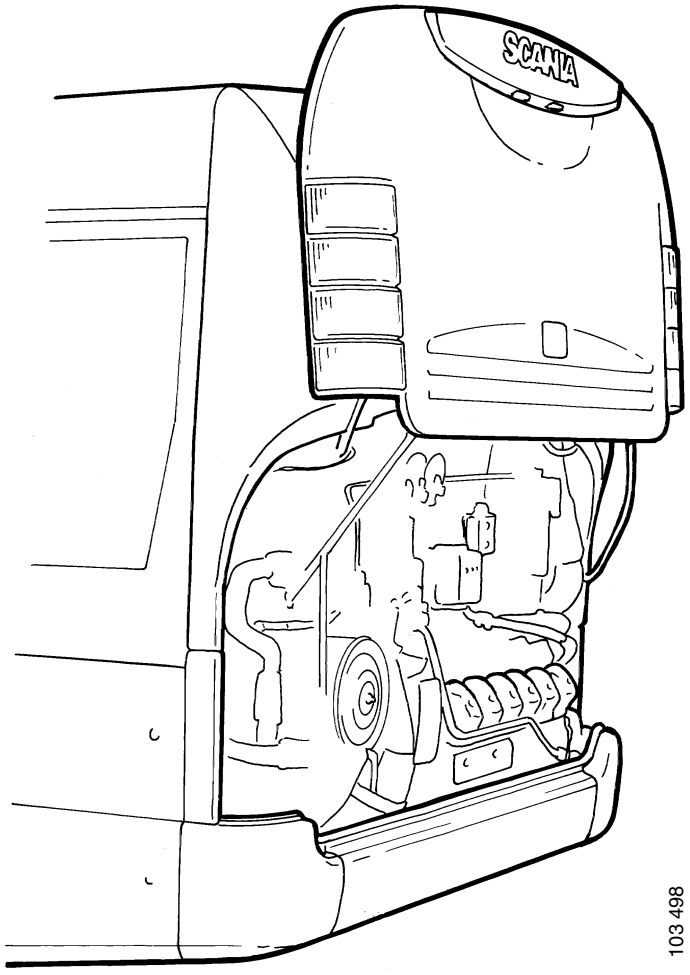
SCANIA

00:03-57/2

Issue 10 **en-GB**

Inspection instructions part 2

4 series buses



103 498

1 587 671

© Scania CV AB 2011, Sweden

Contents

© Scania CV AB 2011, Sweden

16 Electrical system

© Scania CV AB 2011, Sweden

Changes from the previous issue

11-02 Checking the articulation unit:

- Text and illustrations about checking the rubber bearings are clearer.

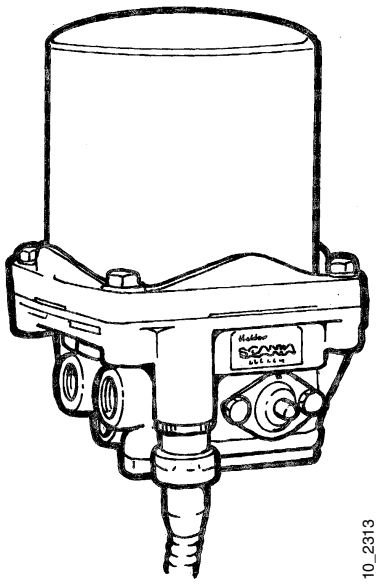
© Scania CV AB 2011, Sweden

10 Brake system

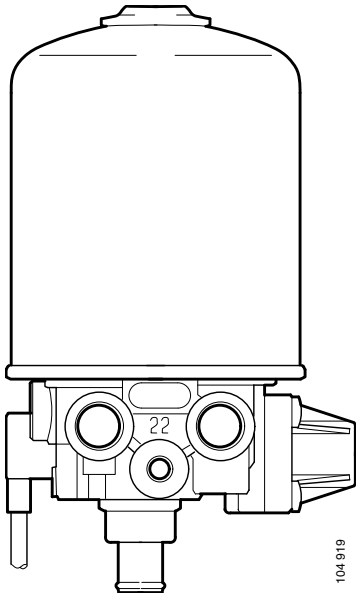
10-01 Air dryer

Function

- Drain the compressed air tanks and check whether water runs out. Small amounts of water may be present. Larger amounts of water indicate that the air dryer is not working or that the desiccant should be renewed.
- Start the engine and fill the system with air. Check that the drain valve in the bottom of the air dryer does not leak when the compressor is charging.
- Check that the air dryer is blowing through the drain valve when the compressor is relieved.



Haldex



Wabco

Check that the heater is working

Check that the heater (H4) is working in the winter.

- Cool the heater (with cold water, snow or temperature reduction spray) to activate the integrated thermostat. It is activated at approx. +7°C.
- Start the engine and touch the lower part of the air dryer with your hand. It should feel warm within a few minutes. The temperature of the air dryer should rise to 20-30°C, which is the switch-off temperature of the thermostat.

© Scania CV AB 2011, Sweden

Measuring the resistance

Use a multimeter for measuring resistance.

K, L, N buses

- Separate the connector C515 in the engine compartment rear central electric unit.
- Measure the resistance between ground and the red cable at pin 8 in C515 (female pin).

F bus

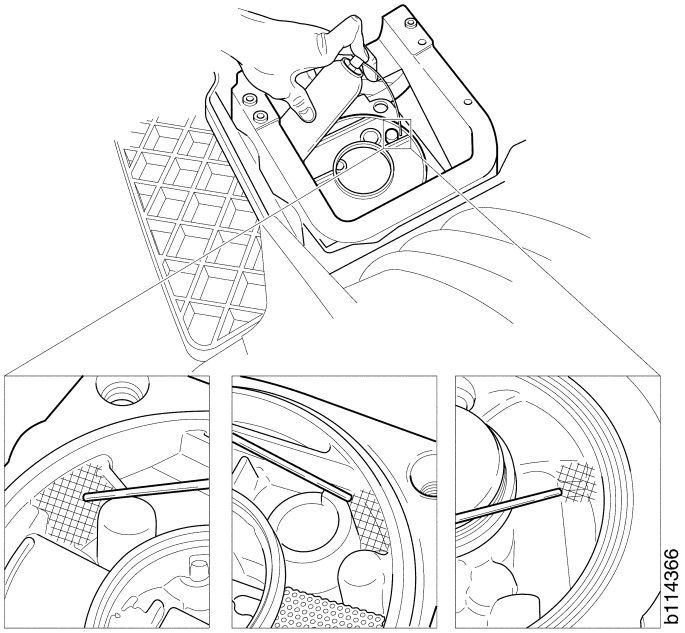
- Separate the connector C504 in the central electric unit.
- Measure the resistance between ground and the red cable at pin 16 in C504 (female pin).

WARNING!

Evacuate the air from the system.

- Remove the desiccant container.
- Cool the underside of the air dryer, using for example temperature reduction spray, to below +7°C, which is the cut-in temperature of the thermostat. Cool in intervals, to allow time for the cold to propagate through the material.
- Measure the resistance at the contact. The resistance should be 5.0 - 7.5 ohms at temperatures below +7°C. When it is warmer the resistance is infinite.

If the air dryer does not work as above, it must be rectified, see main group 10 in the Workshop manual, Supply circuit, Components.



Haldex design 1 Haldex design 2 Wabco

© Scania CV AB 2011, Sweden

Renewing the desiccant, Haldex

WARNING!

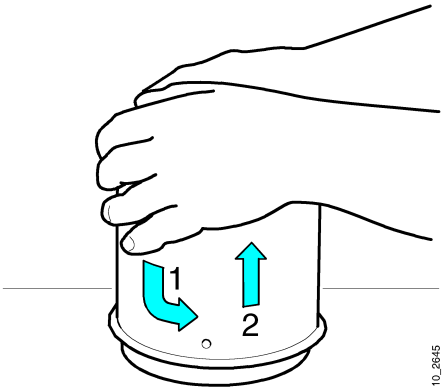
If the following instructions are not followed there is a risk of personal injury.

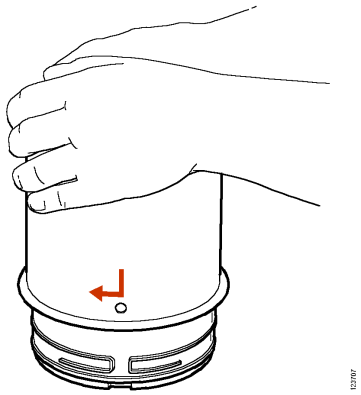
1 Evacuate the air from the system.

2 Release any remaining air in the air dryer via the brake system filler nipple. Use a screwdriver.

3 Remove the air dryer container by undoing the four screws.

4 Place the container on a workbench, filter element down. Push down the container about 5 mm and turn it anti-clockwise about 10°.



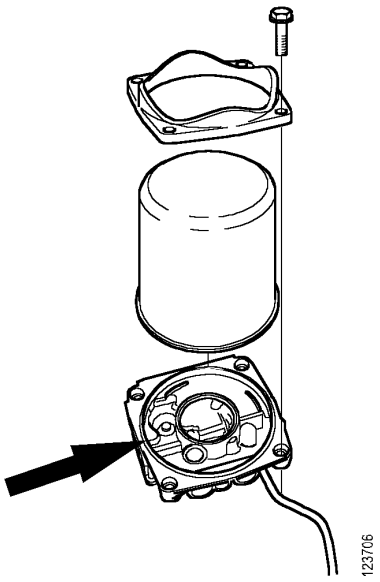


5 Clean the container and the air dryer housing. Fit the new desiccant cartridge, press down as far as possible and turn clockwise until it locks.

6 Fit a new O-ring (see illustration). Lubricate the O-rings with brake grease 319 308. The other O-ring is fastened to the bottom of the desiccant cartridge.

7 Position the container. Renew the screws and tighten them to 40 Nm.

Start the engine. Run the engine until the compressor is relieved and the dryer is drained. Check that no leaks occur during this time.



© Scania CV AB 2011, Sweden

Renewing the desiccant, Wabco

WARNING!

If the following instructions are not followed there is a risk of personal injury.

1 Evacuate the air from the system.

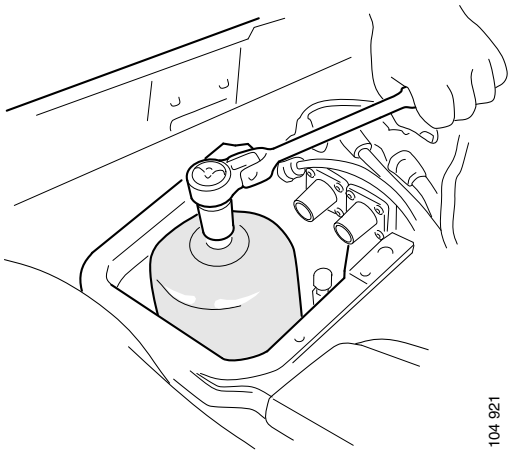
2 Release any remaining air in the air dryer via the brake system filler nipple. Use a screwdriver.

3 Remove the air dryer container.

4 Renew the O-ring and lubricate it with brake grease 319 308.

5 Clean the contact surface of the container rubber gasket.

6 Lubricate the container rubber gasket using brake grease. Tighten the container by hand until it is against the contact surface and then tighten a further 1/3 turn.



Start the engine. Run the engine until the compressor is relieved and the dryer is drained. Check that no leaks occur during this time.

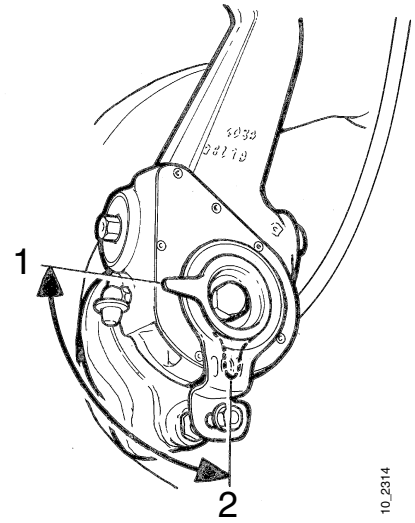
© Scania CV AB 2011, Sweden

10-02 Drum brakes

Brake lining thickness

Check using the indicator

The brake slack adjusters are fitted with a wear indicator. When the brake linings are new the indicator points towards the front of the vehicle 1, and when the brake linings are worn, it points straight down 2. When the indicator passes the "seven o'clock" position on the right-hand side, "five o'clock" on the left-hand side, the brake linings must be measured. See "Measuring".



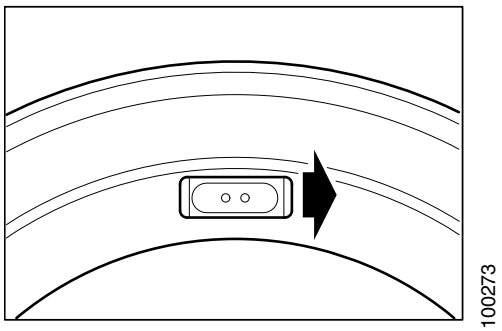
Measuring

WARNING!

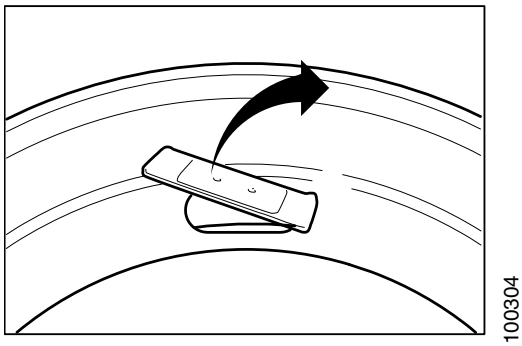
Secure the wheels of the vehicle using chocks in front of and behind the wheels

1 Release the parking brake.

2 Push the inspection hatch to one side.

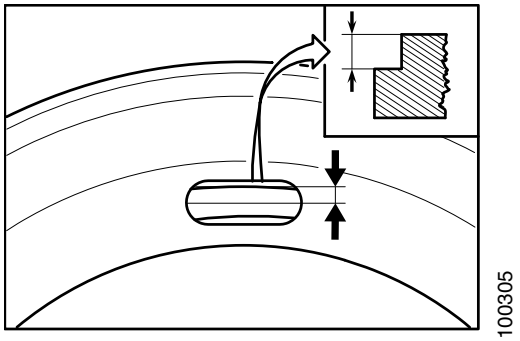


3 Lift out and pull the hatch off at the other end.



© Scania CV AB 2011, Sweden

The brake lining thickness must not fall below 8 mm (10 mm if the brake linings are oversized). Check the amount of wear using the wear indicator. If the thickness of the brake linings on the same axle differs by more than 3 mm, check the wheel brakes.



Brake lining with wear indicator

Minimum thickness of lining	
Standard lining	8 mm
Oversize	10 mm

WARNING!

Non-genuine linings may cause:

- **Up to 5 times greater drum wear**
- **Cracks and parts of the brake lining wearing away, which can result in extensive damage and in the worst case lead to a complete loss of braking capacity**
- **Temperature increases, causing fading and loss of braking capacity**
- **Vibrations**
- **Driving ban**
- **Legal liability**

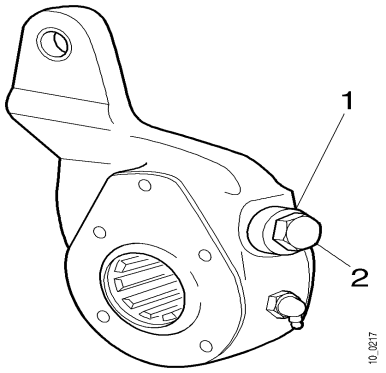
© Scania CV AB 2011, Sweden

10-03 Adjusting the manual slack adjuster

Manual brake slack adjusters must be adjusted as the brake linings wear down.

1 Lift up the axle.

2 Press in lock sleeve 1 and screw in the adjusting screw 2 until the wheel cannot be rotated by hand.



1 Lock sleeve
2 Adjusting screw

Note: The brake camshaft should move in the same direction as when braking and the brake slack adjuster should not move.

3 Screw out the adjusting screw half a turn so that the brake linings are free of the drum.

Note: Ensure that lock sleeve 1 moves out and locks the adjusting screw after turning.

© Scania CV AB 2011, Sweden

10-04 Disc brakes

In most instances, the wheels must be removed whilst work is carried out on the disc brakes. Always support the vehicle on stands before starting work.

Note: In order to check the brake pads and the brake disc, the brake shield must be removed first on some vehicles.

