Husqvarna®

Workshop manual

P524

English

Workshop Manual

P524

Contents

1 Introduction and safety regulations

1.1 General

This Workshop Manual provides a comprehensive description of how to troubleshoot, repair and test the ride-on mower. A description of different safety steps that must be taken during repair work is also given.

1.2 Safety

Note: The section dealing with safety must be read and understood by all those carrying out repair work or service on the ride-on mower.

Warning symbols can be found in this Workshop Manual and on the ride-on mower. Refer to “1.9 Symbols on the machine” on page 4. A new warning symbol decal must be applied as soon as possible if a warning symbol on the machine has been damaged or is missing so that the greatest level of safety can be maintained when using the ride-on mower.

1.3 Target group

This workshop manual is written for personnel with a general knowledge of repairing and servicing ride-on mowers.

The Workshop Manual must be read and understood by personnel who will carry out repair work and service on the ride-on mower. The Manual is also suitable for use when training new employees.

1.4 Revisions

Any modifications to the ride-on mower will be gradually introduced into ongoing production. As these modifications affect service and/or spare parts, specific service information will be sent out on each occasion. This means that in time this Workshop Manual will become out of date. In order to prevent this, the manual should be read together with all service messages concerning the ride-on mower in question.

1.5 Tools

Special tools are required for some stages. All service tools are listed in the Workshop Manual. Usage can be seen in each section. For more information, refer to Chapter “3 Service tools” on page 9.

Always use original:

- **Spare parts**
- **Service tools**
- **Accessories**

1.6 General directions

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

No one may repair the ride-on mower without first reading and understanding the content of this workshop manual.

This Workshop Manual contains the following warning boxes in relevant places.

WARNING!
The warning box warns of the risk of personal injury if the instructions are not followed.

NB!

This box warns of material damage if the instructions are not followed.

1.7 Special directions

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

- The fluid and its vapor are toxic.
- Can cause eye and skin irritation.
- Can cause breathing problems.
- Is highly flammable.

When using compressed air, do not direct the air jet toward your body. Air can penetrate into the blood circulation, which may be lethal.

Use eye protection when working on tensioned springs.

Use ear protection during testing.

During testing, do not touch the muffler before it has cooled down. Risk of burns. This is especially true if the ride-on mower is equipped with a catalytic converter. The lining on and in the catalytic converter element is toxic for consumption. Use protective gloves when working on the catalytic converter/muffler.

The blades are sharp and can give cut injuries. Use protective gloves when handling the blades.

Use eye protection when working on the cutting deck. The belt tensioning spring can break, fly off and could cause personal injury.

Be careful when servicing the battery. Explosive gases are formed in the battery. Never carry out service on the battery while smoking or in the vicinity of naked flames or sparks. The battery can then explode and cause serious injury.

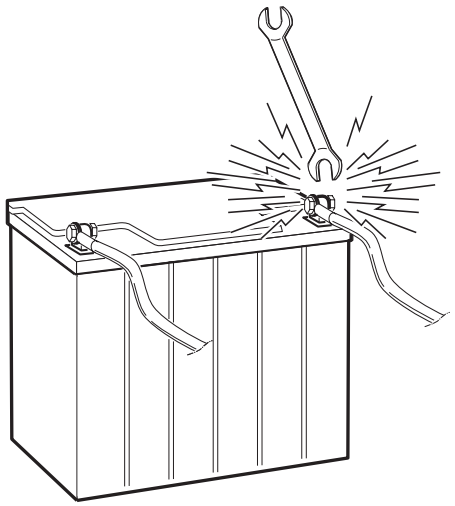
1.8 Risk of sparks

Sparks can occur when working on the battery and the thick cables.

This can cause battery explosions, fire or eye injuries. Sparks can not arise in the circuit once the battery ground frame cable (normally black negative cable) is disconnected.

NB!

Waste oil and old filters shall be handled as hazardous waste.



Avoid sparks and their consequences by:

- Using protective goggles.
- Making sure the tank cap is fitted and there are no flammable liquids stored in open vessels.
- Not working with the starter motor circuit in the vicinity of spill fuel.
- Disconnecting the battery's ground cable (normally a black negative cable) first and connecting it last.
- Taking care not to cause short circuits with tools.

1.9 Symbols on the machine

This product complies with applicable EC directives.

Fast

Slow

Stop the engine.

Choke

Fuel

Oil level

Cutting height

Back

Forward

Ignition

Parking brake

Noise emissions to surroundings in accordance with the European Community directive. Machine emissions are set out in the chapter Technical data and on the decal.

Clutch in

Clutch out

Warning for rotating parts. Mind your hands and feet.

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

Never drive across a slope.

Never use the ride-on mower if persons, especially children or pets, are in the immediate vicinity.

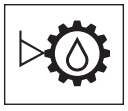
Never carry passengers on the ride-on mower or on its attachments

Drive very slowly without the cutting deck

Brake

Switch off the engine and remove the ignition cable before carrying out repairs or maintenance

Check the engine oil level



Check the transmission oil level

2 Delivery and service

2.1 Service schedule

Key

The following is a list of maintenance procedures that must be performed on the ride-on mower. Most points not described in this workshop manual can be found in the operator's manual.

▲ Not described in this workshop manual or operator's manual.

■ Described in this workshop manual.

❍ Described in the operator's manual.

Care	Chapter	Daily maintenance before	Daily maintenance after	After the first 25 hours	Weekly[1)] maintenance	At least once a year	Maintenance interval in hours			
							40	100	200	400
Clean under the cutting deck			▲							
Clean and lubricate the belt tensioner bearings.									▲	
Clean around the muffler			▲							
Clean thoroughly around the engine			▲							
Clean thoroughly around the transmission					❍					
Clean the frame tunnel					▲					
Clean the air filter							❍	❍	❍	
Clean the cooling fins on the engine and hydrostatic transmission							▲	▲		
Clean the combustion chamber										▲
Check the engine cooling air intake		❍								
Check the fuel pump's air filter										
Check/adjust the parking brake	5.1.3	■								
Check the safety system	5.3.5	■								
Check nuts and bolts		▲								
Check for fuel and oil leakages		▲								
Check the oil level in the transmission and top up if necessary (SAE 10W/50)	2.2	■								
Check the cutting deck bolts for the belt pulleys, blades, etc.		▲								
Check that the hydraulic hoses and couplings are clean and undamaged.								▲		
Check/adjust front and rear wheel rotation speed	5.2.10					■		■	■	■
Check the engine's maximum speed (3,0000rpm).	3.1								■	
Check the air pressure in the tires 100 kPa / 1.0 bar / 14.5 PSI							❍	❍	❍	
Check the fuel hose. Replace if necessary.						▲				
Check that the pump belt tension is correct				▲	▲	▲			▲	
Check that the RTO belt tension is correct				▲	▲	▲			▲	

Care	Chapter	Daily maintenance before	Daily maintenance after	After the first 25 hours	Weekly[1)] maintenance	At least once a year	Maintenance interval in hours			
							40	100	200	400
Check the V-belts	5.7.3						■	■		
Check joint bearing in articulated unit	5.1.6									■
Check/adjust the cutting height setting	5.7.4							■		
Check/adjust the choke wire	5.1.1								■	
Check/adjust the throttle cable	5.1.1								■	
Check that the spark plug is clean and properly gapped.									❍	
Check the condition of all pulleys on the machine.									▲	
Check joint bearing wear in articulated unit									▲	
Lubricate according to the lubrication chart	7.5			■			■	■		
Lubricate the articulated bearing	5.1.6						■	■		
Lubricate the driver seat					▲					
Lubricate all cables					▲					
Lubricate links in the cutting deck					▲					
Lubricate the hydrostatic cable with linkage					▲					
Lubricate the parking brake cable					▲					
Lubricate the throttle					▲					
Lubricate the choke control					▲					
Change oil in the transmission	5.2.4			■						■
Change hydraulic oil (SAE 10W/50)	5.2.5									■
Change the engine's oil filter	5.2.6			■						■
Replace the suction filter in the hydraulic tank						▲			▲	
Change hydraulic filter	5.6.5			■						■
Change engine oil (SAE 10W/40)	5.2.7			■				■	■	
Change the fuel filter	5.4.2			■				■	■	
Change spark plug								❍	❍	
Change air filter	5.2.8			■					■	■
Replace the cutters in the cutting deck									❍	
Replace the pump belt	5.6.13									■
Replace the cutting deck drive belt	5.7.3									■
Replace the cutting deck blade belts	5.7.3									■

[1)]The ride-on mower should be lubricated twice a week when used on a daily basis.

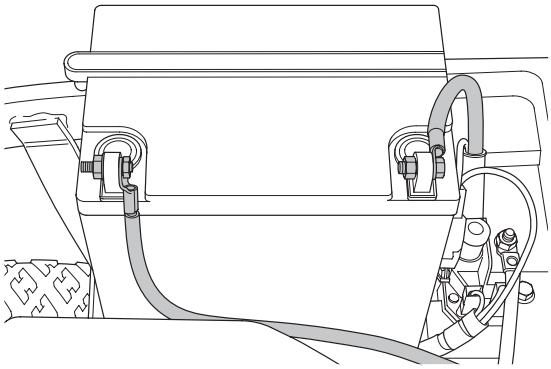
WARNING! Service procedures must not be conducted on the engine or cutting deck unless:
- **The engine has been stopped.**
- **The parking brake is engaged.**
- **The ignition key has been removed.**

2.2 Assembly and control

Battery

The machine is equipped with a sealed maintenance-free battery. It is the responsibility of the dealer to fit the battery.

- Hold the bolts so that the terminals are not put under strain.

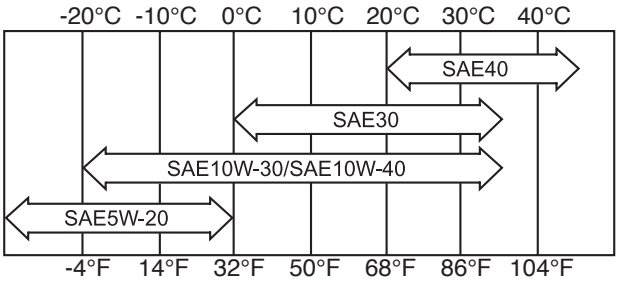


Checking the engine's oil level.

Check the oil level in the engine when the ride-on mower stands horizontal with the engine switched off.

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

Use an engine oil with a viscosity indicated in the chart, class SF-SJ. The engine takes 1.8 liters (1.9 US qt) of oil excl. the oil filter.

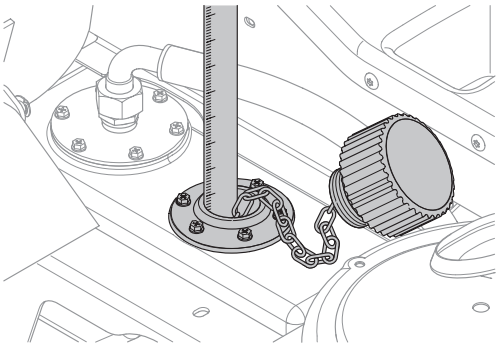


Check the transmission oil level

Work on the system entails particular demands on cleanliness and the system must be vented before the machine is used. For more information, refer to section "5.6.1 Hydraulic hygiene" on page 52.

The hydraulic oil filler cap is under the operator's seat.

1. Fold up the seat.
2. Remove the filler cap. The oil level must be 40 to 60 mm from the top edge of the strainer.



3. Refill if needed with a fully synthetic 10W/50 API SM oil or better

NB!

Check and top up oil also after the test drive.

Checking the tire pressures

Check that all the wheels have the same tire pressure. Different pressures will make the blades cut the grass at different heights.

The tire pressure must be 100 kPa / 1.0 bar / 14.5 PSI.

Checking and adjusting the cutting deck

Carried out after tire pressures checked. See section "5.7.5 Setting parallelism and cutting height" on page 81.

2.3 Test running

Fueling

Fill with gasoline. The engine should be run on 95-octane unleaded gasoline (not mixed with oil). It can be beneficial to use environmentally adapted alkylate gasoline.

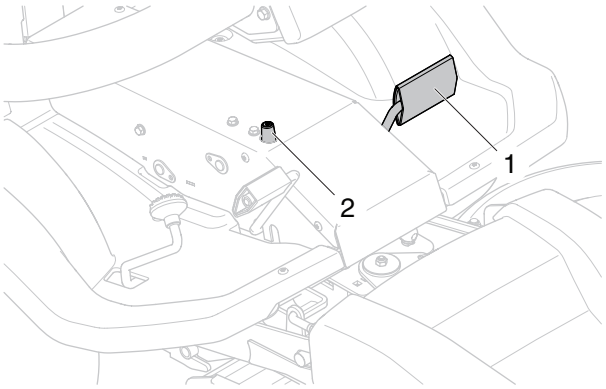
WARNING!
Gasoline is highly flammable.
Take care and fill up outdoors.

WARNING!
Never run the engine indoors, in confined or badly ventilated spaces. Engine exhaust contains toxic carbon monoxide.

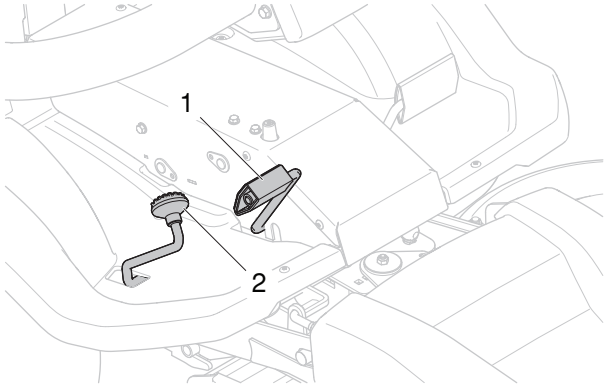
Starting the Engine

Make sure the machine is in neutral position and stationary on a level surface with the parking brake released.

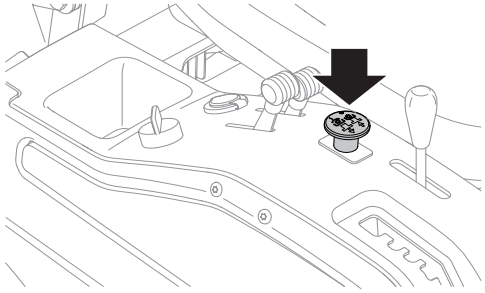
- Check the operation of the parking brake.



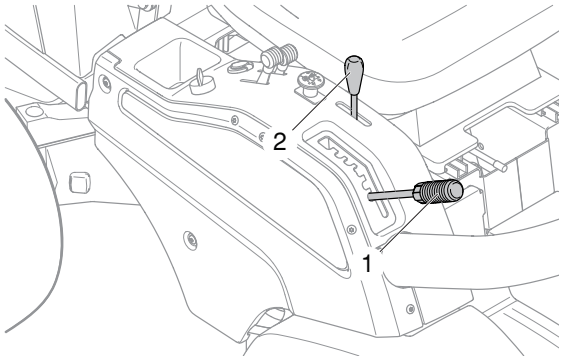
- Check driving forwards (1) and in reverse (2).



- Check that the starter does not work when one of the hydrostatic pedals is pressed.
- Make sure the starter motor does not work when the parking brake is not applied.
- Make sure the starter motor does not work when the cutting deck drive switch, the PTO button, is depressed.



- Check that the engine stops if the driver stands from the seat when one of the hydrostatic pedals is pressed.
- Check that the cutting deck works and that no unusual sounds are heard.
- The cutting height can be adjusted to 6 different positions with the lever (1).
- Make sure the cutting deck is in working order, (2).



Speed control

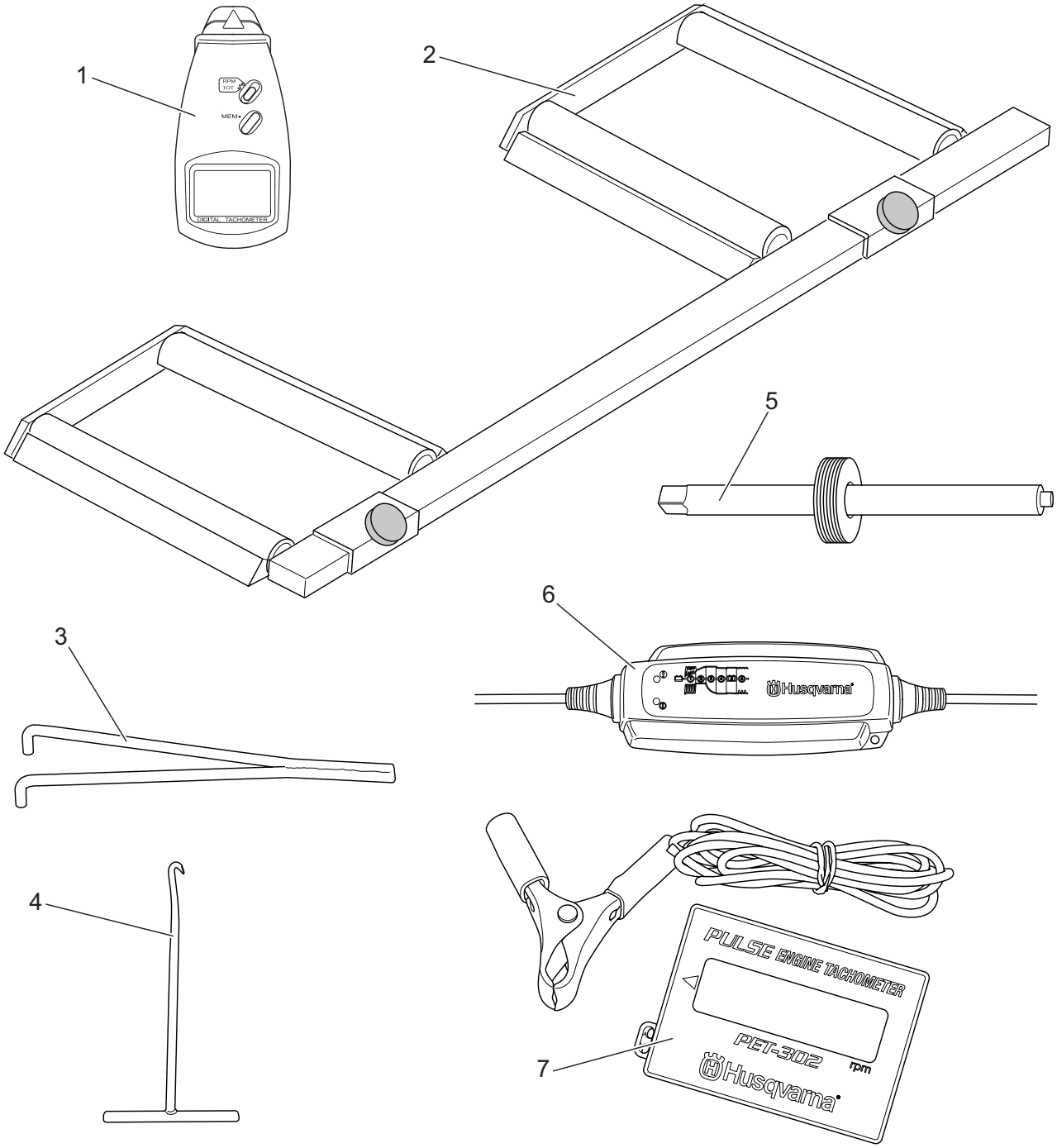
Check the max engine speed with a Husqvarna original tachometer. Make sure the max speed is regulated to 3000 ± 75 rpm.

2.4 Final inspection

- Check the oil level in the hydraulic tank and top up if necessary.
- Make sure there are no leaks, also engine oil and fuel.
- Clean the machine as necessary, wipe away any oil spill, fingerprints (steering wheel and controls), dust and the like.

3 Service tools

The following special tools are used when working on the rider: Special tools for engine and transmission can be found in the respective workshop manual.



1	Optical tachometer	502 28 80-01
2	Tool for measuring wheel speed	578 92 62-01
3	Fork counterhold - belt pulley	506 89 92-01
4	Puller - spring	N/A

5	Puller - belt pulley	506 66 48-01
6	Battery charger (EU)	580 35 52-01
	Battery charger (UK)	580 35 52-02
7	Tachometer	502 71 14-01

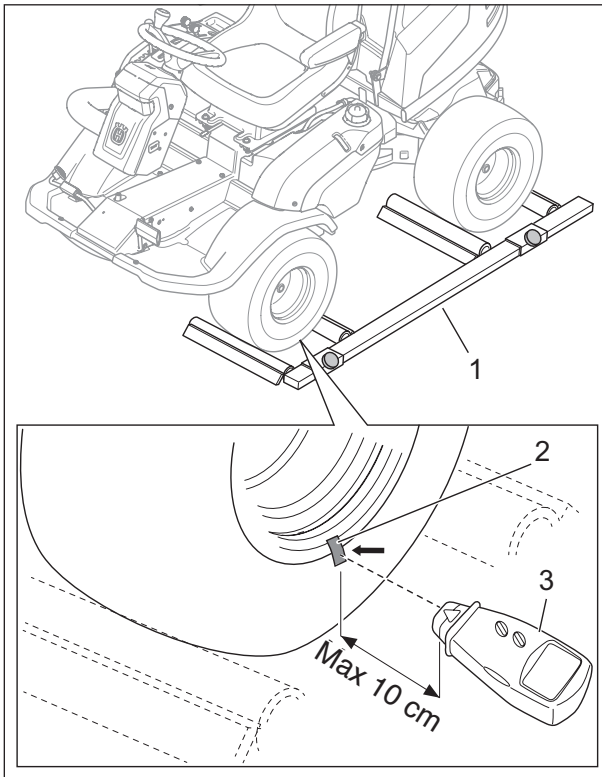
3.1 Laser tachometer

Safety during use:

- Class 1 laser product.
- Take care whenever the laser beam is on. Do not look straight into the beam. Do not aim the beam towards anyone else's eyes, either people or animals.
- Do not aim the laser beam towards polished surfaces where the beam can be reflected into someone's eyes.
- Do not aim the laser beam at explosive gases.

Remember When Measuring:

- The reflecting surface must be smaller than the non-reflecting surface.
- If the object to be measured is shiny, cover the measured surface with black tape or paint it black before the reflective tape is affixed.
- Clean the surface before affixing the tape.
- When measuring at low speed, a more precise reading can be obtained by fastening more pieces of tape evenly distributed around the object being measured. Then divide the read value with the number of tape pieces to obtain the real rpm.



1. Wheel speed tool
2. Reflective tape
3. Laser meter

Measure rpm

1. Put the switch to RPM position for measuring rpm or TOT for measuring the number of revolutions.
2. Put a small piece of reflective tape (approx 1x1 cm) on the rotating object to be measured.
3. Hold the laser tachometer at right angles max 10 cm from the tape.
4. Press in and hold the measuring button on the side of the instrument. Aim the measuring beam at the object and the reflective tape. The display will light up after 1-2 seconds.
5. Hold in the measuring button during the whole measuring procedure. The instrument is turned off when the measuring button is released.

Read the last, highest and lowest values

The instrument will automatically save the last, highest and lowest readings for a measurement (i.e. as long as the measuring button is depressed). Press in and hold the memory button (MEM) in order to see the saved readings. The reading is shown on the display after 1-2 seconds. Reading indicated with:

- Press once Last ”LA”.
- Press twice Highest ”UP”.
- Press three times Lowest ”dn”.

Change battery in laser tachometer

The batteries are beginning to be depleted when the low battery symbol is displayed.

1. Open the battery cover by loosening the recessed head screw holding it.
2. Remove the old batteries and replace them with new ones. Use 4x 1.5 volt R6 (AA) batteries.
3. Make sure to insert the batteries the right way round or the instrument can be damaged.
4. Close the battery cover and lock it with the screw.

Care

Clean the tachometer with a soft, damp rag. Never use any form of solvent for cleaning.

Never dip into water or other liquid.

Do not expose the tachometer to direct sunlight, high temperature, excessive amounts of dust or mechanical impact.

Remove the batteries if the instrument is not being used for long periods.

The tachometer may only be opened by an authorized repair technician.

3.2 Screw fasteners

Metric threads are used on the machine.

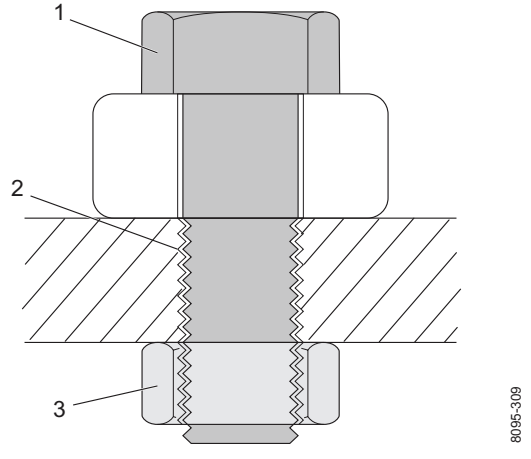
Some bolt fasteners are locked with screws treated with Eslok® Nylon 180°. The screw threads have a red coating. These screws can be refitted three times before having to be replaced.

Always torque tighten screw unions to the specified torque table unless specified otherwise in the text.

Spanner Size	Allen Key	Thread	Tightening torques
8 mm	4 mm	M5	52 ft/lb (6 Nm)
10 mm	5 mm	M6	52 ft/lb (10 Nm)
- -	3 mm	M6	52 ft/lb (10 Nm)
13 mm	6 mm	M8	52 ft/lb (24 Nm)
- -	4 mm	M8	18 - 20 Nm
17 mm	8 mm	M10	52 ft/lb (47 Nm)
17 mm	- -	M10 12.9	52 ft/lb (70 Nm)
18-19 mm	10 mm	M12	52 ft/lb (81 Nm)
24 mm	- -	M16	80 ft/lb (110 Nm)
30 mm	- -	M20	52 ft/lb (200 Nm)
32 mm	- -	- -	Hydraulic couplings, see separate chapter.

Certain unions are screwed into the goods with a through screw and a locknut. The thread in the goods is intended to take the effective torque and the locknut is to secure the union during use.

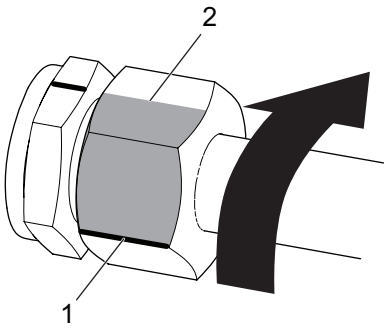
Therefore, the main part of the torque - screw in the goods - should always be tightened first and then secured with the locknut, which is tightened with less torque. If the locknut is tightened with too high a torque, the screw in the goods thread will be unstressed and the bolt fastening will come loose during use.



1. Screw
2. Goods thread
3. Locknut

Hydraulic Couplings

When assembling hydraulic hoses and pipes, first tighten their cap nuts by hand to stop. Then tighten a further 1½ flats of the wrench grip. This corresponds to an approximate 90° turn.



1. Starting point
2. Torqued position = 1.5 flats = 90° angle

4 Design and function

4.1 Serial number

Machine's serial number (1)

The machine's serial number can be found on the plate attached to the right side of the machine's frame member. Stated on the plate, from the top are:

- Machine type designation.
- Manufacturer type number
- Machine's serial number
- Weight

Please provide the type designation and serial number when ordering spare parts.

Engine serial number (2)

The engine's serial number is given on a bar code decal. Located on the engine cover.
The plate gives:

- Engine serial number (E/NO).
- Code.

Please provide these when ordering parts.

Transmission serial number (3)

The transmission serial number is on a barcode decal located on the transmission.

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

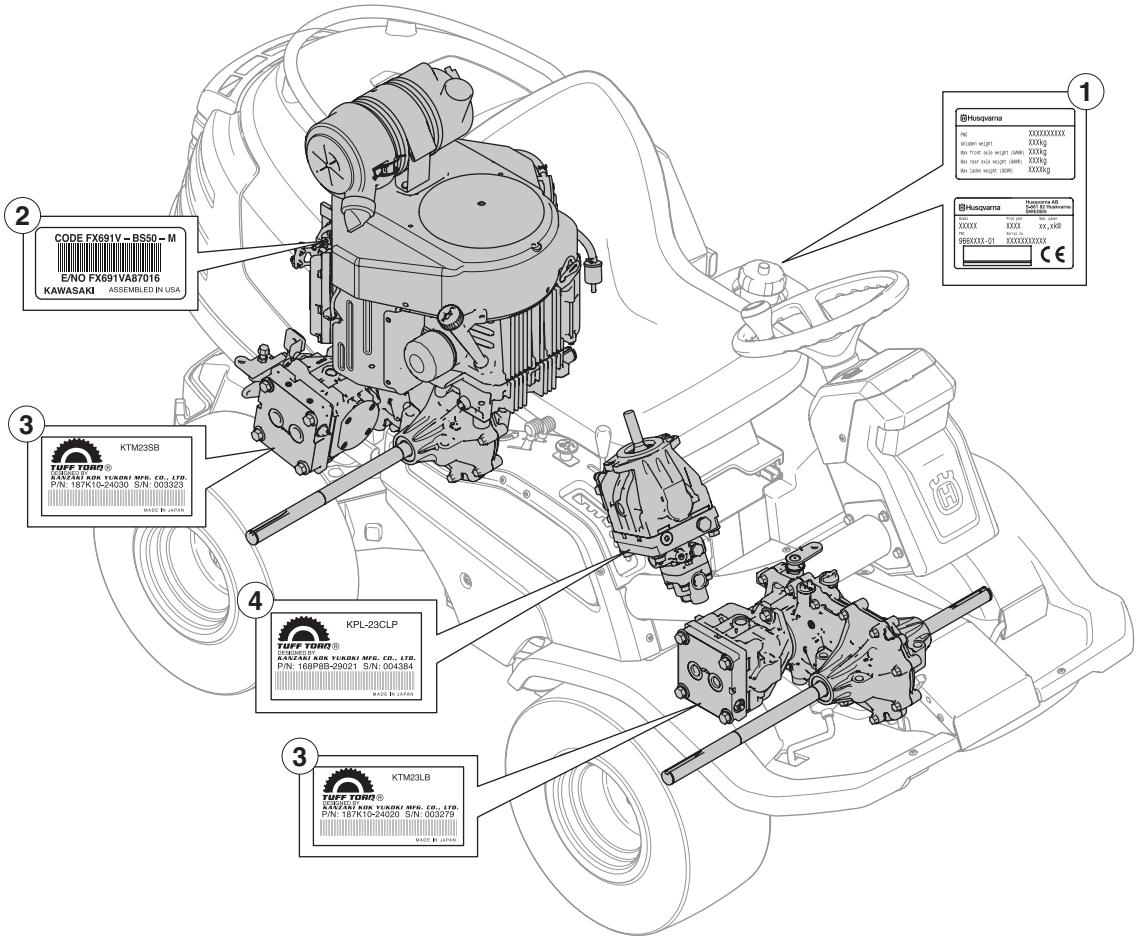
Please provide the type designation and serial number when ordering spare parts.

Hydraulic pump (4)

The hydraulic pump serial number is on a barcode decal located on the pump.

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

Please provide the type designation and serial number when ordering spare parts.

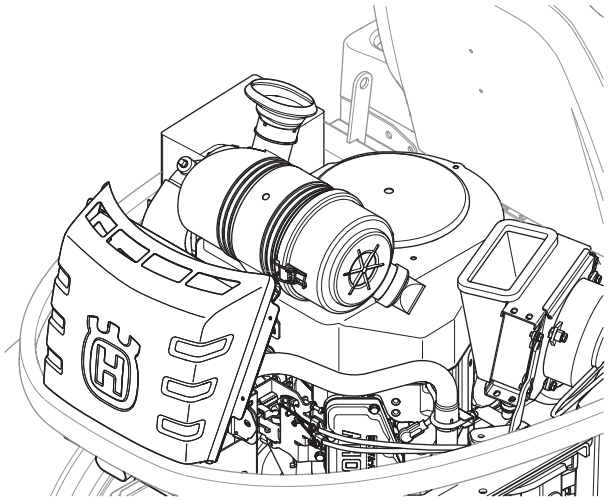


4.2 Engine

The machine has a twin-cylinder, overhead valve engine with pressure lubrication and separate oil filter.

It is important that only original spare parts are used to repair the engine. If other parts are used, the guarantee is invalidated.

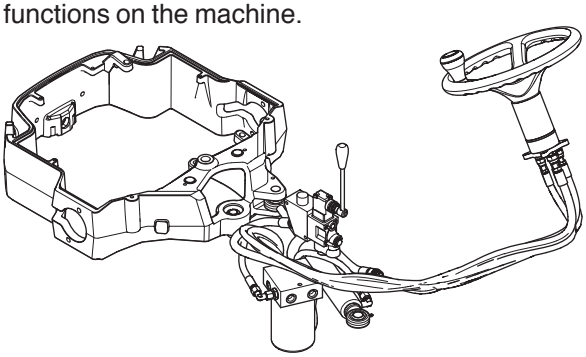
Major engine repairs are not described in the workshop manual. This information can be found in the engine manufacturer's own manuals, which include detailed information about engine adjustments and repairs. Manuals can be ordered from an authorized servicing dealer or downloaded from the engine manufacturer's website. Specify the engine's serial number when ordering the manual.



4.3 Steering

All ride-on mowers in the P500 series have articulated steering. The machines are equipped with hydraulic power steering. Steering forces from the steering wheel are transferred to the rear carriage via a hydraulic cylinder. This makes the ride-on mower easy and precise to steer.

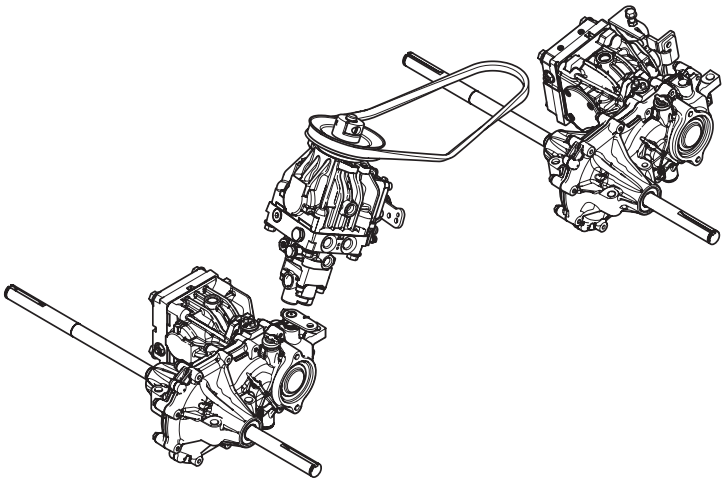
The control unit is connected directly to the steering wheel and runs the steering cylinder, which is connected between the chassis and the rear axle, in and out. If the engine stops, it is still possible to steer, but the wheel is heavy to turn.
The hydraulic tank is common to all hydraulic functions on the machine.



4.4 Drive

The machine is equipped with hydrostatic transmission which gives the driver complete driving control. Speed is controlled variably using the pedals forward or back.

The hydraulic pump and transmission are three separate units.



Front and rear transmission

Front and rear transmission comprise a hydraulic motor and a gearbox with differential and output shafts. The hydraulic motor and the gearbox are separated from each other and have separate oil sources.

The hydraulic pressure must be released in order for the machine to be moved when the engine is shutoff.

4.5 Bypass valves

Tools	Dimension
Combination wrench	8 mm
Combination wrench	17 mm

The hydraulic motors must be bypassed in order for the ride-on mower to be moved when the engine is shut off.

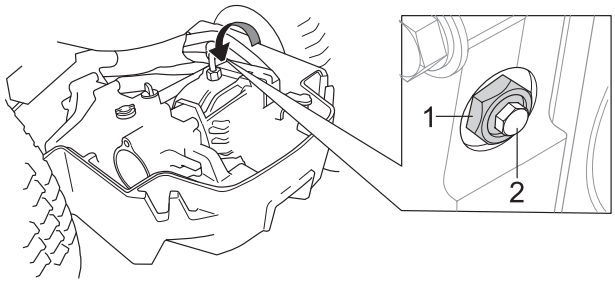
The motors can be bypassed using the bypass valve. The machine will not move if an attempt is made to drive while the valve is open. The drive on the axle is disengaged when one of the valves is open.

The rear bypass valve is open if the machine can not be driven forwards. The front bypass valve is open if it can not be driven in reverse.

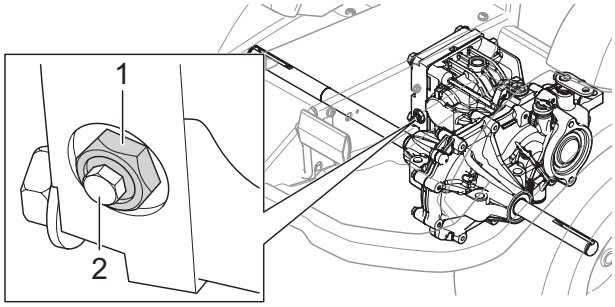
P524 has 2 valves, one bypass valve for the front axle and one for the rear axle. The bypass valve is opened and closed in the same way on the front and rear axles.

1. The valve is opened by loosening the locking nut (1) 1/4-1/2 turn counterclockwise and then the bypass valve (2) two turns.
2. The valve is closed by tightening the valve nut (2) 8-10 Nm.
3. Tighten the locking nut (1) 30-35 Nm.

Rear axle bypass valve

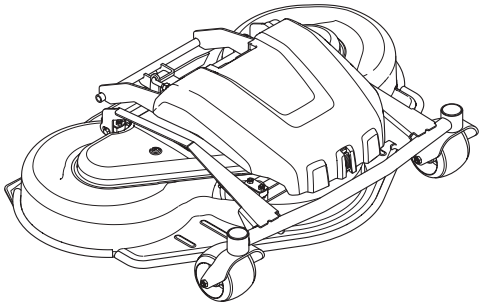


Front axle bypass valve



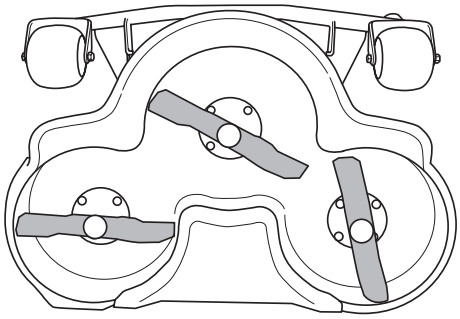
4.6 Cutting deck

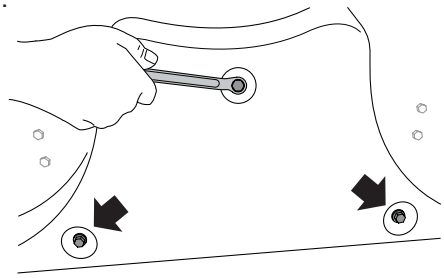
The machine can be fitted with the Combi 112 and Combi 122 cutting decks.
The Combi-unit, equipped with a BioClip-plug, finely chops the cuttings to fertilizer. Without the BioClip-plug the unit works in the same way as a rear ejection unit. The rear ejector ejects the clippings behind the unit without finely chopping them.



Combi 112 and Combi 122

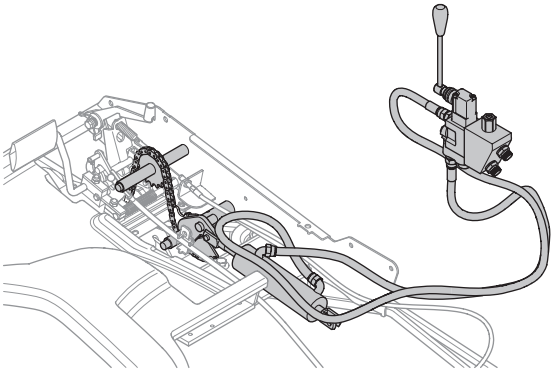
This machine is supplied with the Combi 112 or Combi 122 cutting deck.



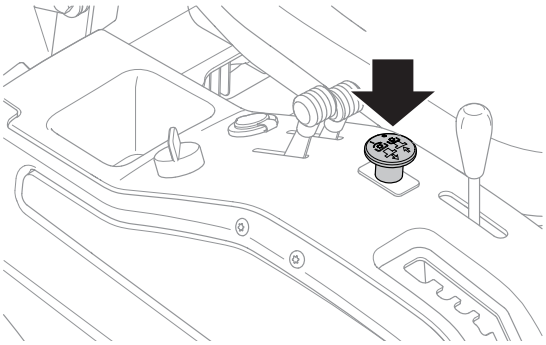


Hydraulic deck lift.

The cutting deck is raised and lowered with a hydraulic cylinder. This acts on a rotating shaft. When the shaft is rotated, the chain attached to a segment inside the end of the shaft will raise or lower the equipment frame.



Pushing up the PTO button acts on a solenoid clutch that enables the blades to rotate. Blade rotation is shut down by just pressing the PTO button.



The cutting height is adjusted using the lever that is attached to the shaft with a joint and a spring. The lever can be put in 6 fixed positions plus one service position.

See “5.7.7 Adjusting the cutting height range” on page 82 for adjusting the cutting height.

5 Repair instructions

5.1 Chassis

5.1.1 Throttle and choke cables

Tools	Dimension
Combination wrench	10 mm
Torx	T30
Snipe nose pliers	
Wire cutters	

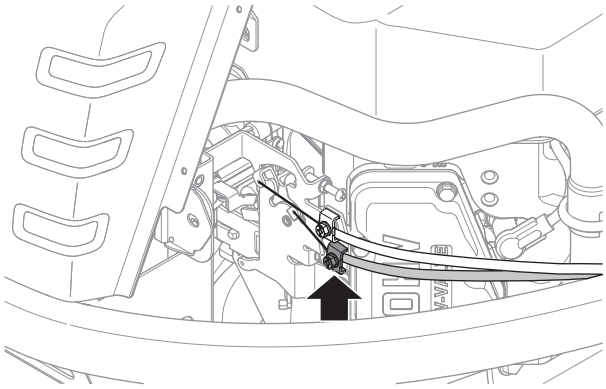
Checking the throttle cable

Make sure the engine responds to the throttle and that the correct engine speed is attained at full throttle. For further information, see “6.1.4 Technical data - Dimensions” on page 86.

Adjusting the Throttle Cable

If adjustment is needed, do the following on the bottom cable.

1. Loosen the clamping screw for the cable’s outer casing and slide the throttle control to the full throttle position.
2. Make sure the throttle cable is attached to the correct attaching hole in the lower lever arm.



3. Press the outer sheath of the throttle cable to the far left and tighten the clamping screw.

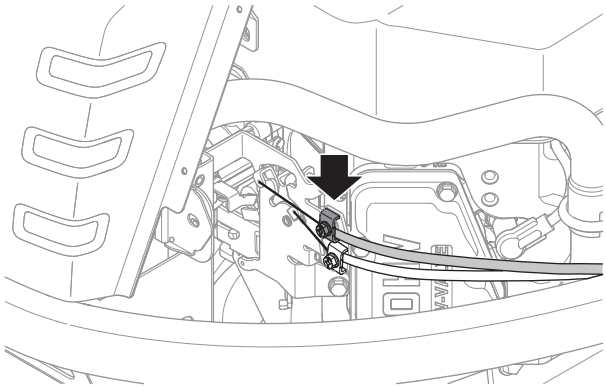
Checking the choke cable

Make sure the engine responds to the throttle and that the correct engine speed is attained at full throttle. For further information, see “6.1.4 Technical data - Dimensions” on page 86.

Adjusting the choke cable

If adjustment is needed, do the following on the top cable.

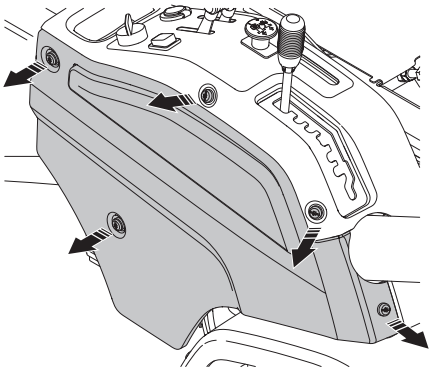
1. Loosen the clamping screw for the cable’s outer casing and slide the throttle control to the full throttle position.
2. Make sure the throttle cable is attached to the correct attaching hole in the upper lever arm.



