Rider Pro 15
Rider ProFlex 18
Rider ProFlex 21

Workshop Manual

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Workshop manual

Rider Pro 15
Rider ProFlex 18
Rider ProFlex 21

Contents

Safety regulations

General instructions

The workshop handbook is written for personnel who are assumed to have general ride-on mower reparation and service know-how.

The workshop where the ride-on mower is repaired should be equipped with safety devices in accordance with local regulations.

No-one should attempt to repair the ride-on mower without having first read and understood the contents of this handbook.

The machine is tested for safety and approved only for equipment supplied or recommended by the manufacturer.

The below-mentioned boxes are included in this workshop handbook, as is appropriate.

WARNING!
The warning box indicates a risk of injury to persons if the instructions are not followed.

IMPORTANT INFORMATION

This box indicates a risk of damage to the material if the instructions are not followed.

Special instructions

The fuel used in the ride-on mower has the following hazardous characteristics:

- Toxic fluid and fumes
- Can cause eye and skin complaints
- Can cause breathing difficulties
- Highly flammable

When using compressed air, do not direct the compressed air stream towards your, or anybody else's, body. Air can be forced into the blood stream, thereby constituting a danger to life .

Use hearing protectors when test driving.

After test driving, do not touch the silencer before it has cooled down. Risk of burn injuries. This especially applies if the ride-on mower is equipped with a catalytic converter. If consumed, the lining on and in the catalytic converter element is dangerous to health. Use protective gloves when working with the catalytic converter/silencer.

The blades are sharp and can cause cutting injuries. Always use protective gloves when you are handling the blades.

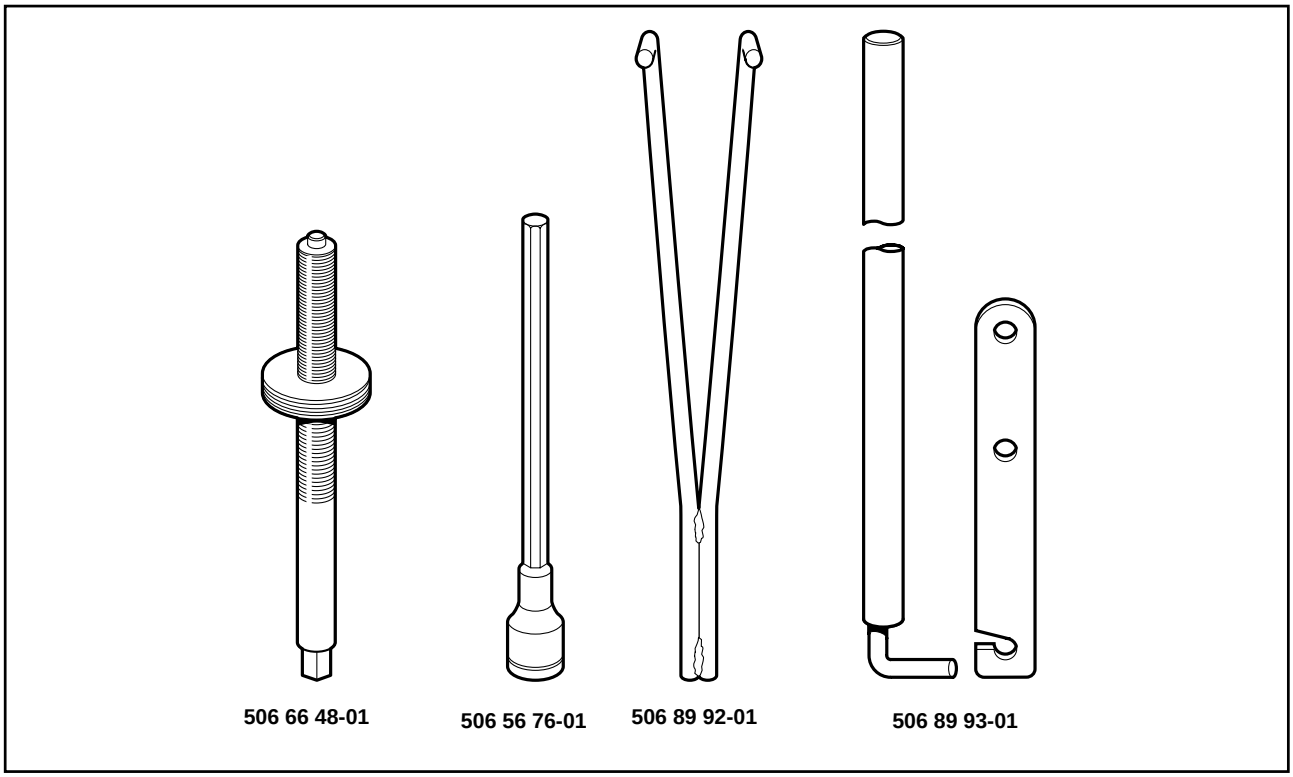
Use protective glasses when working with the mowing deck. If the belt's tension spring comes off and flies upwards, this can cause injury to persons.

Be extra careful when handling battery acid. Spilling acid on the skin can cause severe burn injuries. If acid is spilt on the skin, 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.

Special tools

The following special tools are used when working on the ride-on mower.



506 56 76-01 Ball-ended Allen key 5/16" to unscrew the engine pulley socket head cap screw (Kawazaki).

506 66 48-01 Puller for engine pulley.

506 89 92-01 Holder-on for engine pulley removal.

506 89 93-01 Tool for removing steer return spring.

Technical data

Dimensions:	**Rider Pro 15**	**Rider ProFlex 18**	**Rider ProFlex 21**
Length, base machine	2 020 mm	2 030 mm	2 030 mm
Width, base machine	880mm	900 mm	900 mm
Height	1 070 mm	1 100 mm	1 100 mm
Kerb weight, base machine	234 kg	272 kg	334 kg
Wheel base	860 mm	940 mm	940 mm
Track	720/640 mm	720 mm	720 mm
Tyre size	16 x 7.50 x 8	18 x 7.50 x 8	18 x 7.50 x 8
Tyre pressure, front & rear	60 kPa (0,6 kp/cm^2)	60 kPa (0,6 kp/cm^2)	60 kPa (0,6 kp/cm^2)
Max. gradient	15°	15°	15°
Engine:			
Manufacture	Kawasaki V-Twin	Kawasaki V-Twin	Kawasaki V-Twin
Modell	FH451V-AS50	FH531V-AS50	FH641V-AS50
Power	11/15 kW/hp	13,2/18 kW/hp	15,5/21 kW/hp
Displacement	494 cm^3 / 30.1 cu.in.	494 cm^3 / 30.1 cu.in	675 cm^3 / 41.19 cu.in
Fuel	min 87 octane unleaded	min 87 octane unleaded	min 87 octane unleaded
Tank volume	7 litres	10 litres	10 litres
Oil	SAE 30 or SAE 10W/30, 10W/40 class SC-SH	SAE 30 or SAE 10W/30, 10W/40 class SC-SH	SAE 30 or SAE 10W/30, 10W/40 class SC-SH
Oil capacity	1,5 litres / 1.6 US qt	1,5 litres / 1.6 US qt	1,5 litres / 1.6 US qt
Oil volume incl. filter	1,7 litres / 1.8 US qt	1,7 litres / 1.8 US qt	1,7 litres / 1.8 US qt
Start	Electric start	Electric start	Electric start
Gearbox:			
Manufacture	Tuff Torq K 62	Tuff Torq K 62	Tuff Torq K 66
Oil	SAE 10W/30 class SF-CC	SAE 10W/30, class SF-CC	SAE 10W/30, class SF-CC
Oil capacity	2,5 litres	2,5 litres	2,5 litres
Electrical system			
Type	12 V, negative earth	12 V, negative earth	12 V, negative earth
Battery	12 V, 24 Ah	12 V, 24 Ah	12 V, 24 Ah
Main fuse	Flat pin yoke 15 A	Flat pin yoke 15 A	Flat pin yoke 15 A
Spark plug	Champion RCJ8Y, electrode gap = 0,75 mm / 0.030"	Champion RCJ8Y, electrode gap = 0,75 mm / 0.030"	NGK BPR4ES electrode gap = 0,75 mm / 0.030"

Tightening moments

Carrier steering	5–10 Nm
Pulley steering wire	20–30 Nm
Belt wheel	35–40 Nm
Blades	45–50 Nm
Blade bearings	20–25 Nm
Belt tensioner wheel	15–25 Nm
Holder screws, engine	20–25 Nm
Holder screws, gear box	20–25 Nm
Engine pulley	70–80 Nm
Wheel axle nut	100–150 Nm

Mowing deck	**BioClip 90**	**BioClip 103**	**BioClip 112**
Cutting width	900 mm	1 030 mm	1 200 mm
Cutting heights	46-95 mm	45-105 mm	40-100 mm
Blade length	440 mm	410 mm	420 mm
Sound level	100 dB(A)	100 dB(A)	100 dB(A)
Width	1 000 mm	1 115 mm	1 230 mm
Weight	43 kg	55 kg	58 kg
Length with cutting unit	2 300 mm	2 310 mm	2 370 mm

Mowing deck	**Side ejector 97**	**Rear ejector 97**	**Rear ejector 120**
Cutting width	970 mm	970 mm	1 200 mm
Cutting heights	40-80 mm	40-100 mm	40-100 mm
Blade length	350 mm	350 mm	440 mm
Sound level	100 dB(A)	100 dB(A)	100 dB(A)
Width	1 300 mm	1 075 mm	1 305 mm
Weight	53 kg	49 kg	60 kg
Length with cutting unit	2 380 mm	2 370 mm	2 390 mm

Control points

Mowing deck parallelism with cutting height in pos. 1:	± 2 mm
Cutting height control in pos. 1:	Bio = 45 ± 2 mm Other = 40 ± 2 mm
Synchronous transmission belt tension Bio 103 version 1:	Automatic adjustment
Synchronous transmission belt tension Bio 103 version 2 at 10 N force, impression:	7 mm
Dist. between support plate and drive belt:	3–6 mm
Distance belt tensioner control lever and belt guide, disengaged unit:	17 ± 5 mm

Play

Brake wire:	1 mm
Differential lock wire ProFlex 21:	0 mm
Wire for hydrostatic transmission pedals:	0 mm

Delivery and dealer service

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 right amount of oil is in the transmission.
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 hydrostatic transmission pedals.
11. Check engine revs 3 000±75 rpm.
12. Tell customer about:

    Need and benefits of following the service schedule.

    Need and benefits of having machine serviced every 300 hours.

    Service and the effect of the service journal on the machine’s second-hand value.

    Range of applications for BioClip.
13. Complete proof of sale, etc.

After first 8 hours

1. Change engine oil.

25 hour service

1. Check the fuel pump's air filter.
2. Check/clean the engine cooling air intake.
3. Clean the cooling air intake to the transmission.
4. Clean the air filter's pre-filter (Oil-foam).

50 hour service

1. Carry out 25 hour service.
2. Clean/replace the air filter cartridge (paper filter).
   (More frequent intervals in dusty conditions.)
3. Check/adjust the mowing height setting.
4. Check/adjust the parking brake.
5. Inspect the flame guard/spark arrester. (optional equipment)

100 hour service

1. Carry out 25 hour service.
2. Carry out 50 hour service.
3. Change the engine oil.
4. Check whether the engine's oil filter needs changing (every 200 hours).
5. Clean/replace the spark plug.
6. Replace the fuel filter in the fuel line.
7. Clean the pulse-air filter.
8. Clean the cooling fins on the engine and transmission.
9. Check whether the oil and filter need changing in the transmission (every 500 hours).
10. Check whether the air filter's paper insert needs cleaning or changing (every 200 hours).

300 hour service

1. Carry out 25 hour service.
2. Carry out 50 hour service.
3. Carry out 100 hour service.
4. Clean the combustion chamber and grind the valve seats.
5. Check the engine's valve clearance.
6. Replace the air filter's pre-filter (Oil-foam).
7. 300 hour service at authorised service workshop.

At least once a season

1. Clean the engine's cooling air intake (25 hours).
2. Replace the air filter's pre-filter (Oil-foam) (300 hours).
3. Replace the air filter's paper insert (200 hours).
4. Change the engine oil (100 hours).
5. Change the engine's oil filter (200 hours).
6. Adjust the mowing height setting (50 hours).
7. Adjust the parking brake (50 hours).
8. Inspect the flame guard/spark arrester, optional equipment (50 hours).
9. Clean/replace the spark plug (100 hours).
10. Replace the fuel filter in the fuel line (100 hours).
11. Clean the pulse-air filter (100 hours).
12. Clean the cooling fins (100 hours).
13. Check the engine's valve clearance (300 hours).
14. Change the oil in the transmission (500 hours).
15. Change the filter in the transmission, ProFlex 21 (500 hours).
16. 300 hours service is carried out by an authorised service workshop.

Maintenance schedule

The following is a list of the maintenance which should be conducted on the machine. Most of the points that are not covered by this workshop manual are covered by the operator's manual.

Maintenance	Page	Daily maintenance		Weekly[3] maintenance	At least once a year	Maintenance interval in hours			
		before	after			25	50	100	300
Check for fuel and oil leakage	-	❍							
Check the parking brake	29	●							
Check the engine oil level	12	●							
Check the fuel pump air filter	-	▼							
Check the seat safety switch	61	●							
Check the lift lever safety switch	61	●							
Check the safety switch, pedal system	61	●							
Check/clean the engine cooling air intake	-		▼						
Check the cutting unit:	47		●						
• blades are secure	57		●						
• condition of blades (sharpness, shape, etc.)	57		●						
• blade synchronisation (90° between BioClip)	55		●						
Check steering wires (for play, etc.)	26		●						
Check fasteners (screws, nuts, etc.)	-		❍						
Start engine and blades, listen for noise	-		❍						
Clean underside of cutting unit	-		▼						
Clean transmission air intake	-		▼						
Check battery acid level	11			●					
Check transmission oil level	13			●					
Check condition of V-belts, pulleys, etc.	-			❍					
Check for damage	-			❍					
Check tyre pressures (60 kPa)	13			●					
Check for damage to wire guide at articulated joint	-			❍					
Clean thoroughly around engine	-			❍					
Clean thoroughly around transmission	-			❍					
Clean all belts, pulleys, etc.	-			▼					
Lubricate the differential lock wire (Rider 21)	-			▼					
Lubricate belt tensioner (nipple)	-			▼					
Lubricate triangle link (nipple)	-			▼					
Lubricate seat suspension	-			▼					
Lubricate all wires	-			▼					
Lubricate safety lock on cutting unit	-			▼					
Lubricate inner stud on cutting unit	-			▼					
Lubricate slot for cutting unit tool frame	-			▼					
Lubricate bearing surfaces on cutting unit	-			▼					
Clean inside frame tunnel	-			❍					
Lubricate pedal mechanism inside frame tunnel	-			▼					
Lubricate the gear control	-			▼					

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 the parking brake wire	-				▼				
Lubricate throttle control	-				▼				
Lubricate choke control	-				▼				
Lubricate steering chain inside frame tunnel	-				▼				
Check steering wires inside frame tunnel	26				●				
Clean engine cooling air intake	-				▼	▼			
Clean the air filter's pre-filter (Oil-foam)	-				▼	▼			
Change engine oil[1]	26				●			●	
Clean the air filter's cartridge [2] (paper filter)	-				▼		▼		
Check/adjust cutting height setting	48				●		●		
Check/adjust parking brake	29				●		●		
Inspect flame guard/spark arrestor (optional equipment)	-				❍		❍		
Change the engine's oil filter (every 200 hours).	-				▼			▼	
Clean/replace spark plugs	-				❍			❍	
Replace fuel filter in pipe	-				▼			▼	
Clean pulse-air filter	58				●			●	
Clean the cooling fins	-				❍			❍	
Check engine valve clearance[4]	-				❍				❍
Check whether oil change[4] or filter change[4-5] are necessary for gearbox (every 500 hrs)	45				●			●	
Replace the air filter's pre-filter (Oil-foam)[2]	-				▼				▼
Replace the air filter (paper filter)[2] (every 200 hours)	-				▼			▼	
Carry out 300 hour service [4]	-				❍				❍

[1] First change after 8 hours. When driving with a heavy load or when the ambient temperature is high, replace every 50 hours. [2]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. [5] ProFlex 21 only.

● = Covered by this workshop manual.
❍ = Not covered by this workshop manual.
▼ = Described in the Operating 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.**

Delivery measures

To our dealer

Well-performed delivery service is the first step to a functioning aftermarket. A functioning aftermarket is in everybody's interest:

- The customer is satisfied with their Rider. He/she knows where to go to get help if problems occur.
- You have a regular customer, who recommends you and your company to other potential customers.
- In this way we build our trademark together, and take joint responsibility for our products and customers.

Make sure the paper work is in good order.

Fill in the warranty and delivery documents etc. and make sure that the customer gets the right Operating Instructions for their machine.

Keep a customer register so that in future you can see which machines customers have, including all the serial numbers. This register will benefit you when ordering spare parts and for future marketing.

In conjunction with the delivery you should also give the customer the information required to ensure the safe handling and care of their machine. Pay special attention to informing the customer about:

- Safety instructions.
- Controls. Emphasise that one does not push in the reversing lock on Rider 11 when engaging the neutral position (start lock function).
- Checking of oil levels. Replenishing of oil, and which type of oil is required.
- First oil change after the running-in period.
- The need for, and advantages of, following the service schedule and regularly handing in their Rider for service.
- Which fuel should be used.
- Mowing tips to get good results. Applications for BioClip.
- Which accessories are available for the type of Rider in question.
- Warranty regulations.
- Your company, and who the customer can turn to if problems occur.

Packaging and unpacking

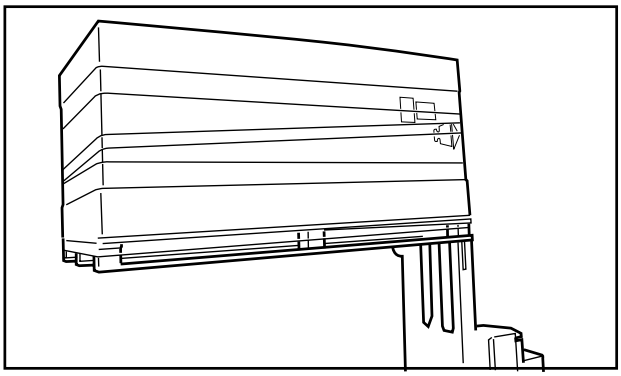
On delivery from the factory the Rider is normally packed in special packaging. This consists of a wooden bottom board with a top part consisting of heavy-duty cardboard held together by plastic film.

WARNING!
Handle the transport box carefully. Keep the goods as level as possible. Use long forks when lifting from the short side.

The bottom board is provided with pallet feet and the goods can be handled with a normal fork-lift truck from the long side. To keep the goods as level as possible, two men should help the truck driver. Lift the machine and drive the truck carefully.

Undo the plastic film and lift off the cardboard sections. The Rider is placed on the bottom board, braked and secured with wooden blocks.
Check that there is no transport damage after removing the packaging. Report any damage to the transport company in accordance with the standard routines.

The packaging should not be returned.



Lifting from the short side requires long pallet forks, see diagram.

Parts enclosed in packaging

The following parts are enclosed in the transport box:

Number	Part
1	Steering wheel with steering column tube
1	Socket head cap screw steering column tube
1	Lock nut steering column tube
2	Support rollers (BioClip)
6	Battery plugs
1	Operating Instructions
1	Owner's Manual, Kawasaki
2	Armrests (ProFlex 21)
2	Wheel weights (ProFlex 21)
4	Wheels (certain markets)

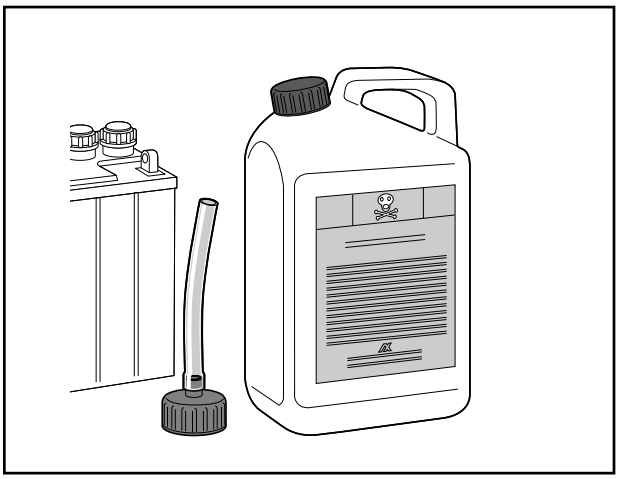
Battery

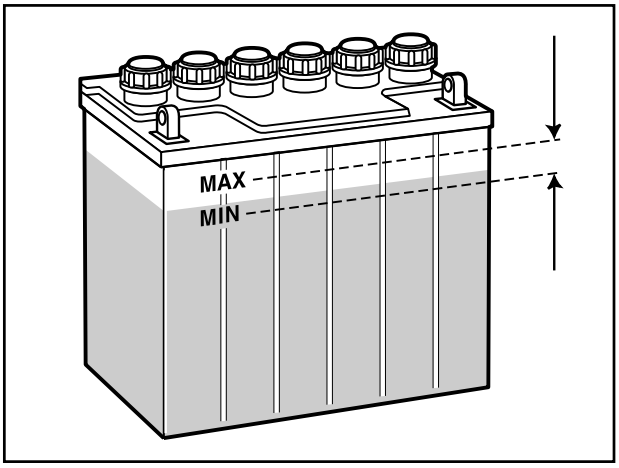
WARNING!

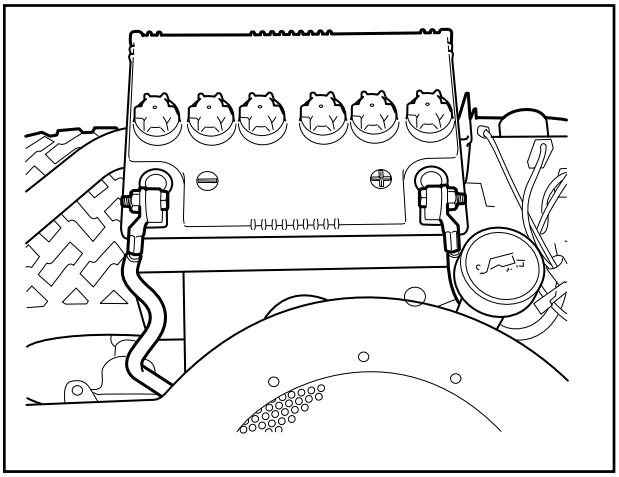
The battery acid is highly corrosive. Use rubber gloves and protective glasses. Avoid breathing in the acid fumes.

	Measures for contact with acid
External:	Rinse thoroughly with water.
Internal:	Drink large quantities of water or milk. Contact a doctor as soon as possible.
Eyes:	Rinse thoroughly with water. Contact a doctor as soon asap.

The battery gives off explosive gas. Sparks, naked flames and cigarettes must absolutely not be in the near vicinity of the battery.







The battery is delivered dry-charged from the factory. The cells are fitted with sealing film. The battery plugs are packed in a plastic bag.

- Fill the battery cells slowly with battery acid to the max. level mark on the battery container.
- Wait 20 minutes and top up with battery acid if necessary.
- Charge the battery with 12 V max. 6 A for 4 hours.
- Check the electrolyte level and top up if necessary with distilled water to the top level marks on the battery container.

Put the battery in position.

Connect the battery with the screws and nuts fitted on the battery. Brace the screws when fitting to avoid exposing the terminals to strain.

- Black cable is connected to -.
- Red cable is connected to +.

Make sure the cables do not rub against the material.

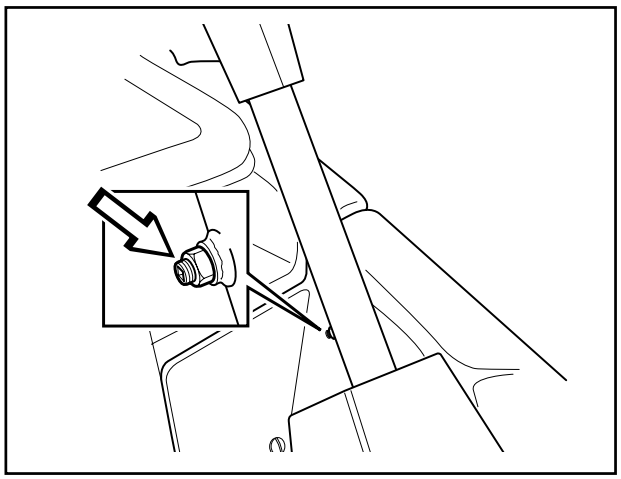
Fit the cover over the battery and tighten the strap.

Armrests

In those cases where armrests are delivered with the machine the dealer is obliged to fit them. (ProFlex 21).

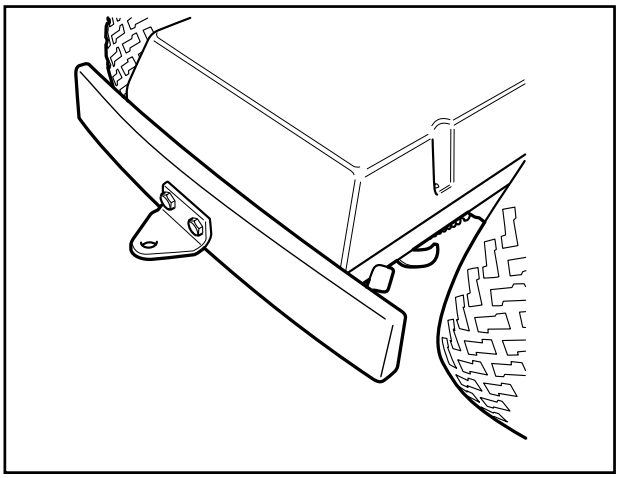
Steering wheel

- Fit the steering wheel with the steering column tube on the steering shaft.
- Screw in the socket head cap screw so that it goes in the slot on the steering shaft. Work on the steering wheel and tighten the socket head cap screw so that it bottoms in the slot.
- Fit the lock nut on the socket head cap screw.



Tow plate

The tow plate is fitted the “wrong way round” at the factory for transport reasons. Fit the tow plate on the rear bumper as shown in the diagram.



Check the oil level in the engine

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

Lift up the engine cover.

Loosen the dipstick and pull it out. Wipe the dipstick and replace it.

The dipstick should **not** be screwed down.

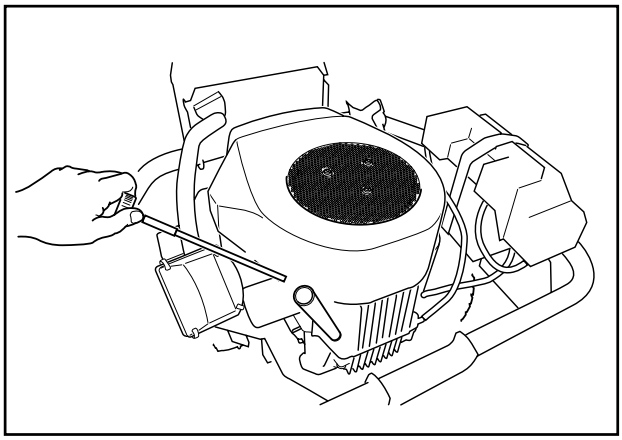
Loosen the dipstick and pull it out again. Check the oil level.

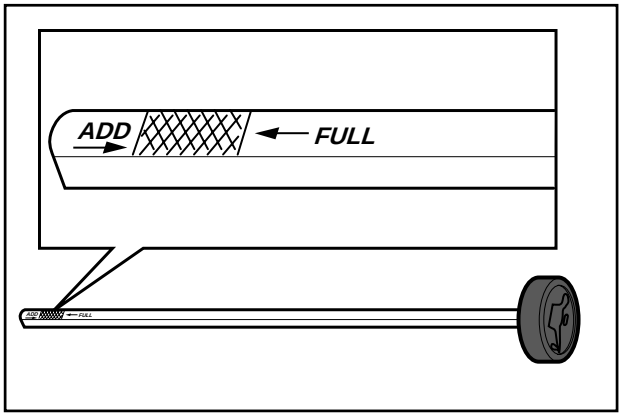
The oil level should lie between the markings on the dipstick. If the level is close to the “ADD” mark, top up with oil to the “FULL” mark on the dipstick.

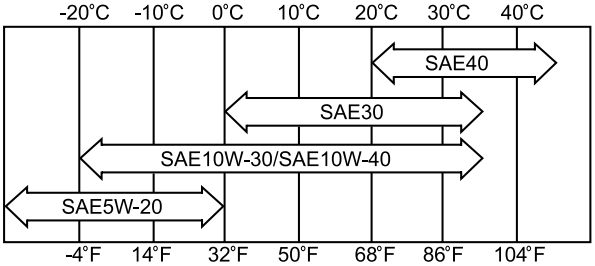
The oil is poured in the same hole the dipstick fits in.

Use engine oil with the viscosity shown in the diagram below, grade SC-SH.

The engine takes a total of 1.4 litres of oil.

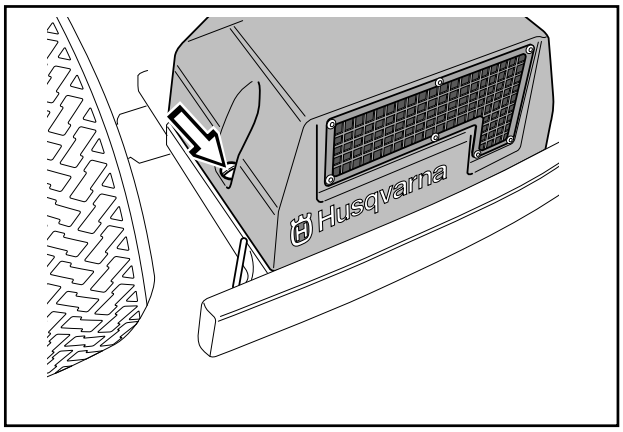




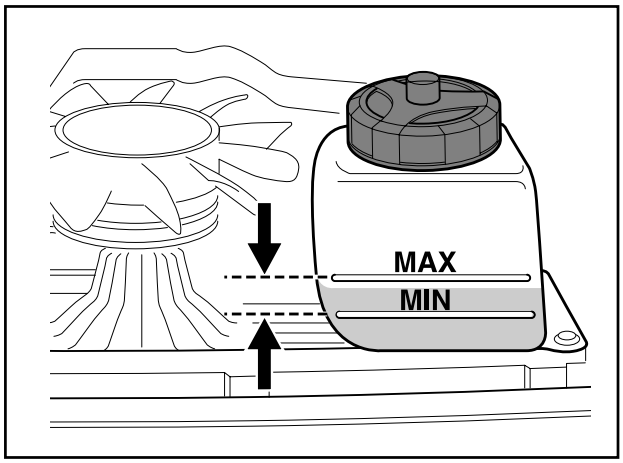


Checking the oil level in the transmission

Remove the transmission cover. Loosen both screws (one on each side) and lift off the transmission cover.



Check that there is oil in the transmission's oil tank. Fill if necessary with engine oil SAE 10W/30 (class SF–CC).



IMPORTANT INFORMATION

Check and top up with oil after each test drive. The oil level will drop if there are air pockets in the transmission.

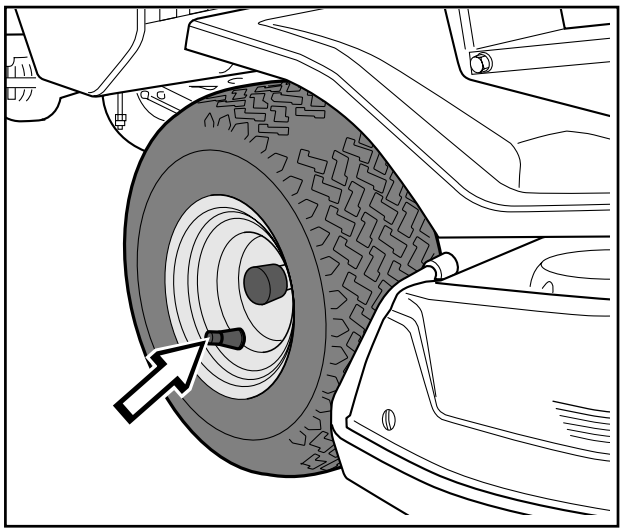
Wheels

Fit the wheels (certain markets). The tyre pressures should be 60 kPa (0.6 kp/cm ^{2}) on all the wheels.

To improve the driving capacity the pressure in the back tyres can be reduced to 40 kPa (0.4 kp/cm ^{2}).

Maximum permitted pressure is 100 kPa (1.0 kp/cm ^{2}).

In those cases where wheel weights are delivered with the machine the dealer is obliged to fit them. (ProFlex 21).



