

# **Operator's manual**

# **P520 D**



Please read the operator's manual carefully and make sure you understand the instructions before using the machine.

**English**

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# Service journal

## Pre-delivery service

- 1 Charge the battery for at least 4 hours at max. 3 amp.
- 2 Check coolant level and antifreeze.
- 3 Check and adjust tyre pressure (150 kPa, 1,5 bar, 21,8 PSI).
- 4 Make sure the correct amount of oil is in the cutting unit's bevel gear.
- 5 Check that the right amount of oil is in the engine.
- 6 Check that there is oil in the transmission's oil tank.
- 7 Fit cutting unit.
- 8 Adjust cutting unit:  
  
Adjust cutting unit so that rear edge is about 6-9 mm higher than front edge.
- 9 Lubricate the universal drive shaft with grease.
- 10 Connect battery.
- 11 Fill with fuel and start engine.
- 12 Check that machine does not move in neutral.
- 13 Check:  
  
Forward drive.   
  
Reverse drive.   
  
Operation of blades.   
  
Seat safety switch.   
  
Safety switch for parking brake.

14 Tell customer about:

The requirement and advantages of servicing the machine according to the service plan

Servicing and the influence of this journal on the second-hand value of the machine.

The transmission guarantee is only valid if the synchronisation of the front and rear wheels has been checked and adjusted in compliance with the service schedule. The system will be damaged if synchronisation is not carried out.

At temperatures below 0 ° C, the machine must be warmed up for at least 10 minutes for the hydraulic oil and transmission to get hot. Otherwise there is a risk of the transmission breaking down thereby reducing the service life of the transmission.

Range of applications for BioClip.

Complete proof of sale etc.

Pre-delivery service carried out. No outstanding problems. Certified:

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Date, mileage, stamp, signature

## After the first 25 hours

- 1 Change the engine oil and oil filter
- 2 Change the transmission oil and oil filter
- 3 Check the synchronisation between the front and rear wheels.

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# INTRODUCTION

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## Dear Customer,

Thank you for choosing a Husqvarna Rider. Husqvarna Riders are built to a unique design with a front-mounted cutting unit and a patented articulated steering. Riders are designed for maximum efficiency even in small or confined areas. The closely grouped controls and pedal-operated hydrostatic transmission also contribute to the performance of this machine.

This operator's manual is a valuable document. By following its instructions (on operation, service, maintenance, etc.) you will significantly extend the life of the machine and even its second-hand value.

When you sell your Rider, make sure you pass on the operator's manual to the new owner.

The last chapter in the operator's manual consists of a Service Journal. Make sure that all service work and repairs are recorded. A well-documented service history reduces the costs of seasonal maintenance and influences the second-hand value of the machine. Bring the operator's manual with the Rider when bringing it to a workshop for service procedures.

## Driving and transport on public roads

Check the relevant road traffic regulations before driving the machine on a public road. If transporting the machine on another vehicle always use approved securing devices and make sure that the machine is securely held.

## Towing

When your machine is equipped with a hydrostatic transmission you should only tow the machine over short distances and at a low speed, otherwise there is a risk of damaging the transmission.

The transmission must be disengaged when towing, see instructions under the heading Bypass valves.

## Use

This ride-on mower is designed to mow grass on open and level ground surfaces. In addition, there is a number of accessories recommended by the manufacturer that broadens the application area. Please contact your dealer for more information about which accessories are available. The machine may only be used with the equipment recommended by the manufacturer. All other types of use are incorrect. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements of the intended use.

**IMPORTANT INFORMATION** The transmission guarantee is only valid if the synchronisation of the front and rear wheels has been checked and adjusted in compliance with the service schedule. The system will be damaged if synchronisation is not carried out.

This machine should be operated, serviced and repaired only by persons who are familiar with its particular characteristics and who are acquainted with the relevant safety procedures.

Accident prevention regulations, all other generally recognised regulations on safety and occupational medicine, and all road traffic regulations must be observed at all times.

Any arbitrary modifications carried out to this machine may relieve the manufacturer of liability for any resulting damage or injury.

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# INTRODUCTION

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## Good service

Husqvarna products are sold all over the world and ensures that you, the customer, get the best support and service. For example, before this machine was delivered it was inspected and adjusted by your dealer. See the certificate in the Service Journal in this manual.

When you need spare parts or advice on service issues, warranty terms, etc., contact:

This Operator's Manual belongs to machine with serial number:	Engine	Transmission

On the machine's rating plate you will find the following information:

- The machine's type designation.
- The manufacturer's type number.
- The machine's serial number.

State the type designation and serial number when ordering spare parts.

# KEY TO SYMBOLS

## Symbols

These symbols are on the machine and in the instructions.

**WARNING!** Careless or incorrect use can result in serious or fatal injury to the operator or others.



Please read the operator's manual carefully and make sure you understand the instructions before using the machine.



Always wear:

- Approved hearing protection



This product is in accordance with applicable EC directives.



Fast



Slow



Stop the engine.



Fuel



Oil pressure



Backwards



Forwards



Ignition



Parking brake



Noise emission to the environment according to the European Community's Directive. The machine's emission is specified in chapter Technical data and on label.



Connecting the power take-off (PTO).



Disengaging the power take-off (PTO)



Warning: rotating parts. Keep hands and feet clear.



Rotary blades Keep hands and feet away from under the hood when the engine is running



Never drive across a slope



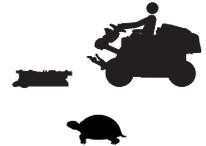
Never use the machine if persons, especially children, or animals, are in the vicinity



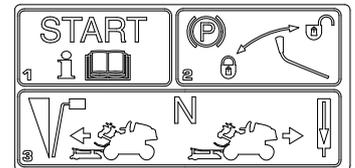
Never carry passengers on the machine or equipment



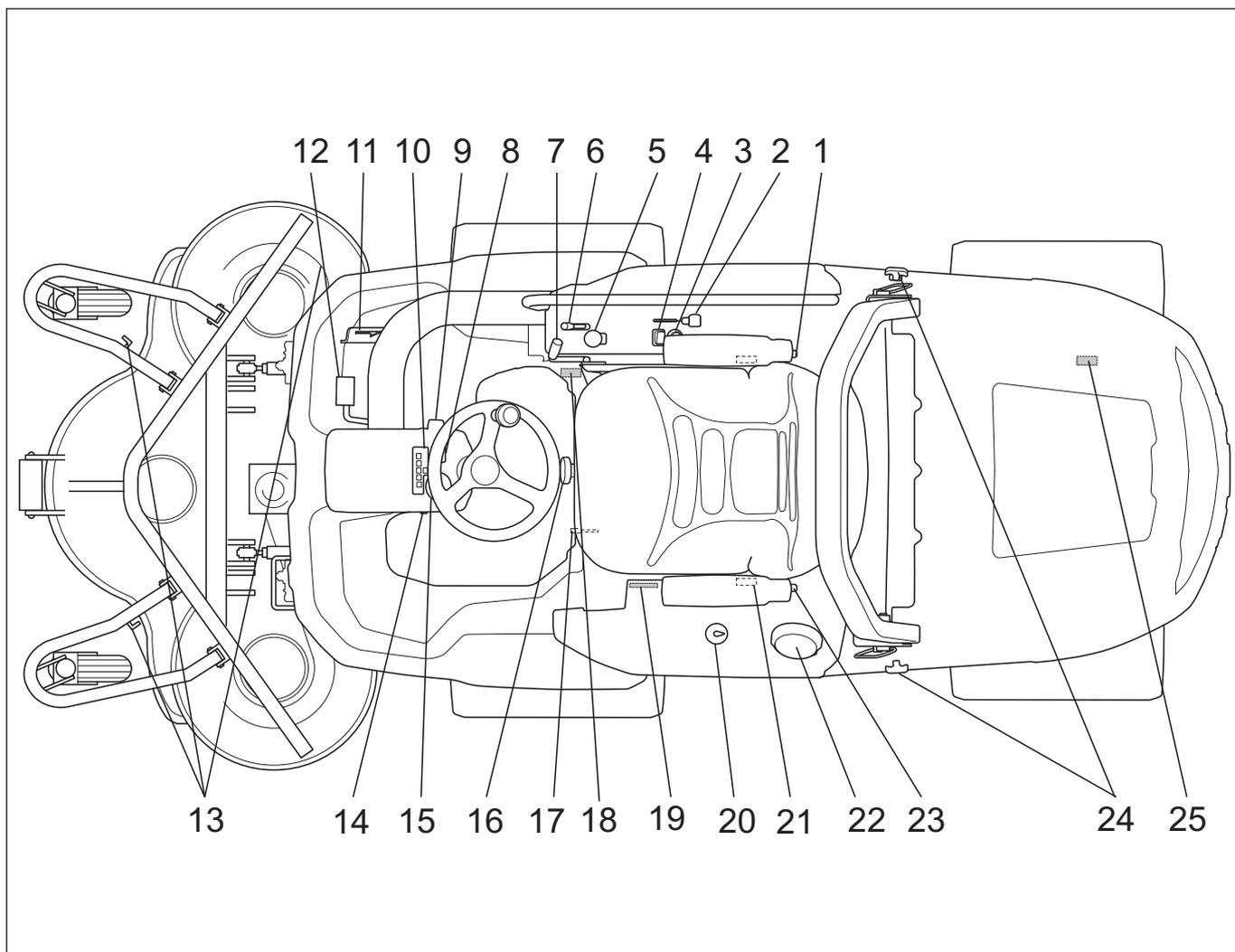
Drive very slowly if no cutting unit is fitted



Starting instructions



# WHAT IS WHAT?



## Location of the controls

- |   |   |
|---|---|
| 1 Knob for seatback angle                 | 14 Counter                                    |
| 2 Throttle control                        | 15 Temperature gauge                          |
| 3 Power outlet                            | 16 Knob for adjustment of the seat suspension |
| 4 Switch for the power outlet             | 17 Lever for longitudinal seat adjustment     |
| 5 Control for cutting unit drive          | 18 Bypass valve front axle                    |
| 6 Lever for hydraulic lift of attachments | 19 Product and serial number plate            |
| 7 Parking brake                           | 20 Fuel gauge                                 |
| 8 Switch for the lights                   | 21 Catch for lowering seat                    |
| 9 Ignition lock                           | 22 Fuel cap                                   |
| 10 Instrument panel                       | 23 Knob for lumbar support                    |
| 11 Speed limiter for reversing            | 24 Cover lock                                 |
| 12 Speed limiter for driving forward      | 25 Bypass valve rear axle                     |
| 13 Adjusting the cutting height           |   |

# SAFETY INSTRUCTIONS

## Safety instructions

These instructions are for your safety. Read them carefully.

### Insure your Rider

- Check the insurance coverage for your new Rider.
- Contact your insurance company.
- You should have fully comprehensive insurance including: third party, fire, damage, theft and liability

### General use

- Read all the instructions in this operator's manual and on the machine before you start it. Ensure you understand them and then observe them.



**WARNING! This machine produces an electromagnetic field during operation. This field may under some circumstances interfere with active or passive medical implants. To reduce the risk of serious or fatal injury, we recommend persons with medical implants to consult their physician and the medical implant manufacturer before operating this machine.**

- Learn how to use the machine and its controls safely and learn to how to stop quickly. Also learn to recognize the safety decals.
- Only allow the machine to be used by adults who are familiar with its use.
- Make sure nobody else is in the vicinity of the machine when you start the engine, engage the drive or drive off.
- Clear the area of objects such as stones, toys, wires, etc. that may become caught in the blades and be thrown out.

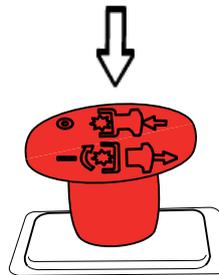


- Look out for the ejector and do not direct it towards anyone.
- Stop the engine and prevent it from starting before you clean the cutting unit.

- Remember that the driver is responsible for dangers or accidents.
- Never carry passengers. The machine is only intended to be used by one person.



- Always look downwards and backwards before and while reversing. Keep watch for both large and small obstacles.
- Slow before cornering.
- Switch off the blades when you are not mowing.



- Take care when rounding a fixed object, so that the blades do not hit it. Never run the machine over foreign objects.



**WARNING! This machine can sever hands and feet as well as throw objects. Failure to observe the safety instructions can result in serious injuries.**



**WARNING! The inside of the muffler contain chemicals that may be carcinogenic. Avoid contact with these elements in the event of a damaged muffler.**



**WARNING! The engine emits carbon monoxide, which is a colourless, poisonous gas. Do not use the machine in enclosed spaces.**

- Only use the machine in daylight or in other well-lit conditions. Keep the machine at a safe distance from holes or other irregularities in the ground. Pay attention to other possible risks.
- Never use the machine if you are tired, if you have consumed alcohol, or if you are taking other drugs or medication that can affect your vision, judgement or coordination.
- Keep an eye on the traffic when working close to a road or when crossing it.
- Never leave the machine unsupervised with the engine running. Always stop the blades, apply the parking brake, stop the engine and remove the keys before leaving the machine.

# SAFETY INSTRUCTIONS

- Never allow children or other persons not trained in the use of the machine to use or service it. Local laws may regulate the age of the user.



**WARNING! You must use approved personal protective equipment whenever you use the machine. Personal protective equipment cannot eliminate the risk of injury but it will reduce the degree of injury if an accident does happen. Ask your dealer for help in choosing the right equipment.**

- Use hearing protection to minimise the risk of hearing impairment.



- Never wear loose fitting clothes that can catch in moving parts.
- Never use the machine when barefoot. Always wear protective shoes or protective boots, preferably with steel toes.



- Make sure that you have first aid equipment close at hand when using the machine.



## Driving on slopes

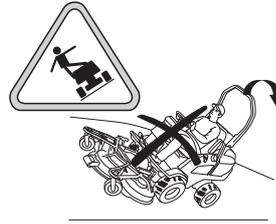
Driving on slopes is one of the operations where the risk of the driver losing control of the machine or of it overturning is the greatest; this can result in serious injury or death. All slopes demand extra care. If you cannot reverse up a slope or if you feel unsure, do not mow it.

### IMPORTANT INFORMATION

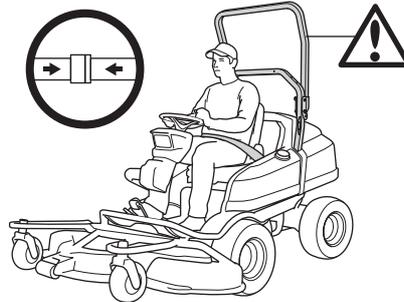
Do not drive down slopes with the unit raised.

## This is what you do

- Remove obstacles such as stones, branches, etc.
- Mow upwards and downwards, not sideways.



- Do not use the machine on ground that slopes more than 10°.
- Take extra care if any attachments are fitted that can change the stability of the machine.
- Avoid starting or stopping on a slope. If the tyres start to slip, stop the blades and drive slowly down the slope.
- Always drive smoothly and slowly on slopes.
- Always use ROPS (Rollover Protective Structure) and seat belts when riding on slopes.



- Do not make any sudden changes in speed or direction.
- Avoid unnecessary turns on slopes, if necessary, turn slowly and gradually downwards if possible. Drive slowly. Do not turn the wheel sharply.
- Watch out for and avoid driving over furrows, holes and bumps. It is easier for the machine to overturn on uneven ground. Tall grass can hide obstacles.
- Do not mow too close to edges, ditches or banks. The machine can suddenly overturn if one wheel comes over the edge of a steep slope or a ditch, or if an edge gives way.
- Do not mow wet grass. It is slippery, and tyres can lose their grip so that the machine skids.
- Do not try to stabilize the machine by putting your foot on the ground.
- When cleaning the chassis, the machine may never be driven near verges or ditches.
- When mowing, keep away from bushes and other objects.
- Follow the manufacturer's recommendations regarding wheel weights or counterbalance weights to increase machine stability.

### IMPORTANT INFORMATION

Some combinations of accessories require additional counterweight at the rear. Check with your dealer for the right combination.

# SAFETY INSTRUCTIONS

## Children

- Serious accidents may occur if you fail to be on your guard for children in the vicinity of the machine. Children are often attracted to the machine and mowing. Never assume that children will remain where you last saw them.
- Keep children away from the area to be mowed and under close supervision by another adult.
- Keep an eye out and shut off the machine if children enter the work area.
- Before and during reversing procedures, look behind you and down for small children.
- Never allow children to ride along. They can fall off and seriously injure themselves or be in the way for safe manoeuvring of the machine.
- Never allow children to operate the machine.



- Be particularly careful near corners, bushes, trees or other objects that block your view.

## Maintenance

- Stop the engine. Prevent the engine from starting by removing the ignition key before making any adjustments or performing maintenance.
- Never fill the fuel tank indoors.



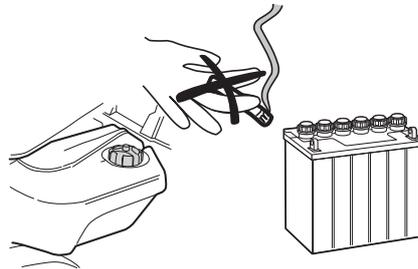
- Fuel and fuel vapour are poisonous and highly flammable. Be especially careful when handling petrol and engine oil, as carelessness can result in personal injury or fire.
- Only store fuel in containers approved for the purpose.
- Never remove the fuel cap and fill the fuel tank when the engine is running.
- Allow the engine to cool before refuelling. Do not smoke. Do not fill with fuel in the vicinity of sparks or naked flames.
- Handle oil, oil filters, fuel and the battery carefully, of environmental considerations. Follow the local recycling requirements.

- Electrical shocks can cause injuries. Do not touch cables when the engine is running. Do not test the ignition system with your fingers.

