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★ **NEW INFORMATION** since last filming

# Front Wheel Suspension – Shafts & Axle

## CAUTION

Do not attempt to straighten or weld suspension strut, wheel bearing housing, control arm or subframe. Do not install bolts/nuts coated with undercoating wax. Clean threads before installing.

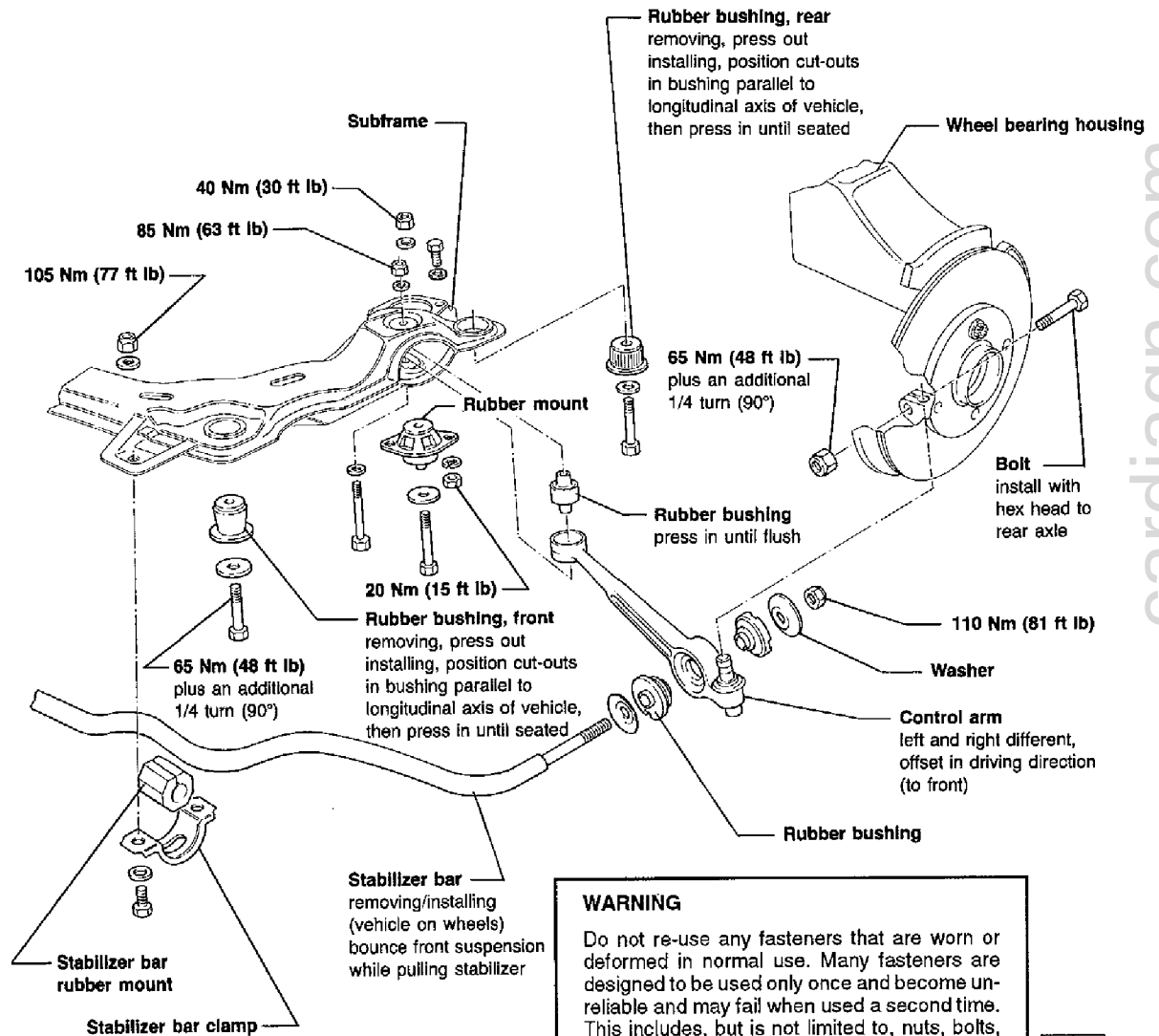
## Note

Lubricate rubber bushings lightly with silicone before installing.

## Note

Always use new self-locking nuts. Tighten subframe/body bolts in following sequence:

1. right rear
2. left rear
3. left front
4. right front

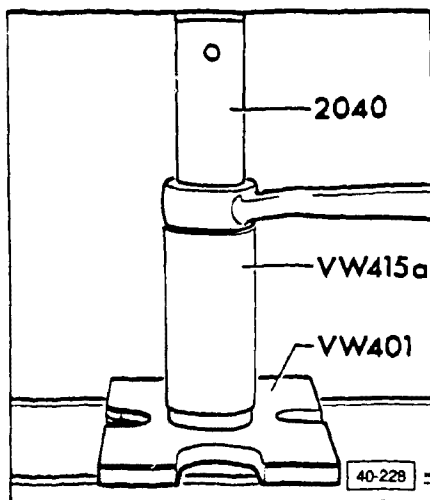


## WARNING

Do not re-use any fasteners that are worn or deformed in normal use. Many fasteners are designed to be used only once and become unreliable and may fail when used a second time. This includes, but is not limited to, nuts, bolts, washers, self-locking nuts or bolts, circlips and cotter pins. Always replace these fasteners with new parts.

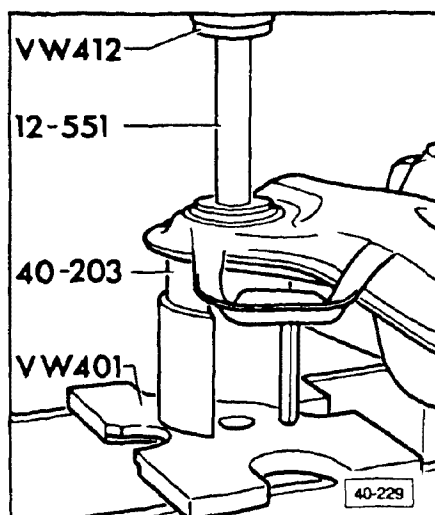
40-707

## Front Wheel Suspension – Shafts & Axle



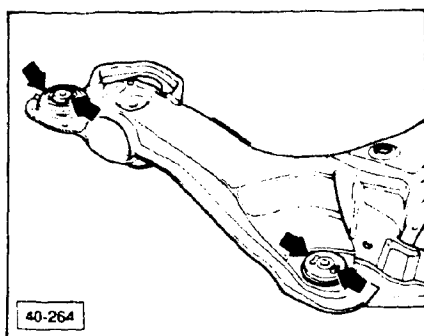
► Fig. 1 Rubber bushing in control arm (inner), removing/installing

■ press in flush



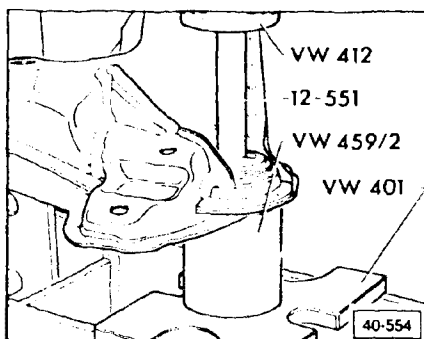
► Fig. 2 Rubber bushing in subframe (front), pressing out

