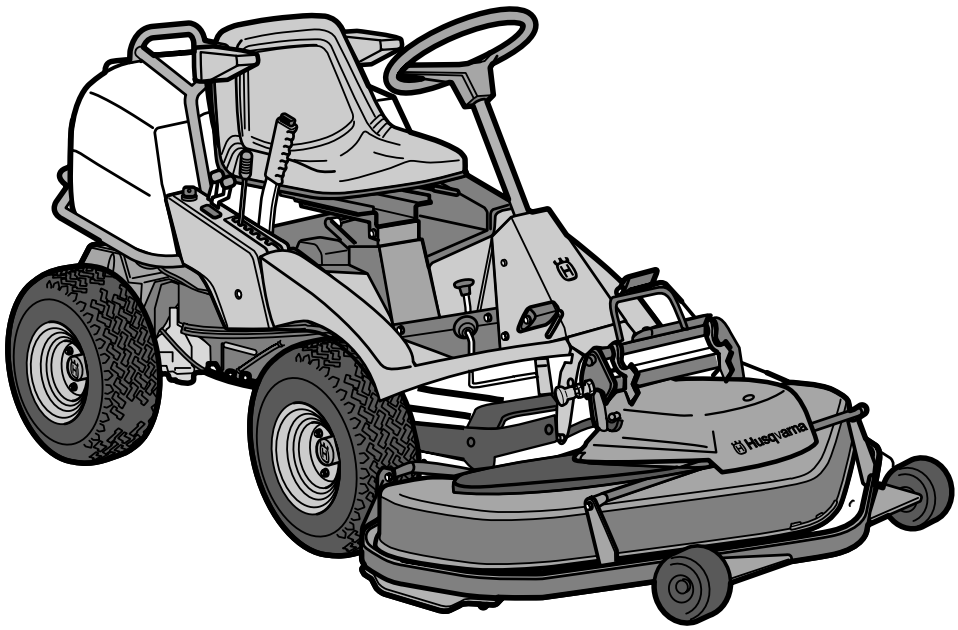


Rider ProFlex 21

Operator´s manual

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

101 91 36-26

CONTENTS

Operator's Manual for Rider ProFlex 21

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.

INSTRUCTION

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 rear-wheel steering system. 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.

We hope you will find this operator's manual very useful. 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. Remember to take along the operator's manual when you take the Rider to the workshop for servicing.

Travel 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

If your machine has a hydrostatic transmission you should only tow it very short distances at low speed if absolutely necessary, otherwise the transmission may be damaged.

Intended use

This machine is designed solely for cutting grass on conventional lawns and other cleared and leveled ground without obstacles, as rocks, stumps etc., and, in conjunction with accessories supplied by the manufacturer even for other special tasks for which instructions are delivered with the accessory. Use in any other way is considered as contrary to the intended use. 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.

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

SAFETY INSTRUCTIONS

Good service

Husqvarna products are sold all over the world and only through servicing dealers. This is to ensure 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

Serial number

The serial number can be found on the printed plate attached to the front, left-hand side under the seat. Stated on the plate, from the top are:

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

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

The engine serial number is given on a bar code decal. This is located on the left side of the crankcase, in front of the starter motor. The sign states

• The engine serial number (E/NO).

• Code.

Please quote these when ordering parts.

The transmission's serial number is stated on the barcode decal located on the front of the housing on the left-hand drive axle:

- Type designation is stated above the barcode and starts with the letter "K".
- The serial number is stated above the barcode and has the prefix "s/n".
- The manufacturer's type number is stated under the barcode and has the prefix "p/n".

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

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.

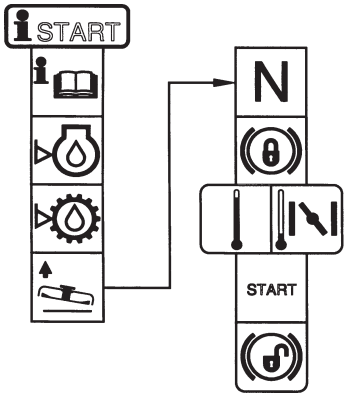
Reverse | Neutral | Fast | Slow | Engine off | Battery | Choke | Fuel

Oil pressure | Cutting height | Backwards | Forwards | Ignition

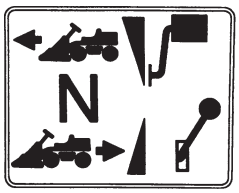
Use hearing protection | Hydrostatic freewheel | Parking brake | Brake | Warning

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



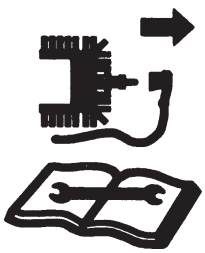
Starting instructions
Read the instructions
Check the engine's oil level
Check the hydrostat's oil level
Lift up the cutting unit
Hydrostatic pedals in neutral position
Brake
If the engine is cold use the choke
Start the engine
Release the parking brake before driving



Speed limiter pedal forwards

Neutral

Speed limiter pedal reverse



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

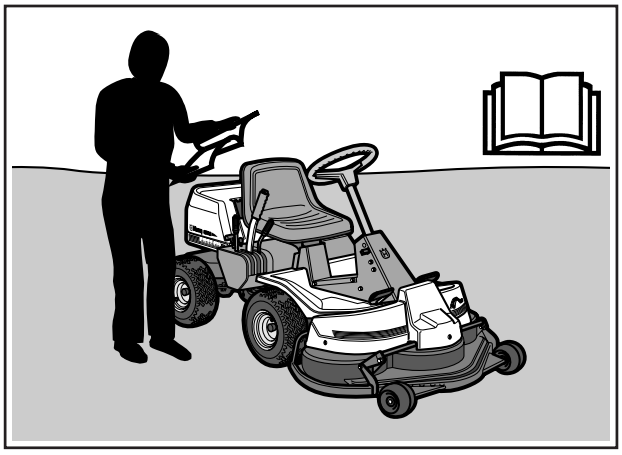
SAFETY INSTRUCTIONS

These instructions are for your safety. Read them carefully.

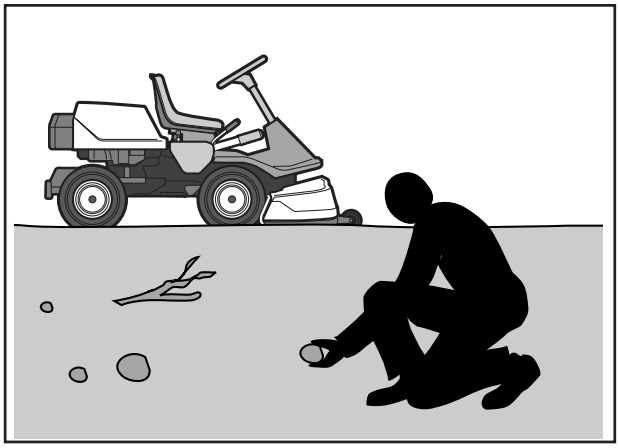
This symbol implies that important safety rules are applicable. This is for your safety and the operating reliability of the machine.

General use:

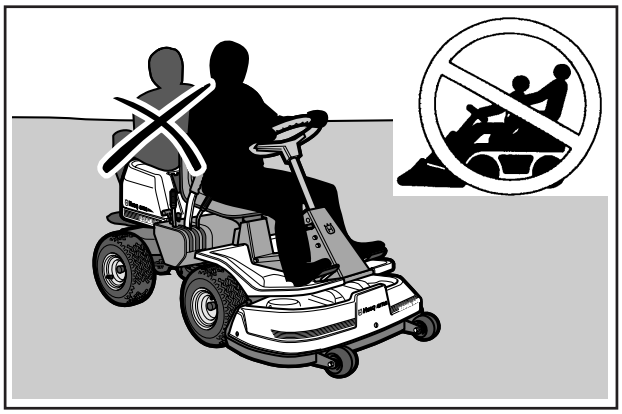
- Make yourself familiar with the controls and how to stop quickly.
- Read all the instructions in Operator's Manual and on the machine before starting it. Make sure you understand them, and then follow them.
- Only allow adults who are familiar with the machine to use it.
- Wear approved safety glasses 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.
- Watch out for traffic when working close to a road, or crossing one.



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.

- 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.

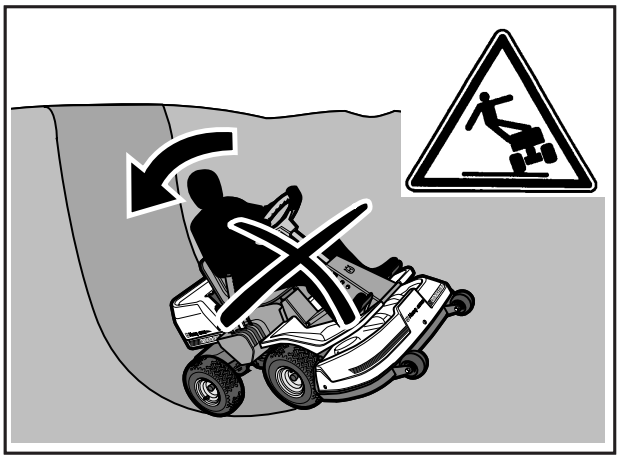
  d. Use counterweights or wheel weights when indicated in the instructions.

Driving on slopes

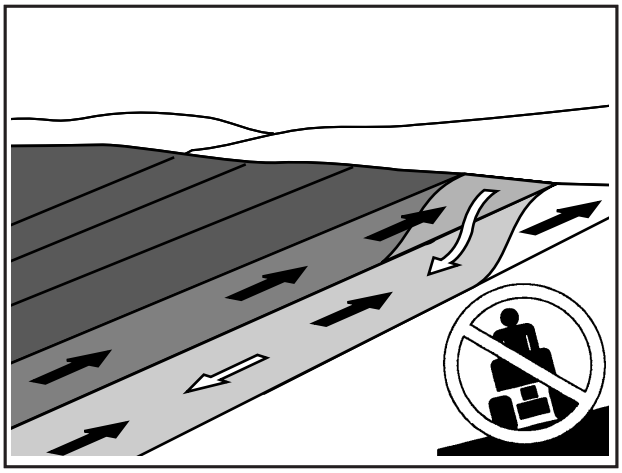
Driving on slopes is one of the situations where there is the most serious risk that the driver can loose control or that the machine tips over, which can cause severe injuries or be fatal. All slopes require extra care. If you cannot reverse up the slope or if you feel uncertain avoid cutting it.

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. Use small movement on the hydrostat pedals.
- 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.
- Avoid unnecessary turns on slopes, and if turning is necessary turn slowly and gradually, downwards if possible.
- 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 loose their grip so that the machine slides.



Be extra careful when driving on slopes.



Cut slopes upwards and downwards, not sideways.

- 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.

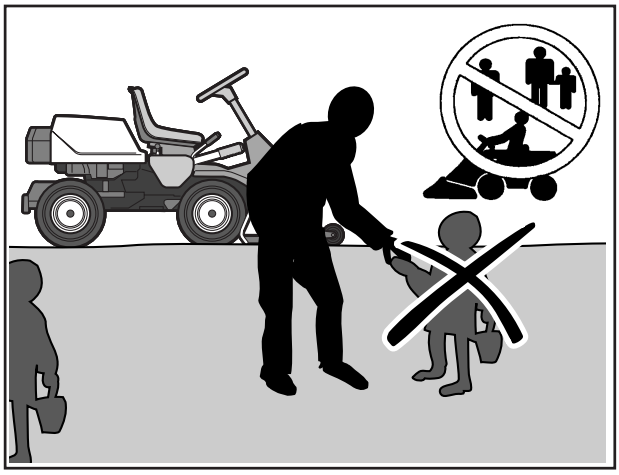
Children

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.

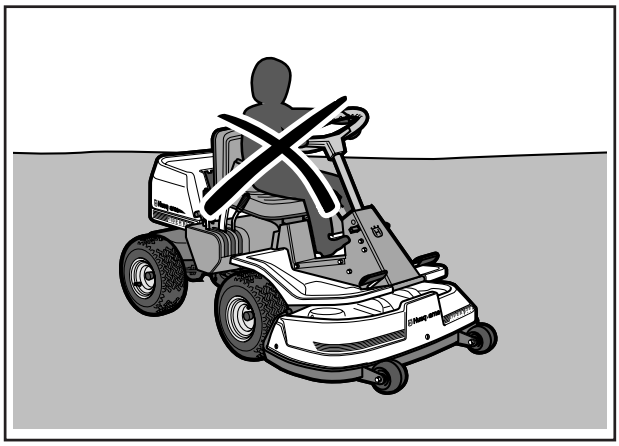
- Keep children away from the mowing area and under the supervision of another adult.
- Be on your guard and switch off the machine if children come into the work area.
- Before and during reversing look behind and down for small children.
- Never allow children to ride on the machine. They can fall 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 fuel when the engine is running. Let the engine cool before filling up with fuel.
  Do not smoke. Do not fill fuel in the vicinity of sparks or naked flames.
- 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 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.



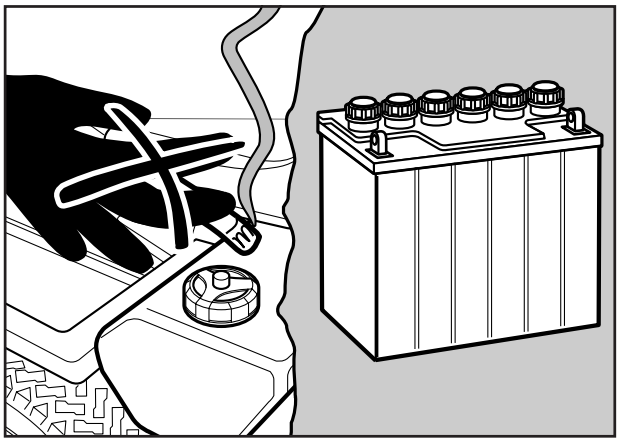
Keep children away from the mowing area.



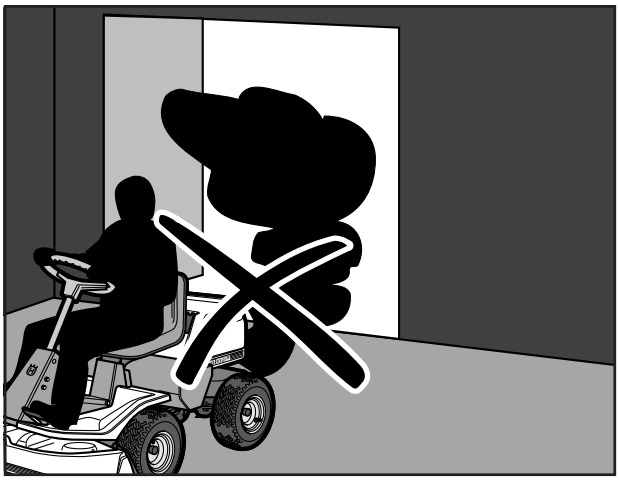
Never allow children to drive the machine.

Never fill up with fuel indoors.

- 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.
- The BioClip cutting unit should only be used to give high quality results on lawn surfaces that you are familiar with. If the blades of the cutting unit strike an obstacle this could change their spacing and lead to expensive repairs. (Does not apply to BioClip 112)



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

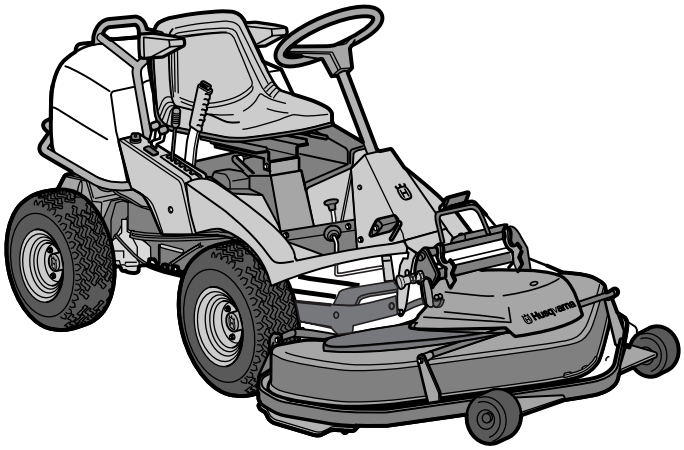
Presentation

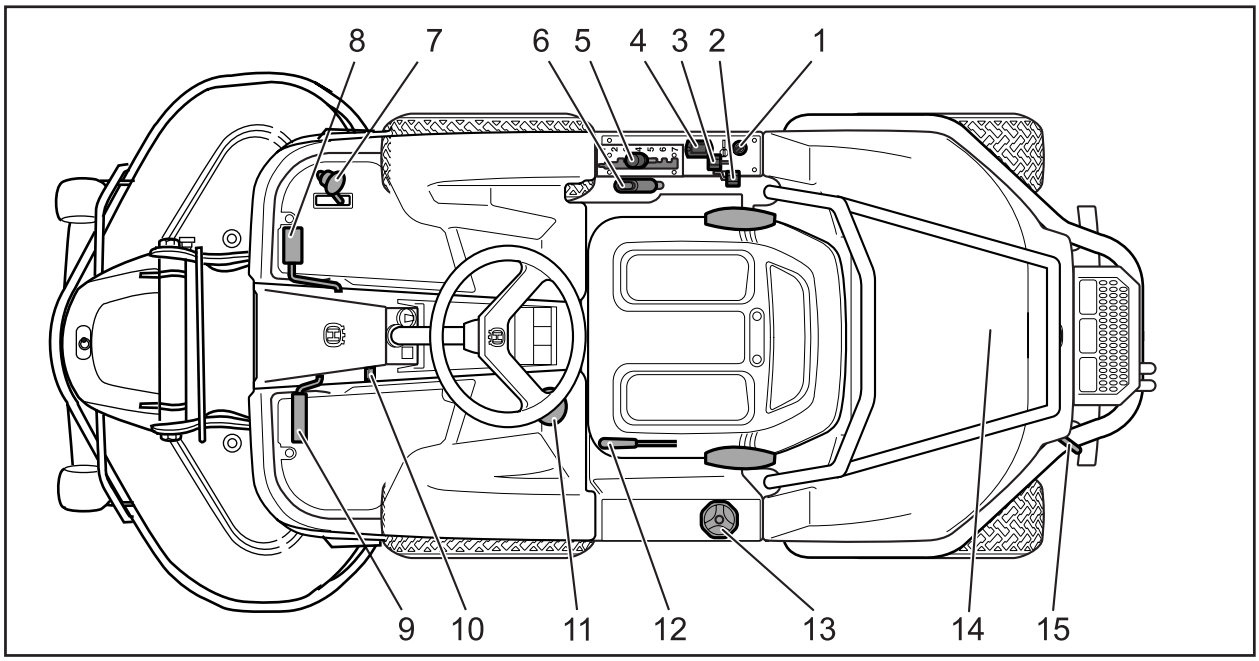
These instructions describe the Rider ProFlex 21.

The Rider ProFlex 21 is equipped with a 21-horsepower four-stroke V-twin Kawasaki engine.

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.





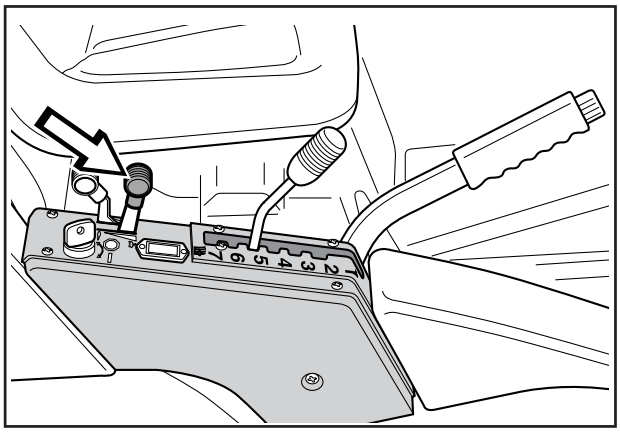
Location of the controls

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

Throttle control

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

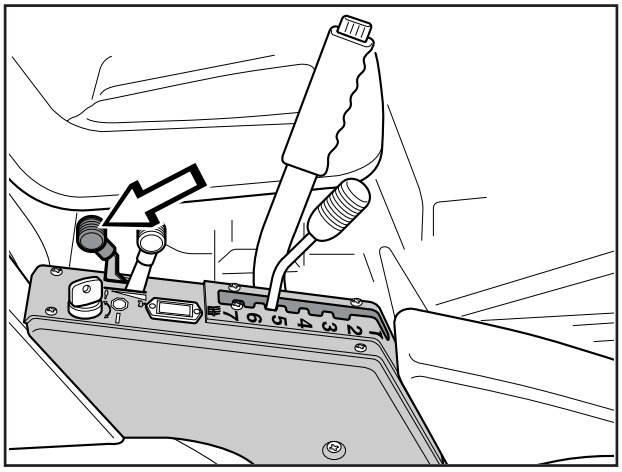
To increase or reduce the engine speed the control is moved forwards or backwards.



