

A. Tandem main cylinder (not stepped)

Data

Dia.	inches	15/16
	mm	23.81
Housing bore dia.		23.81
		23.86
Wear limit		23.92
Permissible out-of-round of bore		0.03
Piston dia.		23.77
		23.74
Wear limit		23.66
Piston clearance		0.02-0.15
Stroke	push rod circuit	13
	floating circuit	19

Lubricants

Silicone grease

Brake cylinder paste

Tightening torque

Nm

Stop screw

5-8

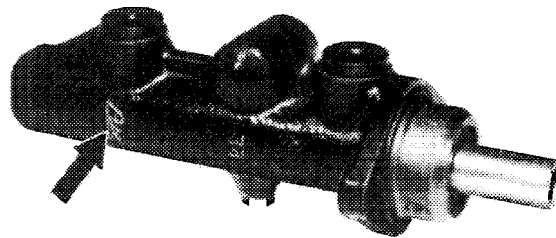
Note

For reconditioning use the following repair kit:

Teves tandem main cylinder 001 586 93 43

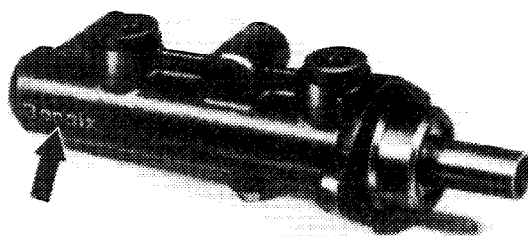
Bendix tandem main cylinder 001 586 55 43

Note that the Bendix tandem main cylinder sprayed blue may not be repaired.



Teves tandem main cylinder

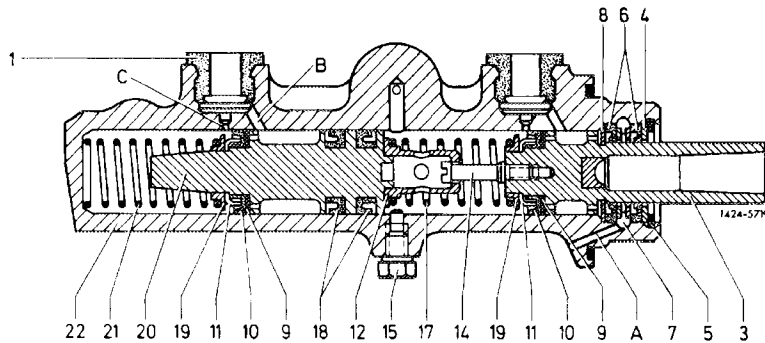
142-8633



Bendix tandem main cylinder

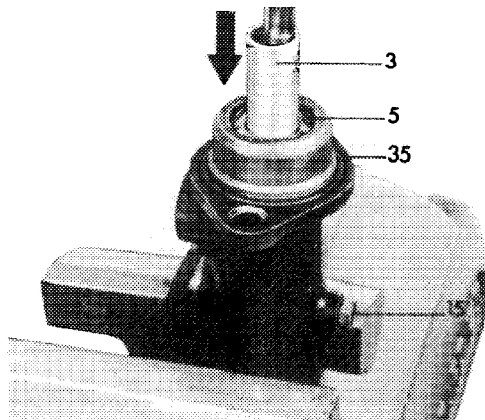
142-9512

- 1 Container plug
- 3 Piston (pushrod circuit)
- 4 Stop washer
- 5 Locking ring
- 6 Secondary and vacuum sleeve
- 7 Intermediate ring
- 8 Washer
- 9 Filling disc
- 10 Primary sleeve
- 11 Supporting ring
- 12 Spring retainer
- 14 Connecting screw
- 15 Stop screw
- 17 Compression spring
- 18 Parting sleeve
- 19 Spring retainer
- 20 Piston (floating circuit)
- 21 Compression spring
- 22 Housing
- A Leak hole
- B Filler hole
- C Compensating hole



Disassembly

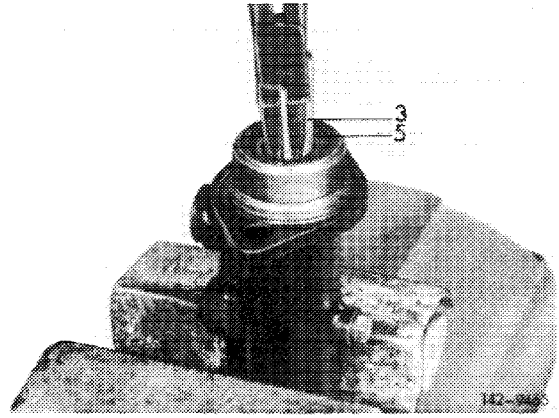
- 1 Pull expansion tank out of container plug of tandem main cylinder.
- 2 Push piston (3) slightly inwards by means of a mandrel, then unscrew stop screw (15) from housing and remove together with sealing ring.



142-9459

3 Remove locking ring (5) from housing. Then remove piston (3) from housing together with stop washers (4 and 8), secondary and vacuum sleeve (6) and intermediate ring (7).