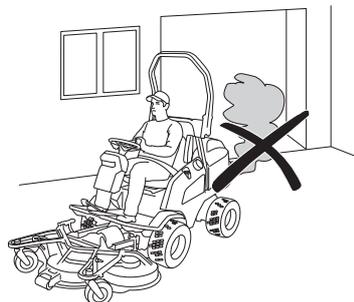


**WARNING! The engine and the exhaust system become very hot during operation. Risk of burn injuries if touched. When mowing, keep away from bushes and other materials in order to avoid a heating effect.**

- If leaks arise in the fuel system, the engine must not be started until the problem has been resolved.
- Store the machine and fuel in such a way that there is no risk that leaking fuel or fumes can cause any damage.
- Check the fuel level before each use and leave space for the fuel to expand, because the heat from the engine and the sun may otherwise cause the fuel to expand and overflow.
- Avoid overfilling. If you spill petrol on the machine, wipe up the spill and wait until it has evaporated before starting the engine. If you spill on your clothing, change your clothing.
- Allow the machine to cool before performing any actions in the engine compartment.
- Take care with battery maintenance. Explosive gases form in the battery. Never perform maintenance on the battery while smoking or in the vicinity of open flames or sparks. This can cause the battery to explode and cause serious injuries.



- Make sure all nuts and bolts are tightened correctly and that the equipment is in good condition.
- Do not modify safety equipment. Check regularly to be sure it works properly. The machine must not be driven if protective plates, protective covers, safety switches or other protective devices are not fitted or are defective.
- Observe the risk of injury caused by moving or hot parts if the engine is started with the engine cover open or protective cowlings removed.
- Never use the machine indoors or in spaces lacking proper ventilation. Exhaust fumes contain carbon monoxide, an odourless, poisonous and highly dangerous gas.



# SAFETY INSTRUCTIONS

- Stop and inspect the equipment if you run over or into anything. If necessary, make repairs before starting.
- Never make adjustments with the engine running.
- The machine is tested and approved only with the equipment originally provided or recommended by the manufacturer.
- The blades are sharp and can cause cuts. Wrap the blades or wear protective gloves when handling them.
- Check regularly that the parking brake works. Adjust and maintain as required.
- Reduce the risk of fire by removing grass, leaves and other debris that may have fastened on the machine. Allow the machine to cool before putting it in storage.



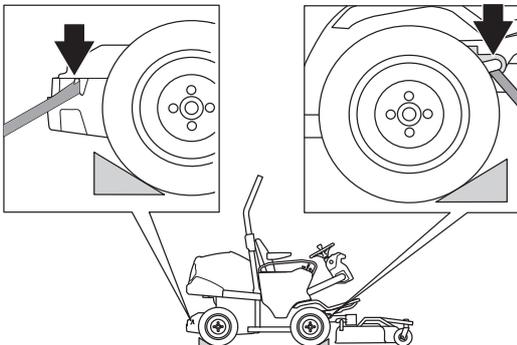
## Transport

### IMPORTANT INFORMATION

The parking brake is not sufficient to lock the machine during transport. Ensure you secure the machine firmly to the transporting vehicle.

- The machine is heavy and can cause serious crush injuries. Take extra care when loading it onto or off a vehicle or trailer.
- Use an approved trailer to transport the machine.
- To secure the machine on the trailer, two approved tension belts and four wedge shaped wheel blocks should be used.

Engage the parking brake and tie the tension belts around the front and rear brackets.



Secure the machine by tensioning the belts towards the back and the front of the trailer respectively.

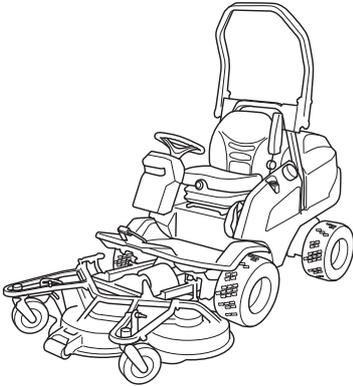
Place the wheel blocks in front of and behind the rear wheels.

- Check and observe local road traffic regulations before transporting or driving the machine on roads.

# PRESENTATION

## Presentation

Congratulations on your choice of an excellent quality product that will give you great pleasure for many years. This operator's manual describes P 520D.



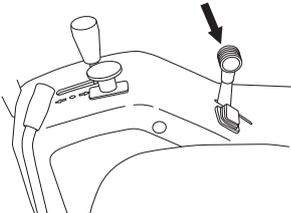
P 520D is equipped with hydraulic steering and an equipment hoist.

The machine is equipped with four wheel drive.

The power transmission from the engine is handled by a hydrostatic transmission, which allows variable variation of the speed by using the pedals. One pedal for driving forward and one for reverse.

## Throttle control

The throttle control regulates the engine speed, and thereby also the rotation speed of the blades.

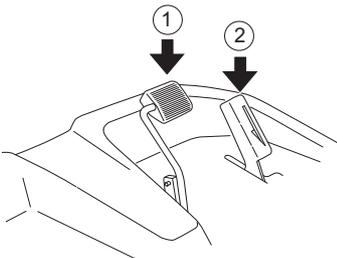


To increase or reduce the engine speed the control is moved forwards or backwards.

When driving the throttle control must be in the position for maximum engine speed, work mode.

## Speed limiter

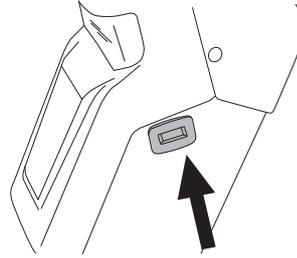
The speed of the machine is steplessly regulated with two pedals. Pedal (1) is used to drive forwards, and pedal (2) to drive backwards.



**WARNING!** Make sure that branches do not obstruct the pedals when mowing under bushes. Otherwise there is a risk you may lose control.

## Counter

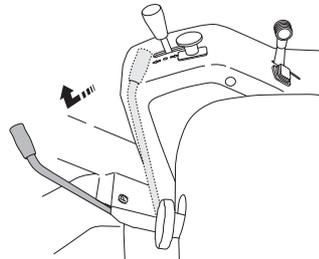
The chronometer shows how many hours the engine has been running.



Any time when the engine is not running but the ignition is switched on is not registered. The last digit shows tenths of an hour (6 minutes).

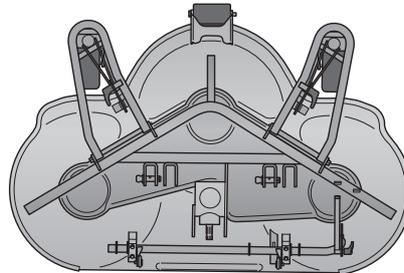
## Parking brake

Operate the parking brake by moving the handle forwards.



## Cutting unit

P 520D has a Combi 132 cutting unit model.

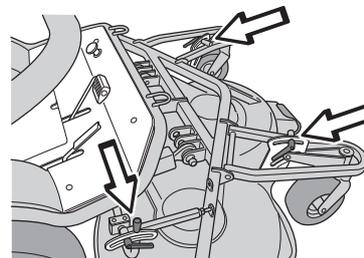


The Combi-unit, equipped with a BioClip-plug, finely chops the cuttings to fertiliser. Without the BioClip-plug the unit works in the same way as a rear ejection unit. The rear ejector ejects the clippings behind the unit without finely chopping them.

## Adjusting the cutting height

The cutting height can be adjusted to seven different positions.

Select the required cutting height (1-7) using the cutting height adjusters. Set the knobs horizontally so that they do not snag on bushes and the like.

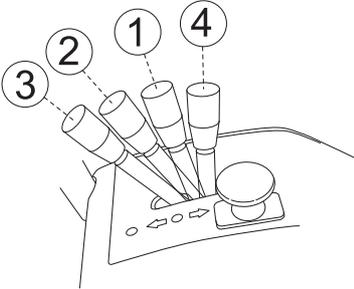


# PRESENTATION

## Lever for hydraulic lift of attachments

The lifting lever is used to put the cutting unit in either the transport or mowing position when hydraulic pressure is available.

The lever has four different positions.

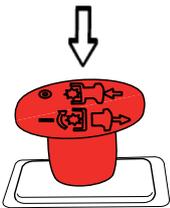


- Position 1 is the neutral position.
- Position 2 lowers the cutting unit with spring return to the neutral position
- Position 3 is floating where the lever stops. The unit is lowered to the automatically floating position, which means that the cutting unit follows the contours of the ground.
- Position 4 raises the cutting unit with spring return to neutral position.

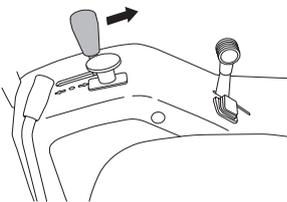
When cutting the lever should be set directly to the floating position (3).

## Lifting the Cutting Unit (Transport Position)

Stop the blades by pressing the stop button.



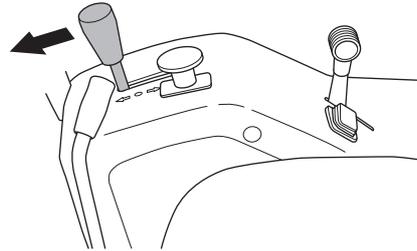
Pull the lever backwards to engage the transport position. The unit is then raised.



The cutting unit can be raised slightly with the blades rotating. This is to facilitate the mowing of extremely tall grass or uneven surfaces.

## Lowering the Unit (Mowing Position)

Move the hydraulic lifting lever forwards to engage the cutting position.

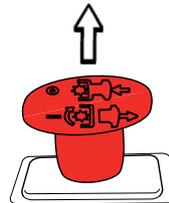


When cutting the lever should be set directly to the floating position (3).

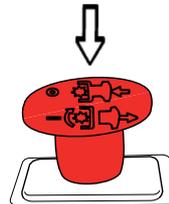
## Controls for operating the cutting unit blades

The cutting unit can be started only when the driver is sitting in the seat.

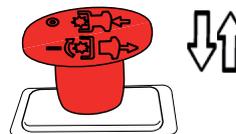
- Pull out the lever to engage the drive of the blades.



- Push in the lever to disengage the blades.



When the safety circuit has stopped the drive to the cutting unit, the control must be pushed and pulled out again to start the blades.



The safety circuit is triggered and the cutting unit is stopped in the following cases:

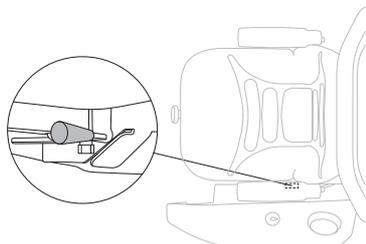
- When the driver leaves the seat with the blades engaged. There is a short delay to prevent stopping if the driver bounces on the seat.

# PRESENTATION

## Seat

The seat has a jointed attachment on the front edge and can be tipped forward.

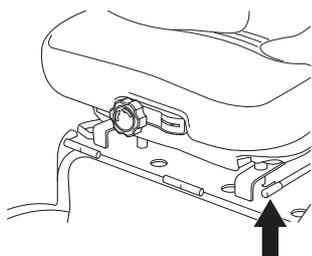
To fold the seat forward, the latch for the seat must be operated.



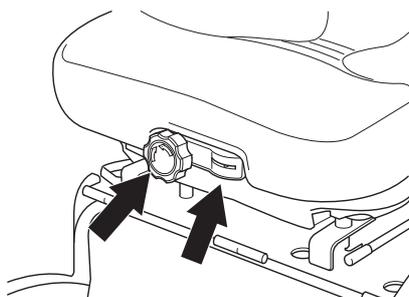
**WARNING! Do not adjust seat settings while driving. Risk of unsafe manoeuvring.**

The seat can also be adjusted lengthways.

- When making adjustments, the lever under the front edge of the seat is moved up, after which the seat can be moved backwards or forwards to the desired position.

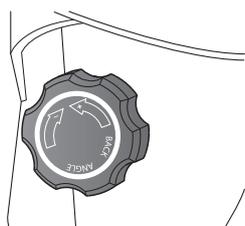


- The seat suspension can be adjusted to driver's weight. The weight is adjusted by turning the knob under the front edge of the seat.

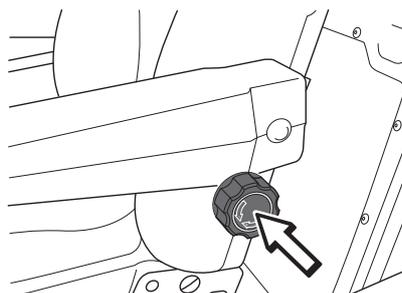


On the sides of the backrest are two knobs:

- Seatback angle is adjusted with the knob on the right side.

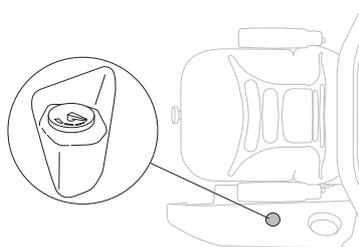


- The lumbar support is adjusted with the knob on the left side of seat back.



## Fueling

The fuel level in the tank is shown by the gauge on top of the tank.



Fill with diesel fuel. Petrol must not be used under any circumstances. Use fuel with a cetane rating over 45. Max RME mixing 5% in mineral oil-based fuels.



**WARNING! Diesel is highly flammable. Exercise care and refuel outdoors (see safety instructions).**

The diesel engine injection system is very sensitive and can be damaged by the slightest contamination. Observe the greatest possible fuel cleanliness. Use only clean containers.

Clean the area around the fuel cap. Contamination in the tank can cause operating problems.

If you have spilt fuel on yourself or your clothes, change your clothes. Wash any part of your body that has come in contact with fuel. Use soap and water.

Wipe up any spillage. Materials contaminated by fuel must be moved to a safe location.

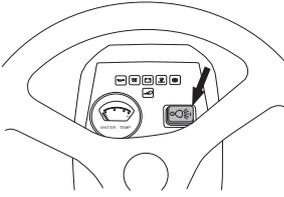
**IMPORTANT!**

**Do not use the fuel tank as a support area.**

# PRESENTATION

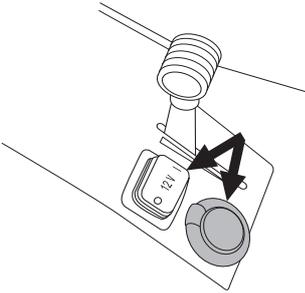
## Lights and power outlet

The lights are switched on and off using the switch on the instrument panel.



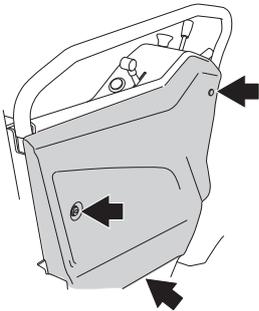
A seat heater or mobile phone charger are examples of articles that can be connected to the power socket.

The power outlet is switched on and off using power switch on the control panel.



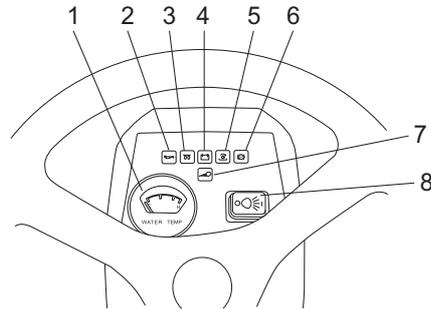
The voltage is 12 V.

The power outlet is fuse protected by its own fuse. The fuse for the power outlet is placed in the electrical connection box, behind the side plate on the control panel.

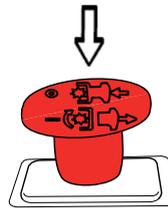


## Instrument panel

The indicator lights are on the steering console under the steering wheel.



- 1 Temperature gauge for coolant. The engine is liquid cooled. If overheating of the engine is indicated the first action to take is to reduce the engine temperature by running the engine at idle with no load. Turn off the power transmission



Check coolant level and top up if necessary. Also check that the radiator grill and radiator are clean and not clogged. The grill is at the rear of the machine and on top of the bonnet.

- 2 Oil pressure, check oil level and top up if necessary.
- 3 Ignition
- 4 Battery charging
- 5 Power transmission connected
- 6 Parking brake
- 7 Spotlight
- 8 Switch for the lights

## Bypass valves

Hydraulic pressure must be released in order for the ride-on mower to be moved when the engine is shutoff.

The hydraulic pressure is opened and closed with a bypass valve.

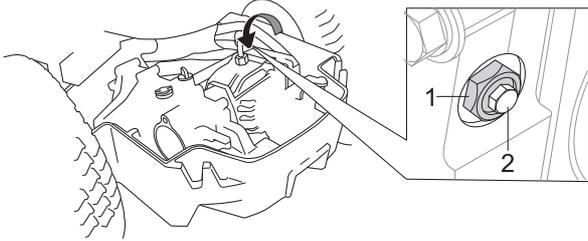
If you try to drive the machine without hydraulic pressure, it will not move. The drive on the axle is disengaged if one valve is open.

The P520 D has two valves, one valve for the front axle and one for the rear axle.

**IMPORTANT!** Always drive the machine with both valves closed.

# PRESENTATION

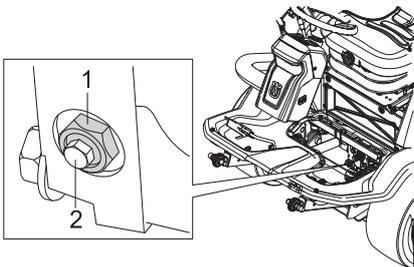
- Bypass valve rear axle



- The hydraulic pressure is released by opening the locking nut (1) 1/4-1/2 turn anti-clockwise, then the bypass valve (2) 2 turns.

- The hydraulic pressure is switched on by closing the valve. Close the valve nut (2) fully before tightening the locking nut (1).

- Bypass valve front axle



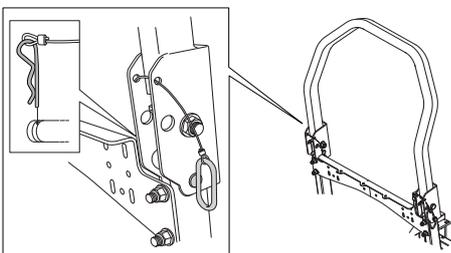
- The hydraulic pressure is released by opening the locking nut (1) 1/4-1/2 turn anti-clockwise, then the bypass valve (2) 2 turns.