Choke lever

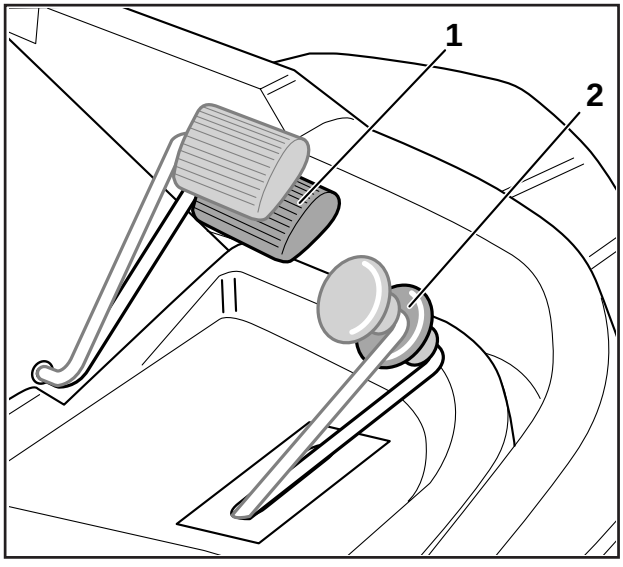
The choke lever is used for cold starting and to give the engine a richer fuel mixture.

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.



WARNING!
Make sure that branches do not obstruct the pedals when mowing under bushes, otherwise you may lose control.

Cutting unit

Rider 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.

Cutting unit with rear ejection, i.e. cuttings are thrown out behind the unit..

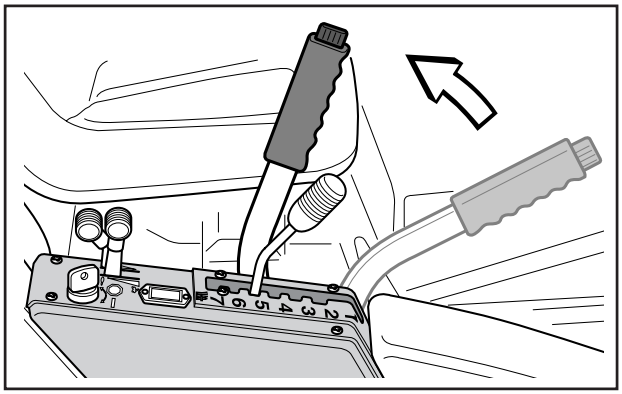
Examples of the accessories for Rider ProFlex:

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

Lift lever for cutting unit

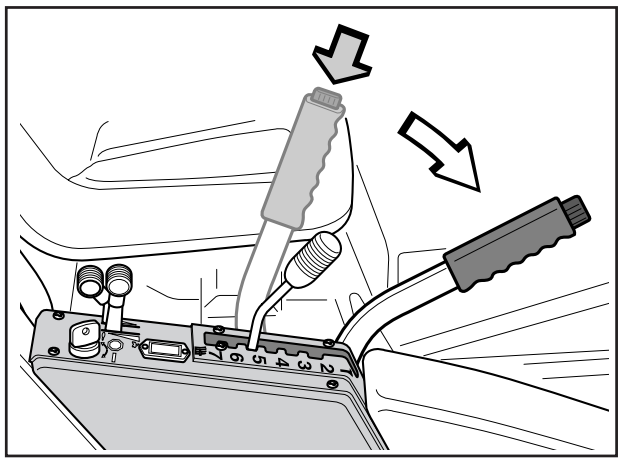
The lift lever is used to set the cutting unit in transport or mowing position. In transport position the blade brake is activated automatically to stop the blades within around 5 seconds.

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

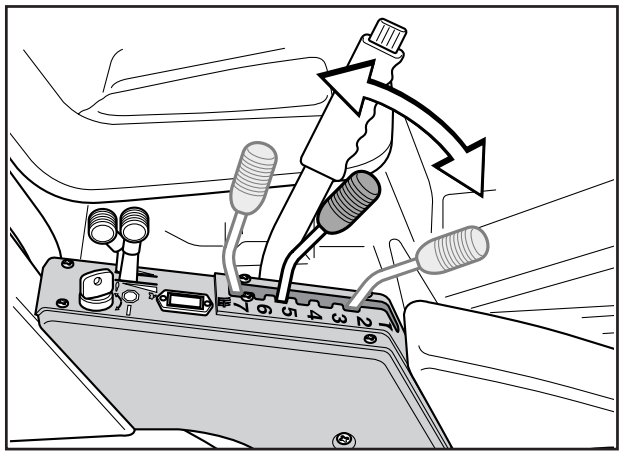
2. Press in the lock button and move the lever forwards for the mowing position.
   The unit will lower down and the blades start to rotate.
3. The lever can also be used to temporarily regulate the cutting height, e.g. for a small mound in the lawn.



Lowering of the cutting unit

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).

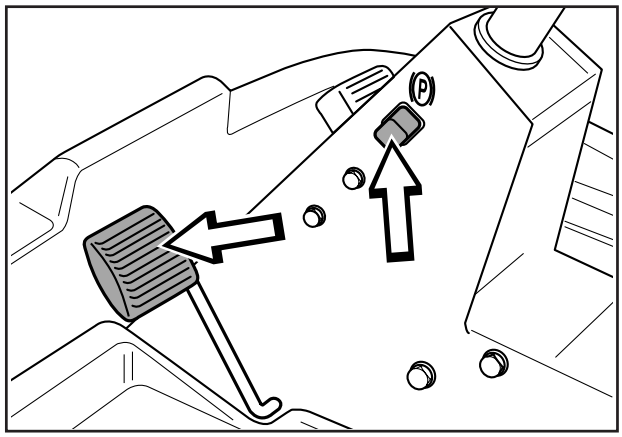


Parking brake

The parking brake is applied as follows:

1. Push down the brake pedal.
2. Fully depress 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.

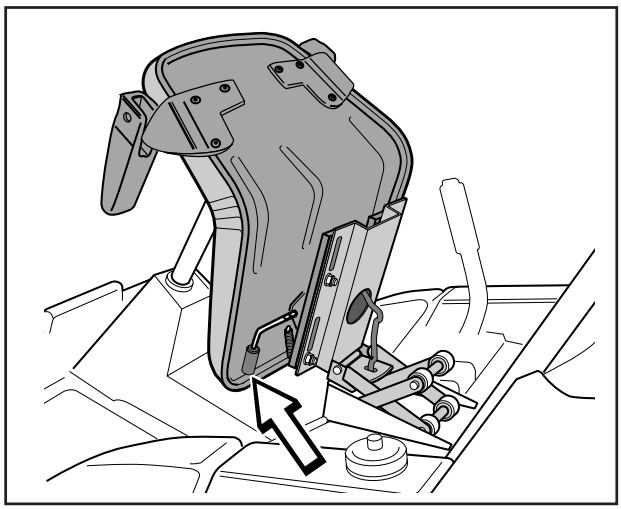


Seat

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

The seat can also be adjusted lengthways.

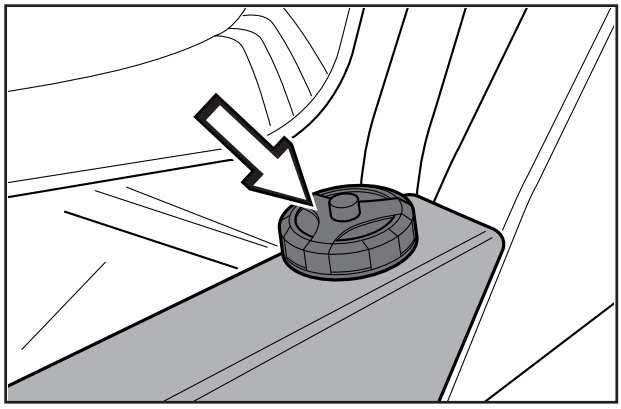
To adjust move the lever under the front edge of the seat to the left, so that the seat can be moved forward or backwards to the required position.



Fuelling

The engine runs on unleaded petrol with a minimum octane rating of 87 (not mixed with oil). We recommend the use of Aspen biodegradable alkylate petrol. Refer to the “Technical data” for information on methanol and ethanol fuels.

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

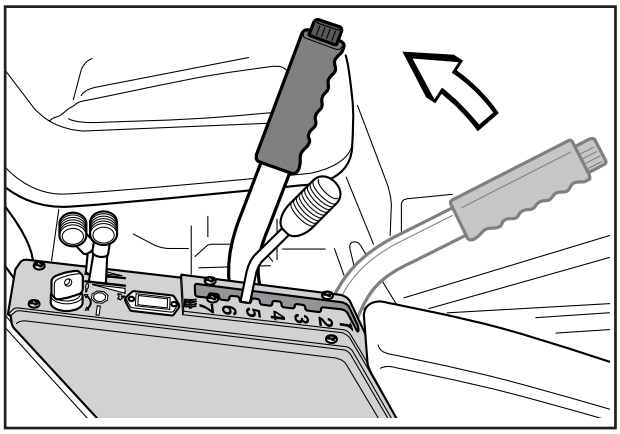


Before starting

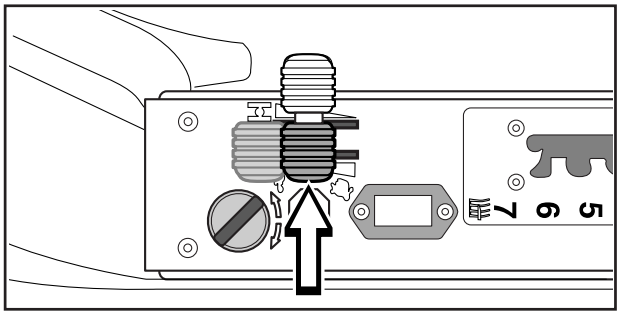
- Read the sections headed “Safety instructions” and “Presentation” before starting the mower.
- Carry out daily maintenance before starting (see “Maintenance schedule” in the chapter on “Maintenance”).
- Adjust the seat to the required position.

Starting the engine

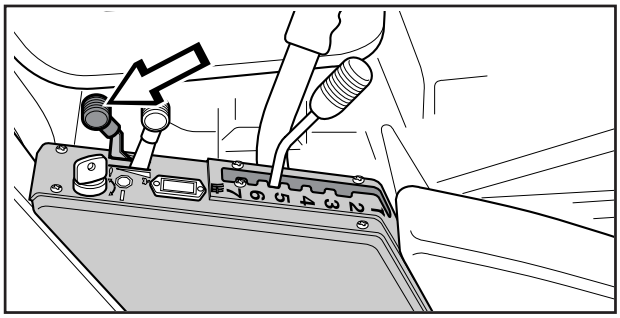
1. Lift up the cutting unit by pulling the lever backwards to locked position (transport position) and apply the parking brake.



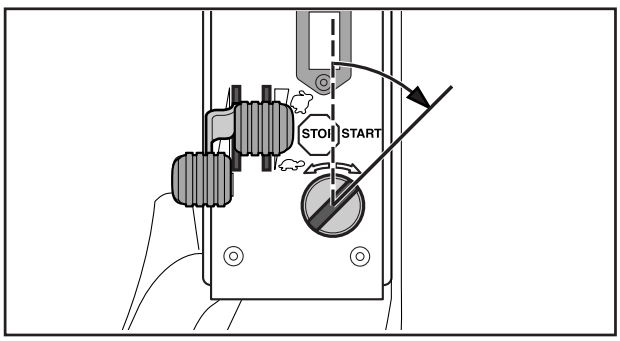
2. Move the throttle control to the middle position.



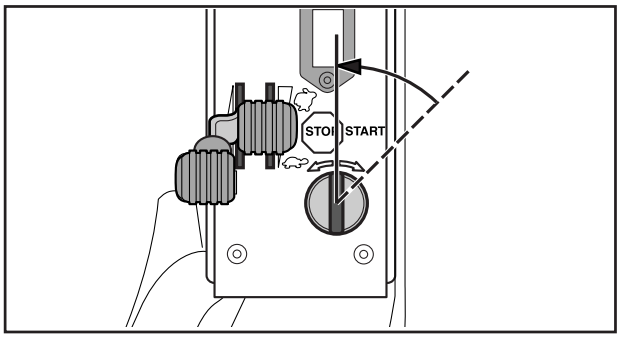
3. If the engine is cold move the choke lever backwards to its end position.



4. Turn the ignition key to the start position.



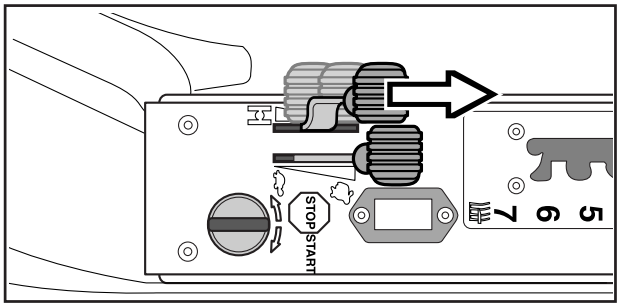
5. When the engine starts release the ignition key immediately back to neutral position.



IMPORTANT INFORMATION

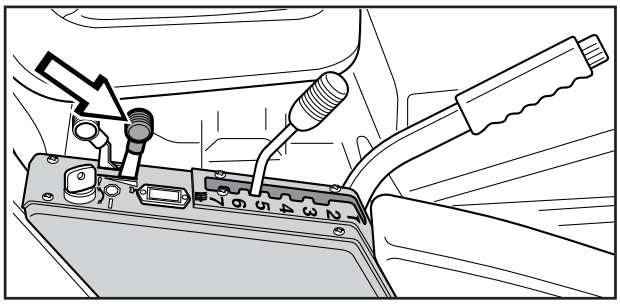
Do not run the starter for more than about 5 seconds at a time. If the engine does not start, wait about 15 seconds before trying again.

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



7. Set the required engine speed with the throttle control.

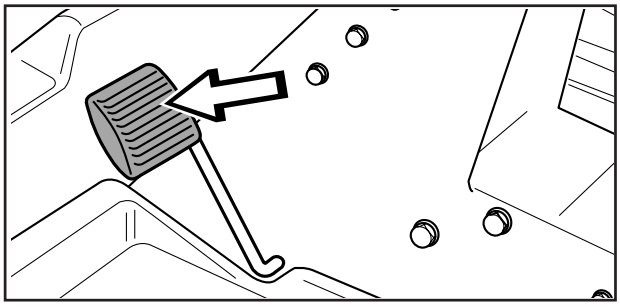
   Let the engine run at moderate speed or half throttle for 3-5 minutes before subjecting it to heavy load.



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

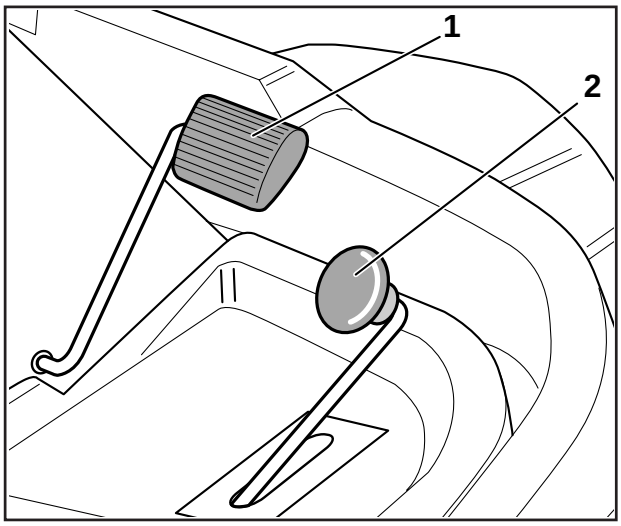
Driving the machine

1. Release the parking brake by pressing the brake pedal.



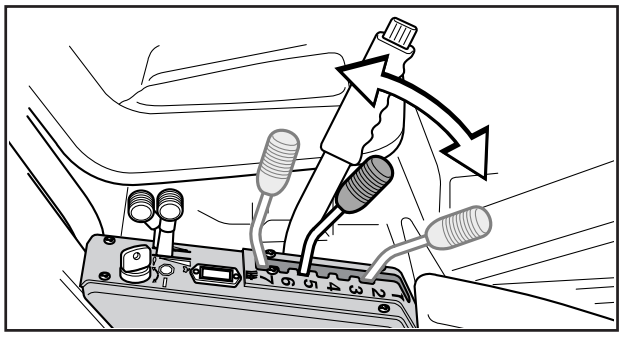
2. Carefully press down one of the pedals until the required speed is obtained.

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

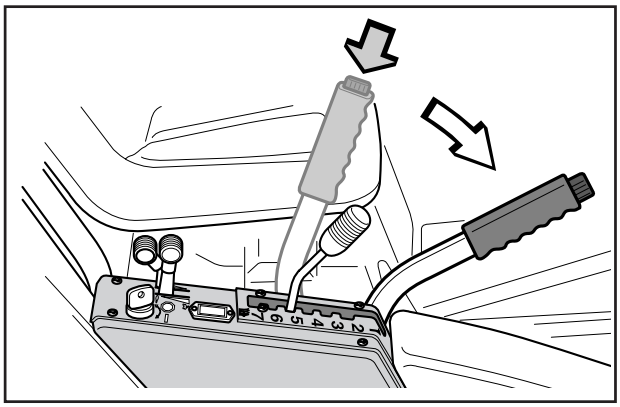


WARNING!
Make sure that branches do not obstruct the pedals when mowing under bushes, otherwise you may lose control.

3. Select the required cutting height (1–7) with the cutting height lever.

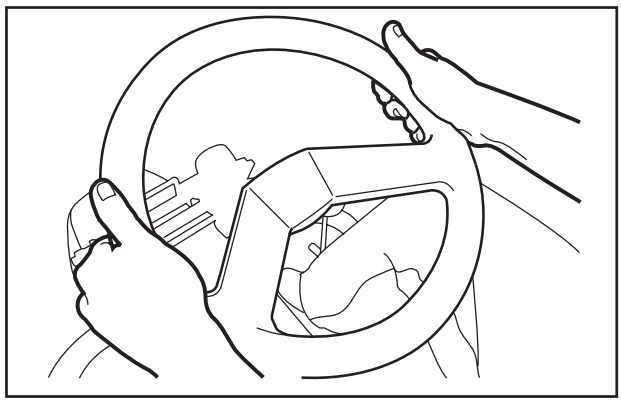


4. Push in the lock button on the lift lever and lower down the cutting unit.



Differential lock

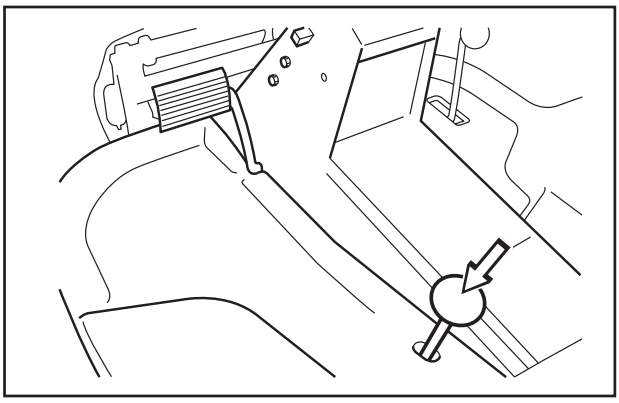
WARNING!
Don’t rest your thumbs inside the steering wheel. The wheel could jerk suddenly when the differential lock is engaged.



The differential lock can be engaged while moving using the pedal on the left.

To avoid getting stuck you should engage it just before you reach an obstacle.

1. Engage the differential lock when necessary by pressing the pedal. If one of the wheels spins, lighten the pressure on the accelerator slightly.
2. Make sure the differential lock disengages when the pedal is released. Make small steering movements or reverse a short distance until the pedal returns to its normal position.

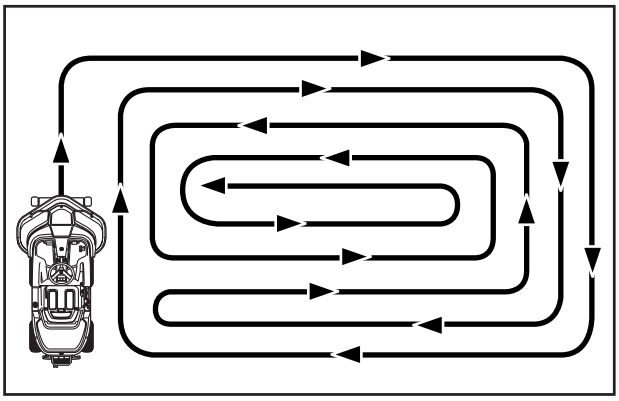


Cutting tips

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

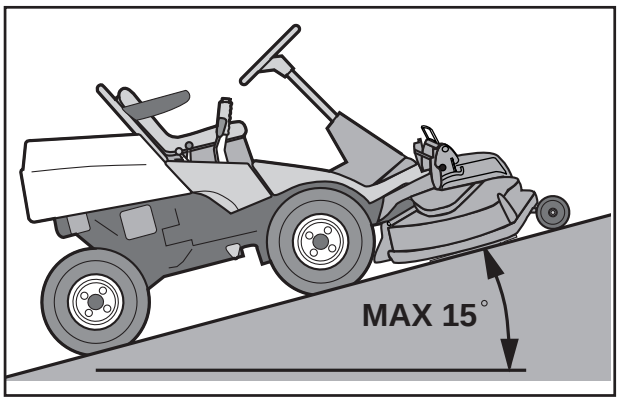
- Localise and mark stones and other fixed objects to avoid collision.
- Start with a high cutting height and reduce down until the required mowing results are obtained.
- The mowing results are best with a high engine speed (fast rotating blades) and low driving speed (slow moving machine). If the grass is not too high and thick the driving speed can be increased or the engine speed reduced without noticeably affecting the mowing results.
- 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 be raised into the service position when cleaning.
- If you use the BioClip unit it is important to mow the grass regularly.



