User Manual and Spare Parts Catalogue

TP 165 MOBILE
TP 176 MOBILE
TP 176 TRACK

DESIGNED
+
MANUFACTURED
DENMARK

RELIABLE CHIPPING



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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 that you read the user manual before use.

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

Linddana A/S



Hans Anker Holm, CEO

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

Dealer stamp

Applies to Denmark (for all other countries contact the local TP dealer):
Linddana provides a knife sharpening service, so your knives can be sharpened and sent back on the same day as they are received (for more details tel.: 76904045)

To keep your wood chipper in top condition and prolong its lifetime, Linddana offers a service contract, under which the wood chipper will be checked once a year by our technician, ideally in collaboration with the user. In addition to a technical check, the user will be given advice on the use and maintenance of the wood chipper.

1 EU Declaration on Conformity



Manufacturer:

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

Wood chipper:

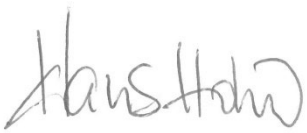
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and accompanying extra equipment is in conformity with the requirements of the Machinery Directive (Directive 06/42/EC) and with the national legislation which translates this directive;

It is also in conformity with EC Directive
2000/14/EC

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

Title: CEO
Name: Hans Anker Holm



Ølholm, 27. February 2025

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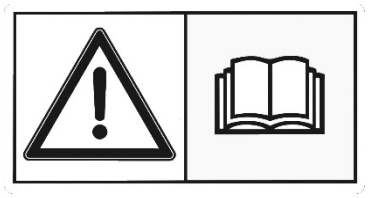
3 Use and safety

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.

3.1 Mandatory Instructions and Warnings

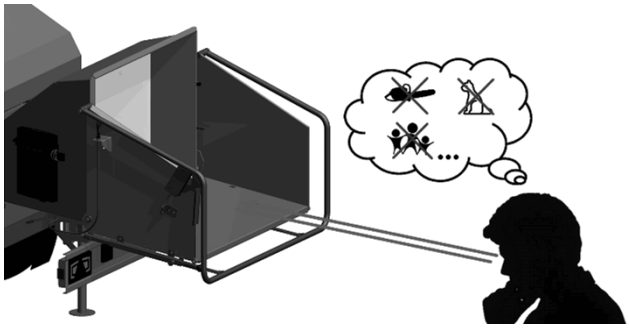
3.1.1 Before use



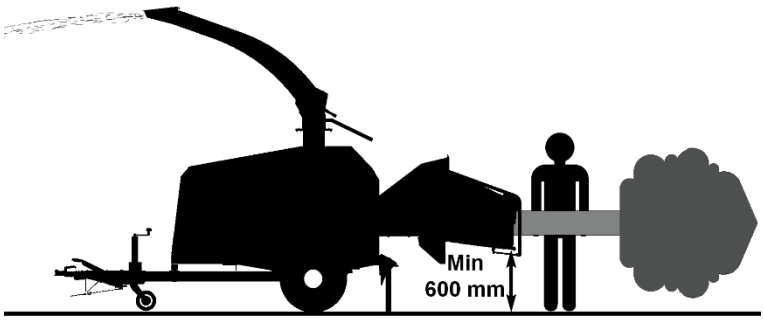
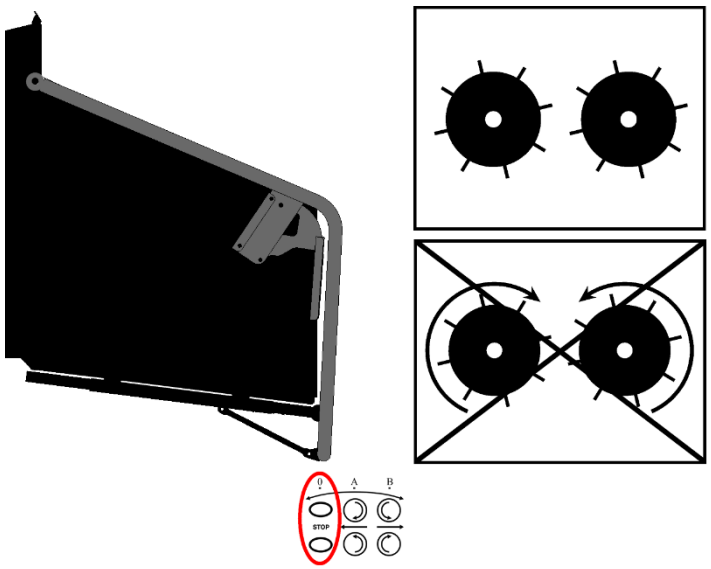
ALWAYS read the user manual before using the wood chipper.
Remember to store the user manual in the manual box.



ALWAYS wear ear protectors, safety goggles, close fitting safety clothing and safety shoes.



ALWAYS ensure that the funnel is free of people, animals and other foreign bodies before starting the wood chipper.

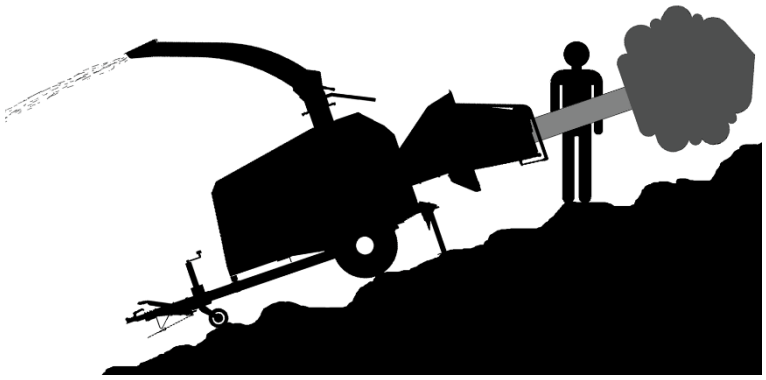
	ALWAYS ensure that all of the guards are securely closed/fitted before starting the wood chipper.
	ALWAYS ensure that the wood chipper is safely parked before starting the wood chipper.
	 **ALWAYS** ensure that there is more than 600 mm of clearance between the ground and the wood chipper's lowest funnel edge and that it stands on a level surface.
	 **ALWAYS** ensure that all safety devices function correctly before starting the wood chipper. This applies in particular to the safety bar's STOP function.
	ALWAYS check the ground conditions around the wood chipper. Falling down in the vicinity of the wood chipper can be hazardous.



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).



NEVER operate the wood chipper if under the influence of alcohol or narcotic substances.



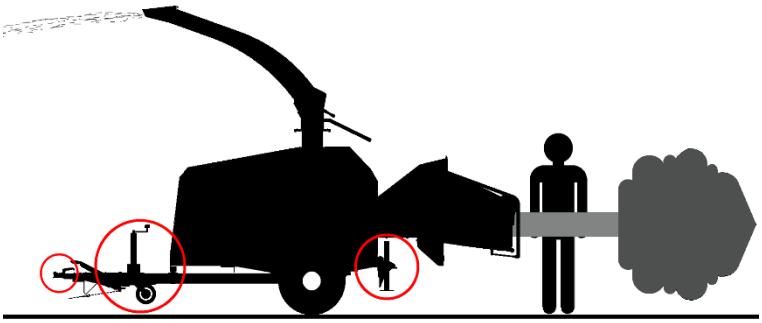
NEVER operate the wood chipper on uneven or inclined surfaces.

NEVER start the wood chipper without the ejector spout fitted.

NEVER use the wood chipper in enclosed or poorly ventilated spaces, because of the danger of carbon monoxide poisoning.



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 woodchips are ejected.



NEVER operate or park the wood chipper without support from the jack and support leg or from the vehicle's trailer hitch.

NEVER use the wood chipper with material that is not wood.

NEVER use the wood chipper to push trees, stumps, etc.

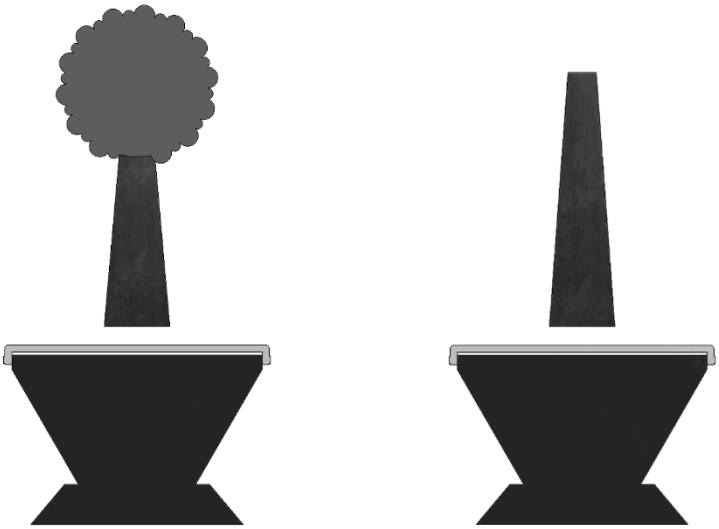
NEVER transport equipment in the funnel, such as forest chains, axes, chainsaws, etc.

3.1.2 During operation

	ALWAYS push the safety bar into the STOP position if a dangerous situation arises
	ALWAYS keep body parts away from the funnel and the wood chipper's other moving parts.
	 **ALWAYS** stand at the side of the funnel when the wood chipper is chipping trees with side branches.
	 **ALWAYS** push logs in from the rear of the log.

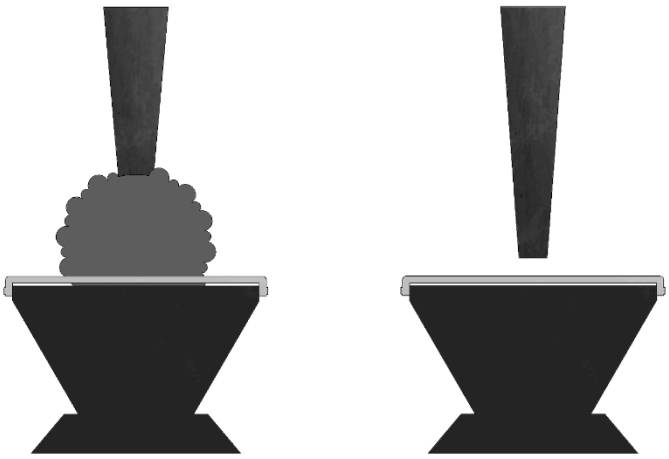


ALWAYS use a rod to push short pieces of tree into the rollers.



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.

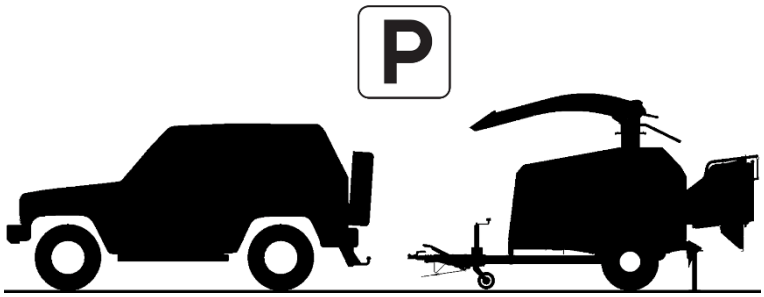
NEVER attempt to remove any trapped material from between the feed rollers before the wood chipper has stopped and the key has been removed and the roller console has been opened, as described in chapter 6.3.



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

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

3.1.3 Transport and parking

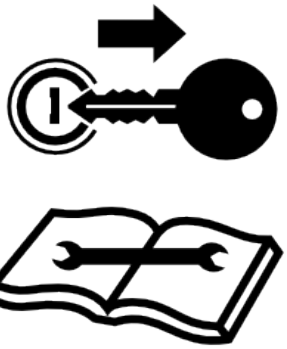
	ALWAYS comply with local public authority regulations when transporting the wood chipper on public roads.
	ALWAYS keep the ejector spout completely down in the bottom during transport. Remember to ensure that the transport lock is engaged.
	ALWAYS keep the ejector spout within the width of the machine 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 and locked using the pin).
	ALWAYS ensure that all of the wood chipper lights work correctly before transporting the wood chipper.
	 **ALWAYS** park the wood chipper on a level surface.



NEVER park the wood chipper on inclined or uneven surfaces.

3.1.4 Service and repairs





ALWAYS remove the key from the ignition and ensure that the disc has stopped moving before carrying out service or repairs.



ALWAYS ensure, after service or repair, that all of wood chipper bolts are fitted and tightened securely and that all of the safety devices are fitted and function properly.

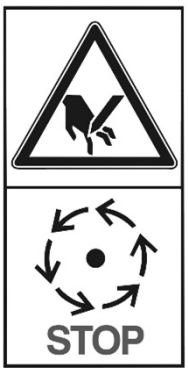


ALWAYS ensure that the knives, counterknives and rollers are kept sharp. This results in smoother in-feed, higher woodchip quality and less fuel consumption.



NEVER carry out service or repairs on the wood chipper while the key is in the ignition lock.





NEVER remove or open the guards before the disc has stopped moving.

3.2 Pictograms used

<table>
<tr>
<td>

Warning: Ejected objects!

Warning: Safety distance of 20m!</td>
<td>

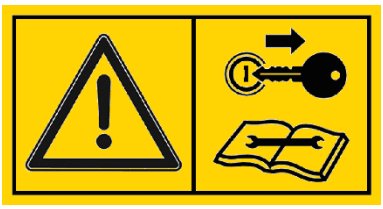
Warning: Rotating knives!

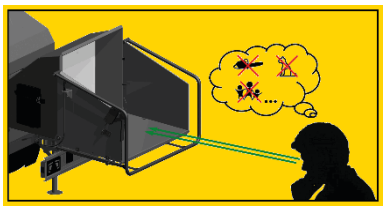
Warning: Wait for disc to stop!</td>
<td>
Warning: Risk of being pulled in!

Warning: Rotating rollers!</td>
</tr>
<tr>
<td>
Warning: Risk of being pulled in!

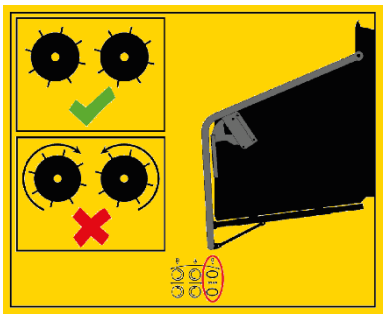
Warning: Rotating belts!


Warning: Hot surface!</td>
<td>
Warning: Risk of limb amputation!
Warning: Risk of being pulled in!
Warning: Do not step on the funnel!
Warning: Do not touch the funnel!
Warning: Do not crawl into the funnel!</td>
<td>
Warning: Read the instruction manual before use

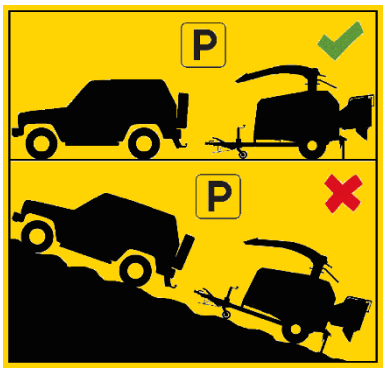

Warning: Remove the ignition key and read the user manual before service or repairs.</td>
</tr>
</table>



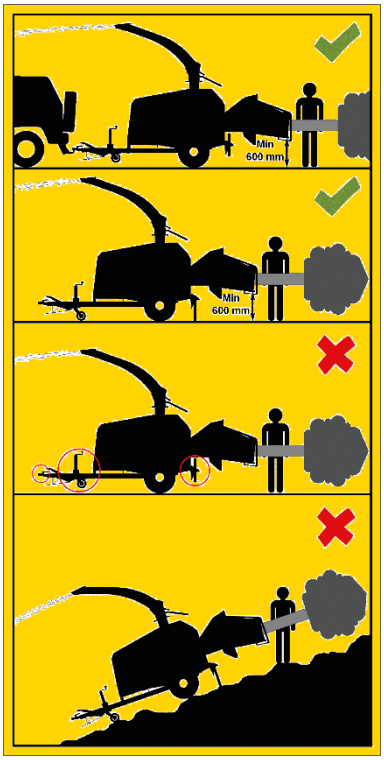
Warning: Ensure that the funnel is free of people, animals and other foreign bodies.



Warning: Ensure that 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: Danger of scalding!



Ear and eye protection mandatory!



Lifting point for crane!

For safety information and pictograms on the engine, see engine manual.

4 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 19).

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 165 MOBILE:	**124 dB (A) relative to 1 pW**
TP 176 MOBILE:	**123 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 165 MOBILE:	**103 dB (A)**
TP 176 MOBILE:	**102 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.

4.1 Environmental instructions

When changing hydraulic oil or engine oil, oil and used oil filters and air filters must be disposed of responsibly 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.

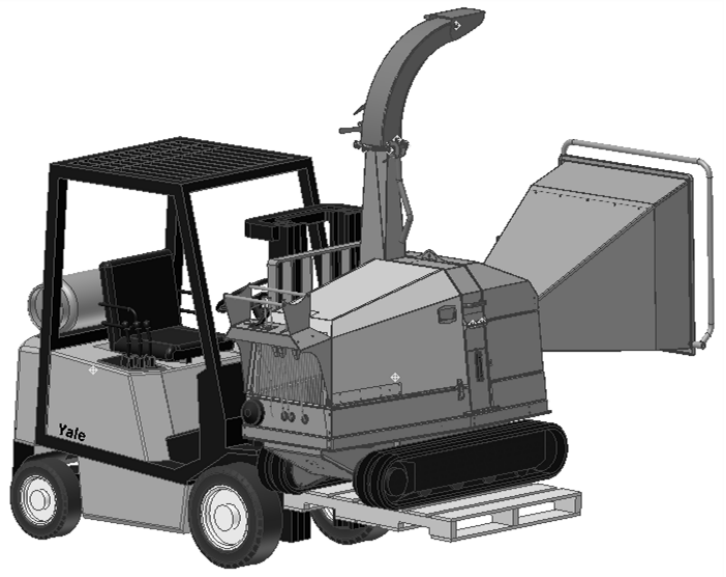
5 Handling

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) (see illustration above). (see illustration above).

Figure 1 Lifting with forklift truck



6 Before start-up

6.1 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 counter knives.
4. Ensure that the distance between the knives and counter knives is correct. The distance is stated in chapter 13.
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. Remember to lubricate all of the lubrication points (see maintenance schedule in chapter 13).

Engine

1. Check the engine's oil level.
2. Check the coolant level. (See the engine manual, included) (no coolant on the petrol model)
3. Check the fuel level.

6.2 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!

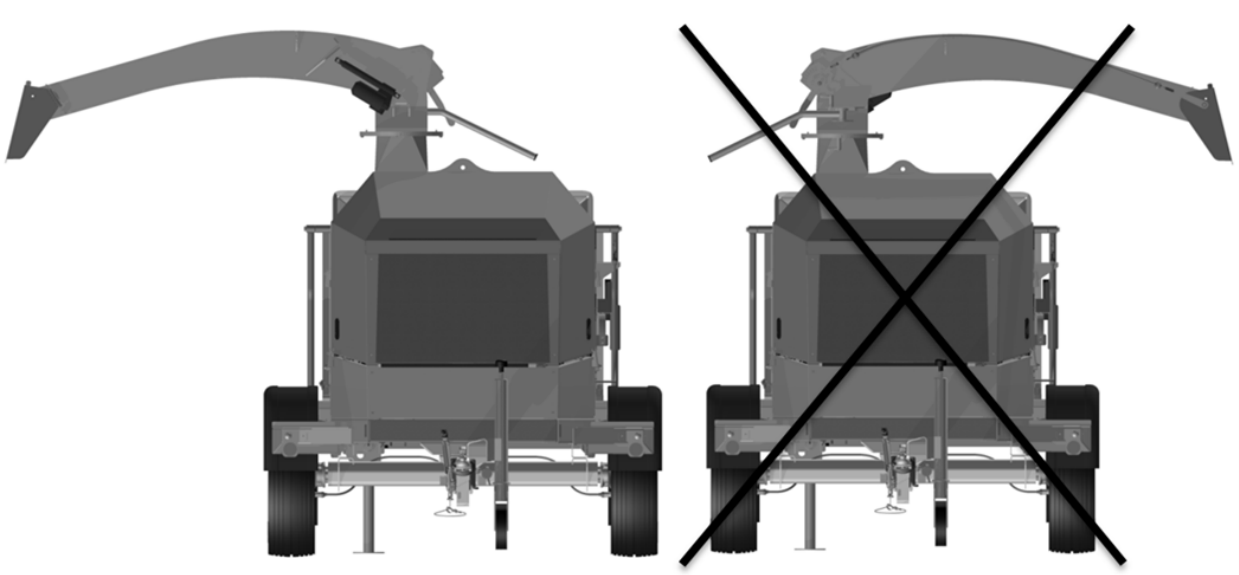
Opening the disc housing

1. Check that the wood chipper's key is removed from the ignition and the disc has stopped moving.

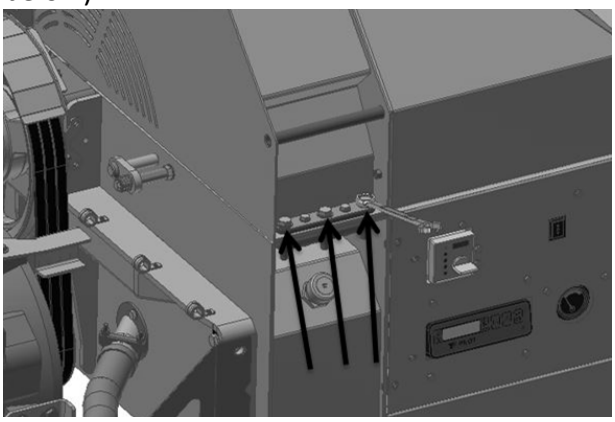
2. Lower the ejector spout all the way to the bottom (if the model is equipped with TP VARIO SPOUT).
   (See Operating the wood chipper in chapter 8).

3. Turn the ejector spout so that it faces in the opposite direction to the disc housing (see illustration below). (See also Operating the wood chipper in chapter 8).

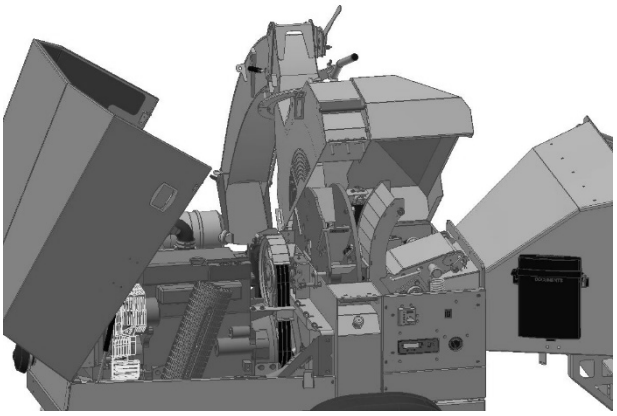
4. Open the bonnet. The bonnet is locked with an external catch on each side.



5. Loosen the M12 bolts (two or three bolts depending on the model), which secure the disc housing top and bottom parts together (see the illustration below). (See illustration below).

