

SAAB

900

**SERVICE
MANUAL**

7 **Suspension
Wheels**

Contents

7 Suspension Wheels

M1979-85

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Specifications

Rear wheel alignment

Camber		-1/2° +1/4°
Toe-in	1979-84	4 +2 mm (1-3 mm/side)
	1985-	4 +1 mm (1-3 mm/side)

Suspension

<u>Front coil springs</u>	<u>1979 - 1980 models</u>	<u>1981 models onwards</u>
Total number of turns	8 1/4	8 1/4
Number of free turns	6 3/4	6 3/4
Wire diameter	14.2 mm	14.4 mm
Free length	370 mm	373 mm
Colour code	White	Green

Front coil springs, 1985 models onwards

Total number of turns					
Number of free turns					
Wire diameter, mm					
Approx. free length, mm					
Colour coding, class I	Black	Green	Blue	Yellow	Pink
class II	White	Light green	Light blue	Red	Brown

<u>Rear coil springs</u>	<u>Early 1979 models</u>	<u>1979 and -80 models</u>	<u>1979 and -80 models alternative spec.</u>	<u>1981 models onwards right</u>	<u>1981 models onwards left</u>
Total number of turns	9 1/8	9 1/2	9	9	9
Number of free turns	7	8	7 1/2	7 1/2	7 1/2
Wire diameter	14.2 mm	14.5 mm	14.8 mm	14.8 mm	15.0 mm
Free length	324 mm	323 mm	308 mm	308 mm	311 mm
Colour code	Blue	Light blue	Green	Green	Black
				Light green	White

Rear coil springs, 1985 models onwards

Total number of turns				
Number of free turns				
Wire diameter, mm				
Approx. free length, mm				
Colour coding, class I	Green	Black	Yellow	Blue
class II	Light green	White	Red	

* An asterisk (*) against a figure indicates that the size of spring in question is carried as a standard spare part.

Wheels

	Steel wheels	Aluminium wheels
Maximum permissible radial throw	1.0 mm	0.5 mm
Maximum permissible lateral throw	1.0 mm	0.5 mm
Wheel nut tightening torques:	90 - 110 Nm (9 - 11 kgf m)	

Hubs

Maximum play of wheel bearings 2 mm measured at edge of rim

Tightening torques:

Bolts securing front brake discs to hubs	30 - 50 Nm (3 - 5 kgf m)
Front hub nuts, up to and including 1980 models	340 - 360 Nm (34 - 36 kgf m)
Front hub nuts, as from 1981 models	290 - 310 Nm (29 - 31 kgf m)

Rear hub nut, up to and including chassis numbers AC1021263, AC2007508, AC3006827 and AC6001805 (width across flats 27 mm)

Tighten first to a torque of 49 Nm (5 kgf m). Then slacken the nut and retighten to a torque of 2 - 4 Nm (0.2 - 0.4 kgf m)

As from chassis numbers

AC1021264, AC2007509, AC3006828 and AC6001806 (width across flats 32 mm) 290 - 310 Nm (29 - 31 kgf m)

Rims

Model year	GL	GLs	EMS	GLE	Turbo		Spare wheel
					3-door cars	4/5-door cars	
1979	5Jx15" FHA Steel	5Jx15" FHA Steel	5Jx15" FHA Aluminium	5Jx15" FHA Steel	5 1/2Jx15" H2 Aluminium	135TRx390 FH Aluminium	
1980	5Jx15" FHA Steel	5Jx15" FHA Steel	5Jx15" FHA Aluminium	5Jx15" FHA Steel	5 1/2Jx15" H2 Aluminium	135TRx390 FH Aluminium	4Jx15" H1 Steel
1981	5Jx15" FHA Steel	5Jx15" FHA Steel	5Jx15" FHA Aluminium	5Jx15" FHA Steel	135TRx390 FH Aluminium	135TRx390 FH Aluminium	4Jx15" H1 Steel
1982	5Jx15" FHA Steel	5Jx15" FHA Steel	5 1/2Jx15" CH Steel	5 1/2Jx15" CH Steel	Turbo 5 1/2 J x 15" CH Steel	135TRx390 FH Aluminium	4Jx15" H1 Steel
1983	5Jx15" FHA Steel	5Jx15" FHA Steel	5 1/2Jx15" H2 Aluminium	5 1/2Jx15" CH Steel	135TRx390 FH Aluminium Turbo SE 5 1/2Jx15" H2 Aluminium	5-doors 135TRx390 FH Aluminium Turbo SE (4d) 5 1/2Jx15" H2 Aluminium	4Jx15" H1 Steel

Model year	GL	GLs-1984 GLI-1984 900i-1985	EMS	GLE	Turbo	Turbo 16 AERO	Spare wheel
1984	5Jx15" FHA Steel 5 1/2Jx15" FHA Steel	5 1/2Jx15" FHA Steel	5 1/2Jx15" H2 Aluminium	5 1/2Jx15" FHA Steel	5 1/2Jx15" H2 Aluminium		4Jx15" H1 Steel
1985	5Jx15" CH (4-speed cars) 5 1/2Jx15" H2 ET40 (5-speed cars)	5 1/2x15" H2 ET40 Steel or 5 1/2Jx15" H2 Aluminium	-	-	5 1/2Jx15" H2 ET40 Aluminium	5 1/2Jx15" H2 E40 Aluminium	4Jx15" H1 Steel

Tyres

Model year	GL	GLs GLi	EMS	GLE	Turbo			Spare wheel
					3-door cars	4/5-door cars		
1979	165 SR 15	165 SR 15	175/70 HR 15	165 SR 15	195/60 HR 15	180/65 HR 390 (TRX)		
1980	165 SR 15	165 SR 15	175/70 HR 15	165 SR 15	195/60 HR 15	180/65 HR 390 (TRX)		T115/70 D15
1981	165 SR 15	165 SR 15	175/70 HR 15	185/65 SR 15	195/60 HR 15	180/65 HR 390 (TRX)		T115/70 D15
1982	165 SR 15	165 SR 15	175/70 HR 15	185/65 SR 15	Turbo S 175/70 HR 15	180/65 HR 390 (TRX)		T115/70 D15 (GB, AU: T95/110 R15)
1983	165 SR 15	165 SR 15	185/65 SR 15	185/65 SR 15	180/65 HR 390 (TRX) SE 195/60 HR 15	5-door cars 180/65 HR 390 (TRX) 4-door cars SE 195/60 HR 15		T115/70 D15 (GB, AU: T95/110 R15)
1984	165 R 15 86 S 175/70 R 15 86T	185/65 R15 875	185/65 R15 875	185/65 R15 875	195/60 R15 86 H 195/60 R15 86V			T 115/70 D15 (GB, AU T95/110 R15)
1985	165 R 15 86 S 175/70 R 15 86T	185/65 R15 875	-	-	185/65 R 15 T or 195/60 R 15 H	AERO: 195/60 R15V		T 115/70 D15 GB+AU: T95/110 R15

Recommended tyre pressures in lb/in² (psi) for cold tyres.
(Figures in parentheses show the equivalent in bar (kg/cm²))

Make	Size	1-3 persons car cruising at under 100 mph (160 km/h)		1-3 persons car cruising at over 100 mph (160 km/h)		More than 3 persons car cruising at under 100 mph (160 km/h)		More than 3 persons car cruising at over 100 mph (160 km/h)	
		front	rear	front	rear	front	rear	front	rear
All makes Michelin and Good- year	165 SR 15, 165 HR 15 175/70 HR 15	1.9	1.9	2.2	2.4	2.2	2.4	2.2	2.4
Pirelli	175/70 HR 15	1.9	1.9	2.2	2.4	2.2	2.4	2.4	2.6
Pirelli	195/60 HR 15	1.9	2.0	2.2	2.3	2.1	2.2	2.4	2.5
Michelin	180/65 HR 390	1.9	2.0	1.9	2.0	2.1	2.2	2.1	2.2
Pirelli	185/65 SR 15	1.9	2.0	1.9	2.0	2.1	2.2	2.1	2.2

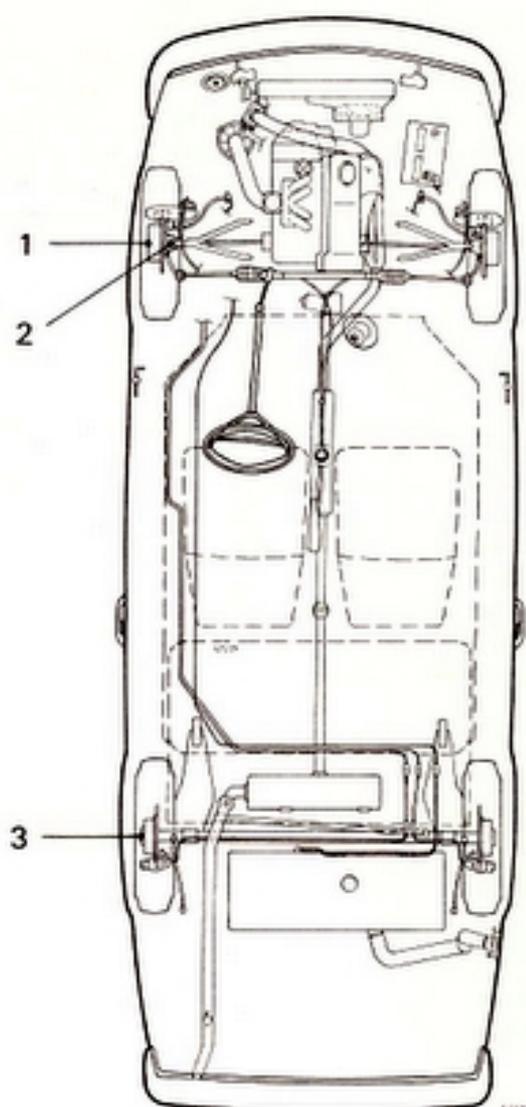
Spare wheel

Type	<u>Compact spare</u>	<u>Great Britain only</u>	<u>Others</u>
Size	T 115/70 D15	T 95/110 R 15	
Tyre pressure	60 lb/in 2 (4.2 bar)	80 lb/in 2 (5.5 bar)	38 lb/in 2 (2.6 bar)

Auxiliary spring

Check the pressure of the air in
the auxiliary spring at the same
time as the tyre pressures.

Auxiliary spring air pressure 29 lb/in 2 (2.0 bar)



Pos	Lubrication point	Lubricant
1	Front wheel bearing Front wheel bearing support Hub splines	Totally enclosed permanently lubricated Molybden paste, part. no. (45) 30 06 632
2	Outer universal joint Up to and incl. chassis Nos AC1021263, AC2007505 and AC6001805	Molybden paste, part. no. (45) 30 06 632 Esso ES 125 (Nebula EP 2), Molycote VN 24616, Optimol OLISTAMOLY 2 LN 584 or K.S. PAUL G 800
3	Rear wheel hub in conjunction with fitting As from chassis Nos. AC1021264, AC2007509 and AC6001806	Saab Special chassis grease (ESSO EF 125) Totally enclosed, permanently lubricated

Special tools

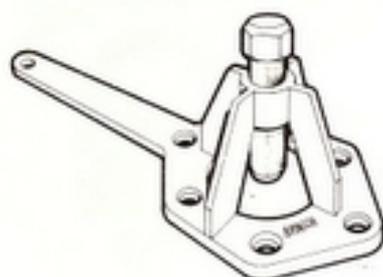


85 95 839 (A3) Spring compression tool, removal and installation of front coil spring

- 89 95 847 Spring shanks
- 89 95 854 Spring cup, LH
- 89 95 862 Spring cup, RH
- 89 95 714 Screw complete
- 89 95 128 Ball bearing



89 96 076 (A3) Safety chain for spring compression tool



89 96 084 (A-2) Puller, later design



89 96 050 (A2) Extension piece (set of 4) for puller 89 95 185



89 96 068 (A2) Drift, front wheel bearing in steering knuckle housing.



89 96 241 (A2) Drift, outer rings in rear wheel hubs

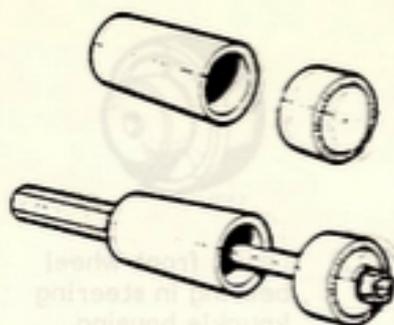


89 95 920 (A3) Tool, removal and installation of wheel studs

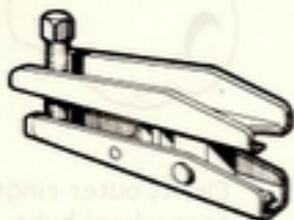


89 16 967 (A1) Cover for inner drive

83 44 582 Cover for inner universal joint (fitted inside rubber bellows)



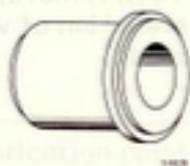
89 96 274 (A3) Tool for rubber bushing, rear axle



89 95 409 (A1) Taper breaker, removal of tie rod ends and ball bolts



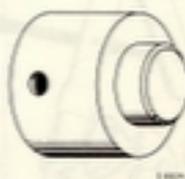
89 96 456 (A1) Support plate



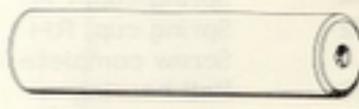
89 95 805 (A0-1) Sleeve, wheel nut



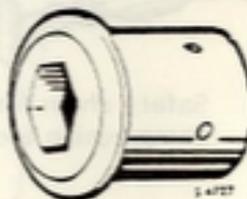
89 96 449 (A1) Sleeve



83 90 114 (A2) Pressing sleeve



78 41 067 (A2) Pressing sleeve



89 96 464 (A1) Support

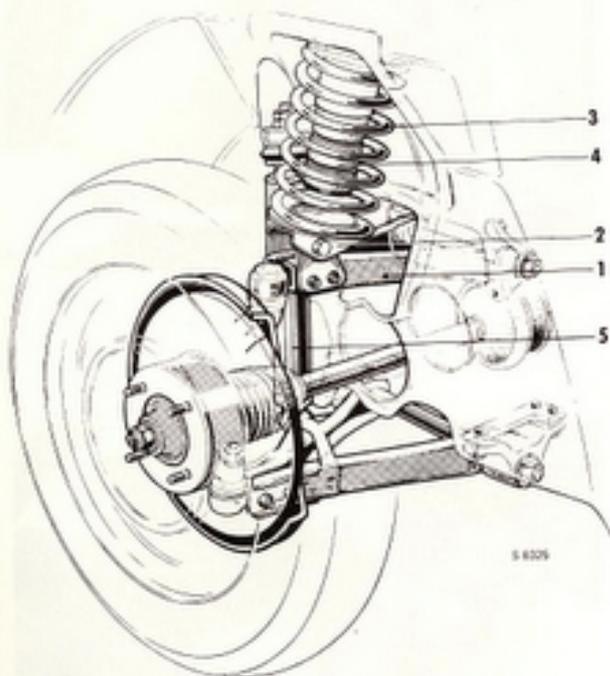
Pos.	Lubrication	Lubricant
1	89 96 464 (A1) Support	Totally synthetic lubricant
2	89 96 464 (A1) Support	Mineral oil
3	89 96 464 (A1) Support	Mineral oil

Suspension, front

General

The front suspension has coil springs, transverse rubber-seated control arms and double-acting shock absorbers. The coil springs operate between the upper control arm and the wheel housing. The top seat consists of a steel cone held in place in the wheel housing by the pressure of the spring itself and located in a pressed boss in the wheel housing. The steel cone is fitted with a rubber buffer which acts as a stop. A rubber ring is positioned between the spring and the steel cone. Heavier models are provided with a spacer. The rubber ring is supplied in different thicknesses depending on the equipment and weight of the vehicle. The lower spring seat is attached by a rubber bearing to the control arm. The downward stroke of the control arm is limited by the specially designed shock absorber.

The shock absorbers are attached by rubber bearings at both ends, to the bodywork at the top and to the lower control arms at the bottom.



Front suspension

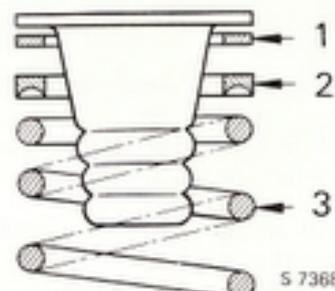
1. Upper control arm
2. Lower spring support
3. Coil spring
4. Rubber buffer
5. Shock absorber

Caution

The shock absorbers are of special design with a built-in rubber buffer. For this reason, always use original Saab shock absorbers. If absorbers without the rubber buffer are fitted, the front assembly may be damaged.