Mowing pattern

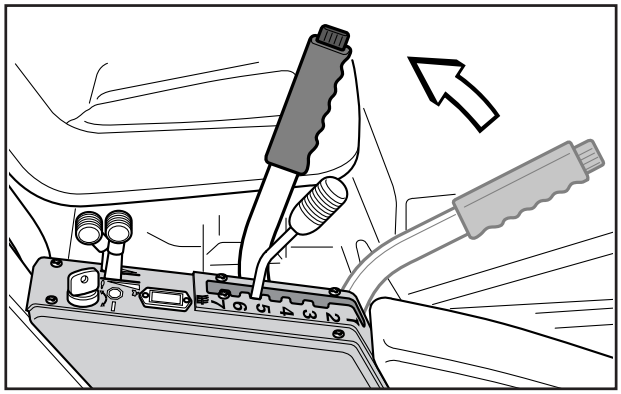
WARNING!
Never drive the machine on ground at an angle of more than 15°. Mow slopes upwards and downwards, never across. Avoid sudden changes in direction.



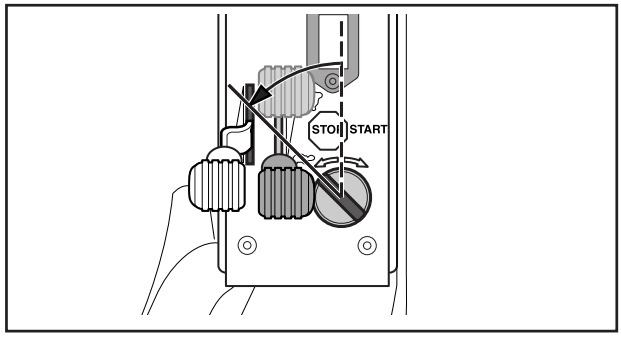
Stopping the engine

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

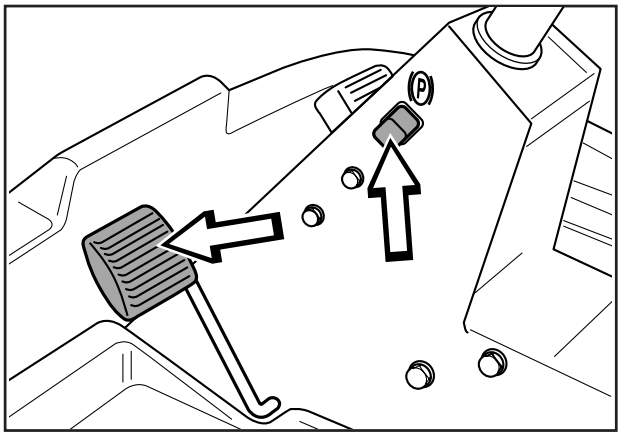
1. Lift up the cutting unit by pulling the lever back to the locked position.



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

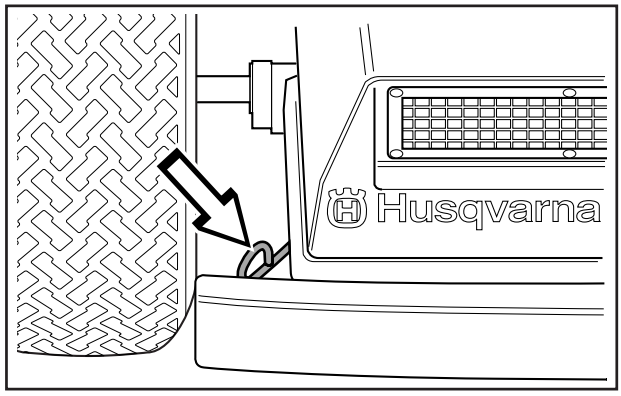


3. When the Rider is at a standstill, press down the parking brake and push in the locking button.



Disengage lever

The release control must be pulled out in order for the Rider to be moved when the engine is shutoff.



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	Daily maintenance after	Weekly[3] maintenance	At least once a year	Maintenance interval in hours 25	50	100	300
Check for fuel and oil leakage	-	❍							
Check the parking brake	25	●							
Check the engine oil level (when you refuel)	43	●							
Check the fuel pump air filter	27	●				●			
Check the seat safety switch	28	●							
Check the lift lever safety switch	28	●							
Check the parking brake safety switch	28	●							
Check/clean the engine cooling air intake	21		●			●			
Check the cutting unit:	29		●						
• blades are secure	33		●						
• condition of blades (sharpness, shape, etc.)	33		●						
• blade synchronisation (90° between BioClip)	33		●						
Check steering wires (for play, etc.)	22		●						
Check fasteners (screws, nuts, etc.)	-		❍						
Start engine and blades, listen for noise	-		❍						
Clean underside of cutting unit	33		●						
Clean transmission air intake	21		●			●			
Check battery acid level	28			●					
Check transmission oil level	45			●					
Check the condition of belts, pulleys, etc.	-			❍					
Check for damage	-			❍					
Check tyre pressures (60 kPa)	25			●					
Check for damage to wire guide at articulated joint	-			❍					
Clean thoroughly around engine	-			❍					
Clean thoroughly around transmission	-			❍					
Clean all belts, pulleys, etc.	41			●					
Lubricate the wire for the differential lock	42			●					
Lubricate belt tensioner (nipple)	45			●					
Lubricate triangle link (nipple)	44			●					
Lubricate the driver's seat	44			●					
Lubricate all wires	41			●					
Lubricate safety lock on cutting unit	44			●					
Lubricate inner stud on cutting unit	44			●					
Lubricate slot for cutting unit tool frame	44			●					
Lubricate bearing surfaces on cutting unit	44			●					
Clean inside frame tunnel	-			❍					
Lubricate pedal mechanism inside frame tunnel	41			●					
Lubricate the gear lever	43			●					
Lubricate the parking brake wire	45			●					

MAINTENANCE

Maintenance	Page	Daily maintenance before	Daily maintenance after	Weekly[3] maintenance	At least once a year	Maintenance interval in hours 25	50	100	300
Lubricate throttle control	44			●					
Lubricate choke control	44			●					
Smörj styrkedja i ramtunnel.	42			●					
Lubricate steering chain inside frame tunnel	22			●					
Clean engine cooling air intake	21				●	●			
Clean the air filter pre-filter (oil-foam)	26				●	●			
Change engine oil[1]	42				●			●	
Clean the air filter cartridge[2] (paper filter)	26				●		●		
Check/adjust cutting height setting	31				●		●		
Check/adjust parking brake	25				●		●		
Inspect flame guard/spark arrestor (optional equipment)	-				❍		❍		
Replace engine oil filter (every 200 hours)	45				●			●	
Clean/replace spark plugs	-				❍			❍	
Replace fuel filter in pipe	27				●			●	
Clean pulse-air filter	27				●			●	
Clean the cooling flanges	-				❍			❍	
Check engine valve clearance[4]	-				❍				❍
Check whether oil change[4] or filter change[4] are necessary for gearbox (every 500 hrs)	-				❍			❍	
Replace the air filter pre-filter (oil-foam)[2]	26				●				●
Replace air filter (paper filter)[2] (every 200 hours)	26				●			●	
Carry out 300 hour service [4]	-				❍				❍

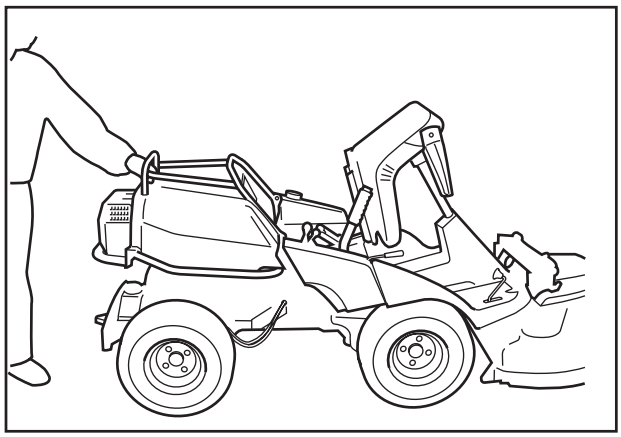
[1] First change after 8 hours. [2]When driving with a heavy load or when the ambient temperature is high, replace every 50 hours. Clean and replace the filter more often in dusty conditions. [3] For daily use of the machine lubrication should be conducted twice a week.
[4] Conducted by authorised service 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.**

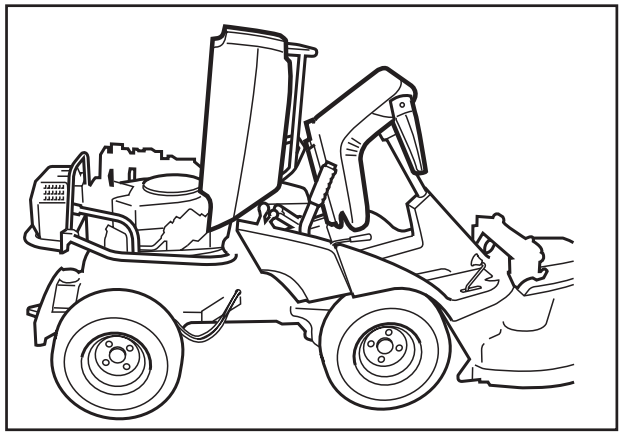
Dismantling of the machine hoods



Engine hood

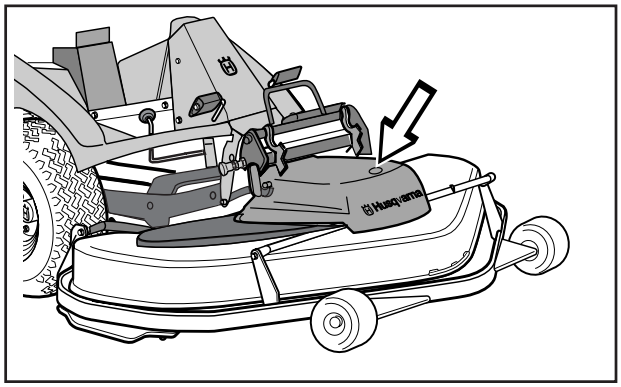
1. Tip up the seat.
2. Turn the main catch on top of the engine hood 1/4 turn anti-clockwise.
3. Lift up the engine hood.

If necessary the engine hood can be removed by taking out the hinge pins.



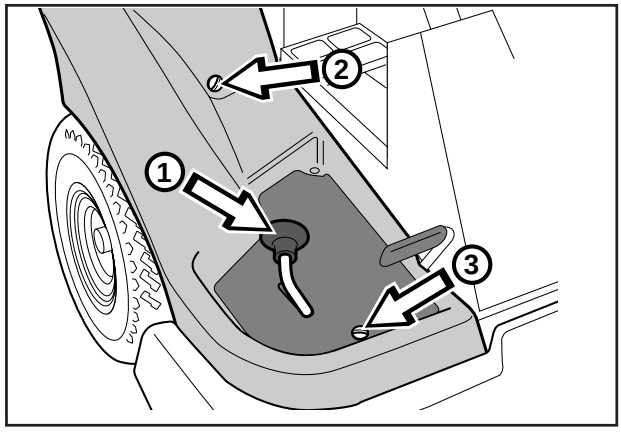
Nose

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

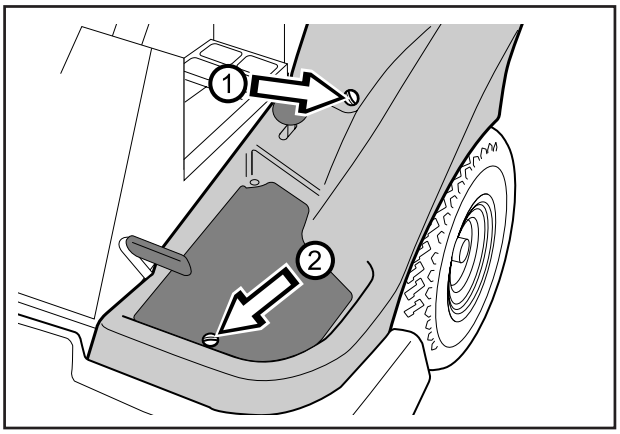


Right-hand fender

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

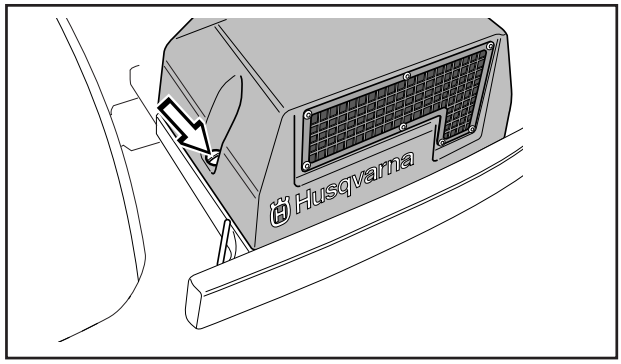


Left-hand fender
Disengage the wire from the differential lock pedal. Dismantle the screws (1 and 2), and lift off the fender.



Transmission cover

Undo the two screws (one on each side) and lift off the transmission cover.

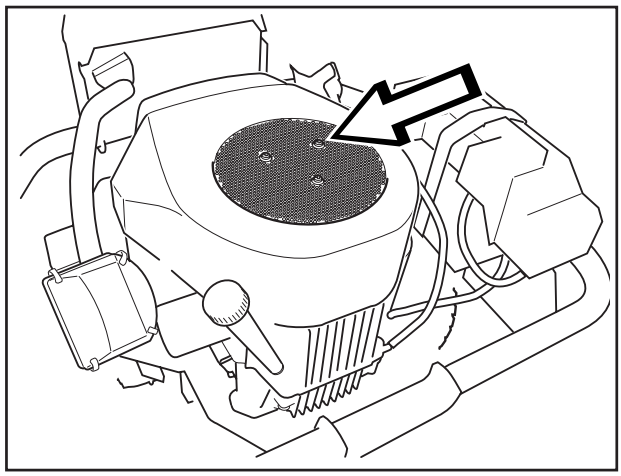


Check the engine's cooling air intake

Open the engine hood.

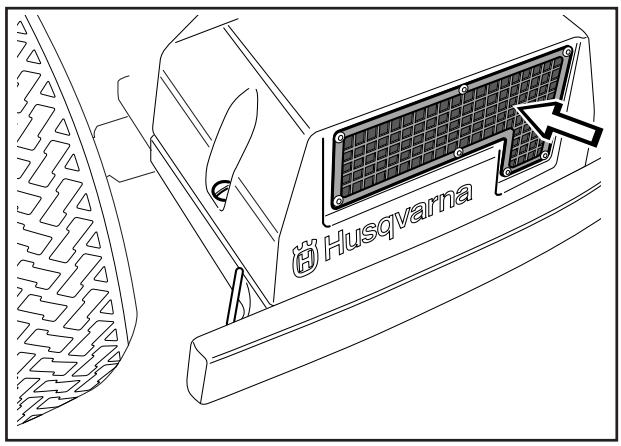
Check that the cooling intake is free from leaves, grass and dirt.

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



Check the transmission's air intake

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



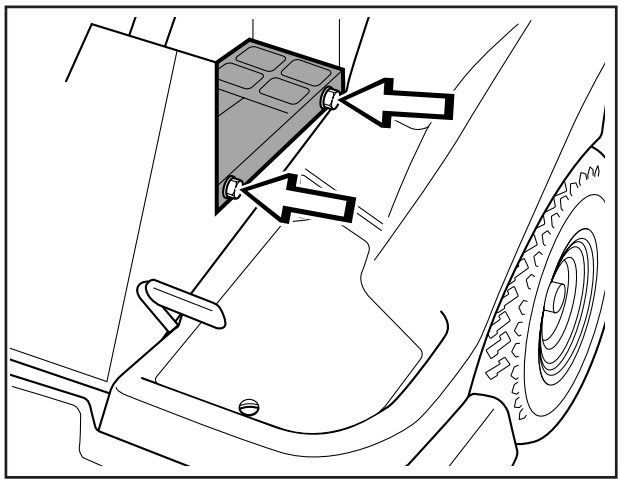
Checking and adjustment of the steering wires

The steering is controlled by means of wires.

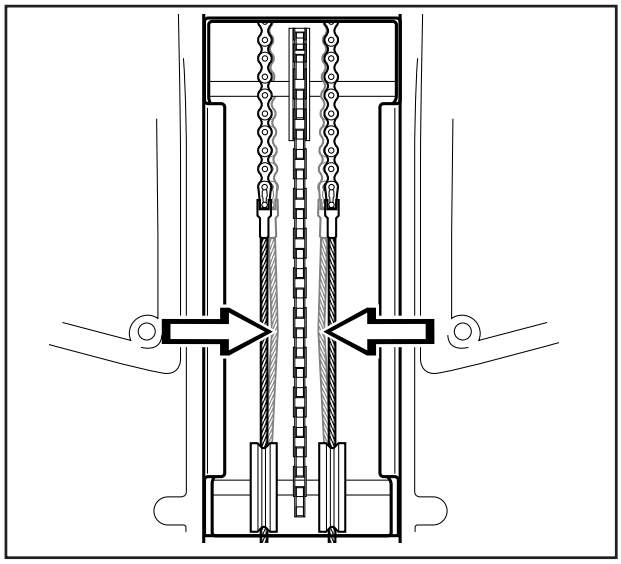
These can in time become slack, which implies that the adjustment of the steering becomes altered.

Check and adjust the steering as follows:

1. Dismantle the frame-plate by releasing the screws (two on each side).

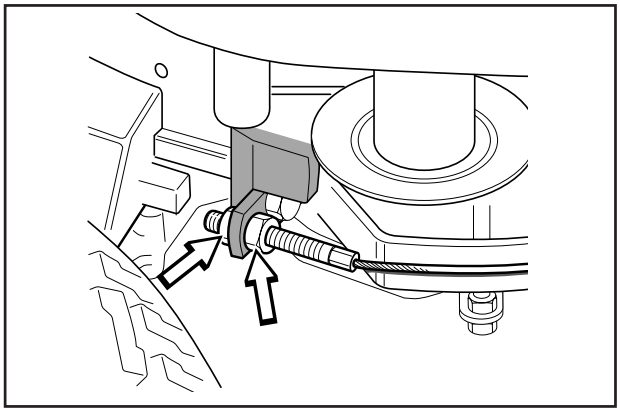


2. Check the tension of the steering wires by pushing them together (at the arrows).
   It should be possible to push them together so that the distance between them is half as much, without using unnecessary force.

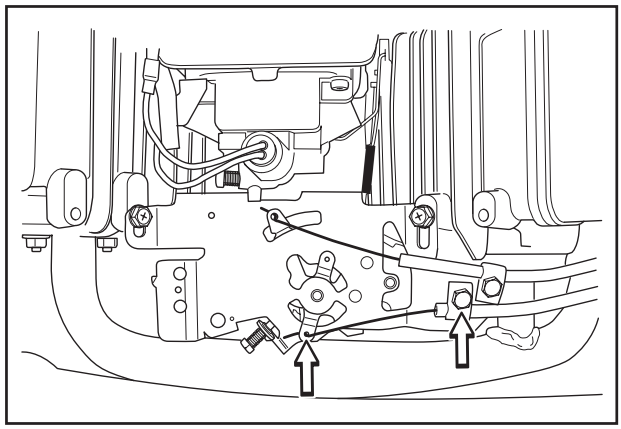


3. When necessary the wires can be tensioned by tightening the adjusting nuts (one on each side of the machine).
   Do not tension the wires too tightly, they should only be *tightened up* to the steering rim.

   Check the wire tension on completion of the adjustment as per item 2.



