

Rider 850 HST

Rider 970 HST

Operator's manual



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

CONTENTS

Operator's Manual for Rider 850 HST and Rider 970 HST

Explanation of symbols	2	Checking the engine's oil level	19
Safety instructions	3	Checking the engine's cooling air intake	19
General use	3	Checking the fuel pump's air filter	19
Driving on slopes	4	Checking and adjusting the steering wires	20
Children	5	Checking and adjusting the brakes	20
Maintenance	5	Checking the transmission's oil level	21
Presentation	7	Checking the battery acid level	21
Location of the controls	7	Checking the safety system	21
Throttle/Choke lever	8	Replacement of air filter	22
Speed limiter	8	Checking and adjustment of cutting unit's ground pressure Rider 979	23
Parking brake	8	Checking the parallelism of the cutting unit	23
Cutting unit	9	Adjusting the parallelism of the cutting unit	24
Lift lever for cutting unit	9	Dismantling the cutting unit	25
Lever for adjustment of cutting height	10	Checking the blades	26
Seat, Rider 850 HST	10	Checking the tyre pressure	6
Seat, Rider 970 HST	11	Changing the oil	27
Fuelling	11	Lubrication	27
Driving	12	Checking and adjustment of throttle wire	28
Before starting	12	Replacement of fuel filter	28
Starting the engine	12	Trouble shooting schedule	29
Driving the machine	14	Storage	30
Cutting tips	15	Winter storage	30
Stopping the engine	16	Service	30
Maintenance	17	Technical data	31
Maintenance schedule	17		
Dismantling of the machine hoods	18		

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.

EXPLANATION OF SYMBOLS

These symbols are on the machine and in the operator's manual.
Study them carefully so that you know what they mean.



Read the operator's manual

R

Reverse

N

Neutral



Fast



Slow



Engine off



Battery



Choke



Fuel



Oil pressure

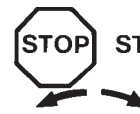


Cutting height

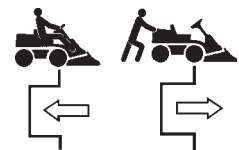


Backwards

Forwards



Ignition



Hydrostatic free wheel



Use eye and hearing protection



Clutch in



Clutch out



Parking brake



Brake



Warning



Sound-level



Warning!
Rotating blades.



Warning!
Risk that the machine can tip over



Never drive across a slope



European standard for
machine safety



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



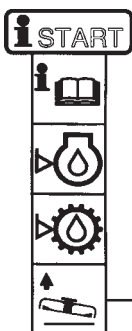
Never carry passengers on the machine or equipment.



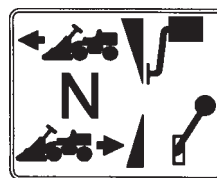
Keep hands and feet away from under the hood when the engine is running.



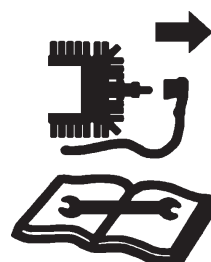
Drive very slowly without the cutting unit.



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



Speed limiter pedal forwards
Neutral
Speed limiter pedal reverse



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

SAFETY INSTRUCTIONS

These instructions are for your safety. Read them carefully.



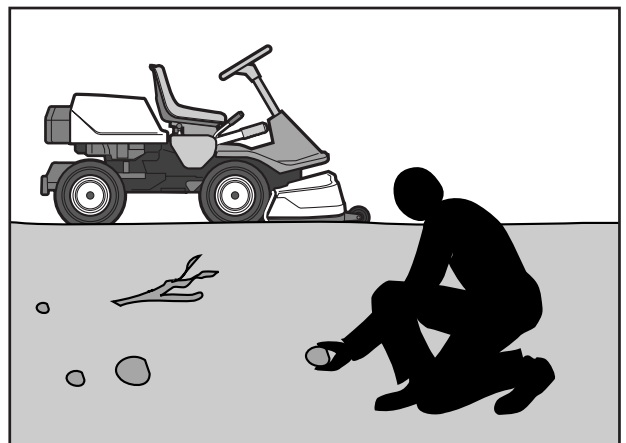
This symbol implies that important safety rules are applicable. This is for your safety and the operating reliability of the machine.

General use:

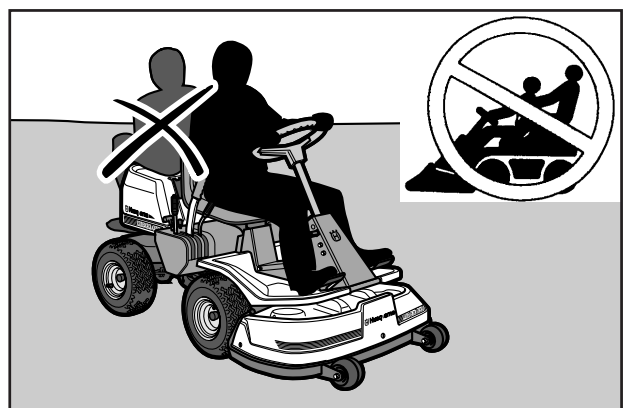
- Make yourself familiar with the controls and how to stop quickly.
- Read all the instructions in Operator's Manual and on the machine before starting it. Make sure you understand them, and then follow them.
- Only allow adults who are familiar with the machine to use it.
- Wear approved protective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



Read the instructions before starting the machine.



Clear the area from stones etc. before cutting.



Never carry passengers.



WARNING!

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

SAFETY INSTRUCTIONS

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

Driving on slopes

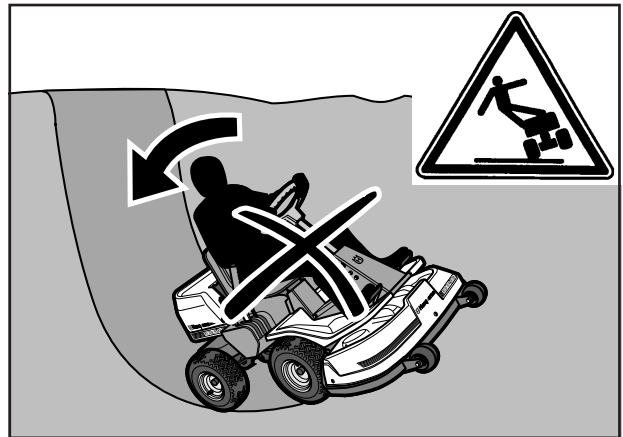
Driving on slopes is one of the situations where there is the most serious risk that the driver can lose control or that the machine tips over, which can cause severe injuries or be fatal. All slopes require extra care. If you cannot reverse up the slope or if you feel uncertain avoid cutting it.

Do as follows:

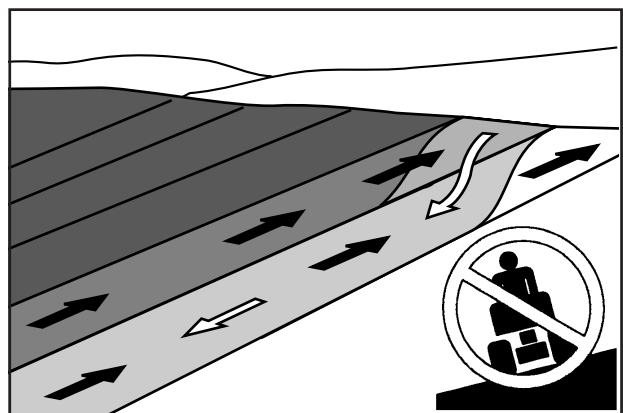
- Remove obstacles such as stones and branches etc.
- Cut upwards and downwards, not sideways.
- Look out for and avoid driving over furrows, holes or mounds. On uneven surfaces it is easier for the machine to tip over. High grass can conceal obstacles.
- Drive slowly. Select a low gear to avoid having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

Do *not* do the following:

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



Be extra careful when driving on slopes.



Cut slopes upwards and downwards, not sideways.

SAFETY INSTRUCTIONS

- Do not cut close to edges, ditches or banks. The machine can suddenly tip over if a wheel goes over the edge of a drop or a ditch, or if a bank gives way.
- Do not cut wet grass. It is slippery and the tyres can lose their grip so that the machine slides.
- Do not try to stabilise the machine by placing one foot on the ground.

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.

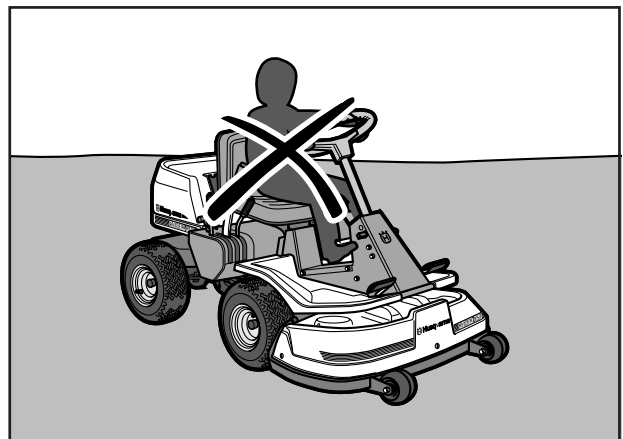
- Keep children away from the mowing area and under the supervision of another adult.
- Be on your guard and switch off the machine if children come into the work area.
- Before and during reversing look behind and down for small children.
- Never allow children to ride on the machine. They can fall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

Maintenance

- Petrol/gasoline and petrol/gasoline fumes are toxic and highly inflammable. Be extra careful when handling petrol/gasoline.
 - a. Store the fuel in containers approved for this purpose.
 - b. Never fill up the machine with fuel when the engine is running. Let the engine cool before filling up with fuel. Do not smoke, or fill up with fuel in the vicinity of naked flames or sparks.
 - c. Never fill up with fuel indoors.
 - d. If leakage has occurred in the fuel system the engine must not be started until this is rectified.
 - e. 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.



Keep children away from the mowing area.



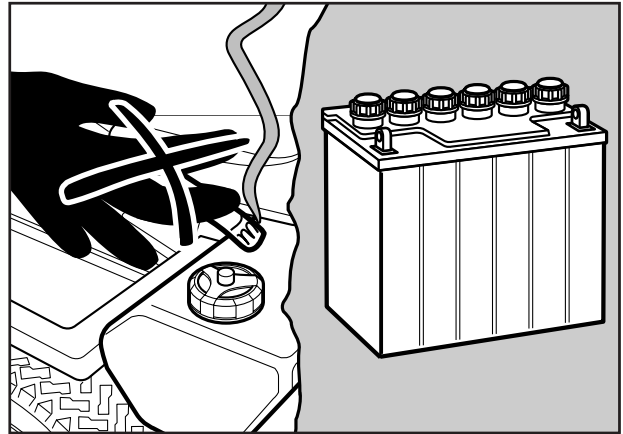
Never allow children to drive the machine.



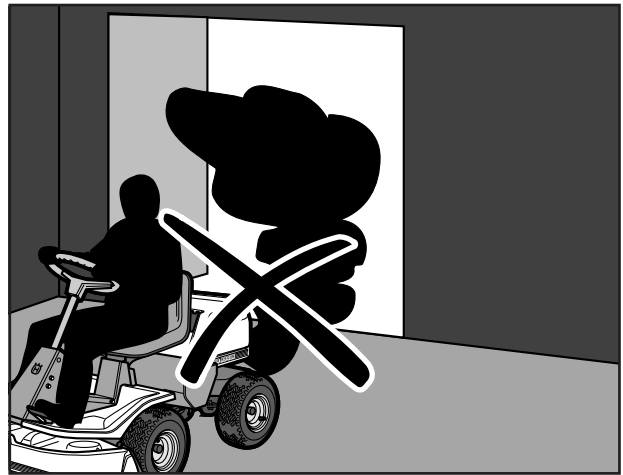
Never fill up with fuel indoors.

SAFETY INSTRUCTIONS

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



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



Never drive the machine in an enclosed space.



