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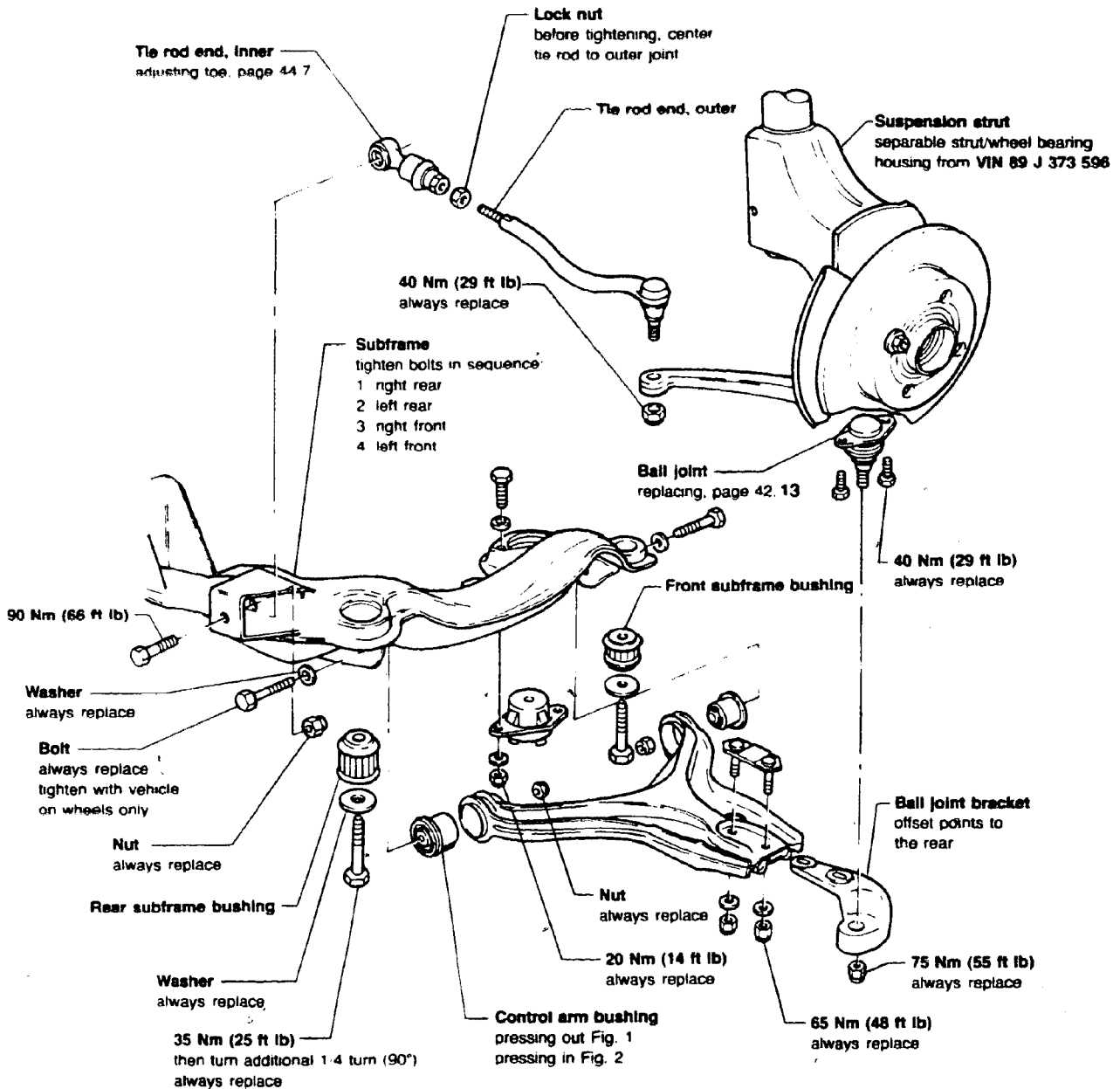
# Rear Wheel Suspension – Shafts & Axle

## CAUTION

Do not attempt to weld or straighten the suspension strut wheel bearing housing control arm or subframe

## Note

Suspension revisions for 1990 MY, see page 42.10a.



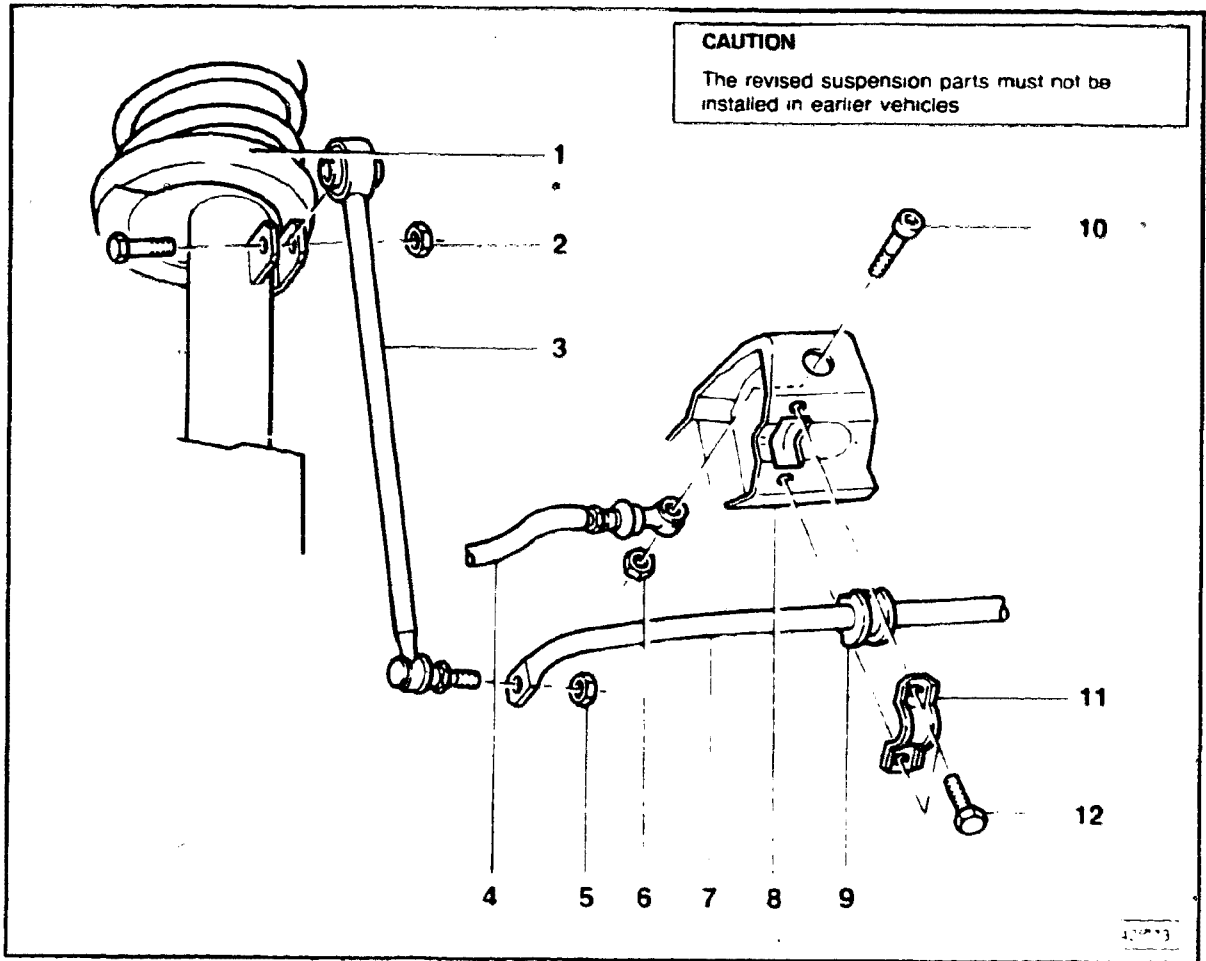
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Quattro

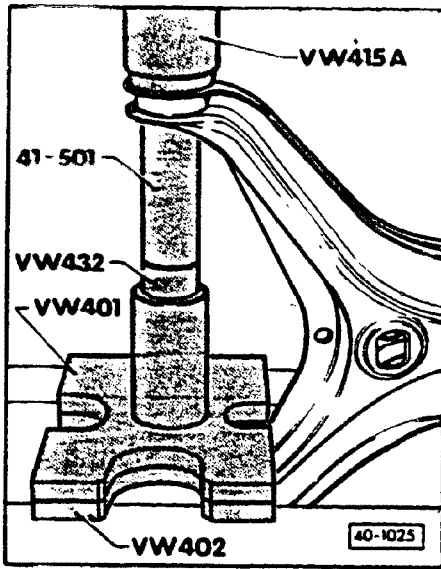
Rear suspension assembly

42.10

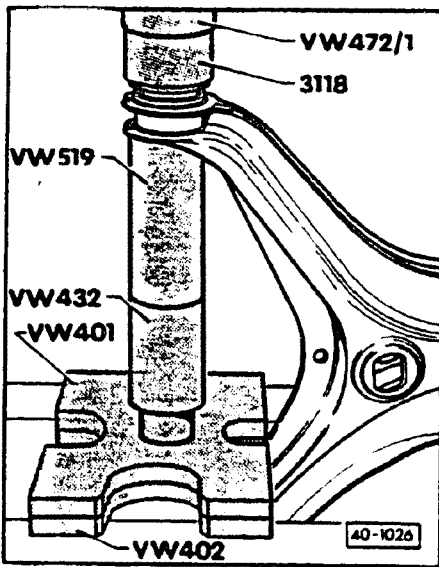


- 1 — Shock absorber wheel bearing housing with tab for mounting stabilizer link rod
- 2 — 25 Nm (18 ft lb) always replace
- 3 — Link rod
- 4 — Tie rod length changed from previous version
- 5 — 45 Nm (33 ft lb) always replace