Spring, rubber ring and spacer

Spacers and two upper rubber rings of different thicknesses are provided to match the suspension to the different weights of different models.



All models with automatic transmission, 5-door models, manual transmission

1. Spacer
 2. Thick rubber ring
 3. Spring
- 89 41 486

Changing front coil springs and rubber stops

Under no circumstances must the front and rear springs be interchanged. For differences between the springs see section 027. The springs are delivered with a rustproof coating. If this coating has been rubbed off, it should be touched up before the spring is installed.

Removal

1. Remove the upper shock absorber nuts before you jack up the car.

Caution

The maximum stroke (i.e. the downward stroke of the control arm) is limited by a built-in stop in the shock absorber.

Therefore, remove the shock absorber either:

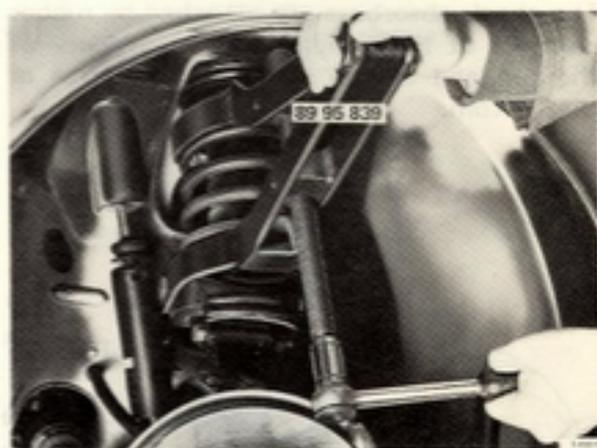
- before the car is jacked up, or
- by using a jack to lift the outer end of the lower control arm slightly.

2. Raise and block up the front of the car and take off the wheel.
3. Apply spring compression tool 89 95 839, engaging the upper shanks direct in the spring at the second free turn from the top and the lower shanks round the spring cups. These are located on the last turn of the spring with the colour-coded cup right beside the end of the coil.

4. Compress the spring to give 30-40 mm (roughly 1 1/2 in) clearance at the top. If necessary, use a screwdriver to prize the upper spring attachment or cup away from the body.

Note

Do not overload the spring compression tool. Avoid letting the shanks butt together when a nut tightener is used.

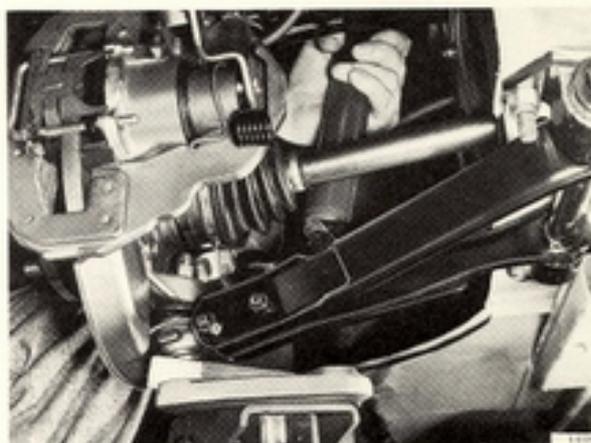


- Remove the spring and steel cone.
- Check and, if necessary, change rubber ring or steel cone with rubber buffer.
- Check and, if necessary, renew the bottom spring seat bearing (the pivot plate bearing).

Installation

- If the spring has been taken out of the compression tool or when fitting a new spring, locate the colour-coded cup right beside the end of the coil, and hook the upper shanks of the tool over the second turn from the top.
- Compress the spring. Place the steel cone and rubber ring in the top of the coil.
- Locate the spring on its bottom seat. Slacken off gradually on the compression, guiding the steel cone into its seat in the wheel housing. Remove the compression tool. If the bottom seat has been removed, it is advisable when re-assembling to mount the seat loosely and wait until after the spring is in place before securing the seat, which will automatically take up the correct position due to pressure from the spring.
- Place a jack under the outer end of the lower control arm and raise the end slightly as the shock absorber is guided into position. Secure the shock absorber. Remove the jack.

- Fit the wheel.
Remove the blocks and lower the front wheels to the ground.



Changing the rubber bushing for the pivot plate bearing

The rubber bushing for the pivot plate can be changed using tool 89 95 789.

The procedure can be deduced from the illustration.

Removal

1. Remove the upper shock absorber nuts before you jack up the car.

Caution

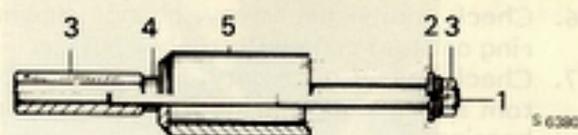
The maximum stroke (i.e. the downward movement of the control arm) is limited by the stop in the shock absorber. Therefore, do not compress the spring by more than 10 mm (0.4 in) at the end of the coil.

2. Raise and brace up the front of the car and take off the wheel.
3. Apply spring compression tool 89 95 819, engaging the upper marks direct in the spring at the second turn from the top and the lower marks round the spring cups. There are labels on the tool to limit the distance with which the upper marks can be moved into the coil.

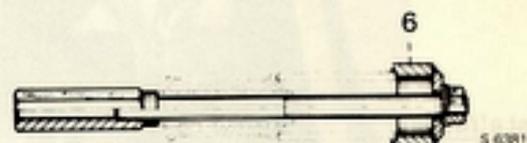


Note

Do not overload the spring compression tool. Avoid letting the marks fall together when a nut tightener is used.



Removal



Installation

Tool no. 89 95 789

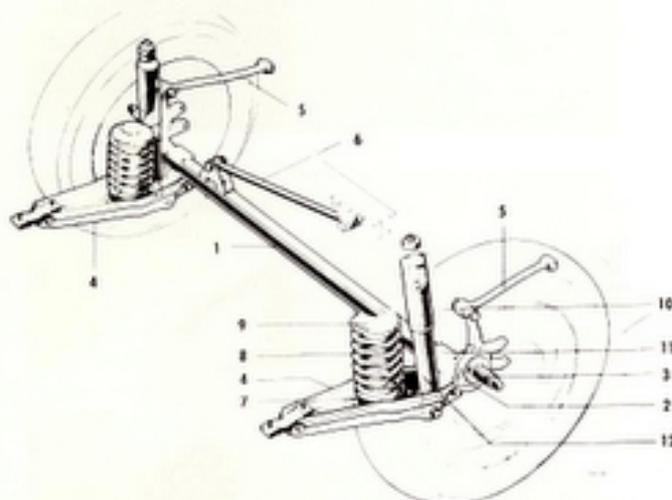
1. Spindle
2. Spring washer
3. Nuts
4. Brass washer
5. Removing sleeve
6. Fitting sleeve



Suspension, rear

The rear suspension comprises a rigid rear axle with coil springs and double-acting telescopic shock absorbers. The rear axle is a straight tube carrying end pieces into which the stub axles are force-fitted. The wheel hubs are journalled to the stub axles on conical roller bearings. The disc brake shields are bolted to the outside of the end pieces. The rear axle is movable in relation to the body, being attached to the latter by two spring links with their leading ends journalled to the body and their trailing ends connected by two rubber bushings to the rear axle tube. There are also two links connected between the end pieces of the rear axle and the body behind the rear axle. These links take up torsional stresses in the axle. Lateral forces are taken up by a Panhard rod with one end journalled in a rubber bearing in a bracket fixed to the underbody. The other end of the rod is attached to a bracket on the axle.

The spring links carry seats for the lower ends of the coil springs, the upper seats being attached by spring insulators to the body. Upward movement to the rear wheels is limited by buffers screwed into the body which at extreme spring compression strike a stop on the rear axle. The rear shock absorbers are journalled in rubber bearings at both ends, the upper ends being attached to the body and the lower to the rear axle spring links.



Rear suspension

- | | |
|-----------------|---------------------|
| 1. Rear axle | 7. Spring seat |
| 2. End piece | 8. Coil spring |
| 3. Stub axle | 9. Spring insulator |
| 4. Spring links | 10. Rubber buffer |
| 5. Torsion bar | 11. Stop |
| 6. Panhard rod | 12. Shock absorber |

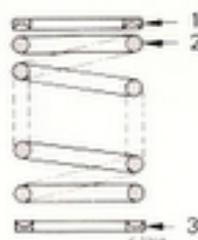
Caution

The shock absorbers are of a special design with a built-in rubber buffer. For this reason, always use original Saab shock absorbers.

Spring, rubber ring and spacer, 1979, 1980 and some 1981 models

The spacer, two rubber rings and two different springs are available to match the rear suspension to weight differences, variations in shock absorbers and the suspension characteristics required.

The following combinations are in use:



3-door models, GL

- | | |
|---------------------|-----------|
| 1. Thin rubber ring | 89 35 330 |
| 2. Standard spring | 89 41 734 |
| 3. Thin rubber ring | 89 35 330 |



5-door models, GL and GLE

- | | |
|---------------------|-----------|
| 1. Spacer | 89 33 897 |
| 2. Thin rubber ring | 89 35 330 |
| 3. Standard spring | 89 41 734 |
| 4. Thin rubber ring | 89 35 330 |



EMS and Turbo

- | | |
|---------------------|-----------|
| 1. Thin rubber ring | 89 35 330 |
| 2. Spring, special | 89 41 502 |
| 3. Thin rubber ring | 89 35 330 |

Springs, as from 1981 models

A new suspension system was introduced in 1981 models. For the correct replacement spring see the Spare Parts microfiche.

Changing rear coil springs

Removal

1. Apply the handbrake. Remove the rear hub cap and slacken the wheel nuts. Jack up the car and place trestles under the back.

Note

Never jack up the car with the jack applied direct to the rear axle.

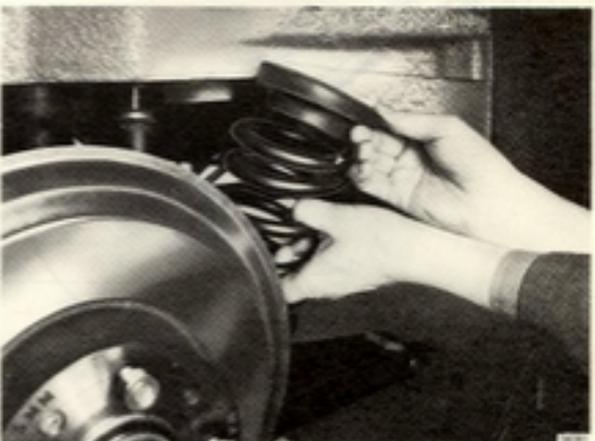
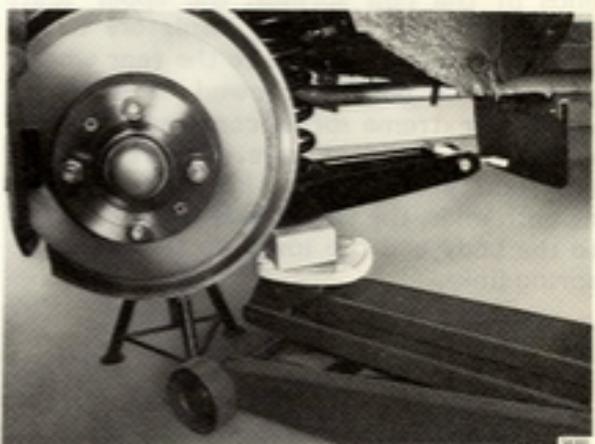
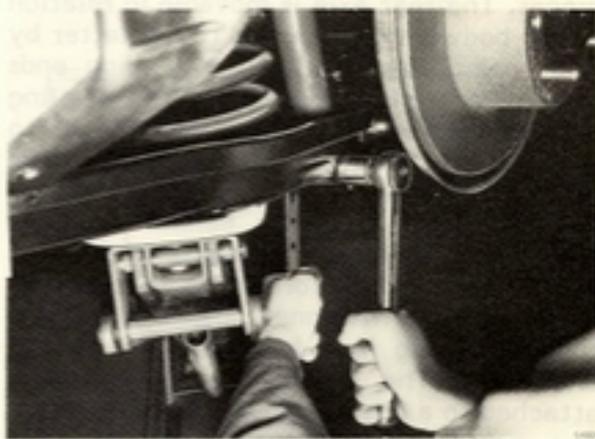
2. Take off the wheel. Apply a jack under the spring link and disconnect the lower end of the shock absorber. Remove (from underneath) the two locknuts that secure the front spring link bearing to the body.

3. Place a trestle of suitable height under the rear axle to prevent the brake pipes between the body and the rear axle being stretched and damaged.

4. Lower the spring link so that the spring can be removed together with the upper spring support and the rubber spacer at the lower spring seating.

Installation

Proceed in the reverse order. Fit new lock nuts at the front spring link bearing attachment in the body.



Auxiliary springs

Removal

Remove the rear springs (see removal of rear coil springs), unscrew the valve and remove it from the spring link. Remove the auxiliary spring.

Assembly

Ensure that the washers at the ends of the auxiliary springs are properly in position. The lower washer is secured at the spring link and the upper one should be placed above the rubber seat on the coil spring. Assembly is carried out in the reverse order.

The auxiliary spring should be pumped to a pressure of 28.5 lb/in² (2.0 bar, kg/cm²) after assembly.

Position of the air valve

Rear axle

Removal

1. Apply the handbrake. Jack up the rear of the car, place two trestles under the body and take off the rear wheels.
2. Disconnect the brake lines from the rear axle. Unbolt the torsion bars from the body. Remove the Panhard rod.
3. Position a jack under the rear axle. Unbolt the lower ends of the shock absorbers and lower the axle. Lift off the rear coil springs.
4. Detach the spring links from the rear axle and lift off the axle.

Installation

Clean all parts thoroughly, inspect them, and exchange any that are worn or damaged. Install in the reverse order. The jack must not be applied under the middle of the rear axle when this is positioned for installation. Use two jacks or support one side on a trestle or stand while jacking the opposite side up into position. Note that the rubber bearings must be mounted in such a way that they are not subjected to any stress when the weight of the car is supported by the wheels, i.e. the rubber bearings must be drawn tight only when the car is standing unladen on all four wheels.



Position of the air valve

The bolt in the Panhard rod attachment to the body should be inserted from the rear, so that the nut will be to the front.

Note

Do not forget to bleed the brake system.

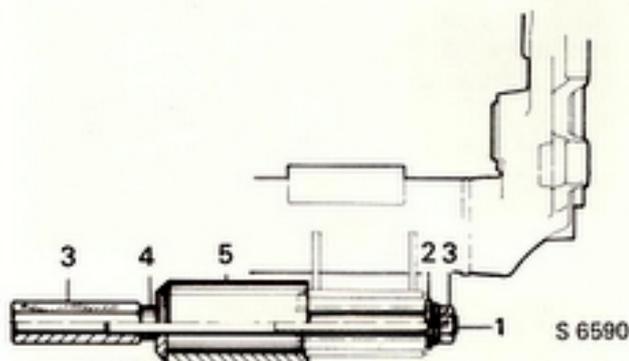
Changing the rubber bushing, rear axle-spring link

Once the spring link has been removed from the axle, the bushing can be pressed in or out by means of tool No. 89 96 274. The various components of the tool are shown in the illustration.

Removal

Position the tool as shown in the illustration and withdraw the bushing which will be pressed into the removing sleeve of the tool.

(N.B. Make sure that the thread of the tool and the contact surfaces of the nut and brass washer are well greased.)