- The hydraulic pressure is switched on by closing the valve. Close the valve nut (2) fully before tightening the locking nut (1).

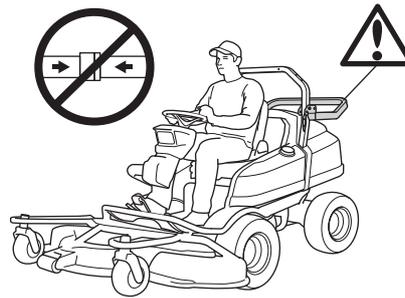
## ROPS (Roll Over Protective Structure)

ROPS is a protective frame that reduces the risk of injury in the event of overturning. Use ROPS and a safety belt when driving on slopes.

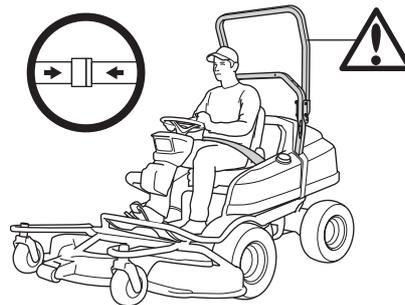
The frame can be folded down. Remove the two pins that hold the frame and fold it backwards.



If the frame is folded down the safety belt should NOT be used.



If the frame is folded up, the safety belt must be used.

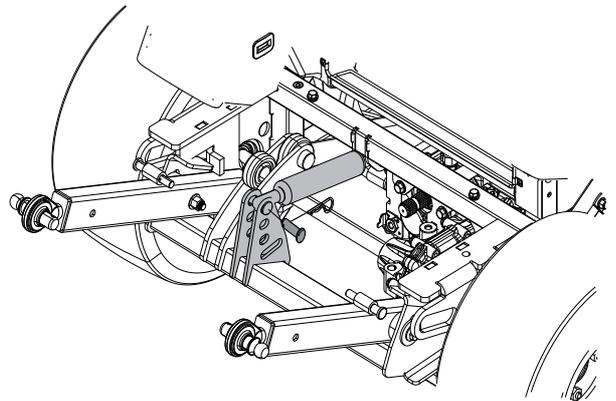


## Auxiliary lift system

The auxiliary lift system transfers the weight of the cutting unit pivot wheel to the machine's front wheel.

The effect of the auxiliary lift system can be adjusted by moving the gas spring up or down.

Maximum effect is obtained when the gas spring is placed in the top hole.



No effect is obtained in the slot at the bottom.

When using the cutting unit, the gas spring must be mounted in the top hole.

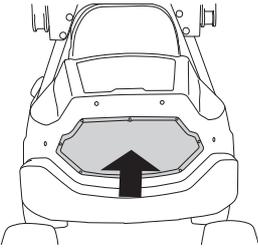
# STARTING ENGINE

## Before starting

- Read the safety instructions and information concerning the placement of controls and functions before starting.
- Perform daily maintenance before starting as set out in the Maintenance schedule.

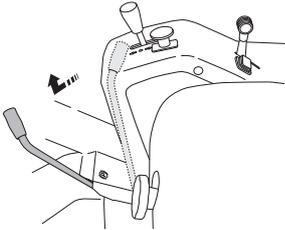
### IMPORTANT INFORMATION

The air intake grille in the engine cover must not be blocked by, for example, clothing, leaves, grass or dirt. Impaired cooling of the engine. Risk of major engine damage.

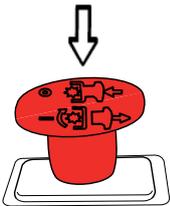


## Start the engine

- 1 Ensure that the bypass valves are closed.
- 2 Apply the parking brake.

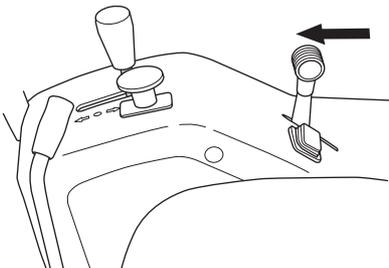


- 3 Push the PTO switch down (blades off).

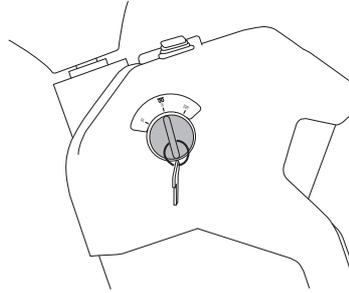


The engine will not start unless the parking brake is on and the PTO switch is pressed

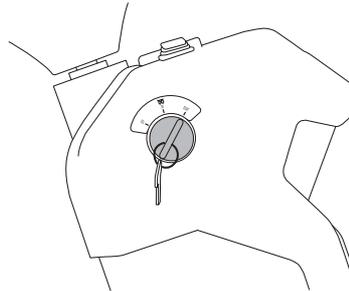
- 4 Move the throttle control to half throttle.



- 5 Turn the ignition key to the ignition position and hold it there until the indicator light on the instrument panel goes out.



- 6 Turn the ignition key to the start position.



- 7 When the engine starts release the ignition key immediately back to neutral position.

### IMPORTANT INFORMATION

Do not run the starter for more than about 15 seconds at a time. If the engine does not start, wait about 15 seconds before trying again.

- 8 Set the required engine speed with the throttle control.

Let the engine run at moderate speed or half throttle for 3-5 minutes before subjecting it to heavy load.



**WARNING! Never run the engine indoors, in enclosed or poorly ventilated areas. The exhaust fumes contain toxic carbon monoxide.**

## Starting and driving when cold

If the engine fails to start due to the cold, repeat ignition and attempt to re-start. Start gas or ether must not be used.

**IMPORTANT!** At temperatures below 0 °C, the machine must be warmed up for at least 10 minutes for the hydraulic oil and transmission to get hot. Otherwise there is a risk of the transmission breaking down thereby reducing the service life of the transmission.

## Winter fuel

When driving in very cold weather operating problems due to paraffin precipitation can occur if you run on standard fuel. To counteract this, winter fuel is sold in the climate areas affected. In some regions, different fuel is sold in summer and winter. Ask your fuel supplier and use only winter fuel below 0°C (+32°F).

# STARTING ENGINE

## Starting the engine with a weak battery



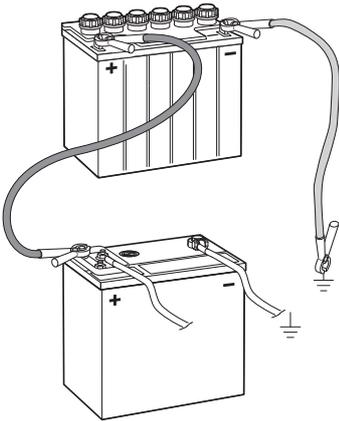
**WARNING!** Lead-acid batteries produce explosive gases. Avoid sparks, open flames and smoking close to batteries. Always wear protective glasses in the vicinity of batteries.

If the battery is too weak to start the engine, it should be recharged.

When jump leads are used for emergency starting, follow the procedure below:

**IMPORTANT INFORMATION** Your Rider is equipped with a 12-volt system with negative earth. The other vehicle must also have a 12-volt system with negative earth. Do not use your Rider battery to start other vehicles.

### Connecting the jump leads



- Connect each end of the red cable to the POSITIVE pole (+) on each battery, exercise care not to short circuit any of the ends against the chassis.
- Connect one end of the black cable to the NEGATIVE pole (-) on the fully charged battery.
- Connect the other end of the black cable to a good CHASSIS EARTH, away from the fuel tank and the battery.

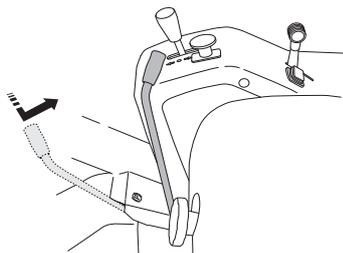
### Remove the cables in the reverse order

- The BLACK cable is removed from the chassis and then the fully charged battery.
- Finally the RED cable from both batteries.

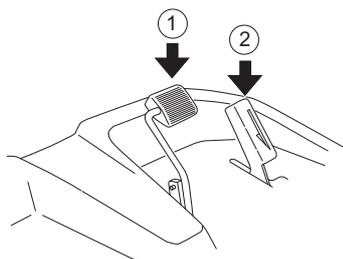
# Driving

## Driving the Rider

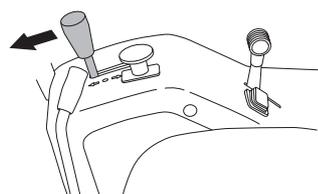
- 1 Release the parking brake before driving



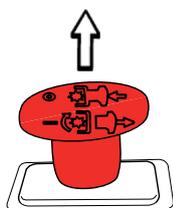
- 2 Carefully press down one of the pedals until the required speed is obtained. Pedal (1) is used to drive forwards, and pedal (2) to drive backwards.



- 3 Lower the cutting unit by directly moving the lever forward to the float position where the lever stays put.



- 4 Start the cutting unit if necessary by pulling up the switch for the cutting unit.



## Braking

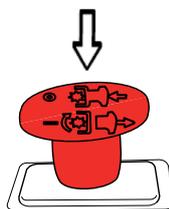
Release the drive pedals. The machine slows and is stopped by the drive system. Do not use the parking brake as the drive brake.

Quicker braking is possible if you press down the drive pedal for the opposite direction.

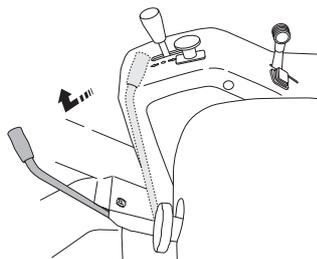
## Stop the engine

Preferably allow the engine to idle for a minute to obtain normal working temperature before stopping it if it has been working hard.

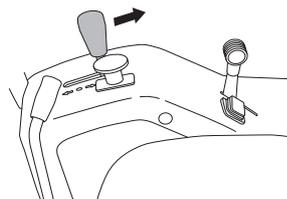
Turn off the cutting unit using the PTO button.



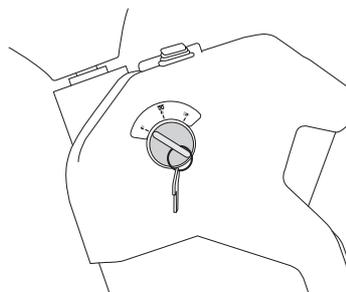
- 1 Apply the parking brake by moving the handle downward.



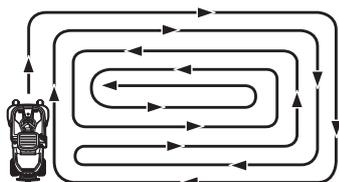
- 2 Lift the cutting unit with the hydraulic lifting lever.



- 3 Move the throttle control to the MIN. position. Turn the ignition key to "OFF"-position.



## Cutting tips

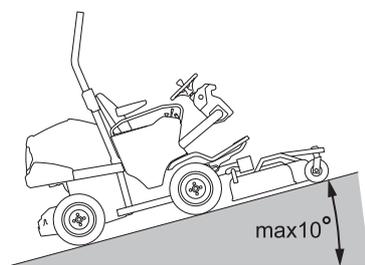


**WARNING! Clear the lawn from stones and other objects which can be thrown out by the blades.**

- Localise and mark stones and other fixed objects to avoid collision.
- Start with a high cutting height and reduce down until the required mowing results are obtained.
- The mowing result will be best with the highest permitted engine speed, see technical data, (the blades rotate rapidly) and low speed (the Rider moves slowly). If the grass is not too high and thick, the driving speed can be increased without noticeably depreciating the mowing result.
- The best lawns are achieved if the grass is cut often. Mowing becomes more uniform and the grass cuttings become more evenly distributed over the surface. The total time consumption is not greater since it is possible to select a higher driving speed without inferior mowing results.
- Avoid mowing a wet lawn. The mowing results are inferior since the wheels sink down into the soft lawn.
- Hose down the cutting unit with water underneath each time it is used. The cutting unit should then be put in the service position.
- When the BioClip function is used, it is very important that the mowing interval is not too long.



**WARNING! Do not use the machine on ground that slopes more than 10°. Mow slopes upwards and downwards, never across. Avoid sudden changes in direction.**



# Maintenance

## Maintenance schedule

The following is a list of the maintenance which should be conducted on the machine. For those points not described in this manual, visit an authorised service workshop.

Maintenance	Daily maintenance		Maintenance interval in hours					
	Before starting	After work is completed	10	40	100	200	400	800
Check the safety system	X							
Check for fuel and oil leakage.	O							
Check the engine's oil level	X		X					
Check coolant level and antifreeze.	X			X				
Checking the transmission oil level	X		X					
Check and clean the engine's cooling air intake, clean the radiator.		X	X					
Cleaning		X						
Start engine and blades, listen for noise		O						
Check nuts and screws		O						
Clean underside of cutting unit		X						
Lubricate the parking brake wire				X				
Lubricate throttle cable				X				
Check air filter			X					
Check the air pressure in the tyres, 60 kPa/8.5 PSI.			X					
Lubricate pivot axle bearing				X				
Lubricate according to lubrication schedule, see under heading "LUBRICATION"				X	X			
Clean thoroughly around engine				X				
Clean thoroughly around transmission				X				
Clean the air filter and empty the particle collector				X				
Checking the blades				X				
Replace the fuel filter					X			
Change engine oil and filter <sup>1)</sup>					X <sup>1)</sup>			
Check the synchronisation between the front and rear wheels.					O			
Change hydraulic oil and hydraulic filter.							O	
Check belt tension and condition (alternator belt, PTO belt, cutting unit belt)					X			
Check the battery condition, clean as necessary.				X				
Clean transmission air intake	X		X					
Check oil level in the bevel gear, top up if necessary.						X		
Check the wheel nuts.						O		
Check the parking brake						X		
Replace the air filter <sup>2)</sup> .						X <sup>2)</sup>		
Change belts (PTO belt and cutting unit belt).							X	
Change the oil in the bevel gear.							X	
Change pump and alternator belt								X
Change coolant (50% glycol).							X	
Service at an authorised service representative.					O			

<sup>1)</sup>First change after 25 hours. When operating with a heavy load or at high ambient temperatures, replace every 50 hours. <sup>2)</sup>Maintenance and replacement are required more often in dusty conditions.

X = Described in this operator's manual

O = Not described in this operator's manual



**WARNING! No service procedures must be conducted on the engine or cutting unit unless:**

- The engine is switched off.**
- The parking brake is applied.**
- The ignition key is removed.**
- The cutting unit is disengaged.**

# Maintenance

## Cleaning

Clean the machine directly after use. It is much easier to wash off grass cuttings before they dry.



Oily dirt can be removed using a cold degreasing agent. Spray on a thin layer.

Rinse at normal water pressure.

Do not direct the jet towards electrical components or bearings.

Do not rinse hot surfaces such as the engine and exhaust system.

It is recommended that you start the engine and run the mower for a short period after cleaning, so that any remaining water is blown off.

Lubricate the machine if necessary after cleaning. Carry out extra lubrication when the bearings have been exposed to a degreaser or a water jet.

### IMPORTANT INFORMATION

Avoid using a high pressure washer or a steam cleaner.

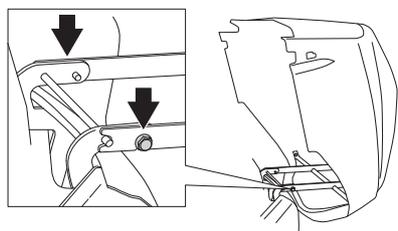
There is a major risk of water penetrating into bearings and electrical connections. Corrosion attack can result, which will lead to running problems. Cleaning additives generally aggravate the damage.

## Removing of the machine hoods

### Engine cover

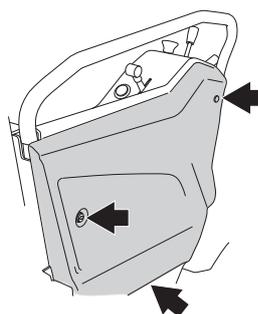
Loosen the rubber straps on the side of the cover and lift up the engine cover.

If necessary the engine cover can be lifted off by removing the bolts.



### Side cover

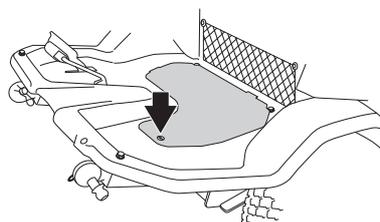
Loosen the screws holding the side cover and remove it.



### Service hatch

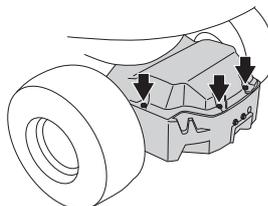
A service panel is fitted in the base plate.

Loosen the screws and lift off the panel.



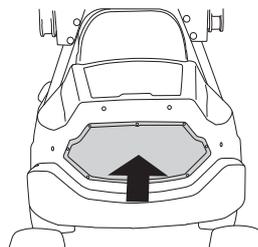
### Transmission cover

Loosen the screws and remove the transmission cover.



## Checking the engine's cooling air intake

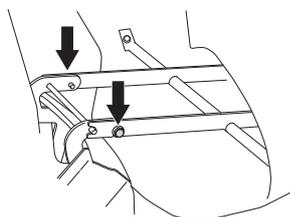
Make sure the radiator grille is free of leaves, grass and dirt.



### Cleaning the radiator cell package

Open the engine cover.

If necessary, remove the engine cover.

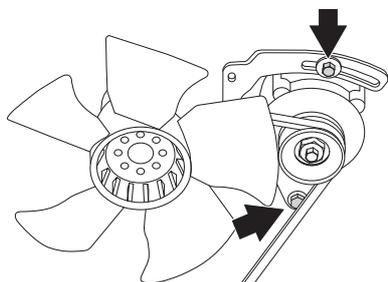


Clean the radiator with compressed air. Use compressed air blown from the engine compartment through the cell package and back.

