

OPERATOR'S MANUAL

BASIC MACHINE City Ranger 3500



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MACHINES**

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Dear Customer

Congratulations with your Nilfisk Outdoor product.

The City Ranger 3500 offers a very flexible way of maintaining outdoor areas.

Optimal use of your City Ranger 3500

To ensure optimal performance of your City Ranger 3500, please read this manual carefully before using the machine. Failure to do so can result in personal injury and damage to the machine.

Safety

The City Ranger 3500 is equipped with various devices to ensure optimal operational safety both for the user and their surroundings. We ask you to pay particular attention to section 1.1. Safety. The machine must only be serviced by professionals.

The City Ranger 3500 is designed only for use by professionals. On delivery, the user will receive thorough training to become a competent operator.

Do not lend it to anyone who has not been thoroughly trained and who has not read this manual carefully.

The operator's manual should be considered a permanent part of the machine and must remain with the machine if sold.

Warnings

Some items in this operator's manual are marked with this warning symbol.

The warning indicates areas where extra care has to be taken to avoid personal injury or damage to the machine and its accessories. The warning also shows what you should pay special attention to.



Reservations

As it is the Nilfisk Outdoor Division policy to make continuous improvements, we reserve the right to alter the specifications and equipment at any time without notice. Nilfisk Outdoor Division accepts no liability for errors or omissions in the operator's manual.

Contact us

Should you have questions of any kind regarding your Nilfisk Outdoor product, please do not hesitate to contact the Nilfisk Outdoor Division.

Best regards

Nilfisk Outdoor Division, Nilfisk A/S · Transportvej 27 · DK-7620 Lemvig

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Content

General information	5
1.1 Safety	5
1.2 Attachments	8
1.3 EC Declaration of Conformity	9
1.4 Technical data	10
1.5 Access to the cab	13
1.6 Controls on the instrument panel	14
1.7 Alarm lights and monitoring indicators	20
1.8 Other controls	21
1.9 Parking brake	23
1.10 Fuses	24
1.11 Relays	26
1.12 Driver's seat	27
1.13 Cab heating/air conditioning	28
1.14 Trailer	29
1.15 Towing	30
Operator's manual	31
2.1 Fitting an attachment	31
2.2 Set up of the multifunction joystick	32
2.3 Daily checks before start-up	34
2.4 Cleaning and checking after each use	34
2.5 Fuel filling	35
2.6 Start, drive and stop	36
2.7 High-pressure cleaner	39
2.8 Protecting the water circuit against ice	40
2.9 Transporting the City Ranger 3500	41
Service and maintenance	42
3.1 City Ranger 3500 service and maintenance chart	42
3.2 Engine oil	43
3.3 Hydraulic oil	45
3.4 Coolant	46
3.5 Brake fluid	48
3.6 Windscreen washer liquid	48
3.7 High-pressure cleaner pump oil	49
3.8 Lubricating	50
3.9 Filters	53
3.10 Checking belts	57
3.11 Door adjustment	57
3.12 Changing a wheel	58
3.13 In case of failure	59
3.14 Access to the backup pump	60
Conditions	62
4.1 Warranty	62
4.2 Complaints	63
4.3 Disposal	63
Wearing parts	64
5.1 Service kits – City Ranger 3500	64
5.2 Wearing parts – City Ranger 3500	65
Notes	67

The City Ranger 3500

Gain strength as a special machine as well as the multifunction machines broad flexibility. With the City Ranger 3500 you will get high performance and optimum maneuverability with articulated steering, easy operation, reliability and optimum comfort - and a full year equipment programme is at your disposal with no less than 14 attachments! Professional quality attachments improve the function of the machine and are easy to handle.

Multipurpose utility machine

If you need a versatile machine and attachments, our City Ranger offers you a flexible 4 in 1 solution with an easy attachment changeover. It can be equipped with a full range of tailor made quality attachments - fully integrated and designed to work with the machine - ensuring high performance in every task.

The four main tasks are:

- green care
- street washing
- snow removal
- suction sweeping

Comfort

The City Ranger 3500 is an outdoor utility machine with a spacious cab that is equipped with air conditioning. The seat is fully adjustable to suit the operator. The seat has pneumatic suspension as standard and is very comfortable. All the operating controls are optimally positioned for the operator.

The City Ranger 3500 is a future-proof investment - built to work around the clock and to have low operating costs.

1.1 Safety



Avoid roll-overs:

With all attachment, do not drive the machine in a place where it can slide, tip or roll. Use the machine on a solid and regular ground. Do not drive on slopes with an incline of more than 5°.

The following situations are known to cause more instability in the machine and care should be taken by the operator to assure safe operation:

- Emptying the hopper on an incline
- Manoeuvring the machine with raised hopper
- Abrupt steering
- Manoeuvring with speed, on a slope and/ or with weight in the hopper
- Manoeuvring the machine on a irregular ground
- Low tyre pressure



Avoid standing close to the machine while it is in use

Make sure that no one is near the machine while it is in use as there is a danger of crushing. (Picture 2)



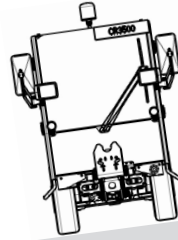
Do not inhale exhaust gas

Exhaust gas is hazardous to health and can even be fatal. If the machine is run in a confined space, the exhaust gas must be adequately ventilated out of the room or area, using an exhaust hose, for example. Otherwise doors and windows must be opened to allow fresh air inside.

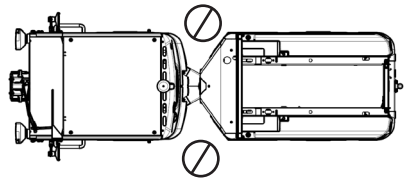


Avoid crushing

Make sure that nobody puts their hands, feet or any limb close to the mobile or articulated parts of the vehicle.



Do not drive on slopes with an incline of more than 5°



Prevent people from standing in the working area

General information



Other hazards

There may be other circumstances and situations than those mentioned above where it may be dangerous to use the City Ranger 3500.



Exhaust pipe

Do not touch the exhaust pipe as it becomes very hot when the machine is running. (Picture 1)



Hydraulic components

Be aware that the hydraulic components may get hot when the machine is in use.



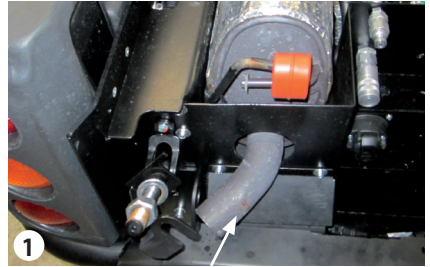
Assembly/Disassembly of attachment

Carry out the assembly or disassembly of an attachment on flat or stable ground only!

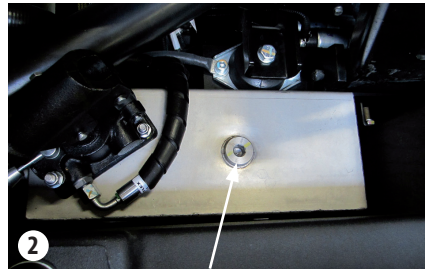


Attention!

Never loosen the screw on top of the hydraulic oil tank. This will void the warranty on the whole hydraulic circuit. (Picture 2)



Exhaust pipe



Never loosen the screw on top of the hydraulic oil tank

Take care while handling potentially dangerous products

- Do not smoke when filling up
- Do not spill diesel on the engine, the mechanical parts or the vehicle body
- The brake fluid is very harmful and very corrosive. Avoid contact with the skin and eyes. In case of contact, rinse thoroughly with clear water. Any part of the vehicle in contact with the brake fluid should be rinsed out with clear water to avoid corrosion
- The acid contained in the battery is very harmful and very corrosive. Avoid contact with skin and eyes. In case of contact, rinse thoroughly with clear water. Any mechanical part or part of the vehicle body in contact with the brake fluid should be rinsed thoroughly with clear water
- The various liquids used in the vehicle (brake liquid, battery liquid, hydraulic fluid, diesel, oil and cooling water) should be discharged in a suitable place.

Observe the operating instructions

- Always watch out for the traffic while working.
- The City Ranger 3500 belongs to the category of public works vehicles. This vehicle should not be used for the transport of humans or goods
- Climbing pavements is possible up to 15 cm from the ground (traditional pavements) and should be done very slowly.
- Use the parking brake and remove the ignition key when stopped



Security kickstands

Maintenance

The company Nilfisk is by no means responsible for damages or accidents caused by misuse or by a lack of maintenance of the vehicle.

When non-original spares are used, or attachments or other components are used which are not approved by the manufacturer, the guarantee will not apply.

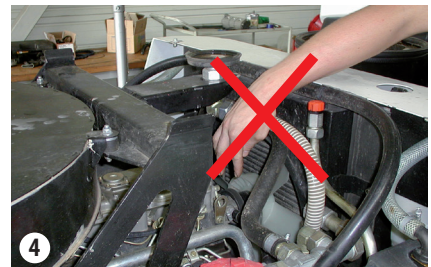
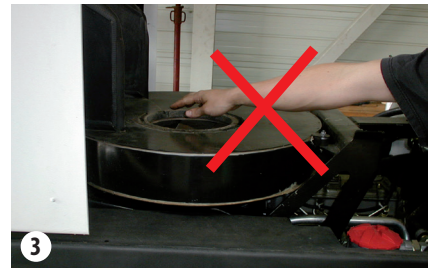
When carrying out engine maintenance, raise the rear mounted attachment in order to put the security kickstands in place. (Picture 1) Never work on the engine without securing the security kickstands!

Only work in the engine compartment when it is safe to do so.

Never put your hands in or near the turbine when it is running. Keep a safe distance and wear safety glasses. (Pictures 2 + 3)

Avoid carrying out maintenance when the engine is on. Keep away from the cooling circuit fan. (Picture 4)

When liquid is under pressure, it can go through the skin and cause serious lesions. Make sure that the system is not under pressure before working on it.



General information

1.2 Attachments

City Ranger 3500 is designed to work with the following attachments:

Attachments	Type
Suction sweeper - Brushes	N9000
Suction sweeper - Third brush	N9500
Suction sweeper - Hopper	N2600
Suction sweeper - Suction nozzle	N3700
Street scrubber drier	33023100
Weed brush	UB 700 HK
Rotary mower	FSML 150 HM
Rear tipper	L2700
Street flusher	M9000
Water tank	M2600
Snow sweeper	FFK 1310
Snow sweeper	FKM 1310
Snow plough	FRS 1504 ST
Snow V-blade	FKP 1310
Salt and sand spreader	FSS 800
Combi spreader	FWS 350K
Roller spreader	FWS 350

There is an operator's manual for each attachment.

Operation with these attachments must follow the instructions outlined in the relevant operator's manual. Do not operate the City Ranger 3500 with the attachment unless all instructions have been followed.

1.3 EC Declaration of Conformity

Manufacturer: **Nilfisk Outdoor Division
Nilfisk A/S**
Address: **Transportvej 27 · DK-7620 Lemvig**
Telephone: **+45 97 81 12 05**

hereby declares that

Machine: **City Ranger 3500**
Type: **CR 3500**
UHM3500A0xxxxxxxxx (serial number)

Has been manufactured in conformity with the provisions of Directive 2003/37/EC and Directive 2006/42/EC.

Person authorized to compile the technical documentation:

Adriano Granata
Nilfisk Outdoor Division
Nilfisk S.p.A.
Strada Comunale della Braglia 18
26862 Guardamiglio (Lodi - Italy)

Place: **Lemvig**

Date:

Signature:



Erik Østergaard Madsen, Group R&D Manager

General information

1.4 Technical data

Dimensions:

Length (L)	4081 mm
Width (W)	1130 mm
Height (H)	1900 mm
Height with beacon H2 (standard cab)	2180 mm
Height with beacon H2 (high roof cab)	2280 mm
Wheel base	2045 mm
Ground clearance	200 mm

Weight:

Kerb weight without driver	1800 kg
Gross vehicle weight rating	3500 kg
Maximum vertical load on coupling point	100 kg
Permitted axle load, front	2100 kg
Permitted axle load, rear	2100 kg

Operating temperature:

Temperature range *	From -25°C to +48°C From -13°F to 118,4 °F
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Tyre:

Road type, tyre dimension	195/75 R16
Road type, tyre pressure	5.25 bar
Low-pressure type, tyre dimension	275/60 R15
Low-pressure type, tyre pressure	2.8 bar
Tyre maximum load	2100 kg

Engine:

Type/manufacturer	Perkins
Type	404D-22
Cylinders	4
Displacement	2200 cm ³
Maximum engine power	36.3 kW / 49 hp
Engine speed at maximum power	2800 rpm
Maximum torque	143 Nm
Engine speed at maximum torque	1800 rpm
EU norm	EC Stage IIIA

Refer to the engine operator's manual for further technical data.