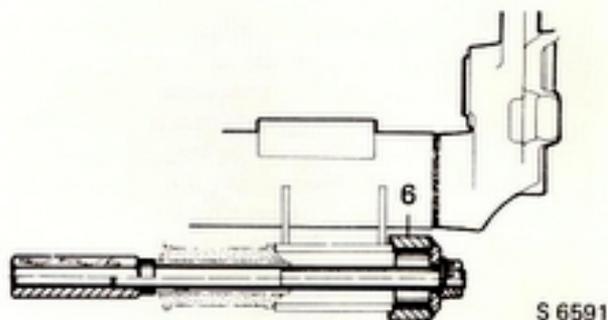


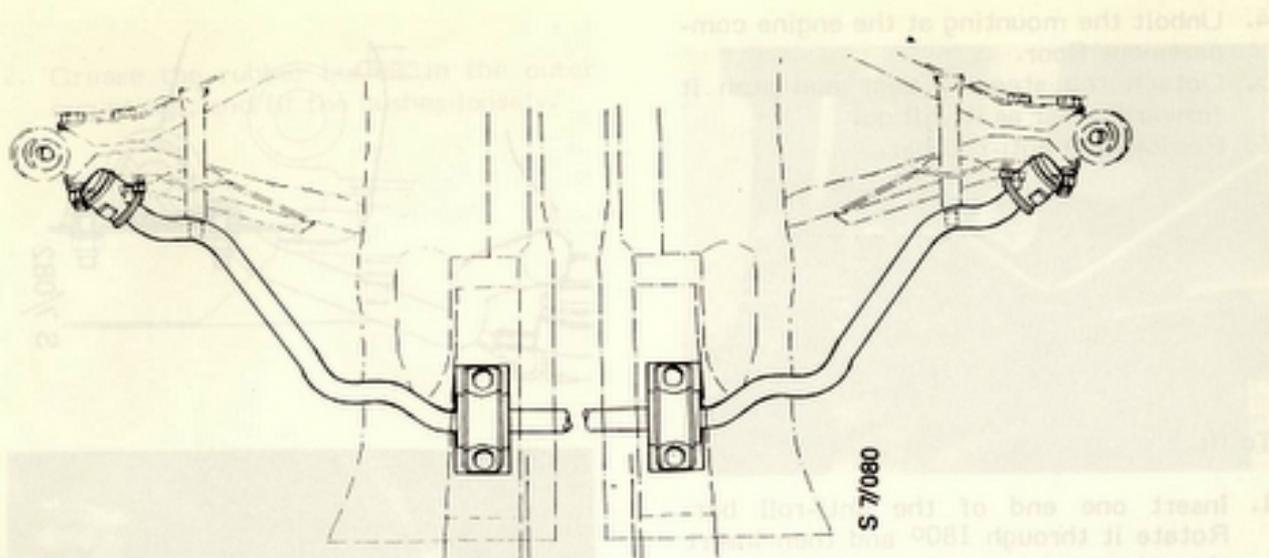
Tool No. 89 96 274

- 1. Spindle
- 2. Spring washer
- 3. Nuts
- 4. Brass washer
- 5. Removing sleeve
- 6. Fitting sleeve

Fitting

- 1. Grease the outside of the bushing, e.g. with soapy water, to facilitate fitting.
- 2. Press in the bushing, positioning the tool as shown in the illustration.
- 3. After fitting ensure that the bushing protrudes the same amount on both sides of the bushing holder.





Anti-roll bars

Some cars are fitted with anti-roll bars front and back.

The rear anti-roll bar is fixed direct to the spring link. At the front, one end of the anti-roll bar is fixed to the lower control arm and the other to the frame of the engine compartment floor.

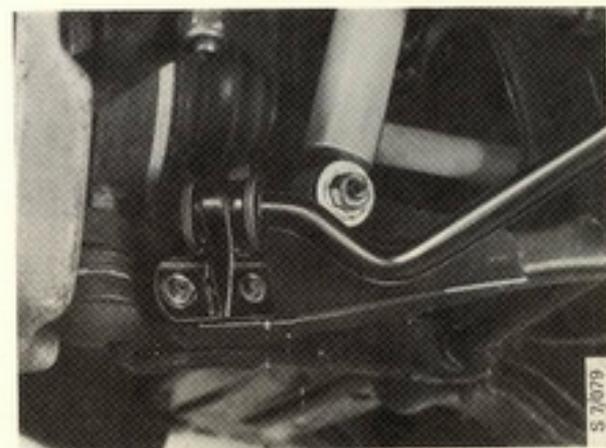
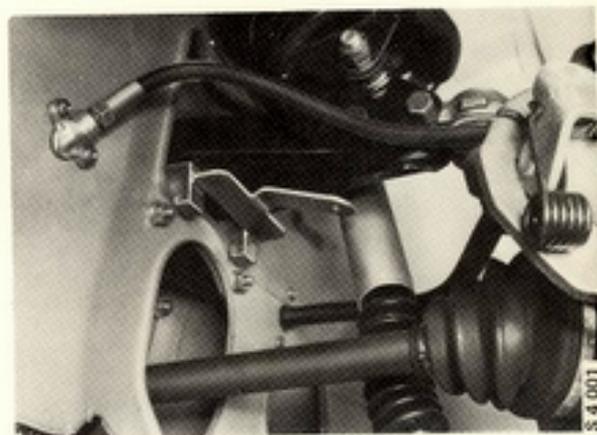
Anti-roll bars are fitted to restrain the car from rolling, e.g. on cornering, and thereby maintain the grip of the wheels on the road.

To replace the front anti-roll bar

To remove

1. Fit special tools 83 93 209 under the upper control arms on either side of the car.
2. Jack up the car.

3. Unbolt the anti-roll bar from the lower control arms.



4. Unbolt the mounting at the engine compartment floor.
5. Detach the steering gear and push it forward as far as it will go.
6. Remove the anti-roll bar.

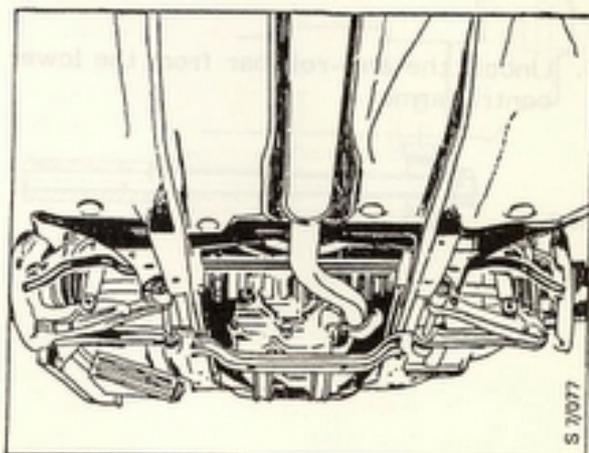
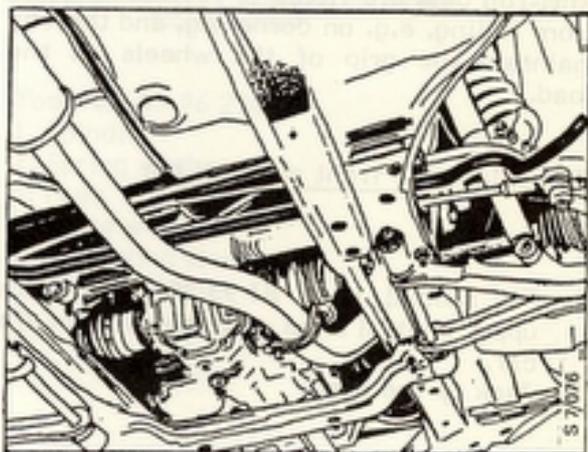
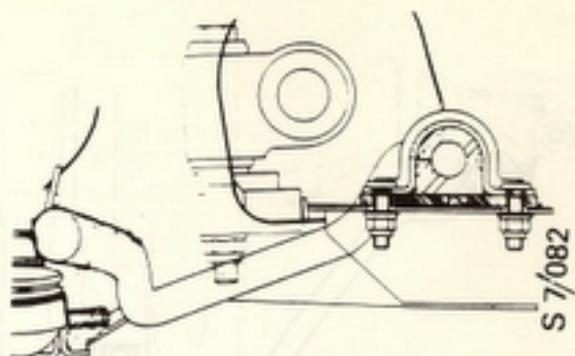
Do not force the steering gear system.

Changing the rubber bushing rear trans spring link

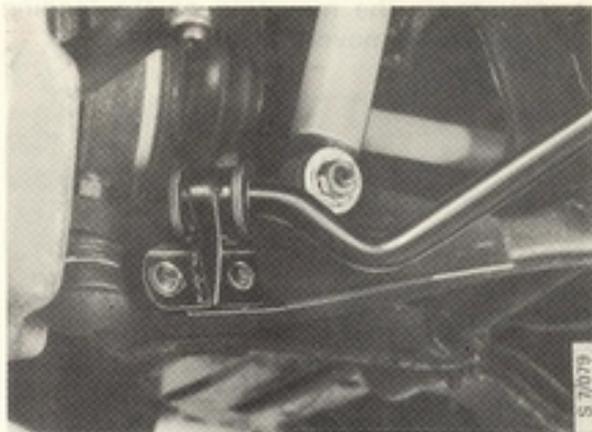
To fit

1. Insert one end of the anti-roll bar. Rotate it through 180° and then insert the other end. Now turn it back through 180°.

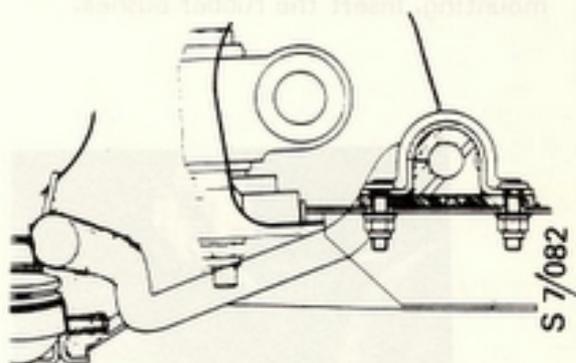
Position the tool as shown in the illustration and withdraw the bushing which will be pressed into the removing sleeve of the tool. (Note: Make sure that the thread of the tool and the contact surfaces of the nut and brass washer are well greased.)



- Grease the rubber bushes in the outer mountings, and fit the bushes loosely.



- Grease the rubber bush for the mounting to the engine compartment floor. Put the mounting plate into position and slide on the bush with the opening to the front of the car. Fit the collar loosely.



- Tighten the bolts in the outer mountings. Adjust the position of the anti-roll bar.
- Tighten the mounting at the engine compartment floor.
- Secure the steering gear.
- Lower the car and remove the special tools.

To replace the rear anti-roll bar

To remove

- Unbolt the rear mounting on the spring link. The link will now hang from the shock absorber. Unbolt the front mounting nuts. Lower the rear edge of the anti-roll bar.

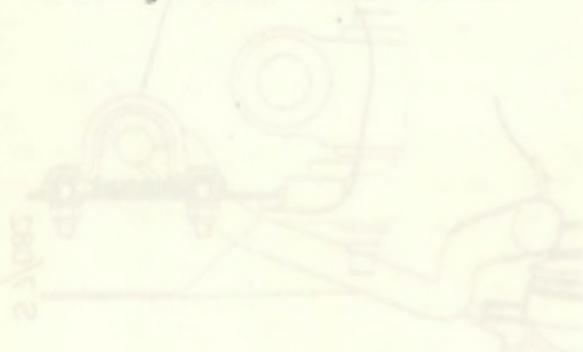


2. Compress the mounting on the leading edge and remove the anti-roll bar.

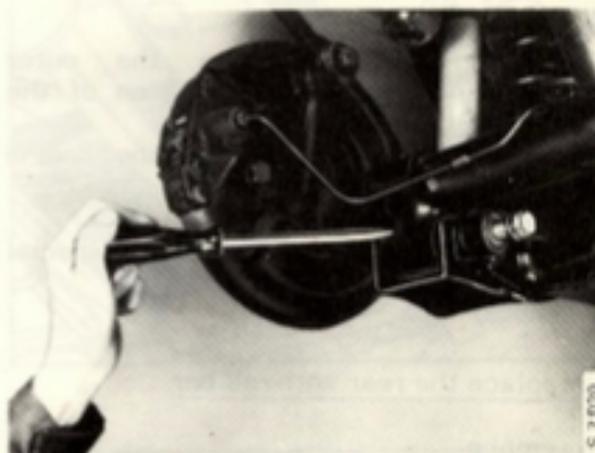


To fit

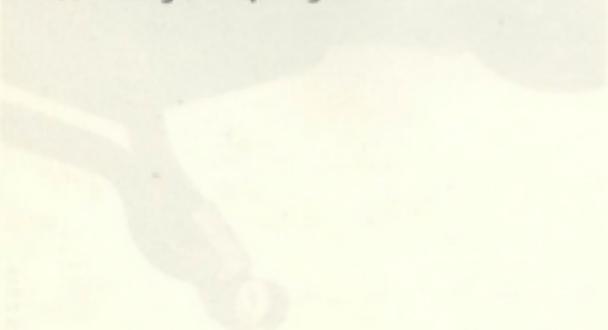
1. Insert the anti-roll bar in the front mounting. Insert the rubber bushes.



2. Insert the bolts in the rear mountings. Use water-pump pliers or the like to line up the holes in the spring link. N.B. Do not overtighten the bolts (e.g. by using a pneumatic nut tightener), as this is liable to damage the rubber bush.



3. Tighten the bolts in the front mountings. Check that the anti-roll bar is not touching the spring link.



Shock absorbers

General

Defective shock absorbers should be exchanged. This is extremely important, as the shock absorbers contribute greatly to the good roadholding and steering characteristics of the car.

Shock absorbers on the same axle should be exchanged in pairs.

If one shock absorber proves faulty after driving a short distance, only the faulty shock absorber need be replaced. Special gas-filled shock absorbers are fitted to Saab 900 EMS and Saab 900 Turbo cars. The shock absorbers also limit the downward movement, for which reason they incorporate a rubber buffer.

Caution

The shock absorbers are of a special design with a built-in rubber buffer. For this reason, always use original Saab shock absorbers. If shock absorbers without rubber buffers are fitted, the wheel suspension may be damaged.

Removal

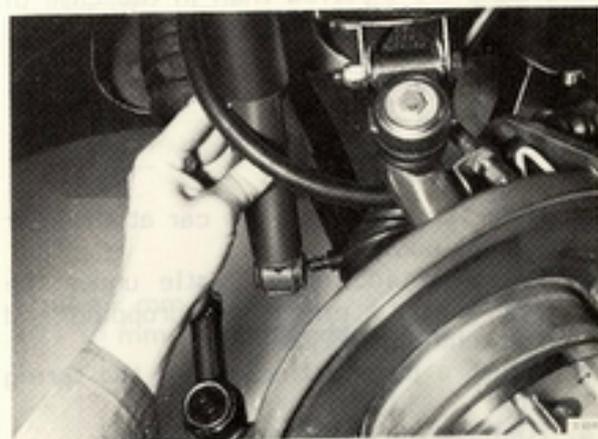
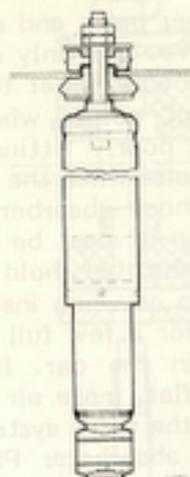
1. Front shock absorbers:
Remove the upper shock absorber nut before you jack up the car.

N.B. The maximum stroke (i.e. the downward travel of the control arms) is limited by the shock absorber. Therefore, remove the shock absorber either:

- before jacking up the car, or
 - by using a jack to raise the outer end of the lower control arm slightly.
2. Block up the car and remove the wheels.
 3. Remove the shock absorber saving the washers and rubber parts.

Warning

Pneumatic shock absorbers contain gas at a pressure of 30 - 40 bar, which can cause personal injury if not handled properly. When scrapping please see "Regulations for scrapping pneumatic shock absorbers".



Installation

Inspect the rubber parts and exchange any that are defective. Use only original Saab rubber parts and washers at the upper and lower attachment points when installing shock absorbers; poorly fitting substitutes can cause body noise when the car is on the road. Before a shock absorber is installed, any air present in it must be expelled. To bleed the shock absorber, hold it upright in the same position as when installed, pump it up and down for a few full strokes, and then install it in the car. If the shock absorber is laid flat, more air will be able to enter through the valve system.

1. Front shock absorbers: Place a jack under the outer end of the control arm and slightly raise the arm.
2. Fit the shock absorber with rubber bushes and washers.
The nuts should be tightened as far as they go to achieve correct compression of the rubber bushes.
3. Fit a locknut at the upper attachment point.