- 6 — Self-locking nut always replace
- 7 — Stabilizer bar
- 8 — Subframe bracket for tie rod stabilizer revised
- 9 — Rubber bushing
- 10 — 90 Nm (66 ft lb) tighten only with vehicle on ground
- 11 — Clamp
- 12 — 35 Nm (26 ft lb)

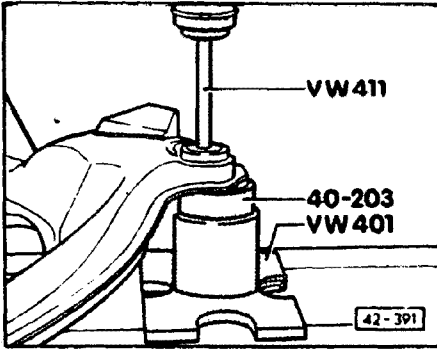


► Fig. 1 Control arm bushing, pressing out

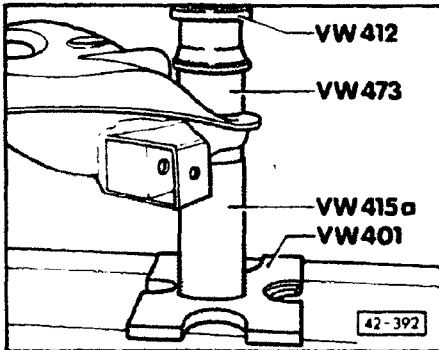


► Fig. 2 Control arm bushing, pressing in

- press in bushing up to stop



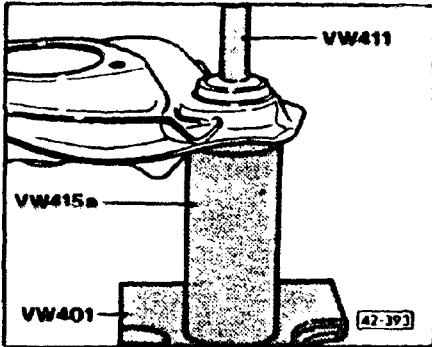
▶ Fig. 3 Rear subframe bushing, pressing out



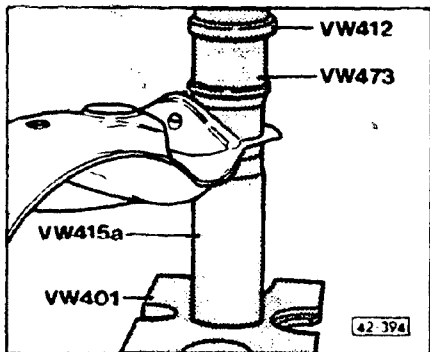
▶ Fig. 4 Rear subframe bushing, pressing in

- apply acid-free lubricant before installing

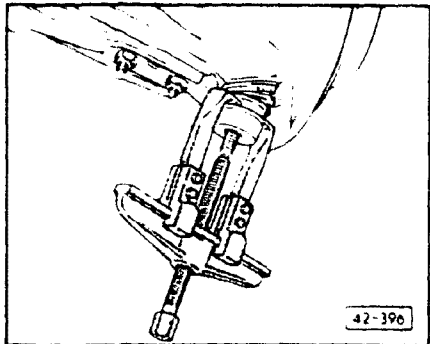
# Rear Wheel Suspension – Shafts & Axle



▶ Fig. 5 Front subframe bushing, pressing out

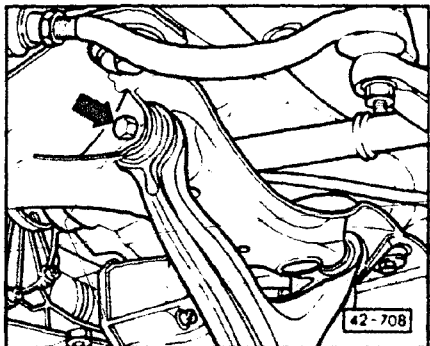


▶ Fig. 6 Front subframe bushing, pressing in  
■ apply acid-free lubricant before installing



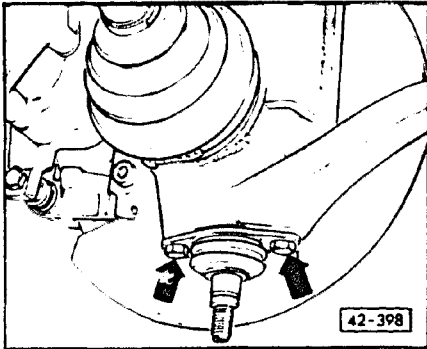
## Ball joint, replacing

- remove wheel
- remove nut from ball joint
- press ball joint out of joint carrier

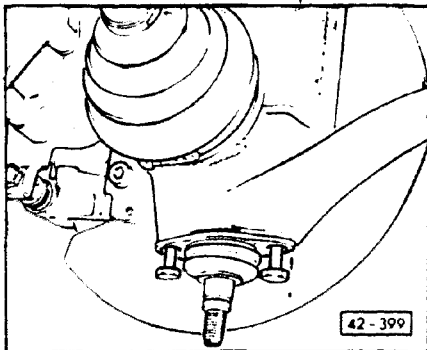


- loosen control arm mounting bolts at subframe (arrow)
- swing control arm downward

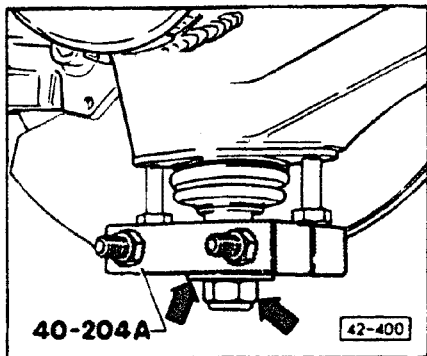
# Rear Wheel Suspension – Shafts & Axle



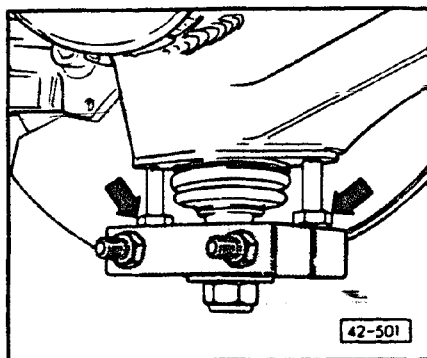
- remove bolts from wheel bearing housing (arrows)



- insert two bolts, M 8 x 40mm, into wheel bearing housing about 25mm (approx. 1 in.)

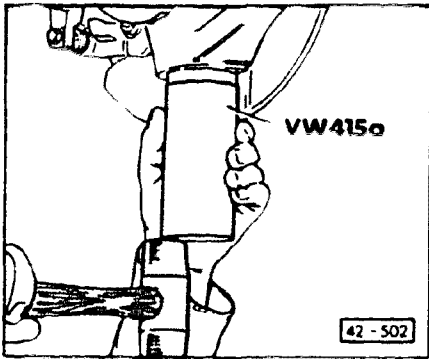


- push preassembled tool 40-204A over ball joint
- attach joint mounting nut (right arrow) with large washer (left arrow) onto joint and tighten as far as possible



