

**STEERING
STEERING THE RODS
REMOVING - REFITTING****TO FIT**

- Assemble the steering tie rod.
- Set the steering tie rod length, fig. I.

Dimension a = 322 mm

WARNING - We recommended that this initial adjustment is carried out to that the steering lock angles are the same on each side.

- Tighten the lock nut finger tight, for the moment.

- Fit the steering tie rod to the rack, fig. II.

- Lock the ball joint casing, fig. IV, by peening the tab provided for this purpose into the slot machined in the rack.

- Fit the ball joint boot and its two rubber rings at the steering ball joint end.

- Fit the boot retaining clip at the steering rack end.

- Tighten the ball joint casing, fig. III, at the rack end, to torque of 6 m.daN (60 Nm, 44 lbf ft), using spanner 8.0708.

Pages

A - COMPLETE UNIT

Identification - data

Steering, identification - data

A1.001 to 003

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Removing - refitting the steering rack

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C - STEERING COLUMN LOCK

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C4.001 to 005

D - STEERING RACK

Overhaul

Overhauling the steering rack

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E - STEERING TIE-RODS

Removing - refitting

Removing - refitting the steering tie-rods
(steering rack removed).

E4.001 to 007


STEERING COMPLETE ASSEMBLY IDENTIFICATION - DATA

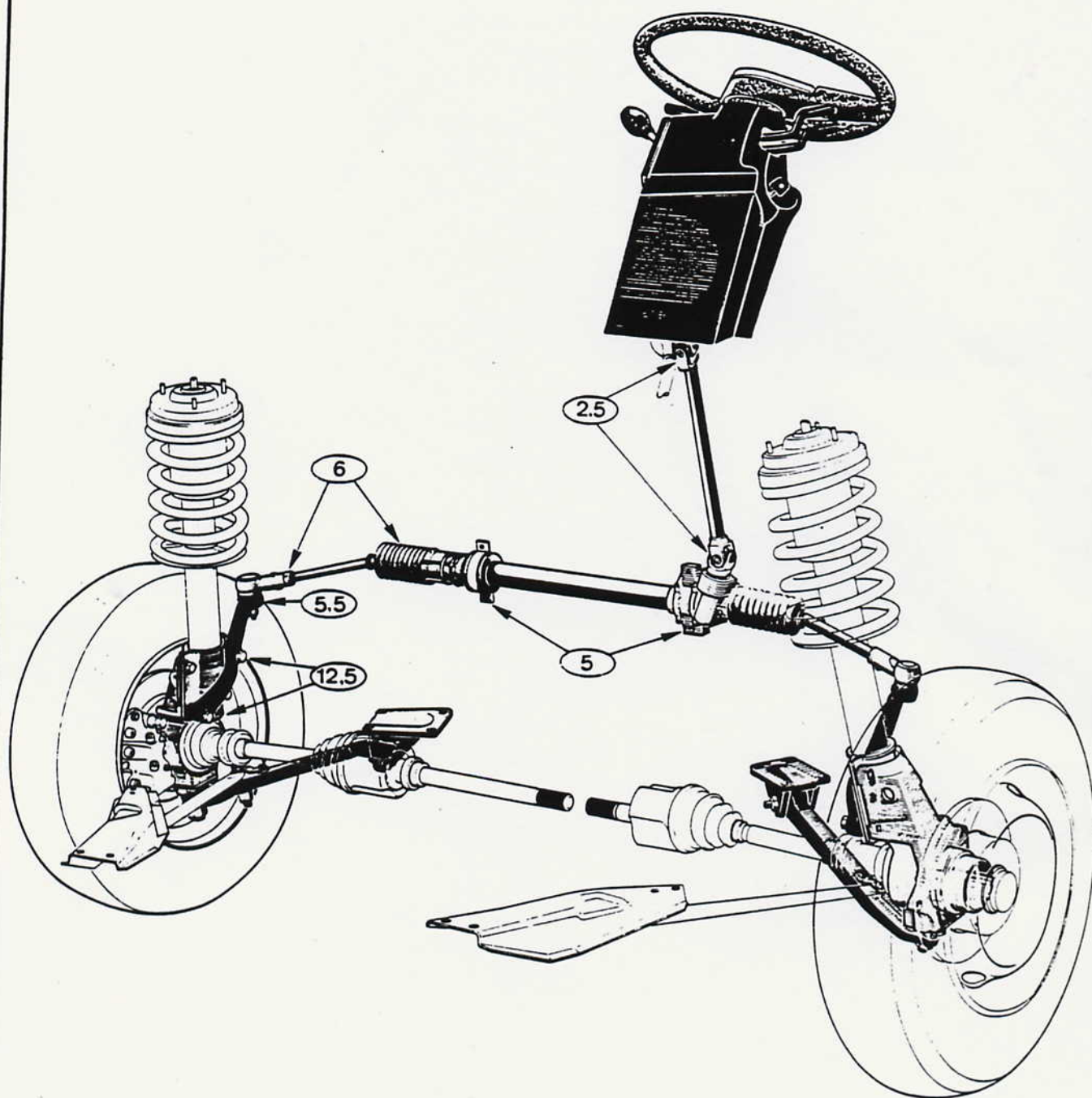
DATA

Diameter of steering wheel	430 mm
Number of turns, stop to stop	4 turns 4/10
Upper universal joint	with double spline
Inner universal joint	54 splines*
Number of pinion teeth	5 ▲▲
Number of rack teeth	25 ▲▲
Damper clearance	see section D2, xxx
Reduction ratio	25,2 : 1
Grease, grade	KLUBER AKCS no routine lubrication

* See removing - refitting the steering rack.

TIGHTENING TORQUES

	m.daN	lbf ft
Steering wheel to upper shaft	5	37
Damper lock nut	6	44
Steering column housing to body	4	30
Other torques	see  fig. 1	
	2,5	18
	12,5	92



STEERING
RACK ASSEMBLY
REMOVING - REFITTING

SPECIAL TOOLS

Fig. A :

– 8.0709 :

Extractor for ball joint at the wheel end.