# Maintenance

## Adjustment of pump and alternator belt

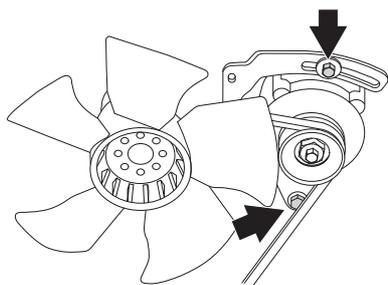
- Loosen the lower mounting screw and upper adjustment screw a few turns.



- Tension the belt by pulling the alternator along the track. It must be possible to press the belt in about 1 cm with your thumb without too much pressure.
- Tighten the adjustment screw securely.

## Change pump and alternator belt

- Loosen the lower mounting screw and upper adjustment screw a few turns.



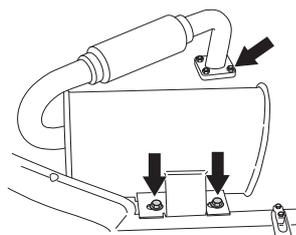
- Take off the old belt and fit the new one.
- Tension the belt by pulling the alternator along the track. It must be possible to press the belt in about 1 cm with your thumb without too much pressure.

## Inspecting the muffler



**WARNING! The muffler gets very hot in use and remains so for a short time afterwards. Do not touch the muffler if it is hot!**

Check regularly that the muffler is complete and secured correctly.



## Adjusting the parking brake

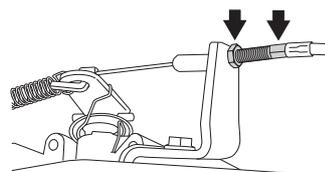
Make sure the parking brake is properly adjusted by placing the machine on a slope.

Apply and lock the parking brake.

When the machine does not stand still, the parking brake should be adjusted according to the following.

- Position the machine on flat ground.
- Make sure the parking brake is released.
- Adjust so there is 1 mm play between the outer cable and the adjuster screw when you pull the outer cable.

Adjust the adjuster screw using the nuts.



- Tighten the nuts carefully to prevent damaging the adjuster screw.
- The parking brake should be checked again after the adjustment has been made.



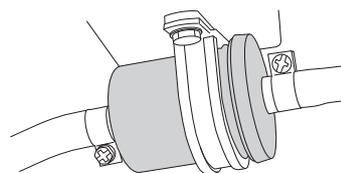
**WARNING! A poorly adjusted parking brake can result in reduced braking ability.**

## Replacement of fuel filter

P 520 D has two fuel filters. A pre-filter and main filter.

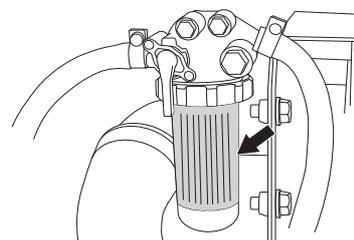
Replace the fuel filter every 100 hours (at least once per season) or more often if it is clogged.

The pre-filter is located under the battery box and is replaced as follows.



- Open the engine cover.
- Move the hose clips away from the filter. Use a pair of flat pliers.
- Pull off the filter from the hose ends.
- Press the new filter into the ends of the hoses.
- Push the hose clips back on the filter and tighten.

The main filter has a paper insert that is changed as follows.



- Open the engine cover.
- Unscrew the filter cover and remove the paper filter.

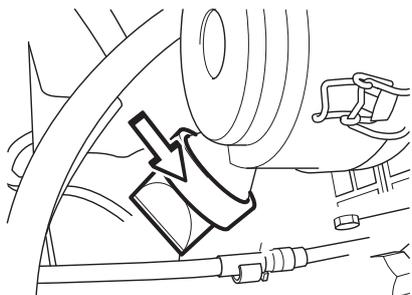
# Maintenance

## Cleaning the air filter

If the engine seems to lack power or does not run smoothly this may be because the air filter is clogged. When driving with a dirty air filter the engine can suffer from lack of air, so that it does not meet environmental requirements and the engine does not provide full power.

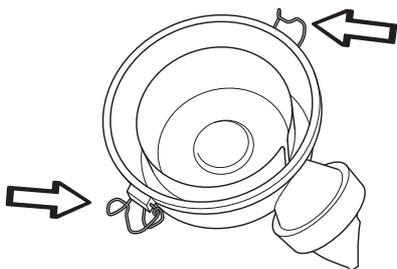
## Emptying the particle collector

Squeeze so that the rubber tabs open and the particles can escape.



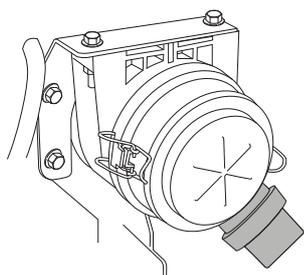
## Cleaning the filter cover

Loosen the two fasteners holding the filter cover and remove it.



Clean the inside of the lid. It can be washed with soapy water and blown with compressed air when the lid is removed.

Replace the air filter cover, ensure that the particle collector is facing downwards.



## Replacing the air filter



**WARNING! The exhaust system is hot. Let it cool before starting to replace the air filter.**

If the engine seems to lack power or does not run smoothly this may be because the air filter is clogged. It is therefore important to replace the air filter at regular intervals (see Maintenance/Maintenance Schedule for the correct service interval).

Replace the air filter as follows:

- Open the engine cover.

- Loosen the two fasteners holding the filter cover and remove it.

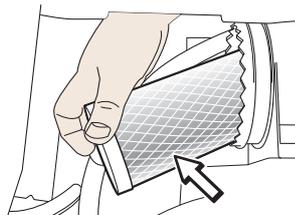
### IMPORTANT INFORMATION

Never run the engine without the air filter fitted.

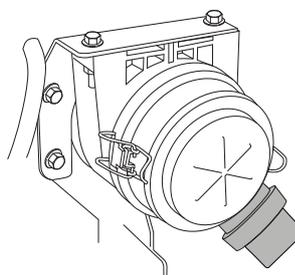
Poorly filtered inlet air is a main factor contributing to engine wear. Replace the air filter according to the service schedule or more often in dusty conditions

The filters must not be oiled. They must be fitted dry.

- Remove the filter cartridge from the filter housing.



- Wipe clean the interior of the air filter housing. If necessary, the cleaning cloth should be moistened with white spirit or fuel. Water or compressed air should not be used.
  - Clean the filter by knocking it with care against a hard surface. Do not use compressed air to clean the filter. Replace the air filter if it is still dirty.
- 3 Fit a new air filter cartridge with the hole inward and press it into place.
  - 4 Replace the air filter cover, ensure that the particle collector is facing downwards.



## Cleaning the engine and muffler

Keep the engine and muffler free from grass cuttings and dirt. Clipping debris soaked in fuel or oil on the engine means increased risk of fire and impaired cooling.

Allow the engine to cool before cleaning. If the dirt is mixed with oil, remove it using a degreasing agent otherwise just water and a brush.

Grass cuttings around the muffler dry quickly and constitute a fire risk. Brush or wash them off when the muffler is cold.

# Maintenance

## Check the safety system

The machine is equipped with a safety system that prevents starting or driving under the following conditions.

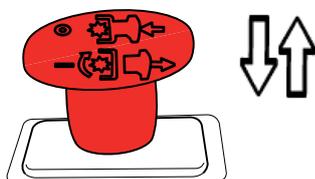
The engine must only be possible to start when the following conditions are met:

- The cutting unit is disengaged.
- The parking brake is applied.

The engine must stop under any of the following conditions:

- The cutting unit is activated and the driver stands up.
- The cutting unit is disengaged, the parking brake is not applied and the driver stands up.

When the safety circuit has stopped the drive to the cutting unit, the control must be pushed and pulled out again to start the blades.



Check daily to ensure that the safety system works by attempting to start the engine when one of the conditions above is not met. Change the conditions and try again.

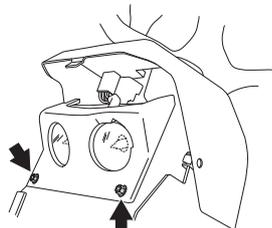
## Replacing the light bulbs

For information about the bulb type, see Technical Data.

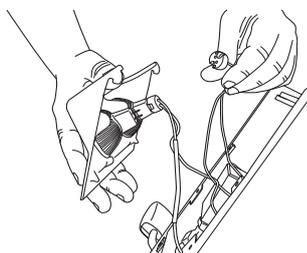
- 1 Unscrew the four screws holding the cover on the power servo housing.



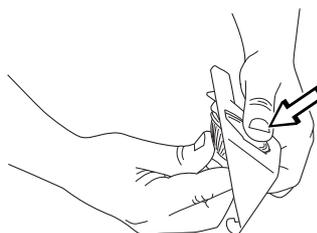
- 2 Unscrew the two screws holding the lamp insert.



- 3 Lift out the lamp insert.
- 4 Disconnect the cables from the bulbs.



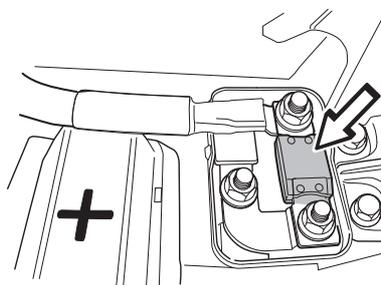
- 5 Lift out the bulbs from the insert.
- 6 Insert the new bulbs. Make sure you use your thumb to support the front.



- 7 Refit the cables, lamp insert and the cover on the power servo housing.

## Main fuse

The machine has a high-power safety fuse located in a box on the top of the battery plus terminal.



A feeder fuse for the electrical connection box is located on a bracket near the battery.

Other fuses are in the electrical connection box behind right side cover.

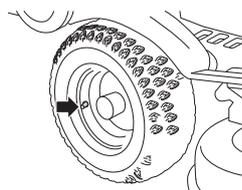
A blown fuse is indicated by a burnt connector. Pull the fuse from the holder when replacing.

The fuse is there to protect the electrical system.

Do not use any other type of fuse when replacing. If it blows again shortly after replacement, it is due to a short circuit, which must be fixed before the machine can be put into operation again.

## Checking the tyre pressure

The tyre pressure should be 1.5 bar/150 kPa/22 PSI for all wheels



The air pressure in the cutting unit pivot wheel must be 150 kPa/1.5 bar/22 psi.

### IMPORTANT INFORMATION

Different tyre pressures on the front tyres will result in the blades cutting the grass at different heights.

# Maintenance

## Check the battery



**WARNING!** Lead-acid batteries produce explosive gases. Avoid sparks, open flames and smoking close to batteries. Always wear protective glasses in the vicinity of batteries.

The machine is equipped with a maintenance-free battery. The battery has a service window showing different colours.

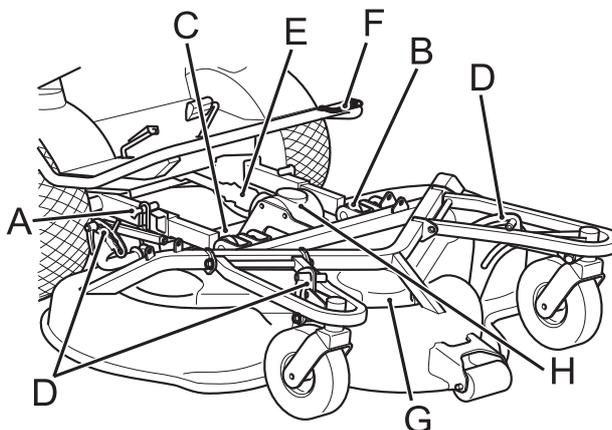
- White = Charge battery
- Green = OK.
- Red = Change battery.

Clean the battery and holder with soap/water solution.

A discarded or replacement battery should be handled as hazardous waste.

## The Cutting Unit Components

The components mentioned are:



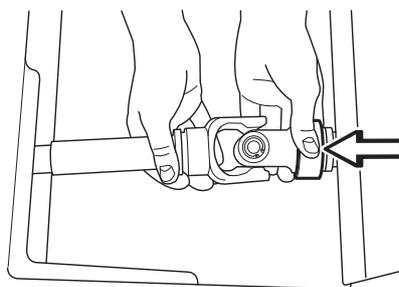
- A Pin
- B Link joint
- C Cutting unit bracket
- D Clipping height adjusters
- E Universal drive shaft with quick connectors
- F Attachment point for service position
- G Belt cover

## Removing the cutting unit

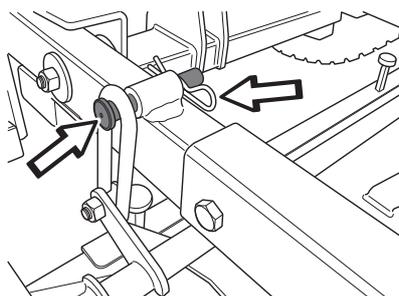


**WARNING!** Never leave the universal drive shaft of the machine with one end loose. If the engine is started, damage can occur.

- 1 Place the machine on a flat surface and apply the parking brake.
- 2 Remove the universal drive shaft completely. Slide the ring sideways to release the quick coupling and the universal drive shaft can be pulled from the shaft pin.



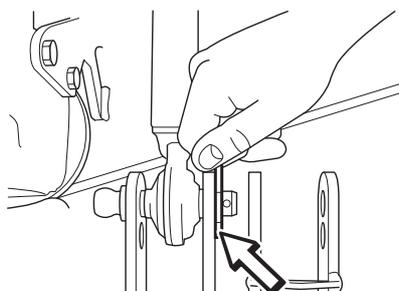
- 3 Start the engine and raise the cutting unit to the max position.
- 4 Turn off the motor.
- 5 Remove the pins on both sides.



- 6 Lower the cutting unit to the float position
- 7 Remove the pins from the shafts and remove the shafts from the link joints.



**WARNING!** If the help function is connected, the lift arms move with great force when the pins are loosened. Observe caution to avoid trapping your hand.

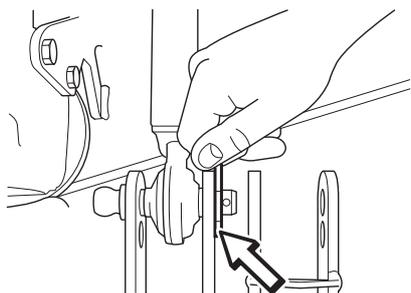


- 8 The cutting unit is now free.

# Maintenance

## Fitting the cutting head

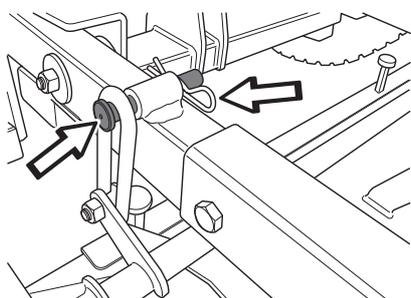
- 1 Insert the bolts for the link joints and the pins on both sides.



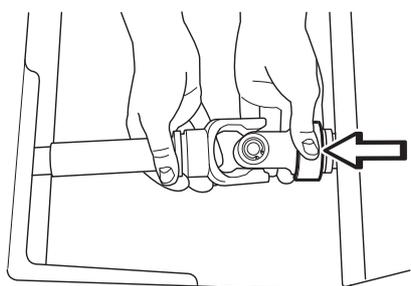
- 2 Start the engine and raise the cutting unit to the max position.

- 3 Turn off the motor.

- 4 Fit the pins on both sides.



- 5 Fit the universal drive shaft.



- 6 Check the universal drive shaft has enough lubricant.

- 7 Check and adjust the tilt angle of the cutting unit.

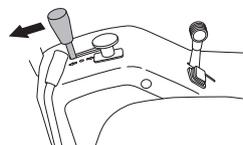
## Service position for the cutting unit

The cutting head can be placed in the service position to provide easy access for cleaning, repairs and servicing. In the service position the cutting unit is raised and locked in the vertical position.

## Placing in the service position

- 1 Position the machine on flat ground. Apply the parking brake.

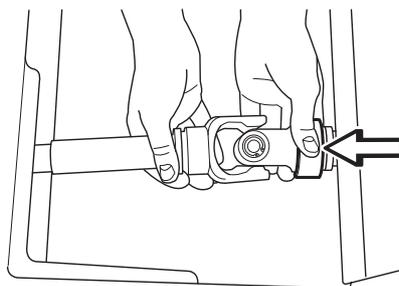
- 2 Lower the cutting unit to the float position



- 3 Turn off the motor.

- 4 Remove the service hatch.

- 5 Loosen the two quick connectors on the universal drive shaft and remove the universal drive shaft.

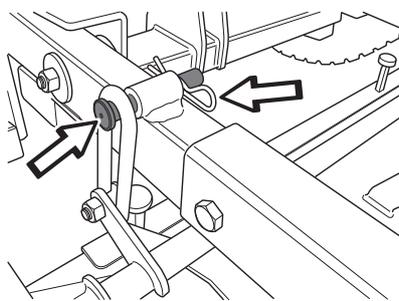


**WARNING! Never leave the universal drive shaft of the machine with one end loose. If the engine is started, damage can occur.**

- 6 Start the engine and raise the cutting unit until it is slightly off the ground.

- 7 Turn off the motor.

- 8 Remove the pins on both sides.

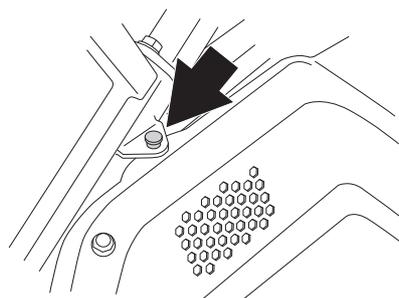


- 9 Start the engine and raise the cutting unit to the max position.

