

Rider 18 ProFlex

Rider 20 ProFlex

Operator's manual



Please read these instructions carefully and make sure you understand them before using the machine.

CONTENTS

Operator's Manual for Rider 18 ProFlex and Rider 20 ProFlex

Safety instructions	2	Checking the engine's oil level	19
Safety rules for USA	2	Checking the engine's cooling air intake	19
Explanation of symbols	4	Checking the fuel pump's air filter	19
Safety instructions	5	Checking the transmission's air intake	20
General use	5	Checking the transmission's oil level	20
Driving on slopes	6	Checking and adjusting the steering wires	21
Children	7	Adjusting the brakes	22
Maintenance	7	Checking the battery acid level	22
Presentation	9	Checking the safety system	22
Location of the controls	9	Replacement of air filter	23
Throttle control	10	Fitting the cutting unit	24
Choke lever	10	Setting the parallelism	26
Speed limiter	10	Setting the cutting height	26
Cutting unit	11	Checking and adjusting the ground pressure	27
Lift lever for cutting unit	11	Service position for the cutting unit	28
Lever for adjustment of cutting height	12	Checking the blades	28
Parking brake	12	Dismantling the cutting unit	29
Seat	12	Dismantling the belts	31
Fuelling	12	Assembling the belts	32
Driving	13	Changing the cutting unit's belts	33
Before starting	13	Changing the oil	35
Starting the engine	13	Replacement of the oil filter	36
Driving the machine	14	Lubrication	36
Cutting tips	15	General lubrication	36
Stopping the engine	16	Checking and adjustment of throttle wire	37
Disengage lever	16	Checking the tyre pressure	38
Maintenance	17	Replacement of fuel filter	38
Maintenance schedule	17	Cleaning the pulse air filter	38
Dismantling of the machine hoods	18	Trouble shooting schedule	39
		Storage	40
		Winter storage	40
		Service	40
		Wiring diagram	41
		Technical data	42

IMPORTANT INFORMATION

Read through these instructions carefully so that you know how to use and maintain the machine before using it.

For servicing other than described in this manual contact an authorised dealer for parts and service.

SAFETY INSTRUCTIONS



1. Safety rules for USA



Safe operation practices for ride-on mowers

IMPORTANT!

This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

I. General operation

1. Read, understand and follow all instructions in the manual and on the machine before starting.
2. Only allow responsible adults, who are familiar with the instructions, to operate the machine.
3. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade.
4. Be sure the area is clear of other people before mowing. Stop the machine if anyone enters the area.
5. Never carry passengers.
6. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while backing.
7. Be aware of the mower discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the guard in place.
8. Slow down before turning.
9. Never leave a running machine unattended. Always turn off blades, set parking brake, stop engine and remove keys before dismounting.
10. Turn off blades when not mowing.
11. Stop engine before removing grass catcher or unclogging chute.
12. Mow only in daylight or good artificial light.
13. Do not operate the machine while under the influence of alcohol or drugs.
14. Watch for traffic when operating near or crossing roadways.
15. Use extra care when loading or unloading the machine into a trailer or truck.

II. Slope operation

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. *All* slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

DO

Mow up and down slopes, not across.
Remove obstacles such as rocks, tree limbs, etc.
Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. *Tall grass can hide obstacles.*

Use slow speed. Choose a low gear so that you will not have to stop or shift while on the slope.

Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.

Use extra care with grass catchers or other attachments. These can change the stability of the machine.

Keep all movement on the slopes *slow* and *gradual*. Do not make sudden changes in speed or direction.

Avoid starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly *straight* down the slope.

DO NOT

Do not turn on slopes unless necessary and then, turn slowly and gradually downhill, if possible.

Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Do not mow on wet grass. Reduced traction could cause sliding.

Do not try to stabilize the machine by putting your foot on the ground.

Do not use grass catcher on steep slopes.

III. Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. *Never* assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn machine off if children enter the area.
3. Before and when backing, look behind and *down* for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with safe machine operation.
5. Never allow children to operate the machine.
6. Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure vision.

SAFETY INSTRUCTIONS

IV. Service

1. Use extra care in handling gasoline and other fuels. They are flammable and vapours are explosive.
 - a) Use only an approved container.
 - b) Never remove gas cap or add fuel with the engine running. Allow engine to cool before refuelling. Do not smoke.
 - c) Never refuel the machine indoors.
 - d) Never store the machine or fuel container inside where there is an open flame, such as in a water heater.
2. Never run a machine inside a closed area.
3. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
4. Never tamper with safety devices. Check their proper operation regularly.
5. Keep machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool before storing.
6. Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
7. Never make adjustments or repairs with the engine running.
8. Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
9. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing them.
10. Check brake operation frequently. Adjust and service as required.



Danger, keep hands and feet away

EXPLANATION OF SYMBOLS

These symbols are on the machine and in the instructions.
Study them carefully so that you know what they mean.



Read the instructions.

R

Reverse

N

Neutral



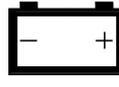
Fast



Slow



Engine off



Battery



Choke



Fuel



Oil pressure



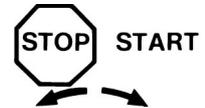
Cutting height



Backwards



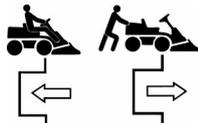
Forwards



Ignition



Use hearing protection



Hydrostatic freewheel



Parking brake



Brake



Warning



Sound level



Warning! Rotating blades



Warning! Risk that the machine can tip over



Never drive across a slope



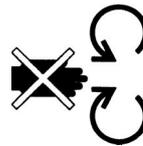
European standard for machine safety



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



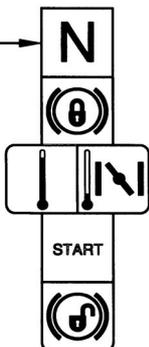
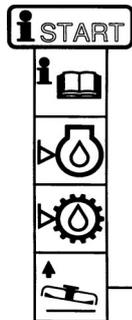
Never carry passengers on the machine or equipment



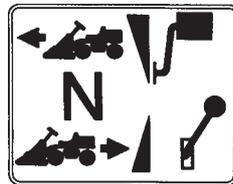
Keep hands and feet away from under the hood when the engine is running



Drive very slowly without the cutting unit



Starting instructions
Read the instructions
Check the engine's oil level
Check the hydrostat's oil level
Lift up the cutting unit
Put the gear shift/hydrostat pedal in neutral
Brake
If the engine is cold use the choke
Start the engine
Release the parking brake before driving



Speed limiter pedal forwards
Neutral
Speed limiter pedal reverse



Switch off the engine and take off the ignition cable before repairs or maintenance

SAFETY INSTRUCTIONS

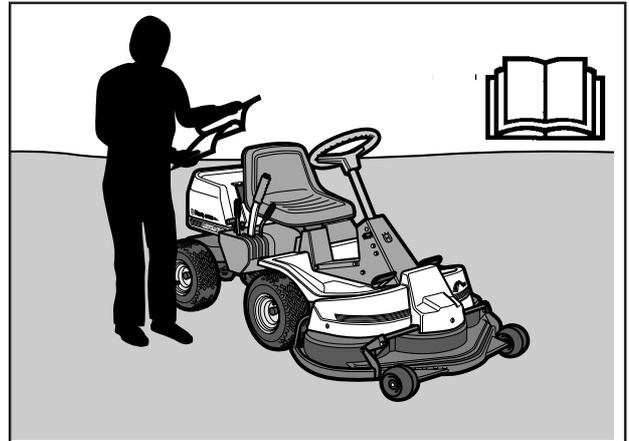
These instructions are for your safety. Read them carefully.



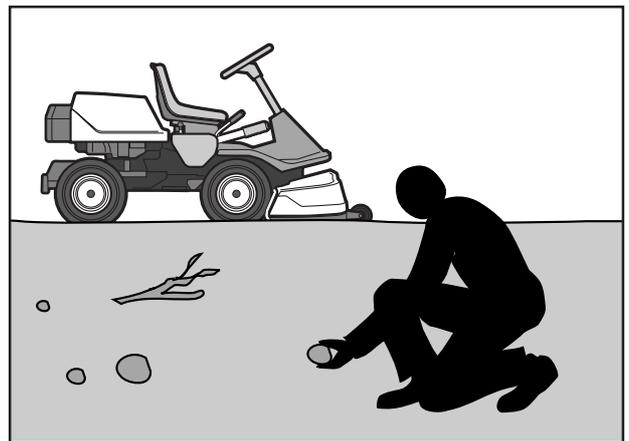
This symbol implies that important safety rules are applicable. This is for your safety and the operating reliability of the machine.

General use:

- Make yourself familiar with the controls and how to stop quickly.
- Read all the instructions in Operator's Manual and on the machine before starting it. Make sure you understand them, and then follow them.
- Only allow adults who are familiar with the machine to use it.
- Wear approved safety glasses or a visor during assembly and driving.
- Never use the machine barefoot. Always wear heavy-duty shoes, preferably toe-capped.
- Never wear loose fitting clothes which can fasten in moving parting.
- Clear the area of objects such as stones, toys, and wires, etc. which can be caught up by the blades and thrown out.
- Check that there are no other persons in the area before starting to cut.
- Stop the machine if anyone comes into the work area.
- Never carry passengers.
- Do not cut backwards unless absolutely necessary.
- Always look down and behind before and during reversing.
- Keep an eye on the ejected grass and do not direct it towards anyone.
- Slow down before turning.
- Never leave the machine unattended when the engine is running. Always switch off the blades, pull on the parking brake, stop the engine and take out the keys before leaving the machine.
- Switch off the blades when you are not cutting.
- Only cut in daylight or good artificial lighting.
- Never use the machine when you have consumed alcohol, drugs, or certain medicines.



Read the instructions before starting the machine.



Clear the area from stones etc. before cutting.



Never carry passengers.



WARNING!

This machine can cut off hands and feet, and eject objects. Failure to follow the safety instructions can lead to severe injury.

SAFETY INSTRUCTIONS

- Watch out for traffic when working close to a road, or crossing one.
- Be careful when rounding a fixed object so that the blades do not hit it. Never drive intentionally over a foreign object.
- The machine is heavy and can cause very severe crush injuries. Be extra careful when loading it on a trailer or truck.
- Be careful when pulling a load or using heavy equipment.
 - a. Only use approved tow hooks.
 - b. Limit the load to what you can manage safely.
 - c. Do not make sharp turns. Be careful when reversing.
 - d. Use counterweights or wheel weights when indicated in the instructions.

Driving on slopes

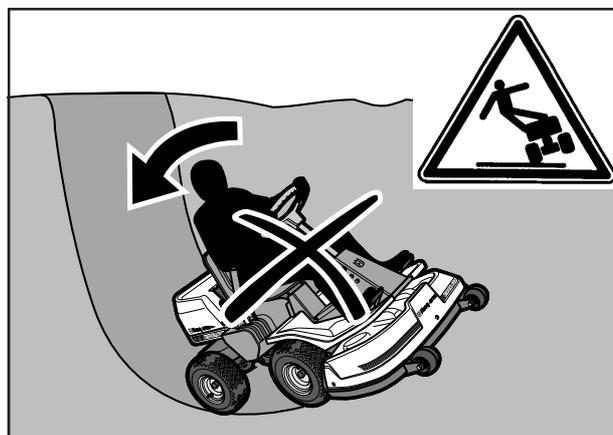
Driving on slopes is one of the situations where there is the most serious risk that the driver can lose control or that the machine tips over, which can cause severe injuries or be fatal. All slopes require extra care. If you cannot reverse up the slope or if you feel uncertain avoid cutting it.

Do as follows:

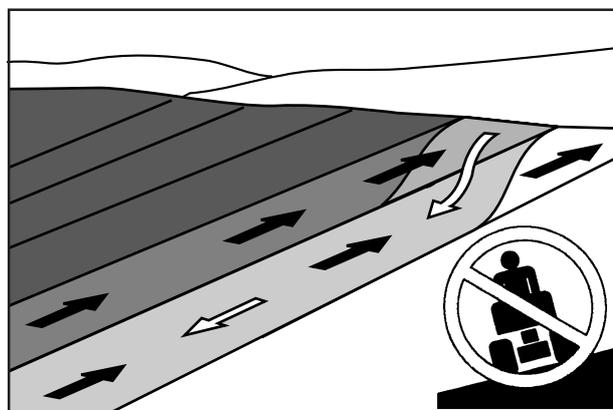
- Remove obstacles such as stones and branches etc.
- Cut upwards and downwards, not sideways.
- Look out for and avoid driving over furrows, holes or mounds. On uneven surfaces it is easier for the machine to tip over. High grass can conceal obstacles.
- Drive slowly. Select a low gear to avoid having to stop and changing gear. It is also easier to use the gear to brake in a low gear.
- Follow the manufacturer's recommendations on wheel weights or counterweights to increase stability.
- Be extra careful with the grass collector or other equipment which can alter the stability of the machine.
- Always drive smoothly and slowly on slopes. Avoid sudden changes of speed or direction.
- Avoid starting or stopping on a slope. If the tyres begin to skid switch off the blades and drive slowly down the slope.

Do **not** do the following:

- Avoid unnecessary turns on slopes, and if turning is necessary turn slowly and gradually, downwards if possible.



Be extra careful when driving on slopes.



Cut slopes upwards and downwards, not sideways.

SAFETY INSTRUCTIONS

- Do not cut close to edges, ditches or banks. The machine can suddenly tip over if a wheel goes over the edge of a drop or a ditch, or if a bank gives way.
- Do not cut wet grass. It is slippery and the tyres can lose their grip so that the machine slides.
- Do not try to stabilise the machine by placing one foot on the ground.
- The Rider lawn mower must **never** be driven close to an edge or ditch when cleaning the chassis.

Children

Tragic accidents can occur if the driver does not pay attention to children in the vicinity. Children are often attracted to the machine and the work of mowing. Never assume that children stay where you last saw them.

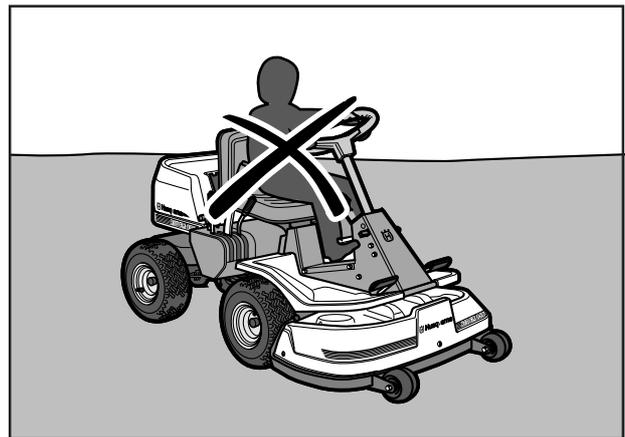
- Keep children away from the mowing area and under the supervision of another adult.
- Be on your guard and switch off the machine if children come into the work area.
- Before and during reversing look behind and down for small children.
- Never allow children to ride on the machine. They can fall off and become seriously injured or obstruct an otherwise safe manoeuvre of the machine.
- Never allow children to steer the machine.
- Be extra careful close to corners, bushes, trees or other objects which obstruct your view.

Maintenance

- Petrol and petrol fumes are toxic and highly inflammable. Be extra careful when handling petrol.
- Store the fuel in containers approved for this purpose.
- Never fill up the machine with petrol when the engine is running. Let the engine cool before filling up with petrol. Do not smoke, or fill up with fuel in the vicinity of naked flames or sparks.
- Never fill up with fuel indoors.
- If leakage has occurred in the fuel system the engine must not be started until this is rectified.
- Never store the machine or fuel containers indoors if there are naked flames, such as in a boiler room or where there is electrical equipment which can emit sparks.
- Check the fuel level each time before using the



Keep children away from the mowing area.



Never allow children to drive the machine.

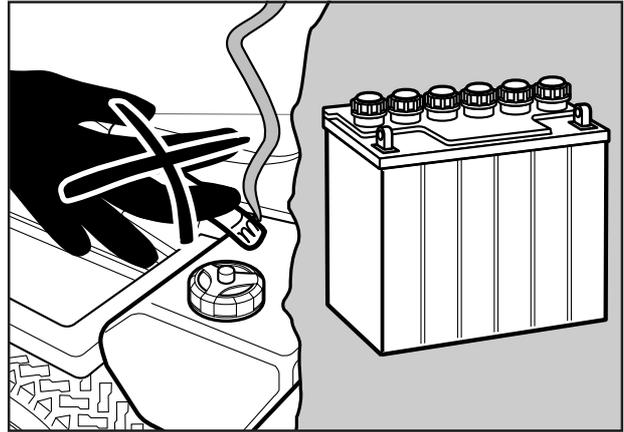


Never fill up with fuel indoors.

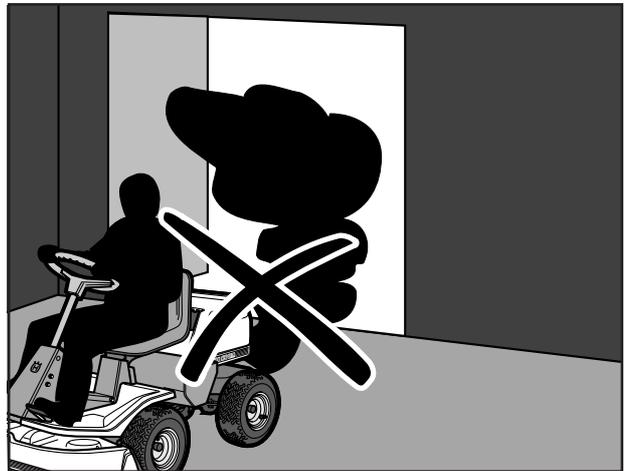
SAFETY INSTRUCTIONS

machine, and leave space for the fuel to expand since the heat from the engine and hot sun can cause the fuel to run over.

