

**SCANIA**

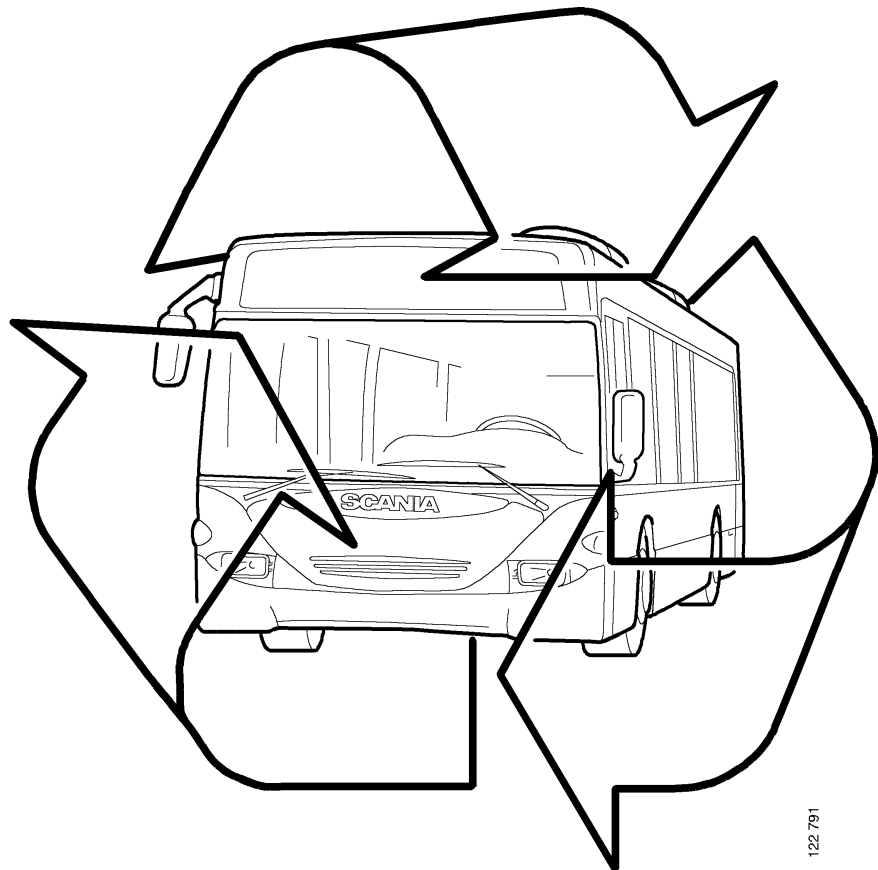
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Issue 1 en

# Dismantling information

## Bus

### FKN series



122 791

# Work description

## General information

This information is aimed at all people dealing with reconditioning and scrapping of Scania vehicles. The information applies to workshops as well as dismantling and recycling companies.

The information is applicable to all Scania models. However, not all parts are covered by this information booklet. The information is incomplete.

Drainage and removal describes how environmentally hazardous waste should be removed from the vehicle (pre-treatment).

The purpose of identification of materials is to facilitate identification and sorting of materials for recycling.

# Drainage and removal

## Fluids and materials that are harmful to the environment

The following list is a guide of lubricants, fluids and parts that are recovered from the bus during pre-treatment. The volumes are approximate.

**IMPORTANT!** Avoid spillage and use a collecting vessel when handling hazardous fluids.

<b>Engine:</b>	<b>Specification</b>	<b>Quantity</b>
9 litre engine	Oil	29-35 l
12 litre engine		22 l
13 litre engine		40 l
Oil filter	Oil	2 l
Fuel filter	Diesel/Ethanol	-
Compressor	Oil	0.4 l
Fuel tank	Diesel/Ethanol	-
Catalytic converter	-	-
<b>Cooling system:</b>	<b>Specification</b>	<b>Quantity</b>
9 litre engine	Coolant	40 l
12 litre engine		50 l
13 litre engine		50 l
Hydraulic cooling fan	Oil	15 l
<b>Power train:</b>	<b>Specification</b>	<b>Quantity</b>
Clutch	Brake fluid	0.5-1.0 l
Manual gearbox	Oil	9-11 l
Automatic gearbox	ATF oil	30-50 l
Opticruise	Oil	0.3 l
Scania Retarder	Oil	7.5 l
Rear axle gear	Oil	10-18 l
Rear axle, oil filter	Oil filter	0.5 l
Rear steering tag axles	ATF oil	3.9-4.6 l
Compressed air tanks	-	-
<b>Steering:</b>	<b>Specification</b>	<b>Quantity</b>
Power steering	ATF oil	6-9 l
Hydraulic unit for articulated buses	ATF oil	2.8 l

<b>AC:</b>	<b>Specification</b>	<b>Quantity</b>
Climate control system	Refrigerant R134a	8-15.5 kg

<b>Electrics:</b>	<b>Specification</b>	<b>Quantity</b>
Starter battery	-	-

<b>Wheels:</b>	<b>Specification</b>	<b>Quantity</b>
Balancing weights	Lead	-



**WARNING!**

**Isocyanates are found in some paints, putties, adhesives and plastic foams, etc., that are used in motor vehicles. Inhaling isocyanates in the form of vapour, dust or aerosols may cause irritation of mucous membranes causing asthmatic symptoms from the respiratory passages and an impaired function of the lungs. Even brief exposure to high concentrations can cause problems of permanent hypersensitivity.**

**When products containing isocyanates in combined form are heated to temperatures above 150°C, isocyanates are set free. This results in a high degree of exposure.**

**This applies for example to grinding, welding and cutting products to which a top coat of paint containing isocyanates has been applied. For this reason, make sure that there is adequate ventilation in the areas where the work is carried out. Personnel carrying out such work should use protection, such as respiratory masks with air supply.**