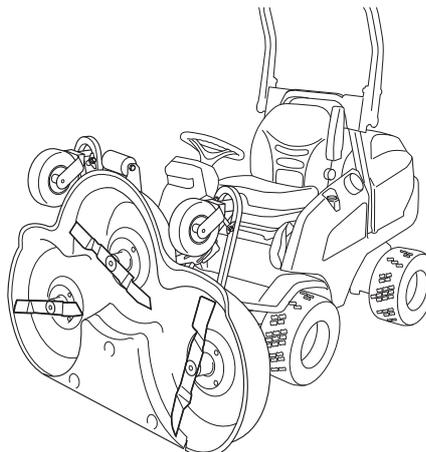
- 10 Turn off the motor.

- 11 Lift the front edge of the unit and tilt the cutting unit upward.

- 12 Secure the cutting unit with the pin in the anchor point.



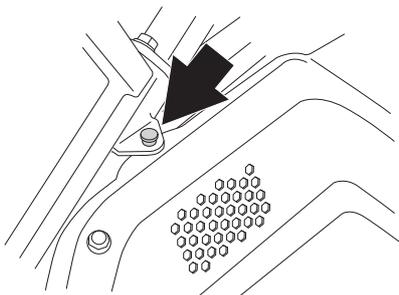
- 13 The cutting unit is in the service position



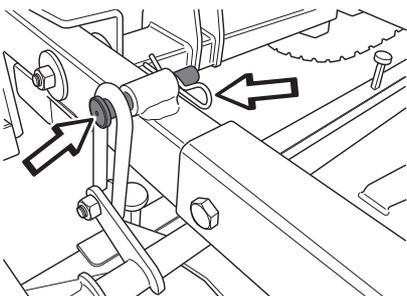
# Maintenance

## Restoring from service position

- 1 Remove the pin and lower the cutting unit.



- 2 Fit the pins on both sides.



- 3 Lower the cutting unit to the float position

Fit the drive shaft and close the service hatch. The universal drive shaft fits only one way.

## Cutting height and tilt angle adjustment.

When a cutting unit is installed the cutting height and tilt angle need to be adjusted.

The adjustment must be made in the stated order.

Starting position:

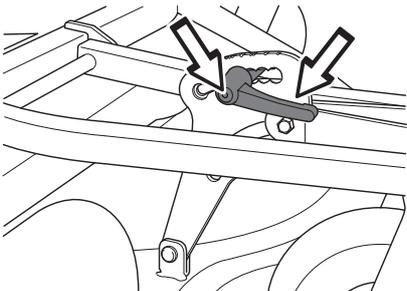
- 1 Check the tyre pressures. The tyre pressure should be 1.5 bar/150 kPa/22 PSI for all wheels.

The air pressure in the cutting unit pivot wheel must be 150 kPa/1.5 bar/22 psi.

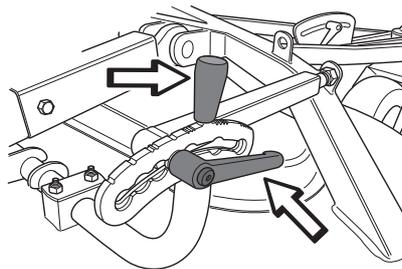
- 2 Place the machine on a flat surface.
- 3 The cutting unit must be lowered onto a flat surface.

## Cutting height

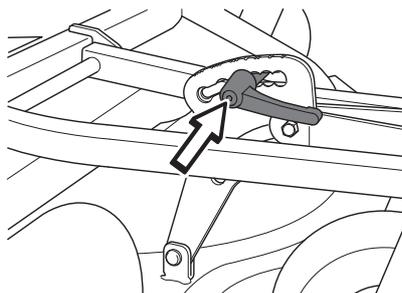
- 1 Set the same height on all three control points.



- 2 Hand tighten the cutting height adjustment knob.



- 3 Disengage the knob by pulling the handle and turning it to the horizontal position so that the handle does not get stuck in bushes or the like.



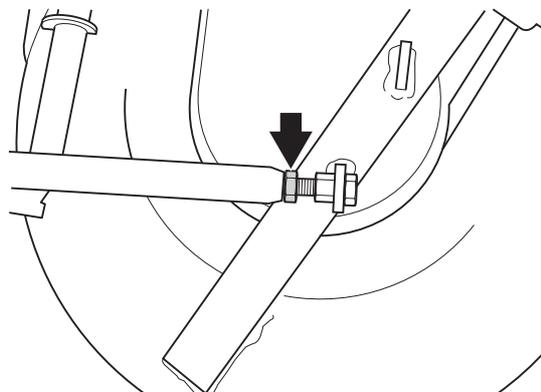
Height intervals are between 25-127 mm in seven different positions.

## Tilt angle

- Place the machine on a flat surface.
- Check the tyre pressures. The tyre pressure should be 1.5 bar/150 kPa/22 PSI for all wheels.

The air pressure in the cutting unit pivot wheel must be 150 kPa/1.5 bar/22 psi.

- Measure the distance between the ground and the front and rear edges of the cutting unit hood.
- The rear edge of the cutting unit should be 6-9 mm (1/4"-3/8") higher than the front of the unit.
- Loosen the lock nut and turn the adjusting screw. Extend the brace to raise the rear edge of the cutting unit.



- Lock the nut against the brace.

# Maintenance

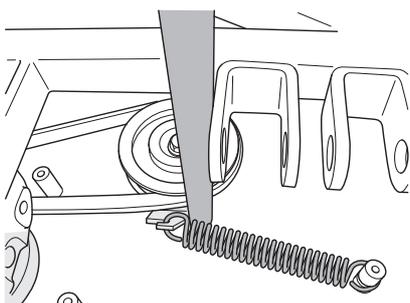
## Replacing the cutting unit belts



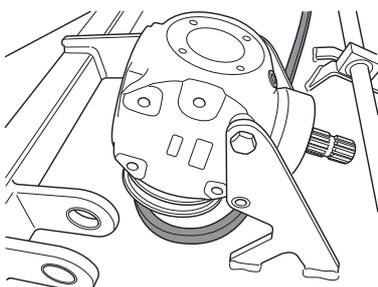
**WARNING! Protect your hands with gloves**  
There is a risk of crush injuries when working with the belt.

On these cutting units with collision-proof blades, the blades are driven by one V-belt. Do as follows to change the V-belt:

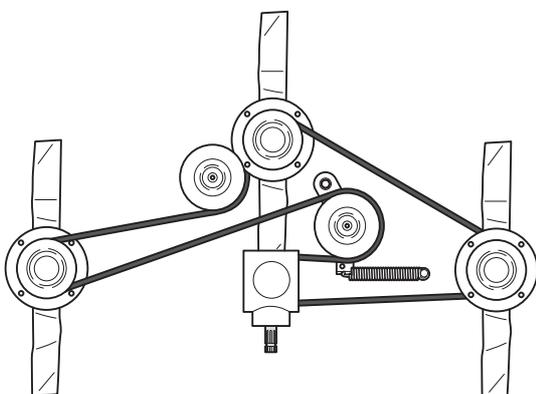
- 1 Remove the cutting unit.
- 2 Remove the screws holding the belt cover and lift it off.
- 3 Pull the belt off the pulleys. Use a crowbar as necessary to de-tension the spring and release the belt tension.



- 4 Loosen two screws and remove the other three for the bevel gear. Turn the bevel gear so that the belt can be fed under the pulley.



- 5 Check that the belt tensioning equipment is not jammed or binding and replace the spring.
- 6 Insert the new belt in place and replace the bevel gear. The bevel gear is tightened to a torque of 47 Nm.
- 7 Fit the belt around the pulleys. The belt tightening schedule is on a decal located on the cutting unit under the belt cover.



- 8 Fit covers.
- 9 Attach the cutting unit to the machine, see Attaching the cutting unit.

## Checking the blades

To achieve the best mowing results it is important that the blades are undamaged and well-sharpened.

Check that the blades' attachment screws are tight. Screws should be torque tightened to 84 Nm.

**IMPORTANT INFORMATION** Replacing or sharpening the blades should be conducted by an authorised service workshop.

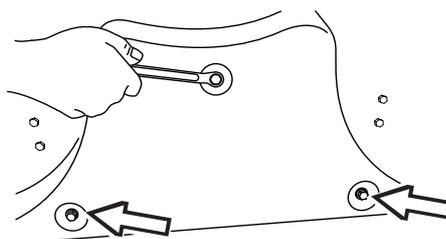
The blades should be balanced after sharpening.

Damaged blades should be replaced when hitting obstacles that result in a breakdown. Let the service centre assess whether the blade can be sharpened or must be replaced.

## Removing the BioClip plug

To change a Combi unit from BioClip function to cutting unit with rear ejection, remove the BioClip plug located under the unit with three screws.

- 1 Put the unit in the service position, see Placing in the service position.
- 2 Remove the three screws holding the BioClip plug, and remove the plug.

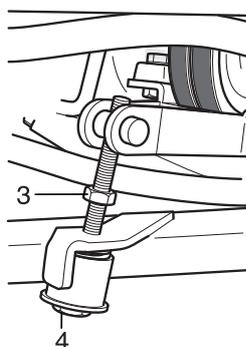


- 3 Tip: Fit three full-thread screws M8x15 mm in the screw holes to protect the threads.
- 4 Replace the unit in normal position.

Fit the BioClip plug in the reverse order.

## Adjustment of PTO belts

- 1 Tighten screw (4) until the sleeve bottoms against the frame bracket. Tighten lock nut (3) whilst holding screw (4) firmly.



# Maintenance

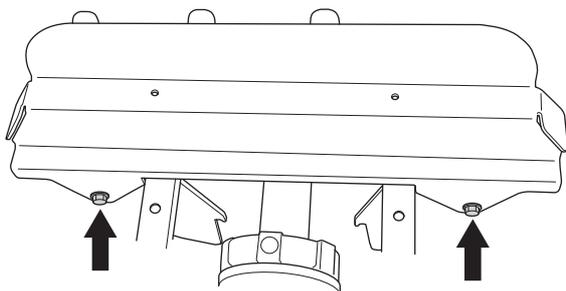
## Change PTO belts



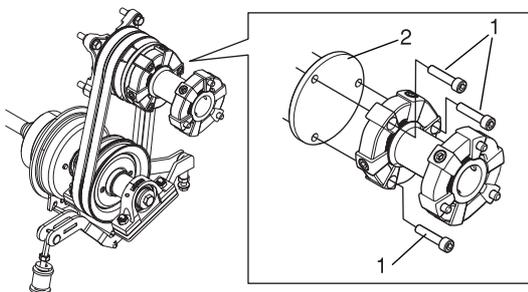
**WARNING! Protect your hands with gloves**  
There is a risk of crush injuries when working with the belt.

Always replace the belts in pairs.

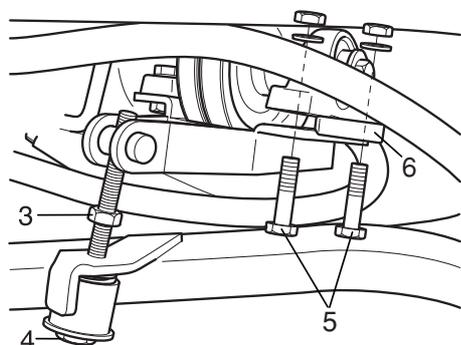
- 1 Prevent the engine from starting by removing the ignition key before making any adjustments or performing maintenance.
- 2 Fold down driver's seat.
- 3 Remove the cover plate of the hydraulic pump drive shaft.
- 4 Unscrew the cable bridge



- 5 Unscrew the bolts (1) of the coupling that connects the drive shaft and the hydraulic pump and remove the spacer ring (2) from the coupling. The drive shaft must be locked with some kind of tool, for example a big U-spanner or screwdriver.

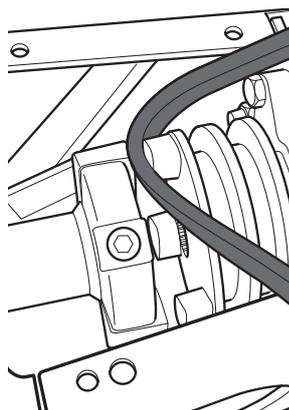


- 6 Loosen the lock nut (3) and the lower screw (4) until it is completely free from the belt tensioner.

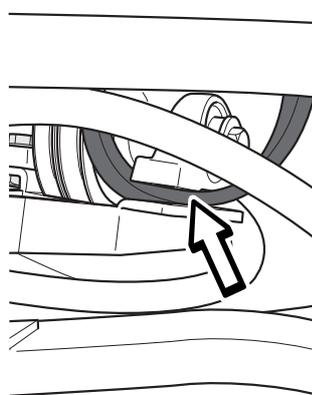


- 7 Remove rear bearing spacer screws (5) and remove the spacer (6).
- 8 Cut/pull off the old belts.

- 9 Pull the new belts through the gap between the spacer ring and the hydraulic pump.

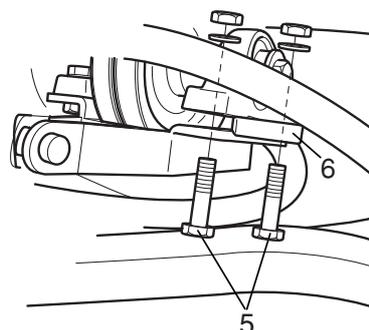


- 10 Feed the lower part of the strap between the bearing bridge and the bracket.

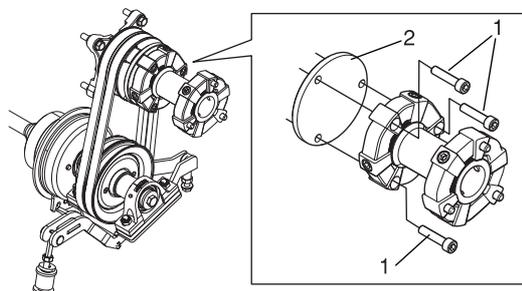


- 11 Pull the belt onto the pump belt pulley first and then onto the lower belt pulley. Repeat the procedure with the second belt.

- 12 Fit the spacer (6) to the bearing bridge and screw the bearing bridge tight with the associated screws (5). Torque 47 Nm.

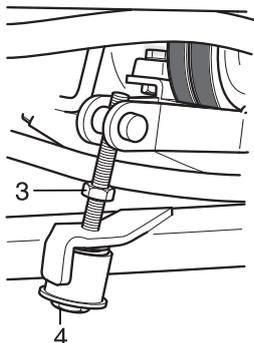


- 13 Replace the spacer ring (2) and screw the hydraulic pump securely to the drive shaft. Torque for the screws (1) is 47 Nm.



# Maintenance

- 14 Fit the belt tensioner screw with spring and sleeve. Tighten screw (4) until the sleeve bottoms against the frame bracket. Tighten lock nut (3) whilst holding screw (4) firmly.

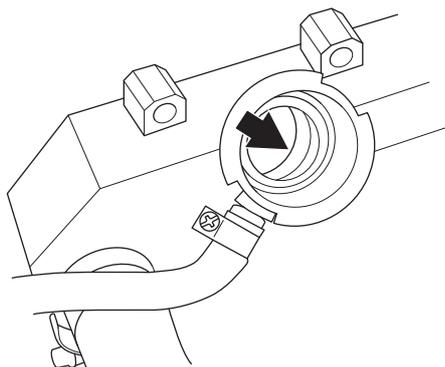


- 15 Check belt tension after the first 25 hours after belt change.

## Change coolant

Correct coolant level is important for the cooling system to function properly. Therefore the coolant level must be checked regularly.

The coolant should be visible when the filler cap is removed.



Repeated coolant loss normally indicates leakage. The cooling system should be checked by a professional. It is not sufficient just to top up with coolant. If the engine boils, coolant will be lost. Allow the engine cool before filling.

The cooling system must not be filled with salt water, as this will cause corrosion damage to the engine.

Replace coolant if it is discoloured or cloudy

The cooling system must then be thoroughly flushed.

Use only glycol-based antifreeze approved to BS 6580:1992 or ASTM D 3306-89 or AS 2108-1977 (indicated on the packaging).

The antifreeze must be intended for alloy engines.

Your Husqvarna supplier can provide the right type of antifreeze.

Use antifreeze all year round and even in climates where there is no risk of frost.

Antifreeze contains additives that protect the engine cooling system against corrosion

The coolant and antifreeze should be changed at least every two years.

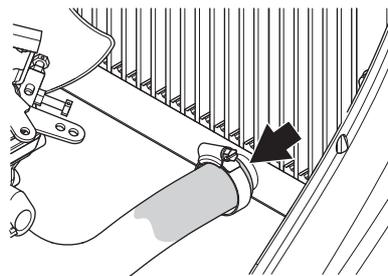


**WARNING!** Do not open the cap quickly when the engine is hot without first releasing the pressure by partially opening the cap. Risk of burns. Wear protective gloves and goggles.

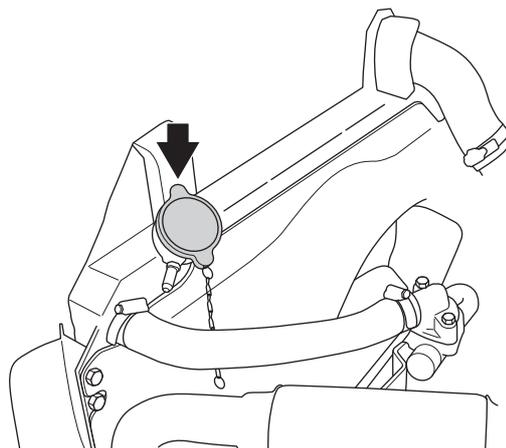


**WARNING!** Antifreeze and coolant are dangerous to health. Keep them in storage in labelled containers and away from children and animals.

- When emptying loosen the lower hose to the radiator.



- Remove the filler cap.



Fill only with antifreeze and water mixed according to the following table.

