

Aid to Diagnosing the Steering System

Ask the customer for a clear description of the complaint and any other information connected with it, e.g. particular conditions under which the problem arises:

1. Inquire about the complaint and its circumstances

- Vehicle/engine and ambient temperature cold/hot?
- Vehicle loaded/unloaded?
- Vehicle standing still/rolling/being driven?
 - * Forwards/backwards?
 - * Brakes actuated?
- Steering left/right?
 - * When steering into/out of curve?
 - * Slow/quick?
 - * Steering angle large/small?
 - * Engine speed?
 - * Steering lock?

2. Inspect vehicle

- Is wheel/tyre size approved?
 - * Is tyre pressure correct?
 - * Are tyres OK?
- Is steering wheel approved?
- Is steering system filled with approved fluid?
Depending upon type and equipment level: ATF (red)
Pentosin CHF 7.1, Pentosin CHF 11 S (both green)
Look at label on the reservoir

3. Take vehicle for test run

- Reproduce the complaints as described by the customer.
 - * Get the customer to demonstrate the complaints.
- With the vehicle standing still and the engine idling, turn the steering wheel slowly from lock to lock.
Does the complaint only apply to steering to one side or to both sides?
(One-sided occurrence of the problem means there is no fault with the pump.)
- Can the fault also be reproduced without power assistance (engine off)?
 - * Vehicle standing/rolling?

Overview of Complaints

Power-assisted rack and pinion steering (ZHL):

- Steering stiff or forces varying when steering into or out of curve (parking)
see page 3/20.
- Steering force fluctuations (steering-force assistance fluctuating) while driving
see page 5/20.
- Rotary oscillation of steering wheel while driving
see page 6/20.
- Poor directional stability (straight-ahead tracking), vehicle swimming
see page 7/20.
- Sporadic failure of steering power assistance, steering sticking
see page 8/20.
- Noises from steering while driving straight ahead (without moving steering)
see page 9/20.
- Noises from steering when turning into curve
see page 10/20.
- Chattering when driving over bumps in road with steering turned
see page 11/20.

Power-assisted recirculating-ball steering (KMH):

- Steering stiff or forces varying when steering into or out of curve (parking)
see page 12/20.
- Steering force fluctuations (steering-force assistance fluctuating) while driving
see page 14/20.
- Rotary oscillation of steering wheel while driving
see page 15/20.
- Poor directional stability (straight-ahead tracking), vehicle swimming
see page 16/20.
- Sporadic failure of steering power assistance, steering sticking
see page 17/20.
- Noises from steering while driving straight ahead (without moving steering)
see page 18/20.
- Noises from steering when turning into curve
see page 19/20.
- Chattering when driving over bumps in road with steering turned
see page 20/20.

Power-assisted rack and pinion steering (ZHL)

Complaint:

Steering stiff or forces varying when steering into or out of curve (parking) (ZHL)

1. In vehicles equipped with power-assisted rack and pinion steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Idle speed/idle speed fluctuating to below nominal value; engine speed not high enough for providing power assistance. Adjust the engine speed.
(For nominal value, see Technical Data 13 00).
4. Check the tyre pressure and adjust if necessary.
Is the rim/tyre size and the combination of rim and tyre approved?
5. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
6. Check whether the steering column moves easily and repair if necessary:
 - Raise the vehicle.
 - With the engine off, turn the steering from lock to lock.
7. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
8. The lines have not been run correctly or a line is kinked. Adjust the run of the line(s).
9. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).
10. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the

straight-ahead position.

- In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180° a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the ZHL).
11. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.
(See Technical Data/Repair Instructions 32 41 009).
 12. If points 1 - 11 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:

Steering force fluctuations (steering-force assistance fluctuating) while driving (ZHL)

1. In vehicles equipped with power-assisted rack and pinion steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
5. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.
(See Technical Data/Repair Instructions 32 41 009).
6. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the straight-ahead position.
 - In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180° a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the ZHL).
7. If points 1 - 6 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:

Rotary oscillation of steering wheel while driving (ZHL)

1. If this problem only arises when braking, check the run-out of the brake disks.
(See Service Information bulletin 34 01 93 (655)).
2. Drive around to warm up the tyres (flatspot) and then balance them, or fit your set of master reference wheels.
3. Check wheel bearing play and replace any faulty wheel bearings.
(See Repair Instructions 31 21 180).
4. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.

5. Check the shock absorbers.

(For shock tester values, see current Service Information bulletins 37 01 94 (782) and 37 01 92 (562)).