4 Remove complete piston for floating circuit by knocking housing lightly against a wooden board.

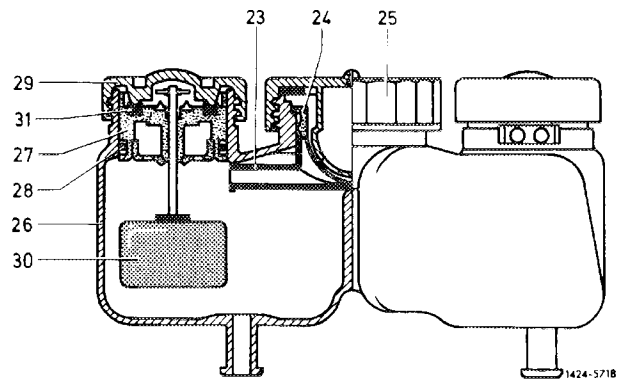


5 On Teves compensating tank, unscrew closing cover (25) and both end covers (29). Remove strainer (24), splash guard (23) and both contact inserts (27) including O-rings (31).

Note: The splash guard is installed only in compensating tank of 1st and 2nd version.

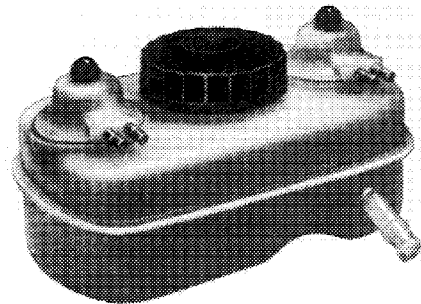
Teves compensating tank

23	Splash guard	28	O-ring
24	Strainer	29	End cover
25	Closing cover	30	Float
26	Compensating tank	31	O-ring
27	Contact insert		



6 On Bendix compensating tank, unscrew closing cover and remove strainer.

Note: The contact inserts of Bendix compensating tank cannot be removed.



Bendix compensating tank

142-8636

Checkup

7 Clean all parts well with spirit of alcohol, make sure that all residue is flushed out of housing and expansion tank.

8 Check bore in housing for score marks and rust. Slightly rusted spots may be cleaned with polishing cloth.

Housings showing score marks and badly rusted spots should not be machined. In such cases, replace tandem main cylinder completely.

Assembly

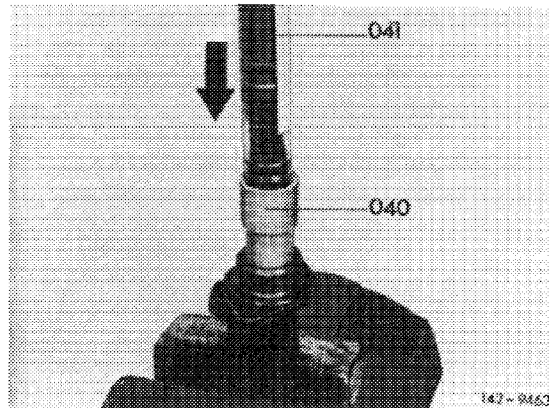
Bendix tandem main cylinder

9 Slightly coat bore of housing with brake cylinder paste.

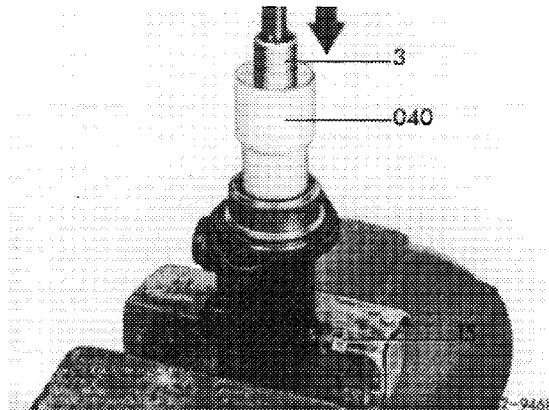
10 Remove secondary sleeve, vacuum sleeve, stop washers, intermediate ring, sealing ring and copper sealing ring from assembly sleeve.

11 Place assembly sleeve (040) on housing and slip complete piston package with a mandrel from sleeve (041) into housing.

12 Remove sleeve (041).

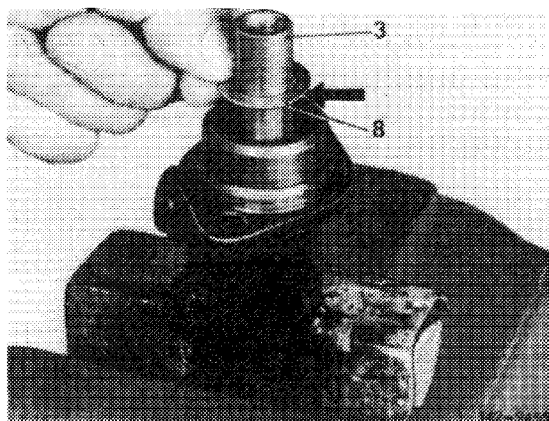


13 Push piston (3) completely into housing by means of a mandrel, screw-in stop screw (15) with new copper sealing ring and tighten to specified torque. Remove assembly sleeve.

