

Volvo300mania

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Order No. TP 12161/2
Supersedes previous edition TP 12161/1

We reserve the right to make alterations

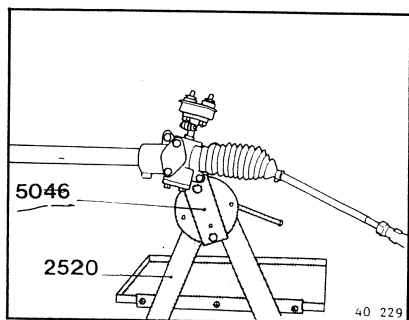
TIGHTENING TORQUES

	Nm	kgm
Steering gear		
Thrust block/steering housing cover	22	2.2
Steering wheel nut	55	5.5
Rear suspension		
Spring plate nuts	52	5.2
Axle shaft nuts B14	245	24.5
B19	220	22.0
Bearing housing/brake backplate nuts	52	5.2
Half shaft, wheel end	40	4.0

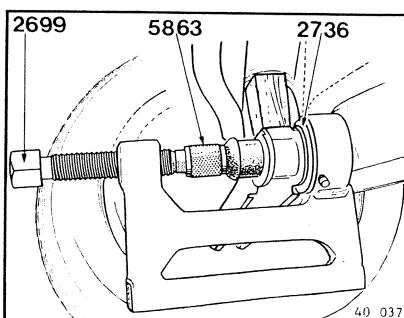
V3M

Special tools

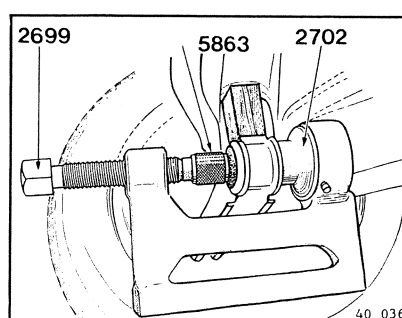
999	Description - Application
2520	Universal stand to hold steering housing (together with support 5046)
2699	Auxiliary pressing tool for pressing rubber bush out of wishbone (together with sleeve 2702) or for pressing rubber bush into wishbone (together with sleeve 2736)
2702	Auxiliary sleeve for removing rubber bush from wishbone
2736	Auxiliary sleeve for fitting rubber bush in wishbone
4090	Extractor for removing needle-type bearing from steering housing
5027	Drift for removing ball-type bearing from steering housing
5043	Auxiliary pressing tool for removing steering red end
5046	Support for steering housing
5048	Drift for fitting ball-type bearing in steering housing
5051	Auxiliary tool for extractor 4090
5053	Adapter for connecting torque wrench to pinion shaft
5065	Drift for fitting needle-type bearing in steering housing
5098	Protractor for adjusting steering housing thrust block clearance
5154	Universal stand for fitting on workbench
5836	Thrust block
5864	Drift for installation and removal of steering housing bearing cups
5865	Auxiliary tool for measuring thrust block clearance
5866	Auxiliary pressing tool for removing steering swivel ball joint
5893	Extractor for companion flange
5931	Drift for fitting steering shaft bearings
5947	Counterhold for locking axle shaft



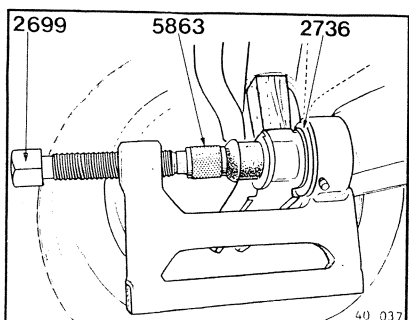
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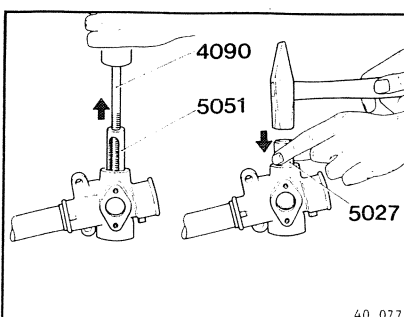
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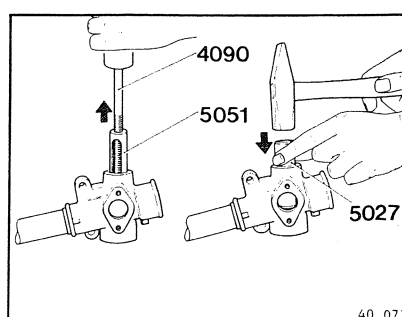
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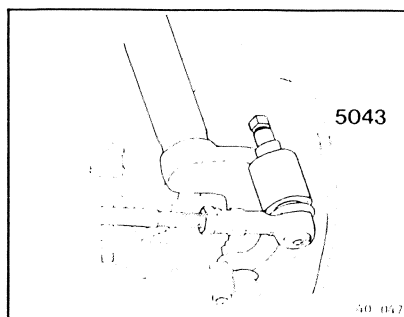
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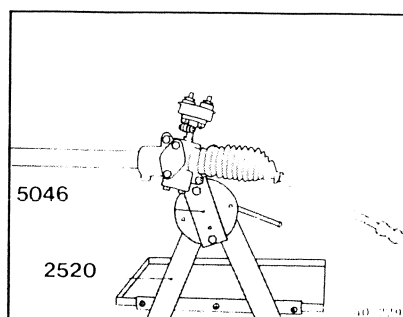
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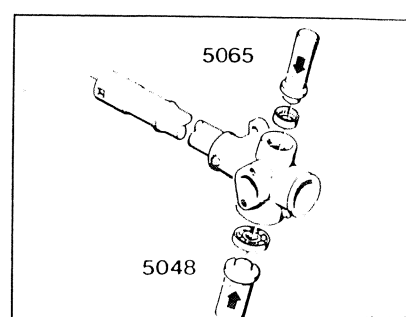
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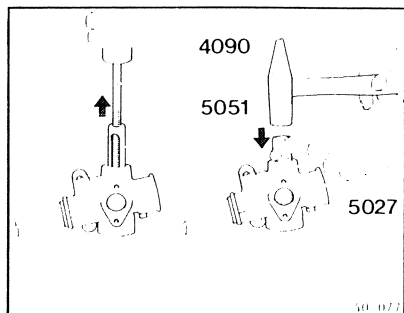
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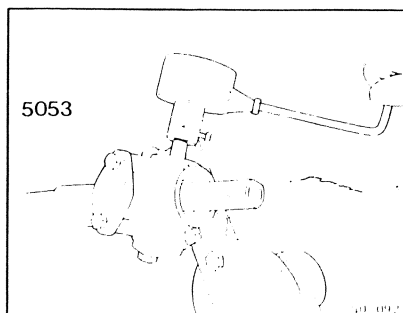
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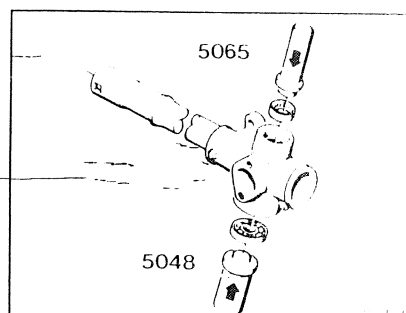
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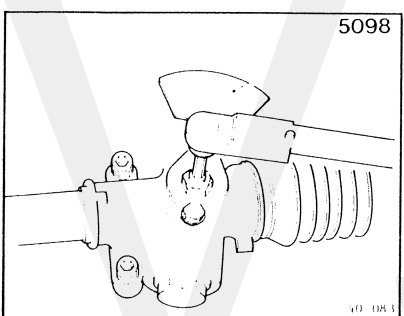
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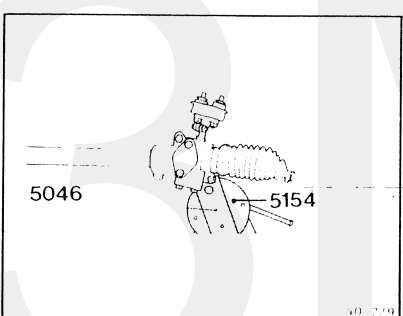
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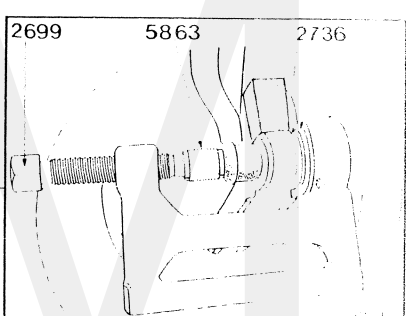
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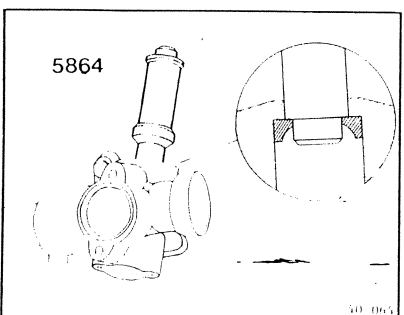
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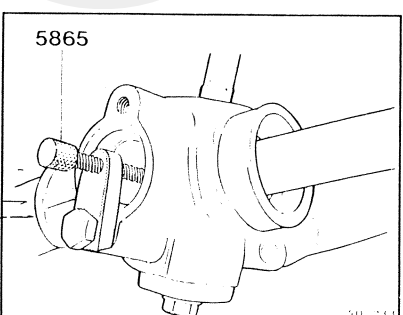
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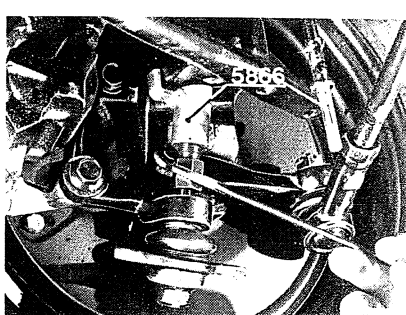
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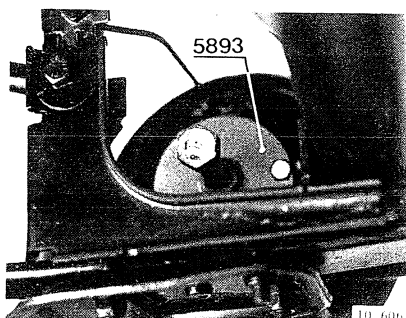
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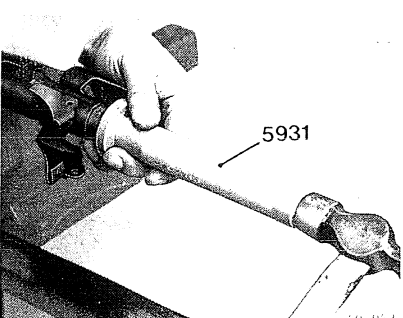
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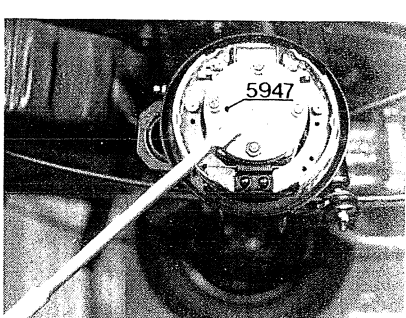
5866



5893



5931

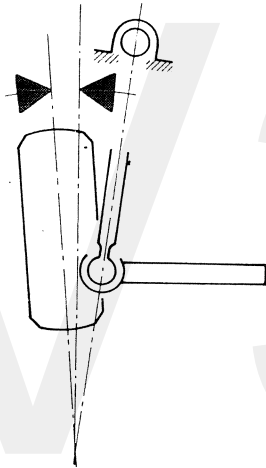


5947

A. Checking front wheel alignment and correcting toe-in

For the use of the wheel aligning equipment see the relevant instructions from the manufacturer.

- Notes:**
1. To be able to properly check the front wheel alignment there must be no play in the front suspension. For this see "checking front suspension", jobs B1-B3.
 2. First check the tyre pressures of both front wheels; correct if necessary.
 3. Checking and/or re-adjusting the wheel alignment is carried out with the car in an unladen condition.
 4. Rock the front end of the car heavily a few times. If this is not done there is every likelihood that the wheel camber will be incorrectly measured.

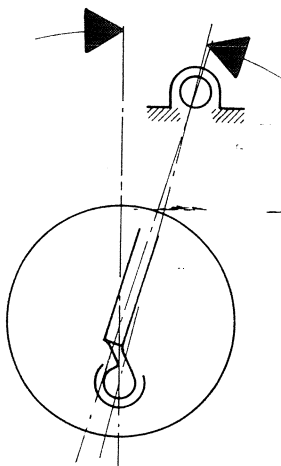


40 031

Check camber on both front wheels

Correct value is:
B14: $+ 30' \pm 30'$
B19: $- 30' \pm 30'$

A1



40 032

Check castor on both front wheels

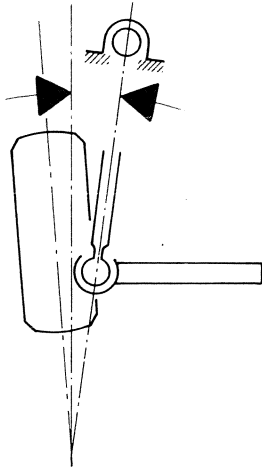
The correct value is $7^{\circ}35' \pm 30'$.

A2

A3

Check KPI on both front wheels

The correct value is $9^{\circ}30' \pm 30'$.

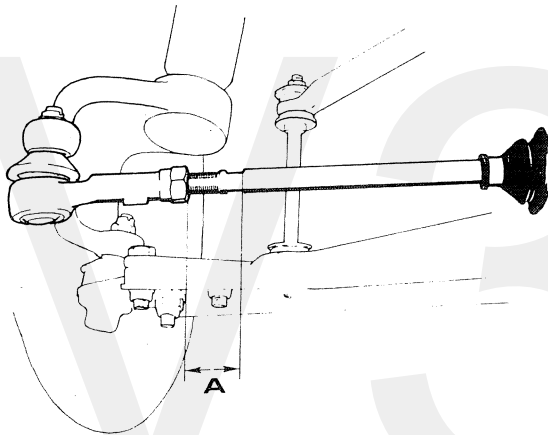


50 013

A4

Check toe-in

Toe-in: 3-5 mm.



50 034

A5

Correct toe-in

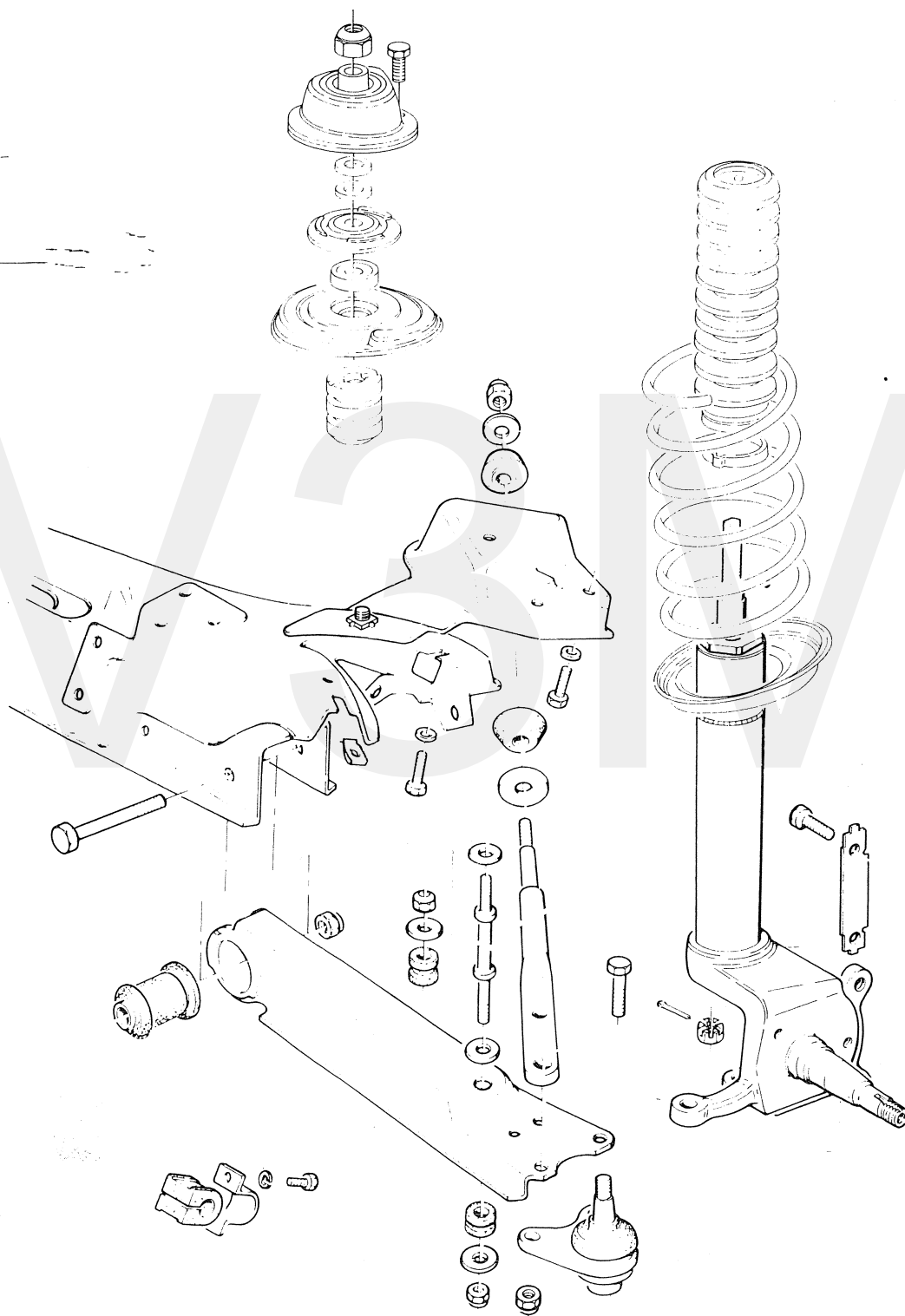
Place the steering wheel in the straight ahead position and with the steering lock engaged. Slacken the steering rod lock nuts and the small clamps on the rubber dust gaiters.

Adjust the toe-in by turning the steering rods.

Note: after a correction has been made to the toe-in, the maximal permissible variation in length between the two steering rods (dimension A) is 2 mm.

Tightening torque of lock nuts: 75 Nm (7.5 kgm).

GROUP 61 FRONT SUSPENSION



30 044

B. Checking front suspension



40 226

B1

Check wheel bearings, shock absorbers and shock absorber mountings

Take hold of the wheel with the hands in the twelve o'clock and six o'clock positions and jerk the wheel. Any play must be remedied.

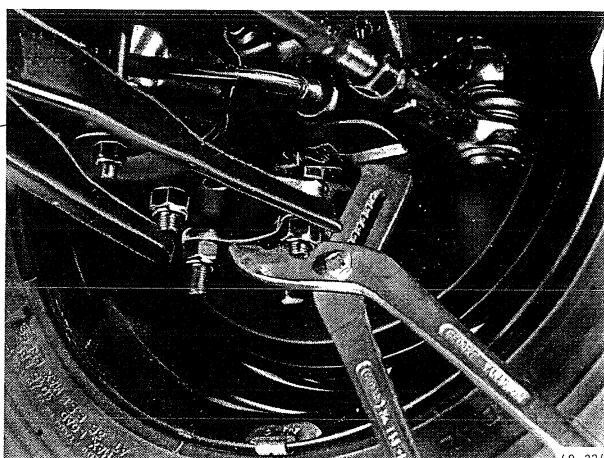


40 225

B2

Check steering rod ends, ball joints and steering linkage

Take hold of the wheel with the hands in the three o'clock and nine o'clock positions and jerk the wheel. Any play must be remedied.