* If the City Ranger 3500 has to operate in ambient temperatures below -15°C (5 °F), you must warm up the machine slowly and change the hydraulic oil. See oil type in the section Service and Maintenance, Hydraulic oil.

1.4 Technical data

Fuel:

Diesel

Fuel tank capacity 65 l

Fuel consumption in working mode

- in accordance with EN 15429-2 5.7 l per hour

Lubricating system:

Engine oil

Approx. 9 l, synthetic

Air filter

Dry, replaceable filter

Cooling system

Liquid coolant

Electrical system:

Start system

Electrical starter with glow plugs

Alternator

12V – 85 A

Battery

12V - 100AH - 750A

Hydraulic oil:

Standard type

ISO VG 46

Type if T° < -15°C (5° F)

ISO VG 32

Tank capacity

Approx. 60 l

Brakes on front wheels

Hydraulic drum brakes

Brakes on rear wheels

Hydrostatic braking

Water circuit:

Tank capacity

210 l

Water pump

6 bar

Driving:

City Ranger 3500 / 2-speed version

Max. 38 km/h

Step 1

Max. 19 km/h

Step 2

Max. 38 km/h

Air conditioning:

Gas R 134a

650 g

Oil SP20

20 cc

1.4 Technical data

Noise level for City Ranger 3500/2-speed version

Outside noise, stationary, in accordance with European Directive 2009/63/EC 78 dB(A)

Outside noise, in motion, in accordance with European Directive 2009/63/EC 78 dB(A)

Inside cab noise, closed windows, in accordance with European Directive 2009/76/EC 76 dB(A)

Inside cab noise, open windows, in accordance with European Directive 2009/76/EC 76 dB(A)

Vibration test:

Nilfisk Outdoor can declare that if the machine is used according to these instructions, the vibrations do not cause dangerous situations.

Whole body, according EN1032-EN13059 0.7 m/s²

Hand/Arm, according EN5349-EN12096 0.78 m/s²

Cab:

Falling Object Protective Structure - FOPS

The City Ranger 3500 and its attachments do not operate when falling objects are a risk.

Roll-Over Protective Structure - ROPS

Tested according to Directive 86/298/EEC and fulfills OECD Code 7.

Contact with hazardous substances

The air intake contains a filter to protect the driver against dust inhalation.

Cab classification according EN 15695-1 is Category 1.

This cab category does not provide protection against hazardous substances.

The City Ranger 3500 fitted with this cab shall not be used under conditions requiring protection against hazardous substances.

Turning radius:

Turning radius between pavement/wall 3120/3370 mm

Information plate:

Mounted on the right side of the front chassis

Operating City Ranger 3500:

There is no need for special tools to operate the City Ranger 3500.

Attention:

Specifications may change without notice.

1.5 Access to the cab

Access to the cab is from the right side door.
Open the door with the handle. (Picture 1)

To enter the cab, simply step directly in. (Picture 2)

To leave the cab, open the door with the internal handle.
(Picture 3)

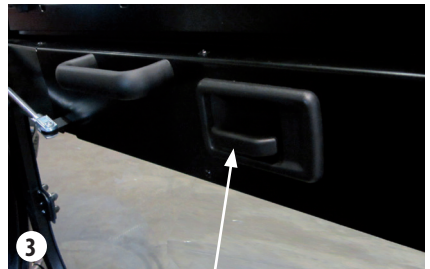
There is a similar door on the left side. This door is operated in the same way as the right door and can be used as an emergency exit.



Handle on the door



Cab floor

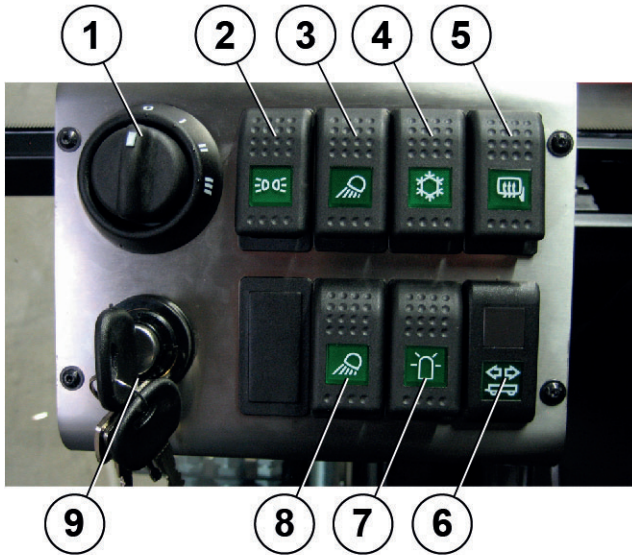


Internal handle

General information

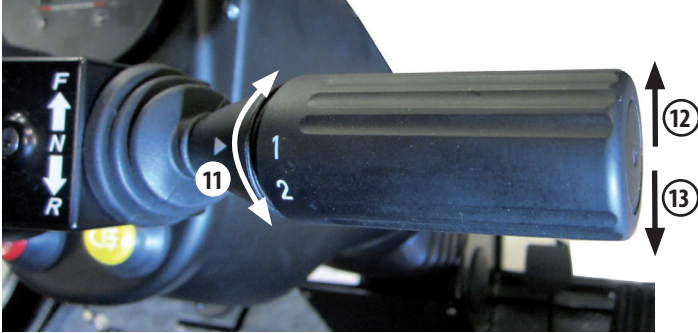
1.6 Controls on the instrument panel

Front instrument panel



1. Air flow ventilation adjustment
2. Sidelights / dipped headlights
3. Front work lights
4. Airconditioning
5. Heated side mirrors (optional)
6. Indicator trailer turn signal lights (optional)
7. Beacon
8. Rear working light
9. Ignition key

Right stalk switch



- 11. Gear shifting 1/2 (optional)
- 12. Forward driving
- 13. Reverse driving

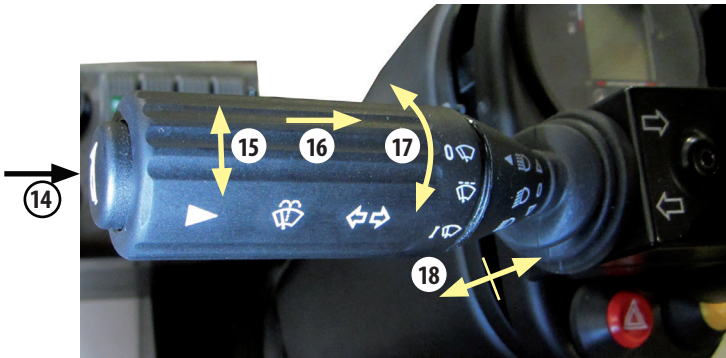
NB: When reversing, the speed is limited to 25 km/h.



Attention!

Change gear only when the vehicle is stopped.

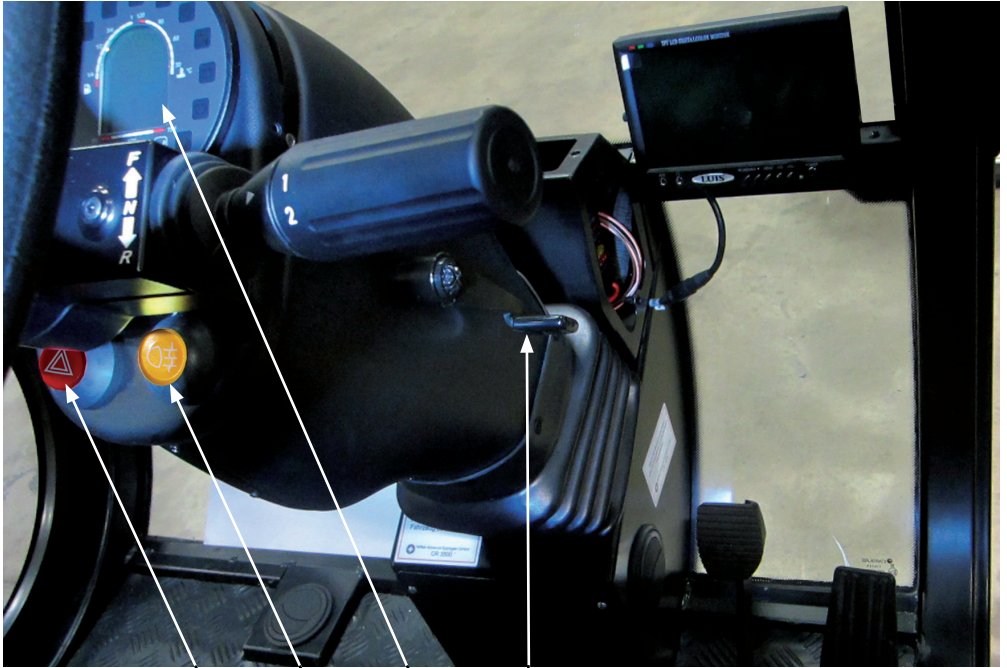
Left stalk switch



- 14. Horn
- 15. Turn signal lights
- 16. Windscreen washer
- 17. Windscreen wiper
- 18. Headlights

General information

Steering Column



19

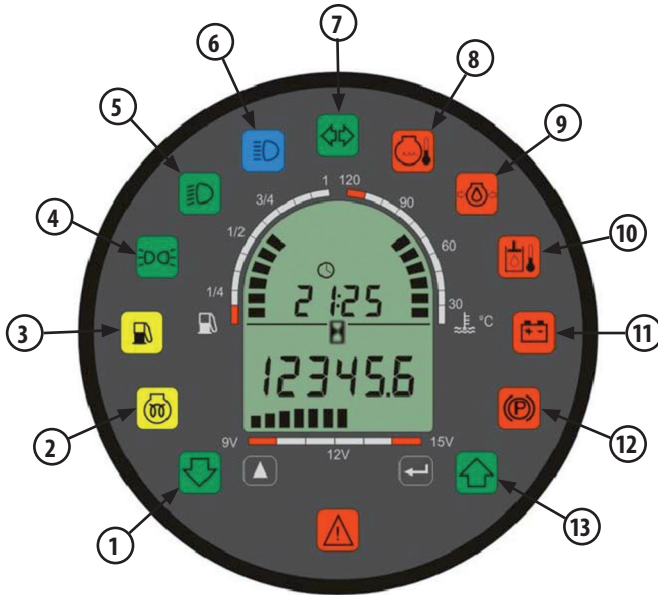
20

21

22

- 19. Warning lights
- 20. Rear fog lights
- 21. Multifunctional instrumental panel (see next page)
- 22. Steering column adjustment

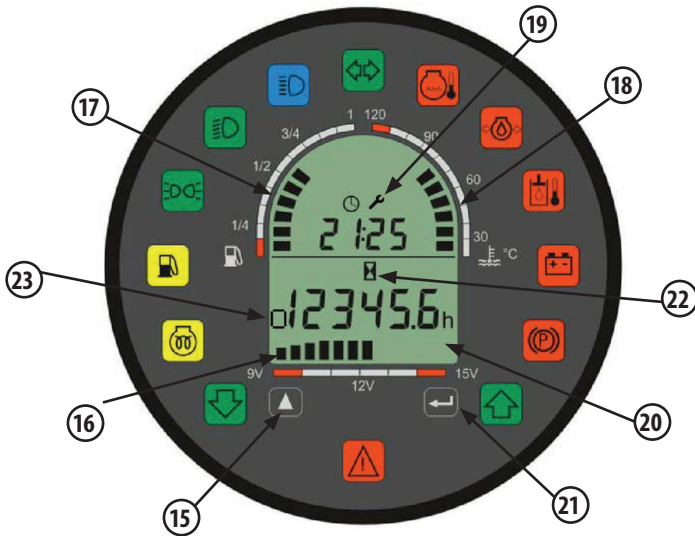
Multifunction instrument panel



1. Reverse drive indicator
2. Preheat indicator
3. Low fuel indicator
4. Position lights
5. Dipped headlight
6. Headlight
7. Direction indicator
8. Engine coolant temperature alarm *
9. Engine oil pressure alarm *
10. Hydraulic oil temperature alarm *
11. Battery
12. Parking brake / brake fluid level default
13. Driving forwards indicator

* If this indicator lights, park the vehicle as fast as possible on the roadside and check the actions to perform in § 1.4.

General information



15. Button for scrolling the central display
16. Battery voltage indicator: display every 1V (from 9V to 15V)
17. Fuel level indicator: the level is displayed with 10 scaling levels
18. Coolant temperature
19. Maintenance indicator: this indicator warns you every 500 hours when maintenance must be performed.
20. Central display: Hour meter, speed, engine rpm, clock and working time.
21. Clock setting
22. Engine in working mode indicator. It is in flashing mode when the engine is on.
23. Turbine in working mode indicator. It rotates when the turbine is on.