**Do not take any risks when working with heated materials that might contain isocyanates; always presume that the material contains isocyanates and take necessary safety precautions.**

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**WARNING!**

**Where a vehicle is involved in a fire, a number of substances that are hazardous to health and the environment are formed. Smoke and water carry these substances and they remain in the vehicle to a certain extent (ashes).**

**When dismantling a vehicle that has been involved in a fire, the following should be taken into consideration:**

**Use protective equipment such as respiratory protection and gloves when working on vehicles which have been involved in a fire. Avoid skin contact with ashes.**

**The vehicle may be weakened, which can have a negative affect on lifting points. This should also be taken into consideration when tilting cabs.**

**Gas dampers that have not been punctured represent an explosion risk, as the material they are made of may be weakened and/or damaged.**

**Wash the vehicle before starting dismantling.**

**Keep the following in mind:**

**Do not start dismantling before the cause of the fire has been fully investigated.**

**Power should be disconnected on vehicles which have been involved in a fire as soon as possible, by disconnecting the battery cables. This is to prevent short circuits, which can result in a new fire.**

**Corrosion is accelerated on vehicles which have been involved in a fire, for example due to moisture in combination with ashes and some extinguishing medium. The vehicle should be processed as soon as possible, to minimise the risk of undesirable leakage of environmentally hazardous fluids and substances.**

**Burnt vehicles should be washed in a way that allows the washing water to be disposed of in an environmentally responsible way, as it contains environmentally hazardous contaminants.**

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**WARNING!**

**When carrying out any type of work which involves heating products, the relevant safety regulations for this type of work should be followed.**

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**WARNING!**

**Cut the power to the vehicle before starting work.**

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**WARNING!**

**The system must be depressurised when working with air bellows.**

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**WARNING!**

**Risks in connection with ethanol**

- **Ethanol fuel is extremely flammable and must be handled with great care. Like petrol, ethanol is classified with a flammability class.**
- **Ethanol fuel is hazardous to health. If ethanol has come into contact with eyes or skin, flush with water.**
- **Ventilate properly when handling ethanol.**

- **Ethanol fumes can form an ignitable mixture with air at approximately 9°C, both in closed and open containers.**
  - **The fumes are heavier than air and therefore spread along the ground and can catch fire a long way from the source.**
  - **Avoid free-falling jets; otherwise there is a risk of static electricity, which would cause sparks.**
  - **Prevent sparking through equipotential bonding (grounding).**
  - **Ethanol burns with a barely visible flame and no smoke. Burning ethanol is therefore hard to detect in daylight.**
- 



**WARNING!**

#### **Safety precautions and equipment in connection with ethanol**

- **Comply with local regulations when handling ethanol fuel.**
  - **Establish ethanol decontamination routines for workshop work. There must be sand or Absol for decontamination.**
  - **Store ethanol spillage in a marked, closed collecting vessel specially designed for ethanol fuel and in a manner that ensures it is not confused with diesel.**
  - **Wear protective gloves and goggles resistant to ethanol when handling the fuel. Cotton clothes are recommended.**
  - **Powder is the best extinguishing medium for putting out ethanol fires.**
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## Engine



**WARNING!**

**Beware of hot oil after driving. Wear protective goggles and gloves.**



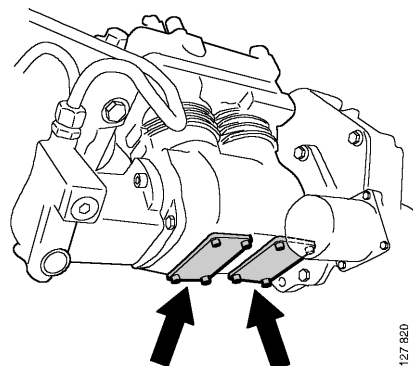
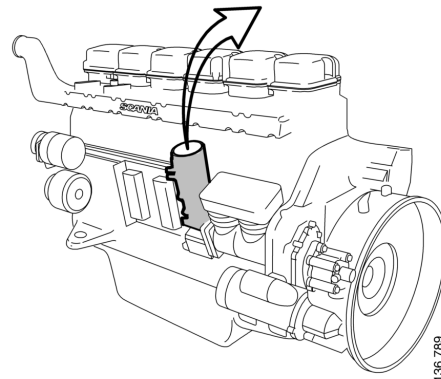
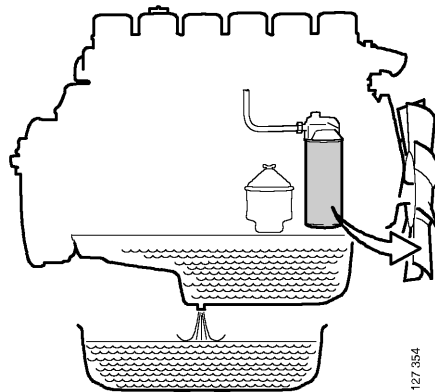
**WARNING!**

**Ethanol fuel is extremely flammable and must be handled with great care. Like petrol, ethanol is classified with a flammability class.**

- 1 Drain the engine oil.
- 2 Remove the oil filter. Also drain the oil from the centrifugal oil cleaner reservoir.
- 3 Remove the fuel filter element. Use suction on the filter housing if necessary.

**Note:** The fuel system may be pressurised. Release the pressure before dismantling.

- 4 Drain the oil from the compressor by unscrewing the blanking pieces.

