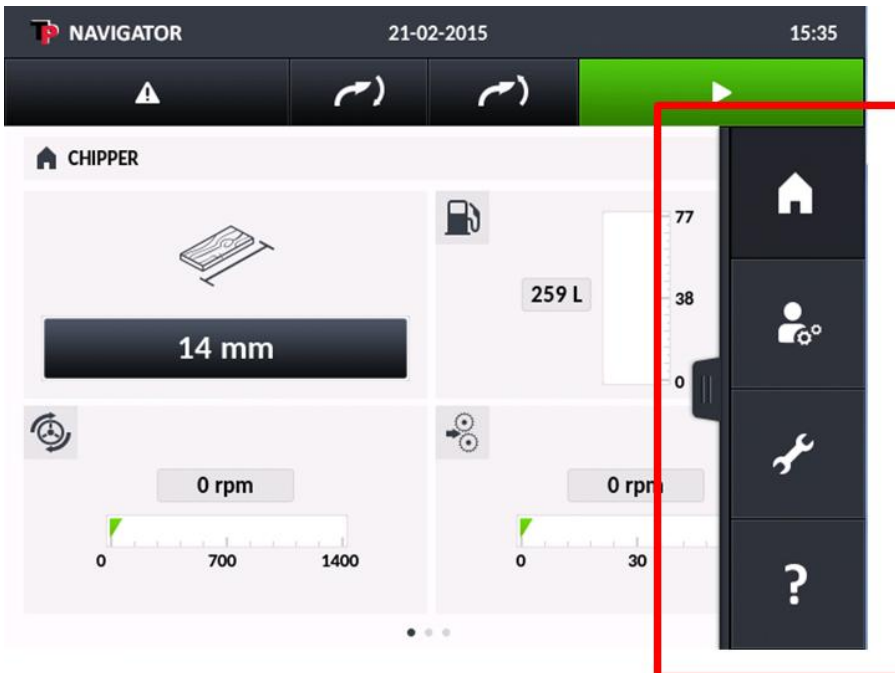
9.3 Top menu

The top menu is the stationary menu, which is positioned at the top of the screen.



1. Warning indicator
If there is a problem with the wood chipper, the warning indicator will be red. Press the indicator to see the failure.
2. TP VARIO SPOUT down
3. TP VARIO SPOUT up
4. Start/stop of wood chipper

9.4 Page menu



Tapping once the top right side of the screen with a finger will cause the side menu to enter the screen from the right. The menu is always accessible and contains the following sub-menus:

9.4.1 HOME

Pressing HOME will always return the user to the start screen. The start screen contains three different pages: CHIPPER, ENGINE and SERVICE. The three pages are explained below.

CHIPPER

The CHIPPER page is the first page the operator sees when the wood chipper is switched on or when HOME is pressed. This page contains all of the information about the wood chipper.



The CHIPPER page displays the following four instruments:

1. TP CHIP SIZE CONTROLLER (TP CSC).
TP CSC indicates the desired size of the wood chips. TP CSC automatically adjusts the roller rpm to achieve the desired woodchip size. Press the number to choose another size of woodchip than the current size.
2. Fuel level is in litres.
3. The disc's actual rpm.
4. The roller's actual rpm

ENGINE

ENGINE page is on the other page in HOME. This page shows information about the engine.

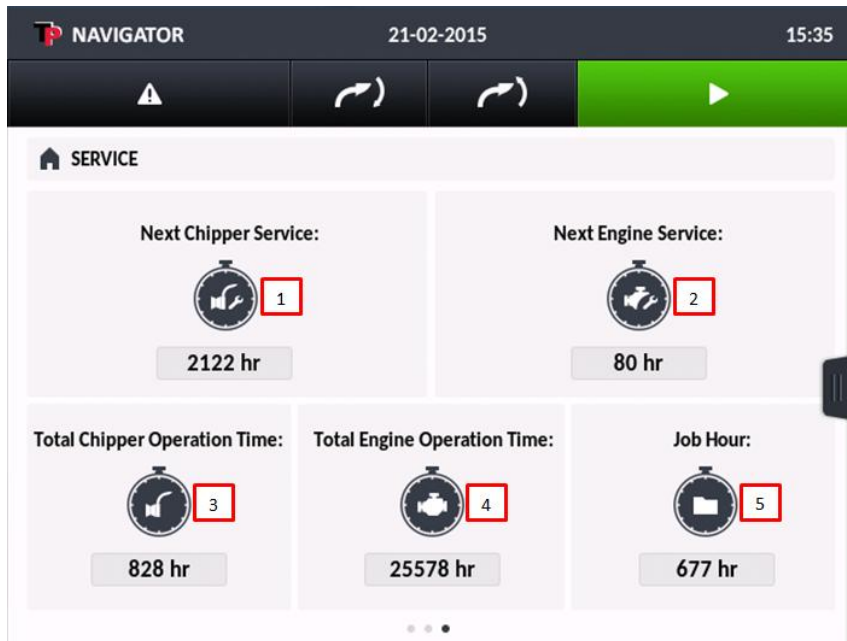


The ENGINE page displays the following four instruments:

1. The engine's actual rpm.
2. Engine lights.
Green = OK, Red/orange = not OK.
 - a. Battery requires charging.
 - b. Oil pressure too low.
 - c. Engine temperature too high.
 - d. Engine failure.
3. The engine's actual temperature.
4. Actual and average fuel consumption.

SERVICE

The SERVICE page is the third page in HOME. This page shows information about service routines.

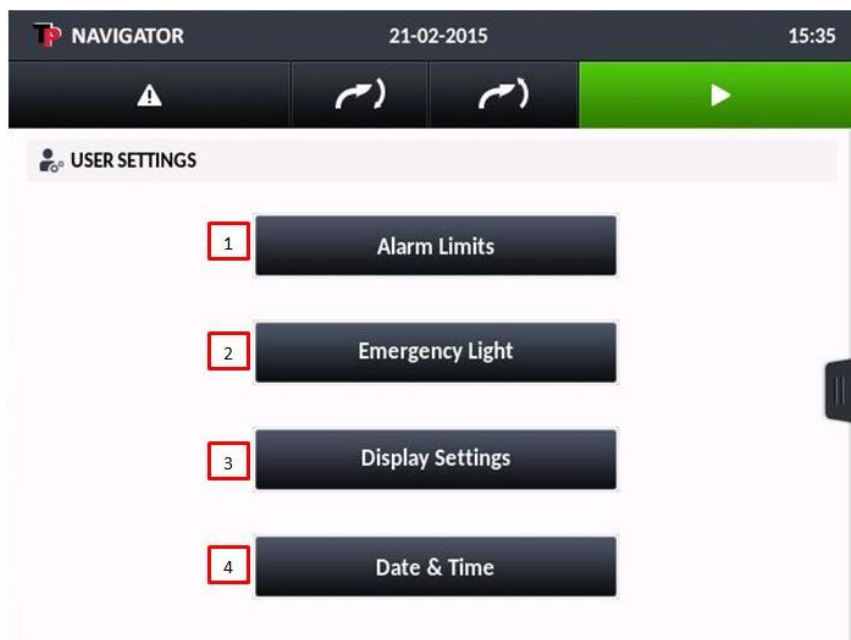


The SERVICE page displays the following five instruments:

1. Total number of working hours before the next service of the wood chipper.
The service interval can be reset. See PROTECTED SETTINGS.
2. Total number of working hours until the next service of the engine.
The service interval can be reset. See PROTECTED SETTINGS.
3. Total number of work hours for the wood chipper unit.
4. Total number of work hours for the engine.
5. Job hour counter.



9.4.2 USER SETTINGS

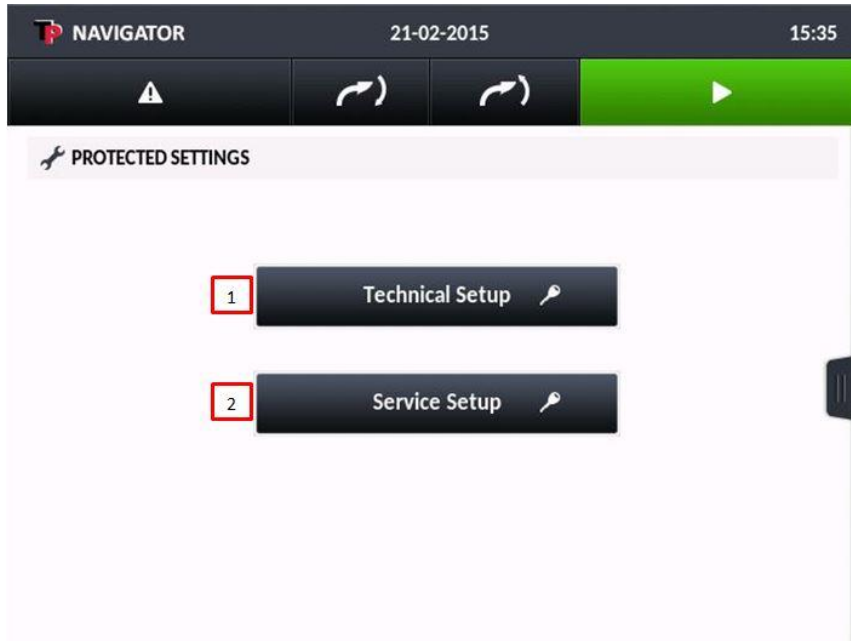


Here the user has the opportunity to adjust a number of settings.

1. Set when the TP NAVIGATOR must warn of low diesel level.
Recommended value is 10 l.
2. **Only for TURNABLE models.** The user can switch on/off the rotary light.
The light is used to warn other road users that the wood chipper has turned across the driving lane when wood chipping along a busy road.
3. Calibrate and set the touchscreen's light strength.
4. Set time and date for TP NAVIGATOR.



9.4.3 PROTECTED SETTINGS

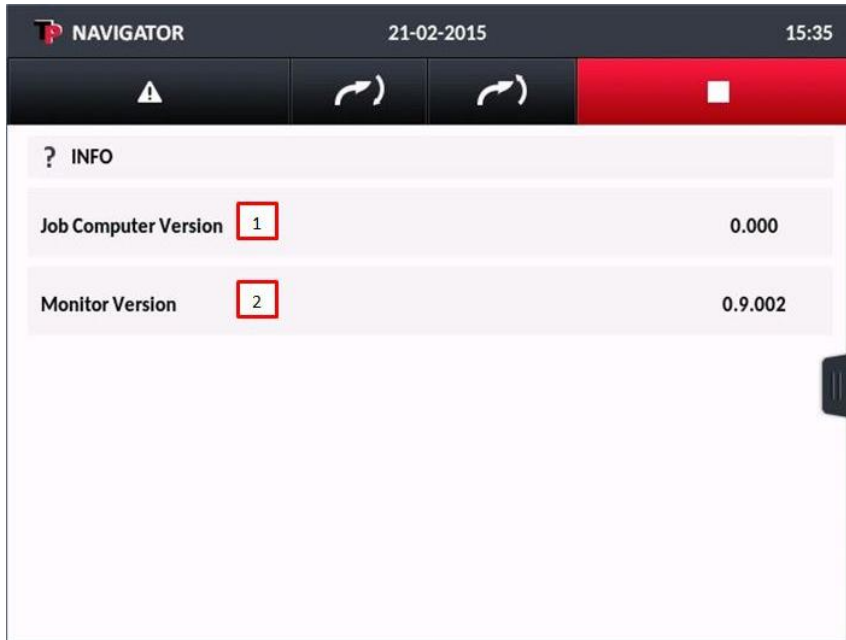


This menu allows technical or service personnel access to the settings on the wood chipper. Both menus are password protected.

1. **Access only for authorised personnel!** The technical parameters related to the wood chipper's function can be adjusted.
2. The service counter for the engine and the wood chipper unit can be reset. In addition, the counter for the next service can be set. To ensure the 3-year warranty remains valid, all of the service intervals must be complied with! The code is 9320.

9.4.4 ? INFO

This menu contains information about the current software version used in the wood chipper.



1. Version no. of software in the de-central box
The de-central box is located in the engine compartment.
2. Version no. of control system in the TP NAVIGATOR screen.