40 224

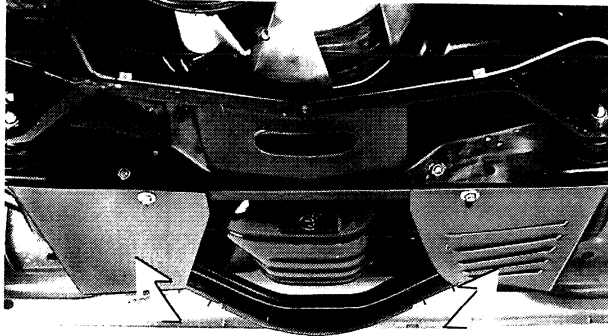
B3

Check steering swivel ball joints for play

Check the ball joints for play with, for example, adjustable pliers. Maximum permissible play is 0.5 mm.

C. Renewing a wishbone and/or steering swivel ball joint and/or reaction rod

Special tools: 2699, 2702, 2736, 5863, and 5866



C1

Place wheels in straight ahead position with steering lock engaged

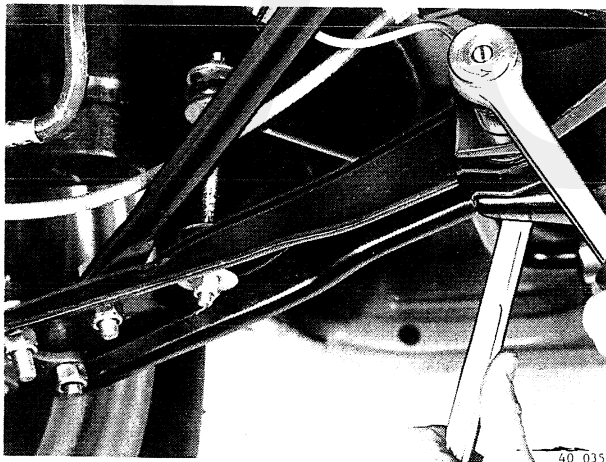
C2

Remove engine splash guard at the side where the work is to be carried out

40 046

Renew rubber bush at pivoting end of wishbone under the car

For this job it is necessary to carry out jobs C3 to C6, inclusive.



C3

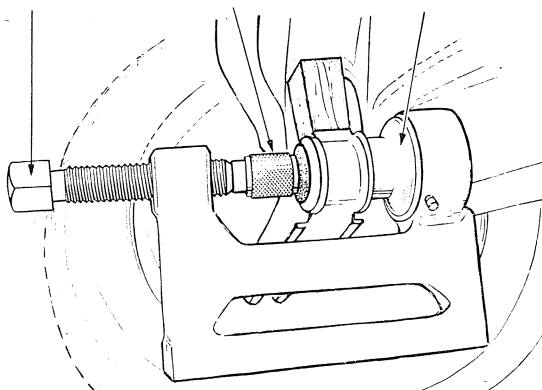
Release wishbone at pivoting end

Remove the nut at the pivoting end. Withdraw the bolt and drop the wishbone at the pivoting end.

2699

5863

2702



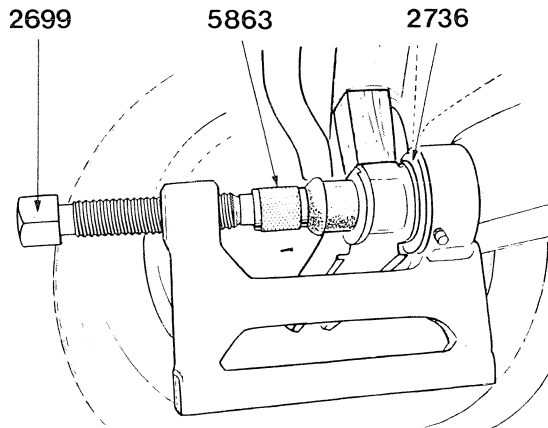
C4

Remove rubber bush from wishbone

Press the rubber bush out of the wishbone with auxiliary pressing tool 2702 and thrust block 5863.

40 036

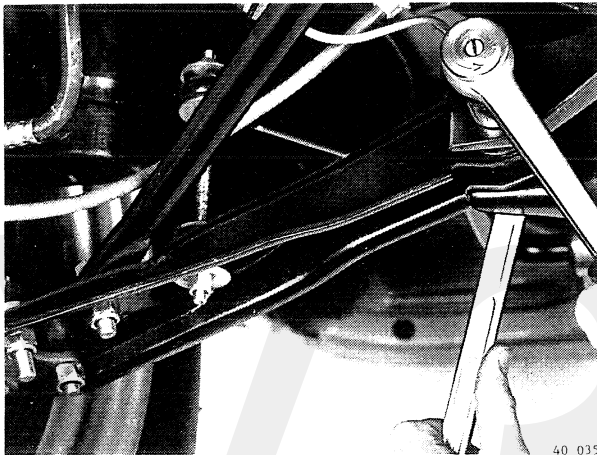
C5



Insert new rubber bush in wishbone

Press the new rubber bush into the wishbone with auxiliary pressing tool **2699**, auxiliary sleeve **2736**, and thrust block **5863**. Lubricate the rubber bush with vaseline before fitting.

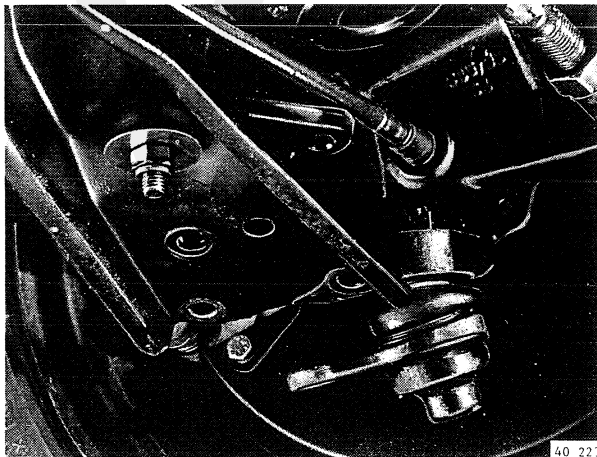
C6



Tighten wishbone at pivoting end

Locate the wishbone and fit and tighten the bolt and nut. Tightening torque: 93 Nm (9.3 kgm).

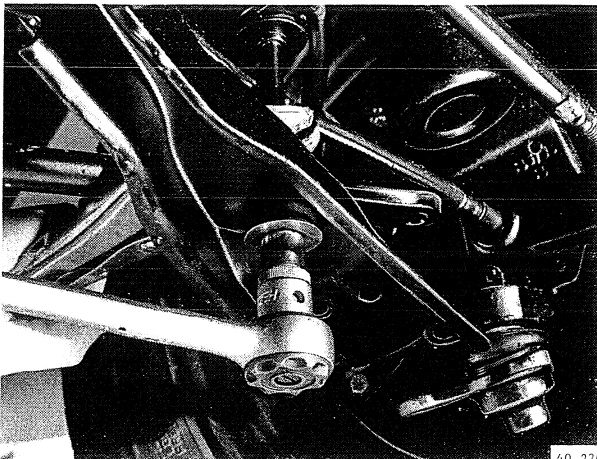
C7



Remove retaining nuts from reaction rod and steering swivel ball joint and withdraw bolts

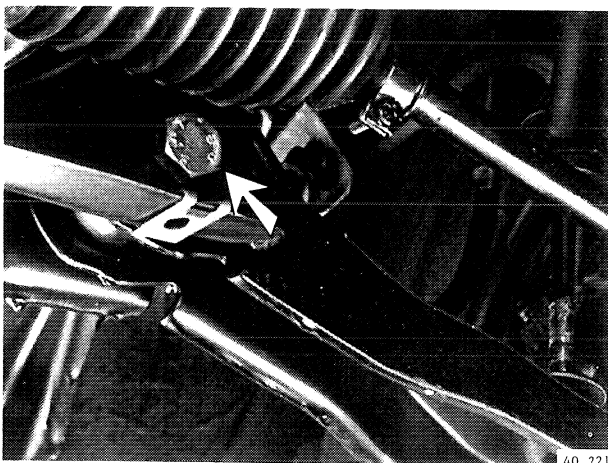
Support the car so that the wheel is clear of the lift. Press the steering swivel ball joint away from the wishbone.

C8



Remove lower retaining nut and washer from stabilizer link

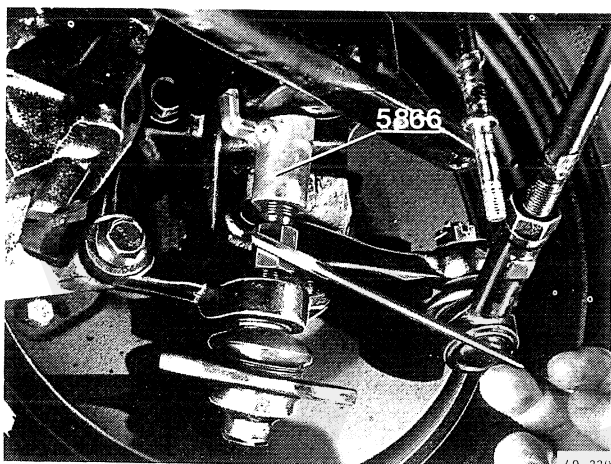
Note: prevent the link from turning with the aid of a mole wrench. Slacken the rear nut on the reaction rod.



Remove wishbone

C9

Remove the nut at the pivoting end.
Withdraw the bolt and remove the wishbone.

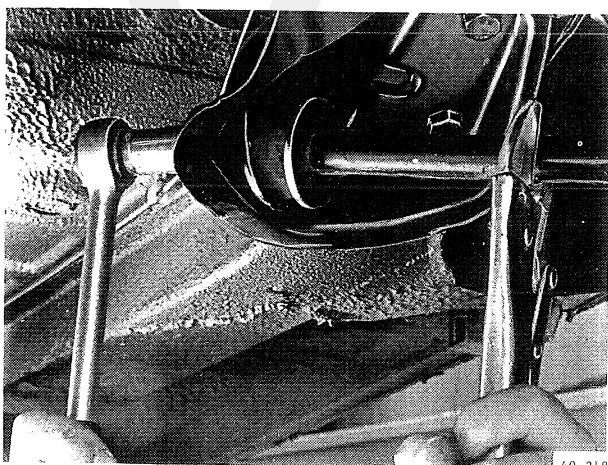


Remove steering swivel ball joint

C10

Remove the split pin and castle nut and press out the steering swivel ball joint with auxiliary pressing tool 5866.

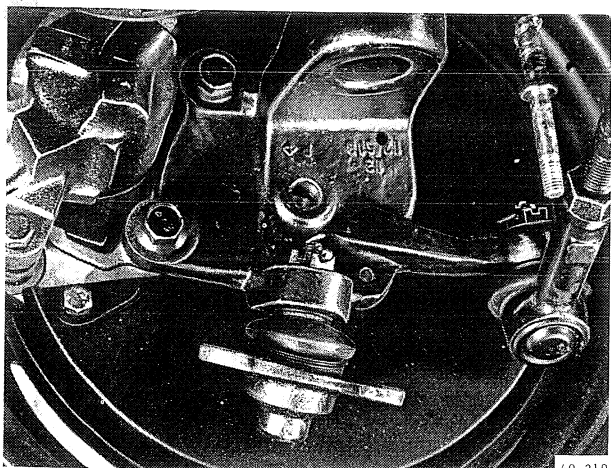
Note: To renew the left-hand ball joint the speedometer cable must first be removed from the steering swivel. For this purpose release the grease cap together with the drive pinion and remove the cable.



Remove reaction rod

C11

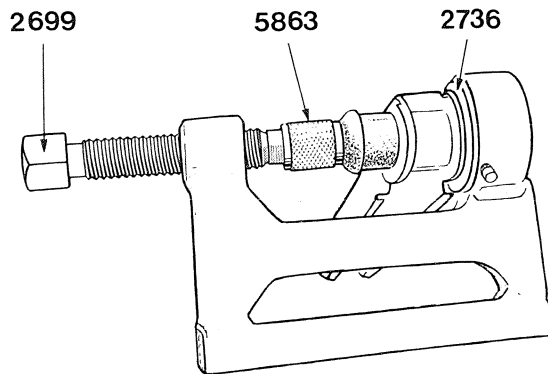
Remove the rear nut from the reaction rod.
Remove the rear washer and rubber retaining bush.
Remove the reaction rod together with the front rubber retaining bush and washer.



Fit new steering swivel ball joint

C12

Fit and tighten the castle nut.
Tightening torque: 55 Nm (5.5 kgm).
Lock the castle nut with a new split pin.



40 038

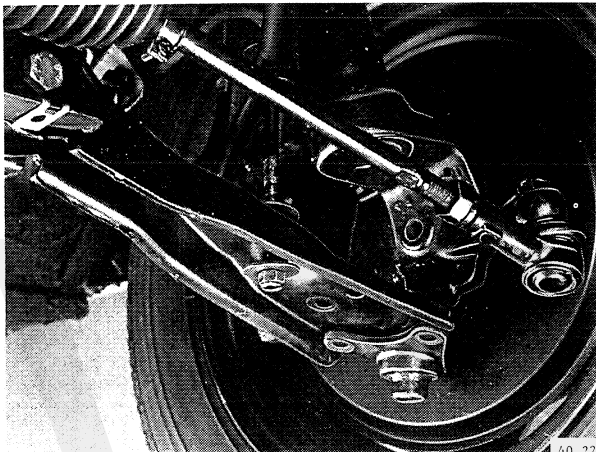
C13

Assemble new wishbone

Press a new rubber bush into the wishbone with auxiliary pressing tool **2699**, auxiliary sleeve **2736** and thrust block **5863**.

Lubricate the rubber bush with vaseline before fitting.

Transfer the rubber bush of the stabilizer link to the new wishbone or, if necessary, fit a new one.



40 221

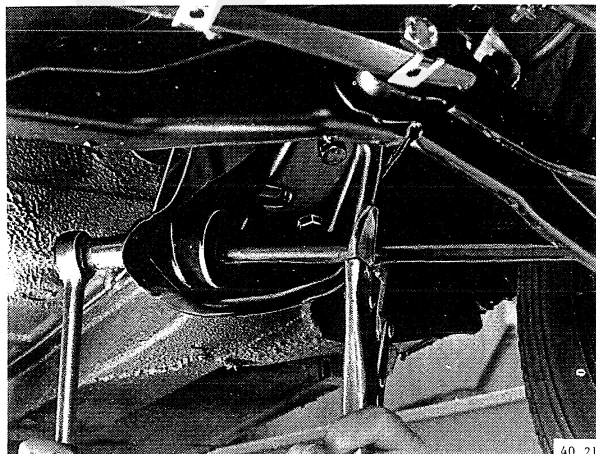
C14

Fit new-wishbone

Insert the bolt in the pivoting point and fit the nut finger-tight.

Place the stabilizer link in the rubber bush of the wishbone.

Fit the washer and tighten the nut finger-tight.



40 218

C15

Fit reaction rod

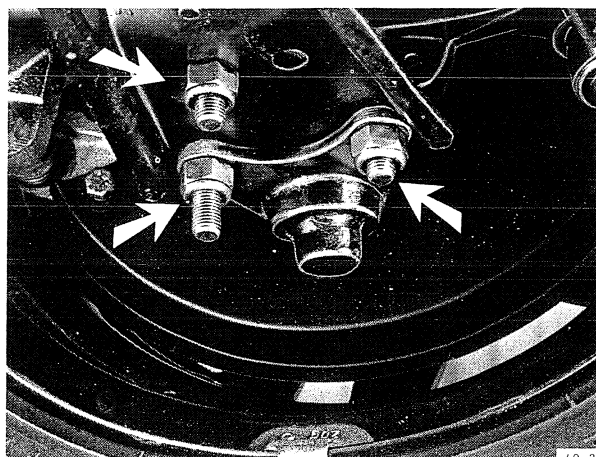
If necessary renew the front rubber retaining bush and fit this, together with the washer, on the reaction rod.

Locate the reaction rod, fit the retaining bolts and nuts, and tighten the nuts finger-tight.

If necessary renew the rear rubber retaining bush and fit this together with the washer and the rear nut of the reaction rod.

Tighten the nut.

Tightening torque: 27 Nm (2.7 kgm).



40 217

C16

Tighten reaction rod and steering swivel ball joint

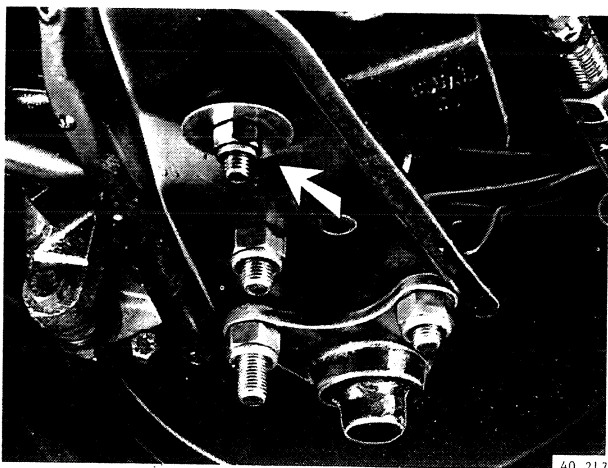
Raise the lift so that the weight of the car is again resting on the wheels.

Tighten the nut at the pivoting end of the wishbone.

Tightening torque: 93 Nm (9.3 kgm).

Tighten the retaining nuts for the reaction rod and steering swivel ball joint.

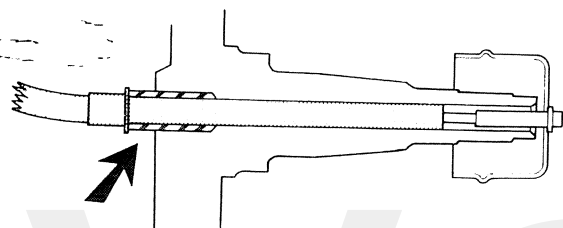
Tightening torque: 27 Nm (2.7 kgm).



Tighten stabilizer link

C17

Tighten the retaining nut.
Tightening torque: 22 Nm (2.2 kgm).