Description of the various displays of the multifunctional instrument panel

- display km/h / BZ
 - top: displays the speed / clock
 - bottom: displays the operating time
- display rpm / BZ
 - top: displays the speed
 - bottom: displays the operating time
- display rct / BZ
 - top: displays the clock
 - bottom: displays the operating time
- display b-Hr / brush
 - top: displays b-Hr constantly
 - bottom: displays the working time
- display b dc / brush
 - top: displays b dc constantly
 - bottom: displays the kilometers traveled in working mode



Setting time on the multifunctional instrument panel

- switch display to rtc / BZ
- press the right button (21) for 5 seconds
- set the hours with the left button (15)
- press the right button (21) to confirm
- set the minutes with the left button (15)
- press the right button (21) to confirm

General information

1.7 Alarm lights and monitoring indicators



Attention!

In case of engine overheating or of hydraulic overheating, contact your after-sales service. Do not open the radiator cap when the liquid is under pressure. There is a risk of accidents.

Engine coolant temperature alarm (8)

This signal lamp turns on and you will hear a beep sound when the coolant reaches 112°C.

If this signal lamp turns on while driving, park the vehicle as fast as possible on the roadside, turn the engine off and check the cooling circuit.

Engine oil pressure alarm (9)

This signal lamp turns on and you will hear a beep sound when the engine oil pressure is too low.

If the signal lamp turns on while driving, park the vehicle as fast as possible on the roadside, turn the engine off and check the engine oil circuit.

Hydraulic oil temperature alarm (10)

The signal lamp turns on and you will hear a beep sound when the hydraulic oil temperature exceeds 80°C.

If the signal lamp turns on while driving, park the vehicle as fast as possible on the roadside, let the engine idle and check if the radiator fan is running.

- - If the fan is not running, stop the machine, let the system cool down and contact the after-sales service.
- - If the fan is running, let the vehicle idle and wait 10 minutes before checking that the temperature falls. Clean the radiator.
- - If the temperature does not fall, stop the machine and immediately contact your after-sales service.

Battery load alarm (11)

The signal lamp turns on when the power at the battery terminals is lower than 9V.

Indicator, parking brake tightening / brake fluid level default (12)

When this signal lamp is on, the vehicle will not start

- - This signal lamp turns on when the parking brake is tightened.
- - This signal lamp turns on when the brake fluid level is too low. Park the vehicle as fast as possible on the roadside, turn the engine off and check the brake fluid level.

1.8 Other controls

Controls around the driver's seat

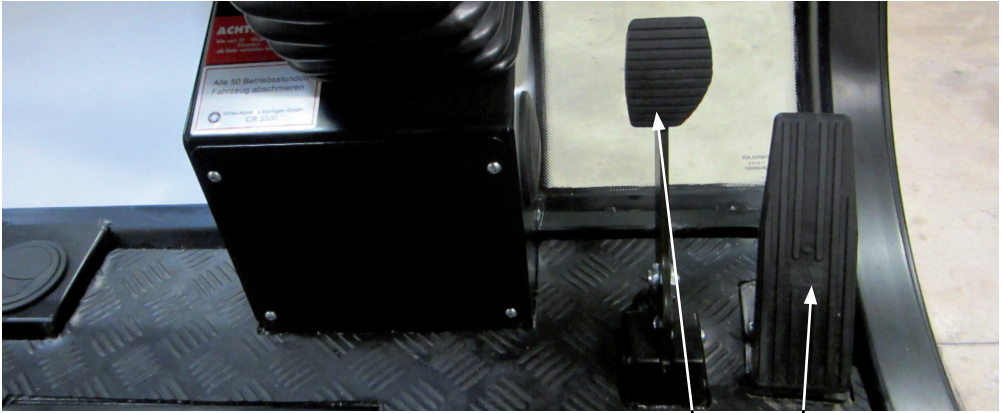


1. Throttle
2. Water flow for dampening the brushes
3. Water flow for dampening the suction nozzle
4. Parking brake (see specific section 1.9)
5. Multifunction joystick for attachments

The multifunction joystick is suitable for all attachments, it is necessary to set the multifunction joystick for the specific attachment. Refer to the manual for each attachment.

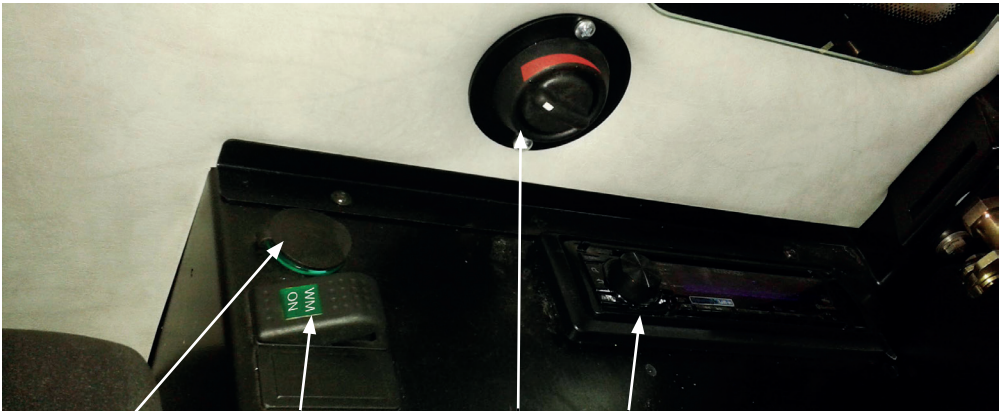
General information

Pedals



1. Brake pedal
The brake pedal must be operated daily
2. Drive pedal

Behind the passenger seat



1. Temperature setting
2. Radio (optional)
3. Power unit 12VDC
4. Working mode switch

1.9 Parking brake

Parking brake engagement



Parking brake

Allways engage the parking brake before leaving the machine. Pull the lever with a maximum force of one arm. The lever should do minimum 8 and maximum 10 clicks. If it clicks more than 10 times, the parking brake must be serviced by an authorised Nilfisk Outdoor dealer.

General information

1.10 Fuses

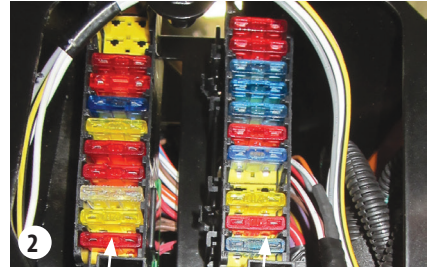
Front fuse box

To access the front fuse box, remove the cover located at the bottom of the steering column on the driver's side. The position of each fuse is numbered. (Pictures 1 + 2 + 3)



Front fuse box cover

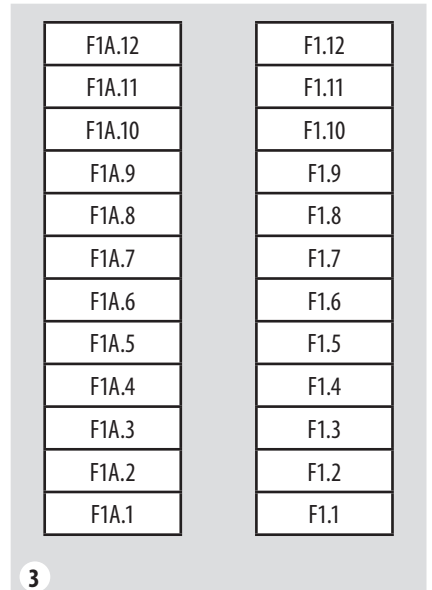
Fuse holder F1A			
Reference	Position	Function	Intensity
F1A.12	29	Not used	
F1A.11	30	Not used	
F1A.10	31	Not used	
F1A.9	32	Indicator	
F1A.8	33	Air conditioning	10A
F1A.7	34	Beacon	15A
F1A.6	35	Air conditioning main fuse	20A
F1A.5	36	Not used	
F1A.4	37	Display	10A
F1A.3	38	Position light	25A
F1A.2	39	Stalk switch	20A
F1A.1	40	Warning lights	10A



Fuse holder F1A

Fuse holder F1

Fuse holder F1			
Reference	Position	Function	Intensity
F1.12	29	Main relay/OPS	10A
F1.11	30	Headlights	10A
F1.10	31	Dipped headlights	10A
F1.9	32	Work light	15A
F1.8	33	Right sidelights	15A
F1.7	34	Left sidelights	15A
F1.6	35	Heated mirror	10A
F1.5	36	Brake lights and cut-off forward driving	15A
F1.4	37	Control lamp S9/daylight	3A
F1.3	38	Windscreen wiper	20A
F1.2	39	Forward driving and load sensor	10A
F1.1	40	Turn signal lights	15A

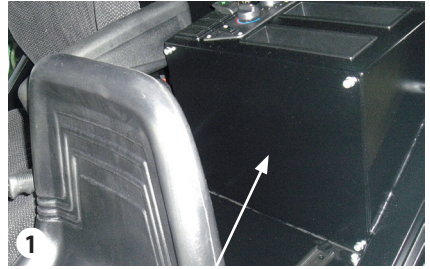


Fuse location

Rear fuse box

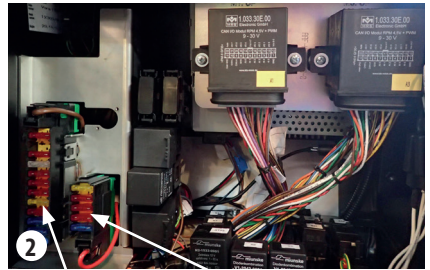
The rear fuse box is located behind the passenger's seat. Remove the seat or pull the seat forward and remove the protective cover from the electrical unit.

(Pictures 1 + 2 + 3)



Protective cover of the electrical unit

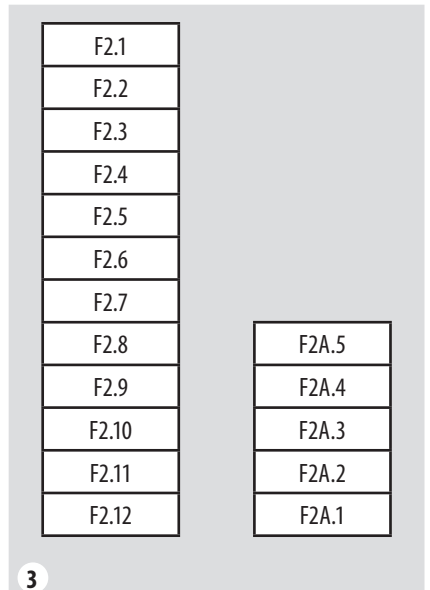
Fuse holder F2			
Reference	Position	Function	Intensity
F2.1	40	Radio	10A
F2.2	39	Not in use	
F2.3	38	Speed sensor and fuel level	10A
F2.4	37	Air conditioning compressor + condenser ventilator	25A
F2.5	36	Working functions (without cut-off)	10A
F2.6	35	Display	10A
F2.7	34	Air conditioning compressor	10A
F2.8	33	Air conditioning ventilator	20A
F2.9	32	Courtesy light	10A
F2.10	31	Seat compressor	15A
F2.11	30	High pressure cleaner	15A
F2.12	29	Not used	



Fuse holder F2

Fuse holder F2A

Fuse holder F2A			
Reference	Position	Function	Intensity
F2A.5	36	Supply module A4	20A
F2A.4	37	Supply module A2 Chanel 4-7	10A
F2A.3	38	Supply module A3	10A
F2A.2	39	Supply module A2 Chanel 0-3	10A
F2A.1	40	Supply module A1	20A



3

Fuse location

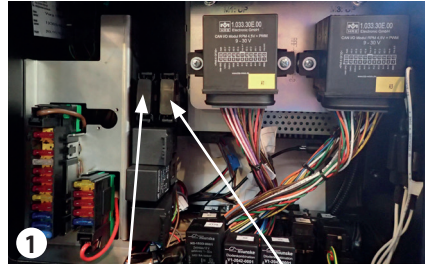
General information

Main fuse and preheating fuse

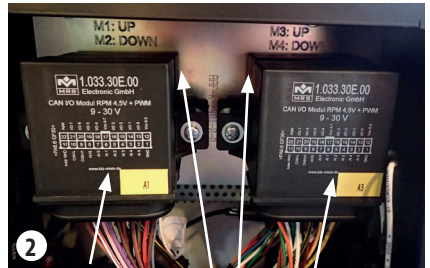
The preheating fuse (F4, 80A) and the main fuse (F5, 60A) are located behind the passenger's seat. Remove the passenger's seat or pull the seat forward and remove the protective cover from the electrical unit. (Picture 1)

1.11 Relays

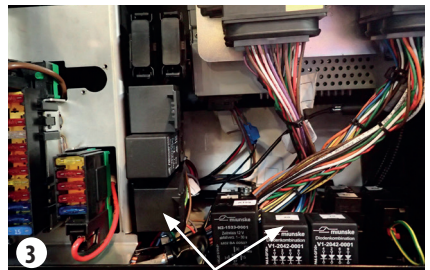
The relays are located behind the passenger's seat. Remove the passenger's seat or pull the seat forward and remove the protective cover from the electrical unit. (Pictures 2 + 3)



Preheating fuse Main fuse



A1 A2 A4 A3



Relays

Reference	Function
A1 - A4	Module CAN I/O
K0	Preheating
K01	Preheating indicator
K1	Moistening pump
K2	High pressure pump
K3	Front lift down
K4	Attachment: A3 module
K5	Double effect function
K6	Attachment: A2 module
K7	Service (Emergency front lift)
K19	Work mode
K21	Anti start up
K30	Main relay
K32	Air conditioning
K33	Condenser air-conditioning: ventilator
K34	Air conditioning compressor
KT59	OPS timer
F4	Preheating / Main relay
F5	Supply before ignition switch

Reference	Function
X0	Diodes D28, D31, D39, D40
Y0	Diodes D33, D34, D37, D38

F4	F5
K30	
K0	
K19	

K1	K3	K32	K01	K5
K2	K4	K33	K21	K34
KT59	X0	Y0		K6
				K7

4

Relays location

1.12 Driver's seat



Attention!