10 Maintenance

The wood chipper must be inspected every day. This includes opening the disc housing and checking the feed, disc, knives, counterknives, triangle wiper and square wipers. This will ensure that unexpected stoppages are avoided and prolong the life of the wood chipper.

When carrying out maintenance and repairs, the wood chipper must be stopped, and the wood chipper key must be removed from the ignition before the rotor housing is opened. (see opening and closing of disc housing chapter). 7). In addition, the wood chipper must also be positioned on a level, flat surface when carrying out maintenance and repairs.

10.1 Maintenance schedule for wood chipper

X = for each stated time interval

(X) = Only for the first time

Interval=> hours	8 ⚙	50 ⚙	200 ⚙	1000 ⚙
Check the safety bar ¹	X			
Check the knives and counterknives (and sliver breaker - extra equipment)	X			
Tighten all bolts and nuts	(X)	(X)		
Lubricate disc main bearings ²		X		
Lubricate the fixed roller bearings ²		X		
Lubricate the revolving roller bearings ³		X		
Lubricate TP VARIO SPOUT ²		X		
Replace the return filter for the hydraulic pump ⁶		(X)		X
Lubricate the revolving roller foot ²			X	
Lubricate the TP EASY SERVICES ²			X	
Reverse/replace counterknife			X	
Reverse/replace triangle wipers, square wipers and scrapers			X	
Change hydraulic oil ⁴				X
Replace facing plate in top disc housing (extra equipment) ⁵				X
Check ejector wings for wear and tear				X
Check casing for wear and tear				X

10.2 Hydraulic oil table

Model type	Standard oil type	Bio-oil (optional) ⁷	Quantity in l
TP 235 MOBILE	Hydraway HVXA 46	Hydraway SE 46 HP	28 l
TP 275 MOBILE	Hydraway HVXA 46	Hydraway SE 46 HP	28 l

¹ Always execute before use!

² Lubricate two lubrication nipples with Uniway Li62 or equivalent lubricant.
In case of light use: Lubricate after 12 months.

³ Lubricate two lubrication nipples with Uniway Li62 or equivalent lubricant.
In case of light use: Lubricate after 12 months.

⁴ Drain the hydraulic oil and fill with new oil. See above for the hydraulic oil table for oil type and amount.

⁵ If fitted, change the facing plate in the top disc housing, as necessary.

⁶ Replace after 12 months

⁷ The interval between changing oil can be extended by using biodegradable oil, which can be purchased as extra equipment.

10.3 Maintenance schedule for engine

For the correct execution of the maintenance of the engine, refer to the engine manual. The engine manual contains precise instructions for how the engine in your TP wood chipper is best serviced.

X = for each stated time interval

(X) = Only for the first time

Interval=> hours		10 ⌚	250 ⌚	500 ⌚	1000 ⌚	1500 ⌚	5000 ⌚
Check oil level		X					
Check the coolant condition		X					
Check/clean filter in front of the radiator and inter-radiator ¹		X					
Check/clean the air filter (external and internal) ¹		X					
Check/clean radiator and inter-radiator ¹			X				
Check alternator's belt tension ²			X				
Check rubber hoses at air intake and radiator				X			
Check fuel hose				X			
Replace engine oil ^{3, 4}				X			
Replace oil filter ^{3, 4}				X			
Replace fuel filter ^{3, 4}				X			
Replace coolant ⁴					X		
Replace the hose to the intake manifold (hose between the air filter and intake manifold) ⁴					X		
Replace radiator hoses ⁴					X		
Replace fuel hoses ⁴						X	
Alternator belt	Standard alternator belt (trapezium shape) ^{4, 5}			X			
	Poly-V belt (unclean working environment) ⁴					X	
	Poly-V belt (clean working environment) ⁴						X
Check the engine starter ⁴							X
Check the alternator ⁴							X
Replace external air filter ¹		After six, check when the filter was cleaned.					

¹ The length of time between a check of the filter elements may vary depending on the conditions the engine operates in. The air filter must be cleaned and replaced more frequently in very dusty conditions.

² Not Poly-V belt type.

³ In case of light use: Replace after 12 months.

⁴ Replacement must be carried out by an authorised **TP/KOHLER** workshop.

⁵ In case of light use: Replace after 36 months.

10.4 Engine oil level

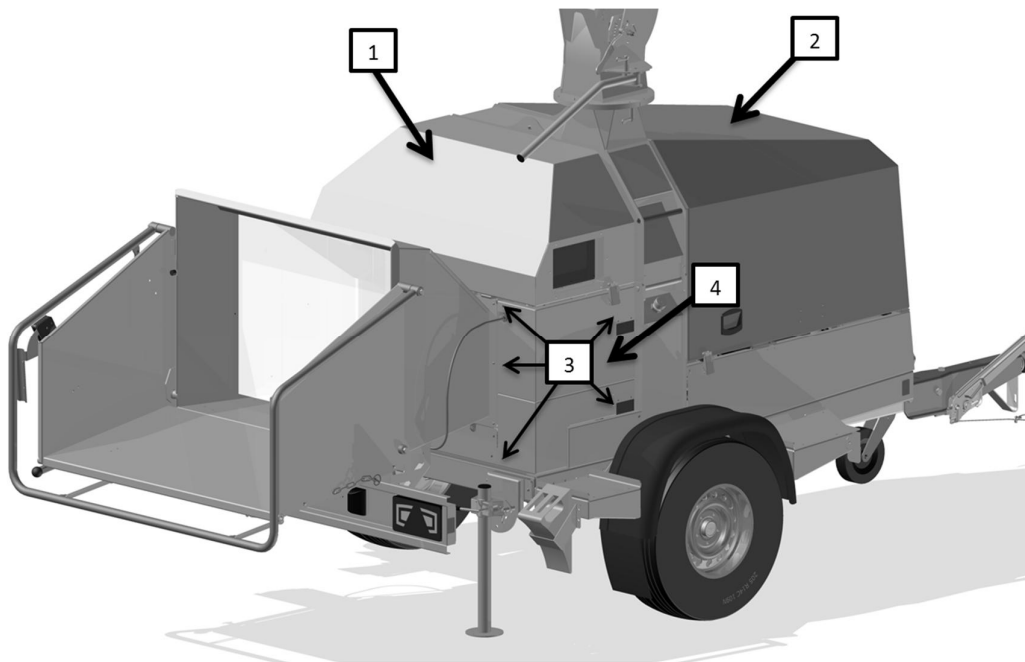
Model type	Engine type	Oil type:	Oil capacity (maximum level) <i>With oil filter</i>
TP 235 MOBILE	KDI 1903 M	SAE 5W-30 CJ-4	8.9 l
TP 275 MOBILE	KDI 2504 M	SAE 5W-30 CJ-4	11.5 l

10.5 Hydraulics

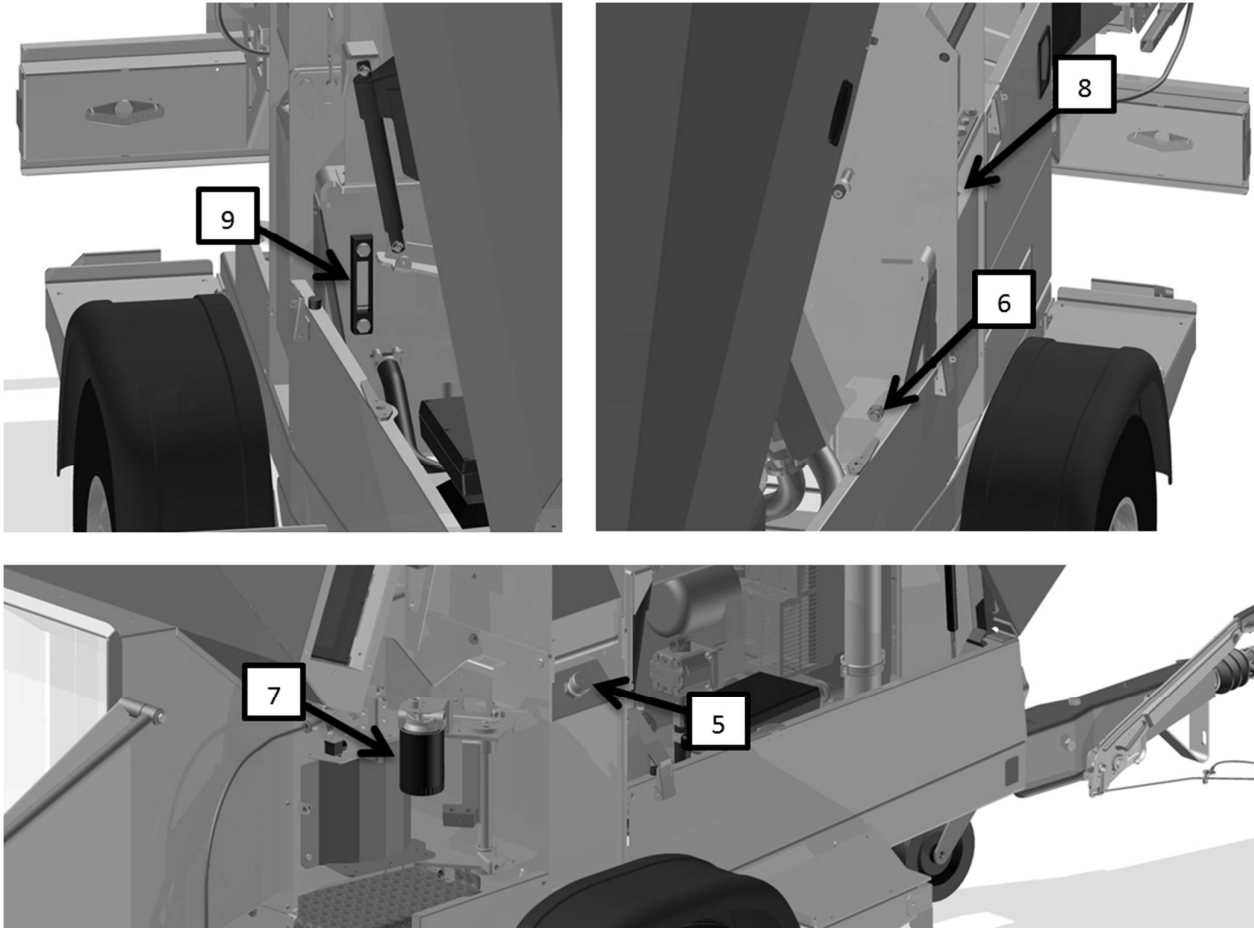
The wood chipper is filled at the factory with mineral hydraulic oil as standard (bio-oil may be purchased as extra equipment). See hydraulic oil table in chapter 10. When replacing the oil, use the same type of oil or an oil with equivalent specifications. Do not mix oils of different types/brands.

Old hydraulic oil must be handed in to the municipal receiving station.

Replacing of hydraulic oil and return filter



1. Open the cover above the in-feed (1) and the bonnet (2). The cover above the in-feed and bonnet is locked using an external catch on each side.
2. Loosen the five bolts (3) and remove the side cover (4), which opens up access to the return filter.