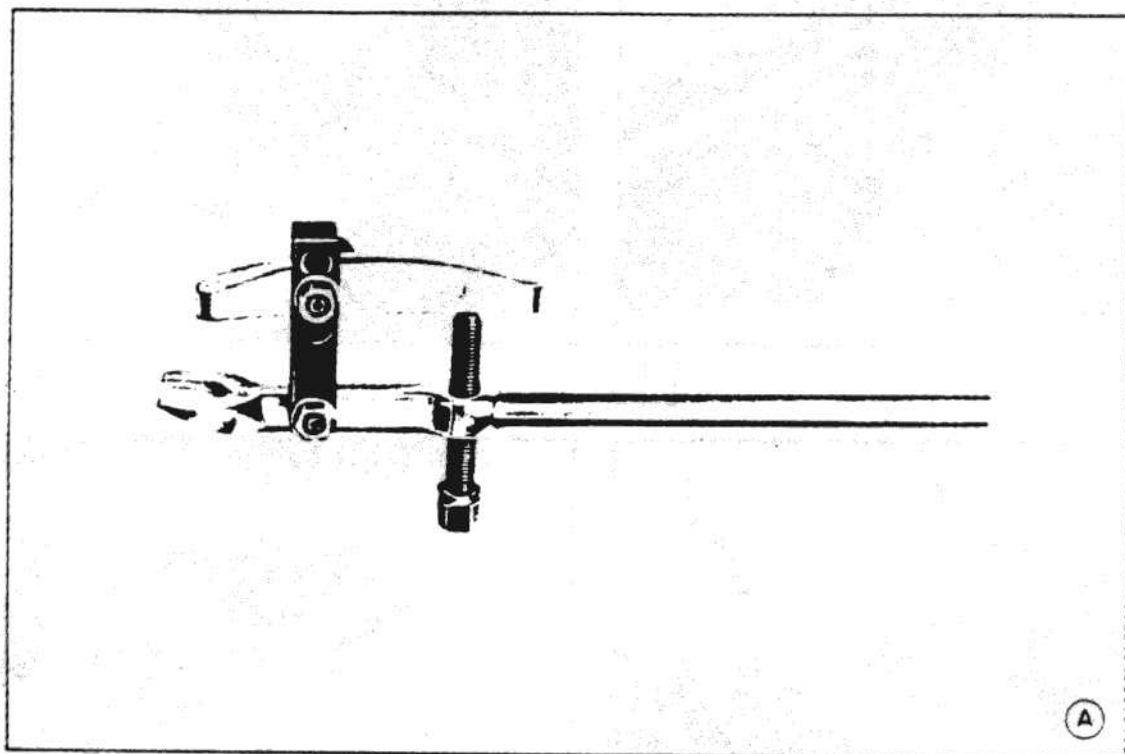
MAIN TIGHTENING TORQUES

Ball joint shank nut on the steering arm :

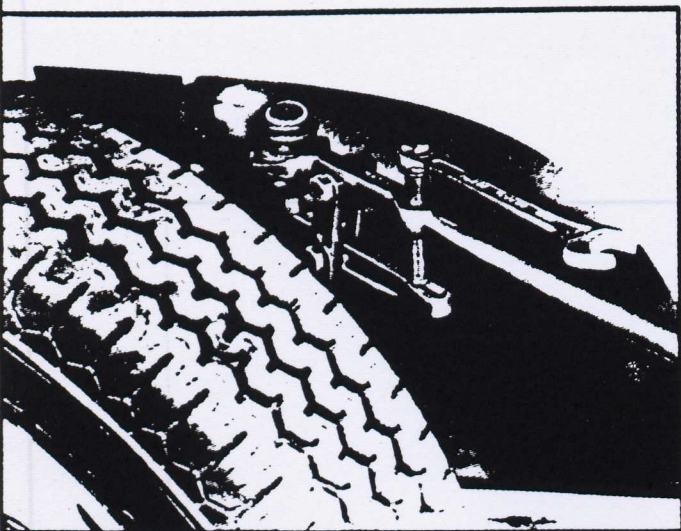
5.5 m.daN (55 Nm, 41 lbf ft)

Bolt, steering column universal joint :

2.5 m.daN (25 Nm, 18 lbf ft).



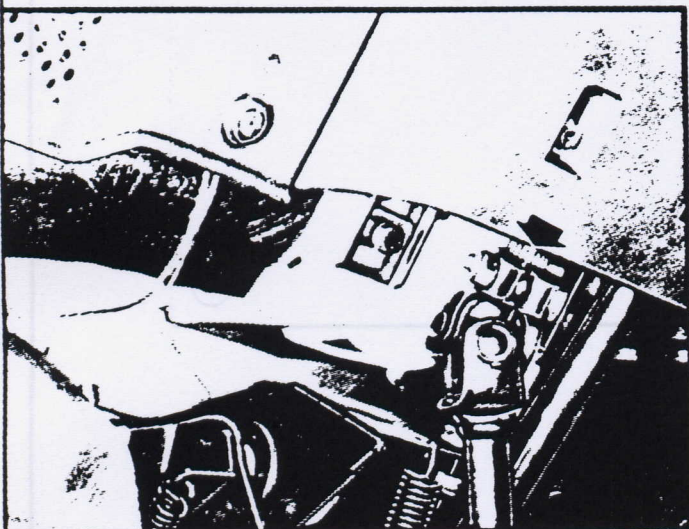
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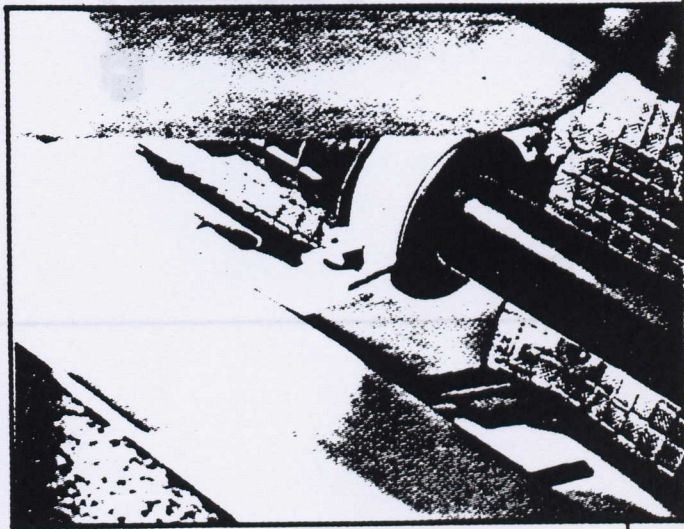
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IV



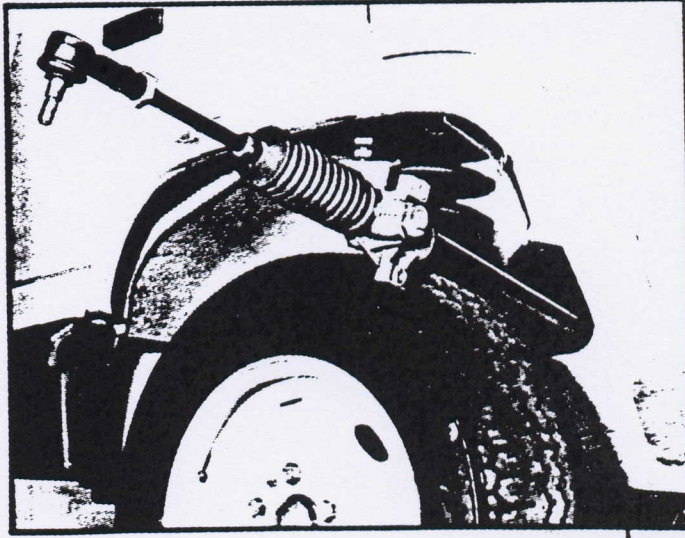
II



V



III



VI

**STEERING
RACK ASSEMBLY
REMOVING - REFITTING**

7

A4.005

These operations are to be carried out on a lift.

REMOVING

From one side of the vehicle :

Turn the steering to full right lock.

Remove the nut from the steering arm ball joint.

Use extractor 8.0709 to disconnect the ball joint fig. I.

Repeat the operations on the other side.

Remove the lower universal joint securing bolt, fig. IV.

Remove the column lower shaft together with the plate and the boot.

Inside the vehicle :

Remove the steering column upper universal joint securing bolt, fig. II.

Lift the column by the steering wheel to disconnect the universal joint.

Under the vehicle :

Remove the bolts, fig. V, securing the steering rack to the body.

Remove the steering column lower cover bolts, fig. III.

Lift off the plate and the protective bolt.

Withdraw the steering rack sideways fig. VI.

**STEERING
RACK ASSEMBLY
REMOVING - REFITTING**

Refit the steering rack by carrying out the removal operations in reverse.

REFITTING

SPECIAL POINTS

Tightening torque :

Ball joint shank nuts, fig. I : 5,5 m.daN (55 Nm, 41 lbf ft).

NOTE - Even if only one steering link has been replaced, or if its adjustment has been altered, reset its length.