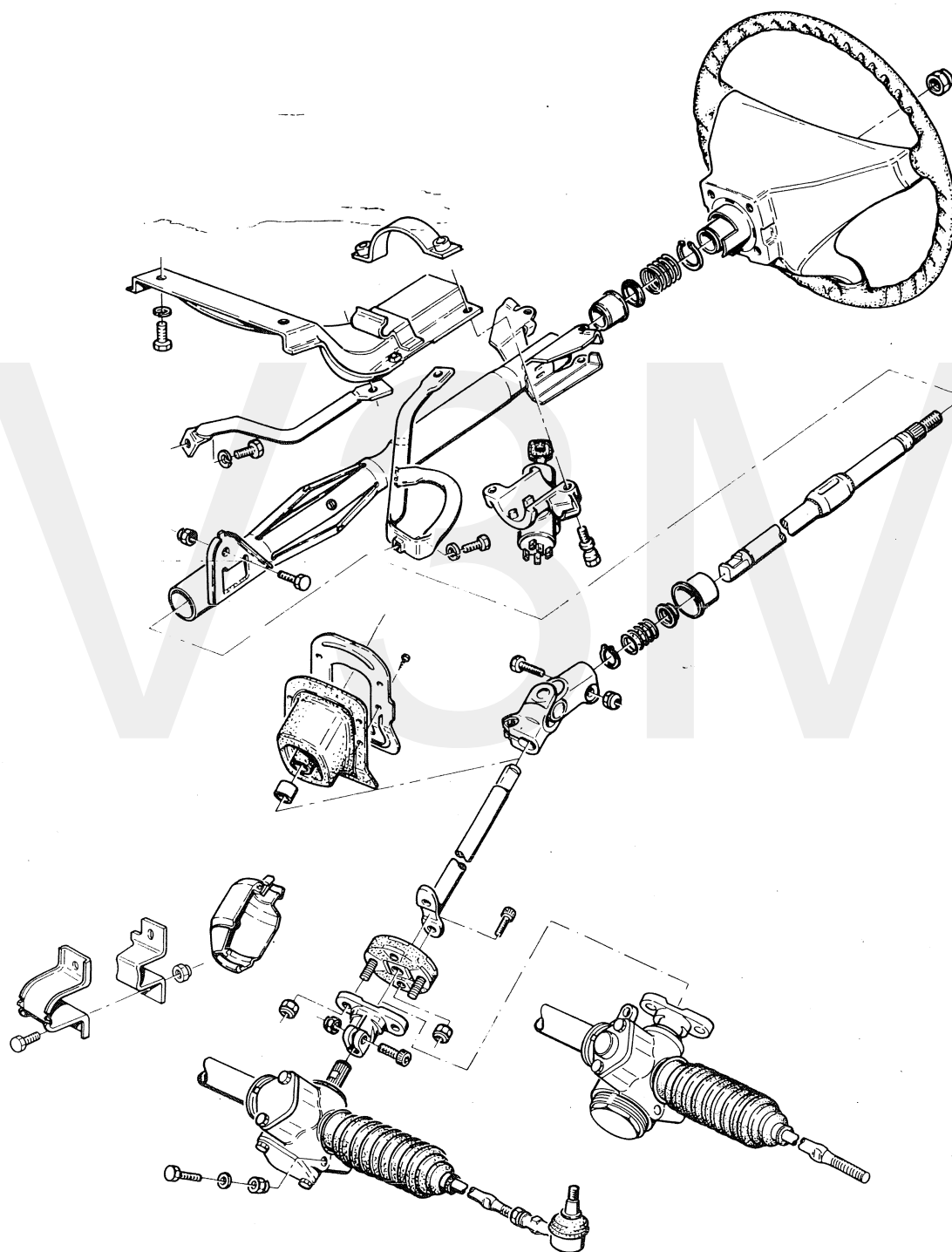


Secure speedometer cable (if released)

C18

Lightly lubricate the rubber bush of the speedometer cable with vaseline before fitting.
Remove the grease cap.
Fit the speedometer cable.
Fit the grease cap together with the speedometer cable drive pinion.
Fit the engine splash guard.

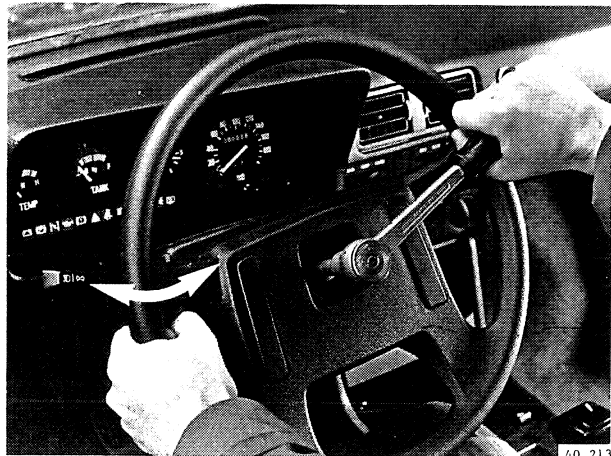
GROUP 64 STEERING GEAR



20 012

D. Renewing the steering wheel and/or steering lock and/or steering shaft bearings

Special tool: 5931

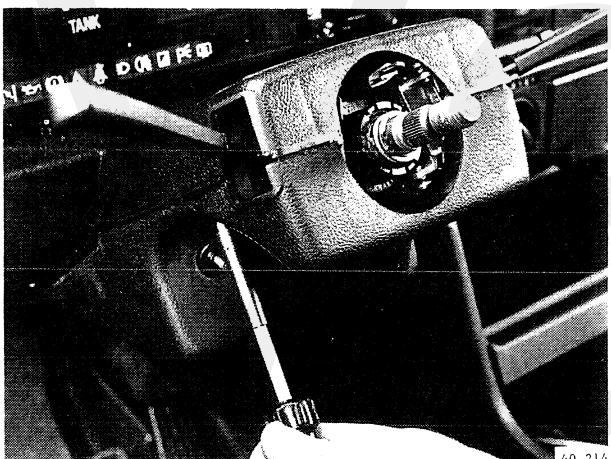


40 213

D1

Remove steering wheel

Place the front wheels in the straight ahead position and engage the steering wheel lock.
Remove the cover plate.
Remove the steering wheel nut.
Move the steering wheel to and fro a few times and then use both hands to pull it from the steering shaft.

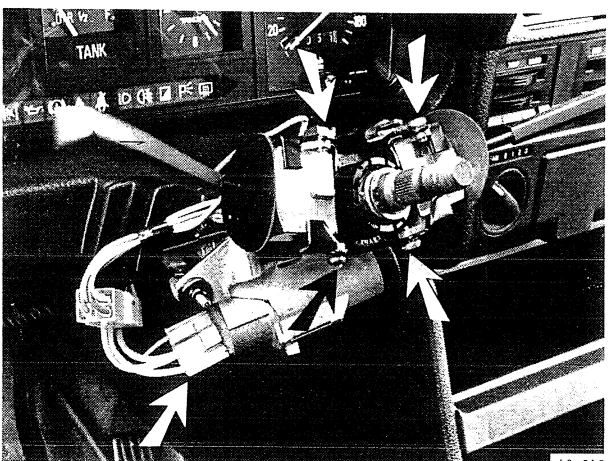


40 214

D2

Remove both caps from steering column

Remove the choke knob and the nut from the choke cable.



40 212

D3

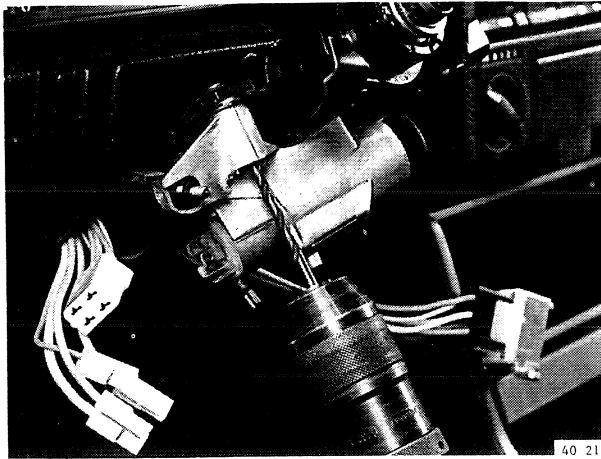
Release connector or blade-type connectors from steering lock

Note: Separate blade-type connectors can only be released by pulling on the insulator and not on the wiring.

Before disconnecting make a **note** of the colour code of the cables in relation to the terminals on the electrical part of the steering lock.

D4

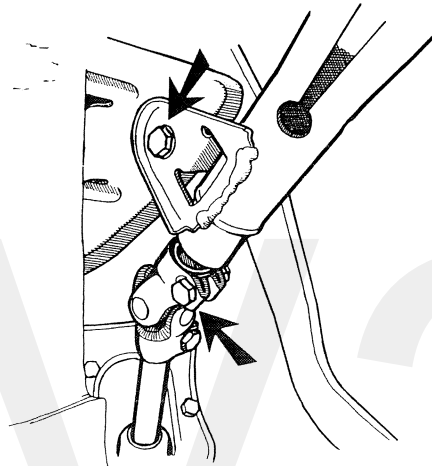
Remove steering column stalks



D5

Remove both retaining bolts from steering lock

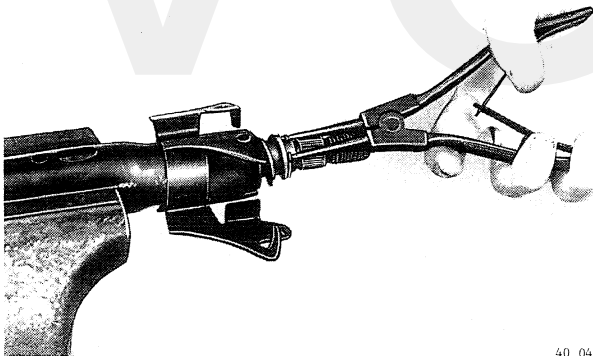
Drill a ϕ 5 mm hole in both bolts
Remove the bolts with disassembly tool 998 5447.



D6

Remove steering column

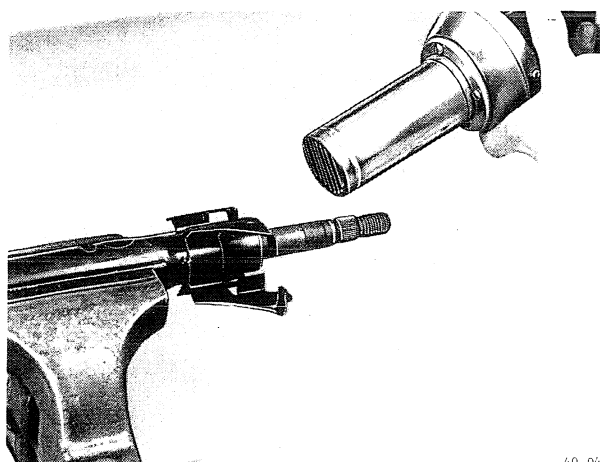
Remove the clamping bolt from the universal joint and the retaining bolt from the steering column.



D7

Remove circlip, spring and spring seat from both sides of steering shaft

Clamp the steering column, without damaging it, in a bench vice.
If fitted, remove the dust gaiter from the steering column.



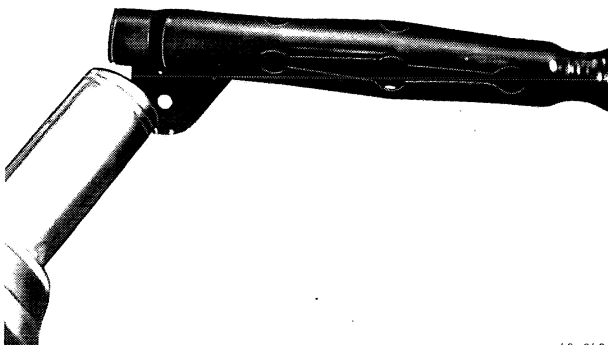
D8

Remove steering shaft bearings from steering column

Heat the steering column at the steering wheel end with a blow drier.
Remove the top bearing by pulling it out of the steering column with the steering shaft.

Heat the other end of the steering column with the blow drier.

Pull out the bottom bearing with the aid of the steering shaft.



D9

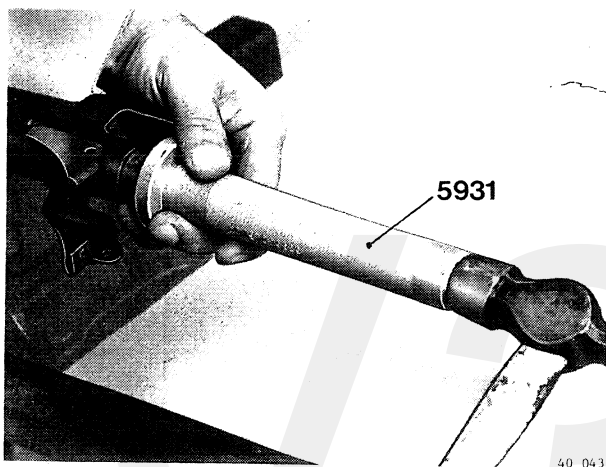
Fit steering shaft bearings in steering column

Heat the steering column at both ends with a blow drier.

Fit the bottom bearing with drift **5931**.

Insert the steering shaft in the steering column.

Fit the top bearing with drift **5931**.

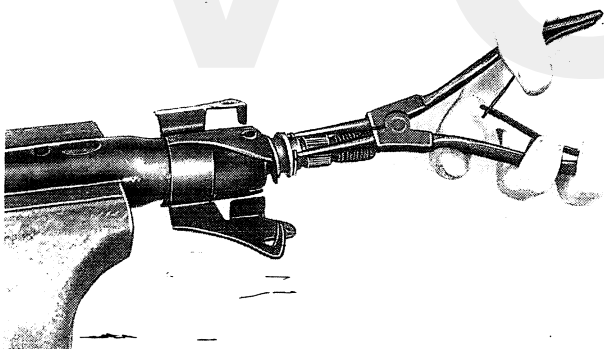


D10

Fit top spring seat, spring and circlip

Lubricate the spring seat with Duralith EP 2 (part No. 1212388-1) before fitting.

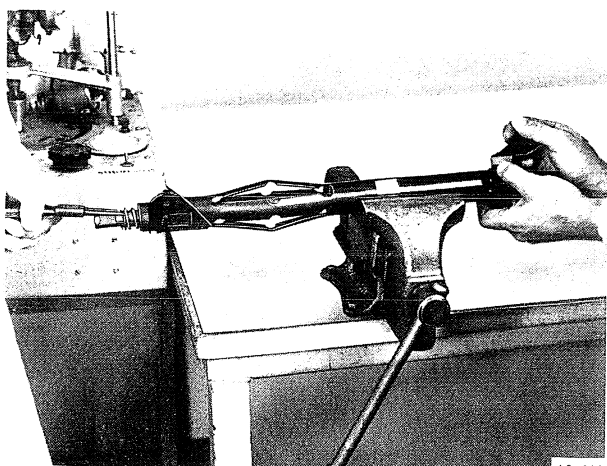
If fitted, locate the dust gaiter around the steering column.



D11

Fit bottom spring seat, spring and circlip

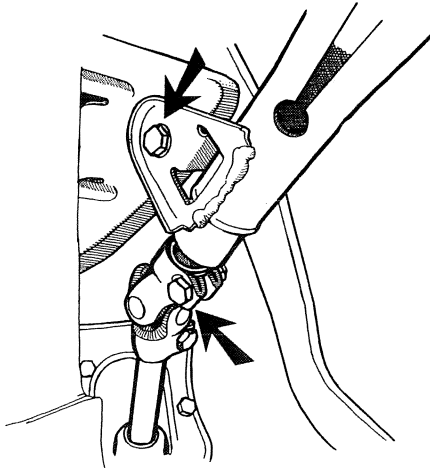
To do this, press in the steering shaft.



D12

Locate steering column

Fit the clamping bolt and retaining bolt finger-tight.

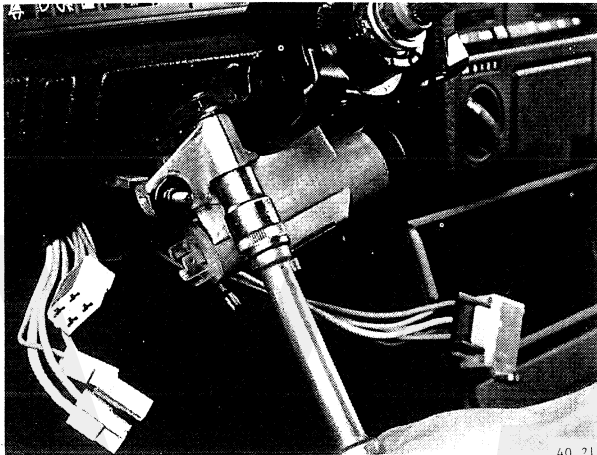


40 045

D13

Locate steering lock and fit new shear bolts without breaking off the heads

Fit the choke cable in the steering lock.
Fit the nut on the choke cable and tighten.

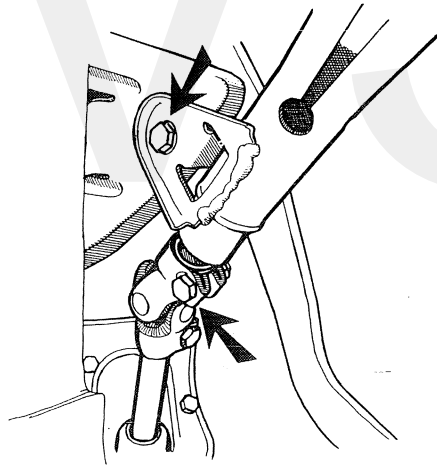


40 216

D14

Check working of steering lock and tighten

After checking, tighten the shear bolts until the heads break off.
Tighten the steering column retaining bolt and the clamping bolt in the universal joint.
Tightening torque: 22 Nm (2.2 kgm.)



40 045

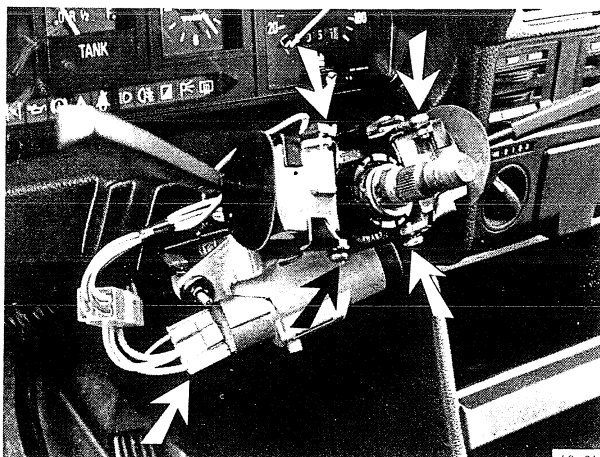
D15

Fit steering column stalks

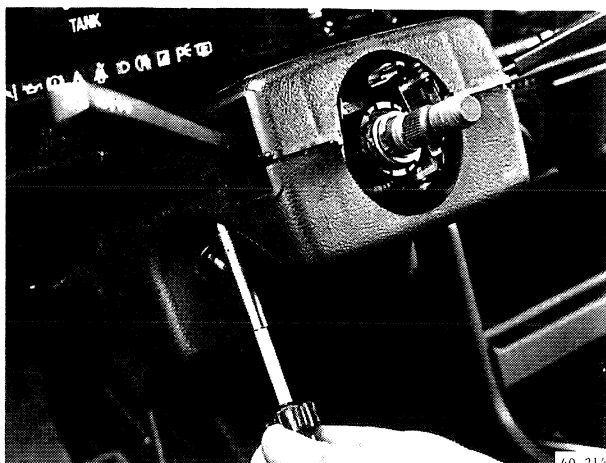
D16

Fit connector or blade-type connectors to steering lock

Make certain that the blade-type connectors are connected to the correct terminals.

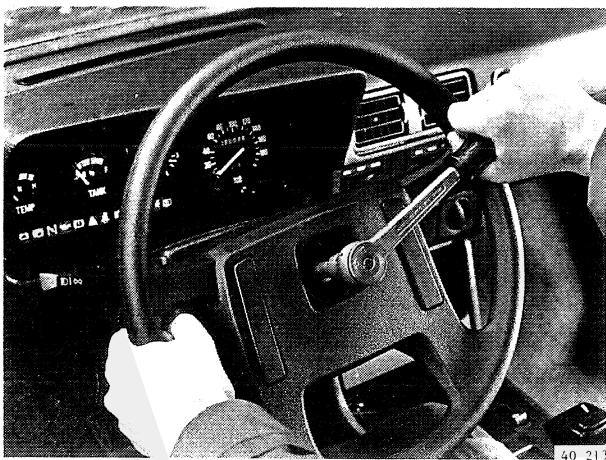


40 212



Fit steering column caps and choke knob

D17



Fit steering wheel

D18

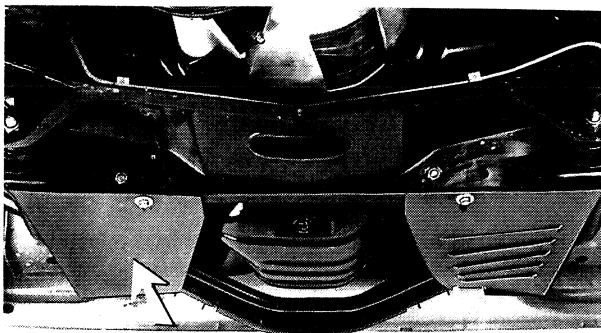
Fit the steering wheel on the steering shaft in the straight ahead position.

