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Drum Brakes

Tips, tests and repair information



Drum brakes

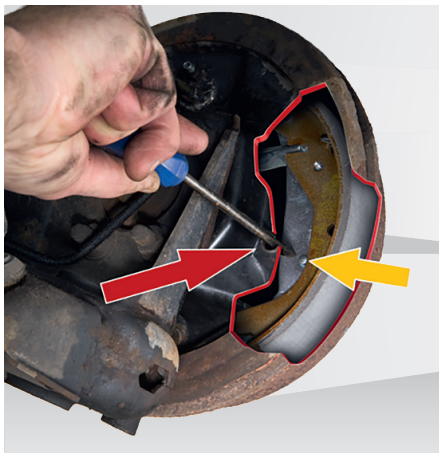
Tips, tests and repair information

The following descriptions are intentionally general and cannot apply to all vehicles and disc brake designs. The manufacturer's product information have to be observed during repair work.



1. Preparatory measures

- ▶ Raise the vehicle on the lift
- ▶ Mark and dismantle the wheels
- ▶ Loosen the parking brake cables as far as possible using the adjustment unit



2. Disassembly

- ▶ Remove the plugs from the brake anchor plate
- ▶ Inserting a suitable screwdriver through the opening (arrow), push down hard on the parking brake lever (parking brake lever is positioned at the front), so that the stop lug (yellow arrow) reaches the brake shoe and the parking brake lever and brake shoes reach the disassembly position

Please observe:

For drum brakes with a parking brake lever behind the brake shoes, the screwdriver must be pushed through a wheel bolt hole from outside.



3. Disassembly

- ▶ If required, loosen any tight brake drum on the wheel hub with a light tap
- ▶ Caution: Do not damage the wheel hub
- ▶ Remove the brake drum



4. Disassembly

- ▶ Dismantle the brake shoe holding spring plate using the special tool
- ▶ Remove the lower return spring
- ▶ Detach the brake shoes on the lower shoe pin bushing and remove from above
- ▶ Detach the parking brake cable on the parking brake lever

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5. Disassembly

- ▶ Disassemble the brake tubing and bleed valve
- ▶ Remove the wheel brake cylinder
- ▶ Dismantle the parking brake cable

Please observe:

Depending on vehicle type, the parking brake cables may be secured using a retaining ring according to DIN 6799 (circlip). This must be removed from the brake brackets before dismantling.



6. Preparing for disassembly

- ▶ Clean the brake brackets, check for reusability and apply corrosion protection
- ▶ Clean the wheel hub surfaces using the special brush
- ▶ Check the rotation of the wheel hub

Please observe:

Do not use machine tools



7. Parking brake cable assembly

- ▶ Correctly route and secure the new parking brake cable to the vehicle floor
- ▶ Insert the parking brake cable into the hole in the brake anchor plate and secure

Please observe:

Parking brake cables are wearing parts. We recommend that you replace them when the drum brakes are repaired. Depending on vehicle type, the parking brake cables must be secured using a retaining ring type, the parking brake cables must be secured using a retaining ring according to DIN 6799 (circlip). A new retaining ring must be used during assembly.



ESI[tronic]

ESI[tronic] contains further, more comprehensive and vehicle-specific SIS Troubleshooting Instructions with troubleshooting, installation positions, removal, installation and setting instructions as well as tightening torques, test and setting values.



Brake cables & hoses Causes of defects

- ▶ High mechanical strains
- ▶ Climatic influences such as humidity, road salt and oil
- ▶ Material aging
- ▶ Incorrect fitting
- ▶ Mechanical influences of accidents, marten bites or the like

Therefore: Brake cables and hoses should thus be checked regularly and replaced if required.

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8. Wheel brake cylinder assembly

- ▶ Fit the new wheel brake cylinder to the brake anchor plate and secure
- ▶ After assembly, fit the piston clips on the wheel brake cylinder

Please observe:

The piston clips prevent the piston from inadvertently falling out of the wheel brake cylinder. Depending on vehicle type, it may be necessary to first fit the brake shoes, before fitting the wheel brake cylinder.



9. Brake hose and brake tubing assembly

- ▶ Fit the new brake hose and brake tubing in the correct position
- ▶ Use a new retaining clamp for the brake hose

Please observe:

The brake hose and brake tubing are subjected to extreme pressure due to environmental influences, water spray, road salt, stones etc. We recommend that they are replaced when the drum brake is repaired.



10. Brake shoe assembly

- ▶ Lubricate all support points of the brake shoes on the brake anchor plate and shoe pin bushing using Bosch Superfit or Bosch Superfit with brush

Please observe:

Never use lubricants containing copper.



11. Assembly of the new brake shoes

- ▶ Fit the parking brake lever to the parking brake cable
- ▶ Remove the transport protection from the brake shoe sets (plastic part)
- ▶ Remove the lower return spring

Please observe:

Depending on the vehicle type, it may be necessary to fit the brake shoes before fitting the wheel brake cylinder.