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

PRESENTATION

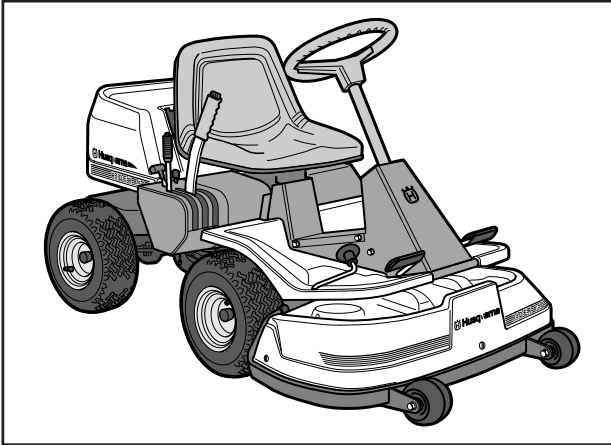
Presentation

These instructions describe two machine models, Rider 850 and Rider 970.

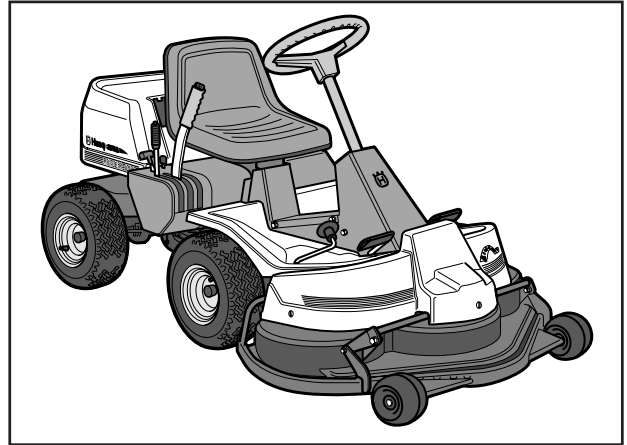
Both models are fitted with engines from Briggs & Stratton of 12.5 and 15.5 h.p. respectively.

The power transmission from the engine is handled by a hydrostatic gear box which enables stepless variation of the speed with the foot pedals.

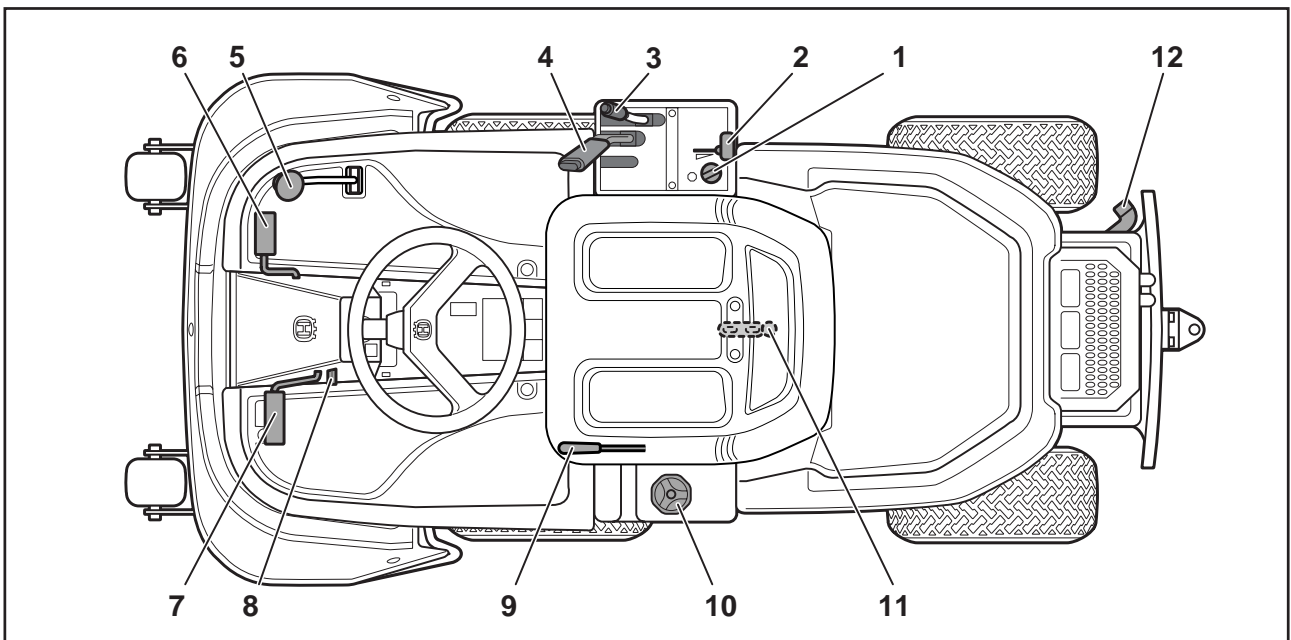
There is one pedal for driving forwards and one pedal for reversing.



Rider 850 has a cutting unit which throws out the grass at the rear of the machine, and a cutting width of 850 mm.



Rider 970 is available with three different cutting units: a unit with rear ejection or side ejection with a cutting width of 965 mm, and a Bioclip unit with a cutting width of 1030 mm.



Location of the controls

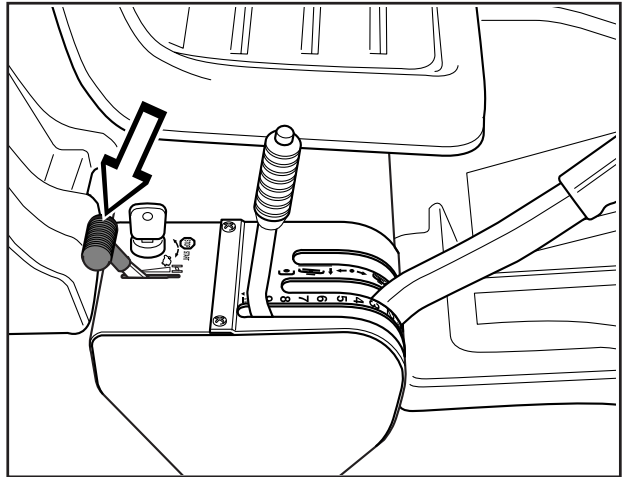
- | | |
|---------------------------------------|--------------------------------------|
| 1. Ignition lock | 7. Brake pedal |
| 2. Throttle/Choke lever | 8. Lock button for parking brake |
| 3. Adjustment of cutting height | 9. Lever for adjustment of seat |
| 4. Lifting lever, cutting unit | 10. Fuel tank cap |
| 5. Speed limiter for reversing | 11. Main lock (under seat) |
| 6. Speed limiter for driving forwards | 12. Lever for disengagement of drive |

PRESENTATION

Throttle and Choke lever

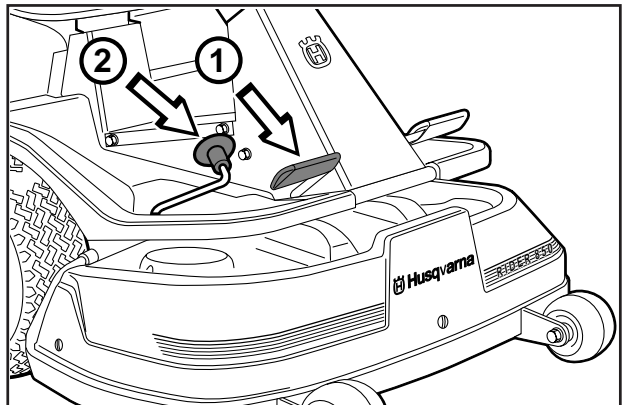
The engine speed is adjusted with the throttle control, and thereby also the rotation speed of the blades.

The control is also used to activate the choke function. When the choke is used the engine receives a richer mixture of fuel and air, which simplifies cold start.



Speed limiter

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

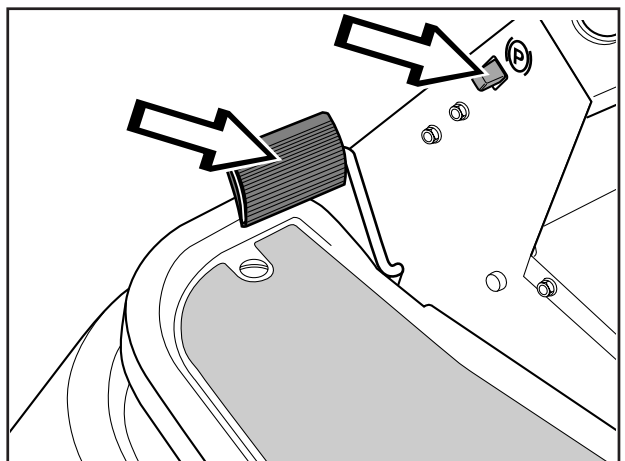


Parking brake

The parking brake is applied as follows:

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

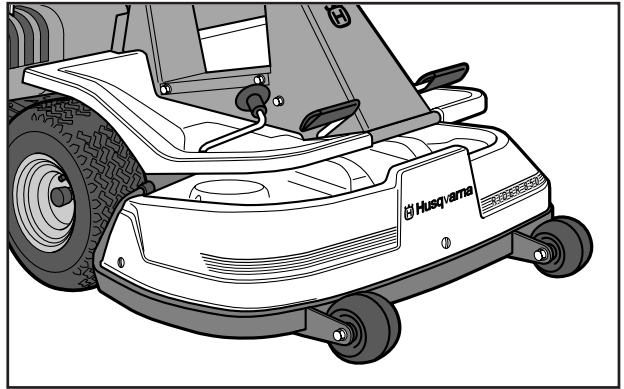
The lock on the parking brake automatically disconnects when the brake pedal is pressed.



PRESENTATION

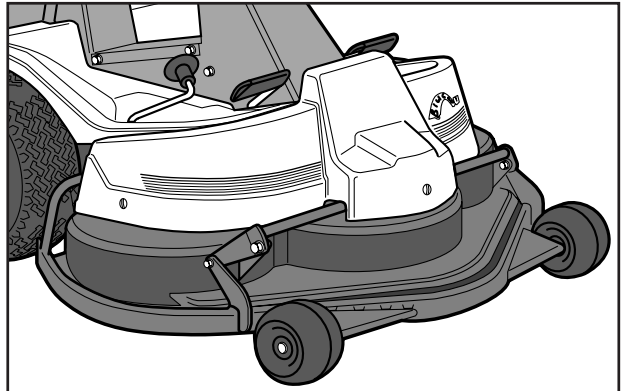
Cutting unit

Rider 850 has a cutting unit with rear ejection, i.e. the grass cuttings are thrown out behind the cutting unit.



In the standard version Rider 970 HST is fitted with a Bioclip unit which cuts up the grass finely by means of cutting it several times before it is returned to the lawn as fertiliser. Rider 970 is also available with a cutting unit which has rear or side ejection.

The diagram shows a Rider 970 with Bioclip unit.