Fit and tighten the steering wheel nut.

Tightening torque: 55 Nm (5.5 kgm).

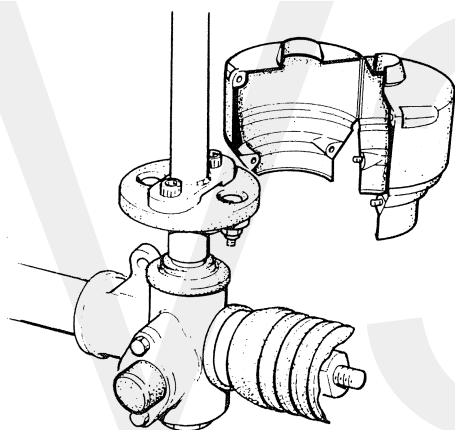
Insert the cover plate in the steering wheel.

E. Renewing steering shaft vibration damper



E1
Place wheels in straight ahead position and engage steering lock

E2
Remove left-hand engine splash guard



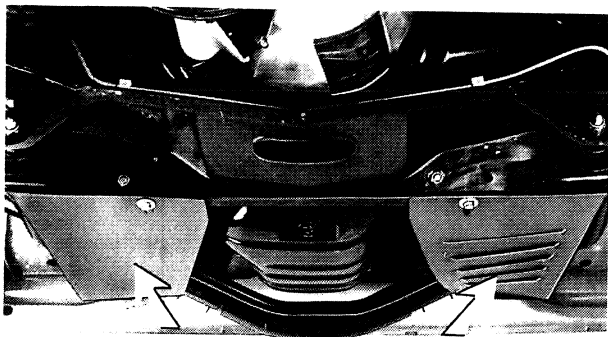
E3
Renew vibration damper

Remove the guard cap.
Remove the nuts and bolts and take out the vibration damper.

Note: if necessary, transfer the retaining bolts to the new vibration damper.
Fitting is in reverse order to removal.

F. Renewing the steering rod end and/or dust gaiter and/or steering rod

Special tool: 5043



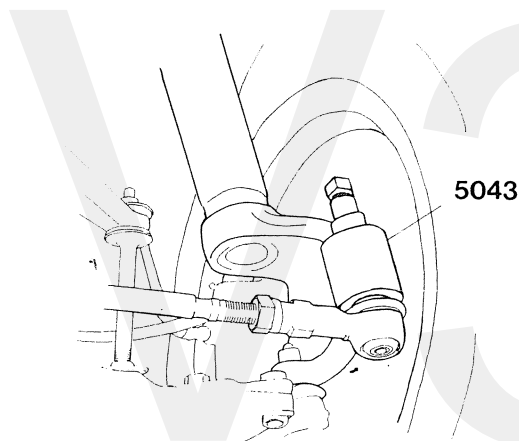
F1

Place wheels in straight ahead position and engage steering lock

F2

Remove engine splash guard from the side where the work is to be carried out

40 046

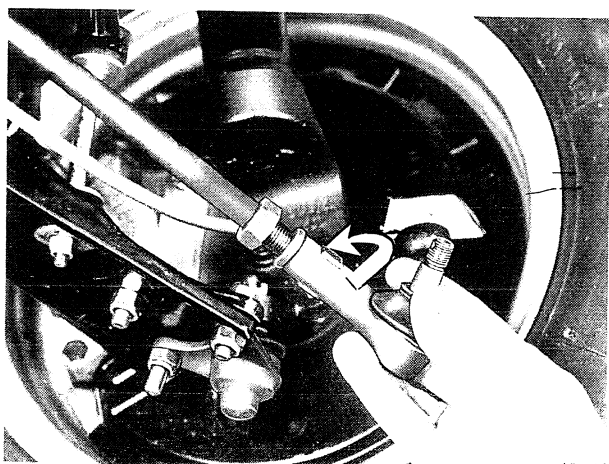


F3

Detach steering rod end from steering swivel

Slacken the lock nut.
Remove the split pin and castle nut from the steering rod end and press it free with auxiliary pressing tool 5043.

40 047



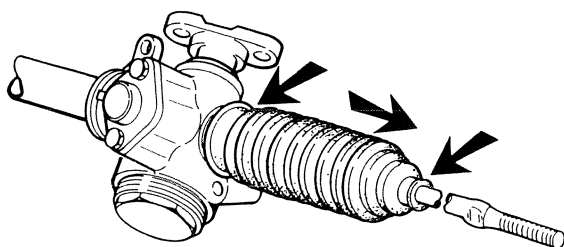
F4

Remove steering rod end

Unscrew the steering rod end from the steering rod.

40 048

F5

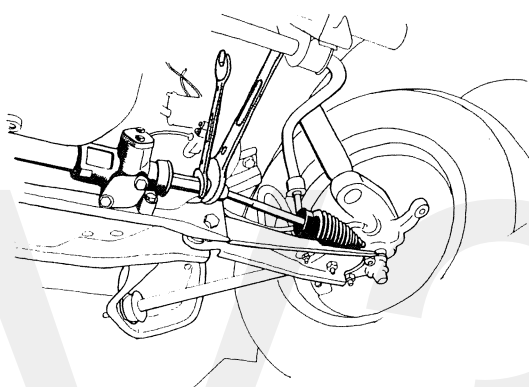


40 069

Remove dust gaiter

Remove the lock nut.
Slacken the two clamps and slide the dust gaiter off the steering rod.

F6

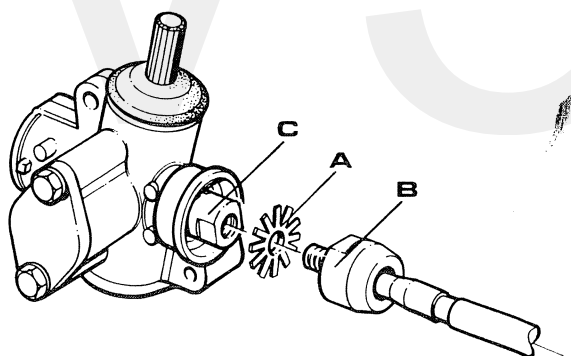


40 050

Renew steering rod

(B14 LHD + B14 RHD up to chassis No. 593524)

Straighten the lips of the lock washer with a chisel and unscrew the steering rod ball joint from the rack.



40 051

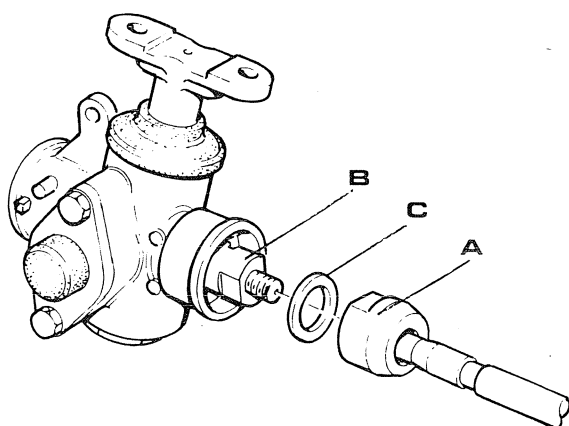
Fit a new lock washer (A) on the steering rod ball joint (B).

Screw the steering rod ball joint into the rack (C) and tighten.

Tightening torque: 85 Nm (8.5 kgm).

Bend the lips of the lock washer (A) on to the flats of the rack (C) and the steering rod ball joint (B).

F7



40 052

Renew steering rod

(B19 + B14 RHD from chassis No. 593524)

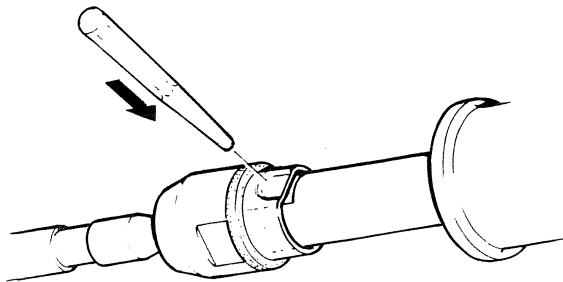
Unscrew the steering rod ball joint (A) from the rack (B).

Remove the rubber stop collar (C).

Fit a new rubber stop collar (C) on the steering rod ball joint (A).

Screw the steering rod ball joint on to the rack (B) and tighten.

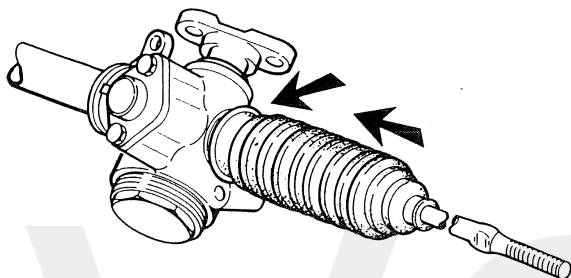
Tightening torque: 85 Nm (8.5 kgm).



40 053

Lock the steering rod ball joint by bending its edge into the front notch of the rack.

Note: in this way a new steering rod can be locked twice.



40 054

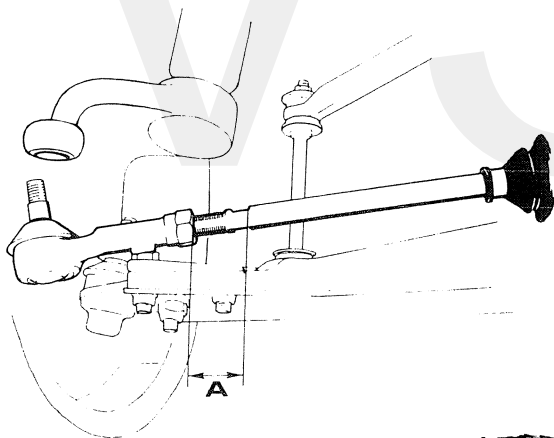
Fit dust gaiter

Check the dust gaiter for cracks; renew if necessary. Coat the steering rod ball joint with Volvo low temperature grease (Part No. 1161001).

Locate the dust gaiter over the steering rod and secure it at the steering housing end by means of the clamp.

(Do not yet tighten the small clamp in connection with toe-in adjustment.)

F8



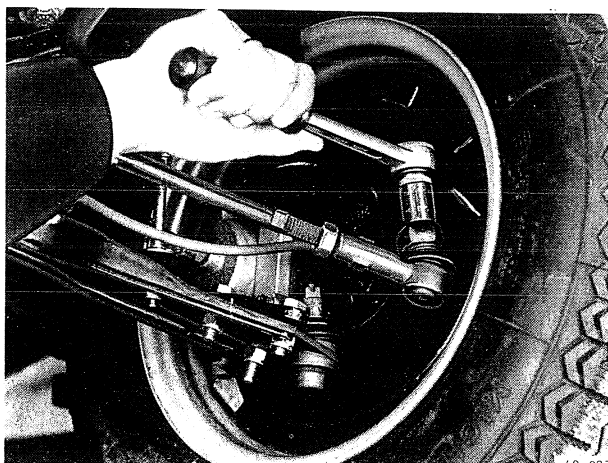
40 055

Secure steering rod end to steering rod

Screw the lock nut and steering rod end onto the steering rod and tighten the lock nut finger-tight in connection with adjustment of toe-in.

Note: the maximum permissible difference in dimension A between the two steering rods is 2 mm.

F9



40 087

Secure steering rod end to steering swivel

Fit and tighten the castle nut.
Tightening torque: 55 Nm (5.5 kgm).
Lock the nut with a new split pin.
Fit the engine splash guard.

F10

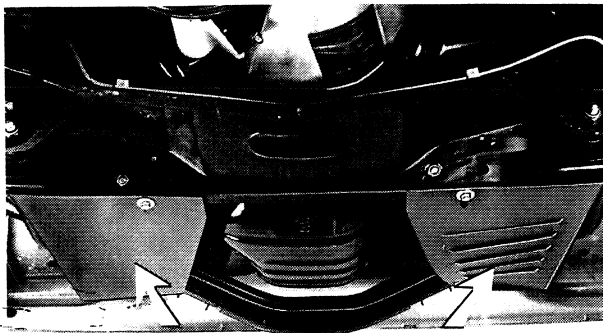
Check toe-in; adjust if necessary

Toe-in: 3-5 mm.
Tighten the lock nut.
Tightening torque: 75 Nm (7.5 kgm).
Tighten the small dust gaiter clamps.

F11

G. Removing the steering housing assembly

Special tool: 5043



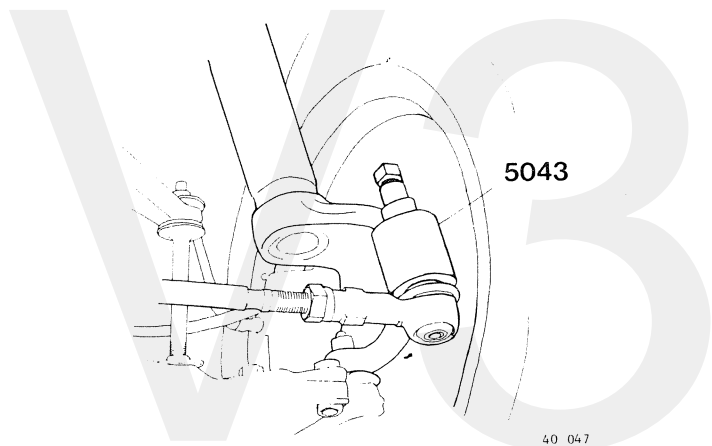
G1

Place wheels in straight ahead position and engage steering lock

G2

Remove both engine splash guards

40 046

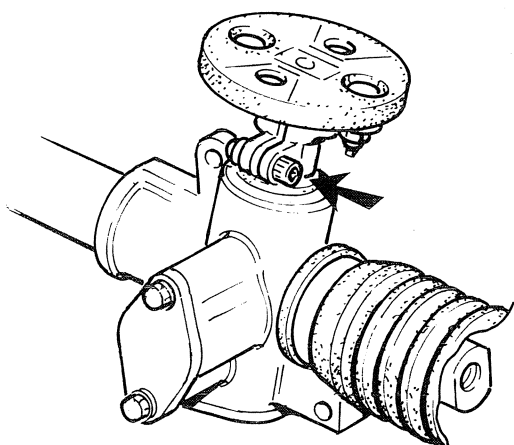


G3

Detach steering rod end from steering swivel

Remove the split pin and castle nut from the steering rod end at both sides and press them free with auxiliary pressing tool 5043.

40 047



G4

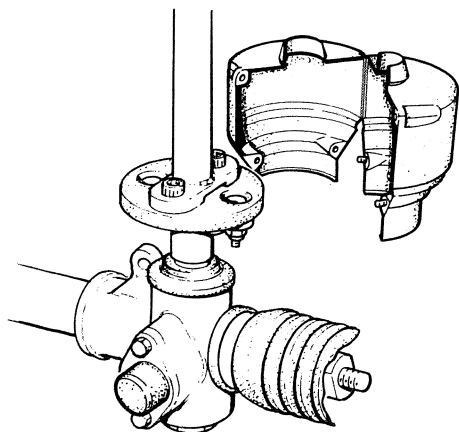
Detach steering shaft from steering housing
(B14 LHD + B14 RHD up to chassis No. 593524)

Remove the guard cap.
Remove the clamping bolt on the vibration damper.

40 091

Group 64 Steering gear

Removing steering housing assembly

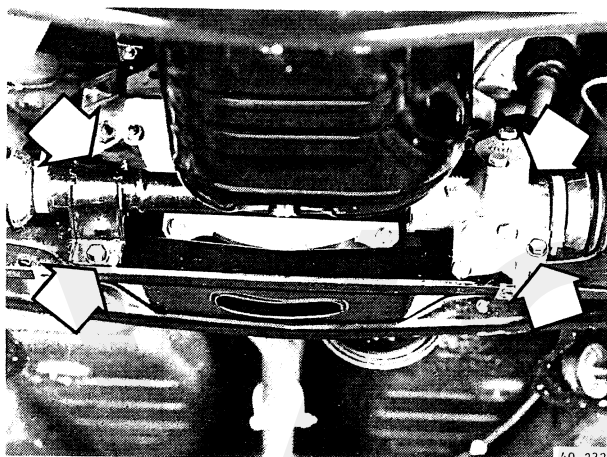


40 088

G5

Detach steering shaft from steering housing (B19 + B14 RHD from chassis No. 593524)

Remove the guard cap.
Remove the two nuts and bolts holding the vibration damper to the pinion shaft.



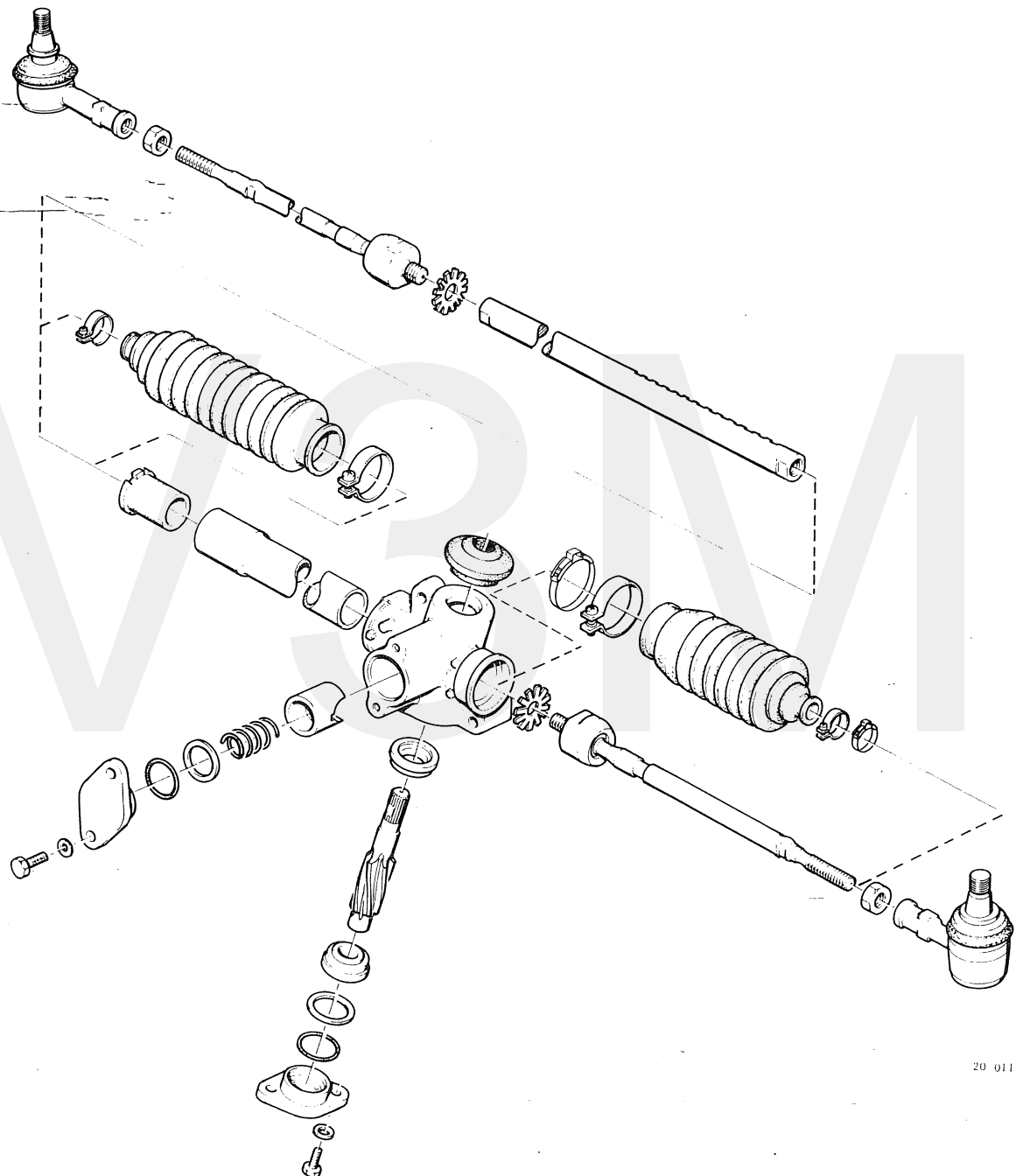
40 232

G6

Remove nuts and bolts holding steering housing to rear engine cross member

Remove the steering housing assembly.
B19: remove heat shield at right.