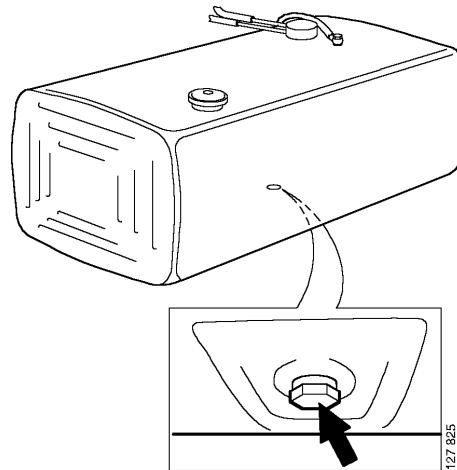


## Fuel tank

### Diesel

- 1 Check or estimate how much fuel is in the fuel tanks. Make sure that there is enough room for the fuel in the collecting vessel.
- 2 Drain the tank by unscrewing the drain plug.

**Note:** Some tank variants do not have a drain plug. Some bus bodybuilders have their own tanks. Check their instructions.



### Ethanol



**Ethanol fuel is extremely flammable and must be handled with great care. Both ethanol and petrol are classified as flammability class 1.**

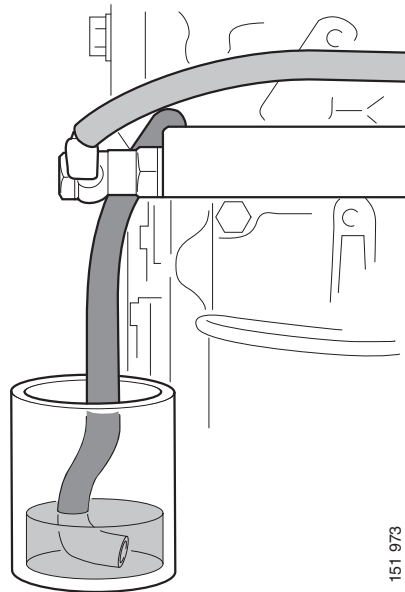
**Note:** Before the vehicle is taken into the workshop, check whether the fuel system is leaking ethanol. The recommended method is to leak test the fuel system using measuring instrument 588 875. Check that the measuring instrument has been calibrated as described in the instrument documentation before it is used.

- 1 Check or estimate how much fuel is in the fuel tanks. Make sure that there is enough room for the fuel in the collecting vessel.
- 2 Connect the fuel tank to be drained with the pump and the collecting vessel via a ground connection.
- 3 Pump away as much ethanol as possible through the filler pipe. Make sure that the pump hose reaches the bottom of the collecting vessel to prevent the formation of static electricity. Repeat for all fuel tanks with a filler pipe.

- 4 Check that there are no ethanol fumes around the vehicle by checking for leaks using, for example, measuring instrument 588 875.
- 5 Jack up the vehicle.
- 6 Check the location of each fuel tank drain plug.

**Note:** Some tank variants do not have a drain plug. Some bus bodybuilders have their own tanks. Check their instructions.

- 7 Carry out the following for all tanks:
  - Connect a ground connection between the fuel tank and the collecting vessel.
  - Suspend a funnel under the drain plug. Make sure the funnel is large enough for the fuel that runs down when the drain plug is undone. Try to keep free fall as short as possible as free fall causes static electricity. If possible, connect a hose that reaches the bottom of the collecting vessel to the funnel.
  - Undo the drain plug.
  - Drain the remaining fuel.
- 8 Check that there are no ethanol fumes by checking for leaks using, for example, measuring instrument 588 875.



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## Catalytic converter

The SCR catalytic converter contains vanadium. Vanadium can constitute a health hazard.

The SCR catalytic converter is fitted in the silencer and does not constitute a health hazard during normal use and handling.

When carrying out work on the SCR catalytic converter which may result in exposure to dust, safety precautions must be taken. Such work includes, for example, opening the silencer, machining and scrapping the catalytic converter.

### Safety precautions when working on the SCR system

- **Inhalation:** If dust is inhaled, the person should be provided with fresh air immediately. If a significant amount of dust is inhaled, seek medical attention.
- **Eye contact:** Rinse eyes with water immediately. If irritation persists, seek medical attention.
- **Skin contact:** Wash with soap and water. Remove contaminated clothes.
- **Ingestion:** If large amounts have been ingested, drink plenty of water and induce vomiting. Seek medical attention.

### Health hazards

- Inhalation of dust from the SCR catalytic converter can constitute a health hazard as it may cause irritation of the respiratory system.
- Eye contact may cause eye irritation.
- Skin contact may irritate the skin.
- Ingestion can cause irritation in the mouth and throat and produce discomfort. The ingestion of large quantities may cause disorders in the gastric and intestinal canals.
- There is a possible risk of permanent health damage. There is also a risk of foetal damage.

### Environmental hazards

- Vanadium pentoxide is toxic to water organisms and can cause detrimental long-term effects to the water environment.

## Environmental protection measures

- Any dust or spillages should be collected in a container for recycling or disposal in compliance with local regulations. It should not be drained into watercourses or into the general treatment system.
- A scrapped SCR catalytic converter should be disposed of in compliance with the relevant EU, national or local regulations. The constituent parts are classified as harmful to the environment by the EU.



