Workshop Manual
FABIA 2000 ➢

Chassis
Edition 08.99

Printed in Czech Republic
S00.5303.00.20

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List of Supplements to Workshop Manual

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Supplement	Edition	Subject	Article Number
	08.99	Basic Edition	S00.5303.00.20
1	12.99	Supplement to Basic Edition	S00.5303.01.20
2	05.00	Axles, brakes, electrical inspection ABS, ABS/EDL/TCS	S00.5303.02.20
3	07.00	Steering	S00.5303.03.20
4	08.00	ABS, Brake mechanics, Brake hydraulics	S00.5303.04.20
5	11.00	Repairing the front axle, repairing the wheel bearing	S00.5303.05.20
6	01.01	Repairing front suspension strut, repairing drive shafts	S00.5303.06.20
7	02.01	Removing and installing rear axle and coil spring	S00.5303.07.20
8	03.01	Chassis with Brakes FS-II and C54-II	S00.5303.08.20
9	08.01	ESP and Rep.-Gr. 48, solid nut (twelve point nut), brake-pressure reducer	S00.5303.09.20
10	11.01	Geometrical change	S00.5303.10.20
11	03.02	Changes to the text in Rep. Gr. 00, 40, 42, 46 and 48	S00.5303.11.20
12	10.02	Brake pedal switch, control unit for the ABS (fault table, coding)	S00.5303.12.20
13	02.03	1.2 ltr./47 kW Engine, Supplement to the text	S00.5303.13.20
14	07.03	1.9 ltr./96 kW TDI PD Motor, 1.4 ltr./55 kW TDI PD Engine, Supplement to the text	S00.5303.14.20
15	04.04	Steering KOYO, Correction of the text, Updating of the steering coding	S00.5303.15.20
16	07.04	Supplement to Rep. Gr. 40, 44, 45, 46 and 47, ABS BOSCH 8.0	S00.5303.16.20
17	11.04	Supplement to Rep. - Gr. 45 and 48 TRW/KOYO steering	S00.5303.17.20
18	04.05	Text adaptation, Supplement to the coding of ABS, TCS, ESP	S00.5303.18.20

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00 – Technical Data

00-1 Chassis

Nominal values front axle

- Technical data apply for the unladen weight of the vehicle ready for driving (full fuel tank and water reservoir for the windscreen wiper washer system, spare wheel, tool kit, jack and without driver).

	Spring strut type axle		
	Standard suspension	**Sport chassis**	**Rough road suspension**
Running gear/PR No.	1GA, 1GG G01, G02, G05	G04	1GB G03, G06
	Explanations concerning this PR No. ⇒ 00-1 page 2		
Overall track -adjustable-	0°10' ± 10'	0°10' ± 10'	0°10' ± 10'
Toe difference angle on turns of 20° of inside wheel -not adjustable-	- 1° 30' ± 20' 1)	- 1° 32' ± 20'	- 1° 28' ± 20' 1)
	- 55' ± 20' 2)	---	- 53' ± 20' 2)
Toe difference angle on turns at full lock of inside wheel -not adjustable-	6° 50' 1)	6° 45'	6° 50' 1)
	4° 5' 2)	---	6° 50' 2)
Max. wheel lock angle -not adjustable-	39° 14' 1)	38° 37'	39° 34' 1)
	36° 59' 2)	---	39° 34' 2)
Camber 3)	-30' ± 30' 4) -28' ± 30' 5)	-39' ± 30'	-15' ± 30'
Max. difference between left and right side	30'	30'	30'
Caster angle -not adjustable-	4° 28' ± 30' 1)	4° 42' ± 30'	4° 14' ± 30' 1)
	2° 55' ± 30' 2)	---	2° 42' ± 30' 2)
Max. difference between left and right side	30'	30'	30'

1) with electro-hydraulic steering

2) with mechanical steering

3) It is possible to adjust the camber within the tolerance range by shifting the engine-gearbox assembly carrier with console. Note: Always replace the screws and washers of the engine-gearbox assembly carrier! After carrying out corrections of steering geometry, inspect position of steering wheel and alter to correct position, if necessary.

4) up to 09.00

5) from 10.00

Nominal values rear axle

- Technical data apply for the unladen weight of the vehicle ready for driving (full fuel tank and water reservoir for the windscreen wiper washer system, spare wheel, tool kit, jack and without driver).

	Twist-beam rear axle		
	Standard suspension	**Sport chassis**	**Rough road suspension**
Overall track -not adjustable-	The allocation of the adjusting values to the relevant running gear occurs via the PR No. of the front axle damping.		
	20' ± 10' 1)	26' ± 10'	15' ± 10' 1)
	21' ± 10' 2)	---	16' ± 10' 2)
Camber -not adjustable-	-1° 25' ± 10' 3) -1° 33' ± 10' 5) 4) -1° 30' ± 10' 6)	-1° 33' ± 10' 4) -1° 30' ± 10' 6)	-1° 25' ± 10' 3) -1° 33' ± 10' 5) 4) -1° 30' ± 10' 6)
Max. difference between left and right side	30'	30'	30'
Max. misalignment of the rear axle	20'	20'	20'

1) up to 05.01
2) from 06.01
3) up to 12.02
4) up to 08.03
5) as of 01.03
6) from 09.03

Vehicle data sticker and PR number

Different running gears are fitted depending on the engine type and equipment. These running gears are identified by PR numbers.

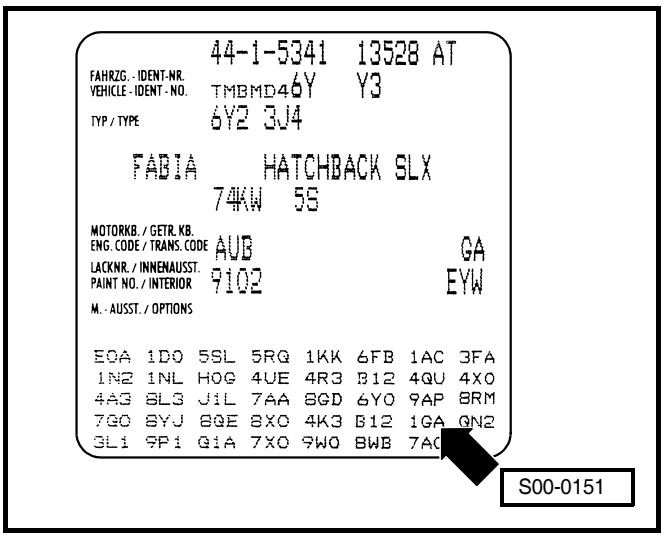
The PR number for the front axle on the vehicle data sticker indicates which type of running gear has been fitted.

The vehicle data sticker is located on the floor panel of the boot and in the Service Schedule.

Example of a vehicle data sticker ►

In this example the vehicle is fitted with a standard damping running gear 1GA -arrow-.

These PR numbers are required to determine the nominal values for the vehicle.



00-2 Steering

Steering system:	electro-hydraulic (Electrically Powered Hydraulic Steering - EPHS)	mechanical
Steering gear:	Rack pinion (input shaft)	Zahnstange - Ritzel (Eingangswelle) Rack pinion (input shaft)
Steering-wheel turns from turning angle to the next:	2,91	4,04
Steering wheel diameter (mm):	370	370
Grease denomination for gear rack:	TMS-L-10.482 [1] A0F 063 000 04 [2]	SHELL STERAK
Grease amount for gear rack in steering gear (g):	11,0 +5,0	40,0
maximum clearance between pressure plate and cover (mm):	0...0,08	0,04...0,09
authorised axial force for the displacement of the gear rack (N):	Displacement of the gear rack ◆ ± 40 mm: Axial force ≤ 200 N ◆ over 40 mm up to the stop: Axial force ≤ 250 N (Displacement speed 1 cm/s)	---
Pinion torque (Nm):	---	◆ Steering-wheel angle ±180°: Pinion torque = 0.8...1.3 Nm ◆ Steering-wheel angle over 180° up to the stop: Pinion torque = 0.8...1.6 Nm
Rotating force of the steering tie rods from rest position (N):	1,0...3,5 [3]	1,0...3,5 [3]
Denomination of the hydraulic oil:	PENTOSIN CHF 11S N 052 146 00 TL 52 146 or PENTOSIN CHF 202 N 052 146 01 TL 52 146	---
Hydraulic oil amount (l):	0,80	---

[1] applies for TRW steering
[2] applies for KOYO steering
[3] after 2 rotations

00-3 Brakes

Brake variants and their assignment

Engine	litre/ kW	1,0/37		1,2/40				1,2/47	
Engine code letters:		ARV, AQV		AWY, BMD				AZQ,BME	
S = Manual gearbox A = Automatic gearbox		S	-	S	-	S	-	S	-
Master brake cylinder - ∅	mm	20,64							
Brake booster - ∅	Inch	Left-hand drive with and without ABS: 8,5 Right-hand drive with and without ABS: 8,5							
♦ Front disc brake:									
Front brake caliper (type denomination)		FS-II		FS-III		FS-II		FS-III	
Front brake caliper, piston - ∅	mm	48,0		54,0		48,0		54,0	
Front brake disc - ∅	mm	239,0		256,0		239,0		256,0	
Brake disc - average effective diameter	mm	193,8		208,0		193,8		208,0	
Brake disc, thickness	mm	18,0		22,0		18,0		22,0	
Brake disc, minimum thickness	mm	15,0		19,0		15,0		19,0	
Pad thickness with supporting plate	mm	17,6		19,6		17,6		19,6	
Minimum thickness without supporting plate	mm	2,0		2,0		2,0		2,0	
♦ Rear disc brake:									
Rear brake caliper, piston - ∅	mm								
Rear brake disc - ∅	mm								
Rear brake disc - average effective diameter	mm								
Brake disc, thickness	mm								
Brake disc, minimum thickness	mm								
Pad thickness with supporting plate	mm								
Minimum thickness without supporting plate	mm								
♦ Rear drum brake:									
Brake drum - ∅	mm	200,0		200,0		200,0		200,0	
Brake drum - maximum diameter ∅	mm	201,0		201,0		201,0		201,0	
Wheel-brake cylinder - ∅	mm	19,05		19,05		19,05		19,05	
Brake pad, width	mm	40,0		40,0		40,0		40,0	
Pad thickness without supporting shoe	mm	5,4		5,4		5,4		5,4	
Minimum thickness without supporting shoe	mm	1,5		1,5		1,5		1,5	

Engine	**litre/ kW**	**1,2/47**		**1,4/44**				**1,4/50**	
Engine code letters:		**AZQ,BME**		**AZE, AZF**				**AME, ATZ, AQW**	
S = Manual gearbox A = Automatic gearbox		**S**	**-**	**S**	**-**	**S**	**-**	**S**	**-**
Master brake cylinder - ∅	mm	20,64							
Brake booster - ∅	Inch	Left-hand drive with and without ABS: 8,5 Right-hand drive with and without ABS: 8,5							
♦ Front disc brake:									
Front brake caliper (type denomination)		FS-II		FS-II		FS-III		FS-III	
Front brake caliper, piston - ∅	mm	48,0		48,0		54,0		54,0	
Front brake disc - ∅	mm	239,0		239,0		256,0		256,0	
Brake disc - average effective diameter	mm	193,8		193,8		208,0		208,0	
Brake disc, thickness	mm	18,0		18,0		22,0		22,0	
Brake disc, minimum thickness	mm	15,0		15,0		19,0		19,0	
Pad thickness with supporting plate	mm	17,6		17,6		19,6		19,6	
Minimum thickness without supporting plate	mm	2,0		2,0		2,0		2,0	
♦ Rear disc brake:									
Rear brake caliper, piston - ∅	mm								
Rear brake disc - ∅	mm								
Rear brake disc - average effective diameter	mm								
Brake disc, thickness	mm								
Brake disc, minimum thickness	mm								
Pad thickness with supporting plate	mm								
Minimum thickness without supporting plate	mm								
♦ Rear drum brake:									
Brake drum - ∅	mm	200,0		200,0		200,0		200,0	
Brake drum - maximum diameter ∅	mm	201,0		201,0		201,0		201,0	
Wheel-brake cylinder - ∅	mm	19,05		19,05		19,05		19,05	
Brake pad, width	mm	40,0		40,0		40,0		40,0	
Pad thickness without supporting shoe	mm	5,4		5,4		5,4		5,4	
Minimum thickness without supporting shoe	mm	1,5		1,5		1,5		1,5	

Engine	litre/ kW	1,4/55		1,4/74		2,0/85		1.9/47 SDI	
Engine code letters:		**AUA, BBY, BKY**		**AUB, BBZ**		**AZL**		**ASY**	
S = Manual gearbox A = Automatic gearbox		**S**	**A**	**S**	**-**	**S**	**-**	**S**	**-**
Master brake cylinder - ∅	mm	20,64							
Brake booster - ∅	Inch	Left-hand drive with and without ABS: 8,5 Right-hand drive with and without ABS: 8,5							
♦ Front disc brake:									
Front brake caliper (type denomination)		FS-III		FS-III		C54-II		FS-III	
Front brake caliper, piston - ∅	mm	54,0	54,0	54,0		54,0		54,0	
Front brake disc - ∅	mm	256,0	256,0	256,0		288,0		256,0	
Brake disc - average effective diameter	mm	208,0	208,0	208,0		244,0		208,0	
Brake disc, thickness	mm	22,0	22,0	22,0		25,0		22,0	
Brake disc, minimum thickness	mm	19,0	19,0	19,0		22,0		19,0	
Pad thickness with supporting plate	mm	19,6	19,6	19,6		18,6		19,6	
Minimum thickness without supporting plate	mm	2,0	2,0	2,0		2,0		2,0	
♦ Rear disc brake:									
Rear brake caliper, piston - ∅	mm			38,0		38,0			
Rear brake disc - ∅	mm			232,0		232,0			
Rear brake disc - average effective diameter	mm			196,0		196,0			
Brake disc, thickness	mm			9,0		9,0			
Brake disc, minimum thickness	mm			7,0		7,0			
Pad thickness with supporting plate	mm			16,9		16,9			
Minimum thickness without supporting plate	mm			2,0		2,0			
♦ Rear drum brake:									
Brake drum - ∅	mm	200,0	200,0	200,0				200,0	
Brake drum - maximum diameter ∅	mm	201,0	201,0	201,0				201,0	
Wheel-brake cylinder - ∅	mm	19,05	19,05	19,05				19,05	
Brake pad, width	mm	40,0	40,0	40,0				40,0	
Pad thickness without supporting shoe	mm	5,4	5,4	5,4				5,4	
Minimum thickness without supporting shoe	mm	1,5	1,5	1,5				1,5	

Engine	**litre/ kW**	**1.9/74 TDI PD**		**1.9/96 TDI PD**		**1.4/55 TDI PD**			
Engine code letters:		**ATD**		**ASZ**		**AMF**			
S = Manual gearbox A = Automatic gearbox		**S**	**-**	**S**	**-**	**S**	**-**		
Master brake cylinder - ∅	mm	20,64							
Brake booster - ∅	Inch	Left-hand drive with and without ABS: 8,5 Right-hand drive with and without ABS: 8,5							
♦ Front disc brake:									
Front brake caliper (type denomination)		FS-III		C54-II		FS-III			
Front brake caliper, piston - ∅	mm	54,0		54,0		54,0			
Front brake disc - ∅	mm	256,0		288,0		256,0			
Brake disc - average effective diameter	mm	208,0		244,0		208,0			
Brake disc, thickness	mm	22,0		25,0		22,0			
Brake disc, minimum thickness	mm	19,0		22,0		19,0			
Pad thickness with supporting plate	mm	19,6		18,6		19,6			
Minimum thickness without supporting plate	mm	2,0		2,0		2,0			
♦ Rear disc brake:									
Rear brake caliper, piston - ∅	mm	38,0		38,0					
Rear brake disc - ∅	mm	232,0		232,0					
Rear brake disc - average effective diameter	mm	196,0		196,0					
Brake disc, thickness	mm	9,0		9,0					
Brake disc, minimum thickness	mm	7,0		7,0					
Pad thickness with supporting plate	mm	16,9		16,9					
Minimum thickness without supporting plate	mm	2,0		2,0					
♦ Rear drum brake:									
Brake drum - ∅	mm	200,0				200,0			
Brake drum - maximum diameter ∅	mm	201,0				201,0			
Wheel-brake cylinder - ∅	mm	19,05				19,05			
Brake pad, width	mm	40,0				40,0			
Pad thickness without supporting shoe	mm	5,4				5,4			
Minimum thickness without supporting shoe	mm	1,5				1,5			

Adjusting values for the load-dependent regulator

Note

- *The adjusting values apply for the vehicle ready for driving.*
- *Vehicle weight ready for driving: Weight of the vehicle with full fuel tank and full water reservoir for windscreen wiper/washer and headlamp cleaning system, spare wheel, tool kit, jack and driver (75 kg). The spare wheel, tool kit and jack must be located in the position prescribed by the vehicle manufacturer, the driver must be seated on the driver seat.*

Model/Version		bar	MPa		bar	MPa
Vehicles without electro-hydraulic steering - drum brakes on rear axle	Front axle	70	7,0	Front axle	100	10,0
	Rear axle	38 ± 3	3,8 ± 0,3	Rear axle	47 ± 3	4,7 ± 0,3
Vehicles with electro-hydraulic steering - drum brakes on rear axle	Front axle	70	7,0	Front axle	100	10,0
	Rear axle	43 ± 3	4,3 ± 0,3	Rear axle	56 ± 3	5,6 ± 0,3

Pressure value of the distributor valve

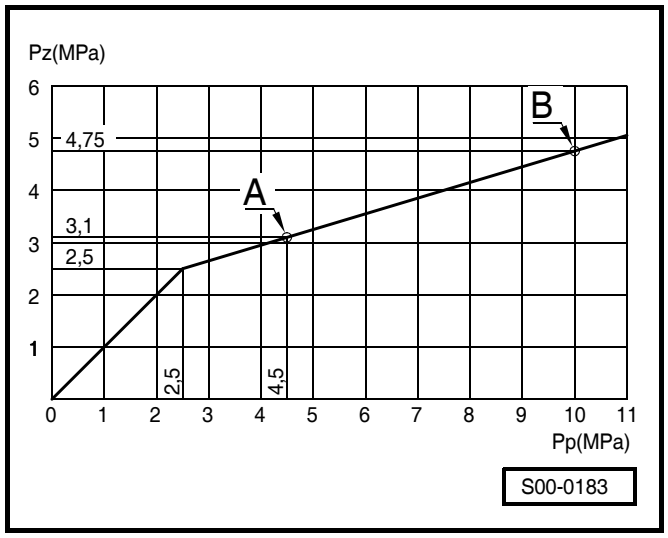
1 MPa = 10 bar

P_z = output pressure at the distributor valve and left or right rear wheel

P_p = input pressure at the distributor valve and left or right front wheel

Part no.of the distributor valve: 6Y0°612°151

The colour marking on the main brake cylinder is not visible.



Pressure values

	Initial setting	A						B	
P_p (MPa)	2,5	4,5	5	6	7	8	9	10	11
P_z (MPa)	2,5	3,1 ± 0,1	3,25	3,55	3,85	4,15	4,45	4,75 ± 0,2	5,05

Brake fluid

Classification	N 052 766 X0 (USA standard FMVSS 571.116 DOT4) TL 766 X0	
Capacity	0.500 l	Vehicles with rear disc brakes, with ABS
	0.470 l	Vehicles with rear drum brakes, with ABS
	0.430 l	Vehicles with rear drum brakes, without ABS
Replace	every 2 years	

00-4 Wheels, Tyres

Possible wheel-tyre combinations

Engine	Wheel size [1]	Light-alloy rim [2]	Steel rim [2]	Offset (mm)	Snow chains permitted	
1.0 l/37 kW 1.2 l/40 kW 1.2 l/47 kW 1.4 l/44 kW 1.4 l/50 kW	155/80 R13 79T [3]	-	5J x 13 H2	35	yes	
	165/70 R14 81T	-	5J x 14 H2	35	yes	
	185/60 R14 82T	6J x 14 H2	6J x 14 H2	43	yes	
				38		no
	195/50 R15 82T	6J x 15 H2	6J x 15 H2	43		no
	185/55 R15 81T	6J x 15 H2	6J x 15 H2	43	yes	
	205/45 R16 83W, V	6.5J x 16 H2	-	42		no
1.4 l/55 kW 1.4 l/55 kW TDI PD	165/70 R14 81T	-	5J x 14 H2	35	yes	
	185/60 R14 82T	6J x 14 H2	6J x 14 H2	43	yes	
				38		no
	185/55 R15 81T	6J x 15 H2	6J x 15 H2	43	yes	
	195/50 R15 82V, T	6J x 15 H2	6J x 15 H2	43		no
	205/45 R16 83W, V	6.5J x 16 H2	-	42		no
1.4 l/74 kW 1.9 l/74 kW TDI PD	185/60 R14 82H	6J x 14 H2	6J x 14 H2	43	yes	
				38		no
	195/50 R15 82V, H	6J x 15 H2	6J x 15 H2	43		no
	185/55 R15 81H	6J x 15 H2	6J x 15 H2	43	yes	
	205/45 R16 83W, V	6.5J x 16 H2	-	42		no
2.0 l/85 kW	195/50 R15 82V, H	6J x 15 H2	-	43		no
	185/55 R15 81H	6J x 15 H2	-	43	yes	
	205/45 R16 83W, V	6.5J x 16 H2	-	42		no
1.9 l/47 kW SDI	165/70 R14 81T	-	5J x 14 H2	35	yes	
	185/60 R14 82T	6J x 14 H2	6J x 14 H2	43	yes	
				38		no
	195/50 R15 82T	6J x 15 H2	6J x 15 H2	43		no
	185/55 R15 81T	6J x 15 H2	6J x 15 H2	43	yes	
	205/45 R16 83W, V	6.5J x 16 H2	-	42		no
1.9 ltr./96 kW TDI PD	205/45 R16 83W	6.5J x 16 H2	-	37		no
	185/55 R15 84H	6J x 15 H2	-	43	yes	
	205/45 R16 83W, V	-	6,5J x 16 H2 [4]	42		no

[1] Tyre inflation pressure ⇒ Inspection and Maintenance as well as sticker on the fuel-tank cap

[2] 5-hole fixing, diameter of the bolt circle 100 mm, diameter of the central hole 57 mm

[3] without power steering

[4] it is only fitted as a spare wheel in series

Note

- *Only use tyres of a same size and type on a vehicle, however the tread pattern and manufacturer may differ per axle. It is exceptionally allowed to use a differ-*

ent tyre temporarily in the event of breakdown. Take into account a change in driving and braking behaviour.