- Avoid overfilling. If petrol has been spilt on the machine wipe it up and wait until it has evaporated before starting the engine. If petrol is spilt on clothes, change them.
- Be extra careful when handling battery acid. Spilling acid on the skin can cause severe burn injuries. Rinse immediately with water. If acid gets into the eyes this can cause blindness. Contact a doctor.
- Be careful with the maintenance of the battery. Explosive gas is formed in the battery. Never handle the battery when smoking or in the vicinity of naked flames or sparks. Otherwise the battery can explode and cause severe injuries.
- Never drive the machine in an enclosed space. The exhaust fumes contain carbon monoxide, an odourless, toxic and fatal gas.
- Make sure that bolts and nuts, especially attachment bolts for the blade units are properly tightened and that the equipment is in good order.
- Never alter the safety devices. Check regularly that they function. The machine must not be driven with defective or unmounted safety devices.
- Do not alter the setting of the governor and do not race the engine.
- Reduce the fire risk. Keep the machine clean from grass, leaves and other refuse which fastens in it. Allow the machine to cool before placing it in the storage area.
- Stop and inspect the equipment if you drive over an object. If necessary repair the machine before starting.
- Never make adjustments with the engine running.
- The parts on the grass collector can become worn, damaged and aged, so that moving parts are exposed or so that an object can be thrown out. Check the parts regularly and if necessary replace them with spare parts recommended by the manufacturer.
- The machine is tested for safety and approved only for equipment supplied or recommended by the manufacturer.
- The blades are sharp and can cause cutting injuries. Wrap over the blades or use protective gloves when handling them.
- Check the functioning of the brakes regularly. Adjust and maintain them as necessary.



Never smoke in the vicinity of the battery or the fuel.



Never drive the machine in an enclosed space.



Clean the machine regularly from grass, leaves and other waste.

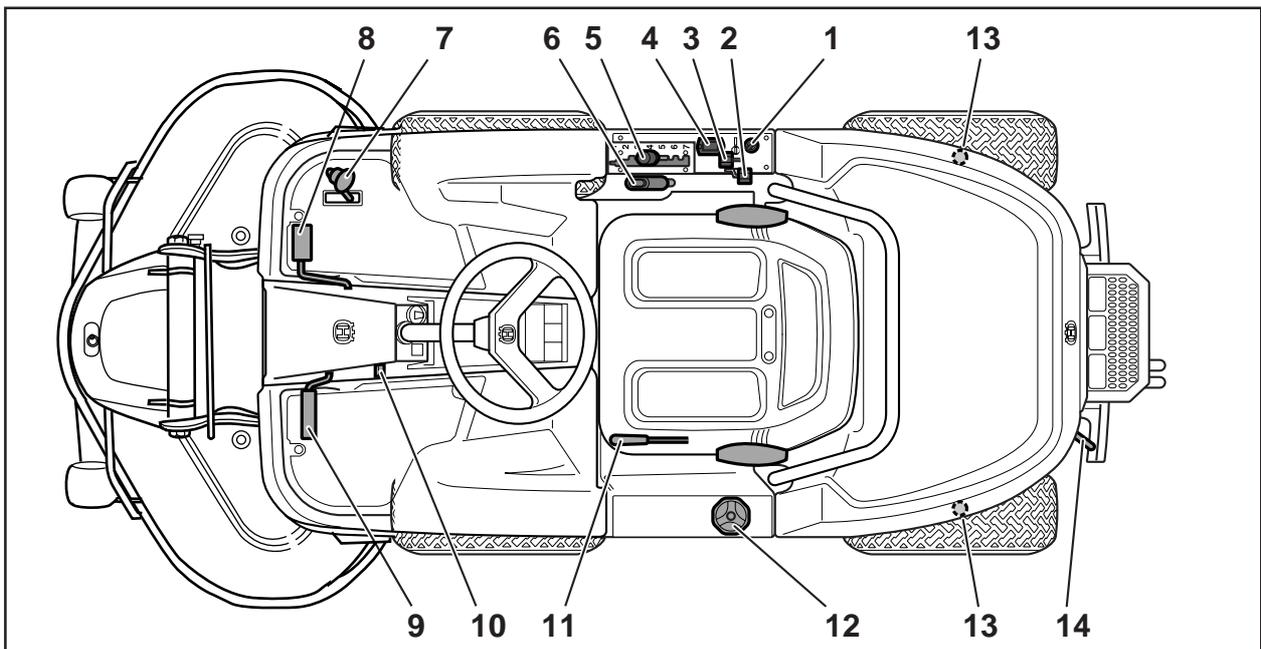
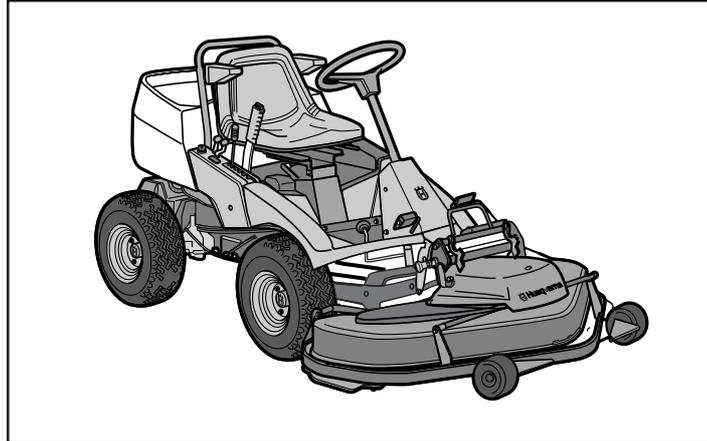
PRESENTATION

Presentation

Congratulations on choosing an excellent quality product, Rider ProFlex. These instructions describe two models, Rider 18 ProFlex and Rider 20 ProFlex.

Rider ProFlex is equipped with Vanguard V-Twin engines from Briggs & Stratton in 18 and 20 horsepower designs.

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



Location of the controls

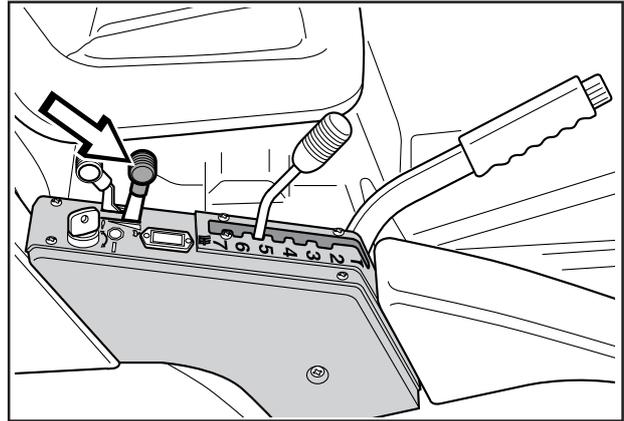
- | | |
|--|--------------------------------------|
| 1. Ignition lock | 8. Speed limiter for driving forward |
| 2. Choke lever | 9. Brake pedal |
| 3. Throttle control | 10. Lock button for parking brake |
| 4. Counter | 11. Lever for adjustment of seat |
| 5. Lever for adjustment of cutting height | 12. Fuel tank cap |
| 6. Lifting lever for cutting unit with lock button | 13. Main lock |
| 7. Speed limiter for reversing | 14. Lever to disengage the drive |

PRESENTATION

Throttle control

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

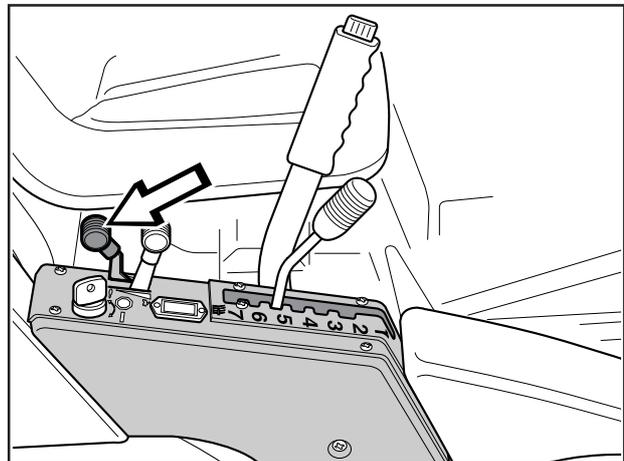
To increase or reduce the engine speed the control is moved forwards or backwards.



Choke lever

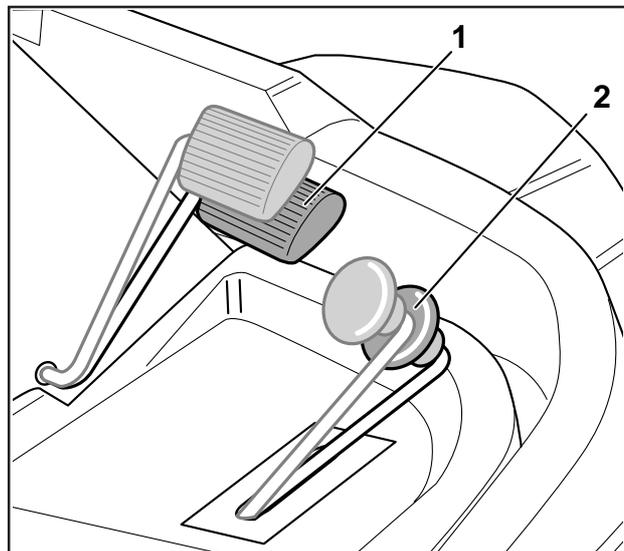
The choke lever is used for cold starting and to give the engine a richer fuel mixture.

For cold starting the lever is moved backwards to its end position.



Speed limiter

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



PRESENTATION

Cutting unit

Rider 18 ProFlex and Rider 20 ProFlex can be equipped with numerous attachments.

The BioClip unit finely cuts the lawn by cutting the grass several times before returning the clippings to the lawn as fertiliser.

The cutting unit with side or rear ejection, that is, the clippings are ejected to the side or behind the unit.

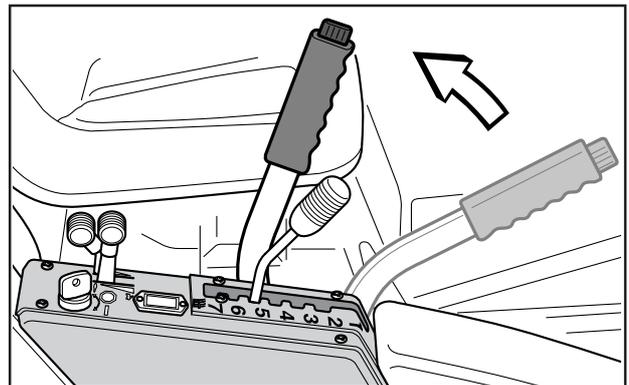
Examples of the accessories for Rider:

- Brush
- Snow plough
- Wheel weights
- Snow chains
- Dozer
- Edger
- Electric attachment lift
- BioClip cutting unit
- Gravel rake
- Trailer

Lift lever for cutting unit

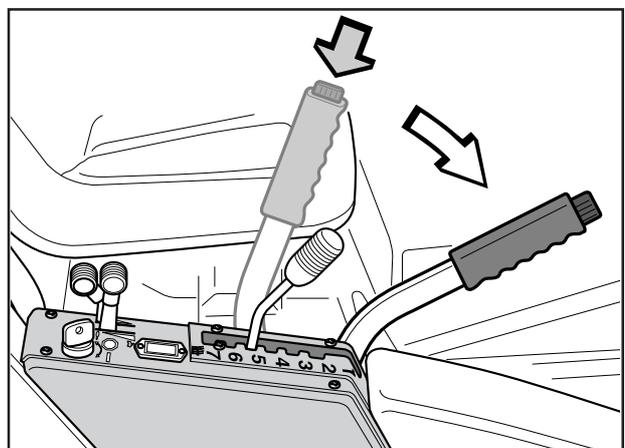
The lift lever is used to set the cutting unit in transport or mowing position.

1. Pull back the lever to the locked position for transport.
The cutting unit will lift up and the blades stop rotating.



Lifting of the cutting unit

2. Press in the lock button and move the lever forwards for the mowing position.
The unit will lower down and the blades start to rotate.
3. The lever can also be used to temporarily regulate the cutting height, e.g. for a small mound in the lawn.

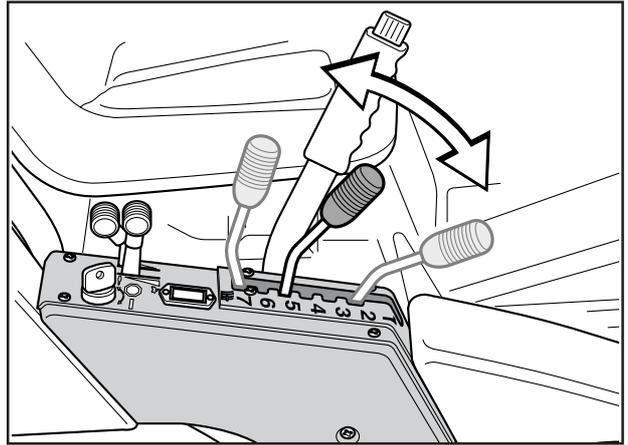


Lowering of the cutting unit

PRESENTATION

Lever for adjustment of the cutting height

The cutting height can be adjusted to 7 different positions with the cutting height lever. To achieve an even cutting height it is important that the tyre pressures are the same on the front wheels (60 kPa).

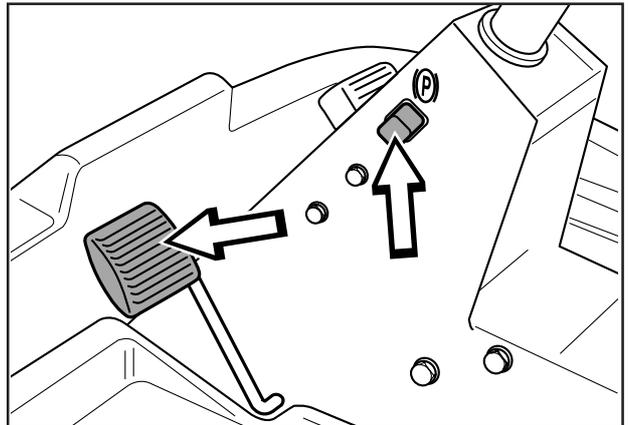


Parking brake

The parking brake is applied as follows:

1. Push down the brake pedal.
2. Push in the lock button on the steering column.
3. Release the brake pedal while holding the button pressed.

The parking brake lock disengages automatically when the brake pedal is pressed.

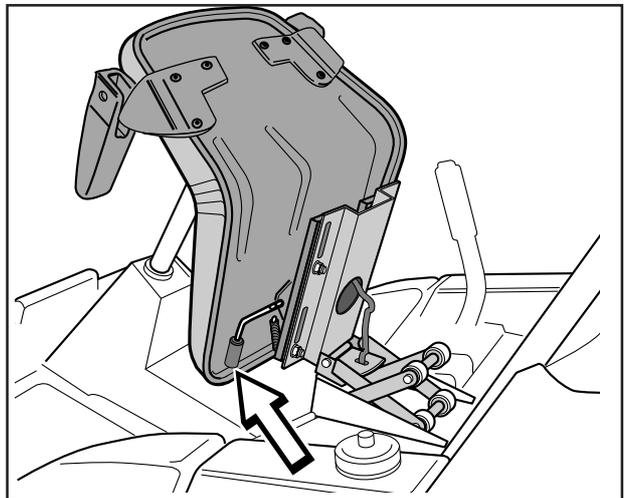


Seat

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

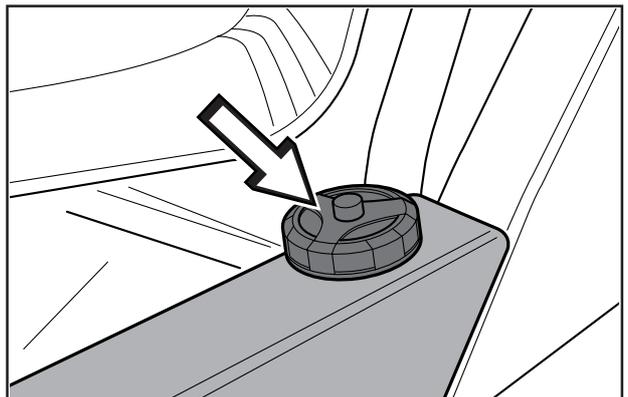
The seat can also be adjusted lengthways.

To adjust move the lever under the front edge of the seat to the left, so that the seat can be moved forward or backwards to the required position.



Fuelling

The engine should be run on at least 85 octane, unleaded petrol (not mixed with oil).



WARNING!
Petrol is highly inflammable. Exercise care and refuel outdoors (see safety instructions).