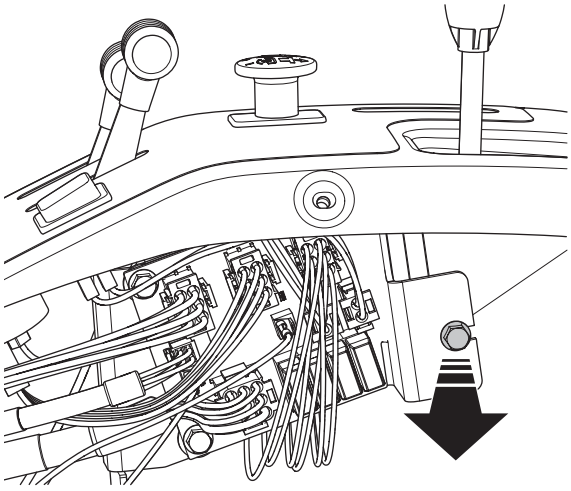
3. Press the outer sheath of the throttle cable to the far left and tighten the clamping screw.

Dismantling the throttle and choke cables

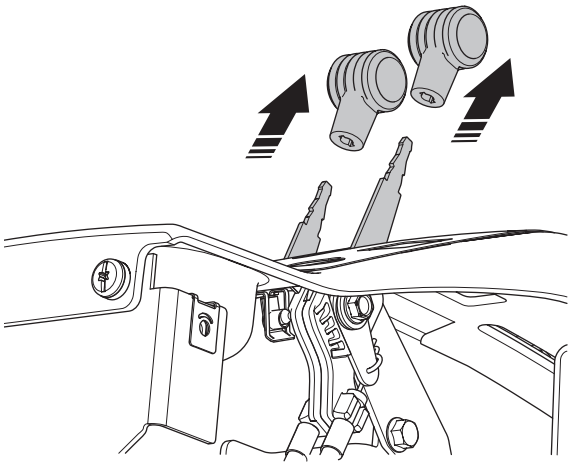
1. Remove the side cover.



2. Loosen the circuit board by removing the nut. Move the circuit board out of the way.

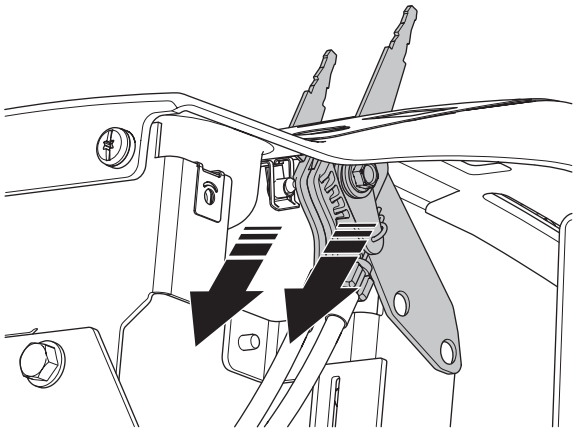


3. Remove the knobs from the throttle and choke controls.

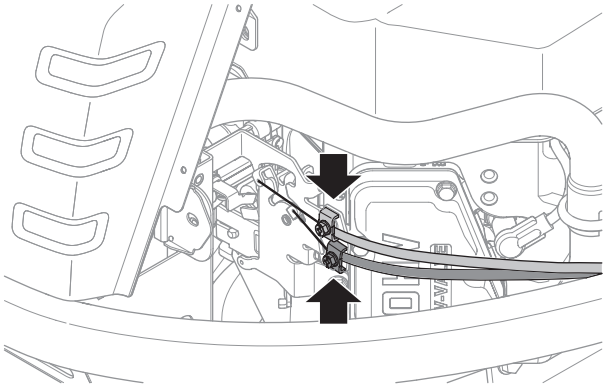


4. Loosen the control console by removing the screws.

5. Pull the throttle or choke control down through the opening.



6. Cut the front tie bands.
7. Loosen the wire from the control.
8. Cut the rear tie bands.
9. Loosen the throttle cable from the fastening hole in the lower lever arm or loosen the choke cable from the fastening hole in the upper lever arm.



Assembling

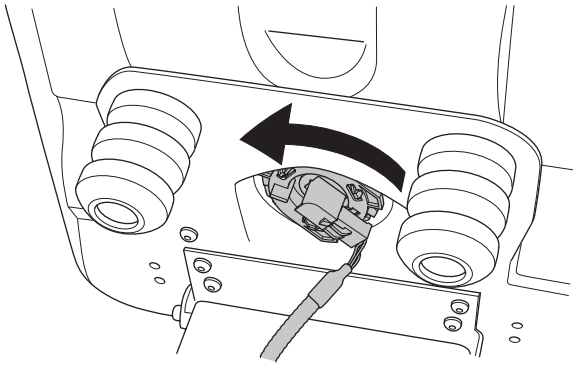
1. Assemble in reverse order.
2. Must be adjusted and checked after fitting.

5.1.2 Driver’s seat

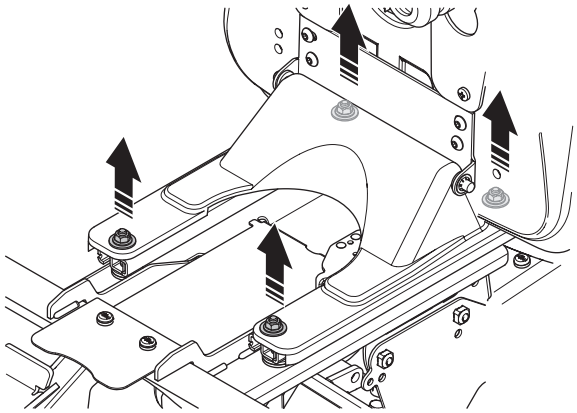
Tools	Dimension
Combination wrench	13 mm

Dismantling

1. Fold the driver's seat up.
2. Loosen the seat switch by turning the connector counterclockwise.



3. Use a combination wrench to remove the 4 bolts from the adjustable seat mounting.



4. Lift off the driver's seat.

Assembling

Assemble in reverse order.

5.1.3 Brake cable

Checking the brake cable

Tools	Dimension
Combination wrench	13 mm
Torx	T 30
Snipe nose pliers	
Torque wrench	

Check that the parking brake is adjusted correctly by placing the machine on a slope.

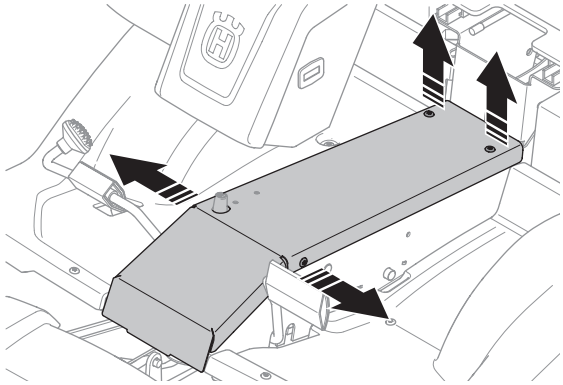
- Apply the parking brake.

The parking brake must be adjusted if the machine is not stationary.

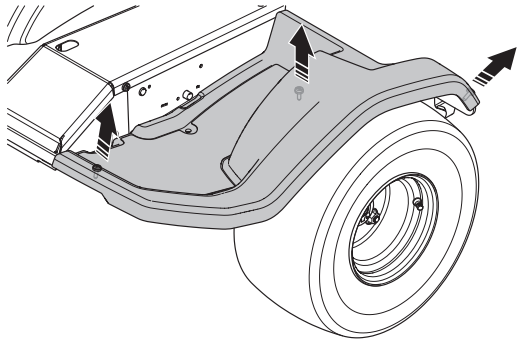
If the machine does not stay still once the parking brake has been adjusted, the parking brake cable must be replaced.

Replacing brake cable

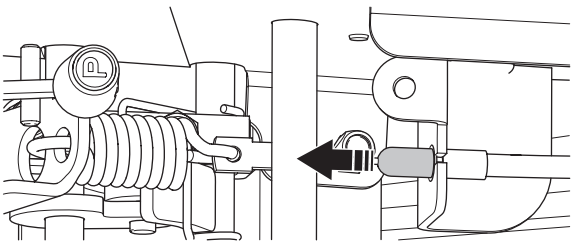
1. Remove the cover over the frame tunnel.



2. Remove the left wing cover.

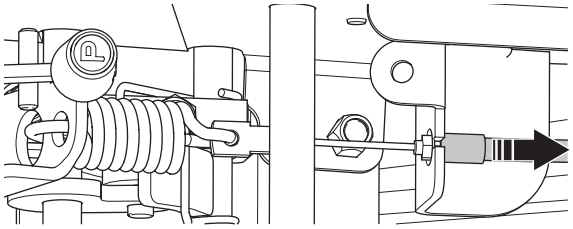


3. Remove the rubber cover from the brake cable.

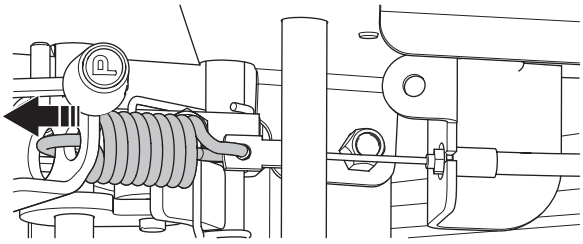


4. Remove the E-clip.

5. Pull back the rubber protection so that the cable can pass through the bracket opening.

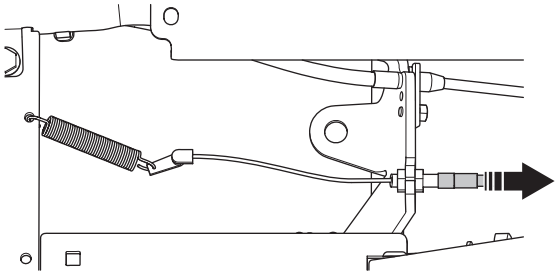


6. Loosen the recoil spring from the pedal arm.

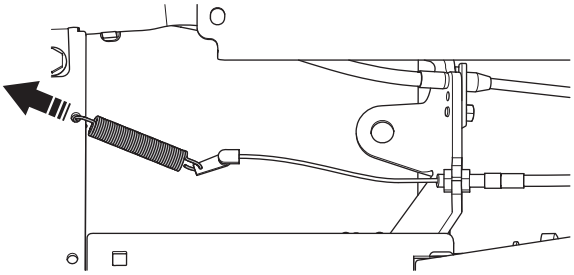


7. Make a note of how the brake cable is routed.

8. Pull back the rubber protection so that the cable can pass through the bracket opening.



9. Loosen the recoil spring going to the brake arm.



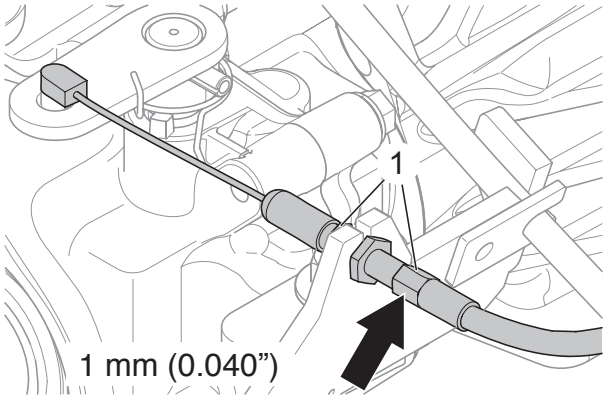
10. Remove the cable from the brake lever arm.

Assembling

Assemble in reverse order. The parking brake cable must be checked and possible adjusted once fitted.

Adjusting the brake cable

1. Put the machine in a level position.
2. Check that the parking brake is not on.
3. Loosen the locking nuts (1).
4. Adjust the play between the casing and the adjustment screw to 1 mm (0.040") when pulling the casing. This gives a play on the pedal of approximately 40 mm.



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

5. Tighten the nuts moderately to avoid damaging the threads.
6. Make sure the parking brake works.

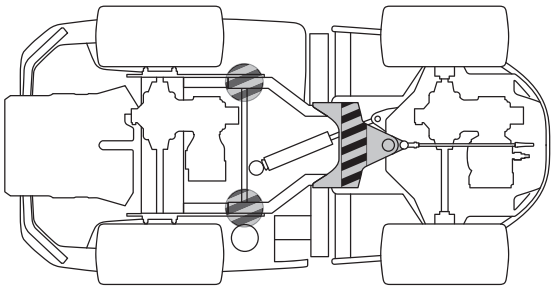
5.1.4 Wheel hub

Dismantling

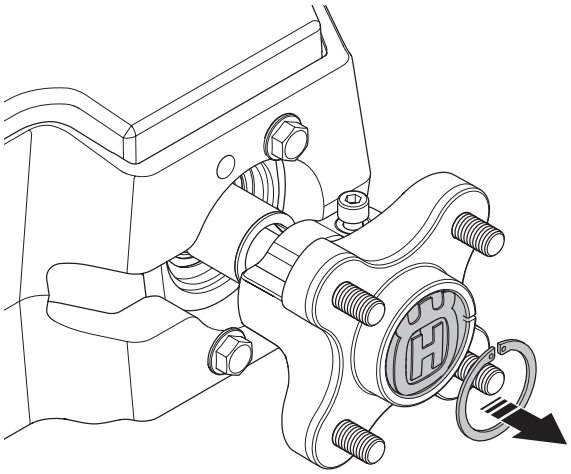
Older versions of the wheel hub can occur.

Tools	Dimension
Socket wrench	19 mm
Allen Key	6 mm
Torque wrench	
Circlip pliers	

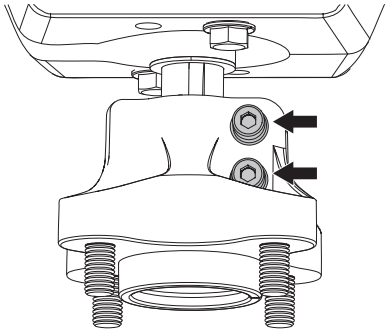
1. Place a jack assembly under the machine as illustrated.



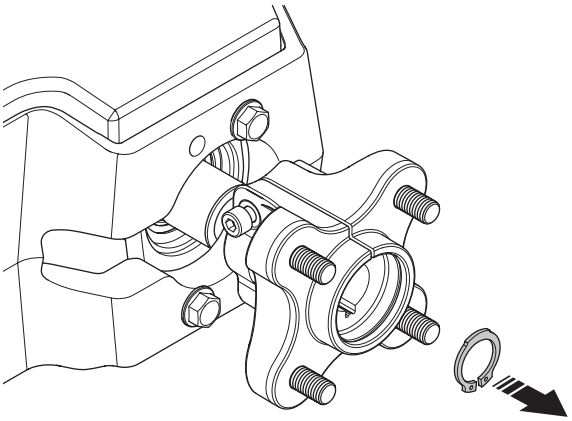
2. Raise the machine.
3. Loosen the wheel bolts.
4. Remove the wheel.
5. Remove the SGH clip and washer in the middle of the wheel hub.



6. Remove the screws on the wheel hub.



7. Remove the SGA clip.



8. Dismantle the wheel hub.
9. Check that the key is free from damage. Replace the key if it is damaged.

Assembling

Assemble in reverse order.

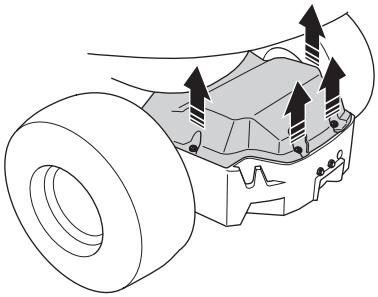
NB!
Tighten the wheel bolts alternately to torque 24 Nm.

5.1.5 Link stay

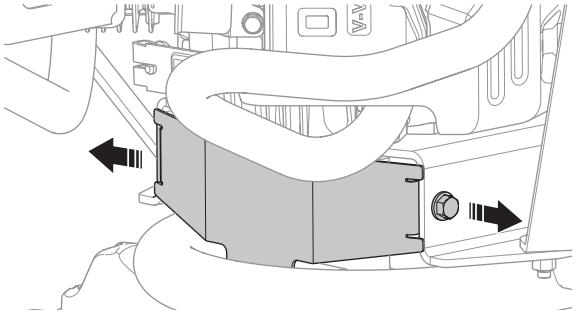
Tools	Dimension
Torx	T30
Combination wrench	13 mm
Combination wrench	15 mm
Combination wrench	17 mm

Dismantling

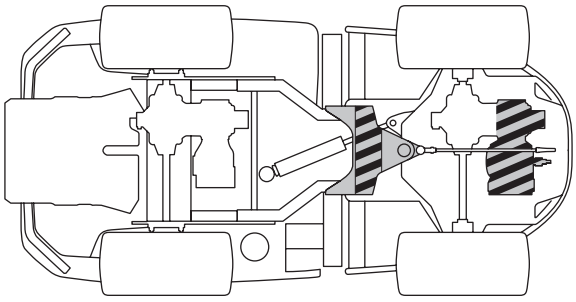
1. Apply park brake.
2. Remove the cover over the rear transmission.



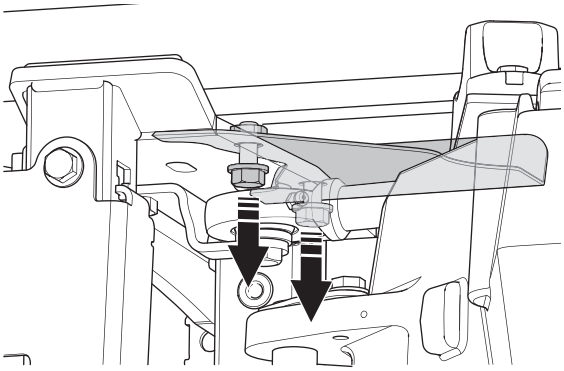
3. Remove the 2 screws from the pulley guard.



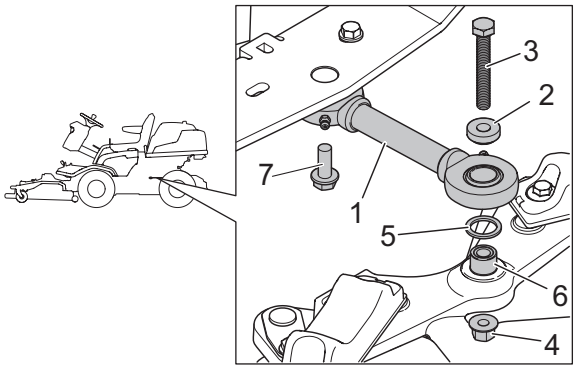
4. Place a jack assembly under the machine as illustrated and stabilize the machine, so that it does not fall when the link stay is dismantled.



5. Note how the link stay grease nipples are turned for refitting.
6. Turn the steering wheel to full right lock to prepare the space for dismantling the link stay.
7. Loosen the control stay at the front and secure it with a cable tie to the transmission shaft.
8. Relieve pressure on the rear carriage with another jack assembly in order to take pressure off the link stay.
9. Dismantle the cover protecting the belt and the link stay under the engine.

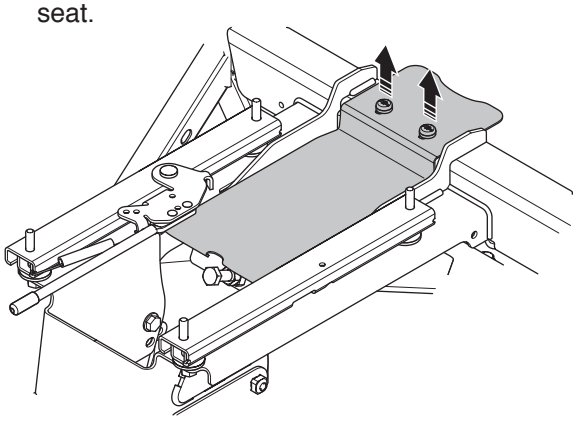


10. Loosen the rear link stay fastening.
11. Dismantle the locking nut, washer, screw and sleeve.

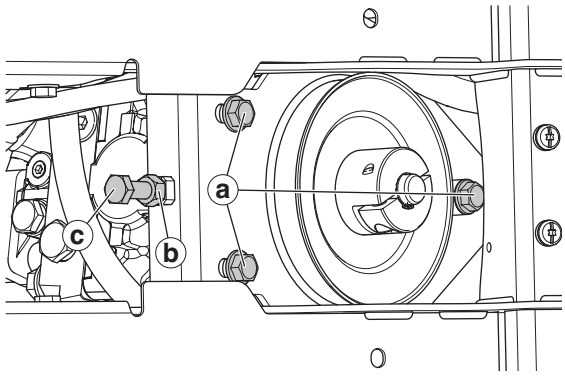


1.	Link stay	4.	Locknut
2.	Sleeve	5.	Washer
3.	Screw	6.	Steering block

12. Dismantle the driver's seat. For more information, refer to section “5.1.2 Driver’s seat” on page 18.
13. Dismantle the protector plate located under the seat.



14. Release pump belt tension by:

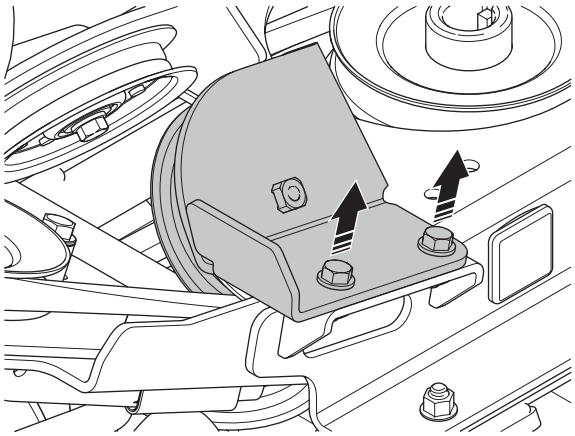


   a. Loosen the 3 screws on the pump belt cradle.

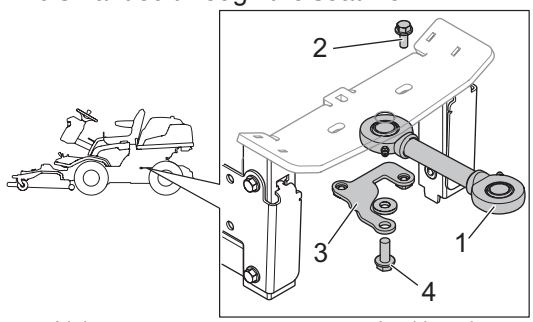
   b. Loosen the locking nut on the adjustment screw.

   c. Loosen the pump belt adjustment screw in order to release tension on the belt.

15. Dismantle the 2 screws holding the bracket for the pump belt pulley.



16. The screw (2) on the locking plate (3) that holds the front part of the link stay in place is dismantled through the seat well.



1. Link stay
2. Screw
3. Locking plate
4. Screw

17. Remove the screw (4) from the link stay and loosen the front link stay fastening.

18. Dismantle the link stay.

Assembling

1. Assemble in the reverse order. The front link stay grease nipple must point to the right.

2. Torque tighten as below.

   a. The rear screw for the link stay is screwed into the goods. In addition, there is a locknut for securing the screw. If the locknut is tightened too much, the torque on the screw will be released and the union will come loose.

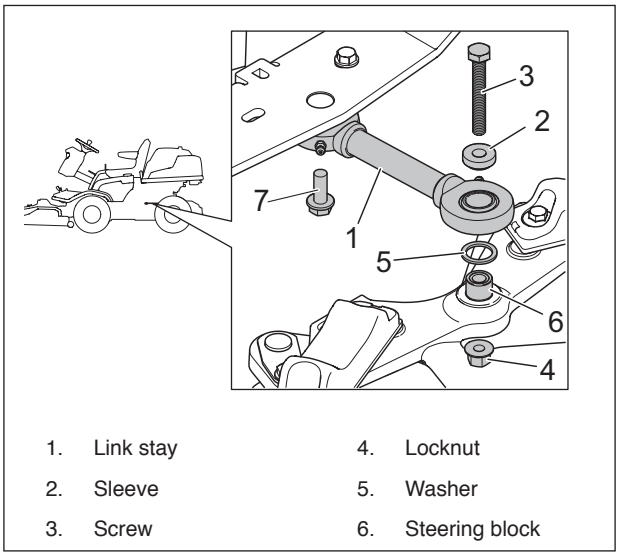
   b. Tighten the screw (3) until it bottoms first.

   c. Then tighten the screw to the torque specified in the table.

   d.1 Finally, screw on the locking nut (4) and tighten to the torque specified in the table.

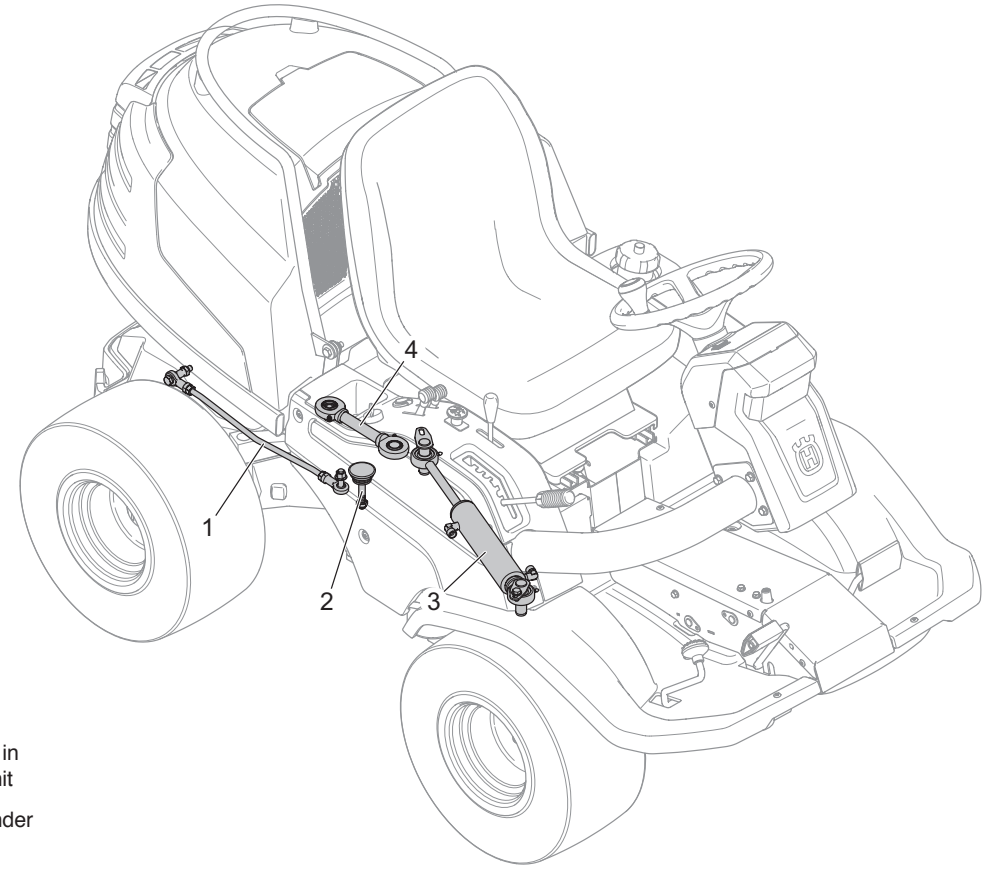
3. Lubricate the link stay through the grease nipples.

	Location	Screw	Nut
A	Front link stay	52 ft/lb (65 Nm)	-
B	Rear link stay	52 ft/lb (47 Nm)	52 ft/lb (24 Nm)



1. Link stay
2. Sleeve
3. Screw
4. Locknut
5. Washer
6. Steering block

5.1.6 Changing joint bearing in articulated unit



1. Control stay
2. Joint bearing in articulated unit
3. Steering cylinder
4. Link stay

Tools	Dimension
Combination wrench	13 mm
Combination wrench	15 mm
Combination wrench	16 mm
Combination wrench	22 mm
Combination wrench	27 mm
Combination wrench	32 mm
Combination wrench	15 mm
Combination wrench	17 mm
Combination wrench	19 mm
Circlip pliers	SGH
Chisel	
Torque wrench	
Fine threaded torque wrench	17 mm

WARNING!
Never insert hands or fingers as heavy components are unstably supported. Use tools that reach. Risk of crush injuries.

Check of joint bearing in articulated unit

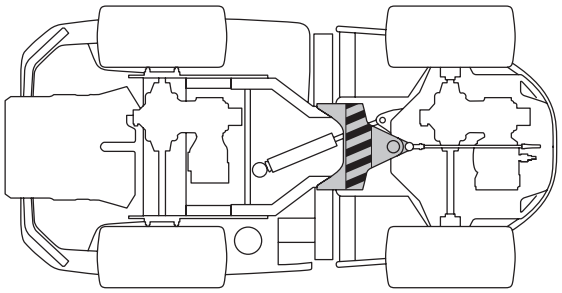
Check the condition of the joint bearing in the articulated unit by measuring the distance between the joint bearing and the bolt fastener.

1. Make sure there is a clear gap between the link stay and the screw head on the engine belt pulley.

If the distance between the pulley and the screw head reduces, the joint bearing must be changed.

Dismantling

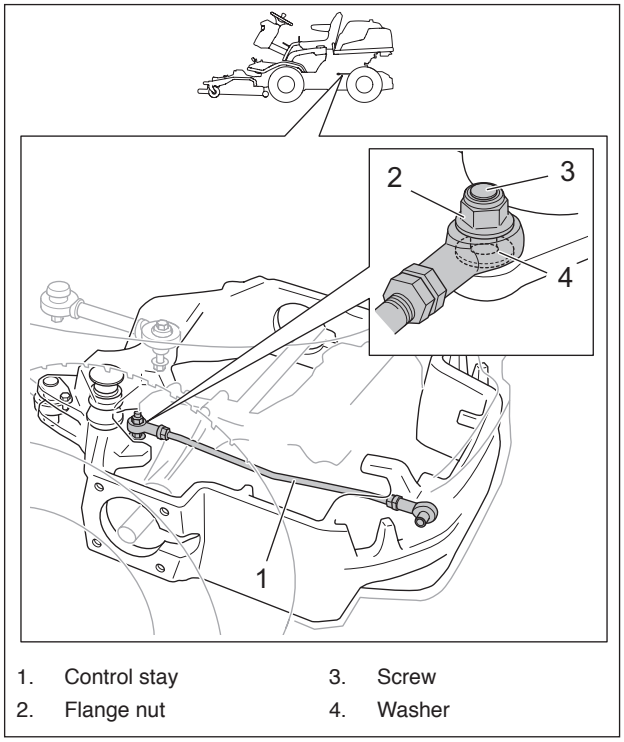
1. Jack up and block the machine under the frame as illustrated.



NB! Make sure not to place the trestle so that the control stay is damaged or parts of the articulated unit are blocked.

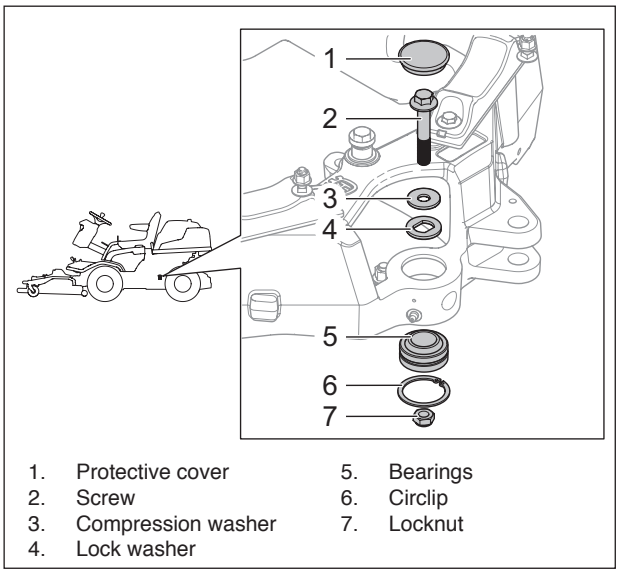
2. Place a vessel under the transmission to collect oil spill.
3. Clean according to the general instructions. For further instructions, refer to section “5.6.1 Hydraulic hygiene” on page 52.
4. The hydraulic hoses can be mixed up. Mark the lines so that they are reconnected on the correct connections.
5. Loosen the hydraulic lines. Fit sealing plugs to prevent leakage and contamination.

NB! Suspend the control stay with a cable tie around the drive shaft so that it is not damaged when the rear carriage is loosened.



1. Control stay
2. Flange nut
3. Screw
4. Washer

6. Loosen the front end of the control stay (1). Remove the flanged nut (2), screw (3) and washer (4).



1. Protective cover
2. Screw
3. Compression washer
4. Lock washer
5. Bearings
6. Circlip
7. Locknut

7. Dismantle the protective cover (1) over the steering joint.

NB! Check that the protective cover is intact. A damaged cover must not be refitted but discarded and replaced with a new one.

8. Dismantle the locknut (7) on the bottom of the articulated steering.

NB! The screw is threaded into the frame goods. It must always be unscrewed, even if the locknut has been removed.

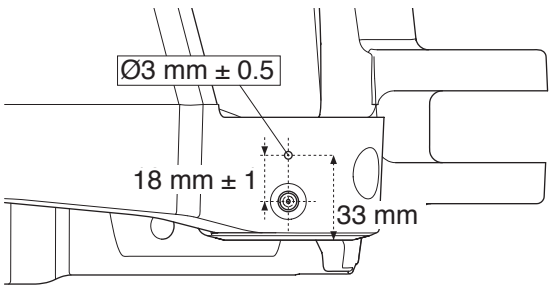
9. Turn the steering wheel full lock to the left for better access.
10. Unscrew the articulated steering (2).
11. Put the steering in neutral position again.

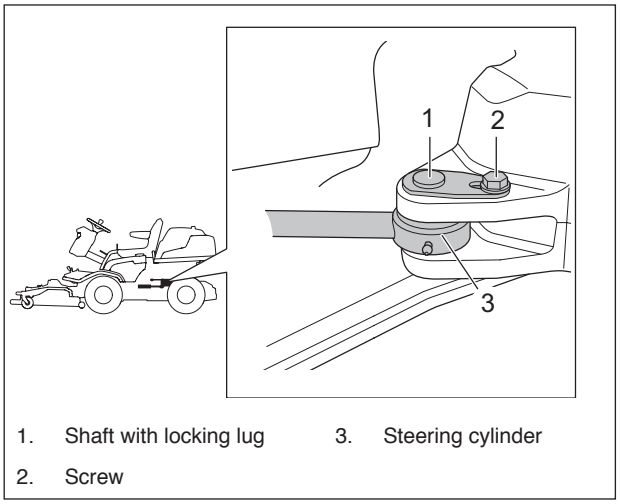
Note!

Newer machines are equipped with a protector cap in steel instead of plastic. Since plastic is worn by the abrasion of the hoses, steel is a better option for durability reasons. We recommend replacing plastic protector caps with the newer steel protector caps. Part number: 581 82 83-01

Before assembling the new protector cap, drill a hole as shown below. Drill a 3 mm hole over the lubricating point.

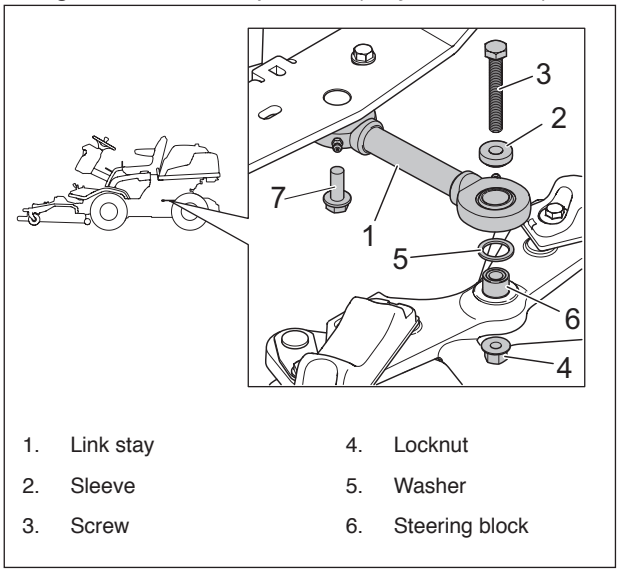
Check the joint bearing thoroughly for cuttings. For further information, refer to the Service Bulletin on the Husqvarna support site "B1500032".





1. Shaft with locking lug
2. Screw
3. Steering cylinder

12. Loosen the steering cylinder (3) from the rear fastening by dismantling the shaft with the locking lug (1).
13. Turn the steering wheel so that the cylinder goes to front end position (fully contracted).



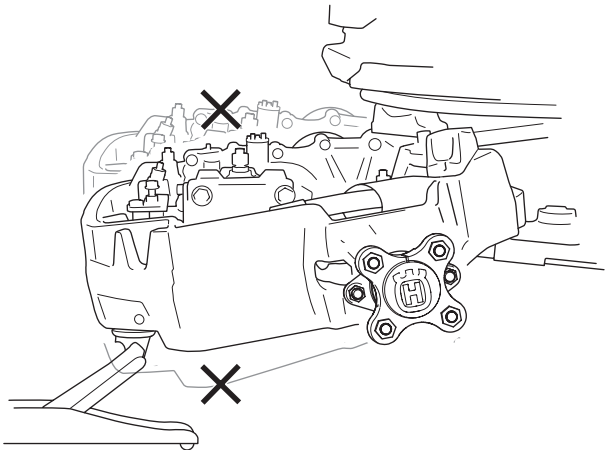
1. Link stay
2. Sleeve
3. Screw
4. Locknut
5. Washer
6. Steering block

14. Turn the rear carriage at an angle so that the link stay (1) screw (3) can go free from the engine belt pulley.

NB!

The rear carriage and transmission weighs more than 90 kg.

15. Dismantle the rear link stay fastening. Remove the locking nut (4), screw (3), screw (5), washer (5) and sleeve (2).
16. Raise the back edge of the rear carriage with a jack assembly to relieve the load on the link stay.
17. Use a screwdriver or a breaker bar to lift the link stay off the steering block (6).
18. The rear carriage is now free, but can not be lowered without reversing first. Support the rear carriage and lower it slightly as illustrated. Do not lower too far, avoid the positions with crosses in the illustration.



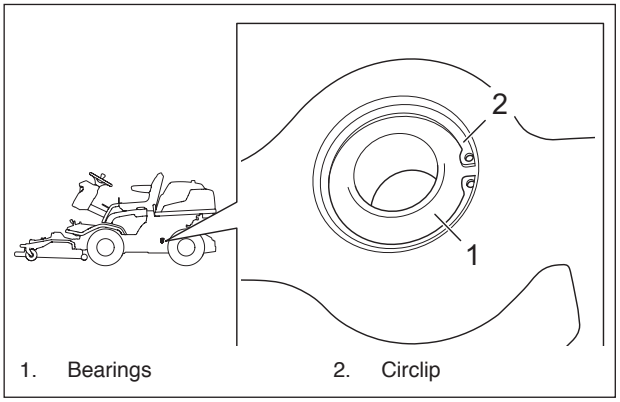
19. Raise the rear carriage over the frame pin.
20. Carefully move back the rear carriage. Extract the hydraulic hoses at the same time.

NB!

Note how the hydraulic hoses are routed to facilitate refitting.

NB!

Carefully follow the instructions below for torque tightening the link stay and articulated steering. A torque wrench must be used.



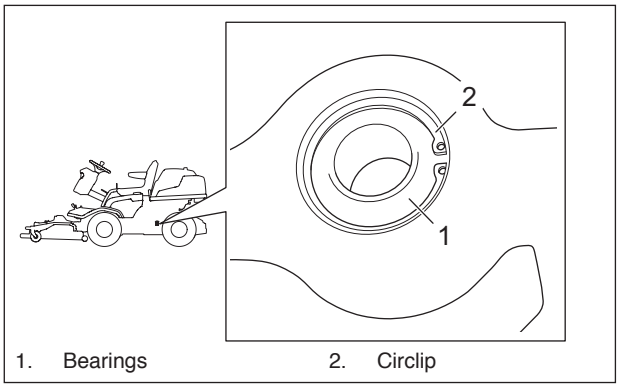
1. Bearings
2. Circlip

21. Dismantle the circlip (2).
22. Drive the bearing (1) out of the rear carriage.
23. Clean the lubrication channel by pressing grease through the grease nipple. Then clean the bearing space with grease.
24. Clean the duct for grease drainage with a fine steel wire.

Assembling

It is essential the screw is tightened to the correct torque for fastening the ball in the joint bearing.

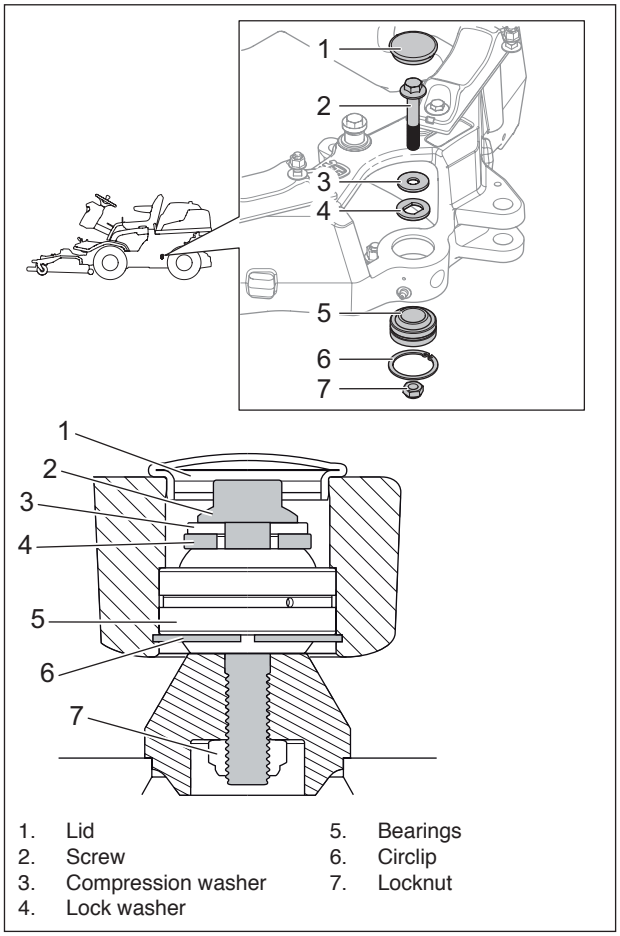
- If the ball is loose or badly lubricated, it may start to move on the pin. This will cause much wear on the pin.
- There is a risk of overloading the screw when operating if it is tightened too hard.



1. Bearings 2. Circlip

NB!
Only press the outer race when driving in the bearing.

1. Lubricate the bearing seatings and studs with corrosion inhibiting grease.
2. Fit the new bearing (1) by carefully driving in the outer race with a suitable driving or press tool.
3. Fit a new circlip (2).



1. Lid
2. Screw
3. Compression washer
4. Lock washer
5. Bearings
6. Circlip
7. Locknut

4. Put the rear carriage in place over the pin.
5. Fit lockwasher (4), compression washer (3) and screw (2).

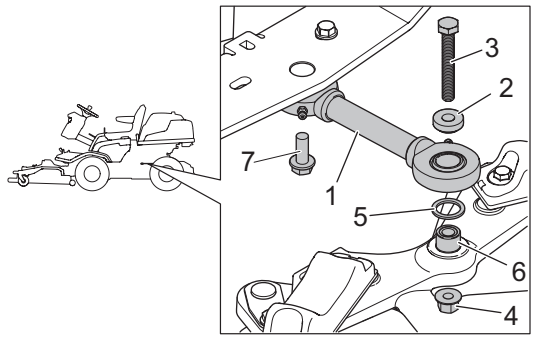
NB!
Make sure the lockwasher is positioned correctly on the pin before fitting the screw.

6. Fit the locknut (7).
7. Torque tighten as below.
8. Special tightening torques:

The screw in the articulated steering and the rear screw for the link arm are threaded into goods. In addition, there is a locknut used for securing the screw. If the locknut is tightened too much, the torque on the screw will be released and the union will come loose.

a. Tighten the screw until it bottoms first.
b. Then tighten the screw to the specified torque.
c. Finally, screw on the locking nut and tighten to the specified torque.
d. Then retighten the screw to the specified torque again.

Location	Screw (2)	Nut (7)
Articulated unit	52 ft/lb (85 Nm)	52 ft/lb (47 Nm)



1. Link stay
2. Sleeve
3. Screw
4. Locknut
5. Washer
6. Steering block
7. Screw

9. Assemble the link stay (1) with sleeve (2), screw (3), washer (5) and locknut (4).
10. Torque tighten as below.

The rear screw for the link stay is screwed into the goods. In addition, there is a locknut for securing the screw. If the locknut is tightened too much, the torque on the screw will be released and the union will come loose. See also information on bolt fasteners in the introduction.