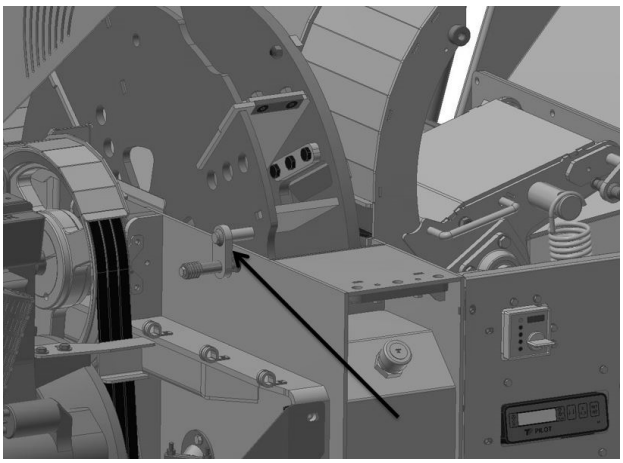


6. Open the top section of the disc housing until it meets the stop. (See illustration below).



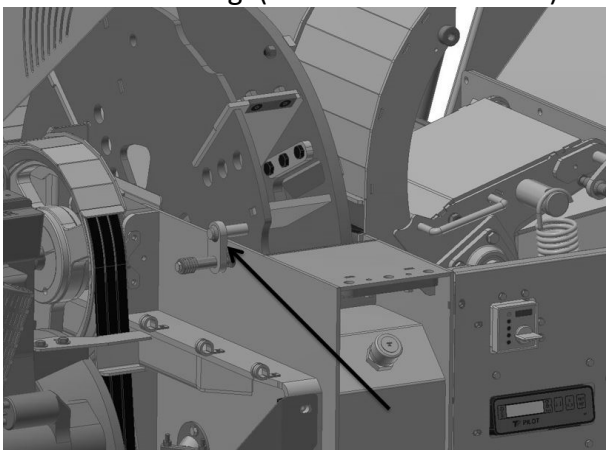
7. Turn the disc until the yellow disc lock can go into one of the holes on the disc. The disc is now locked. Keep fingers away from the knives when the disc is being turned.

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

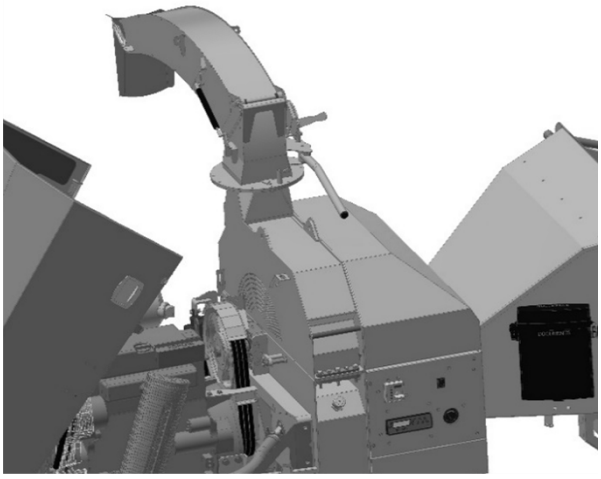


Closing the disc housing

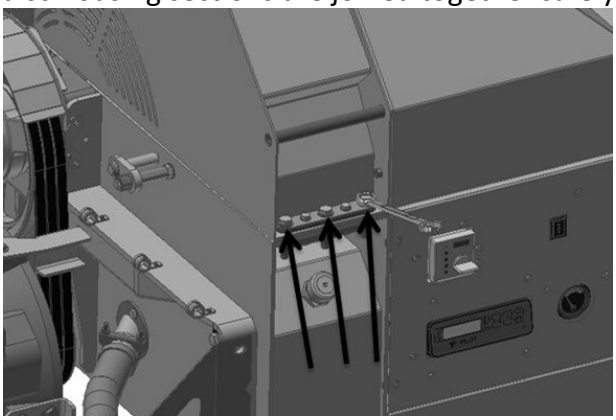
1. Free the yellow disc lock from the disc and turn the disc a few times to make sure that there are no objects in the disc housing. Always keep fingers away from the blades when the disc is rotating. (See illustration below).



2. Close the top part of the disc housing (See illustration below).



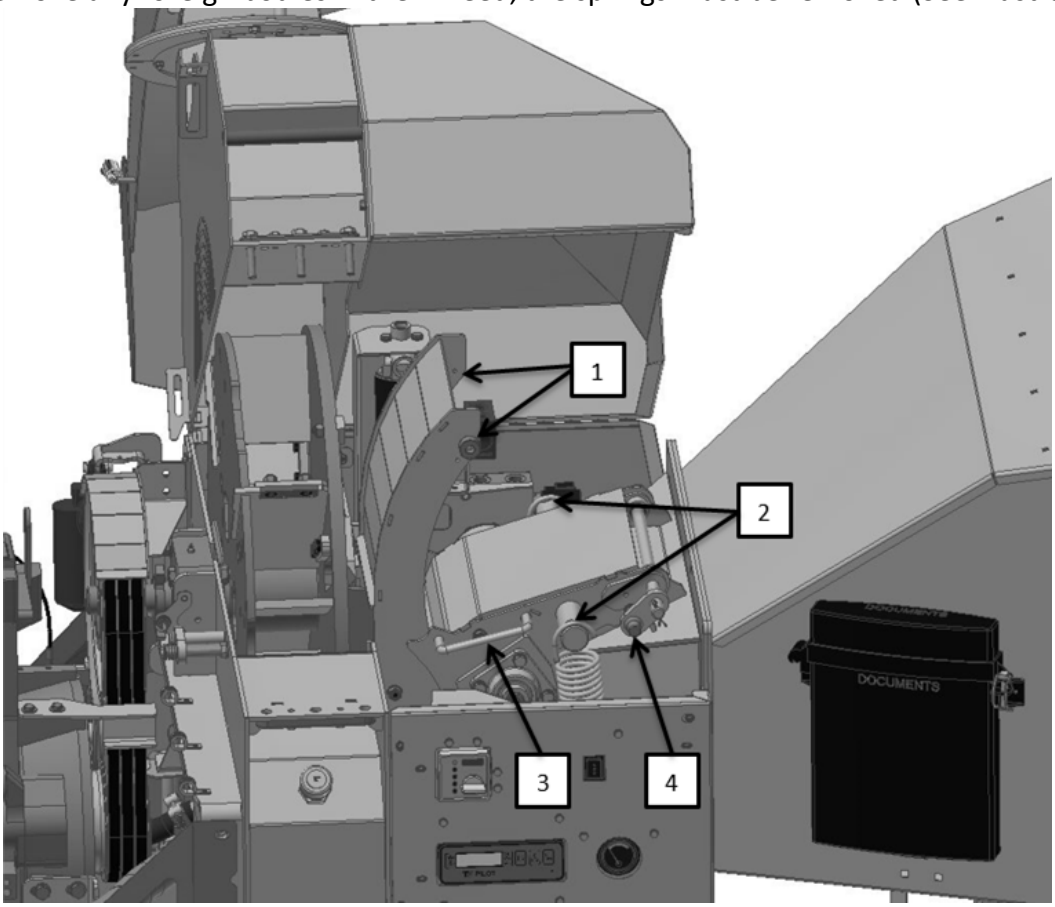
3. Tighten the M12 bolts (two or three depending on the model), so that the top and bottom disc housing sections are joined together safely and securely. (See illustration below).



4. Close the bonnet and lock it using the external catches. Turn the ejector spout into position and lock securely (See Operating the wood chipper in chapter 8).

6.3 Opening and closing the roller console

Opening the roller console
The roller console's retention force is created by springs (one or two, depending on the model). When adjusting and replacing the counterknife, and if necessary, when opening the roller console to remove any foreign bodies in the in-feed, the springs must be removed (See illustration below).



1. Open the disc housing, as described earlier in this chapter.

2. Remove the stop bushing (1), which limits the roller console's movement range.

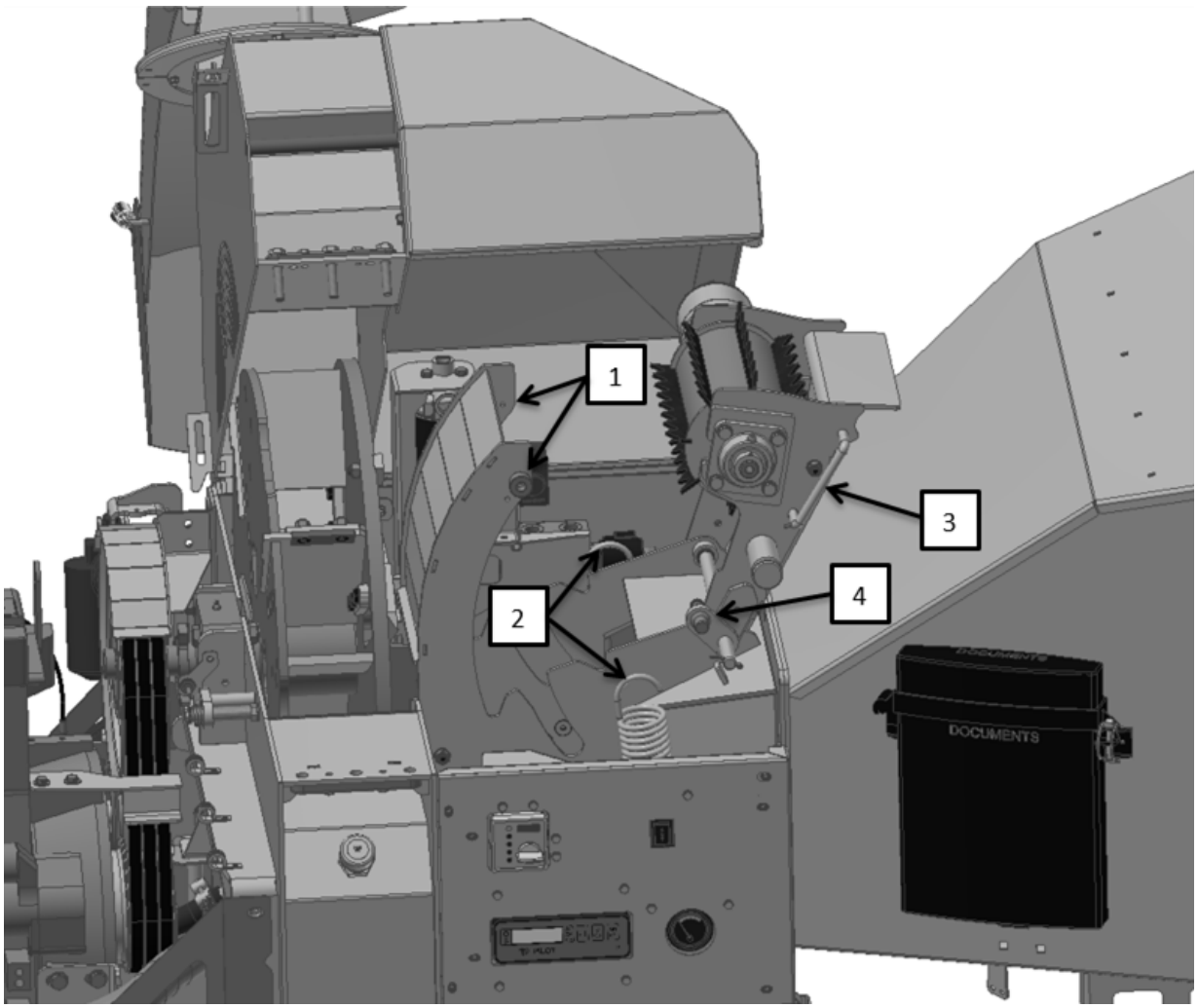
3. Using multigrip pliers or similar, lift the springs (2) from the roller console (Be careful to keep your fingers away from the spring when lifting it from the roller console).

4. Hold the handle (3) and lift the roller console up, until the roller console meets the top of the opening.

5. Push the locking pawl (4) into the lock on the side of the roller console.

   The roller console is now open and secured from falling down.

Closing the roller console



1. Hold the handle (3) and pull out the locking pawl (4).
2. Lower the roller console back into position.
3. Lift the springs (2) back onto the roller console using multigrip pliers or similar.
4. Mount the stop bushings (1).
5. Close the disc housing, as described earlier in this chapter.

7 Operating the wood chipper

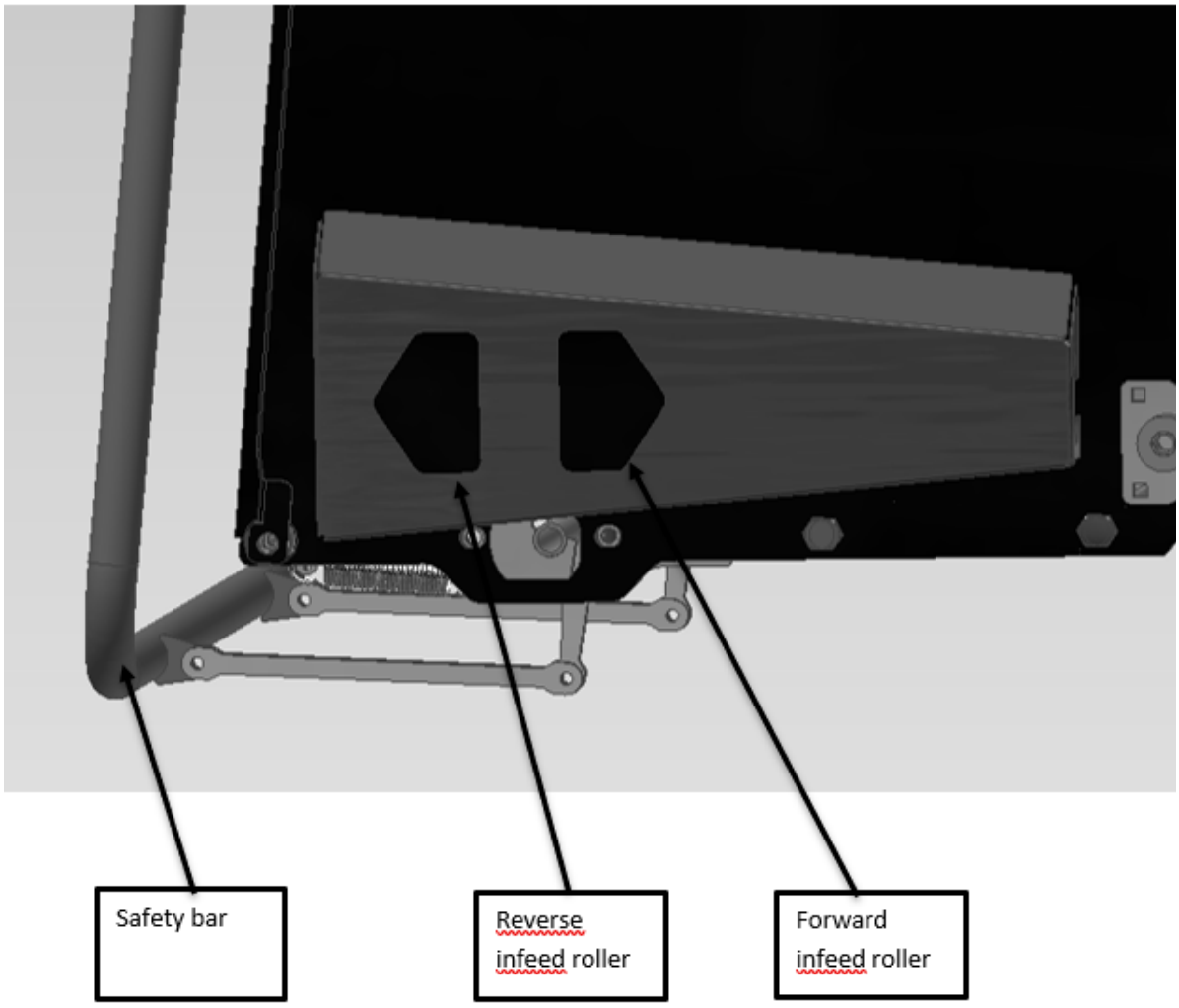
7.1 Safety bar

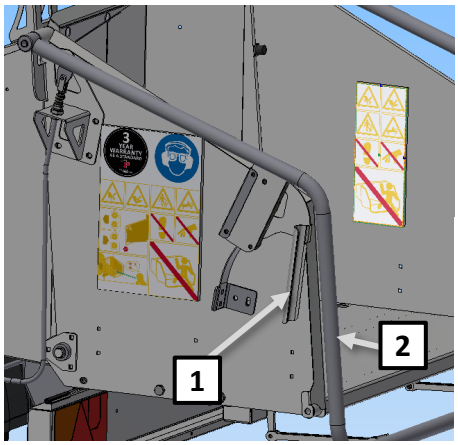
The Easy control function allows the user to control the advance, return and reset of the feed rollers.

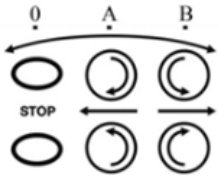
To reset the emergency stop, press the “forward” button once. Then the machine is ready to operate and pressing the button once more will start the feed rollers.

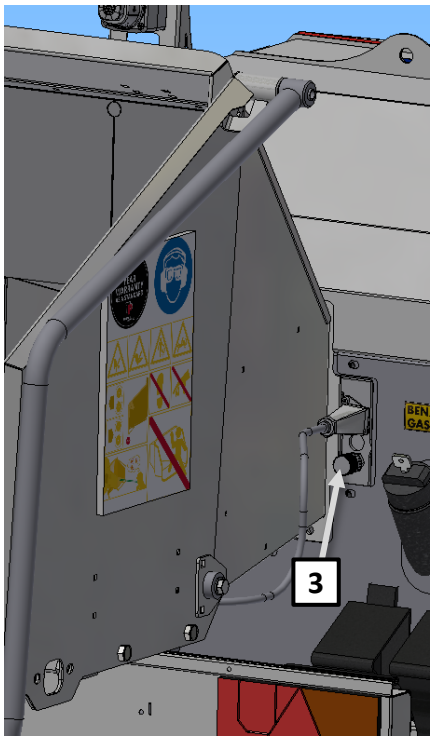
To reverse the feed, press the “reverse” button for as long as the reverse function is required. When the button is released, the feed rollers will stop.

Feed can be stopped either by pressing the “reverse” button or by pressing the safety bar.









The wood chipper is equipped with two hydraulic rollers, which are controlled by a safety bar (2) with a reset handle (1) and a roller speed controller (3) (see illustration above).

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 are stopped.

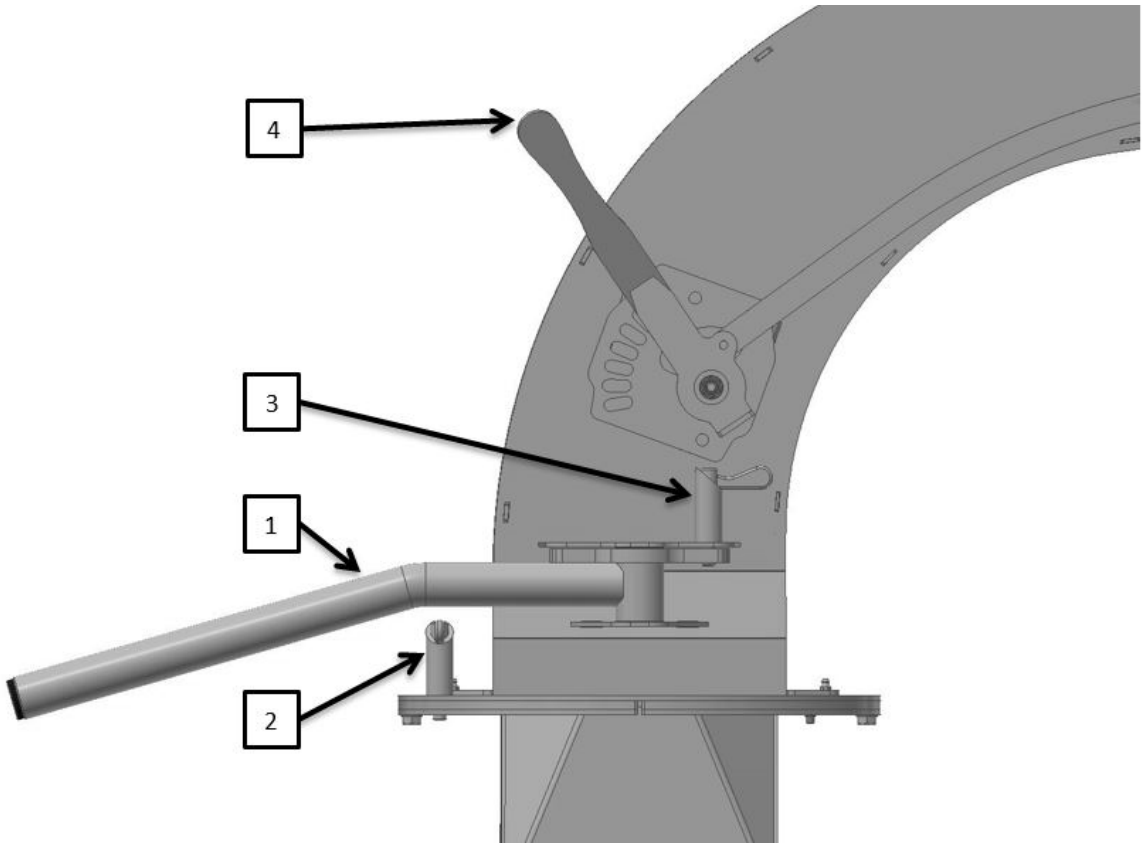
When the safety bar has been pushed into position 0, the bar is locked. This is to ensure that the rollers are not unintentionally re-started. To subsequently move the safety bar into position A or B, activate the reset handle.

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).

7.2 fixed ejector spout (dependent on the model)

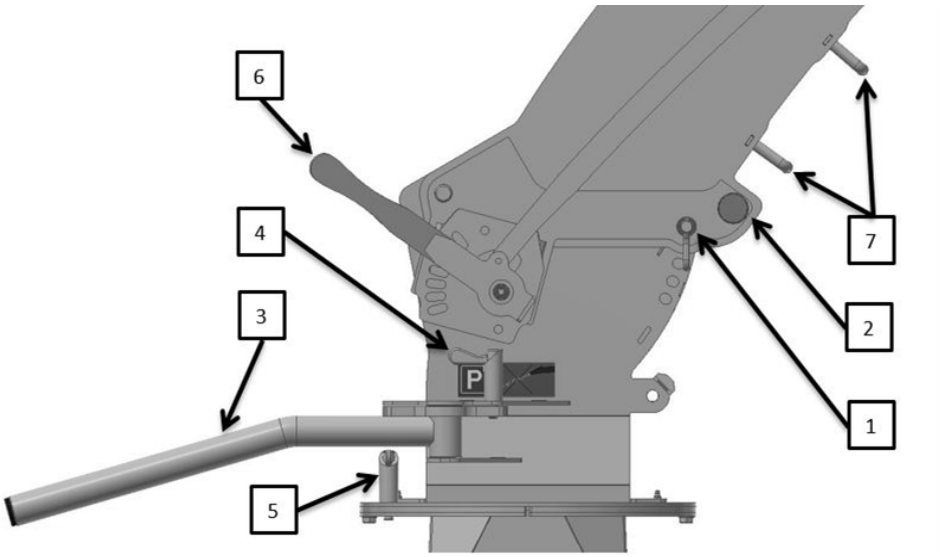
The wood chipper may be equipped with a fixed ejector spout. To turn the ejector spout, use the handle (1) once the sliding bolt (2) is loosened. To re-secure the ejector spout, lock the sliding bolt (2) in the desired position. The handle (1) can be turned in the opposite direction for operating from the front of the ejector spout. To do this, loosen the sliding bolt (3) and turn the handle 180 degrees until the sliding bolt (3) once again can lock the handle. (See illustration below).
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.

