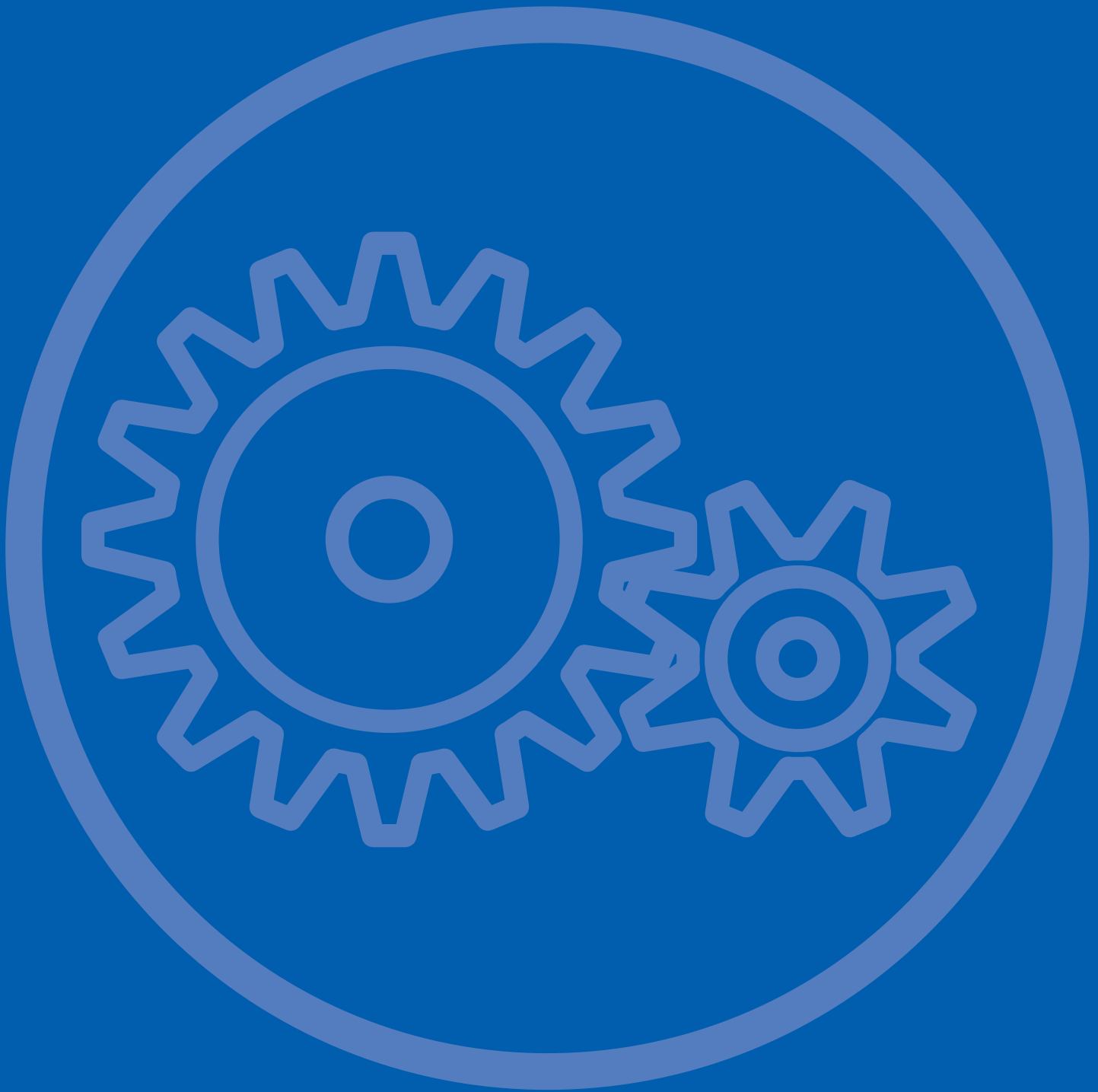




Workshop Manual
Rider 316T, 322T
Rider 316T/s AWD
Rider 316TXs AWD



English

TABLE OF CONTENTS

Safety Instructions	4
General directions	4
Special directions	4
Special Tools	6
Specifications	10
Specifications	12
Delivery and Dealer Service	15
Delivery service	15
After the first 8 hrs	15
25-hour service	15
50-hour service	15
100/200-hour service	15
300-hour service	16
At least once every season	16
Service schedule	17
Delivery measures	20
Wheels	24
Underrun guard	24
Checking and adjusting the cutting deck	25
Design and Function	28
General	28
Steering	31
Drive	32
Cutting Deck	34
Repair Work	36
Removing Kawasaki Engine	36
Assembling Kawasaki Engine	39
Replacing the Steering Cables	46
Removing/Assembling the Cable Pulley	47
Removing the Swing Axle	52
Assembling the Swing Axle	55
Drive Shafts	55
Front Axle	55
Rear Axle	59
Replacing the Hydrostatic Cable	67
Fitting the Hydrostatic Cable	69
Bleeding the Drive System	72
Adjusting Transmission Neutral Position	74
Lever Carrier Adjustment	77
Replacing the Hydraulic Pump Drive Belt	78
Replacing the Center Belt	80
Change of Front Belt	81
Tool Frame	82
Removing the Cutting Deck (CombiClip 94)	87
Service Position for Cutting Deck	89
Applying Service Position CombiClip 94	92
Return from Service Position	94
Setting Parallelism and Cutting Height	95
Removing Blades with Bearings	99
Grinding and Balancing Blades	103
Removal of BioClip Plug (CombiClip)	104
Electrical System	105
Wiring Diagram	105
Ignition and Starter Switch	107
Main Fuses	107
Checking Safety System	107

Hydraulic System	110
Hydraulic Hygiene	110
Hydraulic Oils	110
Rectify Oil Leaks	110
Keep Hydraulic Oil Clean	111
Working Methods	111
Hydraulic System AWD	112
Appendix: Troubleshooting schedule	

Mower 322T is the North American version of the 316T. Specs for the 322T should be taken from the 316T model.

TABLE OF CONTENTS

SAFETY INSTRUCTIONS

Safety Instructions

General directions

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

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

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

This machine has been tested and approved only together with the equipment supplied or recommended by the manufacturer.

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.

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

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 jet toward your body. Air can penetrate into the blood circulation, which means mortal danger.

Use eye protection when working on tensioned springs.

Use hearing protection during testing.

During testing, do not touch the muffler before it has cooled down due to the 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.

Use eye protection when working on the battery with caps removed. Take care when handling battery acid. Acid on skin can cause serious burns. In the event of spillage on the skin, wash immediately with water.

Acid in eyes can result in blindness, seek medical aid.

Take care when carrying out service on 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.

IMPORTANT INFORMATION
Waste oil and used oil filters shall be handled as environmentally hazardous waste.

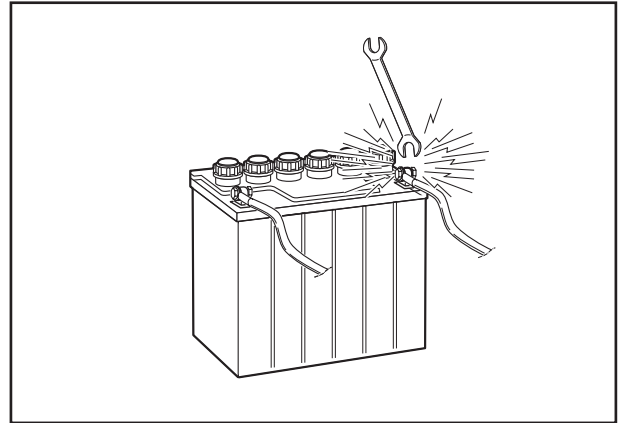
SAFETY INSTRUCTIONS

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.



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Risk of sparks

Avoid sparks and their consequences by:

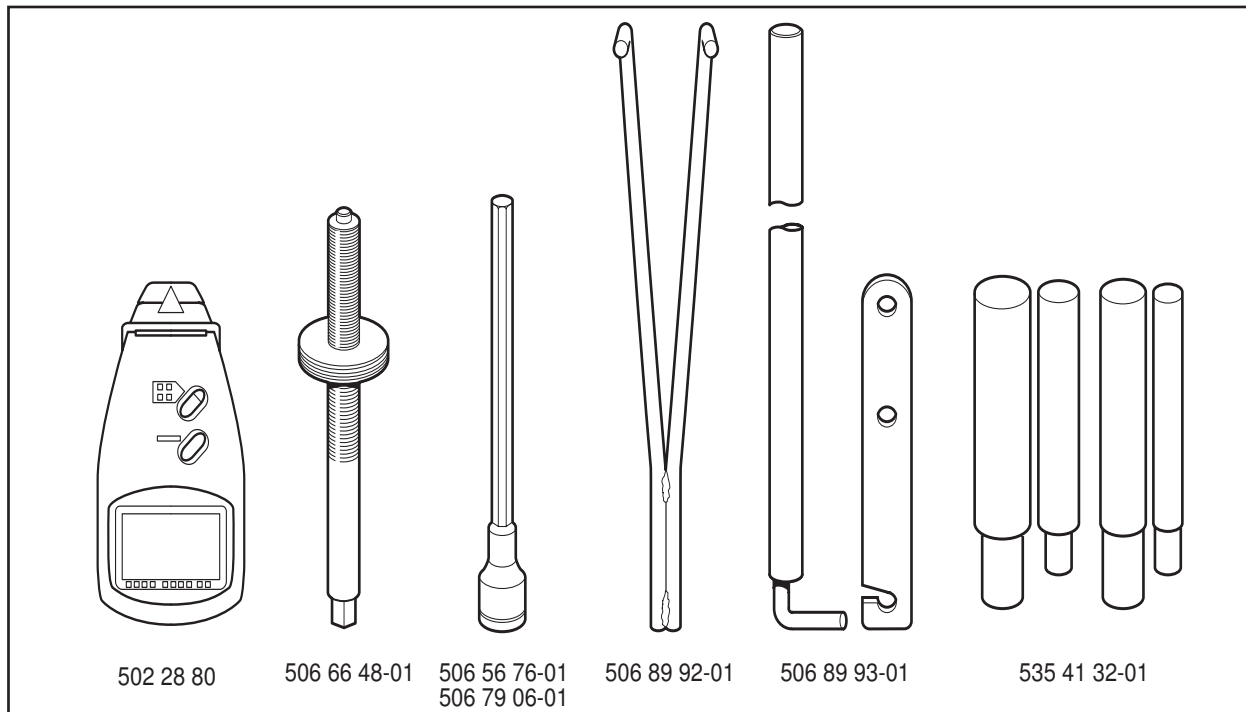
- Using protective goggles.
- Making sure the tank cap is fitted and there are no flammable liquids stored in open vessels.
- Not working with the starter motor circuit in the vicinity of spill fuel.
- Disconnecting the battery's ground cable (normally a black negative cable) first and connect it last.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

SPECIAL TOOLS

Special Tools

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

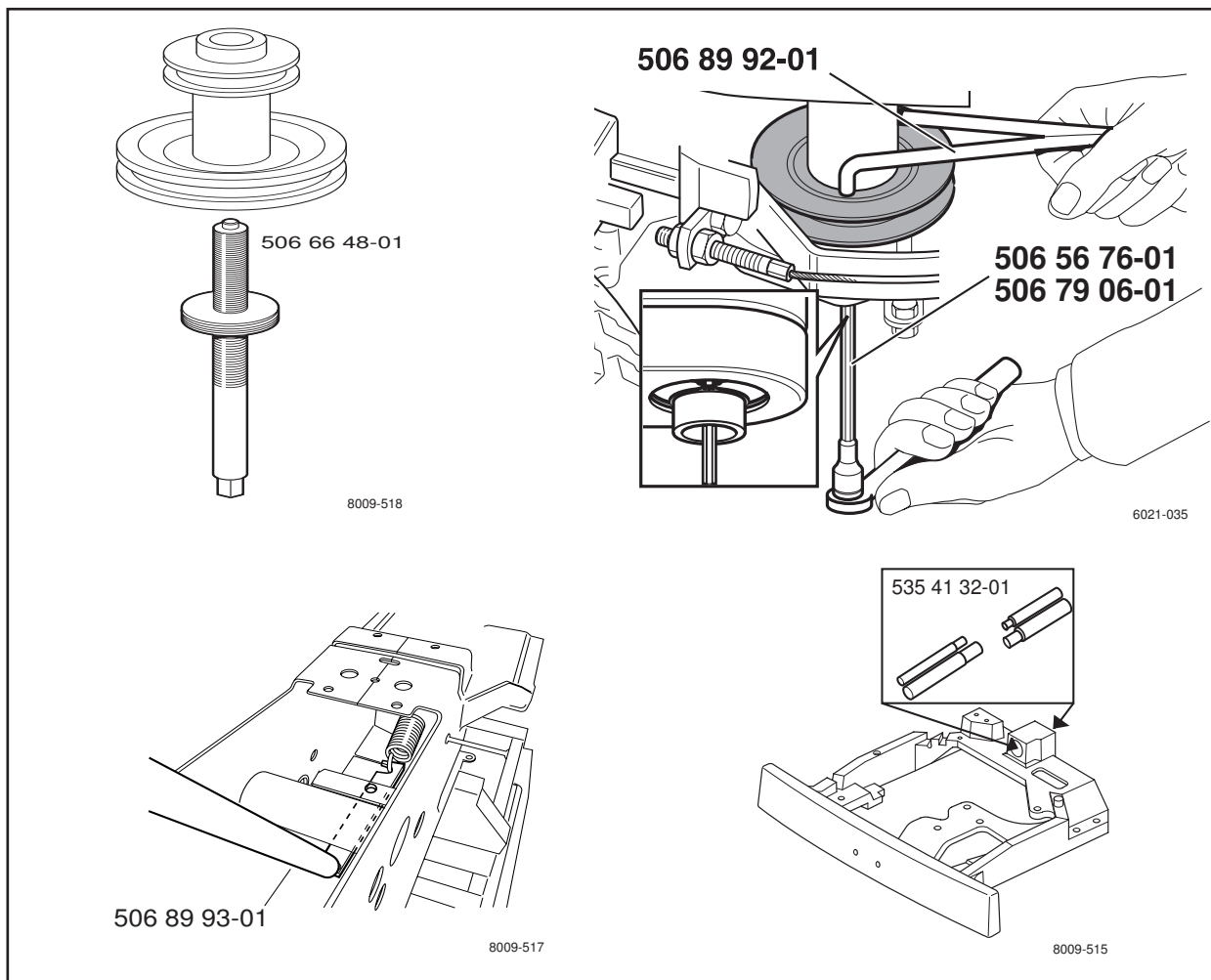
Special tools for engine and transmission can be found in the respective workshop manual.



6021-034

- | | |
|--------------|---|
| 506 66 48-01 | Puller for engine belt pulley. |
| 506 56 76-01 | Allen key 5/16" to loosen the engine belt pulley hex screw (Kawasaki). |
| 506 79 06-01 | Allen key 3/8" to loosen the engine belt pulley hex screw (Briggs & Stratton) |
| 506 89 92-01 | Counterhold for removal of engine belt pulley. |
| 506 89 93-01 | Tool for center spring. |
| 535 41 32-01 | Set of drifts for bushings in swing axle. |
| 502 28 80-01 | Tachometer. |

SPECIAL TOOLS



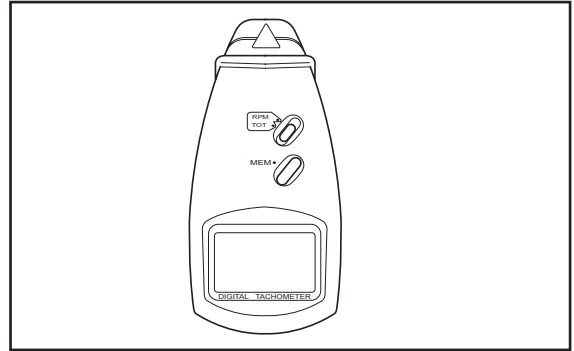
The illustration shows how the special tools are used.

SPECIAL TOOLS

Laser tachometer

Safety

- 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's eyes, human or animal.
- Do not aim the laser beam at shiny surfaces where the beam can reflect into your 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.



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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. 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.
4. 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
First press	Last	"LA"
Second press	Highest	"UP"
Third press	Lowest	"dn"

Change batteries

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.

Maintenance

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.

SPECIAL TOOLS

SPECIFICATIONS

Specifications

	Rider 316Ts AWD	Rider 316TXs AWD
Dimensions		
Length without cutting deck, mm/ft	2020/6.61	2020/6.61
Width without cutting deck, mm/ft	890/2.92	890/2.92
Height, mm/ft	1150/3.77	1150/3.77
Service weight with cutting deck, kg/lb	307-312-315/679-688-694	294-299-302/648-659-666
Wheelbase, mm/ft	887/2.91	887/2.91
Track front, mm/ft	712/2.34	712/2.34
Track rear, mm/ft	627/2.06	627/2.06
Tire dimension	16 x 6.50 x 8	16 x 6.50 x 8
Air pressure rear - front, kPa/bar/PSI	60 (0.6/8.5)	60 (0.6/8.5)
Engine		
Make/Model	Kawasaki / FS481V	Kawasaki / FS481V
Rated output, kW (see note 1)	9.6	9.6
Stroke, cm ³ /cu.in	603/36.8	603/36.8
Fuel, minimum octane rating unleaded	87	87
Tank capacity, liters/USqt	12/13	12/13
Oil	Grade SF, SG, SH or SJ SAE40, SAE30, SAE10W-30, SAE10W-40 or SAE5W-20	Grade SF, SG, SH or SJ SAE40, SAE30, SAE10W-30, SAE10W-40 or SAE5W-20
Oil capacity with filter, liters/USqt	1.7/1.8	1.7/1.8
Oil capacity without filter, liters/USqt	1.5/1.6	1.5/1.6
Start	Electric start 12V	Electric start 12V
Max. engine speed, rpm	2900 ± 100	3100 ± 100
Electrical system		
Type	12V, negative ground	12V, negative ground
Battery	12V, 24 Ah	12V, 24 Ah
Spark plug	NGK BPR4ES	NGK BPR4ES
Electrode gap, mm/inch	0.75/0.030	0.75/0.030
Lamps	Osram, 2X12V 20W	Osram, 2X12V 20W
Noise emission and cutting width		
(see note 2)		
Noise power level, measured dB(A)	97	98
Noise power level, guaranteed dB(A)	98	99
Cutting width, cm/inch	94-103-112/37-41-44	94-103-112/37-41-44
Noise levels		
(see note 3)		
Noise pressure level at user's ear, dB(A)	86	83

Note 1. If the machine can be fitted with several different cutting decks, the value is given in order starting with the deck with the smallest cutting width.

SPECIFICATIONS

	Rider 316Ts AWD	Rider 316TXs AWD
Vibration levels		
(see note 4)		
Vibration level in steering wheel, m/s ² .	2.5	2.5
Vibration level in seat, m/s ²	0.7	0.7
Transmission		
Make	K 574 KTM 10L	K 574 KTM 10L
Oil, grade SF-CC	SAE 10W/50 Fully synthetic	SAE 10W/50 Fully synthetic

Tightening Torques

Steering drive	5-10 Nm / 3.5-7 lb ft	5-10 Nm / 3.5-7 lb ft
Steering cable pulley	20-30 Nm / 14-21 lb ft	20-30 Nm / 14-21 lb ft
Belt pulley	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blades M10 bolt	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blades M12 bolt	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blade bearings	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Belt tensioner	15-25 Nm / 10-18 lb ft	15-25 Nm / 10-18 lb ft
Engine mounting screws	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Gearbox mounting screws	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Engine belt pulley	70-80 Nm / 50-56 lb ft	70-80 Nm / 50-56 lb ft

SPECIFICATIONS

Specifications

	Rider 316T	Rider 316T AWD
Dimensions		
Length without cutting deck, mm/ft	2020/6.61	2020/6.61
Width without cutting deck, mm/ft	890/2.92	890/2.92
Height, mm/ft	1150/3.77	1150/3.77
Service weight with cutting deck, kg/lb	275-280-283/606-617-624	294-299-302/648-659-666
Wheelbase, mm/ft	887/2.91	887/2.91
Track front, mm/ft	712/2.34	712/2.34
Track rear, mm/ft	627/2.06	627/2.06
Tire dimension	16 x 6.50 x 8	16 x 6.50 x 8
Air pressure rear - front, kPa/bar/PSI	60 (0.6/8.5)	60 (0.6/8.5)
Engine		
Make/Model	Kawasaki / FS481V	Kawasaki / FS481V
Rated output, kW (see note 1)	9.6	9.6
Stroke, cm ³ /cu.in	603/36.8	603/36.8
Fuel, minimum octane rating unleaded	87	87
Tank capacity, liters/USqt	12/13	12/13
Oil	Grade SF, SG, SH or SJ SAE40, SAE30, SAE10W-30, SAE10W-40 or SAE5W-20	Grade SF, SG, SH or SJ SAE40, SAE30, SAE10W-30, SAE10W-40 or SAE5W-20
Oil capacity with filter, liters/USqt	1.7/1.8	1.7/1.8
Oil capacity without filter, liters/USqt	1.5/1.6	1.5/1.6
Start	Electric start 12V	Electric start 12V
Max. engine speed, rpm	2900 ± 100	2900 ± 100
Electrical system		
Type	12V, negative ground	12V, negative ground
Battery	12V, 24 Ah	12V, 24 Ah
Spark plug	NGK BPR4ES	NGK BPR4ES
Electrode gap, mm/inch	0.75/0.030	0.75/0.030
Lamps	Osram, 2X12V 20W	Osram, 2X12V 20W
Noise emission and cutting width		
(see note 2)		
Noise power level, measured dB(A)	97	97
Noise power level, guaranteed dB(A)	98	98
Cutting width, cm/inch	94-103-112/37-41-44	94-103-112/37-41-44
Noise levels		
(see note 3)		
Noise pressure level at user's ear, dB(A)	86	86

Note 1. If the machine can be fitted with several different cutting decks, the value is given in order starting with the deck with the smallest cutting width.

SPECIFICATIONS

	Rider 316T	Rider 316T AWD
Vibration levels		
(see note 4)		
Vibration level in steering wheel, m/s ² .	2.5	2.5
Vibration level in seat, m/s ²	0.7	0.7
Transmission		
Make	Tuff Torq K46	K 574 KTM 10L
Oil, grade SF-CC	SAE 10W/40	SAE 10W/50 Fully synthetic

Tightening Torques

Steering drive	5-10 Nm / 3.5-7 lb ft	5-10 Nm / 3.5-7 lb ft
Steering cable pulley	20-30 Nm / 14-21 lb ft	20-30 Nm / 14-21 lb ft
Belt pulley	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blades M10 bolt	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blades M12 bolt	45-50 Nm / 32-36 lb ft	45-50 Nm / 32-36 lb ft
Blade bearings	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Belt tensioner	15-25 Nm / 10-18 lb ft	15-25 Nm / 10-18 lb ft
Engine mounting screws	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Gearbox mounting screws	20-25 Nm / 14-18 lb ft	20-25 Nm / 14-18 lb ft
Engine belt pulley	70-80 Nm / 50-56 lb ft	70-80 Nm / 50-56 lb ft

SPECIFICATIONS

Cutting Deck

	CombiClip 94	CombiClip 103
Cutting width	940 mm / 37"	1,030 mm / 40.5"
Cutting height	25-75 mm / 0.98-2.95"	25-75 mm / 0.98-2.95"
Blade length	360 mm / 14"	410 mm / 16"
Noise level, guaranteed	100 dB(A)	100 dB(A)
Width	1070 mm / 3.54 ft	1080 mm / 3.66 ft
Weight	46 kg / 102 lb	48 kg / 106 lb
	CombiClip 112	
Cutting width	1,120 mm / 44"	
Cutting height	25-75 mm / 0.98-2.95"	
Blade length	420 mm / 16.5"	
Noise level, guaranteed	100 dB(A)	
Width	1,230 mm / 4.04 ft	
Weight	50 kg / 110 lb	

Control points

Parallelism cutting deck with cutting height in position 1:	$\pm 2 \text{ mm} / \pm 0.079''$
Control of cutting height in position 1:	$25 \pm 2 \text{ mm} / 0.98 \pm 0.079''$
Distance between support plate and drive belt:	3-6 mm / 1/8"-1/4"
Distance belt tensioner lever arm and belt guide, disengaged deck:	$17 \pm 5 \text{ mm} / 7/16'' \pm 3/16''$

Play

Brake cable:	1 mm / 0.040"
Cable hydrostat pedals:	0 mm

DELIVERY AND DEALER SERVICE

Delivery and Dealer Service

Delivery service

1. Charge the battery with max 3 Amps for 4 hours. ☐
 2. Fit the steering wheel, seat, and, where appropriate, other details. ☐
 3. Check and adjust air pressure in the tires (60 kPa, 0.6 bar, 9 PSI). ☐
 4. Adjust the cutting deck:
 - Adjust the raising springs (cutting deck "weight" should be 12-15kg / 26.5-33 lb). ☐
 - Adjust the deck so its rear edge is about 2-4 mm / 1/8" higher than the front. ☐
 - Adjust the deck cutting height setting so that the coupling rod is under tension at the lowest cutting height. ☐
 5. Make sure there is the correct amount of oil in the engine. ☐
 6. Make sure there is oil in the transmission oil tank. ☐
 7. Connect the battery. ☐
 8. Fill fuel and start the engine. ☐
 9. Make sure the machine does not move in neutral position. ☐
 10. Check the rotation speed of the wheels. Adjust as in the table if necessary. See "Adjusting wheel speed" on page 62. ☐
 11. Check: ☐
 - Driving forwards. ☐
 - Driving backwards. ☐
 - Engaging the blades. ☐
 - Seat safety switch. ☐
 - Lifting lever safety switch. ☐
 - Hydrostat pedal safety switch. ☐
 12. Check engine speed. See chapter Technical Data. ☐
 13. Inform the customer of the following:
 - The need for and advantages of following the service schedule. ☐
 - The effect service and the service book have on second-hand value. ☐
 - Range of uses for BioClip. ☐
 - Complete the sales certificate, etc. ☐
- This delivery service has been carried out. No remaining observations. Certified:

After the first 8 hrs

1. Change engine oil.
2. Change oil in the gearbox.
3. Check the rotation speed of the wheels. Adjust as in the table if necessary. See "Adjusting wheel speed" on page 62.

25-hour service ☐

1. Clean the air cleaner precleaner. (Shorter interval in dusty operating conditions.)
2. Clean the engine cooling air intake and transmission air intake.
3. Clean the fuel pump air filter (in dusty operating conditions).
4. Check the rotation speed of the wheels. Adjust as in the table if necessary. See "Adjusting wheel speed" on page 62.

50-hour service

1. Carry out the 25-hour service.
2. Clean the air cleaner filter cartridge (paper filter). (Shorter interval in dusty operating conditions.)
3. Check/adjust the cutting height setting.
4. Check/adjust the parking brake.
5. Inspect the flame guard/spark extinguisher (optional extra).
6. Change engine oil.
7. Check the V-belts.

100/200-hour service

1. Carry out the 25-hour service.
2. Carry out the 50-hour service.
3. Change engine oil.
4. Check whether the engine oil filter needs changing (every 200 hours). Not Briggs & Stratton.
5. Clean/change spark plug.
6. Change fuel filter in the line.
7. Clean the cooling fins on the engine and transmission.
8. Check the need for oil change and filter renewal in the transmission (every 200 hours).
9. Change the air filter paper insert (Kawasaki every 200 hours).
10. Check tighten all screws and nuts.
11. Check the fuel hose.

Date, meter setting, stamp, signature

DELIVERY AND DEALER SERVICE

300-hour service

1. Inspect the machine. Agree with the customer on which additional work to carry out.
2. Carry out the 25-hour service.
3. Carry out the 50-hour service.
4. Carry out the 100-hour service.
5. Clean the combustion chamber and grind the valve seats.
6. Check the engine valve clearance.
7. Change the air cleaner precleaner (foamed plastic).

At least once every season

1. Clean the engine cooling air intake (25 hrs).
2. Change the air cleaner precleaner (foamed plastic) (300-hrs).
3. Change the air filter paper insert (200 hours).
4. Change engine oil (100 hrs, Briggs & Stratton 50 hrs).
5. Change the engine air filter (200 hrs). Not Briggs & Stratton!
6. Adjust the cutting height setting (50 hrs).
7. Adjust the parking brake (50 hrs).
8. Inspect the flame guard/spark extinguisher, optional extra (50 hrs).
9. Clean/change spark plug (100 hrs).
10. Change fuel filter in the line (100 hrs).
11. Clean the cooling fins (100 hrs).
12. Check the engine valve clearance (300 hrs).
13. Change oil and oil filter in the transmission (200 hrs).
14. Carry out the 300-hour service at an authorized servicing dealer.
15. Check the fuel hose. Change if necessary.

DELIVERY AND DEALER SERVICE

Service schedule

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.

- = Described in this workshop manual.
- = Not described in this workshop manual or operator's manual.
- ▼ = Described in the operator's manual.

Maintenance	Page	Daily maintenance before	Daily maintenance after	Weekly ³⁾ maintenance	At least once a year	Maintenance interval in hours			
						25	50	100	300
Check for any fuel or oil leaks	-	○							
Check the parking brake	48	●							
Check the engine oil level	23	●							
Check the fuel pump air filter	-	▼							
Check the seat safety switch	108	●							
Check the lifting lever safety switch	108	●							
Check the pedal system safety switch	108	●							
Check/clean the engine cooling air intake	-		▼						
Check the cutting deck:	95		●						
• Attaching the blades	99		●						
• Blade condition (sharpness, shape, etc.)	103		●						
Check the steering cables (any looseness, etc.)	45		●						
Check the fastening devices (screws, nuts, etc.)	-		○						
Start the engine and blades, listen for any noise	-		○						
Clean under the cutting deck	-		▼						
Clean the cooling air intake for the transmission	-		▼						
Check the battery acid level	22			●					
Check the engine oil level	24			●					
Check condition, V-belt pulleys, etc.	-			○					
Check for any damage	-			○					
Check the air pressure in the tires (60 kPa/9 PSI)	24			●					
Clean thoroughly around the engine.	-			○					

DELIVERY AND DEALER SERVICE

Maintenance	Page	Daily maintenance before	Daily maintenance after	Weekly ³⁾ maintenance	At least once a year	Maintenance interval in hours			
						25	50	100	300
Clean thoroughly around the transmission.	-			○					
Clean around all belts, belt pulleys, etc.	-			▼					
Lubricate the belt adjuster (nipple)	-			▼					
Lubricate all cables.	-			▼					
Lubricate joints in the cutting deck.	-			▼					
Clean the frame tunnel.	-			○					
Lubricate the pedal mechanism in the frame tunnel.	-			▼					
Lubricate the gear controls.	-			▼					
Lubricate the parking brake cable.	-			▼					
Lubricate the throttle lever.	-			▼					
Lubricate the choke control.	-			▼					
Lubricate the steering chain in the frame tunnel.	-			▼					
Check the steering cables in the frame tunnel.	45			●					
Clean the engine cooling air intake.	-				▼	▼			
Change the air cleaner precleaner (foamed plastic).	-				▼	▼			
Change engine oil ¹⁾ Kawasaki.	42				●			●	
Clean the air cleaner filter cartridge ²⁾ (paper filter).	-				▼		▼		
Check/adjust the cutting height setting.	95				●			●	
Check/adjust the parking brake.	48				●		●		
Inspect the flame guard/spark extinguisher (optional extra).	-				○		○		
Change the engine air filter (every 200 hrs).	-				▼			▼	
Clean/change spark plug.	-				▼			▼	
Change fuel filter in the line.	-				▼			▼	
Clean the cooling fins.	-				○			○	
Check the rotation speed of the wheels.	62				●		●		

DELIVERY AND DEALER SERVICE

Maintenance	Page	Daily maintenance before	Daily maintenance after	Weekly ³⁾ maintenance	At least once a year	Maintenance interval in hours			
						25	50	100	300
Check the engine valve clearance ⁴⁾ .	-				○				○
Check the fuel hose. Change if necessary					○				
Check the need for oil change in the transmission ^{4, 5)} (every 200 hrs).	75				●			●	
Change filter in the transmission ⁴⁾ (every 200 hrs).	75				●			●	
Change the air cleaner precleaner (foamed plastic) ²⁾ .	-				▼				▼
Change air filter (paper filter) ²⁾ (every 200 hrs).	-				▼			▼	
Carry out the 300-hour service ⁴⁾ .	16				●				●

¹⁾ First change after 8 hours. Change every 50 hours, Briggs & Stratton every 25 hours when driving under heavy loads or in high ambient temperatures. ²⁾ Clean and replace shall be done more often in dusty conditions. ³⁾ The ride-on mower should be lubricated twice a week when used on a daily basis. ⁴⁾ Performed by an authorized servicing dealer. ⁵⁾ First change after 8 hours.

● = Described in this workshop manual.

○ = Not described in this workshop manual or operator's manual.

▼ = Described in the operator's manual.



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.
- The cutting deck has been disengaged.
- The ignition cables have been disconnected from the spark plugs.

DELIVERY AND DEALER SERVICE

Delivery measures

To our dealers

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

- The customer is satisfied. He/she knows where to turn to get help if problems should arise.
- You will have a regular customer who will recommend you and your business to other potential customers.
- In this way, we can build our brand together and take a common responsibility for our products and customers.

Be thorough with your paperwork.

Complete the warranty and delivery documentation, etc., and make sure the customer is given the correct operator's manual for the machine.

Set up a customer database so that in the future you can see which machine the customer has, including all serial numbers. The database will be handy when ordering spare parts and in future marketing.

In conjunction with delivery, you should also provide the customer with the information required to handle and maintain the machine in a safe manner. Especially remember to inform the customer of:

- Safety regulations.
- Operating instruments.
- Checking oil levels. Filling oil and what oil type is needed.
- First oil change after run-in period.
- The need and advantages of following the service schedule and regularly leaving the machine for service.
- What fuel to use.
- Mowing tips for a good result. Range of uses for mulching.
- What accessories are available for the type of machine in question.
- Warranty conditions.
- Your business and who the customer should turn to if problems arise.

DELIVERY AND DEALER SERVICE

Packaging and unpacking

On delivery from the factory, the machine is normally packed in special packing. This comprises a bottom board of wood with a top of sturdy cardboard, kept together with plastic film.



WARNING!

**Handle the transport box with care.
Keep the goods as level as possible.
Use long forks when lifting from the end.**

The packing includes:

Qty	Article
1	Steering wheel with steering column tube
1	Steering column tube hex screw
1	Steering column tube locking nut
1	Operator's Manual
1	Owner's Manual for engine
1	Accessories guide on DVD
4	Wheels (certain markets)

The bottom board has pallet feet and the goods can be handled with a normal forklift from the side. Two men should help the truck driver in order to keep the goods as level as possible. Lift and drive the truck with care.

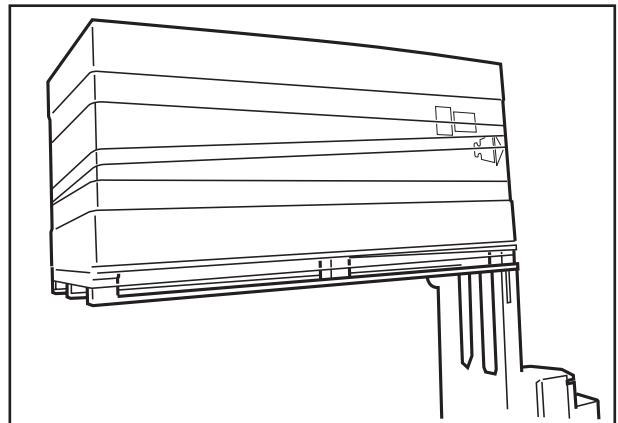
Tear off the plastic film and lift off the pieces of cardboard.

The machine is then standing on the bottom board, braked and secured with wheel locks.

Check for any transport damage on the machine once the packing is open. Report any damage to the carrier according to normal routines.

Do not return the packing.

Lift from the end, see figure. Long pallet forks will be needed.



Long pallet forks required

8009-124

DELIVERY AND DEALER SERVICE

Battery



WARNING!

Measures after contact with acid

External:

Rinse with plenty of water.

Internal:

Drink plenty of water or milk. Seek medical attention as quickly as possible.

Eyes:

Rinse with plenty of water. Seek medical attention as quickly as possible.

The battery generates explosive gases. Sparks, flames and cigarettes must not occur in the close vicinity of the battery.

Charge the battery with max 3 Amps for 4 hours.

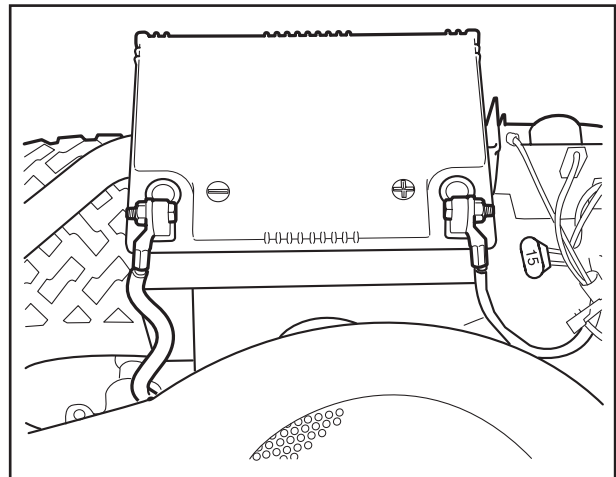
Fit the battery.

Connect the battery with screws and nuts found on the battery. Hold the screws in place when fitting so that the electrodes are not strained.

- Connect black cable to -.
- Connect red cable to +.

Make sure the cables do not chafe on bodywork.

Fit the cover on the battery and tighten the strap.



8042-687

Connecting the battery

IMPORTANT INFORMATION

Never use a boost charger/start booster.

Use only conventional battery chargers. Always disconnect the charger before starting the Rider.

So called boost chargers/start boosters must never be used. These will often increase the voltage (instead of the current) to generate the power needed to start the engine. This increase in voltage will damage the electrical system.

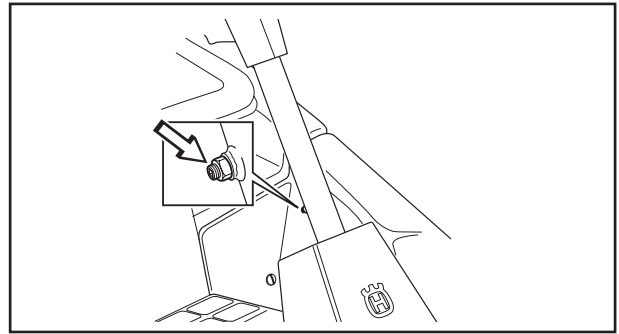
DELIVERY AND DEALER SERVICE

Steering wheel

Fit the steering wheel with steering column tube onto the steering column. Choose suitable height.

Screw in the hex screw so that the screw goes into the groove on the steering column. Jiggle the steering wheel and tighten the hex screw so it bottoms in the groove.

Fit the locking nut on the hex screw.



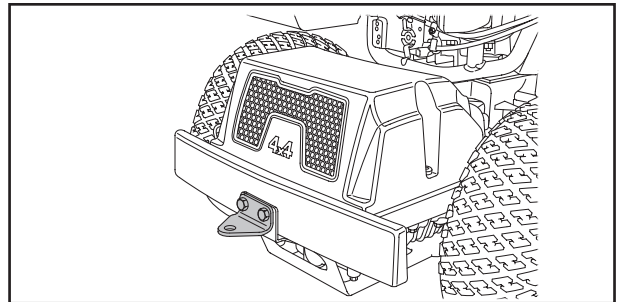
6010-003

Steering wheel assembly

Towing eye and counterweight

Fit the counterweight on the rear bumper when it is delivered separately.

The towing eye is assembled "the wrong way round" from the factory for transport reasons. Fit the towing eye to the rear bumper as illustrated.



8042-313

Assembling the towing eye

Check the engine oil level

Check the engine oil level when the ride-on mower is level with engine off.

Raise the engine cover.

Loosen the dipstick and pull it up. Wipe the stick and then insert it again.

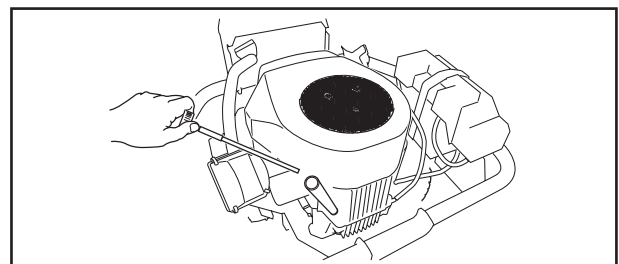
The dipstick should not be screwed down on Kawasaki. The dipstick should be screwed down on Briggs & Stratton.

Then loosen the dipstick and pull it up again. Read off the oil level.

