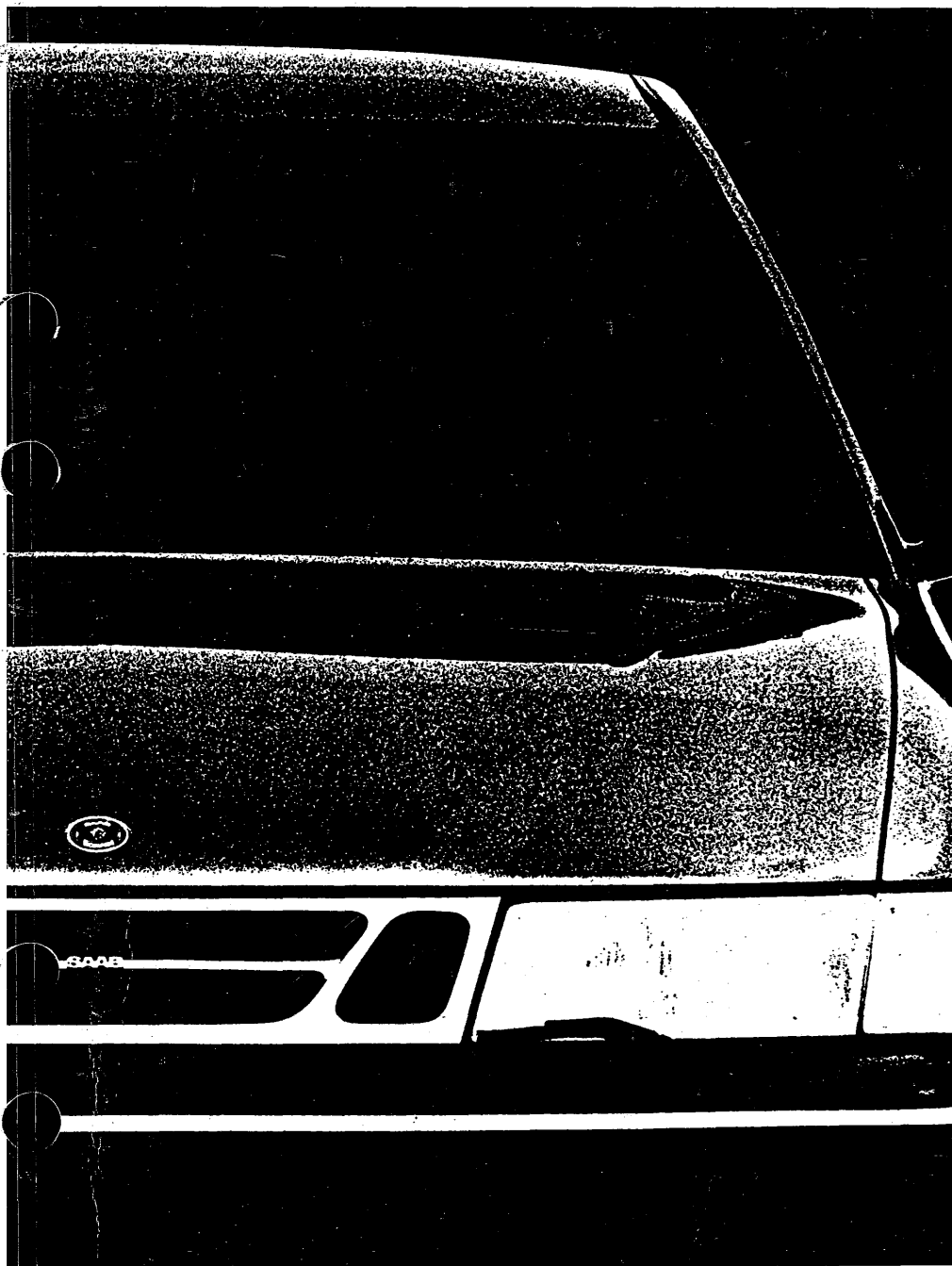


# Saab 9000

Service Manual



**M 1985-95**

**ENG**

## 7 Suspension Wheel



# Saab 9000

## SERVICE MANUAL

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### 7 Suspension Wheel

M 1985 – 1995

#### Foreword

This service manual replaces:

- Service manual 7 Suspension, Wheel M1985-91-
- Service information 700-1138
- Service information 732-1221
- Service information 762-1125
- Service information 771-1169
- Service information 771-1175
- Service information 771-1186
- Service information 771-1202
- Service information 771-1425
- Service information 771-1222
- The text concerning suspension, wheel in Saab news 9000 M1995

All particulars and illustrations in this service manual are based on the version of the cars prevailing at the time of going to press. Model variants, technical data and equipment may vary from market to market and may be subject to alteration without prior notice.

Saab Automobile AB

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## Warning, Important and Note

The headings "Warning", "Important" and "Note" occur from time to time in the Service Manual. They are used to draw the attention of the reader to information of special interest and seriousness. The importance of the information is indicated by the three different headings and the difference between them is explained below.

### **WARNING**

Warns of the risk of material damage and grave injury to mechanics and the driver, as well as serious damage to the car.

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### **Important**

Points out the risk of minor damage to the car and also warns the mechanic of difficulties and time-wasting mistakes.

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### **Note**

Hints and tips on how the work can be done in a way that saves time and labour. This information is not supplied for reasons of safety.

## Market codes

The codes refer to market specifications

AT	Austria	GB	Great Britain
AU	Australia	GR	Greece
BE	Belgium	IS	Iceland
CA	Canada	IT	Italy
CH	Switzerland	JP	Japan
DE	Germany	ME	Middle East
DK	Denmark	NL	Netherlands
ES	Spain	NO	Norway
EU	Europe	SE	Sweden
FE	Far East	US	USA
FI	Finland	UC	US California
FR	France		



## Technical data

**Suspension** ..... 027-1

Coil spring, front ..... 027-1

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**Recommended tyre pressure,**

**cold tyre** ..... 027-6

**Tightening torque** ..... 027-12

### Suspension

On the springs two central spring coil the spring should be marked. The marking consists of five coloured zone. The springs on the left and right sides of the same axle should be of the same class, so that the car is the same height on both sides. The class is stated on the central zone in the colour combination on the spring. Zone 1 is the same as zone 5, zone 2 is the same as zone 4.

#### Coil spring, front

Total number of turns		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Number of sprung turns		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Rod diameter	∅ mm	12,86	12,97	13,09	12,80	13,20	13,30	14,26	12,75
Free length	mm	455	455	455	455	455	455	369	455
Brand colour	Zone 1 and 5	Red	Red	Red	Light blue	Red	Red	Yellow	Red
Brand colour	zone 2 and 4	Yellow	Blue	White	Beige	Green	Grey	Yellow	Red

Total number of turns		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Number of sprung turns		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Rod diameter	∅ mm	13,62	12,96	13,13	13,27	13,35	13,53	13,67	13,81
Free length	mm	416	444	440	438	437	436	434	431
Brand colour	Zone 1 and 5	Yellow	Yellow	Yellow	Yellow	Blue	Blue	Blue	Blue
Brand colour	Zone 2 and 4	Blue	White	Green	Grey	Blue	White	Green	Grey

Total number of turns		6.5	6.5	6.5	6.5
Number of sprung turns		5.5	5.5	5.5	5.5
Rod diameter	∅ mm	13,69	13,85	13,69	13,85
Free length	mm	402	413	392	405
Brand colour	Zone 1 and 5	White	White	White	Green
Brand colour	zone 2 and 4	White	Green	Grey	Green

**Coil spring, rear**

Total number of turns		9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Number of sprung turns		8	8	8	8	8	8	8	8
Rod diameter	Ø mm	13,4	13,6	13,8	14,0	12,3	13,3	13,5	13,7
Free length	mm	321	321	322	317	333	325	325	326
Brand colour	Zone 1 and 5	Red	Red	Red	Red	Red	Red	Yellow	Yellow
Brand colour	zone 2 and 4	Red	Yellow	Blue	White	Green	Grey	Yellow	Blue

Total number of turns		9.5	9.5	9.5	9.5
Number of sprung turns		8	8	8	8
Rod diameter	Ø mm	13,5	13,7	12,2	12,7
Free length	mm	320	321	337	320
Brand colour	Zone 1 and 5	Yellow	Yellow	Yellow	Yellow
Brand colour	zone 2 and 4	White	Green	Grey	Blue

## Choice of spring (spare part) depending on model and engine size (M1995)

The following table describes which spring type should be used depending on the type of engine the car has and how the car is equipped. The colour indication in the following table indicates zone 1, 2 and also zone 5, 4 on the spring colour marking. When changing the spring it must have the same class designation (zone 3 should have the same colour).

Spring 1 (Green/Grey)	3800 N	810-842 kg
Spring 2 (Grey/Grey)	3970 N	843-874 kg
Spring 3 (Green/Green)	4163 N	875-906 kg
Spring 4 (Orange/blue)	4315 N	907-938 kg

### Description of abbreviation in the tables:

M5	=	Five gear manual gearbox.
A4	=	Four gear automatic gearbox.
ABAG2	=	Passenger-side air bag
AC	=	Air conditioning
ACC	=	Automatic climate control
AS	=	Audio system
EAS1	=	Electrically manoeuvred driver seat
EAS2	=	Electrically manoeuvred front seat
SR3	=	Electrically manoeuvred glass sun roof

### Engine 2.0i and 2.3i (2.3i not SE/US/CA)

	ABAG2	AC/ACC	AS	EAS1	EAS2	SR3	Spring 1	Spring 2	Spring 3	Spring 4
M5							x			
M5	x		x		x	x	x			
M5		x						x		
M5	x	x	x		x	x		x		
A4								x		
A4	x		x		x	x		x		
A4		x						x		
A4	x	x	x		x	x			x	

### Engine 2.0 LTT and 2.3i SE/US/CA

	ABAG2	AC/ACC	AS	EAS1	EAS2	SR3	Spring 1	Spring 2	Spring 3	Spring 4
M5							x			
M5	x		x	x		x	x			
M5	x		x		x	x		x		
M5		x						x		
M5	x	x	x		x	x		x		
A4								x		
A4	x		x		x	x		x		
A4		x							x	
A4	x	x	x		x	x			x	

## Engine 2.0 LTT and 2.3i SE/US/CA

	ABAG2	AC/ACC	AS	EAS1	EAS2	SR3	Spring 1	Spring 2	Spring 3	Spring 4
M5							X			
M5	X		X			X	X			
M5	X			X		X	X			
M5	X		X		X	X		X		
M5		X						X		
M5	X	X	X		X			X		
M5		X	X		X	X		X		
M5	X	X	X		X	X			X	
A4								X		
A4	X		X	X		X		X		
A4	X	X	X			X			X	
A4	X	X		X		X			X	
A4	X	X	X		X	X				X

## Engine V6 SE/US/CA)

	ABAG2	AC/ACC	AS	EAS1	EAS2	SR3	Spring 1	Spring 2	Spring 3	Spring 4
M5								X		
M5	X		X		X	X		X		
M5		X							X	
M5	X	X	X		X	X			X	
A4								X		
A4	X							X		
A4			X					X		
A4				X				X		
A4						X		X		
A4	X		X		X	X			X	
A4		X							X	
A4	X	X							X	
A4		X				X			X	
A4		X	X	X					X	
A4	X	X	X		X	X				X

**Engine V6 SE/US/CA**

	ABAG2	AC/ACC	AS	EAS1	EAS2	SR3	Spring 1	Spring 2	Spring 3	Spring 4
M5								X		
M5	X		X		X	X		X		
M5		X							X	
M5	X	X	X		X	X			X	
A4								X		
A4	X		X		X	X			X	
A4		X							X	
A4	X	X							X	
A4		X	X						X	
A4		X		X					X	
A4		X				X			X	
A4	X	X	X		X	X				X

**Wheels**

**Rim run out**

Pressed steel wheels	Radial	mm	1.0
Pressed steel wheels	Axial	mm	1.0
Aluminium rim	Radial	mm	0.5
Aluminium rim	Axial	mm	0.5

**Rear wheel alignment**

Toe-in (wheel setting)	mm	2.5 ± 1.5
Camber (wheel inclination)	(°)	-0.25 ± 0.25

## Recommended tyre pressure, cold tyre

SE, FI EU M1985-89  
AU, ME FE M1985-90

Tyre size	No. of persons	Speed km/h	Front		Rear	
			bars	(psi)	bars	(psi)
185/65 R15 87T	1-3	0-190	2.2	(32)	2.2	(32)
	4-5		2.6	(38)	2.6	(38)
185/65 R15 87H	1-3	0-210	2.1	(30)	2.1	(30)
	4-5		2.4	(35)	2.4	(35)
195/60 R15 86H	1-3	0-210	2.2	(32)	2.2	(32)
	4-5		2.6	(38)	2.6	(38)
195/60 VR15	1-3	0-210	2.2	(32)	2.2	(32)
	1-3	>210	2.6	(38)	2.6	(38)
	4-5		2.6	(38)	2.6	(38)
195/65 R15 91H/V	1-3	0-210	1.9	(28)	1.9	(28)
	1-3	>210	2.2	(32)	2.2	(32)
	4-5		2.2	(32)	2.2	(32)
205/55 VR15	1-3	0-210	2.1	(30)	2.1	(30)
	1-3	>210	2.5	(36)	2.5	(36)
	4-5		2.5	(36)	2.5	(36)
Winter tyres						
175/70 R15	1-3		2.3	(33)	2.3	(33)
	4-5		2.4	(35)	2.4	(35)
185/65 R15	1-3		2.2	(32)	2.2	(32)
	4-5		2.3	(33)	2.3	(33)
Spare tyre						
T 105/80 R16			4.2	(60)	4.2	(60)
T 115/70 R15/D15						
T 115/70 R15/D15						
175/70 R15 86T			2.6	(38)	2.6	(38)
Accessory tyre						
205/50 VR16	1-3	0-210	2.1	(30)	2.1	(30)
	1-3	>210	2.5	(36)	2.5	(36)
	4-5		2.5	(36)	2.5	(36)

DE M1985-89 -

Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
195/60 VR15	L1	2.2	(32)	2.2	(32)
	L2	2.4	(35)	2.4	(35)
	L3	2.8	(41)	2.8	(41)
205/55 VR15	L1	2.2	(32)	2.2	(32)
	L2	2.5	(36)	2.5	(36)
	L3	2.9	(42)	2.9	(42)
205/50 VR16	L1	2.3	(33)	2.3	(33)
	L2	2.6	(38)	2.6	(38)
	L3	3.0	(43)	3.0	(43)

SE, FI, EU GB M1990

Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
185/65 R15 87H	L1	2.1	(30)	2.1	(30)
	L2	2.4	(35)	2.4	(35)
	L4	2.6	(38)	2.6	(38)
195/60 VR15	L1	2.3	(33)	2.3	(33)
195/60 R15 87V	L2	2.5	(36)	2.5	(36)
195/60 R15 88V	L3	2.9	(42)	2.9	(42)
195/65 R15 91V	L1	1.9	(28)	1.9	(28)
	L2	2.2	(32)	2.2	(32)
	L3	2.6	(38)	2.6	(38)
195/65 R15 91H	L1	1.9	(28)	1.9	(28)
	L2	2.2	(32)	2.2	(32)
	L4	2.3	(33)	2.3	(33)
205/55 VR15	L1	2.3	(33)	2.3	(33)
205/55 R15 87V	L2	2.6	(38)	2.6	(38)
205/55 R15 88V	L3	3.0	(43)	3.0	(43)
205/50 ZR16	L1	2.4	(35)	2.4	(35)
	L2	2.5	(36)	2.5	(36)
	L3	2.9	(42)	2.9	(42)
<b>Winter tyres</b>					
185/65 R15 87T M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L5	2.6	(38)	2.6	(38)
195/65 R15 91T M+S	L1	2.1	(30)	2.1	(30)
	L2	2.3	(33)	2.3	(33)
	L5	2.3	(33)	2.3	(33)
205/50 R16 86H M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L4	2.9	(42)	2.9	(42)
<b>Spare tyre</b>					
T115/70 R16		4.2	(60)	4.2	(60)

L1	Max. 3 persons	0-160 km/h	All tyres
L2	Max. load	0-160 km/h	All tyres
L3	Max. load	160 km/h-max. speed	V, Z-tyre
L4	Max. load	160-210 km/h	H-tyre
L5	Max. load	160-190 km/h	T-tyre

Load conditions 3-5 apply in lands with free speed limits for long distances at maximum speed with maximum load. For each reduction in the number of passengers the air pressure is lowered by 0.1 bars.

Maximum load = 5 persons and baggage.

# 027-8 Technical data

## All markets M1991

Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
185/65 R15 87H	L1	2.1	(30)	2.1	(30)
	L2	2.4	(35)	2.4	(35)
	L4 -	2.6	(38)	2.6	(38)
195/60 VR15	L1	2.3	(33)	2.3	(33)
195/60 R15 87V	L2	2.5	(36)	2.5	(36)
195/60 R15 88V	L3	2.9	(42)	2.9	(42)
195/65 R15 91V	L1	1.9	(28)	1.9	(28)
	L2	2.2	(32)	2.2	(32)
	L3	2.7	(39)	2.7	(39)
195/65 R15 91H	L1	1.9	(28)	1.9	(28)
	L2	2.2	(32)	2.2	(32)
	L4	2.3	(33)	2.3	(33)
205/55 VR15		2.3	(33)	2.3	(33)
(not applicable T-16, EU)	L1	2.6	(38)	2.6	(38)
205/55 R15 87V		3.0	(43)	3.0	(43)
(not applicable T-16, EU)	L2				
205/55 R15 88V					
(not applicable T-16, EU)	L3				
205/50 ZR16	L1	2.4	(35)	2.4	(35)
	L2	2.5	(36)	2.5	(36)
	L3	2.9	(42)	2.9	(42)
<b>Winter tyres</b>					
185/65 R15 87T M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L5	2.6	(38)	2.6	(38)
185/65 R15 91T M+S	L1	2.1	(30)	2.1	(30)
	L2	2.3	(33)	2.3	(33)
	L5	2.3	(33)	2.3	(33)
205/50 R16 86H M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L4	2.9	(42)	2.9	(42)
<b>Spare tyre</b>					
T115/70 R16		4.2	(60)	4.2	(60)
175/70 R15 86T (cars with Traction Control System)		2.6	(38)	2.6	(38)

L1	Max. 3 persons	0-160 km/h	All tyres
L2	Max. load	0-160 km/h	All tyres
L3	Max. load	160 km/h-max. speed	V, Z-tyre
L4	Max. load	160-210 km/h	H-tyre
L5	Max. load	160-190 km/h	T-tyre

Load conditions 3-5 apply in lands with free speed limits for long distances at maximum speed with maximum load. For each reduction in the number of passengers the air pressure is lowered by 0.1 bars.

Maximum load = 5 persons and baggage.



SE, EU, GB, ME, PA, LA M1992-95

Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
195/65 TR15	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L5	2.3	(33)	2.3	(33)
195/65 HR15	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L4	2.4	(35)	2.4	(35)
195/65 VR15	L1	2.1	(30)	2.1	(30)
205/60 VR15	L2	2.1	(30)	2.1	(30)
	L3	2.6	(38)	2.6	(38)
205/60 ZR15	L1	2.2	(32)	2.2	(32)
	L2	2.2	(32)	2.2	(32)
	L3	2.7	(39)	2.7	(39)
205/50 ZR16	L1	2.4	(35)	2.4	(35)
	L2	2.6	(38)	2.6	(38)
	L3	3.0	(43)	3.0	(43)
205/55 ZR16	L1	2.4	(35)	2.4	(35)
205/55 WR16	L2	2.4	(35)	2.4	(35)
	L3	2.8	(41)	2.8	(41)
Winter tyres					
185/65 R15 87T M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L5	2.6	(38)	2.6	(38)
185/65 R15 91T M+S	L1	2.1	(30)	2.1	(30)
	L2	2.3	(33)	2.3	(33)
	L5	2.3	(33)	2.3	(33)
205/50 R16 86H M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L4	2.9	(42)	2.9	(42)
Spare tyre					
T115/70 R16		4.2	(60)	4.2	(60)
175/70 R15 86T (cars with Traction Control System)		2.6	(38)	2.6	(38)

L1	Max. 3 persons	0-160 km/h	All tyres
L2	Max. load	0-160 km/h	All tyres
L3	Max. load	160 km/h-max. speed	V, Z-tyre
L4	Max. load	160-210 km/h	H-tyre
L5	Max. load	160-190 km/h	T-tyre

Load conditions 3-5 apply in lands with free speed limits for long distances at maximum speed with maximum load. For each reduction in the number of passengers the air pressure is lowered by 0.1 bars.

Maximum load = 5 persons and baggage.

## AU M1992-95

Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
195/65 R15 91T	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L5	2.3	(33)	2.3	(33)
195/65 R15 91H	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L4	2.4	(35)	2.4	(35)
195/65 R15 91V 205/60 R15 91V	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L3	2.6	(38)	2.6	(38)
205/60 R15 90Z	L1	2.2	(32)	2.2	(32)
	L2	2.2	(32)	2.2	(32)
	L3	2.7	(39)	2.7	(39)
205/50 R15 86 Z	L1	2.4	(35)	2.4	(35)
	L2	2.6	(38)	2.6	(38)
	L3	3.0	(43)	3.0	(43)
205/55 R16 88Z 205/55 R16 89W	L1	2.4	(35)	2.4	(35)
	L2	2.4	(35)	2.4	(35)
	L3	2.8	(41)	2.8	(41)
Winter tyres					
185/65 R15 87T M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L5	2.6	(38)	2.6	(38)
185/65 R15 91T M+S	L1	2.1	(30)	2.1	(30)
	L2	2.3	(33)	2.3	(33)
	L5	2.3	(33)	2.3	(33)
205/50 R16 86H M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L4	2.9	(42)	2.9	(42)
Spare tyre					
T115/70 R16		4.2	(60)	4.2	(60)
175/70 R15 86T (cars with Traction Control System)		2.6	(38)	2.6	(38)

L1	Max. 3 persons	0-160 km/h	All tyres
L2	Max. load	0-160 km/h	All tyres
L3	Max. load	160 km/h-max. speed	V, Z-tyre
L4	Max. load	160-210 km/h	H-tyre
L5	Max. load	160-190 km/h	T-tyre

Load conditions 3-5 apply in lands with free speed limits for long distances at maximum speed with maximum load. For each reduction in the number of passengers the air pressure is lowered by 0.1 bars.

Maximum load = 5 persons and baggage.

US, CA M1992-95

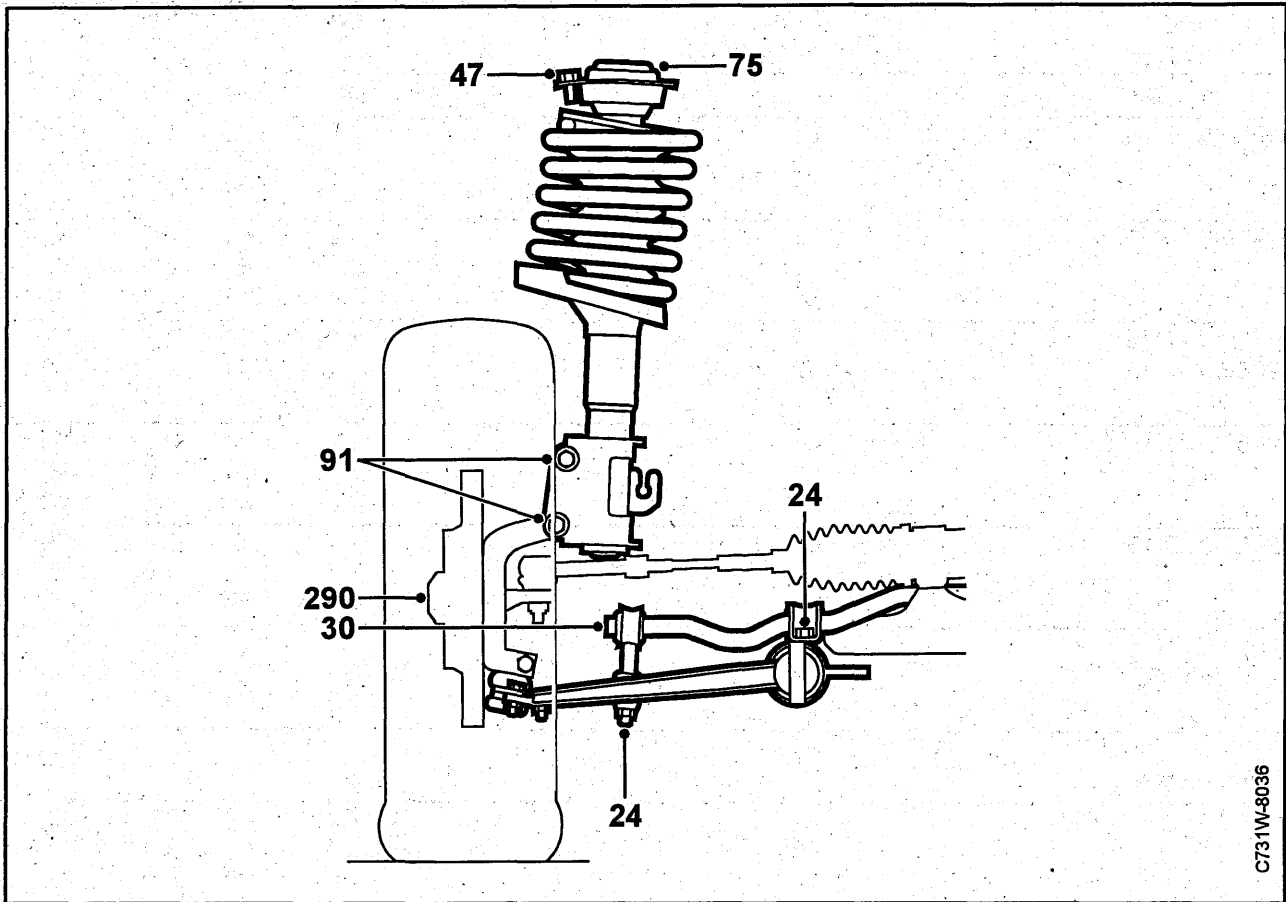
Tyre size	Load conditions	Front		Rear	
		bars	(psi)	bars	(psi)
195/65 TR15	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L5	2.3	(33)	2.3	(33)
195/65 HR15	L1	2.1	(30)	2.1	(30)
	L2	2.1	(30)	2.1	(30)
	L4	2.4	(35)	2.4	(35)
195/65 VR15	L1	2.1	(30)	2.1	(30)
205/60 VR15	L2	2.1	(30)	2.1	(30)
	L3	2.6	(38)	2.6	(38)
205/60 ZR15	L1	2.2	(32)	2.2	(32)
	L2	2.2	(32)	2.2	(32)
	L3	2.7	(39)	2.7	(39)
205/50 ZR15	L1	2.4	(35)	2.4	(35)
	L2	2.6	(38)	2.6	(38)
	L3	3.0	(43)	3.0	(43)
205/55 ZR16	L1	2.4	(35)	2.4	(35)
205/55 WR16	L2	2.4	(35)	2.4	(35)
	L3	2.8	(41)	2.8	(41)
Winter tyres					
185/65 R15 87T M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L5	2.6	(38)	2.6	(38)
185/65 R15 91T M+S	L1	2.1	(30)	2.1	(30)
	L2	2.3	(33)	2.3	(33)
	L5	2.3	(33)	2.3	(33)
205/50 R16 86H M+S	L1	2.3	(33)	2.3	(33)
	L2	2.4	(35)	2.4	(35)
	L4	2.9	(42)	2.9	(42)
Spare tyre					
T115/70 R16		4.2	(60)	4.2	(60)
175/70 R15 86T (cars with Traction Control System)		2.6	(38)	2.6	(38)

L1	Max. 3 persons	0-160 km/h	All tyres
L2	Max. load	0-160 km/h	All tyres
L3	Max. load	160 km/h-max. speed	V, Z-tyre
L4	Max. load	160-210 km/h	H-tyre
L5	Max. load	160-190 km/h	T-tyre

Load conditions 3-5 apply in lands with free speed limits for long distances at maximum speed with maximum load. For each reduction in the number of passengers the air pressure is lowered by 0.1 bars.

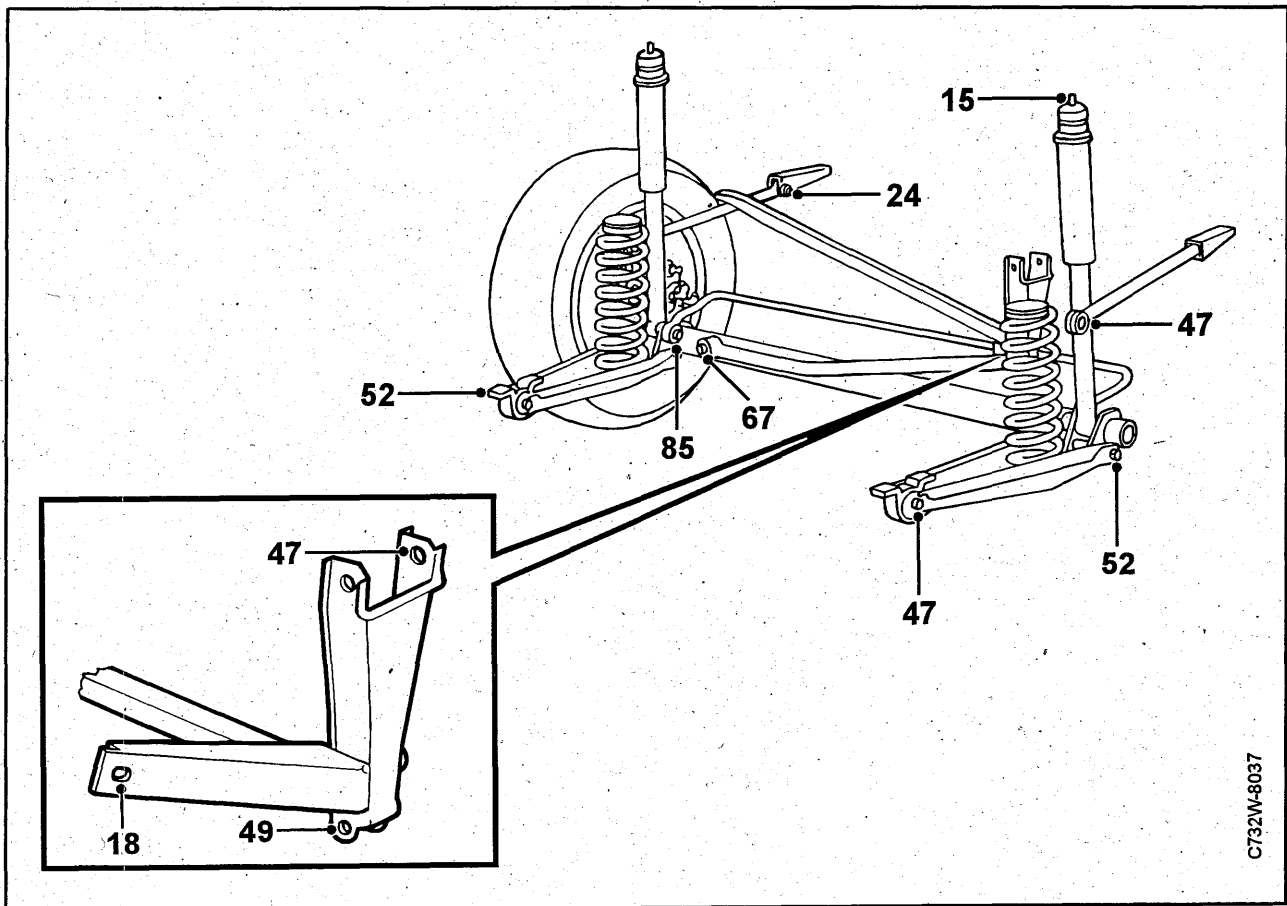
Maximum load = 5 persons and baggage.

## Tightening torque

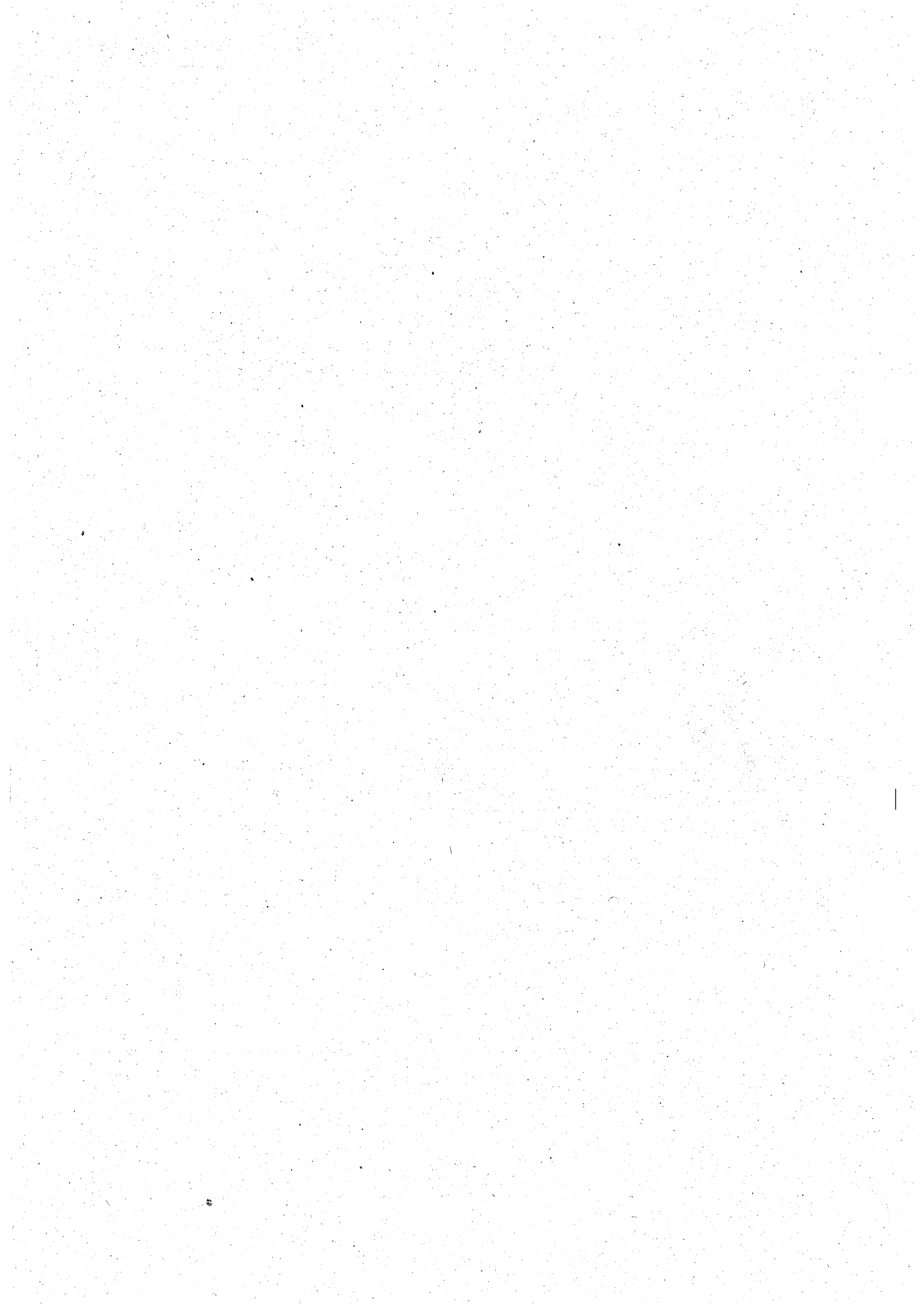


Wheel studs	Nm (lbf ft)	120 (89)
Hub centre-nut, front and rear	Nm (lbf ft)	290 (214)
The front hub retaining nut	Nm (lbf ft)	57 (42)
The upper securing bolt of the MacPherson strut	Nm (lbf ft)	47 (35)
The lower securing bolt of the MacPherson strut	Nm (lbf ft)	91 (67)
The nut to the upper bearing of the MacPherson strut	Nm (lbf ft)	75 (55)
Front anti-roll bar, the upper nut to the link arm	Nm (lbf ft)	30 (22)
Front anti-roll bar, U-clamp bolts	Nm (lbf ft)	24 (18)
Front anti-roll bar, Link arm lower nut	Nm (lbf ft)	24 (18)
Steering gear securing bolts	Nm (lbf ft)	70 (52)

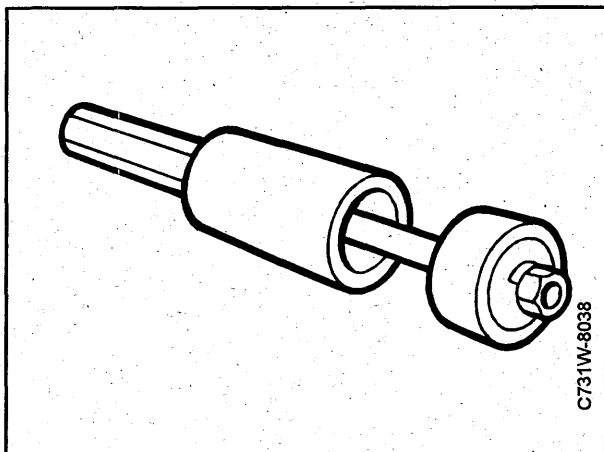
## Tightening torque (cont.)