Specifications

Check dimensions

Minimum permissible brake disc thickness	37 mm
Maximum permissible thickness tolerance per brake disc	0.08 mm
Maximum permissible run-out	0.20 mm
Minimum permissible brake pad thickness	2 mm
Minimum permissible brake pad thickness with 37-40 mm brake disc	4 mm

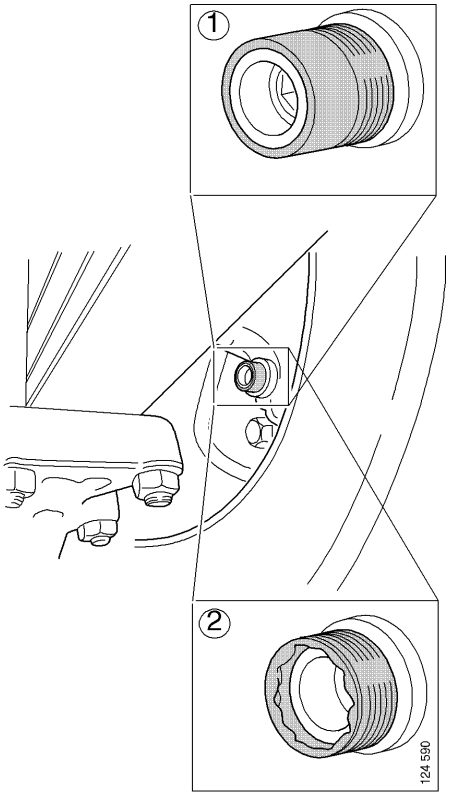
© Scania CV AB 2011, Sweden

Checking brake lining wear

Brake calipers with short rubber bushes (new version)

1 Check how far the rubber bush is protruding. The rubber bush indicates the wear on the brake disc and the brake pads.

If the rubber bush indicates maximum wear, remove the wheel and check the wear on the brake pads and brake disc as described in Workshop manual main group 10.

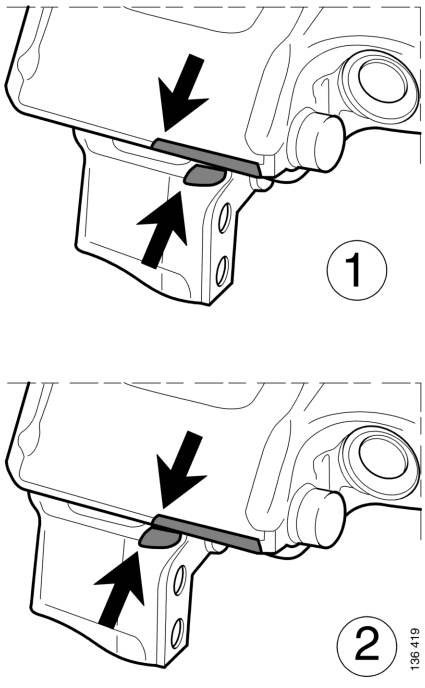


1 Minimum wear
2 Maximum wear

Brake caliper with DU bush

1 Check the wear indicator between the brake caliper and the brake pad carrier. The indicator shows the wear on the brake disc and the brake pads.

If the wear indicator indicates maximum wear, remove the wheel and check the wear on the brake pads and brake disc as described in Workshop manual main group 10.



1 Minimum wear
2 Maximum wear

© Scania CV AB 2011, Sweden

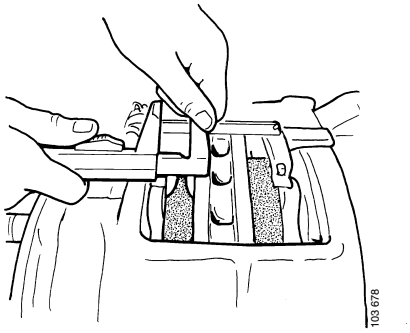
Measuring the brake lining wear on ZF portal axles

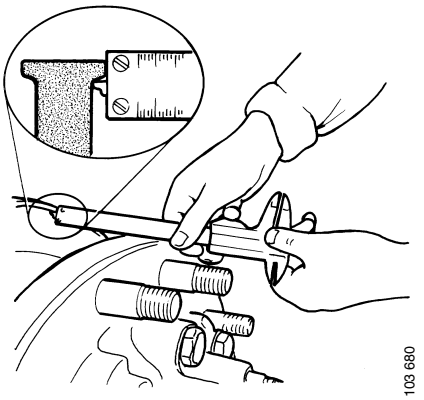
1 Remove the wheels.

2 Measure the thickness of the brake lining between the brake disc and the brake lining backing plate using a sliding caliper.

3 Measure any wear edge on the brake disc and add this to the brake lining thickness.

4 Renew the brake linings if they are very worn. The lower wear limit is 2 mm.

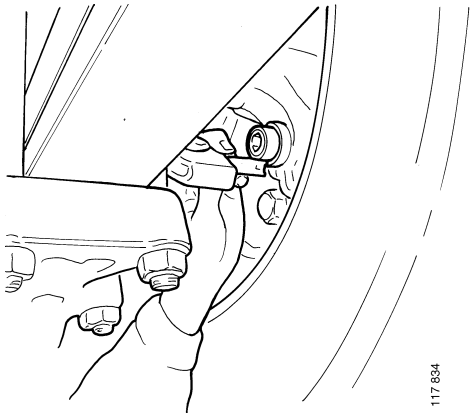




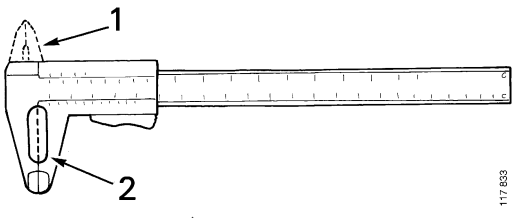
© Scania CV AB 2011, Sweden

Brake calipers with short rubber bushes (old version)

1 Measure the protrusion of the slide pin.



2 In order to measure the brake disc thickness without removing the wheel, the sliding caliper must be modified as illustrated.



1 Grind off the tips for internal measurement.

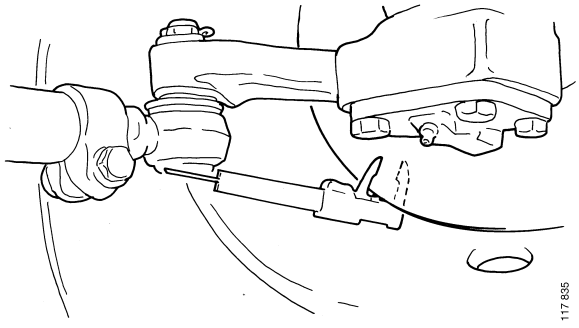
2 Grind a recess in order to reach over the edge of the brake disc.

3 Measure the brake disc thickness with the modified sliding caliper.

4 Read the remaining wear in the chart below.

5 Check the brake disc for cracks and scratches.

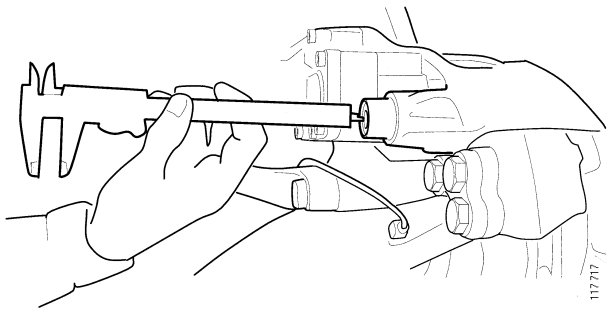
Note: Scratches should not be deeper than 1.5 mm. Any cracks must be no longer than 40 mm, and they must not run as far out as the edge of the brake disc.



© Scania CV AB 2011, Sweden

Brake calipers with long rubber bushes

1 Measure the distance between the edge of the rubber bush to the outer edge of the slide pin.

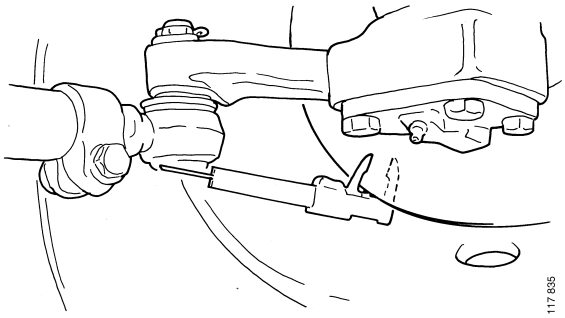


2 Measure the brake disc thickness with the modified sliding caliper.

3 Read the remaining wear in the chart below.

4 Check the brake disc for cracks and scratches.

Note: Scratches should not be deeper than 1.5 mm. Any cracks must be no longer than 40 mm, and they must not run as far out as the edge of the brake disc.



© Scania CV AB 2011, Sweden

Chart

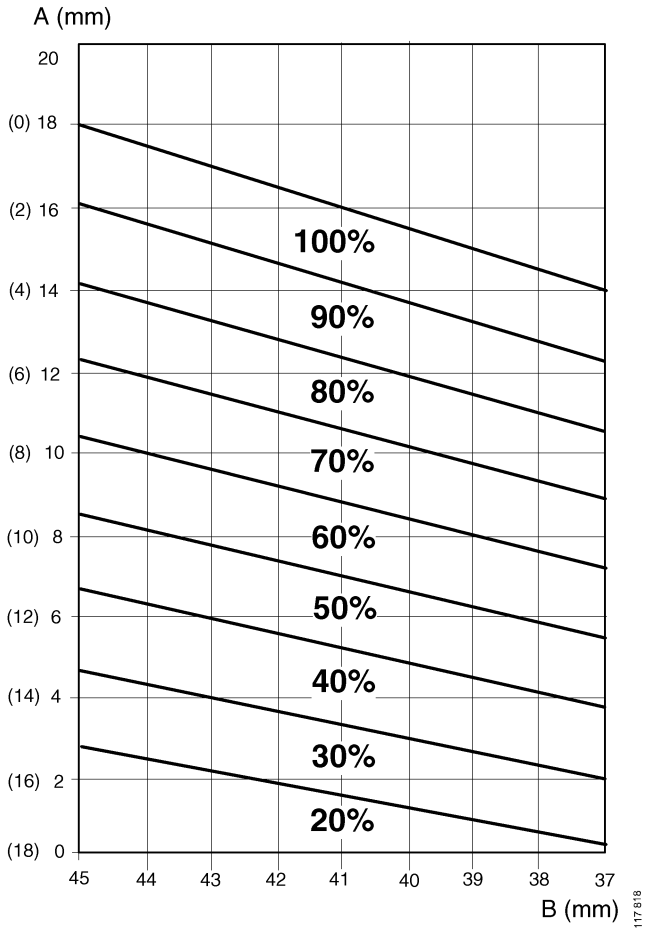
Note: The chart does not apply to the new short rubber bush.

On brake calipers with short rubber bushes: If the protrusion of the slide pin is 0 mm or less, remove the wheel to check the wear more thoroughly.

On brake calipers with long rubber bushes: If the slide pin is 18 mm or more inside the rubber edge, remove the wheel to check the wear more thoroughly.

Renew the brake disc if you think that the minimum permissible brake disc thickness will be reached before the next inspection.

On vehicles of operation type1 , remove the wheel for a more thorough check when the wear reaches the 30% field in the chart.



The A-measurement applies to the position of the slide pin in relation to the edge of the rubber bushing.

Measurements within brackets applies to brake calipers with long rubber bushes.

The B measurement applies to the brake disc thickness.

© Scania CV AB 2011, Sweden

10-05 Checking warning lamps and sensors

Applies to K, L and N buses

Front circuit

Equipment

Manometer	10 bar

1 Fill the system with air.

2 Connect the manometer to port 22.

3 Depress the brake pedal fully and drain the front circuit tank until the pressure is between 4.5 and 5.5 bar (the sensor operating range). The lamp comes on and the buzzer sounds.

Rear circuit

1 Fill the system with air.

2 Connect the manometer to port 21.

3 Drain the rear circuit tank until the pressure is between 4.5 and 5.5 bar. The lamp comes on and the buzzer sounds.

Parking circuit (feed)

1 Fill the system with air.

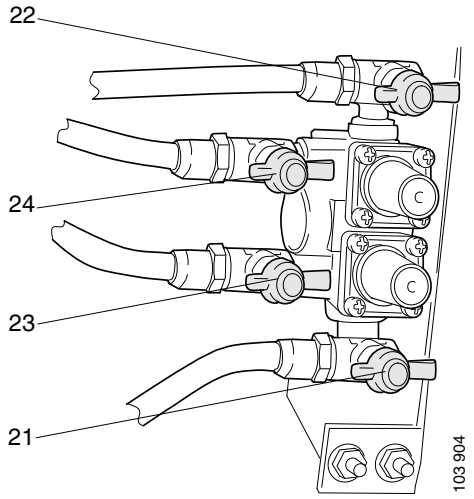
2 Connect the manometer to port 23.

3 Drain the parking circuit tank until the pressure is between 4.6 and 5.4 bar. The lamp comes on.

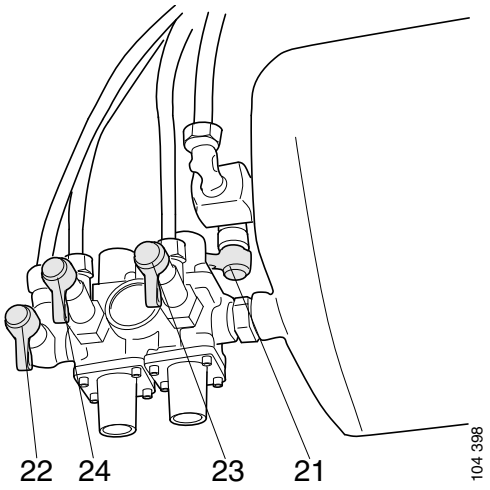
Parking circuit (control)

1 Fill the system with air.

2 Apply the parking brake. The lamp comes on.



N bus



K and L buses
Port 21 = Rear circuit
Port 22 = Front circuit
Port 23 = Parking circuit
Port 24 = Circuit for auxiliary equipment

© Scania CV AB 2011, Sweden

10-06 Working pressure and seal integrity

Working pressure

Equipment

Manometer	15 bar

1 Connect a 15 bar manometer to test connection 1.

2 Start the engine and charge the system.

3 Check the relief pressure at test connection 1.

K, L and N buses: 10.1-10.5 bar.

F bus with Wabco air dryer: 9.1-9.5 bar.

4 Reduce the system pressure by repeatedly depressing the brake pedal or by emptying one of the compressed air tanks.

5 When the compressor starts to charge. Note the pressure at test connection 1 and calculate the difference in pressure.

The operating range (difference between relief and charge pressure) should be minimum 0.6 bar and maximum 1.2 bar.

Seal integrity

1 Fill the system to working pressure. Switch off the engine.

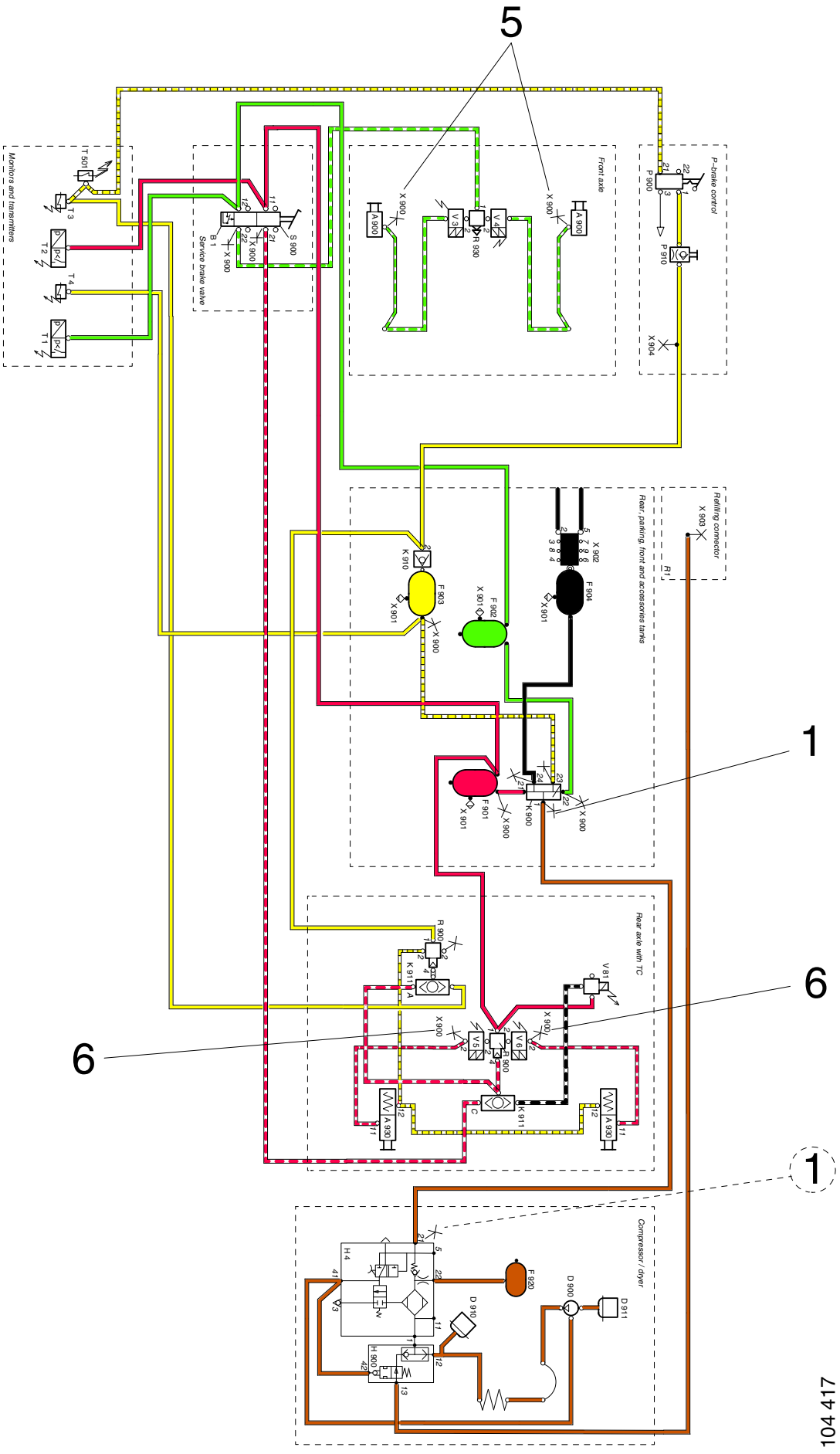
2 Depress the brake pedal fully. Wait 30 seconds. Read and note the pressure at test connection 1.

