

The brake system is one of the most important safety systems on any motor vehicle. For this reason it is necessary to exercise particular caution when working on the brake system and to comply with the following instructions.

**General:**

- Ensure cleanliness and only use rags which do not lose lint.
- Wash away or vacuum up brake dust: do not clear it away using compressed air. This dust is a health hazard.
- Ensure that no oils or grease enter the brake system: these substances would cause complete failure of the entire brake system.
- When cleaning brake components with brake cleaning fluid (refer to BMW Parts Service), no brake cleaning fluid must enter the brake system.
- Even the most minute traces of brake cleaning fluid must be avoided.

**Brake fluid:**

- Replace brake fluid at least every two years.
- Never re-use drained brake fluid.
- Always use BMW-approved brake fluid, refer to BMW Service Operating Fluids.
- Always dispose of brake fluid in approved receptacles, refer to BMW Service Workshop Planning documentation.
- Brake fluid must not be drained into sewer systems, unauthorized outdoor areas or into unsuitable stations. There is danger of contaminating ground water, as brake fluids belong to water contaminating liquids.
- Do not allow brake fluid to come into contact with paintwork as this will destroy the paint.
- Brake fluid must not be allowed to remain on bare skin too long in order to avoid skin problems. Wash skin coated with brake fluid with water and soap.
- If brake fluid makes contact with eyes, immediately flush with large quantity of clean water and visit eye doctor.

**Wheel brakes:**

- Brake linings:

When brake linings reach the warning threshold on the brake lining wear indicator, the linings should be replaced.

refer to Technical Data

Brake linings must always be replaced on both sides of any axle.

The friction faces of brake linings must not come into contact with oils or grease and if brake linings become contaminated with substances of this kind, they must be replaced.

With directional brake linings, ensure that arrow mark indicating direction of travel of brake disc points in direction of forwards travel. Brake linings with left/right markings must be installed on the respective vehicle side.

One-sided tapers on the brake linings must be located on the disc contact side of the brake caliper, viewed in forwards direction of travel

- Brake discs:

Brake discs must not be scored or cracked and, in addition, minimum disc thickness, disc runout, parallelity and surface roughness of friction faces must not be above or below permitted values.

refer to Technical Data

Always strip preservative off new parts before installation. With the rear brake discs, also strip preservative off brake drum on parking brake.

- Brake drums:

Brake drums must not be scored or cracked and maximum drum diameter, radial runout and surface roughness of the friction faces must not be above or below the permitted values.

refer to Technical Data

Always strip preservative off new parts before installation.

- Brake calipers:

Only approved pastes on the basis of glycine must be used for repairs of brake calipers.

All moving parts on the brake caliper must move freely: note grease specifications.

To grease the caliper guides, always use BMW-approved lubricants (refer to BMW Service Operating Fluids).

**Brake lines, brake hoses:**

- Brake lines and brake hoses must be correctly routed and must not abut with body or components in a way which would cause chafing.
- Only unfasten or tighten down brake line screw connections with a special brake line wrench to prevent damage from occurring.
- The system must be bled each time the brake lines are unfastened.
- Check all connection points for leaks (seal integrity).
- Only tighten down brake hoses on the front axle when wheels are in straight-ahead position.
- Close open connections on brake lines and individual components to prevent dirt from entering the brake system.
- When tightening down brake line screw connections, note Tightening Torques, refer to Technical Data 34 32 1AZ.

**Anti-lock braking system ABS/slip control system ASC+T:**

ABS does not require maintenance, though there must be conformance with the following instructions when working on vehicles with ABS systems:

- Connector must be removed from electronic control unit when welding with an electric welder (ignition switched off).
- Electronic control unit may be briefly subjected to max. 95 °C and to max. 85 °C for a longer time (approx. 2 hours) when painting vehicle.
- Terminals must be completely tight on end poles of battery.
- Brake lines on hydraulic unit must not be swapped over: if applicable, mark them prior to disassembly.
- The ABS system must be checked in accordance with the Electrical Troubleshooting Manual (ETM) whenever any of the following ABS components are removed or replaced:
  - Hydraulic control unit
  - ABS control unit

- Wheel-speed sensor
- ABS wiring harness
- Valve control relay
- Relay pump motor

On vehicles with ASC+T, the ABS/ASC control unit must be reinitialized if any of the following components has been removed or replaced:

- ABS/ASC+T control unit
- Throttle-valve assembly
- Throttle potentiometer