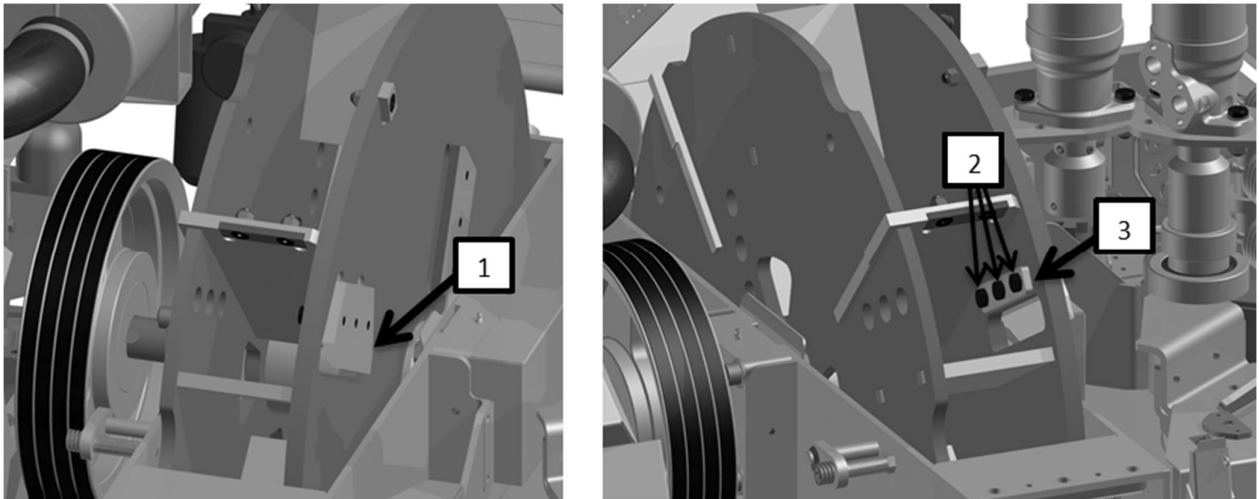
3. Remove the filler neck (5).
4. Unscrew the drain plug (6) and capture the oil in a container for suitable disposal.
5. When the tank is almost empty, suck the tank empty using an oil suction device.
6. Replace the return filter (7) with a new filter.
7. Screw the drain plug (6) back on.
8. Remove the breather plug (8) and slowly fill with new hydraulic oil. Fill the oil until the oil level is at the middle of the level glass (9).
9. Lastly, fit the filler neck (5), breather plug (8), side cover (4) re-using the five bolts (3).

10.6 Knives

The wood chipper is fitted with four knives.

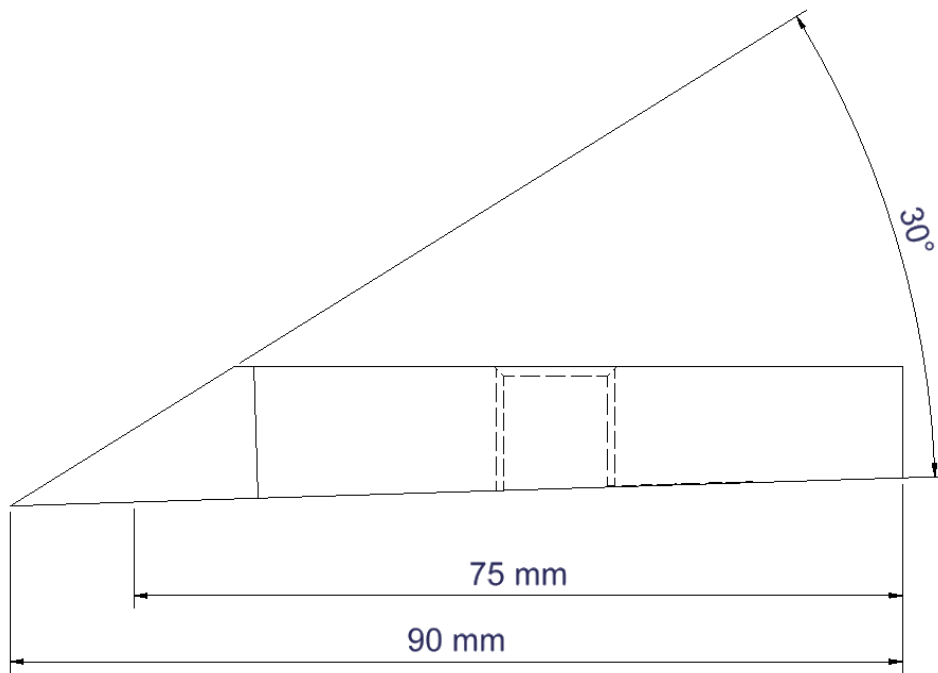
The knives must always be changed as a set. The knives belong together in sets, also when they are ground so that they are always of equal width. If the knives are not of equal width, the disc will be out of balance, which will lead to unnecessary strain on the bearings and vibrations in the whole wood chipper.

Replacing the knives



1. Open the disc housing as described in chapter 7.
2. Remove the bolts (2) that hold the knives and clamping plates (3)/silver breaker securely to the disc.
3. Remove the knives and sharpen/replace.
4. Carefully clean the knives (1), clamping plates (3)/silver breaker and contact faces.
5. When fitting the knives (1), the bolts (2) **must** be lightly oiled ($\mu=0.125$), i.e. light oil, WD 40 or an equivalent product. Do **not** use copper grease, MoS₂ or similar low friction grease.
6. Check that the distance between the knife edge and the counterknife is set correctly to **D** (see chapter 10). Check all of the knives.
7. Tighten the bolts (2) to **110 Nm / 11 Kpm**. Use a torque spanner for this purpose (available as extra equipment).
8. Finally, close the disc housing as described in chapter 7.

Sharpening knives



It is very important for the quality of woodchip that the knives are sharp. They must be checked at least once a day. The grinding interval of the knives can be prolonged by grinding them regularly with a carborundum stone.

The grinding process must be **wet grinding** with a header. **Never** use an angle grinder or a similar tool for grinding the knives.

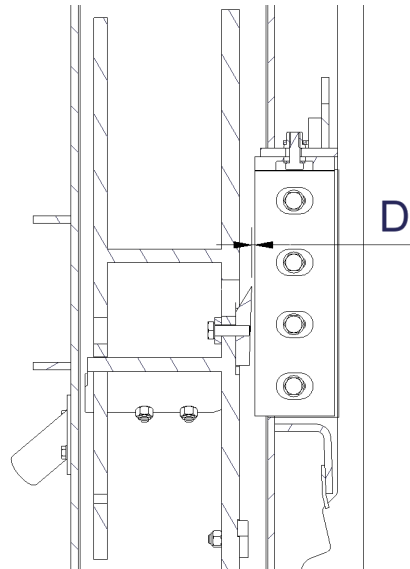
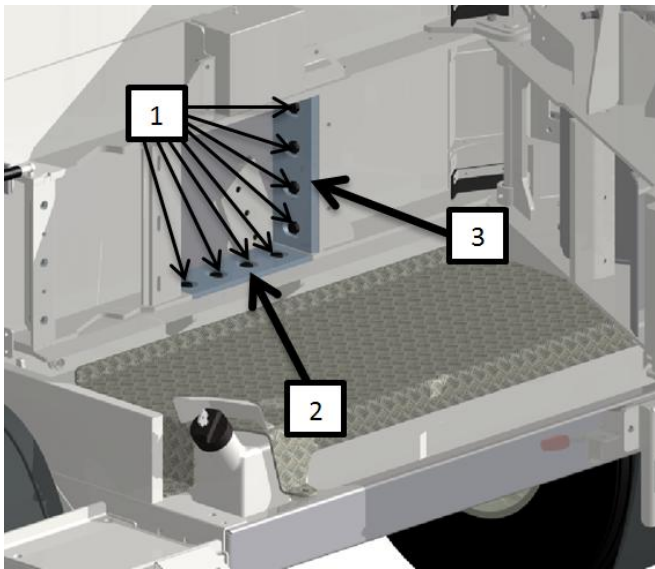
When grinding knives, ensure that the width of the knives in the set are uniform. Their widths must be the same to keep the disc in balance. This means that the knives must always to be ground in sets. The knives must not be ground down to a width of less than 75 mm. After that they must be discarded.

The edge of the knives must be ground at an angle of 30°

10.7 Counterknife

The counterknife in the wood chipper is used by the knife to cut the wood. The counterknife must have a sharp edge otherwise the wood will bend and the cutting face become frayed. The wood chipper is equipped with a vertical counterknife in one side of the in-feed and a horizontal counterknife in the base. The horizontal counterknife has two cutting edges and therefore can be reversed.

Changing the counterknife



D = 1.5 mm

1. Open the TP EASY SERVICE as described in chapter 7.
2. Remove the bolts (1) that hold the respective counterknife (2, 3) in place.
3. Take out the counterknife (2,3) and reverse/replace.
4. Carefully clean the counterknife (2,3) and contact surface.
5. Re-fit the counterknife (2,3) and adjust the distance between the knife edge and the counterknife to distance **D** using a precision feeler gauge (see illustration above).
6. The bolts in the horizontal (2) and vertical (3) counterknife must be tightened to **110 Nm / 11 Kpm** Use a torque spanner for this purpose (available as extra equipment).
7. Once the counterknives (2, 3) have been reversed or replaced and all of the bolts (1) have been tightened, close the TP EASY SERVICE as described in chapter 7.
8. Finally, close the disc housing as described in chapter 7.

10.8 Square and triangle wipers and scrapers

The wood chipper is equipped with two square wipers on the disc and a triangle wiper in the disc housing.

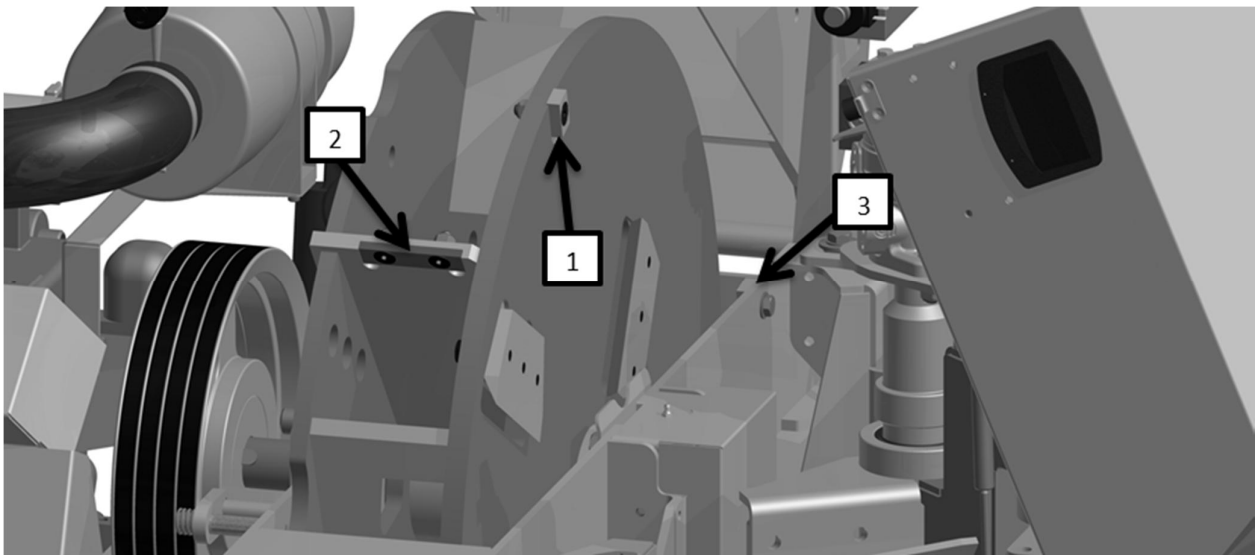
The purpose of the wipers is to remove material that can get stuck by the knives.

At the same time, the square wiper removes material which falls off in front of the disc.

This reduces fuel consumption and wear on the casing.

The square wiper can be reversed once, before being replaced, while the triangle wiper should always be replaced when they are worn. The square wipers belong together as a set and must always be replaced in pairs.

Changing the square and triangle wipers



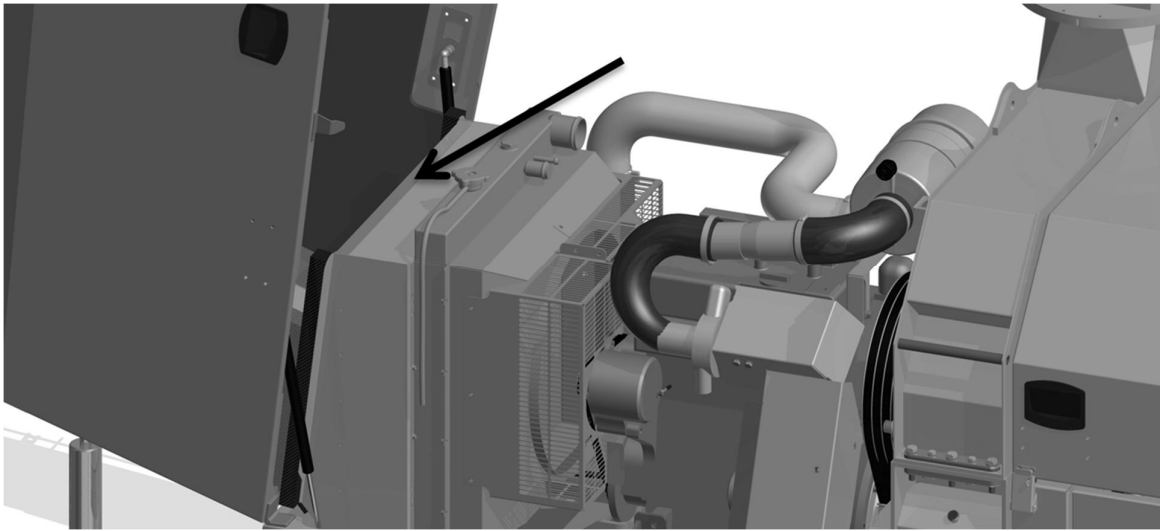
1. Open the disc housing as described in chapter 7.
2. Remove the two square wipers (1), the four scrapers (2) and the triangle wiper (3).
3. Reverse the square wipers (1) 180 degrees around the bolt hole, so that the worn corners face in towards the disc's centre of rotation. If both corners or sides are worn, replace the square wipers.