IMPORTANT INFORMATION

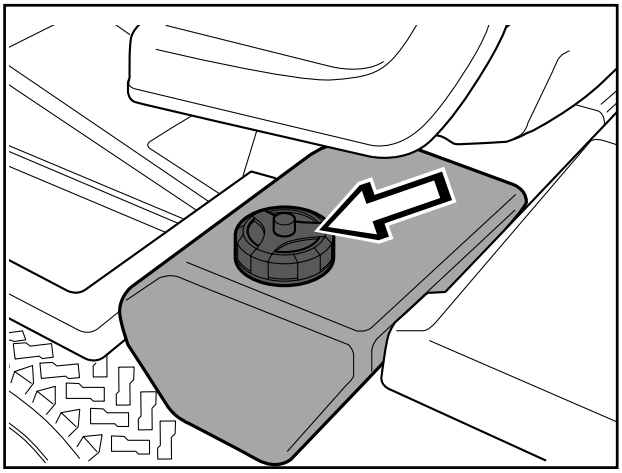
Different pressures in the front tyres will cause the blades to cut the grass at different heights.

Checking and adjusting of the mowing deck's ground pressure and parallelism

Carried out after checking the tyre pressures. See respective sections in this Workshop Manual.

Test running

Fill up with petrol. The engine should be run on the lowest 87 octane unleaded petrol (no oil admixture). Environmentally adapted alkylate petrol, e.g. of Aspen brand, can be preferably used.



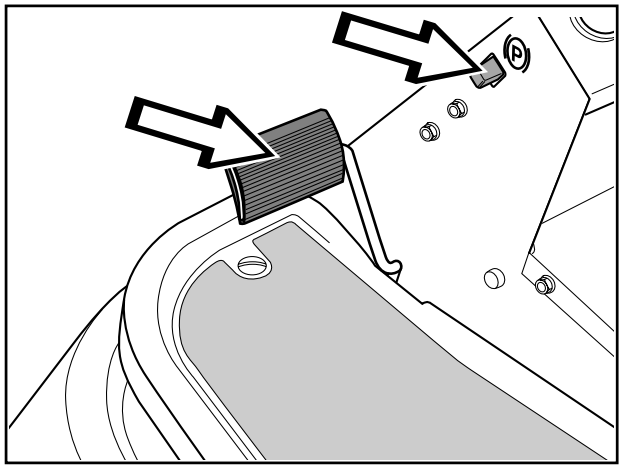
WARNING!
Petrol is highly inflammable. Observe caution and fill up with petrol outdoors.

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

Start the engine.

Check that the machine is in neutral and standing on level ground when the parking brake is released.

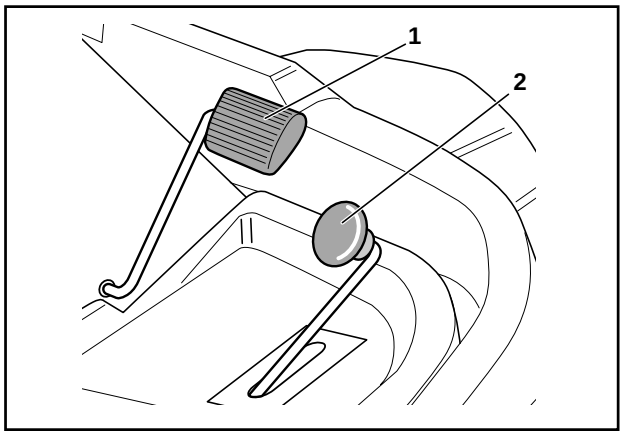
Check the function of the parking brake.



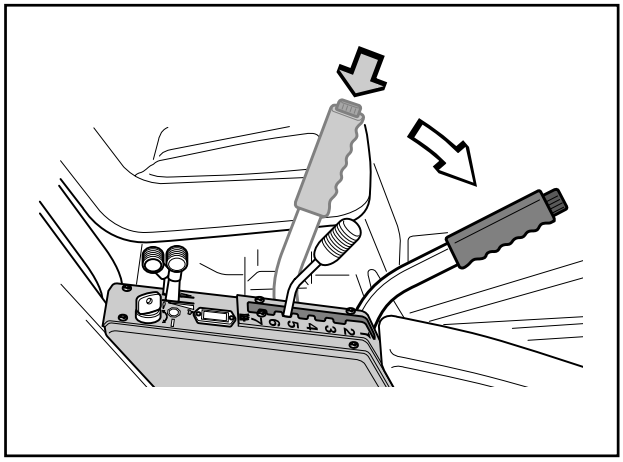
Check driving forwards (1) and backwards (2).

Check that the starter motor does not function when any of the hydrostatic transmission pedals are activated.

Check that the engine stops when getting up from the seat when any of the hydrostatic transmission pedals are activated.



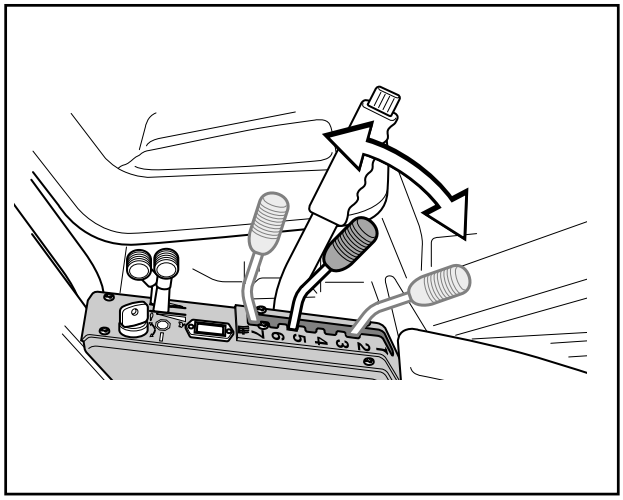
Check that the starter does not function when the mowing unit is in its lower position.



Check the function of the mowing deck and that there is no abnormal noise.

The mowing height can be set in 7 different positions with the lever. (Rider 15, 9 different positions).

See “Specifications” for the mowing heights on the different mowing decks.



Speed regulator

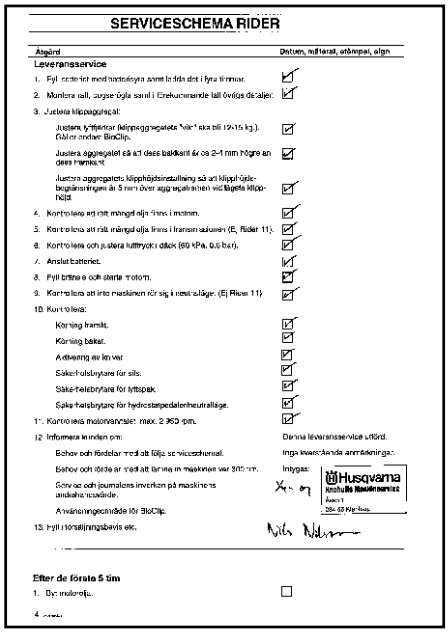
Check that the engine’s maximum speed is regulated at:

Rider 15	2 925-3075 rpm
Rider 18	2 925-3075 rpm
Rider 21	2 925-3075 rpm

Administration

Fill in the sales certificate and customer register etc.

Remember to fill in the serial number on page 3 and to sign the delivery service in the Operating Instructions.



SERVICESCHEMA RIDER

Åtgärd	Datum, månad, utförd av, sign
Leveransservice	
1. Fyll tanken med bränslestyra samt kör den i fyra timmar.	☑
2. Montera rätt, justera och kontrollera samtliga övriga detaljer.	☑
3. Justera klippaggregatet:	
Justera lyftfjädrar (klippaggregatets vikt ska bli 12-15 kg.). Gäller endast BioClip.	☑
Justera aggregatet så att dess baksida är ca 2-4 mm högre än dess framsida.	☑
Justera aggregatets klipphöjdsinställning så att klipphöjdsbegränsningen är 5 mm över aggregatsänken vid lägsta klipphöjd.	☑
4. Kontrollera att rätt mängd olja finns i motorn.	☑
5. Kontrollera att rätt mängd olja finns i transmissionen (E, Rider 11).	☑
6. Kontrollera och justera lufttrycket (60 kPa, 0,6 bar).	☑
7. Anslut batteriet.	☑
8. Fyll bränsle och starta motorn.	☑
9. Kontrollera att inte maskinen rör sig i neutralläge. (Ej Rider 11)	☑
10. Kontrollera:	
Körning framåt.	☑
Körning bakåt.	☑
Aktivering av lin var	☑
Säkerhetsbrytare för säte.	☑
Säkerhetsbrytare för lyftspak.	☑
Säkerhetsbrytare för hydrostatpedalen/neutralläge.	☑
11. Kontrollera motorvarvtalet: max. 2 950 rpm.	☑
12. Informera kunden om:	Denna leveransservice utförd.
Behov och fördelar med att följa serviceschemat.	Inga kvarstående anmärkningar:
Behov och lämplig att med att låsning in maskinen var 300 tim.	Intygas: Husqvarna
Servar och journalens inverkan på maskinens användningsområde.	
Användningsområde för BioClip.	
13. Fyll i försäljningsbevis etc.	
Efter de första 5 tim	
1. Byt motorolja.	☐
4. [illegible]	

Design and function

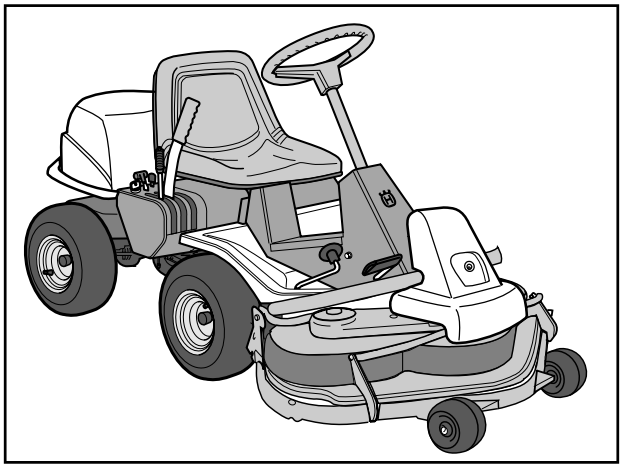
General

Husqvarna Riders is a series of ride-on mowers with a large capacity. There are six sizes, from the smallest Rider 11 to the largest Rider 20 ProFlex.

This manual refers mainly to the smaller machines; the larger ProFlex machines are covered by a separate manual. All Riders have articulated steering in order to easily cut around trees and other obstacles. Moreover, they all have front-mounted mowing decks for controlled cutting and for best possible cutting results.

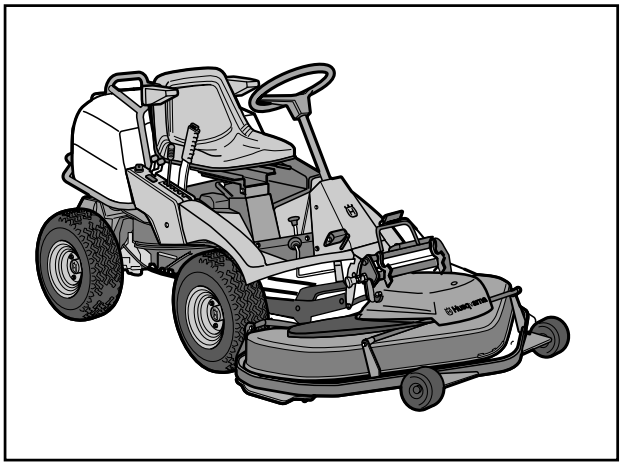
Husqvarna Riders can, moreover, be equipped with various accessories such as moss rake and dozer blade which make them flexible working tools throughout the year.

The Pro and ProFlex models are only delivered with hydrostatic transmission.



Rider Pro 15 can be delivered with four different mowing decks.

Bak 97 (rear ejection)
Sido 97 (side ejection)
Bio 90 or Bio 103



Rider ProFlex 18 and Rider ProFlex 21 can be delivered with three different mowing decks.

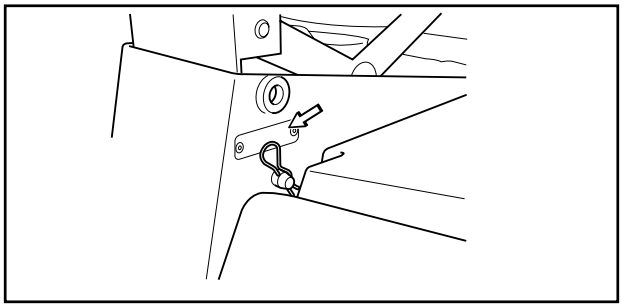
Bak 120 (rear ejection)
Bio 103 or Bio 112

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.

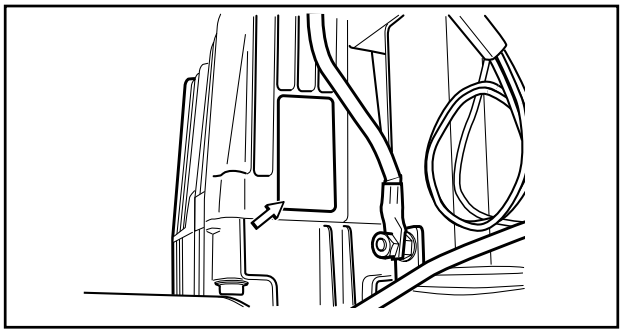
State the type designation and serial number when ordering spare parts.



The engine number is punched on a plate that is riveted to the fan cover. The plate states:

- Model.
- Type.
- Code.

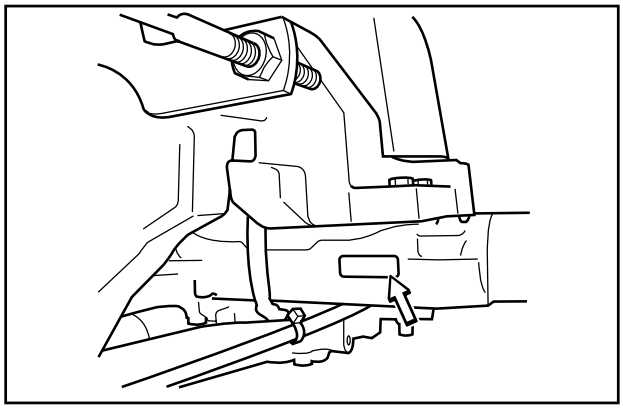
Please state these when ordering spare parts.



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

- The 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.



Engine

New Husqvarna Rider professional machines have two-cylinder, air-cooled engines from Kawasaki.

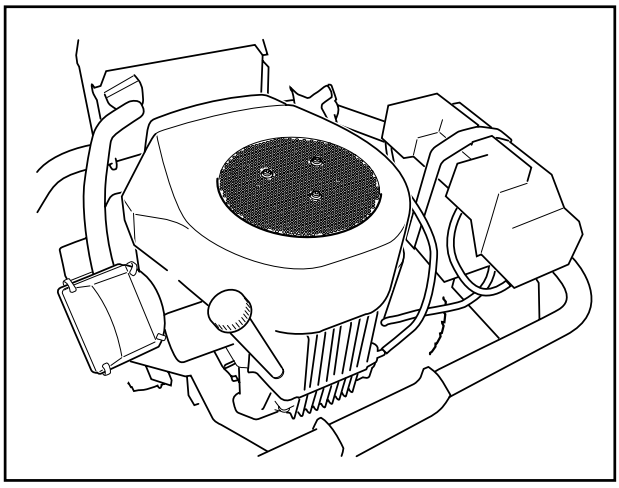
Major engine repairs are not described in this workshop manual. This information can be read in Kawasaki’s own manuals, which contain detailed information on the adjustment and repair of the engines. The manuals can be ordered at an authorised service workshop.

The table below shows the model number for respective Rider models. These should be given when ordering manuals:

Model	Kawasaki’s engine type
Rider Pro 15	FH451V-AS50
Rider ProFlex 18	FH531V-AS50
Rider ProFlex 21	FH6411V-AS50

It is important to only use genuine spare parts when repairing the engines. The warranty will no longer be valid if other parts are used.

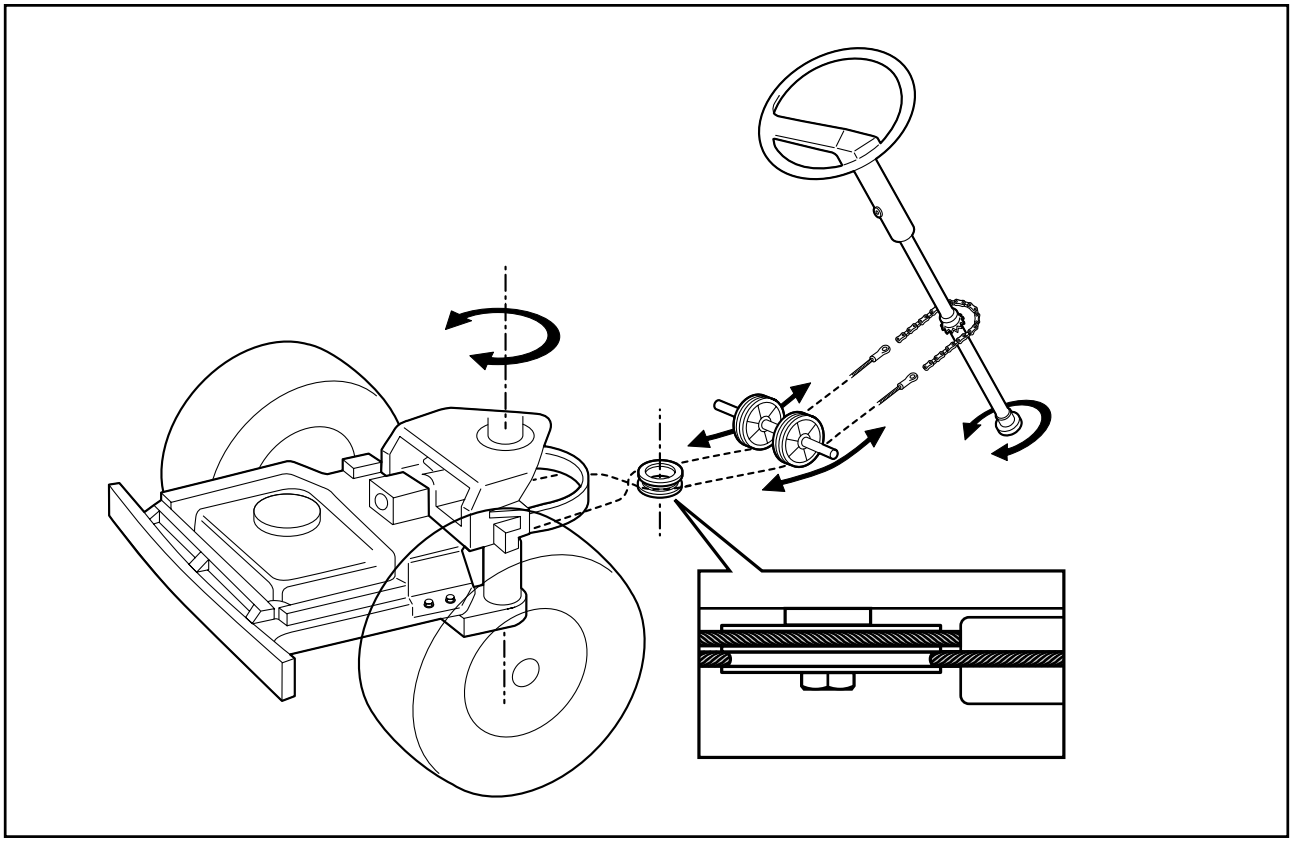
Rider Pro 15, ProFlex 18 and Rider ProFlex 21 have two-cylinder, overhead valve engines with pressure lubrication and separate oil filters. These engines are fitted with catalytic converters, which reduce the emission of hydrocarbons and nitrogen oxides by up to 65% and carbon monoxide by up to 45%.



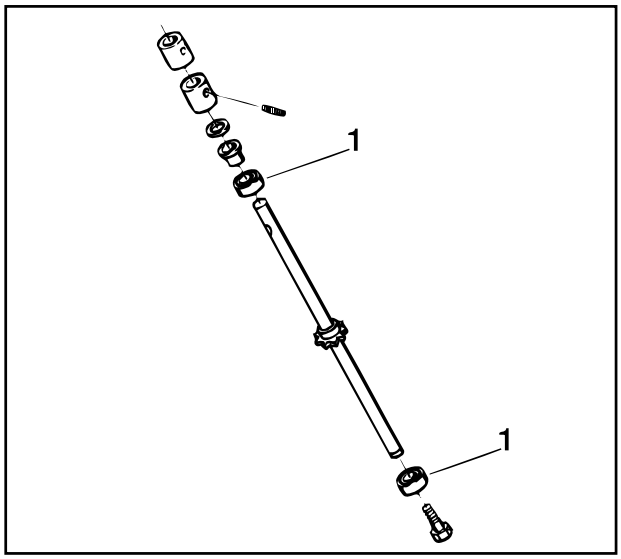
Steering

All ride-on lawn mowers in the Rider series have articulated steering. The steering force from the steering wheel is transferred to the rear section via wires and a chain. This ensures that the ride-on mower is easy to manoeuvre, as well as having high-precision steering. A Rider easily cuts around all obstacles that may be found on the lawn.

Thanks to the articulated steering there is a very small turning radius and the uncut circle with a fully turned wheel is only 20-30 cm, depending on the model.



Outline diagram of the articulated steering function.

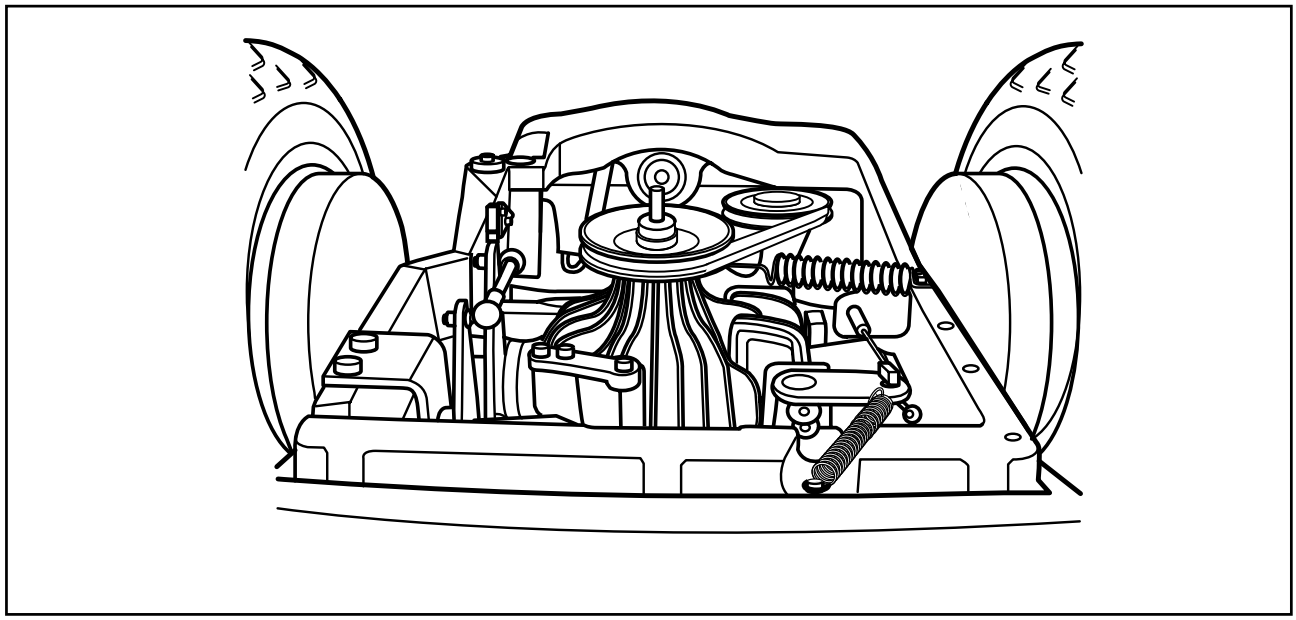


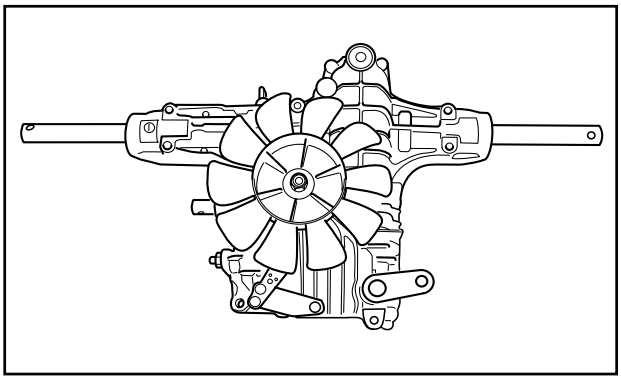
Rider machines have a sliding bearing (1) on the steering column.

Driving

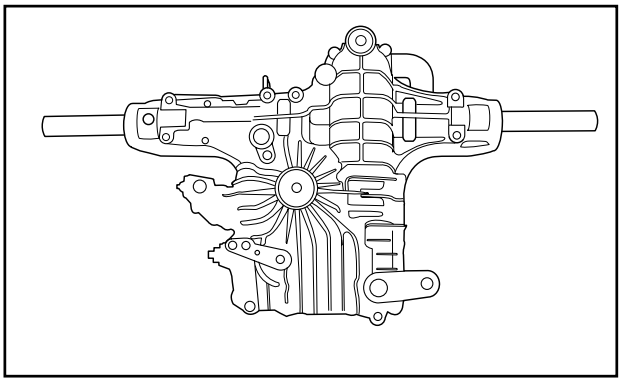
Rider Pro and Rider ProFlex are equipped with hydrostatic transmission which provides the driver complete control. Continuously variable speed control, forwards and reverse, is by means of a foot pedal.

Rider ProFlex 21 also has a differential lock which enables the rear wheels to perform locked driving. The differential lock is engaged and disengaged by means of a pedal on the left-hand side of the machine.

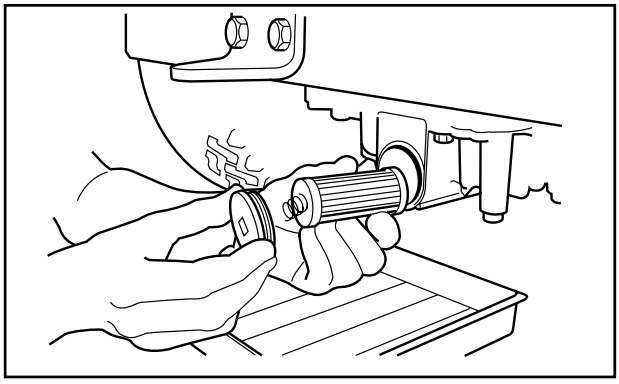




Hydrostatic transmission K62 for Rider Pro 15 and ProFlex 18 with mounted cooling fan. Externally the difference in relation to K66 can be seen in that K62 lacks the arm for the differential lock, and because the oil drain and filter are located at the rear on K66.



Hydrostatic transmission K66 for Rider ProFlex 21 seen from above. The diagram shows the transmission without cooling fan.
The arm for the differential lock is mounted on the left side of the hydrostatic transmission. See the picture under “Checking and adjusting of differential lock”.

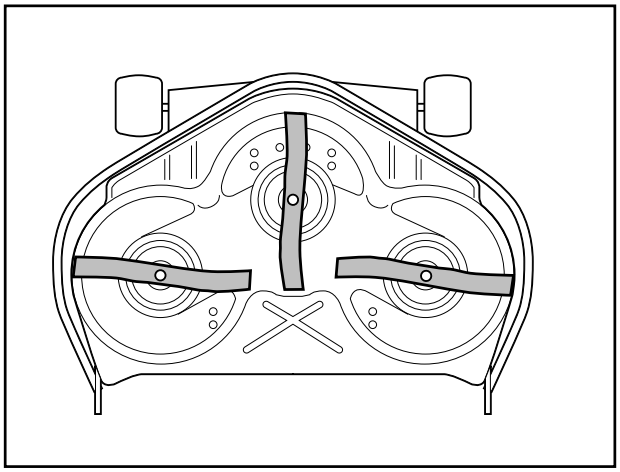


Oil drain with filter on K66.

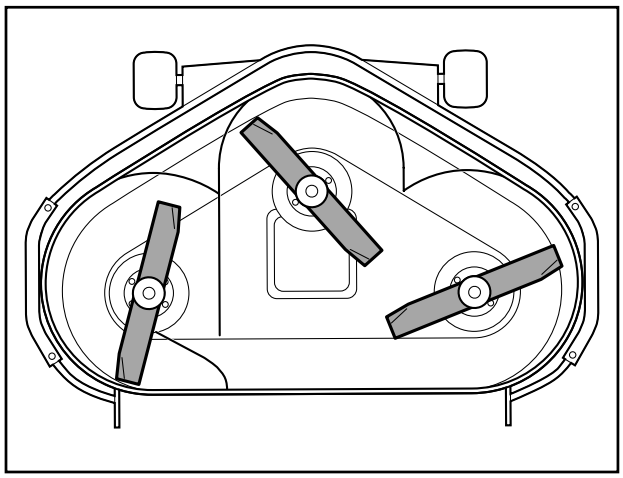
Mowing deck

The entire Rider series is equipped with front-mounted mowing decks to ensure effective cutting even in confined areas.

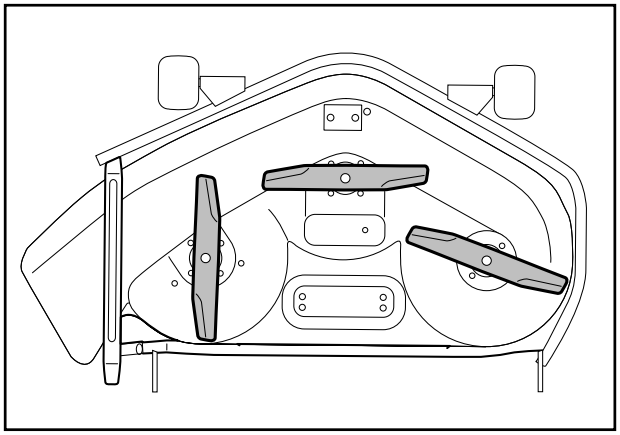
Rider ProFlex 18 and Rider ProFlex 21 can be delivered with different types of mowing decks, either mowing decks with rear ejection or BioClip. For Rider Pro 15 there is also a mowing deck with side ejection.



BioClip deck



Mowing deck with rear ejection



Mowing deck with side ejection.

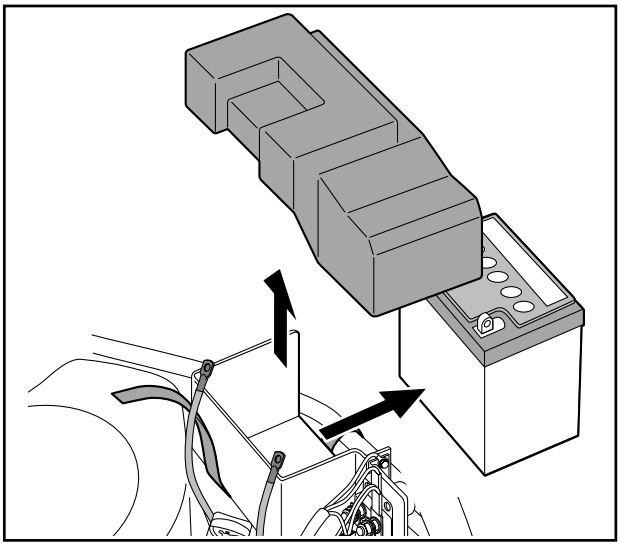
Reparation instructions

Removing engine

1

Remove the engine hood on ProFlex. On Pro 15 it can be left on.

2



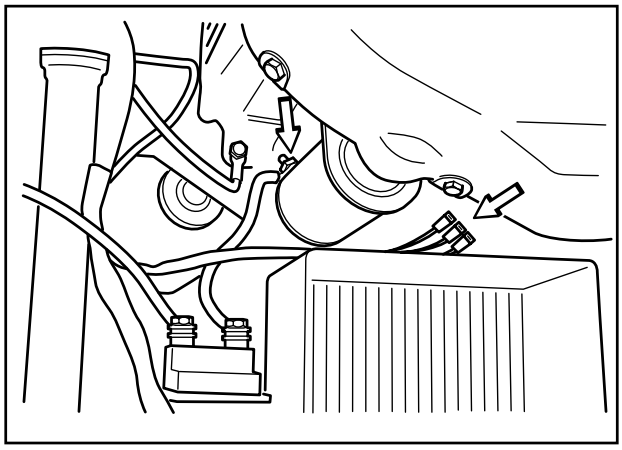
Release the battery's fixing belt. Remove the safety guard.