**WARNING!**

**Use protective goggles and gloves if there is any risk of splashing or spraying of reductant or coolant.**

**When the engine is running, the exhaust system parts can reach such high temperatures that there is a risk of personal injury. Make sure that the exhaust system temperature has fallen to a suitable level before starting work.**

**The SCR system is heated by water from the engine cooling system. The cooling system runs at overpressure and when the engine is hot the coolant is hot. Do not open any hoses without first stopping the coolant flow in the hose.**

**A P3 type respiratory protection/filter mask, protective goggles and gloves should be used for any work where there is a risk of exposure to dust from the SCR catalytic converter.**

**You should not eat, drink or smoke while working.**

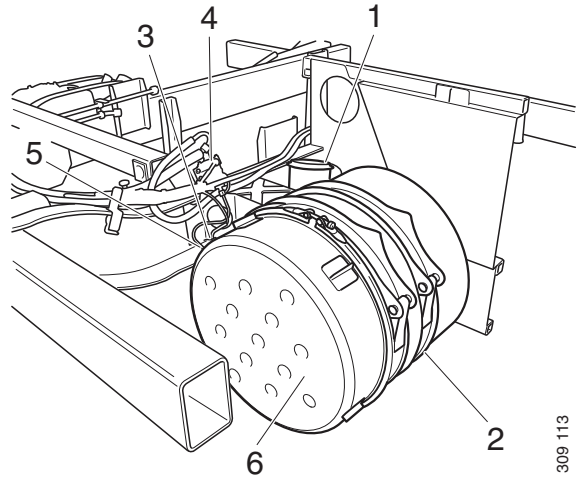
**Any dust from the SCR catalytic converter should be removed using a vacuum cleaner with microfilter to minimise exposure.**

**Make sure you clean your hands after working with a SCR catalytic converter to avoid ingestion.**

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## Remove filter

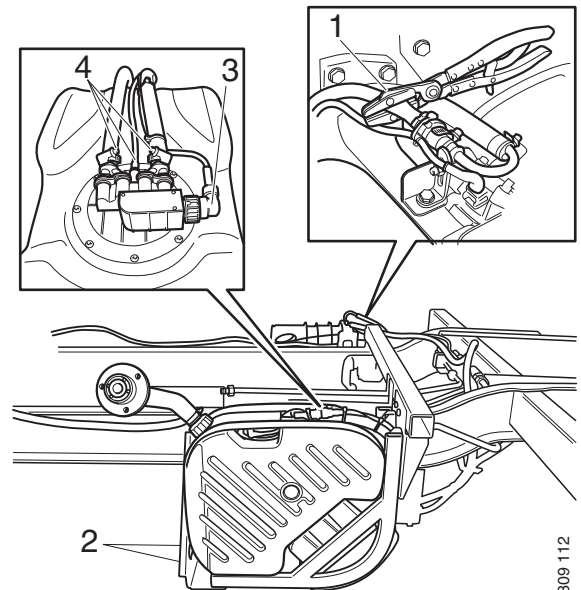
- 1 Undo the exhaust pipe V-clamp 1.
- 2 Undo the exhaust pipe V-clamp 2.
- 3 Remove the exhaust gas temperature sensor 3.
- 4 Undo the reductant doser fastening bolts 4 to facilitate injection nozzle pipe removal.
- 5 Remove the injection nozzle pipe 5.
- 6 Remove the silencer 6.



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## Remove the reductant tank

- 1 Clamp the hose 1 using pliers to stop the coolant flow. **Warning!** The hose contains coolant from the engine. Open the coolant filler cap first to relieve any pressure.
- 2 Detach the retaining straps 2.
- 3 Remove the electrical connection 3.
- 4 Remove the hoses 4 from the combined tank unit.
- 5 Remove the reductant pick-up unit.



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**Note:** Only use containers and collecting vessels manufactured from material recommended for use with reductant.

## Coolant



**WARNING!**

**The coolant system operates with overpressure. There is a risk that hot coolant may be emitted if the system is opened while hot.**

**Hot coolant can cause burns.**

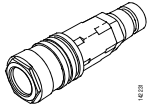
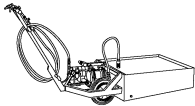
**Avoid skin contact with coolant. Skin contact may cause irritation.**

**Always wear protective goggles and rubber gloves when handling coolant.**

**Scania corrosion inhibitor, ethylene glycol and other coolant additives can be fatal if swallowed.**

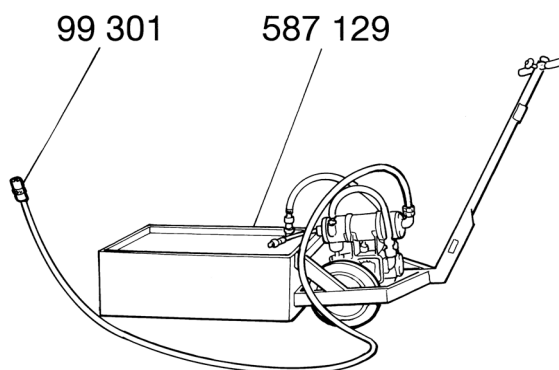
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## Special tools

Number	Denomination	Illustration	Tool board
99 301	Quick release coupling		-
587 129	Complete coolant draining unit		-

**Note:** Check bus bodybuilder's instructions for draining.

- 1 Open the heat outlet and heat return valves.
- 2 Carefully open the expansion tank cap. The cooling system may be exposed to overpressure.
- 3 Connect adapter 99 301 to the cooling system drain and filler nipple and use coolant tank 587 129 to drain and collect the coolant. The nipple is located at the lower coolant hose.



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**Note:** The coolant volume increases when components are connected to the cooling system:

- Retarder + 20 litres
- Oil cooler and hose
- Auxiliary heater Webasto



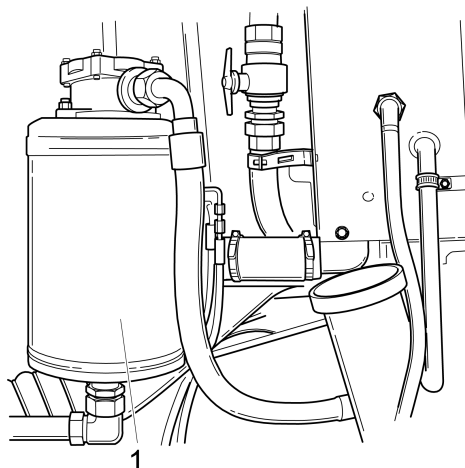
## Hydraulic cooling fan



**WARNING!**

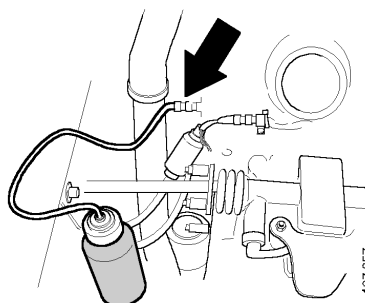
**Beware of hot oil after driving. Wear protective goggles and gloves.**

- 1 Remove the oil connection between the oil cooler and hydraulic motor.