- *Use wheel bolts with spherical collar and a thread of M14 x 1.5 - tightening torque: 120 Nm.*
- *Only use authorised rims on the relevant vehicle.*
- *When replacing rims always use wheel bolts that belong to these rims (different length and spherical cap shape).*
- *Also observe the national legislation.*

Caution!

Tyres that are more than 6 years old must only be used in case of emergency and while driving very carefully.

Tyre legend

Legend, e.g. 155/80 R13 79 T	Meaning
155/80	Tyre width (mm) section ratio between height - width (%)
R	Tyre type (radial)
13	Rim diameter (inch)
79	Load rating-index
T	Speed symbol

Manufacturing date	Meaning
DOT up to 399 <	Manufactured during week 39 of 1999 < = denomination of the decade (1990 … 1999)
DOT … 0300	Manufactured during week 3 of 2000 (03 = 3rd calendar week, 00 = year 2000)

Load rating-indexes (Load index)	79 = 437 kg 81 = 462 kg 82 = 475 kg 83 = 500 kg
Speed symbols	T = 190 km/h H = 210 km/h V = 240 km/h W = 270 km/h

40 – Front wheel suspension

40-1 Repairing front axle

An overview of the front axle

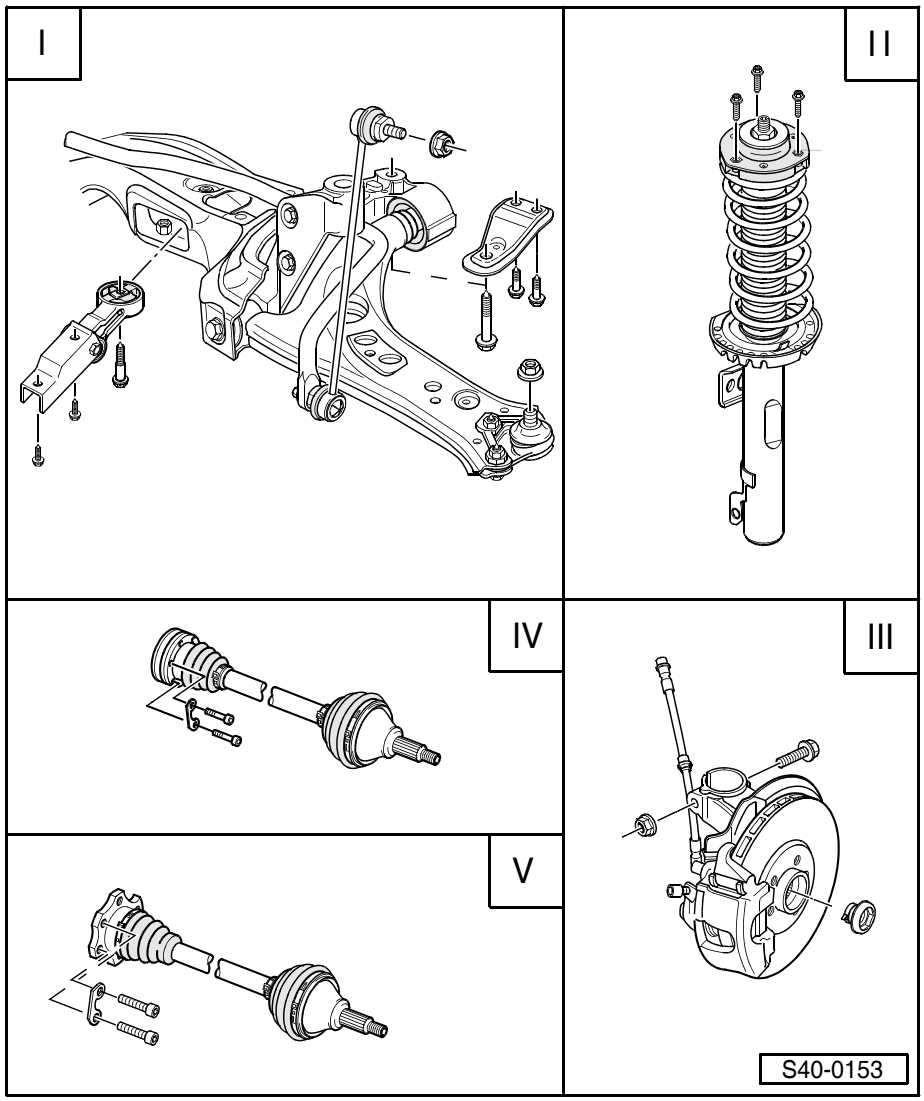
I - Repairing front axle ⇒ 40-1 page 2

II - Repairing the suspension strut ⇒ Chapter 40-2

III - Repairing the wheel bearing ⇒ Chapter 40-3

IV - Drive shaft with constant velocity joint ⇒ Chapter 40-4

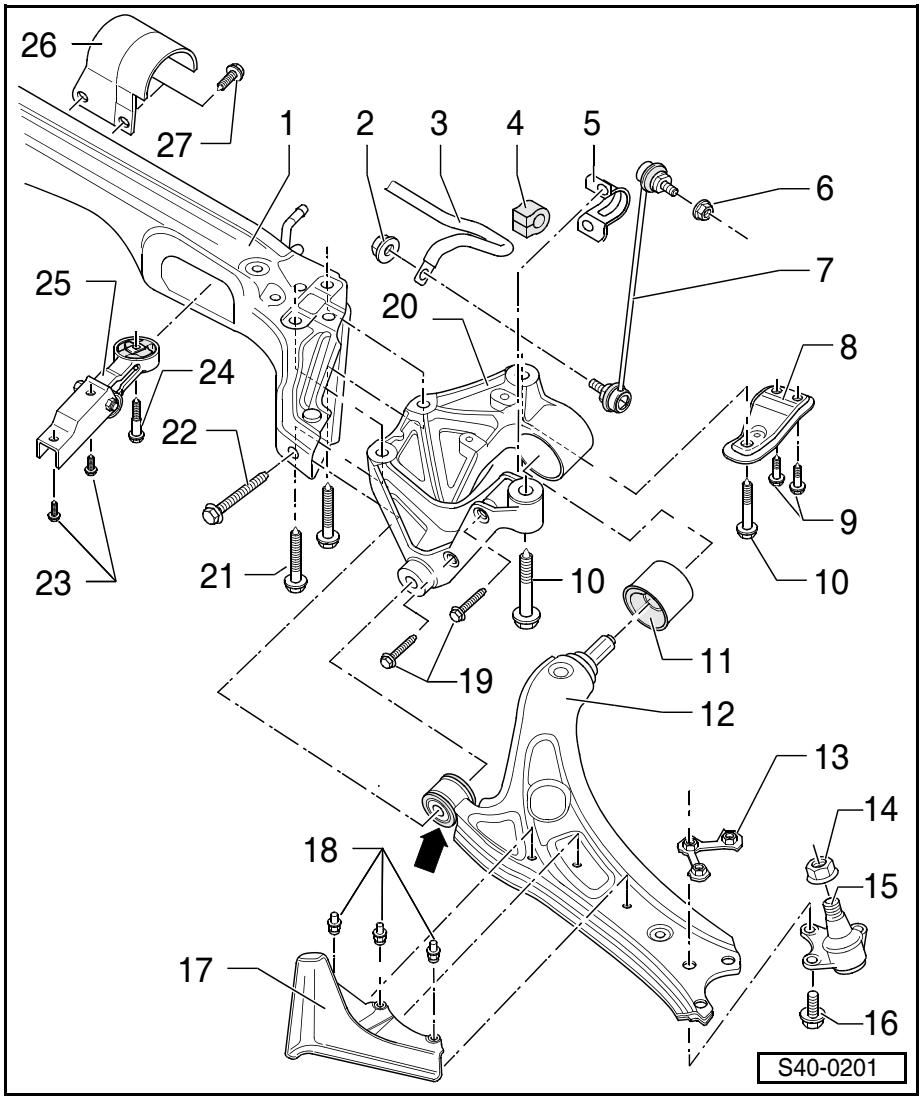
V - Drive shaft with tripod joint ⇒ Chapter 40-5



I - Summary of components assembly carrier, console, axle link, anti-roll bar, coupling rod, bracket, pendulum support

Note

- *Welding and straightening work is not allowed on the bearing and wheel control components of the wheel suspension.*
- *Always replace the self-locking nuts and screws.*
- *Always replace corroded self-locking nuts and screws.*



1 - Assembly carrier
- ❑ removing and installing ⇒ 40-1 page 19
- ❑ assignment ⇒ Spare part catalogue

2 - Nut, 40 Nm
- ❑ assignment ⇒ Spare part catalogue

3 - Anti-roll bar
- ❑ to remove and install lower assembly carrier
- ❑ removing and installing ⇒ 40-1 page 17
- ❑ assignment ⇒ Spare part catalogue

4 - Rubber bearing
- ❑ assignment ⇒ Spare part catalogue

5 - Clamp
- ❑ assignment ⇒ Spare part catalogue

6 - Nut, 40 Nm
- ❑ assignment ⇒ Spare part catalogue

7 - Coupling rod
- ❑ assignment ⇒ Spare part catalogue

8 - Bracket

9 - Screw, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

10 - Screw, 70 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

11 - Bonded rubber bush
- ❑ removing and installing - removal version 1 ⇒ 40-1 page 13
- ❑ removing and installing - removal version 2 ⇒ 40-1 page 15

12 - Axle link
- ❑ removing and installing ⇒ 40-1 page 8
- ❑ removing and assembling the track control arm and console ⇒ 40-1 page 13
- ❑ Bonded rubber bush -arrow- is a component part of the track control arm

13 - Lock washer
- ❑ replace after each removal

14 - Nut, self-locking, 20 Nm and torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

15 - Steering joint
- ❑ check ⇒ 40-1 page 4
- ❑ removing and installing ⇒ 40-1 page 4

16 - Screw, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

17 - Air deflector
- ❑ assignment ⇒ Spare part catalogue

18 - Clip
- ❑ assignment ⇒ Spare part catalogue

19 - Screw, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

20 - Console
- ❑ Can only be removed and fitted together with the track control arm
- ❑ Disconnecting and assembling the track control arm and console ⇒ 40-1 page 13

21 - Screw, 50 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal
- ❑ note the order of use of the screws:
- ♦ first staple Pos. 22 (manual work)
- ♦ then staple Pos. 21
- ♦ subsequently tighten up positions 21 and 22 alternately

22 - Screw, 70 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal
- ❑ note the order of use of the screws:
- ♦ first staple Pos. 22 (manual work)
- ♦ then staple Pos. 21
- ♦ subsequently tighten up positions 21 and 22 alternately

23 - Screw, 30 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal
- ❑ position the screws in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier

24 - Dowel screw, 40 Nm and torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

25 - Hinged bracket
- ❑ do not disassemble
- ❑ position the screws in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier
- ❑ assignment ⇒ Spare part catalogue

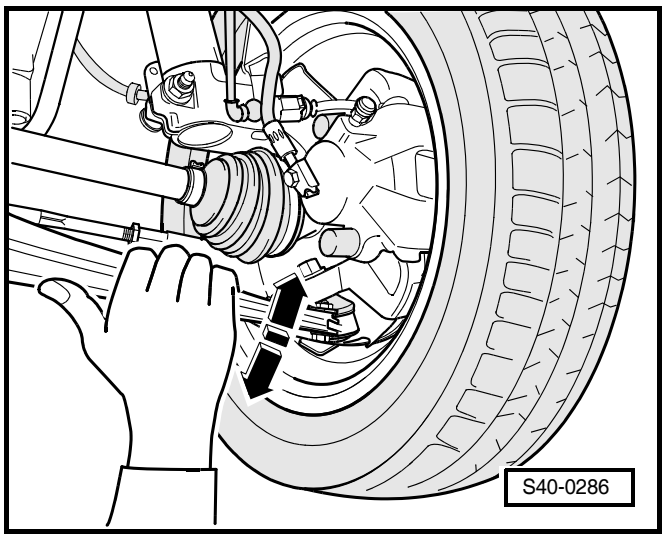
26 - Shield
- ❑ for drive shaft
- ❑ assignment ⇒ Spare part catalogue

27 - Screw, 35 Nm

Inspecting the steering joint

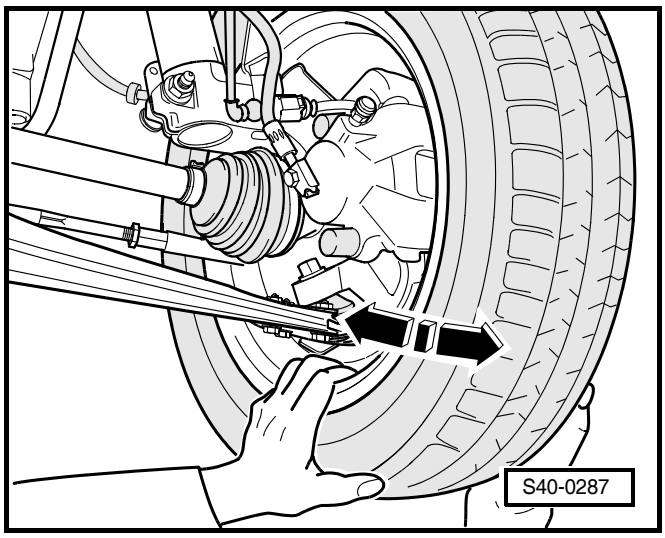
Inspecting axial play

– Pull the track control arm down with force and push up again.



Inspecting radial play

– Forcefully push the wheel at the bottom towards the inside and the outside.



Note

- *For these two tests no „play“ may be felt or be visible.*
- *Observe the steering joint during the tests.*
- *Take into account possible wheel bearing play or „play“ in top suspension strut bearing.*
- *Inspect rubber bellows for damage, if necessary replace.*

Removing and installing the steering joint

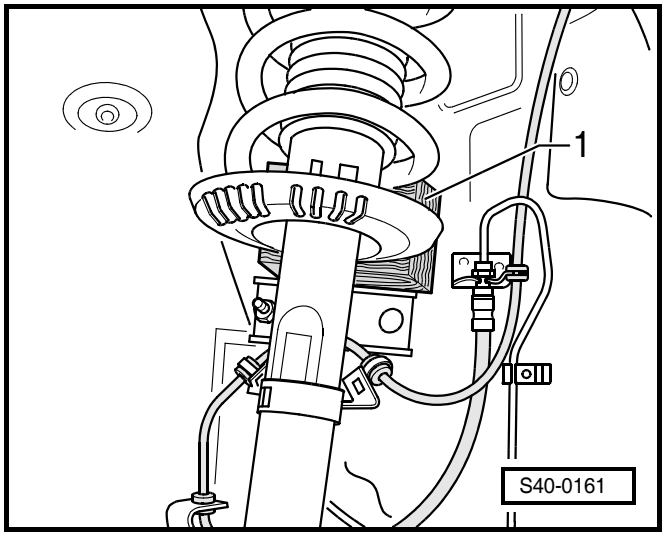
Special tools, test and measuring equipment and auxiliary items required

- Engine/gearbox jack e.g. - V.A.G 1383- with -V.A.G 1359/2-
- Fixing device -T 10096-
- Ball joint extractor -Matra V176-
- Polycarbamide grease -G 052 142 A2-
- Glue sealing mass -Loctite 601-

Removing

– Remove the drive shaft from wheel-bearing housing ⇒ Chapter 40-4 and tie up drive shaft to body.

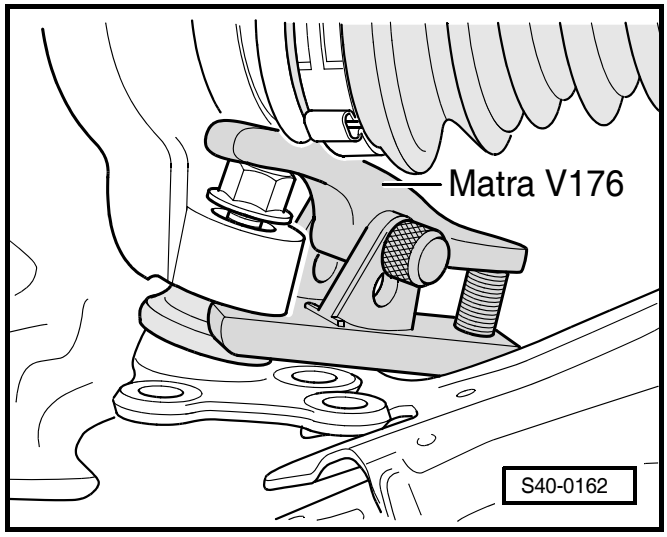
– Swivel out the wheel-bearing housing with the suspension strut and support with wooden insert -1-.



Note

- *Position gearbox jack with adapter, (e.g. -V.A.G 1383/A- with -V.A.G 1359/2-, (risk of accident: due to falling parts while the steering joint is being pressed out).*
- *To protect the thread, screw the nut a couple of thread turns onto the steering joint.*

– Push out the steering joint with the ball joint extractor. ►



Installing

Note

- *Note the installed position of the steering joint.*
- *The castor changes if the fitting position is incorrect.*
- *Always replace plate nuts of drive shaft on both sides by twelve-point nuts.*

Fitting position

Left steering joint

L - means left
3 - means 13"
4 - means 14"

Right steering joint

R - means right
3 - means 13"
4 - means 14"

Arrow points in the driving direction on the 14" running gear.

– Insert steering joint in the wheel-house bearing.
– Screw new nut onto the steering joint and tighten.

Secure against spinning while doing this.

Vehicles with 13" running gear

– Smear the drive shaft lightly with adhesive sealing material -Loctite 601-.

Vehicles with 14” and 15” running gear

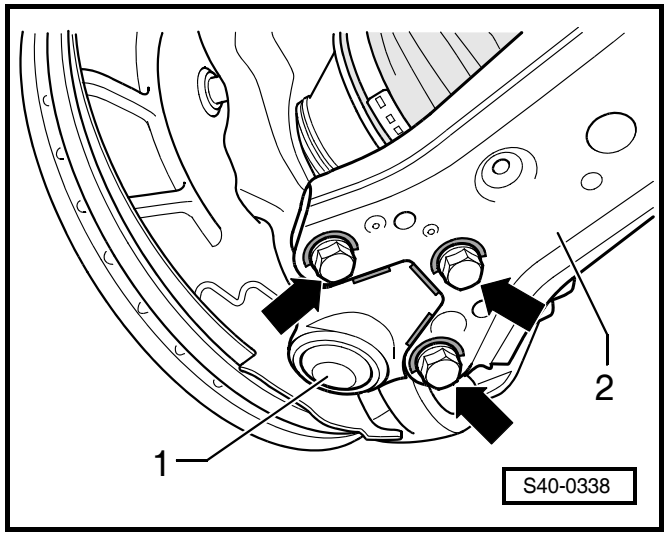
– Grease the serration on the propeller shaft with polycarbamide grease -G 052 142 A2-.

Do not grease thread on the outer joint of the drive shaft.

– Grease the serration in the wheel hub with polycarbamide grease -G 052 142 A2-.

Continued for all vehicles

– Insert the drive shaft in the wheel hub and screw on with new twelve-point nut.
– When inserting the drive shaft insert the steering joint ► at the same time -1- into the track control arm -2-.
– Screw the steering joint -1- and the track control arm -2- with new screws -arrows- and new lock washer in the former position and to the marking.



Note

Make sure the steering joint boot is neither damaged nor twisted.

– Fit front wheel.