Complaint:

Poor directional stability (straight-ahead tracking), vehicle swimming (ZHL)

1. Check the tyre pressure and adjust if necessary.
Is the rim/tyre size and the combination of rim and tyre approved?
2. Check wheel bearing play and replace any faulty wheel bearings.
(See Repair Instructions 31 21 180).
3. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
4. Check whether all relevant threaded chassis and suspension joints and steering components are fitted securely and tighten if necessary.
(For tightening torques, see Technical Data.)
5. Check the shock absorbers.
(For shock tester values, see current Service Information bulletins 37 01 94 (782) and 37 01 92 (562)).
6. Check the chassis and suspension tuning and carry out suspension alignment using the KDS (Kinematic Diagnosis System).
(See Repair Instructions 32 00 150).

Complaint:

Sporadic failure of steering power assistance, steering sticking (ZHL)

1. In vehicles equipped with power-assisted rack and pinion steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Idle speed/idle speed fluctuating to below nominal value; engine speed not high enough for providing power assistance. Adjust the engine speed.
(For nominal value, see Technical Data 13 00.)
4. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
5. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the straight-ahead position.
 - In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180° a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the ZHL).
6. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
7. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.

(See Repair Instructions 32 13 006).

8. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.

(See Technical Data/Repair Instructions 32 41 009).

9. If points 1 - 8 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:

Noises from steering while driving straight ahead (without moving steering) (ZHL)

1. Check whether all relevant threaded chassis and suspension joints and steering components are fitted securely and tighten if necessary.
(For tightening torques, see Technical Data.)
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the pump mount is fitted correctly and adjust if necessary.
5. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).
6. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).

Complaint:

Noises from steering when turning into curve (ZHL)

1. A hissing noise when full lock is reached is a characteristic of the design of the steering system. There is no remedy.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the pump mount is fitted correctly and adjust if necessary.
5. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
6. Check whether the steering column moves easily and repair if necessary:
 - Raise the vehicle.
 - With the engine off, turn the steering from lock to lock.
7. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).
8. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).
9. Loud grinding and clacking noises can be clearly heard when turning the steering wheel to full lock: the

pressure relief valve in the power steering pump is faulty. Replace the pump.

10. If points 1 - 9 are OK: the fault may be in the power steering pump. Replace the pump.

Complaint:

Chattering when driving over bumps in road with steering turned (ZHL)

1. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, flexible wheel suspension joints, control arm bearings, tension rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, ball joints on the rack, rubber covers and gaiters. If necessary, replace components.
2. Check whether all relevant threaded chassis and suspension joints and steering components are fitted securely and tighten if necessary.
(For tightening torques, see Technical Data.)
3. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).

Power-assisted recirculating-ball steering (KMH)

Complaint:

Steering stiff or forces varying when steering into or out of curve (KMH)

1. In vehicles equipped with power-assisted recirculating-ball steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
E38 only: On converters manufactured up to production date week 40/95 (see rating plate), there is a possibility of intermediate cover of the converter corroding. Replace the converter.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Idle speed/idle speed fluctuating to below nominal value; engine speed not high enough for providing power assistance. Adjust the engine speed.
(For nominal value, see Technical Data 13 00.)
4. Check the tyre pressure and adjust if necessary.
Is the rim/tyre size and the combination of rim and tyre approved?
5. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
6. Check whether the steering column moves easily and repair if necessary:
 - Raise the vehicle.
 - With the engine off, turn the steering from lock to lock.
7. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
8. The lines have not been run correctly. A line is kinked. Adjust the run of the line(s).
9. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).
10. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the straight-ahead position.
 - In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180°

a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the KMH).

11. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.

(See Technical Data/Repair Instructions 32 41 009).

12. If points 1 - 11 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:

Steering force fluctuations while driving (KMH)

1. In vehicles equipped with power-assisted recirculating-ball steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
E38 only: On converters manufactured up to production date week 40/95 (see rating plate), there is a possibility of intermediate cover of the converter corroding. Replace the converter.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
5. Check the adjustment of the pitman arms and adjust if necessary.
(See Repair Instructions 32 21 510).
6. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the straight-ahead position.
 - In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180° a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the KMH).
7. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.
(See Technical Data/Repair Instructions 32 41 009).
8. If points 1 - 7 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:

Rotary oscillation of steering wheel while driving (KMH)

1. If this problem only arises when braking, check the run-out of the brake disks.
(See Service Information bulletin 34 01 93 (655)).
2. Drive around to warm up the tyres (flatspot) and then balance them, or fit your set of master reference wheels.
3. Check wheel bearing play and replace any faulty wheel bearings.
4. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
5. Check the shock absorbers.
(For shock tester values, see current Service Information bulletins 37 01 94 (782) and 37 01 92 (562)).