Adjust the seat to suit the driver before starting the vehicle.



Fore/aft adjustment

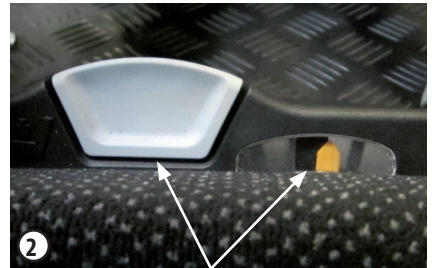
Release this by lifting the locking lever (1) then move the seat.

Weight

Adjust when the driver is sitting on the seat by pulling or pressing the lever (2).

The seat is set correctly when the arrow is in the middle clear area of the viewing window. (Pictures 1 + 2)

Do not operate the lever for more than one minute in order to avoid compressor damage.



Weight adjustment

Armrest

The armrest can be folded up.

Change the angle of the armrest by turning the adjustment knob (3).

Backrest adjustment

Move the locking lever (4) upwards and adjust the backrest angle.

When you have finished adjusting the backrest, the locking lever must latch into the desired position.



Lumbar support

Adjust the curvature of the backrest cushion by turning the adjustment knob. (5) (Picture 3)

0 = No curvature

1 = Maximum curvature at the top

2 = Maximum curvature at the bottom



Steering column

Release the handle (6) to adjust the position of the steering column. (Picture 4)

General information

1.13 Cab heating/air conditioning

Cab heating

To switch on the cab heating, adjust the lever located behind the passenger's seat. (Picture 1)

Adjust the ventilation on the front instrument panel. (Picture 2)

Air conditioning

To cool down the cab, switch on the air conditioning and adjust the ventilation on the front instrument panel. (Picture 2)

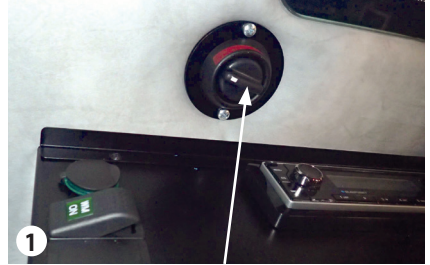
To adjust the cab temperature, turn the knob located behind the passenger seat. (Picture 1)

NB: The air conditioning unit and the cab filter must be checked/cleaned once a year.

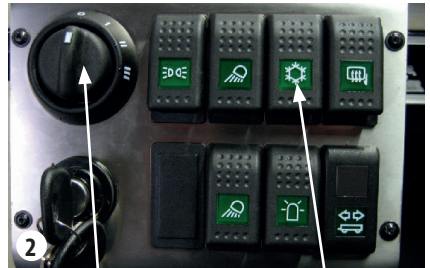
Cab ventilation

The nozzles performing the ventilation are located at different places in the cab (under the passenger's seat, at the lower part of the windscreen and steering column). (Picture 3)

NB: To speed up the demisting of the windscreen, ensure that the three nozzles located under the driver's seat are closed fully and switch on the air conditioning.

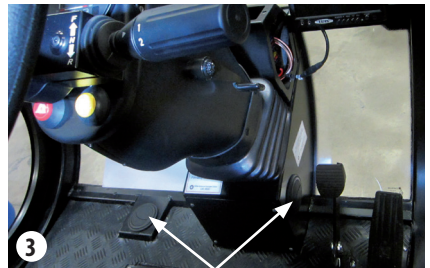


Temperature adjustment

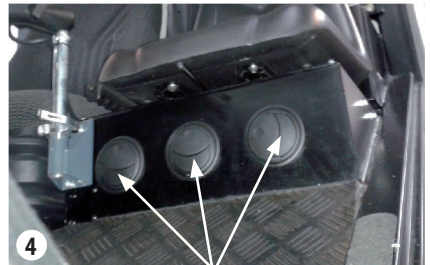


Ventilation adjustment

Air conditioning



Nozzles



Nozzles

1.14 Trailer

When City Ranger 3500 is equipped with the approved coupling "THULE/BRINK 530097, class A50-X approval no. e11 00-5950," the following trailers can be connected:

Trailers without brakes	max. 750 kg
Trailers with overrun brakes	max. 1800 kg
Vertical load on trailer coupling	max.100 kg



Remark!

There is no brake assist system (brake line connection) for trailers on City Ranger 3500.

Do not connect trailers with a brake assist system to City Ranger 3500.

Connecting trailers

Coupling: connect the trailer to the coupling and make sure that the connection lock is activated. Lift the support wheel on the trailer.

NB: If the trailer is fitted with brakes, remember to attach the security wire on the trailer to the coupling.

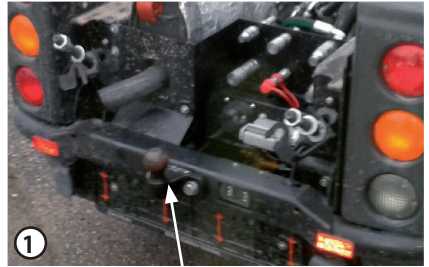
Light: to connect the light on the trailer, insert the cable plug from the trailer into the connector on City Ranger 3500. Check its function. (Picture 2)

Hydraulics: if the trailer has a hydraulic tipping function, connect the hydraulic hose to the snap coupling at the rear. (Picture 3)

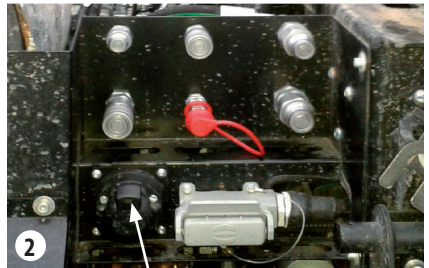


Warning!

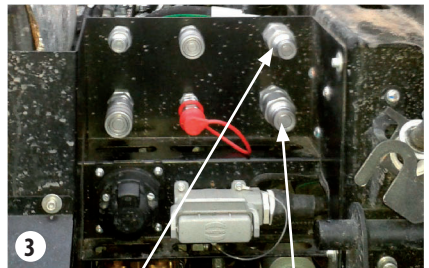
Make sure that no one is standing between the machine and the trailer or near the working area.



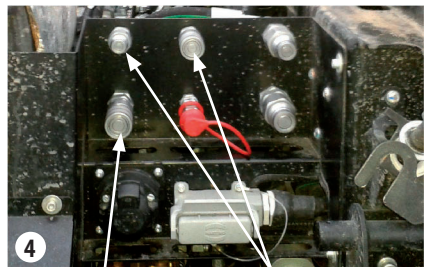
Trailer coupling



Electrical connection of the trailer



Pressure 130 bar Return



Drain Tipping function
180 bar

General information

1.15 Towing

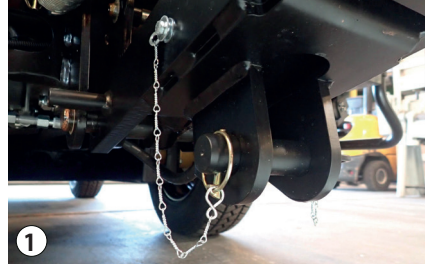


Warning!

Since the City Ranger 3500 is a vehicle with a hydrostatic transmission, it must not be towed further than a few metres.

Towing

1. Switch off the engine.
2. Attach the tow line to the pull hook on the side of the machine. (Picture 1)
3. Tow the machine only a few metres, just enough to move it out of traffic.



Pull hook

2.1 Fitting an attachment

Connecting and removing attachments

The engine must always be turned off before the attachment is connected/disconnected.

The couplings and the area around the couplings must be kept clean to avoid an accumulation of dirt.

Fitting a front attachment

To fit or remove a front attachment, refer to the operator's manual for this attachment. (Picture 1)

Make sure that the multifunction joystick matches to the attachment fitted on the vehicle.



Attention!

With a heavy attachment at the front of the City Ranger 3500 (eg: third brush, mower, snow sweeper), always drive carefully and take into account that there is a loss of grip on the rear wheels.

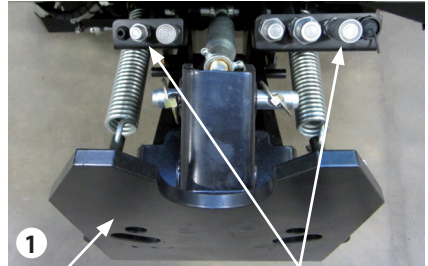
When the electrical connector is not connected, plug in the protection cover. (Picture 2)

Fitting a rear attachment

To attach or remove a rear attachment, refer to the operator's manual for the attachment. (Pictures 3 + 4)

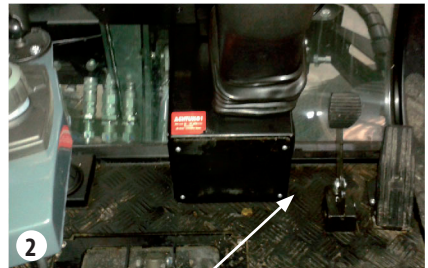
Make sure that the control panel matches the attachments installed on the vehicle.

When the electrical connector is not connected, plug in the protection cover. (Picture 4)



Front coupling

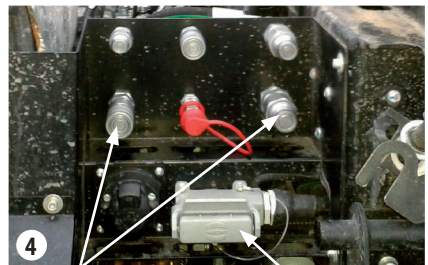
Hydraulic couplings



Protection cover



Rear safety bridle



Rear hydraulic couplings

Protection cover

2.2 Set up of the multifunction joystick

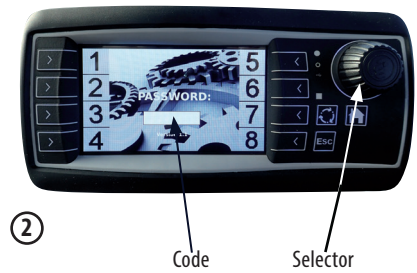
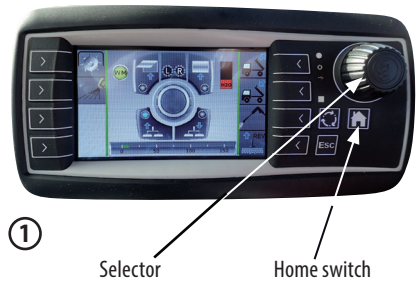
Never remove the multifunction joystick, it works with all attachments.

Pre-start checks:

When the attachment is fitted to the vehicle, choose the correct attachment on the multifunction joystick.