Checking and adjustment of the throttle wire



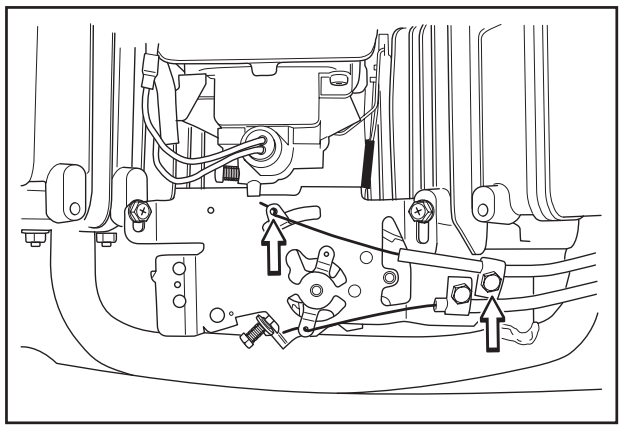
Check that the engine responds to the throttle control and that the correct engine speed is achieved at full throttle.

If in doubt, contact the service workshop

If adjustment is necessary, adjust the lower wire as follows:

1. Release the clamping screw that secures the wire casing and set the throttle control to full throttle.
2. Check that the throttle wire is attached to the correct hole in the lower lever, see diagram.
3. Pull the throttle wire casing to the far left and tighten the clamping screw.

Checking and adjusting the choke wire



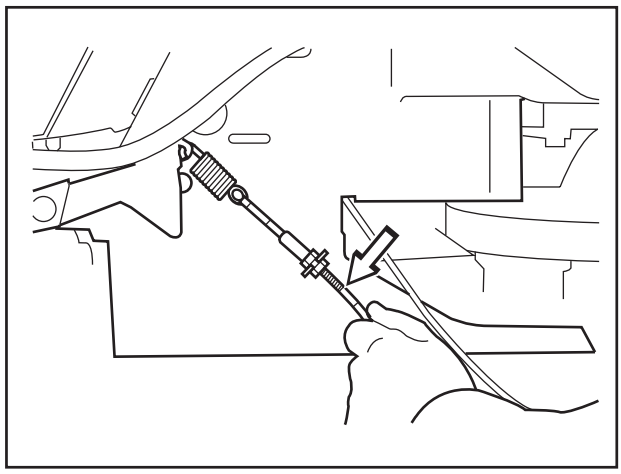
If the engine is producing black smoke or is difficult to start then the choke wire (upper wire) may be incorrectly adjusted.

If in doubt contact your service workshop.

If it is necessary to adjust the choke, proceed as follows:

1. Release the clamping screw that secures the wire casing and set the choke control to maximum choke.
2. Check that the throttle wire is attached to the upper lever, see diagram.
3. Pull the choke wire casing to the far right and tighten the clamping screw.

Adjusting the differential lock



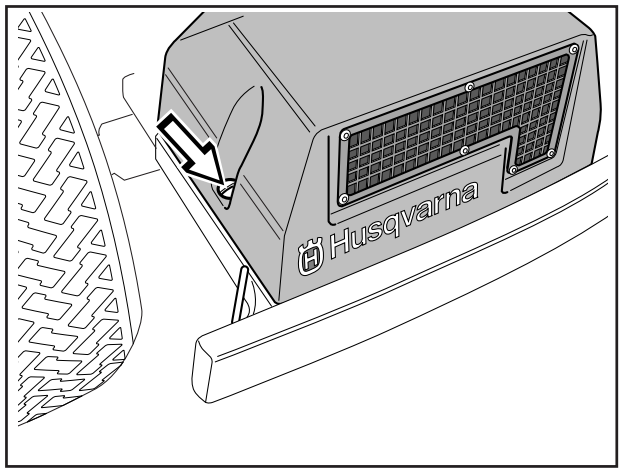
The differential lock (on the left) is adjusted as follows:

1. Make sure the differential lock is disengaged, with the pedal fully raised.
2. Adjust so there is zero play between the outer cable and the adjuster screw, using the two nuts on the adjuster screw. You should not feel any play when you pull the outer cable.
3. Tighten the nuts carefully to avoid damaging the adjuster screw.

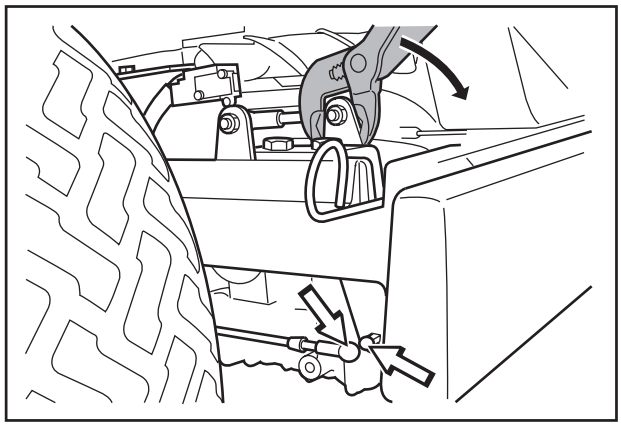
Adjusting the hydrostatic wire

The hydrostatic wire (on the left) is adjusted as follows:

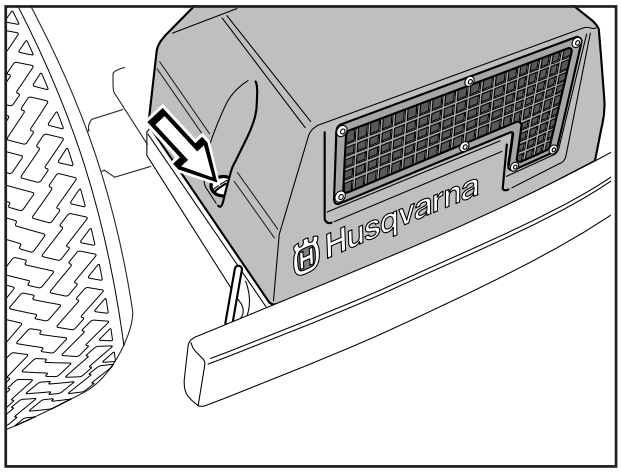
1. Remove the transmission cover. Unscrew the two screws (one on each side) and lift off the transmission cover.
2. Separate the lower ball joint, which is secured with a spring clip.
3. Make sure the forward drive pedal is fully depressed.



4. Raise the arm as far as possible and check that the ball and socket of the lower ball joint match up.
5. Adjust the socket on the wire if required.
6. Reassemble the low ball joint.
7. Refit the ball joint spring clip.

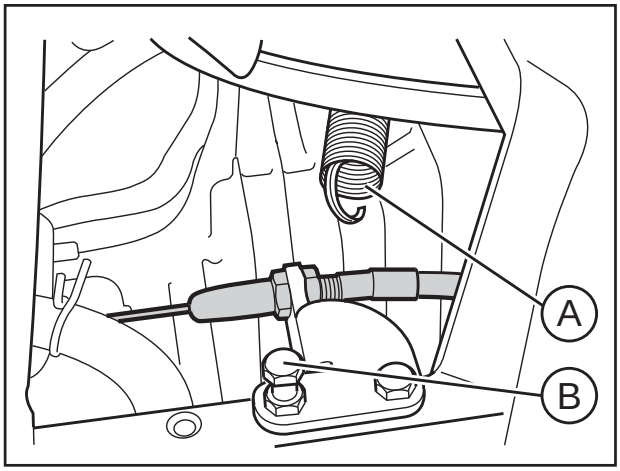


Adjusting the brakes



The parking brake (on the right) is adjusted as follows:

1. Remove the transmission cover. Unscrew the two screws (one on each side) and lift off the transmission cover.
2. Unhook the spring (A) from the screw (B).

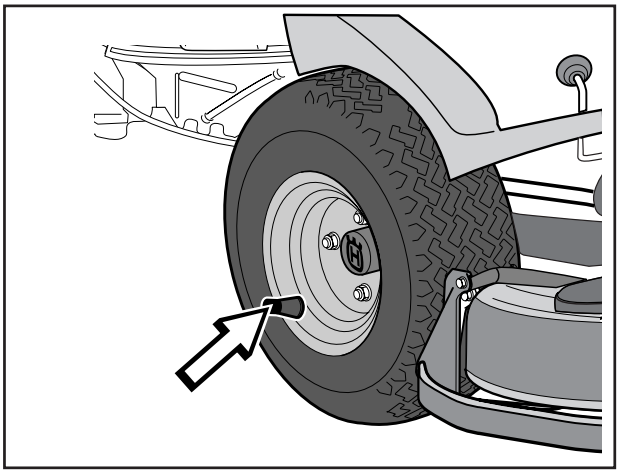


3. Make sure the parking brake is released.
4. Adjust so there is 1 mm play between the outer cable and the adjuster screw when you pull the outer cable.
   Adjust the adjuster screw using the nuts.
5. Tighten the nuts carefully to prevent damaging the adjuster screw.
6. Refit the spring (A).

7. Check that the brake works.

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

Checking the tyre pressure



Check tyre pressure (60 kPa, 0.6 bar).

To improve driving the pressure on the rear tyres can be reduced to 40 kPa (0.4 kp/cm^2).

The maximum tyre pressure is 100 kPa (1.0 kp/cm^2).

IMPORTANT INFORMATION

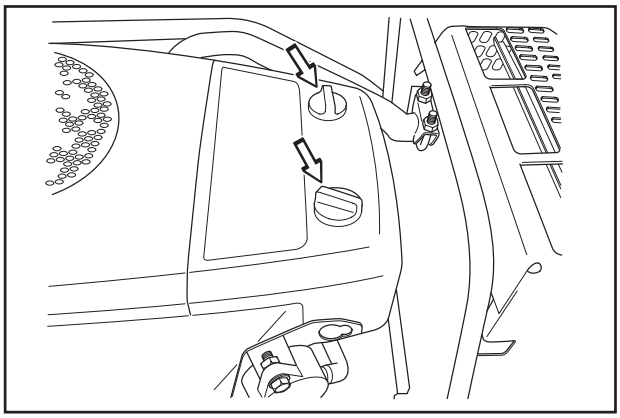
Different tyre pressures on the front tyres will result in the blades cutting the grass at different heights.

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 17-18 for correct service interval).

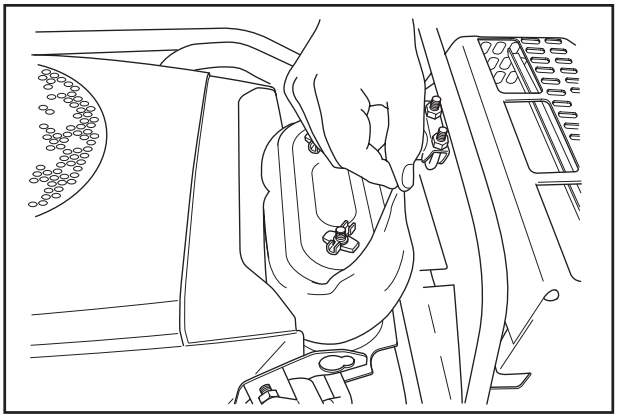
Clean/ replace the air filter as follows:

1. Raise the engine hood.



WARNING!
Let the exhaust system cool down before servicing it, otherwise you could burn yourself.

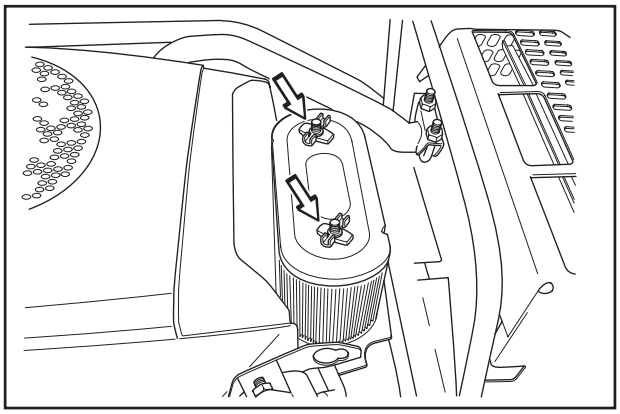
2. Unscrew the two plastic knobs from the top of the air filter cover and remove the air filter cover.



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

   Squeeze it dry in a clean cloth.

4. Unscrew the wing nut from the air filter and lift out the paper filter. Tap the filter against a hard surface to shake off the dust. If the paper filter is still dirty it should be replaced.



IMPORTANT INFORMATION

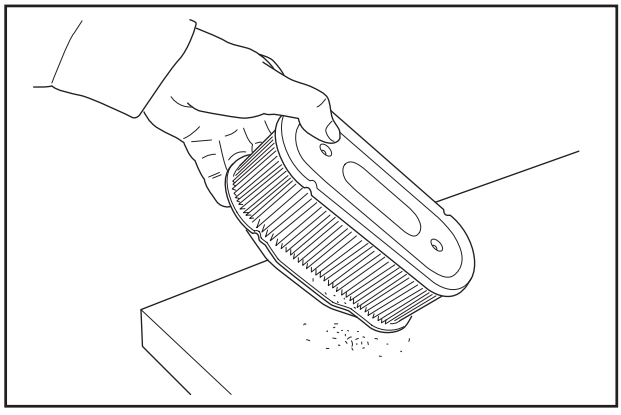
Do not use compressed air to clean the paper filter.

Do not wash the paper filter.

Do not oil the paper filter.

5. Refit the air filter as follows:

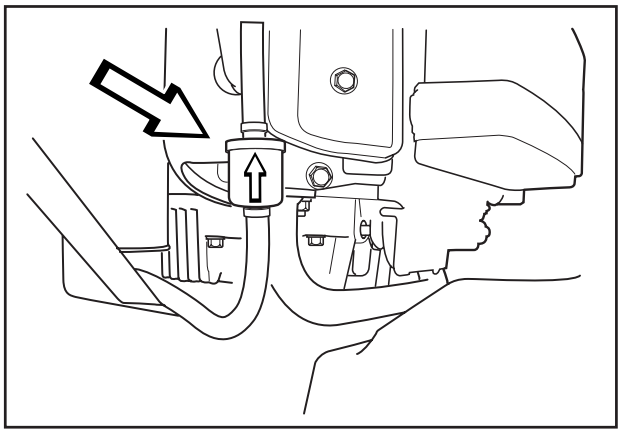
   Check that the seal on the underside of the paper filter is intact. Fit the paper filter in the air filter housing and tighten the wing nuts.



6. Fit the pre-filter over the paper filter.

7. Refit the cover on the air filter housing. Do not over-tighten the plastic knobs.

Replacement of the fuel filter

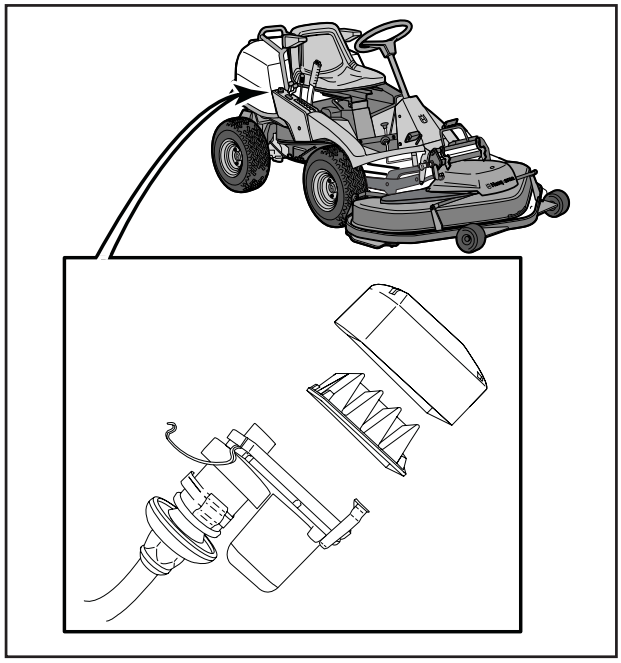


Replace the fuel filter every 100 running hours (once per season) or more frequently if it is clogged.

Replace the filter as follows:

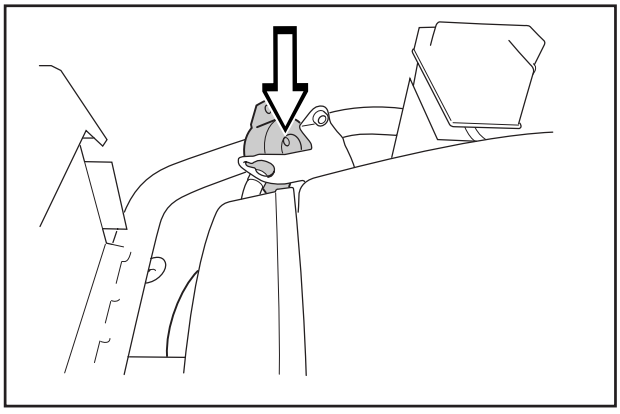
1. Open the engine hood.
2. Move the hose clips away from the filter. Use a pair of flat pliers.
3. Pull off the filter from the hose ends.
4. Press the new filter into the ends of the hoses. Turn the filter so that the “FLOW” arrow is pointing upwards towards the fuel pump. If necessary apply liquid detergent to the ends of the filter to facilitate connection.
5. Push the hose clips back on the filter and tighten.

Cleaning the pulse air filter



1. Open 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.

Checking of the fuel pump’s air filter

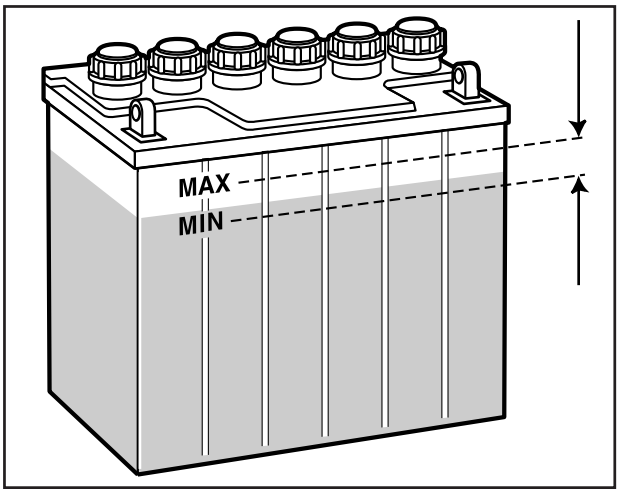


Check regularly that the fuel pump’s air filter is free from dirt.

The filter can when necessary be cleaned with a brush.

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.

Inspecting the safety system

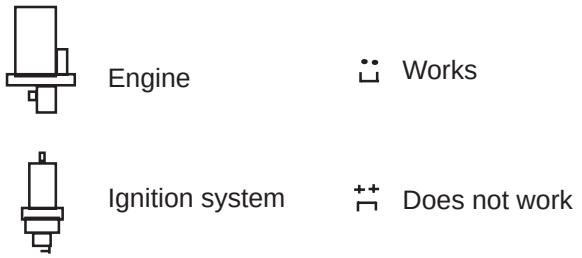
The Rider is equipped with a safety system that prevents starting or driving under the following conditions:

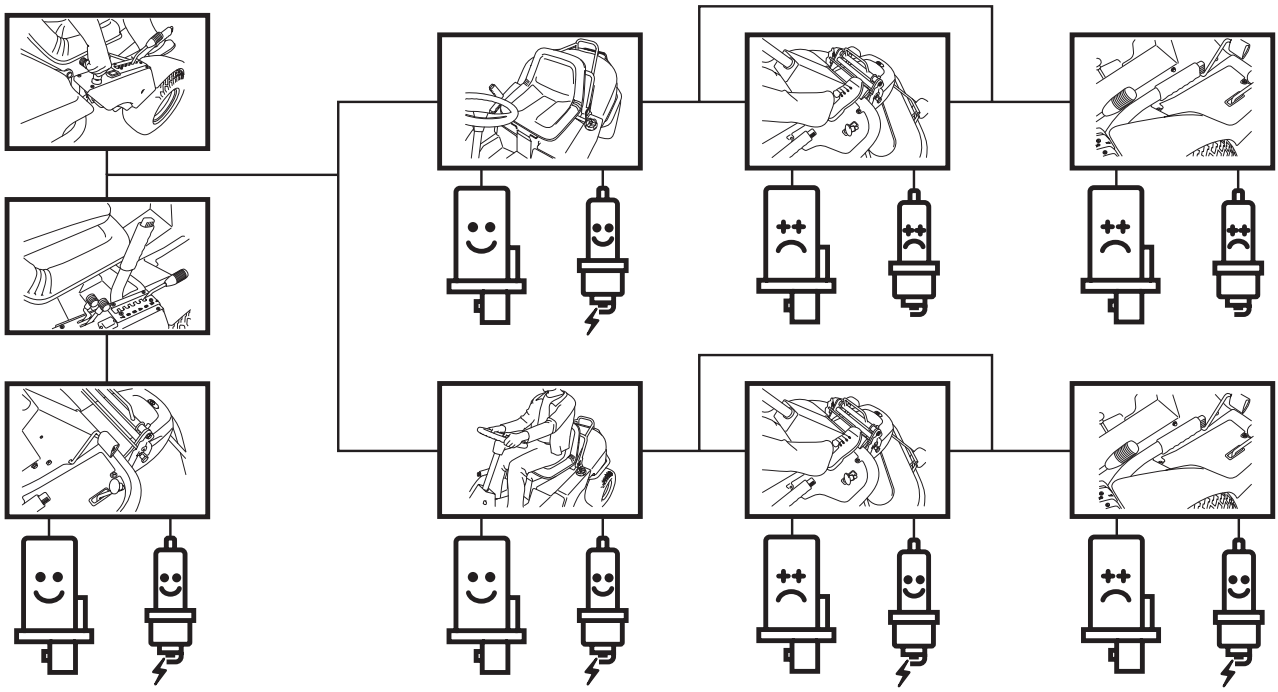
The engine should only be possible to start when the cutting unit is in its raised position and the hydrostat pedals are in the neutral position.