Reverse the square scraper (2) 180 degrees so that the worn side faces into the disc's centre of rotation. If both sides are worn, replace the scrapers.

The triangle wiper (3) cannot be reversed and must always be replaced.

4. Clean the contact surfaces and the square and triangle wiper (1, 3)/scrapers (2) and re-fit.
5. Finally, close the disc housing as described in chapter 7.

10.9 Cleaning the filter in front of the radiator



There is a fitted filter in front of the radiator that collects particles that are too big to pass through the actual radiator. The arrow on the illustration above indicates the positioning of the filter.

Cleaning procedure:

1. Stop the wood chipper and the engine. Open the bonnet and lift the filter out of the "track".
2. Filter cleaning procedure:
 - Knock the dust off carefully by hitting the frame of the filter on the ground or on a piece of wood.
 - Clean using compressed air from the "cooling side".
 - Clean using a high-pressure cleaner. Only used for extreme clogging and must be dried before starting the wood chipper.

Generally you get fewer stoppages by ensuring the wind does not blow dust from the ejector spout directly into the cooler.

10.10 Related to battery

Welding



When welding on the wood chipper, the cable that is connected to the battery's negative pole must always be disconnected (look for the " - " symbol on the battery).

Charging the battery



If the battery is to be charged from another power source, the cable that is connected to the battery's negative pole must always be disconnected (look for the " - " symbol on the battery).

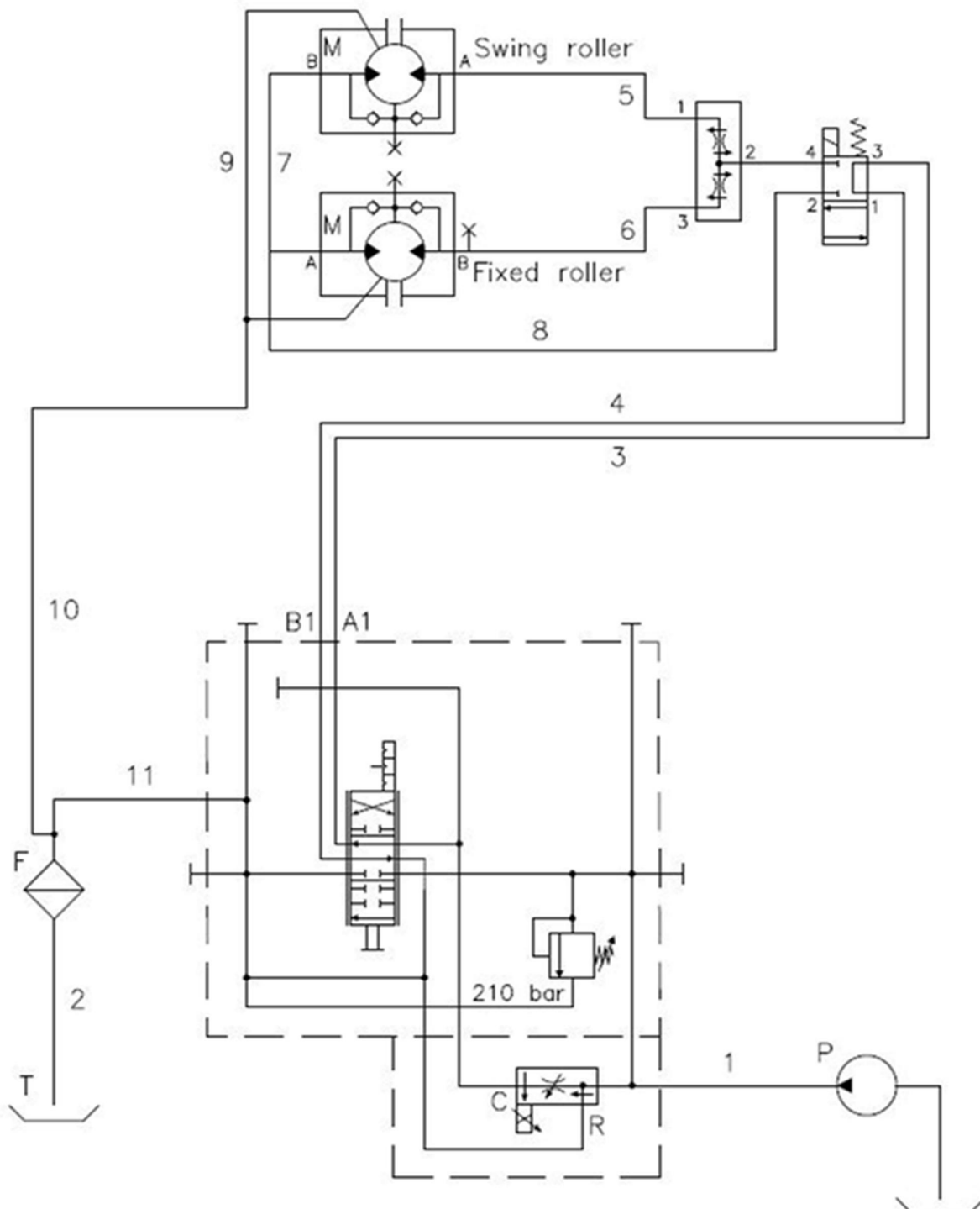
11 Hydraulics

11.1 Replacing hydraulic hoses

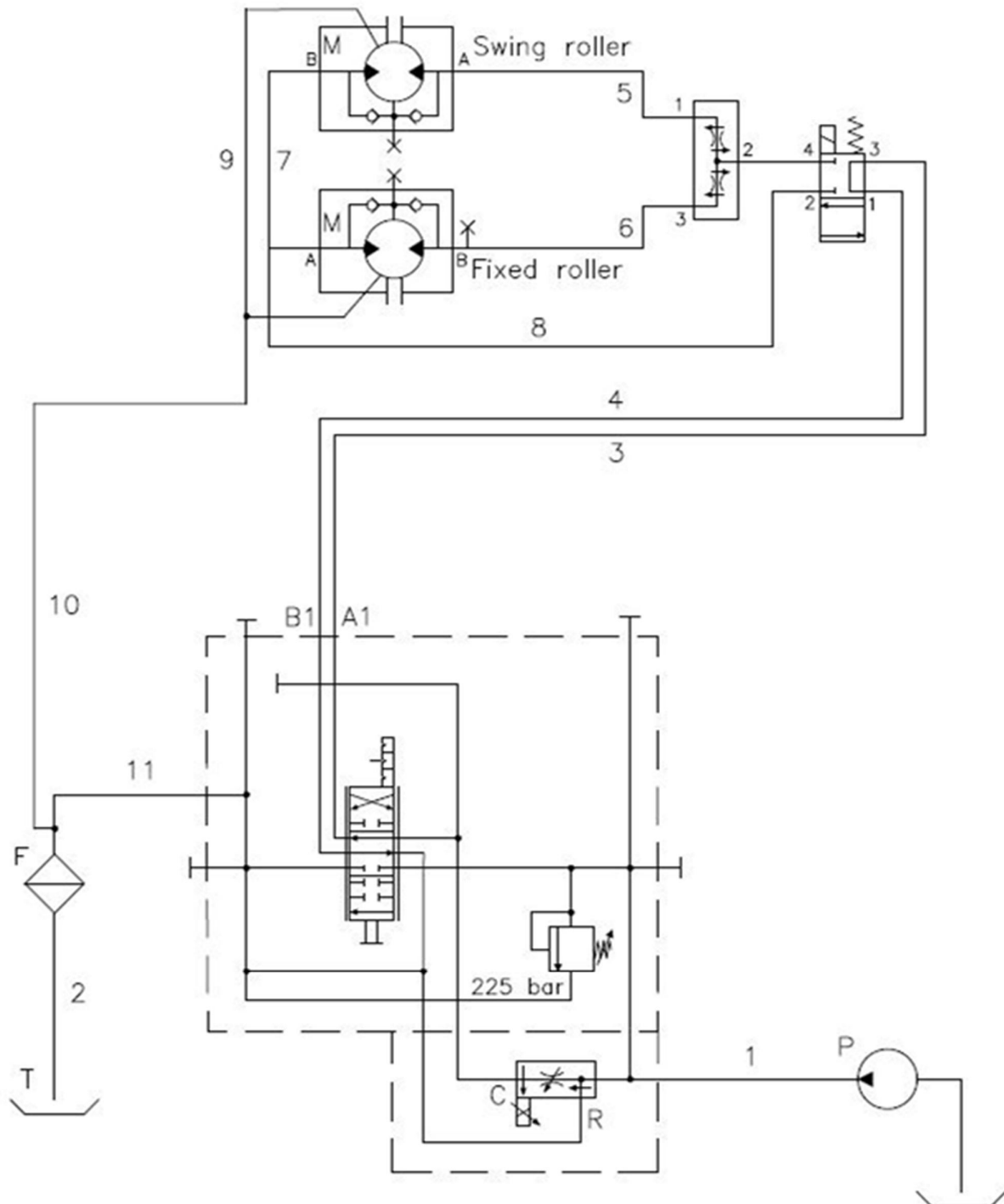
If a hydraulic hose bursts, it must be replaced. All TP hydraulic hoses are stamped with a product number in the hose's fitting. This product number is used to identify the hydraulic hoses.

When replacing hydraulic hoses, always use original TP hoses.