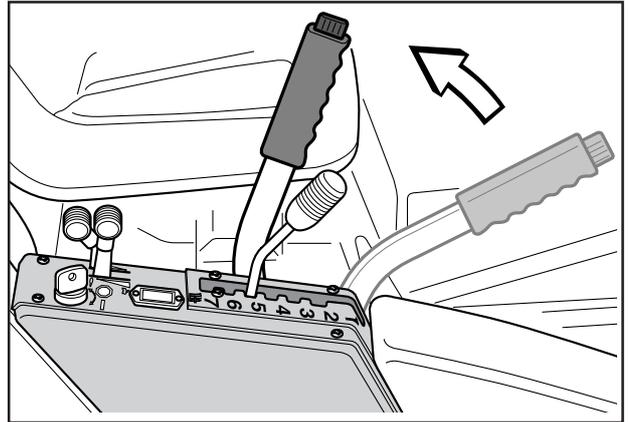
DRIVING

Before starting

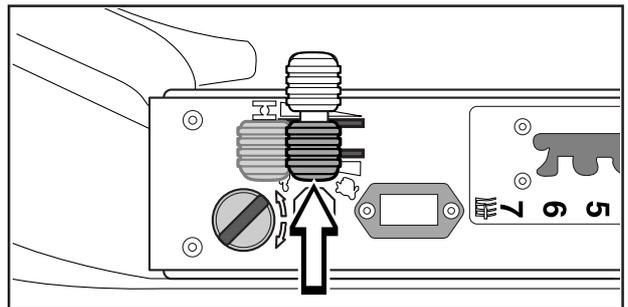
- Read the safety instructions and information on the location and function of the controls before starting (see pages 5–12).
- Conduct daily maintenance before starting (see maintenance schedule on page 17).
- Adjust the seat to the required position.

Starting the engine

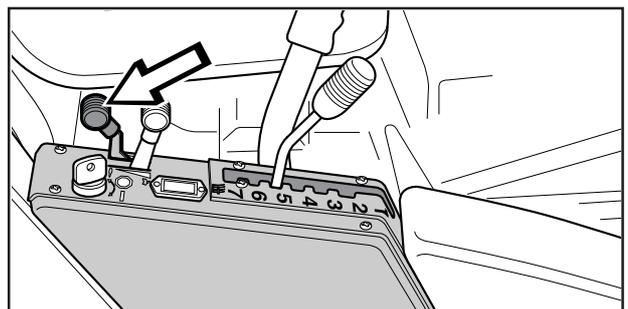
1. Lift up the cutting unit by pulling the lever backwards to locked position (transport position) and apply the parking brake.



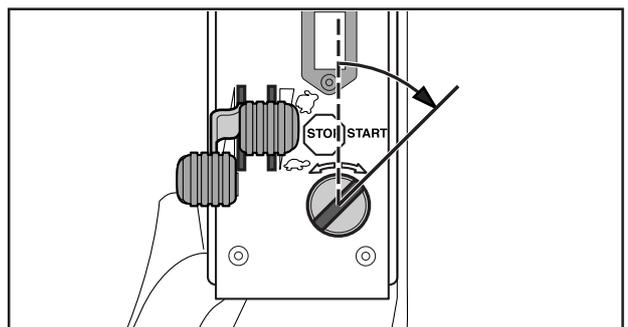
2. Move the throttle control to the middle position.



3. If the engine is cold move the choke lever backwards to its end position.



4. Turn the ignition key to the start position.

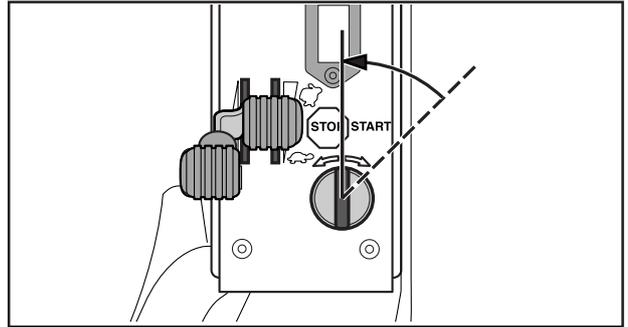


DRIVING

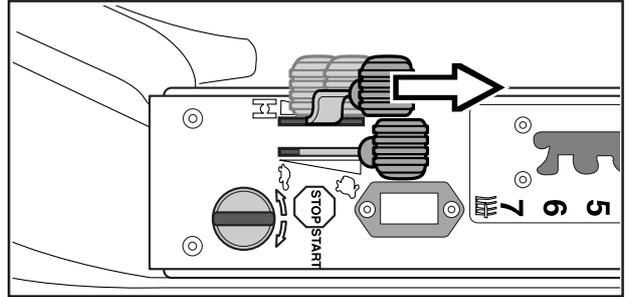
- When the engine starts release the ignition key immediately back to neutral position.

IMPORTANT INFORMATION

Do not run the starter for more than about 5 seconds at a time. If the engine does not start, wait about 10 seconds before trying again.



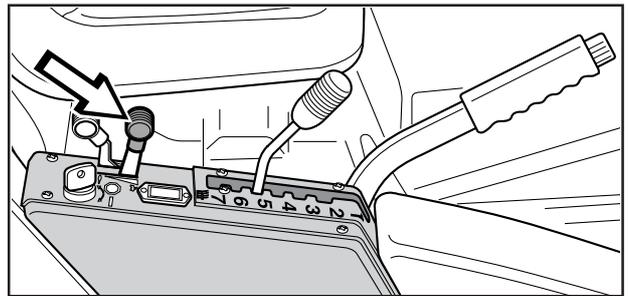
- Push the choke lever gradually forward when the engine has started.



- Set the required engine speed with the throttle control.

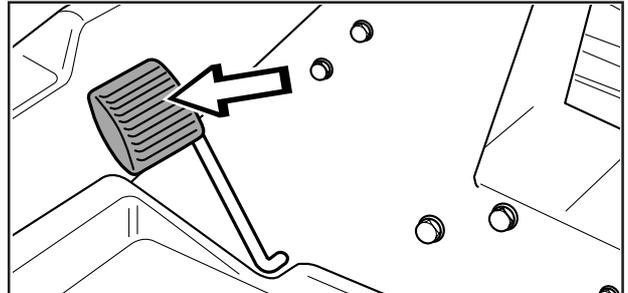


WARNING!
Never run the engine indoors, in enclosed or poorly ventilated areas. The exhaust fumes contain toxic carbon monoxide.



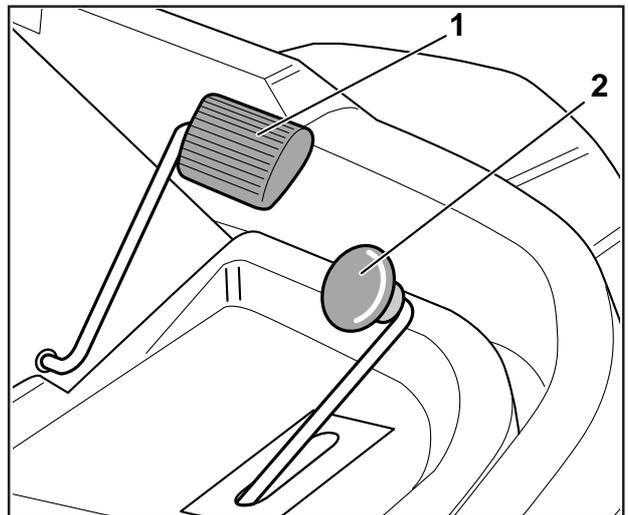
Driving the machine

- Release the parking brake by pressing the brake pedal.



- Carefully press down one of the pedals until the required speed is obtained.

To drive forward press down pedal (1), or to reverse pedal (2).

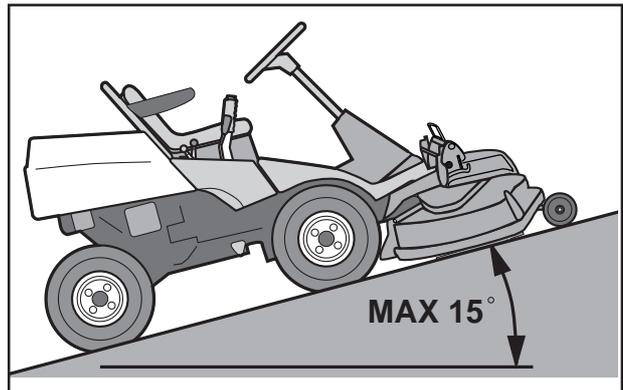


DRIVING



WARNING!

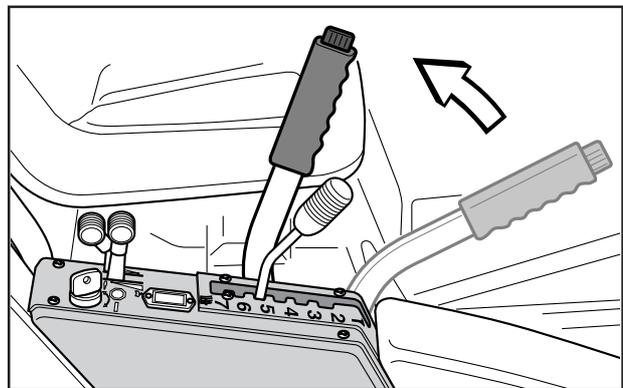
Never drive the machine on ground at an angle of more than 15°. Mow slopes upwards and downwards, never across. Avoid sudden changes in direction.



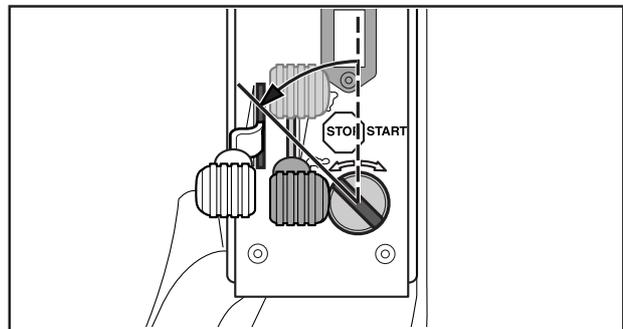
Stopping the engine

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

1. Lift up the cutting unit by pulling the lever back to the locked position.

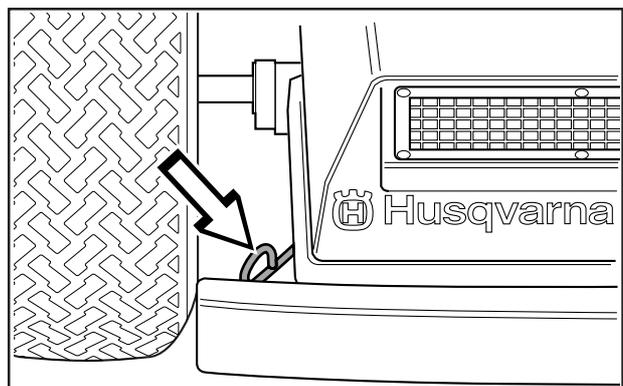


2. Move the throttle control to the MIN. position. Turn the ignition key to the STOP.



Disengage lever

To move the machine when the engine is switched off the disengage lever must be pulled backwards.



MAINTENANCE

Maintenance schedule

The following is a list of the maintenance which should be conducted on the machine. For the items which are not described in these instructions go to an authorised service workshop.

Maintenance	Page	Daily maintenance before start	Maintenance interval in hours			
			25	50	100	300
Check the engine's oil level	19	●				
Check the engine's cooling air inlet	19	●				
Check the fuel pump's air filter	19	●				
Check the transmission's air inlet	20	●				
Check the transmission's oil level	20	●				
Check the steering wires	21	●				
Check the battery	22	●				
Check the safety system	22	●				
Check screws and nuts	–	○				
Check for fuel and oil leakage	–	○				
Clean the air filter's pre-filter (foam plastic) ²⁾	23		●			
Check the cutting unit	27		●			
Check the tyre pressures (60 kPa)	36		●			
Adjust the brakes	22		●			
Check the V-belts	–		○			
Change the engine oil ¹⁾	33			●		
Lubricate joints and shafts ³⁾	34			●		
Check and adjust the throttle wire	35			●		
Replace the air filter's pre-filter and paper filter ²⁾	23				●	
Replace the oil filter	34				●	
Replace the fuel filter	36				●	
Clean the pulse-air filter	38				●	
Replace the plugs	–				○	
Clean the engine's and the hydrostat's cooling flanges ^{2,4)}	–				○	
Check the valve clearance ⁴⁾	–					○
Check the valves and seats ⁴⁾	–					○

¹⁾ First change after 8 hours. ²⁾ During dusty conditions cleaning and replacement should be more frequent. ³⁾ For daily use of the machine lubrication should be conducted twice a week. ⁴⁾ Conducted by authorised service workshop.

● = Described in these instructions.

○ = Not described in these instructions.



WARNING!

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

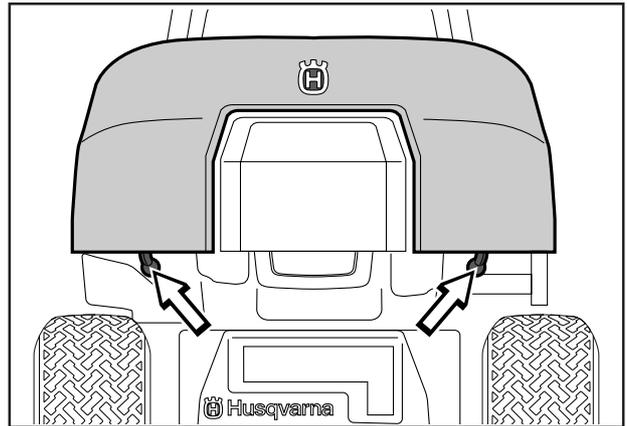
- The engine is switched off.
- The ignition key is removed.
- The ignition cables are removed from the plugs.
- The parking brake is applied.
- The cutting unit is disengaged.

MAINTENANCE

Dismantling of the machine hoods

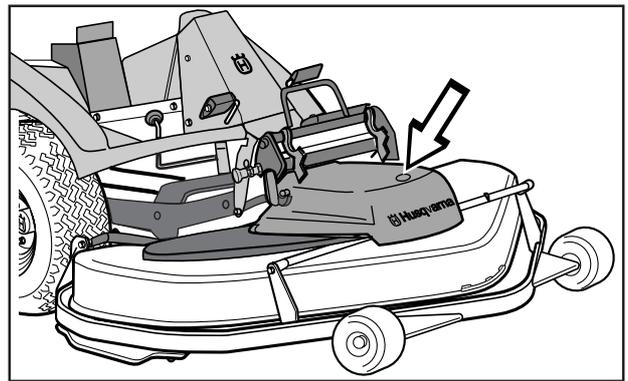
Engine hood

Release the two rubber straps on the rear edge of the engine hood and lift off the hood.



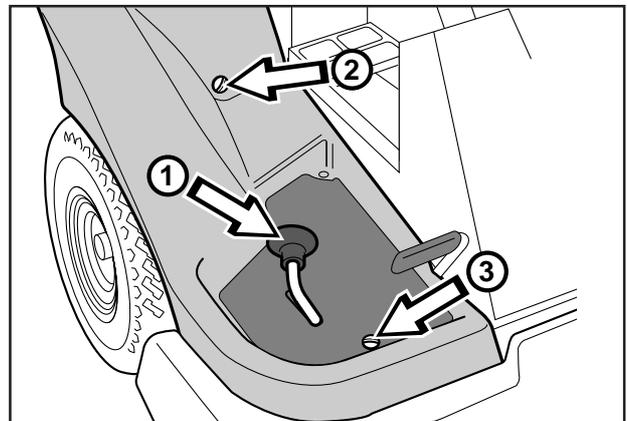
Nose

Loosen the quick-action lock and lift off the nose.



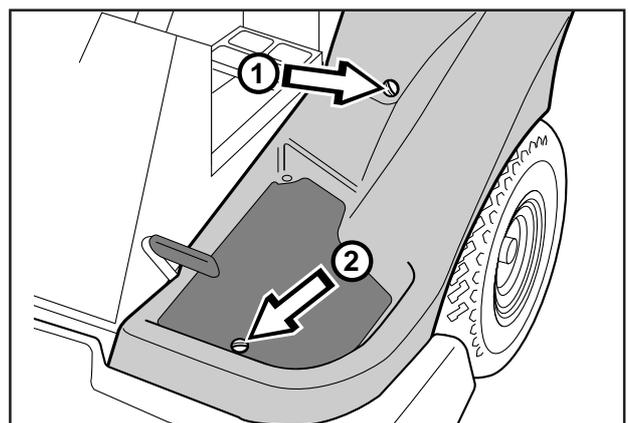
Right-hand fender

Dismantle the foot-plate (1), screws (2 and 3), and lift off the fender.



Left-hand fender

Dismantle the screws (1 and 2), and lift off the fender.



MAINTENANCE

Check the engine's oil level

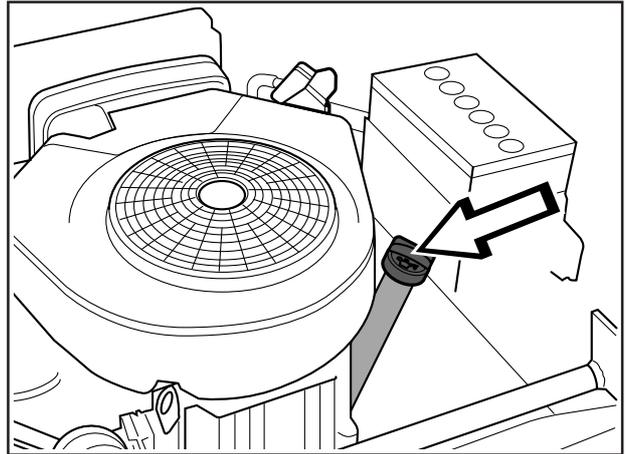
Check the oil level in the engine when the machine is horizontal.