The driver does not need to be seated in the driver's seat.

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

Check that the engine stops if you temporarily move out off the driver's seat while the cutting unit is lowered or the hydrostat pedals are not in the neutral position.



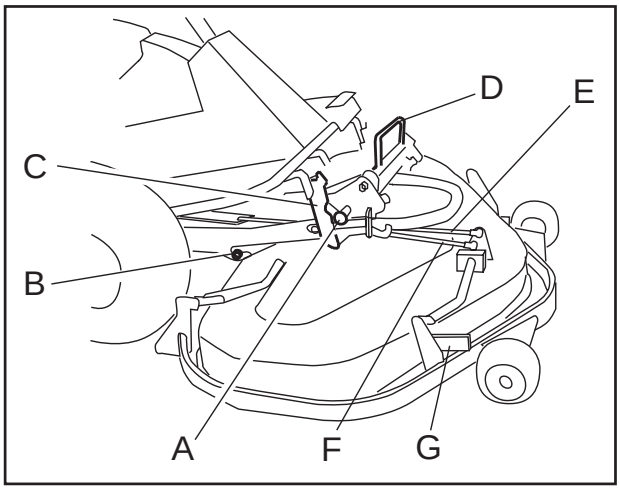


The parts of the cutting unit

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
B. Inner pin
C. Hook guard
D. Handle
E. Height setting arm
F. Parallel strut
G. Lowest height setting stop

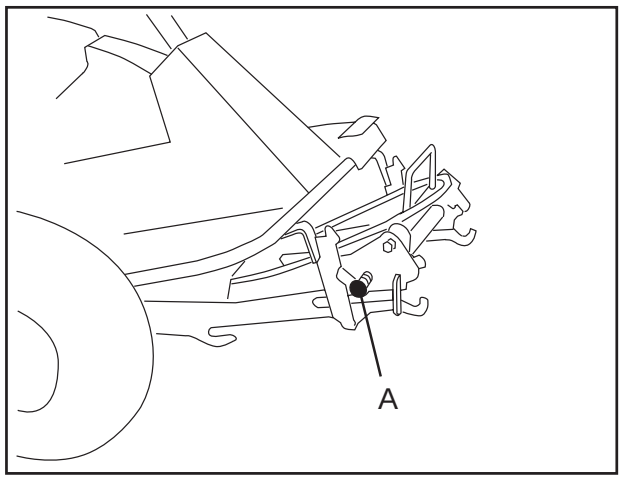


Fitting the cutting unit

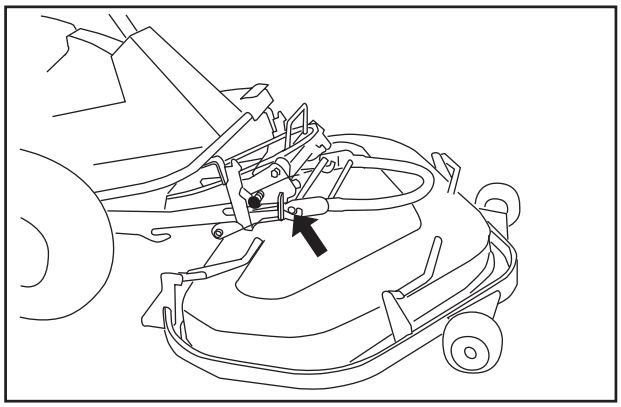
WARNING!
Take care. Risk of crushing injury.

Starting point for fitting the unit:

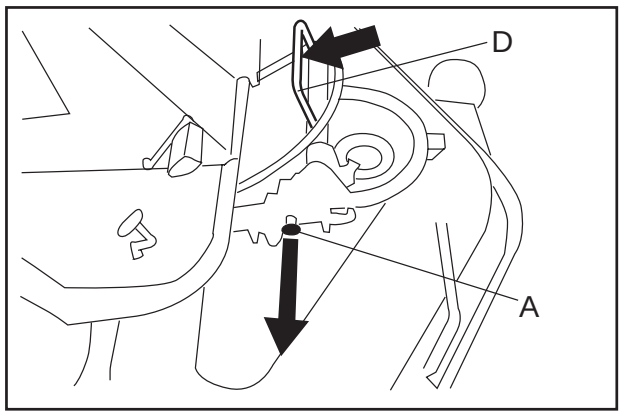
- Place the Rider on a level surface.
- Apply the brakes by pressing down the pedal and lock using the pushbutton.
- The attachment frame in the lowered position.
- The attachment frame locked with the hook guard and the catch (A) in the loaded position.
- Attachment frame mounted on cutting unit, see “Removing the attachment frame”



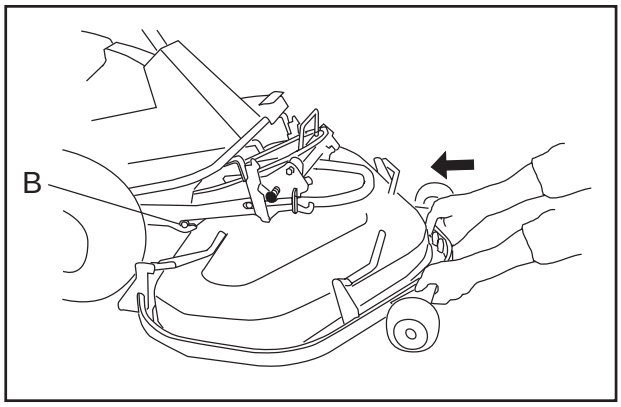
1. Fit the unit in the attachment frame’s outer hooks.



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

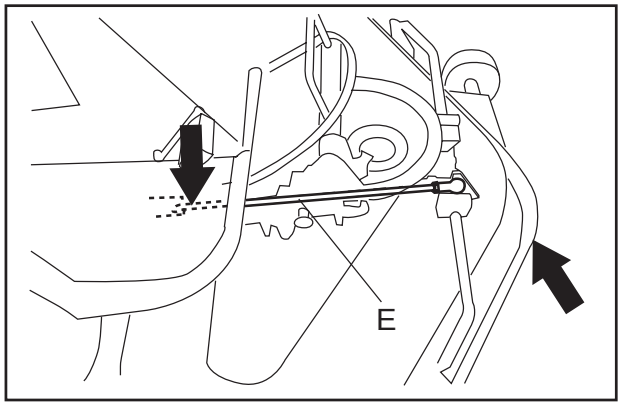


4. Slide in the unit so that the inner pins (B) bottom in the attachment frame's groove.



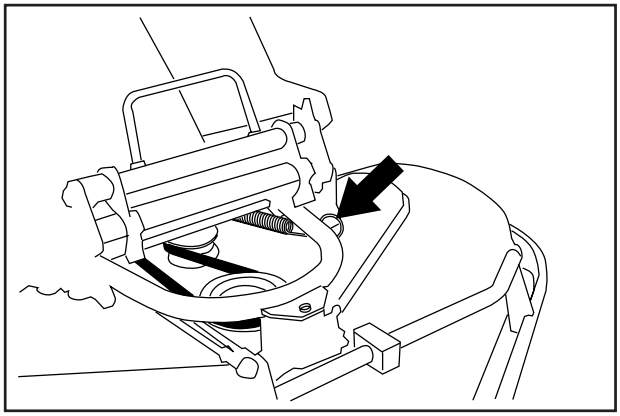
5. Hook the rear end of the height adjustment arm (E) in place:

   Set the cutting height lever to the forward position. Release the pressure from the arm if necessary by lifting or pushin down on the front of the frame.



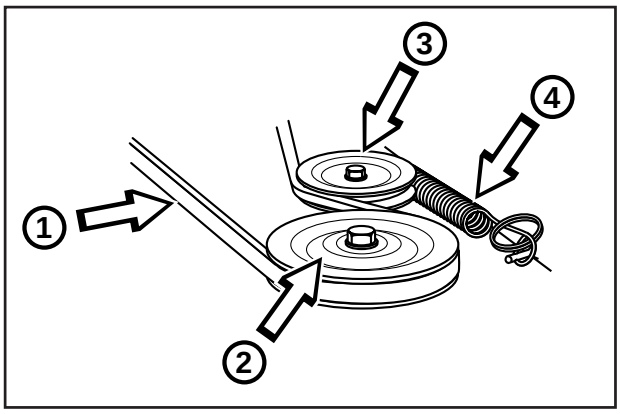
WARNING!
Watch your fingers. Do not turn the blades or belt.

6. Disconnect the belt adjuster spring and fit the belt over the front pulley. The new belt will be shorter. If necessary, fit a spanner over the centre bolt and turn the front pulley.
7. Hook on the belt adjuster's spring again.



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

Belt diagram



1. Drive belt
2. Front pulley
3. Tension roller
4. Belt adjuster spring

8. Refit the nose.

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.

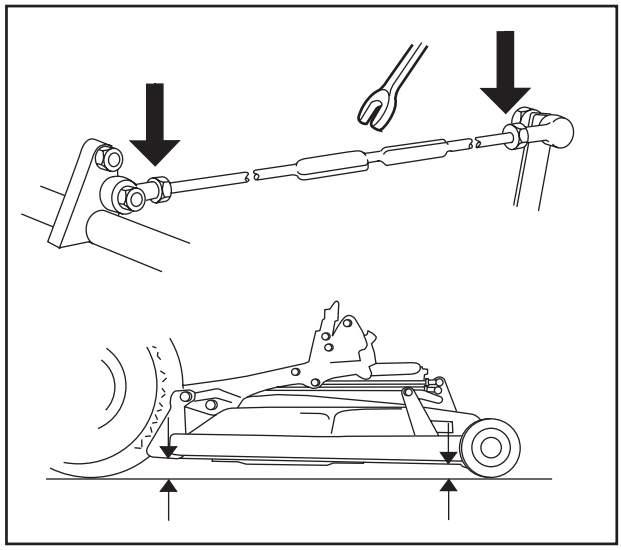
Starting point:

1. Checking the tyre pressure 60 kPa (0.6 kp/cm^2).
2. The cutting unit should be lowered on a level surface.
3. The height setting lever should be set for the lowest cutting height.

Parallelism

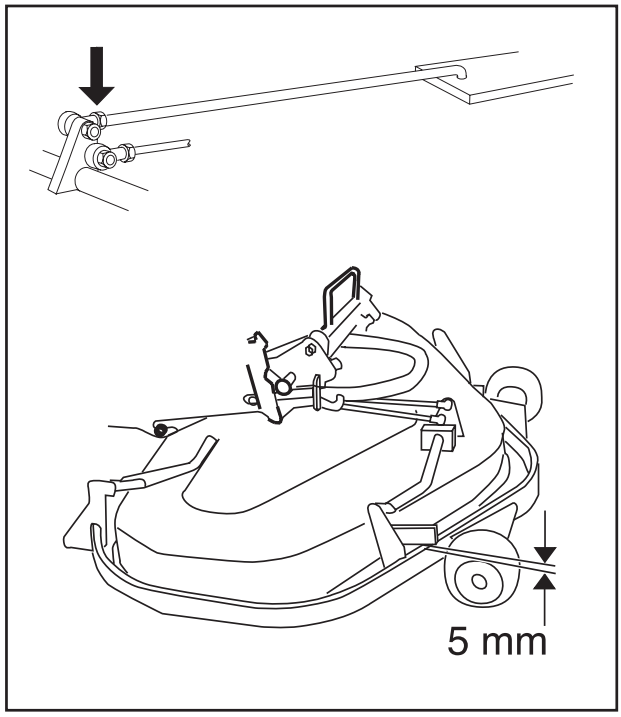
Always start by adjusting the parallelism.

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

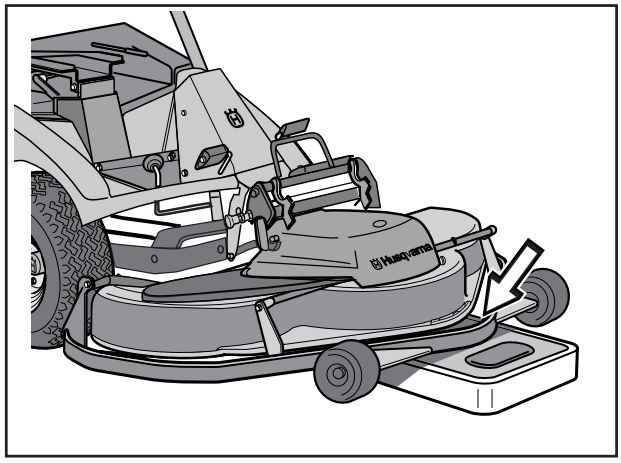
1. Loosen the nuts on the height setting arm.
2. Adjust so that the distance between the stop for the lowest height setting and the protective frame is 5 mm.
3. Tighten the nuts.
4. Check that the parallelism has not changed. If it has changed, the parallelism must be readjusted again.
5. Check and,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



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

Checking and adjustment of the cutting unit's ground pressure

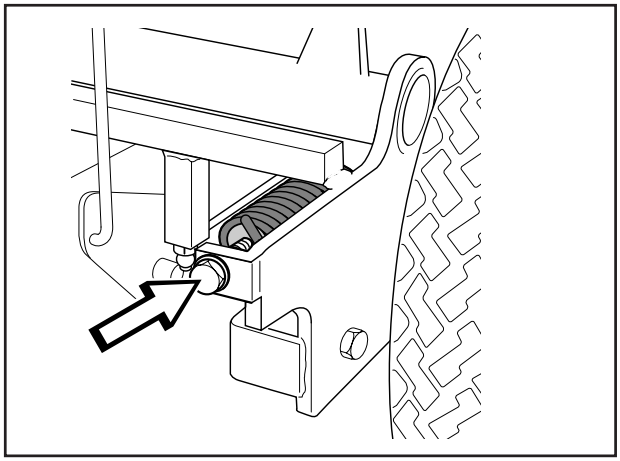
To achieve the best cutting results the cutting unit should follow the underlying surface without pressing too hard against it.
The pressure is adjusted with a screw on each side of the machine.



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.

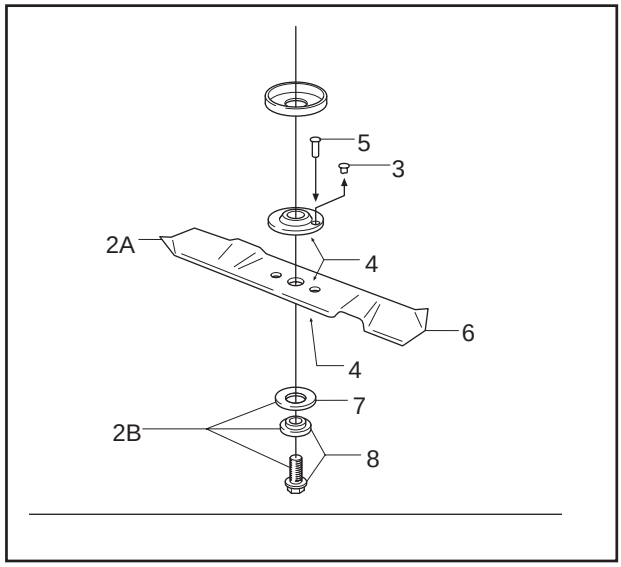
   The ground pressure should be between 12 and 15 kg.



Replacing the break-pin (BioClip 103)

The blades are fitted with a break-pin to protect the BioClip unit and its drive when colliding with obstacles. A domed, spring friction washer is fitted to each blade bolt. The washer must always be replaced with a new washer if the blade bolt is loosened. Otherwise the break-pin can break causing the blades to collide.

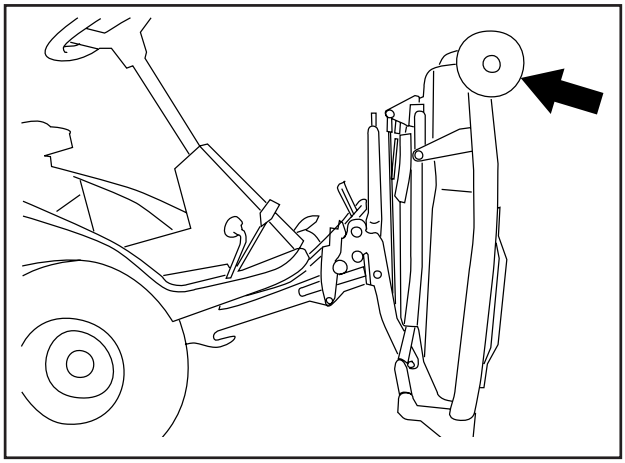
Only use original spare parts. A set containing a blade, break-pin and friction washer can be purchased from your dealer.



1. Put the unit in the service position, see "Placing in the service position".
2. Remove the blade (2A) by removing the blade bolt with washer and friction washer (2B).
3. Remove the remains of the broken break-pin (3).
4. Make sure the contact surfaces (4) on the blade and the blade mounting are free from metal. Clean if necessary.
5. Fit **one** new break-pin (5) in the blade mounting.
6. Fit the blade (6), make sure it is fitted as illustrated.
7. Fit a **new** friction washer (7) with the concave face turned towards the blade.
8. Fit the blade bolt with washer (8). Tightening torque 45-50 Nm (4,5-5 kpm)

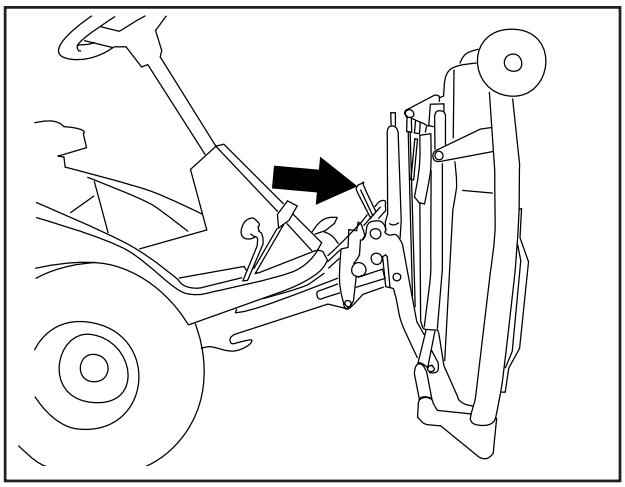
Service position for the cutting unit

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 “Removing the cutting 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

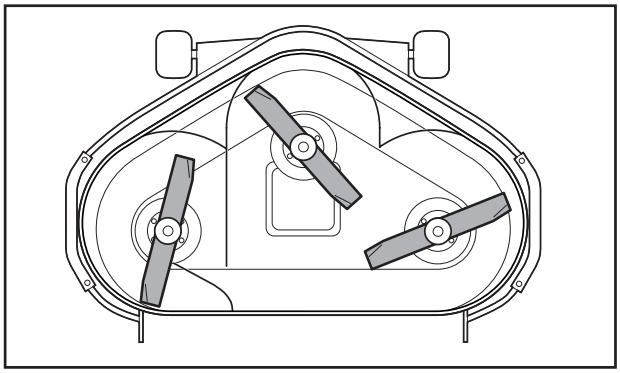
1. Loosen the top edge of the unit (move it backwards), move the handle forwards and slowly lower the unit to its horizontal position.
2. Slide the unit into its working position by carrying out sections 4–8 under “Fitting the cutting unit”.

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, (45–60 Nm, 33–44 lb.ft)

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



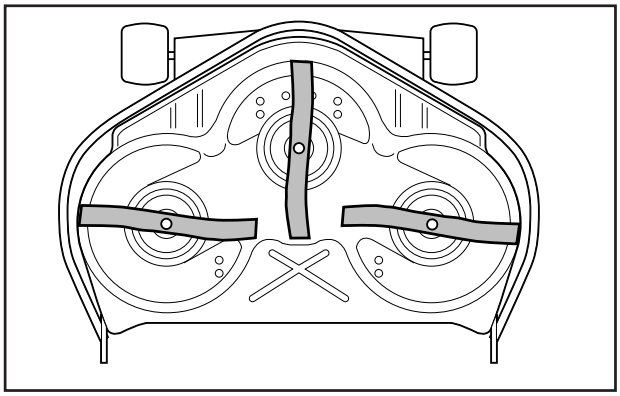
Cutting unit with rear ejector

IMPORTANT INFORMATION

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

The blades should be balanced after sharpening.

Damaged blades should be replaced when hitting obstacles that result in a breakdown. Let the servicing dealer judge whether the blade can be repaired/ground or must be discarded.