## Front Wheel Suspension – Shafts & Axle



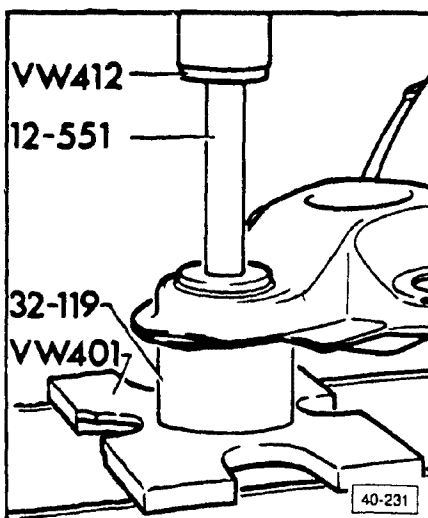
► Fig. 3 Rubber bushing in subframe, positioning

- cutouts in bushings (**arrows**) must be parallel with longitudinal axis (front to rear) of vehicle
  - maximum deviation = 10°
- press in until seated



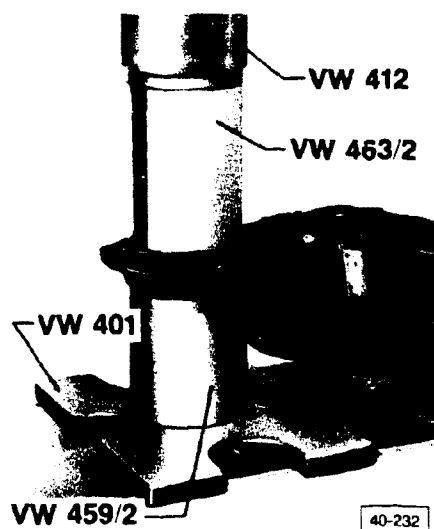
► Fig. 4 Rubber bushing in subframe (front), installing

- press in until seated



► Fig. 5 Rubber bushing in subframe (rear), pressing out

## Front Wheel Suspension – Shafts & Axle

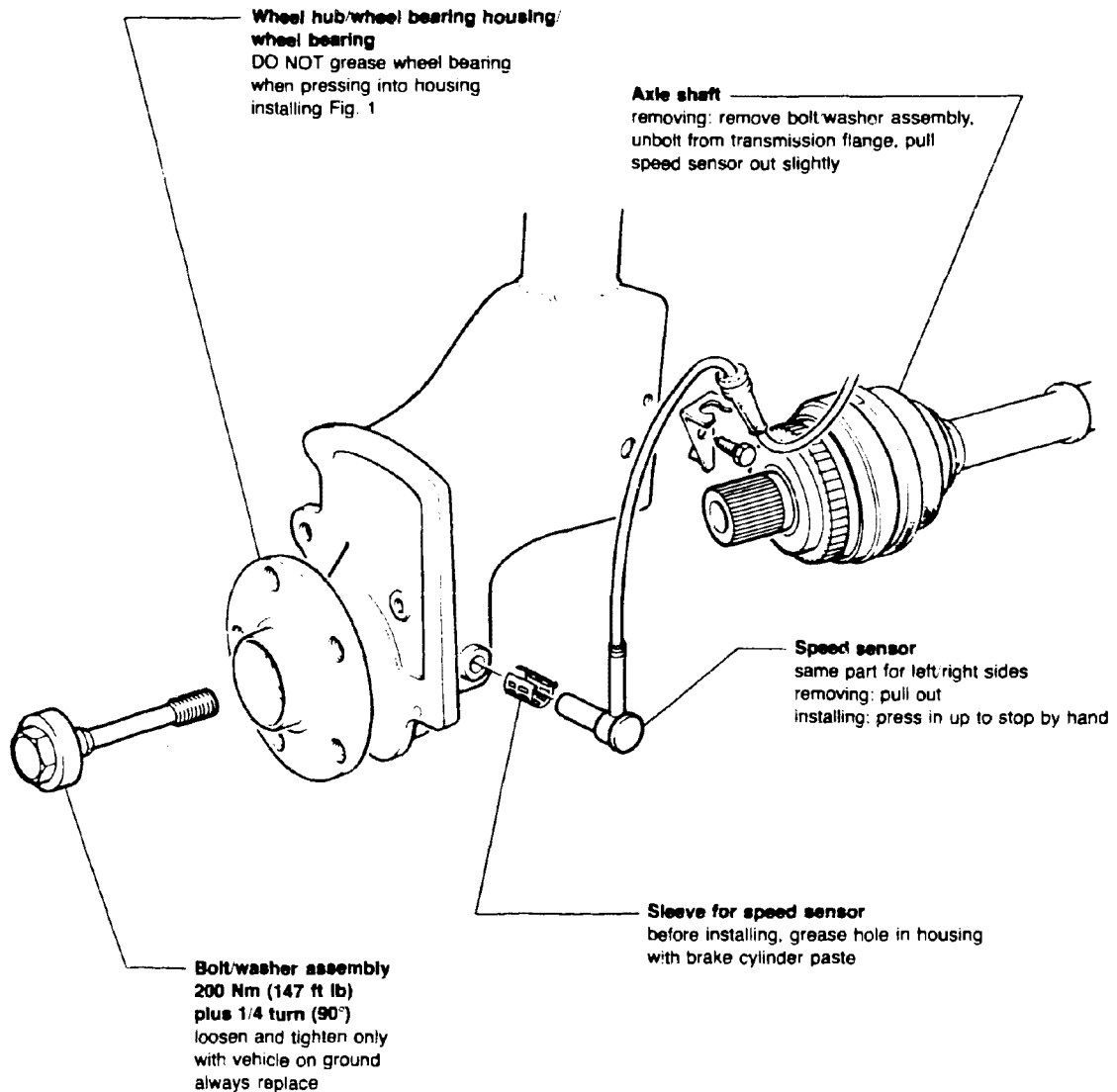


► Fig. 6 Rubber bushing in subframe (rear), pressing in

■ press in until seated

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## Front Wheel Suspension – Shafts & Axle



45-012

# Front Wheel Suspension – Shafts & Axle

## WARNING

Do not remove or install axle bolt/washer with vehicle on a hoist. Lower vehicle to the ground before removing/installing.