- turn out installed bolts (arrows) alternately to remove ball joint

# Rear Wheel Suspension – Shafts & Axle



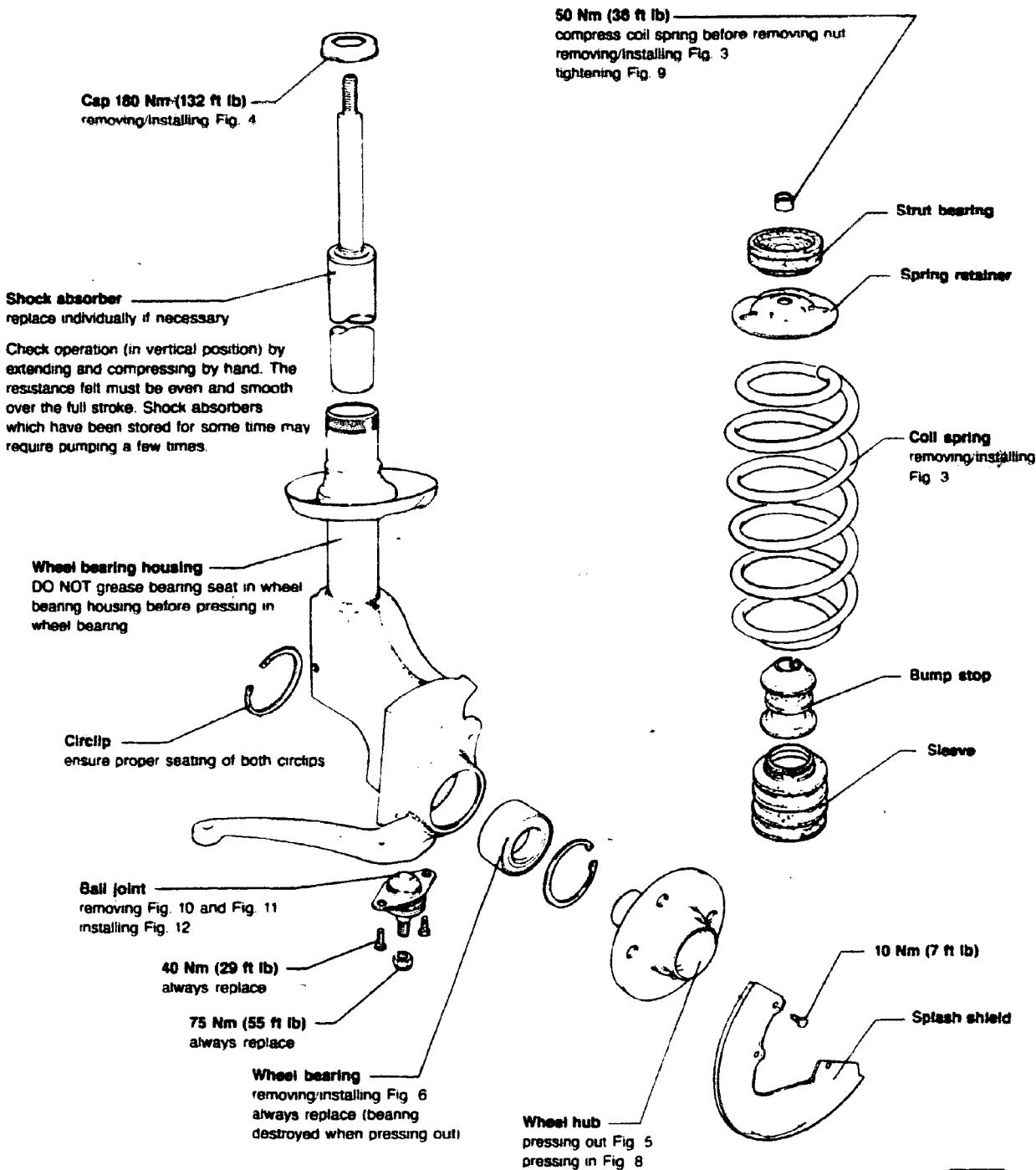
## Note

Before driving ball joint in, align holes in joint to holes in wheel bearing housing.

- drive ball joint into wheel bearing housing until seated
- tighten ball joint bolts to 40 Nm (29 ft lb)
- swivel control arm into place and tighten ball joint nut to 75 Nm (55 ft lb)
- tighten control arm mountings with vehicle on wheels

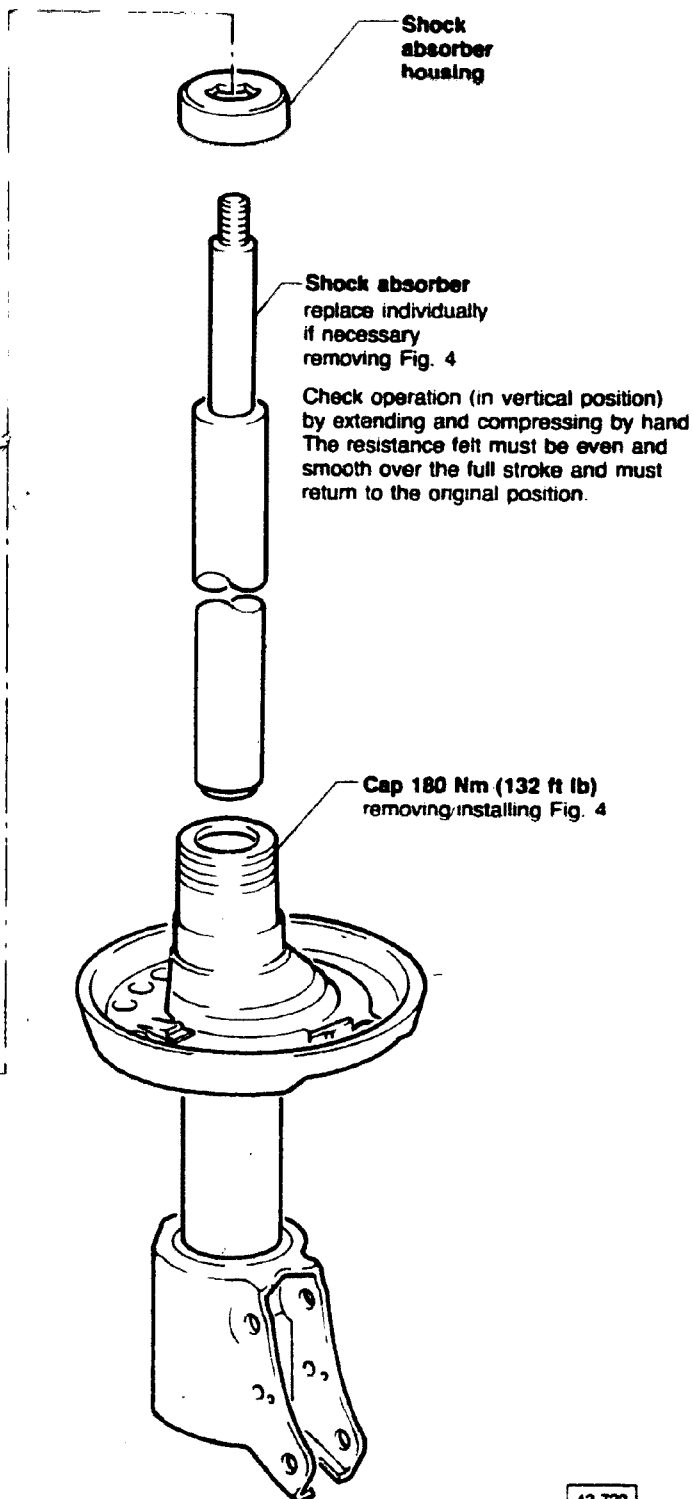
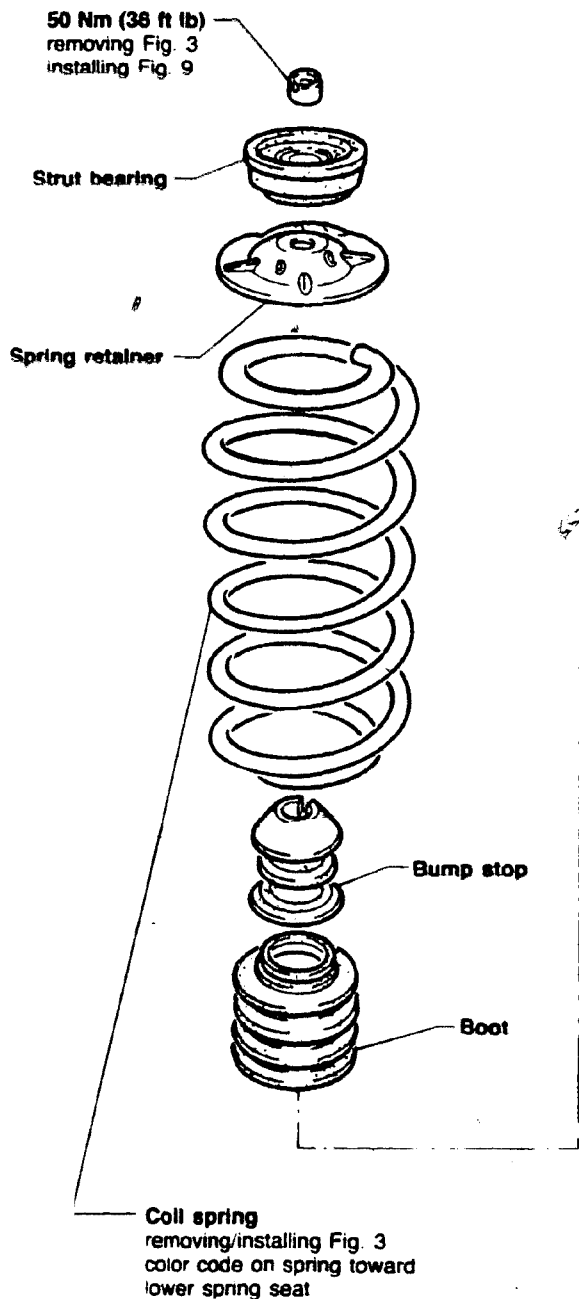