3 Keep the pedal depressed for a further 1 minute.

4 Read the pressure at test connection 1 and calculate the pressure decrease. This decrease must not be greater than 0.2 bar.

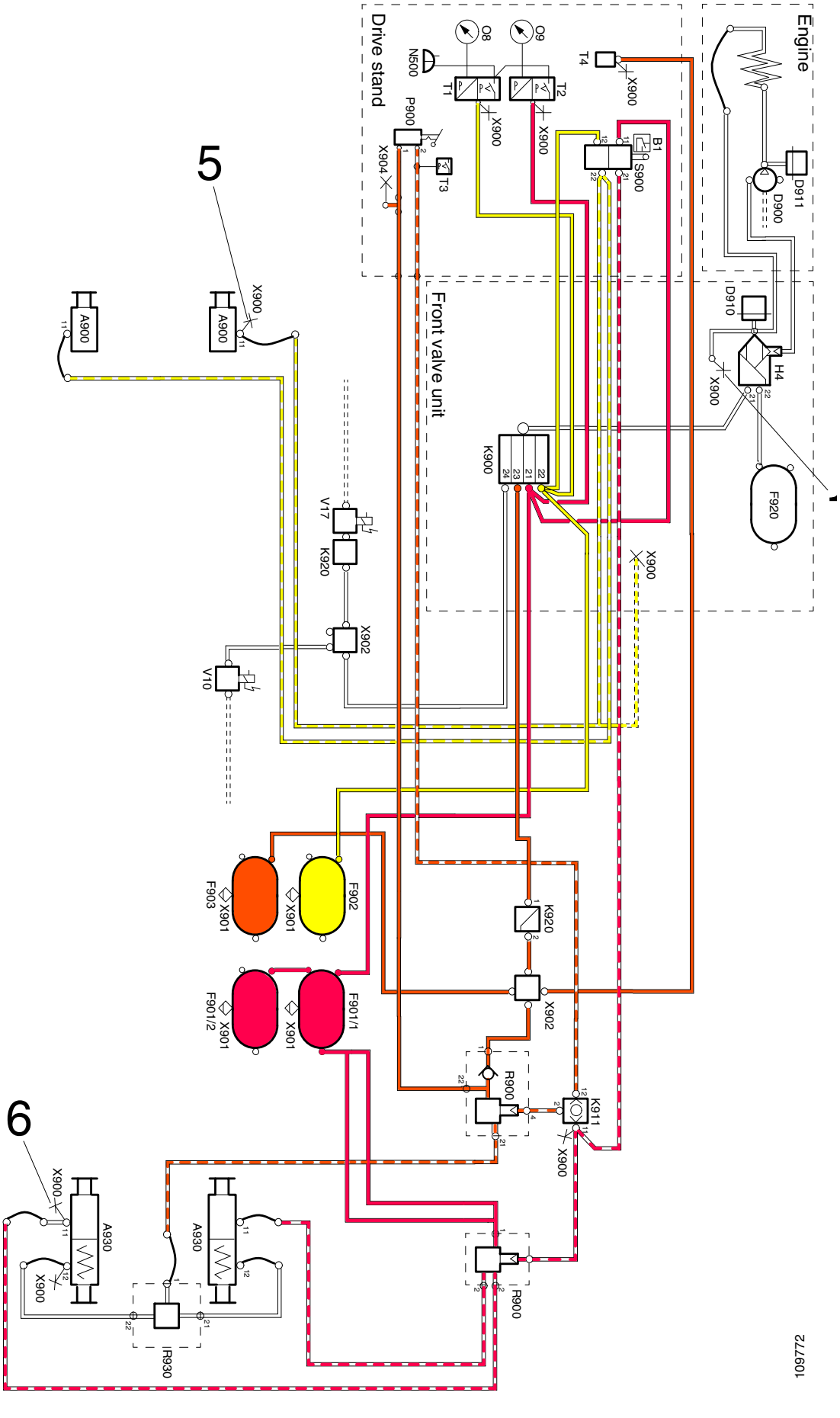
© Scania CV AB 2011, Sweden

Overall diagram K, L and N buses



© Scania CV AB 2011, Sweden

Overall diagram F bus



© Scania CV AB 2011, Sweden

10-07 Front circuit, rear circuit

Equipment

2 manometers	2.5 bar

1 Connect the manometers to test connections 5 and 6.

Note: When measuring **increasing pressure,** the brake pedal must **only be depressed or kept still**. If the brake pedal is released when measuring increasing pressure, the test result will be incorrect.

When measuring **falling pressure,** the brake pedal must **only be released or kept still.** If the brake pedal is depressed while measuring falling pressure, the result of the measurement will be incorrect.

2 Measure the deviation between the front circuit and the rear circuit. Note the deviation.

The maximum permitted deviation is 0.3 bar.

Note: When checking, the rear circuit should be checked in relation to the other circuits. On buses with a bus stop brake it must not be applied.

© Scania CV AB 2011, Sweden

10-08 Initial brake pressure

(Drum brakes only)

Equipment

Manometers	2.5 bar

1 Connect the manometer to the test connection on the axles (5 on the front axle, 6 on the rear axle).

2 Jack up the vehicle so that the wheel to be measured turns freely.

3 Hold the manometer in one hand and spin the wheel with the other hand.

Ask a colleague to slowly depress the brake pedal.

4 Read the manometer when the brakes start to grip.

The brake actuating pressure should be max. 0.6 bar with vibration damper and max. 0.4 bar without vibration damper. If the application pressure is higher, or if the difference on the same axle is greater than 0.2 bar, the brakes should be rectified according to the booklet "Wheel brake components" in the Workshop manual, group 10.

Note the values measured.

© Scania CV AB 2011, Sweden

10-09 Checking warning lamps and sensors

Applies to F bus

Front circuit

Equipment

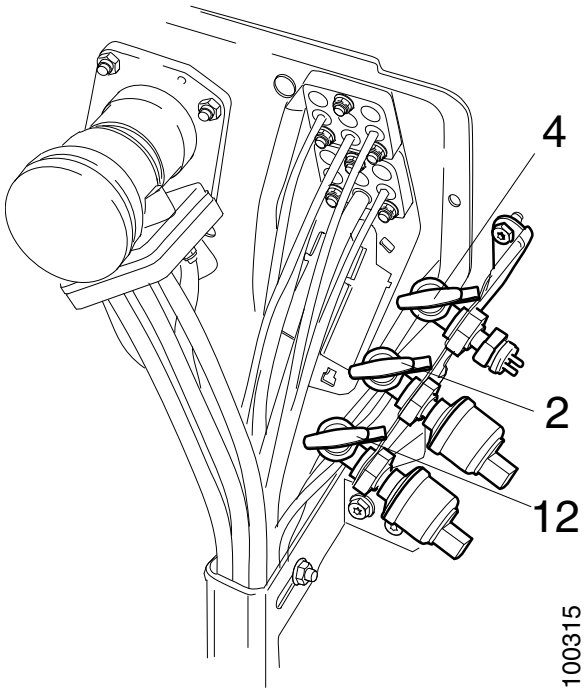
Manometers	10 bar

1 Fill the system with air.

2 Remove the protective casing if applicable.

3 Connect the manometer to test connection 12.

4 Drain the front circuit tank until the pressure is between 4.5 and 5.5 bar (the operating range of the pressure monitor). The lamp comes on and the buzzer sounds.



Rear circuit

1 Fill the system with air.

2 Connect the manometer to test connection 2.

3 Drain the rear circuit tank until the pressure is between 4.5 and 5.5 bar. The lamp comes on and the buzzer sounds.

Parking circuit (feed)

1 Fill the system with air.

2 Connect the manometer to test connection 4.

3 Drain the parking circuit tank until the pressure is between 4.5 and 5.5 bar. The lamp comes on.

Parking circuit (control)

1 Fill the system with air.

2 Apply the parking brake. The lamp comes on.

© Scania CV AB 2011, Sweden

10-10 Scania retarder

Oil grade: Oils, refer to booklet 00:03-09.

Oil change and filter renewal

Observe strict cleanliness. The retarder is sensitive to contaminants.

Proceed as follows:

1 Turn the starter key to the drive position, press the diagnostics button. This empties out most of the oil volume from the accumulator so that all the oil ends up in the retarder sump.

2 Place a suitable container under the retarder.

WARNING!

Beware of hot oil! Wear protective gloves and goggles.

3 Drain the oil. Clean the magnetic drain plug and the tighten it to 40 Nm.

4 Renew the retarder oil filter. Check the O-ring of the cover. Renew if necessary. Tighten the fastening screws diagonally to 22 Nm.

5 Fill oil in the level hole (approx. 5 litres) and tighten the level plug to 26 Nm.

Checking oil level

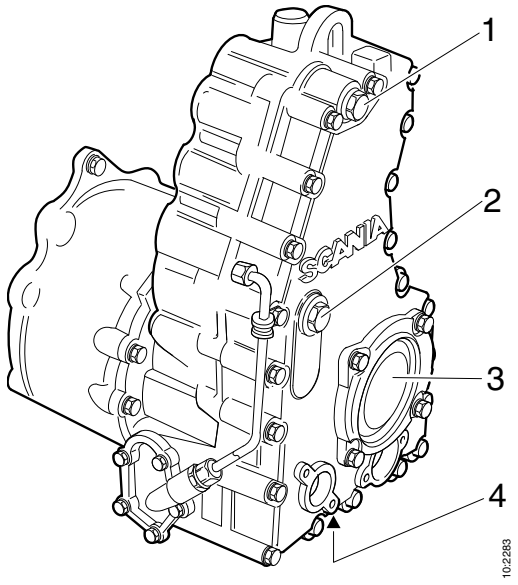
1 Test drive the vehicle and brake using the retarder.

2 After driving: Press the diagnostics button (to empty the accumulator).

WARNING!

Beware of hot oil! Wear protective gloves and goggles.

3 Remove the level plug and check the oil level (down to 10 mm beneath the level hole is OK). Torque tighten the level plug to 26 Nm.



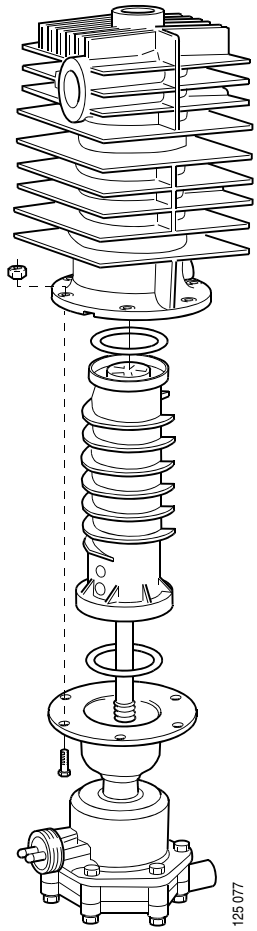
1 Oil filler
2 Oil level
3 Oil filter
4 Oil drainage

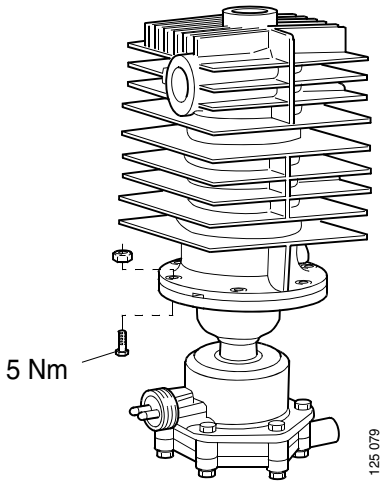
© Scania CV AB 2011, Sweden

10-11 Liquid separator

The fluid separator must be regularly cleaned in order to work properly. The outside must be kept clean so that the cooling fins do not get clogged, and the internal cyclone must be kept clean of contaminants.

Note: If severe oil transfer from the compressor occurs, e.g. because of wear, it may be necessary to clean the separator more often.





Cleaning

1 Evacuate the compressed air system.

2 Clean the fluid separator externally.

3 Dismantle the separator and take out the cyclone; see illustration.

4 Suspend the valve part of the separator (to avoid damaging the cable).

5 Clean the parts, including the filter in the valve part.

6 Replace the cyclone and assemble the separator. Use new O-rings and lock nuts. Tighten the screws to a torque of 5 Nm.

7 Fill the compressed air system and check that there is no leakage.

8 Perform a functional inspection, see below.

© Scania CV AB 2011, Sweden

Functional inspection

If the relief valve is controlled by the brake light, it should release every time the brake light illuminates. If the fluid separator is controlled by a timer, it should release about every 45 seconds.

1 Fill the compressed air system and check that there is no leakage.

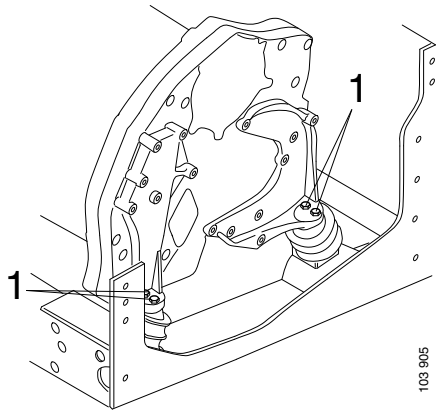
2 Depress the brake pedal. A hissing sound should be heard from the relief valve on the separator. Alternatively, wait until the timer opens the relief valve.

© Scania CV AB 2011, Sweden

11 Frame

11-01 Engine and gearbox brackets

Check tighten the screws in the engine and gearbox brackets to the specified torques and check the vibration insulators for cracks.

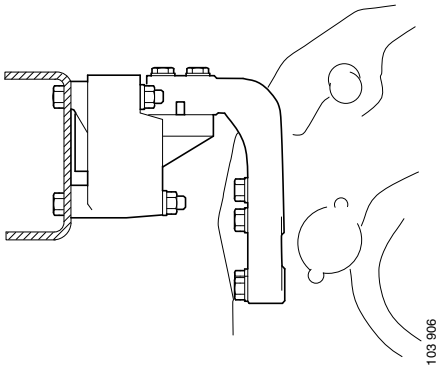


K, L and N

Tightening torque

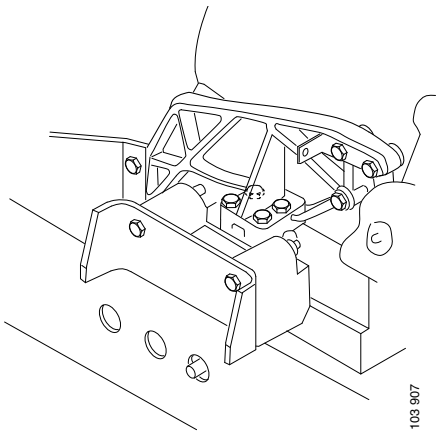
Engine:

Engine bracket	M12	84 Nm
	M14	112 Nm
Bracket, vibration insulator	M10	47 Nm

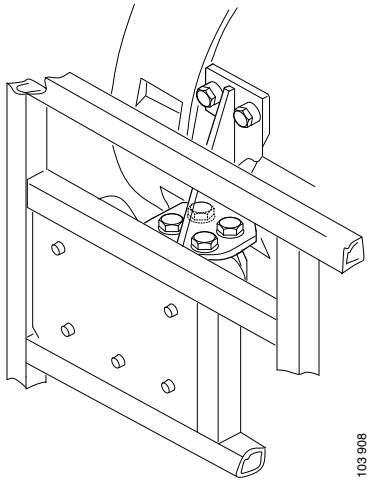


Gearbox:

Bracket, gearbox GR801	M16	180 Nm
ZF automatic gearbox	M16x1.5	225 Nm
Bracket, vibration insulator	M16	180 Nm
Vibration insulator, beam/body	M14	112 Nm



Also check-tighten the nuts that secure the clutch housing to the flywheel cover (not illustrated). Tightening torque 47 Nm.

