

Test values for shock absorbers

Designation	Part No.	Colour marking (on housing for front shock absorber, on lower suspension eye for rear shock absorber)	Adjustment in N (kp) at 100/min and 50 mm stroke for new or reconditioned shock absorbers		Check on oil reserve in shock absorber	
			When extend- ing sh.a.	When com- pressing sh. a.	Piston rod exposure "a" 3) Adjustments for new shock absorbers mm	Maximum permissi- ble values mm
Front shock absorbers						
Bilstein Type B 36	107 323 00 00 ¹⁾	4 lengthwise lines, green	105	52	8 ± 2	38
	107 323 01 00 ²⁾	4 lengthwise lines, green	110	52		
F & S Type E 36	107 323 02 00	4 crosswise lines, green	118	60	22 ± 2	0
Rear shock absorbers						
Bilstein Type B 46	107 326 00 00	4 lengthwise lines, green	180	105	0 + 2	32
	116 326 02 00	1 lengthwise line, green	230	102		
F & S Type E 45	116 326 04 00 ¹⁾	1 crosswise line, green	230	110	105 ± 2	82
	116 326 08 00 ²⁾	1 crosswise line, green	250	115		

1) 1st version

2) 2nd version

3) If the max. length of exposed piston rod is exceeded or not met, the shock absorber loses its effectiveness.



32.1 Checking of Shock Absorbers

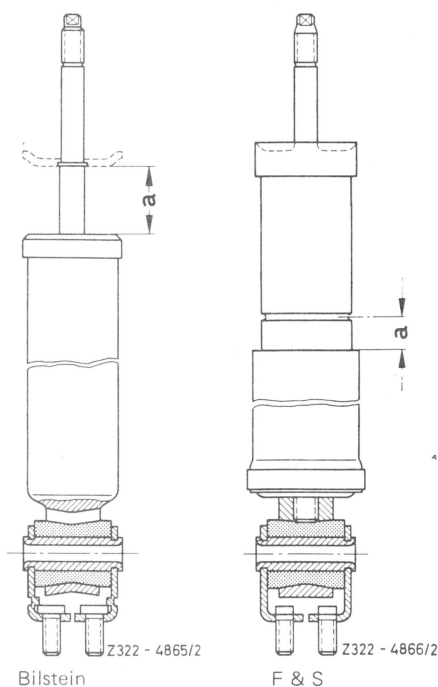


Fig. 1
Front shock absorbers
a length of exposed piston rod

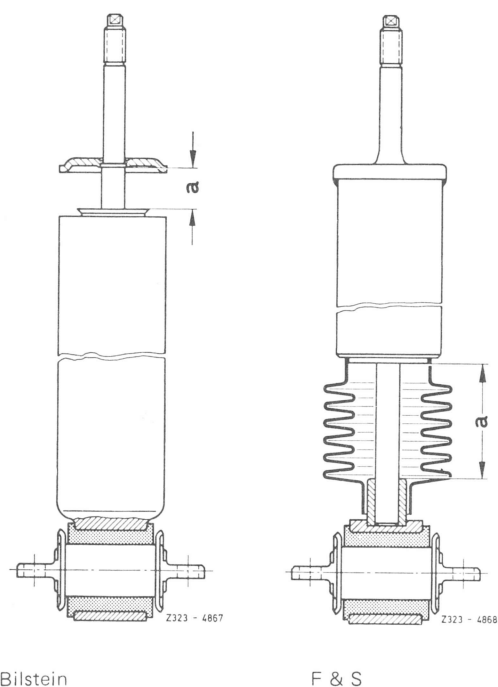


Fig. 2
Rear shock absorbers
a length of exposed piston rod

Special tools

Checking and bending device for alignment of rear shock absorbers

107 589 00 21 00

Oil reserve in shock absorber

The oil reserve in the shock absorber is determined by the length of exposed piston rod "a".

The temperature of the shock absorber should be approx. 20° C when the oil reserve is measured.

If oil has been lost, the length of exposed piston rod increases on Bilstein shock absorbers and decreases on F & S shock absorbers.

If the permissible lengths are exceeded or not met, replace the shock absorber because it has lost its effectiveness.

Bilstein shock absorbers

Push piston rods inwards against piston stop on compensating piston (Fig. 3).

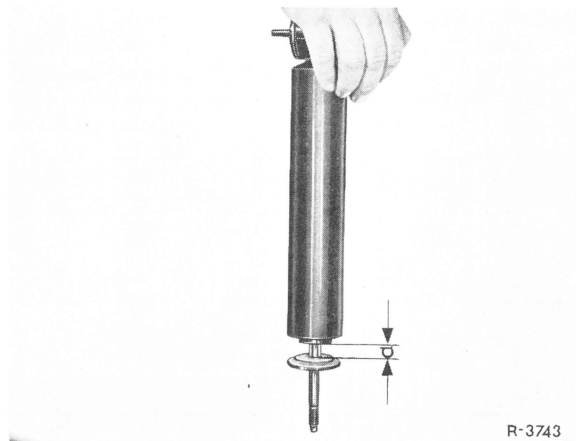


Fig. 3
a = Length of exposed piston rod.

