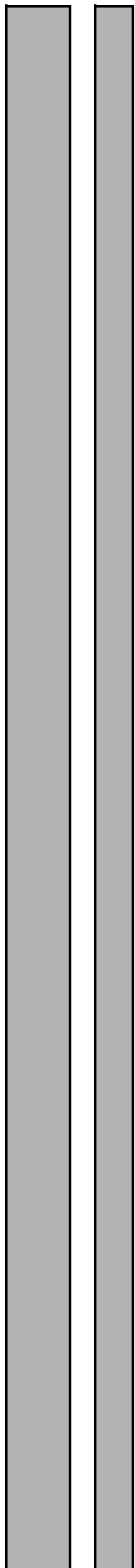


SCANIA

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Issue 1 **en**

Checking Wheel Brakes Wear



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Disc Brakes



WARNING!

Work on the brake system is only to be carried out by personnel with sufficient training and knowledge. If problems arise, contact your supervisor for assistance.

When working on the brake system, it is important to follow the instructions to avoid accidents and injury.

It is also important to use the correct components when carrying out work on the brakes. A brake system which fails due to faulty components can have disastrous consequences on the road.

Removing the wheels

In most instances, the wheels must be removed whilst work is carried out on the disc brakes.

- 1 Support the axle on stands.



WARNING!

Never work under a vehicle supported by jacks only. Always use stands. If the axle is air suspended, the air bellows must be emptied.

- 2 Release the parking brake.
- 3 Remove the wheels. Use wheel hoist trolley 587 121.



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Checking the brake pads

Specifications

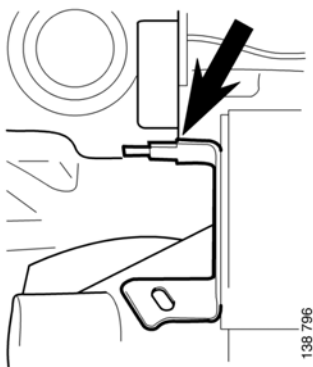
Brake disc, thickness	Minimum permissible brake pad lining thickness
> 40 mm	2 mm
37-40 mm	4 mm

Instructions

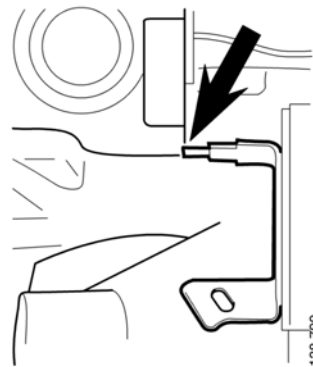
General

The brake caliper position indicates the wear of the brake disc and the brake pads.

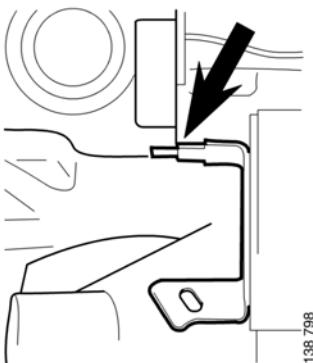
DU bushing with wear indicator



Brake caliper position when the brake pads are new.

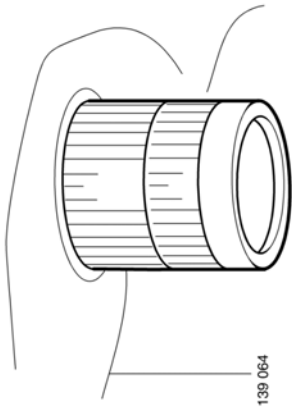


Brake caliper position when 1 mm remains of brake pad wear surface.

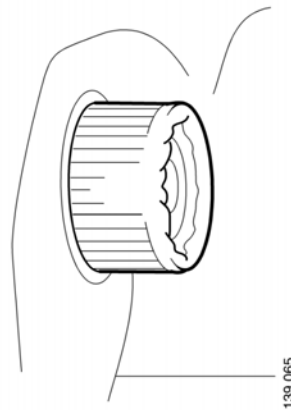


Brake caliper position when the brake pads are moderately worn. Remove the wheel and visually check whether the brake pads are unevenly worn.