## CAUTION

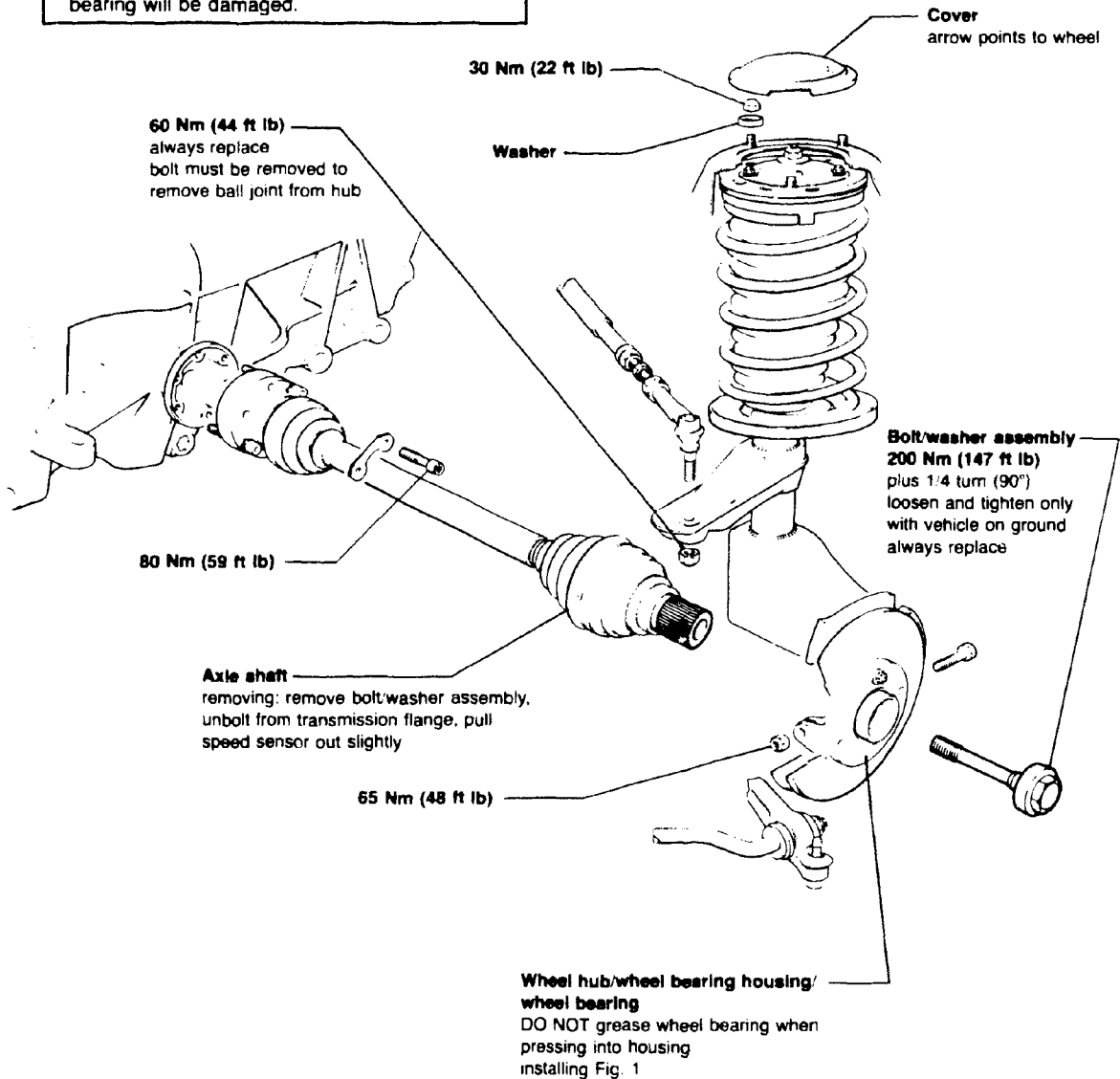
Do not move vehicle without driveshaft or outer constant velocity joint installed or wheel bearing will be damaged.

## CAUTION

Do not heat up wheel bearing housing or wheel bearing will be damaged.

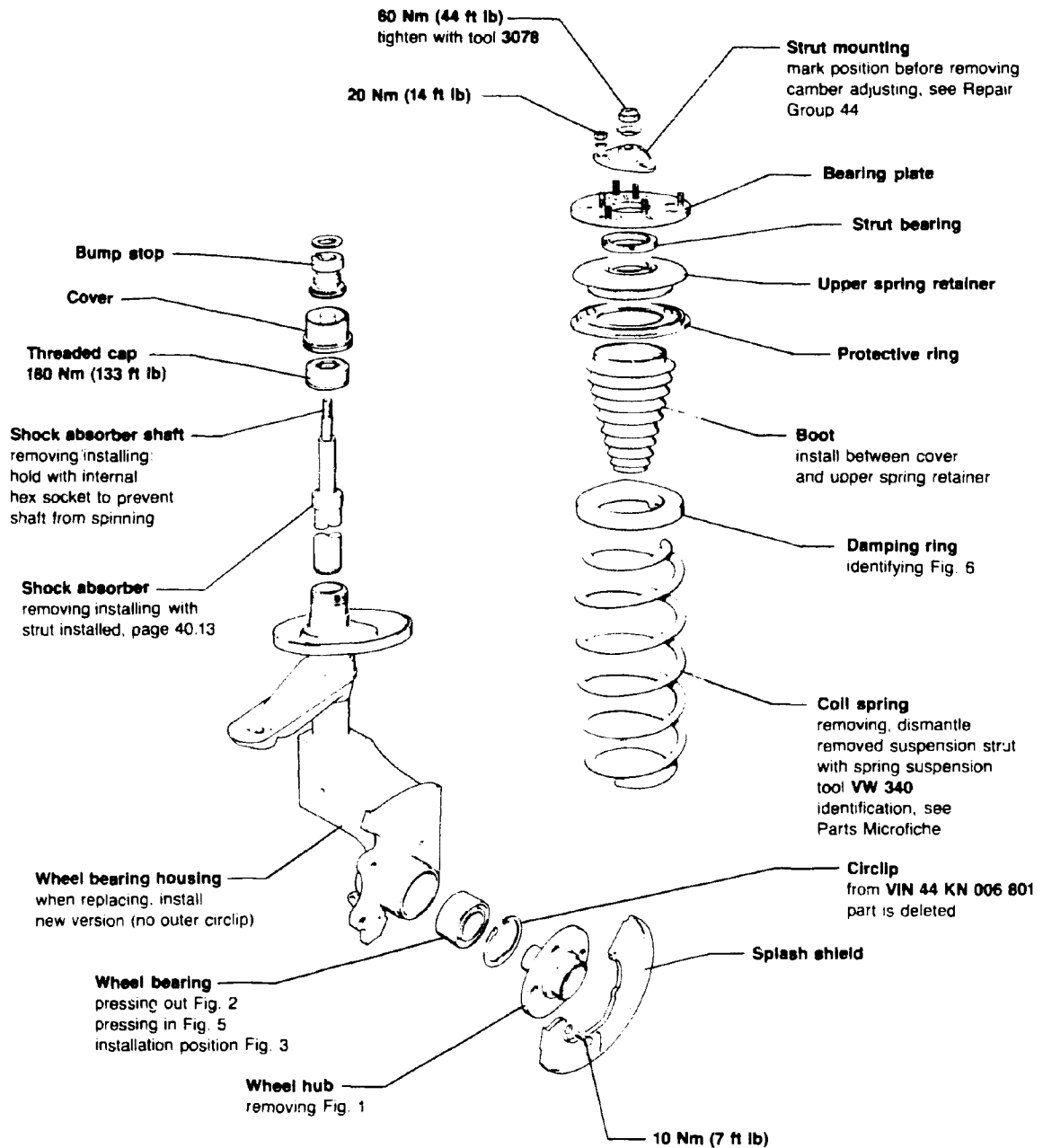
## CAUTION

When disassembling suspension strut, install tool 2070/1 before removing (or use VW 340).