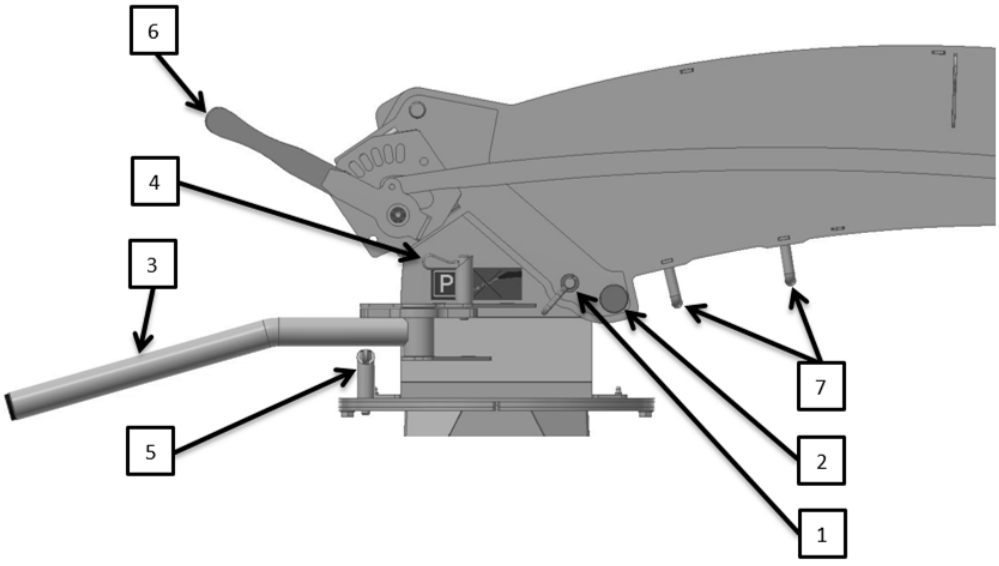


NB: When operating the ejector spout, there must not be any people inside the ejection area. During transport, the ejector spout must always be within the machine's width and the sliding bolt (2) must be locked.

7.3 TP VARIO SPOUT (dependent on the model)

The wood chipper can be equipped with TP VARIO SPOUT, which is a height-adjustable ejector spout, which has different operating positions (five or six, dependent on the model) and one transport position. To adjust the ejector spout height manually, use the handle (7), once the sliding bolt (1) and sliding bolt (2) are loosened. To re-secure the ejector spout in the desired position, lock the sliding bolt (1). The wood chipper may only be operated when the ejector spout is within the operating positions at the sliding bolt (1). (See illustration below).



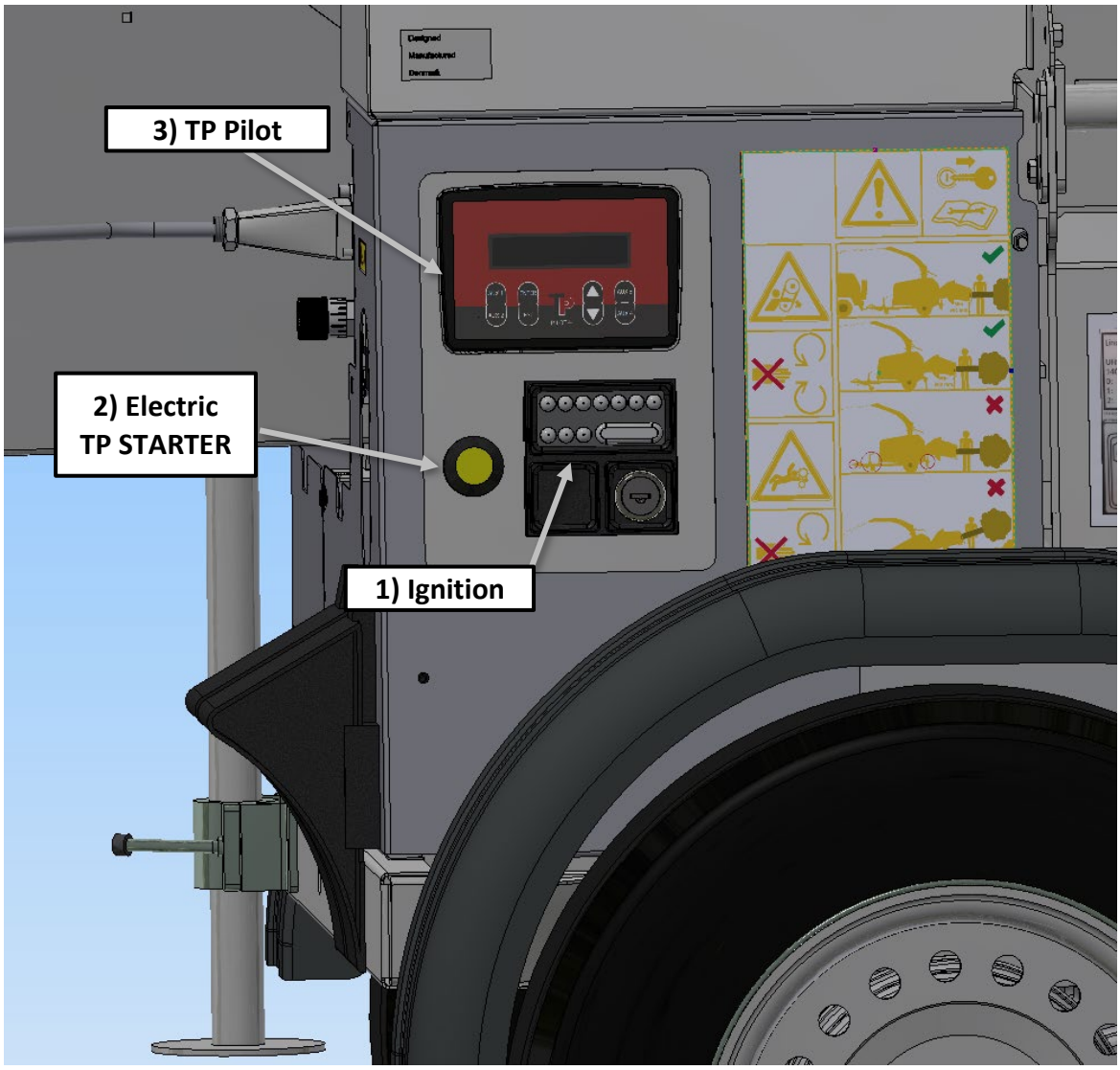


NB: When operating the TP VARIO SPOUT, there must not be any people inside the ejection area. At the same time, exercise caution when the TP VARIO SPOUT is lowered down into the transport position, because the end of the ejector spout reaches head height and this is a potential hazard.

To turn the TP VARIO SPOUT use the handles (3) once the sliding bolt (5) is loosened. To re-secure the TP VARIO SPOUT, lock the sliding bolt (5) in the desired position. The handle (3) can be turned in the opposite direction for operating from the front of the TP VARIO SPOUT. To do this, loosen the sliding bolt (4) and turn the handle 180 degrees until the sliding bolt (4) once again can lock the handle. The tilting spout is operated using the handle (6), which tilts away from the front position plate. Next, move the handle to the desired position and again release, the handle subsequently locks the tilting spout in the desired ejection position.

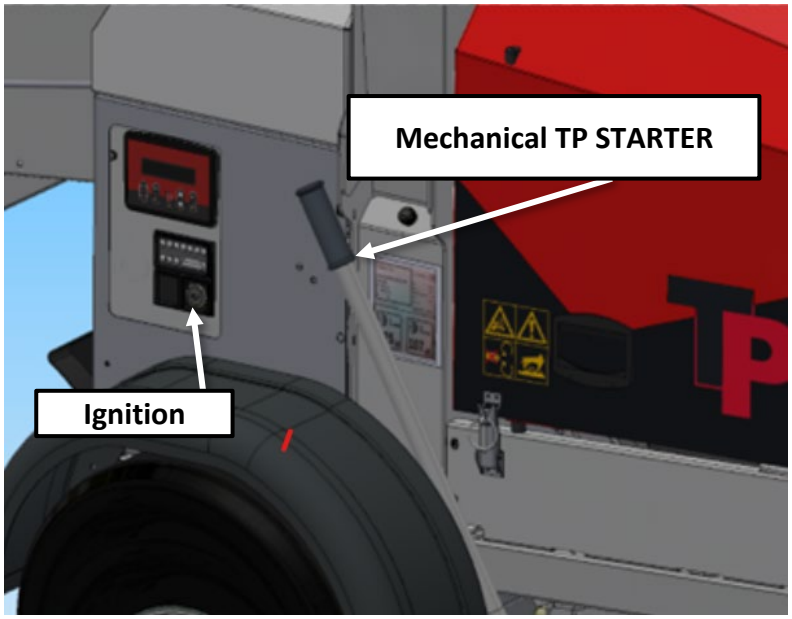
When the wood chipper shall be parked or transported, completely lower the ejector spout manually using the handle (7) when the sliding bolt (1) is loosened. Check subsequently and before transportation on public roads, that the sliding bolt (2) is locked and engaged (see illustration above).
During transport, the TP VARIO SPOUT must always be within the machine's width and the sliding bolt (5) must be locked.

7.4 Start-up and commissioning of wood chipper (TP 176)



Start the engine with the key on the ignition box (1) and let it run on idle for a few minutes. Ignition time can be up to five seconds, depending on model type. (see illustration above and see the instructions for the start box later on in this chapter).
The coupling of the wood chipper's disc can be subsequently activated by pressing the switch (START) on TP STARTER (2). (See illustration above, and see instructions for TP STARTER later in this chapter). The position of components 1, 2 and 3 can vary by model.

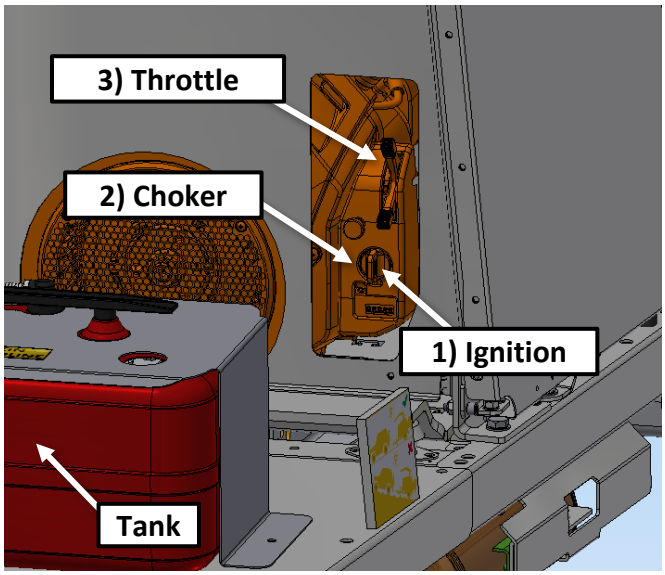
With TP STARTER, the start-up process is activated automatically, where the belts between the wood chipper and the engine are automatically coupled at the same time as the engine's rpm is increased from idle to nominal rpm. TP STARTER ensures that the belts have the correct pre-tension.
With TP PILOT (3), the disc and feed rollers are monitored. In addition, the work time and the total work time can be read (see illustration above and see instructions for TP PILOT).



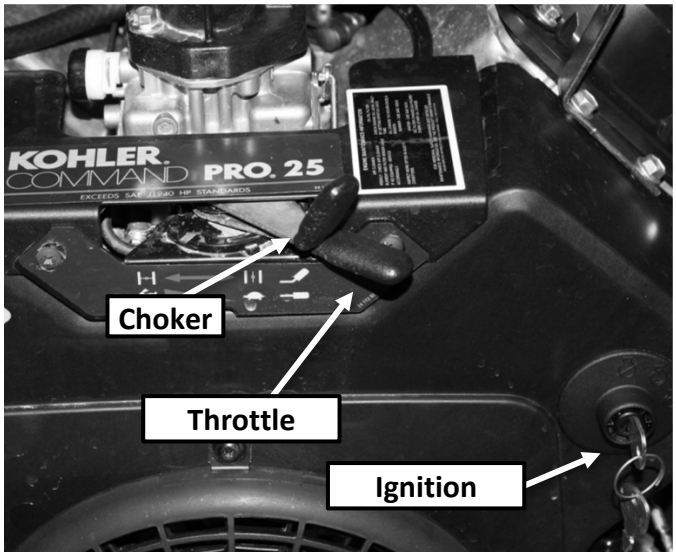
On models with manual TP starter, the engine is started by turning the key switch to the right and holding it in that position until the engine starts. When the engine is idling, use the TP starter handle to increase engine RPM while activating the disc. To do this, move the mechanical TP-STARTER lever from horizontal position to vertical position (as shown above).

7.5 Start-up and commissioning of wood chipper (TP 165)

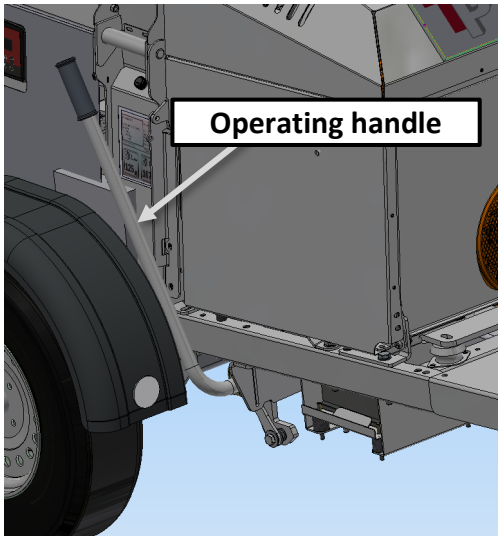
Honda motor with throttle



Kohler motor with throttle



Start the engine:
Turn the key clockwise to **"start"** and hold it there to start the engine, and then release the key.
NB: If the engine does not start after the starter engine has been activated for over 10 seconds, release the key and leave the starter engine to cool down for 60 seconds to prevent it from burning out.
Cold engine – Gradually move the choker to the position **"off"** after the engine has started and has begun to warm up. The engine/equipment can be operated during the warm-up period but it may be necessary to let the choke remain partly engaged, until the engine has warmed up.
Warm engine – Set the choker back into the position **"off"** as soon as the engine starts.



Activating the wood chipper:
Start the engine with the key and let it run idle for a few minutes. Moderately increase the engine's rpm using the throttle. Slowly drag the handle from horizontal to vertical position to engage the rotor disc. Using the throttle, increase the engine's/disc's rpm to the operating speed. The wood chipper is now ready for operation.

Stop:

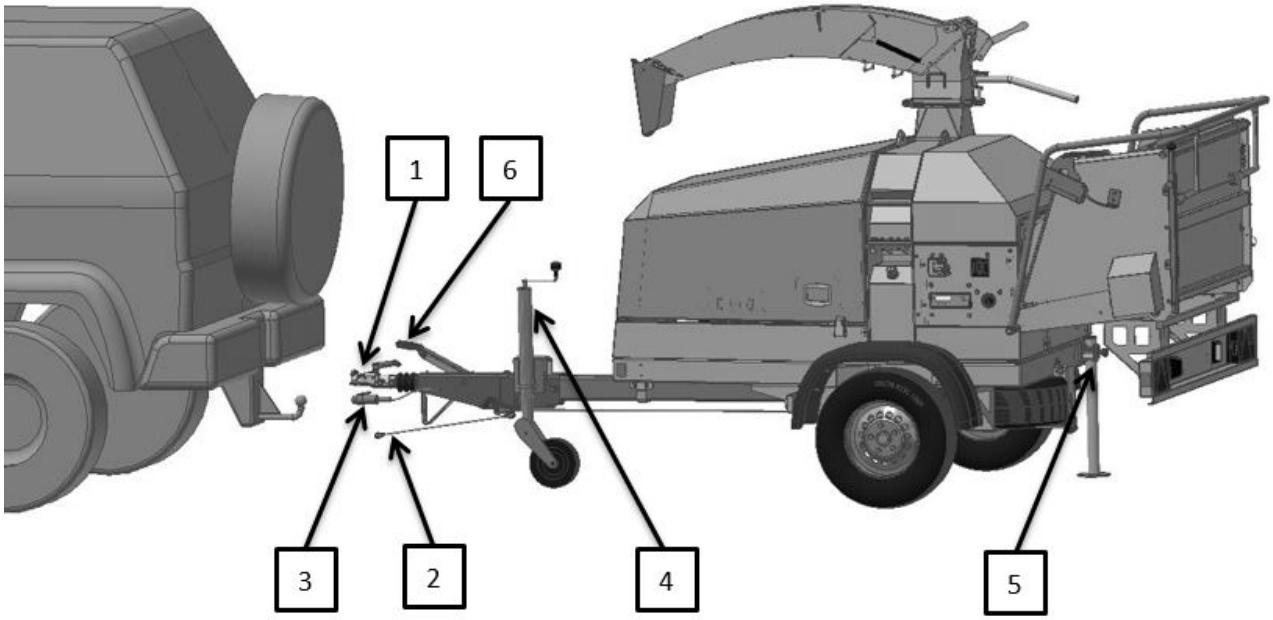
Stop putting material into the wood chipper and wait until nothing comes out of the ejector spout. Lower the operating handle to disengage the disc and then use the throttle to decrease the engine's rpm to idle.
The engine must be running in idle before it is stopped. Stop the engine by turning the start key anticlockwise.

7.6 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 (dependent on the model)



1. Connect the wood chipper to the vehicle by securing the wood chipper's socket coupling (1) to 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 up and secure the rear support leg (5).

6. Loosen the handbrake (6).

Uncoupling the wood chipper from the vehicle
To correctly uncouple the wood chipper, repeat the above procedures in reverse order.

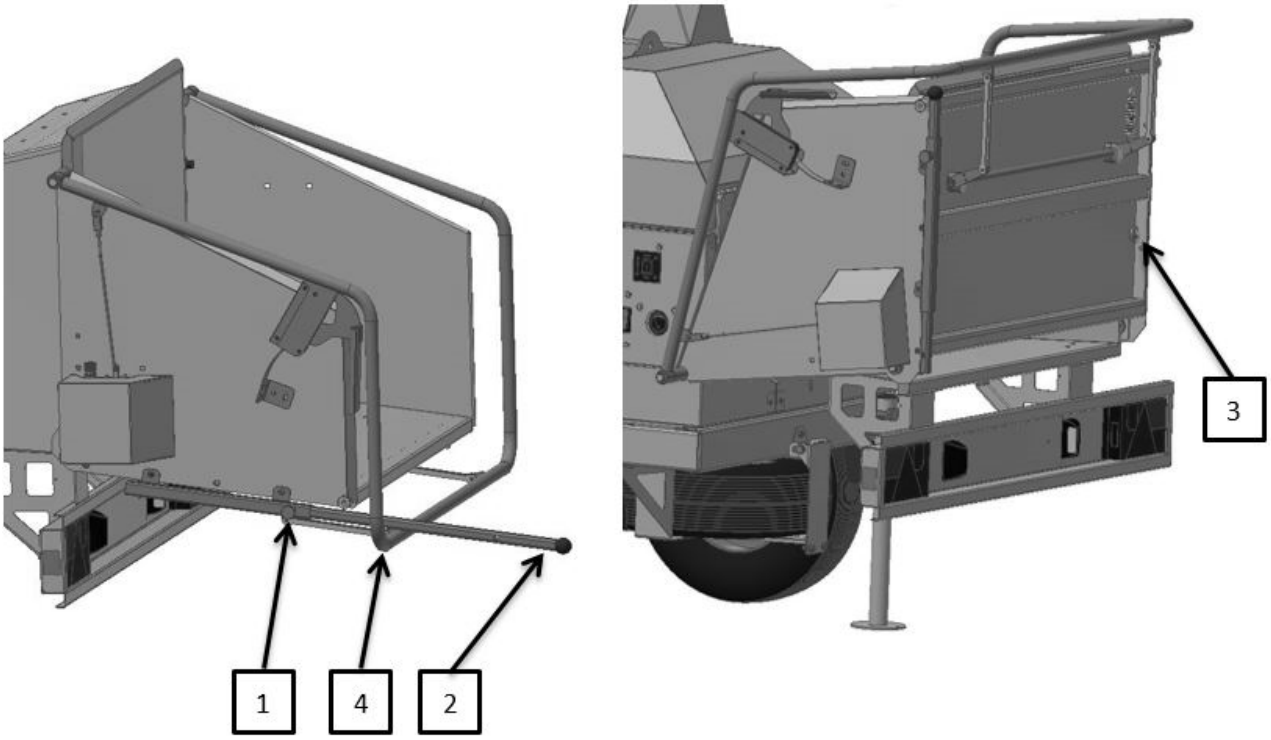
Uncoupling the wood chipper from the vehicle
To correctly uncouple the wood chipper, repeat the above procedures in reverse order.

7.7 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 out the sliding bolt (1) while pulling out the lever (2). (If fitted, dependent on the model).

2. Now fold up the funnel by lifting the lever (2) (if fitted, dependent on the model). (Use both hands). If the model is not fitted with the lever (2), lift with the manoeuvre bar (4). (Use both hands).

3. Once the funnel is folded up, secure it using the ring pin (3) in the right side.

4. Pull out the sliding bolt (1) and push the lever (2) back into its starting position (if fitted, dependent on the model). 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 order.

7.8 Turning the turntable

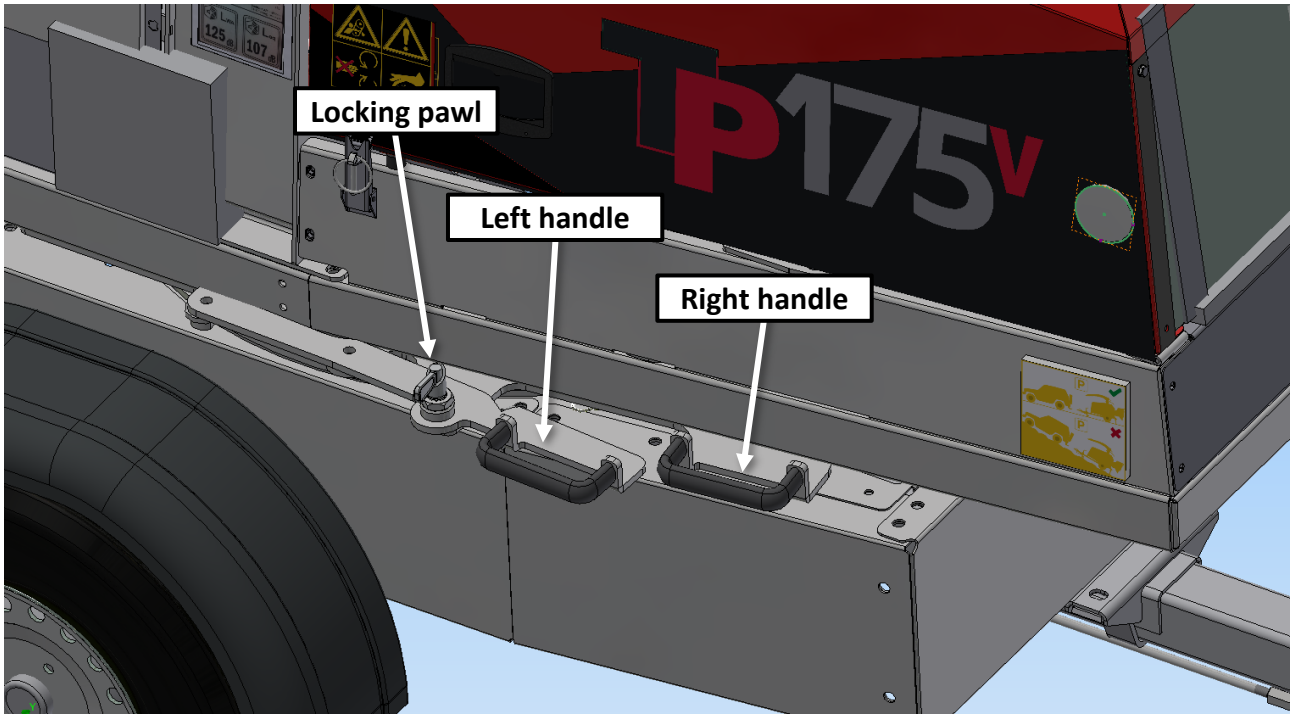
If the wood chipper is equipped with the TP TURNTABLE, the wood chipper can rotate independently of the trailer frame.

To turn the machine, first release the locking pawl.

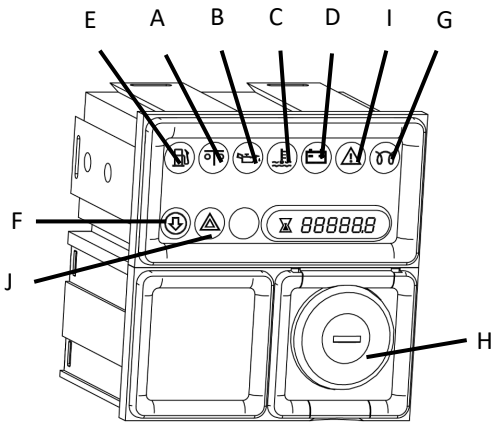
Then pull out the left handle holding the machine steady with the right handle.