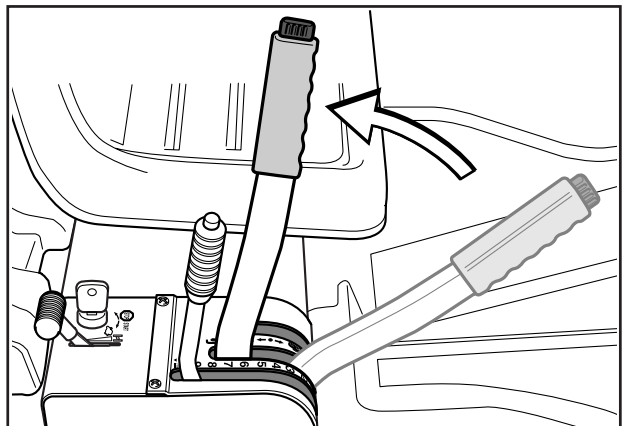
Lift lever for cutting unit

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

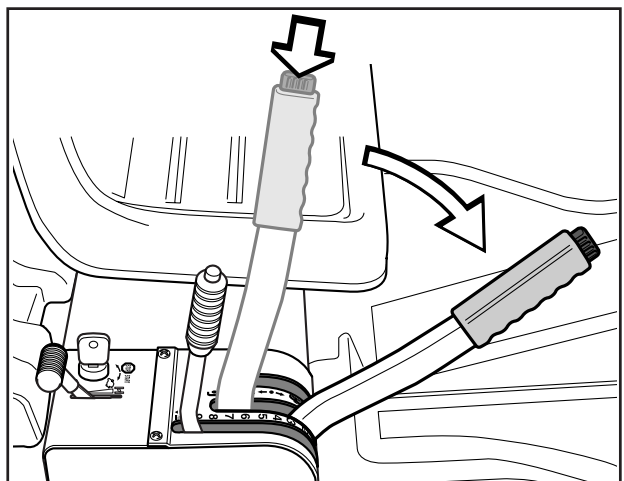
If the lever is pulled back the unit will lift up and the blades stop rotating (transport position).

If the lock button is pressed and the lever is moved forward the unit will lower down and the blades begin rotating (cutting position).

The lever can also be used to temporarily regulate the cutting height, e.g. for a small mound in the lawn.



Lifting of the cutting unit (transport position)

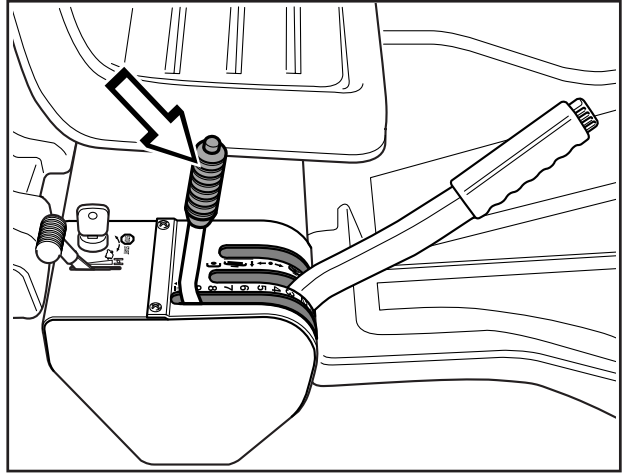


Lowering of the cutting unit (cutting position)

PRESENTATION

Lever for adjustment of cutting height

With this lever the cutting height can be adjusted to 9 different positions (4-90 mm, 45-80 mm Bioclip).

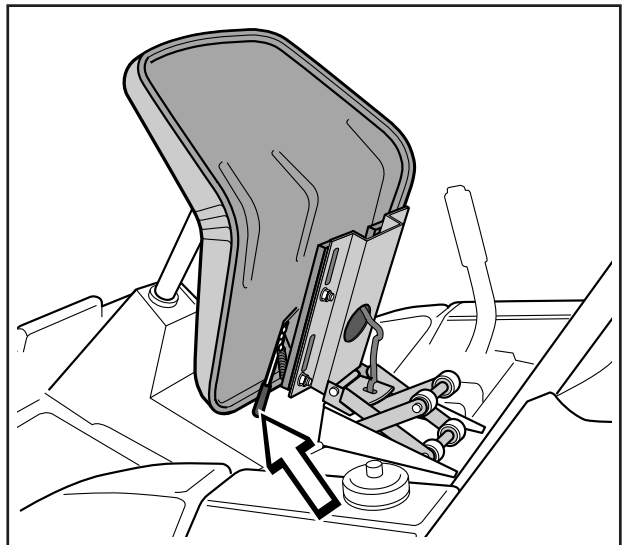


Seat, Rider 850 HST

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

The seat can also be adjusted lengthways.

To adjust the lever under the seat it is moved forwards to the left, after which the seat can be moved forwards or backwards to the required position.



PRESENTATION

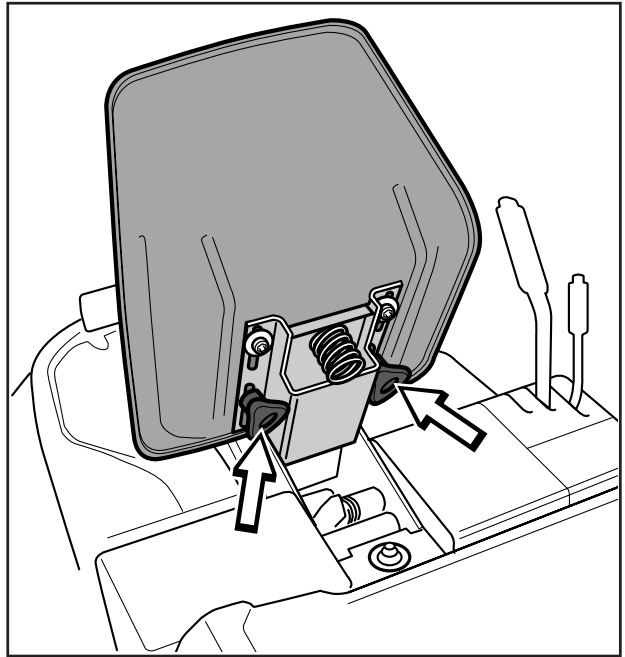
Seat, Rider 970 HST

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

The seat can also be adjusted lengthways.

Release the knobs under the seat and adjust it forwards or backwards to the required position.

Lock the setting with the knobs.

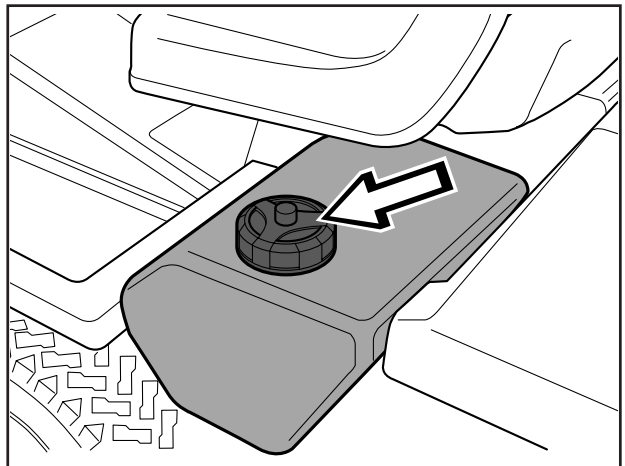


Fuelling

The engine should be run on at least 92 octane leaded or unleaded petrol/gasoline (not oil mixed).



WARNING!
Petrol/gasoline is highly inflammable.
Observe care and fill up with fuel
outdoors (see safety instructions).

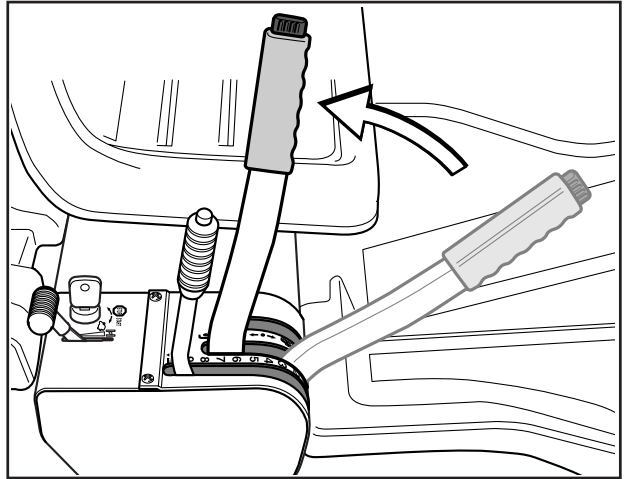


DRIVING

- Read the safety instructions and information on the location and function of the controls before starting (see pages 3-11).
- Conduct daily maintenance before starting (see maintenance schedule on page 17).
Adjust the seat to the required position.

Starting the engine

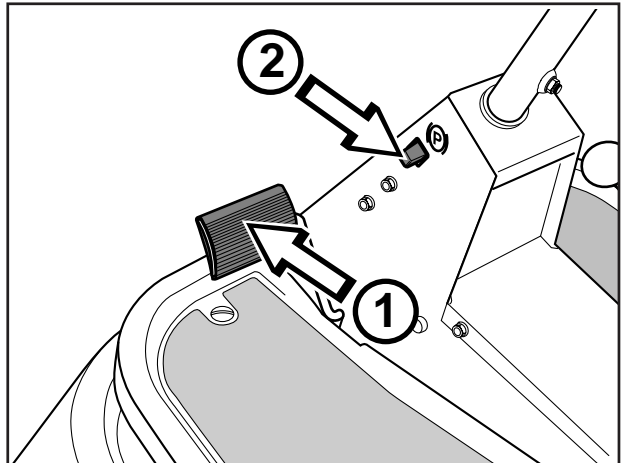
1. Lift up the cutting unit by pulling the lever backwards to locked position (transport position).



2. Apply the parking brake. This is done as follows:

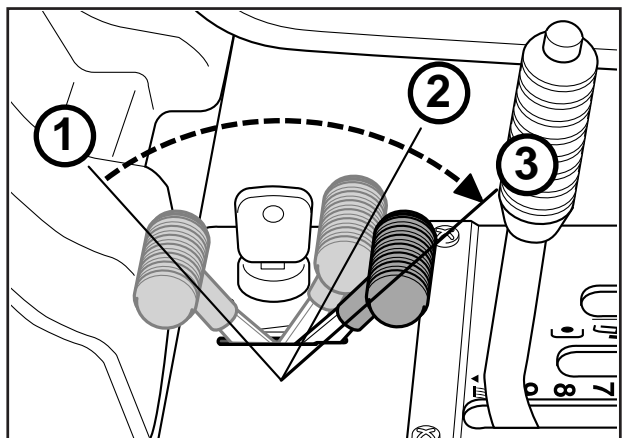
- Press down the brake pedal (1).
- Press in the lock button on the steering column (2).
- Release the brake pedal while the button is held pressed.

The parking brake lock disconnects automatically when the brake pedal is pressed down.



Cold engine:

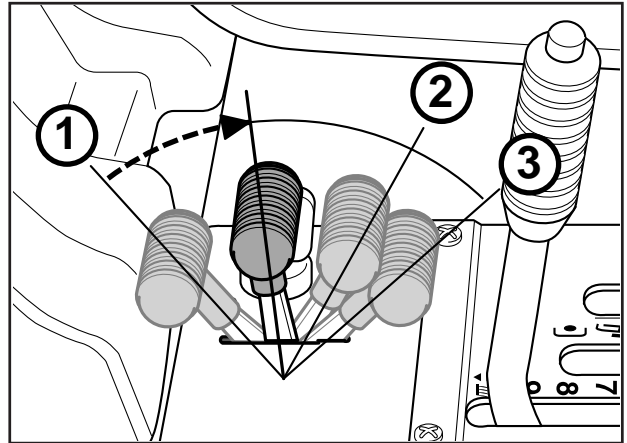
3. Push the throttle control to position 3 (choke position). In this position the engine receives a richer mixture so that the engine starts more easily.



DRIVING

Warm engine:

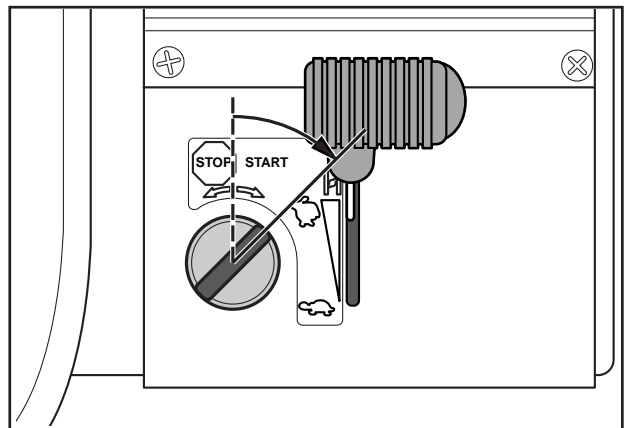
4. Set the throttle control midway between position 1 and 2.