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

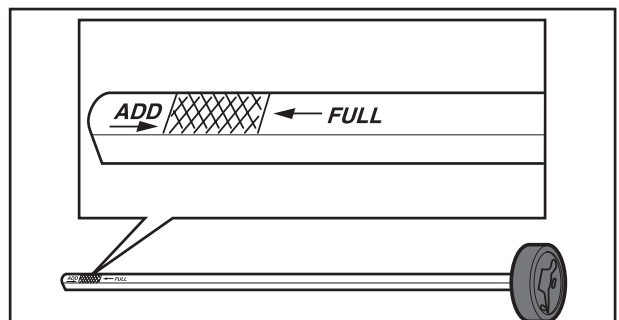
Fill oil into the same hole as the dipstick.

Use engine oil with viscosity and grade shown on pages 44 to 45.



8009-158

Dipstick



8009-159

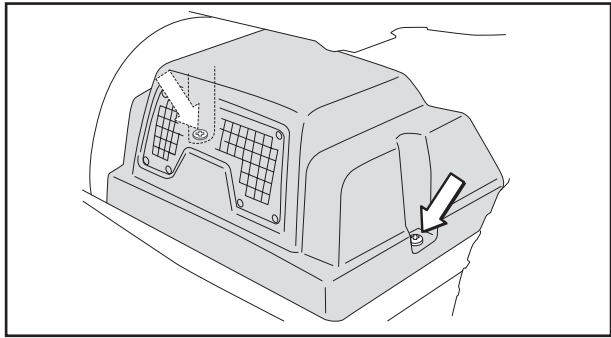
Oil level

DELIVERY AND DEALER SERVICE

Checking hydraulic tank oil level

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

Leave off the cover for the present.



6021-030

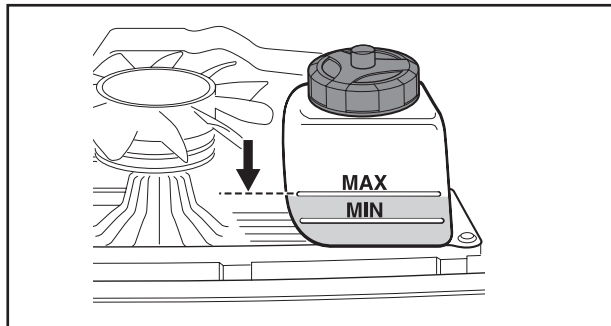
Transmission cover

Make sure there is oil in the hydraulic tank.

Top up with SAE 10W/50 fully synthetic oil if necessary.

IMPORTANT INFORMATION

Check and top up oil also after the test drive. If there are any air pockets in the transmission or the hydraulic system, the oil level will drop.



6012-048

Hydraulic tank

Wheels

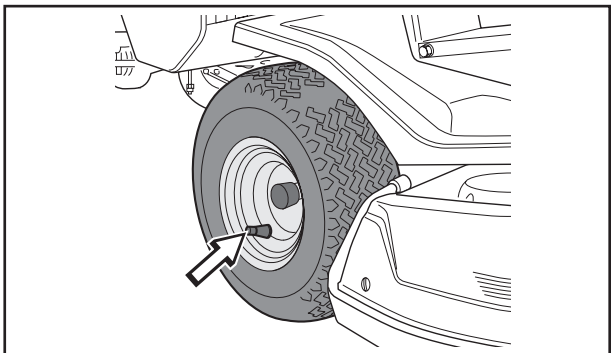
Mount the wheels (certain markets).

Tire pressures should be 60 kPa / 0.6 bar / 9 PSI on all wheels.

Highest permitted pressure is 100 kPa / 1.0 bar / 14 PSI.

IMPORTANT INFORMATION

Different pressures in the front wheels will make the blades cut the grass at different heights.

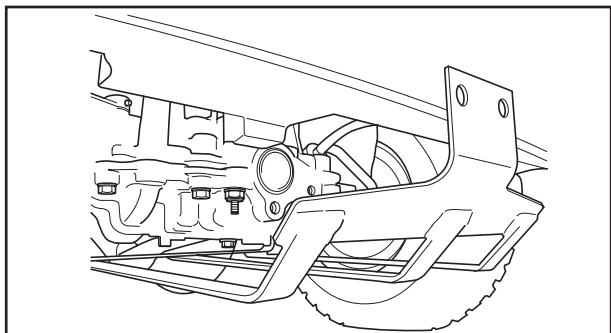


6008-030

Wheels

Underrun guard

When the front and rear underrun guards are supplied with the machine it is the dealer's responsibility to fit them.



8009-739

Rear underrun guard

DELIVERY AND DEALER SERVICE

Checking and adjusting the cutting deck

Carried out after tire pressures checked. See "Setting parallelism and cutting height".

Test driving

Fill with gasoline. Run the engine on at least 87 octane unleaded gasoline (not oil mixture). Environmental alkylate gasoline can be used.



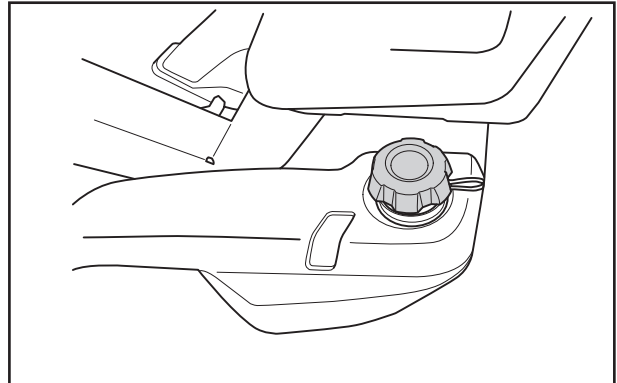
WARNING!

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



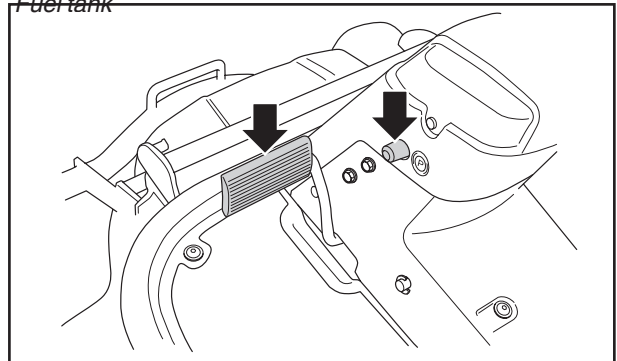
WARNING!

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



8043-836

Fuel tank



8042-009

Parking brake

Start the engine

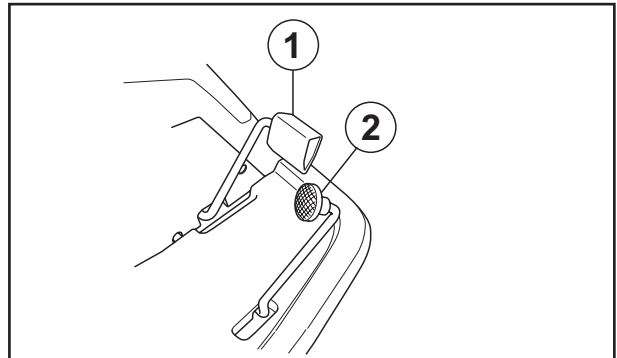
Make sure the machine is in neutral position and stationary on a level surface with the parking brake released.

Check the operation of the parking brake.

Check the drive forward (1) and back (2).

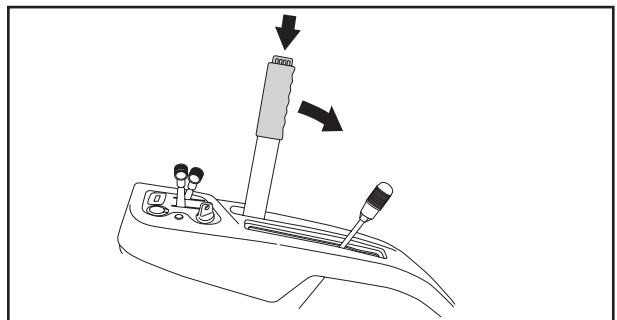
Make sure the starter motor does not work when the parking brake is not applied.

Make sure the engine stops when you get out of the seat if the parking brake pedal is not applied.



Forward and back pedals

Make sure the starter motor does not work with the cutting deck at its lowest position.



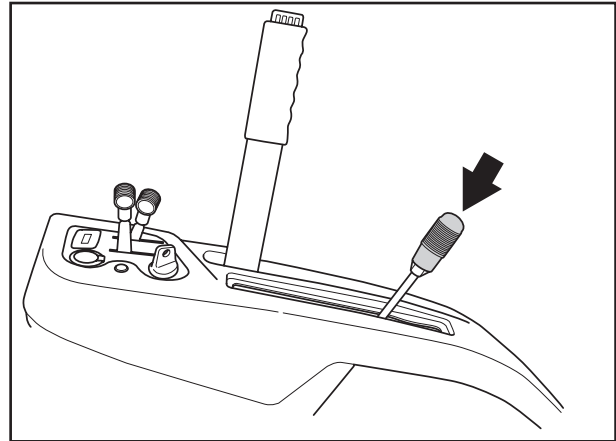
8043-907

Lower the cutting deck

DELIVERY AND DEALER SERVICE

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

The cutting height can be adjusted in 7 different positions with the lever.



8043-908

Cutting height setting

Speed control

Make sure the max engine speed is regulated at:

	Max rpm	Idling
Rider 316T	2800-3000 rpm	1500 rpm

Rider 316T AWD	2800-3000 rpm	1500 rpm
----------------	---------------	----------

Rider 316Ts AWD	2800-3000 rpm	1500 rpm
-----------------	---------------	----------

Rider 316TXs AWD	3000-3200 rpm	1500 rpm
------------------	---------------	----------

Final inspection

Bleed the hydraulic system after test driving.

Check the oil level in the hydraulic tank and top up if necessary.

Make sure there are no leaks, also engine oil and fuel.

Replace the transmission cover.

Clean the machine as necessary, wipe away any oil spill, fingerprints (steering wheel and controls), dust and the like.

Administration

Complete the sales certificate, customer register, etc.

Do not forget to enter the serial number into the operator's manual and certify the delivery service in the service book.

SERVICESCHEMA RIDER

Åtgärd	Datum, mätarst, stämpel, sign
Leveransservice	
1. Fyll batteriet med batterisyrta samt ladda det i fyra timmar.	☒
2. Montera ratt, bogserögla samt i förekommande fall övriga detaljer.	☒
3. Justera klippaggregat:	
Justera lyftfjädrar (klippaggregatets "vikt" ska bli 12-15 kg.). Gäller endast BioClip.	☒
Justera aggregatet så att dess bakkant är ca 2-4 mm högre än dess framkant.	☒
Justera aggregatets klipphöjdsinställning så att klipphöjdsbegränsningen är 5 mm över aggregatramen vid lägsta klipp-höjd.	☒
4. Kontrollera att rätt mängd olja finns i motorn.	☒
5. Kontrollera att rätt mängd olja finns i transmissionen (Ej Rider 11).	☒
6. Kontrollera och justera lufttryck i däck (60 kPa, 0,6 bar).	☒
7. Anslut batteriet.	☒
8. Fyll bränsle och starta motorn.	☒
9. Kontrollera att inte maskinen rör sig i neutralläge. (Ej Rider 11)	☒
10. Kontrollera:	
Körning framåt.	☒
Körning bakåt.	☒
Aktivering av knivar.	☒
Säkerhetsbrytare för sits.	☒
Säkerhetsbrytare för lyftspak.	☒
Säkerhetsbrytare för hydrostatpedaler/neutraläge.	☒
11. Kontrollera motorvarvtalet max. 2 950 rpm.	☒
12. Informera kunden om:	Denna leveransservice utförd.
Behov och fördelar med att följa serviceschemat.	Inga kvarstående anmärkningar.
Behov och fördelar med att lämna in maskinen var 300 tim.	Intygas:
Service och journalens inverkan på maskinens andrahandsvärde.	☒
Användningsområde för BioClip.	☒
13. Fyll i försäljningsbevis etc.	☒

Husqvarna
Knobults Maskinservice
Åsen 1
234 56 Klabbarp

Nils Nilsson

Efter de första 5 tim

1. Byt motorolja.

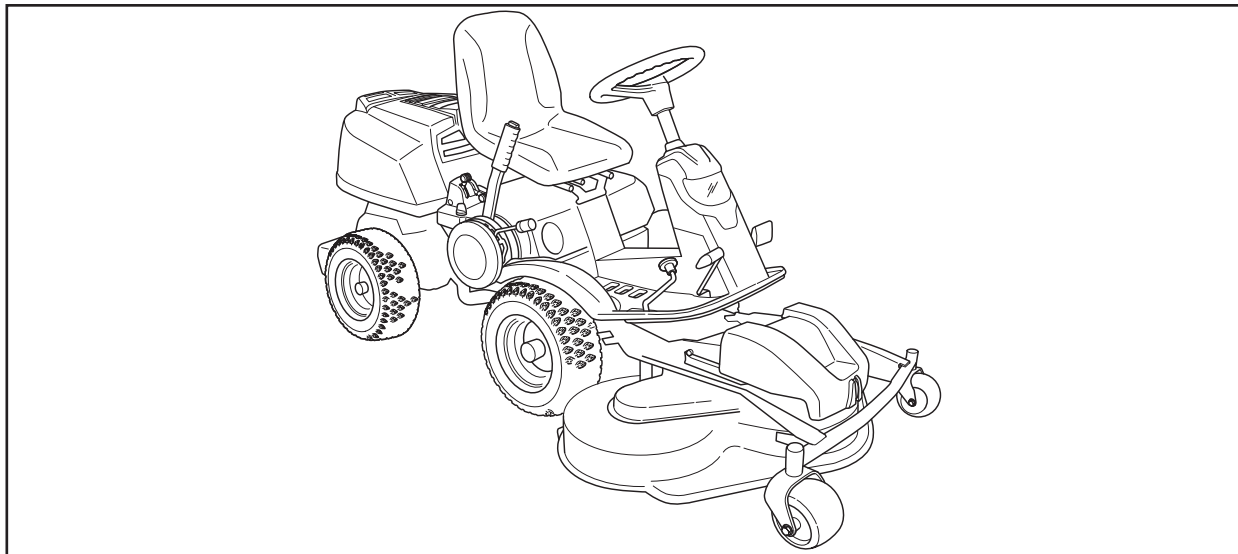


DELIVERY AND DEALER SERVICE

DESIGN AND FUNCTION

Design and Function

General



8042-501

This publication covers Husqvarna Rider 316T, Rider 316T AWD, Rider 316Ts AWD and Rider 316TXs AWD from and including model year 2012. Separate workshop manuals are available for older machines.

All Riders have articulated steering for easy mowing around trees and other obstacles. They all also have front-mounted cutting decks for controlled mowing and the best possible cutting results.

Husqvarna Riders are also equipped with various accessories such as lawn rake and snowblade, making them flexible tools for all-year-round use.

AWD machines are four-wheel-drive equipped with hydrostatic transmission.

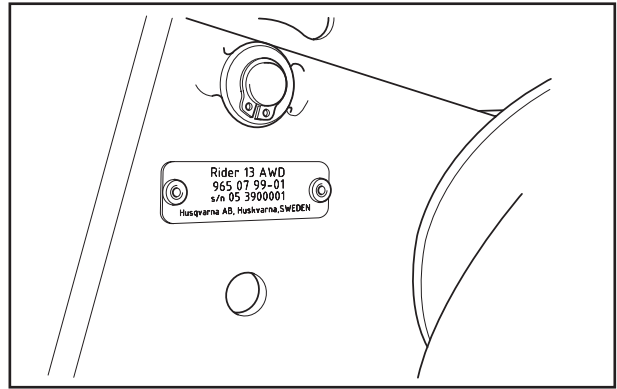
DESIGN AND FUNCTION

Serial number

The machine's serial number can be found on the printed plate attached to the front under the seat. From the top, the plate gives:

- The machine's type designation.
- Manufacturer's type number.
- Machine's serial number (s/n).

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



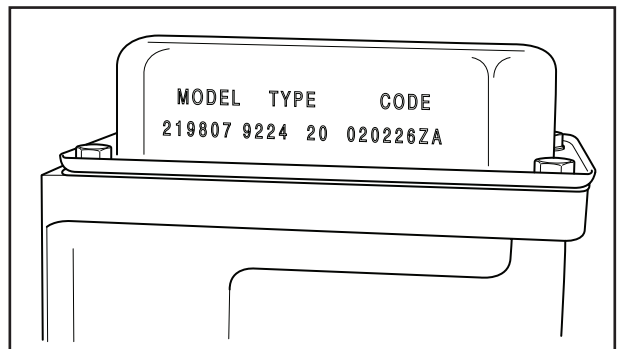
8009-841

Machine's serial number

Briggs & Stratton engines have their serial number stamped on the valve cover. The text gives:

- Model
- Type
- Code

Please provide these when ordering parts.



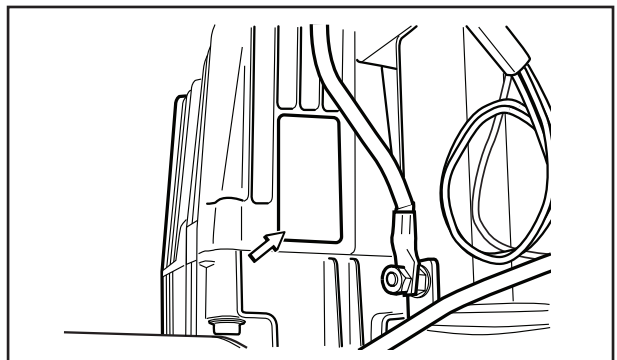
8009-417

Engine's serial number Briggs & Stratton

The Kawasaki engine's serial number is given on a bar code decal. It is located on the left side of the crankcase, in front of the starter motor. The plate gives:

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

Please provide these when ordering parts.



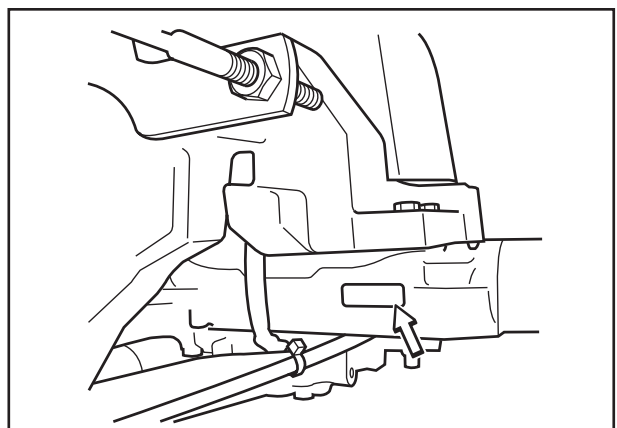
8009-205

Engine's serial number Kawasaki

The transmission's serial number is given on the bar code decal located on the front of the housing for the left-hand drive shaft:

- The serial number is given above the bar code and has the prefix "s/n".
- The manufacturer's type number is given under the bar code and has the prefix "p/n".

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



8009-206

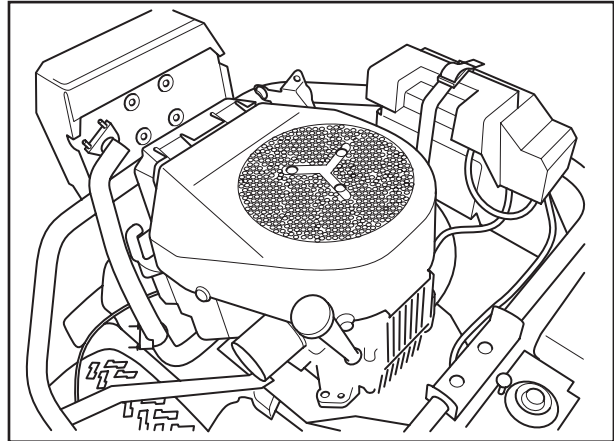
Transmission serial number

DESIGN AND FUNCTION

Engine

Husqvarna Rider AWD is a ride-on mower with air-cooled engine from Briggs & Stratton or Kawasaki.

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. These manuals can be ordered from an authorized servicing dealer.



Kawasaki

8009-817

DESIGN AND FUNCTION

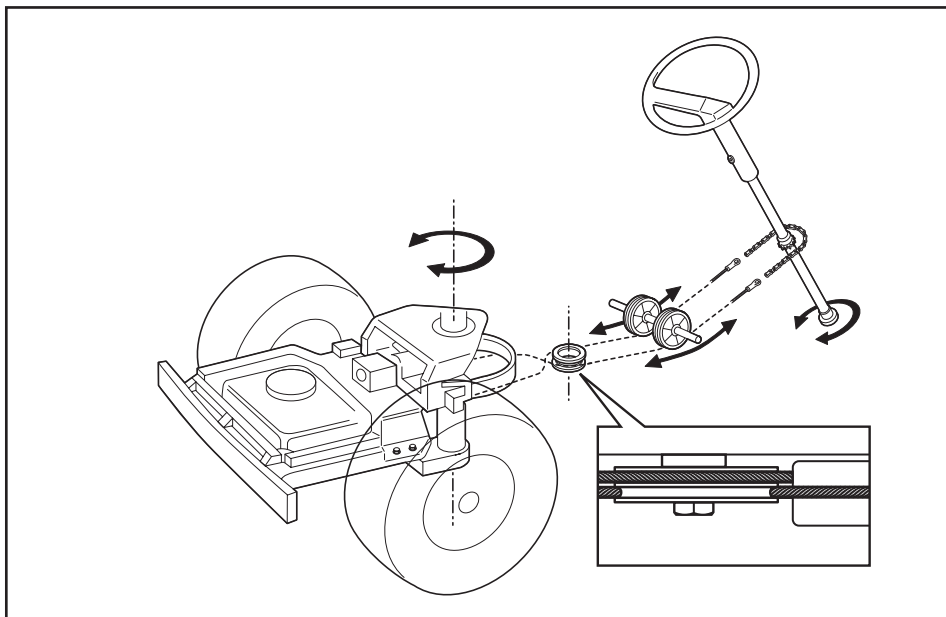
Steering

All ride-on mowers in the Rider range have articulated steering. Movement from the steering wheel is transferred to the rear carriage via chains and wires. This makes the ride-on mower easy and precise to steer.

A Rider mows easily around all the obstacles on the lawn.

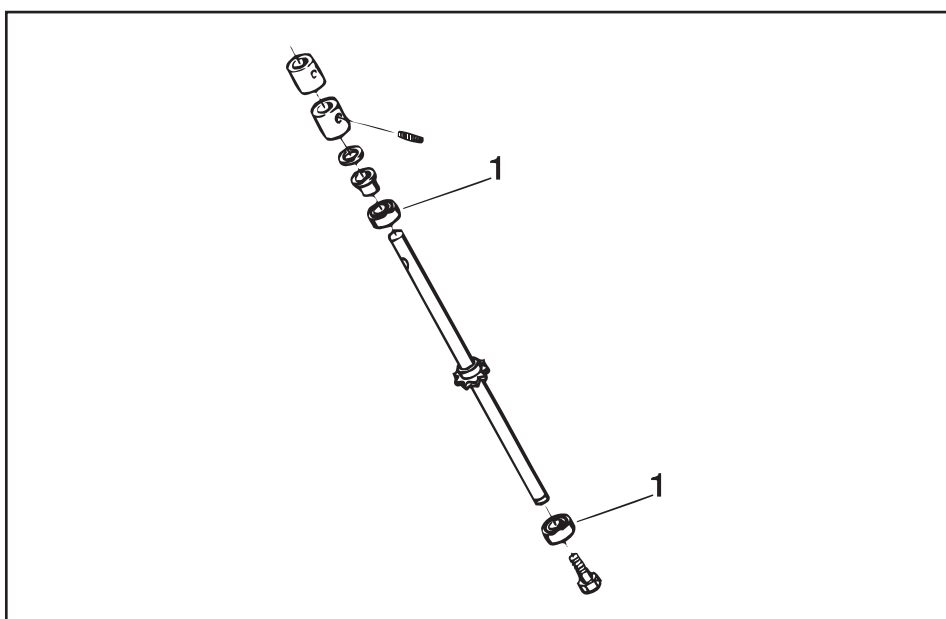
A mechanical linkage system makes the front wheels go faster when turning.

Thanks to articulated steering the turning radius is very small, the unclipped circle at full lock is only 20-30 cm/8"-12" depending on model.



Outline diagram of articulated steering function

6011-008



Rider machines have steering column mounted in ball bearings (1)

6019-007

DESIGN AND FUNCTION

Drive

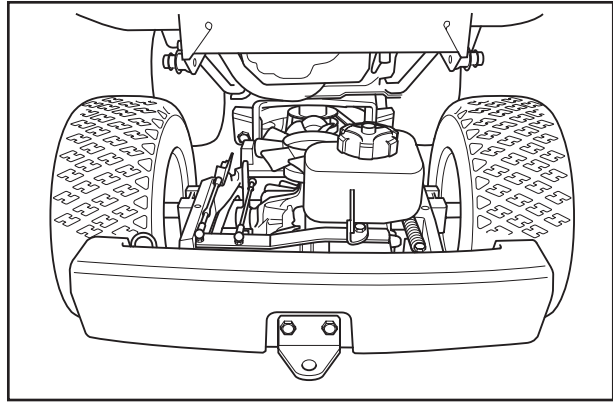
All Rider AWD are equipped with hydrostatic transmission, giving the driver full control. Speed is controlled variably using the pedals forward or back.

AWD machines are equipped with permanent four-wheel-drive, so no differential lock is required.

The hydraulic pump that provides oil to the front and rear axles is built into the rear axle. The pump is operated with cables from the drive pedals.

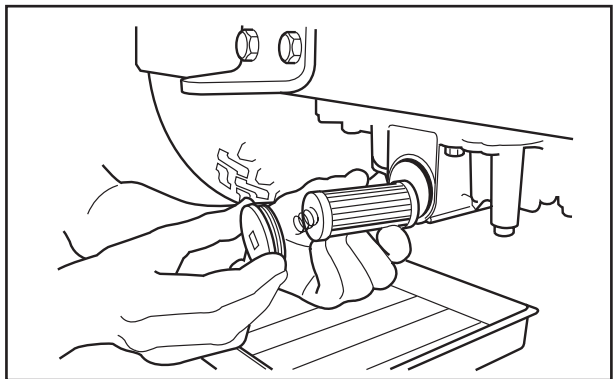
The hydraulic oil filter is located in the back section of the rear axle.

The hydraulic tank is separate and is located above the rear axle.



8009-814

Transmission cover removed



6020-003

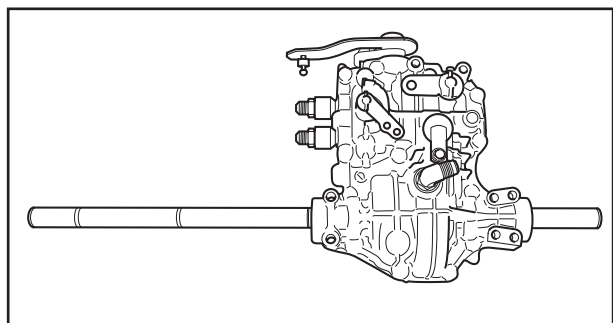
Hydraulic filter

Front axle on Rider AWD from above.

The axle comprises a hydraulic motor, differential and drive shaft.

To move the machine without the front axle drive engaged there is a mechanical bypass valve that is operated with a control inside the left wheel.

The bypass valve must be closed when driving or the front axle will be drained of oil.

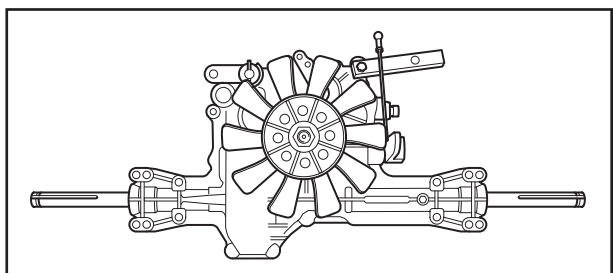


8009-626

Front axle

Rear axle on Rider AWD from above.

To move the machine without the rear axle drive engaged there is a hydraulic bypass valve that is operated with a control behind the left wheel.

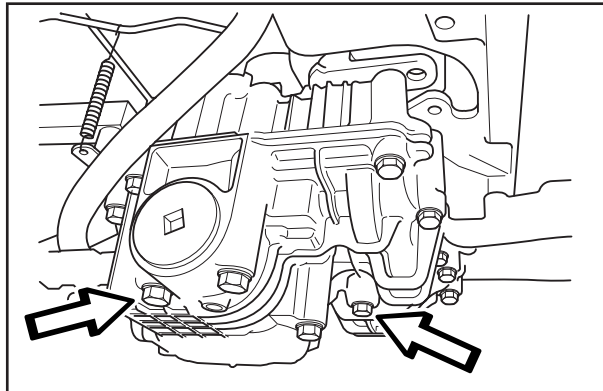


8009-838

Rear axle

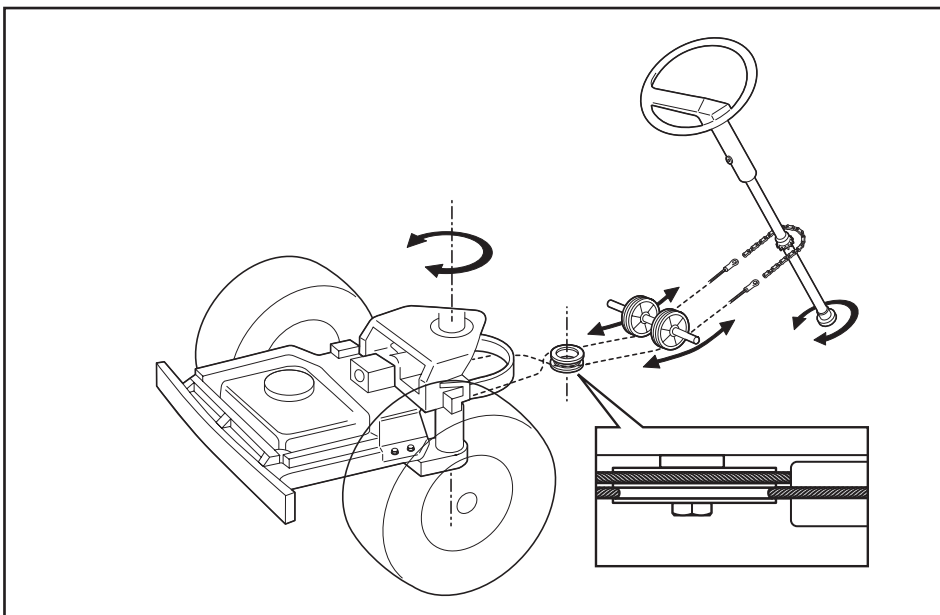
DESIGN AND FUNCTION

Oil is drained through two plugs underneath. One plug drains the hydraulic motor and the other drains the differential.



8009-832

Oil drain



8009-856

AWD drive system

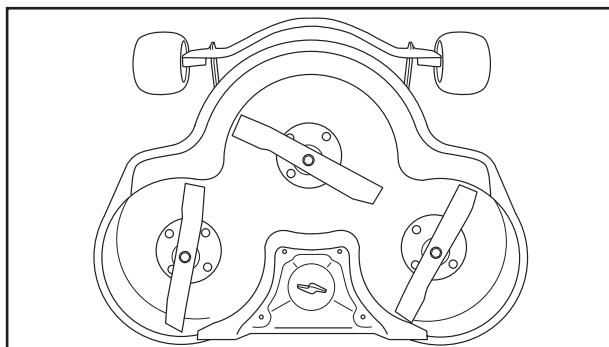
DESIGN AND FUNCTION

Cutting Deck

The whole Rider range is equipped with front-mounted cutting deck to mow efficiently even in confined spaces.

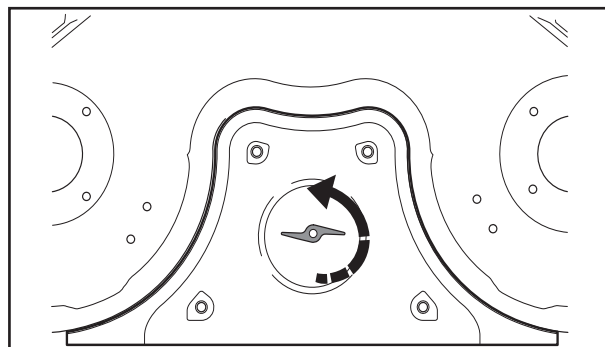
Rider 316T, Rider 316T AWD, Rider Ts AWD and Rider 316TXs AWD come with cutting deck CombiClip 94, CombiClip 103 or CombiClip 112.

The Combi Deck works like a BioClip deck when a BioClip plug is fitted, but can be set to rear ejection by removing the BioClip plug.



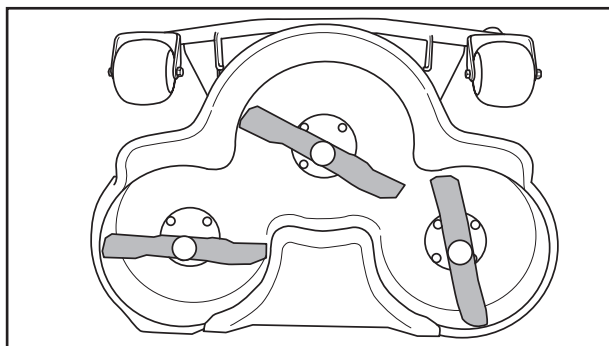
CombiClip 94

8042-057



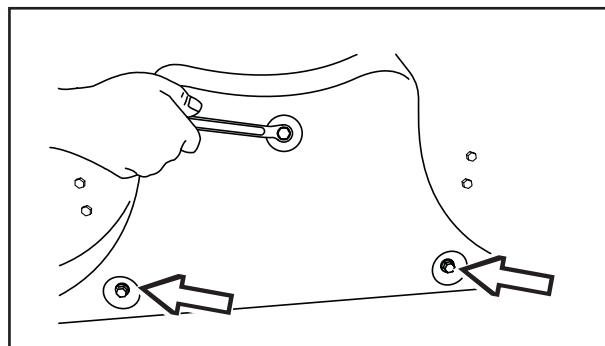
Removal of BioClip plug CombiClip 94

6021-023



CombiClip 103, 112

8042-253



Removal of BioClip plug CombiClip 103, 112

8009-289

DESIGN AND FUNCTION

REPAIR INSTRUCTIONS

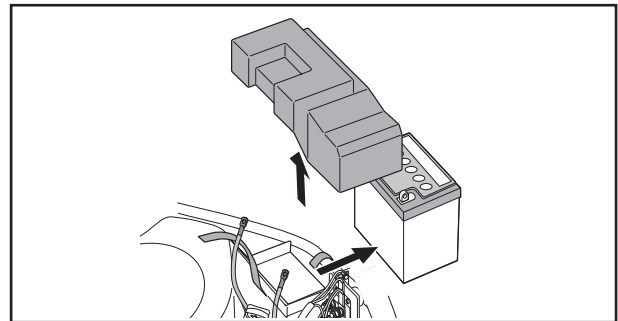
Repair Work

Removing Kawasaki Engine

1. Remove the engine hood and transmission cover.
2. Loosen the battery fastening strap. Remove the protective cover.

IMPORTANT INFORMATION

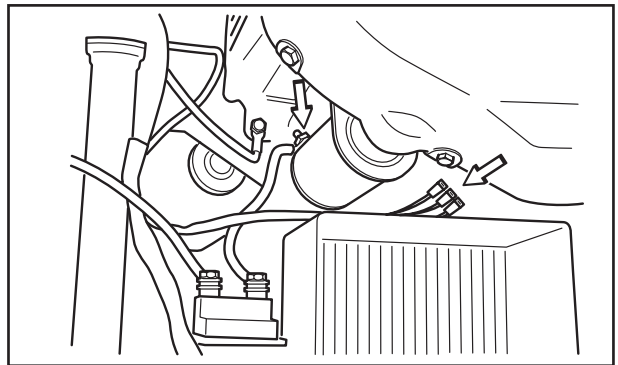
Hold the battery cable screws in place so that the electrodes are not strained.



8009-526

Battery installation

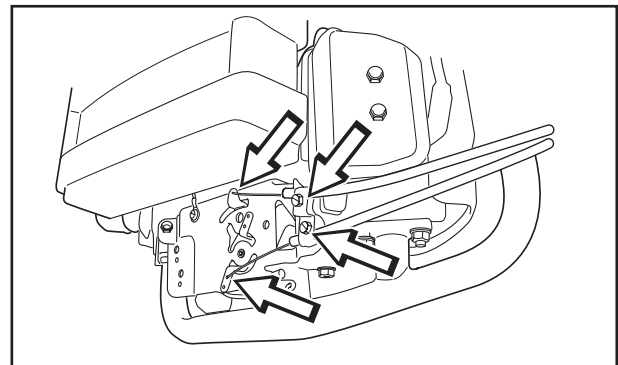
3. Loosen the battery cable connections. Then lift out the battery.
4. Remove the cable between the starter relay and starter motor from the starter motor.
5. Mark and remove the electrical connections on the engine.



8009-190

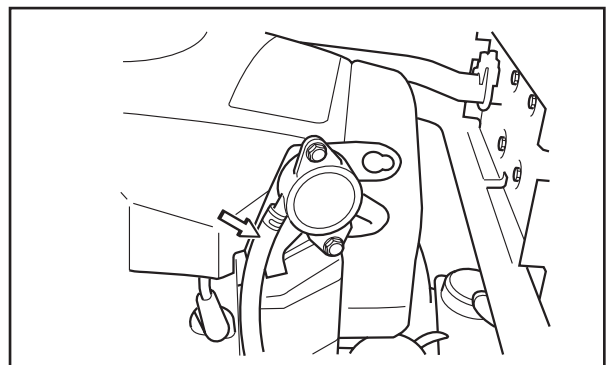
Engine connections front left

6. Remove the clips holding the throttle and choke cables. Unhook the cables from their attachments on the carburettor.
7. Remove the fuel line hose clip on the fuel pump and pull down the fuel line. Suspend the hose to stop fuel leaking.



8009-527

Gas and choke cables

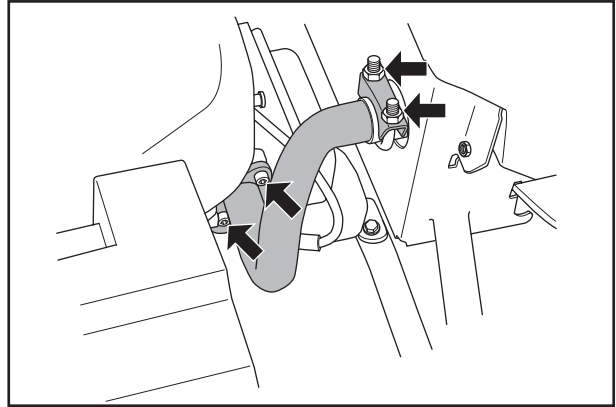


8009-191

Fuel pump

REPAIR INSTRUCTIONS

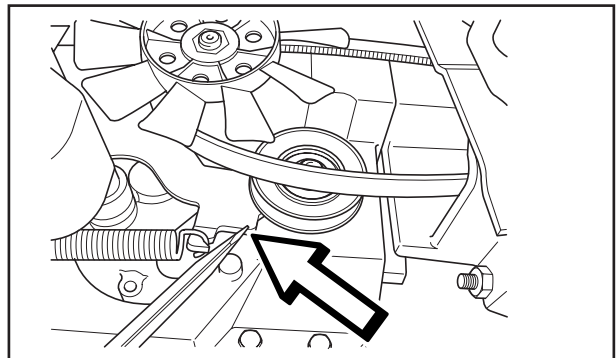
8. Loosen the exhaust pipe clip. Then remove the exhaust pipe. Loosen the muffler retaining screws if necessary.



8042-115

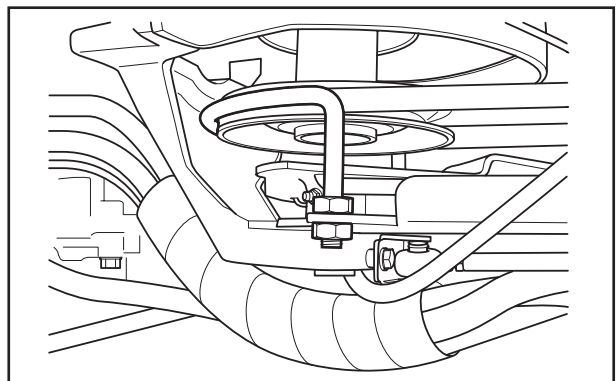
Exhaust system

9. Press in the belt tensioner and prise off the pump belt.



8009-839

10. Remove the belt guide for the engine belt pulley. Loosen the underrun guard on machines where they are fitted.

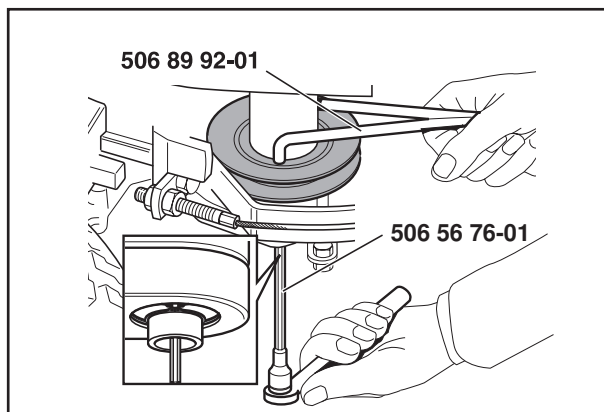


8009-736

Belt guide

REPAIR INSTRUCTIONS

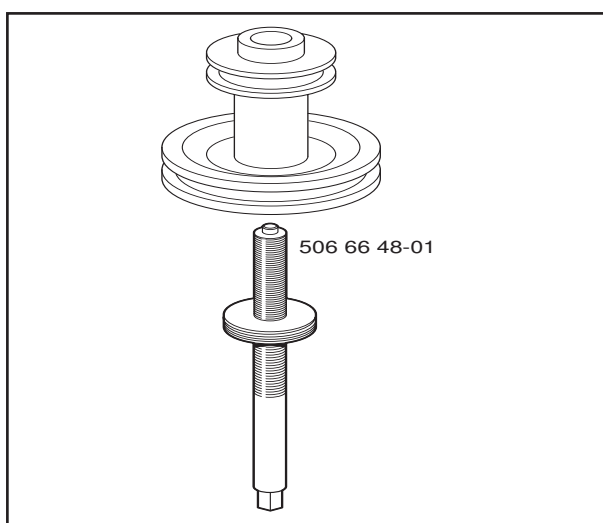
11. Put tool no. 506 56 76-01 on the center of the engine belt pulley. Loosen and remove the hex screw holding together the belt pulley and engine shaft. Use tool no. 506 89 92-01 as counterhold. Loosen the belt pulley from the engine shaft.