Turn the machine to the desired angle, release the left handle and turn the machine until it goes into gear and the handle returns to the inner position.

Lock the handle with the locking pawl.



8 Start box (TP 176 MOBILE)



A = Ignition indicator/Normal operation	E = Fuel indicator (not used)
B = Engine oil pressure warning	F = Air filter indicator (not used)
C = Temperature warning	G = Heater plug/preheat
D = Charging light warning	H = Ignition key/Start key
I = Warning light (not used)	J = Warning light (not used)

Start:

1. Check the engine oil, fuel level, coolant level and refill if necessary. (See maintenance in chapter 13).
2. The key is turned clockwise and the light for preheat lights up. When the light turns off the engine can be started by turning the key clockwise by one position.
3. NB: All warning lights must be turned off during operation.
4. If the engine does not start after 20 seconds then wait for one minute and try again.
5. If the engine does not start after two attempts, then start troubleshooting and use the troubleshooting table.

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

When the engine has started, it must run idle in order to heat up completely.

-20°C and less	approx. 5 minutes
-20°C to -10°C	approx. 2 minutes
-10°C to +5°C	approx. 1 minute
over +5°C	approx. 20 seconds

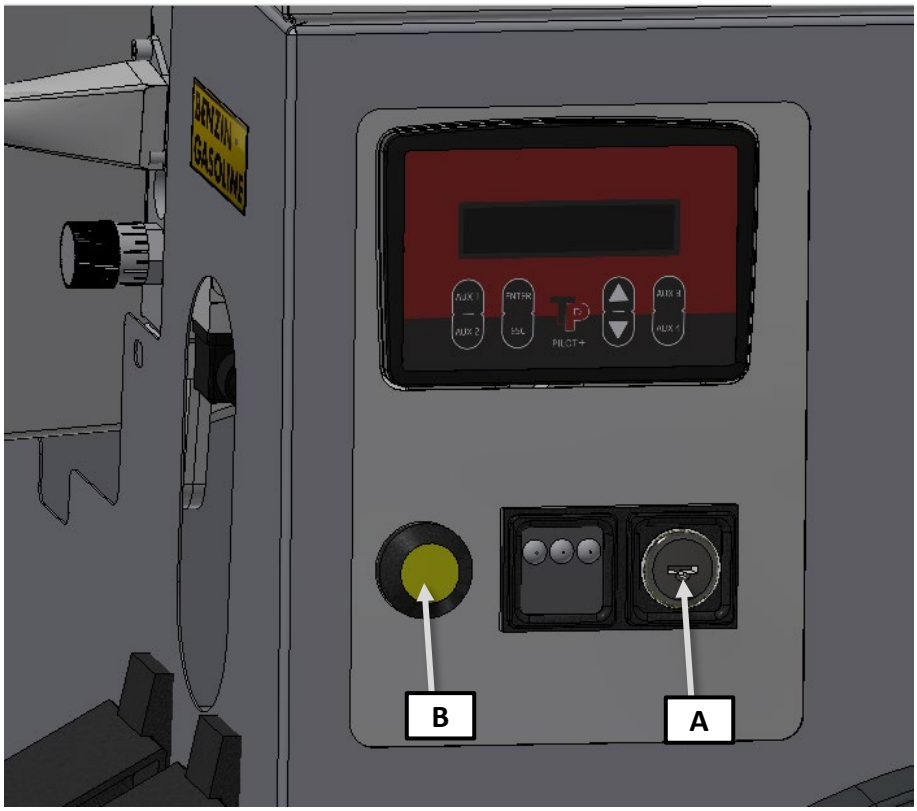
During the first 50 hours of work the engine must not be run at more than 70% of its maximum performance.

Stop:

1. Let the engine run on idle for one minute before switching off the engine.
2. Turn the key anticlockwise, back to the off position.

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

9 Ignition box/key contact (TP 176 MOBILE P)



A = Ignition key/start key
B = Start

Start the engine:

1. Check the engine oil, fuel level and refill if necessary. (See maintenance in chapter 12).
2. Turn the key (A) one step clockwise. The fuel pump will run briefly for approx. five seconds. Then turn one more step clockwise. Hold for approx. five seconds and the engine will start.
3. If the engine does not start after 20 seconds then wait for one minute and try again.
4. If the engine does not start after two attempts, then start troubleshooting and use the troubleshooting table.

When the engine has started, it must run idle in order to heat up completely.

-20°C and less	approx. 2 minutes
-20°C to -10°C	approx. 1 minutes
-10°C to +5°C	approx. 30 seconds
over +5°C	approx. 15 seconds

1. Let the engine run on idle for one minute before switching off the engine.
2. Turn the key anticlockwise, back to the off position.

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

Starting the wood chipper (not TP 165):

1. Start the engine with the key (A) and let it run idle for a few minutes.

2. Next, press the switch (1) (Start), TP STARTER® will now automatically cut in the disc and at the same time the engine revolutions will increase to the max. engine rpm.

3. The wood chipper is now ready for operation.

Stop:

1. Stop putting material into the wood chipper and wait until nothing comes out of the ejector spout. Subsequently set the safety bar to position 0.

2. Next, press the bottom of the switch (2) (Stop), TP STARTER® will now automatically uncouple the disc, and at the same time the engine revolutions are slowed to idle running.

3. Let the engine run on idle for one minute before switching off the engine.

4. Stop the engine by turning the key anticlockwise, back to the off position.

If the engine is switched off with the key before TP STARTER® has uncoupled completely, the motor cannot be started:

Turn the key so that there is power to the system, TP STARTER® automatically completely uncouples and the engine can subsequently be started again (dependent on the model). (Dependent on the model).

Or:

Turn the key so that the power is on and press the switch (2) (Stop). This will uncouple TP STARTER® and the engine can subsequently be started again. (Dependent on the model).

10 Instructions for rpm monitor TP PILOT+

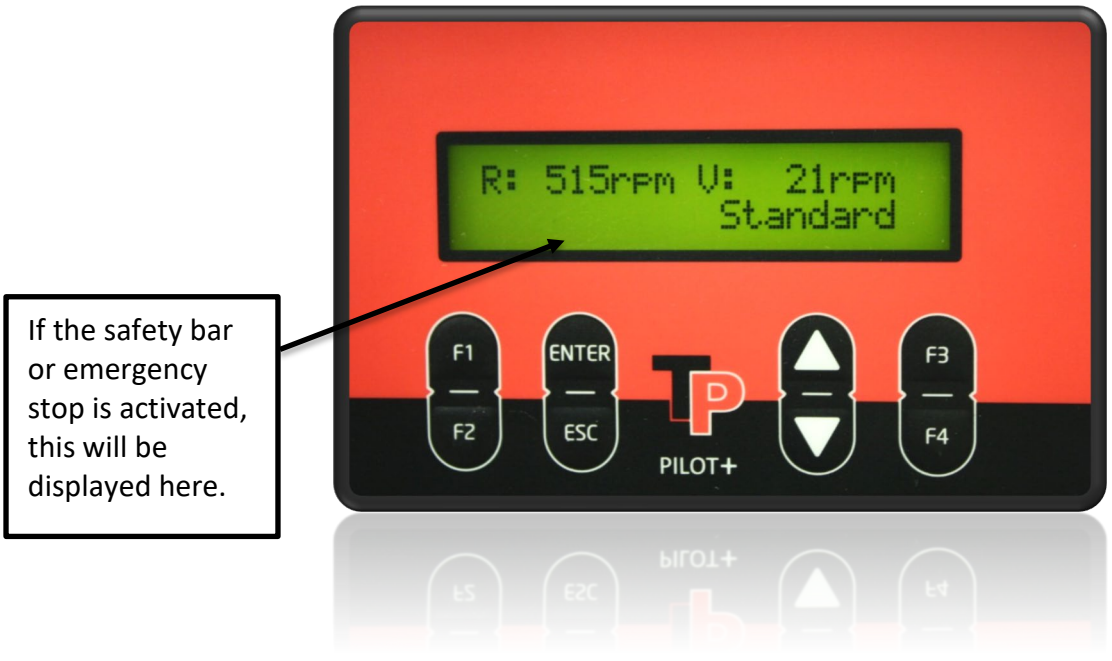
10.1 Control panel overview

10.2 Startup and operating mode

When starting up the wood chipper, Pilot+ will display the software version, machine type and time till next service for a few seconds.



As soon as the wood chipper enters normal operating mode, the display will switch over to show disc speed and feed roller speed. You can select different information to display in the bottom right field using the up and down arrows. Pressing the down arrow will change which of the various function is shown in the field. These are described in later sections.



If “Safety Bar” or “Emergency Stop” are visible at the bottom of the display, this means that one of these functions is activated. Feed function will therefore not operate!
See also the Pilot+ manual.l

10.3 RPM adjustment

Model	Disc rpm	rpm 1 L	rpm 1 h	Type No.
TP 165 MOBILE PETROL (HONDA/KOHLER)	*1482*	1340	1450	16Mobil
TP 176 MOBILE DIESEL (KOHLER)	*1282*	1100	1235	TP176KL
TP 176 MOBILE DIESEL (KUBOTA 1305)	*1375*	950	1100	TP176KL
TP 176 MOBILE DIESEL (KUBOTA 1505)	*1360*	950	1100	TP176KL
TP 176 MOBILE PETROL (KOHLER)	*1440*	1250	1375	TP176KL

11 Maintenance

Maintenance schedule for wood chipper

X = for each stated time interval
(X) = Only for the first time
* = or once a week

Interval=> daily/hours	**10* ⌛**	**50 ⌛**	**250 ⌛**	**1000 ⌛**
Check safety bar's function[1]	X			
Check the knives and counterknives (and sliver breaker - extra equipment)	X			
Check the hydraulic oil level	X			
Tighten all bolts and nuts	(X)	(X)		
Lubricate disc main bearings[2]	X			
Lubricate the roller bearings[2]		X		
Lubricate TP VARIO SPOUT[2]		X		
Lubricate fixed ejector spout[2]		X		
Lubricate safety switch[3]		X		
Replace hydraulic pump return filter[6]		(X)		X
Reverse/replace horizontal counterknife			X	
Replace vertical counterknife			X	
Reverse/replace triangle scrapers, square scrapers and scrapers			X	
Replace 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

[1] Always execute before use! Pay particular attention to ensuring that the rollers do not rotate when the safety bar is in the stop position. See also chapter 8.

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

[3] Lubricate the safety switch at the bonnet with lubricating oil spray or chain oil spray. If the safety switch is defective, it must be changed immediately.

[4] Drain the hydraulic oil and fill with new oil. See the hydraulic oil table below for oil type and amount.

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

[6] Replace after 12 months.

11.1 Hydraulic oil table

Model type	Standard oil type	Bio-oil (optional)[1]	Quantity in litres
TP 165 MOBILE PETROL	Hydraway HVXA 46	Hydraway SE 46 HP	12 L
TP 176 MOBILE DIESEL	Hydraway HVXA 46	Hydraway SE 46 HP	12 L
TP 176 MOBILE PETROL	Hydraway HVXA 46	Hydraway SE 46 HP	12 L

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

11.2 Maintenance schedule for engine (TP 165 and TP 176 MOBILE P)

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
* = or once a week

Interval=> daily/hours	10* ⌛	50⌛	100⌛	250 ⌛	400 ⌛	500 ⌛	600 ⌛
Check oil level	X						
Check the coolant condition	X						
Check/clean filter in front of the radiator[1]	X						
Check/clean the air filter (external and internal)[1]	X						
Check/clean radiator[1]	X						
Check rubber hoses at air intake			X				
Check fuel hose			X				
Replace engine oil[2, 3]		(X)	X				
Replace oil filter[2, 3]		(X)	X				
Replace spark plug			X				
Service exhaust system			X				
Replace engine air filter					X		
Replace fuel filter[2, 3]					X		
Service cooling system					X		
Clean oil cooler fins			X				
Replace the hose to the intake manifold (hose between the air filter and intake manifold)[3]					X		
Adjusting of tilting arm's play[3]				X			
Replace fuel hose[3]					X		
Replace safety filter							X

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

[2] In case of light use: Always replace after 12 months.

[3] When replacing refer to the engine manual.

[4] Only for Kohler petrol and should be performed at an authorised Kohler workshop.

11.3 Maintenance schedule for engine (TP 176 MOBILE)

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
* = or once a week

Interval=> daily/hours	**10***	**50**	**100**	**200**	**400**	**500**	**800**	**1000**	**4000**
Check oil level and for leaks	X								
Check coolant level and for leaks	X								
Check/clean filter in front of the radiator[1]	X								
Check/clean air filter[1]	X								
Check/clean radiator[1]	X								
Check alternator's belt tension			X						
Check rubber hoses at air intake and radiator				X					
Check fuel hoses		X							
Replace engine oil[2, 3]		(X)		X					
Replace oil filter[2, 3]		(X)		X					
Replace fuel filter[2, 3]				X					
Replace alternator belt[3, 6]						X			
Replace coolant[3, 5]								X	
Replace tubing between air filter air extraction manifold [3]								X	
Check for valve play[3]							X		
Check fuel injection pressure[3]								X	
Replace cooler tubing[3. 5]								X	
Replace fuel tubes[3. 5]								X	
Check alternator and starter									X
Drive belt replacement									X
Check wiring for damage							X		
Replace air filter[1]	Annually/ after six inspections where the filter was cleaned.								

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

[2] In case of light use: Replace after 12 months.

[3] When replacing refer to the engine manual.

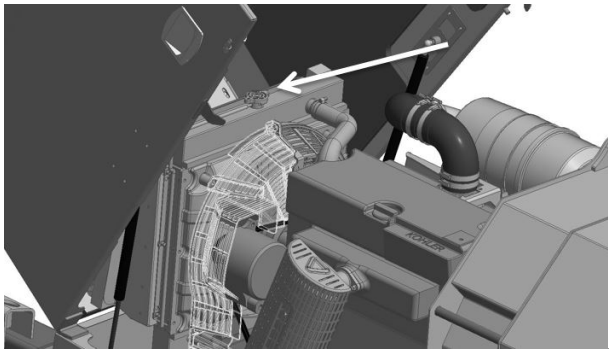
[5] In case of light use: Replace after 24 months.

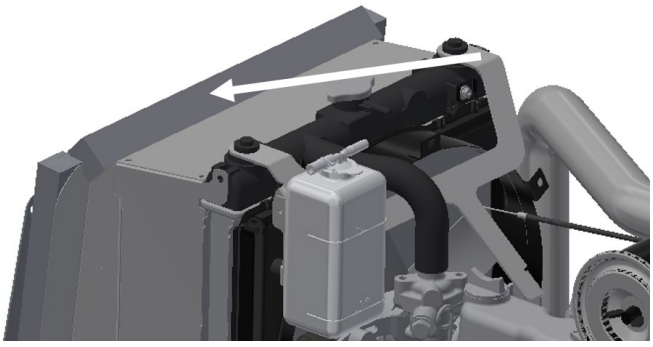
[6] In case of light use: Replace after 36 months.

11.4 Engine oil level

Model type	Engine type	Oil type	Oil capacity (maximum level) *With oil filter*
TP 165 MOBILE PETROL	Honda GX690	SEE ENGINE MANUAL	SEE ENGINE MANUAL
TP 165 MOBILE PETROL	Kohler CH732	SEE ENGINE MANUAL	SEE ENGINE MANUAL
TP 176 MOBILE DIESEL	KDW - 1404	SEE ENGINE MANUAL	SEE ENGINE MANUAL
TP 176 MOBILE DIESEL	Kubota D1305	SEE ENGINE MANUAL	SEE ENGINE MANUAL
TP 176 MOBILE DIESEL	Kubota D1505	SEE ENGINE MANUAL	SEE ENGINE MANUAL
TP 176 MOBILE PETROL	EFI 61E8	SEE ENGINE MANUAL	SEE ENGINE MANUAL

11.5 Cleaning filter in front of radiator and radiator surface (not applicable for TP 165 176 MOBILE P)





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, which is locked with an external catch on each side.

2. Lift the filter up from the filter housing in front of the radiator.

3. 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 of the filter.
   Clean using a high-pressure cleaner. Only used for extreme clogging and must be dried afterwards before starting the wood chipper.

4. There is now free access to the radiator coil, which can be carefully cleaned using compressed air from the engine side.

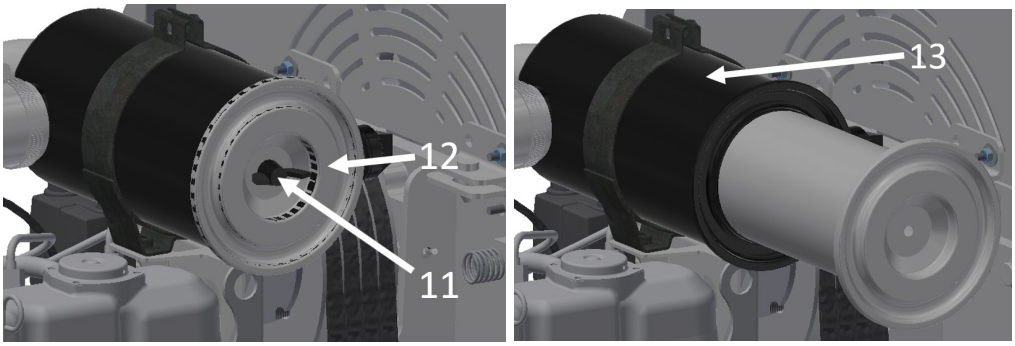
5. Put the filter back in the track on the filter housing in front of the radiator.

6. Close the bonnet and lock it using the external catches.

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

11.6 Checking the air filter (When checking TP 165 176 MOBILE P air filter, please refer to the engine manual.)

TP 176 MOBILE Kubota diesel



1. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

2. Loosen finger nut (11).

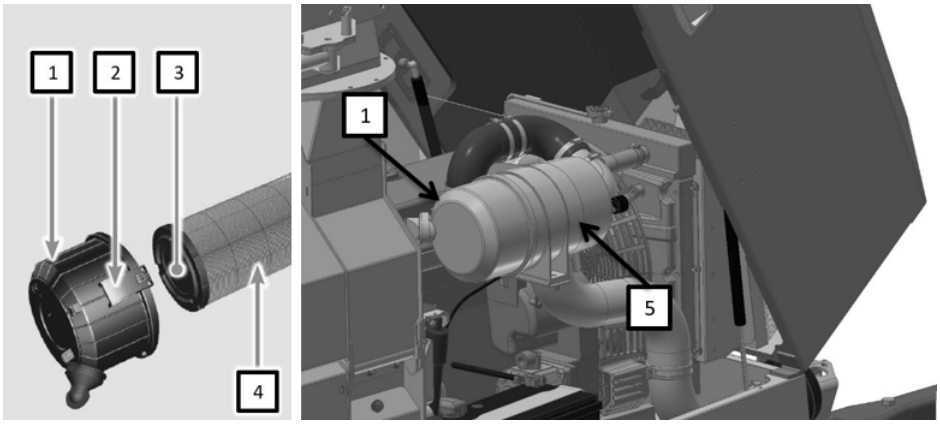
3. Pull the external air filter out (12) and clean it carefully using compressed air from the internal side.

4. Blow the filter housing (13) clean internally using compressed air.

5. Install air filter(12) and retighten finger nut(11).

6. Close the bonnet and lock it using the external catches.

TP 176 MOBILE Kohler diesel



1. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

2. Loosen the two catches (2), which hold the cap (1) , and remove it.

3. Pull the external air filter out (4) and clean it carefully using compressed air from the internal side.

4. Blow the filter housing (5) clean internally using compressed air.

5. The internal air filter (3), which is placed inside the external air filter (4), remains sitting in the filter housing (5). But it can be removed and checked once the filter housing (5) is cleaned. The internal filter (3) may not be cleaned with compressed air, but must be replaced if it is blocked or defective.

6. Re-fit the internal air filter (3), if it has been removed. Fit the external air filter (4) and cap (1) and tighten the two catches (2).

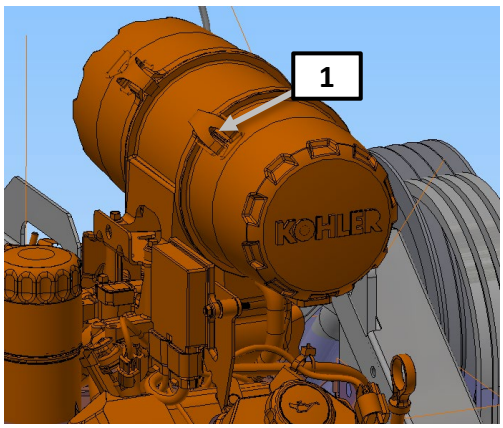
7. Close the bonnet and lock it using the external catches.

TP 165 MOBILE



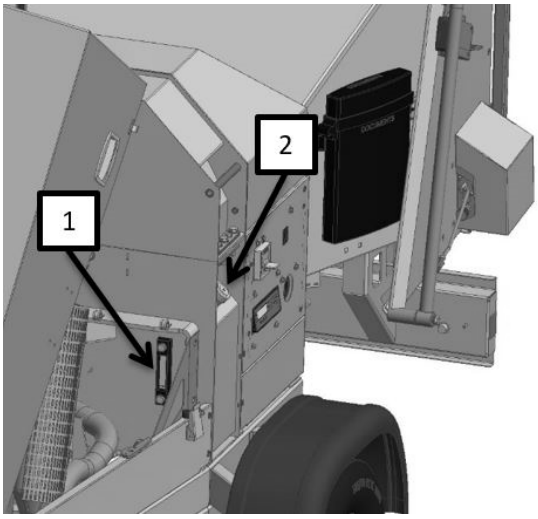
1. Loosen the two catches (1), which hold the cap , and remove it.
2. Loosen finger nut.
3. Replace filter

Kohler ECH980



1. Loosen the two catches (1), which hold the cap , and remove it.
2. Pull out filter
3. Replace filter

11.7 Check of hydraulic oil level



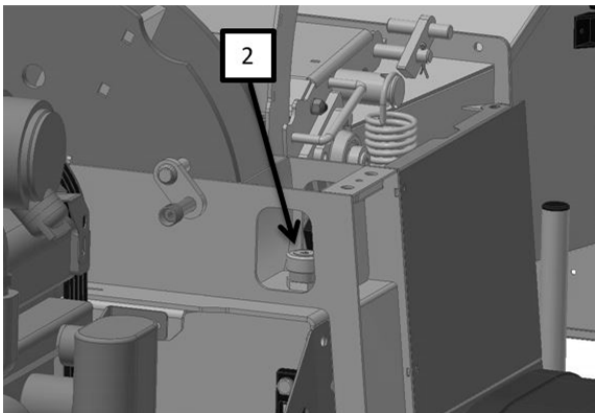
1. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

2. Check that the hydraulic oil level is at the middle in the level glass (1).

3. If the hydraulic oil level is too low, refill with hydraulic oil. To ensure use of the correct oil quality, see the hydraulic oil table shown earlier in this chapter. When filling with oil, use the same type of oil or an oil with equivalent specifications. Do not mix oils of different types/brands.

4. To fill, loosen the filler neck (2) and fill with hydraulic oil until the level is at the middle in the level glass (1). (Dependent on the model, it may be necessary to open the disc housing

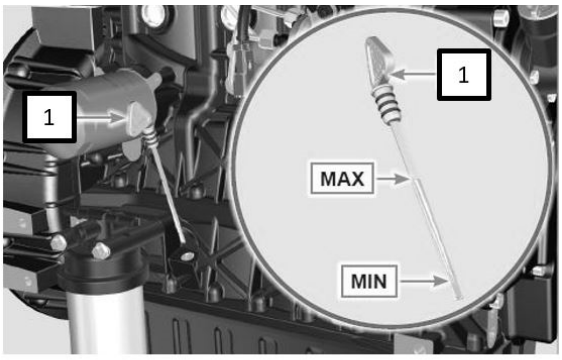
to gain access to the filler neck (2).) (See Open the disc housing as described in chapter 7). (See also illustration below).