5. Turn the ignition key to start position.

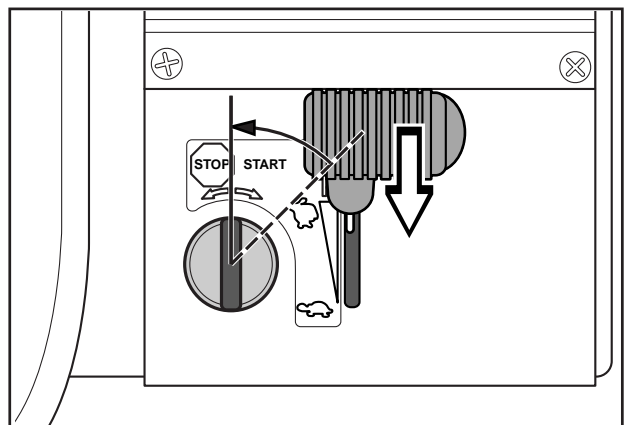
IMPORTANT INFORMATION

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



6. When the engine has started release the ignition key to neutral position.

Push the throttle control to the required speed.
For cutting 3/4 to full throttle.

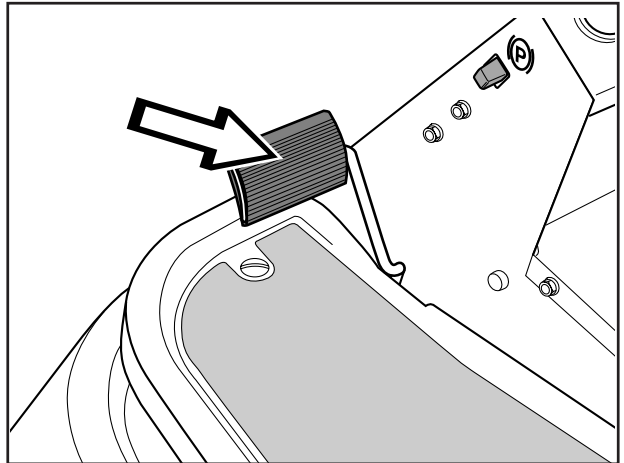


WARNING!
Never run the engine indoors, in enclosed or poorly ventilated areas. The exhaust fumes contain toxic carbon monoxide.

DRIVING

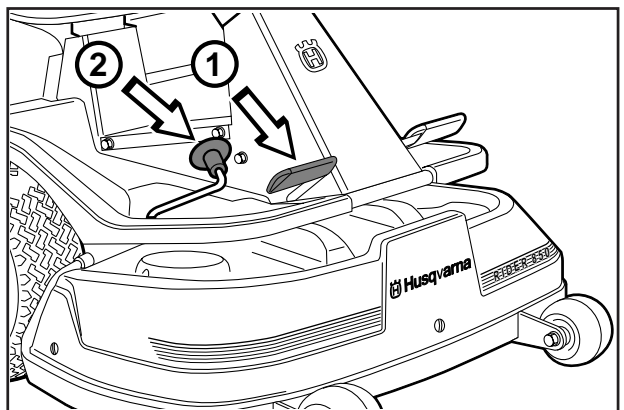
Driving the machine

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



2. Carefully press down one of the pedals until the correct speed is reached.

To drive forwards: press down pedal (1).
To reverse: press down pedal (2).



DRIVING

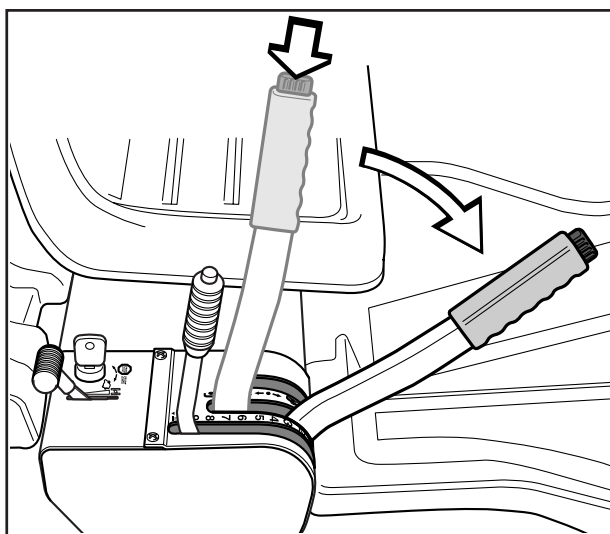
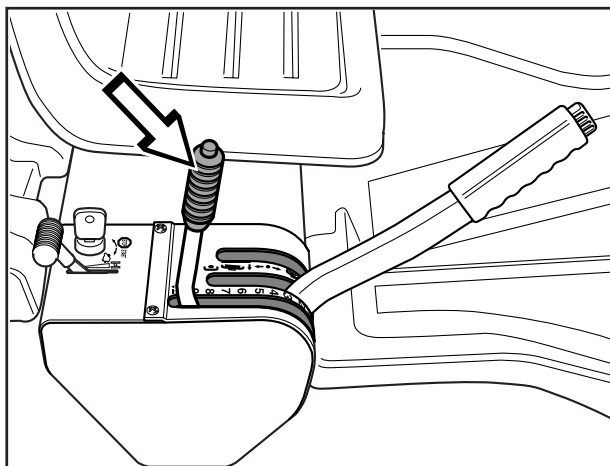
3. Select the required cutting height (1-9) with the cutting height lever.

To obtain a uniform cutting height it is important that the tyre pressures are equal on both front wheels (60 kPa).

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

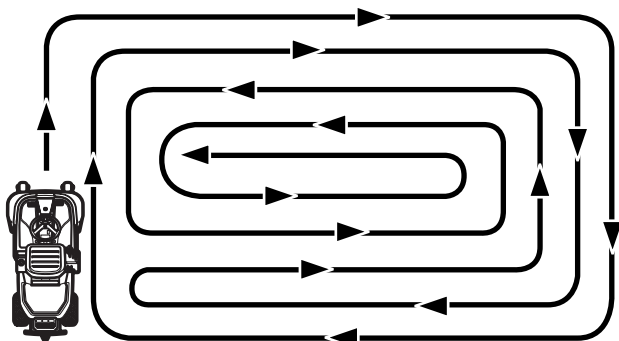
IMPORTANT INFORMATION

The service-life of the drive belts increases considerably if the engine is run at low speed when engaging the blades. For this reason do not increase the throttle until the cutting unit has been lowered to the cutting position.



Cutting tips

- Localise and mark stones and other fixed objects to avoid collision.
- Start with a high cutting height and reduce down until the required cutting result are obtained.
- The cutting 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.



Mowing pattern



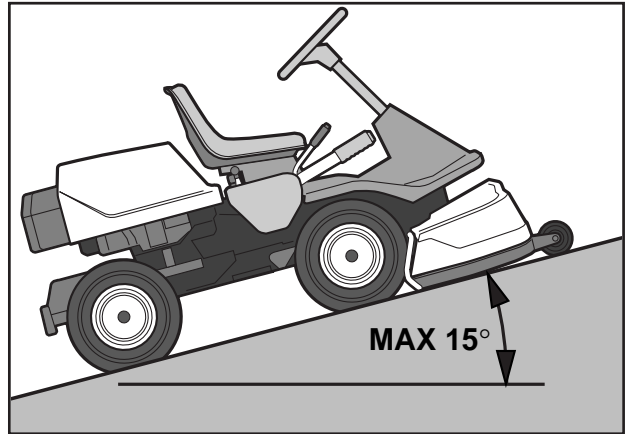
WARNING!

Clear the lawn from stones and other object which can be thrown out by the blades.

DRIVING



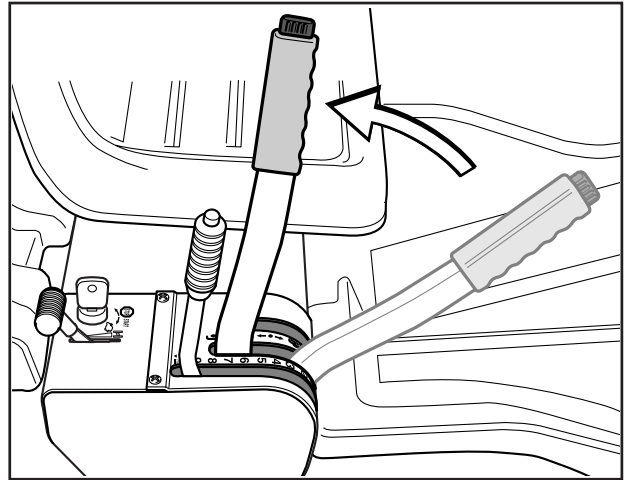
WARNING!
Never drive the machine on ground with a slope of more than 15°. Mow slopes upwards and downwards, never across. Avoid sudden changes in direction.



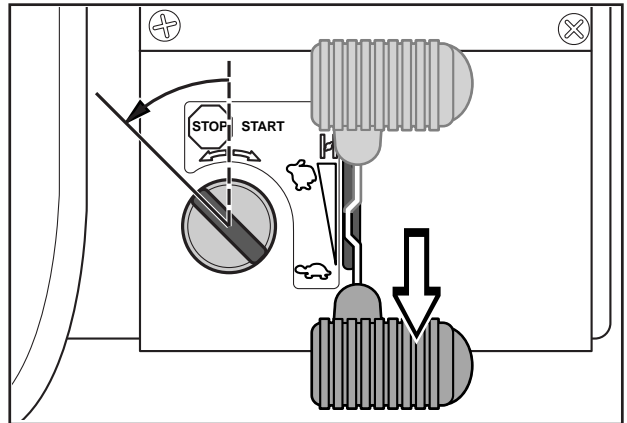
Stopping the engine

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 end position.

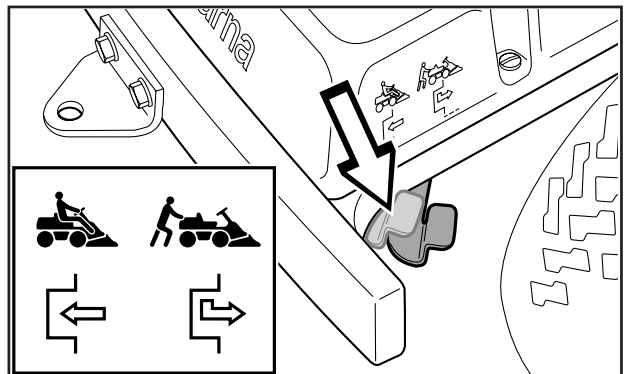


2. Pull back the throttle control and turn the ignition key to the STOP position.



Release lever

In order to move the machine when the engine is switched off the release lever must be pressed down and forwards.



MAINTENANCE

Maintenance schedule

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

Maintenance	Page	Daily maintenance before start	Maintenance interval in hours		
			25	50	100
Check the engine's oil level	19	●			
Check the engine's cooling air inlet	19	●			
Check the fuel pump's air filter	19	●			
Check the steering wires	20	●			
Check the brakes	20	●			
Check the battery	21	●			
Check the safety system	21	●			
Check screws and nuts	–	○			
Check for fuel and oil leakage	–	○			
Clean the air filter's pre-filter (foam plastic) ²⁾	22		●		
Check the cutting unit	23		●		
Check the tyre pressures (60 kPa)	26		●		
Change the engine oil ¹⁾	27		●		
Check the V-belts	–		○		
Check the hydrostat's cooling fins	–		○		
Check the transmission's oil level	21			●	
Adjust the brakes	21			●	
Lubricate joints and shafts ³⁾	27			●	
Check and adjust the throttle wire	28			●	
Clean the engine's and hydrostat's cooling flanges ^{2,4)}	–			○	
Replace the air filter's pre-filter and paper filter ²⁾	22				●
Replace the fuel filter	28				●
Replace the plug	–				○

¹⁾ First change after 5 hours. ²⁾ During dusty conditions cleaning and replacement should be more frequent. ³⁾ For daily use of the machine lubrication should be conducted twice a week. ⁴⁾ Conducted by authorised service workshop.