Dismantle the engine hood as per the description on page 18.

Take out the dip stick, wipe off the oil, and insert again.

The dip stick must be fully screwed down.

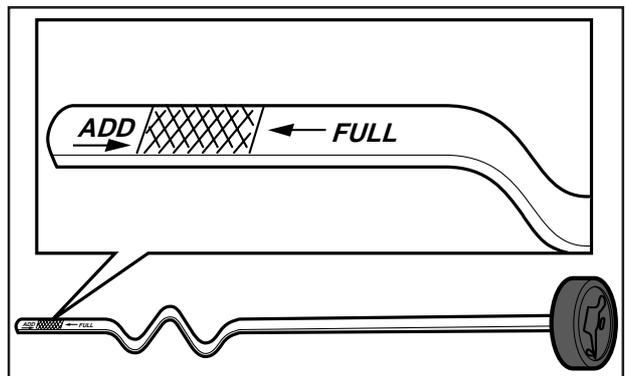
Now take out the dip stick again and check the oil level.



The oil level should lie between the markings on dip stick. If the level approaches the ADD mark, top up with oil to the FULL mark on the dip stick.

The oil is filled in the same hole as the dip stick is in. Use engine oil SAE 30 or SAE 10W-30, class CD-CF (over 0°). Use engine oil SAE 5W-30, class CD-CF (below 0°).

The total oil volume in the engine is 1.4 litres.

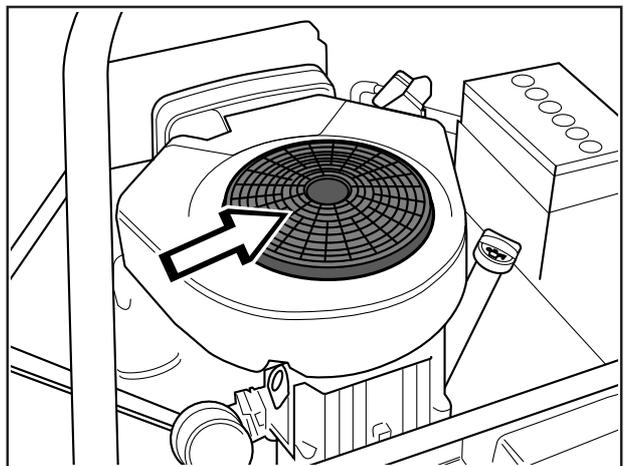


Check the engine's cooling air intake

Dismantle the engine hood as described on page 18.

Check that the cooling intake is free from leaves, grass and dirt.

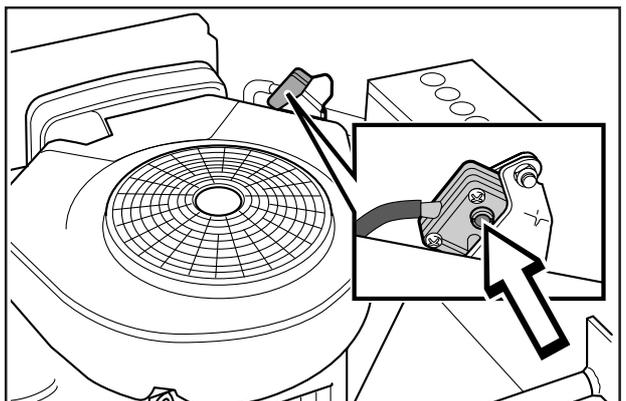
If the cooling intake is blocked this will interfere with the cooling of the engine, which can damage the engine.



Checking of the fuel pump's air filter

Check regularly that the fuel pump's air filter is free from dirt.

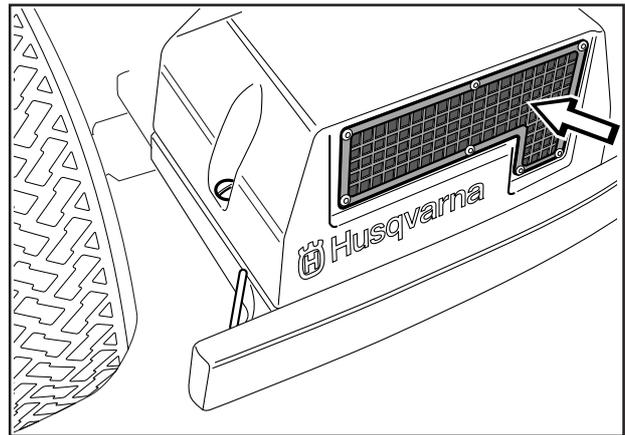
The filter can when necessary be cleaned with a brush.



MAINTENANCE

Check the transmission's air intake

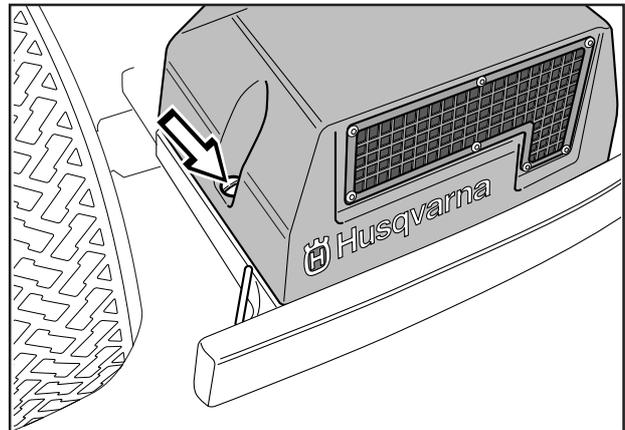
Check that the transmission's air intake is not blocked.



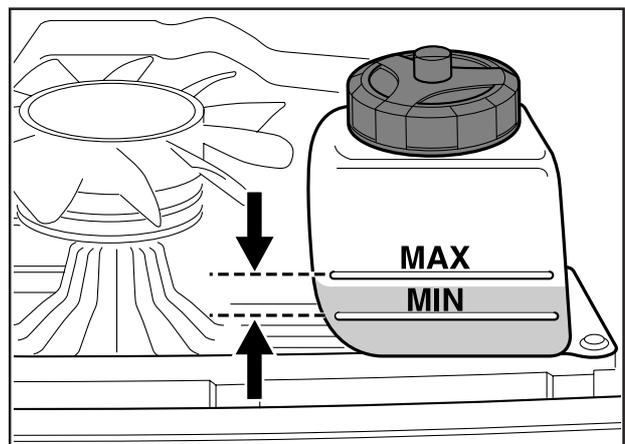
Check the transmission's oil level

1. Check the transmission's oil level by looking through the mesh on the air intake. The oil level should lie between the MIN and MAX markings on the oil canister at 20° C.

If oil needs to be added the transmission cover must be dismantled first. Release the two screws (one on each side) and then lift off the transmission cover.



2. Screw off the oil canister cap and top up with engine oil SAE 10W/30, class CD–CF, until the oil level reaches the MAX marking. Screw the oil canister cap back on, and fit the transmission cover.



MAINTENANCE

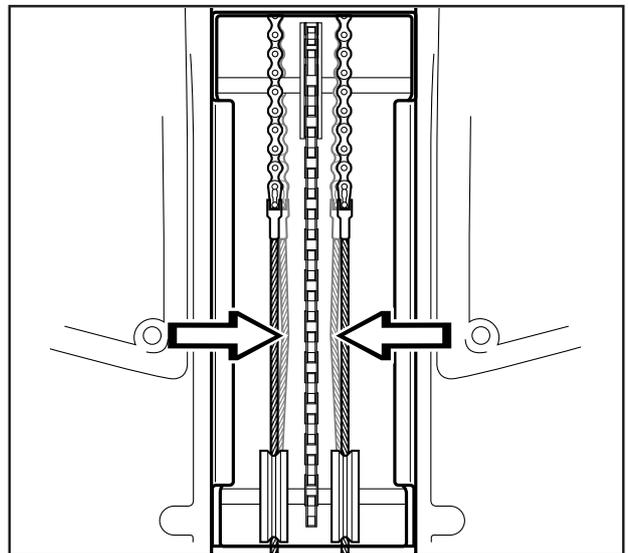
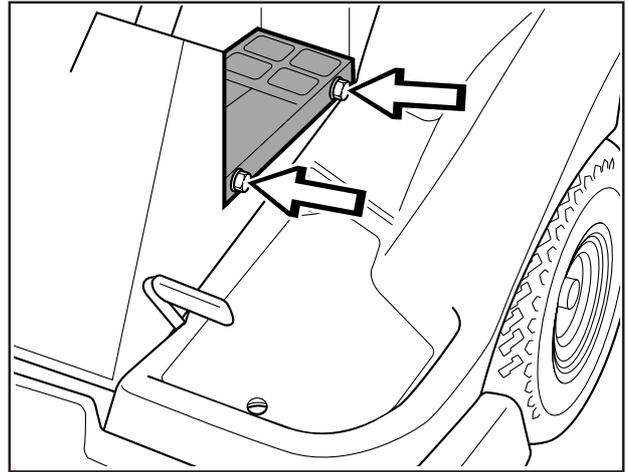
Checking and adjustment of the steering wires

The steering is controlled by means of wires.

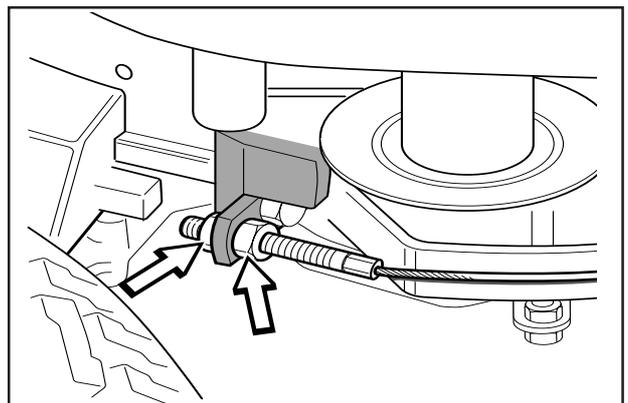
These can in time become slack, which implies that the adjustment of the steering becomes altered.

Check and adjust the steering as follows:

1. Dismantle the frame-plate by releasing the screws (two on each side).
2. Check the tension of the steering wires by pushing them together (at the arrows). It should be possible to push them together so that the distance between them is half as much, without using unnecessary force.



3. When necessary the wires can be tensioned by tightening the adjusting nuts (one on each side of the machine). Do not tension the wires too tightly, they should only be *tightened up* to the steering rim. Check the wire tension on completion of the adjustment as per item 2.



MAINTENANCE

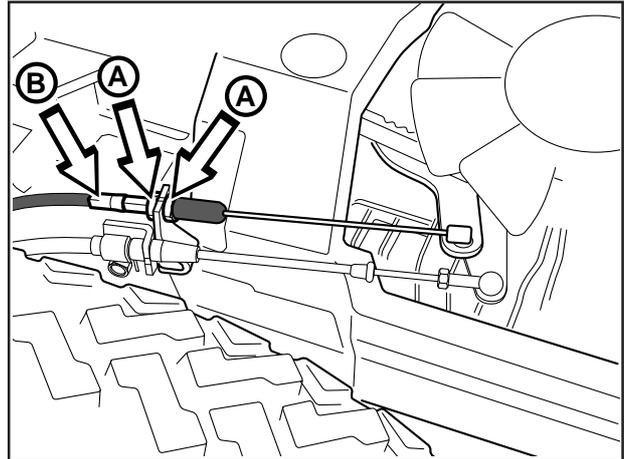
Adjusting the brakes

The brakes are adjusted as follows:

1. Loosen the lock nuts (A).
2. Adjust the wire using the adjuster screw (B) until the play on the wire is taken up.
3. Tighten the lock nuts (A).



WARNING!
Poorly adjusted brakes can result in reduced braking power.



Check the level of the battery acid

Check that the level of the battery acid lies between the markings. Top up the cells with distilled water *only*.



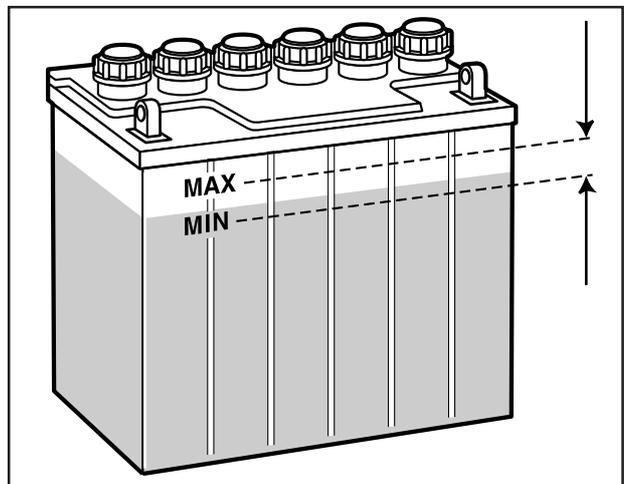
WARNING!
Procedures on contact with acid

External: Rinse well with plenty of water.

Internal: Drink large quantities of water or milk. Contact a doctor as soon as possible.

Eyes: Rinse well with plenty of water.
Contact a doctor as soon as possible.

Batteries emit explosive gas. Sparks, flames and cigarettes must absolutely not be brought into the vicinity of the battery.



Check the safety system

The machine is equipped with a safety system which prevents starting or driving the machine unless someone is sitting in the seat. Check daily that the safety system functions.

MAINTENANCE

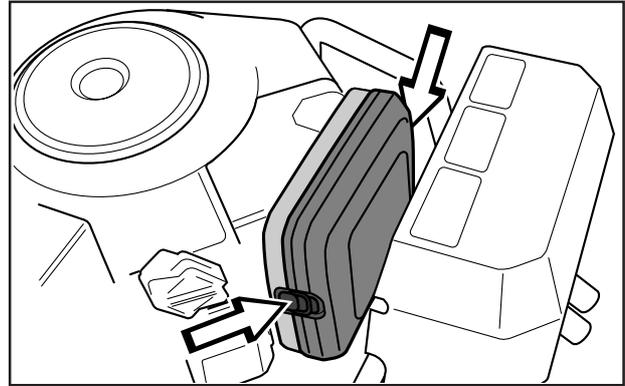
Replacing the air filter

If the engine seems to lack power or does not run smoothly this may be because the air filter is clogged.

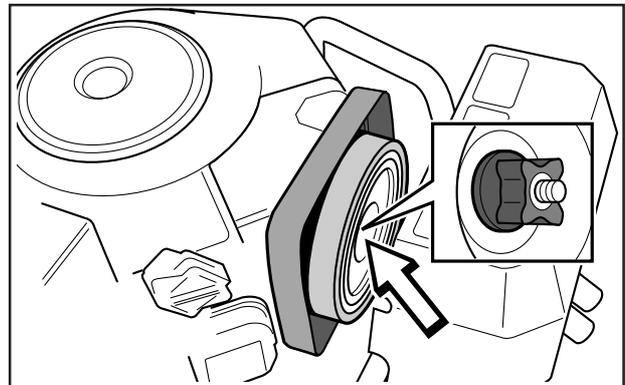
It is therefore important to replace the air filter at regular intervals (see maintenance schedule on page 17 for correct service interval).

The air filter is replaced as follows:

1. Dismantle the engine hood as described on page 18.
2. Fold out the two snap-locks and lift off the cover on the air filter housing.



3. Release and remove the wing-nut in the centre of the air filter and lift off the paper filter with pre-filter.

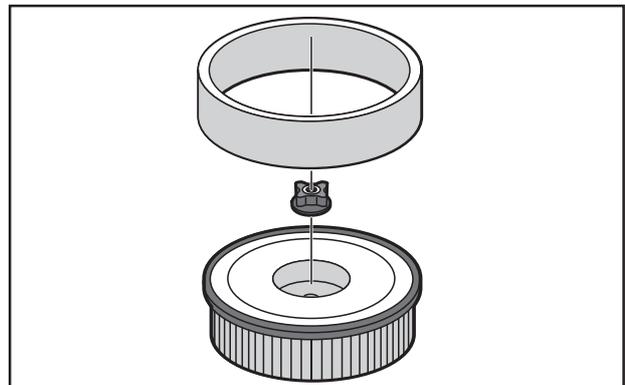


4. Pull off the foam plastic pre-filter from the paper filter and wash clean in mild detergent.

Squeeze it dry in a clean cloth.

Drench it with new engine oil. Wrap the filter in an absorbent cloth and squeeze out excess oil.

If the paper filter is heavily soiled it should be replaced.



IMPORTANT INFORMATION

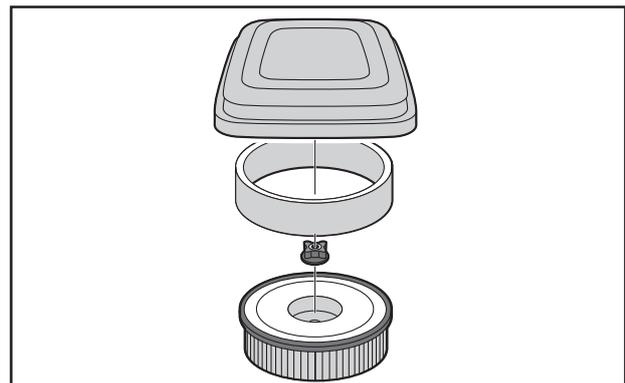
Do not use compressed air to clean the paper filter.