IMPORTANT INFORMATION

Brace the screws for the battery cables to avoid exposing the terminals to stress.

Release the battery cable connections. Now lift out the battery.

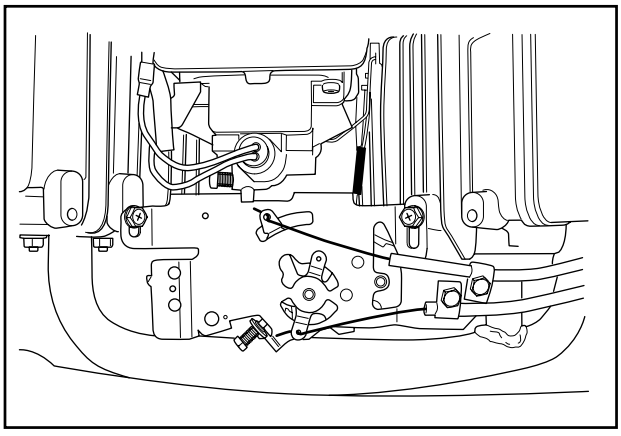
3



Remove the cable which runs between the starter relay and starter motor from the starter motor.

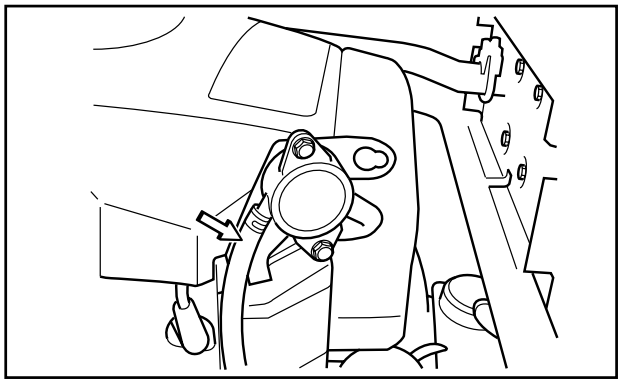
Mark up and remove the engine's electrical connections.

4



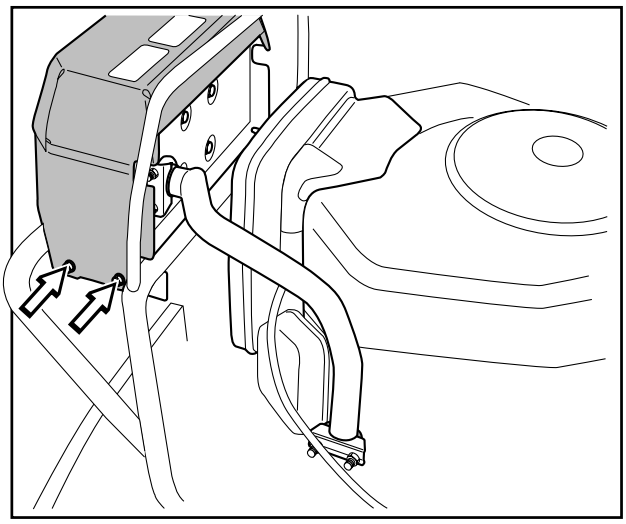
Remove the clamps which hold the throttle and choke wires. Unhook the wires from their attachment in the carburettor. The picture shows ProFlex 21. För Pro 15 and ProFlex 18, see "Replacing engine".

5



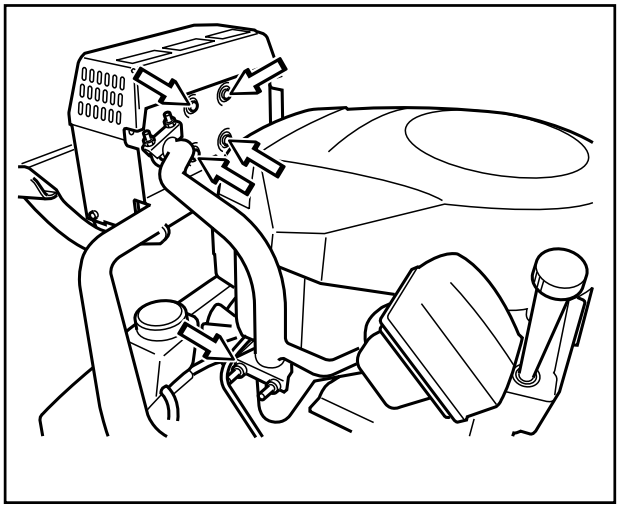
Remove the fuel line hose clamp from the fuel pump and pull the fuel line downwards. Fix up the hose so that fuel will not leak out.

6



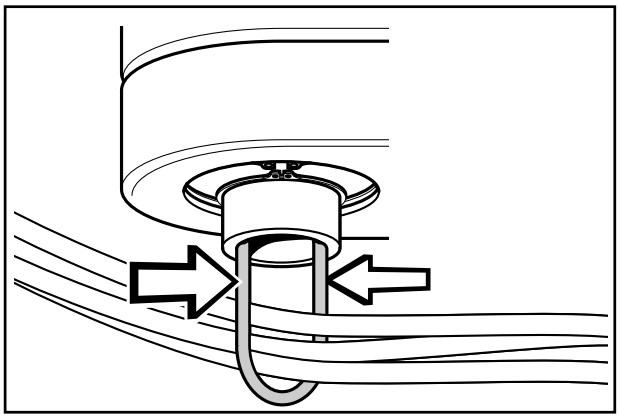
Remove the cover plate over the silencer (two screws on either side of the silencer) and lift out the plate.

7



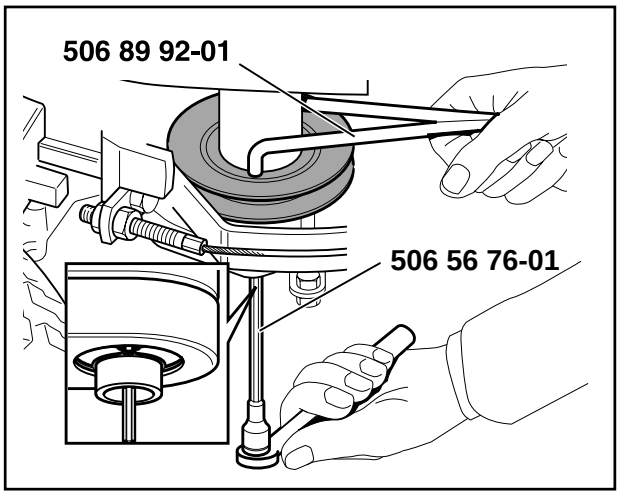
Release the exhaust pipe clamps and silencer's four retaining bolts. Now remove the silencer, exhaust pipe and the accompanying pulse air valve.

8



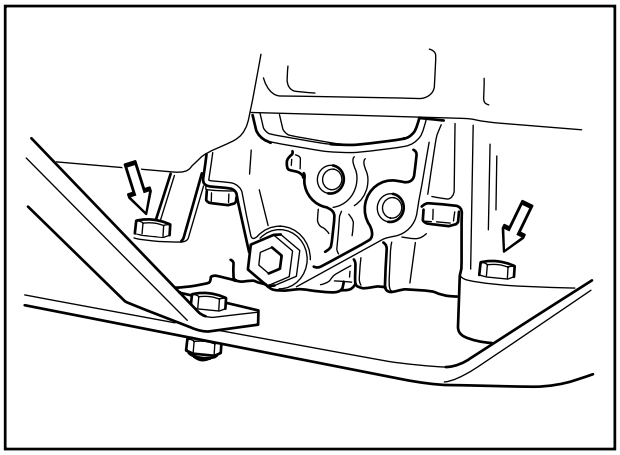
Clamp together the wire holder under the engine pulley with a pair of flat pliers and pull the wire holder downwards.

9



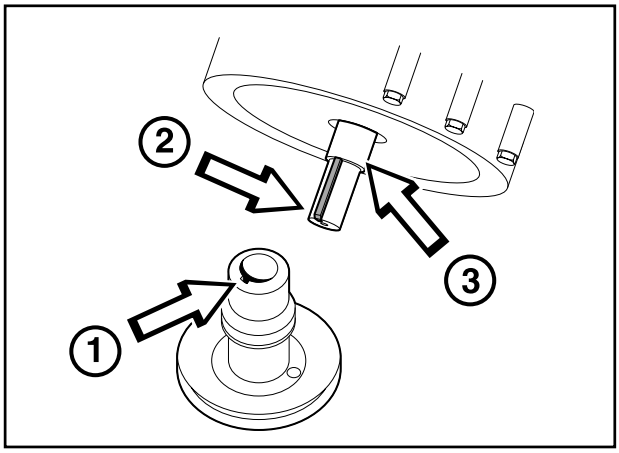
Insert tool no. 506 56 76-01 into the centre of the engine pulley. Unscrew and remove the socket head cap screw which holds the pulley and the engine axle together. Use tool no. 506 89 92-01 as a holder-on. Remove the pulley from the engine axle.

10



Remove the engine attachments, two on each side of the engine, and remove the engine from the mower.

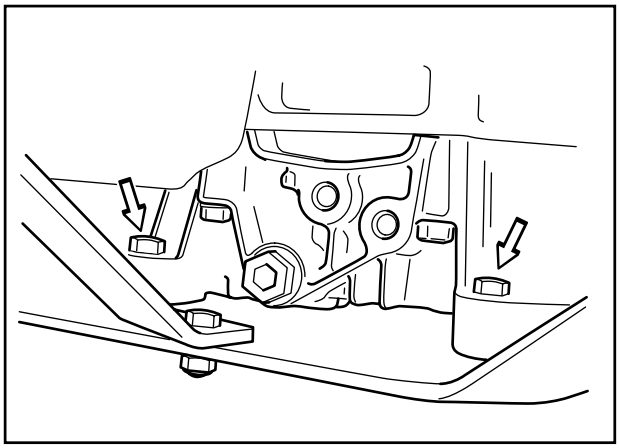
Replacing engine



IMPORTANT INFORMATION

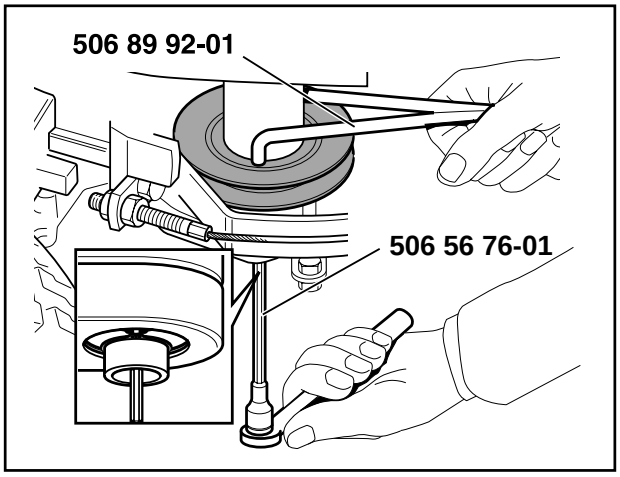
When installing the engine, it is important that the pulley groove (1) is in a position so the outgoing axle key (2) fits into the groove (see diagram). Also check that both spacing collars (3) and the key (2) are firmly attached on the engine axle. Grease the engine axle.

1



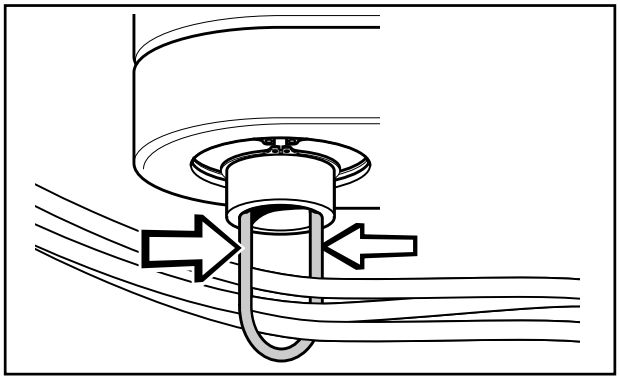
Lower the engine and tighten the engine attachments (two on each side of the engine) with moment (25 Nm). The battery's minus cable should be connected to the front left screw.

2



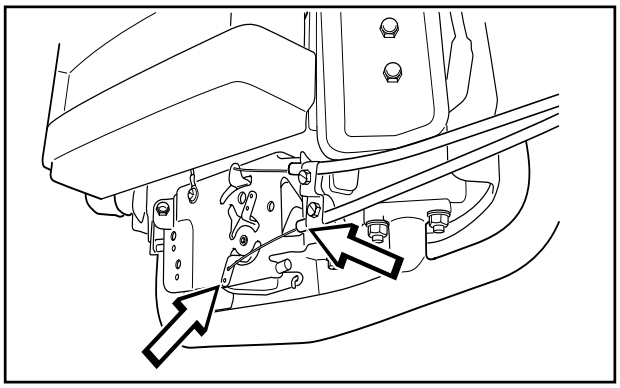
Position the pulley with tool no. 506 56 76-01 and tighten it with moment (80 Nm). Use tool no. 506 89 92-01 as a holder-on.

3



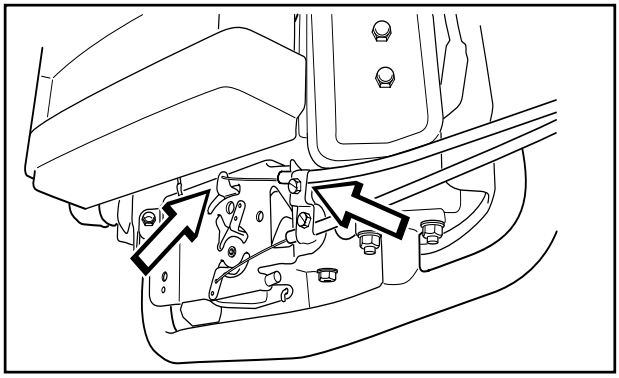
Place the wires in the wire holder. Make sure that the hydrostatic transmission wire is at the bottom. Clamp together the holder and bring it from underneath through the centre of the belt tensioner until it hooks over the top edge of the tensioner.

4



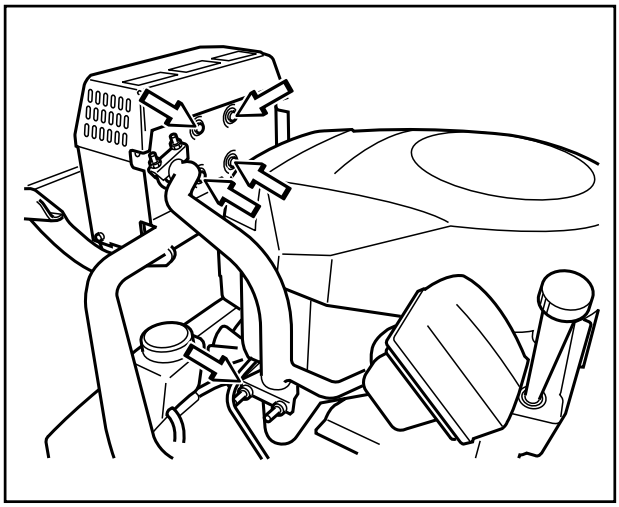
Hook the choke wire onto the carburettor and fit the wire clamp without tightening it.
Push the choke control to full choke position. Pull wire's outer casing as far as possible to the right and tighten the wire clamp. The picture shows Pro 15 and ProFlex 18. For ProFlex 21, see "Replacing engine".

5



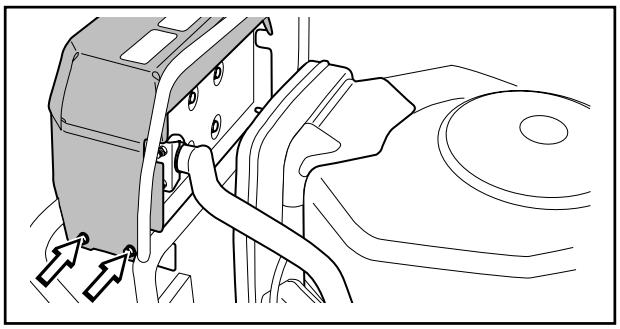
Hook the throttle wire onto the carburettor and fit the wire clamp without tightening it. Make sure it is hooked into the right hole on Pro 15 and ProFlex 18, see picture. Push the throttle control to full throttle position. Pull the wire's outer casing as far as possible to the left and tighten the wire clamp. For a picture of ProFlex 21, see "Replacing engine".

6



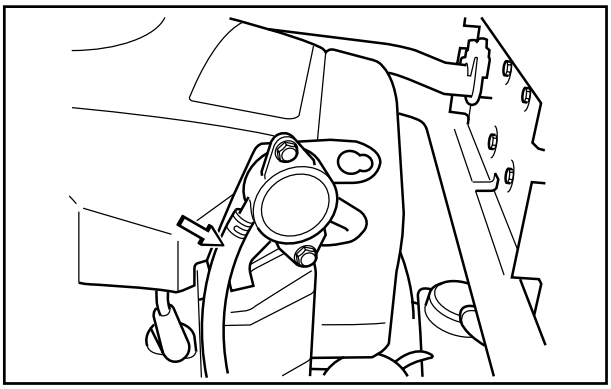
Attach the silencer and exhaust pipe and tighten the holder screws and pipe clamps.

7



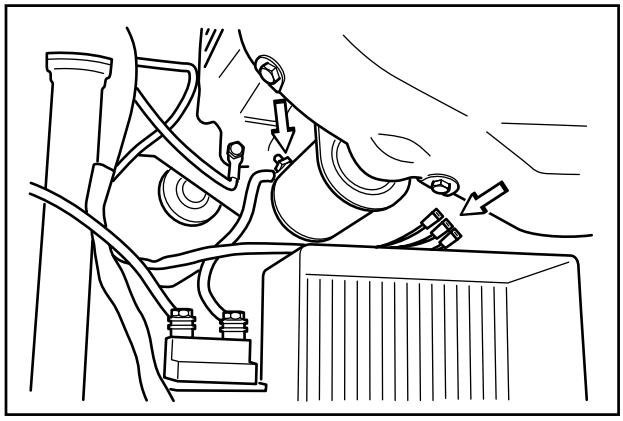
Securely fasten the protective plate over the silencer, two screws on each side of the silencer.

8



Press the fuel line securely against the fuel pump and fit its hose clamp.

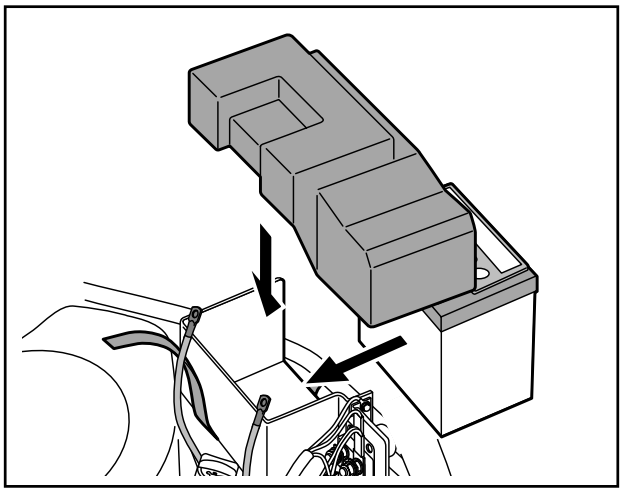
9



Screw tight the cable between the starter motor and starter relay.

Attach the engine's electrical connections.

10



IMPORTANT INFORMATION

Brace the screws for the battery cables to avoid exposing the terminals to stress.

Lift the battery into place and fasten the cable connections and safety guard. Tighten the catching belt.

Changing the oil

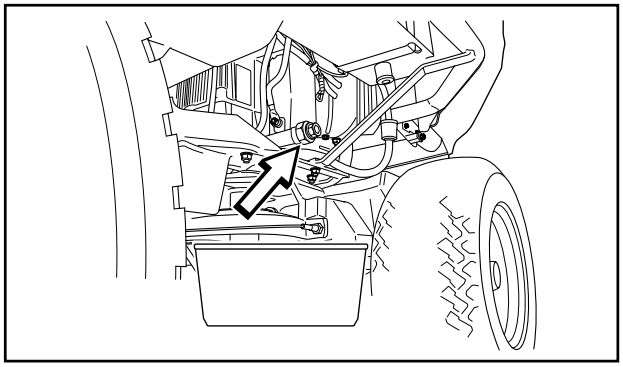
The engine oil should be replaced after the first five hours of running time, see service chart. Thereafter it should be replaced every 100 hours of running time.

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.

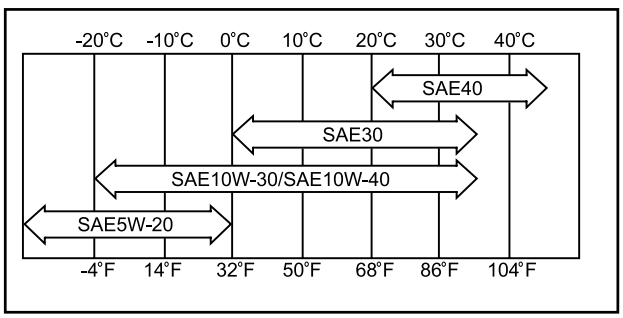
IMPORTANT INFORMATION

Spent engine oil is hazardous to health and must not be poured out on the ground or in the nature, but should be handed in to a designated place for recycling.

Avoid skin contact and wash any spillage with soap and water.

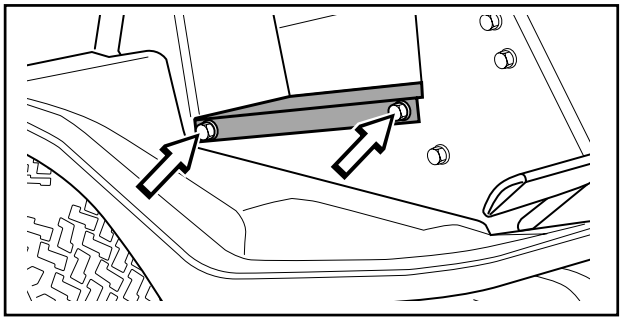


Place a container under the drain plug on the left side of the engine.
Remove the dipstick and drain plug. Let the oil drain into the container.
Refit the drain plug and tighten it.
Fill with oil up to the “FULL” mark on the dipstick. The dipstick should **not** be screwed down when checking.
Pour the oil into the same hole the dipstick goes in.
Use engine oil SAE 30 or SAE 10W-30 alternatively 10W-40 grade SC-SH (above 0 °C / +32 °F). Above + 20 °C / +68 °F, SAE 40 can be used. Below 0 °C / +32 °F, SAE 5W-20 should be used. The engine takes 1.5 litres of oil excluding filter (1.7 litres including filter).
Run the engine until warm, then check that there are no oil leaks from the drain plug.



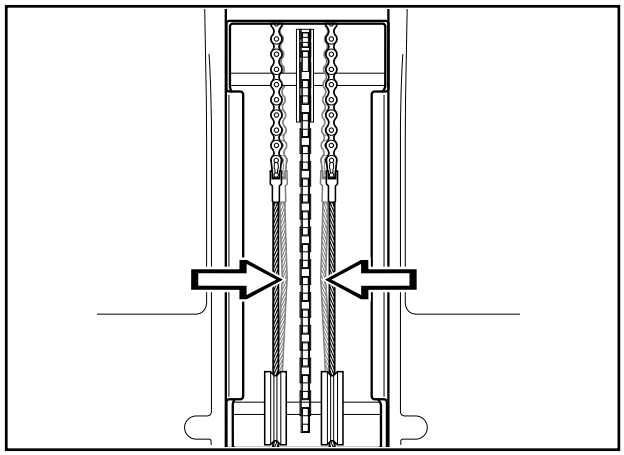
Checking and adjusting steering wires

1



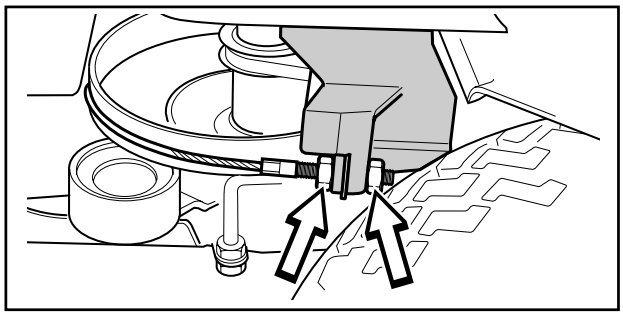
Remove the frame plate by releasing the screws (two on either side).

2

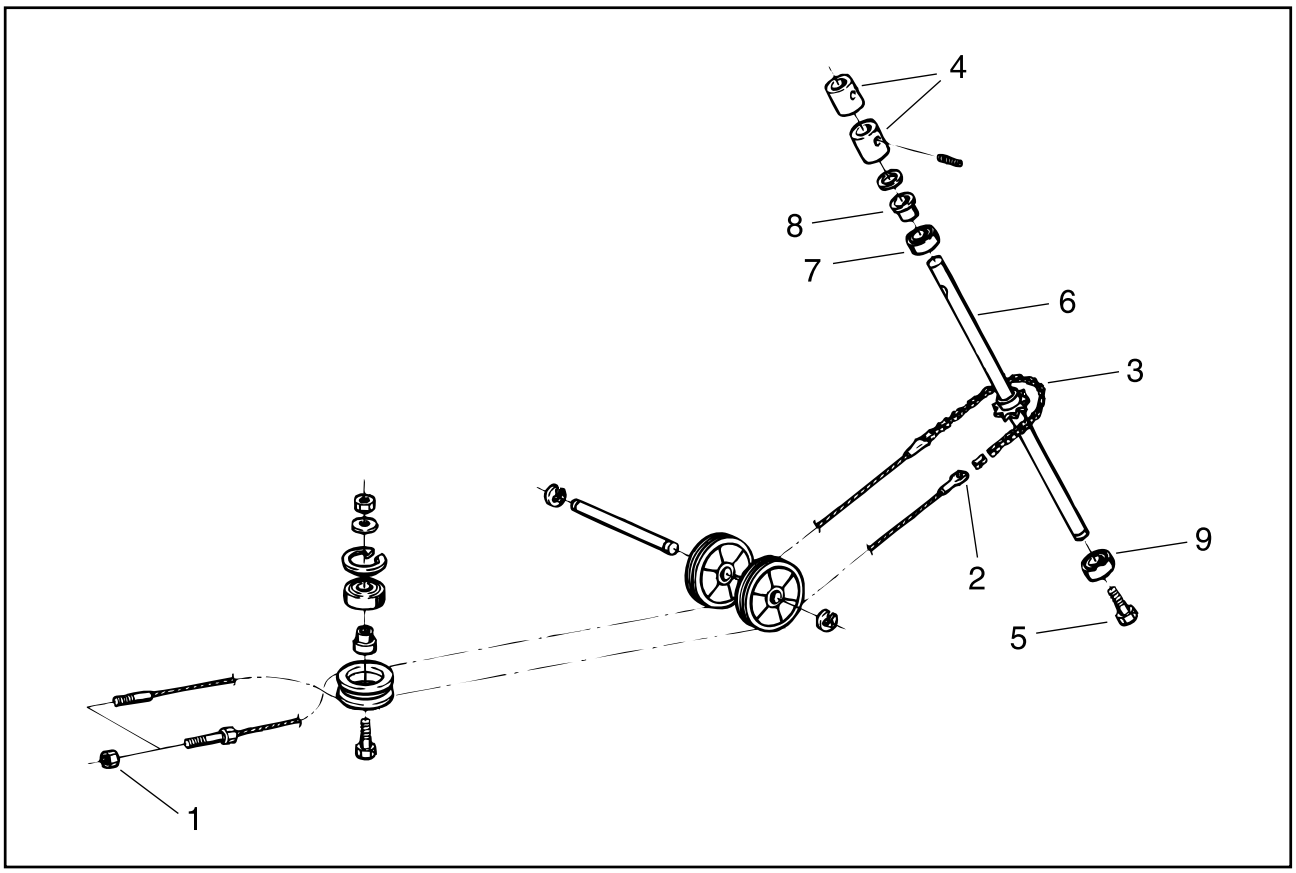


The tension is checked by squeezing together the wires (as shown in the diagram). Without having to apply too much force, the wires should be able to be squeezed to half the distance between them.

3



Stretch the wires by tightening the adjuster nuts (one wire on each side of the ride-on mower). Do not overtension them, they should only be tightened up to the steering rim. Stretch both wires equally so that the steering wheel position is not changed. Check the wire tension after adjustments have been made, in accordance with point 2.



Replacing steering wires

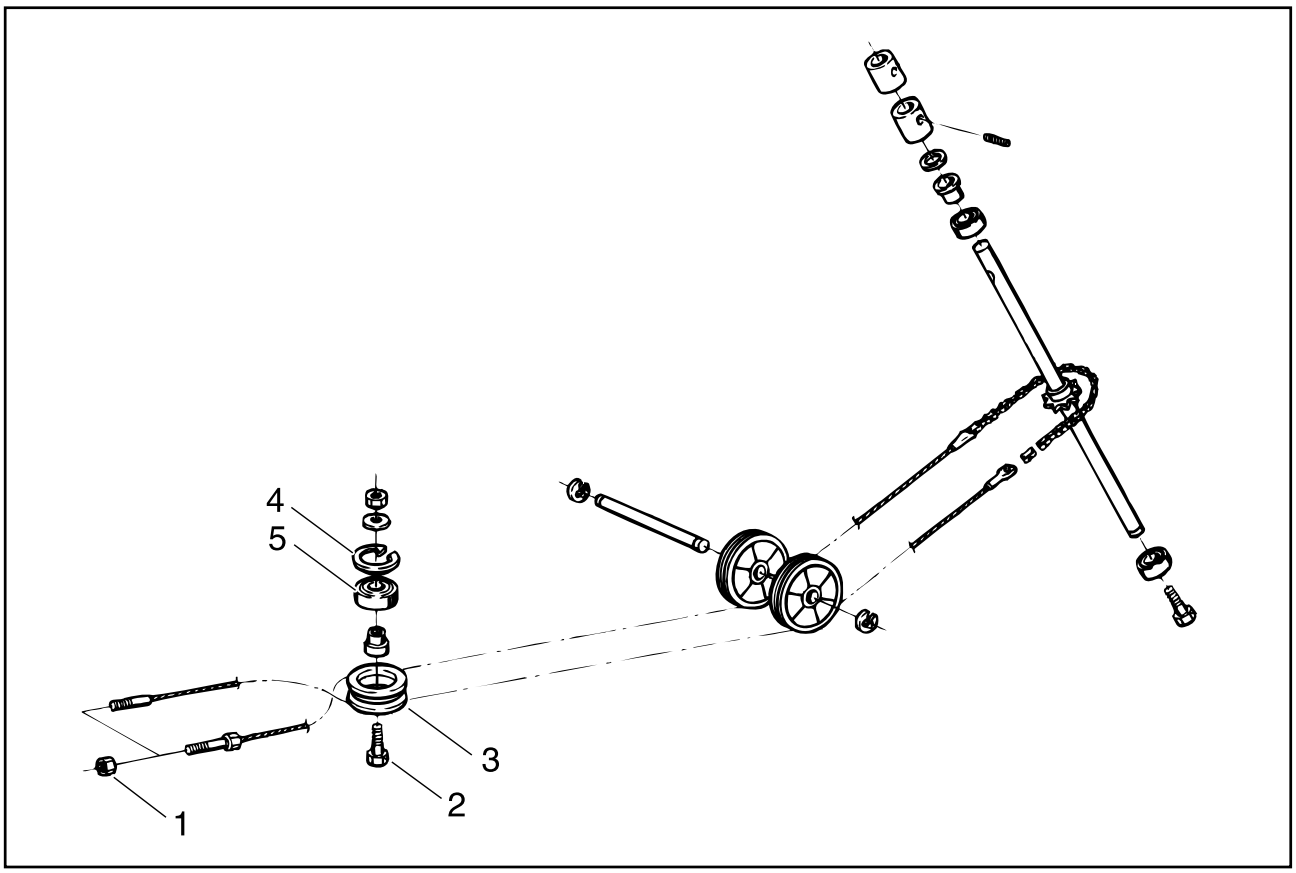
1. Release the steering wires' rear attachment (1).
2. Release the steering wires' front attachment (2) at the steering transmission chain (6) and pull the steering wires out throught the frame.

Note. If the old wires are still complete, the new wires can be attached to the old ones when they are pulled out through the frame, the new wires will then come automatically into place.

3. Attach the new wires. Once the new wires are in place, check the wire tension (see “Checking and adjusting steering wires”).
4. Unscrew the bolt (5) from the bottom end of the steering column.
5. Pull the steering axle (6) upwards and move the lower part of the axle backwards to remove the steering transmission chain (3).
6. Move the upper bearing (7) uppwards until it goes free from the steering axle (6). If the bearing is to be replaced, the bushing (8) must be knocked out of the bearing.
7. Slide the bearing (9) off the bottom end.
8. Take the steering axle out (6) downwards.
9. To assemble the steering axle, the reverse order is applied. For assembly purposes, the two steering wheel rod carriers (4), are tightened with moment (5–10 Nm).