Torque

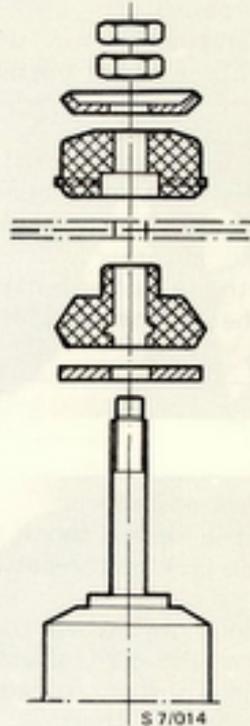
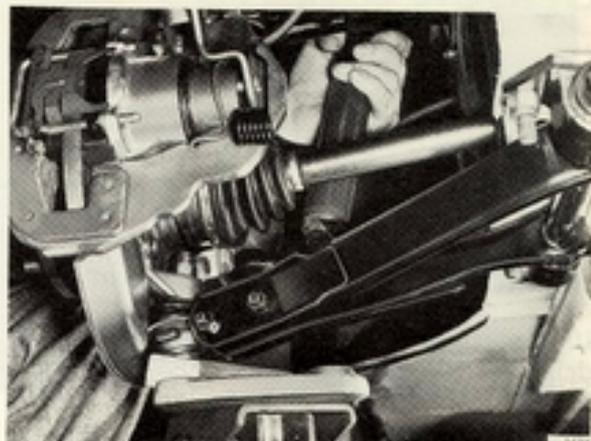
rear shock absorber's lower mounting
 $95 \pm 5 \text{ Nm}$ ($9.5 \pm 0.5 \text{ kgfm}$)

Rear pneumatic shock absorber, Saab 900 EMS and Saab 900 Turbo

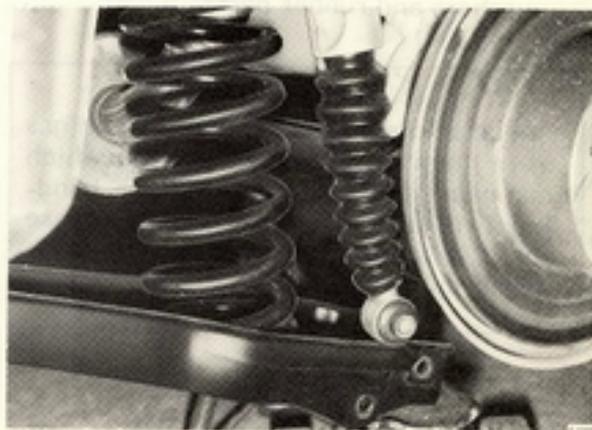
Owing to the greater tension of rally-version shock absorbers, the method for changing the rear shock absorbers is slightly more involved than in the case of hydraulic shock absorbers.

Removal and installation

1. Raise and block up the car at the rear jacking point.
2. Place an additional trestle under the rear axle to prevent it dropping and stretching the brake lines.
3. Insert a jack at the rear of the spring link.
4. Remove the shock-absorber nuts.
5. Remove the bolts in the spring-link mounting on the rear axle.



The bushes shown are of the later design



- By means of the jack, lower the spring link so that the shock absorber can be removed.

Fit in the reverse order. Note the positions of the washers (see illustration).

Warning

Pneumatic shock absorbers contain gas at a pressure of 30 - 40 bar, which **can cause personal injury** if not handled properly. When scrapping please see "Regulations for scrapping gas shock absorbers".

Checking of shock absorbers installed in car

Check the condition of the shock absorbers as follows:

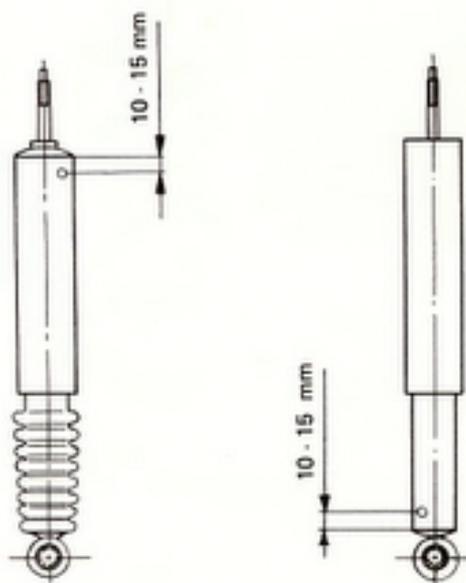
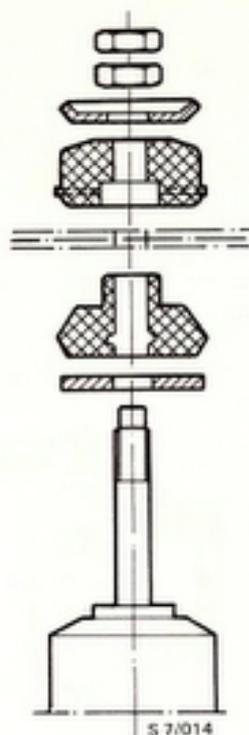
- Check for oil leaks around the shock absorbers.
- Check for external damage, extensive corrosion or deformed plungers.
- Check that the nuts are tight.
- Check the condition of the rubber bushings.
- Test the functioning of the shock absorbers by rocking the car or by testing it on the road.

The bushes shown are of the later design.

Regulations for scrapping pneumatic shock absorbers

Gas shock absorbers contain gas at a pressure of 30 - 40 bar, which can cause personal injury if not handled properly.

In order to avoid the risk of personal injury gas shock absorbers should be emptied of gas prior to being scrapped. This is effected by drilling an approx. 2 mm dia. hole in the pressure chamber, 10 - 15 mm in from the end (see illustration).



Drill a 2 mm dia. hole
10 - 15 mm from the edge.

S 7312

Wheels

Steel wheels

Saab 900 GL, GLE and 1982 model EMS cars are fitted with steel wheels which centre directly on the hub, the design of which precisely matches the centre-hole in the wheel. The wheels are secured by taper-ended nuts. The hub caps on GL models cover the centre of the wheel. On GLE and 1982 model EMS cars, the wheels are fitted with covers which cover its entire wheel.

Aluminium wheels

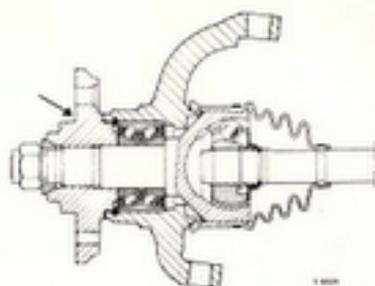
Saab 900 EMS and Turbo cars are fitted with aluminium wheels of varying design. The wheels centre directly on the hub, the design of which precisely matches the centre-hole in the wheel. Up to and including 1981 models: The wheel nuts have cylindrical guides.

As from 1982 models: aluminium wheels are secured by taper-ended nuts.

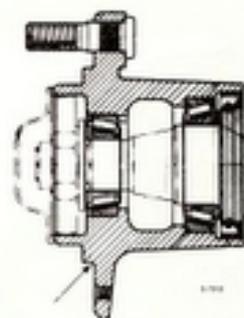
Spare wheel

The spare wheel in cars of all models is steel. If the wheel nuts on the car have cylindrical guides, then taper-ended wheel nuts will be included in the tool kit.

Steel wheels



Hub centering, front wheel

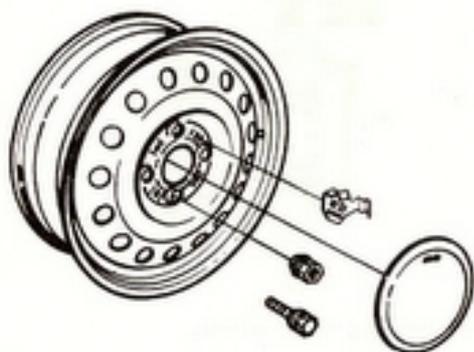


Hub centering, rear wheel

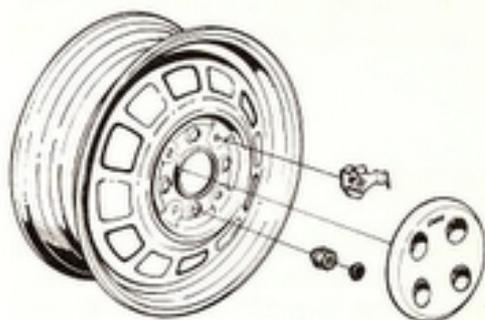


5 J x 15" FHA
models 1979, 1980 and 1981

Wheel cover:
 EMS cars of 1982 model
 GLE cars as from 1983 models



5 1/2 J x 15" H2 ET40
 5-speed GL cars, 1985 models onwards
 900i, 1985 models onwards

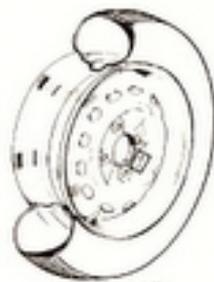


S 7 001

5J x 15" FHA as from 1982 models
 or
 5 1/2 J x 15" CH: 1982 model GLE, EMS
 cars and 4-speed GL cars, 1985 models
 onwards.

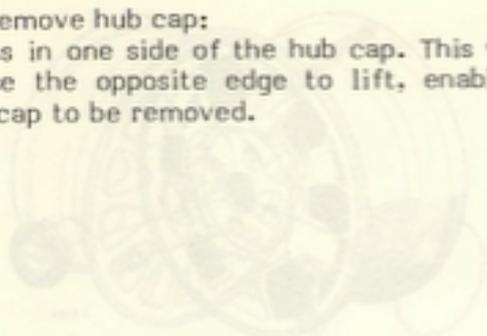
Mini spare wheel

As from 1981 models, "Mini type spare wheels are provided. In common with standard steel wheels, Mini spare wheels have nuts with cylindrical guides. Cars equipped with aluminium wheels will have taper-ended nuts included in the tool kit.



4 J x 15" H1

To remove hub cap:
Press in one side of the hub cap. This will cause the opposite edge to lift, enabling the cap to be removed.



1979-1981 models
Turbo 1985 models onwards



Hub cap clips, models 1979, 1980 and 1981



1979-1981 models
Turbo 1985 models onwards



Hub cap clips, models 1979, 1980 and 1981



1982 models onwards

Fitting of clips to steel wheels

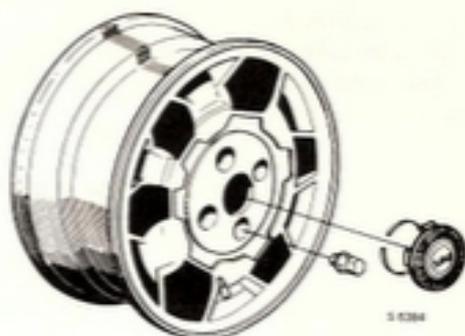
Steel wheels designed for hub caps may have the hub cap flange, making it difficult to remove the wheel.

Check, when fitting the wheel, that there is clearance between the wheel and the hub flange. If not, hit up the centre of the wheel to the ground with a 5.25 mm diameter pin.

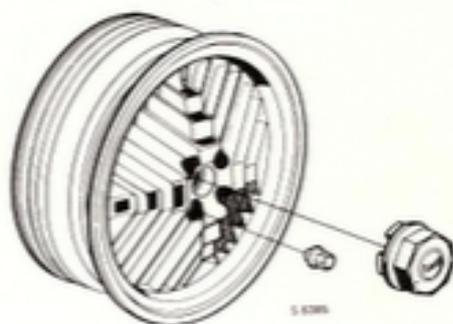


Hub cap clips, as from 1982 models

Aluminium wheels



5J x 15" FHA
1979, 1980 and 1981 EMS models



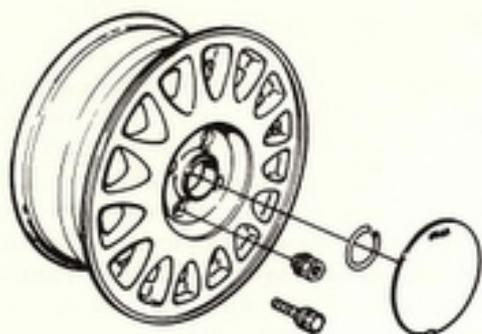
5 1/2 J x 15" H2
1979, 1980 3-door Turbo models

TRX wheels

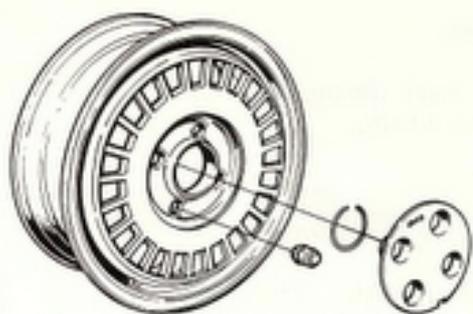
4-door and 5-door Turbo cars are fitted with wheels for use with TRX tyres, which have a special profile, with lower sidewalls than conventional tyres. The TRX rim dimensions are given in millimetres. The rim diameter is 390 mm and the width 135 mm. The wheel nuts are through-drilled and a hub cap fits over the centre of the wheel.



135 TR x 390 FH (TRX wheels)

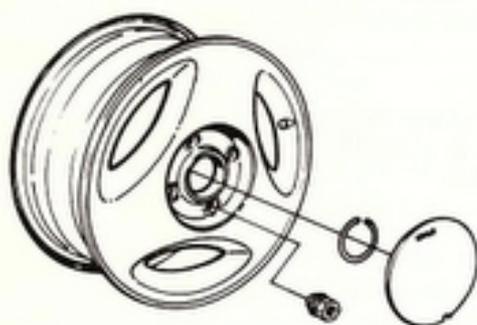


5 1/2 J x 15" H2 ET40
Turbo, 1985 models onwards

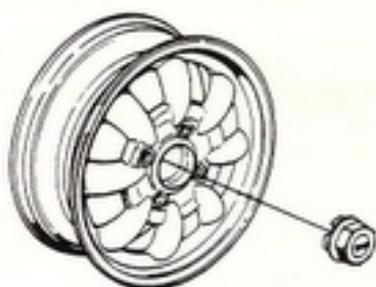


S 7 005

5.5 J x 15" H2
1983 and 1984 model Turbos and 1985
model 900i EU cars (n/a GB or Sweden)



5 1/2 x 15" H2 ET40
Turbo 16 S, 1985 models onwards



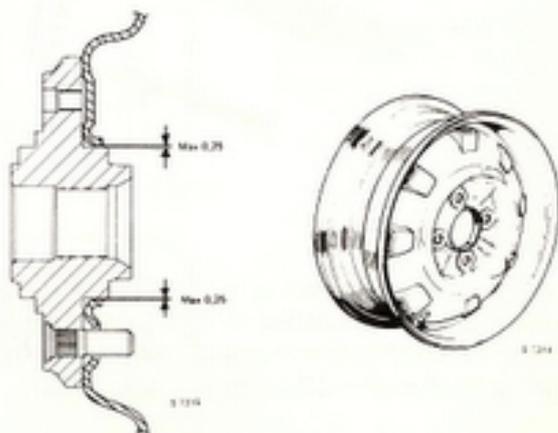
S 7/010

5.5 J x 15" H2
1983 and 1984 model EMS cars and 900i
models, GB or Sweden, 1985 onwards

Fitting of earlier version steel wheels

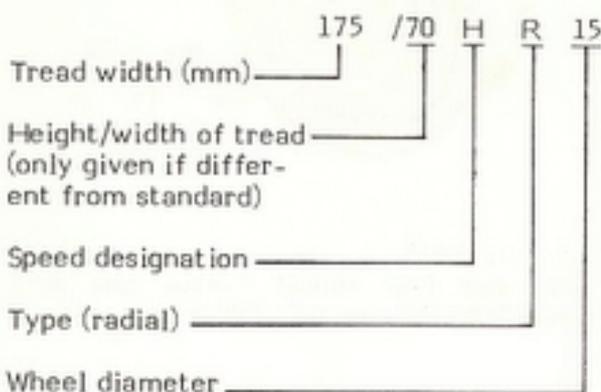
Steel wheels designed for Saab 99 cars (up to 1978 models) may jam on the hub guide flange, making it difficult to remove the wheel.

Check, when fitting the wheel, that there is clearance between the wheel and the hub flange. If not, file up the centre of the wheel so that clearance of 0.25 mm max. is obtained.



Tyres

The tyre designation gives the following information:



The tyres incorporate a tread depth indicator; when the tread pattern is worn down to 1/16 in (1.6 mm), unpatterned cross bars appear. This is a sign that it is time to fit a new tyre.

Note! Avoid fitting tyres of different types or makes, or with differing degrees of wear, on the same axle.

The illustration below shows how the outside of the fluted tyre bead seals against the inside of the wheel rim, the bead seating.



Winter tyres

Winter tyres measuring 165 SR 15 or larger must not be fitted on 5 1/2 in wheels as there is insufficient clearance between the tyre and the wheel housing.