BioClip unit

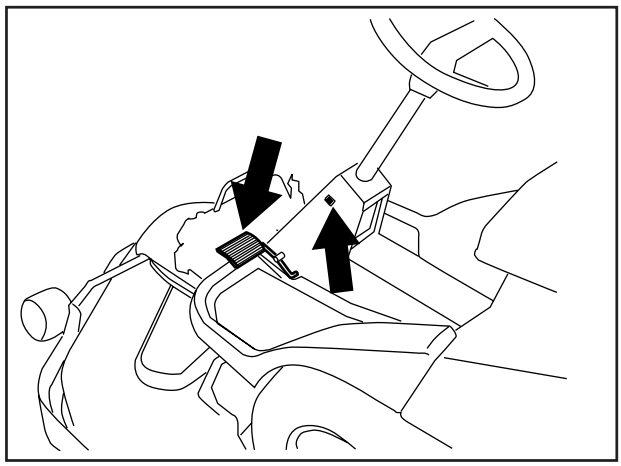
IMPORTANT INFORMATION

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.

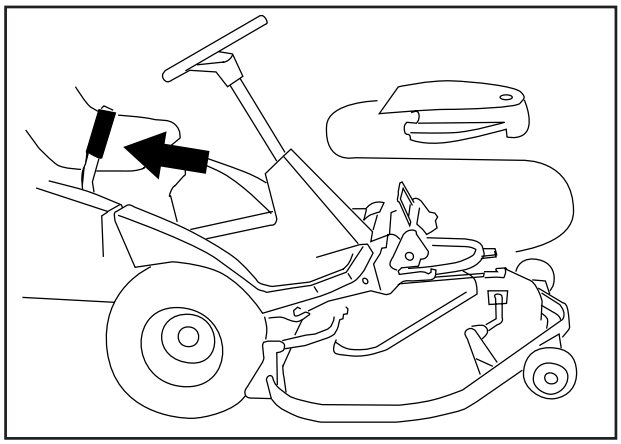
Dismantling the cutting unit

WARNING!
Take care. Risk of crushing injury

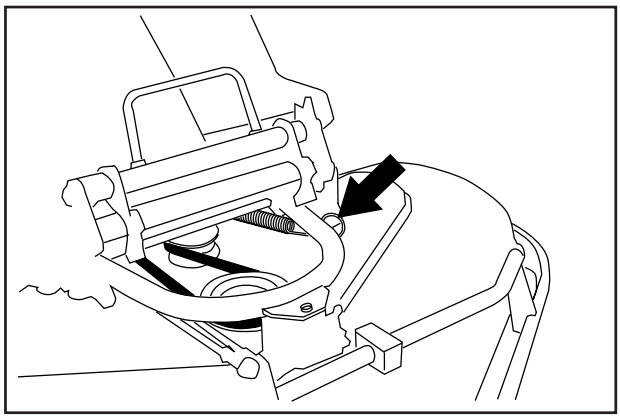
1. Place the Rider on a level surface.
2. Apply the brakes by pressing down the pedal and lock using the pushbutton.



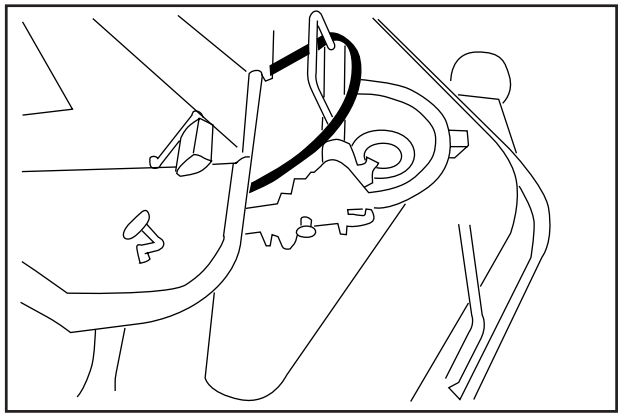
3. Lift up the unit using the lifting lever.
4. Remove the nose.



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

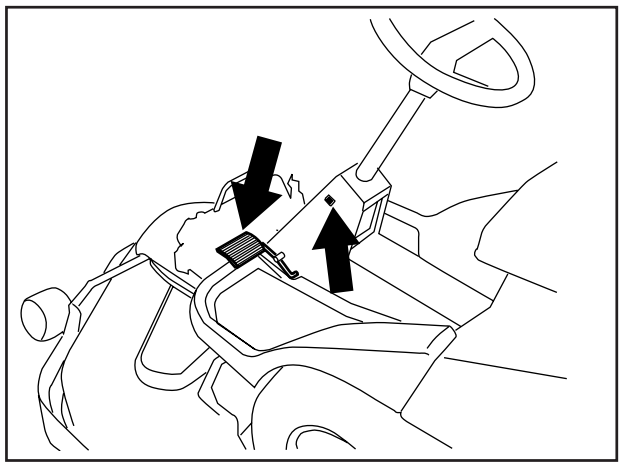


8. Hang the belt around the handle.

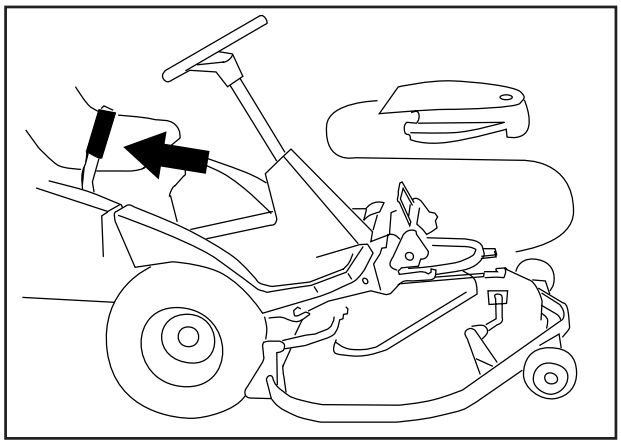


9. Unhook the height adjustment arm (E) by raising the rear of the arm:

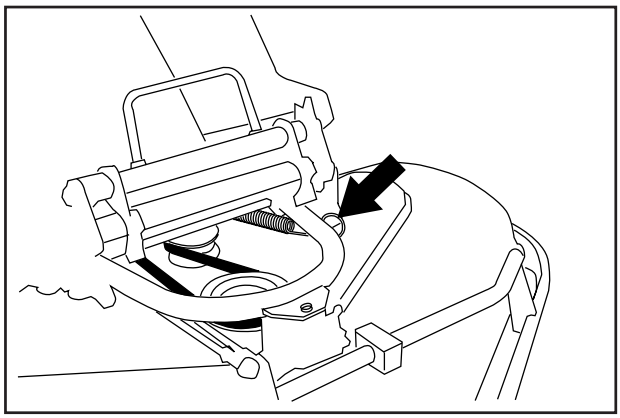
   Release the pressure from the arm if necessary by lifting or pushing down on the front of the frame.



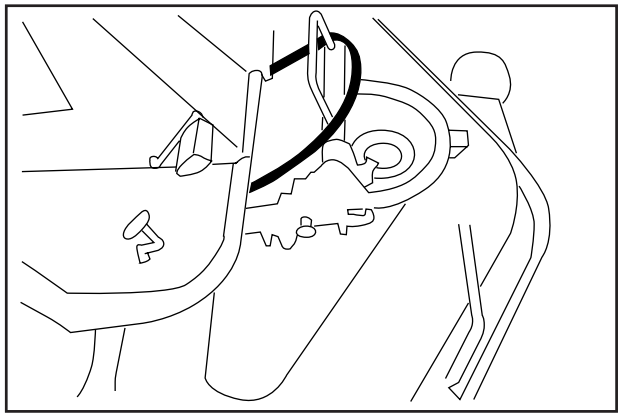
10. Pull the handle (D) and the unit simultaneously. Release the handle when the unit has come out a bit.



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 (D) so that the hook guard locks. Check that the catch (A) is fully engaged.
14. Lift the unit off of the Rider.

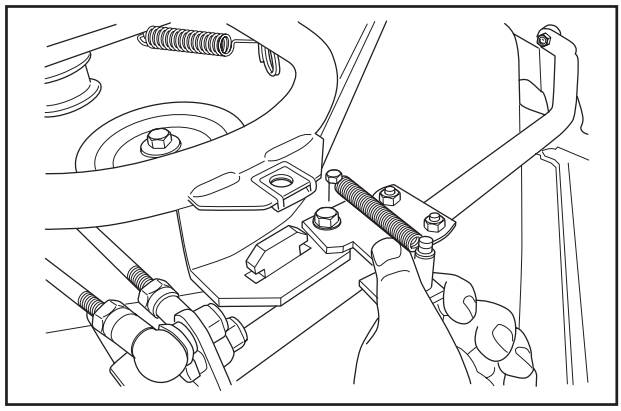


Removing the attachment frame

Starting point for removing attachment frame:

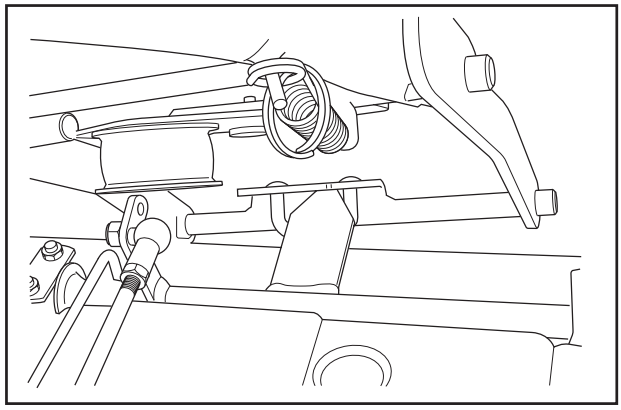
- Cutting unit must be removed.

1. Release the catch so that the front mounting can be lifted clear of the cutting unit.



2. Slide the attachment frame backwards so that the tongue on the cutting unit is clear of the slot in the attachment frame, then lift off the frame.

   Refit in reverse order.

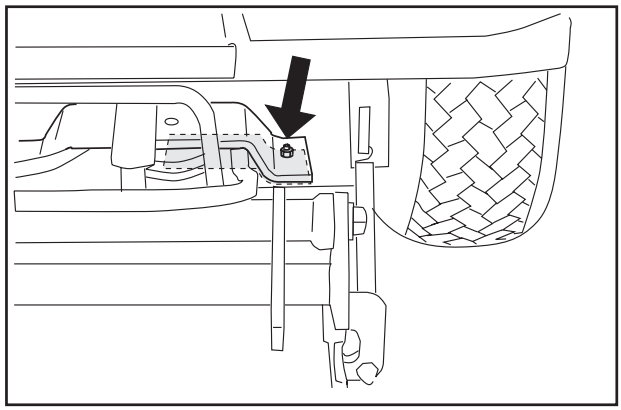


Dismantling the belt

Starting point when dismantling the belt:

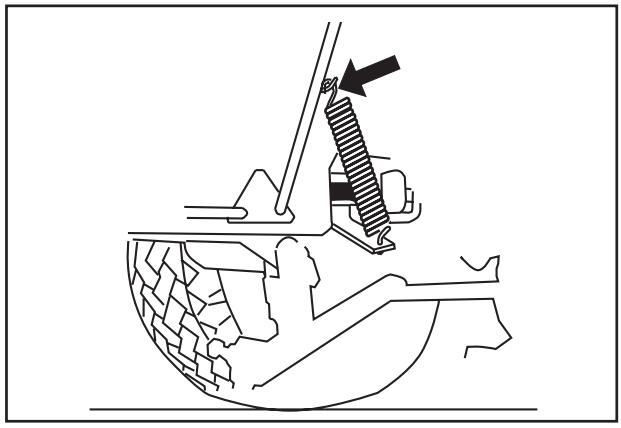
- No unit attached to the Rider.
- The front of the belt is hung around the hook guard's handle.

The method of disengaging the front section of the belt from the front pulley is described in steps 5–8 under "Removing the cutting unit".



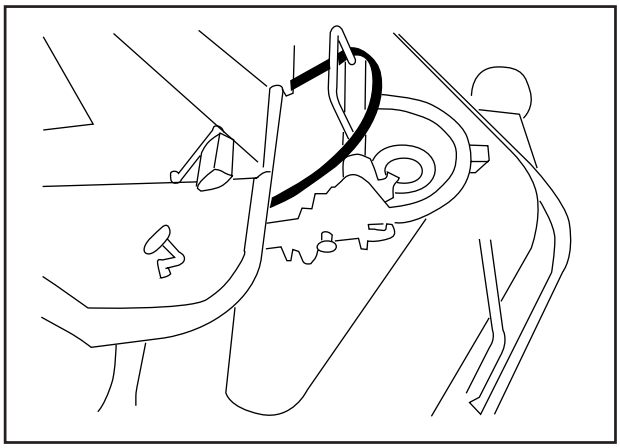
The entire belt is only dismantled as set out below, when the snow plough is fitted on the Rider.

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.

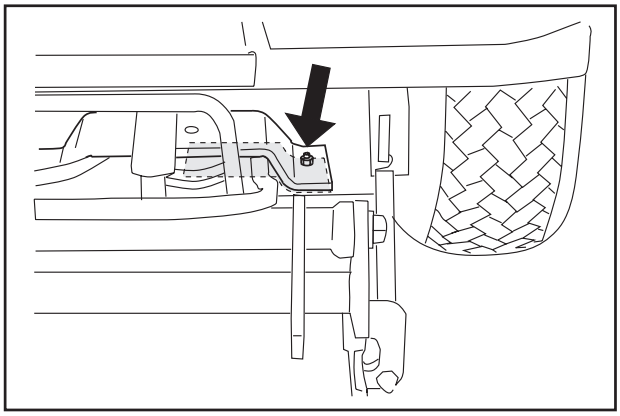


Assembling the belt

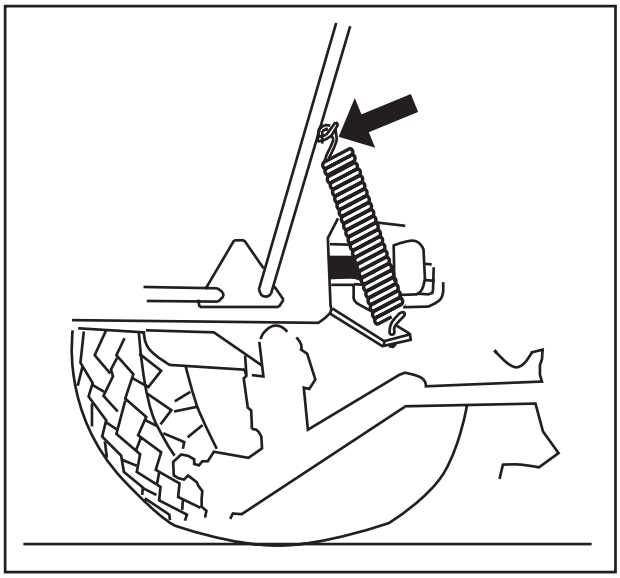
1. Position the belt from the front and let the front end of the belt hang around the hook guard's handle.
2. Fit the belt on the intermediate pulley and against the support wheel.



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.



The method of fitting the belt over the front pulley is described in steps 6–7 under "Fitting the cutting unit".

Replacing the cutting unit's belts

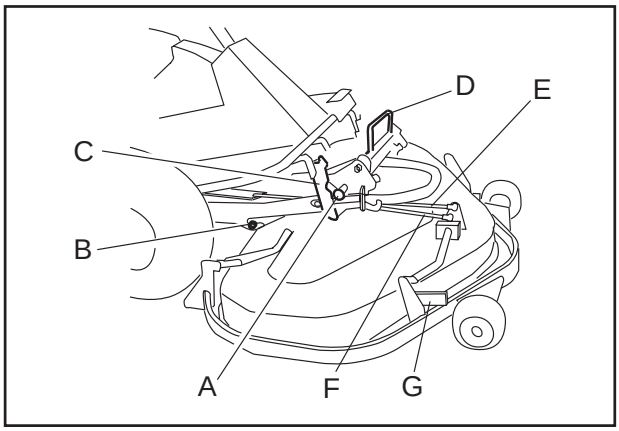
Belt replacement on BioClip 103

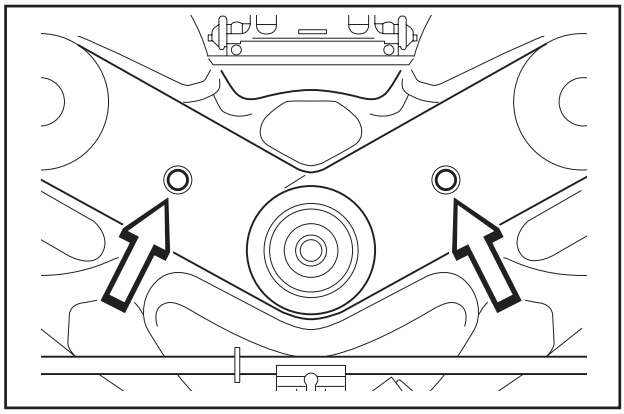
There are two versions of BioClip 103. Version 1 has a single toothed belt and version 2 has two belts. The toothed belts drive the blades and synchronise their rotation. The belts are located under a cover on top of the cutting unit.

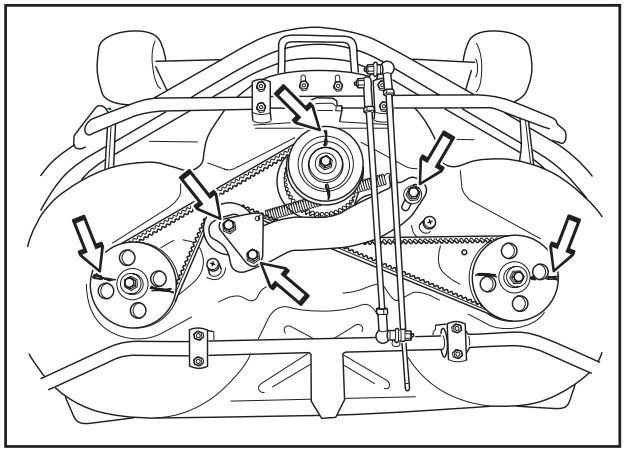
1. Remove the cutting unit, see page 34.
2. Remove the attachment frame, see "Removing the attachment frame".
3. Tilt the height adjustment arm (E) forwards. Unscrew the front bolt from the parallel strut (F) and tilt the strut backwards.
4. Undo the two screws that hold the protective cover and lift off the cover.

   Useful hint: Mark the positions of the blades on each belt using a felt-tip pen.
5. Version 1:

   Unscrew the three screws 1/2 - 1 turn. Press the sides of the belt together to give maximum slack and tighten one of the screws. Replace the belt and tension it as shown (see decal on cover). Set the blades at 90° to each other and undo the screw again. The spring will set the correct belt tension. Check the positions of the blades again, and adjust if necessary by repositioning the belt on the teeth. Tighten the three screws to a torque of 45 Nm.







BioClip 103 Version 1

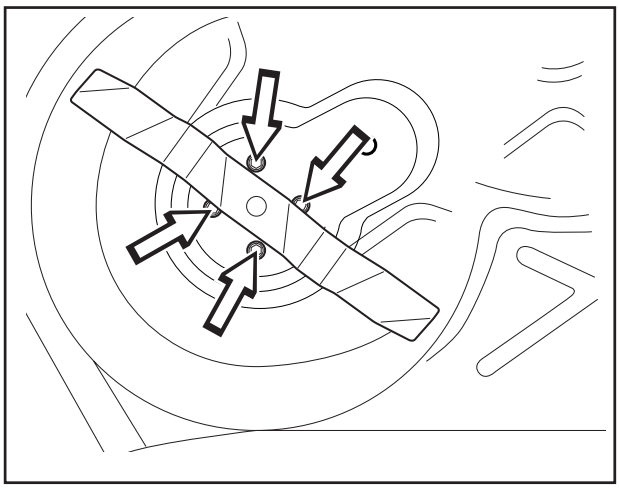
5. Version 2:

   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.



BioClip 103 Version 2

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

6. Version 2:

   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.

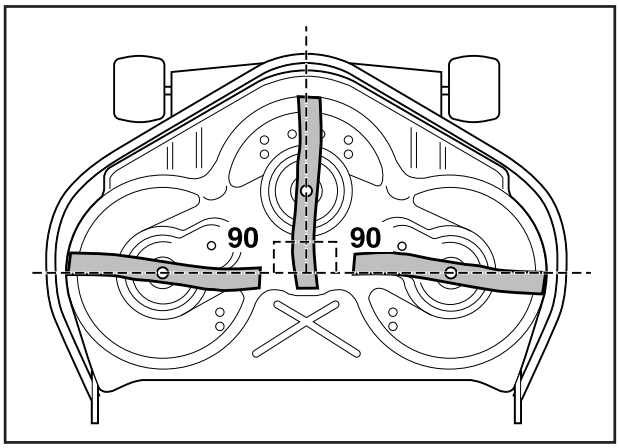
   Tighten all nuts on the blade bearings.