The rear link arms rear mounting	Nm (lbf ft)	52 (38)
The rear link arm mounting to the body	Nm (lbf ft)	52 (38)
The rear front bush of the link arm	Nm (lbf ft)	47 (35)
The forward mounting of the torque arm	Nm (lbf ft)	47 (35)
The rear mounting of the torque arm	Nm (lbf ft)	24 (18)
Securing bolt for the damper and the anti-roll bar, rear	Nm (lbf ft)	85 (63)
Panhard rod mounting to the rear axle	Nm (lbf ft)	67 (50)
Panhard rod securing bolt to the bracket	Nm (lbf ft)	49 (36)
Panhard rod bracket to the body	Nm (lbf ft)	47 (35)
Support for the Panhard rod bracket	Nm (lbf ft)	18 (13)
The brake units securing bolts	Nm (lbf ft)	90 (66)
Rear damper upper mounting	Nm (lbf ft)	15 (11)

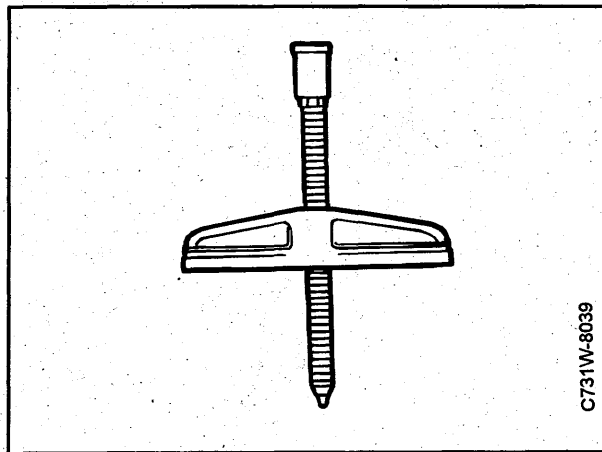


# Special tools



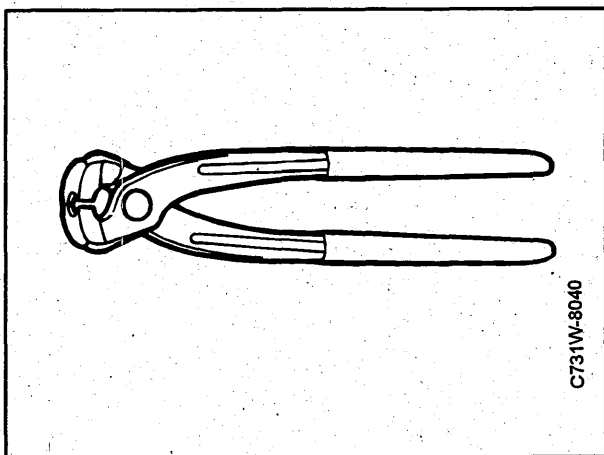
C731W-8038

89 96 506 Tool for removal/fitting rubber bushes



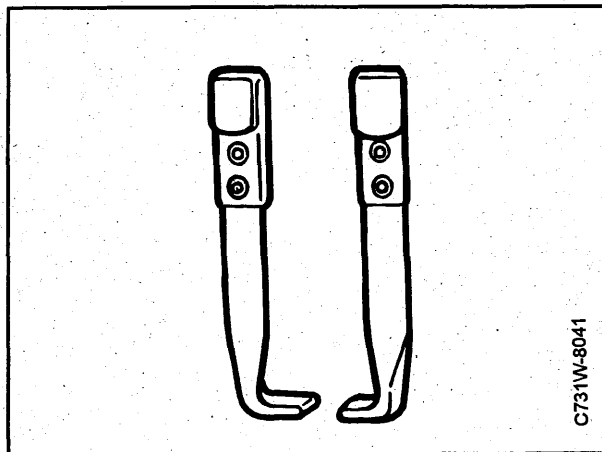
C731W-8039

87 91 287 Puller



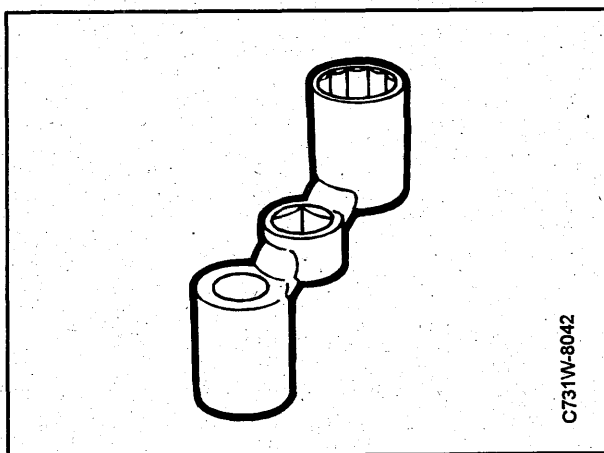
C731W-8040

89 96 621 Knipex (gaiter clip) pliers



C731W-8041

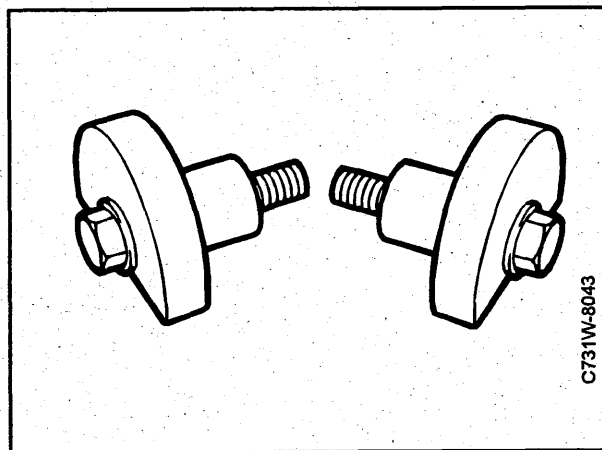
87 91 303 Puller arms



C731W-8042

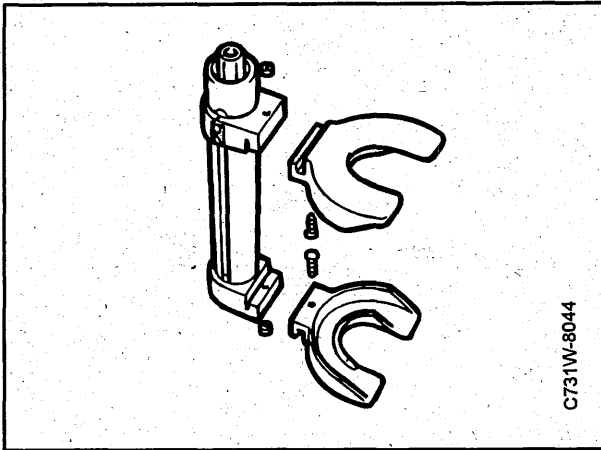
89 96 498 Special socket for MacPherson strut centre nut until and including M1987

89 96 613 From and including M1988



C731W-8043

87 91 154 Adapters for puller



C731W-8044

88 18 791 Tool for front coil spring

88 18 817 Holder



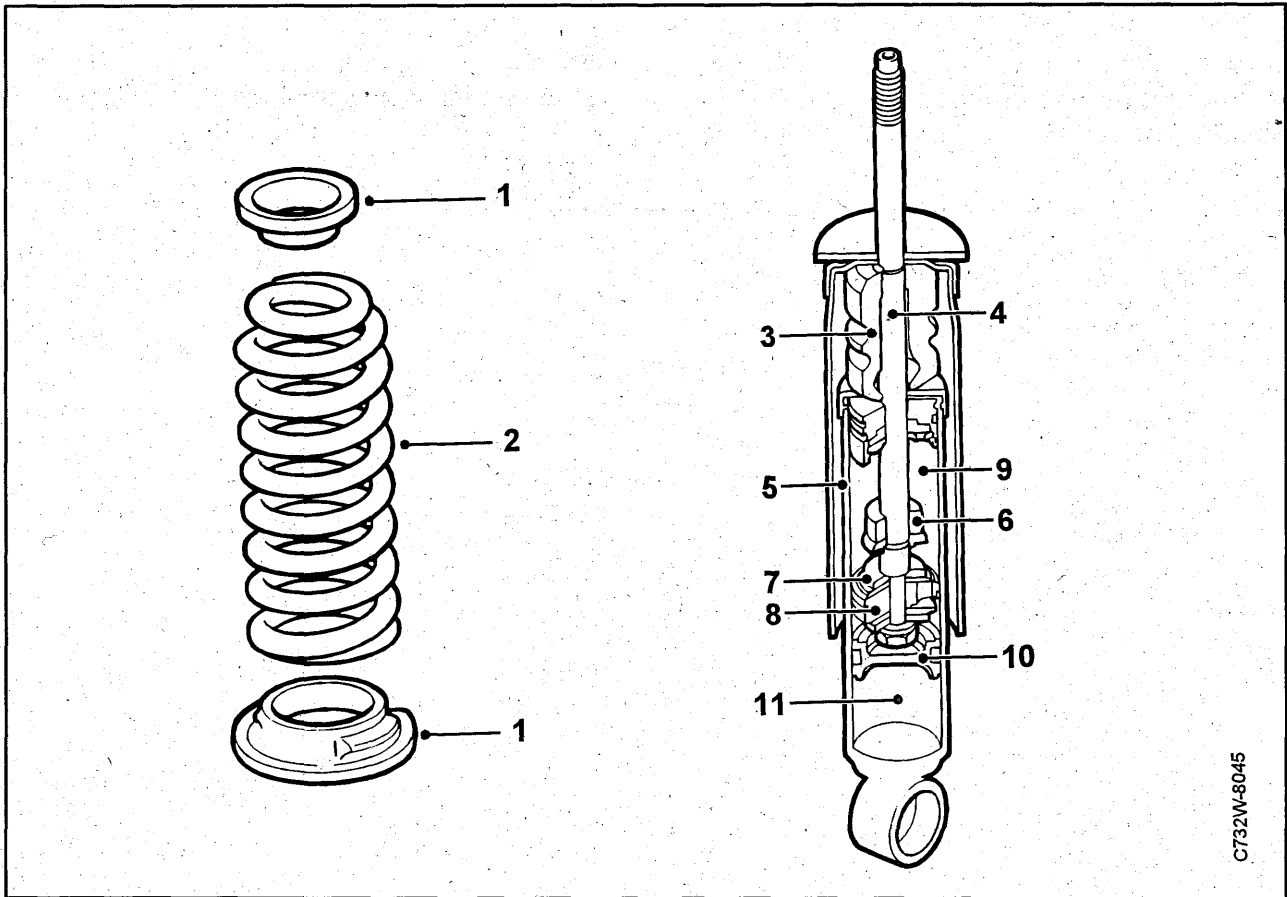
## Technical description

Suspension ..... 700-2  
Car height measurement ..... 700-5  
Rear suspension ..... 700-7

Wheel ..... 700-9  
Drive shaft and universal joint .... 700-12

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## Suspension



- 1 Spring support
- 2 Spring
- 3 Compression stop
- 4 Piston rod
- 5 Damper
- 6 Extension stop

- 7 Valve
- 8 Damper piston
- 9 Fluid
- 10 Plunger
- 11 Gas

C732W-8045

### Suspension

Both front and rear suspensions have helical compression springs.

The springs upper coils are tightly wound, providing a longer spring travel in a limited space.

The springs are fitted with rubber spring cups at both ends that are held in place by the tension of the partially compressed spring.

The maximum extension stop for the spring is incorporated into the damper.

Spring compression is limited by a specially designed stop on the damper piston rod, that provides smooth oscillation damping for the spring, limiting stresses on the attachment points to a minimum.

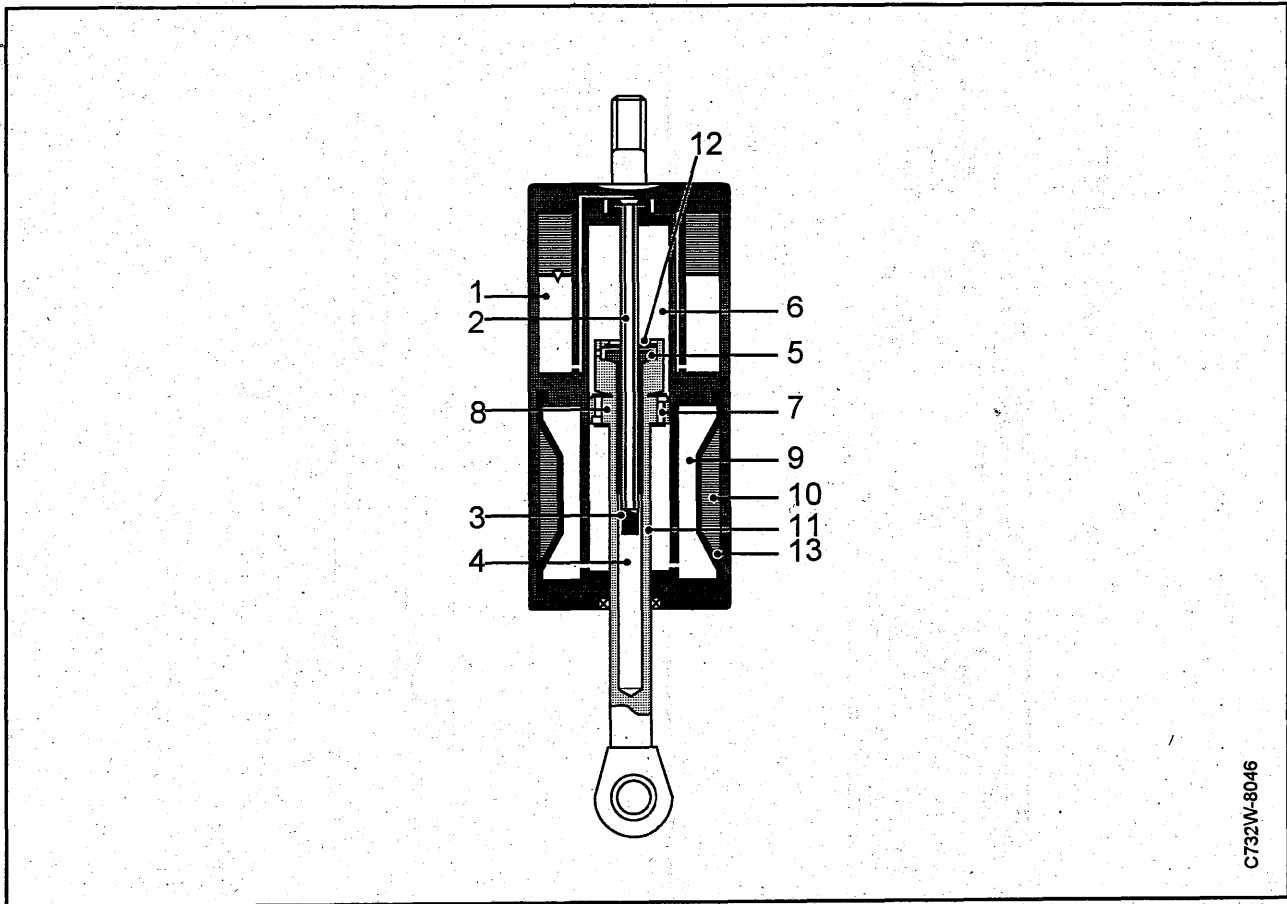
The 9000 Aero model is equipped with shorter, harder springs, that lower the suspension, thus enhancing the driving performance of the vehicle.

### Rear dampers

The rear dampers are of the single-tube, gas-filled type with a double-action.

The gas pressure maintains a constant pressure on the damper fluid. This reduces the foaming tendency of the fluid and the formation of air bubbles that can result in noisy damper operation.

## Suspension system (cont.)



### Dampers with automatic level control from and including M1987-93.

Dampers with automatic level control were a factory fitted optional accessory, from and including M1987-93, for all model variants excluding cars with the sports chassis or headlight beam-length adjustment.

The rear dampers have been replaced with a Boge Nivomat damper. The rear chassis springs have been replaced with new dampers that are softer and longer than the originals.

The dampers are self-energising, in that they pump the pressure while the car travels, by using the energy contained in the spring movements. The pressure is proportional to the load on the suspension allowing the body to remain level even when the car is heavily laden.

The damper comprises of a pump rod, a piston and a piston rod, a pump chamber, and an inner cylinder surrounded by a circular chamber. The piston is equipped with damping valves that determine the performance of the damper.

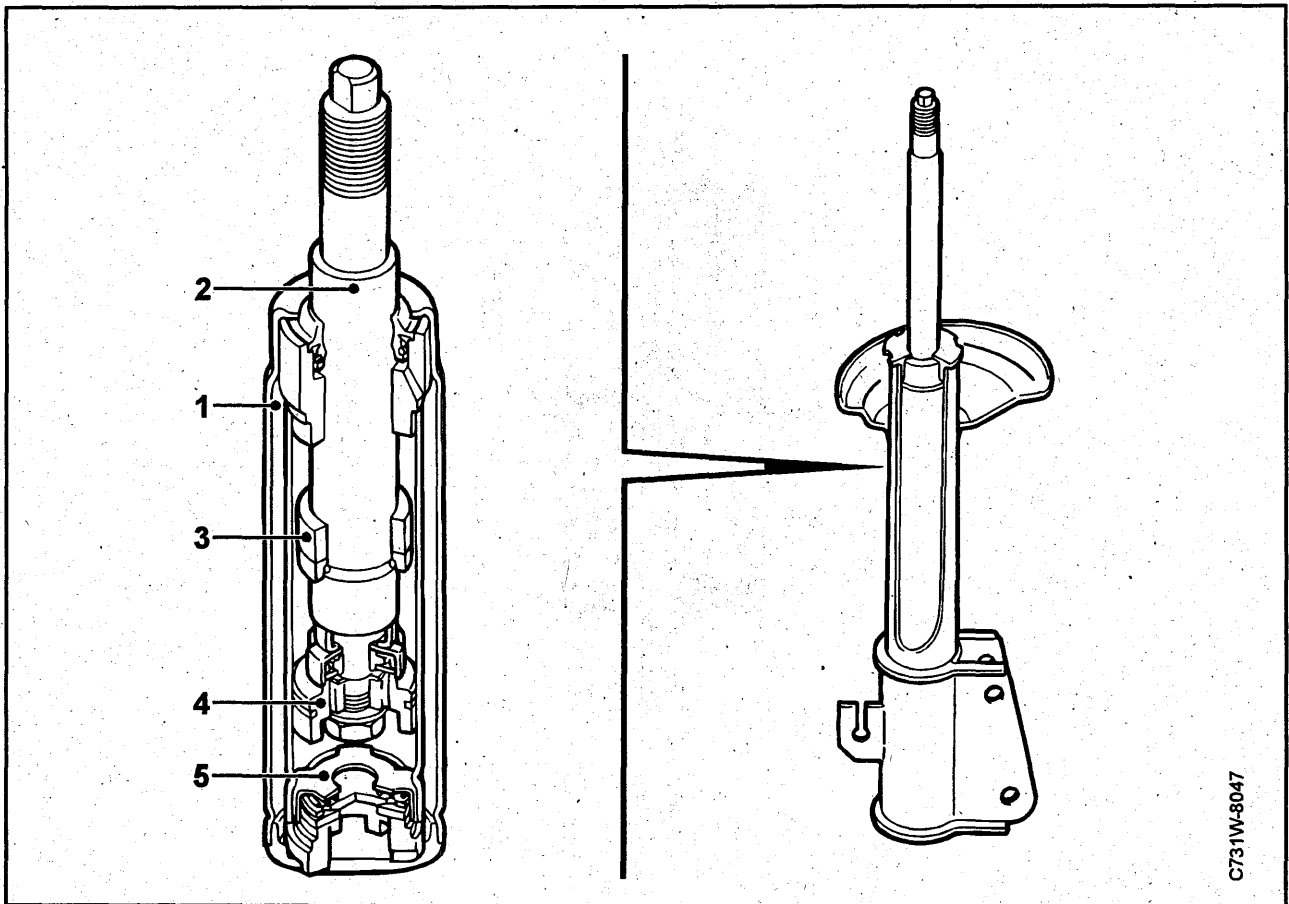
The circular chamber is divided into a low pressure chamber and a high pressure chamber. Both chambers contain pressurised fluid. This pressure is produced by both chambers being filled partly with nitrogen gas. In the low-pressure chamber, the gas acts directly on the fluid, whereas in the high-pressure chamber the gas and fluid are separated by a rubber diaphragm.

As the damper is extended, fluid is drawn from the low pressure chamber (1) via the pump rod (2) and intake valve (3) into the pump chamber (4). When the damper is retracted, the liquid in the pump chamber is put under pressure, and the intake valve closes. The outlet valve (5) opens instead and fluid flows through the inner cylinder (6) and on to the high pressure chamber (9), compressing the gas (10).

The increased pressure acts on the piston, and as the top side of the piston has a greater area than the underside, the piston rod (11) is forced up the bore.

When driving the pumping action occurs repeatedly until the equalisation port (12) in the pump rod is opened. Fluid can now flow freely through this port, from this pressure chamber to the high pressure chamber to the low pressure chamber until the pressure in both chambers is the same.

## Suspension system (cont.)



### Rear MacPherson strut-damper part

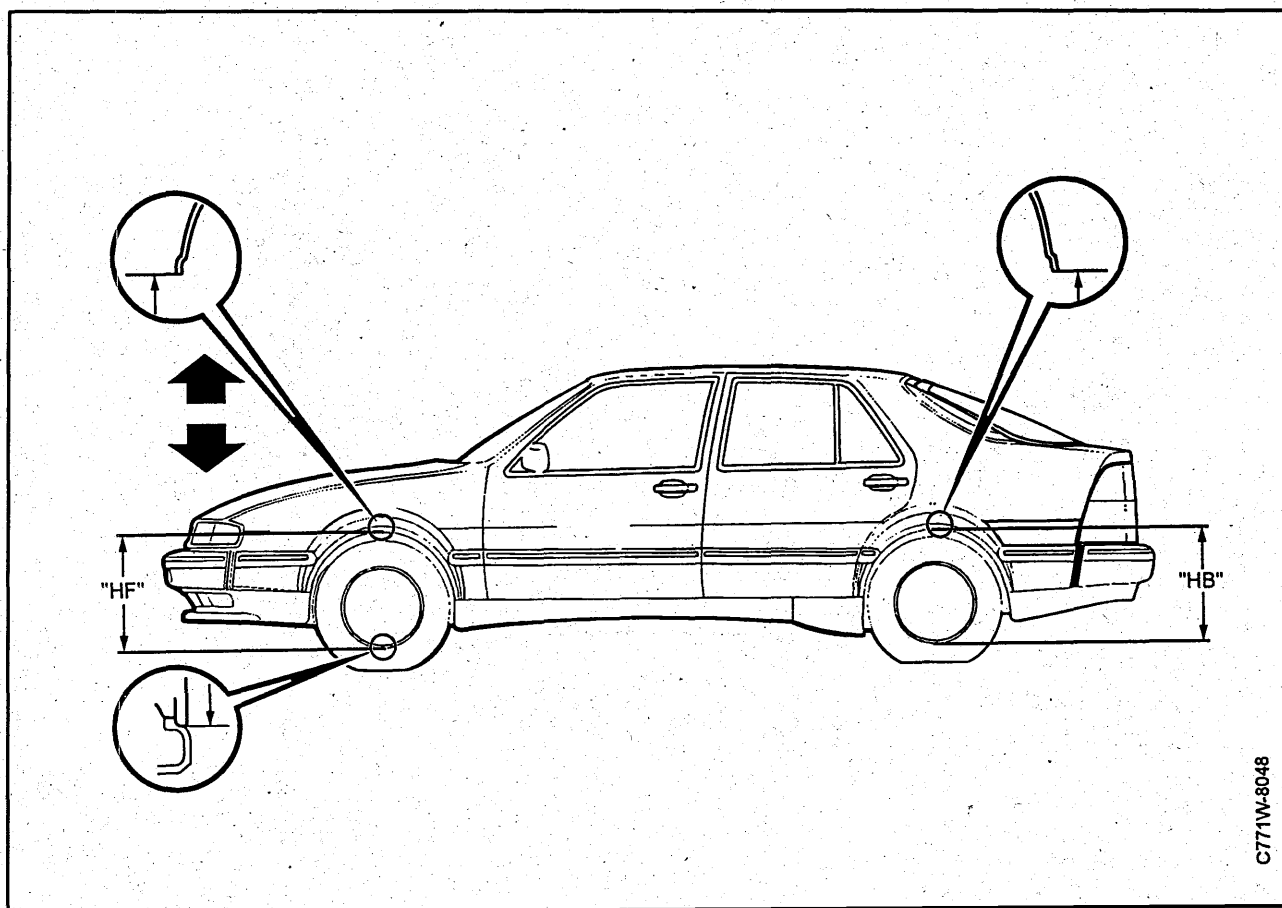
The damper incorporated into the in the McPherson strut is of the gas-filled, twin-tube type. The space between the tubes serves as an expansion chamber.

The damper is an integral part of the MacPherson strut and can not be changed separately.

The piston rod is well protected against dirt and moisture by a rubber gaiter, to ensure a long service life. The bottom of the gaiter fits over the strut tube and the top is held in place by the spring.

The over part is clamped in place by the spring.

## Car height measurement

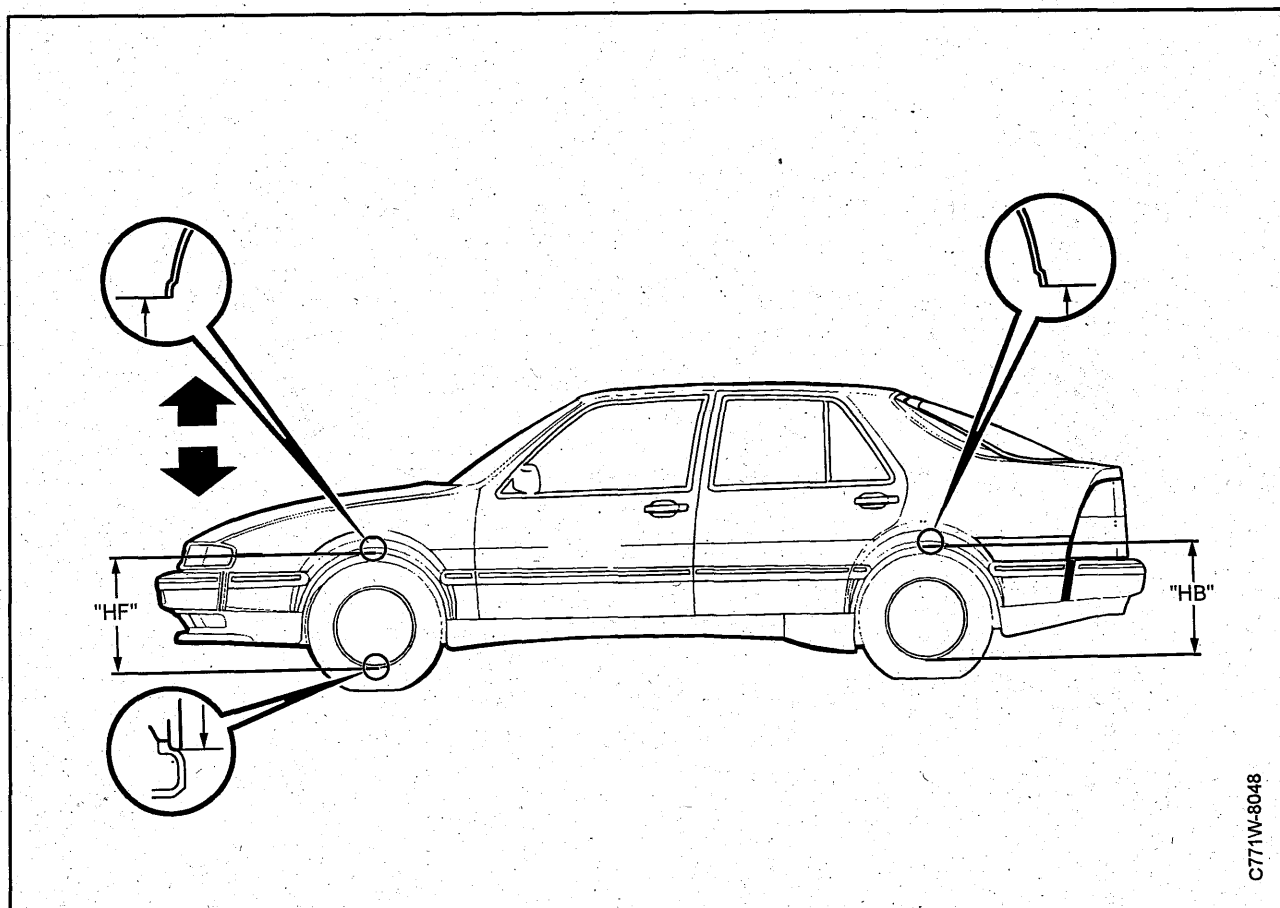


The choice of chassis spring is determined by the car height measurement together with the axle weight.

When taking height measurements the following is assumed.

- The car should have a full tank of fuel and a full windscreen washer fluid level (normal driving weight).
- The car should not have no load apart from its standard equipment. Standard equipment is a spare wheel, tool kit and warning triangle.
- Measure the dimensions "FR" (front suspension) and "RR" (rear suspension) and calculate an average between the two.

## Car height measurement (cont.)



C771W-8048

### The measurement is carried out as follows:

- 1 Roll the car forwards and backwards approx. 1 metre to reset the tension in the rubber bushes and springs.
- 2 Depress the front and release it.
- 3 Measure the height and record the result.
- 4 Roll the car forwards and backwards approx. 1 metre to reset the tension in the rubber bushes and springs.
- 5 Pull up the front and release it.
- 6 Measure the height and record the result.
- 7 Calculate an average of the two measurements.

### Important

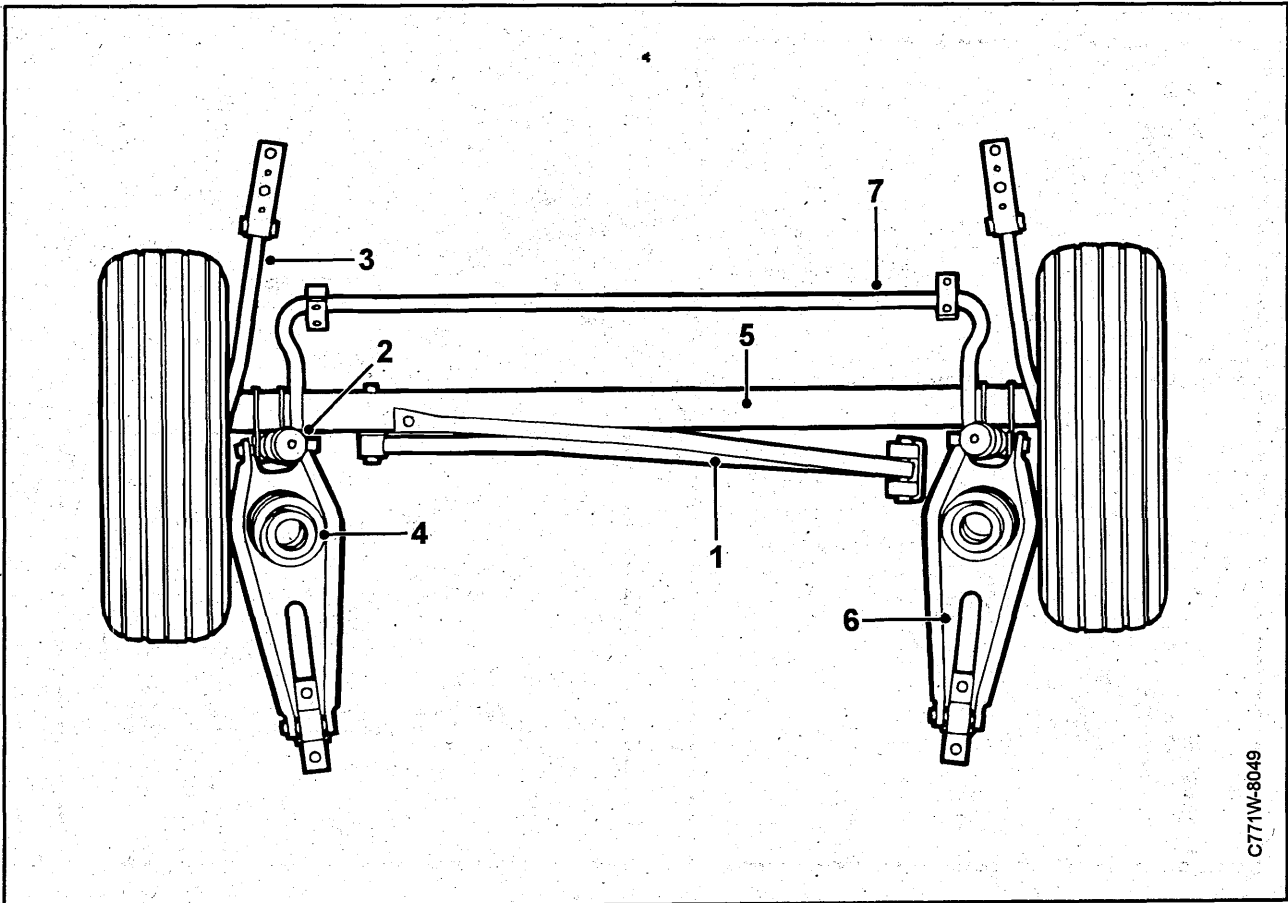
If the car is equipped with a tow bar "RR" is decreased by 6 mm.

The following table shows height measurements for model variants.

The table permits a tolerance of  $\pm 10$  mm.

		FR	RR
Standard chassis CD (-M1992)	mm	592	577
Sports chassis (-M1992)	mm	572	572
Standard chassis (M1992-95)	mm	597	578
Standard chassis CS (M1992-95)	mm	606	578
Sports chassis (M1992-95)	mm	603	590
Sports chassis CS (M1992-95)	mm	612	590
Standard chassis CS (M1995-)	mm	595	577
Sports chassis (M1995-)	mm	596	584

## Rear suspension



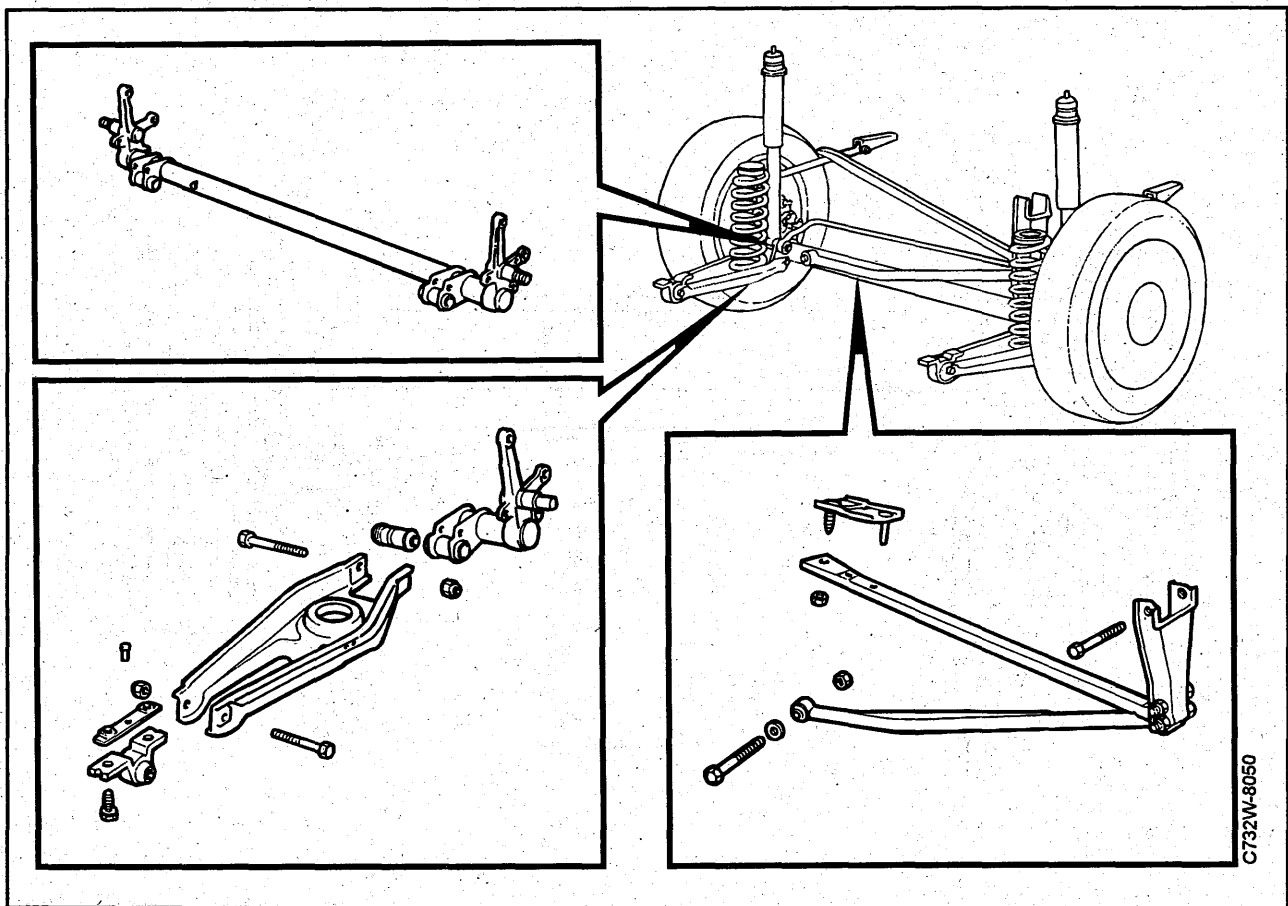
C771W-8049

- 1 Panhard rod
- 2 Damper
- 3 Torque arm
- 4 Spring
- 5 Rear-axle tube
- 6 Spring link
- 7 Anti-roll bar

The rear wheel suspension consists of a rigid rear axle, suspended between two spring links. Two torque arms take up the torsion forces and a Panhard rod limits the lateral movement of the axle.

9000 Aero has a front anti-roll bar with a 19 mm diameter, the rear has a 18 mm diameter for the CD and a 19 mm diameter for the CS.

## Rear suspension (cont.)



### Rear axle

The back axle consists of a tube with welded mountings for the spring links and hubs.

Due to the fact that the car has a front wheel drive, a light and simple rear axle construction is possible without springs or dampers. Variations in the track caused by movement of the suspension are also eliminated by the rigid design.

### Spring link

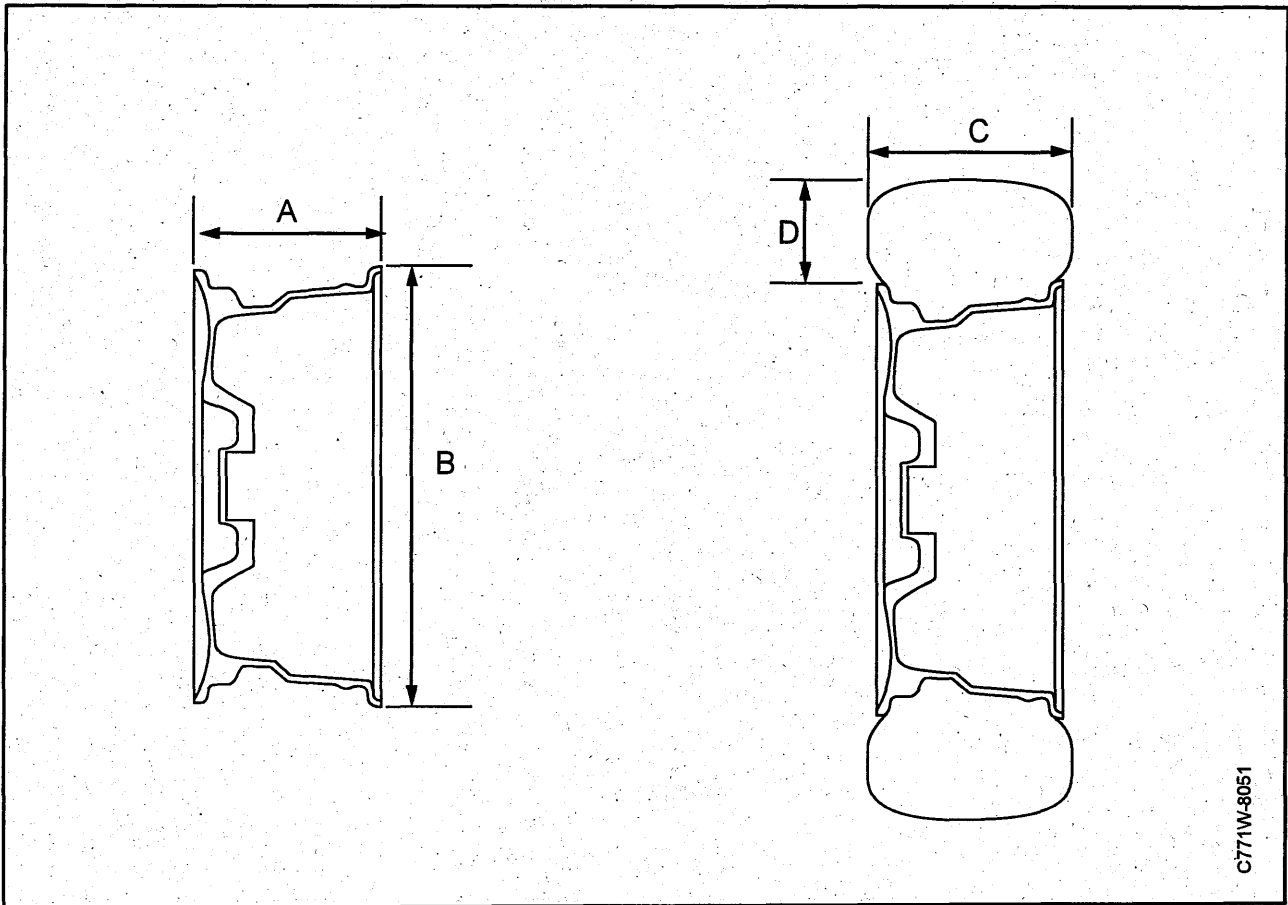
The spring links are rubber lined at both ends and zinc plated.

### Panhard rod

The Panhard rod is position low in a descending bracket. The low position provides very little side movement when driving.



