Service Information

Concentric slave cylinder (CSC)
Causes of leakage

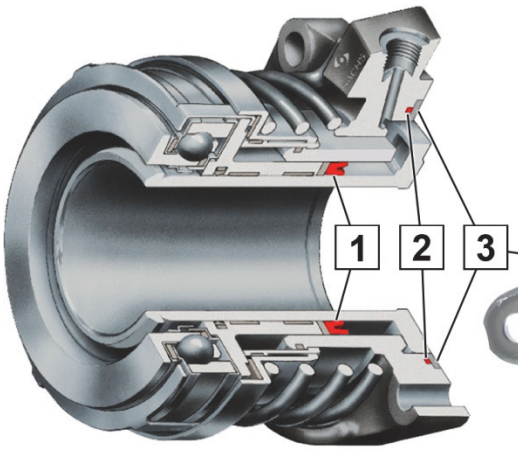

Fig. 1: CSC sectional view

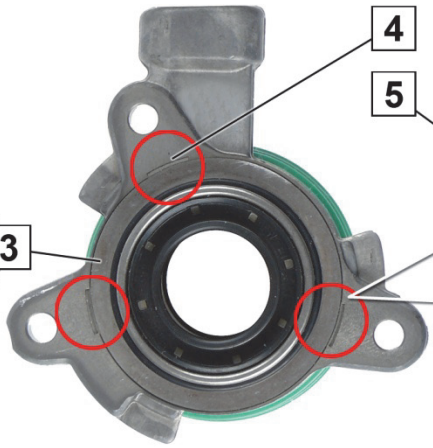

Fig. 2: Caulking of the sliding sleeve (transit support)

Fig. 3: Sliding sleeve pressed out of the calking

1 Lipped seal ring

2 Sealing ring

3 Sliding sleeve with transit support

4 Caulking (transit support)

5 Sliding sleeve (pressed out of the caulking)

Fig. 4: New lipped seal ring (1)

Fig. 5: Lipped seal ring (1) bulging

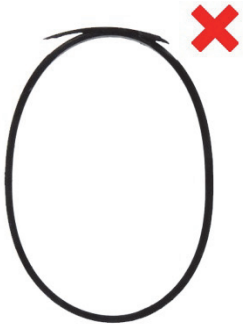

Fig. 6: Sealing ring (2) damaged

Fig. 7: Lipped seal ring (1) sheared

NOTICE

Do **not** press the CSC together prior to installation!

The sliding sleeve (5) comes loose from the caulking (Fig. 3).
The sealing ring (2) no longer sits in the groove and is damaged during installation (Fig. 6). The CSC becomes leaky.

The CSC can become damaged by incorrect liquids, oils, greases, cleaning agents, etc.
Only fill, rinse and bleed the CSC with prescribed liquids.
Note the details of the vehicle manufacturer.

ZF Friedrichshafen AG ▪ ZF Services
Obere Weiden 12, 97424 Schweinfurt, Germany
Technical Support Phone: +49 9721 4755555
Fax: +49 9721 4755556
techsupport.zf-services@zf.com
www.zf.com

Printed in Germany
12040 EN
01.2013

Service Information

Concentric slave cylinder (CSC)
Causes of leakage

Leaky CSC due to incorrect handling.

Fig.	Diagnosis	Possible causes of errors / consequences	Remedy
5	Lipped seal ring (1) bulging.	The brake fluid of the hydraulic system is contaminated with substances containing mineral oil (motor oil, transmission oil, rust solvent, etc.). ➔ The lipped seal ring (1) bulges (Fig. 2). The CSC becomes leaky.	▪ Avoid contact with substances containing mineral oil. ▪ Replace the CSC.
6	Sealing ring (2) damaged.	The CSC was pressed together prior to installation (Fig. 3) or it was not correctly installed in the transmission. ➔ The sealing ring (2) no longer sits in the groove and is damaged during installation. The CSC becomes leaky.	▪ Do **not** press the sliding sleeve out of the caulking (4)! ▪ Replace the CSC.
7	Lipped seal ring (1) sheared.	The release stroke of the CSC was exceeded. ***)** ➔ The lipped seal ring is damaged when the release stroke is exceeded. The CSC becomes leaky.	▪ Do **not** actuate the clutch pedal without the resistance of the clutch pressure plate. ▪ Replace the CSC.

***)** An incorrectly adjusted clutch pedal or a bleed hole in the master cylinder that is clogged with dirt inhibits the volume compensation between the hydraulic actuating system and the compensating reservoir in a non-actuated state. The hydraulic actuating system can then also be under prestress without the clutch pedal being actuated. When the clutch is actuated, the release stroke is exceeded.

When installing a CSC, please do the following:

- Check the assignment of all clutch components.
- Pay attention to cleanliness. Clean the CSC contact surface on the transmission.
- Bleed the hydraulic actuation system.
- Note the details of the vehicle manufacturer.

www.zf.com/serviceinformation

ZF Friedrichshafen AG ▪ ZF Services
Obere Weiden 12, 97424 Schweinfurt, Germany
Technical Support Phone: +49 9721 4755555
Fax: +49 9721 4755556
techsupport.zf-services@zf.com
www.zf.com

Printed in Germany
12040 EN
01.2013