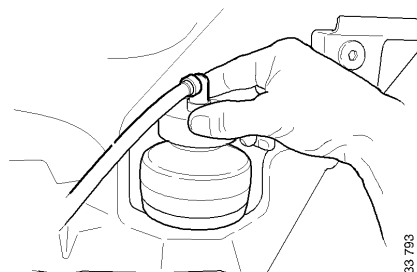
## Clutch

- 1 Connect a suitable collecting vessel to the bleed nipple at the clutch housing.
- 2 Detach the hose from the connection, and pump out the brake fluid using the clutch pedal.



*Bleed nipple*

- 3 Drain the clutch fluid reservoir which is located at the front of the bus.



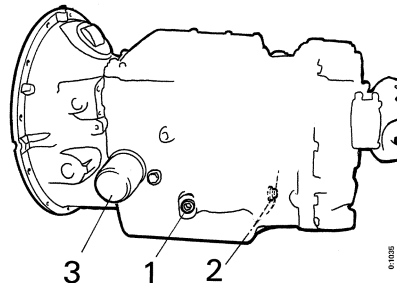
## Manual gearbox



**WARNING!**

**Beware of hot oil after driving. Wear protective goggles and gloves.**

- 1 Remove the drain plug and level plug.  
Allow the oil to drain.
- 2 Remove the filter.



- 1 Level plug*  
*2 Drain plug*  
*3 Filter*

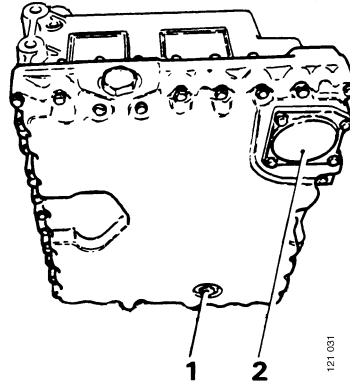
## Automatic gearbox



**WARNING!**

**Beware of hot oil after driving. Wear protective goggles and gloves.**

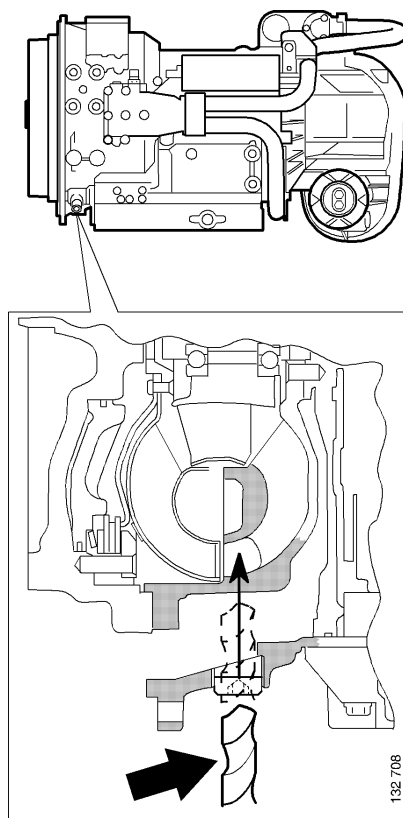
- 1 Put the drive mode selector in position N.
- 2 Remove the drain plug. Allow the oil to drain.
- 3 Remove the oil filter cover and remove the filter.



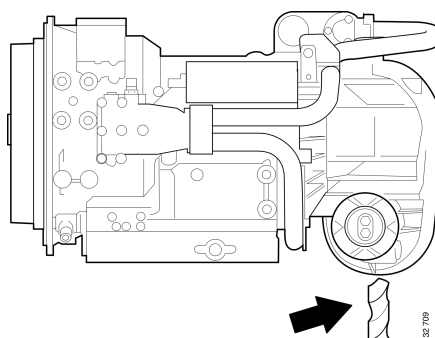
*1 Drain plug*

*2 Oil filter cover*

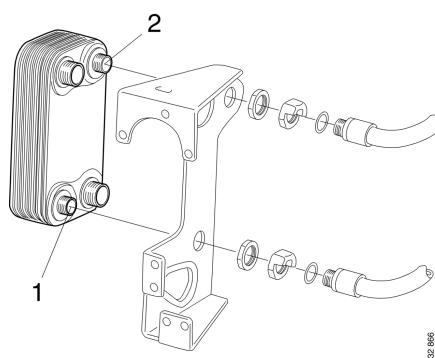
- 4 Drill through the torque converter housing and then through the torque converter. Allow the oil to drain.



- 5 Drill through the underside of the angle gear housing. Allow the oil to drain.

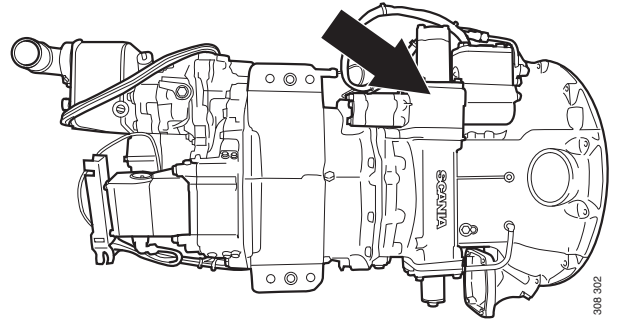


- 6 Remove the oil pipes on the gearbox oil cooler. Allow the oil to drain.