8009-194

Engine belt pulley

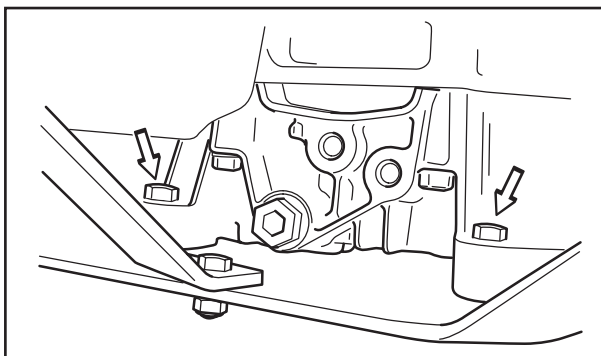
12. Use puller 506 66 48-01 if necessary



8009-518

Puller for engine belt pulley

13. Remove the engine mountings, two on each side of the engine, and remove the engine from the mower. Right side illustrated. For left side, see illustration in "Assembling".



8009-192

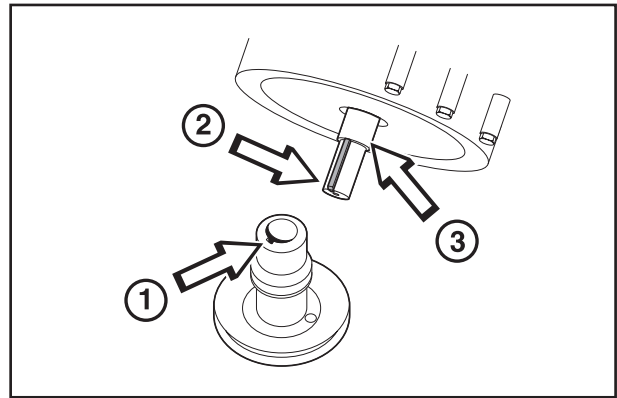
Engine mounting screws right side. Mounting not shown

REPAIR INSTRUCTIONS

Assembling Kawasaki Engine

IMPORTANT INFORMATION

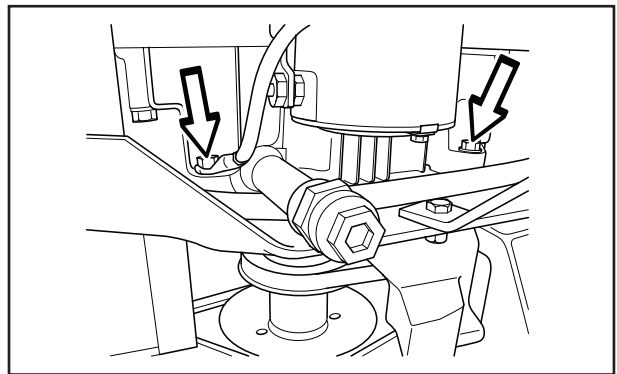
When mounting the engine, it is essential the belt pulley groove (1) is in such a position that the output shaft key (2) fits into the groove (see illustration). Also check that both spacer pipes (3) and key (2) are fixed to the engine shaft. Grease the engine shaft.



6019-039

Engine shaft and belt pulley

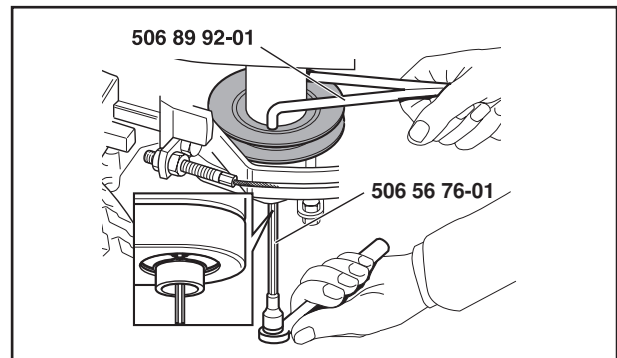
1. Lower the engine and torque tighten the engine mountings (two on each side of the engine) (25 Nm / 18 lb ft).
The negative battery cable is connected to the front left screw.



8009-365

Engine mounting screws and negative cable

2. Fit the belt pulley with tool no. 506 56 76-01 and torque tighten (80 Nm / 56 lb ft). Use tool no. 506 89 92-01 as counterhold. Mount both belts onto the belt pulley.
3. Press in the belt tensioner and mount the pump belt.

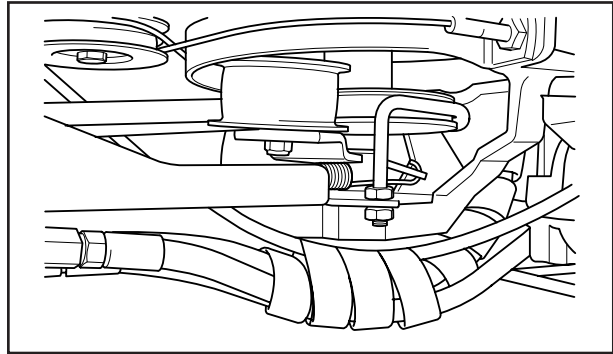


8009-194

Engine belt pulley

REPAIR INSTRUCTIONS

4. Fit the belt guide. Adjust the belt guide to the bottom belt on the belt pulley if necessary. Fit the underrun guard if present.



8009-737

Belt guide

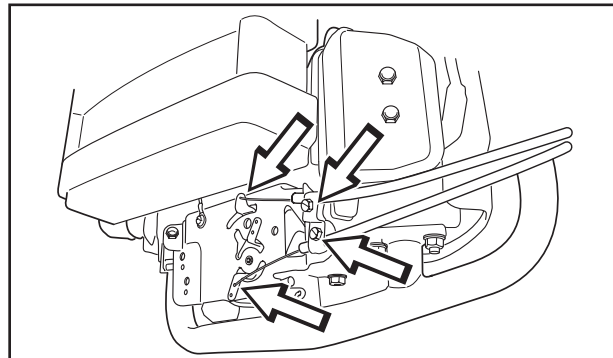
5. Hook the throttle cable onto the carburettor and attach the cable clip without tightening. Make sure to hook into the correct hole

Slide the throttle control to full throttle. Press the outer sheath of the cable to the far left and tighten the cable clip.

Hook the choke cable onto the carburettor and attach the cable clip without tightening.

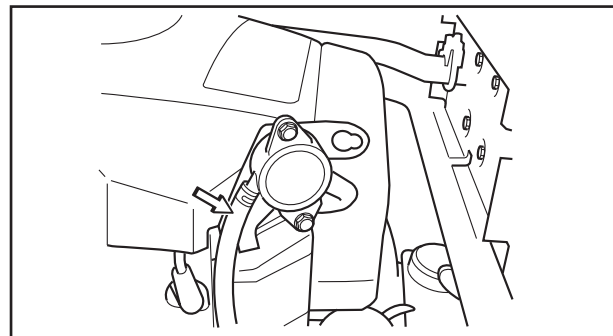
Slide the choke control to full choke. Pull the outer sheath of the cable to the far right and tighten the cable clip.

6. Fit the muffler and the exhaust pipe, and tighten retaining screws and pipe clips.
7. Press on the fuel line to the fuel pump and fit its hose clip.



8009-527

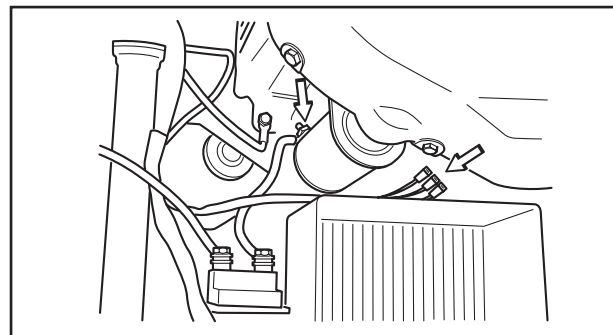
Gas and choke cables



8009-191

Fuel pump

8. Screw on the cable between the starter motor and the starter relay. Attach the electrical connections to the engine.



8009-190

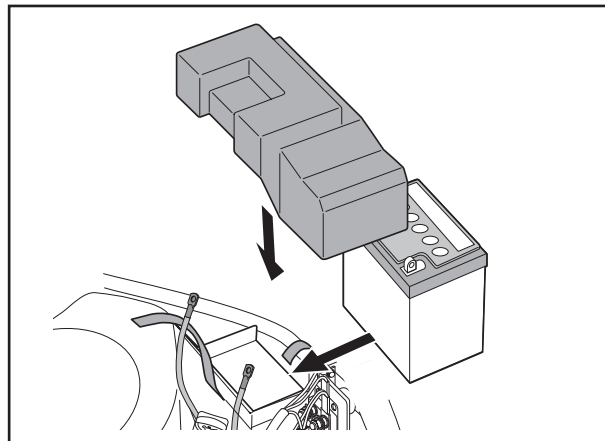
Engine electrical connections

REPAIR INSTRUCTIONS

IMPORTANT INFORMATION

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

9. Lift in place the battery and attach cable connectors and protective cover, tighten the fastening strap.



8009-427

Battery installation

10. Fit the engine hood and transmission cover.

REPAIR INSTRUCTIONS

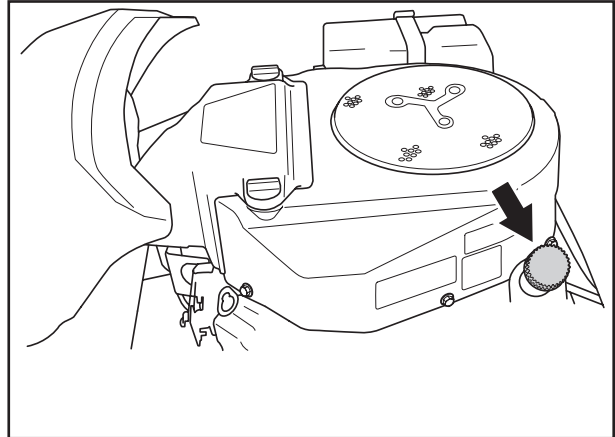
Check of Engine Oil Level, Kawasaki

Check the engine oil level when the ride-on mower is level with engine off.

Raise the engine cover.

Loosen the dipstick, pull it up and wipe it off. Then insert the dipstick again without screwing it in.

Pull up the dipstick and read off the oil level.



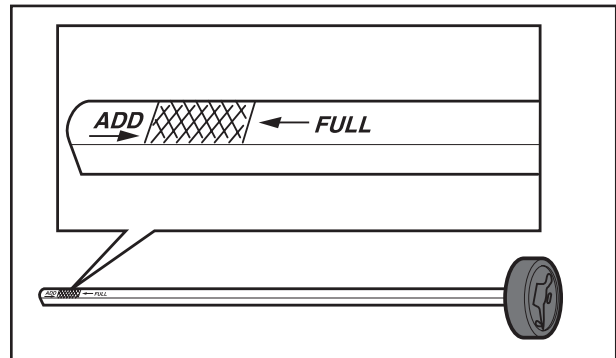
8042-093

Dipstick and topping up

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

Fill oil into the same hole as the dipstick.

Fill slowly with oil. Tighten the dipstick properly before starting the engine. Start and run the engine at idling speed for around 30 seconds. Turn off the engine. Wait 30 seconds and then check the oil level. Top up as necessary so that the oil reaches the "FULL" mark on the dipstick.



8009-159

Dipstick markings

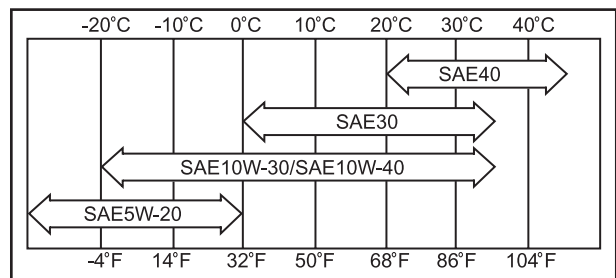
The following oil grades are recommended:

- API Service Classification: SF, SG, SH and SJ

Choose an oil with viscosity according to the temperature ranges in the figure:

Do not mix different oil types.

Note that the use of oils such as 5W-20, 10W-30 and 10W-40 increase engine oil consumption. If these oils are used, the oil level must be checked more often.



8009-140

Viscosity diagram

REPAIR INSTRUCTIONS

Fuel tank

Removal

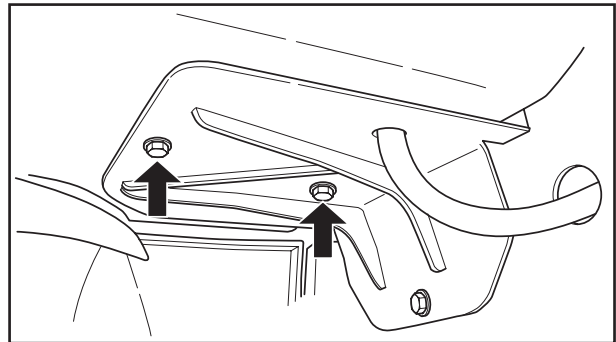


WARNING!

Gasoline is highly flammable and environmentally hazardous.

Take great care to prevent fires and avoid spills.

1. Position a suitable vessel to collect the gasoline. The tank capacity is approx. 7 liters/7.4 US qt.
2. Empty the fuel tank by disconnecting the hose under the tank. If you do not wish to empty the tank, you can pinch the hose with lockable welding pliers and then remove the hose and hose clip from the fuel filter's lower connection. Make sure to keep the end of the hose above the level in the tank from now on.
3. Remove the two screws holding the tank on the bracket. Lower the tank and pull out the hose through the frame of the machine (if it has been loosened at the fuel filter).



8042-117

Assembly

1. It is easier to work if you empty the tank before assembly. Put the hose in place and connect it to the fuel filter with a hose clip. Make sure the hose does not chafe.
2. Put in place the tank on the bracket and fasten with screws.
3. Fit the fuel hose and the hose clip to the connector under the tank as required. Fill with gasoline and check that there are no leaks.

REPAIR INSTRUCTIONS

Changing Engine Oil Kawasaki

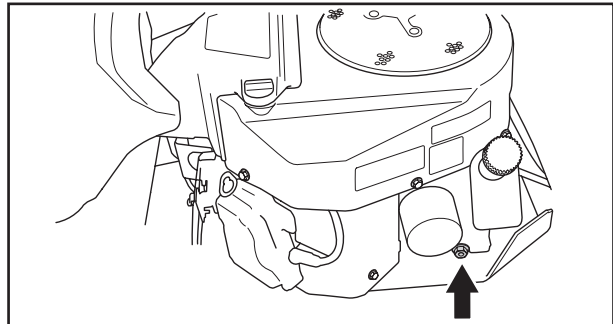
The engine oil must be changed for the first time after running for 8 hours. It must then be changed after every 100 running hours.



WARNING!

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

1. Open the engine hood.
2. Place a vessel under the left drain plug under the engine.
3. Remove the dipstick. Remove the drain plug on the left of the engine.
4. Allow the oil to run into the vessel (1.5 l / 1.6 US qt).
5. Then screw in the oil plug and tighten it.
6. Change oil filter if necessary.
7. Fill with new engine oil.
8. Start the engine and run it for a few seconds. Check the oil level and top up if necessary.



8043-935

Draining engine oil

IMPORTANT INFORMATION

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

REPAIR INSTRUCTIONS

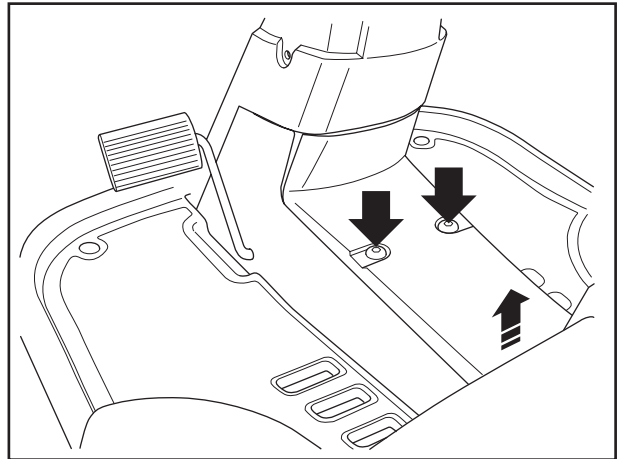
Checking and Adjusting the Steering Cables

The steering is controlled with cables.

These can stretch after a time, which means the steering settings can change.

Steering can be checked and adjusted in the following way:

1. Remove the frame plate by loosening the screws.

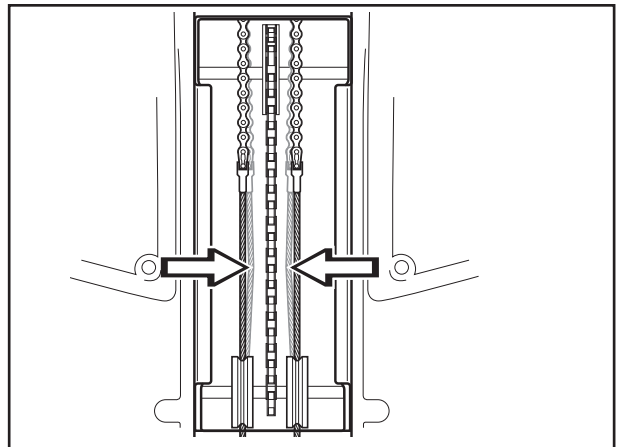


8042-039

Frame plate

2. Make sure the cables are lying correctly under the steering cable rollers in the frame tunnel. Check the tension of the steering cables and clamp them together (at the arrows). The cables should clamp together so that the distance between them is half as much without applying too much force.

Change the cable if a strand is damaged so loose wires do not stick out.



6008-212

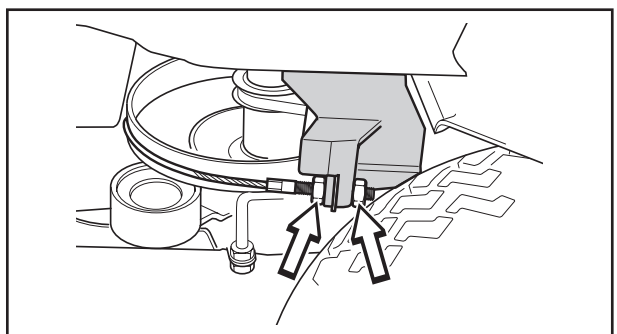
Steering cable tension

3. If necessary, the cable can be stretched by loosening the locking nut and tightening the adjuster nut (one cable on each side of the machine).

Hold the cable with e.g. a wrench so that it does not twist. The center position of the steering wheel will be changed if only one side is adjusted.

Do not stretch the cables too much, they should only tighten against the steering collar.

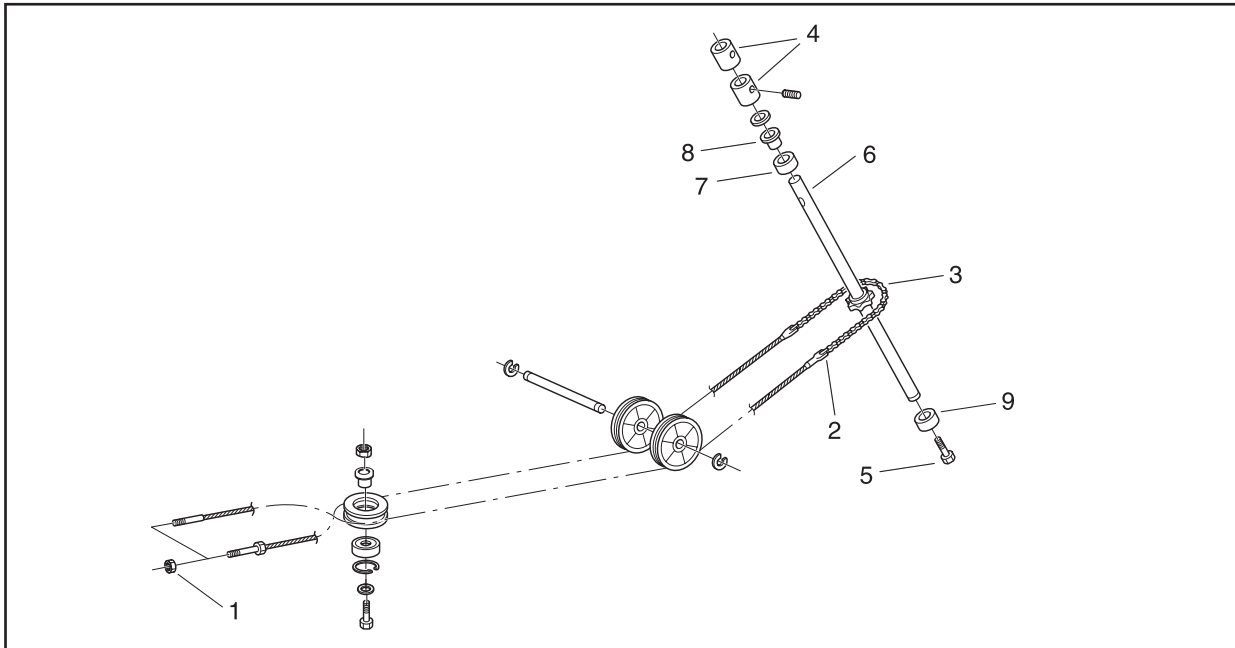
Check the cable tension after adjustment as described in point 2.



6012-013

Locking nut and adjuster nut left side

REPAIR INSTRUCTIONS



8009-372

Steering servo and steering cables

Replacing the Steering Cables

Loosen the rear fastening of the steering cables (1).

Remove the frame plate.

Loosen the steering cable front fastening (2) at the steering chain (3) and pull out the steering cables from the frame.

Note. If the old cables are intact, the new cables can be fastened to the old ones when pulling them out of the frame. The new cables will then automatically come into place.

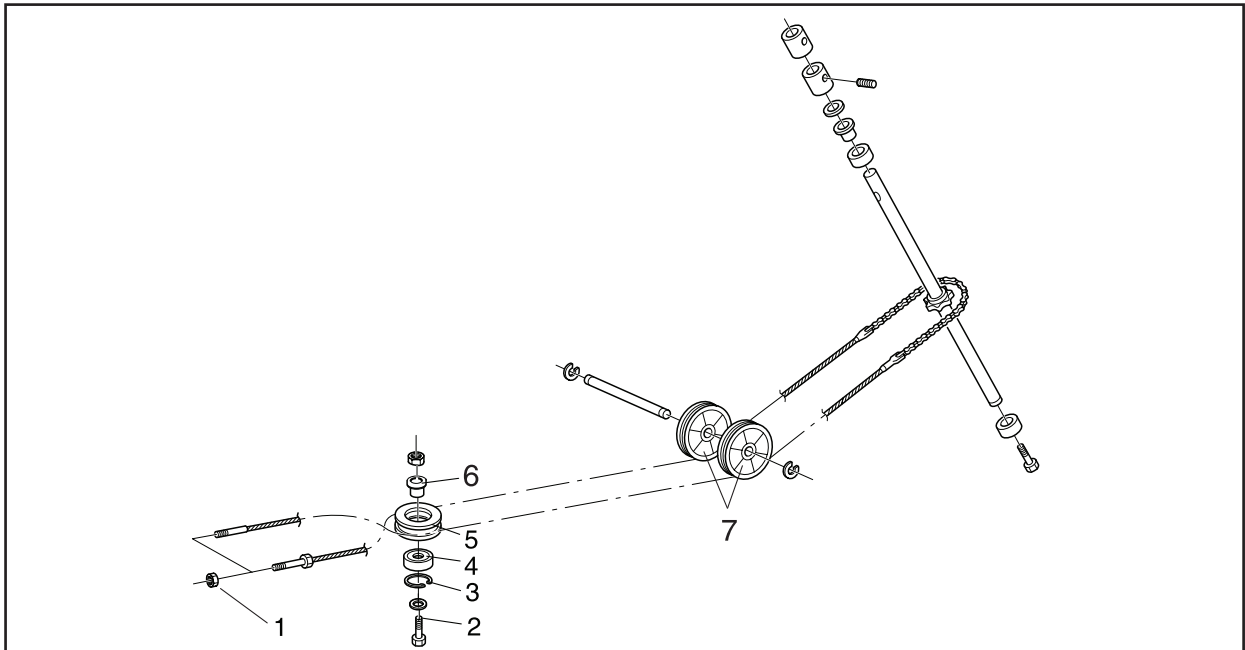
The steering cable chain lock must be fitted with the lock spring up.

Hold the cables with e.g. an adjustable wrench so they do not twist.

Make sure the steering wheel is centered when the rear wheels are straight ahead. Reposition the chain on the steering servo gear or change the steering cable rear fastening (1) if necessary.

Check the cable tension when new cables are fitted (see "Checking and adjusting the steering cables").

REPAIR INSTRUCTIONS



8009-371

Steering cables and cable wheel

Removing/Assembling the Cable Pulley

Remove the frame plate and underrun guard under the machine.

Loosen the rear fastening of the steering cables (1).

Remove the screw (2) and the cable pulley (5).

4. Remove the bearing circlip (3) and tap out the bearing (4).

5. Assemble the cable pulley in reverse order.

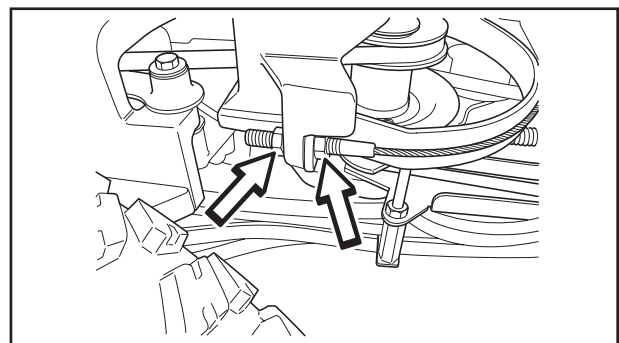
Screw (2) must be fitted into the rear hole in the frame. Bushing (6) is placed between the frame and the cable pulley.

Make sure the cables are lying correctly under the steering cable rollers (7) in the frame tunnel.

Hold the cables with e.g. an adjustable wrench so they do not twist.

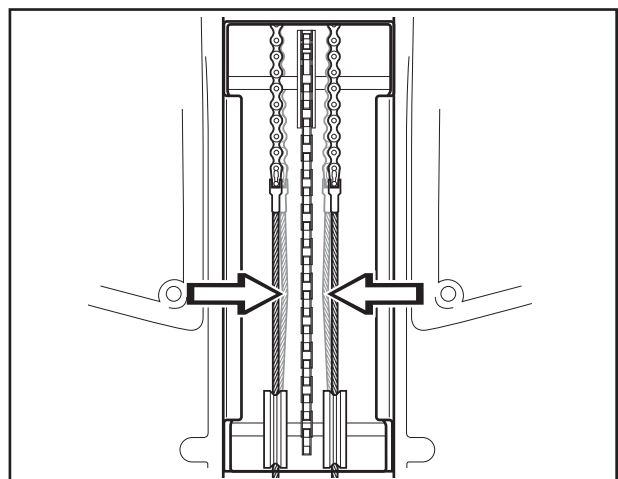
Make sure the steering wheel is centered when the rear wheels are straight ahead. Reposition the chain on the steering servo gear or adjust the steering cable rear fastening (1) if necessary.

Check the tension of the cable after assembly, See "Checking and adjusting the steering cables".



8009-605

Steering cable rear attachment right side



6008-212

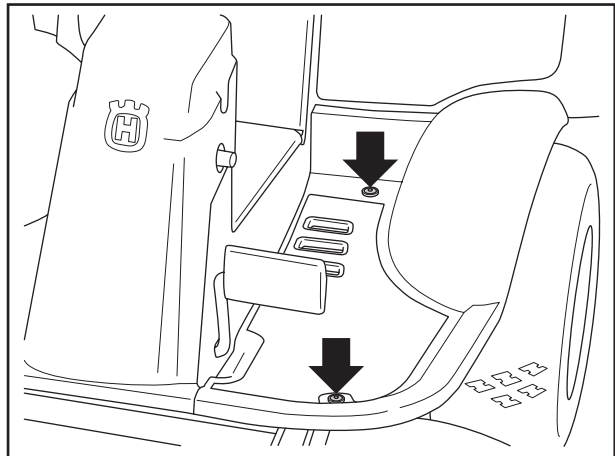
Steering cable tension

REPAIR INSTRUCTIONS

Adjusting Parking Brake on Rider AWD Machines

Make sure the parking brake is adjusted correctly by placing the machine on a downhill slope with disengaged front and rear axles. Apply and secure the parking brake. If the machine does not stay stationary, adjust the parking brake as follows.

1. Remove the left wing cover.
2. Loosen the lock nuts (1).
3. Stretch the cable with the adjustment screw (2) until the slack in the cable disappears.
4. Tighten the lock nuts (1).
5. Recheck the brakes after adjustment.
6. Fit the left wing cover.

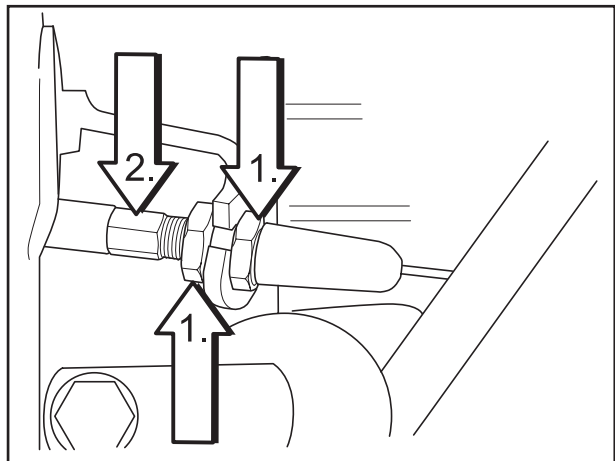


8042-037



WARNING!

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



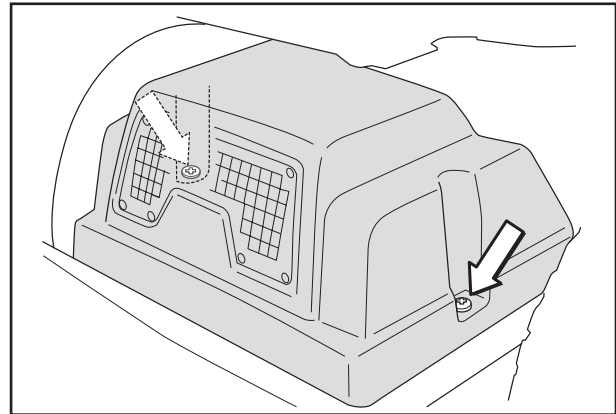
6021-031

REPAIR INSTRUCTIONS

Hydrostat Cable Adjustment

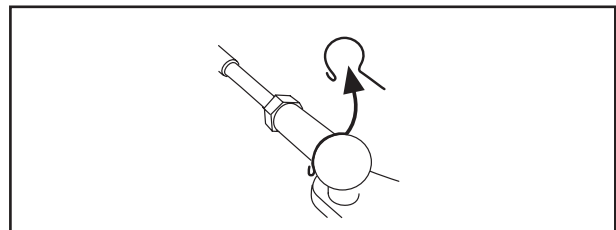
The hydrostat cable can be adjusted as follows:

1. Remove the transmission cover. Undo both screws (one on each side) and then lift off the transmission cover.
2. Make sure the front ball joint on the rod is fitted into the second hole from the top on the rear axle control lever.
3. Separate the ball joint for the hydrostat cable, it is secured with a lock spring.
4. Make sure the forward drive pedal is depressed fully.
5. Bend the arm to max position and check that the ball and ball socket in the ball joint agree.
6. Adjust the ball socket on the cable as required so that it fits precisely over the ball on the lever arm.



6021-030

Transmission cover



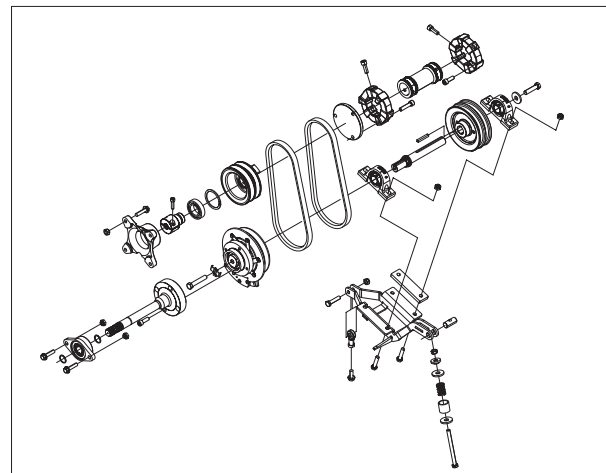
8009-203

Link joint locking spring

IMPORTANT INFORMATION

Make sure the locking springs goes through both holes in the ball socket.

7. Screw in the ball socket a further two turns.
8. Assemble the ball joint.
9. Fit the ball joint lock spring.
10. Tighten the locking nut for the ball socket on the cable.
11. Fit the transmission cover.

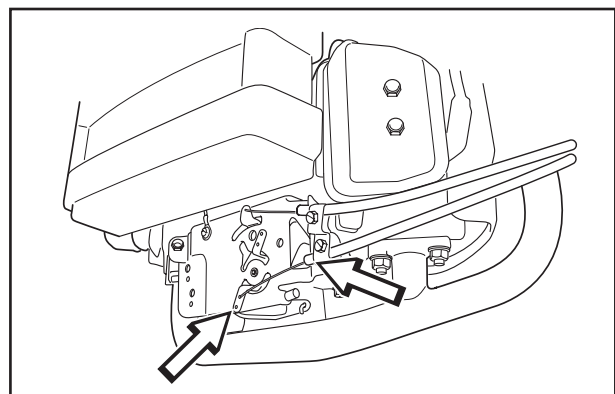


Checking and Adjusting the Throttle Cable Kawasaki

Make sure the engine responds to the throttle and that a good engine speed is attained at full throttle.

If necessary, adjustment can be done as follows on the lower 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, see illustration.
3. Press the outer sheath of the throttle cable to the far left and tighten the clamping screw.



8009-144

Throttle cable Kawasaki

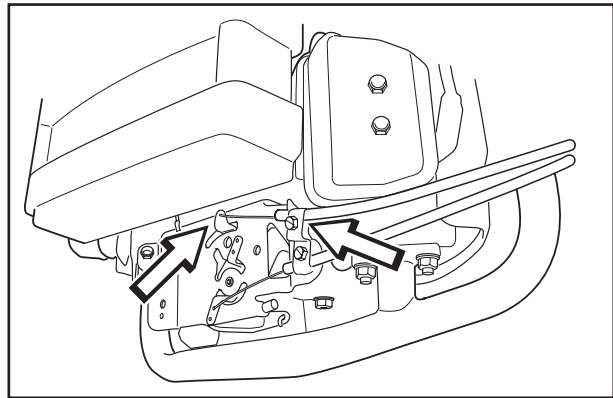
REPAIR INSTRUCTIONS

Checking and Adjusting the Choke Cable Kawasaki

If the engine emits black smoke or is difficult to start, it may be due to an incorrectly adjusted choke cable (top cable).

If necessary, adjustment can be done as follows:

1. Loosen the clamping screw for the cable's outer casing and move the choke control to the full choke position.
2. Make sure the choke cable is attached to the upper lever arm, see illustration.
3. Pull the choke cable's outer casing as far to the right as possible and tighten the clamping screw.

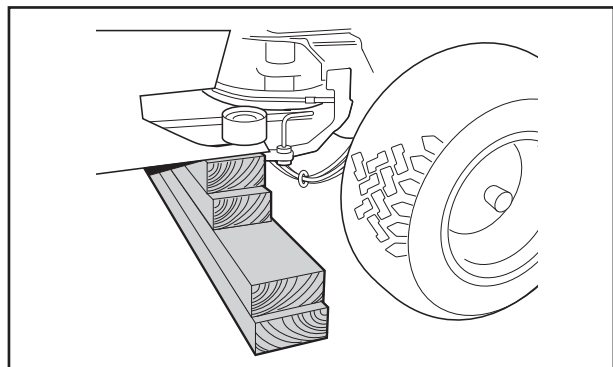


8009-145

Choke cable

Changing Articulated Steering Bearing

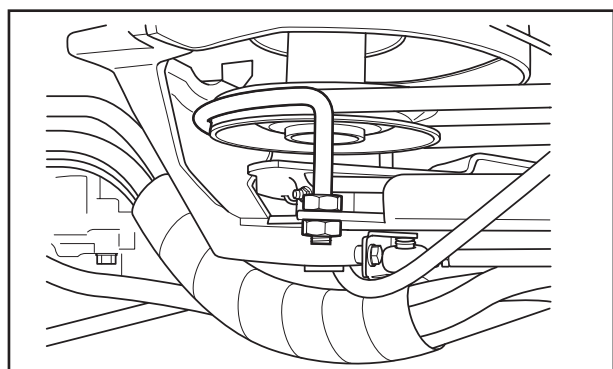
1. Remove the engine as described earlier under "Removing Kawasaki Engine".
2. Put supports under the ride-on mower in front of the articulated steering.



6012-023

Supporting

3. Remove the belt guide and underrun guard if present.
4. Prise the drive belts off the engine belt pulley.

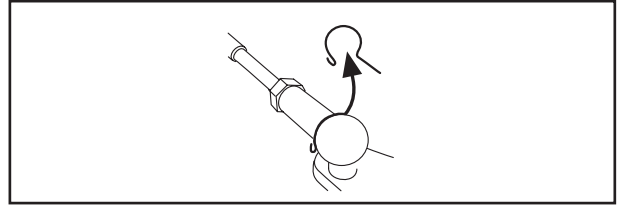


8009-736

Belt guide

REPAIR INSTRUCTIONS

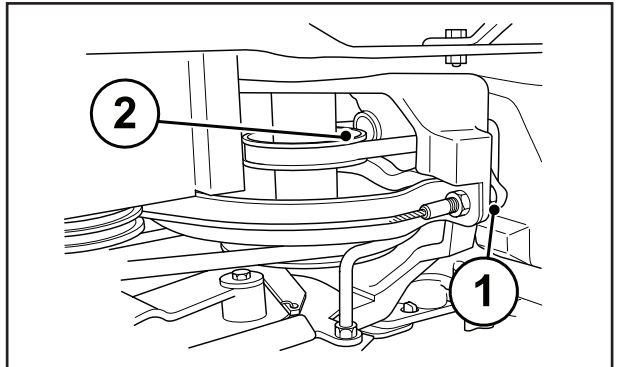
5. Remove the lock springs and loosen the speed control link joint lock spring and release the cable anchorage from the rear frame and the swivel joint.



8009-203

Locking spring

6. Clean, see "Working Methods". Mark up and disconnect the hydraulic hoses from the couplings under the machines.
7. Loosen the steering cables (1) and remove the steering collar.
8. Remove the belt pulley (2). Move the front part forward and the rear backward and prise out the belt pulley.



8009-367

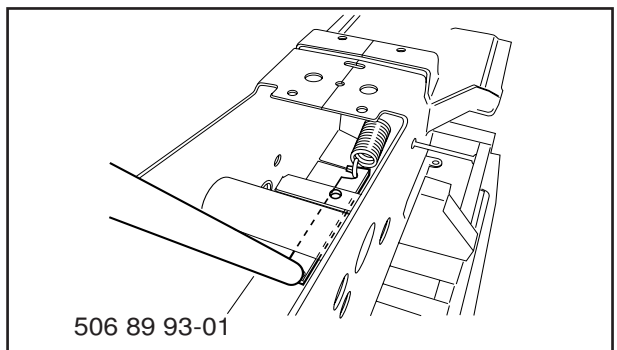
Steering cables and belt pulley



WARNING!

The center spring is under high tension and can cause injuries if it comes loose. Wear protective goggles and gloves with removing/fitting the spring.