Tightening torques:

Steering joint to wheel-bearing housing ♦ Use new nut!	20 Nm + 90°
Twelve-point nut of drive shaft to wheel hub 13" running gear ♦ Use new nut! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm
Twelve-point nut of drive shaft to wheel hub 14" and 15" running gear ♦ Use new nut! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm + 45°
Steering joint to track control arm ♦ Use new screws! ♦ Use new lock washer!	20 Nm + 90°
Wheel bolts	120 Nm

Release the assembly carrier and tighten (fix)

Special tools, test and measuring equipment and auxiliary items required

- Engine/gearbox jack e.g. - V.A.G 1383- with -V.A.G 1359/2-
- Fixing device -T 10096-
- Wooden insert 490 x 270 x 50 mm for adapter -V.A.G 1359/2-

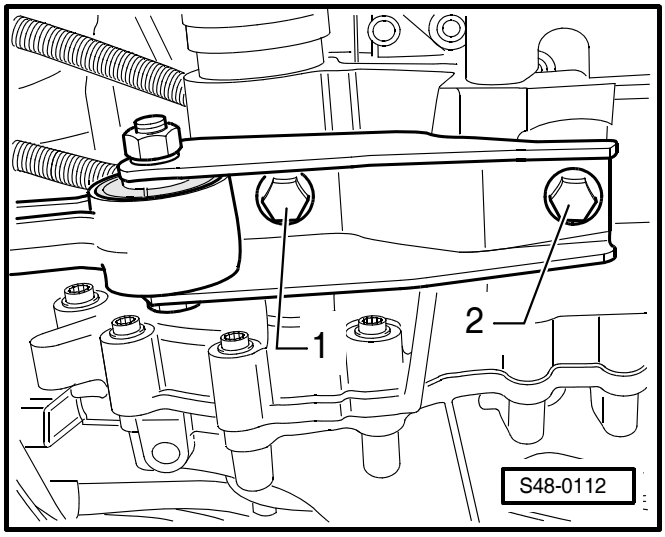
Removing

Vehicles with exhaust pipe under the assembly carrier

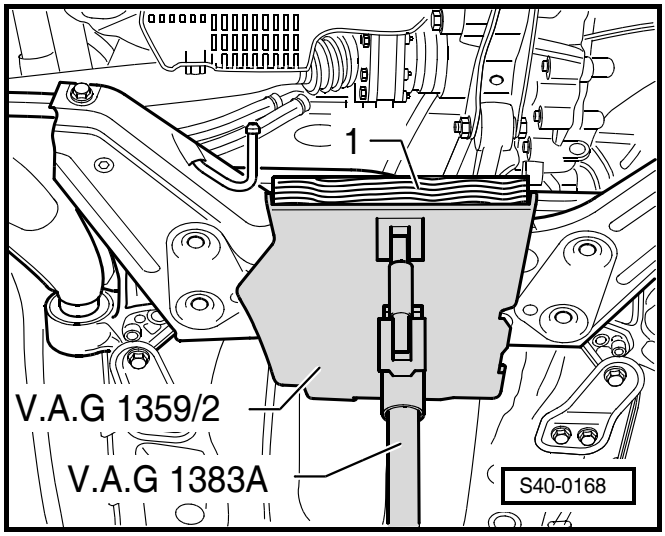
– Remove the front exhaust pipe with catalyst ⇒ Engine - Mechanics; Rep. Gr. 26.

Continued for all vehicles

– Unscrew screws -1- and -2- from the pendulum support. ►



– Insert wooden insert -1- in the adapter, e.g. -V.A.G 1359/2-. ►
– Position gearbox jack and support assembly carrier.

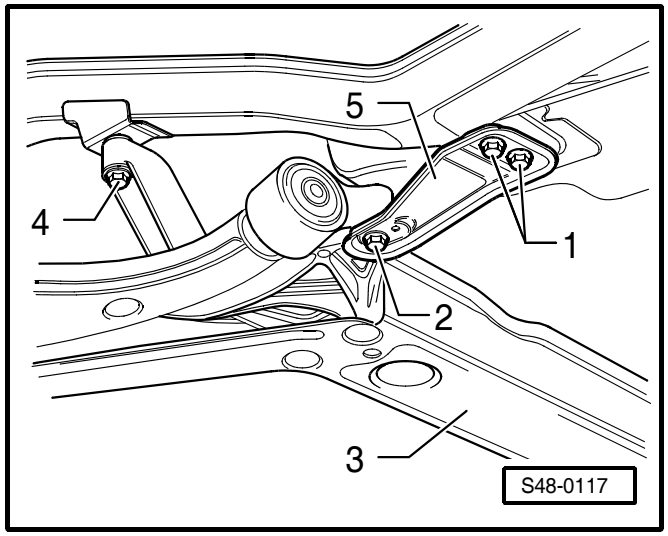


Note

- *Note the following work steps and absolutely ensure that you follow the sequence.*
- *The fixing bolts for -T10096- must only be tightened to maximum 20 Nm as otherwise the fixing bolt thread becomes damaged.*

– Unscrew left screw -4- for assembly carrier -3-, screw in a fixing bolt of -T10096- and tighten to 20 Nm.
– Unscrew right screw -4- for assembly carrier (not shown in figure), screw in a fixing bolt of -T10096- and tighten to 20 Nm.
– Release screws -1- on both sides.
– Unscrew the left screw -2- and remove support -5-.
– Screw in fixing bolts of -T10096- to 20 Nm.
– Unscrew the right screw -2- and remove support -5-.
– Screw in fixing bolts of -T10096- to 20 Nm.

The fixing of the assembly carrier is completed once all 4 screws (Pos. -2- and -4-) are consecutively replaced with the fixing bolts.



Note

When lowering the assembly carrier make sure that the pressure line, return hose and the line of the power-assisted steering sensor -G250- are not exposed to traction.

– Lower assembly carrier approx. 4 cm.

Installing

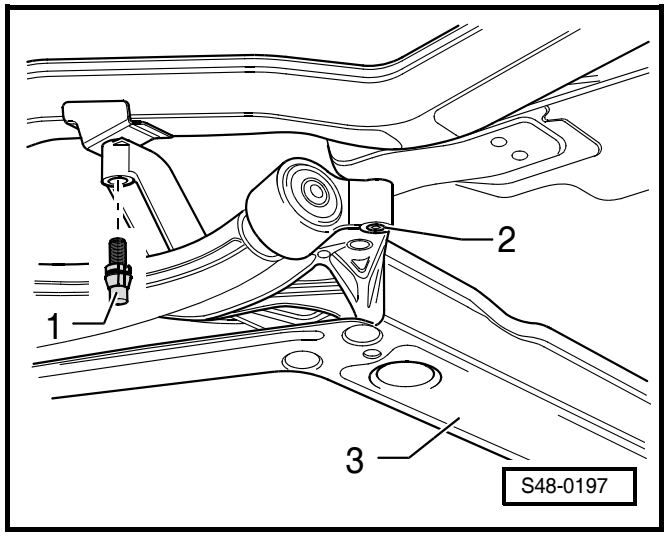
– Raise assembly carrier until the console touches the body.

Note

- *Note the following work steps and absolutely ensure that you follow the sequence.*
- *Unscrew the fixing bolts of -T10096- one at a time. It should be subsequently replaced by a new bolt tightened to the recommended torque.*

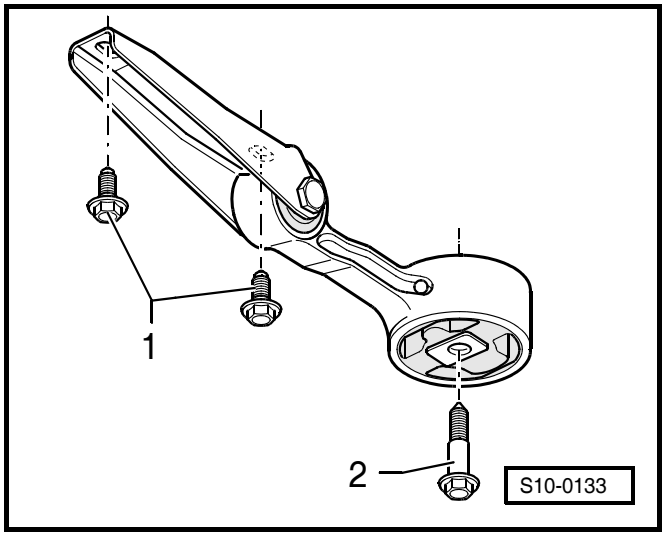
– Unscrew fixing bolt -1- of -T10096- from the left and screw in new bolt to the recommended tightening torque.

3 - Assembly carrier



– Unscrew fixing bolt -1- of -T10096- from the right (shown in figure) and screw in new bolt to the recommended tightening torque.
– Unscrew fixing bolt -2- of -T10096- from the left.
– Install left support.
– Screw in new bolts for the left support and tighten at the rear by hand.
– Tighten new bolts for left console and support to the recommended tightening torque.
– Tighten the rear left support bolts to the recommended tightening torque.
– Unscrew right fixing bolts -2- of -T10096- (shown in figure).
– Install right support.

– Screw in new bolts for the right support and tighten at the rear by hand.
– Tighten new bolts for the console and screw in to the recommended tightening torque.
– Tighten up the rear right support bolts to the recommended tightening torque.
– Remove gearbox jack with adapter.
– Mount pendulum support on the gearbox and tighten up the new screws -1-.



Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.

Vehicles with exhaust pipe under the assembly carrier

– Install the front exhaust pipe with catalyst ⇒ Engine - Mechanics; Rep. Gr. 26.

Tightening torques:

Console to body ♦ Use new screws!	70 Nm + 90°
Support to body ♦ Use new screws!	20 Nm + 90°
Pendulum support to gearbox ♦ Use new screws!	30 Nm + 90°
Fixing bolt of -T10096-	20 Nm

Removing and installing the track control arm

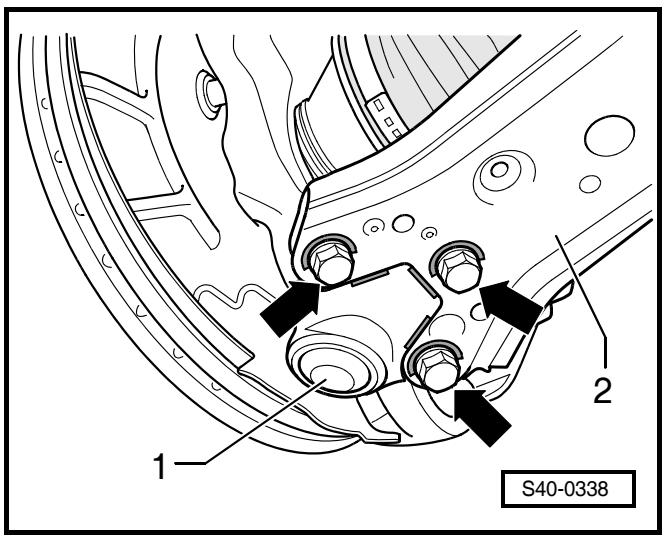
Special tools, test and measuring equipment and auxiliary items required

♦ Multi-purpose tool -MP 3-419-

Removing

– Raise the vehicle until the front axle is free of stress.
– Remove front wheel.

Vehicles on which the track control arm should not be replaced

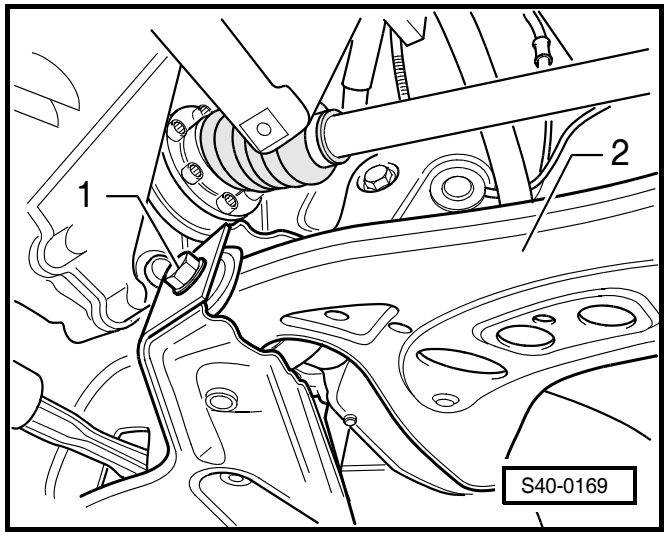


– Mark fitting position of screws -arrows- from steering joint -1- to track control arm -2-.
– Mark installation position of the steering joint -1- for the track control arm -2-.

Continued for all vehicles

– Turn steering to right lock (removal on the left side) or to left lock (removal on the right side).

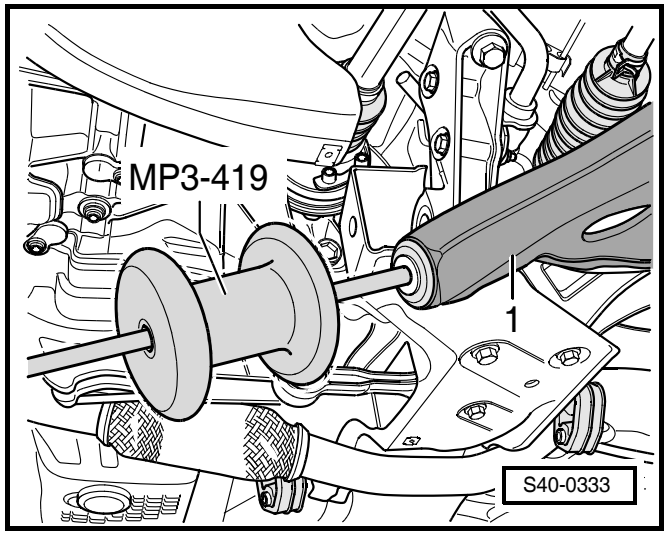
– Release screws -arrows-.
– Pull the wheel-bearing housing with steering joint out of the track control arm.
– Mark the fitting position of the screw -1-.
– Release screw -1-.



Note

Only swivel the track control arm as far as necessary out of the assembly carrier to avoid damaging the bonded rubber mounting.

– Swivelling the track control arm -2- out of the assembly carrier.
– Pull out the track control arm -1- using the multi-purpose tool -MP 3-419- from the console.



Note

When pulling out the track control arm ensure that the wheehouse trim panel and the noise insulation are not damaged.

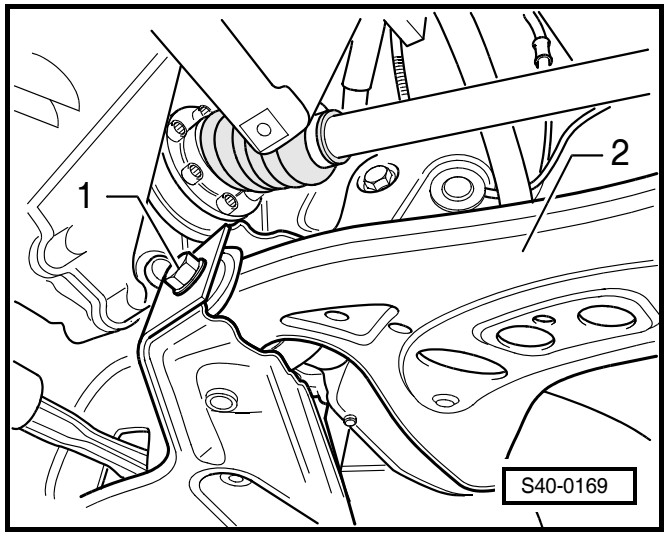
Installing

– Brush the track control arm studs with assembly sliding oil -G 294 421 A1-.

Caution!

- ***When sliding in observe that the track control arm is in the correct installed position relative to the console. The surface of the track control arm must correspond with the surfaces in the console bearing*** ⇒ *40-1 page 13.*
- ***The track control arm should form one level with the assembly carrier.***
- ***If the fitting position is not respected, this could lead to damage at the bonded rubber bush of the console and as a result to a shorter life of the bonded rubber bush.***

– Insert the track control arm by hand into the bonded rubber bush of the console, if necessary use a rubber hammer.
– Insert the track control arm -2- in the assembly carrier, if necessary use a rubber hammer.
– Insert screw -1- and tighten to the former position/marking to a specified tightening torque.
– Insert steering joint in the track control arm.
– If the track control arm is not replaced, tighten screws to former position/marking.

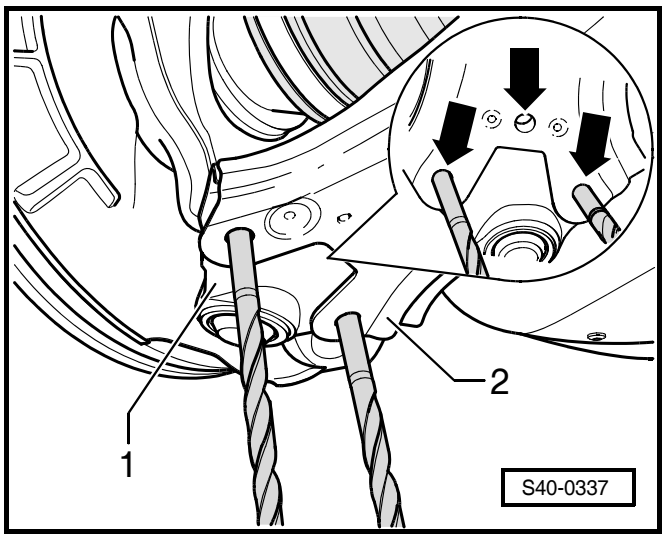


Note

Use new screws and new lock washer to screw the steering joint/track control arm.

Vehicles on which the track control arm was replaced

– Position the track control arm -2- and steering joint -1- relatively to each other in such a way that the holes -arrows- of the track control arm and steering joint are flush.



For better fixing use two drifts with 8.3 mm ∅ or as shown in the figure, two drill bits with 8.3 mm ∅.

Continued for all vehicles

Further installation occurs in reverse order.

– Install and tighten the wheel ⇒ Chapter 44-1.

Tightening torques:

Track control arm to assembly carrier ♦ Use new screw!	70 Nm + 90°
Steering joint to track control arm ♦ Use new screws! ♦ Use new lock washer!	20 Nm + 90°
Wheel bolts	120 Nm

Removing and installing the console

Note

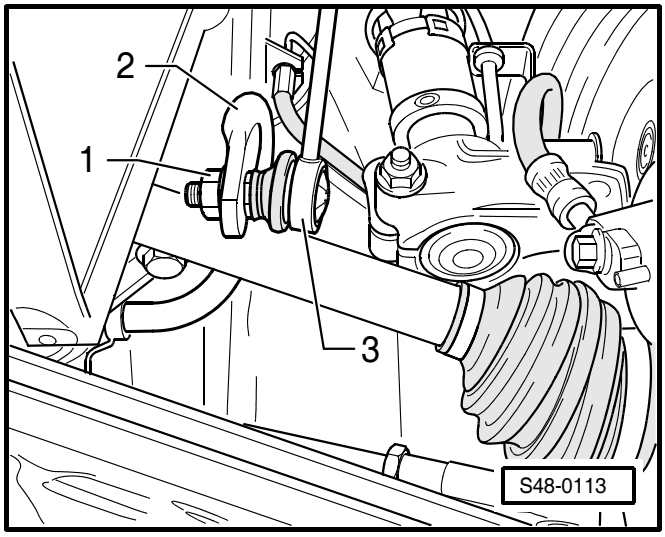
- *If the console is to be replaced, remove it together with the track control arm.*
- *The bonded rubber bush in the console may also be replaced in the vehicle, removal version 1 ⇒ 40-1 page 13 or removal version 2 ⇒ 40-1 page 15.*

Removing

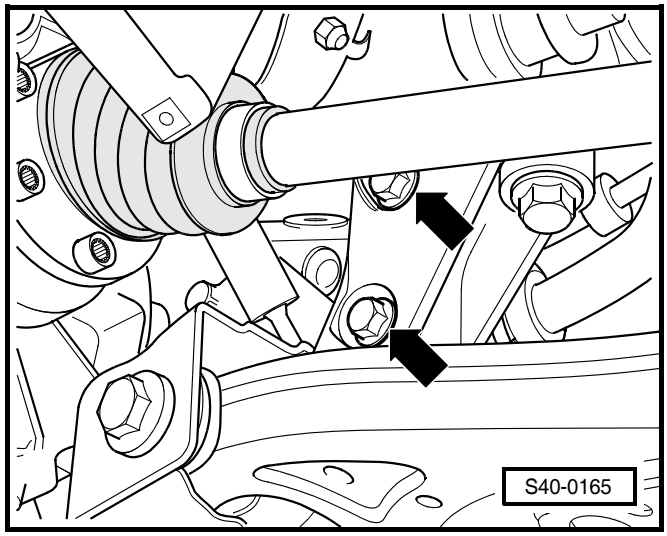
– Removing the track control arm ⇒ 40-1 page 8.

– Unscrew the left and right nut -1-.

– Pull out left and right coupling rod -3- from stabilizer -2-.



– Unscrew clamp of the anti-roll bar from the console -arrows-.



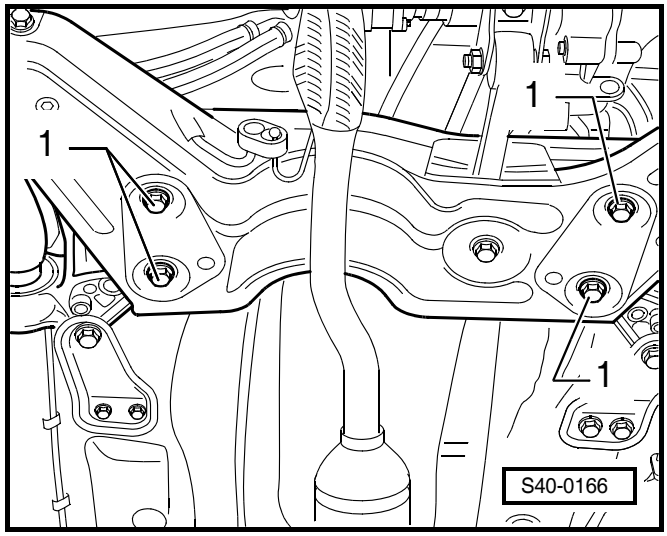
Note

The anti-roll bar clamp is located behind the console and is not visible in the figure shown.

– Screw out the screws -1- and tie up the steering gear with wire.

– Release the assembly carrier and lower ⇒ 40-1 page 6.

– Take the console out of the assembly carrier.