Steering link length initial adjustment :

dimension a = 322 mm.

IMPORTANT - If this operation is carried out, re-adjust the toe-in.

Refer to the relevant section.

Connecting up the lower universal joint.

Remove the boot retaining clip, on the left hand side.

Pull back the boot.

Turn the steering, fig. II, until dimension :
x = 76 mm.

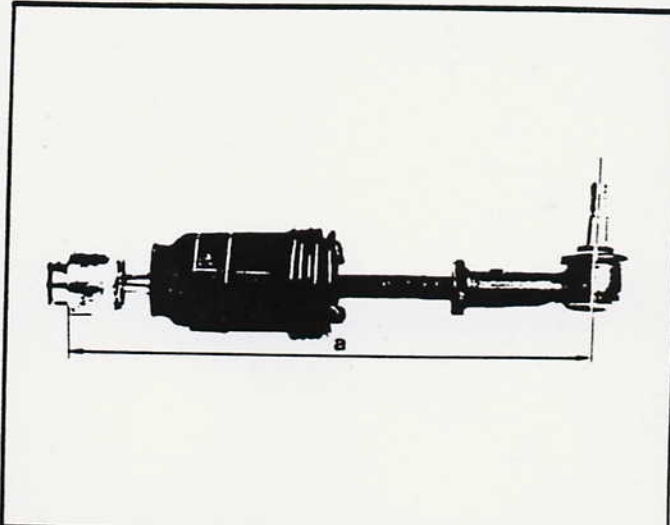
This places the steering rack in the "straight ahead" position.

With the steering wheel and the road wheels in the "straight ahead" position, fig. III, connect up the lower universal joint.

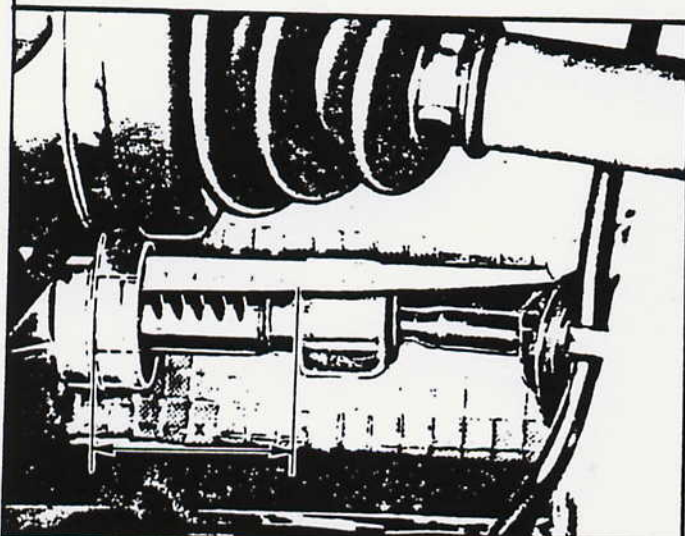
Steering column universal joint tightening torque : 2.5 m.daN (25 Nm, 18 lbf ft).



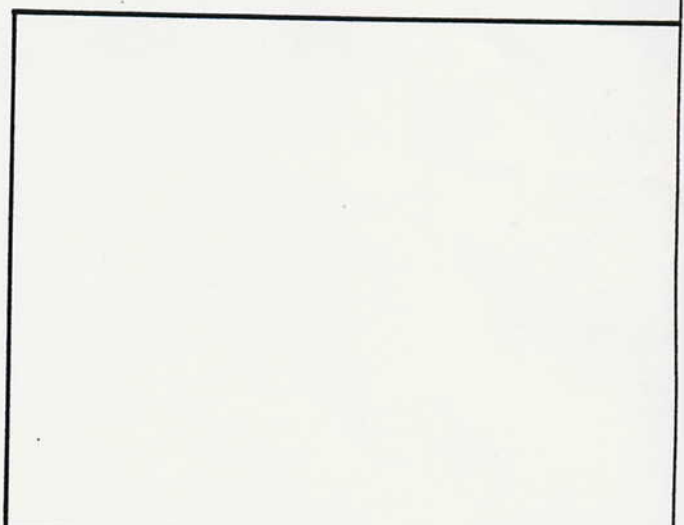
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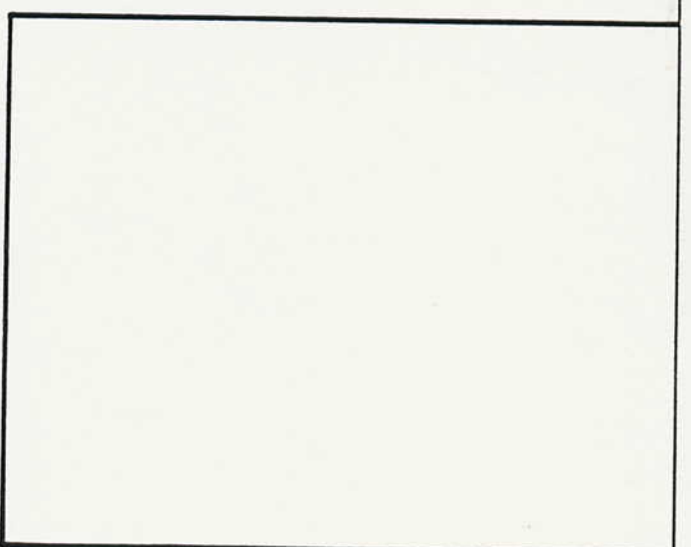
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VI

**STEERING
STEERING COLUMN LOCK
REMOVING - REFITTING**

I - If the ignition key is available

REMOVING

Disconnect the battery negative lead.

Remove the lower cowl (5) and lift the upper cowl (6) : fig. I (7 screws (→)).

Disconnect :

- the wiring from the steering lock unit and remove the connector (11) : fig. (see note),
- the 4 flat plugs on the junction box, figs. II and IV, by depressing the studs (→).

Remove screw (7) : Fig. III.

Place the ignition key in the on position.

Free the steering lock (8) whilst pressing in the spring loaded stop (9) : fig. III.

Remove the electrical connector (11) (if necessary), fig. V.

Remove the ignition key.

Remove the two securing screws and remove the connector (11) from the mechanical assembly (10).

Place the connector (11) on the lock assembly (10), fig. V.

Place the ignition key in the on position.

Insert the steering lock assembly whilst pressing in the spring loaded stop (9), fig. III.

Secure the steering lock in place (screw (7)).

Insert the flat plugs into the junction box and check that they are correctly connected, fig. II and IV.

CONNECTIONS : fig. II

Line 1 - brown wire lighting switch.