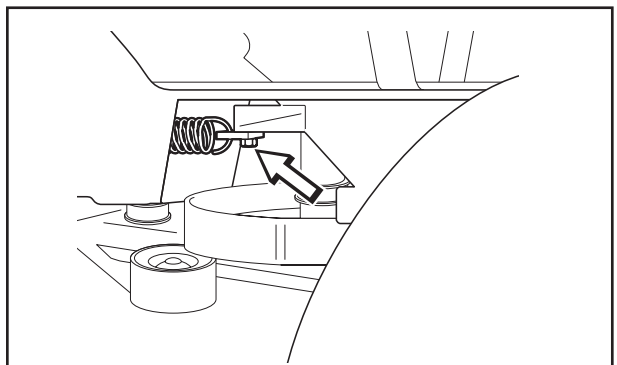
9. Loosen the center spring. This spring is under great tension and must be unloaded with the tool 506 89 93-01.



8009-517

Relieving the center spring

10. Remove the screw for the center spring rear anchorage **after** the spring has been unloaded.

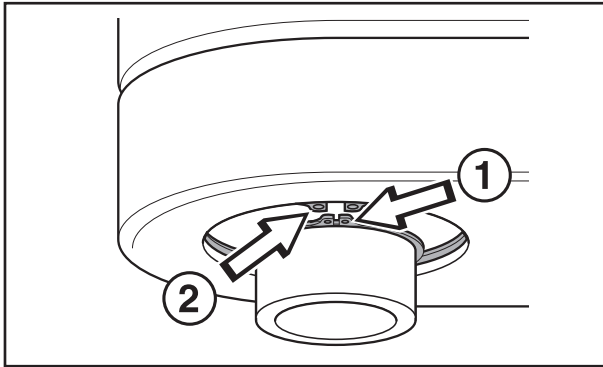


6012-026

Center spring rear attachment

REPAIR INSTRUCTIONS

11. Remove the inner circlip (1) from the lower bearing (see illustration). The rear carriage is now loose and can be moved. Then take loose the outer circlip (2) and take out the bearing from below.



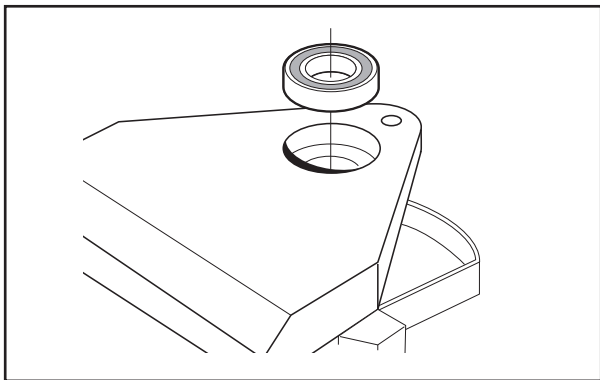
6012-027

Lower bearing

12. Take out the upper bearing from above, if it is stuck tap it from below.
13. Fit the new bearings and assemble the articulated steering in reverse order to removal.
14. Check the tension of the cable after assembly, See "Checking and adjusting the steering cables".

Also check that the control and cables are correctly adjusted, see "Hydrostat cable adjustment".

15. Bleed the hydraulic system. Top up with oil after the test drive

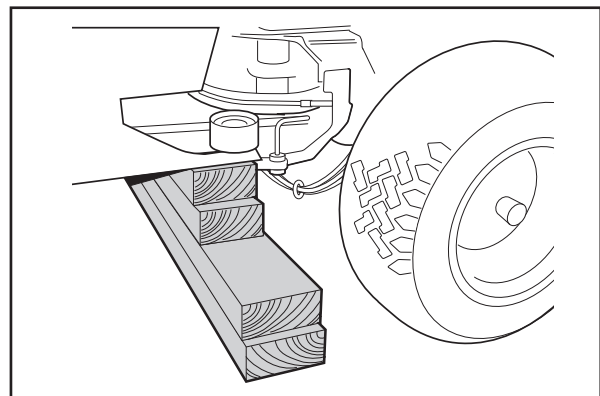


6012-028

Upper bearing

Removing the Swing Axle

1. Put supports under the machine in front of the rear frame.
2. Clean, see "Working Methods".

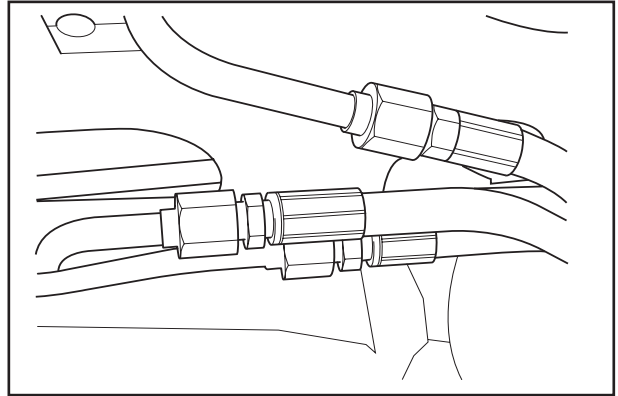


6012-029

Supporting

REPAIR INSTRUCTIONS

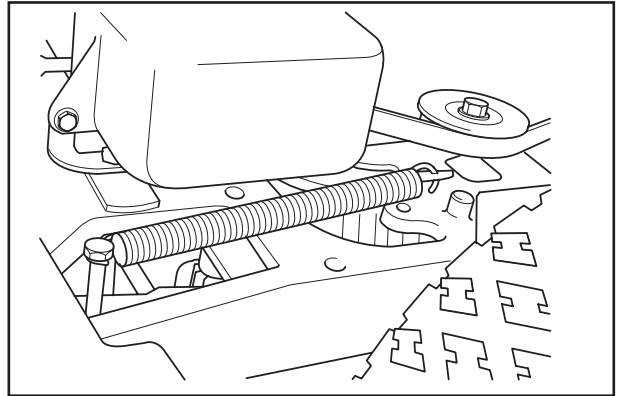
3. Mark up and disconnect the hydraulic hoses from the couplings under the machines.



8009-820

Hydraulic hoses

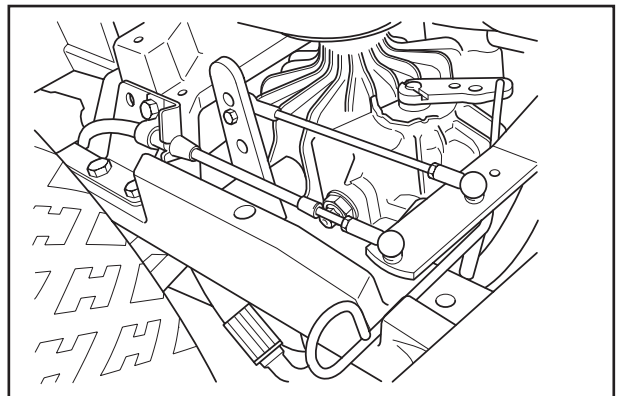
4. Loosen the idler spring.



8009-821

Idler spring

5. Remove the hydrostat cable from the arm and the casing from the anchorage.

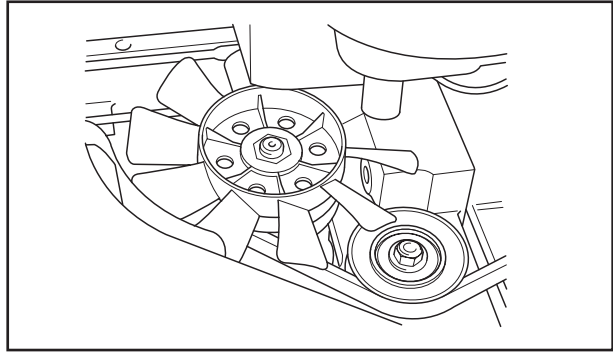


8009-822

Hydrostat cable

REPAIR INSTRUCTIONS

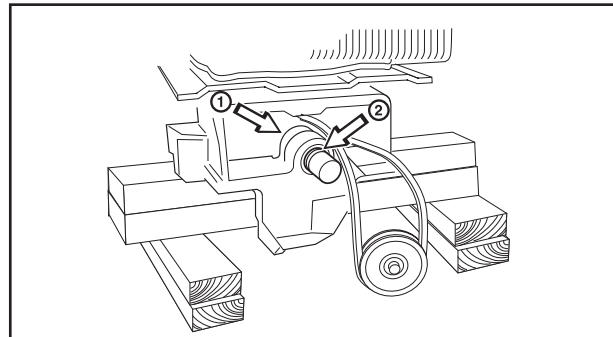
6. Remove the circlip and lift away the hydrostatic fan.
7. Remove the rear belt from the impeller and the idler pulley.
8. Remove the circlip and washer from the swing axle and pull loose the rear frame.



8009-823

Hydrostat fan

9. Remove the circlip and washer from the inner anchorage on the swing axle (1) and pull out the swing axle from the rear. Use an impact hammer or puller if necessary. If the dust shield (2) is damaged, it must be replaced with a new one.



6012-031

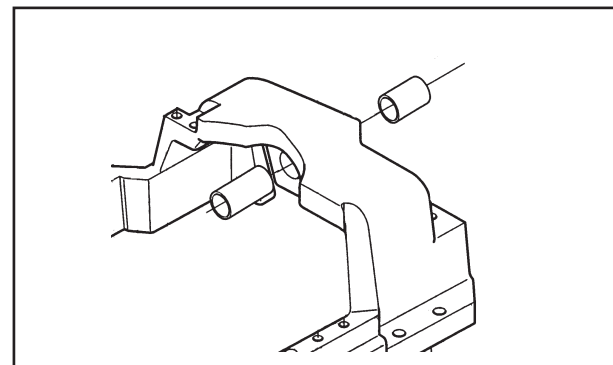
Swing axle

Replacing the Bushings

Once the swing axle has been removed, the bushings in the rear frame must be changed.

The can be removed using a drift, see "Special Tools".

New bushings can be fitted using a drift, see "Special Tools". Ensure that the grooves in the bushings run horizontally. It is essential that the outermost edges of the bushings are level with the outside edge of the hole. The bushings must be initially lubricated with a lithium-based grease.



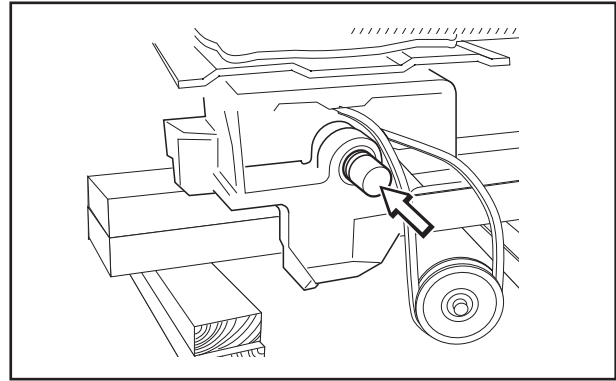
8009-044

Replacing the bushings

REPAIR INSTRUCTIONS

Assembling the Swing Axle

1. Grease half the axle (the half that is not machined down) and press in the guide spindle from behind (see illustration).
2. Fit the washer and circlip on the swing axle at its inner fastening.
3. Fit the dust shield (with the thin lip back) approx. 2/3 into the axle and lubricate it on both sides of the dust shield.
4. Roll forward the rear frame and press it onto the swing axle.
5. Fit the washer and circlip on the swing axle (1).
6. Connect the hydraulic lines under the machine.
7. Fit the rear belt.
8. Fit the hydrostatic fan.
9. Fit the hydrostat cable. Check that it is correctly adjusted, see "Hydrostat cable adjustment".
10. Fit the idler spring.
11. Fill and bleed the hydraulic system. Top up as necessary after the test drive.
12. Fit the transmission cover.



6012-098

Assembling the Swing Axle

Drive Shafts

Observe cleanliness, follow the directions under "Hydraulic system\Hydraulic hygiene".

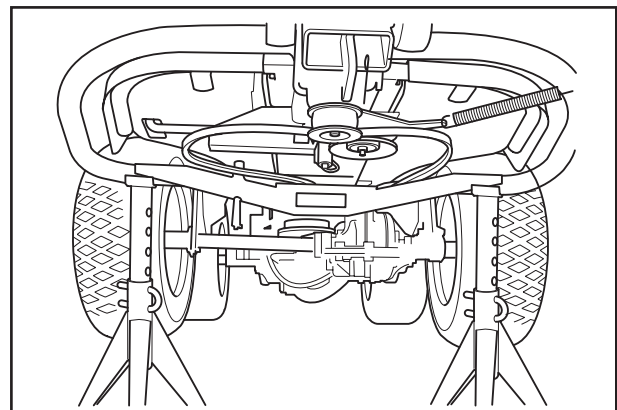
Hold the coupling nut with a wrench when loosening and tightening it so that the lines or elbow nipples are not exerted to twisting forces.

Front Axle

The tool frame must not be dismantled.

Removal

1. Remove the cutting deck, see "Removing the Cutting Deck".
2. Raise and support the machine.
3. Remove the front wheels.
Remove the protective hood

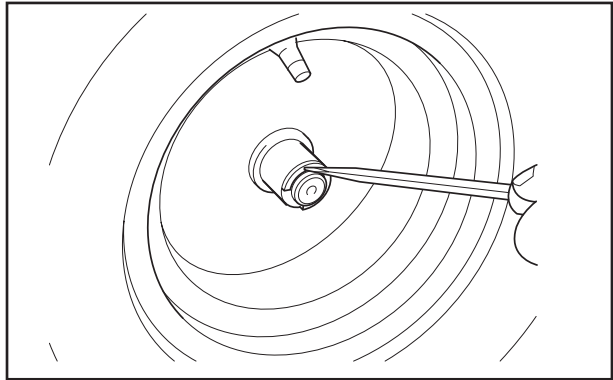


8009-824

Supporting the front axle

REPAIR INSTRUCTIONS

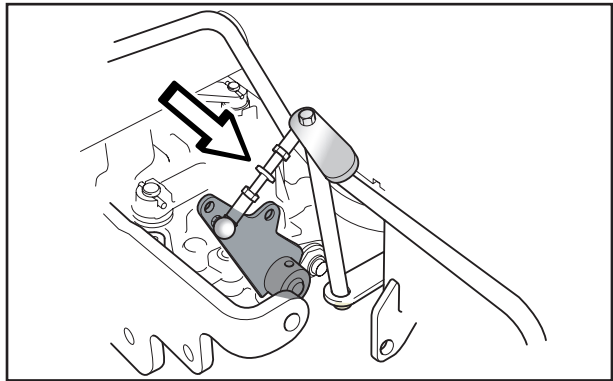
- Remove the circlip.
- Pull off the wheel and hub from the axle.
- Take hand of the key, spacer sleeve and washers, keep track of the number of washers, can vary between sides.



8009-825

Circlip

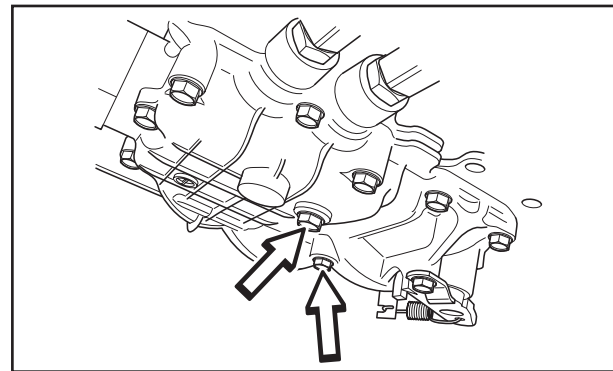
4. Free the front speed adjustment link from the front axle.
- Check in which hole the adjustment link is attached (normally the top hole).



8042-121

Adjustment link

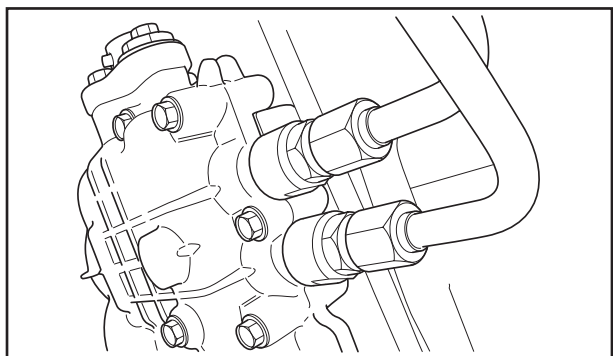
5. Drain the oil if necessary, two plugs.



8009-631

Oil drain

6. 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 not been drained.
7. Remove the front left wing.

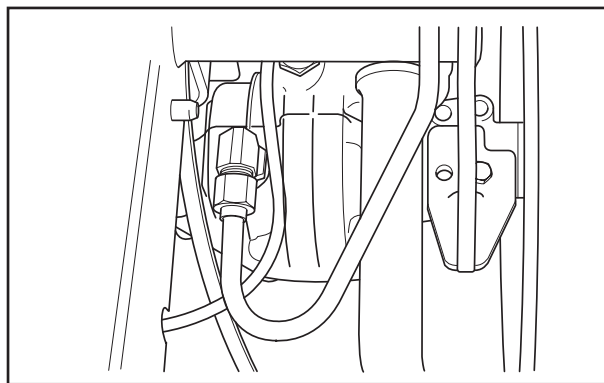


8009-623

Hydraulic pipe, bottom

REPAIR INSTRUCTIONS

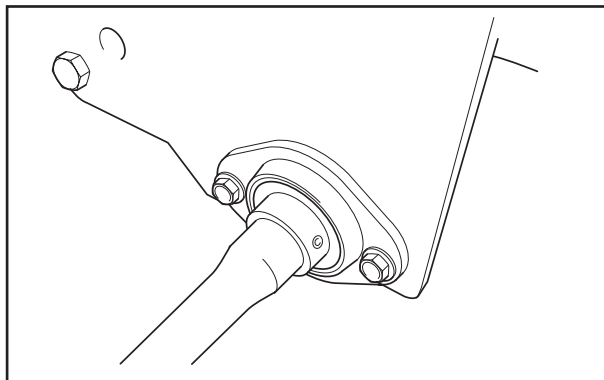
8. Undo the hydraulic pipe from the top of the front axle. Fit protective plugs. A small amount of oil may leak out even if the front axle has not been drained.



8009-826

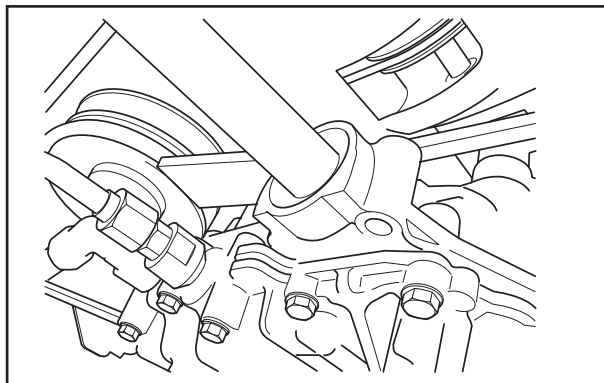
Hydraulic pipe, top

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



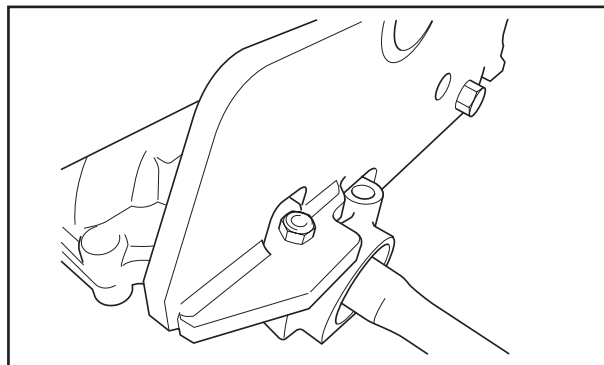
8009-827

Right outer front axle bracket



8009-830

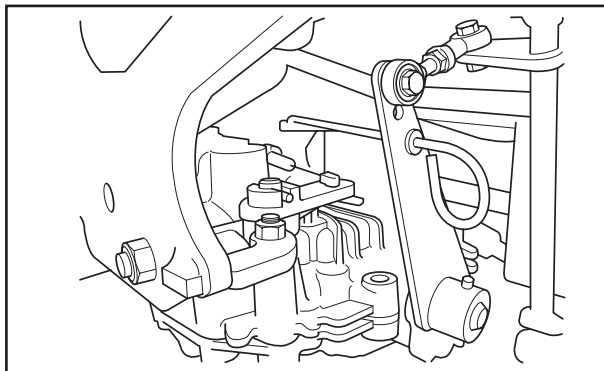
Right inner front axle bracket



8009-828

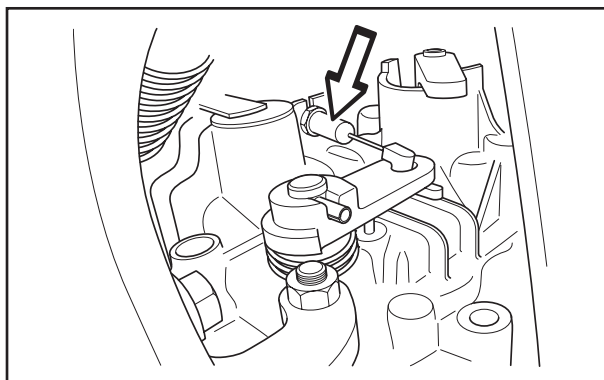
Left front axle bracket

REPAIR INSTRUCTIONS



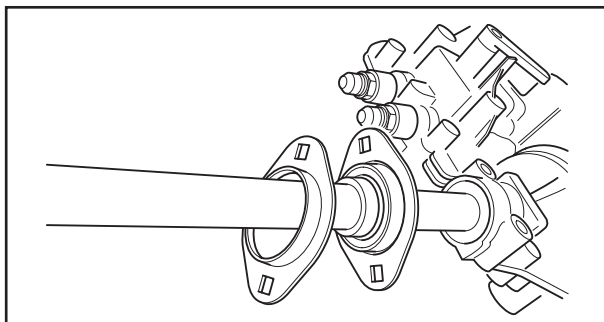
Rear front axle bracket

10. Release the parking brake cable from the front axle.



Parking brake cable

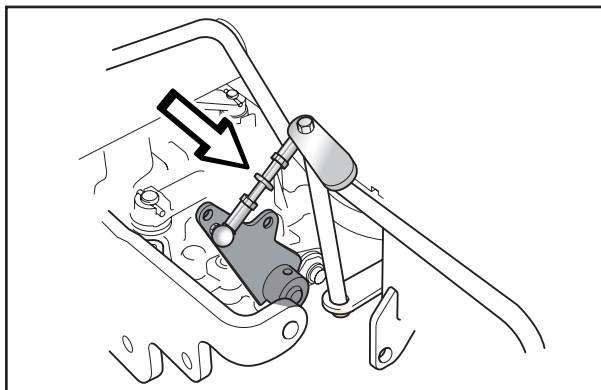
11. Loosen the stop screws (2x) and remove the bearing on the right.



Right front axle bearing

Assembly

1. Reassemble the front axle in reverse order in relation to removal. Tighten the left side bearing before the right side bearing.
2. The stop screws for the right side bearing is tightened after the five screws holding the front axle have been tightened.
3. The synchronizing link is fitted in the upper hole. (There is a hole for the clutch control under the hole for the synchronizing link)



Synchronizing link

REPAIR INSTRUCTIONS

4. Lightly oil in the pipe couplings before assembly.
5. Grease the axles with corrosion protection before fitting the wheels.
6. The spacer sleeves inside the wheels

Left 36.3 mm + washer

Right 45.5 mm, no washer

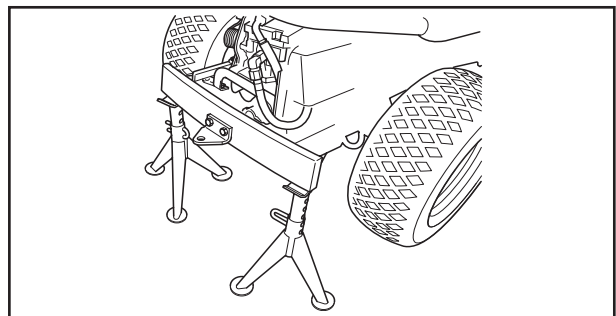
Do not get mixed up with the rear axle spacer sleeves.

7. Fill with oil and bleed the entire hydraulic system as described in "Bleeding the drive system".
8. Check and adjust the parking brake cable.
9. Check and adjust speed coordination between the front wheels and rear wheels as described in separate instructions.

Rear Axle

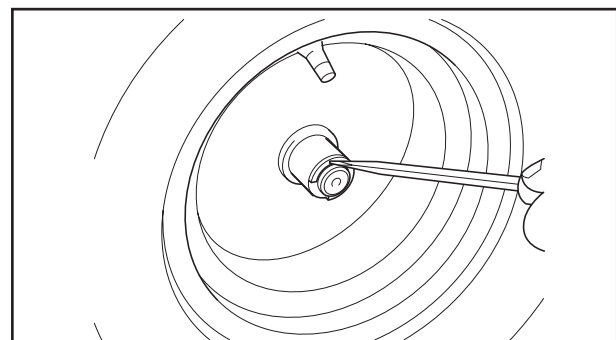
Removal

1. Raise and support the machine.
2. Remove the rear wheels.



Supporting

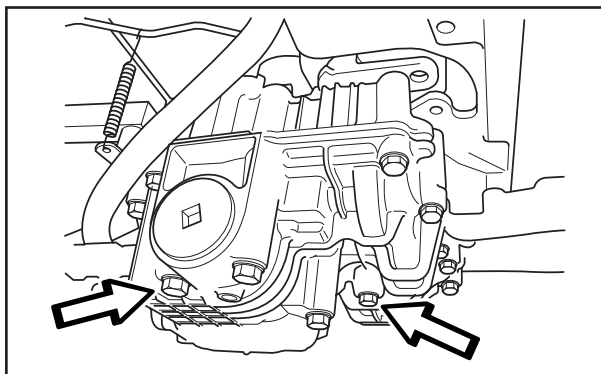
- Remove the protective cover.
- Remove the circlip.
- Pull off the wheel and hub from the axle.
- Take hand of the key, spacer sleeve and washers, keep track of the number of washers, can vary between sides.



Circlip

REPAIR INSTRUCTIONS

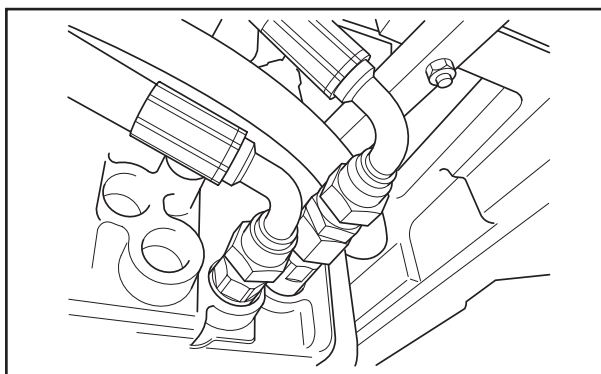
3. Drain the oil if necessary, two plugs.



8009-832

Oil drain

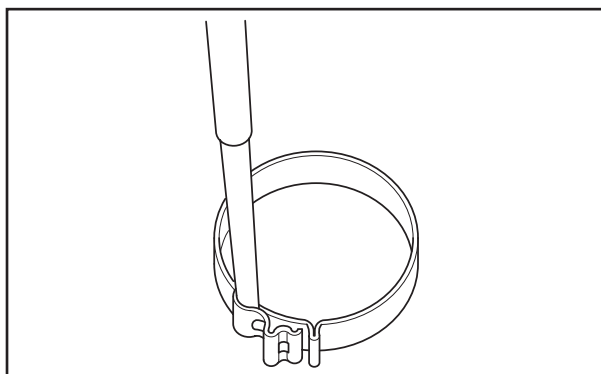
4. Mark the hydraulic lines and loosen them from under the rear axle. Fit protective plugs. A small amount of oil may leak out even if the axle has not been drained.



8009-833

Hydraulic hoses bottom

5. Loosen the return line from the hydraulic tank. Open the clamp for the suction line under the tank and remove the hydraulic tank.

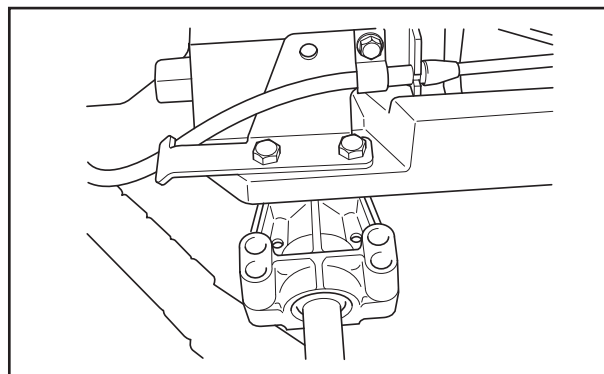


8009-834

Opening a clamp

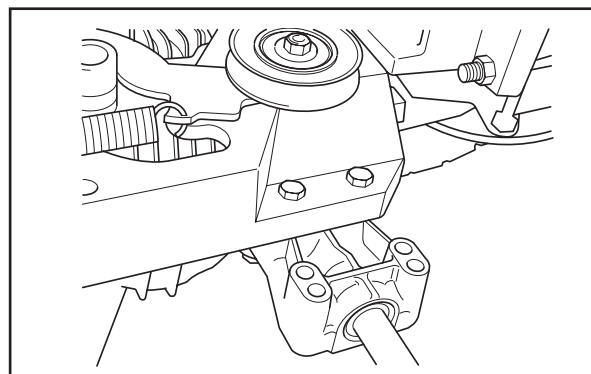
REPAIR INSTRUCTIONS

6. Loosen the cable and the speed control link rod from the horizontal arm.
7. Remove the clutch control.
8. Prise off the rear V-belt from the fan's belt pulley. Place the belt above the groove on the crankshaft pulley and insert it between the fan blades.
9. Remove the five screws holding the rear axle and lower the rear axle.



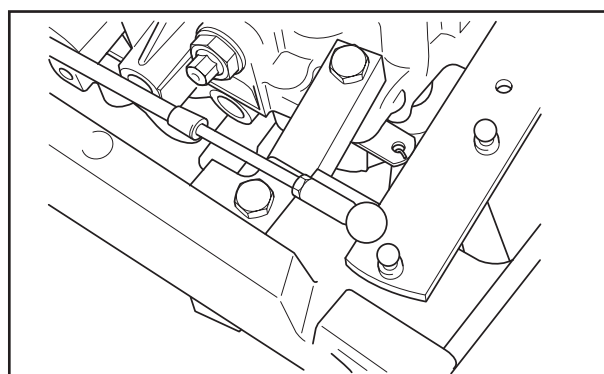
8009-835

Mounting screws left side



8009-837

Mounting screws right side



8009-836

Mounting screw rear axle

REPAIR INSTRUCTIONS

Assembly

1. Reassemble the rear axle in reverse order in relation to removal.
2. Grease the axles with corrosion protection before fitting the wheels.
3. The spacer sleeves on the inside of the wheels on the rear axle are the same length on both sides 35 mm. Do not get mixed up with the front wheel spacer sleeves.
4. Lightly oil in the pipe couplings before assembly.
5. Fill with oil and bleed the entire hydraulic system as described in "Bleeding the drive system".
6. Check and adjust speed coordination between the front wheels and rear wheels as described in separate instructions.

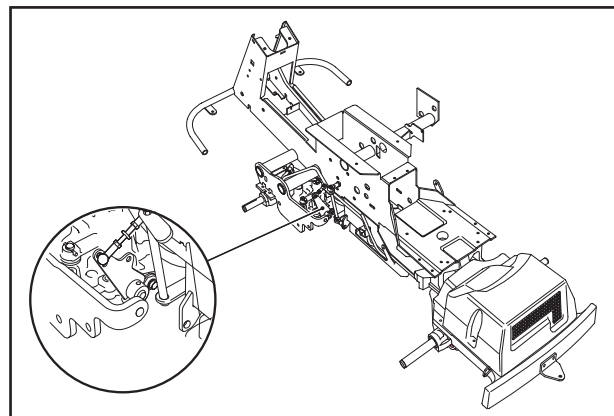
Wheel Speed Adjustment

Front and rear wheel drive must be adjusted so that the speed between the front and rear wheels is correct when cornering.

To avoid measuring faults due to free rolling of the differential wheels at least two of the machine wheels must be in contact with the ground.

Make sure that the steering angle does not change during this work.

Measurement should be done using Husqvarna's optical tachometer. Front wheel speed should be 0.95-1 of the rear wheel speed. Note that the variation between the wheel speeds is intentionally greater on delivery. The production value can be down to 0.92.



8042-126

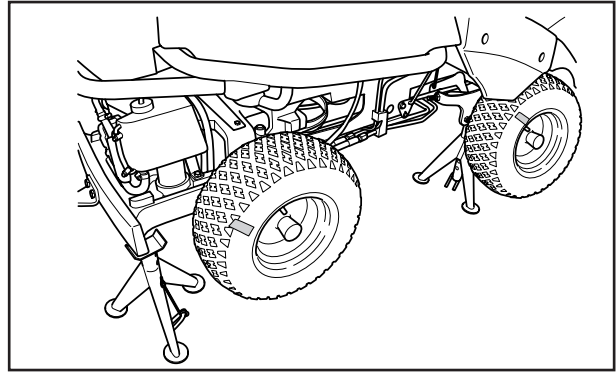
Adjusting link

Time	Action	Value
Production		0.92-0.95
PDI	Check	0.92-0.95
8h	Check	0.95-1
25h	Check	0.95-1
Every 25h	Check	0.95-1

1. Make sure the adjusting link is fitted to the top hole of the front axle arm.
2. Put the steering wheel in a central position. Use a straight level board or similar.

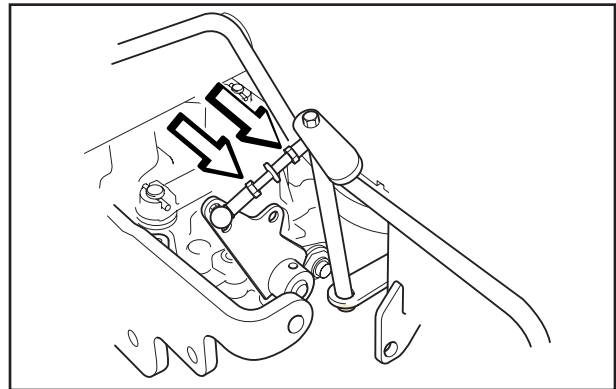
REPAIR INSTRUCTIONS

3. Raise and support the machine with the wheels one side on the ground and the wheels on the other side free. Make sure the steering angle has not changed.
4. Mark the free rolling wheels with reflective tape or equivalent.
5. Think of the exhaust risk. Start the engine and allow it to warm up at full speed until the wheel speed has become stable. Check with a tachometer.
6. Make sure the steering angle does not change during the following test. Measure and note the rpm of the rear wheel at full speed. Then measure the speed of the front wheel, it should be between 0-5% lower than the rear wheel speed.
7. Turn off the engine.
8. Adjust the rotation speed of the wheels with the adjusting rod. First loosen the lock nuts.
 - A longer rod gives the front wheels a higher speed.
 - A shorter rod gives the rear wheels a higher speed.
9. At the same steering angle as before, check that the adjustment has given the desired result. If not, repeat the process from marking the wheels.
10. Tighten the adjusting rod lock nuts when finished adjusting.

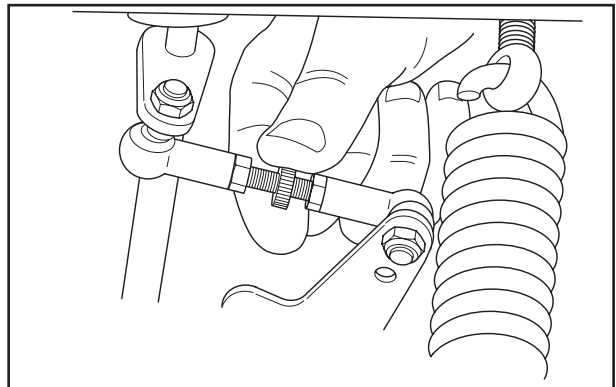


8009-672

Supporting and wheel marking



8042-127



8042-128

REPAIR INSTRUCTIONS

Change of Hydrostat Shaft Seals

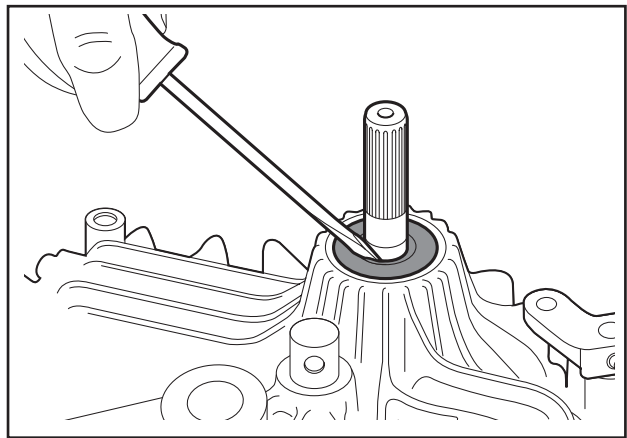
Seal Change on Input Shaft

Remove the cooling fan, held by a circlip.
Remove the belt pulley from the input shaft by pulling it up and then dismantling the circlip under the belt pulley.

IMPORTANT INFORMATION

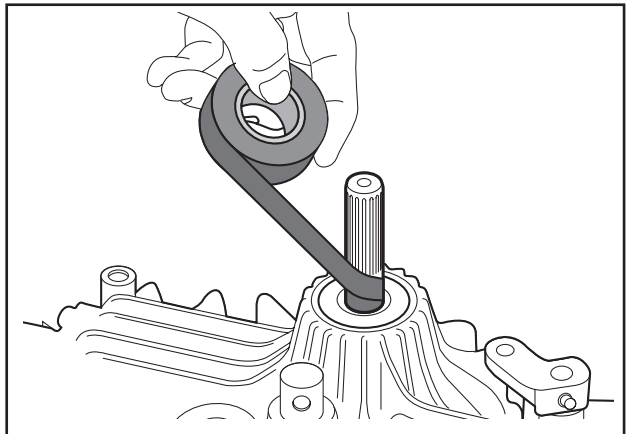
The area around the seal must be absolutely clean! If the hydrostat oil becomes contaminated by dirt it may lead to a shorter service life of the hydrostat.

1. Clean all the dirt and rust from the input shaft and the area around the seal. Insert a screwdriver between the seal and the shaft and prise the seal out of the shaft housing with a twisting motion.



6012-042

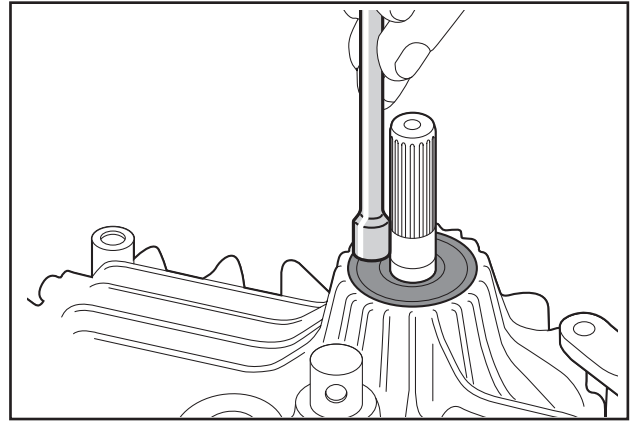
2. Wind insulating tape around the input shaft to protect the new seal from being damaged by splines and grooves. Start winding from the bottom and continue up over the shaft until all of it is covered in tape. Grease the shaft and inside the new seal so that the seal slides on easily.



6012-043

REPAIR INSTRUCTIONS

3. Put the seal on the shaft with the smooth side up and press down carefully.
Use the thick end of 1/4" extension to carefully tap down the seal until the top of the seal is level with the top edge of the shaft housing. Move the extension in a circle around the seal so that it is tapped down easily all the way round.
Remove the insulation tape from the shaft and fit the lower circlip and belt pulley with the hexagonal hub face up.
Fit the fan with washer and the top circlip.



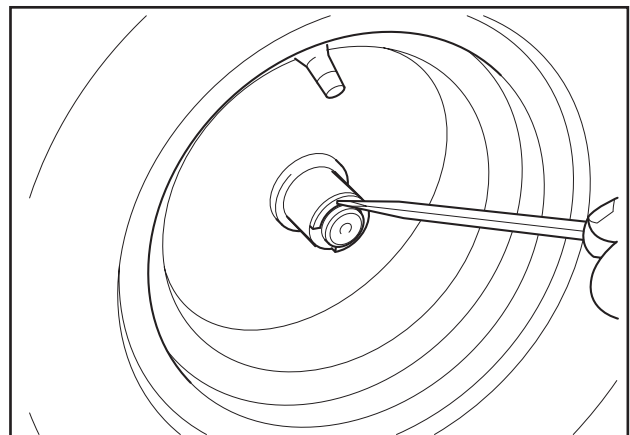
6012-044

Seal Change on Output Shafts

1. Remove the retaining rings holding the wheels to the shafts and remove the wheels by pulling them out. Do not misplace the key that is between the wheels and the shaft.
2. Remove the spacer sleeves and washers. Keep track of the number of washers as this can vary between sides.