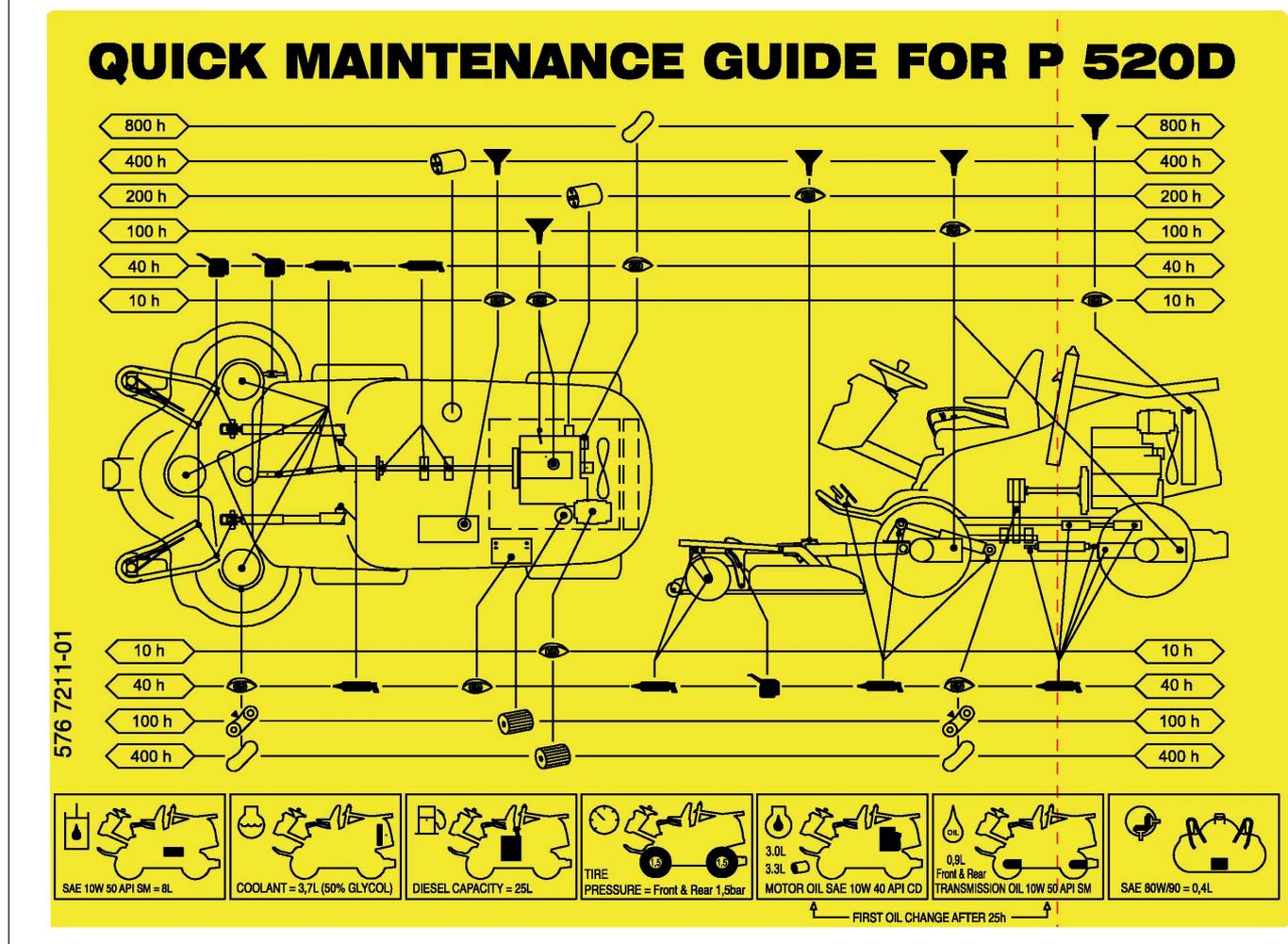
Glycol	Water	Freezing point
60 %	40 %	-47 °C / -53 °F
50 %	50 %	-37 °C / -35 °F
40 %	60 %	-25 °C / -13 °F

**IMPORTANT!** Never add cold coolant to a hot engine. Risk of comprehensive engine damage.

- Check the coolant when the engine has run for a few minutes after filling. There may have been air in the system that has been released.

# Lubrication

## Lubrication schedule



### Legend for the lubrication schedule

Filter replacement

Oil change

Level check

Grease nipple

Oil can

Check belts, condition and belt tension

Belt replacement



### General

Remove the ignition key to prevent unintentional movements during lubrication.

When lubricating with an oilcan, it ought to be filled with engine oil.

When lubricating with grease, unless otherwise stated, grease 503 98 96-01 or another chassis or ball bearing grease offering good corrosion protection shall be used.

If the machine is used daily it should be lubricated twice a week.

Wipe away excess grease after lubrication.

It is important to avoid getting lubricant on the belts or the drive surfaces on the belt pulleys. Should this happen, attempt to clean them with spirits. If the belt continues to slip after cleaning with spirits, it must be replaced.

Petrol or other petroleum products must not be used to clean belts.

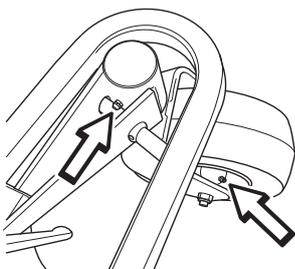
# Lubrication

## Accessories

Lubrication or other maintenance of optional equipment or accessories is not described in this manual. This equipment too, naturally, requires maintenance. See the manuals for the respective accessories for instructions.

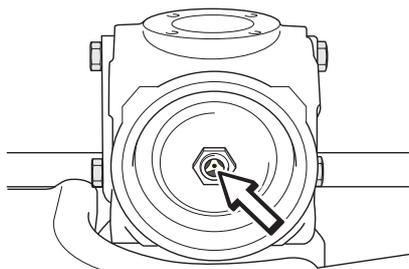
## Pivot wheel bearings

4 nipples (sprocket and pivot shaft bearing), lubricate with grease gun until grease appears.



## The cutting unit bevel gear

A sight glass is located in the plug on the front of the bevel gear.



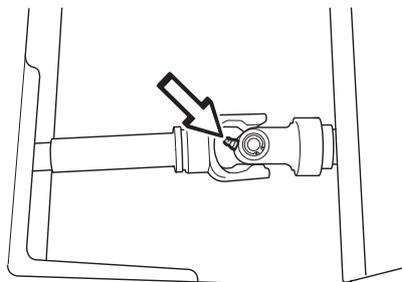
- Check the level when the cutting unit is in the down position.
- When filling, raise the cutting unit to the transport position and remove the plug with the sight glass. Fill with gear oil SAE 80W/90.

## Changing the oil

- Empty the bevel gear through the sight glass using a pump fitted with a plastic tube that extends to the bottom of the housing.
- Alternative: Remove the cutting unit and plastic covers. Place the cutting unit on its edge and empty the bevel gear through the plug.
- Fill the bevel gear with 0.4 litres of gear oil SAE 80W/90

## Universal drive shaft joints

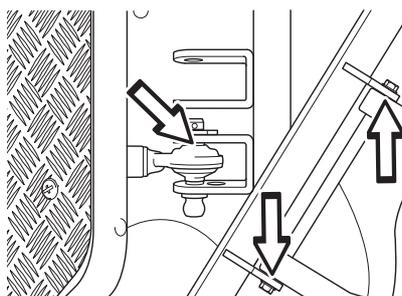
- Remove the service hatch.
- Loosen the two quick connectors on the universal drive shaft and remove the universal drive shaft.
- The universal drive shaft has two grease nipples, one on the front hub and one on the rear hub. Lubricate with a grease gun until the grease is forced out.



- Lubricate the telescopic joint of the universal drive shaft with grease.

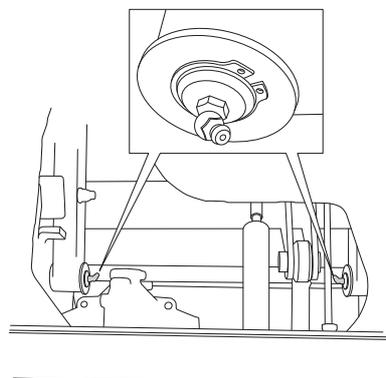
## Cutting unit bracket

Lubricate swivel joints and shafts with oil.



## Lift arm rear bearings

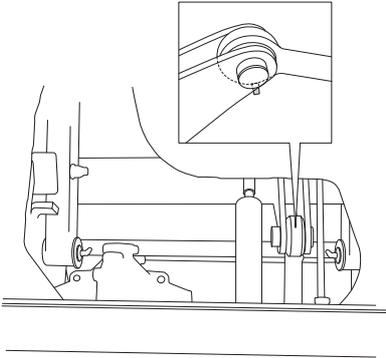
- Remove the service hatch.
- 2 grease nipples, one on each side. Lubricate with a grease gun until the grease is forced out.



# Lubrication

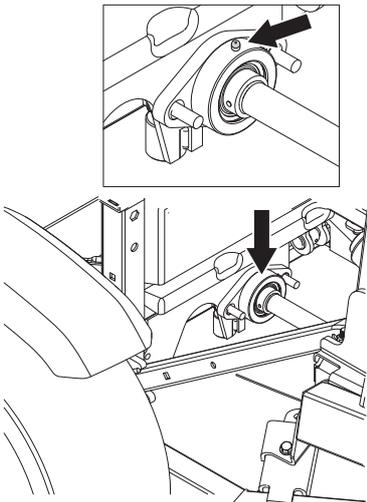
## Lift cylinder

- Remove the service hatch.
- 2 grease nipples, one on each side. Lubricate with a grease gun until the grease is forced out.



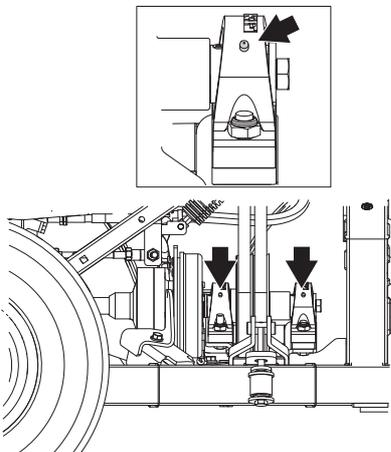
## The drive shaft front support bearing

Lubricate with a grease gun until the grease is forced out.



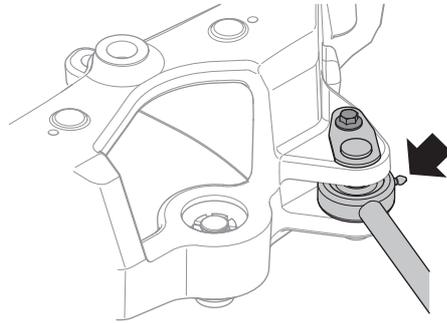
## The drive shaft rear support bearing

2 grease nipples. Lubricate with a grease gun until the grease is forced out.



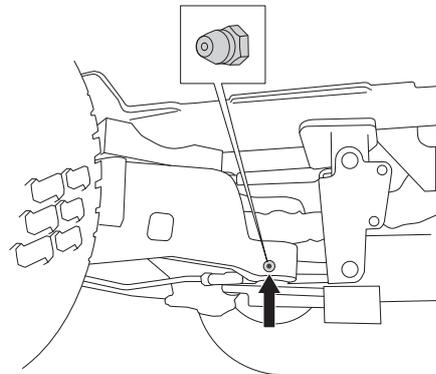
## Steering cylinder

The steering cylinder has two grease nipples, one on each end. Lubricate with a grease gun until the grease is forced out.



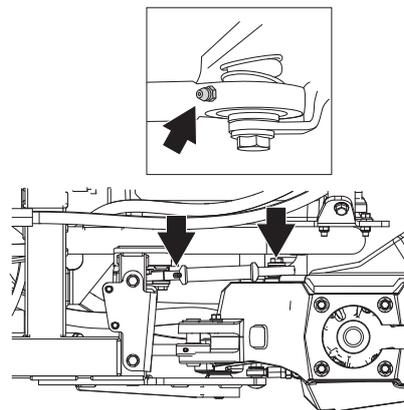
## Joint bearing

Grease the waist section of joint bearing. Lubricate with a grease gun until the grease is forced out.



## Link brace

- 2 grease nipples, one on each side. Lubricate with a grease gun until the grease is forced out.



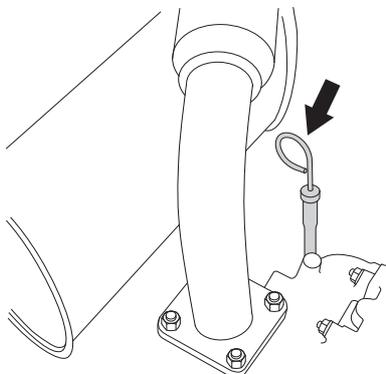
# Lubrication

## Checking the engine's oil level.

Check the oil level in the engine when the Rider stands horizontal with the engine switched off.

Open the engine cover.

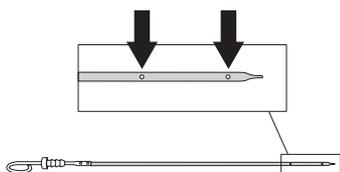
Loosen the dipstick, pull it up and wipe it off.



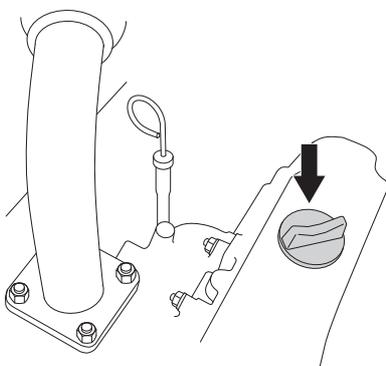
Now insert the dipstick again.

Pull the dipstick out again and read the oil level.

The oil level should be between the markings on the dipstick. If the level is approaching the ADD mark, top up the oil to the FULL mark on the dipstick.



The oil filler is on the valve cap. Fill the oil slowly.

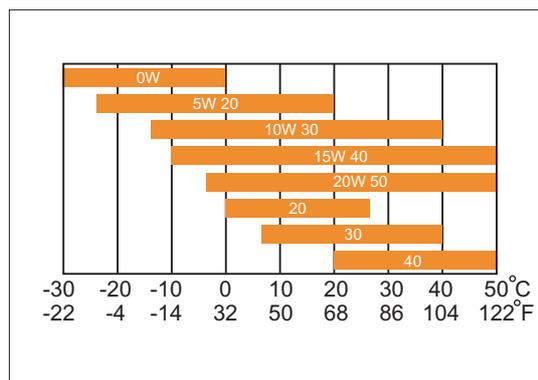


Tighten the dipstick correctly before starting the engine. Start and run the engine at idling speed for approx. 30 seconds. Turn off the motor. Wait 30 seconds and check the oil level. If necessary fill so that the oil comes up to the FULL mark on the dipstick.

The following oil classes are recommended:

- API Service Class: CH4 or ACEA E5 or higher.

Choose an oil with viscosity according to the temperature ranges in the figure:



Do not mix different types of oil.

## Replacing the engine oil

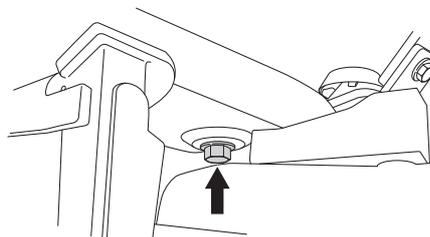
Open the engine cover.

The engine oil should be changed the first time after 25 hours running time. It should then be changed after every 100 hours of running time.



**WARNING! Engine oil can be very hot if it is drained directly after stopping the engine. Allow the engine to cool somewhat first.**

- 1 Place a container underneath the engine oil drain plug.



- 2 Remove the dipstick. Remove the drain plug from the engine.
- 3 Let the oil run out into the container.
- 4 Fit the drain plug and tighten it.
- 5 Change oil filter if necessary.
- 6 If necessary fill so that the oil comes up to the FULL mark on the dipstick.
- 7 Run the engine warm, then check that there is no leakage from the oil plug.
- 8 Check the engine oil level and top up if necessary.

### IMPORTANT INFORMATION

Used engine oil, antifreeze etc. is a health hazard and must not be disposed of on the ground or in nature; it should always be disposed of at a workshop or appropriate disposal location.

Avoid skin contact; wash with soap and water in case of spills.

# Lubrication

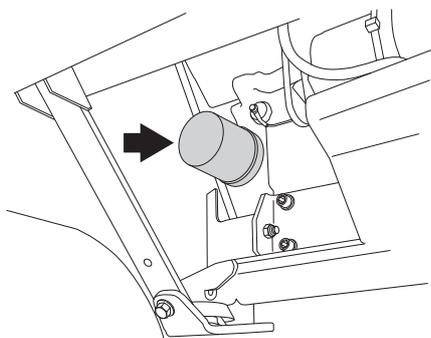
## Changing the oil filter



**WARNING! Engine oil can be very hot if it is drained directly after stopping the engine. Allow the engine to cool somewhat first.**

The oil filter is located on the right side of the engine.

- Open the engine cover.
- Turn the old oil filter anti-clockwise to remove. If necessary, use a filter remover.



- Clean the oil filter bracket.
- Lightly lubricate the rubber seal on the new oil filter using new oil.
- Fit the oil filter by turning clockwise. Turn by hand until the rubber seal is seated. Now tighten a further half turn.
- Start the engine and let it idle for about 3 minutes. Now stop it and check for signs of leakage.
- Check the engine oil level and top up if necessary.

### IMPORTANT!

Used engine oil and transmission oil is hazardous to health and must not be disposed of in the ground or out of doors.

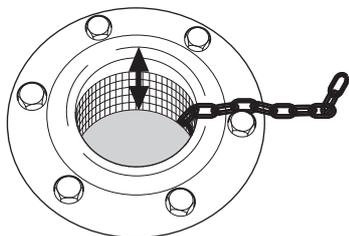
Replaced filters must be handed in to the workshop or other allotted place for disposal.

Avoid skin contact; wash with soap and water in case of spills.

