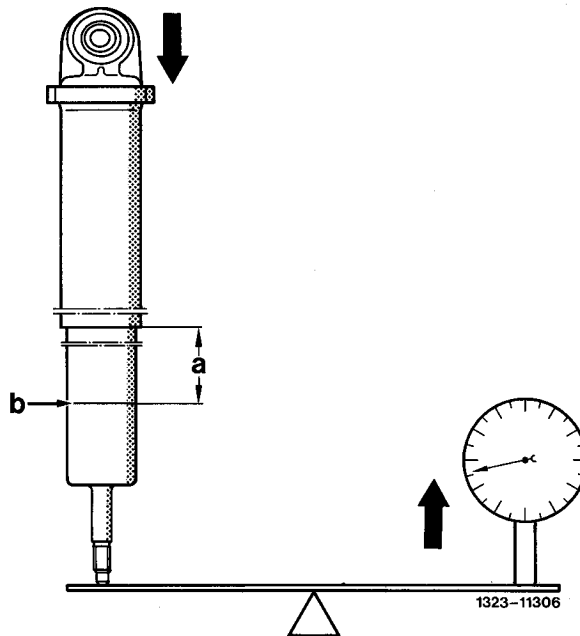


A. Version up to 11/86



Visual check

Piston rod check for surface damage and bending (items 1 and 2).

Checking oil reserve

Oil reserve check via extension force of piston rod (item 3).

Test procedure

Dimension "a" = 84 mm mark on piston rod with felt tip pen (item 4).

Shock absorber place on scales and press in to test mark "b" (item 5).

Rumbling and knocking noises

Top mount check for proper installation (item 6).

Bottom mount check rubber mount for tight seat in housing eye (item 6).

Oil reserve check (item 7).

Hissing noises replace shock absorbers with hissing noises (item 8).

Scrapping shock absorbers

Procedure

drill 5 mm hole in shock absorber tube approx. 20 mm away from bottom of shock absorber, press piston rod in against stop and drill second hole with same bit approx. 60 mm from bottom of shock absorber.



Observe items 9 – 11.

Test values for shock absorbers, version up to 12/86

Designation	Part no.	Color code on shock absorber tube	Adjustment guide values in N at 100/min and 50 mm stroke for new shock absorbers		Check oil reserve in shock absorber ¹⁾ gas extension force in N on piston rod including weight of shock absorber (piston rod pressed in to test dimension "a" = 84).	
			Extension	Compression	Value for new shock absorbers	Minimum value
Bilstein F & S	124 326 06 00	1 white stripe	660 ± 110	270 ± 50	260 ± 25	150
Bilstein F & S	124 326 07 00	2 white stripes	870 ± 130	300 ± 45	260 ± 25	150
Bilstein F & S	201 326 05 00 201 326 08 00	1 red stripes	510 ± 80	230 ± 40	260 ± 25	150
Bilstein F & S	201 326 06 00 201 326 09 00	2 red stripes	660 ± 100	290 ± 40	260 ± 25	150
Bilstein F & S	201 326 07 00	3 red stripes	870 ± 130	300 ± 45	260 ± 25	150

¹⁾ The temperature of the shock absorber should be approx. 20 °C for measuring the oil reserve.

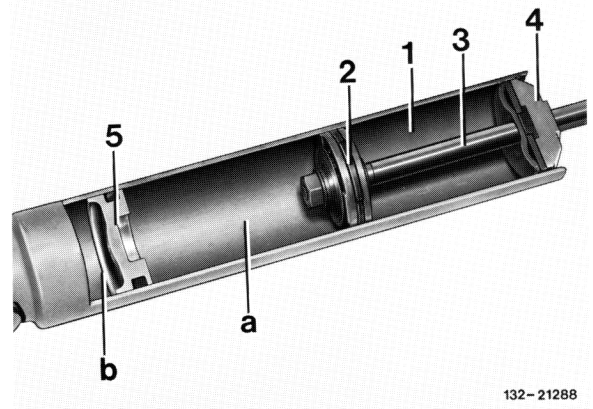
Note

Due to the stop buffer integrated on the piston rod between the shock absorber tube and mounting rod it is not possible to use the usual method for checking the oil reserve on single tube gas pressure shock absorbers by measuring the piston extension.

For this reason the oil reserve must be checked in the same manner as the front shock absorber struts using the piston rod extension force.

The difference in relation to the shock absorber struts is the spatial separation between the oil and gas chambers by a separating piston.