40-708A

# Front Wheel Suspension – Shafts & Axle

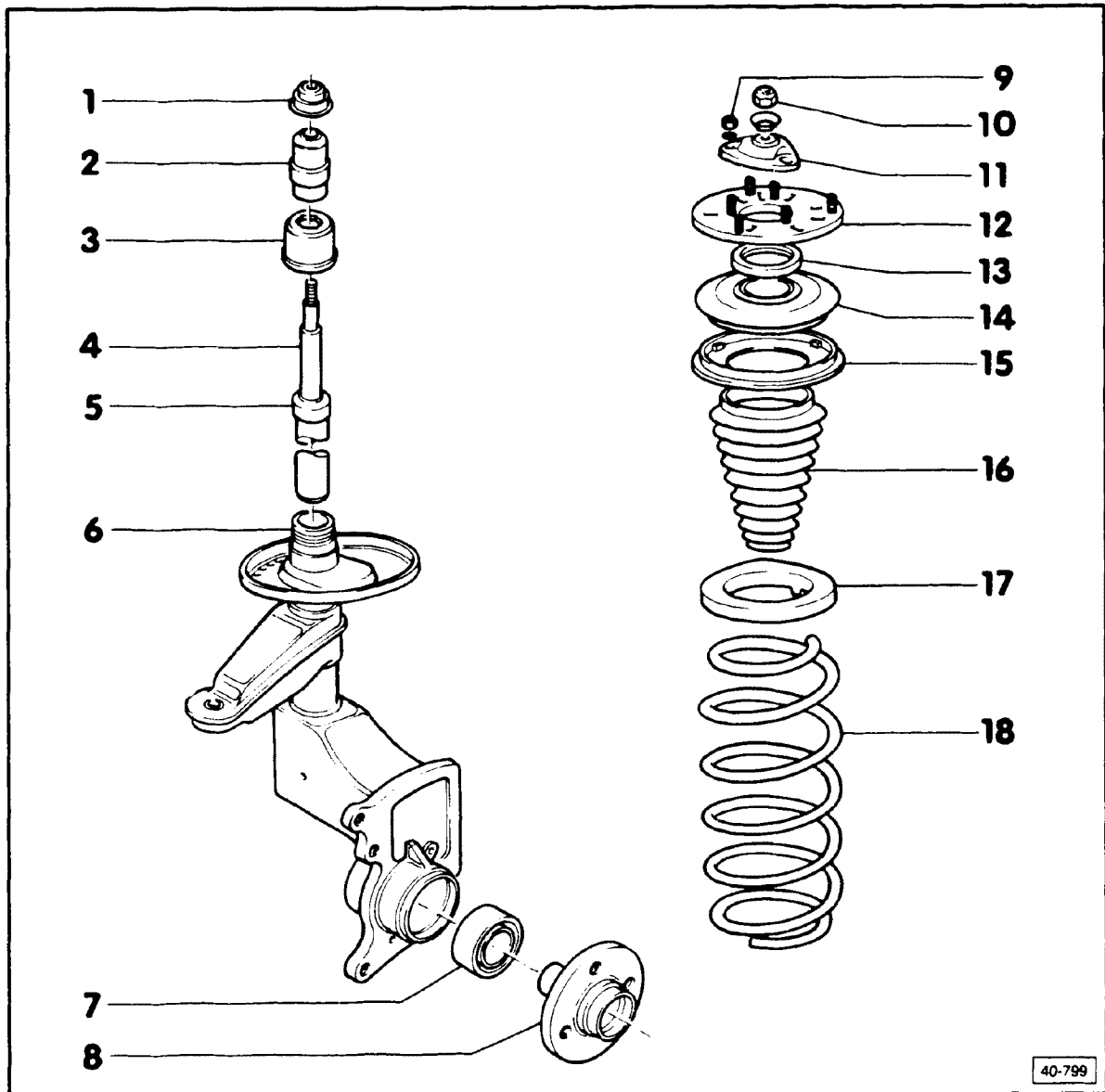


## Note

Before disassembling suspension strut mounting or coil spring, always mark position of spring strut mounting on bearing plate. Check camber and toe after replacing suspension strut.

40-709

## Front Wheel Suspension – Shafts & Axle



- 1 — Cover
- 2 — Bump stop
- 3 — Threaded cap  
180 Nm (133 ft lb)
- 4 — Shock absorber shaft  
hold with internal hex socket  
to prevent shaft from spinning  
when loosening/tightening
- 5 — Shock absorber  
replace individually  
removing/installing with strut installed, page 40.13

- 6 — Wheel bearing housing
  - no groove for bearing outer circlip
  - hole for ball joint stud = 19 mm
- 7 — Wheel bearing  
pressing out Fig. 2  
pressing in Fig. 5  
installation position Fig. 3
- 8 — Wheel hub  
removing Fig. 1
- 9 — 55 Nm (41 ft lb)
  - always replace
  - size = 10 mm

## Front Wheel Suspension – Shafts & Axle

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- 10 — **60 Nm (44 ft lb)**  
tighten with tool **3078**
- 11 — **Strut mounting**  
slot size = 10 mm
- 12 — **Bearing plate**  
stud size = 10 mm
- 13 — **Strut bearing**
- 14 — **Upper spring retainer**
- 15 — **Protective ring**
- 16 — **Boot**
- 17 — **Damping ring**
- 18 — **Coil spring**  
increased rate for 20V engine

### **Note**

Before disassembling suspension strut mounting and coil spring, always mark position of spring strut mounting on bearing plate.

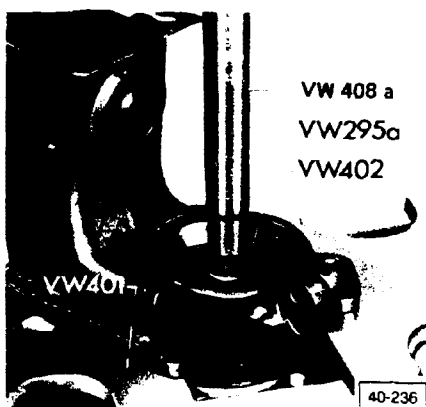
Check camber and toe after replacing suspension strut.