Complaint:**Poor directional stability (straight-ahead tracking), vehicle swimming (KMH)**

1. Check the condition and pressure of the tyres and if necessary, fit your set of master reference wheels. Is the rim/tyre size and the combination of rim and tyre approved?
2. Check wheel bearing play and replace any faulty wheel bearings.
(See Repair Instructions 31 21 180).
3. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
4. Check whether all relevant threaded chassis and suspension joints and steering components are fitted securely and tighten if necessary.
(For tightening torques, see Technical Data.)
5. Check the shock absorbers.
(For shock tester values, see current Service Information bulletins 37 01 94 (782) and 37 01 92 (562)).
6. Check the chassis and suspension tuning and carry out suspension alignment using the KDS (Kinematic Diagnosis System).
(See Repair Instructions 32 00 150).

Complaint:**Sporadic failure of steering power assistance, steering sticking (KMH)**

1. In vehicles equipped with power-assisted recirculating-ball steering and Servotronic, check the converter/Servotronic using the DIS diagnosis program.
E38 only: On converters manufactured up to production date week 40/95 (see rating plate), there is a possibility of intermediate cover of the converter corroding. Replace the converter.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
5. There is dirt in the steering system. Flush out the steering system:
 - Replace the reservoir and fill it with fluid.
 - Leave the engine running at idle speed for approx. 5 min. and flush the steering system while it is in the straight-ahead position.
 - In vehicles equipped with Servotronic, then disconnect the converter and, with the engine running and the vehicle standing on its wheels, turn the steering wheel from the straight-ahead position through 180° a total of 10 times. (The steering resistance caused by the vehicle standing on its wheels is necessary in order to build up pressure in the KHL).
6. The delivery pressure of the hydraulic pump is too low or is irregular. Check the nominal pressure of the pump and replace the pump if necessary.
(See Technical Data/Repair Instructions 32 41 009).
7. If points 1 - 6 are OK: the fault may be in the steering box. Replace the steering box.

Complaint:**Noises from steering while driving straight ahead (without moving steering) (KMH)**

1. Check whether all relevant threaded chassis and suspension joints and steering components are fitted

securely and tighten if necessary.

(For tightening torques, see Technical Data.)

2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the pump mount is fitted correctly and adjust if necessary.
5. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).
6. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).

Complaint:

Noises from steering when turning into curve (KMH)

1. A hissing noise when full lock is reached is a characteristic of the design of the steering system. There is no remedy.
2. Check the drivebelt for residues of coolant and oil and replace if necessary.
Important!
Always replace the drivebelt if it is soiled with hydraulic fluid.
(See Repair Instructions 11 28 010).
3. Check the fluid level in the reservoir. A definite loss of oil indicates there may be a leak or leaks in the steering system. Check the steering system for leaks and repair, fill and bleed the system if necessary.
(See Repair Instructions 32 13 006).
4. Check whether the pump mount is fitted correctly and adjust if necessary.
5. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.
6. Check whether the steering column moves easily and repair if necessary:
 - Raise the vehicle.
 - With the engine off, turn the steering from lock to lock.
7. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).
8. The system is leaking, sucking in air, making sucking noises and the fluid is foaming in the reservoir. Locate the leak and repair, fill and bleed the system.
(See Repair Instructions 32 13 006).
9. The brake pads are making contact with the brake disks without the brakes being actuated. Grease the brake calipers/pads.
(See Repair Instructions 34 11 000).

Complaint:

Chattering when driving over bumps in road with steering turned (KMH)

1. The teeth chatter when the steering is turned through an angle greater than 180°.
This a characteristic of the design of the steering system. There is no remedy.
2. Check whether the following components are damaged, stiff, corroded, worn, have play, are worn out: ball joints, McPherson strut mounts, steering shaft bearings, universal joints of the steering shaft, track rod joints, control arm bearings, thrust rod bearings/rubber bushings, anti-roll bar bearings, pendulum supports, pitman arms and steering arms. If necessary, replace components.

3. The lines have not been run correctly. A line has been incorrectly clamped or is kinked; lines are making contact with each other or with other vehicle parts. Adjust the run of the line(s).
4. Check whether all relevant threaded chassis and suspension joints and steering components are fitted securely and tighten if necessary.
(For tightening torques, see Technical Data.)
5. Check the shock absorbers.
(For shock tester values,
see current Service Information bulletins 37 01 94 (782)
and 37 01 92 (562).