11.2 Hydraulics diagram, TP 235 MOBILE



11.3 Hydraulics diagram, TP 275 MOBILE



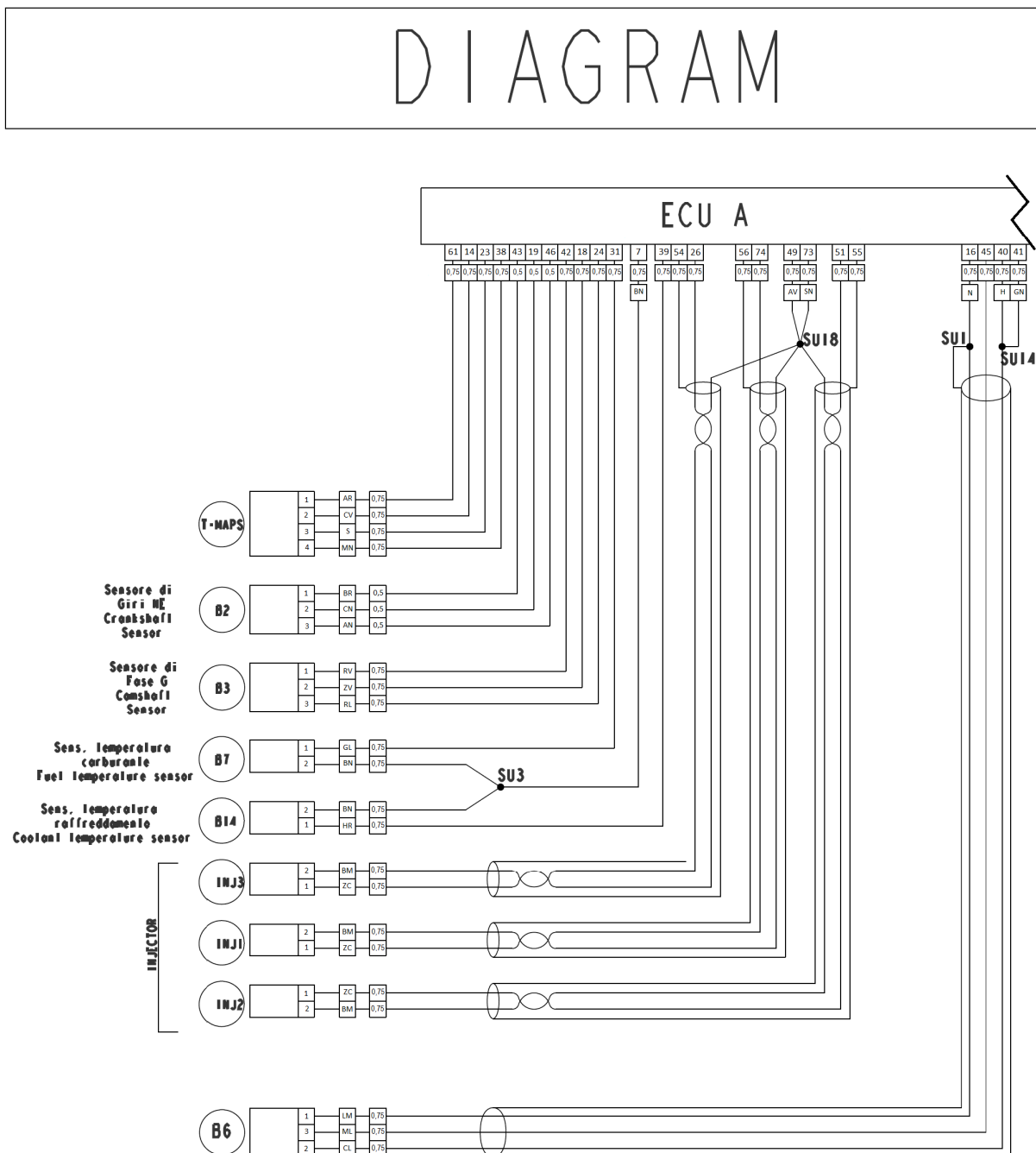
12 Electrical diagram TP 235 and TP 275

The electrical diagram for both the engine and TP NAVIGATOR is shown here. For the engine both in diagram form and the full power line. TP NAVIGATOR has the diagram and overview of the connections.

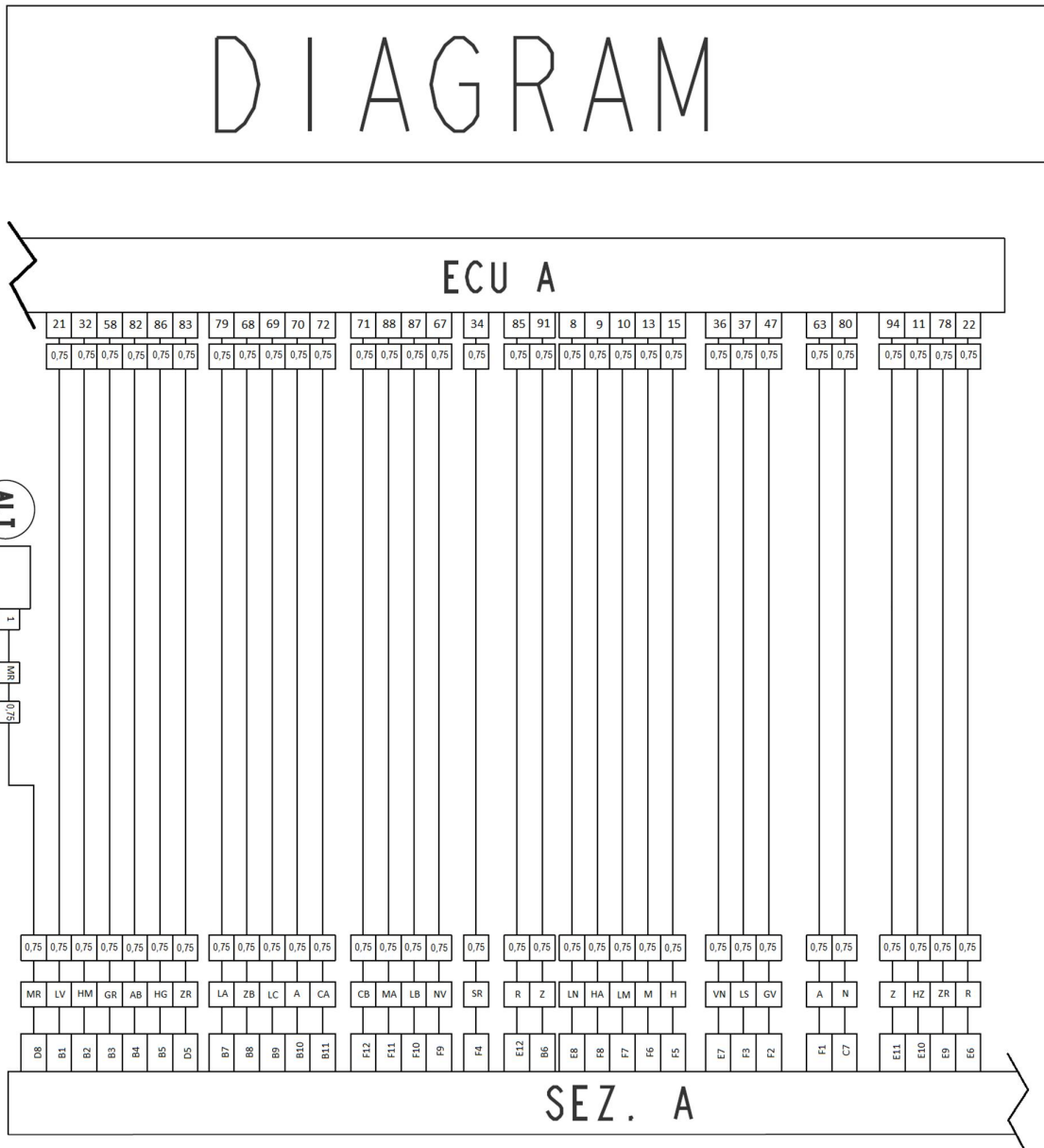
The diagrams and power line are so comprehensive that they are divided into several images, with interfaces where appropriate. NB: SEZ. A = Molex connector, connects the TP NAVIGATOR and engine.

12.1 Diagram engine

SEZ. A is divided into several illustrations. Part 1 is shown below.

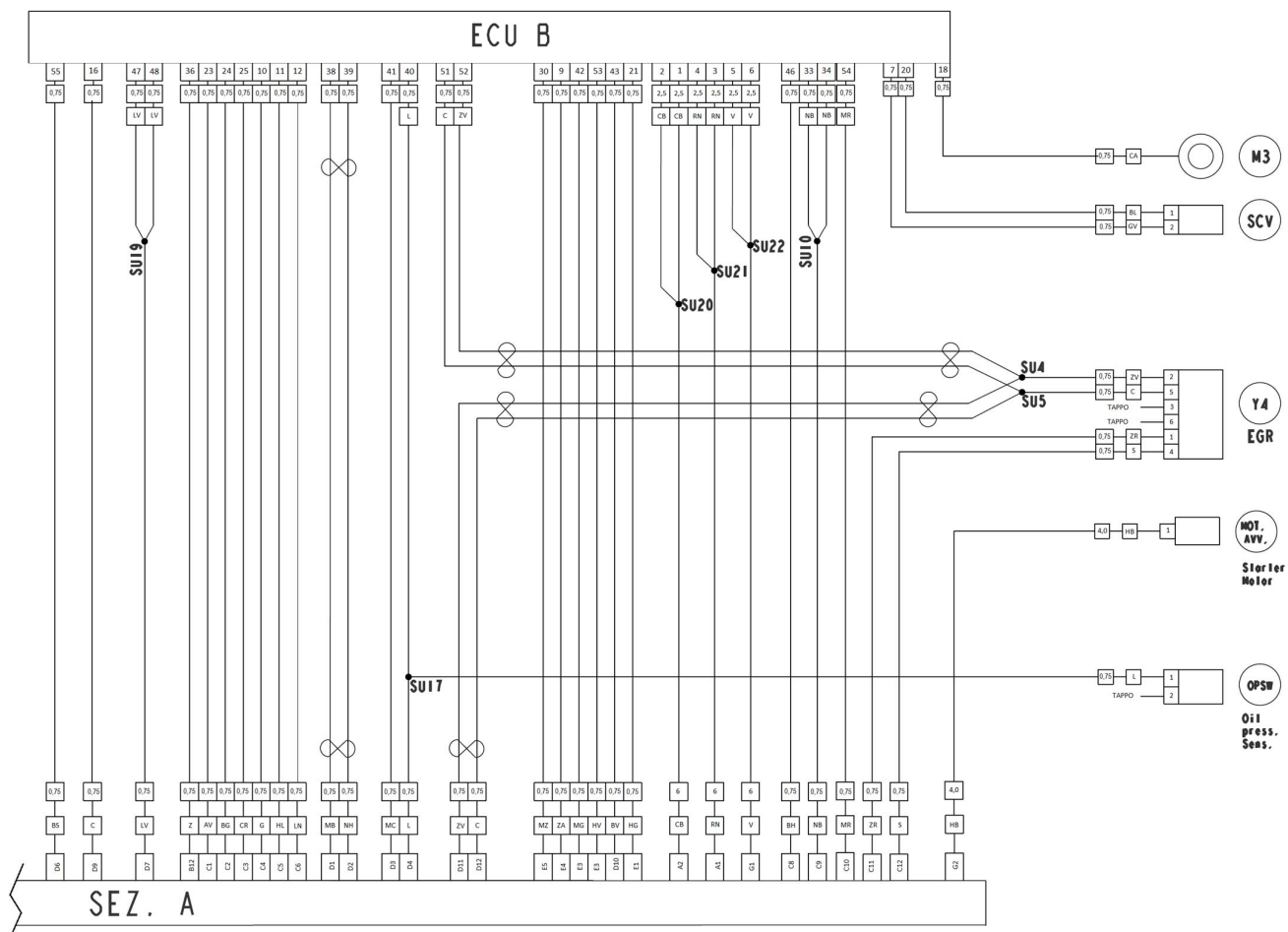


Part 2 of engine diagram:



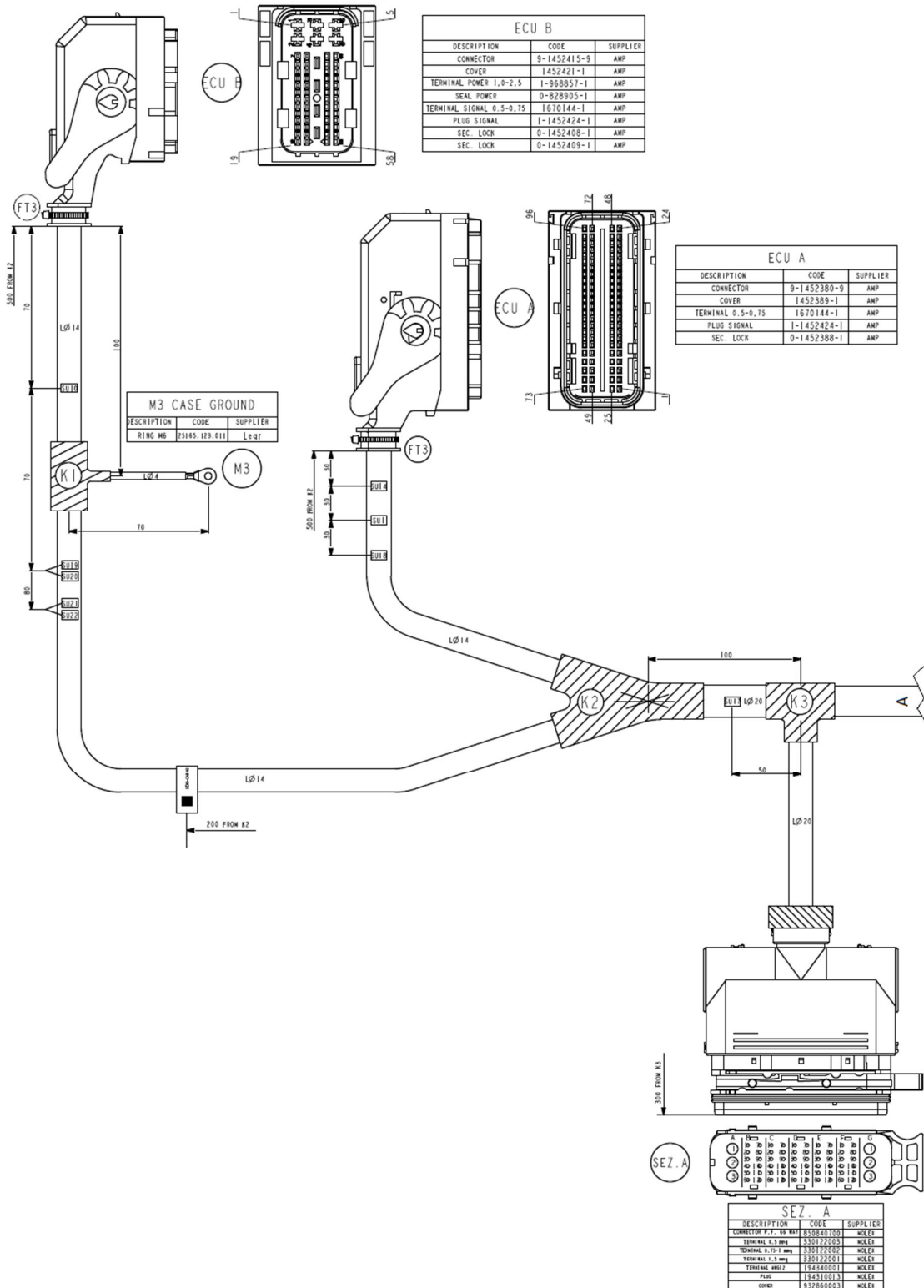
Part 3 of engine diagram.