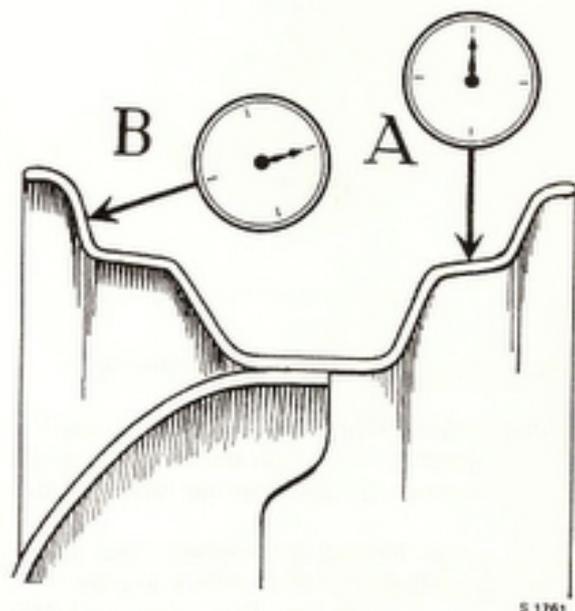
Adjusting and repairing wheels

Wheels can be damaged in collisions or if the car runs off the road or is driven on underinflated tyres. As the tubeless tyres seal direct against the wheel rims, air will leak out if the rim is deformed or otherwise damaged. If a leak occurs due to rim deformation, the tyre should be taken off so that the wheel can be inspected and adjusted if necessary. If the rim is rusty at the bead seating, the rust must be removed. Use a wire brush or a pad of wire wool. If rust has pitted the rim, use a file. Any minor pitting remaining should be coated with thick rubber solution. Coat the tyre in the same way and fit it on the wheel before the solution dries.

Note

Before fitting the tyre, check that the rim is neither out-a-round nor out-of-true.

On a correctly fitted rotating rim, the difference between the highest and lowest points measured at A (see illustration) must not exceed 0.039 in (0.5 mm). The lateral throw B (see illustration) should be measured in the same way and must not exceed 0.039 in (1 mm) (Light alloy wheels: 0.020 in (0.5 mm)). When these measurements are made, the wheel should be mounted in the usual way, either on a hub or in special apparatus, so that the rim can be rotated.



Fitting of wheels

For reasons of comfort and safety, it is important that the wheels are fitted correctly.

Caution

Do not interchange the wheel nuts.

Wheels designed for taper-ended wheel nuts

Note

As from 1982 models aluminium wheels also have taper-ended nuts.

1. Check the taper and threads of the nuts. Nuts which seize or on which the taper is worn should be replaced.
2. Mount the wheel on the hub and tighten the nuts. Nuts which seize or on which the taper is worn should be replaced.
3. Tighten the nuts to a torque of 88-108 Nm (65-80 lb.ft., 9-11 kgm).

Note

Pneumatic nut tighteners may only be used in combination with a torque wrench. Nuts which have been over-tightened can damage the wheel and make it impossible for the motorist to remove the nuts in the event of a puncture.

Wheels designed for wheel nuts with cylindrical guides.

1. Check the nuts and threads for damage.
2. Front wheels: Coat the contact surfaces that centre the wheel with anti-corrosion agent.
Mount the wheel on the hub and guide and slide it fully into position on the hub centring. Then fit the nuts.

Caution

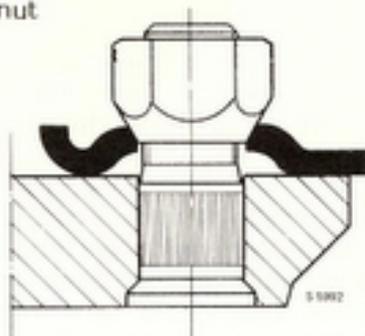
Do not attempt to tighten the nuts before the wheel is fully in position on the hub, as this can severely damage the wheel or hub.

3. Tighten the nuts to a torque of 88-108 Nm (65-80 lb.ft., 9-11 kgm).

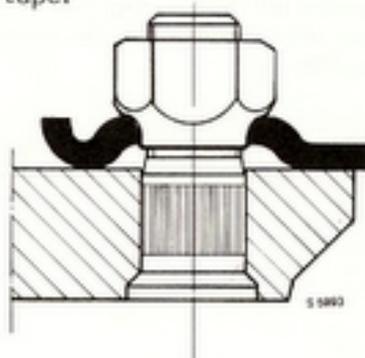
Note

Pneumatic nut tighteners must not be used for final tightening of the nuts.

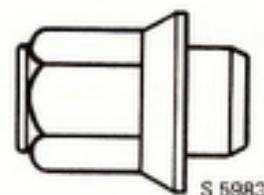
New nut



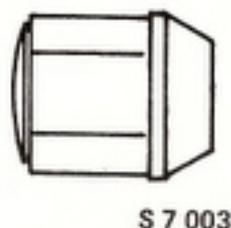
Nut with worn taper



Taper-ended nut for steel wheel up to 1981 models.

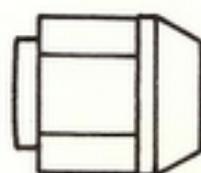


Wheel nut with flange for aluminium wheel up to 1981 models.



Taper-ended nut for steel wheel as from 1982 models.

S 7 003



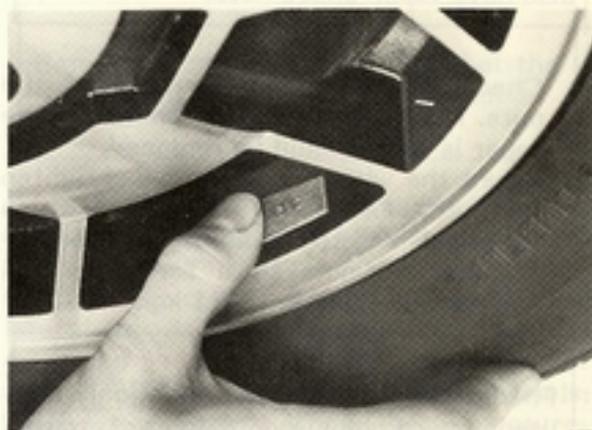
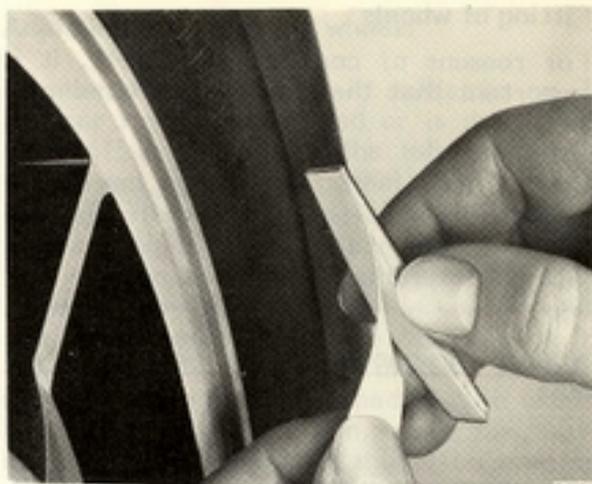
Conical wheel nut for aluminium wheel as from 1982 models

S 7 004

Balancing of light alloy wheels (earlier models)

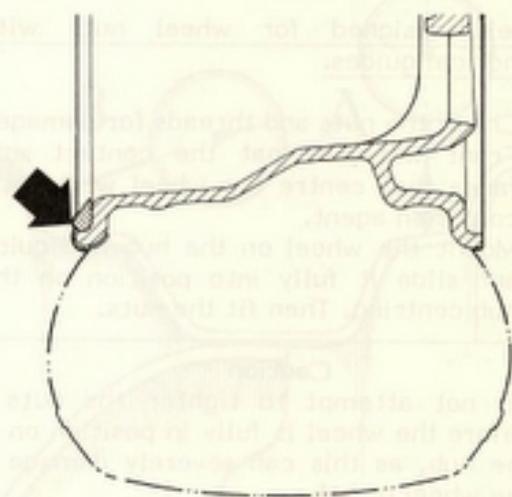
For the balancing of light alloy wheels, special weights that are glued to the wheel must be used. Ensure that the surface has been thoroughly cleaned and dried before gluing.

Since the wheel-balancing weights are placed about 1/2 in inside the wheel in the case of light alloy wheels, allowance must be made for this on of wheel-balancing machines set to the wheel width. Accordingly the machine should be set to or 4 1/2 in for 5 1/2 in wheels. In the case of certain types of balancing machines, the emblem at the centre of the wheel must first be removed.



Balancing of type H2 light-alloy wheels

Light-alloy wheels of the later type have a lip on the rim to which balancing weights can be fitted.



Tyre care

The working life of a tyre depends very much on the care it receives and the conditions under which it has to work. Some of the factors affecting tyre wear are listed below.

1. Tyre pressure. It is important to maintain the correct tyre pressure and to adjust it according to load. For correct tyre pressures, follow the recommendations in the Owner's Manual.
2. Wheel balancing is necessary to avoid vibration and consequent wear. Wheels must be balanced both statically and dynamically.
3. Wheel alignment. Faulty alignment of the wheels can cause heavy wear on the tyres.
4. Speed. Tyre mileage diminishes sharply with rising speed, mainly due to the greater frictional heat generated.
5. Engine power. Powerful engines give rapid acceleration and high speed, which in turn demand powerful brakes. This contributes to faster wear on the tyres.
6. Road surface. Dry roads offering a good grip for the tyres cause a great deal of wear.
7. Manner of driving. The temperament of the driver may weigh more heavily than any other factor. If the acceleration and braking resources of the car are regularly utilized to the limit, this will quickly wear down the tyres.



S 1762

A statically balanced wheel should be able to come to rest in any position when suspended and free to rotate. A dynamically balanced wheel should rotate in a plane perpendicular to the axis of rotation, i.e. it should have no tendency to skew during rotation.

The balancing operation should not be performed on new wheels, but only after some 600 - 900 miles (1,000 - 1,500 km) motoring; this is to give the tyres time to "shake down" on the rims.

Wheels need rebalancing after long mileage because tyre wear alters the distribution of weight.

Note

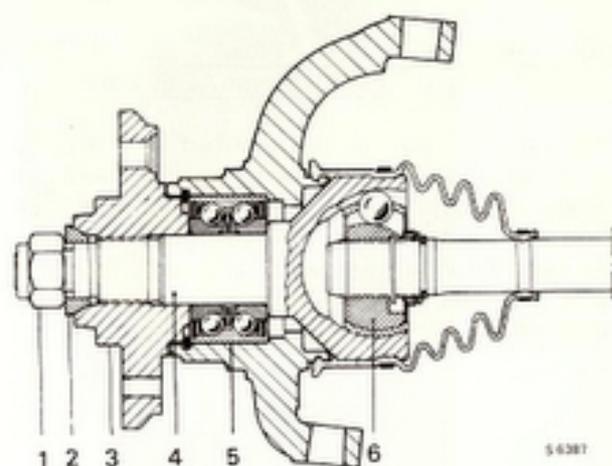
When a wheel spinner is used, the speedometer reading must not exceed 40 mph (70 km/h).

Hubs

Front wheel hubs

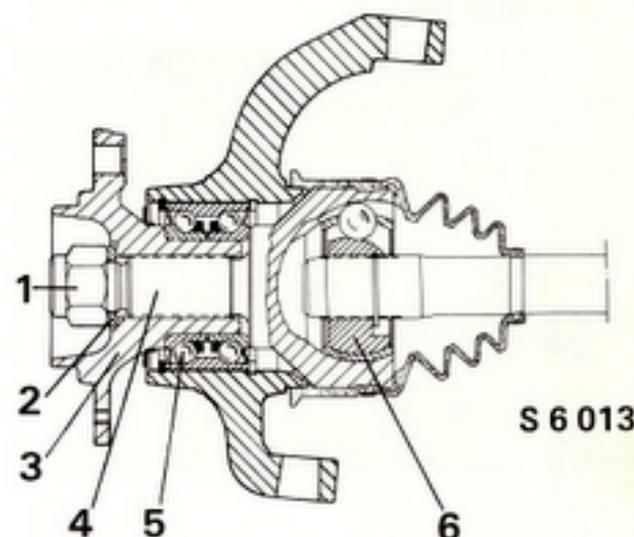
The front wheel outer drive shaft and hub are journalled in a double-row angular contact bearing in the steering knuckle housing. The bearing is permanently lubricated and has built-in seals.

The hub is splined to the outer drive shaft and secured by a nut with a flange which is upset in the locking groove in the shaft. The brake disc and wheel nut are fitted to the hub. The inner end of the outer drive shaft is connected to the intermediate shaft through the outer universal joint.



Front wheel hub, model 1979, 1980

- | | |
|-------------|------------------------------|
| 1. Lock nut | 4. Outer drive shaft |
| 2. Washer | 5. Wheel bearings with seals |
| 3. Hub | 6. Outer drive shaft joints |



Front wheel hub, as from 1981 models

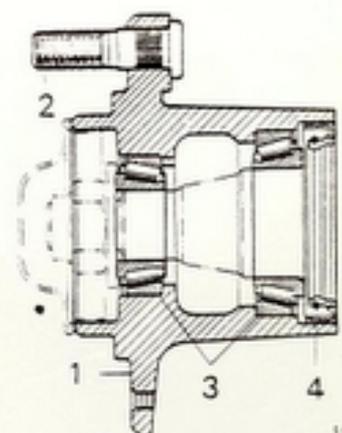
Rear wheel hubs

Up to and incl. chassis Nos. AC1021263, AC2007508, AC3006827 and AC6001805

The rear wheel hub is mounted in two taper roller bearings, the inner bearing having a larger diameter than the outer one. A removable seal provides the seal with the shaft.

Rear wheel hub

- | |
|------------------|
| 1. Hub |
| 2. Wheel stud |
| 3. Wheel bearing |
| 4. Seal |



Earlier design

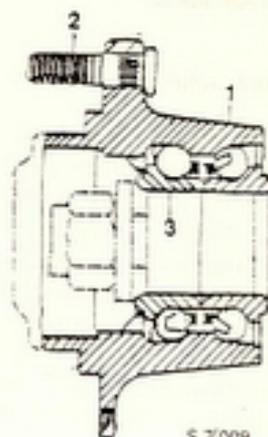
Up to and incl. chassis Nos. AC1021263, AC2007508, AC3006827 and AC6001805

As from chassis Nos. AC1021264,
AC2007509, AC3006828 and AC6001806

The rear wheel hub is mounted in a double row, angular contact bearing with built-in seal, to forming an integral unit with the hub. The hub is therefore removed complete with bearing and seal. The hub, bearing and seal can be replaced only as an integral assembly.

Rear wheel hub

- 1. Hub
- 2. Wheel stud
- 3. Wheel bearing
- 4. Seal

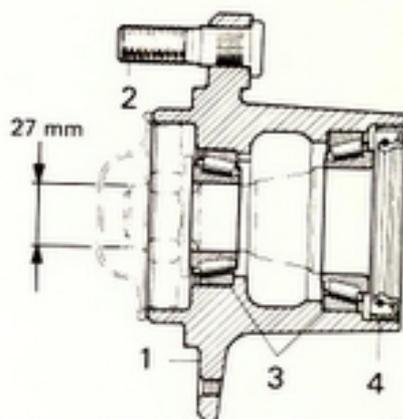


S 7009

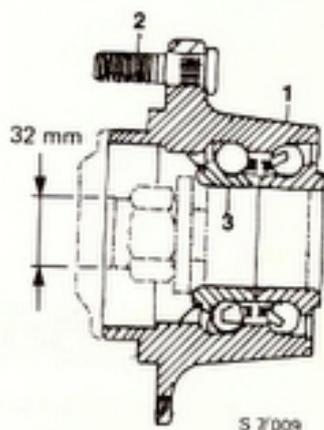
Later design

As from chassis Nos. AC1021264,
AC2007509, AC3006828 and AC6001806

The different hubs are distinguishable by
the size of the nut:



Earlier design: Nut 27 mm across the flats.



S 7009

Later design: Nut 32 mm across the flats

Wheel bearings

Changing front wheel bearings, 1979-80 models

In time wheel bearings may become so worn that they develop play. If the play measured at the wheel rim exceeds 0.08 in (2 mm), the wheel bearing must be renewed. Under no circumstances must wheel bearings be subjected to impact, as this may damage them.