Choosing attachment on the Multifunction joystick:

1. Set on power by turning on the ignition key.
2. Wait about 15 sec. until the display is on. The display will start up in the attachment settings which have been selected last time.
3. Press home ("House" symbol). (Picture 1)
4. Enter the code (22333) with the relative switches on the left side of the display and confirm by pressing "Enter" on the selector. (Picture 2)
5. Press the change attachment switch (third button on the right side of the display indicated with a utility machine symbol). (Picture 3)
6. A warning message will turn up: "Wrong attachment menu can cause dangerous situations or damage the attachments". Confirm by pressing "Enter" on the selector. (Picture 4)



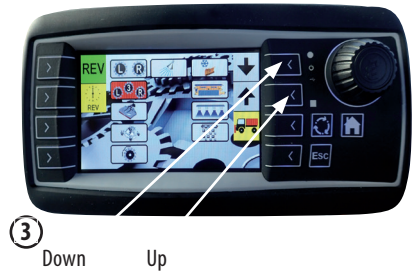
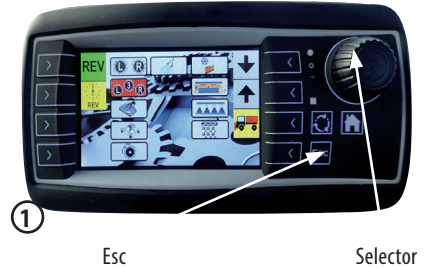
7. Choose the proper attachment by turning the attachment selector and confirm the choice by pressing "Esc". (Picture 1)
8. The multifunction joystick is now ready to work with the chosen attachment.



Attention!

The working mode indicator "WM" must be green. If it is red, switch ON the working mode on the panel behind the passenger seat. (Picture 2).

9. When the display is in the view shown in picture 1 (selection of attachment), there is an extra function that is usefull when fitting an attachment in the front. The front coupling frame can be lifted and lowered by using the "up" and "down" buttons. (Picture 3)



2.3 Daily checks before start-up

Walk around the vehicle and check:

- The state of the tires and rims as the wheels are very exposed to jolts (pavements, edges, ...)
- The tyre pressure (see section 1.3)
- The state of your attachments
- The ground under the vehicle in order to detect potential leaks (diesel, oil, water ...)
- The brake efficiency: make one sequence of five abrupt brakings everyday for brake maintenance.

In case of a leak, please find where it is located and contact your after-sales service

- Check the engine oil level (see section 3.2)
- Check the coolant level (see section 3.4)
- Check the hydraulic oil level (see section 3.3)
- Check the air filter clogging indicator (see section 3.9) (Picture 1)
- Check the clogging indicator on the hydraulic oil filter (see section 3.9) (Picture 2)
- Check the lighting



Air filter clogging indicator



Clogging indicator on the hydraulic oil filter

2.4 Cleaning and checking after each use

- Clean the filler water filter
- Clean the inlet filter
- Clean the radiator
- Clean the air filter
- Clean the condenser for the air conditioning unit (see section 3.9)

2.5 Fuel filling



Attention!

Always stop the engine before refuelling. Carry out the refuelling outside or in a well-ventilated area. Avoid flames and sources of ignition. Diesel oil is highly flammable.

Fuel

Use ONLY diesel oil that meets the following specifications:

Cetane number	45 minimum
Viscosity	min. 2.0 / max. 4.5 cSt at 40°C (104°F)
Density	0.835/0.855 kg/liter
Sulphur	0.2% of mass, max.
Distillation	85% at 350°C (662°F)

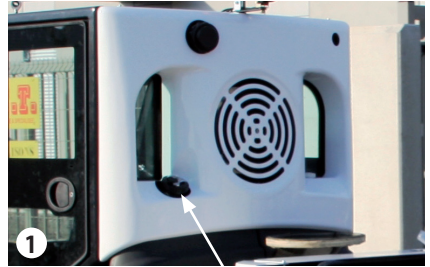
Important when refuelling!

- Keep the area free from dirt when filling
- Do not overfill your fuel tank
- Do not spill diesel oil
- Do not smoke

When the engine is on, check the fuel level on the fuel gauge on the multifunctional instrument panel (see section 1.4).

The engine must never run dry of diesel oil as this allows air to enter the fuel system.

The fuel tank cap is located behind the cab, on the left hand side. (Picture 1)

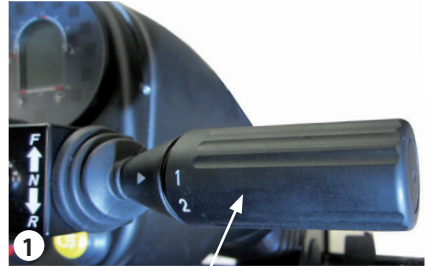


Fuel tank cap

2.6 Start, drive and stop

Rules to follow while driving

- Any person using the vehicle must be sufficiently trained for using and handling the City Ranger 3500.
- Do not drive on a gradient steeper than 15%. Always drive carefully
- Do not forget that the City Ranger 3500 is a relatively high and narrow vehicle. Turning should therefore be done at a low speed.
- Do not let the engine work in a closed area: there is a risk of asphyxiation.
- The braking distance of your vehicle increases when the road is wet and/or when your vehicle is loaded.
- Be aware of the steering sensitivity and reactivity.
- Never drive with an open door.
- If an alarm lamp is on or flashing when driving, please stop in a safe place and refer to this operator's manual (see section 1.5).



Right stalk switch in middle position



Ignition key

Before starting the engine, the following conditions must be met.

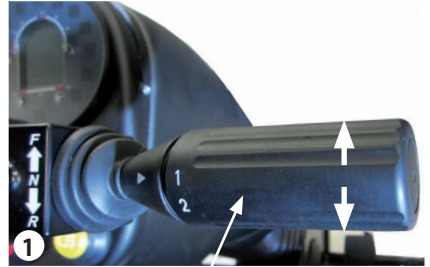
- The driver must sit on the seat.
- The parking brake must be tightened.

Starting the City Ranger 3500

- Put the right stalk switch in the middle position (if the stalk switch is engaged to move forward or backward, the vehicle cannot be started). (Picture 1)
- Select the gear 1 or 2 (optional). (Picture 1)
Perform the gear shifting only when the vehicle is stopped. The travelling speed can reach 19 km/h on gear 1 and 38 km/h on gear 2.
- Turn the ignition key (clockwise) until the preheater indicator and other indicators light up (see section 1.4). Once the pre-heater light goes out, the ignition key can be turned further to start the engine. (Picture 2)
- Check that no warning light is on.
- Release the parking brake.
-

Driving

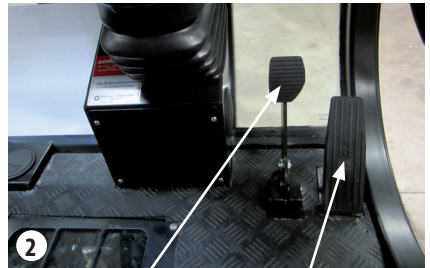
- Choose the position of the right stalk switch (Picture 1):
Forward - The machine drives forward
In middle position - Stop
Back - the machine drives backwards
Wait for it to come to a complete stop before reversing the drive direction.
- Press the drive pedal.



Right stalk switch

For braking, there are three possibilities:

- Slowly loosen the drive pedal (engine brake). It is a hydraulic brake that directly acts on the wheel motors.
- Press on the brake pedal. In this case an assisted brake system acts on the two front wheels.
- If, for any reason, the brakes do not respond, you can use the parking brake that directly acts on the front wheels as an emergency brake.



Brake pedal

Drive pedal



Warning!

To protect the hydraulic system, it is important that the machine reaches the operating temperature.



Warning!

Turn the steering wheel carefully. The City Ranger 3500 is articulated – it turns sharply and immediately.

Deliberate start

- Some functions of the attachments can be started when the driver is outside the cab. For instance suction by wander hoses.
- Stop the vehicle and activate the parking brake.
- Let the engine run.
- The driver can now open the door and leave the seat.
- After 4 sec. a warning will be displayed on the display. (Picture 1).
- To start the "Deliberated start" mode, press the "WM" button on the display. (Picture 1).
- The normal working mode screen will turn up again on the display and the functions can now be started by the driver standing outside the cab.
- The "Deliberate start" mode will automatic be switched off when the driver sits on the seat again.



①

WM

Warning



②

Hand gas lever

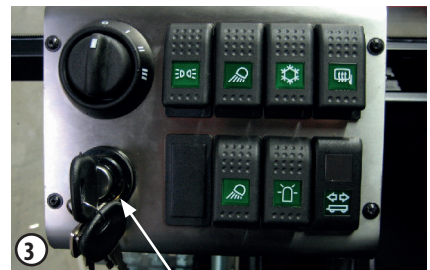


Warning!

Observe substantial caution when using attachments in "Deliberate start" mode.

Turning off the City Ranger 3500

- Put the right-hand stalk switch in the middle position.
- Lower the hand gas lever to reduce the engine speed. (Picture 2)
- Operate the parking brake.
- Turn off the City Ranger 3500 by turning the key back to the key-release position (counterclockwise). (Picture 3)



③

Ignition key



Attention!

Use the parking brake for each stop. You should even use it on flat ground.

2.7 High-pressure cleaner

The City Ranger 3500 is equipped with a high-pressure cleaner (optional) powered by the water tanks which are integrated into the vehicle.

To operate, it is compulsory to plug in the gun to the suitable hydraulic connector (rear part of the vehicle) before activating the water circuit. (Picture 1).

To be able to activate the high-pressure cleaner, select one of the following attachments on the multifunction joystick:

- Suction sweeper with two brushes
- Suction sweeper with three brushes
- Street scrubber drier (SSD)

(Picture 2)

For attachment selection, see section 2.2

On these screens, the switch for activating the high-pressure cleaner will appear. (Picture 3)

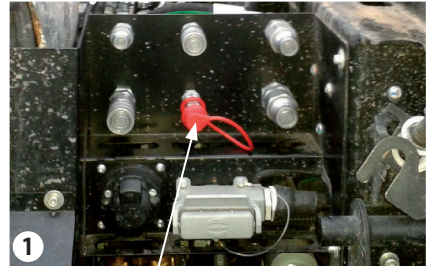
There is a water level indicator "H2O" on the display.

Green	=	Full
Yellow	=	½-full
Red	=	Almost empty



Attention!

When the water level indicator is in red status the high pressure cleaner does not start or it stops working.



Hydraulic connector



Sweeper with 2 brushes Sweeper with 3 brushes
Street scrubber drier



Water level indicator High-pressure cleaner switch

2.8 Protecting the water circuit against ice

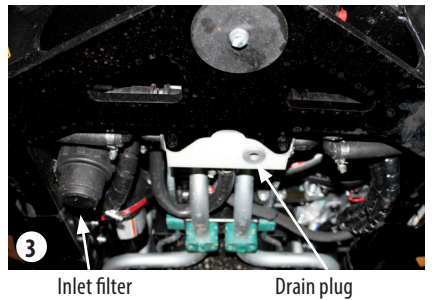
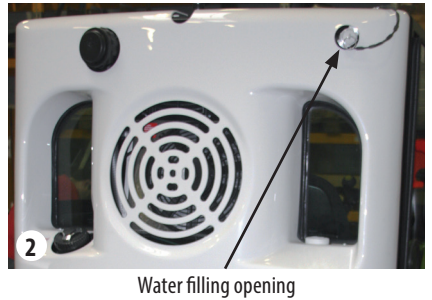
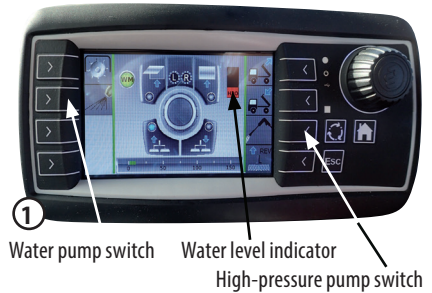
In order to avoid any damage that could be caused by frost, it is necessary to empty water tanks, pumps and hoses when winter is coming.

1. Only allow a minimal amount of water to remain in the tanks. (The yellow signal lamp of the water level gauge is on). (Picture 1)

2. Using the water filling opening, add an anti-freeze solution in sufficient quantity to the water circuit to protect it against ice. (Picture 2)

3. Turn on the water pump and the high-pressure pump (if the option is available) in order to make the anti-freeze solution circulate through the hoses and the pumps. (Picture 1)

4. Unscrew the drain plug or the inlet filter, to drain the tanks and the hoses. (Picture 3)

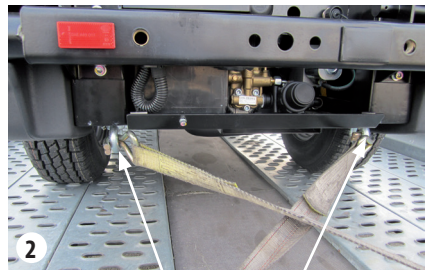


2.9 Transporting the City Ranger 3500

To transport the vehicle, cross the restraint straps and attach them to the four transport securing rings of the vehicle. (Pictures 1 + 2 + 3 + 4)



Transporting the City Ranger 3500



Rear transport securing rings



Anchoring at the front



Front transport securing rings

Service and maintenance

3.1 City Ranger 3500 service and maintenance chart

We recommend that service and maintenance procedures are carried out by authorised Nilfisk dealers.