● = Described in these instructions.

○ = Not described in these instructions.



WARNING!

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

- The engine is switched off.
- The ignition key is removed.
- The ignition cable is removed from the plug.
- The parking brake is applied.
- The cutting unit is disengaged.

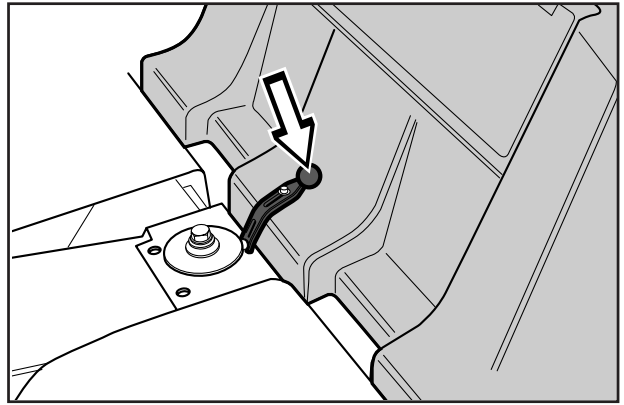
MAINTENANCE

Dismantling of the machine hoods

Engine hood

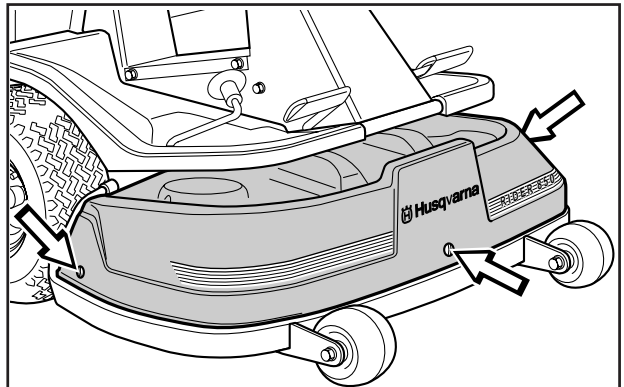
The engine is accessible for servicing when the engine hood is lifted up.

Tilt the seat forward, release the rubber strap under the seat, and tilt the hood backwards.



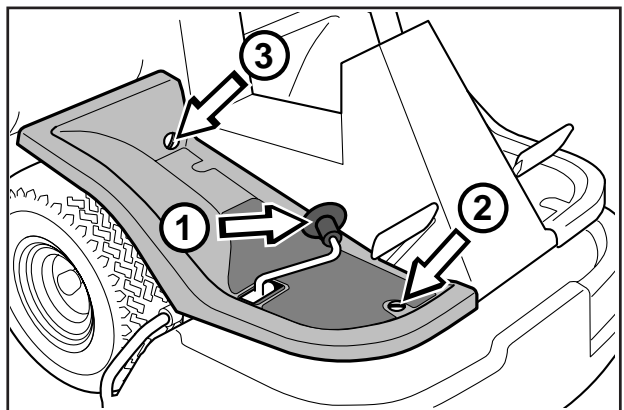
Front hood

Release the screws in the front hood (3) and lift off the hood.



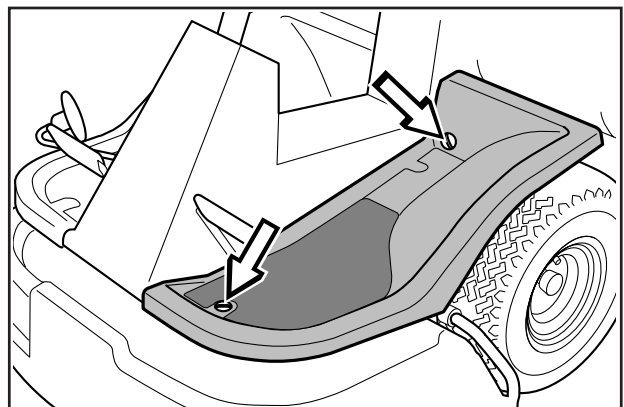
Right-hand fender

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



Left-hand fender

Release the screws in the fender (2) and lift off the fender.



MAINTENANCE

Check the engine's oil level

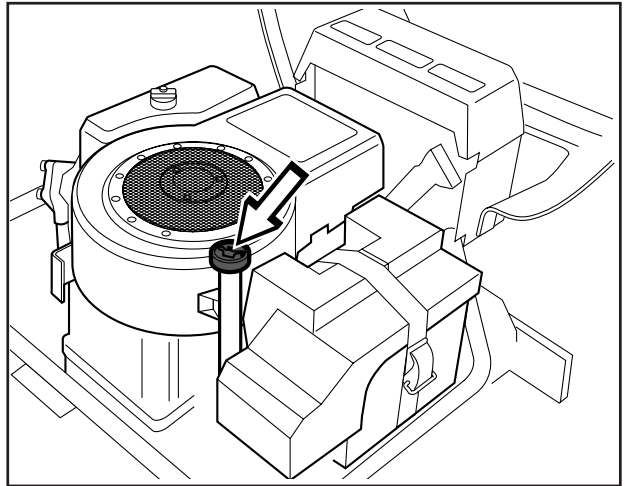
Check the oil level in the engine when the machine is horizontal.

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

Release the dip stick and pull out. Wipe off the oil and insert again.

The dip stick must be fully screwed down.

Now release the dip stick again and pull out. Check the oil level.

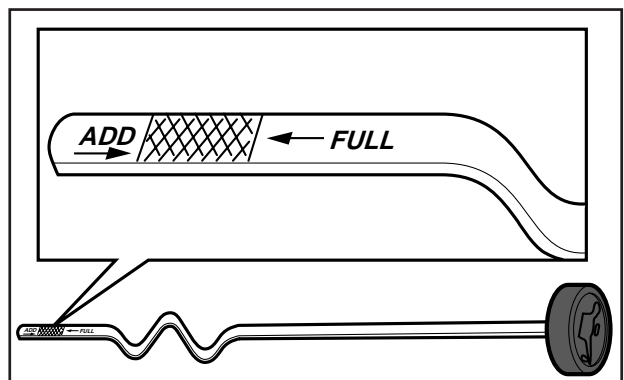


The oil level should lie between the markings on dip stick. If the level approaches the ADD mark, top up with oil to the FULL mark.

The oil is filled in the same hole for the dip stick

Use engine oil SAE 30 or SAE 10W/30, class CD-SF.

The total oil volume in the engine is 1.2 litres.

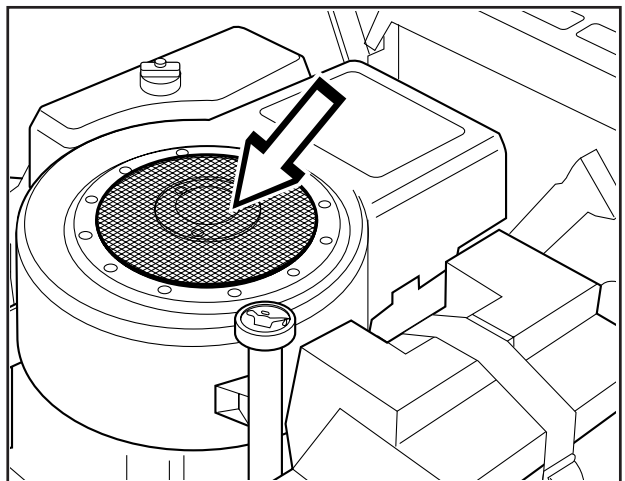


Check the engine's cooling air intake

Dismantle the engine hood as described on page 18.

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

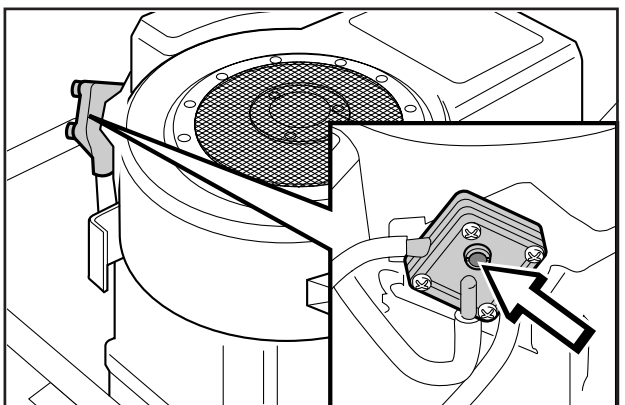
If the cooling intake is blocked this will interfere with the cooling of the engine, which can damage the engine.



Checking of the fuel pump's air filter

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

The filter can when necessary be cleaned with a brush.



MAINTENANCE

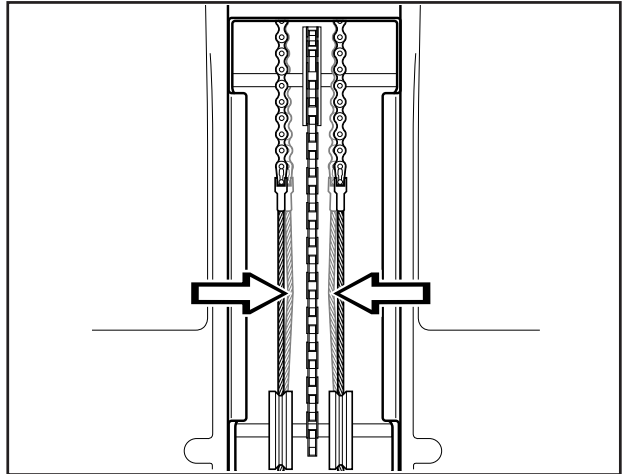
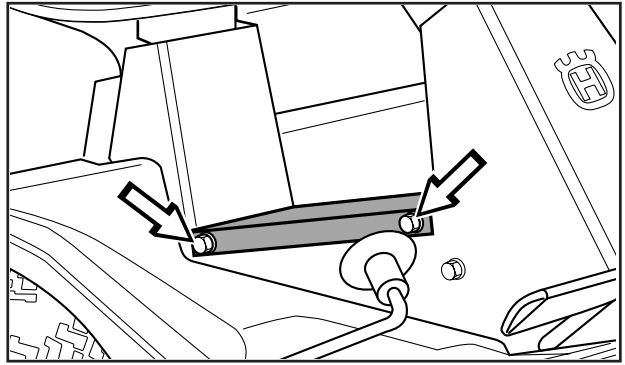
Checking and adjustment of the steering wires

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:

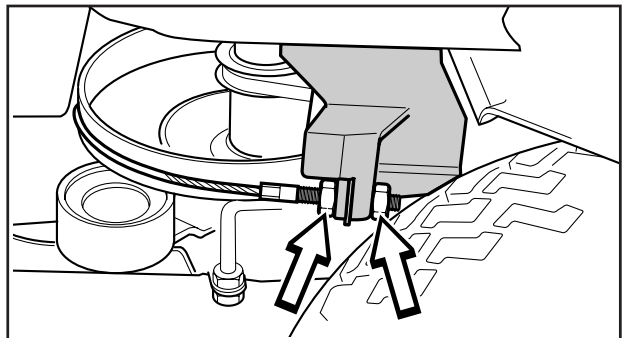
1. Dismantle the frame-plate by releasing the screws (two on each side).
2. Check the tension of the steering wires by pushing them together as shown in the diagram. It should be possible to push them together so that the distance between them is half as much, without using unnecessary force.



3. When necessary the wires can be tensioned by tightening the adjusting nuts, one on each side of the steering rim.

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.