Line 2 - black wire 15 supply from the ignition switch

Line 3 - black wire 30 supply from the battery

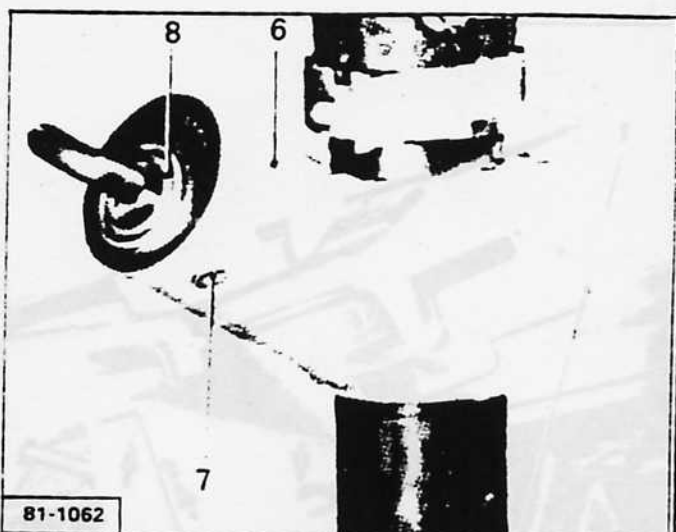
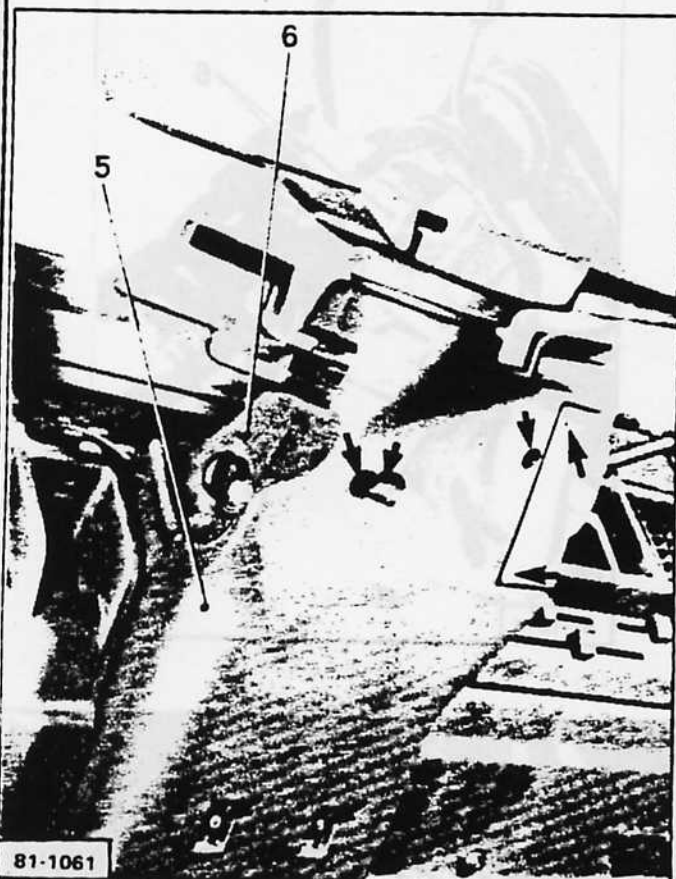
Line 4 - red wire 50 starter solenoid.

Connect the steering lock junction box to the wiring harness (see note).

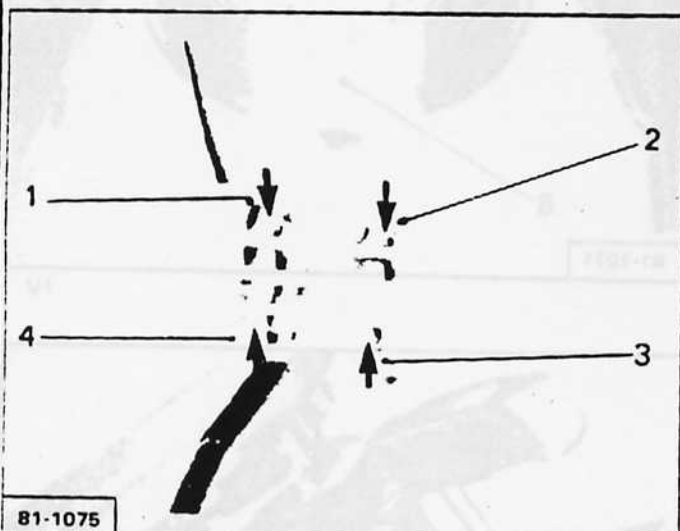
Reposition the upper cowl (6) : fig. I

Refit the lower cowl : fig. I (7 screws (→)).

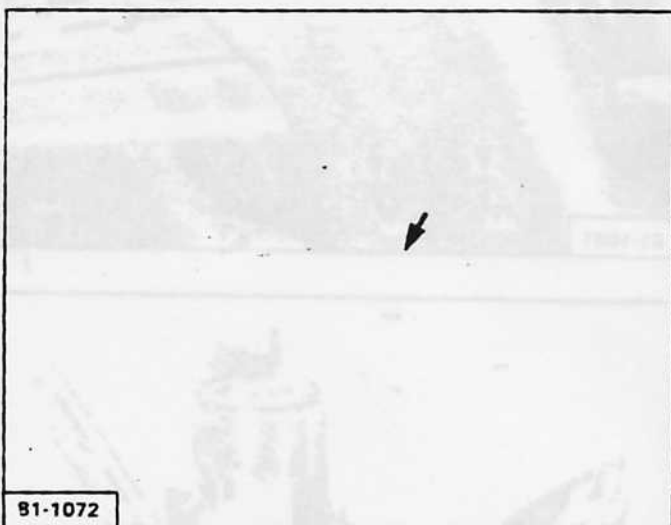
Reconnect the battery negative lead.



III



II



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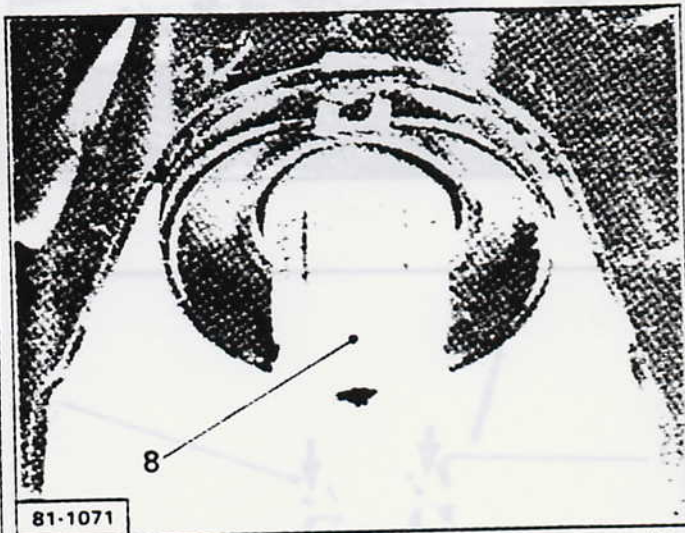
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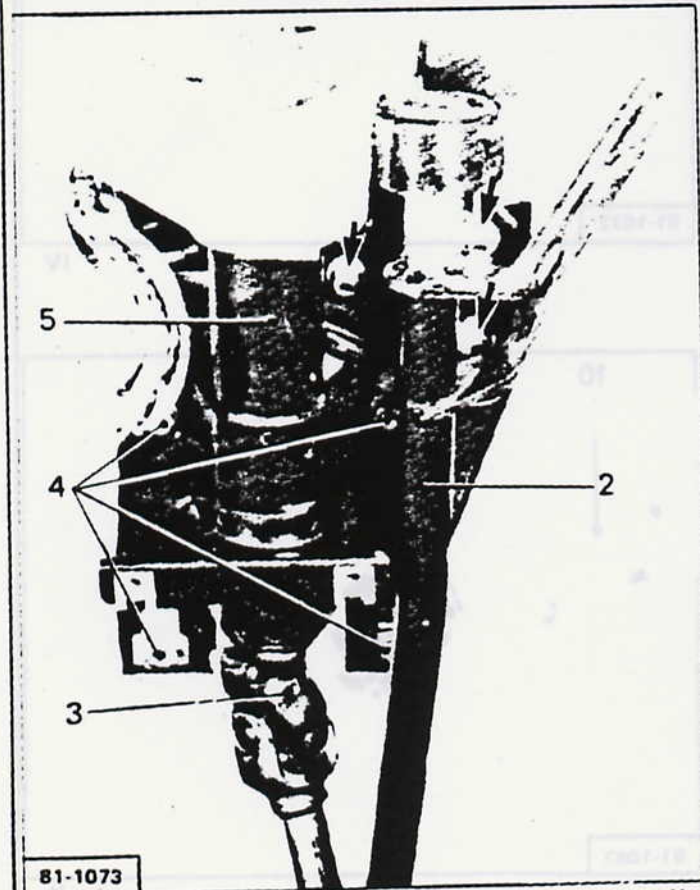
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III