# Rear Wheel Suspension – Shafts & Axle



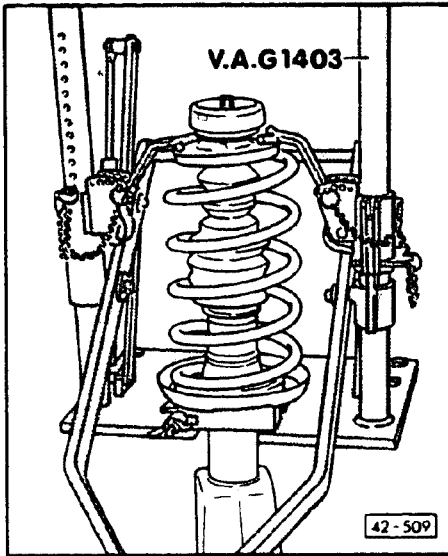
42-704

# Rear Wheel Suspension – Shafts & Axle



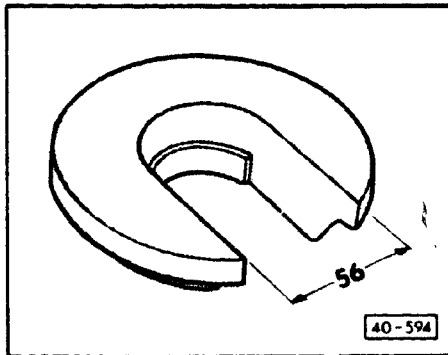
42-722

# Rear Wheel Suspension – Shafts & Axle



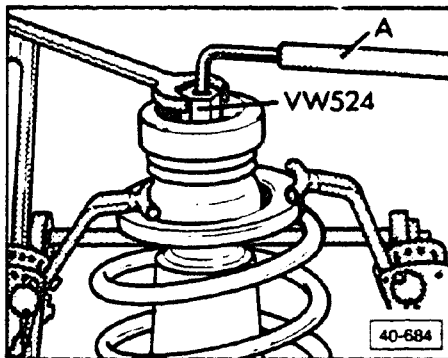
► Fig. 1 Coil spring, compressing

- use tool VW340 (not shown) with VW340/5
- modify tool VW340/5 as shown in Fig. 2



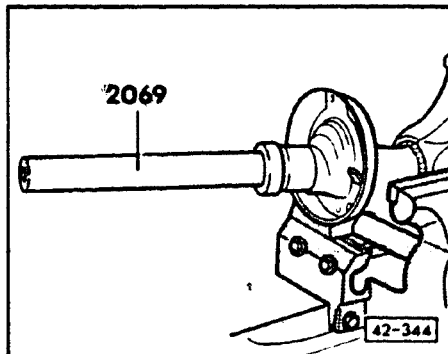
► Fig. 2 Coil spring, compressing

- modify tool 340/5
- a = 56mm (2-3/16 in.)



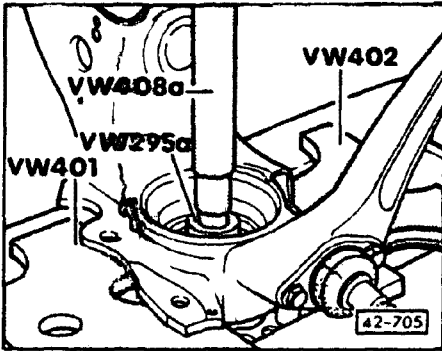
► Fig. 3 Coil spring, removing/installing

- hold shock absorber shaft with wrench A
- remove slotted nut
- remove strut bearing and spring retainer
- remove spring compressor and spring

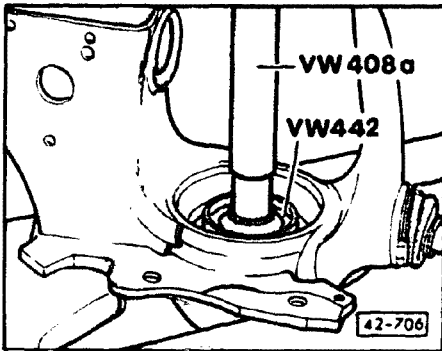


► Fig. 4 Shock absorber, removing/installing

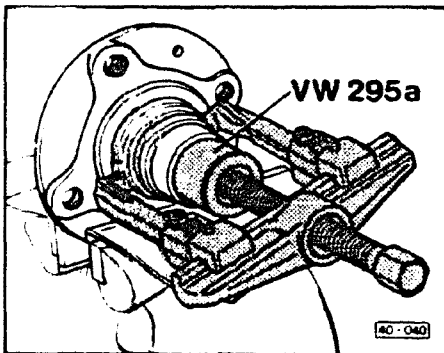
# Rear Wheel Suspension – Shafts & Axle



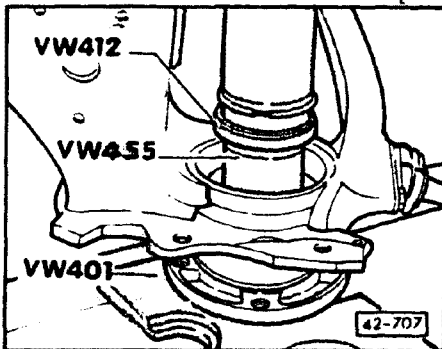
▶ Fig. 5 Wheel hub, pressing out



▶ Fig. 6 Wheel bearing, removing/installing

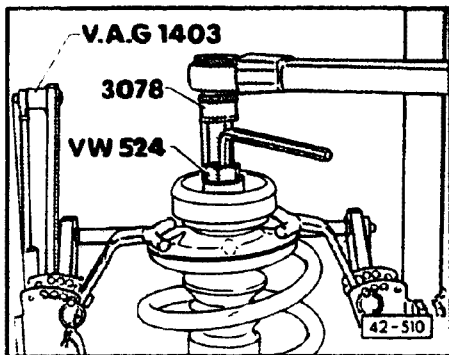


▶ Fig. 7 Wheel bearing inner race, removing

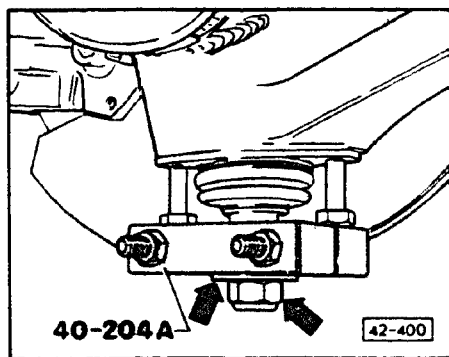


▶ Fig. 8 Wheel hub, pressing in

- tool VW 455 must only contact the inner race

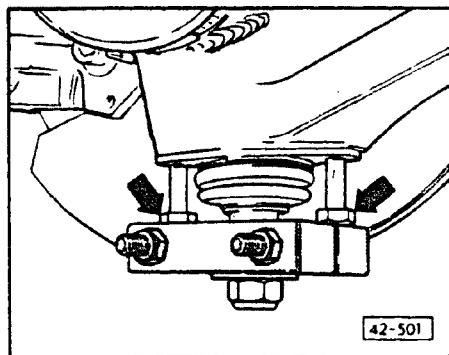


► Fig. 9 Upper shock absorber nut, tightening



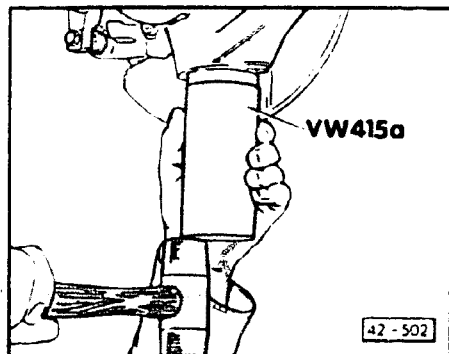
► Fig. 10 Ball joint, removing

- install two bolts, M 8 x 40, approximately 25mm (1 in.) into wheel bearing housing
- place preassembled tool 40-204A over ball joint
- thread ball joint mounting nut (**lower arrow**) onto ball joint along with large washer (**upper arrow**) and tighten as far as possible