## Check the hydraulic system oil level

The oil and filter should be changed by an authorised service representative, as described in the Workshop Manual. Work on the system entails particular demands on cleanliness and the system must be vented before the machine is used.

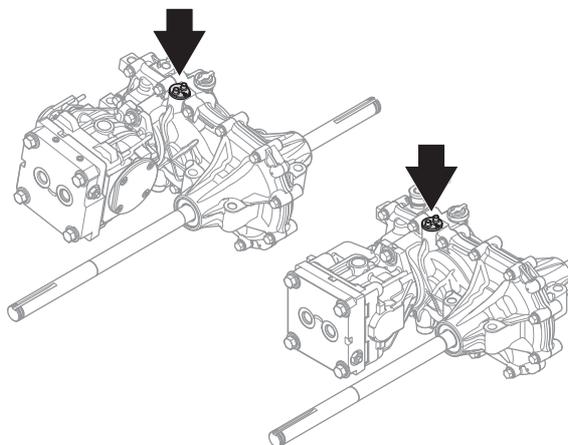
- Fold up the seat.
- Remove the filler cap. The level should be 40-60 mm from the strainer top.



- Refill as required with fully synthetic 10W/50 API SM oil or better

## Check the oil level in the transmission gearboxes

- Use the oil dipstick to check that there is oil in the transmission.



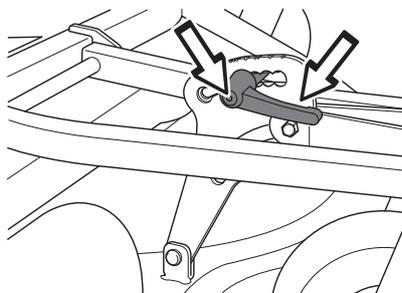
- The oil level should be between the markings on the dipstick.



- Refill as required with fully synthetic 10W/50 API SM oil or better

## Knobs for setting the cutting height

Lubricate front and rear knobs with oil.

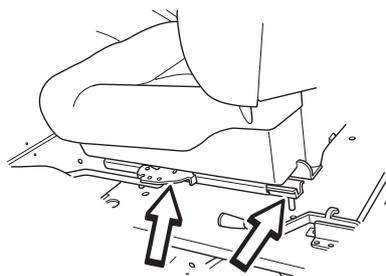


## Driver seat

Fold up the seat.

Lubricate the lever for longitudinal adjustment with oil.

Lubricate the longitudinal adjustment runners with grease. Pull the seat back and forth and lubricate on both sides.



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# Lubrication

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## Lubricating the cables

Remove the cable's rubber casing when lubricating.

Grease both ends of the cables and move the controls to end stop positions when lubricating.

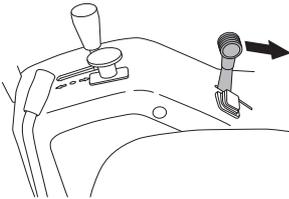
Re-attach the rubber covers on the cables after lubrication.

Cables with sheaths will jam if they are not lubricated regularly. A jammed cable may cause malfunction, such as the parking braking being applied. If a cable binds, remove the cable and hang it vertically. Lubricate it with thin engine oil until the oil begins to escape from the bottom.

A tip: Fill a small plastic bag with oil and tape it so that it seals against the casing and allow the cable to hang vertically from the bag overnight. If you do not succeed in lubricating the cable, it must be replaced.

## Throttle and choke cables, lever bearings

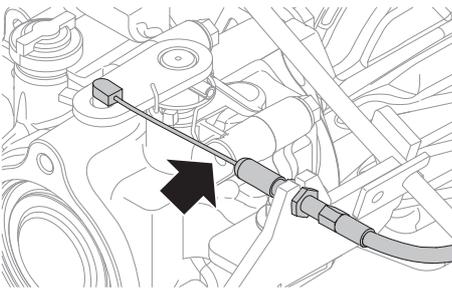
- Remove the right side cover on the lever housing (3 screws) and open the engine cover.
- Lubricate the cables' free ends with the oilcan, even those by the engine.
- Move the controls to the end points and lubricate again.



Replace the lever housing's side cover.

## Lubricate the parking brake wire

Remove the rubber cover and lubricate the cable with oil.



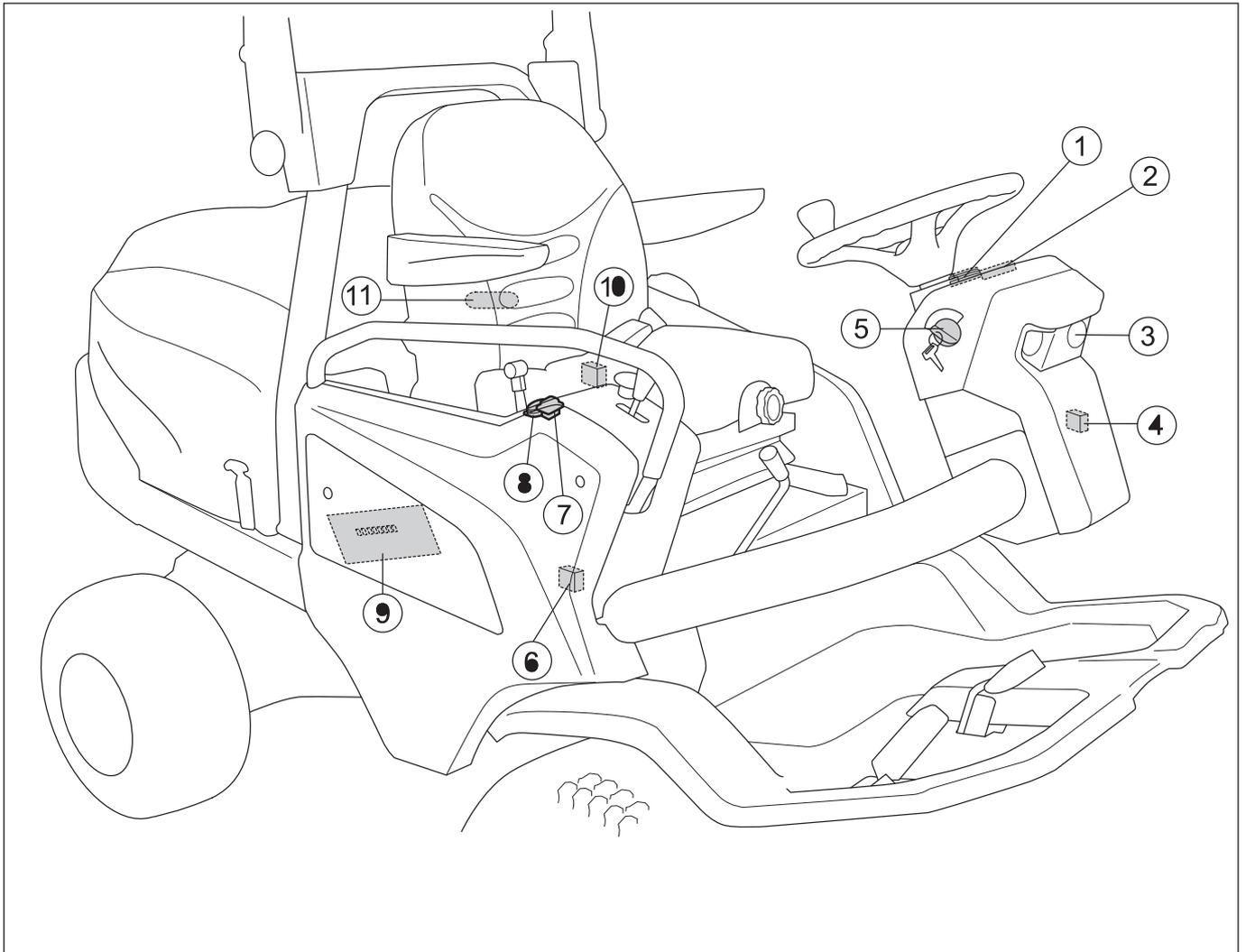
# Troubleshooting schedule

Problem	Procedure
<b>Engine does not start</b>	There is no fuel in the fuel tank
	Air in fuel system
	Incorrect fuel type
	Ignition system inoperative
	Serious engine damage
<b>Starter motor does not turn over the engine</b>	Battery flat
	Poor contact affecting the battery terminal cable connections, ignition lock, or starter
	Power take off (PTO) activated
	Air in fuel system
	Fuse on or near the battery blown (check 2 off)
	Start lock broken
	The parking brake is not on
	Faulty or improperly adjusted parking brake switch
	Faulty starter motor
<b>Engine does not run smoothly</b>	Faulty relief valve
	Clogged fuel filter
	Air filter clogged
	Fuel tank vent blocked
	Low feed pressure
	Loose fuel pressure line (injector pipe)
	Faulty fuel injector
	Faulty injection pump
	Faulty feed pump
	Incorrect fuel type
	Serious engine damage
<b>Abnormal exhaust smoke</b>	
Black smoke	Incorrect amount of fuel from injection pump
	Faulty fuel injector
	Incorrect timing of fuel injection pump
	Air filter clogged
Blue smoke	Engine oil level too high
	Serious engine damage
White smoke	Cylinder head gasket damaged
	Cylinder head cracked
	Engine oil level too high
<b>Engine seems to have no power</b>	Air filter clogged
	Air in fuel system
	Clogged fuel filter
	Faulty relief valve
	Low feed pressure
	Faulty feed pump
	Incorrect timing of fuel injection pump
	Serious engine damage

# Troubleshooting schedule

<b>Engine overheats</b>	Engine overloaded
	Coolant level too low
	Air intake or cooling flanges blocked
	Fan damaged
	Too little or no oil in engine
	Incorrect radiator cap
	Coolant pump drive belt broken
<b>Battery does not charge</b>	One or more battery cells faulty
	Poor contact on the battery terminal cable connectors
	Defective alternator
	Alternator belt broken or slipping
	Wires to the alternator broken
	Defective battery maintenance
	Sulphated battery
<b>Machine vibrates</b>	Blades are loose
	Damaged universal joint
	Engine is loose
	The hydraulic pump is loose
	Damaged support bearing for PTO shaft
	Bevel gear is loose
	The engine is not firing on all cylinders
	Pulley loose or worn bearing on cutting unit
	One or more blades unbalanced, caused by damage or poor balancing after sharpening
<b>Uneven mowing</b>	Blades blunt
	Cutting unit skew
	Long or wet grass
	Grass blockage under hood
	Different tyre pressures on right and left sides
	Different tyre pressures on pivot wheel
	Over-speeding
	Engine speed too low
	Cutting unit belt slipping
	PTO belt slipping
	Cutting height too low

# ELECTRICAL SYSTEM

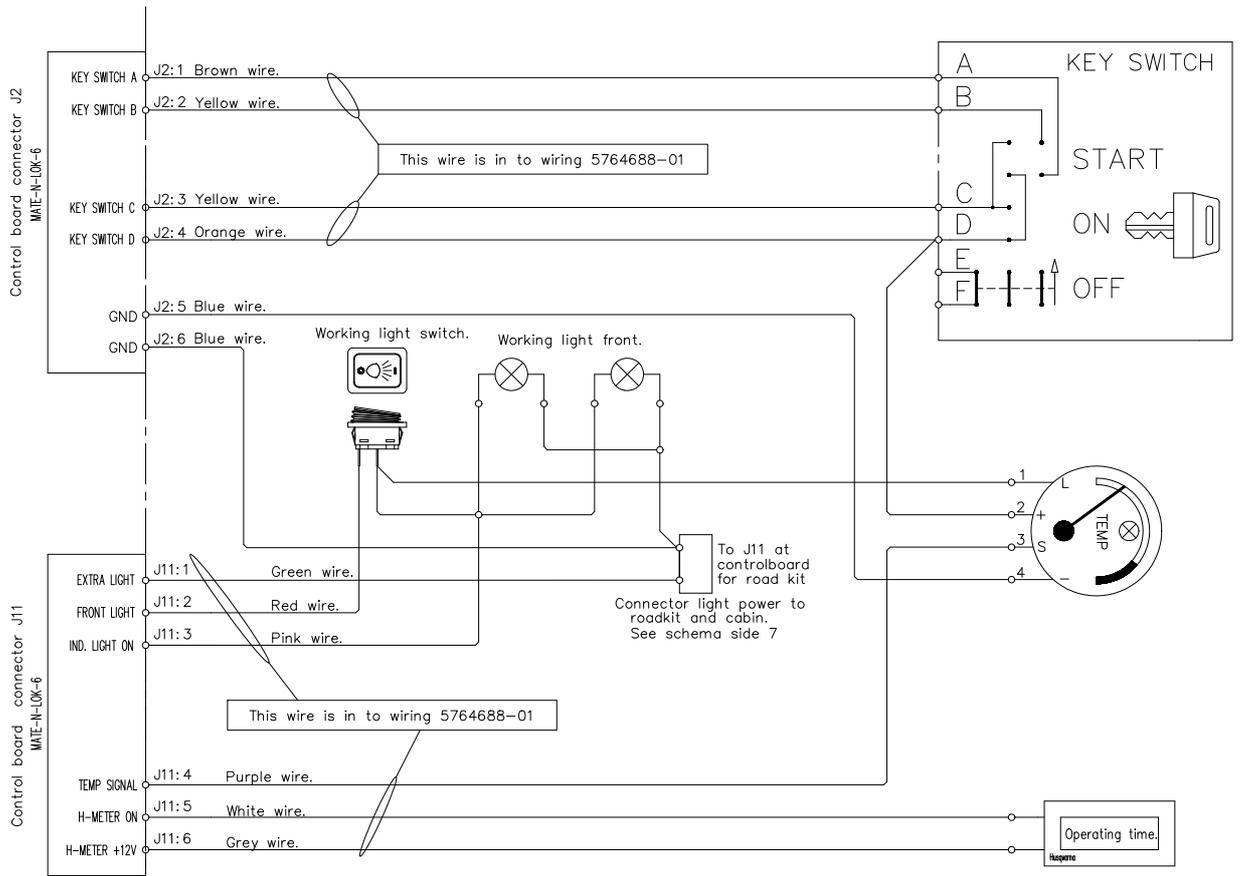


Numbers correspond to:

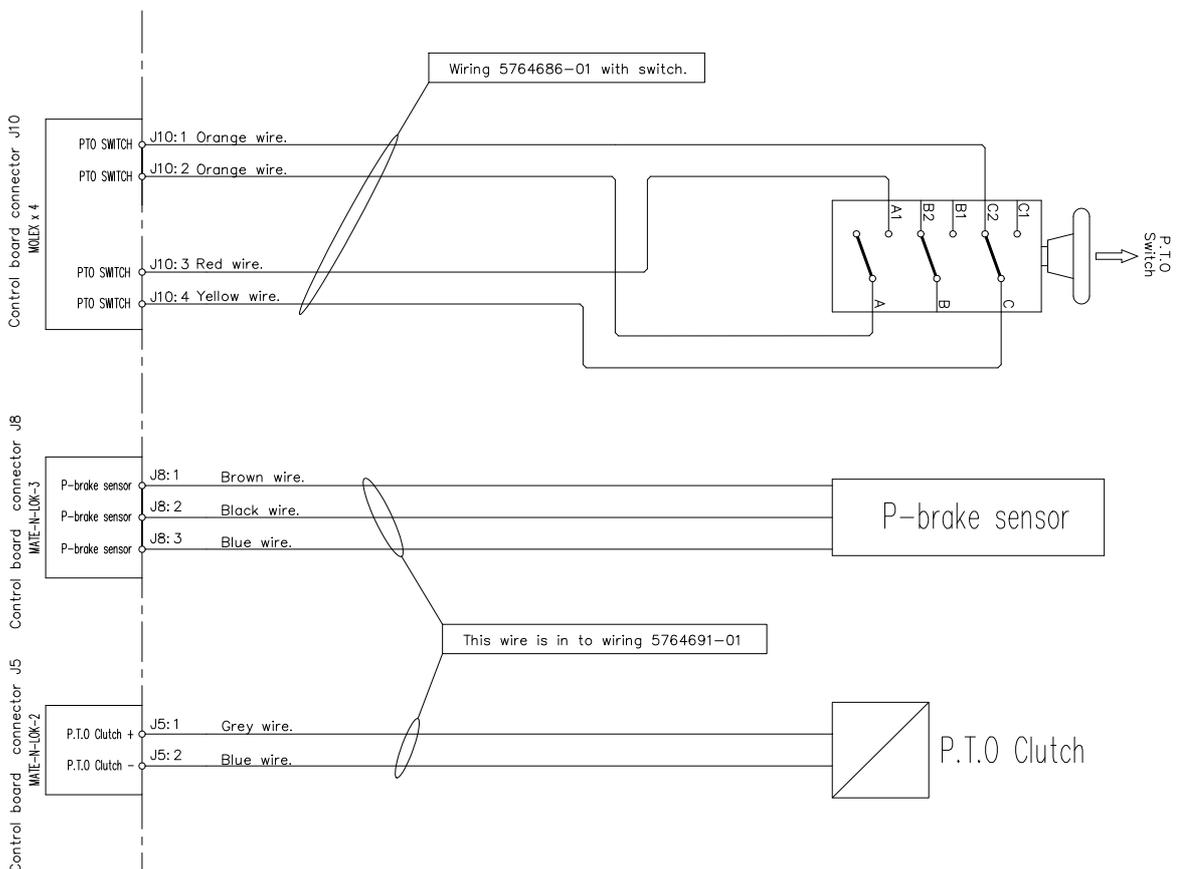
- |   |                       |    |                                 |
|---|-----------------------|----|---------------------------------|
| 1 | Switch for the lights | 6  | Inductive sensor, parking brake |
| 2 | Instrument panel      | 7  | Switch for the power outlet     |
| 3 | Lights                | 8  | Power outlet                    |
| 4 | Counter               | 9  | Electrical connection box       |
| 5 | Ignition lock         | 10 | Seat switch                     |
|   |                       | 11 | Main fuse, 125 A                |