Installing

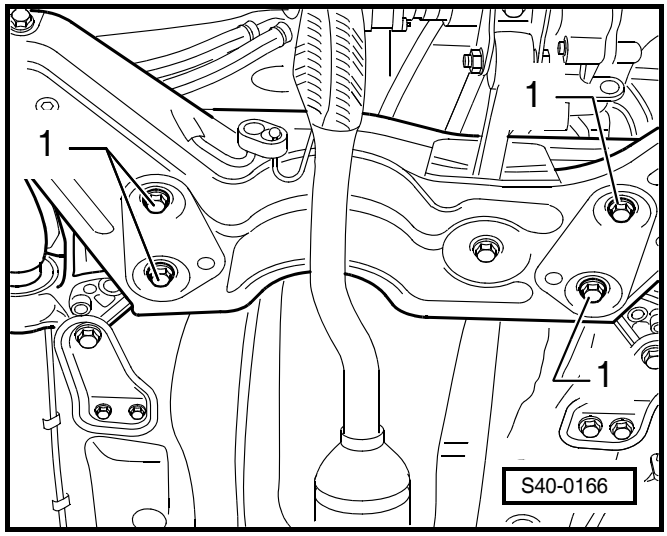
Note

- *Observe the jointing and screw sequence of the screwed connections assembly carrier/track control arm ⇒ item 21 in 40-1 page 3 and assembly carrier/ console/steering gear ⇒ item 22 in 40-1 page 3.*
- *Tighten screwed connections assembly carrier/track control arm in unladen weight position ⇒ Chapter 44-2.*
- *Before inserting the screws for the assembly carrier, position the steering gear on the assembly carrier and insert the screws for the steering gear.*

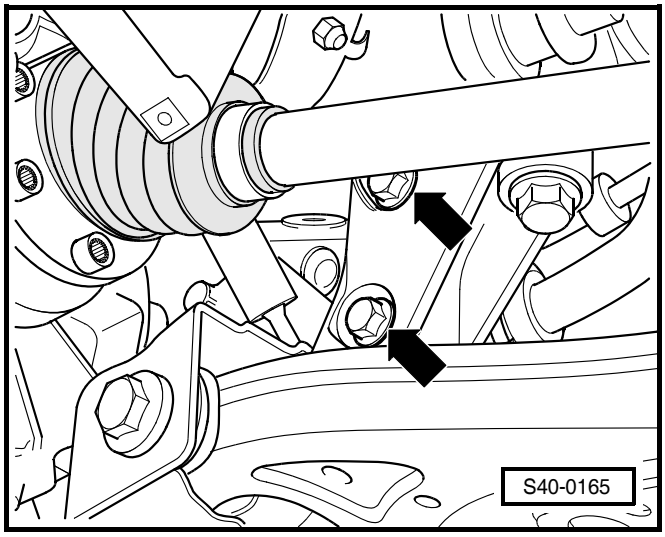
– Insert console into the assembly carrier.

– Insert and tighten screws -1-.

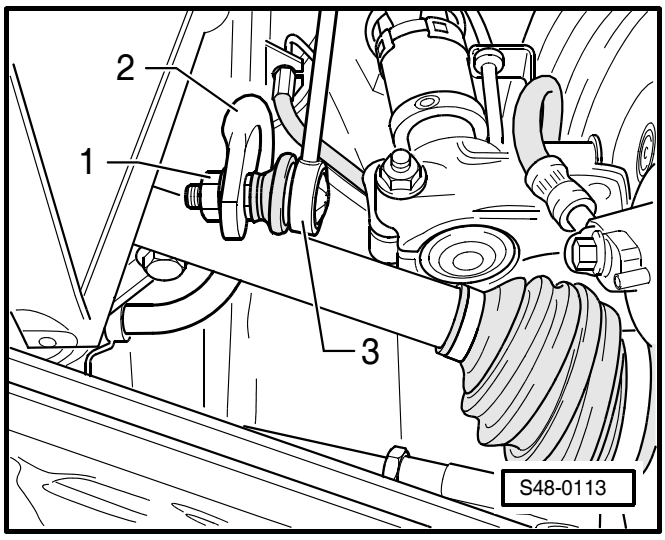
– Tighten assembly carrier ⇒ 40-1 page 6.



– Screw the anti-roll bar to the console -arrows-. ►



– Insert left and right coupling rod -3- into the stabilizer -2-. ►
– Tighten the left and right nut -1-.
– Installing the track control arm ⇒ 40-1 page 8.
– Perform a test drive.



Caution!

If after the test drive and with the front wheels pointing straight ahead the steering wheel is off straight, perform a chassis alignment.

– Carry out check of chassis alignment ⇒ Chapter 44-2

Tightening torques:

Track control arm to assembly carrier ♦ Use new screw! ♦ observe the order of tightening up ⇒ item 22 in 40-1 page 3	70 Nm + 90°
Console to body ♦ Use new screws!	70 Nm + 90°
Support to body ♦ Use new screws!	20 Nm + 90°
Console to assembly carrier/body ♦ Use new screws! ♦ observe the order of tightening up ⇒ item 21 in 40-1 page 3	50 Nm + 90°
Coupling rod to anti-roll bar	40 Nm
Clamp for anti-roll bar to console ♦ Use new screws!	20 Nm + 90°

Disconnecting and assembling the track control arm and console

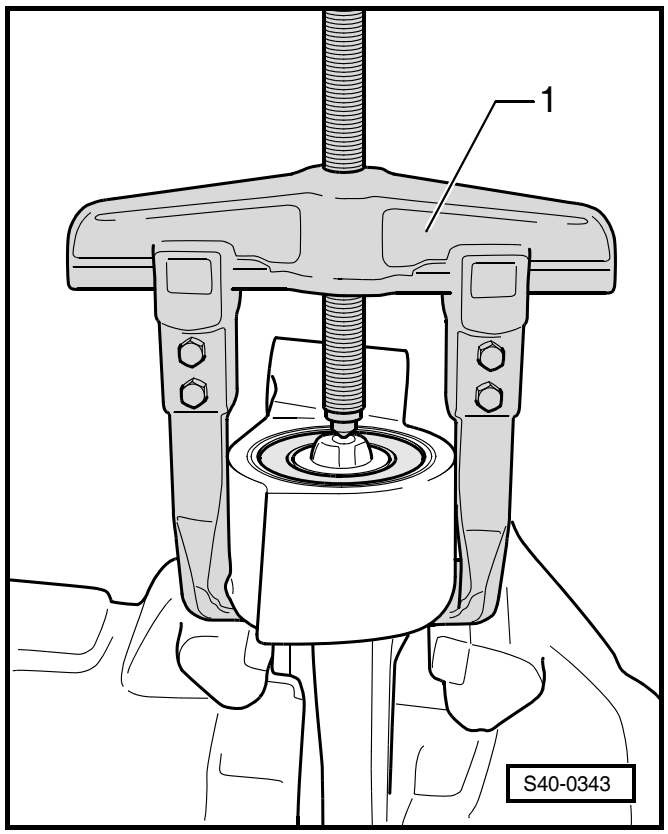
Special tools, test and measuring equipment and auxiliary items required

- Two-arm extractor -Kukko 20/10-
- Assembly sliding oil -G 294 421 A1-

Separating the track control arm from the console

– Push track control arm out of the console. ►

1 - Two-arm extractor -Kukko 20/10-



Assembling the track control arm and the console

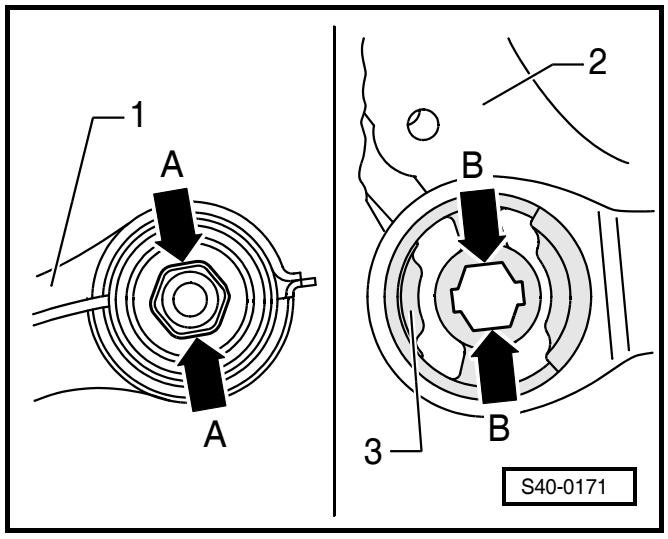
– Brush the track control arm studs with assembly sliding oil -G 294 421 A1-.

– Clamp console in a vice with protective jaws.

Fitting position of the track control arm in the console bearing

The surfaces -A- of the track control arm must correspond with the surfaces -B- in the console rubber-metal bearing. ►

1 - Axle link
2 - Console
3 - Bonded rubber bush



– Insert the track control arm by hand up to the stop in the bonded rubber mounting of the console.

Replacing the bonded rubber bush for track control arm

No provision is made for replacing the bonded rubber bush.

In the event of damage to the bearing, the track control arm must be completely replaced together with the bearing ⇒ Spare Part Catalogue.

Replacing the bonded rubber bush for console - removal version 1

Special tools, test and measuring equipment and auxiliary items required

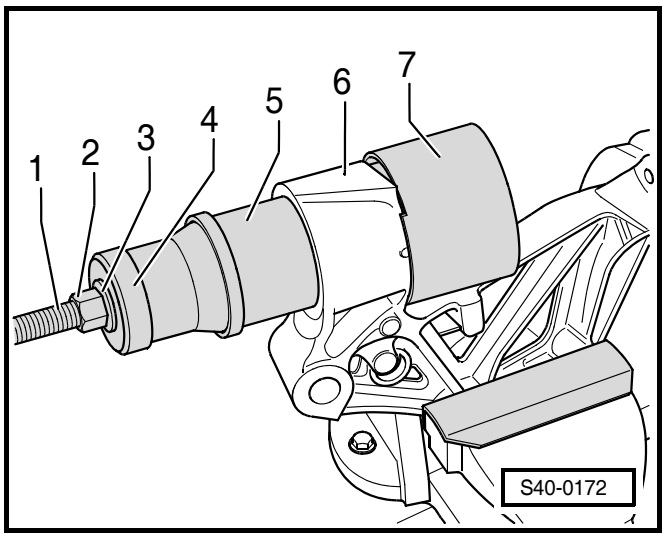
- Pressure plate -MP 3-413-
- Pressure plate -MP 3-459-
- Assembly device -MP 5-402-
- Assembly device -T10030-
- Pressure plate -T30035-
- Assembly sliding oil -G 294 421 A1-

Pulling out the bonded rubber bush

– Removing the track control arm ⇒ 40-1 page 8.

– Screw in the screw -T10030/3- (-1-) into the console.

2 - Nut of -T10030/3-
3 - Washer of -T10030/3-
4 - Axial bearing of -MP 5-402-
5 - Pressure plate -MP 3-459-
6 - Console
7 - Pressure plate -T30035-



– Pulling out the bonded rubber bush.

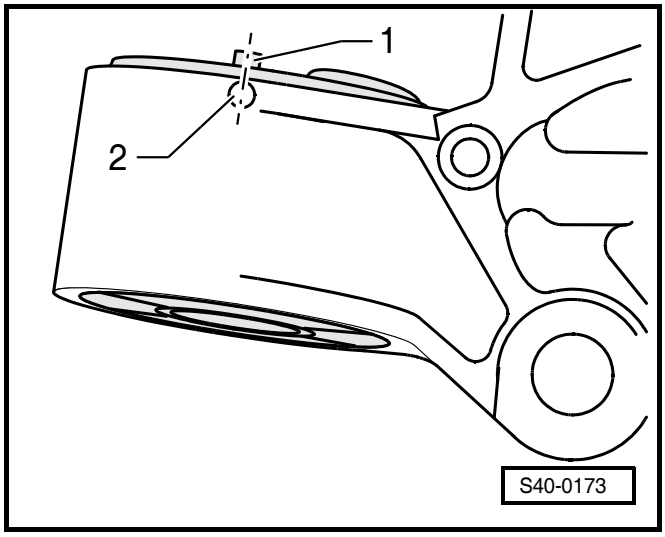
Inserting the bonded rubber bush

Note

- *Never use grease!*
- *Use assembly sliding oil -G 294 421 A1 - to insert.*
- *This leaves a slightly sticky film, which ensures a tight fit of the bearing.*
- *Commercially available greases/oils are usually acidic and leave behind a grease film.*
- *This could result in a corrosion of the bearing or during compression and rebound of the vehicle the whole bearing may turn in the track control arm and not the actual rubber in itself.*

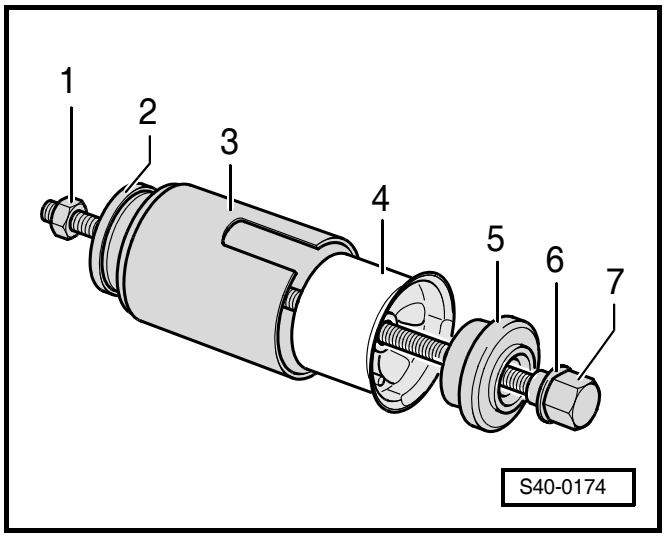
Fitting position of the bonded rubber mounting in the console

- The stud -1- of the bonded rubber bush must be flush with marking -2- on the console.
- At the console on the left the marking points towards the body.
- At the console on the right the marking points towards the body.

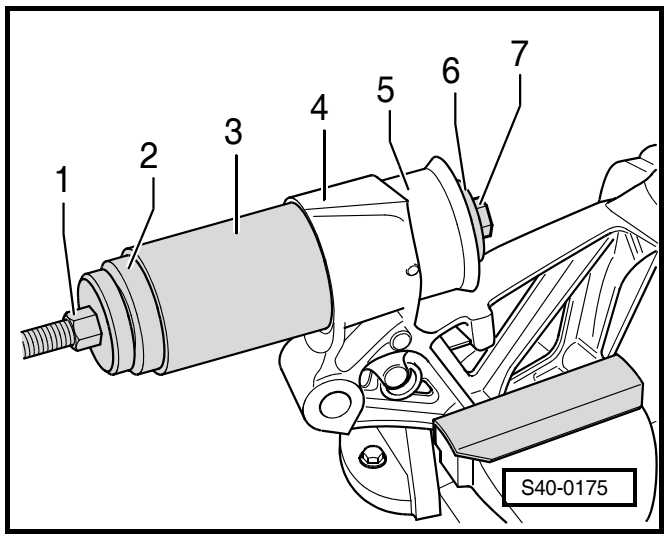


– Arrangement of the special tools for installation without console.

1 - Nut of -T 10030/3-
2 - Axial bearing of -MP 5-402-
3 - Pressure plate -T 10030/6-
4 - Bonded rubber bush
5 - Pressure plate -MP 3-413-
6 - Washer of -T 10030-
7 - Spindle -T 10030/3-



– Brush the bonded rubber mounting with assembly sliding oil -G 294 421 A1-.
– Mount the bonded rubber mounting in the console using the special tools. ►
– Align the bonded rubber mounting in the console according to the prescribed installed position ⇒ 40-1 page 14.
– Position the bonded rubber mounting -5- parallel to the console -4-.



Note

When inserting the bonded rubber mounting counterhold at spindle.

– Do not twist the bonded rubber mounting and insert up to the stop.
– Remove the special tools.
– Installing the track control arm ⇒ 40-1 page 8.

Replacing the bonded rubber bush for console - removal version 2

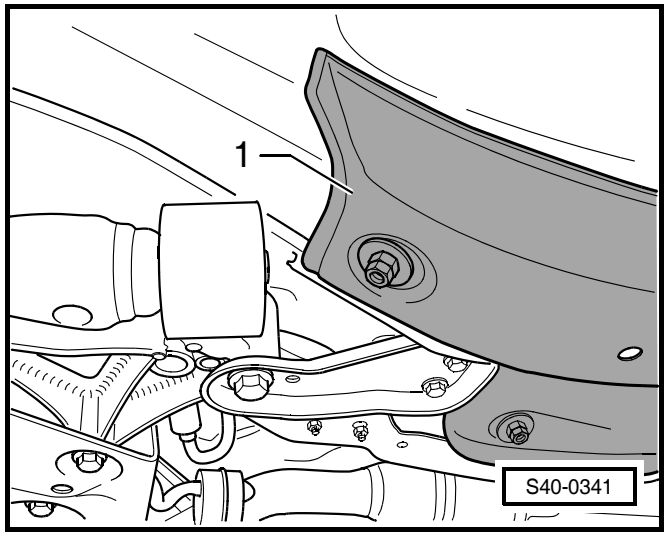
Special tools, test and measuring equipment and auxiliary items required

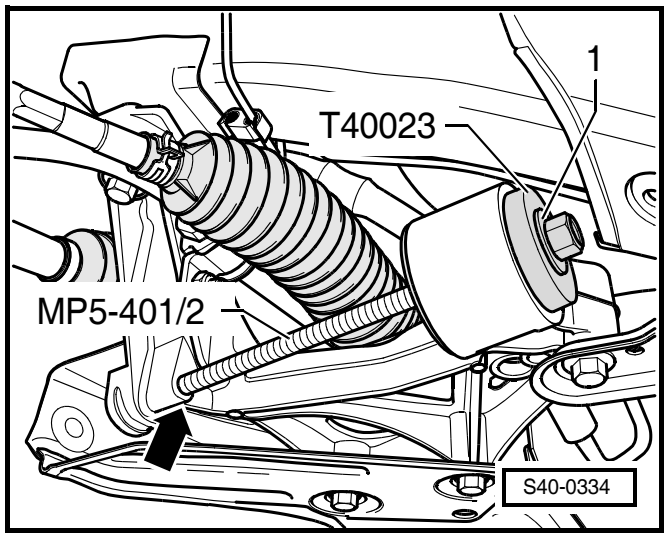
- Spindle -MP 5-401/2-
- Pressure plate -MP 6-414/8-
- Pressure washer -T30047-
- Pressure plate -T40023-
- Assembly sliding oil -G 294 421 A1-

Replacing the bonded rubber bush for installed console

Pulling out the bonded rubber bush

– Removing the track control arm ⇒ 40-1 page 8.
– Loosen underfloor trim panel -1- to approx. half. ►
– Press down the underfloor trim panel -1-.
– Insert the spindle -MP 5-401/2- using the pressure plate -T40023- and the washer -1- from the rear into the bush. ►
– Screw the spindle -MP 5-401/2- into the thread of the console -arrow-, until the pressure plate -T40023- is resting against the bush.
– Pulling out the bonded rubber bush.





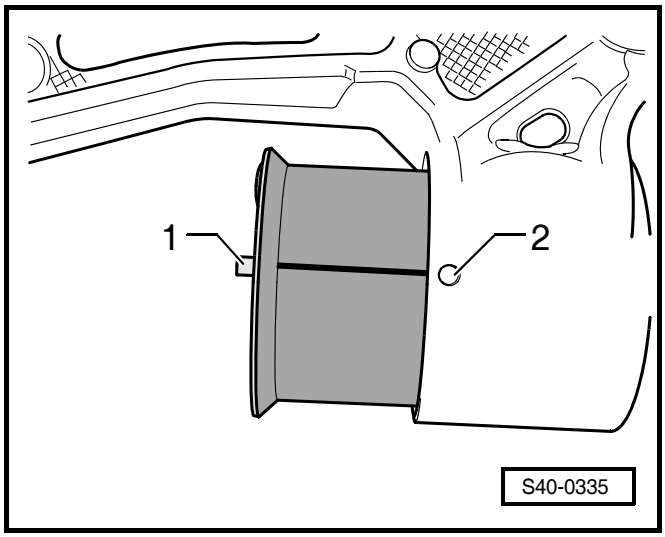
Inserting the bonded rubber bush

Note

- *Never use grease!*
- *Use assembly sliding oil -G 294 421 A1- to insert.*
- *This leaves a slightly sticky film, which ensures a tight fit of the bearing.*

- *Commercially available greases/oils are usually acidic and leave behind a grease film.*
- *This could result in a corrosion of the bearing or during compression and rebound of the vehicle the whole bearing may turn in the track control arm and not the actual rubber in itself.*

Fitting position of the bonded rubber mounting in the console



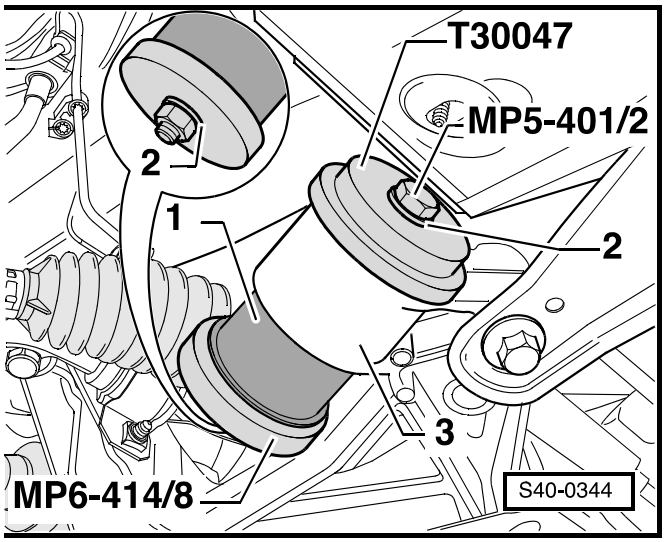
- The stud -1- of the bonded rubber bush must be flush with marking -2- on the console.
- At the console on the left the marking points towards the body.
- At the console on the right the marking points towards the body.