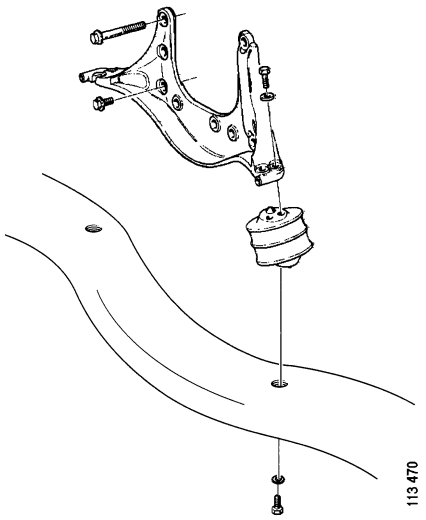


© Scania CV AB 2011, Sweden

F94

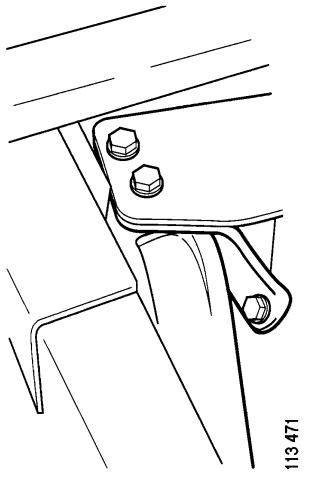
Tightening torque

Engine: (front mounting)		
Vibration insulator to frame	M10	47 Nm
Bracket to engine and to vibration insulator	M10	47 Nm
	M12	84 Nm



Engine: (rear mounting)		
Vibration insulator to frame	M14	135 Nm
Bracket to engine and to vibration insulator	M14	135 Nm

Also check-tighten the nuts that secure the clutch housing to the flywheel cover (not illustrated). Tightening torque 47 Nm.



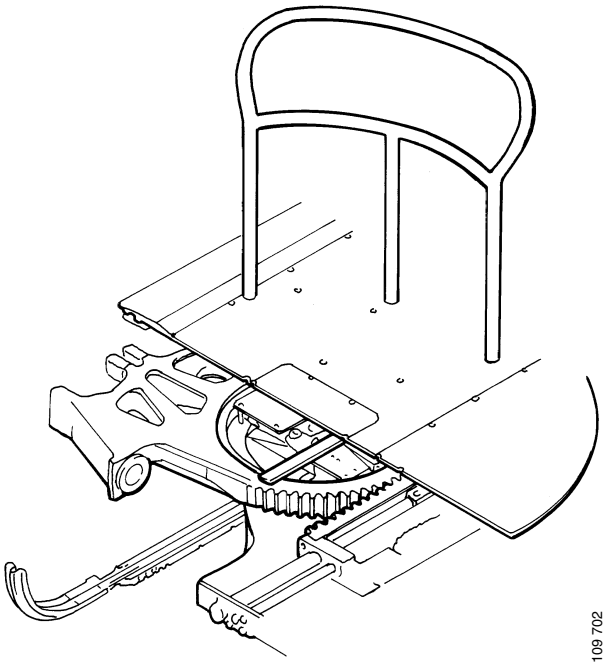
© Scania CV AB 2011, Sweden

11-02 Checking the articulation unit

The articulation control system should be overhauled at least once a year in addition to ordinary inspections. In markets where the articulated buses are operated in a difficult climate (e.g. in northern Europe), it is recommended that the system should be overhauled twice a year.

The overhaul should involve removing the floor plates over the articulation control system (see Main group 11 in the Workshop manual, Articulation and control system) and then cleaning, lubricating and inspecting the articulation parts.

Check the screw joint in the articulation unit to ensure that no screws are loose or damaged.



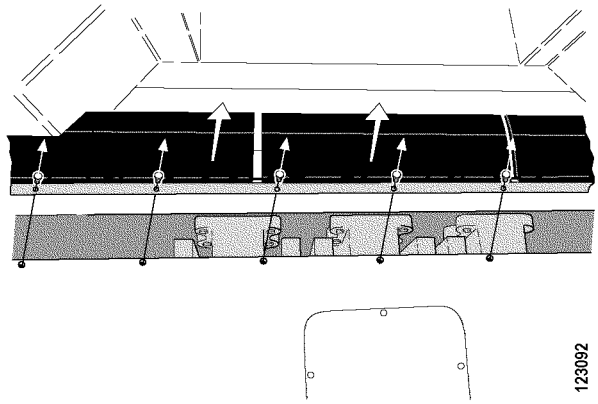
IMPORTANT! Do not use high-pressure cleaning equipment or other water flushing equipment, as these can damage the articulation parts.

Clean all the dirt from articulation parts with an industrial vacuum cleaner and a cleaning cloth.

Check that the articulation bellows are tight underneath and replace the protective curtain if necessary. Loose articulation bellows can cause severe wear to the articulation control system.

© Scania CV AB 2011, Sweden

Remove the rubber moulding to check the mounting of the rubber bearings to the articulation unit 1 and frame 2.

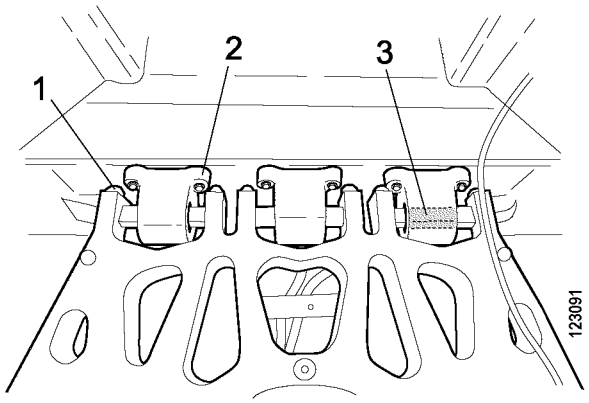


Tightening torque

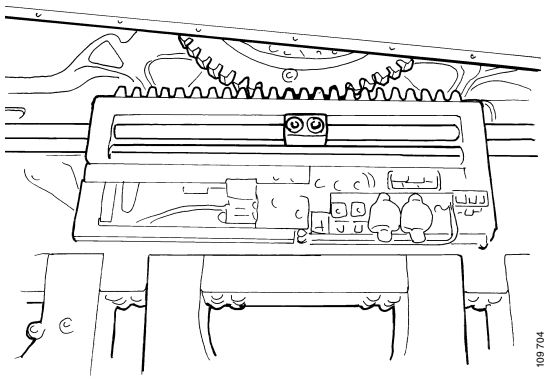
Rubber bearing mounting to articulation unit	350 Nm
Rubber bearing mounting to chassis	530 Nm

Also check that there are no cracks in the rubber bearings 3.

Renew the rubber bearings if they are damaged. Refer to the Workshop manual, 11:10-51.



Remove the floor hatch to check the screw joint between the articulation unit and frame.

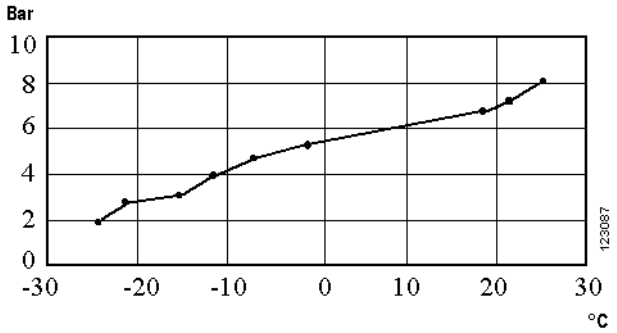


© Scania CV AB 2011, Sweden

Articulation control system pressure

Pressure

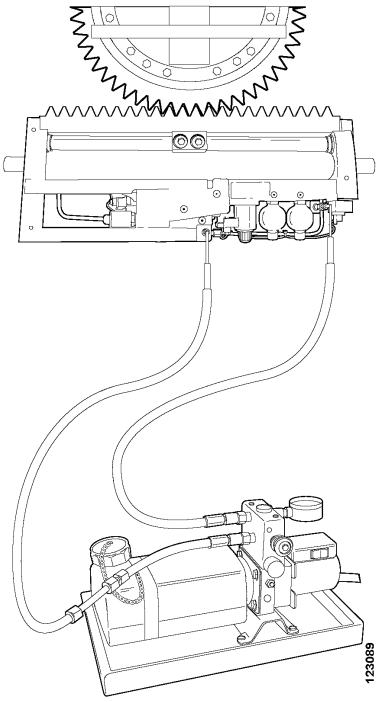
Hydraulic cylinder	7.0 bar (at 20°C)



IMPORTANT! The chart shows how the hydraulic pressure is affected by the oil temperature. Therefore, it is very important to note down the oil temperature when measuring.

1 Remove the rear floor plate.

2 Clean the valve block around the manometer connection. Remove the protection cover and connect the manometer.



IMPORTANT! The measuring equipment must not be connected during driving as the pressure rises steeply when the articulation unit is angled.

3 Check that the pressure is to 7.0 bar (at 20°C or according to the chart). If the pressure is incorrect, see Main group 11 in the Workshop manual 11:10-51.

4 Remove the measuring equipment and fit the protection cover.

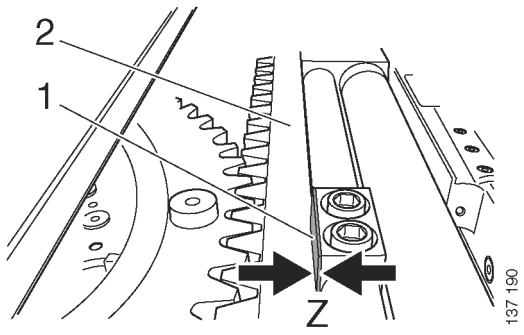
5 Fit the rear floor plate.

© Scania CV AB 2011, Sweden

Checking the support plate

Check the clearance Z between the support plate and the external ring gear. A clearance of up to 0.3 mm is permissible. If it exceeds 0.3 mm, a new support plate must be fitted.

To renew the support plate, see Main group 11 of the Workshop manual, Renewing bushes in the articulation unit.



1 Support plate
2 External ring gear

© Scania CV AB 2011, Sweden

12 Suspension

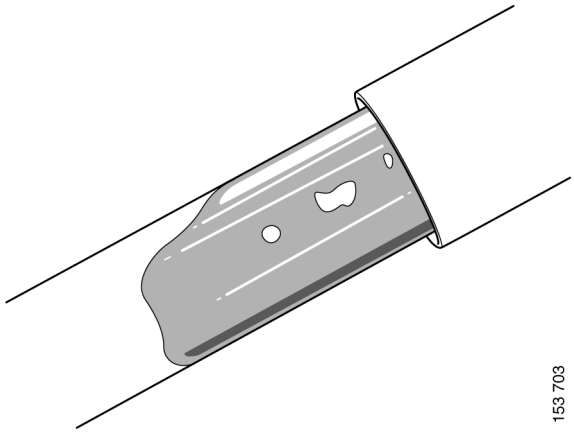
12-01 Checking shock absorbers

Visually check the shock absorbers. The check should include:

- The shock absorbers themselves (leaks, irregularities).
- The shock absorber bushes.

A shock absorber is considered to be leaking if:

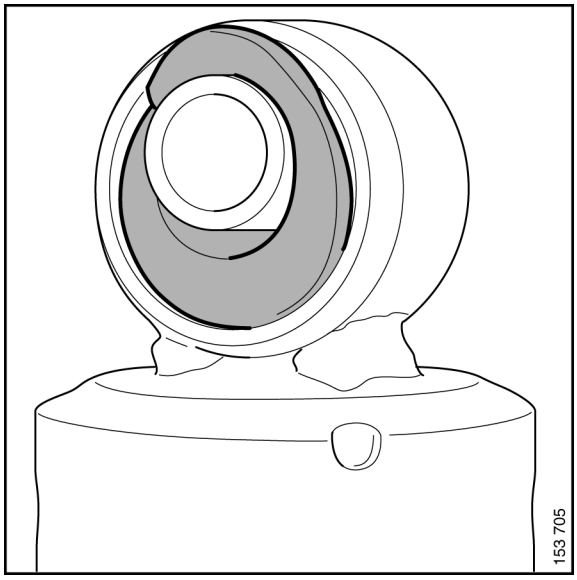
- The part with the smaller diameter is covered with oil and wets your finger if you touch it.

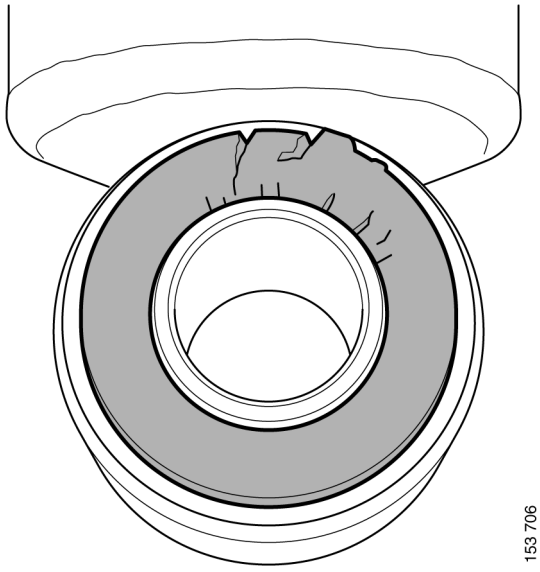


© Scania CV AB 2011, Sweden

Rubber bushes

Make sure that the rubber bushes are not deformed or damaged.





© Scania CV AB 2011, Sweden

12-02 Checking function and air spring height (ELC)

General

It is very important that the nominal air spring height is adjusted so that maximum ride comfort, driving comfort and driveability are achieved.

The adjustment consists of three parts:

1 Calibration

2 Setting of air spring height

3 Setting lever position

WARNING!

Always use axle stands to support the vehicle when working under vehicles with air suspension.

Raising/lowering happens very quickly.

Never detach the lever when the engine is running. There is a serious danger of crushing. Switch off the power with the starter key before commencing work.

Do not adjust the length of the rod with the engine running.

© Scania CV AB 2011, Sweden

1 Calibration

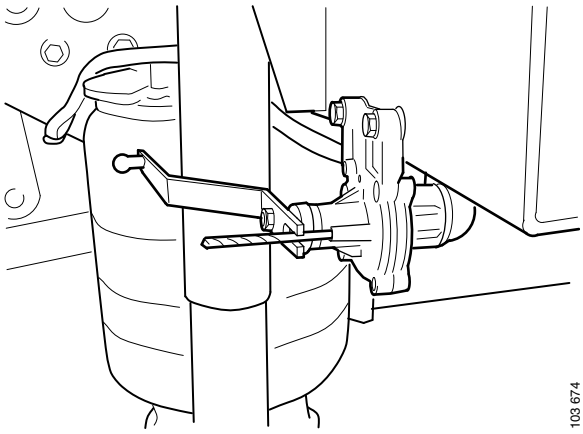
Calibration of the control unit cannot be carried out if there are fault codes registered in it. Ensure that the system is fault free before calibration begins.

1 Switch off the power with the starter key.

2 Remove the link rods from the levers of the level sensors.

3 Fix the levers in position with 4 mm bits or similar.

Excessive play between the drill bit and the lever can be reduced by wrapping tape around the bit.



Fix the lever

4 To avoid the generation of fault codes due to a level sensor being outside the tolerance range, a test measurement can be carried out as follows.

Switch on the power using the starter key.

Measure at connector C 507 for buses, C 507 and C 675 for articulated buses, using a multimeter. The voltage should be between 2.4 and 2.6 volts.

Measure between:

Bus

Pin		**Pin**	**Function**
2 (ELC14)	and	3 (ELC13)	Level sensor, front
8 (ELC26)	and	9 (ELC11)	Right rear
5 (ELC9)	and	6 (ELC10)	Left rear

© Scania CV AB 2011, Sweden

Articulated bus

Pin		Pin	Function
2 (ELC14)	and	3 (ELC13)	Level sensor, front
8 (ELC26)	and	9 (ELC11)	Right centre axle
5 (ELC9)	and	6 (ELC10)	Left centre axle
2 (ELC9R)	and	3 (ELC10R)	Right rear
5 (ELC26R	and	6 (ELC11R)	Left rear

If any of the sensors are outside the tolerance range, the securing with the drill bits must be improved.

5 Switch off the power with the starter key.

6 Press the diagnostics switch and keep it depressed. Then switch on the power by turning the starter key to the drive position.