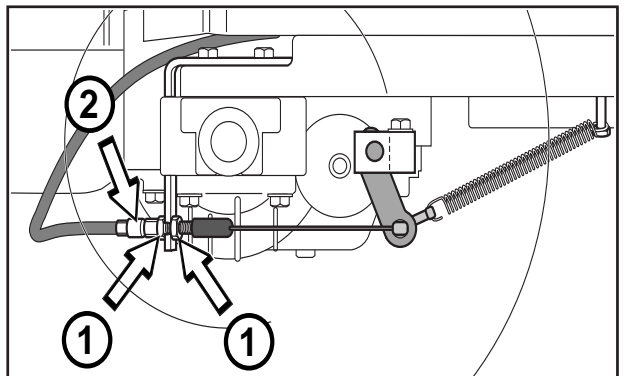
Checking and adjusting the brake

Check that the brake is correctly adjusted by placing the machine on a slight downward slope and applying the brake.

If the machine does not stand still the brake should be adjusted.

The brake is adjusted as follows:

1. Release the lock nuts (1).
2. Tension the wire with the adjusting screw (2) until all the play in the wire is taken up.
3. Tighten the lock nuts (1).
4. On completion of the adjustment the brake should be re-checked.



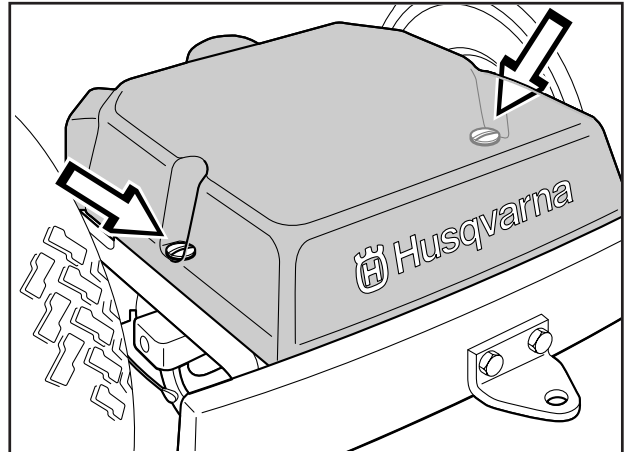
WARNING!

Poorly adjusted brakes can result in reduced braking power.

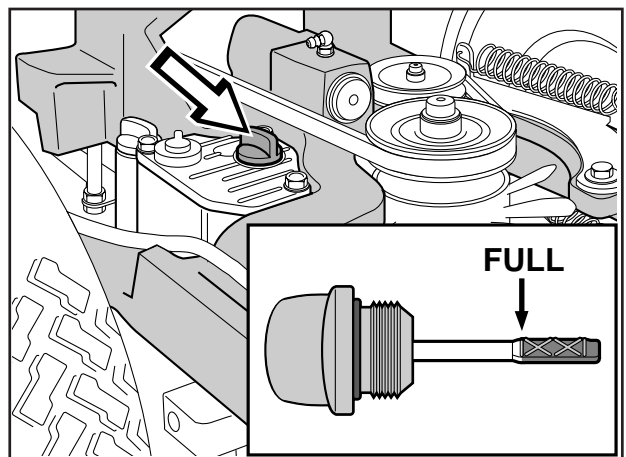
MAINTENANCE

Check the transmission's oil level

1. Check the transmission's oil level by removing the transmission cover. Release the two screws (one of each side) and lift off the transmission cover.



2. Unscrew the oil cap and check that the oil level lies between the markings on the dip stick. Top up if necessary with engine oil SAE 10W/30 (class CD-SF) in the same hole as for the dip stick.



Check the level of the battery acid

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



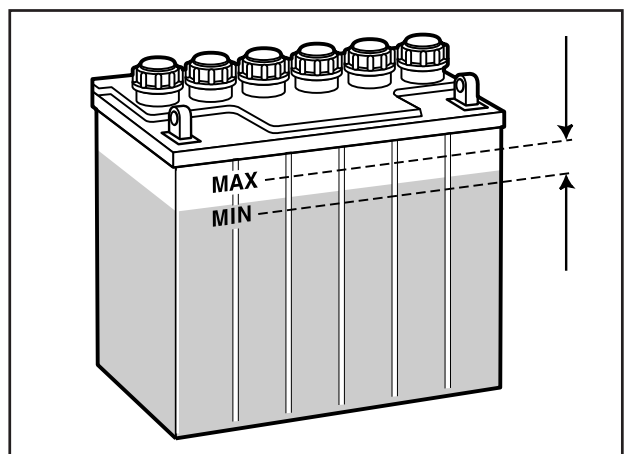
WARNING!
Procedures on contact with acid

External: Rinse well with plenty of water.

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

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

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



Check the safety system

The machine is equipped with a safety system which prevents starting the cutting unit or driving the machine unless someone is sitting in the seat.

Check daily the safety system functions.

MAINTENANCE

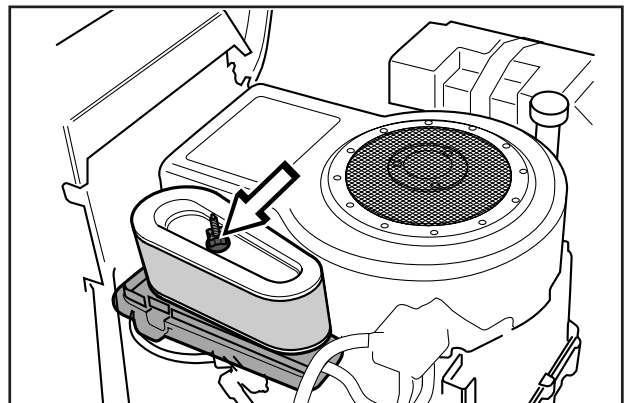
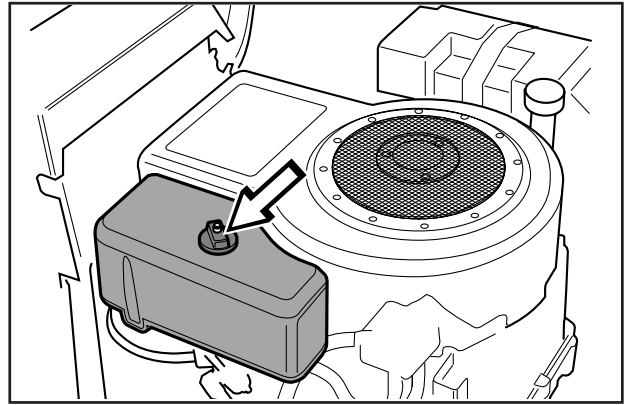
Replacing the air filter

If the engine seems to lack power or goes irregularly the reason may be that the air filter is clogged.

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

The air filter is replaced as follows:

1. Dismantle the engine hood as described on page 18.
2. Remove the air filter housing's plastic cover by releasing the wing-nut.
3. Remove the wing-nut on the air filter and lift off the paper filter with pre-filter.

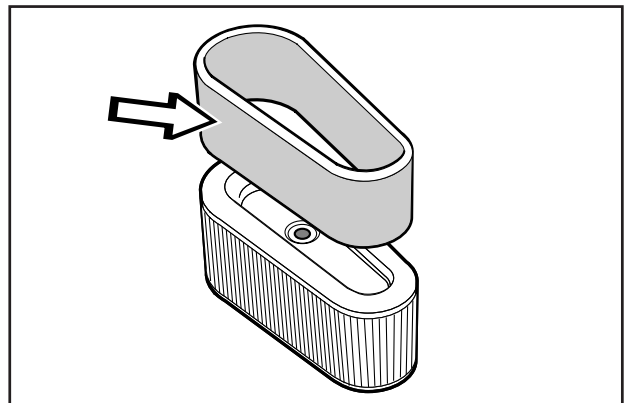


4. Pull off the foam plastic pre-filter from the paper filter and wash clean in mild detergent.

Squeeze it dry in a clean cloth.

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

Replace the paper filter if it is clogged with dirt.



IMPORTANT INFORMATION

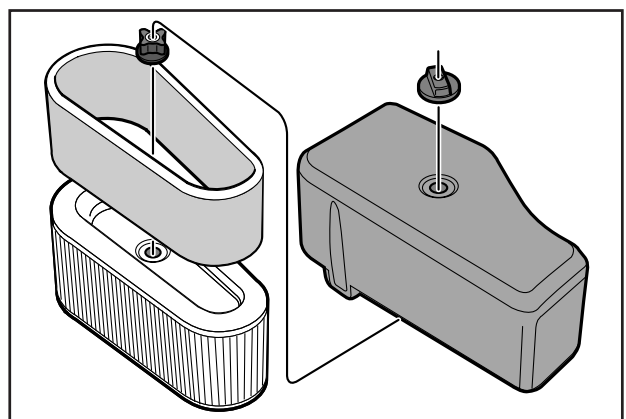
Do not use compressed air to clean the paper filter.

5. Fit the air filter as follows:

Push the pre-filter over the paper filter.

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

Replace the plastic cover over the air filter housing and tighten the wing-nut.



MAINTENANCE

Checking and adjustment of the cutting unit's ground pressure Rider 970

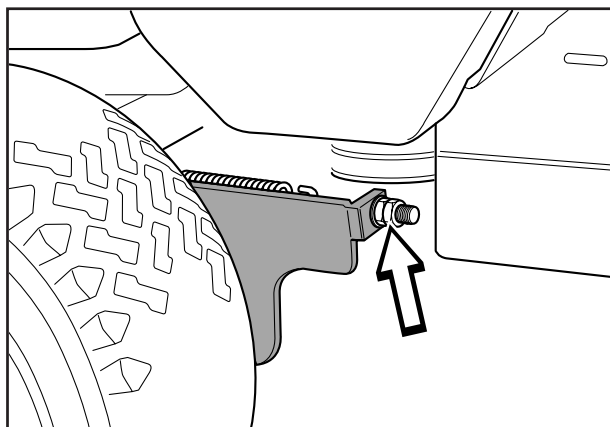
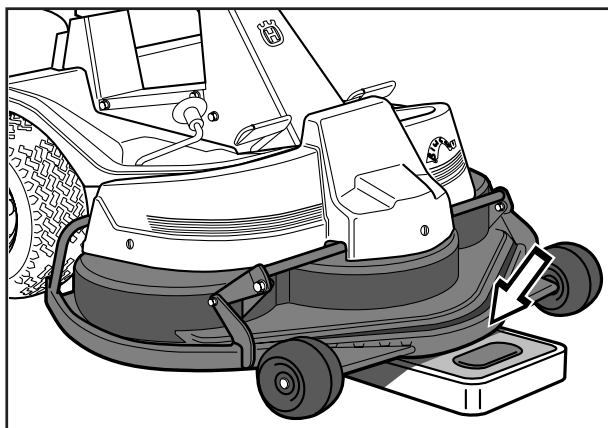
To achieve the best cutting results the cutting unit should follow the underlying surface without pressing too hard against it.

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.

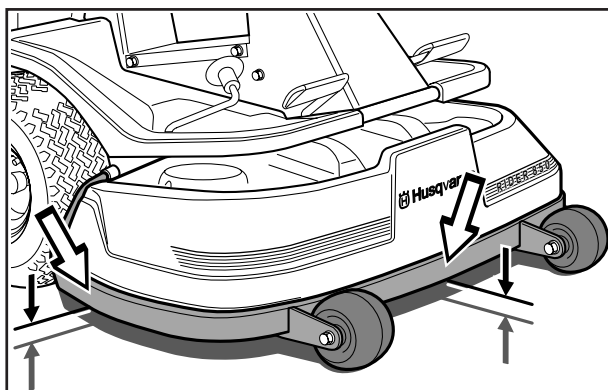
The ground pressure should be between 12 and 15 kg.



Checking the cutting unit's parallelism

Check the parallelism of the cutting unit as follows:

1. Place the machine on a level surface.
 2. Measure the distance from the ground to the edge of the unit, at the front and back of the hood.
- If the values are the same the cutting unit is parallel.