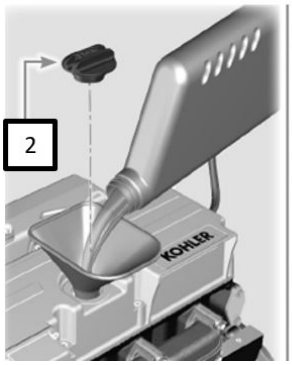


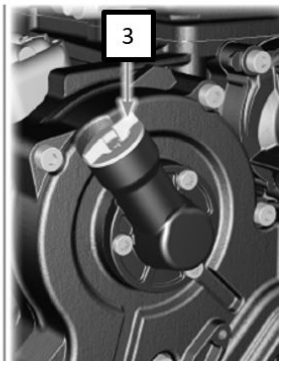
5. Subsequently re-fit the filler neck (2).

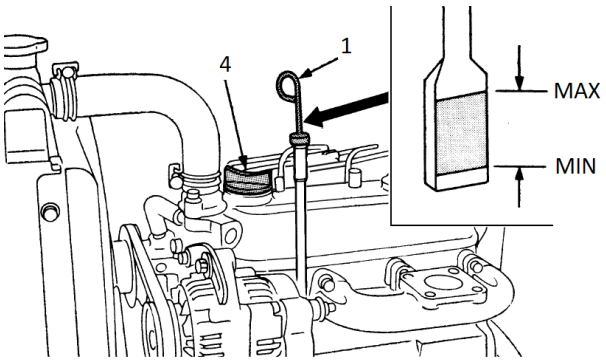
6. Close the bonnet and lock it using the external catches. (Dependent on the model, close the rotor housing and bonnet). (See Close the disc housing and bonnet as described in chapter 7).

11.8 Checking the engine oil level









Only check the engine oil level when the engine is cold or has been stopped after operation for at least 30 minutes. (To check engine oil level on 176 mobile petrol, please refer to the engine manual for that product)

1. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

2. Check that the engine oil level on the dipstick (1) is in the middle section between “MIN” and “MAX” marks.

3. If the engine oil level is too low, refill with engine oil. For correct oil quality, see the engine manual for the specific engine. When filling with oil, use the same type of oil or an oil with equivalent specifications. Do not mix oils of different types/brands.

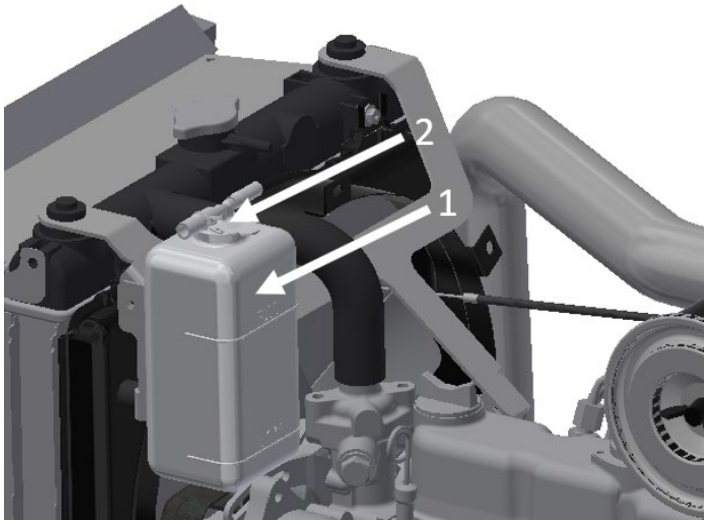
4. To fill, remove the filler cap (2),(3) or (4) and fill with engine oil until the level on the dipstick is in the middle section between “MIN” and MAX”.

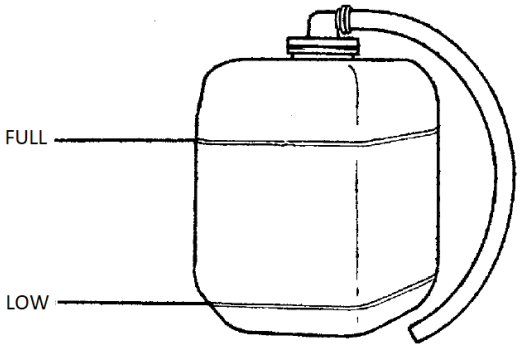
5. Re-fit the dipstick (1) and filler cap (2),(3) or (4).

6. Close the bonnet and lock it using the external catches.

11.9 Checking coolant level (Does not apply for TP176 MOBILE P)

TP 176 MOBILE





Hot engine warning: Scalding hazard due to coolant under pressure!
Let the engine cool down, before continuing with the procedure below.

1. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

2. Check that coolant level in the expansion container (1) is between LOW and FULL.

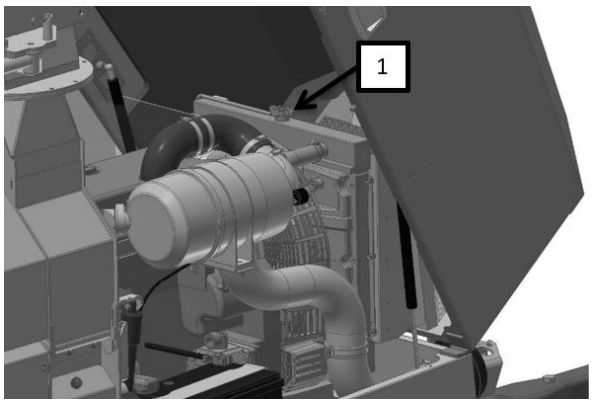
3. If coolant level is below or at LOW, remove the expansion container lid(2) and fill with coolant. The correct mix of coolant is 50 % pure coolant mixed with 50% water.

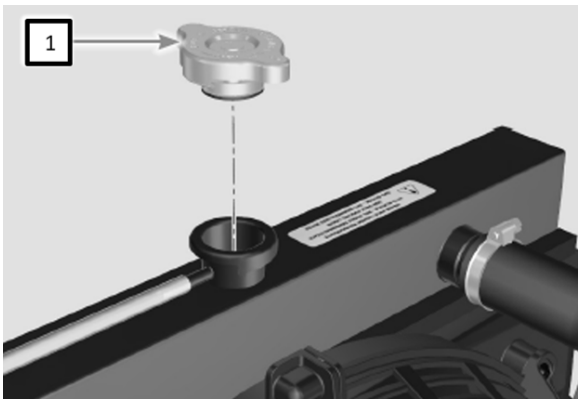
Do not overfill the expansion container past FULL, as there needs to be room for expansion.

4. Put the lid(2) back on the expansion container.

5. Close the bonnet and lock it using the external catches.

TP 176 MOBILE





Hot engine warning: Scalding hazard due to coolant under pressure!
Let the engine cool down, before continuing with the procedure below.

6. Stop the wood chipper and the engine. Open the bonnet, which is locked with an external catch on each side.

7. Carefully loosen the radiator cap (1) and remove it.

8. Check to ensure that the coolant level is 5 mm above the pipes inside the radiator.

9. If the coolant level is too low, refill with coolant. The correct mix of coolant is 50 % pure coolant mixed with 50% water.
   Do not overfill, because there must be space for expansion.

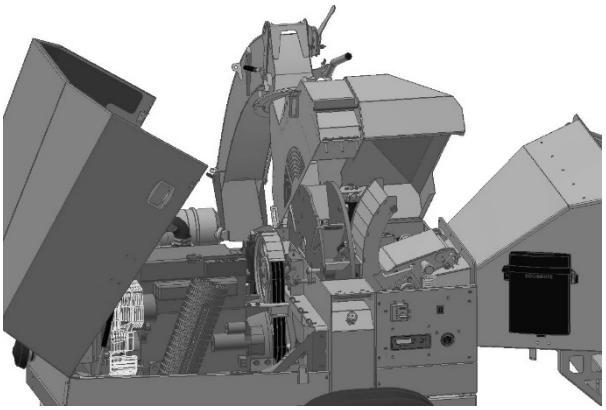
10. Re-fit the radiator cap (1) and re-tighten.

11. Close the bonnet and lock it using the external catches.

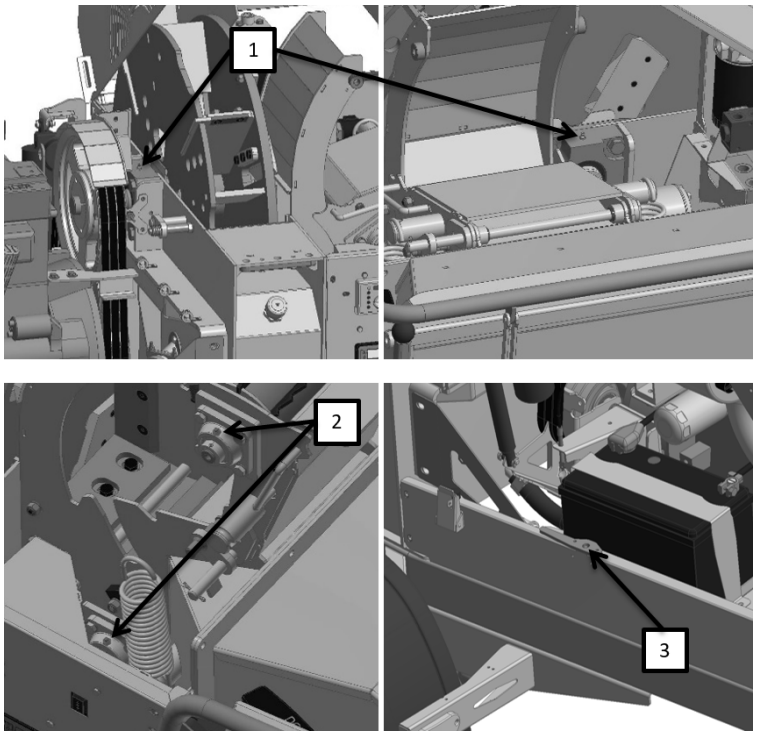
11.11 Lubrication

To lubricate the wood chipper bearings and safety switch:

1. Open the bonnet as described in chapter 7. (See also illustrations below).



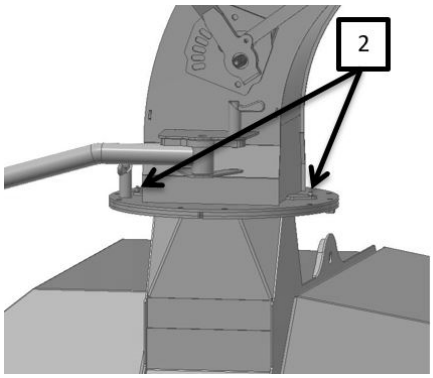
2. You now have free access to grease lubricate the two grease nipples on the main bearings (1) and the two lubrication nipples on the roller bearings (2) and to oil lubricate the safety switch (3). (See illustrations below).
   To use the correct quality of grease and lubricating oil, see the maintenance schedule for the wood chipper, shown earlier in this chapter.

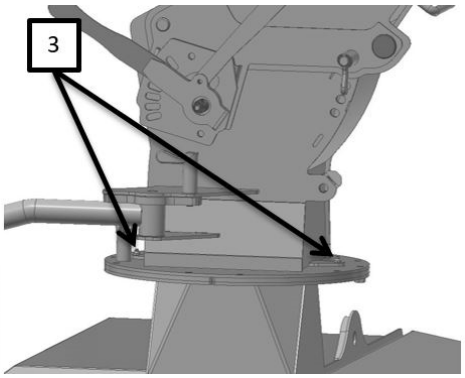


3. Close the disc housing and bonnet as described in chapter 7.

4. Lift up the ejector spout to the operating height. (Only applies to models fitted with TP VARIO SPOUT). (See Operating the wood chipper in chapter 8).

5. Lubricate the lubrication nipple on the fixed ejector spout (2) or the two lubrication nipples on TP VARIO SPOUT(3). (Dependent on the model). (See illustrations below).





6. Next, completely lower the ejector spout and ensure that it is locked securely again. (Only applies to models fitted with TP VARIO SPOUT). (See Operating the wood chipper in chapter 8).

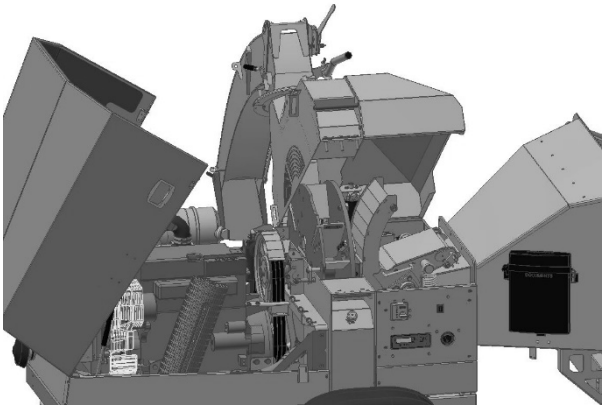
11.12 Hydraulic oil change

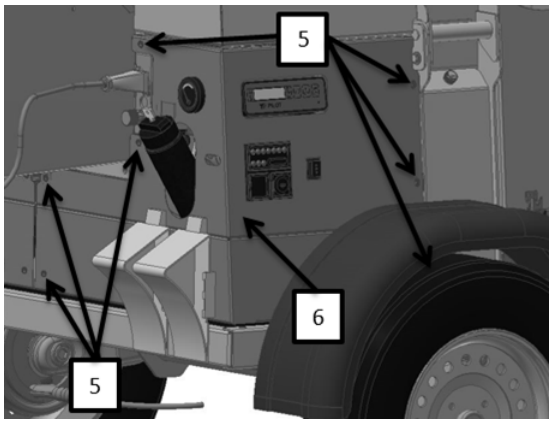
The wood chipper is filled at the factory with mineral hydraulic oil as standard (bio-oil may be purchased as extra equipment (see the hydraulic oil table, shown earlier in this chapter). When replacing the oil, use the same type of oil or an oil with equivalent specifications. Do not mix oils of different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

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

Replacing of hydraulic oil and return filter

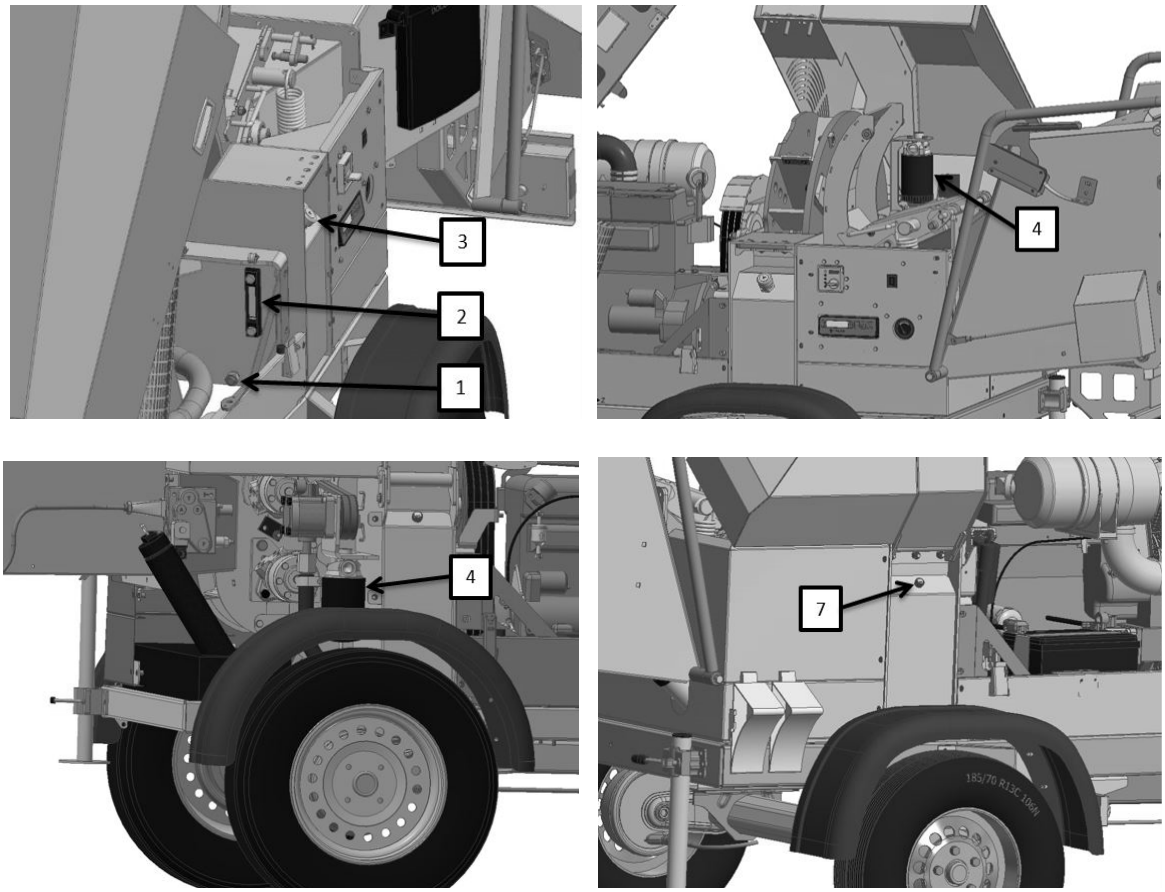
1. Open the bonnet as described in chapter 7. (See also illustrations below).





(Only on TP 165 and TP 176)

2. Loosen the seven bolts (5) and remove the side cover (6), which opens up access to the return filter (Only on TP 165 TP 176 and TP 176 P).
   You now have free access to the drain plug, return filter, breather plug, filler neck and level glass. (See illustrations below).



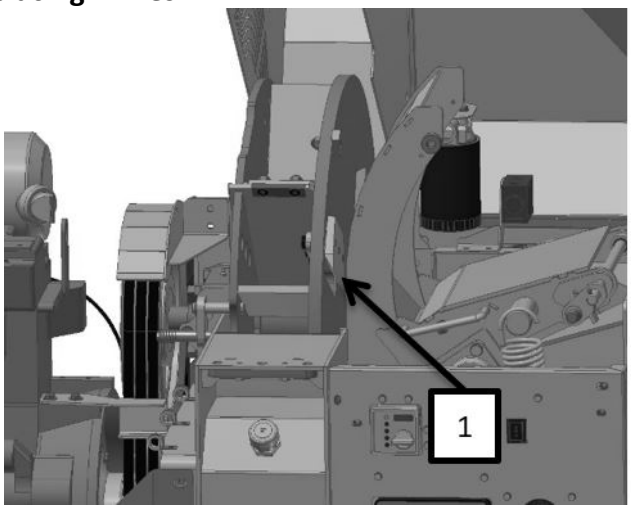
3. Remove the filler neck (3).
4. Unscrew the drain plug (1) and capture the oil in a container for suitable disposal.
5. When the tank is almost empty, suck the tank empty using an oil suction device.
6. Replace the return filter (4) with a new filter.
7. Screw the drain plug (1) back on.
8. Remove the breather plug (7) and slowly refill with new hydraulic oil. Fill the oil until the oil level is at the middle of the level glass (2).
9. Lastly, re-fit the filler neck (3) and the breather plug (7).
10. Re-fit the side cover (6) using the seven bolts (5). (Only on TP 165, TP 176 and TP 176 P).
11. Close the disc housing and bonnet as described in chapter 7.

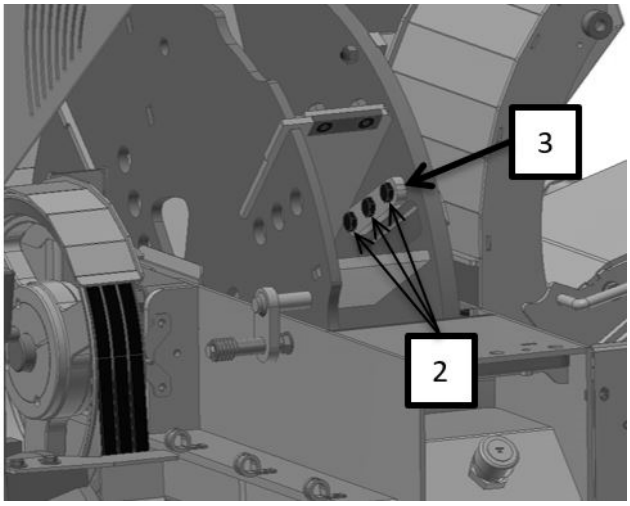
11.13 Knives

The wood chipper is equipped with knives (two or four, dependent on the model).

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

Replacing knives





1. Open the disc housing as described in chapter 7.

2. Remove the bolts (2) (two or three, dependent on the model) that hold the knives and clamping plates(3)/sliver breaker securely to the disc.

3. Remove the knives and sharpen/replace.

4. Carefully clean the knives (1), clamping plates (3)/sliver breaker and contact faces.

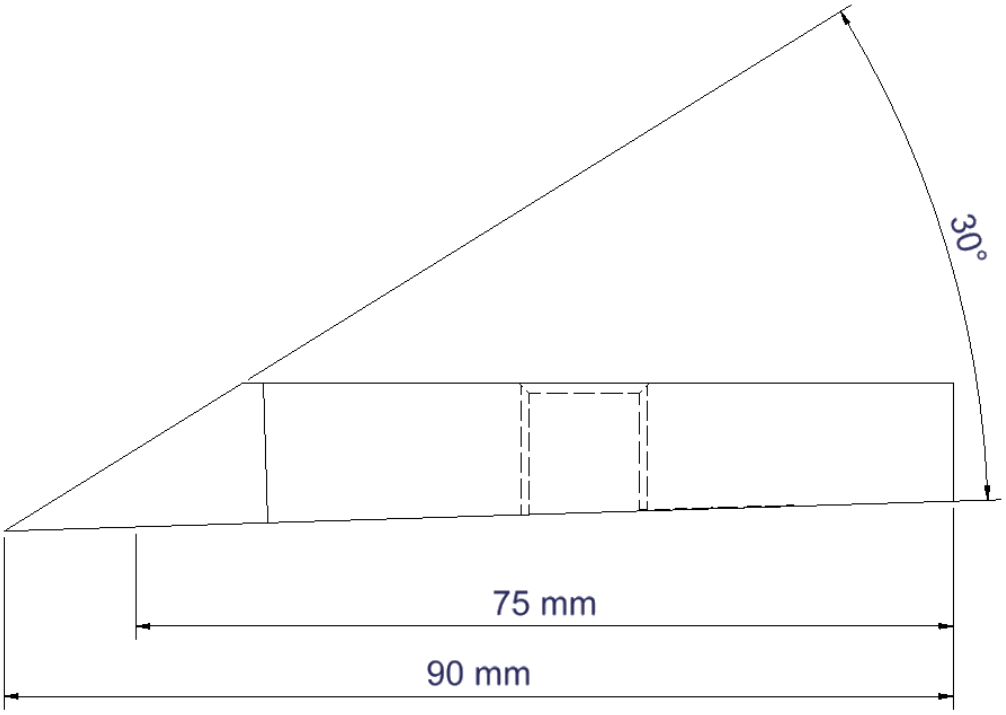
5. When fitting the knives (1), the bolts (2) must be lightly oiled (μ = 0.125), i.e. light oil, WD 40 or an equivalent product. Do not use copper grease, MoS_2 or similar low friction grease.

6. Check that the distance between the blade edge and the counterblade is set correctly to **D** (as described later in this chapter). Inspect all of the knives.

7. Tighten the bolts (2) (two or three depending on the model) to **110 Nm / 11 KPm**. Use a torque wrench to do this. (Available as extra equipment).

8. Finally, close the disc housing as described in chapter 7.

Sharpening knives



It is very important for woodchip quality that the knives are sharp. They must be checked at least once a day. Blade sharpening intervals can be extended by regularly sharpening with a carborundum stone.

Grinding must be performed as wet grinding with a header Never use an angle grinder or a similar tool to sharpen knives.