► Fig. 11 Ball joint, removing

- pull ball joint out by turning installed bolts (**arrows**) out alternately



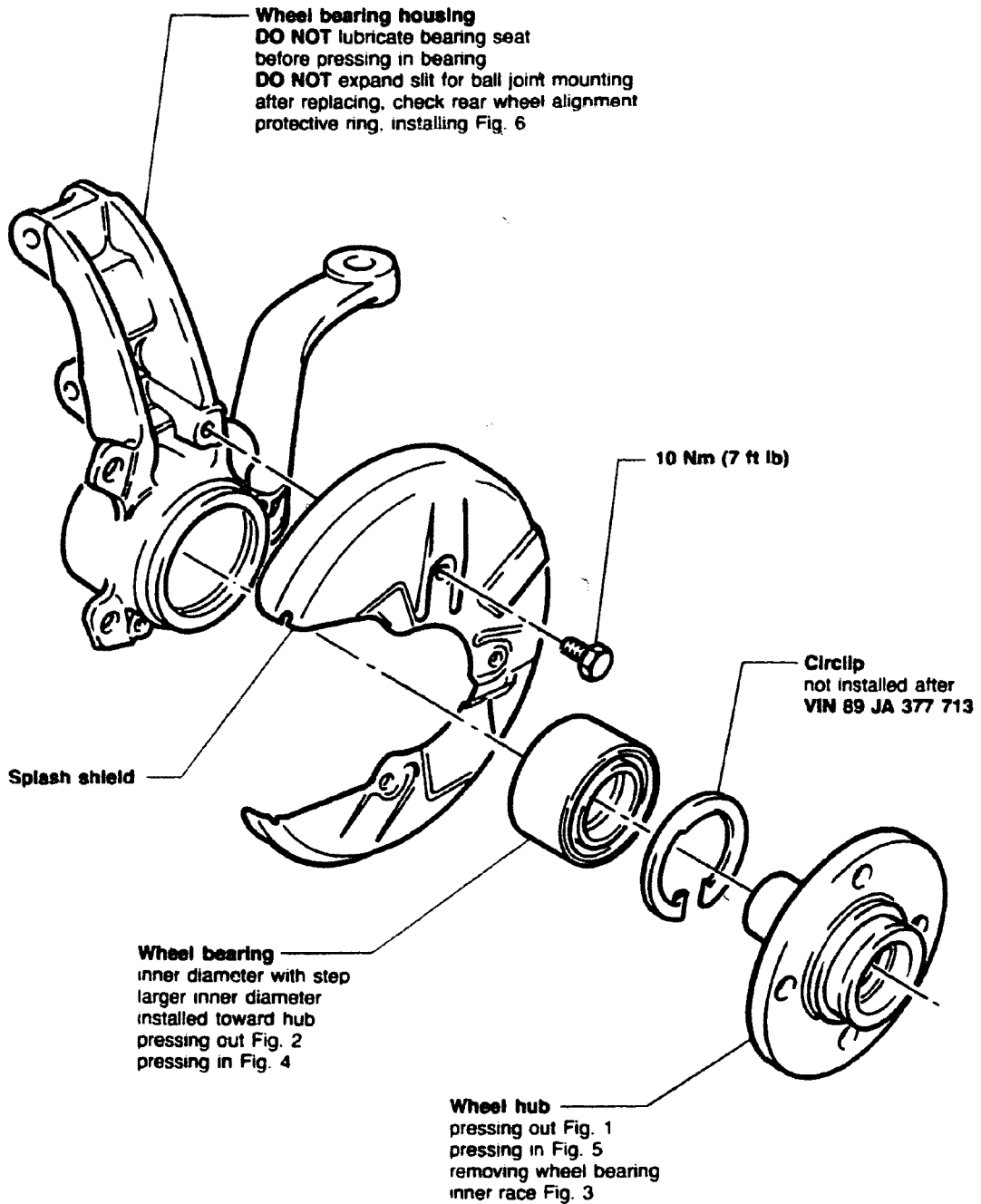
► Fig. 12 Ball joint, installing

### Note

Before driving ball joint into place, align holes in ball joint with holes in wheel bearing housing.

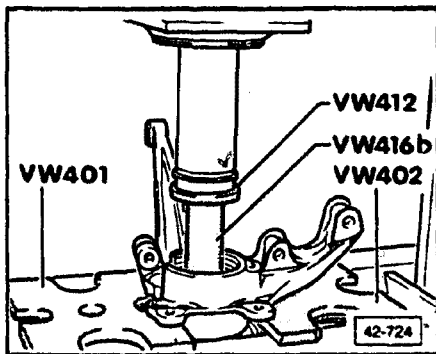
- drive ball joint into wheel bearing housing until seated

# Rear Wheel Suspension – Shafts & Axle

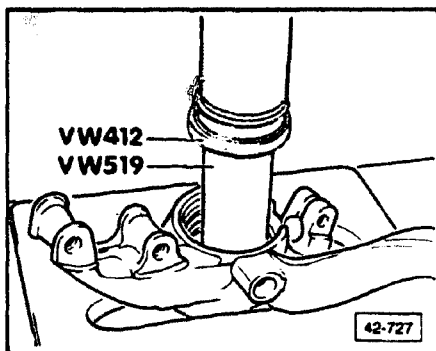


42-723

# Rear Wheel Suspension – Shafts & Axle

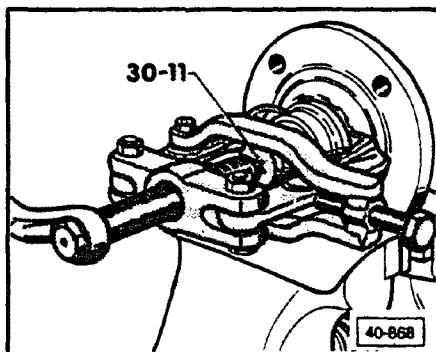


► Fig. 1 Wheel hub, pressing out



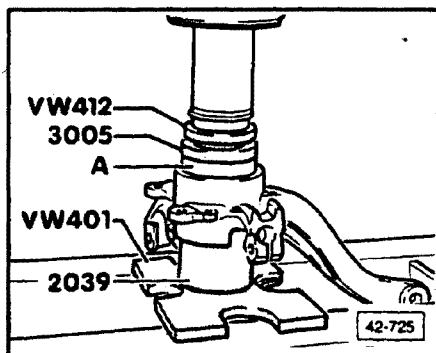
► Fig. 2 Wheel bearing, pressing out

- first remove circlip



► Fig. 3 Wheel bearing inner race, removing

- use puller with clamp, e.g. Kukko 204-1

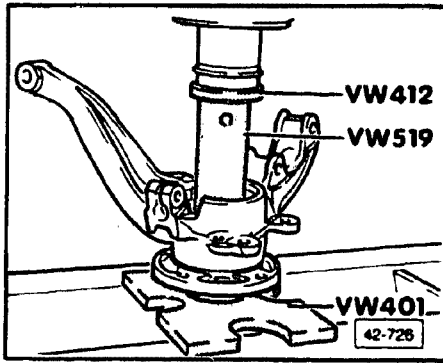


► Fig. 4 Wheel bearing, pressing in

- press bearing A in to stop
- larger inner diameter installed toward wheel hub

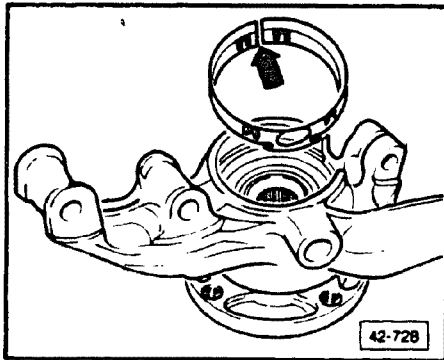
E-15

# Rear Wheel Suspension – Shafts & Axle



► Fig. 5 Wheel hub, pressing in

- Tool VW 519 is supported on the wheel bearing inner race only



► Fig. 6 Protective ring, installing in wheel bearing housing

- coat housing bore with oil before installing
- push ring in by hand until lock tabs engage
  - ring must not overlap (arrow)

## Note

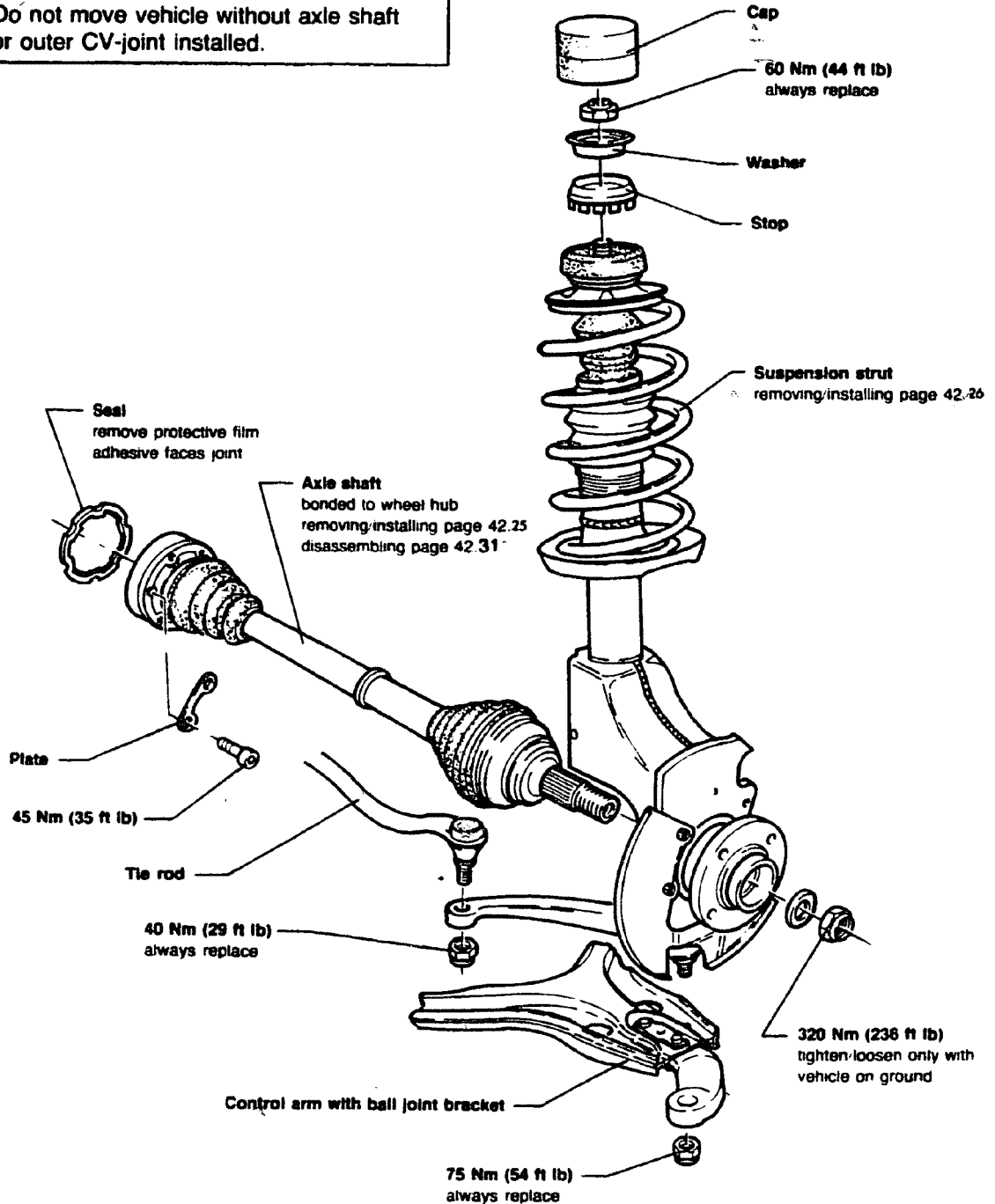
Vehicles not equipped with the protective ring in production cannot have it installed later.