Removal/installation of steering axle

1. Release the steering wires' rear attachment (1). Remove the frame plate.
2. Remove the steering wheel and steering column by releasing the lock nut and unscrewing the locking screw, lift the steering wheel and steering column upwards.
3. Remove the two steering wheel rod carriers (2).



Removal/installation of wire wheel

1. Detach the steering wires' rear attachment (1) .
2. Remove the screw (2) and detach the wire wheel (3).
3. Remove the bearing's circlip (4) and knock out the bearing (5).
4. To install the wire wheel, the reverse order is applied.

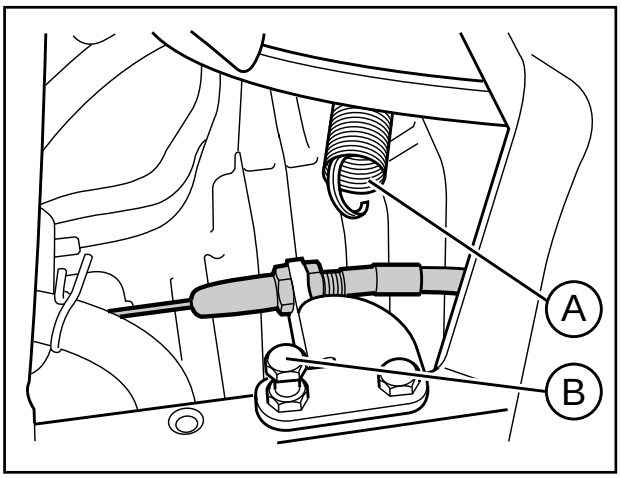
   After installation, check the wire tension (see “Checking and adjusting steering wires”).

   A complete installation kit, including wire pulley, bushing and bearing, can be purchased for the Rider ProFlex 18 and Rider ProFlex 21.

Checking and adjusting brake wire

Check that the brake is correctly adjusted by positioning the ride-on mower on a gentle slope and applying the brake.
If the ride-on mower does not stand still, the brake needs to be adjusted.

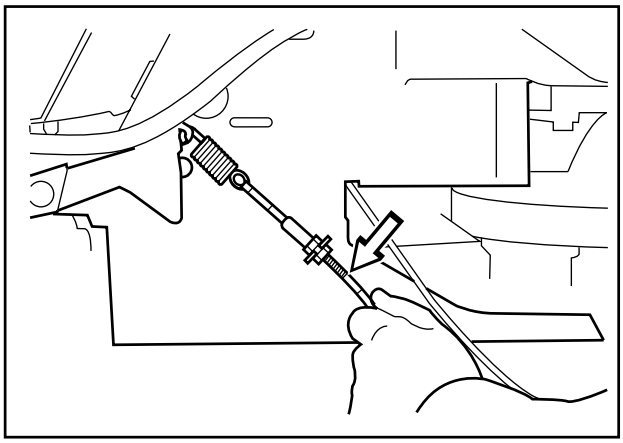
The brake is adjusted in the following way:



1. Remove the transmission cover.
2. Unhook the spring (A) from the screw (B).
3. Check that the parking brake is not applied.
4. Set a clearance of 1 mm between the casing and adjusting screw when pulling the casing. Adjust with the nuts on the adjusting screws.
5. Do not tighten the nuts too hard to avoid damaging the adjusting screws.
6. Replace the spring (A).
7. Check that the brake functions.
8. Replace the transmission cover.

WARNING!
A badly adjusted brake can lead to reduced braking capacity.

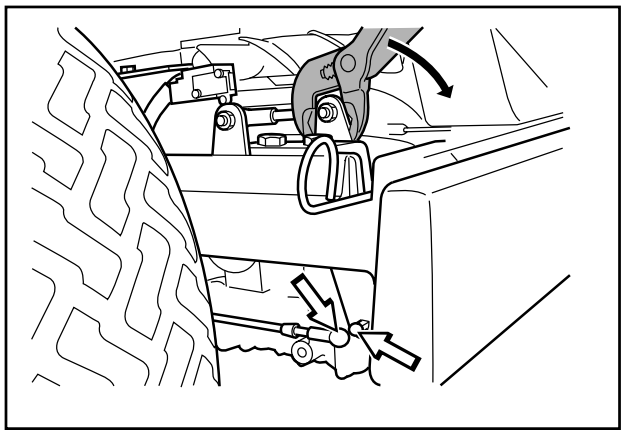
Checking and adjusting differential lock (ProFlex 21)



Check and adjust the differential lock (on the left-hand side) 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.

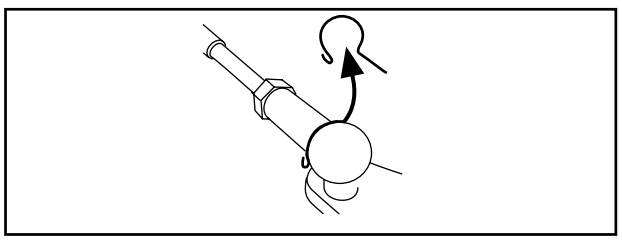
Checking and adjusting throttle control



Adjust the hydrostatic wire (on the left-hand side) as follows:

1. Remove the transmission cover.
2. Prise apart the lower ball joint, which is held together by a spring clip.
3. Make sure the forward drive pedal is fully depressed.
4. Raise the vertical arm as far as it will go and check that the ball and socket that make up the lower ball joint are level with each other.
5. If necessary, adjust the socket along the wire so that it is perfectly level with the ball on the lever.
6. Reconnect the ball joint.
7. Secure the ball joint with the spring clip.
8. Tighten the locking nut to lock the socket on the wire.

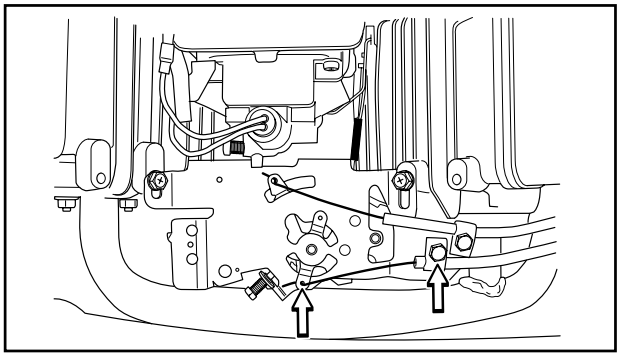
IMPORTANT INFORMATION
Check that the locking spring goes through the hole in the spherical socket.



Locking spring for the linkage.

Checking and adjustment of the throttle wire

The photos show the Pro 15 and ProFlex 18. For the ProFlex 21, see “Motor – fitting”.

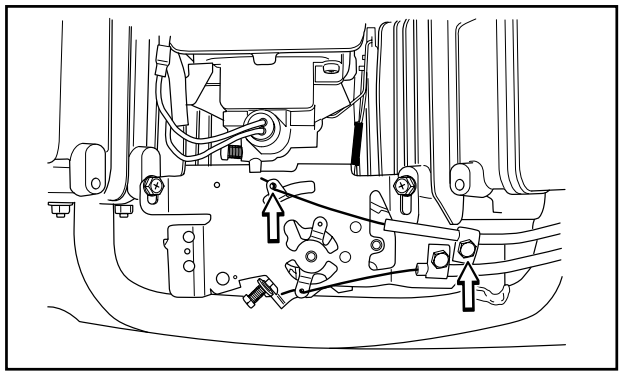


Check that the engine responds to the throttle control and that the correct engine speed is achieved at full throttle.

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 (ProFlex 21).
3. Pull the throttle wire casing to the far left and tighten the clamping screw.

Checking and adjusting the choke wire



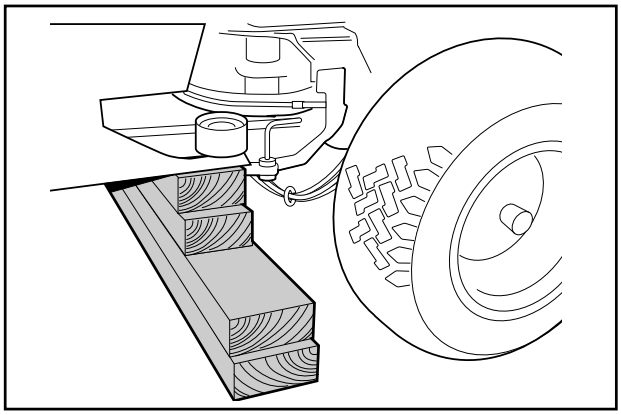
If the engine is producing black smoke or is difficult to start then the choke wire (upper wire) may be incorrectly adjusted.

If 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.

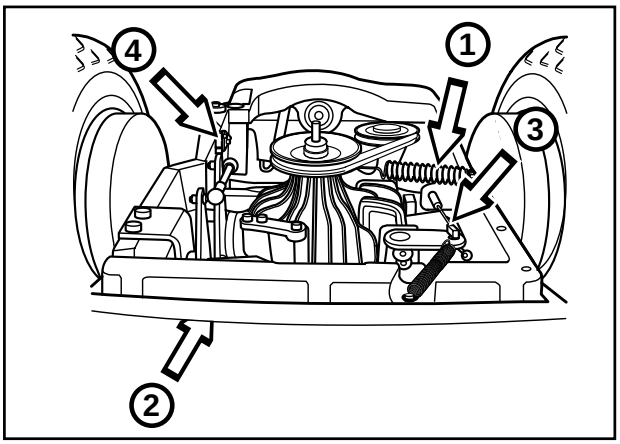
Replacing articulated steering bearing

1

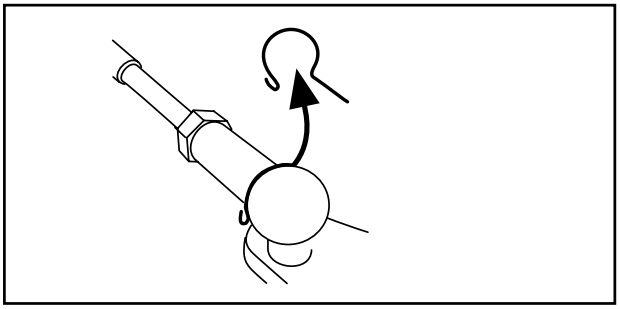


- Remove the engine according to the earlier description (see “Removing engine”).
- Block up the ride-on mower in front of the articulated steering.
- Work off the drive belts.
- Release the oil tank for the transmission and move it to one side to get at the brake wire.

2

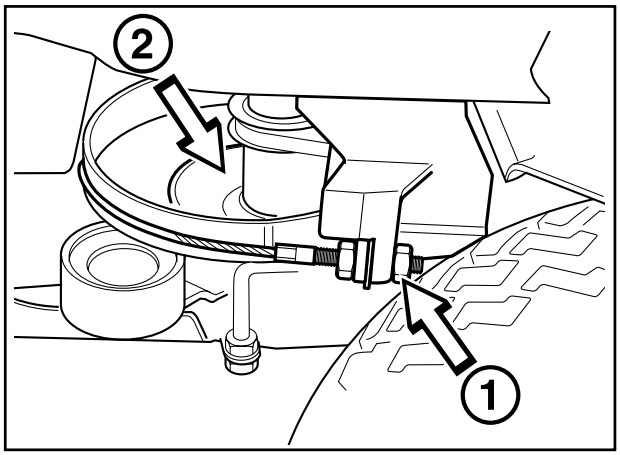


- Release the tensioning wheel spring (1).
- Remove the locking spring and release the locking spring on the linkage for throttle controll, on the underside, and release the wire from the underside of the axle (2).



- Release the brake wire spring and nuts. Prise the wire off the brake arm (3).
- Remove the cable from the neutral position switch (4).
- Release the wire to the differential lock on ProFlex 21, see “Removing/replacing hydrostatic transmission”.

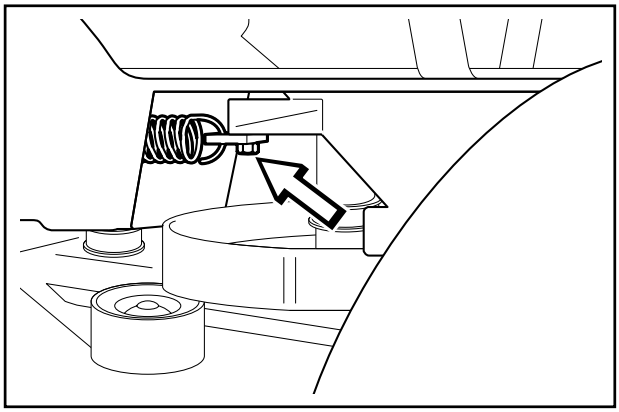
3



- Loosen the steering wires (1) and remove the steering rim.
- Remove the pulley (2). Move the lower part forwards, the upper part backwards and detach the pulley.

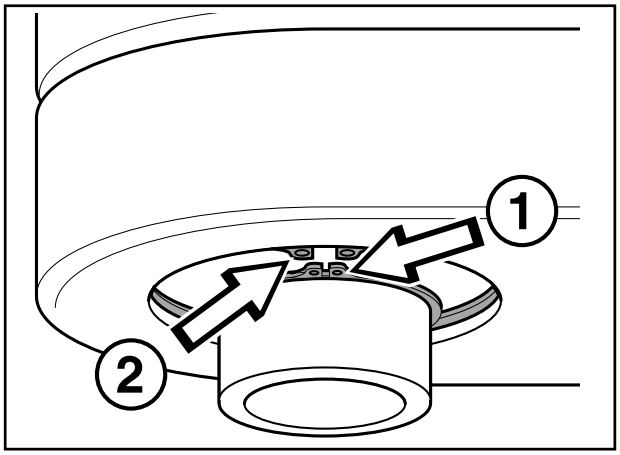
4

WARNING!
The articulation spring is strongly tensioned and can cause injury if it flies off. Wear safety glasses and gloves when removing/ attaching the spring.



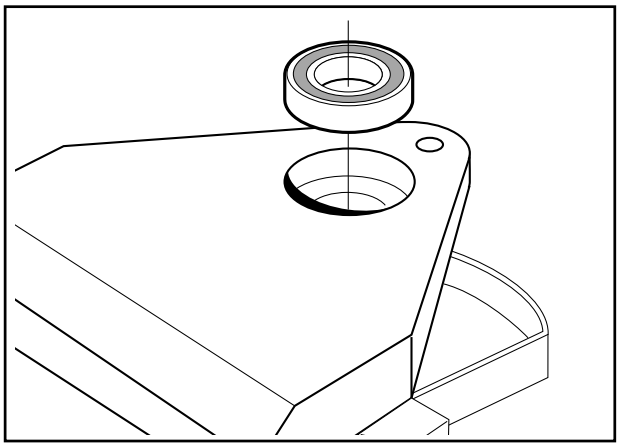
Detach the articulation spring. This spring is strongly tensioned and should be secured with tool no. 506 89 93-01 before the nut is removed.

5



Remove the inner circlip (1) from the lower bearing (see diagram). The rear section is now loose and can be moved. Then detach the outer circlip (2) and take the bearing out downwards.

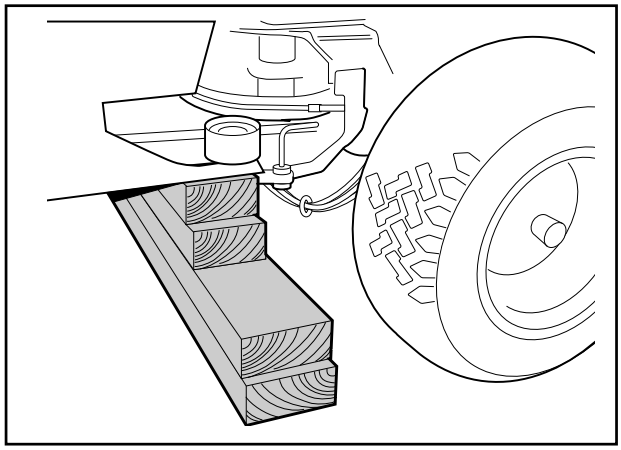
6



- Take the upper bearing out upwards, if it does not come out easily, it should be knocked out from below.
- Insert the new bearings and assemble the articulated steering in the reverse removal order.
- After re-assembly, the wire tension should be checked (see “Checking and adjusting steering wires”). Also check that the controls and wires are correctly adjusted (see “Checking and adjusting brake wire”, “Checking and adjusting speed control wire” and “Checking and adjusting differential lock”).
- Check the setting of the neutral position switch.

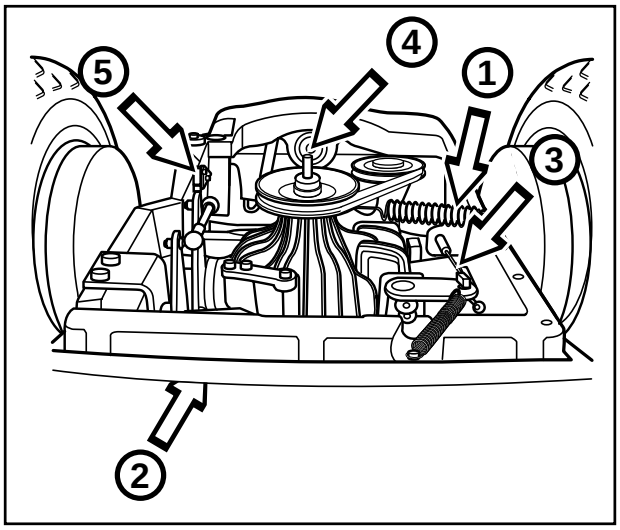
Removal of swing axle

1



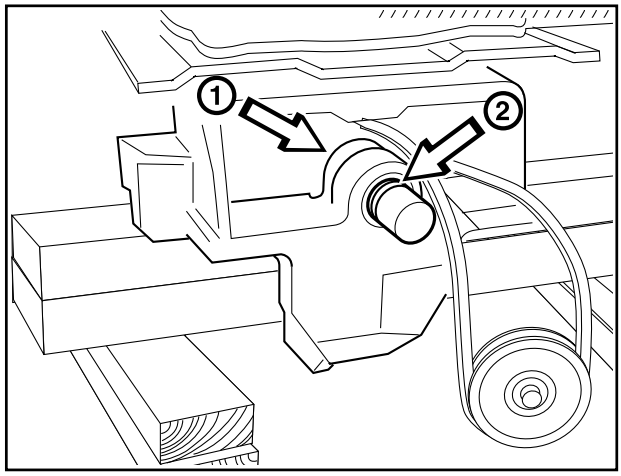
- Block-up the machine in front of the rear frame.
- Remove the transmission cover.
- Release the oil tank for the transmission and move it to one side to get at the brake wire.

2



- Remove the cooling fan, which is held by a single nut.
- Disconnect the spring from the tensioning roller (1) and prise off the drive belt.
- Remove the spring clip, prise apart the speed control ball joint (2) (underneath) and disconnect the wire from the underside of the shaft.
- Disconnect the lead from the neutral switch (5).
- Remove the spring and nuts from the brake wire (3) and unhook the wire from the brake arm.
- Disconnect the wire from the differential lock on the ProFlex 21, see “Hydrostatic transmission – removal and fitting”.
- Remove the circlip and washer from the swing axle (4) and remove the rear frame.

3



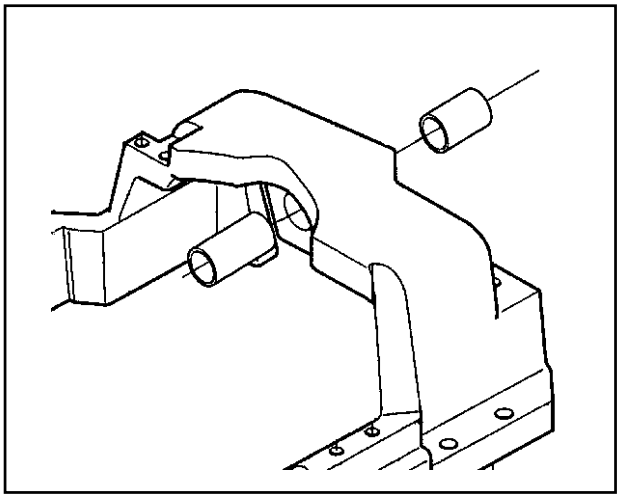
Remove the circlip and washer from the swing axle's inner holder (1) and pull the swing axle out backwards.

If the dust protection (2) is damaged, this should be replaced by a new one.

Replacing bushings

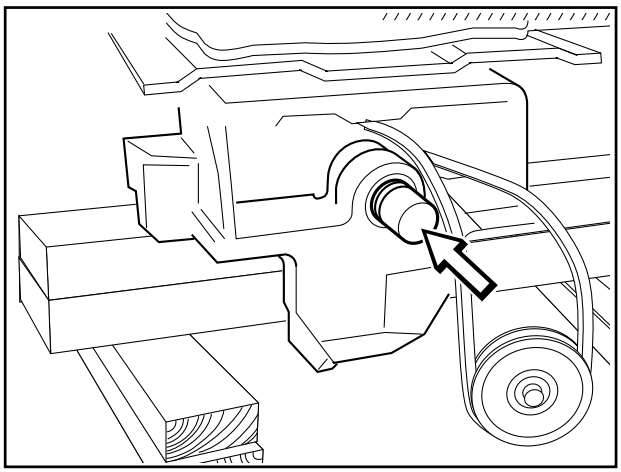
Once the swing axle has been removed the bushings fitted to the rear frame must be replaced. They can be removed with a standard drift.

Fit the new bushings with the aid of the standard drift, making sure that the channels in the bushings run horizontally. It is important that the outer edge of the outermost bushing is flush with the outer edge of the hole.
Lubricate the bushings with a lithium-based grease.



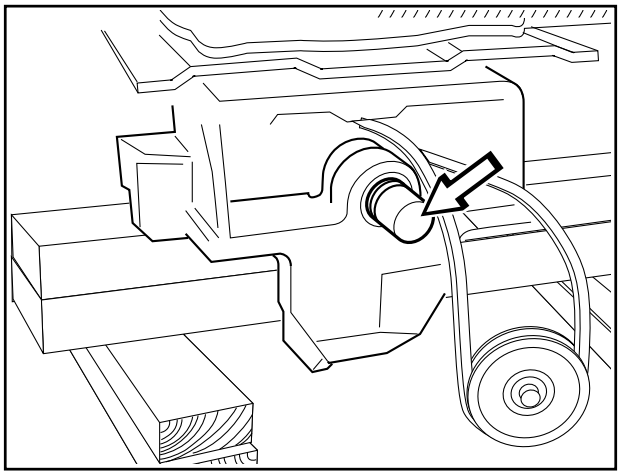
Installation of swing axle

1



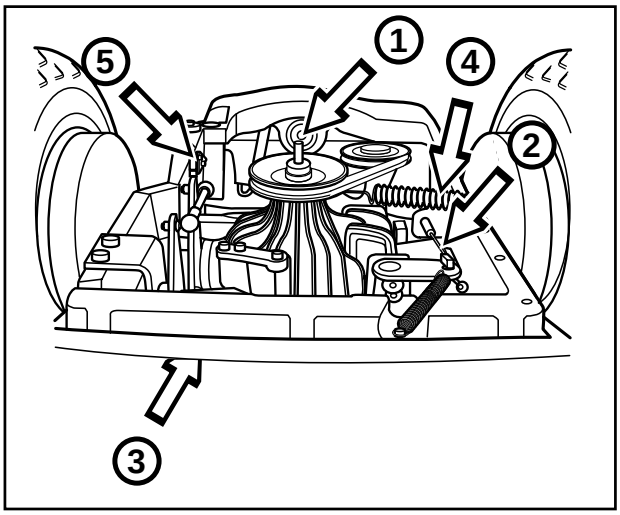
- Grease half of the axle (the half that has not been turned down) and press it from the back into the steering spindle (see diagram).
- Attach the washer and circlip on the swing axle's inner holder.
- Fix the dust guard (with a thin lip behind) approx. 2/3 of the way in on the axle and lubricate the axle on both sides of the dust guard.

2



Roll the rear frame forwards and press it in on the swing axle.

3



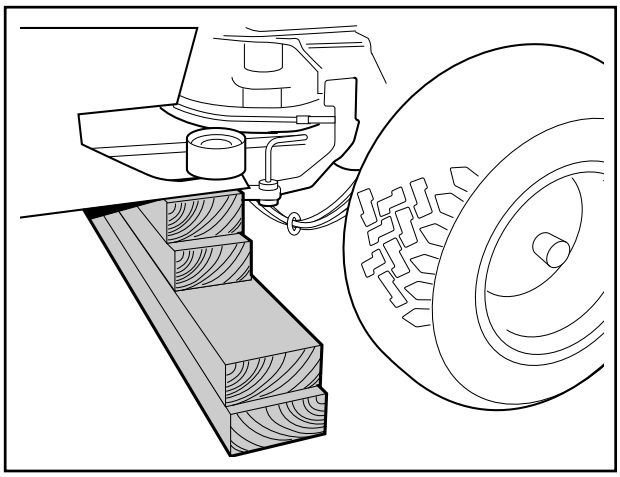
- Attach a washer and circlip onto the swing axle (1).
- Fit the wire to the differential lock on ProFlex 21, see “Removing/ replacing hydrostatic transmission”.
- Connect the brake wire (2) to the brake arm. Tighten the brake wire nuts.
- Fit the linkage for the throttle control (3). Fix the wire on the underside of the axle.
- Fit the drive belt over the pulley and attach the spring to the tensioning roller (4).

4

- Check that the controls and wires are correctly adjusted (see “Checking and adjusting brake wire”, “Checking and adjusting speed control wire” and “Checking and adjusting differential lock”.
- Check and adjust the neutral position switch if necessary.
- Fit the fan.
- Finally, fit the transmission cover.

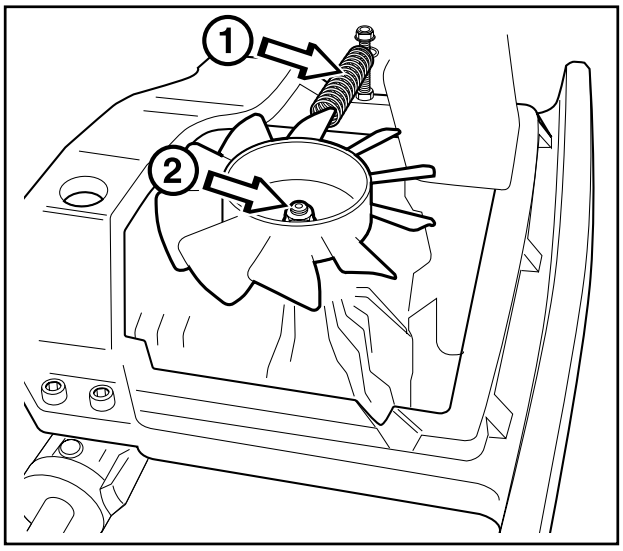
Removing/installation of hydrostatic transmission

1



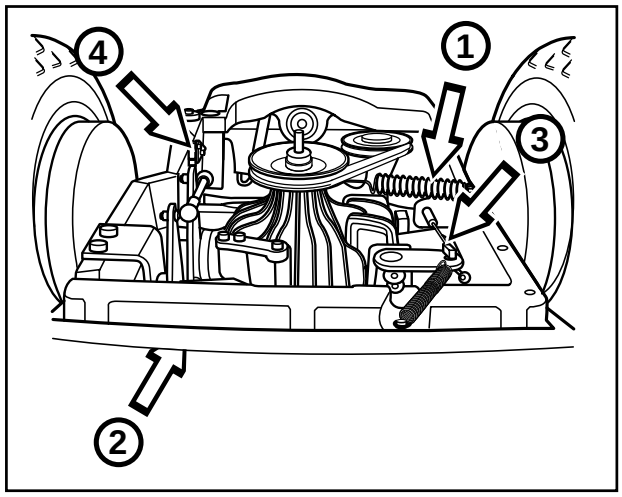
- Block-up the machine in front of the rear frame and remove the back wheels.
- Remove the transmission cover.

2



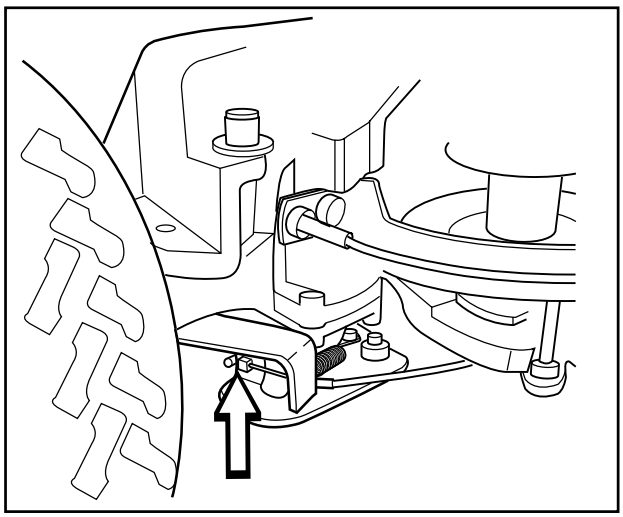
- Remove the nut (2), and lift off the washer and fan from the input axle.
- Remove the oil tank and hose from the hydrostatic transmission.
- Remove the disengaging control with its spring.

3



- Disconnect the tensioning roller spring (1) and prise off the drive belt.
- Release the speed control linkage (2) (on the underside) and release the wire from underside of the axle.
- Release the speed control linkage (on the topside) from the hydrostatic transmission arm.
- Release the brake wire (3) spring and nuts. Prise the wire off the brake arm.

4 Rider ProFlex 21

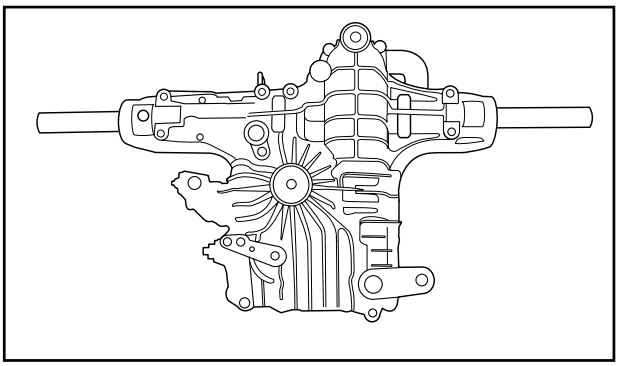


Disconnect the wire from the differential lock by undoing the tensioning nuts (on upper bracket) and freeing the wire from the differential arm.

5

Insert a garage jack under the hydrostatic transmission and loosen its five holder screws.
The rear retaining screw is placed in the front edge of the bumper.

6



- Lower the garage jack and pull out the hydrostatic transmission.
- Installation of the hydrostatic transmission is carried out in the reverse hydrostatic transmission removing order
- After replacing, check that the brake wire and speed control are correctly adjusted (see Checking and adjusting of brake wire” and “Checking and adjusting of speed control”). Check also the oil level in the tank, and bleed or top up if necessary.
- Check and adjust the neutral position switch if necessary.
- On Rider ProFlex 21 the wire to the differential lock should also be checked and adjusted, see “Checking and adjusting of the differential lock wire”.
- Check the hydrostatic transmission’s oil level after test running, and top up if necessary.

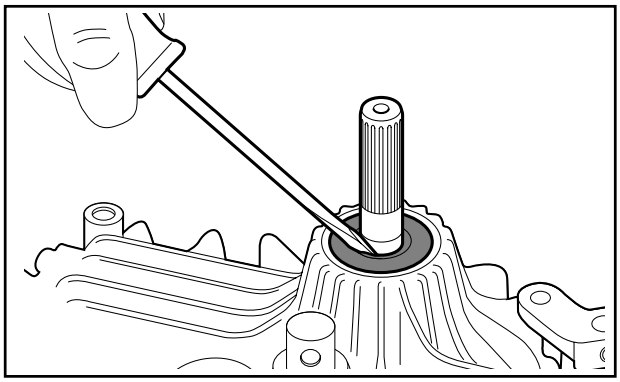
Replacing hydrostatic transmission axle sealing collars

Sealing collar replacement - input axle
Remove the cooling fan, which is held by a single nut.
Remove the pulley from the input shaft by pulling it outwards. Then remove the circlip under the pulley.