- 1 Cylinder
- 2 Working piston with spring washers
- 3 Piston rod
- 4 Sealing assembly with piston rod seal and piston rod guide
- 5 Separating piston
- a Oil chamber
- b Gas chamber



132-21288

Visual check

- 1 Carefully check piston rod for surface damage.
- 2 Check whether piston rod is bent. A bent piston rod can be identified by the fact that it sticks when pushed into the guide bushing.

Note

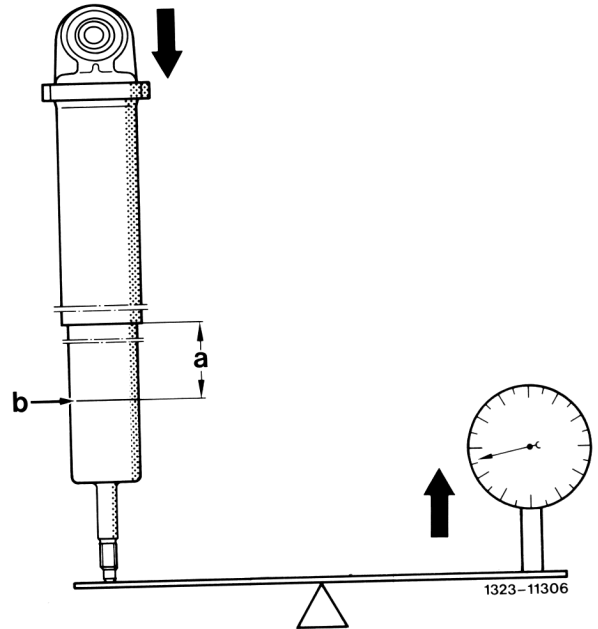
The piston rod is designed to have a slight oil film for lubrication of the piston guide located outside of the piston rod seal.

Checking oil reserve

3 The oil reserve can be checked by means of the extension force of the piston rod.

The temperature of the shock absorbers should be approx. 20 °C while checking the oil reserve.

Scales with a range of 0 – 40 kg (for material or humans) are required for this test.

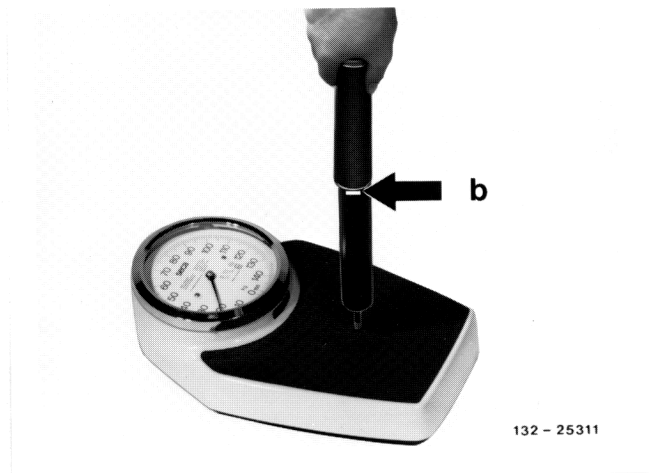


- a Interval for test mark
- b Test mark on shock absorber tube (mark on tube with felt tip pen or similar before testing).

Test procedure

4 Measure the interval for the test mark "a" = 84 mm (see table) on the shock absorber tube starting at the edge of the rubber boot and mark with a felt tip pen or similar.

5 Place shock absorber on scales with piston rod pointing upward (i.e. mounting eye pointing downward) and press in to test mark "b". Compare reading with value in table. (The weight of the shock absorber is included in the table values).



Note

When comparing with the table value, multiply the value read off on the scales by ten.

In the event of a gas or oil leak the extension force of the piston rod is reduced. If the value is less than the minimum value, the shock absorber can no longer function properly and should be replaced.



Shock absorbers can be replaced individually regardless of the brand for repair. It is only necessary to ensure that the shock absorber versions correspond in terms of the color code, e.g. one red longitudinal strip or two red longitudinal stripes.

Rumbling and knocking noises

6 Check top mount for proper assembly, rubber mount at bottom attachment point for tight seat in housing eye.

7 Determine oil reserve. If the oil loss is extremely high shock absorbers with separating pistons tend to knock, because the piston rod can hit against the separating piston on compression.

The cause for knocking noises can also be a loose working piston.