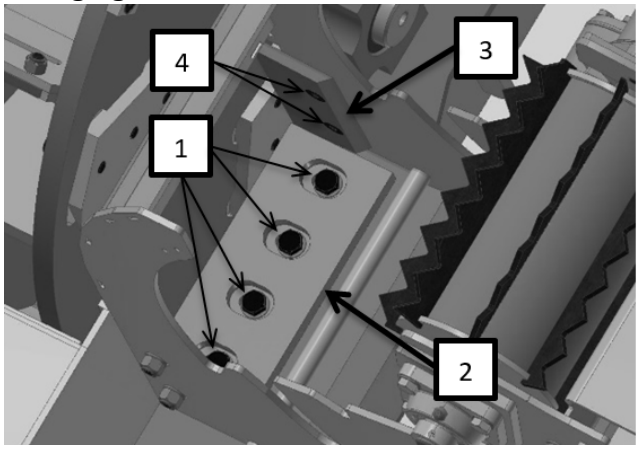
When sharpening knives, ensure that the width of the knives in the set is uniform. Their widths must be identical, to keep the disc in balance. This means that knives must always be sharpened in sets. The knives must not be ground down to a width of less than 75 mm After that they must be discarded.

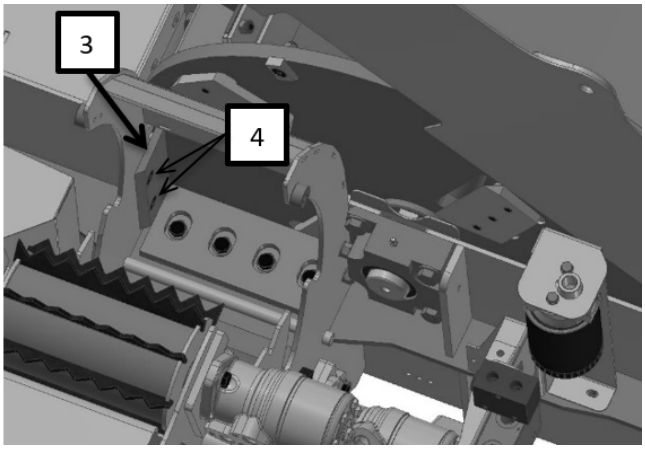
The edge of the knives must be ground at an angle of 30°

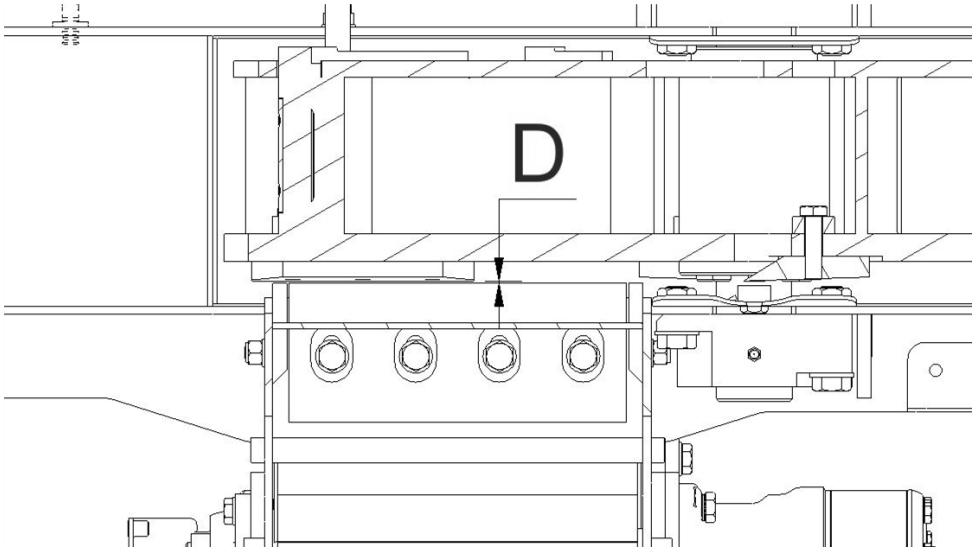
11.14 Counterknives

The counterknives in the wood chipper are 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 (one or two, dependent on the model) in the sides 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 disc housing as described in chapter 7.
2. Open the roller console as described in chapter 7.
3. Remove the M10 countersunk bolts (4), which hold the vertical counterknife in place (3) (one or two, dependent on the model).
4. Remove and replace the vertical counterknife (3) (one or two, dependent on the model).

5. Remove the M12 bolts (1) (three or four, dependent on the model), which hold the horizontal counterknife (2) in place.

6. Remove the horizontal counterknife (2) and reverse or replace.

7. Carefully clean the counterknife (2,3) and contact surface.

8. Re-fit the counterknives (2,3) and adjust the distance between the knife edge and the counterknife to distance **D** using a precision feeler gauge (see illustration above).

9. The bolts in the horizontal counterknife (2) must be tightened to:
   100 Nm / 10 KPm. (For TP 165, TP 176)
   Use a torque spanner for this purpose (available as extra equipment).

10. The bolts in the horizontal counterknife (3) must be tightened to **50 Nm / 5 KPm.** Use a torque wrench to do this. (Available as extra equipment).

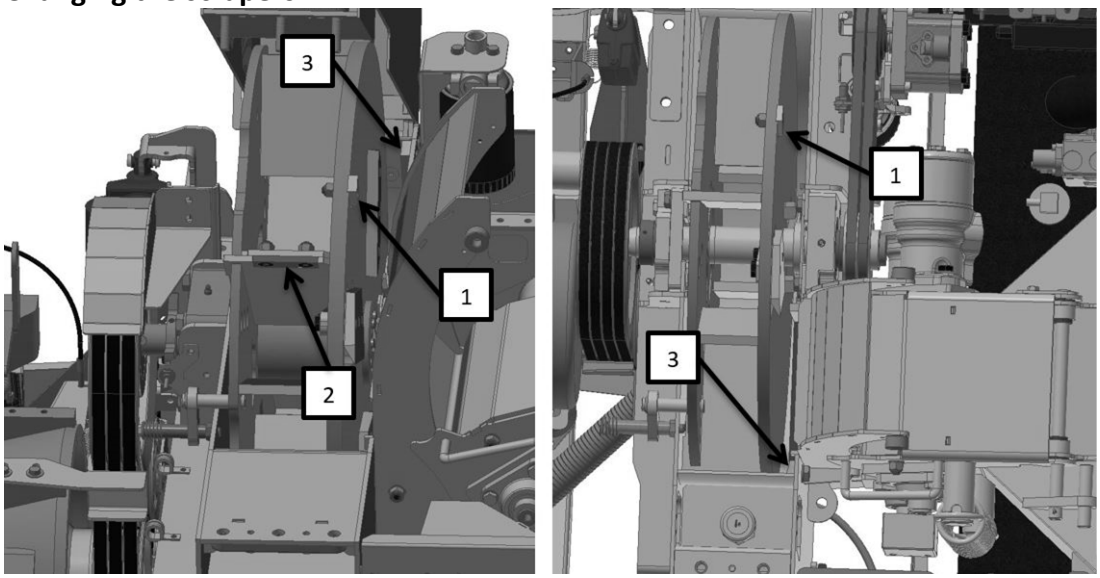
11. Once the counterknives (2) have been reversed or replaced (3) and all of the bolts (1,4) have been tightened, close the roller console as described in chapter 7.

12. Finally, close the disc housing as described in chapter 7.

11.15 Wipers and scrapers

The wood chipper is equipped with square wipers on the disc (one or two, dependent on the model) and a triangle wiper in the disc housing. The disc is also fitted (dependent on the model) with four scrapers. The purpose of the square and triangle 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. The square wiper and scraper reduce fuel consumption and wear on the casing. Both the square wiper and scraper can be reversed once, before being replaced, while the triangle wiper should always be replaced when it is worn. The square wipers belong together as a set and must always be replaced in pairs. The same also applies to the scrapers, which also come as a set and must be replaced in pairs.

Changing the scrapers



1. Open the disc housing as described in chapter 7.

2. Remove the square scrapers (1) (one or two, dependent on the model), the four scrapers (2)(dependent on the model), and the triangle scraper (3).

3. Reverse the square scraper (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 scrapers.

   Reverse the scraper (2) (dependent on the model) 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 scraper (3) cannot be reversed and must always be replaced.

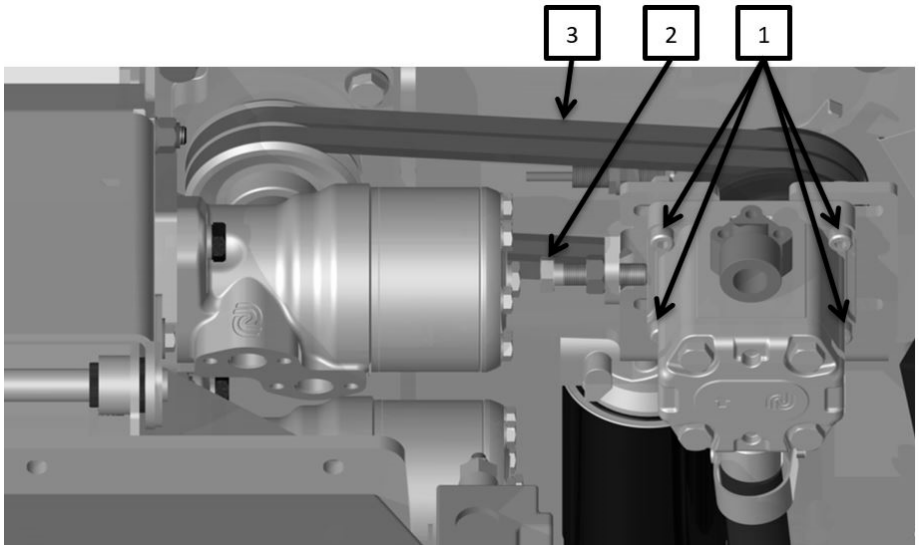
4. Clean the contact surfaces and the scrapers (1,3)/scraper (2) and re-fit.

5. Finally, close the disc housing as described in chapter 7.

11.16 Pump transmission

The feed rollers are driven hydraulically. On the TP 165, TP 176 and TP 176 P, the hydraulic pump for the feed roller is driven by the V-belts. The V-belts must be checked regularly or whenever the belts are suspected of being slack.

Adjusting the V-belts



1. Open the disc housing as described in chapter 7.

2. Remove the four bolts (1) which hold the hydraulic pump in place.

3. Adjust the tension using by using the adjusting screw (2). Used belts are allowed to bend 5.5 mm when they are pushed down with 20 N (2 kg), for new belts this value is 23 N (2.3 kg).
   The belt tension can be measured with a suitable measuring gauge (available as extra equipment).

4. Tighten the four bolts (1) which hold the hydraulic pump in place.

5. Finally, close the disc housing as described in chapter 7.

Pump transmission (TRACK model)

The feed rollers and the belts are driven hydraulically. The hydraulic pump for the feed rollers and belts is run by a V-belt. The V-belt must be checked regularly or whenever it is suspected that it may be slack.

Procedure:

Stop the engine. Ensure that the disc is at a **complete** standstill. Turn the ejector spout so that it faces away from the disc housing (see **Fejl! Henvisningskilde ikke fundet.**). Loosen the bolts that hold the two parts of the disc housing together and open the disc housing.

Loosen the four bolts that hold the hydraulic pump in place and adjust the tension by turning the adjusting screw. Used belts are allowed to bend 3.6 mm when they are pushed down with 46 N (4.6 kg), for new belts this value is 52 N (5.2 kg). (See Figure 2). The belts' tension can be measured with a suitable gauge, which can be purchased as an accessory.

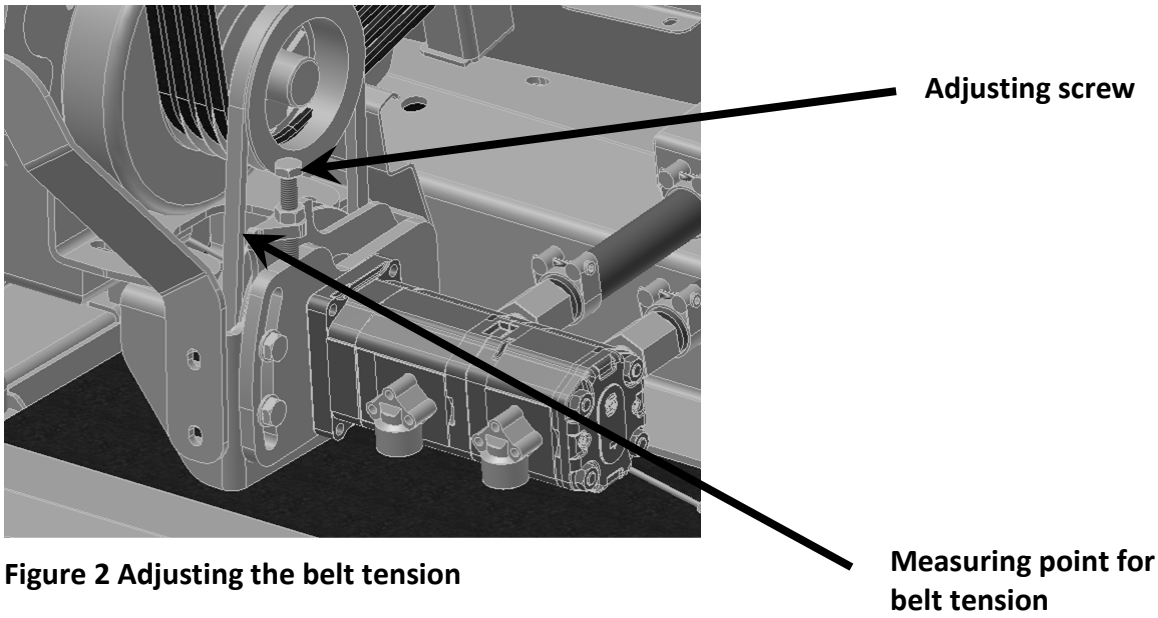


Figure 2 Adjusting the belt tension

12 Operation instructions for TP 176 TRACK

12.1 Operation

The TP 176 TRACK is operated using the remote control. See manual.
Manual throttle.

When the engine has started, the machine can be driven around the terrain. Activate the two forward drive handles at the same time forward and the machine will drive straight forward. If only the left handle is pushed forward, the machine will turn to the right and vice versa if the right

handle is pushed forward. If the two handles are activated in opposite directions, the machine will rotate.
The handle on the right side controls the width setting for the belts. They are activated so the belts are either together or completely apart.
The forward drive speed can be regulated from 0.35–3.7 km/h with the hydraulic gear change (HIGH is twice the speed of LOW) and with the engine rpm, which is regulated with the throttle.
If the wood chipper is running and the forward drive handles are activated, the feed rollers will stop until the forward drive handles are released again.

NB:
In case of continual operation, the TP 176 TRACK may operate on max. 20° inclines, when used for short operations (max. 10 minutes duration) on 30° inclines.

12.2 Related to battery

Welding



When welding on the wood chipper, the frame 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).

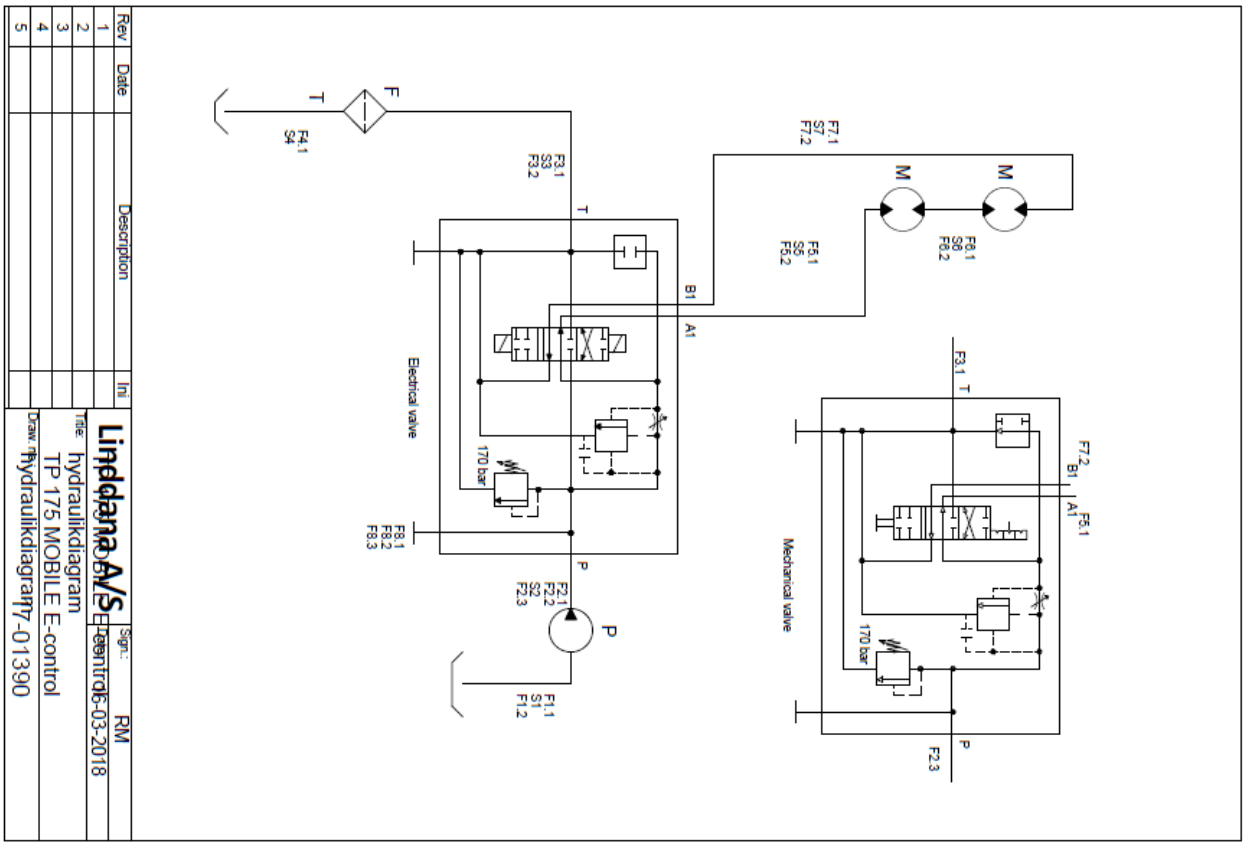
13 Hydraulic system

13.1 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.

13.2 Hydraulics diagram (TP 165/176 MOBILE)



S1: 16-00335 Sugeslange TP 160, TP 175
F1.1: 31005260 Rørstuds til pumpe
F1.2 : 20001117 Reduktionsstuds 3/4 x 1/2 BSP
F1.3 20020410 Flange TR30-13,5 ½
F1.4 20040041 Spændebånd, enkelt HPJ 38

F2.1: 20020087 Vinkel flange 1/2"
F2.2: 20001102 Indskruning 12x1/2
S2: 20020378 Slange 12x340mm 2x90 0 gr
F2.3 20001102 Indskruning 12x1/2 (electrical valve)
F2.3 20001101 Indskruning 12x3/8 (mechanical valve)

F3.1: 20001103 Indskruning 12x3/4 (electrical valve)
F3.1 20001101 Indskruning 12x3/8 (mechanical valve)
S3: 20020376 Slange 12x500mm 2x90 0gr
F3.2: 20001103 Indskruning 12x3/4

Oil-filter

F4.1: 20001201 Indskruning 15x3/4
S4: 20020528 Slange 15x700mm 2x90 0 gr

F5.1: 20001102 Indskruning 12x1/2 (electrical valve)
F5.1 20001101 Indskruning 12x3/8 (mechanical valve)
S5: 20020377 Slange 12x400mm 2x90 0 gr
F5.2: 20001102 Indskruning 12x1/2

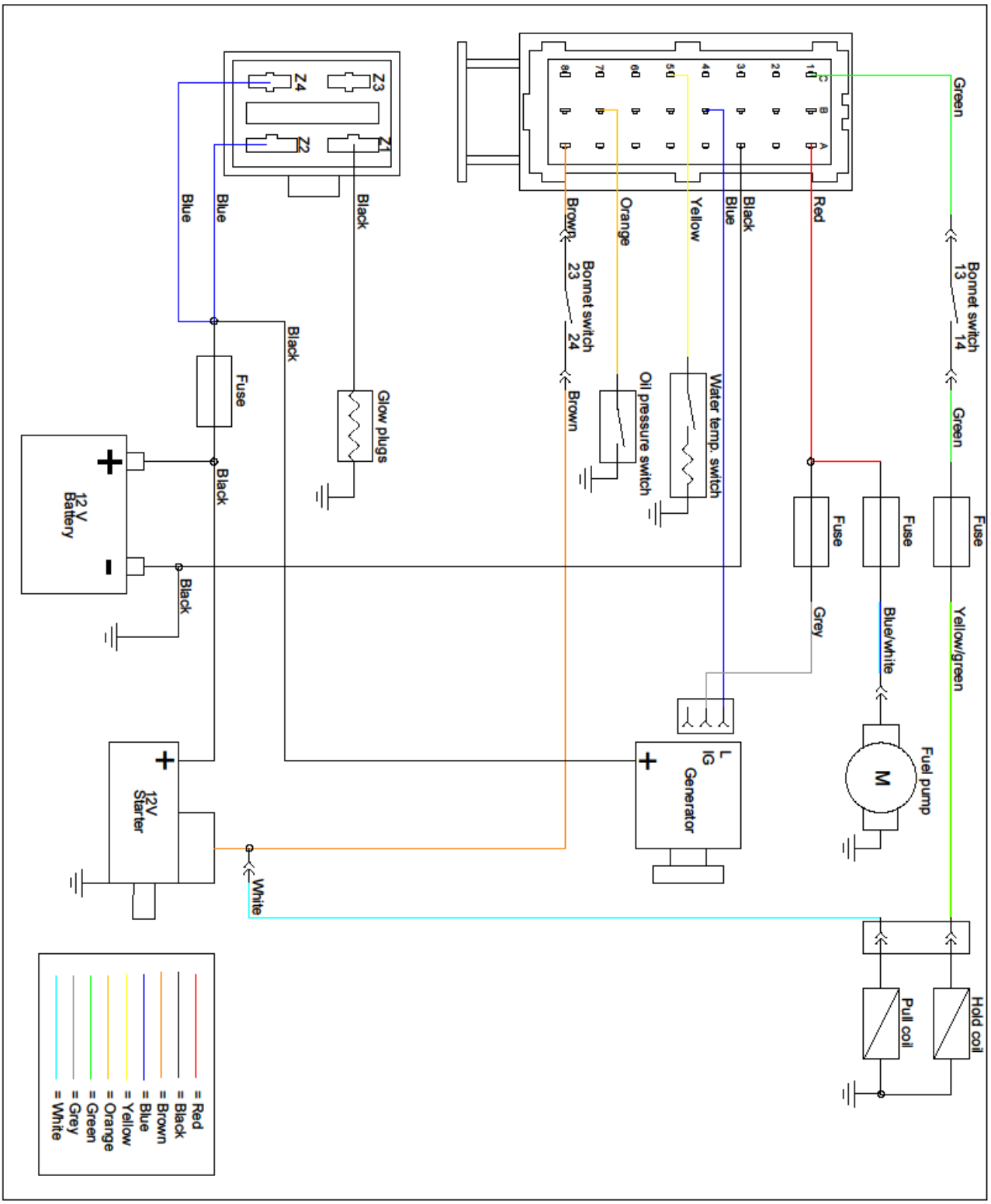
F6.1: 20001102 Indskruning 12x1/2
S6: 81010102 Slange 12x900mm 2x90 0gr
F6.2 20001102 Indskruning 12x1/2

F7.1 20001102 Indskruning 12x1/2
S7: 20020376 Slange 12x500mm 2x90 0gr
F7.2 20001102 Indskruning 12x1/2 (electrical valve)
F7.2 20001101 Indskruning 12x3/8 (mechanical valve)

F8.1 20001101 Indskruning 1/4x10mm
F8.2 20001009 Vinkel 10mm med en omløber
F8.3 20042863 Testnippel

Electrical diagram (TP 176 MOBILE)
The electrical diagram for both the engine and wood chipper is shown here.
The diagrams and power line are so comprehensive that they are divided into several images, with interfaces where appropriate.