– Transpose the position of the stud -1- on the long side of the bonded rubber bush, in order to ensure the correct fitting position when inserting.

Use e.g a marker for this purpose.

– Brush the bonded rubber mounting with assembly sliding oil -G 294 421 A1-.

– Insert special tools in opposite direction of travel.



2 - Washer
3 - Console

When inserting pay special attention to fitting position of the bonded rubber bush -1-.

– Insert the bonded rubber bush -1-.

– Remove the special tools.

– Attach the underfloor trim panel.

– Installing the track control arm ⇒ 40-1 page 8.

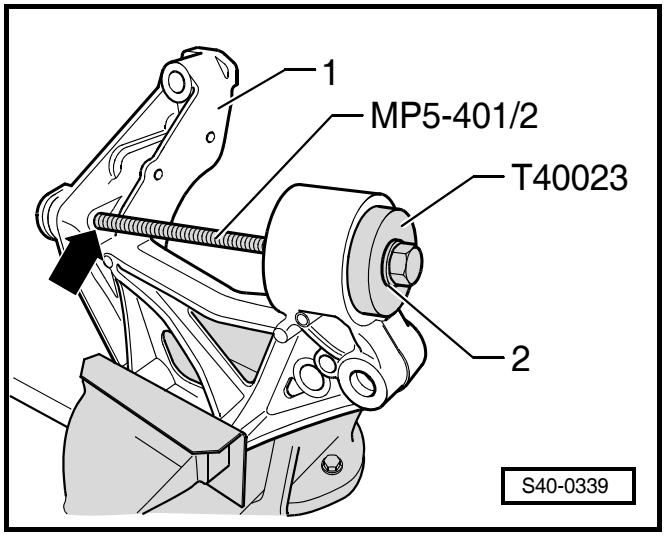
Replacing the bonded rubber bush for removed console

Pulling out the bonded rubber bush

– Remove console ⇒ 40-1 page 10.

– Separating the track control arm and the console ⇒ 40-1 page 13.

– Clamp console -1- in a vice with protective jaws.



– Insert the spindle -MP 5-401/2- using the pressure plate -T40023- and the washer -2- from the rear into the bush.

– Screw the spindle -MP 5-401/2- into the thread of the console -arrow-, until the pressure plate -T40023- is resting against the bush.

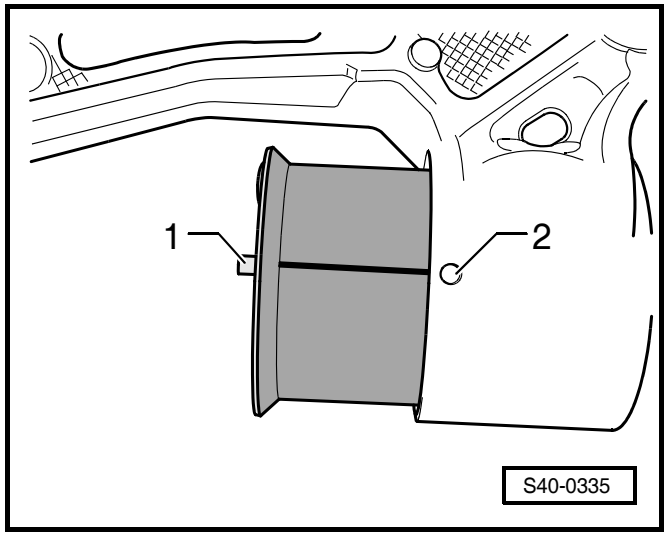
– Pulling out the bonded rubber bush.

Inserting the bonded rubber bush

Note

- *Never use grease!*
- *Use assembly sliding oil -G 294 421 A1- to insert.*
- *This leaves a slightly sticky film, which ensures a tight fit of the bearing.*
- *Commercially available greases/oils are usually acidic and leave behind a grease film.*
- *This could result in a corrosion of the bearing or during compression and rebound of the vehicle the whole bearing may turn in the track control arm and not the actual rubber in itself.*

Fitting position of the bonded rubber mounting in the console

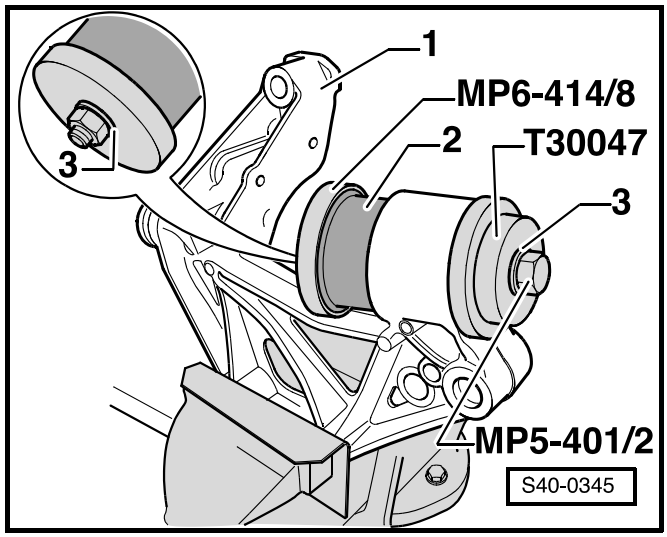


The stud -1- of the bonded rubber bush must be flush with marking -2- on the console.

– Transpose the position of the stud -1- on the long side of the bonded rubber bush, in order to ensure the correct fitting position when inserting.

Use e.g a marker for this purpose.

– Brush the bonded rubber mounting with assembly sliding oil -G 294 421 A1-.
– Insert special tools as shown in the figure.



1 - Console
3 - Washer

When inserting pay special attention to fitting position of the bonded rubber bush -2-.

– Insert the bonded rubber bush -2-.
– Remove the special tools.
– Install console ⇒ 40-1 page 10.

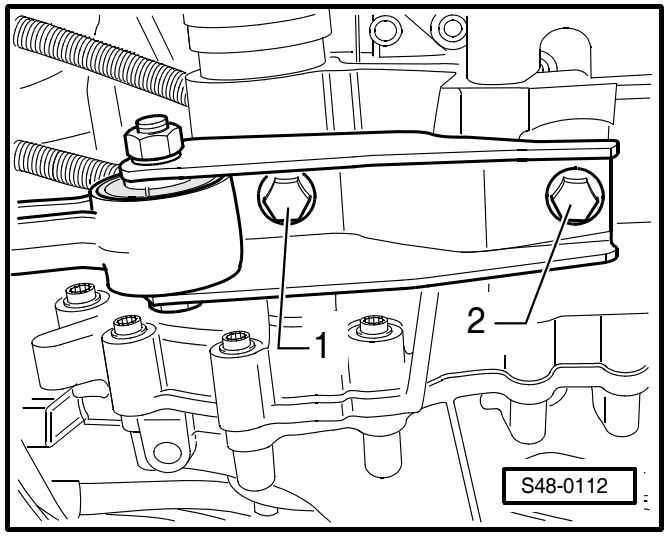
Removing and installing the anti-roll bar

Special tools, test and measuring equipment and auxiliary items required

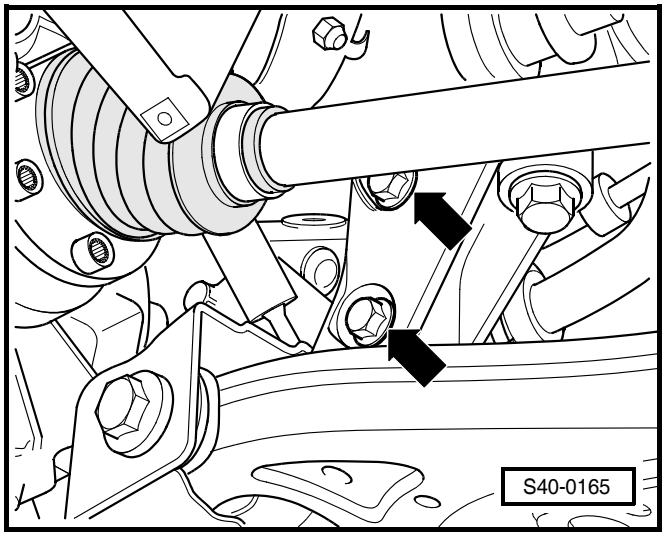
- Engine/gearbox jack e.g. - V.A.G 1383- with -V.A.G 1359/2-
- Fixing device -T10096-
- Wooden insert 490 x 270 x 50 mm for adapter -V.A.G 1359/2-

Removing

– Removing noise insulation ⇒ Engine - Mechanics; Rep. Gr. 10.
– Unscrew screws -1- and -2- from the pendulum support.



– Unscrew clamp of the anti-roll bar from the console -arrows-.

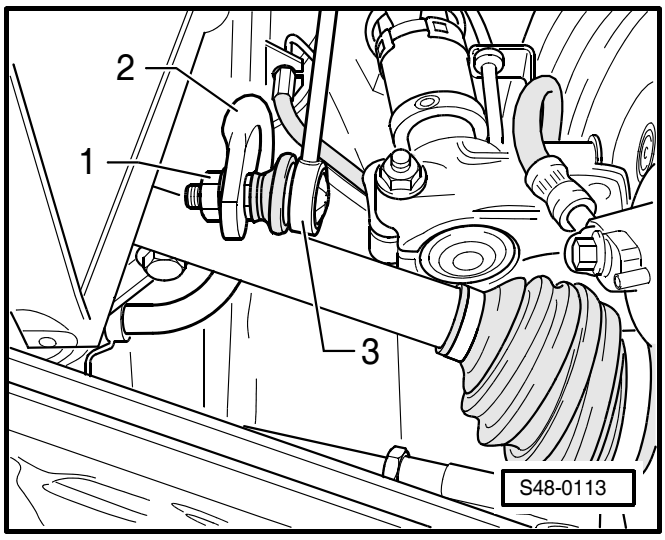


Note

- *The anti-roll bar clamp is located behind the console and is not visible in the figure shown.*
- *The bottom screw of the right clamp can only be removed once the assembly carrier has been lowered.*

– Screw out the left and right nuts -1-.

– Pull out left and right coupling rod -3- from stabilizer -2-.

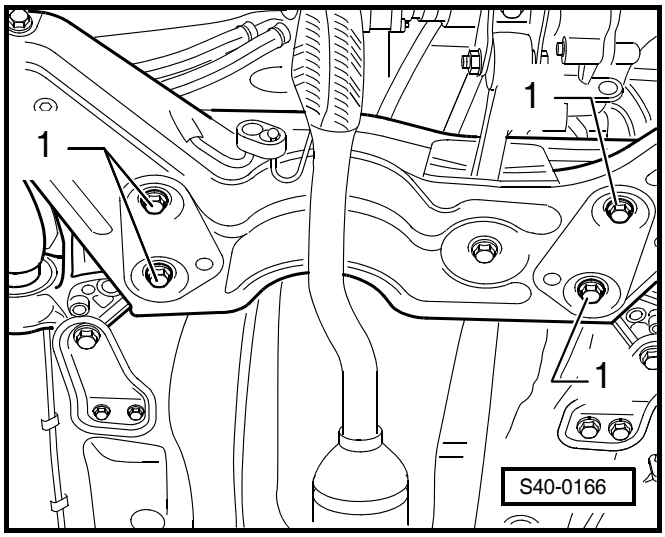


– Screw out the screws -1- and tie up the steering gear with wire.

– Release the assembly carrier and lower ⇒ 40-1 page 6.

– Remove the clamp from the anti-roll bar.

– Turn the anti-roll bar upwards and remove towards the rear.



Installing

– Insert the anti-roll bar.

– Insert new screws for the clamps and tighten by hand.

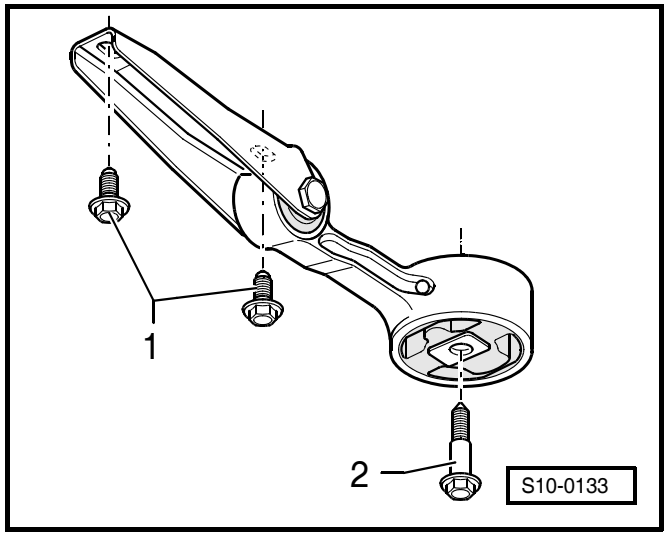
Note

Before inserting the screws for the assembly carrier, position the steering gear on the assembly carrier and insert the screws for the steering gear.

– Raise the assembly carrier and fix ⇒ 40-1 page 6.

Further installation occurs in reverse order, while paying attention to the following:

– Mount pendulum support on the gearbox and tighten up the new screws -1-.



Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.

Tightening torques:

Console to body ♦ Use new screws!	70 Nm + 90°
Support to body ♦ Use new screws!	20 Nm + 90°
Console to assembly carrier/body ♦ Use new screws! ♦ observe the order of tightening up ⇒ item 21 in 40-1 page 3	50 Nm + 90°
Pendulum support to gearbox ♦ Use new screws!	30 Nm + 90°
Coupling rod to anti-roll bar	40 Nm
Clamp for anti-roll bar to console ♦ Use new screws!	20 Nm + 90°

Removing and installing assembly carrier

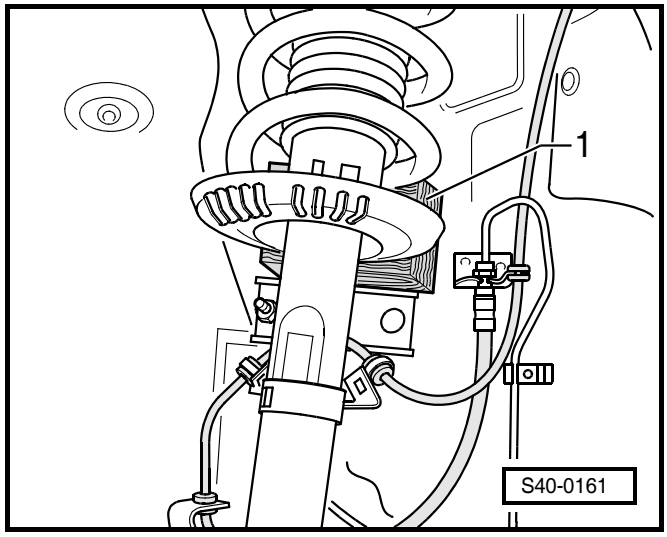
Special tools, test and measuring equipment and auxiliary items required

- Engine/gearbox jack e.g. - V.A.G 1383- with -V.A.G 1359/2-
- Fixing device -T10096-
- Extractor -MP 6-425-
- Wooden insert 490 x 270 x 50 mm for adapter -V.A.G 1359/2-
- Polycarbamide grease -G 052 142 A2-
- Glue sealing mass -Loctite 601-

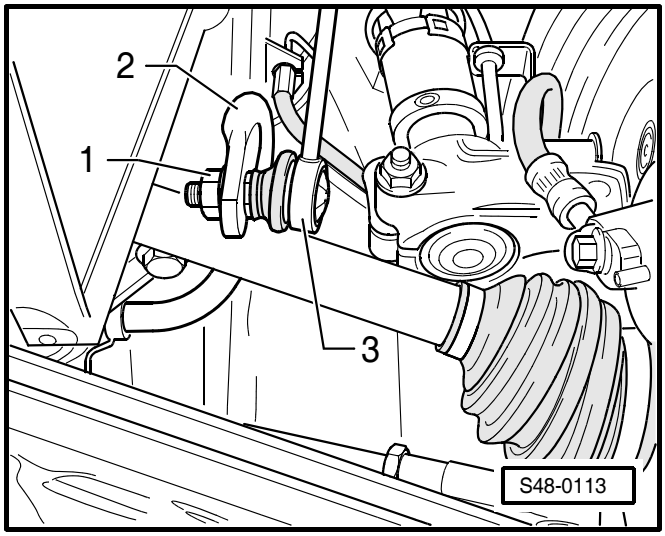
Removing

– Remove the drive shaft from wheel-bearing housing ⇒ Chapter 40-4 and tie up drive shaft to body.

– Swivel out the wheel-bearing housing with the suspension strut and support with wooden insert -1-.



– Screw out the left and right nuts -1-.
– Pull out left and right coupling rod -3- from stabilizer -2-.
– Swivel the anti-roll bar upwards.

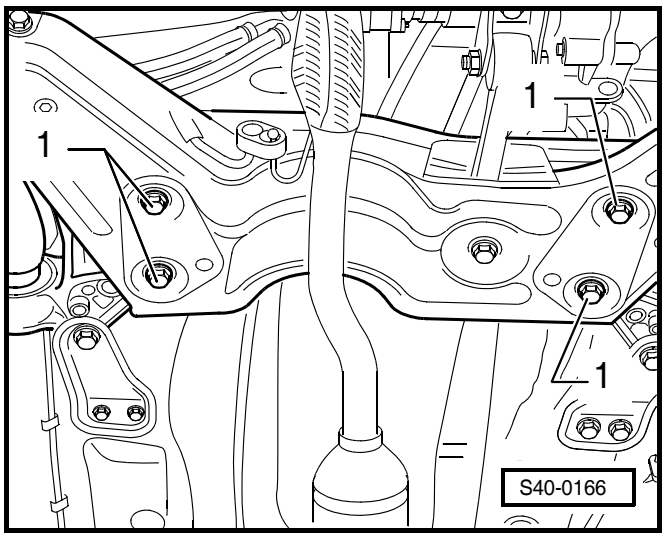


– Screw out the screws -1- and tie up the steering gear with wire.
– Release the assembly carrier and lower ⇒ 40-1 page 6.

Installing

Note

- *Before inserting the screws for the assembly carrier, position the steering gear on the assembly carrier and insert the screws for the steering gear.*
- *Always replace plate nuts of drive shaft on both sides by twelve-point nuts.*



– Raise the assembly carrier and fix ⇒ 40-1 page 6.

Further installation occurs in reverse order, while paying attention to the following:

Vehicles with 13" running gear

– Smear the drive shaft lightly with adhesive sealing material -Loctite 601-.

Vehicles with 14” and 15” running gear

– Grease the serration on the propeller shaft with polycarbamide grease -G 052 142 A2-.

  Do not grease thread on the outer joint of the drive shaft.

– Grease the serration in the wheel hub with polycarbamide grease -G 052 142 A2-.

Continued for all vehicles

– Insert the drive shaft in the wheel hub and screw on with new twelve-point nut.
– Screw the steering joint and the track control arm with new screws.
– Perform a test drive.

Caution!

If after the test drive and with the front wheels pointing straight ahead the steering wheel is off straight, perform a chassis alignment.