Rubber bushings with wear indicators



Rubber bushing position for new brake pads.

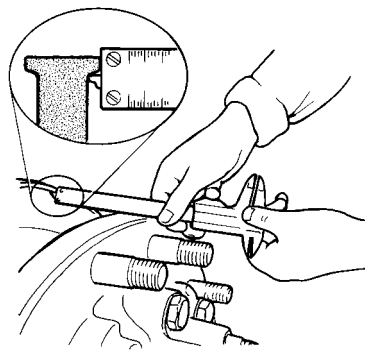
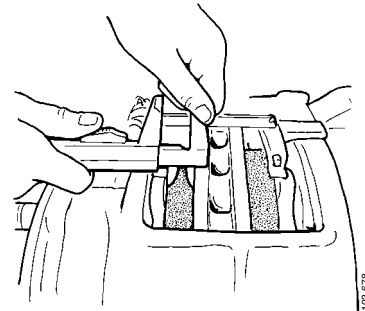


Rubber bushing position at maximum brake pad wear.

- 1 Measure the brake pad lining thickness between the brake disc and the brake pad backing plate using a vernier caliper.

Note: Look carefully for signs of uneven wear.

- 2 Measure any wear edge on the disc and add it to the brake pad thickness.
- 3 Renew the pads if you think that they may wear out before the next inspection.



Checking brake disc thickness

Specifications

Control measurements

New brake disc	45 mm
Minimum permissible brake disc thickness	37 mm

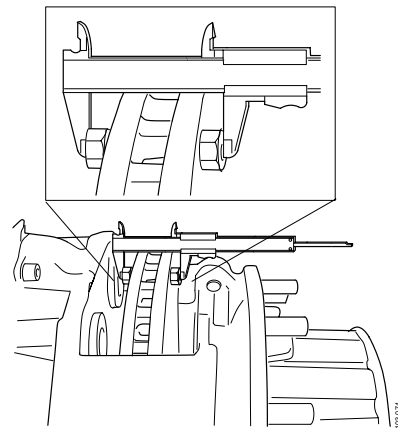
General

Drive the vehicle until normal operating temperature for the brakes is achieved.

Thickness

- A wear edge may have formed on the outer circumference of the disc. Measure on the inside using spacers, e.g. two nuts.
- Renew the brake disc if there is a risk that it will wear down to 37 mm before the next inspection.

Example: Two 10 mm thick nuts. Brake disc + nuts = 64 mm. The thickness of the disc is therefore $64 - (2 \times 10) \text{ mm} = 44 \text{ mm}$.



Checking brake discs for cracks

Specifications

Control measurements

Maximum permissible length of cracks	40 mm
Maximum permissible width of cracks	1.5 mm

Instructions

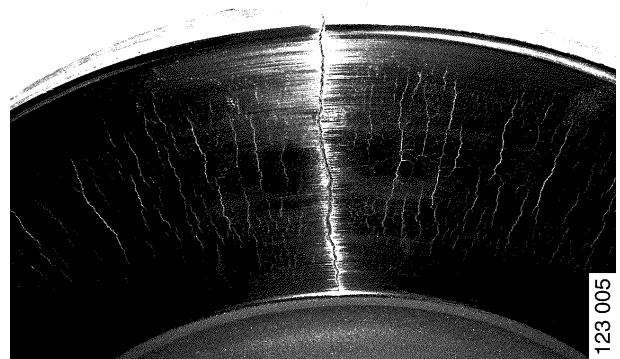
- Check that cracks on the brake disc do not exceed permitted levels. Cracks up to a maximum of 40 mm in length are permitted, provided that they do not reach the edge. If the cracks are wider than 1.5 mm, the disc must be ground or replaced. After grinding, the thickness of the disc must not fall below 40 mm.

IMPORTANT! Brake discs with a prohibited crack formation must be replaced.

Permitted crack formation



Prohibited crack formation



Brake drums



WARNING!