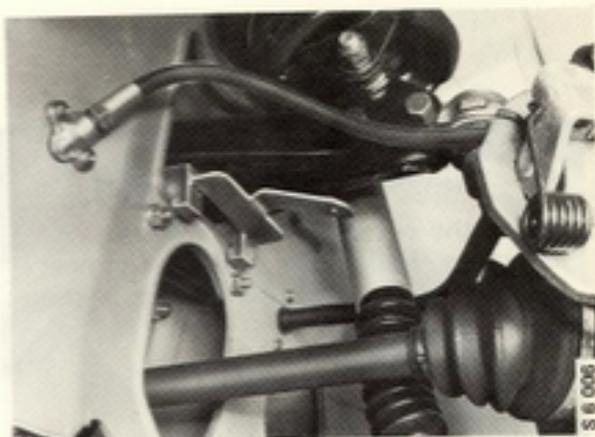
Note

Use only original bearings as listed in the Spare Parts Catalogue.
The bearings cannot be taken apart.

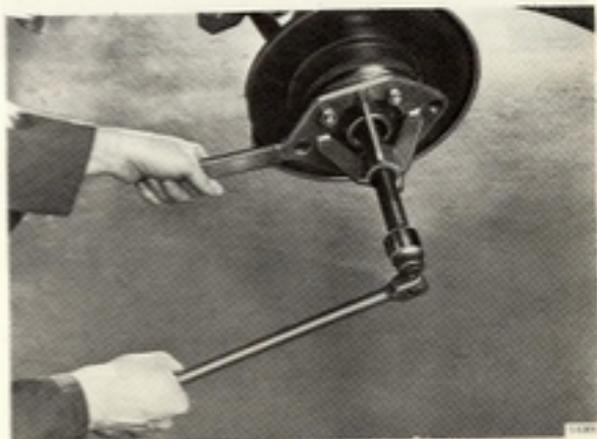


To remove, up to 1980 models

1. Position tool 83 93 209 under the upper control arm.
2. Remove the hub cap. Slacken the hub nut and wheel nuts before jacking up the car.
3. Block up the front assembly and remove the wheel.
4. Rotate the brake disc so that the recess in the edge of the disc lines up with the brake pads. Disconnect the hand brake cable and remove the brake housing. Hang the brake housing out of the way to prevent damage to the brake hose or line.



5. Remove the hub and brake disc from the shaft using puller 89 96 084 (or tool 95 95 185 with four extension pieces, 89 96 050).
6. Undo the large clip round the rubber bellows of the inner universal joint.
7. Remove the steering arm and upper ball joint using tool 89 95 409. Undo the bolts in the lower control arm end piece.



When separating the inner universal joint, fit a cover in the rubber bellows to stop the needle bearings from falling out and to keep dirt out of the joint, and fit a cover over the inner drive.

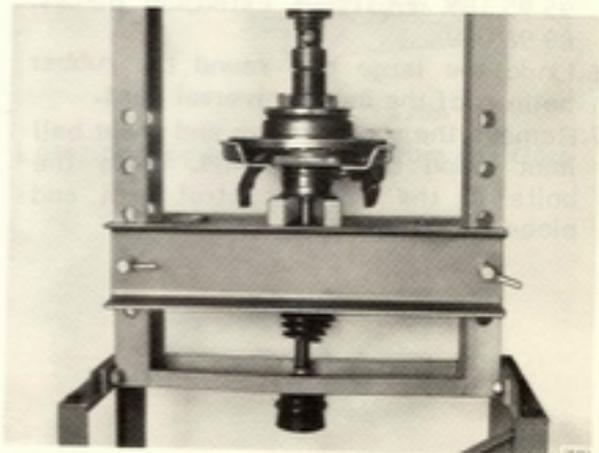
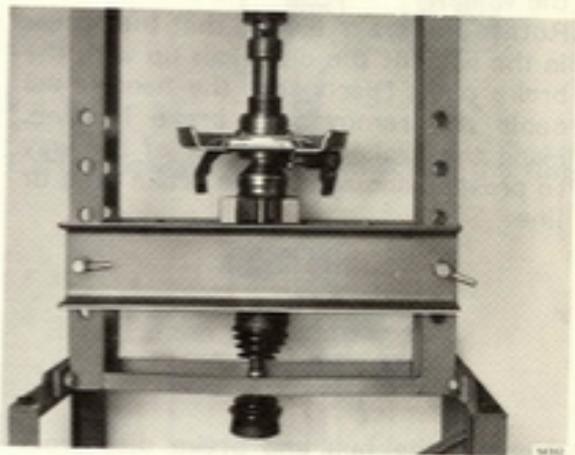
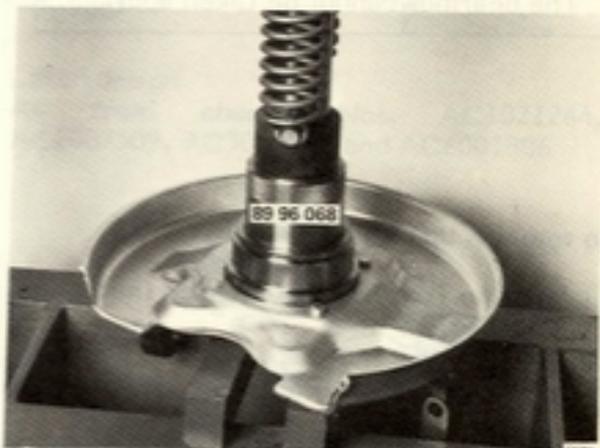
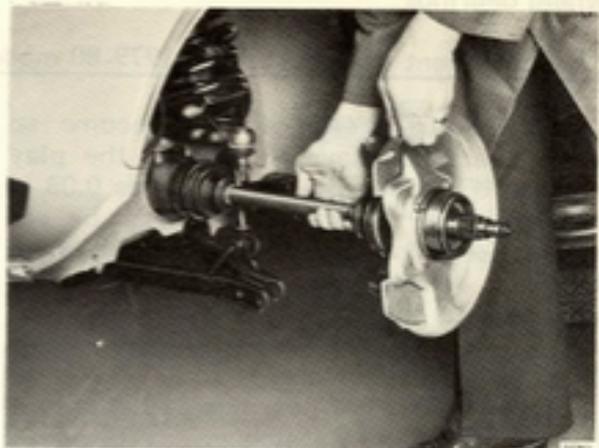
8. Pull out the drive shaft through the wheel housing, remove the entire front axle assembly and clean it thoroughly.
9. Place the steering knuckle housing in a press and press out the drive shaft.
10. Remove the circlip and press out the bearing using a suitable drift. The bearing must not be taken apart.

Installation, front wheel bearing

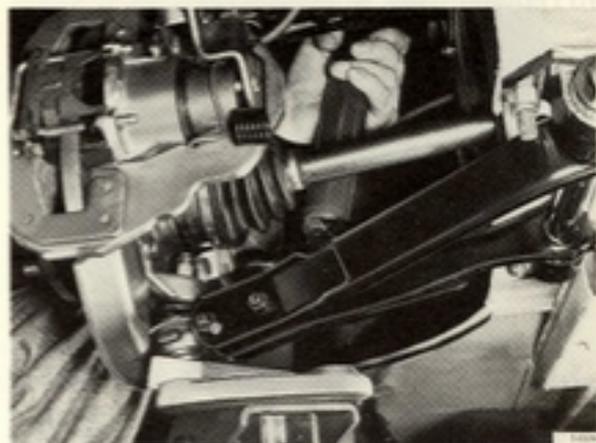
1. Press the front wheel bearing into the steering knuckle housing using tool 89 96 068. Fit the circlip. Before fitting, grease the bearing with "Molycote, Paste G".

2. Mount the outer drive shaft in the press and press the knuckle housing and bearing onto it. Press on the inner sealing ring.

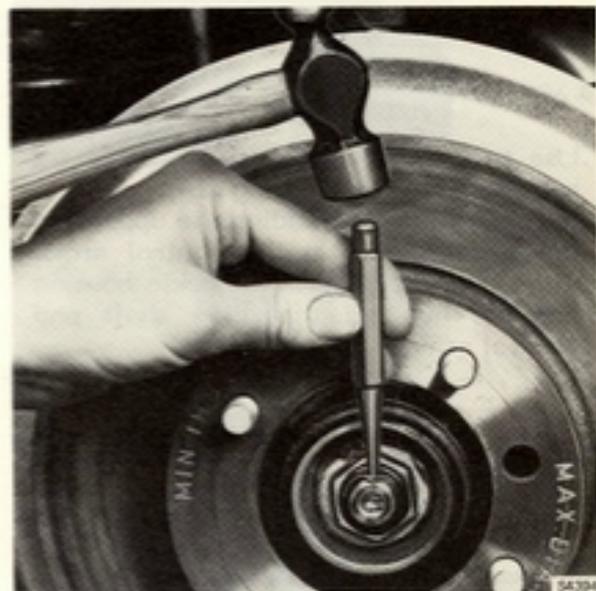
3. Press the wheel hub and brake disc onto the drive shaft splines and fit the disked washer and locknut. The nut is locked later.



4. If the inner universal joint needle bearings have been removed, grease them and mount them on the ends of the tee piece. Fit the cover to protect the needle bearings and insert the drive shaft through the wheel housing. Make sure that the inner drive is clean and packed with chassis grease.
5. Assemble the inner universal joint. Fit the upper ball bolt to the steering knuckle housing and fit the lower control arm end piece. Secure the clip on the universal joint bellows.
6. Mount the tie rod end to the steering arm.
7. Mount the brake housing and connect the handbrake cable.
8. Fit the wheel and lower the car.



9. Tighten the hub nut to the prescribed torque and secure the nut by upsetting the flange in the locking groove.



Tightening torque

Up to and incl. 1980 models:

$350 \pm 10 \text{ Nm}$ ($258 \pm 7 \text{ lb.ft.}$,
 $35 \pm 1 \text{ kgm}$)

As from 1981 models:

$300 \pm 10 \text{ Nm}$ ($220 \pm 7 \text{ lb.ft.}$,
 $30 \pm 1 \text{ kgm}$)

10. Tighten the wheel nuts securely and fit the hub cap.

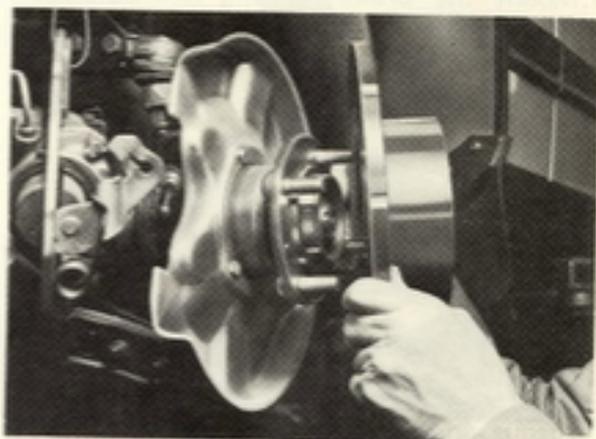
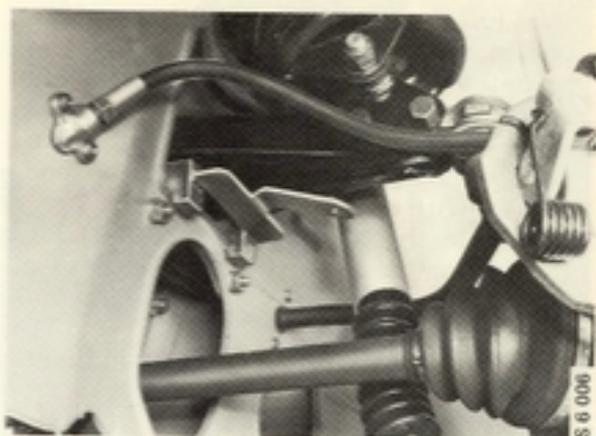
Caution

The brake pads must be advanced to their operating position close to the disc, by repeated pumping of the brake pedal. Failure to observe this will result in malfunctioning of the brakes.

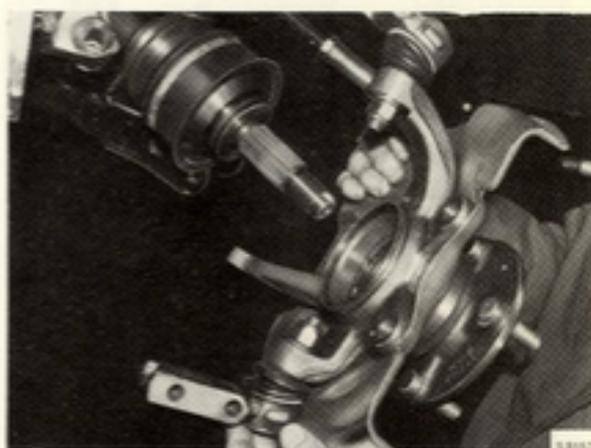
To replace front wheel bearings

To remove, as from 1981 models

1. Position tool 83 93 209 under the upper control arm.
2. Remove the hub cap and slacken the wheel nuts.
3. Jack up the car, support it on stands and remove the wheel.
4. Remove the brake pads. Use the recesses in the edge of the disc.
5. Remove the brake housing and hang it to one side so that the brake hose and pipe are not damaged.
6. Remove the brake disc from the hub.



7. Use tool 89 95 409 to separate the tie rod end from the steering arm.
8. Remove the bolts holding the upper and lower ball joints in the control arms. Then pull the steering knuckle housing and the hub off the drive shaft and control arms.

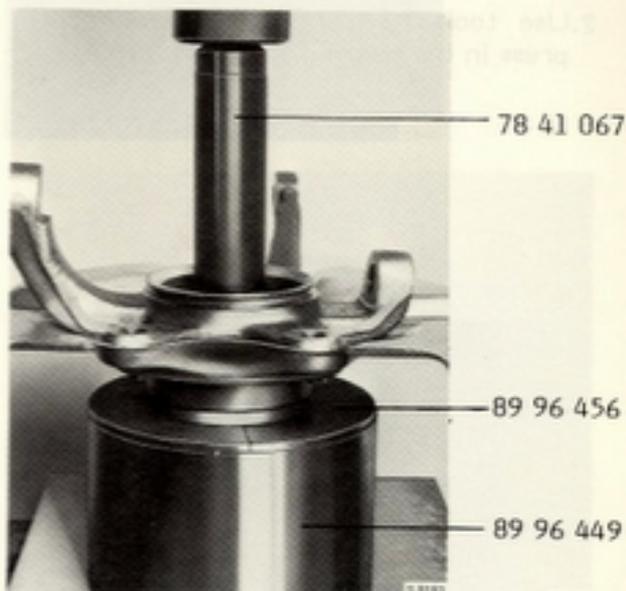
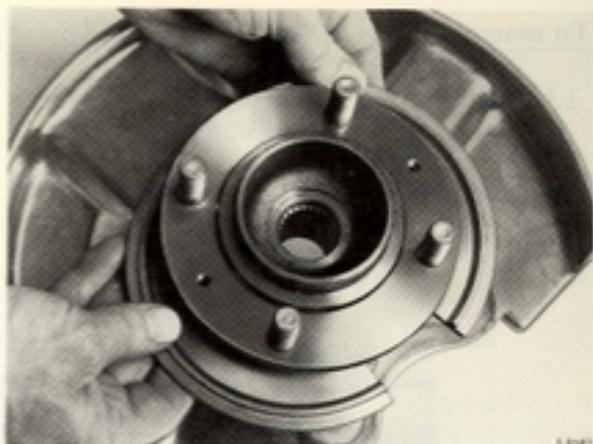


9. Use tools 78 41 067, 89 96 456 and 89 96 449 to press off the hub.

Use a universal puller to pull the inner bearing race off the hub. If there are no recesses for the puller chisel off the race.

Note

Pressing off the hub destroys the bearing and a new one should be fitted.

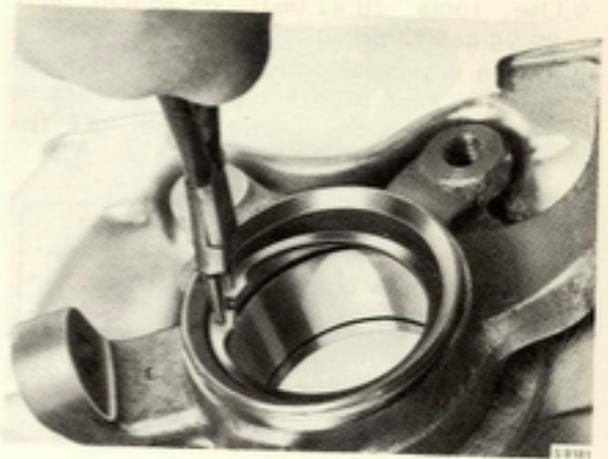


10. Remove the circlips from the steering knuckle housing and press out the bearing using tools 83 90 114, 89 96 456 and 89 96 449.