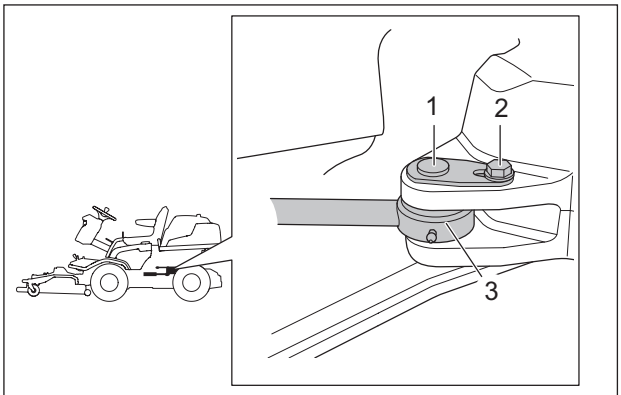
Tighten the screw (3) until it bottoms first.

Then tighten the screw to the torque specified in the table.

Finally, screw on the locknut (4) and tighten to the torque specified in the table.

11. Torque tighten as specified in the table.
12. Lubricate the link stay through the grease nipples.

Location	Screw	Nut
Front link stay (screw 7).	52 ft/lb (65 Nm)	-
Rear link stay (screw 3).	52 ft/lb (47 Nm)	52 ft/lb (24 Nm)



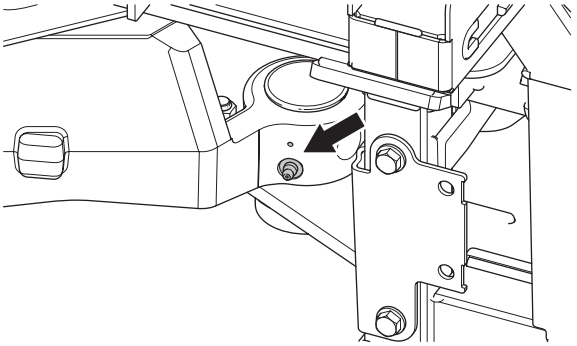
1. Shaft with locking lug
2. Screw
3. Steering cylinder

13. Assemble the steering cylinder (3) to the rear bracket.
14. Assemble the shaft with locking lug (1) with the screw (2).

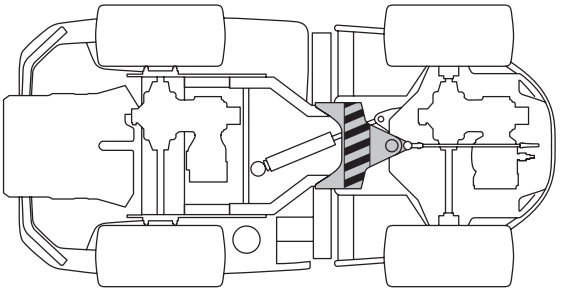
Lubrication of articulated bearing

The articulated bearing must be lubricated according to the service schedule.

1. Lubricate the articulated bearing with the machine standing with all wheels on the ground. Press grease into the lubricating duct through the grease nipple.



2. The rear carriage of the machine must not be under load if the grease is to enter into the lubricating duct and evenly distributed. Release pressure in the articulated unit by raising the machine and supporting it as illustrated.



NB! Make sure not to place the trestle so that the control stay is damaged or parts of the articulated unit are blocked.

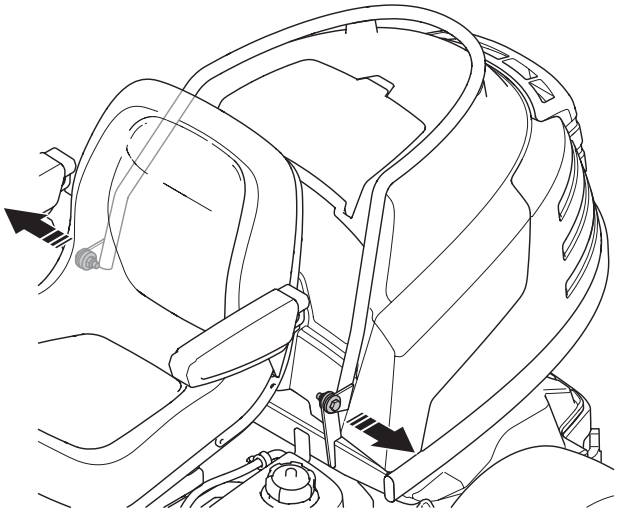
3. Press grease into the lubricating duct through the grease nipple once more while the machine is raised and not under load.

5.2 Propulsion

5.2.1 Dismantling the engine cover

Tools	Dimension
Combination wrench	17 mm x2

1. Remove the screws on both sides of the engine cover.



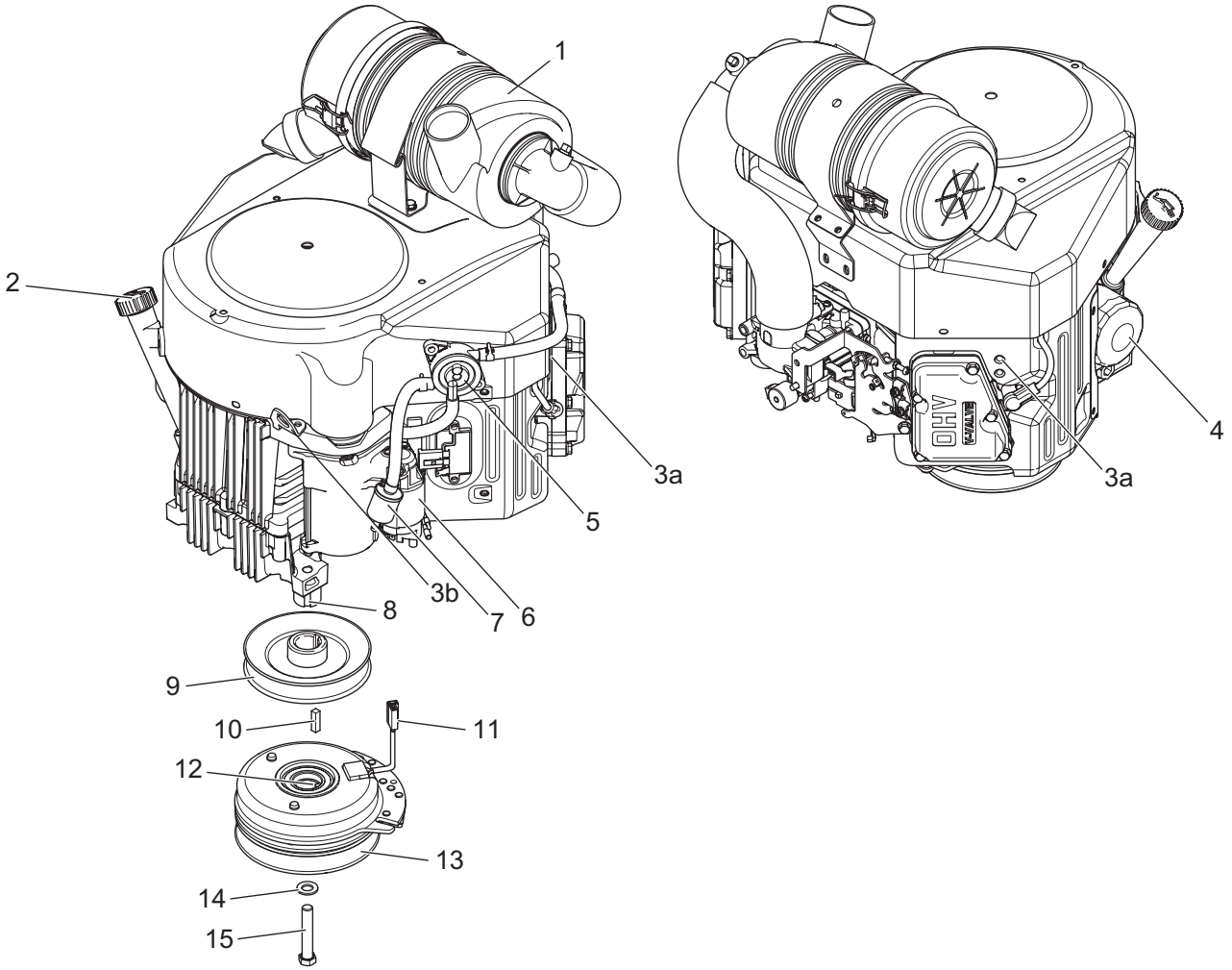
2. Save the plastic washers used as spacers between the screw and the cover.
3. Lift off the engine cover.

Assembling

Assemble in reverse order.

Tighten the screws sufficiently so the cover can be closed smoothly and not fall down of its own weight.

5.2.2 Engine



1. Air Filter
2. Oil filler
3. Lifting points for overhead crane.
   a. Hole for M8 screw.
   b. Lifting eye
4. Oil filter
5. Fuel Pump
6. Starter motor
7. Fuel filter
8. Groove on engine shaft
9. Belt pulley
10. Key on engine shaft
11. Magnetic clutch
12. Key on belt pulley
13. Engine belt pulley
14. Washer
15. Screw

Tools	Dimension
Combination wrench	7 mm
Combination wrench	15 mm
Combination wrench	17 mm
Combination wrench	18 mm
Combination wrench	10 mm
Combination wrench	13 mm
Torx	T20
Torx	T30
Allen Key	7 mm
Torque wrench	

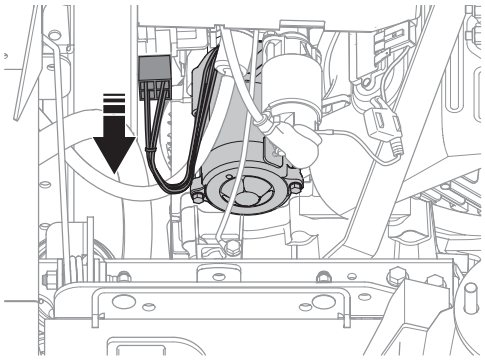
WARNING!
Hot components, allow the engine to cool.

Dismantling the motor

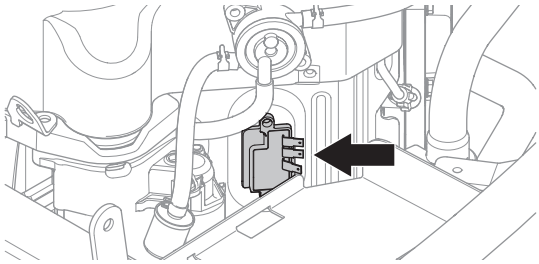
1. Remove the engine cover. For more information, refer to “5.2.1 Dismantling the engine cover” on page 29.
2. Remove the battery, see section “5.3.3 Battery” on page 44.

NB!
Hold the battery cable screws in place so that the electrodes are not strained.

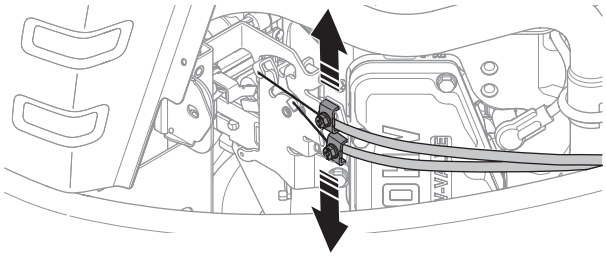
3. Remove the cable between the starter relay and the starter from the starter.



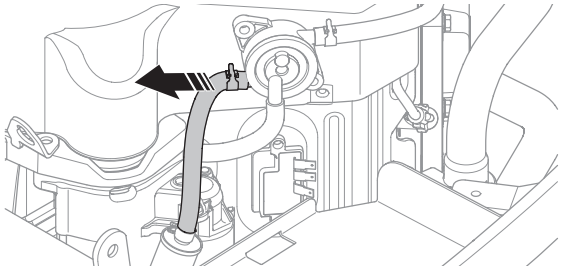
4. Mark and remove the engine’s electrical connectors.



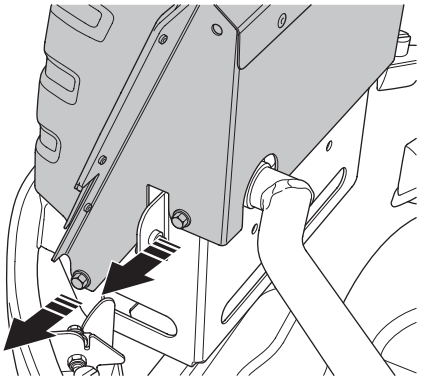
5. Remove the clips holding the throttle and choke cables. Unhook the cables from their attachments on the carburettor casing.



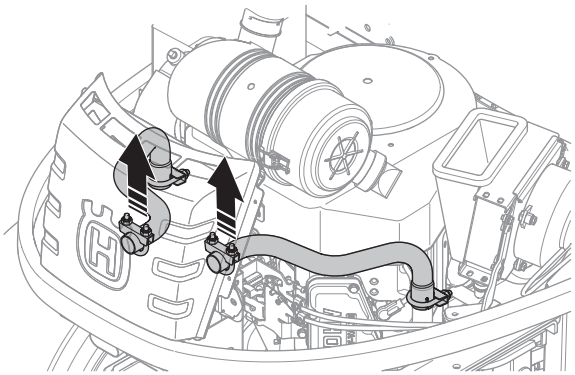
6. Remove the hose clamp on the fuel hose by the fuel pump and pull the fuel hose downwards. Suspend the hose to stop fuel leaking.



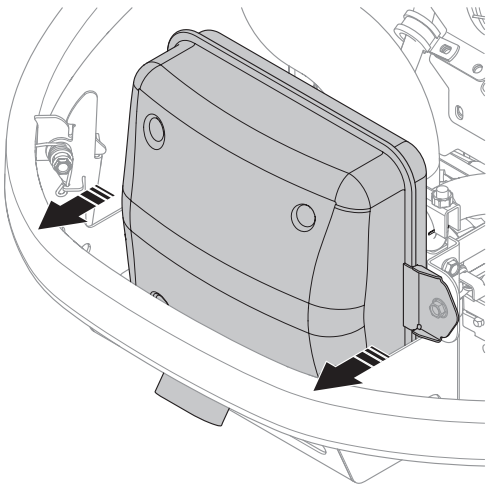
7. Loosen the heat plate over the muffler, two screws on each side, and remove the plate.



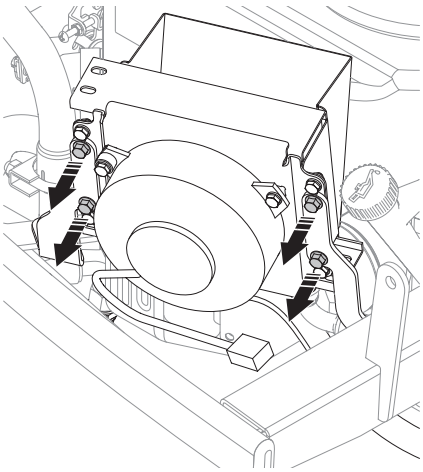
8. Loosen the exhaust clamps at the muffler.



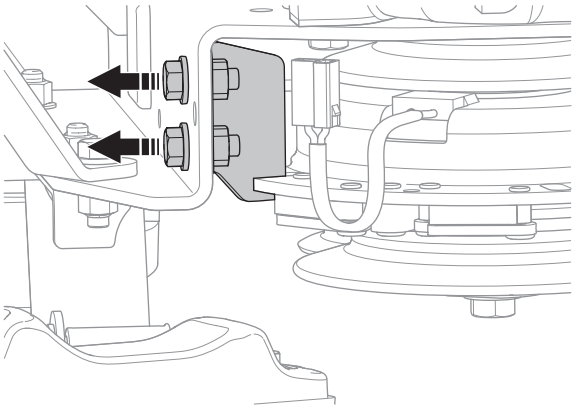
9. Remove the screws from the muffler and lift off the muffler.



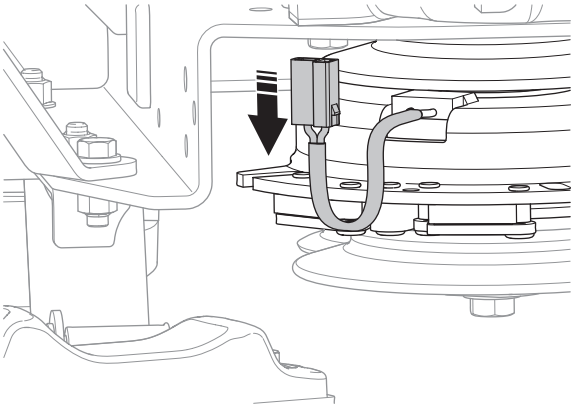
10. Loosen the oil cooler and set aside.



11. Unplug the electrical connector for the magnetic clutch.



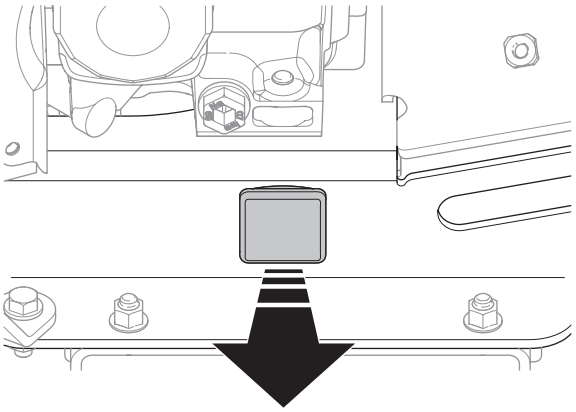
12. Remove the torque stop of the magnetic clutch.



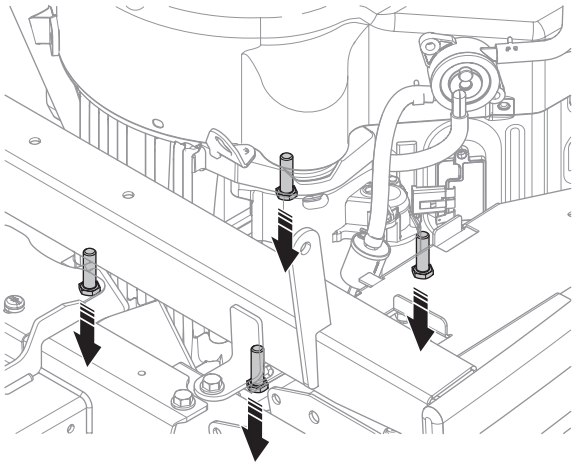
13. Remove the hydraulic pump drive belt, see section “5.6.10 Replacing pump belt” on page 69.

14. Remove the PTO belt. For further instructions, refer to “5.6.11 Changing the PTO belt” on page 71.

15. Remove the cover protecting the pump drive belt in order to access the front engine mounting.



16. Remove the engine mountings, two each side, and lift up the engine from the machine with the engine pulley and magnetic clutch.



Assembling

Assemble the engine in reverse order.

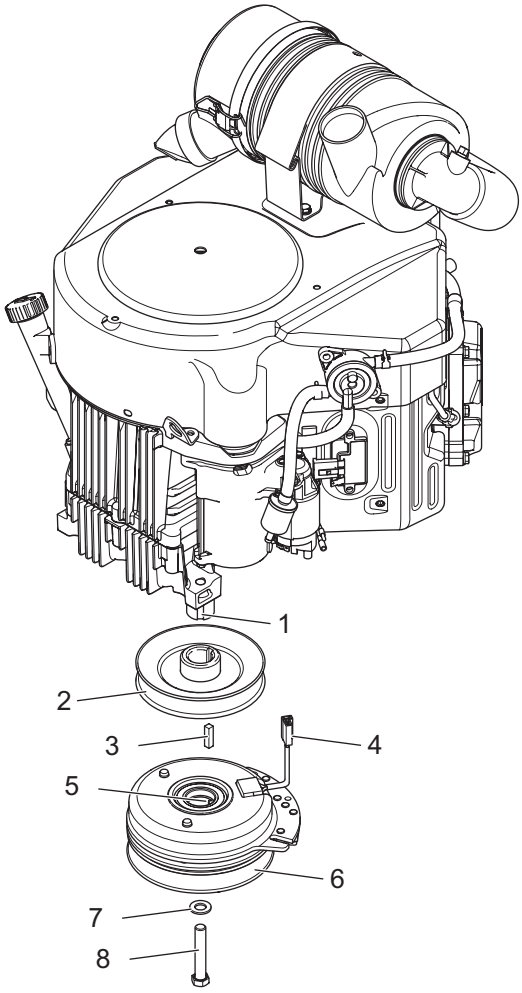
NB!
Hold the battery cable screws in place so that the electrodes are not strained.

5.2.3 Solenoid clutch

Dismantling

Tools	Dimension
Wrench x2	
Ratchet wrench	16 mm

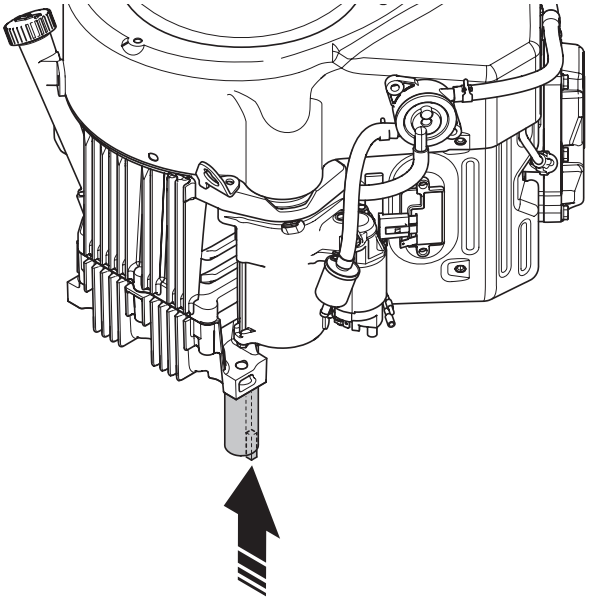
1. Dismantle the engine, see section “5.2.2 Engine” on page 30.
2. Counterhold underneath the magnetic clutch with a wrench.



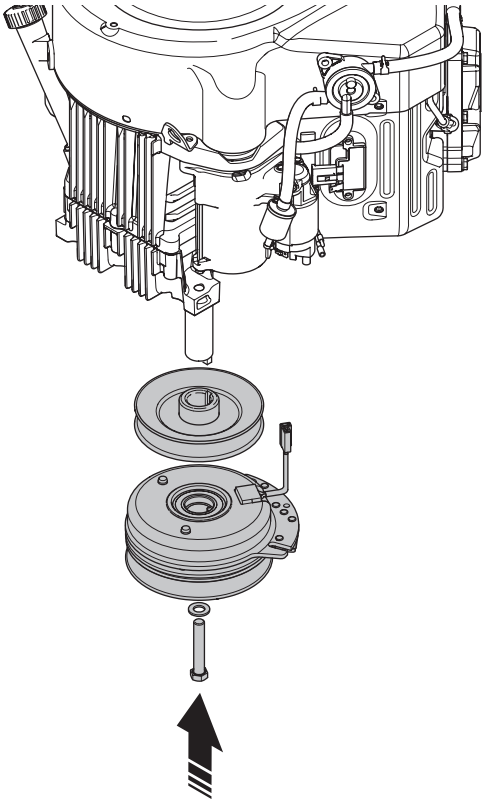
3. Loosen the screw (8) holding the belt pulley (2) and torque disc (6) in place.
4. Remove the belt pulley (2).
5. Replace the magnetic clutch (4) together with torque disc (6).

Assembling

1. Assemble in reverse order.
2. Place the belt pulley key in the groove on the engine shaft.



3. Put the magnetic clutch on the engine shaft. There is a key on the engine shaft that must be located in the recess on the magnetic clutch.



4. Tighten the screw to 75 Nm.

5.2.4 Transmission oil change

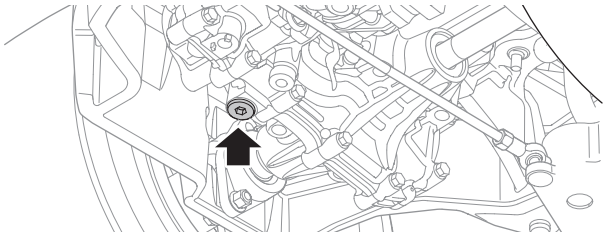
Tools	Dimension
Torx	T30
Allen Key	10 mm
Flat-blade screwdriver	

Observe cleanliness. Follow the directions in section “5.6.1 Hydraulic hygiene” on page 52.

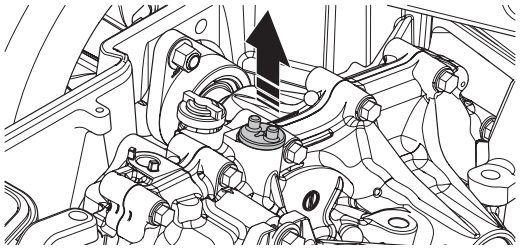
Transmission capacity is 0.9 liters (0.9 US qt) fully synthetic engine oil SAE 10W/50 in the respective gearbox Make it easier to change oil by warming up the engine before draining the oil.

Rear axle

1. Place a vessel under the rear transmission.
2. Remove the rear transmission cover.
3. Loosen the bottom plug and allow the oil to drain into the vessel.



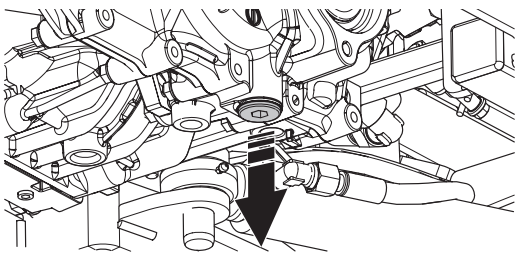
4. Clean thoroughly around the filler.
5. Open the filler cap.



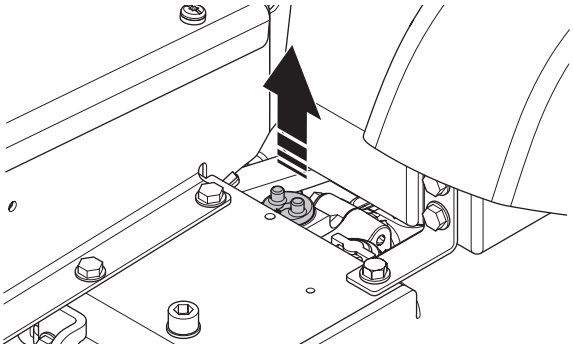
6. Refit the drain plug.
7. Top up with the new oil.
8. There is always a small amount of oil remaining in the transmission after draining it. Therefore, always use a dipstick to make sure the oil level is correct.

Front axle

1. Remove the left wing cover.
2. Place a vessel under the front transmission.
3. Loosen the drain plug and allow the oil to drain into the vessel.



4. Clean thoroughly around the filler.
5. Open the filler cap.

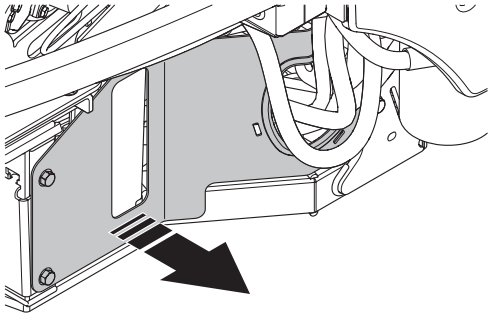


6. Refit the drain plug.
7. Top up with the new oil.
8. There is always a small amount of oil remaining in the transmission after draining it. Therefore, always use a dipstick to make sure the oil level is correct.

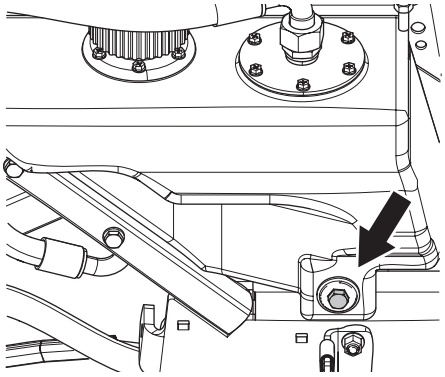
5.2.5 Hydraulic oil change

Hydraulic tank capacity is 8 liters (8.5 US qt) fully synthetic engine oil SAE 10W/50.

1. Remove the side cover.
2. Dismantle the right wing cover.
3. Remove the protecting cover protecting the right side of the machine.



4. Place a vessel under the hydraulic tank drain plug.



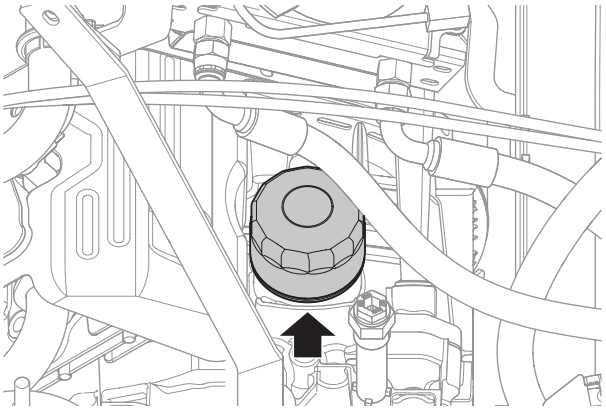
5. Loosen the plug and allow the oil to drain into the vessel.
6. There is always a small amount of oil remaining in the hydraulic tank after draining it. Therefore, always use a dipstick to make sure the oil level is correct.

5.2.6 Replacing the engine oil filter

WARNING!
Risk of spray and burn injuries. The engine's oil filter may be very hot immediately after stopping. Allow the engine to cool down first.

NB!
Replaced filters must be deposited is assigned places for correct disposal.
Avoid skin contact, wash with soap and water in case of spills. Avoid skin contact, wash with soap and water in case of spills.

1. Follow "5.2.7 Changing engine oil" on page 35 to - change oil filter if necessary.
2. Wipe clean the engine block around the oil filter.
3. Remove the oil filter. If necessary, use a filter remover.



4. Clean the oil filter's mounting.
5. Wipe new, clean engine oil onto the seal for the new filter.
6. Fit the filter by hand to contact + 3/4 turn.
7. Fill with new engine oil.
8. Run the engine warm, then check that there are no leaks around the oil filter seal.
9. Check the oil level in the engine, top up if necessary. The oil filter capacity is about 0.3 liters of oil.

5.2.7 Changing engine oil

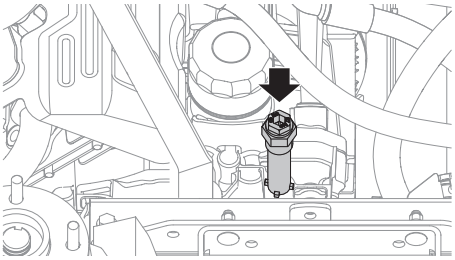
Tools	Dimension
Combination wrench	19 mm

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

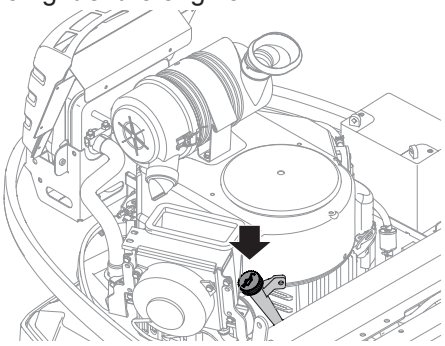
NB!
Used engine oil is a health hazard and must not be disposed of on the ground or into the environment; it should always be disposed of at an appropriate disposal site.
Avoid skin contact, wash with soap and water in case of spills.

The engine oil should be changed the first time after 8 hours running time. Follow the intervals specified in the Service Journal.

1. Run the machine warm.
2. Open the engine hood.
3. Place a container underneath the engine's right oil drain plug.



4. Remove the dipstick. Remove the drain plug on the right of the engine.

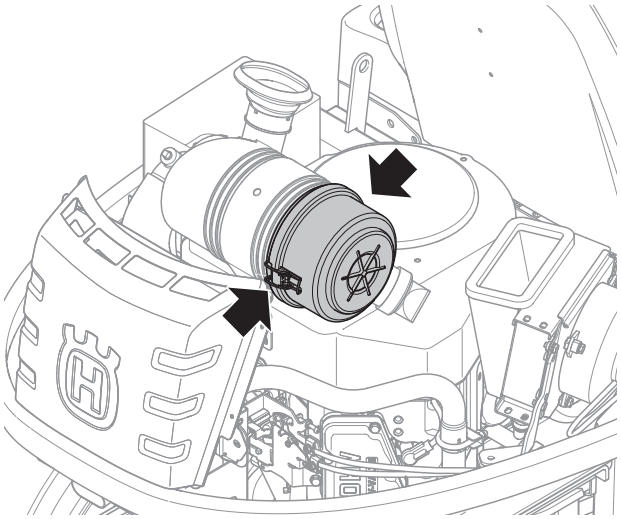


5. Allow the oil to run into the vessel (1.9 l / 2.0 US qt).
6. Then screw in the drain plug and tighten it.
7. Change oil filter if necessary "5.2.6 Replacing the engine oil filter" on page 35.
8. Fill with new engine oil.
9. Start the engine and run it for a few seconds. Check the oil level and top up if necessary. Refer to "2.4 Final inspection" on page 8.

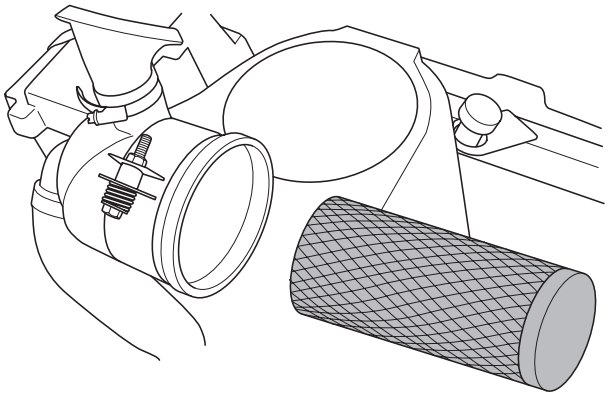
5.2.8 Replacing the engine air filter

Dismantling

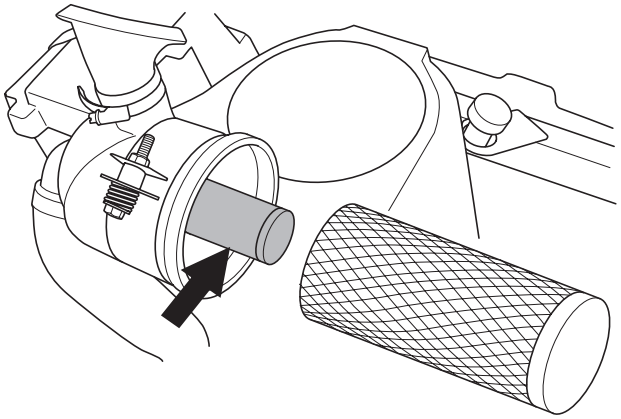
1. Raise the engine cover.
2. Loosen the two fasteners holding the filter cover and remove it.



3. Remove the filter cartridge from the filter housing.

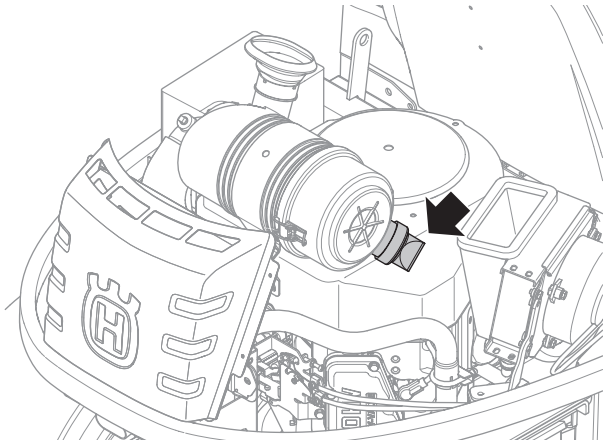


4. The machine has an extra filter that is fitted inside the filter cartridge. Also remove that filter.



Assembling

1. Assemble in reverse order.
2. Fit the new filter cartridge. Make sure the filter cartridge is correctly fitted over the air intake in the filter housing.
3. Replace the air filter cover, ensure that the particle collector is facing downwards.



5.2.9 Hydrostatic cable

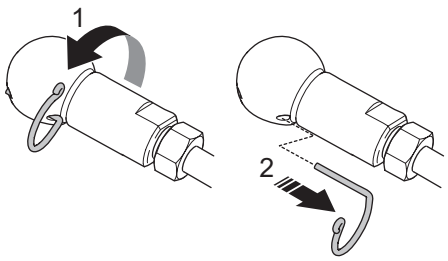
Tools	Dimension
Combination wrench	10 mm
Flat-blade screwdriver	

Hydrostatic cable adjustment

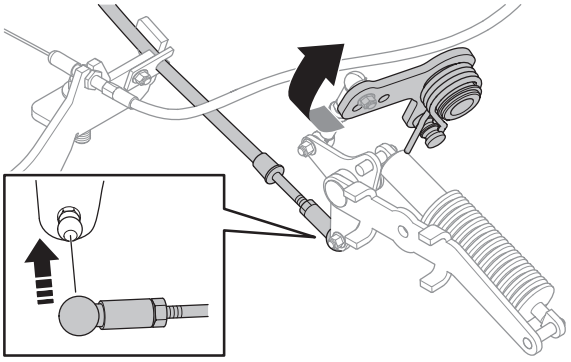
The hydrostatic cable may require adjustment after adjusting the tension of the pump belt.

The hydrostatic cable (left side) can be adjusted as follows:

1. Take apart the ball joint, which is locked with a locking spring.



2. Make sure the forward drive pedal is depressed fully.
3. Bend the vertical arm clockwise to the maximum position and check that the ball and socket in the ball joint are aligned.

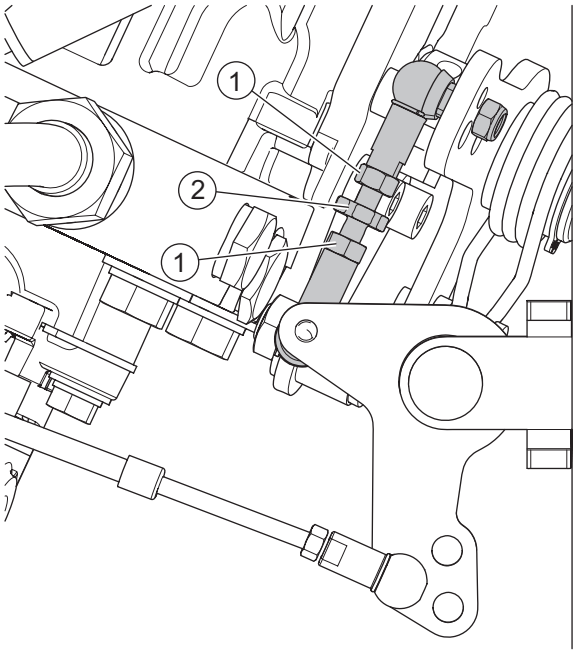


4. Adjust the ball socket on the cable as required so that it fits precisely over the ball on the lever arm.
5. Screw the ball joint back 2 turns.
6. Assemble the ball joint.
7. Refit the ball joint lock spring.
8. Tighten the locking nut for the ball socket on the cable.

NB!
Make sure the locking spring goes through both holes in the ball socket.

If adjustment of the hydrostatic cable is insufficient, a further adjustment can be made with the cable adjuster next to the hydraulic pump.

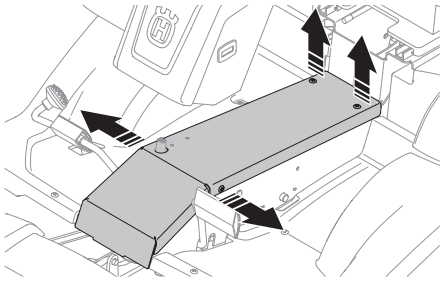
Loosen the locknuts (1) and adjust the play with the adjustment screw (2).



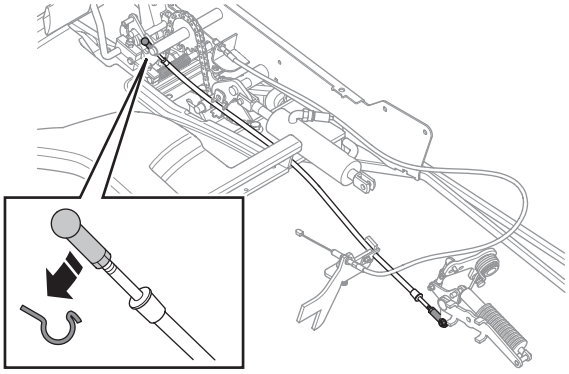
Make sure the pump does not bottom when the pedals are fully depressed.

Dismantling the hydrostatic cable

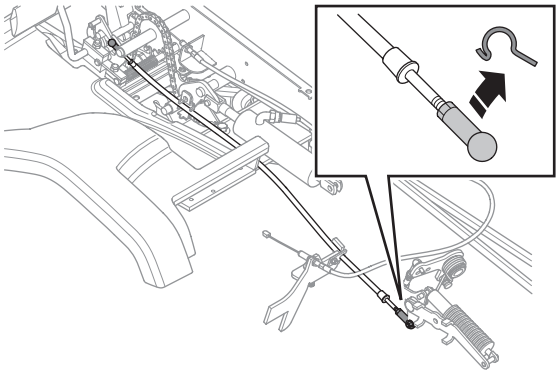
1. Remove the frame plate by loosening the screws.



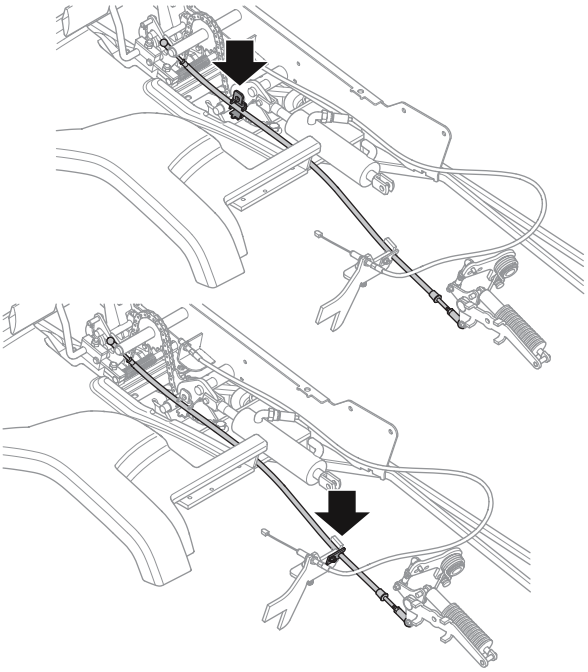
2. Loosen the front hydrostatic cable locking nut 1/4 turn and remove the locking spring.



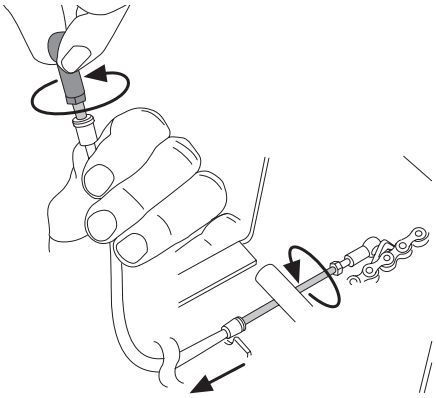
3. Remove the spring lock and the hydrostatic transmission cable's rear link joint from the arm on the hydraulic pump.



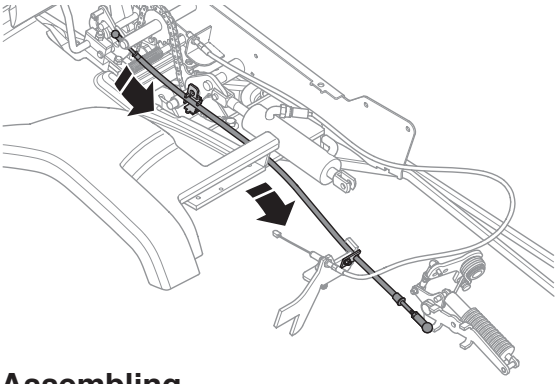
4. Loosen the clamp on both ends of the hydrostatic cable at the frame and the center console.



5. Lift off the link joint and pull out the cable.
6. Lift out the hydrostatic cable with associated link joint.
7. Unscrew both link joints from the hydrostatic cable.