The diagnostics lamp will be on for 2 seconds whilst the control unit carries out a self test, and will then go out.

After approx. ten seconds the diagnostics lamp will come on again

After a further 2 seconds the lamp will go out.

Release the diagnostics switch.

Calibration is complete.

7 Switch off the power with the starter key.

Leave the drill bits in the level sensors until the setting of the air spring heights and the levers is complete.

© Scania CV AB 2011, Sweden

If calibration failed

Calibration may fail for one of the following reasons.

- One or more fault codes are recorded in the control unit.

  Ensure that the system is fault free before calibration begins.

- The levers of the level sensors are outside the tolerance range:

  Check that the levers are correctly aligned to the fixing holes.

- One of the switches for front entrance kneeling/normal drive level or raising/lowering is activated (grounded):

  Check that the switches are switched off. Check the connections of the switches.

- The diagnostics switch was released before acknowledgement was indicated (approx. ten seconds) by the lamp coming on again.

  Recalibrate.

- Other fault:

  Check occurrence of fault codes, troubleshoot, rectify, erase fault codes and recalibrate.

© Scania CV AB 2011, Sweden

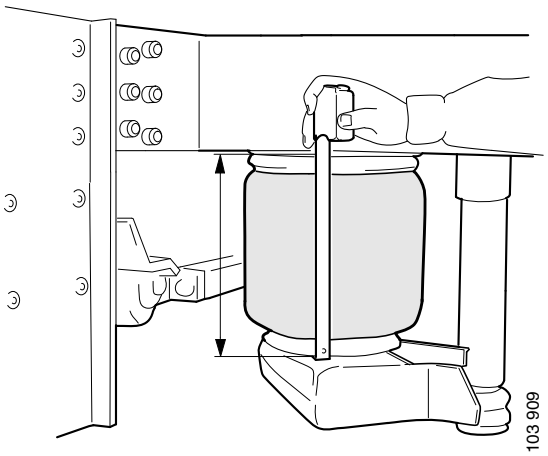
2 Checking air spring height

For dimensions when setting the air spring height: see Main group 12 in the Workshop manual, Air spring height.

Some buses are programmed with a second drive level which means that their air spring height when stationary is approx. 20 mm lower than when driving. If the control unit is pre-programmed with this function, it will be indicated by the label on the control unit. The text is in English and reads as follows:

2nd driving level: With

Air spring height



Measuring air spring height

The check dimension for these vehicles is 20 mm lower than the setting dimension. After setting, the **level fault lamp** will be on. When the engine starts, the vehicle will be lowered to the second drive level and the lamp goes out.

© Scania CV AB 2011, Sweden

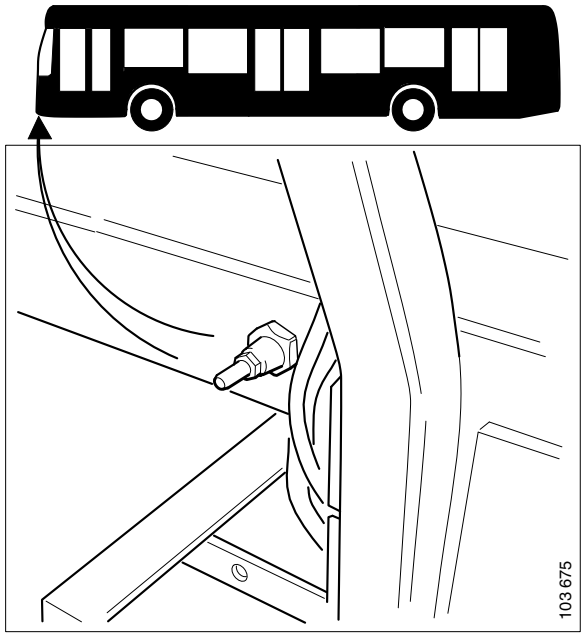
Description

Ensure the starter key is in the off position.

The air spring height is measured between the upper and lower edges of the bellows.

Three nipples are provided on the vehicle for filling/emptying the bellows when setting the air spring height. One at the front and two at the rear. The front nipple adjusts the front bellows. The rear nipples adjust the right and left rear bellows respectively.

Fill or empty the bellows using the filler nipples (of Schraeder type) until the correct level is reached.

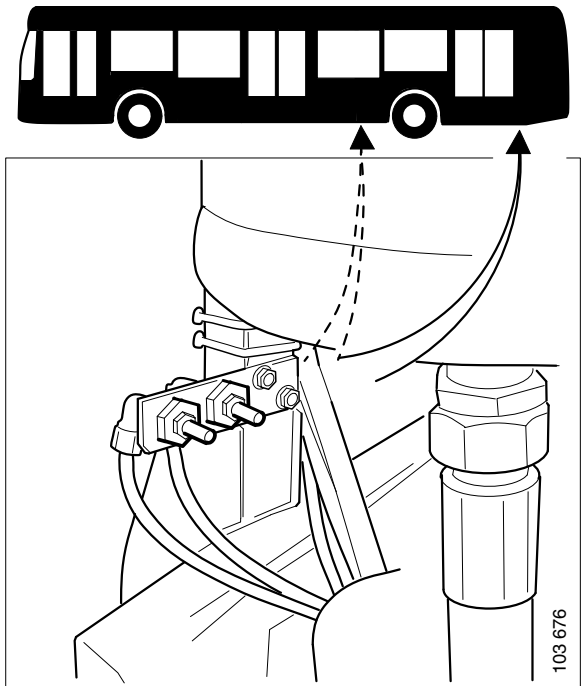


Filler nipple location, front

Setting lever position

Ensure the starter key is in the off position.

Extend or shorten the link rod to the correct length. To avoid tensions in the link system which could result in an incorrect drive level, the link arm should be easily attached to the ball when fitting. Make sure the lever does not exert tension on the drill bit. It should be easy to remove the drill bit.



Filler nipple locations, rear

On a U class chassis the outlet for the rear nipples is in front of the rear axle.

© Scania CV AB 2011, Sweden

12-03 Mechanically-controlled air suspension

Mechanically-controlled air suspension

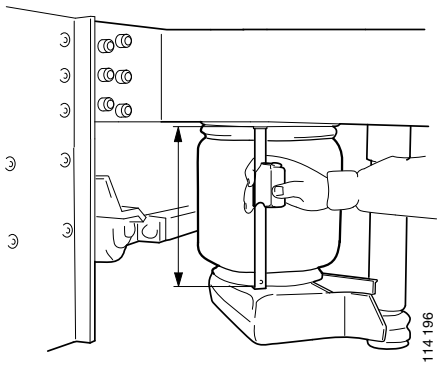
1 Full working pressure in the system.

2 Switch on the ignition power.

3 Normal drive level, i.e. a function such as ground clearance increase.

4 Measure the air spring height between the upper edge of the bellows plate and the lower edge of the roller body.

For correct value, see Main group 12 in the Workshop manual Air spring heights, adjustment of air spring heights.



© Scania CV AB 2011, Sweden

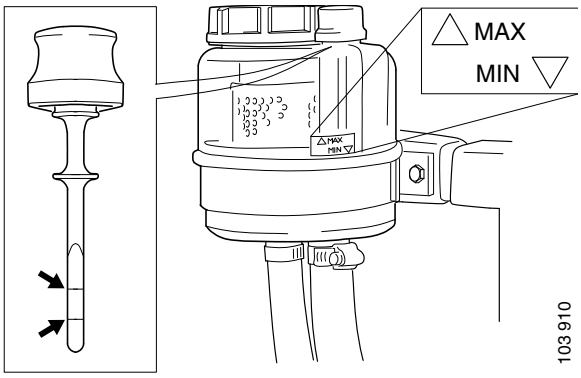
13 Steering system

13-01 Oil level in power steering

Oil grade: Oils, refer to booklet 00:03-09.

Note: Observe the utmost cleanliness. The steering gear is very sensitive to dirt.

The oil level should be between the marks on the dipstick when the engine is running. Approx. 2 cm higher when the engine is not running.



13-02 Renewing the power steering filter

Note: Observe the utmost cleanliness. The steering gear is very sensitive to dirt.

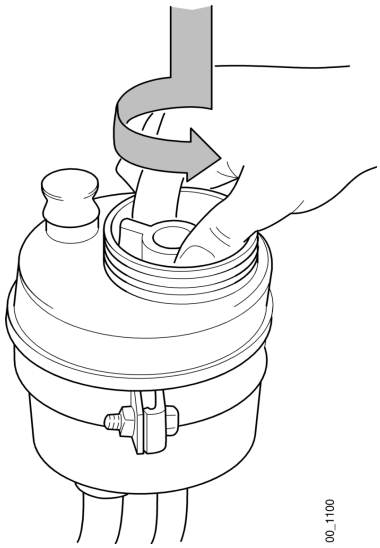
1 Unscrew the cover.

2 Press it down and turn.

3 Remove the old filter.

4 Fit the new filter in reverse order.

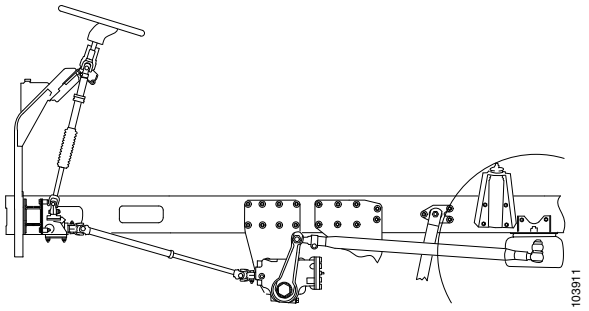
5 Check oil level.



© Scania CV AB 2011, Sweden

13-03 Play in the steering gear, angle gear and steering wheel shafts

With a second person turning the steering wheel, check that there is no irregular play in the steering gear, angle gear, steering wheel shafts and joints.



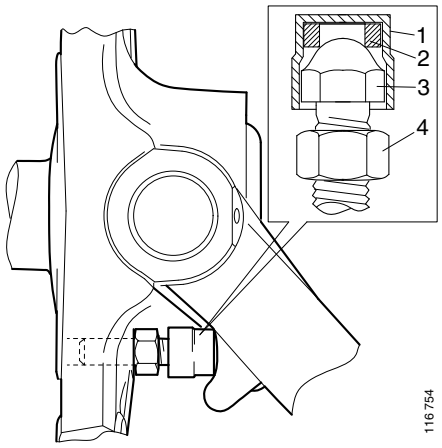
Steering end lock limit

Check that the sleeves have been removed from the set screws.

When the steering wheel is turned to its end position for the first time, the end lock limit is set. To make sure this does not occur until the bus is fully built, a metal washer and a plastic sleeve are fitted to the head of the setting screw. This prevents full steering wheel lock.

If the sleeves are still in place.

Check that the air spring height and the steering straight-ahead position is correctly set before removing the sleeves.



1 *Sleeve*
2 *Washer*
3 *Setting screw head*
4 *Lock nut*

© Scania CV AB 2011, Sweden

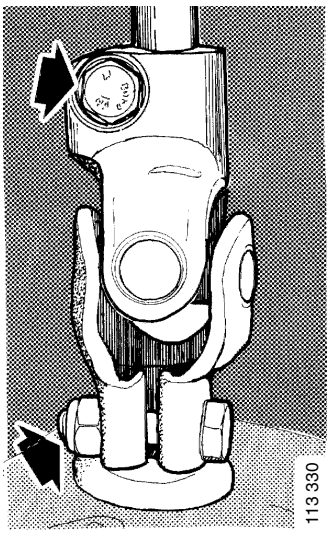
13-04 Steering system screw joints

1 Check that all locking devices on the drop arm, draglink arm, track rod and track rod arm are intact.

2 Check tighten:

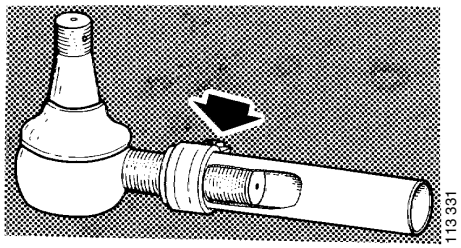
A. Steering column universal joints

B. Clamp joints on track rod and draglink



Tightening torque

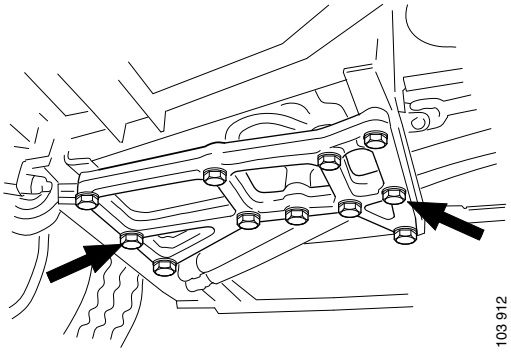
Steering column universal joints	47 Nm
Clamp joints on track rod and draglink	170 Nm



Steering gear mounting

1 Check tighten the nuts between the steering gear bracket and the frame and the screws between the steering gear and the bracket to the specified torque.

2 Check that the hydraulic lines are not damaged by adjacent chassis components.



Tightening torque

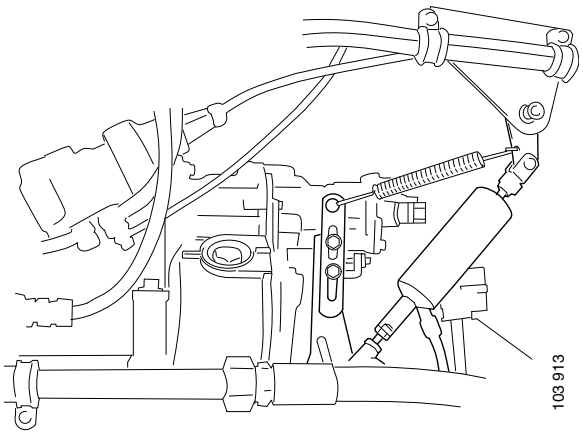
Steering gear	590 Nm
Steering gear bracket	210 Nm

© Scania CV AB 2011, Sweden

14 Engine controls

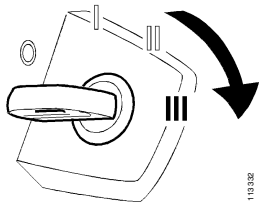
14-01 Checking the throttle control travel

- The parking brake should be applied and the engine switched off.
- Accelerator pedal in released position: The pump arm must rest on the idling stop.
- Accelerator pedal depressed (but not to kick-down): The pump arm must rest on the full-throttle stop.



14-02 Checking the safety system, electric throttle

1 Start the engine. Let the engine idle, with the gearbox in neutral and the parking brake applied.



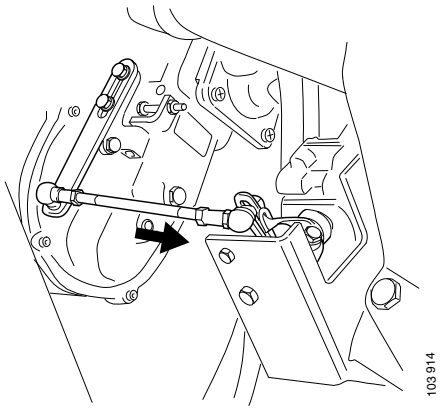
© Scania CV AB 2011, Sweden

2 Pull the link rod between the control motor and the injection pump to wide open throttle. The safety function should now engage; the control unit receives conflicting information. The accelerator pedal position does not correspond to the control motor position. The fuel valve should engage and pulse the engine speed down to approx. 1,000 rpm. This confirms that the safety system is working.

Note: 2,250 rpm for gas engine. The safety system will shut off the gas supply.

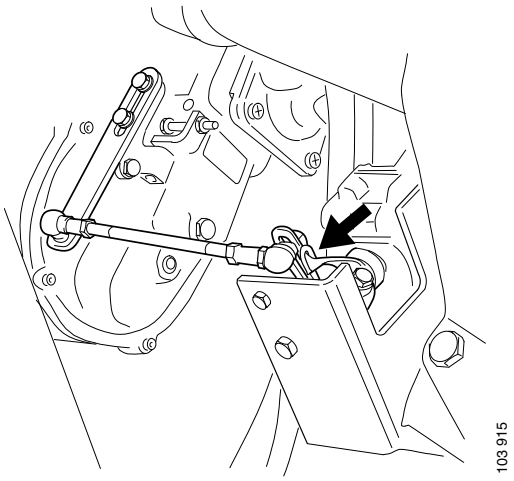
3 Switch off the engine.