12. Brake shoe assembly

- ▶ Insert the brake shoe set and then place only on the wheel brake cylinder
- ▶ Fit the brake shoe with the parking brake level in the lower shoe pin bushing
- ▶ Refit the return spring in the correct position
- ▶ Fit the other brake shoe against the spring force in the lower shoe pin bushing. Pliers may be required depending on design

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13. Brake shoe assembly

- ▶ Fit the brake shoe with the parking brake level in the lower shoe pin bushing
- ▶ Refit the return spring in the correct position
- ▶ Fit the other brake shoe against the spring force in the lower shoe pin bushing. Pliers may be required depending on design
- ▶ Remove the piston clip from the wheel brake cylinder



14. Brake shoe assembly

- ▶ Install the brake shoe holding spring plate using the special tool
- ▶ Place the brake shoes roughly in the center of the brake anchor plate
- ▶ Check the correct positioning of all parts and remove assembly trace from the brake shoes

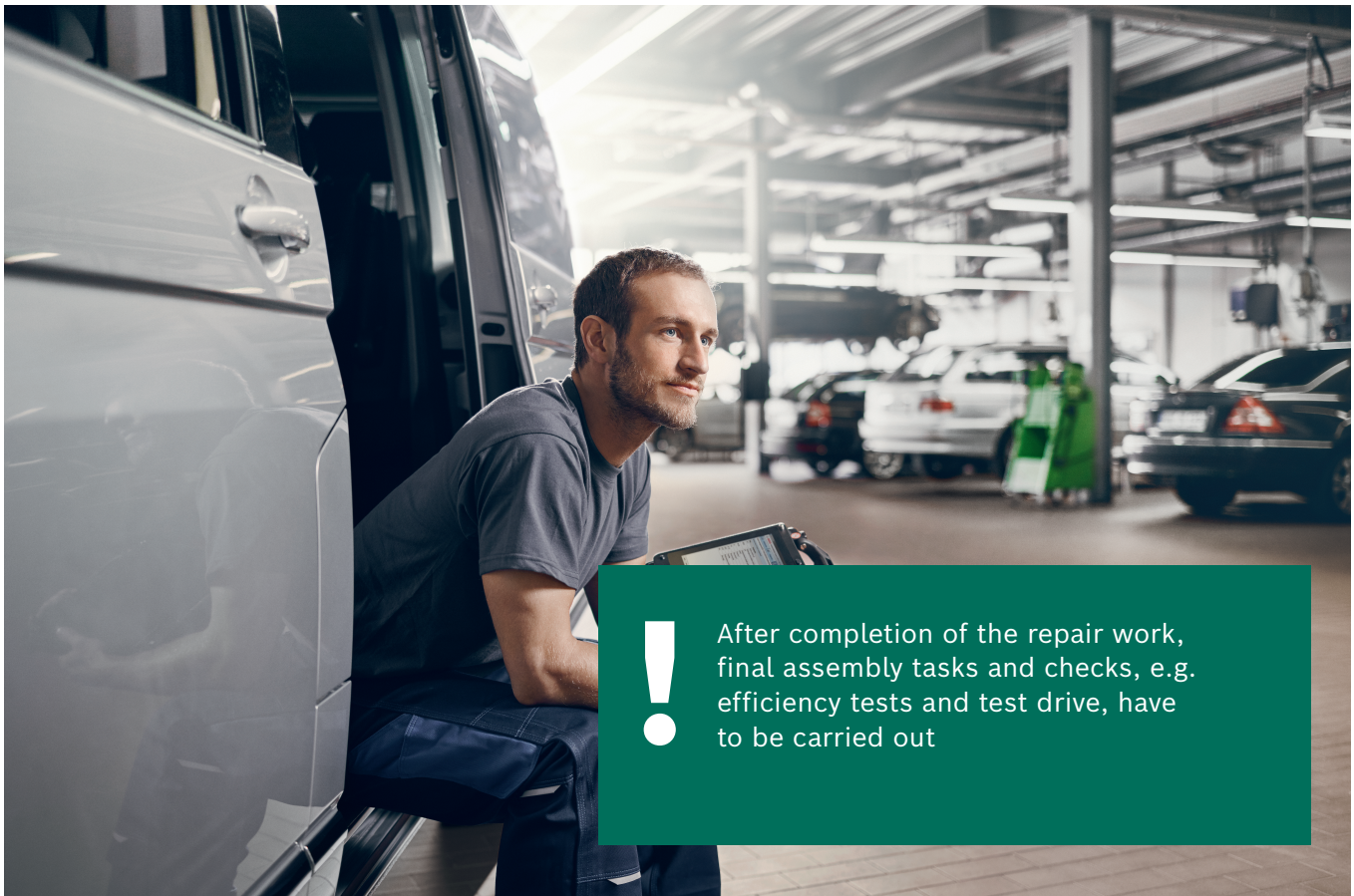


15. Brake Drum Assembly

- ▶ Do not apply any lubricants, pastes or paint to the cleaned, shiny, metallic surface of the wheel hub
- ▶ Fit the brake drum

Please observe:

Brake drums are subjected to extreme pressure due to temperature fluctuations and environmental influences, water spray, road salt, stones etc. We recommend that brake drums are replaced when the drum brake is repaired.