8. Remove the hydrostatic cable.



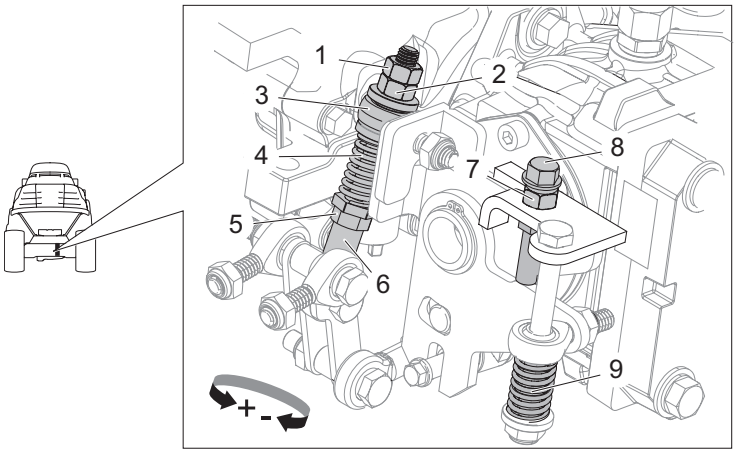
Assembling

Assemble the engine in reverse order.

5.2.10 Wheel speed

The relationship between the rear and front wheel speed should always be the same or constantly faster on the rear wheels than the front wheels. Wheel speed must however be max 3% faster on the rear wheels than the front wheels. If the relationship between the wheels differs from this value, the machine may lack power and go slower than normal. Wear on transmission components may also be greater than is necessary.

The wheel rotation on the front axle should be between around 330-350 RPM with the wheel on one side locked. If this value is not attained, the hydrostatic cable can be adjusted. See section “5.2.9 Hydrostatic cable” on page 37.

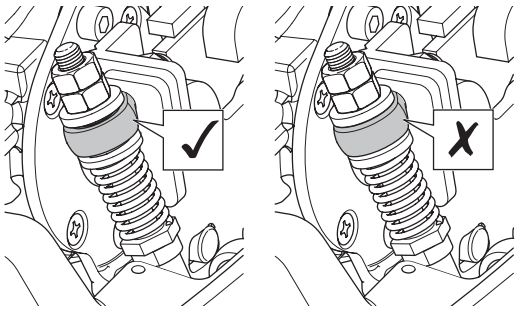


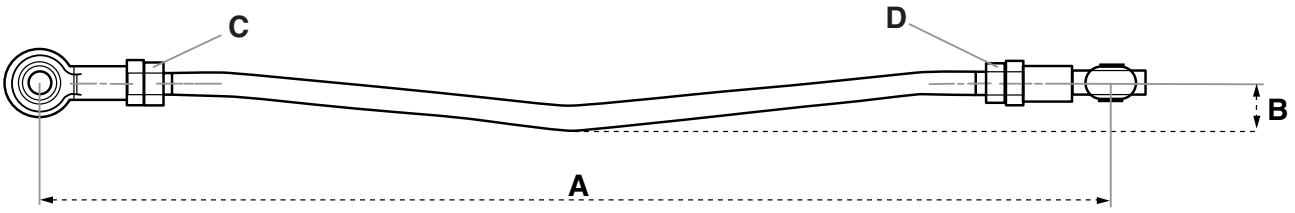
1. Basic speed locknut N=17
2. Basic speed adjuster nut N=17
3. Joint bearing 2
4. Override spring
5. Basic speed adjustment screw (black) N=20
6. Joint bearing 1
7. Slewing speed locknut N=14
8. Slewing speed adjustment screw N=14
9. Recoil spring

Check before adjusting

Tools	Dimension
Torx	T30
Tool for measuring wheel speed	
Laser meter	
Reflective tape	
Combination wrench	14 mm x2
Combination wrench	15 mm
Combination wrench	17 mm x2

1. Place a tool for measuring wheel speed under one side of the machine. Make sure the raised wheels do not make contact with the ground or other fixed objects. Make sure the other two wheels are in contact with the ground or have been prevented from rotating in some other way. For more information, refer to “3 Service tools” on page 9.
2. Mark the free rolling wheels with reflective tape or equivalent.
3. Remove the cover over the rear transmission.
4. Make sure the adjustment screw (5) is in the joint bearing (6).
5. Check that the control stay under the machine is not damaged.
6. If the stay has been damaged, measure the distance between the joint bearings (A) and set the correct dimension. If there is any deviation, the adjusting rod must be straightened or replaced. Make sure the locknuts (C, D) are tightened with 40±5 Nm.
7. Warm up the transmission until the wheel speed has stabilized.
8. Make sure the joint bearing (3) is not in contact with the thrust washers.





A. 442 ±1 mm
B. 20 mm
C. Locknut
D. Locknut

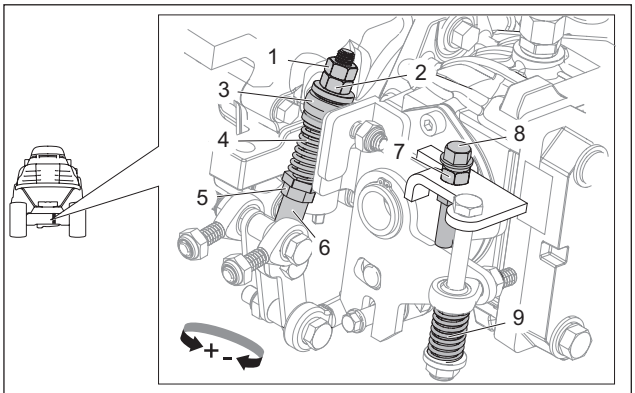
Checking and adjusting wheel speed - straight ahead

1. Make sure the wheels are pointing straight ahead and are parallel by measuring the wheelbase on both sides of the machine. The measurement should be the same on both sides of the machine.
2. Have an assistant maneuver the machine and start the engine, depress the throttle pedal to full speed position and maintain a constant throttle.

NB!
Make sure the steering angle does not change during the following test.

3. Measure and note the rpm of the front wheel at full speed (FMU rpm). Then measure the speed of the rear wheel at full throttle (VRMU rpm).

   Calculate the difference in speed by dividing VRMU rpm with FMU rpm and the result should be 1.00-1.03. That is to say, the rear wheels should rotate faster than the front wheels. For more information, refer to section “3.1 Laser tachometer” on page 10.



1. Basic speed locknut N=17
2. Basic speed adjuster nut N=17
3. Joint bearing 2
4. Override spring
5. Basic speed adjustment screw (black) N=20
6. Joint bearing 1
7. Slewing speed locknut N=14
8. Slewing speed adjustment screw N=14
9. Recoil spring

Proceed as follows if the value is outside tolerance:

1. Loosen the locknut (1).
2. Adjust the speed of the rear axle by screwing on the adjuster nut (2).

- Clockwise reduces speed.
- Counterclockwise increases speed.

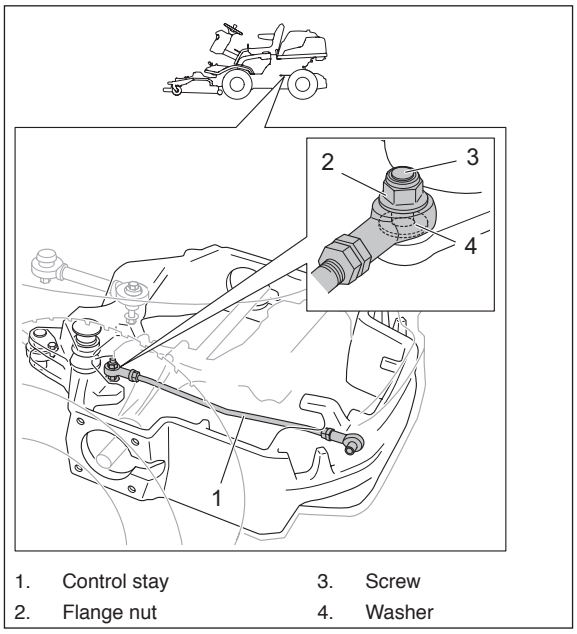
NB!

The setting is sensitive.

3. Tighten the locknut (1).
4. Recheck the wheel speed.

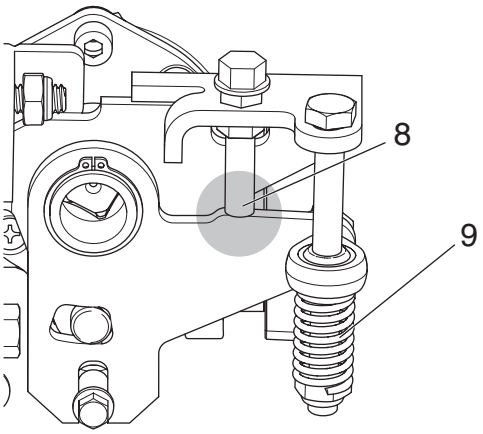
Checking and adjusting wheel speed - full lock

Adjusting the wheel speed - full lock is performed **only** when changing the transmission.



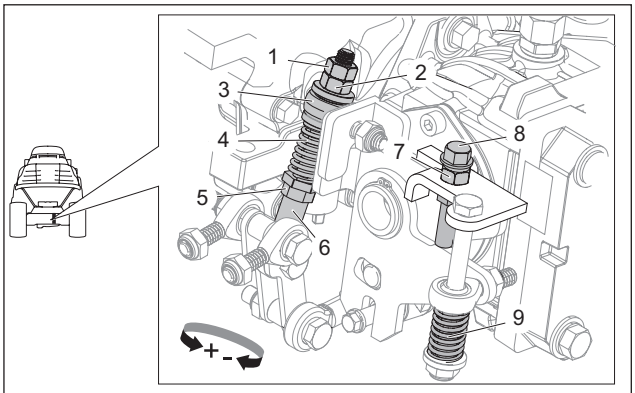
1. Control stay
2. Flange nut
3. Screw
4. Washer

1. Dismantle the control stay from the chassis at its front point.
2. Make sure the linkage is moving freely and that the recoil spring (9) is pressing the adjustment screw (8) against the panel. The screw should be in contact with the panel throughout the setting phase.



3. Have an assistant maneuver the machine and start the engine, depress the throttle pedal to full speed position and maintain a constant throttle.
4. Measure and note the rpm of the front wheel at full speed (FMU rpm). Then measure the speed of the rear wheel at full throttle (VRMU rpm). That is to say, the rear wheels should rotate faster than the front wheels.

   Calculate the difference in speed by dividing VRMU rpm with FMU rpm and the result should be 1.35-1.38. For more information, refer to section “3.1 Laser tachometer” on page 10.



1. Basic speed locknut N=17
2. Basic speed adjuster nut N=17
3. Joint bearing 2
4. Override spring
5. Basic speed adjustment screw (black) N=20
6. Joint bearing 1
7. Slewing speed locknut N=14
8. Slewing speed adjustment screw N=14
9. Recoil spring

Proceed as follows if the value is outside tolerance:

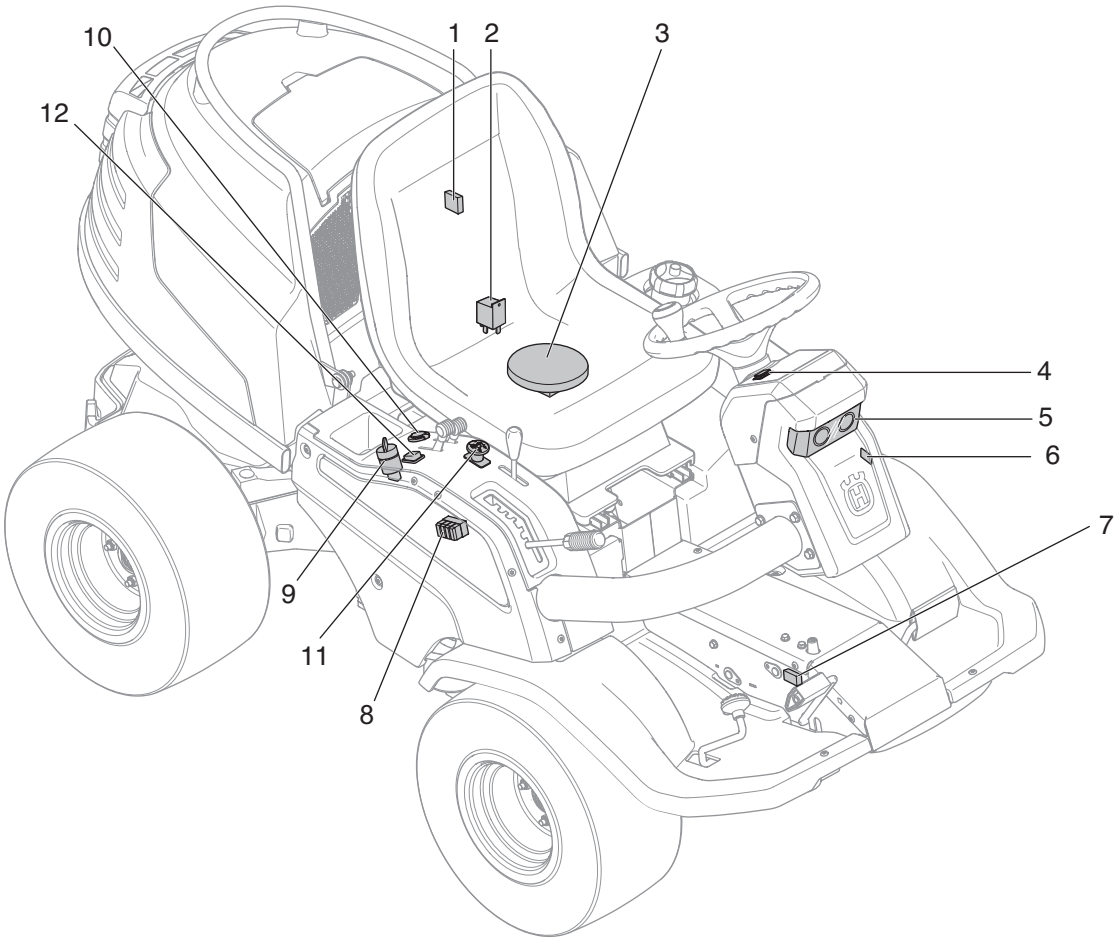
1. Loosen the locknut (7).
2. Adjust the speed of the rear axle with the adjustment screw (8).

- Clockwise reduces speed.
- Counterclockwise increases speed.

NB!
The setting is sensitive.

3. Tighten the locknut (7).
4. Recheck the wheel speed at full lock.
5. Refit the control stay (1) in the chassis. Make sure the washer (4) is located between the control stay and the chassis.
6. Check the wheel speed straight ahead and adjust if necessary.

5.3 Electrical system



5.3.1 Electrical system

There is more detailed information concerning the electrical system on the Husqvarna website.
Numbers correspond to:

1. Main fuse 20 A
2. Starter relay
3. Seat switch
4. Switch for the lights
5. Backlight
6. Hour meter
7. Microswitch, pedal carrier
8. Fuse holder
9. Ignition switch
10. Power socket
11. PTO button
12. 12V switch

5.3.2 Circuit boards

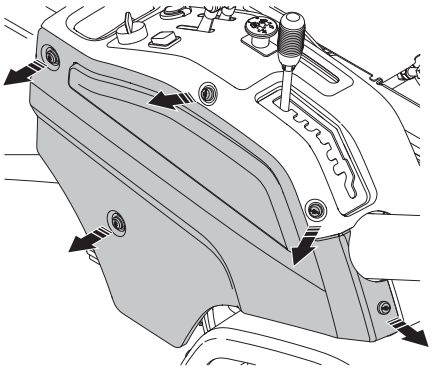
NB!
It is important to check the circuit outside of the circuit board first, to ensure this is correct, before replacing the circuit board. This is so that the new circuit board is not damaged by an external fault.

For more information, refer to sections “7.1 Wiring diagram” on page 89 and “7.3 Troubleshooting schedule” on page 91.

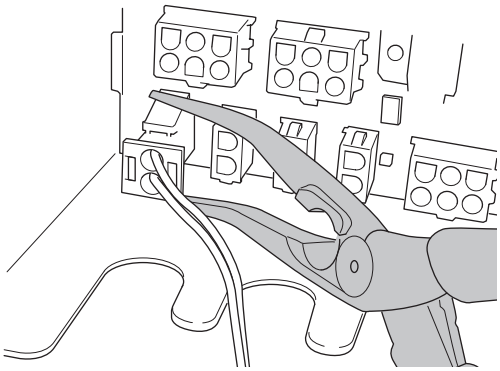
Tools	Dimension
Round nose pliers, bent	
Torx	T30
Combination wrench	10 mm

Dismantling

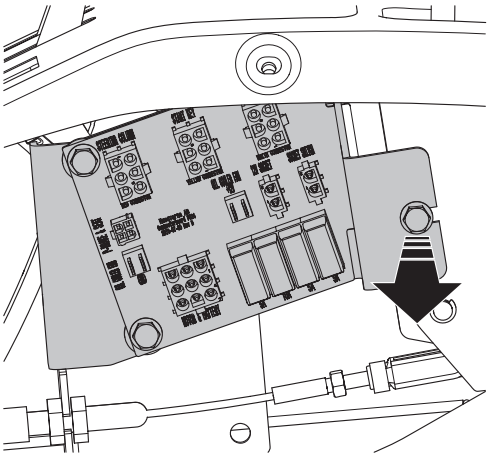
1. Loosen the negative cable from the battery.
2. Dismantle the side cover.



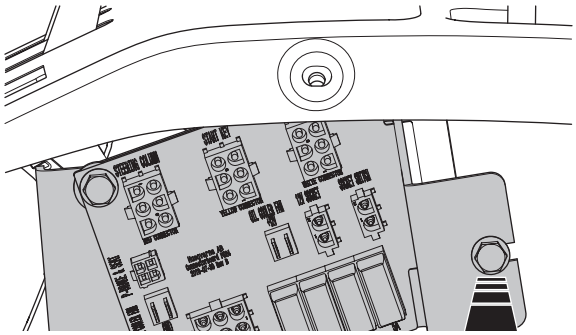
3. Check the marking on the cable connections and note the position of the cables. Some connections have markings on the cables. Supplement if necessary when the connections have been disconnected. Contacts are color coded and the corresponding color is given on the circuit board.
4. Loosen all connections from the circuit board. Use bent round nosed pliers to press in the plastic catches holding the connections.



5. Dismantle the screw holding the circuit board bracket.



6. Carefully remove the circuit board bracket.
7. Unscrew the circuit board bracket and the circuit board.
8. Save the plastic washers used as spacers between the circuit board bracket and the circuit board.



Assembling

NB!
Make sure the plastic washers are used as spacers between the circuit board bracket and the circuit board.

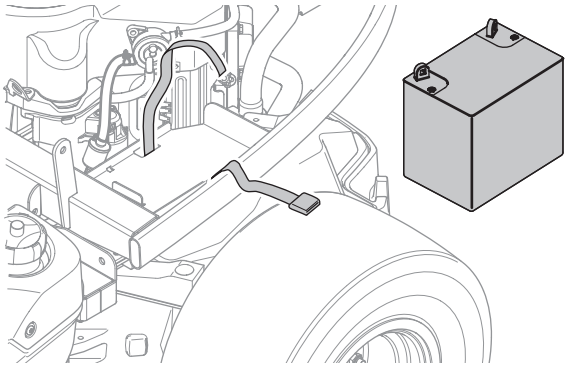
1. Assemble in reverse order.
2. Connect the battery.
3. Test all the electrical functions and check the LEDs on the circuit board.
4. Assemble the side cover.
5. Check the function.

5.3.3 Battery

Tools	Dimension
Combination wrench x2	10 mm

Dismantling

1. Open the engine hood.
2. Loosen the battery fastening strap.
3. Remove battery cable connections.
   a. **Always** dismantle the NEGATIVE terminal first.
   b. Then dismantle the POSITIVE terminal.
4. Remove the battery.



Assembling

Assemble in reverse order.

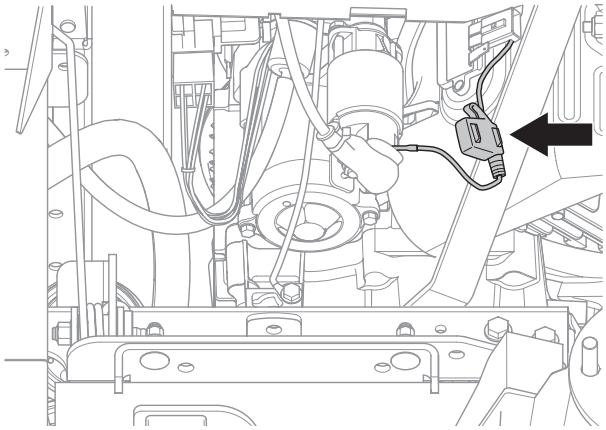
1. Place the battery in the battery compartment.
2. Assemble the battery cable connections.
   b. **Always** assemble the POSITIVE terminal first.
   c. Then assemble the NEGATIVE terminal.
3. Secure the battery with the retaining strap.
4. Close the engine cover.

5.3.4 Fuses

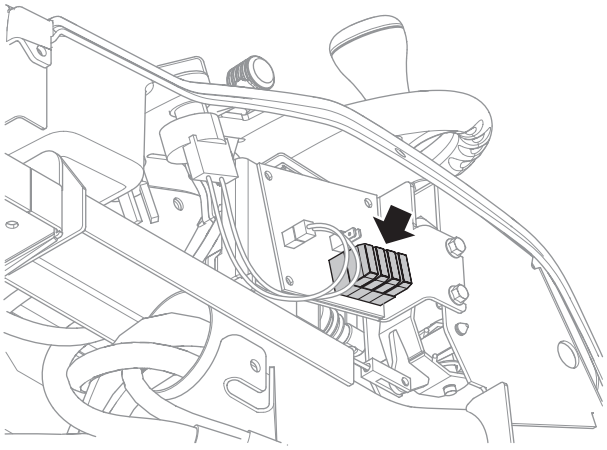
The main fuse is placed in a detachable holder under the battery.

Type: Flat pin, 20 A.

Do not use any other fuse when changing.



Remaining fuses are under the right side cover.



The fuses are connected to protect the following circuits:

FU1 = PTO

FU2 = Oil cooler blower

FU3 = 12V socket

FU4 = Headlight

Type: Flat pin, 5 A.

Use 20 A fuses when changing.
A blown fuse is indicated by a burnt link. Pull the fuse from the holder when replacing it.

The fuse is intended to protect the electrical system. If it blows again shortly after replacement, it is due to a short circuit, which must be fixed before the machine can be put into operation again.

5.3.5 Safety system

The ride-on mower is equipped with a safety system that prevents starting or driving under the following conditions.

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

- Blades shut off, PTO not activated.
- Parking brake applied.

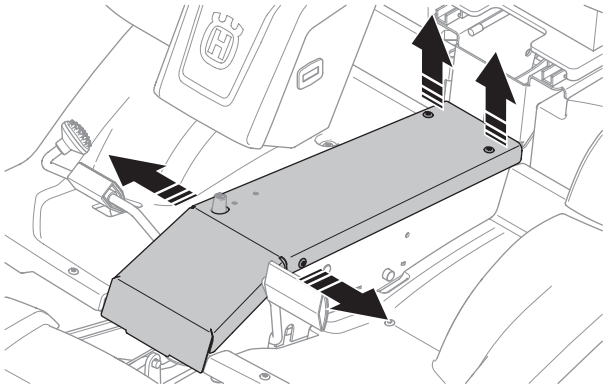
The engine must stop under any of the following conditions:

- The cutting deck is lowered and the driver stands up.
- PTO button pressed, parking brake not applied and driver standing up.

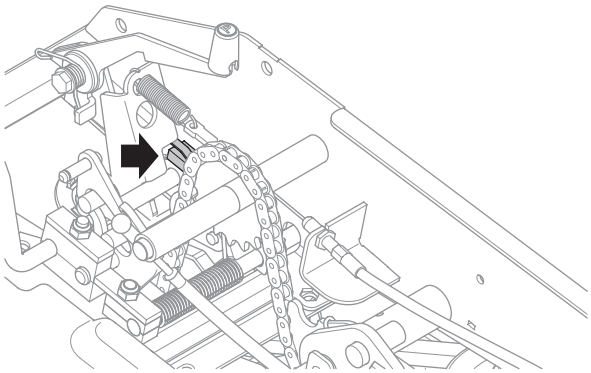
Check daily that the safety system is in working order by attempting to start the engine when one of the above conditions has not been met. Change the conditions and try again.

Microswitch pedal carrier

- Remove the cover over the frame tunnel.



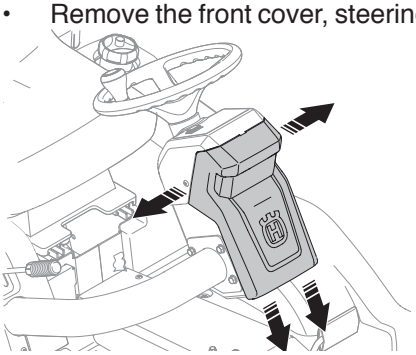
Adjust the microswitch so that it clicks when the parking brake is depressed about 40 mm / 1,5”. Note: The spring on the parking brake cable can be unhooked to improve accessibility.



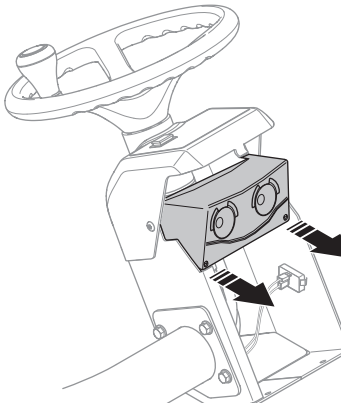
5.3.6 Replacing the light bulbs

For information about the bulb type, see “6 Specifications” on page 85.

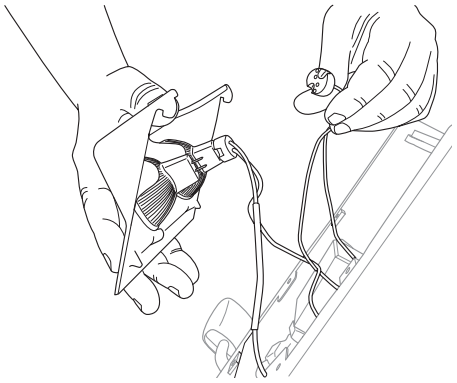
- Remove the front cover, steering column.



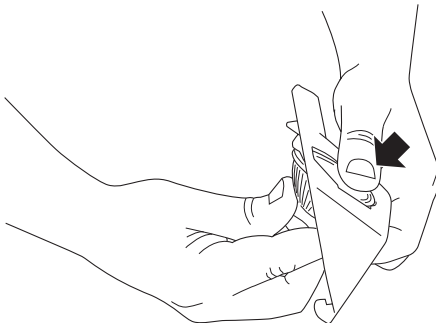
- Unscrew the two screws holding the lamp insert. Lift out the lamp insert.



- Disconnect the cables from the bulbs.



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



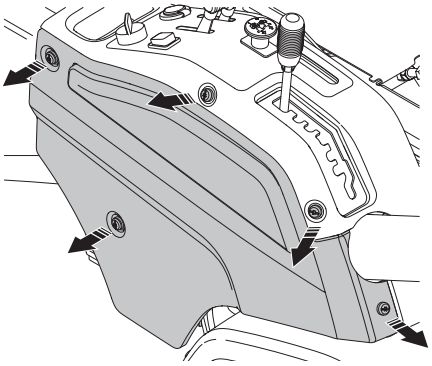
- Refit the cables, lamp insert and the cover in the reverse order.

5.3.7 Ignition switch

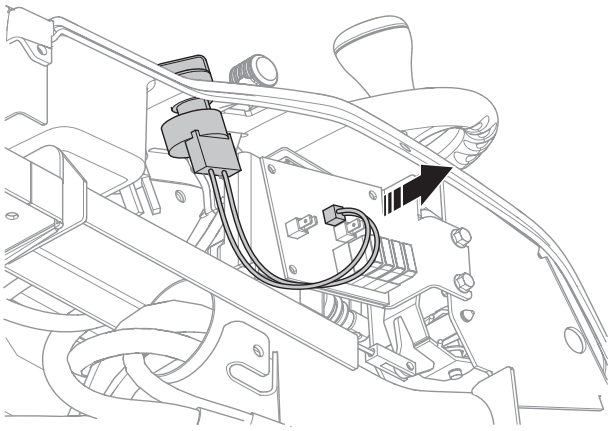
Tools	Dimension
Combination wrench	18 mm / 19 mm??
Torx	T30
Wrench	

Dismantling

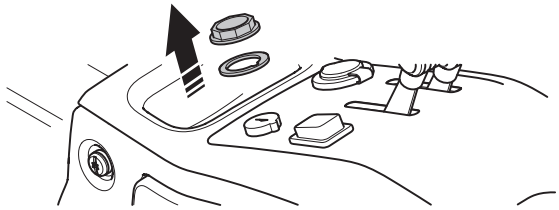
1. Remove the side cover.



2. Loosen the ignition switch connection from the circuit board.



3. Remove the ignition key.
4. Dismantle the washer and nut under the ignition key.



5. Release the ignition switch by pushing it down through the panel.

Assembling

Assemble in reverse order.

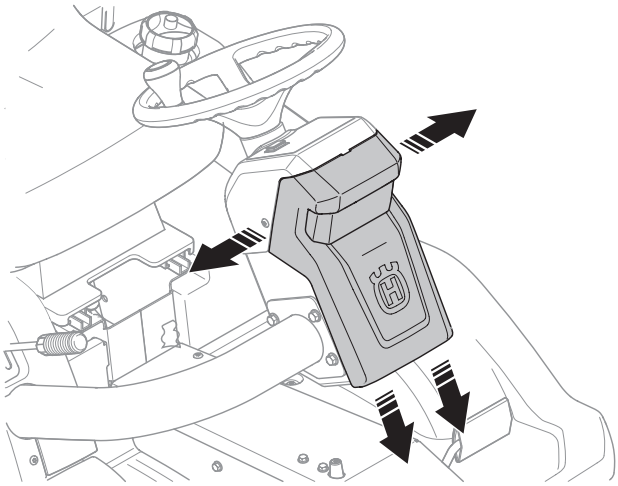
NB!
Make sure the connector goes into the right position (click lock).

5.3.8 Hour meter

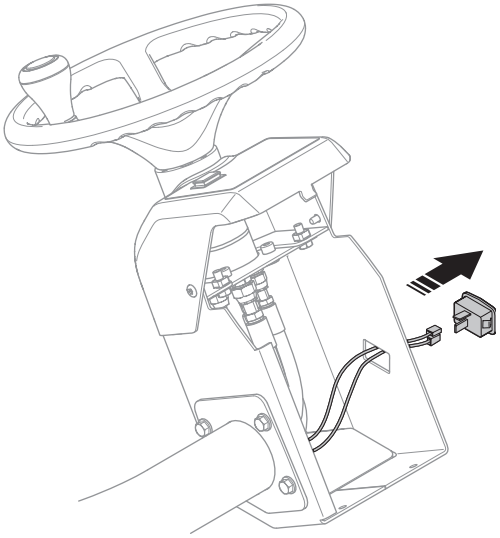
Tools	Dimension
Torx	T30

Dismantling

1. Remove the front cover, steering column.



2. Release the cables from the hour meter.
3. Loosen the hour meter by compressing the bracket and pressing it out through the steering wheel console.



Assembling

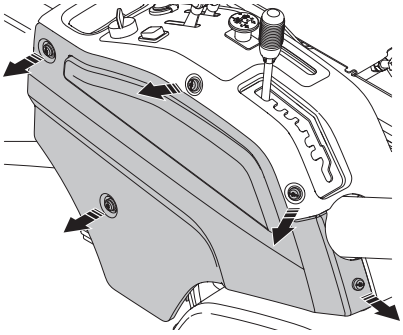
Assemble in reverse order.

5.3.9 PTO button

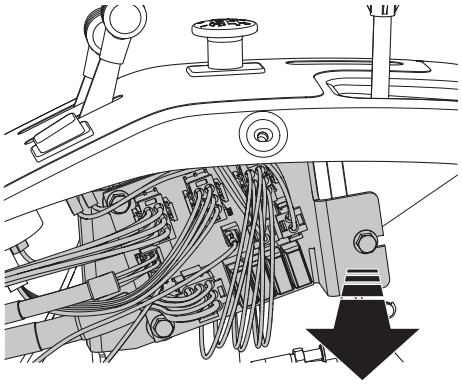
Tools	Dimension
Combination wrench	10 mm
Torx	T30

Dismantling

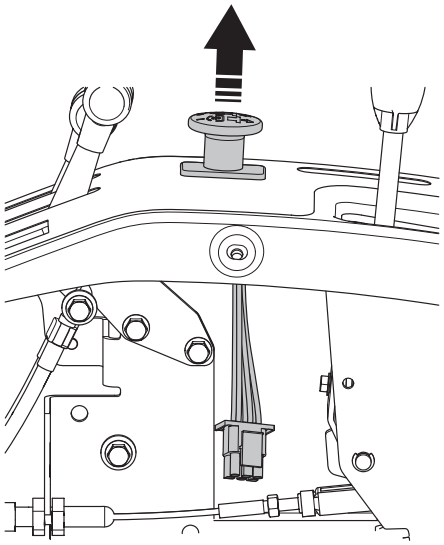
1. Remove the side cover.



2. Loosen the PTO button connection from the circuit board.
3. Loosen the circuit board by dismantling the nut and move the circuit board aside.



4. Dismantle the securing plate.
5. Put the connector up through the panel.



Assembling

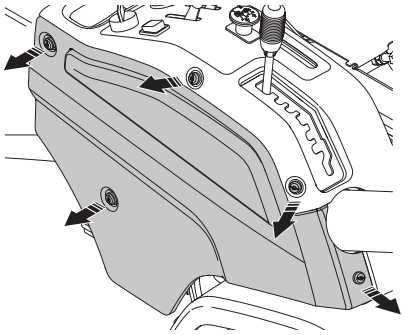
Assemble in reverse order.

5.3.10 12V switch

Tools	Dimension
Torx	T30

Dismantling

1. Remove the side cover.



2. Loosen the switch connection from the circuit board.
3. Release the switch up through the panel.

Assembling

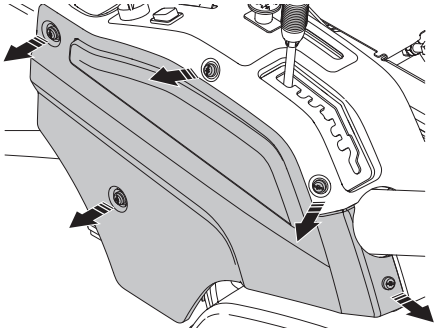
Assemble in reverse order.

5.3.11 12V socket

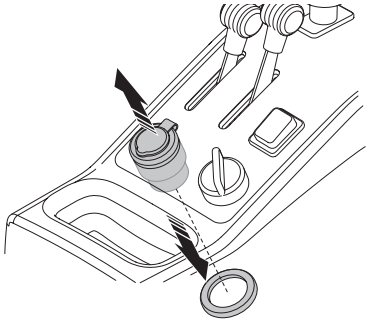
Tools	Dimension
Torx	T30

Dismantling

1. Remove the side cover.



2. Loosen the outlet connection from the circuit board.
3. Dismantle the nut underneath the panel.

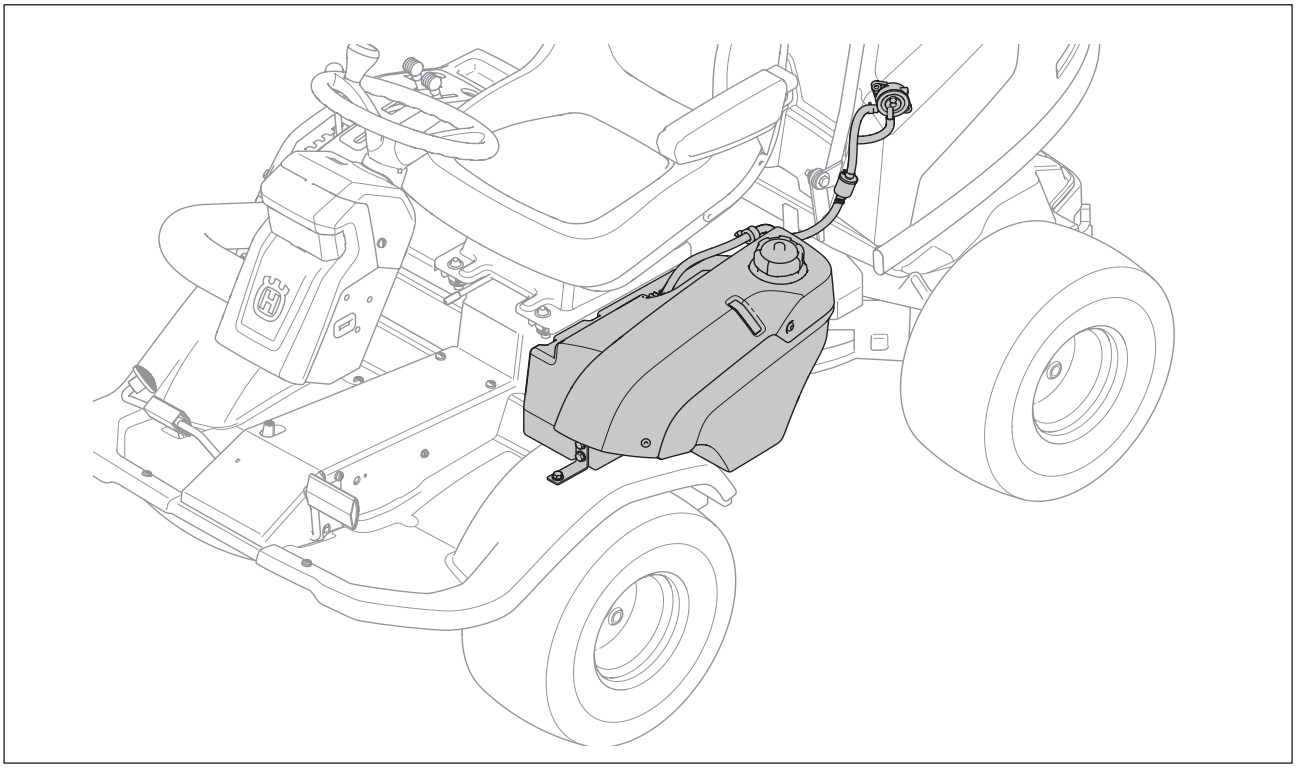


4. Release the outlet up through the panel.

Assembling

Assemble in reverse order.

5.4 Fuel system

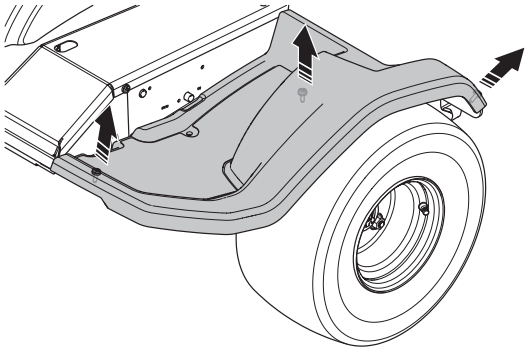


5.4.1 Fuel tank

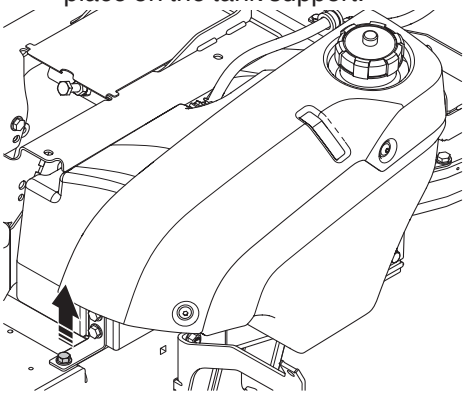
Tools	Dimension
Combination wrench	13 mm
Torx	T30

Dismantling

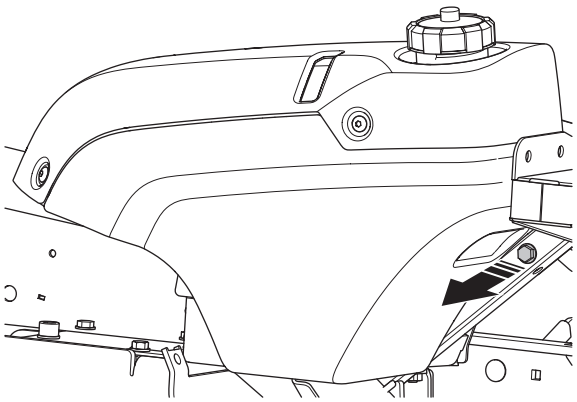
1. Compress the hose with pliers and remove the hose clip and hose from the bottom fuel filter connection. Make sure to keep the end of the hose above the level in the fuel tank from now on.
2. Remove the left wing cover.



3. Remove the front screw holding the fuel tank in place on the tank support.



4. Remove the rear screw from the tank support.



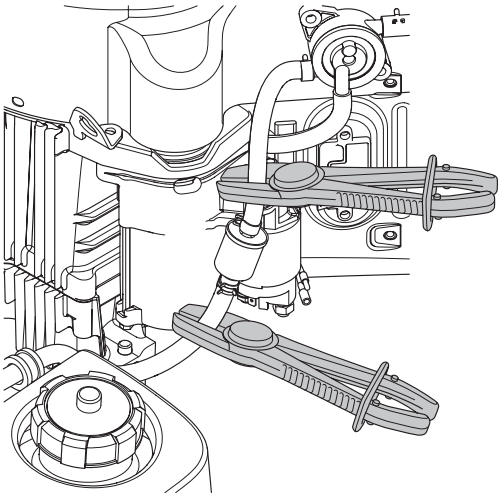
5. Lift away the tank.

5.4.2 Replacing the fuel filter

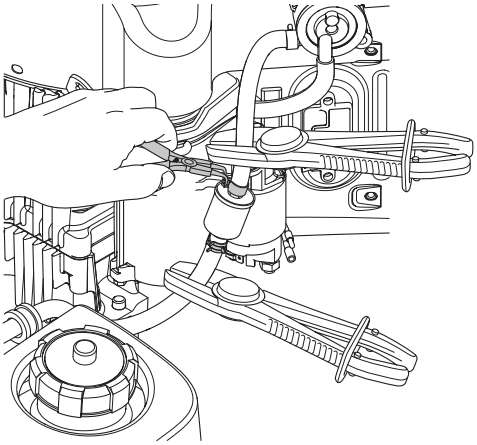
Tools	Dimension
Round nose pliers	
Hose pliers	

Dismantling

1. Pinch together the inlet and outlet of the fuel hose to prevent fuel leaking out.



2. Use round nose pliers to remove the clips from the filter.



3. Prise off the filter.

Assembling

Assemble in reverse order.