5. Fit the air filter as follows:

Push the pre-filter over the paper filter.

Fit the paper filter with pre-filter in the air filter housing and tighten the wing-nut in the centre.

Replace the cover over the air filter housing and clamp the two snap-locks tight.



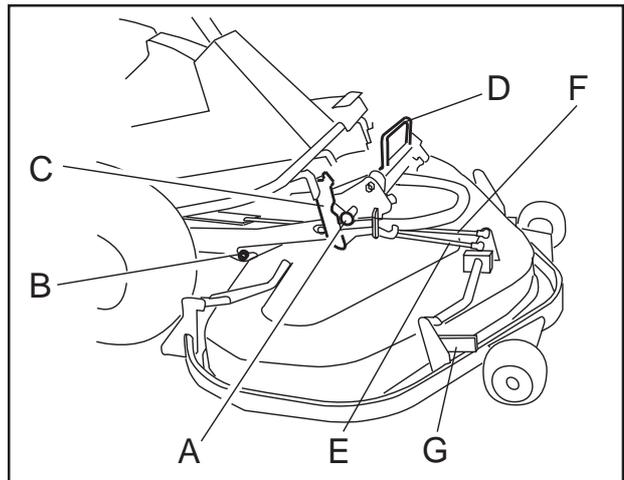
MAINTENANCE

The parts of the cutting unit

A cutting unit with a rear ejector has been used in the instructions below, however, the same procedure applies to other units if not otherwise stated.

The parts mentioned are:

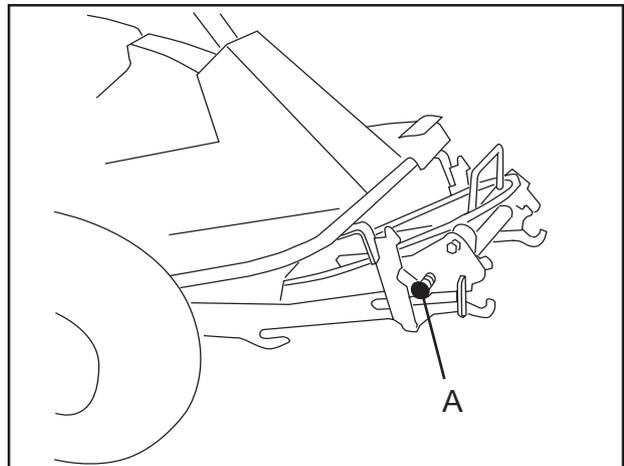
- | | |
|---------------|-------------------------------|
| A. Catch | E. Height setting arm |
| B. Inner pin | F. Parallelism arm |
| C. Hook guard | G. Lowest height setting stop |
| D. Handle | |



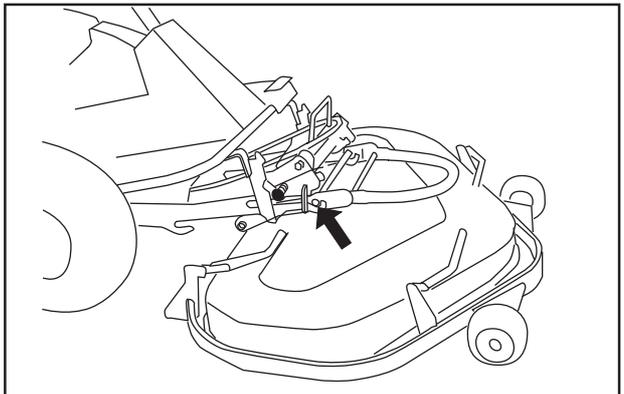
Fitting the cutting unit

Starting point for fitting the unit:

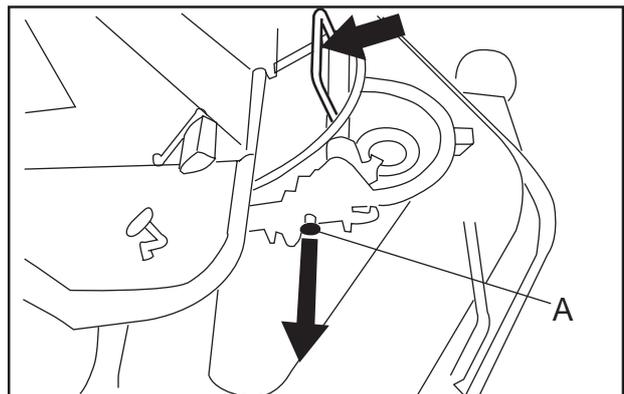
- Place the Rider on a level surface.
- Apply the brakes by pressing down the pedal and lock using the pushbutton.
- The attachment frame in the lowered position.
- The attachment frame locked with the hook guard and the catch (A) in the loaded position.



1. Fit the unit in the attachment frame's outer hooks.

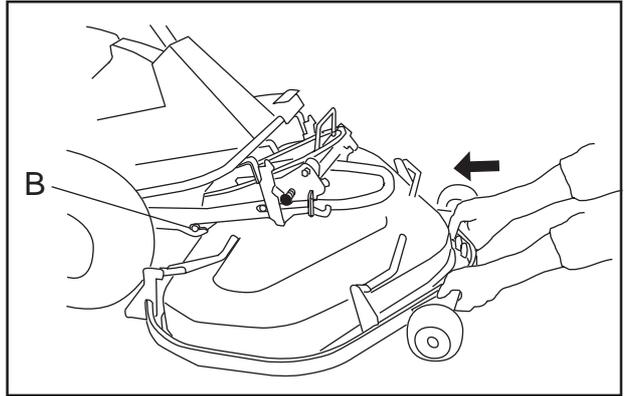


2. Pull out the catch (A) and release the hook guard by sliding its handle backwards.
3. Lift the attachment by pulling up the lever located on the driver's right-hand side.

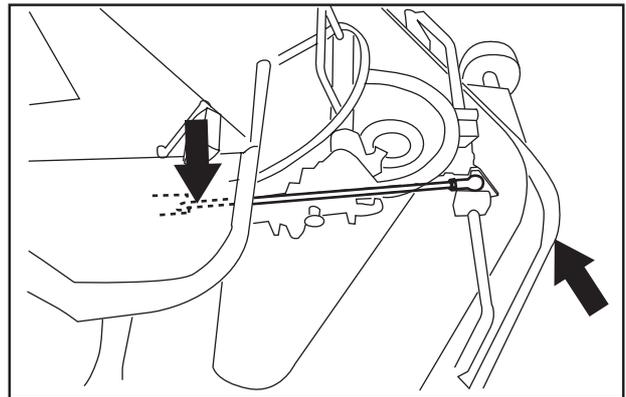


MAINTENANCE

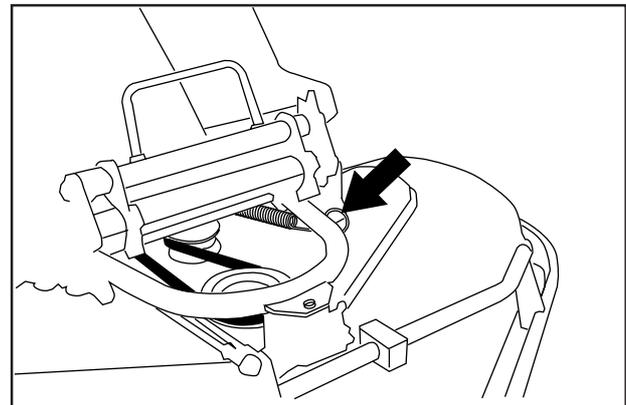
- Slide in the unit so that the inner pins (B) bottom in the attachment frame's groove.



- Fit the height setting arm's rear bracket when fitting the attachment. Off-load the arm by pulling the front of the frame upwards.



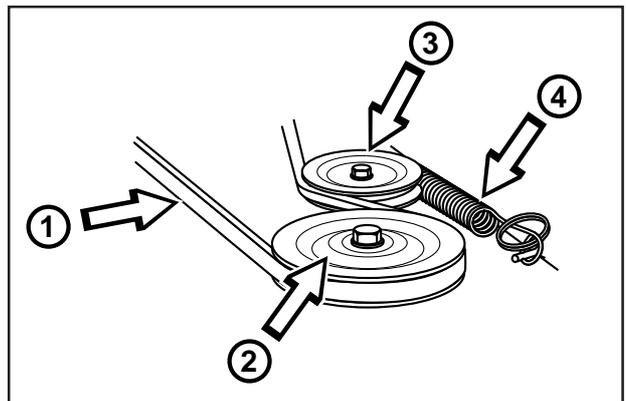
- Remove the belt adjuster's spring and fit the belt on the front belt pulley.
- Hook on the belt adjuster's spring again.



Note!
Check that the belt is fitted around the tension roller.

Belt diagram

- Drive belt
- Drive pulley
- Tension roller
- Spring



MAINTENANCE

Setting the parallelism and height for the cutting unit with rear ejector and BioClip unit

The base unit is adjusted at the factory. When one of the attachments is fitted, the parallelism and height need to be adjusted.

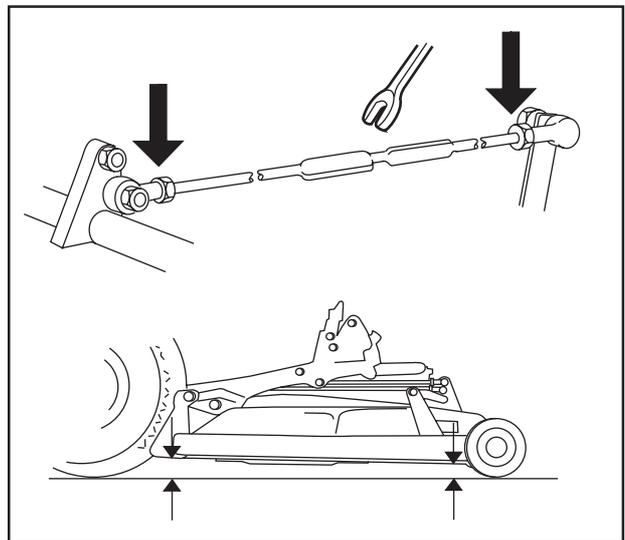
Starting point:

1. The cutting unit should be lowered on a level surface.
2. The height setting lever should be set for the lowest cutting height.

Parallelism

Always start by adjusting the parallelism.

1. Loosen the two nuts on the arm.
2. Measure the distance between the ground and the front edge of the unit, at the front and rear of the hood.
3. Place a wrench on the bevelled section in the centre of the arm and turn so that the rear edge of the cutting unit sits 2-4 mm higher than the front edge of the unit.
4. Check the measurements.
5. Now tighten the two nuts on the arm.

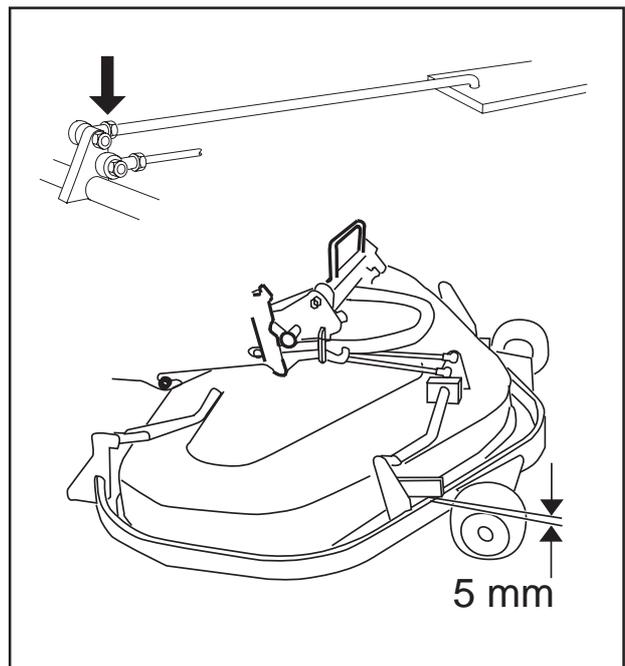


Cutting height

1. Loosen the nuts on the height setting arm.
2. Adjust so that the distance between the stop for the lowest height setting and the protective frame is 5 mm.
3. Tighten the nuts.
4. Check that the parallelism has not changed. If it has changed, the parallelism must be readjusted again.
5. Check and adjust the cutting unit's ground pressure as set out on page 25, if necessary.
6. Fit the nose.

NOTE!

The parallelism and height must be adjusted again when changing the cutting unit.



MAINTENANCE

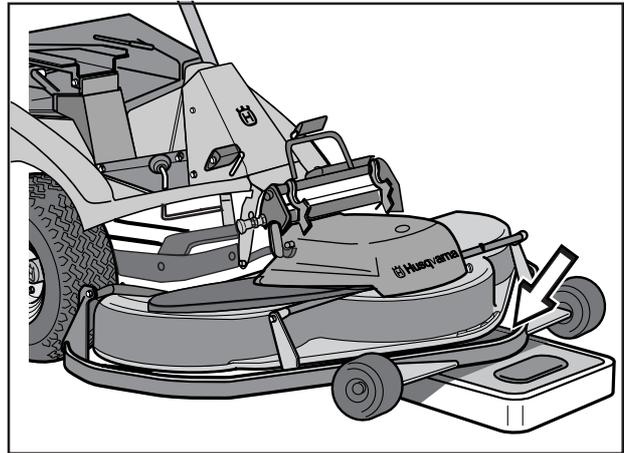
Checking and adjustment of the cutting unit's ground pressure

To achieve the best cutting results the cutting unit should follow the underlying surface without pressing too hard against it.

The pressure is adjusted with a screw on each side of the machine.

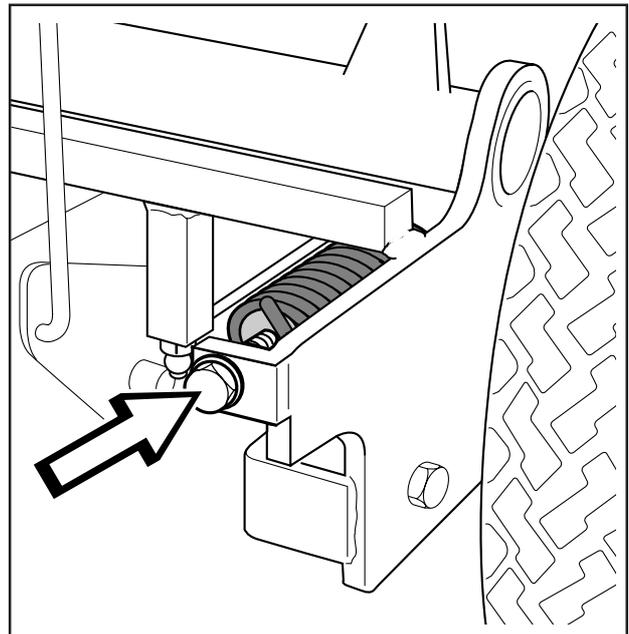
Adjusting of the cutting unit's ground pressure is conducted as follows:

1. Place a set of bathroom scales under the cutting unit's frame (front edge) so that it rests on the scales. If necessary a block can be placed between the frame and scales so that the support wheels do not bear any weight.



2. Adjust the unit's ground pressure by screwing in or out the adjusting screws located behind the front wheels on both sides.

The ground pressure should be between 12 and 15 kg.



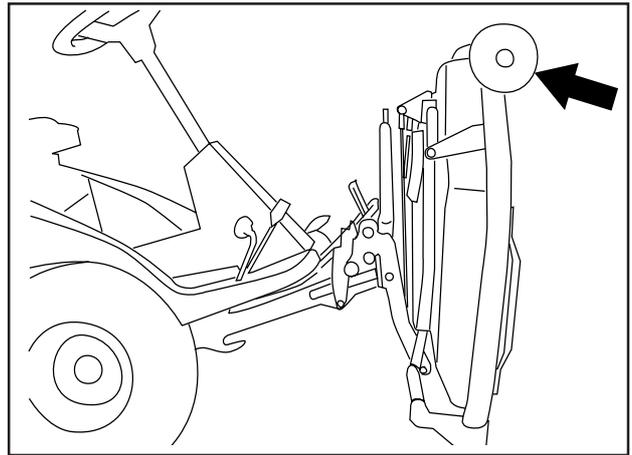
MAINTENANCE

Service position for the cutting unit

The cutting unit can be set in a service position to provide good access for cleaning, servicing and repair. The service position means that the unit is raised and locked in the vertical position.

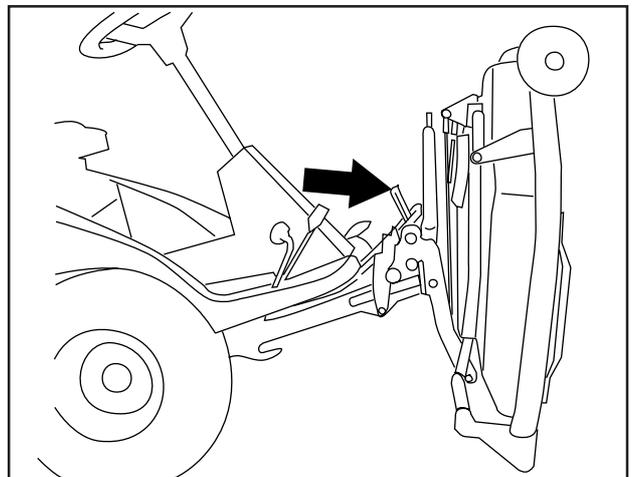
Placing in the service position

1. Position the unit so it hangs over the outer hooks by carrying out sections 1–11 under “Dismantling the unit”.
2. Take hold of the front edge of the unit and lift it vertically. The unit is automatically locked in the vertical position.