## Wheels



C771W-8051

### Rims

Saab 9000 is equipped with wheel rims that are 6 inches wide (9000 Aero 6 1/2 inches).

The wheel rims are directly centre to the hub. The wheel studs are also tapered to ensure the wheel is correctly located.

The wheel designation for a six inch wheel is: 6J 15 H2 ET33 meaning:

- 6 = Rim width in inches (A)
- 15 = Rim diameter in inches (B)
- H2 = Rim type
- ET33 = 33 mm offset

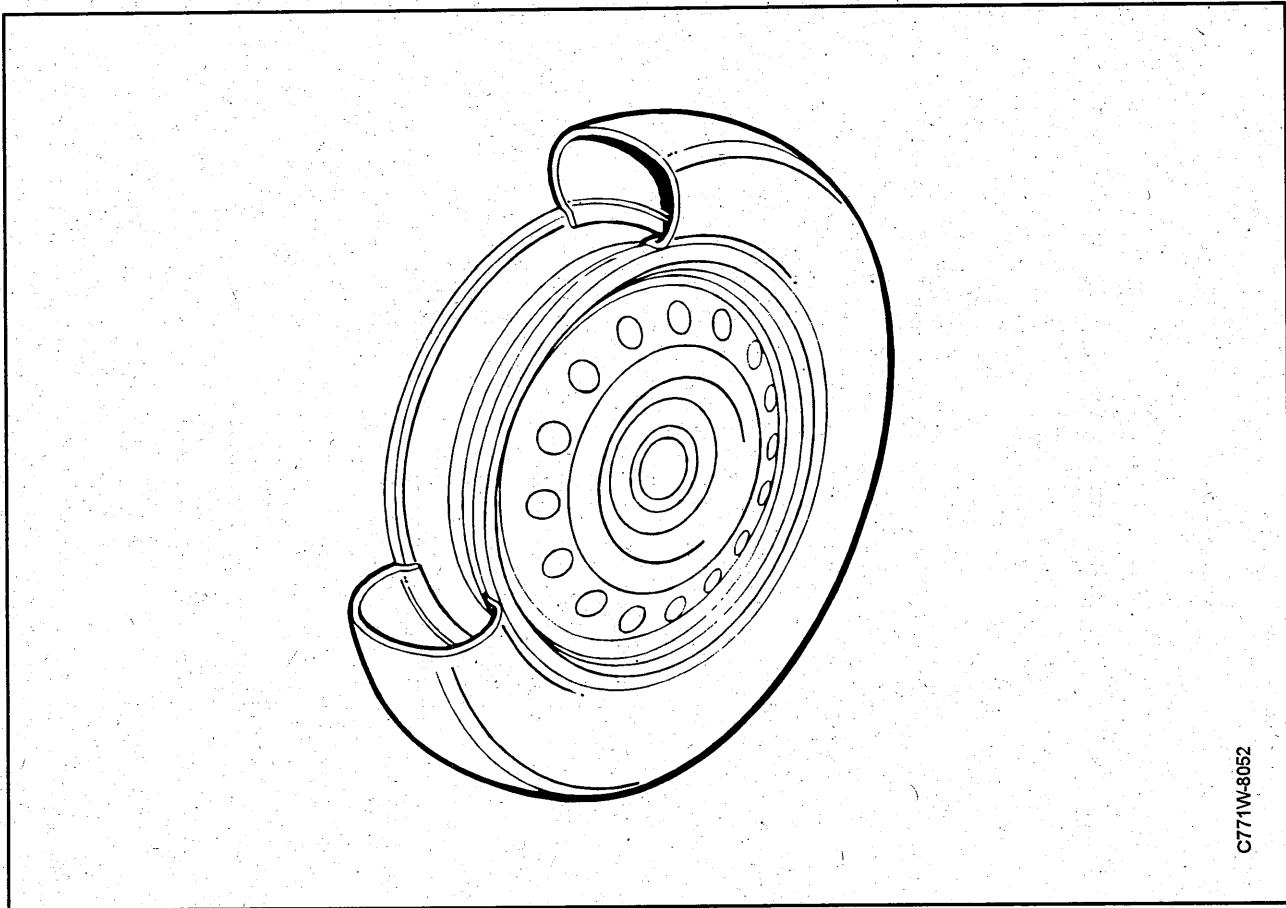
### Tyre

The tyre is of a low profile type.

For example, a tyre with designation 195/65 R 15 91 V means:

- 195 = Tyre width in mm (C)
- 65 = Relationship profile between the tyre height and width as a percentage (D)
- R = Radial
- 15 = Tyres inner diameter in inches
- 91 = Loading code
- V = Speed code

## Wheels (cont.)



C771W-8052

### Spare wheel

#### M1985-87:

The spare wheel has a 4 inch wide steel rim.

The tyre is diagonal type and has designation T115/70 D15.

The tyre for GB is radial type and has designation T115/70 R15.

The spare wheel for ME (Saudi-Arabia) has rim 5 1/2 x 15 and tyre 175/70 R15 86T.

#### M1988-89:

9000 i16: Rim - 4J H1 x 15. Tyre - T115/70 D15 (GB and AU: T115/70 R15 90M)

9000 T16: Rim - 3.50B x 16. Tyre - T105/80 R16 86M or T115/70 R16 92M

The spare wheel for ME (Saudi Arabia) has rim 5 1/2 x 15 and tyre - 175/70 R15 86T.

#### M1990-:

Rim - 3.50B x 16

Tyre - T115/70 R15 86T

Spare wheel for ME (Saudi-Arabia) has rim - 5 1/2 15 and tyre - 175/70 R15 86T.

The spare wheel for cars with TCS (Traction Control System) have rim - 5 1/2 15 and tyre - 175/70 R15 86T.

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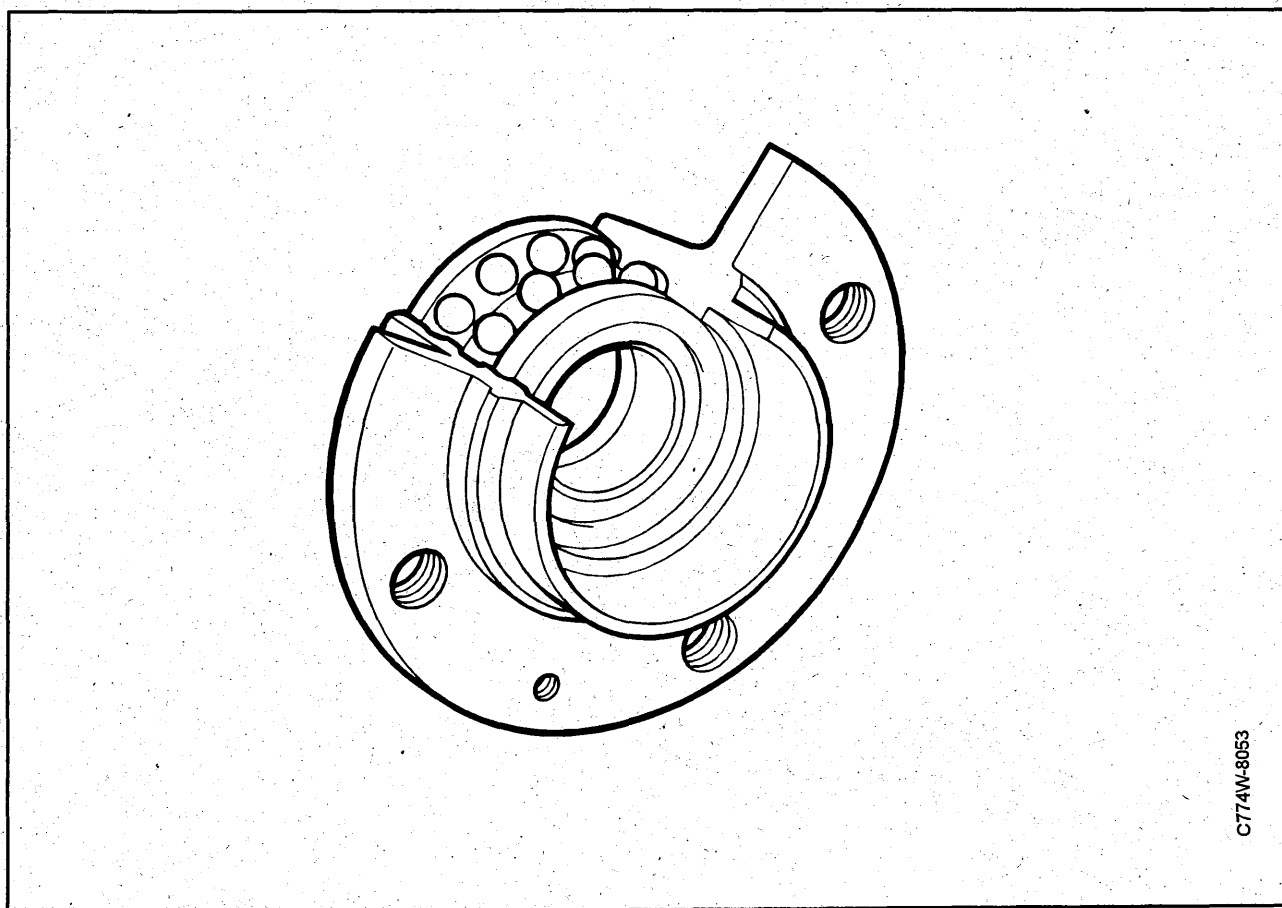
#### Important

This only applies to M1991.

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In all cases this spare wheel is intended only for temporary use at a maximum speed of 80 km/h.

## Wheels (cont.)



CT74W-8053

### Wheel fixings, M1988-

From and including M1988 the wheel studs tapered surface has increased and their surface treatment improved.

The tapered surfaces of the rim fastening holes have increased (applies only to aluminium rims).

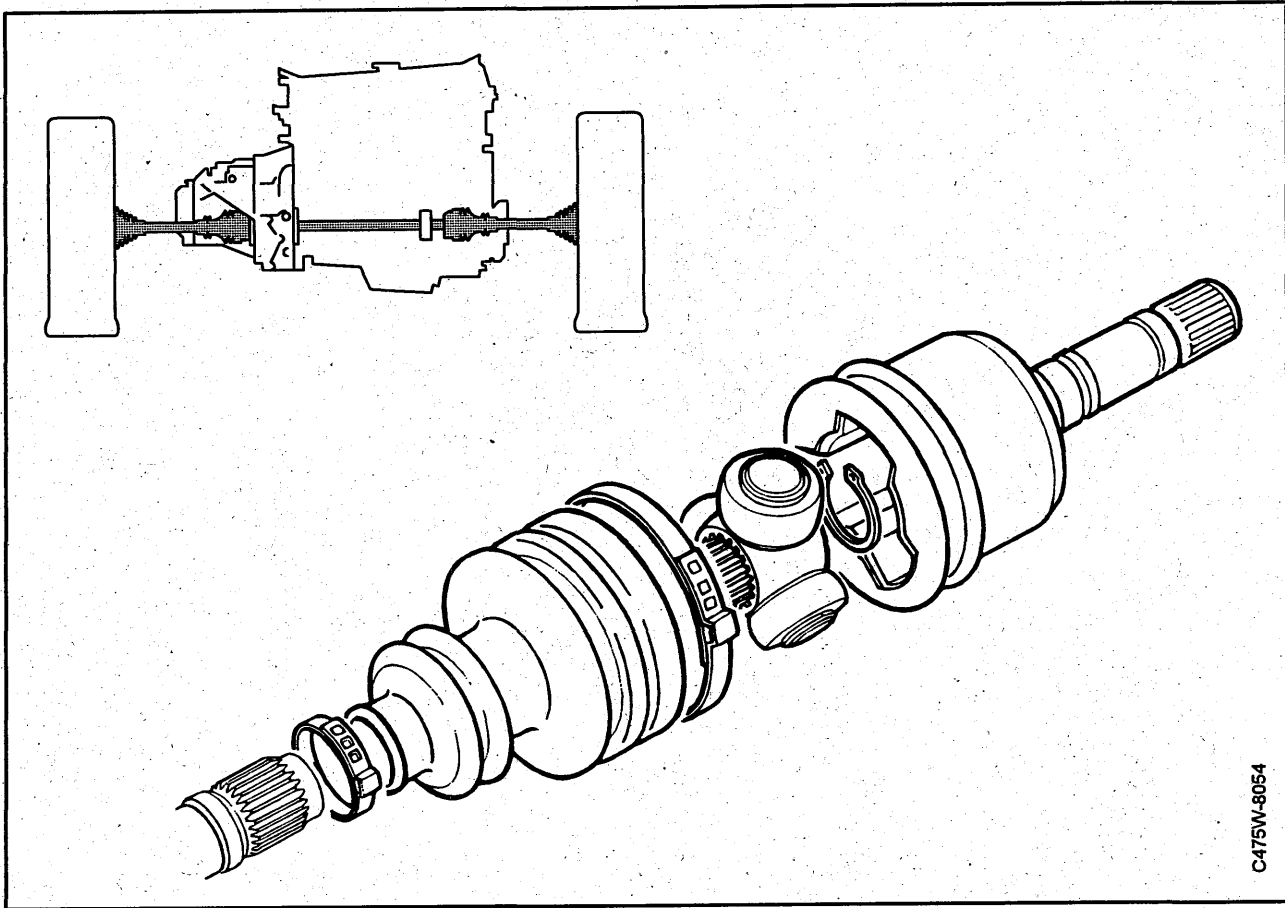
The locating stud for the rim has been given a tapered contact surface against the brake disc and likewise the cylindrical hole for the locating stud at the brake disc has also been changed to a tapered design.

### Wheel hubs

The wheel hub is constructed with axle-free wheel bearings. The wheel bearing are double row, angular contact bearings, and being permanently lubricated are therefore maintenance free. Bearings can not be replaced individually. The hub has a lightweight design and is directly centred on the bearing.

From and including M1988- the wheel hub thickness as increased from 10 to 13 mm to lengthen the thread for the wheel studs.

## The drive shaft and universal joints



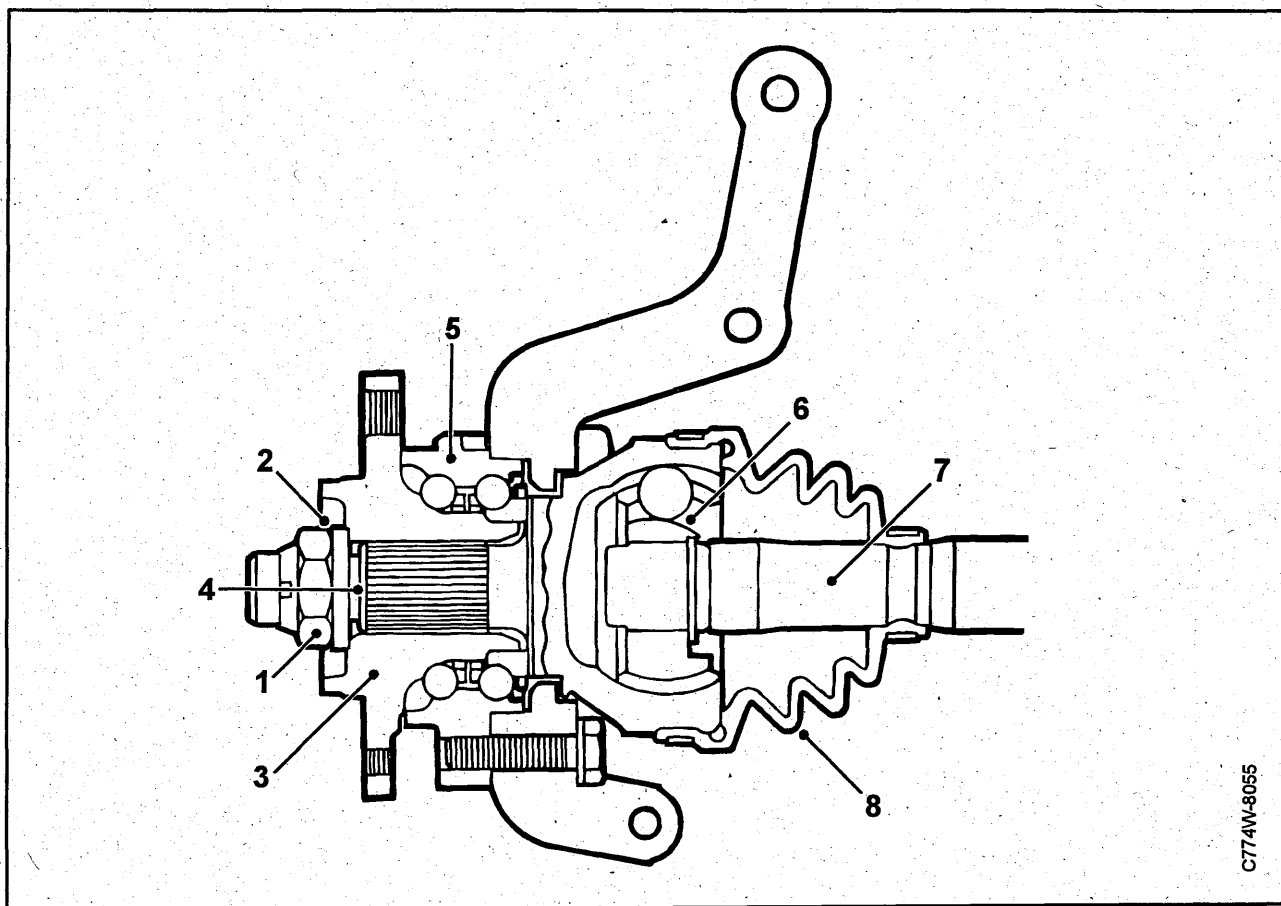
An extremely flexurally stiff intermediate drive shaft extends from the right-hand side of the differential through an additional bearing support bracket on the engine body. It has therefore been possible to provide the two outboard drive shafts with identical geometry relative to the wheels.

The advantage of this design is that the directional stability of the car can be maintained even during hard acceleration.

The left-hand drive shaft is connected to the differential through a universal joint comprising of "tripod" fork (spider) of needle bearings, which slide into a cup type driver.

The right-hand drive shaft is connected to the intermediate shaft in the same way. The universal joints are permanently lubricated with Esso Beacon EP2 grease and are enclosed in rubber gaiters to prevent the ingress of dirt and moisture.

## Drive shaft and universal joints (cont.)



- 1 Lock nut
- 2 Washer
- 3 Hub
- 4 Outer drive shaft

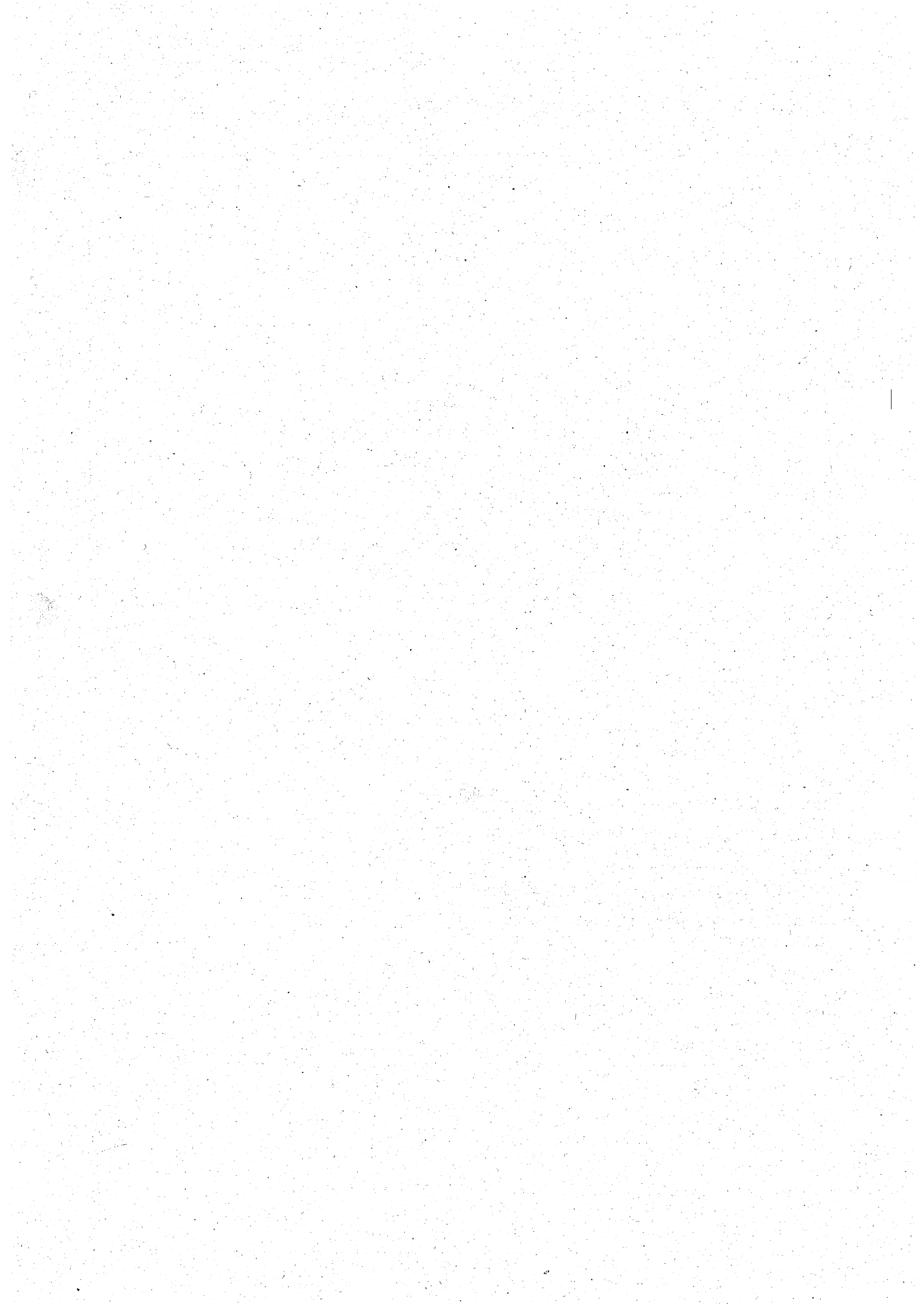
- 5 Bearing with seal
- 6 Outer universal joint
- 7 Inner universal joint
- 8 Rubber gaiter

### Outer universal joint

The outboard universal joint transfers power from the inner drive shaft to the outer drive shaft on which the wheels are mounted. The inner end of the outer shaft is designed like a clock with spherical grooves, where six balls transfer the driving force from a hub. The hub, balls and outer shaft are one unit and can not be separately changed.

#### Important

Certain models have differing length outer drive shafts for right and left sides.

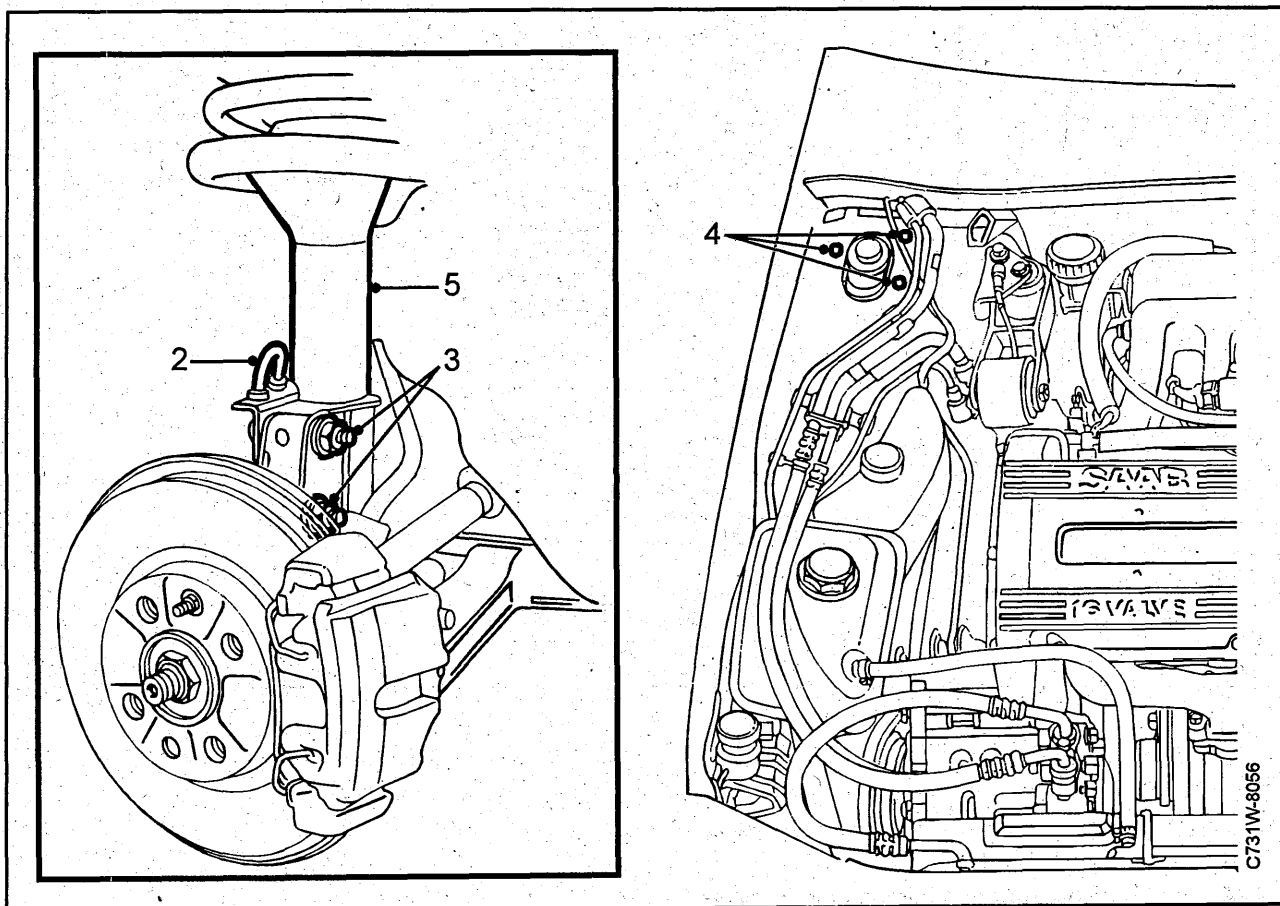


## Front suspension

Front damper (MacPherson strut) .. 731-1

Anti-roll bar ..... 731-5

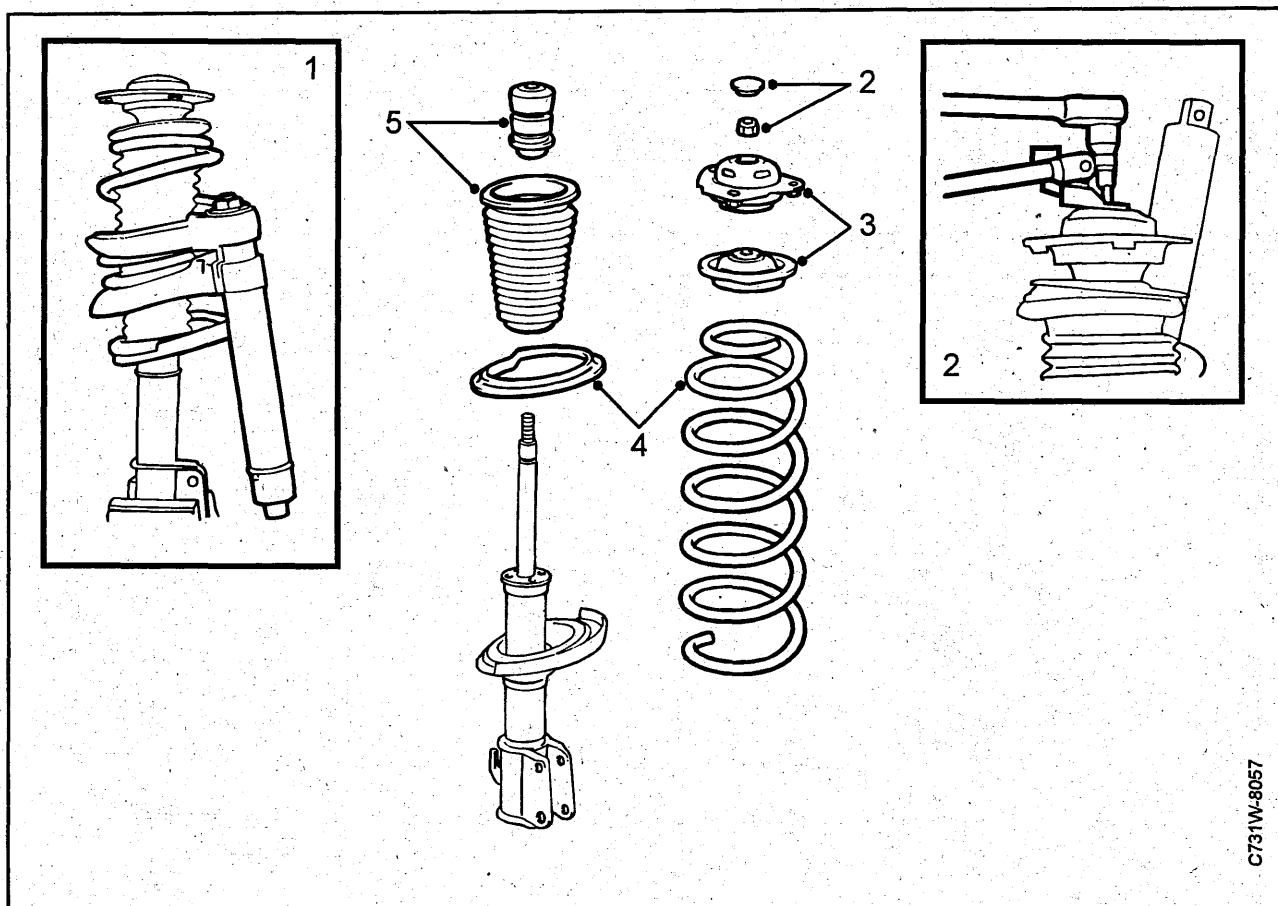
### Front damper (MacPherson strut)



#### Removal

- 1 Lift the car and remove the wheel.
- 2 Remove the flexible hose from the hose holder on the McPherson strut.
- 3 Remove the two bolts to the steering swivel member. The mounting for the ABS cable sits in the upper bolt, that should be removed if appropriate.
- 4 Remove the three MacPherson strut securing screws on the upper bracket. Right-hand side: on cars with A/C-ACC this is facilitated if the screws to the cooling pipe bracket are first undone.
- 5 Remove the MacPherson strut.

## Front damper (MacPherson strut) (cont.)



C731W-8057

### Dismantling

1 Push the spring together with tool 88 18 791 and holder 88 18 817.  
A pneumatic nut runner facilitates the compression.

2 If necessary remove the protective cap from the centre nut.

Removing the centre nut requires (tool 89 96 498 to M1987 and tool 89 96 613 from M1988).

3 Remove the bearing and spring seat.

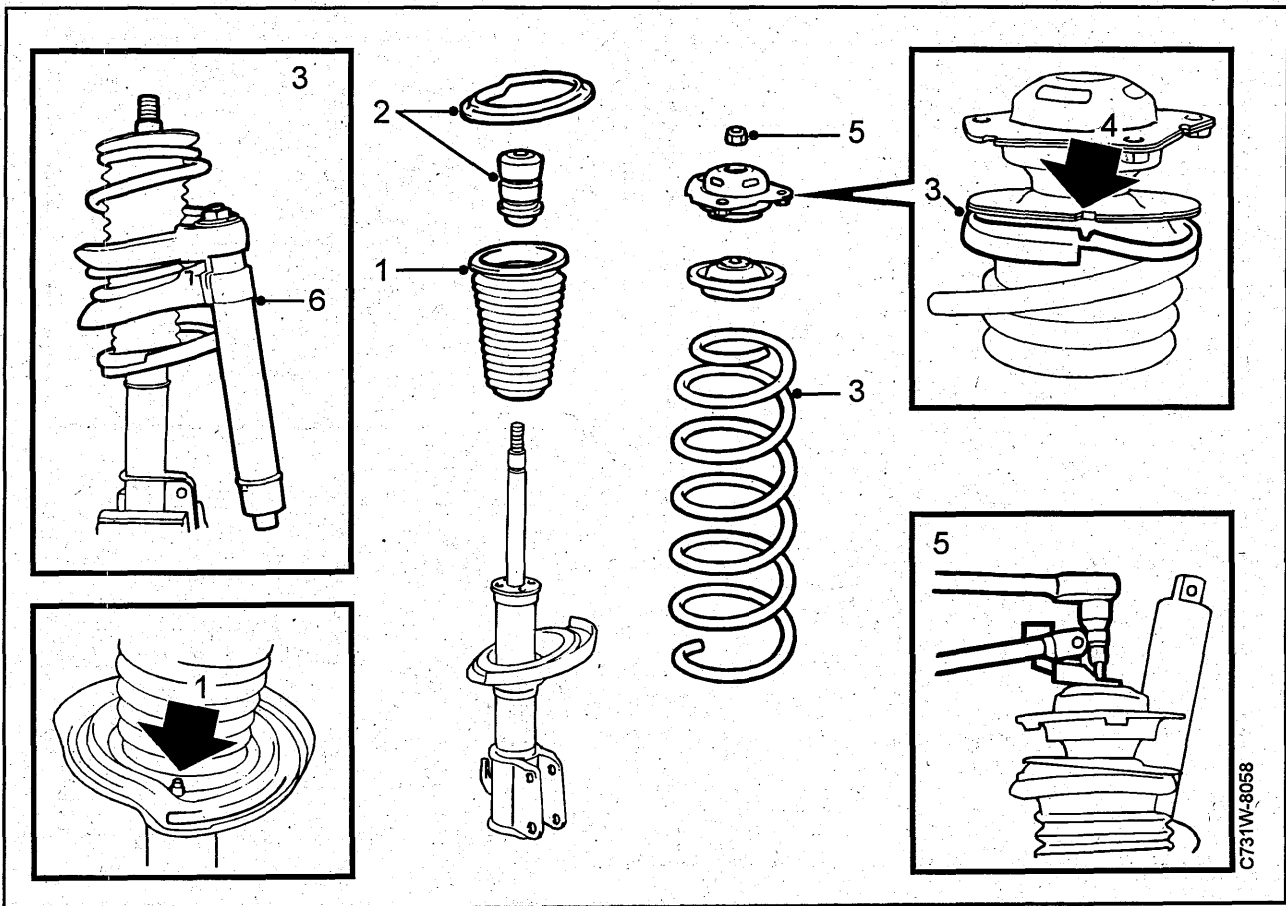
4 Remove the spring and the lower spring cup.

5 Remove the compression stop and the rubber gaiter.

Change the MacPherson strut.



## Front damper (MacPherson strut) (cont.)

**Assembly**

- 1 Check that the rubber gaiter is whole and not damaged.

Slip the rubber gaiter over the lower support washer for the compression stop.

Pull down the gaiter so that its marking sits directly above the marking on the spring seat.

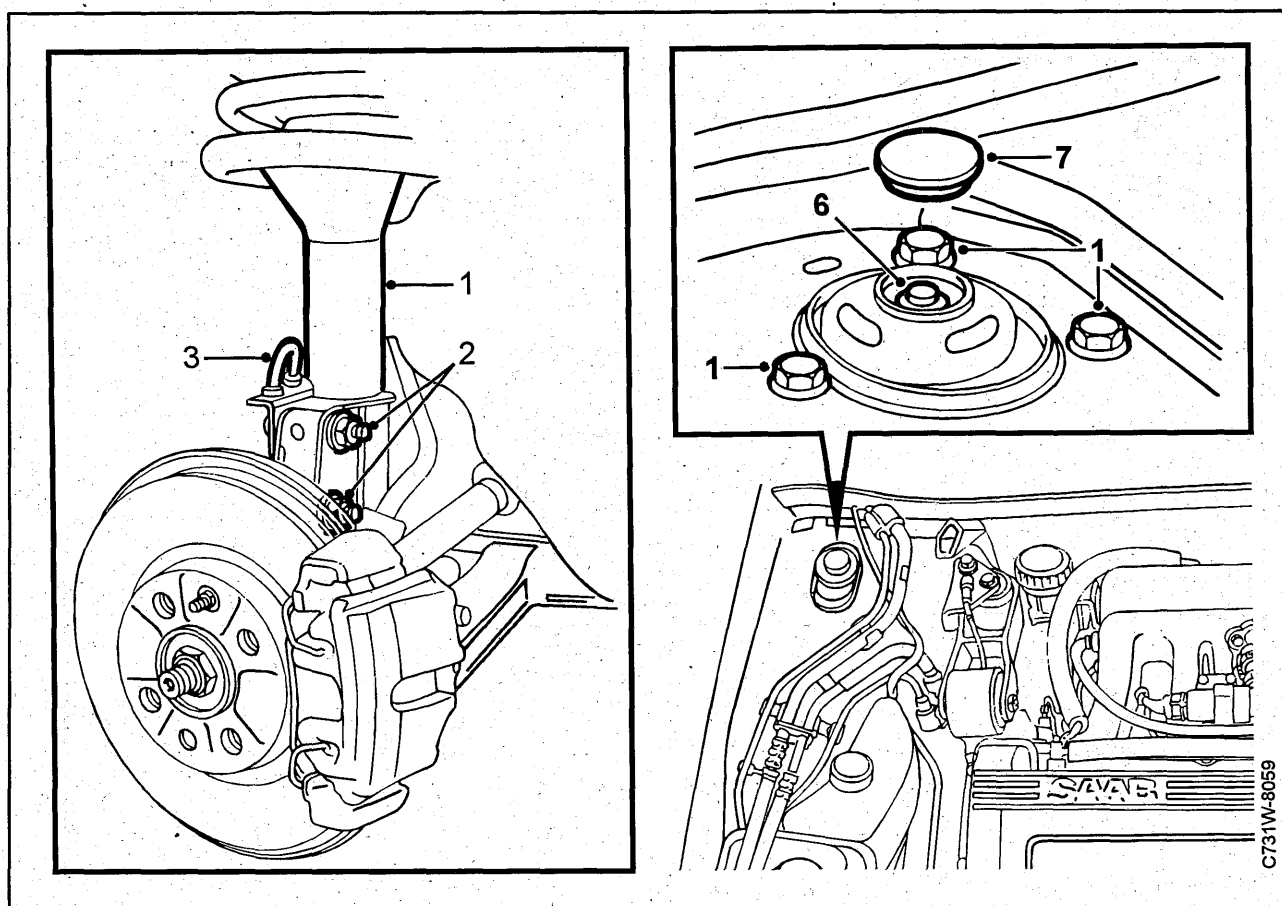
- 2 Fit the compression stop (the large hole of the compression stop should be below) and the lower spring seat.
- 3 Fit the spring.  
Pull up the rubber gaiter over the upper most coil of the spring.

- 4 Fit the upper spring seat with this recess in the centre of the rubber gaiter marking.

Check that the marking is in line with the steering swivel member bracket.

- 5 Fit the upper bearing and tighten the nut. Use tool 89 96 498 to M1987 and tool 89 96 613 from M1988.
- 6 Remove the spring press. Ensure that the spring is sitting correctly. Check that the marks are in line.

## Front damper (MacPherson strut) (cont.)



C731W-8059

### Fitting

- 1 Position the MacPherson strut in place in the car and tighten the three bolts on the upper bracket. The bolts should be tightened alternatively.

**Tightening torque:**  
**47 Nm (35 lbf ft).**

If the bolt to the cooling pipe bracket on the right side has been undone it should be tightened.

- 2 Fit the two MacPherson strut bolts to the steering swivel member (use new nuts, the nuts should sit forwards), the mounting for the ABS-cable is fitted in the upper bolt, if needed.