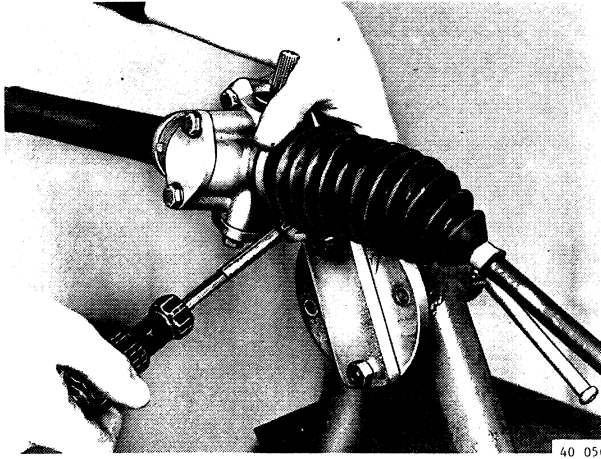
Old variant steering housing



20 011

H. Overhauling the steering housing (B14 LHD + B14 RHD up to chassis No. 593524)

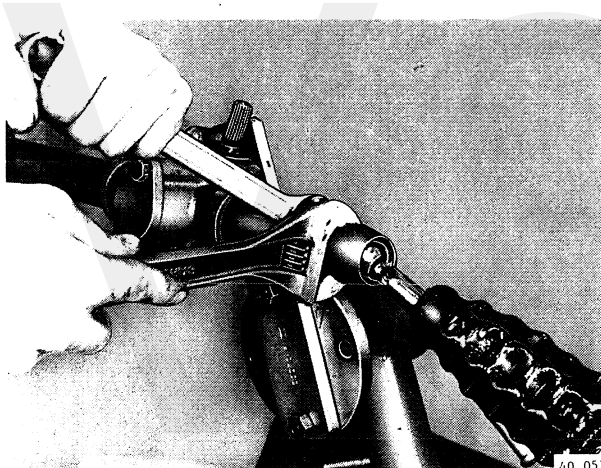
Special tools: 2520, 5046, 5053, 5154, 5864 and 5865.



H1

Fasten steering housing on support

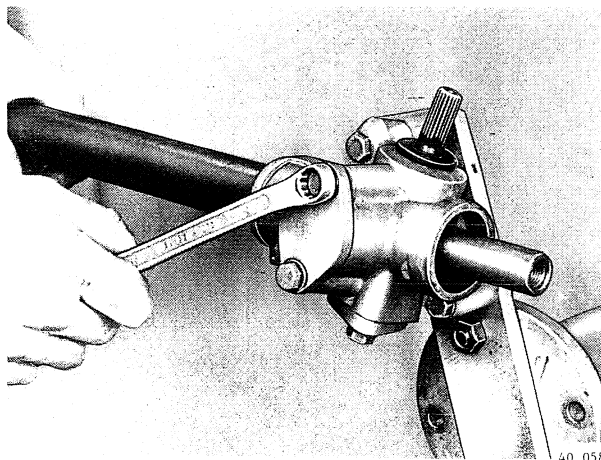
Place support 5046 on universal stand 2520 or 5154.
Fit the steering housing on the support.
Slacken the clamps and slide back the dust gaiter.



H2

Remove steering rods from rack

Straighten the locking plates and unscrew the steering rods from the rack.



H3

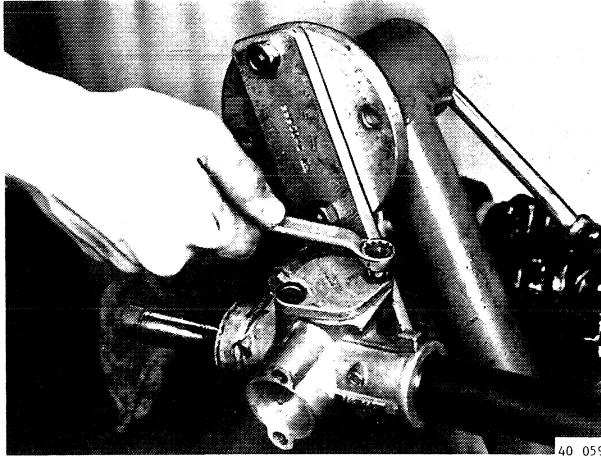
Remove cover at thrust block end

Remove spring, shim(s) and thrust block.
Remove the O-ring from the cover.

H4

Remove cover at pinion shaft end

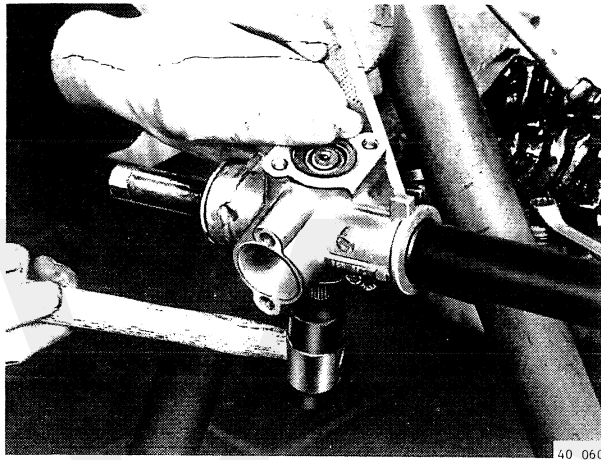
Turn the steering housing through 180° and remove the retaining bolts from the cover.
Take off the cover and remove the O-ring.



H5

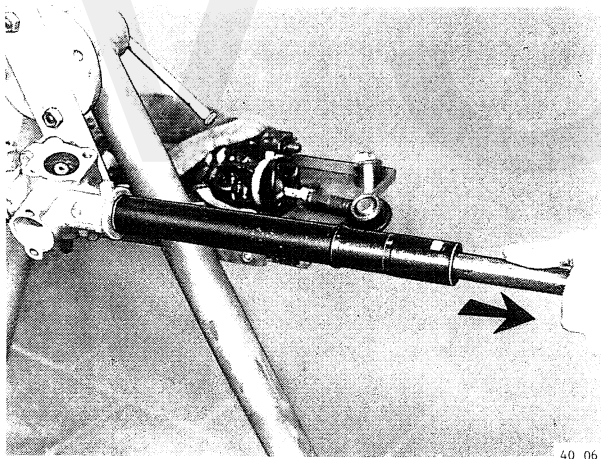
Remove lower bearing cage

Remove the shim(s), bearing cup and bearing cage by tapping the pinion shaft at the splines end with a plastic-tip hammer.



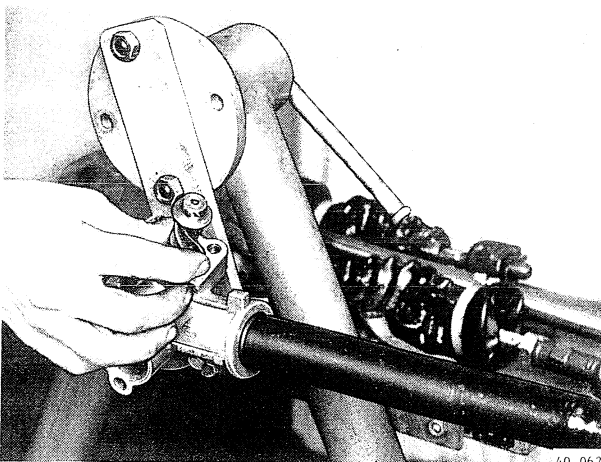
H6

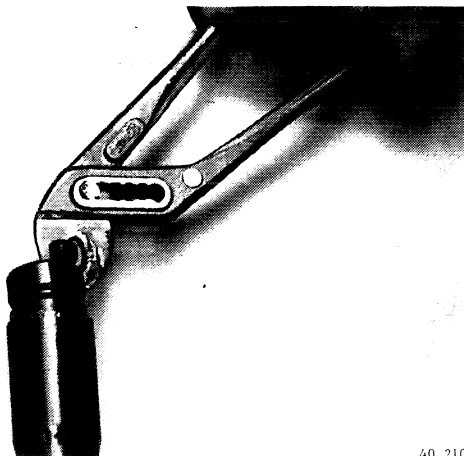
Remove rack



H7

Remove pinion shaft and take out upper bearing cage





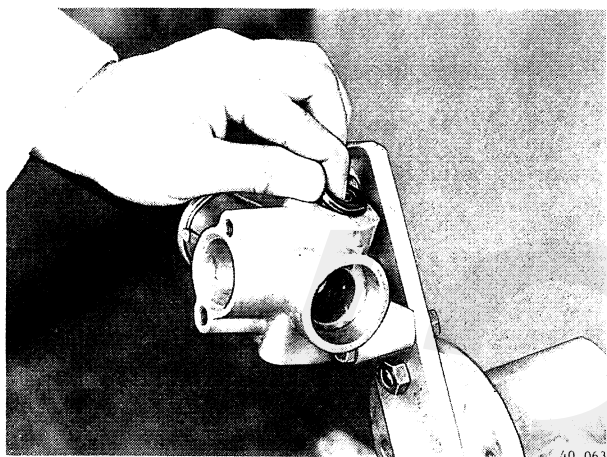
40 210

Remove nylon bush

H8

Turn the steering housing through 90°.

Note: to remove the nylon bush, depress the two locking pawls and extract the bush with a pair of pliers.

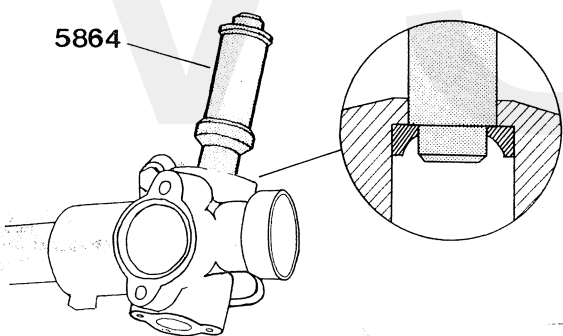


40 063

Remove grease retainer

H9

Turn the steering housing through 90°.

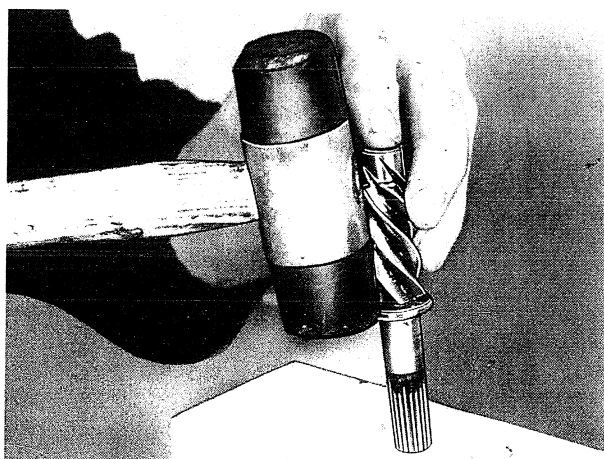


40 064

Remove upper bearing cup

H10

Take the steering housing off the support. Press out the upper bearing cup with drift 5864.



40 065

Remove bearing cups from pinion shaft

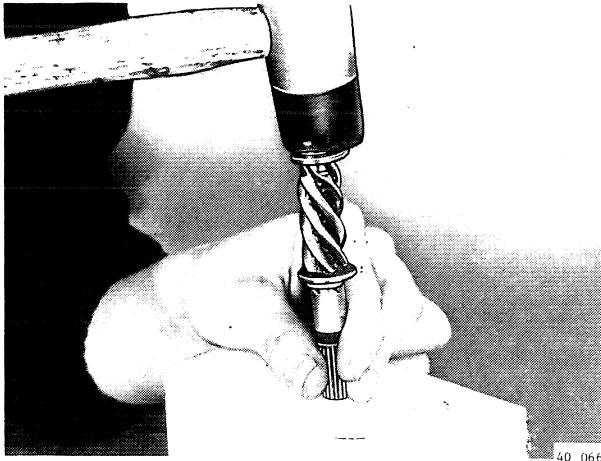
H11

Clean all parts and check for wear.

H12

Fit bearing cups on pinion shaft

Lubricate the bearing cups with Volvo low temperature grease (Part No. 1161001). Tap the bearing cups in position with a plastic-tip hammer.

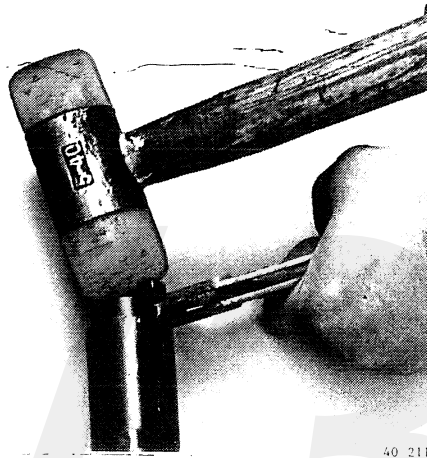


H13

Locate nylon bush

Fit the steering housing on support 5046.

Note: only the latest type of nylon bush may be used.

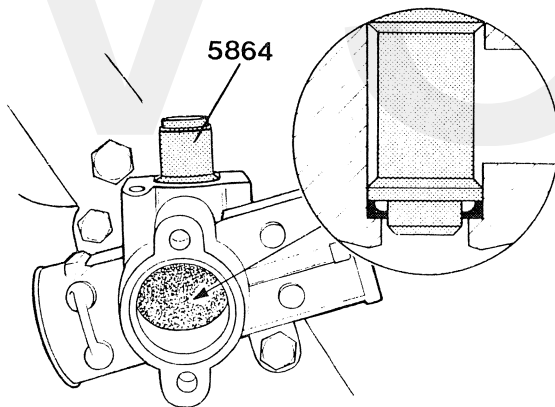


H14

Locate new bearing cup for upper pinion shaft bearing

Press in the bearing cup with drift 5864.

Note: coat the bearing cup seats with Lubrikote type A (Part No. 1161006) before fitting.

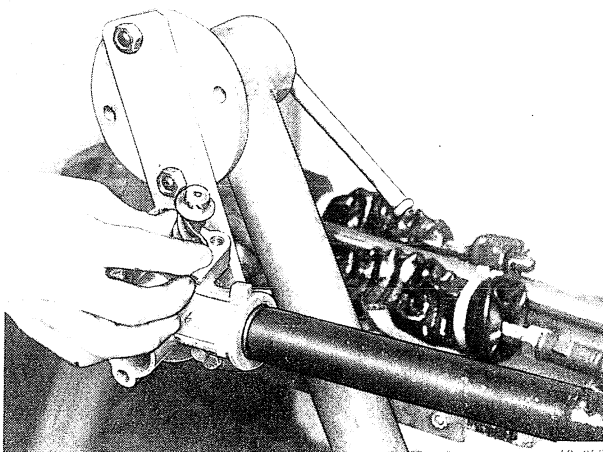


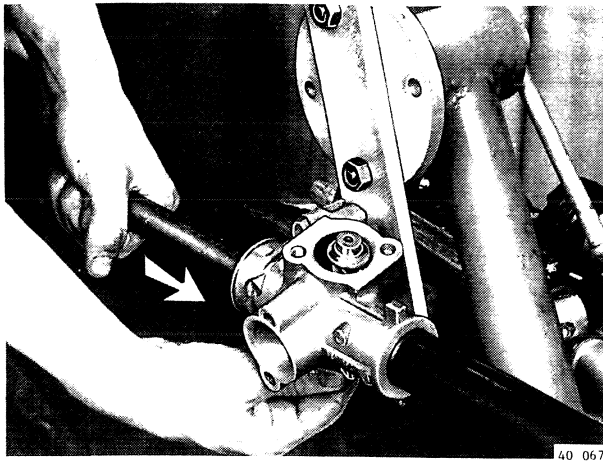
H15

Locate upper bearing cage and pinion shaft

Turn the steering housing through 90°.

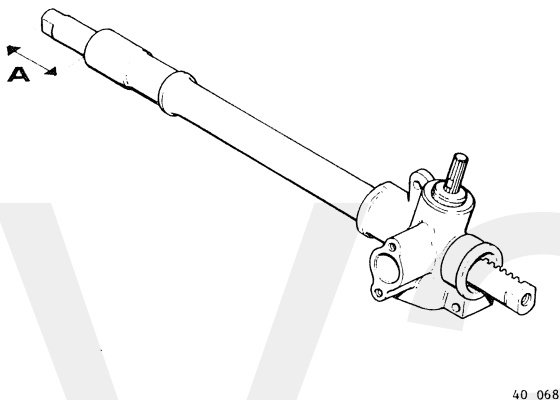
Lubricate the parts with Volvo low temperature grease (Part No. 1161001).





Fit rack

H16



Adjust rack

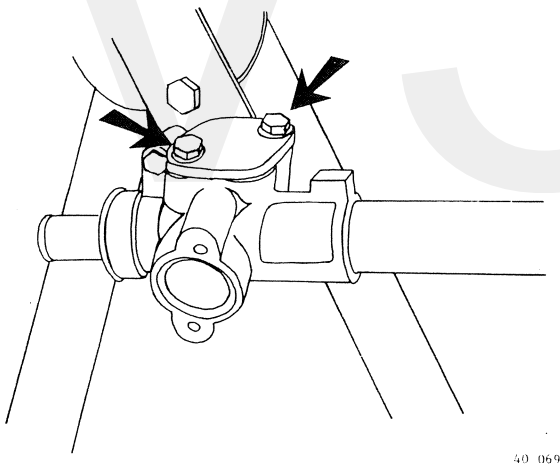
H17

Dimension A should be:

LHD = 71 mm

RHD = 78 mm

Note: the flat surface on the pinion shaft must then be located at the front end of the steering housing.



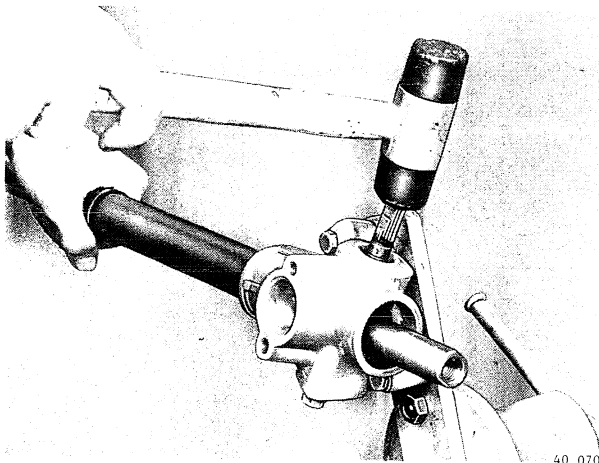
Fit lower bearing and bearing cup

H18

Fit the lower bearing cage.

Fit the upper bearing cup.

Fit the cover at the pinion shaft end and tighten the retaining bolts **evenly** until the cover is correctly seated. Re-check dimension A.



Tap lower bearing cup firmly against cover

H19

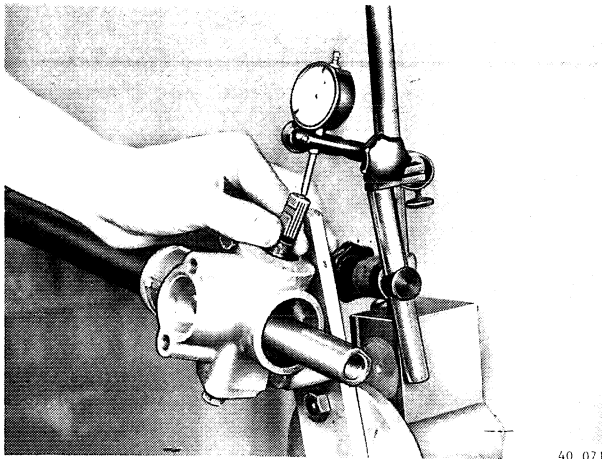
Turn the steering housing through 180°.