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When working on the brake system, it is important to follow the instructions to avoid accidents and injury.

It is also important to use the correct components when carrying out work on the brakes. A brake system which fails due to faulty components can have disastrous consequences on the road.

Measuring brake lining thickness

Specifications

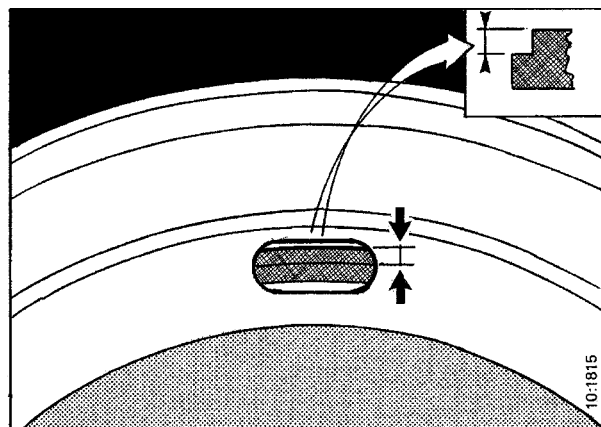
Minimum thickness

Standard lining (drum diameters up to 417 mm)	8 mm
Oversize lining	10 mm

Description

There are inspection covers at the top and the bottom of the brake shield.

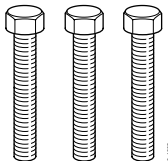
- 1 Apply the parking brake.
- 2 Move the inspection cover to one side and lift out and pull away the cover at the other end.
- 3 Brake lining thickness must not be below 8 mm (10 mm for oversize linings).
- 4 Check the thickness against the indicator line.



Wear indicator

Removal

Special tools

No.	Designation	Illustration	Tool board
87 368	Puller bolt	<p>87 368</p>  <p>08 1852</p>	AM1, D3, B1, AD1

Other tools

No.	Designation	Illustration	Tool board
587 121	Wheel hoist trolley	-	-

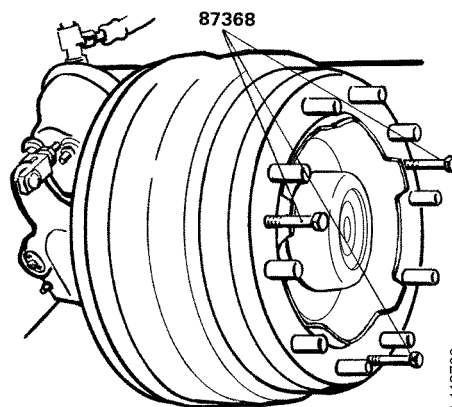
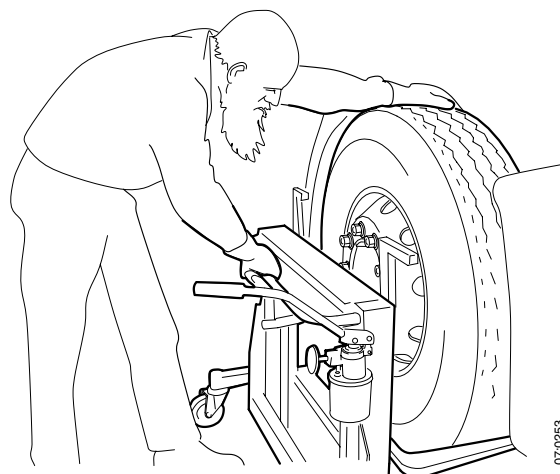
Description



WARNING!

**Danger when working under vehicle!
Use a lifting device when lifting off the
brake drum.**

- 1 Remove the wheel. Use wheel hoist trolley 587 121.
- 2 Wheels with spring brake chambers:
Unscrew the release bolt in the spring
brake chamber so that the brake drum can
be rotated manually.
- 3 Adjust the slack adjuster so that there is
maximum clearance between the brake
shoes and the brake drum.
- 4 If present, remove the fixing bolts between
the brake drum and hub.
- 5 Fit three release bolts 87 368 and pull off
the brake drum. Use a lifting device on the
brake drum.