◆ Clean ■ Lubricate ○ Check ● Replace

Operation	Service schedule									
	Daily	50 h	250 h	500 h	1000 h	1500 h	2000 h	3000 h	yearly	See §
Air filter	○			●	●	●	●	●		3.9
Engine oil (2)	○			●	●	●	●	●	●	3.2
Fuel filter				●	●	●	●	●		3.9
Alternator, fan and water pump belt			○	○	●	○	●	○		3.10
Coolant	○							●		3.4
Cooling system additive (1)				○	○	○	○	○	○	
Engine oil filter				●	●	●	●	●		3.9
Hoses and collars				○	○	○	○	○		
Radiator	◆									
Engine valve clearance					○		○	○		
Alternator							○			
Engine housing breather							●			
Engine anchor points							○			
Starter							○			
Injector								○		
Water pump								○		
Brake fluid (3)		○	○	○	○	○	○	●		3.5
Hydraulic hoses		○	○	○	○	○	○			
Hydraulic oil filter	○	●				●		●		3.9
Hydraulic oil (4)	○					●		●		3.3
Spring blade axle		■	■	■	■	■	■	■		3.8
Articulated chassis pivot		■	■	■	■	■	■	■		3.8
Steering cylinder ball joint		■	■	■	■	■	■	■		3.8
Door hinge		■	■	■	■	■	■	■		3.8
Front lifting cylinder		■	■	■	■	■	■	■		3.8
Suction nozzle wheels		■	■	■	■	■	■	■		3.8
Filler water filter	◆				●		●	●		3.9
Inlet filter	◆				●		●	●		3.9
HP cleaner pump oil							●			
Air conditioning belt			○	○	○	○	○	○		3.10
Air conditioning condenser	◆									3.9
Pollen filter				●	●	●	●	●		3.9
Air conditioning gas pressure									○	
Drying filter									●	
Lighting	○									
Drum brakes / lining (5)				◆○	◆○	◆○	◆○	◆○	◆	
Wheel bolts tightening		○	○	○	○	○	○	○		
Tyre condition and pressure	○									1.3
Door adjustment				○		○		○		

(1) Check glycol level every 500 hours and before winter.

(2) Replace the engine oil every 500 hours and at least once a year.

(3) Replace the brake fluid every 3000 hours and at least once every two years.

(4) Replace the hydraulic oil every 1500 hours.

(5) Clean the drum brakes / trim every 500 hours and at least once a year.

3.2 Engine oil

Only use commercial oils that meet the following classifications:

- EMA DHD-1 multigrade oil (preferred oil)
- API CH-4 multigrade oil (preferred oil)
- ACEA E5

NB! Lubricating oil viscosity must be suitable for the ambient temperature range for the climate in which the machine is to operate. (Picture 1)



Attention!

Always switch off the engine when checking the oil and when changing the oil and the oil filter.

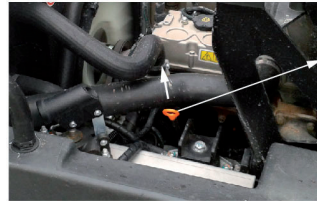
Engine oil check

1. Park the City Ranger 3500 on a level surface.
2. Wait for at least 10 minutes after stopping the engine in order to allow the engine oil to return to the oil tank.
3. Take the dipstick out, dry and put back. (Picture 2)
4. Take the dipstick out again to read the oil level. The oil level must be between MAX. and MIN. on the dipstick. (Picture 2)
5. In case of lack of oil, remove the filler cap on the engine. Add oil, wait a few minutes and check the level again. (Picture 3)

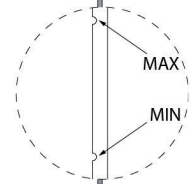
	Minimum	Maximum
SAE 0W20	-40 °C (-40 °F)	10 °C (50 °F)
SAE 0W30	-40 °C (-40 °F)	30 °C (86 °F)
SAE 0W40	-40 °C (-40 °F)	40 °C (104 °F)
SAE 5W30	-30 °C (-22 °F)	30 °C (86 °F)
SAE 5W40	-30 °C (-22 °F)	40 °C (104 °F)
SAE 10W30	-20 °C (-4 °F)	40 °C (104 °F)
SAE 15W40	-10 °C (14 °F)	50 °C (122 °F)

①

Viscosity according to temperature



On the left side of the vehicle in driving direction



②

Dipstick - MIN-MAX Level



Engine oil filler cap

Service and maintenance

Change of engine oil and oil filter

NB: Drain the crankcase with warm oil.



Attention!

Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components into contact with your skin.

1. Park the City Ranger 3500 on a level surface.
2. Open the filler cap. (Picture 1)
3. Remove the oil drain plug in order to allow the oil to drain in a drain pan. (Picture 2)
4. After drainage, clean the oil drain plug and put it back with a new gasket.
5. Remove the oil filter with a suitable tool.
6. Clean the sealing surface on the cylinder block.
7. Apply clean engine oil to the new oil filter seal and then install a new oil filter and tighten it by hand. (Picture 2)
8. Fill with new motor oil (approx. 9 litres) until the level reaches the MAX on the dipstick, without exceeding it and close the filler cap. (Picture 3)

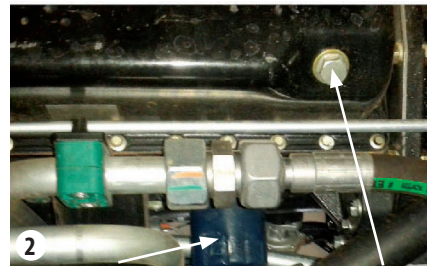


Attention!

Never exceed the maxi. on the dipstick, it could damage your engine.



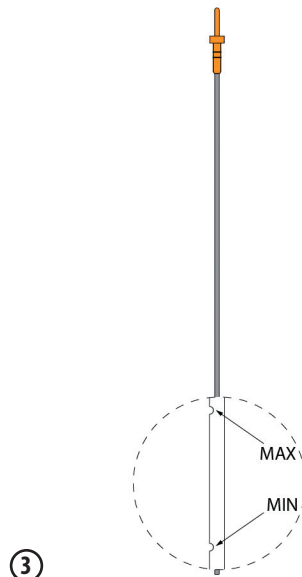
Engine oil filler cap



Engine oil filter

Oil drain plug

Bottom view



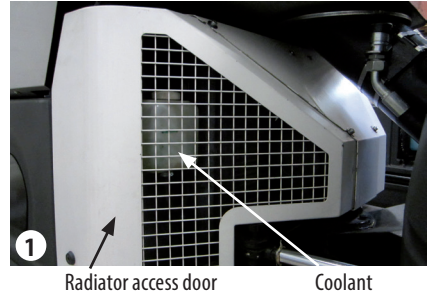
3

Dipstick - On the left side of the engine

3.3 Hydraulic oil

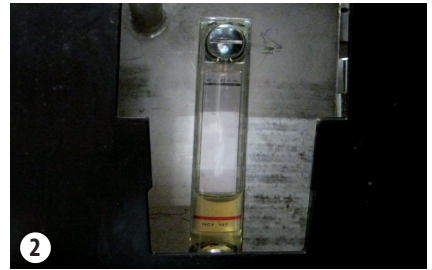
Checking the hydraulic oil level

1. Turn the vehicle towards the left, stop the vehicle then open the radiator screen. (Picture 1)
2. Remove the coolant tank to see the gauge. (Picture 1)
3. The hydraulic oil level should be between the black and the red lines. (Picture 2)
4. If necessary, fill the hydraulic oil tank by connecting a pump to the connector located at the rear of the vehicle. (Picture 4)



Radiator access door

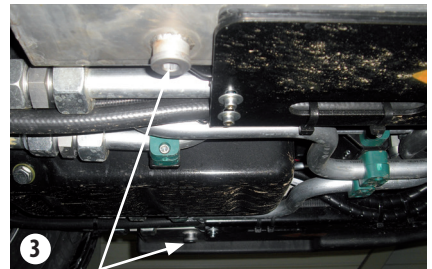
Coolant



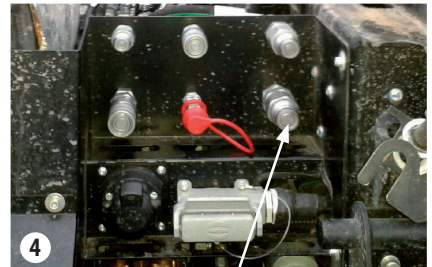
Hydraulic oil level

Change of hydraulic oil

1. Park the City Ranger 3500 on a level surface.
2. Remove the oil drain plugs in order to allow the oil to drain in a drain pan. (Picture 3)
3. After drainage, clean the oil drain plugs and put them back with new gasket.
4. To refill, connect a pump to the return coupler at the rear of the vehicle. (Picture 4)



Hydraulic oil drain plugs



Return coupler



Attention!

No other refill method is permitted since the hydraulic oil must pass through the vehicle filter to prevent any contamination of the hydraulic system.

Service and maintenance

3.4 Coolant

Recommended coolants

The following two coolants can be used:

- Preferred: Perkins Extended Life Coolant (ELC)
- Acceptable: a commercial heavy-duty coolant that meets "ASTM D4985" specifications.



Attention!

Always switch the engine off before topping-up with coolant.

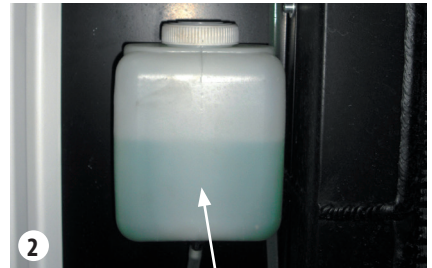


Attention!

Never remove the cover when the motor is hot as hot water can escape and cause serious burns. Wait for at least ten minutes after the motor has been switched off and then remove the cooler cover.



Radiator screen



Coolant tank

Checking the coolant level

1. The coolant tank is located on the front of the engine body, behind the radiator screen. (Picture 1)
2. Check that the level of the coolant is in the middle of the tank (cold vehicle). (Picture 2)
3. To adjust the level, turn the vehicle towards the left, open the radiator screen, unscrew the cap and fill up the coolant tank.

Purging the cooling system

1. Turn the vehicle towards the left, stop the vehicle then open the radiator screen. (Picture 1)
2. Half fill the coolant tank. (Picture 2)

3. Remove the radiator cap and completely fill the radiator with coolant: the liquid must overflow from the radiator. (Picture 1)

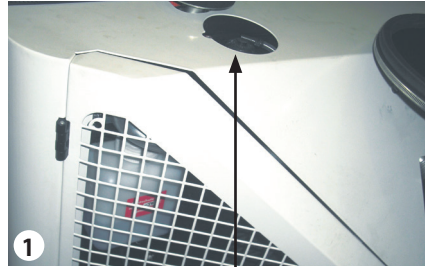
4. Put back the radiator cap.

5. Rotate the heater knob to maximum heat. (Picture 2)

6. Start the engine and leave it idling, then increase the engine speed to maximum for $\frac{1}{4}$ hour. The level is adjusted automatically.

7. When the liquid has cooled, check that the hose from the coolant tank is full. (Picture 3)

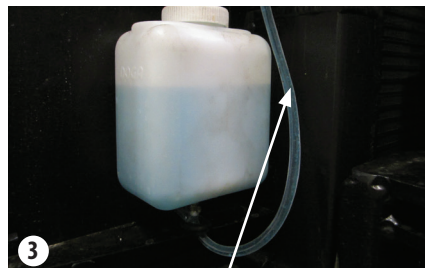
8. Top up the coolant tank to half way if necessary.



Radiator cap



Heater knob



The hose must be full

Service and maintenance

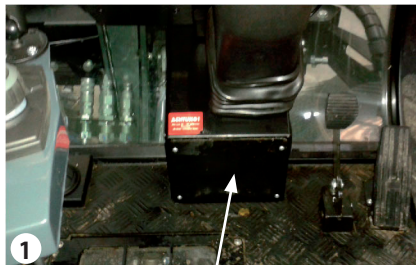
3.5 Brake fluid

Brake fluid used

Type of brake fluid to use: DOT 5.

Checking the level

1. Unscrew the four bolts and remove the cover at the bottom of the steering column. (Picture 1)
2. Check that the brake fluid tank is filled to 3/4. (Picture 2)
3. To adjust the level, unscrew the cap and add brake fluid.



Cover to remove



Brake fluid tank

3.6 Windscreen washer liquid

During winter, check that the windscreen washer liquid has frost protection properties.

1. The windscreen washer tank is behind the cab, on the right of the vehicle.
2. To add windscreen washer liquid, unscrew the cap. (Picture 3)



Windscreen washer liquid cap

3.7 High-pressure cleaner pump oil

Change the high-pressure cleaner pump oil after every 500 hours' use of the high-pressure cleaner.