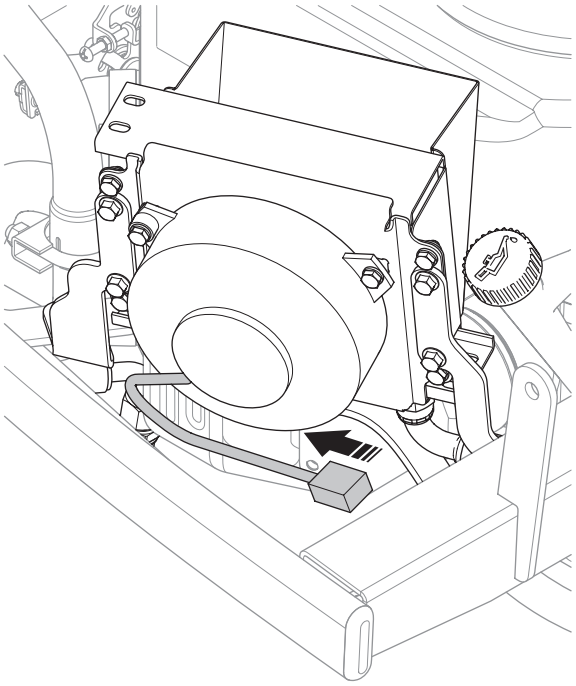
5.5 Cooling system

5.5.1 Changing the oil cooler

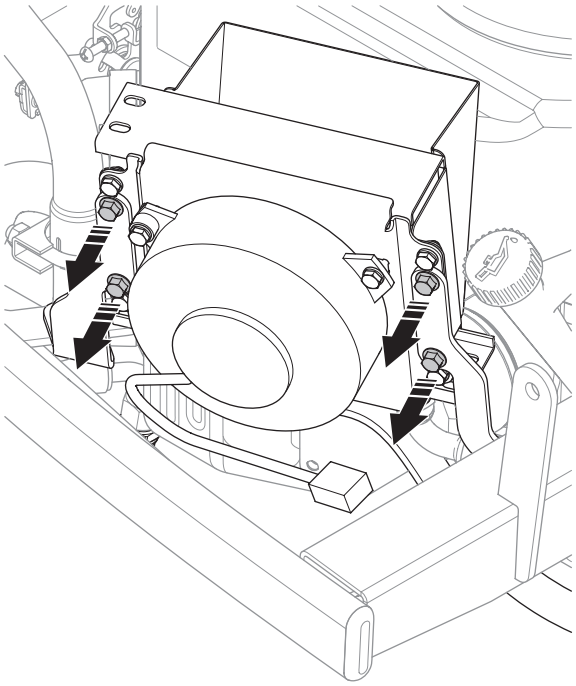
Dismantling

Tools	Dimension
Combination wrench	10 mm
Combination wrench	19 mm

1. Open the engine cover.
2. Loosen the electrical connector.



3. Mark the hydraulic hoses so that they are reconnected correctly.
4. Clean thoroughly as instructed. For further instructions, refer to section “5.6.1 Hydraulic hygiene” on page 52.
5. Loosen the hydraulic hoses. Fit sealing plugs to prevent leakage and contamination.
6. Remove the screws, two on each side of the cooler.



7. Lift away the oil cooler.

Assembling

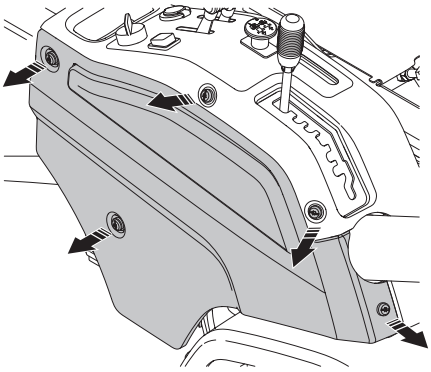
Assemble in reverse order.

5.5.2 Changing thermostat unit

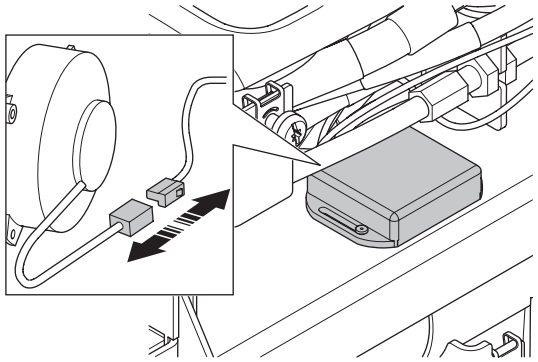
Tools	Dimension
Torx	T30
Drill bit	4 mm
Snipe nose pliers	

The electrical thermostat is on the oil cooler. The oil cooler fan starts at oil temperatures of around 70°C.

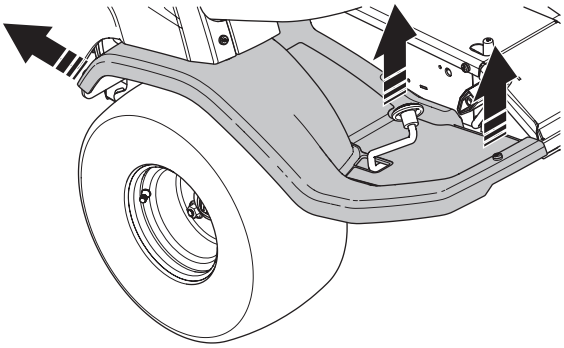
1. Dismantle the side cover.



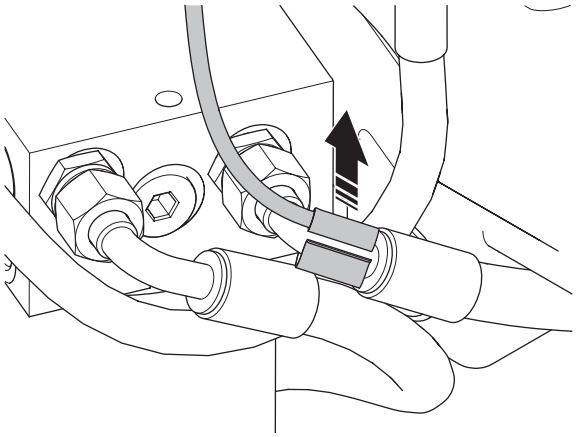
2. Follow the cable from the sensor to the circuit board and loosen the cable connections on the circuit board.
3. Remove the electrical connection between the sensor and the oil cooler.



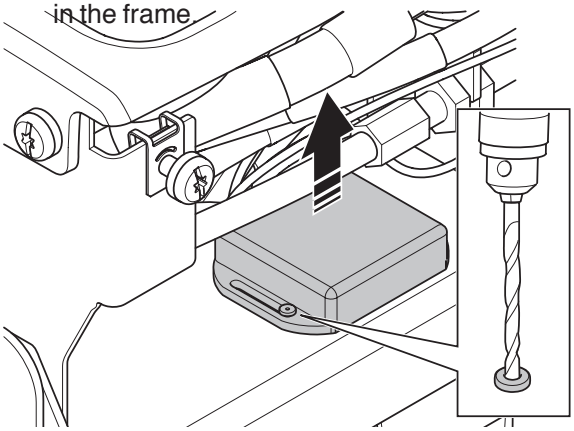
4. Remove the right wing cover.



5. Remove the thermostat from the hydraulic hose.



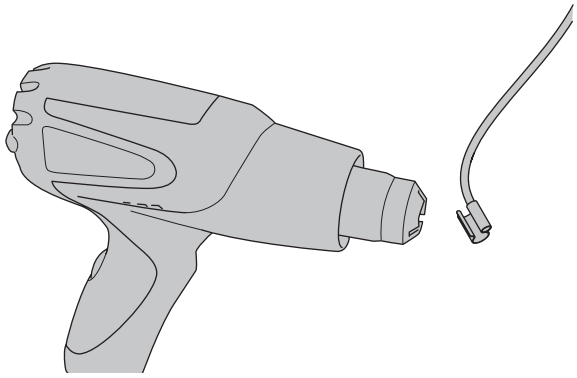
6. Remove the sensor by drilling out the pop rivets in the frame.



7. Check that the blower starts when the thermostat heats up to around 70°C. If it does not start, the thermostat must be replaced. Refer to “5.5.2 Changing thermostat unit” on page 51.

Checking the sensor on the thermostat unit

8. Remove the right wing cover.
9. Remove the thermostat from the hydraulic hose.
10. Turn the ignition switch to position "1".
11. Heat the thermostat with a heat gun.
12. If the blower does not start when the thermostat is heated to 70°C, the thermostat must be replaced.



5.6 Hydraulic system

5.6.1 Hydraulic hygiene

Keep the hydraulic system clean. Remember to:

- Clean thoroughly before opening the filler cap or disconnecting anything.
- Use clean vessels with topping up oil.
- Use only clean oil that has been stored in sealed containers.
- Do not reuse drained oil.
- Change the oil and filter according to the intervals specified in the Service Schedule.

A system that is contamination-free is required to give a functioning hydraulic system without shutdowns. Particles are generated during operation that can cause both wear damage and malfunctions. The system has filters to separate these particles. The filter is dimensioned to trap the generated particles, but if dirt enters the system from outside the filters will rapidly clog so that they do not work as intended. If there is dirt in the system, further contaminants will be generated, creating a vicious circle. This will result in breakdowns and the need for large resources to clean the system.

The particles that cause the most damage are the same size as the play between the moving parts and the components. Normal play in pumps and valves is from 3-5 μm and up (1 μm = one thousandth of a mm). In connection with this, it can be noted that one particle of size 40 μm can only just be seen with the human eye.

Each particle of dirt is an abrasive that generates more contaminants, which will eventually result in permanent damage. The number of particles will increase each time the hydraulic system is opened. After a few hours in operation most of the particles that have entered are trapped in the filters. Therefore, avoid opening the hydraulic system unless really necessary because each intervention increases the risk of contamination even when the work is carried out in a professional manner.

Rectify oil leaks

Cavitation is caused by air entering can cause internal damage to pumps and engines. Air can enter the system where there is an oil leak. That is why it is so important that oil leaks are rectified as soon as possible.

Keep hydraulic system fluid clean

You must be completely sure that when opening a can of oil for the hydraulic system, the area around the filler cover is absolutely free from dust, dirt, cotton waste and water. If a vessel, funnel or hose is required to fill the system, make sure they are clean.

Use only the type of oil specified in the lubrication schedule. Make sure levels are checked at established intervals and maintained correctly.

Working methods

Cleanliness also applies to components that are removed or are going to be fitted. Remember that an exchanged component will probably be examined with test equipment at a workshop. It is important that the component is in the same condition when examined as it was when it was taken from the machine. Otherwise the actual fault can not be established and the test equipment will be contaminated. It is also possible that submitted component is not faults and is therefore returned without action.

The points below should be taken as routine procedures when working on hydraulic systems:

- Clean roughly as necessary.
- Protect the area where the work is to be done against dust and other impurities in the air. Plastic cloth and the like can be used.
- Wash very thoroughly with white spirit or the like. Only washing the parts that are directly affected will not suffice. Even areas from where dirt can fall onto the point of entry while work is in progress must be cleaned, just as the tools being used. Use a suitable brush to wash with, wipe dry and then wash again if necessary. Finally shower off the area being dismantled, hose connections and the like with pure white spirit.
- Apply appropriate protection immediately after all pipes and hoses have been removed. Components (also exchanged) as well as hoses and pipes should be protected.
- All components included in pipe fixtures shall be replaced or cleaned in pure white spirit and blown clean with compressed air before being refitted.
- Maintain cleanliness when measuring pressure. Shower both parts of quick couplings with white spirit before connecting. Make sure any protection is clean before returning it.

Hydraulic couplings, pipes and hoses

Hydraulic pipes must always be loosened at both ends when dismantling.

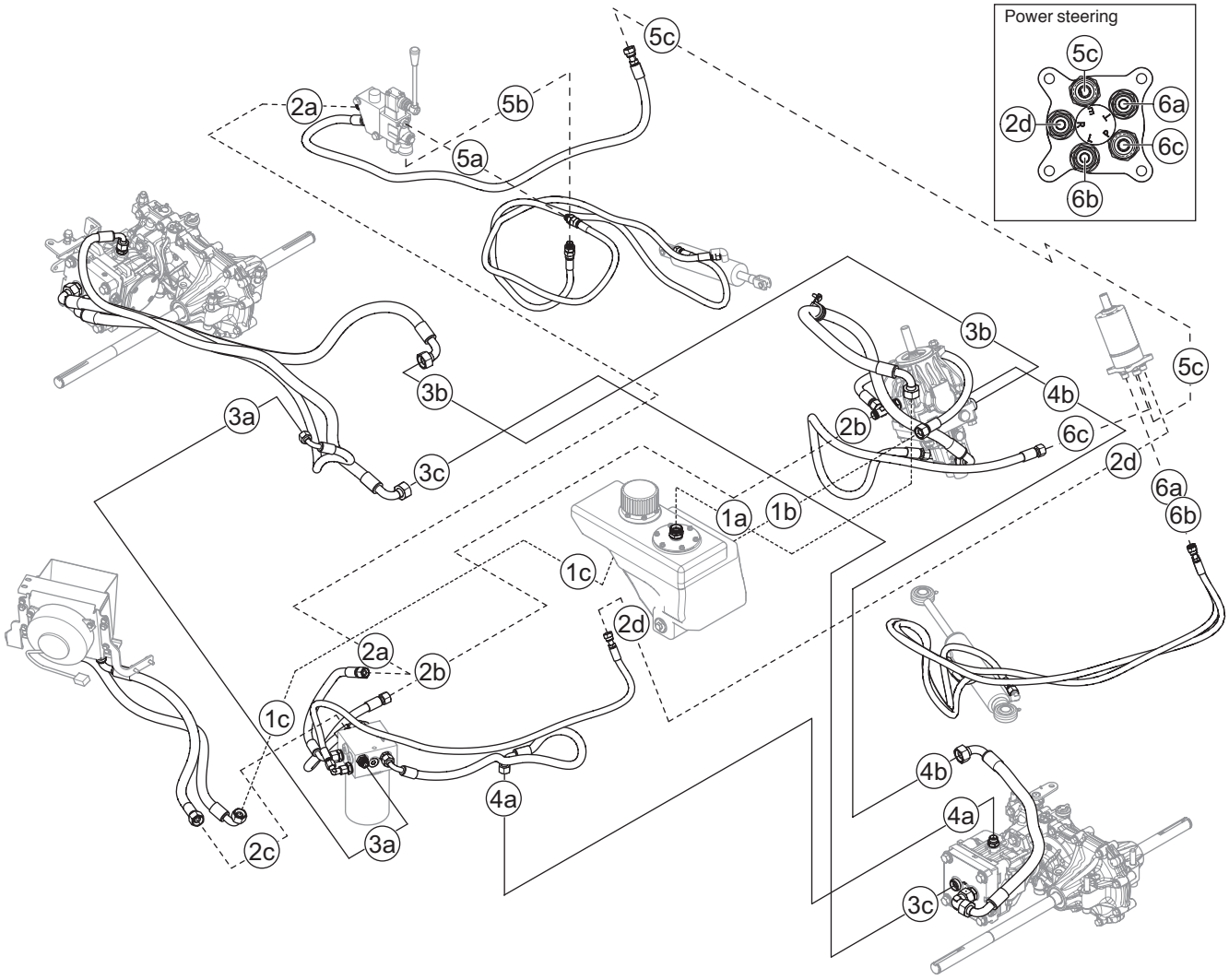
It is essential to use two tools, of which one is used as a counterhold, both when loosening and tightening hoses, so that the hose is not exerted to tensional stress or rotation when tightening. Elbow nipples can fail or cracks occur when loosening or tightening without counterhold.

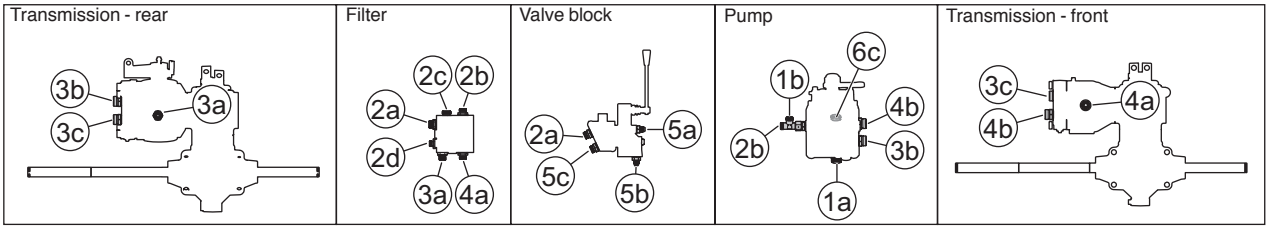
When assembling hydraulic lines, first tighten until the tapers make contact, i.e. as far as can be tightened easily. Then tighten a further one and a half flats. Any further tightening should be avoided.

Always check and note how hose, lines, pipes, etc. are tightened throughout the machine before loosening or dismantling. They must always be refitted with the same tightening force as originally.

Always check when assembling hoses and lines, that they go clear of locations where they can be exerted to chafing and wear.

Always check after refitting hoses, lines, pipes, etc., that there is no leakage.





1a: Hydraulic tank – pump
1b: Hydraulic tank – pump
1c: Hydraulic tank – radiator

2a: Filter – valve block
2b: Filter – pump
2c: Filter – radiator
2d: Filter – power-assisted steering

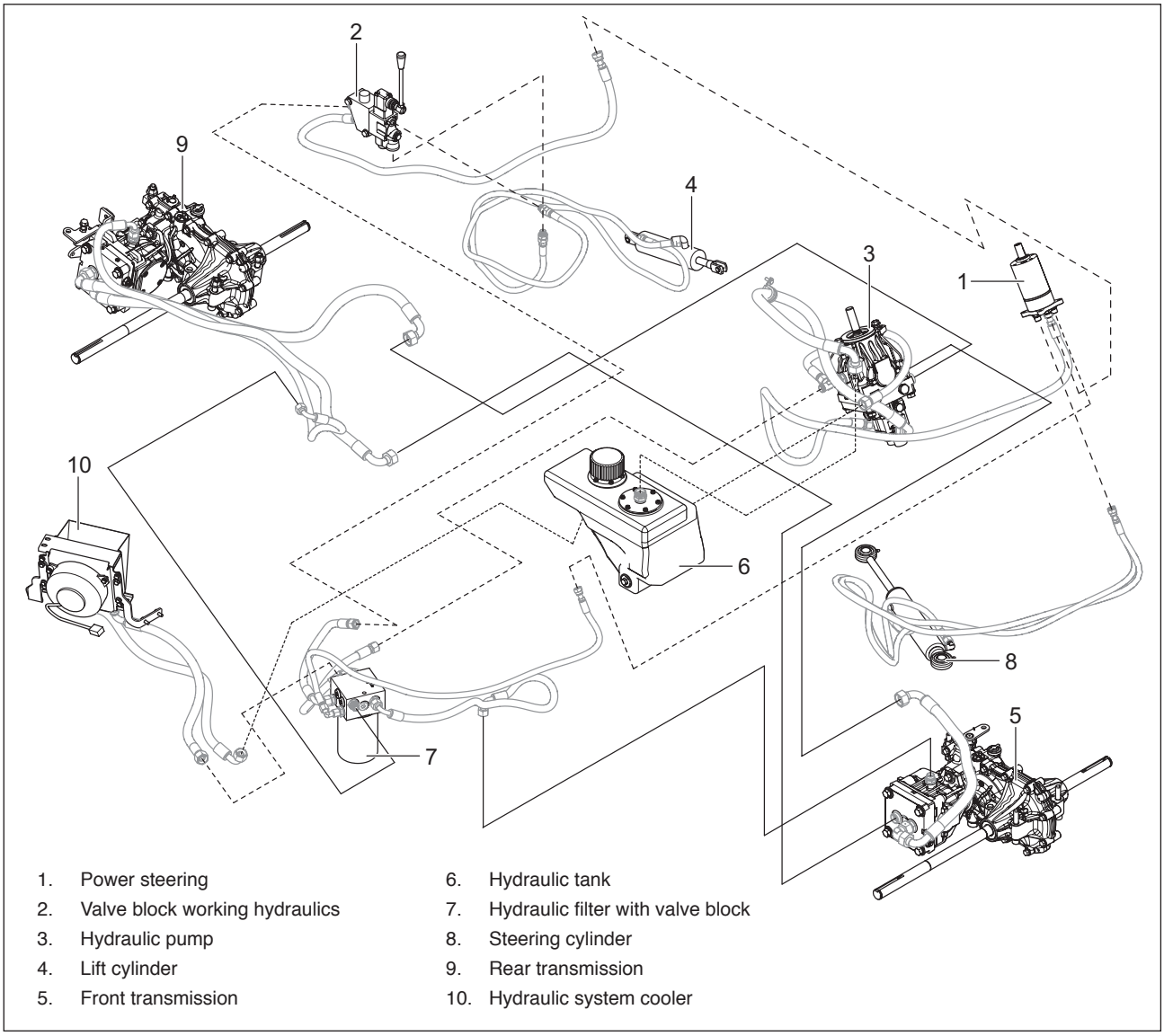
3a: Transmission rear – filter
3b: Transmission rear – pump
3c: Transmission rear – transmission front

4a: Transmission front – filter
4b: Transmission front – pump

5a: Valve block – lift cylinder
5b: Valve block – lift cylinder
5c: Valve block – power-assisted steering

6a: Power-assisted steering – steering cylinder
6b: Power-assisted steering – steering cylinder

5.6.2 Component locations



1. Power steering
2. Valve block working hydraulics
3. Hydraulic pump
4. Lift cylinder
5. Front transmission
6. Hydraulic tank
7. Hydraulic filter with valve block
8. Steering cylinder
9. Rear transmission
10. Hydraulic system cooler

Pressure to the hydraulic system is provided by the drive system's pump. A pressure limiting valve limits the maximum system pressure to about 30 bar/435.114 PSI.

There is a filter in the hydraulic tank for the pump's suction pipe.

A hydraulic oil filter of the spin-on type is used to filter impurities.

The control valve is a slide valve. The lever is found in the lever housing to the rear and is connected to the slider. Pressure supply and exhaust takes place via the valve block. Hydraulic oil for the lift cylinder is provided via two hoses.

The hose's nipple for the cylinder's piston side is equipped with a throttle. Between the slider and the throttle, there is a mechanically controlled return valve. The purpose of the rear valve is to contain the oil so that the cutting deck does not lower when the lever is not activated.

The lift cylinder is a double-action hydraulic cylinder, and is connected to the lever housing's shaft.

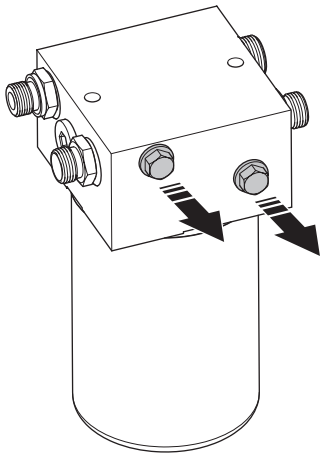
The power steering is described in "4.3 Steering" on page 13.

5.6.3 Filter holder

Tools	Dimension
Allen Key	8 mm
Combination wrench	17 mm
Combination wrench	22 mm
Combination wrench	27 mm
Combination wrench	32 mm
Combination wrench	13 mm
Combination wrench	22 mm
Combination wrench	27 mm
Torque wrench	

Dismantling

1. Remove the hydraulic tank. For further instructions, refer to section “5.6.5 Hydraulic tank” on page 56.
2. Loosen the hydraulic hoses and plug the lines and connections.
3. Mark the location of the hoses.
4. Dismantle the 2 retaining screws (1) holding the filter holder and remove the holder.



5. If the filter holder is being changed, the adapters must be removed and reused during reassembly.
6. Clean thoroughly as instructed. For further instructions, refer to section “5.6.1 Hydraulic hygiene” on page 52.

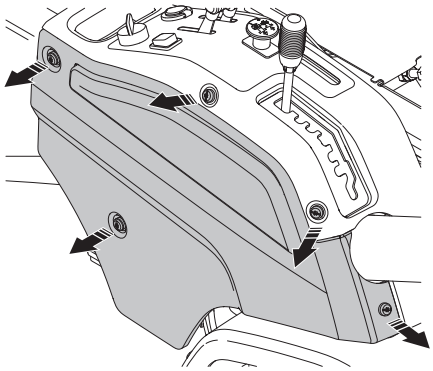
Assembling

Assemble in reverse order.

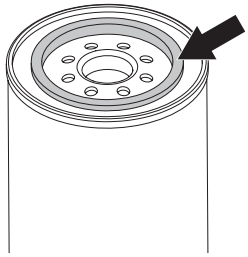
5.6.4 Changing hydraulic filter

WARNING!
Used oil filters shall be treated as environmentally hazardous and turned in to the workshop or other designated area for disposal. Avoid skin contact, wash with soap and water in case of spills.

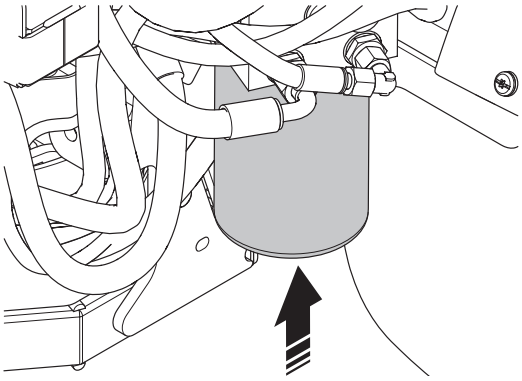
1. Remove the right side cover.



2. Clean in accordance with “5.6.1 Hydraulic hygiene” on page 52.
3. Remove the oil filter. If necessary, use a filter remover.
4. Smear new, clean engine oil onto the seal for the new filter. Fill the oil filter with new, clean oil.



5. Fit the oil filter by hand to contact +3/4 turn.



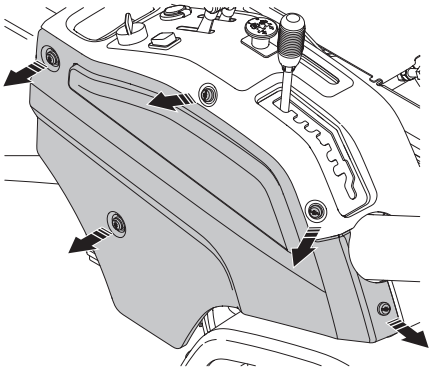
6. Fill the hydraulic tank. Pay attention while operating and top up the tank so the level does not get too low.
7. Test drive. Operate the equipment lift and power steering and then check that there are no leaks around the oil filter seal.
8. Check the oil level in the hydraulic tank, top up if necessary. The oil filter capacity is about 0.3 liters/0.3 US qt of oil.

5.6.5 Hydraulic tank

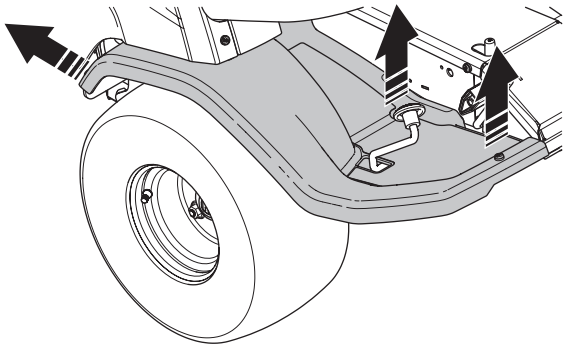
Tools	Dimension
Torx	T30
Combination wrench	10 mm
Combination wrench	13 mm
Combination wrench	14 mm
Combination wrench	27 mm
Combination wrench	32 mm

Dismantling

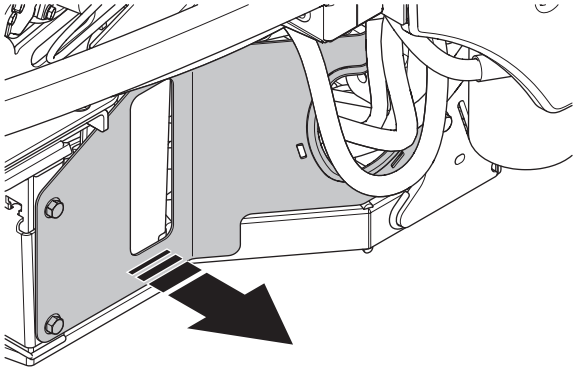
1. Remove the side cover.



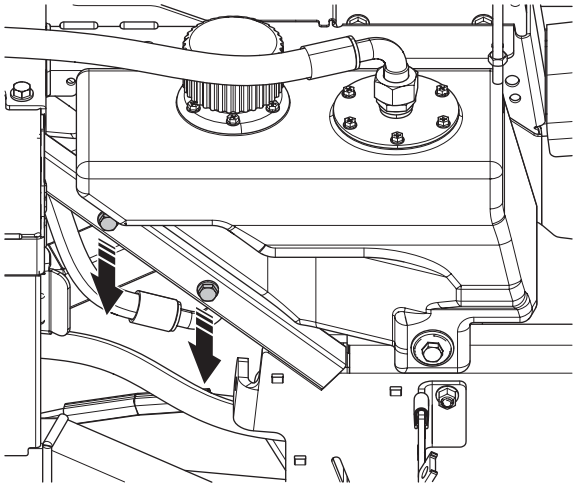
2. Dismantle the right wing cover.



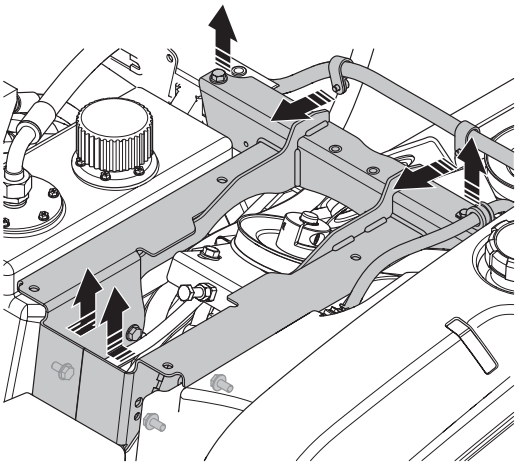
3. Remove the protecting cover protecting the right side of the machine.



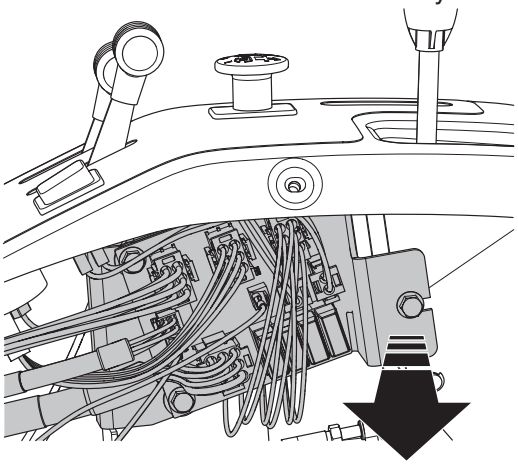
4. Place a vessel underneath the hydraulic tank drain plug.
5. Drain the oil from the hydraulic tank.
6. The hydraulic hoses can be mixed up. Mark the lines so that they are reconnected on the correct connections.
7. Clean according to the general instructions, see section “5.6.1 Hydraulic hygiene” on page 52.
8. Loosen the upper hydraulic hose. Fit sealing plugs to prevent leakage and contamination.
9. Loosen the tank with two screws.



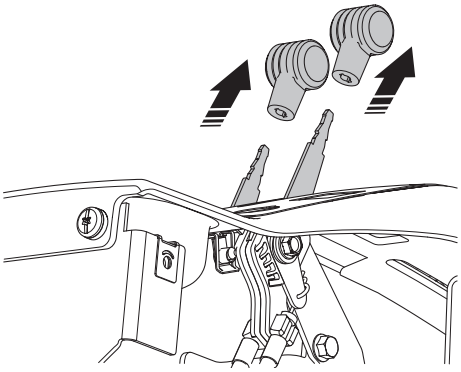
10. Remove the driver seat. For more information, refer to “5.1.2 Driver’s seat” on page 18.
11. Remove the frame section under the driver seat by removing the 6 screws. In order to lift away the frame section, the cable retainers must also be loosened by removing 2 screws.



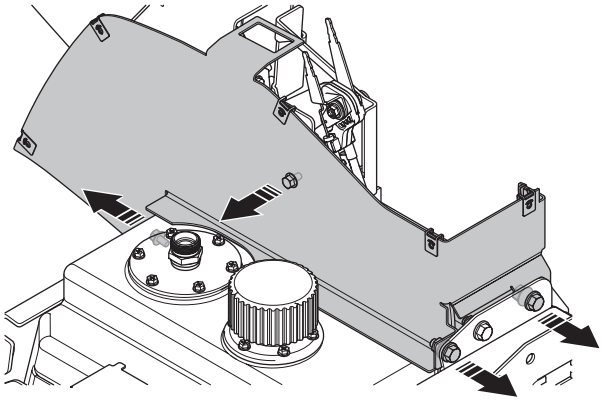
12. Loosen the PTO button connection from the circuit board.
13. Loosen the circuit board by dismantling the nut.
14. Move the circuit board out of the way.



15. Dismantle the securing plate for the PTO button.
16. Remove the knobs from the throttle control, choke control and the height adjustment control.



17. Dismantle the lever for the valve block from below by loosening the nut.
18. Move the control panel out of the way.
19. Remove the side panel by removing the 4 nuts on the back and the 2 nuts on the front of the panel.



20. Lift the loosened hydraulic tank straight up.

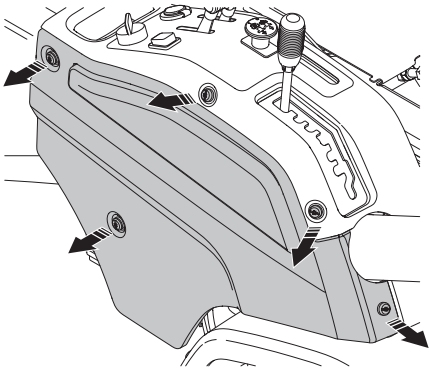
Assembling

Assemble in reverse order.

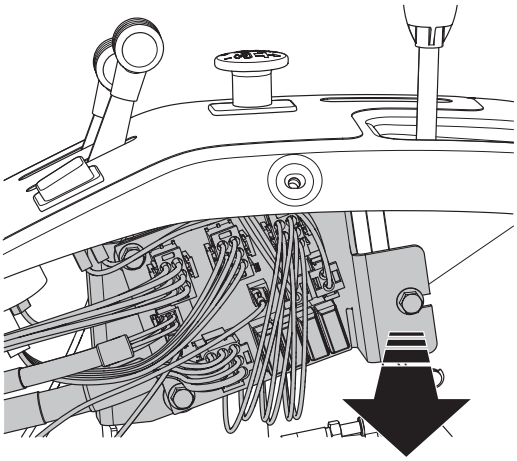
5.6.6 Changing the valve block

Tools	Dimension
Torx	T30
Combination wrench	10 mm
Combination wrench	13 mm
Combination wrench	19 mm
Combination wrench	22 mm

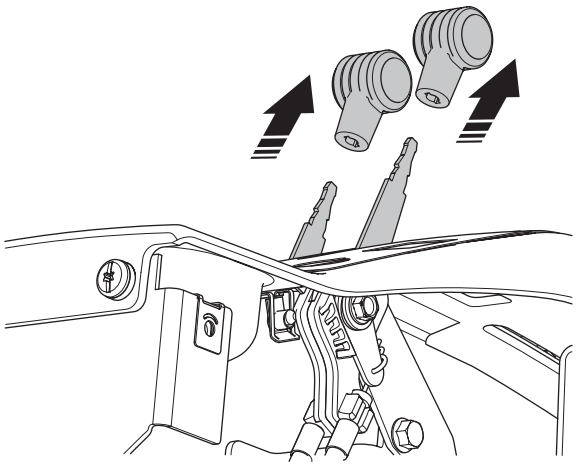
1. Remove the side cover.



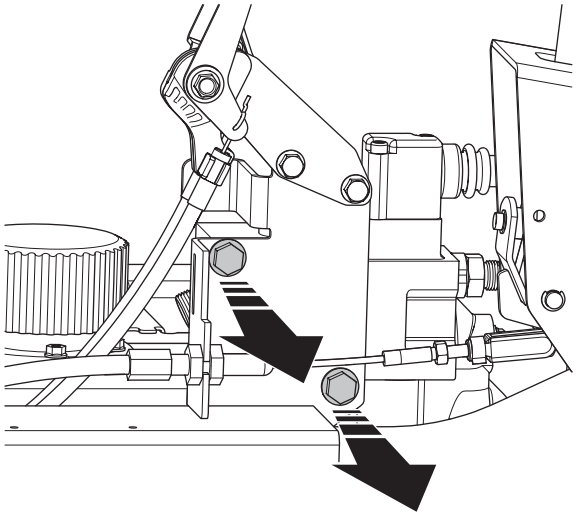
2. Loosen the PTO button connection from the circuit board.
3. Loosen the circuit board by dismantling the nut and move the circuit board aside.



4. Dismantle the securing plate for the PTO button.
5. Remove the knobs from the throttle control, choke control and the height adjustment control.

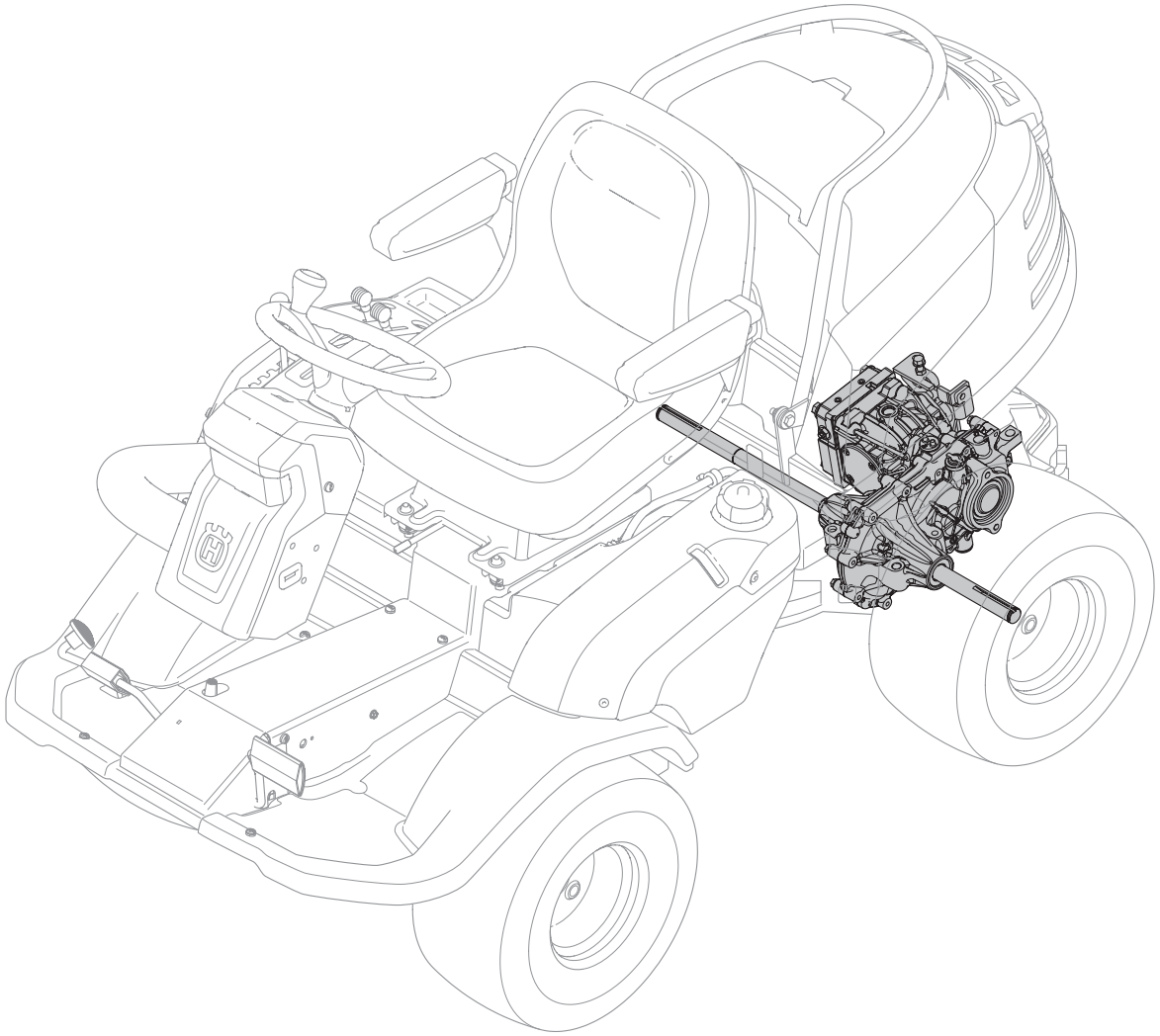


6. Dismantle the lever for the valve block from below by loosening the nut.
7. Move the control panel out of the way.
8. Remove the side panel by removing the 4 nuts on the back and the 2 nuts on the front of the panel.
9. The hydraulic hoses can be mixed up. Mark the lines so that they are reconnected on the correct connections.
10. Clean according to the general instructions, see section “5.6.1 Hydraulic hygiene” on page 52.
11. Loosen the hydraulic hoses. Fit sealing plugs to prevent leakage and contamination.
12. Remove the two screws holding the valve block.



13. Lift away the valve block.

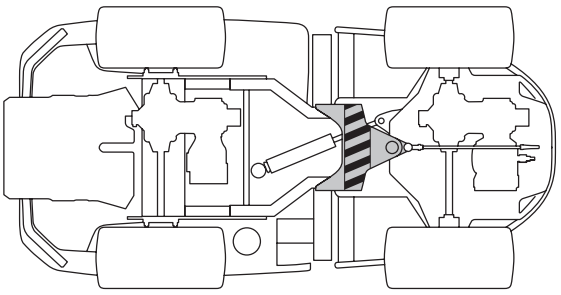
5.6.7 Rear transmission



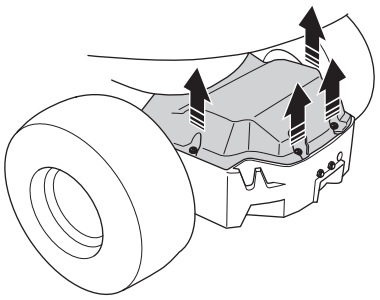
Tools	Dimension
Torx	T20
Combination wrench	14 mm
Combination wrench	16 mm
Combination wrench	17 mm
Combination wrench	22 mm
Combination wrench	32 mm
Combination wrench	15 mm
Combination wrench	17 mm
Combination wrench	18 mm
Combination wrench	22 mm
Combination wrench	27 mm
Allen Key	3 mm
Allen Key	10 mm
Torque wrench	

Dismantling

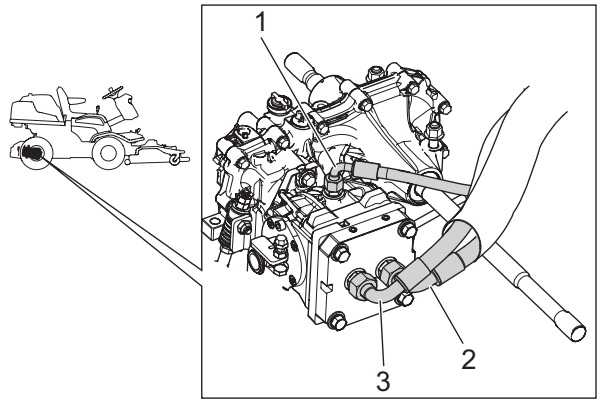
1. Raise the machine and support it under the frame. Refer to the illustration for the permitted area.



2. Dismantle the rear wheels and aluminum hubs from the transmission. Refer to “5.1.4 Wheel hub” on page 21.
3. Dismantle the cover over the rear transmission.

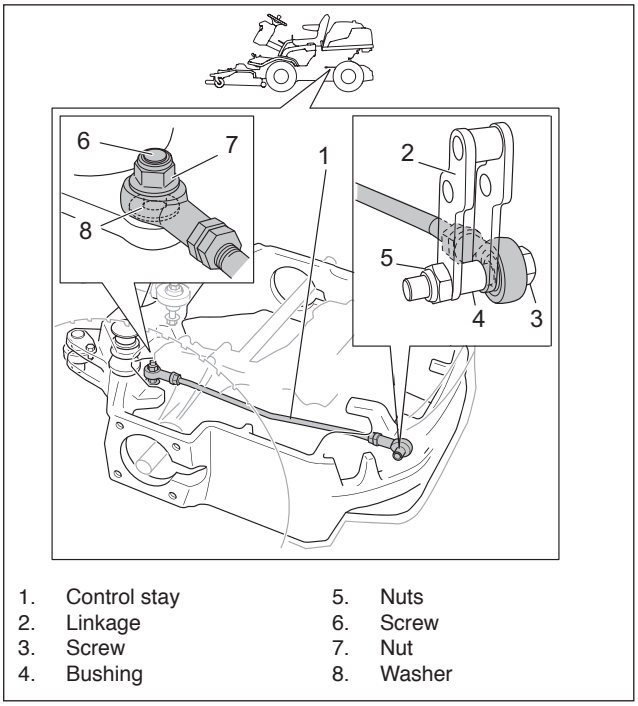


4. Place a vessel under the transmission to collect oil spill.
5. Clean according to the general instructions.
6. The hydraulic hoses can be mixed up. Mark the lines so that they are reconnected on the correct connections.
7. Loosen the hydraulic lines (1), (2) and (3). Fit sealing plugs to prevent leakage and contamination.