– Carry out check of chassis alignment ⇒ Chapter 44-2

Tightening torques:

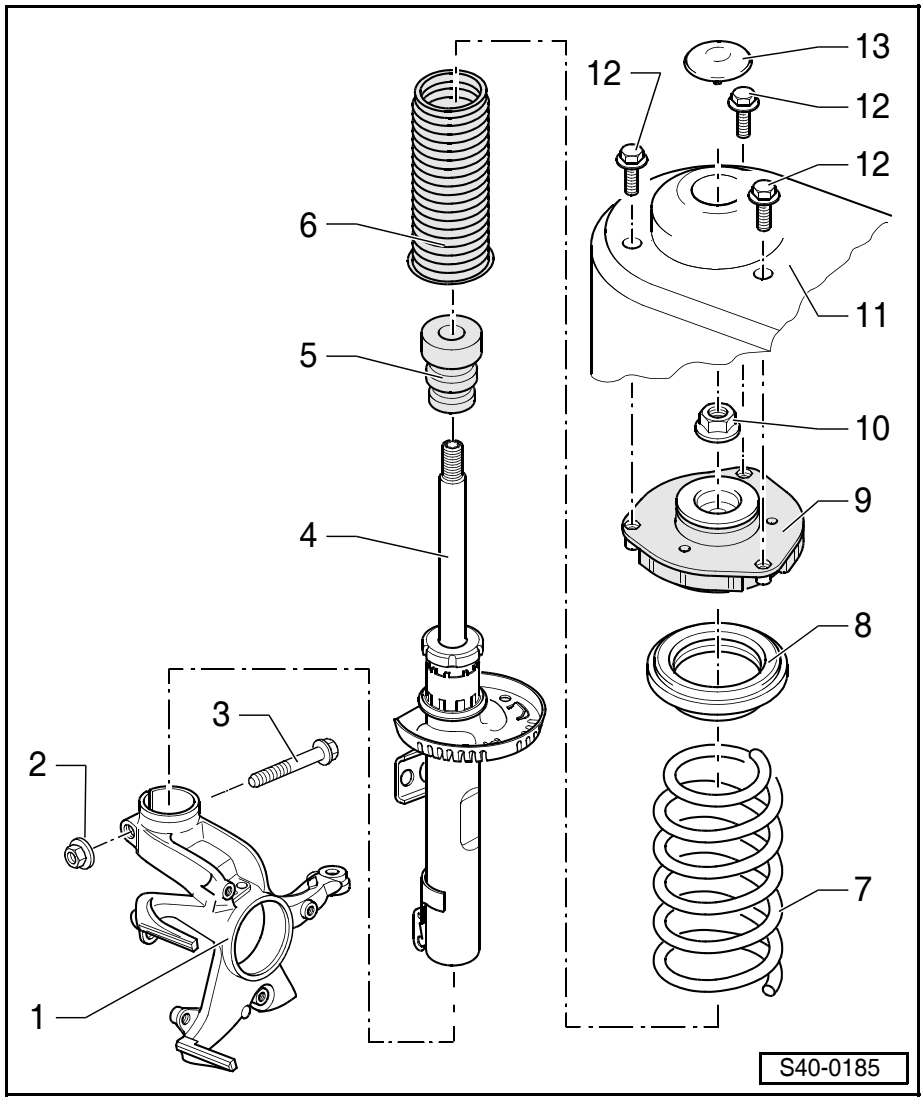
Console to body ♦ Use new screws!	70 Nm + 90°
Support to body ♦ Use new screws!	20 Nm + 90°
Console to assembly carrier/body ♦ Use new screws! ♦ observe the order of tightening up ⇒ item 21 in 40-1 page 3	50 Nm + 90°
Twelve-point nut of drive shaft to wheel hub 13" running gear ♦ Use new nut! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm
Twelve-point nut of drive shaft to wheel hub 14" and 15" running gear ♦ Use new nut! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm + 45°
Coupling rod to anti-roll bar	40 Nm
Steering joint to track control arm ♦ Use new screws! ♦ Use new lock washer!	20 Nm + 90°
Wheel bolts	120 Nm

40-2 Repairing front suspension strut

II - Summary of components of suspension strut

Note

The figure represents the wheel-bearing housing for disc brake FS-III. The different versions of the wheel-bearing housing do not influence the assembly of the suspension strut.



1 - Wheel-bearing housing

2 - Nut, 60 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

3 - Screw
- ❑ replace after each removal

4 - Shock absorber
- ❑ removing and installing ⇒ 40-2 page 2
- ❑ can be replaced individually
- ❑ must be replaced completely
- ❑ check ⇒ 40-2 page 7
- ❑ disposing of ⇒ 40-2 page 8
- ❑ assignment ⇒ Spare part catalogue

5 - Stop buffer

6 - Boot

7 - Helical spring
- ❑ check colour coding
- ❑ The surface of the spring coil must not be damaged
- ❑ replace axle-wise
- ❑ per axle only use helical springs of the same make
- ❑ removing and installing ⇒ 40-2 page 6
- ❑ assignment ⇒ Spare part catalogue

8 - Axial grooved ball bearing

9 - Suspension strut bearing

10 - Self-locking nut, 60 Nm
- ❑ replace after each removal

11 - Suspension strut dome

12 - Screw, 15 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal
- ❑ when mounting the suspension strut, first mount the screws on the inside of the vehicle

13 - Cap
- ❑ clipped into suspension strut dome

Removing and installing the suspension strut

Special tools, test and measuring equipment and auxiliary items required

- Gearbox jack with adapter e.g. - V.A.G 1383 A- with -V.A.G 1359/2-
- Spreader -3424-
- Extractor -MP 6-425-
- Extractor -Matra V176-
- Polycarbamide grease -G 052 142 A2-
- Glue sealing mass -Loctite 601-

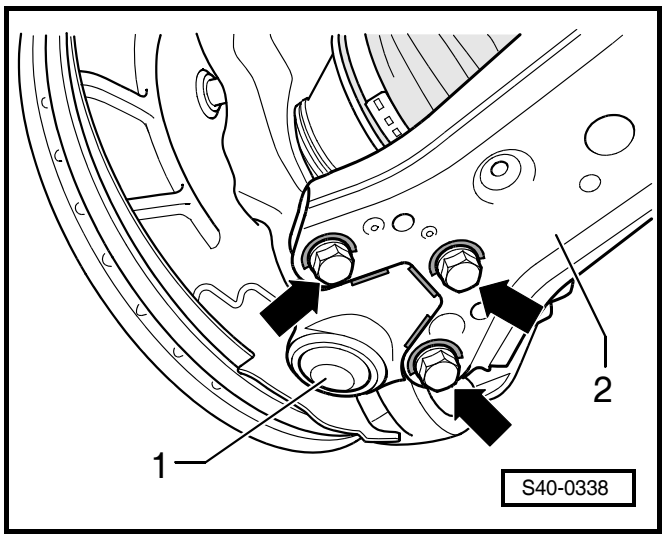
Removing

– Raise the vehicle until the front axle is free of stress.

– Unscrew plate nut (or the twelve-point nut) from the drive shaft using a 19 mm Allen key.

– Remove wheel.

– Mark fitting position of screws -arrows- from steering joint -1- to track control arm -2-. ►

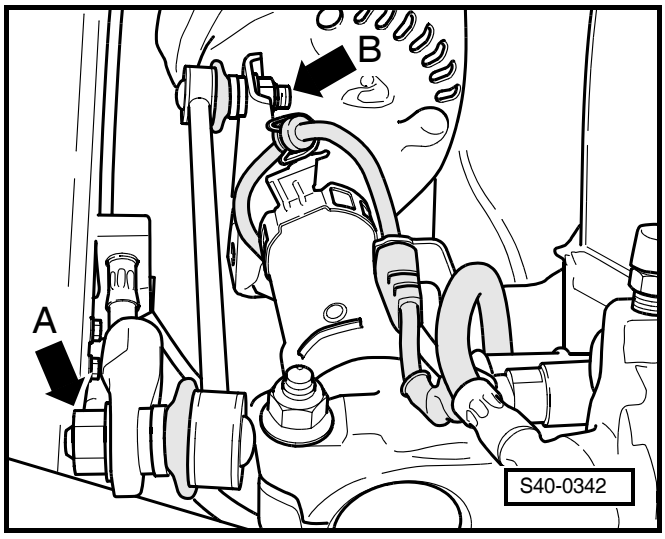


– Mark installation position of the steering joint -1- for the track control arm -2-.

– Screw out the screws.

– Unscrew the nut of the coupling rod -arrows B- from the suspension strut. ►

– Unhook speed sensor cable from the suspension strut.



– Screw up nut -1- sufficiently so that the puller -Matra V176- is supported on the nut. ►

– Use puller -Matra V176- to press track rod/track rod end -2- off the steering arm.

– Screw off the nut from the track rod end.

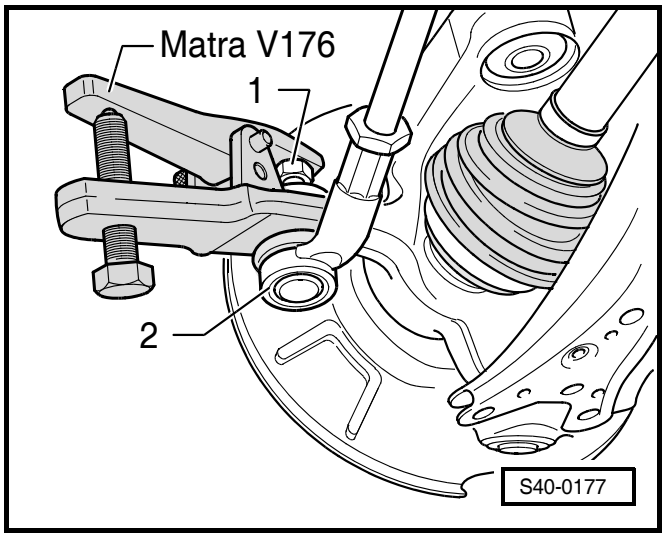
– Pull track rod end out of steering arm.

– Tie up track rod.

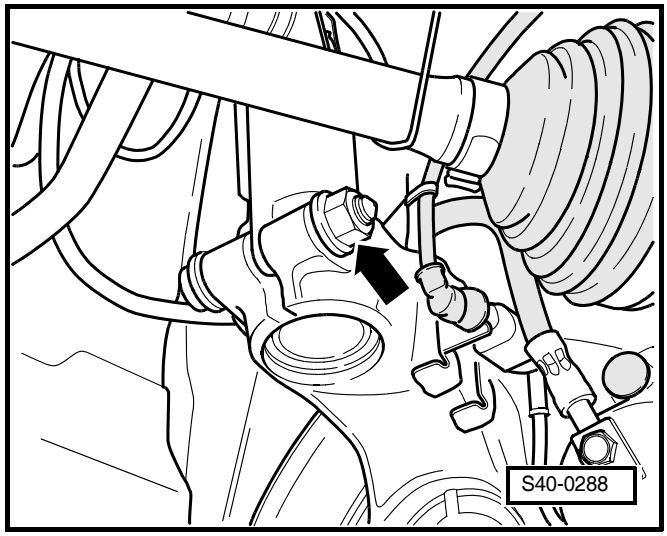
– Remove the drive shaft from wheel-bearing housing ⇒ Chapter 40-4 and tie up.

– Screw steering joint to the track control arm. To do so use the removed screws and the removed lock washer.

– Position the gearbox jack with adapter (e.g. - V.A.G 1383/A- with -V.A.G 1359/2-) under the wheel-bearing housing.

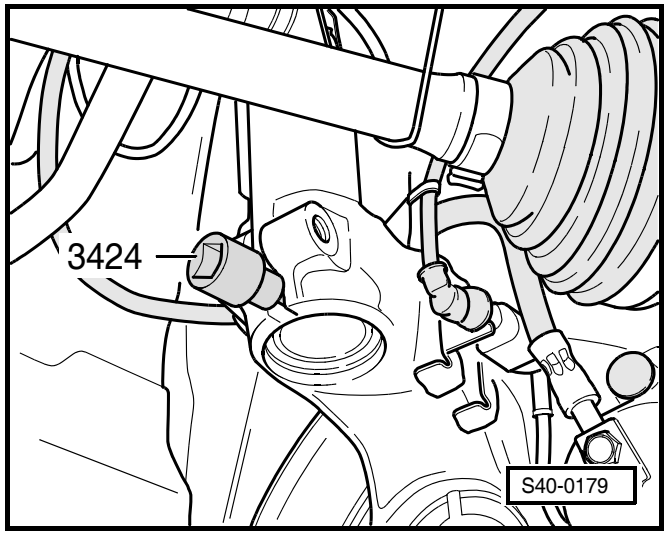


– Separate the screwed connection wheel-bearing housing/suspension strut -arrow-.

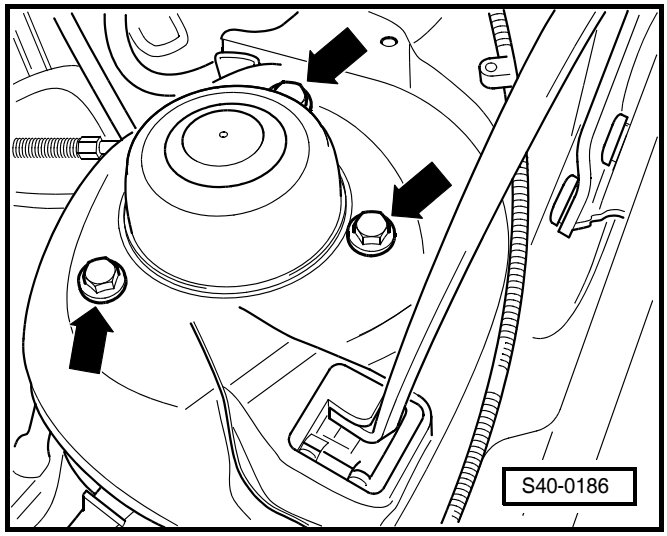


– Insert the spreader -3424- in the slot on the wheel-bearing housing.
– Turn ratchet 90° and remove from spreader -3424-.
– Press the brake disc by hand towards the suspension strut.

  Otherwise the shock-absorber tube may tilt in the hole of the wheel-bearing housing.



– Pull wheel-bearing housing downwards away from the shock-absorber tube and lower with gearbox jack until the shock-absorber tube hangs free.
– Secure the wheel-bearing housing to the console/assembly carrier.
– Remove the gearbox jack with adapter.
– Unscrew the screws for the top shock-absorber fixture -arrows-.
– Remove the suspension strut.



Installing

– Insert the suspension strut and secure to the suspension strut dome.

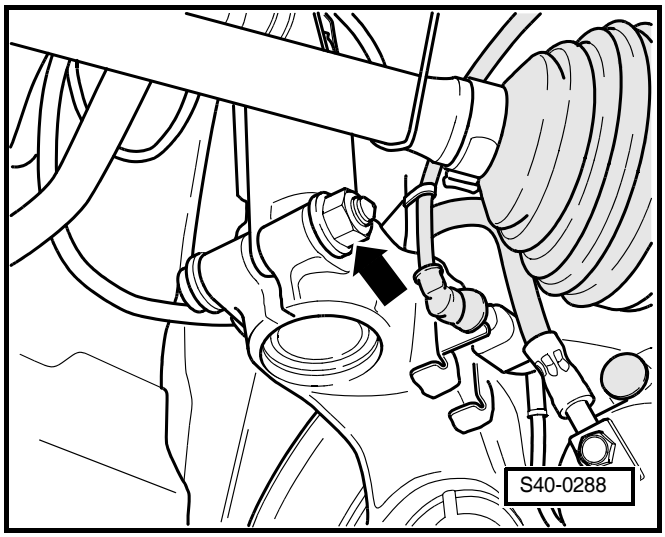
  First mount the screws on the inner side of the vehicle.

– Tighten up the screws fully to the specified tightening torque.
– Position the gearbox jack with adapter (e.g. - V.A.G 1383/A- with -V.A.G 1359/2-) under the wheel-bearing housing.
– Insert suspension strut in the wheel-house bearing.
– Loosen the wheel-bearing housing on the console/assembly carrier.
– Raise up the wheel-bearing housing using the gearbox jack to the point where the screws for the suspension strut/wheel-bearing housing can be inserted.

Note

Never press on the steering joint with the gearbox jack.

– With one's hand on the brake disc press in the direction of the suspension strut making sure that the shock-absorber tube in the bore hole of the wheel-bearing housing does not become tilted.
– Remove spreader -3424-.
– Screw on the new nuts and tighten up fully -arrow-. ►



Further installation occurs in reverse order, while paying attention to the following:

Note

Remove possible corrosion, grease or adhesive sealing material from the thread and from the serration of the outer joint as well as from the serration of the wheel hub.

Vehicles with 13" running gear

– Smear the drive shaft lightly with adhesive sealing material -Loctite 601-.

  Do not grease thread on the outer joint of the drive shaft.

Vehicles with 14” and 15” running gear

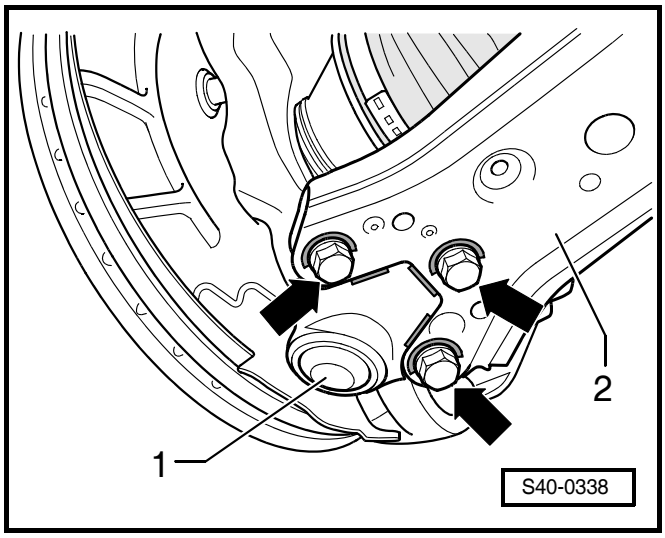
– Grease the serration on the propeller shaft with polycarbamide grease -G 052 142 A2-.

  Do not grease thread on the outer joint of the drive shaft.

– Grease the serration in the wheel hub with polycarbamide grease -G 052 142 A2-.

Continued for all vehicles

– Insert the drive shaft in the serration of the wheel hub.
– When inserting the drive shaft insert at the same time ► the steering joint -1- into the track control arm -2- in accordance with the former positions and markings.
– Secure the outer joint of the drive shaft with a new twelve-point nut.



Note

- *Always replace plate nuts of drive shaft on both sides by twelve-point nuts.*
- *Replace nut on both sides.*

– Screw the track control arm -1- with the steering joint -2- with new screws -arrows- and new lock washer in accordance with the former positions and markings.
– Tighten the new screws -arrows- in accordance with the markings and the former positions to the specified tightening torque.
– Perform a test drive.

Caution!

If after the test drive and with the front wheels pointing straight ahead the steering wheel is off straight, perform a chassis alignment.

– Carry out check of chassis alignment ⇒ Chapter 44-2

Tightening torques:

Suspension strut to suspension strut dome ♦ Use new screws!	15 Nm + 90°
Wheel-bearing housing to suspension strut ♦ Use new screws and nuts!	60 Nm + 90°
Track rod end/track rod to steering arm ♦ Use new nuts!	20 Nm + 90°
The anti-roll bar on the suspension strut	40 Nm
Twelve-point nut of drive shaft to wheel hub 13" running gear ♦ Use new nuts! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm
Twelve-point nut of drive shaft to wheel hub 14" and 15" running gear ♦ Use new nuts! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm + 45°
Steering joint to track control arm ♦ Use new screws! ♦ Use new lock washer!	20 Nm + 90°
Wheel bolts	120 Nm

Repairing the suspension strut

Special tools, test and measuring equipment and auxiliary items required

- Spring tensioning device, e.g. -V.A.G 1752/1 -
- Spring holder with protective lining, e.g. - V.A.G 1752/4-
- Socket wrench insert OK 21 -MP 6-427-

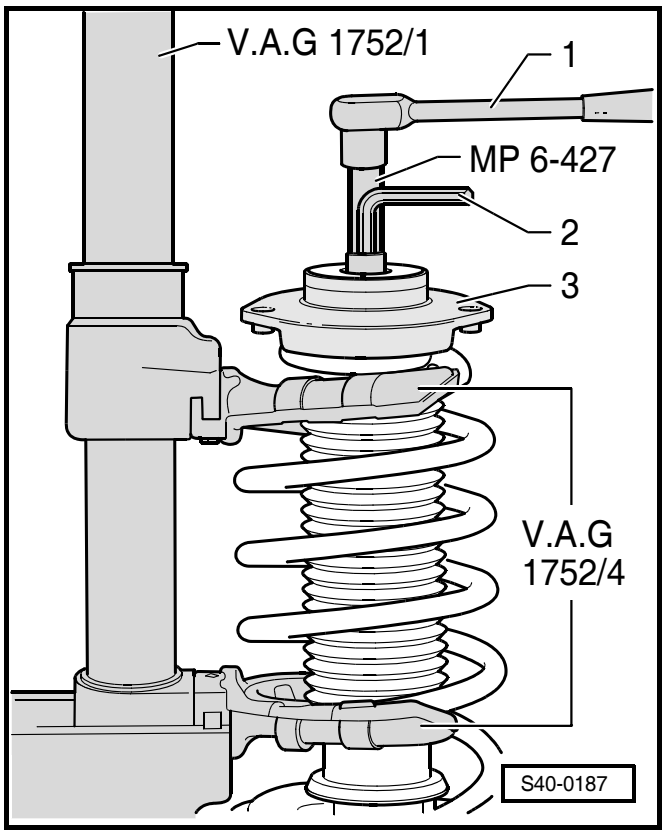
Removing the helical spring

– Removing the suspension strut ⇒ 40-2 page 2

– Preload the helical spring with the spring tensioner until the suspension strut bearing -3- is relieved. ►

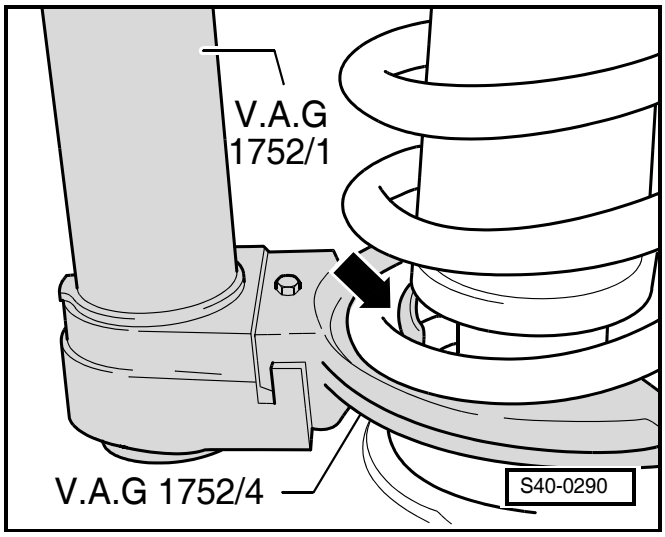
– Unscrew the nut from the piston rod using socket wrench insert OK 21 -MP 6-427- and counterhold with an hexagonal wrench -2-.

1 - Ratchet or torque wrench



– Remove component parts of the suspension strut and preloaded helical spring with the clamping fixture.