SCHEMA ELETTRICO / DIAGRAM

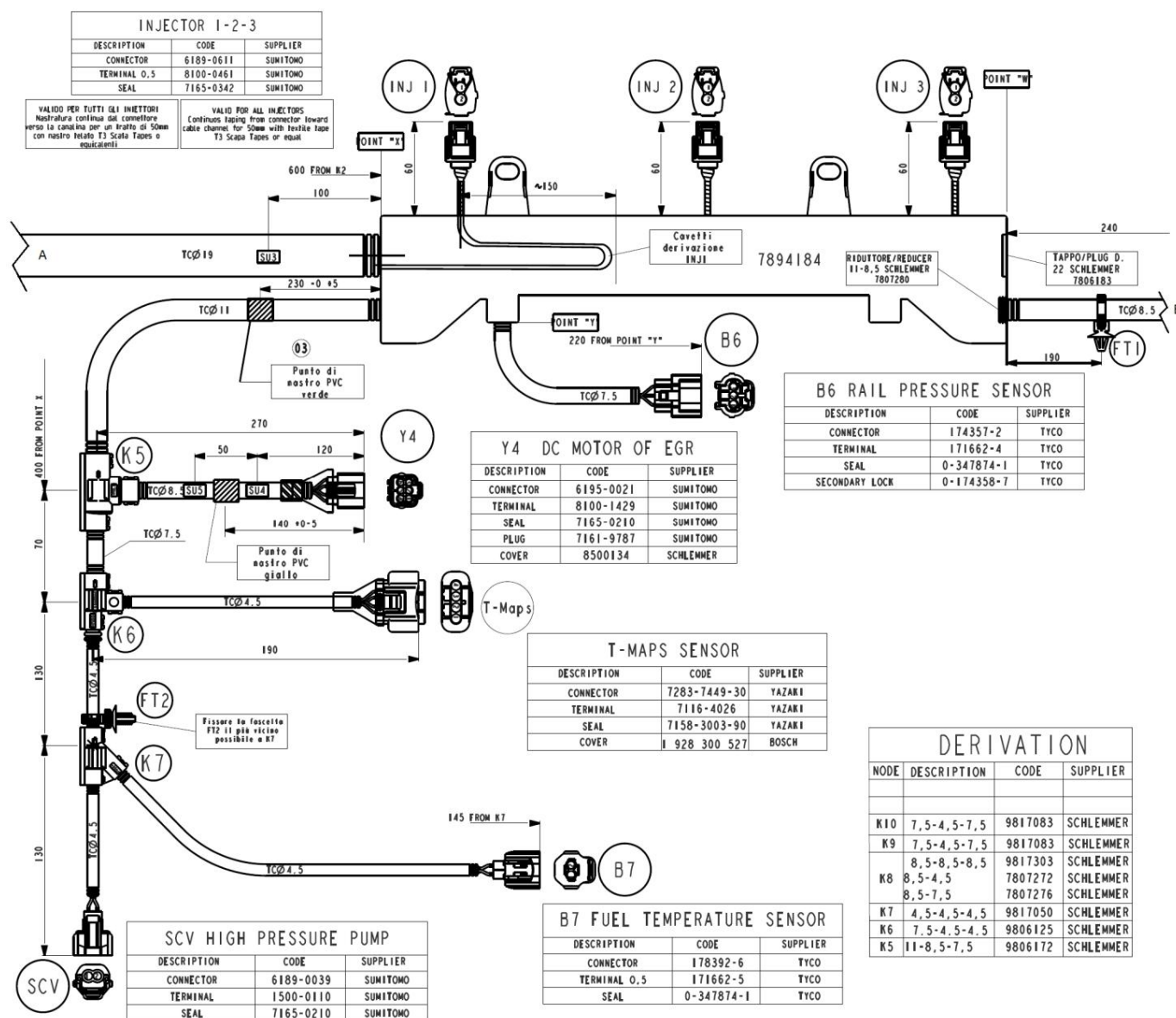


12.2 Power line on engine

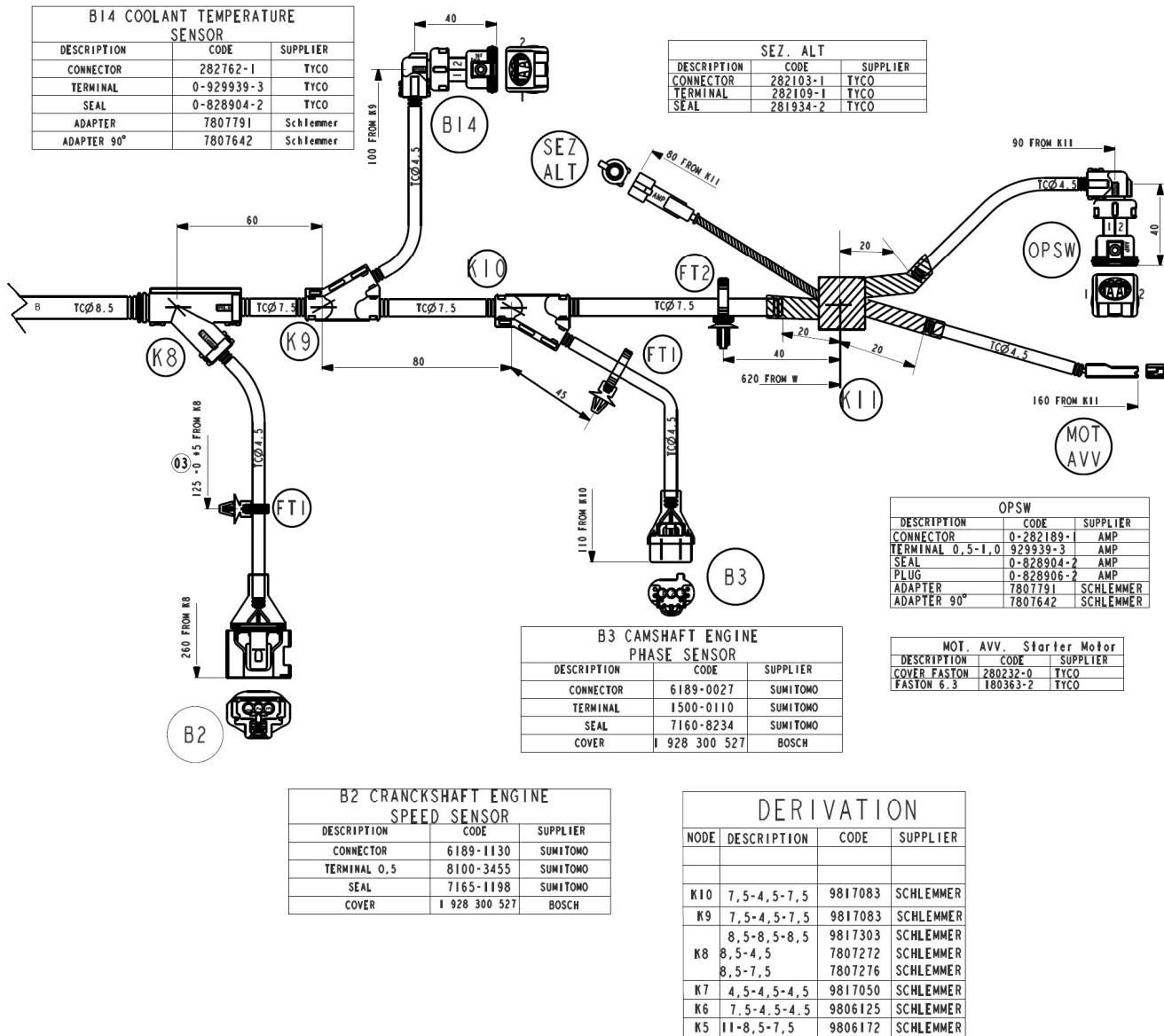
The power line from the engine is also divided into several illustrations. Part 1:



Part 2 power line engine. The only difference on the TP 235 and TP 275 is that the TP 235 has 3 INJ (injector, injector valves) and TP 275 has 4 INJ (injector, injector valves). The model shown is a TP 235. The last injector valve on the TP 275 is positioned following on from the other injection valves.



Part 3 power line engine:



12.3 Diagram TP NAVIGATOR

Diagram of de-central job computer (Jobmini)