1. Hydraulic line
2. Hydraulic line
3. Hydraulic line

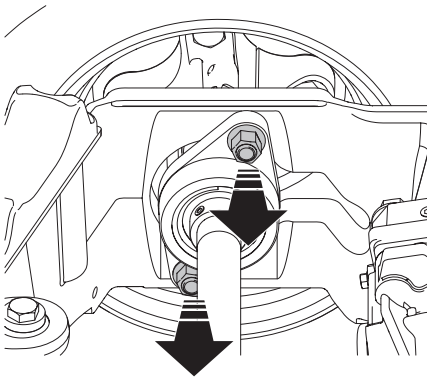
8. Loosen the rear end of the control stay (1) by dismantling the screw (3) with nut (5). Make sure not to misplace the bushing (4).
9. Loosen the front end of the control stay by dismantling the screw (6) with nut (7).
10. Remove the control stay.



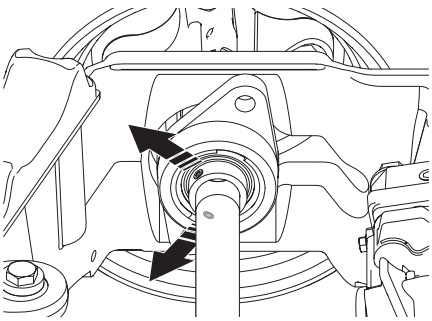
1. Control stay
2. Linkage
3. Screw
4. Bushing
5. Nuts
6. Screw
7. Nut
8. Washer

WARNING!
Heavy objects are released when dismantling the transmission.

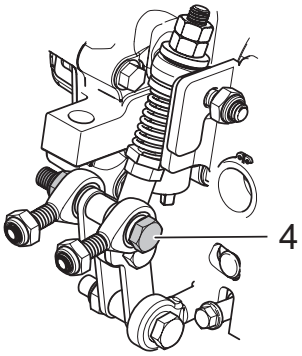
11. Remove the screws in the bearing units, two on each wheel.



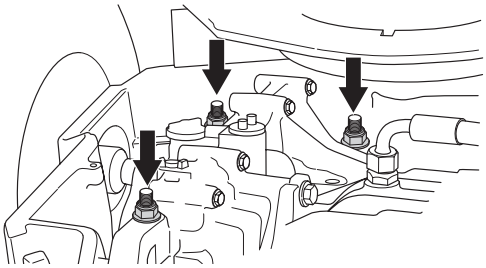
12. Remove the stop screws.



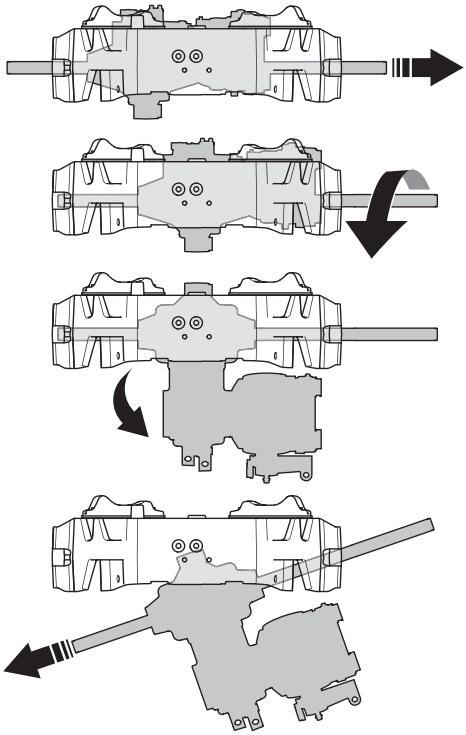
13. Slide in the bearing unit.
14. Remove the screw (4).



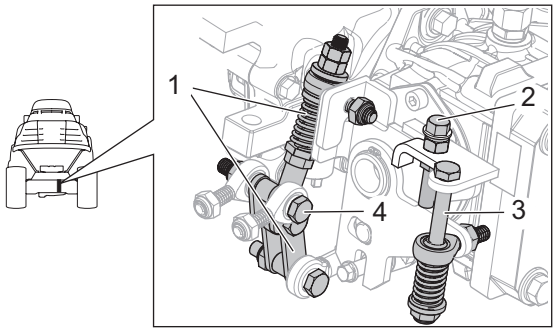
15. Dismantle the transmission by removing the retaining screws.



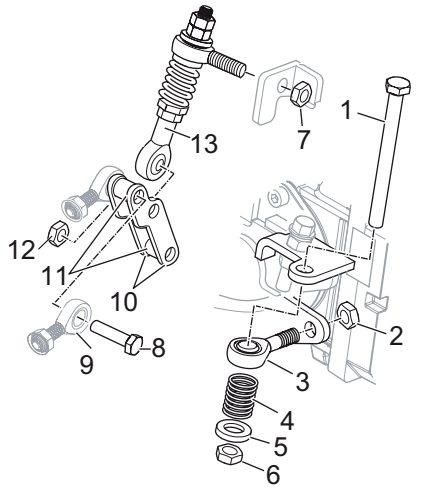
16. Take the transmission out of the casting.



17. If the transmission is being changed, the devices for adjusting the wheel speed (1) and adjustment screw for the slewing speed (2) must be transferred to the new transmission as below:



1. Wheel speed adjustment
2. Slewing speed adjustment screw
3. Link head
4. Screw

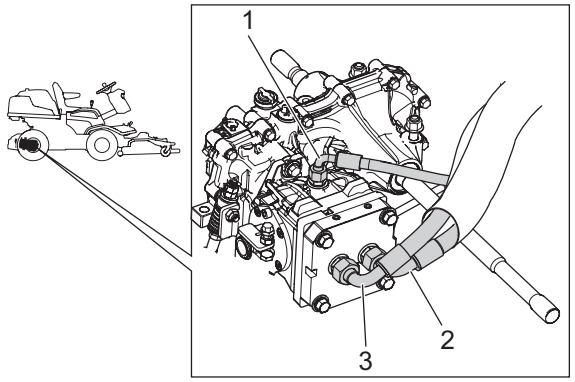


1. Screw
2. Nut
3. Link head
4. Spring
5. Washer
6. Nut
7. Nut
8. Screw
9. Link head
10. Plate
11. Bushing
12. Nut
13. Wheel speed adjuster

18. Dismantle the device for the slewing speed adjustment screw by removing the screw (1) and nut (6). Note the position of the spring (4) and washer (5).
19. Dismantle the link head (3) with nut (2).
20. Dismantle the device for adjusting the wheel speed (13) by removing nut (12) and screw (8).
21. Dismantle the plates (10) only if any measures need to be taken (e.g. cleaning).
22. If the transmission is being changed, dismantle the hydraulic connection adapters for reuse.

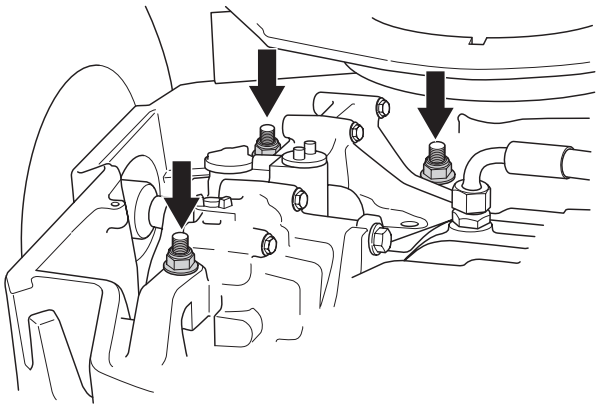
Assembling

1. Assemble in reverse order. Start by refitting any remove hydraulic adapters. Torque tighten the adapter on top (1) to 32 Nm. The two other adapters (2) and (3) are tightened to 50 Nm.

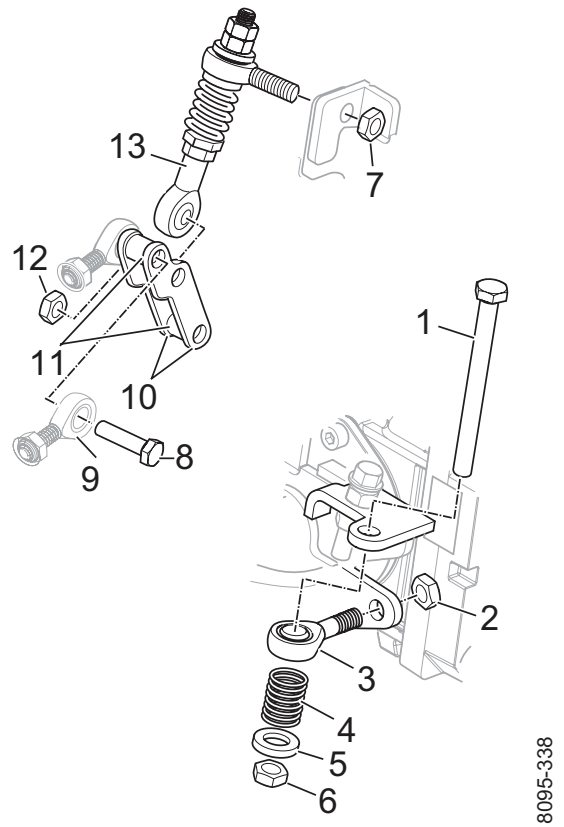


1. Hydraulic adapter
2. Hydraulic adapter
3. Hydraulic adapter

2. Assemble the transmission with its three retaining screws.

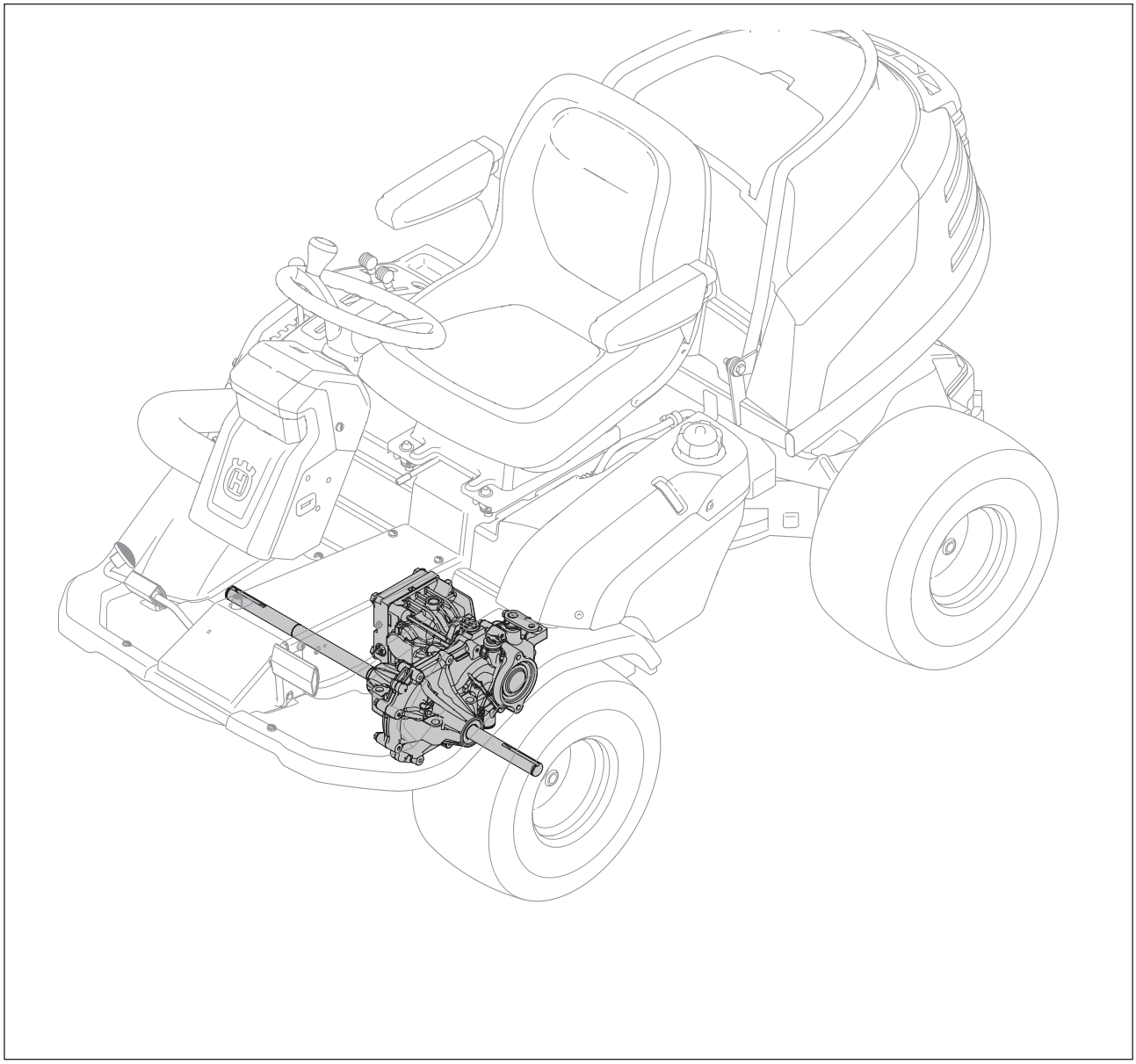


3. Assemble the hydraulic hoses and torque tighten as instructed.
4. Insert the screw (1) for the recoil spring through the link head (3). Assemble the spring (4), washer (5) and nut (6).
5. Assemble the wheel speed adjuster (13) with nut (7) and other components.
6. Check the oil level and top up if necessary as specified in Technical Data.
7. Carry out all measures according to “5.2.10 Wheel speed” on page 39.
8. Run the machine and check for any leakage.



1. Screw
2. Nut
3. Link head
4. Spring
5. Washer
6. Nut
7. Nut
8. Screw
9. Link head
10. Plate
11. Bushing
12. Nut
13. Wheel speed adjuster

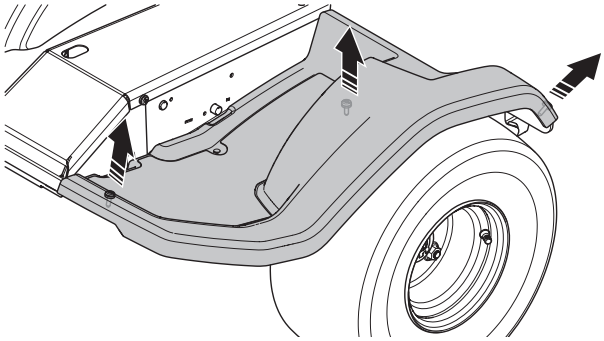
5.6.8 Front transmission



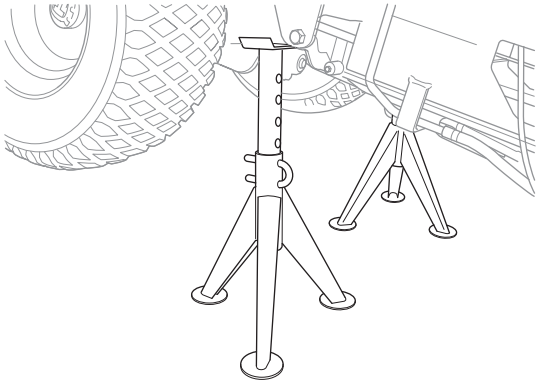
Tools	Dimension
Groove joint pliers	
Combination wrench	18 mm
Combination wrench	22 mm
Combination wrench	27 mm
Combination wrench	32 mm
Allen Key	10 mm
Torque wrench	
Combination wrench	22 mm
Combination wrench	27 mm

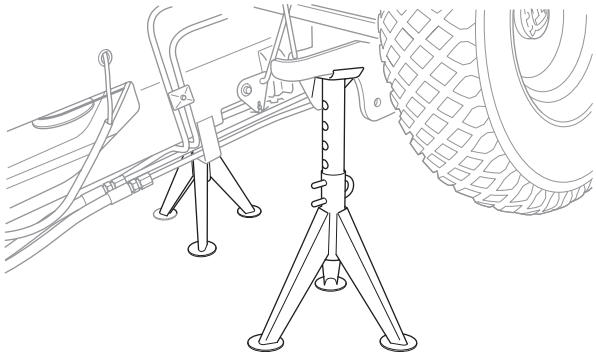
Dismantling

1. Remove the tool frame, see “5.7.1 Tool frame” on page 76.
2. Remove the left wing cover.

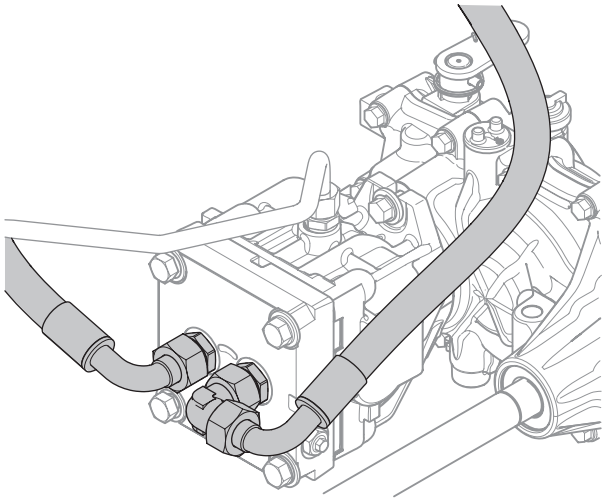


3. Raise and support the machine.

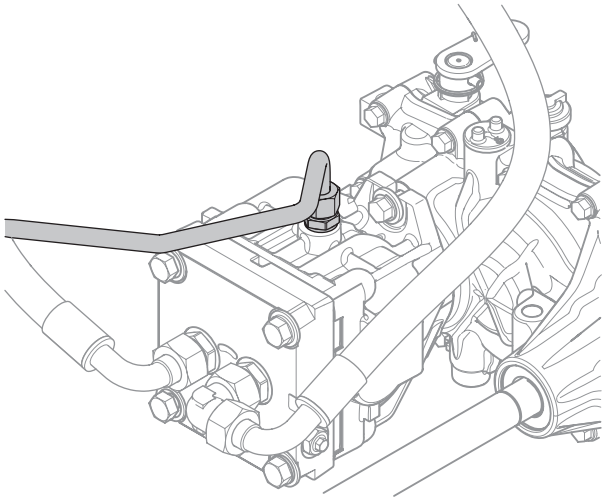




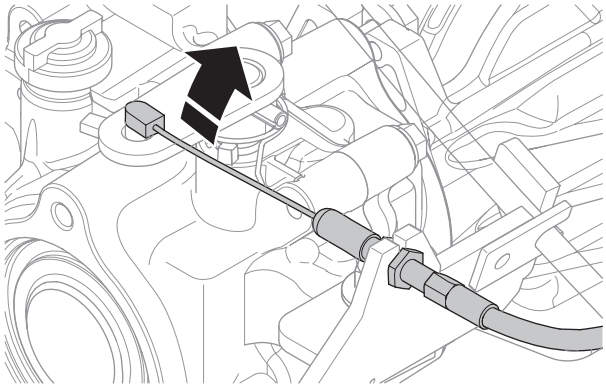
4. Undo the hydraulic pipes from underneath the front axle. Fit protective plugs. A small amount of oil may leak out even if the front axle has been drained.



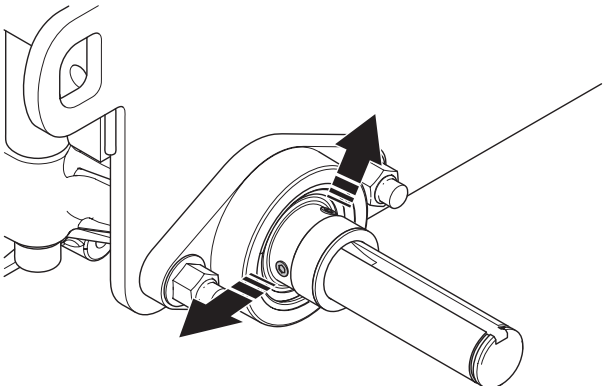
5. Undo the hydraulic pipes from the top of the front axle. Fit protective plugs. A small amount of oil may leak out even if the front axle has been drained.



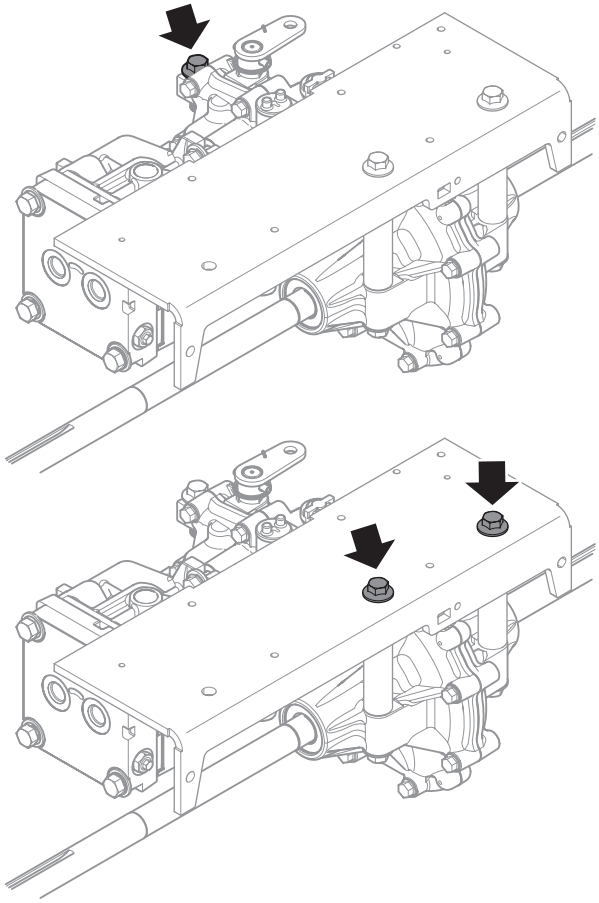
6. Undo the hydraulic pipe and hoses from the front axle.
7. Remove the parking brake cable. For more information, refer to “5.1.3 Brake cable” on page 19.



8. Loosen the screws holding the bearing unit and remove the bearing on the right/left side.



9. Remove the screws holding the front axle and lower the front axle.

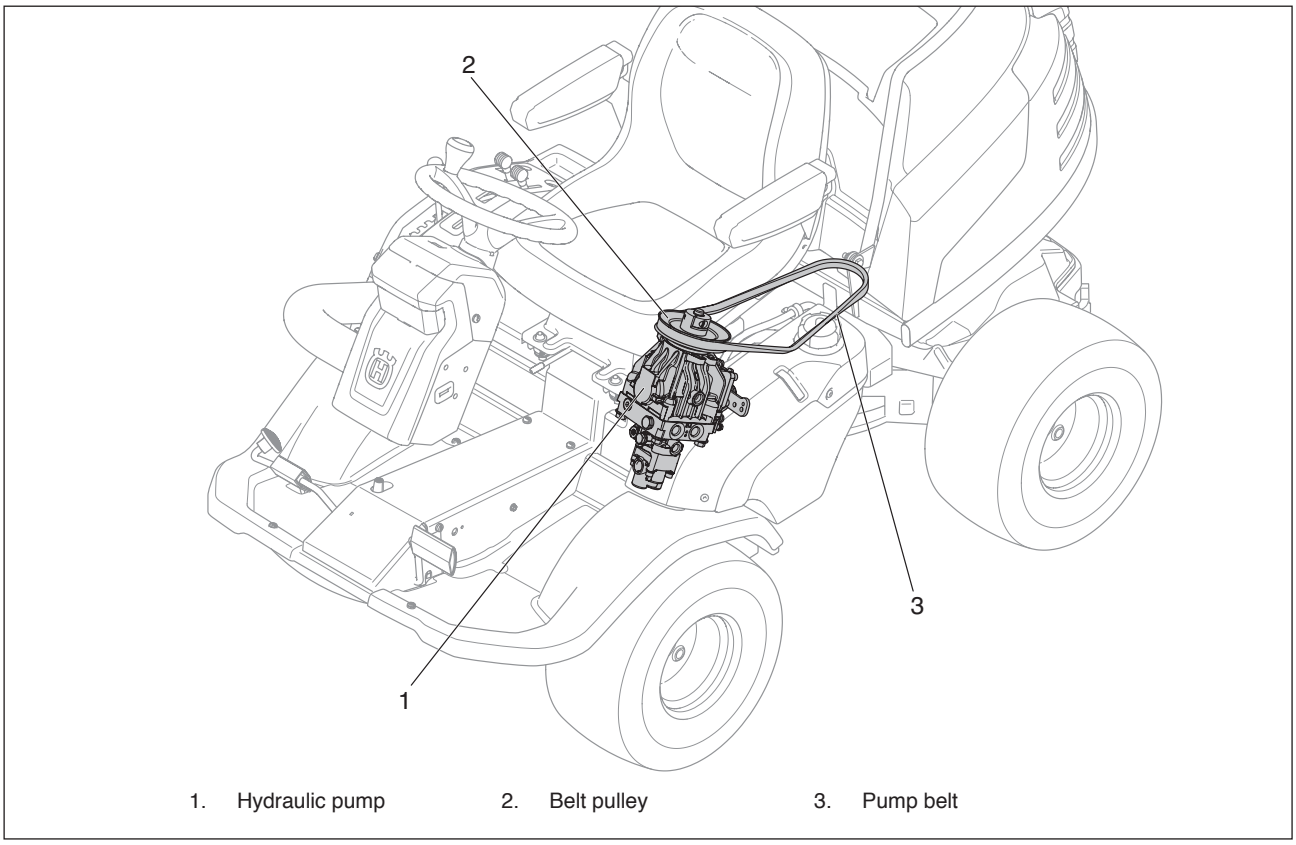


Assembling

Reassemble the front axle in reverse order in relation to removal. The bearing on the left side is turned so the grease nipple points backwards.

1. First assemble all the screws on the front axle and the bearings loosely in order to guide the axles into the best position. Then tighten the three M12 screws in the front axle and then the wheel bearings. Make sure the axles are rotating freely.
2. The stop screws for the right side bearing are tightened after the four screws holding the wheel bearings have been tightened.
3. Grease the axles with corrosion protection before fitting the wheels.
4. Fill the hydraulic system with oil.
5. Check and adjust the parking brake cable.
6. Check and adjust speed coordination between the front wheels and rear wheels as described in “5.2.10 Wheel speed” on page 39.

5.6.9 Hydraulic pump



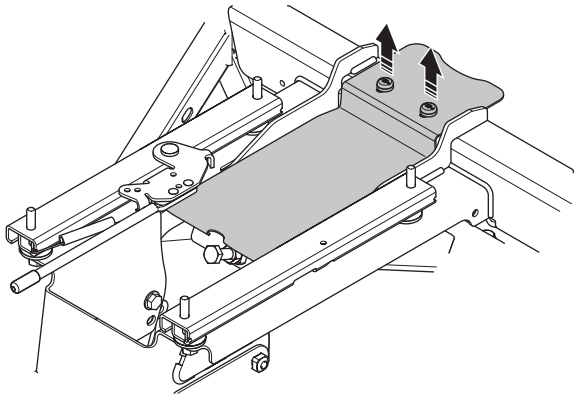
1. Hydraulic pump 2. Belt pulley 3. Pump belt

Tools	Dimension
Torx	T30
Allen Key	6 mm
Combination wrench	8 mm
Combination wrench	10 mm
Combination wrench	13 mm
Combination wrench	22 mm
Combination wrench	32 mm

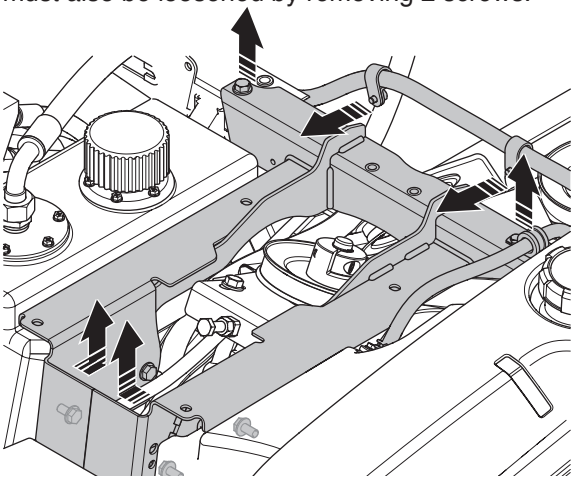
WARNING!
Heavy objects are released when dismantling the hydraulic pump.

Dismantling

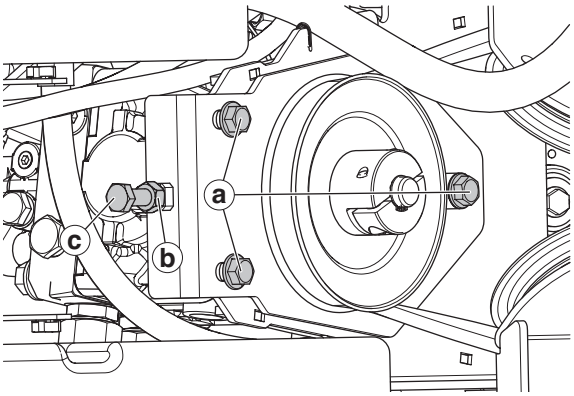
1. Remove the driver seat. For more information, refer to “5.1.2 Driver’s seat” on page 18.
2. Remove the fuel tank. For more information, refer to “5.4.1 Fuel tank” on page 48.
3. Cut the cable ties on the seat switch.
4. Remove the two cable retainers.
5. Remove the protector plate located under the seat.



6. Remove the frame section under the driver seat by removing the 6 screws. In order to lift away the frame section, the cable retainers must also be loosened by removing 2 screws.



7. Release pump belt tension.

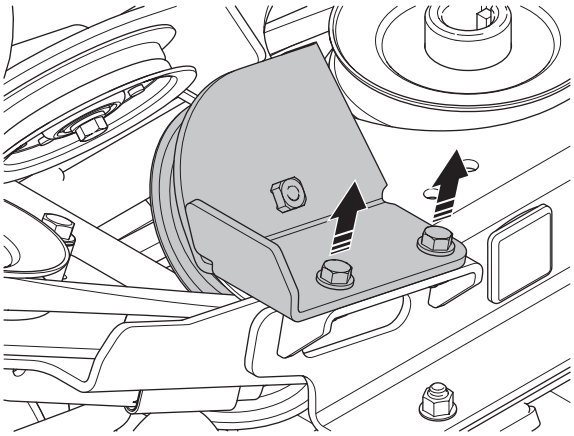


   a. Loosen the 3 screws on the pump belt cradle.

   b. Loosen the locking nut on the adjustment screw.

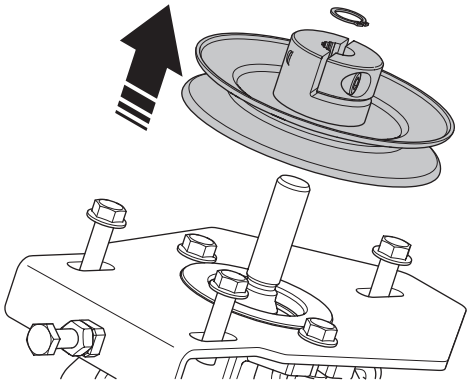
   c. Loosen the adjustment screw for the pump belt to max.

8. Dismantle the belt pulley for the pump belt on the left-side of the machine.

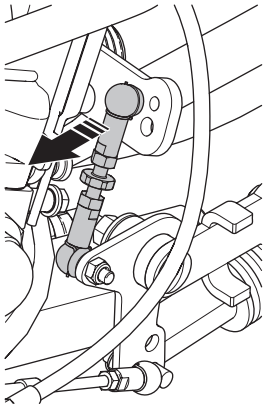


9. Remove the SGA clip from the pump.

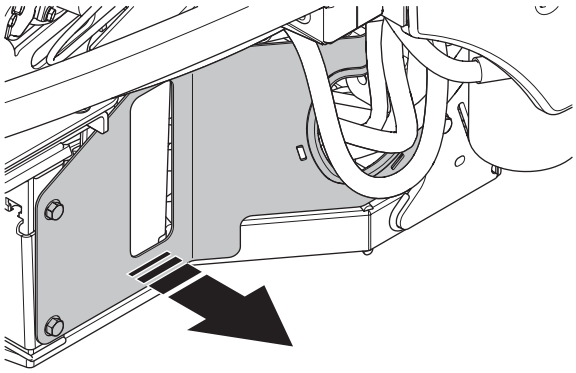
10. Loosen the pump belt pulley with two screws from the pump shaft and lift up.



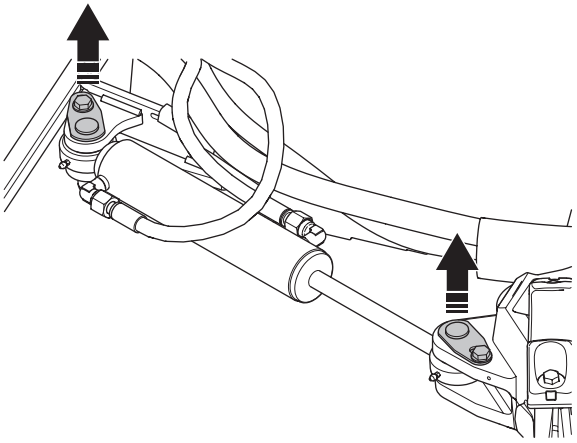
11. Release the linkage from the pump.



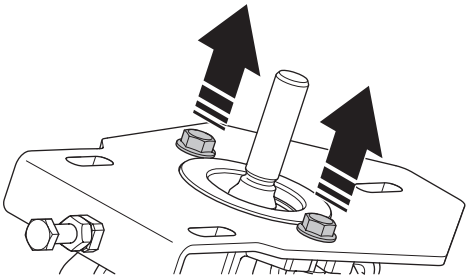
12. Remove the protecting cover from the right side of the machine.



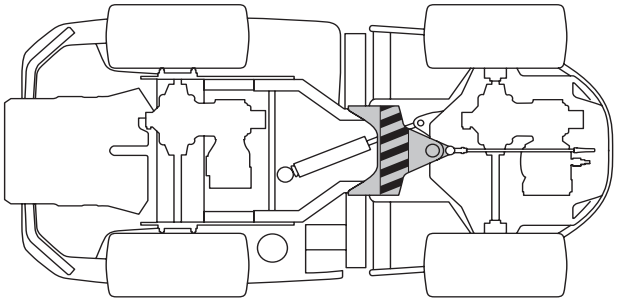
13. Loosen the bolts from the front and rear brackets of the steering cylinder. Push the steering cylinder out of the way to make room for removal of the pump.



14. Cut the cable ties holding the hydraulic hose on the left side of the pump bracket.
15. The hydraulic hoses can be mixed up. Mark the lines so that they are reconnected on the correct connections.
16. Clean according to the general instructions, see section “5.6.1 Hydraulic hygiene” on page 52.
17. Loosen the hydraulic hoses from the pump. Fit sealing plugs to prevent leakage and contamination.
18. Remove the screws holding the pump in place.



19. Use a jack assembly to lift the rear of the machine to make room for the pump. Place a jack assembly under the machine as illustrated.

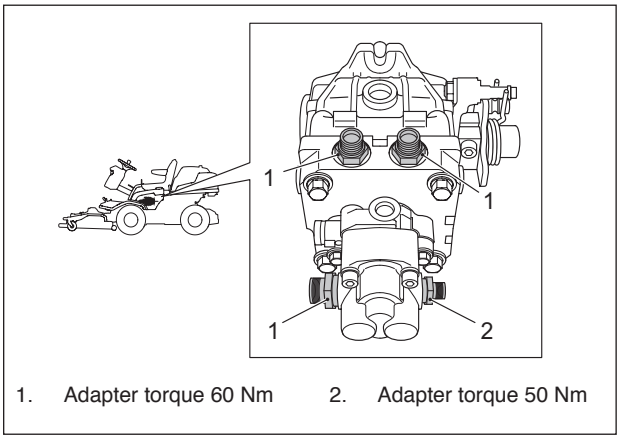


20. Angle the pump until can be removed from below.

Assembling

Assemble in reverse order.

1. If the pump is being changed, the adapters and connections must be transferred to the new pump. Check the condition of O-rings and other components. Torque tighten adapters as illustrated. Torque tighten the banjo coupling adapter on the opposite side to 32 Nm.



1. Adapter torque 60 Nm 2. Adapter torque 50 Nm

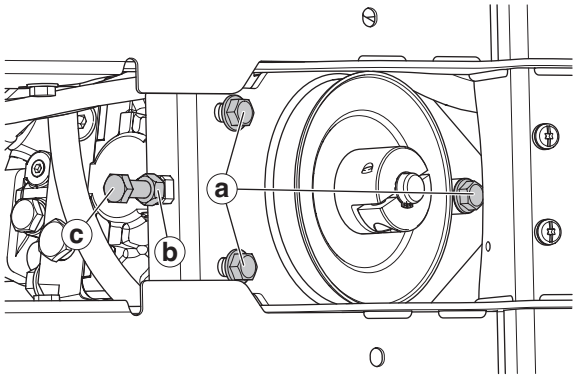
2. After assembling, the pump stroke must be adjusted to attain the right speed. For more information, refer to section “5.2.9 Hydrostatic cable” on page 37.

5.6.10 Replacing pump belt

The condition of the belt pulleys should be checked when changing belts in the machine. Replace belt pulleys if necessary.

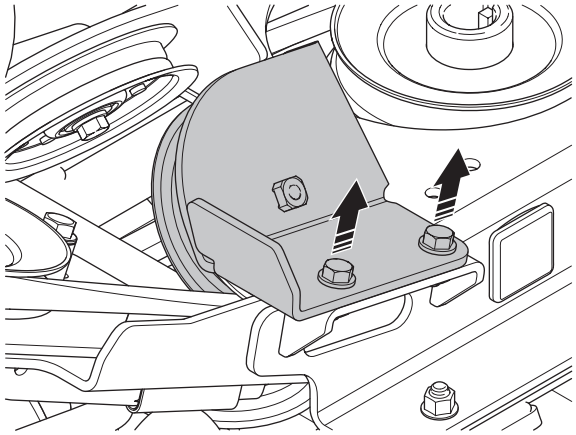
Tools	Dimension
Combination wrench	13 mm
Combination wrench	15 mm
Combination wrench	17 mm
Torx	T30

1. Fold forward the driver seat.
2. Remove the protector plate located under the seat.
3. Release pump belt tension.

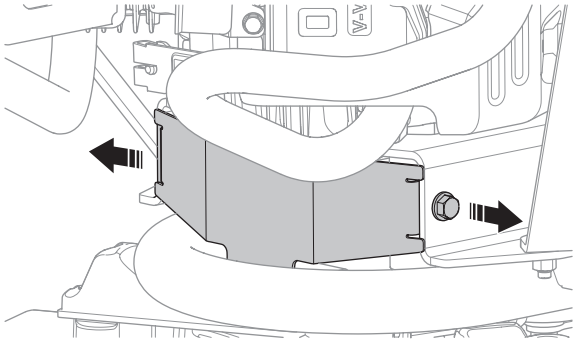


   a. Loosen the 3 screws on the pump belt cradle.
   b. Loosen the locking nut on the adjustment screw.
   c. Loosen the adjustment screw for the pump belt to max.

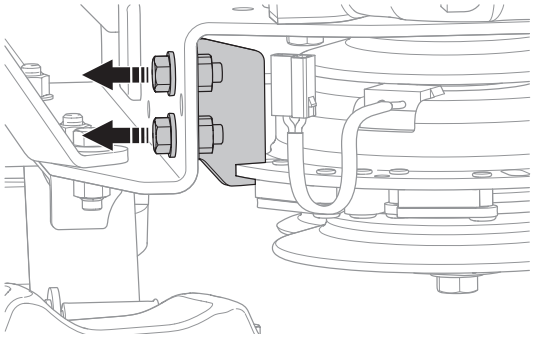
4. Dismantle the belt pulley for the pump belt on the left-side of the machine.



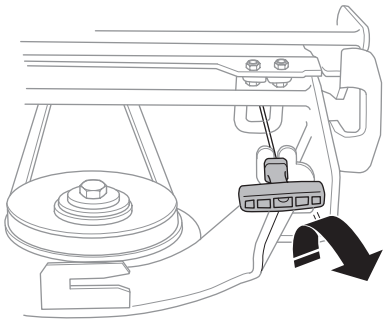
5. Dismantle the protective plate over the rear transmission.



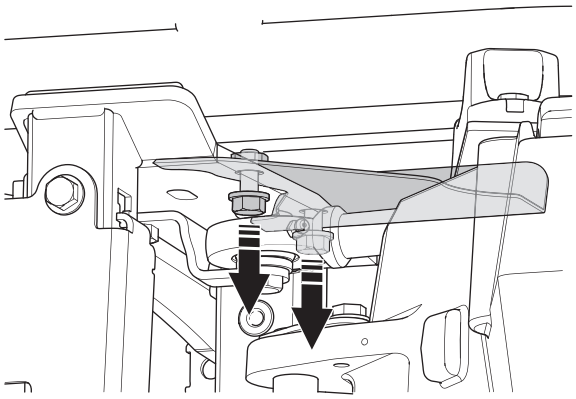
6. Unplug the electrical connector
7. Dismantle the torque stop for the clutch.



8. Remove the front cover to access the PTO belt.
9. Release the belt tensioner.

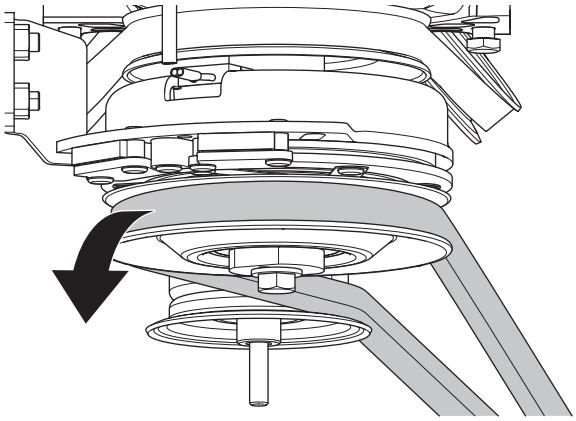


10. Remove the protecting cover under the engine pulley.

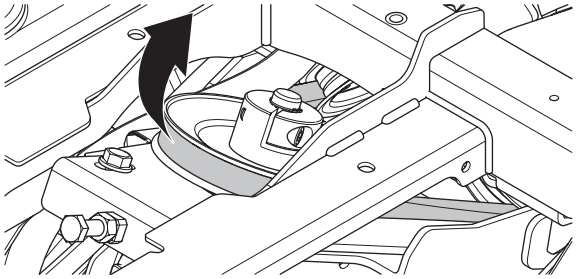


11. Prise off the PTO belt from the drive wheel on the cutting deck.

12. Lift off the PTO belt from the belt pulley to make room to prise off the pump belt.



13. Prise off the pump belt from the hydraulic pump pulley.



14. Lift off the pump belt from the engine pulley and around the magnetic clutch.

NB!

Take care of the magnetic clutch connection cable.

15. Remove the pump belt through the front part of the machine.
16. Assemble in the reverse order.
17. After assembling or adjusting the pump belt, the hydrostatic cable must be checked. For more information, refer to section “5.2.9 Hydrostatic cable” on page 37.

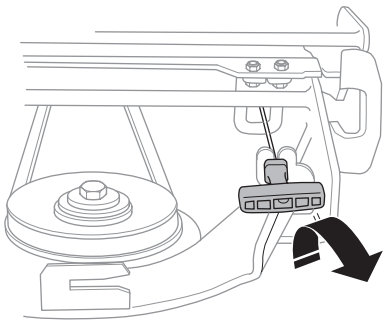
5.6.11 Changing the PTO belt

The condition of the belt pulleys should be checked when changing belts in the machine. Replace belt pulleys if necessary.

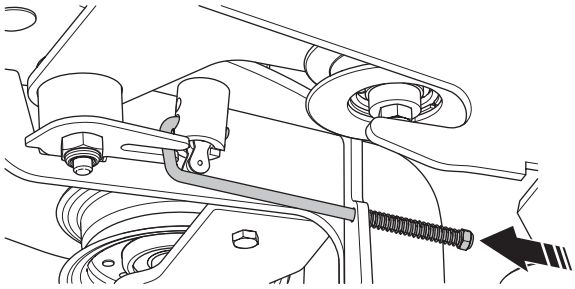
Tools	Dimension
Combination wrench	13 mm

Dismantling

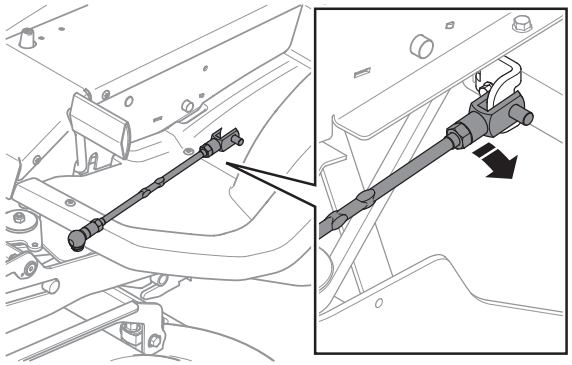
1. Lower the cutting deck.
2. Remove the front cover to access the PTO belt.
3. Release the belt tensioner.