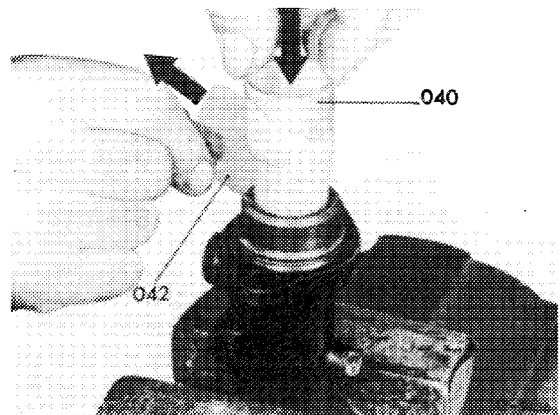
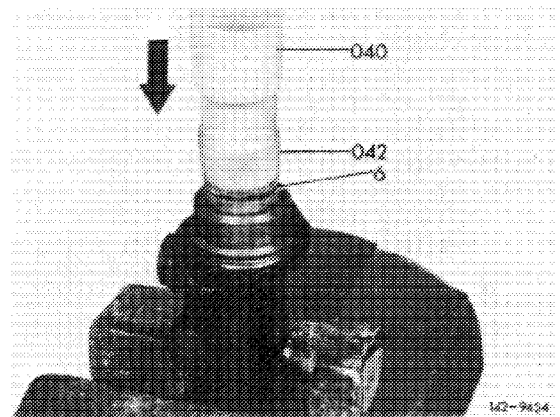
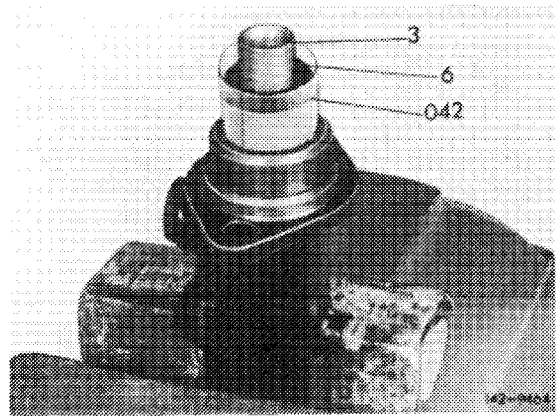


14 Place stop washer (8) on piston (3).

15 Slightly grease stem of piston (3) with silicone grease.

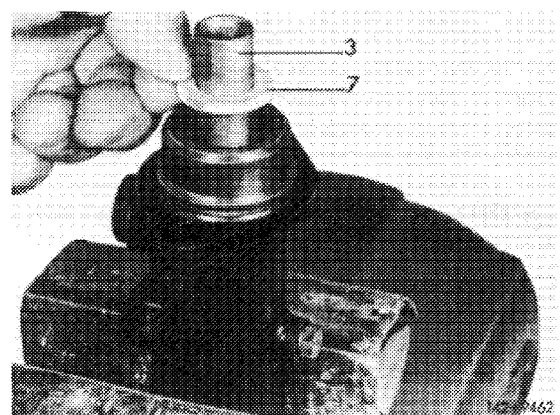


16 Coat secondary sleeve (6) with silicone grease and place on shaft of piston with sealing lip facing piston. Then insert plastic foil (042) to housing bore and push secondary sleeve with assembly sleeve (040) into housing. Pull plastic foil out of housing and remove assembly sleeve.

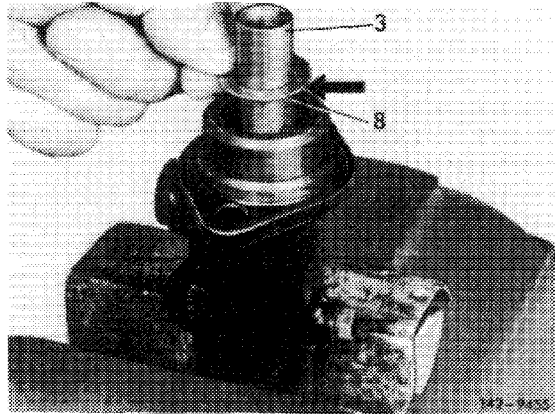


17 Insert intermediate ring (7) into housing, making sure that the bore in intermediate ring faces leak bore (A) in housing and push-in with assembly sleeve.

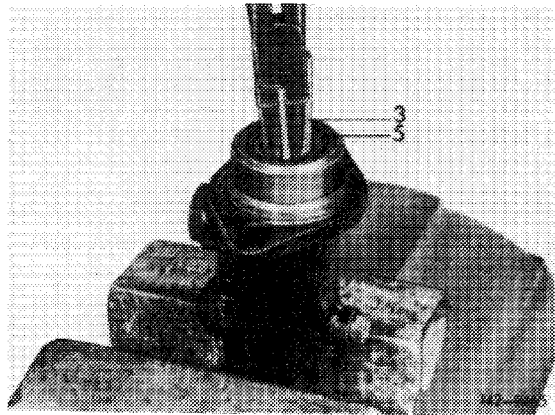
18 Install vacuum sleeve (6) as described in item 16.