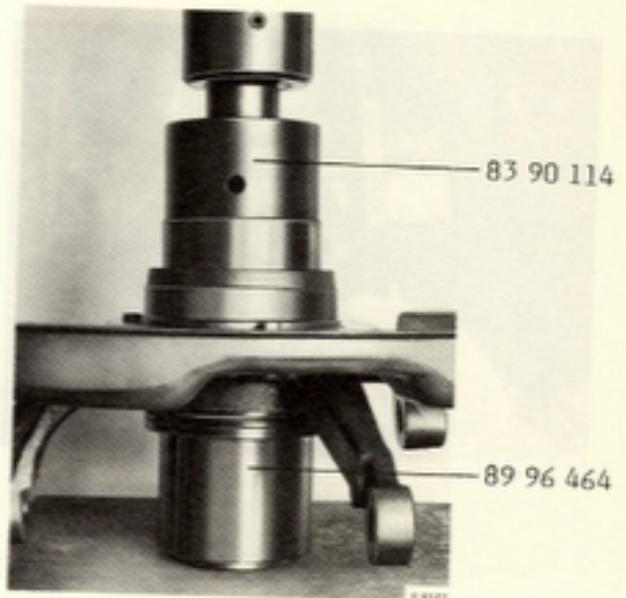


To assemble

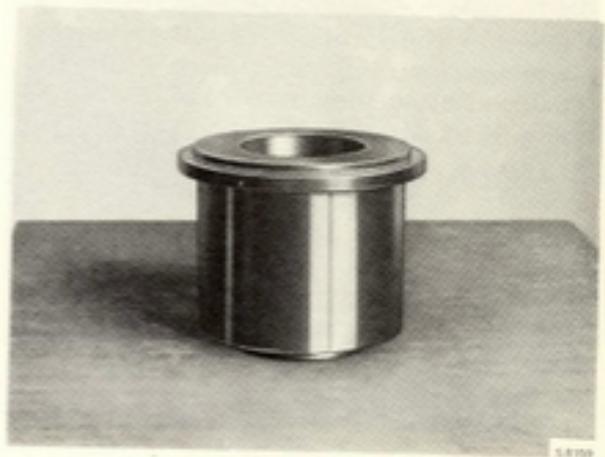
1. Lubricate the bearing recess in the steering knuckle housing with Molycote Paste G. Fit the circlip in the inner groove in the steering knuckle housing.



2. Use tools 83 90 114 and 89 96 464 to press in the bearing up to the circlip.

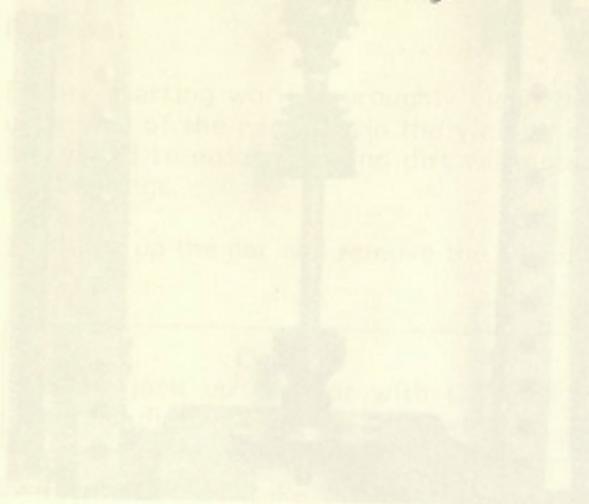


Note how tool 89 96 464 is positioned.



3. Fit the outer circlip.

4. Use tools 83 90 114 and 89 96 464 to press the hub into the bearing.

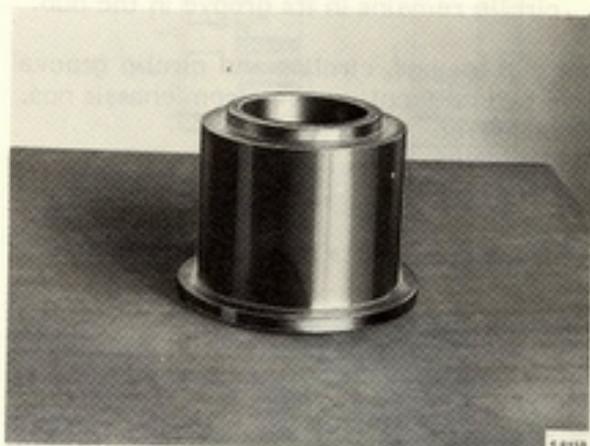
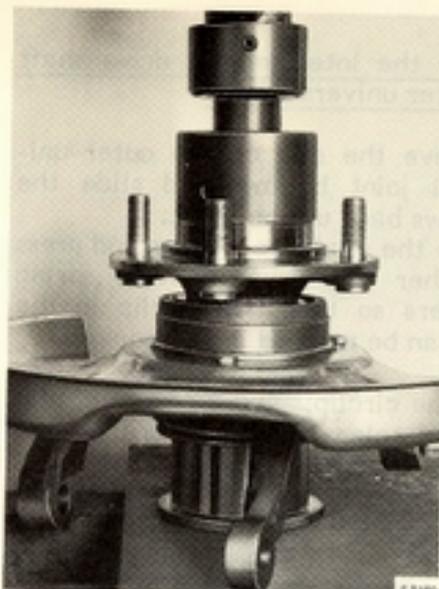


Position tool 89 96 464 against the inner bearing race.

5. Lubricate the drive shaft splines with Molycote Paste G, introduce the drive shaft into the hub and replace the steering knuckle housing by refitting the ball joints to the upper and lower control arm.
6. Refit the hub nut and brake disc.
7. Refit the brake housing and the brake pads.
8. Refit the tie rod to the steering arm.
9. Refit the wheel, lower the car and tighten the hub nut and wheel nuts. See specification for tightening torques. Lock the hub by upsetting the flange in the stub axle groove.
10. Refit the hub cap and remove tool 83 93 209 from below the upper control arm.

Caution

The brake pads must be advanced to their operating position close to the disc, by repeated pumping of the brake pedal. Failure to observe this will result in malfunctioning of the brakes.



1. Fit the intermediate drive shaft to the outer universal joint as follows:

a. Pack the joint with grease.

b. Insert the shaft into the joint hub so that the circlip inside the hub snaps into the groove in the shaft. Check that it is in position by trying to displace the shaft.

Take
Pack the joint with grease before re-fitting the intermediate shaft.

To separate the intermediate drive shaft from the outer universal joint

- Remove the clip on the outer universal joint bellows and slide the bellows back up the shaft.
 - Place the shafts in a press and press together the two convex spring washers so that the circlip in the hub can be rotated in its groove.
- Spread the circlip using a pair of circlip pliers and release the pressure on the shaft.
- Remove the intermediate shaft from the hub together with the spherically shaped washer, the two convex spring washers and the shaft circlip. The hub circlip remains in its groove in the hub.

The cup springs, circlips and circlip groove have been discontinued as from chassis nos. 90806000586
90801008986
90802002798

In future these parts should not be refitted.

As from the above chassis numbers the intermediate drive shaft should be separated from the outer universal joint as follows:

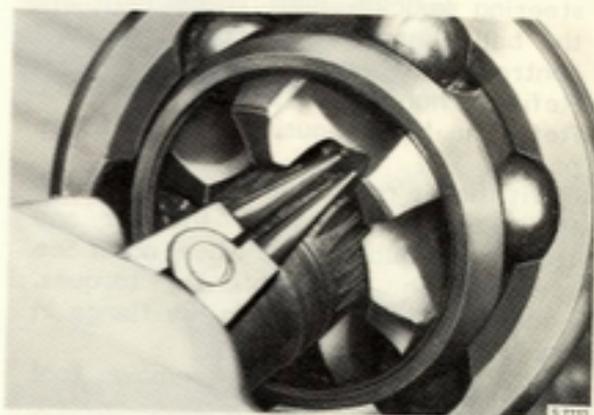
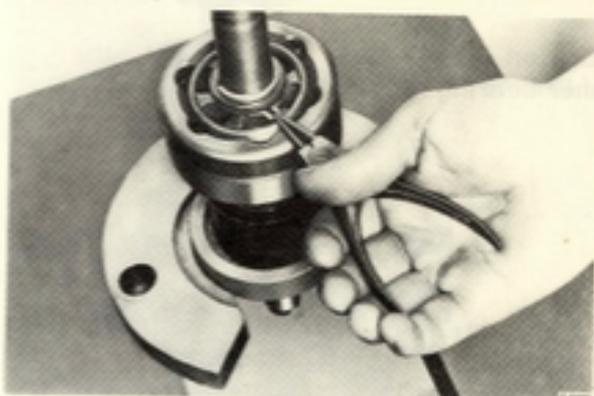
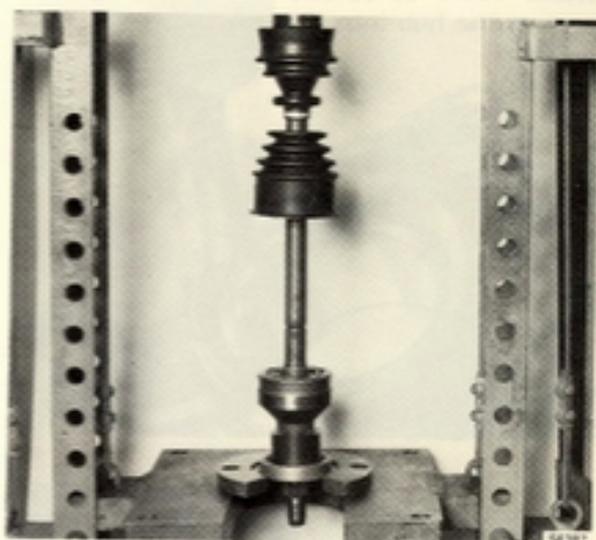
- Pull back the rubber bellows from the outer universal joint.
- Spread the circlip and pull the universal joint free from the shaft.

To assemble

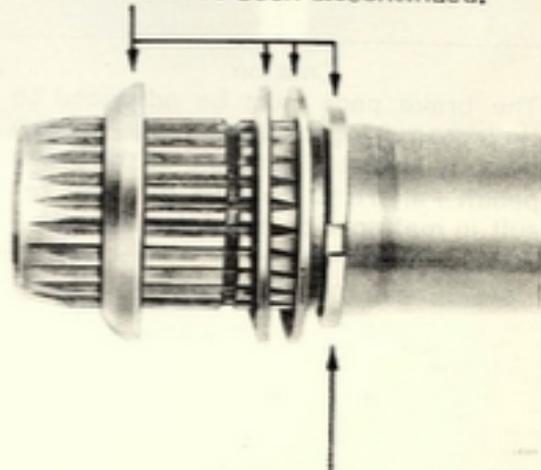
- Fit the intermediate drive shaft to the outer universal joint as follows:
 - Pack the joint with grease.
 - Insert the shaft into the joint hub so that the circlip inside the hub snaps into the groove in the shaft. Check that it is in position by trying to displace the shaft.

Note

Pack the joint with grease before re-fitting the intermediate shaft.



These washers have been discontinued.



The circlip groove has been discontinued.

Rear wheel hubs

Removal

Before starting work, thoroughly clean the underside of the car body in the vicinity of the wheel to ensure that no dirt will enter the bearings.

1. Block up the car and remove the wheel.

Caution

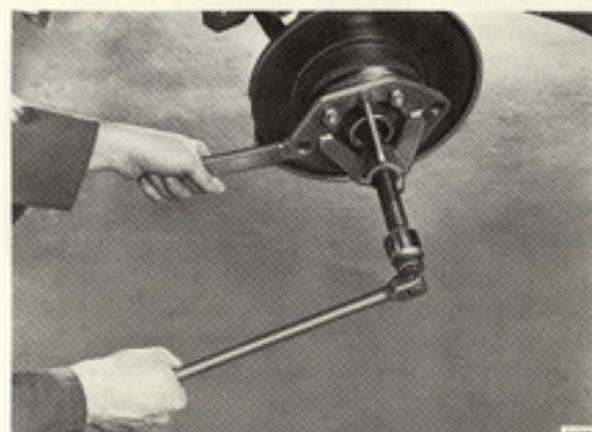
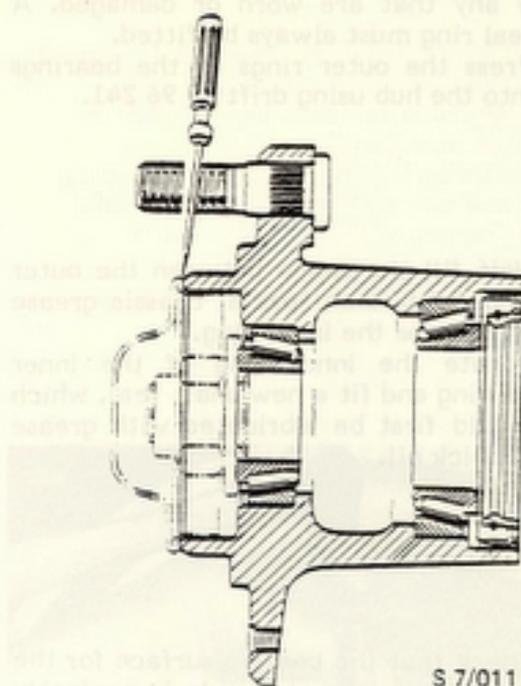
Never jack up the car with the jack applied direct under the rear axle.

2. Remove the brake housing, hanging it out of the way, and remove the brake disc.
3. Prize out the dust cap using a screwdriver.
4. Lever back the locking collar on the nut and remove the nut and washer.
5. Pull off the hub. If the hub is tight use puller 89 96 084 (or puller 89 95 185) with four No. 89 96 050 extension pieces).

Note

As from chassis Nos. AC1021264, AC2007509 and AC6001806, the bearing and seal form an integral unit with the rear wheel hub and must therefore be replaced as an assembly and not individually.

6. Use a screwdriver to break out the seal ring (it cannot be removed intact) and remove the inner rings of both bearings.
7. Place a suitable drift in the milled recesses in the hub and drive out the outer bearing rings. While doing this, it is advisable to place a wooden block under the hub to avoid deforming the end faces.



Installation up to and incl. chassis Nos
AC1021263, AC2007508, AC3006827 and
AC6001805

Clean and inspect all parts carefully, and renew any that are worn or damaged. A new seal ring must always be fitted.

1. Press the outer rings of the bearings into the hub using drift 89 96 241.

2. Half fill the space between the outer rings with Saab Special chassis grease and grease the inner ring.

3. Locate the inner ring of the inner bearing and fit a new shaft seal, which should first be lubricated with grease or thick oil.

4. Check that the bearing surface for the seal ring on the stub axle is perfectly smooth. If it is damaged, it must be smoothed and polished with a very fine emery paper. Lubricate the bearing surface with grease.

5. Fit the hub to the stub axle, insert the inner ring of the outer bearing and mount the washer and nut. Tighten the locknut to a torque of 36 lb.ft., (49 Nm; 5 kgm). Then slacken the nut completely. Finally tighten the nut to a torque of 1.4 - 2.9 lb.ft., (2 - 4 Nm; 0.2 - 0.4 kpm).