IMPORTANT INFORMATION

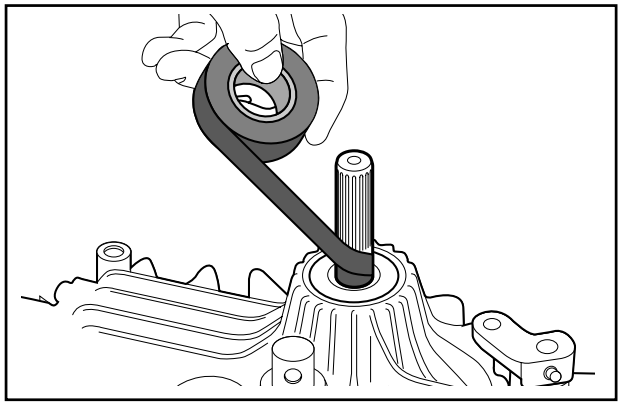
The area around the sealing collar must be absolutely clean! If the hydrostatic oil is contaminated with dirt, this can lead to a shorter hydrostatic transmission operational life.

1



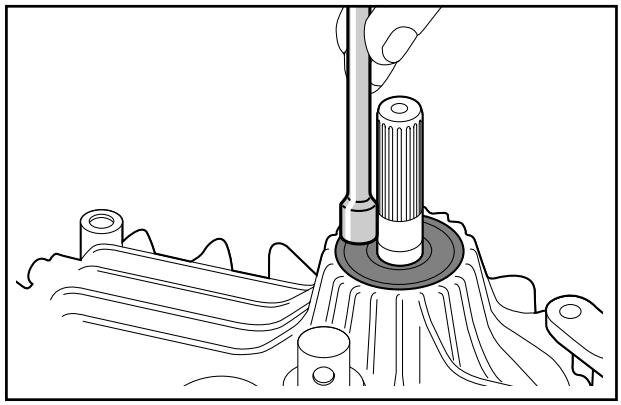
- Clean the input axle and the area around the sealing collar of all dirt and rust.
- Insert a screwdriver between the sealing collar and the axle and bend the sealing collar out of the axle housing with a twisting motion.

2



- Wrap insulation tape around the input axle to protect the new sealing collar from damage to splines and grooves.
  Start by wrapping from the bottom and continue upwards over the axle until the entire axle is wrapped in tape.
- Lubricate the axle and the inside of the new sealing collar with grease so that the collar can slide easily.

3



- Place the sealing collar on the axle with the smooth side upwards, and *carefully* press it downwards.
- Use the thick end of a 1/4" extender to *carefully* knock down the sealing collar until the upside of the collar is level with the axle housing's upper edge.
  Move the extender in a circle around the sealing collar so that it is evenly pressed down, all the way around.
- Remove the insulation tape from the axle and assemble the lower circlip and the pulley with the hexagonal hub facing upwards.
- Fasten the fan and the washer and assemble the upper circlip.

Sealing collar replacement - outgoing axles

1
Remove the rear wheels.

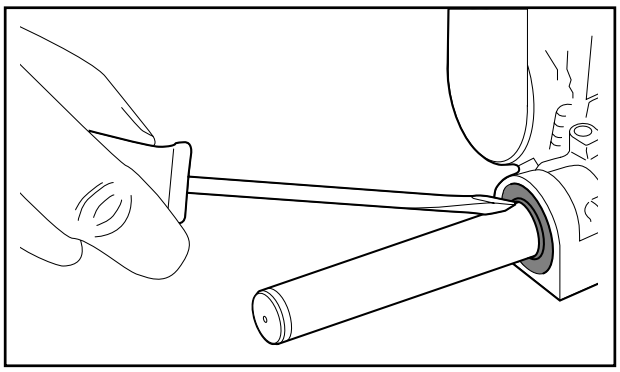
Remove the circlips holding the wheel hubs on ProFlex at the axles, and remove the hubs by pulling them outwards.

Do not mislay the cotter placed between the wheel/ hub and axle.

Remove the spacer sleeve and washer.

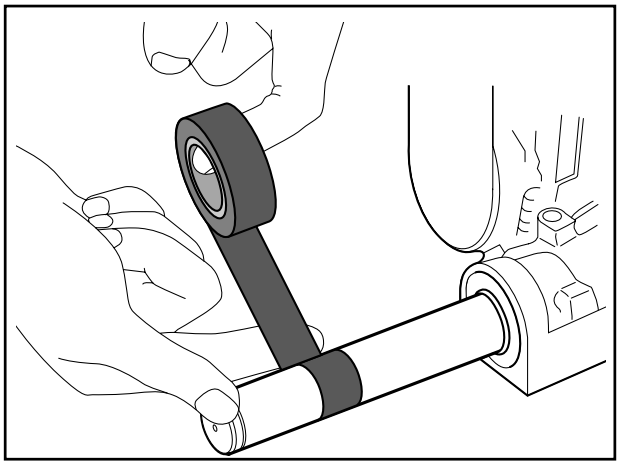
IMPORTANT INFORMATION

Dirt must not be allowed to get into the transmission as this can shorten its operational life.



- Clean the outgoing axle and the area around the sealing collar of all dirt and rust.
- Insert a screwdriver between the sealing collar and the axle and bend the sealing collar out of the axle housing with a twisting motion.

2

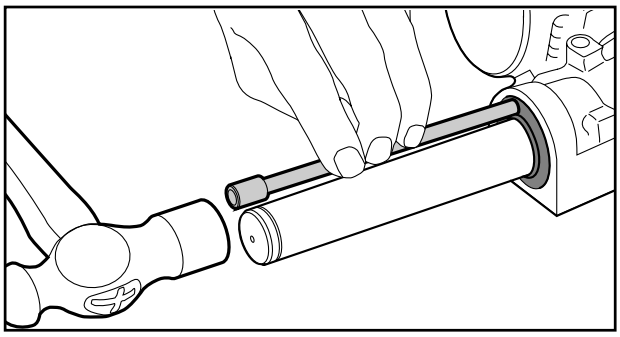


- Wrap insulation tape around the outgoing axle from the start of the key-way and outwards until even the circlip's groove is covered with tape. This is done to protect the new sealing collar from damage.
- Lubricate the axle and the inside of the new sealing collar with grease so that the collar can slide easily.

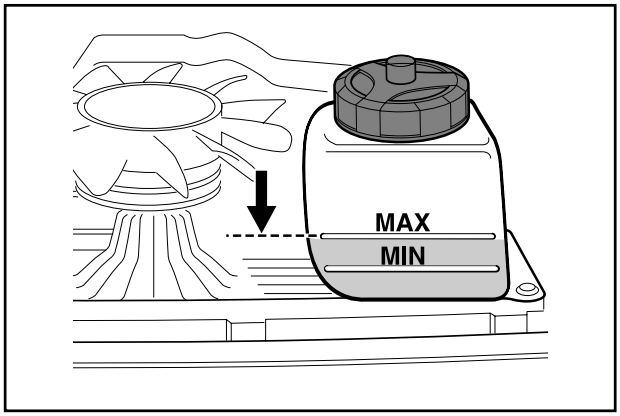
IMPORTANT INFORMATION

Before the sealing collar is completely installed, check that the sealing collar's metal spring reinforcement sits on the side of the sealing collar which leads inwards towards the transmission.

3



- Place the sealing collar on the axle, with the metal spring inwards, and press it in *carefully*.
- Use the narrow end of a 1/4" extender to *carefully* knock in the sealing collar until it reaches the bottom of the axle housing. Only knock on the steel cover.
  Move the extender in a circle around the sealing collar so that it is pressed in evenly all the way around and tight against the axle.
- Remove the insulation tape from the axle and repeat, as is necessary, the entire procedure for the second axle.
- On Rider Pro 15, replace the washer, spacer sleeve, cotter, rear wheel, circlip and hubcap.
  On ProFlex: washer, spacer sleeve, cotter, hub, circlip, hubcap and rear wheel.

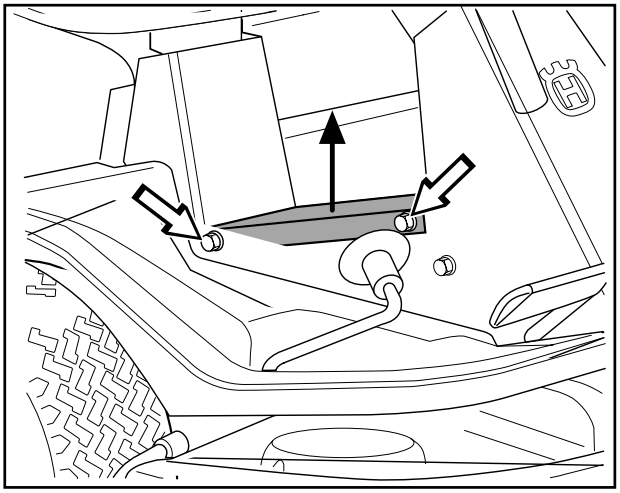


- Fill the transmission's oil container with SAE 10W30 oil until the oil level reaches the "MAX"-marking.
- Bleed the hydrostatic transmission as shown in “Bleeding the hydrostatic transmission’s oil system”.
- Operate the ride-on mower and then check that there is no oil leaking from the new axle sealing collars.
- Check the oil level and top up if necessary after test running.

Replacing hydrostatic transmission wire

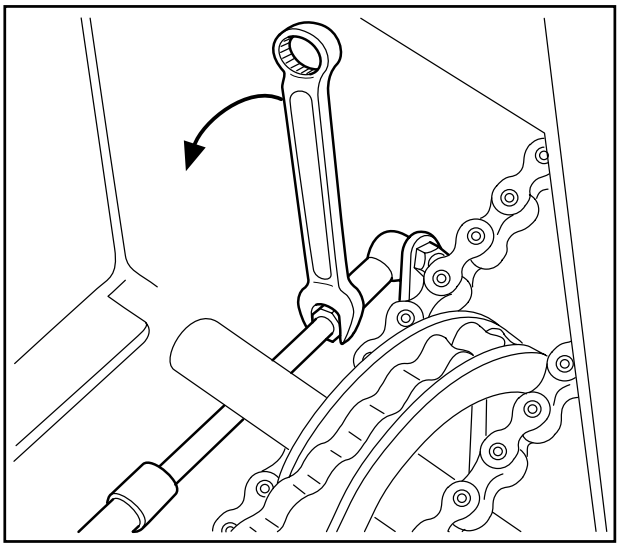
Removal of hydrostatic transmission wire

1

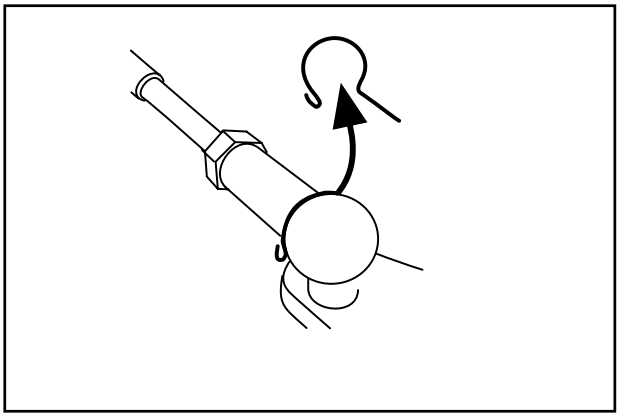


Remove the frame plate by undoing the screws (two on each side).

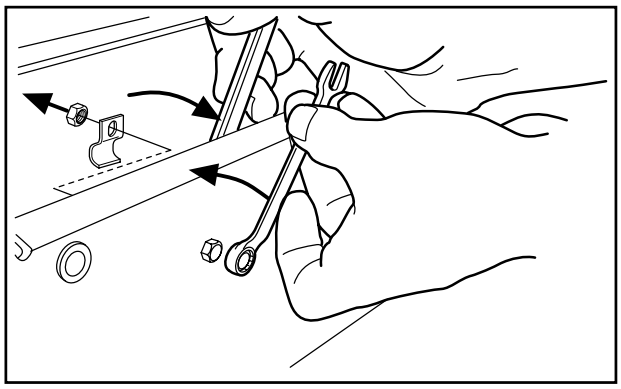
2



Loosen the hydrostatic transmission's front lock nut a 1/4 turn and remove the lock spring.



3

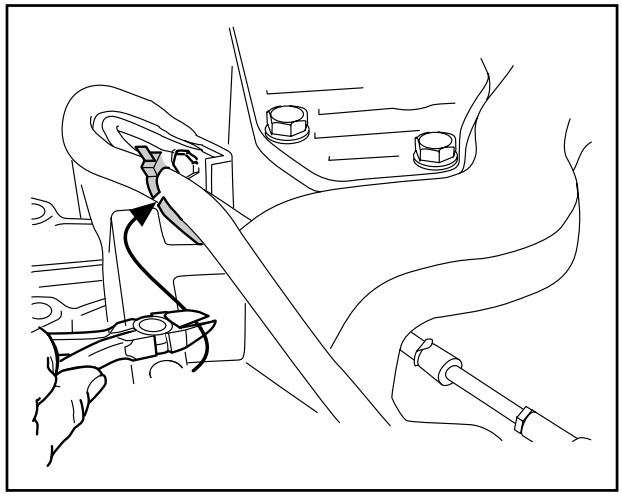


Remove the hydrostatic transmission wire's front clamp fixed inside the middle bracket.

4

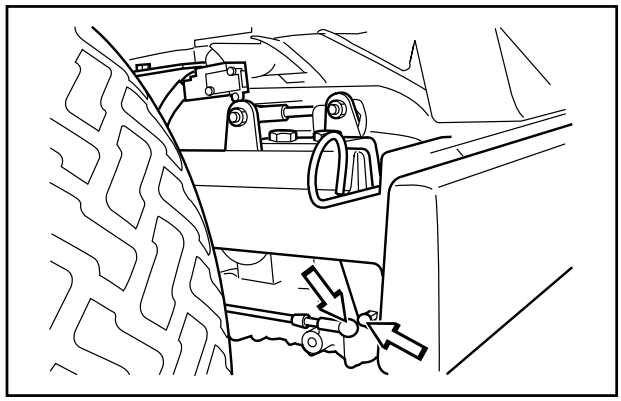
Remove the transmission cover.

5



Follow the hydrostatic transmission wire backwards towards the transmission and cut off the cable ties round the wire.

6

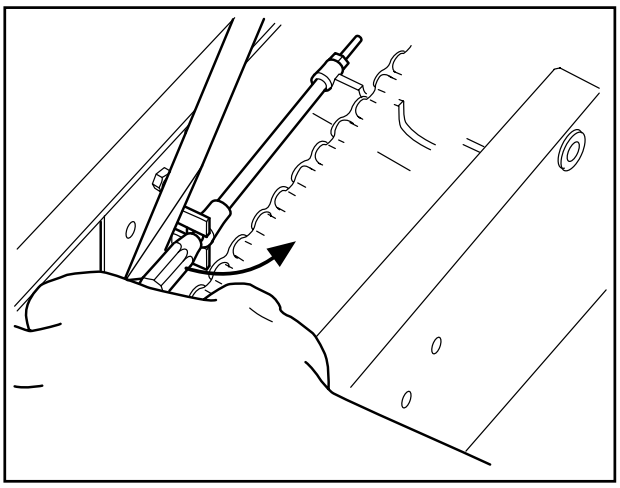


Remove the locking spring at the rear linkage on the hydrostatic transmission wire. Release the clamp under the left drive shaft.

7

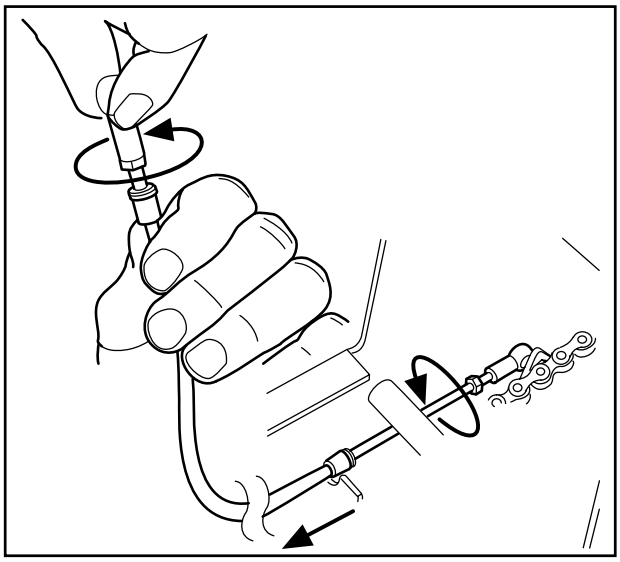
Lift off the linkage and pull out the wire.

8



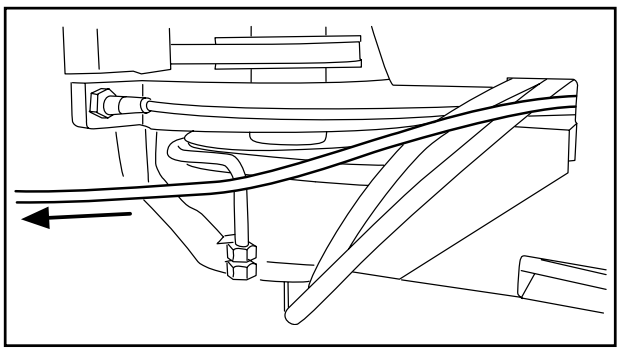
Lift out the transmission wire with the linkage attached.

9



Unscrew both ball joints from the hydrostatic transmission wire.

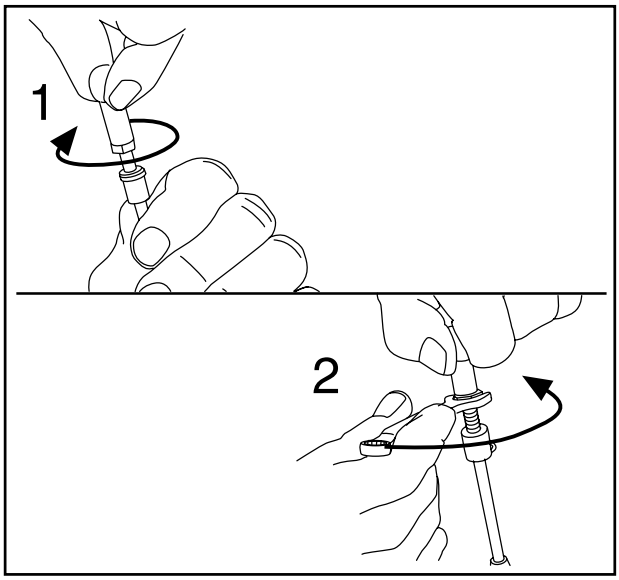
10



Remove the entire hydrostatic transmission wire.

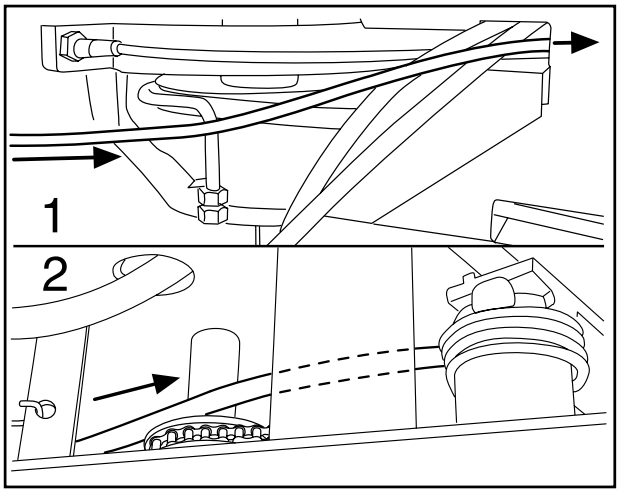
Refitting hydrostatic transmission wire

1



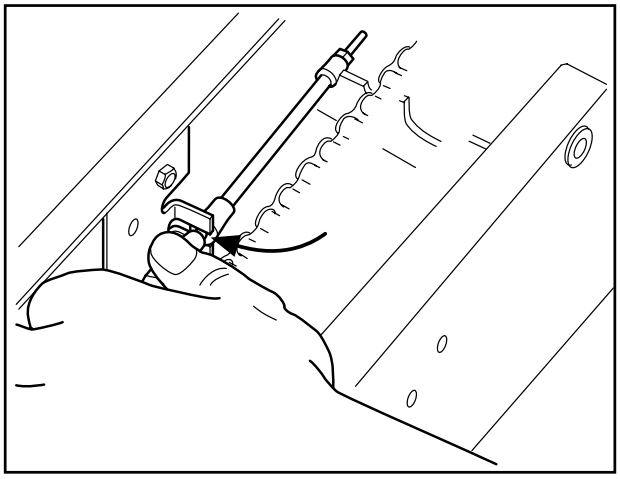
Screw the front ball joint onto the new transmission wire and tighten the lock nut.

2



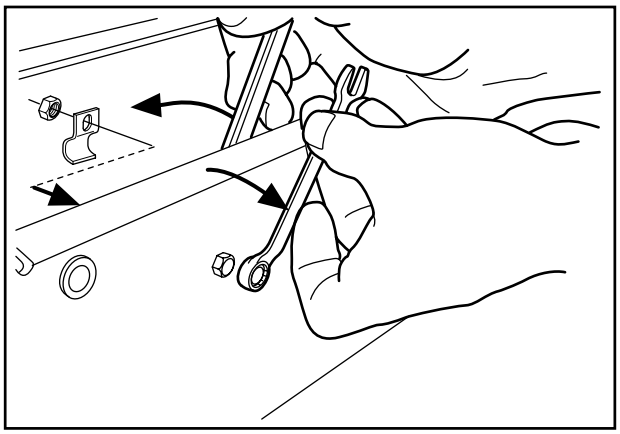
Run the wire through the mower so that it follows the same route as the old wire.

3



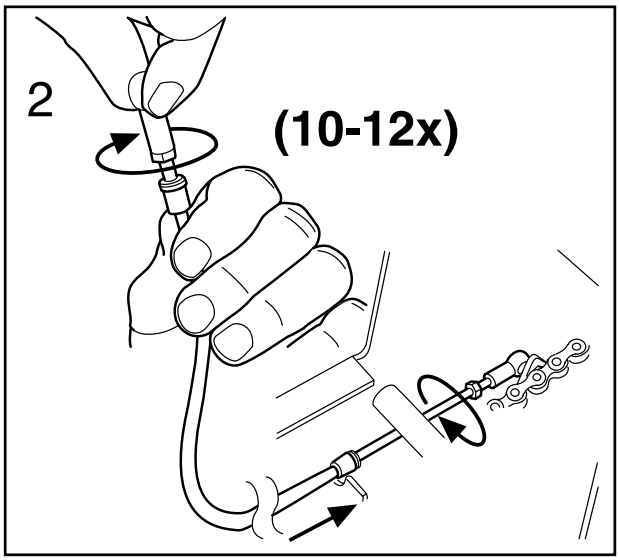
Press the wire casing in the front holder in the middle bracket.

4



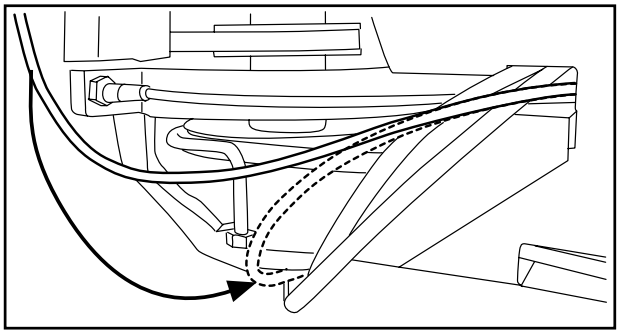
Screw tight the hydrostatic transmission wire's clamp. Press the linkage in its holder and fit the lock spring.

5



Screw tight the linkage on the rear part of the hydrostatic transmission wire. Screw 10-12 turns so that the linkage is the right length.

6

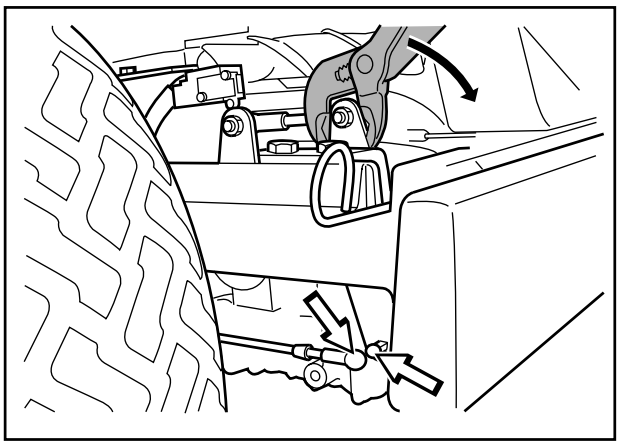


Draw the transmission wire along with the other cabling. Place the wire at the bottom in the clamp, under the articulated steering's bearing.

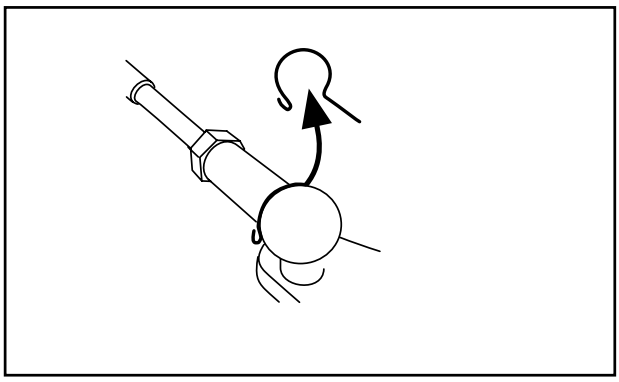
7

Place the hydrostatic transmission wire in position and screw tight with the rear clamp under the left drive shaft.

8



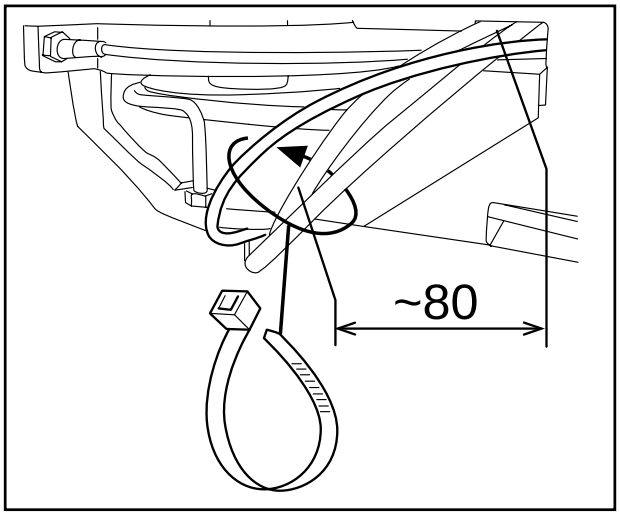
Adjust the wire as directed in "Inspection and adjustment of speed regulator". Connect the rear linkage and fit the lock spring. Tighten the rear lock nut for the linkage.



9

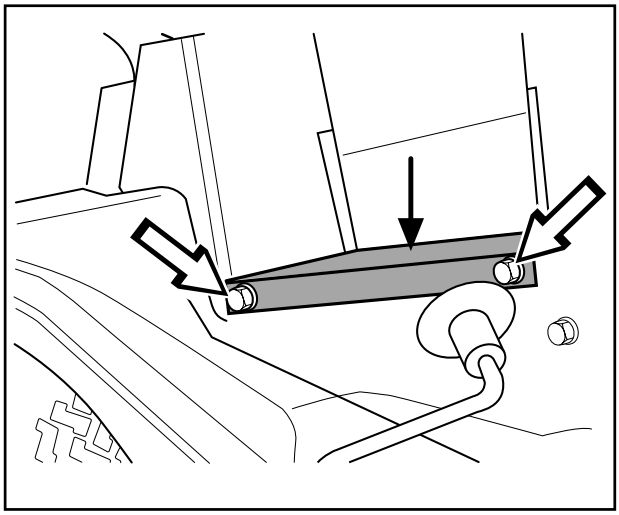
Check the setting of the neutral position contact.

10



Fix the hydrostatic transmission wire with a cable ties.

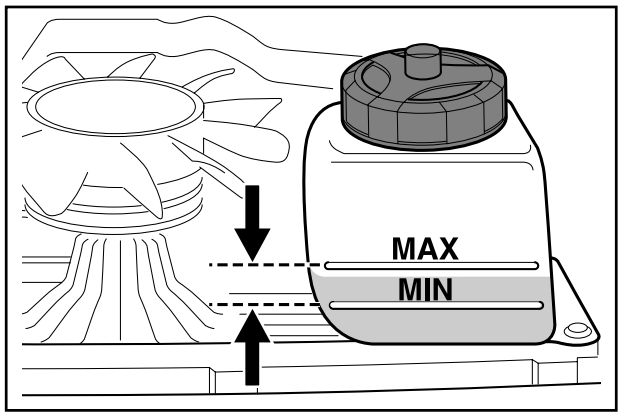
11



Refit the frame plate using the four screws.

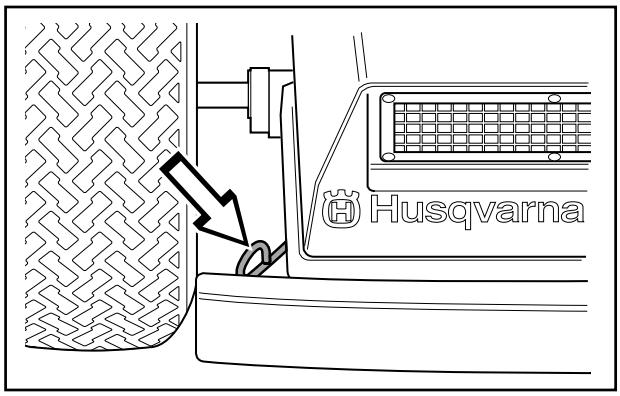
Bleeding the hydrostatic transmission oil system

1



- Check the hydrostatic transmission oil level.
- Start the engine and set the throttle control to idle.

2



- Repeat opening and closing the disengaged clutch control whilst the front respective rear pedals are alternately pressed down.
- When the mower starts to move set the governor control lever to high idle.

3

- Repeat quick starts and emergency stops until the transmission responds as it should.
- Check also the oil level in the hydrostatic transmission, and top up if necessary.

4

- Test run the machine.
- Finally, check the hydrostatic transmission's oil level, and if necessary top up in the oil tank.

Adjustment of transmission neutral position

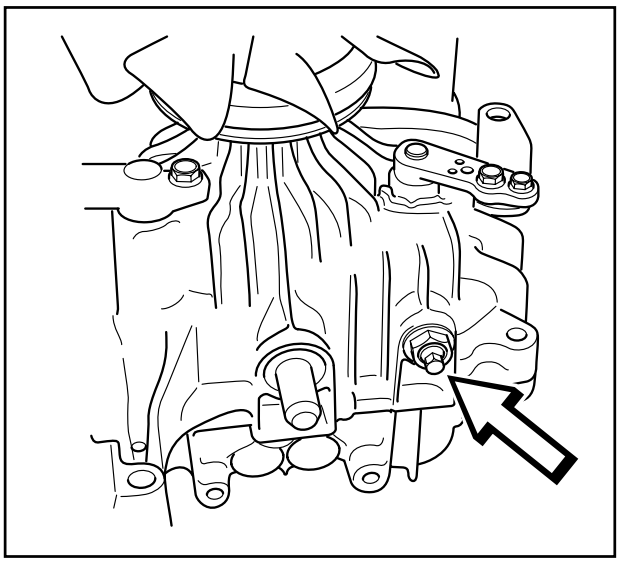
1

Bleed the hydrostatic transmission oil system.

2

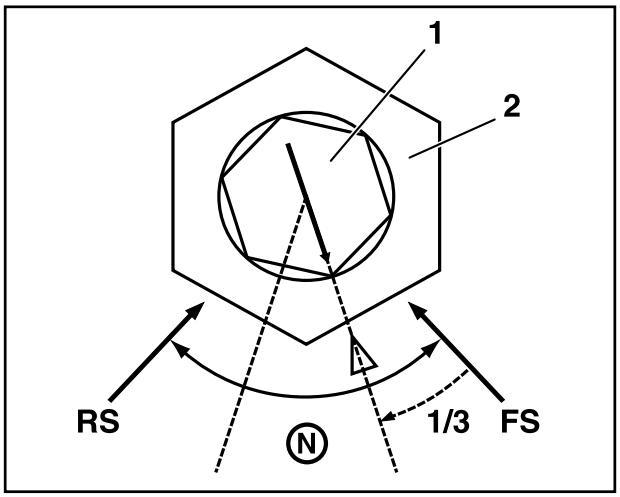
Lift the back of the ride-on mower up so that the wheels are off the ground and place blocks under the machine.

3



- The neutral position is adjusted by turning the hexagonal axle on the transmission (see diagram).
- Start the engine and set the throttle control to full throttle.
- Unscrew the hexagonal axle lock nut and turn the axle clockwise until the drive shafts start to rotate backwards.
- Make a mark on the top of the axle.