# Rear Wheel Suspension – Shafts & Axle

## CAUTION

Do not move vehicle without axle shaft or outer CV-joint installed.



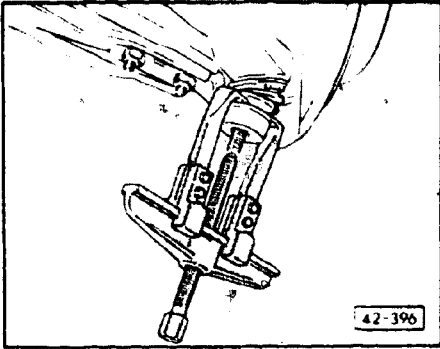
42-702

# Rear Wheel Suspension – Shafts & Axle

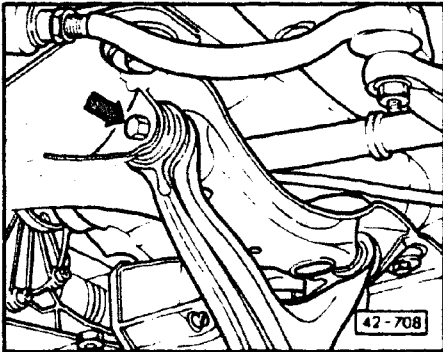
## Axle shaft, removing/installing

### Removing

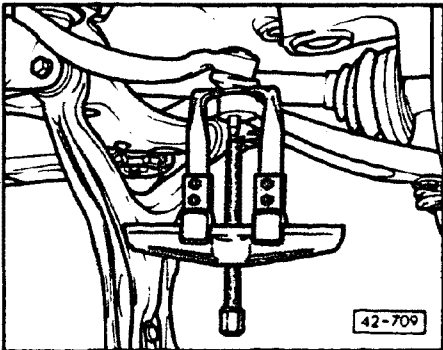
- remove axle nut, wheel bolts and wheel
- remove axle shaft at differential flange
- press ball joint out of bracket



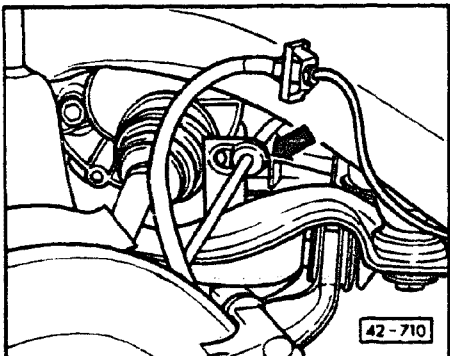
- loosen control arm mounting bolts at subframe (**arrow**)
- swing control arm downwards



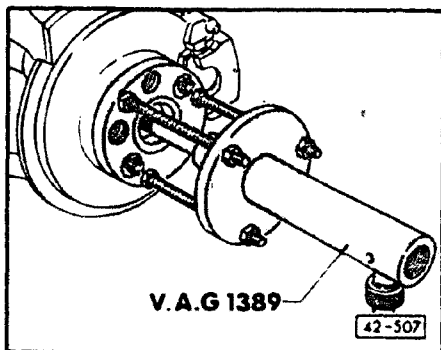
- remove tie rod
- install nut onto tie rod joint by hand. so threads of tie rod are not damaged



- remove parking brake cable grommet from bracket (**arrow**)



# Rear Wheel Suspension – Shafts & Axle



- press axle shaft out of hub
- angle axle shaft alongside differential and remove

## CAUTION

Always remove stub axle with mechanical or hydraulic hub puller only. DO NOT heat up wheel bearing housing or wheel bearing will be damaged.

## Installing

## CAUTION

Splines on stub axle and wheel hub must be free of oil, grease and old locking compound.

- apply locking compound **D6** around splines in a bead (**arrow**) not more than 5.0 mm (1/4 in.) wide

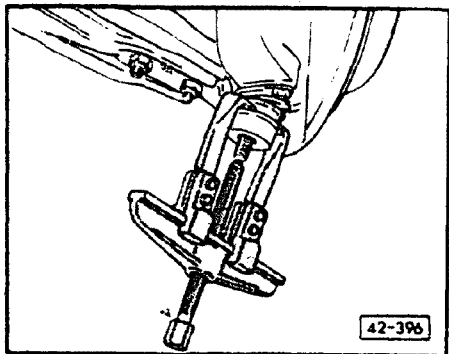
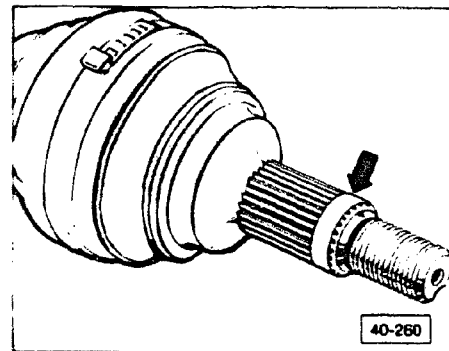
## Note

Allow locking compound **D6** at least one hour hardening time before driving vehicle.

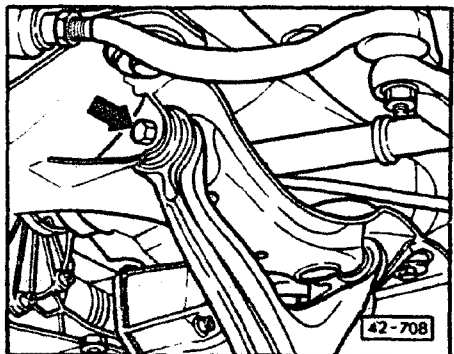
## Suspension strut, removing/installing

### Removing

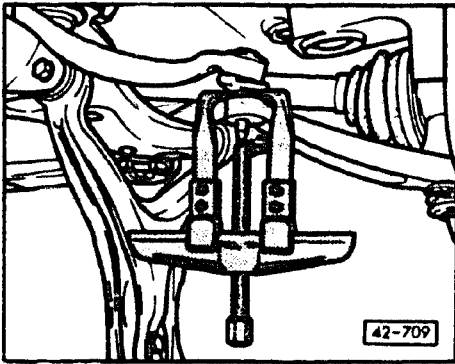
- remove axle nut, wheel bolts and wheel
- remove axle shaft flange at differential
- press ball joint out of bracket



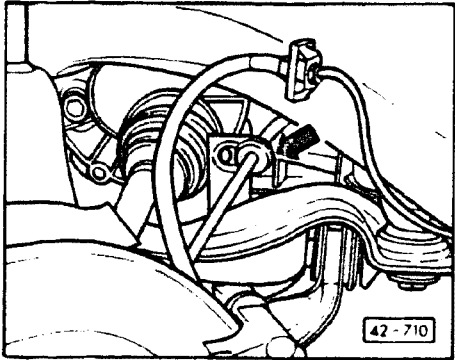
- loosen control arm mounting bolts at subframe (**arrow**)
- swing control arm downwards



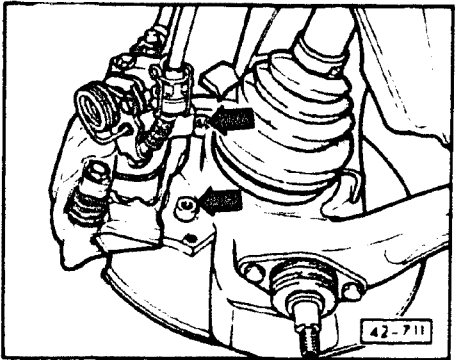
# Rear Wheel Suspension – Shafts & Axle



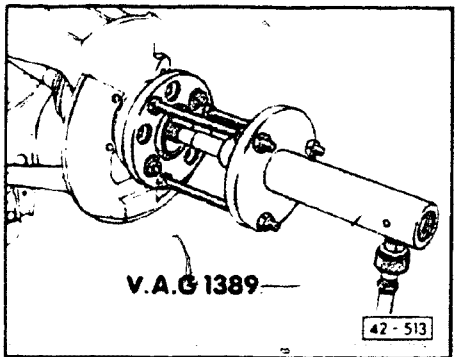
- remove tie rod
- install nut onto tie rod joint by hand, so threads of tie rod are not damaged



- remove parking brake cable grommet from bracket (arrow)



- remove bolts fastening brake caliper (arrows) and remove caliper
- tie caliper to body with wire (do not disconnect brake lines)
- remove brake disc

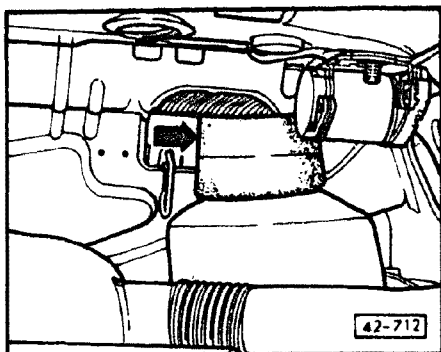


- press out stub axle from hub

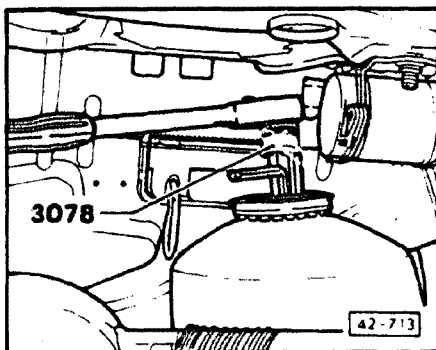
## CAUTION

Always remove stub axle with mechanical or hydraulic puller only. Never heat up wheel bearing housing or wheel bearing will be damaged.