Tap the pinion shaft with a plastic-tip hammer.

H20

Measure axial play of pinion shaft

Locate a magnetic holder with clock gauge.
Remove the magnetic holder after measuring.

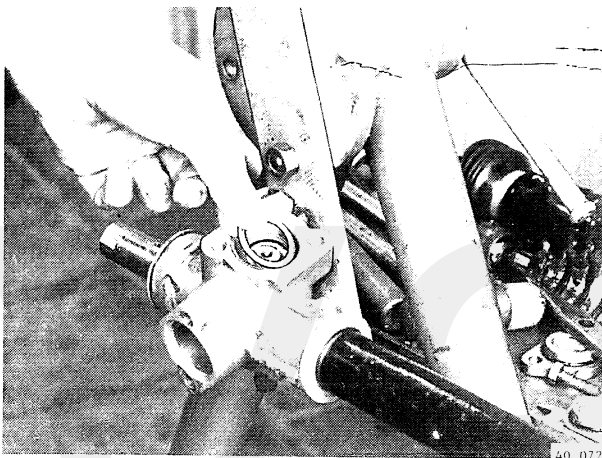


40 071

H21

Fit cover with shim(s)

Turn the steering housing through 180°. Remove the cover and fit a set of shims with a total thickness which ultimately results in an end float of + 0.04 to - 0.07 mm. Fit the cover together with a new O-ring. Tightening torque: 22 Nm (2.2 kgm).

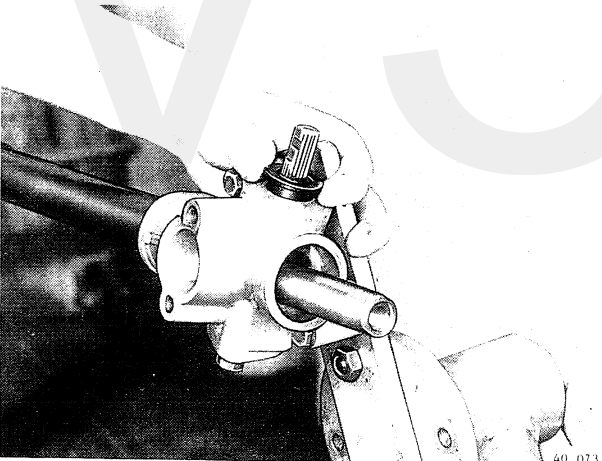


40 072

H22

Fit pinion shaft grease retainer

Turn the steering housing through 180°. **Note:** always use the latest type pinion shaft grease retainer. Up to chassis No. 384506 this grease retainer must be fitted together with a steel clamping ring. Lower chassis numbers have a steering housing with an unmachined (i.e. convex) mating face for the pinion shaft grease retainer. After this chassis No. the cars have a steering housing with a machined (i.e. flat) mating face for the pinion shaft grease retainer. If the steel ring is fitted it should be pressed down firmly.

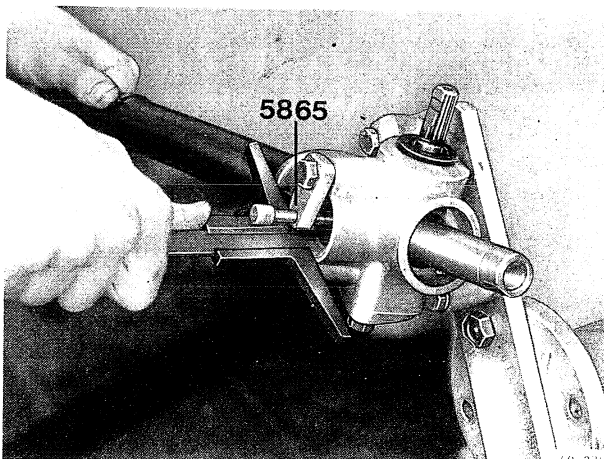


40 073

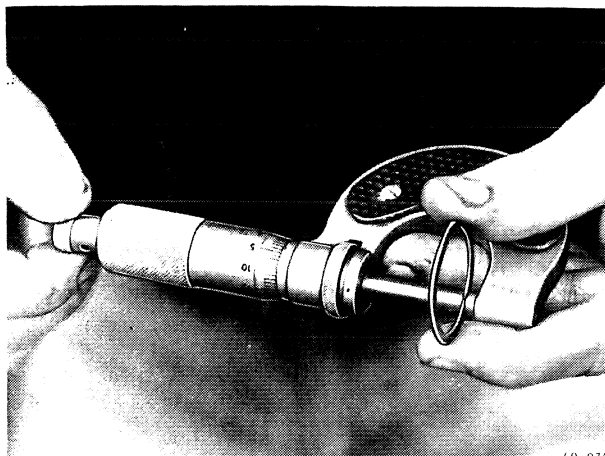
H23

Measure thrust block clearance

Locate the thrust block and fit auxiliary tool 5865. Now use a depth gauge to measure the distance between the mating face of the cover and the top of the thrust block. **Note:** make sure that the thrust block is firmly pressed against the rack.



40 230



40 074

H24

Calculate shim thickness

Use a depth gauge to measure the shoulder height of the cover.

Now assemble a set of shims with a total thickness which is equal to the difference between the two measurements – 0.2 mm + 0.08 mm.

In this way the desired clearance of 0.2 ± 0.08 mm is obtained.

H25

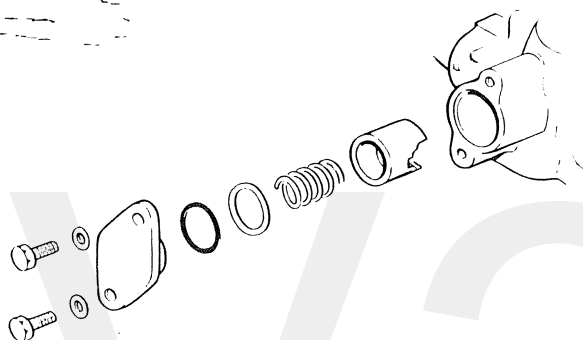
Fit thrust block, spring and shim(s).

Remove the auxiliary tool 5865 and the thrust block. Pack the steering housing with 50 cc Volvo low temperature grease (Part No. 1161001).

Note: when doing this, make sure that only the latest type of spring is used.

Fit the cover with a new O-ring.

Tighten to 22 Nm (2.2 kgm).



40 075

H26

Measure turning moment of pinion shaft.

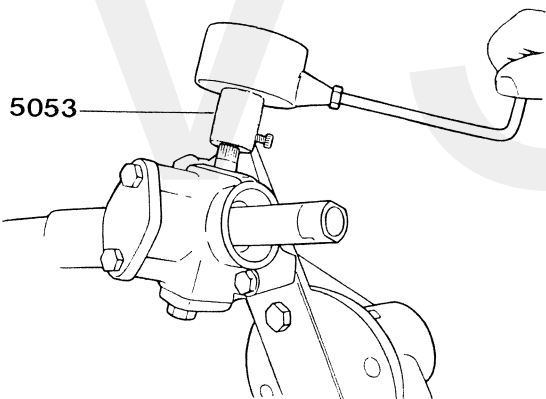
Fit adapter 5053 on the pinion shaft.

Move the rack twice over its entire length from one extreme to the other.

Fit a torque meter on the adapter and measure the turning moment over the entire length of the rack.

This turning moment must not exceed 1.5 Nm (0.15 kgm) at any point.

Remove the torque meter and adapter 5053.



40 092

H27

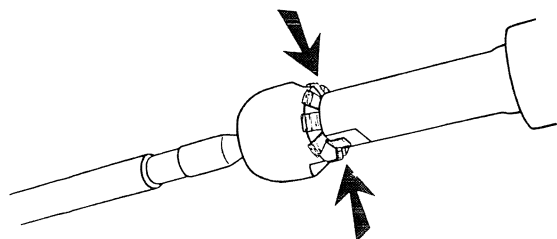
Fit steering rods to rack and lock with new locking plates

Lubricate the steering rod ball joints with Volvo low temperature grease (Part No. 1161001).

Tightening torque: 85 Nm (8.5 kgm).

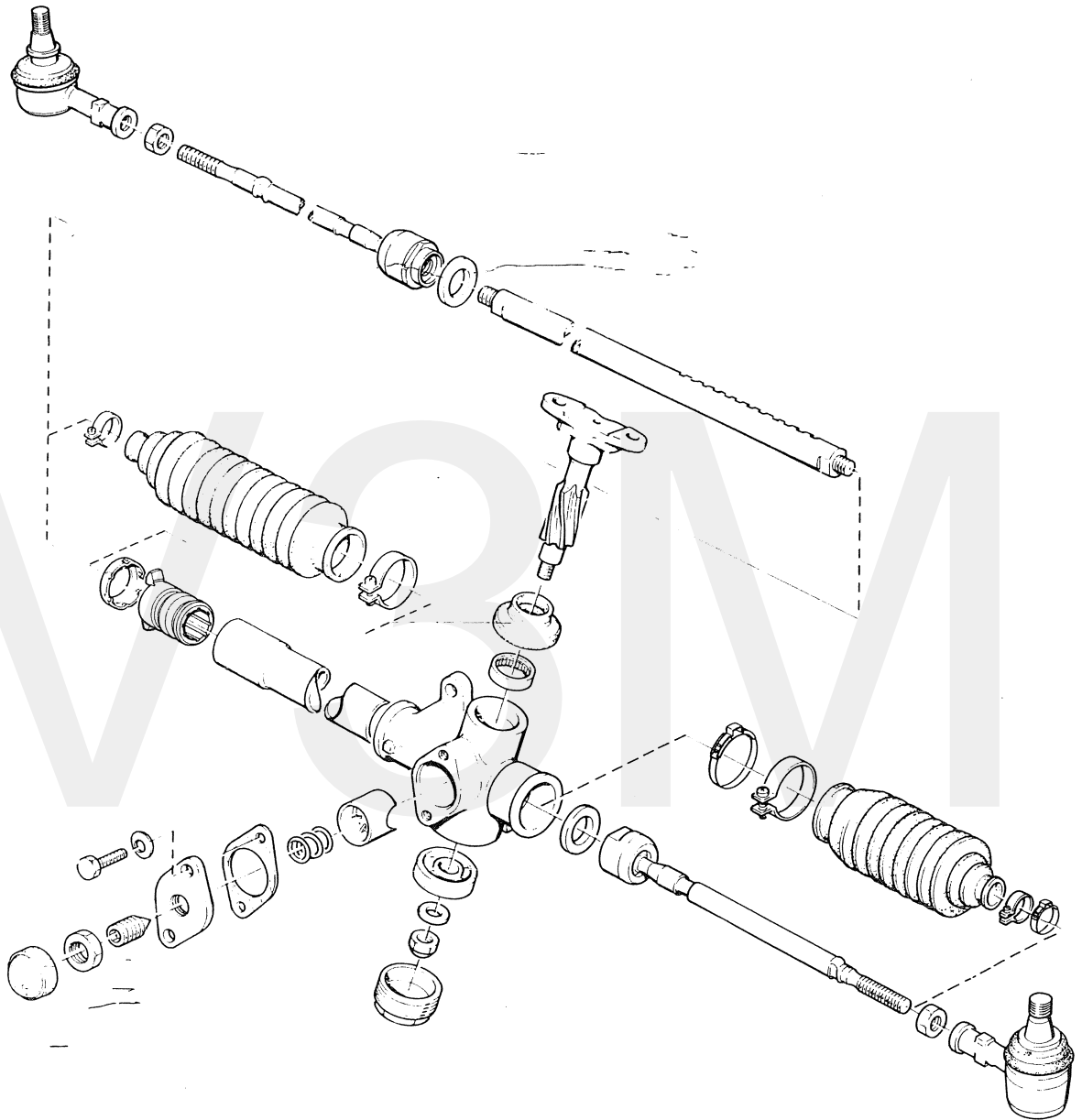
Locate the dust gaiters and clamps and tighten the big clamps.

Remove the steering housing from support 5046.



40 076

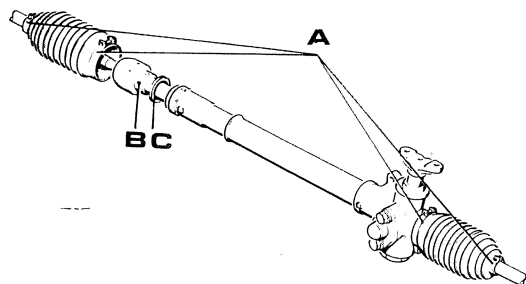
New variant steering housing



20 010

J. Overhauling the steering housing (B19 + B14 RHD from chassis No. 593524)

Special tools: 2520 or 5145, 4090, 5027, 5046, 5048, 5051, 5065 and 5098



J1

Remove steering rod assemblies from steering housing

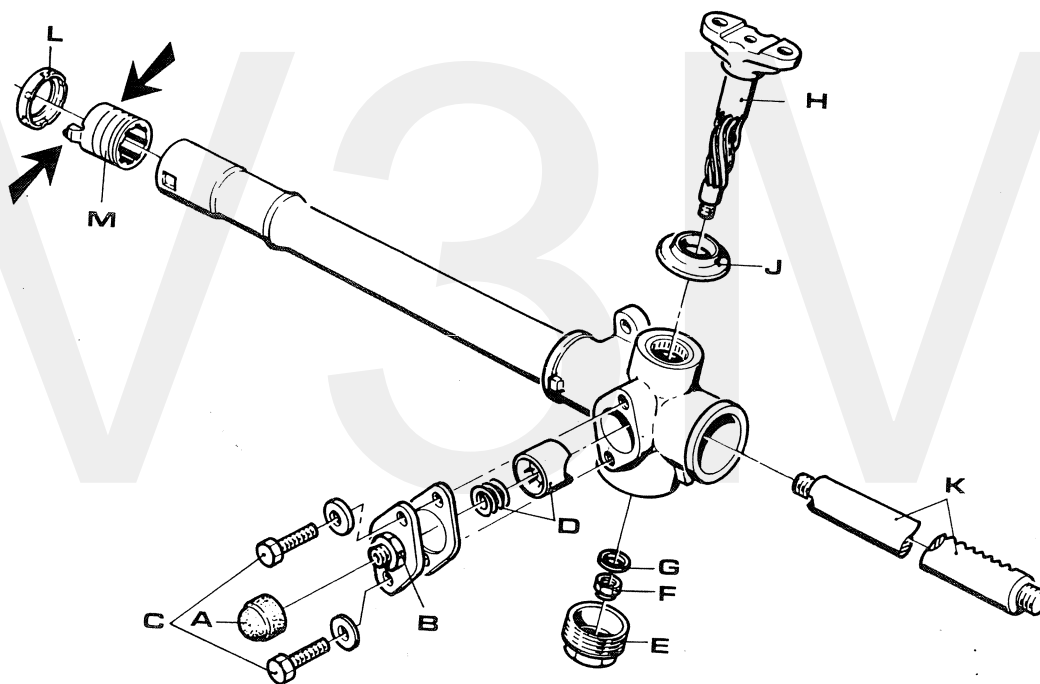
Fit support 5046 to universal stand 2520 or 5145.

Fit the steering housing on the support.

Unscrew the clamps and slide back the dust gaiters (A).

Unscrew the steering rod ball joints (B) at both sides and remove the rubber stop collars (C).

30 046



30 045

J2

Disassemble steering housing unit

Remove the guard cap (A).

Slacken the lock nut (B) and unscrew the adjustment bolt a few turns.

Remove the two bolts (C) with the cover and gasket.

Remove the spring and thrust block (D).

Remove the big retaining nut (E).

Remove the self-locking nut (F) and washer (G) from the pinion shaft.

Tap the pinion shaft (H) out of the steering housing with a plastic-tip hammer.

(Make sure that the rack is not damaged).

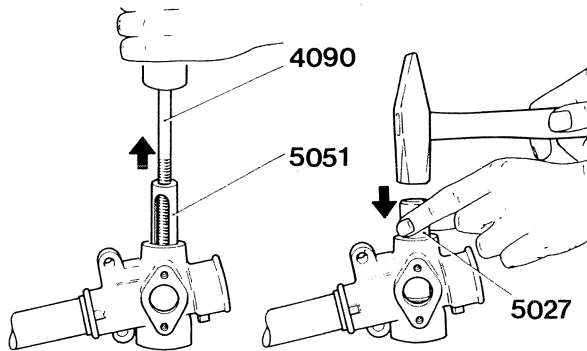
Remove the dust seal (J) from the pinion shaft.

Remove the rack (K).

Remove the steel stop collar (L) from the steering housing pipe.

Squeeze the two lugs of the bush (M) in the pipe towards each other and remove the bush from the steering housing.

J3



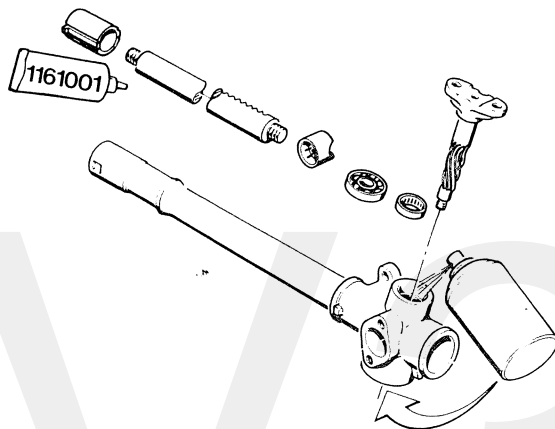
Remove needle bearing and ball bearing from steering housing

Needle bearing: use extractor 4090 and auxiliary tool 5051.

Ball bearing: use drift 5027.

40 077

J4



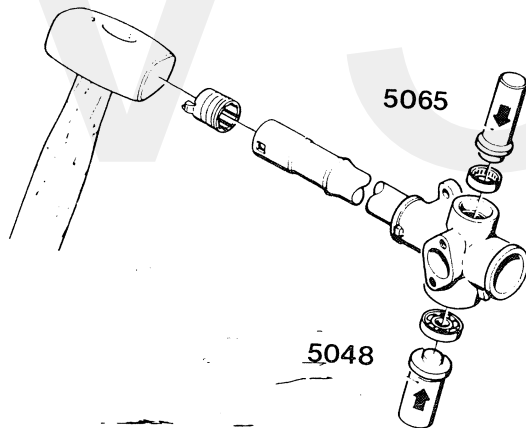
Clean, check and grease parts

Clean all parts and check them for wear.
Renew as necessary.

Coat the pinion shaft, bearings, bush and rack with Volvo low temperature grease (Part No. 1161001).
Coat the bearing seats of the steering housing with Lubrikote type A (Part No. 1161006).

40 078

J5



Fit needle bearing, ball bearing and bush

Fit the bearings:

Needle bearing: use drift 5065.

Ball bearing: use drift 5048.

Note: make sure that the bearings are not thrown out of alignment when fitting.

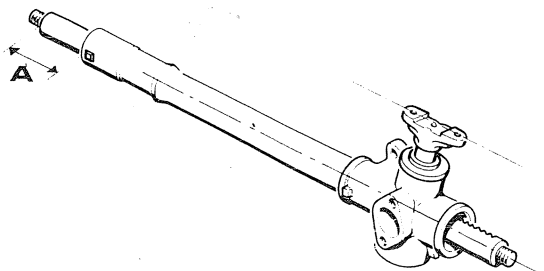
Tap the bush into the steering housing pipe up to the lugs.

Use a plastic-tip hammer.

Squeeze the lugs (A) towards each other and insert the bush further in the pipe until the lugs engage the recesses.