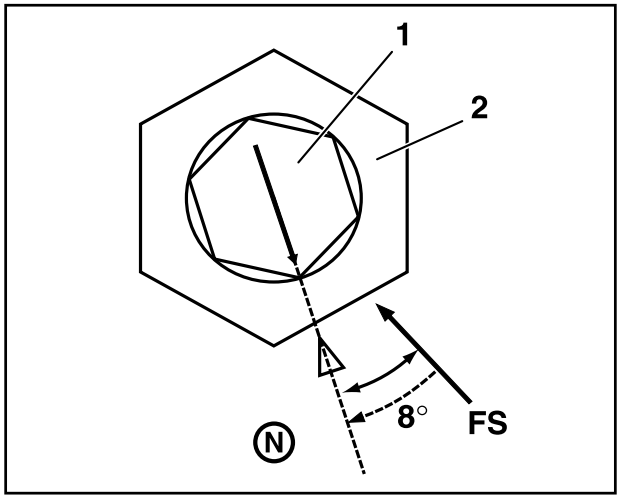
4



1 = Axle
2 = Lock nut

- Slowly turn the axle anti-clockwise until the drive shafts stop rotating backwards and make a mark on the transmission housing (RS).
- Slowly turn the axle anti-clockwise until the drive shafts start to rotate forwards.
- Slowly turn the axle clockwise until the drive shafts stop rotating forwards and make a mark on the transmission housing (FS).
- Turn the axle clockwise 1/3 of the distance between the marked stop points.
- Hold the axle (N=8) firmly and tighten the lock nut (N=17).
- Check that the drive shafts do not rotate in the neutral position by slowly transferring the steering arm to the neutral position from the forwards and reverse positions.

5



1 = Axle
2 = Lock nut

If the drive shafts do not rotate backwards despite the hexagonal axle having rotated a full turn, the neutral position is to be adjusted in the following way:

- Slowly turn the axle anti-clockwise until the drive shafts start to rotate forwards.
- Slowly turn the axle clockwise until the drive shafts stop rotating forwards and make a mark on the transmission housing (FS) and the axle.
- Turn the axle clockwise 8° from the mark on the transmission housing.
- Hold the axle (N=8) firmly and tighten the lock nut (N=17).

Transmission maintenance

Oil change
Most garden owners do not have tools for or experience of changing transmission oil. The transmission probably has a longer operational life than other ride-on mower components, this makes transmission oil changes less important for most customers. However, the transmission's operational life is increased if oil changes are made.

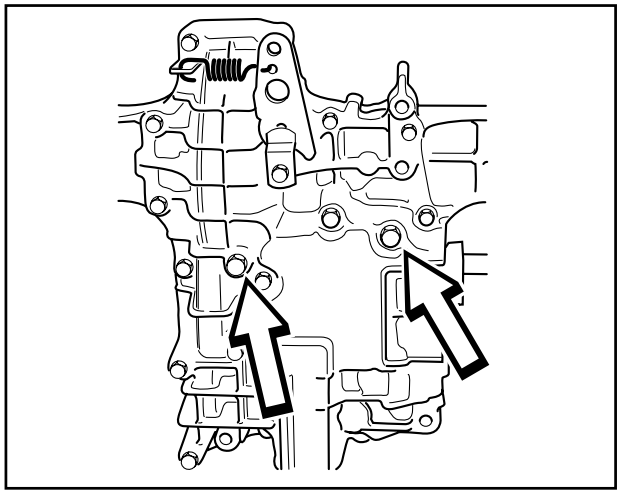
If the Rider is used professionally it is recommended that the engine oil is replaced after the first 50 hours in service and then every 500 hours or at least once a year.

IMPORTANT INFORMATION

Spent engine oil is hazardous to health and must not be poured out on the ground or in the nature, but should be handed in to a designated place for recycling.

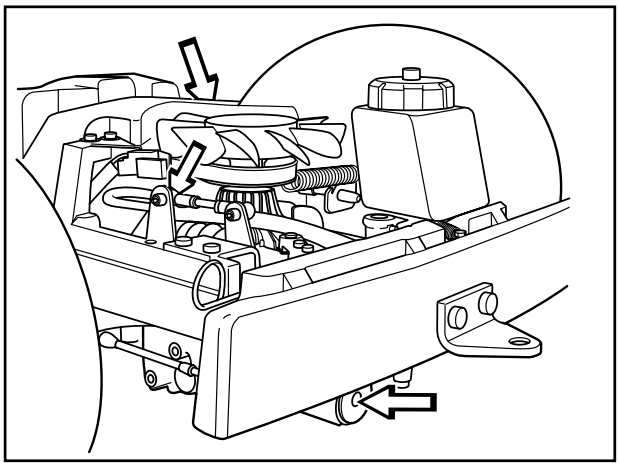
Avoid skin contact and wash any spillage with soap and water.

K62
Transmission holds 2,5 litres (SAE10W/30 engine oil, class CD–SF).

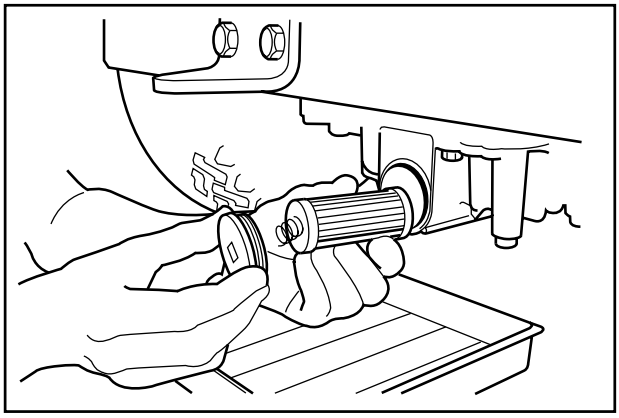


- Empty the hydrostatic transmission with the two plugs, width across flats 14 mm. The other screws have smaller widths.
- Disconnect the hose that runs to the transmission oil tank.
- Release the hexagonal socket head plug for the filler hole at the front on the top of the transmission.

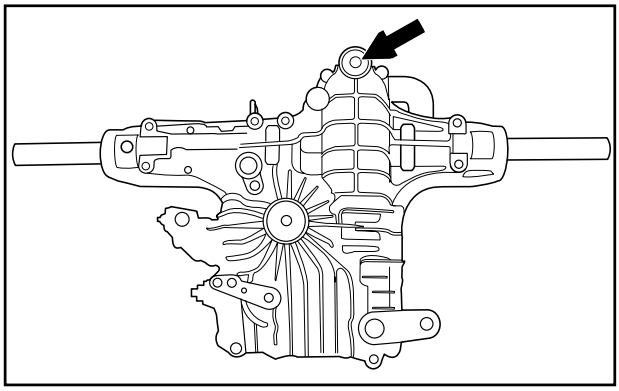
K66
Transmission holds 2,5 litres (SAE10W/30 engine oil, class CD–SF).



- Remove the plug from the drain hole.
- Disconnect the hose that runs to the transmission oil tank.
- Release the hexagonal socket head plug for the filler hole at the front on the top of the transmission.



K66, drain hole. The filter must be replaced when the oil is changed.



K62 / K66, filler hole

Replace the drain plugs. Fill with oil through the filler hole. Replace the hose and fill the oil tank. Bleed the hydrostatic transmission as shown in “Bleeding the hydrostatic transmission’s oil system”. Test run the machine and top up with oil to the correct level in the oil tank.

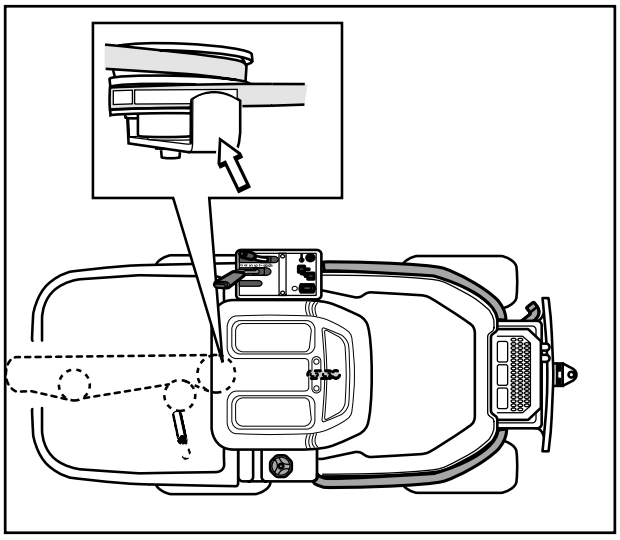
Removing belt

Rider Pro 15

Starting point when removing belt:

- There is no deck mounted on the Rider.
- The front part of the belt is hanging loose.

The complete belt is only removed as shown below when a snow blade is to be fitted on the Rider.



1. Release the belt guide and support belt pulley.
2. Release the wheel on the belt tensioner.
3. Take off the belt from the middle wheel and remove the belt.

The belt is replaced in the reverse order.

Removing the belt

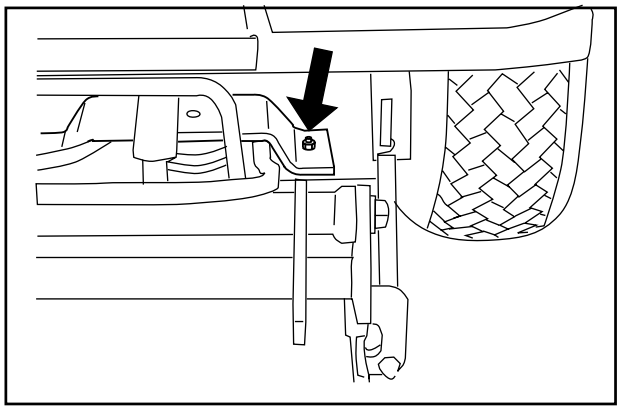
Starting point when dismantling the belt:

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

For a description of how to prise the front part of the belt off the front pulley see steps 2–3 under "Removing the cutting unit".

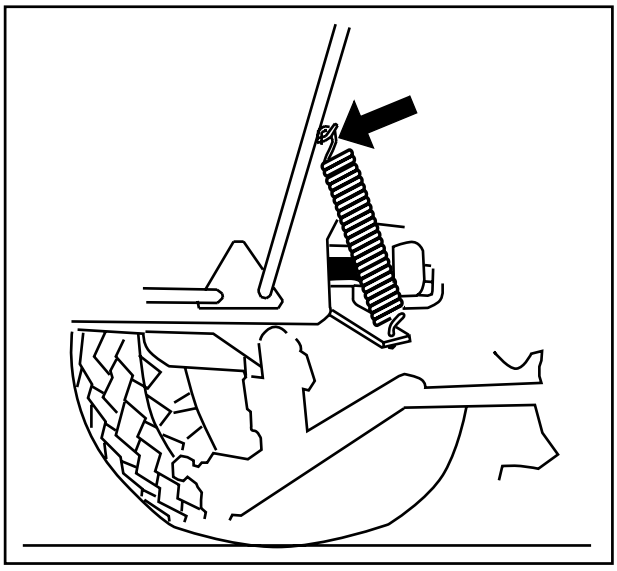
The entire belt is only dismantled as set out below, when the snow plough is fitted on the Rider.

1



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

2

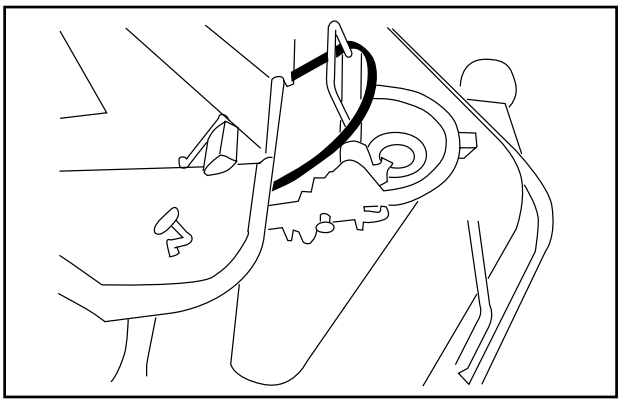


Unhook the spring on the blade brake. Pry off the belt from the intermediate pulley and remove the belt.

Assembling the belt

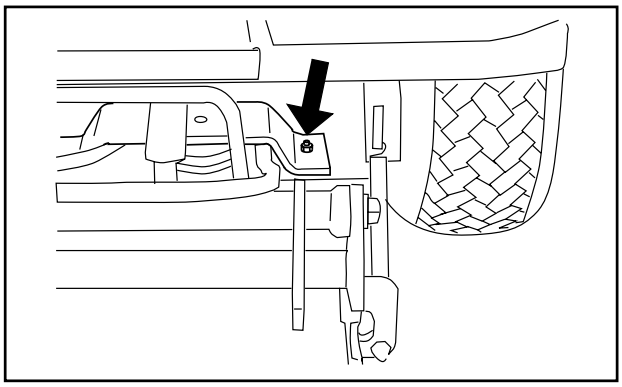
Rider ProFlex

1



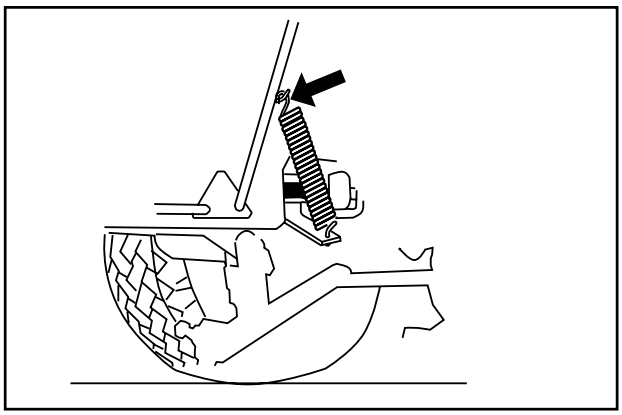
- Position the belt from the front and let the front end of the belt hang around the hook guard’s handle.
- Fit the belt on the intermediate pulley and against the support wheel.

2



- Fit the steering plate under the support wheel and tighten the bolts using two 13 mm socket spanners.
- Lay the belt in position over the drive pulley and tensioning pulley. Attach the belt tensioning spring.

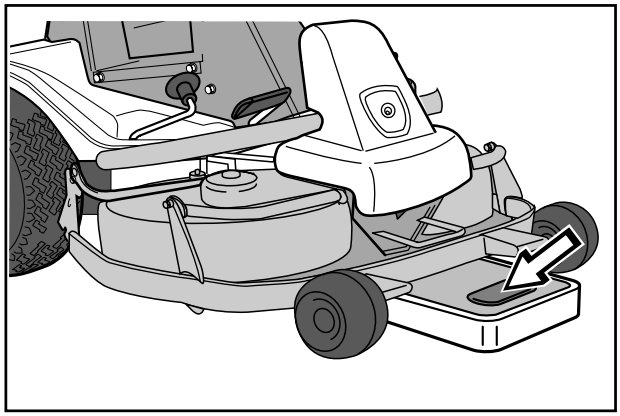
3



Hook on the spring for the blade brake.

Checking and adjusting mower deck ground pressure

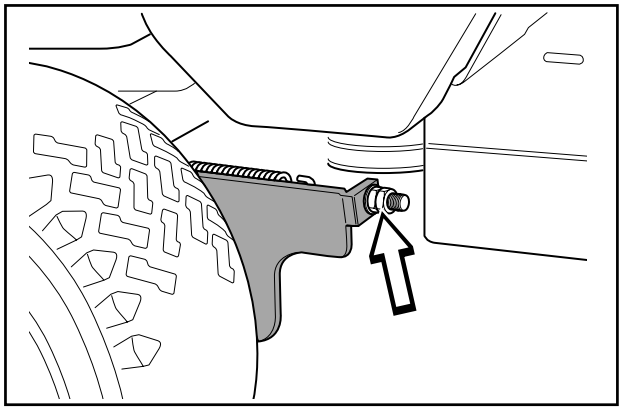
1



Check tyre pressures (60 kPa)

Place a set of bathroom scales under the mower deck's frame (front edge) so that the deck rests on the scales.

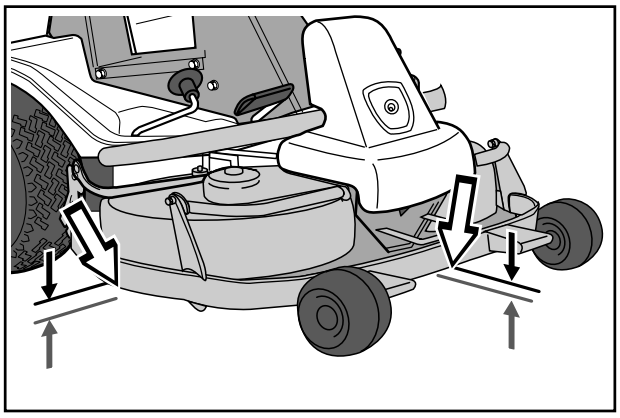
2



Adjust the mower deck’s ground pressure with the adjusting nuts (on ProFlex adjusting screws) placed behind the front wheels on both sides of the machine. The ground pressure should be the same on both sides, between 12 and 15 kg.

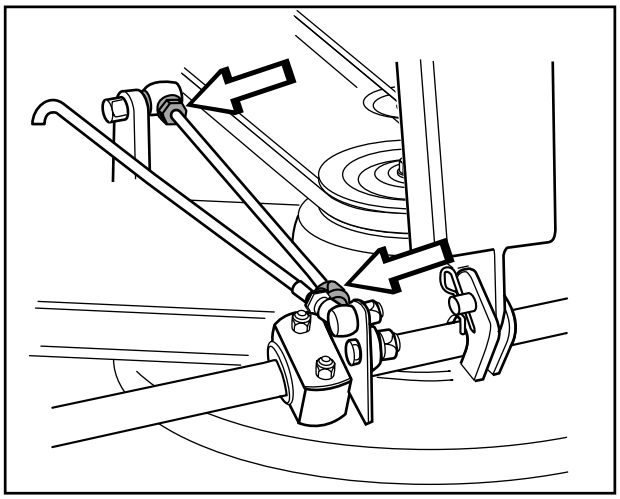
Checking and adjusting mower deck parallelism

1



Place the ride-on mower on an even surface and measure the distance between the ground and the edge of the deck, at the front and rear of the cover. The cutting unit should slope forwards slightly so that the rear edge is 2-4 mm higher than the front edge.

2 Adjusting



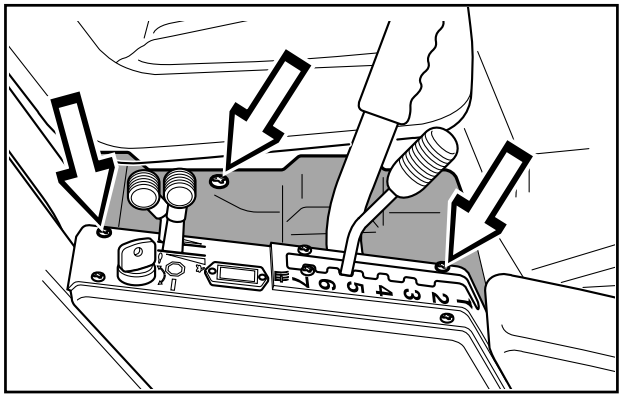
The diagram shows Rider Pro 15, on ProFlex the mowing deck is suspended in the deck frame.

- Remove the front cover and the right-hand fender.
- Undo the nuts on the lift strut.
- Unscrew the strut (anticlockwise) to lower the rear edge of the hood.

  Screw the strut in (clockwise) to raise the rear edge of the hood.
- Tighten the nuts after adjustment.
- On completion of the adjustment the unit's parallelism should be re-checked.
- Fit the right-hand fender and the front hood.

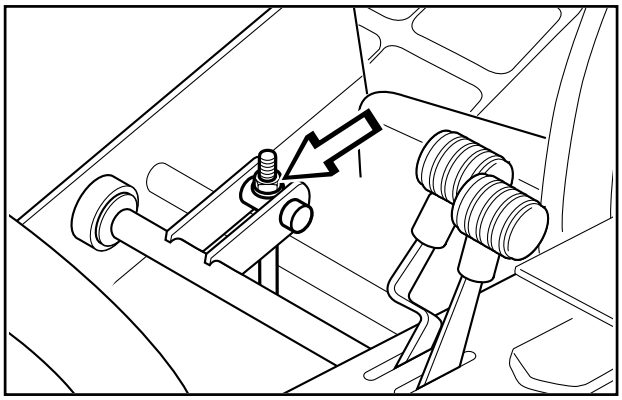
Adjusting cutting height area

1



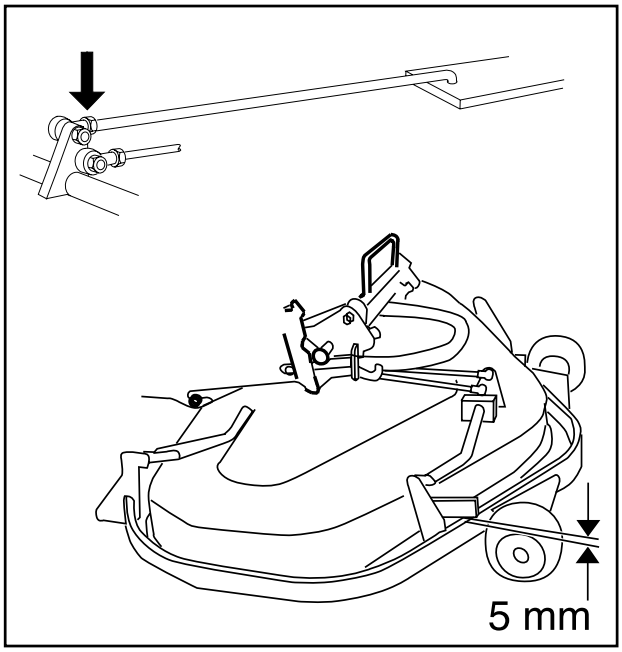
Remove the plastic cover on the right side of ProFlex. Rider Pro 15 is adjusted by carefully bending away the plate.

2



Raise or lower the entire mowing deck by screwing the nuts up or down.
If the highest cutting height is raised by 5 mm the other fixed cutting heights will also be raised by the same amount.

Adjusting cutting height



- Loosen the nuts on the height setting arm.
- Adjust so that the distance between the stop for the lowest height setting and the protective frame is 5 mm.
- Tighten the nuts.
- Check that the parallelism has not changed. If it has changed, the parallelism must be readjusted again.
- Check and adjust the cutting unit's ground pressure as set out (see "Checking and adjusting cutting unit ground pressure") if necessary.
- Fit the nose.

NOTE!

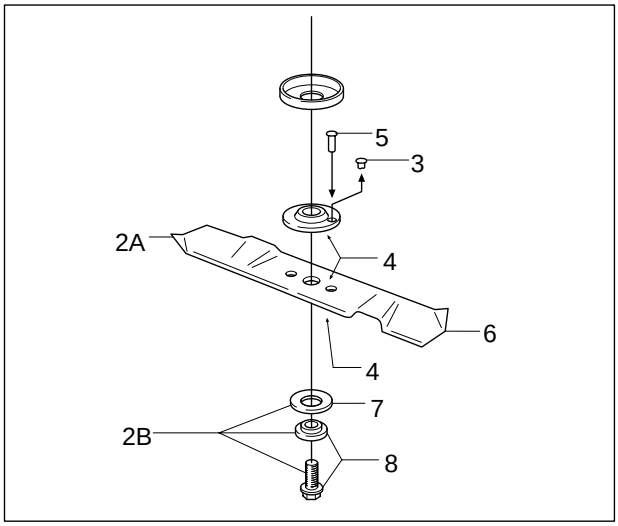
The parallelism and height must be adjusted again when changing the cutting unit.

Replacing the break-pin (BioClip)

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)



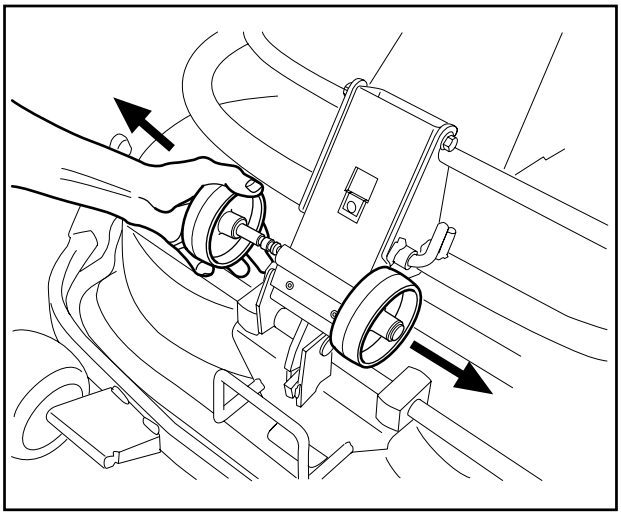
Removing the cutting unit

Rider Pro 15

1

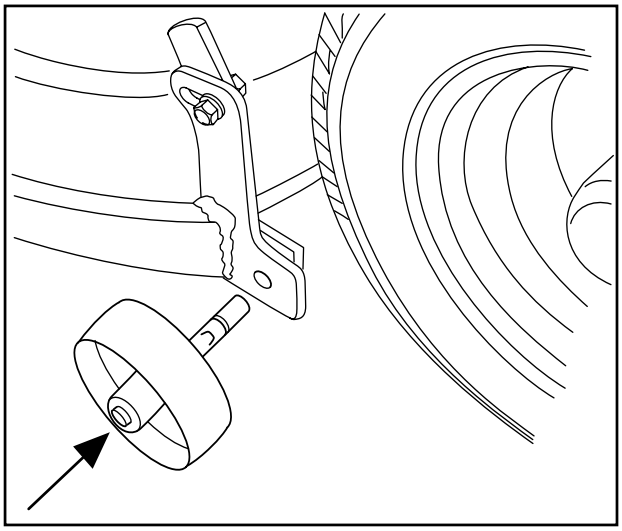
- Apply the parking brake.
- Adjust the cutting height to its lowest setting.
- Remove the front cover.

2



Release the two support wheels under the front cover.

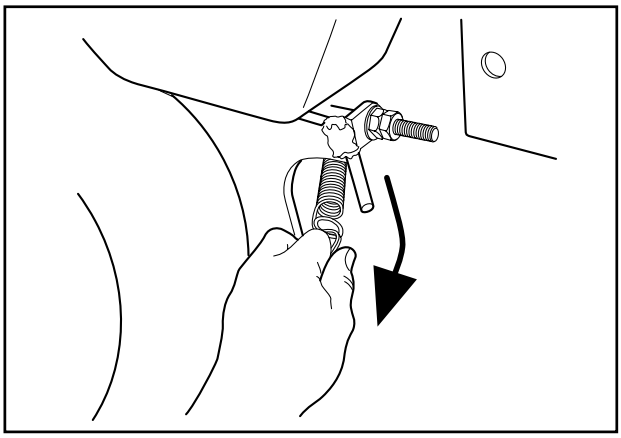
3



Fit the two support wheels on each side of the lower part of the deck.

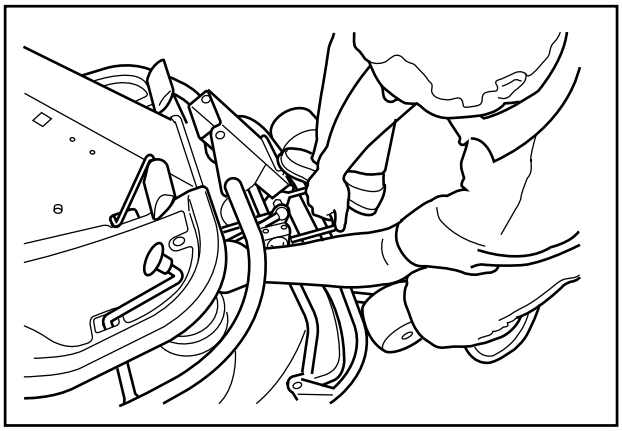
WARNING!
Wear protective glasses when removing the cutting unit. The spring which tensions up the belt can go off and cause personal injury.

3

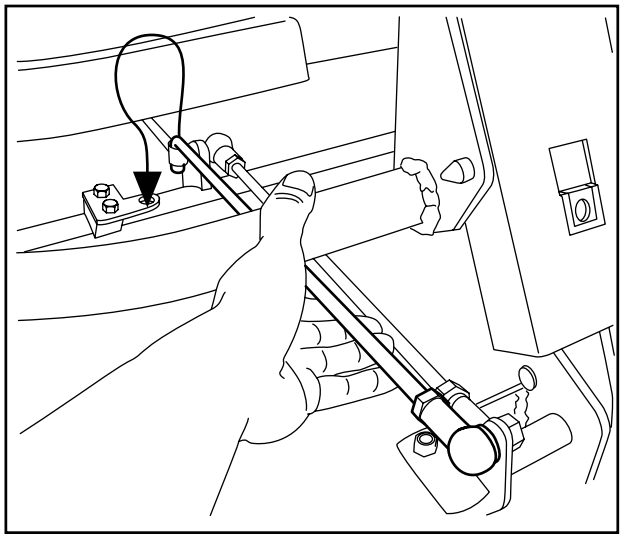


Release the spring for the drive belt's tensioning wheel. Move the cutting height lever to the lower position.

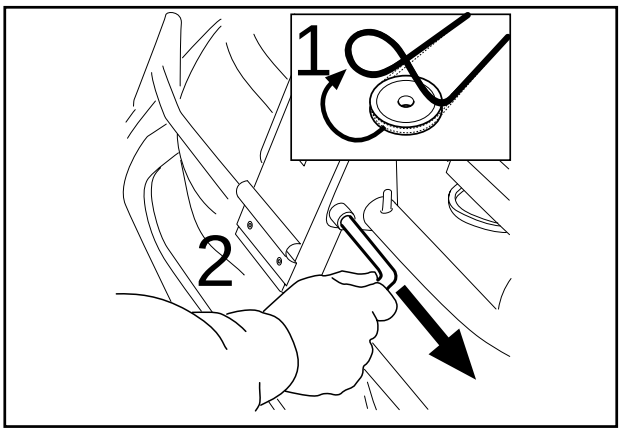
4



Place one foot on the front edge of the deck by the wheel, and lift the front edge of the deck to simplify releasing the height setting rod. Secure the rod in the holder.

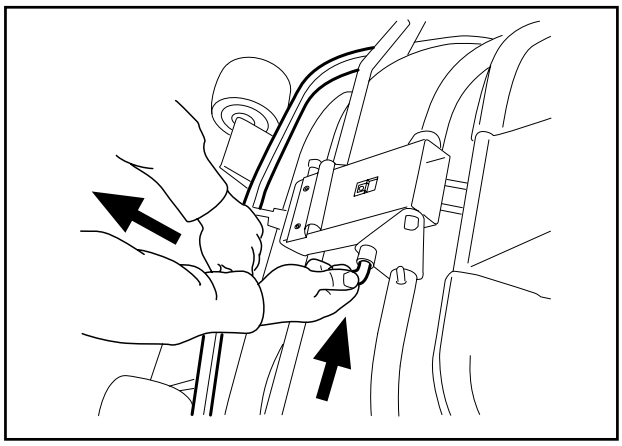


5



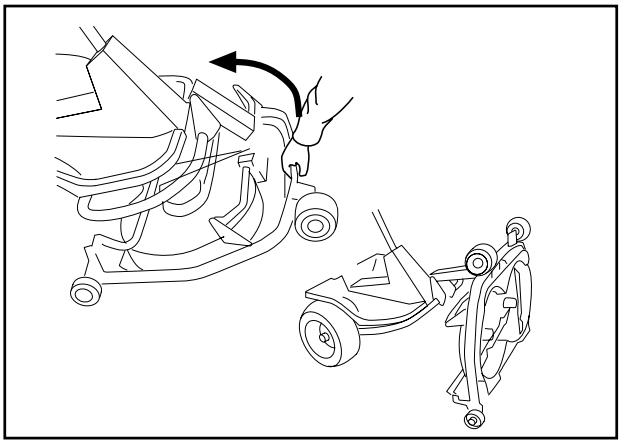
Lift off the drive belt (1). Now pull out the pin (2). Make sure not to trap your hand.

6



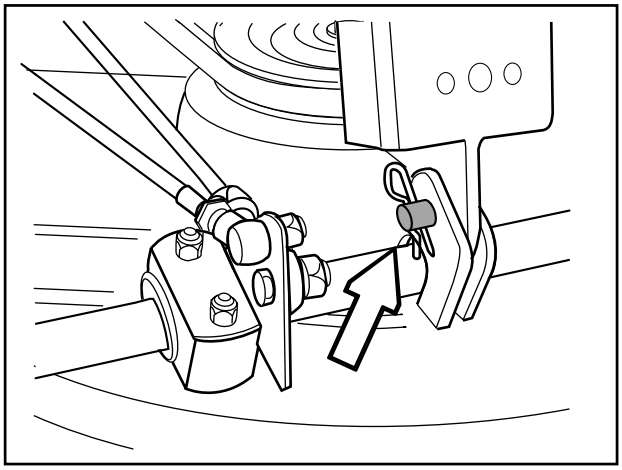
Pull the frame forwards and replace the pin.