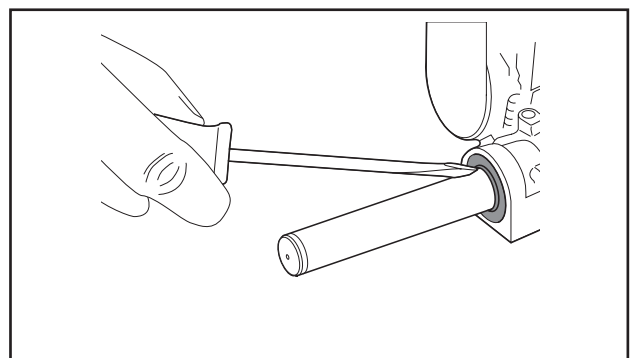
IMPORTANT INFORMATION

Dirt must not be allowed in the transmission as it could shorten the service life.



8009-825

3. Clean all the dirt and rust from the output shaft and the area around the seal.
4. Insert a screwdriver between the seal and the shaft and prise the seal out of the shaft housing with a twisting motion.
A small amount of oil may leak out.



6012-045

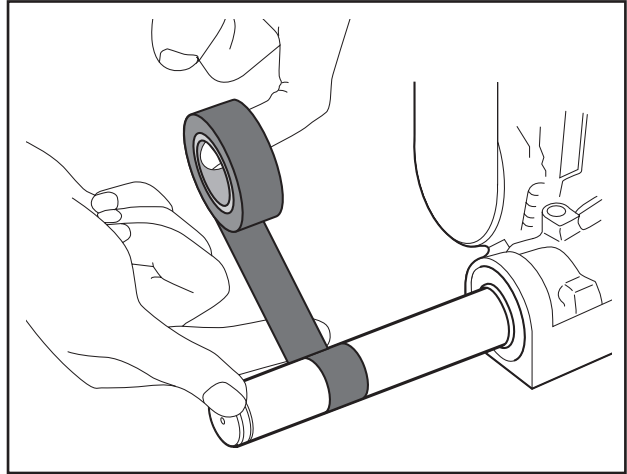
Prise loose seal

REPAIR INSTRUCTIONS

5. Wind insulating tape around the output shaft from the start of the keyway and out on the shaft until the circlip groove is also covered by tape. This is done to protect the new seal from damage.
6. Grease the shaft and inside the new seal so that the seal slides on easily.

IMPORTANT INFORMATION

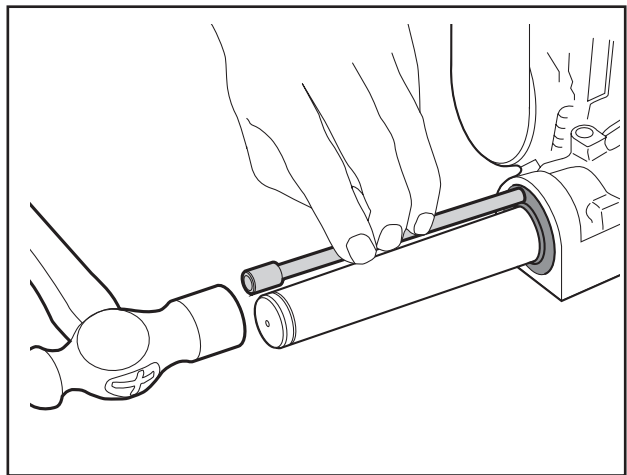
Check that the seal's metal spring reinforcement is on the side of the seal opening inward toward the transmission before installing the seal completely.



6012-046

Wind insulating tape

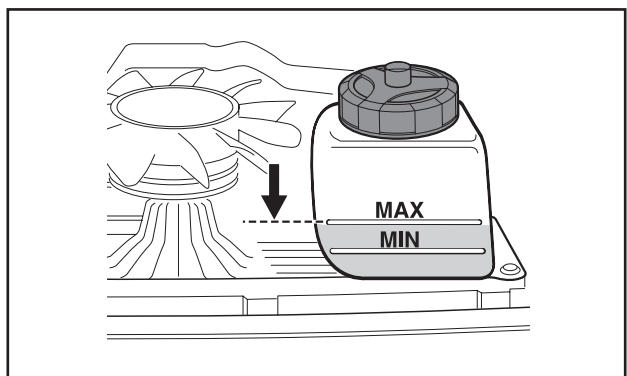
7. Put the seal on the shaft with the metal spring inward and press it in carefully.
Use the narrow end of a 1/4" extension to carefully tap in the seal until it bottoms on the shaft housing. Tap only on the seal's steel casing.
Move the extension in a circle around the seal so that it is tapped in easily all the way round and seals against the shaft.



6012-047

Tap in seal carefully

8. Remove the insulating tape from the shaft and repeat the whole procedure on the other shaft if necessary.
9. Refit the large washer, spacer sleeve, key, rear wheel, little washer, circlip and hubcap.
10. Fill with SAE 10W/40 oil grade SF-CC or higher into the transmission oil reservoir until the level reaches the max marking. The machine should be level and the oil have a temperature of around 20 °C.



6012-048

Level

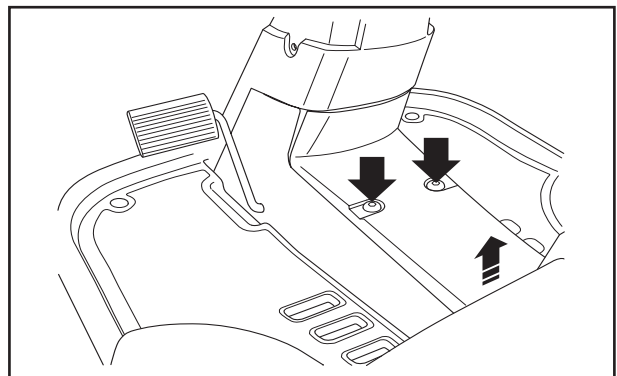
REPAIR INSTRUCTIONS

11. Bleed the hydraulic system as described in "Bleeding the drive system".
12. Run the ride-on mower and then check there is no oil leaking from the new shaft seals.
13. Check the oil level and top up if necessary after the test drive.

Replacing the Hydrostatic Cable

Removing the Hydrostatic Cable

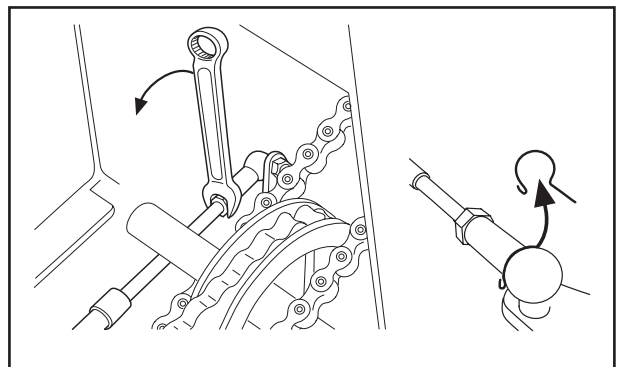
1. Remove the frame plate by loosening the screws.



8042-039

Frame plate

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



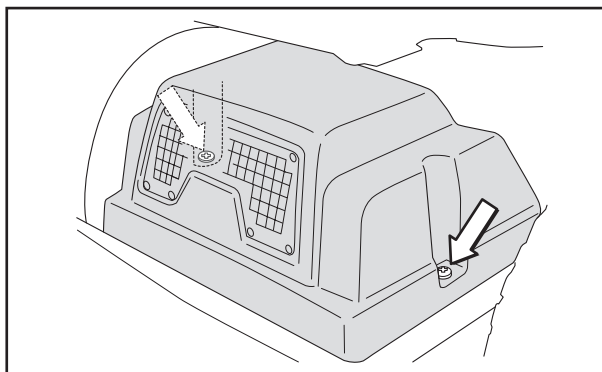
6019-010
8009-203

Front locking nut and locking spring

3. Remove the front hydrostatic cable clamp that is fastened inside the center console.

REPAIR INSTRUCTIONS

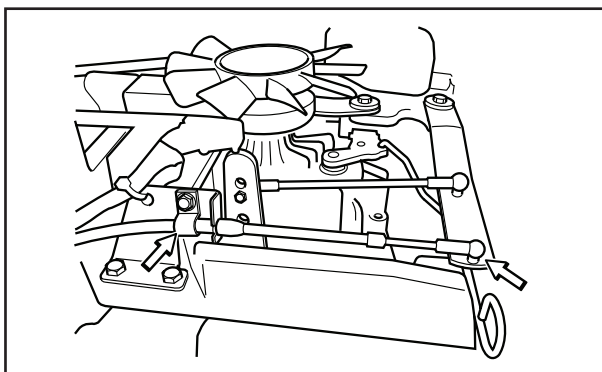
4. Remove the transmission cover.



6021-030

Transmission cover

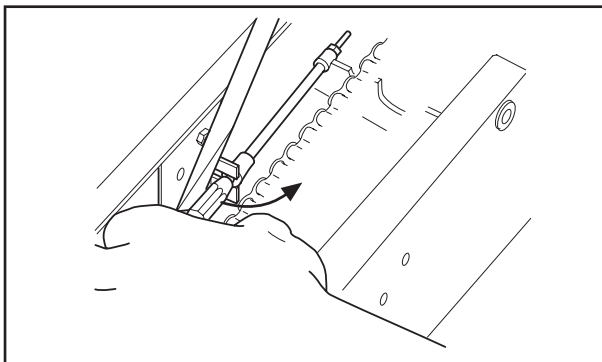
5. Remove the locking spring and rear hydrostatic cable link joint from the arm. Remove the rear clamp.



8009-214

Rear link joint

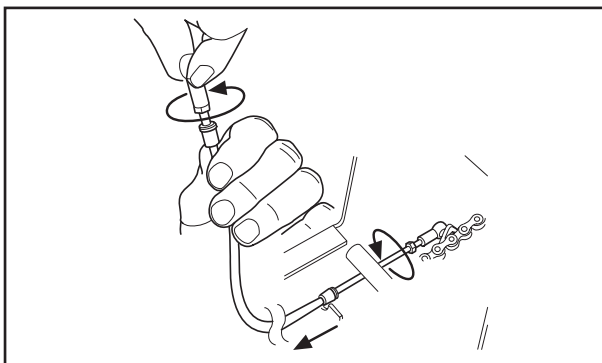
6. Lift off the front link joint and pull out the cable.
7. Lift out the hydrostatic cable with associated link joint.



6019-016

Lift off link joint

8. Unscrew both link joints from the hydrostatic cable.

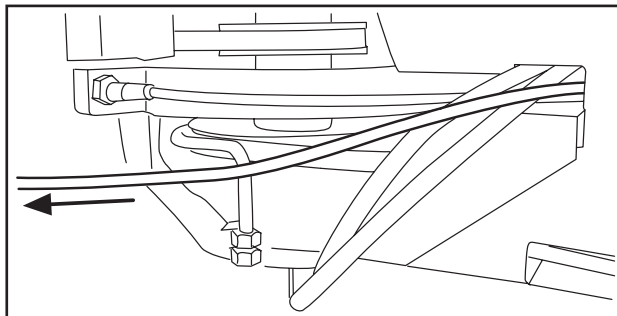


6019-017

Remove link joints

REPAIR INSTRUCTIONS

9. Remove the whole hydrostatic cable.

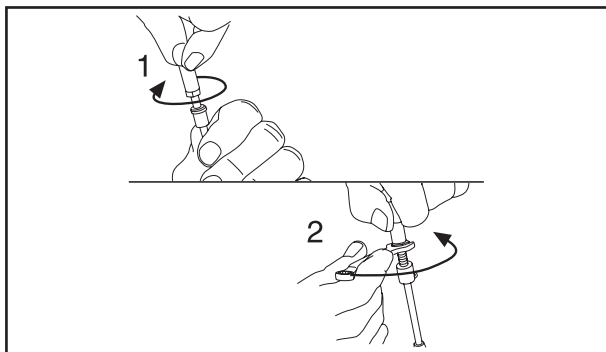


6019-009

Remove hydrostat cable

Fitting the Hydrostatic Cable

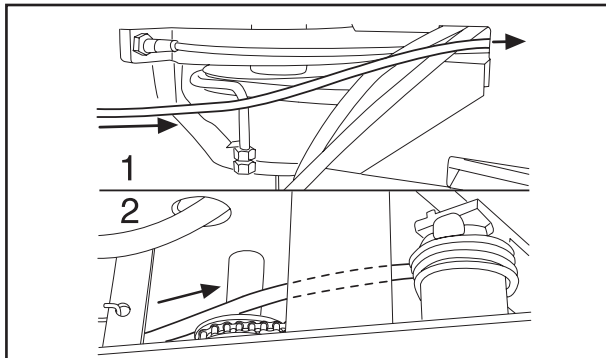
1. Screw the front link joint onto the new hydrostatic cable and tension the locking nut.



6019-018

Front link joint

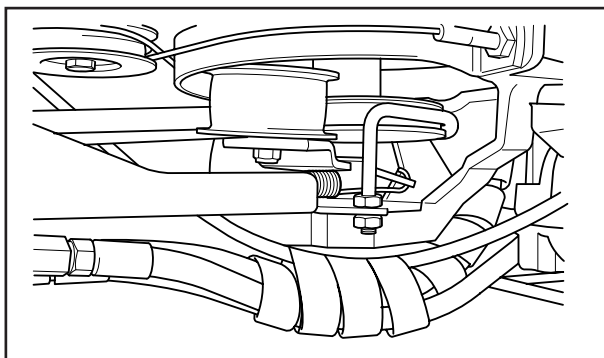
2. Feed the new cable through the mower so it runs the same route as the old one.



6019-022

Insert cable

3. Make sure the cable is pulled through the cable bushing under the articulated steering bearing. As illustrated.

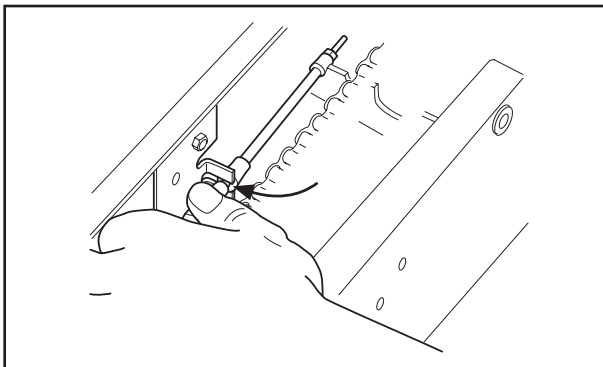


8009-737

Under articulated steering bearing

REPAIR INSTRUCTIONS

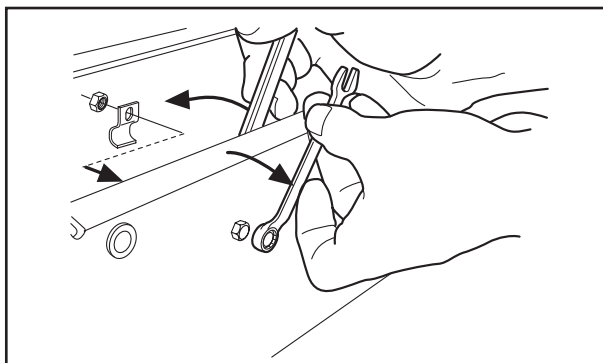
4. Press the cable sheath into the front attachment in the center console.



6019-023

Front attachment in center console

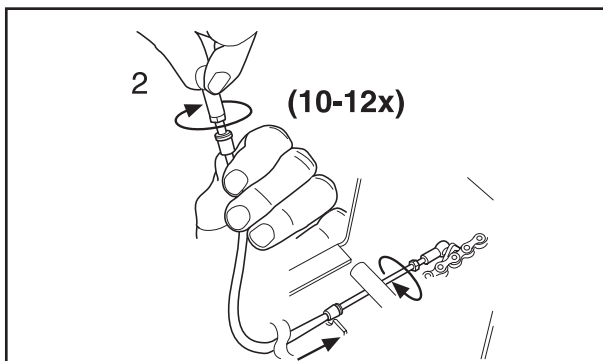
5. Screw on the front hydrostatic cable clamp. Press the link joint onto its attachment and fit the locking spring.



6019-024

Front clamp

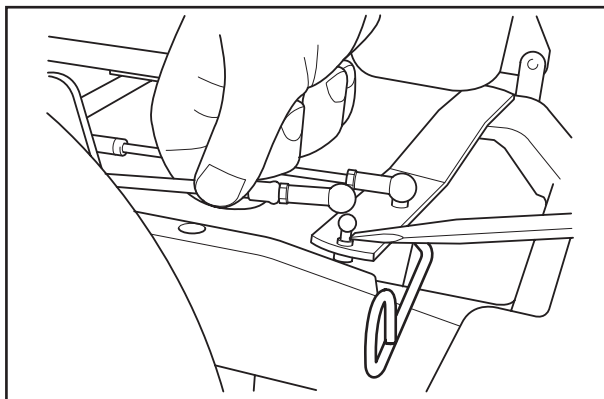
6. Screw the link joint onto the rear part of the hydrostatic cable. Screw 10-12 turns so that the link joint is the correct length.



6019-025

Rear link joint

7. Pull the hydrostatic cable along the other cables.
8. Lay the hydrostatic cable in place on the rear casing bracket and fit the rear clamp.
9. Adjust the hydrostat cable as described in "Hydrostat cable adjustment".

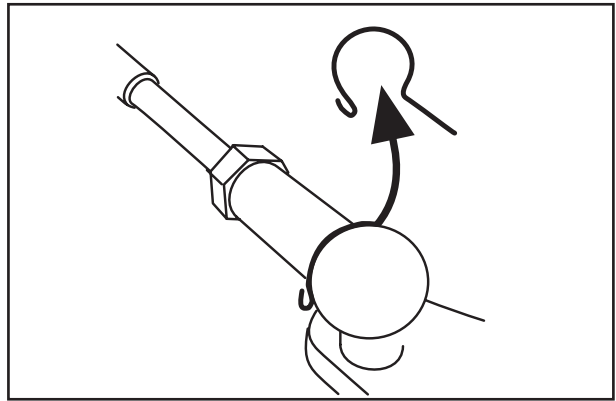


8009-819

Hydrostat cable adjustment

REPAIR INSTRUCTIONS

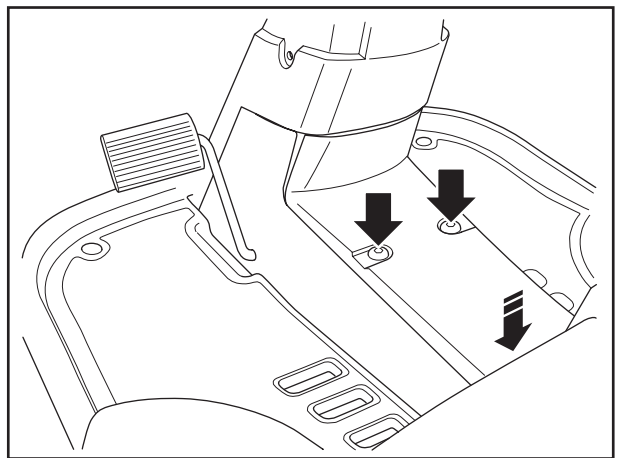
10. Connect the rear link joint and fit the locking spring.



8009-203

Locking spring

11. Tighten the rear link joint locking nut.
12. Screw on the frame plate.
13. Test drive the machine forward and back.



8042-119

Frame plate

REPAIR INSTRUCTIONS

Bleeding the Drive System

IMPORTANT INFORMATION

Observe cleanliness. Do not reuse used oil. Handle waste oil as hazardous waste. Avoid skin contact, wash with soap and water if spilled. See "Hydraulic hygiene" on page 110.

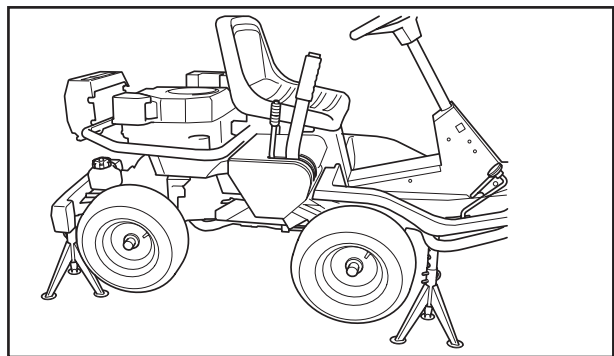
IMPORTANT INFORMATION

Never run the reservoir empty during the work. Fill the reservoir completely when topping up. Risk of air entering the system.

IMPORTANT INFORMATION

When the controls for the clutch valves (bypass valves) in the front or rear axles are extracted and the engine is running, the drive pedals must not be operated.

1. Lift and support the machine so that all the wheels can spin freely.



8009-851

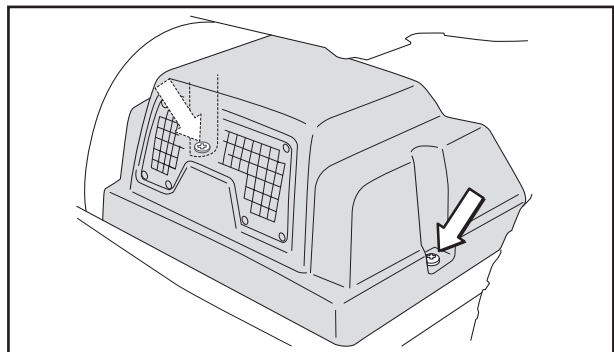
Supporting

2. Remove the transmission cover.



WARNING!

Carbon monoxide danger with running the engine.



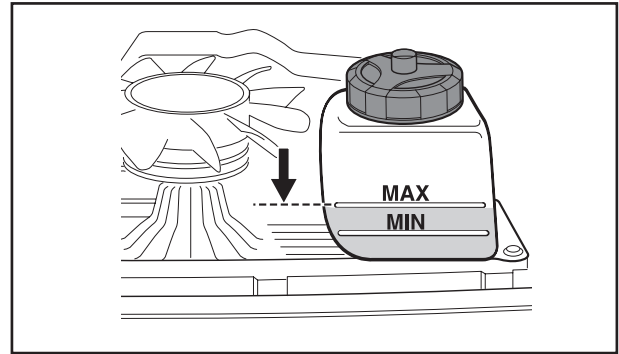
6021-030

Transmission cover

3. Attach an exhaust hose.

REPAIR INSTRUCTIONS

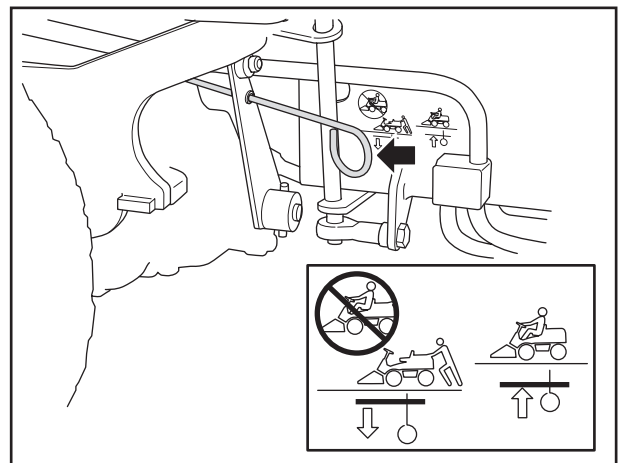
4. Fill the container with oil. Wait a few minutes and top up.



6012-048

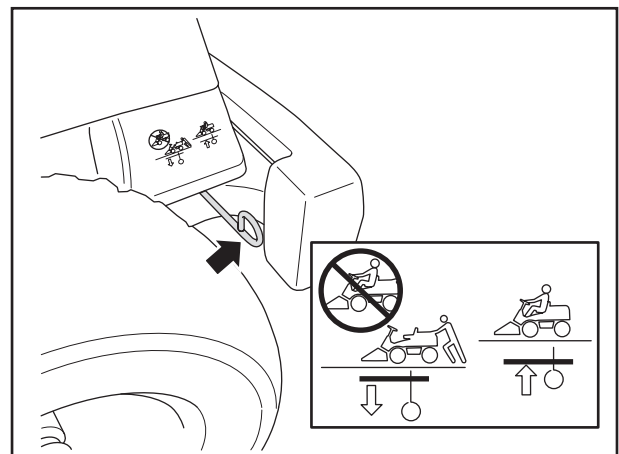
Transmission oil reservoir

5. Spin the wheels by hand and top up.
6. Make sure the clutch valves are closed.
7. Start the engine and let idle, top up.
8. Release the parking brake and operate the front and back pedals for 4x5 seconds, top up.
9. Increase the engine speed to operating rpm and operate the front and back pedals for 4x5 seconds, top up.
10. Reduce engine speed to idling, release the pedals.
11. Open both clutch valves for a few seconds and then close them.
12. Increase the engine speed to operating rpm and operate the front and back pedals. Make sure the wheels react without delay.
13. Lower the machine and test drive.
14. Adjust the level in the hydraulic tank.
15. Replace the transmission cover.



8042-031

Clutch control front



8042-030

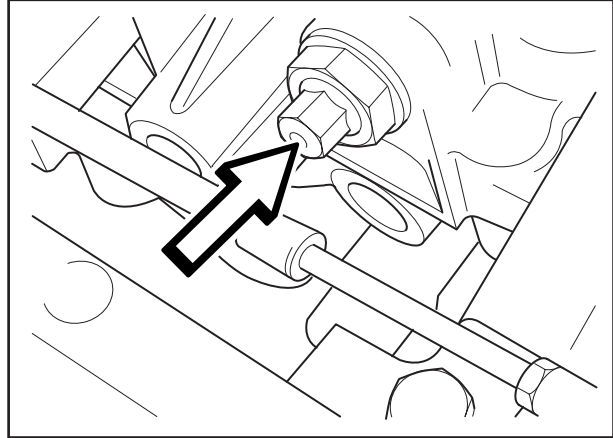
Clutch control rear

REPAIR INSTRUCTIONS

Adjusting Transmission Neutral Position

1. Bleed the drive system as described in "Bleeding the drive system".
2. Lift up the ride-on mower front and rear so that all the wheels are free and place axle stands under.
3. Adjust neutral position by turning the hexagon shaft on the transmission (see illustration).

Start the engine and slide the throttle lever to full throttle.



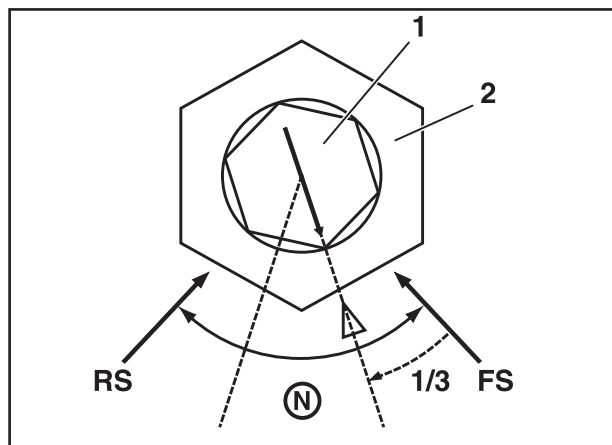
8009-852

Method 1

1 = Shaft

2 = Locking nut

- Turn the shaft slowly counterclockwise until the drive shafts stop rotating backwards and make a mark on the transmission housing (RS).
- Turn the shaft slowly counterclockwise until the drive shafts start to rotate forwards.
- Turn the shaft slowly clockwise until the drive shafts stop rotating forwards and make a mark on the transmission housing (FS).
- Turn the shaft clockwise 1/3 of the distance between the marked stopping points.
- Hold the shaft (N=8) and tighten the locking nut (N=17)."
- Make sure the drive shafts do not rotate forward or back in neutral position.
- Loosen the hexagon shaft locking nut and turn the shaft clockwise until the drive shafts start to rotate backwards.
- Make a mark on top of the shaft.



6012-061

REPAIR INSTRUCTIONS

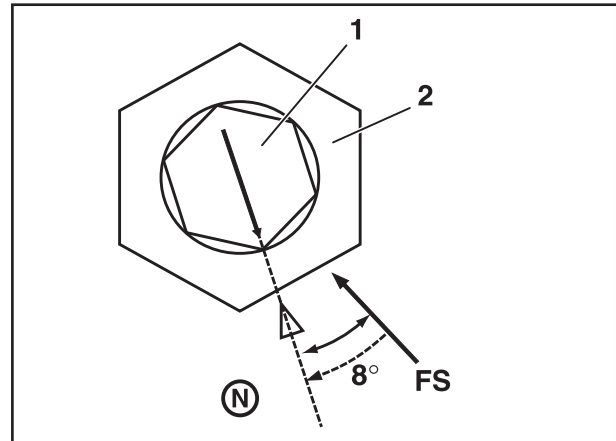
Method 2

1 = Shaft

2 = Locking nut

If the drive shafts do not rotate backwards despite rotating the hexagon shaft one full turn, neutral position must be adjusted as follows:

- Turn the shaft slowly counterclockwise until the drive shafts start to rotate forwards.
- Turn the shaft slowly clockwise until the drive shafts stop rotating forwards and make a mark on the transmission housing (FS) and the shaft.
- Turn the shaft clockwise 8° from the mark on the transmission housing.
- Hold the shaft (N=8) and tighten the locking nut (N=17).



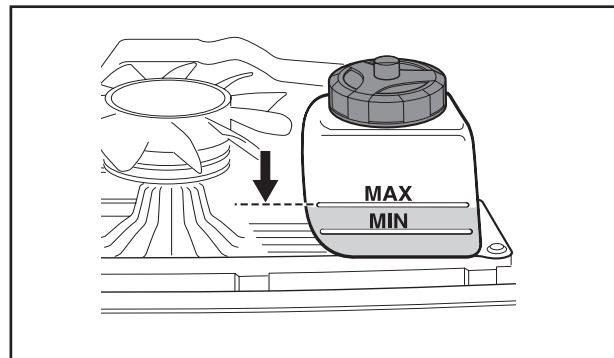
6012-062

Transmission Maintenance

Oil Change

Most garden owners do not own tools for or the experience to change transmission oil. The transmission has probably a longer service life than the ride-on mower has otherwise, which means an oil change is not as important for the normal consumer. The service life of the transmission will however increase if the oil is changed.

When the ride-on mower is used professionally, we recommend changing oil for the first time after 50 hours of use and then at 200 hour intervals or at least once a year.



6012-048

Oil tank

IMPORTANT INFORMATION

Used oil and filters are an environmental hazard and must not be disposed of on the ground or in the environment; they should always be disposed of at an appropriate disposal site.

Avoid skin contact, wash with soap and water in case of spills.

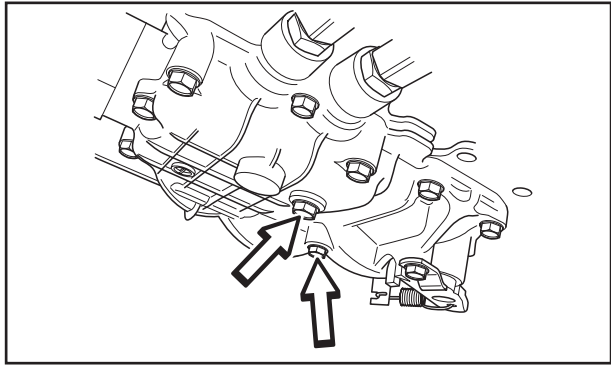
Observe cleanliness. Follow the directions given in the hydraulic system chapter.

REPAIR INSTRUCTIONS

Hydrostatic Front Axle/Rear Axle

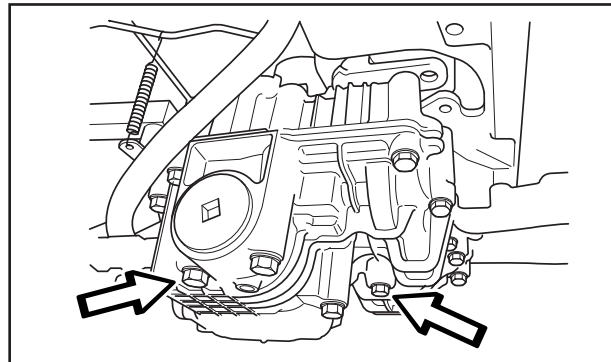
The transmission holds around 5 liters (5.2 US qt) (SAE 10W/40 engine oil, grade SF-CC or higher).

1. Drain the hydrostat with the two plugs on each side of the shaft.
2. Change hydrostat filter, see separate instructions.
3. Replace the drain plugs. Fill with oil through the filler hole in the hydraulic tank.
4. Bleed the transmission, see "Bleeding the drive system" on page 72.
5. Test drive the machine and top up with oil to the correct level in the oil tank.



8009-631

Drain plug front axle



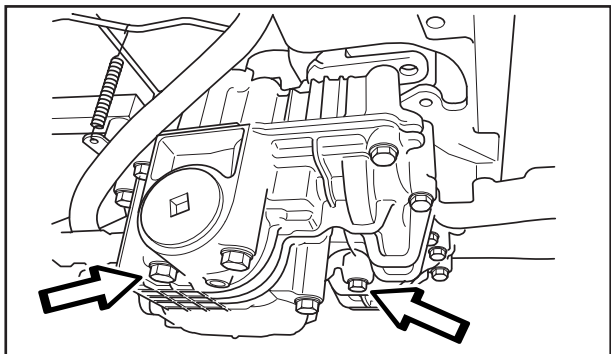
8009-832

Drain plug rear axle

Replacing the Hydrostat Filter

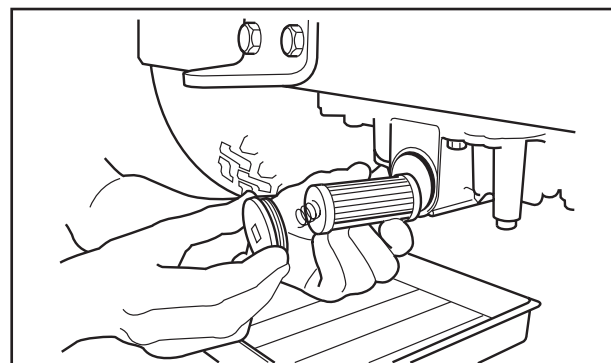
This filter is located at the back of the rear axle and should be changed when the oil is changed.

1. Drain the oil from the rear axle (approx. 2.5 liters) through both drain plugs.
2. Remove the lid and pull out the filter.



8009-832

Drain plugs



6020-003

Hydrostat filter

REPAIR INSTRUCTIONS

3. Put the new filter in place. Coax it in so that the rubber seal in the front end enters into position. If the spring projects so it must be pressed together before the lid thread has "taken", the filter is not in the right position.

IMPORTANT INFORMATION

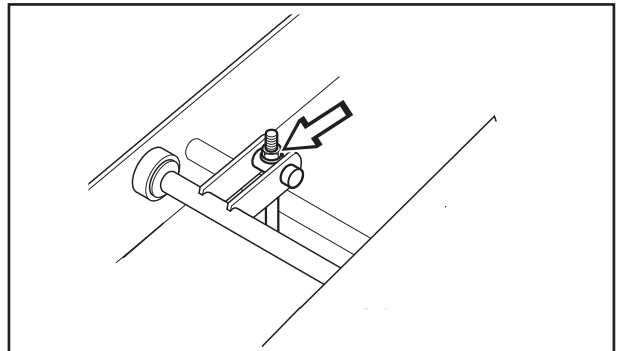
The lid is made of plastic. Do not tighten so hard you damage the threads.

4. Fit the lid.

Lever Carrier Adjustment

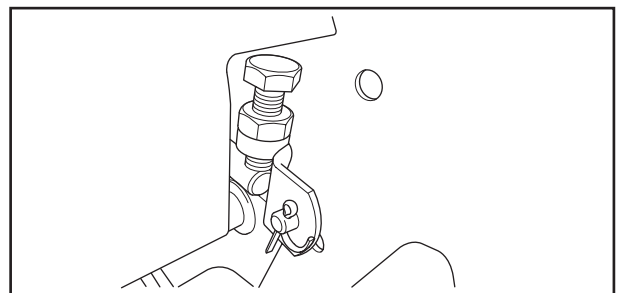
The lever carrier on these types of machine have only two settings.

- Adjuster nut for cutting deck cutting height area. See "Cutting height area adjustment".
- Adjustment screw for belt adjuster starting point. See "Replacing the center belt".



8009-281

Adjuster nut



8009-843

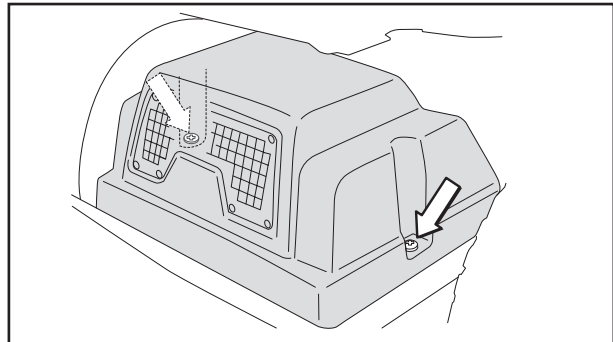
Adjustment screw

REPAIR INSTRUCTIONS

Replacing the Hydraulic Pump Drive Belt

Removal

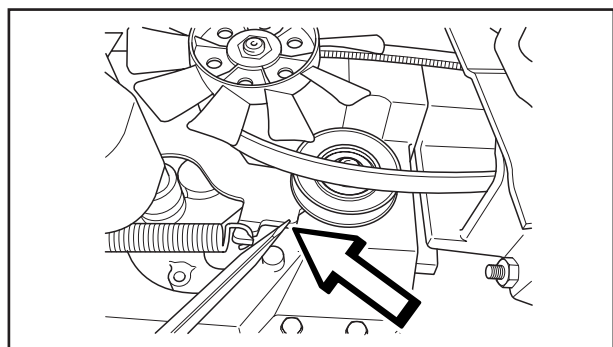
1. Remove the transmission cover.



6021-030

Transmission cover

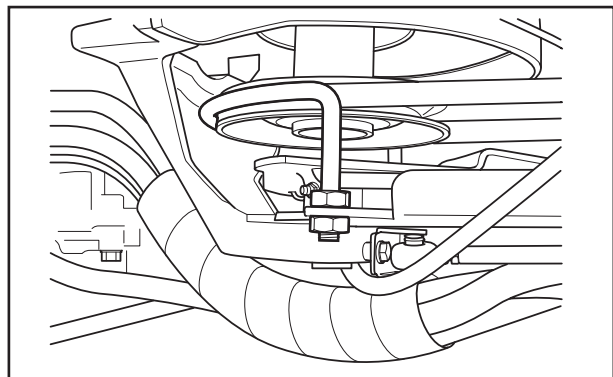
2. Prise the belt off the belt tensioner.



8009-639

Belt tensioner

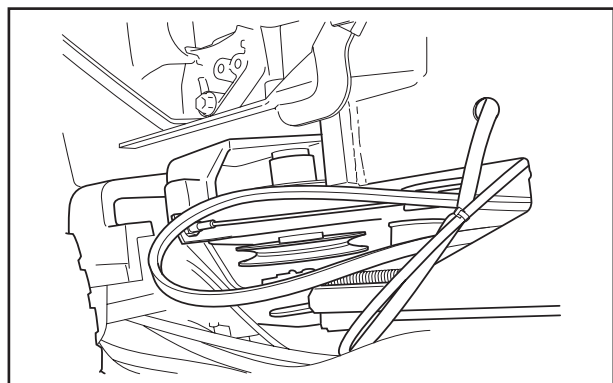
3. Remove the belt guide for the center belt.



8009-736

Belt guide

4. Prise off the center belt from the engine belt pulley and pull out the rear part. A used belt can be prised down. With new belts, the center belt must be prised off the front belt pulley and then it can be pushed down from the engine belt pulley so that the rear part can be pulled out.

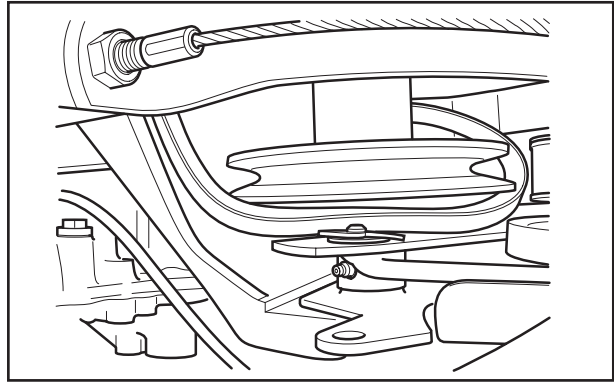


8009-638

Rear part of front belt

REPAIR INSTRUCTIONS

5. Prise off the pump belt up on the engine belt pulley.
6. Prise off the pump belt from the pump belt pulley. Insert the belt between the fan blades.
7. Prise off the pump belt from the engine belt pulley and put it under the engine belt pulleys.
8. Pull out the pump belt through the opening under the pivot bearing and past the belt tensioner pulley.