# Rear Wheel Suspension – Shafts & Axle



- support suspension strut from below
- remove luggage compartment trim
- remove cap at top of strut (arrow)



- remove nut
- remove suspension strut assembly

## Installing

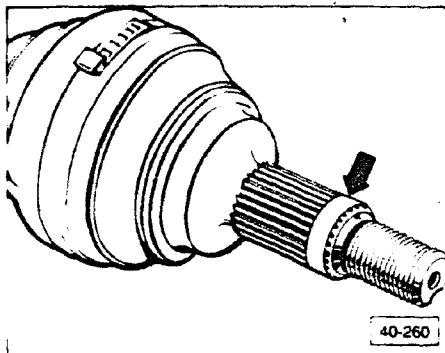
### CAUTION

Splines on stub axle and wheel hub must be free of oil, grease and old locking compound.

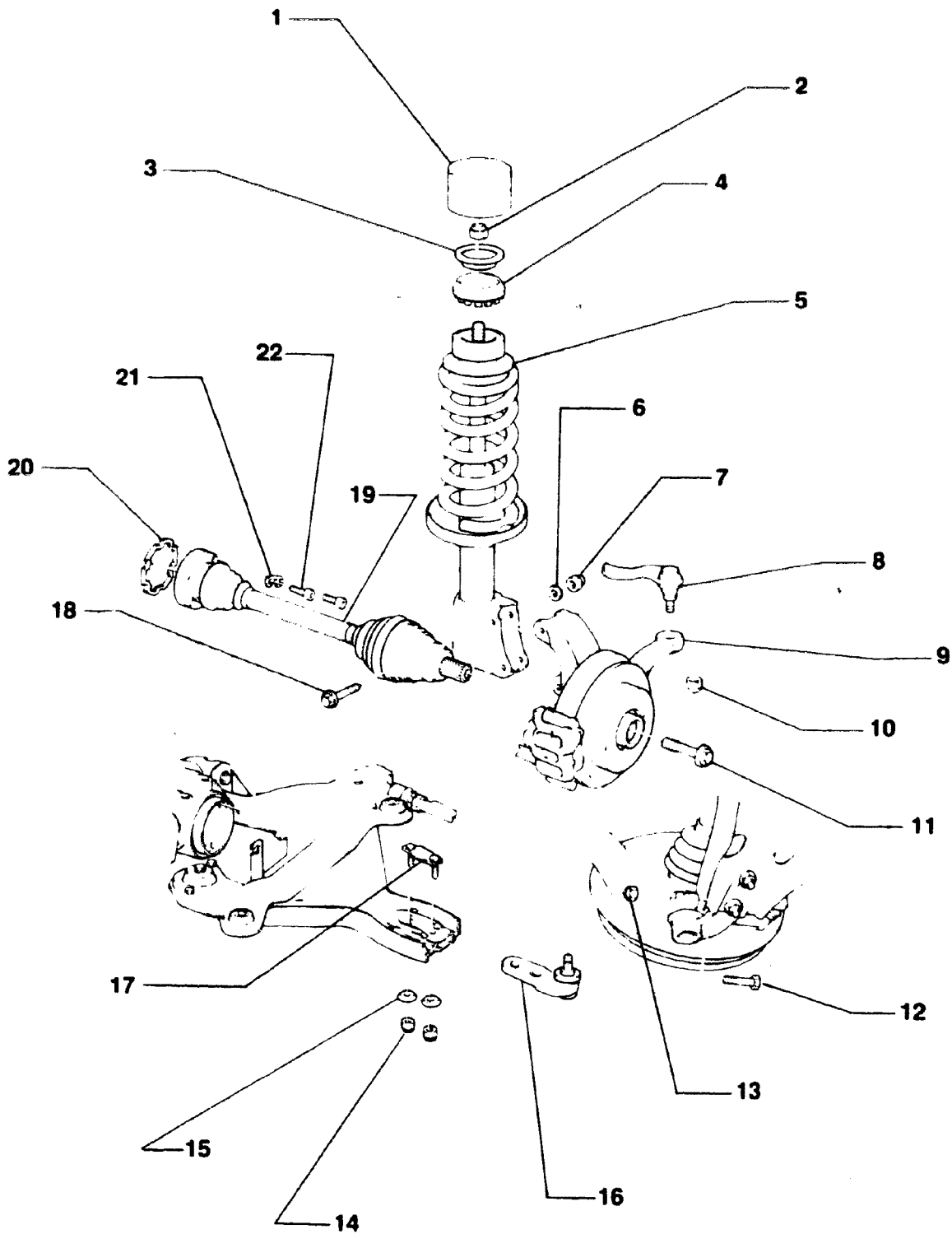
- install suspension strut and tighten nut to 60 Nm (48 ft lb)
- apply locking compound D6 in a bead approximately 5.0mm (1/4 in.) wide around splines (arrow)

### Note

Allow locking compound D6 approximately one hour hardening time before driving vehicle.



# Rear Wheel Suspension – Shafts & Axle



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**Quattro — with separable wheel bearing/shock absorber housing**