To check, press in the piston rod with the shock absorber in the installation position, release and press in again. If the working piston is loose the shock absorber makes a knocking noise when changing over from compression to extension.

Hissing noises

8 Shock absorbers with separating pistons tend to make hissing noises when the separating piston is leaky, because gas gets into the oil system resulting in the formation of foam. Such shock absorbers may still function properly, however, must still be replaced.

Scrapping shock absorbers

When scrapping shock absorbers observe all applicable safety regulations.

To release the pressure carefully drill a 5 mm hole in the shock absorber tube until gas exits.

Wear protective goggles and gloves when performing this work as an accident prevention measure against exiting gas and protection against drilling chips. When drilling the hole exert a minimum of pressure on the bit.

Procedure

9 Clamp shock absorber in vice with piston rod pointing vertically downward.

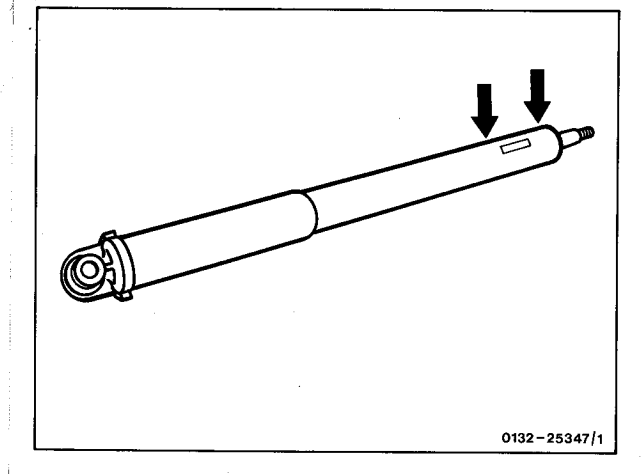
10 Drill 5 mm hole in shock absorber tube approx. 20 mm from bottom of shock absorber (arrow, right).

11 On shock absorbers with separating piston press the piston rod in against the stop and pull out again. Then drill a second hole approx. 60 mm from the bottom absorber (arrow). The oil can then drain out.

Oil filling depending on version: 250 – 500 cm³.

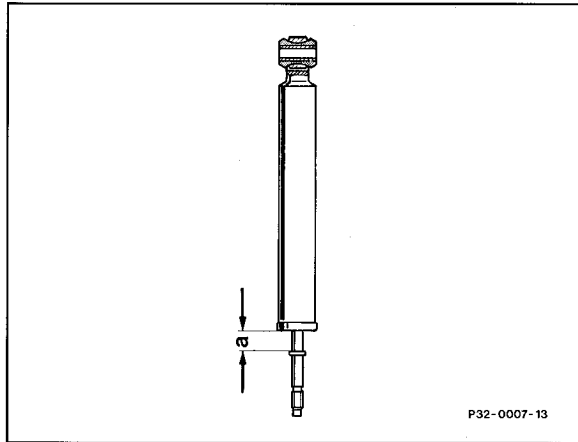
Note

Never drill the second hole, 60 mm from the bottom of the shock absorber, first. If the holes are drilled in the shock absorber with the shock absorber positioned horizontally, the oil sprays out under high pressure.



0132-25347/1

B. Version as of 12/86



Visual check

Piston rod check for surface damage and bending (items 1).

Checking oil reserve

Oil reserve determine via piston rod extension "a" (item 2).

Test procedure

Piston rod press in against stop for working piston on separating piston.

Extension dimension "a" measure on piston rod (item 3).

Rumbling and knocking noises

Top mount check for proper installation (item 4).

Bottom mount check rubber mount for tight seat in housing eye (item 4).

Working piston check for tight seat (item 5).

Hissing noises replace shock absorbers with hissing noises (item 6).

Scrapping shock absorbers

Procedure drill 5 mm hole in shock absorber tube approx. 20 mm away from bottom of shock absorber, press piston rod in against stop and drill second hole with same bit approx. 60 mm from bottom of shock absorber.



Observe items 7 - 9.