# ELECTRICAL SYSTEM

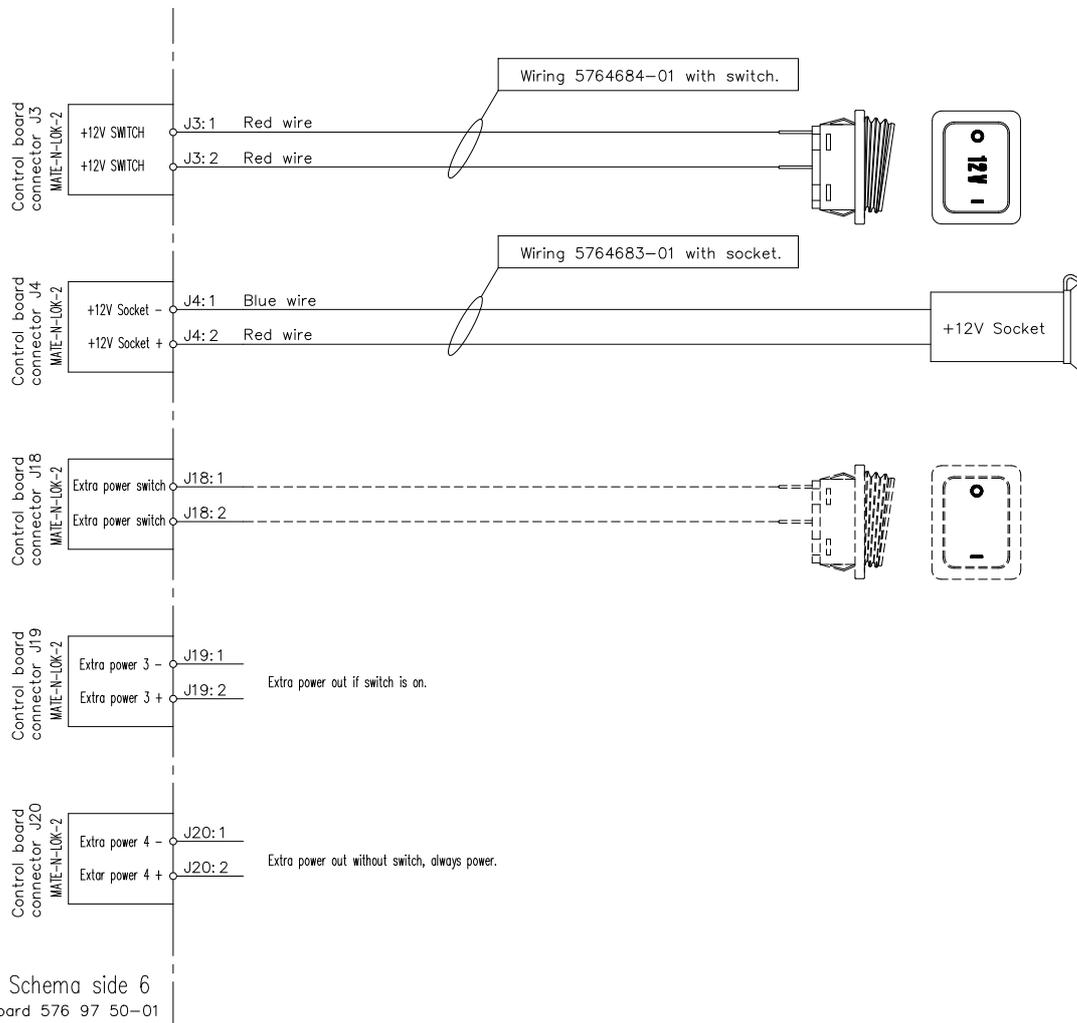
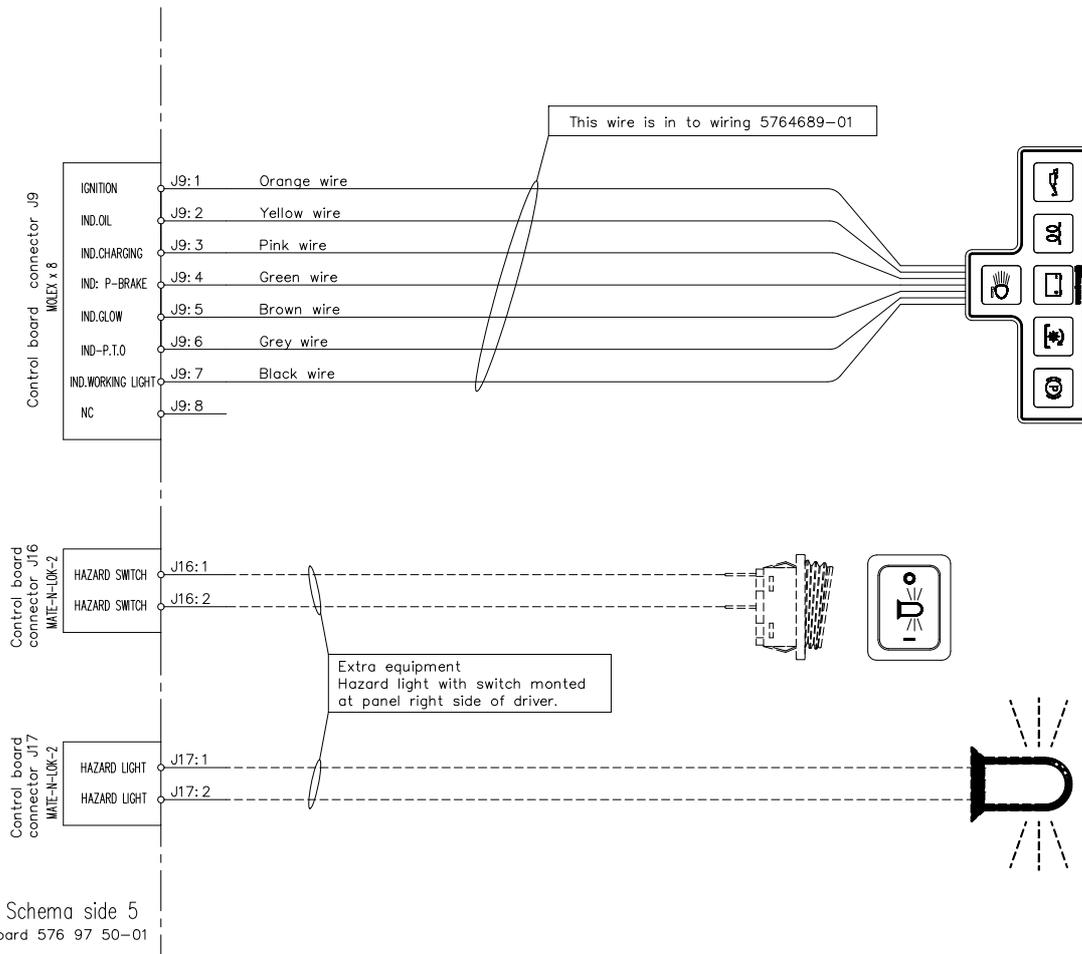


P520 D Schema side 3  
Control board 576 97 50-01



P520 D Schema side 4  
Control board 576 97 50-01

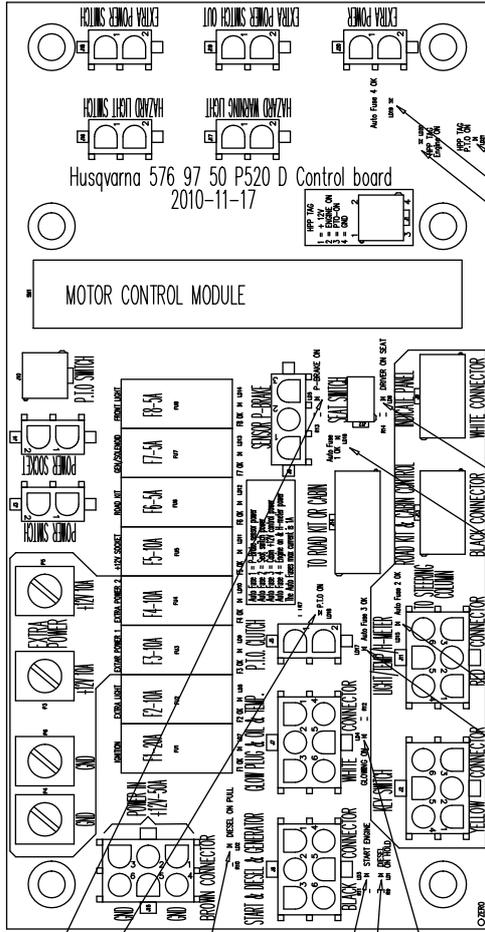
# ELECTRICAL SYSTEM





# ELECTRICAL SYSTEM

THE INDICATION LED IS LIGHTING WHEN THEIRS FUNKTION IS ACTIVATED



LIGHTING WHEN P-BRAKE IS ACTIVATED

LIGHTING WHEN P.T.O CLUTCH IS ON

LIGHTING WHEN DIESEL ON PULL PULSE

LIGHTING WHEN ENGINE START ACTIVE

LIGHTING WHEN DIESEL IS AT HOLD

LIGHTING WHEN GLOWING IS ON

The Auto Fuses max current is 1A so don't add any extra load to the fuse.

- If LD16 is on = Auto fuse 1 is OK
- If LD15 is on = Auto fuse 2 is OK
- If LD17 is on = Auto fuse 3 is OK
- If LD19 is on = Auto fuse 4 is OK

If the ignition is on and the auto fuse LED's isn't lit, there is shortcircuit in a wiring harness.

LD1 = Diesel on hold  
 LD2 = Diesel on pull  
 LD3 = Glow on  
 LD4 = Glow on  
 LD5 = P-brake on  
 LD6 = Driver in seat

Ignition must be on to see the LED's

FUS 20A	FUS 10A	FUS 10A	FUS 10A	FUS 10A	FUS 10A	FUS 10A	FUS 5A	FUS 5A	FUS 5A
LD7	LD8	LD9	LD10	LD11	LD12	LD13	LD14	FUS 5A	FUS 5A
FU1 = Ignition	LD7 On = FU1 OK	FU5 = +12V socket	LD11 On = FU5 OK	FU2 = Extra light	LD8 On = FU2 OK	FU6 = Road kit/cabin	LD12 On = FU6 OK	FU3 = Extra power 1	LD9 On = FU3 OK
FU4 = Extra power 2	LD10 On = FU4 OK	FU7 = Geny/solenoid	LD13 On = FU7 OK	FU8 = Front light	LD14 On = FU8 OK				

LIGHTING WHEN DRIVER IS ON THE SEAT

LIGHTING WHEN ENGINE IS ON (HPP OUT)

LIGHTING WHEN P.T.O IS ON (HPP OUT)

ALL LED IS LIGHTING WHEN IGNITION IS ON AND IF FUSES IS OK

P520 D Schema side 9  
 Control board 576 97 50-01

# Storage

## Winter storage

At the end of the season, or if the machine is going to stand idle for more than 30 days, it should immediately be made ready for storage. Fuel which is left to stand for long periods (30 days or more) can leave sticky deposits and interfere with the engine function.

Fuel stabiliser is an acceptable alternative to avoid tacky deposits during storage. Add stabiliser to the fuel in the tank or the storage container. Always use the mixing ratios indicated by the manufacturer. Run the engine for at least 10 minutes after adding the stabiliser.



**WARNING! Never place an engine with fuel in the tank indoors or in poorly ventilated areas where petrol fumes can come into contact with naked flames, sparks or pilot flames in boilers, hot water heaters, drying cabinets, etc. Exercise caution when handling fuel. It is highly inflammable, and careless use can cause serious injury and damage to property. Drain off the fuel in an approved container outdoors and well clear of naked flames. Never use petrol for cleaning purposes. Use degreasing agents and hot water instead.**

To prepare the machine for storage follow these instructions:

- 1 Carefully clean the machine, especially under the cutting unit. Touch-up paint damage to avoid rust.
- 2 Inspect the machine for worn or damaged parts and tighten loose screws and nuts.
- 3 Change the engine oil, and take care of the waste oil.
- 4 Fill fuel tank.
- 5 Grease all grease nipples, joints and axles.
- 6 Remove the battery. Clean it, charge it, and store it in a cool place.
- 7 Store the machine in a clean and dry place and cover it over for extra protection.

## Guard

There is a cover to protect your machine during storage or transport. Contact your dealer for a demonstration

## Service

Low season is the most suitable time to perform a service or overhaul of the machine in order to ensure high function safety during high season.

When ordering spare parts state your machine's purchase year, model, type, and serial number.

Always use genuine parts.

Annual inspection or tuning by an authorised service workshop is a good way of getting the best out of your machine the next season.



# Technical data

	P520 D
<b>Dimensions</b>	
Length without cutting unit, mm/ft	2080/6,82
Width without cutting unit, mm/ft	1120 / 44.1
Height, mm/ft	
Unladen weight excluding cutting unit, kg/lb	600
Wheelbase, mm/ft	1060/3,48
Tyre dimensions	18 x 8,5 x 8
Air pressure, rear - front, kPa / bar / PSI	150/1,5/22
<b>Engine</b>	
Brand / Model	Kubota D902
Nominal engine output, kW (see note 1)	14,5 @ 3000 rpm
Displacement, cm <sup>3</sup> /cu.in	898
Fuel, minimum octane grade lead-free	min 45 cetane 2.0-4.5 cSt @ 40°C 0.835-0.855 kg/l sulphur<0.2w%
Tank volume, litres/USqt	28/29,6
Oil, API class CD or better	SAE 10W/40
Oil volume incl. filter	3,3/3,5
Oil volume excl. filter, litres/USqt	3,0/3,2
Max.motor speed, r/min	3000
Starting	Electric starter
<b>Electrical system</b>	
Type	12 V, negative earthed
Battery	12 V, 62 Ah
Main fuse, A	125
Supply fuse circuit board, A	50
Bulbs, halogen	2x12V 20W
<b>Cooling system</b>	
Cooling system capacity, l/USqt	3,7/3,9
Antifreeze	≥ 50% glycol
<b>Hydraulic System</b>	
Max. working pressure, bar / psi	120 / 1740
Hydraulic tank capacity, l/USqt	8/8,5
Hydraulic system capacity, l/USqt	13/13,7
<b>Transmission</b>	
Brand	Kanzaki KTM 23
Oil, class API SM, ACEA A3/B4	SAE 10W/50 Synthetic
Oil capacity gearbox front, l/USqt	0,9
Oil capacity gearbox rear, l/USqt	0,9
Max. hydraulic pressure, bar/psi	275/3989
<b>Drive</b>	
Forward speed, km/h.	0-15
Reverse speed, km/h	0-12
<b>Cutting unit</b>	
Model	Combi 132

Note 1: The power rating of the engine indicated is the average net output (at specified rpm) of a typical production engine for the engine model measured to SAE standard J1349/ISO1585. Mass production engines may differ from this value. Actual power output for the engine installed on the final machine will depend on the operating speed, environmental conditions and other values.

# Technical data

Technical data concerning the cutting unit	
Cutting unit	Combi 132
Cutting width, mm/inch	1320/52
Cutting heights, 7 positions, mm/inch	25-127 / 0,98-5,0
Blade length, mm/inch	490 / 19,3
Width, mm	1340 / 52,8
Weight, kg/lb	100 / 29,3
Bevel gear oil	SAE 80W/90, capacity 0.4 l

Technical specifications for sound and vibration levels	
	P520 D
	Combi 132
<b>Noise emissions (see note 2)</b>	
Sound power level, measured dB(A)	102
Sound power level, guaranteed dB(A)	103
<b>Sound levels (see note 3)</b>	
Sound pressure level at the operators ear, dB(A)	88
<b>Vibration levels (see note 4)</b>	
Vibration level on the steering wheel, m/s <sup>2</sup>	1,7
Vibration level in the seat, m/s <sup>2</sup>	0,7

Note 2: Noise emissions in the environment measured as sound power ( $L_{WA}$ ) in conformity with EC directive 2000/14/EC.

Note 3: Noise pressure level according to EN 836. Reported data for noise pressure level has a typical statistical dispersion (standard deviation) of 1.2 dB(A).

Note 4: Vibration level according to EN 836. Reported data for vibration level has a typical statistical dispersion (standard deviation) of 0.2 m/s<sup>2</sup> (steering wheel) and 0.8 m/s<sup>2</sup> (seat).

**IMPORTANT INFORMATION** When the service life of this product has been served and it is no longer used it should be returned to the dealer or to an applicable station for recycling.

**IMPORTANT INFORMATION** We reserve the right to change specifications and designs without prior notice so as to implement improvements.

Note that no legal claims are valid on the basis of information in this manual.

Use only genuine parts for repairs. The warranty is not valid if non genuine parts are used.

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# Technical data

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## EC-declaration of conformity (Applies to Europe only)

Husqvarna AB, SE-561 82 Huskvarna, Sweden, tel: +46-36-146500, declares that the Husqvarna 520 D ride-on mower, from 2011 serial numbers and onwards (the year is clearly stated on the rating plate followed by the serial number), complies with the requirements of THE COUNCIL'S DIRECTIVE:

of May 17, 2006 "relating to machinery" **2006/42/EC**

of December 15, 2004 "relating to electromagnetic compatibility" **2004/108/EC**.

of May 8, 2000 "relating to the noise emissions in the environment" **2000/14/EC**.

The following harmonised standards have been applied: **EN ISO 12100-2, EN-836**.

Notified body: **0404, SMP Svensk Maskinprovning AB**, Fyrisborgsgatan 3, SE-754 50 Uppsala, has issued reports regarding the assessment of conformity according to annex VI of the COUNCIL'S DIRECTIVE of May 8, 2000 "relating to the noise emissions in the environment" 2000/14/EC.

The certificates have the numbers: **01/901/139**

Huskvarna December 1, 2010



Claes Losdahl, Development Manager/Garden Products (Authorized representative for Husqvarna AB and responsible for technical documentation.)





**Original instructions**  
**1153984-26**



**2011-03-14**