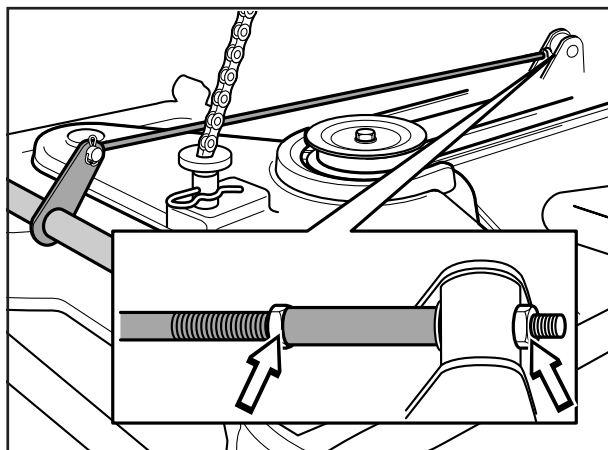


MAINTENANCE

Adjustment of the cutting unit's parallelism

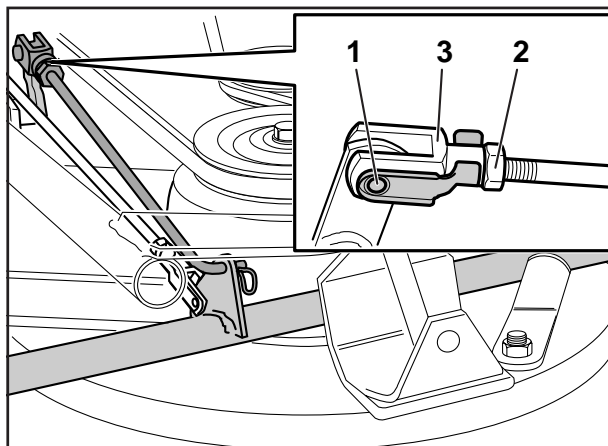
Adjustment of Rider 850

1. Dismantle the front hood and right-hand fender as described on page 18.
2. Vertical adjustment of the cutting unit is made with the adjusting nuts on the back edge of the lift-strut.
3. Raise the cutting unit at the front edge by shortening the lift-strut. Lower the cutting unit at the front edge by lengthening the lift-strut.
4. Tighten the nuts against each other after the adjustment.
5. On completion of the adjustment the unit's parallelism should be re-checked. Fit the right-hand fender and the front hood.



Adjustment of Rider 970

1. Dismantle the front hood and right-hand fender as described on page 18.
2. Release the strut by pulling out the rear pin (1). Lift the rear edge of the hood to relieve the parallel strut.
3. Release the lock-nut (2).
4. Screw out the fork (3) to raise the front edge of the hood. Screw in the fork (3) to lower the rear edge of the hood.
5. Tighten the lock-nut after adjusting.
6. On completion of the adjustment the unit's parallelism should be re-checked. Fit the right-hand fender and the front hood.



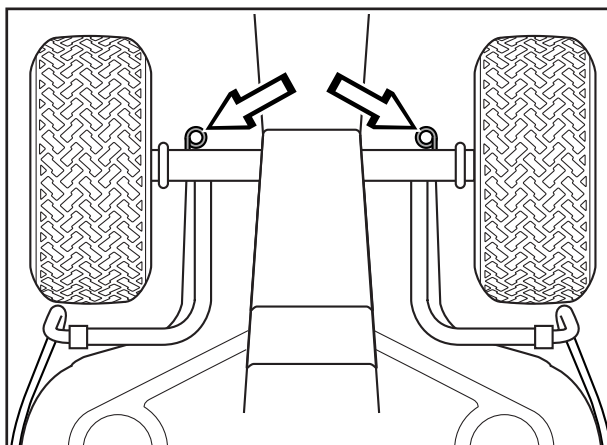
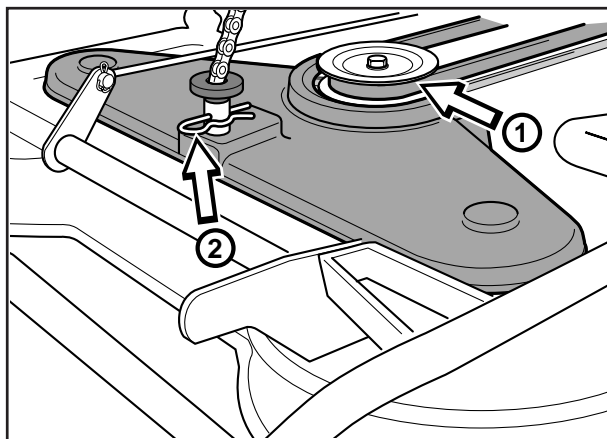
MAINTENANCE

Dismantling the cutting unit

The cutting unit can be released from the machine for cleaning or checking of the blades and screws.

Dismantle the cutting unit on Rider 850 HST as follows:

1. Dismantle the front hood and right-hand and left-hand fenders as described on page 18.
2. Raise the cutting unit by pulling the lift lever backwards to the transport position.
3. Dismantle the drive belt (1).
4. Lower the cutting unit by pressing in the lift lever's lock button and moving the lever to cutting position, and then setting the lowest cutting height with the cutting height lever.
5. Remove the hair-needle spring (2) from the chain retainer.
6. Remove the lock pins (one on each side) on the rear edge of the unit.



WARNING!
When the lock pins are removed the unit will drop to the ground. Make sure to keep your hands or fingers away from under the unit during dismantling.

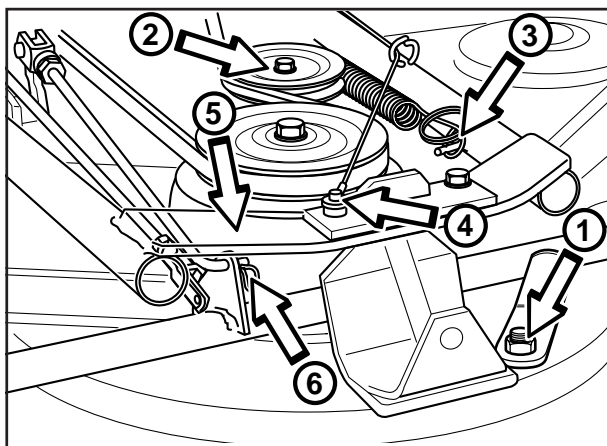
Fitting of the cutting unit takes place in the reverse order to dismantling.

Dismantle the cutting unit on Rider 970 Bioclip as follows:

1. Dismantle the front hood as described on page 18.
2. Set the cutting height to the highest position. Push the stop (1) in against the crossbar and then set the cutting height to the lowest position. The cutting unit is now locked vertically.
3. Relieve the tensioning roller (2) by disconnecting the spring (3).
4. Push the lock-plate (4) forwards and press down the unit's front edge so that it is released from the unit's frame (5).
5. Push the unit backwards and dismantle the drive belt. Remove the hair-needle spring and release the crossbar (6) from the height adjustment. The unit can now be pulled forward until it releases from the rear suspension.



WARNING!
Wear protective glasses when dismantling the cutting unit. The spring which tensions up the belt can go off and cause personal injury.



Fitting of the cutting unit takes place in the reverse order to dismantling.

MAINTENANCE

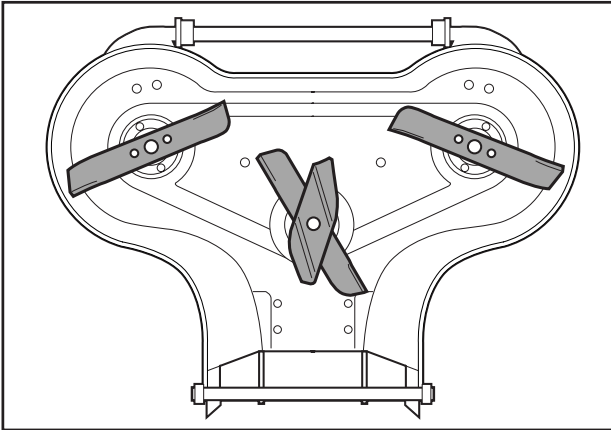
Checking the blades

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.

IMPORTANT INFORMATION

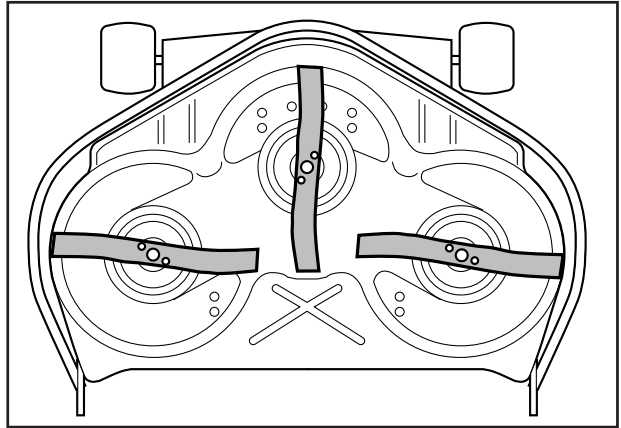
Replacing or sharpening the blades should be conducted by an authorised service workshop.



Cutting unit on Rider 850 (rear ejection)

IMPORTANT INFORMATION

On the Bioclip unit the relative positioning of the blades should always be as shown in the diagram with an angle of 90° between the blades. Otherwise the blades can go against each other and damage the unit.



Cutting unit on Rider 979 (Bioclip unit)

Checking the tyre pressure

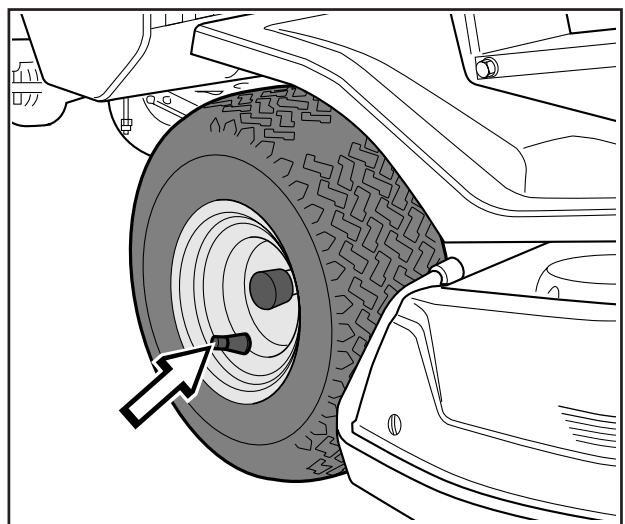
The tyre pressure should be 60 kPa (0.6 kp/cm²) all round.

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

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

IMPORTANT INFORMATION

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



MAINTENANCE

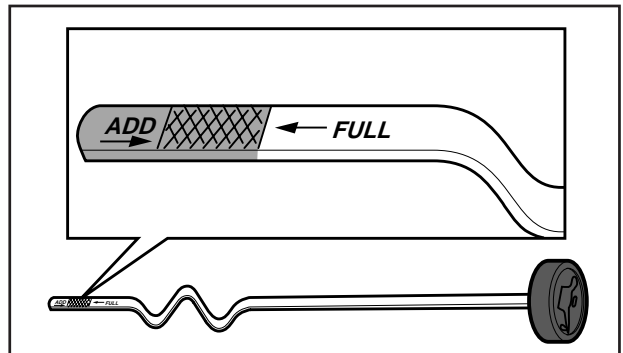
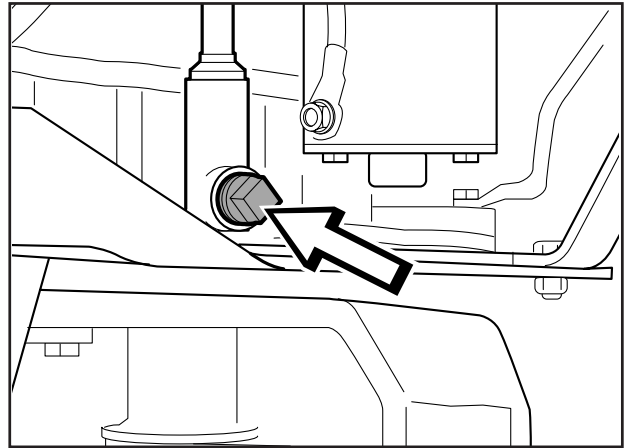
Changing the oil

The oil should be changed for the first time after 5 hours of running time. Thereafter it should be changed every 25 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.