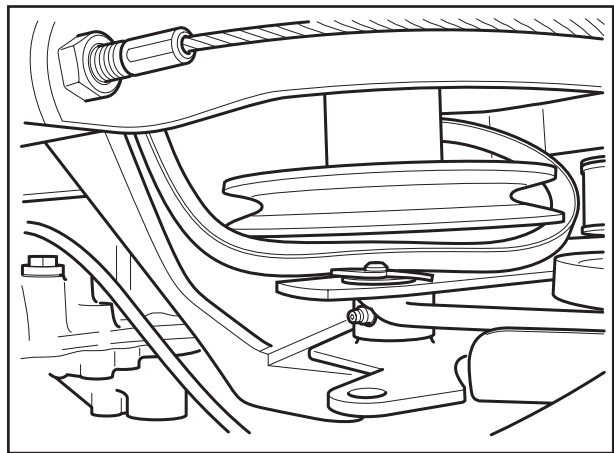


8009-640

Pump belt under engine belt pulley

Assembly

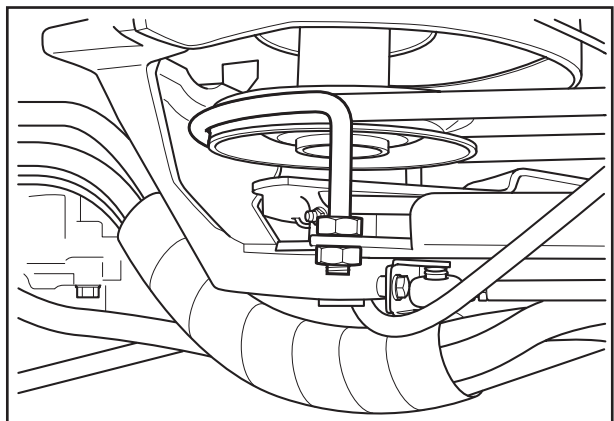
9. Pull the pump belt through the opening under the pivot bearing and on the inside past the belt tensioner pulley.
10. Prise the pump belt onto the engine belt pulley, put it under the engine belt pulleys and lay it over its groove.
11. Prise the belt onto the pump belt pulley (between the fan blades).
12. Prise the pump belt into its groove on the engine belt pulley.
13. Press in the belt tensioner and mount the pump belt onto the belt tensioner belt pulley.
14. Make sure the center belt is correctly located on its front belt pulley and mount the center belt onto the engine belt pulley.



8009-640

Pump belt under engine belt pulley

15. Fit the belt guide for the center belt.



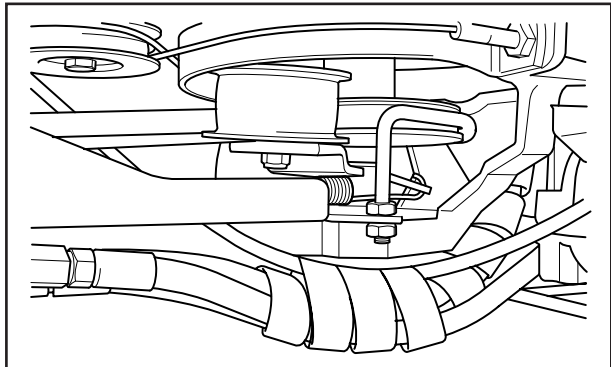
8009-736

Belt guide

REPAIR INSTRUCTIONS

Replacing the Center Belt

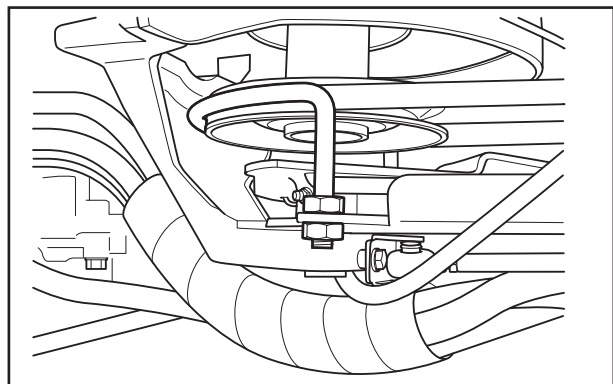
1. Remove the rear belt guide for the center belt.



8009-737

Rear belt guide

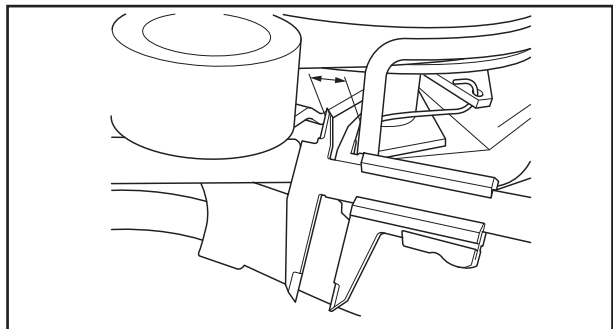
2. Remove the center belt and fit a new.
3. Assemble and adjust the belt guide to the lower belt in the engine belt pulley.



8009-736

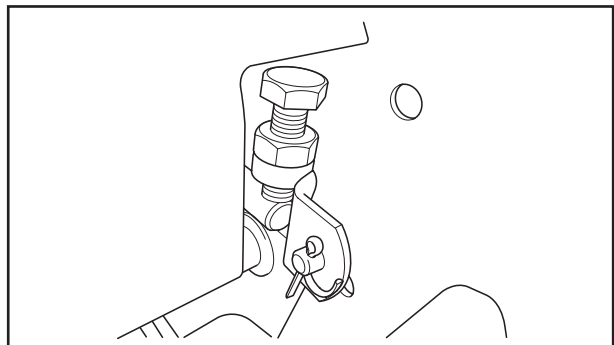
Belt guide

4. Check and adjust the belt adjuster. This is especially important when fitting a new belt as the lengthening of the old belt may have been compensated by changing the setting of the belt adjuster. The distance between the belt adjuster and the belt guide must be 17 ± 5 mm. Adjust with the adjustment screw at the lever carrier.



8009-842

Check measure belt adjuster



8009-843

Adjustment screw

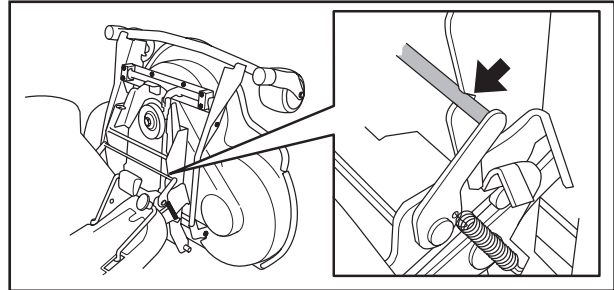
REPAIR INSTRUCTIONS

Change of Front Belt

Dismantling

Remove the entire belt as described below when mounting the snow blade on the machine.

1. Put the cutting deck into service position.
2. Prise the center belt off the center pulley. The belt is slackened when the cutting deck is raised.
3. Remove the front belt from the center pulley and take it away.

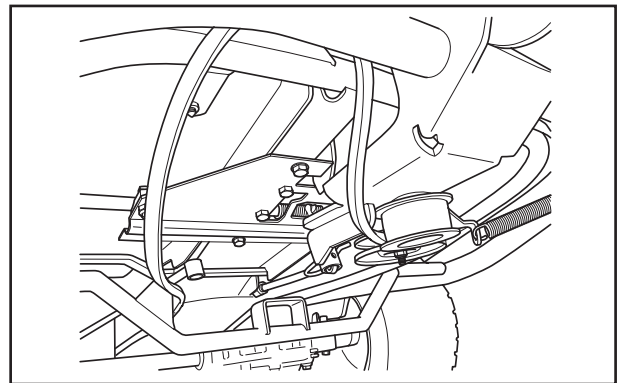


8042-252

Service position

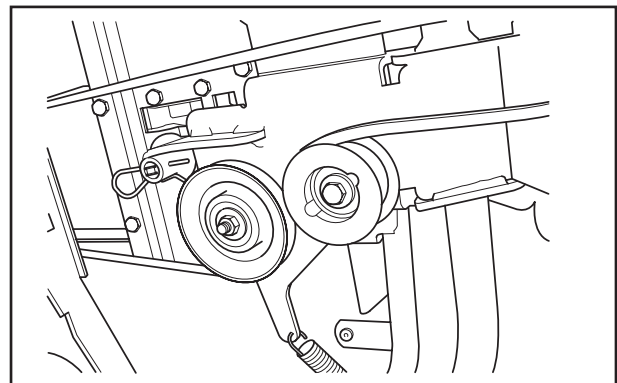
Assembly

1. Lay the front belt in place from the front. Pull it outside the impeller and inside the idler pulley. Place it in the center pulley top groove.



8009-684

Belt routing

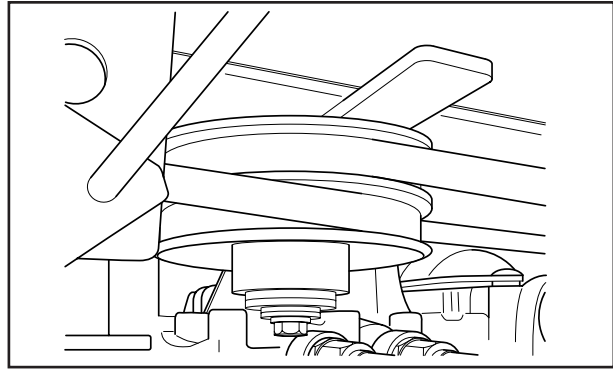


8009-831

Impeller and idler pulley

REPAIR INSTRUCTIONS

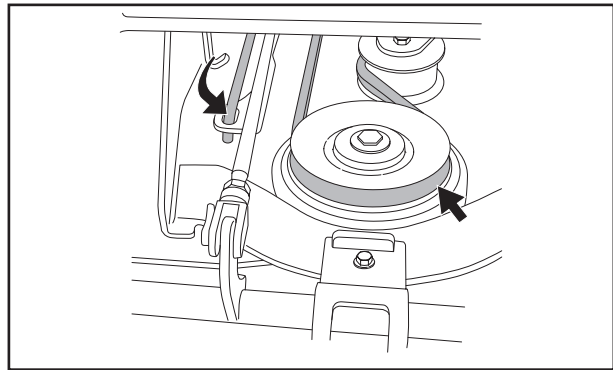
2. Lay the center belt in place in the center pulley's bottom groove.



8009-695

Intermediate pulley

3. Reset the cutting deck to cutting position.

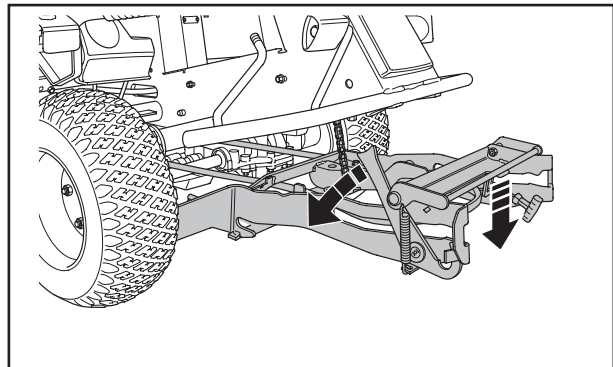


8042-529

Tool Frame

Removal

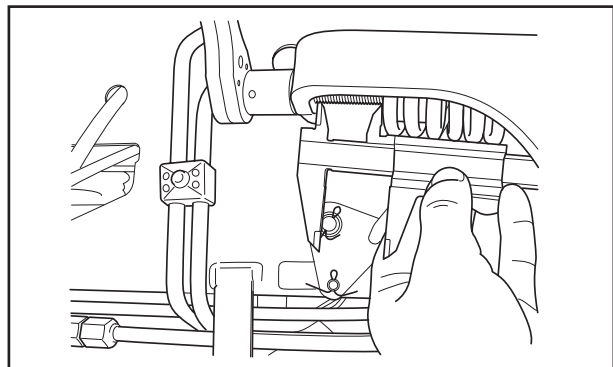
1. Remove the cutting deck, see "Removing the Cutting Deck (CombiClip 103, CombiClip 112)" on page 86.
2. Press down the tool frame and lower the catch.



8042-330

Tool frame in top position

3. Measure the adjustment screw positions. Note the values and use them as initial values when assembling.
4. Unscrew the adjustment screws completely so that the springs release.

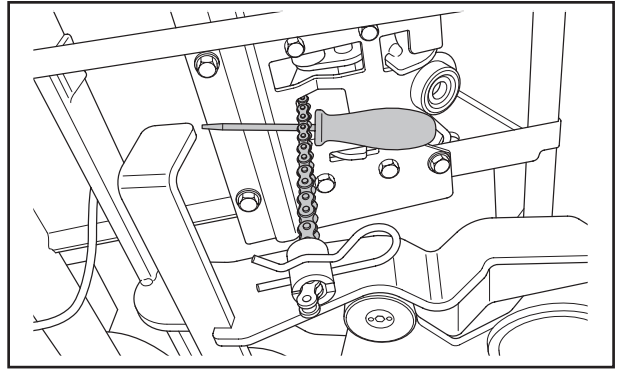


8009-635

Check measurement

REPAIR INSTRUCTIONS

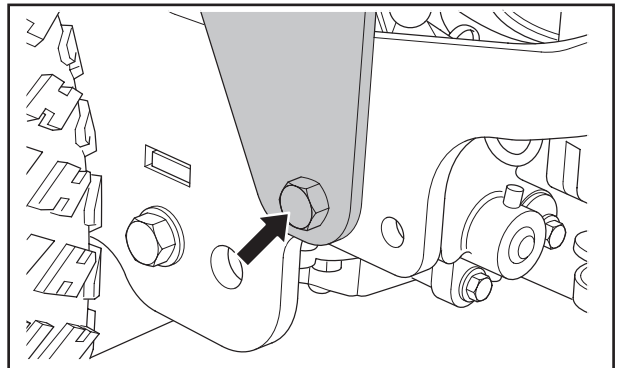
5. Lower the tool frame with the manual lever. Insert a small screwdriver or the like through the chain so that it can not slide into the frame tunnel and loosen the chain from the tool frame.



8042-331

Chain fastening

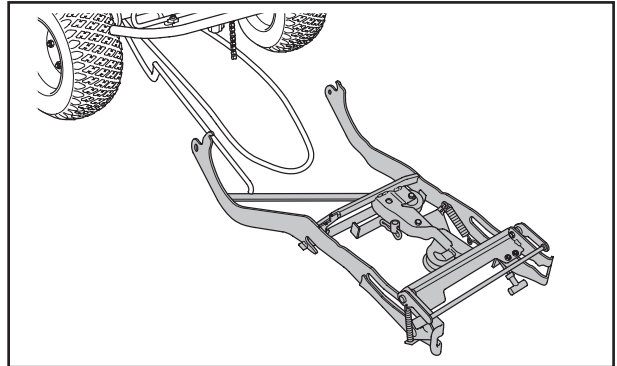
6. Remove the tool frame rear joint screws. In order to release the tool frame on the left side completely it must first be pulled back.



8042-332

Rear joint screw

7. Take out the tool frame.

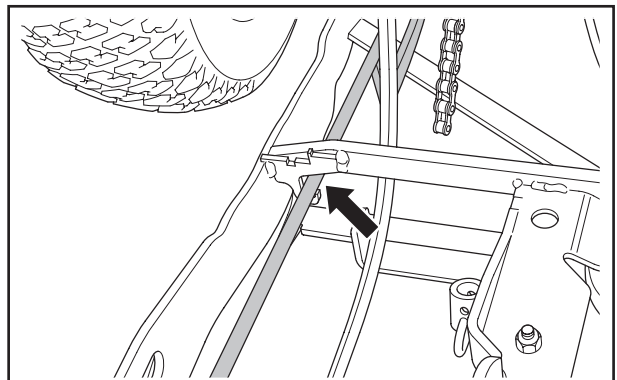


8042-333

Forwarded tool frame

Assembly

1. Slide in the tool frame. Make sure the height adjustment stay enters the tool frame.
2. Hook the springs onto the tool frame as illustrated.
3. Reassemble the tool frame in reverse order in relation to removal.
4. Adjust the ground pressure, see "Checking and Adjusting Ground Pressure" on page 97.



8042-334

Spring location

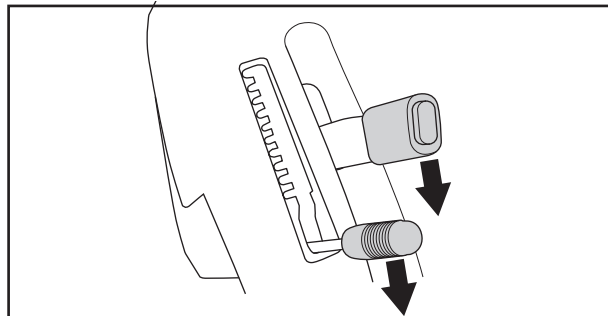
REPAIR INSTRUCTIONS

Fitting the Cutting Deck (CombiClip 103, 112)



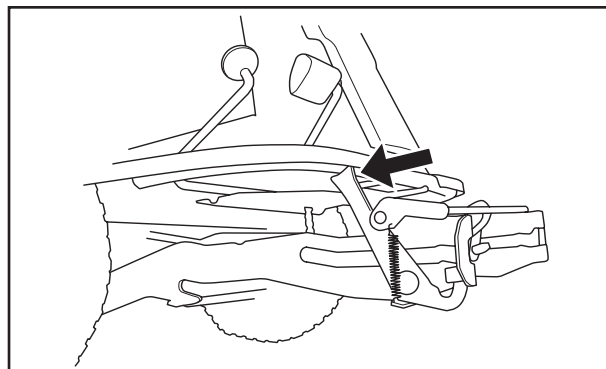
WARNING! Use protective goggles when assembling the cutting deck. The spring keeping the belt under tension can break and cause personal injury.

1. Place the Rider on a level surface and activate the parking brake.
2. Make sure the adjustment lever for cutting height is in its lowest position and that the lifting lever for the cutting deck is in cutting position.



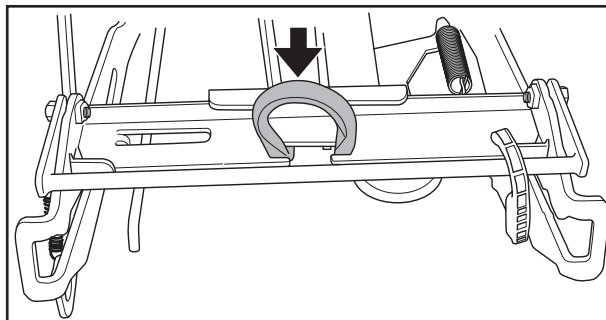
8043-921

3. Press down the tool frame and put the catch against the curved bar.



8042-233

4. Fasten the belt to the belt holder

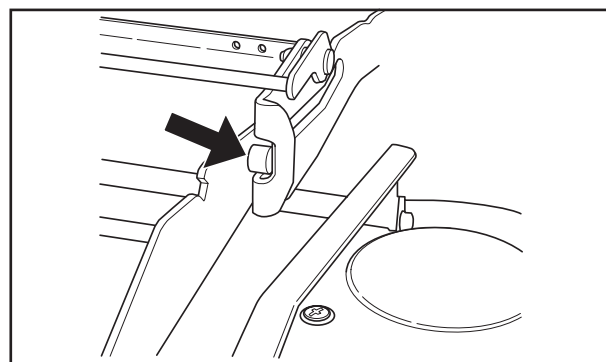


8042-510

5. Slide in the deck and place the front guide pins in the groove on the tool frame, one on each side.



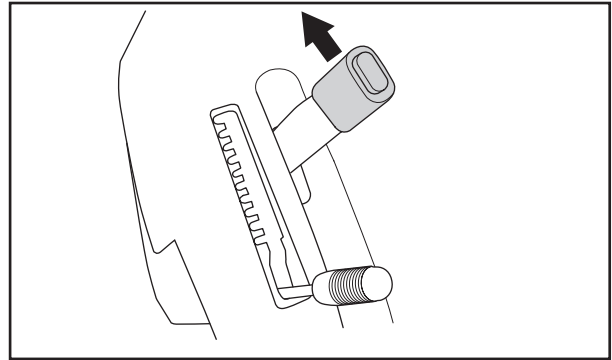
WARNING! Take care not to trap your hand.



8042-235

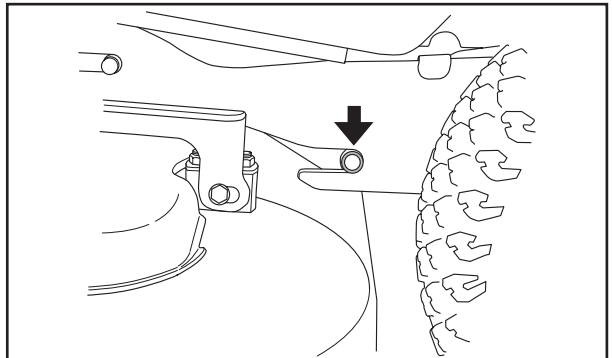
REPAIR INSTRUCTIONS

6. Lift up the cutting deck



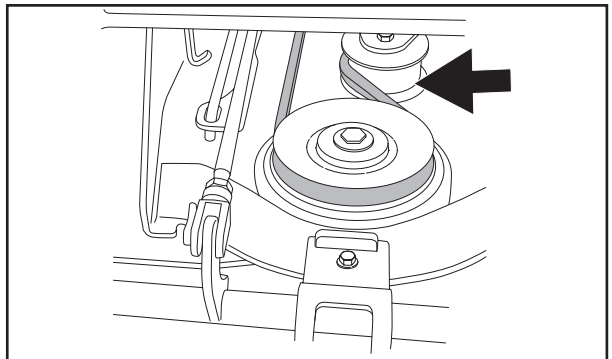
8043-922

7. Slide in the deck so that the inner pins bottom in the tool frame groove.



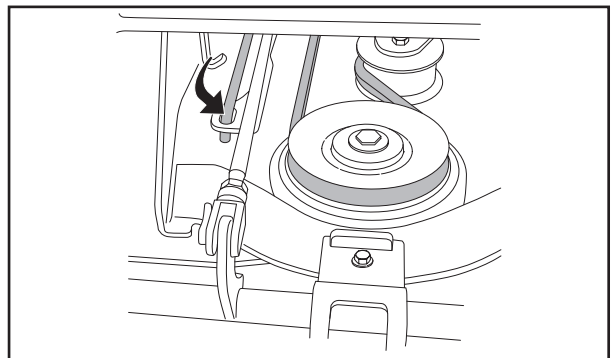
8042-512

8. Place the drive belt around the deck's drive wheel. Make sure the belt comes on the correct side of the belt tensioner.



8042-464

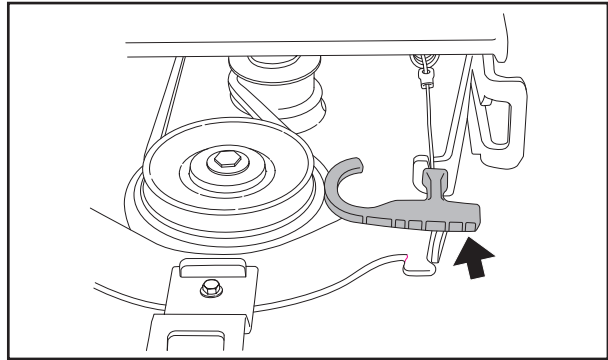
9. Hook on the height adjustment stay.



8042-513

REPAIR INSTRUCTIONS

10. Fasten the idler pulley spring.
11. Fit the front cover.



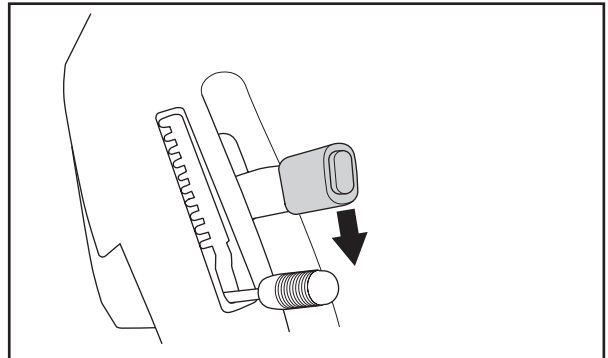
8042-514

Removing the Cutting Deck (CombiClip 103, CombiClip 112)



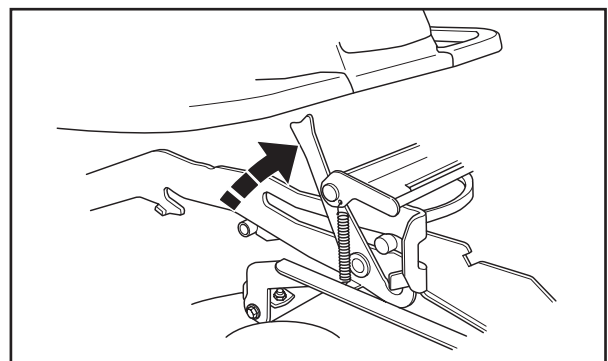
WARNING! Use protective goggles when dismantling the cutting deck. The spring keeping the belt under tension can break and cause personal injury.

1. Follow Service Position for Cutting Deck, points 1-6 to put the cutting deck into service position.
2. Lower the cutting deck.



8043-923

3. Raise the deck catch.

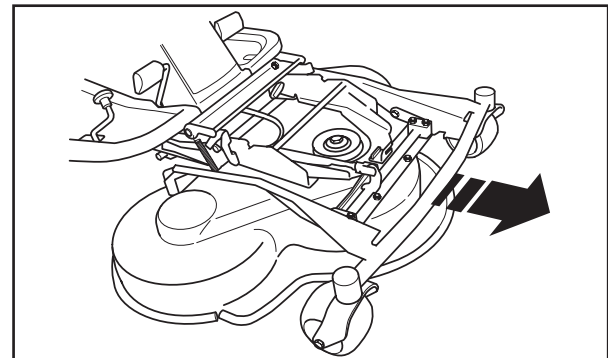


8042-238

4. Pull out the cutting deck.



WARNING! Take care not to trap your hand.

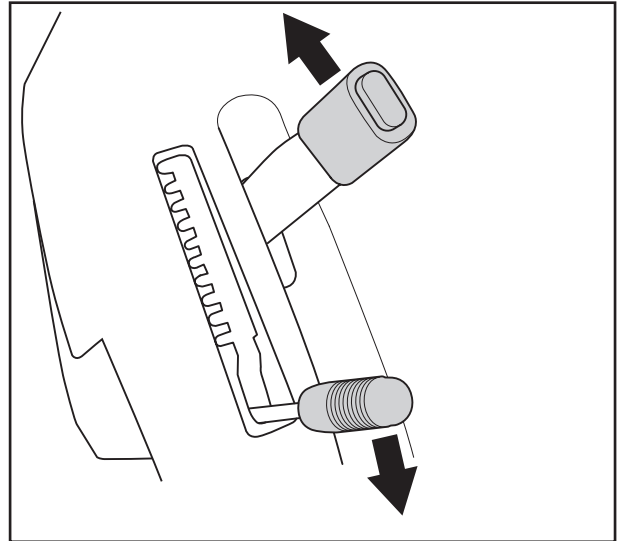


8042-251

REPAIR INSTRUCTIONS

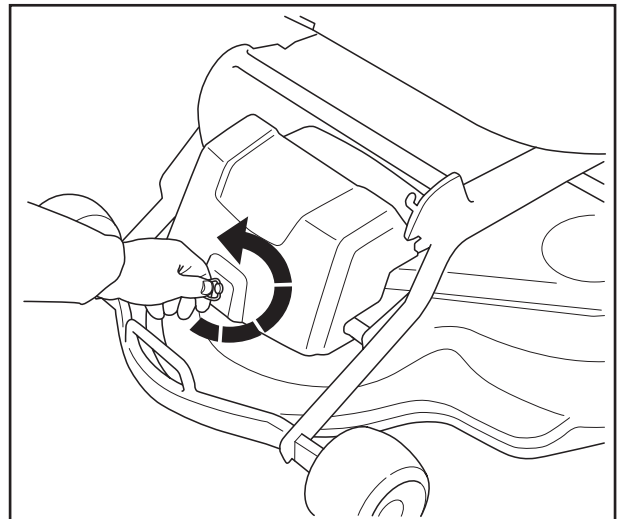
Removing the Cutting Deck (CombiClip 94)

1. Put the machine in a level position. Apply and secure the parking brake. Put the cutting height control to its lowest position and lift up the cutting deck.



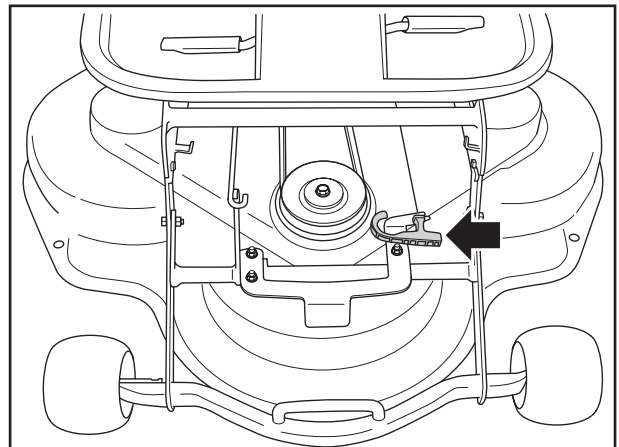
8043-924

2. Remove the front cover by loosening the pin.



8042-035

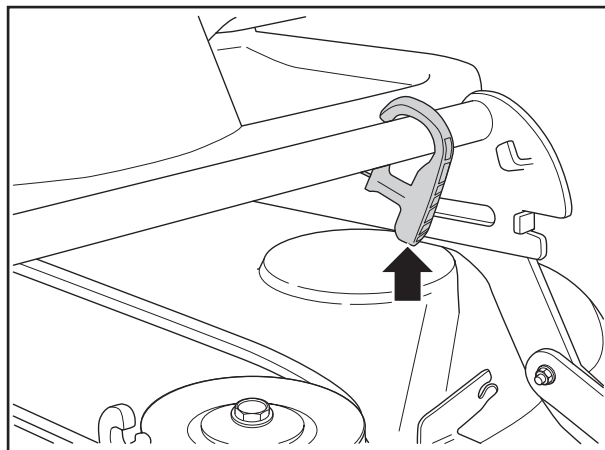
3. Undo the spring for the drive belt tensioning wheel by loosening the handle.



8042-048

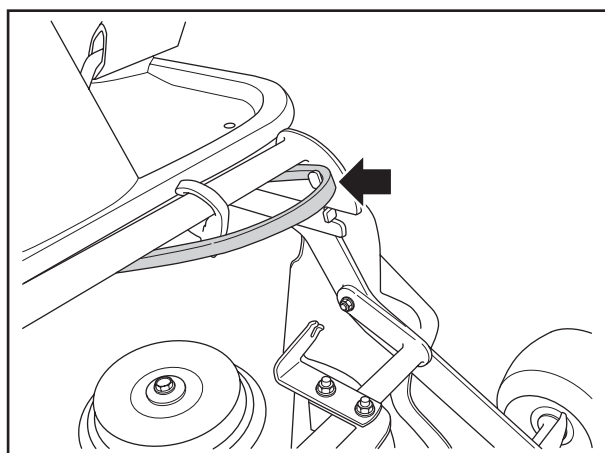
REPAIR INSTRUCTIONS

4. Place the handle on the frame curve.



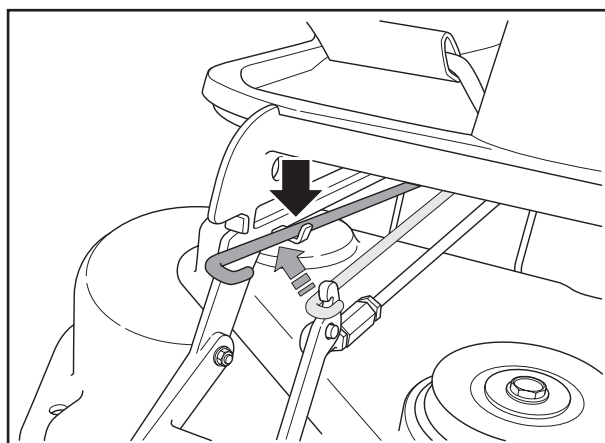
8042-049

5. Lift off the drive belt and suspend it on the relief hook.



8042-050

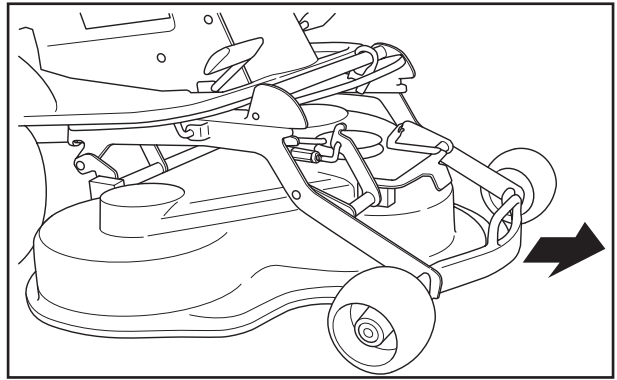
6. Loosen the cutting height stay and place it on the bracket.



8042-051

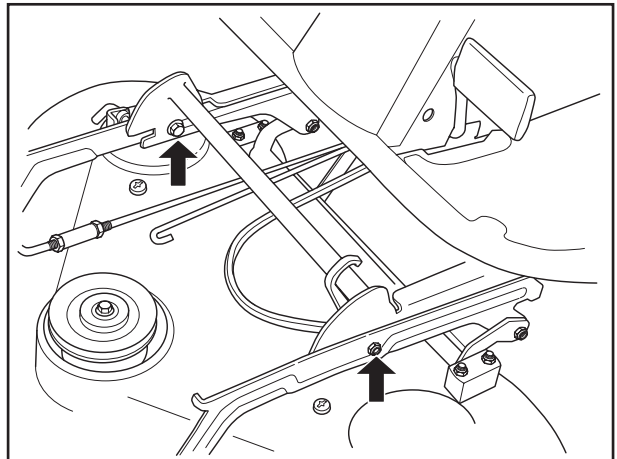
REPAIR INSTRUCTIONS

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



8042-052

8. Remove the screws holding the cutting deck.



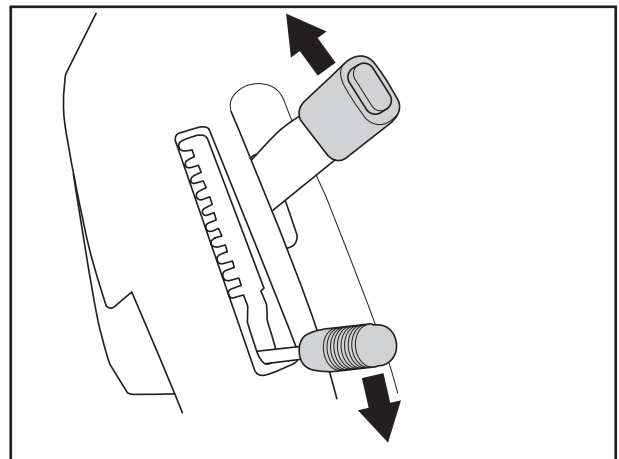
8042-118

Service Position for Cutting Deck

In order to give good access for cleaning, repair and service of the deck, it can be set to service position. Service position means the deck is tilted up and locked in vertical position.

Applying Service Position (CombiClip 103, CombiClip 112)

1. Put the machine in a level position. Apply the parking brake.
2. Put the cutting height control to its lowest position and lift up the cutting deck.



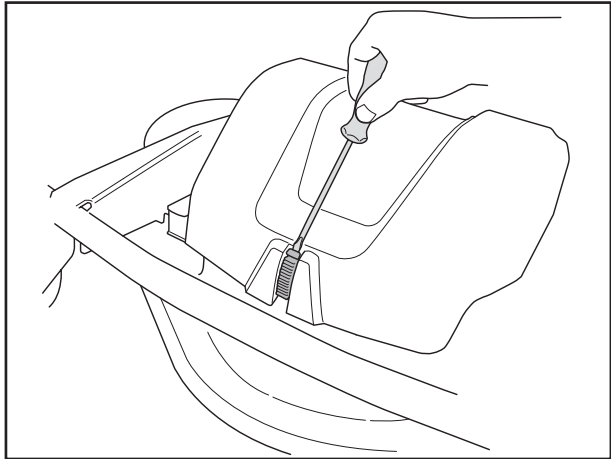
804239024

REPAIR INSTRUCTIONS

3. Remove the front cover.

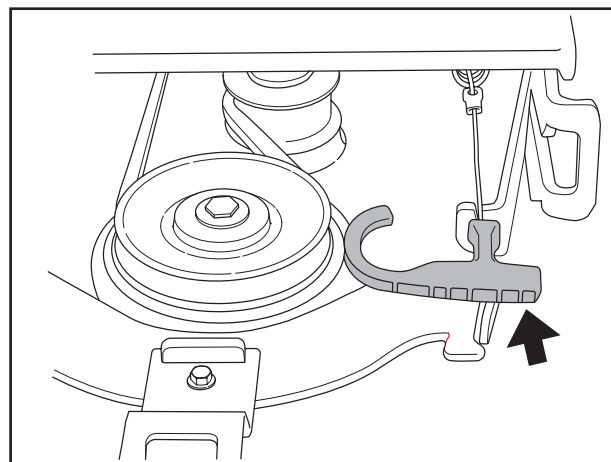


WARNING! Wear protective goggles when dismantling the cutting deck. The spring keeping the belt under tension can break and cause personal injury.



8042-508

4. Loosen the spring for the drive belt tensioning wheel.

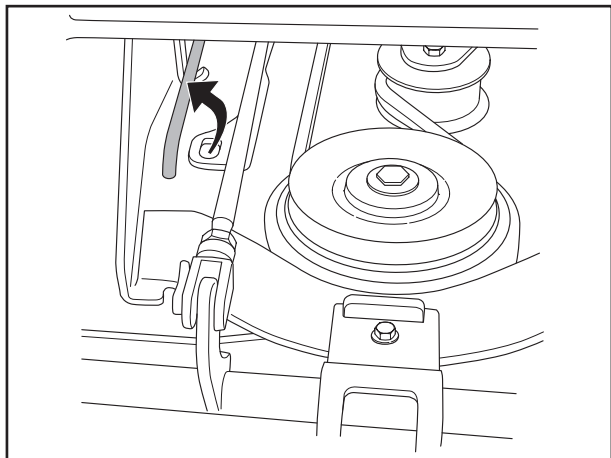


8042-514

5. Loosen the cutting height stay and place it in the holder.

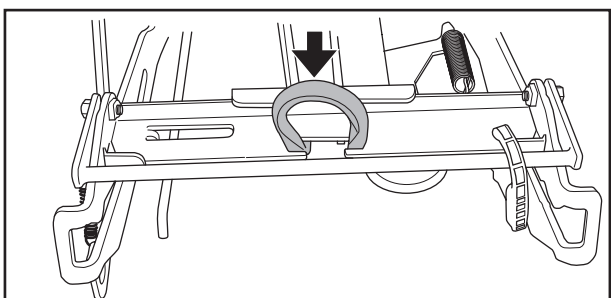


WARNING! Take care not to trap your hand.



8042-517

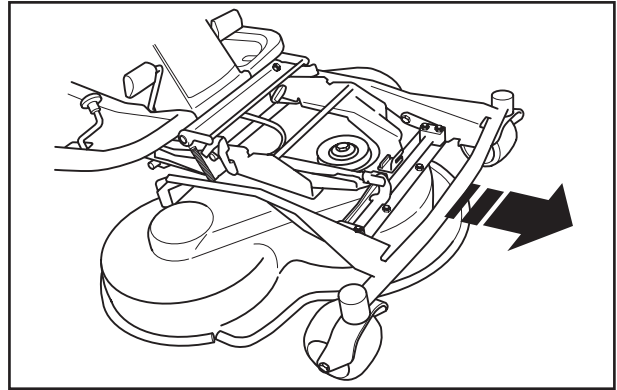
6. Lift off the drive belt and place it in the belt holder.



8042-510

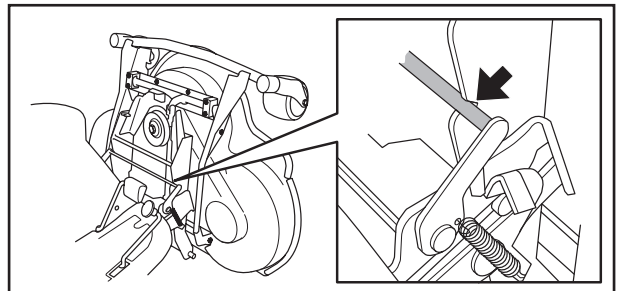
REPAIR INSTRUCTIONS

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



8042-251

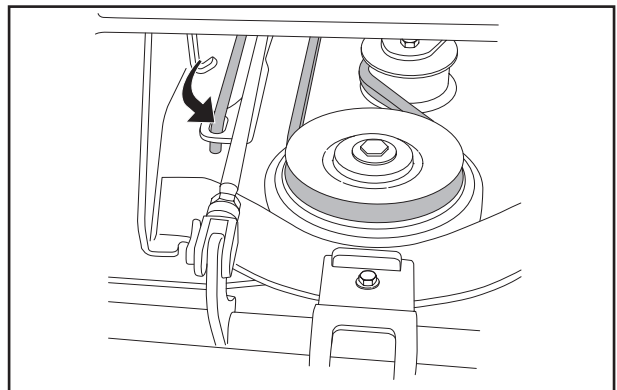
8. Lift the deck until it stops with a click. The deck is automatically locked in vertical position.