Recommended oil

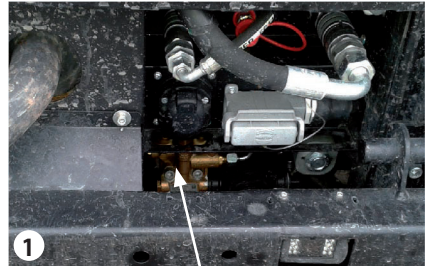
- for 110 bar pump: AGIP ROTA (SAE 75W -90) 0.135kg
- for 90 bar pump: INTERPUMP X-9.9. oil (SAE 20W-30W) (quantity: 0.33 l).

Checking the level

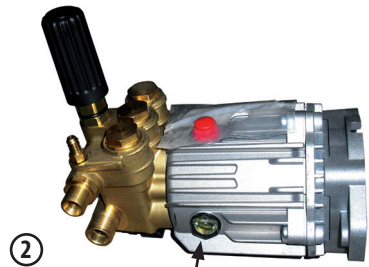
Always be above the minimum oil level.
(Pictures 1 + 2 + 3)

Change of high-pressure pump oil

1. Remove the filler cap (red cap located above the pump) and then the drain plug (located under the pump) in order to allow the oil to drain in a drain pan.
- 2 After drainage, clean and put back the drain plug.
3. Fill the tank through the top of the pump and put back the red filler cap. (Pictures 2 + 3)



High-pressure cleaner pump



Oil level of the pump 110 bar



Oil level of the pump 90 bar

Service and maintenance

3.8 Lubricating

Comply with the lubrication intervals of the various organs.

Lubricant: high performance grease, K2C30 DIN 51825.

Spring blade

Spring blade axle of front right wheel. (Picture 1)

Spring blade axle of rear right wheel. (Picture 2)

Spring blade axle of front left wheel. (Picture 3)

Spring blade axle of rear left wheel. (Picture 4)

Articulated chassis pivot

Two grease nipples for the articulated chassis pivot. (Picture 5)

Steering cylinder ball joint

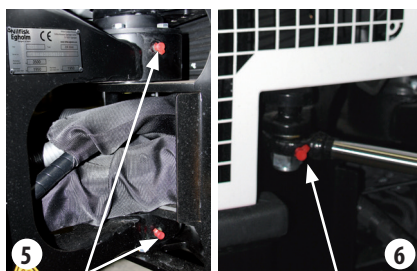
Two grease nipples for the steering cylinder ball joint. (Pictures 6 + 7)



Grease nipples of right wheels



Grease nipples of left wheels



Pivot grease nipples

Cylinder grease nipple



Cylinder grease nipple (access under the vehicle)

Door hinges

Grease nipples of right door hinges. (Picture 1)

Grease nipples of left door hinges. (Picture 2)

Suction nozzle wheels

Grease nipple of right wheel. (Picture 3)

Grease nipple of left wheel. (Picture 4)



①

Grease nipples of right door hinges



②

Grease nipples of left door hinges



③

Grease nipple of right wheel



④

Grease nipple of left wheel

Service and maintenance

Front lifting cylinder

Grease nipple of the front lifting cylinder. (Picture 1)

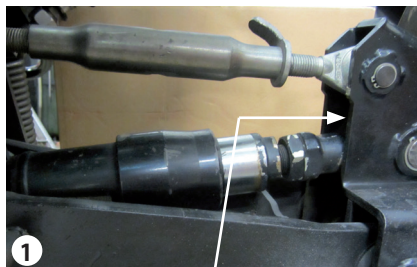
Electrical connectors of front and rear attachments

1. Unplug the electrical connector of the attachment (or remove the connector cover). (Pictures 2 + 3)

2. Degrease and dust the connector with an electrical contact cleaner.

3. Lubricate the connector with grease for electrical contacts.

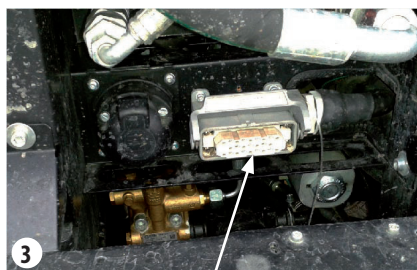
4. Plug in the electrical connector of the attachment (or put back the connector cover).



Grease nipple of the front lifting cylinder



Electrical connector of the front attachment

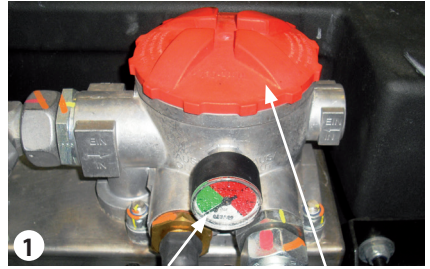


Electrical connector of the rear attachment

3.9 Filters

Hydraulic oil filter

1. Check the clogging indicator of the hydraulic oil filter. (Picture 1)
2. If the clogging indicator is in the red zone, open the cap with a wrench, change the hydraulic oil filter and put back the cap. (Picture 1)



1 Clogging indicator Cap

Filler water filter

1. Remove the filter cover. (Picture 2)
2. Clean the screen (blue part) and put it back. (Picture 3)



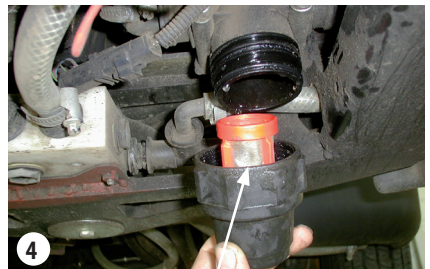
2 Filler water filter

Inlet filter

1. Remove the filter cover. (Picture 4)
2. Clean the screen (red part) and put it back.



3 Filler water filter screen



4 Inlet filter screen

Service and maintenance

Inlet filter of the HP cleaner pump

1. Remove the filter cover. (Pictures 1 + 2)
2. Clean the screen and put it back.

Engine air filter



Attention!

Never remove the air filter while the engine is running.

1. Checking the air filter clogging indicator: (Picture 3)
Turn the vehicle towards the right, stop the vehicle and then open the left radiator screen.
The air filter element must be cleaned or replaced when one of the following situations arises:

- The yellow membrane is in the red area.
- The red piston is locked in the visible position.

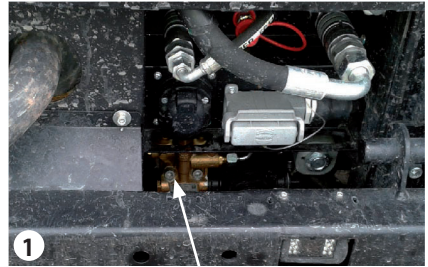
2. Cleaning the engine air filter

Turn the vehicle towards the left, stop the vehicle and then open the radiator screen.

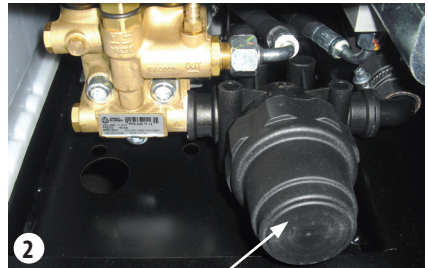
Remove the air filter cover and check the condition of the air filter. (Pictures 4 + 5)

If the air filter is dirty:

- Remove the primary air cleaner element.
- Clean the inside of the air cleaner cover and body with a clean, dry cloth.
- Clean the primary air cleaner element using a vacuum cleaner or low pressure compressed air (pressure < 207kPa 30psi). The secondary air cleaner element is not serviceable or washable. It should be changed for every three cleanings of the primary air cleaner element. If the primary air cleaner element is damaged, change both elements.
- Put back the primary air cleaner element that is new or cleaned.
- Install the air cleaner cover.
- Reset the air filter clogging indicator: press the rubber bottom. (Picture 3)



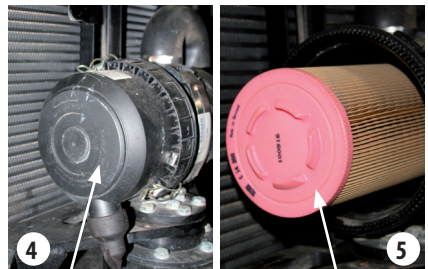
HP cleaner pump



Water filter of the HP cleaner pump



Air filter clogging indicator



Cover

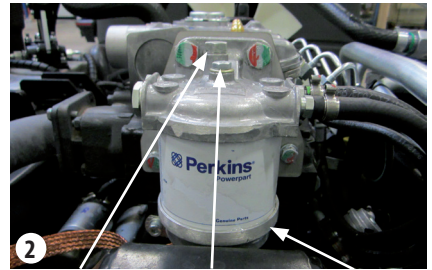
Primary air cleaner element

Fuel filter

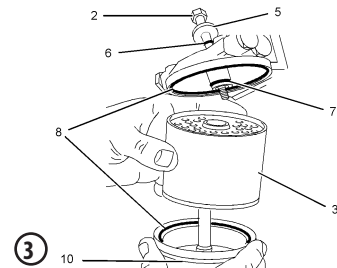
1. Stop the vehicle.
2. Hold the fuel filter bowl and remove the bolt.
(Pictures 1 + 2)
3. Pour the fuel into a container and remove the fuel filter.
4. Check that the seals (8) and (7) are in place. (Picture 3)
5. On the bowl (10), put back the fuel filter (3) and the cover. (Picture 3)
6. Check the presence of the washer (5) and seal (6) on the setscrew (2). (Picture 3)
7. Mount this assembly on the fuel filter base with the setscrew (2). (Picture 3)
8. Priming the system (Pictures 2 + 4):
 - Loosen the vent screw on the fuel filter.
 - Operate the hand priming pump (the priming pump is located under the fuel tank).
 - When fuel free from air flows from the vent screw tighten the vent screw.



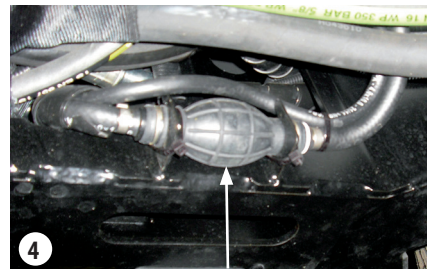
Fuel filter



Vent screw Bolt Bowl



Fuel filter replacement



Hand priming pump

Service and maintenance

Radiator

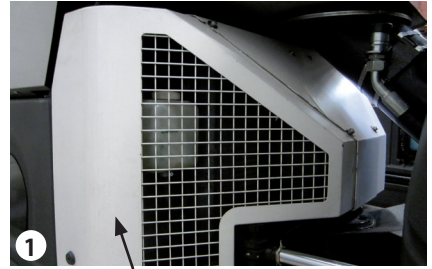
1. Turn the vehicle towards the left, stop the vehicle and then open the radiator screen. (Picture 1)

2. Clean the radiator using a high-pressure cleaner or an air compressor gun: take care to clean the full height. (Picture 2)



Attention!

With the high-pressure cleaner, keep a safe distance and use moderate pressure to prevent damage the radiator.



Radiator screen



Radiator

Air conditioning condenser

To ensure the smooth operation of the condenser, regularly clean the air conditioning condenser with an air compressor gun or a high-pressure cleaner used with moderate pressure. (Picture 3)



Attention!

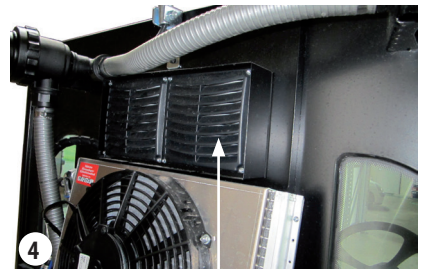
With the high-pressure cleaner, keep a safe distance and use moderate pressure to prevent damage the condenser.