**Tightening torque:**  
**91 Nm (67 lbf ft)**

- 3 Fit the flexible hose in its bracket on the MacPherson strut.
- 4 Fit the road wheel and lower the car.

- 5 Tighten the wheel studs.

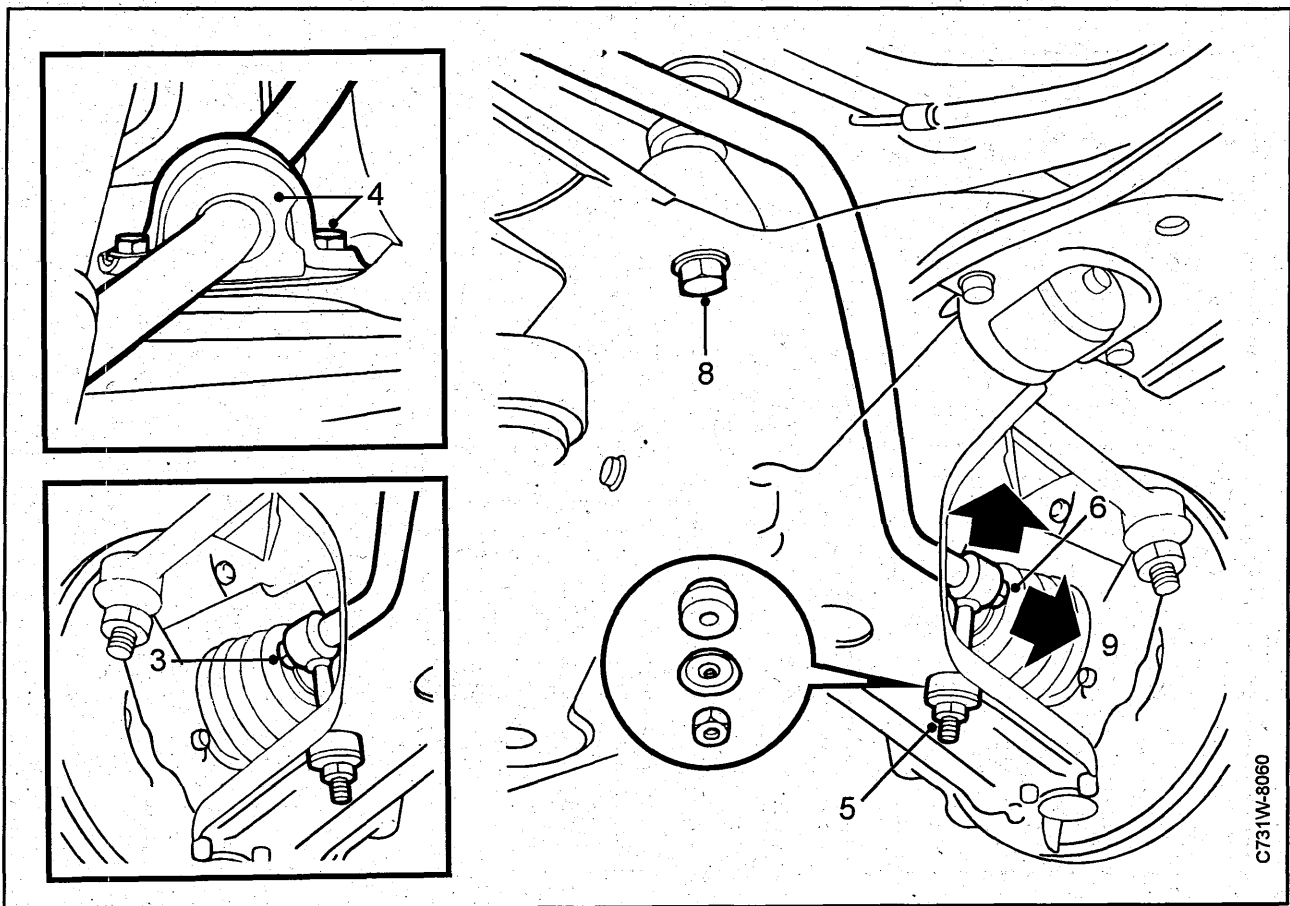
**Tightening torque for the wheel.**  
**120 Nm (89 lbf ft)**

- 6 Tighten the nut in the upper bearing.

**Tightening torque:**  
**75 Nm (55 lbf ft)**

- 7 If appropriate fit the protective cap on the centre nut.

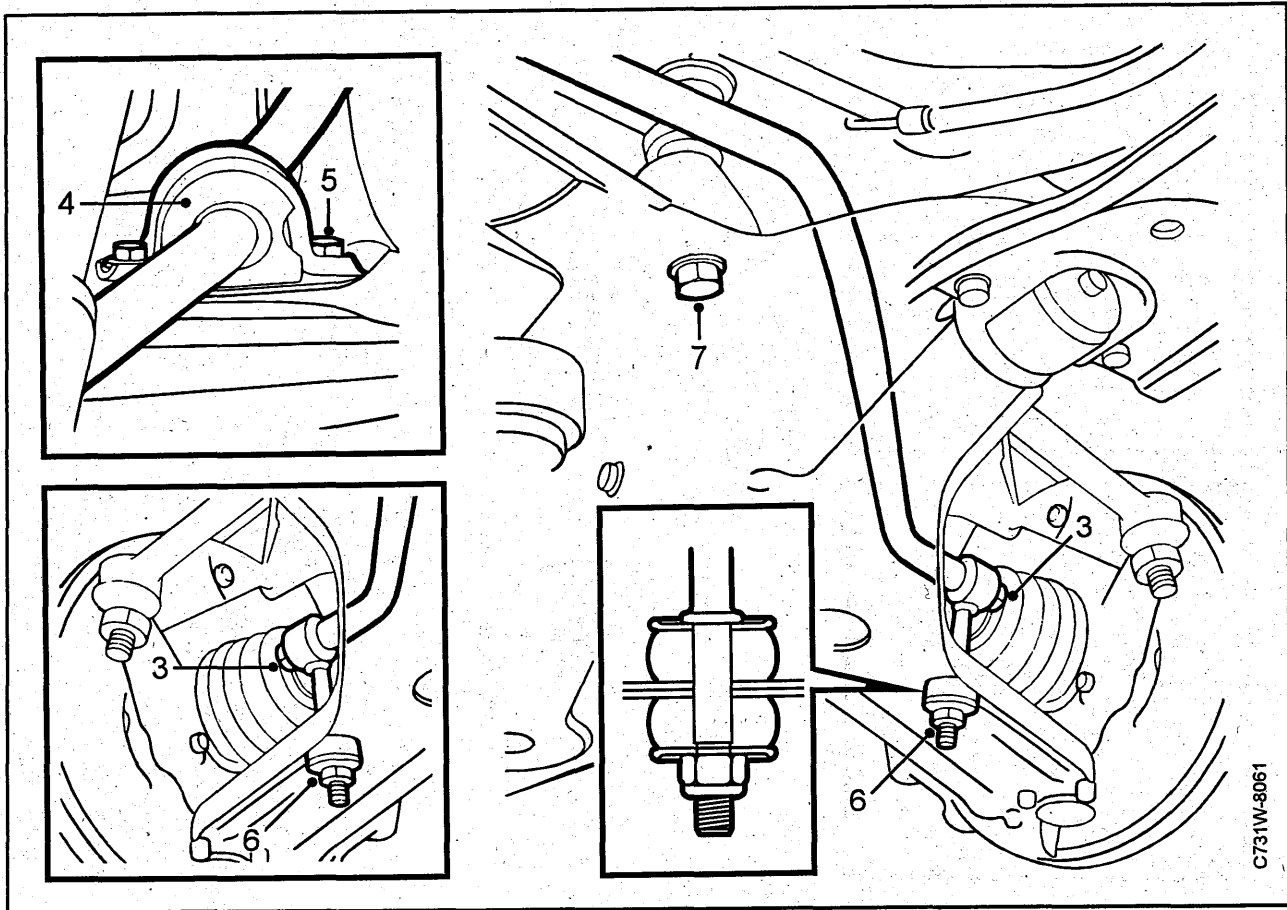
## Anti-roll bar



### Removal

- 1 Lift the car and take off the front wheel.
- 2 Remove the anti-roll bar link nut, washer and bush on the left-hand side.
- 3 Remove the upper securing nut.
- 4 Remove the U-clamp and bush.
- 5 Remove the anti-roll bar link nut, washer and bush on the right-hand side.
- 6 Remove the upper securing nut.
- 7 Remove the U-clamp and bush.
- 8 Remove the steering gear right-hand securing bolt and undo the left-hand.
- 9 Push the free end of the steering gear forwards 3-4 cm. Lift out the anti-roll bar to the end where the steering gear has come forwards.

**Anti-roll bar (cont.)**



**Fitting**

- 1 Position the anti-roll bar in the car.
- 2 Loosely fit the anti-roll bar, using new nuts.
- 3 Tighten the upper nut on the link arm on both sides.

**Tightening torque:**  
**30 Nm (22 lbf ft)**

- 4 Lubricate the bushes with Molycote 33 medium part no. (45) 30 20 476. Fit the bushes (with openings fitted forwards) loosely on both sides.
- 5 Tighten the U-clamp securing bolts on both sides.

**Tightening torque:**  
**24 Nm (18 lbf ft)**

- 6 Tighten the lower link arm nut on both sides.

**Tightening torque:**  
**24 Nm (18 lbf ft)**

- 7 Fit the right-hand bolt of the steering gear and tighten both bolts.

**Tightening torque:**  
**70 Nm (52 lbf ft)**

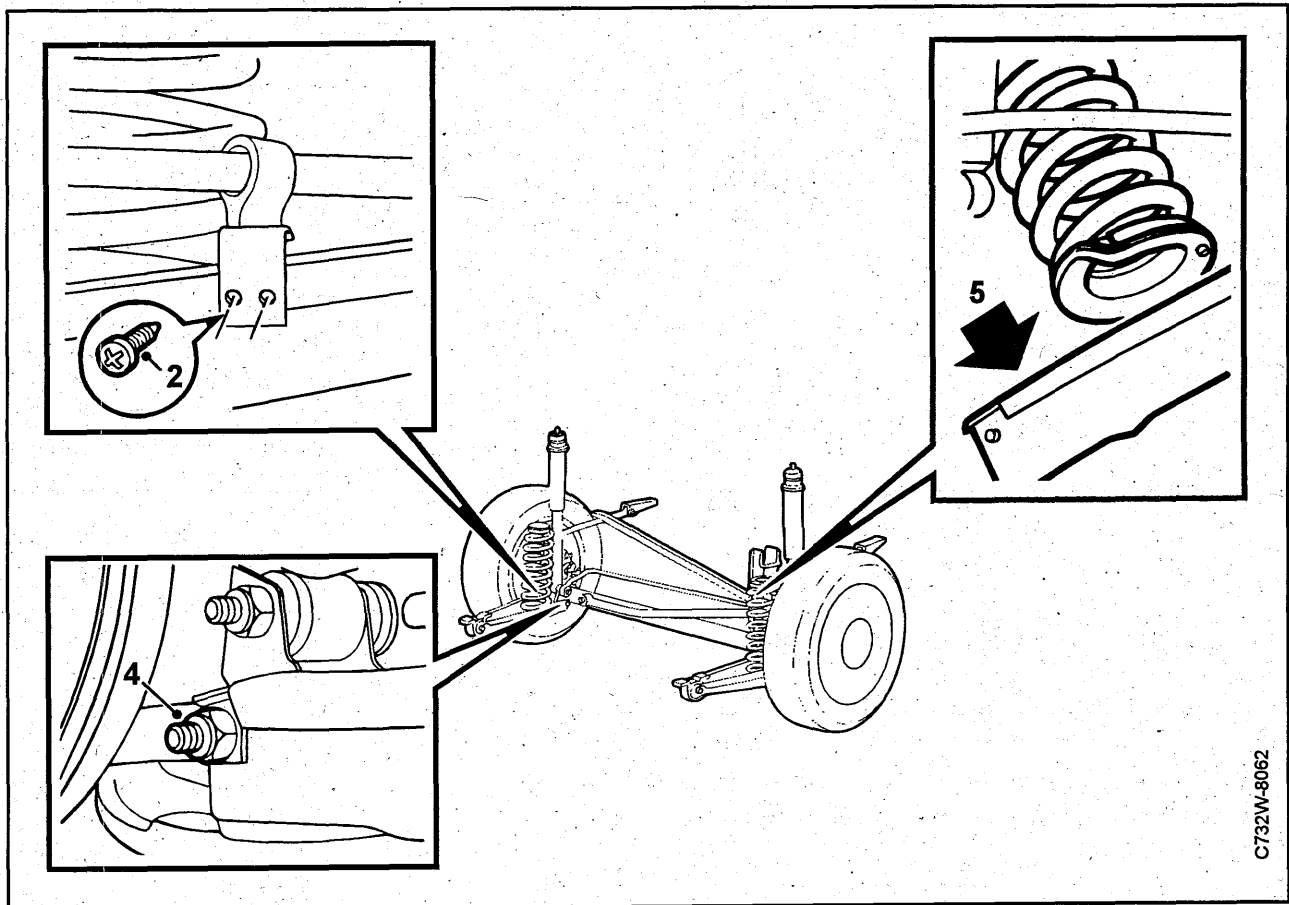
- 8 Fit both the road wheels.
- 9 Lower the car.
- 10 Tighten the wheel studs.

**Tightening torque:**  
**120 Nm (89 lbf ft)**

## Rear suspension

Rear spring .....	732-1	Rubber bush in rear anti-roll bar .....	732-13
Rear link arm .....	732-3	Panhard rod .....	732-16
Front bush .....	732-5	Panhard bracket .....	732-17
Rear bush .....	732-6	Rear torque arm bush .....	732-18
Torque arm .....	732-8	Front torque arm bush .....	732-19
Rear axle .....	732-9	Panhard rod bush .....	732-20
Anti-roll bar .....	732-11		
Anti-roll bar link .....	732-12		

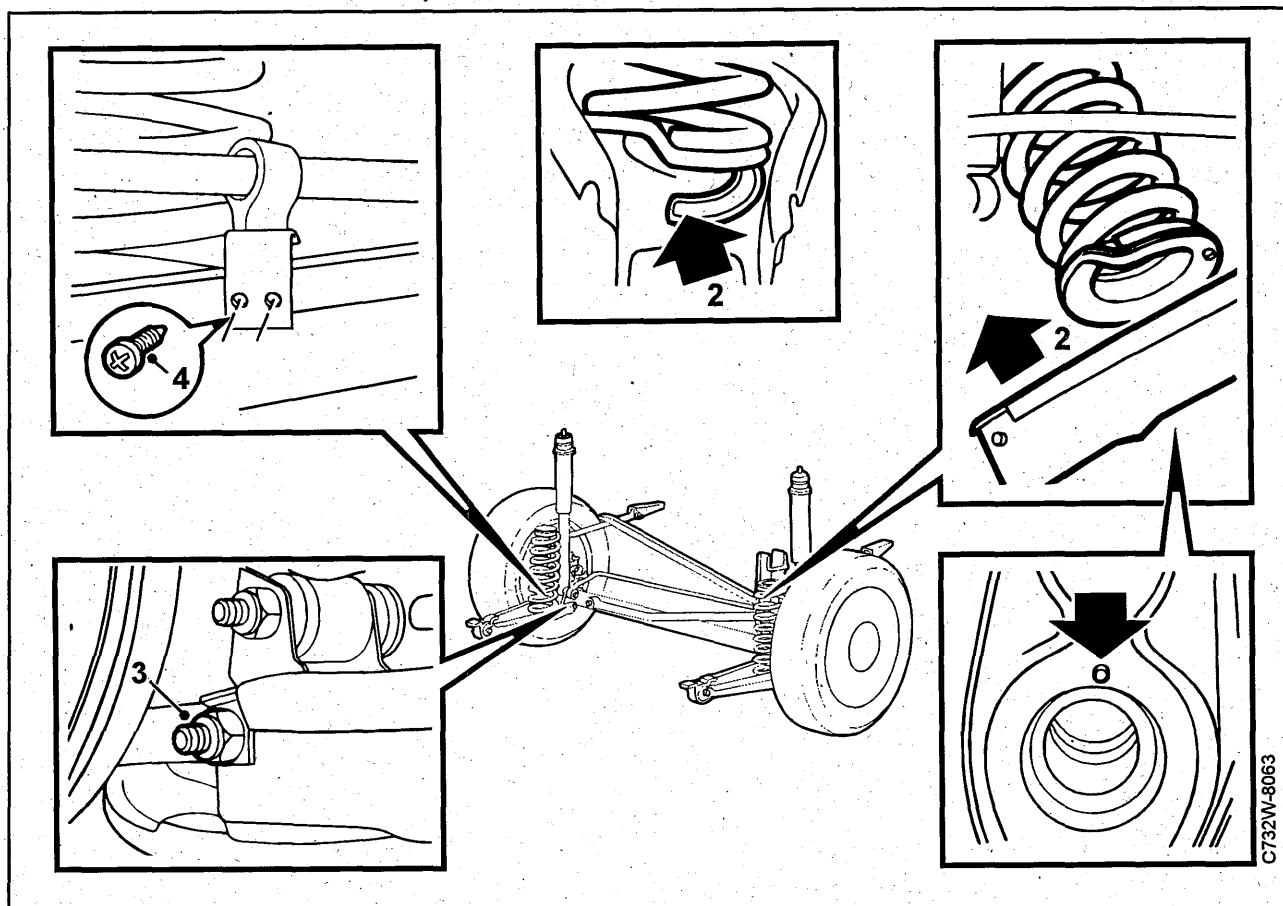
### Rear spring



#### Removal

- 1 Lift the car and remove the wheel.
- 2 Remove the handbrake wire the link arm.
- 3 Remove the ABS-cable, if necessary, by removing the clip and release the cable.
- 4 Position a jack under the link arm. Remove the bolt on the rear link arm bracket.
- 5 Slowly lower the link arm using the jack and remove the spring.

## Rear spring (cont.)



## Fitting

- 1 Position the spring with rubber cup on the link arm.

## Important

Check the rubber cup and the springs position on the link arm. The top of the rubber should sit in the small hole in the link arm.

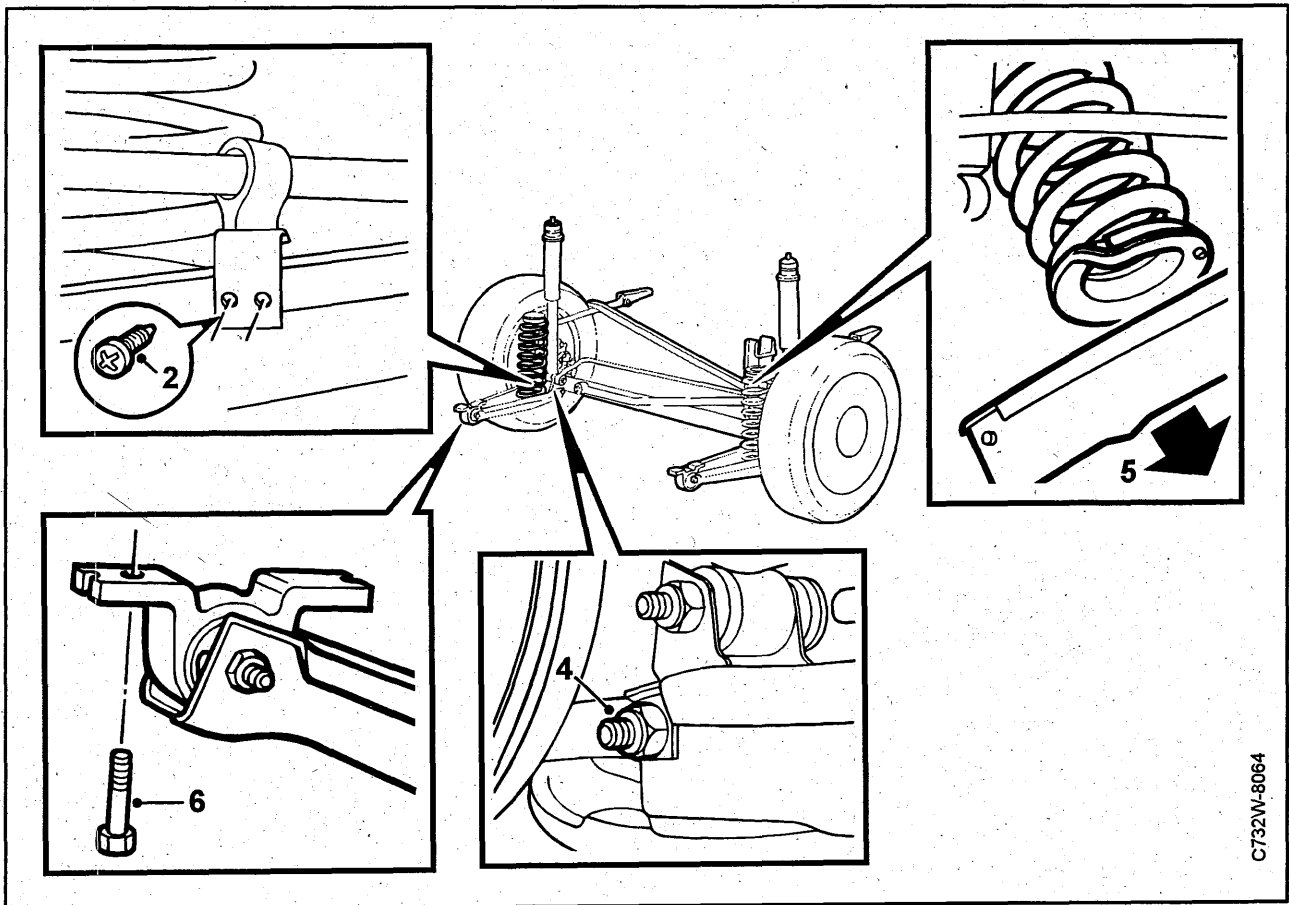
- 2 Lift up the link arm with the jack and check the spring arrives at the correct position.
- 3 Fit the rear mounting of the link arm.

**Tightening torque:**  
52 Nm (38 lbf ft)

- 4 Fit the parking brake wire and the ABS cable, if necessary, on the link arm.
- 5 Replace the wheel and lower the car.
- 6 Tighten the wheel studs.

**Tightening torque:**  
120 Nm (89 lbf ft)

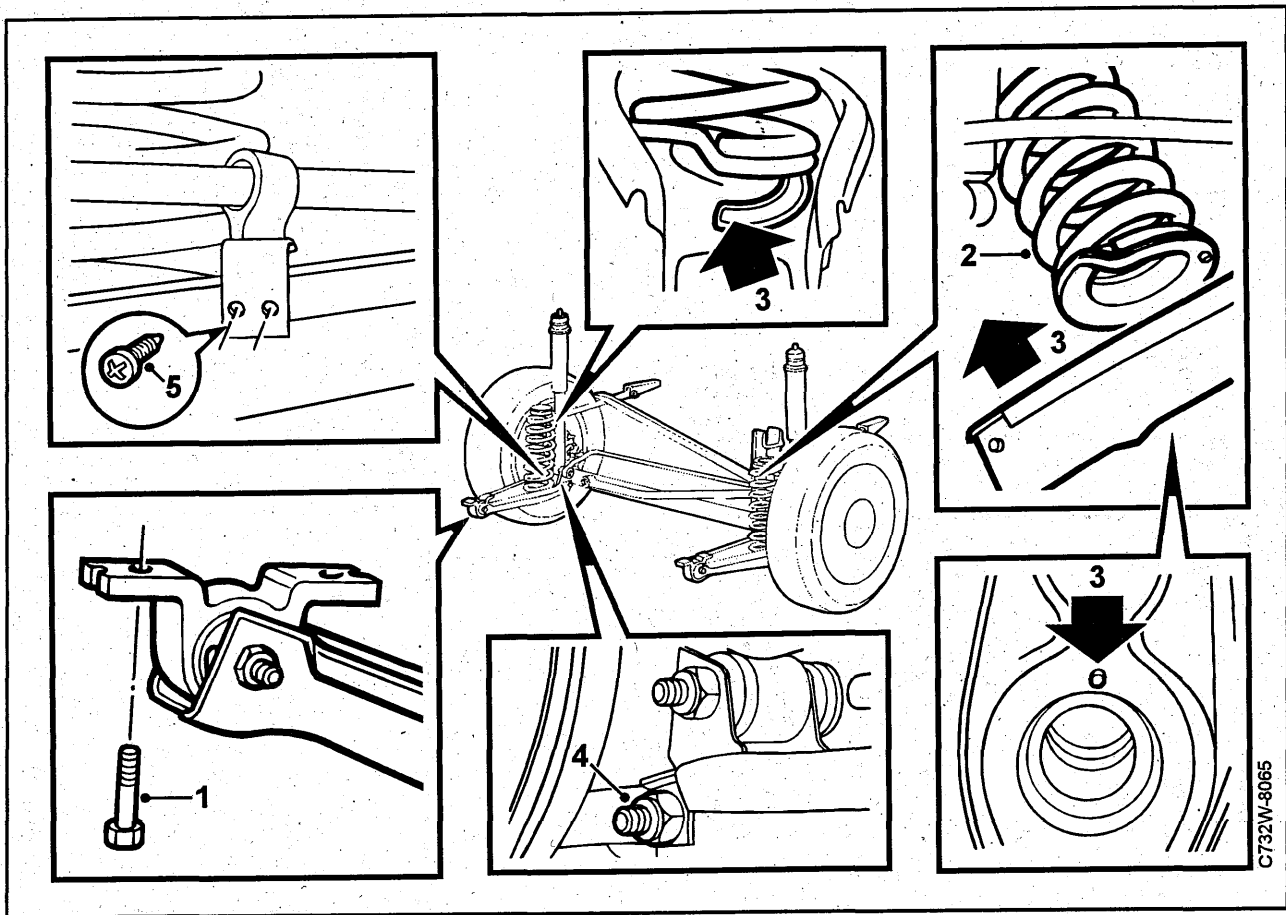
## Rear link arm



## Removal

- 1 Lift the car and remove the wheel.
- 2 Remove the handbrake wire the link arm.
- 3 Remove the ABS-cable if necessary.
- 4 Position a jack under the link arm. Remove the bolt on the link arm bracket.
- 5 Slowly lower the link arm using the jack and remove the spring.
- 6 Remove the front link arm bracket and take away the link arm.

## Rear link arm (cont.)



## Fitting the rear link arm

**Important**

If the bush is removed from the link arm, tighten the joint (1) when the car is on the ground.

- 1 Fitting the front link arm mounting.

**Tightening torque:**  
52 Nm (38 lbf ft)

- 2 Position the spring with rubber cup on the link arm.

**Important**

Check the rubber cup and spring position on the link arm.

- 3 Lift up the link arm with the jack and check the spring arrives at the correct position.

- 4 Fit the rear mounting of the link arm.

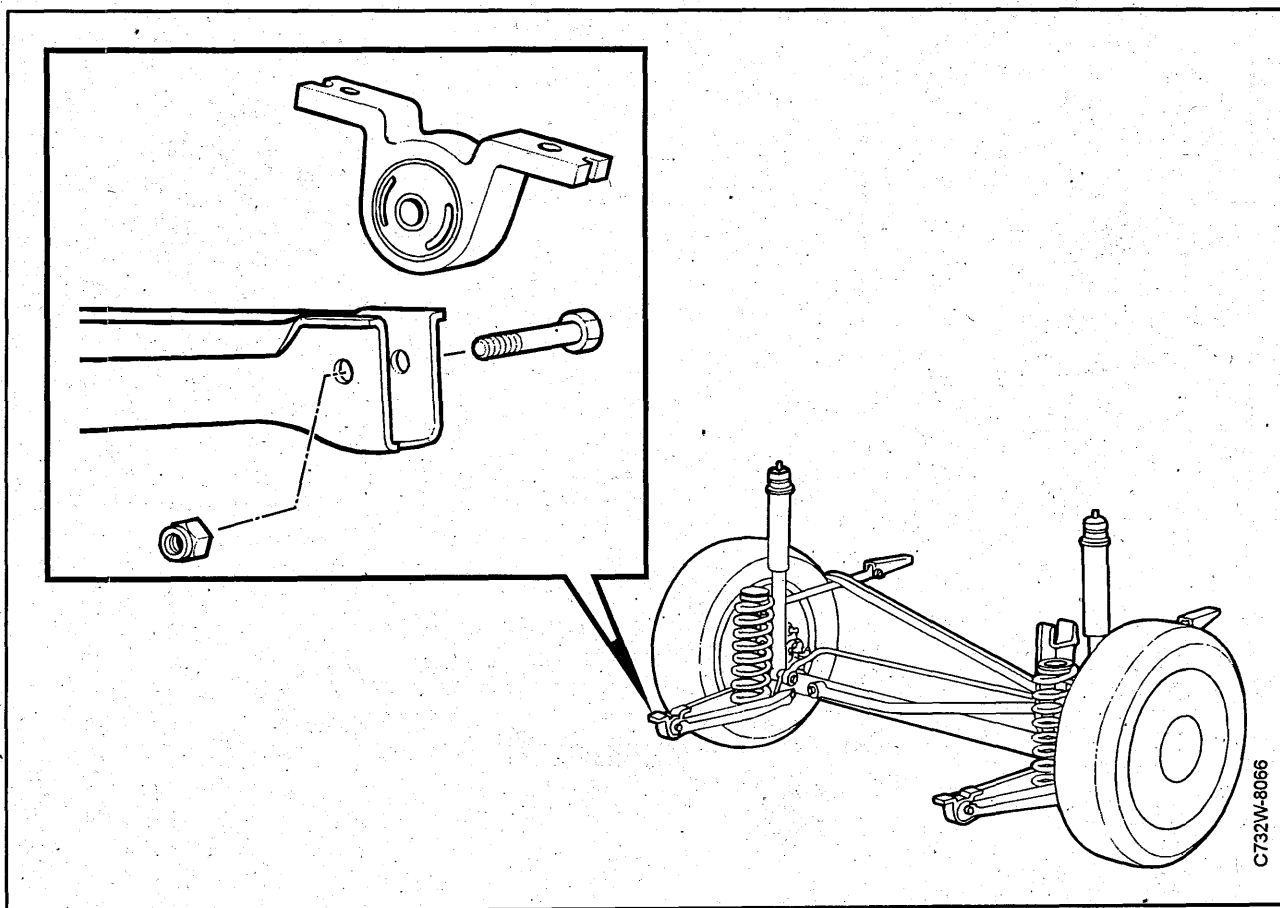
**Tightening torque:**  
52 Nm (38 lbf ft)

- 5 Fit the handbrake wire, and if necessary the ABS-cable, onto the link arm.
- 6 Replace the wheel and lower the car.
- 7 Tighten the wheel studs.

**Tightening torque:**  
120 Nm (89 lbf ft)



## Front bush



### Removal

It is sufficient that the link arm is unfastened at the front edge when changing the front bush.

- 1 Remove the bush complete with the mounting from the link arm.
- 2 Remove the mounting from the body.

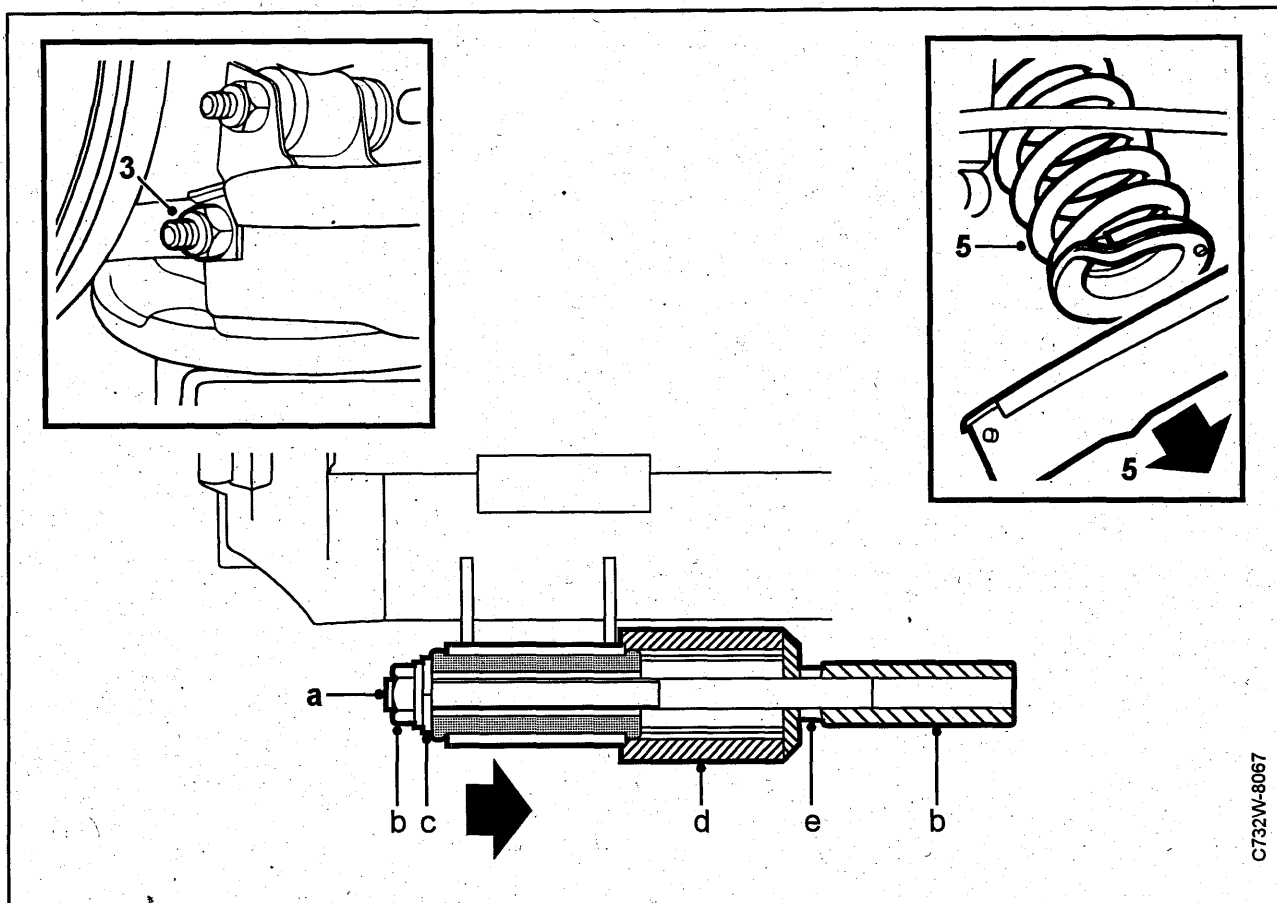
### Fitting

- 3 Fit a new bush with a mounting on the link arm. Do not tighten the mounting on the link arm before the it is fitted to the car, and the car is standing on the ground.
- 4 Fit the front link arm mounting to the body.
- 5 Lower the car. Tighten the mounting between the bush and the link arm.

**Tightening torque for the front link arm mounting to the body:**  
52 Nm (38 lbf ft)

**Tightening torque for the bush to the link arm:**  
47 Nm (35 lbf ft)

## Rear bush



C732W-8067

### Removal

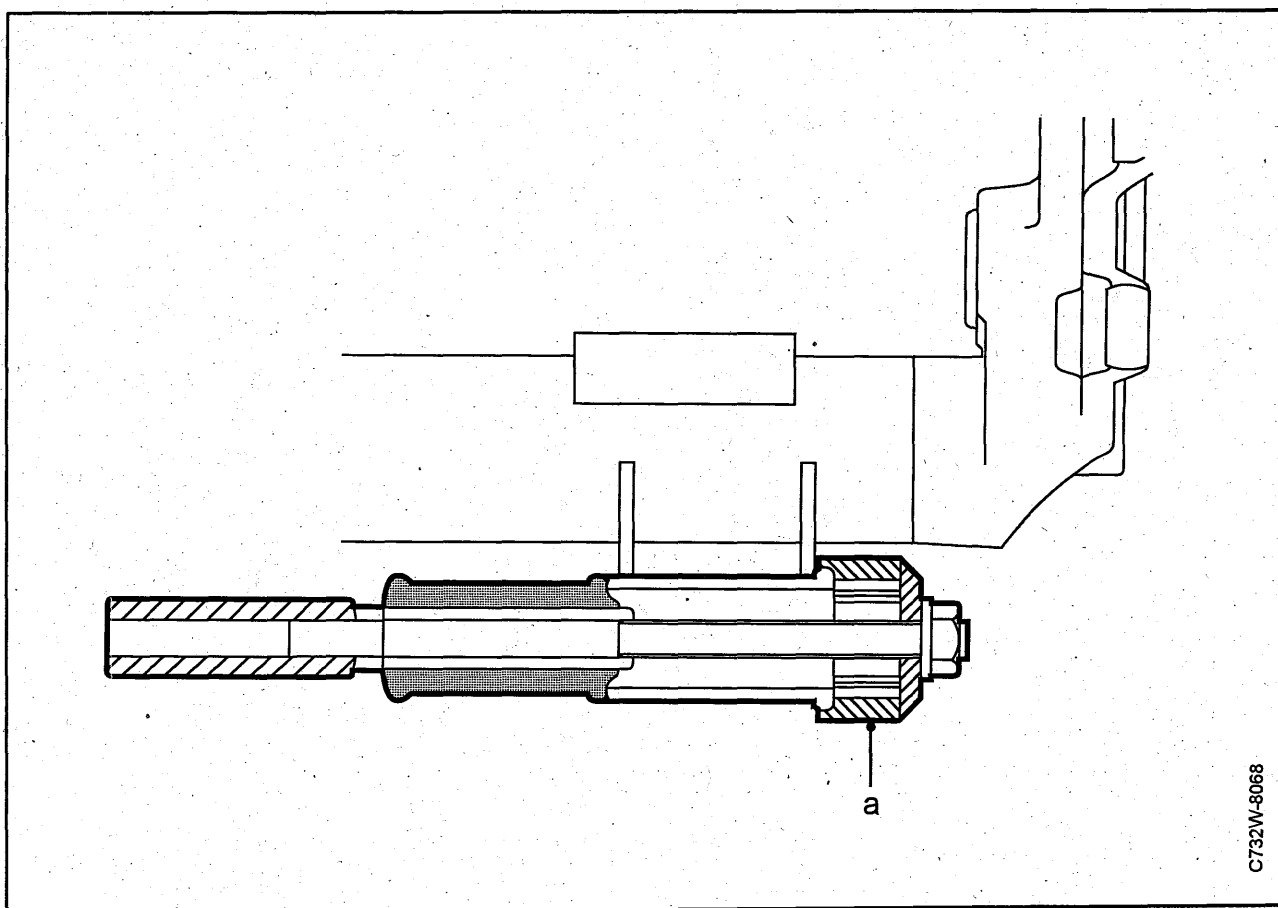
- 1 Elevate the car.
- 2 Remove the wheel.
- 3 Position a jack under the link arm. Remove the bolt on the link arm bracket.
- 4 Remove the handbrake wire, and if necessary the ABS cable, from the link arm.
- 5 Slowly lower the link arm using the jack and remove the spring.
- 6 Clean the bush and surrounding area. Put Vaseline on the exposed areas of the bush. Use the tool according to the picture.
- 7 Press out the bush with tool 89 96 506.

- a. Axle
- b. Nut
- c. Spring washer
- d. Removal sleeve
- e. Brass washer

### Important

The threads of the tool, and the nut and washer should be well lubricated.