8042-252

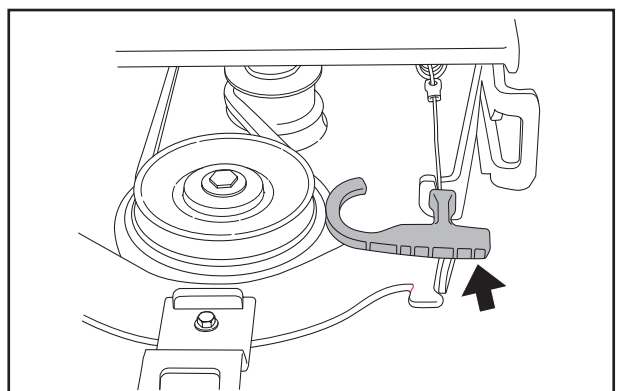
Return from Service Position

1. Hold the front of the deck and undo the catch, lower the deck and slide it in.
2. Put back the cutting height stay and the belt.



8042-513

3. Tighten the belt with the belt tensioner.
4. Fit the front cover.

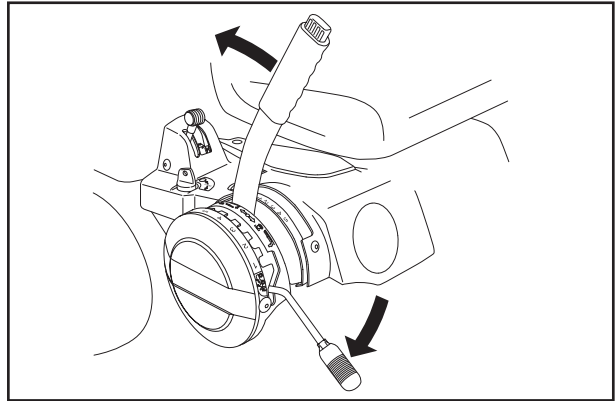


8042-514

REPAIR INSTRUCTIONS

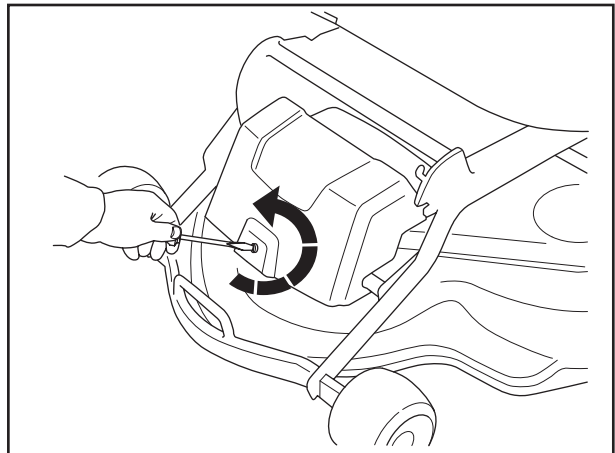
Applying Service Position CombiClip 94

1. Put the machine in a level position. Apply and secure the parking brake. Put the cutting height control to its lowest position and lift up the cutting deck.



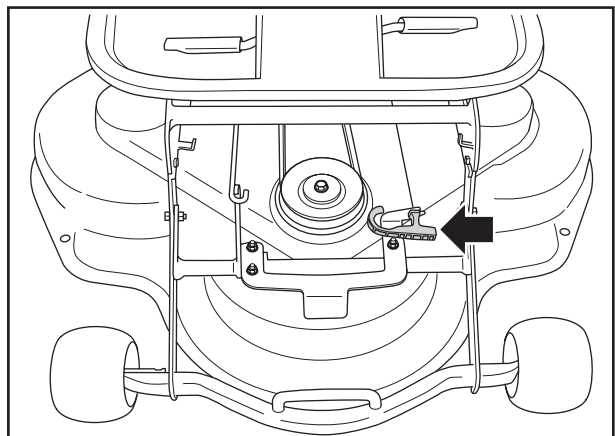
8042-047

2. Remove the front cover by loosening the pin.



8042-463

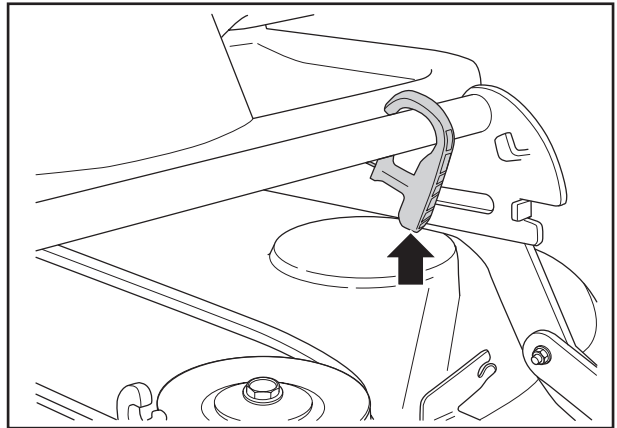
3. Undo the spring for the drive belt tensioning wheel by loosening the handle.



8042-048

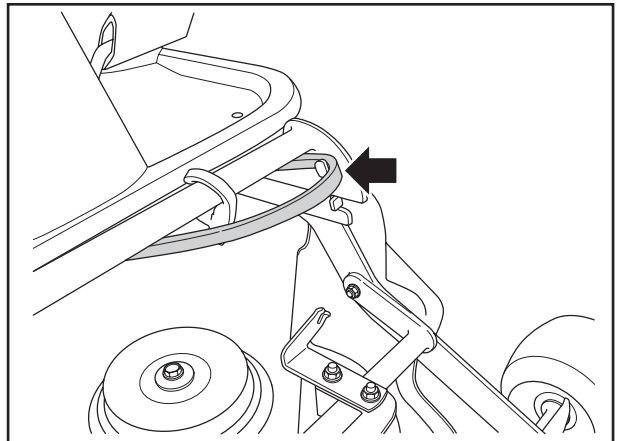
REPAIR INSTRUCTIONS

4. Place the handle on the frame curve.



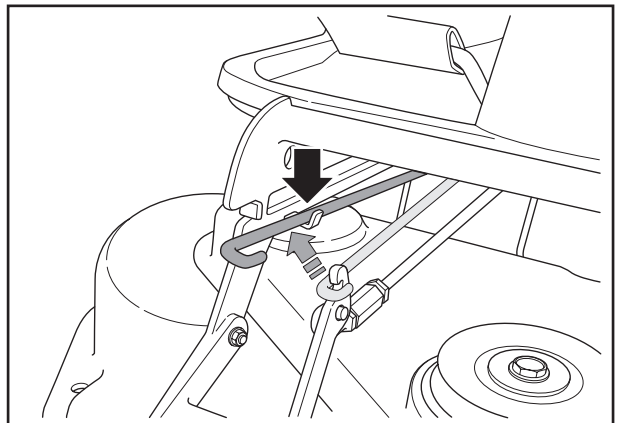
8042-049

5. Lift off the drive belt and suspend it on the relief hook.



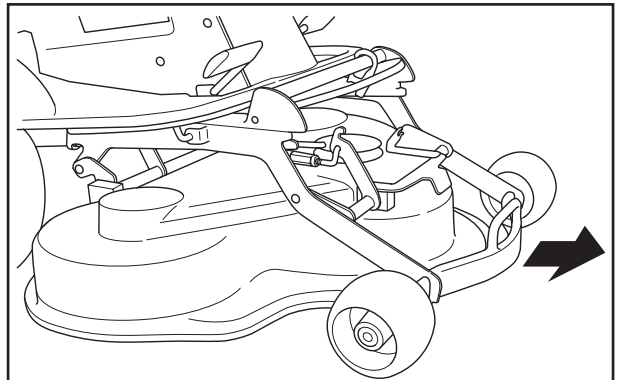
8042-050

6. Loosen the cutting height stay and place it in the holder.



8042-051

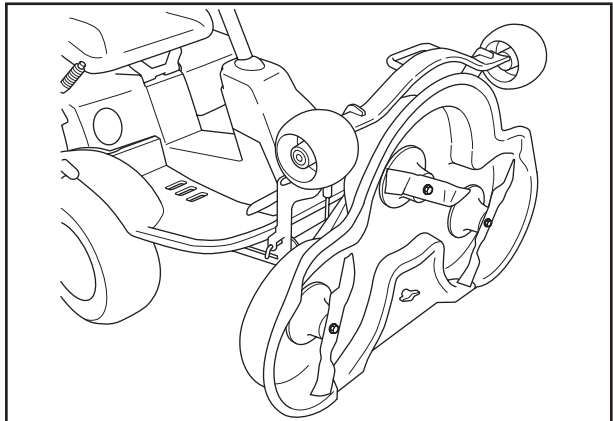
7. Grip the front edge of the deck and pull it forward until it stops.



8042-052

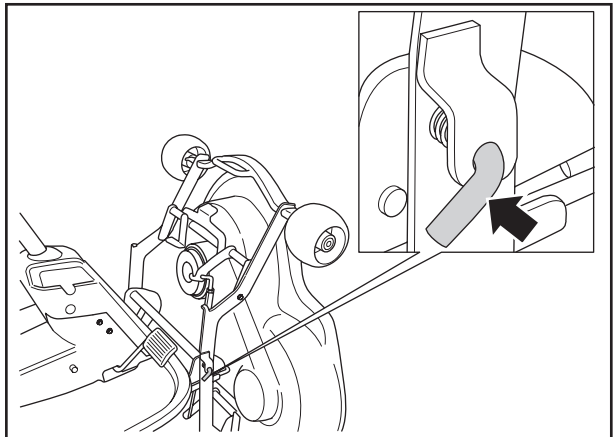
REPAIR INSTRUCTIONS

8. Lift the deck until it stops with a click.



8042-053

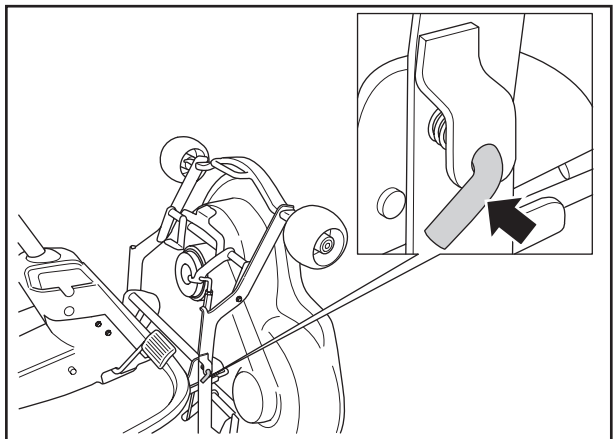
9. The deck is automatically locked in vertical position.



8042-054

Return from Service Position

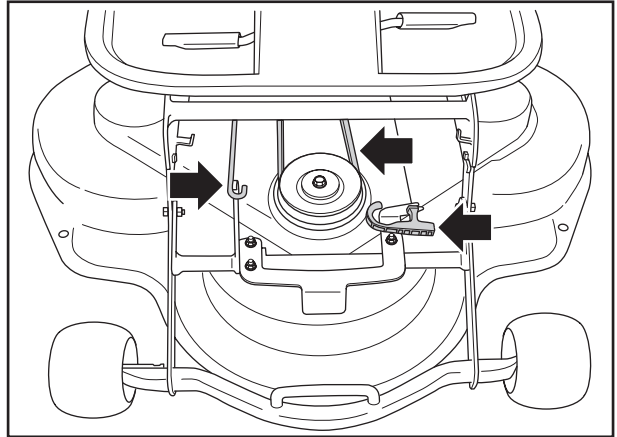
1. Hold the front of the deck and undo the catch, lower the deck and slide it in.



8042-054

REPAIR INSTRUCTIONS

2. Put back the cutting height stay and the belt. Tighten the belt with the belt tensioner.



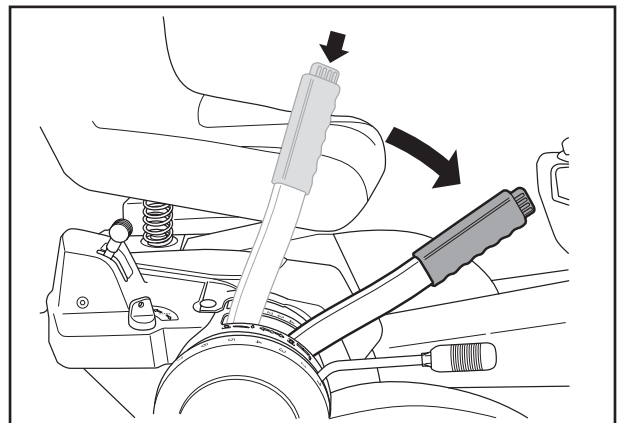
3. Fit the front cover.
4. Put the cutting height control to one of the positions 1-7.

Setting Parallelism and Cutting Height

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

Starting point:

1. Check tire pressure 60 kPa / 0.6 bar / 9 PSI.
2. The cutting deck must be lowered on a level surface.
3. The height adjustment lever must be set to the lowest cutting height.

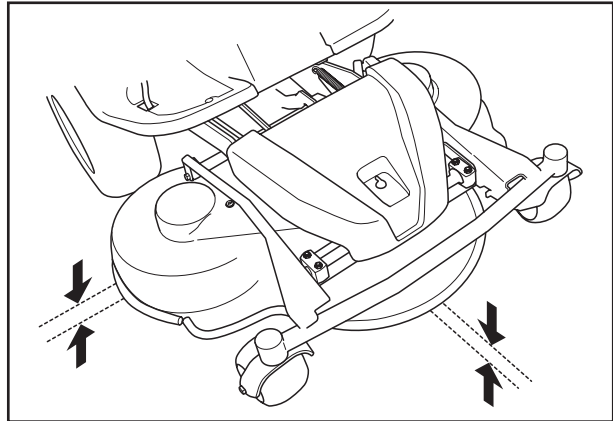


REPAIR INSTRUCTIONS

4. Check of Cutting Deck Parallelism

Check the deck parallelism as follows:

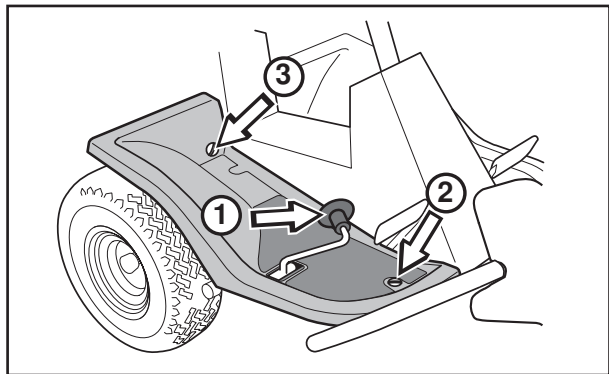
1. Check tire pressure 60 kPa/0,6 kp/cm²/8,5 PSI.
2. Put the ride-on mower on a level surface.
3. Move the lifting lever to cutting position.
4. Measure the distance from the front and back edge of the deck to the ground. The deck must have a slight tilt; rear edge 2-4 mm (1/8") higher than the front.



8042-240

Cutting Height

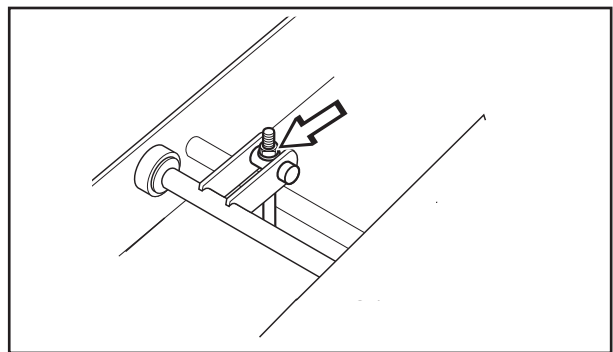
1. Remove the right wing cover.



6017-003

Right wing cover

2. Raise or lower the whole mowing area by screwing the nuts up or down.
3. Undo the nut on the height adjustment stay.
4. Adjust the distance between the surface and the front of the cover on the deck so it is for:
 - CombiClip 94 40 mm
 - CombiClip 103 40 mm
 - CombiClip 112 35 mm
5. Tighten the nut.
6. Check that the parallelism has not changed. If this is the case, the parallelism must be readjusted.
7. Check and if necessary adjust the ground pressure of the cutting deck as described in the next section.



8009-281

Adjusting cutting height area

REPAIR INSTRUCTIONS

IMPORTANT INFORMATION

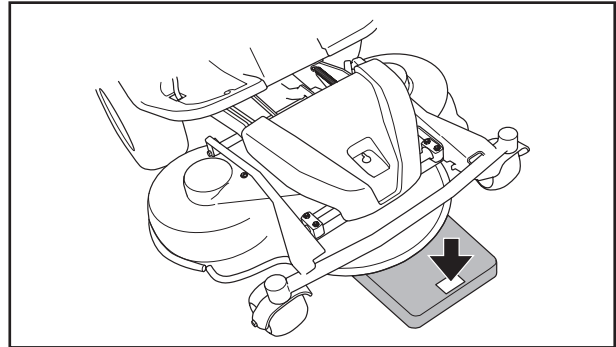
A new parallelism and height adjustment must be made when changing cutting deck.

Checking and Adjusting Ground Pressure

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

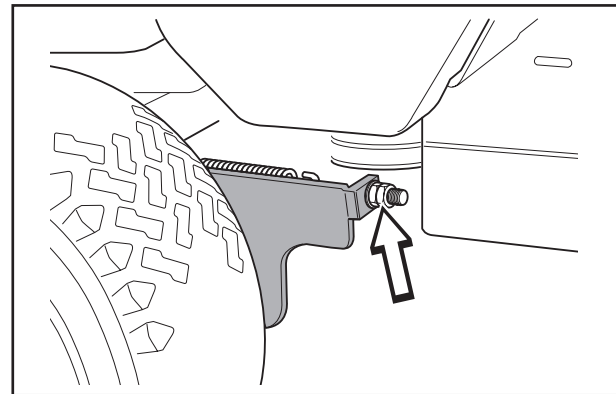
1. Check tire pressure 60 kPa / 0.6 bar / 9 PSI.
2. Put the machine on a level surface.
3. Move the lifting lever to cutting position.
4. Place bathroom scales under the cutting deck frame (on the front edge) so that the cutting deck rests on the scales. If necessary, a block can be laid between the frame and the scales so that the support wheels do not take any of the weight.
5. 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.

Ground pressure should be between 12 and 15 kg / 26.5-33 lb with both springs under equal tension.



8042-239

Checking ground pressure



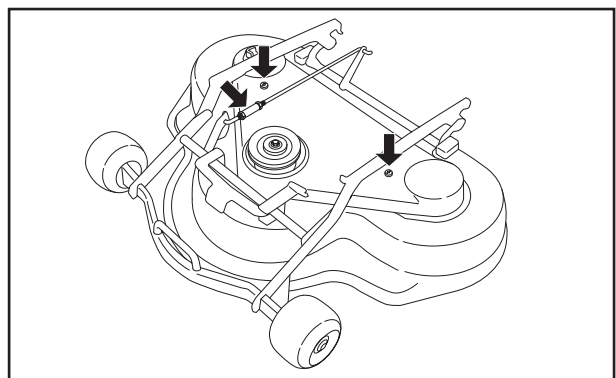
6008-019

Ground pressure adjustment

Changing Belt on Cutting Deck CombiClip 94

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

1. Remove the bolt for the tie rod and the two screws on the cover. Lift away the cutting unit cover.



8042-120

CombiClip 94

REPAIR INSTRUCTIONS

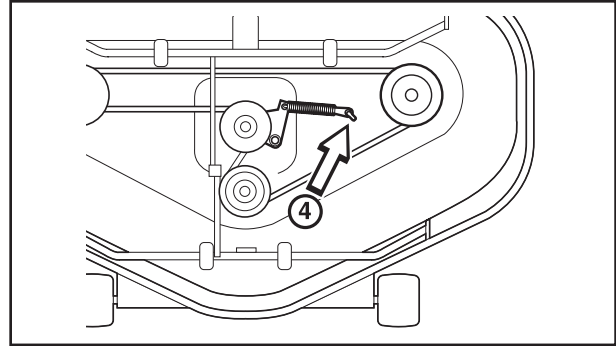
2. Loosen the spring (4) tensioning the V-belt and prise off the belt.
The new belt is mounted in reverse order.
Lay the belt as illustrated. A decal inside also shows the belt routing diagram.

CombiClip 103 and 112



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

Pinch hazard when working on the belt.

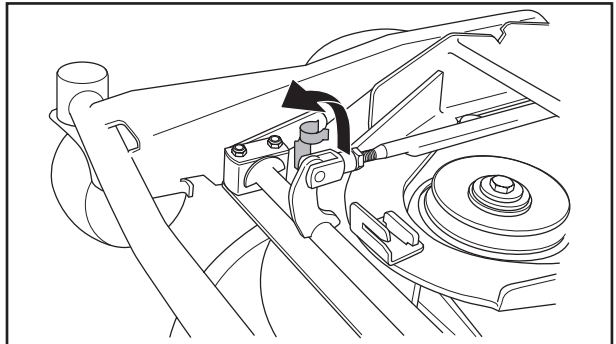


8009-376

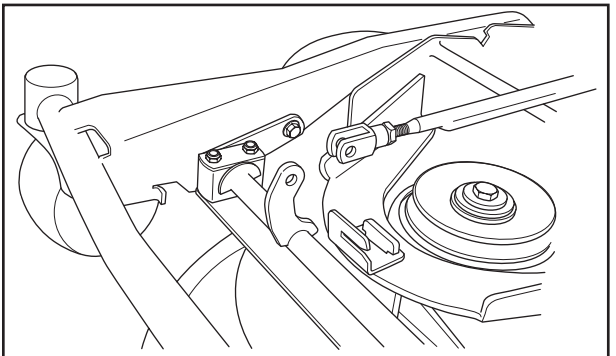
Belt tension spring

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

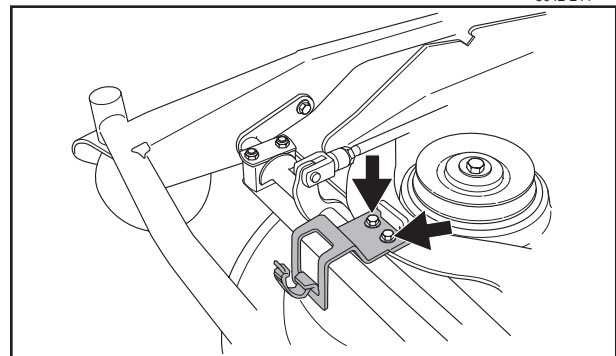
1. Dismantle the cutting deck.
2. Lift the lock on the tie rod bolt.
3. Remove the bolt so that the one end of the tie rod is free.
4. Screw out the bolt for the deck fastening.
5. Remove the lock and extract the deck frame.



8042-243



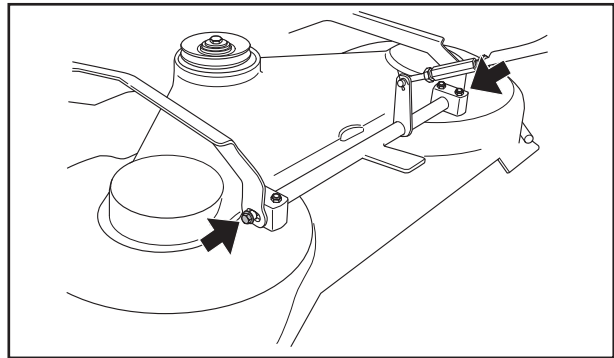
8042-244



8042-516

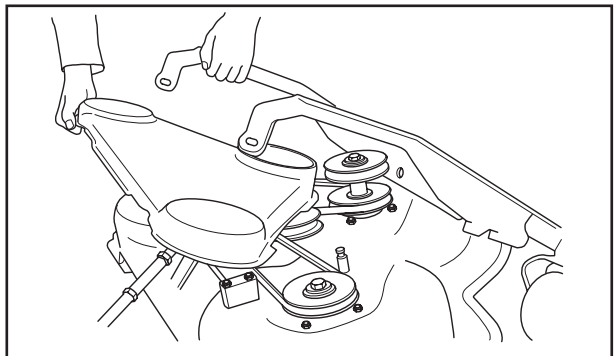
REPAIR INSTRUCTIONS

6. Screw out the two deck frame bolts.



8042-246

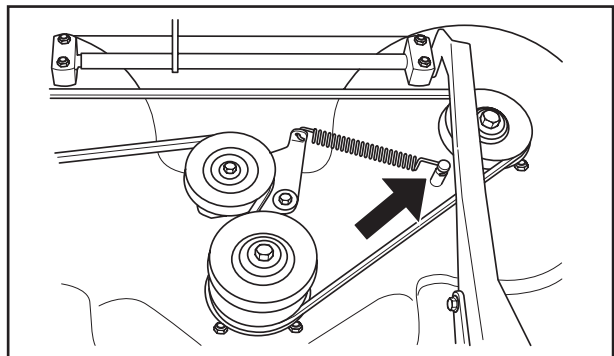
7. Loosen the screws on the cutting cover.
Lift up the deck frame and extract the cutting unit cover.



8042-267

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

Assemble in reverse order.



8042-277

Removing Blades with Bearings

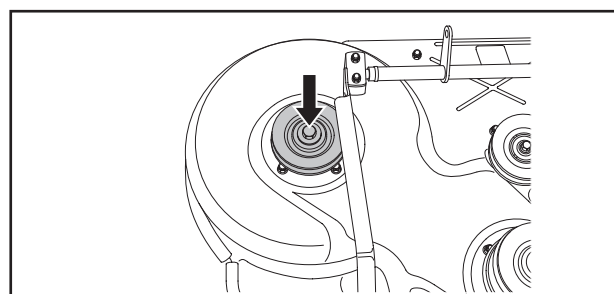


WARNING!

**Use gloves and protective goggles
when working on the cutting deck.**

This cutting deck has the bearing housing flange located on top of the deck cover.

1. Remove the cutting deck upper cover,
see "Changing Belt on Cutting Deck
Combi 94, Combi 103, Combi 112".
2. Loosen the spring tensioning the V-belt
and prise off the belt.

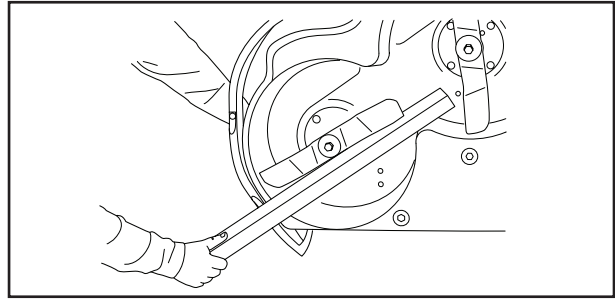


8042-338

REPAIR INSTRUCTIONS

3. Remove the screw holding the belt pulley. Secure the blade with a wooden block or hold the belt pulley with an oil filter puller for example.

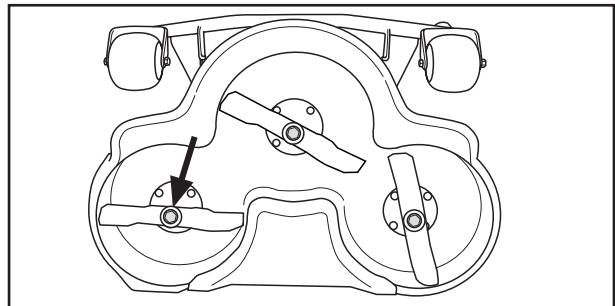
Do not misplace the key that is between the belt pulley and the shaft. Remove the belt pulley, a puller may be required to do this.



8009-292

Securing blade

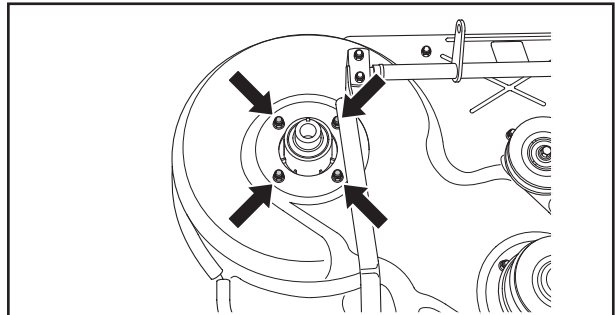
4. Loosen the blade bolt and remove it with the washer and blade.



6042-278

Blade bolt

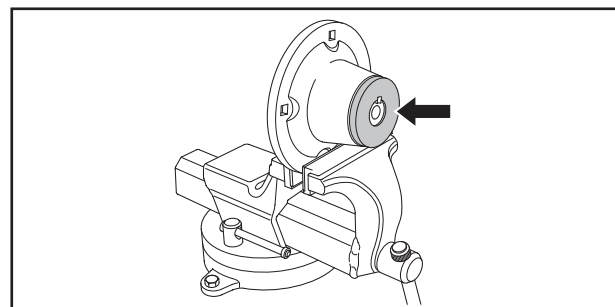
5. Loosen the four screws holding the blade bearing and remove the whole bearing package from the cutting deck.



6042-339

Blade bearing screws

6. Remove the metal protective washer.

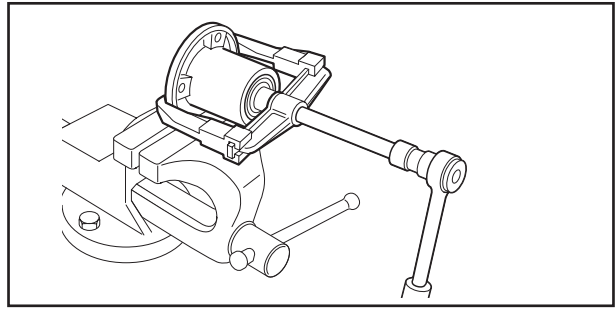


8042-340

Removal of protective washer

REPAIR INSTRUCTIONS

7. Mark one end of the shaft. Press out the shaft with a puller. Tap out the bearings and remove the spacer.



6012-086

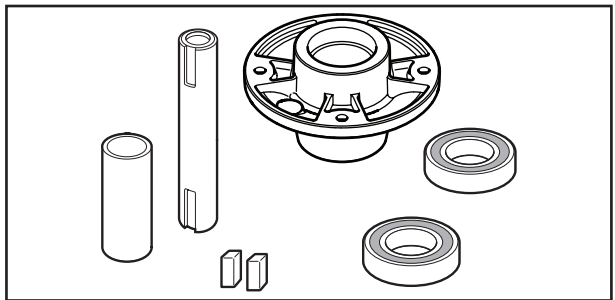
Shaft removal

The whole package can be purchased as one complete set with shaft housing, shaft, spacer and bearing.

Assembly is done in reverse order to dismantling. Make sure the shaft is fitted the same way round as when it was removed, otherwise it will not fit the keys in the keyway.

IMPORTANT INFORMATION

When tightening the blade shaft screws, always tighten the ones on the transmission side first and then the blade screws.



8042-340

Repair kit

The blade bearing tightening torque is 20-25 Nm (14-18 lb ft).

The blade bolt tightening torque is 45-50 Nm (32-36 lb ft).

CombiClip 94

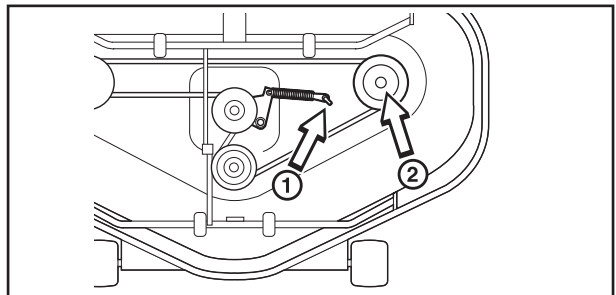


WARNING!

Use gloves and protective goggles when working on the cutting deck.

These cutting decks have the bearing housing flange located underneath the deck cover.

1. Remove the cutting deck upper cover, see "Changing Belt on Cutting Deck Combi 94, Combi 103, Combi 112".
2. Loosen the spring (1) tensioning the V-belt and prise off the belt.

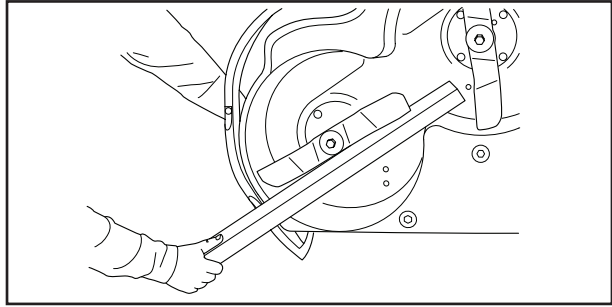


8009-303

Belt tension spring and belt pulley

REPAIR INSTRUCTIONS

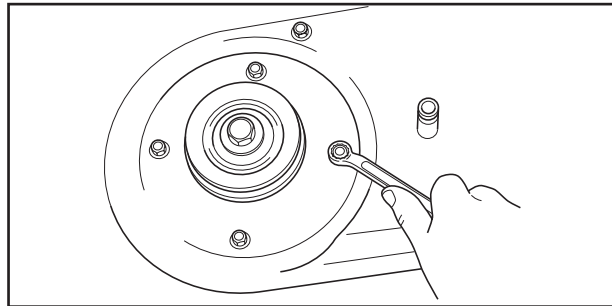
3. Loosen the screw holding the belt pulley (2) a few turns. Secure the blade with a wooden block or hold the belt pulley with an oil filter puller for example.



8009-292

Securing blade

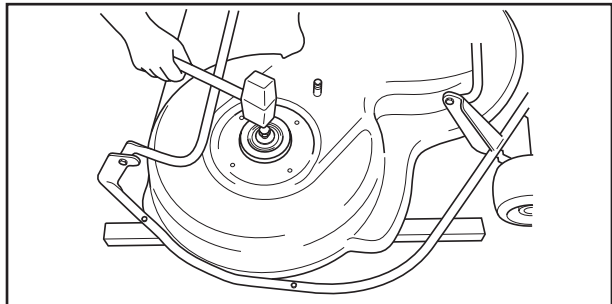
4. Remove the nuts on top of the cover holding the bearing housing in place. Make sure the unit's belt pulley is resting against the deck cover.



8009-293

Bearing housing nuts

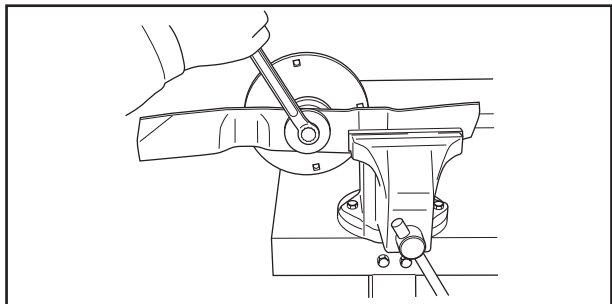
5. Place a wooden block under the deck cover so that the knife is free from the ground. Tap the screw in order to remove the belt pulley. Do not hit so hard as to deform the cover. If the belt pulley is stuck, heat it with a hot air gun. Do not use a puller as this may deform the belt pulley. Do not misplace the key that is between the belt pulley and the shaft.



8009-294

Tap with wooden block under cover

6. Place the bearing housing in a vice and remove the blade and washers.



8009-295

Blade removal

REPAIR INSTRUCTIONS

7. Refit the blade bolt in the shaft. Screw it in a few turns and tap or press off the hub. Do not misplace the key that is between the hub and the shaft.
8. Mark one end of the shaft. Press or tap out the shaft.
9. Tap out the bearings and remove the spacer.

Assembly is done in reverse order to removal.

Make sure the shaft is fitted the same way round as when it was removed, otherwise it will not fit the keys in the keyway.

The blade bearing tightening torque is 20-25 Nm (14-17 lb ft).

The belt pulley tightening torque is 45 Nm (32 lb ft).

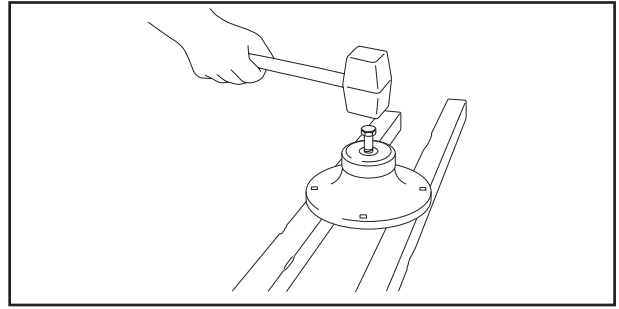
The blade bolt tightening torque is 45 Nm (32 lb ft).

IMPORTANT INFORMATION

When tightening the blade shaft screws, always tighten the ones on the transmission side first and then the blade screws.

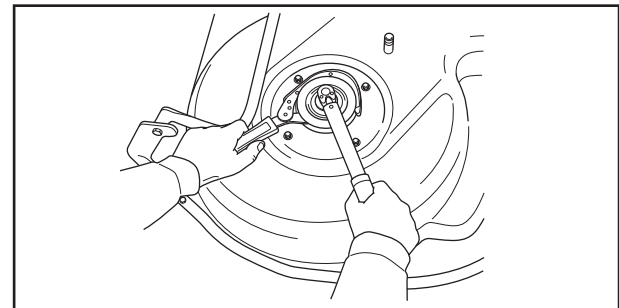
Belt pulleys can be turned the wrong way round, the thicker side must be face down towards the blade.

Hold with e.g. an oil filter puller when the belt pulley screw is tightened.



8009-296

Removing hub



8009-297

Tightening belt pulley

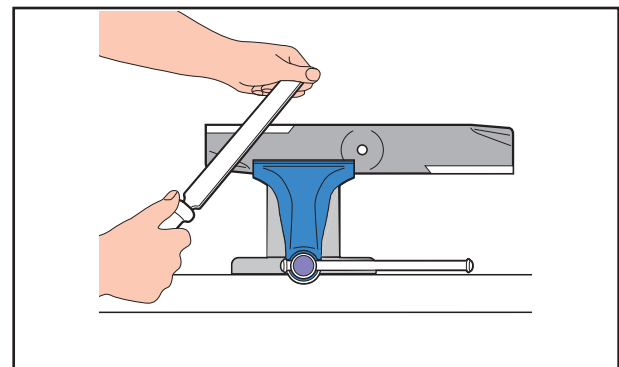
Grinding and Balancing Blades



WARNING!

Use glove to protect hands when working on the blades.

1. Remove the blades as described in the previous section.
2. Fasten the blades in a vice and sharpen with a file.



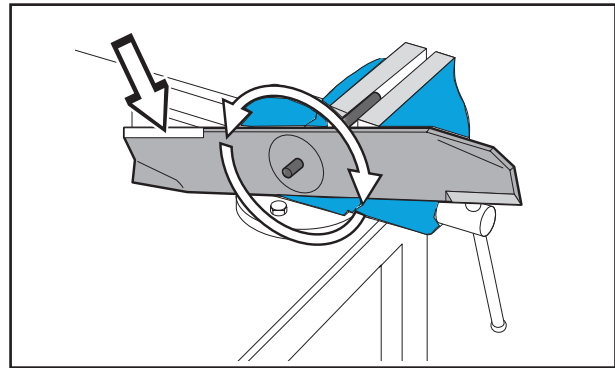
6012-088

Sharpening blade

REPAIR INSTRUCTIONS

3. Balance the blades as follows:

- Put e.g. a drift horizontally in a vice as illustrated.
- Insert the end of the drift into the center hole of the blade and check that the blade is still. The illustration shows a blade that requires adjustment, it must be ground more to attain the right balance (at the arrow).
- Assembly is done in reverse order to removal.



6012-089

Balancing blade



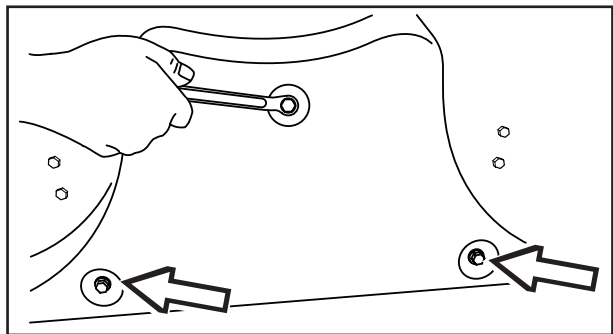
WARNING!

If the blade is cracked from incorrect repair or other damage, it can break when being used. This risk increases if the blade is not balanced correctly.

Removal of BioClip Plug (CombiClip)

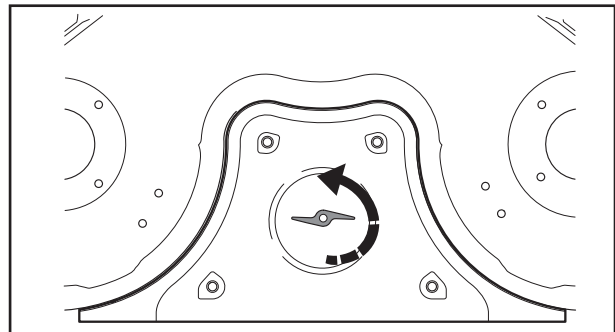
To change the Combi Deck from BioClip function to cutting deck with rear ejection, remove the BioClip plug fastened under the deck with three screws.

1. Put the deck into service position.
2. CombiClip 103, 112
Remove the three screws holding the BioClip plug and remove the plug.
3. CombiClip 103, 112
Tip: Fit three full threaded M8x15 mm screws into the holes to protect the threads.
4. CombiClip 94
Remove the wing nut and the BioClip plug.
5. Put the deck back to normal position.
Fit the BioClip plug in reverse order.