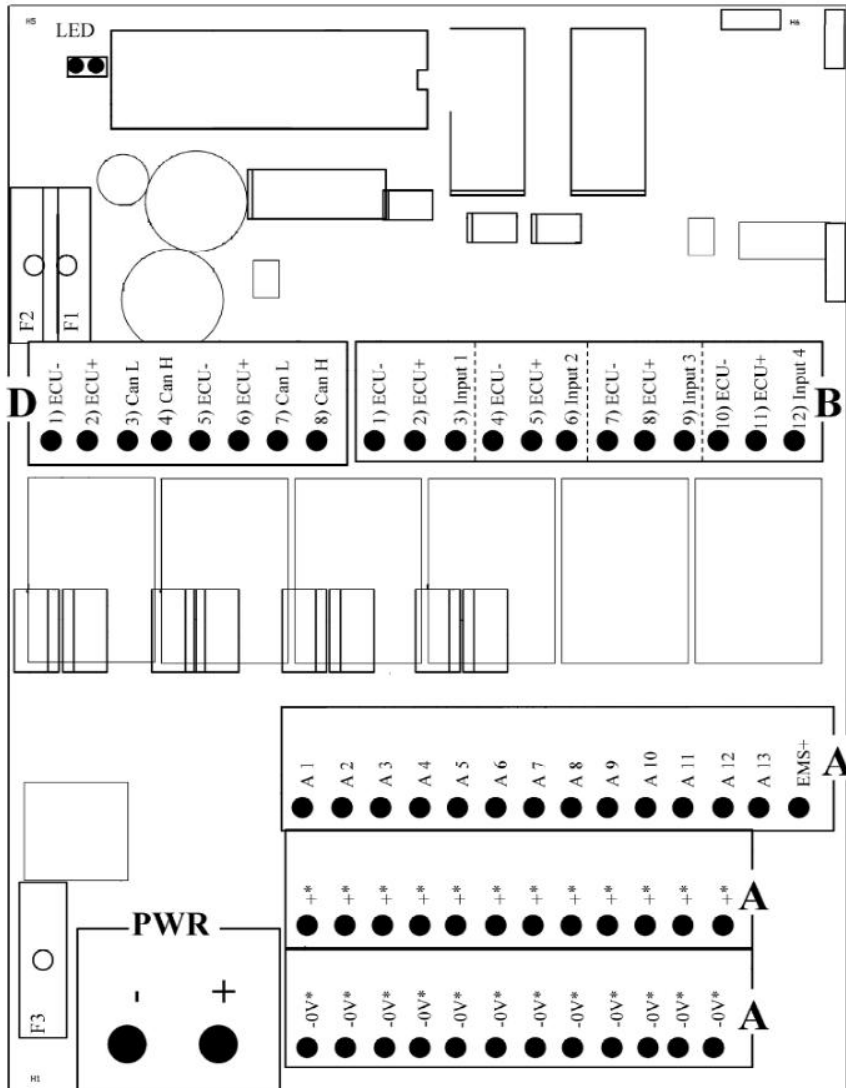
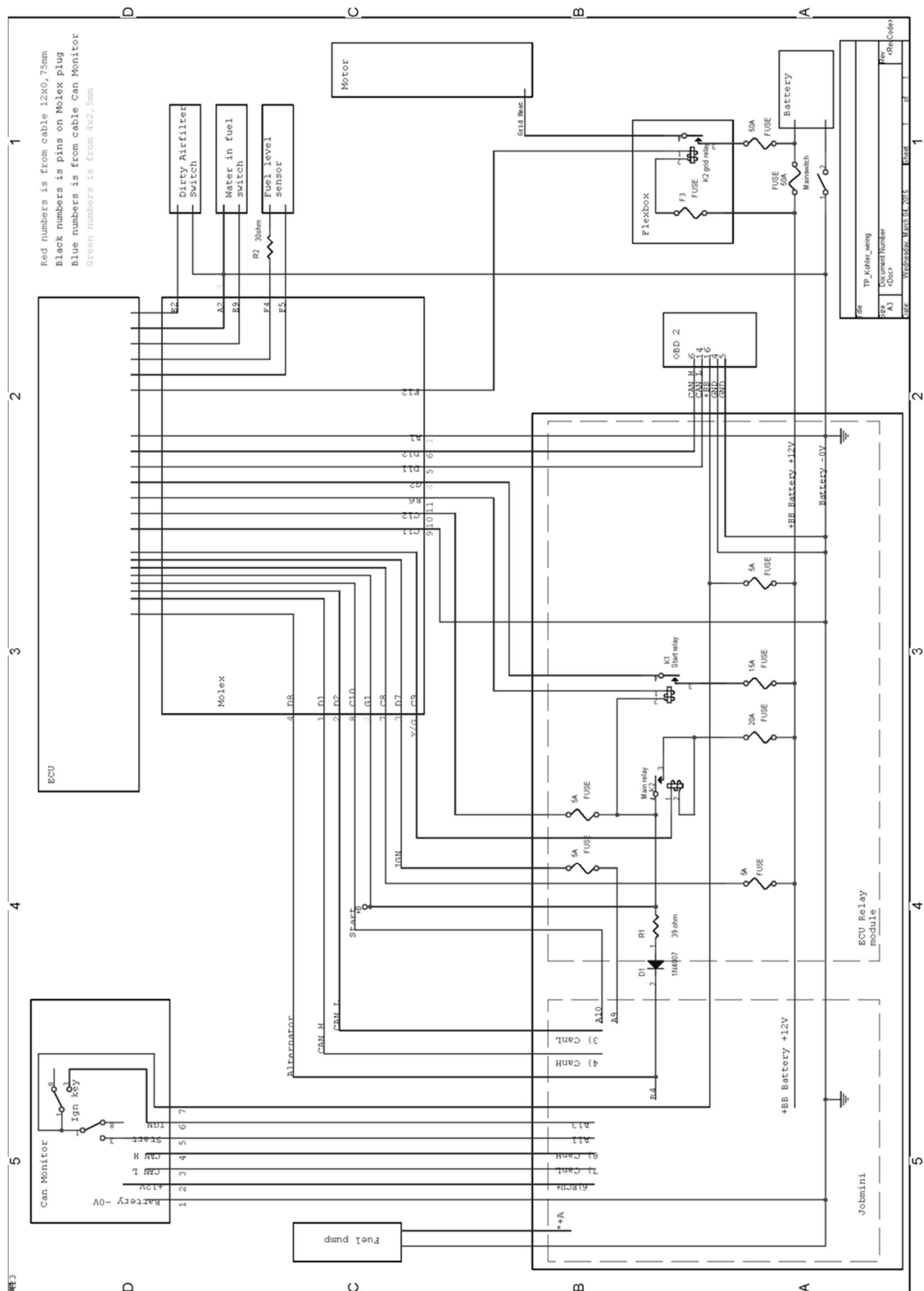


Diagram of fuses.



- Ignition fuse
- EGR valve fuse
- Main relay fuse
- Start relay fuse
- Screen and OBD2 fuse

Connections diagram TP NAVIGATOR.



13 Troubleshooting

Check possible causes before contacting the supplier.

Problem/Possible cause	Solution
The rollers do not turn: <i>The operation bar is in the 0 position.</i> <i>The rollers are blocked.</i> <i>Bypass valve to rpm monitor is dirty.</i> <i>rpm monitor is not connected to the rollers.</i> <i>Chip Size Controller valve coil defect.</i>	Put the operation bar in the A position Clean below and behind the blocked roller(s). Clean the bypass valve. Check rpm value on disc/engine. Check for voltage on valve coil. (4–12 V)
The rollers rotate too slowly: <i>Chip size set for too low a value.</i> <i>Not enough oil in the hydraulics system.</i>	Increase chip size in TP NAVIGATOR. Fill up with hydraulic oil.
Pulling power in the rollers is impaired: <i>The hydraulic oil is becoming too hot.</i> <i>The hydraulic filter is blocked.</i> <i>The pressure control valve at the roller speed regulator is dirty.</i> <i>Hydraulic oil is worn.</i> <i>The oil pump is worn or damaged.</i> <i>The oil engine is worn or damaged.</i>	Let the wood chipper cool down while checking why. Replace the hydraulic filter. Clean the pressure control valve. Change the hydraulic oil. Replace the hydraulic pump. Replace the oil engine.
Unsatisfactory woodchip quality: <i>The knives are blunt.</i> <i>The counterknife is worn.</i> <i>The knives are worn down too far.</i> <i>The distance between knife and counterknife is too big.</i> <i>Sliver breaker not mounted or worn.</i> <i>Facing plate is not fitted.</i>	Sharpen the knives. Reverse/replace counterknife. Replace the knives. Adjust the distance between the knives and counterknife. Fit or replace the sliver breaker. Fit facing plate.
Poor ejection of woodchip: <i>Not enough driving power.</i> <i>Wipers/scrapers are worn.</i> <i>The facing plate in the top part</i>	The engine does not provide sufficient power. Replace the wipers/scrapers Remove the facing plate from the top part

14 Warranty terms wood chipper

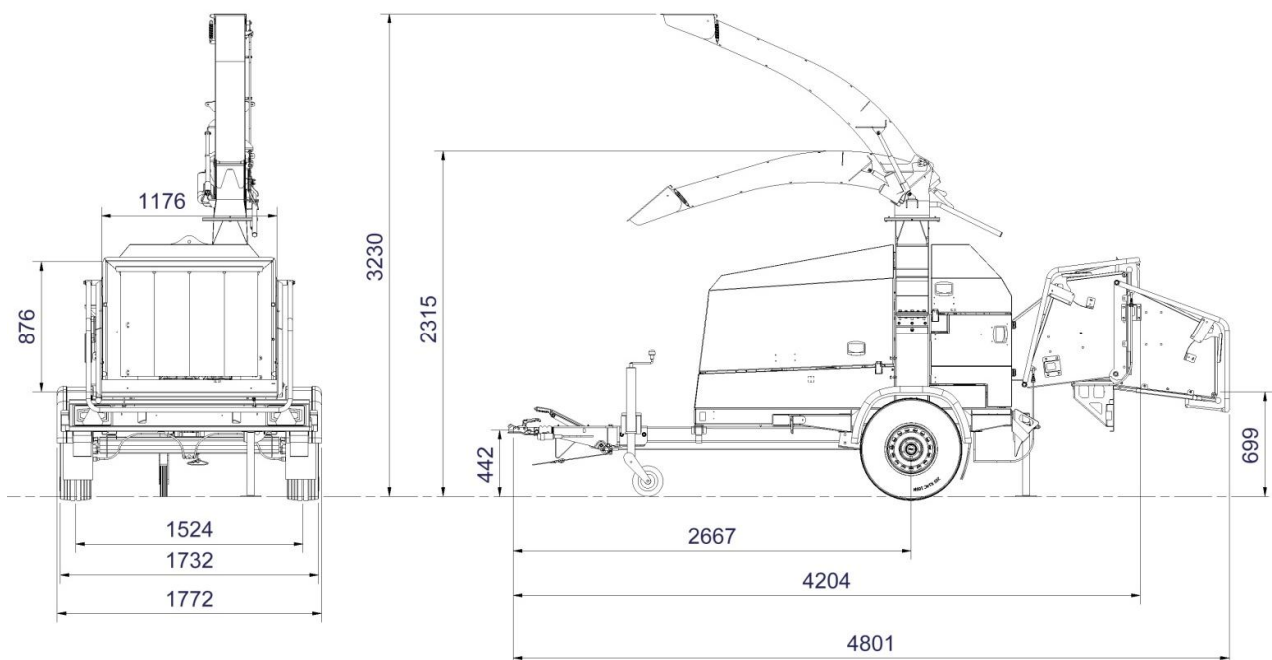
Refer to the delivered warranty certificate.

15 Technical data wood chipper

Type	TP 235 MOBILE	TP 275 MOBILE
Chipping principle	Disc chipper	Disc chipper
Disc diameter, mm	835	835
Disc weight, kg	193	193
rpm disc	1160	1370
Total number of knives	4	4
Engine	KDI 1903TCR	KDI 2504TCR
Power, kW/(HP)	41/(56)	55/(74)
Fuel type	Diesel	Diesel
Max. wood diameter, mm	235	275
Chip length, mm	6–14	6–14
Knife position, mm	14	14
Tyre fitting	205 R14C	205 R14C
Tyre pressure, bar/PSI	4.5/65	4.5/65
Deadweight	1860	1900
Permitted total weight, kg	1950	1950

We reserve the right to make changes to the design and specifications without notice.

Dimensional drawing for TP 235/275 MOBILE



16 Extra equipment

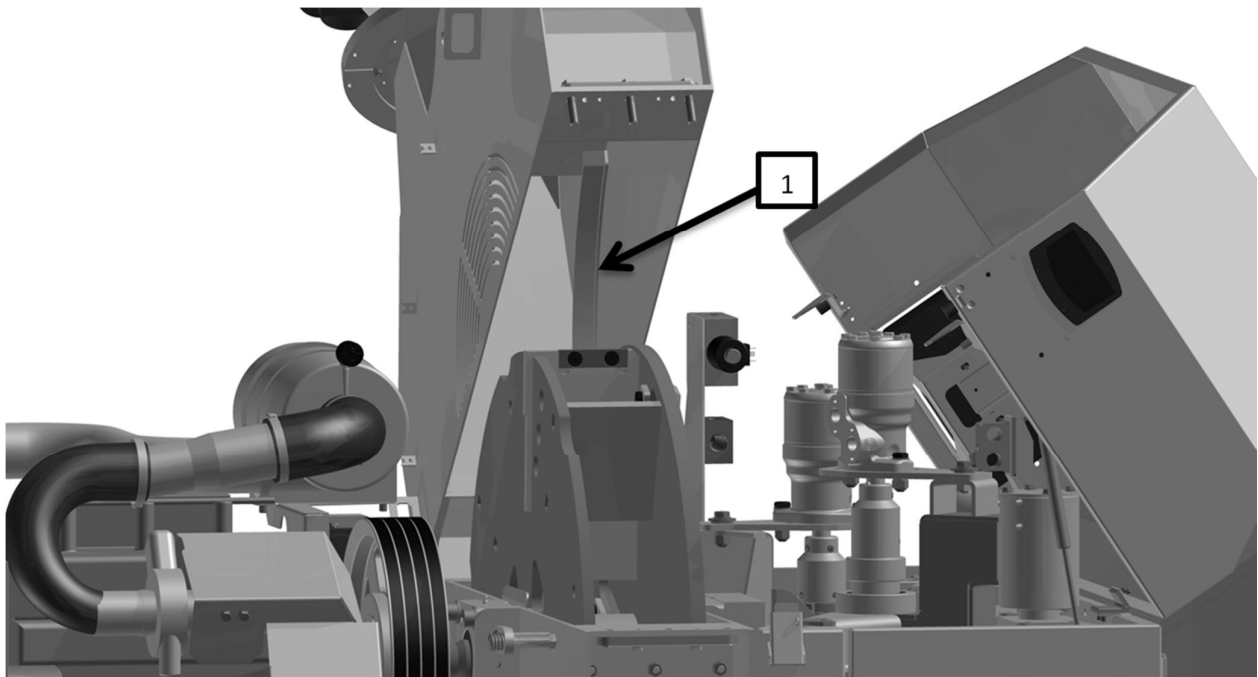
16.1 TP CHIPKIT

The TP CHIPKIT includes four sliver breakers which are fitted to the knife opening in the disc and a facing plate, which is fitted to the top in the disc housing.