## Rear bush (cont.)



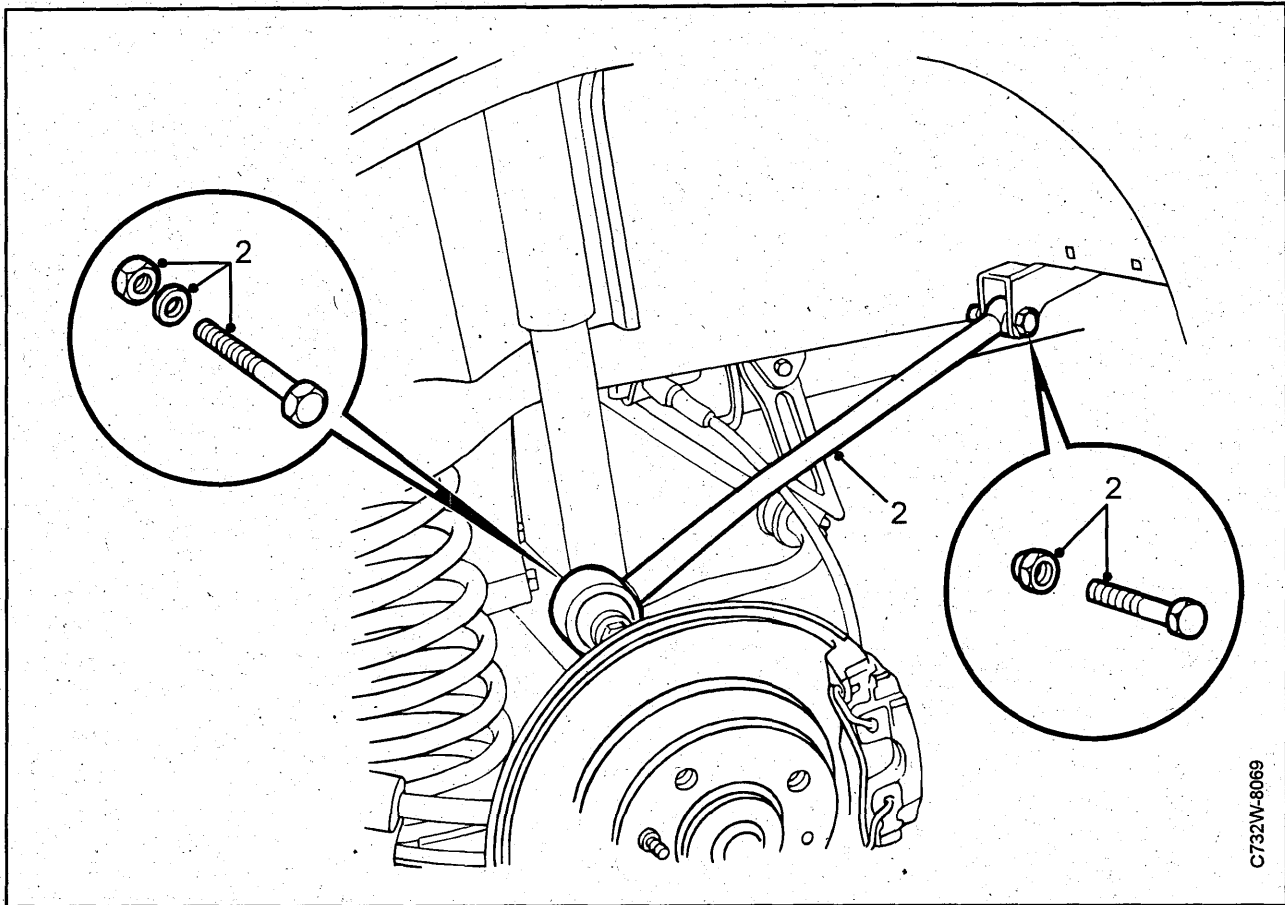
C732W-8068

**Fitting**

a. Fitting sleeve

- 1 Lubricate the new bush with Vaseline. Use the tool according to the picture.
- 2 Press in the bush with tool 89 96 506.
- 3 Check that the bush is centred in the mounting.
- 4 Position a jack under the link arm.
- 5 Fit the spring.
- 6 Raise the jack and fit the bolt.
- 7 Fit the handbrake wire, and if necessary the ABS-cable, onto the link arm.

## Torque arm



C732W-8069

### Removal

- 1 Lift the car and remove the wheel.
- 2 Remove the two torque arm securing bolts and change the it.

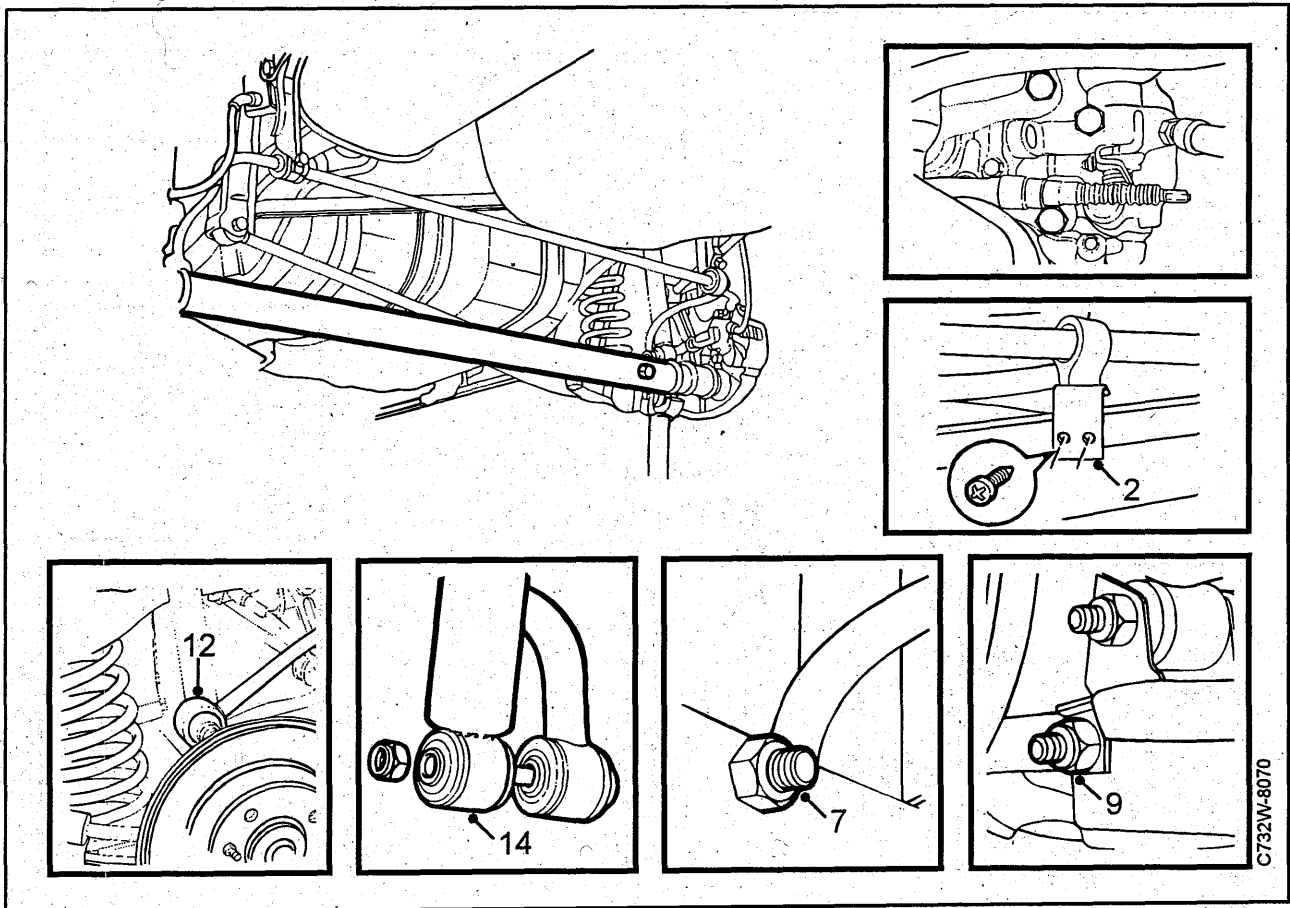
### Fitting

- 1 Fit the two torque arm securing bolts.
- 2 Fit the road wheel.
- 3 Lower the car.
- 4 Tighten the front and rear mounting.

**Tightening torque, front mounting:**  
47 Nm (35 lbf ft)

**Tightening torque, rear mounting:**  
24 Nm (18 lbf ft)

## Rear axle



## Removal

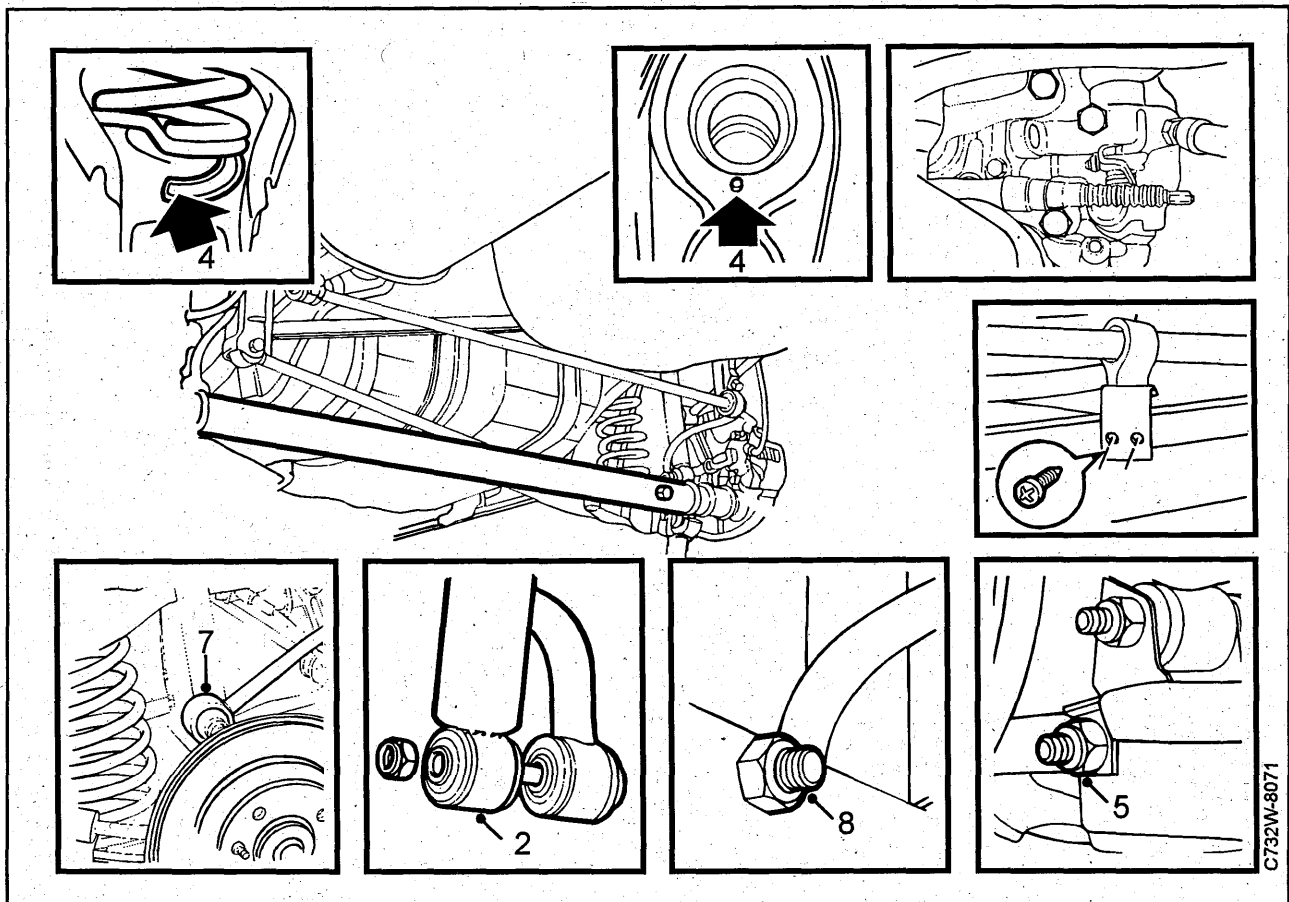
- 1 Lift the car and remove the rear wheel.
- 2 Release the handbrake cable from the lever on the brake unit and unfasten the cables bracket on the link arm.
- 3 Remove, if necessary, the ABS-sensor from the hub and undo the clip on the link arm to release the ABS-cable.
- 4 Remove the adjusting bolt screw plug. Unscrew the adjusting screw a little.
- 5 Remove the bolts on the brake unit and disc back-plate.
- 6 Lift of the brake unit and hang it from the torsion bar with a cable tie or piano wire.
- 7 Remove the Panhard rod by the rear axle and hang it up with a cable tie or a piano wire.
- 8 Position a jack under the link arm. Lift the link arm so that it is slightly unloaded.
- 9 Remove the rear link arm bracket bolt.
- 10 Lower the jack below the link arm and remove the spring.
- 11 Perform points 3-10 on the opposite side of the car.
- 12 Removing the torque arm bracket on the rear axle.
- 13 Position a jack directly under the rear axle. Carefully lift up the rear axle so that it slightly off-loaded.

**Important**

The car should not be lift with the jack positioned under the rear axle.

- 14 Remove the lower mounting for the damper and anti-roll bar.
- 15 Lower the rear axle with the jack.

## Rear axle (cont.)



## Fitting

- 1 Position the rear axle on the jack and lift it up.
- 2 Fit the lower bracket for the damper and the anti-roll bar on both sides. The anti-roll bar bush at the U-clamp should be lubricated with Moly-cote 33 medium part no. (45) 30 20 476.

**Tightening torque:**  
85 Nm (63 lbf ft)

- 3 Position a jack under one link arm
- 4 Position the spring on the link arm. Check that the rubber cup on the spring sits correctly.
- 5 Raise the link arm with the jack and fit the screw and nut in the rear link arm bracket.

**Tightening torque:**  
52 Nm (38 lbf ft)

- 6 Perform points 3-5 on the opposite side of the car.
- 7 Fit the torque arms on both sides.

**Tightening torque:**  
24 Nm (18 lbf ft)

- 8 Fit the Panhard rod.

**Tightening torque:**  
67 Nm (50 lbf ft)

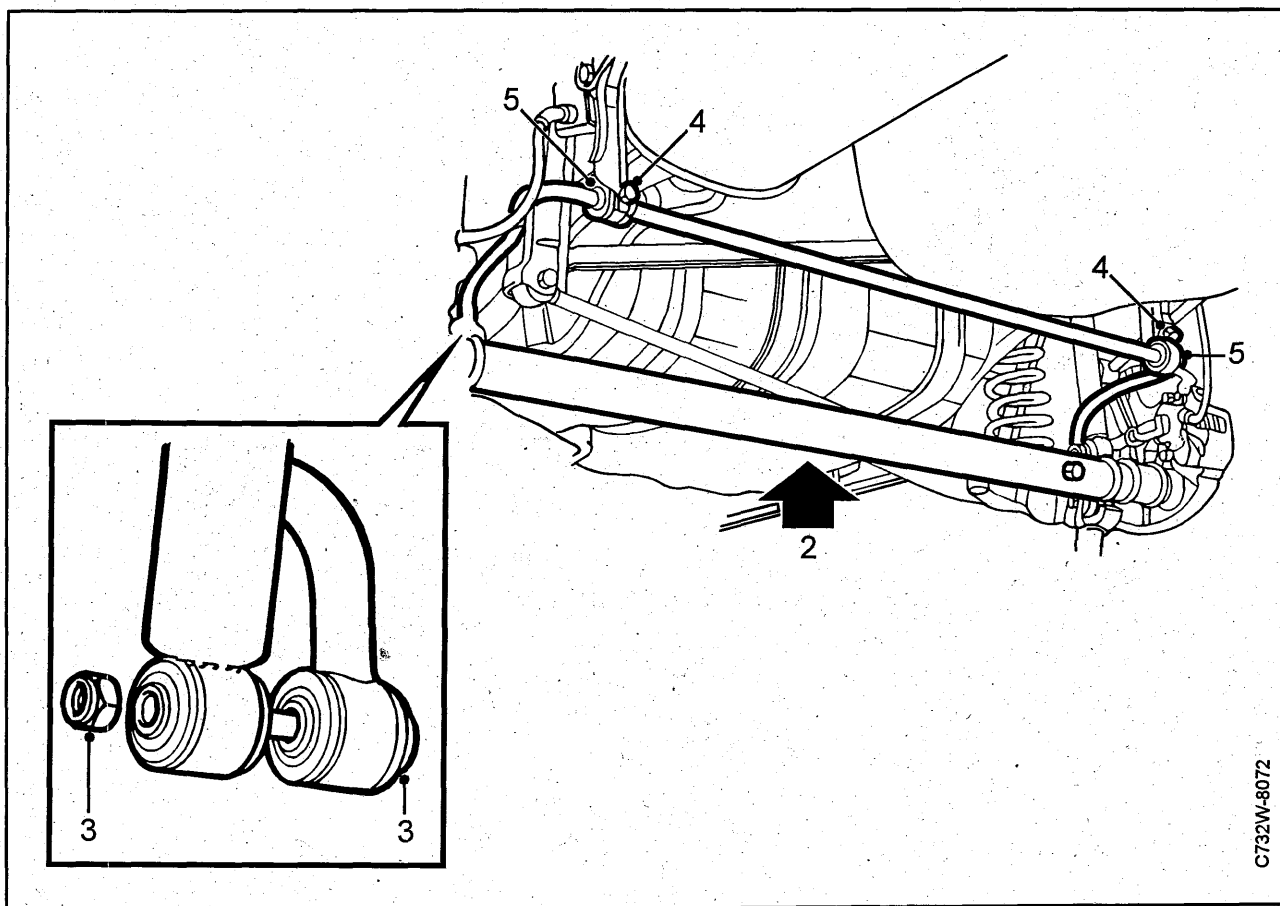
- 9 Fit the brake unit and the bracket for the hand-brake wire, and if needed the ABS-sensors and cables for the ABS-brakes, on the link arms.

**Tightening torque for the brake units:**  
90 Nm (66 lbf ft)

- 10 Adjust the brake pistons with the adjusting screw and fit the screw plugs.
- 11 Fit the road wheel.
- 12 Lower the car.
- 13 Tighten the wheel studs.

**Tightening torque:**  
120 Nm (89 lbf ft)

## Anti-roll bar



### Removal

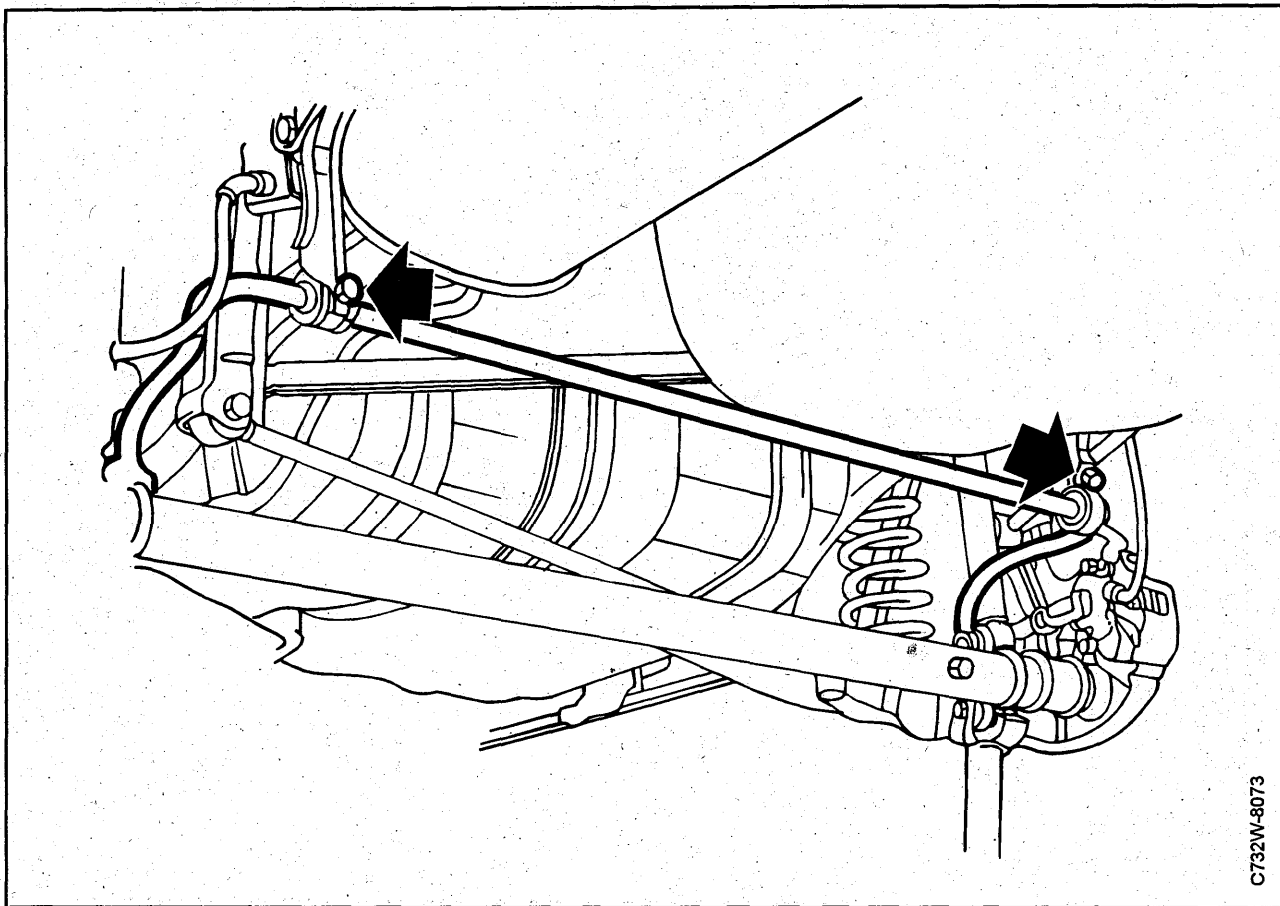
- 1 Lift the car and remove the wheel.
- 2 Position a jack under the rear axle to slightly off-load it.
- 3 Unfasten the anti-roll bar outer securing points.
- 4 Unfasten the anti-roll bar at the links and lift it down.
- 5 Remove the U-clamp and the bushes from the anti-roll bar.

### Fitting

- 6 Fit bushes (lubricated with Molycote 33 medium part no. (45) 30 20 476) and U-clamp on the anti-roll bar(5).
  - 7 Position the anti-roll bar in the car and loosely fit all the screws (4).
  - 8 Lower the jack under the rear axle.
  - 9 Tighten the outer securing point (3).
- Tightening torque:**  
85 Nm (63 lbf ft)
- 10 Tighten at the links.
  - 11 Fit the road wheel.
  - 12 Lower the car.
  - 13 Tighten the wheel studs.

**Tightening torque:**  
120 Nm (89 lbf ft)

## Anti-roll bar link



### Removal

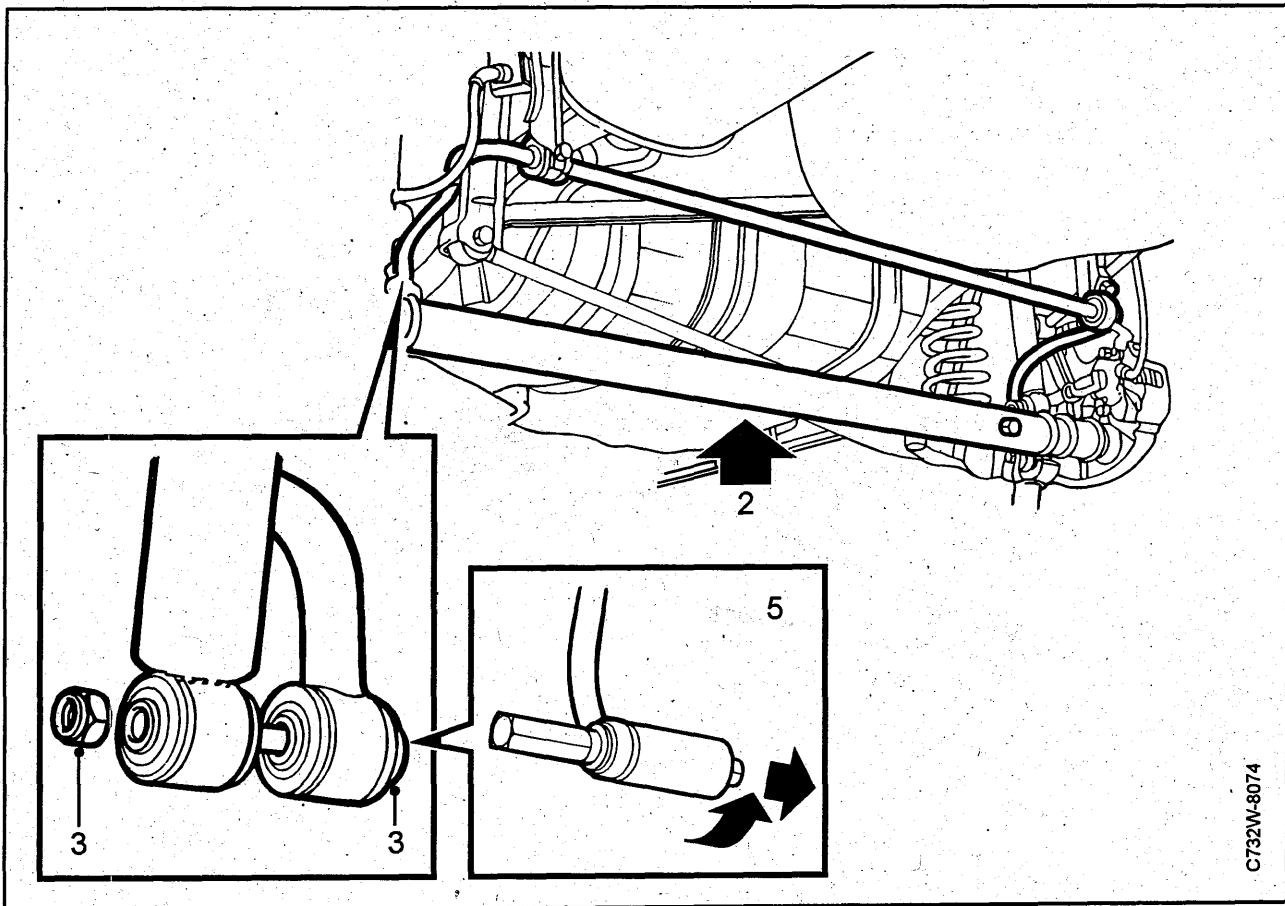
- 1 Remove the nuts to the body
- 2 Remove the link.

### Fitting

- 3 Fit the link.
- 4 Fit the nuts to the body.



## Rear anti-roll bar, rubber bushes



C732W-8074

### Removal

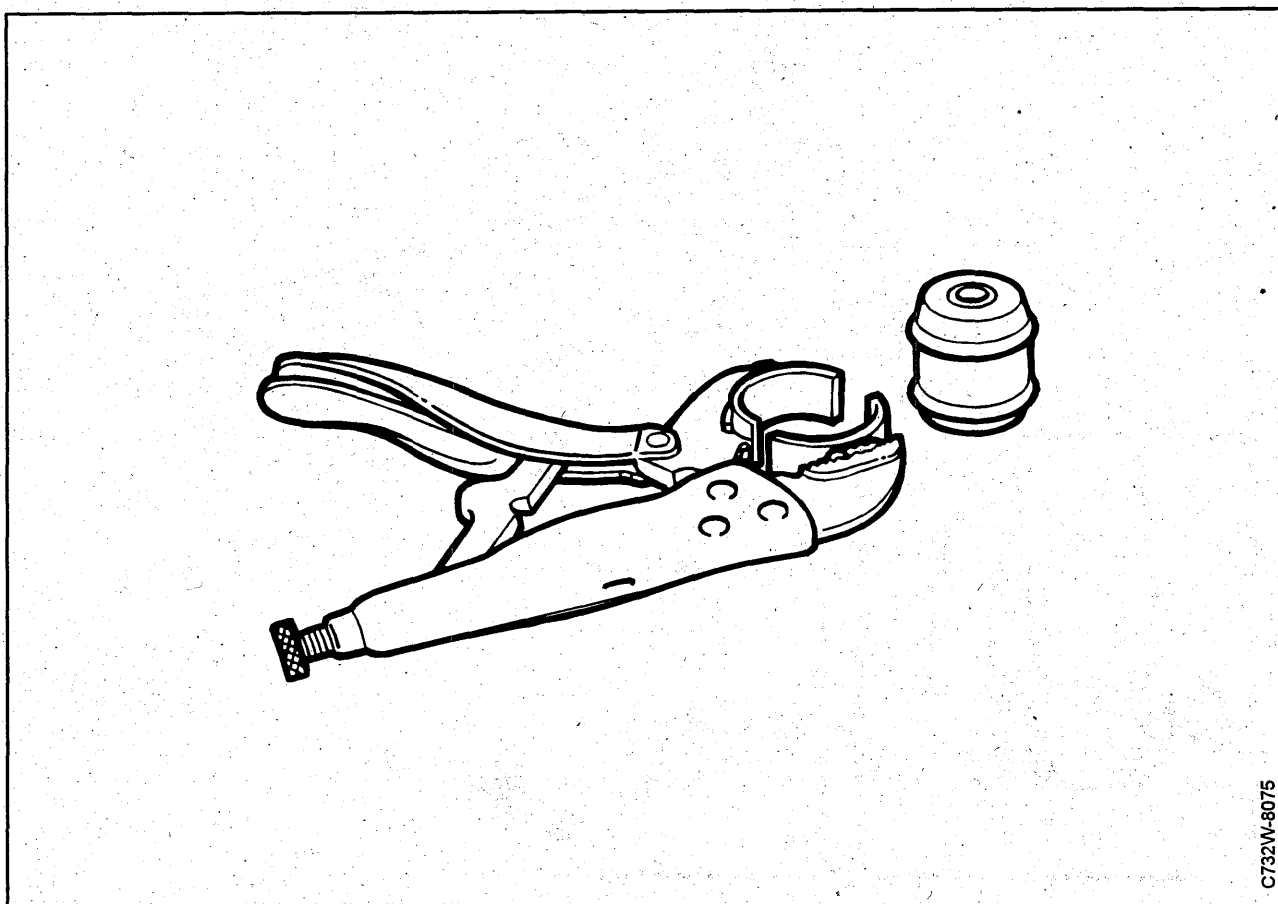
- 1 Lift the car and remove the road wheels.
- 2 Position a jack under the rear axle to slightly off-load it.
- 3 Remove the nut and bolt for the damper and anti-roll bar.
- 4 Lower the jack below the rear axle and pull the anti-roll bar backwards.

### Important

Ensure that the flexible hose is not damaged.

- 5 Force out the bush using tool 89 96 274. First lubricate the exposed parts of the bush and tool sleeve with Vaseline.

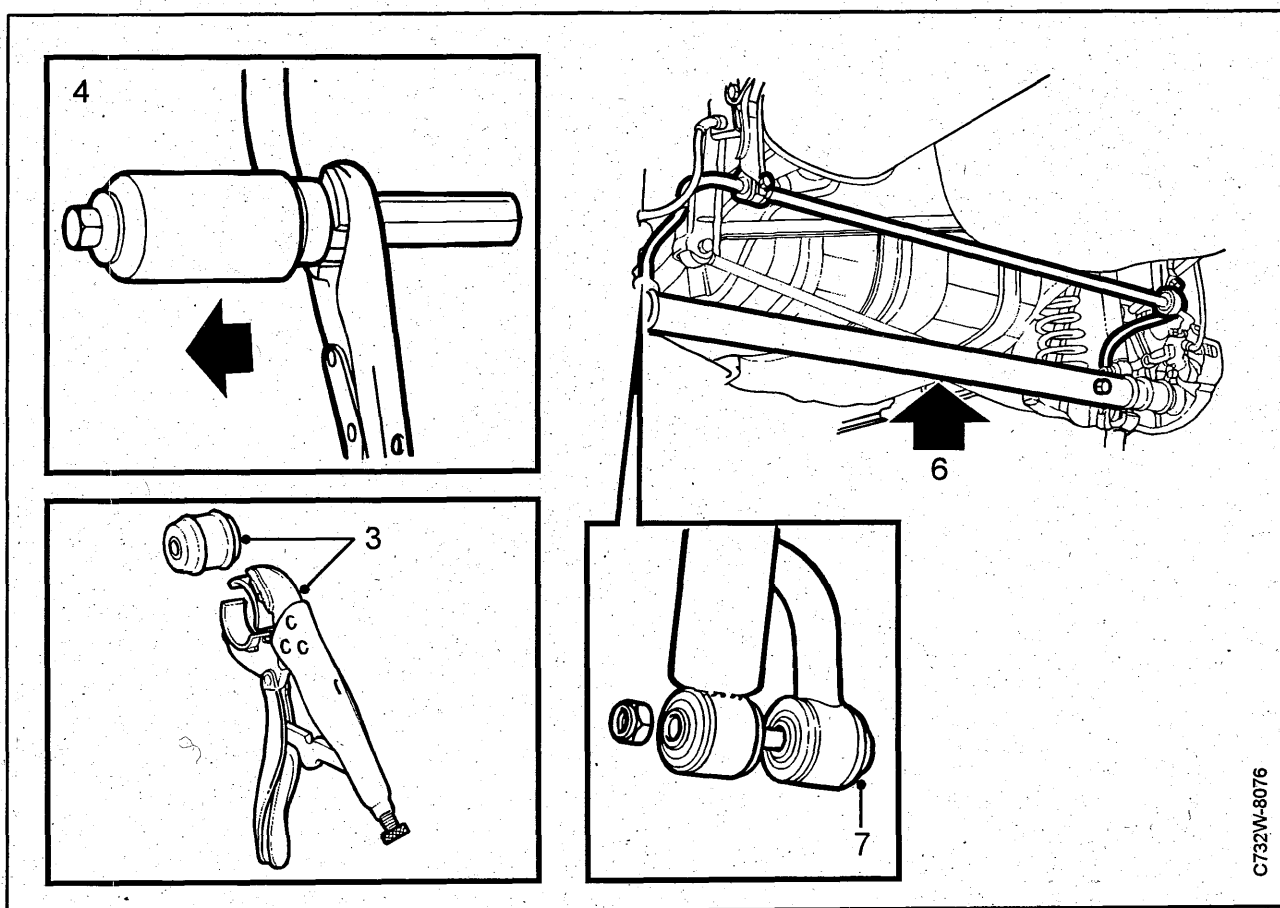
## Rear anti-roll bar, rubber bush (cont.)



### Tool for fitting the rubber bush of the rear damper (lower mounting) and rear anti-roll bar.

- 1 To produce the tool use a pair of pipe grips with a minimum opening of 35 mm and a piece of water pipe.
- 2 Saw of a section of pipe with an inner diameter of approx. 27 mm and a thickness of 3-4 mm. The length should be 20 mm.
- 3 Saw the pipe in two equal sized halves.
- 4 Set the pipe halves in a vice so that they sit edge to edge on one side.
- 5 Weld the two pipe halves together.

## Rear anti-roll bar, rubber bush (cont.)



C732W-8076

**Fitting**

- 1 Clean the bush seating on the anti-roll bar and lubricate with Vaseline.
- 2 Lubricate the rubber bush and also the tool with Vaseline.
- 3 Compress the bush.
- 4 Position the bush with the tool, screw, sleeve and nut, and press in the bush. Remove the tool.
- 5 Position the anti-roll bar in the fitting position.

- 6 Lift the rear axle and fit the screw to the damper and the anti-roll bar. Use a new nut.

- 7 Tighten the screw.

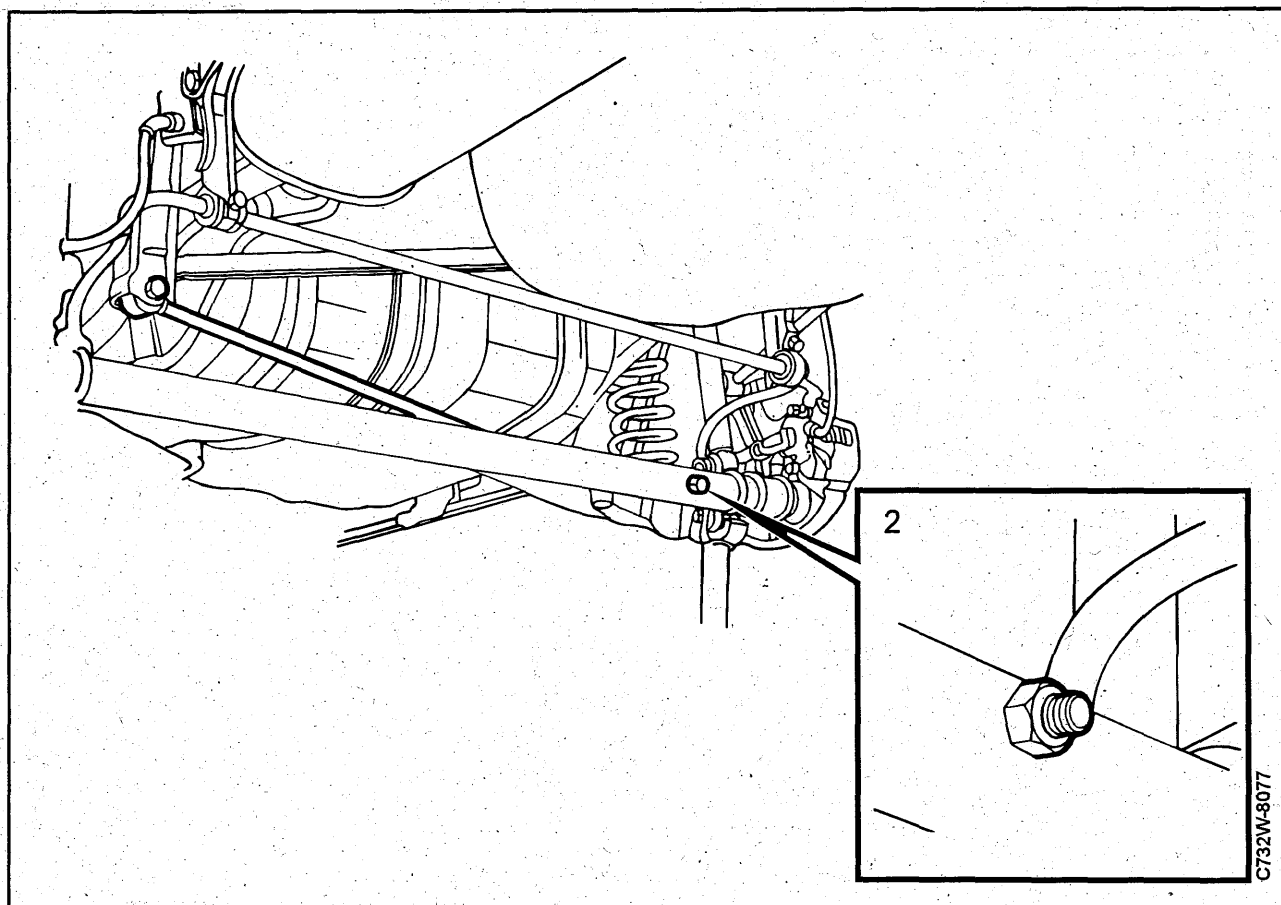
**Tightening torque:**  
**85 Nm (63 lbf ft)**

- 8 Fit the road wheels and lower the car.

- 9 Tighten the wheel studs.