Releasing from the service position

1. Loosen the top edge of the unit (move it backwards), move the handle forwards and slowly lower the unit to its horizontal position.
2. Slide the unit into its working position by carrying out sections 4–8 under “Assembling the unit”.

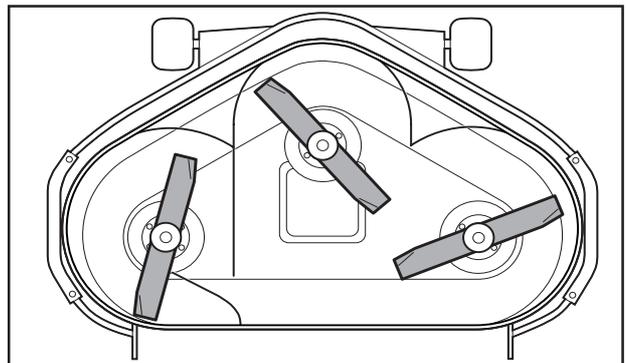


Checking the blades

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, (45–60 Nm, 33–44 lb.ft)

The spring washer and break-pin should also be replaced when replacing the blades.



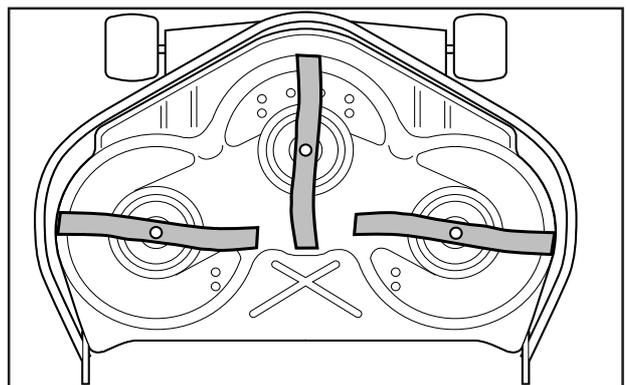
Cutting unit with rear ejector

IMPORTANT INFORMATION

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

IMPORTANT INFORMATION

The BioClip unit should always have the blades in the relative positions shown in the diagram, with a 90° angle between the blades. Otherwise the blades can go against each other and cause serious damage to the unit.

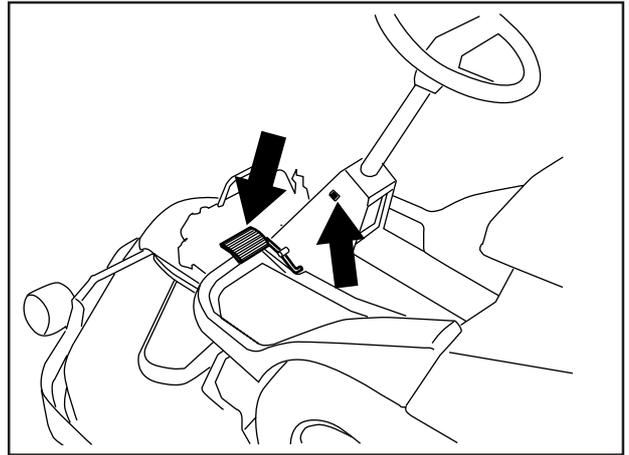


BioClip unit

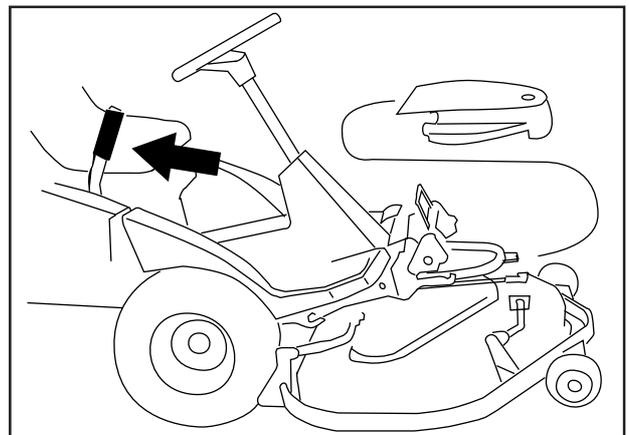
MAINTENANCE

Dismantling the cutting unit

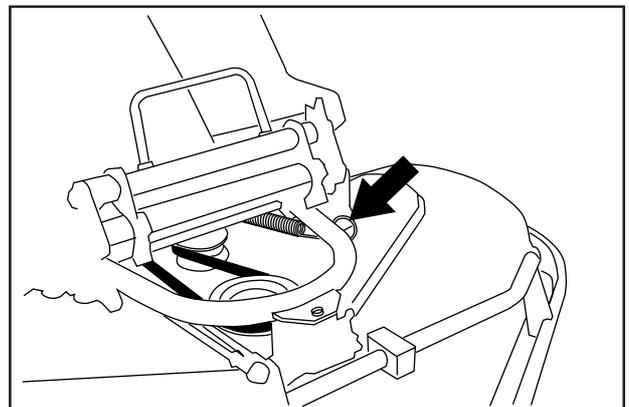
1. Place the Rider on a level surface.
2. Apply the brakes by pressing down the pedal and lock using the pushbutton.



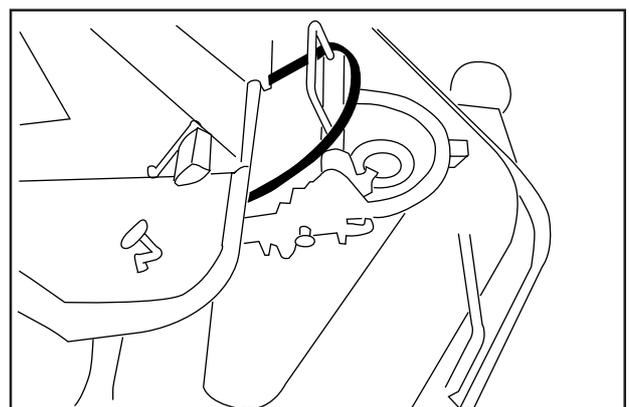
3. Lift up the unit using the lifting lever.
4. Remove the nose.



5. Remove the belt adjuster's spring.
6. Lift off the belt from the belt pulley.
7. Hook on the belt adjuster's spring again.

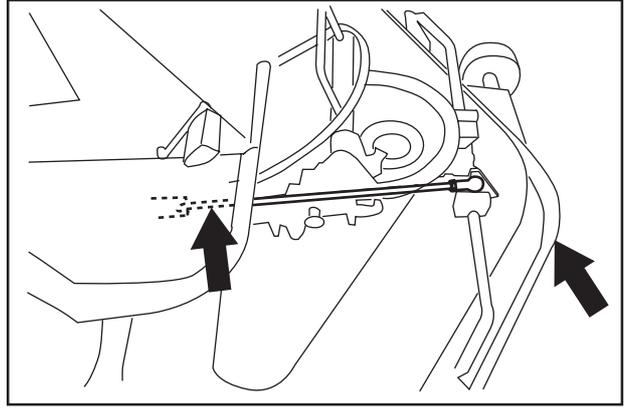


8. Hang the belt around the handle.

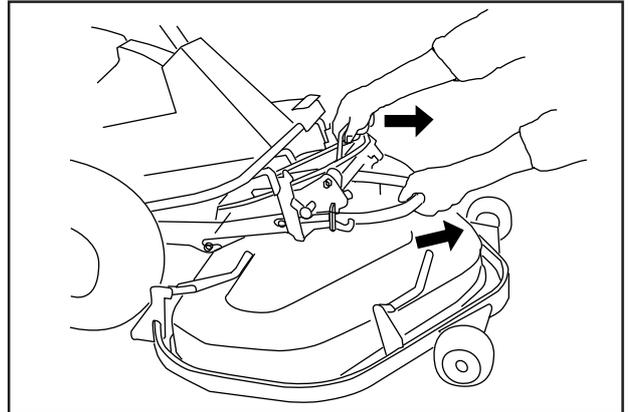


MAINTENANCE

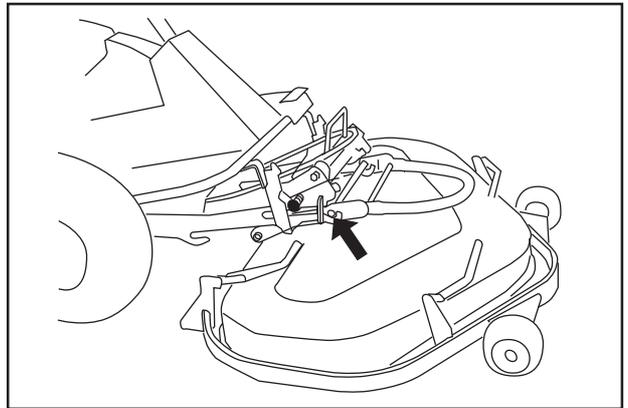
9. Loosen the height setting arm by moving the rear section upwards. When dismantling the cutting unit, off-load the arm by pulling the frame's front section upwards.



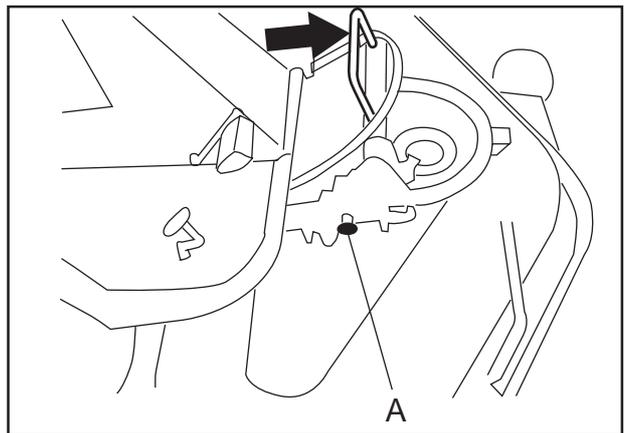
10. Pull the handle and unit simultaneously. Release the handle when the unit has come out a little.



11. Pull out the unit so that it engages in the outer hooks.
12. Lower the unit using the lever on the right-hand side of the driver.



13. Pull the handle so that the hook guard locks. Check that the catch (A) is in its loaded position.
14. Lift the unit off of the Rider.



MAINTENANCE

Dismantling the belt

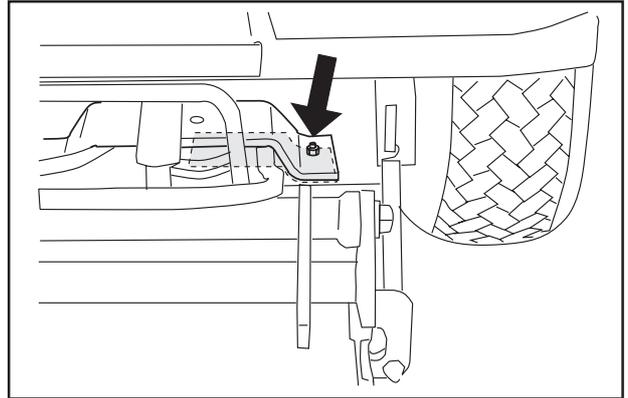
Starting point when dismantling the belt:

- No unit attached to the Rider.
- The front of the belt is hung around the hook guard's handle.

How the front of the belt is removed from the front belt pulley is evident from sections 5–8, on page 27.

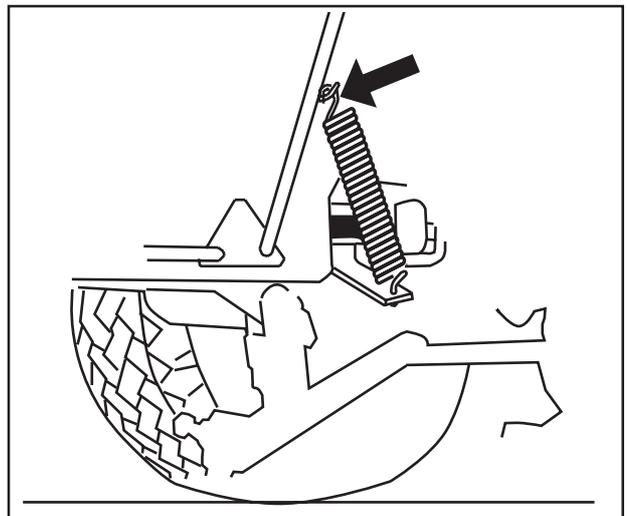
The entire belt is only dismantled as set out below, when the snow plough is fitted on the Rider.

1. Dismantle the steering plate under the support wheel. Use two 13 mm socket spanners.



2. Unhook the spring on the blade brake.

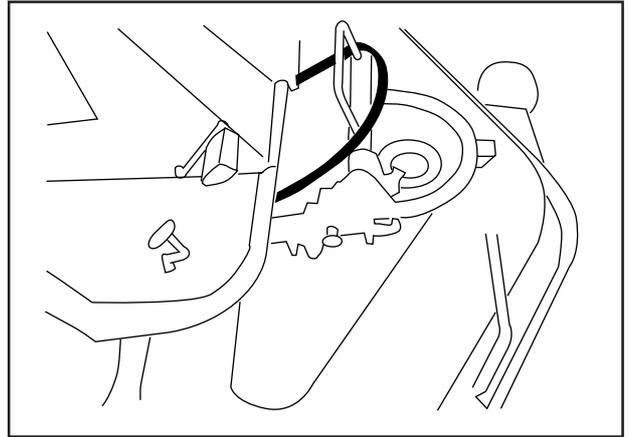
3. Pry off the belt from the intermediate pulley and remove the belt.



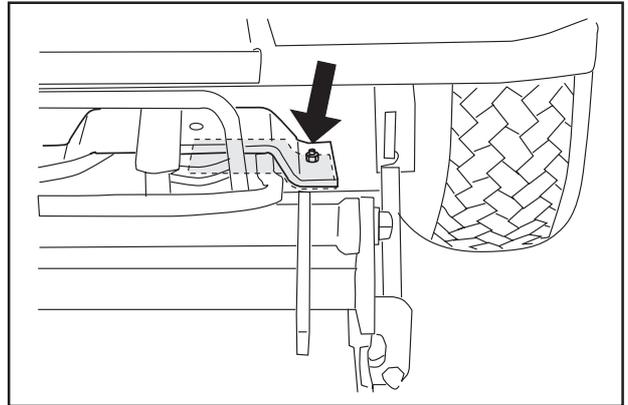
MAINTENANCE

Assembling the belt

1. Position the belt from the front and let the front end of the belt hang around the hook guard's handle.
2. Fit the belt on the intermediate pulley and against the support wheel.

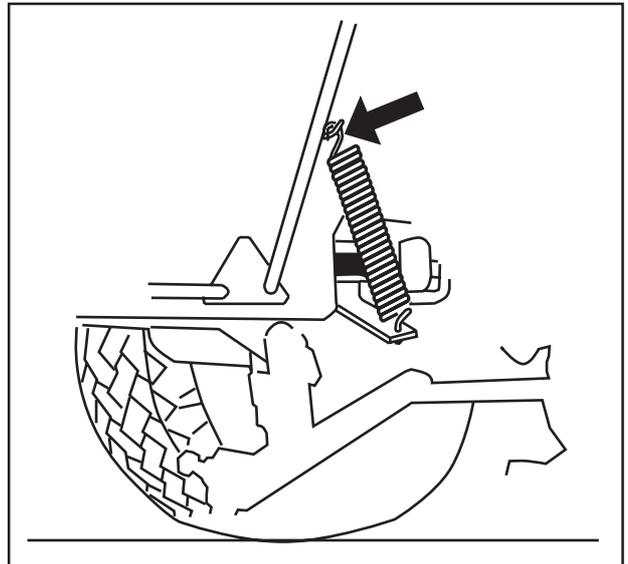


3. Fit the steering plate under the support wheel and tighten the bolts using two 13 mm socket spanners.



4. Hook on the spring for the blade brake.

How the belt is fitted on the front belt pulley is evident from sections 6–7, on page 23.



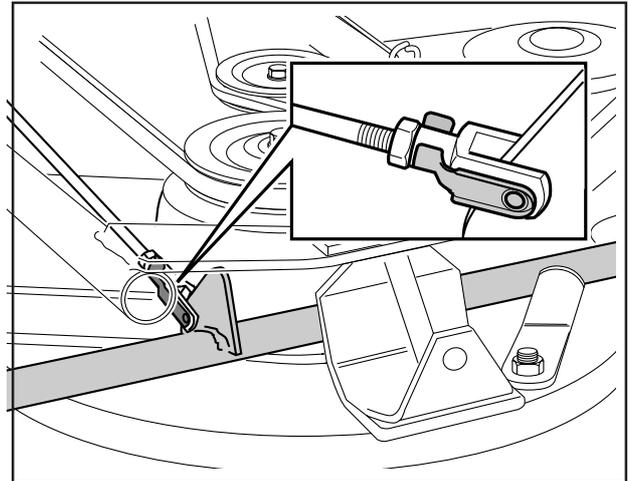
MAINTENANCE

Replacing the cutting unit's belts

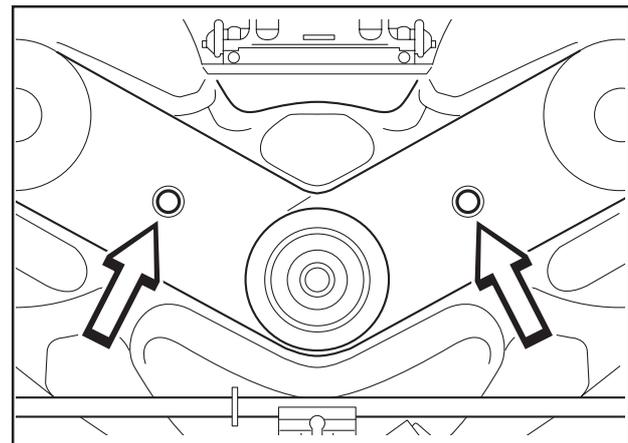
Belt replacement on the BioClip unit

Two transmission belts that synchronise the rotation of the blades power a BioClip unit. The belts are located under a hood on the cutting unit.