After completion of the repair work, final assembly tasks and checks, e.g. efficiency tests and test drive, have to be carried out

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16. Evacuating air from the brake system

- Fill and bleed the braking system using the bleeding device

17. Basic adjustment of the drum brakes

- Carry out the basic adjustment of the brake shoes. To do this, activate the brake pedal several times in succession until clicking sounds are no longer heard

Please observe:

The basic adjustment of the brake shoes is carried out using the automatic adjustment device. This is only possible if the parking brake cables are fully tensioned. Under no circumstances should air gap adjustment be carried out by tensioning the parking brake cables.



18. Parking brake cable assembly

- Reattach the parking brake cable to the tie rod

Please observe:

We recommend that you first clean or rethread and lubricate the tie rod. This will make the adjustment considerably easier. Replace the locknuts. The adjustment process and the number of notches vary depending on vehicle type. Vehicle-specific setting instructions can be found in ESI[tronic].

19. Final work stage

- Refit any disassembled heat transfer plates etc.
- Lower the vehicle and secure the wheel bolts and wheel nuts
- Keep an eye on the torque
- Test functionality and carry out a test run



Brake checklist

20 safety points

The following testing and control tasks consist of visual, functional and leak checks. They are supplemented by internal examinations and efficiency checks.

Please observe: This may require disassembly and assembly work. The description of disassembly and assembly work and further information is available in ESI[tronic].

Test	OK	not OK
	✓	✗
1. Efficiency test on brake tester Brake forces / deviation of brake forces / determination of brake factor / observance of specified values. For further information, see ESI[tronic]		
2. Test drive Noises / pulsating brake pedal / torsional vibration at steering wheel / steering wheel not in center position / vehicle pulls to left or right		
3. Wheel bearings Condition, rolling noises / tilting tolerance / axial clearance / security		
4. Wheel suspension Supporting and guiding joints / wheel hub / wheel securing system		
5. Axles, suspension, steering Spring strut / shock absorber / suspension springs / axle guide / rubber mounting / steering		
6. Tires / rims Tread depth / wear / pressure / wheel balancing / suitability for the vehicle / damage		
7. Actuation device for service brake Pedal rubber / free play / actuating rod play / ease of movement of pedal shaft / brake light switch		
8. Actuation device for parking brake system Lever stroke / detent device / ease of movement / display lamp / actuation device with electromechanical FBA		
9. Brake booster, non-return valve External damage / securing elements / non-return valve / hose and pipelines / function and leakproofness of brake booster / non-return valve. For further information, see ESI[tronic]		
10. Fluid reservoir End cover / tank / securing element / warning switch		
11. Brake fluid Level / appearance / brake fluid change / moisture content / boiling point		
12. Brake master cylinder External damage / correct securing / line connections / leakproofness		
13. ABS/TCS/ESP®/SBC – hydraulic unit External damage / correct securing / line connections / covers, function Please observe: For the replacement, hydraulic and electric tests might be required!		
14. Brake pipes, brake hoses External damage / correct securing / corrosion / installation, not twisted / age		
15. Brake force regulator, brake force limiter External damage / correct securing / line connections / linkage, lever / travel spring / function. For further information, see ESI[tronic]		
16. Brake caliper External damage / correct securing / bleed valve / dust caps / brake pad channels / guide elements / ease of movement of pistons / dust seal / basic setting		
17. Disc-brake pad Brake pad thickness (*) damage / cracks / shining / installation position / brake pad guides / slide plates Important: (*) Wear limit at 4 mm pad thickness, measured without pad backing plate		
18. Brake disc, brake drum Wear dimension / damage / crack formation / corrosion / lateral runout / thickness tolerance / radial runout		
19. Drum brake Brake anchor plate / wheel brake cylinder / parking brake lever / adjuster / brake shoes / brake pads / return springs / basic setting		
20. Brake cables, brake linkage External damage / securing elements / correct installation / breakages		

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Therefore, we have dedicated the last 125 years of pioneering spirit and expertise in research and manufacturing to achieving this.

We continue to work on our unique combination of solutions for spare parts, diagnostic devices, work-shop equipment and services:

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- ▶ Innovative workshop equipment and software
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- ▶ Large network of wholesale customers, for quick and reliable parts supply
- ▶ Competent hotline support
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Find out more at:

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