**Tightening torque:**  
**120 Nm (89 lbf ft)**

## Panhard rod



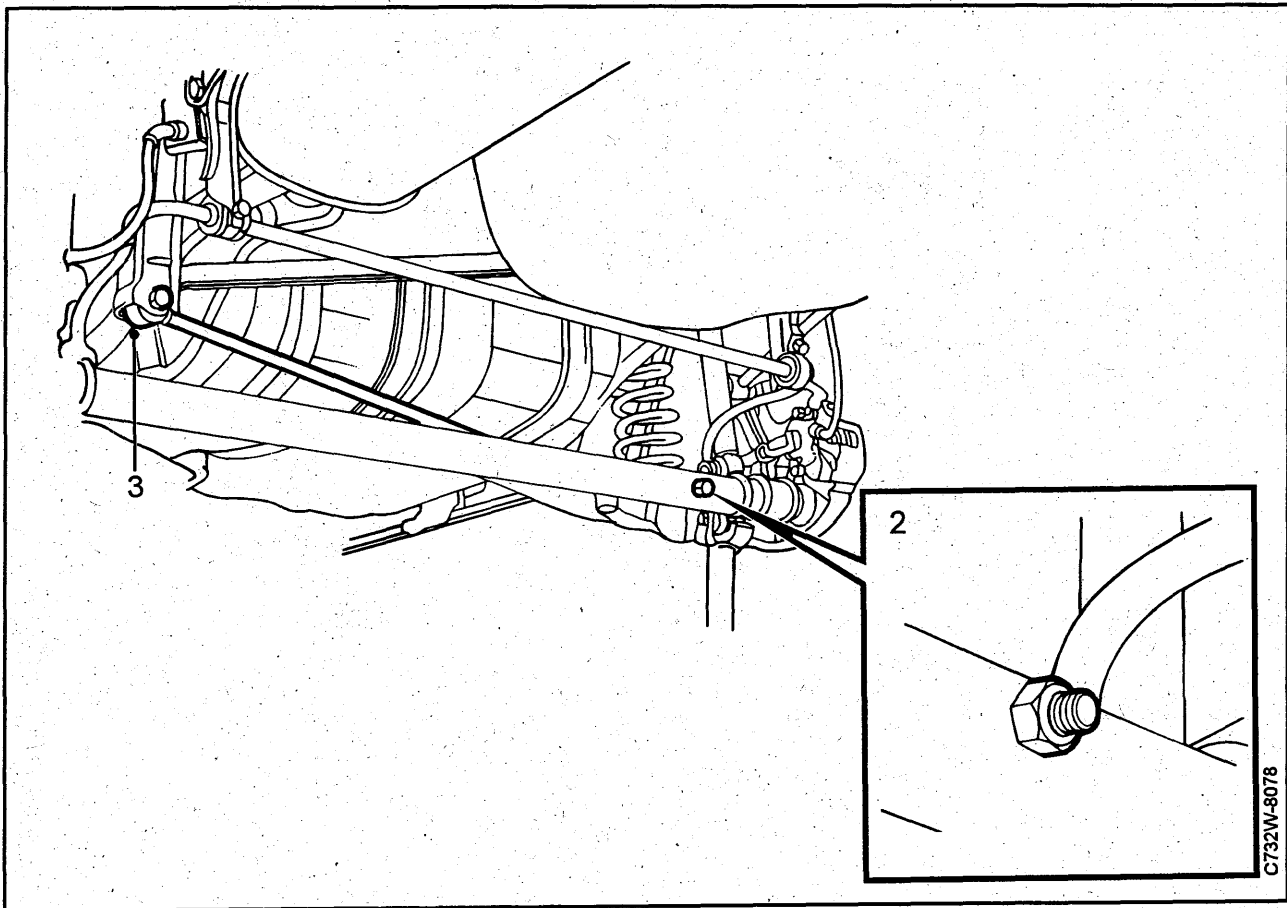
### Removal

- 1 Lift the car.
- 2 Remove the Panhard rod from the rear axle.
- 3 Unfasten the rod from the bracket on the body.

### Fitting

- 1 Fit the rod to the bracket on the body.
- 2 Fit the Panhard rod to the rear axle.
- 3 Lower the car.

## Panhard rod bracket



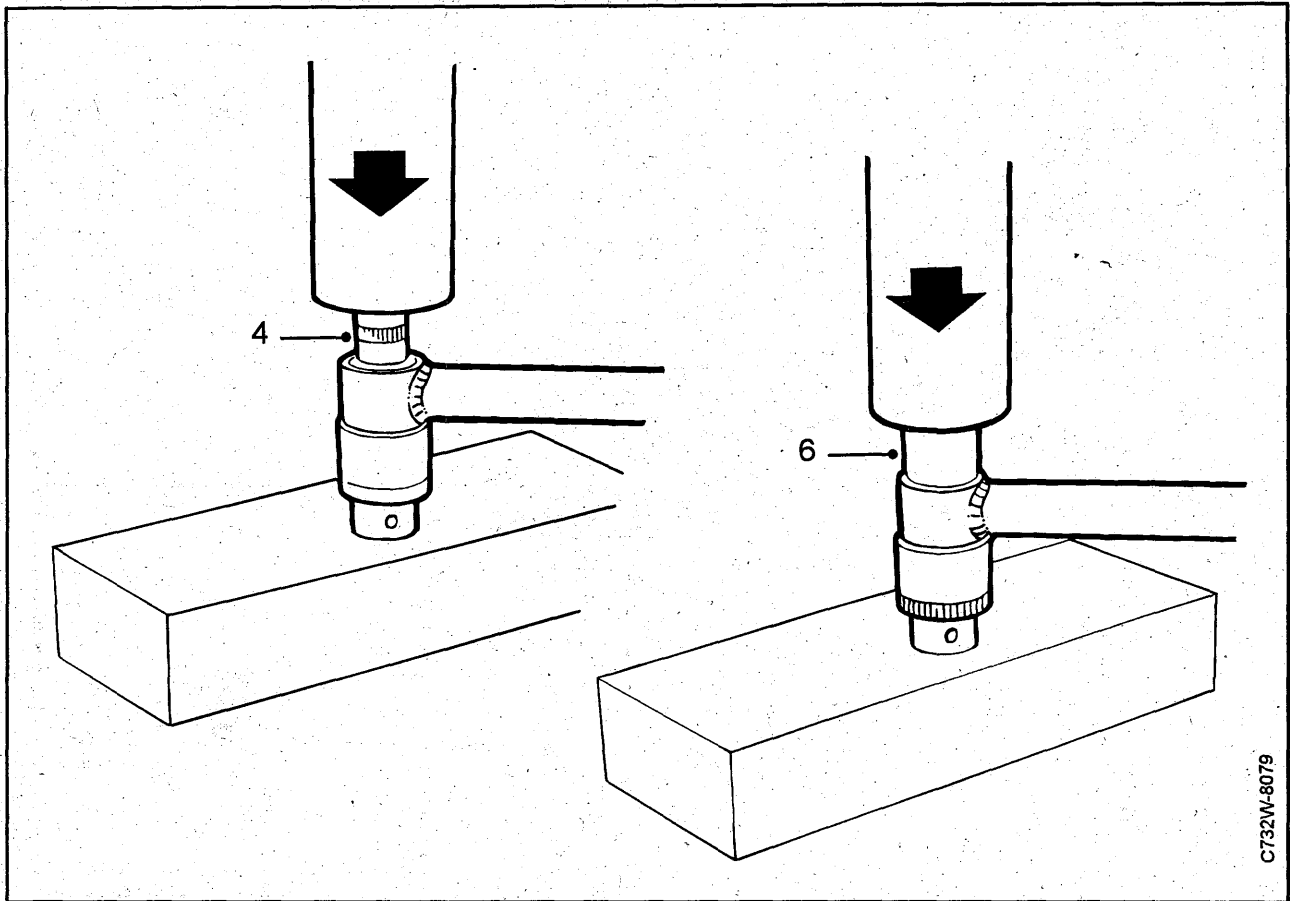
### Removal

- 1 Lift the car.
- 2 Remove the Panhard rod from the rear axle.
- 3 Unfasten the rod from the bracket on the body.
- 4 Remove the bracket from the body.

### Fitting

- 1 Fit the bracket to the body.  
Fit the rod to the bracket.
- 2 Fit the Panhard rod to the rear axle.
- 3 Lower the car.

## Rear bush on the torque arm



C732W-8079

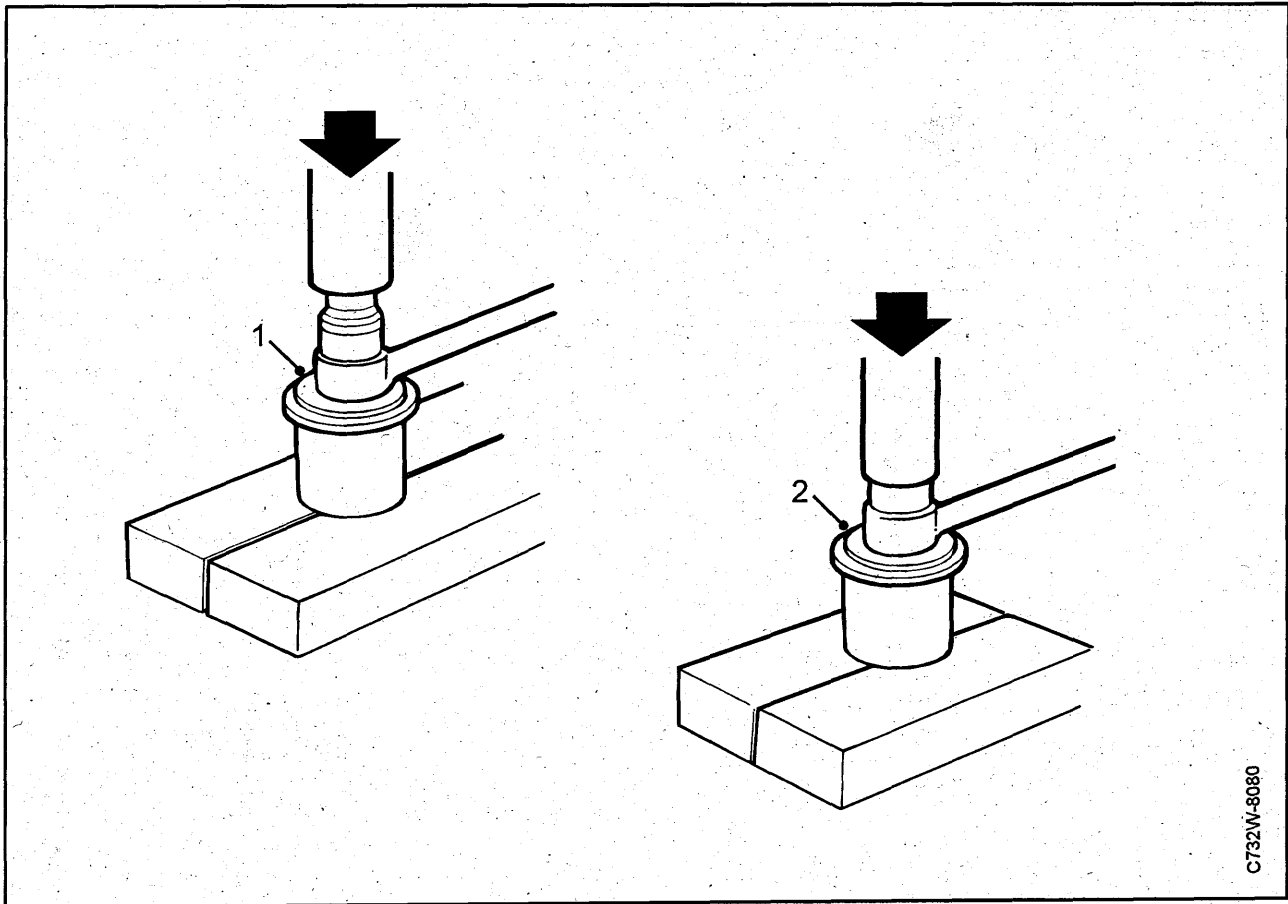
### Removal

- 1 Lift the car.
- 2 Remove the wheel.
- 3 Remove the torque arm from the car.
- 4 Use sleeve no. 24 as a dolly and press against the inner spacer of the bush with sleeve no. 14, see picture.

### Fitting

- 1 Lubricate the rear fitting lug and the bush with Vaseline.
- 2 Use sleeve no. 24 as a dolly and push in the new bush, see picture.

## Front torque arm bush



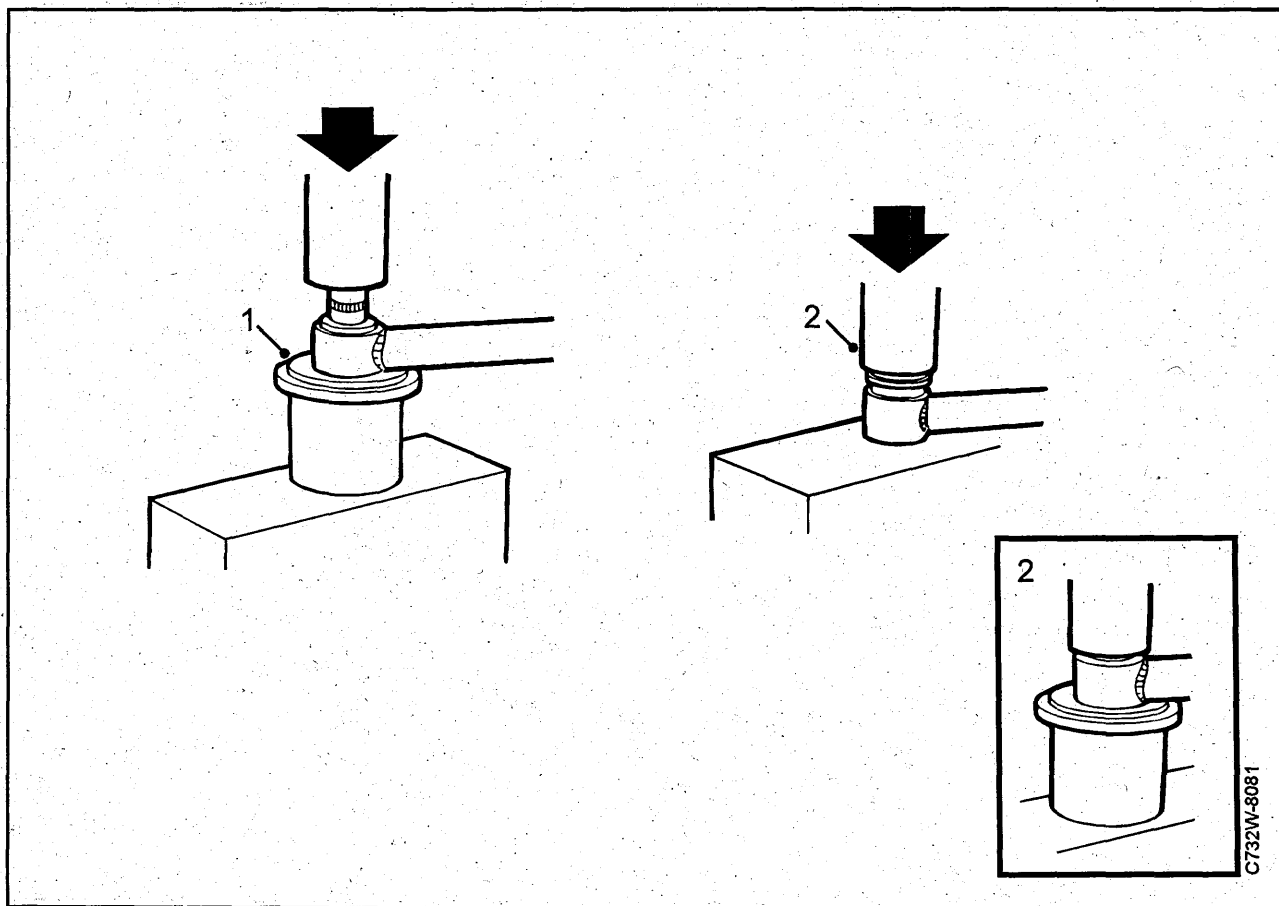
### Removal

- 1 Press out the bush using sleeve no. 30. Tool 89 96 464 can be used as a dolly.

### Fitting

- 2 Push in the new bush. Tool no. 89 96 464 can be used as a dolly.

## Panhard rod bush



### Removal

- 1 Press out the bush using sleeve no. 14. Tool 89 96 464 can be used as a dolly.

### Fitting

- 2 Push in the new bush. Use tool no. 89 96 464 as a dolly to force the bush home.

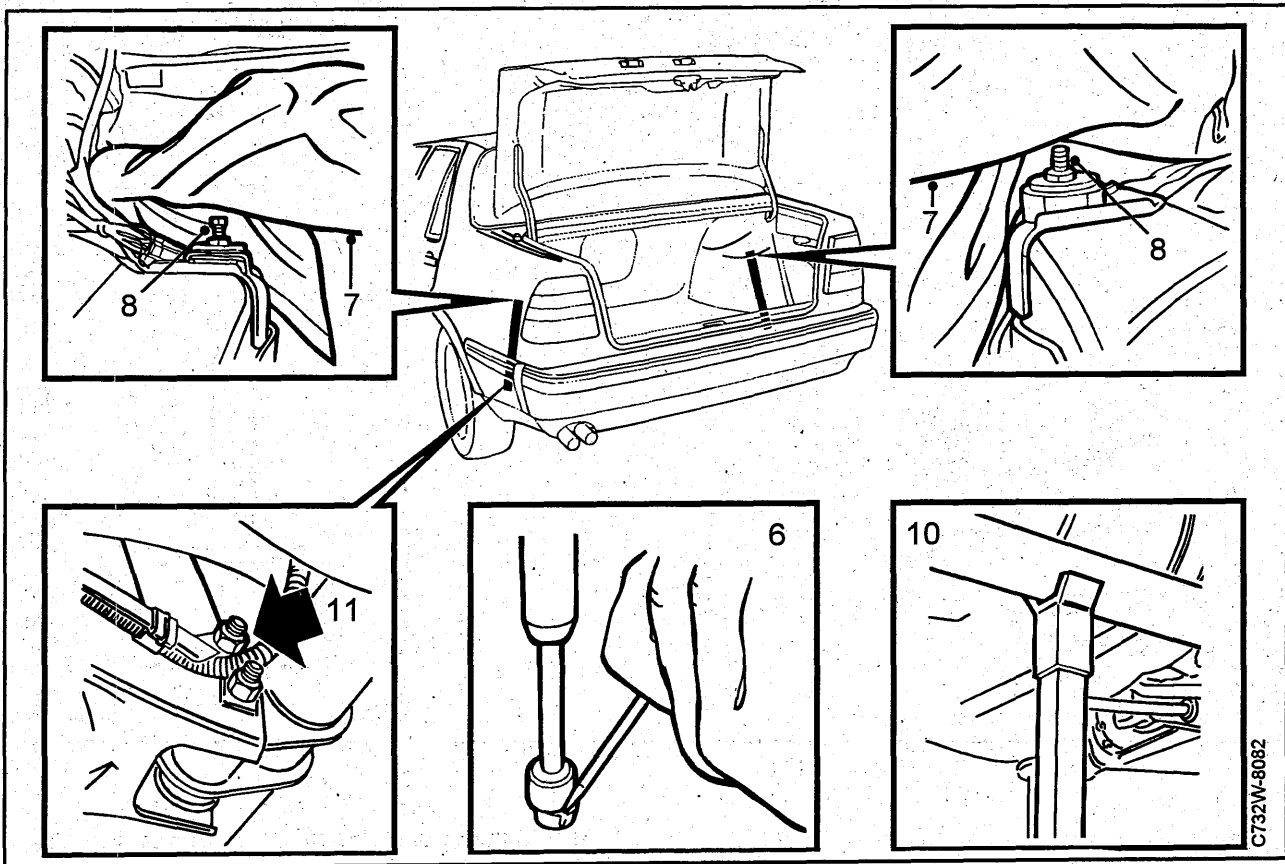


# Damper

Damper ..... 761-1

Rear damper,  
rubber bush ..... 761-3

## Rear dampers



C732W-9082

### Removal

- 1 CS and 5-d (CC): Remove the parcel shelf.
- 2 Remove the rear light covers.
- 3 Remove the rear unit.
- 4 On cars with motor driven radio antennas the cover for this should be removed.
- 5 Remove the floor of the luggage compartment.
- 6 On 4 door models: Unfasten the rear hatch absorber from its lower mounting,
- 7 Unfasten the carpeting at the rear edge and move it out of the way to expose the upper securing point of the damper.
- 8 Remove the nut, washer and bush from the upper securing point of the absorber.
- 9 Lift the car and remove the rear wheel.

- 10 Unload the rear axle slightly by positioning a jack under the rear axle.
- 11 Remove the bolt from the lower damper bracket.

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#### Important

If the anti-roll bar bush is damaged it should be changed.

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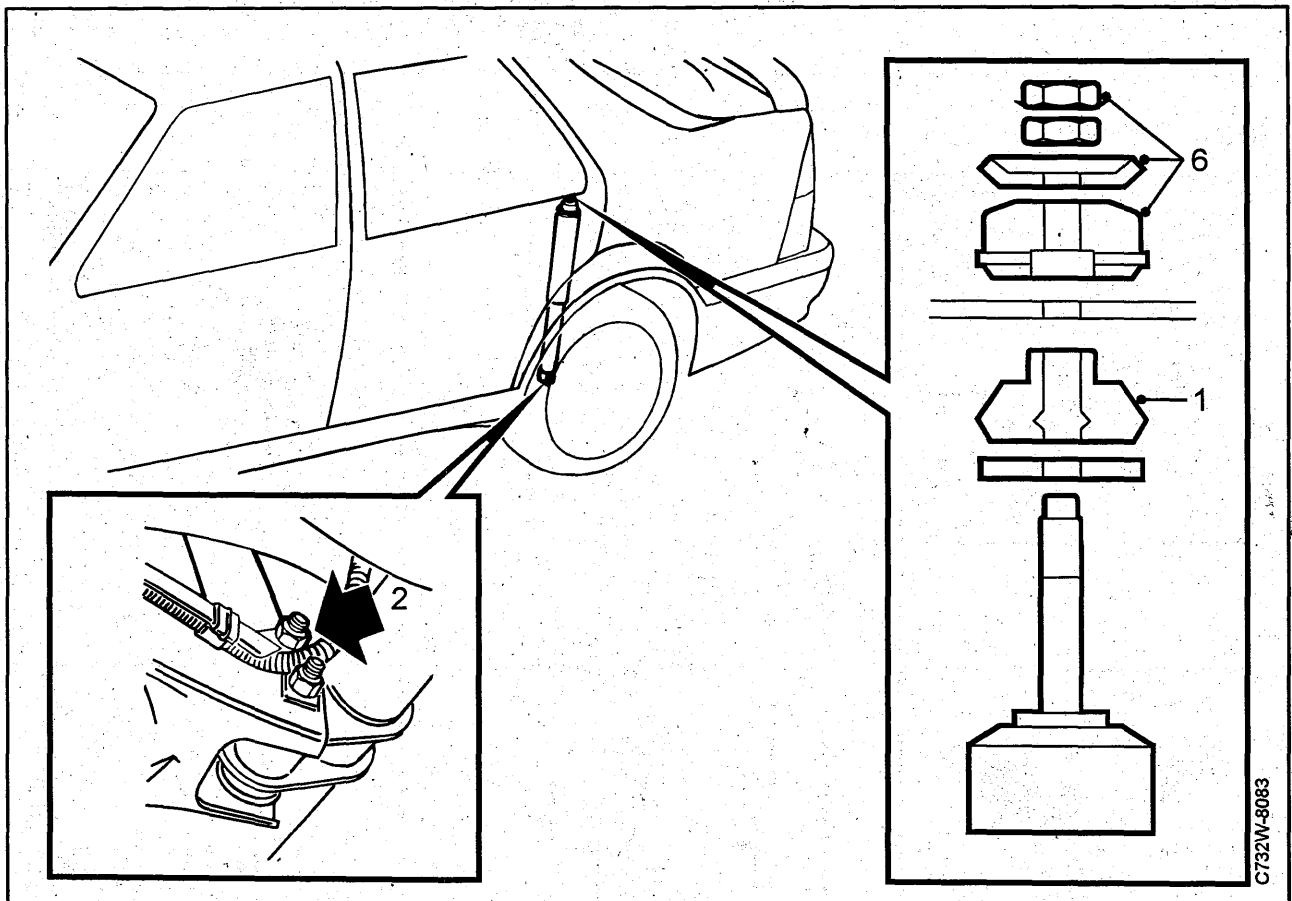
- 12 Lower the jack under the rear axle.
- 

#### Important

Ensure that the flexible hose is not damaged.

---

Rear damper (cont.)



**Fitting**

**Important**

Washer and bush positions, see figure.

- 1 Slip the upper damper bracket in the hole in the body.
- 2 Fit the damper to the lower fastening.

**Tightening torque:**  
85 Nm (63 lbf ft)

- 3 Replace the road wheel.
- 4 Lower the car.
- 5 Tighten the wheel studs.

**Tightening torque:**  
120 Nm (89 lbf ft)

- 6 Fit the bush, washer and nut to the upper mounting.

**Tightening torque:**  
15 Nm (11 lbf ft)

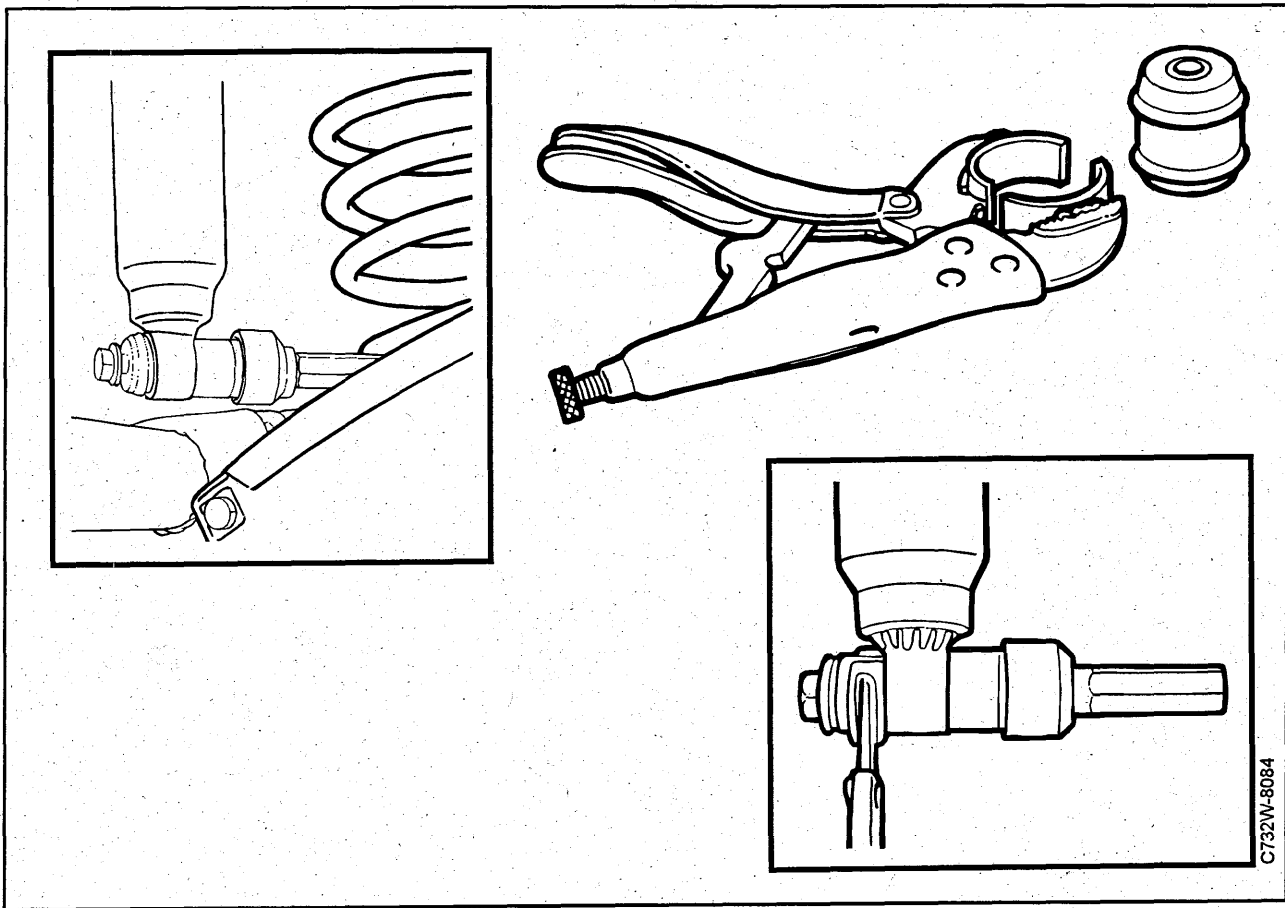
**Important**

Washer and bush positions, see figure.

- 7 Re-fit the carpeting and return the luggage compartment to its original condition.

CS and 5-d (CC): Replace the parcel shelf.

## Rear damper, rubber bush

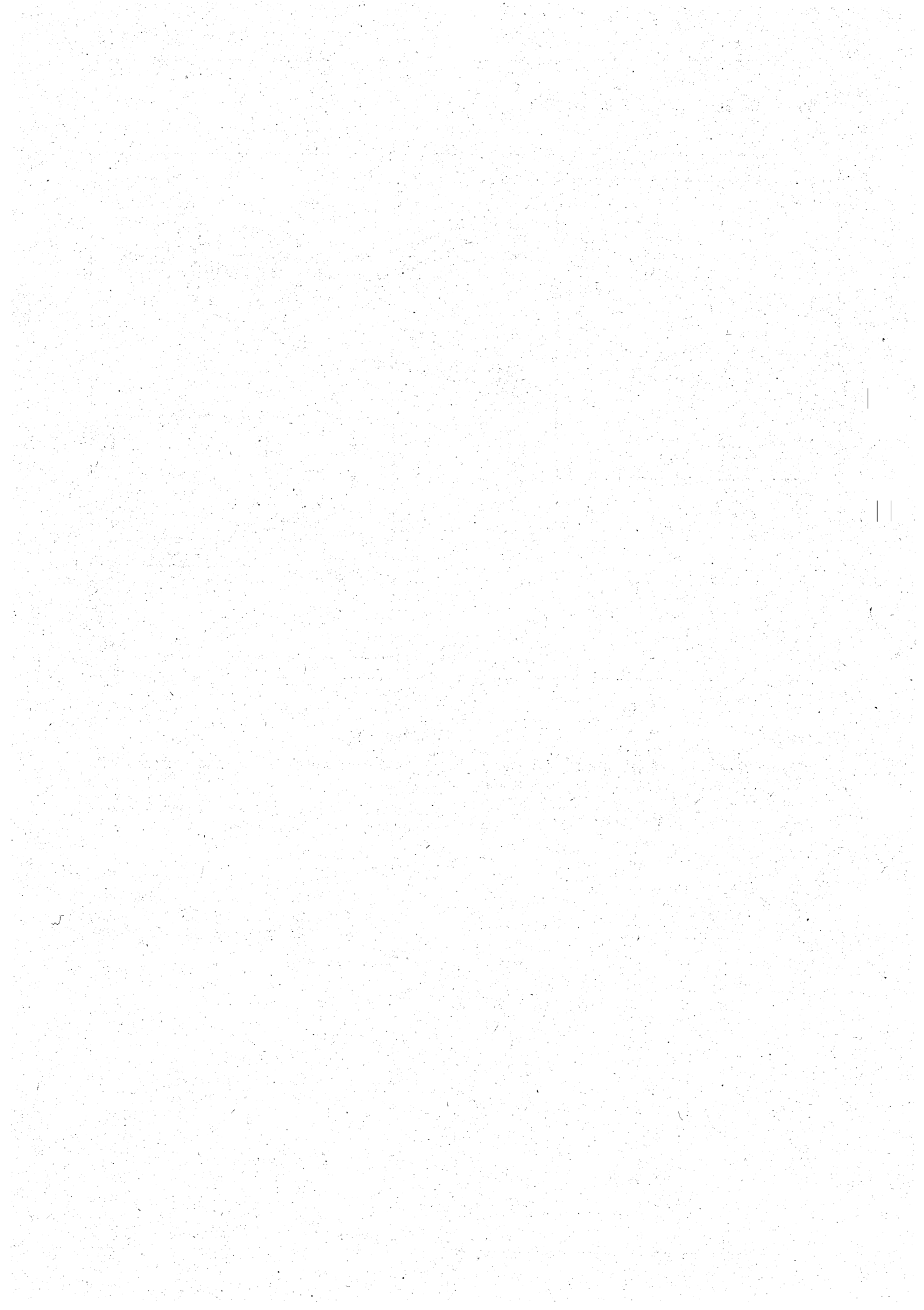


## Removal

Press out the bush by fixing a regular screw through the bush and on the other side of the bush place a spacer (sleeve no. 24), fitting sleeve and the nut from tool 89 96 274.

## Fitting

- 1 Clean the bush seating and lubricate with Vaseline.
- 2 Lubricate the rubber bush and also the compression tool with Vaseline.
- 3 Compress the bush.
- 4 Position the bush with the compression tool, screw (regular screw for the damper lower mounting), spacer (sleeve no. 24) and nut and fitting sleeve from tool 89 96 274. Press in the bush.

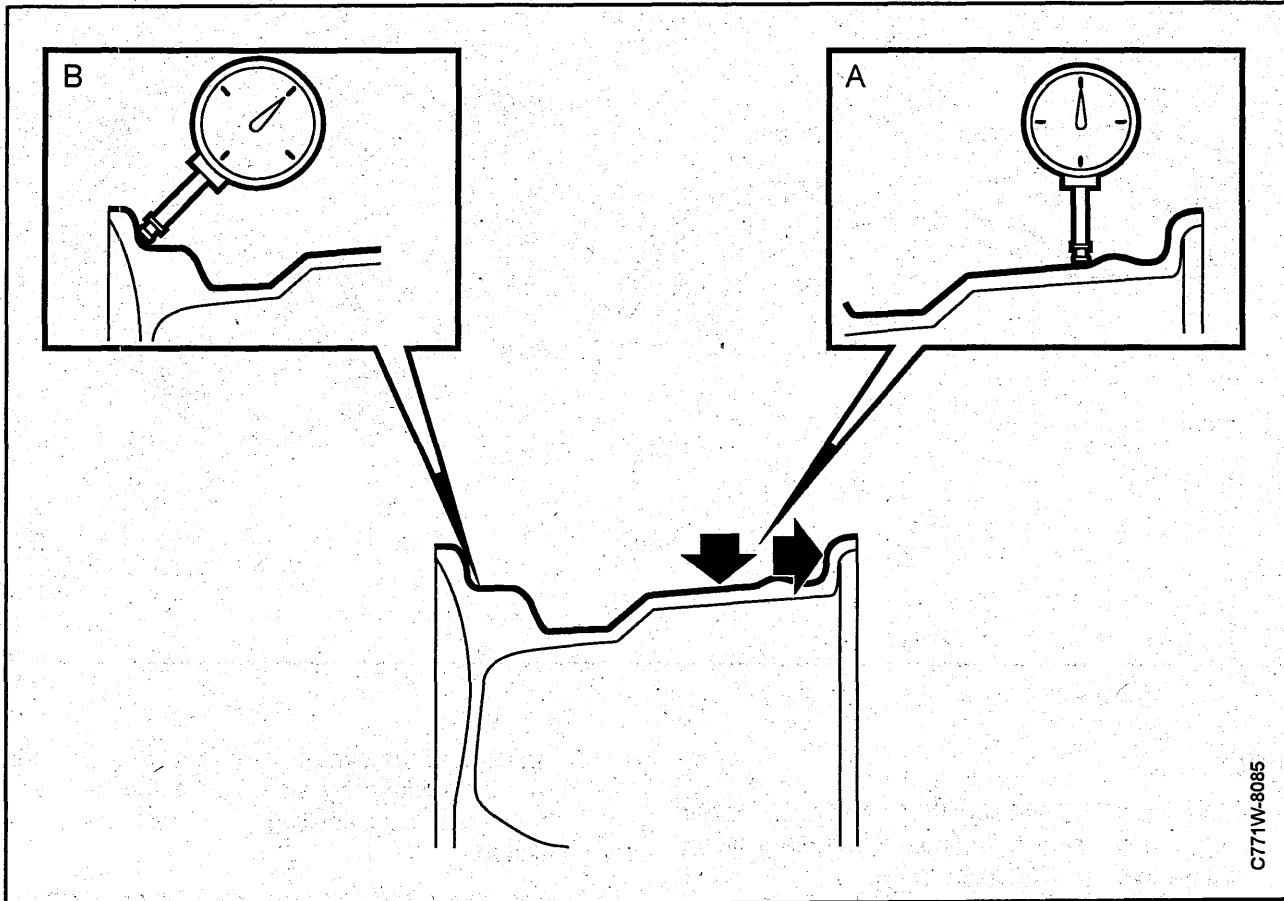


# Wheels

Rim inspection ..... 771-1  
 Tyre ..... 771-2

Wheels ..... 771-4  
 Rims ..... 771-5

## Rim inspection



### Rim run out measurement

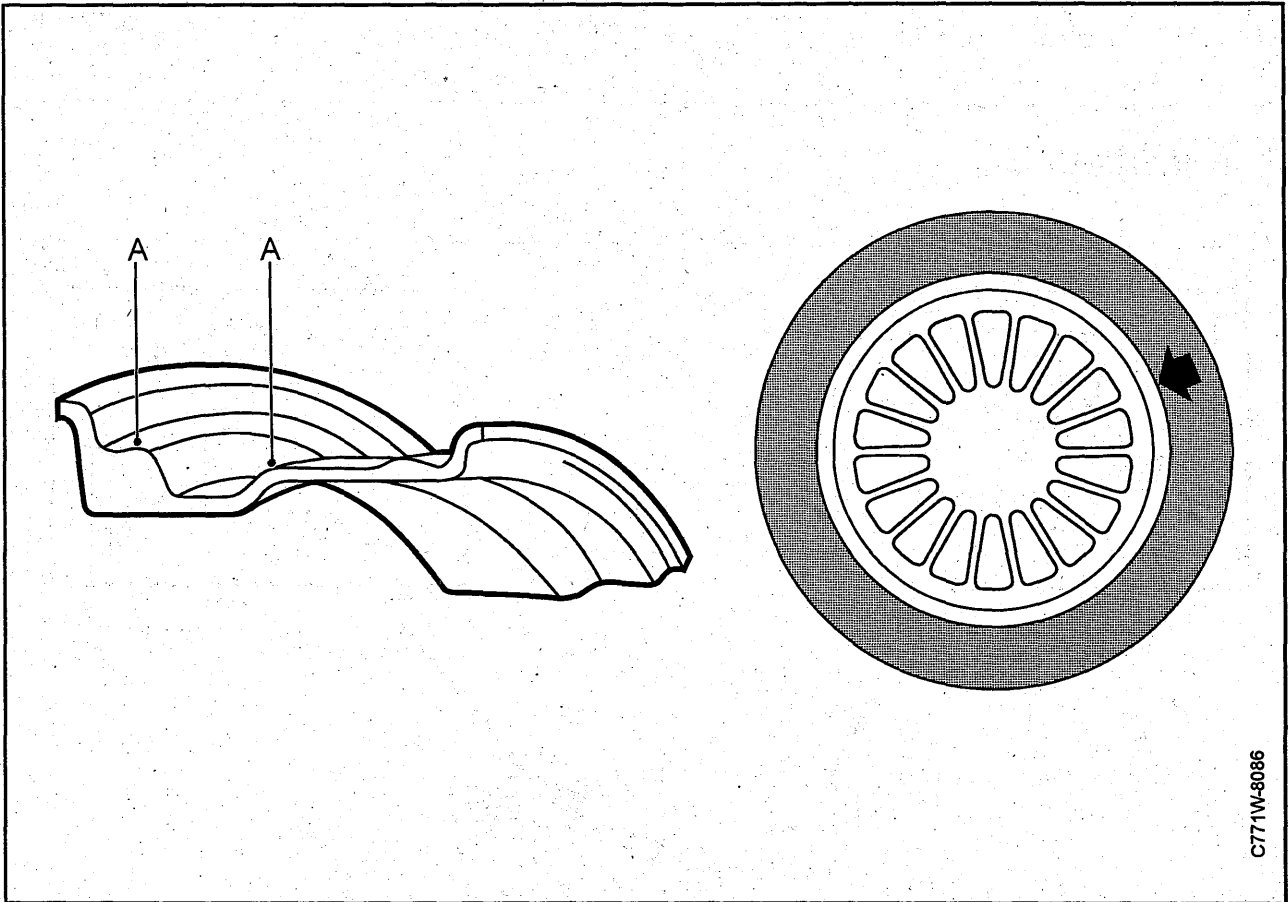
- 1 Place the rim (without tyre) in a stationary wheel balancing machine. Set up a dial indicator and measure the radial runout (A) and axial runout (B) on both sides of the rim.