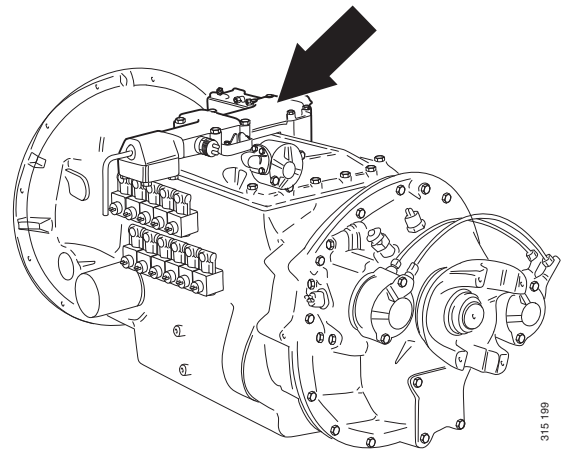


## Opticruise

- 1 Remove the longitudinal stroke cylinder and drain it from oil through the rectangular opening.



Longitudinal stroke cylinder,  
GZ gearbox



Longitudinal stroke cylinder,  
TP gearbox

# Scania Retarder



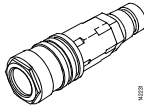
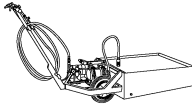
**WARNING!**

**Beware of hot oil after driving. Wear protective goggles and gloves.**

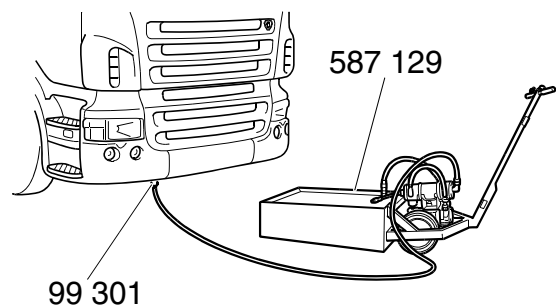
**Make sure the compressed air tanks are empty before starting work. Oil under pressure or blows from loose parts can cause personal injury.**

## Retarder, type 1

### Special tools

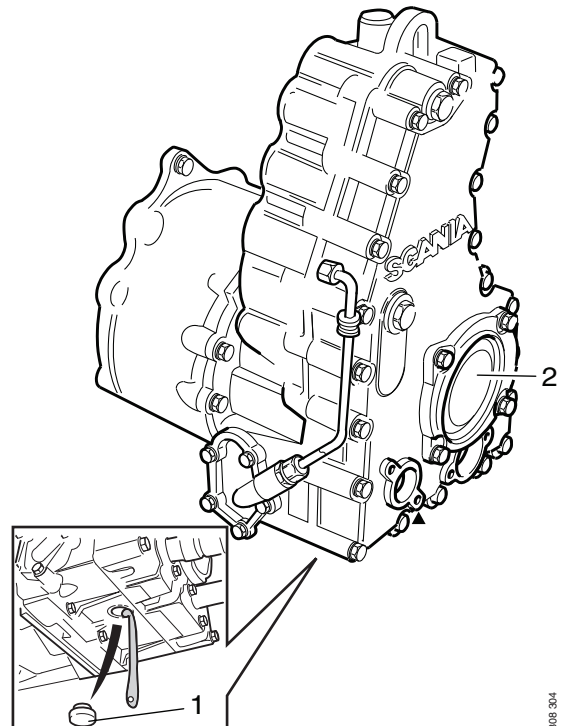
Number	Denomination	Illustration	Tool board
99 301	Quick release coupling		-
587 129	Complete coolant draining unit		-

- 1 Drain the coolant by connecting quick release coupling 99 301 to the bottom of the radiator. Remove the radiator cap to make the coolant drain faster.

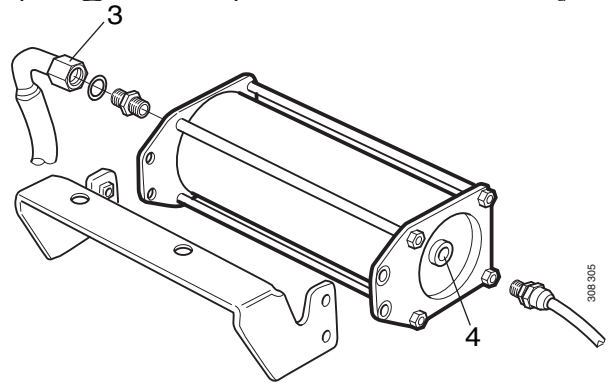


- 2 Put the retarder lever in position 5 and switch on the ignition. This empties out most of the oil volume from the accumulator so that all the oil ends up in the retarder sump.

- 3 Undo the drain plug 1 under the planetary gear and drain the oil.
- 4 Detach the hoses from the retarder.
- 5 Remove the oil filter 2.

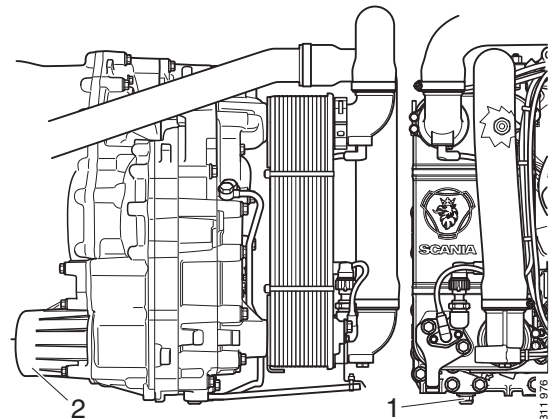


- 6 Detach the hose 3 from the oil accumulator.
- 7 Blow out the remaining oil with compressed air at the connection 4.