19 Place stop washer (8) on piston (3).



20 Insert locking ring (5) making sure that the ring is correctly seated in groove of housing.



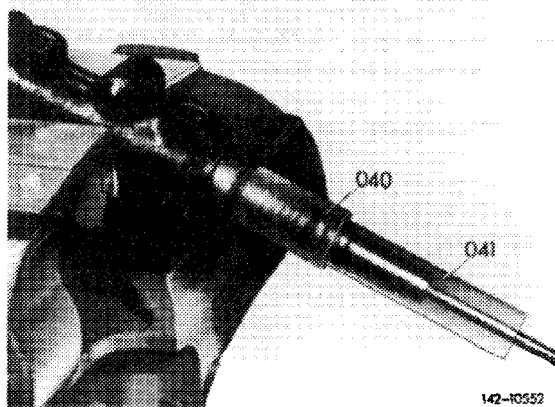
Teves tandem main cylinder

21 Slightly coat bore of housing with brake cylinder paste.

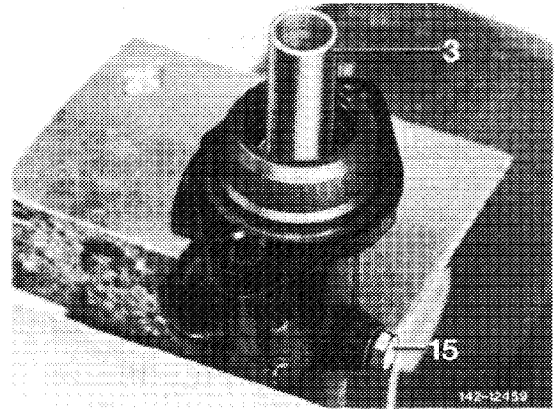
22 Remove secondary sleeve, vacuum sleeve, stop washers, intermediate ring, sealing ring, copper sealing ring, locking ring and silicone grease from assembly sleeve.

23 Clamp housing slightly tilted with bore in downward direction. Push assembly sleeve (040) forward against end of sleeve (041) and insert into housing. Push complete piston package with a mandrel from sleeve (041) up to stop into housing. Screw-in stop screw with new copper sealing ring.

24 Remove sleeve (041) and assembly sleeve (040).

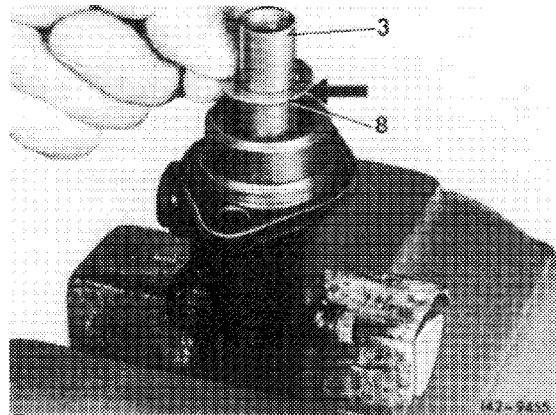


25 Clamp tandem main cylinder in such a manner that the piston shaft is pointing upwards. Tighten stop screw (15) to specified torque.

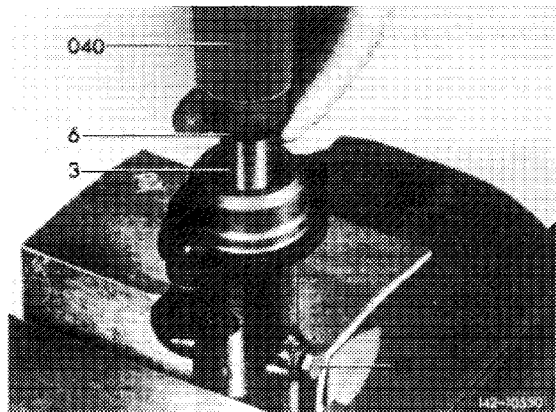


26 Place stop washer (8) on piston (3).

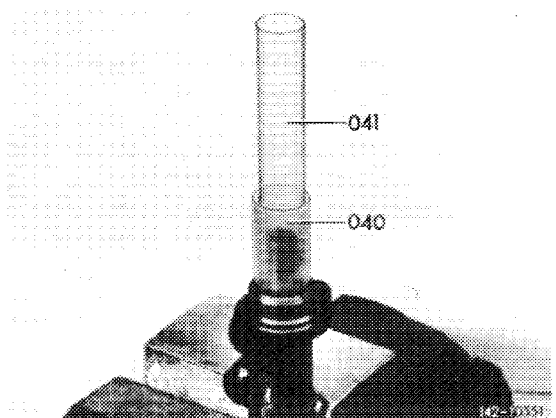
27 Slightly coat stem of piston (3) with silicone grease.