On a correctly mounted rim the following values of maximum radial-/axial run-out apply:

Pressed steel wheels	Radial	1.0 mm
Pressed steel wheels	Axial	1.0 mm
Aluminium rim	Radial	0.5 mm
Aluminium rim	Axial	0.5 mm

- 2 Replace the rim if the run out is extensive.

## Tyre



C771W-8086

### Fitting

- 1 Clean and lubricate both the tyre inflation former and the rim edge with liquid lubricant or fitting paste (part no. 45-30 21 169).  
If a paste is used, avoid rapid acceleration and strong braking until the wheel warms up as the tyre might shift on the rim.
- 2 Fit and inflate the tyre to 3.5 bars (51 psi) without fitting the valve.

### Important

If the tyre is not tight to the rim edge (A) at 3.5 bars (51 psi), remove the tyre and repeat lubrication.

- 3 After that, release the pressure.
- 4 Fit the valve and inflate the tyre to the correct pressure.

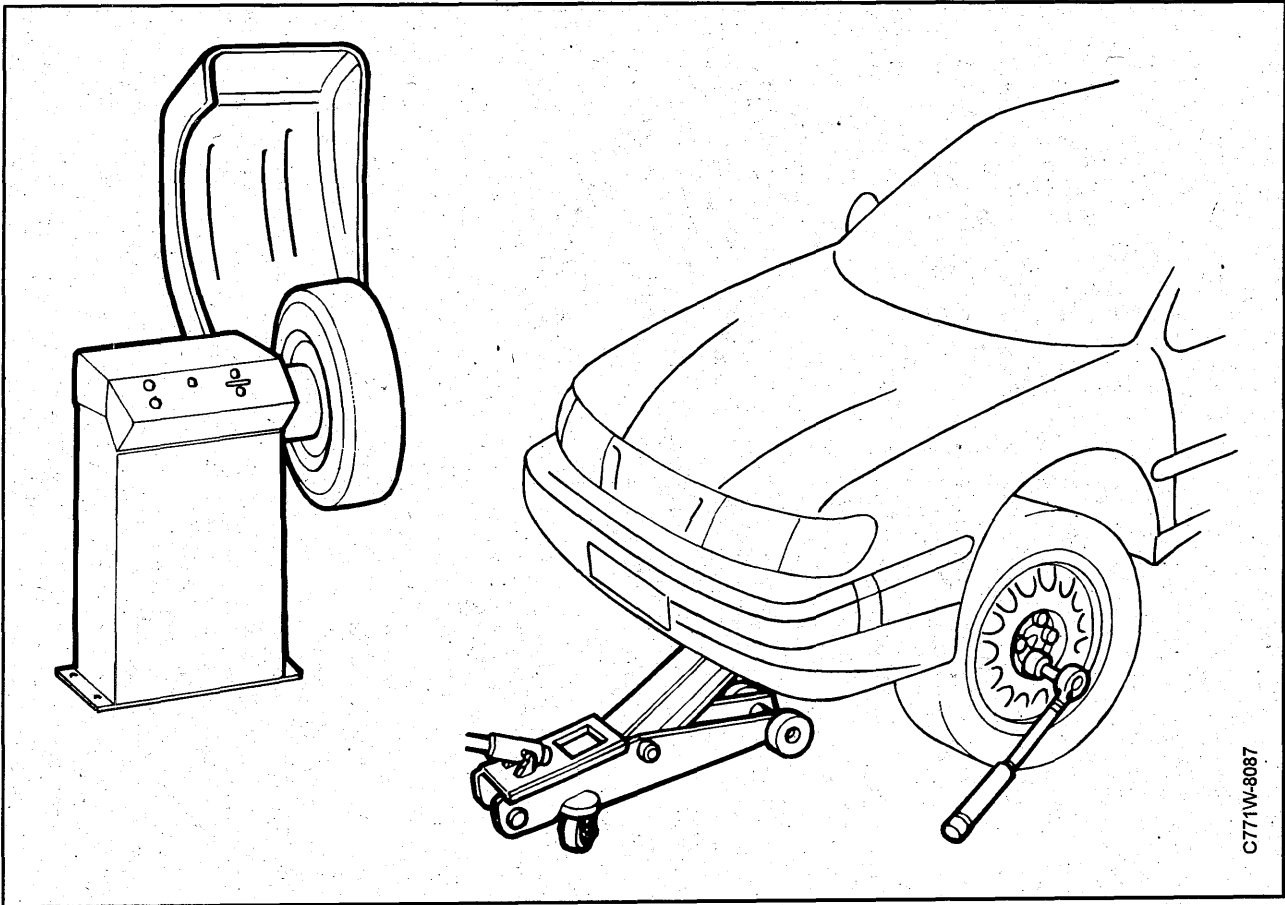
- 5 Check that the centring rim moves at an even circular tracking by starting the machine and then opening the cowl before the brake is activated.
- 6 Also check the radial and axial run out by in the same way. No run out should exceed 1 mm.

### Important

When changing the tyre with accessory wheel "Super Aero" with the dimensions 6 1/2 16" certain safety measures must be taken.

To avoid damage to the rim it should be positioned with the front side downwards when fitting the tyre. Use clean plastic inlays when mounting the rim to the tyre machine. Ensure that the pressure to the tyre machine is sufficiently high so that the risk of slipping is eliminated. (Minimum pressure: 8 kg) at fitting.

## Tyres (cont.)



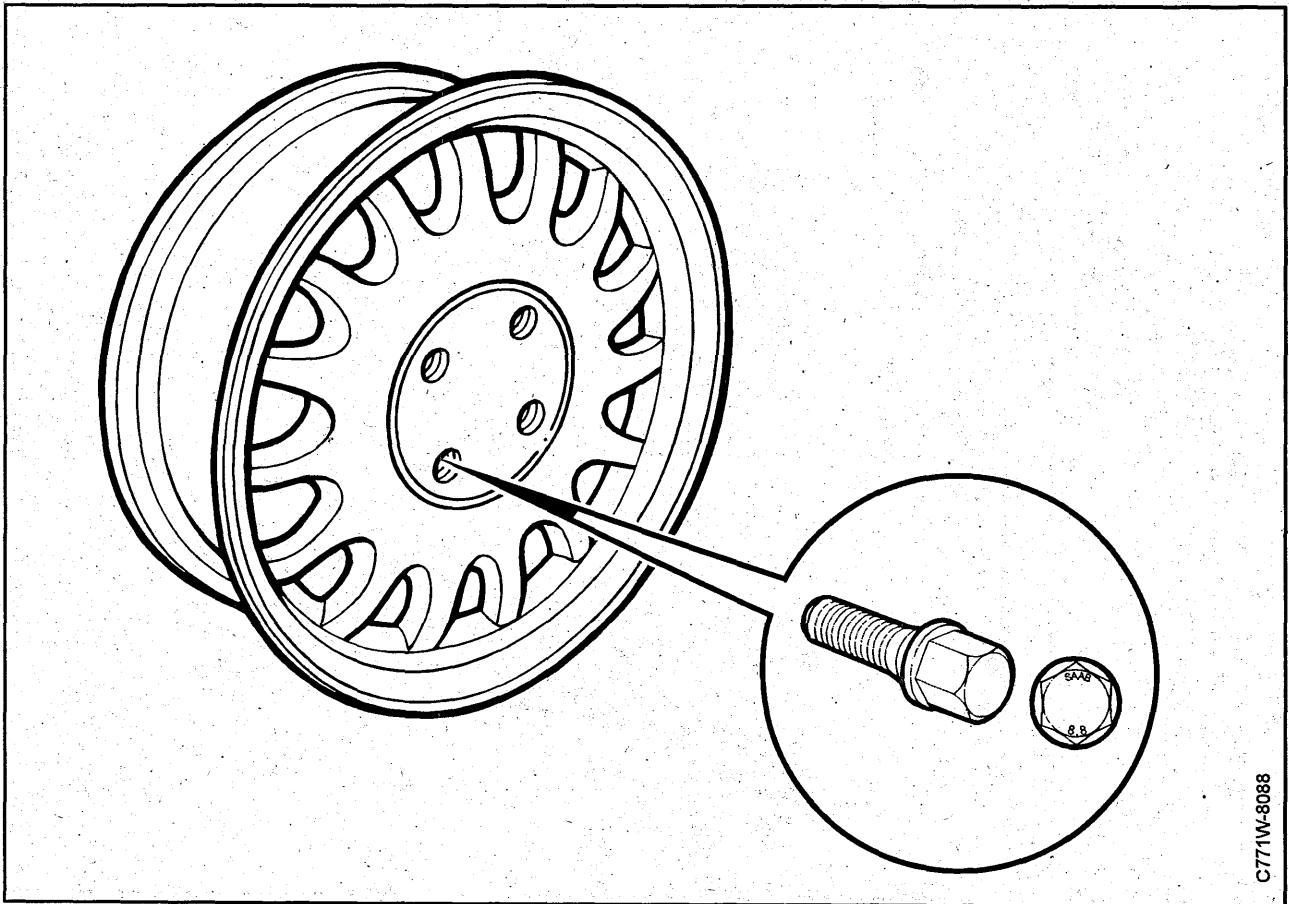
### Tyre balancing

Balance all wheels in the stationary wheel balancing machine so that any remaining imbalance is as small as possible, maximum 5 grams per wheel side.

Only one weight may be used on each side of the wheel. This may not exceed 40 grams per side, or 80 grams per wheel.

If more weight is needed to balance the wheel, unfasten the wheel and rotate it 180° and refit the tyre according to points 1-6 "Tyre fitting".

## Wheels



C771W-8088

### Fitting

When fitting the wheel the hub centring should be coated with anti-corrosion agent.

In conjunction with M1995 a new wheel stud was introduced that fits both aluminium and steel rims. The new wheel stud fits all cars from M1985. This stud is treated with DACROMET 500 that protects very well against corrosion.

Wheel stud (M1985-) part no. 46 45 149.

**Wheel studs, tightening torque  
120 Nm (89 lbf ft)**



## Rims

Tyre	Rims	in 16	T 16	CS	CSE	Aero	CD
185/65 R15 T, H 195/60 R15 195/65 R15 H, V	6Jx15	X					
185/65 R15 T, H 195/60 R15 195/65 R15 H, V	6Jx15	X					
195/60 R15 195/65 R15 H, V 205/55 R15 V	6Jx15	X	X				
195/60 R15 195/65 R15 H, V 205/55 R15 V	6Jx15	X	X				
195/60 R15 195/65 R15 H, V 205/55 R15 V	6Jx15	X	X				

## Rims (cont.)

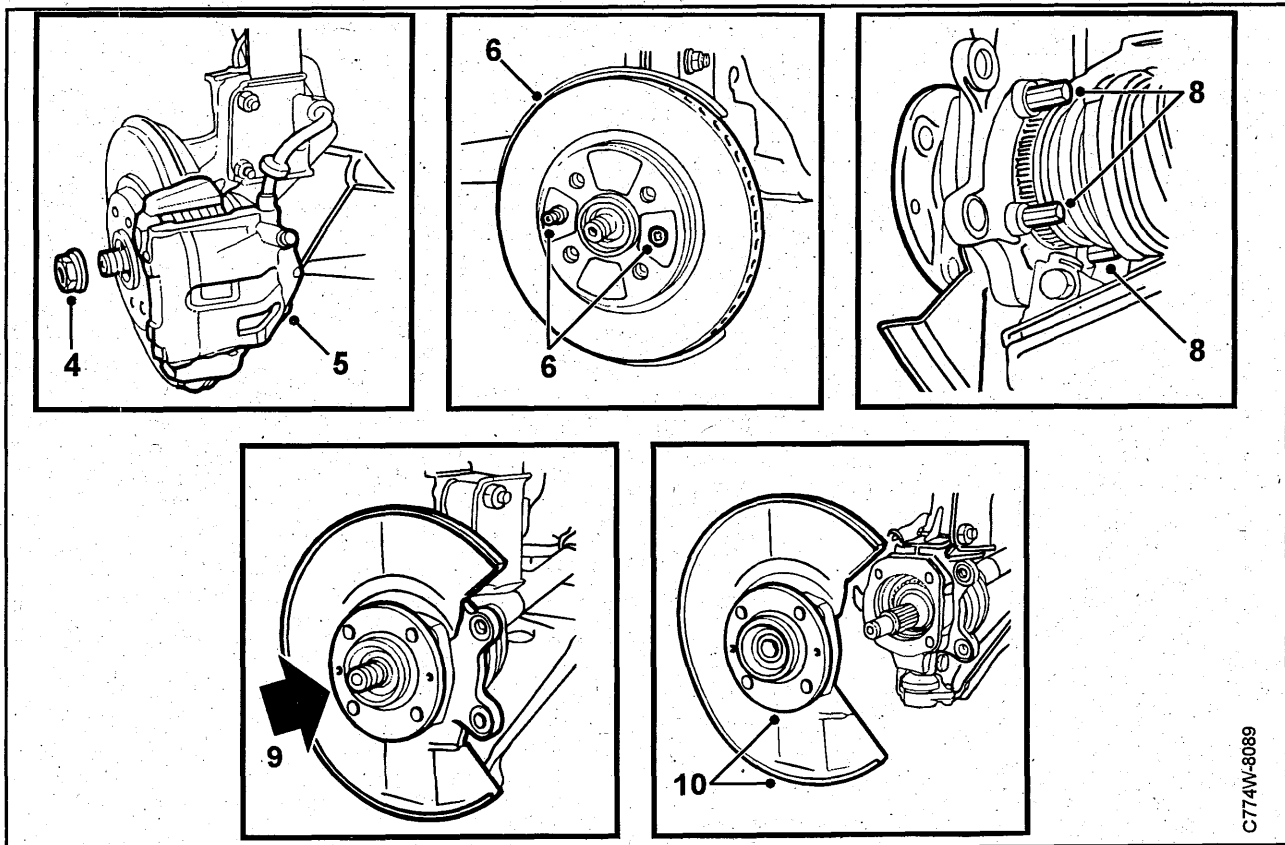
Tyre	Rims	in 16	T 16	CS	CSE	Aero	CD
205/50 R16 V	6 1/2Jx16		X				
195/65 R15 V	6Jx15			X			
195/65 R15 V	6Jx15			X	X		
205/55 R16 W	6 1/2x16					X	
195/65 R15 V	6Jx15				X		X

# Hub

Front wheel hub ..... 774-1  
 Rear wheel hub ..... 774-4  
 Rear wheel bearing ..... 774-6  
 outboard drive shaft ..... 774-7  
 Outer universal joint ..... 774-10

Rubber gaiter for outboard  
 universal joint ..... 774-11  
 Inner universal joint (Tripod) .... 774-12  
 Rubber gaiter for inboard  
 universal joint ..... 774-14

## Front wheel hub

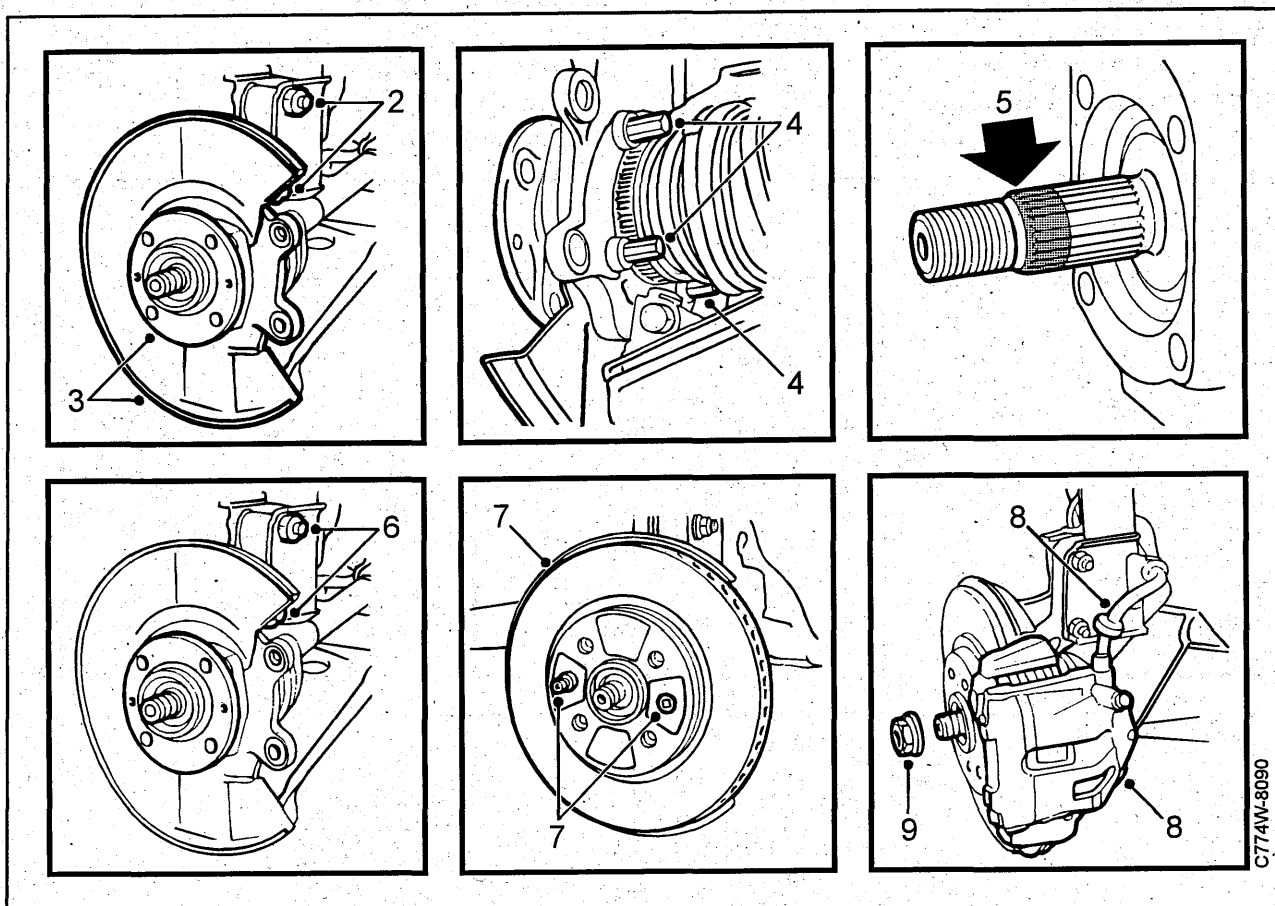


C774W-8089

### Removal

- 1 Loosen the hub centre-nut slightly when the car is standing on all four wheels.
- 2 Lift the car. If a jack is used then the car should be mounted on axle stands.
- 3 Remove the wheel.
- 4 Remove the hub centre-nut.
- 5 Remove the brake caliper as follows:
  - Press the brake piston back with a pair of grips.
  - Unfasten the two bolts securing the brake caliper to the steering swivel member.
  - Hang the brake caliper from a spring with a suitable steel wire or cable tie.
- 6 Remove the locating stud and brake disc securing bolts. Lift off the brake disc.
- 7 On cars with ABS-brakes the ABS-sensor securing bolts should be lifted up.
- 8 Remove the four screws securing the hub to the steering swivel member.
- 9 Pull off the hub from the drive shaft with puller part no. 87 91 287 and puller jackscrew part no. 87 91 303.  
Remove the disc back-plate.
- 10 Remove the hub and disc back-plate.

## Front wheel hub (cont.)



## Fitting

- 1 Clean and de-grease the drive shaft and hub.
- 2 Unfasten the two steering swivel member bolts from the spring. Move the steering swivel member out of the way so it is possible to tighten the hub securing bolt.

3 Re-fit the disc back-plate and hub.

- 4 Tighten the four bolts securing the hub to the steering swivel member.

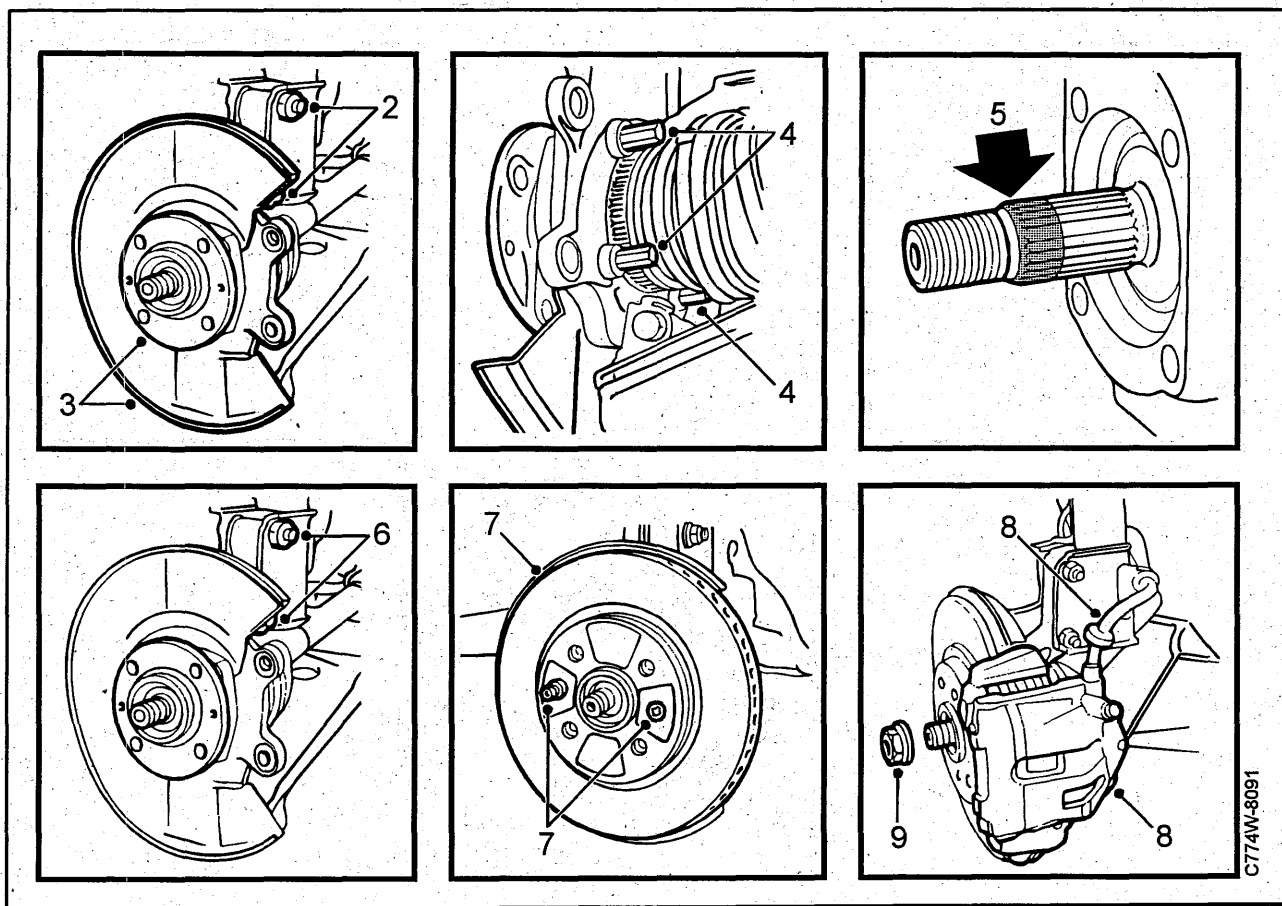
**Tightening torque:**  
57 Nm (42 lbf ft)

- 5 Apply Locktite 641 approx. 10 mm in and around the spline joint on the shaft, see picture.

- 6 Hold the outboard universal joint and fit the spline joint on the shaft in the hub and re-fit the two steering swivel member bolts to the MacPherson strut. The nuts should sit forwards. Use new nuts.

**Tightening torque:**  
91 Nm (67 lbf ft)

## Front wheel hub (cont.)



7 Fit the brake disc, locating stud and bolt.

8 Fit the brake unit and install the flexible hose in its mounting on the MacPherson strut. If necessary fit the ABS-sensor (installation of ABS-sensor to and including M1989 see side 774-15).

**Tightening torque for brake unit securing bolts:**

**90 Nm (66 lbf ft)**

9 Fit a new hub centre-nut.

#### Important

New hub centre-nuts should always be fitted if the nut has been unfastened, because the clamping force of the locking device is reduced after re-fitting.

10 Replace the wheel and lower the car. Tighten the wheel nuts.

**Tightening torques for the wheel studs:**  
**120 Nm (89 lbf ft)**

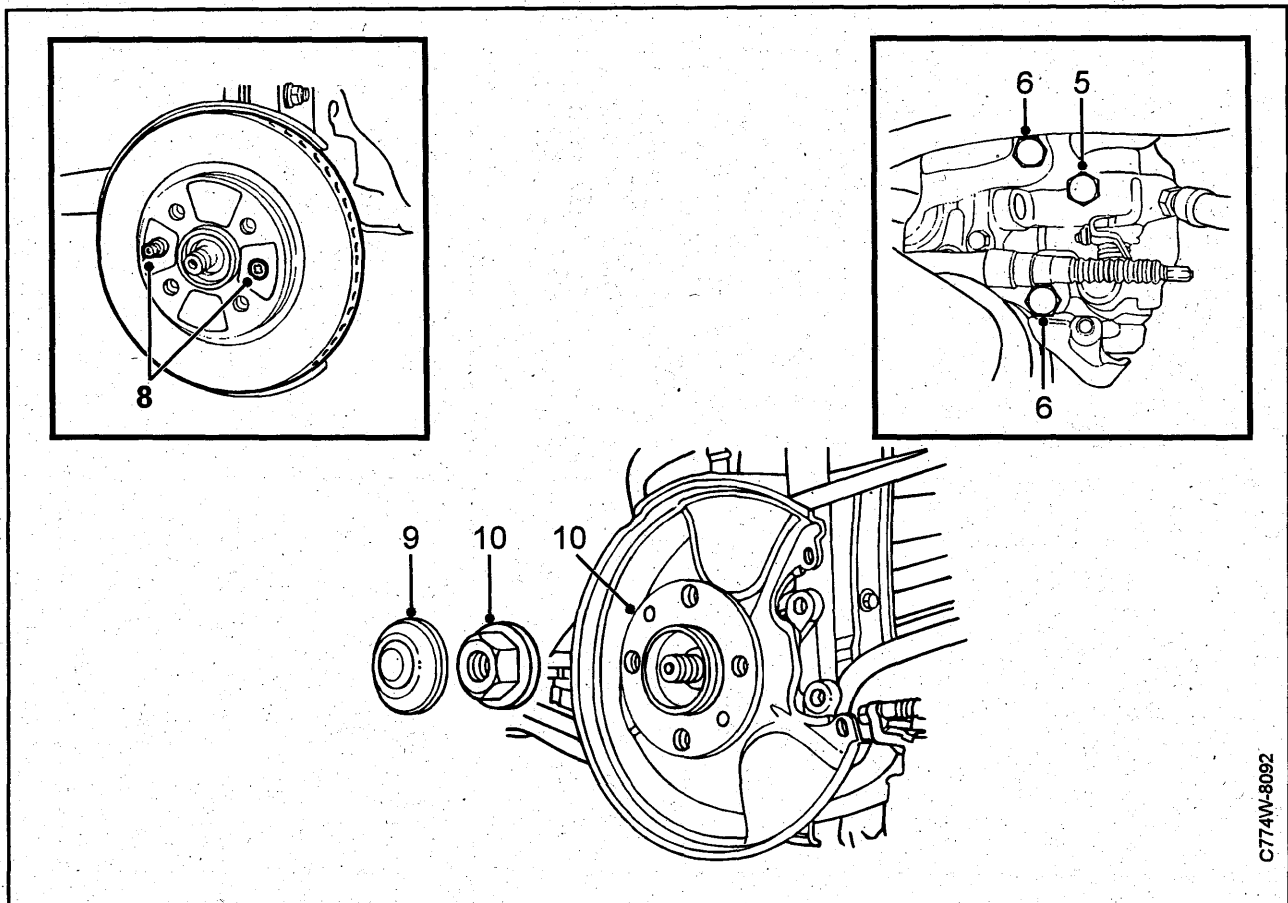
11 Tighten the hub centre-nut.

**Tightening torque for hub centre-nut:**  
**290 Nm (214 lbf ft)**

#### Important

Press out the brake pads with the brake pedal. The glue (Locktite 641) should be allowed to dry for 1 hour before the car is driven.

## Rear wheel hub

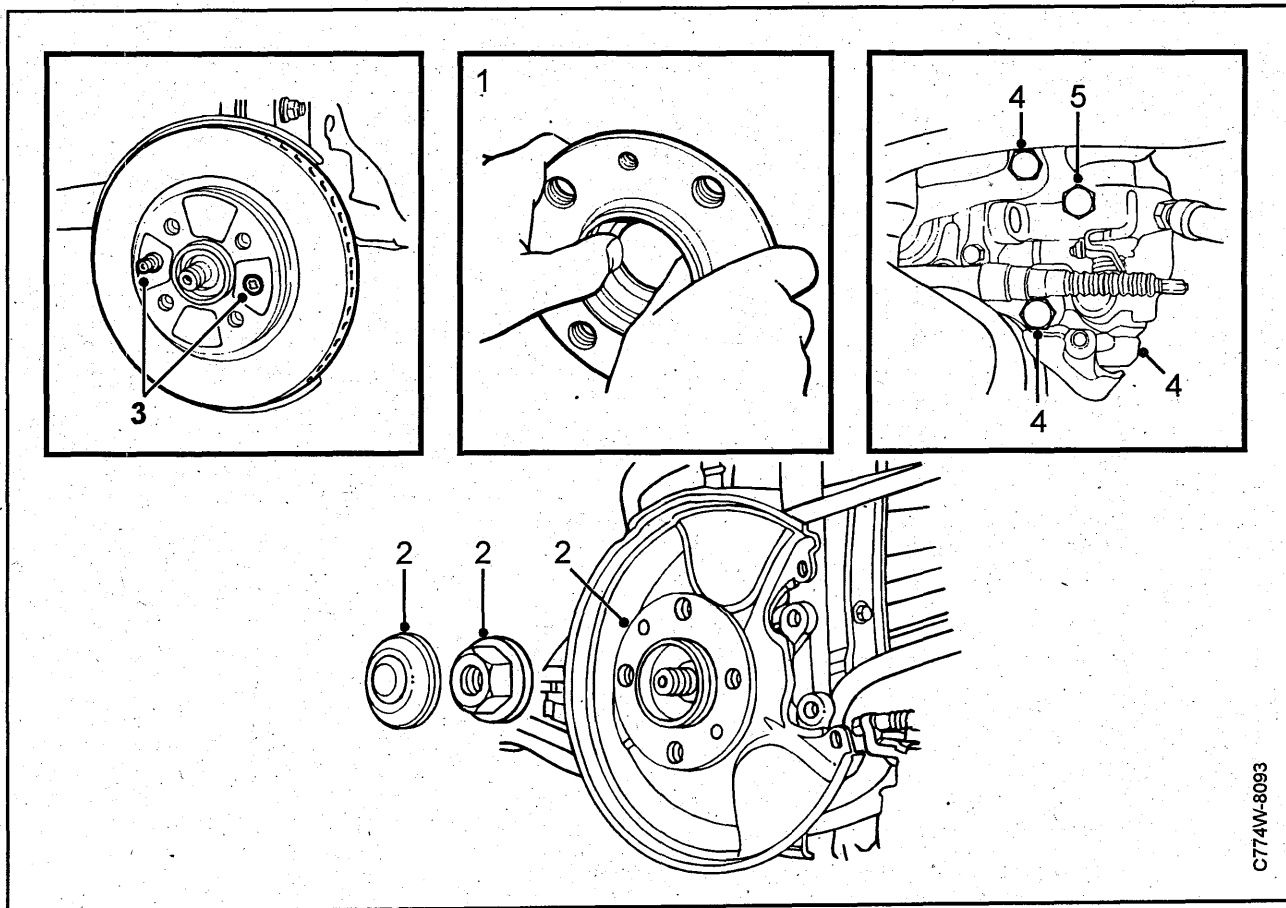


C774W-8092

### Removal

- 1 Lift the car. If a jack is used the car should be supported on axle supports.
- 2 Remove the wheel.
- 3 Remove the handbrake cable from the lever on the brake unit.
- 4 Remove the screw plug to the adjusting bolt.
- 5 Screw out the adjusting bolt a little so that brake piston returns.
- 6 Remove the screws for the brake unit and hang it up by a cable tie or a piano wire.  
Remove the disc back-plate.
- 7 If necessary, remove the ABS-sensor.
- 8 Take away the locating stud and remove the brake disc.
- 9 Take away the protective cap from the hub centre-nut.
- 10 Remove the hub centre-nut and pull off the hub.  
From and including M1986 a flanged nut is used without a washer.

## Rear wheel hub (cont.)

**Fitting**

- 1 Check the axle stud for possible damage. Fit the hub by gripping the it with both hands and pressing against the outer bearing race with your thumbs. Guide the hub on to the stub axle, feeling to make sure it goes on straight. Carefully push the hub into position.
- 2 Fit a new hub centre-nut and dust cover.

**Tightening torque:**  
290 Nm (214 lbf ft)

- 4 Fit the brake unit and the handbrake cable, and if necessary the ABS-sensor (installation of ABS-sensor to and including M1989 see Service Manual 5:2 Anti-lock Braking ABS).
- 5 Adjust the brake piston and fit the screw plug.
- 6 Replace the wheel and lower the car.
- 7 Tighten the wheel studs.

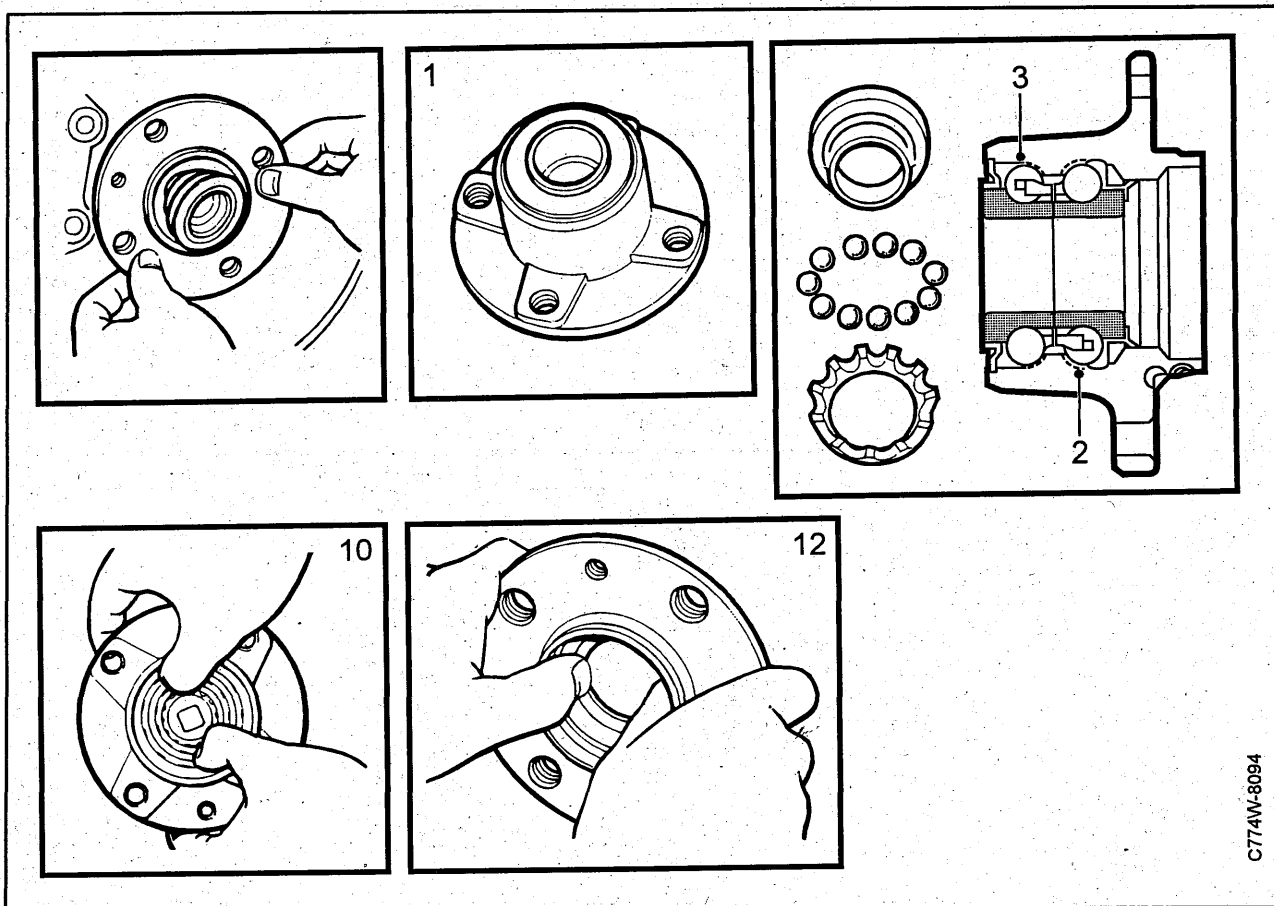
**Tightening torque:**  
120 Nm (89 lbf ft)

**Important**

New hub centre-nuts should always be fitted if the hub centre-nuts have been loosened, because its clamping force is reduced after the nut has been slackened.

- 3 Fit the brake disc and locating stud.