4 Erase any fault codes that were generated. Refer to section 16-13 Electric throttle "Clear the fault code memory".



Return spring

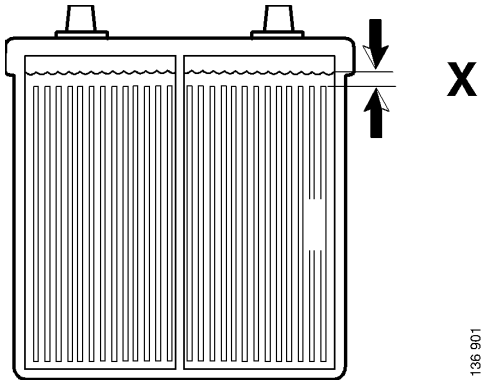
Check the return spring located on the control motor. The spring should grip the control motor arm as illustrated.



© Scania CV AB 2011, Sweden

16 Electrical system

16-01 Fluid level in batteries



- Check that the fluid level is correct, i.e. that it is at the correct level above the plates in all cells.
- Top up with distilled water when necessary.

Note: Sulphuric acid or "booster electrolyte" must not be used.

Battery capacity	Fluid level X
140 Ah	20-25 mm
175 Ah	20-25 mm
220 Ah	30-35 mm

Low maintenance battery

Battery capacity	Difference in level X
180 Ah	30-35 mm

16-02 Charging condition

WARNING!

Charging must be carried out only with the battery cable terminal detached or the battery master switch off, otherwise the control units may be destroyed.

Check the specific gravity of the acid using a hydrometer. In a fully-charged battery it should be:

At	+ 20°C	1.280
At	0°C	1.294
At	- 20°C	1.308

There must be a difference of no more than 0.03 between the battery cells.

- If the density is below 1.24 the battery must be charged. A discharged battery will freeze at -5°C.
- Do not rapid-charge the batteries. The battery will be damaged after repeated rapid-charging.

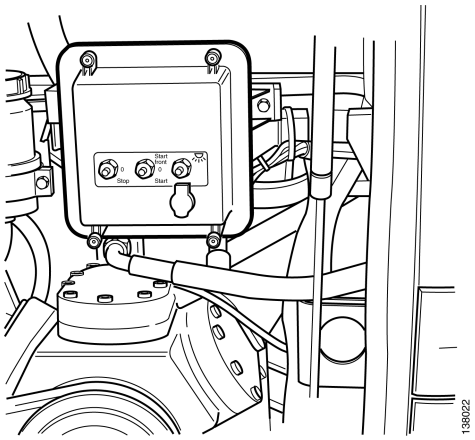
Note: If the charge differs between the batteries, **they must be charged separately.**

- For instructions, see Main group 16 in the Workshop manual, "Electrical system components".

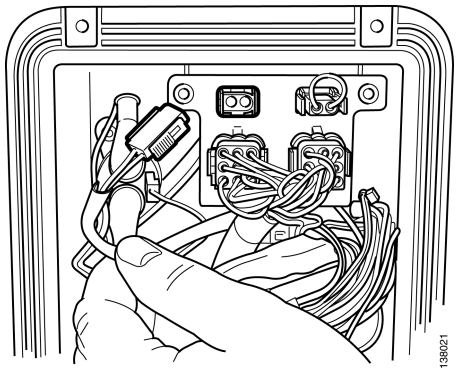
© Scania CV AB 2011, Sweden

16-03 Checking the automatic fire alarm

1 Open the central electric unit at the rear of the engine compartment.



2 Pull out plug C526.



3 Switch on the ignition power and check that the warning light comes on and the siren sounds.

Warning light in case of fire

© Scania CV AB 2011, Sweden

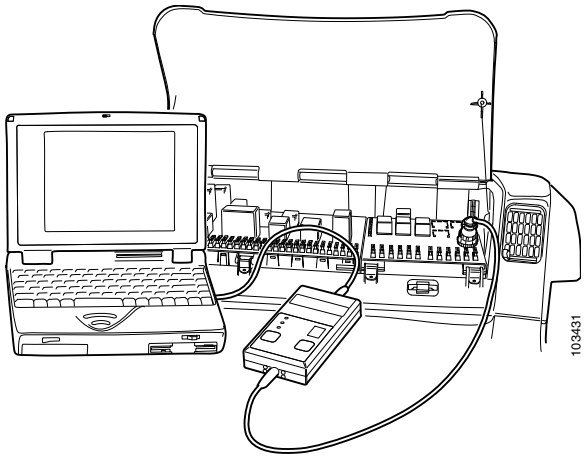
16-04 Check and clear fault codes using a PC

Start Scania Diagnos

The power must be turned off using the starter key.

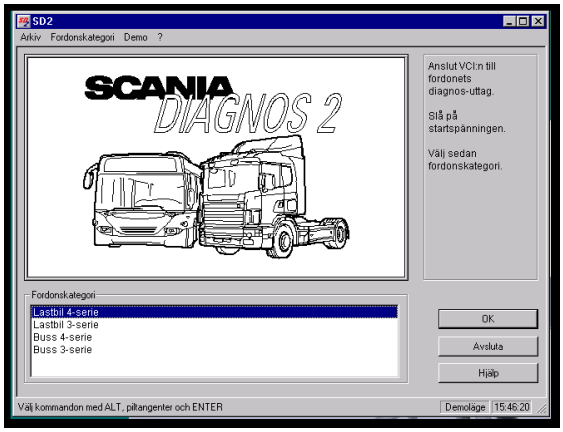
1 Connect the VCI to the vehicle diagnostic socket and to the PC.

2 Switch on the power using the vehicle starter key.



PC and VCI connected to the socket in the central electric unit.

3 Start the Scania Diagnos program.



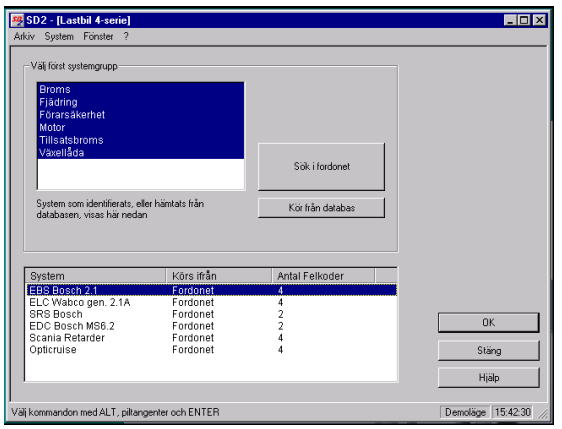
4 Select the vehicle category and click on "OK".

5 Select all system groups and click on "Find in vehicle".

The program will search for and identify all control units in the system groups in the vehicle.

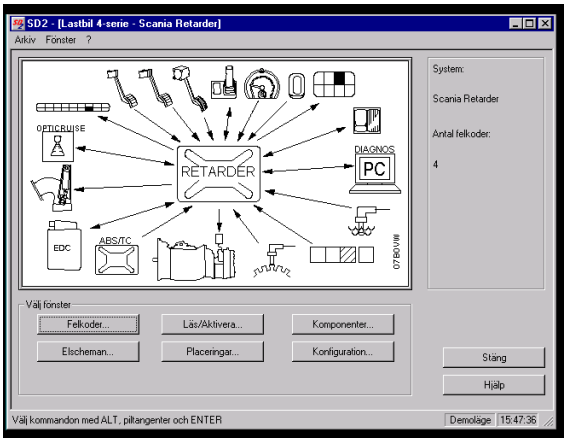
The number of fault codes stored is shown for every system group.

If no fault codes have been stored, the program can be terminated.



© Scania CV AB 2011, Sweden

6 Select a system and click on "OK". A system window will be displayed. Click on "Fault codes".



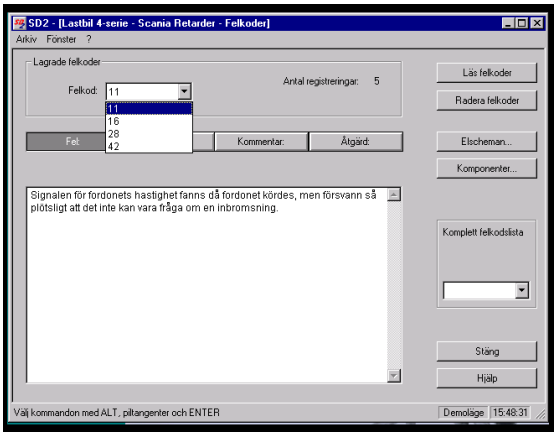
113 040

7 Click on the arrow for stored fault codes to display the fault codes.

Note the fault codes, then click on "Clear fault codes".

8 Return to the system group window and select the next system that has fault codes.

To return to the previous window click on "Close".



113 041

Exit Scania Diagnos

Close the program by selecting File and Exit, or by double-clicking on the system menu box. ALT + F4 can also be used if you find this easier.

© Scania CV AB 2011, Sweden

16-05 EDC, Electronically controlled fuel injection

Reading flash codes

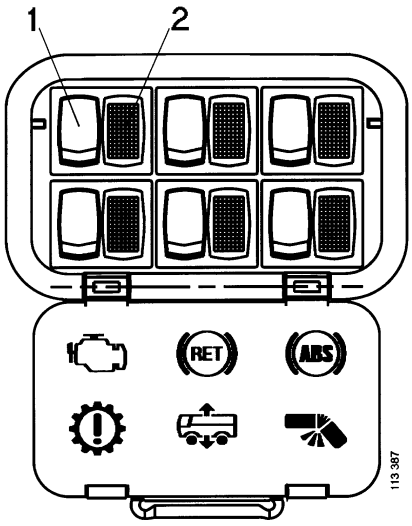
Fault codes are read by means of flash codes from the diagnostics lamp.

The power must be switched on with the starter key.

1 Press the diagnostics switch. Release it and count the number of times the lamp flashes.

2 Press the switch again and count the number of flashes. If the same code is shown, there is only one fault in the system. Otherwise, press the switch again until the first code is repeated.

Note all fault codes.

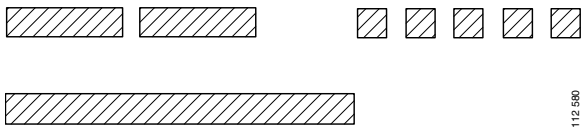


1 Diagnostics switch
2 Diagnostics lamp

The long flashes shown first represent tens. The shorter flashes, (0.3 seconds) that follow represent units.

The example on the right signifies fault code 25.

A single, very long flash (4 s) means that there are no fault codes stored in the memory.



© Scania CV AB 2011, Sweden

Clear fault codes

The fault codes must be cleared when troubleshooting and repair are complete. Clearing takes place on two different levels and is described below.

Clearing fault codes

This clears **the fault codes** which are flashed out with the diagnostics lamp. However, the fault codes will remain in another memory which can only be accessed using a PC.

1 Start and switch off the engine once so that a shutdown test is carried out. Wait until the warning lamp goes out.

2 Press the diagnostics switch and keep it depressed.

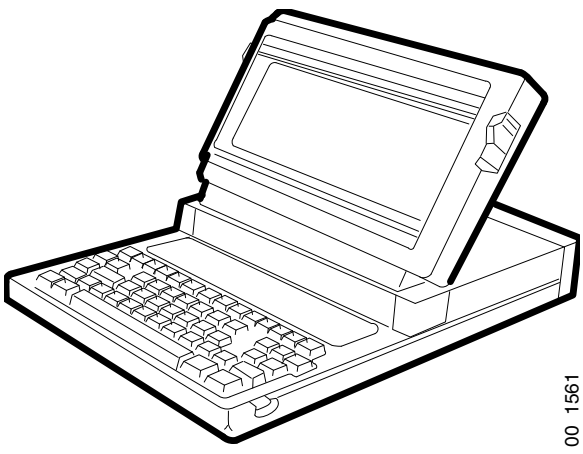
3 Turn the starter key to the drive position and wait at least 3 seconds. Resetting is then complete.

4 Start the engine and check that the indicator lamp goes out.

5 Press the diagnostics switch. The fault code memory should be empty, i.e. one single long flash.

Final clearing of fault codes using a PC

When troubleshooting and repair are complete, the fault codes should be cleared using Scania Diagnos and a PC. Both the flash code memory and the PC memory in the control unit are cleared simultaneously using the PC.



© Scania CV AB 2011, Sweden

16-06 Opticruise

Notification of fault codes

When the driver switches off the power, the message "CHK CODE" is displayed in the display window if the control unit has stored any fault codes during driving. The message is repeated when the power is switched back on again.

Reading fault codes

1 Switch on the power using the starter key. **Wait five seconds** then press the diagnostics switch for at least half a second. Then release it. The heading "TESTING" is displayed in the text window and the buzzer sounds.

   Do not touch the diagnostics switch for the moment; the test program is now running. All the text boxes in the text window light up for a second. At the same time the buzzer sounds.

2 The heading "ECU NO" is displayed, directly followed by the part number of the control unit hardware.

3 The heading "PROG NO" is displayed, directly followed by the part number of the control unit software.

4 The heading "CHASSNO" is displayed, directly followed by the vehicle chassis serial number.

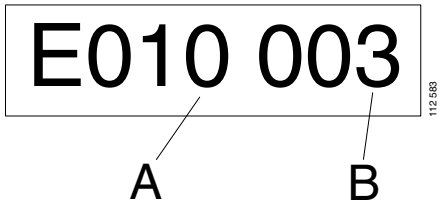
5 The heading "F CODES" is displayed, directly followed by any fault codes stored. More on this below.

   - The fault codes are displayed one at a time, at two second intervals.

© Scania CV AB 2011, Sweden

- When all the stored fault codes have been displayed, the buzzer will sound briefly. The stored fault codes are then displayed again. This can be repeated any number of times, so there is no problem if you lose concentration.
- The display may, for example, appear as in the figure on the left. A shows the number of the fault code (10 in this case) and B shows how many times the fault has been registered (3).

6 Note the fault codes. Go through the test program. Press the diagnostics switch to move between the various test stages.

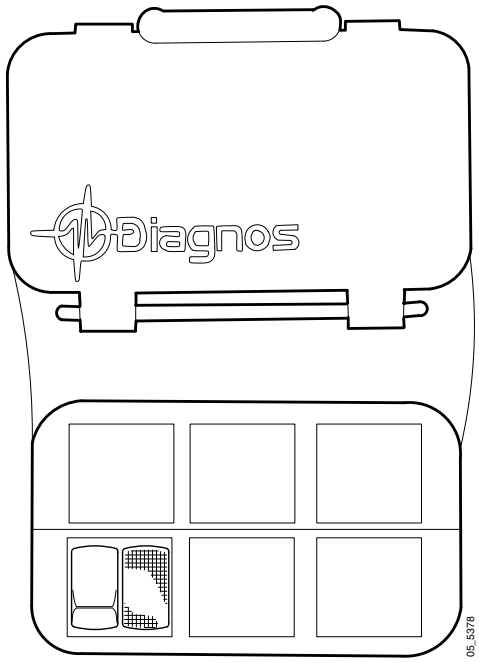


Resetting the warning system

The warning system may need to be reset from time to time. Someone may have disconnected a cable harness for example, whilst the power was on. This is quite a common occurrence. The control unit will then interpret it as a genuine fault.

Resetting of the warning system is carried out by either using the diagnostics switch concealed behind the cover in the instrument panel or by using a PC connected to the vehicle diagnostic socket in the central electric unit.

The symbol for the Opticruise diagnostics switch is a gear with an exclamation mark in the middle.



© Scania CV AB 2011, Sweden

All fault codes are cleared when the warning system is reset. Proceed as follows.

1 Switch off the power using the starter key.

2 Press the diagnostics switch and keep it depressed. Switch on the power supply.

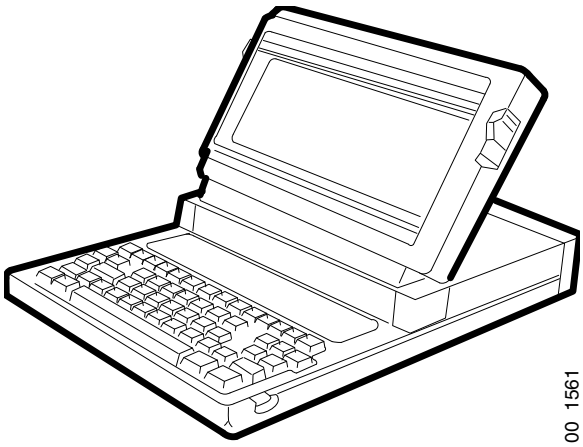
3 The buzzer will sound briefly. When the text "ERASED" is displayed in the text window, clearing is completed.

4 Drive the bus and check that the fault codes are not regenerated.

112 584

Final clearing of fault codes using a PC

When troubleshooting and repair are complete, the fault codes should be cleared using Scania Diagnos and a PC. Both the flash code memory and the PC memory in the control unit are cleared simultaneously using the PC.