7



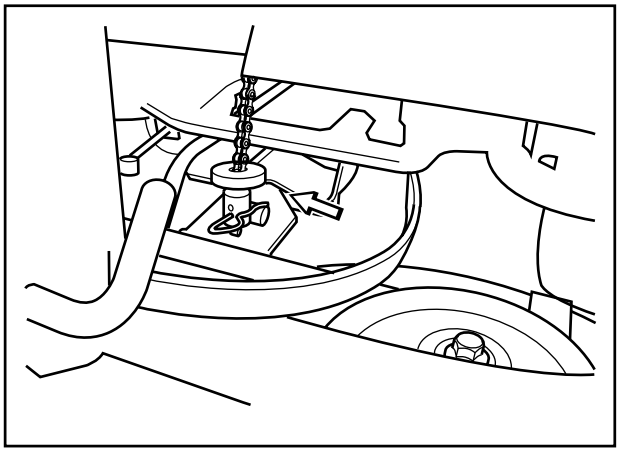
Grip the front edge of the deck, and pull out and lift it up to the service position.
Or:

If the cylindrical bolt, which is now holding the mowing deck is removed, the mowing deck can be lifted off.



To leave the service position

To leave the service position, reverse the procedures set out in “Placing in the service position”. Make sure that the “lug” on the mowing deck enters the clamp correctly on the underside of the machine, see diagram.



Removal of mowing deck

Rider ProFlex

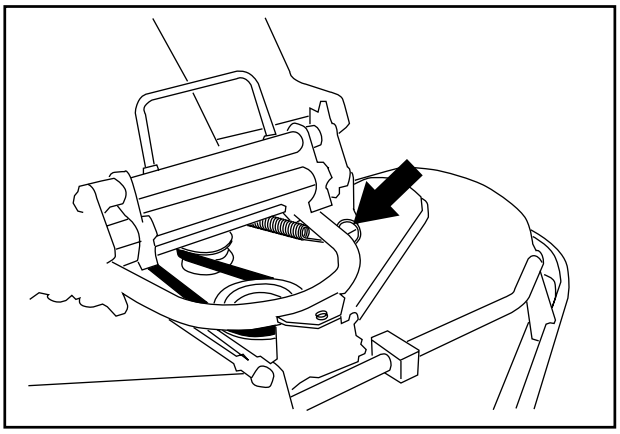
WARNING!
Observe caution. Risk for pinch injuries.

1

- Place the Rider on a level surface.
- Apply the brakes by pressing down the pedal and lock using the pushbutton.
- Lift up the unit using the lifting lever.
- Remove the nose.

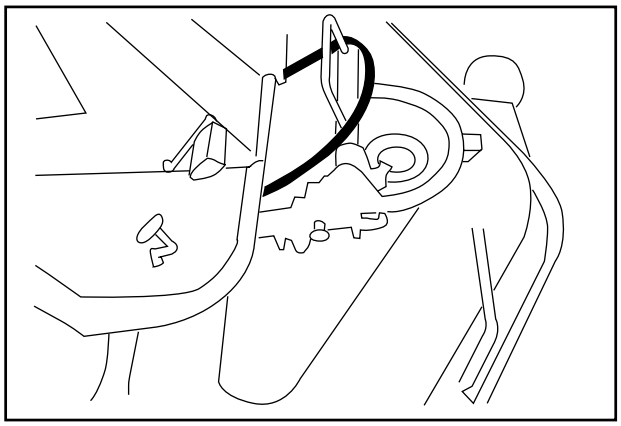
WARNING!
Wear eye protection and work gloves when working on the mowing deck.

2



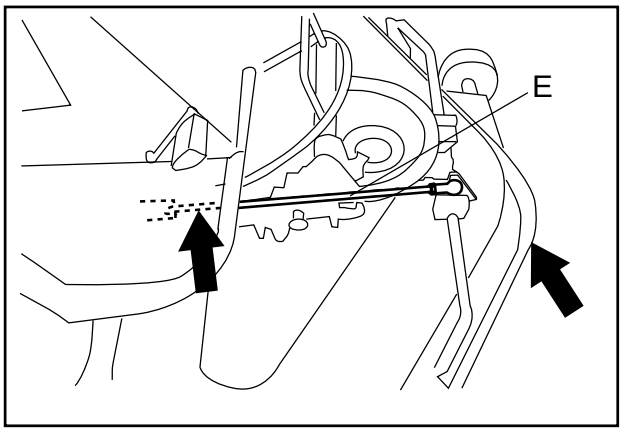
- Remove the belt adjuster's spring.
- Lift off the belt from the belt pulley.
- Hook on the belt adjuster's spring again.

3



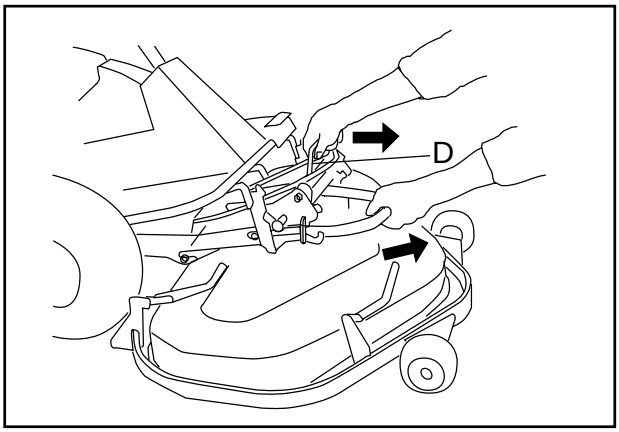
- Hang the belt around the handle.

4



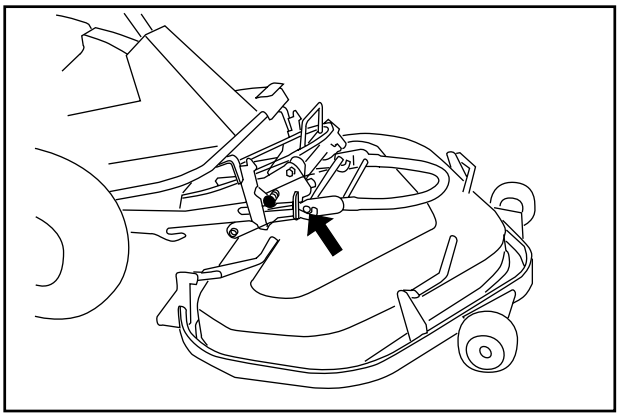
Unhook the height setting rod (E) by moving the rear end upwards: Relieve the rod if necessary by pulling the front part of the frame upwards or downwards.

5



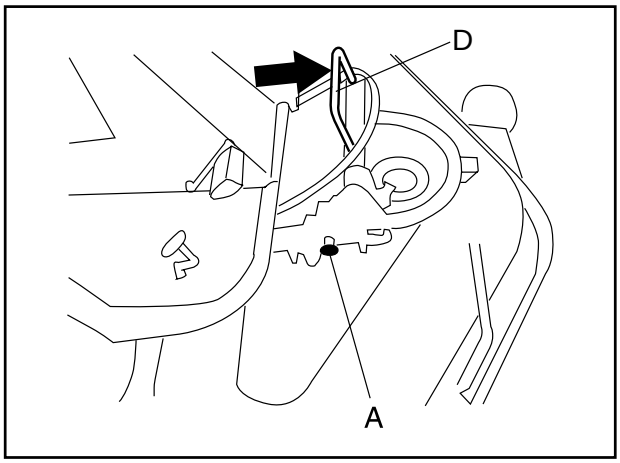
Pull the handle (D) and the deck at the same time. Release the handle when the deck has come out a little.

6



Pull out the unit so that it engages in the outer hooks.
Lower down the deck by using the lifting lever on the driver's right-hand side.

7



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

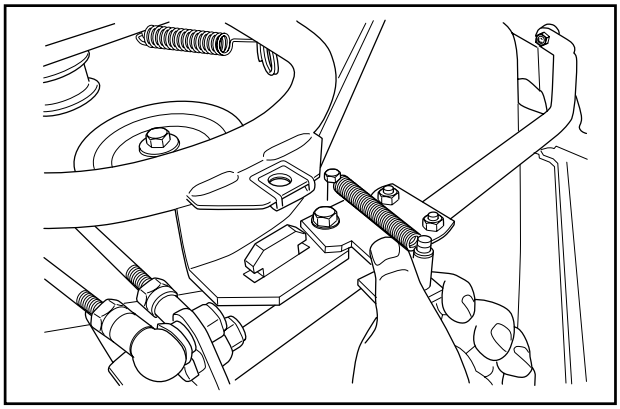
Removing the attachment frame

Starting point for removing attachment frame:

- Cutting unit must be removed.

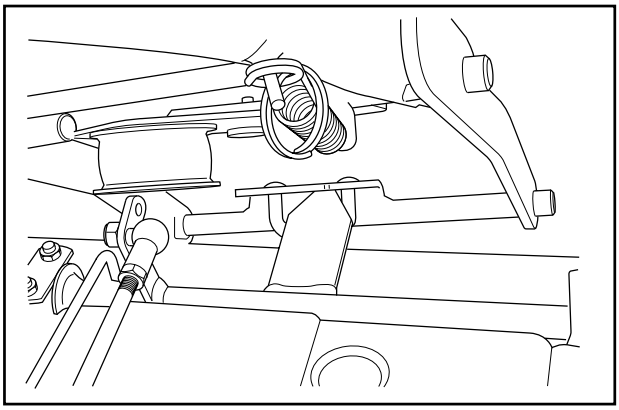
1

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.



Replacing the cutting unit's belts

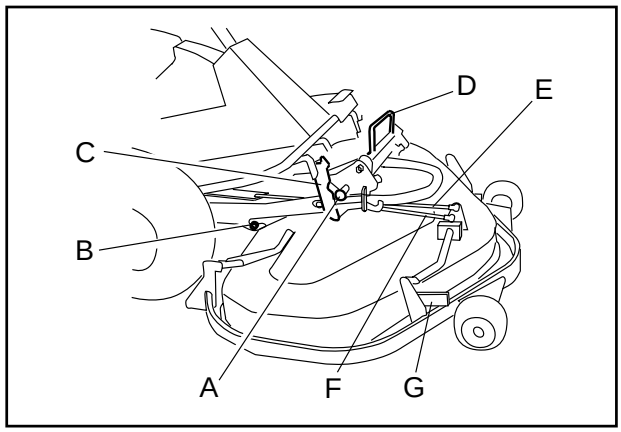
Belt replacement on BioClip 103

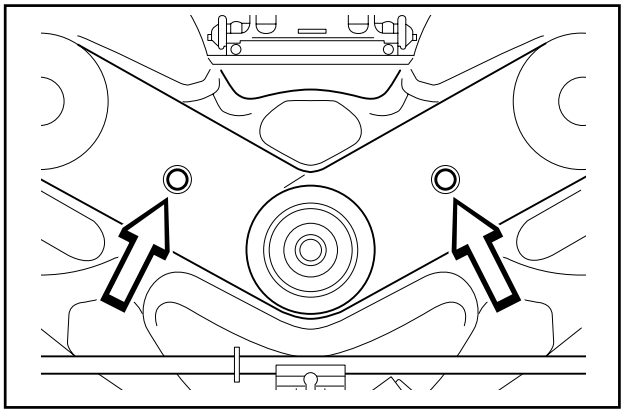
There are two versions of BioClip 103. Version 1 has a single toothed belt and version 2 has two belts. The toothed belts drive the blades and synchronise their rotation. The belts are located under a cover on top of the cutting unit.

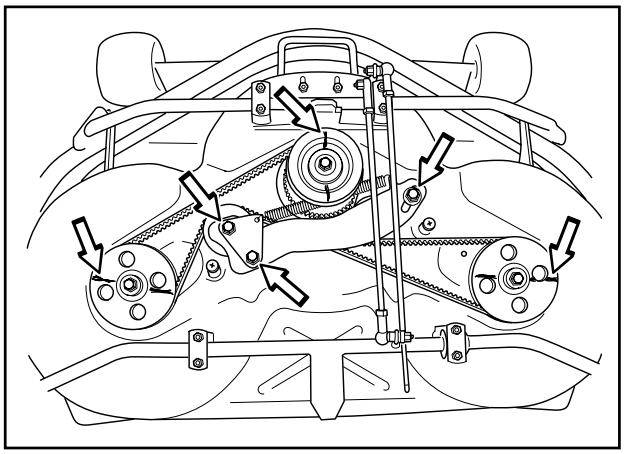
1. Remove the cutting unit.
2. Remove the deck frame on ProFlex, see "Removal of deck frame".
3. Tilt the height adjustment arm (E) forwards. Unscrew the front bolt from the parallel strut (F) and tilt the strut backwards.
4. Undo the two screws that hold the protective cover and lift off the cover.

   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

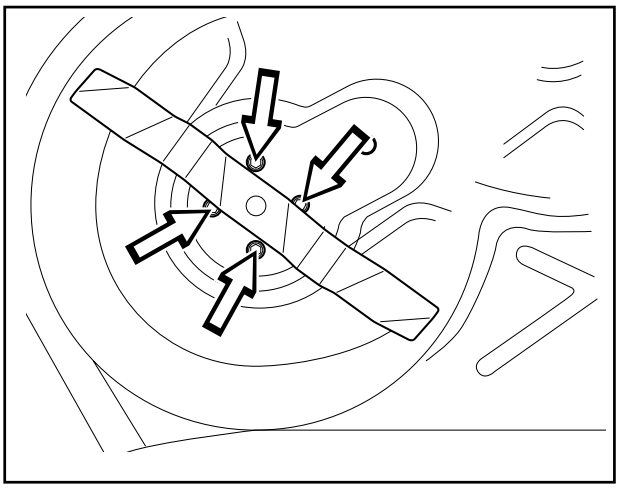
5. Version 2:

   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.

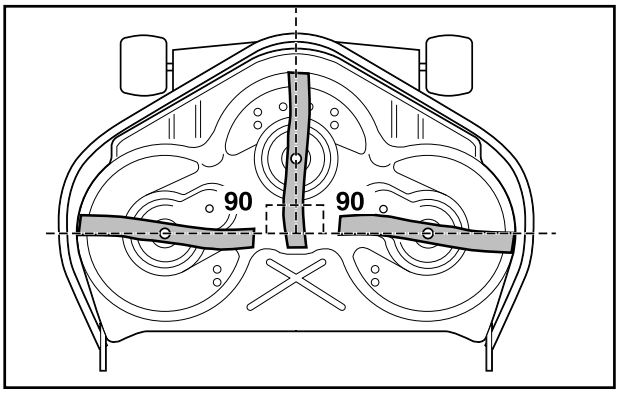
   Tighten the nuts enough so that the bearings rest against the cutting hood but still can be moved.

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

   Tighten all nuts on the blade bearings.

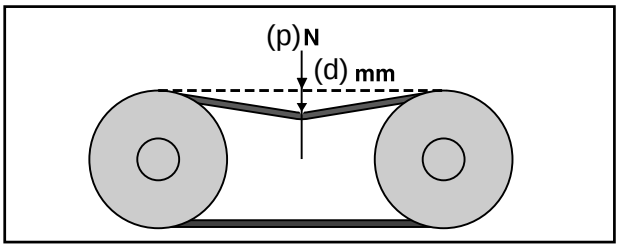
7. Version 2:
   When the belt can be moved (d)=7 mm inwards using a force of (p)=10 N the belt is adjusted correctly.

8. Version 1 and 2:
   Fit the cover over the belts and refit the parallel strut and attachment frame.



IMPORTANT INFORMATION

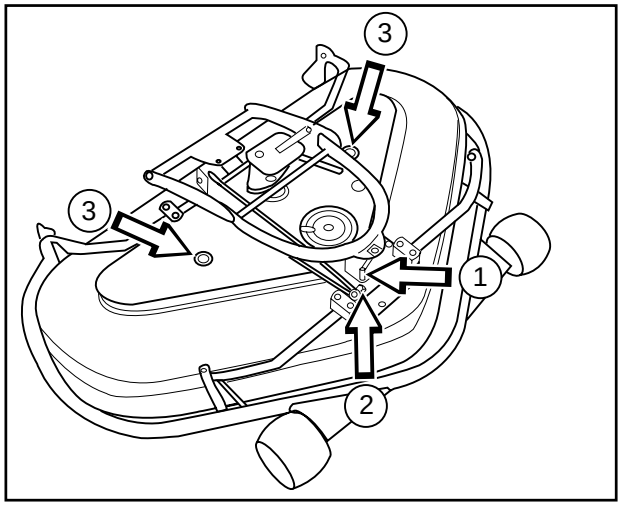
On BioClip 103 units the belts must be set at 90° to each other. In all other cases the blades can collide and cause serious damage to the cutting unit.



Belt replacement on BioClip 90

The BioClip 90 is driven by a toothed belt that synchronises rotation of the blades. The belt is located under the cover of the cutting unit.

When changing the belt on BioClip 90, follow the above description, items 1-7 for version 2.
NOTE! BioClip 90 only has 1 belt, tension (d) = 8 mm, (p) = 7 N.



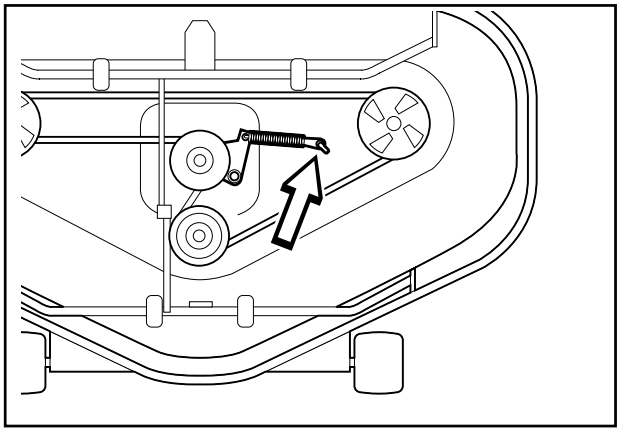
Belt replacement on BioClip112
The BioClip 112 has “collision-proof” BioClip blades that are driven by a V-belt. To replace the belt, see instructions for Cutting Unit 120 below.

Belt replacement on Cutting Unit 120
On cutting units 120 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.

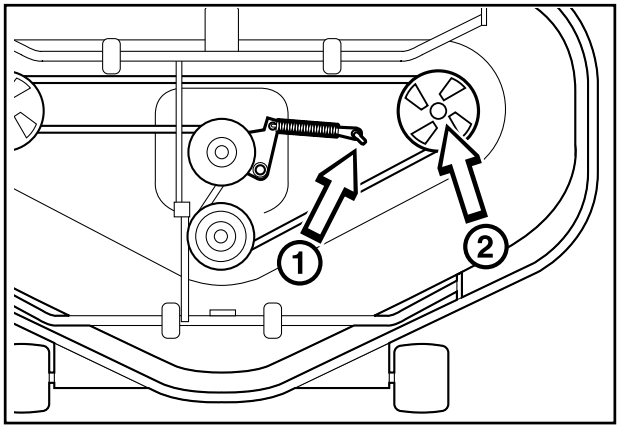
   Reverse the procedure to fit the new belt.



Removal of blades with bearings

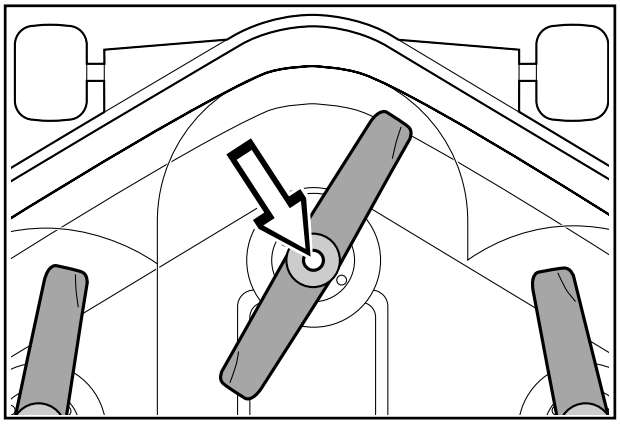
WARNING!
When working with the mowing deck, use protective glasses and gloves.

1



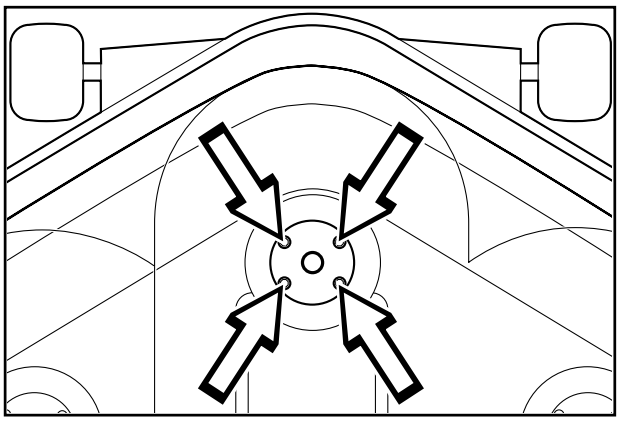
- Release the spring which tensions the V-belt and twist off the belt.
- Unscrew the screw which holds the pulley (2) and detach the pulley, a puller may be needed for this. Do not lose the key which is found between the pulley and the axle.

2



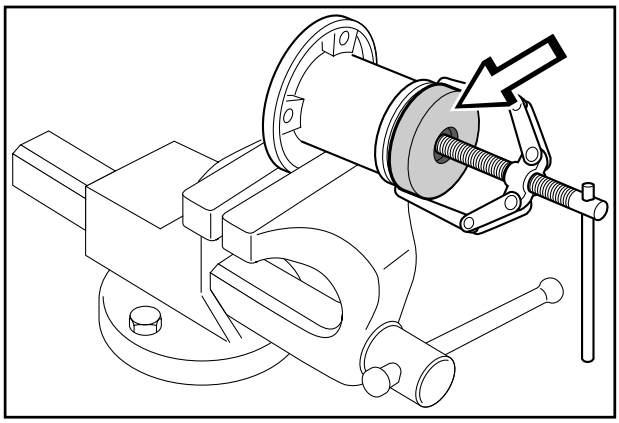
Unscrew the screw which holds the blade and remove the screw, washer and blade.

3



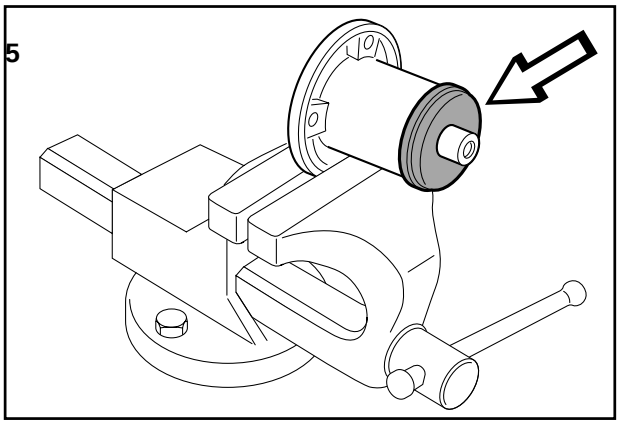
Unscrew the four screws which hold the blade bearing and remove the entire bearing packet from the mowing deck.

4



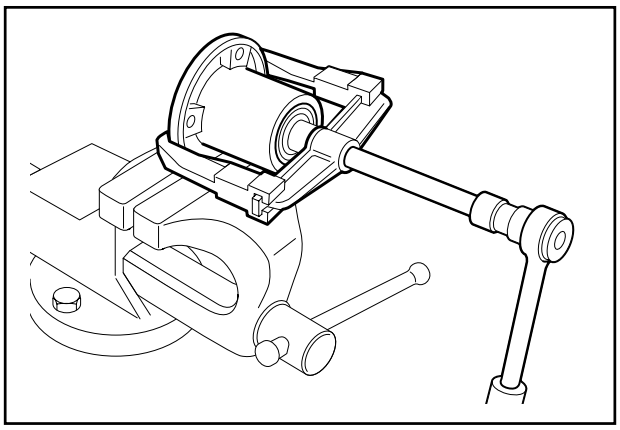
Remove the hub using a puller. Do not lose the key which is found between the pulley and the axle.

5



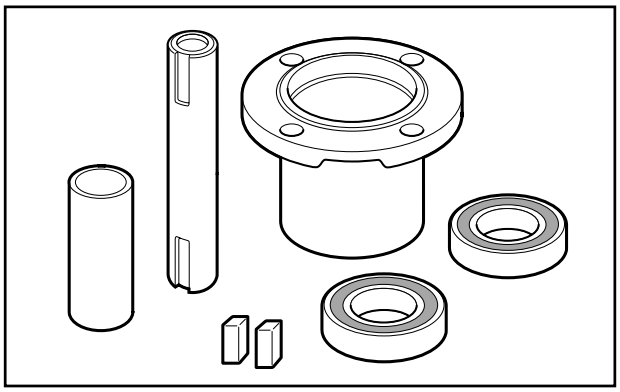
Remove the sheet metal safety washer.

6



- Press out the axle with a puller.
- Knock out the bearings and remove the spacer.

7



The entire packet can be bought as a complete set with axle housing, axle, spacer and bearing. The Rider ProFlex set does not include an axle.

Installation is carried out in the reverse removing order.

IMPORTANT INFORMATION

When tightening the screws for the blade shafts the screws on the transmission side should always be tightened first, followed by the blade screws.

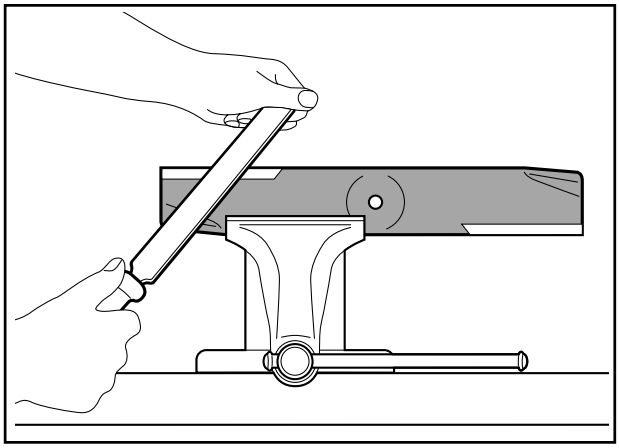
When the blades on a BioClip deck are removed the friction washer positioned between the blade and nut must be replaced.

Ensure that the axle is fixed in the same direction as it was removed, if not the keys will not fit into the key-way.

Tighten the blade bearings to a torque of 20–25 Nm.

Grinding and balancing of blades

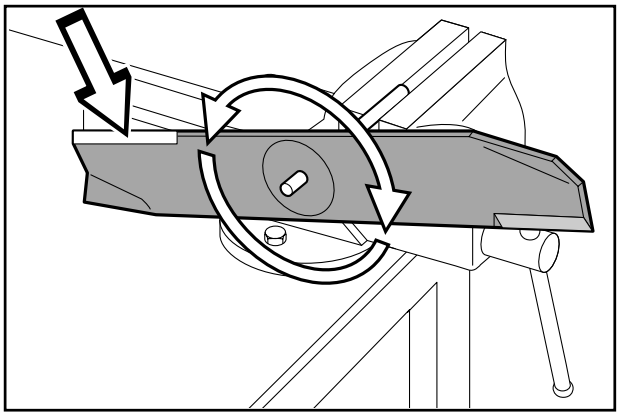
1



WARNING!
When working with the blades, use protective gloves.

- Remove the blades according to the decription in the previous section.
- Clamp the blade in a screw vice and file it so that it becomes sharp.

2



Balance the blade as follows:

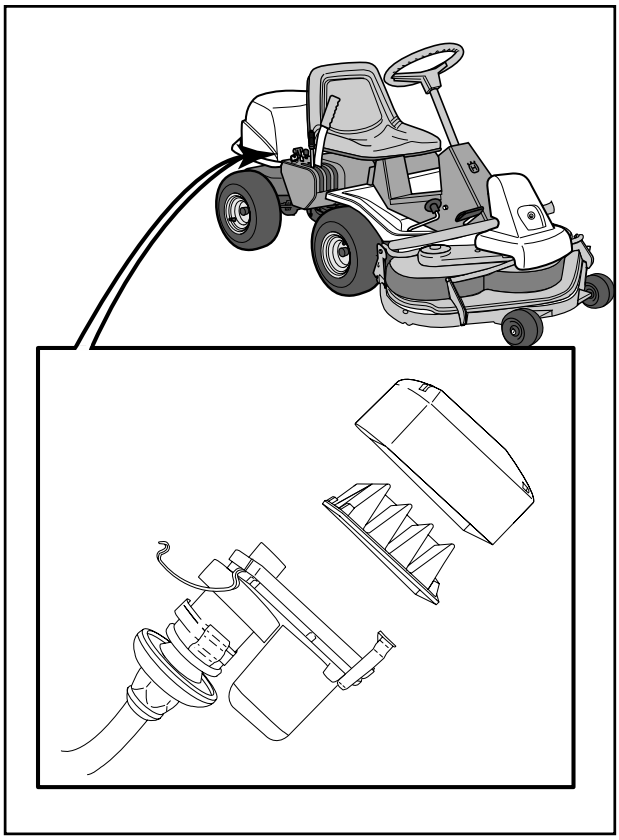
- Fix, for example, a mandrel horizontally in a screw vice according to the diagram.
- Push the blade onto the mandrel via the hole in the centre of the blade and check that the blade balances evenly. The diagram shows a blade which needs to be adjusted, it must be ground further to obtain the correct balance (at the arrow).
- Installation is carried out in the reverse removing order.

IMPORTANT INFORMATION

When the blades on a BioClip deck are removed the friction washer positioned between the blade and nut must be replaced.