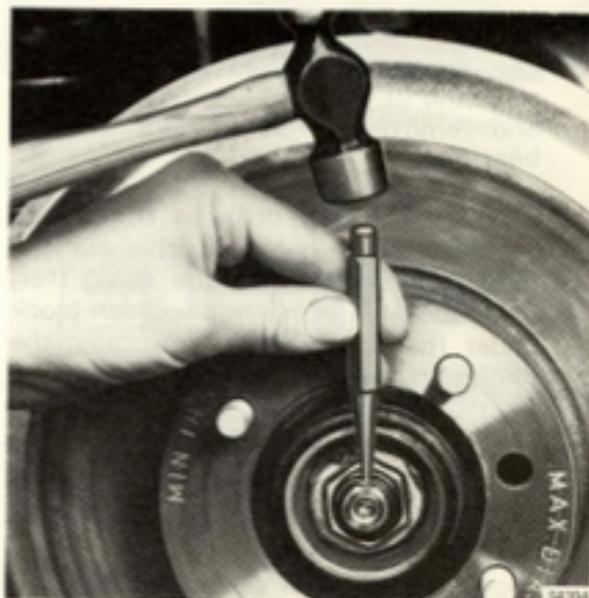
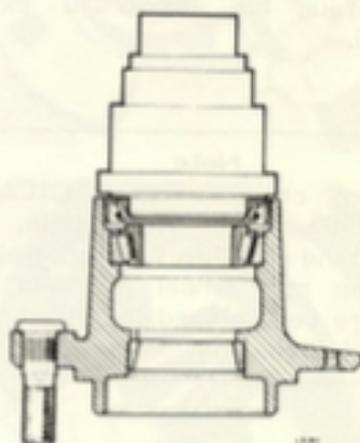
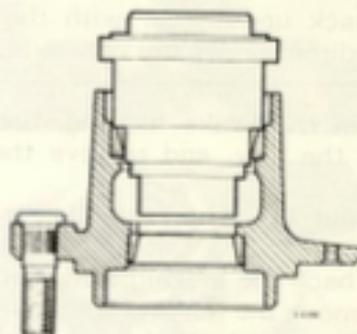
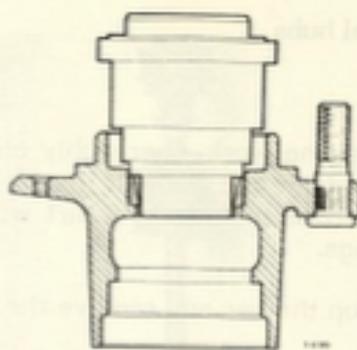
If the part of the collar previously upset again comes in line with the groove in the shaft, fit a new nut. Use a round-nosed drift to upset the collar, to obviate the risk of cracks forming.

Tightening torque

First step:	49 Nm (36 lb.ft., 5 kgm)
Second step:	Slacken nut
Third step:	2 - 4 Nm (1.5 - 3.0 lb.ft., 0.2 - 0.4 kgm)

6. Pack the dust cap with grease and fit it.

7. Mount the brake disc, brake housing, wheel and wheel nuts.



- Lower the rear of the car, tighten the wheel nuts securely and fit the hub cap.

Note

If a nut tightener is used, a torque attachment must also be used. Overtightening can damage the nuts and the wheel.

Installation as from chassis Nos. AC1021264, AC2007509, AC3006828 and AC6001806

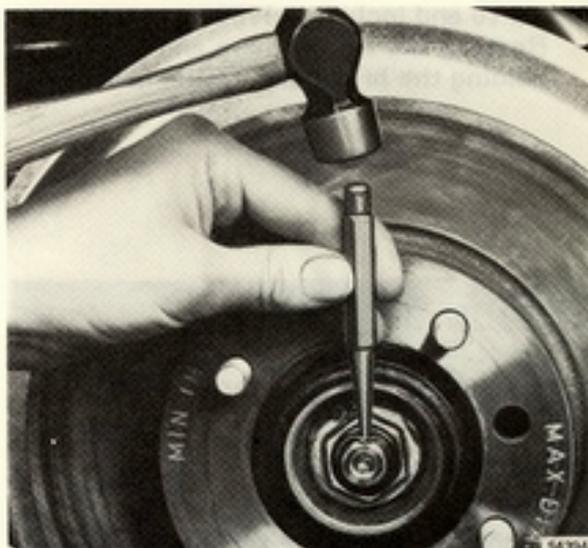
Clean and inspect all parts carefully, replacing any worn or damaged ones. Check that the bearing surface for the seal ring on the stub axle is perfectly smooth. If not, smooth and polish it using a piece of fine emery paper.

- Slide the hub onto the stub axle and fit the washer and locknut.
- Tighten the locknut to a torque of 300 ± 10 Nm (210 lb.ft; 30 ± 1 kgm). If the part of the collar previously upset again comes in line with the locking groove in the shaft, fit a new nut.
Use a round-nosed drift to upset the collar, to obviate the risk of cracks forming.
- Fit the dust cap.
- Fit the brake disc, brake housing, wheel and wheel nuts.

- Lower the car, check that the wheel nuts are tight and fit the hub cap.

Note

If a nut tightener is used, a torque attachment must also be used. Overtightening can damage the nuts and the wheel.



Changing wheel studs, 1979 and 1980 models

Front wheels

Removal

1. Take off the hub cap and remove the locknut. Slacken the wheel nuts.
2. Block up the front of the car and remove the wheel.
3. Turn the brake disc so that the recess in the edge of the disc is in line with the brake pads. Detach the handbrake cable and remove the brake housing. Hang up the brake housing to avoid damage to the brake hoses.
4. Remove the hub and brake disc using puller 83 96 084 (or puller 89 95 185 and 4 No. 89 96 050 extension pieces).
5. Up to and including 1981 models: Remove the tab washers and the screws holding the brake disc to the hub.

6. Press out the wheel studs, using a press or tool 89 95 920 and removal sleeve.

Installation

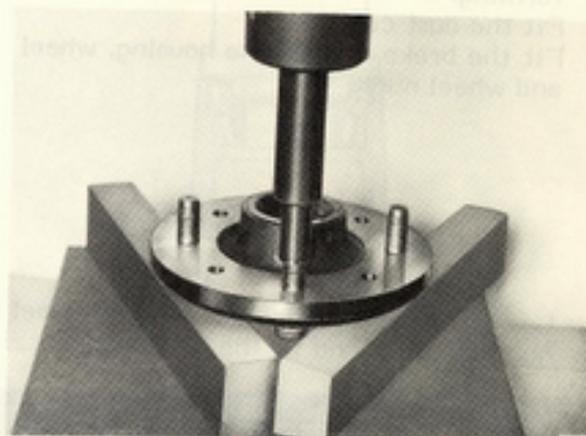
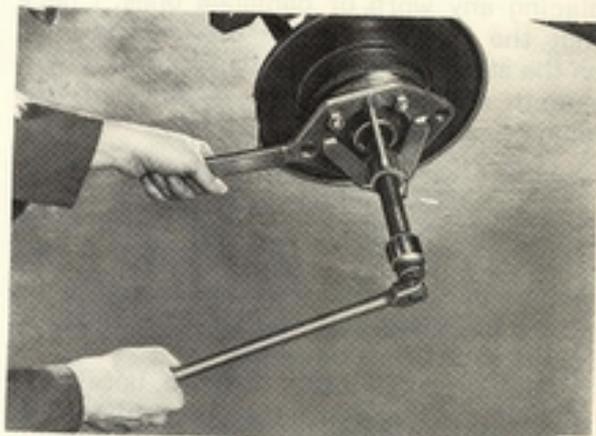
1. Press in the new studs using a press or pressing tool 89 95 920 and installation sleeve.
2. Assemble the hub and brake disc. Tighten the bolts to the prescribed torque and secure them with the tab washers.

Tightening torque
30 - 50 Nm (22 - 27 lb.ft; 3 - 5 kgm)

3. Mount the hub and brake disc on the drive shaft. Fit the washer and lock nut.

Note

Tighten the locknut with an ordinary socket or wrench to avoid damaging the thread. If a pneumatic nut tightener is used, a dished washer with an enlarged inside diameter should be used as an assembly washer.



Tightening the hub nut with a pneumatic nut tightener

1. Mount the assembly washer.
2. Mount the locknut and tighten it.
3. Back off the locknut and remove the assembly washer.
4. Mount the standard dished washer.
5. Tighten the locknut.

Tighten the locknut to the prescribed torque of 350 ± 10 Nm and secure the nut by upsetting the collar in the locking groove.

4. Mount the brake housing. Pump the brake pedal repeatedly so that the brake pads advance to their operating position close to the disc.
5. Fit the wheel and lower the car.

Note

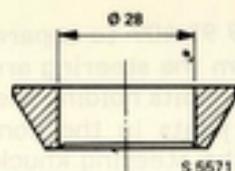
As from chassis Nos. AC1021264, AC2007509 and AC6001806, the bearing and seal form an integral unit with the rear wheel hub and must therefore be replaced as an assembly and not individually.

To change the wheel studs, 1981 models onwards

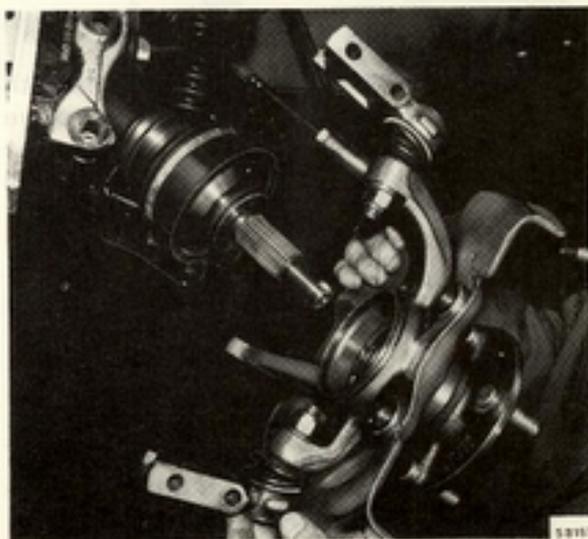
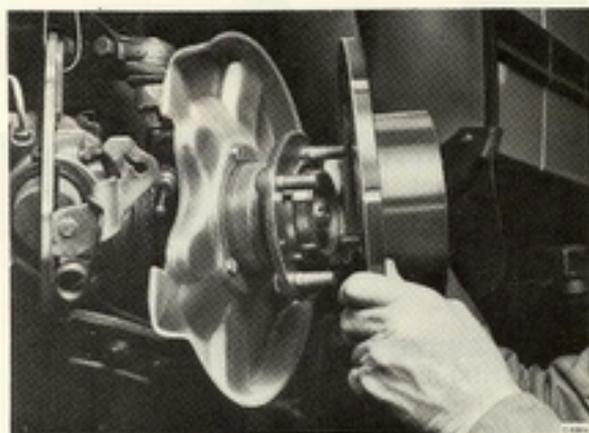
Front wheels

To remove

1. Remove the hub nut.
2. Raise and support the front of the car and remove the wheel.
3. Rotate the brake disc until one of the slots in the edge of the disc is in line with the brake pads.
4. Detach the handbrake cable and remove the brake housing.
5. Hang the brake housing out of the way to prevent damage to the brake hose or pipe.
6. Remove the brake disc from the hub.



Assembly washer with enlarged inside diameter.



7. Use tool 89 95 409 to separate the tie rod end from the steering arm.
8. Remove the bolts holding the upper and lower ball joints in the control arms. Then pull the steering knuckle housing and the hub off the drive shaft and control arms.

9. Use tools 78 41 067, 89 96 456 and 89 96 449 to press off the hub. Use a universal puller to pull the inner bearing race off the hub. If there are no recesses for the puller, chisel off the race.

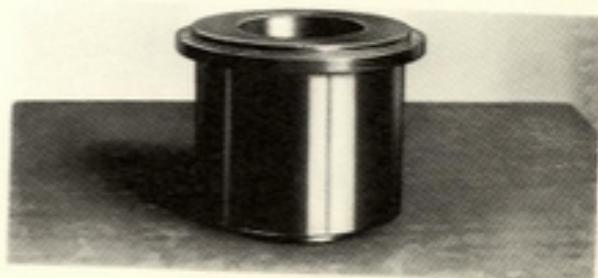
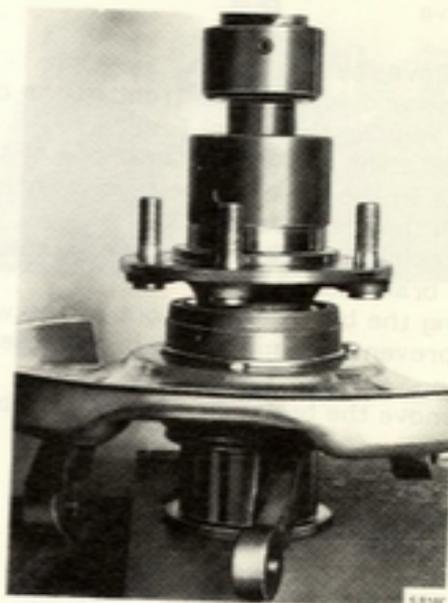
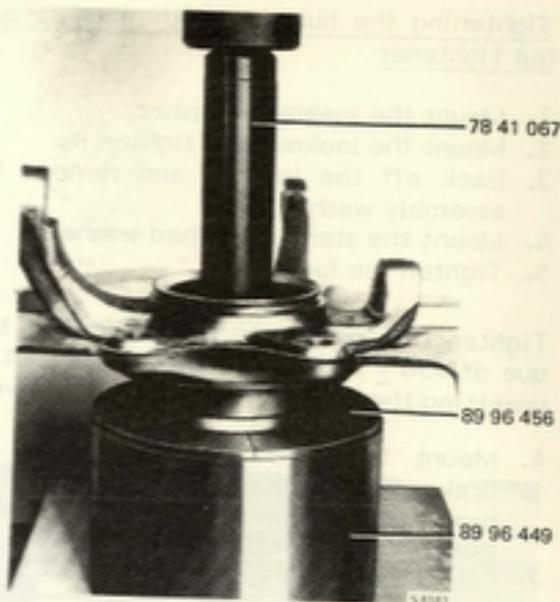
Note

Pressing off the hub destroys the bearing and a new one should be fitted.

10. Use a press or special tool 89 95 920 to extract the wheel studs from the hub.

To fit

1. Use a press or tool 89 95 920 and fitting sleeve to fit the new studs into the hub.
2. Use tools 83 90 114 and 89 96 464 to press the hub into the bearing. Position tool 89 96 464 against the inner bearing race.
3. Lubricate the drive shaft splines with Molycote Paste G, introduce the drive shaft into the hub and replace the steering knuckle housing by refitting the ball joints to the upper and lower control arm.
4. Refit the hub nut and brake disc.
5. Refit the brake housing and the brake pads.
6. Refit the tie rod to the steering arm.
7. Refit the wheel, lower the car and tighten the hub nut and wheel nuts. See specification for tightening torques. Lock the hub by upsetting the flange in the stub axle groove.



8. Refit the hub cap and remove tool 83 93 209 from below the upper control arm.

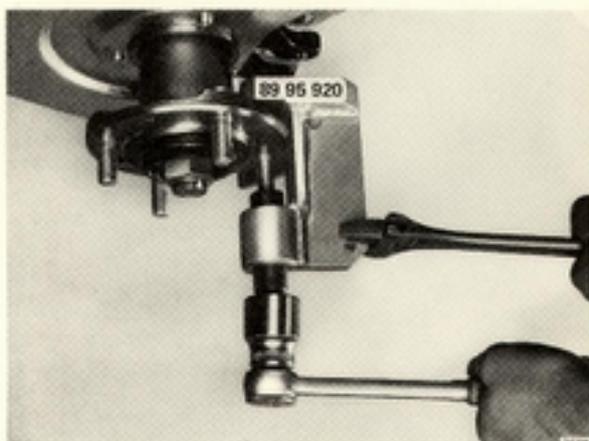
Caution

The brake pads must be advanced to their operating position close to the disc, by repeated pumping of the brake pedal. Failure to observe this will result in malfunctioning of the brakes.

Rear wheels

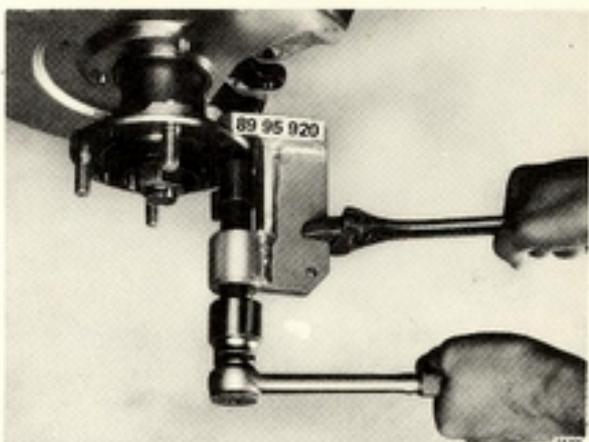
Removal

1. Block up the rear of the car and remove the wheel.
2. Detach the brake line and remove the brake housing and the brake disc.
3. Press out the wheel studs using pressing tool 89 95 920 with the removal sleeve on the inside of the hub.



Installation

1. Press in the new studs with pressing tool 89 95 920 with the installation sleeve on the outside of the hub.
2. Mount the brake disc and brake housing and bleed the brake system. (see section 5).
3. Fit the wheel and lower the car.



Saab-Scania AB
Saab Car Division
Nyköping, Sweden

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