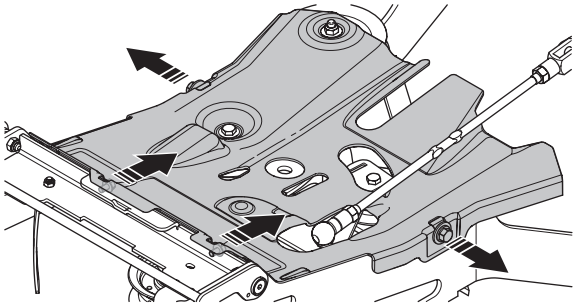
4. Remove the left wing cover.
5. Unhook the lifting chain.



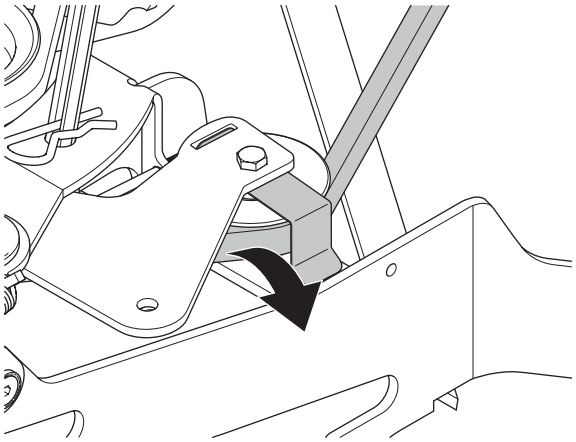
6. Loosen the automatic belt tensioner stay.



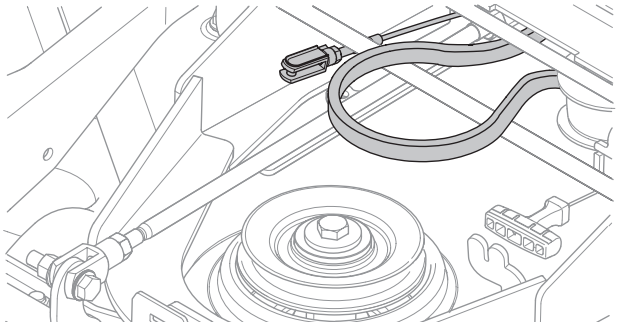
7. Remove the protecting cover on the tool frame.



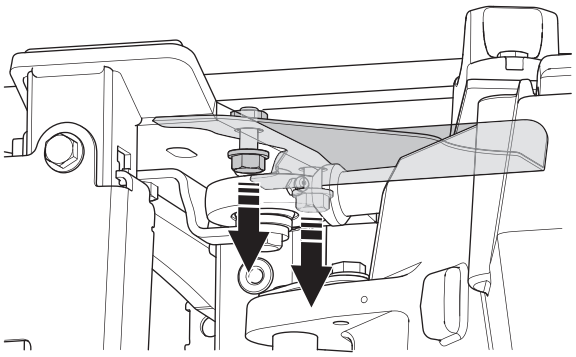
8. Prise off the belt from the pulley, lift the belt stop and prise the belt off the belt tensioner.



9. Release the belt from the belt pulley on the tool frame.

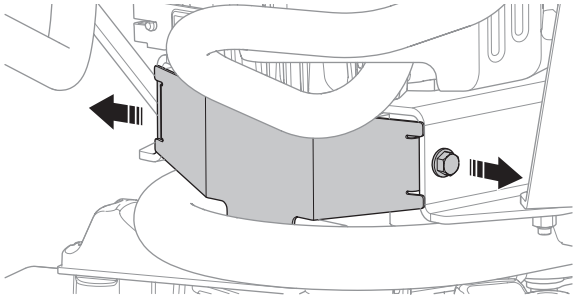


10. Remove the protecting cover under the engine pulley.



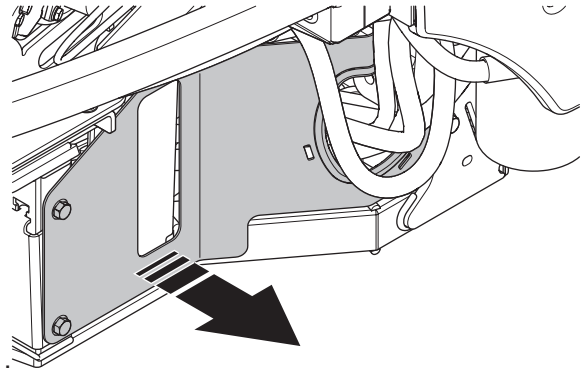
11. Steer full lock right for easier access to the drive belt.

12. Remove the belt protector over the rear transmission.

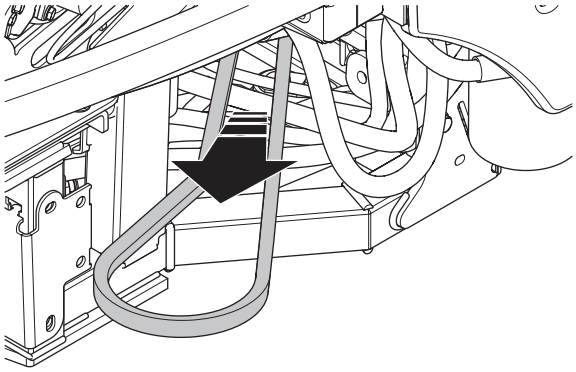


13. Lift off the belt from the engine pulley from below.

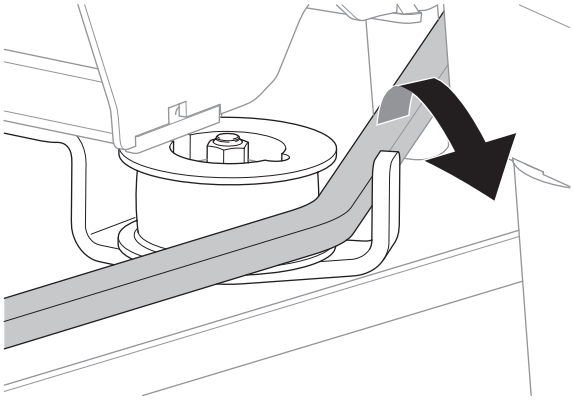
14. Remove the protecting cover from the right side of the machine.



15. Pull out the front part of the belt through the articulated unit on the right side of the machine.



16. Unhook the belt from the hook on the center belt pulley.



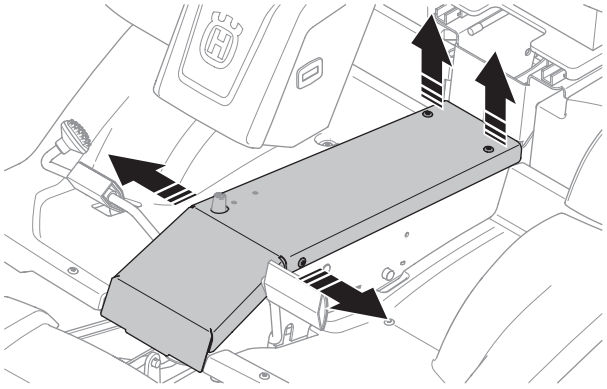
17. Pull out the belt.

5.6.12 Lift cylinder

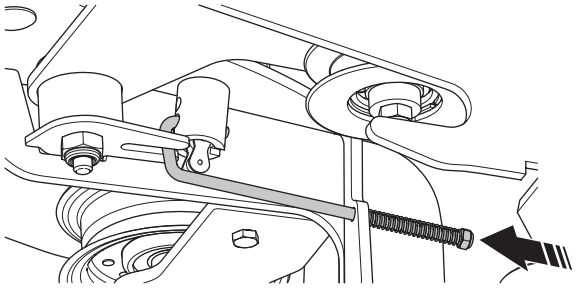
Tools	Dimension
Combination wrench	19 mm
Circlip pliers	SGA
Torx	T30

Dismantling

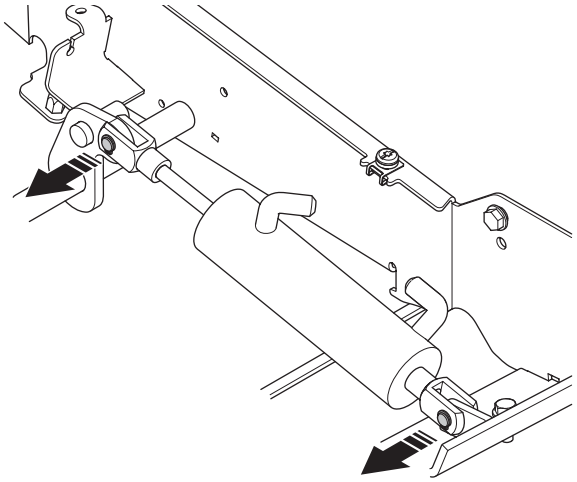
1. Lower the cutting deck.
2. Remove the cover over the frame tunnel.



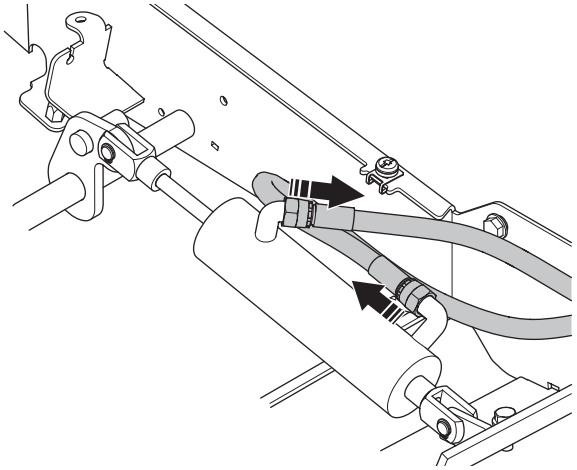
3. Loosen the lifting chain by pressing the catch.



4. Remove the driver's seat. For further instructions, refer to section “5.1.2 Driver’s seat” on page 18.
5. Loosen and plug the hydraulic couplings. For further instructions, refer to section “5.6.1 Hydraulic hygiene” on page 52.



6. Dismantle the hydraulic couplings at both ends of the lifting cylinder.



7. Remove the lifting cylinder through the frame tunnel.

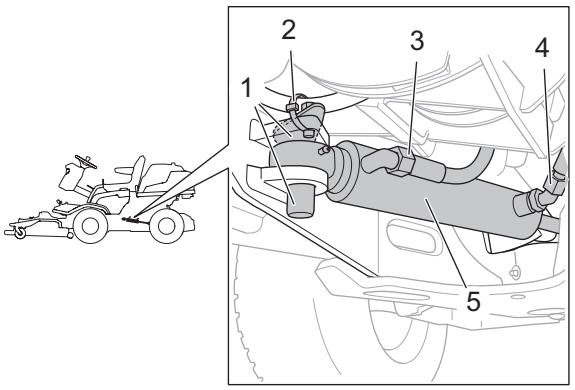
Assembling

1. Assemble in the reverse order.
2. Bleed the lift cylinder by lowering and lifting the lift arms repeated times with the engine started.
3. Check for any leakage from the lift cylinder hydraulic connections.
4. Check the hydraulic tank level.

5.6.13 Steering cylinder

Dismantling

1. Start the engine and turn the steering wheel full lock to the right.



1. Shaft with locking lug
2. Cable tie
3. Hydraulic connection
4. Steering cylinder

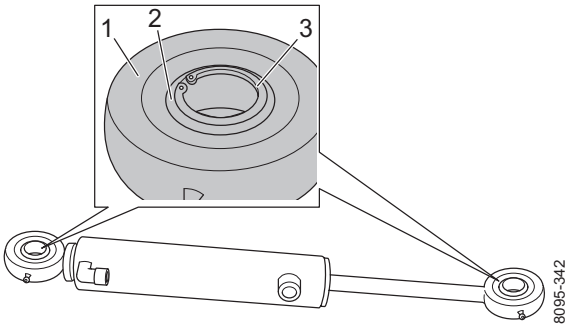
2. Turn off the engine.
3. Dismantle the two hydraulic hoses (3), (4) from the steering cylinder.
4. Put protective plugs in the hydraulic hoses and protective cover on the steering cylinder (5).
5. Loosen the rear end of the steering cylinder (3) by dismantling the shaft with the locking lug (1).
6. Dismantle the shaft with the locking lug (1) from the steering cylinder's front fastening and cut off the cable tie. Remove the steering cylinder.

Assembling

1. Reassemble the steering cylinder in the reverse order.
2. Fit a new cable tie on the cable at the front shaft locking lug.
3. Tightening torque for screws and hydraulic connections as instructed.
4. Bleed the steering cylinder by starting the engine and making repeated steering wheel movements to full lock left and right.
5. Check for any leakage from the steering cylinder hydraulic connections.
6. Lubricate the steering cylinder through the grease nipples.
7. Check the hydraulic tank level.

Changing joint bearing in steering cylinder

Tools	Dimension
Combination wrench	13 m
Combination wrench	19 mm
Circlip pliers	SGH
Press tool	



1. Steering cylinder
2. Circlip
3. Joint bearing

Dismantling

1. Dismantle the steering cylinder (1). Refer to “5.6.13 Steering cylinder” on page 74.
2. Dismantle the circlip (2).
3. Press out the steering cylinder joint bearing (3). The joint bearing must be pressed towards the circlip side.
4. Clean the bearing seat.

Assembling

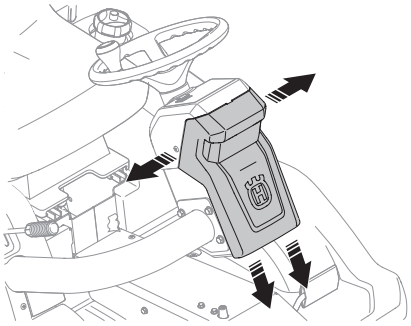
1. Apply a thin layer of lubricant on the walls of the bearing seat.
2. Press in the joint bearing from the circlip side. Press only on the outer bearing race.
3. Fit the circlip and check that it lies correctly in its groove.
4. Assemble the steering cylinder in the reverse order.

5.6.14 Power steering

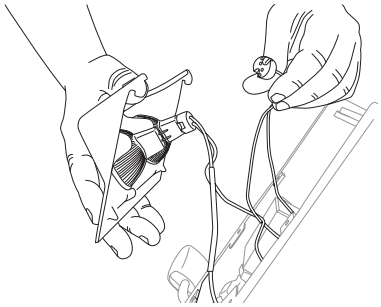
Tools	Dimension
Torx	T30
Combination wrench	13 mm
Combination wrench	13 mm
Combination wrench	14 mm
Combination wrench	19 mm

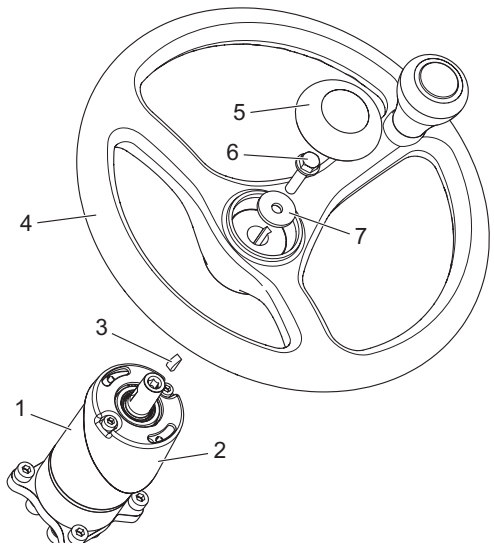
Dismantling

1. Remove the front cover, steering column.



2. Unscrew the two screws holding the lamp insert. Lift out the lamp insert.
3. Disconnect the cables from the bulbs.





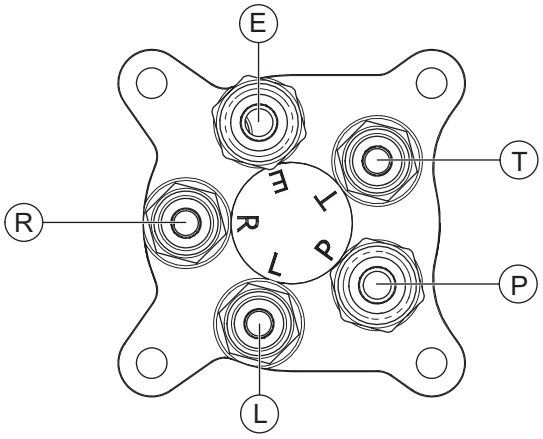
1. Power steering
2. Cover
3. Key
4. Steering wheel
5. Steering wheel hub
6. Screw
7. Washer

4. Dismantle the steering wheel (4), secured using one screw (6) under the steering wheel hub (5). Retain the key (5) and the washer (7). Dismantle the cover (2) over the steering servo housing.

IMPORTANT!

Do not use force, use a puller if the steering wheel is stuck hard.

5. Unscrew the four screws holding the cover (2) in front of the steering servo housing.
6. Place a container under the steering servo to collect the spill oil.
7. Clean according to the general instructions, see “5.6.1 Hydraulic hygiene” on page 52. Mark up how the hydraulic lines are situated on the power steering.
8. Loosen the hydraulic lines from the steering servo (1). Fit protective plugs.



Assembling

1. Assemble the power steering servo in the reverse order.
2. Place the power steering servo so the small connection is pointing backwards.
3. Tightening torque for screws and hydraulic lines as set out in the “6 Specifications” on page 85.
4. Do not forget the key when assembling the steering wheel.
5. Start the engine and turn to full lock. Check for leakage.
6. Top up the hydraulic oil if necessary.

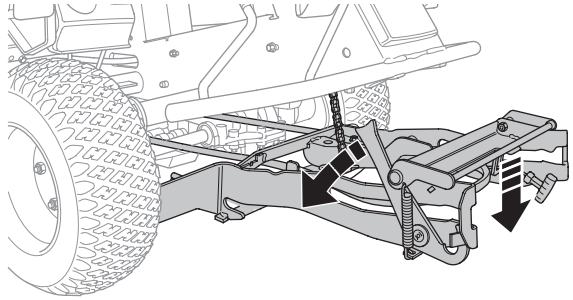
5.7 Cutting system

5.7.1 Tool frame

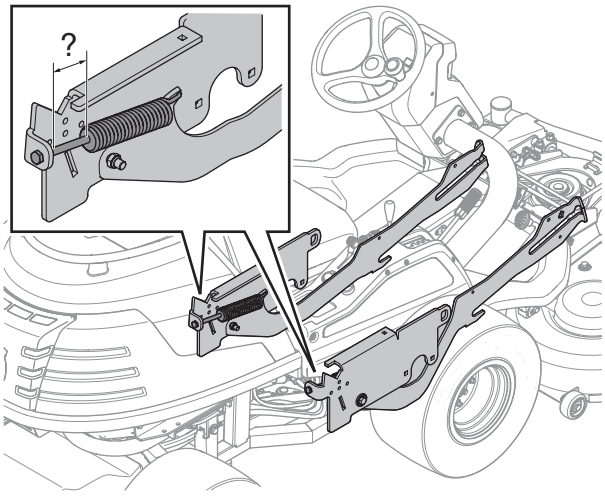
Tools	Dimension
Combination wrench	13 mm
Combination wrench	18 mm
Combination wrench	19 mm
Torx	T30

Dismantling

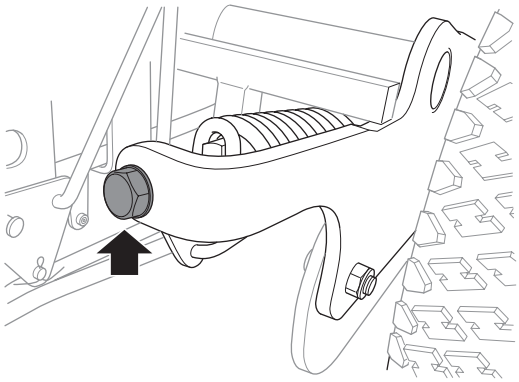
1. Remove the cutting deck. For further instructions, refer to section “5.7.2 Cutting deck” on page 78.
2. Push down the equipment frame and drop the catch.



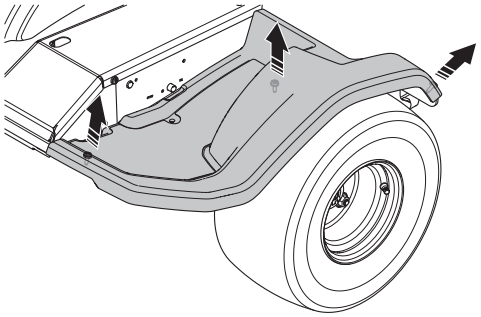
3. Check the measurement of the adjuster screws' position. Note the values and use them as initial values when assembling.



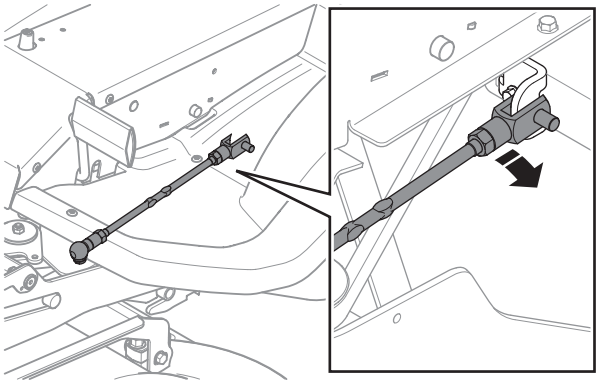
4. Loosen the adjustment screws.



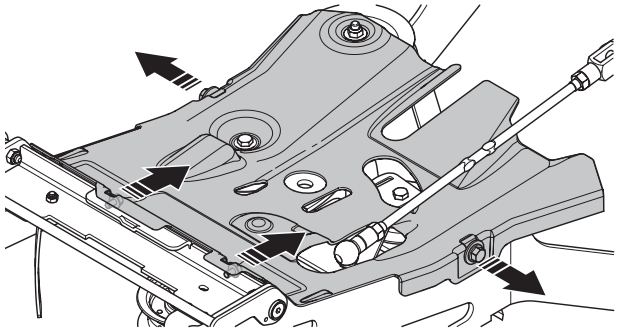
5. Remove the left wing cover.



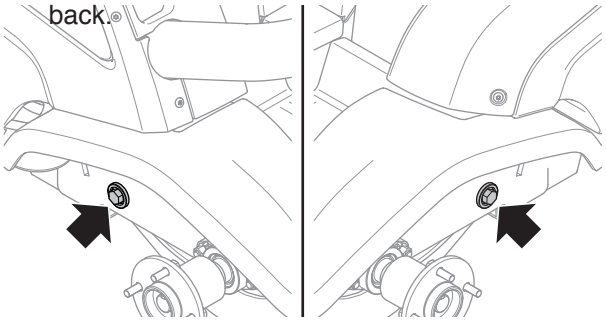
6. Remove the automatic belt tensioner stay.



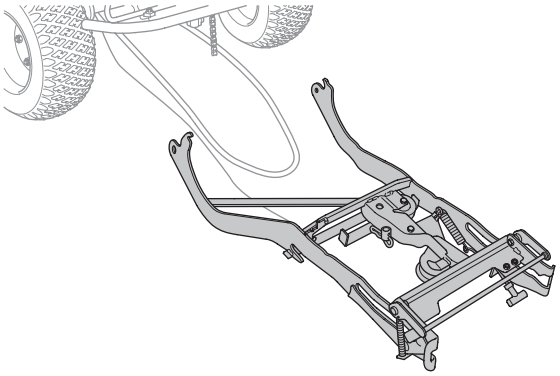
7. Release the lifting chain from the tool frame.
8. Remove the protecting cover on the tool frame.



9. Release the belt from the tool frame.
10. Lower the tool frame by removing its rear lead screws. In order to release the tool frame on the left side completely it must first be pulled back.

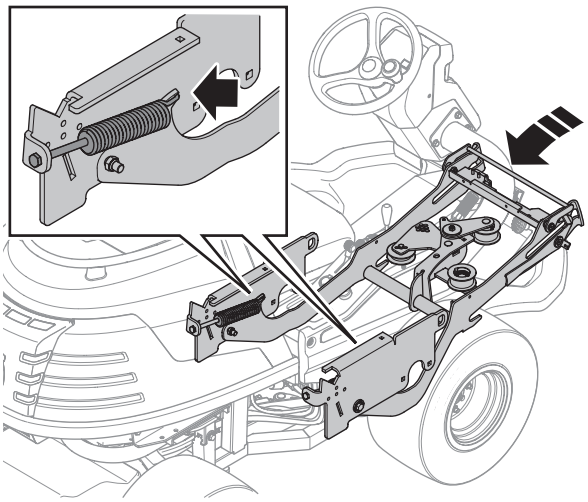


11. Release spring tension fully.
12. Unhook the springs.
13. Pull the tool frame forwards.

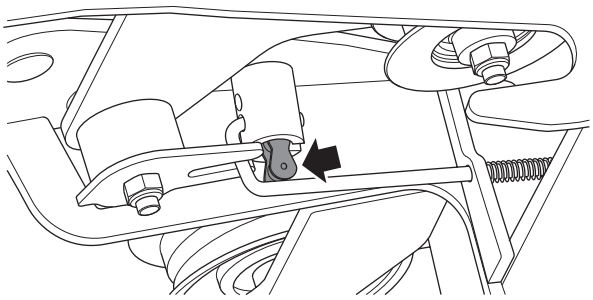


Assembling

1. Slide in the tool frame. Make sure that the height adjustment stay is inserted into the equipment frame.
2. Hook the springs onto the tool frame.



3. Reassemble the tool frame in reverse order.
4. Reinsert the lifting chain and lock it with the stay so that one chain link is visible.



5. Tension the springs and assemble the cutting deck.
6. Check and if necessary adjust the ground pressure, see section “5.7.8 Checking and adjusting ground pressure” on page 82.

5.7.2 Cutting deck

Service position for cutting deck

In order to provide good accessibility for cleaning, repair and servicing, the cutting deck can be set in the service position.

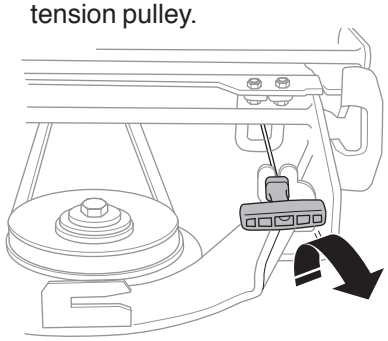
The service position means that the cutting deck is raised and locked in the vertical position.

Placing in the service position

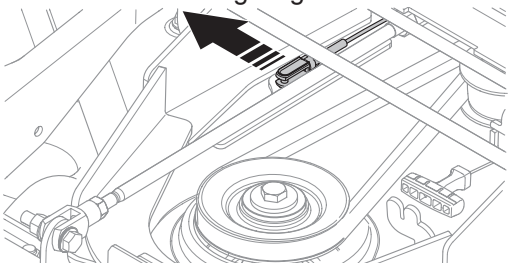
1. Put the machine in a level position. Apply the parking brake.
2. Make sure the cutting deck is in the raised position.
3. Remove the front cover by loosening the clasp. (Complete instructions for the service position can be found on the inside of the front cover).

WARNING!
Use protective goggles when assembling and dismantling the cutting deck. The spring keeping the belt under tension can break and cause personal injury.

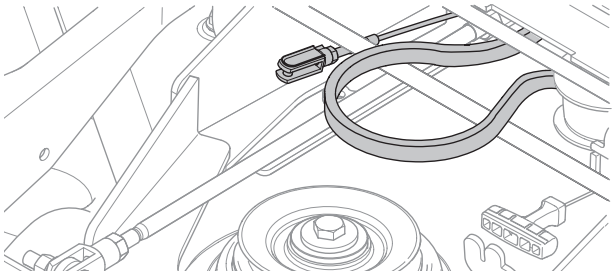
4. Loosen the spring on the cutting deck's belt tension pulley.



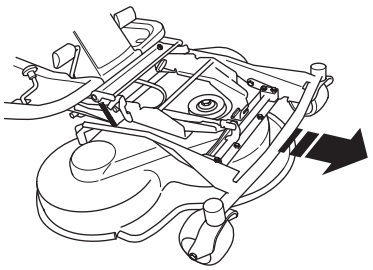
5. Loosen the cutting height cable.



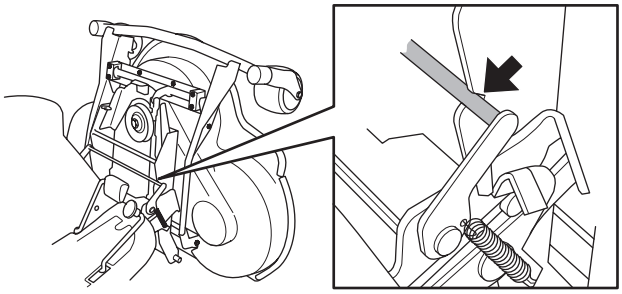
6. Lifting the cutting deck's drive belt. Place the belt in such a way to prevent it from being crushed.



7. Grip the front edge of the cutting deck and pull forwards until it stops.

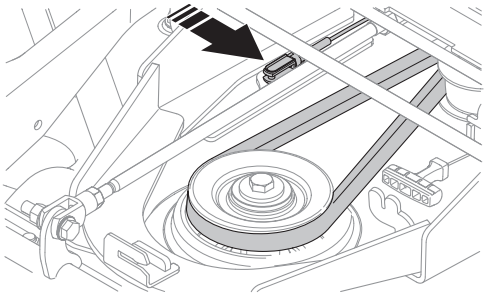


8. Lift the cutting deck until it stops and a clicking sound is heard. The cutting deck locks automatically in the vertical position.

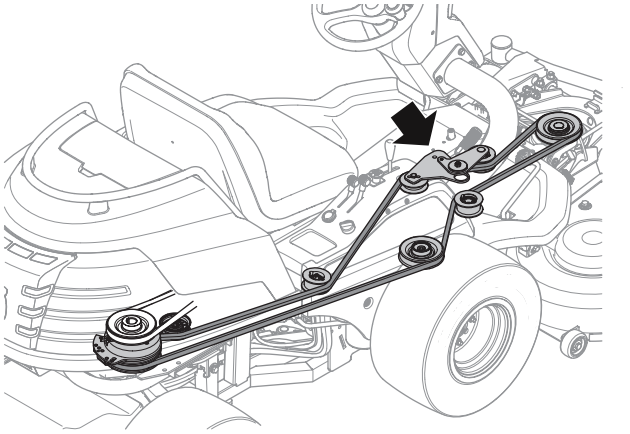


Return from service position

1. Grip the front edge of the cutting edge and loosen the lock. Lower and slide in the cutting agent.
2. Replace the cutting height cable and the cutting deck belt.



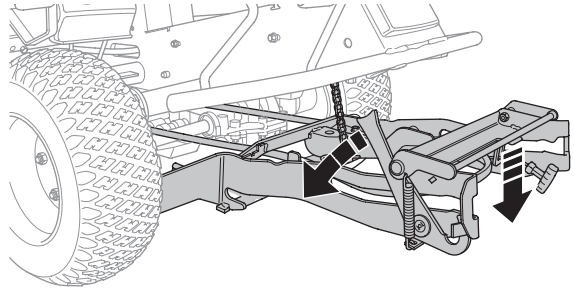
3. Tension the cutting deck belt with the belt tensioner. Make sure the belt sits on the right side on the belt pulley.



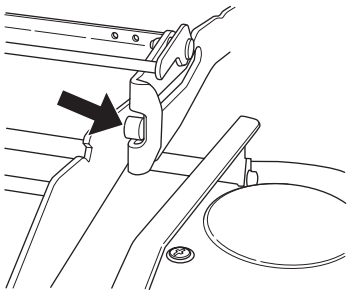
4. Fit the front cover.

Attaching the cutting deck

1. Place the machine on a flat surface and apply the parking brake. Check that the lever for setting the cutting height is in its lowest, service, position.
2. Push the equipment frame down and place the catch against the frame.

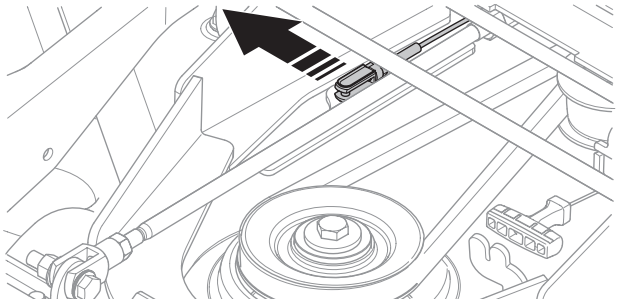


3. Push the deck in and put the front guide plugs in the grooves on the equipment frame, one on each side.

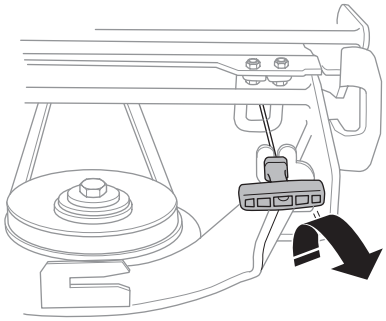


4. Push the unit in so that the interior plugs touch the bottom of the equipment frame's grooves.

5. Place the cutting deck belt around the cutting deck drive wheel and hook on the height adjustment cable.



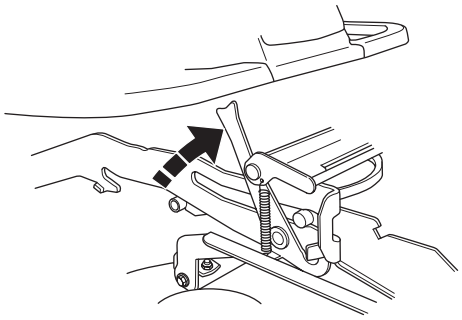
6. Secure the springs on the tension pulley.



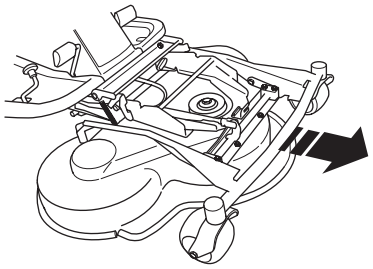
7. Fit the front cover.

Removing the cutting deck

1. Put the cutting deck in the service position up to and including "lifting the cutting deck drive belt", see Service position for cutting deck.
2. Raise the cutting deck lock.



3. Pull out the cutting deck.



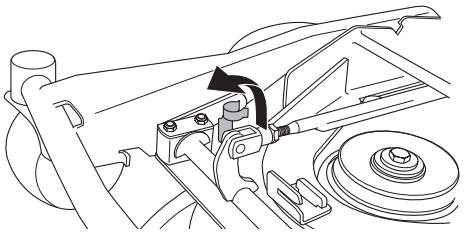
WARNING!
Take care not to trap your hand

5.7.3 Changing the belt on the cutting deck

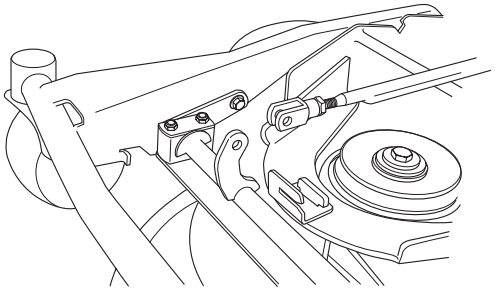
WARNING!
Protect your hands with gloves when working on the blades.
Pinch hazard when working on the belt.

On cutting decks with crash-proof blades, the blades are driven by a V-belt. Change the V-belt as follows:

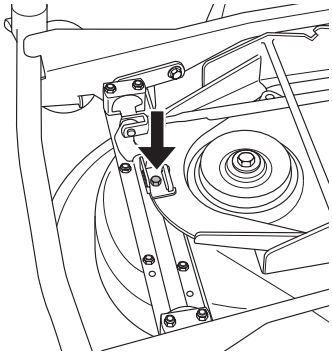
1. Dismantle the cutting deck, see section “5.7.2 Cutting deck” on page 78.
2. Open the lock for the track rod bolt.



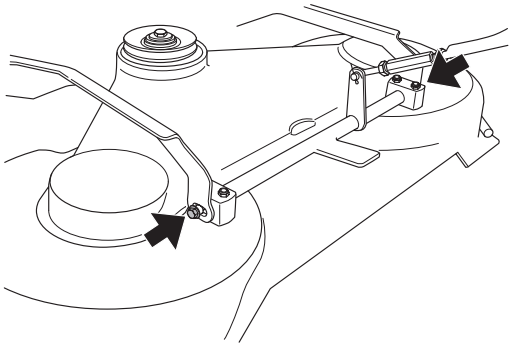
3. Remove the bolt so the track rod is released in one end.



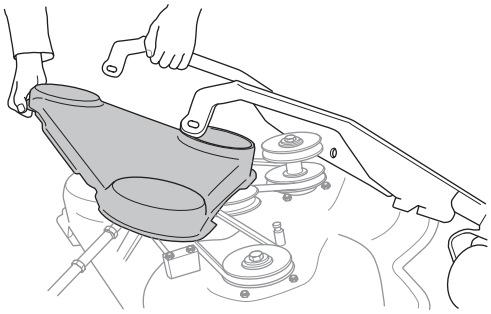
4. Unscrew the bolt for the cutting deck frame bracket. Remove the circlip and take out the cutting deck frame.



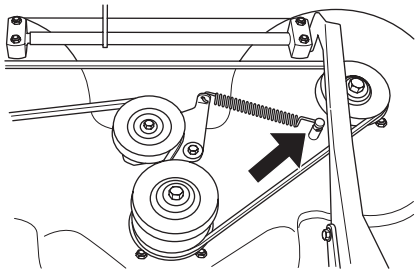
5. Remove the two bolts on the cutting deck frame.



6. Loosen the screws on the cutting cover. Lift the cutting deck frame and take out the cutting deck cover.



7. Loosen the spring tensioning the V-belt and prise off the belt.



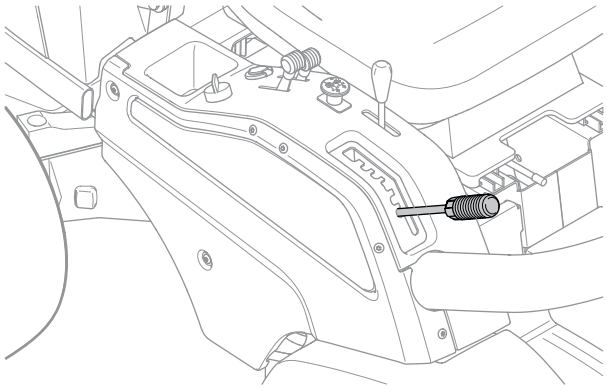
8. The new belt is mounted in reverse order.

5.7.4 Setting parallelism and cutting height

Parallelism and cutting height must be adjusted when a new cutting deck is fitted.

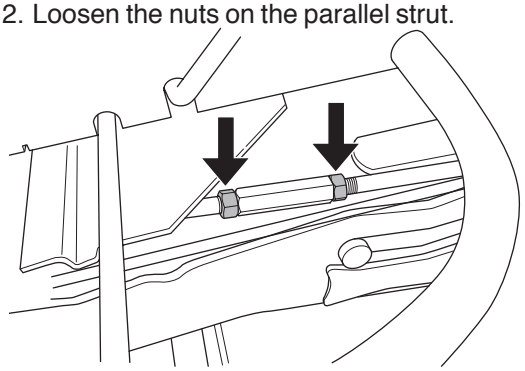
Starting point:

- Check tire pressure, see section “6 Specifications” on page 85.
- The cutting deck must be lowered on a level surface.
- The height adjustment lever shall be set to the lowest cutting height, position 1.

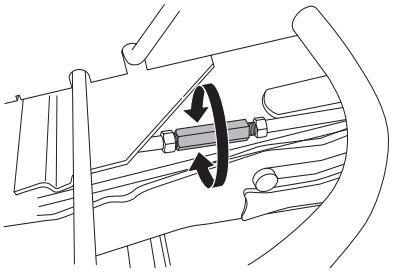


5.7.5 Adjusting the parallelism of the cutting deck

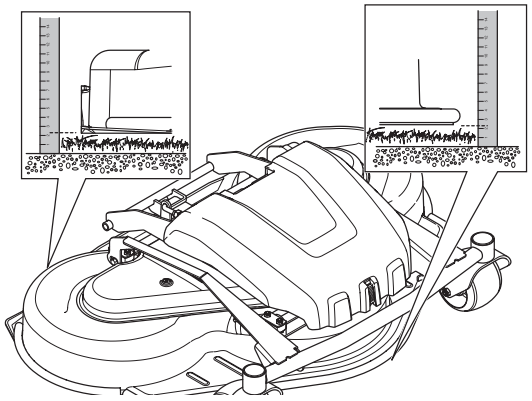
1. Remove the front cover.
2. Loosen the nuts on the parallel strut.



3. Screw out (extend) the strut to raise the rear edge of the cover. Screw in (shorten) the strut to lower the rear edge of the cover.



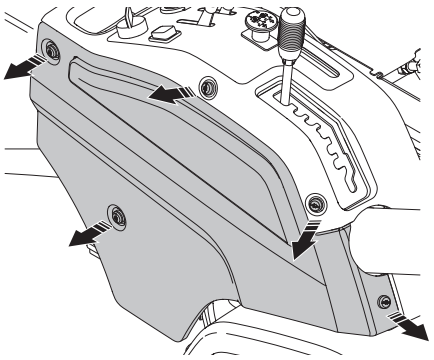
4. Tighten the nuts after adjustment.
5. The parallelism of the cutting deck should be checked again after the adjustment has been made.
6. Fit the front cover.
7. Measure the cutting deck at the front and the back. The measurement at the back should always be 4 mm higher than the front.



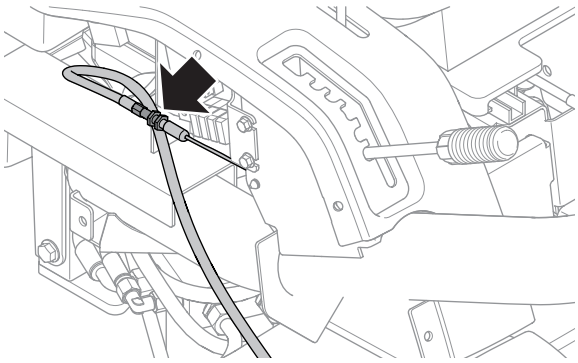
NB!
A new parallelism and cutting height adjustment must be made when changing cutting deck.

5.7.6 Adjusting the cutting height range

1. Remove the right side cover.

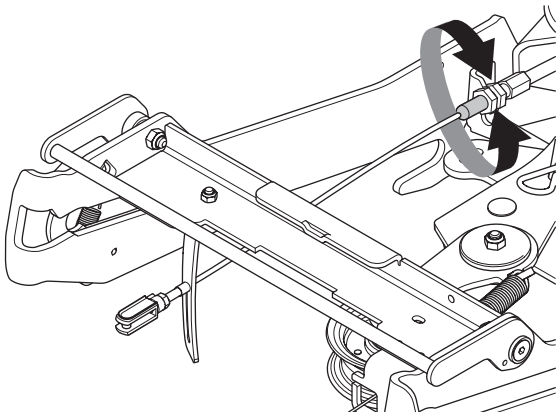


2. Adjust the cable so that the distance between the surface and the front of the cutting deck cover is 25 mm with the cutting height lever in position 1.



3. If the cutting height in one of the cutting height positions is adjusted, the other fixed cutting heights will be changed the same amount.

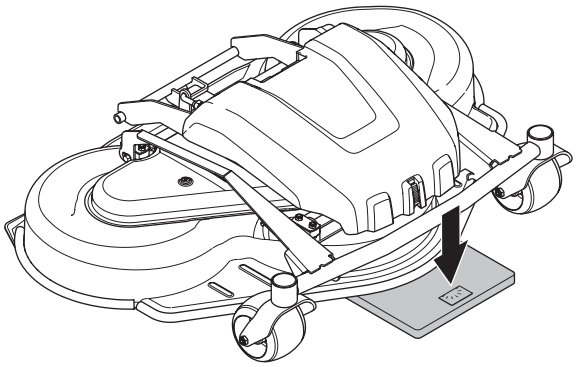
If the play in the cable is not enough, adjustment can be done at the tool frame.