40 079

J6



Locate rack and fit pinion shaft

Locate the rack in the steering housing.

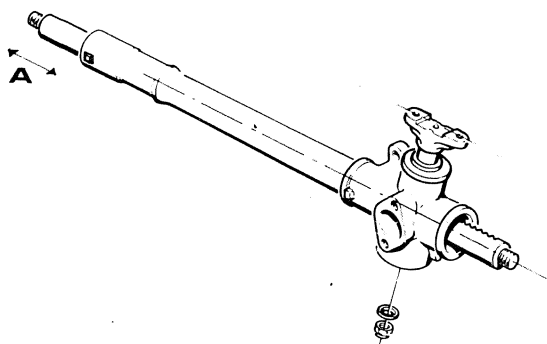
Dimension A must be **66 mm** with the LHD variant and **73 mm** with the RHD variant.

Fit a new seal on the pinion shaft.

Lubricate the seal with Volvo low temperature grease (Part No. 1161001) before fitting.

Now press the pinion shaft into the steering housing with a rotating motion.

40 080



40 080

Check

Locate the flange of the pinion shaft parallel to the steering housing pipe.

Dimension A must **not** deviate from the abovementioned dimensions.

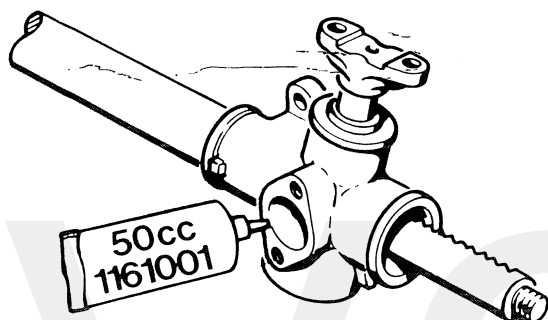
Locate the washer and fit a **new** self-locking nut.

Tightening torque: 25 Nm (2.5 kgm).

J7

Pack steering housing with grease

Pack the steering housing with 50 cc Volvo low temperature grease (Part No. 1161001) through the thrust block opening.



40 081

J8

Fit thrust block, spring and cover

Lubricate the parts with Volvo low temperature grease (Part No. 1161001) before fitting.

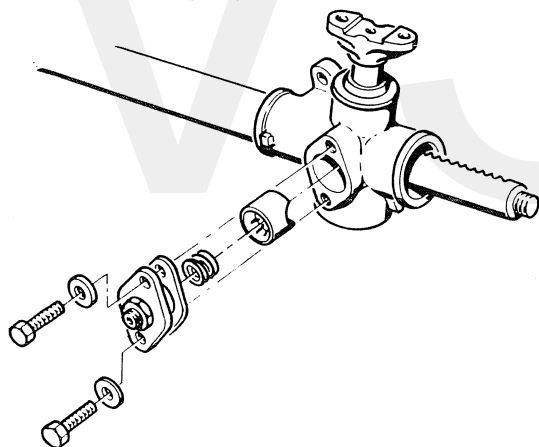
Locate the thrust block and spring in the steering housing.

Make sure that the thrust block is pressed firmly against the rack.

Fit the cover with a new gasket.

Tighten the cover.

Tighten to 22 Nm (2.2 kgm).



40 082

J9

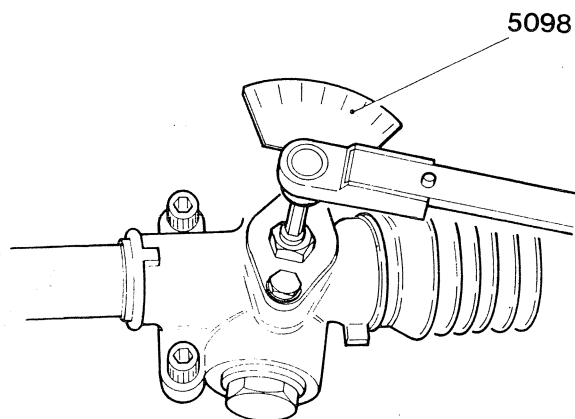
Adjust thrust block clearance

Find the point of most resistance on the pinion shaft with the aid of a torque meter.

Fit protractor **5098** on a torque wrench.

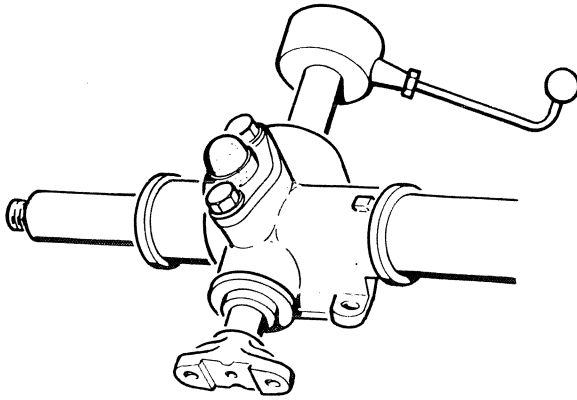
Tighten the adjustment bolt to 2.3 Nm (0.23 kgm) and then slacken it 20°.

Tighten the lock nut and fit the guard cap.



40 083

J10



Check

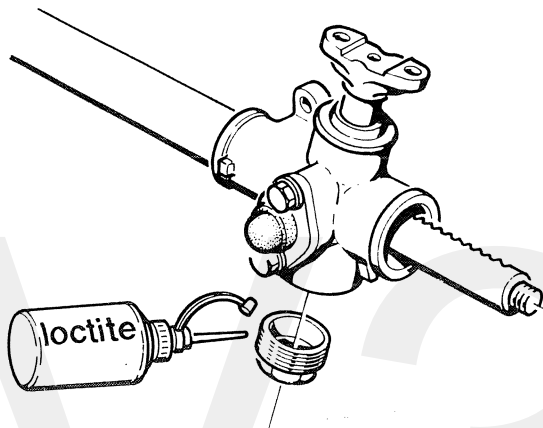
Move the rack twice over its entire length from one extreme to the other.
Place a torque meter on the lock nut of the pinion shaft and measure the turning moment over the entire length of the rack.
At no point may this turning moment be greater than 1.5 Nm (0.15 kgm).

10 084

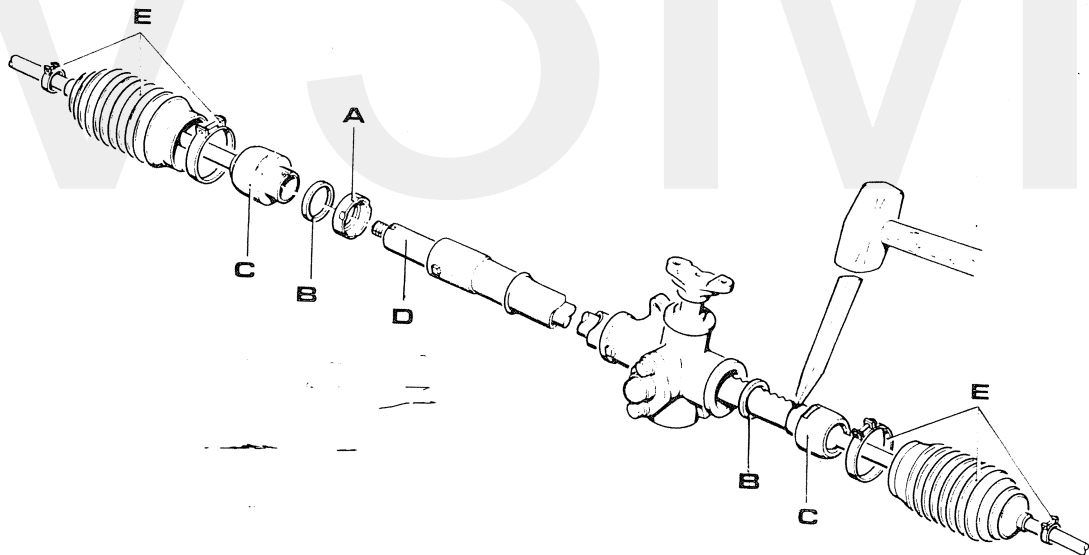
J11

Fit retaining nut

Coat the retaining nut with a few drops of Loctite 242 (Part No. 1161053).
Tighten the retaining nut.
Tightening torque: 25 Nm (2.5 kgm).



10 085



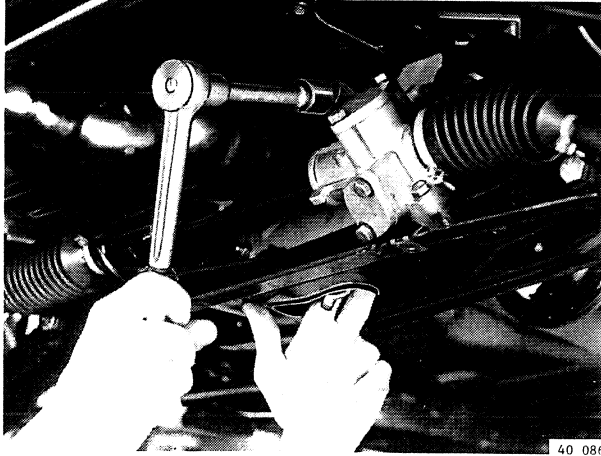
20 009

J12

Fit steering rods to rack

Locate the steel stop collar (A) on the steering housing pipe.
Locate the rubber stop collars (B) on the steering rod ball joints (C).
Screw the steering rod ball joints (C) onto the rack (D) and tighten.
Tightening torque: 85 Nm (8.5 kgm).
Lock both steering rod ball joints.
When fitting a new steering rod for the first time it must be locked at one side only.
In this way a new steering rod can be used twice.
Locate the dust gaiters and clamps (E) and tighten the big clamps.

K. Installing the steering housing assembly



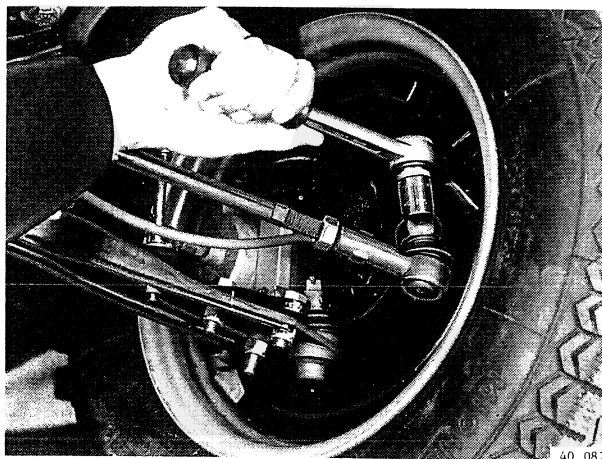
K1

Locate steering housing under car and tighten retaining bolts

B19: fit heat shield at right.

Note: B14 LHD and B14 RHD up to chassis No. 593524.

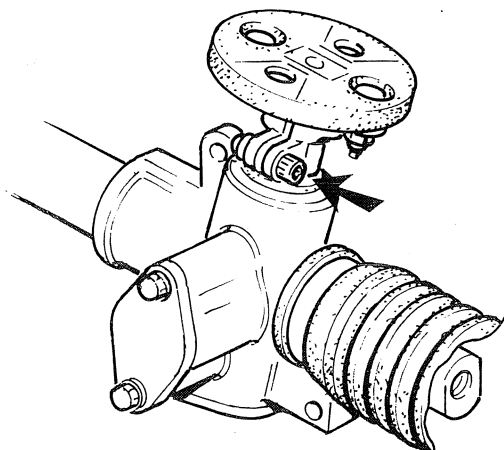
When fitting the steering housing locate the pinion shaft in the vibration damper clamp.
(Take note of the flat side when fitting the bolt.)



K2

Secure steering rod ends to steering swivel

Fit and tighten the castle nut at both sides.
Tightening torque: 55 Nm (5.5 kgm).
Lock each castle nut with a new split pin.



K3

Secure steering shaft to steering housing

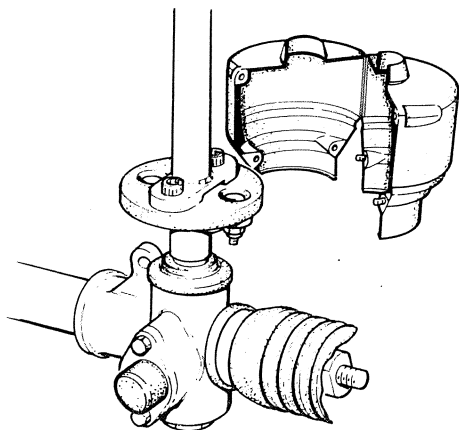
(B14 LHD + B14 RHD up to chassis number 593524)

Locate the vibration damper on the pinion shaft.
Fit and tighten the vibration damper clamping bolt.
Tightening torque: 22 Nm (2.2 kgm).
Fit the guard cap.
Fit the engine splash guards.

K4

Secure steering shaft to steering housing
(B19 + B14 RHD from chassis No. 593524)

Secure the vibration damper to the steering housing with the nuts and bolts.
Fit the guard cap.
Fit the engine splash guards.



40 088

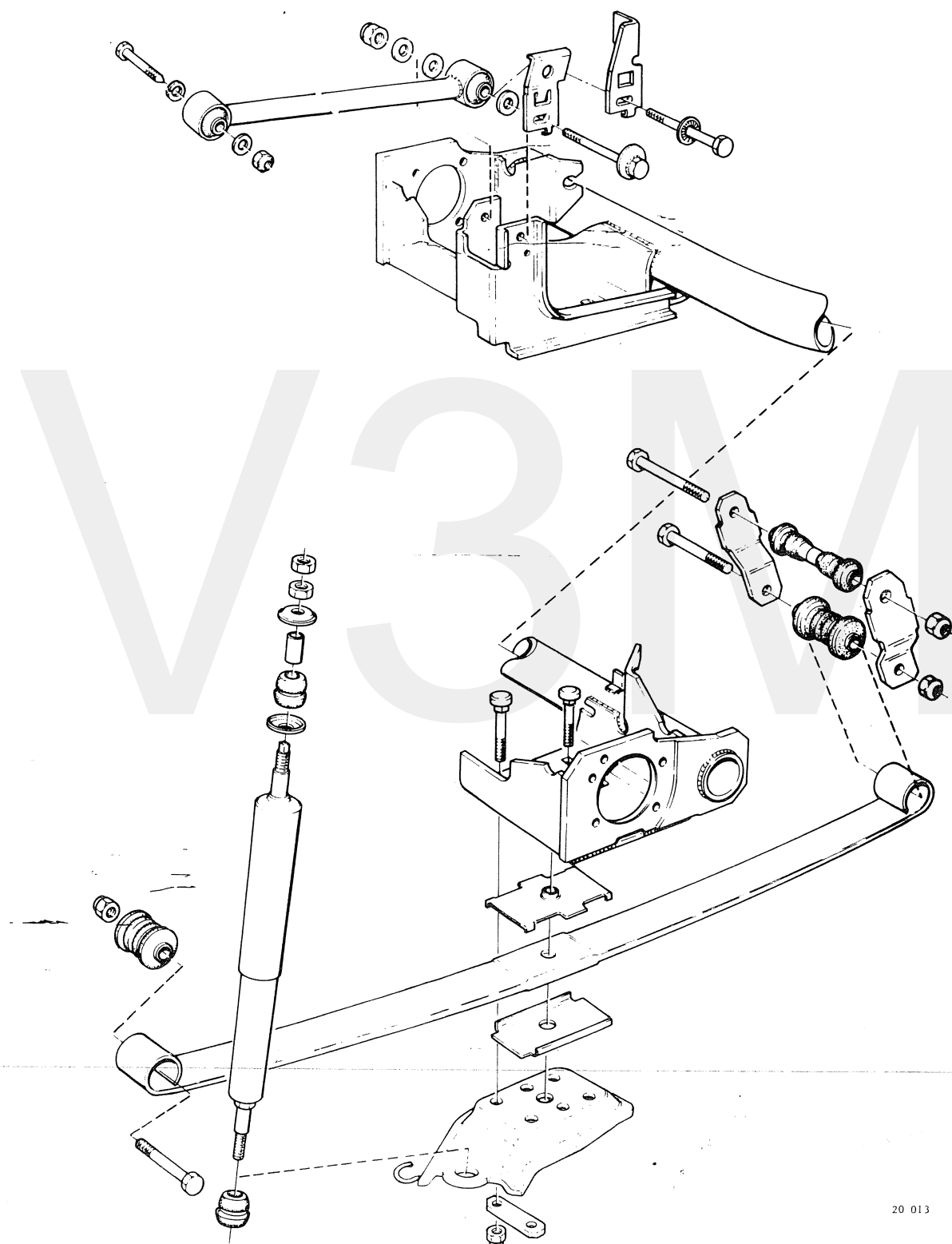
Check toe-in; adjust if necessary

K5

Toe-in: 3-5 mm.

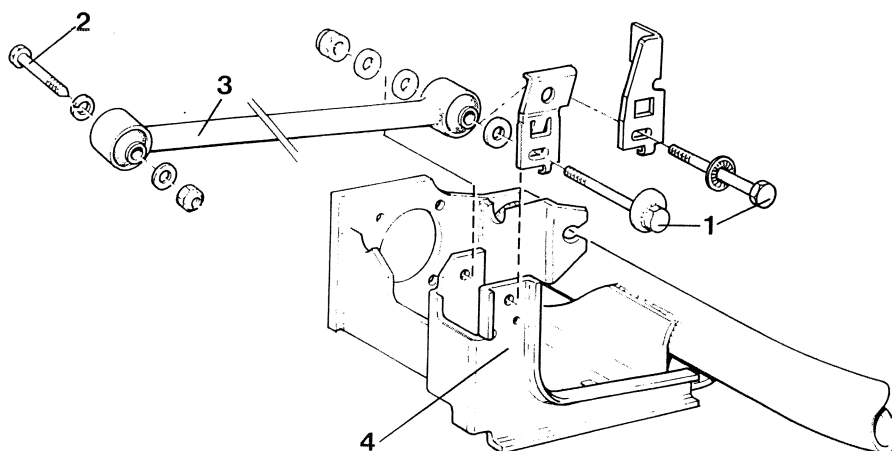
V3M

GROUP 65 REAR SUSPENSION



20 013

L. Renewing the reaction rod

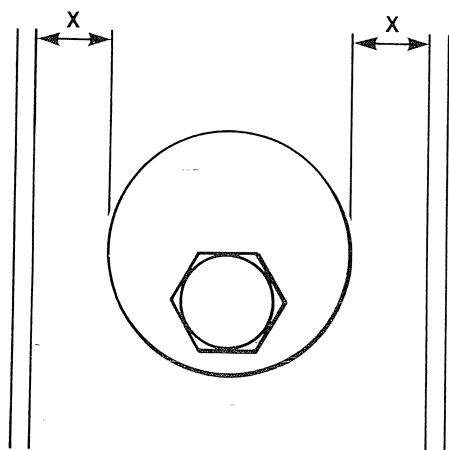


Remove reaction rod

Remove the retaining bolt (1) from the reaction rod (3) on the rear axle (4).
Release the reaction rod-body attachment (2).

Secure reaction rod at front

Locate the reaction rod.
Tighten the front retaining bolt (2) on the body.
Tightening torque: 53 Nm (5.3 kgm).



Secure reaction rod at rear

Variant with eccentric adjustment bolt:

Fit the adjustment bolt and washers and locate them so that the eccentric disc of the retaining bolt is located centrally in the bracket.
For this purpose the two dimensions "X" must be equal.

Tighten the retaining bolt.
Tightening torque: 53 Nm (5.3 kgm).

Variant with elongated hole in bracket on rear axle

Make sure that the retaining bolt can move freely.
Locate the retaining bolt and tighten.
Tightening torque: 53 Nm (5.3 kgm).

Note: make sure that the bracket for the brake hose is in the correct position.