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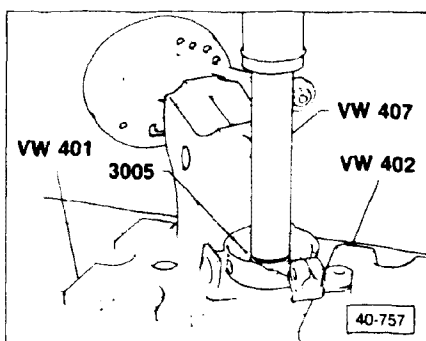
**THIS FRAME INTENTIONALLY LEFT**

**BLANK**

## Front Wheel Suspension – Shafts & Axle



► Fig. 1 Wheel hub, removing

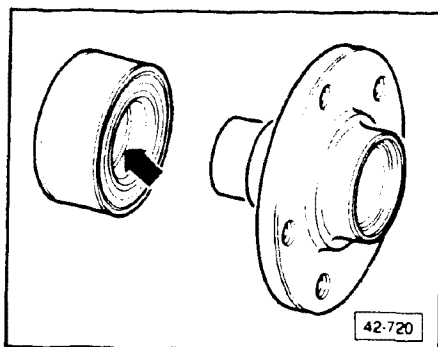


► Fig. 2 Wheel bearing, pressing out

- first remove circlip, if installed

### Note

From VIN 44 KN 006 801 the outer circlip is deleted.

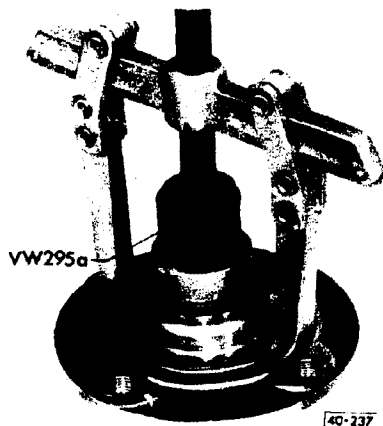


► Fig. 3 Wheel bearing/wheel hub, installing

### Note

Watch installation position: larger inner diameter of wheel bearing faces hub (arrow).

## Front Wheel Suspension – Shafts & Axle

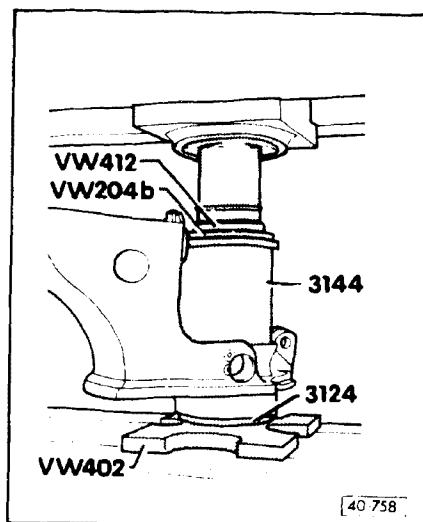


► Fig. 4 Wheel bearing inner race, removing

- always replace, bearing will be damaged when pressing off hub

### CAUTION

**DO NOT** grease wheel bearing seat in housing before pressing in new bearing.



► Fig. 5 Wheel bearing, pressing in to stop

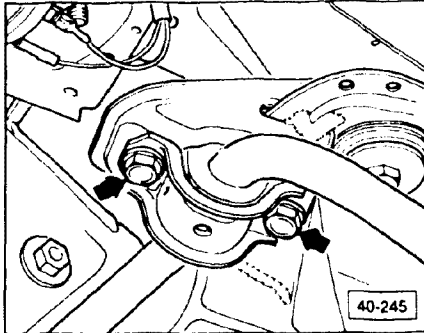
### Note

Chamfered side of tool 3144 faces tool VW 204b.

## Front Wheel Suspension – Shafts & Axle

### CAUTION

When **disassembling** suspension strut install tool **2070/1** before removing strut. Remove and install axle nut only with wheels on ground.



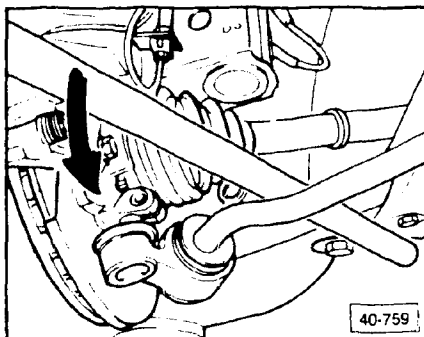
### Suspension strut, removing/installing

#### Removing

- remove axle bolt/washer
- raise vehicle
- remove wheel bolts and wheel
- remove stabilizer bar clamps on both sides (**arrows**)



- remove caliper mounting bolts (**right arrows**)
- remove caliper and tie up with wire to body (do not disconnect brake lines)
- remove brake disc
- remove ball joint bolt (**left arrow**)



- use length of pipe approximately 1.5 meters (5 ft) and press down on stabilizer bar to separate joint (**arrow**)

#### Note

End of pipe must contact subframe near rear mount.

### CAUTION

The slit in the wheel bearing housing must **NOT** be widened with a chisel or other tool. A commercial rust solvent may be necessary to assist separation of the joint.

## Front Wheel Suspension – Shafts & Axle



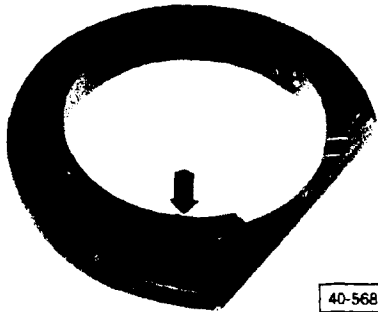
- press out tie rod end



- remove spring strut cover
- remove nuts (**arrows**) while holding suspension strut from below
- remove suspension strut assembly

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## Front Wheel Suspension – Shafts & Axle



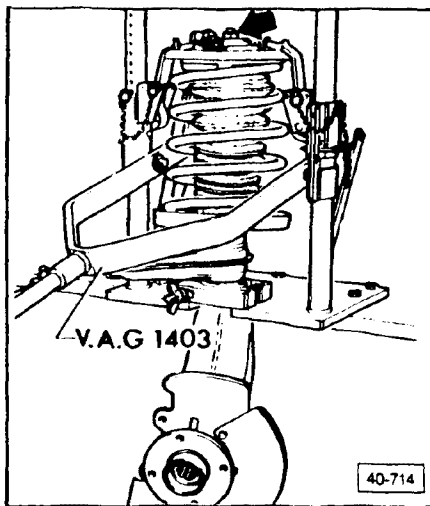
► Fig. 5 Damping ring, identifying

- check for identification lugs (arrow)

### Note

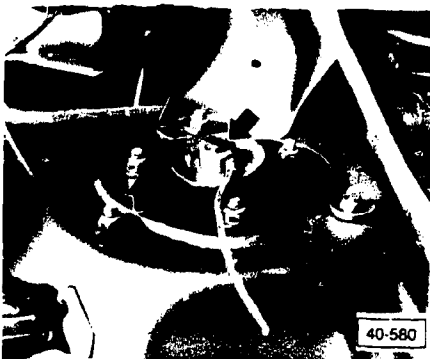
If required, height between left and right sides of vehicle can be equalized by installing different damping rings, available in 3 sizes:

- 1 lug = 19 mm (3/4 in.)
- 2 lugs = 15 mm (5/8 in.)
- 3 lugs = 9 mm (3/8 in.)