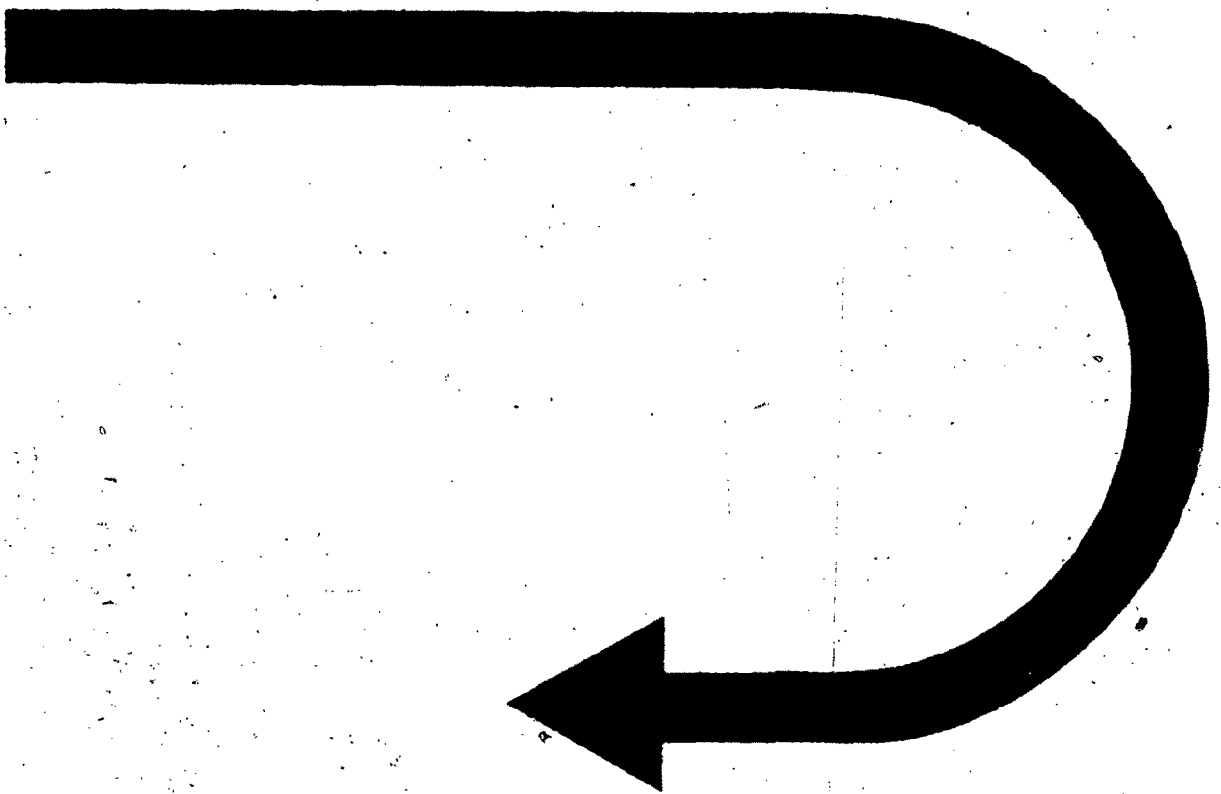
Suspension strut/axle shaft assembly

**42.29**

# Rear Wheel Suspension — Shafts & Axle

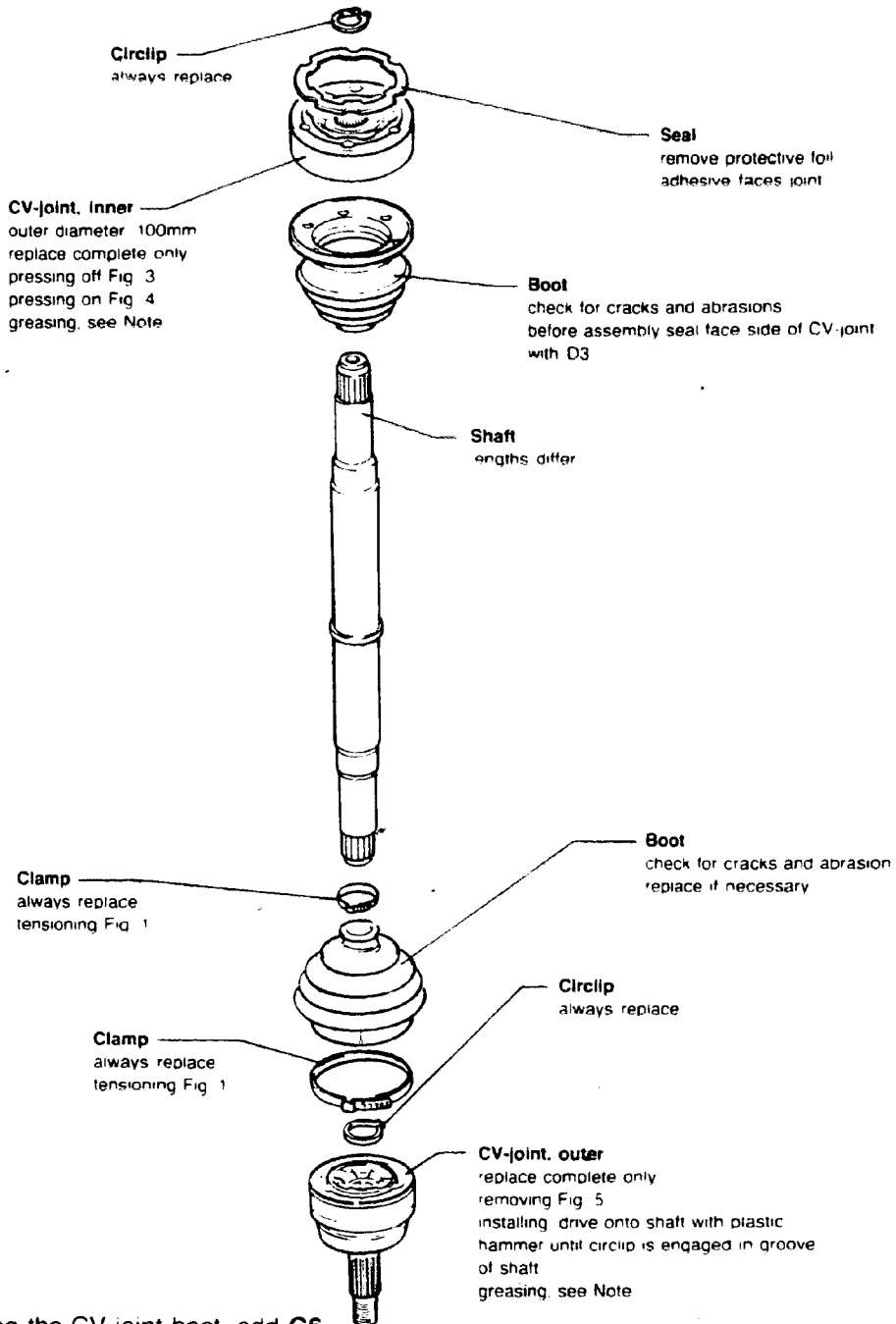
- 1 — **Cap**
- 2 — **60 Nm (44 ft lb)**  
always replace
- 3 — **Stop**
- 4 — **Stop ring**  
coat with talcum powder and insert in stop
- 5 — **Suspension strut**  
when removing: support strut by placing a wooden block between axle shaft and mount  
remove nut from piston rod with special tool **3078**  
  
when installing: bolt strut to wheel bearing housing and install wheel, lower vehicle until wooden block can be removed after installation check rear wheel alignment
- 6 — **Washer**
- 7 — **80 Nm (59 ft lb)**  
plus additional 1/2 turn (180°)  
**ALWAYS replace with new version**
- 8 — **Tie rod**  
press off with two-armed pulier tightening torque to subframe mount: **90 Nm (66 ft lb)**
- 9 — **Wheel bearing housing**  
after replacing or loosening of mounting bolts, check rear wheel alignment
- 10 — **40 Nm (30 ft lb)**  
always replace
- 11 — **Bolt/washer assembly**  
**120 Nm (89 ft lb)** plus 1 4 turn (90°) always replace  
loosen and tighten only with vehicle on ground
- 12 — **Bolt**  
always replace  
bolt head points in drive direction
- 13 — **65 Nm (48 ft lb)**  
always replace
- 14 — **65 Nm (48 ft lb)**  
always replace
- 15 — **Washer**
- 16 — **Ball joint**  
different part for right and left sides  
offset points to rear
- 17 — **Locking plate**
- 18 — **Bolt**  
**ALWAYS replace with new version**
- 19 — **Axle shaft**  
repairing, page 42.31  
to remove: pull ABS sensor out of wheel bearing housing slightly, remove bolt/washer assembly, remove control arm mounting bolts and pull control arm down  
  
When installing always replace control arm to differential mounting bolts and torque to **65 Nm (48 ft lb)**
- 20 — **Seal**  
remove protective film  
adhesive faces CV joint
- 21 — **Plate washer**
- 22 — **45 Nm (33 ft lb)**

CONTINUED IN THE  
BEGINNING OF NEXT ROW





# Rear Wheel Suspension – Shafts & Axle



## Note

When replacing the CV-joint boot, add **G6** grease. The total amount of grease for each CV-joint is 90 grams.

42-703

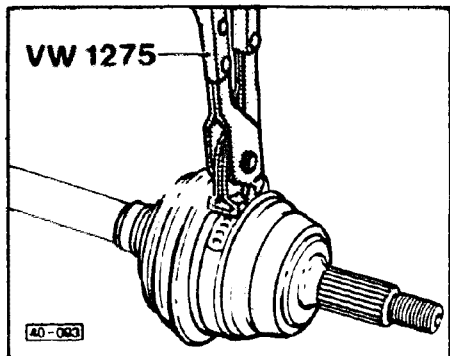
F-2

Quattro

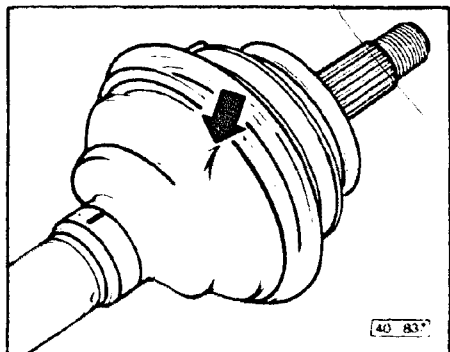
Axle shaft assembly

42.31

# Rear Wheel Suspension – Shafts & Axle



► Fig. 1 Clamp, tensioning

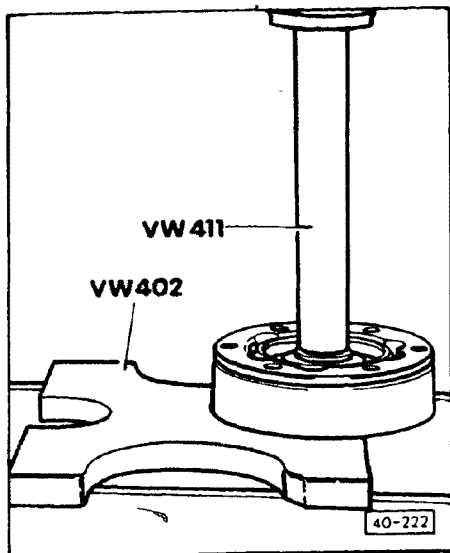


► Fig. 2 Boot, ventilating

### Note

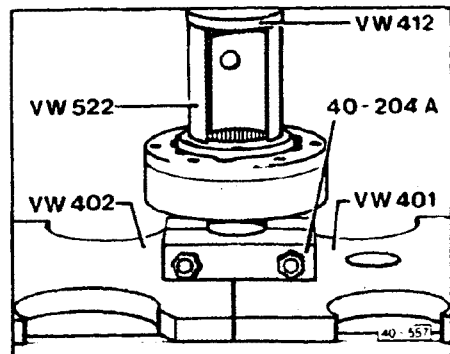
Boots are often pressed in when being installed. This causes a vacuum inside the boot, which in turn causes an inward fold (arrow) when the vehicle is driven.

- lift small diameter end of boot slightly after installing, so pressure can equalize and boot will regain normal shape



► Fig. 3 CV-joint, inner, pressing off

- support ball hub



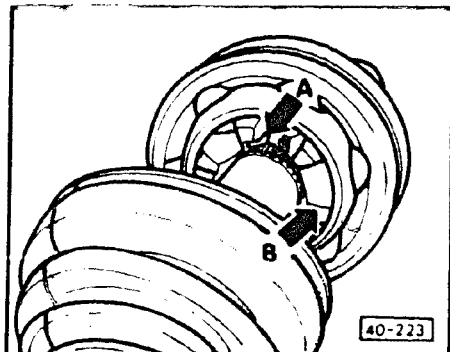
► Fig. 4 CV-joint circlip, installing

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

### CAUTION

Chamfer on inside diameter of ball hub (splines) must face contact shoulder on drive shaft.

# Rear Wheel Suspension – Shafts & Axle



► Fig. 5 CV-joint, outer, removing

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