Air conditioning condenser

Pollen filter

Replace the pollen filter every 500 hours. (Picture 4)



Pollen filter

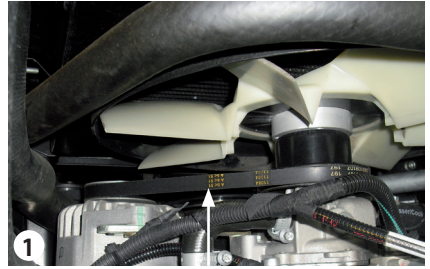
3.10 Checking belts

Alternator, fan and water pump belt

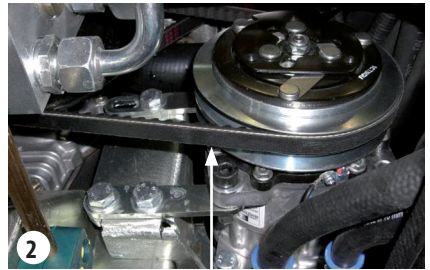
Check the belt for wear and tear. (Picture 1)

Air conditioning belt

Check the belt for wear and tear, also check that it is properly tensioned. (Picture 2)



Alternator belt



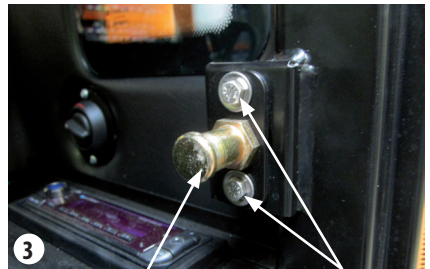
Air conditioning belt

3.11 Door adjustment

1. Check that the screws of the lock bolt are tightened. (Picture 3)

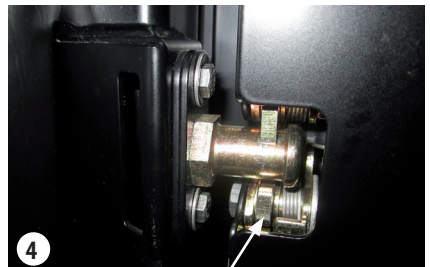
2. Check by closing the door that the lock bolt is correctly positioned in the door lock. (Picture 4)

3. Check that the door is properly closed and that the door gasket is compressed.



Lock bolt

Screws



Door lock

Service and maintenance

3.12 Changing a wheel



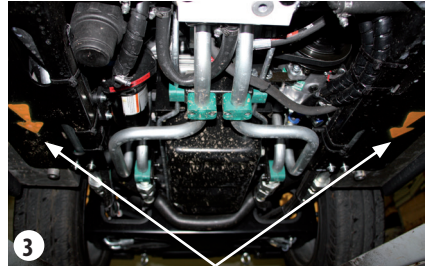
Attention!

Operate on level and stable ground. The engine must be stopped and the parking brake activated.

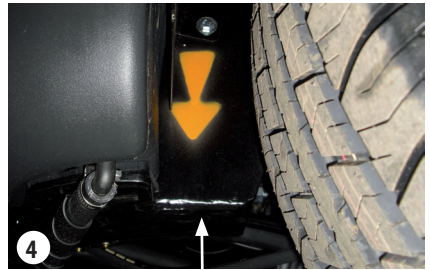
To carry out this operation, you require a jack able to support two tonnes and a spare wheel with a new tyre.

1. Chock the wheel opposite to the wheel to be lifted.
2. Place the jack under the axle closest to the wheel to be changed, in contact with the axle body (point opposite to the arrow). (Pictures 1+ 2)
3. Once the jack is well positioned, loosen the wheel bolts.
4. Raise the jack until the wheel is a few centimeters above the ground. Watch out the vehicle stability when raising.
5. Unscrew and change the wheel. Screw the bolts but do not tighten.
7. Lower the jack and then tighten the wheel bolts to torque 120 Nm.

After 20 hours of use, tighten the wheel bolts.



Jack position at the rear



Jack position at the front

3.13 In case of failure

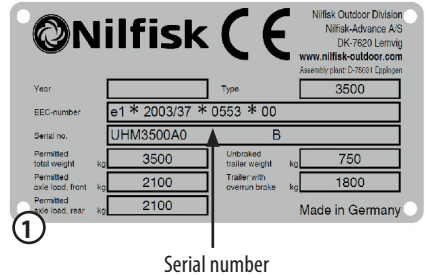


Attention!

Since the City Ranger 3500 is a vehicle with a hydrostatic transmission, it must not be towed further than a few metres, enough to move it out of traffic.

When working on the vehicle, stop the engine, remove the ignition key and pull the parking brake. It is also advisable to chock the wheels.

Call your after-sales service and provide the serial number of your City Ranger 3500. You can read it on the information plate of your vehicle. (Picture 1)



Service and maintenance

3.14 Access to the backup pump

The backup pump enables to empty the hopper or the tipper when you cannot empty it using the control panel



Attention!

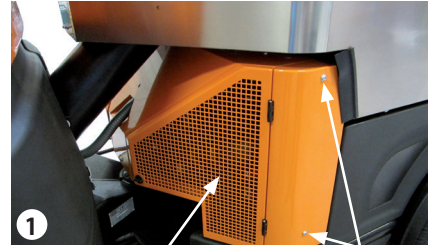
Before lifting the hopper / tipper, align the cab and the rear of the vehicle.

1. Unlock the left door of the radiator, using the Allen key supplied with the vehicle, unscrew the two bolts and then remove the left door of the radiator. (Picture 1)
2. Take the operating lever of the pump. (Picture 2)
3. Unscrew the two bolts and remove the pump access cover. (Picture 3)



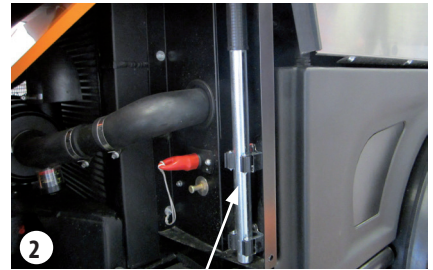
Attention!

The access to the backup pump is only done through the opening left by the pump access cover. Never put your hands between the hopper / tipper and the City Ranger 3500. (Picture 4)

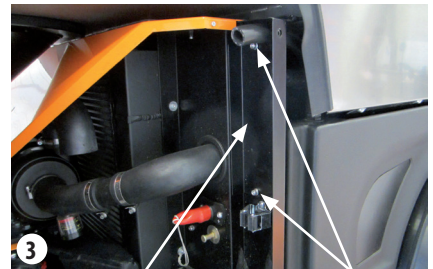


Left door of the radiator

Bolts

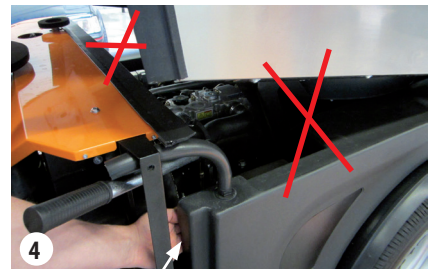


Operating lever of the pump



Pump access cover

Bolts



Only access like this to the pump

4. Through the opening left by the pump access cover, move the handle of the backup pump in the direction of arrow A in order to be in emptying position. (Pictures 1 + 2 + 3)

5. Put the operating lever into the pump and actuate the operating lever to lift the hopper / tipper. (Picture 4)

6. Through the opening left by the pump access cover, move the handle of the backup pump in the direction of arrow B and operate the operating lever in order to lower the hopper / tipper. (Pictures 1 + 2 + 3 +4)

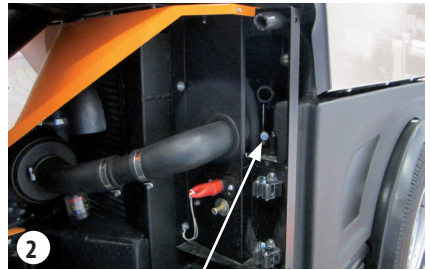
7. Move back the handle of the backup pump in standard position (middle position). (Picture 3)

8. Refit the pump access cover and then hook the operating lever of the pump.

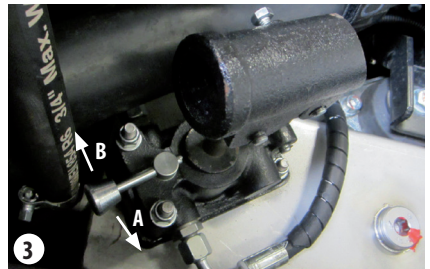
9. Refit the left door of the radiator.



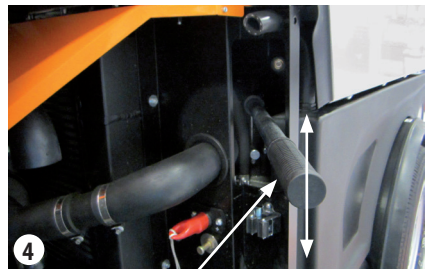
Access to the pump



Handle of the backup pump



Handle of the backup pump in standard position



Operating lever of the pump

4.1 Warranty

The warranty period for the materials and manufacture of this City Ranger 3500 is 12 months from the date of purchase.

In case of errors or defects on the machine within the warranty period, Nilfisk will carry out the necessary repairs without charge for materials and working hours in accordance with the terms and conditions listed below.

The scope of the warranty:

1. The Nilfisk Outdoor warranty is only valid on presentation of the original receipt, supplied with model description, serial number and date of purchase.
2. Regular checks, adjustments, services and technical alterations are not covered by the warranty.
3. All inquiries concerning the warranty are to be addressed to the distributor from whom the machine was purchased.
4. This warranty does not cover faults and defects which cannot be traced back to defects in material or production errors.
5. This warranty is valid for persons who have legally acquired the machine within the warranty period.
6. In the event of failure to perform and substantiate service in accordance with the applicable instructions, Nilfisk Outdoor Division reserves the right to reject any claim made within the warranty period.
7. Nilfisk Outdoor Division reserves the right to make improvements and design-related alterations to the machine without being obliged to modify previously delivered models in relation hereto.

The warranty does not cover:

- Wear and tear, accidents, damage to the equipment caused by operating errors, changes to the construction of the machine or use of non-Nilfisk Outdoor spare parts or implements.
- Machines with illegible serial numbers.
- Damage caused by force majeure such as lightning, flood, fire, war, civil disturbance, etc. or other causes over which Nilfisk Outdoor Division has no control.

4.2 Complaints

All inquiries regarding the machine should be made at the distributor from whom the machine was purchased. This applies to inquiries concerning normal use, service, maintenance and spare parts as well as any complaints.

We wish you many years of safe and satisfactory use of your machine.

Best regards
Nilfisk Outdoor Division, Nilfisk A/S

4.3 Disposal

When, many years from now, your City Ranger 3500 has reached the end of its working life, it should be disposed of in a responsible manner that conforms to relevant disposal regulations.

1. Used hydraulic oil, motor oil, diesel oil, coolant and AC coolant are to be delivered at an approved waste disposal facility or site.
2. Remove the plastic and rubber parts and dispose of them in accordance with the applicable environmental legislation.
3. After the parts mentioned have been removed, the machine is ready to be handed over to one of your local approved scrap merchants.

5.1 Service kits – City Ranger 3500



LOB21 Service kit 500h



LOB22 Service kit 1000h



LOB23 Service kit 1500h



LOB24 Service kit 2000h



LOB25 Service kit 3000h



LOB26 Annual Service Kit

5.2 Wearing parts – City Ranger 3500



L7051 Tire and wheel 195/75 R16



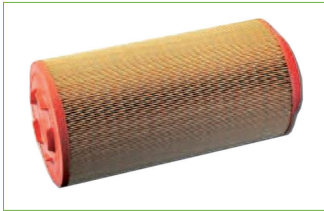
L7054 Tire and wheel 275/60 R15



W0V07VHU Engine oil filter



W0V07VCA Fuel filter



W0Q05VD Primary air cleaner element



W0Q05VE Secondary air cleaner element



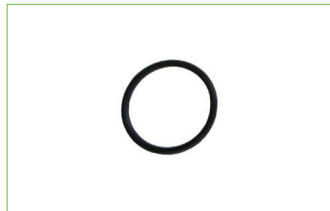
W0V07VJO Drain plug gasket



W0V07VCO Fan belt

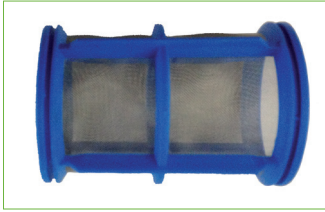


W0K04VC Inlet filter screen

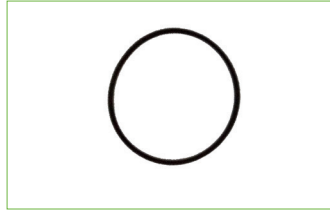


W0K04VD Inlet filter O-ring

5.2 Wearing parts – City Ranger 3500



WOK0GVC Filler water filter screen



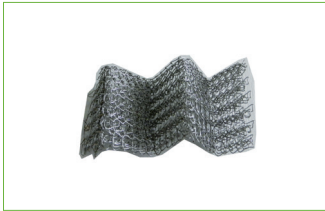
WOK0GVD Filler water filter O-ring



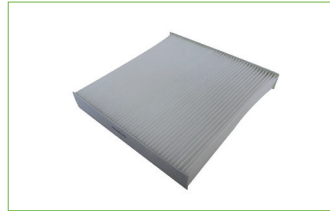
WOW0PVF Hydraulic oil filter element



W102M Drying filter



WOV07VRE Breather



WOD4X Cab filter



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