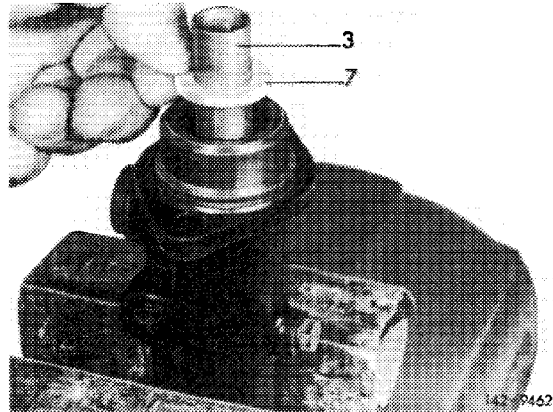
28 Adjust sleeve and assembly sleeve in such a manner that the end of sleeve (041) is in alignment with the inside edge of the smaller diameter of the assembly sleeve (040). Coat secondary sleeve (6) with silicone grease, then place on shaft of piston with sealing lip facing piston, hold in place and insert assembly sleeve (040) with inserted sleeve (041) over sleeve up to stop.



29 Slip both sleeves with secondary sleeve into bore of housing and push seal downwards with sleeve (041). First, pull up assembly sleeve (040) by height of sleeve and then remove both sleeves.

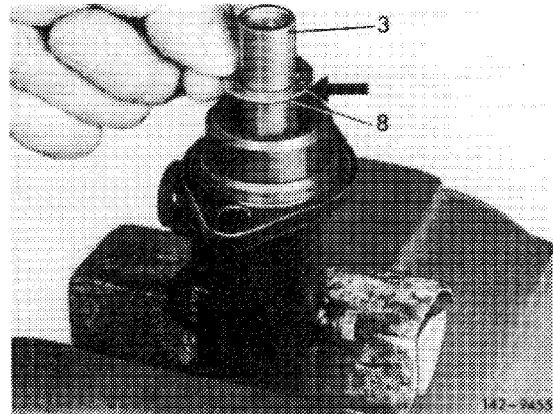


30 Insert intermediate ring (7) into housing, making sure that the bore in intermediate ring is pointing toward leak bore (A) in housing and push-in with sleeve (041).

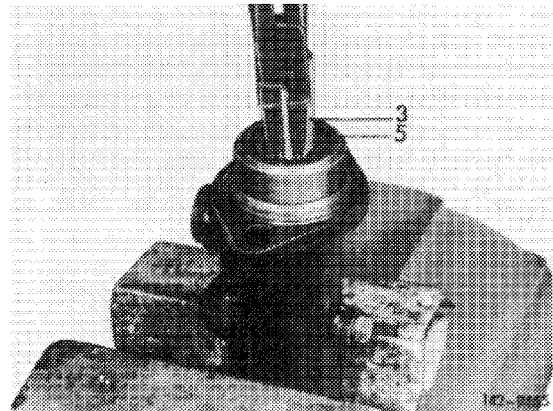


31 Install vacuum sleeve (6) as described in item 28 and 29.

32 Place stop washer (8) on piston (3).



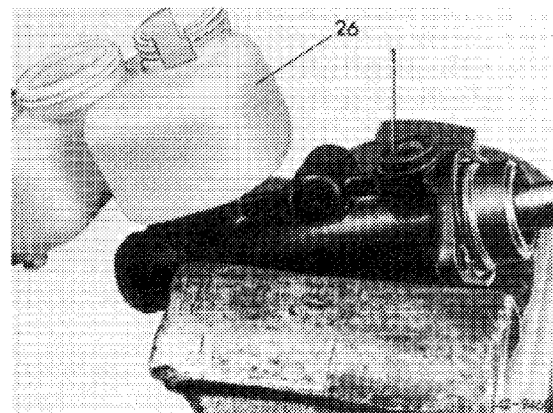
33 Insert locking ring (5), making sure that the ring is correctly seated in groove of housing.



Mounting expansion tank

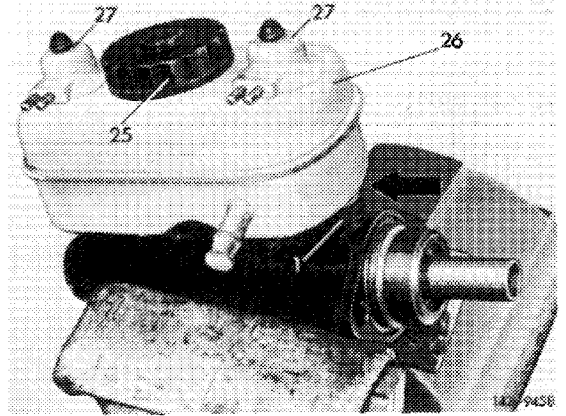
34 Coat container plug (1) lightly with brake cylinder paste and push into housing.

35 Insert expansion tank (26) first with a pipe connection into housing, turn by 180° and push second pipe connection into housing.



Watch out for correct seat (refer to arrow).

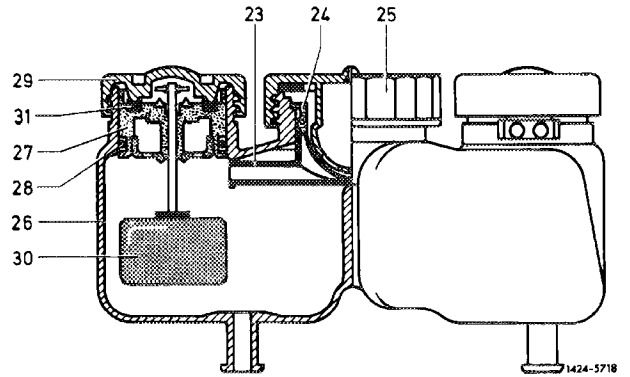
36 On Bendix expansion tank, insert strainer into container and screw-on closing cover.