Pulse air valve intake filter

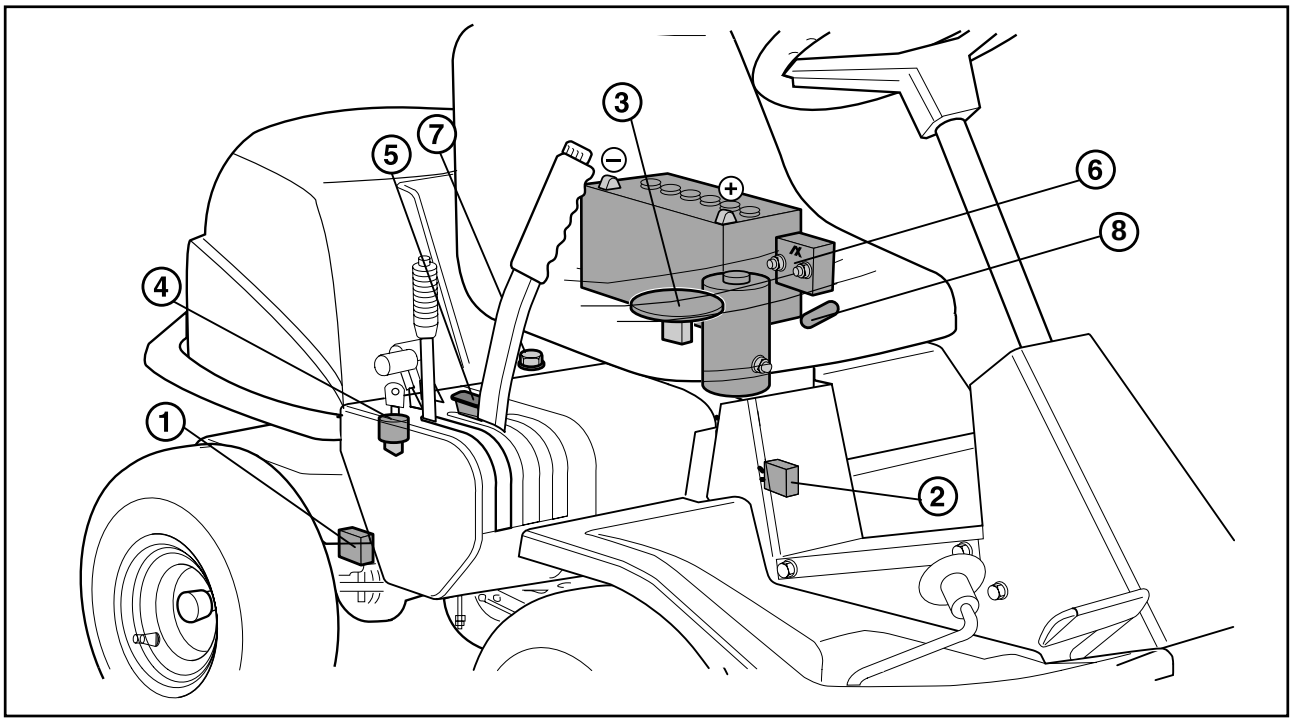
Cleaning the filter

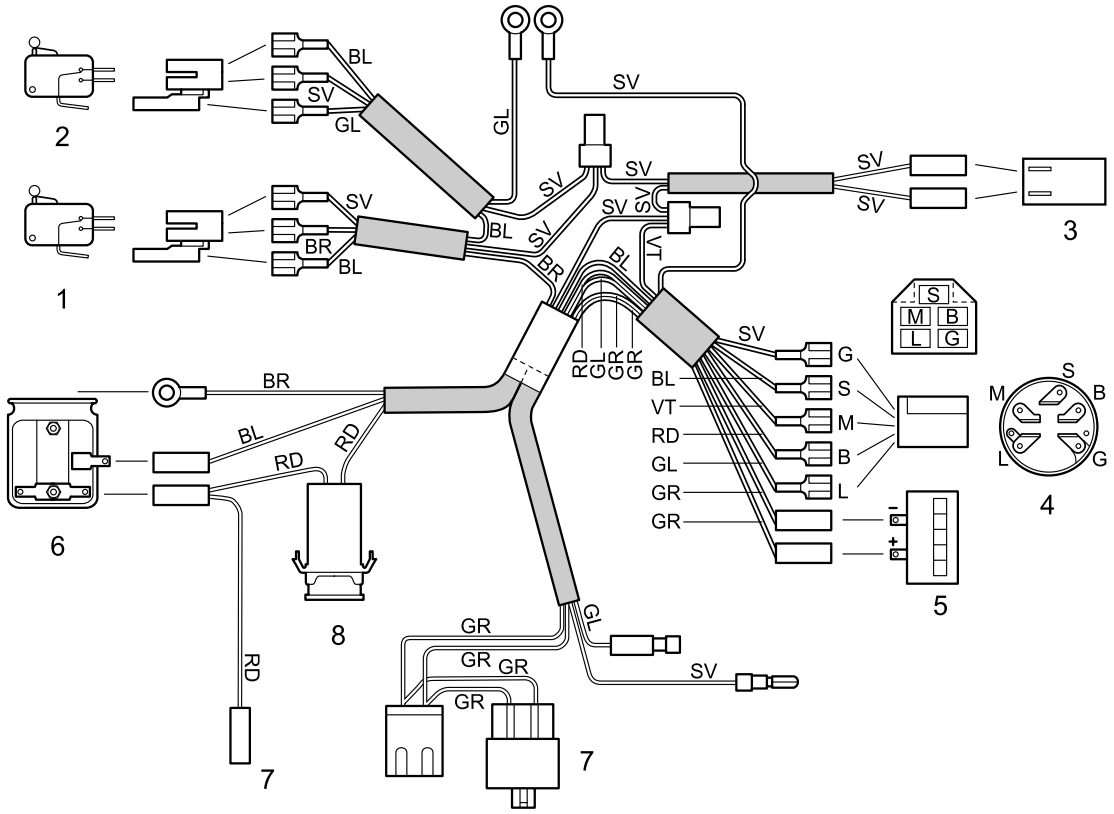


- Tip the chair and open the engine hood.
- Loosen the four quick-action clips and lift off the cover and remove the filter.
- Blow out the filter using compressed air.
- Replace the filter in the cover and secure the cover using the quick-action clips. Replace the engine hood.

Electrical system

Circuit diagram Rider Pro 15



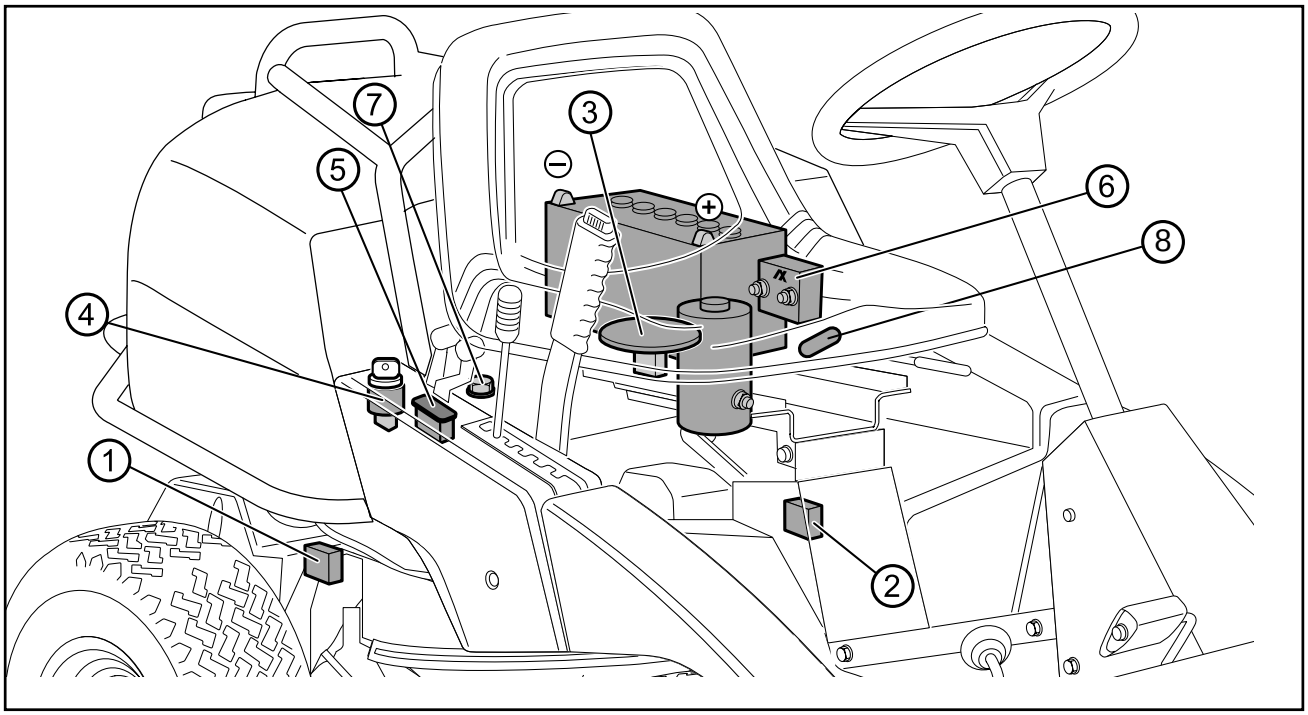


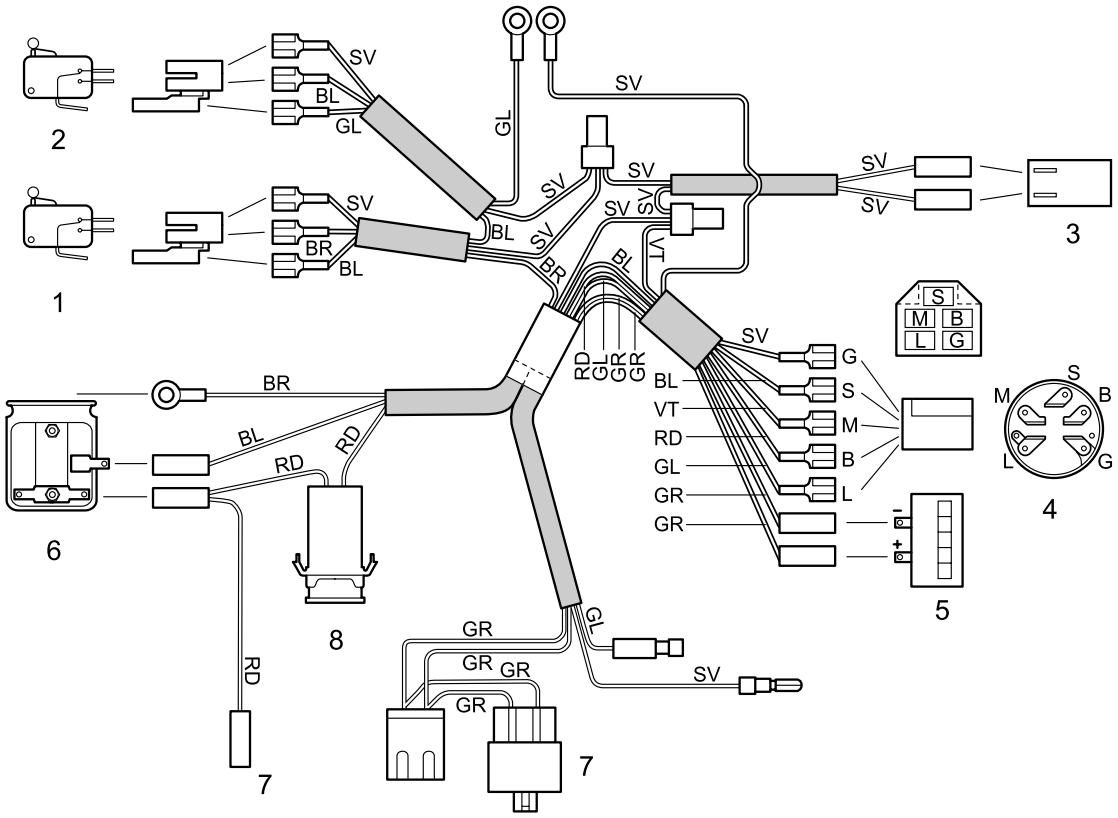
1. Microswitch, hydrostat
2. Microswitch, cutting unit
3. Microswitch, seat
4. Ignition lock
5. Counter
6. Start relay
7. Engine
8. Fuse 15A

Explanation of colour abbreviations in wiring diagram.

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

Circuit diagram **Rider ProFlex**





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

Explanation of colour abbreviations in wiring diagram.

RD = Red
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Inspecting the safety system

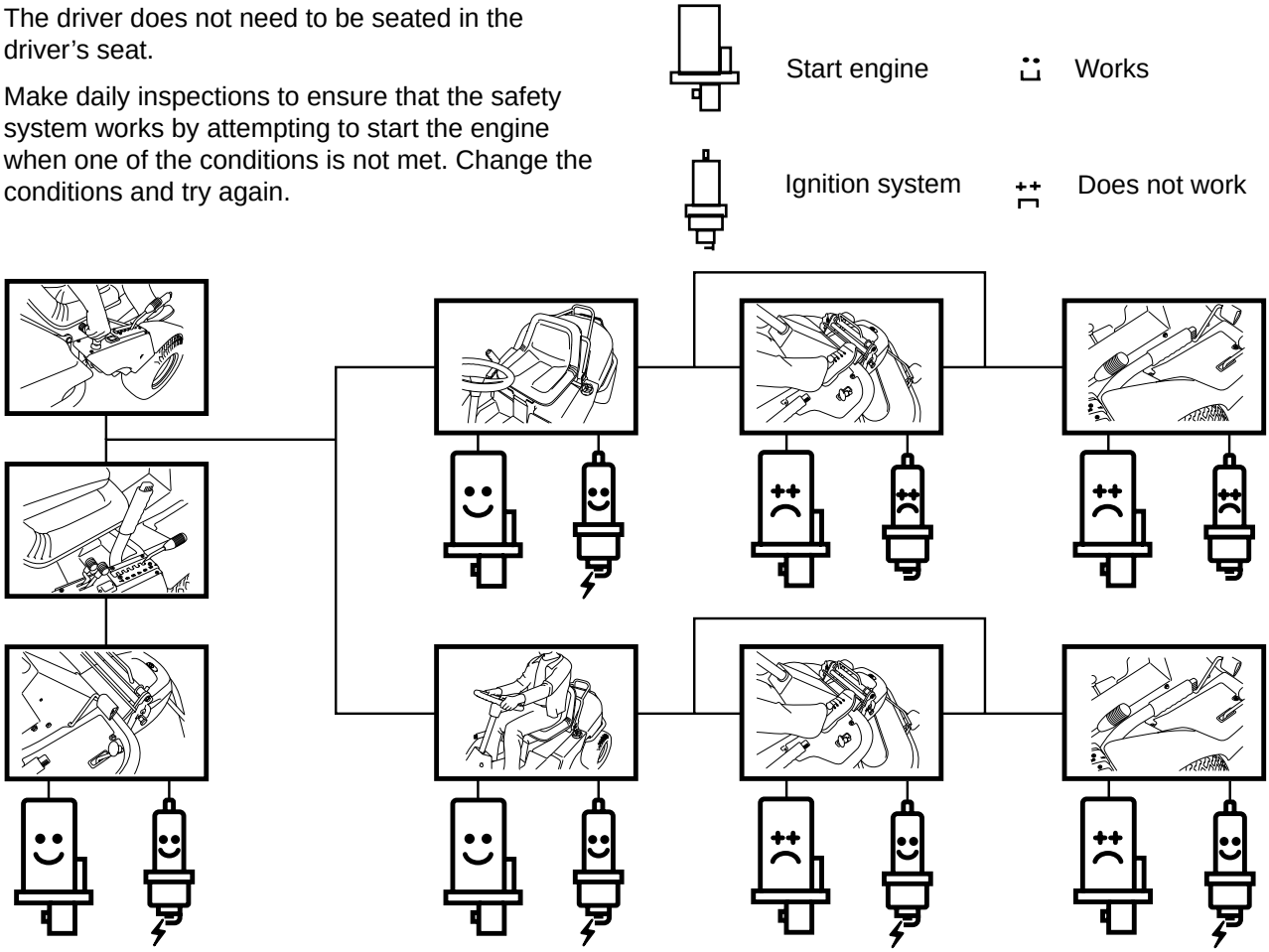
The Rider is equipped with a safety system that prevents starting or driving under the following conditions:

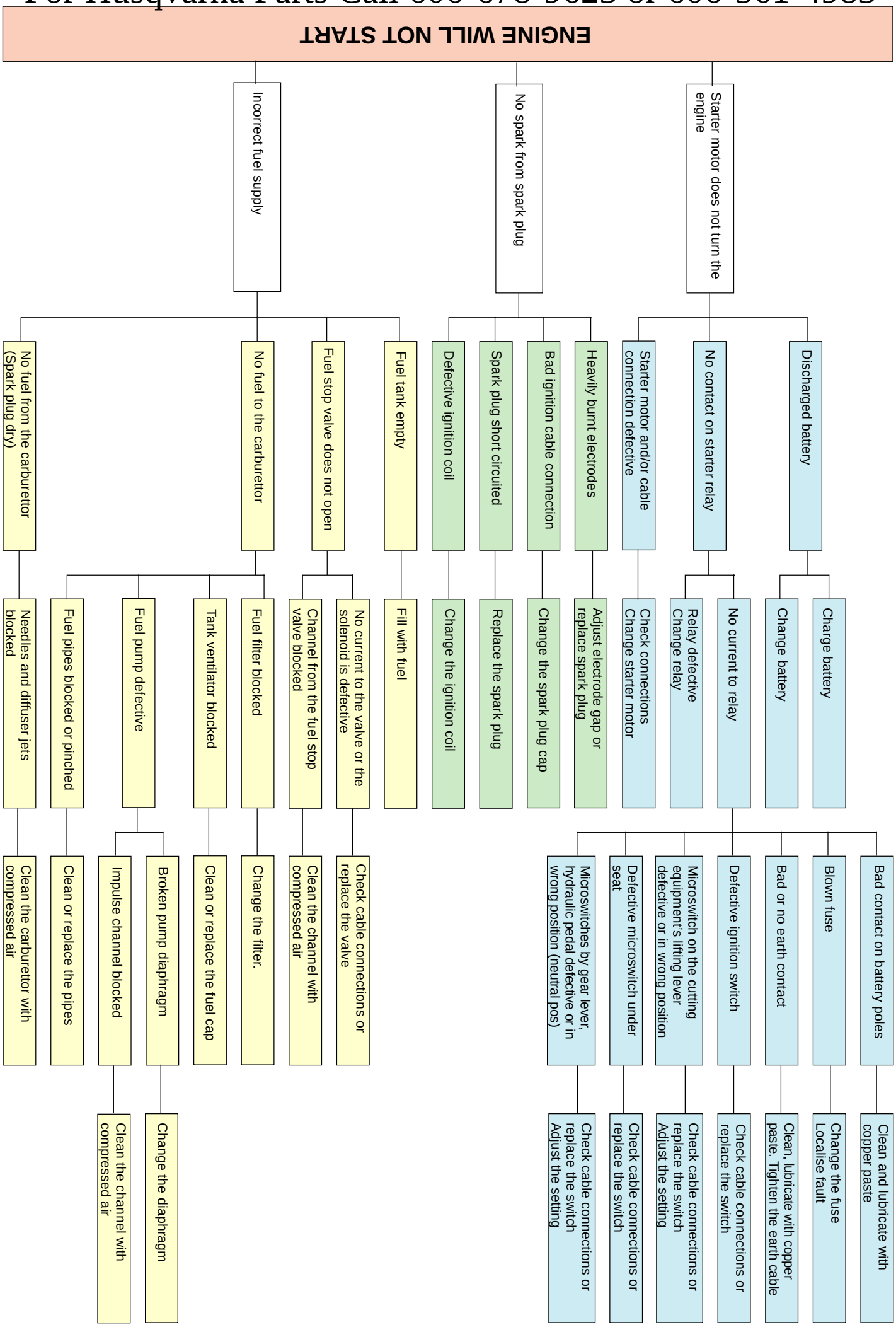
The engine should only be possible to start when the cutting unit is in its raised position and the hydrostat pedals are in the neutral position.

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

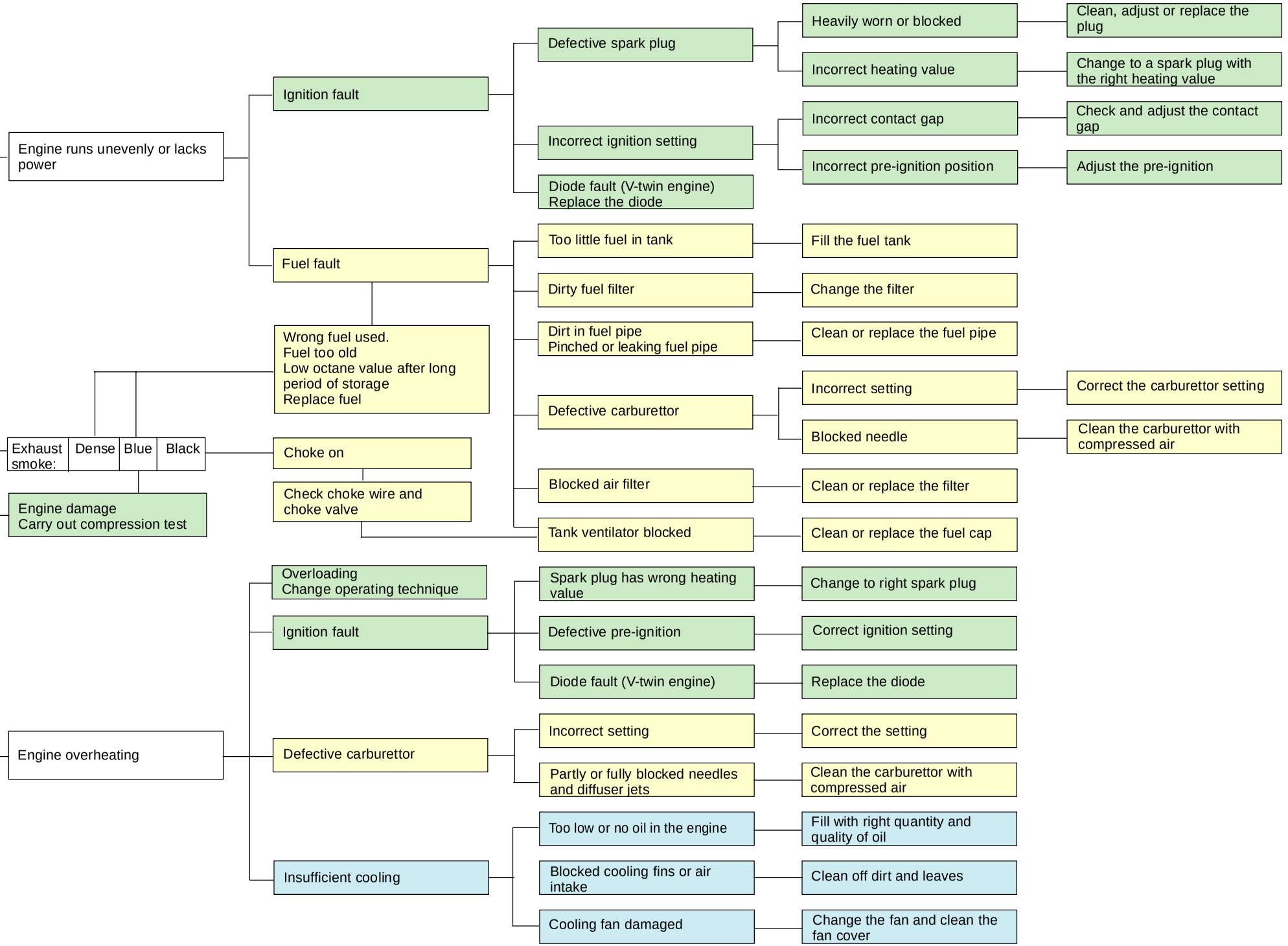
Make daily inspections to ensure that the safety system works by attempting to start the engine when one of the conditions is not met. Change the conditions and try again.

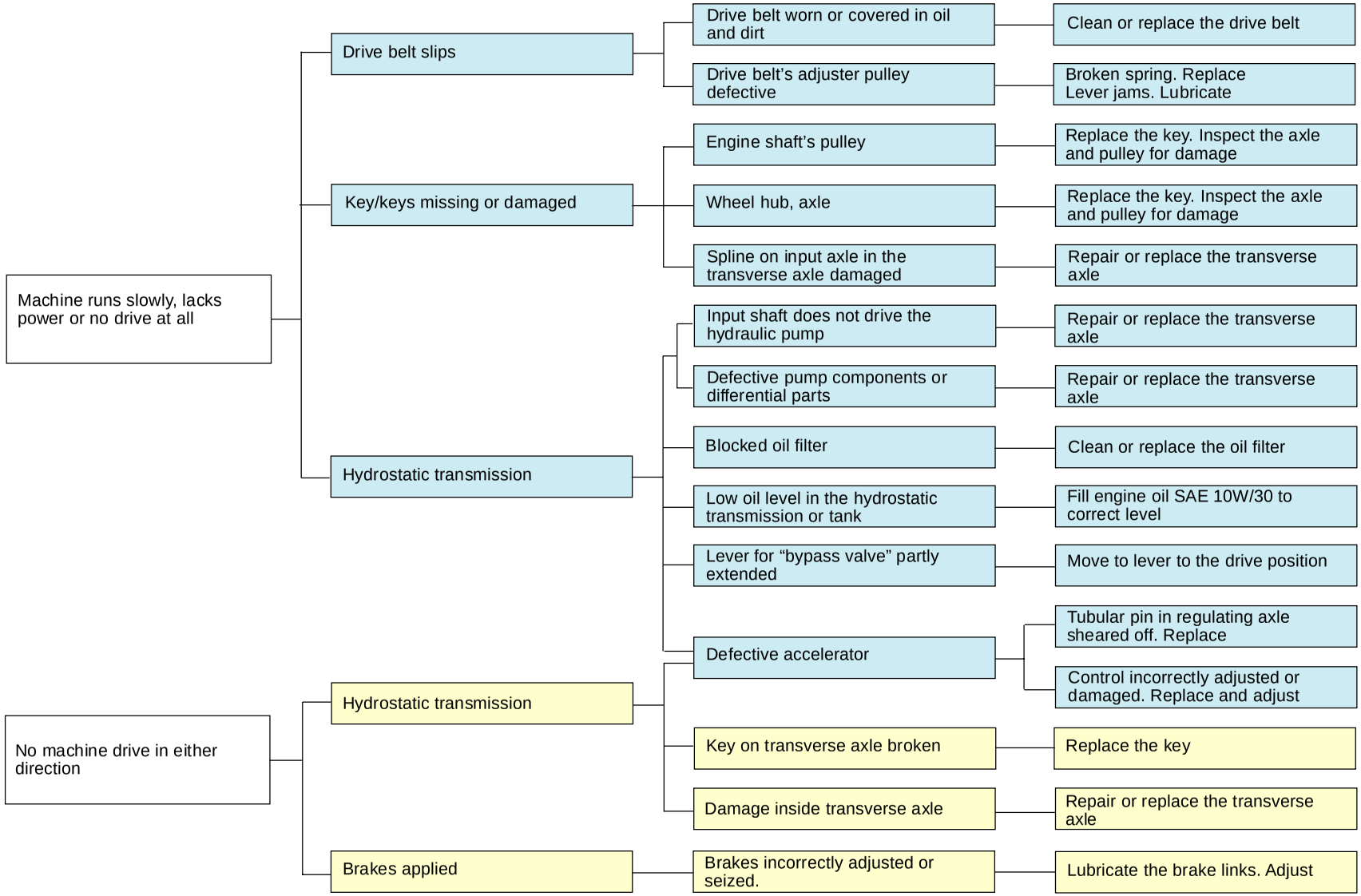
Check that the engine stops if you temporarily move out off the driver's seat while the cutting unit is lowered or the hydrostat pedals are not in the neutral position.



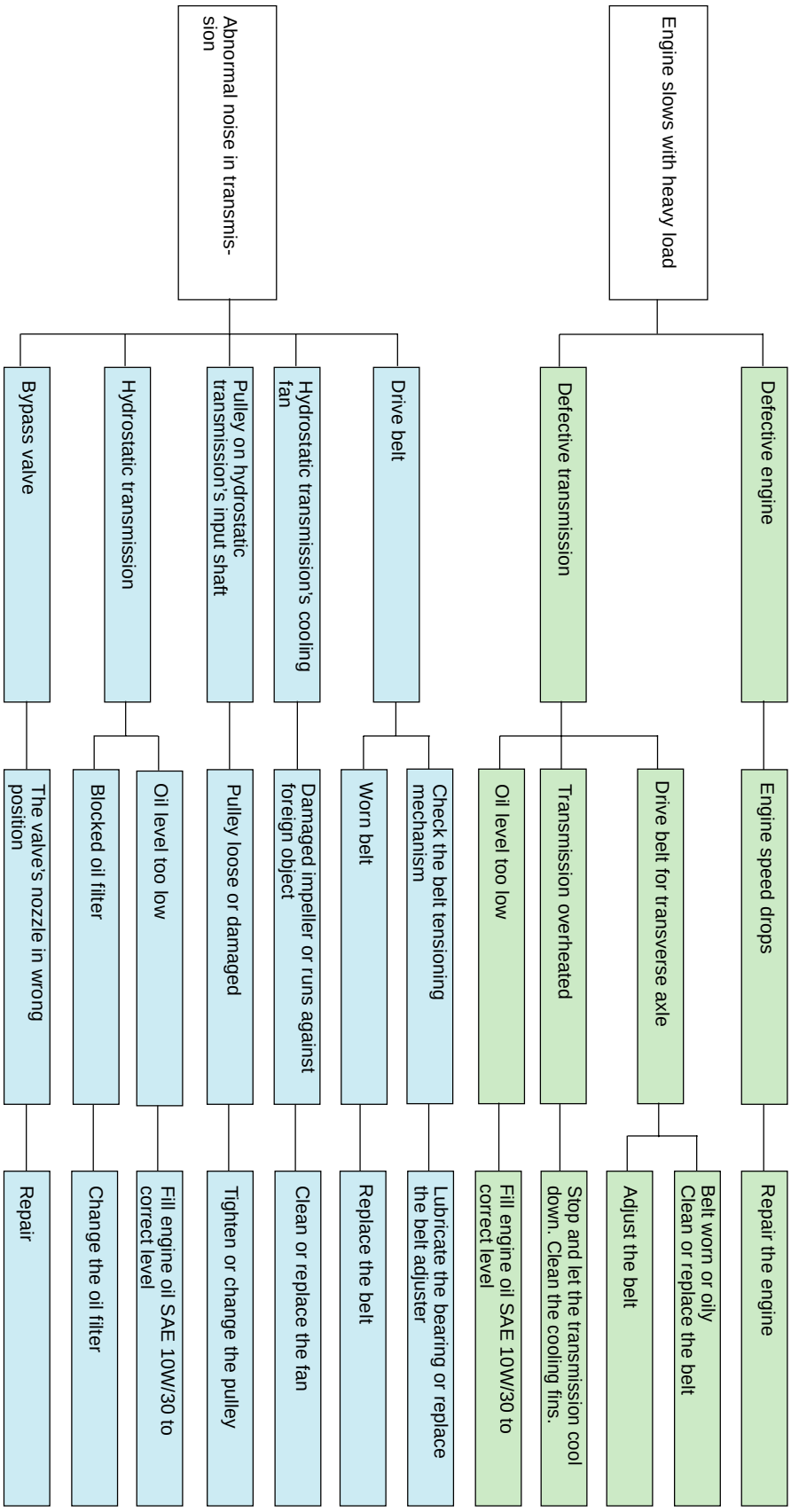


ENGINE STARTS BUT DOES NOT RUN SATISFACTORILY





The hydrostatic transmission must not be opened during the warranty period.



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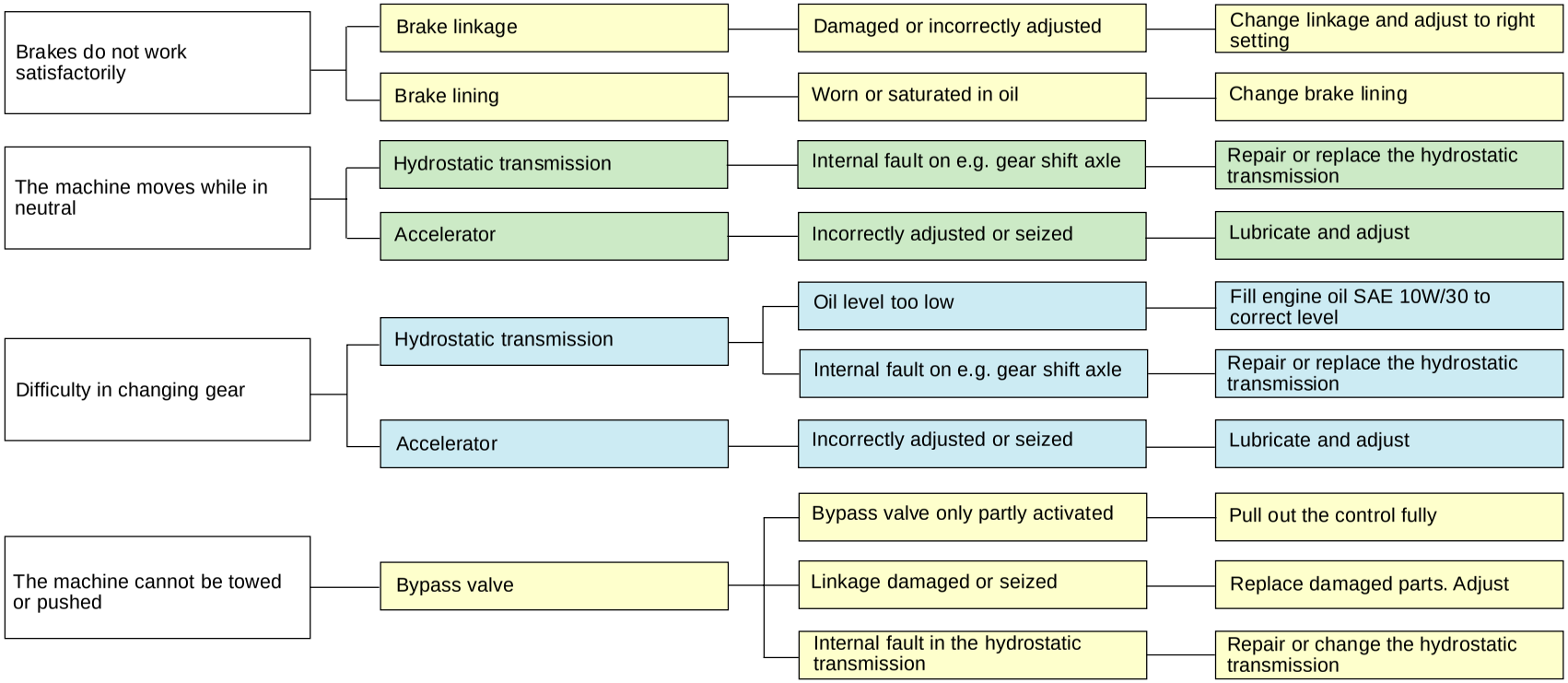

The hydrostatic transmission must not be opened during the warranty period.