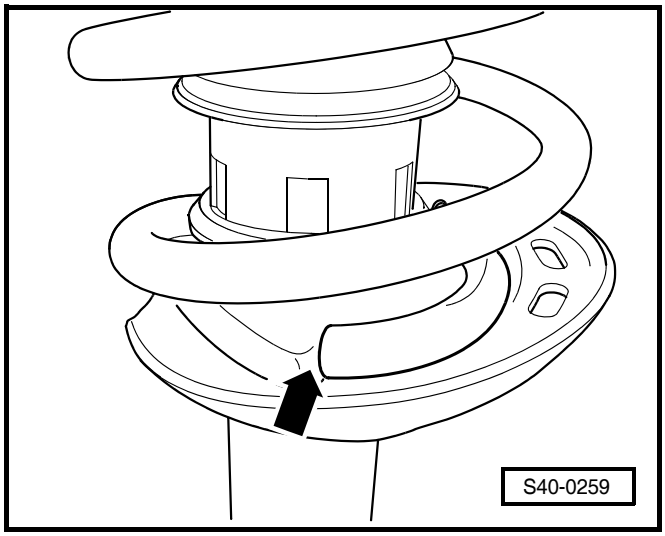
– Check correct seating of the helical spring in the spring tensioning device, e.g. -V.A.G 1752/4- -arrow-. ►



Installing the helical spring

– Position the preloaded helical spring with spring tensioning device, e.g. -V.A.G 1752/4- on the bottom spring washer. ►

The extremity of the spring coil must lie against the stop -arrow-.



Further installation occurs in reverse order.

Tightening torque:

Nut for suspension strut bearing on the piston rod	60 Nm

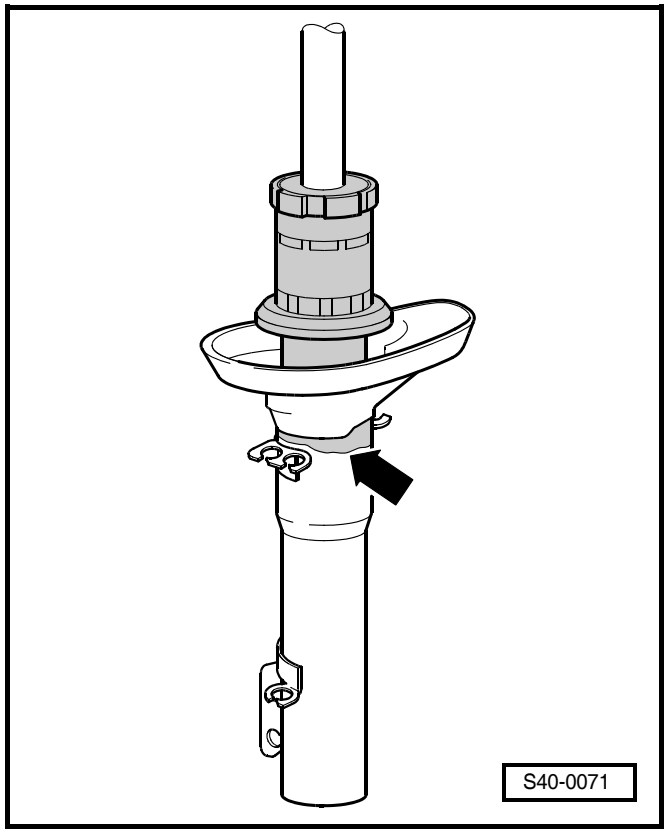
– Assembling the shock absorber ⇒ 40-2 page 1

Inspecting the shock absorber

Leaks on the shock absorber

Minor oil leakage (sweating) on the piston rod seal does not entail the replacement of the shock absorber.

If an oil leak is visible (but blunt, dull, possibly dried by dust) and does not propagate any further than from the top shock-absorber plug (piston rod seal) to the bottom spring cap -arrow-, the shock absorber is deemed to be O.K.



Note

A slight oil leak is beneficial as the gasket is lubricated and this increases the life time. This applies for shock absorbers on the front as well as the rear axle.

Shock absorber noises

There is reason to believe that in the event of noise complaints the shock absorbers are all too often considered as the source.

Possible causes of noise may be e.g.:

- Defective shock absorber
- Loose fixation of the suspension strut/body
- Defective axial grooved ball bearing
- Insufficient clearance of the suspension strut
- The outer joint is defect
- Defective wheel bearing
- Cracked welding points on body
- Loose parts or parts fitted under stress (exhaust system, attachments, flaps, etc.)

Note

In the event of complaints about noises interpreted as knocking or cracking noises, always first perform a test drive with the customer to determine where, when and how these noises occur (preferably on a bumpy dry road).

Inspecting the removed shock absorber without gas pressure

Defective shock absorbers become noticeable while driving because of the knocking noises caused by wheel hopping, more specifically on poor road surfaces and they must be replaced. The main cause of defect is oil leakage. The shock absorber then compresses and/or expands in jolts. It has an „idle travel“ before taking effect.

Note

Shock absorbers are maintenance-free. It is not possible to top up the shock absorber oil.

Inspecting the removed shock absorber with gas pressure

Defective shock absorbers with gas pressure are also noticeable because of loud knocking noises caused by

wheel hopping and externally usually exhibit considerable oil leakage.

Check by hand whether or not the shock absorber is defective as follows:

– Compress the shock absorber by hand.

  The piston rod must move evenly over the entire stroke without jolting.

– Release the piston rod. On sufficiently pressurized shock absorbers it will automatically return to its original position.

  If this is not the case, the shock absorber need not necessarily be replaced, as it will still operate as a conventional shock absorber (see instructions below).

Note

- *The absorbing function is still fully present without sufficient gas pressure as long as the oil leakage is not too large. However, the noise level may increase. On older vehicles it is possible to continue using an operational yet pressureless shock absorber without problem.*
- *Adequate gas pressure in the shock absorber improves the noise behaviour and function when driving over poor road surfaces.*

Disposing of the shock absorber

Special tools, test and measuring equipment and auxiliary items required

- Drill ∅ 3 mm (commercially available)
- Drill ∅ 6 mm (commercially available)
- Safety goggles (commercially available)
- Oil catch container (commercially available)
- Pipe cutter, e.g. Stahlwille Express -150/3- (commercially available)

Note

There are two ways of disposing of shock absorbers.

Degassing the front and rear pressurized shock absorbers

Possibility A: Degassing by drilling open

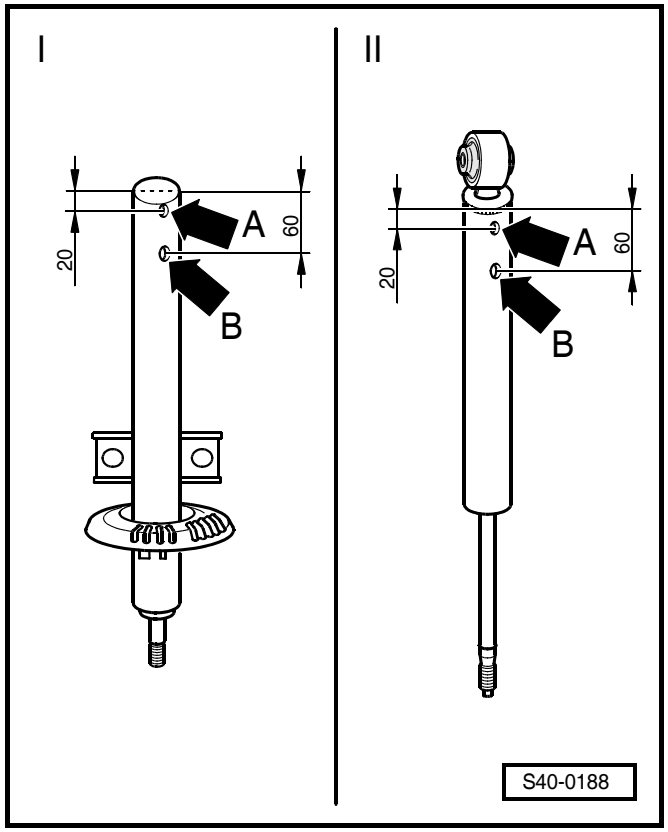
I - Front pressurized shock absorber
II - Rear pressurized shock absorber

– Clamp the pressurized shock absorber in the vice in such a way tbat the piston points downwards.

Caution!

Wear safety goggles during the drilling procedure.

– Drill a hole ∅ 3 mm -arrow A- through the outer pipe of the shock absorber.



Note

Gas will escape during drilling.

– Drill further until the inner pipe has been drilled through (approx. 25 mm deep).

– Drill a second hole ∅ 6 mm -arrow B- through the outer and inner pipe of the shock absorber.

– Hold the shock absorber over an oil catching pan, move the piston rod sevral times up and down over its entire stroke until no more oil escapes.

Degassing the front and rear pressurized shock absorbers

Possibility B: Open with pipe cutter

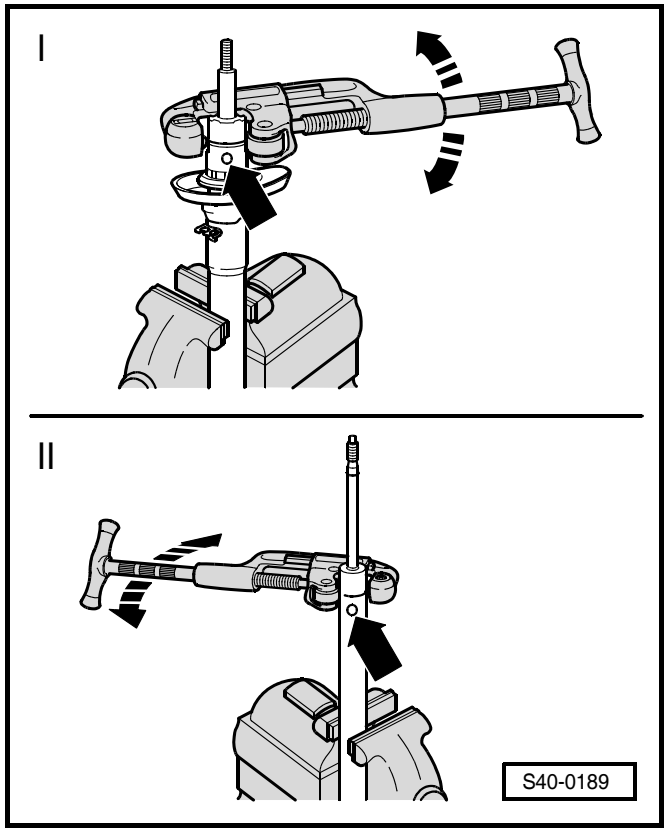
I - Front pressurized shock absorber
II - Rear pressurized shock absorber

– Clamp the pressurized shock absorber in the vice in such a way that the piston points upwards.

Caution!

Wear safety goggles during the drilling procedure.

– Drill a hole ∅ 3 mm -arrow A- through the outer pipe of the shock absorber.



Note

Gas will escape during drilling.

– Position a pipe cutter, e.g. Stahlwille Express -150/3-, as shown in the figure, and cut through the outer pipe of the shock absorber.

– Pull the piston rod upwards and while doing so grip the inner pipe with pipe pliers and press it down in such a way that it remains in the outer pipe when the piston rod is slowly pulled up.

– Pull the piston rod out of the inner pipe.

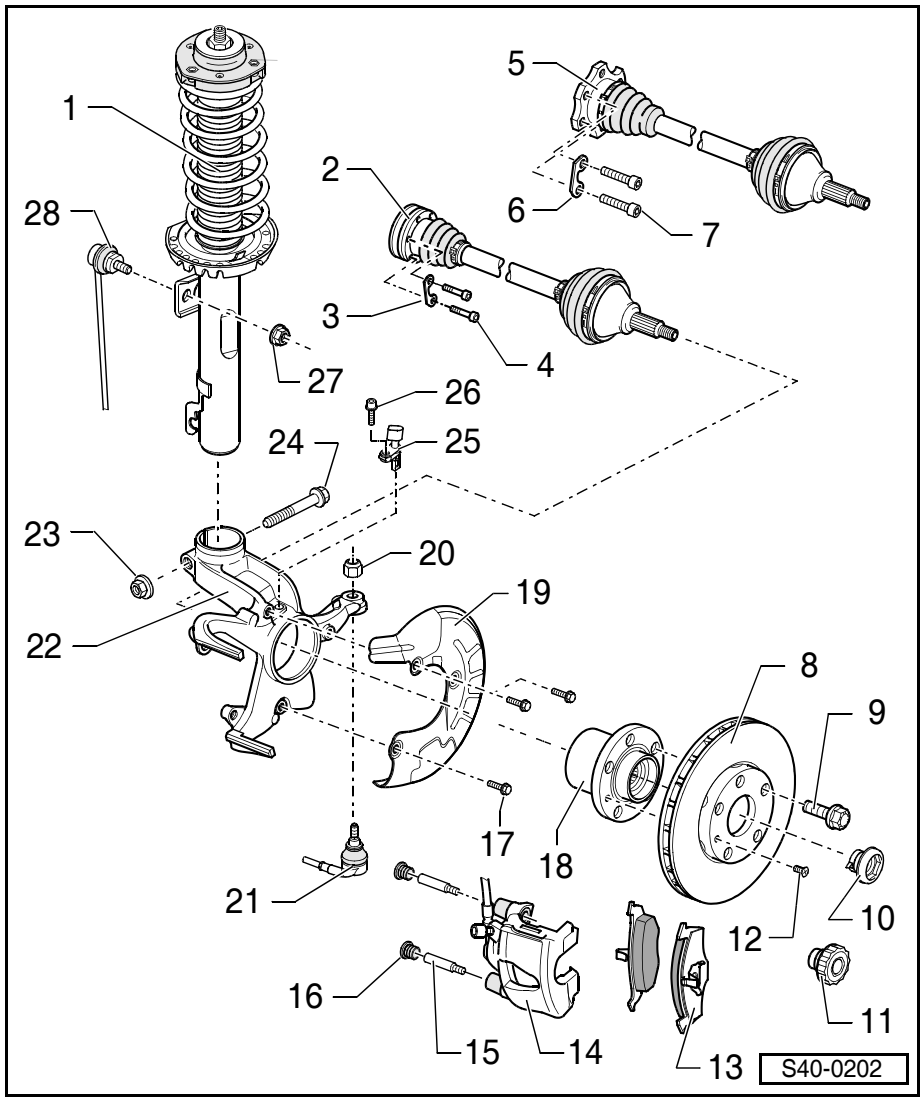
– Empty the shock absorber pipe.

40-3 Repairing the wheel bearing

III - Summary of components of the wheel bearing, suspension strut, drive shaft, brake FS-III

Note

- *Welding and straightening work is not allowed on the bearing and wheel control components of the front wheel suspension.*
- *Always replace the self-locking nuts and screws.*
- *Always replace corroded self-locking nuts and screws.*



1 - Suspension strut
- ❑ removing and installing ⇒ Chapter 40-2
- ❑ repair ⇒ Chapter 40-2
- ❑ assignment ⇒ Spare part catalogue

2 - Drive shaft with CV joint
- ❑ removing and installing ⇒ Chapter 40-4
- ❑ inspect ⇒ Chapter 40-4
- ❑ repair ⇒ Chapter 40-4
- ❑ assignment ⇒ Spare part catalogue

3 - Shim
- ❑ assignment ⇒ Spare part catalogue

4 - Fillister head screw with internal serrations
- ❑ replace after each removal
- ❑ assignment ⇒ Spare part catalogue
- ❑ M8 x 48
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm
- ❑ M10 x 52
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 70 Nm

5 - Drive shaft with tripod joint
- ❑ removing and installing ⇒ Chapter 40-5
- ❑ repair ⇒ Chapter 40-5
- ❑ assignment ⇒ Spare part catalogue

6 - Shim
- ❑ only replace along with a cylindrical screw with internal serrations M8 x 28 head, ⇒ item 7

7 - Fillister head screw with internal serrations
- ❑ replace after each removal
- ❑ assignment ⇒ Spare part catalogue
- ❑ M8 x 18
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm
- ❑ M8 x 28

initially tighten all screws to 10 Nm, then tighten screws crosswise
Tightening torque: 40 Nm
- ❑ M10 x 23
initially tighten all screws to 10 Nm, then tighten screws crosswise
Tightening torque: 70 Nm

8 - Brake disc, internally ventilated

9 - Wheel bolt, 120 Nm
- ❑ assignment ⇒ Spare part catalogue

10 - Plate nut
- ❑ replace after each removal against twelve-point nut ⇒ item 11

11 - 50 Nm + 45°
- ❑ replace after each removal
- ❑ Do not grease thread of the outer joint of the drive shaft.
- ❑ assignment ⇒ Spare part catalogue

12 - Screw, 4 Nm

13 - Brake pad
- ❑ removing and installing ⇒ Chapter 46-1

14 - Brake caliper
- ❑ assignment ⇒ Spare part catalogue
- ❑ do not release brake hose when working on the front wheel suspension
- ❑ tie up with wire or anything similar
- ❑ repair ⇒ Chapter 47-1

15 - Guide bolts, 28 Nm

16 - Cap
- ❑ removing

17 - Screw, 10 Nm

18 - Wheel hub with wheel bearing
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ The wheel hub and the wheel bearing are a single unit; it does not need servicing and is free of play; it is not possible to undertake any kind of adjustment or repair work on it.
- ❑ The sensor ring for ABS cannot be replaced individually
- ❑ replace after each removal, is destroyed during removal
- ❑ Removing and installing the wheel hub with wheel bearing ⇒ 40-3 page 10
- ❑ assignment ⇒ Spare part catalogue

19 - Cover plate

20 - Nut, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

21 - Track rod and track-rod ends
- ❑ removing and installing ⇒ Chapter 48-16

22 - Wheel-bearing housing
- ❑ removing and installing ⇒ 40-3 page 7
- ❑ assignment ⇒ Spare part catalogue

23 - Nut, 60 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

24 - Screw
- ❑ replace after each removal
- ❑ the tip of bolt must point in the direction of travel

25 - Speed sensor ABS
- ❑ assignment ⇒ Spare part catalogue

26 - Allan screw, 8 Nm
- ❑ for speed sensor ABS

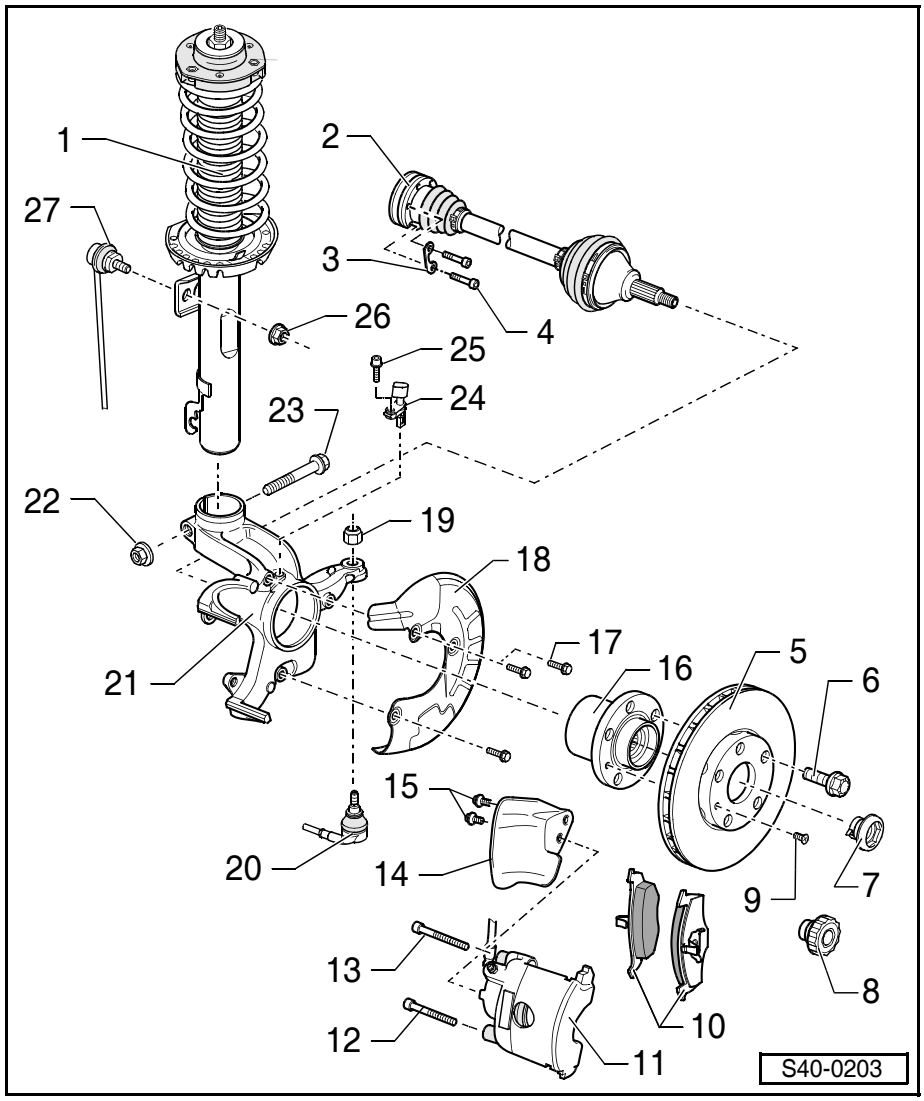
27 - Nut, 40 Nm
- ❑ assignment ⇒ Spare part catalogue

28 - Coupling rod
- ❑ assignment ⇒ Spare part catalogue

III - Summary of components of the wheel bearing, suspension strut, drive shaft, brake FS-II