8009-289

Removing BioClip plug CombiClip 103, CombiClip 112



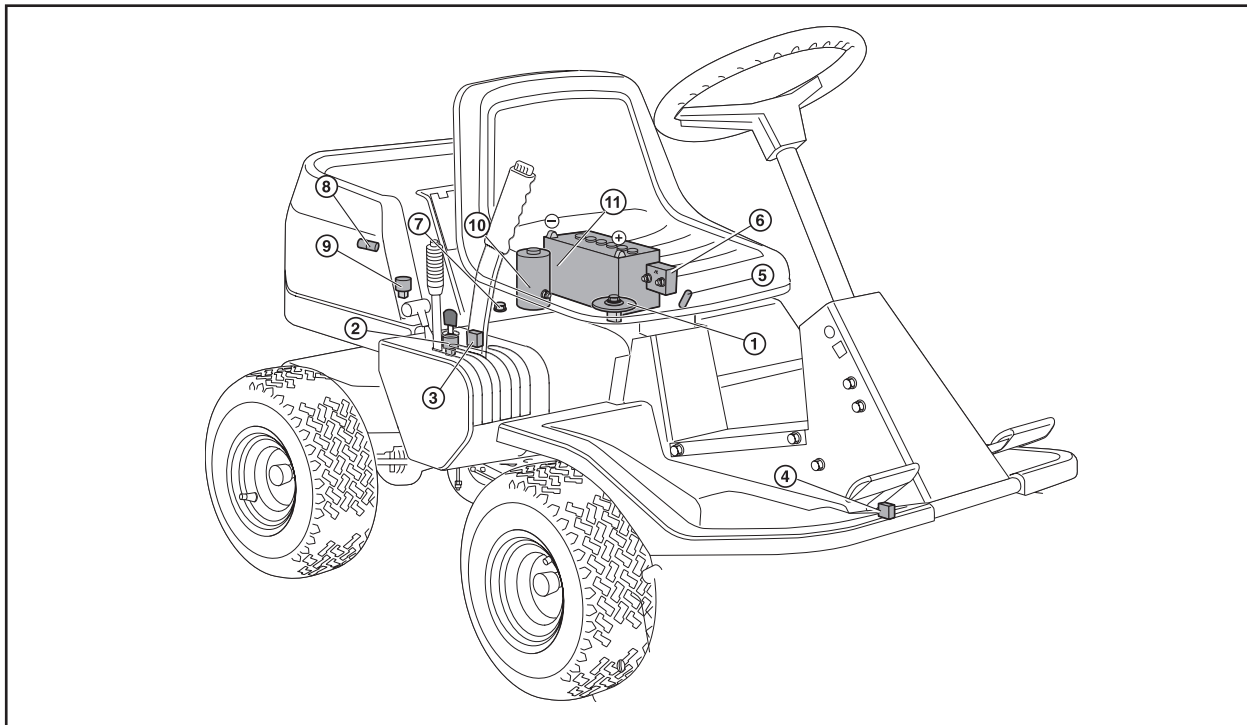
6021-023

Removing BioClip plug CombiClip 94

ELECTRICAL SYSTEM

Electrical System

Wiring Diagram



8009-849

Electrical system, component locations

1. Microswitch, seat
2. Ignition and starter switch
3. Microswitch, lifting lever
4. Microswitch, pedal carrier
5. Main fuse 15 A
6. Starter relay
7. Engine/Charge
8. Engine/Stop
9. Fuel valve (not Rider 16 AWD)
10. Starter motor
11. Battery

Key to color abbreviations in wiring diagram

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



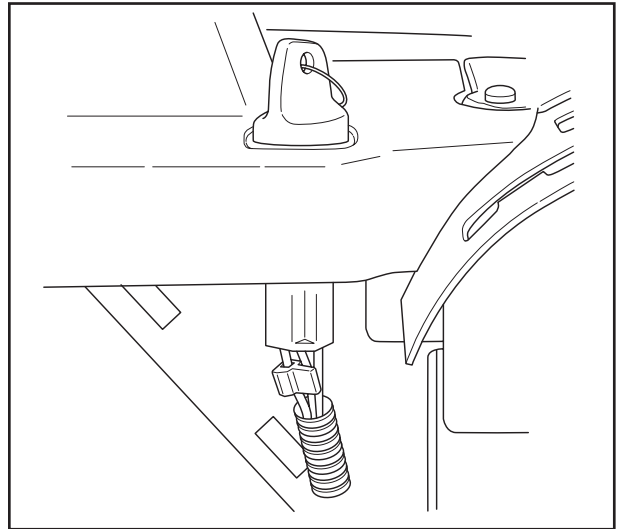
English-106

ELECTRICAL SYSTEM

Ignition and Starter Switch

1. Loosen the right wing cover.
2. Remove the inner protective plate on the lever carrier.
3. Unplug the connector from the ignition switch by pulling straight down.
4. Remove the ignition key and the rubber seal.
5. Remove the nut and the ignition switch.

Assemble in reverse order. Make sure the connector goes into the right position (click lock).



8042-116

Ignition and starter switch

Main Fuses

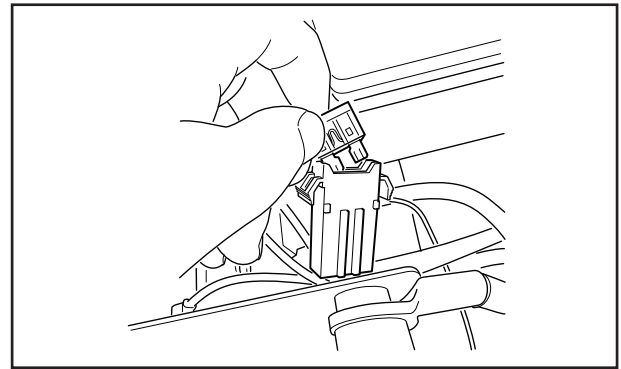
The main fuse is located in a loose holder under the lid of the battery box in front of the battery.

Type: Spade fuse, 15 A.

Do not use any other fuse 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.



8009-370

Main Fuse

Checking Safety System

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

It should be possible to start the engine only when:

- The cutting deck is raised and the parking brake is on.

The engine should stop when:

- The cutting deck is lowered and the driver gets out of the seat.
- The cutting deck is raised, the parking brake is not activated and the driver gets out of the seat.

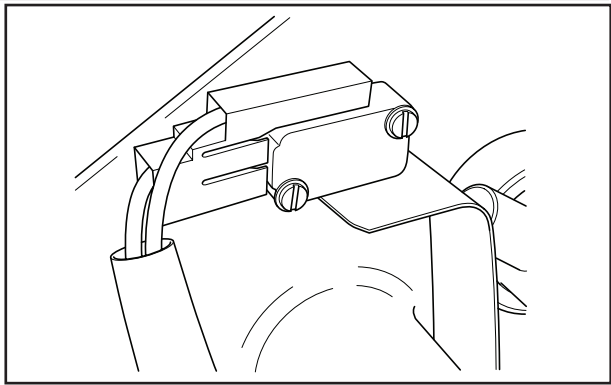
Check daily that the safety system is in working order by attempting to start the engine when one of the above conditions has not been met. Change condition and try again.

ELECTRICAL SYSTEM

Microswitch Lifting Lever

1. Loosen the right wing cover.
2. Remove the inner protective plate on the lever carrier.
3. Unplug the connector from the microswitch.
4. Remove the microswitch.

Assembly is in reverse order without setting.

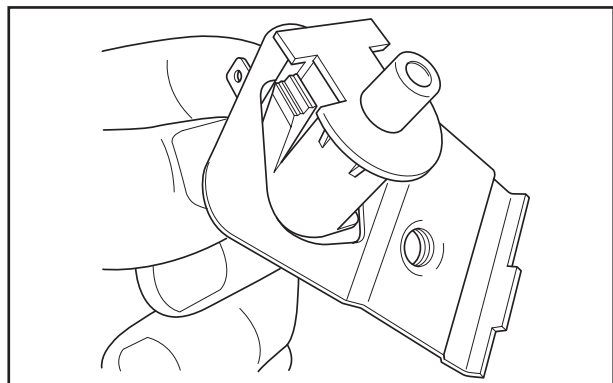


Microswitch cutting deck

Microswitch Seat

1. Raise the seat and remove the spring disc with spring and spacer sleeve. Release the microswitch holder.
2. Unplug the cable connections from the microswitch.
3. Press in the fasteners and remove the microswitch from the holder.

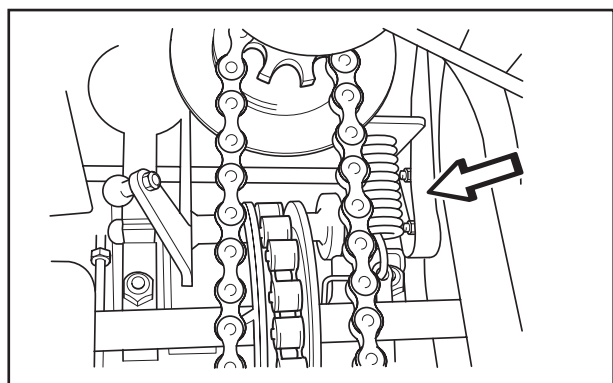
Assembly is in reverse order without setting.



Microswitch: seat

Microswitch Pedal Carrier

1. Remove the transmission cover.
2. Check the setting of the hydrostat cable. See "Hydrostat Cable Adjustment".
3. Take the lid off the frame tunnel.
4. Adjust the microswitch so that it clicks when the parking brake is depressed about 40 mm / 1,5".
Note: The parking brake cable spring can be unhooked to improve access.
5. Replace the transmission cover and the lid over the frame tunnel.



Microswitch pedal carrier

ELECTRICAL SYSTEM

HYDRAULIC SYSTEM

Hydraulic System

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 oil and filters according to the intervals given in "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 are 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.

Particles formed during operation or that enter the system during repair work and service usually comprise the following:

- Wear produce from components, mainly those that have moving parts such as pumps and engines.
- Dust that enters through the hydraulic tank breather.
- Water that forms due to condensation. (Water vapor enters with the breath.)
- Sludge, etc., from the degradation of oil.
- Products of corrosion from the system due to late oil changes resulting in water and other aggressive substances in the oil.

- Dirt particles entering the system during intervention:
 - Contaminants following with filled oil.
 - Particles of dust from the repair premises.
 - Gasket and thread seal from assembly.
 - Dirt from storage and handling prior to assembly.
 - Fiber from rags, filters, etc.
 - Dirt from the place of entry due to deficient cleaning prior to dismantling.
 - Dirt and dust that enters the system from dirty protective plugs.

Water, even in small amounts, causes rusting of ground surfaces, especially if the system is not used and contributes to the formation of sludge products. These products clog the filters causing circulation problems and cavitation in the pump.

Small fibers and threads from wipes or clothes can mat together in jet screws and restrictors. Fibers themselves do not do much harm but a collection of them can cause a blockage and increase wear on system components.

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.

Hydraulic Oils

Oil is at least as important as any other part of a hydraulic system. It has been noted that around 70% of all hydraulic problems are sourced from the use of unsuitable types of oil or that oils containing dirt or other contaminants have been used in the system.

The majority of contaminants in oil are usually dirt that has entered the system from outside.

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.

HYDRAULIC SYSTEM

Keep Hydraulic Oil Clean

Dirt and contaminants are a hydraulic system's biggest enemy. Long-term work at high effect is also very dependent on whether or not the hydraulic oil is kept in good order. Use only the type of oil specified in the lubrication schedule. Make sure levels are checked at established intervals and maintained correctly.

All good hydraulic oils are delivered in clean vessels and filtered so they are free from contaminants as far as possible. It is when the vessels are opened or stored that problems arise. You must be completely sure that when opening a can the area around the plug 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.

IMPORTANT INFORMATION

Drained hydraulic oil must be treated as a hazardous waste and left to the appropriate location for disposal.

Avoid skin contact, wash with soap and water in case of spills.

Working Methods

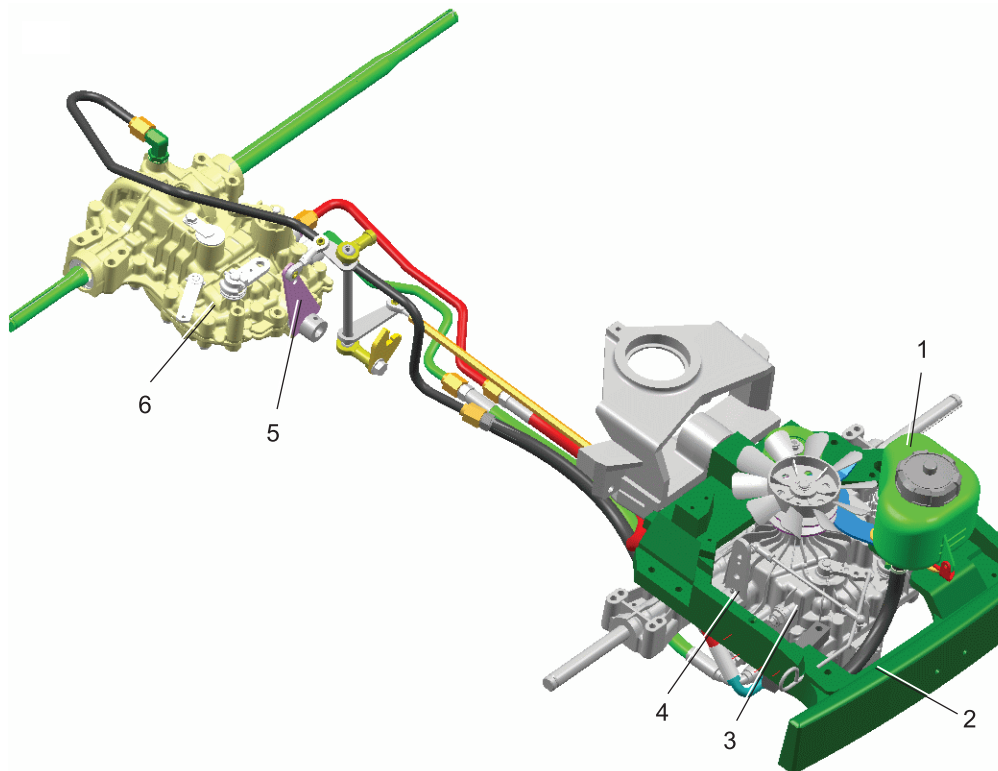
Cleanliness also applies to components that are removed or are going to be fitted. Remember that an exchanged component will probably be examined with test equipment at a workshop. It is important that the component is in the same condition when examined as it was when it was taken from the machine. 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:

1. Clean roughly as necessary.
2. Protect the area where entry is to be made from dust and other contaminants in the air. Plastic cloth and the like can be used.
3. Wash clean very thoroughly with white spirit or the like. Remember that it is not just the parts being approached directly that need to be washed. 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.
4. Apply suitable protection immediately after removing pipes and hoses. Components (also exchanged) as well as hoses and pipes should be protected.
5. All components included in pipe fittings shall be changed or washed in pure white spirit and blown clean with compressed air when being refitted.
6. Observe cleanliness when measuring pressures. Shower both parts of quick couplings with white spirit before connecting. Make sure any protection is clean before returning it.

HYDRAULIC SYSTEM

Hydraulic System AWD



1. Hydraulic tank
2. Filter
3. Hydraulic pump, variable
4. Hydraulic motor, fixed
5. Control arm displacement
6. Hydraulic motor, variable

8009-857

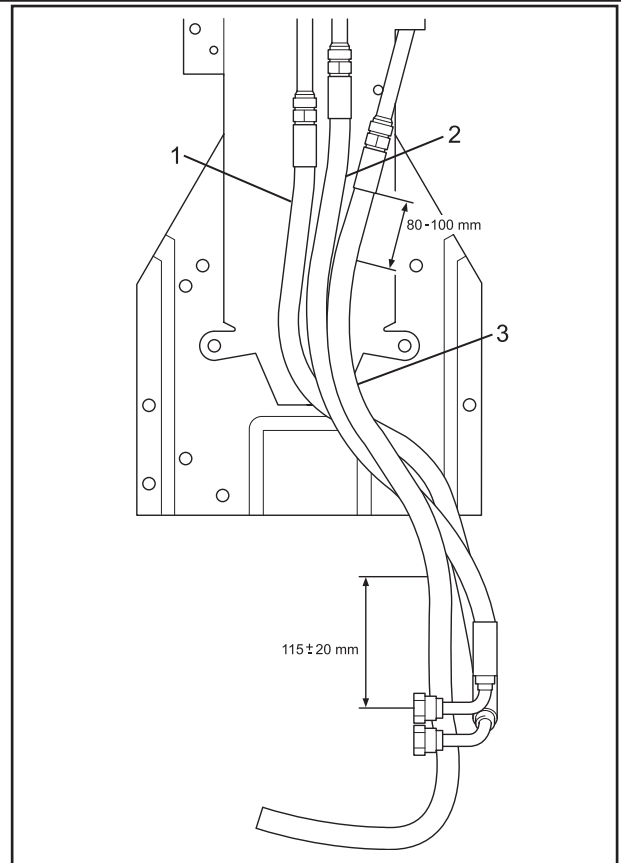
HYDRAULIC SYSTEM

Hose Package

Hoses under the machine are gathered into a hose package that is kept together with a plastic hose protector wound around the hoses.

The hoses are color marked during manufacture but this may have been damaged or ripped off. It is then possible to identify the hoses by the part numbers stamped in them.

1	Red	544 12 18-01
2	Green	544 12 19-01
3	Black	544 12 22-01

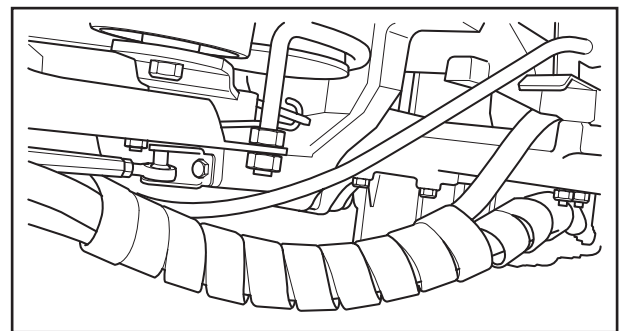


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Hose marking from below

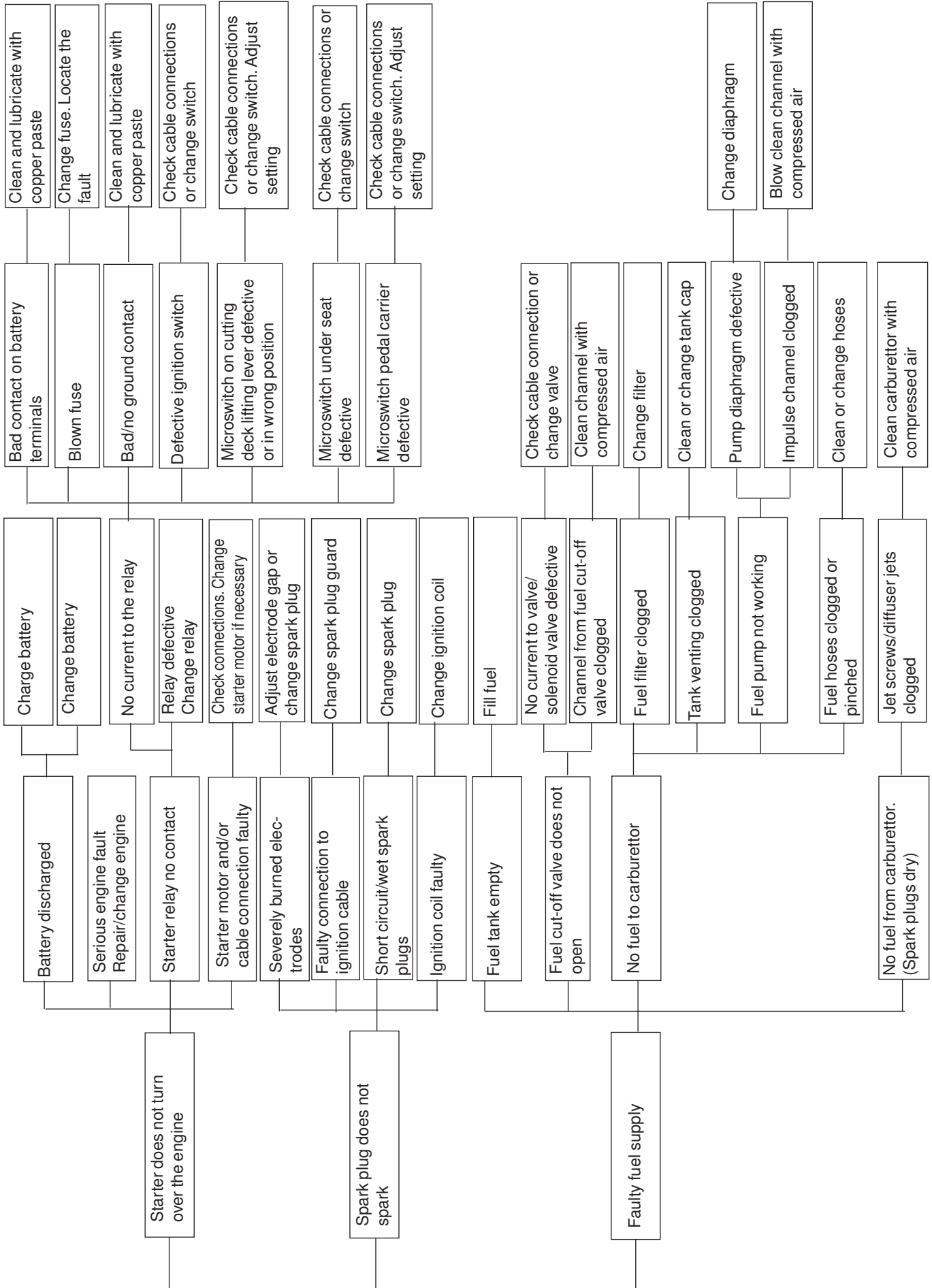
Tightening torque couplings 25 Nm.

1. Connect all the rear couplings on all the hoses so that they are in the correct position lengthwise in the package. Connect green to the front connection on the hydrostat motor. Red to the rear and black to the tank.
2. Gather together the hoses, green and black.
3. Start winding the hose protection 115±20 mm from the center of the green hose connection on the hydrostat. Insert the end of the hose protection between the two hoses and wind the protection 4-5 turns.
4. Insert the red hose to the left side of the package.
5. Wind the hose protection around all 3 hoses until it reaches 80-100 mm from the sleeve on the black hose.
6. Connect the front end of the hoses to their pipes, see illustration "Hose marking from below".

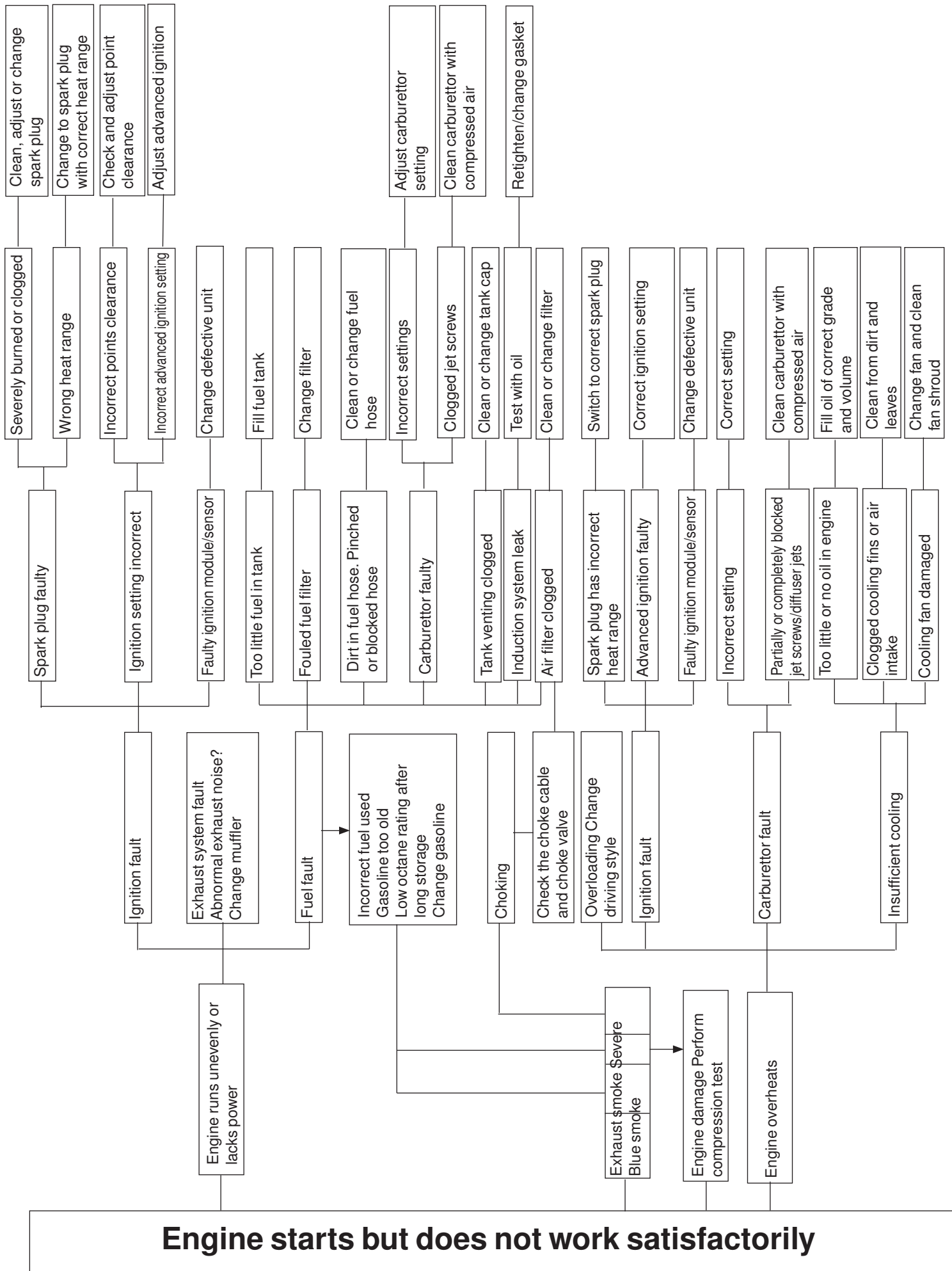


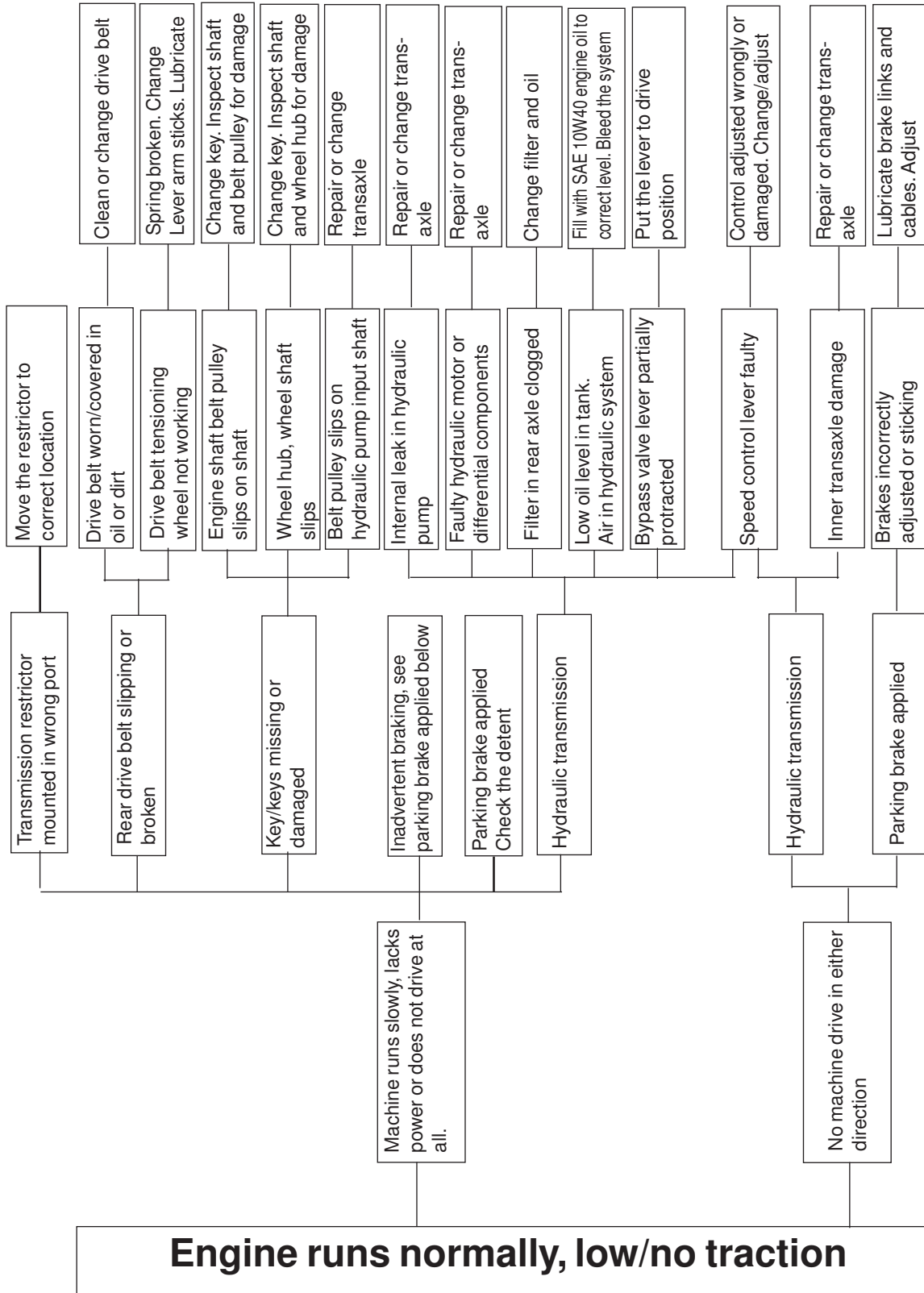
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Hose package

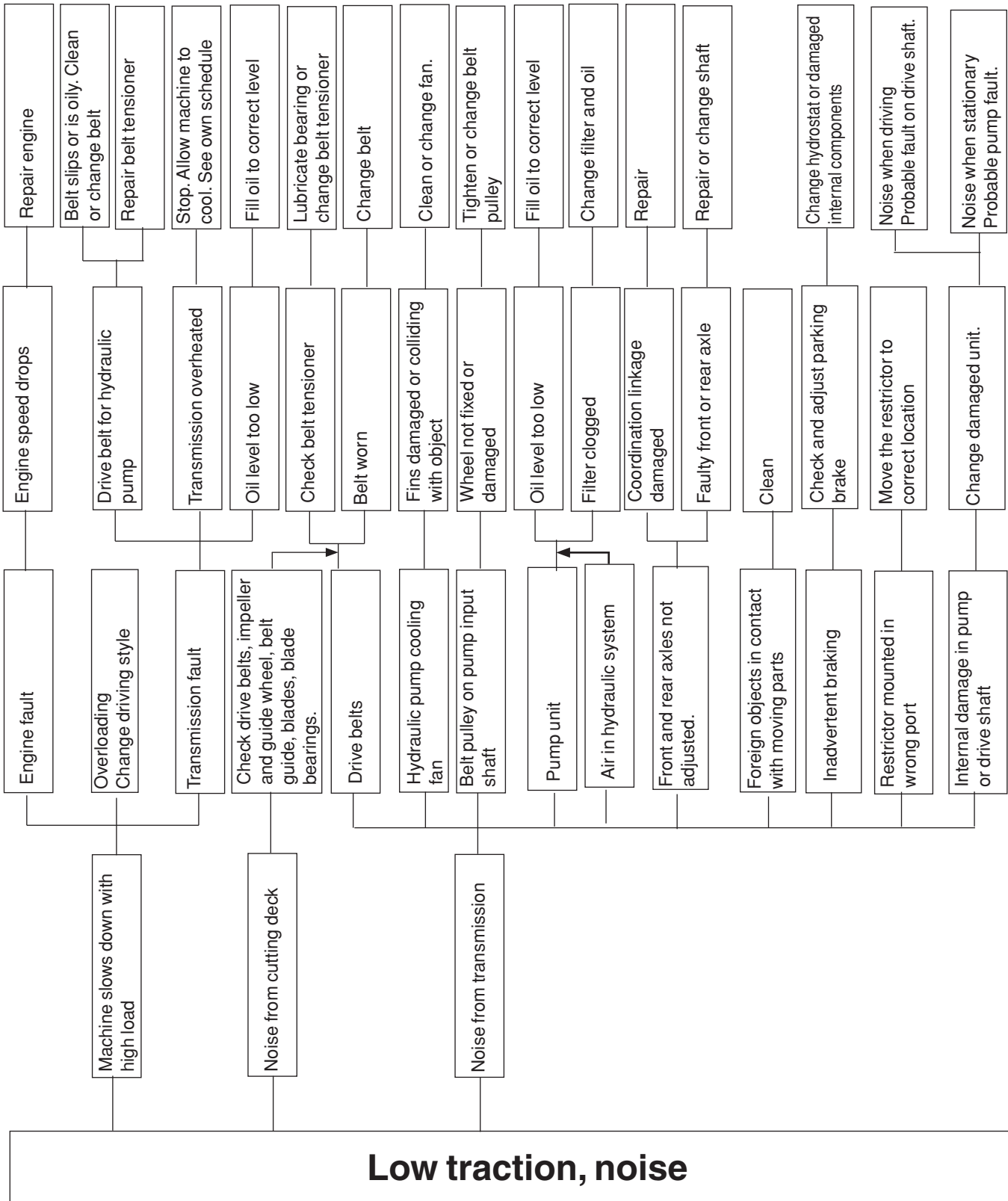


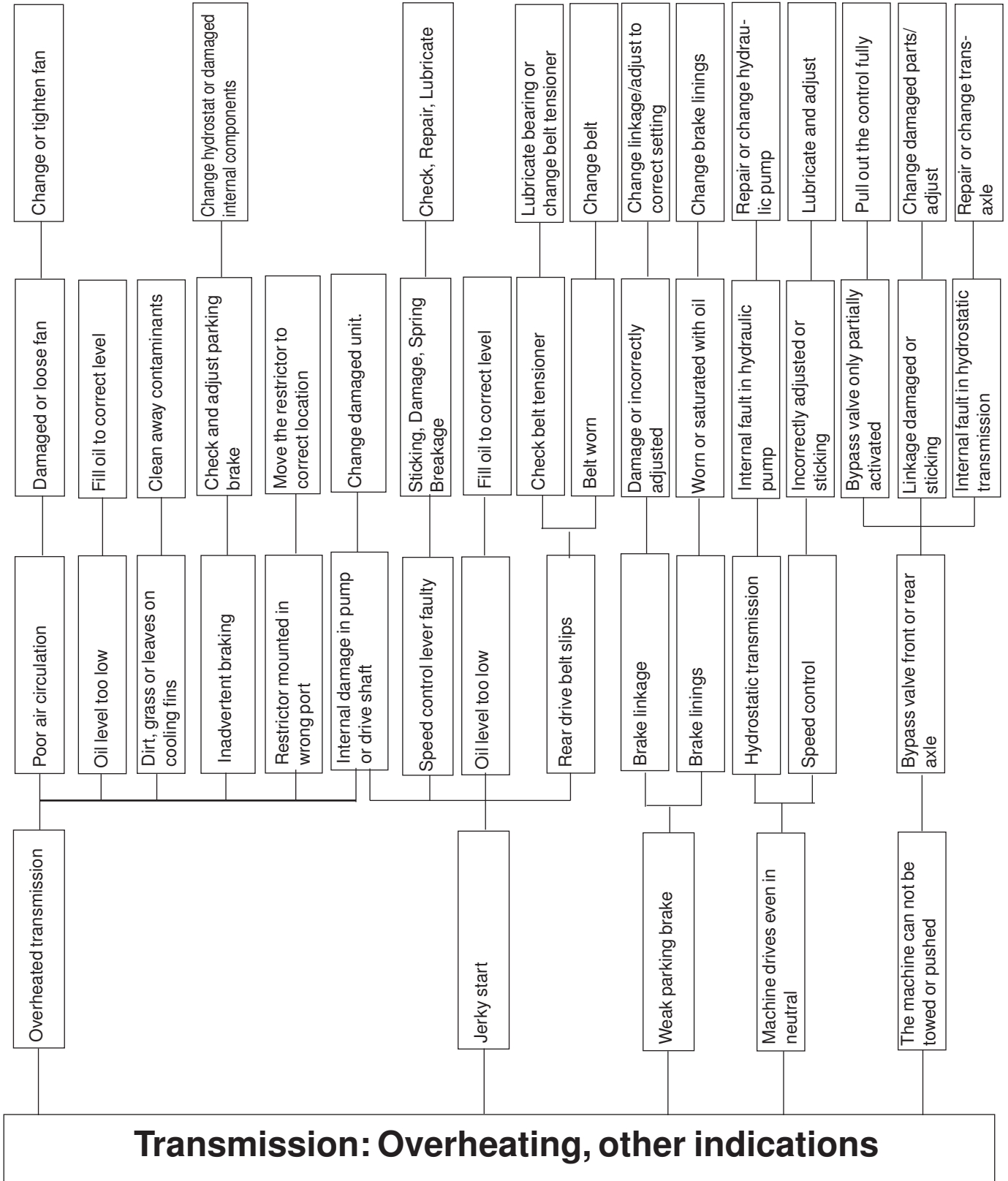
Engine does not start

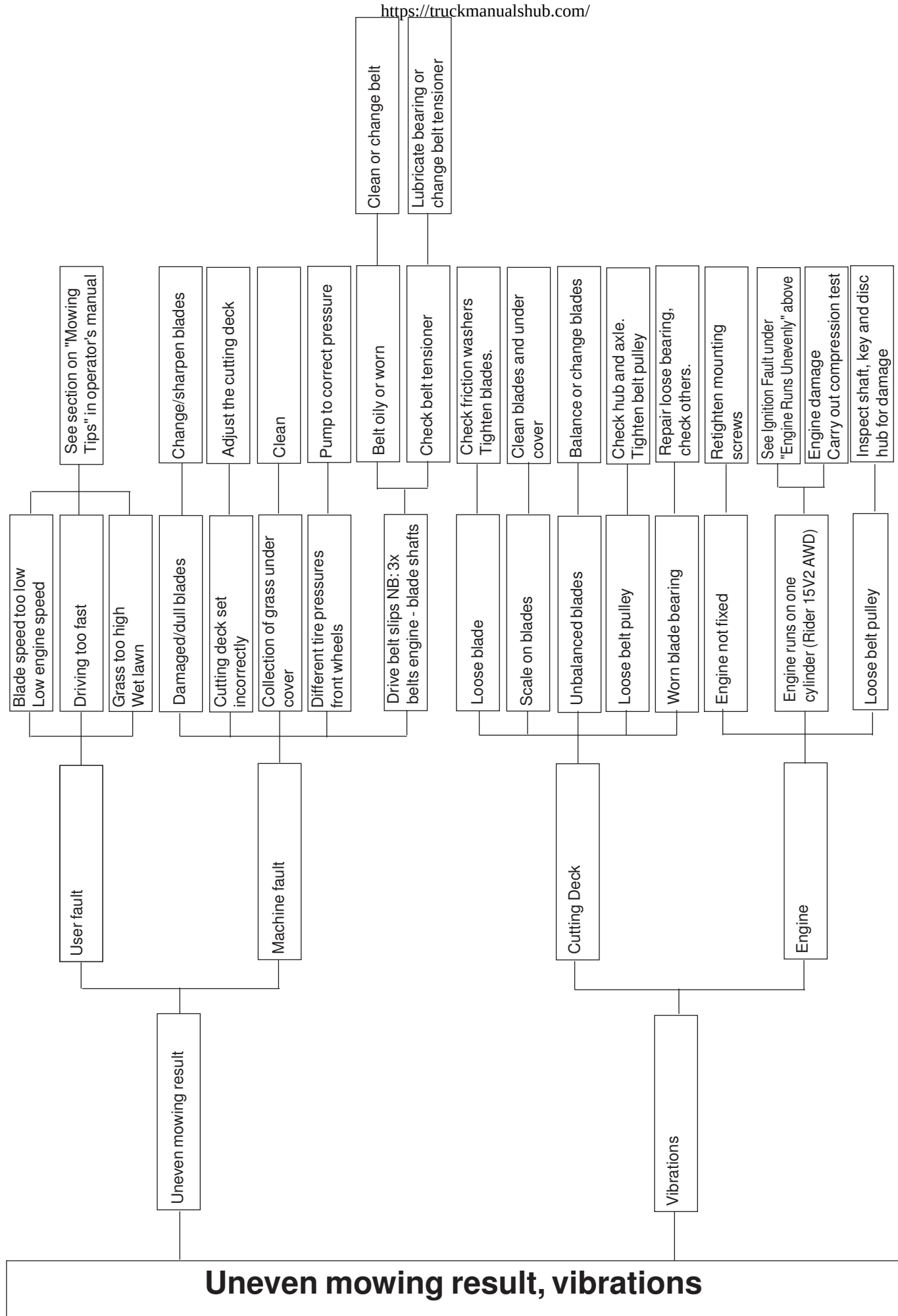




Hydrostatic transmission must not be opened during warranty period









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