Fitting

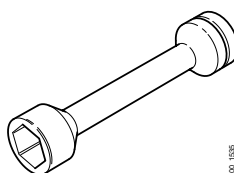
Specifications

Tightening torque

Wheel nut	600 Nm
Fixing bolts, brake drum - hub	10 -20 Nm

Special tools

No.	Designation	Illustration	Tool board
98 661	Torque socket	98661	AD1, MT1



Description

- 1 Fit the brake drum, use a lifting device.
- 2 Fit the fixing bolts between the brake drum and hub. Use copper paste and tighten to 10 - 20 Nm. If there are no fixing bolts present, see Fitting brake drum bolts.
- 3 Fit the wheel and tighten the lubricated nuts to 600 Nm. Use a torque wrench or nut runner with torque socket 98 661.
- 4 Set the slack adjuster.

Checking brake drum

Wear

Specifications

General

Nominal diameter	412.75 mm
Diameter for oversize liners	417 mm
Max. diameter when machining	419 mm
Scrapping limit	421 mm
Surface quality during machining	Ra 2.5
Max. crack width	1.5 mm

Wear patterns

The considerable heat release generated during braking may cause certain changes in the wear surface of the brake drum.

A wear pattern featuring measurably deep scratches, a fine meshed network of evenly spread thermal cracks (cracking) such as single minor hard spots, is not justification for replacing the brake drum.

Figure A shows a wear pattern with measurable scratches and minor hard spots due to overheating.

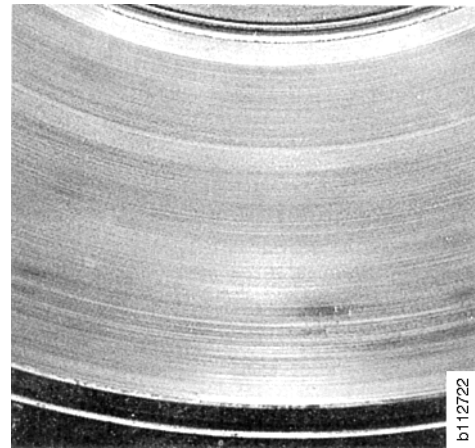


Figure A. Brake drum with hard spots due to overheating.

Figure B shows the same brake drum after an additional 700 instances of normal braking from 70 to 0 km/h with a fully laden vehicle.

The figures show that braking without overheating causes the hard spots to partially disappear and that brake drum wear pattern improves.

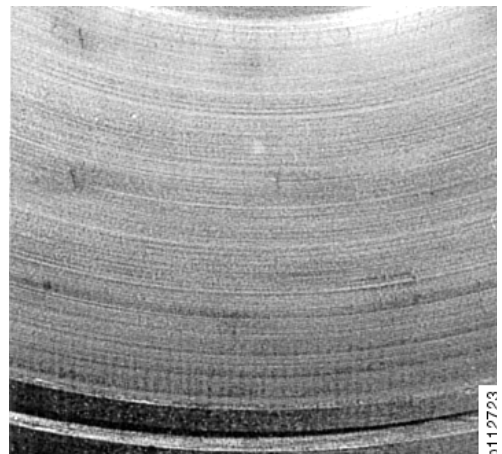


Figure B. The same brake drum after a further 700 instances of braking.

Careful attention must be paid to a wear pattern with considerable crack formation, particularly in the hard spots (see figure C). Heat tension in the material rapidly deepens crack formation.

In the hard spots, the material has become martensite and, as a result of this change, has lost its material strength and expanded. A hard spot is an elevation in the wear surface of the brake drum.

During braking, the hard spots in the brake drum become considerably overloaded and overheated and the resulting shrinking stresses give rise to rapid crack growth.