F & S shock absorbers

With the piston rod upwards, press the shock absorber together until a definite, additional resistance is felt, i.e. until the piston meets the oil column (Figs. 4 and 5).

Note: When checking oil reserve on F & S shock absorbers, any hissing noises are without significance.

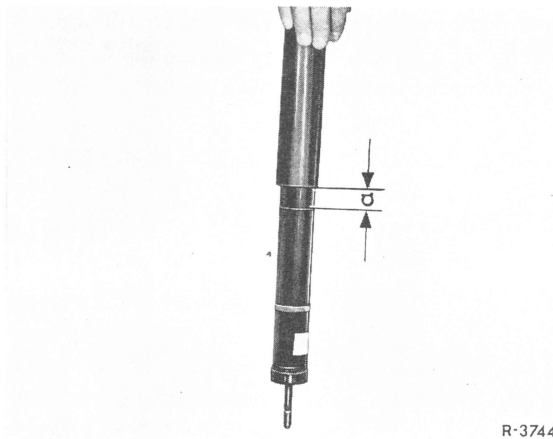


Fig. 4
Front shock absorber
a = Piston rod outlet dimension

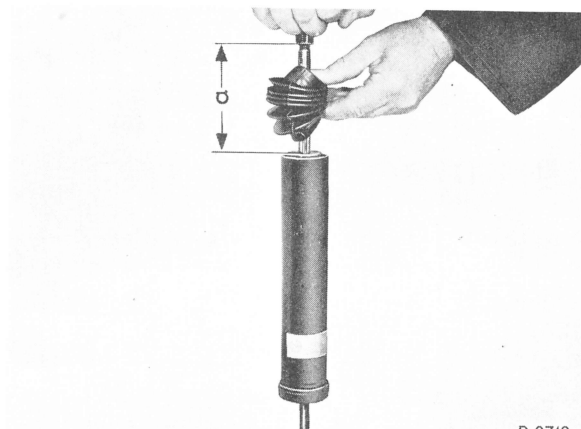


Fig. 5
Rear shock absorber
a = Piston rod outlet dimension

Sight Test

Check piston rod carefully for surface damage.

Check piston rod for bends. A bent piston rod is recognized by binding when inserted into guide bushing.

Note: For lubricating the guide bushing outside the piston rod seal, the piston rod is designed to provide a slight oil film.

The alignment of the suspension points is important for the correct function of the piston rod seal. In the event of leaks on piston rod seal be sure to check whether alignment of suspension points is in order.

Alignment of Suspension Points

Check alignment of suspension points for rear shock absorber and make corrections, if required. For this purpose, load vehicle so that the position of the semi-trailing arm is at approx. +15 mm.

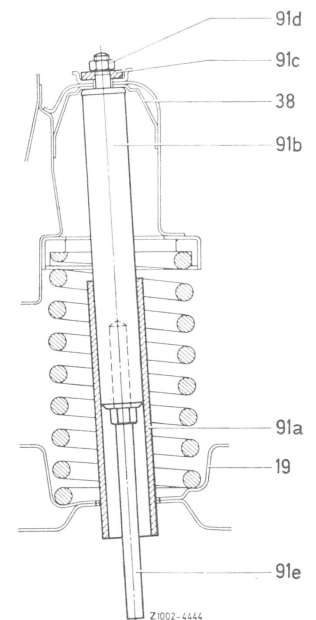
Attach checking and bending device (91) on dome for upper suspension of frame floor and check alignment in relation to through hole in semi-trailing arm with sleeve (91a) (Fig. 6).

Correct deviations of alignment by bending with pin (91b) of device. For this purpose, remove sleeve (91a) and insert extension bolt (91e)

Note! If the alignment of the suspension points has not been in order, shock absorbers need be exchanged only if they have been in use with a badly deviating alignment already for a considerable time or when they are clearly leaking.

Fig. 6

- 19 Semi-trailing arm
- 38 Dome on frame floor
- 91 Checking and bending device for alignment of rear shock absorbers
- 91a Sleeve
- 91b Bolt
- 91c Washer
- 91d Hex. nut
- 91e Extension bolt



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32.1

Checking of Shock Absorbers

Rumbling Noise

Check upper suspension for correct assembly, lower suspension for tight seat of fastening clip and rubber mount in housing eye.

Determine oil reserve. In the event of very large oil losses, Bilstein shock absorbers develop a tendency for knocking, since the piston rod may knock against compensating piston during deflection. On rear shock absorbers, check alignment of upper suspension point on frame floor in relation to lower suspension point on semi-trailing arm.

Hissing Noise

With a leaking compensating piston, Bilstein shock absorbers develop a tendency for hissing noises, since gas will enter the oil system and foaming will occur. Such shock absorbers may very well be still functioning, but should nevertheless be exchanged.