1. Loosen the parallelism arm's front pin/bolt and fold the arm backwards.



2. Loosen the two bolts holding the protective hood and then lift off the hood.

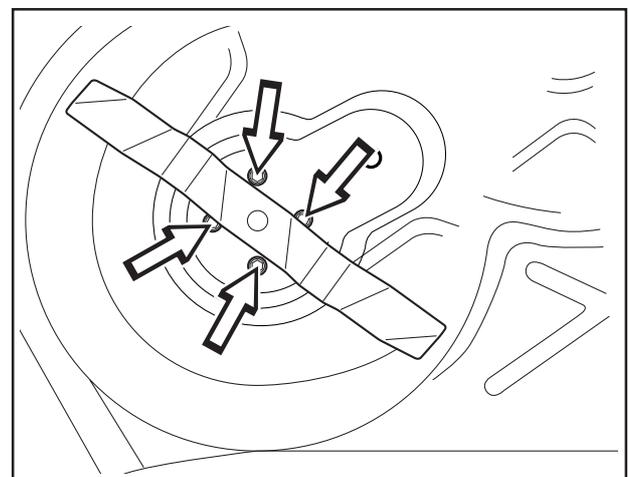


3. Loosen the nuts on the eccentric plate and turn this away.

Loosen the four nuts (see diagram) holding the outer blade bearing enough so that the bearing can be moved.

Slide the blade bearing in towards the centre bearing and pry off the upper belt.

Repeat the procedure for the lower belt.



WARNING!

Protect your hands by wearing gloves when working with the blades.

MAINTENANCE

IMPORTANT INFORMATION

The blades on a BioClip deck should be set at 90 degrees to each other. In all other cases the blades can collide and cause serious damage to the cutting unit.

4. Assembly: First fit the lower belt and then the upper belt.

Ensure the blades are positioned as set out in the diagram, at 90 degrees to each other, otherwise the belts must be adjusted. When the blade bearings are loose the belts can be moved around to the next tooth.

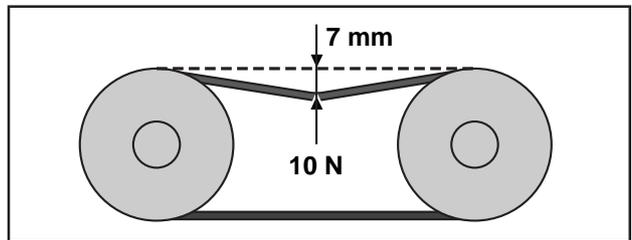
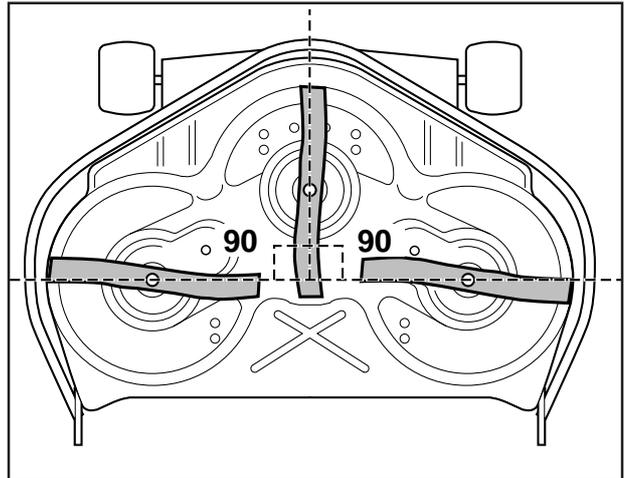
Tighten the nuts enough so that the bearings rest against the cutting hood but still can be moved.

Tension the belt by turning the eccentric adjuster on top of the cutting hood. Tighten the nut.

Tighten all nuts on the blade bearings.

5. When the belt can be moved 7 mm inwards using a force of 10 N the belt is adjusted correctly.

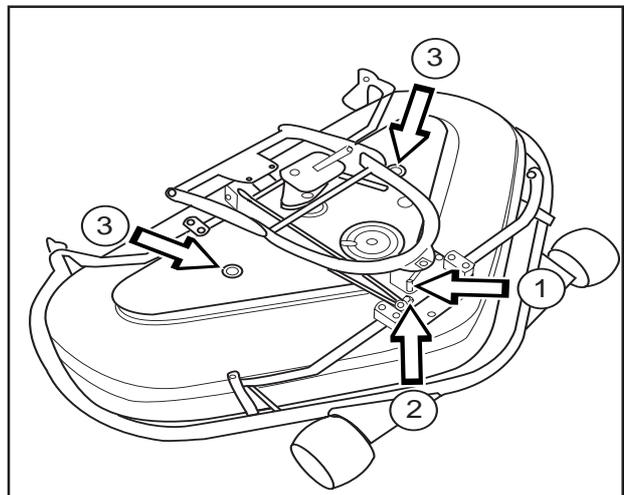
Fit the protective cover over the belts and replace the parallelism arm.



Belt replacement on cutting unit's with side or rear ejectors

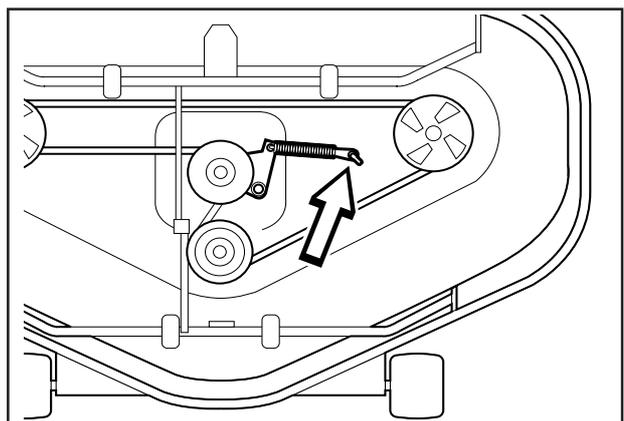
Cutting units with side or rear ejectors are powered by one V-belt. Proceed as follows to replace the V-belt:

1. Loosen the unit frame (1), the bolt on the parallelism arm (2) and the two bolts on the hood (3). Lift off the cutting unit's hood.



2. Loosen the spring that tensions the V-belt and pry off the belt.

To fit a new belt, follow the instructions above in the reverse order.



MAINTENANCE

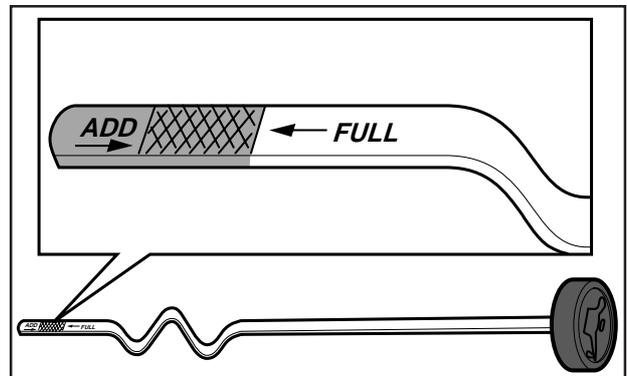
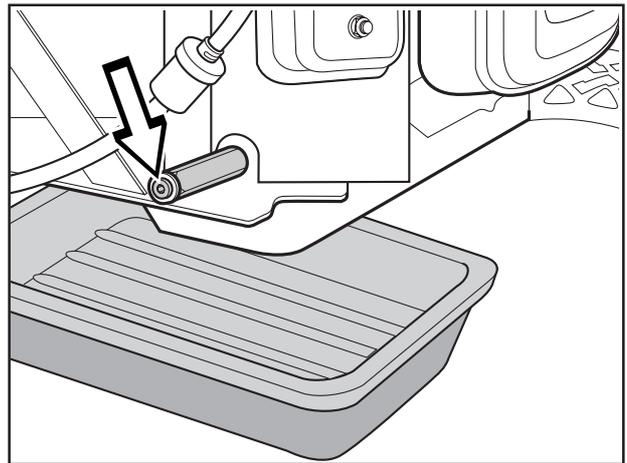
Changing the oil

The oil should be changed for the first time after 8 hours of running time. Thereafter it should be changed every 50 hours of running time. If the engine is run hard or during high temperatures the oil should be changed every 25 running hours.



WARNING!
Engine oil can be very hot if it is drained off directly after the engine is stopped. Therefore allow the engine to cool down first.

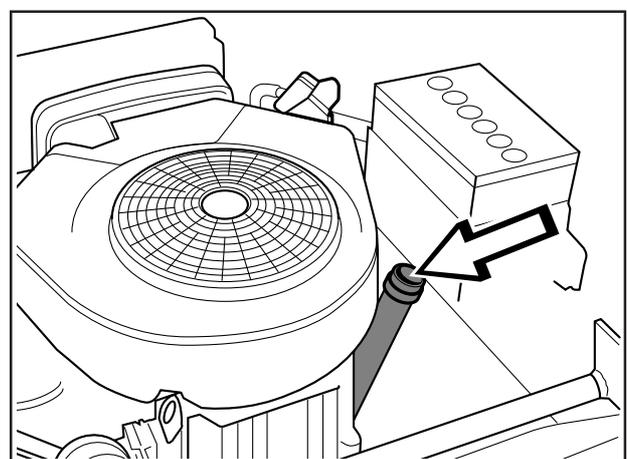
1. Dismantle the engine hood as described on page 18.
2. Place a receptacle under the engine's drain plug.
3. Remove the dip stick. Remove the drain plug on the left-hand side of the engine.
4. Let the oil run out into the receptacle.
5. Fit the oil plug and tighten well.
6. Fill up with oil to the FULL mark on the dip stick. Use engine oil SAE 30 or SAE 10W-30, class CD-CF (over 0°). Use engine oil SAE 5W-30, class CD-CF (below 0°). The total oil volume in the engine is 1.3 litres.
7. Run the engine warm and then check that there is no leakage from the oil plug.



The oil is filled in the same hole as the dip stick.

IMPORTANT INFORMATION

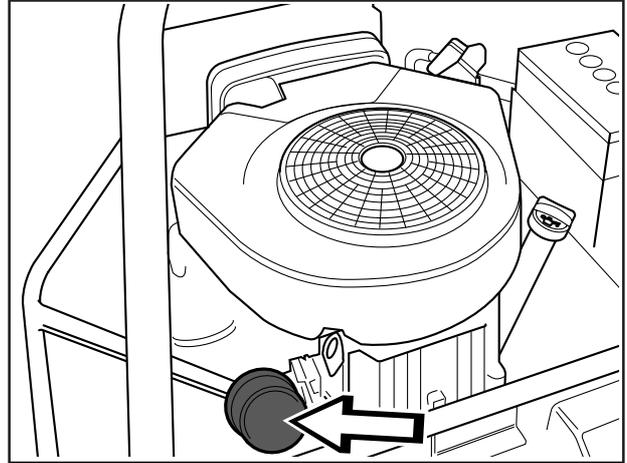
Used engine oil is hazardous to health and must by law not be poured out on the ground or in the nature, but shall be handed in to a workshop or special environmental station. Avoid skin contact, wash with soap and water in the event of spillage.



MAINTENANCE

Replacement of the oil filter

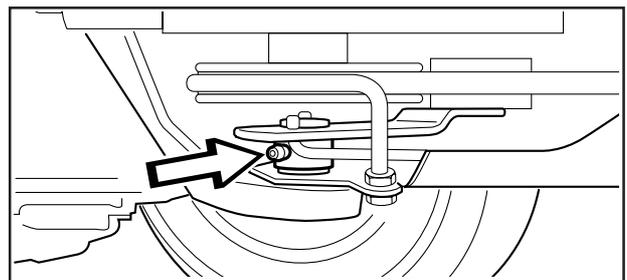
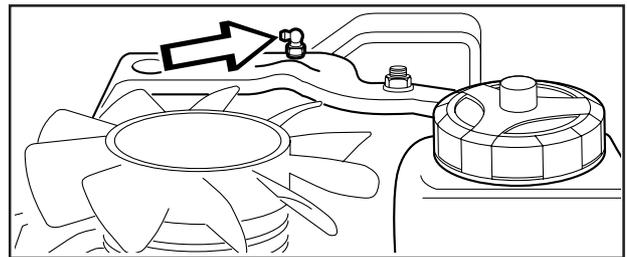
1. Dismantle the engine hood as described on page 18.
2. Drain off the engine oil according to the work description "Changing of engine oil" on page 27.
3. Dismantle the oil filter. If necessary use a filter extractor.
4. Apply new, clean engine oil on the seal for the new filter.
5. Fit the filter and tighten by hand.
6. Run the engine warm and check that there is no leakage round the oil filter seal.



Lubrication

The following three lubrication points shall be lubricated regularly with graphite grease of good quality.

In the event of daily use lubrication should be conducted twice a week.



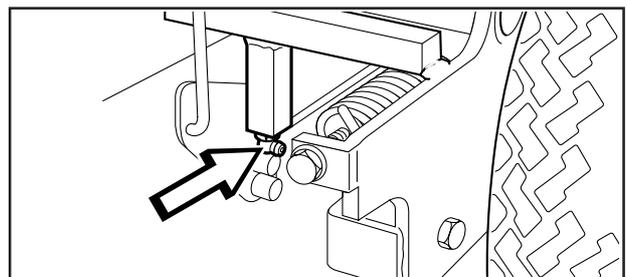
General lubrication

All joints and bearings are lubricated on manufacture with molybdenum sulphide grease.

Re-grease with same type of grease.

Lubricate the steering and control wires with engine oil.

Conduct this lubrication regularly: during daily use of the machine it should be lubricated twice a week.



MAINTENANCE

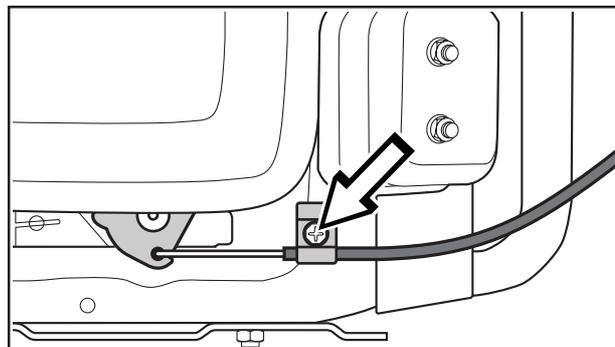
Checking and adjustment of the throttle wire

Check that the engine responds to the throttle control and that the correct engine speed is achieved at full throttle.

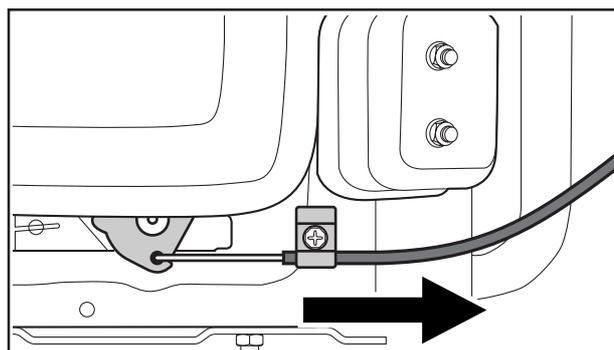
If in doubt, contact the service workshop

If necessary the following adjustment can be made:

1. Release the clamping screw and push the throttle control to full throttle position.



2. Pull the throttle wire's outer casing to the right and tighten the clamping screw.



MAINTENANCE

Checking the tyre pressure

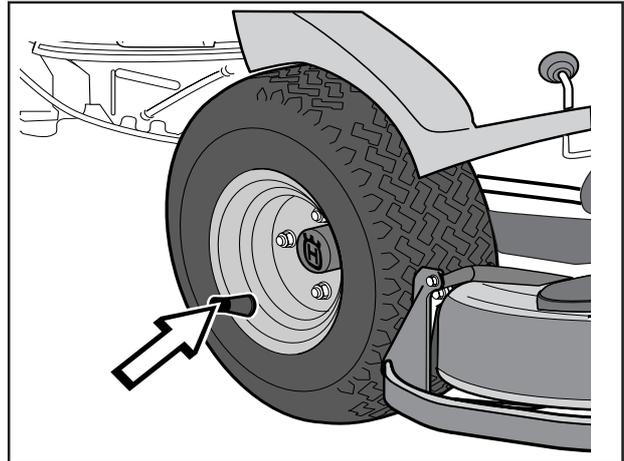
The tyre pressure should be 60 kPa (0.6 kp/cm²) all round.

To improve driving the pressure on the rear tyres can be reduced to 40 kPa (0.4 kp/cm²).

The maximum tyre pressure is 100 kPa (1.0 kp/cm²).