Test values for shock absorbers, version as of 12/86

Checking oil reserve in shock absorber ¹⁾

Piston rod extension "a" ²⁾

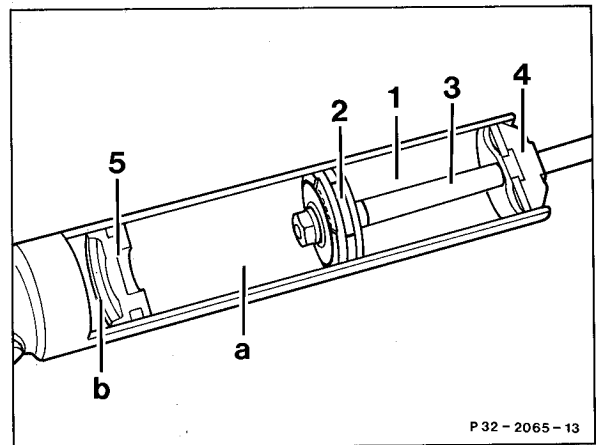
Value for new shock absorbers	Maximum permissible value
0 + 2	20

1) The temperature of the shock absorber should be approx. 20 °C for measuring the oil reserve.

2) "a" piston rod extension. The effect of the shock absorber is reduced when the maximum permissible values are exceeded.

The difference in relation to the shock absorber strut is that the oil and gas chambers are spatially separated by a separating piston.

- 1 Cylinder
- 2 Working piston with spring washers
- 3 Piston rod
- 4 Sealing assembly with piston rod seal and piston rod guide
- 5 Separating piston
- a Oil chamber
- b Gas chamber



Visual check

1 Carefully check surface of piston rod for damage.

Check if piston rod is bent. A bent piston rod can be recognized by the fact that it sticks in the guide bushing on compression.

Note

The piston rod is designed to have a slight oil film for lubrication of the piston guide located outside of the piston rod seal.

Oil reserve in shock absorber

2 The oil reserve in the shock absorber can be checked by means of the piston extension "a". The temperature of the shock absorber should be approx. 20 °C when measuring the oil reserve. In the event of oil loss the piston rod extension increases. When the permissible extension value is exceeded replace the shock absorber, because its effect is reduced.

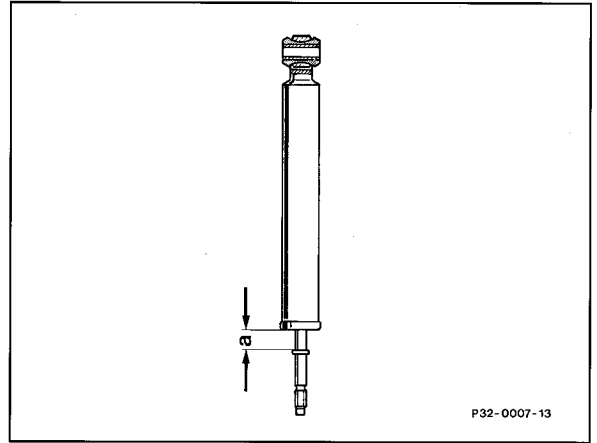
Test procedure

(Shock absorbers with separating piston)

3 Compress piston rod down to working piston stop on separating piston.

Measure extension "a".

a Piston rod extension



Rumbling and knocking noises

4 Check top mount for proper installation, on bottom mount check rubber mount for tight seat in housing eye.

5 Measure oil reserve. If the oil loss is extremely high shock absorbers with separating piston tend to knock, because the piston rod can hit against the separating piston on compression.

A loose working piston can also cause knocking noises.

To check, press the piston rod in with the shock absorber in the installation position, release and press in again. If the working piston is loose a knocking noise should be present at the changeover from compression to extension.

Hissing noises

6 Shock absorbers with separating pistons tend to make hissing noises when the separating piston is leaky, because gas gets into the oil system resulting in the formation of foam. Such shock absorbers may still function properly, however, must still be replaced.

Scrapping shock absorbers

When scrapping shock absorbers observe all applicable safety regulations.

To release the pressure carefully drill a 5 mm hole in the shock absorber tube until gas exits.

Wear protective goggles and gloves when performing this work as an accident prevention measure against exiting gas and protection against drilling chips. When drilling the hole, exert a minimum of pressure on the bit.

Procedure

7 Clamp shock absorber in vice in vertical position with the piston rod pointing downward.

8 Drill a 5 mm hole in the shock absorber tube approx. 20 mm from the bottom of the shock absorber (left arrow).

9 On shock absorbers with separating piston press the piston rod in to the stop and pull out again. Then drill a second hole approx. 60 mm from the bottom of the shock absorber (arrow). The oil can then flow out.

Oil filling depending on version: 250 – 500 cm³.

Note

Do not drill the second hole, 60 mm away from the bottom, first. If a hole is drilled with the shock absorber in the horizontal position, the oil can spray out under high pressure.