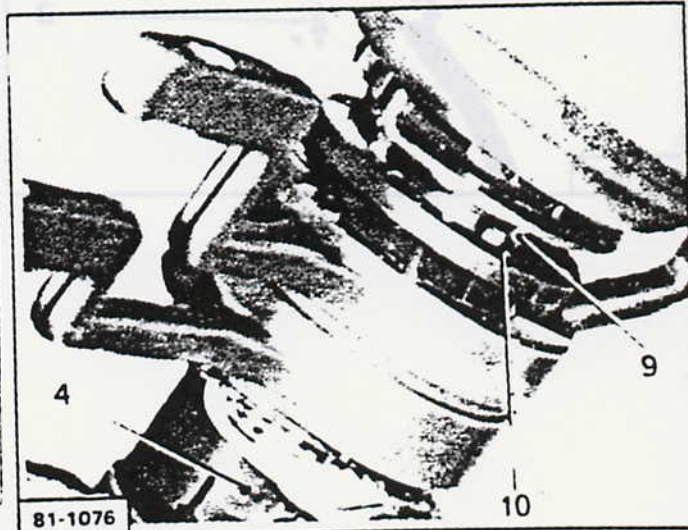
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IV



81-1073

II



81-1076

V

II - If the ignition key is not available

REMOVING

Disconnect the battery negative lead.

Remove the lower cowl (1), fig. I (7 screws (→)).

Release the gear shift control (2) fig. II (4 nuts (→)).

Disconnect the wiring harness from the ignition switch and the direction indicator control under the steering wheel.

Remove the bolt (3) : fig. II.

Remove : fig. II :

- the nuts and bolts (4),
- the steering column (5), together with the steering lock.

Remove the heads from the bolts (6), fig. III, on the steering lock support (7) by drilling down their centres (Ø 8 mm).

TO FIT

Place the bracket and the steering lock on the steering column.

Check that the steering lock operates correctly, then shear the bolt heads (6), fig. III.

Fit the steering column (6) to the vehicle and fit the bolts (4) without tightening them, fig. II.

Place the wheels in the "straight ahead" position and set the position of the steering wheel to suit.

Fit the splined shaft into the universal joint (it will only enter in one position) and secure it in place (fig. IV).

Lift the steering column (5) fig. V, so that stud (9) enters hole (10), fig. V (direction indicator switch zeroing system) and tighten the bolts (4), fig. II.

Fit the gear shift control (2) (4 nuts→), fig. II.

Connect up the wiring harnesses.

Refit the lower cowl (1), fig. I (7 screws→)).

Reconnect the battery negative lead.

Assemble the components with grease (about 1/5 of a tube of grease as supplied by the Parts Department).

REPLACING THE BEARINGS AND PINION

DIMANTLING

With the rack removed.

- Remove fig. I :
 - the lock nut A and the adjusting plug B,
 - the rack damper C.
- Punch two diametrically opposite holes in the pinion lip seal, using a fine, tapered punch.
- Use tool 0.0709 (see illustration in section 15) to extract the lip seal fig. II.
- Remove :
 - the circlip retaining the bearing,
 - the adjusting shim.
- Use a press to remove the pinion with the bearings fig. III.

The maximum diameter of the drift to press on the outer race of the needle roller bearing is 15 mm.

ASSEMBLING

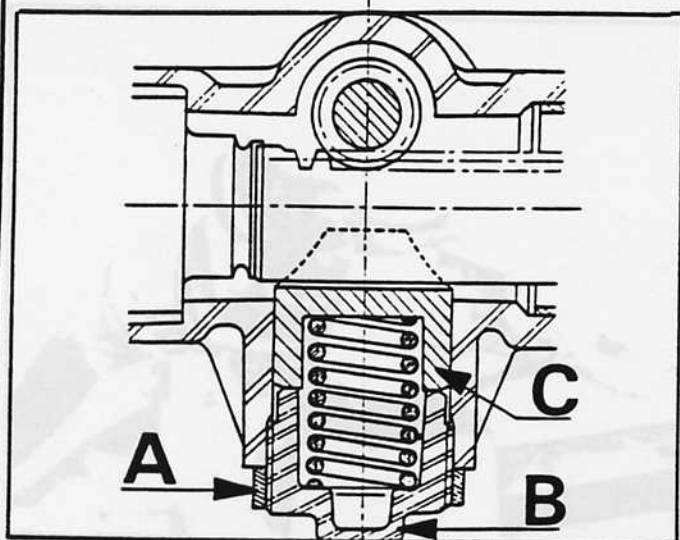
- Position the new needle roller bearing by hand, using a drift, of 22 mm maximum diameter to drive it in fig. IV until it butts.
- Insert 80 cm³ of grease into the pinion housing (about 4/5 of the tube supplied by the Parts Department).
- Fit the pinion fig. V (supplied pre-assembled with its bearing).

Use a plastic mallet to drive it in until it butts.

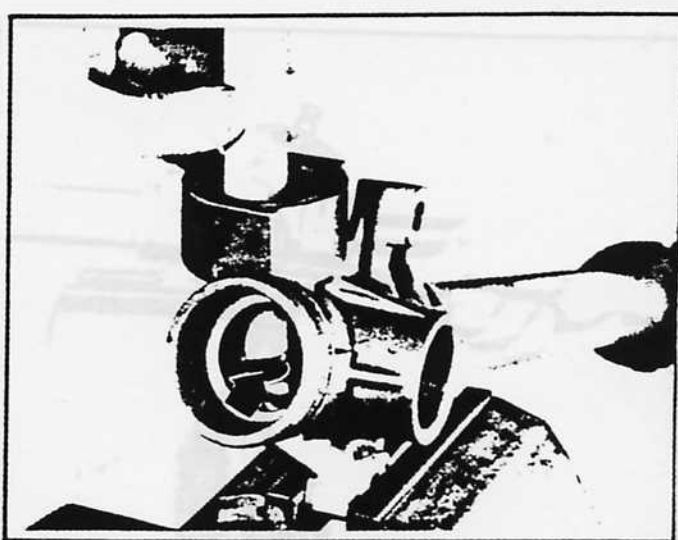
- Determine the thickness of the bearing adjustment shim (supplied in sets of 3 thicknesses : 0,05 - 0,10 and 0,15 mm),
 - fit the thickest shim and fit the circlip, if possible,
 - if not, fit the next thinner shim.
- Fit the circlip.
- Lubricate the seal (exterior and lips) and place it in position fig. VI :

Use a 41 mm diameter tube to drive it in until it is just flush with the housing, or tap it in on its circumference.