7. Version 2:

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

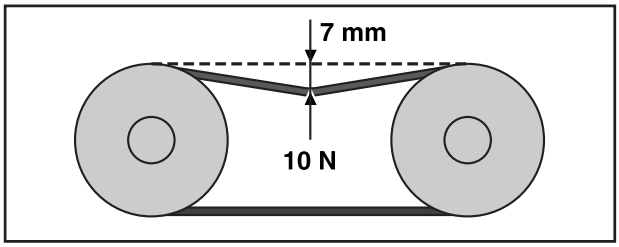
8. Version 1 and 2:

   Fit the cover over the belts and refit the parallel strut and attachment frame.



IMPORTANT INFORMATION

On BioClip 103 units the belts must be set at 90° to each other. In all other cases the blades can collide and cause serious damage to the cutting unit.

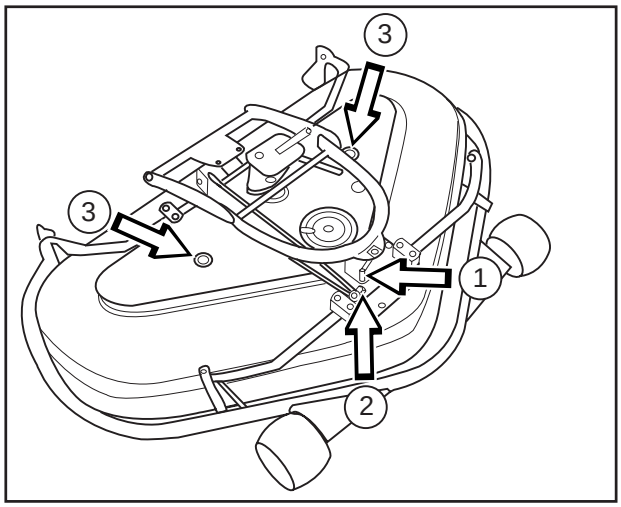


Belt replacement on BioClip112
The BioClip 112 has “collision-proof” BioClip blades that are driven by a V-belt. To replace the belt, see instructions for Cutting Unit 120 below.

Belt replacement on Cutting Unit 120 with rear ejection

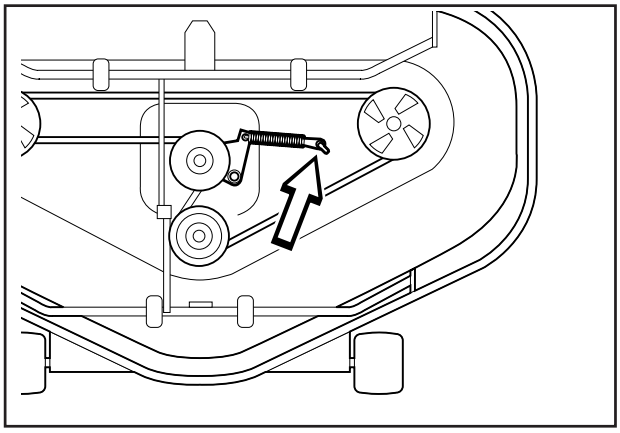
On cutting units with rear ejection the blades are driven by a V-belt. Proceed as follows to replace the V-belt:

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.

   Reverse the procedure to fit the new belt.



Lubrication chart

500h (365/365)	100h (365/365)	1/52	1/365		ProFlex 21		1/365	1/52	25h (365/365)	200h (365/365)
									(1/52)	
						7				
				1						
				2						
						8				
						9				
						10				
				3						
						11				
				4						
						12				
				5		13				
						14				
				6						

LUBRICATION

General

Remove the ignition key to prevent accidental movement during lubrication.

If lubricating with an oil can, fill the can with engine oil.

If lubricating with grease, use grease 503 98 96-01 or a similar chassis grease or bearing grease with good corrosion resistance, unless otherwise specified.

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

Wipe off excess lubricant after lubrication.

It is important that lubricant does not get onto the drive surfaces of the belts or pulleys. If this happens, try to clean it off with white spirit. If the belt continues to slip it must be replaced. Do not use petrol or other petroleum products to clean V-belts.

Lubricating wires

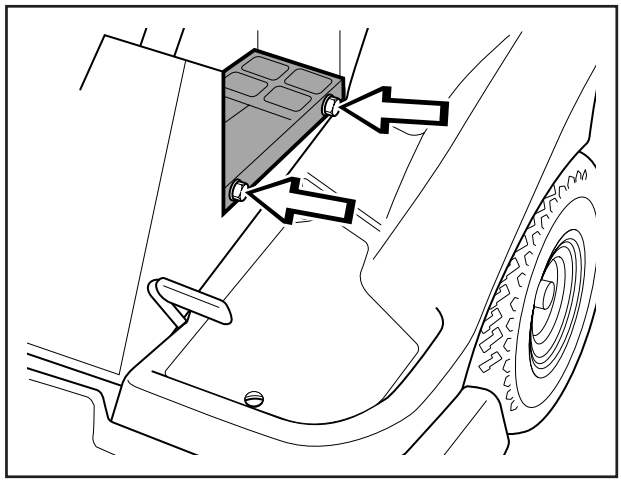
Lubricate both ends of the wires, moving the controls through their full travel range while doing so. Refit the rubber protectors over the wires after lubrication. Wires with a casing will seize up unless lubricated regularly. If a wire seizes it can cause operating problems, such as difficulty disengaging the differential lock.

If a wire does seize up, remove it and hang it up vertically. Lubricate with light engine oil until the oil starts to drip from the lower end. Useful hint: Fill a small plastic bag with oil, tape it tightly around the wire casing and hang the wire vertically from the bag overnight. If this does not free up the wire then it must be replaced.

1. Pedal mechanism in frame tunnel

Lubricate the pedal mechanism in the frame tunnel.

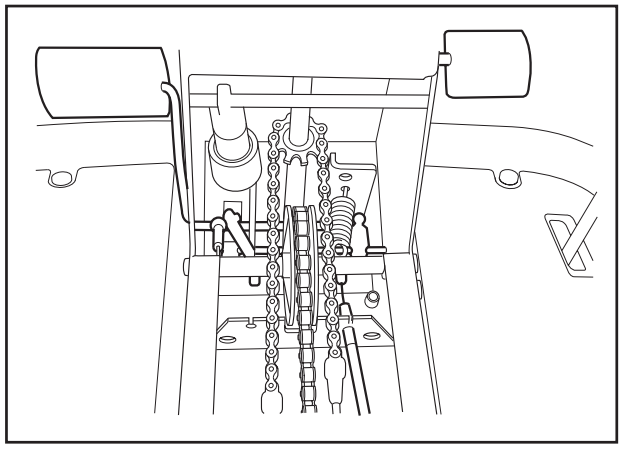
Remove the cover from the frame tunnel by undoing the screws, two on each side



Pump the pedals and lubricate the moving parts using an oil can

Lubricate the wires connected to the brake and drive pedals using an oil can

Lubricate as described under “Chains in frame tunnel” before refitting the cover over the frame tunnel.



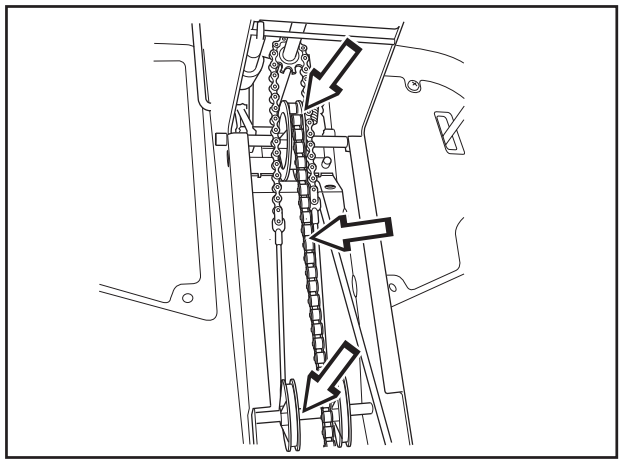
2. Chains in frame tunnel

Remove the cover from the frame tunnel, see step 1.

Lubricate the chains in the frame tunnel using an oil can or motorcycle chain spray.

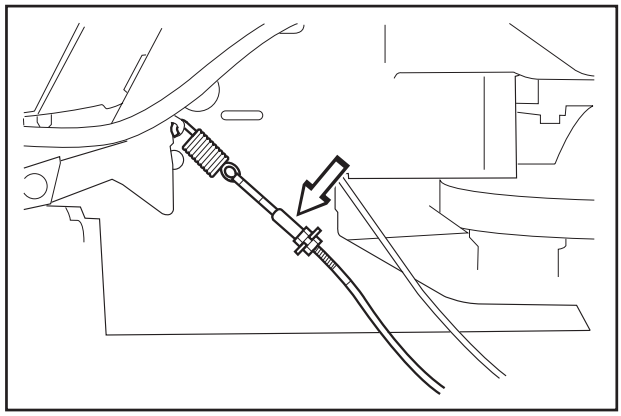
Lubricate the shaft of the control wire pulleys with grease. Press the rollers to the side and brush the shaft with grease.

Refit the cover over the frame tunnel.



3. Differential lock wire

Push the rubber protector out of the way and lubricate the hydrostatic wire using an oil can. Press the pedal a few times, lubricate again and push the rubber protector back in place.



4. Engine oil

The oil should be changed for the first time after 8 hours of running time. Thereafter it should be changed every 100 hours of running time.

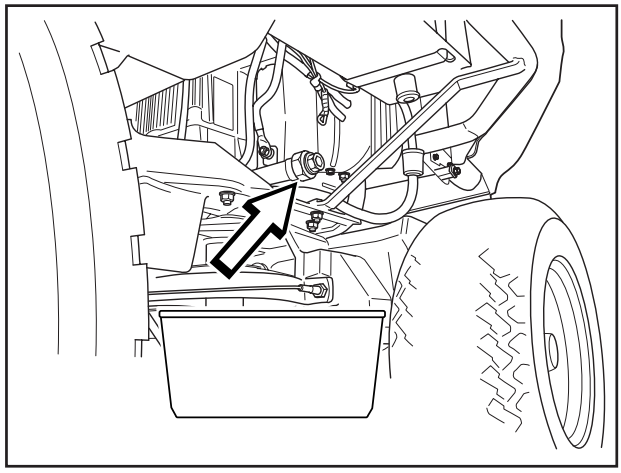
WARNING!
Engine oil can be very hot if it is drained off directly after the engine is stopped. Therefore allow the engine to cool down first.

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.

1. Open the engine hood.
2. Place a container under the drain plug on the left side of the engine.
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. Refit the drain plug and tighten it.
6. Replace the oil filter if necessary.
7. Top up with engine oil as described on the next page.



LUBRICATION

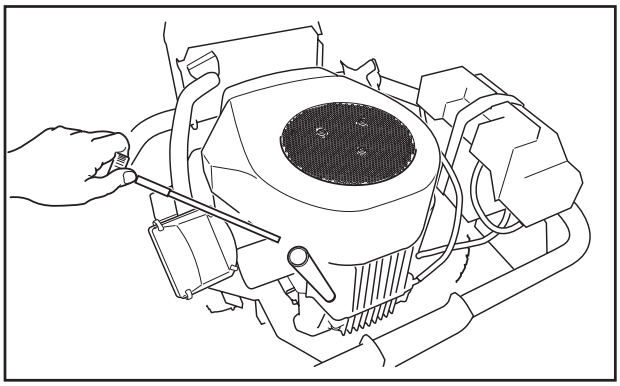
Check the engine oil level when the Rider is on level ground.

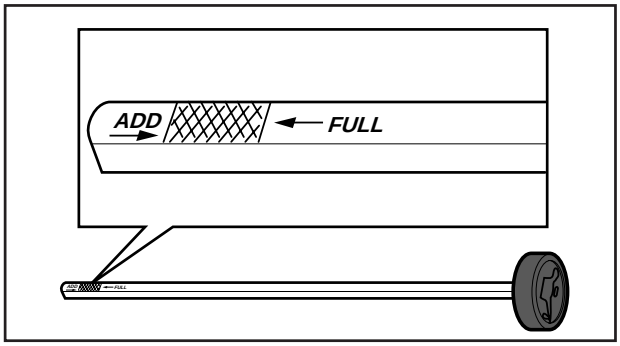
Raise the engine hood.

Take out the dipstick, wipe it clean and push it in again.

Do **not** screw in the dipstick.

Take out the dipstick again and read the oil level.



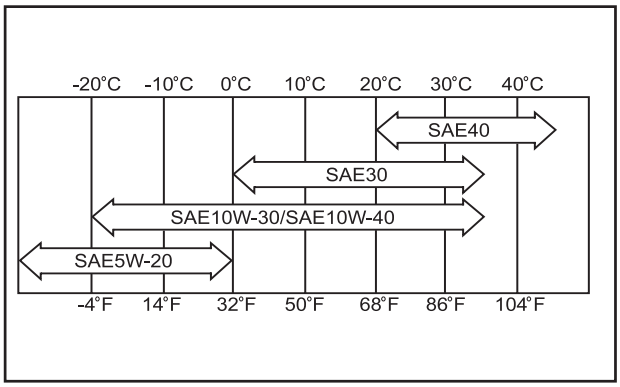


The oil level should be between the marks on the dipstick. If the level is close to the “ADD” mark, top up with oil to the “FULL” mark on the dipstick. Never fill above the “FULL” mark.

Oil is added through the hole that the dipstick sits in.

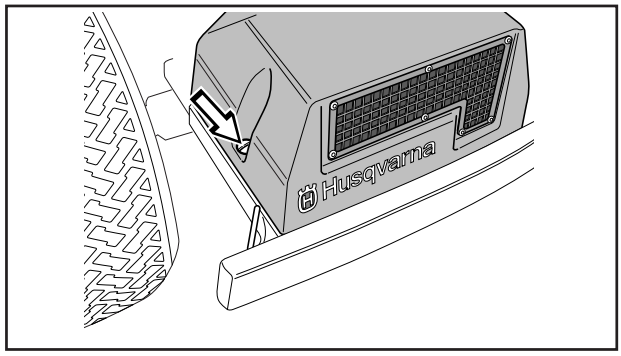
Use SAE 30 or SAE 10W-30 grade engine oil, or 10W/40, class SC–SH (above 0° C/+32°F).
SAE 40 oil can be used above +20°C/+68°F.
Use SAE 5W-20 engine oil, class SC–SH (below 0° C/+32°F).

The engine holds 1.5 litres of oil, excluding the filter (1.7 litres including filter).



5. Gear lever

Remove the transmission cover by undoing the two screws.

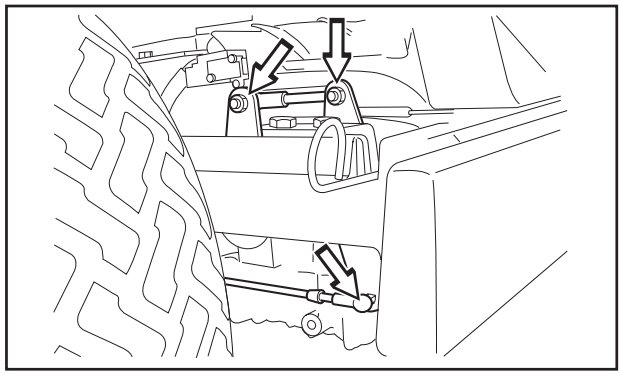


Lubricate the joints and bearings on the left side using an oil can.

Push the rubber protector out of the way and lubricate the hydrostatic wire using an oil can. Press the pedal a few times and lubricate again.

Refit the rubber protector.

Refit the transmission cover.



6. Transmission

The oil and filter should be replaced by an authorised service workshop as described in the workshop manual.

7. Cutting unit

Remove the nose cowling.

Lubricate using an oil can:

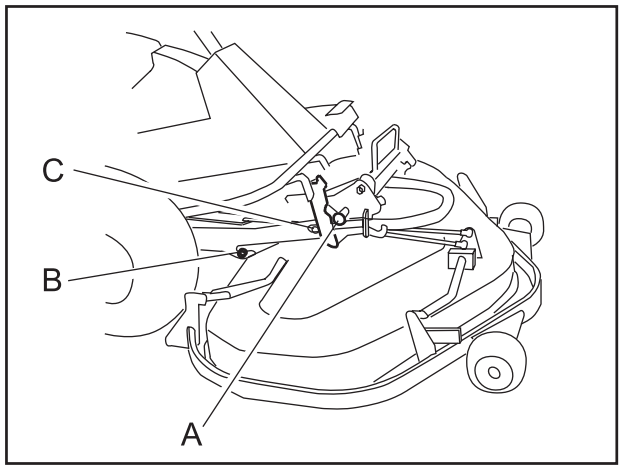
A. Safety catch

- Joints and bearings

Lubricate with grease:

B. Inner stud

C. Slot for attachment frame

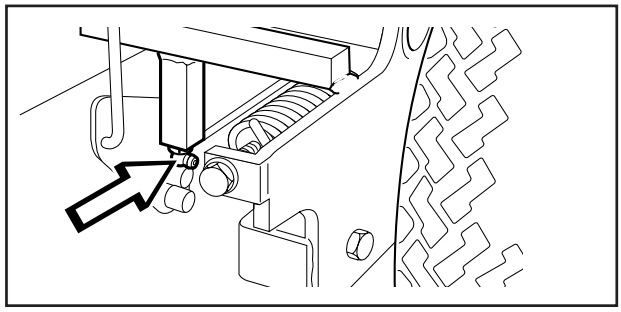


8. Triangular link

Grease nipple located behind the right side front wheel.

Lubricate with a grease gun until grease is squeezed out.

Use molybdenum sulphide grease.



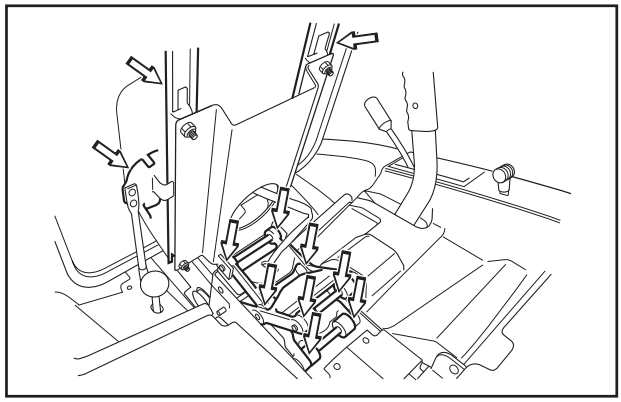
9. Driver's seat

Tip up the seat.

Lubricate the linkage of the scissor springs using an oil can; there are 8 lubrication points.

Lubricate the seat leg length adjustment mechanism using an oil can.

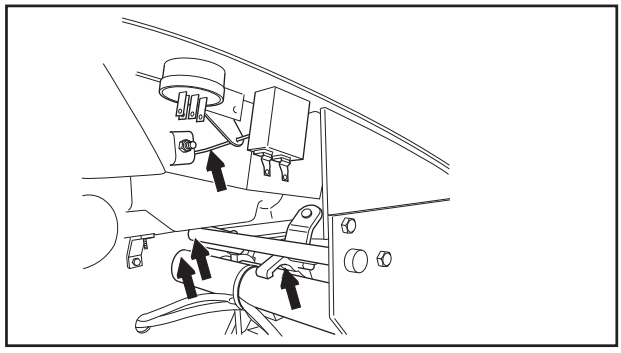
Lubricate the leg length adjustment rails using an oil can.



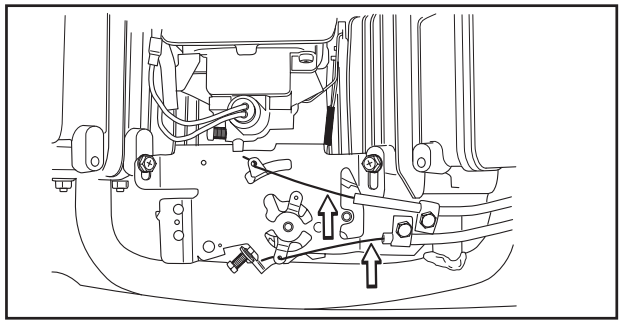
10. Throttle and choke wires, lever bearings

Remove the right side cover from the lever housing (3 screws) and open the engine hood. Lubricate the exposed ends of the wires using an oil can, including the ends at the engine. Move the levers through their full range of travel and lubricate again.