37 On Teves expansion tank, insert both contact inserts (27) with new O-rings (28) into expansion tank. Mount O-rings (31) and screw-on end cover (29).

Teves expansion tank

- | | | | |
|----|----------------|----|-----------|
| 23 | Splash guard | 28 | O-ring |
| 24 | Strainer | 29 | End cover |
| 25 | Closing cover | 30 | Float |
| 26 | Expansion tank | 31 | O-ring |
| 27 | Contact insert | | |



Note: The Teves expansion tank is provided with the following contact inserts:

Expansion tank 1st and 2nd version

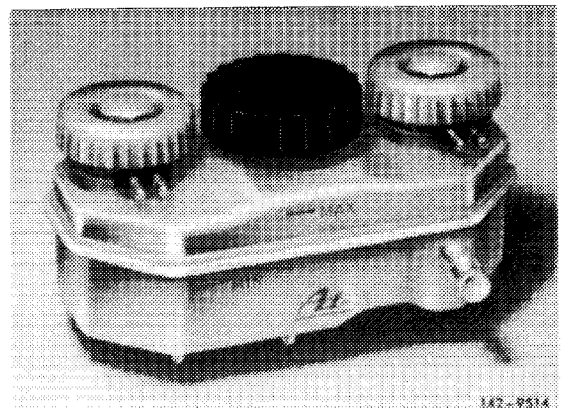
Production up to spring 1972:

Both chambers contact elements 58 mm high with metal float rod.

Production from spring 1972 to spring 1974:

Front axle brake circuit 58 mm and rear axle brake circuit 42 mm high contact element with metal float rod.

Teves expansion tank 1st version



Teves expansion tank 2nd version

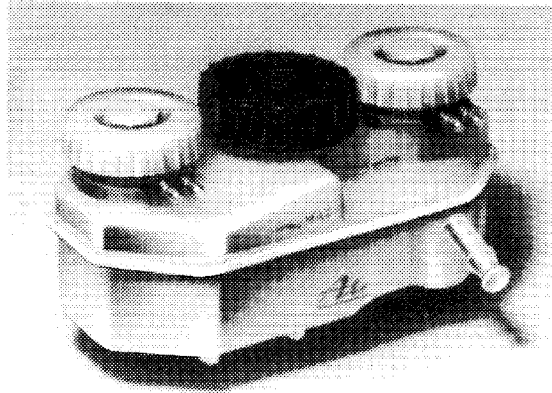
Expansion tank 3rd version

Production starting spring 1974: (three-chamber expansion tank):

Both chambers with contact inserts 58 mm high with metal or plastic float rod.

This expansion tank is not provided with a built-in splash guard.

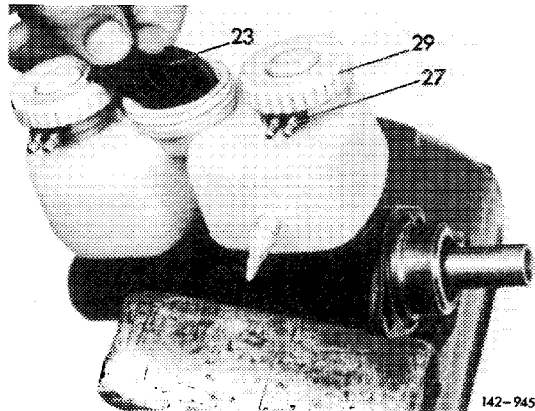
Teves expansion tank 3rd version



142-9513

38 Insert splash guard (23) and strainer into container and screw-on closing cover.

39 Insert sealing ring into flange of housing.



142-9457

B. Tandem main cylinder (stepped)

Data

		Push rod circuit	Floating circuit
Dia.	inches	15/16	3/4
	mm	23.81	19.05
Housing bore dia.		23.81	19.05
		23.86	19.10
Wear limit		23.92	19.16
Permissible out-of-round of bore		0.03	
Piston dia.		23.77	19.01
		23.74	18.97
Wear limit		23.66	18.90
Piston clearance		0.02–0.15	
Stroke		15	17

Lubricants

Silicone grease

Brake cylinder paste

Tightening torques

Nm

Stop screw

5–8

Closing plug

15–30

Switch

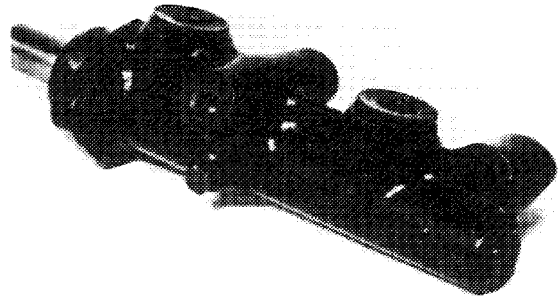
15–20

Self-made tool

Assembly pin (made of steel)