IMPORTANT INFORMATION

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

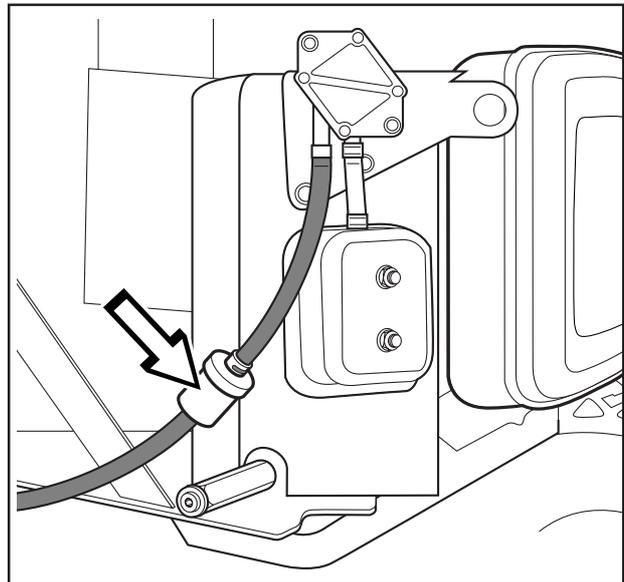


Replacement of the fuel filter

Replace the fuel filter every 100 running hours (once per season) or more frequently if it is clogged.

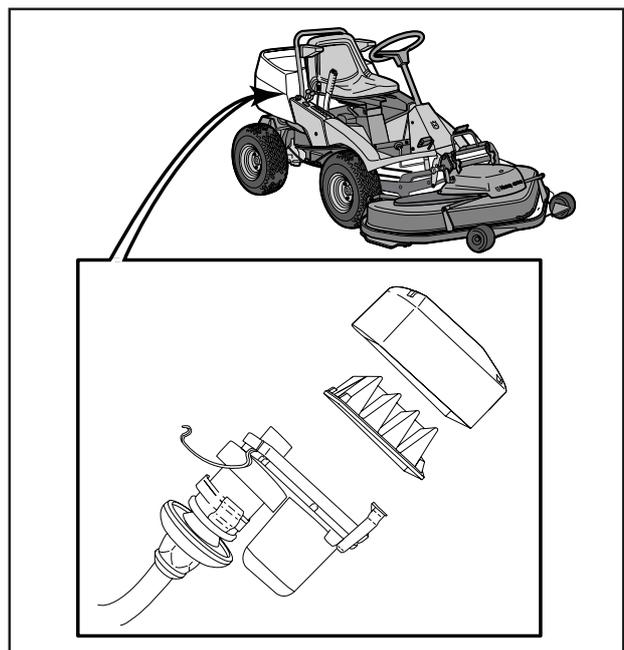
Replace the filter as follows:

1. Dismantle the engine hood as described on page 18.
2. Move the hose clips away from the filter. Use a pair of flat pliers.
3. Pull off the filter from the hose ends.
4. Press in the new filter on the hose ends. If necessary soap solution can be applied on the filter ends to simplify fitting.
5. Push the hose clips back on the filter and tighten.



Cleaning the pulse air filter

1. Loosen the two rubber straps and lift off the engine hood.
2. Loosen the four quick-action clips and lift off the cover and remove the filter.
3. Blow out the filter using compressed air.
4. Replace the filter in the cover and secure the cover using the quick-action clips. Replace the engine hood.



TROUBLE SHOOTING SCHEDULE

Problem	Procedure
Engine will not start.	<ul style="list-style-type: none">• Fuel tank empty.• Plugs defective.• Plug connections defective.• Dirt in carburettor or fuel pipe.
Starter does not pull round engine.	<ul style="list-style-type: none">• Battery flat.• Bad contact between cables and battery terminals.• Lift lever for cutting unit in wrong position.• Main fuse blown. The fuse is located in front of the battery under the battery cover.• Ignition lock faulty.• Gear shift/hydrostat pedal not in neutral.
Engine does not run smoothly.	<ul style="list-style-type: none">• Plugs defective.• Carburettor incorrectly set.• Air filter clogged.• Fuel tank vent blocked.• Ignition setting defective.• Dirt in fuel pipe.
Engine seems to have no power.	<ul style="list-style-type: none">• Air filter clogged.• Plug defective.• Dirt in carburettor or fuel pipe.• Carburettor incorrectly set.
Engine overheats.	<ul style="list-style-type: none">• Engine overloaded.• Air intake or cooling flanges blocked.• Fan damaged.• Too little or no oil in engine.• Ignition defective.• Plugs defective.
Battery does not charge.	<ul style="list-style-type: none">• One or more cells in the battery faulty.• Bad contact between battery terminals and cables.
Machine vibrates.	<ul style="list-style-type: none">• Blades are loose.• Engine is loose.• Imbalance on one or more blades, resulting from damage or inferior balancing after sharpening.
Uneven mowing.	<ul style="list-style-type: none">• Blades blunt.• Cutting unit set skew.• Long or wet grass.• Grass blockage under hood.• Different tyre pressures on right and left sides.• Over-speeding• Drive belts slipping.

STORAGE

Winter storage

At the end of the season the machine should immediately be put in order for storage, also if it is going to stand idle for more than 30 days. Fuel which is left to stand for long periods (30 days or more) can leave tacky deposits which can block the carburettor and interfere with the engine.

Fuel stabiliser is an acceptable alternative to avoid tacky deposits during storage. If alkylate petrol (Aspen) is used stabiliser is not necessary since this fuel is stable. However, one should avoid changing from standard to alkylate petrol since sensitive rubber parts can harden. 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 so that it will reach the carburettor. Do not empty the fuel tank and carburettor if stabiliser has been added.



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, or drying cabinets, etc. It is highly inflammable and negligent usage can cause severe person injury and material damage. 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 put the machine in order for storage follow these instructions:

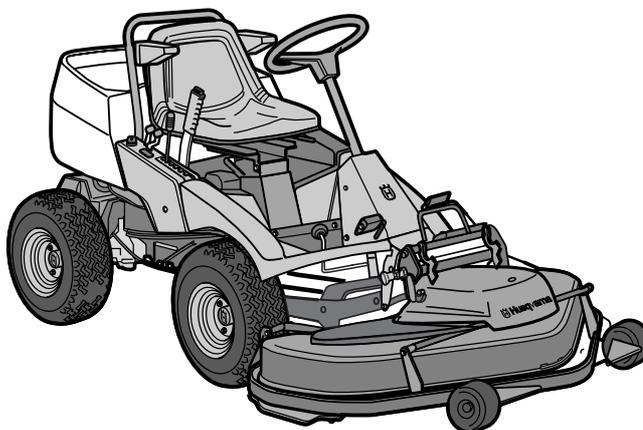
1. Carefully clean the machine, especially under the cutting unit. Touch-up paint damage to avoid rust.
2. Inspect the machine for worn or damaged parts and tighten loose screws and nuts.
3. Change the oil, and take care of the waste oil.
4. Empty the fuel tank. Start the engine and run it until the carburettor is emptied of fuel.
5. Remove the plugs and pour in a tablespoon of engine oil in each cylinder. Pull round the engine to distribute the oil and screw the plugs back on.
6. Grease all grease nipples, joints and axles.
7. Remove the battery. Clean it, charge it, and store it in a cool place. Protect the battery from low temperatures (below freezing point).
8. Store the machine in a clean and dry place and cover it over for extra protection.

Service

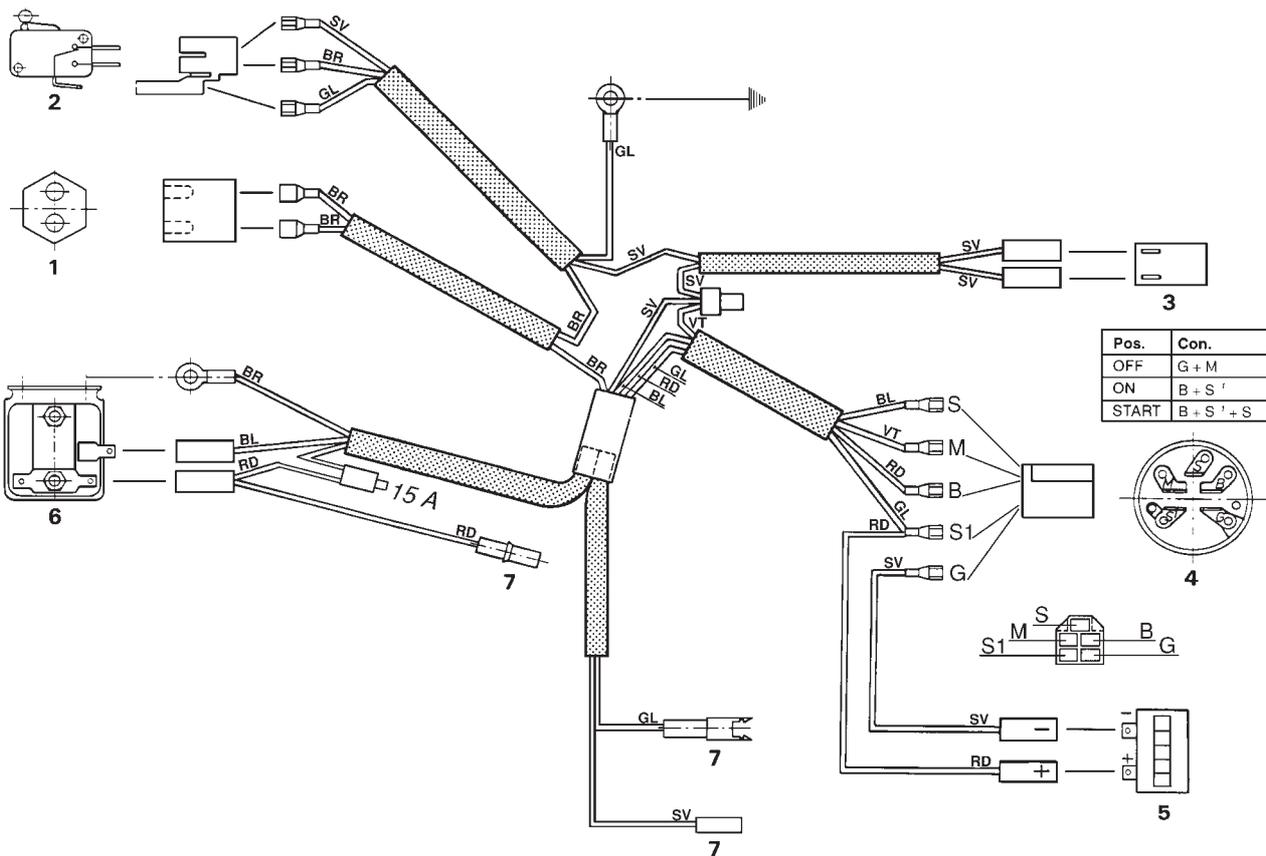
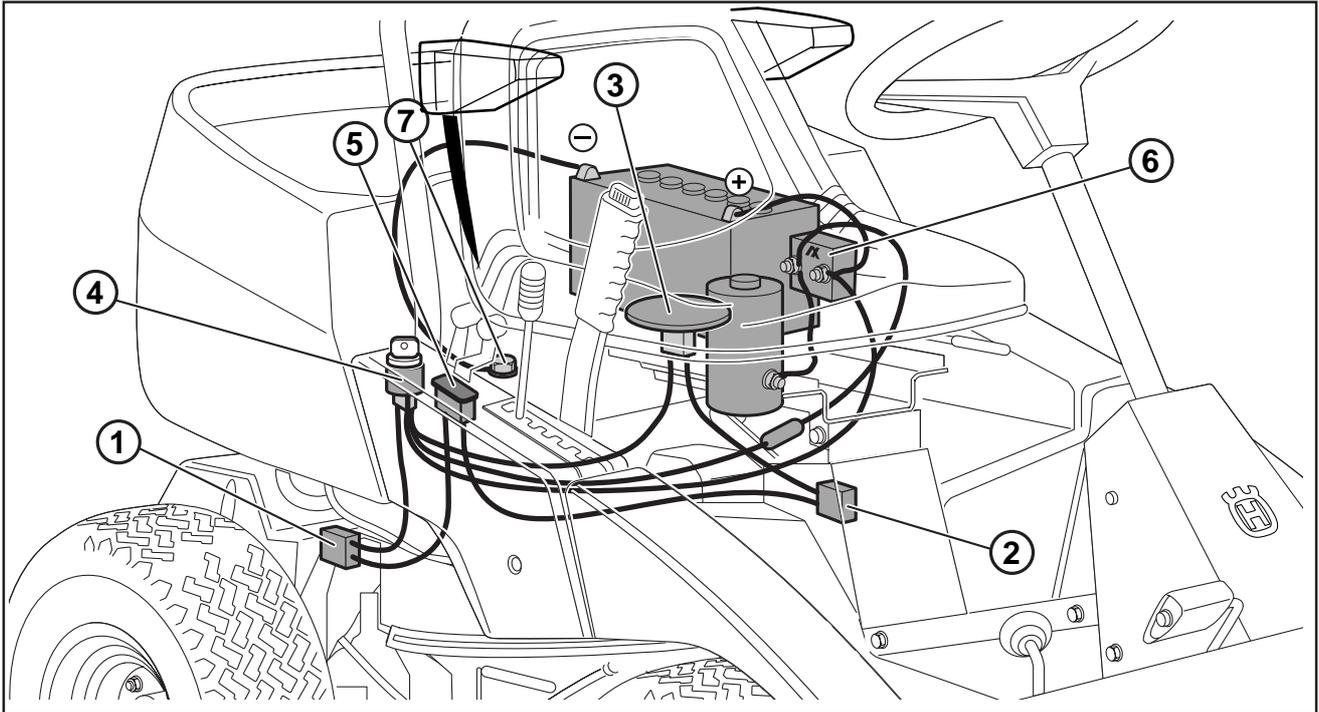
When ordering spare parts state the purchase year, model, type, and serial number.

Always use genuine parts.

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



WIRING DIAGRAM



1. Brake switch, hydrostat
2. Microswitch, cutting unit
3. Microswitch, seat
4. Ignition lock
5. Counter
6. Start relay
7. Engine

Explanation of colour abbreviations in wiring diagram.

- R = Red
- B = Blue
- W = White
- BL = Black
- Y = Yellow
- BR = Brown

TECHNICAL DATA

Rider ProFlex

	Rider 18 ProFlex	Rider 20 ProFlex
Dimensions		
Length without unit	2 300 mm	2 300 mm
Width without unit	1 280 mm	1 280 mm
Height	1 085 mm	1 085 mm
Unladen weight	300 kg	350 kg
Wheel base	855 mm	855 mm
Track	710 mm	710 mm
Tyre size	18 x 7.50 x 8	18 x 7.50 x 8
Tyre pressure, front & rear	60 kPa (0,6 kp/cm ²)	60 kPa (0,6 kp/cm ²)
Max. gradient	15°	15°
 Engine		
Manufacture	Briggs & Stratton Vanguard V-Twin model 350777, type 1123, trim A1	Briggs & Stratton Vanguard V-Twin model 351777, type 1130, trim E1
Power	13.7/18 kW/hk	14.7/20 kW/hk
Displacement	570 cm ³	570 cm ³
Fuel	min 85 octane unleaded	min 85 octane unleaded
Tank volume	10 litres	10 litres
Oil	SAE 30 or SAE 10W/30, class CD - CF	SAE 30 or SAE 10W/30, class CD - CF
Oljevolym	1,4 litres	1,4 litres
Oil volume incl. filter	1,6 litres	1,6 litres
Start	Electric starter	Electric starter
 Electrical system		
Type	12 V, negative earthed	12 V, negative earthed
Battery	12 V, 24 Ah	12 V, 24 Ah
Spark plug	Champion RC12YC, electrode gap = 0.7-0.8 mm	Champion RC12YC, electrode gap = 0.7-0.8 mm
 Transmission		
Manufacture	Tuff Torq K 61	Tuff Torq K 61
Oil	SAE 10W/30, class CD - CF	SAE 10W/30, class CD - CF

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.

TECHNICAL DATA

Cutting unit

	Rear ejector 120	BioClip 103
Cutting width	1200 mm	1030 mm
Cutting heights	7 settings, 40-100 mm	7 settings, 45-105 mm
Blade length	440 mm	410 mm
Sound level	100 dB(A)	100 dB(A)

	Side ejector 97	Rear ejector 97
Cutting width	970 mm	970 mm
Cutting heights	7 settings, 40-80 mm	7 settings, 40-100 mm
Blade length	350 mm	350 mm
Sound level	100 dB(A)	100 dB(A)

We reserve the right to change technical specifications without prior notice.

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.

EU declaration of conformity (Only applies to Europe)

(Directive 89/392/EEC, Annex II, A)

We, **Husqvarna AB**, S-561 82 Huskvarna, Sweden, tel. +46 36-146500, declare under sole responsibility that the **riders mowers Husqvarna Rider 18 ProFlex and Rider 20 ProFlex** from 1998's serial numbers and onwards (the year is clearly stated in plain text on the type plate with subsequent serial number), is in conformity with the following standards or other normative documents following the provisions in the COUNCIL'S DIRECTIVES:

- of June 14 1989 "relating to machinery" **89/392/EEC**, and applicable supplements.
- of March 22 1984 "relating to permitted sound power levels for lawn mowers" **84/538/EEC**, and applicable supplements.
- of May 3 1989 "relating to electromagnetic compatibility" **89/336/EEC**, and applicable supplements.

The following standards have been applied: **EN292-2, EN836.**

Huskvarna October 16, 1998



Bo Andréasson, Development manager



1998W51