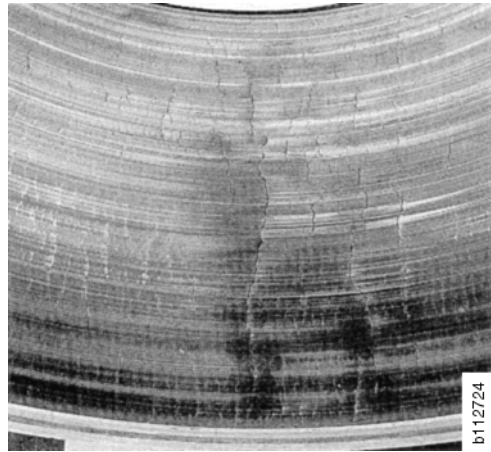


Figure C.

Figure D shows brake drum wear surface after an additional 700 normal braking instances.

Crack formation is now so deep that there is considerable danger of drum failure.

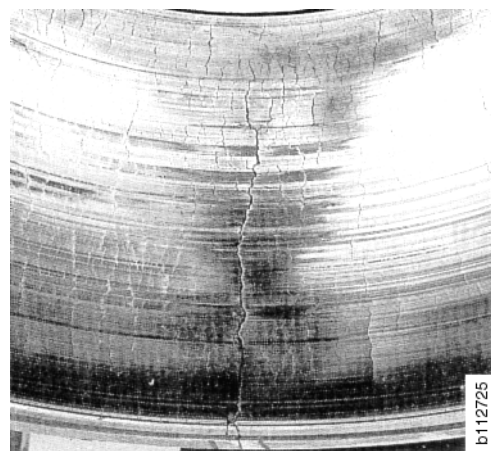


Figure D.

When assessing whether it is appropriate to replace brake drums, see wear pattern E which is a borderline case. This drum is acceptable provided it is ground.

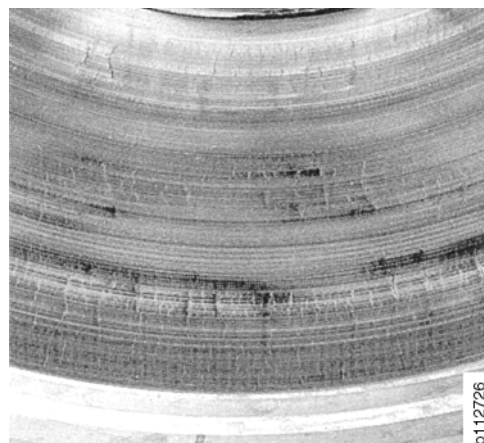


Figure E.

Replace and scrap brake drums with wear patterns as shown in figures F and G. Do not turn or grind these brake drums.

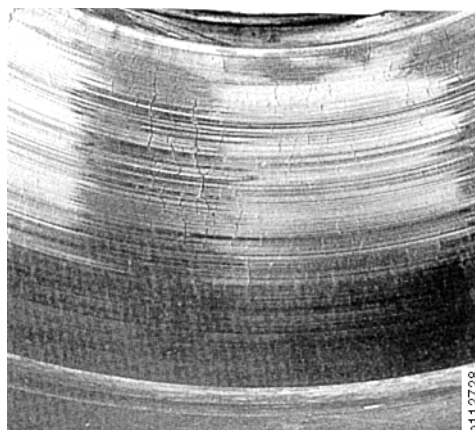


Figure G.

Turn or grind worn or oval brake drums and drums with hard spots that do not have worse crack formation.

Check brake drum ovality either with the drum fixed on the hub or in a brake drum lathe.

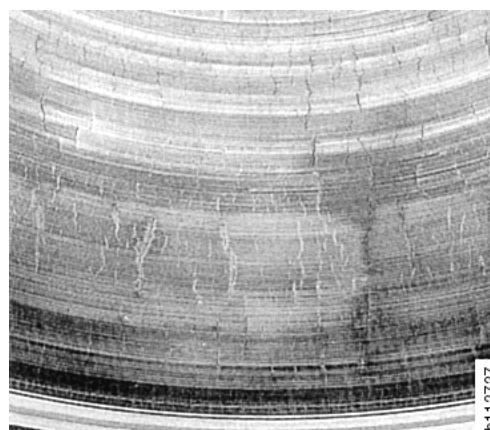


Figure F.