13.3 Motor diagram TP 176 MOBILE



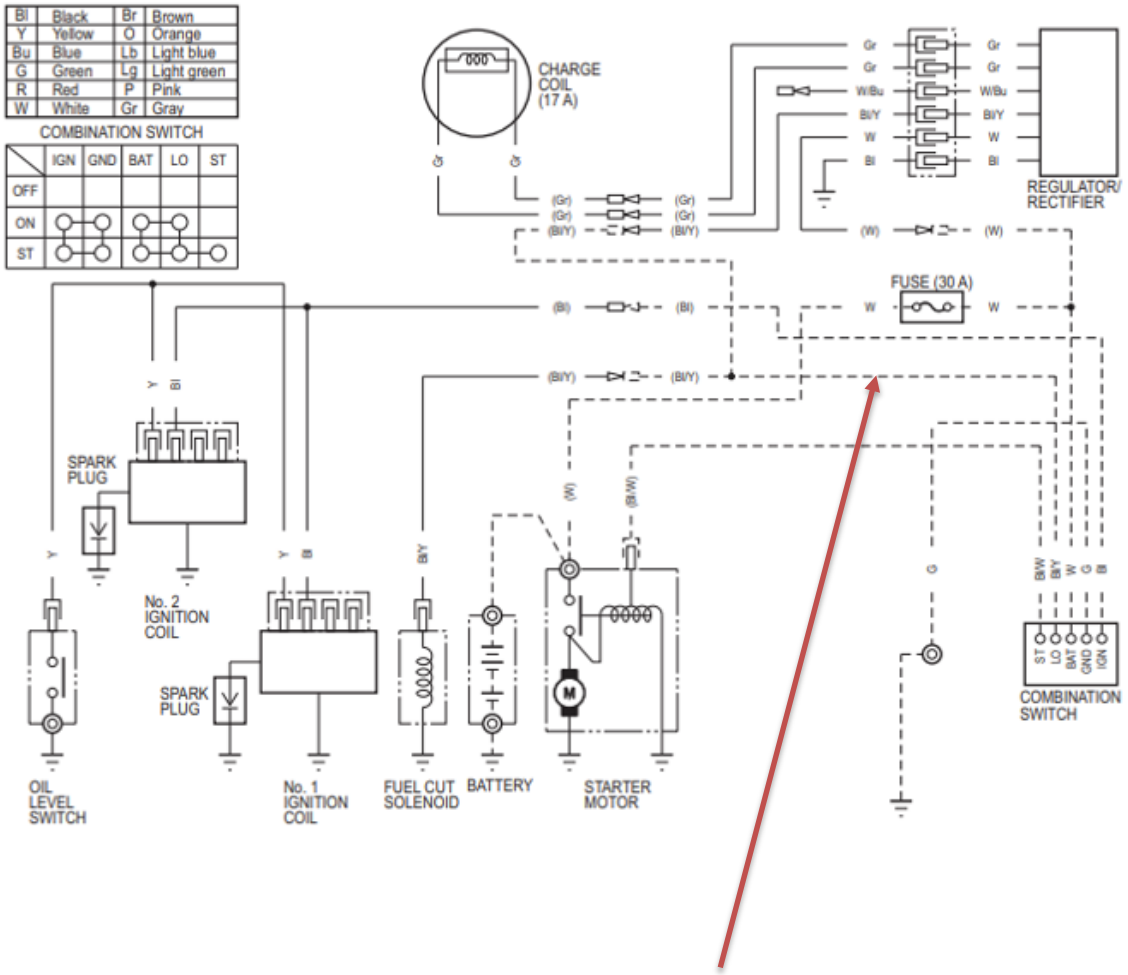
13.4 Diagram wood chipper TP 176 MOBILE

13.5 Diagram TP 165

Engine Harness Honda GX690

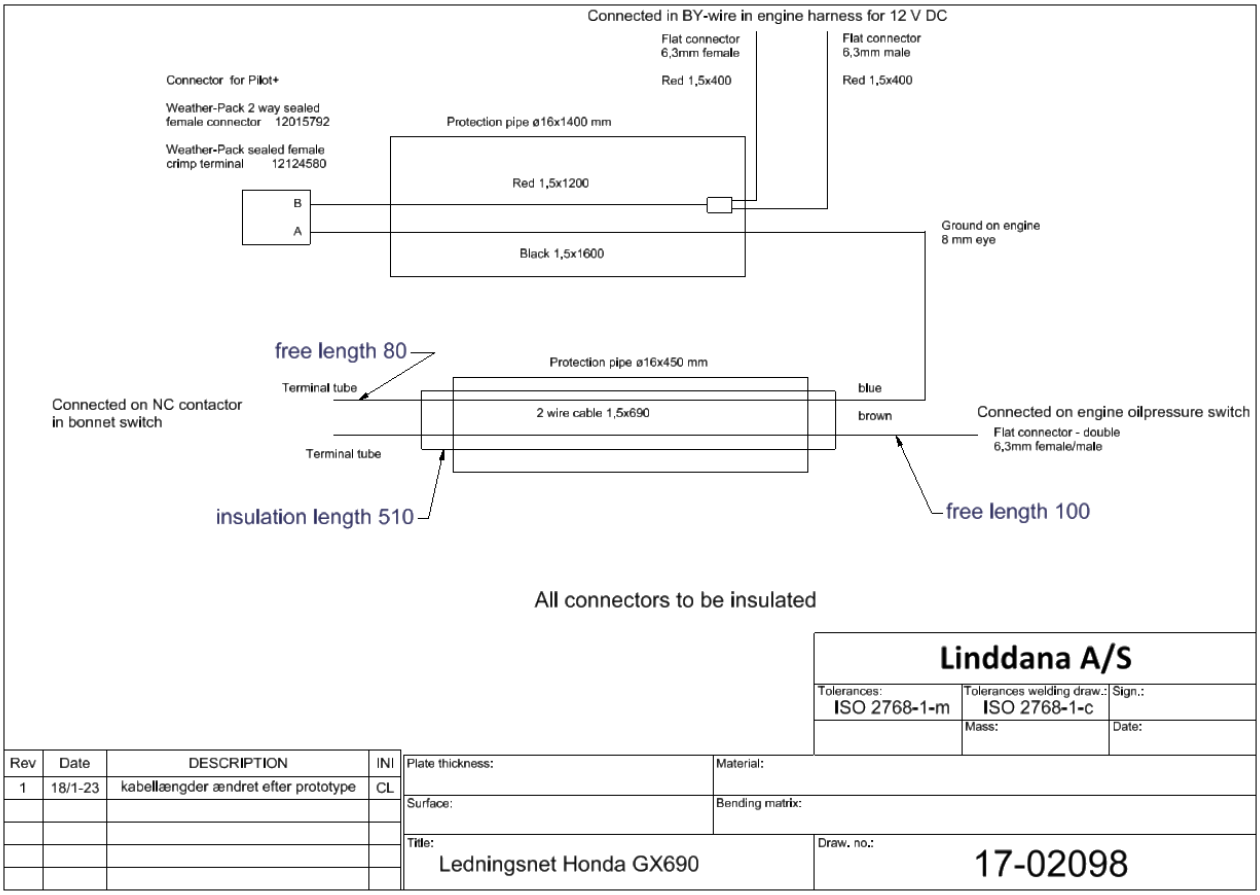
WIRING DIAGRAMS

17 A CHARGE COIL/REMOTE CONTROL TYPE

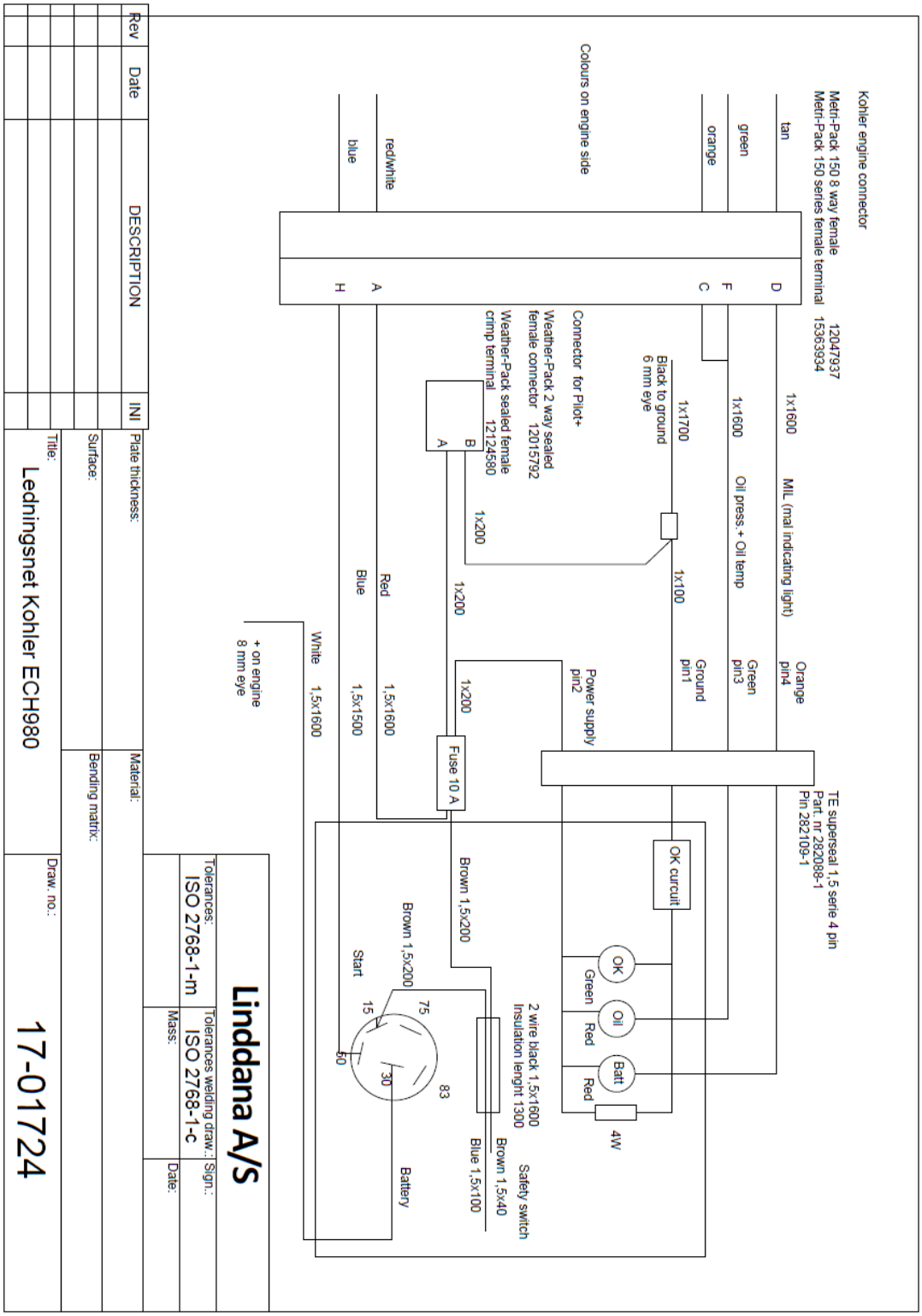


Connecting point for 12 DC

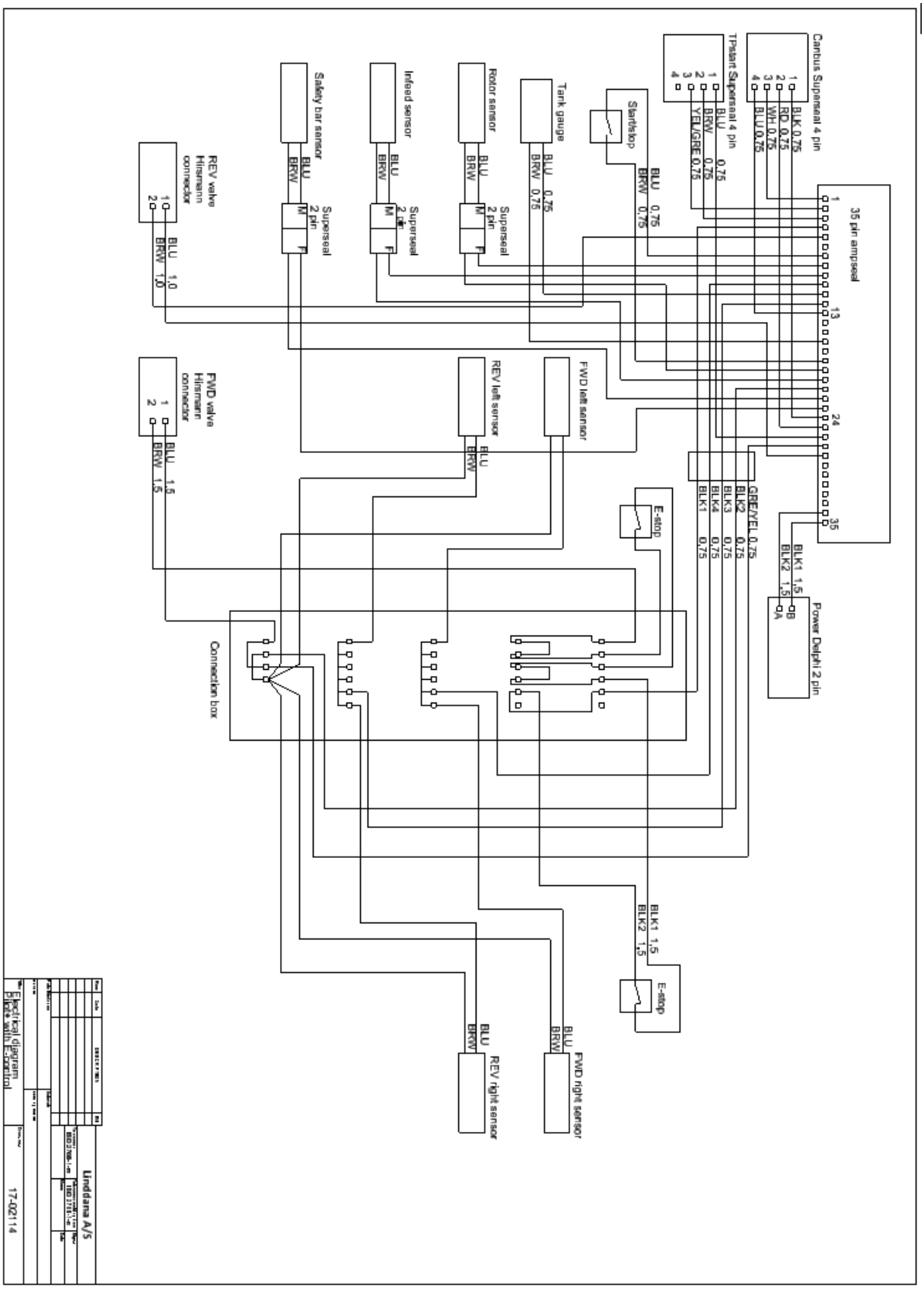
Safety and power supply harness for Honda GX690