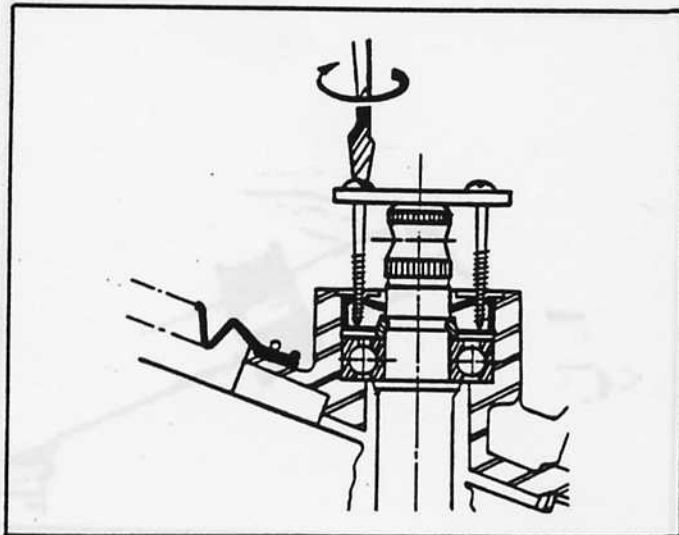
- Adjust the damper, see the following pages.