► Fig. 6 Spring tension tool, attaching

- compress spring with spring compressor until upper bearing plate is free of tension
- remove nut from shock absorber (arrow)
- remove bearing plate and strut parts



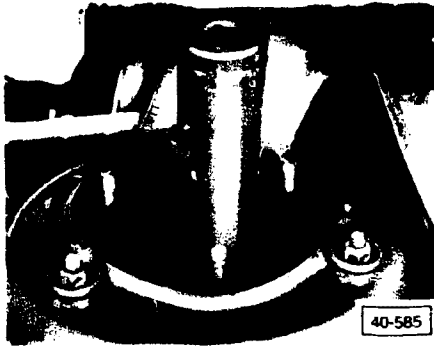
### Shock absorber, removing/installing (suspension strut installed)

#### Removing (vehicle standing on wheels)

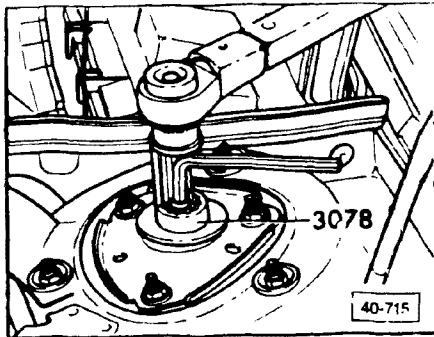
- remove spring strut cover
- remove nut from shock absorber (right arrow)
- mark position of spring strut mounting (left arrow, camber adjustment) and remove mount

more

## Front Wheel Suspension – Shafts & Axle



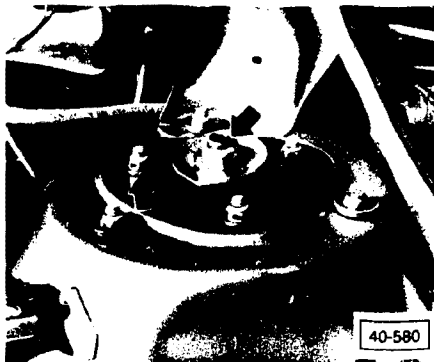
- turn steering so piston rod of shock absorber is aligned in center of upper spring retainer (insert piece of wood between spring and wheel housing to hold in position)
- remove washer and bump stop
- pull off boot from cover through spring
- remove threaded cap with tool 2069
- pull out shock absorber



### Installing

Proceed in reverse order of removing and note following:

- install shock absorber
- attach cover to threaded cap and tighten
- push protective boot through coil spring onto cover
- tighten shock absorber nut to 60 Nm (44 ft lb)



### Suspension strut, disassembling

#### Removing

(vehicle standing on wheels)

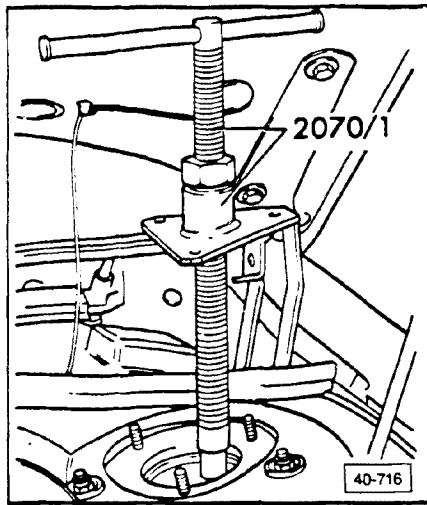
#### CAUTION

Remove and install axle nut only with wheels on ground.

- remove nut from shock absorber (**right arrow**)
- mark position of spring strut mounting (**left arrow**, camber adjustment) and remove mount

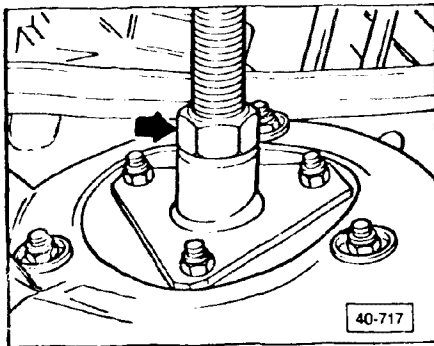
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## Front Wheel Suspension – Shafts & Axle

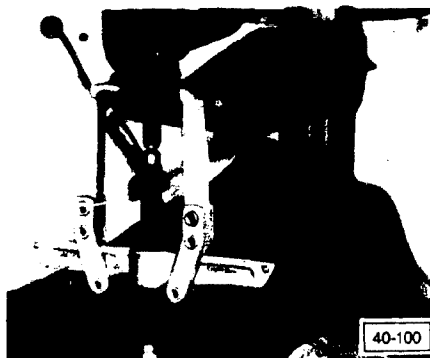


- turn steering so piston rod of shock absorber is aligned in center of upper spring retainer (insert piece of wood between spring and wheel housing to hold in position)

- attach tool 2070/1
- tighten spindle until seated



- tighten tool plate with mounting nuts
- tighten spindle nut until seated (**arrow**)

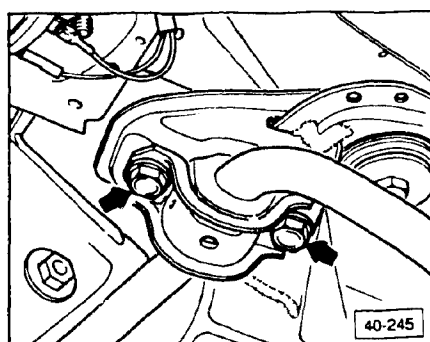


- remove wheel
- press off tie rod end

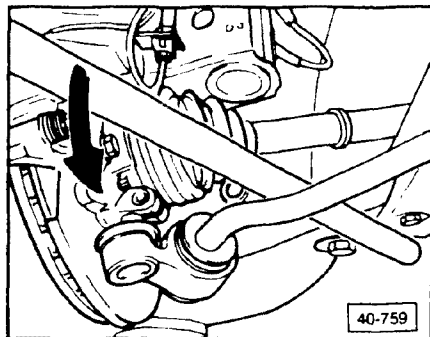
## Front Wheel Suspension – Shafts & Axle



- remove caliper mounting bolts (**right arrows**)
- remove caliper and tie up with wire to body (do not disconnect brake lines)
- remove brake disc
- remove ball joint clamp bolt (**left arrow**)



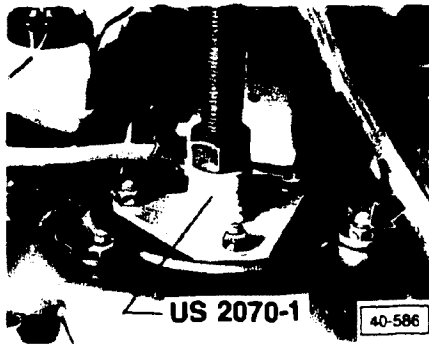
- remove stabilizer bar clamps on both sides (**arrows**)