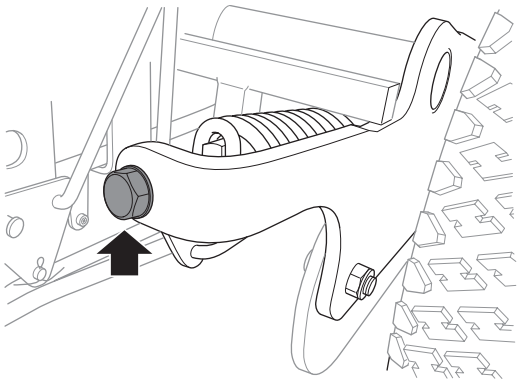
5.7.7 Checking and adjusting ground pressure

In order to obtain the best cutting results, the cutting deck must follow the surface without resting on it too hard. The pressure is adjusted with a screw and a spring on each side of the ride-on mower.

- Check tire pressure, see section “6 Specifications” on page 85.
- Put the ride-on mower on a level surface.
- Lower the cutting deck to the mowing position.
- Place a set of bathroom scales under the cutting deck’s frame (on the front edge) so that the deck rests on the scales. If necessary, a block can be laid between the frame and the scales so that the support wheels do not take any of the weight.



- Adjust the deck ground pressure by screwing in or out the adjustment screws behind the front wheels on both sides of the ride-on mower. The ground pressure should be between 12 and 15 kg/ 26.5-33 lbs with the springs tensioned equally.

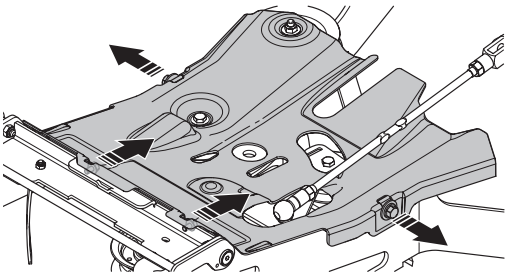


5.7.8 Changing height adjustment cable

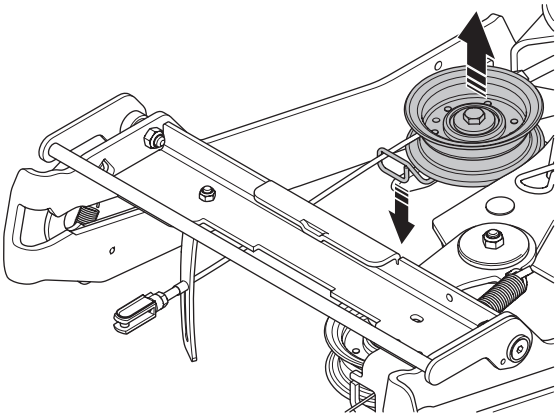
Tools	Dimension
Combination wrench x2	13 mm
Combination wrench x2	17 mm
Torx	T30

Dismantling

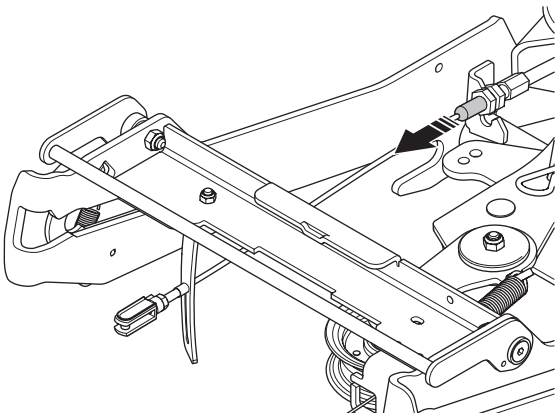
1. Remove the cutting deck. For further instructions, refer to section “5.7.2 Cutting deck” on page 78.
2. Release the lifting chain from the tool frame.
3. Dismantle the protecting cover on the tool frame.



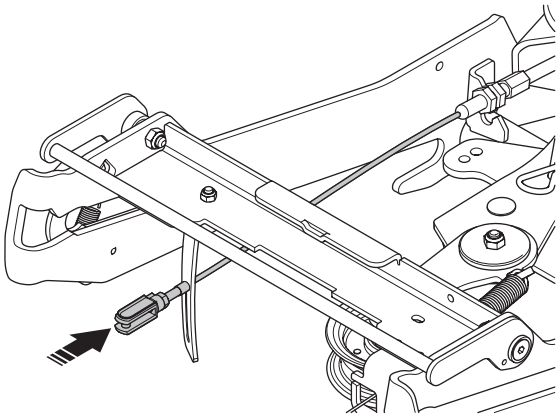
4. Remove the pulley and the cable retainer.



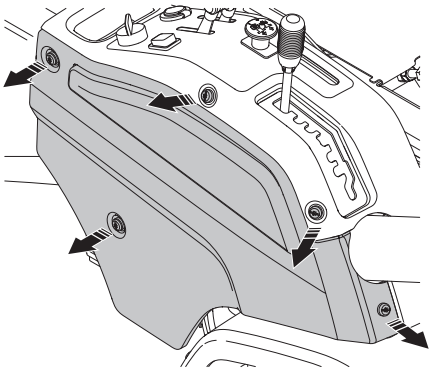
5. Loosen the locknuts on the cable sheath.
6. Pull back the rubber protection so that the cable can pass through the bracket opening.



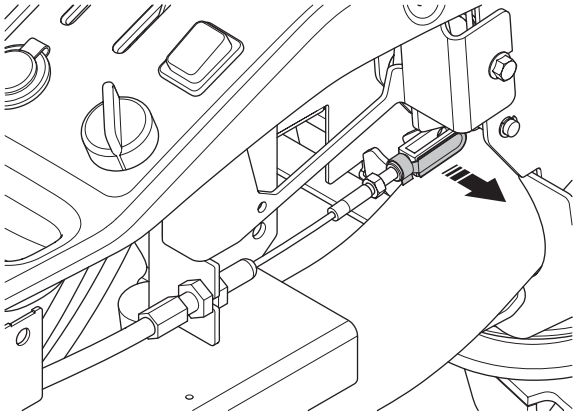
7. Take the cable out of the rubber strap.

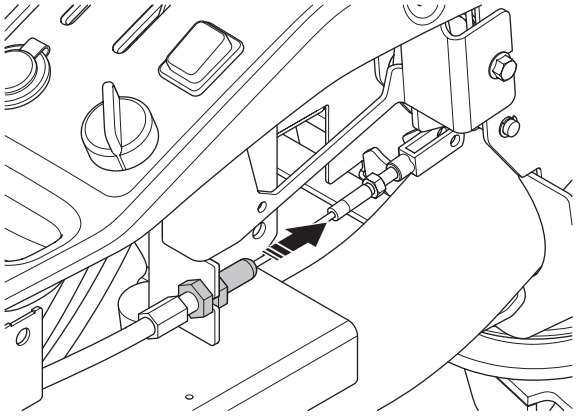


8. Remove the right side cover.



9. Loosen the front snap lock on the cable.
10. Pull back the rubber protection so that the cable can pass through the bracket opening. Loosen the locknut and take the cable out through the bracket.





11. Make a note of how the cable is routed.
12. Remove the cable.

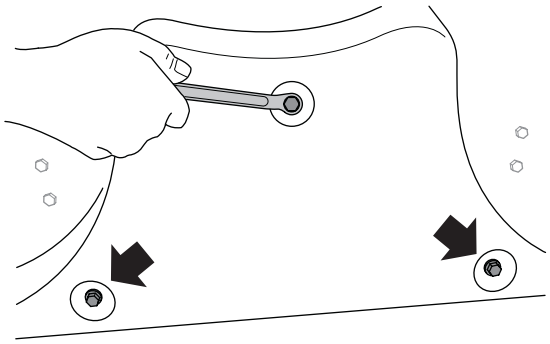
Assembling

1. Assemble in reverse order.
2. After assembling, the play in the wire under the side cover and the cable on the cutting deck must be checked and adjusted if necessary. For further information, see “5.7.7 Adjusting the cutting height range” on page 82.

5.7.9 BioClip plug

To change the Combi Deck from BioClip function to cutting deck with rear ejection, remove the BioClip plug fastened under the cutting deck with three screws.

1. Put the cutting unit in service position, see “5.7.2 Cutting deck” on page 78.
2. Remove the three screws holding the BioClip plug. Remove the plug.



Tip: Fit three full-thread screws into the screw holes to protect the threads when removing the BioClip plug.

1. Return the cutting deck to the normal position.
2. Fit the BioClip plug in the reverse order.

6 Specifications

6.1 Technical data

6.1.1 Technical data - Sound and vibration levels

	P 5240	
Cutting deck	C 112	C 122
Noise emissions (see note 3)		
Noise power level, measured dB(A)	99	102
Noise power level, guaranteed dB(A)	100	104
Noise levels (see note 4)		
Noise pressure level at user's ear, dB(A)	85	89
Vibration levels (see note 5)		
Vibration level in steering wheel, m/s^2.	1.7	1.7
Vibration level in seat, m/s^2	0.7	0.7

Note. 3: Emission of noise to the surroundings measured as sound power (LWA) in accordance with the EU directive 2000/14/EC.

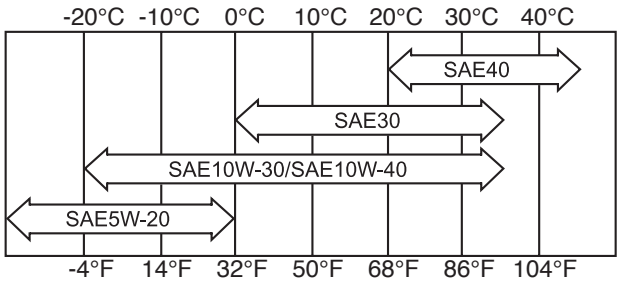
Note. 4: Noise pressure level according to EN 836. Reported data for the noise pressure level has a typical dispersion (standard deviation) of 1.2 dB(A).

Note. 5: Vibration level according to EN 836. Reported data for the vibration level has a typical dispersion (standard deviation) of 0.2 m/s^2 (steering wheel) and 0.8 m/s^2 (seat).

6.1.2 Technical data - Fluids

Engine oil

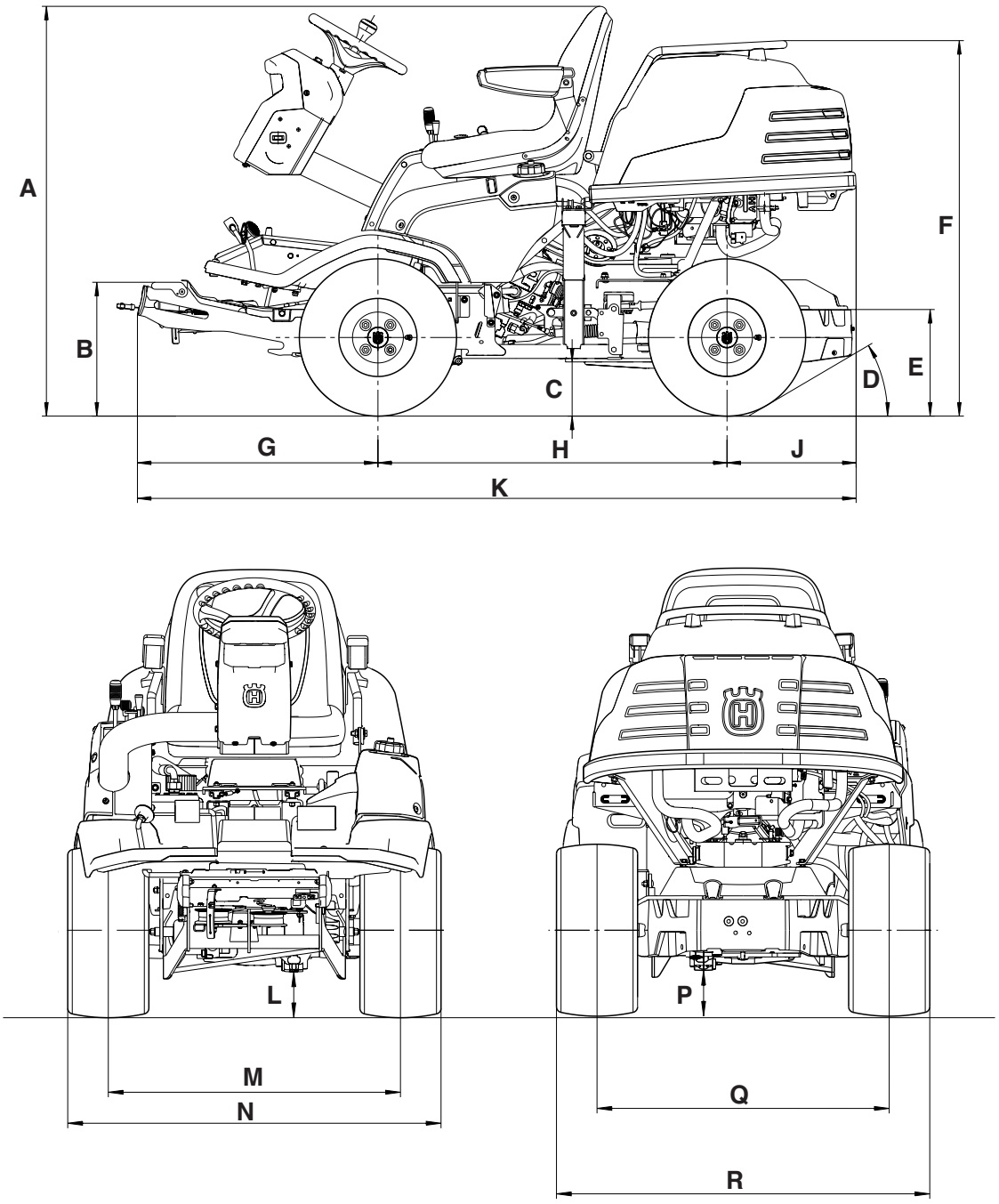
Use an engine oil with a viscosity indicated in the chart, class SF-SJ. The engine takes 1.8 liters (1.9 US qt) of oil excl. the oil filter.



6.1.3 Technical data - Cutting deck

Cutting deck	C 112	C 122
Cutting width, cm/inch	1120 / 44.09	1220 / 48.03
Cutting heights, 7 positions, mm/inch	25-80 / 0.98-3.13	25-80 / 0.98-3.13
Blade length, mm/inch	420 / 6.5	454 / 17.9
Width, mm/inch	1178 / 46.4	1275 / 50.2
Weight, kg/lb	55 / 121	64 / 141
Blade - Part Number	5441027-10	5354294-10

6.1.4 Technical data - Dimensions



A	1173 mm
B	383 mm
C	155 mm
D	30°:
E	305 mm
F	1075 mm
G	689 mm
H	1000 mm

J	370 mm
K	2058 mm
L	120 mm
M	765 mm
N	977 mm
P	120 mm
Q	765 mm
R	977 mm

6.1.5 Technical data - P524

	P524
Dimensions and weight	
Length of basic machine, mm/ft	2,058/6.75
Width of basic machine, mm/ft	977/3.20
Height, mm/ft	1173/3.84
Curb weight of basic machine, kg/lb	387/853
Height, mm/ft	1000/3.28
Wheels	
Tire size	18x8.5-8
Air pressure front, kPa/bar/PSI	100/1.0/14.5 (Max 1.5 bar)
Air pressure rear, kPa/bar/PSI	100/1.0/14.5 (Max 1.5 bar)
No. of bearings (PR)	4
Engine	
Make	Kawasaki, V-twin
Model	FX691V-KME09023
Output, hp according to SAE J1349 net.int. @3000 RPM	18.9
Stroke cm^3/ cu.in	726/ 43.3
Fuel, lowest octane rating unleaded	95 (max methanol 5%, max ethanol 10%, max MTBE 15%)
Tank capacity liters/ US qt	22/ 23
Oil	SAE 10W/40
Oil volume exl filter, liters/ US qt	1.8/1.9
Oil volume incl filter, liters/ US qt	2.1/2.2
Start	Electric start
Max engine speed, rpm	3000 ± 75
Spark plug	NGK BPR4ES
Transmission	
Make	Kanzaki KTM 23
Front transmission	KTM23LB
Rear transmission	KTM23SB
Oil, grade API SM, ACEA A3/B4	SAE 10W/50 Fully synthetic
Oil volume front gearbox, liters/ US qt	0.9/0.9
Oil volume rear gearbox, liters/ US qt	0.9/0.9
Hydraulic system	
Hydraulic pump	KPL-23CLP
Oil, grade API SM, ACEA A3/B4	SAE 10W/50 Fully synthetic
Oil volume hydraulic tank, liters/ US qt	8/8.5
Oil volume hydraulic system, liters/ US qt	13/13.7
Max working pressure, bar/PSI	30 / XXX
Max flow, liter/min	12

Electrical system

Type	12V, negative ground
Battery	12V, 24 Ah
Main fuse, Flat pin, A	20
Elec. socket fuse, Flat pin, A	5
Electrode gap mm/inch	0.75/0.030
Bulbs, halogen	2x12V 20 W

Tightening torques

Belt pulley-cutting deck	35-40 Nm/ 25-28 lbft
Blades M10 bolt	45-50 Nm/ 32-36 lbft
Blades M12 bolt	75-80 Nm/ 53-56 lbft
Blade bearings	20-25 Nm/ 14-18 lbft
Belt tensioner pulley	15-25 Nm/ 10-18 lbft
Engine mounting screws	45 Nm/ 32lbft
Engine pulley	70-80 Nm/ 50-56 lbft

Control points

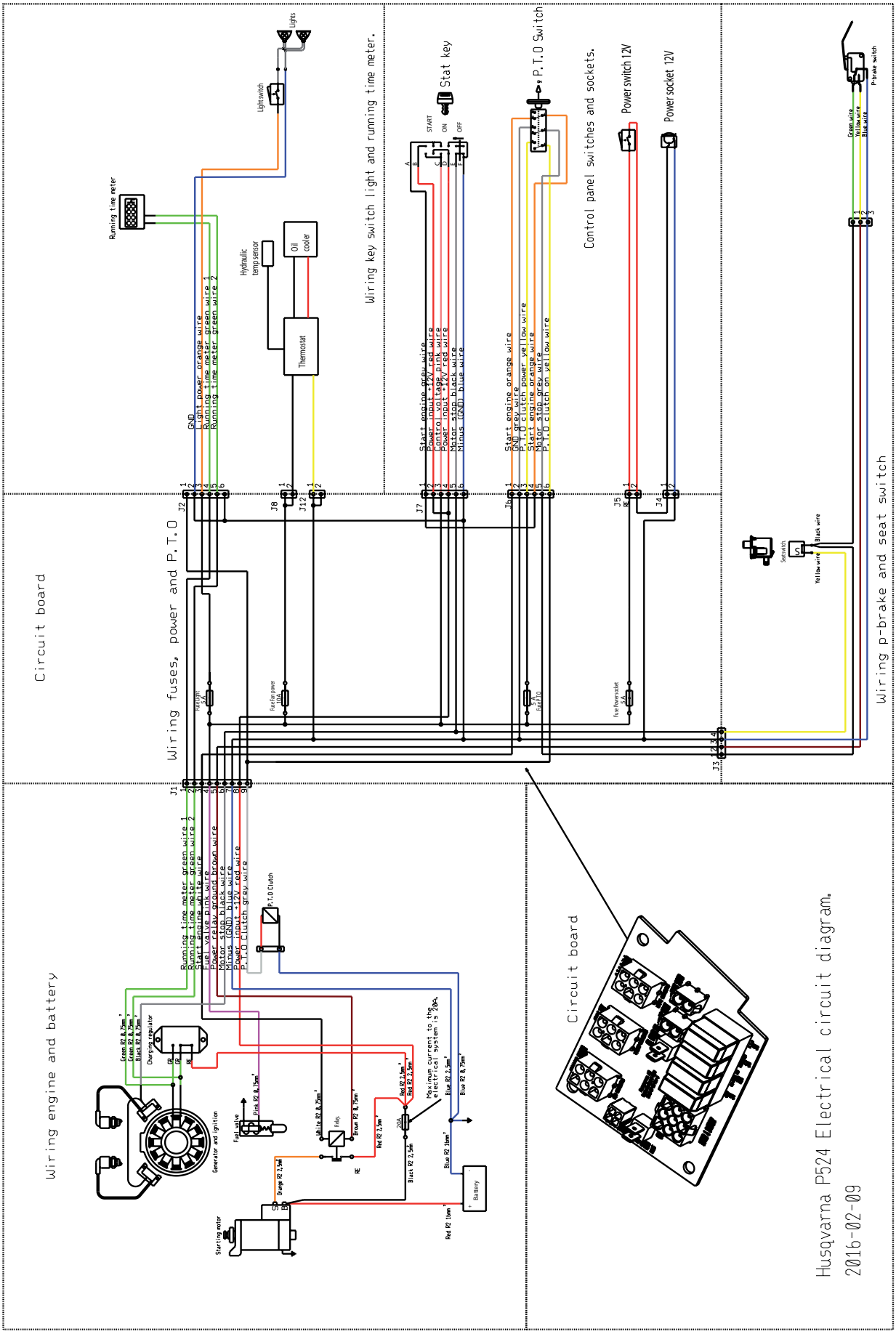
Parallelism cutting deck with cutting height in position 1:	± 2 mm/ ± 0.079”
Control of cutting height in position 1:	40 ± 2 mm/ 1.57 ± 0.079”
Distance between support plate and drive belt:	3-6 mm/ 1/8”-1/4”
Distance belt tensioner lever arm and belt guide, disengaged deck:	17 ± 5 mm/ 7/16” ± 3/16”

Play

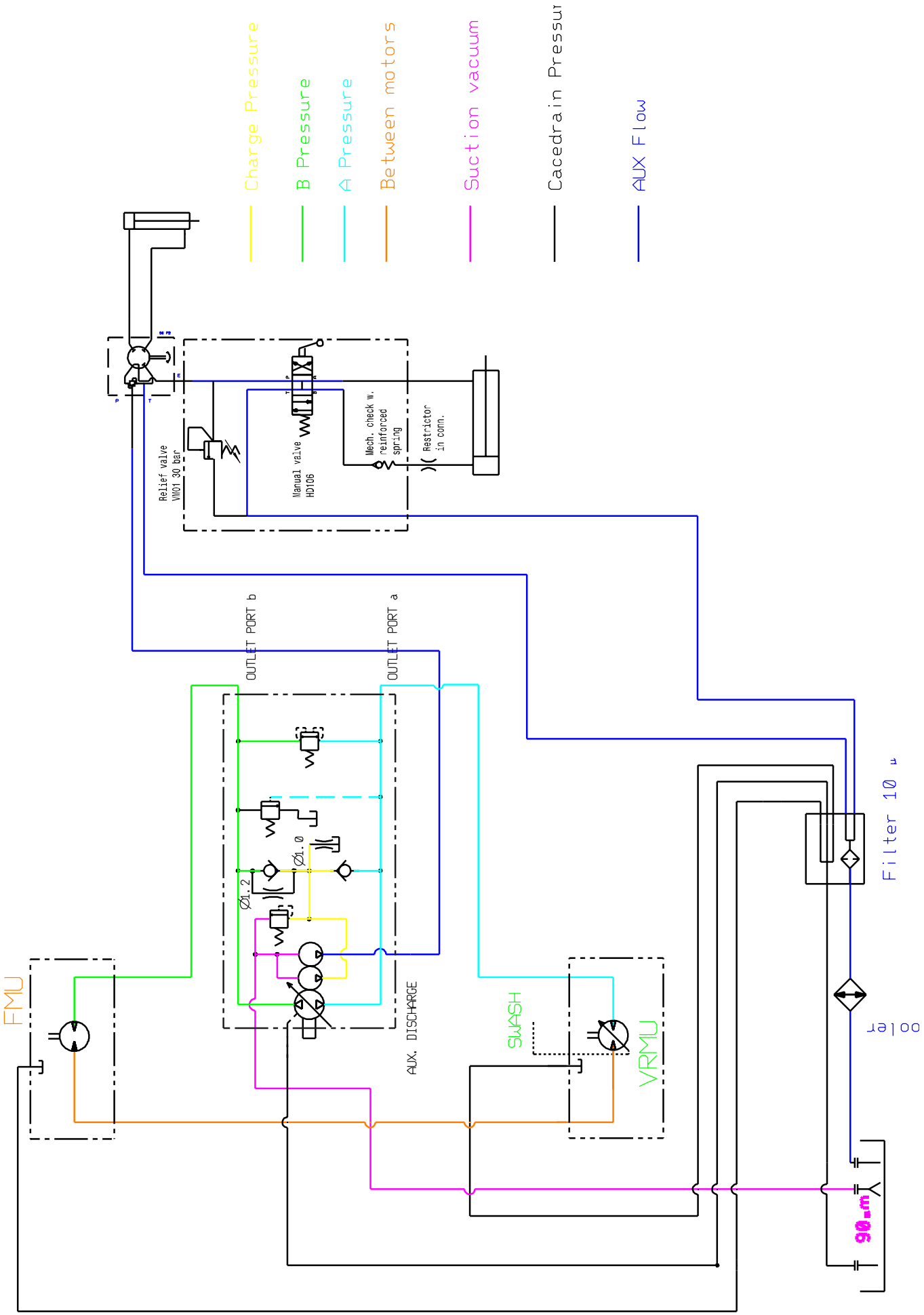
Brake cable:	1 mm/ 0.040”
Cable hydrostatic pedals:	0 mm

7 Appendices and schedules

7.1 Wiring diagram



7.2 Hydraulic diagram



7.3 Troubleshooting schedule

Measure voltage:

Use a multimeter in voltage mode. Hold the red measuring probe against the measurement point and the black measuring probe against a grounding point (e.g. negative battery terminal) and read off the voltage on the multimeter display.

Measure resistance:

Use a multimeter in resistance mode. Hold the red measuring probes on the measurement points and read off the value on the multimeter display.
On contact, the value should be low (<1 Ohm).
On broken contact, the value should be high (>500 Ohm).

Checking cables and connectors:

When checking cables, look for the following:

- Cable breaks
- Worn cable sheaths
- Cable fastening in terminals
- Cleanliness of terminals
- Tarnished terminals

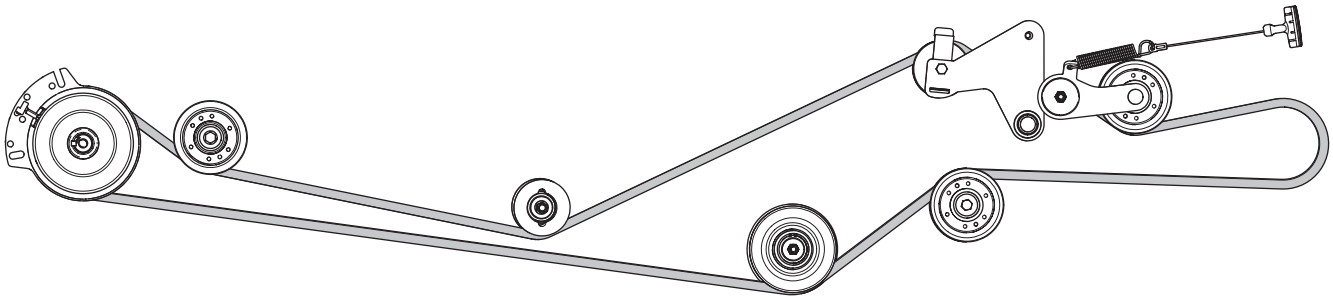
Fault	Possible cause	Steps	Troubleshooting	Action
Machine does not start the start motor when the key is switched on	PTO Enabled	1	Check the PTO switch.	Deactivate PTO
	P-brake not activated.	2	Check P-brake	Activate P-brake
	Battery voltage	3	Make sure the 20A wired fuse is intact.	Replace fuse
		4	Measure the battery voltage, >12.0V.	Charge battery
		5	Make sure the screw terminals are securely attached to the battery terminals.	Tighten the screw terminals on the battery terminals.
		6	Measure the voltage of the red cable to J1 (pin 8). The voltage should be equal to the battery voltage.	Check the cable, go to step 11 and step 12.
	Starter relay	7	Check the orange cable and connectors between the relay and the start motor.	Repair the cable or replace the cabling
		8	Make sure the relay clicks when the key is turned to "Start".	Replace relay
	P-brake switch	9	Check the P-brake microswitch.	Replace the microswitch.
	PTO button	10	Loosen connector J6 and measure the resistance between the orange, gray and yellow pairs in the cable connectors. When the PTO switch is pressed, the orange cables should make contact but not the others. When the PTO button is raised, the orange cables should not make contact but the others should.	Replace the PTO button.
	Wiring fault	11	Check the red cable and connectors from the relay (connector 30) to J1 (pin 8).	Repair the cable or replace the cabling.
		12	Check the blue cable and connectors from the battery to J1 (pin 7).	
		13	Check the white cable and connectors from J1 (pin 3) on the control board to the relay (connector 85).	
		14	Check the brown cable and connectors from J1 (pin 5) on the control board to the relay (connector 86).	
		15	Check the gray cable and connectors from J7 (pin 1) on the control board to the key switch (connector A).	
		16	Check the gray cable and connectors from J7 (pin 2) on the control board to the key switch (connector A).	
		17	Check the orange cable and connectors from J6 (pin 4) on the control board to the PTO switch.	
		18	Check the orange cable and connectors from J6 (pin 1) on the control board to the PTO switch.	
		19	Check the brown cable and connectors from J3 (pin 2) on the control board to the connector before the P-brake.	
		20	Check the blue cable and connectors from J3 (pin 3) on the control board to the connector before the P-brake.	
		21	Check the blue cable and connectors from the connector before the P-brake to the P-brake microswitch.	
		22	Check the yellow cable and connectors from the connector before the P-brake to the P-brake microswitch.	
	Key switch	23	Measure the voltage on the gray cable from J7 (pin 1) when the start key is turned to "Start". The voltage in the cable should then be 12V.	Replace the key switch
	Control card	24	Measure the voltage on J7 (pin 2) and J7 (pin 4). The voltage should be equal to the battery voltage.	Replace the control card

Fault	Possible cause	Steps	Troubleshooting	Action
Machine will not start despite the start motor working	Wiring fault	25	Check the pink wire and connectors between J1 (pin 4) and the fuel valve.	Repair the cable or replace the cabling.
		26	Check the black cable and connectors between J1 (pin 6) and the engine.	
Machine stops when the P-brake is deactivated.	Fault in seat switch	27	Measure the resistance between the cable going to J3 (pin 1) and the cable going to J3 (pin 4). With no-one sitting in the seat, the resistance should be low and high when there is someone in the seat.	Check the seat switch and connector, replace if necessary.
Machine stops when the driver leaves the seat with the P-brake applied.	PTO Enabled	28	Check the PTO switch.	Disable PTO.
	Faulty P-brake switch.	29	Check the P-brake microswitch.	Replace the microswitch.
Machine does not stop when the driver leaves the seat without releasing the P-brake.	Faulty P-brake switch.	30	Check the P-brake microswitch.	Replace the microswitch.
	Fault in seat switch	31	Carry out checks according to step 23.	Check the seat switch and connector, replace if necessary.
	Wiring fault	32	Check the black cable and connectors between the engine and J1 (pin 6) on the control board.	Repair the cable or replace the cabling.
		33	Check the black cable and connectors between the seat switch and J3 (pin 1) on the control board.	
		34	Check the black cable and connectors between the seat switch and connector on P-brake.	
		35	Check the green and blue cables and connectors to the P-brake microswitch.	
		36	Check the blue cable and connectors from J3 (pin 3) on the control board to the connector before the P-brake.	

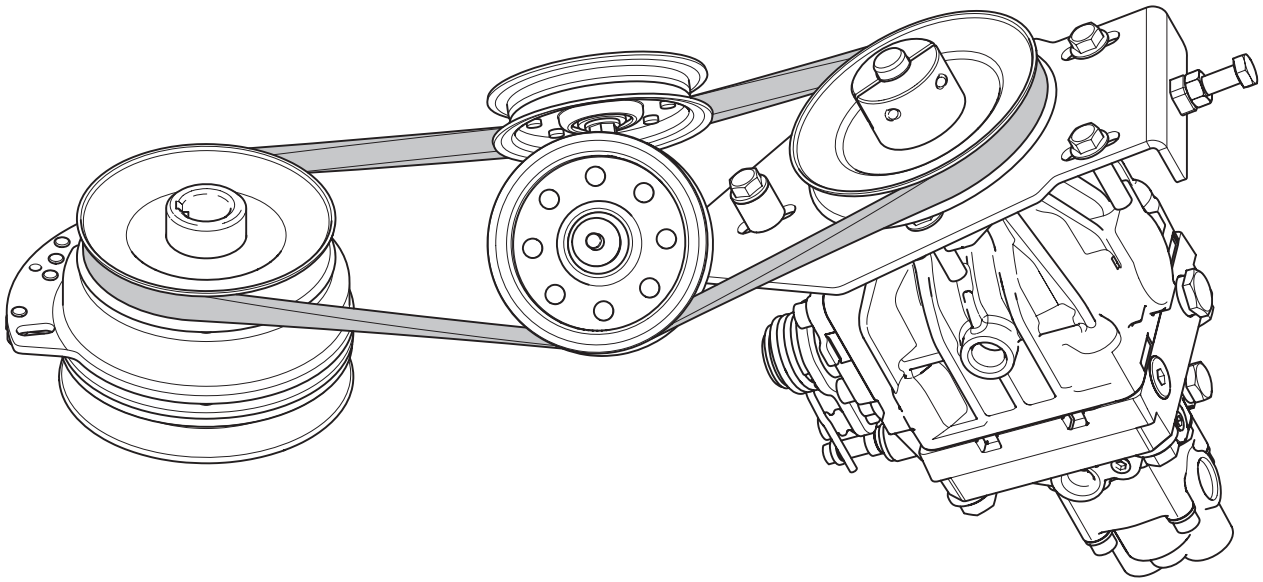
Fault	Possible cause	Steps	Troubleshooting	Action
PTO activation does not work	Battery voltage	37	Check the 5A “Fuse P.T.O.”	Replace fuse
		38	Measure the voltage on J6 (pin 3) with the key in “ON” position. The voltage should be equal to the battery voltage.	Go to steps 3-6.
		39	Measure the voltage in the connector to the electrical coupling. The voltage should be equal to the battery voltage when PTO is engaged.	Go to wiring fault
	Wiring fault	40	Check the gray cable and connectors from J1 (pin 9) on the control board to the PTO clutch.	Repair the cable or replace the cabling.
		41	Check the blue cable and connectors from the PTO clutch to the battery.	
		42	Check the yellow cable and connectors from J6 (pin 3) on the control board to the PTO switch.	
		43	Check the yellow cable and connectors from J6 (pin 6) on the control board to the PTO switch.	
Machine will not shut down	Wiring fault	44	Check the black cable and connectors between J1 (pin 6) and the engine.	
		45	Check the black cable and connectors between J7 (pin 5) and the key switch.	
		46	Check the blue cable and connectors between J7 (pin 6) and the key switch.	
	Key switch	47	Check that the black cable from connector J7 (pin 5) and the blue cable from J7 (pin 6) makes contact when the key is in “OFF" position.	Replace the key switch
12V socket not working	Battery voltage	48	Make sure the switch for the 12V socket is on.	Enable the 12V socket
		49	Check that the key switch is in the “ON” position.	Turn the key switch to “ON”.
		50	Check the 5A “Fuse Power socket”.	Replace fuse
		51	Check steps 3-6.	-
	Wiring fault	52	Check the blue and black cable and contacts from J4 to the 12V socket.	Repair the cable or replace the cabling
		53	Check the red cables and connectors from J5 to the switch for enabling the 12V socket.	
Lamp not working	Blown bulb	54	Try swapping bulbs or fit a new.	Replace the bulb
	Wiring fault	55	Check the gray cables and connectors to the malfunctioning lamp.	Repair the cable or replace the cabling
Both lamps not working	Battery voltage	56	Make sure the switch for the lamps is activated.	Activate the button
		57	Check the 5A “Fuse Light”.	Replace fuse
		58	Measure the voltage on J2 (pin 3) with the key in “ON” position. The voltage should be equal to the battery voltage.	Check steps 3-6.
	Wiring fault	59	Check the orange and blue cable and connectors from J2 to the switch for the lamps.	Repair the cable or replace the cabling
		60	Check the cabling as in step 10 and step 11.	

7.4 Belt position diagram

PTO-Belt

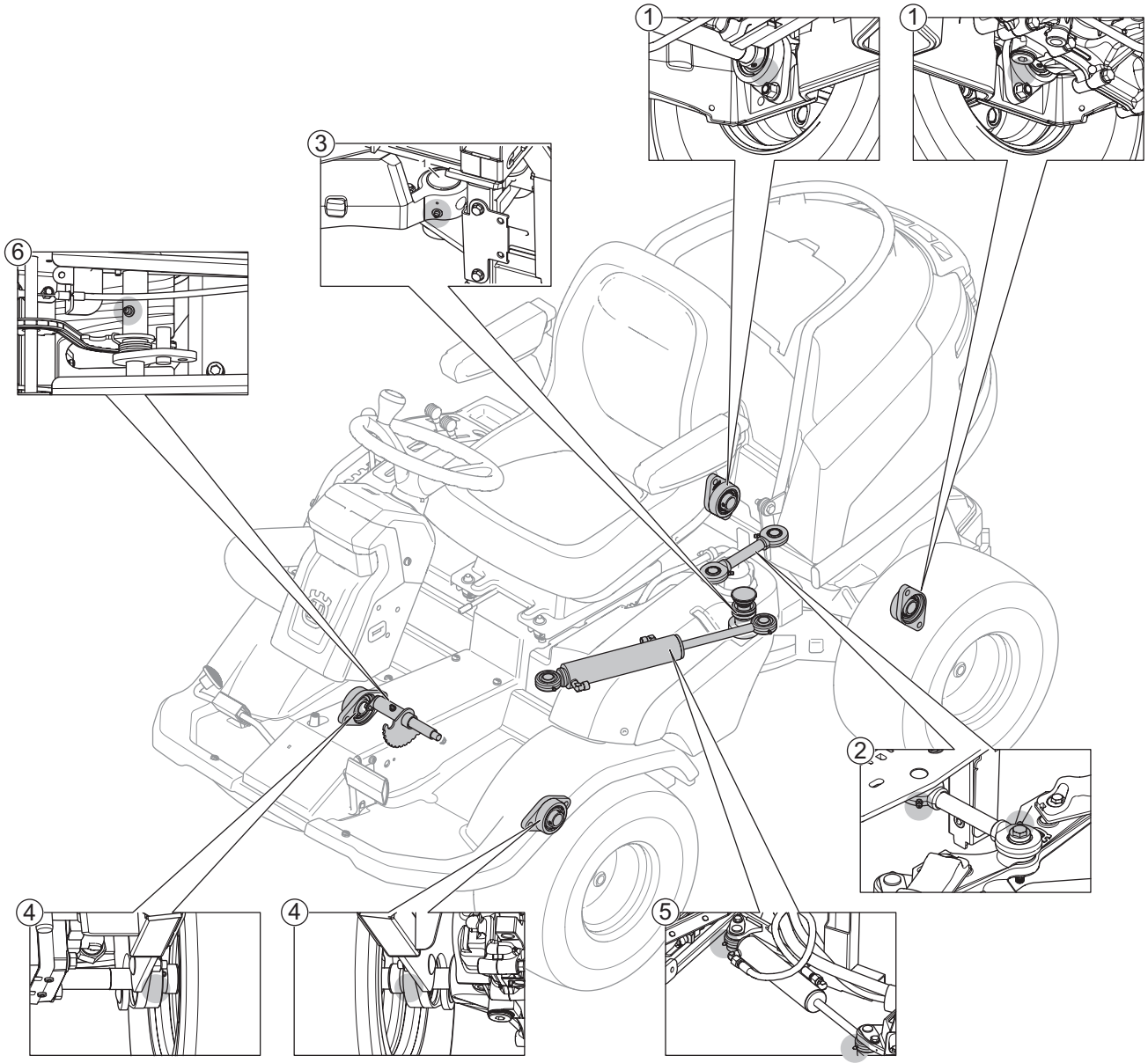


Pump Belt



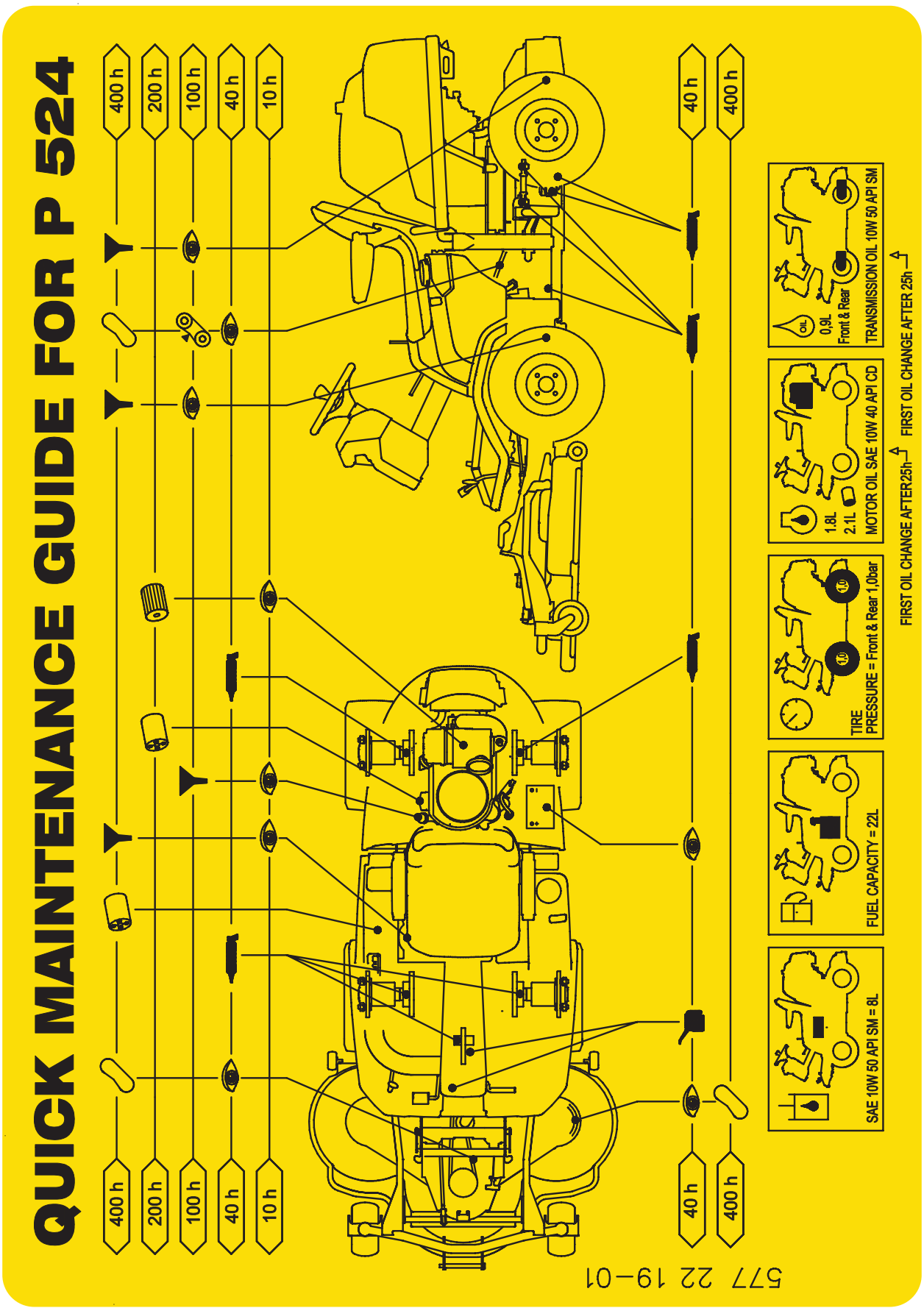
7.5 Lubrication

Lubrication points



1	Bearing unit - rear axle
2	Link stay
3	Articulated Bearing
4	Bearing unit - front axle
5	Steering cylinder
6	Shaft for lift chain

Lubrication Schedule



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