40 089

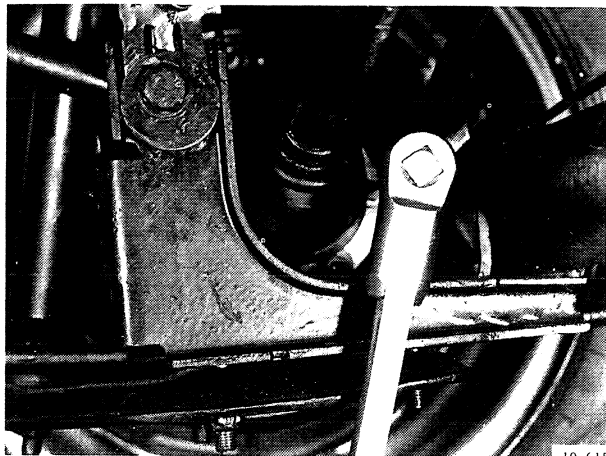
L1

L2

L3

M. Renewing the rear axle

Special tools: 5893 and 5947



10 615

M1

Detach drive shafts from wheels

Remove the inhex bolts on the axle shaft at both sides.
Suspend the drive shafts from the rear cross member.

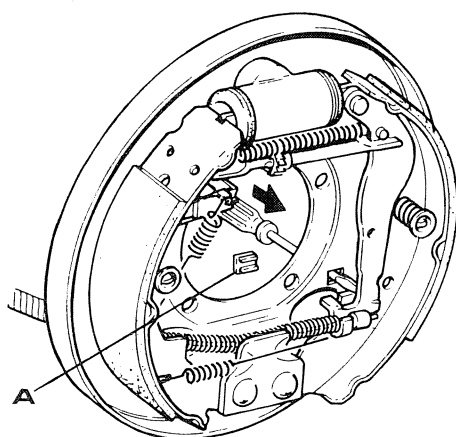


10 604

M2

Remove brake drums (B14)

Remove the wheels.
Tap the brake drum free from its mating surface.
If necessary: slacken the handbrake cable at the handbrake and press the handbrake lever away from the backplate.
Remove the nylon stop.

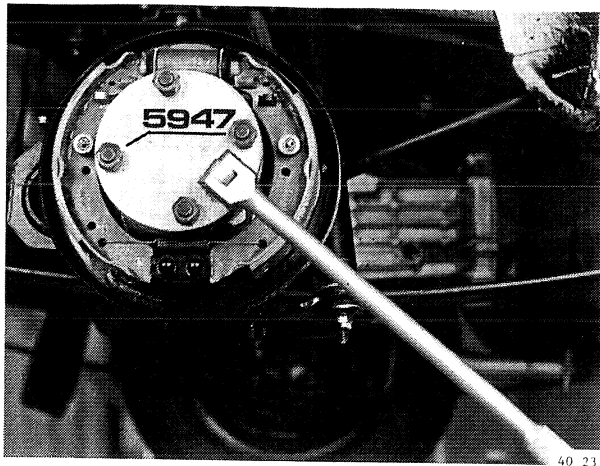


10 512

M3

Remove brake drums (B19)

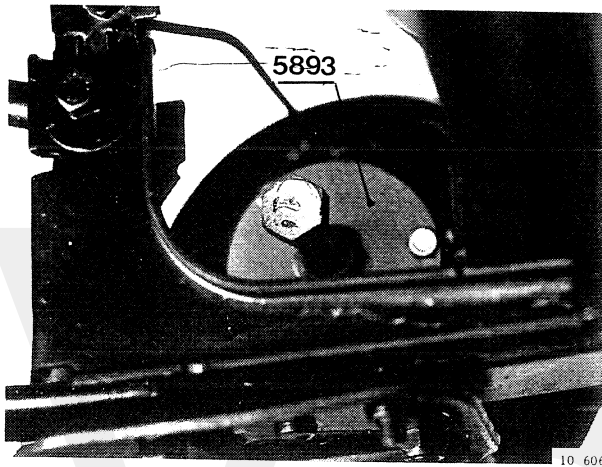
If the brake drums will not release:
slacken the handbrake.
Remove the plastic plug (A) at both sides from the rear of the backplate.
Insert a screwdriver in the hole now uncovered and press firmly against the rear of the handbrake lever until it slips over the brake shoe.
The brake drums can now be removed.



Remove axle shaft nut

M4

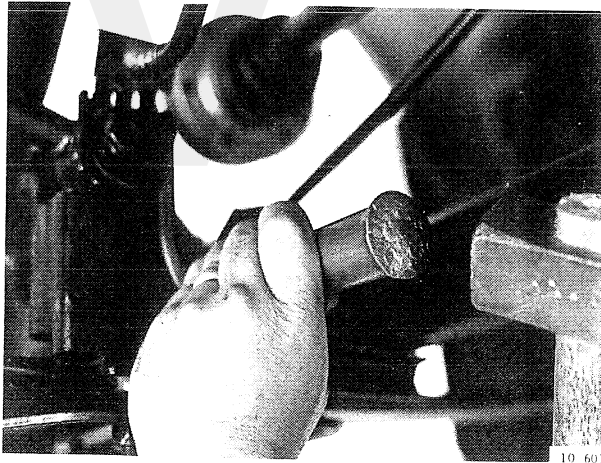
Prevent the axle shaft from turning with the aid of counterhold 5947.



Remove companion flange

M5

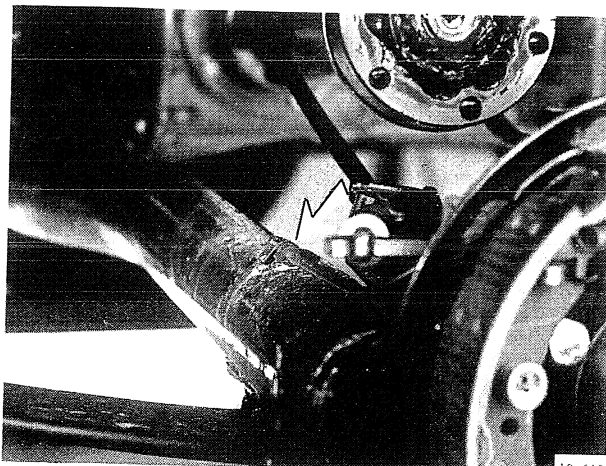
Use extractor 5893.
Remove counterhold 5947.



Remove axle shafts

M6

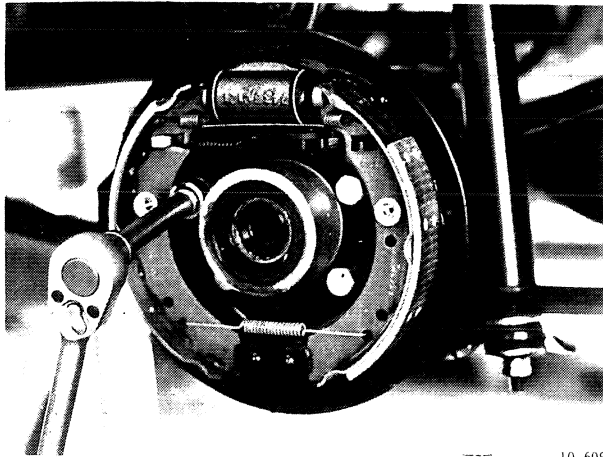
Use a copper drift.
Note - B19: one bearing cup remains in place on the axle shaft.



Detach brake line from rear axle

M7

Straighten the brake line clips on the rear axle.

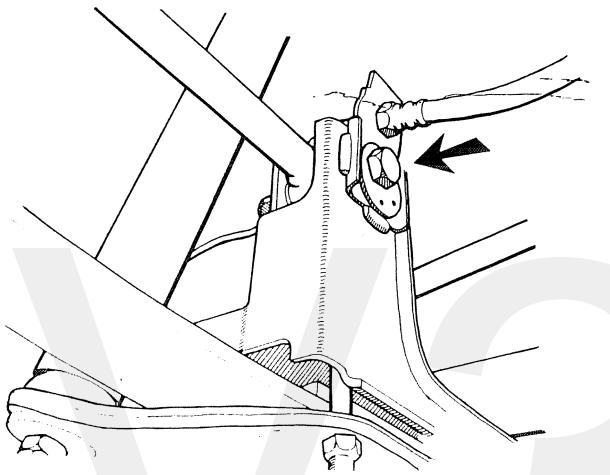


10 609

M8

Remove brake backplates and take out bearing housings

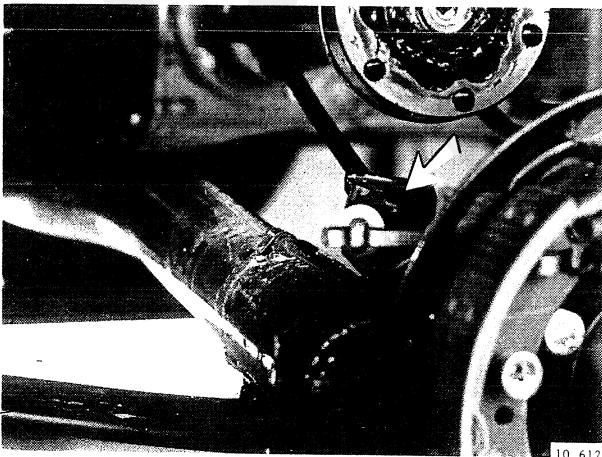
Remove the retaining bolts from the brake backplates.



M9

Detach reaction rod from rear axle

Remove the retaining bolt from the reaction rod on the rear axle.



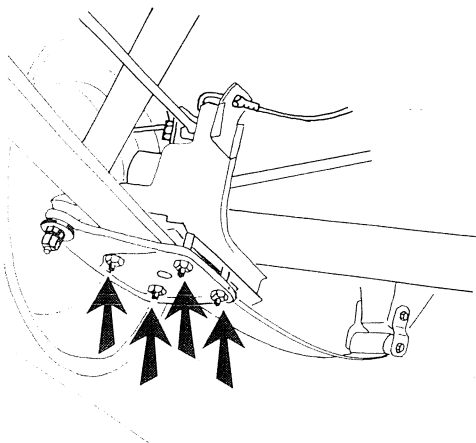
10 612

M10

Release handbrake cable attachment

B14: remove the mounting clip from the handbrake cable bracket on the rear axle and release the cable from the rear axle.

B19: lift the handbrake cable out of the clips on the fuel tank mounting straps.



40 027

M11

Renew rear axle

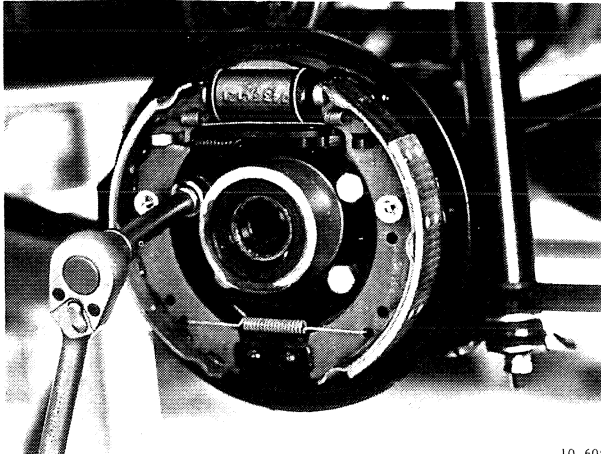
Remove the retaining nuts from the lower spring anchor plates.

Remove the rear axle.

Locate the new rear axle.

Fit and tighten the retaining nuts of the lower spring anchor plates.

Tighten to **52 Nm** (5.2 kgm).

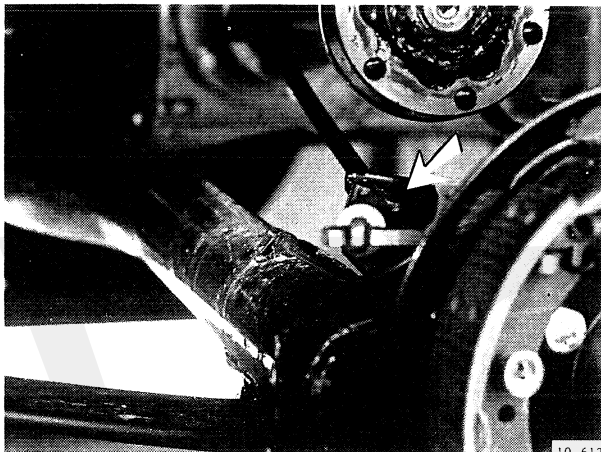


10 609

M12

Fit bearing housing and brake backplate

Tighten the brake backplate retaining bolts.
Tighten to 52 Nm (5.2 kgm).



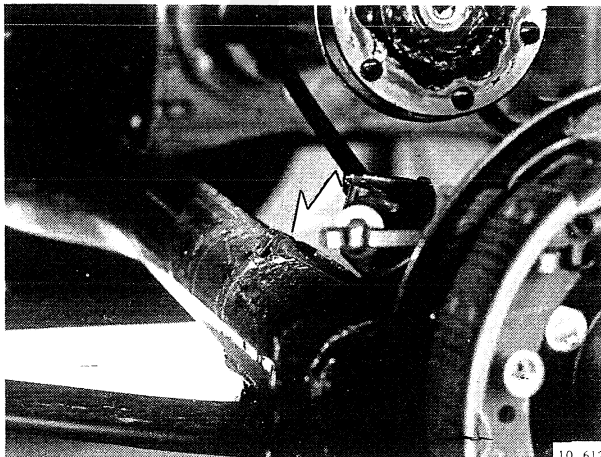
10 612

M13

Tighten handbrake cable attachment

B14: locate the handbrake cable in the bracket on the rear axle and fit the mounting clip.

B19: locate the handbrake cable in the clips on the fuel tank mounting straps.



10 612

M14

Secure brake line to rear axle

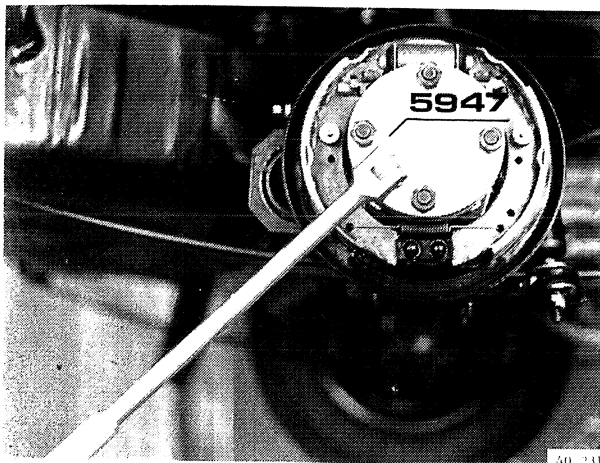
Locate the brake line in the clips on the rear axle and close the clips.

Note: make sure that the grommets are properly located in the clips and that the brake line lies clear of the rear axle after fitting.

M15

Secure reaction rod to rear axle

(See "renewing reaction rod", page 43, L3).



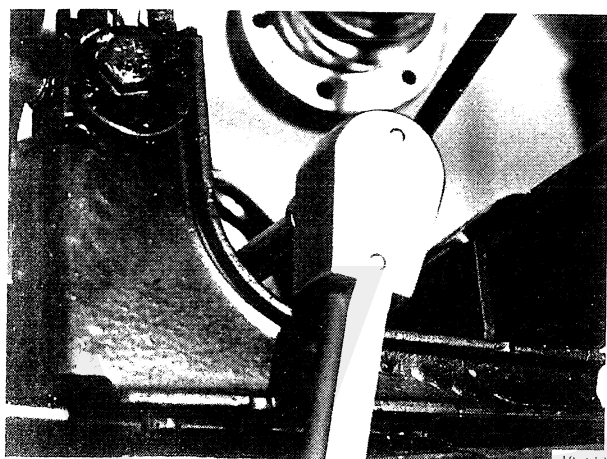
Fit axle shafts

M16

Use a copper mallet.

Fit the counterhold 5947.

Note - B19: make sure that the seal is not damaged when fitting the axle shaft and that the inner race of the inner bearing cannot come loose.



Fit companion flanges

M17

Lightly coat the following parts with Loctite 270 (Part No. 1161075):

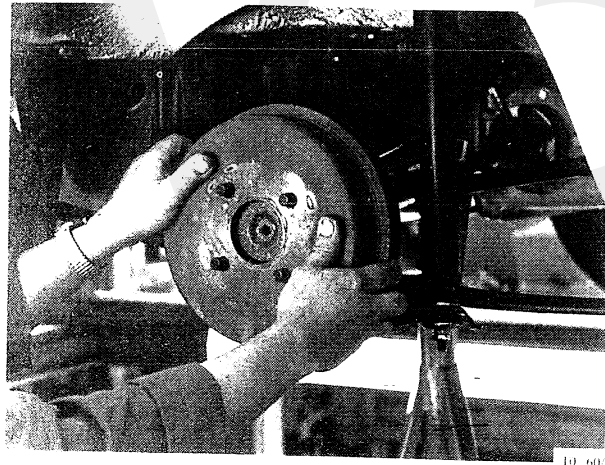
- splines of companion flanges
- screw thread of the axle shaft nut (B14 only).

Fit the companion flanges and tighten the axle shaft nuts.

Always use a new axle shaft nut for the B19.

Tighten to **245 Nm** (24.5 kgm) on the B14; **220 Nm** (22.0 kgm) for the B19.

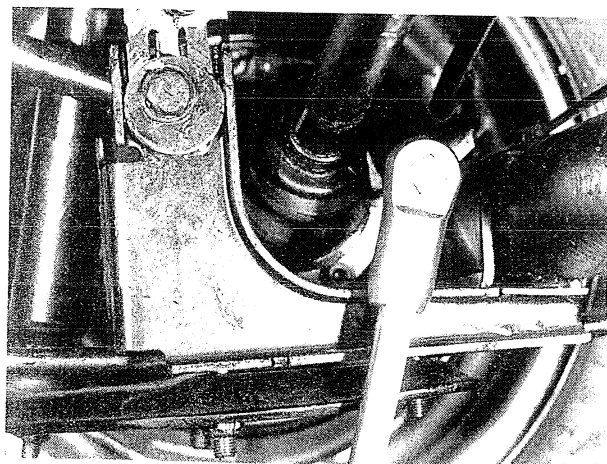
Note: hardening time of Loctite 270 is 30-60 minutes.



Fit brake drums

M18

If removed, insert the plastic plug in the rear of the backplate (B19) and the nylon stop (B14).



Secure drive shafts to wheels

M19

Fit a new gasket on the flange (if used).

Fit the inhex bolts.

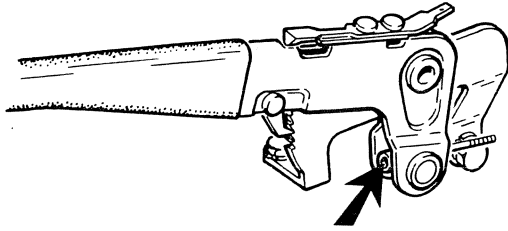
Tighten to **40 Nm** (4.0 kgm).

Note: on the B19 clean the inhex bolts and lightly coat them with Loctite 242 (Part No. 1161053).

Fit the wheels.

Tightening torque: **115 Nm** (11.5 kgm).

M20



Adjust handbrake if necessary

B14: adjust the handbrake with the adjusting nut on the handbrake lever.

Free travel is 3 or 4 notches on the rack.

B19: adjust the handbrake with the adjusting bolt on the handbrake lever.

Free travel is 5 to 7 notches on the rack.

Check the working of the handbrake.

10 511

N. Removing/installing the rear wheel bearing housing

N1

This is done by following the same method as that for renewing the rear axle, jobs M1-M8, M12, M14, M16-M20, except that this is only done on the side of the car where the bearing housing has to be removed.

Note: if a new rear wheel bearing also has to be fitted on the B19 variant, the old bearing cup has to be removed from the axle shaft.

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V3M

V3M