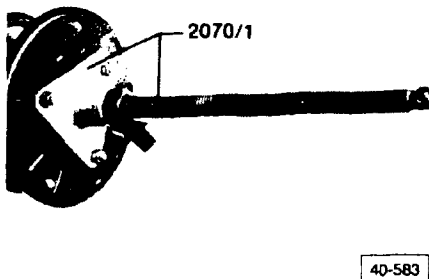
- remove ball joint from hub by prying down (**arrow**) on control arm

more

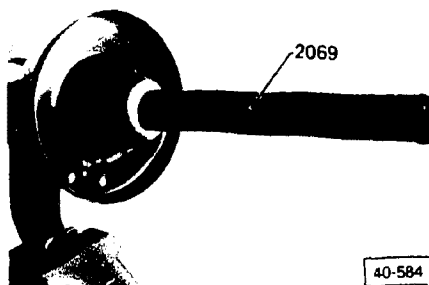
## Front Wheel Suspension – Shafts & Axle



- remove 3 nuts (**arrows**) while holding suspension strut from below
- pull off driveshaft



- clamp suspension strut into vise
- pull boot off cover
- loosen spindle nut (**arrow**) while holding spindle
- remove tool, disassemble strut



- remove threaded cap with tool **2069**
- pull out shock absorber

### Installing

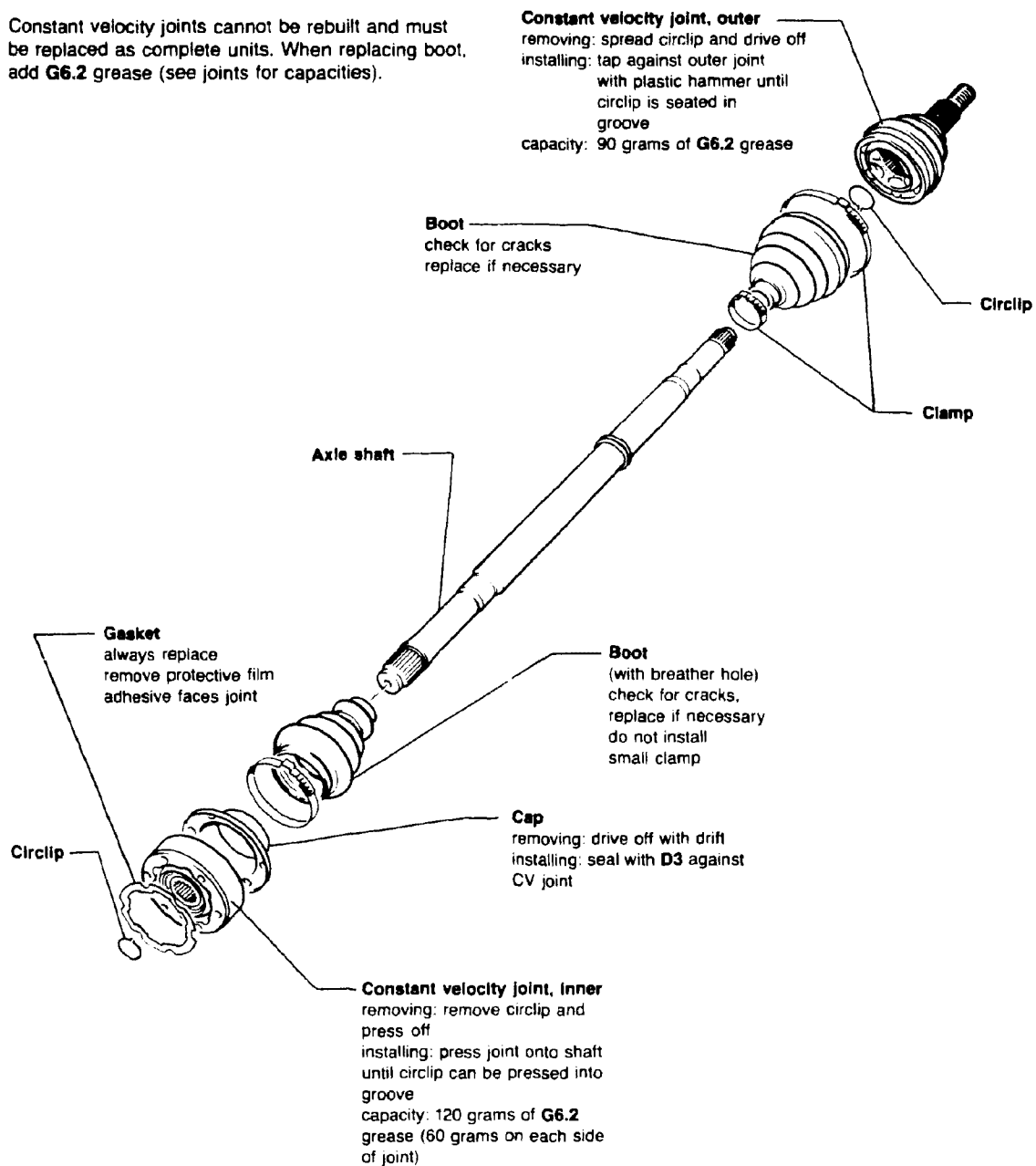
Proceed in reverse order of removing.

## Front Wheel Suspension – Shafts & Axle

### Note

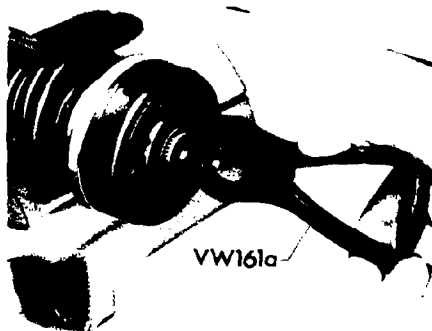
Check housing, hub, cage and balls for pitting. Excessive radial clearance in joint is noticeable when shifting gears. In such cases replace joint. Do not replace joint because of polished appearance or because ball track can be seen.

Constant velocity joints cannot be rebuilt and must be replaced as complete units. When replacing boot, add **G6.2** grease (see joints for capacities).



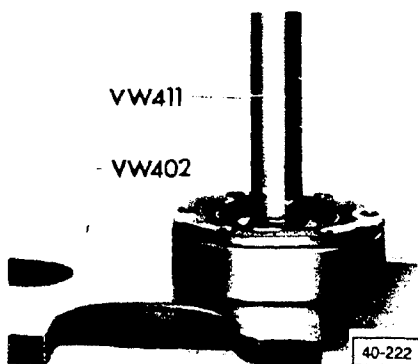
40-739

## Front Wheel Suspension – Shafts & Axle



► Fig. 1 Circlip, removing/installing

40-003



► Fig. 2 Constant velocity joint (inner), removing

- support ball hub

40-222

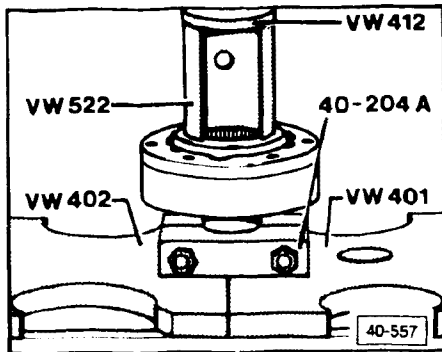


► Fig. 3 Constant velocity joint (outer), removing

- spread circlip **A**
- drive joint off shaft by tapping lightly with copper drift against hub **B**