The TP CHIPKIT provides significantly improved wood chip quality. If woodchip quality is not an important factor, it will be beneficial if the facing plate and the sliver breakers are removed. This will increase the capacity of the wood chipper and save fuel.

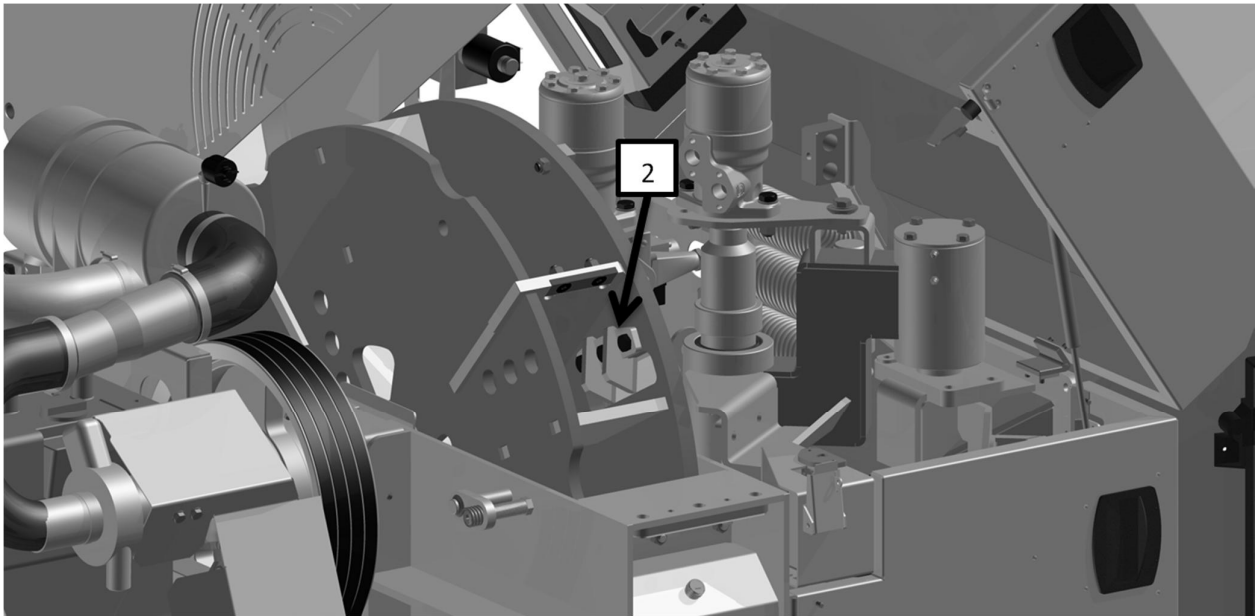
It is also recommended that the facing plate and the sliver breakers are removed when chipping wet wood with a lot of needles/leaves. This ensures good ejection.

Replacing the facing plate



1. Open the disc housing as described in chapter 7.
2. Remove the facing plate (1), which is fitted with three bolts in the side of the top disc housing.
3. Replace the facing plate (1) if it is worn.
4. Fit the new facing plate (1).
5. Finally, close the disc housing as described in chapter 7.

Replacing the sliver breakers



1. Open the disc housing as described in chapter 7.
2. Remove the bolts that secure the knife and clamping plate/sliver breaker (2) to the disc.
3. Replace the sliver breakers (2).
4. Carefully clean the knife, sliver breaker (2) and contact surface.
5. When fitting the sliver breaker, the bolts **must** be lightly oiled ($\mu=0.125$), i.e. light oil, WD 40 or an equivalent product. Do **not** use copper grease, MoS₂ or similar low friction grease.
6. Check that the distance between the knife edge and the counterknife is set correctly to **D** (see point 10).
7. Tighten the bolts to **110 Nm / 11 Kpm** Use a torque spanner for this purpose (available as extra equipment).
8. Finally, close the disc housing as described in chapter 7.

16.2 TP TOOLKIT



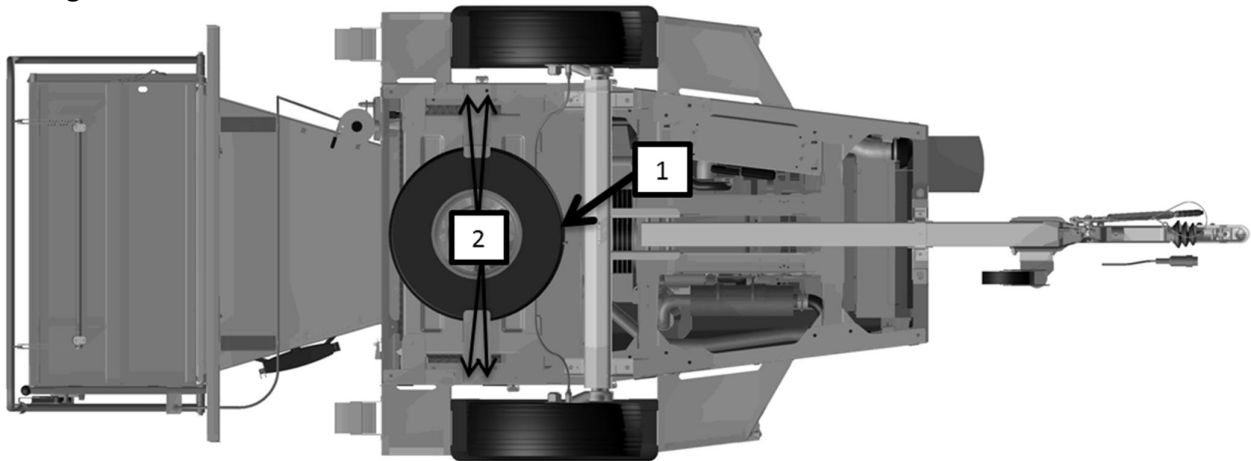
The TP TOOLKIT contains:

- Tool bag
- Combination wrench 13 mm
- Combination wrench 19 mm
- Grinding stone "Flexovit"
- Precision feeler gauge 1.5 x 150 mm
- Torque wrench 5-30 kPm
- WBW-VLL extender 1/2" - 250 mm
- WBM TOP 1/2" - 6 KT/19 mm
- Spring strap

16.3 TP SPARE WHEEL

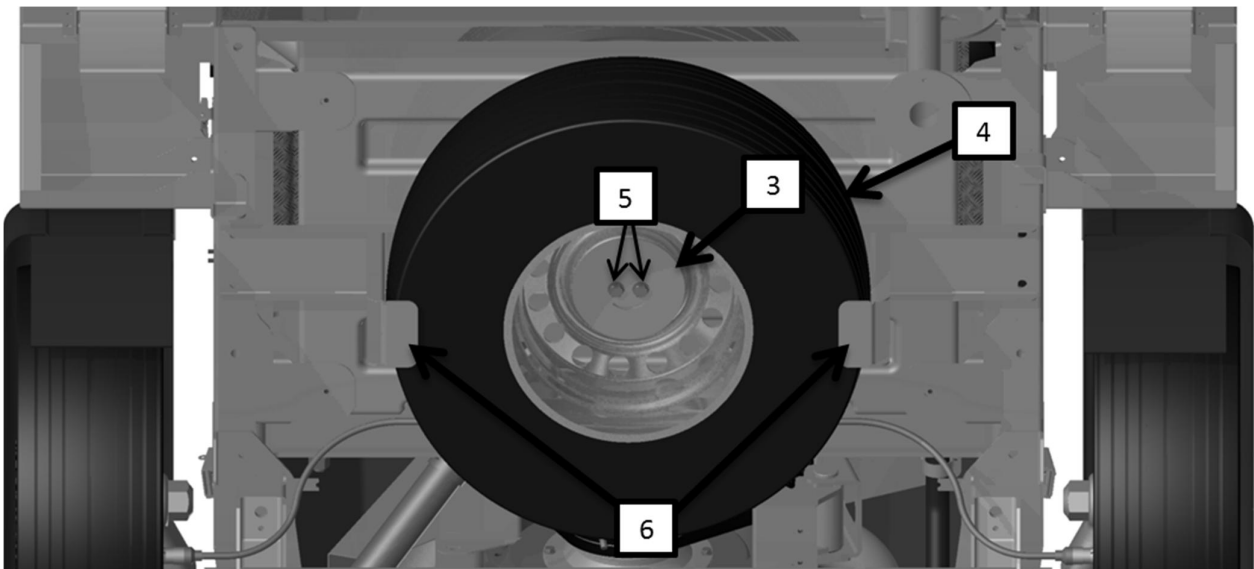
TP SPARE WHEEL contains the spare wheel and fitting for fitting the wheel.

Fitting TP SPARE WHEEL



1. Ensure that the wood chipper is stabilised with the support leg and nose wheel set, so that it cannot tip over.
2. Fit the TP SPARE WHEEL (1) onto the wood chipper using four bolts (2).

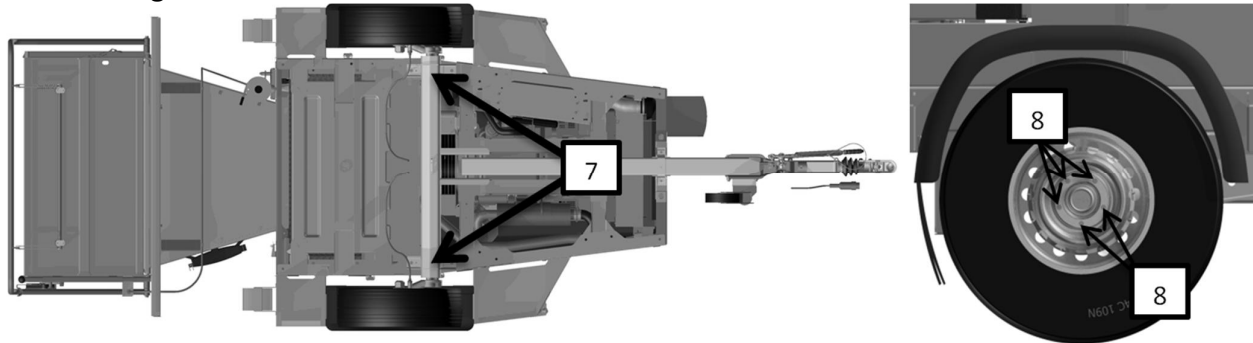
Removing the spare wheel



1. Ensure that the wood chipper is stabilised with the support leg and nose wheel set, so that it cannot tip over.
2. Remove the wheel holder (3) which holds the wheel (4) by removing the bolts (5). Now hold the wheel (4) up from the wheel carriage (6).

3. Pull the wheel (4) out of the wheel carriage (6) so that it lands on the ground. The wheel is now ready to replace the punctured or damaged wheel on the wood chipper.

Wheel change



1. Use the jack to lift wood chipper using one of the two lifting points (7) depending on which wheel is to be replaced. Always put blocks against the wheel until you change the wheel!
2. Remove the wheel bolts (8) that secure the wheel to the wheel axle.
3. Now replace the wheel with the spare wheel and secure the spare wheel using the wheel bolts (8). Tighten the wheel bolts to 120 Nm.
4. Finally, fit the punctured/damaged wheel inside the spare wheel holder.

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