Note

- *Welding and straightening work is not allowed on the bearing and wheel control components of the front wheel suspension.*
- *Always replace the self-locking nuts and screws.*
- *Always replace corroded self-locking nuts and screws.*



1 - Suspension strut
- ❑ removing and installing ⇒ Chapter 40-2
- ❑ repair ⇒ Chapter 40-2
- ❑ assignment ⇒ Spare part catalogue

2 - Drive shaft with CV joint
- ❑ removing and installing ⇒ Chapter 40-4
- ❑ inspect ⇒ Chapter 40-4
- ❑ repair ⇒ Chapter 40-4
- ❑ assignment ⇒ Spare part catalogue

3 - Shim
- ❑ assignment ⇒ Spare part catalogue

4 - Fillister head screw with internal serrations
- ❑ replace after each removal
- ❑ assignment ⇒ Spare part catalogue
- ❑ M8 x 48
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm
- ❑ M10 x 52
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 70 Nm

5 - Brake disc, internally ventilated

6 - Wheel bolt, 120 Nm
- ❑ assignment ⇒ Spare part catalogue

7 - Plate nut
- ❑ replace after each removal against twelve-point nut ⇒ item 8

8 - 50 Nm
- ❑ replace after each removal
- ❑ Do not grease thread of the outer joint of the drive shaft.
- ❑ assignment ⇒ Spare part catalogue

9 - Screw, 4 Nm

10 - Brake pad
- ❑ removing and installing ⇒ Chapter 46-1

11 - Brake caliper
- ❑ assignment ⇒ Spare part catalogue
- ❑ do not release brake hose when working on the front wheel suspension
- ❑ tie up with wire or anything similar
- ❑ repair ⇒ Chapter 47-1

12 - Fillister head screw with internal serrations, 25 Nm
- ❑ M8 x 49

13 - Fillister head screw with internal serrations, 25 Nm
- ❑ M8 x 59

14 - Air deflector
- ❑ assignment ⇒ Spare part catalogue

15 - Screw, 10 Nm
- ❑ for air deflector

16 - Wheel hub with wheel bearing
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ The wheel hub and the wheel bearing are a single unit; it does not need servicing and is free of play; it is not possible to undertake any kind of adjustment or repair work on it.
- ❑ The sensor ring for ABS cannot be replaced individually
- ❑ replace after each removal, is destroyed during removal
- ❑ assignment ⇒ Spare part catalogue

17 - Screw, 10 Nm

18 - Cover plate

19 - Nut, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

20 - Track rod and track-rod ends
- ❑ removing and installing ⇒ Chapter 48-16

21 - Wheel-bearing housing
- ❑ removing and installing ⇒ 40-3 page 7
- ❑ assignment ⇒ Spare part catalogue

22 - Nut, 60 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

23 - Screw
- ❑ replace after each removal
- ❑ the tip of bolt must point in the direction of travel

24 - Speed sensor ABS
- ❑ assignment ⇒ Spare part catalogue

25 - Allan screw, 8 Nm
- ❑ for speed sensor ABS

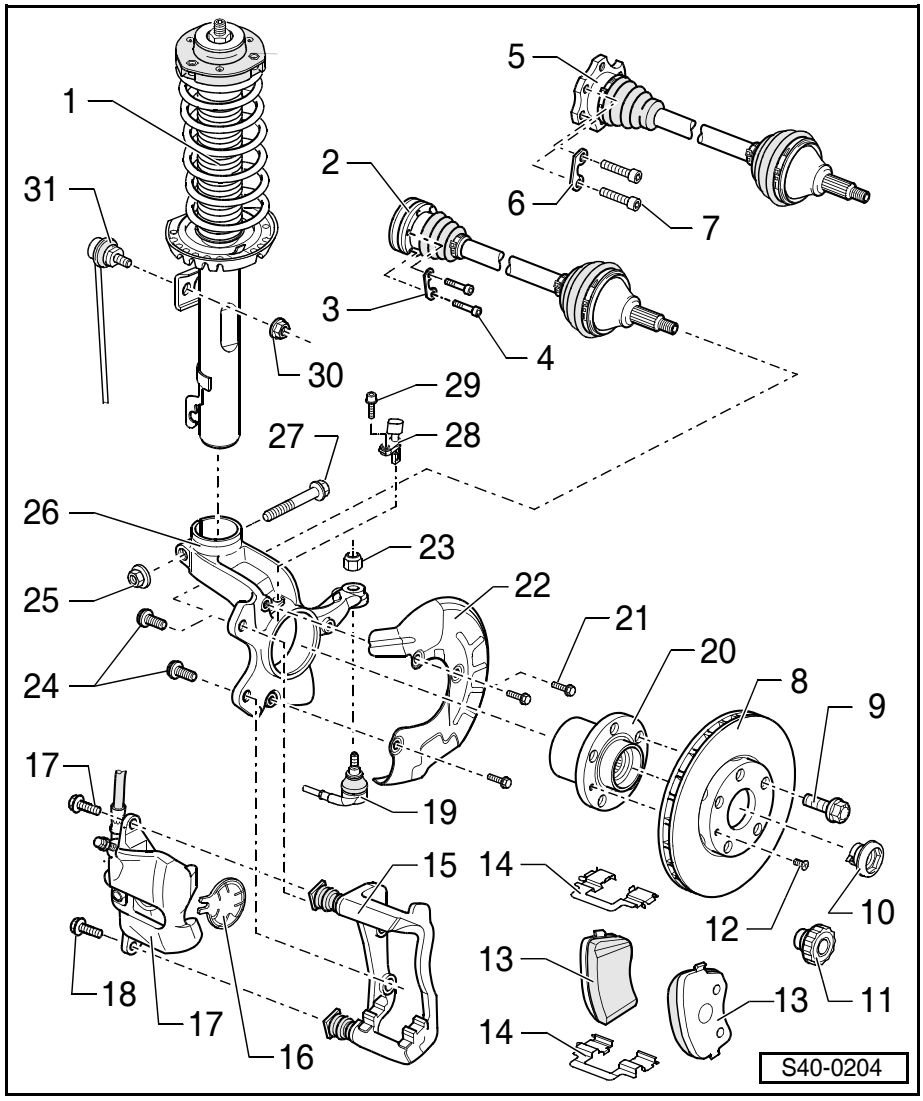
26 - Nut, 40 Nm
- ❑ assignment ⇒ Spare part catalogue

27 - Coupling rod
- ❑ assignment ⇒ Spare part catalogue

III - Summary of components of the wheel bearing, suspension strut, drive shaft, brake C54-II

Note

- *Welding and straightening work is not allowed on the bearing and wheel control components of the front wheel suspension.*
- *Always replace the self-locking nuts and screws.*
- *Always replace corroded self-locking nuts and screws.*



1 - Suspension strut
- ❑ removing and installing ⇒ Chapter 40-2
- ❑ repair ⇒ Chapter 40-2
- ❑ assignment ⇒ Spare part catalogue

2 - Drive shaft with CV joint
- ❑ removing and installing ⇒ Chapter 40-4
- ❑ inspect ⇒ Chapter 40-4
- ❑ repair ⇒ Chapter 40-4
- ❑ assignment ⇒ Spare part catalogue

3 - Shim
- ❑ assignment ⇒ Spare part catalogue

4 - Fillister head screw with internal serrations
- ❑ replace after each removal
- ❑ assignment ⇒ Spare part catalogue
- ❑ M8 x 48
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm
- ❑ M10 x 52
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 70 Nm

5 - Drive shaft with tripod joint
- ❑ removing and installing ⇒ Chapter 40-5
- ❑ repair ⇒ Chapter 40-5
- ❑ assignment ⇒ Spare part catalogue

6 - Shim
- ❑ only replace along with a cylindrical screw with internal serrations M8 x 28 head, ⇒ item 7

7 - Fillister head screw with internal serrations
- ❑ replace after each removal
- ❑ assignment ⇒ Spare part catalogue
- ❑ M8 x 18
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm
- ❑ M8 x 28
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 40 Nm

- ❑ M10 x 23
  initially tighten all screws to 10 Nm, then tighten screws crosswise
  Tightening torque: 70 Nm

8 - Brake disc, internally ventilated

9 - Wheel bolt, 120 Nm
- ❑ assignment ⇒ Spare part catalogue

10 - Plate nut
- ❑ replace after each removal against twelve-point nut ⇒ item 11

11 - 50 Nm + 45°
- ❑ replace after each removal
- ❑ Do not grease thread of the outer joint of the drive shaft.
- ❑ assignment ⇒ Spare part catalogue

12 - Screw, 4 Nm

13 - Brake pad
- ❑ removing and installing ⇒ Chapter 46-1

14 - Pad retaining plate
- ❑ always replace when changing the brake pads
- ❑ brake pads contained in repair kit

15 - Brake carrier with guide bolts and protective caps

16 - Heat shield
- ❑ always replace when changing the brake pads
- ❑ brake pads contained in repair kit

17 - Brake caliper
- ❑ assignment ⇒ Spare part catalogue
- ❑ do not release brake hose when working on the front wheel suspension
- ❑ tie up with wire or anything similar
- ❑ repair ⇒ Chapter 47-1

18 - Screw, 30 Nm
- ❑ replace after each removal

19 - Track rod and track-rod ends
- ❑ removing and installing ⇒ Chapter 48-16

20 - Wheel hub with wheel bearing
- ❑ for vehicles with ABS the sensor ring is built into the wheel hub
- ❑ The wheel hub and the wheel bearing are a single unit; it does not need servicing and is free of play; it is not possible to undertake any kind of adjustment or repair work on it.
- ❑ The sensor ring for ABS cannot be replaced individually
- ❑ replace after each removal, is destroyed during removal
- ❑ Removing and installing the wheel hub with wheel bearing ⇒ 40-3 page 10
- ❑ assignment ⇒ Spare part catalogue

21 - Screw, 10 Nm

22 - Cover plate

23 - Nut, 20 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

24 - Screw, 125 Nm
- ❑ clean ribbing on underside each time removed

25 - Nut, 60 Nm + torque a further 90° ($^1/_4$ turn)
- ❑ replace after each removal

26 - Wheel-bearing housing
- ❑ removing and installing ⇒ 40-3 page 7
- ❑ assignment ⇒ Spare part catalogue

27 - Screw
- ❑ replace after each removal
- ❑ the tip of bolt must point in the direction of travel

28 - Speed sensor ABS
- ❑ assignment ⇒ Spare part catalogue

29 - Allan screw, 8 Nm
- ❑ for speed sensor ABS

30 - Nut, 40 Nm
- ❑ assignment ⇒ Spare part catalogue

31 - Coupling rod
- ❑ assignment ⇒ Spare part catalogue

Removing and installing wheel bearing housing

Note

- *The running gears have different versions of wheel bearing housings and floating caliper brakes.*
- *The special tools, test and measuring equipment as well as aids required for removing and installing the wheel bearing housing of running gears with FS-II, FS-III or C54-II brakes are identical.*

Special tools, test and measuring equipment and auxiliary items required

- Gearbox jack with adapter e.g. -V.A.G 1383 A- with -V.A.G 1359/2-
- Spreader -3424-
- Extractor -MP 6-425-
- Extractor -Matra V176-
- Polycarbamide grease -G 052 142 A2-
- Glue sealing mass -Loctite 601-

Removing

– Raise the vehicle until the front axle is free of stress.

– Unscrew twelve-point nut (or the plate nut) from the drive shaft using a 19 mm Allen key.

– Remove wheel.

Vehicles fitted with anti-roll bar

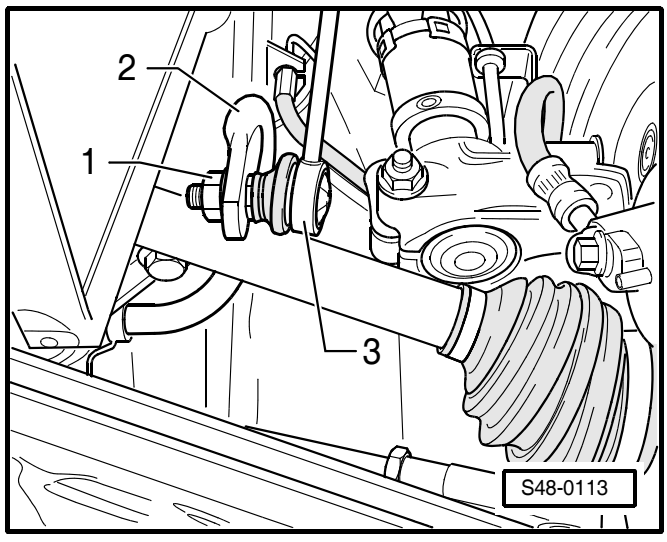
– Unscrew nut -1-.

– Pull out coupling rod -3- from the anti-roll bar -2-.

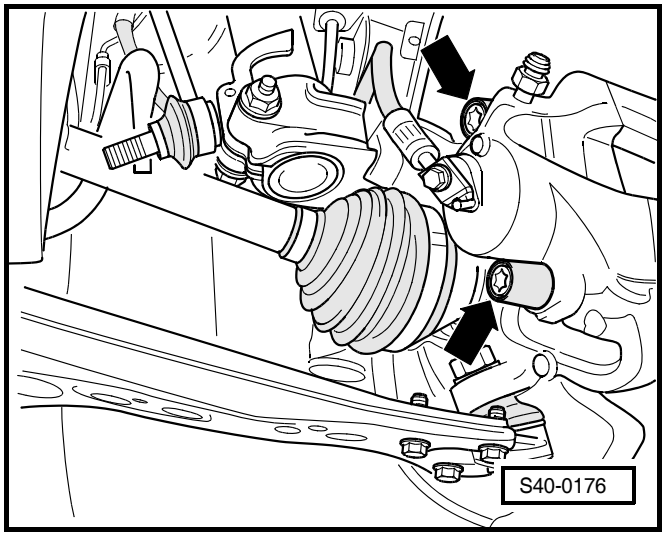
Vehicles with ABS

– Removing the speed sensor.

Vehicles fitted with FS-III floating caliper brake



– Removing the caps from the brake caliper guide bolts.
– Unscrew and remove the two guide bolts -arrow- from the brake caliper.

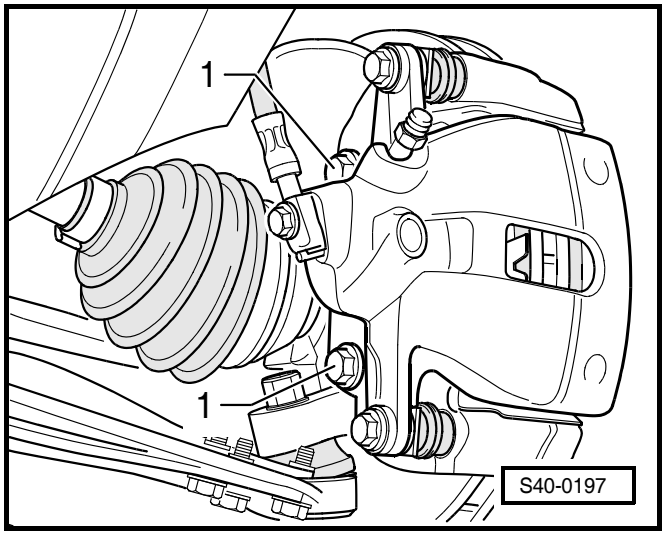


Vehicles fitted with FS-II floating caliper brake

– Unscrew cylinder bolts with hexagon socket head from brake caliper and take out (not shown).

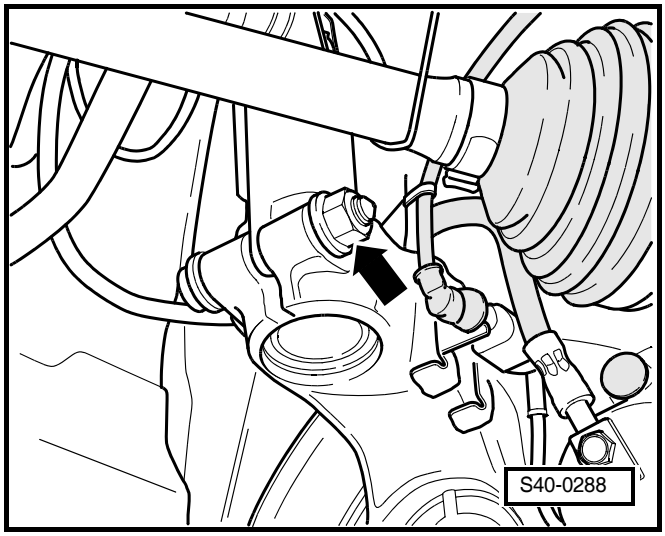
Vehicles fitted with C54-II floating caliper brake

– Release screws -1-.



Continued for all vehicles

– Remove brake caliper or brake carrier with brake caliper and secure with wire in such a way that the weight of the brake caliper does not pull on or damage the brake hose.
– Remove the drive shaft from wheel-bearing housing ⇒ Chapter 40-4 and tie up.
– Remove the track rod end from the steering-knuckle arm with extractor -Matra V176- and tie up the track rod.
– Position the gearbox jack with adapter (e.g. -V.A.G 1383/A- with -V.A.G 1359/2-) under the wheel-bearing housing.
– Separate the screwed connection wheel-bearing housing/suspension strut -arrow-.



– Insert the spreader -3424- in the slot on the wheel-bearing housing.
– Turn ratchet 90° and remove from spreader -3424-.
– Press the brake disc by hand towards the suspension strut.

  Otherwise the shock-absorber tube may tilt in the hole of the wheel-bearing housing.

– Remove the wheel-bearing housing from the shock-absorber tube and lower with gearbox jack.

Installing

– Raise the wheel-bearing housing with gearbox jack.
– Insert the suspension strut/wheel-bearing housing screw.
– Press the brake disc by hand towards the suspension strut.

  Otherwise the shock-absorber tube may tilt in the hole of the wheel-bearing housing.

– Remove spreader -3424-.

Further installation occurs in reverse order, while paying attention to the following:

Vehicles with 13" running gear

– Smear the drive shaft lightly with adhesive sealing material -Loctite 601-.

  Do not grease thread on the outer joint of the drive shaft.

Vehicles with 14” and 15” running gear

– Grease the serration on the propeller shaft with polycarbamide grease -G 052 142 A2-.

  Do not grease thread on the outer joint of the drive shaft.

– Grease the serration in the wheel hub with polycarbamide grease -G 052 142 A2-.

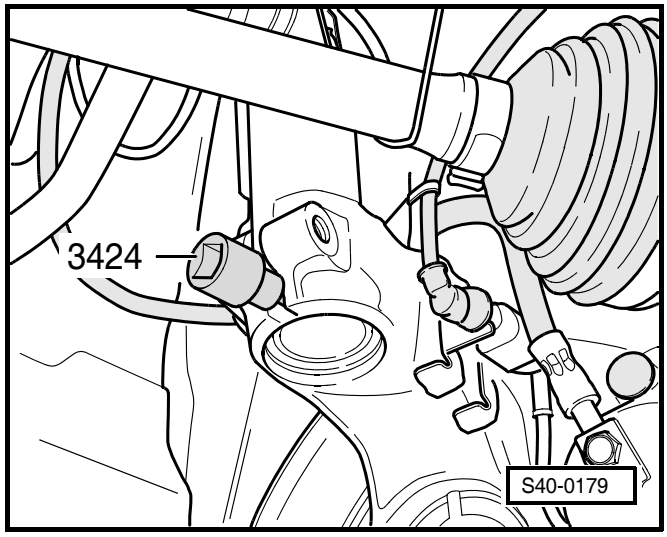
Continued for all vehicles

– Insert the drive shaft in the wheel hub and screw on with new twelve-point nut.

Note

Always replace plate nuts of drive shaft on both sides by twelve-point nuts.

– Screw the steering joint and track control arm with the new screws in the former positions.
– Perform a test drive.



Caution!

If after the test drive and with the front wheels pointing straight ahead the steering wheel is off straight, perform a chassis alignment.

– Carry out check of chassis alignment ⇒ Chapter 44-2

Tightening torques:

Wheel-bearing housing to suspension strut ♦ Use new screws and nuts!	60 Nm + 90°
Twelve-point nut of drive shaft to wheel hub 13" running gear ♦ Use new nuts! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm
Twelve-point nut of drive shaft to wheel hub 14" and 15" running gear ♦ Use new nuts! ♦ Do not grease thread of the outer joint of the drive shaft.	50 Nm + 45°
Track-rod end to steering lever ♦ Use new nuts!	20 Nm + 90°
Steering joint to track control arm ♦ Use new screws! ♦ Use new lock washer!	20 Nm + 90°
FS-III brake caliper to wheel bearing housing	28 Nm
FS-II brake caliper to wheel bearing housing	25 Nm
Brake carrier with C54-II brake caliper to wheel bearing housing	125 Nm
Coupling rod to anti-roll bar	40 Nm
Speed sensor to wheel-bearing housing	8 Nm
Wheel bolts	120 Nm

Removing and installing the wheel hub with wheel bearing with the wheel-bearing housing fitted

Note

- *The FS-II chassis uses another size of wheel hub with wheel bearing compared to the FS-III chassis or the C54-II type.*
- *The special tools, test and measuring equipment as well as aids required for removing and installing the wheel bearing housing of chassis with the FS-II, FS-III or C54-II brake are identical.*
- *When drawing in the wheel hub and wheel bearing at the chassis fitted with an FS-II brake, pay attention to the modified installed position of the assembly device - T10064/4-. On a chassis fitted with the FS-II brake use grips -T10064/5- and on chasses with FS-III or C54-II brakes use grips -T10064/6-.*