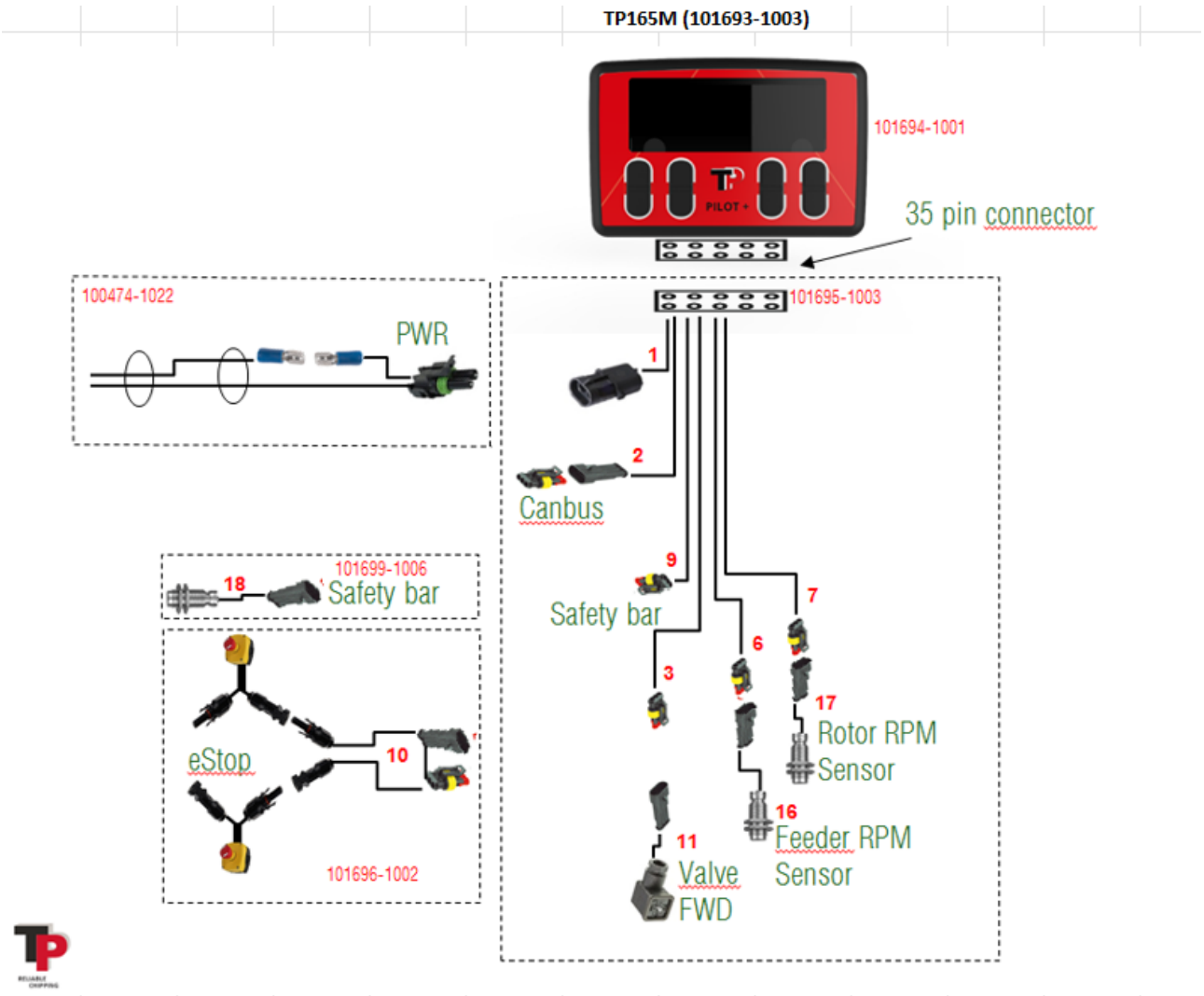
Kohler ECH 980 engine



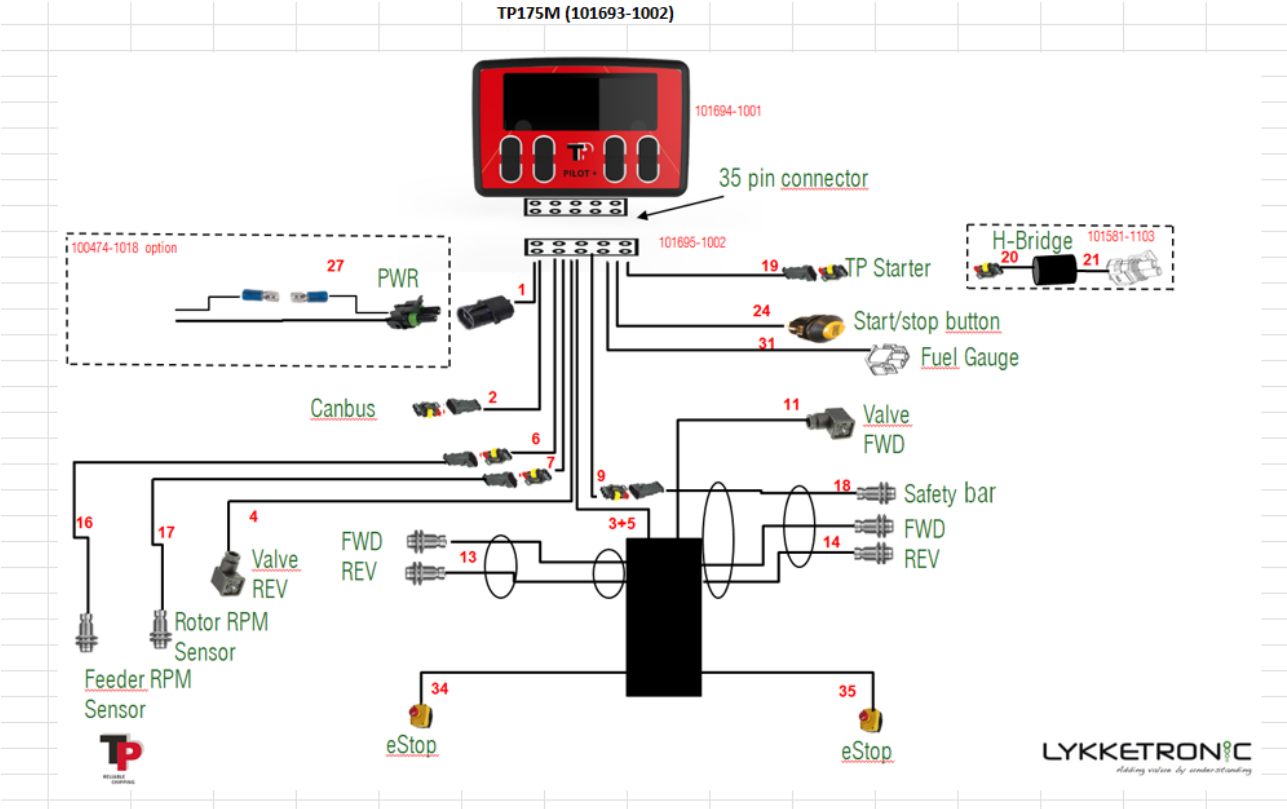
Wiring diagram Pilot+



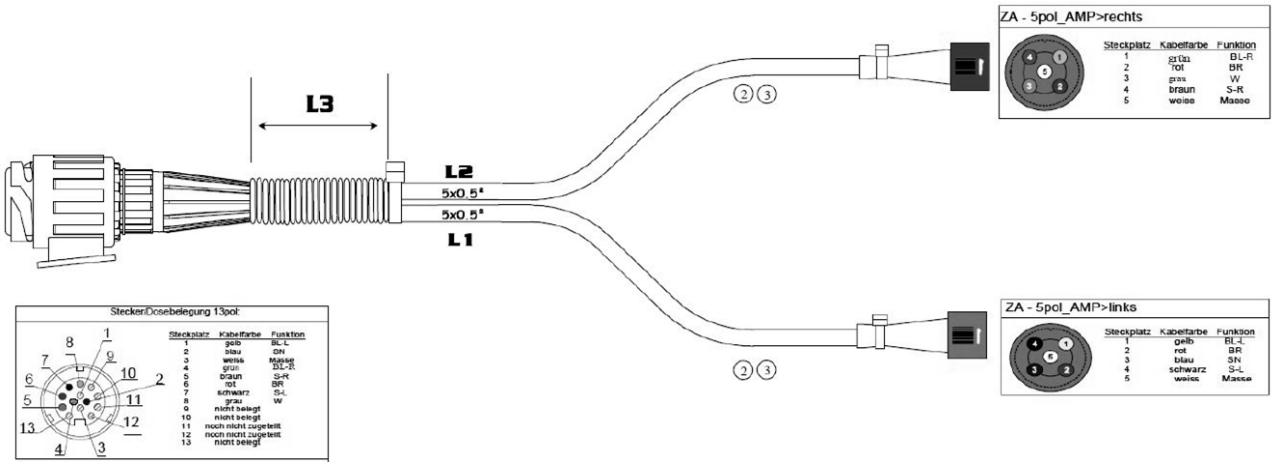
TP165 mobile Pilot+ harness

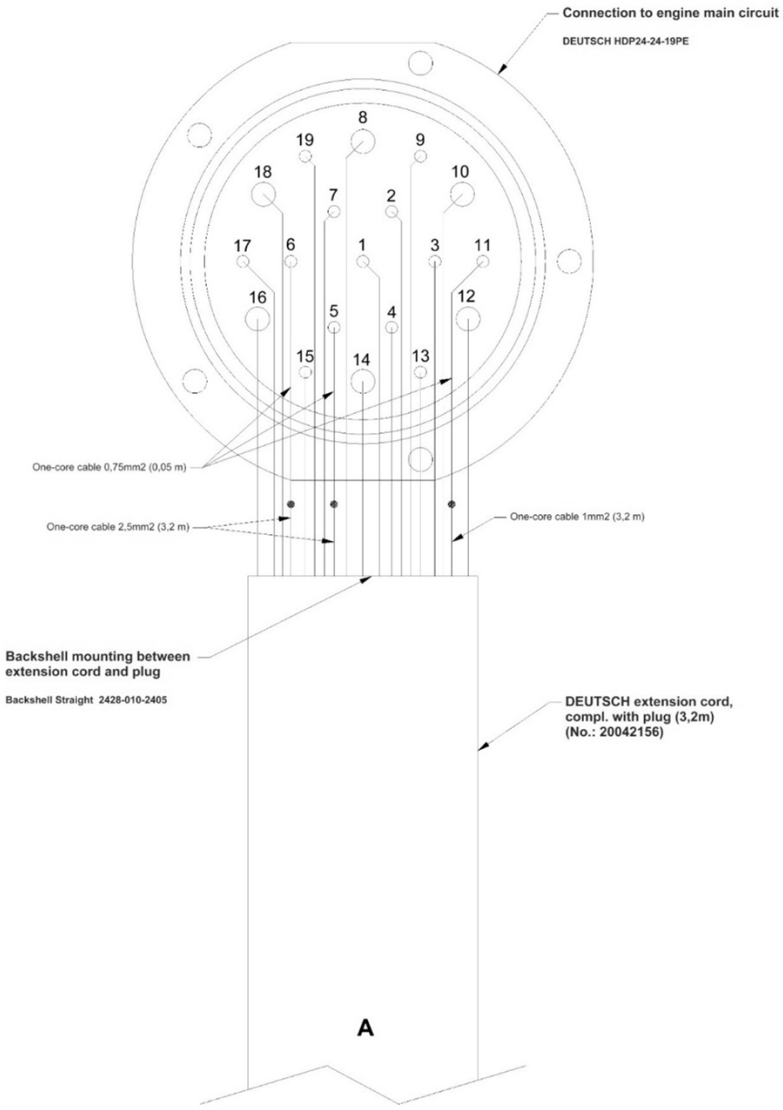


TP176 mobile Pilot+ harness

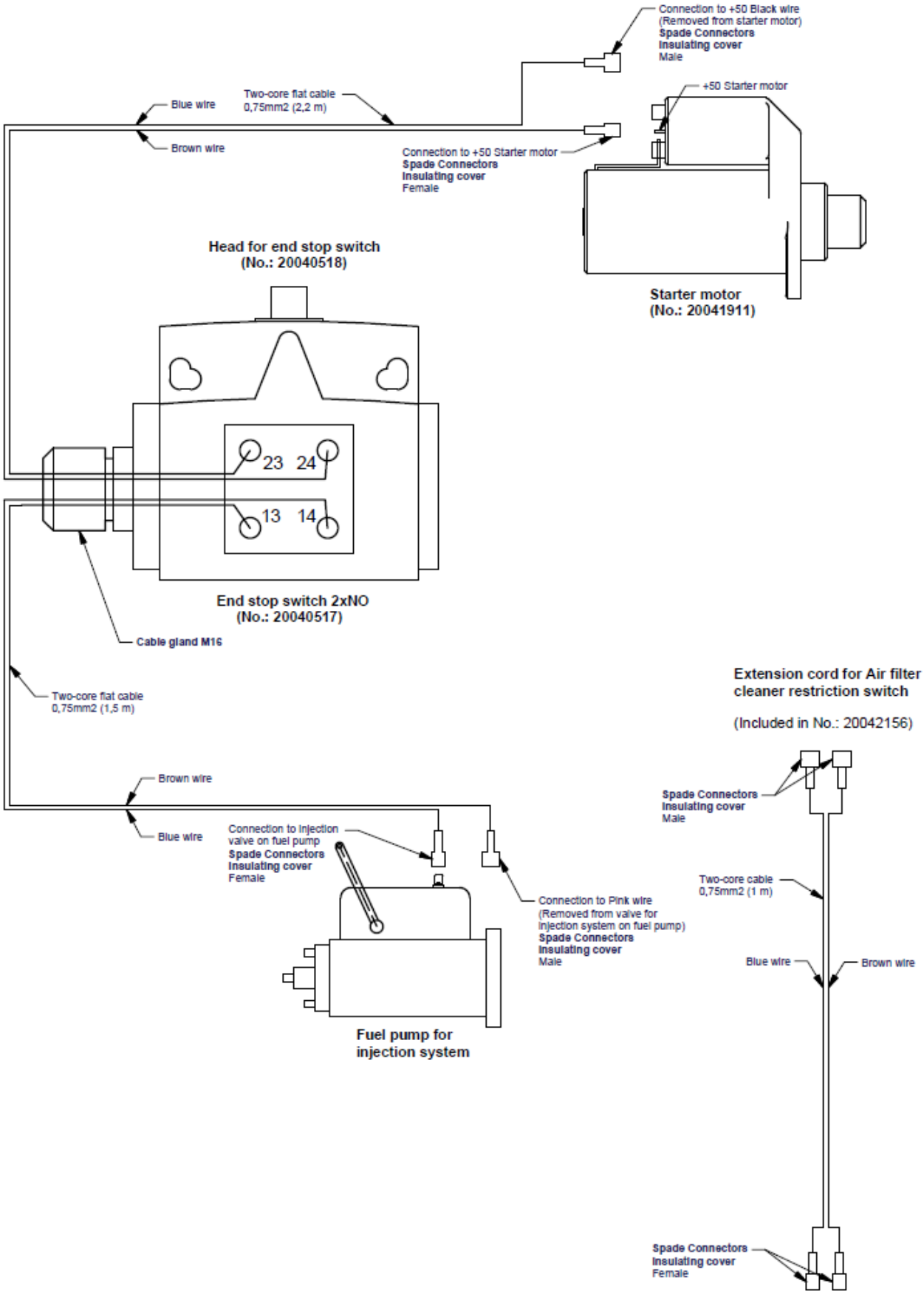


13.6 Diagram trailer

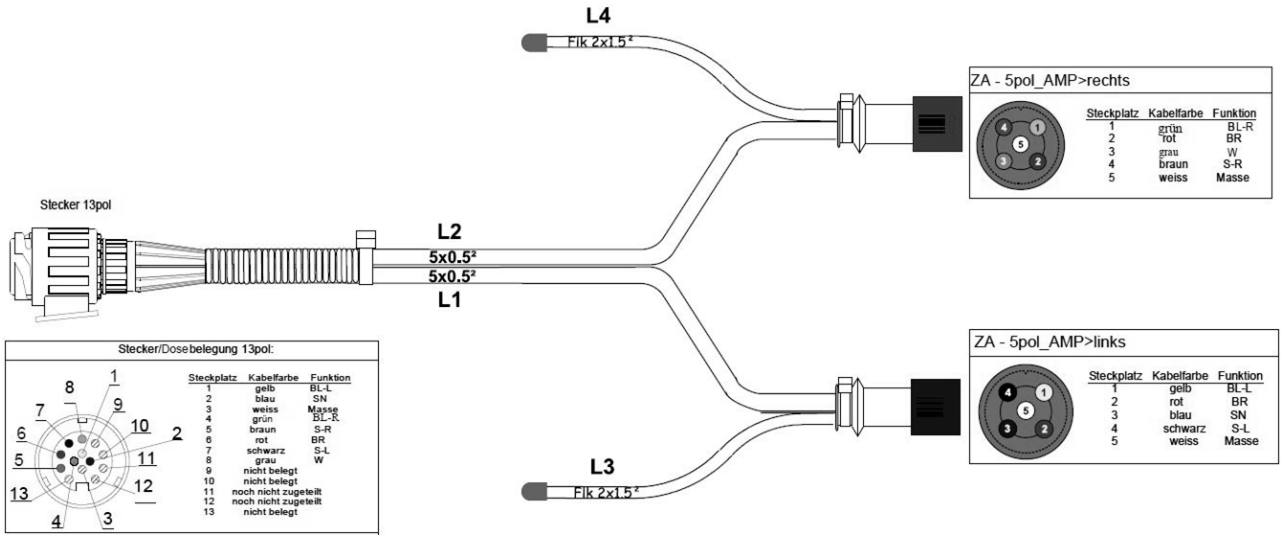



Connection to engine main circuit
DEUTSCH HDP24-24-19PE
8
19
9
18
10
7
2
17
6
1
3
11
16
5
4
12
15
14
13
One-core cable 0,75mm2 (0,05 m)
One-core cable 2,5mm2 (3,2 m)
One-core cable 1mm2 (3,2 m)
Backshell mounting between extension cord and plug
Backshell Straight 2428-010-2405
DEUTSCH extension cord, compl. with plug (3,2m) (No.: 20042156)
A

Connection descriptions for Deutsch extension cord			
Pin / Wire	Functions	Description	Wire thickness (mm2)
1	Oil pressure switch	+ From key panel to Oil pressure switch; When Oil pressure switch connect the ground (a lamb is managed) (ENGINE STOPPED BY SWITCH OFF INJECTION PUMP SOLENOID VALVE) If the cable to the Oil pressure switch not have been connected, the warning light flashing throughhout the preheating and the cranking phase	0,75
2	L alternator warning lamp (Max 0.5A) (excitation D+ by connection 6)	+ From key panel to alternator (a lamb is managed) (ENGINE STOPPED IF ALTERNATOR DON´T CHARGE BY SWITCH OFF OF INJECTION PUMP SOLENOID VALVE) If the cable to the Oil pressure switch not have been connected, the warning light flashing throughhout the preheating and the cranking phase	0,75
3	Max coolant temperature (switch)	+ From key panel to max temperature switch that give ground (a lamb is managed) (ENGINE STOPPED BY SWITCH OFF OF INJECTION PUMP SOLENOID VALVE)	0,75
4	Air cleaner restriction indicator switch	+ From key panel to indicator switch that give the ground (a lamb is managed)	0,75
5	31 Ground battery	Ground from panel to - Battery	2,5
6	+ Solenoid valve of injection system +IG Excitation alternator +15 under key (manage a relay)		2,5
7	External warning lamb available for customer (to be supplier a+)	The key panel supply a ground to the extra warning for customer switch (give + under key and apply external lamb) (Max 1A to ground)	0,75
8	+ 50 Starter motor	+ From key panel to - Battery (Max 20A)	2,5
9	Warning stop available for customer	+ From key panel to customer switch that give the ground (a lamb is managed) (ENGINE STOPPED BY SWITCH OF INJECTION)	0,75
10	+ Grid heater (Max 3A)	+ From key panel to grid heater, that gives the ground. Manage a grid heater of 550W by an additional external relay applied from customer	2,5
11	+ Electric fuel feed pump	+ From key panel to fuel feed pump that gives the ground	1
12			
13			
14	+ 30 Battery	+ From battery to 30 of key panel	2,5
15	Warning lamb available for customer (Also suitable for check the colant level in the radiator by sensor on/off)	+ From key panel to switch device that gives the ground (a lamb is managed)	0,75
16			
17			
18	+ Cold start advance	+ From key panel to cold start advance that gives the ground.It´s ON only after cranking. It´s OFF during cranking. Manage the cold start advance of injection pump; 120 sec. ON after cranking. (Max 3A)	2,5
19			


Connection to +50 Black wire
(Removed from starter motor)
Spade Connectors
Insulating cover
Male
+50 Starter motor
Two-core flat cable
0,75mm2 (2,2 m)
Blue wire
Brown wire
Connection to +50 Starter motor
Spade Connectors
Insulating cover
Female
Head for end stop switch
(No.: 20040518)
Starter motor
(No.: 20041911)
23
24
13
14
End stop switch 2xNO
(No.: 20040517)
Cable gland M16
Two-core flat cable
0,75mm2 (1,5 m)
Extension cord for Air filter
cleaner restriction switch
(Included in No.: 20042156)
Brown wire
Blue wire
Connection to Injection
valve on fuel pump
Spade Connectors
Insulating cover
Female
Connection to Pink wire
(Removed from valve for
injection system on fuel pump)
Spade Connectors
Insulating cover
Male
Spade Connectors
Insulating cover
Male
Two-core cable
0,75mm2 (1 m)
Blue wire
Brown wire
Fuel pump for
injection system
Spade Connectors
Insulating cover
Female

13.7 Diagram trailer



14 Troubleshooting

Check possible causes before contacting the supplier.

Problem/Possible cause	Solution
The rollers do not turn:	
The operation bar is in the 0 position.	Put the operation bow in the A position.
The roller speed controller is screwed out too far (Dependent on the model)	Turn up the flow.
The rollers are blocked	Clean below and behind the blocked roller(s).
Bypass valve to rpm monitor is dirty	Clean the bypass valve.
rpm monitor is not connected to the rollers	Check rpm value on disc/engine.
The rollers rotate too slowly:	
Chip size set for two low a value. (Dependent on the model)	Increase chip size by turning up the flow.
Not enough oil in the hydraulics system	Fill up with hydraulic oil.
Pulling power in the rollers is impaired:	
The hydraulic oil is becoming too hot.	Let the wood chipper cool down while checking the reason.
The V-belts are too slack (Dependent on the model)	Tighten the V-belts.
The hydraulic filter is blocked	Replace the hydraulic filter.
The pressure control valve at the roller speed regulator is dirty	Clean the pressure control valve.
Hydraulic oil is worn	Change the hydraulic oil.
The oil pump is worn or damaged	Replace the hydraulic pump.
The oil engine is worn or damaged	Replace the oil engine.
Unsatisfactory woodchip quality:	
The knives are blunt.	Sharpen the knives.
The counterknives are worn.	Reverse/replace counterknives.
The knives are excessively worn.	Replace the knives.
The distance between knives and counterknives is too great,	Adjust the distance between knives and counterknives.
Sliver breaker not mounted or worn.	Fit or replace the sliver breaker.
Facing plate is not fitted.	Fit facing plate.
Poor ejection of woodchip:	
Not enough driving power.	The engine does not provide sufficient power
Scrapers are worn.	Replace the scrapers
The facing plate in the top part.	Remove the facing plate from the top part

15 Warranty terms wood chipper

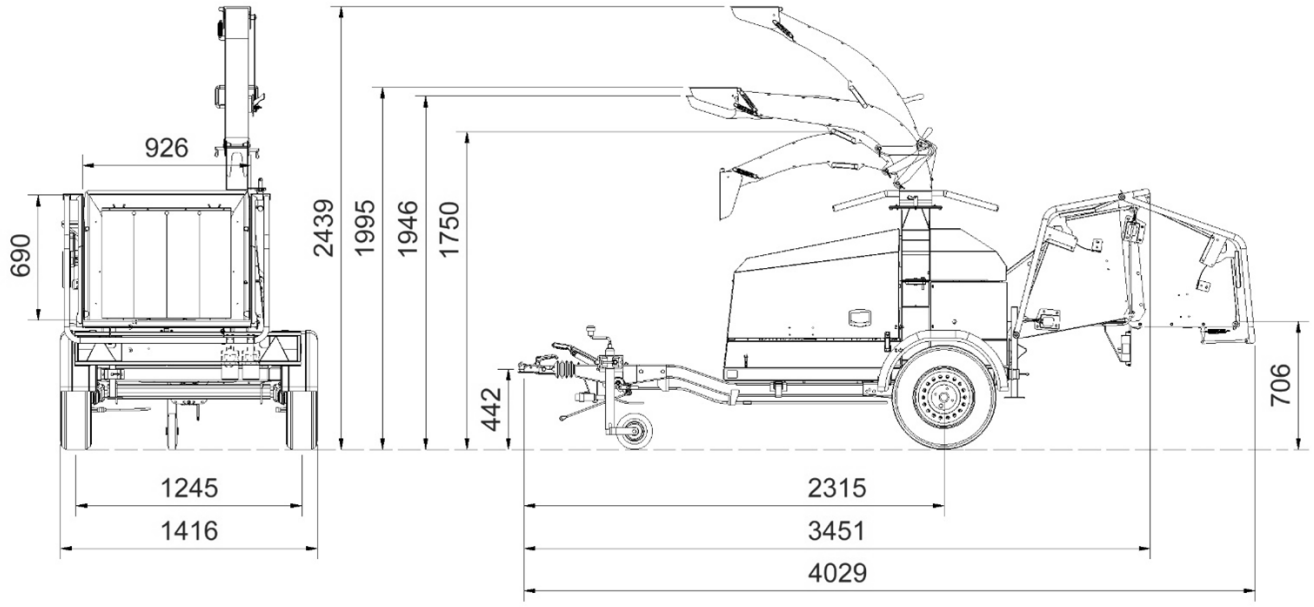
Refer to the delivered warranty certificate.

16 Technical data wood chipper

Type	TP 165 MOBILE	TP 165 MOBILE	TP 176 MOBILE	TP 176 MOBILE	TP 176 MOBILE	TP 176 MOBILE P
Turntable	No	No	No	No	No	No
Rotation angle	0°	0°	0°	0°	0°	0°
Height-adjustable drawbar	No	No	No	No	No	No
Chipping principle	Disc chipper	Disc chipper	Disc chipper	Disc chipper	Disc chipper	Disc chipper
Disc diameter, mm	599	599	599	599	599	599
Disc weight, kg	69	69	69	69	69	69
rpm disc	1482	1482	1375	1360	1280	1440
Total number of knives	2	2	2	2	2	2
Engine	Kohler CH732	Honda GX690	Kubota D1305	Kubota D1505	Kohler LDW 1404	Kohler ECH980
Power, kW/(HP)	17.5 (23.5)	16.5 (22.1)	18.5/(24.8)	18.5/(24.8)	26/(35)	27.6/(37)
Fuel type	Petrol	Petrol	Diesel	Diesel	Diesel	Petrol
Max. wood diameter, mm	176	176	176	176	176	176
Chip length, mm	12	12	10-20	10-20	10-20	10-20
Knife position, mm	20	20	20	20	20	20
Tyre fitting	155/80R13	155/80R13	155/80R13	155/80R13	155/80R13	155/80R13
Tyre pressure, bar/PSI	4.5/65	4.5/65	4.5/65	4.5/65	4.5/65	4.5/65
Deadweight without extra equipment, kg	710	710	748	750	748	665
Permitted total weight, kg	750	750	750	750	750	750

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

Dimensional drawing for TP 165/176 MOBILE



17 Extra equipment

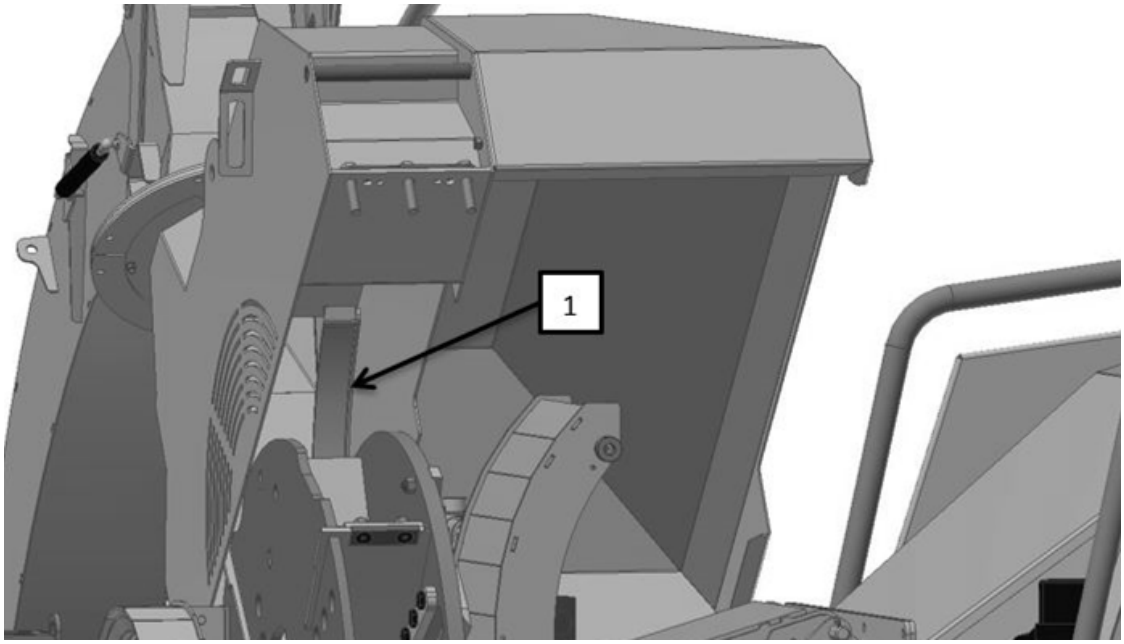
17.1 TP CHIP KIT

The TP CHIP KIT includes sliver breakers (two or four, dependent on the model), 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 CHIP KIT 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.

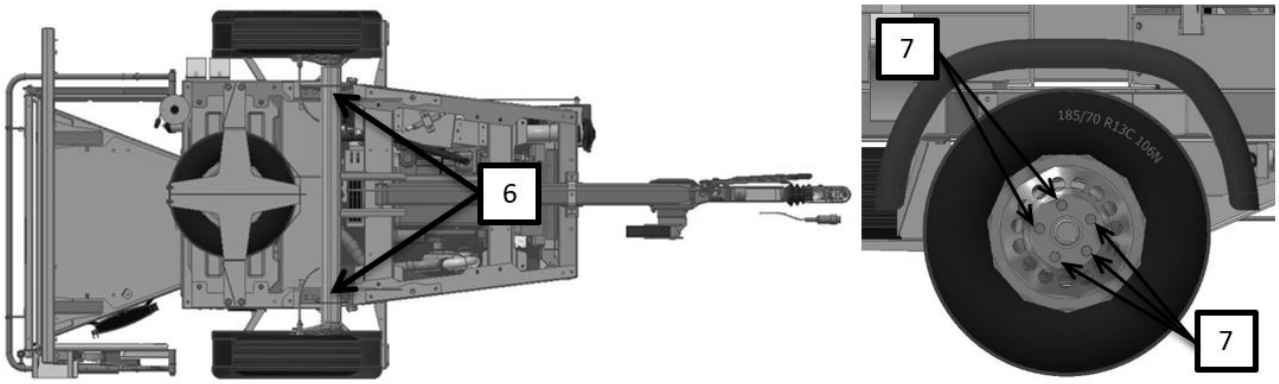
2. Remove the facing plate (1), which is fitted with two M12 bolts in the side of the top disc housing.

3. Replace the facing plate (1) if it is worn.

4. Fit the new facing plate (1) and tighten using the two M12 bolts in the side of the disc housing.

5. Finally, close the disc housing as described in chapter 7.

17.2 WHEEL CHANGE



1. Use the jack to lift wood chipper using one of the two lifting points (6) depending on which wheel is to be replaced. Always put blocks against the wheel until you change the wheel!

2. Remove the wheel bolts (7) (four or five, dependent on the model), which hold the wheel securely to the wheel axle.

3. Now replace the wheel with the spare wheel and secure the spare wheel using the wheel bolts (7) (four or five, dependent on the model). Tighten the wheel bolts to 120 Nm. Use a torque wrench to do this. (Available as extra equipment).

4. Finally, fit the punctured/damaged wheel inside the spare wheel holder.

18 Spare Parts Catalogue