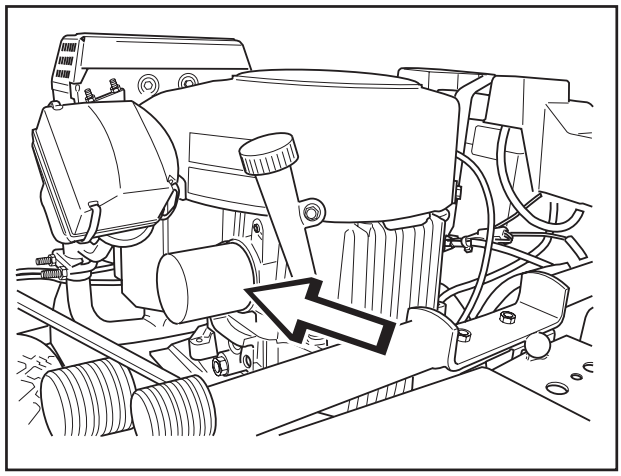
Lubricate joints, locks and bearings for the cutting deck control levers using an oil can.



NOTE
Take care when fitting: The fine-threaded screw for the side cover must be fitted from the outside. Refit the side panel on the lever housing.

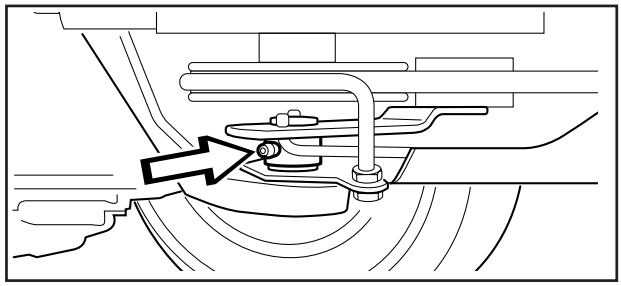


11. Oil filter, replacement



1. Open the engine hood.
2. Drain off the engine oil according to the work description “Changing of engine oil”.
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. Tighten the filter by hand until it makes contact, then tighten a further 3/4 turn.
6. Run the engine warm and check that there is no leakage round the oil filter seal.
7. Check the engine oil level and top up if necessary. The oil filter holds 0.2 litres of oil.

12. Belt tensioner

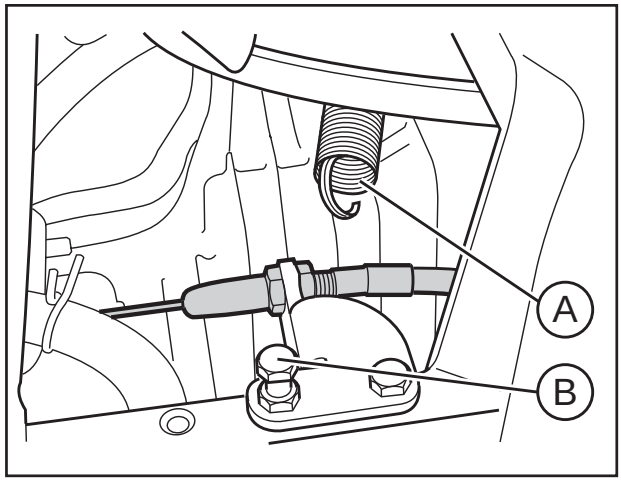


Use a grease gun to lubricate the single nipple on the right side below the lower engine pulley, until grease is forced out.

Use good quality molybdenum sulphide grease.

Grease with a familiar brand name (petrol company, etc.) is generally of good quality.

13. Parking brake wire



Remove the transmission cover; see “Gear lever”.

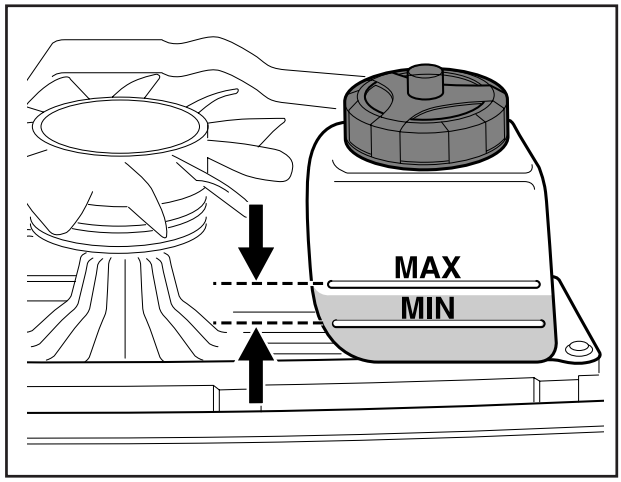
Unhook spring (A) from screw (B) if necessary.

Push the rubber protector aside to lubricate the wire.

Lubricate the wire using an oil can, press the brake pedal a few times and lubricate again.

Refit spring (A) and the transmission cover.

14. Transmission oil level



1. Check the level of the transmission oil by looking through the air intake mesh. The oil level should be between the “MIN” and “MAX” marks on the oil reservoir at +20°C.

   If it is necessary to top up the oil you must remove the transmission cover first.

2. Unscrew the cap from the oil reservoir and top up with SAE 10W/30 grade engine oil, class SF–CC, until the oil level reaches the “MAX” mark. Screw the cap back onto the oil reservoir and refit the transmission cover.

TROUBLE SHOOTING SCHEDULE

Problem	Procedure
Engine will not start.	• Fuel tank empty. • Plugs defective. • Plug connections defective. • Dirt in carburettor or fuel pipe.
Starter does not pull round engine.	• 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. • Brake not engaged • Hydrostat pedals not in the neutral position
Engine does not run smoothly.	• Plugs defective. • Carburettor incorrectly set. • Air filter clogged. • Fuel tank vent blocked. • Ignition setting defective. • Dirt in fuel pipe. • Choking or incorrectly adjusted throttle cable
Engine seems to have no power.	• Air filter clogged. • Plug defective. • Dirt in carburettor or fuel pipe. • Carburettor incorrectly set. • Choking or incorrectly adjusted throttle cable
Engine overheats.	• 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.	• One or more cells in the battery faulty. • Bad contact between battery terminals and cables.
Machine vibrates.	• Blades are loose. • Engine is loose. • Imbalance on one or more blades, resulting from damage or inferior balancing after sharpening.
Uneven mowing.	• 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. • The blade has a broken break-pin (BioClip)

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:

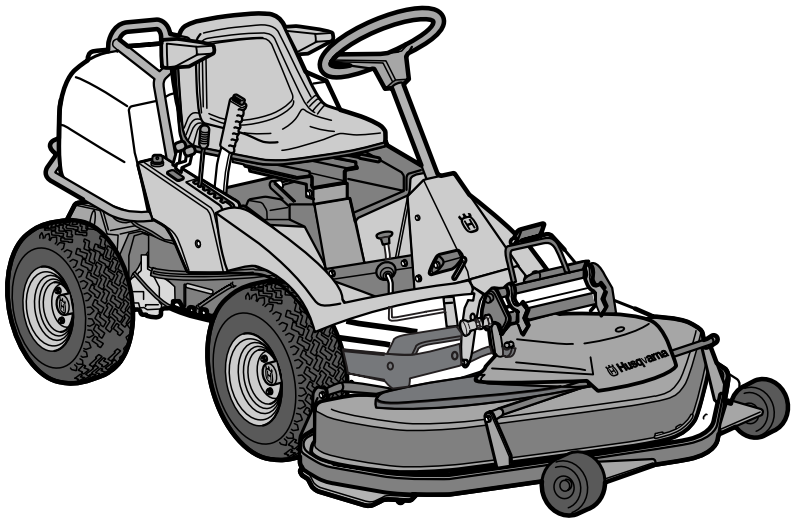
1. Carefully clean the machine, especially under the cutting unit. Touch-up paint damage to avoid rust.
2. Inspect the machine for worn or damaged parts and tighten loose screws and nuts.
3. Change the oil, and take care of the waste oil.
4. Empty the fuel tank. Start the engine and run it until the 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.
8. Store the machine in a clean and dry place and cover it over for extra protection.

Service

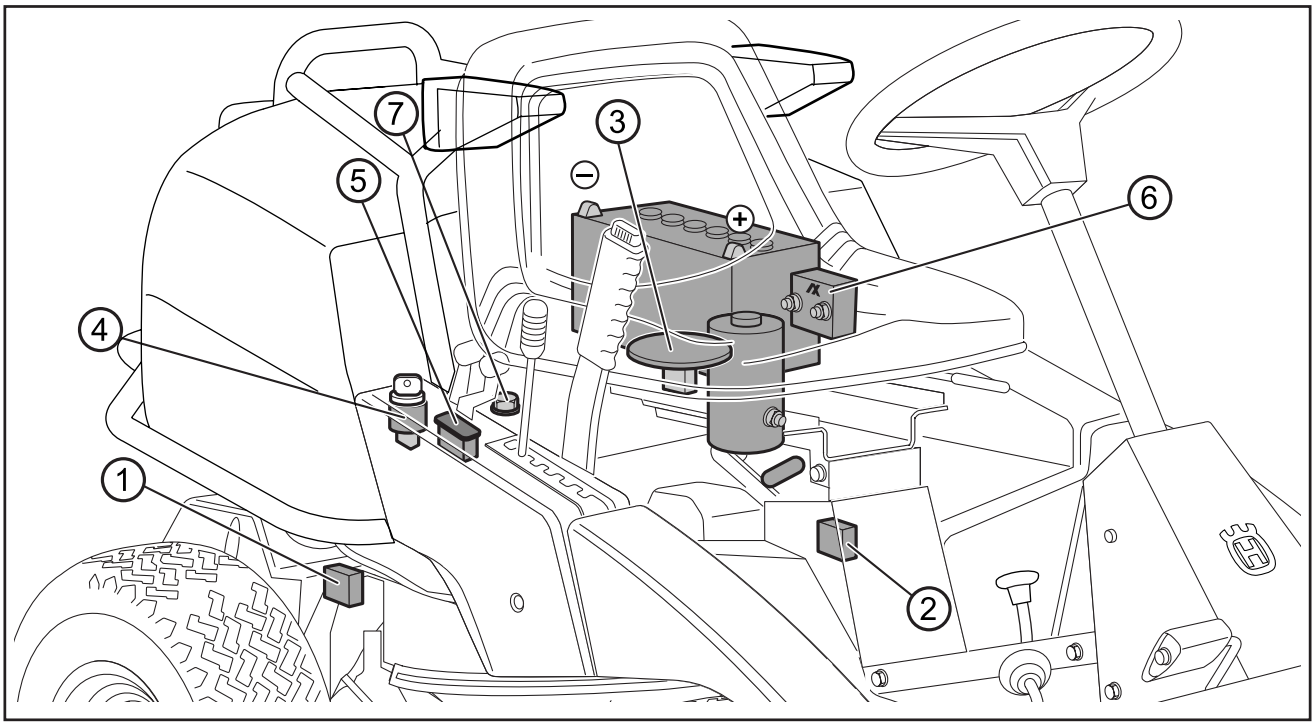
When ordering spare parts state the purchase year, model, type, and serial number.

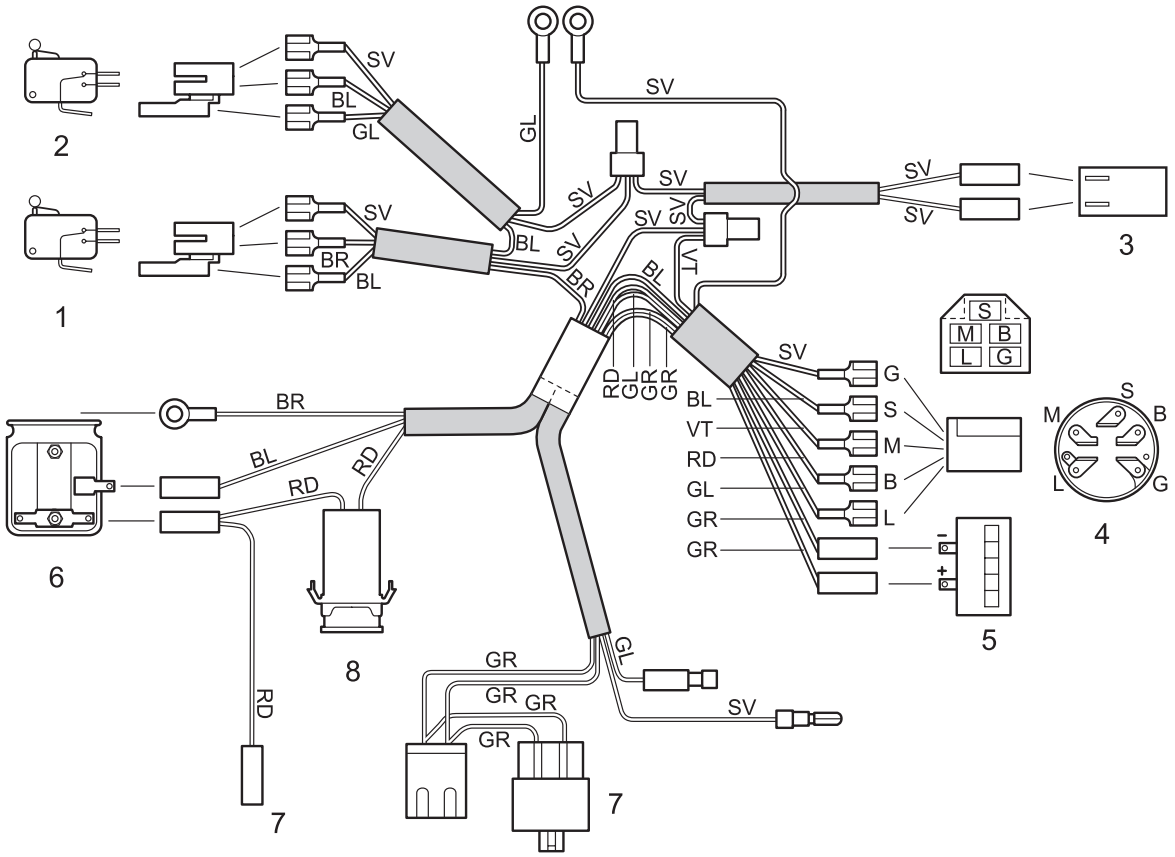
Always use genuine parts.

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. Microswitch, hydrostat
2. Microswitch, cutting unit
3. Microswitch, seat
4. Ignition lock
5. Counter
6. Start relay
7. Engine
8. Fuse 15 A

Explanation of colour abbreviations in wiring diagram.

RD = Red
BL = Blue
VT = White
SV = Black
GL = Yellow
GR = Grey
BR = Brown

TECHNICAL DATA

Rider ProFlex 21

Dimensions	Rider ProFlex 21
Length, base machine	2 030 mm
Width, base machine	900 mm
Height	1 100 mm
Kerb weight, base machine	334 kg
Wheelbase	940 mm
Track	720 mm
Tyre size	18 x 7.50 x 8
Tyre pressure, front & rear	60 kPa (0,6 kp/cm^2)
Max. gradient	15°

Engine

Manufacture	Kawasaki
Model	FH641V-AS50
Power	15,5/21 kW/hk
Displacement	675 cm^3 / 41.19 cu.in.
Fuel	min. 87 octane unleaded (max. methanol 5%, max. ethanol 10%, max, MTBE 15%)
Tank volume	10 litres
Oil	SAE 30 or SAE 10W/30, SAE 10W/40 class SC-SH
Oljevolym	1.5 litres /1.6 US qt
Oil volume incl. filter	1.7 litres /1.8 US qt
Start	Electric starter

Electrical system

Type	12 V, negative earthed
Battery	12 V, 24 Ah
Main fuse	Spade connector 15 A
Spark plug	NGK BPR4ES, electrode gap = 0.75 mm / 0.030"

Transmission

Manufacture	Tuff Torq K 66
Oil	SAE 10W/30, class SF-CC
Oil capacity, total	2,5 litres

Cutting unit

	Rear ejector 120	BioClip 103	BioClip 112
Cutting width	1 200 mm	1 030 mm	1 200 mm
Cutting heights	7 settings, 40-100 mm	7 settings, 45-105 mm	7 settings, 40-100 mm
Blade length	440 mm	410 mm	420 mm
Sound level	100 dB(A)	100 dB(A)	100 dB(A)
Width	1 305 mm	1 115 mm	1 230 mm
Weight	60 kg	55 kg	58 kg
Length with cutting unit	2 390 mm	2 310 mm	2 370 mm

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.

EU declaration of conformity (Only applies to Europe)

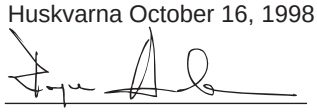
(Directive 89/392/EEC, Annex II, A)

We, **Husqvarna AB,** S-561 82 Huskvarna, Sweden, tel. +46 36-146500, declare under sole responsibility that the **rider mower Husqvarna Rider 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



Roger Andersson, Development manager

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.

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
Pre-delivery service	
1. Top up battery with acid and recharge for four hours.	☐
2. Fit steering wheel, seat and any optional equipment.	☐
3. Fit cutting unit.	☐
4. Adjust cutting unit:	
Adjust lift springs (effective weight of cutting unit should be 12–15 kg, or set to maximum lift if brush is to be fitted).	☐
Adjust cutting unit so that rear edge is about 2–4 mm higher than front edge.	☐
Adjust cutting unit height setting so that cutting height limit is 5 mm above the frame of the unit at the lowest cutting height.	☐
5. Check that the oil levels in the engine and transmission are correct.	☐
6. Check and adjust tyre pressure (60 kPa, 0.6 bar).	☐
7. Connect battery.	☐
8. Fill with fuel and start engine.	☐
9. Check that machine does not move in neutral.	☐
10. Check:	
Forward drive.	☐
Reverse drive.	☐
Operation of blades.	☐
Seat safety switch.	☐
Lift lever safety switch.	☐
Safety switch for the hydrostat pedals.	☐
11. Check engine revs 3,000 ±75 rpm.	☐
12. Tell customer about:	Pre-delivery service carried out.
Need and benefits of following the service schedule.	No outstanding problems.
Need and benefits of having machine serviced every 300 hours.	Certified:
Servicing and the influence of this journal on the second-hand value of the machine.	
Range of applications for BioClip.	
13. Complete proof of sale, etc.	
After first 8 hours	
1. Change engine oil.	☐

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
25 hour service 1. Clean the air filter pre-filter (oil-foam element). (more regularly in dusty conditions) 2. Clean the engine cooling air intake and transmission air intake. 3. Clean the fuel pump air filter. (in dusty conditions).	

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
50 hour service 1. Clean / replace the air filter pre-filter (oil-foam element). (more regularly in dusty conditions) 2. Clean the engine cooling air intake and transmission air intake. 3. Clean the cooling flanges on the cylinder and cylinder head. 4. Clean the fuel pump air filter. 5. Check/adjust cutting height setting. 6. Check/adjust parking brake. 7. Inspect flame guard/spark arrestor (optional equipment)	

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
100/200 hour service 1. Change the engine oil. Change the oil filter every 200 hours. 2. Clean / replace the air filter pre-filter (oil-foam element). 3. Clean the paper air filter. Replace every 200 hours. (more regularly in dusty conditions) 4. Clean the engine cooling air intake and transmission air intake. 5. Check whether you need to change the oil in the K62 gearbox (every 500 hours). 6. Check/adjust cutting height setting. 7. Check/adjust parking brake. 8. Inspect flame guard/spark arrestor (optional equipment) 9. Clean/replace spark plug. 10. Replace fuel filter in fuel line. 11. Clean the fuel pump air filter. 12. Clean pulse-air filter. 13. Check screw and nuts. 14. Check need for oil change and filter change for K66 gearbox (every 500 hours).	

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
300 hour service 1. Change engine oil. 2. Replace the air filter (oil-foam element). 3. Replace air filter (paper air filter). 4. Clean the fuel pump air filter. 5. Check/adjust cutting height setting. 6. Check/adjust parking brake. 7. Inspect flame guard/spark arrestor (optional equipment) 8. Replace engine oil filter. 9. Clean/replace spark plug. 10. Replace fuel filter in fuel line. 11. Clean pulse-air filter. 12. Clean the cooling flanges on the cylinders and cylinder head. 13. Check engine valve clearance. 14. Check need for oil change and filter change for K66 gearbox (every 500 hours). 15. Carry out 300 hour service at authorised dealer.	

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign
At least once a season 1. Change engine oil (100 hours). 2. Clean / replace the air filter pre-filter (oil-foam element) (25 hours). (more regularly in dusty conditions) 3. Clean / replace the paper air filter (100 hours). (more regularly in dusty conditions). 4. Clean the fuel pump air filter (50 hours). 5. Check/adjust cutting height setting (50 hours). 6. Check/adjust parking brake (50 hours). 7. Inspect flame guard/spark arrestor, optional equipment (50 hours). 8. Replace engine oil filter (200 hours). 9. Clean/replace spark plug (100 hours). 10. Replace fuel filter in fuel line (100 hours). 11. Clean pulse-air filter (100 hours). 12.Clean the cooling flanges on the cylinders and cylinder head (100 hours). (more regularly in dusty conditions). 13. Check engine valve clearance (300 hours). 14. Replace oil and filter in K66 gearbox (500 hours). 15. Carry out 300 hour service at authorised dealer.	

SERVICEJOURNAL

Work done	Date, mileage, stamp, sign

SERVICEJOURNAL

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