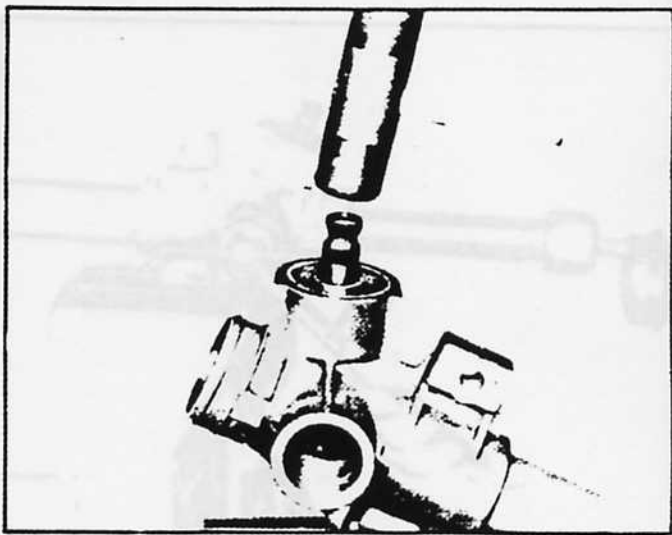
I A 4107



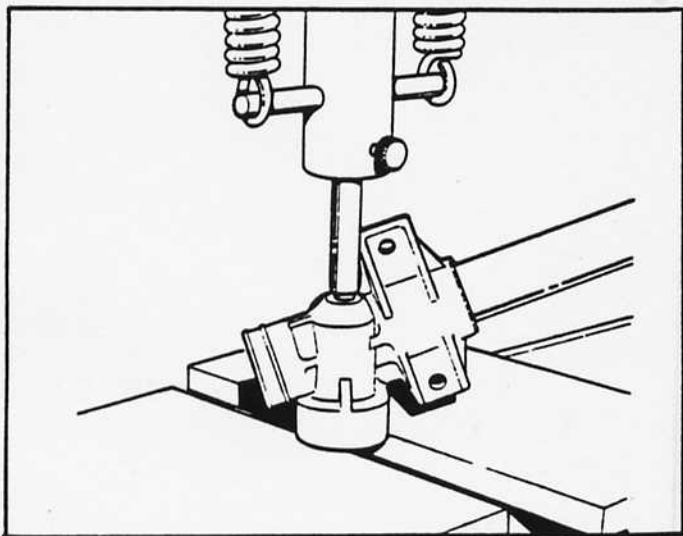
IV 27-10-81-P16-R-A



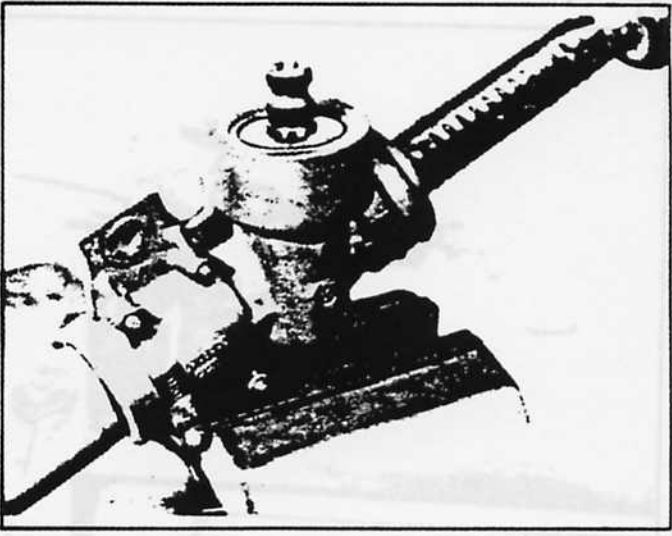
I 26-5-82-6A



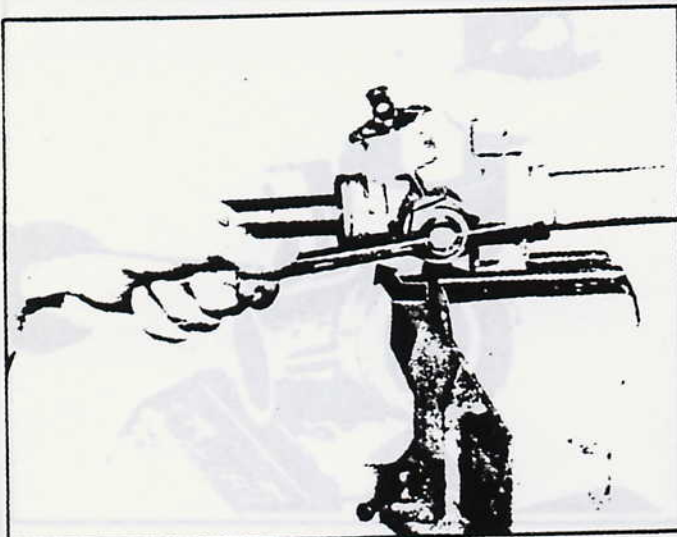
V 27-10-81-P13-R-A



III A 4113



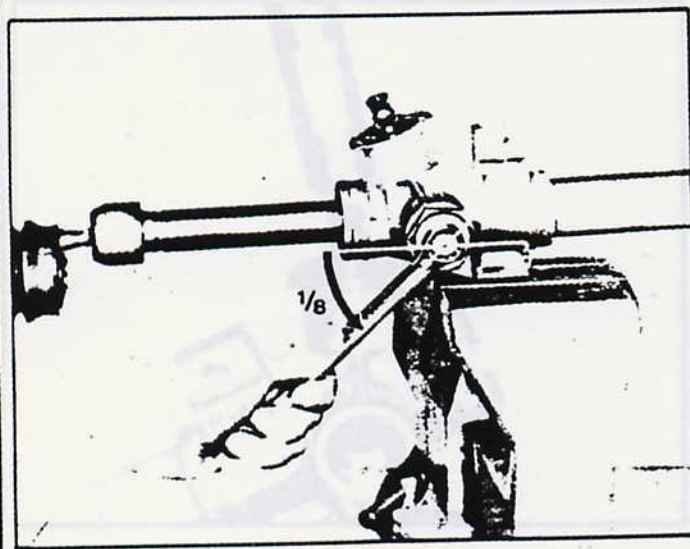
VI 27-10-81-P17-R-A



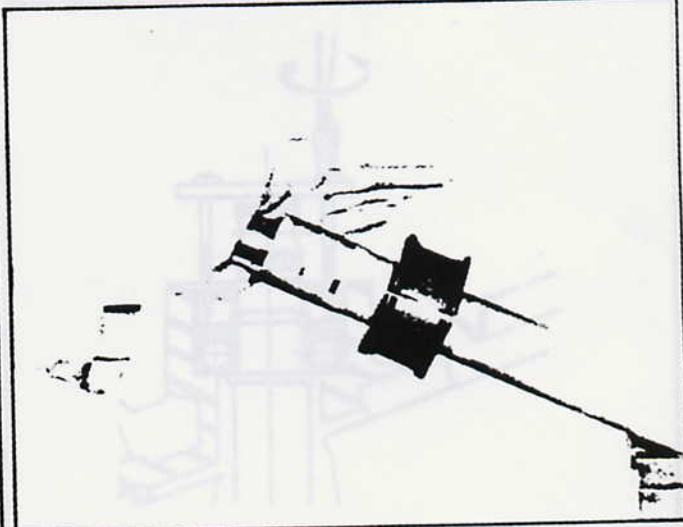
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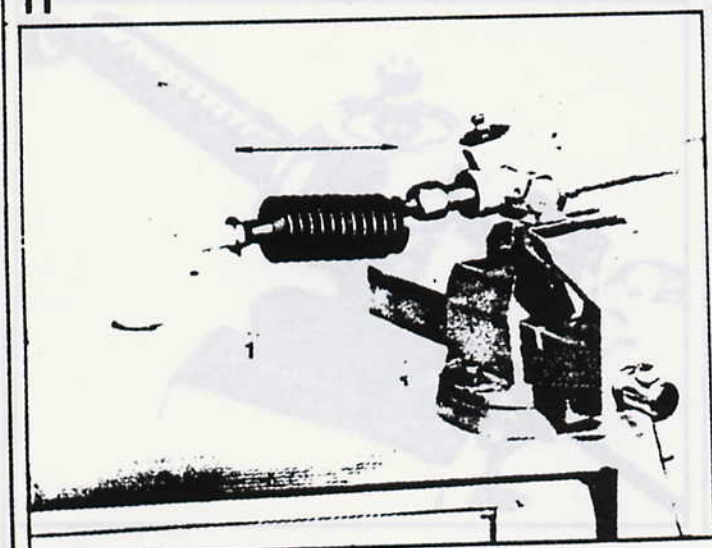
27-10-81-P11-R-A



27-10-81-P9-R-A



27-10-81-P14-R-A



27-10-81-P8-R-A

DAMPER CLEARANCE

With the rack removed.

- Place lubricated damper in its housing.
- Place the spring in the damper.
- Fit the adjusting plug over the spring followed by the lock nut.
- Tighten the plug moderately to fully bed the damper on to the rack fig. I.

- Unscrew the plug by 1/8 turn fig. II.
- Push and pull the rack from stop to stop, as illustrated in fig. III.

There must not be any hard point during this movement.

- If there is, unscrew the plug 1/8 turn at a time until the hard point disappears.

Generally, the final adjustment is between 1/4 and 1/2 turn back. If more than 1/2 turn is required, check for foreign bodies between the damper and the rack or between the pinion and rack or replace the rack (distortion).

- Tighten the lock nut (1) to 6 m.daN (44 lbf ft) while holding the adjusting plug (spanner end 41 mm FACOM).

REPLACING THE RACK BEARING

With the rack removed.

- Remove (see previous operations) :
 - the damper,
 - the pinion,
 - the rack.
- Use a screwdriver fig. IV to prise the bearing from the housing.

- Lubricate the new bearing liberally and push it into position fig. V.

Use a 32 mm drift to position it correctly in the lugs of the rack tube.

- Lubricate and refit (see previous operations) :
 - the rack,
 - the pinion, order immaterial
 - the damper.
- Adjust the damper, see operation in opposite column.

SPECIAL TOOLS

Fig. A

8.0708

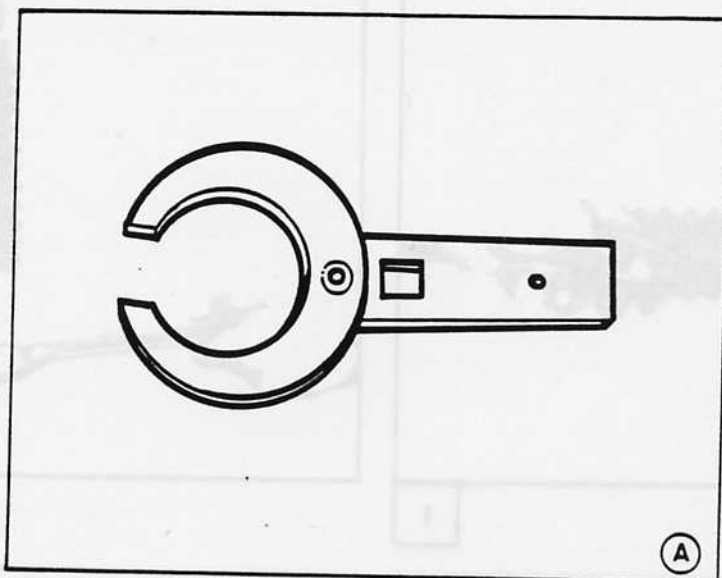
- Spanner for steering tie rod ball joints, steering box end.

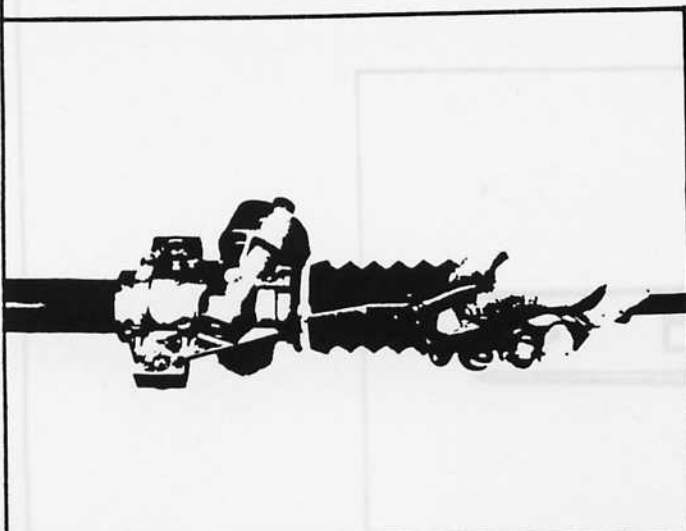
RECOMMENDED TOOLS

- "Facom S 203" torque wrench.
- 32 mm open ended spanner end fitting.
- End fitting extension.

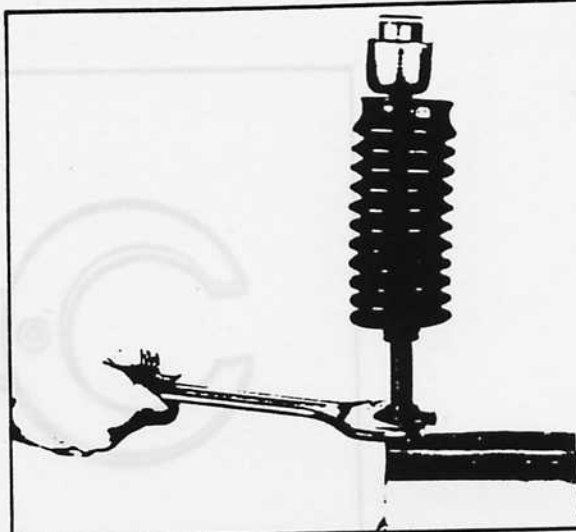
MAIN TIGHTENING TORQUES

Steering tie rod ball joint at rack the end : 6 m.daN (60 Nm, 44 lbf ft).