1. Place a receptacle under the engine's drain plug, located on the left-hand side of the engine.
2. Remove the dip stick and drain plug.
3. Let the oil run out into the receptacle.
4. Fit the drain plug and tighten.
5. Fill up with oil to the FULL mark on the dip stick. The oil is filled in the same hole for the dip stick. Use engine oil SAE 30 or SAE 10W/30, class CD-SF. Use engine oil with min. API SF quality and SAE 30 or SAE 10W/30 viscosity grade. The oil volume in the engine is 1.2 litres.
6. Run the engine warm and then check that there is no leakage from the drain plug.



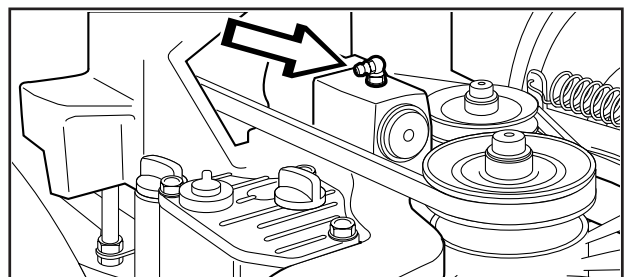
IMPORTANT INFORMATION

Used engine oil is hazardous to health and environment and must in accordance with the law not be poured out on the ground or in the nature, and must be handed in to a workshop or other designated station for treatment. Avoid skin contact, wash with soap and water in the event of spillage.

Lubrication

The following two lubrication points should be regularly lubricated with high quality graphite grease.

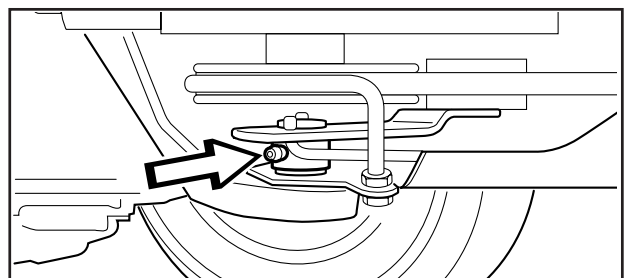
With daily use lubrication should be conducted twice a week.



General lubrication

All joints and bearings are lubricated on manufacture with molybdenum sulphide grease. Re-grease with same type of grease. Lubricate the steering and control wires with engine oil.

The machine should be lubricated regularly, and twice a week when used daily.

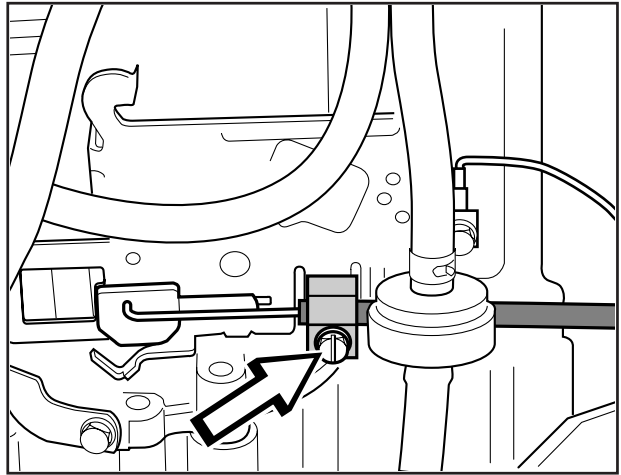


MAINTENANCE

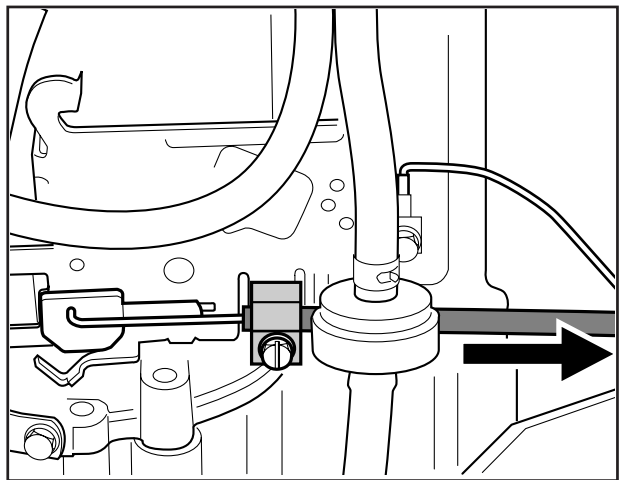
Checking and adjustment of the throttle wire

If the engine does not respond as it should do when the throttle lever is moved or if the top speed is not reached, the throttle wire may need adjusting.

1. Release the clamping screw (see arrow) and push the throttle control to full throttle position.



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

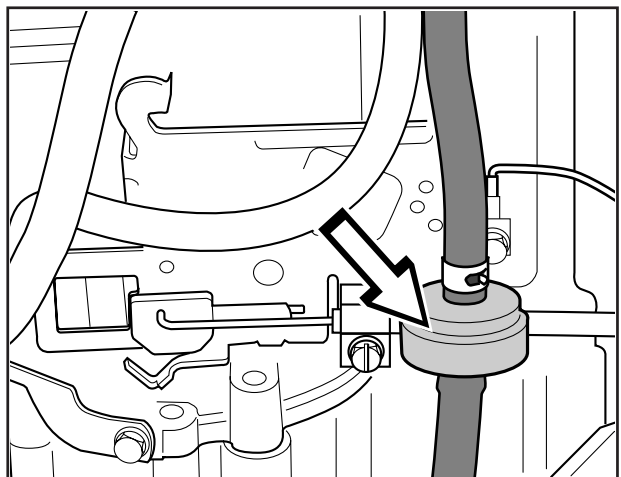


Replacement of the fuel filter

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

Replace the filter as follows:

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



TROUBLE SHOOTING SCHEDULE

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

STORAGE

Winter storage

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

Fuel stabiliser is an acceptable alternative to avoid tacky deposits during storage. If alkylate petrol (Aspen) is used stabiliser is not necessary since this fuel is stable. However, one should avoid changing from standard to alkylate petrol since sensitive rubber parts can harden. Add stabiliser to the fuel in the tank or the storage container. Always use the mixing ratios indicated by the manufacturer. Run the engine for at least 10 minutes after adding the stabiliser so that it will reach the carburettor. Do not empty the fuel tank and carburettor if stabiliser has been added.



WARNING!

Never place an engine with fuel in the tank indoors or in poorly ventilated areas where petrol fumes can come into contact with naked flames, sparks or pilot flames in boilers, hot water heaters, or drying cabinets, etc. It is highly inflammable and negligent usage can cause severe person injury and material damage. Drain off the fuel in an approved container outdoors and well clear of naked flames. Never use petrol for cleaning purposes. Use degreasing agents and hot water instead.

To put the machine in order for storage follow these instructions:

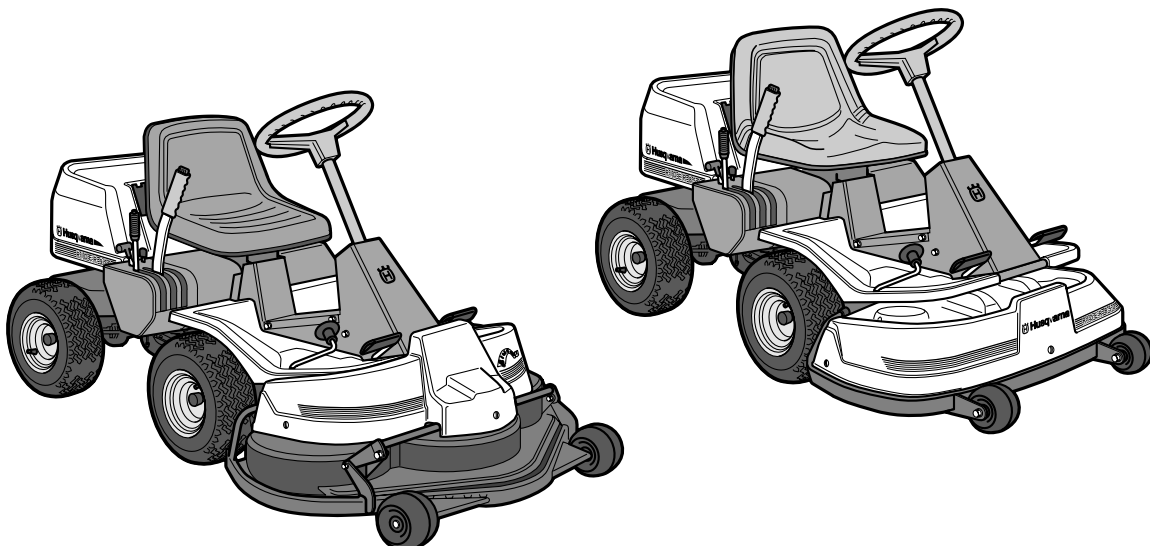
1. Carefully clean the machine, especially under the cutting unit. Touch-up paint damage to avoid rust.
2. Inspect the machine for worn or damaged parts and tighten loose screws and nuts.
3. Change the oil, and take care of the waste oil.
4. Empty the fuel tank. Start the engine and run it until the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

Service

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

Always use genuine parts.

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



TECHNICAL DATA

Dimensions	Rider 850	Rider 970
Length	2000 mm	2145 mm
Width	960 mm	1050 mm (970-15.5), 1260 mm (970-15.5S) 1120 (970-Bioclip)
Height	1060 mm	1060 mm
Unladen weight	225 kg	240 kg
Wheel base	820 mm	855 mm
Track	625 mm	Front 715 mm, rear 625 mm
Tyre size	16 x 6.50 x 8	16 x 6.50 x 8
Tyre pressure, front & rear	60 kPa (0.6 kp/cm ²)	60 kPa (0.6 kp/cm ²)
Max. gradient	15°	15°
 Engine		
Manufacture	Briggs & Stratton model 286707 type 0184, trim 01	Briggs & Stratton model 28N707 type 0189, trim 01
Power	9.2/12.5 kW/h.p.	11.4/15.5 kW/h.p.
Displacement	465 cm ³	465 cm ³
Fuel	Min. 92 octane leaded or unleaded	Min. 92 octane leaded or unleaded
Tank volume	7 litres	7 litres
Oil	SAE 30 or SAE 10W/30/API SF class CD-F	SAE 30 or SAE 10W/30/API SF class CD-SF
Oil volume	1.2 litres	1.2 litres
Start	Electric starter	Electric starter
 Electrical system		
Type	12 V, negative earth	12 V, negative earth
Battery	12 V, 20 Ah	12 V, 20 Ah
Spark plug	Champion CJ8 or J8 (850-12.5) electrode gap = 0.7-0.8 mm	Champion CJ8 or J8 electrode gap = 0.7-0.8 mm
 Transmission		
Manufacture	Kanzaki K55	Kanzaki K55
Oil	SAE 10W/30, class CD-SF	SAE 10W/30, class CD-SF
 Cutting unit		
Type	3-blade unit with rear ejection	3-blade unit with side/rear ejection/Bioclip
Cutting width (Bioclip)	850 mm	965 mm (970-15.5/15.5S), 1030 mm
Cutting height	9 pos. 40-90 mm	9 pos. 40-90 mm, 45-80 mm (Bioclip)
Blade diameter (Bioclip)	304 mm	350 mm (970-15.5/15.5S), 410 mm
 NOISE LEVEL	 100 dB(A)	 100 dB(A)

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

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

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

NOTES

A series of horizontal dotted lines for writing notes.