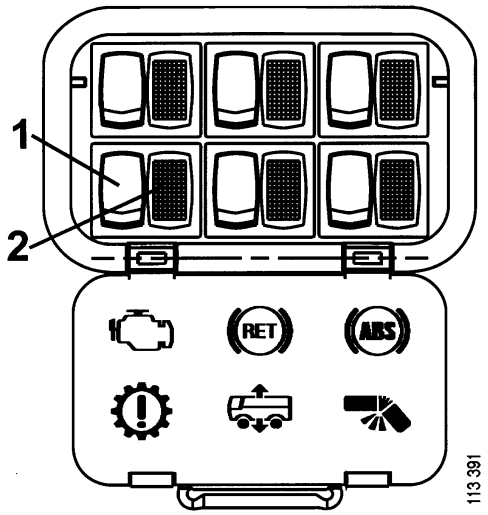

00 1561

© Scania CV AB 2011, Sweden

16-07 CS Comfort Shift

Diagnostics switch for test programme

There is an integrated test programme in the control unit, that is activated using the diagnostics switch. The vehicle must be stationary.



1 Diagnostics switch
2 Diagnostics lamp

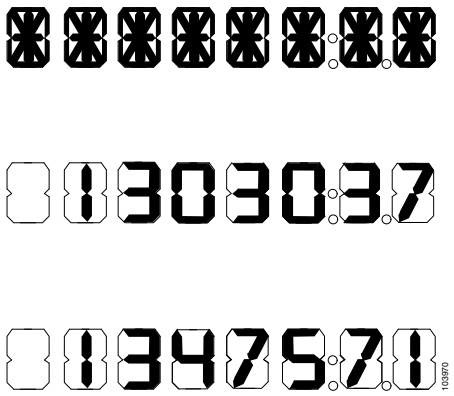
Starting the test programme

Switch on the power using the starter key.

Press the diagnostics switch

First time it is pressed.

- All the gear indicator windows are on for 1 second and go out for 1 second, and the buzzer sounds for 2 seconds.
- The part number of the code plug is displayed for 2 seconds.
- The part number of the control unit is displayed for 2 seconds.



© Scania CV AB 2011, Sweden

- If fault codes are present, these are displayed at 2 second intervals. When the fault codes stored in the control unit have been displayed the buzzer sounds twice and the fault codes are displayed again from the beginning.

103 971

Example:

The gear indicator displays

E035 = Fault code 35

003 = Has occurred 3 times

Switch off the power with the starter key.

Clearing fault codes

1 Switch off the power with the starter key.

2 Press the diagnostics switch and keep it depressed.

3 Turn the starter key to the drive position. The gear indicator shows "ERASE" to indicate that the fault codes are erased.

103 977

© Scania CV AB 2011, Sweden

16-08 ZF automatic gearbox

General

The diagnostics lamp is connected in parallel with the driving mode selector. Therefore the diagnostics lamp is constantly on when the power has been turned on with the starter key.

In the event of an active fault the depressed button on the driving mode selector flashes to warn the driver, and consequently the diagnostics lamp also flashes.

The fault code memory can store a maximum of ten fault codes.

Reading fault codes

- The power must be switched on with the starter key.
- The drive mode selector must be in position N.

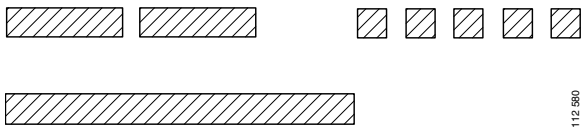
1 Depress the diagnostics switch for at least three seconds. (The diagnostics lamp goes out).

2 Release the switch and count the number of flashes.

The long flashes shown first represent tens. The shorter flashes that follow represent single digits.

The example on the right signifies fault code 25.

No fault codes are stored if the diagnostics lamp is constantly on.



© Scania CV AB 2011, Sweden

3 Depress the switch again for at least three seconds. Release it and count the number of times the lamp flashes. If the same code is shown, there is only one fault in the system. Otherwise, press the switch again until the first code is repeated.

Clearing fault codes

1 Switch off the power with the starter key.

2 Press the diagnostics switch and keep it depressed.

3 Turn on the power using the starter key and wait for at least 3 seconds before releasing the diagnostics switch.

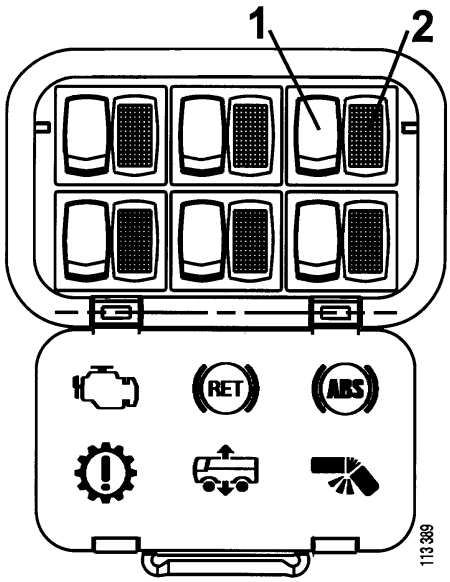
© Scania CV AB 2011, Sweden

16-09 Wabco ABS/TC "D"

In this version of the Wabco ABS/TC there is a built-in system for troubleshooting/diagnosis.

This system has two modes: diagnostic and system mode.

In system mode, stored fault codes are erased and the ABS/TC system control unit type is displayed.



1 Diagnostic switch, ABS/TC
2 Diagnostics lamp

Diagnostic mode

Two things can be indicated in diagnostic mode:

Mode 1 if there are one or more current faults.

Mode 2 if the control unit has received no information on a current fault.

There may be current faults, but the vehicle has to be in motion for the control unit to interpret the fault as current.

1 The fault code for the current fault is displayed if the fault still exists. The current fault must be repaired so that any other faults can be displayed. The control unit is able to display only one current fault code at a time.

2 Fault codes for the faults stored in the fault code memory are displayed. Of these faults, the last four are flashed out in reverse order, i.e. the latest fault to occur is displayed first, if there are more faults these are flashed out in a random order. There may be a maximum of 16 fault codes stored.

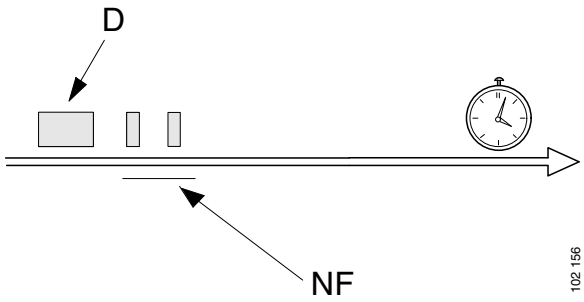
© Scania CV AB 2011, Sweden

Reading fault codes

To enable the control unit to display the current or the stored fault codes, the diagnostic switch must be depressed for 0.5-3.0 seconds (= diagnostic position). If the switch is held depressed for more than 3.0 seconds, system mode is selected.

The fault code consists of two digits.

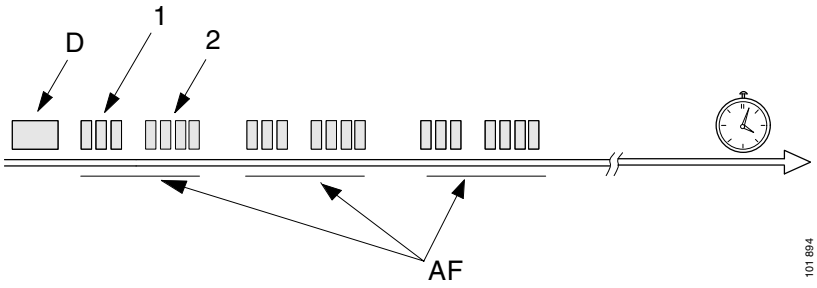
If the control unit has not generated any faults. I



D = depressed diagnostic switch

NF = no stored fault codes If the vehicle is fault-free, this flash code is displayed once.

Current fault code



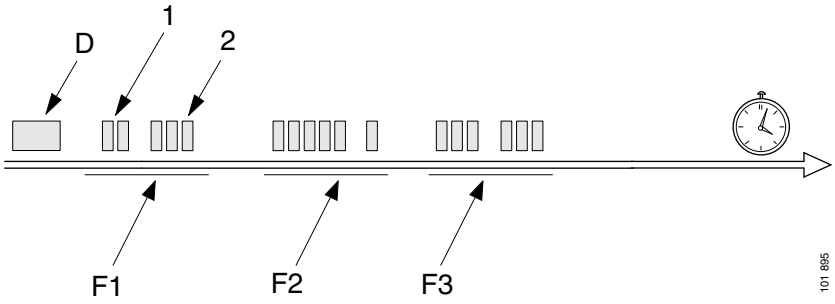
D = depressed diagnostic switch

1 = 1st digit in the fault code.

2 = 2nd digit in the fault code.

AF = The control unit has sensed that a fault is present. Display of the current fault code is repeated. The control unit is able to display only one current fault code at a time.

Stored fault codes (no current fault code)



D = depressed diagnostic switch

1 = 1st digit in the fault code.

2 = 2nd digit in the fault code.

F1 = 1st stored fault code

F2; F3 = 2nd, 3rd stored fault code

Comment on F1, F2 and F3: stored fault codes are displayed once. There may be a maximum of 16 fault codes stored.

© Scania CV AB 2011, Sweden

System mode

For the control unit to switch to the system mode, the diagnostic switch must be depressed for 3-6 seconds.

In system mode:

1 Stored fault codes are cleared. The clearing of stored fault codes is confirmed by the diagnostics lamp, which flashes rapidly eight times. If there is a current fault code, this cannot be cleared; the fault must be repaired first.

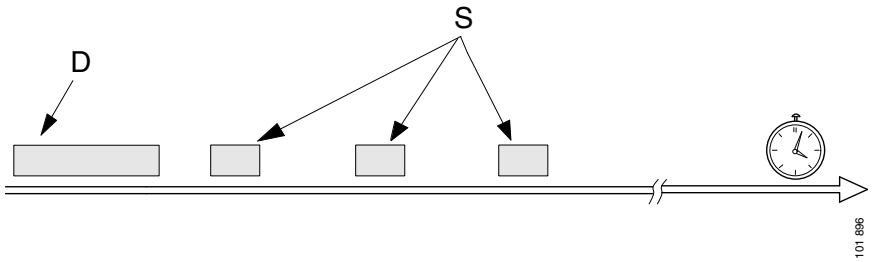
2 Displays the ABS/TC system control unit type. The control unit type is flashed out in the system block, and this is repeated. One flash = 6x2 bus and two flashes = 4x2 bus.

Displaying system mode

Clear fault codes

For the control unit to switch to the system mode, the diagnostic switch must be depressed for 3-6 seconds. The following is then displayed/happens:

If there is a current fault code:



D = Depressed diagnostic switch

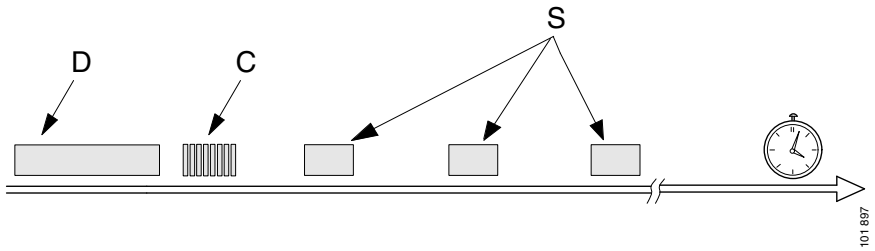
S = The system block, flashes out as long as the control unit is in system mode

One flash = 6x2 bus

Two flashes = 4x2 bus

© Scania CV AB 2011, Sweden

If there are no current fault codes = clearing of stored fault codes



D = Depressed diagnostic switch

S = The system block, flashes out as long as the control unit is in system mode

One flash = 6x2 bus

Two flashes = 4x2 bus

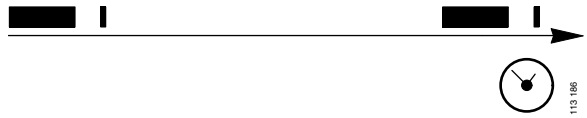
C = Eight rapid flashes, confirmation that the stored fault codes have been cleared.

© Scania CV AB 2011, Sweden

16-10 Wabco ABS "C3"

Wabco ABS can store several fault codes per diagonal, but the diagnostics lamp can only display one code at a time.

The fault code that is active, i.e. the fault is present on the vehicle, is displayed first. Fault codes stored in the control unit are displayed in numerical order, the fault code with the lowest number being displayed first.



No stored fault codes

Reading fault codes

Reading without clearing

1 Switch on the ignition power.

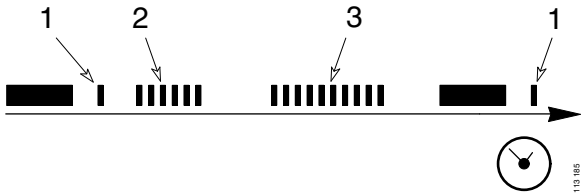
2 Switch on the diagnostics switch.

3 Note down the fault code.

4 Switch off the ignition voltage.

5 Switch off the diagnostics switch.

6 In order to read the next fault code, the current fault code must be cleared.



Fault codes 6-10

1 1 flash = 6-channel ABS

2 1st digit in the fault code

3 2nd digit in the fault code

© Scania CV AB 2011, Sweden

Reading and clearing at the same time

Note: The fault code can only be cleared if the fault is no longer active.

1 Switch on the ignition voltage.

2 Switch on the diagnostics switch.

3 Switch off the diagnostics switch when the lamp starts to flash.

4 The lamp will continue to flash although the diagnostics switch has been switched off.

5 Note down the fault code.

6 When the lamp ceases to flash, the fault code has been erased.

To read the next fault code the starter voltage must be cut before the procedure can begin again.

© Scania CV AB 2011, Sweden

16-11 Retarder

Reading fault codes

Diagnostic flash codes should be read whilst the vehicle is stationary. It does not matter if the engine is running or not.

Proceed as follows: Turn the starter key into the drive position and wait for a few seconds. Keep the diagnostics switch (1) depressed for at least 1 second, then release it.

The diagnostics lamp (2) goes off for 2 seconds, then the flashing starts. The series of flashes are separated by distinct pauses.

First, the control unit configuration is shown, followed by the fault codes. If no fault codes are stored, only the configuration code will be flashed.

Diagnostic flashes may be repeated any number of times. Just press the switch again.

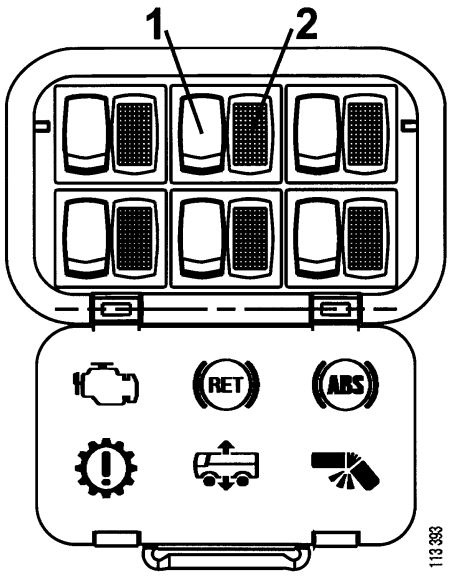
First the 3-digit configuration code is flashed out, followed by a 4.5 second pause. The fault codes, each one consisting of 2 digits will then follow. The ten digit is flashed first, followed by the unit digit.

The example on the right shows fault code 32

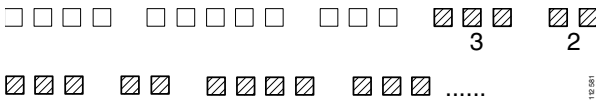
The fault codes are flashed out as follows

1st digit — 1.5 s pause — 2nd digit — 4.5 s pause — next fault code — next fault code, and so on. The fault codes are flashed out in the order the faults occurred.

Diagnostic flashes may be repeated any number of times. Simply depress the diagnostic switch again. The fault codes remain in the control unit until deliberately cleared.



1 Diagnostics switch
2 Diagnostics lamp



© Scania CV AB 2011, Sweden

Clearing fault codes

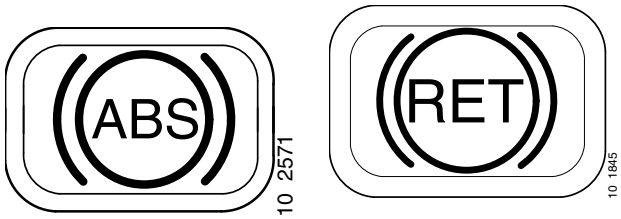
The fault codes must be cleared when troubleshooting and repair are complete. Clearing of fault codes takes place on two different levels and is described below.

Note: The vehicle may have to be driven for up to half an hour for certain fault codes to be generated.