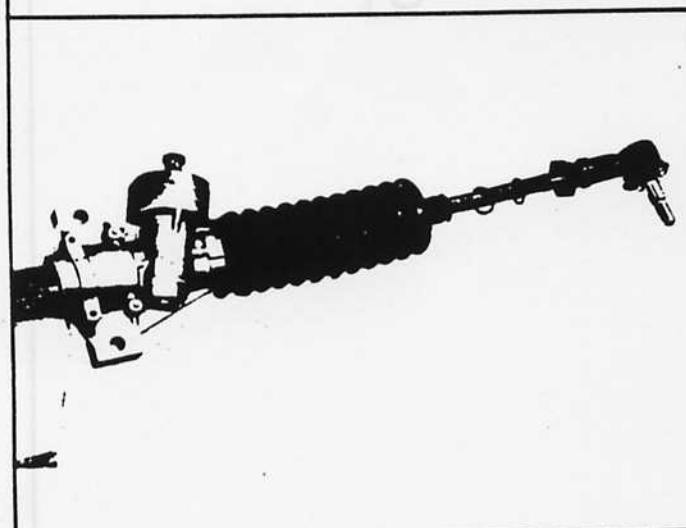




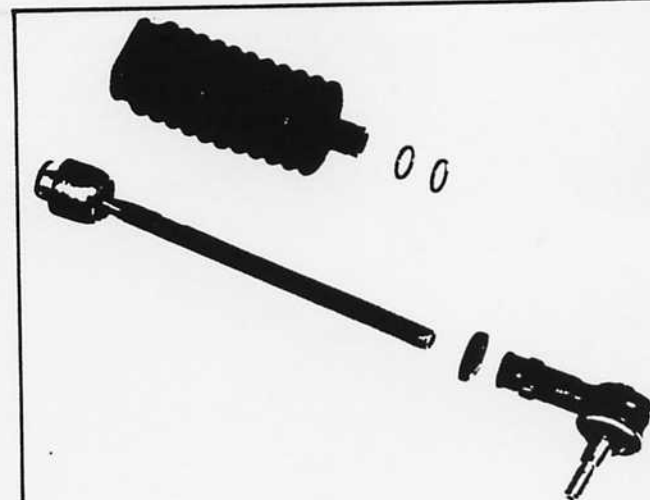
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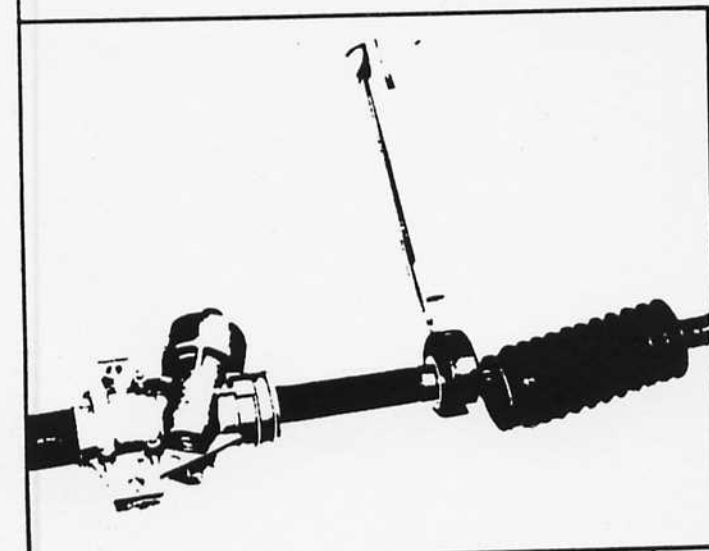
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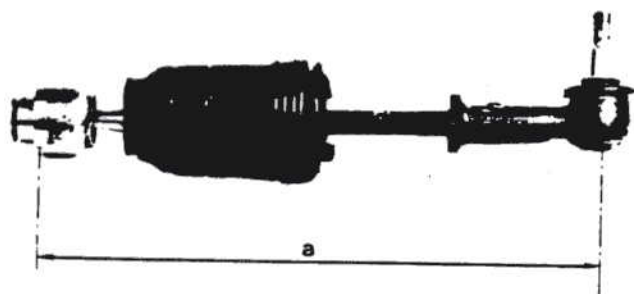
III

Because it is impossible to correctly lock the ball joint casing at the rack end while it is on the vehicle, the operation of removing and refitting the steering tie rods must be done as a bench operation with the steering rack assembly removed from the vehicle.

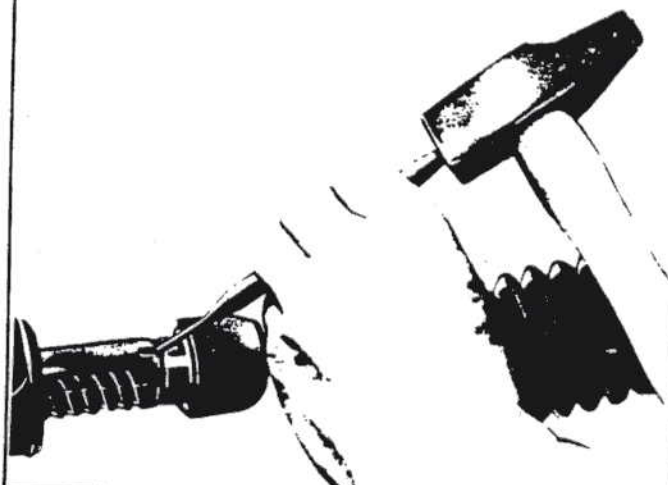
As the assembly is locked by folding down the metal tongue of the ball joint casing, the ball joint must be replaced by a new one every time it is removed.

REMOVING

- Grip the rack in a vice.
 - Remove the clip that retains the ball joint boot at the steering box end, fig. I.
 - Roll back the two rubber rings, fig. II, that secure the boot the the steering tie rod.
 - Pull back the boot.
 - Unscrew the ball joint casing at steering box end, fig. III, using spanner 8.0708.
 - Remove the steering tie rod.
 - Loosen the toe-in adjusting lock nut, fig. IV.
 - Remove the components, fig. V.
- IMPORTANT** - A steering tie rod must be replaced by a new one every time it is removed from the steering rack.



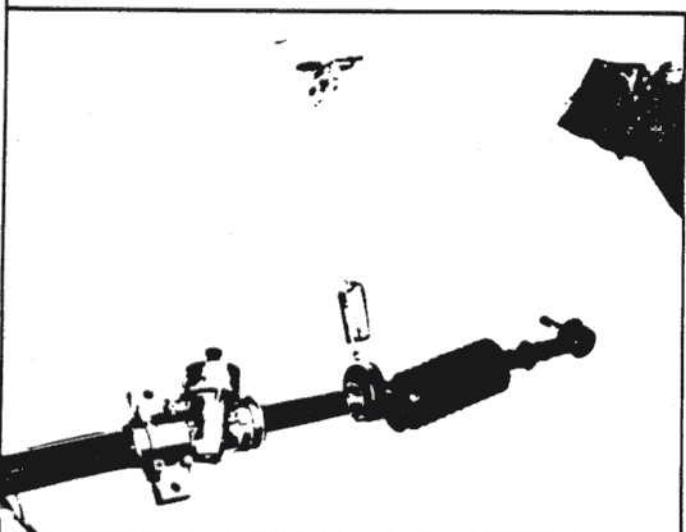
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III