## Rear wheel bearing



C774W-8094

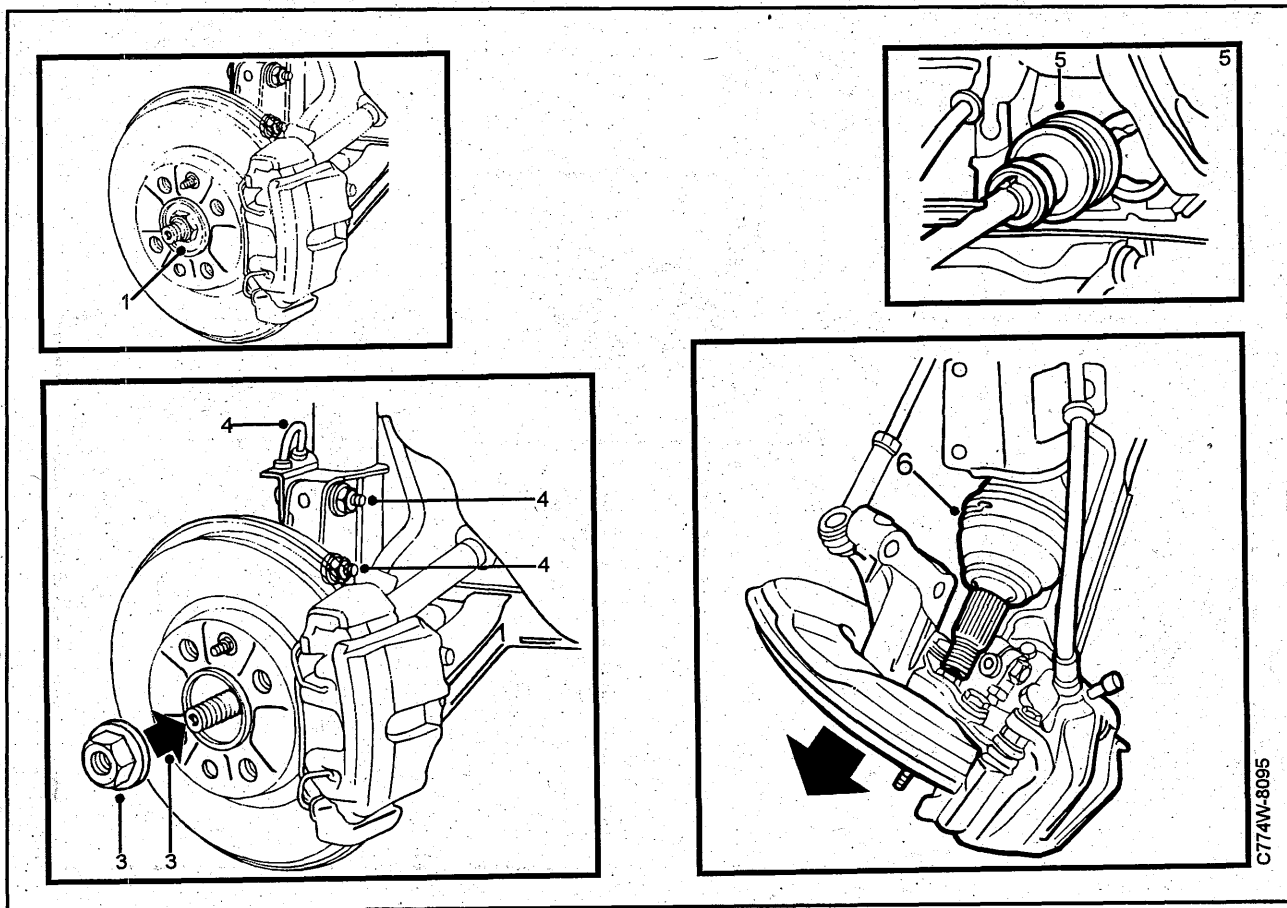
### Fitting rear wheel bearing if the bearing race comes adrift.

If the rear wheel hub has not been fitted correctly, using the wrong method, the outer bearing race in the hub can be forced out. This creates unnecessary work and should therefore be avoided.

- 1 Remove the inner bearings.
- 2 Remove the balls, cage, seal and cap from the inner bearings.
- 3 Press the balls out of the outer cage and remove the cage.
- 4 Thoroughly clean all parts: de-grease, flush with water and blow dry.
- 5 Inspect the parts. If any part is damaged or worn, fit a complete new hub.
- 6 Fit the cap, seal, cage and balls in the inner race.
- 7 Place the outer cage in the hub and fit the balls in the cage.
- 8 Pack the inner and outer races with Esso Nebula EP2 grease.
- 9 Support the outer bearing race on a suitable sleeve.
- 10 Grip the hubs in both hands, applying light thumb pressure against the bearing, as shown. Carefully press the hub onto the bearing.
- 11 Fit the inner bearing and ensure that the seal and the cap are seated properly inside the hub.
- 12 Fit the hub according to the usual method.



## Drive shaft



### Removal

#### Important

Thorough cleanliness must be observed during all work on drive shafts and drive shaft joints, to prevent dirt and dust getting into the joints. Before starting work, always clean the wheel arch, MacPherson strut and other areas around the drive shaft and joints.

- 1 Unfasten the hub centre-nut.
- 2 Lift the car and remove the wheel.
- 3 Remove the hub centre-nut.  
Push the axle stub back approx. 2 cm (if it pushed further back it can damage the tripod). Use puller 87 91 287 and puller arms 87 91 303 together with tool 87 91 154, puller bracket, the belongs to tool collection for manual gear boxes.

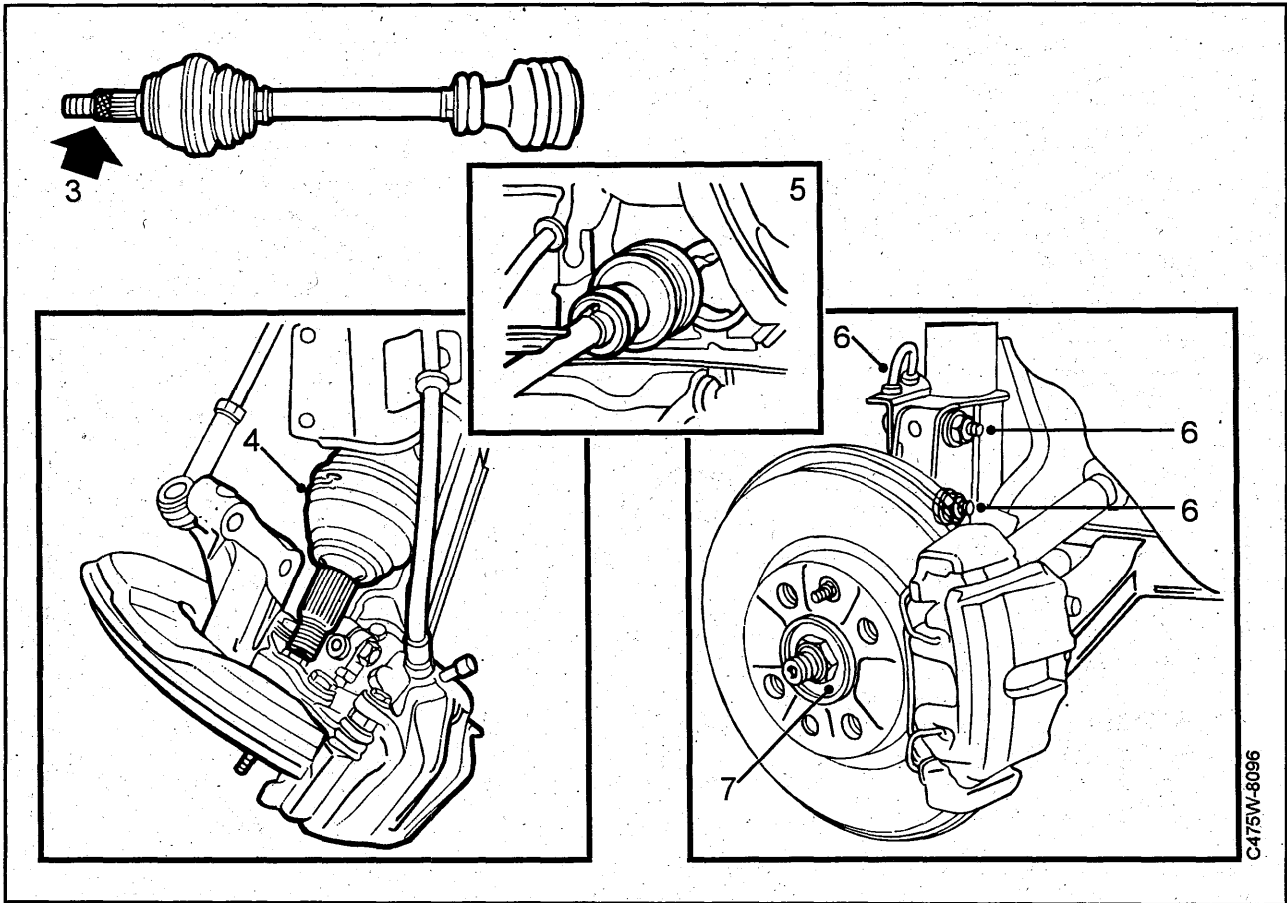
- 4 Remove the steering-swivel member from the MacPherson strut and unfasten the flexible hose from the hose mounting and, if appropriate, also unfasten the ABS-sensor and cable.

#### Important

Scrupulously clean the rubber gaiter and the universal joint driver.

- 5 Remove the clamp securing the rubber gaiter on the inner universal joint driver. Pull the universal joint apart and fit the protective cover on the rubber gaiter and universal joint driver.
- 6 Pull out the drive shaft from the hub.

## Drive shaft (cont.)



### Fitting

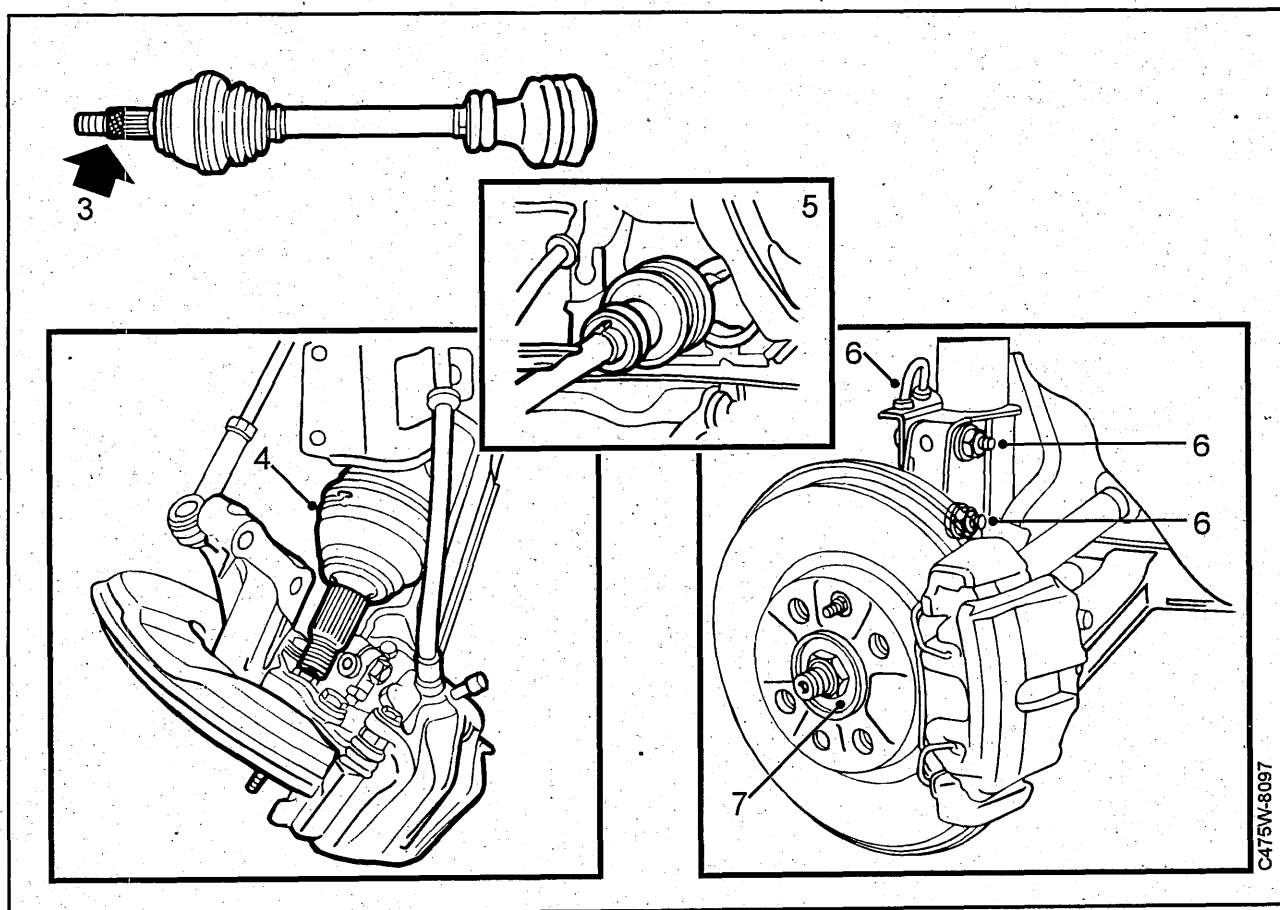
- 1 Remove existing grease out of the universal joint driver and carefully clean the interior.
- 2 Pack the universal joint driver with grease, 60g Mobile K 575 GS. Observe great cleanliness.
- 3 At installation, the drive shaft and hub splines should be cleaned and degreased and have new Locktite 641 applied 10 mm in and around the shaft.

### Important

Before the car is driven the glue (Locktite 641) should have at least 1 hours drying time.

- 4 Fit the drive shaft to the hub.
- 5 Fit the inboard universal joint. Fit the rubber gaiter on the push rod with a new clamp.

## Drive shaft (cont.)



- 6 Re-fit the steering-swivel member to the MacPherson strut.

**Tightening torque:**  
91 Nm (67 lbf ft)

Fit the flexible hose in its mounting. If necessary the ABS-sensor and cable should be refitted (Fitting the ABS-sensor to and including M1989 see service manual 5:2 Anti-lock braking ABS).

- 7 Fit a new hub centre-nut

### Important

New hub centre-nuts should always be fitted if the nut has been unfastened, because the clamping force of the locking device is reduced after re-fitting.

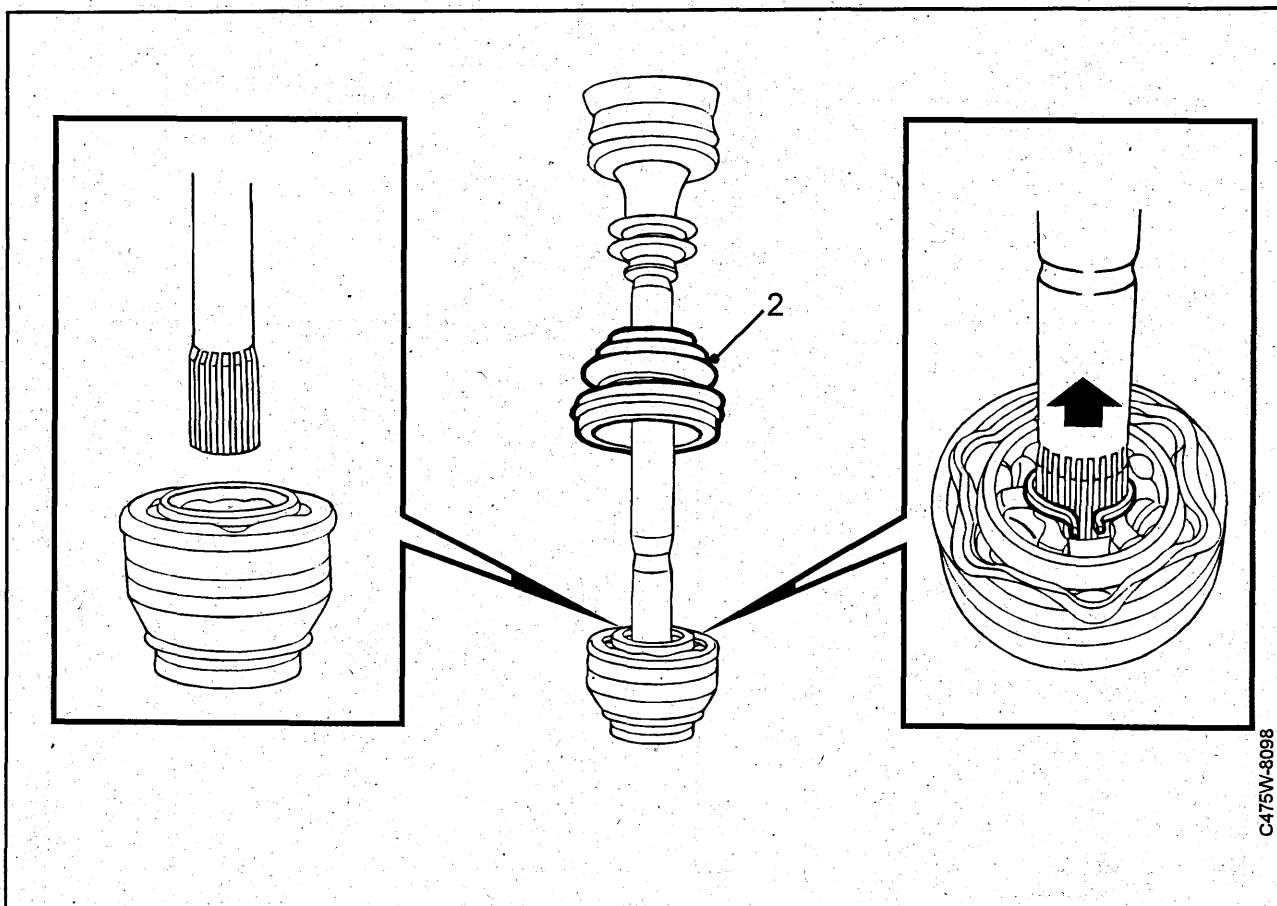
- 8 Fit the road wheel. Lower the car and tighten the wheel bolts.

**Tightening torques for the wheel studs.**  
120 Nm (89 lbf ft)

- 9 Tighten the hub centre-nut.

**Tightening torque for hub centre-nut:**  
290 Nm (214 lbf ft)

## Outer universal joint



C475W-8098

### Dismantling

#### Important

Thorough cleanliness must be observed during all work on drive shafts and drive shaft joints, to prevent dirt and dust getting into the joints. Before starting work, always clean the wheel arch, MacPherson strut and other areas around the drive shaft and joints.

- 1 Ensure that the shaft and rubber gaiter are clean. Unfasten the outer universal joint and slide the gaiter up the shaft a touch. Clean the grease off the universal joint.
- 2 Open out the circlip and pull the shaft free from the universal joint.  
(Replacement of rubber gaiter on the outer universal joint see page 774-11)

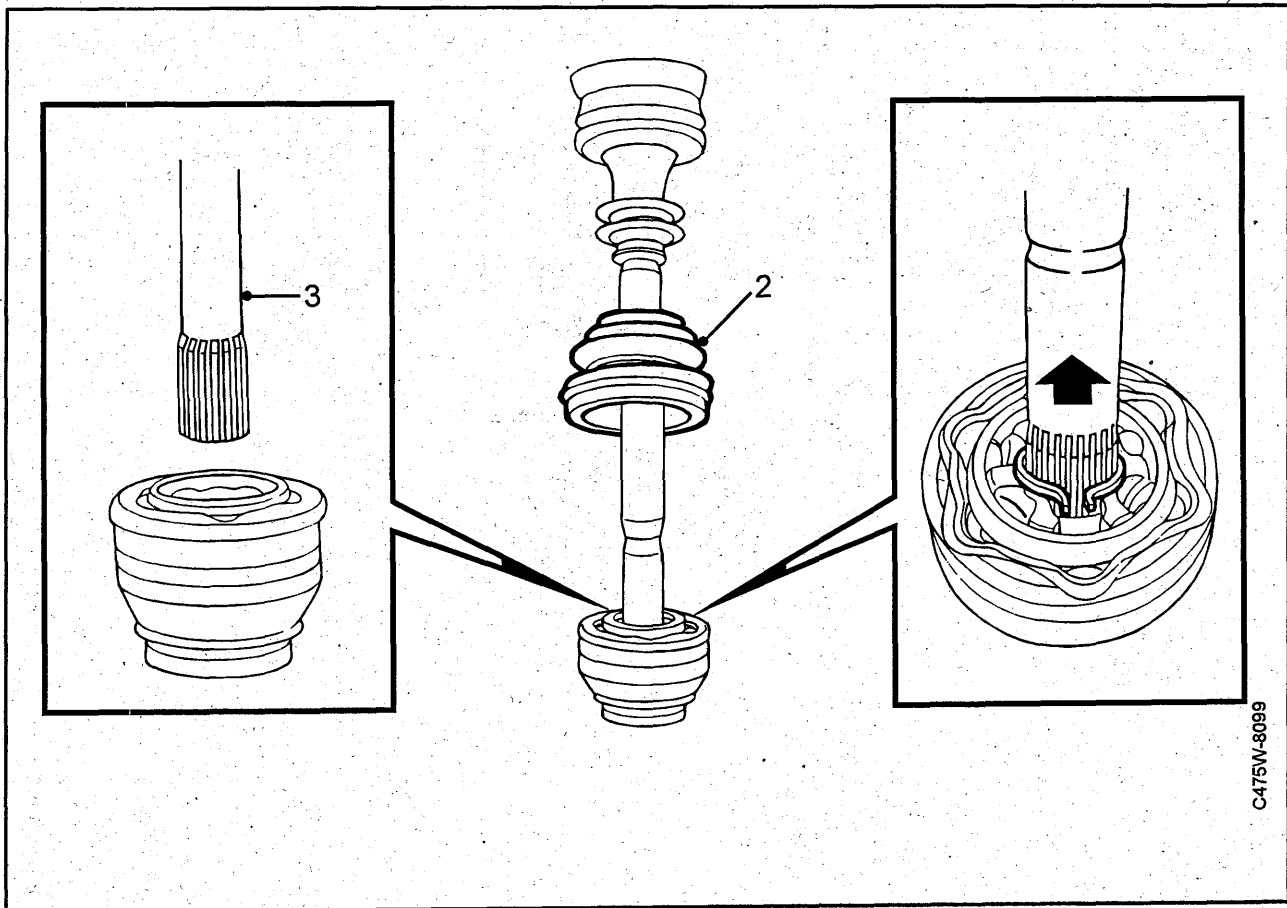
### Assembly

- 1 Pack the universal joint with grease 80 g (900 Turbo 2.3 – 120 g) Esso HF 125 Nebula EP2 (Saab Special chassis grease).
- 2 Slide the shaft in the universal joint hub so that the circlip "snaps" into the shaft groove in the hub. Check the circlip by twisting the shaft slightly.
- 3 Fit the rubber gaiter in place with a clamp. From and including 1989 models a disposable clamp is used, that is fastened using Knipex pliers.

#### Important

Take care not to let the grease come into contact with the paint work. The paint work can be discoloured as a result of this.

## Rubber gaiter on outboard universal joint



C475W-8099

### Removal

#### Important

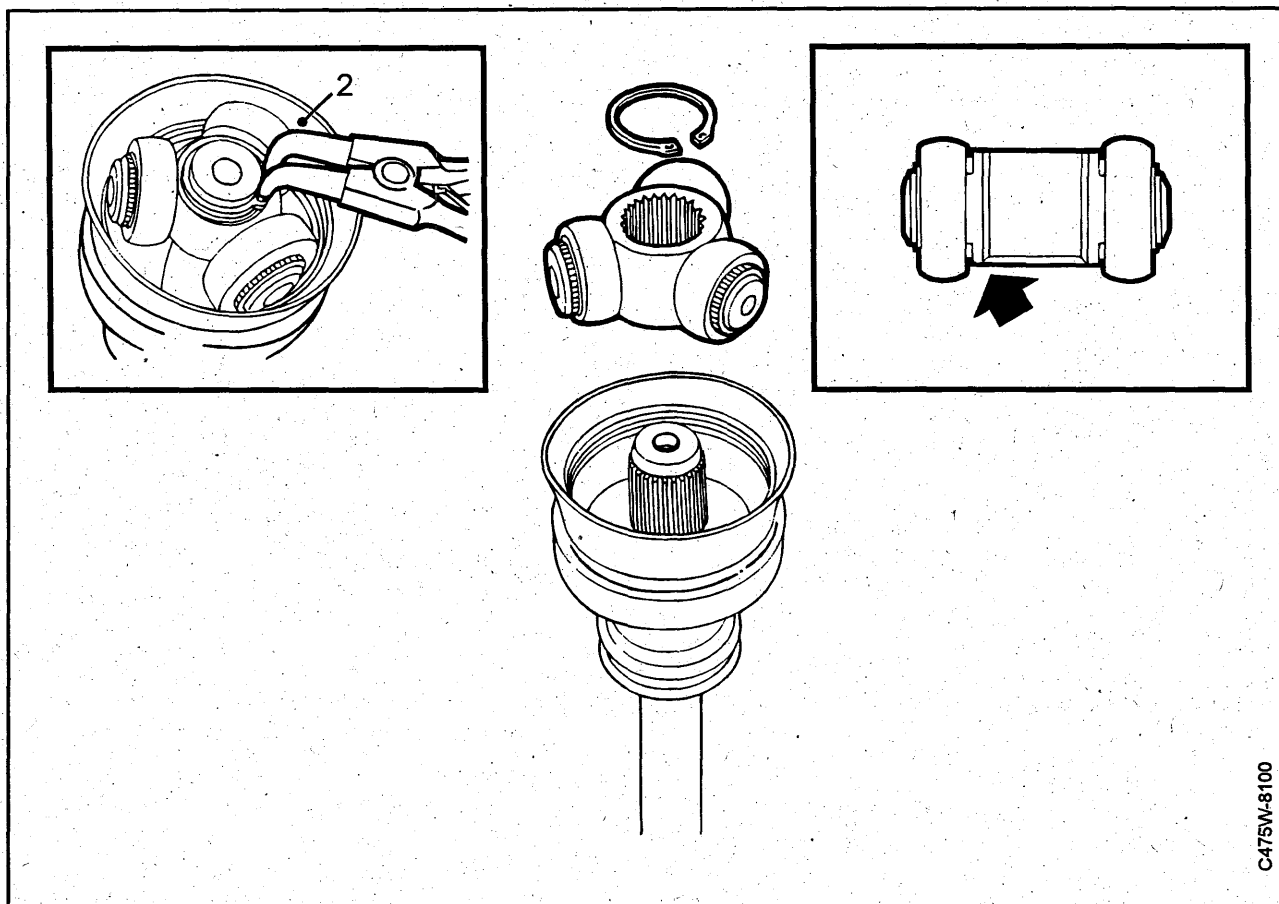
Diligently wash the wheel housing, MacPherson strut and other surfaces around the drive shaft and universal joint.

- 1 Completely remove all dirt from the drive shaft.
- 2 Remove the rubber gaiter clamp. Pull the gaiter up slightly on the shaft.
- 3 Open out the circlip and pull the shaft free from the universal joint.
- 4 Remove all existing grease.

### Fitting

- 5 Fit a new rubber gaiter on shaft.
- 6 Pack the universal joint with grease 80 g (9000 Turbo 2.3 – 120 g) Esso HF 125 Nebula EP2 (Saab Special chassis grease).
- 7 Slide the shaft into the universal joint hub so that the circlip snaps into the groove on the shaft when it is in the hub. Check the circlip by twisting the shaft slightly.
- 8 Fit a new clamp.

## Inboard universal joint (Tripod)



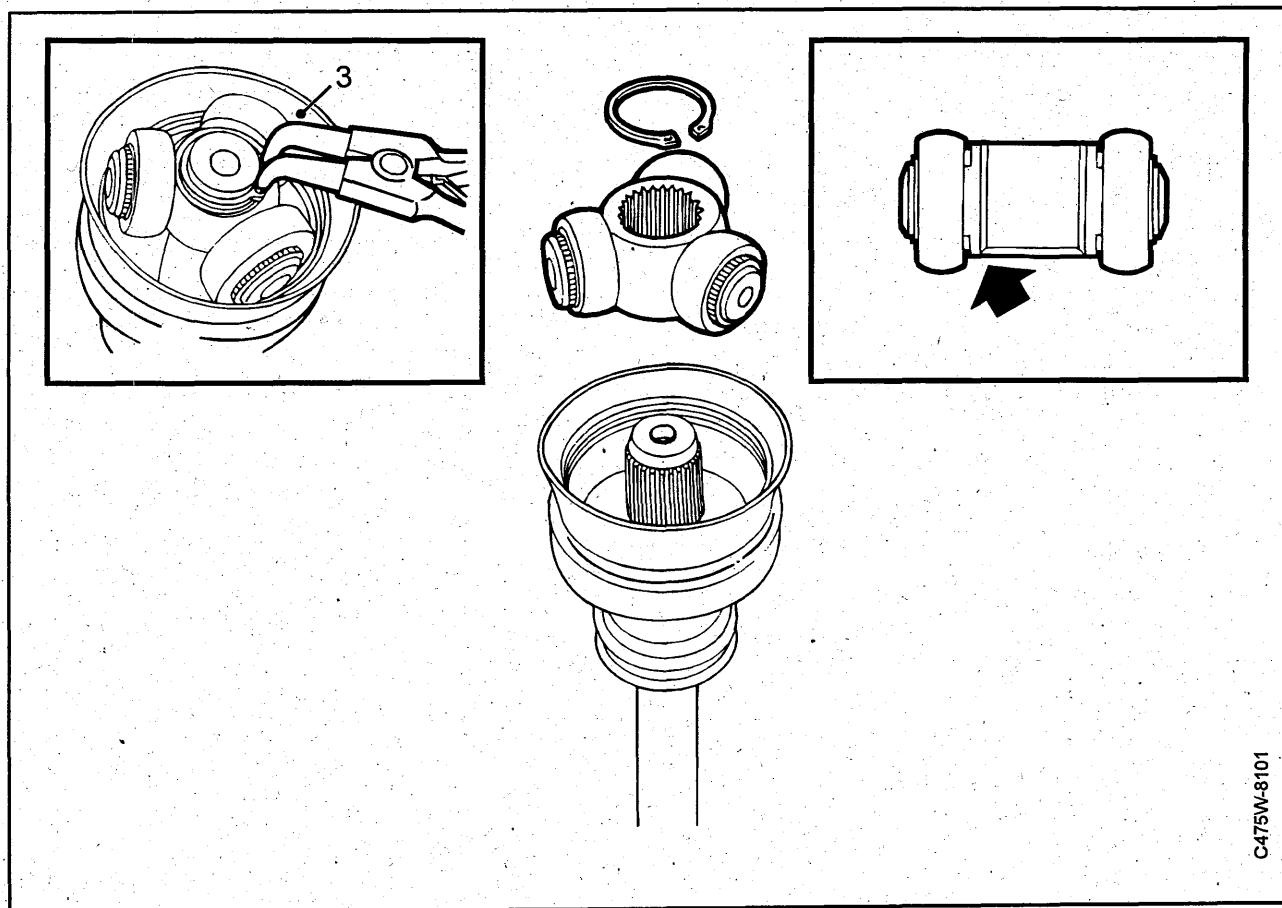
C475W-8100

### Dismantling

The universal joint is sensitive to impurities.

- 1 Clean the universal joint externally. Remove the existing grease in the rubber gaiter. Clean it meticulously.
- 2 Remove the circlip and pull the universal joint free from the shaft. Use the appropriate three clawed puller.

## Inboard universal joint (Tripod) (cont.)



### Assembly

- 1 Check that the rubber gaiter is not damaged. (Changing the rubber gaiter on the inboard universal joint see pages 774-14).
- 2 Fit the universal joint (Tripod) on the shaft. Hold sleeve no. 27, (or a pipe bit with an outer diameter of 36 mm and an inner diameter of 25 mm against the Tripod and carefully tap it with mallet.

### Important

The 45° bracket on the one side of the Tripod should be turned towards the shaft.

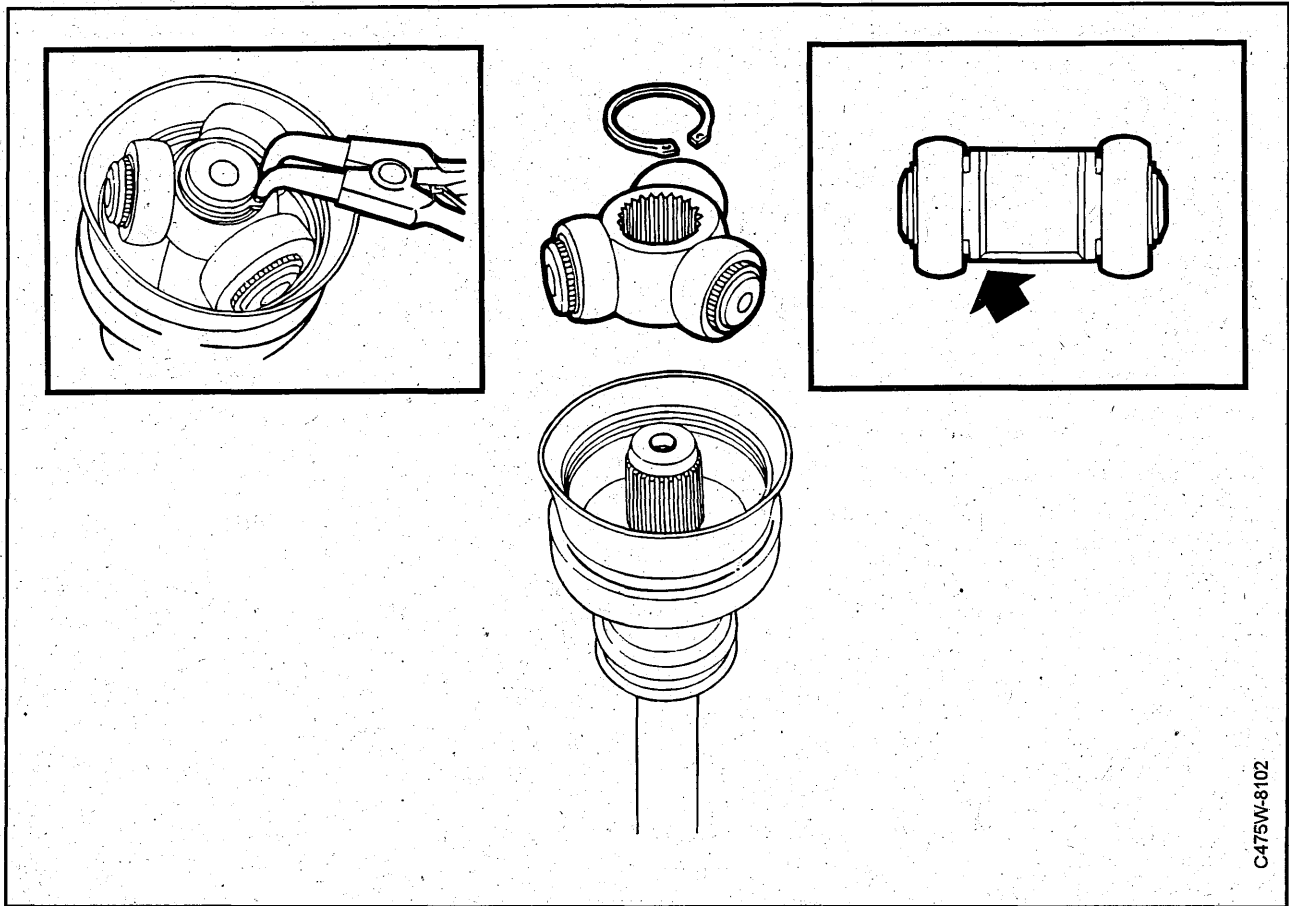
- 3 Refit the circlip.

- 4 Pack the rubber gaiter with grease, 60 g Mobile K 575 GS. It is important that the rubber gaiter is first cleaned so that the new grease does not mix with the existing grease.

### Important

Take care not to let the grease come into contact with the paint work. The paint work can be discoloured as a result of this.

## Rubber gaiter on the inboard universal joint.



C475W-8102

### Removal

#### Important

Meticulously clean the wheel housing, MacPherson strut, and the other areas around the drive shaft and the universal joint.

- 1 Scrupulously clean all dirt out of the rubber gaiter.
- 2 Remove the existing grease. Remove the circlip and pull the universal joint free from the shaft using the appropriate three clawed puller.
- 3 Remove the rubber gaiter clamp and then the rubber gaiter.

#### Fitting

- 4 Fitting the new rubber gaiter.
- 5 Fit the universal joint (Tripod) on the shaft. Hold sleeve no. 27 (or a pipe bit with an outer diameter of 36 mm and an inner diameter of 25 mm) against the Tripod and carefully tap with a mallet.

#### Important

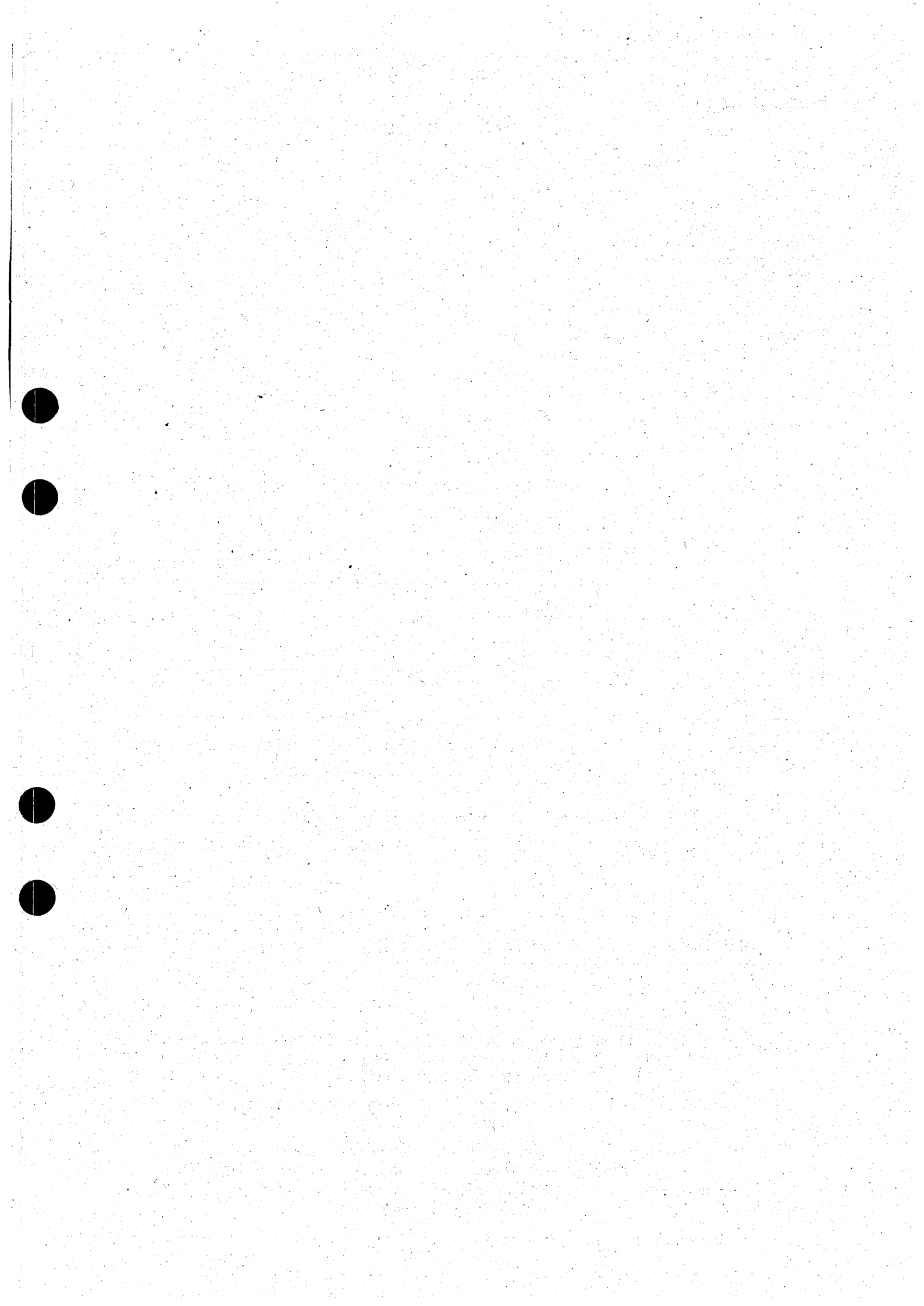
The 45° bracket on the Tripod should be turned towards the shaft.

- 6 Refit the circlip.
- 7 Fix a new clamp to the rubber gaiter.
- 8 Pack the rubber gaiter with grease, 60g Mobile GS 57 C.

#### Important

Take care not to let the grease come into contact with the paint work. The paint work can be discoloured as a result of this.





# Workshop Information

## User feedback

To

From

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Workshop Information, MLVI  
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SWEDEN

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Comments/suggestions

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Manual concerned: .....

It is important that Saab technicians in the field regard the Workshop Service Manual as their bible, and we therefore strive to make the manual easy to use and to provide accurate information.

By letting us have your views on this manual you will be helping us to maintain a high standard in our literature.

Note down any comments or suggestions you may have on a sheet of paper or take a copy of this page and send us your views at the above address. For greater convenience, you are also welcome to send your comments by fax, using the telephone number shown.





**SAAB**

Saab Automobile AB  
Trollhättan, Sweden

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