Note

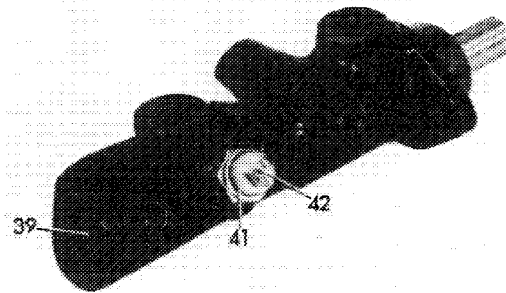
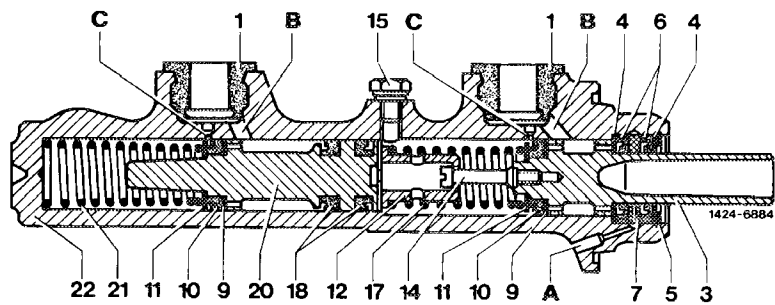
During reconditioning, make sure that the repair kit and the housing are from the same manufacturer.



142-11670

Stepped tandem main cylinder

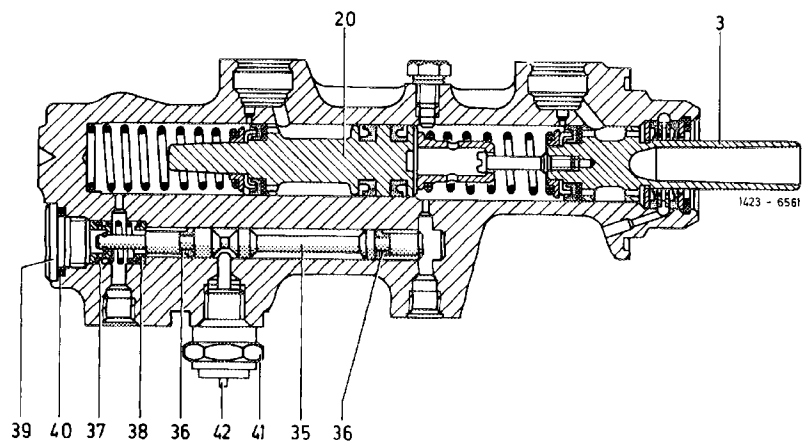
- 1 Container plug
- 3 Piston (push rod circuit)
- 4 Stop washer
- 5 Locking ring
- 6 Secondary and vacuum sleeve
- 7 Intermediate ring
- 9 Filling washer
- 10 Primary sleeve
- 11 Supporting ring
- 12 Spring retainer
- 14 Connecting screw
- 15 Stop screw
- 17 Compression spring
- 18 Parting sleeve
- 20 Piston (floating circuit)
- 21 Compression spring
- 22 Housing
- A Leak hole
- B Filler hole
- C Compensating hole



142-10793

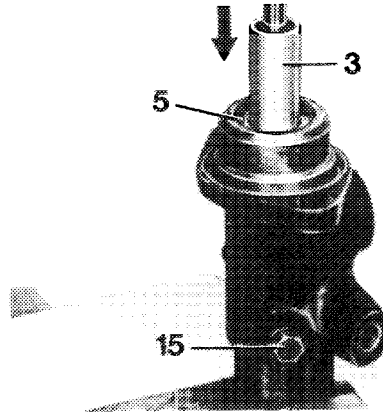
Stepped tandem main cylinder with pressure difference warning indicator

- 3 Piston (push rod circuit)
- 20 Piston (floating circuit)
- 35 Control piston
- 36 Ring sleeve
- 37 Spring
- 38 Spring retainer
- 39 Screw
- 40 Sealing ring
- 41 Switch
- 42 Release pin



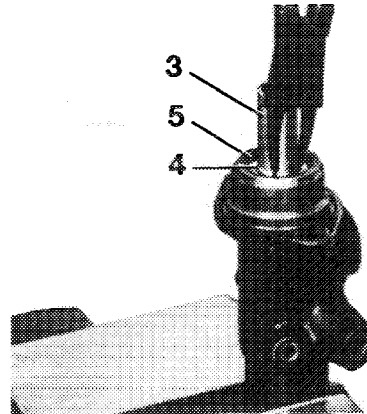
Disassembly

- 1 Pull expansion tank and container plug from tandem main cylinder.
- 2 Push piston (3) slightly inwards by means of a mandrel, then unscrew stop screw (15) from housing and remove together with sealing ring.