### Retarder, type 2

- 1 Remove the plug 1 and drain the oil.
- 2 Drain the oil accumulator by turning the key to the drive position (compressed air system filled to working pressure) and move the retarder lever between the 0 position and maximum position several times, waiting for 5 seconds at each end position.
- 3 Remove the oil filter 2.



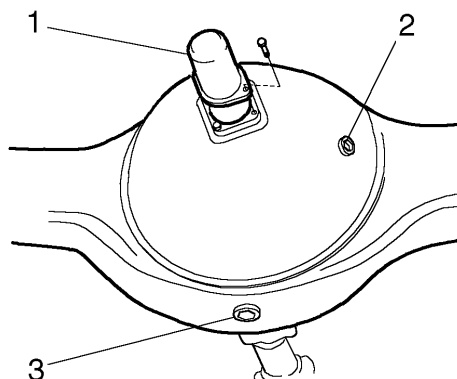
## Rear axle gear



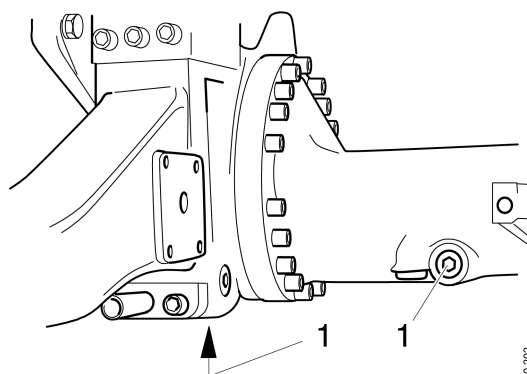
**WARNING!**

**Beware of hot oil after driving. Wear protective goggles and gloves.**

- 1 Remove the drain plug and level plug. Allow the oil to drain.
- 2 Remove the oil filter.



- 1 Oil filter with protective casing*  
*2 Level plug*  
*3 Drain plug*



- Portal axle*  
*1 Drain plug*



## Rear steering tag axles



**WARNING!**

Before starting work on the hydraulic system, the pressure must first be relieved in a controlled manner. The system has an overpressure of 14 bar, which means that the oil will be forced out if a union is opened without relieving the system. This means there is a risk of eye injuries, etc. Wear protective goggles.

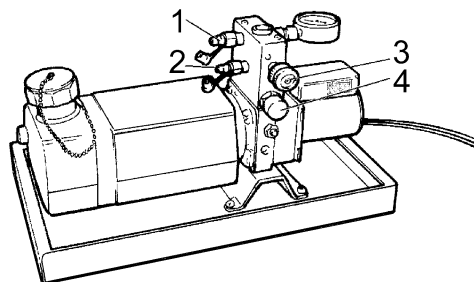
The accumulator tank is filled with nitrogen gas at an overpressure of approx. 8.5 bar. This means that the accumulator tank is pressurised even if there is no oil in the system.

Hydraulic oil is aggressive; avoid skin contact at all times. Wear protective gloves.

**IMPORTANT!** Handle empty accumulator tanks in compliance with local regulations.

### Relieving the pressure

- 1 Close the return valve. Unscrew the pressure limiting valve.



*Filling equipment 99 355*

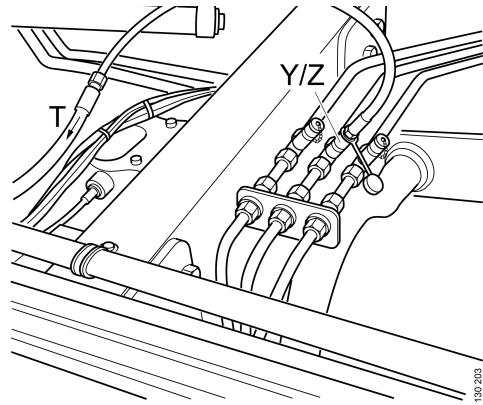
*1 Pressure connection P*

*2 Return connection T*

*3 Pressure limiting valve*

*4 Return valve*

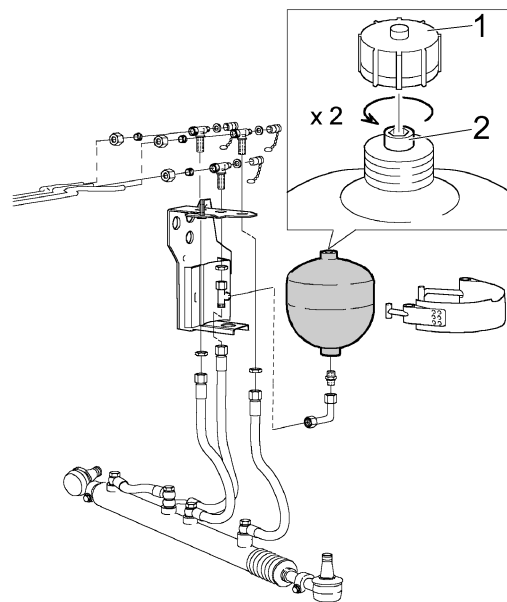
- 2 Connect the return hose from the filling equipment return connection to the union marked Y/Z or L3/L4 on the accumulator as illustrated.



**New marking**  
Y/Z

**Previous marking**  
L3/L4

- 3 Open the return valve on the filling equipment. The oil will now be returned to the filling equipment tank.
- 4 Oil can be drained from the pipe using compressed air. The connections on the master cylinder and centering cylinder must then be undone.
- 5 Remove the protective cap on the gas side of the accumulator tank.
- 6 Undo the plug on the gas side max 2 turns and allow the gas to seep out.
- 7 Remove the plug completely.