1 Switch off the voltage using the starter key. Then press the diagnostics switch (1) and keep it depressed.

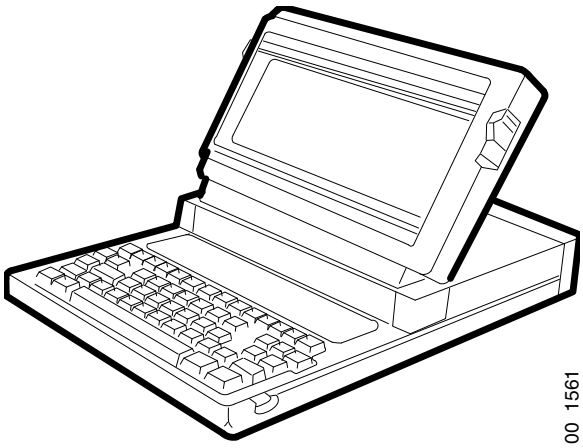
2 Turn the starter key to the drive position and wait for at least 3 seconds. The fault codes have now been cleared.

3 Drive the bus and check that the ABS lamp goes out, and that the RETlamp also goes out. If they don't, or if the RET lamp comes on again, despite repeated resetting, then a fault remains. The fault code indicates where to search for the fault.



Final clearing of fault codes using a PC

When troubleshooting and repair are complete, the fault codes should be cleared using Scania Diagnos and a PC. Both the flash code memory and the PC memory in the control unit are cleared simultaneously using the PC.



© Scania CV AB 2011, Sweden

Brake signals to the retarder

Checking brake signals to the retarder (ZF 4/5HP500/590/600).

- The compressed air system should be pressurised.
- The switch for automatic retarder operation should be switched on.

Checking

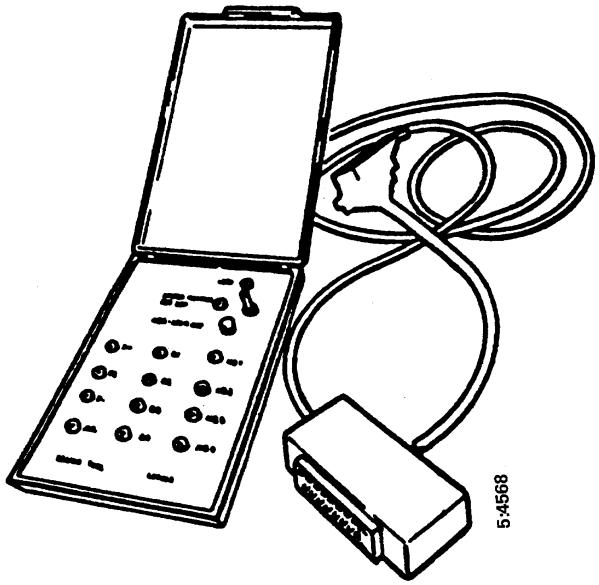
The control unit is located below the instrument panel near the steering column or in the body central electric unit.

1 Switch off the power with the starter key.

2 Connect test instrument 639 802 in series with the connector between the retarder control unit and the connection on the cable.

3 Switch on the power using the starter key.

4 Connect a manometer to the service brake circuit test connection near one of the front wheels.

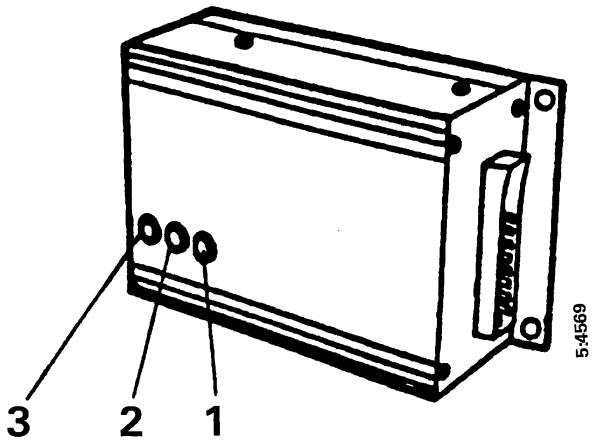


Test instrument 639 802

5 Indicator lamps B1 and B2 should come on when the brake pedal is depressed approx. 10 mm. Measure at the front edge of the pedal.

6 At a brake pressure of 0.5 bar the lamp B4 should come on. Lamp B3 should come on when the brake pedal is in a position between B1 + B2.

Note: Signal B1 is not used for ZF: gearboxes, but is activated at the same time as B2 during automatic operation. Therefore the potentiometers are designated B1 + B2.



1 Trim potentiometer for B1 + B2
2 Trim potentiometer for B4
3 Trim potentiometer for B3

© Scania CV AB 2011, Sweden

Brake signals to the retarder

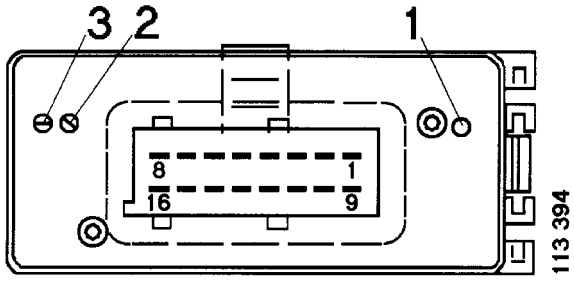
Checking brake signals to the retarder (Telma).

- The compressed air system should be pressurised.
- The switch for automatic retarder operation should be switched on.

Checks and adjustments

The control unit is located below the instrument panel near the steering column or in the body central electric unit.

1 Release the control unit so that the LED is clearly visible and the trim potentiometers are easily accessible.



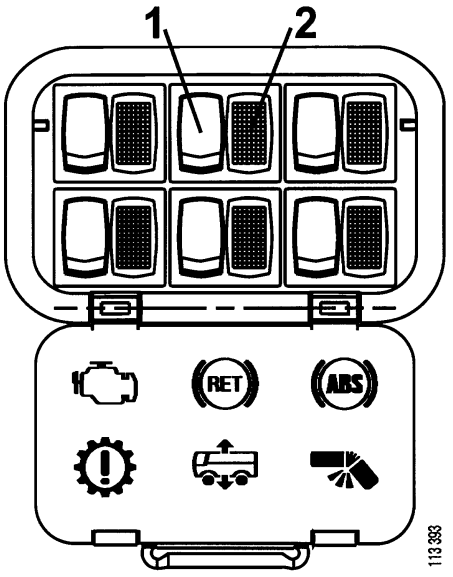
1 LED
2 Trim potentiometer "Step 2"
3 Trim potentiometer "Step 4"

2 Connect a manometer to the service brake circuit test connection near one of the front wheels.

3 Depress the diagnostics switch at the same time as voltage is switched on with the starter key.

4 The LED should come on when the brake pedal is depressed approx. 10 mm. Measure at the front edge of the pedal. If required, adjust the trim potentiometer marked "Step 2" until the LED just comes on.

5 At a brake pressure of 0.5 bar the LED should come on. If required, adjust the trim potentiometer marked "Step 4" until the LED just goes out.



1 Diagnostics switch
2 Diagnostics lamp

© Scania CV AB 2011, Sweden

Adjusting the trim potentiometers

Trim potentiometers do not have any mechanical end stops.

They can be adjusted 10 turns from one electrical end stop to the other.

To locate the centre position, turn more than 10 turns in one direction and then 5 turns in the opposite direction.

Clockwise rotation of the trim potentiometer means that the brake pedal must be depressed further before the retarder is engaged.

© Scania CV AB 2011, Sweden

16-12 Articulation control

(With electric throttle)

Reading fault codes

Switch on the power using the starter key.

If fault codes are present the diagnostics lamp is constantly on.

The diagnostics lamp is out if no codes are present.

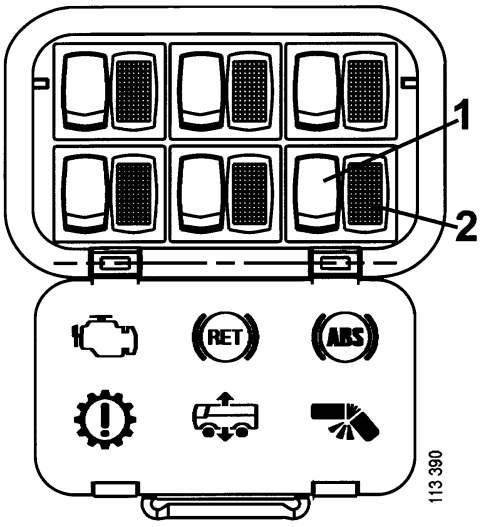
1 Press the diagnostics switch. Release it and count the number of times the lamp flashes.

2 Note all fault codes.

The number of flashes indicates the fault code.

Fault code 14 = 14 flashes.

3 The faults are flashed one after another, at approx. 2 second intervals.



1 Diagnostics switch
2 Diagnostics lamp

© Scania CV AB 2011, Sweden

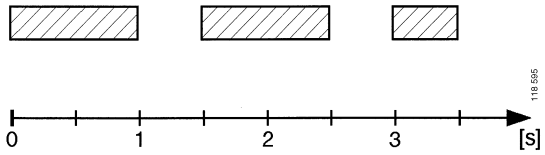
(With EDC)

Reading fault codes

Switch on the starter (15 supply).

Depress the diagnostics switch and keep it depressed for 2 seconds.

When reading fault codes, a long flash indicates units of ten and a short flash indicates one unit. Example according to the illustration: Fault code 21 flashes in the following way: Long - long - short. If there are no fault codes registered the lamp will be on for 4 seconds.



Depress the diagnostics switch once again to read another fault code.

Clearing fault codes

1 Switch off the power with the starter key.

2 Press the diagnostics switch and keep it depressed.

3 Turn the starter key to the drive position. Keep the switch depressed for 3 seconds.

4 Release the switch. The lamp goes out. All fault codes have then been cleared.

Checking the damping function, generation 4

Connect SD2 and follow the instructions.

The check tests the function of the hydraulic piston.

If the hydraulic piston is fault-free, a jolt should be felt in the bus during the test. If this does not happen, check the hydraulic piston.

© Scania CV AB 2011, Sweden

16-13 ELC, Electrically-controlled air suspension

The ELC constantly checks its own function. If there is a fault, this is indicated by means of the system fault lamp. The detected fault is allocated a fault code which is stored in the control unit. The fault code can be read as a flash code from the diagnostics lamp. The fault code is saved even if the fault is temporary and the system returns to normal function and the system fault lamp goes out.

Reading flash codes

Fault codes are read by means of flash codes from the diagnostics lamp.

The power should be switched on using the starter key

1 Depress the diagnostics switch beside the diagnostics lamp for at least 3 seconds.

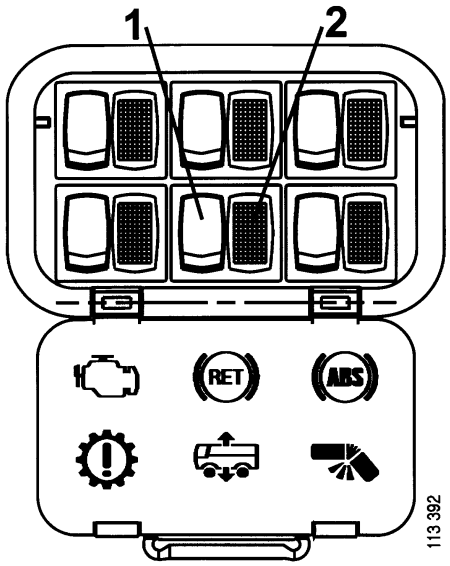
2 Release the switch and the fault codes will be flashed out.

3 The flash code is made up of tens and units. When the diagnostics switch is released, the first ten is flashed out. The flashing signals for tens are slow, 10, 20, 30, etc.

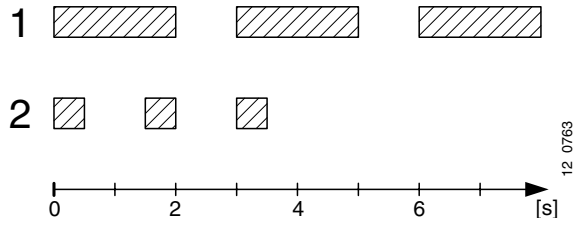
   The units are flashed out after the tens. The flashing signals for units are rapid, 1, 2, 3, 4, etc.

4 The flashing signals are added together to give the fault code, which can be read from the fault code list.

5 When all the fault codes have been flashed out, the control unit pauses for 1.5 seconds. The fault codes are then flashed out again. This continues until the power is switched off or the fault codes are cleared.



1 Diagnostics switch
2 Diagnostics lamp



Flashing code for fault code 33
1 Flashing code, tens
2 Flashing code, units

© Scania CV AB 2011, Sweden

Clearing fault codes

The fault codes are stored in the control unit until they are cleared. It is important that the fault codes are cleared when the faults have been rectified so that there is no confusion the next time troubleshooting is carried out.

The power should be switched on using the starter key

1 Depress the diagnostics switch and keep it depressed for at least 3 seconds. Release the diagnostics switch.

2 Depress the diagnostics switch again and keep it depressed. The diagnostics lamp goes out.

3 Depress the switch for front entrance kneeling/normal or the switch for raising/lowering once, for at least 1 second. Release the switch.

   The diagnostics lamp comes on when the fault codes are cleared.

4 Release the diagnostics switch.

   The diagnostics lamp goes out and the system returns to normal function.

© Scania CV AB 2011, Sweden

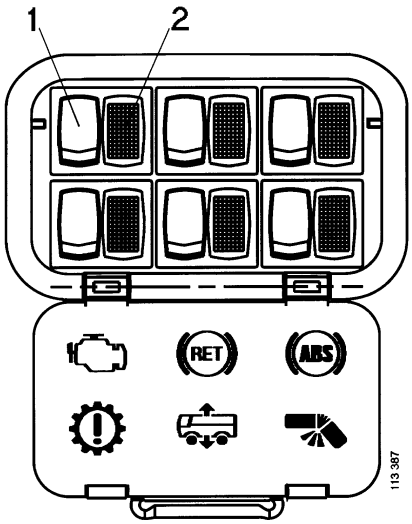
16-14 Electric throttle

Fault codes stored in the control unit are displayed with flash codes from the instrument panel indicator lamp as well as the indicator lamp beside the diagnostics switch.

Reading fault codes

The flash code can be activated 2 seconds after the power is switched on with the starter key. The warning lamp may now be off, on or flashing depending on the type of fault.

1 Press the diagnostics switch in for at least half a second and release it.



1 Diagnostics switch
2 Diagnostics lamp

2 The warning lamp will now switch off for two seconds.

3 The first digit in the fault code represents the ten. It flashes once per second. Count the number of flashes to obtain the tens digit in the fault code.

4 The lamp remains off for 2 seconds.

5 The second digit in the fault code represents the unit. It flashes twice per second. Count the number of flashes to obtain the tens digit in the fault code.

6 The warning lamp will now switch off for two seconds.

7 The fault code is repeated until the diagnostics switch is depressed again.

8 The next fault code will then be displayed.

If there are no further fault codes the indicator lamp returns to the same condition as before the diagnostics switch was first depressed, i.e. item 1.

Clearing fault codes

1 Switch off the power using the starter key.

2 Keep the diagnostics switch depressed.

3 Switch on the power using the starter key.

4 Keep the diagnostics switch depressed for at least an additional 2 seconds before releasing it.

© Scania CV AB 2011, Sweden

16-15 SLD Wabco

Wabco ABS can store several fault codes, but the diagnostics lamp can only display one code at a time.

The fault code that is active, i.e. the fault is present on the vehicle, is displayed first. Fault codes stored in the control unit are displayed in numerical order, the fault code with the lowest number being displayed first.

Reading fault codes

Reading without clearing

1 Switch on the ignition voltage.

2 Switch on the diagnostics switch.

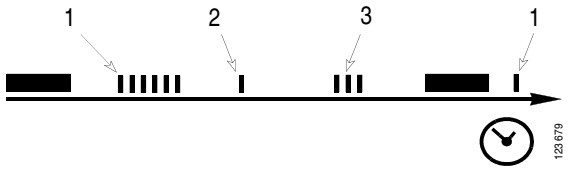
3 Note down the fault code.

4 Switch off the ignition voltage.

5 Switch off the diagnostics switch.

6 In order to read the next fault code, the current fault code must be cleared.

No stored fault codes



Fault code 13

1 6 flashes = SLD

2 1st digit in the fault code (tens)

3 2nd digit in the fault code (units)

© Scania CV AB 2011, Sweden

Reading and clearing at the same time

Note: The fault code can only be cleared if the fault is no longer active.

1 Switch on the ignition voltage.

2 Switch on the diagnostics switch.

3 Switch off the diagnostics switch when the lamp starts to flash.

4 The lamp will continue to flash although the diagnostics switch has been switched off.

5 Note down the fault code.

6 When the lamp ceases to flash, the fault code has been erased.

To read the next fault code the starter voltage must be cut before the procedure can begin again.

© Scania CV AB 2011, Sweden