40-229

## Front Wheel Suspension – Shafts & Axle

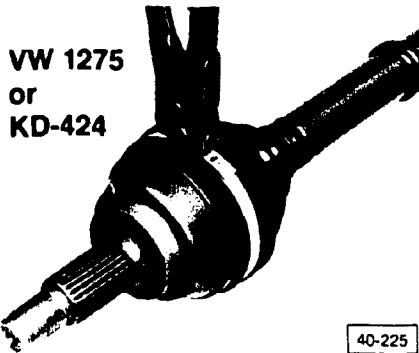


► Fig. 4 Constant velocity joint (inner), installing

- press joint onto shaft until circlip can be pressed into groove

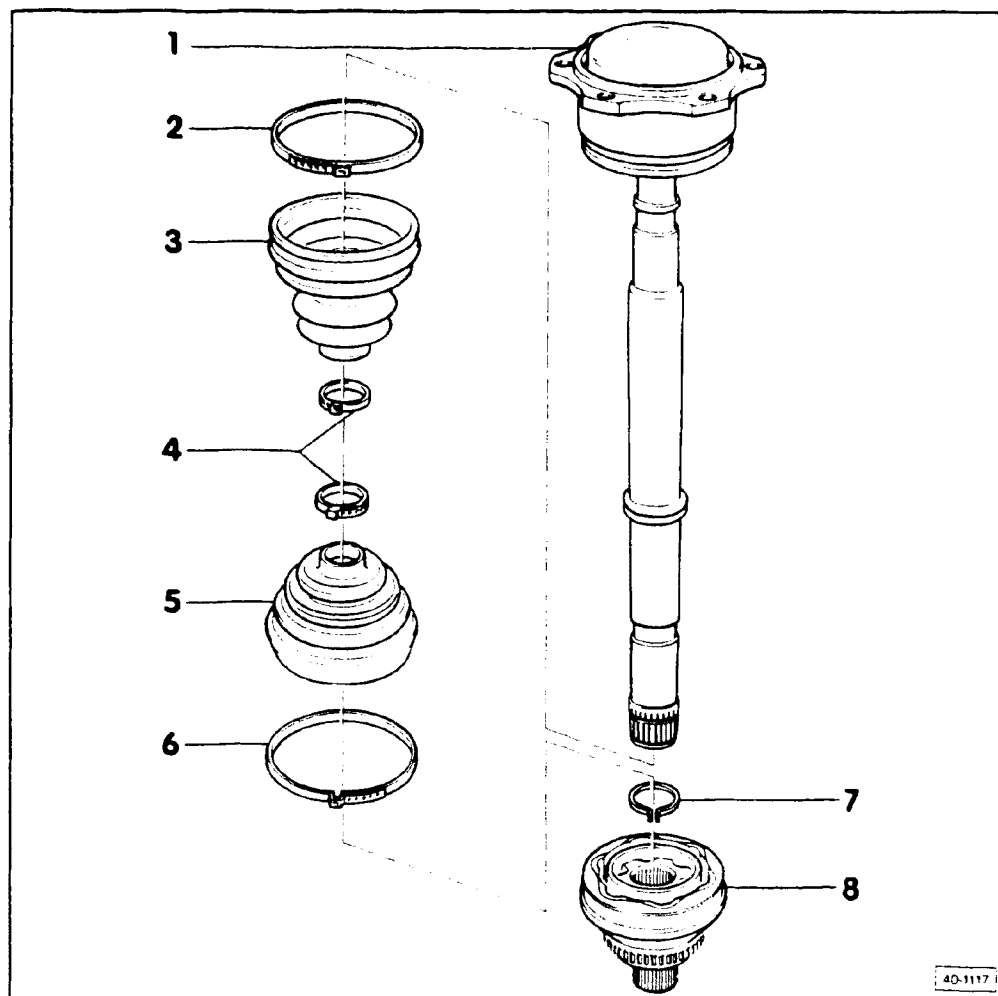
### CAUTION

Chamfer on inside diameter of ball hub splines must face axle shaft.



► Fig. 5 CV joint boot clamp, tightening

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## Note

Drive shafts with a revised inner CV joint will be installed in vehicles with the 4-speed automatic transmission 097 and 130 hp engine (code letters NF).

### 1 — Drive shaft with inner CV joint

- supplied as replacement part with boot and grease
- regrease when replacing boot
- grease with 250 grams of **G 000 604** lubricant

### 2 — Clamp

- stainless steel
- always replace
- tightening, Fig. 1

### 3 — Boot

- check for cracks and wear
- to replace press CV joint off
- to install, grease bead on shaft tightly and carefully slide boot on with aid of plastic wedge, Fig. 3

### 4 — Clamp

- stainless steel
- always replace
- tightening, Fig. 1

### 5 — Boot

- check for cracks and wear
- to install, press off outer CV joint

### 6 — Clamp

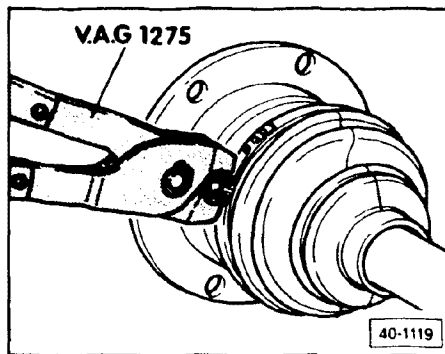
- stainless steel
- always replace
- tightening, Fig. 1

### 7 — Locking ring

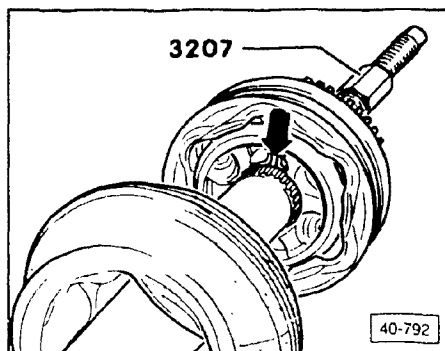
- always replace
- install in ring groove of CV joint

### 8 — CV joint, outer

- replace complete
- pressing off shaft, Fig. 2
- grease with 90 grams of **G 000 604** lubricant — 50 grams in boot, 40 grams in CV joint
- regrease when replacing boot
- to install, drive onto shaft with plastic hammer until lock ring snaps into groove

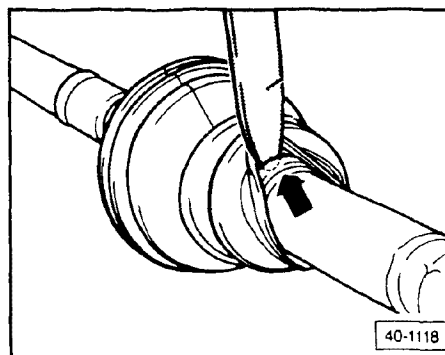


► Fig. 1 Clamps, tightening



► Fig. 2 Outer CV joint, pressing off

- clamp shaft in vice
- push boot back
- open lock ring (arrow)
- thread in M16 side of tool 3207 until CV joint is pushed away from shaft



► Fig. 3 CV joint boot, installing on shaft