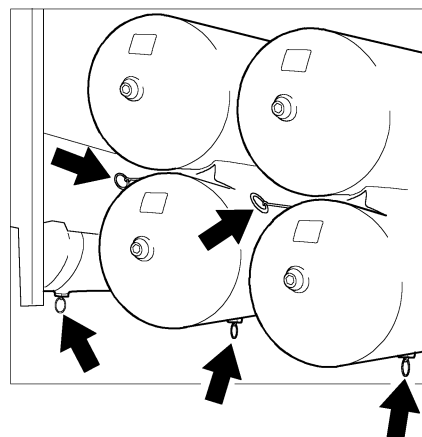
*1 Protective cap*

*2 Plug*

## Compressed air tanks

**IMPORTANT!** Handle empty compressed air tanks in compliance with local regulations.

- 1 Pull the drain valves to depressurise the tanks.

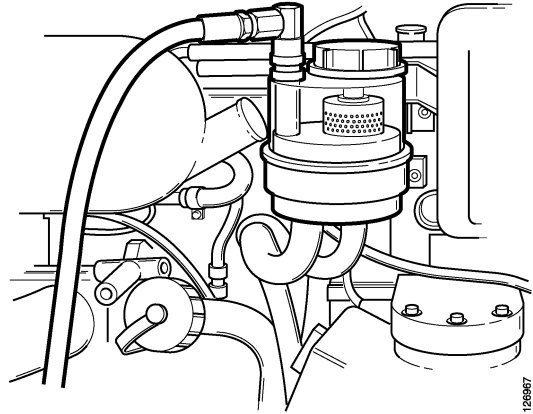


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## Power steering

- 1 Undo the fluid reservoir return hose.
- 2 Plug the return hose outlet on the reservoir.
- 3 Connect a light overpressure to the reservoir.
- 4 Let the oil run out of the return hose open end.
- 5 Turn the pinion on the power steering gear to both end positions to drain the oil.

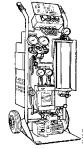


# Climate control system

## Refrigerant R134a

**Number**                      **Denomination**  
588 431                      Recycling station

**Illustration**   **Tool board**



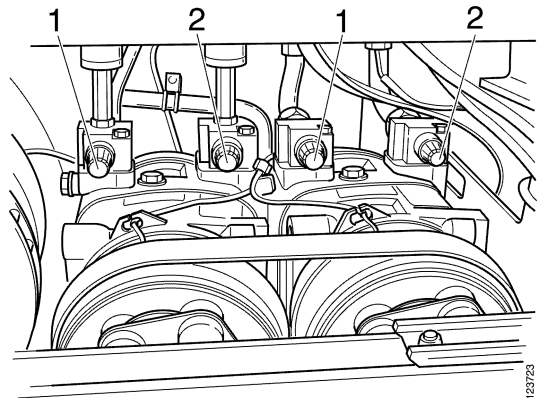
**WARNING!**

**Wear protective gloves and goggles.**

**Welding, smoking or heating are not allowed if there is refrigerant present in the air. The refrigerant generates a very toxic gas when heated.**

- 1 Remove the protective caps from the maintenance valves and connect recycling station 588 431 to the high-pressure and low-pressure sides. The maintenance valves are of different dimensions and thus different size quick release couplings must be used.
- 2 Drain the refrigerant (R134a) slowly. The refrigerant must not be released into the atmosphere but must be recycled according to local regulations.

**Note:** The compressors can have different locations and can be 1, 2 or 3 unit systems.



*1 Maintenance valves, high pressure*  
*2 Maintenance valves, low pressure*

## Starter battery



**WARNING!**

**Wear protective gloves and goggles. Batteries contain diluted sulphuric acid. If acid gets into your eyes or onto your skin or clothes, rinse them immediately with water. Always seek medical attention if you get acid in your eyes.**

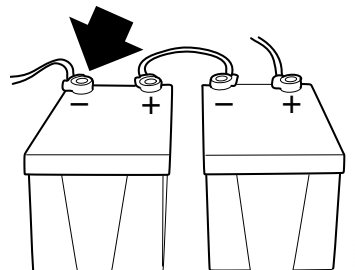
**Vehicle batteries contain lead. Lead is harmful to humans and the environment. The batteries must therefore be handled in accordance with national regulations on environmentally hazardous substances.**



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**IMPORTANT!** Batteries must be handled and stored in compliance with local regulations. Manufacturer responsibility applies to batteries within the EU. This means that all Scania workshops are obligated to take care of batteries and ensure that they are recycled.

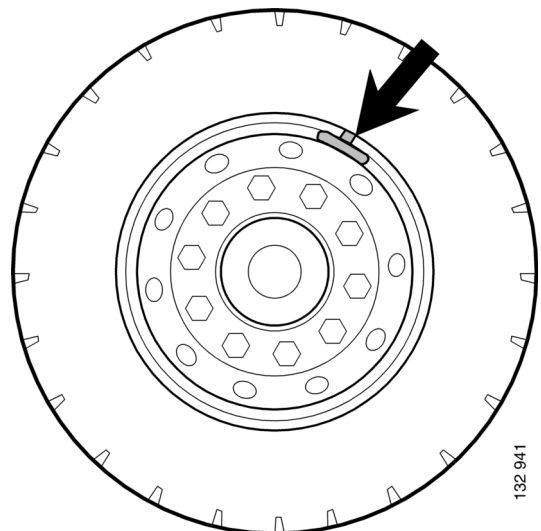
- 1 Detach the ground connection (negative terminal) first and then the other connections.



## Balancing weights

- 1 Remove the lead balancing weights on all wheels.

**IMPORTANT!** Lead balancing weights should be disposed of in accordance with local regulations.



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