142 - 11753

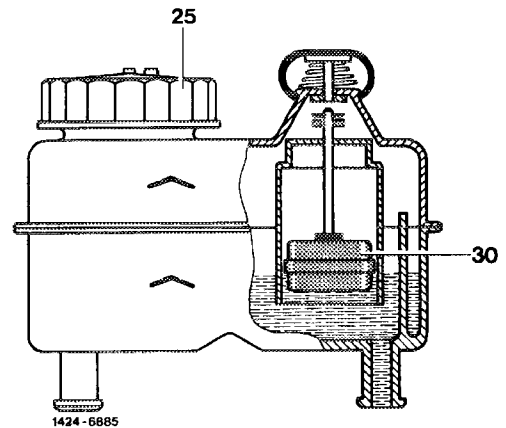
- 3 Remove locking ring (5) from housing. Then remove piston (3) from housing, together with stop washers (4), secondary and vacuum sleeve (6) and intermediate ring (7).
- 4 Remove complete piston for floating circuit by knocking housing lightly against a wooden board.
- 5 On tandem main cylinder with pressure difference warning indicator, unscrew closing plug (39) and knock-out control piston (35) as described under item 4.



142 - 11752

- 6 Unscrew closing cover (25) and remove strainer.

Note: The contact insert (30) cannot be removed.



1424 - 6685

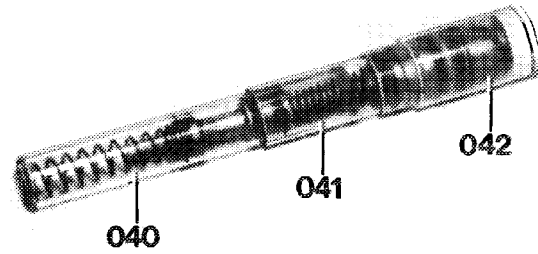
Checkup

- 7 Clean all parts well with spirit of alcohol, make sure that all residue is flushed out of housing and expansion tank.
 - 8 Check bore in housing for score marks and rust. Slightly rusted spots may be cleaned with polishing cloth.
- Housings showing score marks and badly rusted spots should not be machined. In such cases, replace tandem main cylinder completely.**

Assembly

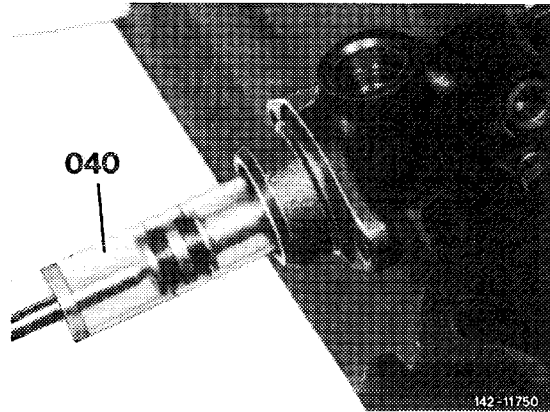
9 Slightly coat bore of housing with brake cylinder paste.

10 Remove vacuum seals, stop washers, intermediate ring, sealing ring and copper sealing ring from assembly sleeve.



142-12081

11 Clamp housing slightly tilted with bore in downward direction. Remove assembly sleeve (040) including floating piston (19.05 dia.) from assembly sleeve (041) for push rod piston (23.81 dia.). Place assembly sleeve (040) into housing and slide piston into housing up to stop by means of a mandrel.

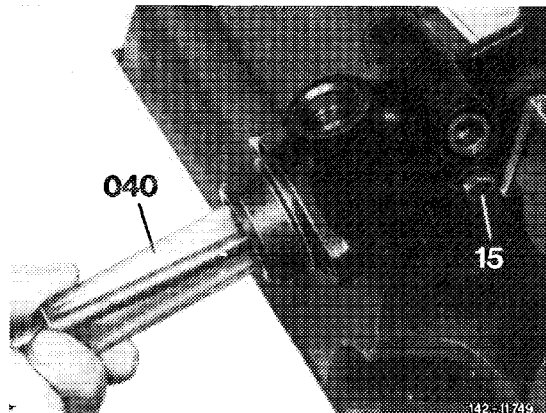


142-11750

12 Hold piston in place with mandrel, pull assembly sleeve (040) out until the stop screw (15) can be screwed in with a new copper sealing ring.

Tighten stop screw (15) to 5–8 Nm.

13 Remove assembly sleeve (040).

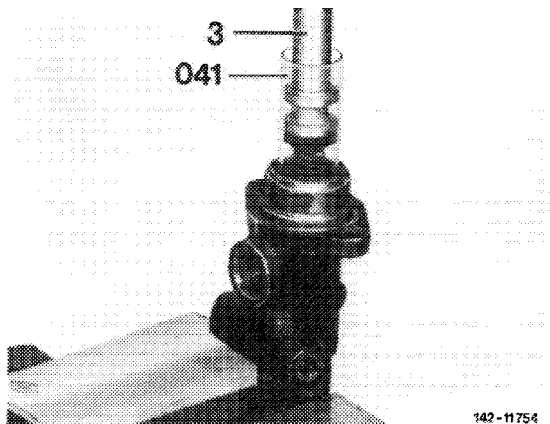


142-11749

14 Clamp tandem main cylinder in such a manner that cylinder bore is pointing upwards.

15 Remove assembly sleeve (041) including push rod piston (23.81 dia.) from assembly sleeve (042) for secondary seal. Insert assembly sleeve (041) into housing and slip piston (3) into housing by means of a mandrel.

16 Remove assembly sleeve (041).



142-11754